

OSCAR Bioenergy Joint Venture

Contract No. EP/SP/61/10  
Organic Waste Treatment Facilities  
Phase 1:  
*Forth Monthly EM&A Report*

1 September 2015 – 30 September 2015

**Environmental Resources Management**

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Meinhardt Infrastructure and Environment Limited

**Organic Waste Treatment Facilities,  
Phase I**

Monthly EM&A Report  
(1 September 2015 – 30 September 2015)

(October 2015)

Verified by:           Helen Cochrane           

Position: Independent Environmental Checker


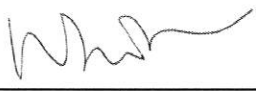

Date:           14 Oct 2015

OSCAR Bioenergy Joint Venture

Contract No. EP/SP/61/10  
Organic Waste Treatment Facilities  
Phase 1:  
*Forth Monthly EM&A Report*

1 September 2015 – 31 September 2015

Reference 0279222

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Certified by:	
	(Environmental Team Leader – Winnie Ko)
Certified by:	
	(Registered Landscape Architect No. R-150 - Albert Chung)
Date:	14 October 2015

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## EXECUTIVE SUMMARY

The construction works of *No. EP/SP/61/10 Organic Waste Treatment Facilities Phase I (the Project)* commenced on 21 May 2015. This is the 4<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 September 2015 to 30 September 2015 in accordance with the EM&A Manual.

### Summary of Construction Works undertaken during the Reporting Month

Works undertaken in the reporting month included:

- Excavation Works for Building 1 and Building 2;
- Construction Works for Building 2; and
- AD Tank Foundation.

### Environmental Monitoring and Audit Progress

A summary of the monitoring activities undertaken in this reporting period is listed below:

- Joint Environmental Site Inspection 4 times
- Landscape & Visual Monitoring 2 times

### Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction wastes).

Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 5,467.05 tonnes of inert C&D material were generated from the Project, of which 0.00 tonnes were reused in this Contract and the remaining 5,467.05 tonnes were disposed as public fill to Fill Banks at Tuen Mun Area 38 and Tseung Kwan O Area 137.

Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. 0.00 kg of metals, papers/ cardboard packing and plastics were sent to recyclers for recycling during the reporting period. 83.81 tonnes of general refuse was disposed as landfill.

### Environmental Site Inspection

Four weekly joint environmental site inspections were carried out by the representatives of the Contractor, SOR and the Environmental Team (ET). The IEC was also present at the joint inspection on 16 September 2015. Details of the audit findings and implementation status of the mitigation measures are presented in *Section 6.1*.

### Landscape & Visual

An onsite inspection on landscape and visual mitigation measures was performed on 11 and 25 September 2015. Details of the audit findings and implementation status of the mitigation measures are presented in *Sections 6.2*.

### Environmental Exceedance/Non-conformance/Compliant/Summons and Prosecution

No exceedance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

### Future Key Issues

Works to be undertaken in the next reporting month include:

- Excavation Works for Building 1;
- Raft Foundation Footing Works for Building 2;
- Construction Works for Leachate Tank;
- Excavation Works for AD Tank; and
- Loading Test for Ammonia Stripping Plant.

Environmental impacts arising from the above construction activities are mainly associated with dust, construction noise, site runoffs, waste management and landscaping issues.

# 1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by OSCAR Bioenergy Joint Venture (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the *Contract No. EP/SP/61/10 of Organic Waste Treatment Facilities Phase I (the Project)*.

## 1.1 PURPOSE OF THE REPORT

This is the 4<sup>th</sup> EM&A report which summarises the monitoring results and audit findings for the EM&A programme during the reporting period from 1 to 30 September 2015.

## 1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

### Section 1: **Introduction**

It details the scope and structure of the report.

### Section 2: **Project Information**

It summarises the background and scope of the Project, site description, project organization, construction programme, construction works undertaken and status of the Environmental Permits (EP)/licences over the construction phase of the Project.

### Section 3: **Environmental Monitoring Requirements**

It summarises the environmental monitoring requirements including monitoring parameters, programmes, methodologies, frequency, locations, Action and Limit Levels, Event/ Action Plans, environmental mitigation measures as recommended in the EM&A Manual and approved EIA report.

### Section 4: **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

### Section 5: **Waste Management**

It summarises the quantity of public fill and construction waste generated in the reporting period

### Section 6: **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

### Section 7: **Environmental Non-conformance**



It summarises any exceedance of environmental performance standard, environmental complaints and summons received within the reporting period.

Section 8: **Further Key Issues**

It summarises the impact forecast and monitoring schedule for the next reporting month.

Section 9: **Conclusions**

**2.1****BACKGROUND**

The Organic Waste Treatment Facilities (OWTF) Phase I development (hereinafter referred to as “the Project”) is to design, construct and operate a biological treatment facility with a capacity of about 200 tonnes per day and convert source-separated organic waste from commercial and industrial sectors (mostly food waste) into compost and biogas through proven biological treatment technologies.

The environmental acceptability of the construction and operation of the Project had been confirmed by findings of the associated Environmental Impact Assessment (EIA) Study completed in 2009. The Director of Environmental Protection approved this EIA Report under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) in February 2010 (Register No.: AEIAR-149/2010) (hereafter referred to as the approved EIA Report). Subsequent Report on Re-assessment on Environmental Implications and Report on Re-assessment on Hazard to Life Implications were completed in 2013, respectively.

An Environmental Permit (EP) (No. EP-395/2010) was issued by the Environmental Protection Department (EPD) to the EPD, the Permit Holder, on 21 June 2010 and varied on 18 March 2013 (No. EP-395/2010/A) and 21 May 2013 (No. EP-395/2010/B), respectively. The Design Build and Operate Contract for the OWTF (Contract No. EP/SP/61/10 Organic Waste Treatment Facilities Phase I (the Contract)) was awarded to SITA Waste Services Limited, ATAL Engineering Limited and Ros-Roca, Sociedad Anonima jointly trading as the OSCAR Bioenergy Joint Venture (OSCAR or the Contractor). A Further EP (No. FEP-01/395/2010/B) was issued by the EPD to the OSCAR on 16 February 2015.

Under the requirements of Condition 5 of the EP (No. FEP-01/395/2010/B), an Environmental Monitoring and Audit (EM&A) programme as set out in the Agreement No. CE7/2008 (EP) EM&A Manual (hereinafter referred to as EM&A Manual) is required to be implemented. ERM-Hong Kong, Ltd (ERM) has been appointed by OSCAR as the Environmental Team (ET) to undertake the EM&A programme for the Contract.

The construction works commenced on 21 May 2015 and are scheduled for completion by April 2017.

**2.2****GENERAL SITE DESCRIPTION**

The Project Site is located at Siu Ho Wan in North Lantau with an area of about 2 hectares. The layout of the Project Site is illustrated in *Annex A*.

## 2.3 CONSTRUCTION ACTIVITIES

A summary of the major construction activities undertaken in the reporting period is shown in *Table 2.1*. The locations of the construction activities are shown in *Annex B*. The construction programme of the Project is presented in *Annex C*.

**Table 2.1** *Summary of Construction Activities Undertaken in the Reporting Period*

<b>Construction Activities Undertaken</b>
<ul style="list-style-type: none"> <li>• Excavation Works for Building 1 and Building 2</li> <li>• Construction Works for Building 2</li> <li>• AD Tank Foundation</li> </ul>

## 2.4 PROJECT ORGANISATION AND MANAGEMENT STRUCTURE

The project organisation chart and contact details are shown in *Annex D*.

## 2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the valid permits, licences, and/or notifications on environmental protection for this Project is presented in *Table 2.2*.

**Table 2.2** *Summary of Environmental Licensing, Notification and Permit Status*

<b>Permit/ Licences/ Notification</b>	<b>Reference</b>	<b>Validity Period</b>	<b>Remarks</b>
Environmental Permit	FEP-01/395/2010/B	Throughout the Contract	Permit granted on 16 February 2015
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation	Ref No. 386715	Throughout the Contract	-
Effluent Discharge License	WT00021482-2015	21 May 2015 - 31 May 2020	Approved on 21 May 2015
Construction Noise Permit	GW-RW0396-15	1 April 2015 - 14 January 2016	-
Chemical Waste Producer Registration	WPN 5213-961-O2231-01	Throughout the Contract	Approved on 29 April 2015
Waste Disposal Billing Account	Account number: 702310	Throughout the Contract	-

***ENVIRONMENTAL MONITORING REQUIREMENT, ENVIRONMENTAL MITIGATION MEASURES***

All the relevant environmental mitigation measures listed in the EIA Report and EM&A Manual are summarised in *Annex E*.

According to the EM&A Manual and EP requirement, no air quality, noise and water quality monitoring is required.

