

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



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

September 2023

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/D

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



Report Title	Lamma Power Station Extension – Unit L12 Monthly EM&A Report (September 2023)
Date	13 October 2023
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EXECUTIVE SUMMARY

This is the 161st 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 September 2023.

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) L10 was commissioned for reliable operation in February 2020.

In September 2016, the Government approved HK Electric to construct the third combined cycle gas-fired generating unit (Unit L11) to implement the 2020 Fuel Mix Target. L11 was commissioned for reliable operation effective in May 2022. The operational EM&A work for L9, L10 and L11 is recorded in the separate monthly EM&A report for the Project “Operation of Lamma Power Station Extension”.

With the Government’s approval to build the fourth combined cycle gas-fired generating unit (L12) in July 2018, the associated construction work commenced in April 2019. When L12 is commissioned in 2023, the total gas-fired electricity generation will further rise to reach about 70% of our total output. Gas-in for L12 were carried out in August 2023 to facilitate commissioning activities.

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
Unit L12 Civil and Building Works	Defect rectification and external works of Main Station Building, screeding works on roof of No.5 chimney, defect rectification of L12 GRS Equipment Room and pipe piling, defect rectification works and cable trench works for ACB, paving for cable bridge for Cable Bridge (North & South), construction of superstructure for shunt reactor compound extension and drainage works, external works and flood wall construction for No. 5 C.W. Intake.
Unit L12 Mechanical Erection	Testing and commissioning
Unit L12 Electrical, Instrumentation & Control Erection	Testing and commissioning

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

No exceedance of Action and Limit levels for noise arising from the construction of Lamma Extension was recorded in the month.

Site Environmental Audit

EPD officials from Regional Office (South) visited Lamma Power Station on 14/9/2023. There was no adverse comment from EPD regarding the construction site.

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

Environmental Licensing and Permitting

Description	Permit No.	Valid Period		Issued To	Date of Issuance
		From	To		
Varied Environmental Permit	EP-071/2000/D	28/09/20	-	HK Electric	28/09/20
Construction Noise Permit	GW-RS0559-23	07/07/23	06/01/24	Contractor	05/07/23
Construction Noise Permit	GW-RS0621-23	28/07/23	27/01/24	Contractor	25/07/23
Construction Noise Permit	GW-RS0707-23	01/09/23	28/02/24	Contractor	22/08/23
WPCO Discharge Licence	WT00037613-2021	15/04/21	30/04/26	Contractor	15/04/21
WPCO Discharge Licence	WT00037665-2021	06/05/21	31/05/26	Contractor	06/05/21
Registration of Chemical Waste Producer	WPN5213-912-P2781-22	22/02/16	-	Contractor	22/02/16
Registration of Chemical Waste Producer	WPN5517-912-T2007-02	17/03/05	-	Contractor	17/03/05
Waste Disposal Billing Account	Account No.: 7038672	27/10/20	-	Contractor	27/10/20
Waste Disposal Billing Account	Account No.: 7039272	08/01/21	-	Contractor	08/01/21
Waste Disposal Billing Account	Account No.: 7041942	21/10/21	-	Contractor	21/10/21

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 in relation to the environmental impact of 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:

Unit L12 Civil and Building Works

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance with the WPCO discharge licence already obtained;

Unit L12 Mechanical Erection

- 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.

Unit L12 Electrical, Instrumentation & Control Erection

- 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/D, 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 September 2023.

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 activities for Unit L12 civil and building works were, defect rectification and external works of Main Station Building, screeding works on roof of No.5 chimney, defect rectification of L12 GRS Equipment Room and pipe piling, defect rectification, cable trench works for ACB, and paving cable bridge for Cable Bridge (North & South), construction of superstructure for shunt reactor compound extension, drainage works, external works and flood wall construction for No. 5 C.W. Intake. Construction activities for Unit L12 mechanical

erection was testing and commissioning. Construction activity for Unit L12 electrical, instrumentation & control erection was testing and commissioning. 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
Unit L12 Civil and Building Works		
1.	Defect rectification and external works of Main Station Building Screeding works on roof of No.5 chimney Defect rectification of L12 GRS Equipment room Pipe piling <u>ACB</u> Defect rectification works Cable trench works	<p>Air</p> <ul style="list-style-type: none"> – All regulated machine attached with valid exception/approval NRMM labels. – Water truck and water sprinkler system would be used. – Water spraying for concrete breaking works. – Soil stock would be covered with cement or tarpaulin or keep the entire surface wet. <p>Wheel washing facility was provided.</p> <p>Noise</p> <ul style="list-style-type: none"> – Works conducted during restricted hours should comply with the valid CNP. – Noise emission label was provided for air compressor. <p>Wastewater</p> <ul style="list-style-type: none"> – Wastewater should be treated in desilting pit and tanks before discharge. Solution should be added to speed up the sedimentation process. Sediment in pit and tanks must be removed regularly. The frequency would be in weekly basis depends on the volume of sediment accumulated in order to maintain sufficient volume for wastewater treatment. – <p>Waste Management</p> <ul style="list-style-type: none"> – Excavated soil was temporary stored for backfilling and reuse in other projects. – Scrape metal would be recycled. – Chemical waste should be collected by licensed collector.
2.	<u>Cable Bridge (North & South):</u>	<p>Air</p> <ul style="list-style-type: none"> – All regulated machine attached with valid

Item	Construction Activities	Environmental Mitigation Measures
	Paving for Cable Bridge <u>Shunt Reactor Compound Extension</u> Construction of superstructure <u>No. 5 C.W. Intake</u> Drainage works, external works and flood wall construction	exception/approval NRMM labels. – Water truck, water sprinkler system and mist cannon were used. – Excavated soil slop covered with tarpaulin. – Wheel washing facilities was provided. – Water spraying on haul road and during concrete breaking. Noise – Noise emission label was provided for air compressor. – Works conducted during restricted hours should comply with the valid CNP. Waste Management – Excavated soil would be transferred to other projects for reuse. – Scrape metal will be recycled. Wastewater - Wastewater would be treated in desilting tanks or wastewater treatment facility before discharge.
Unit L12 Mechanical Erection		
3.	Testing and commissioning	Air – Dust suppression measures implemented according to the EMP. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented
Unit L12 Electrical, Instrumentation & Control Erection		
4.	Testing and commissioning	Air – Dust suppression measures implemented according to the EMP. Noise – General noise mitigation measures employed at all work sites throughout the construction phase.

Item	Construction Activities	Environmental Mitigation Measures
		Waste Management – Waste Management Plan submitted and implemented.

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.

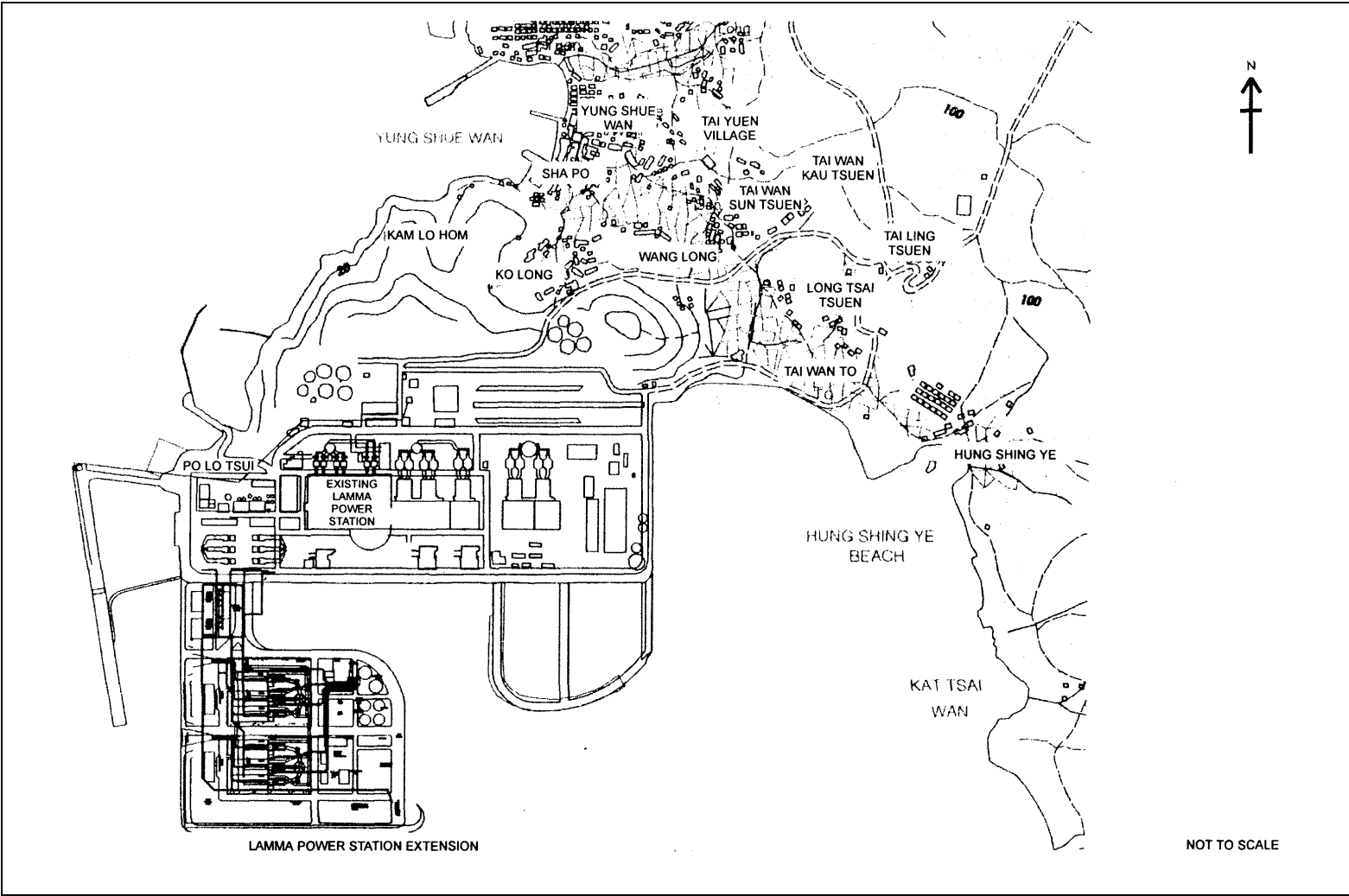


Figure 1.1 Layout of Work Site

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

It is agreed with EPD that continuous 24-hour TSP air quality monitoring would be performed using TEOM continuous dust monitor and the MINIVOL Portable Sampler at AM1,2&3 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>	
Continuous TSP Dust Meter	TEOM continuous dust monitor Thermo Scientific
MINIVOL Portable Sampler	AIRMETRICS
<i>1-hour sampling:</i>	
Continuous TSP Dust Meter	TEOM continuous dust monitor 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

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 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;
- 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.

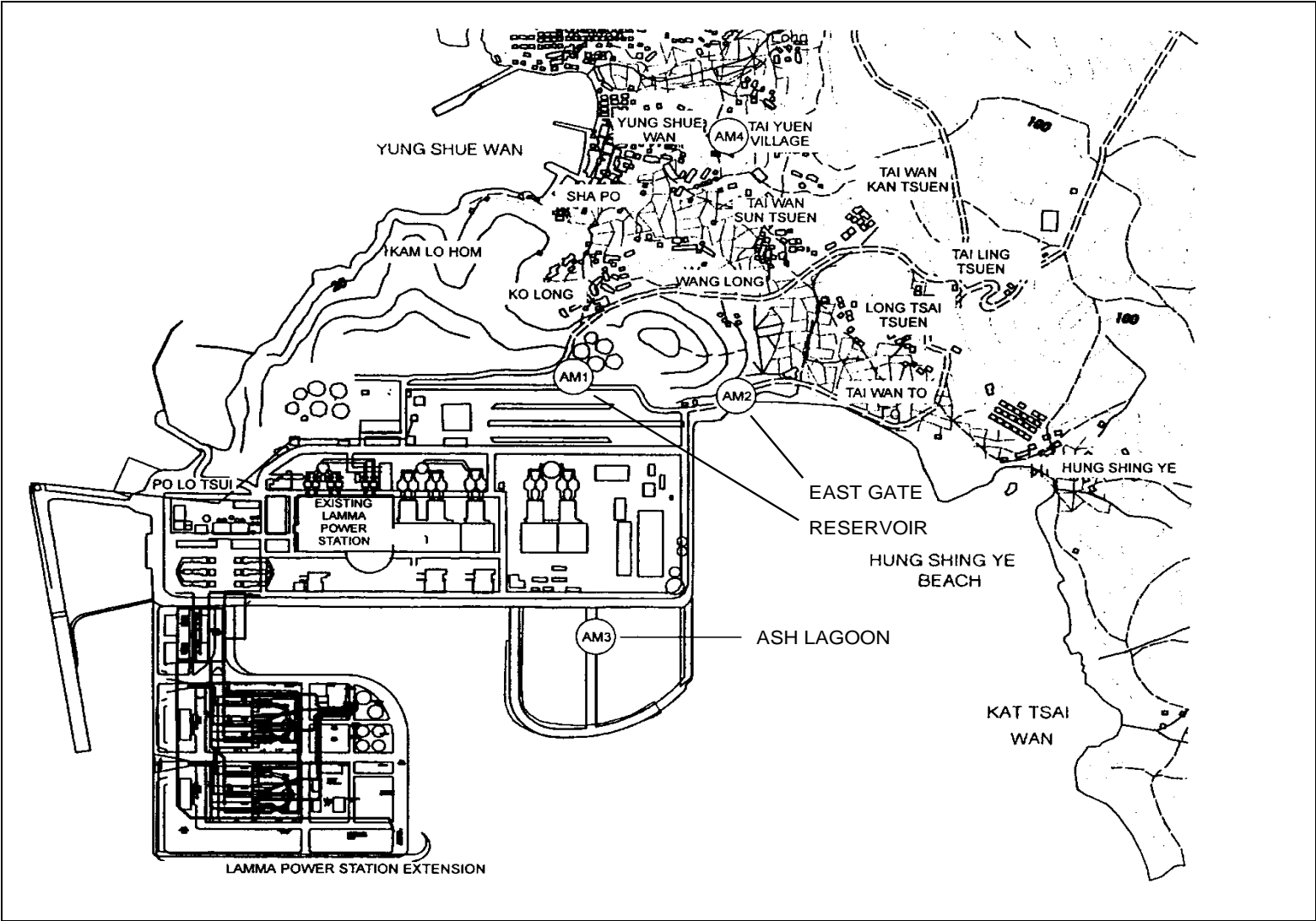


Figure 2.1 Location of Air Quality Monitoring Stations

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 3 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
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Ash Lagoon	Day-time: 0700-1900 hrs on normal weekdays	Day-time: 30 minutes	30-min L_{Aeq}
	Evening-time & holidays: 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days	Evening-time & holidays: 5 minutes	5-min L_{Aeq}
Ching Lam	Night-time: 2300-0700 hrs of next day	Night-time: 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 were verified by the manufacturer or accredited laboratory. With the endorsement of the Independent Environmental Checker, the enhancement of calibration of sound level meter at the noise monitoring stations was implemented. The monthly manual on-site calibration using sound level calibrator was replaced by the daily auto charge injection calibration function of the sound level meter. For additional quality assurance, manual on-site calibration would still be conducted for the noise monitoring stations once every 6 months. The manual on-site calibrations for Ash Lagoon and Ching Lam noise monitoring stations were carried out in September 2023. The next calibrations for the two corresponding noise monitoring stations were scheduled in March 2024.

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.

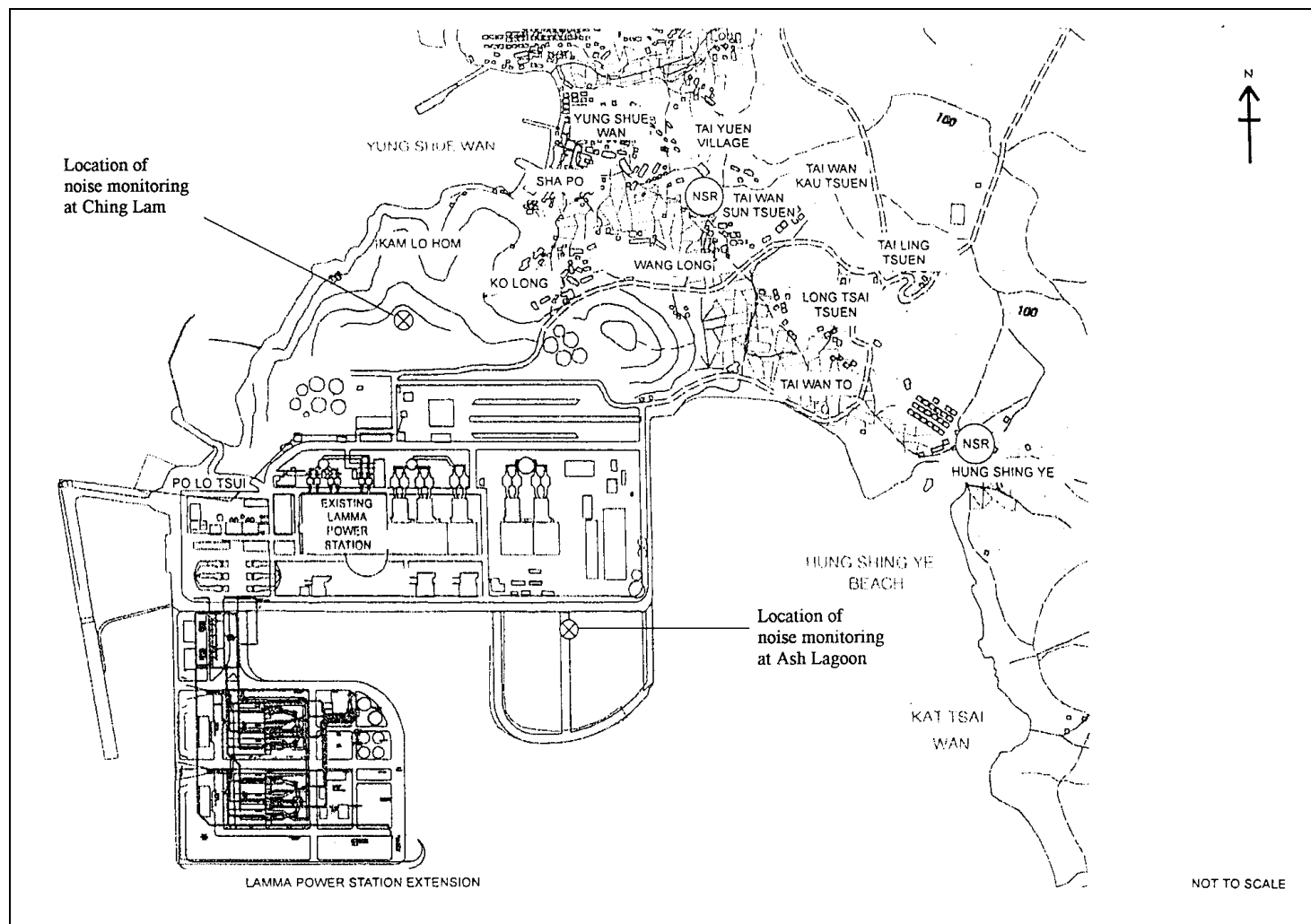


Figure 3.1 Location of Noise Monitoring Stations

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 and 3 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)	01/09/2023-30/09/2023	0	0	
2	Ambient TSP (1-hour)	01/09/2023-30/09/2023	0	0	
Noise					
1	Noise level at the critical NSR's predicted by the noise alarm monitoring system	01/09/2023-30/09/2023	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.

Inert C&D material and non-inert C&D material disposed of in September 2023 are shown in [Table 4.2](#).

Table 4.2 Estimated Amounts of Waste in September 2023

Total Inert C&D Waste Materials	Non-inert C&D Materials		
	C&D Materials Recycled	C&D Waste Disposed of at Landfill	Chemical Waste

0 Tonnes	0 Tonnes	58.22 Tonnes	15.4 Tonnes
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The monthly waste flow tables prepared by the contractors are attached in [Appendix K](#)

4.4 Site Environmental Audit

EPD officials from Regional Office (South) visited Lamma Power Station on 14/9/2023. There was no adverse comment from EPD regarding the construction site.

