

香港電燈有限公司  
The Hongkong Electric Co., Ltd.



**Lamma Power Station Extension  
Construction Phase  
Monthly Environmental Monitoring & Audit Report**

**February 2017**

香港電燈有限公司  
The Hongkong Electric Co., Ltd.



**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ORDINANCE, CAP. 499**

**ENVIRONMENTAL PERMIT NO. EP-071/2000/C**

**LAMMA POWER STATION EXTENSION  
ENVIRONMENTAL MONITORING & AUDIT PROGRAMME  
AT CONSTRUCTION PHASE**

|              |   |
|--------------|---|
| Report Title | Lamma Power Station Extension – Unit L10 & L11<br>Monthly EM&A Report<br>(February 2017)  |
| Date         | 10 March 2017   |
| Certified by | <br>(Mr. IP Tat-Yan, Environmental Team Leader)  |
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## EXECUTIVE SUMMARY

This is the 83<sup>rd</sup> monthly Environmental Monitoring and Audit (EM&A) report for the Project “Construction of Lamma Power Station Extension” prepared by the Environmental Team (ET). This report presents the results of impact monitoring on air quality and noise for the said project in February 2017.

The reclamation and submarine pipeline works were completed with the first gas-fired combined cycle unit (viz. Unit L9) commissioned in October 2006, working currently on base load operation. To cope with the scheduled retirement of the existing units at Lamma Power Station, the second gas-fired combined cycle unit (viz. Unit L10) is planned for commercial operation in early 2020 and the associated construction work commenced in February 2016.

In September 2016, the Government approved HK Electric to construct the third combined cycle gas-fired generating unit (L11) to implement the 2020 Fuel Mix Target. L11 is planned for commercial operation in 2022 and the associated construction work commenced in November 2016.

Air and noise monitoring were performed. The results were checked against the established Action/Limit (AL) levels. An on-site audit was conducted once per week. The implementation status of the environmental mitigation measures, Event/Action Plan and environmental complaint handling procedures were also checked.

### Construction Activities Undertaken

Construction activities for Lamma Extension during the reporting month are tabulated as follows:

| Item                        | Construction Activities  |
|-----------------------------|--|
| 275kV Switching Station     | Bored pile construction work   |
| Unit L10 Civil and Building | Main Station Building (excavation, breaking of pile head, formwork, steel fixing and concreting), Site Office Building (formwork, steel fixing and concreting), and trending works (formwork, steel fixing and concreting) |
| Unit L11 Piling             | Bored pile construction work   |

### Environmental Monitoring Works

All monitoring work at designated stations was performed as scheduled satisfactorily.

#### *Air Quality*

No exceedance of Action/Limit levels on 1-hour TSP and 24-hour TSP for air quality was recorded in the month.

## Noise

Construction work for Lamma Extension was carried out during the restricted hours including evening-time, holidays and night-time under valid Construction Noise Permit. No exceedance of Action and Limit levels for noise arising from the construction of Lamma Extension was recorded in the month.

## Site Environmental Audit

Site audits were carried out on a weekly basis to monitor environmental issues on the construction site. The site conditions were generally satisfactory. All required mitigation measures were implemented.

## Environmental Licensing and Permitting

| Description                             | Permit No.           | Valid Period |          | Issued To   | Date of Issuance |
|---|----------------------|--------------|----------|-------------|------------------|
|   |                      | From         | To       |             |                  |
| Varied Environmental Permit             | EP-071/2000/C        | 18/05/05     | -        | HK Electric | 18/05/05         |
| Construction Noise Permit               | GW-RS1026-16         | 11/10/16     | 10/04/17 | Contractor  | 07/10/16         |
| Construction Noise Permit               | GW-RS1299-16         | 26/12/16     | 25/06/17 | Contractor  | 22/12/16         |
| Construction Noise Permit               | GW-RS1318-16         | 26/12/16     | 26/06/17 | Contractor  | 23/12/16         |
| WPCO Discharge Licence                  | WT00025747-2016      | 05/10/16     | 31/10/21 | Contractor  | 06/10/16         |
| WPCO Discharge Licence                  | WT00027040-2017      | 06/02/17     | 28/02/22 | Contractor  | 06/02/17         |
| Registration of Chemical Waste Producer | WPN5113-912-S3180-19 | 21/01/16     | -        | Contractor  | 21/01/16         |
| Registration of Chemical Waste Producer | WPN5213-912-P2781-22 | 22/02/16     | -        | Contractor  | 22/02/16         |
| Registration of Chemical Waste Producer | WPN5113-912-S3180-20 | 11/01/17     | -        | Contractor  | 11/01/17         |
| Waste Disposal Billing Account          | Account No.: 7024247 | 03/02/16     | -        | Contractor  | 03/02/16         |
| Waste Disposal Billing Account          | Account No.: 7026035 | 06/10/16     | -        | Contractor  | 06/12/16         |
| Waste Disposal Billing Account          | Account No.: 7026793 | 28/12/16     | -        | Contractor  | 28/12/16         |

## Implementation Status of Environmental Mitigation Measures

Environmental mitigation measures for the construction activities as recommended in the EM&A manual were implemented in the reporting month.

## Environmental Complaints

No complaint against the construction activities was received in the reporting month.

## Future Key Issues

The future key issues to be considered in the coming month are as follows:

#### 275kV Switching Station

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to recycle and reuse wastewater from bored pipe construction work and to ensure compliance with the WPCO discharge licence already obtained.

#### Unit L10 Civil and Building Works

- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Piling Works

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;

#### **Concluding Remarks**

The environmental performance of the project was generally satisfactory.

## **1. INTRODUCTION**

### **1.1 Background**

The Environmental Team (hereinafter called the “ET”) was formed within the Hongkong Electric Co. Ltd (HEC) to undertake Environmental Monitoring and Audit for “Construction of Lamma Power Station Extension” (hereinafter called the “Project”). Under the requirements of Section 6 of Environmental Permit EP-071/2000/C, an EM&A programme for impact environmental monitoring set out in the EM&A Manual (Construction Phase) is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, noise and water quality and regular environmental audits are required for the Project. With the completion of reclamation and submarine pipeline works, no further marine water quality monitoring would be required.

The Project involves the construction of a gas-fired power station employing combined cycled gas turbine technology, forming an extension to the existing Lamma Power Station. The key elements of the Project including the construction activities associated with the transmission system and submarine gas pipeline are outlined as follows.

- dredging and reclamation to form approximately 22 hectares of usable area;
- construction of six 300MW class gas-fired combined cycle units;
- construction of a gas receiving station;
- construction of a transmission system linking the Lamma Extension to load centres on Hong Kong Island;
- laying of a gas pipeline for the supply of natural gas to the new power station

This report summarizes the environmental monitoring and audit work for the Project for the month of February 2017.

### **1.2 Project Organisation**

An Environmental Management Committee (EMC) has been set up in HEC to oversee the Project. The management structure includes the following:

- Environmental Protection Department (The Authority);
- Environmental Manager (The Chairman of the Environmental Management Committee);
- Engineer;
- Independent Environmental Checker (IEC);
- Environmental Team (ET);
- Contractor.

The project organisation chart for the construction EM&A programme is shown in [Appendix A](#).

### 1.3 Construction Works undertaken during the Reporting Month

Construction activity for 275kV Switching Station was bored pile construction work. Construction activities for Unit L10 civil and building works were carried out for Main Station Building (excavation, breaking of pile head, formwork, steel fixing and concreting), for Site Office Building (formwork, steel fixing and concreting) and for trenching works (formwork, steel fixing and concreting). Construction activity for Unit L11 piling was bored pile construction work. Layout plan for construction site is shown in [Figure 1.1](#).

The main construction activities carried out during the reporting month and the corresponding environmental mitigation measures are summarized in [Table 1.1](#). The implementation of major mitigation measures in the month is provided in [Appendix I](#).

Table 1.1 Construction Activities and Their Corresponding Environmental Mitigation Measures

| Item                    | Construction Activities | Environmental Mitigation Measures  |
|-------------------------|-------------------------|--|
| 275kV Switching Station |                         |  |
| 1.                      | Bored pile construction | <p><b>Air</b></p> <ul style="list-style-type: none"> <li>- Dust suppression measures implemented in the main haul road.</li> <li>- Using ULSD for PMEs.</li> </ul> <p><b>Water</b></p> <ul style="list-style-type: none"> <li>- All wastewater will be pumped to the sedimentation ponds for desilting process. After that, wastewater will be re-used for construction activities or pumped for storage. Discharging to communal storm drain is the last priority.</li> </ul> <p><b>Noise</b></p> <ul style="list-style-type: none"> <li>- General noise mitigation measures employed at all work sites throughout the construction phase.</li> </ul> <p><b>Waste Management</b></p> <ul style="list-style-type: none"> <li>- Waste Management Plan submitted and implemented.</li> </ul> |

| Item                              | Construction Activities  | Environmental Mitigation Measures   |
|-----------------------------------|--|---|
| Unit L10 Civil and Building Works |  |   |
| 2.                                | Main Station Building (excavation, breaking of pile head, formwork, steel fixing and concreting) | <p><b>Air</b></p> <ul style="list-style-type: none"> <li>- All regulated machine attached with valid exception/approval NRMM labels.</li> <li>- Water truck was used for water spraying of the haul road.</li> <li>- Water spraying for concrete breaking of pile head.</li> <li>- Compaction was conducted for soil platform</li> <li>- Excavated slope covered with cement.</li> </ul> <p><b>Noise</b></p> <ul style="list-style-type: none"> <li>- Cylindrical screening was used for noise mitigation measures during drilling.</li> </ul> <p><b>Wastewater</b></p> <ul style="list-style-type: none"> <li>- Sump pit and sedimentation tanks were set up for wastewater reuse</li> </ul> <p><b>Waste Management</b></p> <ul style="list-style-type: none"> <li>- Excavated soil was temporary stored for backfilling.</li> <li>- Scrape metal will be recycled.</li> <li>- Timber will be reused as much as possible.</li> </ul> |
| 3.                                | Site Office Building (Formwork, steel fixing and concreting)                                     | <p><b>Air</b></p> <ul style="list-style-type: none"> <li>- Excavated slope covered.</li> </ul> <p><b>Waste Management</b></p> <ul style="list-style-type: none"> <li>- Scrape metal will be recycled.</li> <li>- Timber will be reused as much as possible.</li> </ul>  |
| 4.                                | Trenching Works (Formwork, steel fixing and concreting)  | <p><b>Air</b></p> <ul style="list-style-type: none"> <li>- Excavated slope covered.</li> </ul> <p><b>Waste Management</b></p> <ul style="list-style-type: none"> <li>- Excavated soil was temporary stored for backfilling.</li> <li>- Scrape metal will be recycled.</li> <li>- Timber will be reused as much as possible.</li> </ul>  |

| Item                  | Construction Activities | Environmental Mitigation Measures  |
|-----------------------|-------------------------|--|
| Unit L11 Piling Works |                         |  |
| 5.                    | Bored pile construction | <p><b>Air</b></p> <ul style="list-style-type: none"> <li>- Dust suppression measures implemented in the main haul road.</li> <li>- Using ULSD for PMEs.</li> <li>- Cover dusty stockpile with tarpaulin and water spraying.</li> </ul> <p><b>Water</b></p> <ul style="list-style-type: none"> <li>- All wastewater will be pumped to the sedimentation ponds for desilting process. After that, wastewater will be re-used for construction activities or pumped for storage. Discharging to communal storm water drain is the last priority.</li> </ul> <p><b>Noise</b></p> <ul style="list-style-type: none"> <li>- General noise mitigation measures employed at all work sites throughout the construction phase.</li> </ul> <p><b>Waste Management</b></p> <ul style="list-style-type: none"> <li>- Waste Management Plan submitted and implemented.</li> </ul> |

#### 1.4 Summary of EM&A Requirements

The detailed EM&A monitoring work for air quality and noise are described in Sections 2 and 3 respectively. Regular environmental site audits for air quality, noise, water quality and waste management were carried out.

The following environmental audits are summarized in Section 4 of this report:

- Environmental monitoring results;
- Waste Management Records;
- Weekly site audit results;
- The status of environmental licensing and permits for the Project;
- The implementation status of environmental protection and pollution control/mitigation measures.

Future key issues will be reported in Section 5 of this report.

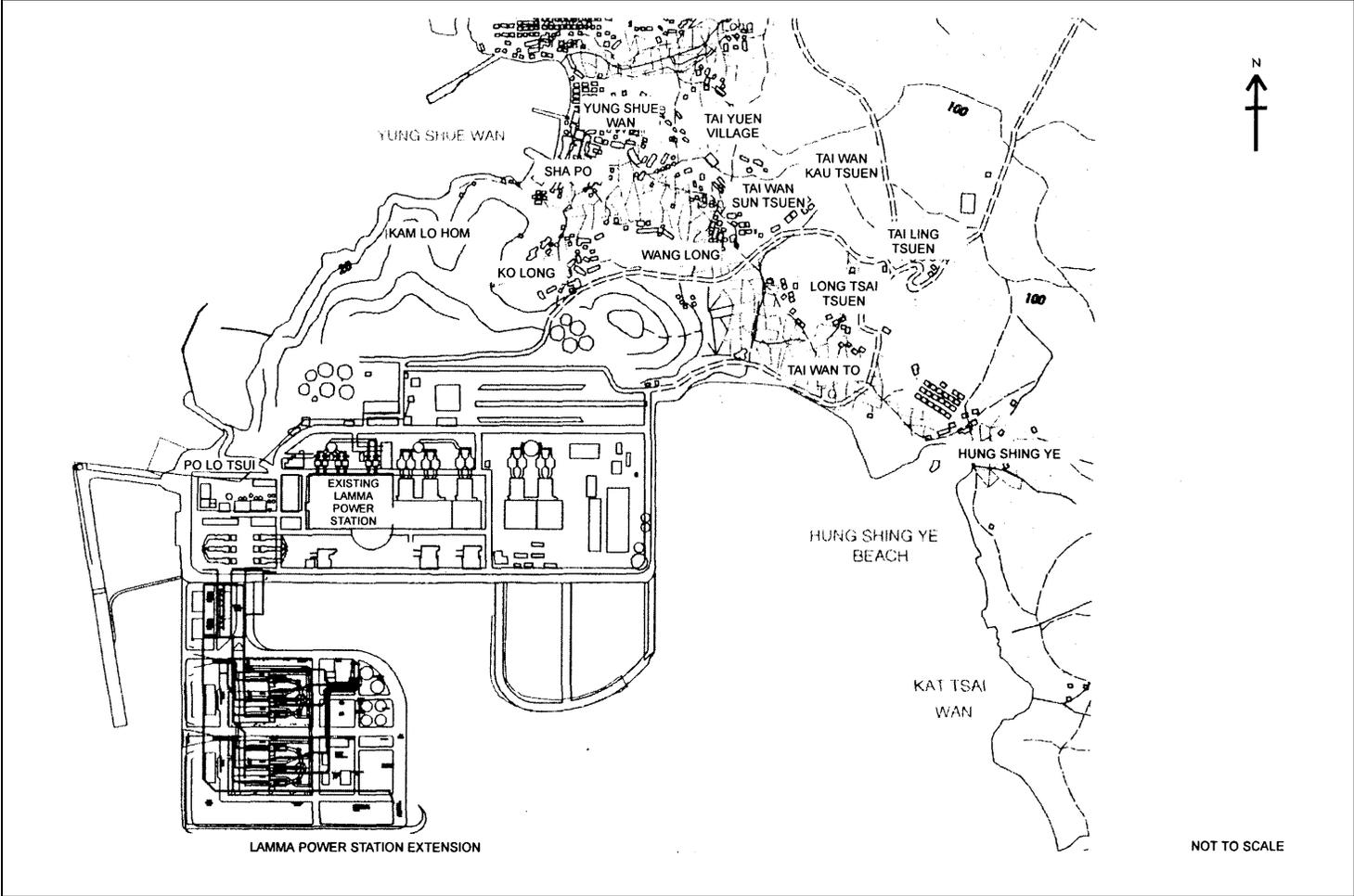


Figure 1.1 Layout of Work Site

## 2. AIR QUALITY

### 2.1 Monitoring Requirements

1-hour and 24-hour TSP monitoring at agreed frequencies were conducted to monitor air quality. The impact monitoring data were checked against the Action/Limit Levels as determined in the Baseline Monitoring Report (Construction Phase). [Appendix B](#) shows the established Action/Limit Levels for Air Quality.

### 2.2 Monitoring Locations

Three dust monitoring locations were selected for 1-hour TSP sampling (AM1, AM2 & AM3) while four monitoring locations were selected for 24-hour TSP sampling (AM1, AM2, AM3 and AM4). [Table 2.1](#) tabulates the monitoring stations. The locations of the monitoring stations are shown in [Figure 2.1](#).

Table 2.1 Air Quality Monitoring Locations

| Location I.D. | Description      |
|---------------|------------------|
| AM1           | Reservoir        |
| AM2           | East Gate        |
| AM3           | Ash Lagoon       |
| AM4           | Tai Yuen Village |

### 2.3 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring was performed using the High Volume Air Samplers (HVAS), TEOM continuous dust monitor and the MINIVOL Portable Sampler at AM1&2, AM3 and AM4 respectively. TEOM continuous dust monitors were used to carry out 1-hour TSP monitoring at AM1, AM2 and AM3. [Table 2.2](#) summarises the equipment used in dust monitoring.

Table 2.2 Air Quality Monitoring Equipment

| Equipment  | Model and Make                                    |
|--|---|
| <i>24-hour sampling:</i><br>HVAS Sampler             | Model TE5170x<br>Tisch Environmental Inc.         |
| Continuous TSP Dust Meter                            | TEOM continuous dust monitor<br>Thermo Scientific |
| MINIVOL Portable Sampler                             | AIRMETRICS  |
| <i>1-hour sampling:</i><br>Continuous TSP Dust Meter | TEOM continuous dust monitor<br>Thermo Scientific |

## 2.4 Monitoring Parameters, Frequency and Duration

Table 2.3 summarises the monitoring parameters, duration and frequency of air quality monitoring. The monitoring schedule for the reporting month is shown in [Appendix C](#).

Table 2.3 Air Quality Monitoring Parameter, Duration and Frequency

| Monitoring Stations | Parameter   | Duration | Frequency                     |
|---------------------|-------------|----------|-------------------------------|
| AM1                 | 1-hour TSP  | 1        | 3 hourly samples every 6 days |
|                     | 24-hour TSP | 24       | Once every 6 days             |
| AM2                 | 1-hour TSP  | 1        | 3 hourly samples every 6 days |
|                     | 24-hour TSP | 24       | Once every 6 days             |
| AM3                 | 1-hour TSP  | 1        | 3 hourly samples every 6 days |
|                     | 24-hour TSP | 24       | Once every 6 days             |
| AM4                 | 24-hour TSP | 24       | Once every 6 days             |

## 2.5 Monitoring Procedures and Calibration Details

HVAS and MINIVOL (24- hour TSP Monitoring):

### *Preparation of Filter Papers*

- Visual inspection of filter papers was carried out to ensure that there were no pinholes, tears and creases;
- The filter papers were then labeled before sampling.
- The filter papers were equilibrated at room temperature and relative humidity < 50% for at least 24 hours before weighing.

### *Field Monitoring*

- During collection of the sampled filter paper, the information on the elapse timer was logged. Site observations around the monitoring stations, which might have affected the monitoring results, were also recorded. Major pollution sources, if any, would be identified and reported. The flow record chart for the previous sampling was checked to see if there was any abnormality.
- The post-sampling filter papers were removed carefully from the filter holder and folded to avoid loss of fibres or dust particles from the filter papers;
- The filter holder and its surrounding were cleaned;
- A pre-weighed blank filter paper for the next sampling was put in place and aligned carefully. The filter holder was then tightened firmly to avoid leakage;
- A new flow record chart was loaded into the flow recorder;
- The programmable timer was set for the next 24 hrs sampling period;
- The post-sampling filter papers were equilibrated at room temperature and relative humidity < 50% for at least 24 hours before weighing.

TEOM continuous dust monitor (24- hour TSP and 1- hour TSP Monitoring):

- The following parameters of the TEOM model dust meters are regularly checked to ensure proper functionality:
  - Operation Mode;
  - Frequency of the tapered element;
  - Main flow;
  - Bypass flow.

### *Maintenance & Calibration*

- The monitoring equipment and their accessories are maintained in good working conditions.
- Monitoring equipment is calibrated at monthly intervals. Calibration details are shown in [Appendix F](#).

## **2.6 Results and Observations**

All dust monitoring works were conducted on schedule. All monitoring data and graphical presentation of the monitoring results are provided in [Appendix D](#). Key findings and observations are provided below:

### *1-hour TSP*

No exceedance of 1-hour TSP Action/Limit Level was recorded in the month.

### *24-hour TSP*

No exceedance of 24-hour TSP Action/Limit Level was recorded in the month.

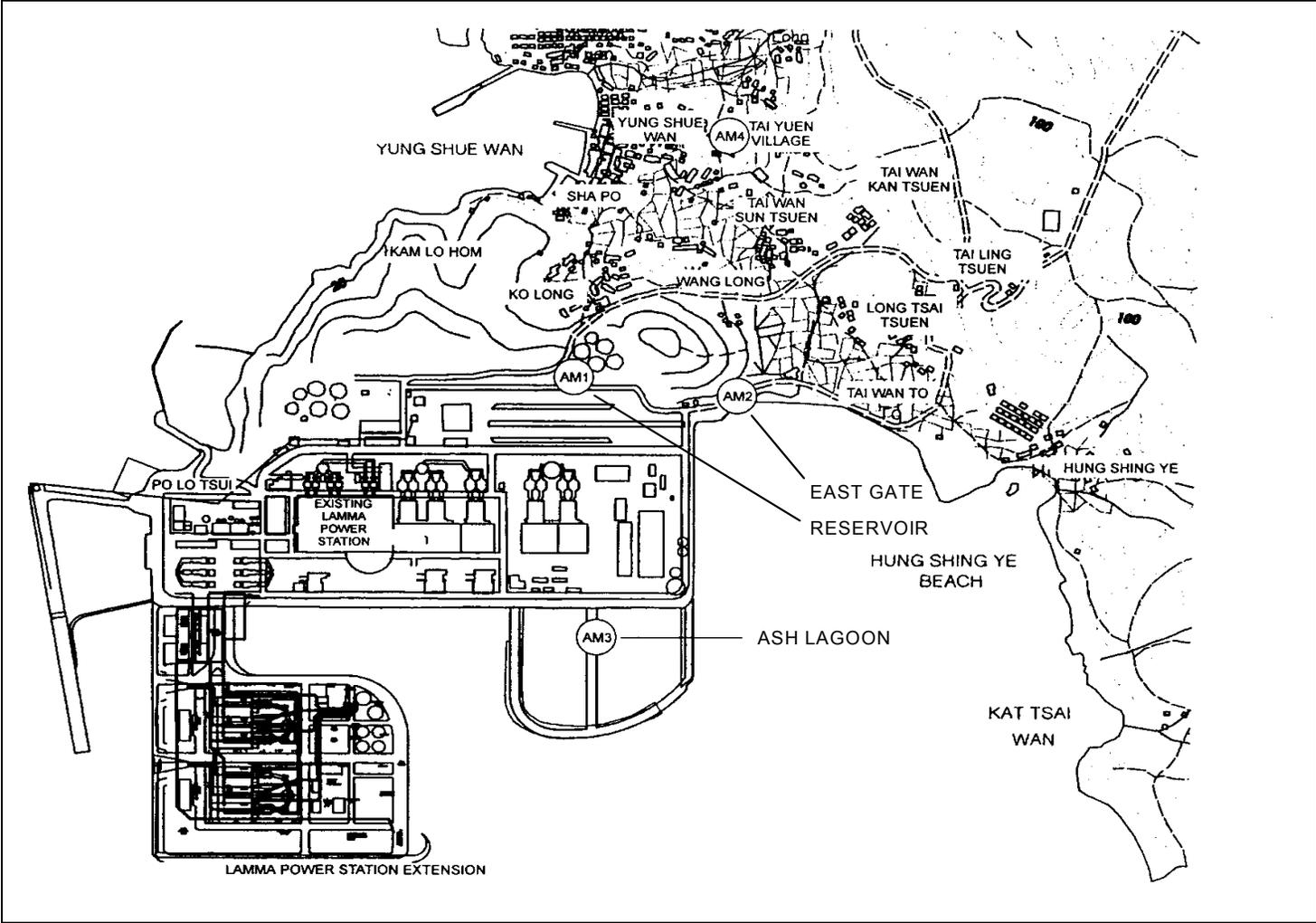


Figure 2.1 Location of Air Quality Monitoring Stations

### 3. NOISE

#### 3.1 Monitoring Requirements

Continuous noise alarm monitoring at Ash Lagoon/Ching Lam were carried out to calculate the noise contributed by the construction activities at the two critical NSR's, viz. Long Tsai Tsuen/Hung Shing Ye and the school within the village of Tai Wan San Tsuen. The impact monitoring data for construction noise were checked against the limit levels specified in the EM&A Manual. With the availability of the construction noise permits, impact monitoring for the construction work during the restricted hours was also carried out. Section 4 presents the details of the construction noise permits.

The impact noise monitoring data were checked against the limit levels specified in the EM&A Manual. [Appendix B](#) shows the established Action/Limit Levels for noise.

#### 3.2 Monitoring Locations

In accordance with the EM&A manual, the identified noise monitoring locations of Ash Lagoon and Ching Lam are shown in [Figure 3.1](#).

#### 3.3 Monitoring Equipment

The sound level meters used for noise monitoring complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). The noise monitoring equipment used is shown in [Table 3.1](#).

Table 3.1 Noise Monitoring Equipment

| Equipment              | Model    |
|------------------------|----------|
| Sound level meters     | B&K 2250 |
| Sound level calibrator | B&K 4231 |

#### 3.4 Monitoring Parameters, Frequency and Duration

Continuous alarm monitoring was carried out at Ash Lagoon and Ching Lam. The measurement duration and parameter of noise monitoring were presented in [Table 3.2](#) as follows:

Table 3.2 Noise Monitoring Duration and Parameter

| Location   | Time Period   | Frequency                             | Parameter        |
|------------|---|---------------------------------------|------------------|
| Ash Lagoon | Day-time:<br>0700-1900 hrs on normal weekdays   | Day-time:<br>30 minutes               | 30-min $L_{Aeq}$ |
|            | Evening-time & holidays:<br>0700-2300 hrs on holidays;<br>and 1900-2300 hrs on all other days | Evening-time & holidays:<br>5 minutes | 5-min $L_{Aeq}$  |
| Ching Lam  | Night-time:<br>2300-0700 hrs of next day  | Night-time:<br>5 minutes              | 5-min $L_{Aeq}$  |

### 3.5 Monitoring Procedures and Calibration Details

#### *Monitoring Procedures*

##### *Continuous Noise Monitoring for Lamma Extension Construction*

The measured noise levels (MNL's) were collected at the noise alarm monitoring stations at Ash Lagoon and Ching Lam. The notional background noise levels (viz. baseline noise data at Ash Lagoon and Ching Lam) were applied to correct the corresponding MNL's in 30-min/5-min  $L_{Aeq}$ .