Bi-weekly landscape and visual audit is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved.

**IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION  
REQUIREMENTS**

The Contractor has implemented environmental mitigation measures and requirements as stated in the approved EIA Report and EM&A Manual. The implementation status of the measures during the reporting period is summarised in *Annex E*.

Wastes generated from this Project include inert construction and demolition (C&D) materials (public fill) and non-inert C&D materials (construction waste). Construction waste comprises general refuse, metals and paper/cardboard packaging materials. Metals generated from the Project are also grouped into construction waste as the materials were not disposed of with others at public fill. Reference has been made to the Monthly Summary Waste Flow Table prepared by the Contractor (see *Annex F*). With reference to the relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.1*.

**Table 5.1** *Quantities of Waste Generated from the Project*

Month/Year	Quantity			
	Total Inert C&D Materials Generated <sup>(a)</sup>	Non-inert C&D Materials <sup>(b)</sup>		
		C&D Materials Recycled <sup>(c)</sup>	C&D Waste Disposed of at Landfill <sup>(d)</sup>	Chemical Waste
September 2015	5467.05 tonnes	0.00 kg	83.81 tonnes	0 L

**Notes:**

- (a) Inert C&D materials (public fill) include bricks, concrete, building debris, rubble and excavated spoil. In total, 5467.05 tonnes of inert C&D material were generated from the Project, of which 0.00 tonnes were reused in this Contract and the remaining 5467.05 tonnes were disposed as public fill to Fill Banks at Tuen Mun Area 38 and Tseung Kwan O Area 137. The detailed waste flow is presented in *Annex F*.
- (b) Non-inert C&D materials (construction wastes) include metals, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Metals generated from the Project were grouped into construction wastes as the materials were not disposed of with others at the public fill.
- (c) 0.00 kg of metals, 0.00 kg of papers/ cardboard packing and 0.00 kg of plastics were sent to recyclers for recycling during the reporting period.
- (d) Construction wastes other than metals, paper/cardboard packaging, plastics and chemicals were disposed of at NENT Landfill by subcontractors.

### 6.1 WEEKLY SITE AUDITS

Joint site inspections were conducted by representatives of the Contractor, the ER, IC and the ET on 4, 11, 16 and 25 September 2015. The IEC was also present at the joint inspection on 16 September 2015. Follow-up actions resulting from the last site inspections were taken as reported by the Contractor and their results were observed in the site inspections conducted in the reporting period.

Major observations during the reporting period are summarised as follows:

*4 September 2015*

- A drip tray of a generator near Building 2 area was found to be containing pond water. It was recommended to clear the pond water in the drip tray.

*11 September 2015*

- Vehicle road was found to be dry and dusty in condition. It was recommended to spray water to prevent dry and dusty condition.

*16 September 2015*

- Chemical containers inside the chemical waste storage area were found to be without chemical waste label. It was recommended to provide corresponding chemical waste label for them.

*25 September 2015*

- Pond water was found in the tray under the chemical container near the chemical storage area. It was recommended to clear the pond water regularly, especially after raining.


### 6.2 LANDSCAPE AND VISUAL AUDIT

In accordance with the EM&A Manual, bi-weekly landscape and visual inspection is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures recommended in the EIA Report are fully achieved. An onsite inspection of the landscape and visual mitigation measures was performed on 11 and 25 September 2015.

Follow-up actions resulting from the last site inspections were taken as reported by the Contractor and their results were observed in the site inspections conducted in the reporting period.

It was confirmed that most of the necessary landscape and visual mitigation measures as summarised in *Annex E* were implemented by the Contractor.

The major findings are summarised as follows:

Item	Observation & Recommendation	Photo Record
<i>11 September 2015</i>		
1.	No observation was recorded.	
<i>25 September 2015</i>		
1.	Water barriers were found to be placed near Tree T2. It is recommended to avoid placing unwanted material near the tree protection zone.	 <p data-bbox="1002 667 1050 696">(T2)</p>



## 7 ENVIRONMENTAL NON-CONFORMANCE

### 7.1 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance event was recorded during the reporting period.

### 7.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting period. The cumulative environmental complaint log is shown in *Annex G*.

### 7.3 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summon/prosecution was received during the reporting period. The cumulative summons/prosecution log is shown in *Annex G*.

## 8 FUTURE KEY ISSUES

### 8.1 KEY ISSUES FOR THE COMING MONTH

Works to be undertaken for the coming monitoring period are summarised in *Table 8.1*.

*Table 8.1 Construction Works to be undertaken in the Next Reporting Period*

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**Construction Activities Undertaken**

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- Excavation Works for Building 1
  - Raft Foundation Footing Works for Building 2
  - Construction Works for Leachate Tank
  - Excavation Works for AD Tank
  - Loading Test for Ammonia Stripping Plant
- 

Potential environmental impacts arising from the above construction activities will be mainly associated with dust, construction noise, site runoffs, waste management and landscaping issues.

### 8.2 CONSTRUCTION PROGRAMME

The most up-to-date construction programme for the Project is presented in *Annex C*.

## CONCLUSIONS

This EM&A Report presents the EM&A programme undertaken during the reporting period from 1 September 2015 to 30 September 2015 in accordance with EM&A Manual and requirements of EP (FEP-01/395/2010/B).

No air quality, noise and water quality monitoring is required.

Bi-weekly landscape and visual monitoring was conducted in the reporting period. Most of the necessary landscape and visual mitigation measures recommended in the EIA Report were implemented by the Contractor. Follow-up actions are required by the Contractor to improve protection of the retained or to-be transplanted trees.

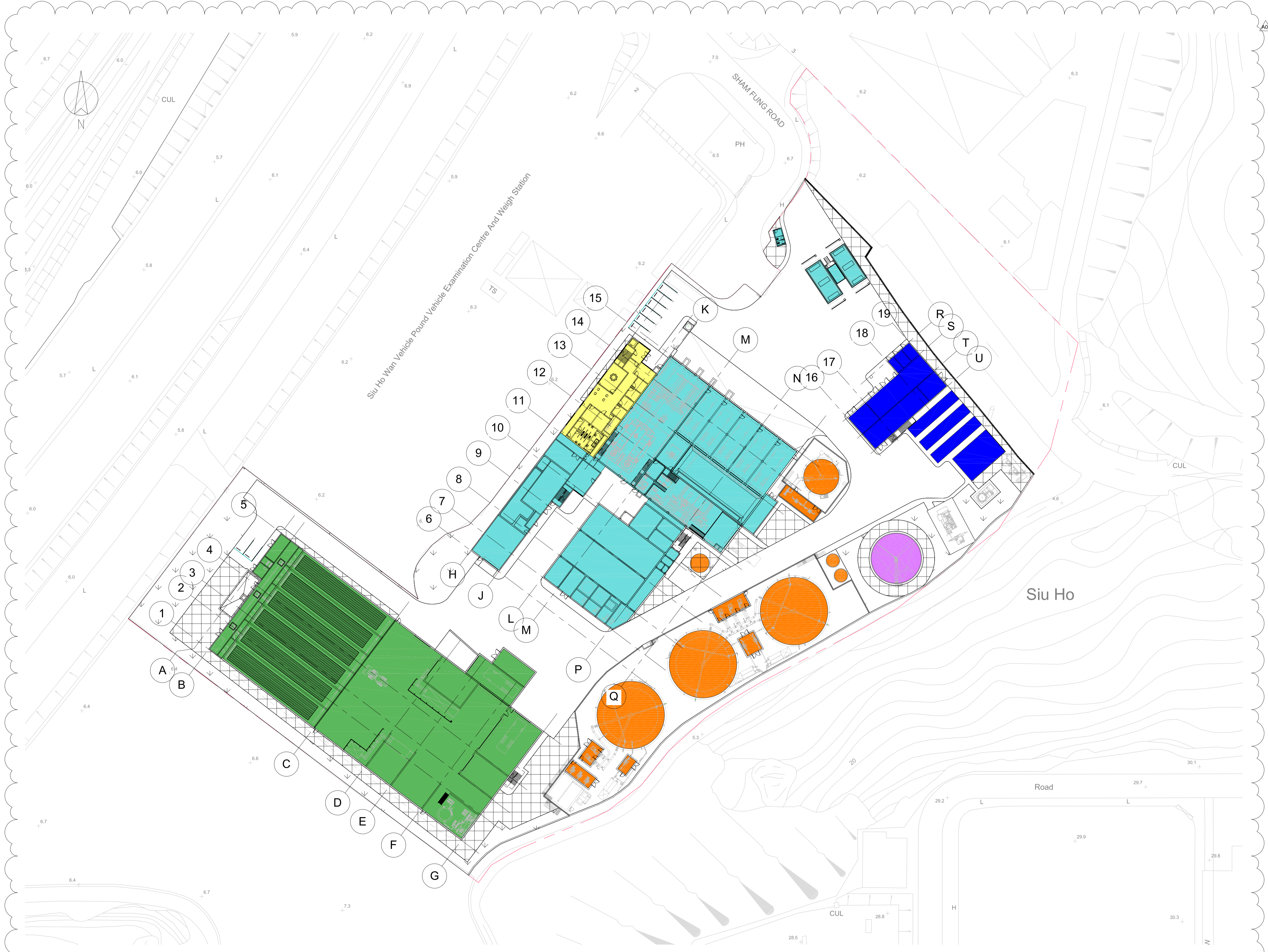
No non-compliance event was recorded during the reporting period.