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/D	28/09/20	-	The whole construction work site	Valid
Construction Noise Permit	GW-RS0559-23	07/07/23	06/01/24	Construction site of Unit L12. Operation of PME during restricted hours	Valid
Construction Noise Permit	GW-RS0621-23	28/07/23	27/01/24	Civil and Building Works for Unit L12. Operation of PME during restricted hours	Valid
Construction Noise Permit	GW-RS0707-23	01/09/23	28/02/24	Power Block Facilities works for Unit L12. Operation of PME during restricted hours	Valid
WPCO Discharge Licence#	WT00037613-2021	15/04/21	30/04/26	Civil and Building Works for No.5 C.W. Intake and Cable Bridge	Valid
WPCO Discharge Licence##	WT00037665-2021	06/05/21	31/05/26	Civil and Building Works for Unit L12	Valid
Registration of Chemical Waste Producer	WPN5213-912-P2781-22	22/02/16	-	Civil and Building Works	Valid

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Registration of Chemical Waste Producer	WPN5517-912-T2007-02	17/03/05	-	E&M Equipment Installation and Maintenance	Valid
Waste Disposal Billing Account	Account No.: 7038672	27/10/20	-	Civil works for Unit L12 No.5 C.W. intake and cable bridge	Valid
Waste Disposal Billing Account	Account No.: 7039272	08/01/21	-	Civil and building works for Unit L12	Valid
Waste Disposal Billing Account	Account No.: 7041942	21/10/21	-	E&M Erection of Power Block Facilities – L12	Valid

Notes: # and ## - Water quality monitoring was carried out in August 2023 and the results of which would be reported separately 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 September 2023, no complaint in relation to the environmental impact of the construction activities was received.

Table 4.4 Environmental Complaints Received in September 2023

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions / Actions Taken	Conclusion / Status
Nil	N/A	N/A

Table 4.5 Outstanding Environmental Complaints Carried Over

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions / Actions Taken	Conclusion / 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:

Unit L12 Civil and Building Works

Noise Impact

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.

Air Impact

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

Water Impact

- To treat wastewater in sedimentation pit and tanks before discharge and to ensure compliance in accordance with the WPCO discharge licence already obtained.

Unit L12 Mechanical Erection

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.

Unit L12 Electrical, Instrumentation & Control Erection

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.

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 in relation to the environmental impact of 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

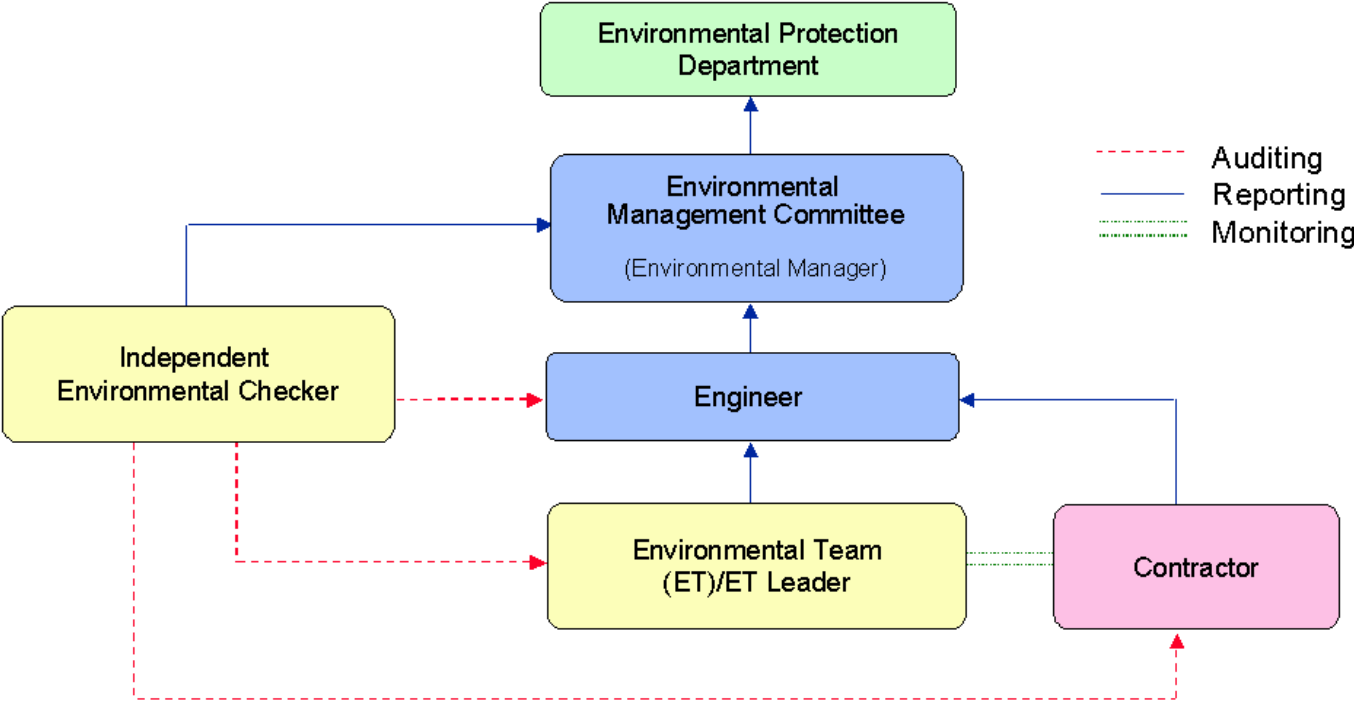


Figure A.1 Organisation of EM&A Programme at Construction Phase

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 $L_{Aeq,5 \text{ min}}$ c. subject to statutory control under the Noise Control Ordinance (23:00-07:00 hrs of next day). Set to 45 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 (September 2023 to December 2023)

24hr TSP Monitoring	1hr TSP Monitoring
5/September/2023	5/September/2023 1500hr to 1800hr
11/September/2023	11/September/2023 1500hr to 1800hr
17/September/2023	17/September/2023 1500hr to 1800hr
23/September/2023	23/September/2023 1500hr to 1800hr
29/September/2023	29/September/2023 1500hr to 1800hr
5/October/2023	5/October/2023 1500hr to 1800hr
11/October/2023	11/October/2023 1500hr to 1800hr
17/October/2023	17/October/2023 1500hr to 1800hr
23/October/2023	23/October/2023 1500hr to 1800hr
29/October/2023	29/October/2023 1500hr to 1800hr
4/November/2023	4/November/2023 1500hr to 1800hr
10/November/2023	10/November/2023 1500hr to 1800hr
16/November/2023	16/November/2023 1500hr to 1800hr
22/November/2023	22/November/2023 1500hr to 1800hr
28/November/2023	28/November/2023 1500hr to 1800hr
4/December/2023	4/December/2023 1500hr to 1800hr
10/December/2023	10/December/2023 1500hr to 1800hr
16/December/2023	16/December/2023 1500hr to 1800hr
22/December/2023	22/December/2023 1500hr to 1800hr
28/December/2023	28/December/2023 1500hr to 1800hr

APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

Month: September 2023

24 hour TSP Measurement:-

Date	TSP concentration ($\mu\text{g}/\text{m}^3$)				Weather Information (From Hong Kong Observatory)		
	Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)	Tai Yuen Village (AM4)	Mean Wind Speed (km/hr)	Prevailing Wind Dir. ($^{\circ}$)	Mean R.H. (%)
5/9/2023	54	63	27	63	13.0	280	73
11/9/2023	24	18	9	22	21.4	80	93
17/9/2023	14	19	17	13	15.1	60	85
23/9/2023	32	21	14	14	22.9	60	74
29/9/2023	34	26	14	39	21.8	70	78

1 hour TSP Measurement:-

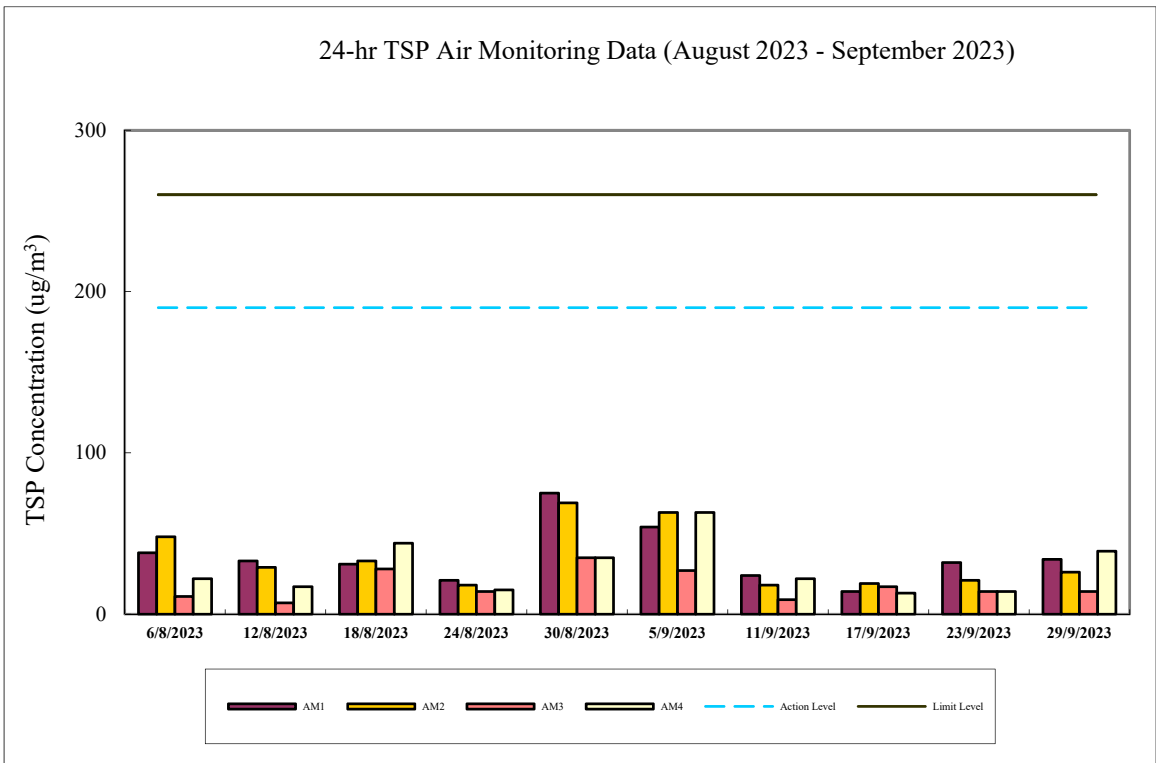
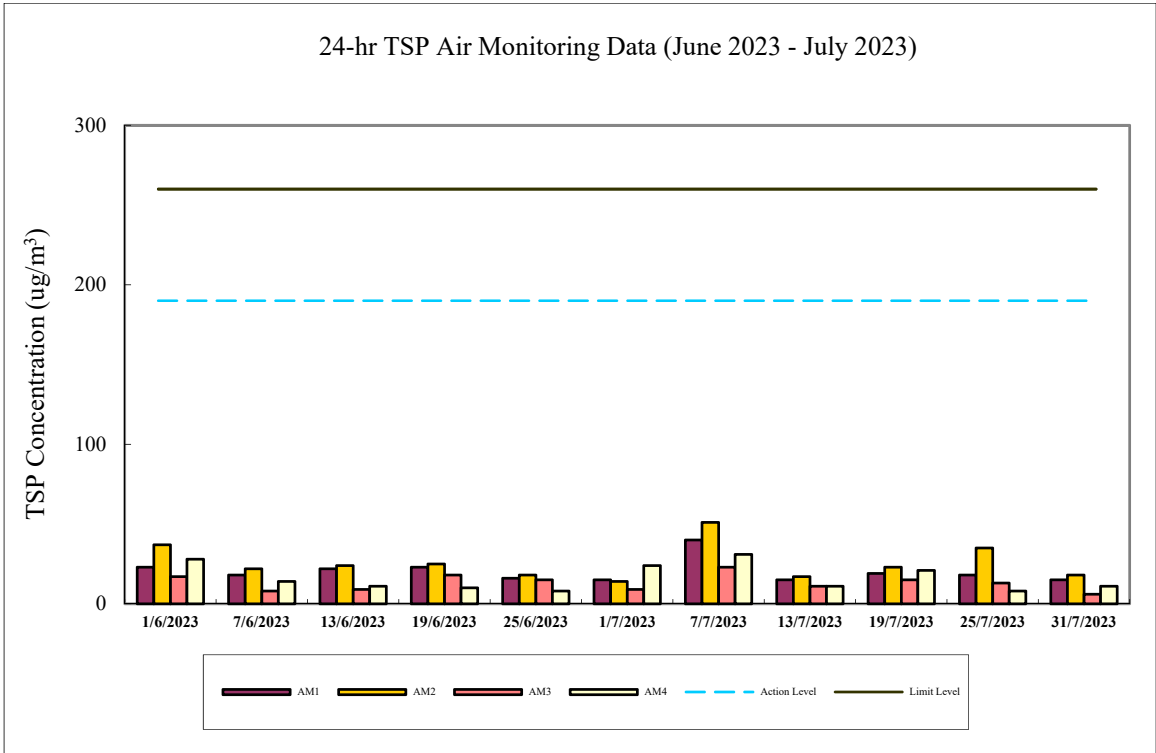
Date	Time	TSP concentration ($\mu\text{g}/\text{m}^3$)		
		Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)
5/9/2023	15:00 - 15:59	72	60	29
	16:00 - 16:59	62	60	29
	17:00 - 17:59	44	44	27
11/9/2023	15:00 - 15:59	11	10	6
	16:00 - 16:59	5	8	7
	17:00 - 17:59	5	9	8
17/9/2023	15:00 - 15:59	14	16	12
	16:00 - 16:59	15	17	19
	17:00 - 17:59	16	19	40
23/9/2023	15:00 - 15:59	40	19	14
	16:00 - 16:59	30	28	17
	17:00 - 17:59	30	26	17
29/9/2023	15:00 - 15:59	25	20	14
	16:00 - 16:59	22	19	15
	17:00 - 17:59	26	24	17

	1-hr TSP ($\mu\text{g}/\text{m}^3$)	24-hr TSP ($\mu\text{g}/\text{m}^3$)
Action Level	340	190
Limit Level	500	260
Calibration:	Calibration details are shown in appendix F.	

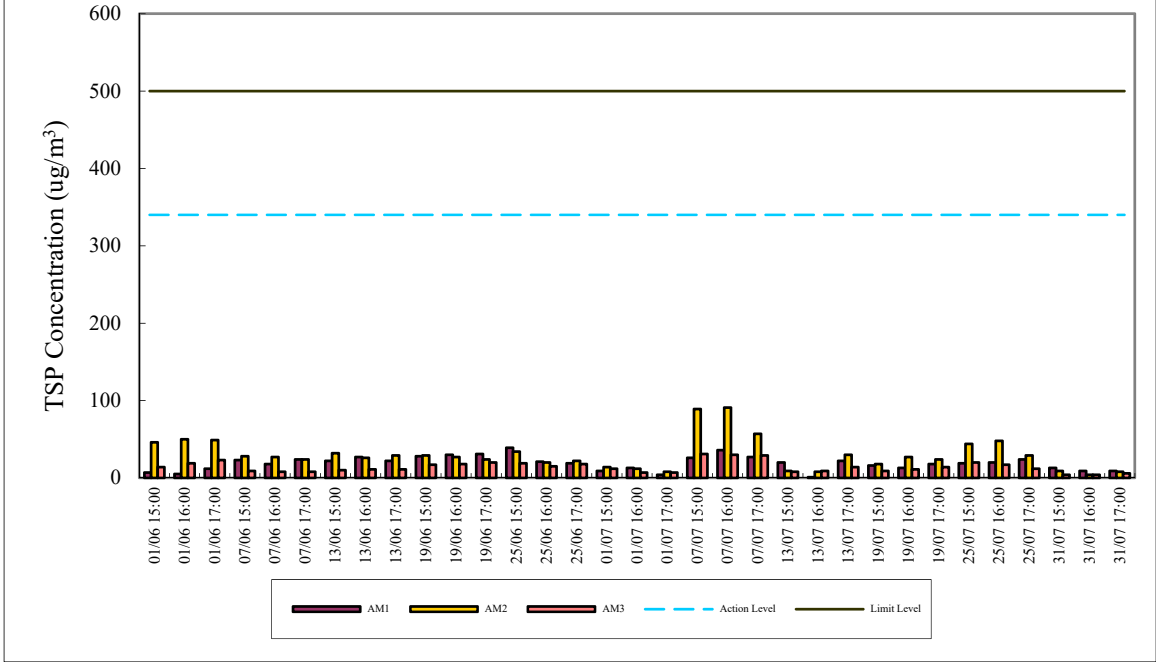
Equipment used:

Location	1-hr TSP	24-hr TSP

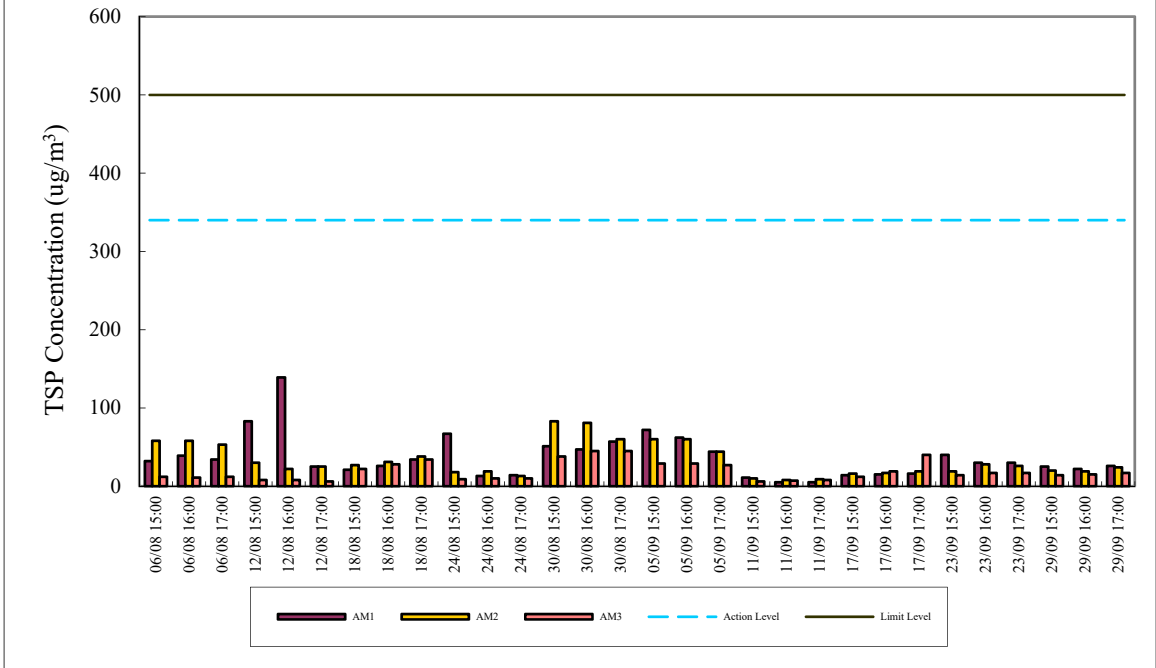
Reservoir, East Gate and Ash Lagoon	TEOM	TEOM
Tai Yuen Village	-	MINIVOL Portable Sampler



1-hr TSP Air Monitoring Data (June 2023 - July 2023)



1-hr TSP Air Monitoring Data (August 2023 - September 2023)



Appendix E

Continuous Noise Monitoring Results for September 2023

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: B&K 2250 sound level meters and B&K 4231 sound
 Level calibrator
 Lab. Calibration Date: B&K 2250 sound level meters - 21/10/2021 (Ash Lagoon)
 15/8/2023 (Ching Lam)
 B&K 4231 calibrator (15/8/2023)

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	
01/09/2023	07:00-19:00	---	---	75	39	33	70
01/09/2023	19:00-23:00	---	---	60	57	57	60
01/09/2023	23:00-07:00	---	---	45	---	---	45
02/09/2023	07:00-19:00	---	---	75	44	42	70
02/09/2023	19:00-23:00	38	35	60	47	34	60
02/09/2023	23:00-07:00	45	36	45	45	39	45
03/09/2023	07:00-23:00	37	35	60	45	37	60
03/09/2023	23:00-07:00	36	35	45	42	36	45
04/09/2023	07:00-19:00	---	---	75	41	37	70
04/09/2023	19:00-23:00	---	---	60	45	37	60
04/09/2023	23:00-07:00	43	39	45	45	40	45
05/09/2023	07:00-19:00	---	---	75	49	43	70
05/09/2023	19:00-23:00	---	---	60	48	40	60
05/09/2023	23:00-07:00	38	38	45	45	42	45
06/09/2023	07:00-19:00	51	45	75	50	42	70
06/09/2023	19:00-23:00	---	---	60	47	42	60
06/09/2023	23:00-07:00	---	---	45	45	38	45
07/09/2023	07:00-19:00	---	---	75	46	41	70
07/09/2023	19:00-23:00	54	44	60	49	41	60
07/09/2023	23:00-07:00	45	39	45	45	38	45
08/09/2023	07:00-19:00	---	---	75	47	40	70
08/09/2023	19:00-23:00	46	46	60	46	42	60
08/09/2023	23:00-07:00	45	33	45	45	41	45
09/09/2023	07:00-19:00	48	45	75	46	42	70
09/09/2023	19:00-23:00	49	44	60	44	40	60
09/09/2023	23:00-07:00	43	36	45	45	39	45
10/09/2023	07:00-23:00	43	32	60	44	36	60
10/09/2023	23:00-07:00	44	44	45	44	35	45
11/09/2023	07:00-19:00	---	---	75	52	42	70
11/09/2023	19:00-23:00	44	40	60	51	39	60
11/09/2023	23:00-07:00	45	41	45	44	41	45
12/09/2023	07:00-19:00	---	---	75	53	45	70
12/09/2023	19:00-23:00	53	43	60	42	39	60
12/09/2023	23:00-07:00	40	36	45	45	39	45
13/09/2023	07:00-19:00	---	---	75	51	44	70
13/09/2023	19:00-23:00	27	23	60	46	40	60
13/09/2023	23:00-07:00	45	39	45	45	38	45