A wind speed sensor was installed at Station Building Rooftop. The wind speed signal was used to determine whether the data from Ash Lagoon and Ching Lam noise alarm monitoring stations were affected. The instantaneous data was discarded in case the instantaneous wind speed exceeded 10 m/s. The 30-min/5-min  $L_{Aeq}$  was considered valid only if the amount of valid data was equal to or above 70%.

#### *Equipment Calibration*

The sound level meters and calibrators have been verified by the manufacturer or accredited laboratory. Equipment for continuous noise monitoring was calibrated at least once per month.

### **3.6 Results and Observations**

Continuous noise monitoring was conducted at the two monitoring stations at Ash Lagoon and Ching Lam.

All monitoring results and their graphical presentations are provided in [Appendix E](#). No exceedance of noise Action/Limit Level was recorded in the month.

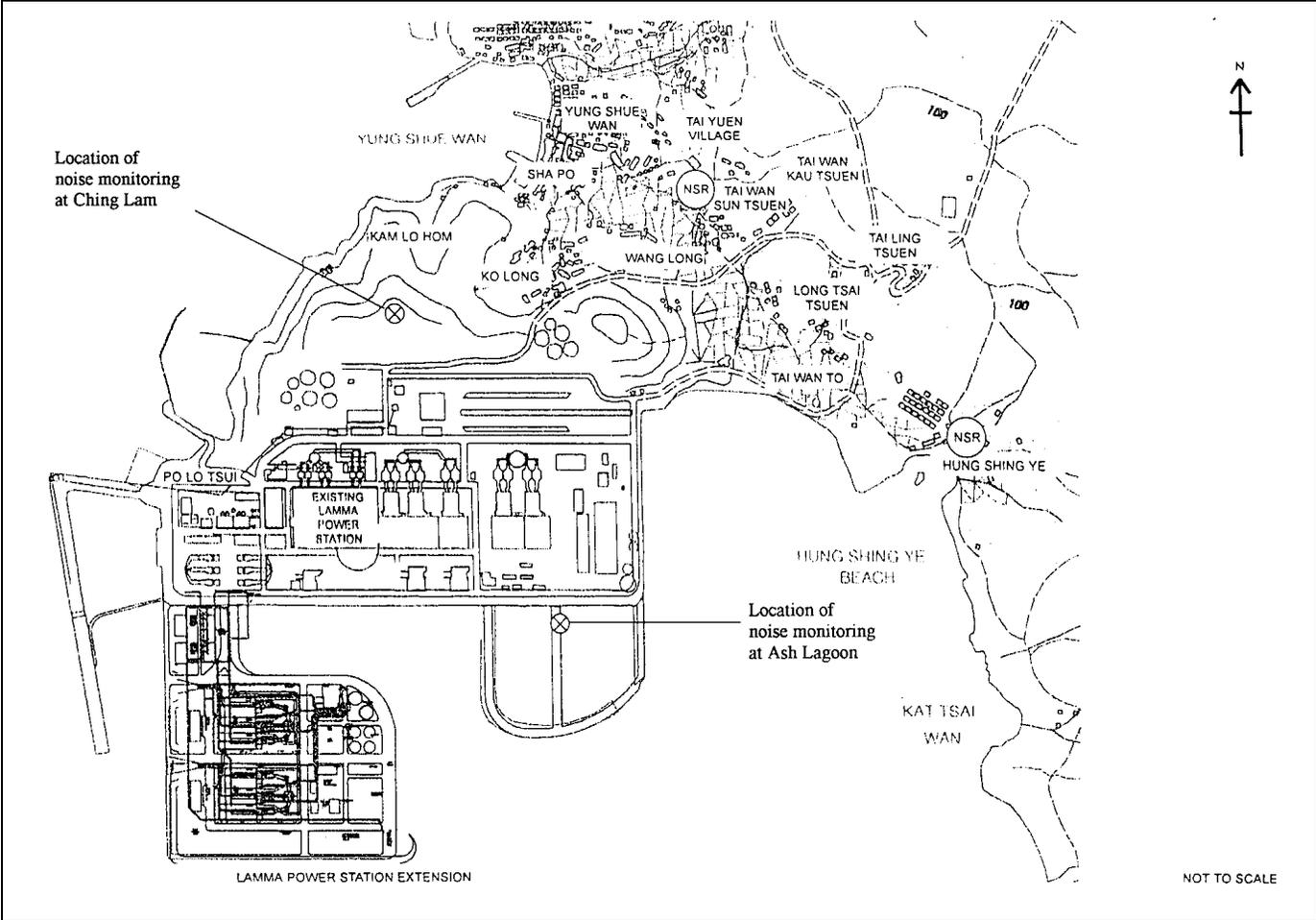


Figure 3.1 Location of Noise Monitoring Stations

## 4. ENVIRONMENTAL AUDIT

### 4.1 Review of Environmental Monitoring Procedures

The environmental monitoring procedures were regularly reviewed by the Environmental Team. No modification to the existing monitoring procedures was recommended.

### 4.2 Assessment of Environmental Monitoring Results

#### *Monitoring results for Air Quality and Noise*

The environmental monitoring results for Air Quality and Noise in the reporting month presented in sections 2, 3 and 4 respectively are summarized in [Table 4.1](#).

Table 4.1 Summary of AL Level Exceedances on Monitoring Parameters

| Item  | Parameter Monitored  | Monitoring Period | No. of Exceedances In |             | Event/Action Plan Implementation Status and Results |
|-------|--|-------------------|-----------------------|-------------|---|
|       |  |                   | Action Level          | Limit Level |   |
| Air   |  |                   |                       |             |   |
| 1     | Ambient TSP (24-hour)  | 01/02/17-28/02/17 | 0                     | 0           |   |
| 2     | Ambient TSP (1-hour)   | 01/02/17-28/02/17 | 0                     | 0           |   |
| Noise |  |                   |                       |             |   |
| 1     | Noise level at the critical NSR's predicted by the noise alarm monitoring system | 01/02/17-28/02/17 | 0                     | 0           |   |

### 4.3 Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Inert C&D materials comprise excavated materials and broken concrete. Non-inert C&D materials comprise general refuse, metals and paper/ cardboard packaging, plastics, chemical waste, etc.

No inert C&D material nor non-inert C&D material were disposed of in February 2017 as shown in [Table 4.2](#).

Table 4.2 Estimated Amounts of Waste in February 2017

| Total Inert C&D Waste Materials | Non-inert C&D Materials |                                   |                |
|---------------------------------|-------------------------|-----------------------------------|----------------|
|                                 | C&D Materials Recycled  | C&D Waste Disposed of at Landfill | Chemical Waste |
| 5807.89 Tonnes                  | 0 Tonnes                | 1.63 Tonnes                       | 0 Litres       |

The monthly waste flow tables prepared by the contractors are attached in [Appendix K](#).

#### 4.4 Site Environmental Audit

Site audits were carried out by ET on a weekly basis to monitor environmental issues at the construction sites to ensure that all mitigation measures were implemented timely and properly. The site audit findings for the reporting month are summarized in [Appendix H](#). The site conditions were generally satisfactory. All required mitigation measures were implemented.

#### 4.5 Status of Environmental Licensing and Permitting

All permits/licenses obtained for the project are summarised in [Table 4.3](#).

Table 4.3 Summary of Environmental Licensing and Permit Status

| Description                 | Permit No.      | Valid Period |          | Highlights   | Status |
|-----------------------------|-----------------|--------------|----------|--|--------|
|                             |                 | From         | To       |  |        |
| Varied Environmental Permit | EP-071/2000/C   | 18/05/05     | -        | The whole construction work site   | Valid  |
| Construction Noise Permit   | GW-RS1026-16    | 11/10/16     | 10/04/17 | Foundation works for Unit L10 (275kV Switching Station). Operation of PME during restricted hours. | Valid  |
| Construction Noise Permit   | GW-RS1299-16    | 26/12/16     | 25/06/17 | Civil and Building Works for Unit L10. Operation of PME during restricted hours.                   | Valid  |
| Construction Noise Permit   | GW-RS1318-16    | 26/12/16     | 26/06/17 | Foundation work for Unit L11. Operation of PME during restricted hours.                            | Valid  |
| WPCO Discharge Licence*     | WT00025747-2016 | 05/10/16     | 31/10/21 | The construction site of 275kV Switching Station   | Valid  |

| Description                             | Permit No.           | Valid Period |          | Highlights                            | Status |
|---|----------------------|--------------|----------|---------------------------------------|--------|
|   |                      | From         | To       |                                       |        |
| WPCO Discharge Licence                  | WT00027040-2017      | 06/02/17     | 28/02/22 | Foundation works for Unit L11         | Valid  |
| Registration of Chemical Waste Producer | WPN5113-912-S3180-19 | 21/01/16     | -        | Foundation works for Unit L10         | Valid  |
| Registration of Chemical Waste Producer | WPN5213-912-P2781-22 | 22/02/16     | -        | Civil and Building Works for Unit L10 | Valid  |
| Registration of Chemical Waste Producer | WPN5113-912-S3180-20 | 11/01/17     | -        | Foundation works for Unit L11         | Valid  |
| Waste Disposal Billing Account          | Account No.: 7024247 | 03/02/16     | -        | Foundation works for Unit L10         | Valid  |
| Waste Disposal Billing Account          | Account No.: 7026035 | 06/10/16     | -        | Civil and Building Works for Unit L10 | Valid  |
| Waste Disposal Billing Account          | Account No.: 7026793 | 28/12/16     | -        | Foundation works for Unit L11         | Valid  |

Note: \* - Water quality monitoring was carried out in January 2017 and the result had been reported under a separate cover by the contractor.

#### 4.6 Implementation Status of Environmental Mitigation Measures

Mitigation measures detailed in the permits and the EM&A Manual (Construction Phase) are required to be implemented. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in [Appendix I](#).

#### 4.7 Implementation Status of Event/Action Plans

The Event/Action Plans extracted from the EM&A Manual (Construction Phase) are presented in [Appendix G](#).

#### 4.8 Implementation Status of Environmental Complaint Handling Procedures

In February 2017, no complaint against the construction activities was received.

Table 4.4 Environmental Complaints Received in February 2017

| Case Reference /<br>Date, Time Received /<br>Date, Time Concerned | Descriptions /Actions Taken | Conclusion /<br>Status |
|---|-----------------------------|------------------------|
| Nil   | N/A                         | N/A                    |

Table 4.5 Outstanding Environmental Complaints Carried Over

| Case Reference /<br>Date, Time Received /<br>Date, Time Concerned | Descriptions /Actions Taken | Conclusion /<br>Status |
|---|-----------------------------|------------------------|
| Nil   | N/A                         | N/A                    |

## 5. FUTURE KEY ISSUES

### 5.1 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

#### 275kV Switching Station

##### *Noise Impact*

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

##### *Air Impact*

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

##### *Water Impact*

- To recycle and reuse wastewater from bored pipe construction work and to ensure compliance in accordance with the WPCO discharge licence already obtained.

#### Unit L10 Civil and Building Works

##### *Noise Impact*

- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

##### *Air Impact*

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

#### Unit L11 Piling Works

##### *Noise Impact*

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

##### *Air Impact*

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

##### *Water Impact*

- To recycle and reuse wastewater from bored pipe construction work and to ensure compliance in accordance with the WPCO discharge licence already obtained.

## **5.2 Monitoring Schedules for the Next 3 Months**

The tentative environmental monitoring schedules for the next 3 months are shown in [Appendix C](#).

## **5.3 Construction Program for the Next 3 Months**

The tentative construction programs for the next 3 months are shown in [Appendix J](#).

## **6. CONCLUSION**

All monitoring work at designated stations was performed as scheduled satisfactorily. The environmental monitoring works and site inspection were performed as scheduled in the reporting month. All monitoring results were checked and reviewed.

No Action/Limit level exceedance on 1-hour and 24-hour TSP level was recorded in the reporting month.

No Action/Limit level exceedance on noise was recorded in the reporting month.

Environmental mitigation measures recommended in the EM&A manual for the construction activities were implemented in the reporting month. No complaint against the construction activities was received in the reporting month. No prosecution was received for this Project in the reporting period.

The environmental performance of the Project was generally satisfactory.

Appendix A Organization Chart

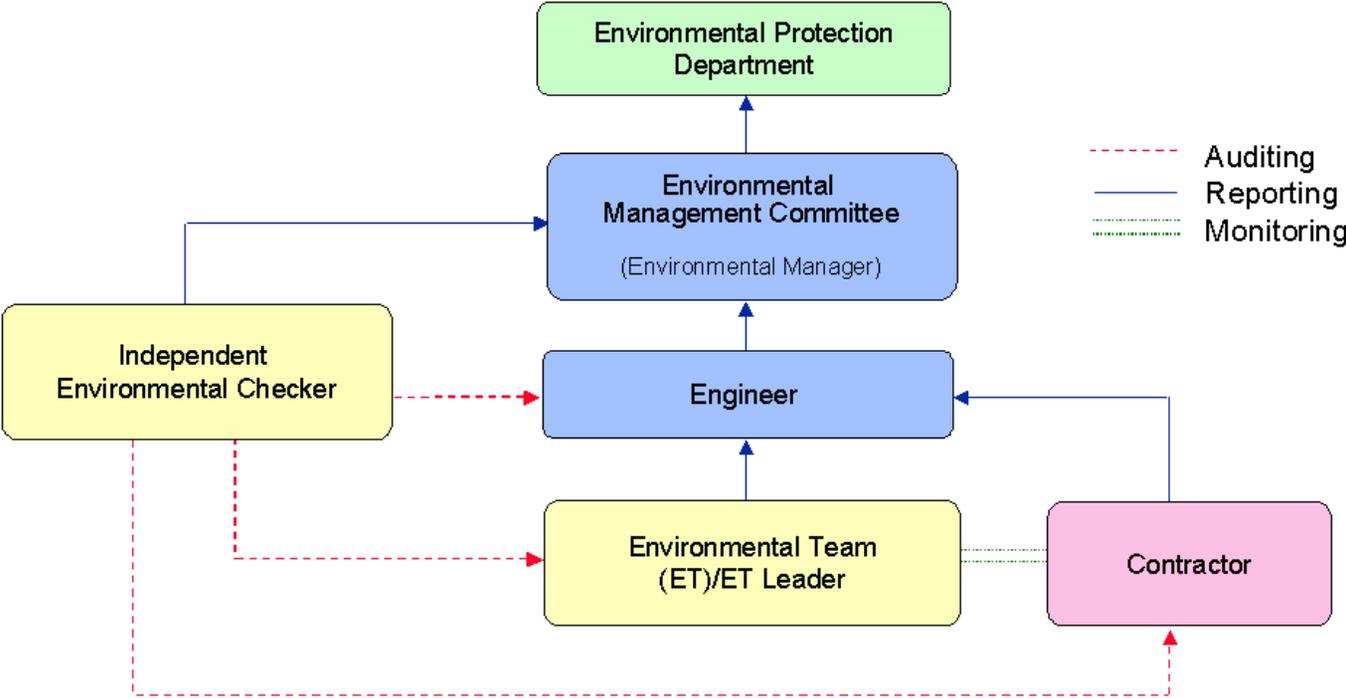


Figure A.1 Organisation of EM&A Programme at Construction Phase

## Appendix B Action and Limit Levels for Air Quality and Noise Monitoring

### B.1. Air

Table B.1 Action and Limit Levels for 1-hour and 24-hour TSP

|             | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|-------------|--|---------------------------------------|
| 1-hour TSP* | 340                                    | 500                                   |
| 24-hour TSP | 190                                    | 260                                   |

\* No Action/Limit Level for 1-hour TSP is applied to AM4 where no real time dust monitor is installed.

### B.2. Noise

Table B.2 AL Levels for Construction Noise (Other than Percussive Piling)

| Parameters   | Action  | Limit   |
|--|---|---|
| Noise Levels at the NSR's at Long Tsai Tsuen/Hung Shing Ye and school within the village of Tai Wan San Tsuen predicted by the noise alarm monitoring system | When one or more documented complaints are received | a. 75 dB(A) in $L_{Aeq,30 \text{ min}}$ (07:00-19:00 hrs on normal weekdays) (Note 1)   |
| Manual noise monitoring at the nearest Pak Kok Tsui residences to cable landing points N4 and N5   |   | b. subject to statutory control under the Noise Control Ordinance (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days). Set to 60 dB(A) in $L_{Aeq,5 \text{ min}}$ |
| Note:  |   |   |
| 1. For educational institution, the limit level shall be 70 dB(A), reduced to 65 dB(A) during examination periods.   |   |   |

## Appendix C Environmental Monitoring Schedule

Table C.1 Monitoring schedule for 24hr and 1hr TSP monitoring for Lamma Extension Construction (February 2017 to May 2017)

| 24hr TSP Monitoring | 1hr TSP Monitoring           |
|---------------------|------------------------------|
| 03/Feb/2017         | 03/Feb/2017 1500hr to 1800hr |
| 09/Feb/2017         | 09/Feb/2017 1500hr to 1800hr |
| 15/Feb/2017         | 15/Feb/2017 1500hr to 1800hr |
| 21/Feb/2017         | 21/Feb/2017 1500hr to 1800hr |
| 27/Feb/2017         | 27/Feb/2017 1500hr to 1800hr |
| 05/Mar/2017         | 05/Mar/2017 1500hr to 1800hr |
| 11/Mar/2017         | 11/Mar/2017 1500hr to 1800hr |
| 17/Mar/2017         | 17/Mar/2017 1500hr to 1800hr |
| 23/Mar/2017         | 23/Mar/2017 1500hr to 1800hr |
| 29/Mar/2017         | 29/Mar/2017 1500hr to 1800hr |
| 04/Apr/2017         | 04/Apr/2017 1500hr to 1800hr |
| 10/Apr/2017         | 10/Apr/2017 1500hr to 1800hr |
| 16/Apr/2017         | 16/Apr/2017 1500hr to 1800hr |
| 22/Apr/2017         | 22/Apr/2017 1500hr to 1800hr |
| 28/Apr/2017         | 28/Apr/2017 1500hr to 1800hr |
| 04/May/2017         | 04/May/2017 1500hr to 1800hr |
| 10/May/2017         | 10/May/2017 1500hr to 1800hr |
| 16/May/2017         | 16/May/2017 1500hr to 1800hr |
| 22/May/2017         | 22/May/2017 1500hr to 1800hr |
| 28/May/2017         | 28/May/2017 1500hr to 1800hr |

## APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

Month: February 2017

24 hour TSP Measurement:-

| Date       | TSP concentration ( $\mu\text{g}/\text{m}^3$ ) |                    |                     |                           | Weather Information<br>(From Hong Kong Observatory) |  |                  |
|------------|--|--------------------|---------------------|---------------------------|---|--|------------------|
|            | Reservoir<br>(AM1)                             | East Gate<br>(AM2) | Ash Lagoon<br>(AM3) | Tai Yuen Village<br>(AM4) | Mean Wind Speed<br>(km/hr)                          | Prevailing Wind Dir.<br>( $^{\circ}$ ) | Mean R.H.<br>(%) |
| 03/02/2017 | 37   | 45                 | 38                  | 29                        | (1)   | (1)                                    | 76               |
| 09/02/2017 | 79   | 89                 | 35                  | 28                        | (1)   | (1)                                    | 56               |
| 15/02/2017 | 36   | 38                 | 39                  | 46                        | (1)   | (1)                                    | 62               |
| 21/02/2017 | 43   | 39                 | 28                  | 56                        | (1)   | (1)                                    | 90               |
| 27/02/2017 | 63   | 53                 | 46                  | 36                        | (1)   | (1)                                    | 66               |

Note: (1) Weather information from Hong Kong Observatory not available.

1 hour TSP Measurement:-

| Date       | Time          | TSP concentration ( $\mu\text{g}/\text{m}^3$ ) |                    |                     |
|------------|---------------|--|--------------------|---------------------|
|            |               | Reservoir<br>(AM1)                             | East Gate<br>(AM2) | Ash Lagoon<br>(AM3) |
| 03/02/2017 | 15:00 - 15:59 | 31   | 42                 | 47                  |
|            | 16:00 - 16:59 | 50   | 50                 | 54                  |
|            | 17:00 - 17:59 | 48   | 46                 | 46                  |
| 9/02/2017  | 15:00 - 15:59 | 70   | 92                 | 62                  |
|            | 16:00 - 16:59 | 64   | 84                 | 60                  |
|            | 17:00 - 17:59 | 61   | 74                 | 53                  |
| 15/02/2017 | 15:00 - 15:59 | 44   | 32                 | 27                  |
|            | 16:00 - 16:59 | 32   | 41                 | 38                  |
|            | 17:00 - 17:59 | 58   | 52                 | 62                  |
| 21/02/2017 | 15:00 - 15:59 | 29   | 33                 | 26                  |
|            | 16:00 - 16:59 | 27   | 29                 | 27                  |
|            | 17:00 - 17:59 | 22   | 23                 | 27                  |
| 27/02/2017 | 15:00 - 15:59 | 39   | 46                 | 49                  |
|            | 16:00 - 16:59 | 58   | 57                 | 65                  |
|            | 17:00 - 17:59 | 64   | 62                 | 70                  |

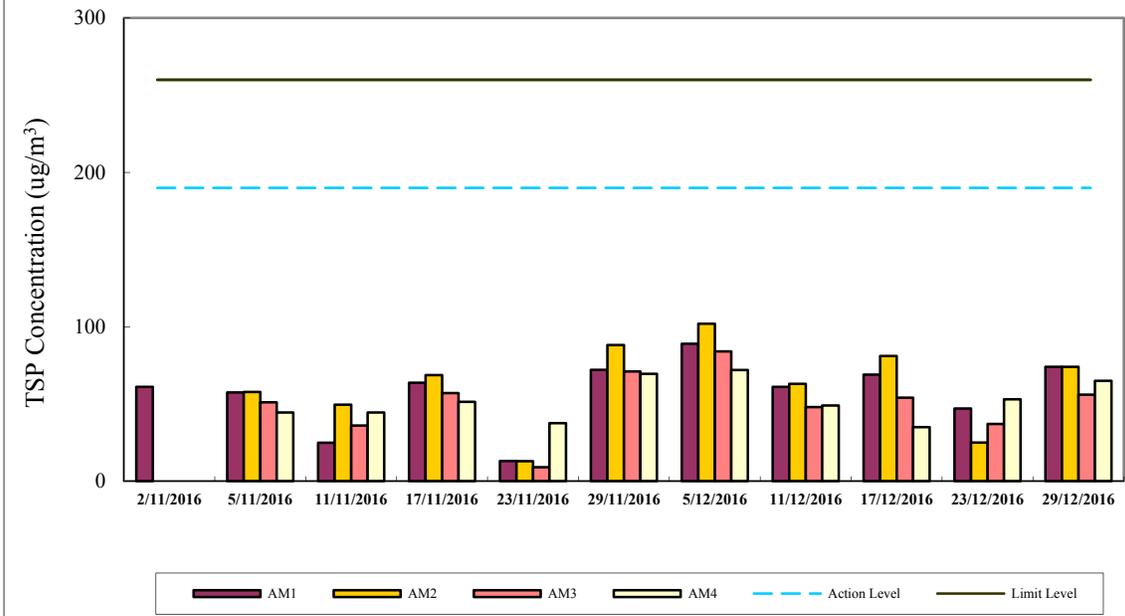
|              | 1-hr TSP<br>( $\mu\text{g}/\text{m}^3$ ) | 24-hr TSP<br>( $\mu\text{g}/\text{m}^3$ ) |
|--------------|--|---|
| Action Level | 340                                      | 190                                       |
| Limit Level  | 500                                      | 260                                       |

Calibration: Calibration details are shown in appendix F.