No complaint and summons/prosecution was received during the reporting period.

The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all the necessary mitigation measures in the coming periods.

Annex A


## Project Layout



A01	05/03/15	CW	MB	IMTECH BACKGROUNDS UPDATED
A00	18/02/15	CW	MB	DRAFT ISSUE
REV	DATE	BY	APP	DESCRIPTION

CLIENT  
 ENVIRONMENTAL PROTECTION DEPARTMENT  
 GOVERNMENT OF THE HKSAR

CLIENT'S CONSULTANT  
  
 AECOM ASIA CO. LTD.

CONTRACTOR  
  
 OSCAR BIOENERGY JV

LEAD DESIGNER  
  
 Ove Arup & Partners Hong Kong Limited

ENVIRONMENTAL TEAM  
  
 ERM HONG KONG LIMITED

INDEPENDENT CONSULTANTS  
  
 Meinhardt Infrastructure and Environment Limited  
 邁達基建環保工程顧問有限公司

PROJECT  
 ORGANIC WASTE TREATMENT FACILITIES  
 PHASE 1  
 EP/SP/61/10

STATUS  
 DRAFT ISSUE

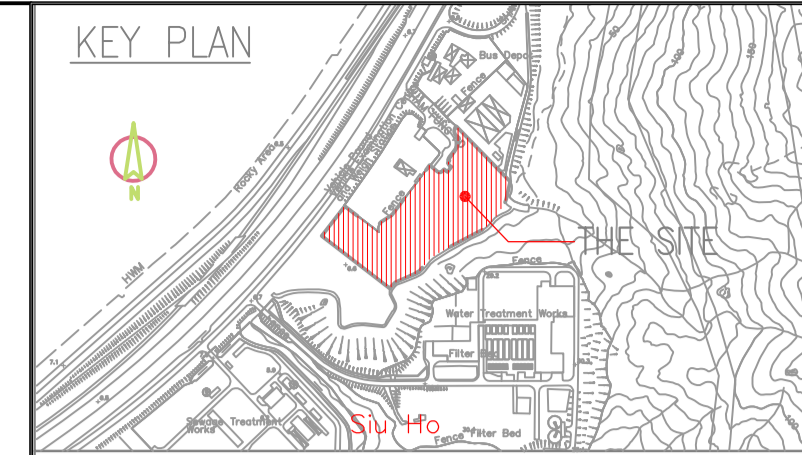
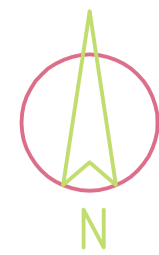
DRAWING TITLE  
 SITE LAYOUT

DRAWN	CW	CHECKED	RS	APPROVED	DP
SCALE	1:500@A1 / 1:1000@A3		DATE	12/02/15	
JOB NO.	239956	DRAWING NO.	DR-OAP-20-0-CA-1001	REV.	A01

Plot Time: 05/03/15 21:20:07  
 Plot Location: C:\Users\matthew.brown\Documents\QWTF\_Architectural Working Model (Combined) - CEH\_matthew.brown.rvt