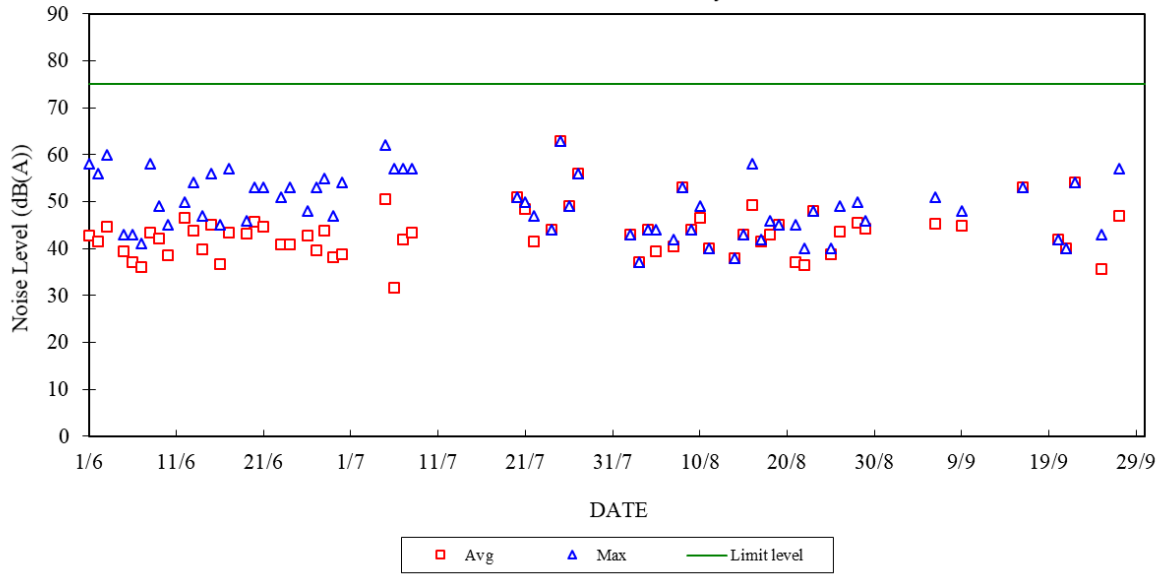
14/09/2023	07:00-19:00	---	---	75	43	37	70
14/09/2023	19:00-23:00	23	23	60	44	38	60
14/09/2023	23:00-07:00	36	28	45	43	39	45
15/09/2023	07:00-19:00	---	---	75	46	39	70
15/09/2023	19:00-23:00	31	23	60	42	37	60
15/09/2023	23:00-07:00	45	35	45	44	33	45
16/09/2023	07:00-19:00	53	53	75	47	41	70
16/09/2023	19:00-23:00	43	34	60	47	38	60
16/09/2023	23:00-07:00	37	36	45	45	35	45
17/09/2023	07:00-23:00	41	38	60	46	41	60
17/09/2023	23:00-07:00	30	30	45	45	43	45
18/09/2023	07:00-19:00	---	---	75	49	44	70
18/09/2023	19:00-23:00	28	27	60	50	42	60
18/09/2023	23:00-07:00	43	37	45	45	39	45
19/09/2023	07:00-19:00	---	---	75	48	40	70
19/09/2023	19:00-23:00	36	36	60	46	37	60
19/09/2023	23:00-07:00	44	34	45	45	38	45
20/09/2023	07:00-19:00	42	42	75	47	41	70
20/09/2023	19:00-23:00	40	40	60	44	36	60
20/09/2023	23:00-07:00	42	33	45	40	33	45
21/09/2023	07:00-19:00	40	40	75	46	40	70
21/09/2023	19:00-23:00	---	---	60	44	37	60
21/09/2023	23:00-07:00	44	36	45	45	33	45
22/09/2023	07:00-19:00	54	54	75	44	40	70
22/09/2023	19:00-23:00	37	37	60	43	36	60
22/09/2023	23:00-07:00	42	36	45	44	40	45
23/09/2023	07:00-19:00	---	---	75	44	38	70
23/09/2023	19:00-23:00	---	---	60	44	41	60
23/09/2023	23:00-07:00	32	29	45	44	37	45
24/09/2023	07:00-23:00	43	32	60	43	33	60
24/09/2023	23:00-07:00	42	34	45	41	33	45
25/09/2023	07:00-19:00	43	36	75	49	36	70
25/09/2023	19:00-23:00	---	---	60	46	37	60
25/09/2023	23:00-07:00	---	---	45	41	33	45
26/09/2023	07:00-19:00	---	---	75	42	36	70
26/09/2023	19:00-23:00	40	40	60	48	42	60
26/09/2023	23:00-07:00	44	36	45	41	35	45
27/09/2023	07:00-19:00	57	47	75	42	38	70
27/09/2023	19:00-23:00	37	37	60	45	39	60
27/09/2023	23:00-07:00	27	26	45	41	36	45
28/09/2023	07:00-19:00	---	---	75	45	41	70
28/09/2023	19:00-23:00	36	36	60	50	43	60
28/09/2023	23:00-07:00	43	36	45	45	40	45
29/09/2023	07:00-19:00	---	---	75	46	42	70
29/09/2023	19:00-23:00	35	33	60	50	37	60
29/09/2023	23:00-07:00	34	28	45	42	36	45
30/09/2023	07:00-23:00	40	37	60	46	34	60
30/09/2023	23:00-07:00	45	36	45	45	38	45

Note:

- a. "---" represents the measured noise monitoring data lower than the established notional background level/discarded under strong wind.
- b. Continuous noise monitoring was also 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).

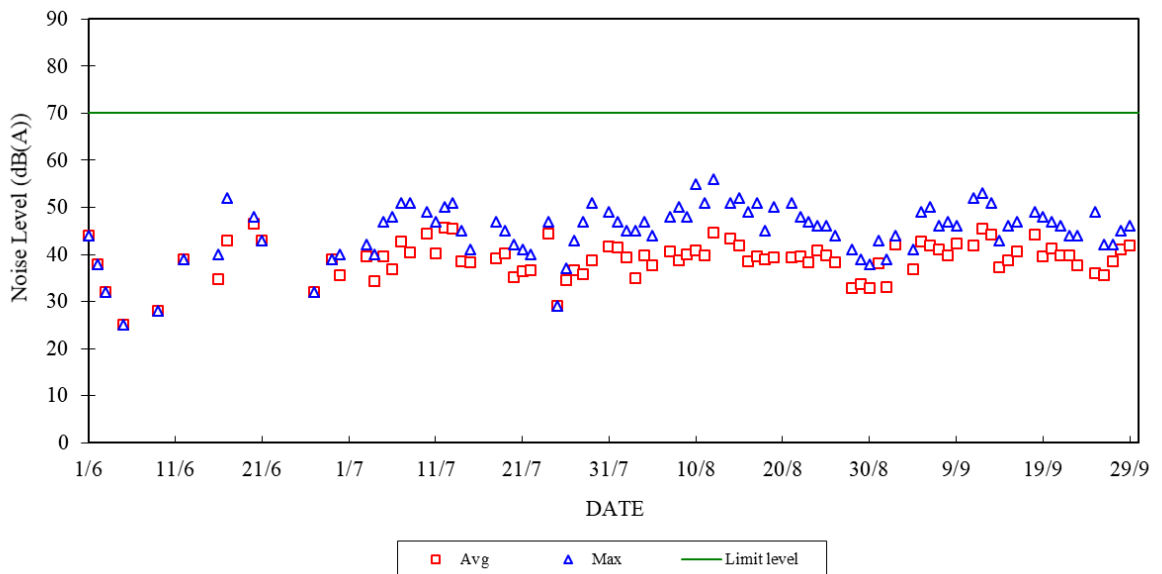
Construction Noise Monitoring in June - September 2023

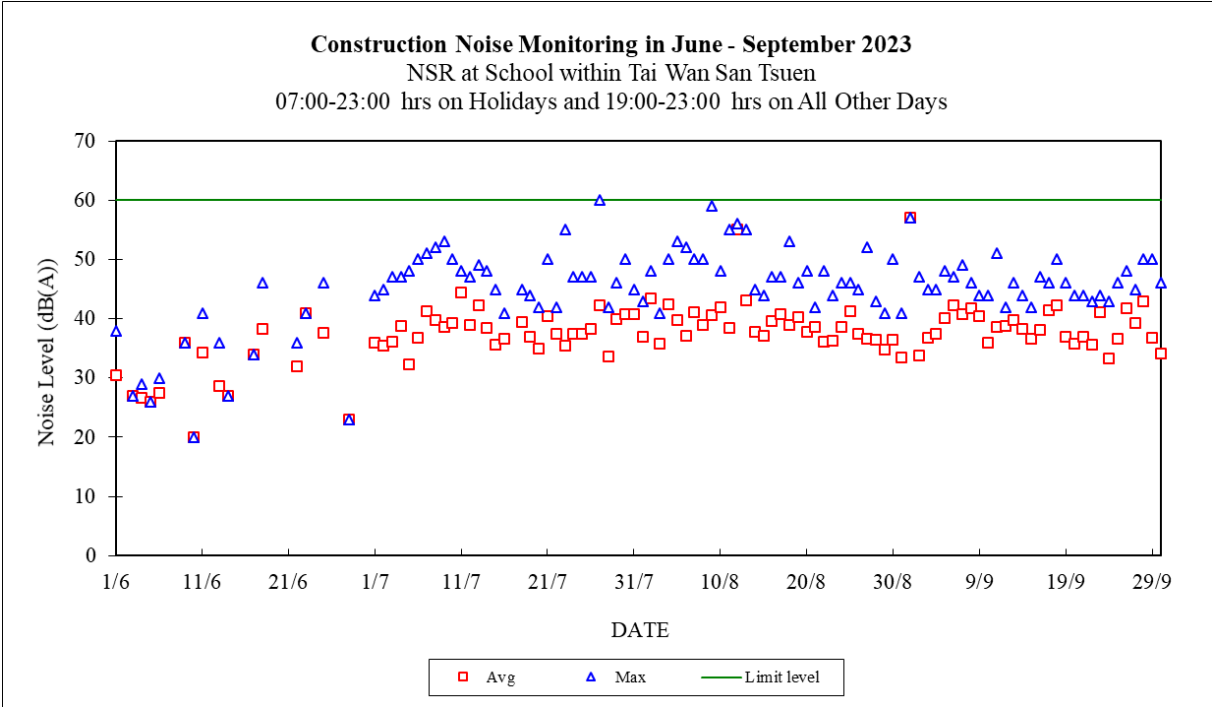
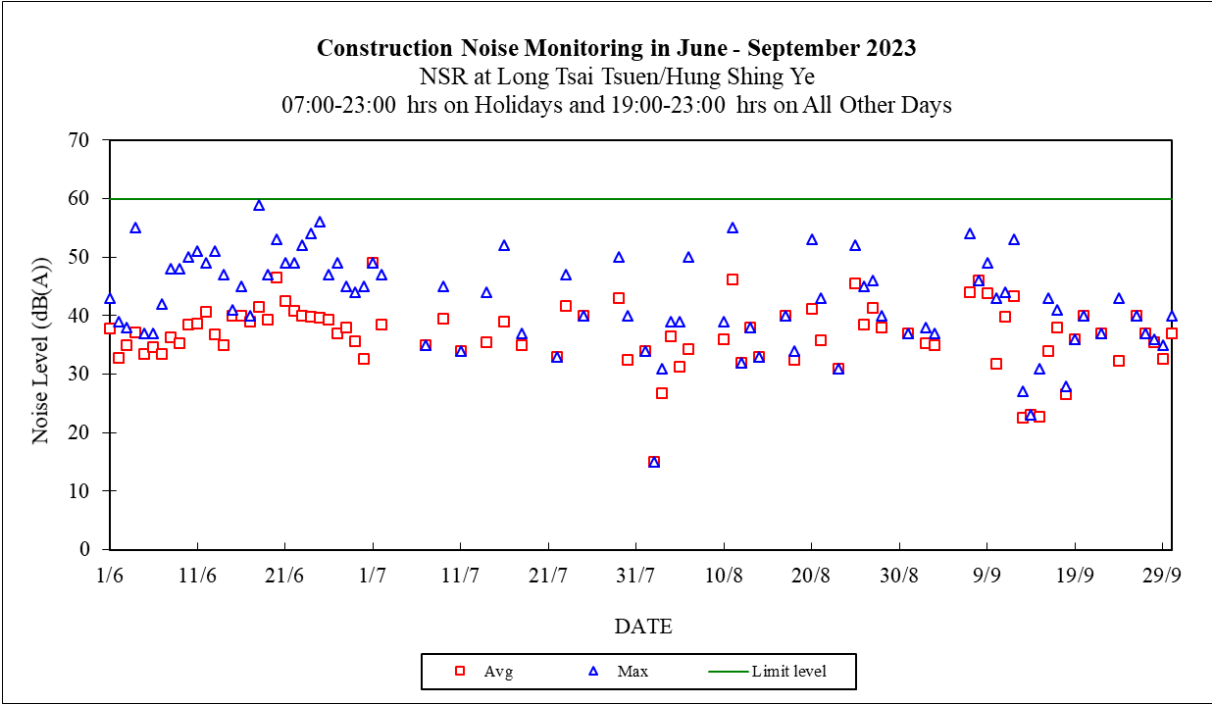
NSR at Long Tsai Tsuen/Hung Shing Ye
07:00-19:00 hrs on Normal Weekdays



Construction Noise Monitoring in June - September 2023

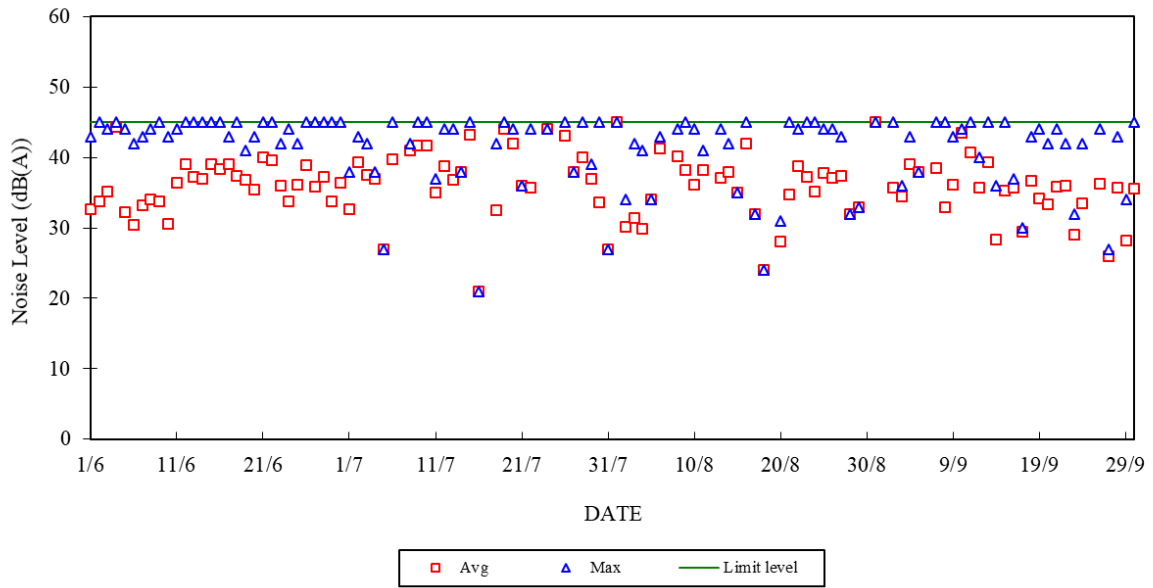
NSR at School within Tai Wan San Tsuen
07:00-19:00 hrs on Normal Weekdays





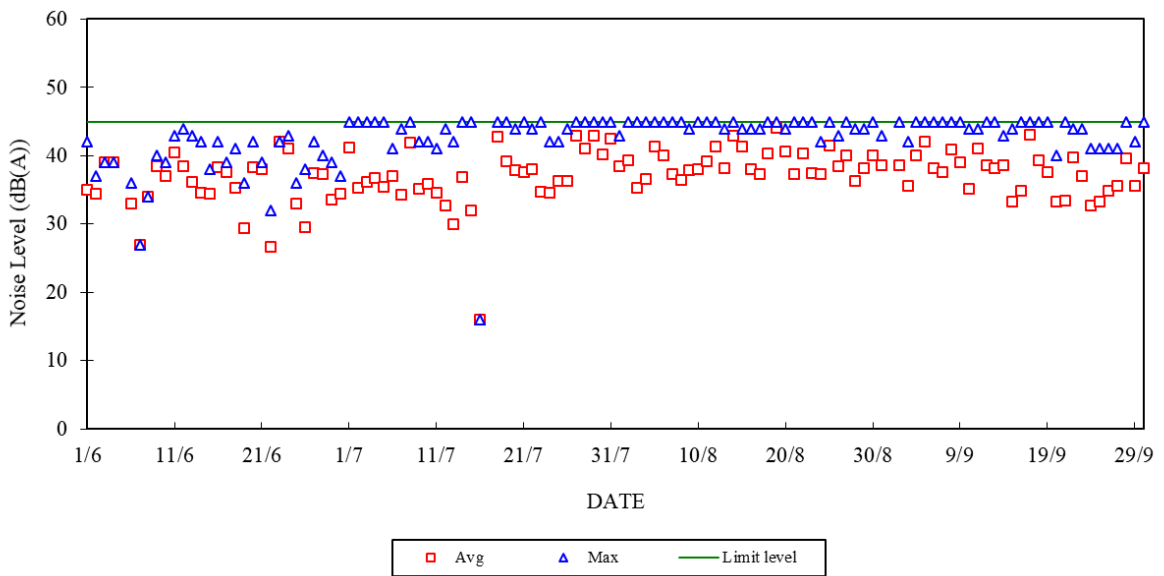
Construction Noise Monitoring in June - September 2023

NSR at Long Tsai Tsuen/Hung Shing Ye
23:00-07:00 hrs of Next Day



Construction Noise Monitoring in June - September 2023

NSR at School within Tai Wan San Tsuen
23:00-07:00 hrs of Next Day



Appendix F

The QA/QC Procedures and Results

The Hongkong Electric Co., Ltd.
Lamma Power Station Extension
TEOM Continuous Dust Monitor
Data Quality Assurance Log Sheet

Month: September Year: 2023

Reservoir (AM1)				
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (l/min) (2.70 - 3.30)	Bypass Flow (l/min) (12.30 - 15.04)
5/9/2023	270.682	4	2.82	10.31
11/9/2023	270.305	4	2.85	10.31
17/9/2023	270.078	4	2.84	10.31
23/9/2023	269.474	4	2.83	10.31
29/9/2023	269.016	4	2.84	10.31

East Gate (AM2)				
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (l/min) (2.70 - 3.30)	Bypass Flow (l/min) (12.30 - 15.04)
5/9/2023	267.604	4	3.00	13.66
11/9/2023	267.255	4	3.00	13.66
17/9/2023	267.012	4	3.00	13.66
23/9/2023	266.657	4	3.00	13.66
29/9/2023	266.331	4	3.00	13.66

Ash Lagoon (AM3)				
Date	Frequency (Hz) (240 - 275)	Operation Mode (Mode 4)	Main Flow (l/min) (2.70 - 3.30)	Bypass Flow (l/min) (12.30 - 15.04)
5/9/2023	256.699	4	1.54	13.68
11/9/2023	257.635	4	2.45	13.58
17/9/2023	257.514	4	2.24	13.68
23/9/2023	257.367	4	1.95	13.68
29/9/2023	257.189	4	1.85	13.68

Maintenance Record			
	Reservoir	East Gate	Ash Lagoon
TEOM Filter Exchange	✓	✓	✓
Clean TSP Inlet	✓	✓	✓
Replace flow in-line filter	✓	✓	✓
Pump Repair			
Leak Check			
Flow audit			
Flow Controller Calibration			
A/C filter cleaning			

Remarks:

Prepared by: Chris Chan

Checked by: HY Chan

The Hongkong Electric Co., Ltd.
Mini Volume Air Sampler Site Visit Log Sheet

Attendance Log _____

Site Name: Tai Yuen Village (AM4)

Date/Time	Staff Name
19/09/2023 / 15:00	WM Tam / Brian So

Equipment / Item

Equipment / Item	Serial No. / No.
MINIVOL	5580
Used filter paper no.	MS81
New filter paper no.	MS82

Type of filter: Glass-fibre

- I. Calibration is performed by using Drycal DC-2 Flow Calibrator
5 std. L/min set point is recommended

Before: 5.087
After: 5.036

- II. General Services

1. Clean Rotameter: Yes
2. Clean / Replace Pump Valves: No
3. Clean / Replace Pump Diaphragms: No
4. Clean Impaction Inlet: Yes
5. Replace Timer Battery Every 6 months: No
6. Replace Inlet Filter: Yes

Remarks

Low flow alarm had been triggered and the Mini-Vol was reset. The Mini-Vol was set in advance to operate on 20/09/2023 (Wed) instead of 23/09/2023 (Sat) as scheduled.