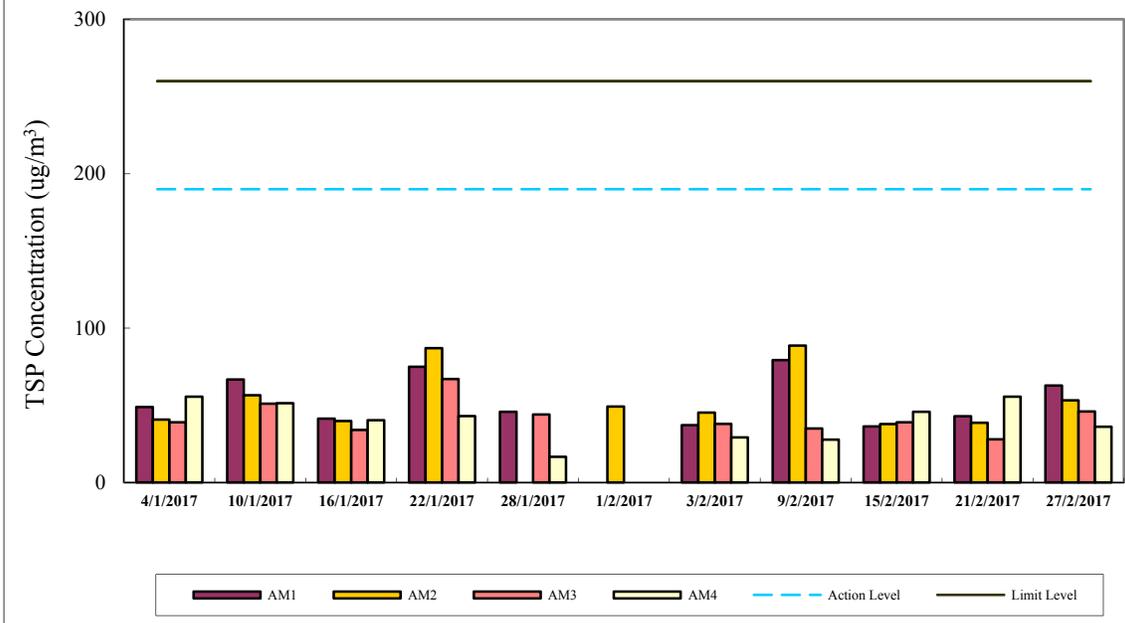
Equipment used:

| Location                | 1-hr TSP | 24-hr TSP                |
|-------------------------|----------|--------------------------|
| Reservoir and East Gate | TEOM     | High Volume Air Sampler  |
| Ash Lagoon              | TEOM     | TEOM                     |
| Tai Yuen Village        | -        | MINIVOL Portable Sampler |

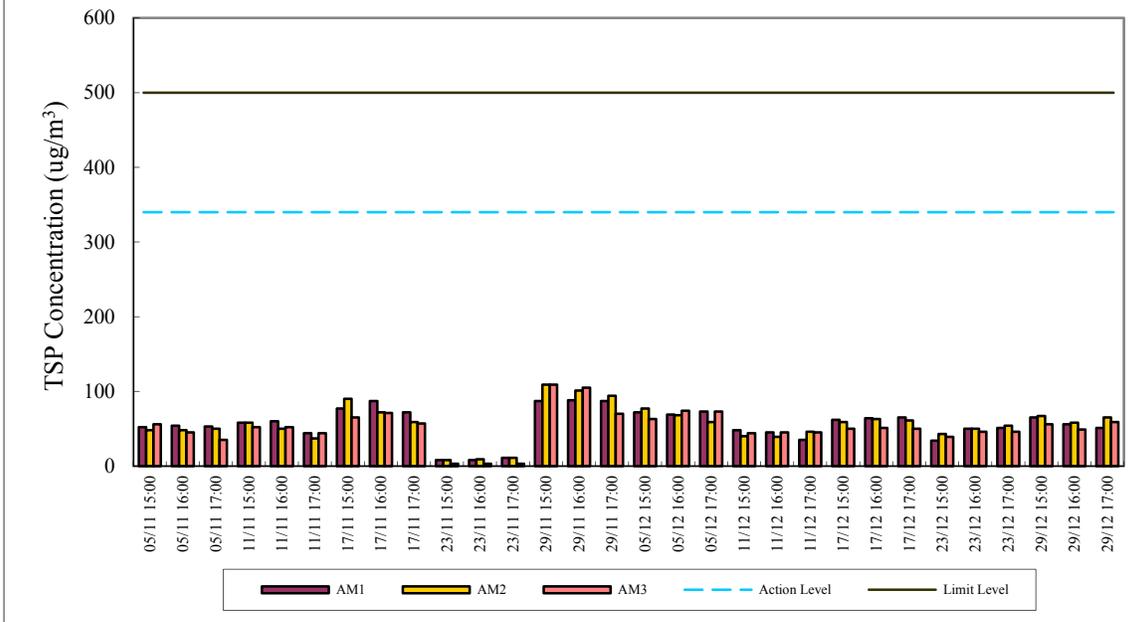
24-hr TSP Air Monitoring Data (November 2016 - December 2016)



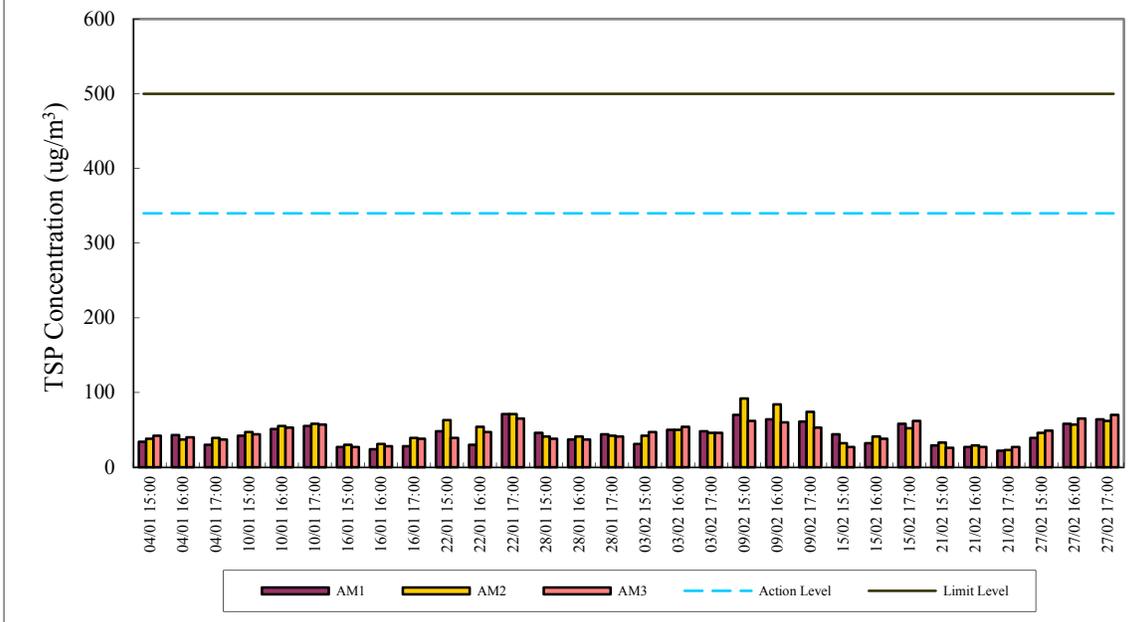
24-hr TSP Air Monitoring Data (January 2017 - February 2017)



1-hr TSP Air Monitoring Data (November 2016 - December 2016)



1-hr TSP Air Monitoring Data (January 2017 - February 2017)



## Appendix E

## Continuous Noise Monitoring Results for February 2017

Site: Lamma Power Station Extension Construction  
 Measurement Location: Ash Lagoon and Ching Lam  
 Measurement Parameter: 30-min Leq (07:00-19:00 hrs on normal weekdays)  
 5-min Leq (07:00-23:00 hrs on holidays and  
 19:00-23:00 hrs on all other days, and 23:00-  
 07:00 hrs of next day)  
 Noise Equipment Used: B&K 2250 sound level meters and B&K 4231 sound  
 level calibrator  
 Last Calibration Date: B&K 2250 sound level meters - 09/11/2015 (Ching Lam)  
 19/08/2016 (Ash Lagoon)  
 B&K 4231 calibrator - 07/04/2016

| Date       | Time        | Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A)) |     | Limit Noise Level (dB(A)) | Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A)) |     | Limit Noise Level (dB(A)) |
|------------|-------------|--|-----|---------------------------|--|-----|---------------------------|
|            |             | Max  | Avg |                           | Max  | Avg |                           |
| 01/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 70                        |
| 01/02/2017 | 19:00-23:00 | ---  | --- | 60                        | ---  | --- | 60                        |
| 01/02/2017 | 23:00-07:00 | ---  | --- | 45                        | 29   | 21  | 45                        |
| 02/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 70                        |
| 02/02/2017 | 19:00-23:00 | ---  | --- | 60                        | 23   | 23  | 60                        |
| 02/02/2017 | 23:00-07:00 | ---  | --- | 45                        | 35   | 26  | 45                        |
| 03/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 70                        |
| 03/02/2017 | 19:00-23:00 | 43   | 35  | 60                        | 38   | 30  | 60                        |
| 03/02/2017 | 23:00-07:00 | 36   | 28  | 45                        | 31   | 23  | 45                        |
| 04/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 70                        |
| 04/02/2017 | 19:00-23:00 | 36   | 34  | 60                        | 31   | 29  | 60                        |
| 04/02/2017 | 23:00-07:00 | 36   | 28  | 45                        | 31   | 23  | 45                        |
| 05/02/2017 | 07:00-23:00 | 40   | 28  | 60                        | 35   | 23  | 60                        |
| 05/02/2017 | 23:00-07:00 | 36   | 31  | 45                        | 31   | 27  | 45                        |
| 06/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 70                        |
| 06/02/2017 | 19:00-23:00 | 39   | 35  | 60                        | 34   | 30  | 60                        |
| 06/02/2017 | 23:00-07:00 | 45   | 38  | 45                        | 41   | 33  | 45                        |
| 07/02/2017 | 07:00-19:00 | ---  | --- | 75                        | ---  | --- | 75                        |
| 07/02/2017 | 19:00-23:00 | 23   | 18  | 60                        | 18   | 14  | 60                        |
| 07/02/2017 | 23:00-07:00 | 41   | 34  | 45                        | 37   | 29  | 45                        |
| 08/02/2017 | 07:00-19:00 | 32   | 26  | 75                        | 28   | 22  | 70                        |
| 08/02/2017 | 19:00-23:00 | 38   | 30  | 60                        | 33   | 25  | 60                        |
| 08/02/2017 | 23:00-07:00 | 36   | 29  | 45                        | 31   | 24  | 45                        |
| 09/02/2017 | 07:00-19:00 | 39   | 32  | 75                        | 34   | 27  | 70                        |
| 09/02/2017 | 19:00-23:00 | 32   | 25  | 60                        | 27   | 21  | 60                        |
| 09/02/2017 | 23:00-07:00 | 40   | 33  | 45                        | 35   | 28  | 45                        |
| 10/02/2017 | 07:00-19:00 | 38   | 31  | 75                        | 33   | 26  | 70                        |

|            |             |     |     |    |     |     |    |
|------------|-------------|-----|-----|----|-----|-----|----|
| 10/02/2017 | 19:00-23:00 | 37  | 33  | 60 | 32  | 28  | 60 |
| 10/02/2017 | 23:00-07:00 | 38  | 34  | 45 | 33  | 29  | 45 |
| 11/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 11/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 11/02/2017 | 23:00-07:00 | 32  | 26  | 45 | 28  | 23  | 45 |
| 12/02/2017 | 07:00-23:00 | 39  | 36  | 60 | 34  | 31  | 60 |
| 12/02/2017 | 23:00-07:00 | 35  | 30  | 45 | 30  | 26  | 45 |
| 13/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 13/02/2017 | 19:00-23:00 | 41  | 32  | 60 | 37  | 27  | 60 |
| 13/02/2017 | 23:00-07:00 | 43  | 36  | 45 | 38  | 32  | 45 |
| 14/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 14/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 14/02/2017 | 23:00-07:00 | 35  | 30  | 45 | 30  | 24  | 45 |
| 15/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 15/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 15/02/2017 | 23:00-07:00 | 38  | 28  | 45 | 33  | 24  | 45 |
| 16/02/2017 | 07:00-19:00 | 38  | 38  | 75 | 34  | 34  | 70 |
| 16/02/2017 | 19:00-23:00 | 32  | 29  | 60 | 27  | 24  | 60 |
| 16/02/2017 | 23:00-07:00 | 42  | 37  | 45 | 38  | 32  | 45 |
| 17/02/2017 | 07:00-19:00 | 51  | 50  | 75 | 44  | 43  | 70 |
| 17/02/2017 | 19:00-23:00 | --- | --- | 60 | 26  | 26  | 60 |
| 17/02/2017 | 23:00-07:00 | --- | --- | 45 | 41  | 33  | 45 |
| 18/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 18/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 18/02/2017 | 23:00-07:00 | --- | --- | 45 | 38  | 31  | 45 |
| 19/02/2017 | 07:00-23:00 | --- | --- | 60 | 26  | 23  | 60 |
| 19/02/2017 | 23:00-07:00 | --- | --- | 45 | 25  | 20  | 45 |
| 20/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 20/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 20/02/2017 | 23:00-07:00 | --- | --- | 45 | 22  | 19  | 45 |
| 21/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 21/02/2017 | 19:00-23:00 | --- | --- | 60 | 34  | 29  | 60 |
| 21/02/2017 | 23:00-07:00 | --- | --- | 45 | 38  | 26  | 45 |
| 22/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 22/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 22/02/2017 | 23:00-07:00 | --- | --- | 45 | 36  | 30  | 45 |
| 23/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 23/02/2017 | 19:00-23:00 | --- | --- | 60 | 36  | 36  | 60 |
| 23/02/2017 | 23:00-07:00 | --- | --- | 45 | 38  | 32  | 45 |
| 24/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 24/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 24/02/2017 | 23:00-07:00 | --- | --- | 45 | 24  | 19  | 45 |
| 25/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 25/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 25/02/2017 | 23:00-07:00 | --- | --- | 45 | 29  | 22  | 45 |
| 26/02/2017 | 07:00-23:00 | --- | --- | 60 | 23  | 23  | 60 |
| 26/02/2017 | 23:00-07:00 | --- | --- | 45 | 36  | 27  | 45 |
| 27/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |

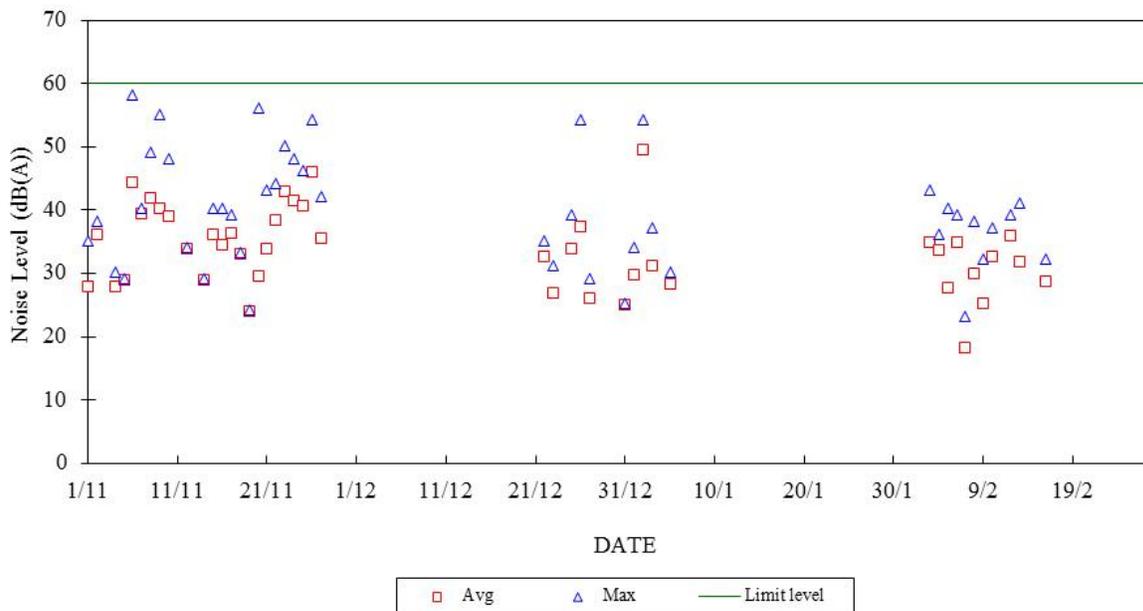
|            |             |     |     |    |     |     |    |
|------------|-------------|-----|-----|----|-----|-----|----|
| 27/02/2017 | 19:00-23:00 | --- | --- | 60 | 29  | 22  | 60 |
| 27/02/2017 | 23:00-07:00 | --- | --- | 45 | 34  | 26  | 45 |
| 28/02/2017 | 07:00-19:00 | --- | --- | 75 | --- | --- | 70 |
| 28/02/2017 | 19:00-23:00 | --- | --- | 60 | --- | --- | 60 |
| 28/02/2017 | 23:00-07:00 | --- | --- | 45 | 30  | 24  | 45 |

Note:

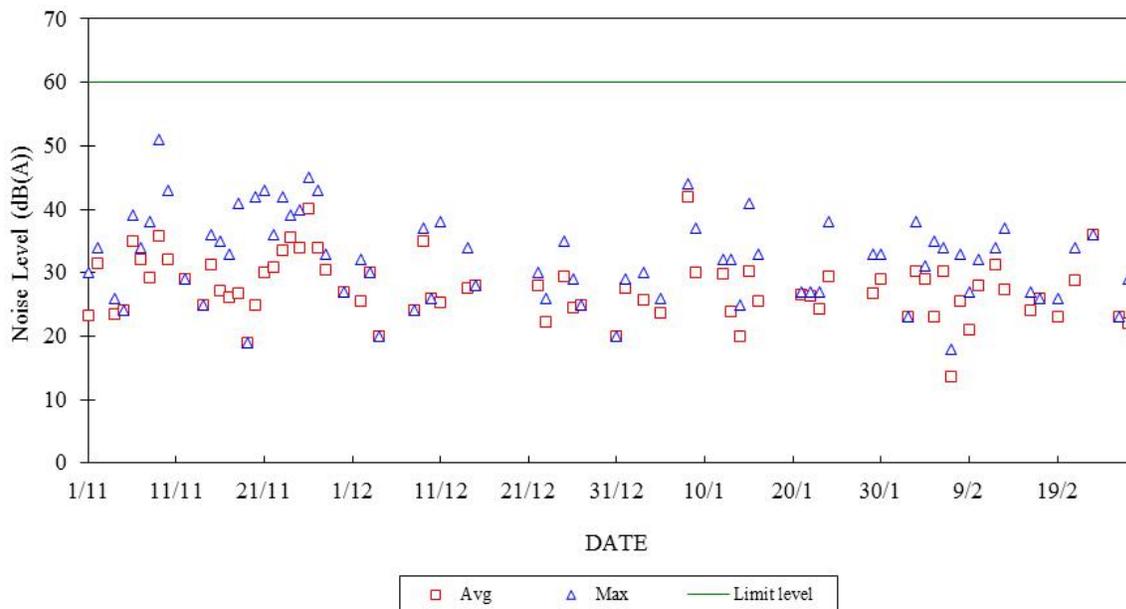
- a. "---" represents the measured noise monitoring data lower than the established notional background level, particularly for the period of 01/02/2017 07:00 - 03/02/2017 19:00 and 17/02/2017 19:00 - 01/03/2017 07:00. The Ash Lagoon noise monitoring station was in normal operation but there were no data of calculated noise level at NSR at Long Tsai Tsuen/Hung Shing Ye.
- b. Continuous noise monitoring was carried out at holidays & evening-time (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days) and night-time (23:00-07:00 hrs of next day) under construction noise permit.



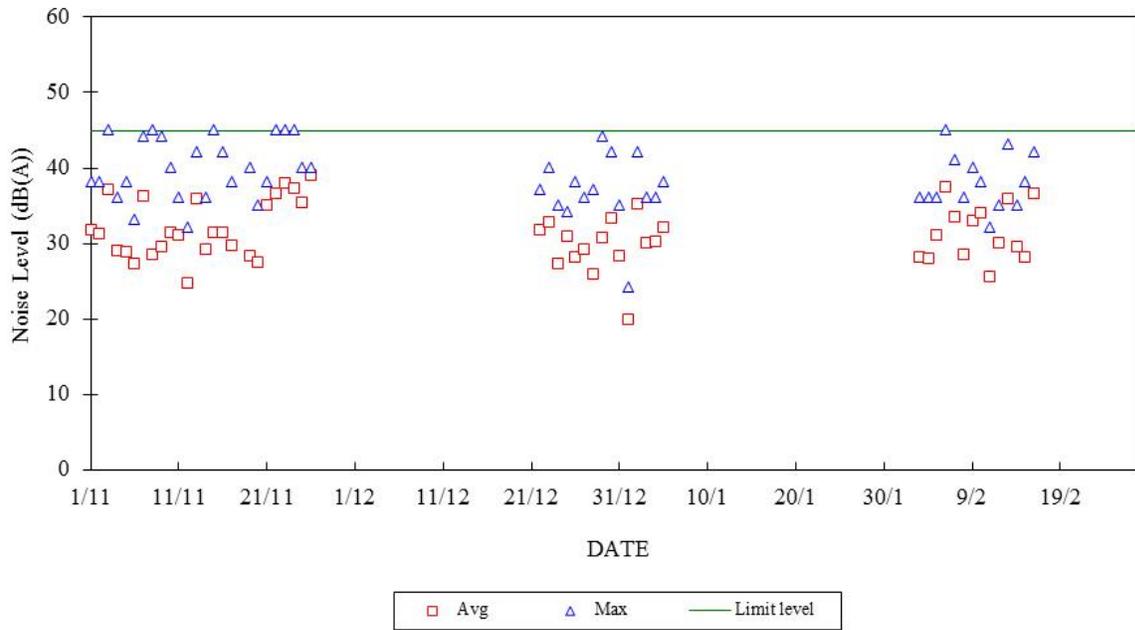
**Construction Noise Monitoring in November 2016 - February 2017**  
 NSR at Long Tsai Tsuen/Hung Shing Ye  
 07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days



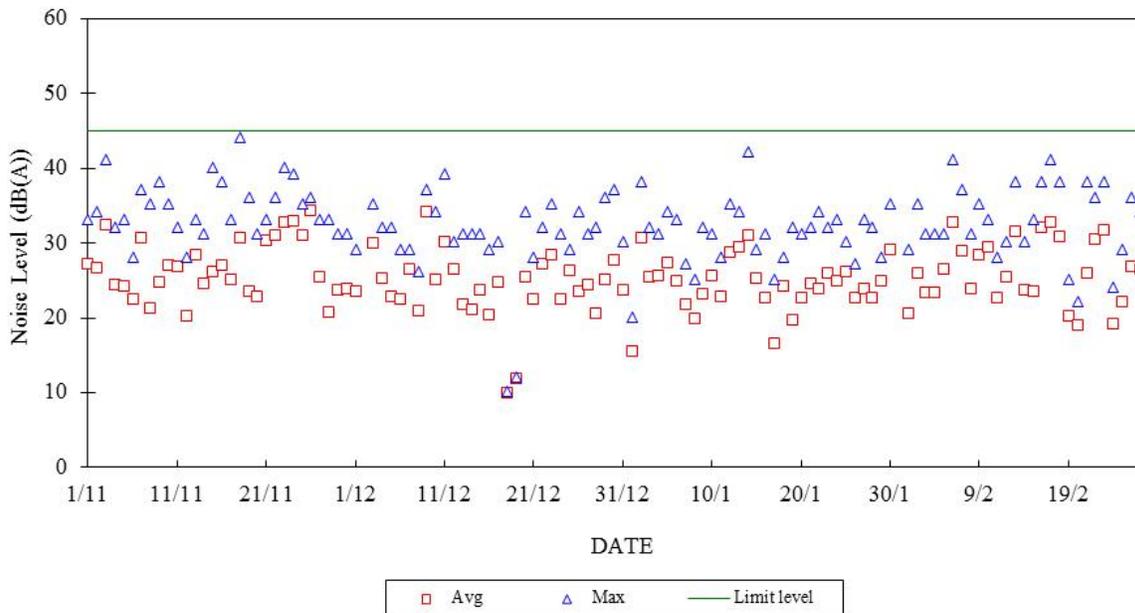
**Construction Noise Monitoring in February 2016 - February 2017**  
 NSR at School within Tai Wan San Tsuen  
 07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days



**Construction Noise Monitoring in November 2016 - February 2017**  
NSR at Long Tsai Tsuen/Hung Shing Ye  
23:00-07:00 hrs of Next Day



**Construction Noise Monitoring in November 2016 - February 2017**  
NSR at School within Tai Wan San Tsuen  
23:00-07:00 hrs of Next Day



# Appendix F

The QA/QC Procedures and Results





HIGH VOLUME AIR SAMPLER  
SITE VISIT LOG SHEET

Site Name: EG Site No.: AM2  
 Date of visit: 17-02-2017 Hour of Visit: 14:00 hrs  
 Staff name: W.M. TAM / W.H. MAN HVAS S/N: 0132  
 Used filter paper no.: MH81 New filter paper no.: MH83  
 Type of filter: Glass-fibre

I. Ambient Conditions

Temperature,  $T_a = 298.7$  K Pressure,  $P_a = 1017.3$  mb

II. Correction of manometer reading

| Calibration orifice No. | Manometer reading at site conditions corresponds to $Q_{STD} = 40$ ft <sup>3</sup> /min. (inch H <sub>2</sub> O) |
|-------------------------|--|
| 1534(10/2016)           | $H_a = 18.32(T_a/P_a) = 5.38$  |

Manometer reading before calibration: 5.50  
 Adjustment of flow controller (Y/N): N  
 Manometer reading after calibration: N/A

Note: Tolerance Limit of HVAS flow: " 1.0 ft<sup>3</sup>/min. Corresponding limits for manometer : " 0.2 inch H<sub>2</sub>O

III. General Conditions of HVAS

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

IV. Remarks

\_\_\_\_\_  
 \_\_\_\_\_

Conducted by: W.M. TAM / W.H. MAN Checked by: ASIM



THE HONGKONG ELECTRIC CO., LTD.  
LAMMA POWER STATION AND LAMMA EXTENSION  
NOISE MONITORING STATIONS  
SITE VISIT LOG SHEET

Location ~~Station Building Rooftop/Reservoir Area/Ching Lam/~~  
Ash Lagoon/~~No.2 Limestone Silo Roof/Hung Shing Ye\*~~

Date 17-2-2017 Time 10:00 hrs

Equipment B&K 2250 Serial No. 3009916

Staff Attended W.M.TAM / W.H.MAN

1. Calibration

Acoustic calibrator: B&K 4231 (S/N: 2730419)

Noise level measured in calibration: 93.8 (94±1.0 dBA)

2. Weather Conditions

a. Sunny/~~fine/cloudy/showery/heavy rain\*~~

b. ~~Strong wind/breeze/calm\*~~

3. Beacon

Function normally (Yes/No): YES

4. Remark/Observation

✓

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Note: \* - Please delete where inappropriate.

Conducted By: W.M.TAM / W.H.MAN Checked By: Terence Chu

THE HONGKONG ELECTRIC CO., LTD.  
LAMMA POWER STATION AND LAMMA EXTENSION  
NOISE MONITORING STATIONS  
SITE VISIT LOG SHEET

Location ~~Station Building Rooftop/Reservoir Area/Ching Lam/  
Ash Lagoon/No.2 Limestone Silo Roof/Hung Shing Ye\*~~

Date 6-2-2017 Time 13:45 hrs

Equipment B&K 2250 Serial No. 3008621

Staff Attended W.M. TAM / W.H. MAN

1. Calibration

Acoustic calibrator: B&K 4231 (S/N: 2730419)

Noise level measured in calibration: 94.9 (94±1.0 dBA)

2. Weather Conditions

a. ~~Sunny/fine/cloudy/showery/heavy rain\*~~

b. ~~Strong wind/breeze/calm\*~~

3. Beacon

Function normally (Yes/No): YES

4. Remark/Observation

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Note: \* - Please delete where inappropriate.