Annex B

## Works Location



**LEGEND**

- SITE BOUNDARY
- T T T T T PROPOSED HOARDING TYPE 1
- +++++ EXISTING CHAIN-LINK FENCE
- ~~~~~ PROPOSED 6 m TYPE II SHEET PILE PLANKING WALL WITH 3 m EXTRUDED ABOVE GROUND
- xxxxx EXISTING FENCE WALL
- - - - DISCHARGE DRAINAGE
- 300mm(W) PROPOSED TEMP. CHANNEL
- 300mm(W) EXISTING U-CHANNEL
- ☒ PROPOSED TEMP. CATCH PIT
- PORTABLE WATER PIPE
- PORTABLE WATER TAPE
- TRAFFIC DIRECTION
- REBAR STORAGE AREA AND BENDING YARD
- GENERAL MATERIAL STORAGE AREA
- C & D MATERIAL STORAGE AREA
- VEHICLE WHEEL WASH
- WATER TREATMENT PLANT

D	18 APR 2015	LL	CL	INCORPORATED NEW LAYOUT
C	9 MAR 2015	LL	CL	CHANGE DISCHARGE POINT
B	16 FEB 2015	LL	CL	ADDED DISCHARGE POINT
A	9 FEB 2015	LL	CL	REVISION A
REV	DATE	BY	APP	DESCRIPTION

CLIENT  
 ENVIRONMENTAL PROTECTION DEPARTMENT  
 GOVERNMENT OF THE HKSAR

CLIENT'S CONSULTANT  
**AECOM**  
 AECOM ASIA CO. LTD.

CONTRACTOR  
  
 OSCAR BIOENERGY JV

LEAD DESIGNER  
**ARUP**  
 Ove Arup & Partners Hong Kong Limited

ENVIRONMENTAL TEAM  
**ERM**  
 ERM HONG KONG LIMITED

INDEPENDENT CONSULTANTS  
**MEINHARDT**  
 Meinhardt Infrastructure and Environment Limited  
 邁進基礎環境工程顧問有限公司

PROJECT  
 ORGANIC WASTE TREATMENT FACILITIES  
 PHASE I  
 EP/SP/61/10

STATUS  
 ISSUED FOR COMMENT

DRAWING TITLE  
**GENERAL SITE LAYOUT PLAN  
 AT PORTION 1**

DRAWN  
 LL

CHECKED  
 CL

APPROVED  
 CL

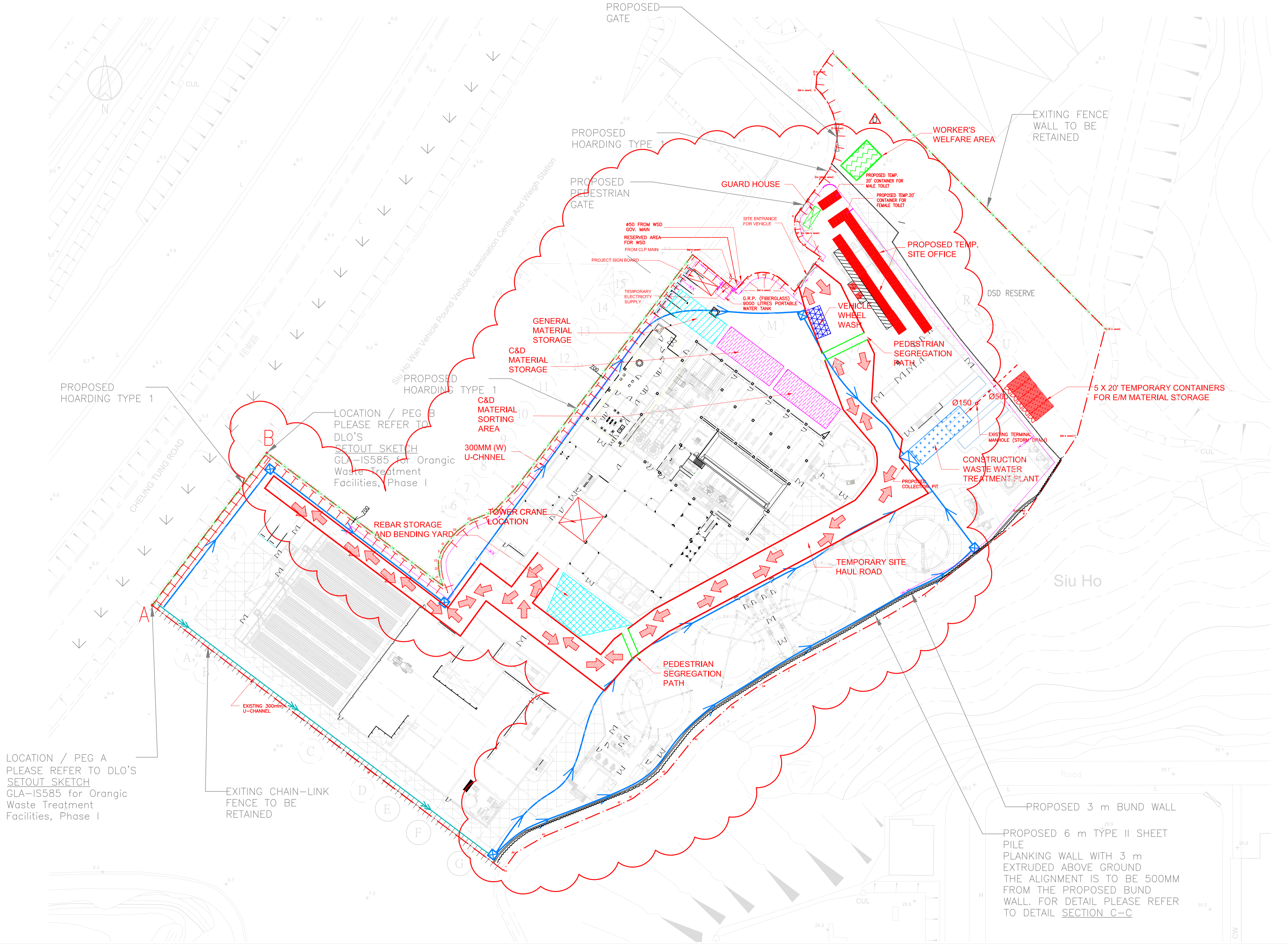
SCALE  
 1:500@A1; 1:1000@A3

DATE  
 18 APR 2015

JOB NO.  
 P00424

DRAWING NO.  
 DR-PSC-00-0-CN-1002

REV.  
 D



LOCATION / PEG A  
 PLEASE REFER TO DLO'S  
 SETOUT SKETCH  
 GLA-IS585 for Organic  
 Waste Treatment  
 Facilities, Phase I

EXITING CHAIN-LINK  
 FENCE TO BE  
 RETAINED

PROPOSED 3 m BUND WALL

PROPOSED 6 m TYPE II SHEET  
 PILE  
 PLANKING WALL WITH 3 m  
 EXTRUDED ABOVE GROUND  
 THE ALIGNMENT IS TO BE 500MM  
 FROM THE PROPOSED BUND  
 WALL. FOR DETAIL PLEASE REFER  
 TO DETAIL SECTION C-C

Plot by : LeeJAM  
 Plot Time : 4/18/2015 11:32:12 AM

DR-PSC-00-0-CN-1002

Annex C

## Construction Programme of the Project



Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2015												2016												2017							
								Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr		
<b>Contract No. EP/SP/61/10 - The Design &amp; Construction Works</b>																																							
<b>LETTER OF ACCEPTANCE</b>																																							
		711d	19-Nov-14	13-Apr-17	19-Nov-14	13-Apr-17	0d																																
		1d	19-Nov-14	19-Nov-14	19-Nov-14	19-Nov-14	0d																																
		1d	19-Nov-14	19-Nov-14	19-Nov-14	19-Nov-14	0d																																
		1d	19-Nov-14	19-Nov-14	19-Nov-14	19-Nov-14	0d																																
KD100200	LETTER OF ACCEPTANCE	1d	19-Nov-14	19-Nov-14	19-Nov-14	19-Nov-14	0d	LETTER OF ACCEPTANCE																															
<b>MAJOR MILESTONES</b>																																							
<b>MC1 Milestones for Preliminaries and General Requirements</b>																																							
		295d	17-Dec-14	16-Dec-15	15-Jan-15	03-Mar-16	61d																																
		295d	17-Dec-14	16-Dec-15	15-Jan-15	03-Mar-16	61d																																
		295d	17-Dec-14	16-Dec-15	15-Jan-15	03-Mar-16	61d																																
MC110100	MC1.1 - Substantial Completion of ER & IC Accommodation	0d		25-Apr-15		22-May-15	22d	MC1.1 - Substantial Completion of ER & IC Accommodation																															
MC110200	MC1.2 - Joint signing of IC Agreement	0d		17-Dec-14		15-Jan-15	18d	MC1.2 - Joint signing of IC Agreement																															
MC110300	MC1.3 - Employer's consent granted on draft Contractor's Plans	0d		16-Dec-15		03-Mar-16	51d	MC1.3 - Employer's consent granted on draft Contractor's Plans																															
<b>MC2 Milestones for Design of the Works</b>																																							
<b>MC2.1 The Employer's consent granted on Detailed Design Submission</b>																																							
		218d	20-Jul-15	23-Feb-16	26-Aug-15	12-Apr-16	49d																																
		218d	20-Jul-15	23-Feb-16	26-Aug-15	12-Apr-16	49d																																
		218d	20-Jul-15	23-Feb-16	26-Aug-15	12-Apr-16	49d																																
MC210100	MC2.1.1 - Employer's consent granted in respect of Detailed Design of Waste Receiving & Pre-treatment System	0d		20-Jul-15		27-Oct-15	99d	MC2.1.1 - Employer's consent granted in respect of Detailed Design of Waste Receiving & Pre-treatment System																															
MC210200	MC2.1.2 - Employer's consent granted in respect of Detailed Design of Anaerobic Digestion Treatment System	0d		20-Oct-15		18-Nov-15	29d	MC2.1.2 - Employer's consent granted in respect of Detailed Design of Anaerobic Digestion Treatment System																															
MC210300	MC2.1.3 - Employer's consent granted in respect of Detailed Design of Biogas treatment & CHP Generation System	0d		05-Aug-15		26-Aug-15	21d	MC2.1.3 - Employer's consent granted in respect of Detailed Design of Biogas treatment & CHP Generation System																															
MC210400	MC2.1.4 - Employer's consent granted in respect of Detailed Design of Composting System	0d		26-Oct-15		11-Feb-16	108d	MC2.1.4 - Employer's consent granted in respect of Detailed Design of Composting System																															
MC210500	MC2.1.5 - Employer's consent granted in respect of Detailed Design of CAPCS & WWTS	0d		23-Sep-15		02-Nov-15	40d	MC2.1.5 - Employer's consent granted in respect of Detailed Design of CAPCS & WWTS																															
MC210600	MC2.1.6 - Employer's consent granted in respect of Detail Design of control & instrumentation works	0d		20-Oct-15		29-Dec-15	70d	MC2.1.6 - Employer's consent granted in respect of Detail Design of control & instrumentation works																															
MC210700	MC2.1.7 - Employer's consent granted in respect of building services & electrical works	0d		04-Nov-15		24-Nov-15	20d	MC2.1.7 - Employer's consent granted in respect of building services & electrical works																															
MC210800	MC2.1.8 - Employer's consent granted in respect of Detailed Design of civil, structural & geotechnical works	0d		23-Feb-16		12-Apr-16	49d	MC2.1.8 - Employer's consent granted in respect of Detailed Design of civil, structural & geotechnical works																															
MC210900	MC2.1.9 - Employer's consent granted in respect of Detailed Design of architectural & landscape works	0d		03-Dec-15		01-Mar-16	89d	MC2.1.9 - Employer's consent granted in respect of Detailed Design of architectural & landscape works																															
<b>MC2.2 Completion of the Design of the Works</b>																																							
		0d	23-Feb-16	23-Feb-16	12-Apr-16	12-Apr-16	49d																																
		0d	23-Feb-16	23-Feb-16	12-Apr-16	12-Apr-16	49d																																
MC220100	MC2.2 - Completion of the Design of the Works	0d		23-Feb-16		12-Apr-16	49d	MC2.2 - Completion of the Design of the Works																															
<b>MC3 Milestones for Construction of the Works</b>																																							
<b>MC3.1 Construction of Civil and Structural Works</b>																																							
		427d	06-Jul-15	08-Dec-16	06-Jul-15	16-Mar-17	78d																																
		427d	06-Jul-15	08-Dec-16	06-Jul-15	16-Mar-17	78d																																
		427d	06-Jul-15	08-Dec-16	06-Jul-15	16-Mar-17	78d																																
MC310100	MC3.1.1 - Completion of site formation	0d		03-Dec-15		08-Dec-15	4d	MC3.1.1 - Completion of site formation																															
MC310200	MC3.1.2 - Completion of 50% of piling works	0d		06-Jul-15		06-Jul-15	0d	MC3.1.2 - Completion of 50% of piling works																															
MC310300	MC3.1.3 - Completion of 100% of piling works	0d		22-Sep-15		08-Apr-16	158d	MC3.1.3 - Completion of 100% of piling works																															
MC310400	MC3.1.4 - Completion of 50% of superstructure works	0d		08-Jan-16		08-Jan-16	0d	MC3.1.4 - Completion of 50% of superstructure works																															
MC310500	MC3.1.5 - Completion of 80% of superstructure works	0d		13-Feb-16		13-Feb-16	0d	MC3.1.5 - Completion of 80% of superstructure works																															