Conducted by: WM Tam / Brian So

Checked by: SM Hon

The Hongkong Electric Co., Ltd.
Lamma Power Station Extension
Noise Monitoring Station
Site Visit Log Sheet

Location: Ching Lam

Date/Time	Staff Attended
6/9/2023 / 11:00	WM Tam/Brian So

Equipment	Serial No.
B&K 2250	3008903

1. Calibration

Acoustic calibrator: B&K 4231 (S/N: 2376422)

Noise level measured in calibration: 93.7 (94 ±1.0 dBA)

2. Weather Conditions

a. Fine

b. Calm

3. Remark/Observation

N/A

Prepared by: WM Tam

Checked by: Brian So

The Hongkong Electric Co., Ltd.
Lamma Power Station Extension
Noise Monitoring Station
Site Visit Log Sheet

Location: Ash Lagoon

Date/Time	Staff Attended
6/9/2023 / 14:00	WM Tam/Brian So

Equipment	Serial No.
B&K 2250	3023760

1. Calibration

Acoustic calibrator: B&K 4231 (S/N: 2376422)

Noise level measured in calibration: 93.6 (94 ±1.0 dBA)

2. Weather Conditions

a. Fine

b. Calm

3. Remark/Observation

N/A

Prepared by: WM Tam

Checked by: Brian So

Appendix G Event/Action Plans

Table G.1 Event and Action Plans for Air Quality

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

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

Exceedance	ET Leader	IEC	Engineer	Contractor
	<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>		implemented mitigation measures.	<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

L12 Civil and Building Works

Dates of Inspection: 5/9/2023, 12/9/2023, 19/9/2023 and 26/9/2023.

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.

L12 Mechanical, Electrical, Instrumentation & Control Erection Works

Dates of Inspection: 6/9/2023, 14/9/2023, 21/9/2023 and 28/9/2023

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
	AIR QUALITY	
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"> the haul roads shall be sprayed with water to keep the entire road surface wet. the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle. the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading. 	C C C
A2	For the concrete batching plant, the following control measures are recommended: <ul style="list-style-type: none"> loading, unloading, handling, transfer or storage of any dusty materials shall be carried out in a totally enclosed system. The materials which may generate airborne dust emissions shall be wetted by water spray system. All receiving hoppers shall be enclosed on three sides up to 3m above unloading point. All conveyor transfer points shall be totally enclosed. 	N/A N/A N/A N/A
	WATER QUALITY	
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"> reducing the number of dredgers working at any one time; reducing the rate of working of the dredgers; temporary suspension of operations; phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle. 	N/A

EM&A Log Ref.	Mitigation Measures	Implementation Status
WASTE MANAGEMENT		
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"> Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers. 	C
	<ul style="list-style-type: none"> 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. 	C
	<ul style="list-style-type: none"> Disposal of waste at Licensed sites; 	C
	<ul style="list-style-type: none"> 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; 	C
	<ul style="list-style-type: none"> Segregate and sort the waste materials into 3 categories: <ul style="list-style-type: none"> public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area; re-use and/or recycling waste (e.g. steel and other metals); waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal. 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. 	C
<ul style="list-style-type: none"> Maintain records of the quantities of wastes generated and disposed off-site for each category of waste. 	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
LAND CONTAMINATION		
F1	No land Contamination mitigation measures are required during the construction phase.	N/A
MARINE ECOLOGY		

EM&A Log Ref.	Mitigation Measures	Implementation Status
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 ³ 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
FISHERIES		
H1	No Fisheries-specific mitigation measures are required during the construction phase.	N/A
RISK ASSESSMENT		
I1	No risk mitigation measures are required during the construction phase.	N/A


Remarks:

- ** - No dredging and reclamation work would be involved for L12 construction
- C - Compliance with mitigation measure
- NC - Non-compliance with mitigation measure
- N/A - Not Applicable

Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12 **Master Programme**

ID	Task Name	Duration	Start	Finish	Predecessors	Start	Oct	Nov	Dec
1	KEY DATES & MILESTONES	1123 days	Fri 4/12/20	Sun 31/12/23					
2	Contract Period	1123 days	Fri 4/12/20	Sun 31/12/23	4FF,6				
3	Deferred Work Completion Key Dates	784 days	Mon 8/11/21	Sun 31/12/23					
4	Substantial Completion of the Whole Contract Works (1123 Days)	0 days	Sun 31/12/23	Sun 31/12/23	3,572FF				
5	SITE POSSESSION DATES	513 days	Fri 4/12/20	Sun 1/5/22					
6	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Fri 4/12/20	Fri 4/12/20					
7	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Fri 1/1/21	Fri 1/1/21					
8	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Sat 1/5/21	Sat 1/5/21					
9	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Fri 1/10/21	Fri 1/10/21					
10	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Fri 1/4/22	Fri 1/4/22					
11	Site Possession Date as phased site possession plan and PS1.4.2	0 days	Sun 1/5/22	Sun 1/5/22					
12	COMPLETION DATES as per PS1.4.2 Time for Completion	838 days	Thu 30/9/21	Tue 16/1/24					
13	Section A1 (i) - Area south of L12 MSB and L12 HRSG from GL12-F eastwards leading to Chimney Road at Area F1 & F2	0 days	Thu 30/9/21	Thu 30/9/21	83FF				
14	Section A1 (ii) - Supporting structures for overhead cranes of L12 MSB including the associated roof structure except the roof deferred works	0 days	Mon 1/11/21	Mon 1/11/21	91FF				
15	Section A2 (i) External Works including CW Inlet Culvert at Area F8A	0 days	Fri 28/7/23	Fri 28/7/23	98FF				
16	Section A2 (ii) External Works including CW Inlet Culvert at Area F8B	0 days	Tue 16/1/24	Tue 16/1/24	108FF				
17	Section A2 (iii) External Works including CW Inlet Culvert at Area F8C	0 days	Sat 28/10/23	Sat 28/10/23	116				
18	Section B1 - Area south of L12 MSB from GL12-F westwards leading to Station Road at Area F3	0 days	Wed 15/12/21	Wed 15/12/21	125FF				
19	Section B2 (i) - Southern Part of L12 HRSG areas and its surrounding refer to Area F8B as shown in drawing no 553/03/2040 including the foundations for Gas Exhaust Duct	0 days	Thu 30/9/21	Thu 30/9/21	132FF				
20	Section B2 (ii) - Remaining northern part of L12 HRSG area and its surrounding at Area F6A and F6C	0 days	Mon 15/11/21	Mon 15/11/21	143FF				
21	Section B2 - (iii) L12 Turbo Block foundation including the L12 MSB ground floor together with the equipment foundations between GL 12-F to 12-H and 12-1 to 12-6 for the installation of power generator, air inlet duct and lube oil reservoir	0 days	Mon 28/2/22	Mon 28/2/22	154FF				
22	Section B2 - (iv) G/F of L12 MSB including the Condenser Pit, Circulating Water Pipe Pit and equipment foundations between GL 12-B to 12-C and 12-1 to 12-6 for the installation of condenser	0 days	Wed 15/12/21	Wed 15/12/21	169FF				
23	Section C - (i) Roads and external grounds surrounding L12 MSB and L12 HRSG in addition to the southern & eastern areas mentioned above in Area F5	0 days	Sat 15/1/22	Sat 15/1/22	185FF				
24	Section C - (ii) Whole of L12 MSB including the pipe and cable rack along south facade of L12 MSB with all underground utilities at Area F4 including C.W. Inlet and Outlet Culvert except the deferred works	0 days	Tue 30/5/23	Tue 30/5/23	192FF				
25	Section C - (iii) Link Bridge between L11 and L12 MSB including their associated A&A at L11 MSB	0 days	Sun 7/5/23	Sun 7/5/23	228FF				
26	Section D - (i) Microwave Antenna Room and Chimney Windshield for the installation of microwave equipment and antenna	0 days	Fri 10/6/22	Fri 10/6/22	261FF				
27	Section D (ii) - No. 5 Chimney with L12 Steel Flue Inner	0 days	Wed 21/6/23	Wed 21/6/23	240FF				
28	Section E (i) Tx Room of Administration and Control Building	0 days	Sun 31/10/21	Sun 31/10/21	274FF				
29	Section E (ii) - G/F, 1/F, 2/F & Hoisting Well of Admin. & Control Building	0 days	Mon 28/2/22	Mon 28/2/22	288FF				
30	Section E (iii) - Whole of Admin. And Control Building	0 days	Tue 31/5/22	Tue 31/5/22	264FF				
31	Section F (i) - Gas Receiving Station and L12 Gas Receiving Station Equipment Room (GRS) Area Extension at Area F14	0 days	Sun 9/4/23	Sun 9/4/23	307FF				
32	Section F (ii) - Pipe and Cable rack and external work at Area F9A and F9B	0 days	Mon 31/7/23	Mon 31/7/23	319FF				
33	Section F (iii) - No. 5 CW Equipment Room, pipe and cable rack, external works at Area F10	0 days	Wed 5/7/23	Wed 5/7/23	327FF				
34	Section G (i) - External Work surrounding Area F11	0 days	Tue 31/10/23	Tue 31/10/23	349FF				
35	Section G (ii) - External Works at Area F12 & F13	0 days	Fri 20/10/23	Fri 20/10/23	359FF				
36	Section G (iii) - FS Modification works along South Seafront Road at Area F15	0 days	Fri 30/9/22	Fri 30/9/22	369FF				
37	Section G (iv) - 275kV cable trenches and External Works at Area F16	0 days	Mon 14/8/23	Mon 14/8/23	378FF				
38	Section G (v) - Shunt Reactor Compound and External Works at Area F17	0 days	Sat 3/6/23	Sat 3/6/23	388FF				
39	Section G (vi) - 275kV cable trenches and External Works at Area F18	0 days	Wed 1/6/22	Wed 1/6/22	407FF				
40	Section G (vii) - Flood Wall at No. 4 CW Intake Area along HUA at Area F20A	0 days	Tue 14/2/23	Tue 14/2/23	417FF				
41	Section G (viii) - Flood wall at No. 5 CW Intake Area along HUA at Area F20B	0 days	Sat 30/9/23	Sat 30/9/23	430FF				
42	Section G (ix) - Bund wall modification works at South Seafront Road at Area F21	0 days	Fri 15/10/21	Fri 15/10/21	445FF				
43	Section G (x) - DAX Cable Diversion Works (from Part I to Part IV)	0 days	Sun 16/7/23	Sun 16/7/23	459FF				
44	Section H - All remaining works shall be completed for reporting completion to BD and ready for OP inspection	0 days	Sat 1/7/23	Sat 1/7/23	487FF				
45	GENERAL & PRELIMINARY	228 days	Fri 4/12/20	Mon 19/7/21					
46	First Mobilization	18 days	Fri 4/12/20	Mon 21/12/20	6				
47	Set up Temporary Site Office and Welfare Facilities	90 days	Tue 22/12/20	Mon 21/3/21	46				
48	Permit Applications & Statutory Submissions	120 days	Mon 22/3/21	Mon 19/7/21	47				
49	Existing Utilities scanning & Excavation Permit	45 days	Tue 22/12/20	Thu 4/2/21	46				
50	Tower Crane erections	60 days	Sun 27/12/20	Wed 24/2/21	6FS+23 days				
51	TECHNICAL SUBMISSION AND APPROVAL	1021 days	Thu 10/12/20	Wed 27/9/23					
52	BD Approval & Consent (If required)	0 days	Thu 10/12/20	Thu 10/12/20	6FS+7 days				
53	Submission and Approval of Master Programme	14 days	Fri 11/12/20	Thu 24/12/20	6FS+7 days				
54	Work Execution Overall Plan submission & approval	14 days	Fri 11/12/20	Thu 24/12/20	6FS+7 days				
55	Material Submissions and approval	300 days	Fri 25/12/20	Wed 20/10/21	46,54				
56	Method Statement submission and approval	300 days	Fri 25/12/20	Wed 20/10/21	55SS				
57	BIM Model, CSD & CBWD Submission & approval	120 days	Fri 25/12/20	Fri 23/4/21	56SS				
58	Structure Steelwork Connection Design Submission & BD approval	45 days	Tue 29/12/20	Thu 11/2/21	52FS+18 days				
59	Structure Steelwork Shop Drawing & Approval	30 days	Fri 12/2/21	Sat 13/3/21	58				
60	Metal Cladding, louvre & windows submission & BD approval	45 days	Tue 29/12/20	Thu 11/2/21	58SS				
61	Metal Cladding, louvre & windows shop drawing submission	45 days	Fri 12/2/21	Sun 28/3/21	60				
62	Order, Off Site Fabrication and Delivery (S. Steel & Cladding & louvres)	120 days	Mon 29/3/21	Mon 26/7/21	59,61				
63	ELS Submission and BD approval	90 days	Fri 11/12/20	Wed 10/3/21	52				
64	No. 5 Chimney windshield temporary work submission, approval & fabrication	60 days	Fri 11/12/20	Mon 8/2/21	52				
65	Steel Flue Assessment Report and Design Drawings submission & approval	60 days	Tue 9/2/21	Fri 9/4/21	64				
66	Folding Shutters Shop Drawing Submission & Approval	30 days	Thu 11/2/21	Fri 12/3/21	55SS+48 days				
67	Fabrication & Delivery of Folding Shutters	180 days	Sat 13/3/21	Wed 8/9/21	66				
68	Sewage Pump System Design submission & approval	45 days	Wed 15/2/23	Fri 31/3/23	57SS+60 days				
69	Fabrication & Delivery of Sewage Pump	180 days	Sat 1/4/23	Wed 27/9/23	68				
70	Other material submission & approval & delivery	180 days	Sat 24/4/21	Wed 20/10/21	55SS+120 days				
71	Other material submission & approval & delivery	180 days	Sat 24/4/21	Wed 20/10/21	55SS+120 days				
72	CONSTRUCTION	1139 days	Fri 4/12/20	Tue 16/1/24					
73	Coordination with the Employer's Specialist Contractors	562 days	Fri 15/1/21	Sat 30/7/22					
74	Installation of Puddle Pipes at C.W. outlet Culvert	7 days	Mon 22/3/21	Sun 28/3/21	174				
75	Installation of Puddle Pipes at C.W. Inlet Culvert	7 days	Thu 27/5/21	Wed 2/6/21	176				
76	Template setting at L12 Turbo Block Foundation	45 days	Tue 16/11/21	Thu 30/12/21					
77	Template setting of holding down bolts at HRSG column base	45 days	Fri 15/1/21	Sun 28/2/21	139SS+30 days, 149SS+30 days				
78	I-beam / channel base installation on top of transformer foundations at Transformer Area	45 days	Tue 1/6/21	Thu 15/7/21					
79	Overhead crane erection at turbine hall using access through a temporary opening at L12 MSB roof between GL12-G to 12-H and 12-2 to 12-6	38 days	Mon 1/11/21	Wed 8/12/21					
80	Condenser assembly and erection using access through a temporary facade opening at L12 MSB below 1/F along GL 12-6 from GL12-B to 12-C including a clear space below 1/F between GL 12-B to 12-C	122 days	Thu 16/12/21	Sat 16/4/22	169				