Conducted By: W.M. TAM / W.H. MAN Checked By: Terence Chu

## Appendix G Event/Action Plans

Table G.1 Event and Action Plans for Air Quality

| Event   | Monitoring  |  | Action   |  |
|---|---|--|--|--|
|   | ET Leader   | IEC  | Engineer   | Contractor   |
| <b>Action Level</b>                           |   |  |  |  |
| Exceedance of one sample                      | Identify source<br>Inform Engineer and IEC verbally<br>Repeat measurement to confirm finding  | Check monitoring data submitted by ET and advise Engineer.   | Notify Contractor<br>Checking monitoring data and contractor's working methods   | Rectify any unacceptable practice<br>amend any working methods if appropriate  |
| Exceedance of two or more consecutive samples | Identify source<br>Inform Engineer and IEC verbally<br>Repeat measurement to confirm finding<br>Increase monitoring frequency<br>Discuss with Engineer and Contractor on remedial actions required<br>If exceedance continues, arrange meeting with Engineer<br>If exceedance stops, discontinue additional monitoring  | Check monitoring data submitted by ET and advise Engineer.<br>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Confirm receipt of notification of failure in writing<br>Notify contractor<br>Checking monitoring data and contractor's working methods<br>Discuss proposed remedial actions with the ET and Contractor<br>Ensure remedial actions properly implemented      | Submit proposals for remedial actions to Engineer within 3 working days of notifications<br>Implement the agreed proposals<br>Amend proposal if appropriate  |
| <b>Limit level</b>                            |   |  |  |  |
| Exceedance of one sample                      | Repeat measurement to confirm finding.<br>Identify the source(s) of the impact. If the exceedance is found to be valid and due to the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable.<br>Increase monitoring frequency to daily<br>Assess the effectiveness of the contractor's remedial actions and keep Engineer, IEC and EPD informed of the results | Check monitoring data submitted by ET and advise Engineer<br>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures  | Confirm receipt of notification of failure in writing<br>Notify Contractor<br>Checking monitoring data and Contractor's working method<br>Discuss with ET and Contractor on remedial actions to be provided<br>Ensure remedial measures properly implemented | Take immediate action to avoid further exceedance<br>Submit proposals for remedial actions to Engineer within 3 working days of notifications<br>Implement the agreed proposals<br>Amend proposal if appropriate |
| Exceedance of two or more                     | Identify source   | Provide feedback to the Engineer on the remedial actions proposed by the   | Confirm receipt of notification of   | Take immediate action to   |

| Event               | Monitoring   |  |  | Action  |  |  |
|---------------------|--|--|--|---|--|--|
|                     | ET Leader  | IEC  | Engineer   | Contractor  |  |  |
| consecutive samples | <p>If the exceedance is found to be valid and due to the construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance as soon as practicable.</p> <p>Repeat measurement to confirm finding</p> <p>Increase monitoring frequency to daily</p> <p>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</p> <p>Arrange meeting with Engineer and Contractor to discuss the remedial actions to be taken</p> <p>If exceedance stops, discontinue additional monitoring</p> | <p>ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p> | <p>failure in writing</p> <p>Checking monitoring data and Contractor's working methods</p> <p>Notify Contractor</p> <p>Discuss proposed remedial actions with ET and Contractor</p> <p>Ensure remedial measures properly implemented</p> <p>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop the portion of work until the exceedance is abated</p> | <p>avoid further exceedance</p> <p>Submit proposals for remedial actions to Engineer within 3 working days of notifications</p> <p>Implement the agreed proposals</p> <p>Resubmit proposals if problem still not under control</p> <p>Stop the relevant portion of works as determined by the Engineer until the exceedance is abated</p> |  |  |

Table G.2 Event and Action Plans for Construction Noise

| Exceedance          | ET Leader   | IEC   | Engineer  | Contractor  |
|---------------------|---|---|---|---|
| <b>Action Level</b> | Undertake noise measurement/check monitoring data to establish validity of complaint.   | Review the analysed results submitted by the ET.  | Notify Contractor of the complaint if proven.   | Submit proposals for remedial actions to Engineer.  |
|                     | If the complaint is valid, inform Engineer and IEC verbally.  | Review the remedial measures proposed by the Contractor and advise the Engineer and ET accordingly.                       | Check Contractor's working methods and advise IEC and ET accordingly.   | Amend proposals if required by the Engineer.  |
|                     | Identify the source(s) of the noise.  | Verify the implementation of the remedial measures.   | Remind the Contractor of his contractual obligations and discuss remedial actions.  | Implement the remedial actions immediately upon instruction from the Engineer.  |
|                     | Discuss remedial actions required with Contractor and Engineer.   |   | Keep the Contractor informed of the efficacy of remedial actions.   | Liaise with the Engineer to optimise the effectiveness of the agreed mitigation.  |
|                     | Increase manual monitoring frequency to assess efficacy of remedial measures.   |   |   |   |
|                     | If exceedance continues, review implementation of appropriate mitigation measures.  |   |   |   |
| <b>Limit Level</b>  | Repeat manual measurement/check monitoring data to confirm findings.  | Agree potential remedial actions with Engineer, ET and Contractor.  | Notify Contractor of exceedance.  | Take immediate action to avoid further exceedance.  |
|                     | Identify the source(s) of the impact. If the exceedance is found to be valid and due to the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable. | Review Contractor's remedial actions / measures to ensure their effectiveness and advise the Engineer and ET accordingly. | Check Contractor's working methods and advise IEC and ET accordingly.<br><br>Discuss with Contractor the remedial actions to be implemented.  | Submit proposals for remedial actions to Engineer.<br><br>Amend proposals if required by the Engineer.  |
|                     | Discuss remedial actions required with Engineer.  | Verify the implementation of the remedial measures  | Keep the Contractor informed of the efficacy of remedial actions.<br>If the exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop the portion of work until the exceedance is abated | Implement remedial actions immediately upon instruction from the Engineer.<br>If the exceedance continues, consider what portion of the work is responsible and, as instructed by the Engineer, stop the portion of work until the exceedance is abated |
|                     | Increase manual monitoring frequency to assess efficacy of remedial measures.   |   |   |   |

Table G.3 Event and Action Plans for Water Quality

| <b>Exceedance</b>   | <b>ET Leader</b>   | <b>IEC</b>   | <b>Engineer</b>   | <b>Contractor</b>   |
|---|--|--|---|---|
| Action level exceeded on one sampling day                       | Verbally inform the Contractor, and IEC.<br>Repeat in-situ measurement to confirm findings;<br>Identify source(s) of impact;<br>Check monitoring data, all plant, equipment and Contractor's working methods;<br>Discuss mitigation measures with Engineer and Contractor;<br>Repeat measurement on next day of exceedance.  | Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Discuss with Contractor the proposed mitigation measures;<br>Make agreement on the mitigation measures to be implemented;<br>Assess the effectiveness of the implemented mitigation measures.                                   | Inform the Engineer and confirm notification of the non-compliance in writing;<br>Rectify unacceptable practice;<br>Check all plant and equipment;<br>Consider changes of working methods;<br>Propose and discuss mitigation measures with Engineer;<br>Implement the agreed mitigation measures.                                       |
| Action level exceeded on more than one consecutive sampling day | Repeat in-situ measurements to confirm findings;<br>Identify source(s) of impact;<br>Inform Contractor and IEC;<br>Check monitoring data, all plant, equipment and Contractor's working methods;<br>Discuss mitigation measure with Engineer and Contractor;<br>Ensure mitigation measures are implemented;<br>Prepare to increase the monitoring frequency to daily;<br>Repeat measurement on next day of exceedance. | Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Discuss with ET and Contractor on the proposed mitigation measures;<br>Make agreement on the mitigation measures to be implemented;<br>Assess the effectiveness of the implemented mitigation measures.                         | Inform the Engineer and confirm notification of the non-compliance in writing;<br>Rectify unacceptable practice;<br>Check all plant and equipment; Consider changes of working methods;<br>Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer;<br>Implement the agreed mitigation measures. |
| Limit level exceeded on one sampling day                        | Verbally inform the Contractor, IEC and the EPD of the exceedance;<br>Repeat in-situ measurement to confirm findings;<br>Identify source(s) of impact;<br>Check monitoring data, all plant,  | Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Discuss with Contractor on the proposed mitigation measures;<br>Request Contractor to critically review the working methods;<br>Make agreement on the mitigation measures to be implemented;<br>Assess the effectiveness of the | Inform the Engineer and confirm notification of the non-compliance in writing;<br>Rectify unacceptable practice;<br>Check all plant and equipment; Consider changes of working methods;<br>Propose mitigation measures to Engineer  |

| <b>Exceedance</b>   | <b>ET Leader</b>  | <b>IEC</b>  | <b>Engineer</b>  | <b>Contractor</b>   |
|---|---|---|--|---|
|   | <p>equipment and Contractor's working methods;</p> <p>Discuss mitigation measure with Engineer and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> <p>Increase the monitoring frequency to daily until no exceedance of Limit level.</p>   |   | <p>implemented mitigation measures.</p>  | <p>within 3 working days and discuss with Engineer;</p> <p>Implement the agreed mitigation measures.</p>  |
| <p>Limit level exceeded by more than one consecutive sampling day</p> | <p>Repeat in-situ measurement to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform Contractor, IEC and EPD;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measure with Engineer and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> <p>Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</p> | <p>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p> | <p>Discuss with Contractor on the proposed mitigation measures;</p> <p>Request Contractor to critically review the working methods;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures;</p> <p>Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine works until no exceedance of the Limit Level.</p> | <p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment; Consider changes of working methods;</p> <p>Propose mitigation measures to Engineer within 3 working days and discuss with Engineer;</p> <p>Implement the agreed mitigation measures..</p> <p>As directed by the Engineer, to slow down or to stop all or part of the marine work</p> |

## **Appendix H Summary of Site Audit Findings**

### L10 Piling Foundation Work (275 kV S/S Construction Sites)

Dates of Inspection: 03/02/2017, 10/02/2017, 17/02/2017 and 24/02/2017.

#### Summary of Findings

##### *General*

- No environmental deficiency identified.

##### *Air Quality*

- No environmental deficiency identified.

##### *Noise*

- No environmental deficiency identified.

##### *Water Quality*

- No environmental deficiency identified.

##### *Waste Management*

- No environmental deficiency identified.

## L10 Civil & Building Superstructure Work

Dates of Inspection: 01/02/2017, 07/02/2017, 14/02/2017, 21/02/2017 and 28/02/2017.

### Summary of Findings

#### *General*

- No environmental deficiency identified.

#### *Air Quality*

- No environmental deficiency identified.

#### *Noise*

- No environmental deficiency identified.

#### *Water Quality*

- No environmental deficiency identified.

#### *Waste Management*

- No environmental deficiency identified.

## L11 Piling Foundation Work

Dates of Inspection: 03/02/2017, 10/02/2017, 17/02/2017 and 24/02/2017.

### Summary of Findings

#### *General*

- No environmental deficiency identified.

#### *Air Quality*

- No environmental deficiency identified.

#### *Noise*

- No environmental deficiency identified.

#### *Water Quality*

- No environmental deficiency identified.

#### *Waste Management*

- No environmental deficiency identified.

## Summary of EMIS

### Power Station – (Part B of EIA Report)

#### Construction Phase Mitigation Measures and their Implementation

| EM&A Log Ref. | Mitigation Measures   | Implementation Status |
|---------------|---|-----------------------|
|               | <b>AIR QUALITY</b>  |                       |
| A1            | For general construction works, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation shall be complied with, such as: <ul style="list-style-type: none"> <li>the haul roads shall be sprayed with water to keep the entire road surface wet.</li> <li>the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle.</li> <li>the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading.</li> </ul> | C<br>C<br>C           |
| A2            | For the concrete batching plant, the following control measures are recommended: <ul style="list-style-type: none"> <li>loading, unloading, handling, transfer or storage of any dusty materials shall be carried out in a totally enclosed system.</li> <li>The materials which may generate airborne dust emissions shall be wetted by water spray system.</li> <li>All receiving hoppers shall be enclosed on three sides up to 3m above unloading point.</li> <li>All conveyor transfer points shall be totally enclosed.</li> </ul>  | C<br>C<br>C<br>C      |
|               | <b>WATER QUALITY</b>  |                       |
| B1            | Silt curtains shall be installed on the eastern, southern and north western sides of the reclamation site during dredging for the reclamation construction. This is a required mitigation measure for the construction works and shall be implemented prior to the commencement of bulk dredging. **  | N/A                   |
| B3            | As a necessary operational constraint combined bulk dredging and sand filling for site formation shall not be permitted at any time. In addition, sand filling for site platform shall take place behind constructed sea walls which pierce the water surface. **   | N/A                   |
| B4            | HEC shall ensure design to divert all storm drains away from Hung Shing Ye Bay. **  | N/A                   |
| B5            | Sand fill for the rubble mound seawalls shall be placed by controlled pumping down the trailer arm. **  | N/A                   |
| B6            | EM&A shall confirm the acceptability of any impacts during construction and should any unacceptable impacts be found then one or more of the following mitigation measures shall be implemented: ** <ul style="list-style-type: none"> <li>reducing the number of dredgers working at any one time;</li> <li>reducing the rate of working of the dredgers;</li> <li>temporary suspension of operations;</li> <li>phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle.</li> </ul>  | N/A                   |

| EM&A Log Ref.                         | Mitigation Measures   | Implementation Status                    |
|---------------------------------------|---|--|
| B7                                    | <p>In addition to the above specific measures the following general working procedures shall be adopted. **</p> <ul style="list-style-type: none"> <li>• fully-enclosed or watertight grabs shall be used to minimise loss of sediment during the raising of loaded grabs through the water column;</li> <li>• the descent speed of grabs shall be controlled to minimise the seabed impact speed and to reduce the volume of over dredging;</li> <li>• barges shall be loaded carefully to avoid splashing of material;</li> <li>• all barges used for the transport of dredged materials shall be fitted with tight bottom seals in order to prevent leakage of material during loading and transport;</li> <li>• all barges shall be filled to a level which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action;</li> <li>• the speed of trailer dredgers shall be controlled to prevent propeller wash from stirring up the sea bed sediments;</li> <li>• "rainbowing" sand fill from trailer dredgers shall not be permitted; and</li> <li>• the works shall cause no visible foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the dredging site and along the route to the disposal site.</li> </ul> | <br><br><br><br><br><br><br><br><br><br> |
| B8                                    | <p>Cumulative impacts shall be assessed through EM&amp;A. Co-ordination with the EM&amp;A consultants for other projects to determine if any exceedances are caused by the other projects or by HEC's activities. Should monitoring results indicate exceedances at sensitive receivers due to HEC's activities, then the above described mitigation measures shall be implemented until impacts reduce to acceptable levels. **</p>  | N/A                                      |
|                                       |   |  |
| <b>NOISE</b>                          |   |  |
| C1                                    | General noise mitigation measures shall be employed at all work sites throughout the construction phase.  | C  |
| C2                                    | Mitigate against general construction noise during Sunday's and public holidays, either at source with portable noise barriers, or by rescheduling of some PME's to less sensitive time periods.  | C  |
| C3                                    | Mitigate against night time noise from dredging equipment, with silencers or mufflers. **   | N/A                                      |
|                                       |   |  |
| <b>LANDSCAPE &amp; VISUAL IMPACTS</b> |   |  |
| D1                                    | <p>The following mitigation measures shall be allowed for landscape and visual improvement:</p> <ul style="list-style-type: none"> <li>• Use rubble mound seawall along south and west edges of the reclamation to provide a more natural look.</li> <li>• Break the mass of main buildings by varying the height/division into smaller units.</li> <li>• Plant trees and vegetation for screening.</li> <li>• Adopt colour scheme to blend the buildings into the scenery.</li> </ul>  | <br><br><br><br>                         |

| EM&A Log Ref.                                     | Mitigation Measures  | Implementation Status |
|---|--|-----------------------|
|   |  |                       |
| <b>WASTE MANAGEMENT</b>                           |  |                       |
| E1  | HEC to submit a Waste Management Plan for the construction phase to EPD. The Plan shall be verified by the IEC and shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall take into account the recommendations of the EIA report.  | C                     |
| <i>Dredging Waste</i>                             |  |                       |
| E2  | All vessels for marine transportation of dredged sediment shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials. In addition, loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers should under no circumstances be filled to a level which shall cause the overflowing of materials or polluted water during loading or transportation**  | N/A                   |
| <i>Storage, Collection and Transport of Waste</i> |  |                       |
| E3  | <ul style="list-style-type: none"> <li>• Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers.</li> </ul>  | C                     |
|   | <ul style="list-style-type: none"> <li>• Obtain the necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap.354), Waste Disposal (Chemical Waste) (General) Regulation (Cap.354), the Crown Land Ordinance (Cap 28), Dumping at Sea Ordinance (Cap 466) and Work Branch Technical Circular No. 22/92, Marine Disposal of Dredged Mud.</li> </ul>   | C                     |
|   | <ul style="list-style-type: none"> <li>• Disposal of waste at Licensed sites;</li> </ul>   | C                     |
|   | <ul style="list-style-type: none"> <li>• Develop procedures such as a ticketing system to facilitate tracking of marine mud and chemical waste, and to ensure that illegal disposal does not occur;</li> </ul>   | C                     |
|   | <ul style="list-style-type: none"> <li>• Segregate and sort the waste materials into 3 categories:               <ul style="list-style-type: none"> <li>• public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area;</li> <li>• re-use and/or recycling waste (e.g. steel and other metals);</li> <li>• waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal.</li> <li>• The sorting process shall be carefully monitored to avoid missing of the 3 categories. Different types of wastes shall be stockpiled and stored in different containers or skips to enhance re-use or recycling of materials and their proper disposal.</li> </ul> </li> <li>• Maintain records of the quantities of wastes generated and disposed off-site for each category of waste.</li> </ul> | C                     |
| E4  | Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes  | C                     |
|   |  |                       |
| <b>LAND CONTAMINATION</b>                         |  |                       |
| F1  | No land Contamination mitigation measures are required during the construction phase.  | N/A                   |
|   |  |                       |
| <b>MARINE ECOLOGY</b>                             |  |                       |

| <b>EM&amp;A Log Ref.</b> | <b>Mitigation Measures</b>  | <b>Implementation Status</b> |
|--------------------------|---|------------------------------|
| G1                       | All percussive piling works shall be conducted on reclaimed land to avoid noise impact to marine mammals**  | N/A                          |
| G2                       | All construction related vessels shall approach the extension site from the north and via the East Lamma Channel to avoid disturbance to the finless porpoise**   | N/A                          |
| G3                       | Rubble mound seawall to the south and west edges of the reclamation to enhance recolonisation of marine organisms**   | N/A                          |
| G4                       | Artificial Reefs of a volume not less than 400 m <sup>3</sup> shall be deployed in a location to be decided upon consultation with the Director of Agriculture and Fisheries to serve the purpose of an Additional Habitat Enhancement Measure.** | N/A                          |
| <b>FISHERIES</b>         |   |                              |
| H1                       | No Fisheries-specific mitigation measures are required during the construction phase.   | N/A                          |
| <b>RISK ASSESSMENT</b>   |   |                              |
| I1                       | No risk mitigation measures are required during the construction phase.   | N/A                          |

## Remarks:

- \*\* - No dredging and reclamation work would be involved for L10 construction
- C - Compliance with mitigation measure
- NC - Non-compliance with mitigation measure
- N/A - Not Applicable

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

**Contract No. 15/8009 - Lamma Power Station Extension Foundation Works for Unit L10**

**Master Programme Revision 1**

| ID | Item             | Task Name   | Duration        | Start            | Finish            |  |
|----|------------------|---|-----------------|------------------|-------------------|--|
| 1  |                  | <b>1 Key Date</b>   | <b>486 days</b> | <b>2016/1/1</b>  | <b>2017/4/30</b>  |  |
| 2  | 1.1              | Commencement date   | 0 days          | 2016/1/1         | 2016/1/1          |  |
| 3  | 1.2              | Duration of works   | 486 days        | 2016/1/1         | 2017/4/30         |  |
| 4  | 1.3              | Possession date   | 0 days          | 2016/1/1         | 2016/1/1          |  |
| 5  | 1.4              | Completion of the Contract  | 0 days          | 2017/4/30        | 2017/4/30         |  |
| 6  |                  |   |                 |                  |                   |  |
| 7  |                  | <b>2 Total Contract Period</b>  | <b>486 days</b> | <b>2016/1/1</b>  | <b>2017/5/1</b>   |  |
| 8  |                  |   |                 |                  |                   |  |
| 9  | <b>2.1</b>       | <b>Preliminaries</b>  | <b>37 days</b>  | <b>2016/1/1</b>  | <b>2016/2/6</b>   |  |
| 10 | 2.1.1            | Coordination with utility companies   | 14 days         | 2016/1/1         | 2016/1/14         |  |
| 11 | 2.1.2            | Condition survey  | 20 days         | 2016/1/1         | 2016/1/20         |  |
| 12 | 2.1.3            | Notification of commencement of works to Labour Department                  | 7 days          | 2016/1/1         | 2016/1/7          |  |
| 13 | 2.1.4            | Notification of air pollution control for commencement of works to EPD      | 7 days          | 2016/1/1         | 2016/1/7          |  |
| 14 | 2.1.5            | Application of water discharge licence from EPD                             | 7 days          | 2016/1/1         | 2016/1/7          |  |
| 15 | 2.1.6            | Application for billing account for disposal of construction waste from EPD | 7 days          | 2016/1/1         | 2016/1/7          |  |
| 16 | 2.1.7            | CCTV for existing underground drainage pipe around site boundary            | 21 days         | 2016/1/1         | 2016/1/21         |  |
| 17 | 2.1.8            | Utility detection for existing underground cables                           | 20 days         | 2016/1/1         | 2016/1/20         |  |
| 18 | 2.1.9            | Site clearance  | 21 days         | 2016/1/1         | 2016/1/21         |  |
| 19 | 2.1.10           | Erection of contractor's site office  | 21 days         | 2016/1/1         | 2016/1/21         |  |
| 20 | 2.1.11           | Installation of monitoring checkpoints                                      | 20 days         | 2016/1/18        | 2016/2/6          |  |
| 21 | 2.1.12           | Submission of BA10 for ELS & foundation works                               | 0 days          | 2016/1/1         | 2016/1/1          |  |
| 22 |                  |   |                 |                  |                   |  |
| 23 | <b>2.2</b>       | <b>Section A</b>  | <b>305 days</b> | <b>2016/1/1</b>  | <b>2016/10/31</b> |  |
| 24 | <b>2.2.1</b>     | <b>Hoarding</b>   | <b>90 days</b>  | <b>2016/1/1</b>  | <b>2016/3/30</b>  |  |
| 25 | 2.2.1.1          | Erection of Hoarding  | 90 days         | 2016/1/1         | 2016/3/30         |  |
| 26 | <b>2.2.2</b>     | <b>Foundation Works at Unit L10</b>   | <b>295 days</b> | <b>2016/1/11</b> | <b>2016/10/31</b> |  |
| 27 | <b>2.2.2.1</b>   | <b>Bored Pile - Temporary Steel Casing</b>                                  | <b>56 days</b>  | <b>2016/1/22</b> | <b>2016/3/17</b>  |  |
| 28 | 2.2.2.1.1        | Duration for delivery temporary steel casing                                | 56 days         | 2016/1/22        | 2016/3/17         |  |
| 29 | <b>2.2.2.2</b>   | <b>Bored Pile - Permanent Casing &amp; Double Wall Liner</b>                | <b>172 days</b> | <b>2016/2/24</b> | <b>2016/8/13</b>  |  |
| 30 | 2.2.2.2.1        | Testing for double wall liner   | 0 days          | 2016/2/24        | 2016/2/24         |  |
| 31 | 2.2.2.2.2        | Duration for delivery permanent casing & double wall liner                  | 160 days        | 2016/3/7         | 2016/8/13         |  |
| 32 | <b>2.2.2.3</b>   | <b>Bored Pile - Plant Mobilization</b>                                      | <b>56 days</b>  | <b>2016/1/15</b> | <b>2016/3/11</b>  |  |
| 33 | <b>2.2.2.3.1</b> | <b>Crawler Crane</b>  | <b>53 days</b>  | <b>2016/1/15</b> | <b>2016/3/8</b>   |  |
| 34 | 2.2.2.3.1.1      | 1st & 2nd set   | 0 days          | 2016/1/15        | 2016/1/15         |  |
| 35 | 2.2.2.3.1.2      | 3rd set   | 0 days          | 2016/2/4         | 2016/2/4          |  |
| 36 | 2.2.2.3.1.3      | 4th & 5th set   | 0 days          | 2016/2/19        | 2016/2/19         |  |
| 37 | 2.2.2.3.1.4      | 6th set   | 0 days          | 2016/3/8         | 2016/3/8          |  |
| 38 | <b>2.2.2.3.2</b> | <b>Oscillator</b>   | <b>35 days</b>  | <b>2016/1/29</b> | <b>2016/3/4</b>   |  |
| 39 | 2.2.2.3.2.1      | 1st & 2nd set   | 0 days          | 2016/1/29        | 2016/1/29         |  |
| 40 | 2.2.2.3.2.2      | 3rd & 4th set   | 0 days          | 2016/2/24        | 2016/2/24         |  |
| 41 | 2.2.2.3.2.3      | 5th set   | 0 days          | 2016/3/4         | 2016/3/4          |  |
| 42 | <b>2.2.2.3.3</b> | <b>RCD</b>  | <b>7 days</b>   | <b>2016/3/4</b>  | <b>2016/3/11</b>  |  |
| 43 | 2.2.2.3.3.1      | 1st & 2nd set   | 0 days          | 2016/3/4         | 2016/3/4          |  |
| 44 | 2.2.2.3.3.2      | 3rd, 4th & 5th set  | 0 days          | 2016/3/11        | 2016/3/11         |  |
| 45 | <b>2.2.2.4</b>   | <b>Predrilling</b>  | <b>60 days</b>  | <b>2016/1/11</b> | <b>2016/3/10</b>  |  |
| 46 | 2.2.2.4.1        | Predrilling works (38 nos.)   | 60 days         | 2016/1/11        | 2016/3/10         |  |
| 47 | <b>2.2.2.5</b>   | <b>Bored Pile Construction</b>  | <b>263 days</b> | <b>2016/2/12</b> | <b>2016/10/31</b> |  |
| 48 | 2.2.2.5.1        | Bored pile construction (38 piles)  | 215 days        | 2016/2/12        | 2016/9/13         |  |
| 49 | 2.2.2.5.2        | Interface & sonic test  | 30 days         | 2016/8/25        | 2016/9/23         |  |
| 50 | 2.2.2.5.3        | Prepare & submit as-built record plan                                       | 7 days          | 2016/9/17        | 2016/9/23         |  |
| 51 | 2.2.2.5.4        | Submission of BA14  | 1 day           | 2016/9/23        | 2016/9/23         |  |
| 52 | 2.2.2.5.5        | Allow 14 days for selection of pile for concrete full core test             | 14 days         | 2016/9/24        | 2016/10/7         |  |

|     |     |     |
|-----|-----|-----|
| M15 | M16 | M17 |
| 3月  | 4月  | 5月  |

Master Programme  
Revision 1

Task Critical Task Milestone Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