MC310600	MC3.1.6 - Completion of 100% of superstructure works	0d		11-Apr-16		26-May-16	37d	MC3.1.6 - Completion of 100% of superstructure works																															
MC310700	MC3.1.7 - Completion of 100% of drainage, road and geotechnical works	0d		08-Dec-16		16-Mar-17	78d	MC3.1.7 - Completion of 100% of drainage, road and geotechnical works																															
<b>MC3.2 Delivery of Materials and Equipment to the Site</b>																																							
		125d	26-Jan-16	02-Jul-16	24-Mar-16	07-Sep-16	57d																																
		125d	26-Jan-16	02-Jul-16	24-Mar-16	07-Sep-16	57d																																
		125d	26-Jan-16	02-Jul-16	24-Mar-16	07-Sep-16	57d																																
MC320100	MC3.2.1 - Completion of Delivery of Pre-treatment System	0d		26-Jan-16		27-Apr-16	60d	MC3.2.1 - Completion of Delivery of Pre-treatment System																															
MC320200	MC3.2.2 - Completion of Delivery of Anaerobic Digesters	0d		25-Feb-16		24-Mar-16	20d	MC3.2.2 - Completion of Delivery of Anaerobic Digesters																															
MC320300	MC3.2.3 - Completion of Delivery of Combined Heat and Power Units	0d		02-Jul-16		02-Jul-16	0d	MC3.2.3 - Completion of Delivery of Combined Heat and Power Units																															
MC320400	MC3.2.4 - Completion of Delivery of Composting Tunnels	0d		25-May-16		07-Sep-16	73d	MC3.2.4 - Completion of Delivery of Composting Tunnels																															
MC320500	MC3.2.5 - Completion of Delivery of Centralized Air Pollution Control System	0d		26-Jan-16		03-Jun-16	86d	MC3.2.5 - Completion of Delivery of Centralized Air Pollution Control System																															
MC320600	MC3.2.6 - Completion of Delivery of Wastewater Treatment System	0d		13-Apr-16		19-May-16	25d	MC3.2.6 - Completion of Delivery of Wastewater Treatment System																															
<b>MC3.3 Equipment and System Installations</b>																																							
		134d	22-Jun-16	30-Nov-16	17-Aug-16	30-Nov-16	0d																																
		134d	22-Jun-16	30-Nov-16	17-Aug-16	30-Nov-16	0d																																
		134d	22-Jun-16	30-Nov-16	17-Aug-16	30-Nov-16	0d																																
MC330100	MC3.3.1 - Completion of Waste Receiving, Storage and Feeding System & Pre-treatment System	0d		15-Aug-16		14-Sep-16	26d	MC3.3.1 - Completion of Waste Receiving, Storage and Feeding System & Pre-treatment System																															
MC330200	MC3.3.2 - Completion of Anaerobic Digestion Treatment System	0d		12-Sep-16		12-Sep-16	0d	MC3.3.2 - Completion of Anaerobic Digestion Treatment System																															
MC330300	MC3.3.3 - Completion of Biogas Cleaning and Storage System	0d		08-Nov-16		29-Nov-16	18d	MC3.3.3 - Completion of Biogas Cleaning and Storage System																															
MC330400	MC3.3.4 - Completion of Heat Recovery and Power Generation System	0d		30-Nov-16		30-Nov-16	0d	MC3.3.4 - Completion of Heat Recovery and Power Generation System																															
MC330500	MC3.3.5 - Completion of Composting System	0d		12-Nov-16		19-Nov-16	6d	MC3.3.5 - Completion of Composting System																															
MC330600	MC3.3.6 - Completion of Centralized Air Pollution Control System	0d		25-Aug-16		10-Nov-16	63d	MC3.3.6 - Completion of Centralized Air Pollution Control System																															
MC330700	MC3.3.7 - Completion of Wastewater Treatment System	0d		22-Jun-16		17-Aug-16	47d	MC3.3.7 - Completion of Wastewater Treatment System																															
MC330800	MC3.3.8 - Completion of control and instrumentation works	0d		19-Aug-16		14-Sep-16	22d	MC3.3.8 - Completion of control and instrumentation works																															
MC330900	MC3.3.9 - Completion of building services works & electrical works	0d		29-Sep-16		20-Oct-16	16d	MC3.3.9 - Completion of building services works & electrical works																															
<b>MC3.4 Architectural and Landscape works</b>																																							
		0d	31-Dec-16	31-Dec-16	16-Mar-17	16-Mar-17	60d																																
		0d	31-Dec-16	31-Dec-16	16-Mar-17	16-Mar-17	60d																																















































Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2015												2016												2017											
								Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr						
<b>Telecommunication</b>																																											
		48d	02-Jun-16	10-Aug-16	20-Jun-16	25-Aug-16	11d																																				
SW253100	Handover plant room and cable duct to Telecom Company	48d	02-Jun-16	10-Aug-16	20-Jun-16	25-Aug-16	11d																																				
SW253120	Telecom. Company to install cable and Equipment	5d	02-Jun-16	08-Jun-16	20-Jun-16	24-Jun-16	11d																																				
<b>Others</b>																																											
		380d	23-Mar-15	03-Oct-16	22-Apr-15	29-Nov-16	40d																																				
SW260100	Registration of Boilers & Pressure Vessels	380d	23-Mar-15	03-Oct-16	22-Apr-15	29-Nov-16	40d																																				
SW260120	Approval for installation of furnaces, ovens or chimneys	20d	05-Sep-16	03-Oct-16	02-Nov-16	29-Nov-16	40d																																				
SW260160	Chemical Waste Producer Registration (Site)	20d	24-Jun-16	22-Jul-16	21-Jul-16	17-Aug-16	18d																																				
SW260162	Chemical Waste Producer Registration (Plant)	20d	23-Mar-15	22-Apr-15	22-Apr-15	20-May-15	19d																																				
SW260170	Storage Approval for Chemicals (Control of Chemicals Regulation)	20d	16-Jun-16	14-Jul-16	21-Jul-16	17-Aug-16	24d																																				
SW260170	Storage Approval for Chemicals (Control of Chemicals Regulation)	20d	02-Jun-16	30-Jun-16	21-Jul-16	17-Aug-16	33d																																				
<b>E &amp; M INSTALLATION WORKS</b>																																											
<b>Waste Receiving, Storage and Feeding System</b>																																											
		120d	04-Feb-16	05-Jul-16	28-Apr-16	14-Sep-16	61d																																				
EM100100	Installation of Overhead Grabbing System	120d	04-Feb-16	05-Jul-16	28-Apr-16	14-Sep-16	61d																																				
EM180100	Installation of Weighbridge System 1	24d	18-Apr-16	17-May-16	28-Apr-16	27-May-16	9d																																				
EM180150	Installation of Weighbridge System 2	32d	02-Apr-16	11-May-16	17-Jun-16	25-Jul-16	61d																																				
EM180200	Installation of Computer System	32d	12-May-16	20-Jun-16	09-Aug-16	14-Sep-16	73d																																				
EM180250	Cable Tray Laying Works	66d	02-Apr-16	22-Jun-16	29-Jun-16	14-Sep-16	71d																																				
EM180300	Cabling Works	18d	12-May-16	02-Jun-16	26-Jul-16	15-Aug-16	61d																																				
EM180350	Completion of E&M Installation of Waste Receiving, Storage and Feeding System	26d	03-Jun-16	05-Jul-16	16-Aug-16	14-Sep-16	61d																																				
EM190100	Vehicle Washing System / Bin Handling Machine / Water Canon System	0d	05-Jul-16		14-Sep-16		61d																																				
<b>Pre-Treatment System</b>																																											
		155d	04-Feb-16	15-Aug-16	24-Feb-16	14-Sep-16	26d																																				
EM100150	Installation of Reception Hopper 1 and Screw Conveyors	155d	04-Feb-16	15-Aug-16	24-Feb-16	14-Sep-16	26d																																				
EM100200	Installation of Crusher No 1	18d	18-Apr-16	09-May-16	29-Jun-16	20-Jul-16	59d																																				
EM100250	Installation of Reception Hopper 2 and Screw Conveyors	12d	10-May-16	24-May-16	21-Jul-16	03-Aug-16	59d																																				
EM100300	Installation of Crusher No 2	18d	25-May-16	15-Jun-16	04-Aug-16	24-Aug-16	59d																																				
EM100350	Installation of Pumps and Mixers / Macerator / Compressed Air System	18d	16-Jun-16	07-Jul-16	25-Aug-16	14-Sep-16	59d																																				
EM100400	Installation of Sieve Drum no 1	28d	04-Feb-16	10-Mar-16	12-May-16	16-Jun-16	77d																																				
EM100450	Installation of Sieve Drum no 2	28d	11-Mar-16	16-Apr-16	17-Jun-16	20-Jul-16	77d																																				