MASTER PROGRAMME
Rev 1-B 23 Aug 2021




Task █ Split ●●●●●● Milestone ◆ Summary ▾

Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12 **Master Programme**

ID	Task Name	Duration	Start	Finish	Predecessors	Start	Oct	Nov	Dec
81	Installation of power train equipment including air inlet duct using access through a temporary facade opening at L12 MSB below 1/F along GL 12-6 from GL12-F to 12-H including a clear space below 1/F of the above area	121 days	Fri 1/4/22	Sat 30/7/22	192				
82	Installation of embedded materials such as holding down bolts for equipment foundations - Commencement	0 days	Thu 15/4/21	Thu 15/4/21	158				
83	Section A1 (i) - Area south of L12 MSB and L12 HRSG from GL12-F eastwards leading to Chimney Road at Area F1 & F2	301 days	Fri 4/12/20	Thu 30/9/21					
84	Area Possession & Clearance	30 days	Fri 4/12/20	Sat 2/1/21	6				
85	Subletting / Fabrication / Delivery (both for Area F1 and Area F2)	60 days	Sun 17/1/21	Wed 17/3/21	84FS+14 days				
86	Excavation for CW Inlet Culvert (Type D Construction Area)	14 days	Tue 1/6/21	Mon 14/6/21	135				
87	Installation CW Inlet Culvert pipe	70 days	Tue 15/6/21	Mon 23/9/21	86				
88	Backfill	7 days	Tue 24/8/21	Mon 30/8/21	87				
89	Construction UG Utilities 2m deep below further surface	28 days	Tue 31/8/21	Mon 27/9/21	88				
90	Temporary Paving and handover for plant erection	3 days	Tue 28/9/21	Thu 30/9/21	89				
91	Section A1 (ii) - Supporting structures for overhead cranes of L12 MSB including the associated roof structure except the roof deferred works	333 days	Fri 4/12/20	Mon 1/11/21					
92	Area Possession & Clearance	45 days	Fri 4/12/20	Sun 17/1/21	6				
93	Subletting / Fabrication / Delivery	210 days	Tue 23/2/21	Mon 20/9/21	84FS+14 days				
94	Complete structural steel erection	0 days	Tue 19/10/21	Tue 19/10/21					
95	Install Crane Girders	11 days	Tue 12/10/21	Fri 29/10/21	94				
96	Construction of roof slab (except defer work)	14 days	Tue 19/10/21	Mon 1/11/21					
97	Touch up and handover for install overhead cranes	3 days	Sat 30/10/21	Mon 1/11/21	96FF				
98	Section A2 (i) External Works including CW Inlet Culvert at Area F8A	967 days	Fri 4/12/20	Fri 28/7/23					
99	BD consent for Sheetpile installation	30 days	Fri 4/12/20	Sat 2/1/21	52SS-7 days				
100	Subletting / Fabrication / Delivery (both for Area F8A-F8B)	30 days	Fri 18/12/20	Sat 16/1/21	99SS+14 days				
101	Area Possession & Clearance	14 days	Sat 2/1/21	Fri 15/1/21	7				
102	Install Sheet pile	55 days	Sat 16/1/21	Thu 11/3/21	101				
103	Installation of Additional sheet Pile at South of area F8A	7 days	Sat 17/4/21	Fri 23/4/21	102FS+60 days				
104	BD Consent for ELS	28 days	Sat 24/4/21	Fri 21/5/21	103				
105	ELS and install CW Inlet Pipe (NW to N direction) (Assume flexible joint deliver in Sep 2021)	100 days	Fri 16/7/21	Sat 23/10/21	104				
106	Construction of Thrust Box & Manholes,etc	15 days	Thu 16/9/21	Thu 30/9/21					
107	Backfill, UG Utilities and Road Paving	150 days	Wed 1/3/23	Fri 29/3/23	106				
108	Section A2 (ii) External Works including CW Inlet Culvert at Area F8B	1139 days	Fri 4/12/20	Tue 16/1/24					
109	Area Possession & Clearance	30 days	Mon 1/3/21	Tue 30/3/21	7FS+30 days				
110	BD consent for Sheetpile installation	30 days	Fri 4/12/20	Sat 2/1/21	99SS				
111	Install Sheet pile	90 days	Fri 2/4/21	Wed 30/6/21	103FS+21 days,102FS+21 days				
112	BD Consent for ELS	28 days	Thu 1/7/21	Wed 28/7/21	111				
113	ELS and install CW Inlet Pipe	100 days	Thu 29/7/21	Fri 5/11/21	112				
114	Construction of Thrust Box & Manholes,etc	15 days	Wed 1/9/21	Wed 15/9/21	113SS+34 days				
115	Backfill, UG Utilities and Road Paving	200 days	Sat 17/7/23	Tue 16/1/24	114				
116	Section A2 (iii) External Works including CW Inlet Culvert at Area F8C	961 days	Fri 12/3/21	Sat 28/10/23					
117	Area Possession & Clearance	30 days	Fri 12/3/21	Sat 10/4/21	9				
118	Subletting / Fabrication / Delivery (for Area F8C)	60 days	Fri 12/3/21	Mon 10/5/21	117SS				
119	BD consent for Sheetpile installation	30 days	Tue 13/4/21	Wed 12/5/21	117				
120	Install Sheet pile	62 days	Thu 13/5/21	Tue 13/7/21	119				
121	BD Consent for ELS	35 days	Tue 17/8/21	Tue 17/8/21	120				
122	ELS and install CW Inlet Pipe (including soil nail installation under 19/83014)	76 days	Wed 18/8/21	Thu 20/1/22	113,121				
123	Construction of Thrust Box & Manholes,etc	30 days	Fri 21/1/22	Sat 19/2/22	122				
124	Backfill, UG Utilities and Road Paving	150 days	Thu 1/6/23	Sat 28/10/23	123				
125	Section B1 - Area south of L12 MSB from GL12-F westwards leading to Station Road at Area F3	377 days	Fri 4/12/20	Wed 15/12/21					
126	Area Possession & Clearance	30 days	Fri 4/12/20	Sat 2/1/21	6				
127	Subletting / Fabrication / Delivery	120 days	Fri 25/12/20	Fri 23/4/21	126SS+21 days				
128	Complete CW Pipe Installation & Thrust box	45 days	Tue 23/5/21	Thu 8/7/21	137FS+13 days				
129	Backfill	30 days	Fri 9/7/21	Sat 7/9/21					
130	Construction of Storm Drain & Manholes	67 days	Mon 20/9/21	Thu 25/11/21					
131	Temp Paving and handover for Condenser Move in	20 days	Fri 26/11/21	Wed 15/12/21	130				
132	Section B2 - (i) Southern part of L12 HRSG area and its surrounding at Area F6B including the foundations for Gas Exhaust Duct	273 days	Fri 1/1/21	Thu 30/9/21					
133	Area Possession & Clearance	30 days	Fri 1/1/21	Sat 30/1/21	7				
134	Subletting / Fabrication / Delivery (for F6B Civil and E&M)	120 days	Sat 2/1/21	Sat 1/5/21	133SS				
135	Construction of Underground pits	35 days	Tue 8/6/21	Mon 12/7/21	146				
136	Excavation & Construct Pile Caps & Tie Beams & Piers	86 days	Mon 8/3/21	Thu 19/8/21	135				
137	Installation of Pipe Pile for HRSG foundation (VO)	48 days	Thu 25/3/21	Tue 11/5/21	136SS+7 days				
138	Construction HRSG & Gas Duct foundations	112 days	Fri 7/5/21	Fri 9/9/21	137				
139	Construction of HRSG Equipment Room incl. ABWF & BS (except T&C)	64 days	Tue 4/5/21	Thu 30/9/21	138				
140	Construction underground utilities within HRSG	55 days	Mon 19/7/21	Sat 11/9/21	136SS+51 days,137SS+51 days				
141	Backfill & Construction on-grade slabs & RC plinths on top	14 days	Fri 30/7/21	Mon 27/9/21	140				
142	Backfill and Temporary paving	21 days	Fri 10/9/21	Thu 30/9/21	140FS-2 days				
143	Section B2 (ii) - Remaining northern part of L12 HRSG area and its surrounding at Area F6A and F6C	319 days	Fri 1/1/21	Mon 15/11/21					
144	Area Possession and Clearance at Area F6A	30 days	Fri 1/1/21	Sat 30/1/21	7				
145	Subletting / Fabrication / Delivery (for Area F6A and F6C civil)	90 days	Sat 2/1/21	Thu 1/4/21	133SS				
146	Construction of Underground pits (HRSG Blowdown sump pit)	110 days	Sat 2/1/21	Wed 21/4/21	144SS				
147	Excavation & Construct Pile Caps & Tie Beams & Piers	139 days	Mon 1/2/21	Sat 10/7/21	146				
148	Construction underground utilities within HRSG	55 days	Mon 19/7/21	Sat 11/9/21	147				
149	Construction of Underground pits (GT Oil & Chemical drain pits)	15 days	Thu 5/8/21	Thu 19/8/21	138,148				
150	Backfill & Construction on-grade slabs & RC plinths on top	45 days	Sun 12/9/21	Tue 26/10/21	148				
151	Construct RC Walls	90 days	Thu 22/4/21	Tue 20/7/21	200				
152	Construction of Underground utilities at F6C	21 days	Tue 19/10/21	Mon 8/1/21	151				
153	Backfill and Temporary paving	7 days	Tue 9/11/21	Mon 15/11/21	152				
154	Section B2 - (iii) L12 Turbo Block foundation including the L12 MSB ground floor together with the equipment foundations between GL 12-F to 12-H and 12-1 to 12-6 for the installation of power generator, air inlet duct and lube oil reservoir	452 days	Fri 4/12/20	Mon 28/2/22					
155	Area Possession & Clearance	45 days	Fri 4/12/20	Sun 17/1/21	6				
156	Subletting / Fabrication / Delivery (Civil+ABWF+BS for MSBL12)	150 days	Fri 25/12/20	Sun 23/5/21	155SS+21 days				
157	Complete excavation at Type A&C Construction Area	0 days	Sun 21/3/21	Sun 21/3/21	172				
158	Excavation & Pile Caps & Tie Beams + Slabs (Turbo Block North)	75 days	Sun 31/1/21	Thu 15/4/21	157				
159	Backfill and construction turbine block & equipment foundation	85 days	Tue 1/6/21	Tue 24/8/21	160				
160	Excavation & Pile Caps & Tie Beams + Slabs (Turbo Block South)	45 days	Sat 17/4/21	Mon 31/5/21	158FS+1 day				
161	Construction of internal drainage & on-grade slab	90 days	Wed 1/9/21	Mon 29/11/21	159,160				
162	Construction turbine block columns and upper portion for plant embed installation	83 days	Wed 25/8/21	Mon 15/11/21	159				
163	Concrete Turbine upper part foundation	15 days	Fri 31/12/21	Fri 14/1/22	162				
164	Construction of Lube Oil Room	60 days	Tue 30/11/21	Fri 28/1/22	161				
165	Concrete RC walls	115 days	Tue 7/9/21	Thu 30/12/21	162SS				
166	ABFW Works	60 days	Thu 4/11/21	Sun 2/1/22	165FS-57 days				
167	Building Services Works	45 days	Sat 15/1/22	Mon 28/2/22	166SS+15 days				
168	Remove temporary falsework and scaffolding for installation of power generator	13 days	Mon 7/2/22	Sat 19/2/22	163				

MASTER PROGRAMME
Rev 1-B 23 Aug 2021




Task █ Split Milestone ◆ Summary ▾

Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12

Master Programme

ID	Task Name	Duration	Start	Finish	Predecessors	Earliest	Oct	Nov	Dec
169	Section B2 - (iv) G/F of L12 MSB including the Condenser Pit, Circulating Water Pipe Pit and equipment foundations between GL 12-B to 12-C and 12-1 to 12-6 for the installation of condenser	377 days	Fri 4/12/20	Wed 15/12/21					
170	Area Possession & Clearance	45 days	Fri 4/12/20	Sun 17/1/21	6				
171	Subletting / Fabrication / Delivery (for MSB L12 civil)	150 days	Fri 25/12/20	Sun 23/5/21	170SS+21 days				
172	Excavation to foundation level at ELS SP Type A & C	80 days	Fri 1/1/21	Sun 21/3/21	170SS+28 days				
173	Install CW Outlet pipe	85 days	Mon 22/3/21	Mon 14/6/21	172				
174	Construction of CW Outlet Box + lowest tie beam & caps	40 days	Mon 22/3/21	Fri 30/4/21	172				
175	Construction of pile caps & tie beams & sump pits up to +2.7mPD	26 days	Sat 1/5/21	Wed 26/5/21	174				
176	Backfill & Construction of CW Inlet Box + tie beams	71 days	Thu 27/5/21	Thu 5/8/21	175				
177	Construction of pile caps & tie beams at SunShadeCover Area	45 days	Tue 15/6/21	Thu 29/7/21	176				
178	Backfill and Construction ground beams & trenches	28 days	Thu 27/5/21	Mon 5/7/21	177SS				
179	Construction of indoor underground drainage	14 days	Fri 13/8/21	Thu 26/8/21	178				
180	Backfill & construction on-grade slabs	60 days	Sun 1/8/21	Wed 29/9/21	177FS+1 day				
181	Construction Column casting and RC walls & equipment foundations	50 days	Thu 30/9/21	Thu 18/11/21	201				
182	ABFW Works	15 days	Fri 19/11/21	Fri 3/12/21	181				
183	Building Services Works	20 days	Fri 26/11/21	Wed 15/12/21					
184	Mis. Works and Ready for condenser move in	25 days	Wed 17/1/21	Wed 15/12/21	181FS-2 days				
185	Section C - (i) Roads and external grounds surrounding L12 MSB and L12 HRSG in addition to the southern & eastern areas mentioned above in Area F5	408 days	Fri 4/12/20	Sat 15/1/22					
186	Area Possession & Clearance	30 days	Fri 4/12/20	Sat 2/1/21	6				
187	Subletting / Fabrication / Delivery	210 days	Fri 25/12/20	Thu 22/7/21	186SS+21 days				
188	Complete substructure & Steel Erection works for MSB	0 days	Tue 17/8/21	Tue 17/8/21					
189	Construction all utilities deeper than 2m from future road level	30 days	Wed 18/8/21	Thu 16/9/21	188				
190	Construction of cable trenches	30 days	Fri 17/9/21	Sat 16/10/21	189				
191	Backfill and lay temporary paving	91 days	Sun 17/10/21	Sat 15/1/22	190				
192	Section C - (ii) Whole of L12 MSB including the pipe and cable rack along south facade of L12 MSB with all underground utilities at Area F4 including C.W. Inlet and Outlet Culvert except the deferred works	908 days	Fri 4/12/20	Tue 30/5/23					
193	Area Possession & Clearance	45 days	Fri 4/12/20	Sun 17/1/21	6				
194	Subletting / Fabrication / Delivery	120 days	Fri 25/12/20	Fri 23/4/21	193SS+21 days				
195	Construction of pile caps & tie beams at Transformer Area	180 days	Sun 31/1/21	Thu 29/7/21	172SS+30 days				
196	Backfill and on-grade slab at transformer Area	160 days	Sun 11/4/21	Thu 7/10/21	195FS-100 days				
197	Construction of Fire Walls at Transformer Area	45 days	Fri 8/10/21	Mon 29/11/21	196				
198	Excavation & Construction Blow Down Sun pit (SP Type B)	140 days	Wed 14/4/21	Tue 31/8/21	172,158FF				
199	Preparation for S.Steelwork Erection	7 days	Sat 5/6/21	Fri 11/6/21	198,158,148				
200	Structural Delivery & Erection (Turbine Hall North fr G.L. 1-3/H->B)	67 days	Sat 12/6/21	Tue 17/8/21	199				
201	Structural Delivery & Erection (Equipment Floors)	33 days	Wed 18/8/21	Sun 19/9/21	200,178				
202	Structural Delivery & Erection (Turbine Hall South + East Elevation)	47 days	Mon 20/9/21	Fri 5/11/21	201,128				
203	Joint Tightening and touch up coating	99 days	Sat 3/7/21	Wed 24/11/21	200				
204	External Scaffolding Erection	97 days	Thu 15/7/21	Mon 22/11/21	200				
205	Construction 1/F RC Slab	14 days	Mon 20/9/21	Sun 3/10/21	201				
206	Construction 2/F RC Slab	7 days	Mon 27/9/21	Sun 10/10/21	205				
207	Construction 3/F RC Slab	18 days	Thu 30/9/21	Sun 17/10/21	207				
208	Construction 4/F RC Slab	7 days	Thu 7/10/21	Sun 24/10/21	206				
209	Construction 5/F RC Slab	44 days	Mon 25/10/21	Tue 7/12/21	208				
210	Construction 6/F RC Slab	14 days	Wed 11/12/21	Tue 14/1/22	210				
211	Construction Upper Roof RC Slab	10 days	Sun 12/12/21	Fri 24/12/21	210				
212	Construction Main Roof RC Slab	39 days	Tue 12/10/21	Fri 19/11/21					
213	Construction Defer Roof RC Slab (G.L. G-H)	16 days	Sun 28/11/21	Mon 13/12/21	212FS+9 days				
214	Construction of Staircase ST-01 & lift shaft & machine room	130 days	Fri 27/8/21	Mon 3/1/22	200				
215	Construction M/F RC Slab	14 days	Fri 1/10/21	Thu 14/10/21	214SS+60 days				
216	Lift Installation	90 days	Thu 9/2/23	Tue 9/5/23	214				
217	Construction of Staircase ST-02 except defer work	68 days	Mon 11/10/21	Fri 24/12/21	207				
218	Construction of RC plinth, kerbs & parapet Walls	40 days	Sat 20/11/21	Wed 29/12/21	212				
219	Erection of Skylight & Roof Features	50 days	Fri 26/11/21	Fri 14/1/22	212				
220	Waterproofing & Flooring at Roof	34 days	Thu 30/12/21	Thu 17/2/22	219				
221	ABFW Works	600 days	Fri 8/10/21	Tue 30/5/23	205				
222	Building Services Works	550 days	Tue 16/11/21	Fri 19/5/23	221SS+21 days				
223	Metal Cladding, Windows and Louvres incl. roof feature	535 days	Mon 23/8/21	Wed 8/2/23	204SS+21 days				
224	Removal of external scaffolding	460 days	Wed 1/12/21	Sun 5/3/23	223SS+60 days				
225	Installation of Catwalk at south elevation	90 days	Thu 1/9/22	Wed 14/12/22					
226	Cladding, ABWF & BS Works	60 days	Thu 15/12/22	Sun 12/2/23	225				
227	Removal of temporary works & clearance for plant erection contractor	30 days	Sat 14/1/23	Sun 12/2/23	226FF				
228	Section C - (iii) Link Bridge between L11 and L12 MSB includin their associated A&A at L11 MSB	885 days	Fri 4/12/20	Sun 7/5/23					
229	BD Consent	0 days	Fri 4/12/20	Fri 4/12/20	6				
230	Subletting / Fabrication / Delivery (For BS and ABWF)	250 days	Fri 25/12/20	Tue 31/8/21	193SS+21 days				
231	Clearing Works and plant set-up	30 days	Fri 3/12/21	Sat 1/1/22	229FS+255 days				
232	Dismantle of north scaffold for link bridge erection	0 days	Tue 25/1/22	Tue 25/1/22	224SS				
233	A&A works at South of L11 MSB	30 days	Fri 3/12/21	Sat 1/1/22	231SS				
234	Erection of link bridge structural steel	30 days	Sun 2/1/22	Mon 31/1/22	233				
235	Casting of bridge deck	11 days	Tue 1/2/22	Fri 11/2/22	234				
236	Metal roofing installation	30 days	Wed 22/2/23	Thu 23/3/23	234				
237	ABWF work	15 days	Fri 24/3/23	Fri 7/4/23	236				
238	BS Works	30 days	Sat 8/4/23	Sun 7/5/23	237				
239	Ready for power cable laying work by others	0 days	Sun 10/4/22	Sun 10/4/22	238				
240	Section D - (ii) No. 5 Chimney with L12 Steel Flue Liner	902 days	Fri 1/1/21	Wed 21/6/23					
241	Area Possession & Clearance	45 days	Fri 1/1/21	Sun 14/2/21					
242	Subletting / Fabrication / Delivery (For Civil and BS for Microwave Antenna and Equipment)	120 days	Fri 8/1/21	Fri 7/5/21	241SS+7 days				
243	Excavation & Pile Cap & Backfill	90 days	Sat 2/1/21	Thu 1/4/21	241SS				
244	Tower Crane erection	30 days	Tue 11/5/21	Wed 9/6/21	243FF				
245	Construction of Wind Shield + clearance for internal floors and flue+Ground slab	308 days	Fri 2/4/21	Mon 4/4/22	244				
246	Structural steel fabrication & Delivery for floors and staircase	415 days	Mon 3/1/22	Tue 21/2/23					
247	Erection of steel floors	79 days	Tue 19/4/22	Wed 6/7/22	246SS+60 days				
248	Construction of G/F room incl. Microwave Antenna Rm	45 days	Thu 7/7/22	Sat 20/8/22	245SS+90 days				
249	Construction of 1/F RC slab	8 days	Sat 13/8/22	Sat 20/8/22	247				
250	Construction of 2/F RC Slab	8 days	Fri 5/8/22	Fri 12/8/22					
251	Construction of 3/F RC slab	8 days	Thu 28/7/22	Thu 4/8/22					
252	Construction of 4/F RC slab	8 days	Thu 7/7/22	Thu 14/7/22					
253	Construction of Roof RC slab	61 days	Tue 21/6/22	Sat 20/8/22					
254	Removal of tower Crane	7 days	Sun 21/8/22	Sat 27/8/22	253				
255	Steel Flue fabrication and delivery	145 days	Sat 5/3/22	Wed 27/7/22					
256	Set up for steel flue installation	60 days	Tue 5/7/22	Fri 2/9/22					
257	Lift & install steel flue liner + cladding works	200 days	Thu 28/7/22	Sun 12/2/23					
258	Lift installation	120 days	Wed 22/2/23	Wed 21/6/23	246				
259	Installation Louvre & Doors	60 days	Mon 13/2/23	Thu 13/4/23	257				
260	Mis works, Demobilization and ready for gas duct connection	17 days	Thu 5/1/23	Sat 21/1/23					
261	Section D (i) - ABWF and BS Works at Microwave Antenna Room and Chimney Windshield for installation of microwave and antenna	102 days	Tue 1/3/22	Fri 10/6/22					
262	Completion of Microwave Antenna Room	0 days	Tue 1/3/22	Tue 1/3/22					
263	Remaining ABWF & BS Works	100 days	Thu 3/3/22	Fri 10/6/22	262FS+1 day				
264	Section E - (i) Administration and Control Building (Transformer Room)	332 days	Fri 4/12/20	Sun 31/10/21					
265	Area Possession & Clearance + BD consent	60 days	Fri 4/12/20	Mon 1/2/21	6				
266	Subletting / Fabrication / Delivery (For Civil-BS-ABWF)	100 days	Tue 2/2/21	Wed 12/5/21	265SS+21 days				

MASTER PROGRAMME
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Task Split Milestone Summary

Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12 **Master Programme**

ID	Task Name	Duration	Start	Finish	Predecessors	Partner	Oct	Nov	Dec
267	Excavation works	45 days	Fri 4/12/20	Sun 17/1/21	265SS				
268	Main Earth Grid Installation	45 days	Sun 3/1/21	Tue 16/2/21	267FS-15 days				
269	Pile cap and Tie Beam	45 days	Sun 3/1/21	Tue 16/2/21	268SS				
270	Tower Crane Erection and modification works	49 days	Wed 10/2/21	Tue 30/3/21	269FS-7 days				
271	Substructure + Bearing walls + On grade slabs	115 days	Wed 17/2/21	Fri 11/6/21	269				
272	Construction of RC up to 1/F incl. staircases	69 days	Sat 12/6/21	Thu 19/6/21	271				
273	ABWF at G/F	52 days	Fri 10/9/21	Sun 31/10/21	272FS+21 days				
274	Section E (i) Handover G/F, 1/F, 2/F & Hoisting Well	452 days	Fri 4/12/20	Mon 28/2/22					
275	Clearing Works and plant set-up	21 days	Sun 31/10/21	Sat 20/11/21					
276	Subletting / Fabrication / Delivery (For NSC Lift)	180 days	Sun 3/1/21	Sat 31/7/21	266SS				
277	Construction of RC up to 2/F incl. staircases	25 days	Sat 14/8/21	Mon 13/9/21	272				
278	Construction of RC up to 3/F incl. staircases	20 days	Thu 2/9/21	Tue 21/9/21	277SS+16 days				
279	Temporary Hoist erection	14 days	Wed 22/9/21	Tue 5/10/21	278				
280	Construction of RC up to 4/F incl. staircases	20 days	Thu 16/9/21	Tue 5/10/21	278SS+14 days				
281	Construction of RC up to R/F incl. staircases	25 days	Thu 30/9/21	Sun 24/10/21	280SS+14 days				
282	Construction of RC up to lift machine room	21 days	Mon 25/10/21	Sun 14/11/21	281				
283	Construction of RC up to UR/F	21 days	Mon 15/11/21	Sun 5/12/21	282				
284	External Wall Finish, Cladding + Windows and Louvres + Features	500 days	Thu 30/9/21	Sat 11/2/23	281SS				
285	ABWF at 1/F	95 days	Fri 8/10/21	Mon 10/1/22	277FS+24 days				
286	ABWF at 2/F	96 days	Fri 15/10/21	Tue 18/1/22	278FS+23 days				
287	Building Services Works at G/F, 1/F, 2/F & Hoisting Well	147 days	Tue 5/10/21	Mon 28/2/22	285SS-3 days				
288	Section E (ii) Whole of Administration and Control Building	513 days	Sat 23/10/21	Sun 19/3/23					
289	Subletting / Fabrication / Delivery (For BS+ABWF)	127 days	Sat 23/10/21	Sun 20/3/22	230FS+45 days				
290	Construction of New UG Grey Water Tank	60 days	Mon 21/3/22	Thu 19/5/22					
291	Submission of WWO46 for commencement	60 days	Wed 19/1/22	Sat 19/3/22	287SS-30 days				
292	ABWF at 3/F	500 days	Mon 25/10/21	Wed 8/3/23	286SS+10 days				
293	ABWF at 4/F	470 days	Wed 24/11/21	Wed 8/3/23	292SS+30 days				
294	ABWF at R/F	470 days	Wed 24/11/21	Wed 8/3/23	293SS				
295	ABWF at UR/F + Lift Machine Room	35 days	Wed 1/2/23	Mon 13/3/23	294,283FS+30 days				
296	Bridge Erection & Connection	28 days	Wed 9/3/22	Wed 27/4/22	295,298SS+35 days				
297	Installation of Raised floors	60 days	Thu 9/12/21	Sun 6/2/22	287SS+65 days				
298	Removal of external scaffolding	45 days	Sat 21/1/23	Tue 14/3/23	284FS-19 days				
299	Waterproofing & screeding	440 days	Mon 6/12/21	Sat 18/2/23	283				
300	Removal of Tower Crane	7 days	Thu 31/3/22	Wed 6/4/22	298FS+21 days				
301	External utilities and road work	45 days	Fri 20/1/23	Tue 7/3/23	298SS+21 days				
302	Building Services Works	450 days	Sat 4/12/21	Sun 26/2/23	293SS+41 days				
303	False ceiling after BS works	54 days	Sun 15/1/23	Sat 11/3/23	302FS-20 days				
304	Submission of WWO46 for completion	360 days	Wed 9/3/22	Fri 3/3/23	301FF				
305	Submission of FS inspection	14 days	Fri 3/3/23	Fri 17/3/23	287,304,291				
306	Submission for OP Inspection	14 days	Wed 8/3/23	Tue 21/3/23	301,304,305SS+5 days,291				
307	Section F (i) - Gas Receiving Station and L12 Gas Receiving Station Equipment Room (GRS) Area Extension at Area F14	678 days	Tue 1/6/21	Sun 9/4/23					
308	Area Possession & Clearance + BD consent	90 days	Tue 1/6/21	Sun 29/8/21	8				
309	Subletting / Fabrication / Delivery	30 days	Tue 22/6/21	Wed 21/7/21	308SS+21 days				
310	Installation of pipe pile at north of GRS (VO)	125 days	Mon 5/7/21	Sat 6/11/21	309FS-16 days				
311	Construction Equipment room extension	145 days	Sun 31/10/21	Thu 24/3/22					
312	Modification of existing drainage	45 days	Fri 25/3/22	Sun 8/5/22	311				
313	Excavation & earthing for Skid foundations	21 days	Mon 9/5/22	Sun 29/5/22	296				
314	Construction of Skid foundation	45 days	Mon 30/5/22	Wed 13/7/22	313				
315	Construct underground utilities and drainage	45 days	Thu 14/7/22	Sat 27/8/22	314				
316	Backfill and road works	200 days	Sun 28/8/22	Wed 15/3/23	315				
317	Relocate / install new fencing for completion	21 days	Sun 5/3/23	Sun 26/3/23	316				
318	Mis. Work and ready for OP inspection	14 days	Mon 27/3/23	Sun 9/4/23	317				
319	Section F (ii) - Pipe and Cable rack and external work at Area F9A and F9B	941 days	Sat 2/1/21	Mon 31/7/23					
320	BD consent + Site Possession at Area F9A & F9B	90 days	Sat 2/1/21	Thu 14/1/21	7				
321	Excavation & Plate load test	30 days	Mon 1/11/21	Tue 30/11/21					
322	Construction new footing for pipe rack	30 days	Wed 1/12/21	Mon 23/5/22					
323	Underground utilities and road works for completion	11 days	Thu 3/1/22	Tue 31/5/22					
324	Structural Steel fabrication & Delivery	90 days	Sat 2/10/21	Tue 31/5/22					
325	Erection of new pipe rack	70 days	Fri 31/12/21	Thu 10/3/22					
326	Mis. Work and ready for OP inspection	31 days	Sat 17/2/23	Mon 31/7/23					
327	Section F (iii) - No. 5 CW Equipment Room, pipe and cable rack, external works at Area F10	765 days	Tue 1/6/21	Wed 5/7/23					
328	Area Possession & Clearance + BD consent	90 days	Tue 1/6/21	Sun 14/11/21	9				
329	Subletting / Fabrication / Delivery For ABWF + BS	150 days	Wed 2/6/21	Fri 29/10/21	328SS				
330	Installation of Sheet Pile (VO)	85 days	Tue 1/6/21	Tue 24/8/21					
331	Consent for ELS Works	28 days	Wed 25/8/21	Tue 21/9/21					
332	Excavation & Plate load test	30 days	Wed 22/9/21	Thu 21/10/21	331				
333	Construction new footing for equipment room	68 days	Thu 23/12/21	Mon 28/2/22	332				
334	Superstructure for equipment room	60 days	Tue 1/3/22	Fri 29/4/22	333				
335	ABWF Works	45 days	Sat 30/4/22	Mon 13/6/22	334				
336	BS Works	400 days	Wed 1/6/22	Wed 5/7/23	335SS+3 days				
337	Construction RC Wall & plinths & drainage at Chlorinator area	280 days	Wed 30/3/22	Tue 3/1/23					
338	External wall finish & remove scaffolding	60 days	Sat 31/12/22	Tue 28/2/23	337				
339	Excavation & Plate load test for pipe rack extension (For F45-47 & F49)	30 days	Sat 16/10/21	Sun 14/11/21	332FS-6 days				
340	Construction new footing for pipe rack (For F45-47 & F49)	45 days	Mon 15/11/21	Wed 29/12/21	339				
341	Underground utilities and road works for completion	31 days	Wed 1/3/23	Fri 31/3/23	338				
342	Structural Steel fabrication & Delivery	90 days	Sun 12/12/21	Fri 11/3/22	341FF+12 days				
343	Backfilling and prepare for steel erection	12 days	Mon 28/2/22	Fri 11/3/22	342FS-12 days				
344	Excavation & Plate Load test for pipe rack extension (For F48 F56)	14 days	Wed 30/3/22	Tue 12/4/22	343FS+18 days				
345	Construction of new footing for pipe rack (For F48 & F56)	14 days	Wed 13/4/22	Tue 26/4/22	344				
346	Erection of new pipe rack (For F48 & F56)	65 days	Tue 3/5/22	Wed 6/7/22	345FS-6 days				
347	Erection of new pipe rack (For F45-47 & F49)	70 days	Sat 12/3/22	Fri 20/5/22	343				
348	Mis. Work and ready for OP inspection	56 days	Sun 7/5/23	Wed 5/7/23	336FF				
349	Section G (i) - External Work surrounding Area F11	254 days	Mon 20/2/23	Tue 31/10/23					
350	Area Possession & Clearance after handover from No. 5 Intake Contractor	31 days	Wed 1/3/23	Fri 31/3/23	11				
351	Subletting / Fabrication / Delivery	31 days	Mon 20/2/23	Wed 22/3/23	350SS				
352	Submission WWO046 for commencement	31 days	Wed 1/3/23	Fri 31/3/23	350SS				
353	Construct Underground utilities and drainage	150 days	Sat 1/4/23	Mon 28/8/23	350				
354	Install new FS Hydrant	20 days	Mon 10/7/23	Sat 29/7/23	353FF-30 days				
355	Submission WWO046 for completion	30 days	Sun 30/7/23	Mon 28/8/23	354				
356	Construction Road extension	58 days	Sun 30/7/23	Mon 25/9/23	354				
357	Construction road paving and install fencing	30 days	Tue 26/9/23	Wed 25/10/23	356				
358	Ready for OP inspection	14 days	Wed 18/10/23	Tue 31/10/23	357FS-8 days				
359	Section G (ii) - External Works at Area F12 & F13	961 days	Thu 4/3/21	Fri 20/10/23					
360	Area Possession & Clearance after handover from other	45 days	Wed 17/5/23	Fri 30/6/23	6				
361	Subletting / Fabrication / Delivery	180 days	Thu 4/3/21	Mon 30/8/21	360SS+90 days				
362	Excavation	7 days	Sat 1/7/23	Fri 7/7/23	360				

MASTER PROGRAMME
Rev 1-B 23 Aug 2021



Task █ Split ● Milestone ◆ Summary ▾

Construction road paving and install fencing
Ready for OP Inspection

Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12 Master Programme

ID	Task Name	Duration	Start	Finish	Predecessors	Barter	Oct	Nov	Dec
468	Part 4 Re-excavation works incl. joint bay & new oil tank pits	92 days	Sat 1/10/22	Sat 31/12/22					
469	Backfill & Reinstatement Part 1	61 days	Mon 1/11/21	Fri 31/12/21	466SS				
470	Backfill & Reinstatement Part 2	61 days	Sun 1/5/22	Thu 30/6/22	466FS+61 days				
471	Backfill & Reinstatement Part 3	61 days	Wed 17/5/23	Sun 16/7/23	467FS+62 days				
472	Section H - All remaining works shall be completed for reporting completion to BD and ready for OP inspection (PS1.4.4)	736.15 days	Wed 17/11/21	Thu 23/11/23					23 Nov '23
473	Deferred works (MSB & HRSB) Listed in PS 1.4.4	539 days	Wed 17/11/21	Tue 9/5/23					
474	Construction of L12 MSB not between GL12-G to 12-H and 12-2 to 12-6 after the overhead crane installation by the Employer's Specialist Contractors	38 days	Wed 17/11/21	Tue 4/1/22	213SS				
475	Construction of walls of L12 MSB below 1/F along GL 12-6 from GL12-B to 12-C and the associated staircases including the enclosure walls between G/F and 1/F. The Contractor shall allow access for the Employer's Specialist Contractors to use the hoisting we	92 days	Mon 16/5/22	Mon 15/8/22	80				
476	Provision in associated with hoisting well	21 days	Mon 6/6/22	Sun 26/6/22	475SS+21 days				
477	Construction of internal partition wall at 1/F of L12 MSB along GL 12-C from GL 12-2 to 12-3 AND North Façade at 1/F of L12 MSB along GL 12-1 from GL 12-B to 12-C	30 days	Wed 1/3/23	Thu 30/3/23					
478	Construction of metal fence and the associated Fire Services (F.S.) installations and installation of removable shelter at Transformer Area	120 days	Tue 10/1/23	Tue 9/5/23					
479	Deferred works (DAX1 and DAX2) Listed in PS 1.4.4	151 days	Sun 1/1/23	Wed 31/5/23					
480	Backfilling of whole DAX1 compartment inside existing joint bay "STJ12" and the new oil tank pit A located aside existing joint bay "STJ12".	59 days	Wed 1/2/23	Fri 31/3/23	469SS				
481	Re-excavation of whole DAX2 compartment inside existing joint bay "STJ12".	61 days	Sun 1/1/23	Thu 2/3/23	470				
482	Backfilling of whole DAX2 compartment inside existing joint bay "STJ12" and the new oil tank pit B located aside existing joint bay "STJ12".	61 days	Sat 1/4/23	Wed 31/5/23					
483	Deferred works (External Work) Listed in PS 1.4.4	357.15 days	Thu 1/12/22	Thu 23/11/23					23 Nov '23
484	Final reinstatement of access roads and pavement surrounding and within L12 MSB and L12 HRSB area	320 days	Thu 1/12/22	Mon 16/10/23	185				
485	Installation of trench cover and road reinstatement of gas pipe and cable trenches within Area F5, F14, F16, F17 and F18.	30 days	Sun 1/1/23	Thu 28/9/23	387FF,406FS+92 days,416				
486	Backfilling and road-reinstatement of 275kV cable trenches	60 days	Sun 1/1/23	Thu 23/11/23	485				
487	All Remaining work ready for OP inspection	0 days	Sat 1/7/23	Sat 1/7/23					
488	STATUTORY SUBMISSION, INSPECTION & APPROVAL	560 days	Tue 16/11/21	Mon 29/5/23					
489	WSD Statutory Submission, Inspection and Approval WWO Part I to III Submission / Approval	256 days	Tue 16/11/21	Fri 29/7/22					
490	WSD : Submit to WSD Form WWO 046 Part I to II - FOR ACB Building (for Ext Works at later stage)	0 days	Tue 16/11/21	Tue 16/11/21	222SS,287SS				
491	WSD: Vetting Form WWO 046 Part I and II Submission	90 days	Wed 17/11/21	Mon 14/2/22	490SS+1 day				
492	WSD: Issued of Form WWO 046 Part III by WSD - FOR ACB Building	0 days	Tue 15/2/22	Tue 15/2/22	491FS+1 day				
493	WSD: Prepare for 1st Amendment for Plumbing Plan	60 days	Tue 15/2/22	Fri 15/4/22	492FS-1 day				
494	WSD: Submit to WSD 1st Amendment for Plumbing Plan	0 days	Fri 15/4/22	Fri 15/4/22	493				
495	WSD: Vetting of Plumbing Plan by WSD	60 days	Sat 16/4/22	Tue 14/6/22	494				
496	WSD: 1st Approval for Plumbing Plan by WSD	0 days	Tue 14/6/22	Tue 14/6/22	495				
497	WSD: Prepare and Submit for Final Amendment for Plumbing Plan	45 days	Wed 15/6/22	Fri 29/7/22	496				
498	WSD: Vetting and Final Approval for Plumbing Plan by WSD	0 days	Fri 29/7/22	Fri 29/7/22	497				
499	WSD Statutory Submission, Inspection and Approval WWO Part IV to V Fire Services Water Submission / Approval	33 days	Fri 29/7/22	Wed 31/8/22					
500	WSD: Form WWO 046 Part IV Submission (FS)	0 days	Fri 3/3/23	Fri 3/3/23	498				
501	WSD: WSD Received Form WWO046 Part IV and arrange for inspection (FS)	7 days	Fri 3/3/23	Thu 9/3/23	500				
502	WSD: WSD Inspection (FS)	7 days	Fri 10/3/23	Thu 16/3/23	501				
503	WSD: WWO 046 Part V Endorsement by WSD (FS)	12 days	Fri 17/3/23	Tue 28/3/23	502				
504	WSD: WSD Processing Water Supply Connection Certificate (FS)	7 days	Wed 29/3/23	Tue 4/4/23	503				
505	WSD: Issue by WSD Water Supply Connection Certificate (FS)	0 days?	Tue 4/4/23	Tue 4/4/23	504FF				
506	WSD Statutory Submission, Inspection and Approval WWO Part IV to V Potable / Flush Water Submission / Approval	60 days	Fri 3/3/23	Mon 1/5/23					
507	WSD: Form WWO 046 Part IV Submission (Fresh/Flush)	0 days	Fri 3/3/23	Fri 3/3/23	498FS+21 days				
508	WSD: WSD Acknowledge Form WWO 046	6 days	Fri 3/3/23	Wed 8/3/23	507				
509	WSD: WSD Inspection with Testing to lead (Fresh/Fluhs)	12 days	Thu 9/3/23	Mon 20/3/23	508				
510	WSD: Cleansing/Disinfecting Water Tanks / Piping System (Fresh/Flush)	6 days	Tue 21/3/23	Sun 26/3/23	509				
511	WSD: Collection of Sample for Testing at Accredited Lab (Fresh/Flush)	12 days	Mon 27/3/23	Fri 7/4/23	510				
512	WSD:Accredited Lab Testing Report of Sample to WSD	12 days	Sat 8/4/23	Wed 19/4/23	511				
513	WSD: Vetting of Test Report by WSD	6 days	Thu 20/4/23	Tue 25/4/23	512				
514	WSD: Issue of WWO 046 Part V (Fresh/Flush)	0 days	Tue 25/4/23	Tue 25/4/23	513				
515	WSD: WSD Processing WW01005 Water Certification (Fresh/Flush)	6 days	Wed 26/4/23	Mon 1/5/23	514				
516	WSD: Issue by WSD WWO 1005 Water Certification (Fresh/Flush)	0 days	Mon 1/5/23	Mon 1/5/23	515				
517	EMSD LIFT Statutory Submission, Inspection and Approval	45 days	Wed 15/2/23	Fri 31/3/23					
518	EMSD: Submission of Lift Form LE5 to EMSD	12 days	Wed 15/2/23	Sun 26/2/23					
519	EMSD: EMSD Makes arrangement for Lift Installation	5 days	Mon 27/2/23	Fri 3/3/23	518				
520	EMSD: EMSD Inspection to Lift Installation	14 days	Sat 4/3/23	Fri 17/3/23	519				
521	EMSD: Processing Lift Certificate (Form LE6)	14 days	Sat 18/3/23	Fri 31/3/23	520				
522	EMSD: Lift Issuance of Form 6 (Lift Certificate)	0 days	Fri 31/3/23	Fri 31/3/23	521				
523	HKE Transformer Final Inspection	120 days	Sat 30/7/22	Sat 26/11/22					
524	TX Room: Invite HKE For Transformer Room Inspection	7 days	Sat 30/7/22	Fri 5/8/22	296FF+100 days				
525	TX Room: Give Access to Transformer Room for HKE Contractor	0 days	Fri 5/8/22	Fri 5/8/22	524				
526	TX Room: Move-IN HKE Transformer Equipments	5 days	Sat 6/8/22	Wed 10/8/22	525				
527	TX Room: Install HKE Transformer, MEP Works & Testing	90 days	Thu 11/8/22	Tue 9/11/22	526				
528	TX Room: HKE Power Energization / Inspection	6 days	Wed 9/11/22	Mon 14/11/22	527				
529	TX Room: Metering Installation	12 days	Tue 15/11/22	Sat 26/11/22	528				
530	TX Room: HKE Power-ON Date	0 days	Sat 26/11/22	Sat 26/11/22	529				
531	DSD Drainage Completion Memo	65 days	Fri 30/6/23	Sat 2/9/23					
532	DSD: CCTV Survey Report on Completed Drainage	30 days	Fri 30/6/23	Sat 29/7/23	352FF+120 days				
533	DSD: Submitted CCTV Report & Form HPB1 of Completed Drainage to DSD For Technical Audit	7 days	Sun 30/7/23	Sat 5/8/23	532				
534	DSD: Completed Drainage System including TMC Inspection/Technical Audit by DSD	14 days	Sun 6/8/23	Sat 19/8/23	533				
535	DSD: Preparation of Drainage Connection Completion Memo by DSD	14 days	Sun 20/8/23	Sat 2/9/23	534				
536	DSD: Issue of Drainage Connection Completion Memo by DSD	0 days	Sat 2/9/23	Sat 2/9/23	535				
537	EPD Submission, Inspection and Approval	60 days	Wed 5/7/23	Sun 3/9/23					
538	EPD: License Application to EPD under APCO (Cap 311) for Generator Sets	0 days	Wed 5/7/23	Wed 5/7/23	336				
539	EPD: Vetting of Application by EPD under APCO (Cap 311) for Generator Sets	60 days	Thu 6/7/23	Sun 3/9/23	538				
540	EPD: Approval from EPD under APCO (Cap 311) for Generator Sets Installation	0 days	Sun 3/9/23	Sun 3/9/23	539				
541	FSD VAC Statutory Submission, Inspection and Approval	150 days	Wed 20/7/22	Fri 16/12/22					
542	Preparation of FSD VAC Drawings and Submission to HEC	60 days	Wed 20/7/22	Sat 17/9/22	347FF+120 days				
543	HEC: Review and Approval	30 days	Sun 18/9/22	Mon 17/10/22	542				
544	Preparation of VAC Drawings and Submission to FSD	30 days	Tue 18/10/22	Wed 16/11/22	543				
545	FSD: Review and Approval	30 days	Thu 17/11/22	Fri 16/12/22	544				
546	FSD Statutory Submission, Inspection and Approval	91 days	Sun 15/1/23	Sat 15/4/23					
547	Testing and Commissioning (Individual System - FSI Related)	45 days	Sun 15/1/23	Tue 28/2/23					
548	FSD: All Sections FS Ingration Test by NSC_BS	15 days	Wed 1/3/23	Wed 15/3/23	547				
549	FSD: Completion of FS Integration Test by NSC_BS for FS314/501	0 days	Wed 15/3/23	Wed 15/3/23	548				
550	FSD: Submit Form 213/314 & Form 501 Request for Inspection	0 days	Wed 15/3/23	Wed 15/3/23	549				
551	FSD: FSD Makes Arrangement for Inspection	7 days	Thu 16/3/23	Wed 22/3/23	550				
552	FSD: FSD Inspection	12 days	Thu 23/3/23	Mon 3/4/23	551				
553	FSD: Completion of FS Inspection	0 days	Mon 3/4/23	Mon 3/4/23	552				
554	FSD: FSD Processing FS Certificate Form 172	12 days	Tue 4/4/23	Sat 15/4/23	553				
555	FSD: Issue of Fire Services FS Certificate Form 172	0 days	Sat 15/4/23	Sat 15/4/23	554				
556	PRACTICAL COMPLETION	216 days	Sun 16/4/23	Fri 17/11/23					17 Nov '23
557	BD Inspection	97 days	Sun 16/4/23	Fri 21/7/23					
558	BD: Application Form BA13 for OP Application	21 days	Sun 16/4/23	Sat 6/5/23	555				
559	BD: BD Inspection Date	15 days	Sun 7/5/23	Sun 21/5/23	558				