**Contract No. 15/8009 - Lamma Power Station Extension Foundation Works for Unit L10**

**Master Programme Revision 1**

| ID  | Item             | Task Name  | Duration        | Start             | Finish            | Milestone |     |     |
|-----|------------------|--|-----------------|-------------------|-------------------|-----------|-----|-----|
|     |                  |  |                 |                   |                   | M15       | M16 | M17 |
|     |                  |  |                 |                   |                   | 3月        | 4月  | 5月  |
| 53  | 2.2.2.5.6        | Concrete full core test  | 14 days         | 2016/10/8         | 2016/10/21        |           |     |     |
| 54  | 2.2.2.5.7        | Compression test for concrete core                                       | 7 days          | 2016/10/22        | 2016/10/28        |           |     |     |
| 55  | 2.2.2.5.8        | Submission of log report & compression test report                       | 4 days          | 2016/10/28        | 2016/10/31        |           |     |     |
| 56  | <b>2.2.2.6</b>   | <b>Sheet Pile</b>  | <b>92 days</b>  | <b>2016/7/22</b>  | <b>2016/10/21</b> |           |     |     |
| 57  | 2.2.2.6.1        | Plant mobilization   | 0 days          | 2016/7/31         | 2016/7/31         |           |     |     |
| 58  | 2.2.2.6.2        | Delivery sheet pile material   | 0 days          | 2016/7/22         | 2016/7/22         |           |     |     |
| 59  | 2.2.2.6.3        | Installation of sheet pile - Type A (approx. 212 piles)                  | 50 days         | 2016/8/1          | 2016/9/19         |           |     |     |
| 60  | 2.2.2.6.4        | Installation of sheet pile - Type B (approx. 100 piles)                  | 24 days         | 2016/9/20         | 2016/10/13        |           |     |     |
| 61  | 2.2.2.6.5        | Prepare & submit as-built record plan                                    | 7 days          | 2016/10/14        | 2016/10/20        |           |     |     |
| 62  | 2.2.2.6.6        | Submission of BA14   | 1 day           | 2016/10/21        | 2016/10/21        |           |     |     |
| 63  | 2.2.2.7          | Completion of foundation works at Unit L10                               | 0 days          | 2016/10/31        | 2016/10/31        |           |     |     |
| 64  | <b>2.2.3</b>     | <b>New Site Facilities</b>   | <b>198 days</b> | <b>2016/1/1</b>   | <b>2016/7/16</b>  |           |     |     |
| 65  | 2.2.3.1          | Submission for design of site office A                                   | 90 days         | 2016/1/1          | 2016/3/30         |           |     |     |
| 66  | 2.2.3.2          | Approval for design of site office A                                     | 28 days         | 2016/3/31         | 2016/4/27         |           |     |     |
| 67  | 2.2.3.3          | Erection of site office A  | 50 days         | 2016/4/28         | 2016/6/16         |           |     |     |
| 68  | 2.2.3.4          | Erection of wasing facilities with shelter & container shower facilities | 20 days         | 2016/5/28         | 2016/6/16         |           |     |     |
| 69  | 2.2.3.5          | Installation of earthing   | 30 days         | 2016/6/7          | 2016/7/6          |           |     |     |
| 70  | 2.2.3.6          | Installation of portable water pipes                                     | 30 days         | 2016/6/17         | 2016/7/16         |           |     |     |
| 71  | 2.2.3.7          | Installation of sewage drain pipes                                       | 30 days         | 2016/6/17         | 2016/7/16         |           |     |     |
| 72  | 2.2.3.8          | Completion of new site facilities  | 0 days          | 2016/7/16         | 2016/7/16         |           |     |     |
| 73  | 2.2.4            | Completion of section A  | 0 days          | 2016/10/31        | 2016/10/31        |           |     |     |
| 74  | 2.2.5            | Demobilization of plants   | 0 days          | 2016/10/21        | 2016/10/21        |           |     |     |
| 75  | 2.3              | Handover of site works area for Section A                                | 0 days          | 2016/11/1         | 2016/11/1         |           |     |     |
| 76  |                  |  |                 |                   |                   |           |     |     |
| 77  | <b>2.4</b>       | <b>Section B</b>   | <b>121 days</b> | <b>2016/1/1</b>   | <b>2016/4/30</b>  |           |     |     |
| 78  | <b>2.4.1</b>     | <b>Ground Treatment Works</b>  | <b>121 days</b> | <b>2016/1/1</b>   | <b>2016/4/30</b>  |           |     |     |
| 79  | 2.4.1.1          | Verification GI works (approx. 20 nos.)                                  | 14 days         | 2016/2/20         | 2016/3/4          |           |     |     |
| 80  | 2.4.1.2          | Plant mobilization   | 55 days         | 2016/1/1          | 2016/2/24         |           |     |     |
| 81  | 2.4.1.3          | Trial installation of band drain   | 5 days          | 2016/2/25         | 2016/2/29         |           |     |     |
| 82  | 2.4.1.4          | Installation of band drain (approx. 2477 nos.)                           | 45 days         | 2016/3/1          | 2016/4/14         |           |     |     |
| 83  | 2.4.1.5          | Installation of steel plate & geotextile on existing U-channel           | 20 days         | 2016/3/28         | 2016/4/16         |           |     |     |
| 84  | 2.4.1.6          | Filling of surcharge (approx. 21000 m3)                                  | 20 days         | 2016/4/7          | 2016/4/26         |           |     |     |
| 85  | 2.4.1.7          | Installation of ground settlement markers                                | 10 days         | 2016/4/21         | 2016/4/30         |           |     |     |
| 86  | 2.4.2            | Completion of section B  | 0 days          | 2016/4/30         | 2016/4/30         |           |     |     |
| 87  |                  |  |                 |                   |                   |           |     |     |
| 88  | <b>2.5</b>       | <b>Section C</b>   | <b>229 days</b> | <b>2016/9/14</b>  | <b>2017/4/30</b>  |           |     |     |
| 89  | <b>2.5.1</b>     | <b>Hoarding</b>  | <b>45 days</b>  | <b>2016/11/1</b>  | <b>2016/12/15</b> |           |     |     |
| 90  | 2.5.1.1          | Erection of Hoarding   | 45 days         | 2016/11/1         | 2016/12/15        |           |     |     |
| 91  | <b>2.5.2</b>     | <b>Foundation Works at 275kV Substation Building</b>                     | <b>229 days</b> | <b>2016/9/14</b>  | <b>2017/4/30</b>  |           |     |     |
| 92  | 2.5.2.1          | Early start milestone  | 0 days          | 2016/10/6         | 2016/10/6         |           |     |     |
| 93  | <b>2.5.2.2</b>   | <b>Bored Pile - Temporary Steel Casing</b>                               | <b>7 days</b>   | <b>2016/9/14</b>  | <b>2016/9/20</b>  |           |     |     |
| 94  | 2.5.2.2.1        | Duration for delivery temporary steel casing                             | 7 days          | 2016/9/14         | 2016/9/20         |           |     |     |
| 95  | <b>2.5.2.3</b>   | <b>Bored Pile - Permanent Casing &amp; Double Wall Liner</b>             | <b>120 days</b> | <b>2016/9/26</b>  | <b>2017/1/23</b>  |           |     |     |
| 96  | 2.5.2.3.1        | Duration for delivery permanent casing & double wall liner               | 120 days        | 2016/9/26         | 2017/1/23         |           |     |     |
| 97  | <b>2.5.2.4</b>   | <b>Bored Pile - Plant Mobilization</b>                                   | <b>14 days</b>  | <b>2016/10/1</b>  | <b>2016/10/15</b> |           |     |     |
| 98  | <b>2.5.2.4.1</b> | <b>Crawler Crane</b>   | <b>0 days</b>   | <b>2016/10/1</b>  | <b>2016/10/1</b>  |           |     |     |
| 99  | 2.5.2.4.1.1      | 1st & 2nd set  | 0 days          | 2016/10/1         | 2016/10/1         |           |     |     |
| 100 | <b>2.5.2.4.2</b> | <b>Oscillator</b>  | <b>0 days</b>   | <b>2016/10/5</b>  | <b>2016/10/5</b>  |           |     |     |
| 101 | 2.5.2.4.2.1      | 1st & 2nd set  | 0 days          | 2016/10/5         | 2016/10/5         |           |     |     |
| 102 | <b>2.5.2.4.3</b> | <b>RCD</b>   | <b>0 days</b>   | <b>2016/10/15</b> | <b>2016/10/15</b> |           |     |     |
| 103 | 2.5.2.4.3.1      | 1st & 2nd set  | 0 days          | 2016/10/15        | 2016/10/15        |           |     |     |
| 104 | <b>2.5.2.5</b>   | <b>Predrilling</b>   | <b>21 days</b>  | <b>2016/11/1</b>  | <b>2016/11/21</b> |           |     |     |

Master Programme  
Revision 1

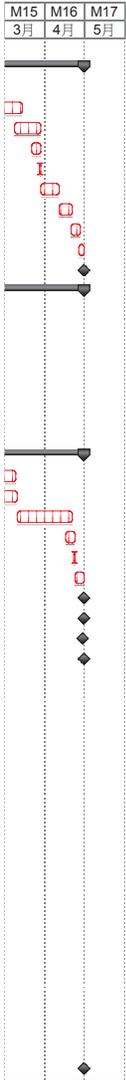
Task Critical Task Milestone Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

**Contract No. 15/8009 - Lamma Power Station Extension Foundation Works for Unit L10**

**Master Programme Revision 1**

| ID  | Item      | Task Name   | Duration        | Start             | Finish            |
|-----|-----------|---|-----------------|-------------------|-------------------|
| 105 | 2.5.2.5.1 | Predrilling works (10 nos.)   | 21 days         | 2016/11/1         | 2016/11/21        |
| 106 | 2.5.2.6   | <b>Bored Pile</b>   | <b>181 days</b> | <b>2016/11/1</b>  | <b>2017/4/30</b>  |
| 107 | 2.5.2.6.1 | Installation of monitoring checkpoints  | 7 days          | 2016/11/1         | 2016/11/7         |
| 108 | 2.5.2.6.2 | Bored pile construction (10 piles)  | 125 days        | 2016/11/10        | 2017/3/14         |
| 109 | 2.5.2.6.3 | Interface & sonic test  | 20 days         | 2017/3/9          | 2017/3/28         |
| 110 | 2.5.2.6.4 | Prepare & submit as-built record plan   | 7 days          | 2017/3/22         | 2017/3/28         |
| 111 | 2.5.2.6.5 | Submission of BA14  | 1 day           | 2017/3/28         | 2017/3/28         |
| 112 | 2.5.2.6.6 | Allow 14 days for selection of pile for concrete full core test                     | 14 days         | 2017/3/29         | 2017/4/11         |
| 113 | 2.5.2.6.7 | Concrete full core test   | 10 days         | 2017/4/12         | 2017/4/21         |
| 114 | 2.5.2.6.8 | Compression test for concrete core  | 7 days          | 2017/4/21         | 2017/4/27         |
| 115 | 2.5.2.6.9 | Submission of log report & compression test report                                  | 4 days          | 2017/4/27         | 2017/4/30         |
| 116 | 2.5.2.7   | Completion of foundation works at 275kV substation building                         | 0 days          | 2017/4/30         | 2017/4/30         |
| 117 | 2.5.3     | <b>Trial Pile</b>   | <b>212 days</b> | <b>2016/10/1</b>  | <b>2017/4/30</b>  |
| 118 | 2.5.3.1   | Early start milestone   | 0 days          | 2016/10/1         | 2016/10/1         |
| 119 | 2.5.3.2   | Submission of BA10 for trial pile   | 7 days          | 2016/11/1         | 2016/11/7         |
| 120 | 2.5.3.3   | <b>Predrilling</b>  | <b>28 days</b>  | <b>2016/11/8</b>  | <b>2016/12/5</b>  |
| 121 | 2.5.3.3.1 | Predrilling works (3 nos.)  | 28 days         | 2016/11/8         | 2016/12/5         |
| 122 | 2.5.3.4   | <b>Ground Instrumentation</b>   | <b>24 days</b>  | <b>2016/11/22</b> | <b>2016/12/15</b> |
| 123 | 2.5.3.4.1 | Installation of magnetic extensometer in predrilled hole (3 nos.)                   | 16 days         | 2016/11/22        | 2016/12/7         |
| 124 | 2.5.3.4.2 | Installation of settlement plate  | 10 days         | 2016/12/6         | 2016/12/15        |
| 125 | 2.5.3.5   | <b>Construction of Trial Pile</b>   | <b>136 days</b> | <b>2016/12/16</b> | <b>2017/4/30</b>  |
| 126 | 2.5.3.5.1 | Installation of trial pile (6 piles)  | 84 days         | 2016/12/16        | 2017/3/9          |
| 127 | 2.5.3.5.2 | Dynamic pile test   | 72 days         | 2016/12/29        | 2017/3/10         |
| 128 | 2.5.3.5.3 | Static load test  | 42 days         | 2017/3/11         | 2017/4/21         |
| 129 | 2.5.3.5.4 | Prepare & submit as-built record plan   | 7 days          | 2017/4/17         | 2017/4/23         |
| 130 | 2.5.3.5.5 | Submission of BA14  | 1 day           | 2017/4/23         | 2017/4/23         |
| 131 | 2.5.3.5.6 | Cut off the piles to level +3.0mPD  | 7 days          | 2017/4/24         | 2017/4/30         |
| 132 | 2.5.3.6   | Completion of trial pile  | 0 days          | 2017/4/30         | 2017/4/30         |
| 133 | 2.5.4     | Completion of section C   | 0 days          | 2017/4/30         | 2017/4/30         |
| 134 | 2.5.5     | Demobilization of plants  | 0 days          | 2017/4/30         | 2017/4/30         |
| 135 | 2.6       | Handover of site works area for Section C   | 0 days          | 2017/5/1          | 2017/5/1          |
| 136 |           |   |                 |                   |                   |
| 137 | 2.7       | <b>Section D</b>  | <b>383 days</b> | <b>2016/1/15</b>  | <b>2017/1/31</b>  |
| 138 | 2.7.1     | <b>General Site Works</b>   | <b>36 days</b>  | <b>2016/3/1</b>   | <b>2016/4/5</b>   |
| 139 | 2.7.1.1   | Cable duct & draw pit   | 21 days         | 2016/3/1          | 2016/3/21         |
| 140 | 2.7.1.2   | Relocation of lamp pole (5 poles)   | 20 days         | 2016/3/17         | 2016/4/5          |
| 141 | 2.7.2     | <b>G.I. Works</b>   | <b>99 days</b>  | <b>2016/3/4</b>   | <b>2016/6/10</b>  |
| 142 | 2.7.2.1   | Submission of BA10 for G.I. works   | 7 days          | 2016/3/4          | 2016/3/10         |
| 143 | 2.7.2.2   | Carry out G.I. works (11 nos.)  | 85 days         | 2016/3/11         | 2016/6/3          |
| 144 | 2.7.2.3   | Prepare & submit as-built record plan   | 7 days          | 2016/6/4          | 2016/6/10         |
| 145 | 2.7.2.4   | Submission of BA14  | 1 day           | 2016/6/10         | 2016/6/10         |
| 146 | 2.7.3     | <b>Ground Treatment Time</b>  | <b>276 days</b> | <b>2016/5/1</b>   | <b>2017/1/31</b>  |
| 147 | 2.7.3.1   | 9 months for monitoring settlement after completion of ground treatment             | 276 days        | 2016/5/1          | 2017/1/31         |
| 148 | 2.7.4     | <b>External Works</b>   | <b>227 days</b> | <b>2016/1/15</b>  | <b>2016/8/28</b>  |
| 149 | 2.7.4.1   | Repair & make good site office B & existing latrines                                | 90 days         | 2016/3/1          | 2016/5/29         |
| 150 | 2.7.4.2   | Removal of the employer's materials stored in E6 area as instructed by the Engineer | 90 days         | 2016/1/15         | 2016/4/13         |
| 151 | 2.7.4.3   | Installation of bund wall of sandbags   | 60 days         | 2016/5/1          | 2016/6/29         |
| 152 | 2.7.4.4   | Construction of new type 3 road   | 60 days         | 2016/6/30         | 2016/8/28         |
| 153 | 2.7.5     | Completion of section D   | 0 days          | 2017/1/31         | 2017/1/31         |
| 154 |           |   |                 |                   |                   |
| 155 | 2.8       | Contract completion   | 0 days          | 2017/4/30         | 2017/4/30         |



Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID | Task Name  | Duration         | Start           | Finish          |         |   |   |   |   |
|----|--|------------------|-----------------|-----------------|---------|---|---|---|---|
|    |  |                  |                 |                 | F       | M | A | M | J |
| 1  | <b>Contract Key Date</b>   | <b>1308 days</b> | <b>01/11/16</b> | <b>31/05/20</b> |         |   |   |   |   |
| 2  | <b>Possession Date</b>   | <b>1308 days</b> | <b>01/11/16</b> | <b>31/05/20</b> |         |   |   |   |   |
| 3  | Contract Commencement Date   | 0 days           | 01/11/16        | 01/11/16        |         |   |   |   |   |
| 4  | Section A1 - Modify Plinth at Ext. GRS   | 61 days          | 01/11/16        | 31/12/16        | xt. GRS |   |   |   |   |
| 5  | Section A2 - LPS Site Office Building  | 410 days         | 01/11/16        | 15/12/17        |         |   |   |   |   |
| 6  | Section B1 - Area C1&2 incl. all UG structures & Temp. Access for Empolyer's Specialist  | 426 days         | 01/11/16        | 31/12/17        |         |   |   |   |   |
| 7  | Section B2 - Surcharge relocation & assoicated top-up works  | 122 days         | 01/09/17        | 31/12/17        |         |   |   |   |   |
| 8  | Section C - Area C3, HRSG & MSBU10 for Empolyer's Specialist   | 457 days         | 01/11/16        | 31/01/18        |         |   |   |   |   |
| 9  | Section D - Remaining of MSBU10, HRSG, A&A at L9 & L8, Ext. & Demolish Site Toilet   | 516 days         | 01/11/16        | 31/03/18        |         |   |   |   |   |
| 10 | Section D - CW Pump Equip. Rm No. 4  | 365 days         | 01/04/17        | 31/03/18        |         |   |   |   |   |
| 11 | Section E - Middel Rd & South of L10. Expose & Construction New 275kV Trench at LMX  | 577 days         | 01/11/16        | 31/05/18        |         |   |   |   |   |
| 12 | Section F -Urea Storage & Handling Facilites   | 488 days         | 01/05/17        | 31/08/18        |         |   |   |   |   |
| 13 | Section G - Demin. Plant Road & No.3 Outfall   | 273 days         | 01/01/18        | 30/09/18        |         |   |   |   |   |
| 14 | Section G - Modification at No. 4 CW Intake  | 122 days         | 01/03/18        | 30/06/18        |         |   |   |   |   |
| 15 | Section H1 - Gas Support foundation & trench at Area C11   | 745 days         | 01/11/16        | 15/11/18        |         |   |   |   |   |
| 16 | Section H2 - GRS Improvement work at Area C10  | 441 days         | 01/09/17        | 15/11/18        |         |   |   |   |   |
| 17 | Section H3 - L10 Chimney Flue and A&A L9 & pipe rack formation   | 319 days         | 01/01/18        | 15/11/18        |         |   |   |   |   |
| 18 | Section I1 - Link Bridge & associated A&A  | 455 days         | 01/01/18        | 31/03/19        |         |   |   |   |   |
| 19 | Section I2 - Shunt Reactor SR4 Foundation  | 90 days          | 01/01/19        | 31/03/19        |         |   |   |   |   |
| 20 | Section I3 - All remaining work except deferred works  | 417 days         | 08/02/18        | 31/03/19        |         |   |   |   |   |
| 21 | Section J - Cable Route CPX1&2 cable diversion & whole of work except deferred works to be carried out in DLP  | 790 days         | 02/05/17        | 30/06/19        |         |   |   |   |   |
| 22 | Deferred works during DLP  | 336 days         | 01/07/19        | 31/05/20        |         |   |   |   |   |
| 23 | <b>General &amp; Preliminary</b>   | <b>461 days</b>  | <b>01/11/16</b> | <b>04/02/18</b> |         |   |   |   |   |
| 24 | Set up Temporary Site Office and Utilities   | 30 days          | 01/11/16        | 30/11/16        |         |   |   |   |   |
| 25 | Full Mobilization  | 14 days          | 01/11/16        | 14/11/16        |         |   |   |   |   |
| 26 | Permit Applications & Statuary Submissions   | 45 days          | 08/11/16        | 22/12/16        |         |   |   |   |   |
| 27 | Existing Utilities scanning & Excavation Permit  | 45 days          | 01/11/16        | 15/12/16        |         |   |   |   |   |
| 28 | Foundation of Tower Crane Construction   | 7 days           | 15/12/16        | 21/12/16        |         |   |   |   |   |
| 29 | Tower Crane Erection   | 7 days           | 01/01/17        | 07/01/17        |         |   |   |   |   |
| 30 | Removal of Tower Crane (Including Foundation)  | 18 days          | 18/01/18        | 04/02/18        |         |   |   |   |   |
| 31 | L10 MSB External Scaffolding erection  | 145 days         | 29/04/17        | 20/09/17        |         |   |   |   |   |
| 32 | L10 MSB External Scaffolding Removal   | 30 days          | 19/12/17        | 17/01/18        |         |   |   |   |   |
| 33 | <b>Submission and Approval</b>   | <b>450 days</b>  | <b>01/11/16</b> | <b>24/01/18</b> |         |   |   |   |   |
| 34 | Method Statement / Temp Work Submission & Approval from HEC for General Works  | 240 days         | 01/11/16        | 28/06/17        |         |   |   |   |   |
| 35 | BD Approval & Consent (If required)  | 90 days          | 01/12/16        | 28/02/17        |         |   |   |   |   |
| 36 | BIM Model, CSD & CBWD Submission & Approval from HEC   | 200 days         | 01/12/16        | 18/06/17        |         |   |   |   |   |
| 37 | Structure Steelwork Connection Design Submission & BD Approval   | 30 days          | 15/11/16        | 14/12/16        |         |   |   |   |   |
| 38 | Structure Steelwork Shop Drawing & Approval  | 30 days          | 15/11/16        | 14/12/16        |         |   |   |   |   |
| 39 | Metal Cladding, louvre & windows submission & BD Approval  | 60 days          | 15/11/16        | 13/01/17        |         |   |   |   |   |
| 40 | Metal Cladding, louvre & windows shop drawing submission   | 45 days          | 29/11/16        | 12/01/17        |         |   |   |   |   |
| 41 | Order, Off Site Fabrication and Delivery (S. Steel & Cladding & louvres)   | 180 days         | 13/01/17        | 11/07/17        |         |   |   |   |   |
| 42 | CW Culvert (Inlet) ELS BD approval & consent   | 90 days          | 01/12/16        | 28/02/17        |         |   |   |   |   |
| 43 | Submission & Approval of Steel Flue Assessment Report and Design Drawings  | 210 days         | 01/12/16        | 28/06/17        |         |   |   |   |   |
| 44 | Submission and Approval of Steel Flue Design from BD   | 60 days          | 29/06/17        | 27/08/17        |         |   |   |   |   |
| 45 | Material Fabrication & Delivery for L10 Flue   | 150 days         | 28/08/17        | 24/01/18        |         |   |   |   |   |
| 46 | Folding Shutters Shop Drawing Submission & Approval  | 45 days          | 01/12/16        | 14/01/17        |         |   |   |   |   |
| 47 | Fabrication & Delivery of Foldering Shutters   | 180 days         | 15/01/17        | 13/07/17        |         |   |   |   |   |
| 48 | Sewage Pump System Design submission & Approval  | 60 days          | 15/01/17        | 15/03/17        |         |   |   |   |   |
| 49 | Fabrication & Delivery of Sewage Pump  | 150 days         | 16/03/17        | 12/08/17        |         |   |   |   |   |
| 50 | Other Material Submission & Approval & Deliverys   | 240 days         | 15/01/17        | 11/09/17        |         |   |   |   |   |
| 51 | <b>Coordination with the Employer's Specialist Contractors</b>   | <b>730 days</b>  | <b>01/11/16</b> | <b>31/10/18</b> |         |   |   |   |   |
| 52 | Puddle Pipes at C.W. Inlet and Outlet Culvert  | 0 days           | 07/01/17        | 07/01/17        |         |   |   |   |   |
| 53 | Template setting in at L10 Turbo Block Foundation  | 45 days          | 01/10/17        | 14/11/17        |         |   |   |   |   |
| 54 | Template setting of holding down bolts at HRSG Column Base   | 45 days          | 01/10/17        | 14/11/17        |         |   |   |   |   |
| 55 | I-beam/ Channel Base Installation on top of Transformer Foundations at Transformer Area  | 32 days          | 27/12/17        | 27/01/18        |         |   |   |   |   |
| 56 | Overhead Crane Erection at Turbine Hall using Access through a Temporary Opening at L10 MSB Roof between GL 10-G to 10-H and 10-2 and 10-6   | 38 days          | 12/12/17        | 18/01/18        |         |   |   |   |   |
| 57 | Condenser Assembly and Erection using Access through a Temporary Opening at L10 MSE below 1/F along GL 10-6 from GL 10-B to 10-C including a Clear Space below 1/F between GL 10-B to 10-C | 89 days          | 01/02/18        | 30/04/18        |         |   |   |   |   |

Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID  | Task Name  | Duration        | Start           | Finish          |   |   |   |   |   |
|-----|--|-----------------|-----------------|-----------------|---|---|---|---|---|
|     |  |                 |                 |                 | F | M | A | M | J |
| 58  | Installation of Power Train Equipment including Air Inlet Duct using Access through a Temporary Façade Opening at L10 MSB below 1/F along GL 10-6 from GL 10-F to 10-H including a Clear Space below 1/F of the above Area | 89 days         | 01/02/18        | 30/04/18        |   |   |   |   |   |
| 59  | Installation of Equipment in L10 HRSG Area after the Temporary Paving was Removed to Expose the Respective Foundations by the Contractor   | 78 days         | 15/08/18        | 31/10/18        |   |   |   |   |   |
| 60  | Installation of Embedded Materials such as Holding Down Bolts for Equipment Foundation   | 300 days        | 01/11/16        | 27/08/17        |   |   |   |   |   |
| 61  | <b>Section A1 - Modify Plinth at Ext. GRS</b>  | <b>61 days</b>  | <b>01/11/16</b> | <b>31/12/16</b> |   |   |   |   |   |
| 62  | Existing Plinth Removal  | 18 days         | 01/11/16        | 18/11/16        |   |   |   |   |   |
| 63  | Wall Base & Plinth Construction  | 45 days         | 17/11/16        | 31/12/16        |   |   |   |   |   |
| 64  | <b>Pipe Rack at Unit 9 North (VO under EI No. 6)</b>   | <b>152 days</b> | <b>29/01/17</b> | <b>30/06/17</b> |   |   |   |   |   |
| 65  | Consent and BA10 Submissions   | 0 days          | 29/01/17        | 29/01/17        |   |   |   |   |   |
| 66  | Hoarding & Plant Load Test   | 18 days         | 30/01/17        | 16/02/17        |   |   |   |   |   |
| 67  | Footing Construction & Reinstatement   | 60 days         | 17/02/17        | 17/04/17        |   |   |   |   |   |
| 68  | Structural Steel Fabrication, Delivery & Erection  | 90 days         | 02/04/17        | 30/06/17        |   |   |   |   |   |
| 69  | <b>Section A2 - LPS Site Office Building</b>   | <b>410 days</b> | <b>01/11/16</b> | <b>15/12/17</b> |   |   |   |   |   |
| 70  | Submissions of Shop Drawings and Approval  | 90 days         | 01/11/16        | 29/01/17        |   |   |   |   |   |
| 71  | Submission & Approval of CSD & CBWD  | 60 days         | 15/01/17        | 15/03/17        |   |   |   |   |   |
| 72  | Complete site clearance by HKE   | 0 days          | 01/11/16        | 01/11/16        |   |   |   |   |   |
| 73  | Demolish of existing site office   | 21 days         | 01/11/16        | 21/11/16        |   |   |   |   |   |
| 74  | BA 10 Application  | 0 days          | 01/11/16        | 01/11/16        |   |   |   |   |   |
| 75  | Erection of Hording  | 7 days          | 01/11/16        | 07/11/16        |   |   |   |   |   |
| 76  | Plate Load Test  | 7 days          | 08/11/16        | 14/11/16        |   |   |   |   |   |
| 77  | Installation of Earthing Grid  | 18 days         | 15/11/16        | 02/12/16        |   |   |   |   |   |
| 78  | Construction of pad footing, bearing wall, columns up to G/F   | 45 days         | 03/12/16        | 16/01/17        |   |   |   |   |   |
| 79  | Waterproofing for Lift pit + Water test  | 14 days         | 03/01/17        | 16/01/17        |   |   |   |   |   |
| 80  | UG Drainage within Building  | 21 days         | 02/01/17        | 22/01/17        |   |   |   |   |   |
| 81  | Backfill & Blinding  | 14 days         | 13/01/17        | 26/01/17        |   |   |   |   |   |
| 82  | Chinese New Year   | 10 days         | 27/01/17        | 05/02/17        |   |   |   |   |   |
| 83  | Construct G/F on-grade slab & External Scaffold Erection   | 30 days         | 06/02/17        | 07/03/17        |   |   |   |   |   |
| 84  | RC Walls, Columns and Slab up to 1/F   | 45 days         | 20/02/17        | 05/04/17        |   |   |   |   |   |
| 85  | RC Walls, Columns and Slab up to R/F   | 45 days         | 06/04/17        | 20/05/17        |   |   |   |   |   |
| 86  | Parapet Wall, FS Water Tank, Top Roofs + RC curb, hatch door etc   | 45 days         | 21/05/17        | 04/07/17        |   |   |   |   |   |
| 87  | G/F Window, Louvre, Doors Frame & Shutter Frame  | 21 days         | 04/05/17        | 24/05/17        |   |   |   |   |   |
| 88  | G/F Finishing Works  | 45 days         | 18/05/17        | 01/07/17        |   |   |   |   |   |
| 89  | G/F Plumbing & Drainage Works  | 30 days         | 02/07/17        | 31/07/17        |   |   |   |   |   |
| 90  | G/F Sanitary Fitting and Cubicles  | 21 days         | 01/08/17        | 21/08/17        |   |   |   |   |   |
| 91  | G/F Other sundry metal, railing, etc   | 45 days         | 22/08/17        | 05/10/17        |   |   |   |   |   |
| 92  | G/F Placing Furnitures   | 10 days         | 04/12/17        | 13/12/17        |   |   |   |   |   |
| 93  | 1/F Window, Louvre & Door Frames   | 30 days         | 18/06/17        | 17/07/17        |   |   |   |   |   |
| 94  | 1/F Finishing Works  | 30 days         | 18/07/17        | 16/08/17        |   |   |   |   |   |
| 95  | 1/F Plumbing, Sanitary Fittings & Drainage Works   | 14 days         | 17/08/17        | 30/08/17        |   |   |   |   |   |
| 96  | 1/F Other sundry metal, railing, etc   | 21 days         | 31/08/17        | 20/09/17        |   |   |   |   |   |
| 97  | R+UR/F Waterproofing Installation + Testing  | 60 days         | 19/07/17        | 16/09/17        |   |   |   |   |   |
| 98  | R/F Finishing Works (incl. Water Tank & FS Pump Room)  | 30 days         | 02/09/17        | 01/10/17        |   |   |   |   |   |
| 99  | R/F Plumbing Works   | 14 days         | 02/10/17        | 15/10/17        |   |   |   |   |   |
| 100 | R/F Sundry Metal, Handrail & Glazed Railing  | 30 days         | 02/10/17        | 31/10/17        |   |   |   |   |   |
| 101 | Complete RC touch up and handover of lift shaft  | 7 days          | 26/07/17        | 01/08/17        |   |   |   |   |   |
| 102 | Installation of Door a& Shutter leaves   | 21 days         | 01/11/17        | 21/11/17        |   |   |   |   |   |
| 103 | Lift Installation + EMSD Inspection + Issue of Lift Cert   | 120 days        | 02/08/17        | 29/11/17        |   |   |   |   |   |
| 104 | Electrical Installation  | 90 days         | 17/08/17        | 14/11/17        |   |   |   |   |   |
| 105 | Fire Service Installation  | 90 days         | 17/08/17        | 14/11/17        |   |   |   |   |   |
| 106 | MVAC Installation  | 90 days         | 17/08/17        | 14/11/17        |   |   |   |   |   |
| 107 | Testing & Commissioning Works  | 24 days         | 15/11/17        | 08/12/17        |   |   |   |   |   |
| 108 | External Wall Finishing Works  | 45 days         | 02/10/17        | 15/11/17        |   |   |   |   |   |
| 109 | Removal of Scaffolding   | 14 days         | 16/11/17        | 29/11/17        |   |   |   |   |   |
| 110 | External UG P&D and Road Works   | 145 days        | 05/07/17        | 26/11/17        |   |   |   |   |   |
| 111 | WVO046 Completion  | 0 days          | 26/11/17        | 26/11/17        |   |   |   |   |   |
| 112 | FSD Inspection   | 0 days          | 08/12/17        | 08/12/17        |   |   |   |   |   |
| 113 | Submit BA 13 Inspection  | 14 days         | 30/11/17        | 13/12/17        |   |   |   |   |   |
| 114 | Expected OP Issue  | 0 days          | 15/12/17        | 15/12/17        |   |   |   |   |   |
| 115 | <b>Section B1 - Area C1&amp;2 incl. all UG structures &amp; Temp. Access for Empolyer's Specialist</b>   | <b>328 days</b> | <b>07/02/17</b> | <b>31/12/17</b> |   |   |   |   |   |
| 116 | <b>C.W. Culvert System (Area C1 &amp; C2) (~160m)</b>  | <b>328 days</b> | <b>07/02/17</b> | <b>31/12/17</b> |   |   |   |   |   |
| 117 | Excavation to Formation Level (+1.1mPD)  | 30 days         | 07/02/17        | 08/03/17        |   |   |   |   |   |
| 118 | Construction of Binding & Plinth   | 21 days         | 09/03/17        | 29/03/17        |   |   |   |   |   |
| 119 | Pile Laying  | 30 days         | 30/03/17        | 28/04/17        |   |   |   |   |   |
| 120 | Thrust Box Construction  | 21 days         | 29/04/17        | 19/05/17        |   |   |   |   |   |
| 121 | Water Test   | 7 days          | 20/05/17        | 26/05/17        |   |   |   |   |   |

Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID  | Task Name  | Duration        | Start           | Finish          |   |   |   |   |   |  |
|-----|--|-----------------|-----------------|-----------------|---|---|---|---|---|--|
|     |  |                 |                 |                 | F | M | A | M | J |  |
| 122 | Backfill   | 30 days         | 27/05/17        | 25/06/17        |   |   |   |   |   |  |
| 123 | Return area to Sunley for L11 piling   | 124 days        | 30/06/17        | 31/10/17        |   |   |   |   |   |  |
| 124 | Cutting Sheet pile   | 14 days         | 01/11/17        | 14/11/17        |   |   |   |   |   |  |
| 125 | All underground Utilities  | 35 days         | 15/11/17        | 19/12/17        |   |   |   |   |   |  |
| 126 | Backfill & Reinstatement & Formation of Access   | 24 days         | 08/12/17        | 31/12/17        |   |   |   |   |   |  |
| 127 | Supporting Supporting Structure for Overhead Crane                                     | 200 days        | 26/05/17        | 11/12/17        |   |   |   |   |   |  |
| 128 | <b>Section B2 - Surcharge relocation &amp; associated top-up works</b>                 | <b>242 days</b> | <b>04/05/17</b> | <b>31/12/17</b> |   |   |   |   |   |  |
| 129 | <b>Roadworks and External Works</b>  | <b>242 days</b> | <b>04/05/17</b> | <b>31/12/17</b> |   |   |   |   |   |  |
| 130 | Surface Drainage Modification  | 120 days        | 04/05/17        | 31/08/17        |   |   |   |   |   |  |
| 131 | Remove of Surcharge Fill (~21500 m3)@ Area C2, C10 & C15 to Area B1, B2, D2, D3 and D4 | 45 days         | 01/09/17        | 15/10/17        |   |   |   |   |   |  |
| 132 | Construction of Access Road  | 60 days         | 16/10/17        | 14/12/17        |   |   |   |   |   |  |
| 133 | Existing Band Drains Cut-down (2520 nos)   | 90 days         | 03/10/17        | 31/12/17        |   |   |   |   |   |  |
| 134 | <b>Section C - Area C3, HRSG &amp; MSBU10 for Empolyer's Specialist</b>                | <b>457 days</b> | <b>01/11/16</b> | <b>31/01/18</b> |   |   |   |   |   |  |
| 135 | <b>HRSG Area Equipment Rm &amp; Fdn - South (Area C7)</b>                              | <b>299 days</b> | <b>08/04/17</b> | <b>31/01/18</b> |   |   |   |   |   |  |
| 136 | Excavation to Formation Level  | 18 days         | 08/04/17        | 25/04/17        |   |   |   |   |   |  |
| 137 | Sump Pit, Drain Pit (2no. 1.75m to 4.2m in Height)                                     | 45 days         | 26/04/17        | 09/06/17        |   |   |   |   |   |  |
| 138 | Pile Head Treatment (6no.)   | 14 days         | 10/06/17        | 23/06/17        |   |   |   |   |   |  |
| 139 | Pile Cap & Tie Beam - GL 10-H to 10H-H, 10-H3 to 10-6                                  | 60 days         | 19/06/17        | 17/08/17        |   |   |   |   |   |  |
| 140 | Plate Load Test  | 12 days         | 18/08/17        | 29/08/17        |   |   |   |   |   |  |
| 141 | Raft Foundation (7no.)   | 45 days         | 30/08/17        | 13/10/17        |   |   |   |   |   |  |
| 142 | All Underground Utilities  | 60 days         | 14/10/17        | 12/12/17        |   |   |   |   |   |  |
| 143 | Backfill & Reinstatement & Formation of Access Road                                    | 50 days         | 13/12/17        | 31/01/18        |   |   |   |   |   |  |
| 144 | <b>HRSG Equipment Room</b>   | <b>178 days</b> | <b>07/08/17</b> | <b>31/01/18</b> |   |   |   |   |   |  |
| 145 | Plate Load Test  | 10 days         | 07/08/17        | 16/08/17        |   |   |   |   |   |  |
| 146 | Underground Drainage   | 12 days         | 17/08/17        | 28/08/17        |   |   |   |   |   |  |
| 147 | HRSG Equipment RM Foundation   | 14 days         | 29/08/17        | 11/09/17        |   |   |   |   |   |  |
| 148 | Backfill   | 6 days          | 12/09/17        | 17/09/17        |   |   |   |   |   |  |
| 149 | Construct G/F  | 12 days         | 18/09/17        | 29/09/17        |   |   |   |   |   |  |
| 150 | Roof Construction  | 21 days         | 30/09/17        | 20/10/17        |   |   |   |   |   |  |
| 151 | Parapet Wall   | 12 days         | 21/10/17        | 01/11/17        |   |   |   |   |   |  |
| 152 | ABWF Works   | 30 days         | 18/11/17        | 17/12/17        |   |   |   |   |   |  |
| 153 | Building Service Installations   | 45 days         | 18/12/17        | 31/01/18        |   |   |   |   |   |  |
| 154 | Ready for BA 13 Application  | 0 days          | 31/01/18        | 31/01/18        |   |   |   |   |   |  |
| 155 | <b>Main Station Building Fdn, G/F &amp; 1/F</b>  | <b>433 days</b> | <b>01/11/16</b> | <b>07/01/18</b> |   |   |   |   |   |  |
| 156 | Installation of Dewatering Well & King Post for Type A                                 | 14 days         | 01/11/16        | 14/11/16        |   |   |   |   |   |  |
| 157 | BD Consent for ELS MSBU10 Foundation   | 0 days          | 01/11/16        | 01/11/16        |   |   |   |   |   |  |
| 158 | Bulk Excavation to approx. +3.0mPD   | 21 days         | 15/11/16        | 05/12/16        |   |   |   |   |   |  |
| 159 | <b>Substructure&amp;G/F- GL SC1 to 10-D, 10-1 to 10-6</b>                              | <b>154 days</b> | <b>25/11/16</b> | <b>27/04/17</b> |   |   |   |   |   |  |
| 160 | Excavation to Formation Level (+1.325mPD)  | 14 days         | 25/11/16        | 08/12/16        |   |   |   |   |   |  |
| 161 | Cut-down Pile Head & treatment   | 45 days         | 29/11/16        | 12/01/17        |   |   |   |   |   |  |
| 162 | Pile Cap & Tie Beam Construction   | 100 days        | 03/12/16        | 12/03/17        |   |   |   |   |   |  |
| 163 | Construction of Transformer Bay Foundations  | 45 days         | 17/12/16        | 30/01/17        |   |   |   |   |   |  |
| 164 | Excavation, Waling & Struct (Type A & Type C)  | 30 days         | 09/12/16        | 07/01/17        |   |   |   |   |   |  |
| 165 | Drain Pit /Sump Pit Construction   | 21 days         | 08/01/17        | 28/01/17        |   |   |   |   |   |  |
| 166 | Arrival of CW Culvert piping materials incl. flexible joint & other cast in materials  | 0 days          | 07/01/17        | 07/01/17        |   |   |   |   |   |  |
| 167 | Construction of Culvert Outlet Box   | 30 days         | 08/01/17        | 06/02/17        |   |   |   |   |   |  |
| 168 | Construction of Culvert Inlet Box  | 30 days         | 07/02/17        | 08/03/17        |   |   |   |   |   |  |
| 169 | Construction of Tie Beam/ Ground Beam (Top of the Pipe) (GLSC1 to SC4 and SCa to SCb)  | 45 days         | 27/02/17        | 12/04/17        |   |   |   |   |   |  |
| 170 | Bearing Wall, Column Post and G/F Slab Construction                                    | 30 days         | 29/03/17        | 27/04/17        |   |   |   |   |   |  |
| 171 | <b>Substructure &amp; G/F- GL 10-D to 10-H, 10-1 to 10-6</b>                           | <b>395 days</b> | <b>09/12/16</b> | <b>07/01/18</b> |   |   |   |   |   |  |
| 172 | Excavation to Formation Level (+2.425mPD & 5.025mPD)                                   | 45 days         | 09/12/16        | 22/01/17        |   |   |   |   |   |  |
| 173 | Existing Sheet Pile Cut-down   | 7 days          | 12/12/16        | 18/12/16        |   |   |   |   |   |  |
| 174 | Complete excavation at Type B  | 14 days         | 19/12/16        | 01/01/17        |   |   |   |   |   |  |
| 175 | Blow Down Sump Construction  | 45 days         | 02/01/17        | 15/02/17        |   |   |   |   |   |  |
| 176 | Pile Head Treatment (18no.)  | 30 days         | 19/12/16        | 17/01/17        |   |   |   |   |   |  |
| 177 | Pile Cap & Tie Beam Construction   | 100 days        | 29/12/16        | 07/04/17        |   |   |   |   |   |  |
| 178 | Bearing Wall, Column Post and G/F Slab Construction                                    | 35 days         | 25/03/17        | 28/04/17        |   |   |   |   |   |  |
| 179 | Turbo Block Foundation   | 45 days         | 15/07/17        | 28/08/17        |   |   |   |   |   |  |
| 180 | Backfill of Turbo Block  | 14 days         | 14/08/17        | 27/08/17        |   |   |   |   |   |  |
| 181 | Turbo Block Superstructure   | 90 days         | 21/09/17        | 19/12/17        |   |   |   |   |   |  |
| 182 | Beam & Slabs at G/F Area   | 90 days         | 28/08/17        | 25/11/17        |   |   |   |   |   |  |
| 183 | Associated ABWF & BS Works for Specialist Access                                       | 60 days         | 09/11/17        | 07/01/18        |   |   |   |   |   |  |
| 184 | <b>G/F &amp; 1/F &amp; Maintenance Floor</b>   | <b>44 days</b>  | <b>29/04/17</b> | <b>11/06/17</b> |   |   |   |   |   |  |
| 185 | Steel Column & Beam Erections (other than for roof truss)                              | 14 days         | 29/04/17        | 12/05/17        |   |   |   |   |   |  |

Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

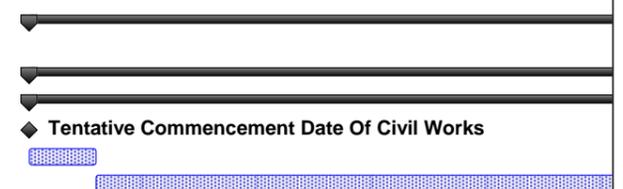
| ID  | Task Name   | Duration        | Start           | Finish          |   |   |   |   |   |  |
|-----|---|-----------------|-----------------|-----------------|---|---|---|---|---|--|
|     |   |                 |                 |                 | F | M | A | M | J |  |
| 186 | Erection of Steel Column along GL10-2 and 10-6 and 10-C to 10-H (G/F to R/F) for roof truss                                   | 14 days         | 09/05/17        | 22/05/17        |   |   |   |   |   |  |
| 187 | R.C. Structure Construction   | 30 days         | 13/05/17        | 11/06/17        |   |   |   |   |   |  |
| 188 | <b>Transformer Area</b>   | <b>111 days</b> | <b>07/08/17</b> | <b>25/11/17</b> |   |   |   |   |   |  |
| 189 | Wall Construction   | 90 days         | 07/08/17        | 04/11/17        |   |   |   |   |   |  |
| 190 | Slab & Plinths Construction   | 21 days         | 05/11/17        | 25/11/17        |   |   |   |   |   |  |
| 191 | <b>C.W. Culvert System (Area C3)</b>  | <b>236 days</b> | <b>18/12/16</b> | <b>10/08/17</b> |   |   |   |   |   |  |
| 192 | Excavation to Formation Level   | 21 days         | 18/12/16        | 07/01/17        |   |   |   |   |   |  |
| 193 | Penstock Trial & Preparation for connection to existing outlet pipe   | 21 days         | 18/12/16        | 07/01/17        |   |   |   |   |   |  |
| 194 | Construction of Binding & Plinth  | 7 days          | 08/01/17        | 14/01/17        |   |   |   |   |   |  |
| 195 | CW Pipe Laying  | 14 days         | 15/01/17        | 28/01/17        |   |   |   |   |   |  |
| 196 | Thrust Box Construction   | 12 days         | 29/01/17        | 09/02/17        |   |   |   |   |   |  |
| 197 | Water Test  | 10 days         | 03/02/17        | 12/02/17        |   |   |   |   |   |  |
| 198 | Backfill  | 14 days         | 13/02/17        | 26/02/17        |   |   |   |   |   |  |
| 199 | All underground Utilities   | 45 days         | 27/02/17        | 12/04/17        |   |   |   |   |   |  |
| 200 | Backfill & Reinstatement & Formation of Access  | 120 days        | 13/04/17        | 10/08/17        |   |   |   |   |   |  |
| 201 | <b>Section D - Remaining of MSBU10, HRSG, A&amp;A at L9 &amp; L8, CW Pump Equip. Rm No. 4 Ext. &amp; Demolish Site Toilet</b> | <b>478 days</b> | <b>09/12/16</b> | <b>31/03/18</b> |   |   |   |   |   |  |
| 202 | <b>C.W Culvert System (Area C5)</b>   | <b>419 days</b> | <b>09/12/16</b> | <b>31/01/18</b> |   |   |   |   |   |  |
| 203 | Excavation to Formation Level (-2.8mPD) with ELS Installation   | 30 days         | 09/12/16        | 07/01/17        |   |   |   |   |   |  |
| 204 | Construction of Binding & Plinth  | 7 days          | 08/01/17        | 14/01/17        |   |   |   |   |   |  |
| 205 | Pipe Laying (2 Pipes)   | 14 days         | 15/01/17        | 28/01/17        |   |   |   |   |   |  |
| 206 | Construction of Thrust Box  | 21 days         | 29/01/17        | 18/02/17        |   |   |   |   |   |  |
| 207 | Water Test  | 7 days          | 20/02/17        | 26/02/17        |   |   |   |   |   |  |
| 208 | Backfill  | 14 days         | 27/02/17        | 12/03/17        |   |   |   |   |   |  |
| 209 | All underground Utilities   | 125 days        | 13/03/17        | 15/07/17        |   |   |   |   |   |  |
| 210 | Backfill & Reinstatement & Formation of Access  | 200 days        | 16/07/17        | 31/01/18        |   |   |   |   |   |  |
| 211 | <b>HRSG Area Fdn - North (Area C6)</b>  | <b>340 days</b> | <b>26/04/17</b> | <b>31/03/18</b> |   |   |   |   |   |  |
| 212 | Excavation to Formation Level   | 21 days         | 26/04/17        | 16/05/17        |   |   |   |   |   |  |
| 213 | Drain Pit Construction (5no.1.6m to 6m in Height)   | 45 days         | 17/05/17        | 30/06/17        |   |   |   |   |   |  |
| 214 | Pile Head Treatment (8no.)  | 16 days         | 15/06/17        | 30/06/17        |   |   |   |   |   |  |
| 215 | MSB Fdn North of HRSG Area GL 10-H to 10H-H, 10-1to 10H-3   | 150 days        | 22/06/17        | 18/11/17        |   |   |   |   |   |  |
| 216 | All underground Utilities   | 60 days         | 19/11/17        | 17/01/18        |   |   |   |   |   |  |
| 217 | Plate Load Test   | 10 days         | 18/01/18        | 27/01/18        |   |   |   |   |   |  |
| 218 | Raft Fdn (1no.)   | 18 days         | 28/01/18        | 14/02/18        |   |   |   |   |   |  |
| 219 | Backfill & Reinstatement & Formation of Access  | 45 days         | 15/02/18        | 31/03/18        |   |   |   |   |   |  |
| 220 | <b>Main Station Building - Unit L10 Superstructure</b>  | <b>337 days</b> | <b>29/04/17</b> | <b>31/03/18</b> |   |   |   |   |   |  |
| 221 | <b>2/F</b>  | <b>44 days</b>  | <b>13/05/17</b> | <b>25/06/17</b> |   |   |   |   |   |  |
| 222 | Steel Beam Erection   | 14 days         | 13/05/17        | 26/05/17        |   |   |   |   |   |  |
| 223 | R.C. Structure Construction   | 14 days         | 12/06/17        | 25/06/17        |   |   |   |   |   |  |
| 224 | <b>3/F</b>  | <b>51 days</b>  | <b>27/05/17</b> | <b>16/07/17</b> |   |   |   |   |   |  |
| 225 | Steel Beam Erection   | 14 days         | 27/05/17        | 09/06/17        |   |   |   |   |   |  |
| 226 | R.C. Structure Construction   | 21 days         | 26/06/17        | 16/07/17        |   |   |   |   |   |  |
| 227 | <b>4/F</b>  | <b>58 days</b>  | <b>10/06/17</b> | <b>06/08/17</b> |   |   |   |   |   |  |
| 228 | Steel Beam Erection   | 14 days         | 10/06/17        | 23/06/17        |   |   |   |   |   |  |
| 229 | R.C. Structure Construction   | 21 days         | 17/07/17        | 06/08/17        |   |   |   |   |   |  |
| 230 | <b>5/F &amp; Roof except GL 10-G to 10-H and 10-2 to 10-6</b>   | <b>81 days</b>  | <b>23/05/17</b> | <b>11/08/17</b> |   |   |   |   |   |  |
| 231 | Steel Roof Truss Erection (GL 10-D & 10-E)  | 7 days          | 23/05/17        | 29/05/17        |   |   |   |   |   |  |
| 232 | Steel Roof Truss Erection (GL 10-F & 10-G)  | 7 days          | 30/05/17        | 05/06/17        |   |   |   |   |   |  |
| 233 | Steel Roof & Crane Rail Erection  | 21 days         | 25/05/17        | 14/06/17        |   |   |   |   |   |  |
| 234 | Slab Construction   | 30 days         | 15/06/17        | 14/07/17        |   |   |   |   |   |  |
| 235 | Upper Roof - Steel Roof Erection  | 30 days         | 08/07/17        | 06/08/17        |   |   |   |   |   |  |
| 236 | Upper roof RC construction  | 21 days         | 22/07/17        | 11/08/17        |   |   |   |   |   |  |
| 237 | Staircase Constructions   | 100 days        | 29/04/17        | 06/08/17        |   |   |   |   |   |  |
| 238 | Fendolite Installation to S. Steel Works  | 90 days         | 07/08/17        | 04/11/17        |   |   |   |   |   |  |
| 239 | External Metal Cladding Installation  | 120 days        | 21/08/17        | 18/12/17        |   |   |   |   |   |  |
| 240 | Internal ABWF Works   | 180 days        | 06/09/17        | 04/03/18        |   |   |   |   |   |  |
| 241 | BS Installation   | 180 days        | 03/10/17        | 31/03/18        |   |   |   |   |   |  |
| 242 | <b>275kV Cable Trench (Area C5 &amp; C6)</b>  | <b>180 days</b> | <b>16/07/17</b> | <b>11/01/18</b> |   |   |   |   |   |  |
| 243 | 275kV Cable Trench Excavation(C5 Area)  | 90 days         | 16/07/17        | 13/10/17        |   |   |   |   |   |  |
| 244 | 275kV Cable Trench Excavation(C6 Area)  | 90 days         | 14/10/17        | 11/01/18        |   |   |   |   |   |  |
| 245 | <b>MSB UnitL9 - A&amp;A</b>   | <b>140 days</b> | <b>12/06/17</b> | <b>29/10/17</b> |   |   |   |   |   |  |
| 246 | Hack-off Lean Concrete  | 70 days         | 12/06/17        | 21/08/17        |   |   |   |   |   |  |
| 247 | Pipe Rack Support Construction  | 70 days         | 21/08/17        | 29/10/17        |   |   |   |   |   |  |
| 248 | <b>MSB UnitL8 - A&amp;A</b>   | <b>150 days</b> | <b>09/04/17</b> | <b>06/09/17</b> |   |   |   |   |   |  |
| 249 | A&A Works   | 150 days        | 09/04/17        | 06/09/17        |   |   |   |   |   |  |
| 250 | <b>C.W. Pump Equipment Room</b>   | <b>364 days</b> | <b>01/04/17</b> | <b>31/03/18</b> |   |   |   |   |   |  |

Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID  | Task Name   | Duration        | Start           | Finish          |   |   |                     |   |   |
|-----|---|-----------------|-----------------|-----------------|---|---|---------------------|---|---|
|     |   |                 |                 |                 | F | M | A                   | M | J |
| 251 | BA 10 Application   | 0 days          | 01/04/17        | 01/04/17        |   |   | ◆ BA 10 Application |   |   |
| 252 | Excavation to + 4.05mPD   | 21 days         | 02/04/17        | 22/04/17        |   |   | ▨                   |   |   |
| 253 | Plate Load Test   | 14 days         | 23/04/17        | 06/05/17        |   |   | ▨                   |   |   |
| 254 | Raft Foundation Construction  | 18 days         | 07/05/17        | 24/05/17        |   |   | ▨                   |   |   |
| 255 | Underground Drainage  | 21 days         | 25/05/17        | 14/06/17        |   |   | ▨                   |   |   |
| 256 | Backfill  | 10 days         | 15/06/17        | 24/06/17        |   |   | ▨                   |   |   |
| 257 | Construct G/F   | 21 days         | 25/06/17        | 15/07/17        |   |   | ▨                   |   |   |
| 258 | Roof Construction   | 45 days         | 16/07/17        | 29/08/17        |   |   | ▨                   |   |   |
| 259 | Parapet Wall  | 18 days         | 30/08/17        | 16/09/17        |   |   | ▨                   |   |   |
| 260 | ABWF Works  | 75 days         | 17/09/17        | 30/11/17        |   |   | ▨                   |   |   |
| 261 | Building Service Installations  | 75 days         | 01/12/17        | 13/02/18        |   |   | ▨                   |   |   |
| 262 | Exenal Pipe Rack Extension & Reinstatement Works  | 90 days         | 31/12/17        | 30/03/18        |   |   | ▨                   |   |   |
| 263 | Ready for BA 13 Application   | 0 days          | 31/03/18        | 31/03/18        |   |   | ▨                   |   |   |
| 264 | <b>Demolition Work - Temporary Site Toilet</b>  | <b>60 days</b>  | <b>08/07/17</b> | <b>06/09/17</b> |   |   | ▨                   |   |   |
| 265 | Demolition of Temp. Site Toilet   | 60 days         | 08/07/17        | 06/09/17        |   |   | ▨                   |   |   |
| 266 | <b>Section E - Middel Rd &amp; South of L10. Expose &amp; Construction New 275kV Trench at LM</b> | <b>336 days</b> | <b>15/06/17</b> | <b>16/05/18</b> |   |   | ▨                   |   |   |
| 267 | <b>275kV Cable Trench</b>   | <b>240 days</b> | <b>16/07/17</b> | <b>12/03/18</b> |   |   | ▨                   |   |   |
| 268 | 275kV Cable Trench Re-excavation (~172m)  | 240 days        | 16/07/17        | 12/03/18        |   |   | ▨                   |   |   |
| 269 | <b>C.W. Culvert System (Area C9a &amp; C15)</b>   | <b>336 days</b> | <b>15/06/17</b> | <b>16/05/18</b> |   |   | ▨                   |   |   |
| 270 | Removal of existing paving block  | 12 days         | 15/06/17        | 26/06/17        |   |   | ▨                   |   |   |
| 271 | Install ELS & Excaavation, Phase 1  | 45 days         | 27/06/17        | 10/08/17        |   |   | ▨                   |   |   |
| 272 | Blinding & Construct Plinth   | 30 days         | 11/08/17        | 09/09/17        |   |   | ▨                   |   |   |
| 273 | Pipe Laying & Thrust Box  | 30 days         | 10/09/17        | 09/10/17        |   |   | ▨                   |   |   |
| 274 | Water Test and Backfill   | 12 days         | 10/10/17        | 21/10/17        |   |   | ▨                   |   |   |
| 275 | Underground UU and Reinstatement  | 45 days         | 22/10/17        | 05/12/17        |   |   | ▨                   |   |   |
| 276 | Install ELS & Excavation, Phase 2   | 45 days         | 06/12/17        | 19/01/18        |   |   | ▨                   |   |   |
| 277 | Blinding & Concrete Plinth  | 30 days         | 20/01/18        | 18/02/18        |   |   | ▨                   |   |   |
| 278 | Pipe Laying and Thrust Box  | 30 days         | 19/02/18        | 20/03/18        |   |   | ▨                   |   |   |
| 279 | Water Test & Backfill   | 12 days         | 21/03/18        | 01/04/18        |   |   | ▨                   |   |   |
| 280 | Underground UU and Reinstatement  | 45 days         | 02/04/18        | 16/05/18        |   |   | ▨                   |   |   |
| 281 | <b>Section F -Urea Storage &amp; Handling Facilities</b>  | <b>488 days</b> | <b>01/05/17</b> | <b>31/08/18</b> |   |   | ▨                   |   |   |
| 282 | <b>Urea Handling &amp; Storage Plant House, Electrical Room &amp; Pipe Rack</b>                   | <b>488 days</b> | <b>01/05/17</b> | <b>31/08/18</b> |   |   | ▨                   |   |   |
| 283 | BA 10 Application   | 10 days         | 01/05/17        | 10/05/17        |   |   | ▨                   |   |   |
| 284 | Excavation to Formation Level   | 14 days         | 11/05/17        | 24/05/17        |   |   | ▨                   |   |   |
| 285 | Plate Load Test   | 14 days         | 25/05/17        | 07/06/17        |   |   | ▨                   |   |   |
| 286 | Raft Foundation (Urea Handling Rm)  | 21 days         | 08/06/17        | 28/06/17        |   |   | ▨                   |   |   |
| 287 | Raft Foundation (Electrical Rm)   | 30 days         | 29/06/17        | 28/07/17        |   |   | ▨                   |   |   |
| 288 | Backfill  | 21 days         | 29/07/17        | 18/08/17        |   |   | ▨                   |   |   |
| 289 | Construct G/F   | 45 days         | 19/08/17        | 02/10/17        |   |   | ▨                   |   |   |
| 290 | Roof Construction   | 75 days         | 03/10/17        | 16/12/17        |   |   | ▨                   |   |   |
| 291 | Parapet Wall  | 21 days         | 17/12/17        | 06/01/18        |   |   | ▨                   |   |   |
| 292 | ABWF Works  | 120 days        | 07/01/18        | 06/05/18        |   |   | ▨                   |   |   |
| 293 | Building Service Installations  | 120 days        | 04/05/18        | 31/08/18        |   |   | ▨                   |   |   |
| 294 | Ready for BA 13 Application   | 0 days          | 31/08/18        | 31/08/18        |   |   | ▨                   |   |   |
| 295 | Plate Load Test   | 14 days         | 25/05/17        | 07/06/17        |   |   | ▨                   |   |   |
| 296 | Pipe Rack Foundation  | 28 days         | 08/06/17        | 05/07/17        |   |   | ▨                   |   |   |
| 297 | Supporting Tower (4 no.) (9.55m in Height)  | 60 days         | 06/07/17        | 03/09/17        |   |   | ▨                   |   |   |
| 298 | Pipe Rack Truss (3 no. )17.3m Span  | 60 days         | 04/09/17        | 02/11/17        |   |   | ▨                   |   |   |
| 299 | <b>Section G - Demin. Plant Road &amp; Modification at No. 4 CW Intake</b>                        | <b>273 days</b> | <b>01/01/18</b> | <b>30/09/18</b> |   |   | ▨                   |   |   |
| 300 | <b>C.W Culvert System (Area C9b)</b>  | <b>272 days</b> | <b>01/01/18</b> | <b>30/09/18</b> |   |   | ▨                   |   |   |
| 301 | Design, Approval & Consent  | 0 days          | 01/01/18        | 01/01/18        |   |   | ▨                   |   |   |
| 302 | Removal of paving block & ELS Installation  | 30 days         | 02/01/18        | 31/01/18        |   |   | ▨                   |   |   |
| 303 | Excavation to Formation Level with ELS Installation   | 45 days         | 01/02/18        | 17/03/18        |   |   | ▨                   |   |   |
| 304 | Construction of Blinding & Plinth   | 14 days         | 18/03/18        | 31/03/18        |   |   | ▨                   |   |   |
| 305 | Pipe Laying (2 pipes x ~45m)  | 30 days         | 01/04/18        | 30/04/18        |   |   | ▨                   |   |   |
| 306 | Construction of Thrust Box  | 14 days         | 01/05/18        | 14/05/18        |   |   | ▨                   |   |   |
| 307 | Water Test  | 8 days          | 15/05/18        | 22/05/18        |   |   | ▨                   |   |   |
| 308 | Backfill  | 21 days         | 23/05/18        | 12/06/18        |   |   | ▨                   |   |   |
| 309 | All underground Utilities   | 50 days         | 13/06/18        | 01/08/18        |   |   | ▨                   |   |   |
| 310 | Backfill & Reinstatement & Formation of Access  | 60 days         | 02/08/18        | 30/09/18        |   |   | ▨                   |   |   |
| 311 | <b>Modification Works - No. 4 C.W. Intake &amp; No.3 C.W. Outfall</b>                             | <b>181 days</b> | <b>01/01/18</b> | <b>30/06/18</b> |   |   | ▨                   |   |   |
| 312 | No. 3 C.W. Outfall Modification   | 90 days         | 01/01/18        | 01/04/18        |   |   | ▨                   |   |   |
| 313 | No. 4 C.W. Intake Modification  | 122 days        | 01/03/18        | 30/06/18        |   |   | ▨                   |   |   |
| 314 | <b>Section H1 - Gas Support foundation &amp; trench at Area C11</b>                               | <b>405 days</b> | <b>01/11/16</b> | <b>10/12/17</b> |   |   | ▨                   |   |   |
| 315 | <b>GRS Support Foundation</b>   | <b>405 days</b> | <b>01/11/16</b> | <b>10/12/17</b> |   |   | ▨                   |   |   |

Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID  | Task Name   | Duration         | Start           | Finish          |   |   |   |   |   |
|-----|---|------------------|-----------------|-----------------|---|---|---|---|---|
|     |   |                  |                 |                 | F | M | A | M | J |
| 316 | Temporary Protection, advance work etc  | 45 days          | 01/11/16        | 15/12/16        |   |   |   |   |   |
| 317 | Gas Pipe Footing  | 180 days         | 16/12/16        | 13/06/17        |   |   |   |   |   |
| 318 | Gas Pipe Trench   | 180 days         | 14/06/17        | 10/12/17        |   |   |   |   |   |
| 319 | <b>Section H2 - GRS Improvement work at Area C10</b>  | <b>441 days</b>  | <b>01/09/17</b> | <b>15/11/18</b> |   |   |   |   |   |
| 320 | <b>GRS Area Improvement Works</b>   | <b>441 days</b>  | <b>01/09/17</b> | <b>15/11/18</b> |   |   |   |   |   |
| 321 | Retaining Wall Construction   | 90 days          | 01/09/17        | 29/11/17        |   |   |   |   |   |
| 322 | Removal of Surcharge and Backfill   | 45 days          | 30/11/17        | 13/01/18        |   |   |   |   |   |
| 323 | Footing Construction  | 240 days         | 14/01/18        | 10/09/18        |   |   |   |   |   |
| 324 | Topping up, finish and Misc. Works  | 66 days          | 11/09/18        | 15/11/18        |   |   |   |   |   |
| 325 | <b>Section H3 - L10 Chimney Flue and A&amp;A L9 &amp; pipe rack formation</b>   | <b>318 days</b>  | <b>01/01/18</b> | <b>15/11/18</b> |   |   |   |   |   |
| 326 | <b>No.4 Chimney Steel Flue</b>  | <b>318 days</b>  | <b>01/01/18</b> | <b>15/11/18</b> |   |   |   |   |   |
| 327 | Consent, documentation and site preparation   | 0 days           | 01/01/18        | 01/01/18        |   |   |   |   |   |
| 328 | Steel Flue Preparation & installation   | 150 days         | 02/01/18        | 31/05/18        |   |   |   |   |   |
| 329 | Install Steel Cover at Windshield   | 45 days          | 01/06/18        | 15/07/18        |   |   |   |   |   |
| 330 | Install Steel Cover at Roof   | 30 days          | 16/07/18        | 14/08/18        |   |   |   |   |   |
| 331 | Modification & Reinstatement Works  | 55 days          | 15/08/18        | 08/10/18        |   |   |   |   |   |
| 332 | E & M Installation  | 38 days          | 09/10/18        | 15/11/18        |   |   |   |   |   |
| 333 | MSB Unit 9 Pipe Rack Construction   | 90 days          | 01/04/18        | 29/06/18        |   |   |   |   |   |
| 334 | <b>Section I1 - Link Bridge &amp; associated A&amp;A</b>  | <b>455 days</b>  | <b>01/01/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 335 | <b>Link Bridge</b>  | <b>455 days</b>  | <b>01/01/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 336 | Design & Shop Drawings  | 90 days          | 01/01/18        | 31/03/18        |   |   |   |   |   |
| 337 | Access  | 0 days           | 17/11/18        | 17/11/18        |   |   |   |   |   |
| 338 | Site preparation  | 14 days          | 18/11/18        | 01/12/18        |   |   |   |   |   |
| 339 | Link Bridge between Unit L9 & L10   | 120 days         | 02/12/18        | 31/03/19        |   |   |   |   |   |
| 340 | <b>Section I2 - Shunt Reactor SR4 Foundation</b>  | <b>90 days</b>   | <b>01/01/19</b> | <b>31/03/19</b> |   |   |   |   |   |
| 341 | <b>Shunt Reactor Compound SR4</b>   | <b>90 days</b>   | <b>01/01/19</b> | <b>31/03/19</b> |   |   |   |   |   |
| 342 | Modification Work at Shunt Reactor SR4  | 90 days          | 01/01/19        | 31/03/19        |   |   |   |   |   |
| 343 | <b>Section I3 - All remaining work except deferred works</b>  | <b>417 days</b>  | <b>08/02/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 344 | <b>Remaining Works</b>  | <b>417 days</b>  | <b>08/02/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 345 | Demolition of Canopy @ Jetty Guard Hose & Toilet)   | 30 days          | 02/08/18        | 31/08/18        |   |   |   |   |   |
| 346 | Demolition of Existing Contractor Shed  | 60 days          | 01/09/18        | 30/10/18        |   |   |   |   |   |
| 347 | Security Fence Erection   | 20 days          | 31/10/18        | 19/11/18        |   |   |   |   |   |
| 348 | All External Works & Road Works   | 417 days         | 08/02/18        | 31/03/19        |   |   |   |   |   |
| 349 | <b>Deferred Works - L10 MSB and HRSG</b>  | <b>417 days</b>  | <b>08/02/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 350 | Construction of L10 MSB Roof BetweenGL 10-G to 10-H and 10-2 to 10-6 After the Overhead Crane Installation  | 52 days          | 08/02/18        | 31/03/18        |   |   |   |   |   |
| 351 | Construction of Walls and Ceilings of Lube Oil Tank Room at L10 MSB   | 92 days          | 01/05/18        | 31/07/18        |   |   |   |   |   |
| 352 | Construction of Walls of L10 MSB Below Level +18mPD along GL10-6 form GL10-F to 10-H and Walls of L10 MSB along GL10-H from GL10-5 to 10-6 including the associated Building Elements | 92 days          | 01/05/18        | 31/07/18        |   |   |   |   |   |
| 353 | Construction of Walls of L10 MSB Below 1/F along GL10-6 from GL10-B to10-C and the associated Staircases including the Enclosure Walls between G/F and 1/F.                           | 184 days         | 01/05/18        | 31/10/18        |   |   |   |   |   |
| 354 | Construction of Internal Partition Wall at 1/F of L10 MSB along GL10-C from GL10-2 to 10-3  | 32 days          | 15/05/18        | 15/06/18        |   |   |   |   |   |
| 355 | Removal of Temporary Paving Within L10 HRSG Area to Expose all respective Equipment Foundations   | 14 days          | 01/08/18        | 14/08/18        |   |   |   |   |   |
| 356 | Construction of Foundation Plinths and Walls of Lube Oil Storage Tank   | 93 days          | 15/08/18        | 15/11/18        |   |   |   |   |   |
| 357 | Construction of Metal Fence and the associated Fire Services Installations and Installation of Removable Shelter Transformer Area   | 121 days         | 01/12/18        | 31/03/19        |   |   |   |   |   |
| 358 | <b>Deferred Works - External Works</b>  | <b>182 days</b>  | <b>01/10/18</b> | <b>31/03/19</b> |   |   |   |   |   |
| 359 | Final Reinstatement of Access Roads and Pavement Surrounding and within L10 MSB and L10 HRSG Area   | 151 days         | 01/10/18        | 28/02/19        |   |   |   |   |   |
| 360 | FSD Inspection  | 14 days          | 02/03/19        | 15/03/19        |   |   |   |   |   |
| 361 | BD OP Inspection  | 14 days          | 18/03/19        | 31/03/19        |   |   |   |   |   |
| 362 | <b>Section J - Cable Route CPX1&amp;2 cable diversion &amp; whole of work except deferred works to be carried out in DLP</b>  | <b>1127 days</b> | <b>01/05/17</b> | <b>31/05/20</b> |   |   |   |   |   |
| 363 | <b>275kV Cable Diversion</b>  | <b>1127 days</b> | <b>01/05/17</b> | <b>31/05/20</b> |   |   |   |   |   |
| 364 | <b>Part I (1km in Length, 1.1m to 1.5m Deep) (Works in existing Trench)</b>   | <b>426 days</b>  | <b>01/05/17</b> | <b>30/06/18</b> |   |   |   |   |   |
| 365 | Tentative Commencement Date Of Civil Works  | 0 days           | 01/05/17        | 01/05/17        |   |   |   |   |   |
| 366 | Implementation of TTA   | 7 days           | 01/05/17        | 07/05/17        |   |   |   |   |   |
| 367 | Remove the Concrete Road Cover  | 60 days          | 08/05/17        | 06/07/17        |   |   |   |   |   |



Contract No. 16/8002 Lamma Power Station Extension Civil and Building Unit L10

| ID  | Task Name  | Duration        | Start           | Finish          |   |   |   |   |   |
|-----|--|-----------------|-----------------|-----------------|---|---|---|---|---|
|     |  |                 |                 |                 | F | M | A | M | J |
| 368 | Cable Trench Re-excavation   | 208 days        | 07/06/17        | 31/12/17        |   |   |   |   |   |
| 369 | Completion Date of Trench Excavation for Site Handover   | 0 days          | 31/12/17        | 31/12/17        |   |   |   |   |   |
| 370 | Tentative Period for Backfilling and Road Reinstatement (Excluding Joint Bay and Trench at Station Road)             | 91 days         | 01/04/18        | 30/06/18        |   |   |   |   |   |
| 371 | <b>Part II (630m in Length, 1.1m to 1.5m Deep) (Works in existing Trench)</b>  | <b>485 days</b> | <b>01/11/17</b> | <b>28/02/19</b> |   |   |   |   |   |
| 372 | Tentative Commencement Date Of Civil Works   | 0 days          | 01/11/17        | 01/11/17        |   |   |   |   |   |
| 373 | Implementation of TTA  | 7 days          | 01/11/17        | 07/11/17        |   |   |   |   |   |
| 374 | Remove the Concrete Road Cover   | 32 days         | 08/11/17        | 09/12/17        |   |   |   |   |   |
| 375 | Trench Excavation and Installation of Road Decking at Joint Bay (Including Part I & II)                              | 90 days         | 25/11/17        | 22/02/18        |   |   |   |   |   |
| 376 | Cable Trench Re-excavation   | 190 days        | 23/02/18        | 31/08/18        |   |   |   |   |   |
| 377 | Completion Date of Trench Excavation for Site Handover   | 0 days          | 31/08/18        | 31/08/18        |   |   |   |   |   |
| 378 | Tentative Period for Backfilling and Road Reinstatement (Including Joint Bay at Part I, but excluding Joint Bay SJ3) | 90 days         | 01/12/18        | 28/02/19        |   |   |   |   |   |
| 379 | <b>Part III (400m in Length, 1.3m to 1.5m Deep) (Works in New Trench)</b>  | <b>518 days</b> | <b>01/07/18</b> | <b>30/11/19</b> |   |   |   |   |   |
| 380 | Tentative Commencement Date Of Civil Works   | 0 days          | 01/07/18        | 01/07/18        |   |   |   |   |   |
| 381 | Implementation of TTA  | 7 days          | 01/07/18        | 07/07/18        |   |   |   |   |   |
| 382 | Remove the Concrete Road Cover   | 30 days         | 08/07/18        | 06/08/18        |   |   |   |   |   |
| 383 | Cable Trench Excavation with shoring   | 270 days        | 07/08/18        | 03/05/19        |   |   |   |   |   |
| 384 | Construction of New Joint Bay  | 28 days         | 04/05/19        | 31/05/19        |   |   |   |   |   |
| 385 | Completion Date of Trench Excavation for Site Handover   | 0 days          | 31/05/19        | 31/05/19        |   |   |   |   |   |
| 386 | Tentative Period for Backfilling and Road Reinstatement (excluding new slab but including SJ3)                       | 91 days         | 01/09/19        | 30/11/19        |   |   |   |   |   |
| 387 | <b>Part IV (Hand Dig Tunnel)</b>   | <b>701 days</b> | <b>01/07/18</b> | <b>31/05/20</b> |   |   |   |   |   |
| 388 | Tentative Commencement Date Of Civil Works   | 0 days          | 01/07/18        | 01/07/18        |   |   |   |   |   |
| 389 | Excavation to Approx. +5mPD  | 30 days         | 01/07/18        | 30/07/18        |   |   |   |   |   |
| 390 | Existing Drainage Diversion  | 50 days         | 31/07/18        | 18/09/18        |   |   |   |   |   |
| 391 | Construction of New Cable Joint Bay  | 30 days         | 19/09/18        | 18/10/18        |   |   |   |   |   |
| 392 | Ramp Trench  | 75 days         | 19/10/18        | 01/01/19        |   |   |   |   |   |
| 393 | Formation of Temp. Cable Pit   | 45 days         | 02/01/19        | 15/02/19        |   |   |   |   |   |
| 394 | Hand Dig Tunnel (17.6m) (0.2-0.3m/day)   | 75 days         | 16/02/19        | 01/05/19        |   |   |   |   |   |
| 395 | Excavation for Duct Bank Construction  | 60 days         | 02/05/19        | 30/06/19        |   |   |   |   |   |
| 396 | Completion Date of Trench Excavation for Site Handover   | 0 days          | 30/06/19        | 30/06/19        |   |   |   |   |   |
| 397 | <b>Deferred Works - Cable Diversion CPX1 and CPX2 (during DLP)</b>   | <b>274 days</b> | <b>01/09/19</b> | <b>31/05/20</b> |   |   |   |   |   |
| 398 | Formation of Wall Opening between existing trench CPX1 and new Joint Bay   | 7 days          | 01/09/19        | 07/09/19        |   |   |   |   |   |
| 399 | Breaking up for Road Paving and Excavation down to Cable Tiles of Existing Trench CPX2                               | 31 days         | 01/12/19        | 31/12/19        |   |   |   |   |   |
| 400 | Demolition of Existing Trench CPX1 and CPX2  | 30 days         | 01/04/20        | 30/04/20        |   |   |   |   |   |
| 401 | Final Reinstatement of the CPX1 and CPX2 Areas   | 31 days         | 01/05/20        | 31/05/20        |   |   |   |   |   |
| 402 | <b>Deferred Works - Shunt Reactor Compound SR4 (during DLP)</b>  | <b>153 days</b> | <b>01/07/19</b> | <b>30/11/19</b> |   |   |   |   |   |
| 403 | Trench Re-excavation and Cable Supports Installation for Shunt Reactor Compound SR4                                  | 62 days         | 01/07/19        | 31/08/19        |   |   |   |   |   |
| 404 | Backfilling and Road Re-instatement of Shunt Reactor SR4 and Associated Trench                                       | 30 days         | 01/11/19        | 30/11/19        |   |   |   |   |   |

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

Contract No. 16/8015 - Lamma Power Station Extension Foundation Works for Unit L11