EM100500	Installation of Sand Grit Trap No 1 / Metal Separator	12d	18-Apr-16	30-Apr-16	21-Jul-16	03-Aug-16	77d																																				
EM100550	Installation of Sand Grit Trap No 2 / Metal Separator	12d	03-May-16	17-May-16	04-Aug-16	17-Aug-16	77d																																				
EM100600	Installation of Heavy/ Light Fraction Screw No 1	12d	18-May-16	31-May-16	18-Aug-16	31-Aug-16	77d																																				
EM100650	Installation of Heavy/ Light Fraction Screw No 2	12d	01-Jun-16	15-Jun-16	01-Sep-16	14-Sep-16	77d																																				
EM100700	Installation of Overhead Travelling Crane	18d	18-Apr-16	09-May-16	06-May-16	27-May-16	15d																																				
EM100750	Installation of Suspension buffer tank	32d	04-Feb-16	15-Mar-16	12-May-16	21-Jun-16	77d																																				
EM100800	Cable Tray Laying Work	92d	04-Feb-16	31-May-16	24-Feb-16	17-Jun-16	14d																																				
EM100850	Cabling Works	100d	16-Mar-16	19-Jul-16	06-Apr-16	04-Aug-16	14d																																				
EM10090B	Associated Building Service Works	79d	06-May-16	09-Aug-16	24-May-16	25-Aug-16	14d																																				
EM10095B	Remaining Cabling and Building Services Works on 1/F	75d	18-May-16	15-Aug-16	28-May-16	25-Aug-16	9d																																				
EM101000	Completion of E&M Installation of Pre-Treatment System	0d	15-Aug-16		14-Sep-16		26d																																				
<b>Installation of Switchboard</b>																																											
EM101050	Installation of Switchboard at Pre-treatment Switchboard room	41d	18-Apr-16	06-Jun-16	18-Apr-16	06-Jun-16	0d																																				
<b>Anaerobic Digestion Treatment System</b>																																											
		139d	29-Mar-16	12-Sep-16	29-Mar-16	12-Sep-16	0d																																				
EM110100	Installation of Digester Tank No.1 with Jet Mixing System	139d	29-Mar-16	12-Sep-16	29-Mar-16	12-Sep-16	0d																																				
EM110150	Installation of Digester Tank No.2 with Jet Mixing System	87d	29-Mar-16	13-Jul-16	29-Mar-16	13-Jul-16	0d																																				
EM110200	Installation of Digester Tank No.3 with Jet Mixing System	87d	14-Apr-16	28-Jul-16	14-Apr-16	28-Jul-16	0d																																				
EM110250	Installation of Link Bridge for Digester Tanks	87d	29-Apr-16	12-Aug-16	29-Apr-16	12-Aug-16	0d																																				
EM110300	Installation of pumping system	26d	13-Aug-16	12-Sep-16	13-Aug-16	12-Sep-16	0d																																				
EM110350	Installation of Odour Extraction Ductworks	18d	03-Aug-16	23-Aug-16	09-Aug-16	29-Aug-16	5d																																				
EM110350	Installation of Odour Extraction Ductworks	39d	29-Jul-16	12-Sep-16	29-Jul-16	12-Sep-16	0d																																				





Activity ID	Activity Name	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2015												2016												2017					
								Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
EM160250	Installation Air Extraction System	108d	24-May-16	29-Sep-16	13-Oct-16	19-Nov-16	42d																														
		18d	22-Aug-16	10-Sep-16	13-Oct-16	02-Nov-16	42d																														
EM160300	Installation of Sieve / Belt Conveyor	9d	12-Sep-16	22-Sep-16	03-Nov-16	12-Nov-16	42d																														
EM160350	Installation of Bagging Facilities	6d	23-Sep-16	29-Sep-16	14-Nov-16	19-Nov-16	42d																														
EM160400	Installation of Mobile Mixer	2d	24-May-16	25-May-16	25-Oct-16	26-Oct-16	127d																														
EM160450	Cable Tray Laying Works	9d	26-May-16	04-Jun-16	27-Oct-16	05-Nov-16	127d																														
EM160500	Cabling Works	12d	06-Jun-16	20-Jun-16	07-Nov-16	19-Nov-16	127d																														
<b>Installation of Structurant Storage Area</b>		44d	24-May-16	15-Jul-16	19-Jul-16	07-Sep-16	46d																														
EM160550	Installation Air Extraction System	44d	24-May-16	15-Jul-16	19-Jul-16	07-Sep-16	46d																														
		26d	24-May-16	23-Jun-16	19-Jul-16	17-Aug-16	46d																														
EM160600	Installation of Structurant Storage System	12d	24-May-16	06-Jun-16	04-Aug-16	17-Aug-16	60d																														
EM160650	Cable Tray Laying Works	12d	24-Jun-16	08-Jul-16	18-Aug-16	31-Aug-16	46d																														
EM160700	Cabling Works	12d	02-Jul-16	15-Jul-16	25-Aug-16	07-Sep-16	46d																														
<b>Installation of Digestate Dewatering System</b>		60d	16-Jul-16	24-Sep-16	08-Sep-16	19-Nov-16	46d																														
EM160750	Installation of Centrifuges	60d	16-Jul-16	24-Sep-16	08-Sep-16	19-Nov-16	46d																														
		9d	16-Jul-16	26-Jul-16	08-Sep-16	19-Sep-16	46d																														
EM160800	Installation of Sludge Pumping system	9d	27-Jul-16	05-Aug-16	24-Oct-16	02-Nov-16	73d																														
EM160850	Installation of Screw Conveyors System	9d	06-Aug-16	16-Aug-16	03-Nov-16	12-Nov-16	73d																														
EM160900	Installation of Dewatering Storage Tank	4d	17-Aug-16	20-Aug-16	14-Nov-16	17-Nov-16	73d																														
EM160950	Installation of Strirer	2d	22-Aug-16	23-Aug-16	18-Nov-16	19-Nov-16	73d																														
EM161000	Cable Tray Laying Work	43d	22-Jul-16	09-Sep-16	14-Sep-16	05-Nov-16	46d																														
EM161050	Cabling Works	43d	05-Aug-16	24-Sep-16	29-Sep-16	19-Nov-16	46d																														
<b>Composting System</b>		144d	24-May-16	12-Nov-16	15-Aug-16	19-Nov-16	6d																														
EM161100	Completion of E&M Installation of Composting System	144d	24-May-16	12-Nov-16	15-Aug-16	19-Nov-16	6d																														
		0d		12-Nov-16		19-Nov-16	6d																														
EM161150	Installation Electrical Switchboard Room no 4	39d	24-May-16	09-Jul-16	15-Aug-16	29-Sep-16	69d																														
<b>Centralized Air Pollution Control System</b>		108d	18-Apr-16	25-Aug-16	06-Jun-16	10-Nov-16	63d																														
EM150100	Installation of Chemical Scrubber	108d	18-Apr-16	25-Aug-16	06-Jun-16	10-Nov-16	63d																														
		26d	18-Apr-16	19-May-16	06-Jun-16	07-Jul-16	40d																														
EM150150	Installation of Dosing Pumps, associated pipeworks and Stack Unit	26d	28-Apr-16	30-May-16	17-Jun-16	18-Jul-16	40d																														
EM150200	Installation of Activated Carbon Filter	26d	31-May-16	30-Jun-16	12-Oct-16	10-Nov-16	110d																														
EM150250	Installation of Odour Extraction Duct Work	77d	26-May-16	25-Aug-16	21-Jul-16	21-Oct-16	46d																														
EM150300	Installation of Chemical Storage Tanks	26d	31-May-16	30-Jun-16	19-Jul-16	17-Aug-16	40d																														
EM150350	Cable Tray Laying Works	34d	20-May-16	29-Jun-16	30-Aug-16	11-Oct-16	85d																														
EM150400	Cabling Works	26d	30-Jun-16	30-Jul-16	12-Oct-16	10-Nov-16	85d																														
EM150450	Completion of E&M Installation of Centralized Air Pollution Control System	0d		25-Aug-16		10-Nov-16	63d																														
EM150500	Installation of Switchboard at CAPCS Switchboard room	42d	07-Jun-16	27-Jul-16	07-Jun-16	27-Jul-16	0d																														
<b>Administration Offices &amp; Visitor Areas</b>		151d	04-Feb-16	10-Aug-16	13-May-16	25-Aug-16	13d																														
EM17010B	Building Service Installation of Administration Offices	151d	04-Feb-16	10-Aug-16	13-May-16	25-Aug-16	13d																														
		37d	18-Apr-16	01-Jun-16	13-May-16	27-Jun-16	21d																														
EM17012B	Lift Installation of Administration Offices	60d	25-May-16	04-Aug-16	06-Jun-16	16-Aug-16	10d																														
EM170150	Visitor and Educational Centre	40d	02-Jun-16	20-Jul-16	11-Jul-16	25-Aug-16	31d																														
EM17020B	Completion of E&M Installation of Administration Offices & Visitor Areas	0d		10-Aug-16		25-Aug-16	13d																														
EM170250	Installation of Electrical Switchboard Room no 3	41d	04-Feb-16	29-Mar-16	08-Jun-16	27-Jul-16	98d																														