Contract No. 19/83002 Lamma Power Station Extension Civil and Building Works for Unit L12 **Master Programme**

ID	Task Name	Duration	Start	Finish	Predecessors	Quarter	Oct	Nov	Dec
560	BD: Reinspection date with defects and rectification works	60 days	Mon 22/5/23	Thu 20/7/23	559				
561	BD: Obtain Occupation Permit (OP) from BD	1 day	Fri 21/7/23	Fri 21/7/23	560				
562	As-Built Drawings & Handover Documentation	120 days	Mon 1/5/23	Mon 28/8/23					
563	Prepare and Submit As-Built Drawings & Handover Documentation	45 days	Mon 1/5/23	Wed 14/6/23	555FF+60 days				
564	Review and Approval	45 days	Thu 15/6/23	Sat 29/7/23	563				
565	As-Built Drawings & Handover Documentation - Revision by MC	30 days	Sun 30/7/23	Mon 28/8/23	564				
566	Revised As-Built Drawings & Handover Documentation - Final Submission	0 days	Mon 28/8/23	Mon 28/8/23	565				
567	Completion of the Whole Contract Works	119 days	Sat 22/7/23	Fri 17/11/23					17 Nov '23
568	1st Client Inspection for Review and Comments	30 days	Sat 22/7/23	Sun 20/8/23	561				
569	Defects and Rectification works	60 days	Mon 21/8/23	Thu 19/10/23	568				
570	2nd Client Inspection	14 days	Fri 20/10/23	Thu 2/11/23	569				
571	Minor Defects Rectification Works and Final Inspection	15 days	Fri 3/11/23	Fri 17/11/23	570				
572	PRACTICAL COMPLETION	0 days	Fri 17/11/23	Fri 17/11/23	571				



ID	Task Name	Duration	Start	Finish	Predecessors	Oct	4th Quarter	Nov	Dec
1	19-83014 - Civil Works for No. 5 C.W. Intake and Cable Bridge at Lamma Power Station Extension	467 days	Fri 22/7/22	Tue 31/10/23					
2	No. 5 C.W. Intake	467 days	Fri 22/7/22	Tue 31/10/23					
3	Delivery of Precast No. 5 Intake Chamber	3 days	Fri 22/7/22	Sun 24/7/22					
4	Installation of Precast No. 5 Intake Chamber	2 days	Mon 25/7/22	Tue 26/7/22	3				
5	Prepare formation level for reinstall culvert	18 days	Wed 27/7/22	Sat 13/8/22	4				
6	Reinstate of culvert	7 days	Mon 15/8/22	Sun 21/8/22	5				
7	Reinstate of seawall block	28 days	Mon 22/8/22	Sun 18/9/22	6				
8	Backfill at East Side	20 days	Mon 19/9/22	Sat 8/10/22	7				
9	Reinstate of seawall coping	30 days	Thu 3/11/22	Fri 2/12/22	8FS+25 days				
10	Temporary backfill for access at east of Intake Chamber	10 days	Sat 3/12/22	Mon 12/12/22	9				
11	Handover back from erection contractor at Intake Road	1 day	Mon 15/5/23	Mon 15/5/23	10				
12	UU works and reinstatement of Intake Road	92 days	Tue 1/8/23	Tue 31/10/23	11				
13	Steel Parapet along seawall	46 days	Tue 18/4/23	Fri 2/6/23					
14	Delivery of steel parapet (Removed for Chamber installation portion)	1 day	Tue 18/4/23	Tue 18/4/23	12				
15	Installation of steel parapet (Removed for chamber installation portion)	7 days	Mon 29/5/23	Sun 4/6/23	14FS+40 days				
16	Removal of existing steel parapet for replacement	7 days	Mon 5/6/23	Sun 11/6/23	15				
17	Installation of steel parapet (Replacement)	21 days	Wed 11/10/23	Tue 31/10/23	16				
18	Steel Gantry Frame above Bar Screen Chamber	21 days	Tue 25/4/23	Mon 15/5/23					
19	Delivery of steel members	1 day	Sun 15/10/23	Sun 15/10/23	17				
20	Installation of gantry frame	14 days	Wed 18/10/23	Tue 31/10/23	19				
21	Bollard & Fender	245 days	Wed 1/3/23	Tue 31/10/23					
22	Confirmation and order of bollard and fender	1 day	Wed 1/3/23	Wed 1/3/23	20				
23	Fabrication and delivery of bollard & fender	100 days	Thu 2/3/23	Fri 9/6/23	22				
24	Installation of bollard (1 no.)	1 day	Sat 10/6/23	Sat 10/6/23	23				
25	Rebar fixing & Concreting	2 days	Mon 30/10/23	Tue 31/10/23	24				
26	Removal of existing fender	15 days	Sat 10/6/23	Sat 24/6/23	25				
27	Installation of fender	35 days	Wed 27/9/23	Tue 31/10/23	26				
28	In-situ Construction Work for Intake Chamber	438 days	Sat 20/8/22	Tue 31/10/23					
29	Backfilling Work between Pipepile and Intake Chamber External Wall	19 days	Sat 20/8/22	Wed 7/9/22					
33	Backfilling at Discharge Valve Chamber	10 days	Fri 9/9/22	Sun 18/9/22	29				
34	Installation of Concrete Block inside/ on intake chamber/ culvert	25 days	Tue 23/8/22	Fri 16/9/22	33				
35	Removal of Internal Strut/ King Post	28 days	Sat 20/8/22	Fri 16/9/22	34				
36	Dewatering in Chamber Internal Side	3 days	Tue 20/9/22	Thu 22/9/22	30,31,33				
37	Corrosion Protection of Rebar	8 days	Fri 23/9/22	Fri 30/9/22	35				
38	Construction of Intake Chamber External Wall to Level +5.70mPD	189 days	Sun 28/8/22	Sat 4/3/23					
39	Erection of Scaffolding Supporting Bracket	37 days	Sun 28/8/22	Mon 3/10/22					
44	Installation of Scaffolding	51 days	Sat 3/9/22	Sun 23/10/22					
45	Chamber Internal Side	51 days	Sat 3/9/22	Sun 23/10/22					
50	Chamber External Side	51 days	Sat 3/9/22	Sun 23/10/22					
55	Rebar Fixing & Formwork	58 days	Thu 8/9/22	Fri 4/11/22					
59	Concreting	18 days	Thu 29/9/22	Sun 16/10/22					
63	Wall construction at Penstock Chamber	132 days	Mon 24/10/22	Sat 4/3/23					
72	Excavation and installation of CW culvert pipes	45 days	Sat 15/10/22	Mon 28/11/22					
76	On grade slab & plinths construction at west of Intake Chamber	14 days	Tue 29/11/22	Mon 12/12/22	75				
77	Construction of trash pit & RC footings for hoist support	350 days	Wed 16/11/22	Tue 31/10/23					
78	Backfill to bottom level of trash pit at south of Intake Chamber	7 days	Wed 16/11/22	Tue 22/11/22	61FS+10 days				
79	RC works for trash pit & hoist support footings	30 days	Mon 6/2/23	Tue 7/3/23	78,314FF				
80	Construction of sump pit (VO) & eastern portion of flood wall "I"	20 days	Wed 8/3/23	Mon 27/3/23	79				
81	Backfill to ground level at south of Intake Chamber	4 days	Tue 28/3/23	Fri 31/3/23	80				
82	Handover to TDK for installation of hoist	37 days	Sat 1/4/23	Sun 7/5/23	81				
83	On grade slab & plinths construction at south of Intake Chamber	45 days	Sun 17/9/23	Tue 31/10/23	82				
84	North Chamber (L12)	91 days	Fri 23/9/22	Thu 22/12/22					
149	W20 (Seal up L12 Box-out openings at discharge valve chamber)	15 days	Wed 15/3/23	Wed 29/3/23					
150	Handover to Paul Y for Sealing up work	1 day	Wed 15/3/23	Wed 15/3/23	149				
151	Rebar fixing, Formwork, Concreting and Removal of Formwork	14 days	Thu 16/3/23	Wed 29/3/23	150				
152	L12 Penstock Chamber	18 days	Mon 10/4/23	Thu 27/4/23					
153	Handover to Paul Y for additional RC curb	1 day	Mon 10/4/23	Mon 10/4/23	152				
154	Drilled in rebar	7 days	Tue 11/4/23	Mon 17/4/23	153				
155	Formwork	2 days	Tue 18/4/23	Wed 19/4/23	154				
156	Concreting	1 day	Thu 20/4/23	Thu 20/4/23	155				
157	Installation of GRP catladder	2 days	Wed 26/4/23	Thu 27/4/23	156				
158	L12 Bar Screen Chamber	95 days	Fri 24/2/23	Mon 29/5/23					
159	Drilled in anchor bolt at concrete recess of bar screen chamber	7 days	Fri 24/2/23	Thu 2/3/23	158				
160	Installation of Bar Screen Guide Channel (Bottom & Based Portion)	7 days	Fri 3/3/23	Thu 9/3/23	159				
161	Installation of Bar Screen Guide Channel (Remaining Portion)	7 days	Fri 10/3/23	Thu 16/3/23	160				
162	Grouting	18 days	Fri 17/3/23	Mon 3/4/23	161				
163	Removal of formwork & temporary struct	3 days	Tue 4/4/23	Thu 6/4/23	162				
164	Modification works of bar screen walls	15 days	Fri 7/4/23	Fri 21/4/23	163				
165	Removal of scaffold and installation of GRP catladder	3 days	Sat 22/4/23	Mon 24/4/23	164				
166	Delivery of Rubber gasket for replacement	1 day	Thu 27/4/23	Thu 27/4/23	165				
167	Replacement of damaged Rubber gasket for CW4 Penstock	2 days	Fri 28/4/23	Sat 29/4/23	166				
168	Installation of temporary water gate (Use existing water gate from Intake Chamber)	1 day	Sun 30/4/23	Sun 30/4/23	165,167				
169	Removal of temporary water gate	1 day	Mon 29/5/23	Mon 29/5/23	168				
170	L12 2nd Bar Screen Chamber and culvert	65 days	Mon 27/3/23	Tue 30/5/23					
171	Drilled in anchor bolt at concrete recess of bar screen chamber	6 days	Mon 27/3/23	Sat 1/4/23	170				
172	Form Access Panel and pump out remaining water inside culvert	4 days	Mon 3/4/23	Thu 6/4/23	171				
173	Observation for any leakage from steel gate at culvert inlet	4 days	Fri 7/4/23	Mon 10/4/23	172				
174	Installation of Bar Screen Guide Channel (Bottom & Based Portion) & temporary struct for temporary water gate	12 days	Tue 11/4/23	Sat 22/4/23	173				
175	Installation of Bar Screen Guide Channel (Remaining Portion)	7 days	Tue 18/4/23	Mon 24/4/23	174				
176	Grouting	6 days	Sun 23/4/23	Fri 28/4/23	175				

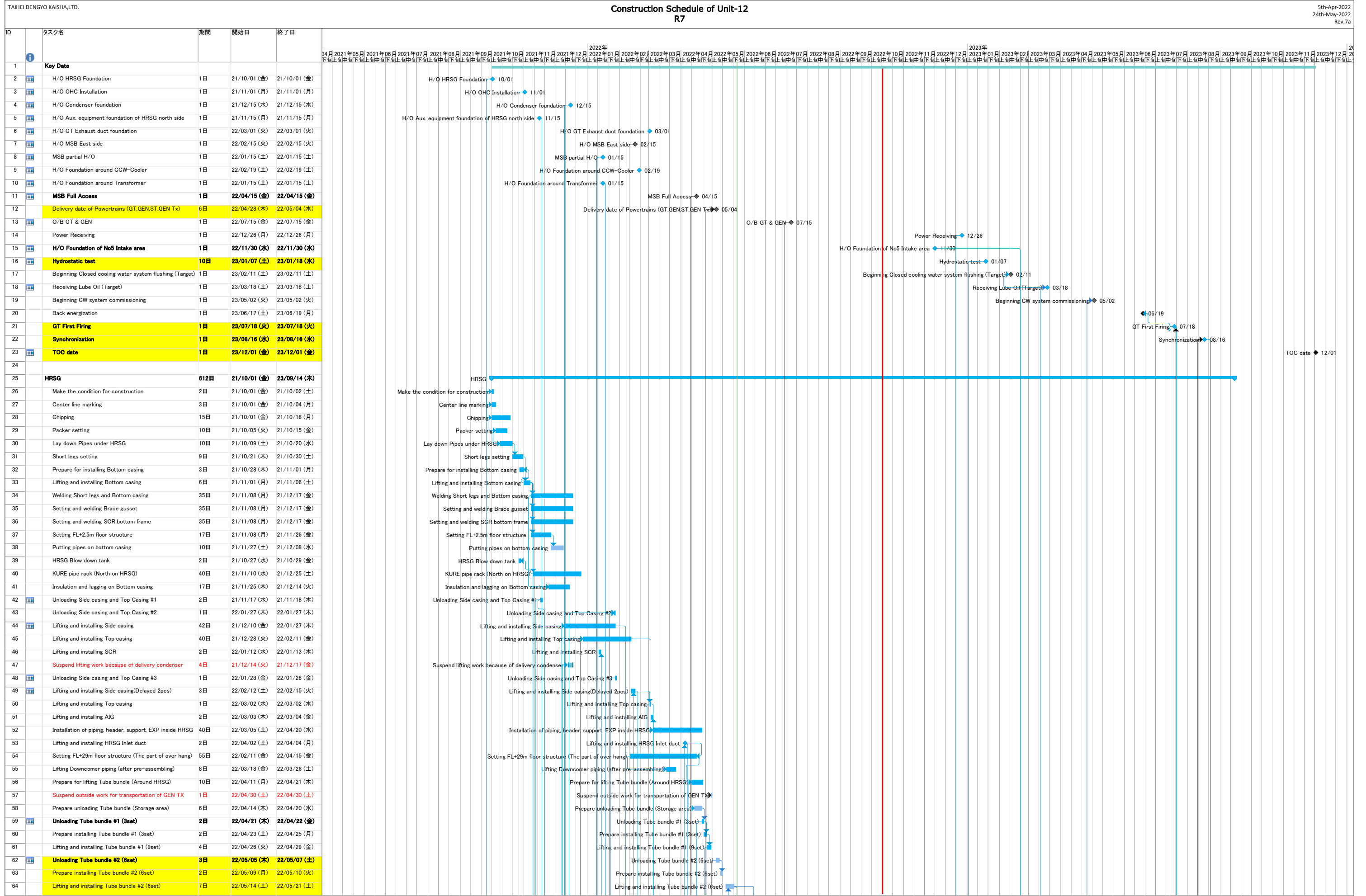
Project: 19-83014 - No. 5 Intake and Cable Br
 Date: 28 May 2023
 Rev. 10 - Programme for No. 5 C.W. Intake

Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Progress	
External Tasks		Duration-only		Deadline	

ID	Task Name	Duration	Start	Finish	Predecessors	4th Quarter		
						Oct	Nov	Dec
177	Installation of Dosing Pipe for vertical portion	2 days	Tue 25/4/23	Wed 26/4/23	175			
178	Removal of formwork & temporary struct (by Paul Y.), installation of conduit (by other) and removal of scaffolding	3 days	Sat 29/4/23	Mon 1/5/23	176,177			
179	Installation of GRP catladder	1 day	Tue 2/5/23	Tue 2/5/23	178			
180	Water filling of chamber	1 day	Wed 3/5/23	Wed 3/5/23	168,179			
181	Removal of Steel Gate (Friendly Benefit)	9 days	Thu 4/5/23	Fri 12/5/23	180			
182	Removal of Steel Gate at Culvert Inlet L12 (WOD)	4 days	Thu 27/4/23	Sun 30/4/23	177			
183	Installation of Dosing Pipe for culvert portion	6 days	Mon 1/5/23	Sat 6/5/23	182			
184	Connection of Dosing Pipe for culvert & vertical portion	2 days	Sat 13/5/23	Sun 14/5/23	181,183			
185	Testing & Commissioning	1 day	Tue 30/5/23	Tue 30/5/23	169,184			
186	Centre Chamber (Spare)	124 days	Tue 25/10/22	Sat 25/2/23				
238	W20 (Seal up spare Box-out openings at discharge valve chamber)	15 days	Sat 15/4/23	Sat 29/4/23				
239	Handover to Paul Y for Sealing up work	1 day	Sat 15/4/23	Sat 15/4/23				
240	Rebar fixing, Formwork, Concreteing and Removal of Formwork	18 days	Sun 16/4/23	Wed 3/5/23	239			
241	Spare Penstock Chamber	11 days	Wed 31/5/23	Sat 10/6/23				
242	Drilled in rebar	7 days	Wed 31/5/23	Tue 6/6/23	156FS+40 day			
243	Handover to TDK for installation of Cast-in embedment	1 day	Wed 7/6/23	Wed 7/6/23	242			
244	Formwork	2 days	Thu 8/6/23	Fri 9/6/23	243			
245	Concreting	1 day	Sat 10/6/23	Sat 10/6/23	244			
246	Spare Bar Screen Chamber	65 days	Sun 2/4/23	Mon 5/6/23				
247	Drilled in anchor bolt at concrete recess of bar screen chamber	7 days	Sun 2/4/23	Sat 8/4/23	171			
248	Installation of Bar Screen Guide Channel (Bottom & Based Portion)	14 days	Tue 2/5/23	Mon 15/5/23	178,247			
249	Installation of Bar Screen Guide Channel (Remaining Portion)	7 days	Tue 16/5/23	Mon 22/5/23	248			
250	Grouting	7 days	Tue 23/5/23	Mon 29/5/23	249			
251	Removal of formwork & temporary struct (by Paul Y.) and installation of conduit (by other)	3 days	Tue 30/5/23	Thu 1/6/23	250			
252	Modification works of bar screen walls	14 days	Tue 23/5/23	Mon 5/6/23	249			
253	Removal of scaffold and installation of GRP catladder	3 days	Tue 6/6/23	Thu 8/6/23	252			
254	Installation of temporary water gate (Use existing water gate from Int	1 day	Fri 9/6/23	Fri 9/6/23	169,253			
255	Removal of temporary water gate	1 day	Sun 15/10/23	Sun 15/10/23	256			
256	Spare 2nd Bar Screen Chamber and culvert	106 days	Sun 9/4/23	Sun 23/7/23				
257	Drilled in anchor bolt at concrete recess of bar screen chamber	6 days	Sun 9/4/23	Fri 14/4/23	247			
258	Installation of Bar Screen Guide Channel (Bottom & Based Portion) & temporary struct for temporary water gate	14 days	Fri 2/6/23	Thu 15/6/23	251			
259	Installation of Bar Screen Guide Channel (Remaining Portion)	7 days	Fri 16/6/23	Thu 22/6/23	258			
260	Grouting	7 days	Fri 23/6/23	Thu 29/6/23	259			
261	Removal of formwork & temporary struct (by Paul Y.), installation of conduit (by other) and removal of scaffolding	3 days	Fri 30/6/23	Sun 2/7/23	260			
262	Water filling of chamber	1 day	Mon 3/7/23	Mon 3/7/23	254,261			
263	Removal of Steel Gate (Friendly Benefit)	9 days	Tue 4/7/23	Wed 12/7/23	262			
264	Installation of Dosing Pipe	9 days	Thu 13/7/23	Fri 21/7/23	263			
265	Testing & Commissioning	2 days	Sat 22/7/23	Sun 23/7/23	264			
266	Removal of Steel Gate at Culvert Inlet L12 (WOD)	2 days	Mon 15/5/23	Tue 16/5/23	184			
267	Installation of GRP catladder	2 days	Sat 22/7/23	Sun 23/7/23	264			
268	South Chamber (L13)	130 days	Ved 23/11/22	Sat 1/4/23				
320	L13 Penstock Chamber	11 days	Sun 11/6/23	Wed 21/6/23				
321	Drilled in rebar	7 days	Sun 11/6/23	Sat 17/6/23	245			
322	Handover to TDK for installation of Cast-in embedment	1 day	Sun 18/6/23	Sun 18/6/23	321			
323	Formwork	2 days	Mon 19/6/23	Tue 20/6/23	322			
324	Concreting	1 day	Wed 21/6/23	Wed 21/6/23	323			