Master Programme

| ID | Task Name  | Duration        | Start             | Finish            | 2017年 |    |    | 2018年 |    |    |
|----|--|-----------------|-------------------|-------------------|-------|----|----|-------|----|----|
|    |  |                 |                   |                   | M4    | M5 | M6 | 三月    | 四月 | 五月 |
| 1  | <b>Key Date</b>  | <b>455 days</b> | <b>2016/12/21</b> | <b>2018/3/20</b>  |       |    |    |       |    |    |
| 2  | Commencement date  | 0 days          | 2016/12/21        | 2016/12/21        |       |    |    |       |    |    |
| 3  | Duration of works  | 455 days        | 2016/12/21        | 2018/3/20         |       |    |    |       |    |    |
| 4  | Site possession date   | 0 days          | 2016/12/21        | 2016/12/21        |       |    |    |       |    |    |
| 5  | Completion of the Contract   | 0 days          | 2018/3/20         | 2018/3/20         |       |    |    |       |    |    |
| 6  |  |                 |                   |                   |       |    |    |       |    |    |
| 7  | <b>Submission &amp; Works Commenced Before the Contract</b>                  | <b>231 days</b> | <b>2016/11/14</b> | <b>2017/7/2</b>   |       |    |    |       |    |    |
| 8  | <b>Preliminaries</b>   | <b>75 days</b>  | <b>2016/11/14</b> | <b>2017/1/27</b>  |       |    |    |       |    |    |
| 9  | Coordination with utility companies  | 14 days         | 2016/12/14        | 2016/12/27        |       |    |    |       |    |    |
| 10 | Condition survey   | 1 day           | 2016/12/14        | 2016/12/14        |       |    |    |       |    |    |
| 11 | Notification of commencement of works to Labour Department                   | 1 day           | 2016/12/19        | 2016/12/19        |       |    |    |       |    |    |
| 12 | Notification of air pollution control for commencement of works to EPD       | 1 day           | 2016/12/19        | 2016/12/19        |       |    |    |       |    |    |
| 13 | Application of water discharge licence from EPD                              | 14 days         | 2016/12/12        | 2016/12/25        |       |    |    |       |    |    |
| 14 | Application for billing account for disposal of construction waste from EPD  | 7 days          | 2016/12/12        | 2016/12/18        |       |    |    |       |    |    |
| 15 | CCTV for existing underground drainage pipe around site boundary             | 12 days         | 2017/1/16         | 2017/1/27         |       |    |    |       |    |    |
| 16 | Erection of contractor's site office   | 21 days         | 2016/12/14        | 2017/1/3          |       |    |    |       |    |    |
| 17 | Installation of monitoring checkpoints                                       | 2 days          | 2016/12/13        | 2016/12/14        |       |    |    |       |    |    |
| 18 | Submission of BA10 for foundation works                                      | 0 days          | 2016/11/14        | 2016/11/14        |       |    |    |       |    |    |
| 19 |  |                 |                   |                   |       |    |    |       |    |    |
| 20 | <b>Pre-drilling Works</b>  | <b>51 days</b>  | <b>2016/11/23</b> | <b>2017/1/12</b>  |       |    |    |       |    |    |
| 21 | Drilling rigs mobilization (6 rigs)  | 1 day           | 2016/12/22        | 2016/12/22        |       |    |    |       |    |    |
| 22 | Pre-drilling works   | 31 days         | 2016/11/23        | 2016/12/23        |       |    |    |       |    |    |
| 23 | Submission of pre-drill logs   | 16 days         | 2016/12/28        | 2017/1/12         |       |    |    |       |    |    |
| 24 | Completion of pre-drilling works   | 0 days          | 2017/1/12         | 2017/1/12         |       |    |    |       |    |    |
| 25 |  |                 |                   |                   |       |    |    |       |    |    |
| 26 | <b>Plant Mobilization for Bored Pile Construction</b>                        | <b>207 days</b> | <b>2016/12/8</b>  | <b>2017/7/2</b>   |       |    |    |       |    |    |
| 27 | <b>Crawler Crane</b>   | <b>86 days</b>  | <b>2016/12/8</b>  | <b>2017/3/3</b>   |       |    |    |       |    |    |
| 28 | 1st & 2nd set  | 1 day           | 2016/12/8         | 2016/12/8         |       |    |    |       |    |    |
| 29 | 3rd & 4th set  | 1 day           | 2017/1/6          | 2017/1/6          |       |    |    |       |    |    |
| 30 | 5th & 6th set  | 7 days          | 2017/2/25         | 2017/3/3          |       |    |    |       |    |    |
| 31 | <b>Oscillator</b>  | <b>206 days</b> | <b>2016/12/9</b>  | <b>2017/7/2</b>   |       |    |    |       |    |    |
| 32 | 1st & 2nd set  | 4 days          | 2016/12/9         | 2016/12/12        |       |    |    |       |    |    |
| 33 | 3rd & 4th set  | 2 days          | 2017/1/7          | 2017/1/8          |       |    |    |       |    |    |
| 34 | 5th set  | 7 days          | 2017/3/4          | 2017/3/10         |       |    |    |       |    |    |
| 35 | 6th set  | 7 days          | 2017/6/26         | 2017/7/2          |       |    |    |       |    |    |
| 36 | <b>RCD</b>   | <b>84 days</b>  | <b>2017/1/7</b>   | <b>2017/3/31</b>  |       |    |    |       |    |    |
| 37 | 1st & 2nd set  | 7 days          | 2017/1/7          | 2017/1/13         |       |    |    |       |    |    |
| 38 | 3rd & 4th set  | 7 days          | 2017/1/21         | 2017/1/27         |       |    |    |       |    |    |
| 39 | 5th & 6th set ( Optional if necessary)                                       | 7 days          | 2017/3/25         | 2017/3/31         |       |    |    |       |    |    |
| 40 | Completion of plant mobilization for bored pile construction                 | 0 days          | 2017/3/31         | 2017/3/31         |       |    |    |       |    |    |
| 41 |  |                 |                   |                   |       |    |    |       |    |    |
| 42 | <b>Delivery of Temporary Steel Casing for Bored Pile Construction</b>        | <b>192 days</b> | <b>2016/12/21</b> | <b>2017/6/30</b>  |       |    |    |       |    |    |
| 43 | Duration for delivery of temporary steel casing                              | 192 days        | 2016/12/21        | 2017/6/30         |       |    |    |       |    |    |
| 44 | Completion of delivery of temporary steel casing for bored pile construction | 0 days          | 2017/6/30         | 2017/6/30         |       |    |    |       |    |    |
| 45 |  |                 |                   |                   |       |    |    |       |    |    |
| 46 | <b>Total Contract Period</b>   | <b>455 days</b> | <b>2016/12/21</b> | <b>2018/3/20</b>  |       |    |    |       |    |    |
| 47 |  |                 |                   |                   |       |    |    |       |    |    |
| 48 | <b>Section A</b>   | <b>315 days</b> | <b>2016/12/21</b> | <b>2017/10/31</b> |       |    |    |       |    |    |
| 49 | Delivery of Permanent Casing & Double Wall Liner                             | 270 days        | 2016/12/21        | 2017/9/16         |       |    |    |       |    |    |
| 50 | Testing for double wall liner (subject to HEC's request)                     | 45 days         | 2016/12/21        | 2017/2/3          |       |    |    |       |    |    |

Master Programme  
MP-03 ( 14 Jan 2017 )

Task Critical Task Milestone Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

**Contract No. 16/8015 - Lamma Power Station Extension Foundation Works for Unit L11**

**Master Programme**

| ID | Task Name  | Duration        | Start             | Finish            | 2017年 |    |    | 2018年 |  |  |
|----|--|-----------------|-------------------|-------------------|-------|----|----|-------|--|--|
|    |  |                 |                   |                   | M4    | M5 | M6 |       |  |  |
|    |  |                 |                   |                   | 三月    | 四月 | 五月 |       |  |  |
| 51 | Duration for delivery of permanent casing & double wall liner  | 240 days        | 2017/1/20         | 2017/9/16         |       |    |    |       |  |  |
| 52 | <b>Bored Pile Construction (22 piles)</b>  | <b>315 days</b> | <b>2016/12/21</b> | <b>2017/10/31</b> |       |    |    |       |  |  |
| 53 | 1st set - G2 > G1 > G4 > G3 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                 | 186 days        | 2016/12/21        | 2017/6/24         |       |    |    |       |  |  |
| 54 | G2   | 45 days         | 2016/12/21        | 2017/2/3          |       |    |    |       |  |  |
| 55 | G1   | 46 days         | 2017/2/4          | 2017/3/21         |       |    |    |       |  |  |
| 56 | G4   | 50 days         | 2017/3/22         | 2017/5/10         |       |    |    |       |  |  |
| 57 | G3   | 45 days         | 2017/5/11         | 2017/6/24         |       |    |    |       |  |  |
| 58 | 2nd set - G7 > G5 > G6 > BP26 > BP20 > BP23 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders) | 283 days        | 2016/12/21        | 2017/9/29         |       |    |    |       |  |  |
| 59 | G7   | 45 days         | 2016/12/21        | 2017/2/3          |       |    |    |       |  |  |
| 60 | G6   | 43 days         | 2017/2/4          | 2017/3/18         |       |    |    |       |  |  |
| 61 | G5   | 48 days         | 2017/3/19         | 2017/5/5          |       |    |    |       |  |  |
| 62 | BP26   | 46 days         | 2017/5/6          | 2017/6/20         |       |    |    |       |  |  |
| 63 | BP20 (required after 1 July 17)  | 44 days         | 2017/7/3          | 2017/8/15         |       |    |    |       |  |  |
| 64 | BP23 (required after 1 July 17)  | 45 days         | 2017/8/16         | 2017/9/29         |       |    |    |       |  |  |
| 65 | 3rd set - BP5 > BP1 > BP13 > BP9 > BP17 (1 crane operator, 1 oscillator operator, 2 RCD operators, 4 riggers & 2 welders)    | 135 days        | 2017/1/9          | 2017/5/23         |       |    |    |       |  |  |
| 66 | BP5  | 45 days         | 2017/1/9          | 2017/2/22         |       |    |    |       |  |  |
| 67 | BP1  | 50 days         | 2017/1/27         | 2017/3/17         |       |    |    |       |  |  |
| 68 | BP13   | 45 days         | 2017/2/23         | 2017/4/8          |       |    |    |       |  |  |
| 69 | BP9  | 50 days         | 2017/3/18         | 2017/5/6          |       |    |    |       |  |  |
| 70 | BP17   | 45 days         | 2017/4/9          | 2017/5/23         |       |    |    |       |  |  |
| 71 | 4th set - G10 > G8 > G9 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                     | 136 days        | 2017/1/16         | 2017/5/31         |       |    |    |       |  |  |
| 72 | G10  | 45 days         | 2017/1/16         | 2017/3/1          |       |    |    |       |  |  |
| 73 | G8   | 45 days         | 2017/3/2          | 2017/4/15         |       |    |    |       |  |  |
| 74 | G9   | 46 days         | 2017/4/16         | 2017/5/31         |       |    |    |       |  |  |
| 75 | 5th set - BP8 > BP4 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                         | 85 days         | 2017/7/3          | 2017/9/25         |       |    |    |       |  |  |
| 76 | BP8 (required after 1 July 17)   | 41 days         | 2017/7/3          | 2017/8/12         |       |    |    |       |  |  |
| 77 | BP4 (required after 1 July 17)   | 43 days         | 2017/8/14         | 2017/9/25         |       |    |    |       |  |  |
| 78 | 6th set - BP12 > BP16 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                       | 87 days         | 2017/7/3          | 2017/9/27         |       |    |    |       |  |  |
| 79 | BP12 (required after 1 July 17)  | 46 days         | 2017/7/3          | 2017/8/17         |       |    |    |       |  |  |
| 80 | BP16 (required after 1 July 17)  | 41 days         | 2017/8/18         | 2017/9/27         |       |    |    |       |  |  |
| 81 | Interface & sonic test   | 30 days         | 2017/9/7          | 2017/10/6         |       |    |    |       |  |  |
| 82 | Prepare & submit as-built record plan  | 7 days          | 2017/9/30         | 2017/10/6         |       |    |    |       |  |  |
| 83 | Submission of BA14   | 1 day           | 2017/10/7         | 2017/10/7         |       |    |    |       |  |  |
| 84 | Allow 14 days for selection of pile for concrete full core test  | 14 days         | 2017/10/8         | 2017/10/21        |       |    |    |       |  |  |
| 85 | Concrete full core test  | 10 days         | 2017/10/22        | 2017/10/31        |       |    |    |       |  |  |
| 86 | Completion of bored pile construction  | 0 days          | 2017/10/31        | 2017/10/31        |       |    |    |       |  |  |
| 87 | <b>Sheet Pile</b>  | <b>163 days</b> | <b>2017/5/22</b>  | <b>2017/10/31</b> |       |    |    |       |  |  |
| 88 | Plant mobilization (1 rig) (1 operator, 4 riggers & 4 welders)   | 7 days          | 2017/8/13         | 2017/8/19         |       |    |    |       |  |  |
| 89 | Delivery of sheet pile material  | 90 days         | 2017/5/22         | 2017/8/19         |       |    |    |       |  |  |
| 90 | Installation of sheet pile - Type B (approx. 80 piles)   | 65 days         | 2017/8/20         | 2017/10/23        |       |    |    |       |  |  |
| 91 | Prepare & submit as-built record plan  | 7 days          | 2017/10/24        | 2017/10/30        |       |    |    |       |  |  |
| 92 | Submission of BA14   | 1 day           | 2017/10/31        | 2017/10/31        |       |    |    |       |  |  |
| 93 | Completion of sheet pile   | 0 days          | 2017/10/31        | 2017/10/31        |       |    |    |       |  |  |
| 94 | Completion of section A  | 0 days          | 2017/10/31        | 2017/10/31        |       |    |    |       |  |  |

Master Programme  
MP-03 ( 14 Jan 2017 )

Task Critical Task Milestone Summary

SUNLEY ENGINEERING & CONSTRUCTION CO., LTD.

**Contract No. 16/8015 - Lamma Power Station Extension Foundation Works for Unit L11**

**Master Programme**

| ID  | Task Name  | Duration        | Start             | Finish           | 2017年 |    |    | 2018年 |    |    |
|-----|--|-----------------|-------------------|------------------|-------|----|----|-------|----|----|
|     |  |                 |                   |                  | M4    | M5 | M6 | 三月    | 四月 | 五月 |
| 95  |  |                 |                   |                  |       |    |    |       |    |    |
| 96  | <b>Section B</b>   | <b>455 days</b> | <b>2016/12/21</b> | <b>2018/3/20</b> |       |    |    |       |    |    |
| 97  | Delivery of Permanent Casing & Double Wall Liner   | 390 days        | 2016/12/21        | 2018/1/14        |       |    |    |       |    |    |
| 98  | Testing for double wall liner (subject to HEC's request)   | 45 days         | 2016/12/21        | 2017/2/3         |       |    |    |       |    |    |
| 99  | Duration for delivery of permanent casing & double wall liner  | 305 days        | 2017/3/16         | 2018/1/14        |       |    |    |       |    |    |
| 100 | <b>Bored Pile Construction (16 piles)</b>  | <b>373 days</b> | <b>2017/3/13</b>  | <b>2018/3/20</b> |       |    |    |       |    |    |
| 101 | 1st set - BP21 > BP22 > BP18 > BP19 > BP15 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                            | 227 days        | 2017/6/25         | 2018/2/6         |       |    |    |       |    |    |
| 102 | BP21   | 46 days         | 2017/6/25         | 2017/8/9         |       |    |    |       |    |    |
| 103 | BP22   | 45 days         | 2017/8/10         | 2017/9/23        |       |    |    |       |    |    |
| 104 | BP18   | 45 days         | 2017/9/25         | 2017/11/8        |       |    |    |       |    |    |
| 105 | BP19   | 45 days         | 2017/11/9         | 2017/12/23       |       |    |    |       |    |    |
| 106 | BP15   | 45 days         | 2017/12/24        | 2018/2/6         |       |    |    |       |    |    |
| 107 | 3rd set - BP14 > BP11 > BP29 > BP6 > BP7 (1 crane operator, 1 oscillator operator, 2 RCD operators, 4 riggers & 2 welders)                             | 137 days        | 2017/5/7          | 2017/9/20        |       |    |    |       |    |    |
| 108 | BP14   | 46 days         | 2017/5/7          | 2017/6/21        |       |    |    |       |    |    |
| 109 | BP11   | 45 days         | 2017/5/24         | 2017/7/7         |       |    |    |       |    |    |
| 110 | BP29   | 45 days         | 2017/6/22         | 2017/8/5         |       |    |    |       |    |    |
| 111 | BP6  | 45 days         | 2017/7/8          | 2017/8/21        |       |    |    |       |    |    |
| 112 | BP7  | 46 days         | 2017/8/6          | 2017/9/20        |       |    |    |       |    |    |
| 113 | 4th set - BP27 > BP28 > BP25 > BP24 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)                                   | 182 days        | 2017/6/1          | 2017/11/29       |       |    |    |       |    |    |
| 114 | BP27   | 45 days         | 2017/6/1          | 2017/7/15        |       |    |    |       |    |    |
| 115 | BP28   | 46 days         | 2017/7/16         | 2017/8/30        |       |    |    |       |    |    |
| 116 | BP25   | 45 days         | 2017/8/31         | 2017/10/14       |       |    |    |       |    |    |
| 117 | BP24   | 46 days         | 2017/10/15        | 2017/11/29       |       |    |    |       |    |    |
| 118 | 5th set - BP10 > BP3 (1 crane operator, 1 oscillator operator, 1 RCD operator, 4 riggers & 2 welders)  | 94 days         | 2017/3/13         | 2017/6/14        |       |    |    |       |    |    |
| 119 | BP10   | 45 days         | 2017/3/13         | 2017/4/26        |       |    |    |       |    |    |
| 120 | BP3  | 44 days         | 2017/5/2          | 2017/6/14        |       |    |    |       |    |    |
| 121 | Interface & sonic test   | 30 days         | 2018/1/18         | 2018/2/16        |       |    |    |       |    |    |
| 122 | Prepare & submit as-built record plan  | 7 days          | 2018/2/17         | 2018/2/23        |       |    |    |       |    |    |
| 123 | Submission of BA14   | 1 day           | 2018/2/24         | 2018/2/24        |       |    |    |       |    |    |
| 124 | Allow 14 days for selection of pile for concrete full core test  | 14 days         | 2018/2/25         | 2018/3/10        |       |    |    |       |    |    |
| 125 | Concrete full core test  | 10 days         | 2018/3/11         | 2018/3/20        |       |    |    |       |    |    |
| 126 | Completion of bored pile construction  | 0 days          | 2018/3/20         | 2018/3/20        |       |    |    |       |    |    |
| 127 | <b>Sheet Pile</b>  | <b>235 days</b> | <b>2017/7/10</b>  | <b>2018/3/1</b>  |       |    |    |       |    |    |
| 128 | Delivery of sheet pile material  | 90 days         | 2017/7/10         | 2017/10/7        |       |    |    |       |    |    |
| 129 | Installation of sheet pile - Type A (approx. 192 piles) (1 rig mobilized after completion of sheet pile of Type B) (1 operator, 4 riggers & 4 welders) | 45 days         | 2017/10/24        | 2017/12/7        |       |    |    |       |    |    |
| 130 | Installation of sheet pile - Type C (approx. 325 piles) (1 rig mobilized after completion of sheet pile of Type A) (1 operator, 4 riggers & 4 welders) | 76 days         | 2017/12/8         | 2018/2/21        |       |    |    |       |    |    |
| 131 | Prepare & submit as-built record plan  | 7 days          | 2018/2/22         | 2018/2/28        |       |    |    |       |    |    |
| 132 | Submission of BA14   | 1 day           | 2018/3/1          | 2018/3/1         |       |    |    |       |    |    |
| 133 | Completion of sheet pile   | 0 days          | 2018/3/1          | 2018/3/1         |       |    |    |       |    |    |
| 134 | Completion of section B  | 0 days          | 2018/3/20         | 2018/3/20        |       |    |    |       |    |    |
| 135 |  |                 |                   |                  |       |    |    |       |    |    |
| 136 | Contract completion  | 0 days          | 2018/3/20         | 2018/3/20        |       |    |    |       |    |    |

Master Programme  
MP-03 ( 14 Jan 2017 )

Task Critical Task Milestone Summary

## Monthly Waste Flow Table for February 2017

Project: Foundation Works for Lamma Power Station Extension Unit L10

Contractor: Sunley Engineering & Construction Co Ltd

Record by: Andy Fan

Year of Record: 2017

| MM.YYYY     | Actual Quantities of Inert C&D Materials Generated Monthly |                                |   |   |                        |                          |                         |                                | Actual Quantities of Non-inert C&D Materials Generated Monthly |                                      |  |                                   |   |                            | Remarks |
|-------------|--|--------------------------------|---|---|------------------------|--------------------------|-------------------------|--------------------------------|--|--------------------------------------|--|-----------------------------------|---|----------------------------|---------|
|             | Excavated Materials  |                                |   | Non-excavated Materials   |                        |                          |                         |                                | Metals (steel bar / metal strip) <sup>(1)</sup>                | Metals (aluminum can) <sup>(1)</sup> | Paper / cardboard packaging <sup>(1)</sup> | Plastics <sup>(1) &amp; (4)</sup> | Chemical waste (wasted lubricant oil/oil container) | Other, e.g. general refuse |         |
|             | Disposed in Public Fill                                    | Disposed in Sorting Facilities | Others (e.g. Reused in the Contract / Other Projects) | Broken Concrete or Construction Waste Collected by Recycled Company | Reused in the Contract | Reused in other Projects | Disposed in Public Fill | Disposed in Sorting Facilities |  |                                      |  |                                   |   |                            |         |
| (in '000kg) | (in '000kg)  | (in '000kg)                    | (in '000kg)   | (in '000kg)   | (in '000kg)            | (in '000kg)              | (in '000kg)             | (in '000kg)                    | (in '000kg)  | (in '000kg)                          | (in '000kg)                                | (in '000kg)                       | (in '000kg)   |                            |         |
| Jan 2016    | 0.00   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       |         |
| Feb 2016    | 0.00   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 2.86    |
| Mar-2016    | 2382.07  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 2.50    |
| Apr-16      | 3888.21  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 2.70    |
| May-16      | 7139.92  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 2.90    |
| Jun-16      | 9323.37  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 4.00    |
| Jul-16      | 12248.01   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 6.00    |
| Aug-16      | 7009.95  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 2.76    |
| Sep-16      | 7871.97  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 4.26    |
| Oct-16      | 3287.03  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 4.46    |
| Nov-16      | 3142.04  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 6.36    |
| Dec-16      | 4826.16  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 0.00    |
| Jan-17      | 6758.76  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.24  | 0.00                       | 3.16    |
| Feb-17      | 3778.51  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       | 0.00    |
| Total       | 71656.00   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.24  | 0.00                       | 41.96   |

| Total Inert C&D Waste Materials Generated | Non-inert C&D Materials |                                   |                |
|---|-------------------------|-----------------------------------|----------------|
|   | C&D Materials Recycled  | C&D Waste Disposed of at Landfill | Chemical Waste |
| 71656.00 tonnes                           | 0.00 tonnes             | 41.96 tonnes                      | 0.24 tonnes    |

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 71656.00 tonnes of inert C&D material

were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 71656.00 tonnes were disposed as public fill to Fill Banks.

(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 kg of metals, 0 kg of papers/ cardboard packing and 0 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 Landfill.

Notes:

- (1) metal, paper & plastic were collected by recycler
- (2) The performance target of waste recycling are specified in the Contract.
- (3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.
- (5) Broken concrete for recycling into aggregates.
- (6) Disposal of inert waste to public fill or sorting facilities will **NOT** be considered as recycled waste.
- (7) The quantities of excavated materials disposed in landfill for June & July 2016 are revised.

## Monthly Waste Flow Table for February 2017

Project: Lamma Power Station Extension - Civil and Building Works for Unit L10

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2016 & 2017

| MM.YYYY     | Actual Quantities of Inert C&D Materials Generated Monthly |                                |   |   |                        |                          |                         |                                | Actual Quantities of Non-inert C&D Materials Generated Monthly |                                      |  |                                   |   |                            |
|-------------|--|--------------------------------|---|---|------------------------|--------------------------|-------------------------|--------------------------------|--|--------------------------------------|--|-----------------------------------|---|----------------------------|
|             | Excavated Materials  |                                |   | Non-excavated Materials   |                        |                          |                         |                                | Metals (steel bar / metal strip) <sup>(1)</sup>                | Metals (aluminum can) <sup>(1)</sup> | Paper / cardboard packaging <sup>(1)</sup> | Plastics <sup>(1) &amp; (4)</sup> | Chemical waste (wasted lubricant oil/oil container) | Other, e.g. general refuse |
|             | Disposed in Public Fill                                    | Disposed in Sorting Facilities | Others (e.g. Reused in the Contract / Other Projects) | Broken Concrete or Construction Waste Collected by Recycled Company | Reused in the Contract | Reused in other Projects | Disposed in Public Fill | Disposed in Sorting Facilities |  |                                      |  |                                   |   |                            |
| (in '000kg) | (in '000kg)  | (in '000kg)                    | (in '000kg)   | (in '000kg)   | (in '000kg)            | (in '000kg)              | (in '000kg)             | (in '000kg)                    | (in '000kg)  | (in '000kg)                          | (in '000kg)                                | (in '000L)                        | (in '000kg)   |                            |
| Jan-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Feb-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Mar-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Apr-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| May-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Jun-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Jul-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Aug-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Sep-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Oct-16      | -  | -                              | -   | -   | -                      | -                        | -                       | -                              | -  | -                                    | -  | -                                 | -   | -                          |
| Nov-16      | 1779.48  | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       |
| Dec-16      | 0.00   | 1.43                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 20.48                      |
| Jan-17      | 0.00   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.2   | 0.00                       |
| Feb-17      | 0.00   | 0.00                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.00  | 0.00                       |
| Mar-17      |  |                                |   |   |                        |                          |                         |                                |  |                                      |  |                                   |   |                            |
| Total       | 1779.48  | 1.43                           | 0.00  | 0.00  | 0.00                   | 0.00                     | 0.00                    | 0.00                           | 0.00   | 0.00                                 | 0.00                                       | 0.00                              | 0.20  | 20.48                      |

| Total Inert C&D Waste Materials Generated | Non-inert C&D Materials |                                   |                |
|---|-------------------------|-----------------------------------|----------------|
|   | C&D Materials Recycled  | C&D Waste Disposed of at Landfill | Chemical Waste |
| 1780.91 tonnes                            | 0.00 tonnes             | 20.48 tonnes                      | 200 Liters     |

- Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 1780.91 tonnes of inert C&D material were generated from the Project, of which 0 tonnes were reused in this and other contracts, and the remaining 1780.91 tonnes were disposed as public fill to Fill Banks / Sorting Facilities.
- (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 kg of metals, 0 kg of papers/ cardboard packing and 0 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 Landfill.

- Notes:
- (1) metal, paper & plastic were collected by recycler
  - (2) The performance target of waste recycling are specified in the Contract.
  - (3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
  - (4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.
  - (5) Broken concrete for recycling into aggregates.
  - (6) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.