<b>General</b>		234d	15-Dec-15	29-Sep-16	31-Dec-15	20-Oct-16	16d																														
EM190150	Instrumentation, Control & Monitoring System (SCADA/PLC)	234d	15-Dec-15	29-Sep-16	31-Dec-15	20-Oct-16	16d																														
		103d	18-Apr-16	19-Aug-16	16-May-16	14-Sep-16	22d																														
EM19020B	Building Services and Management System	125d	18-Apr-16	14-Sep-16	18-Apr-16	14-Sep-16	0d																														
EM19021B	Switchboard and MCC Installation	100d	18-Apr-16	16-Aug-16	18-Apr-16	16-Aug-16	0d																														
EM19022B	Cables and Accessories, Cable Containment System Installation	115d	18-Apr-16	02-Sep-16	29-Apr-16	14-Sep-16	10d																														
EM19023B	Earthing and Lightning System Installation	210d	15-Dec-15	31-Aug-16	31-Dec-15	14-Sep-16	12d																														
EM19024B	Emergency Genset Installation	30d	08-Jul-16	11-Aug-16	22-Jul-16	25-Aug-16	12d																														
EM19025B	Equipment at Gate House	12d	11-May-16	25-May-16	01-Sep-16	14-Sep-16	94d																														
EM19030B	ELV System Installation	60d	22-Jun-16	31-Aug-16	07-Jul-16	14-Sep-16	12d																														

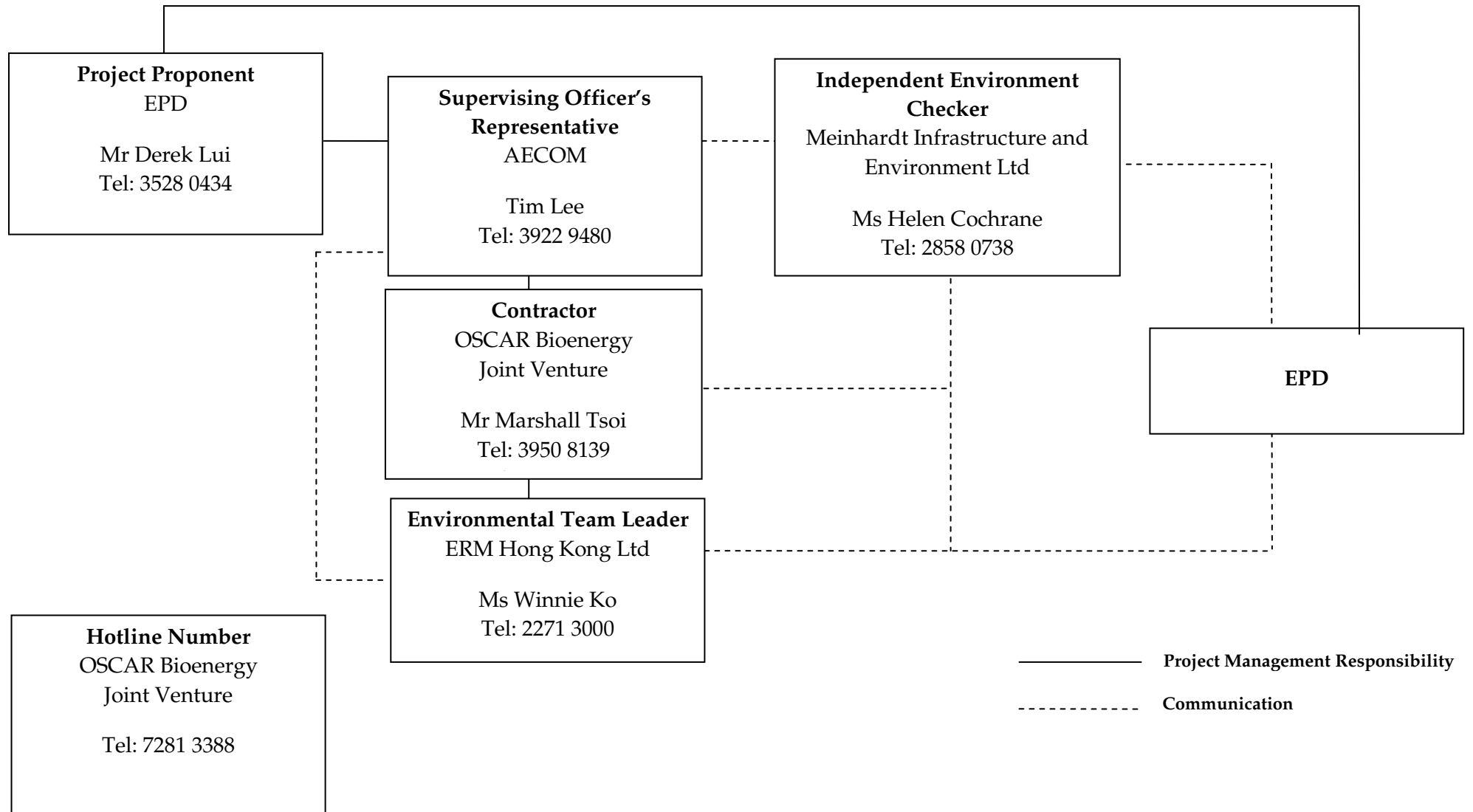




Annex D

## Project Organization Chart with Contact Details

Project Organization During Construction Phase (with contact details)



Annex E

## Implementation Schedule of Mitigation Measures

**Annex E Summary of Mitigation Measures Implementation Schedule**

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
<i>Summary of Environmental Mitigation Measures in the EIA and EM&amp;A Manual</i>				
A. Air Quality				
3.73	2.5	<p><u>Air Pollution Control (Construction Dust) Regulation &amp; Good Site Practices</u></p> <ul style="list-style-type: none"> <li>• Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.</li> <li>• Use of frequent watering for particularly dusty construction areas and areas close to ASRs.</li> <li>• Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines.</li> <li>• Open stockpiles should be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.</li> <li>• Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> <li>• Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.</li> <li>• Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods.</li> <li>• Imposition of speed controls for vehicles on unpaved site roads. 8 kilometers per hour is the recommended limit.</li> <li>• Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides.</li> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed.</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.</li> </ul>	Construction Site / During Construction Period	<>
B. Hazard to Life				
4.102	3.3	<u>Construction Phase</u>	Construction Site / During	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		<ul style="list-style-type: none"> <li>• The number of workers on site during construction stage should be kept at the same level as the assessment.</li> <li>• Construction works should be suspended when delivery of chlorine takes place.</li> <li>• 3m high fence should be constructed along the boundary facing the SHWWTW.</li> <li>• Emergency evacuation procedures should be formulated and the Contractor should ensure all workers on site should be familiar with these procedures as well as the route to escape in case of gas release incident. Relevant Departments, such as Fire Services Department (FSD), should be consulted during the development of Emergency procedures. Diagram showing the escape routes to a safe place should be posted in the site notice boards and at the entrance/exit of site. A copy of the latest version emergency procedures should be dispatched to Tung Chung Fire Station for reference once available.</li> <li>• The emergency procedures should specify means of providing a rapid and direct warning (e.g. Siren and Flashing Light) to construction workers in the event of chlorine gas release in the SHWWTW.</li> <li>• The Contractor should establish a communication channel with the SHWWTW operation personnel and FSD during construction stage. In case of any hazardous incidents in the treatment works, operation personnel of SHWWTW should advise the Contractor to inform construction workers to proceed with emergency procedure. The Contractor should appoint a Liaison Officer to communicate with FSD Incident Commander on site in case of emergency.</li> <li>• Introduction training should be provided to any staff before carryout construction works at the Project site.</li> <li>• Periodic drills should be coordinated and conducted to ensure all construction personnel are familiar with the emergency procedures. Upon completion of the drills, a review on every step taken should be conducted to identify area of improvement. Prior notice of periodic drills should be given to Station Commander of Tung Chung Fire Station. Joint operational exercise with FSD and SHWWTW is recommended.</li> </ul>	Construction Period	
<i>C. Water Quality</i>				
5.44	4.5	<u>Construction site run-off and general construction activities:</u> The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	Construction Site / During Construction Period	√
5.45	4.5	<u>Excavation of Soil Materials</u> The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons. This prevents soil erosion from exposed soil surfaces. Any exposed soil surfaces should also be properly protected to minimise dust emission. In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided. Exposed	Construction Site / During Construction Period	√



EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		stockpiles should be covered with tarpaulin or impervious sheets at all times. The stockpiles of materials should be placed at locations away from any stream courses so as to avoid releasing materials into the water bodies. Final surfaces of earthworks should be compacted and protected by permanent work.		
5.46	4.5	<u>Accidental spillage of chemicals:</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Construction Site / During Construction Period	√
5.47	4.5	Maintenance of vehicles and equipments involving activities with potential for leakage and spillage should only be undertaken within the areas which appropriately equipped to control these discharges.	Construction Site / During Construction Period	√
5.48	4.5	Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses. All waste oils and fuels should be collected in designated tanks prior to disposal.	Construction Site / During Construction Period	<>
5.49	4.5	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> <li>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>• Chemical waste containers should be suitably labeled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>	Construction Site / During Construction Period	<>
5.50		Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid entering to the nearby watercourses. Stockpiles of cement and other construction materials should be kept covered when not being used. Rubbish and litter from construction sites should also be collected to prevent spreading of rubbish and litter from the site area. It is recommended to clean the construction sites on a regular basis.	Construction Site / During Construction Period	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
5.51	4.5	<u>Sewage Effluent</u> The presence of construction workers generates sewage. It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30m from any watercourse. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	Work site/During the construction period	√
5.52	4.5	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	Work Site / During Construction Period	√
5.53	4.5	<u>Nullah Decking</u> To minimize the potential water quality impacts from the nullah reconstruction works, the practices outlined below should be adopted where applicable: <ul style="list-style-type: none"> <li>• The proposed works should be carried out within the dry season between October and March when the flow in the open nullah is low.</li> <li>• The use of less or smaller construction plants may be specified to reduce the disturbance to the nullah bed.</li> <li>• Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from the nullah and any water courses during carrying out of the construction works.</li> <li>• Stockpiling of construction materials and dusty materials should be covered and located away from the nullah any water courses.</li> <li>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nullah and nearby water receivers.</li> <li>• Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the nullah, where practicable.</li> <li>• Construction effluent, site run-off and sewage should be properly collected and/or treated.</li> <li>• Any works site inside the nullah should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the water quality.</li> <li>• Proper shoring may need to be erected in order to prevent soil/mud from slipping into the nullah and nearby watercourse.</li> <li>• Supervisory staff should be assigned to station</li> </ul>	Work Site / During Construction Period	N/A
<i>D. Waste Management</i>				

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
6.41	5.4	<p><u>Good Site Practices</u></p> <p>Recommendations for good site practices during the construction phase would include:</p> <ul style="list-style-type: none"> <li>• Obtain relevant waste disposal permits from appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354) and subsidiary Regulations and the Land (Miscellaneous Provisions) Ordinance (Cap. 28);</li> <li>• Provide staff training for proper waste management and chemical handling procedures;</li> <li>• Provide sufficient waste disposal points and regular waste collection;</li> <li>• Provide appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>• Carry out regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>• Separate chemical wastes for special handling and disposed of to licensed facility for treatment; and</li> <li>• Employ licensed waste collector to collect waste.</li> </ul>	Work Site / During Construction Period	√
6.42	5.5	<p><u>Waste Reduction Measures</u></p> <p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>• Design foundation works that could minimise the amount of excavated material to be generated;</li> <li>• Provide training to workers on the importance of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling;</li> <li>• Sort out demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.);</li> <li>• Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>• Encourage the collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; and</li> <li>• Plan and stock construction materials carefully to minimize the amount of waste to be generated and to avoid unnecessary generation of waste.</li> </ul>	Work Site/During Design & Construction Period	√
6.44	5.7	<p><u>Excavated and C&amp;D Materials</u></p> <p>In order to minimise the impact resulting from collection and transportation of C&amp;D material for off-site disposal, the excavated material arising from site formation and foundation works should be reused on-site as backfilling material and for landscaping works as far as practicable. Other mitigation requirements are listed below:</p> <ul style="list-style-type: none"> <li>• A WMP, which becomes part of the Environmental Management Plan (EMP), should be</li> </ul>	Work Site/During Design & Construction Period	√

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
		<p>prepared in accordance with ETWB TCW No.19/2005;</p> <ul style="list-style-type: none"> <li>• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites) should be adopted for easy tracking; and</li> <li>• In order to monitor the disposal of excavated and C&amp;D material at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be adopted (refer to ETWB TCW No. 31/2004).</li> </ul>		
6.45 - 6.46	5.8 - 5.9	<p>An EMP should be prepared and implemented in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from construction activities. The EMP should be submitted to the Supervising Officer (SO) and Supervising Officer's Representative (SOR) for approval. The EMP should be reviewed regularly and updated, preferably on a monthly basis.</p> <p>A system should be devised to work for on-site sorting of excavated and C&amp;D materials and promptly removing all sorted and process materials arising from the construction activities to minimize temporary stockpiling on-site. The system should be included in the EMP identifying the source of generation, estimated quantity, arrangement for on-site sorting, collection, temporary storage areas and frequency of collection by recycling Contractors or frequency of removal off-site.</p>	Work Site/ During Design & Construction Period	√
6.47	5.10	<p><u>Chemical Waste</u> Should chemical wastes be produced at the construction site, the Contractor would be required to register with EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste (such as explosive, flammable, oxidizing, irritant, toxic, harmful, or corrosive). The Contractor should employ a licensed collector to transport and dispose of the chemical wastes, to either the CWTC in Tsing Yi, or any other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) General Regulation.</p>	Work Site / During Construction Period	<>
6.48	5.11	<p><u>General Refuse</u> General refuse should be stored in enclosed bins or compaction units separated from C&amp;D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</p>	Work Site / During Construction Period	√

E. Landscape and Visual

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location/ Timing	Status
7.99 & Table 7.7	Table 6.1	<u>Construction Phase</u> <ul style="list-style-type: none"> <li>• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical</li> <li>• Compensatory tree planting should be provided to compensate for felled trees. <ul style="list-style-type: none"> <li>- Compensation tree species shall be chosen from both indigenous and ornamental species</li> <li>- Compensatory tree planting quantities shall be as per DLO approved requirement.</li> </ul> </li> <li>• Control of night-time lighting</li> <li>• Erection of decorative screen hoarding compatible with the surrounding setting</li> </ul>	Work site/During Design & Construction Stages	√
<i>F. Noise</i>				
8.25	7.3	Good Site Practice: <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;</li> <li>• Mobile plant, if any, should be sited as far from noise sensitive receivers (NSRs) as possible;</li> <li>• Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and</li> <li>• Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	Work site/During Design & Construction Stages	√

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by OSCAR Bioenergy JV
- Δ Deficiency of Mitigation Measures but rectified by OSCAR Bioenergy JV
- N/A Not Applicable in Reporting Period

Annex F

## Waste Flow Table

**No. EP/SP/61/10 of Organic Waste Treatment Facilities Phase I  
Monthly Summary Waste Flow Table**

Month	Actual Quantities of Inert C&D Materials Generated					Actual Quantities of Non-inert C&D Materials (Construction Waste) Generated				
	Total Quantity Generated	Reused in the Contract	Reused in other Projects	Hard Rocks & Large Broken Concrete	Disposed as Public Fill	Metals (see Note 1)	Paper/ cardboard packaging (see Note 1)	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)
	tonne	tonne	tonne	tonne	tonne	kilogram	kilogram	kilogram	Litre	tonne
May 2015	29.58	0.00	0.00	0.00	29.58	0.00	0.00	0.00	0.00	0.00
June 2015	2226.90	0.00	0.00	0.00	2226.90	0.00	0.00	0.00	0.00	9.66
July 2015	2832.27	0.00	0.00	0.00	2832.27	0.00	0.00	0.00	0.00	33.68
August 2015	6657.25	0.00	0.00	0.00	6657.25	0.00	0.00	0.00	0.00	55.06
September 2015	5467.05	0.00	0.00	0.00	5467.05	0.00	0.00	0.00	0.00	83.81
<b>Total</b>	<b>17213.05</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17213.05</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>182.21</b>

- Notes: (1) Metal and paper/cardboard packaging were collected by recycler for recycling.  
(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material collected by recycler for recycling.  
(3) General refuse was disposed of at NENT by subcontractors.

Annex G

Environmental Complaint,  
Environmental Summons  
and Persecution Log



*Annex G Cumulative Complaint and Summons/Prosecutions Log*

<b>Reporting Month</b>	<b>Number of Complaints in Reporting Month</b>	<b>Number of Summons/Prosecutions in Reporting Month</b>
May 2015	0	0
June 2015	0	0
July 2015	0	0
August 2015	0	0
September 2015	0	0
<b>Overall Total</b>	<b>0</b>	<b>0</b>