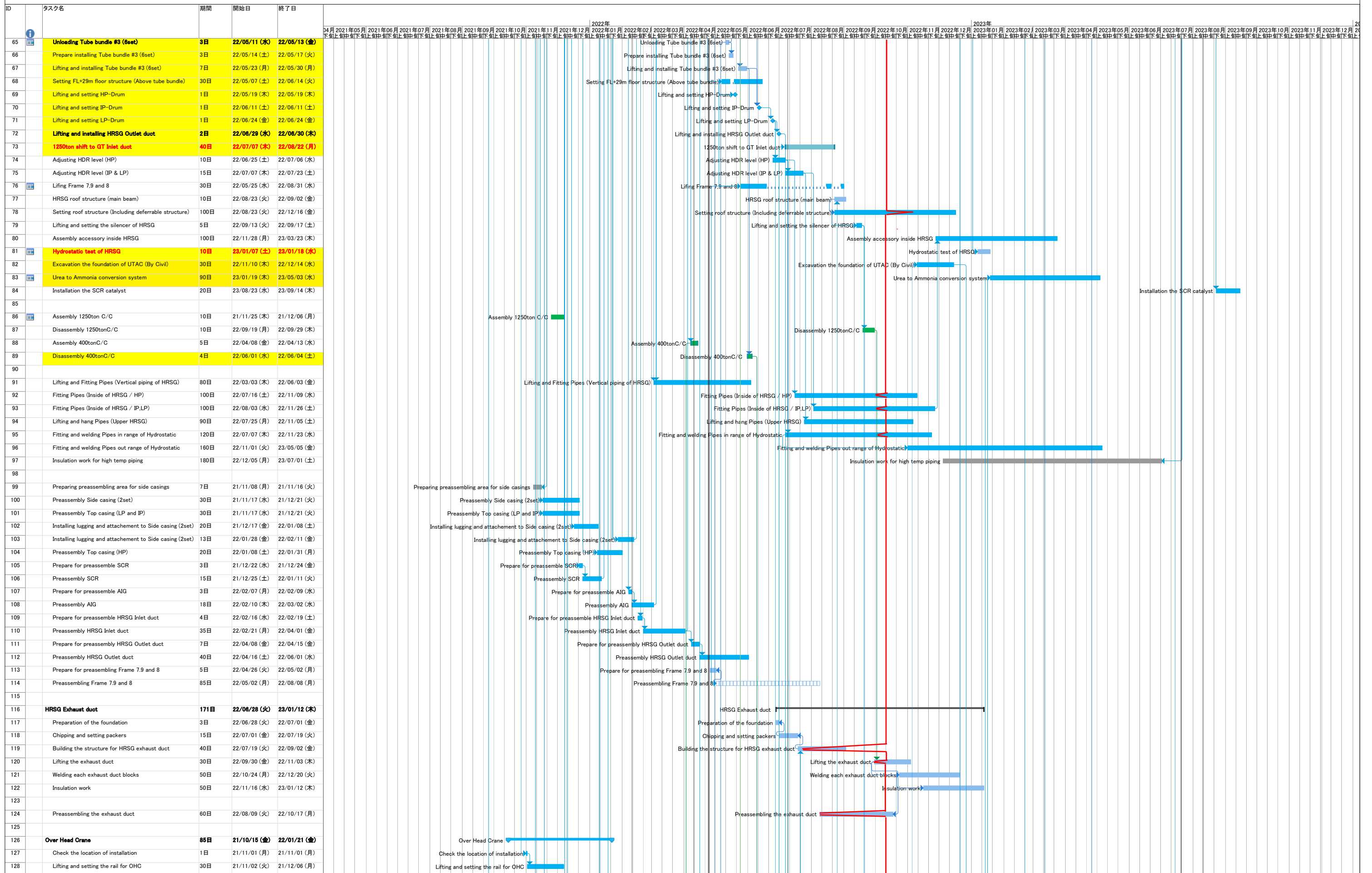
Project: 19-83014 - No. 5 Intake and Cable Br
 Date: 28 May 2023
 Rev. 10 - Programme for No. 5 C.W. Intake

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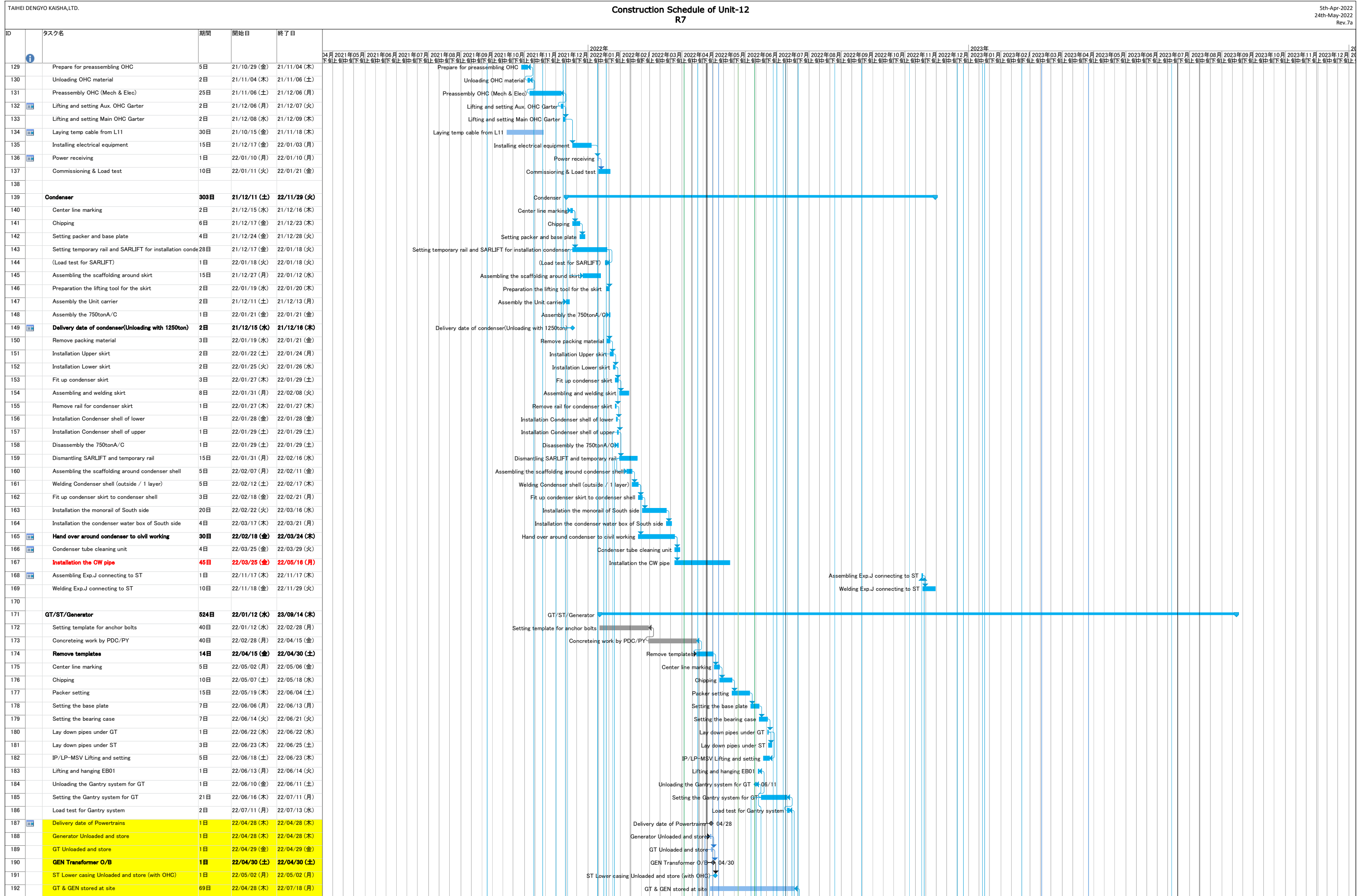
This schedule was based on belows;
 i) This schedule was revised with based on the email M80020 and M80036.
 ii) Delivery schedule of the powertrain and the tube bundles are followed to the information by 5th-April.
 iii) Corrected by the comment of HKE on 11th-May-2022

Construction Schedule of Unit-12
R7



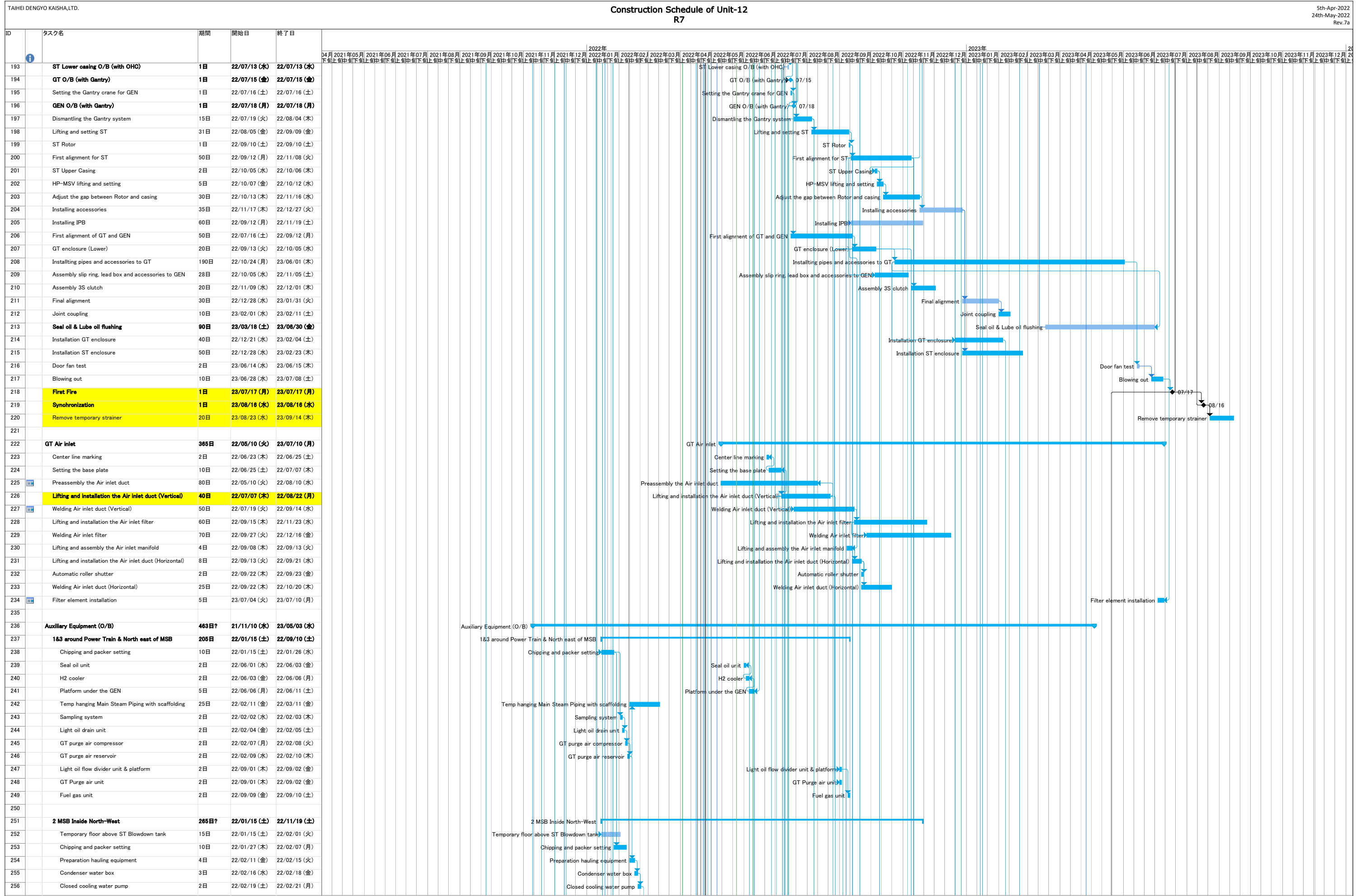
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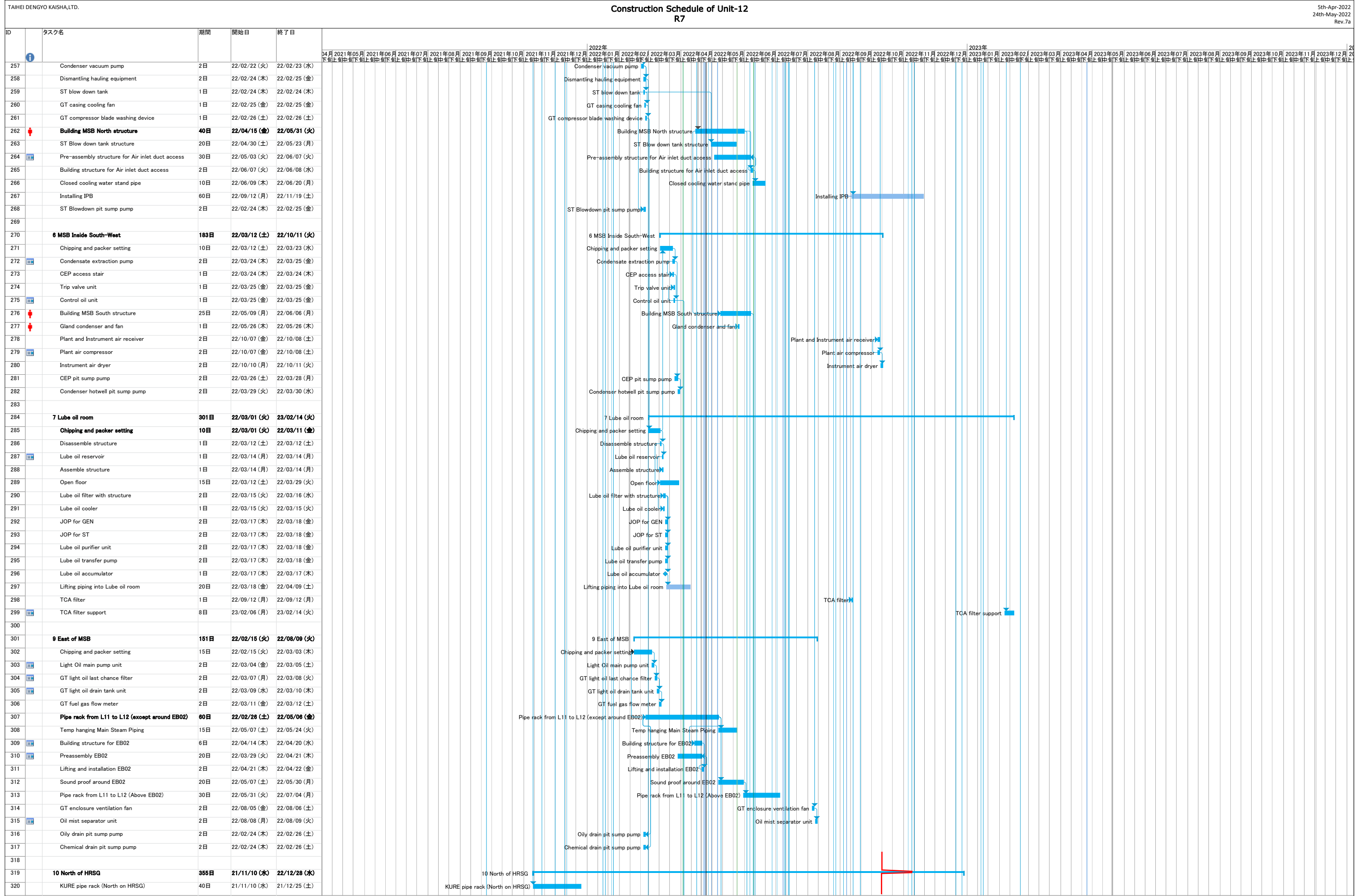
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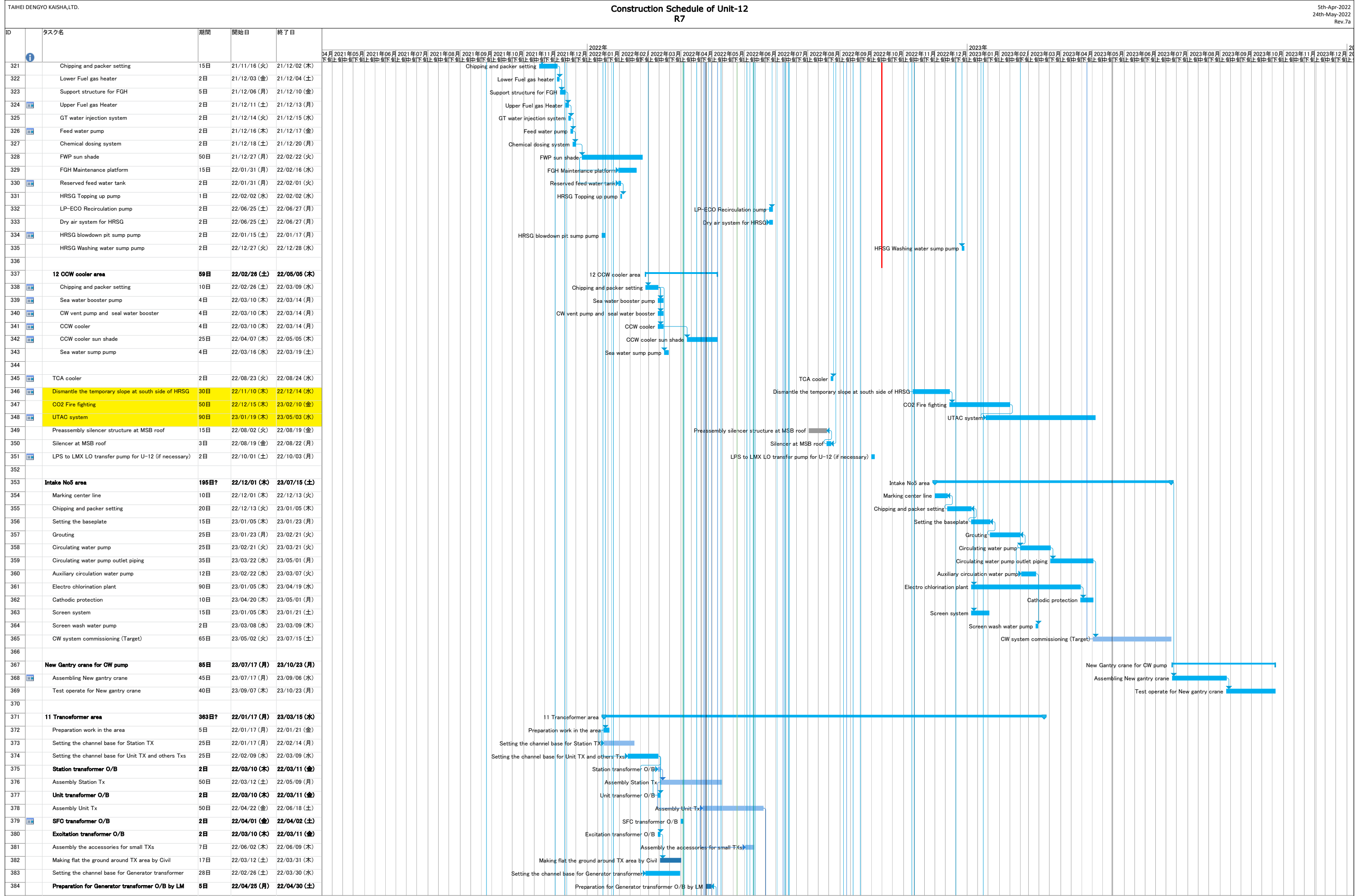
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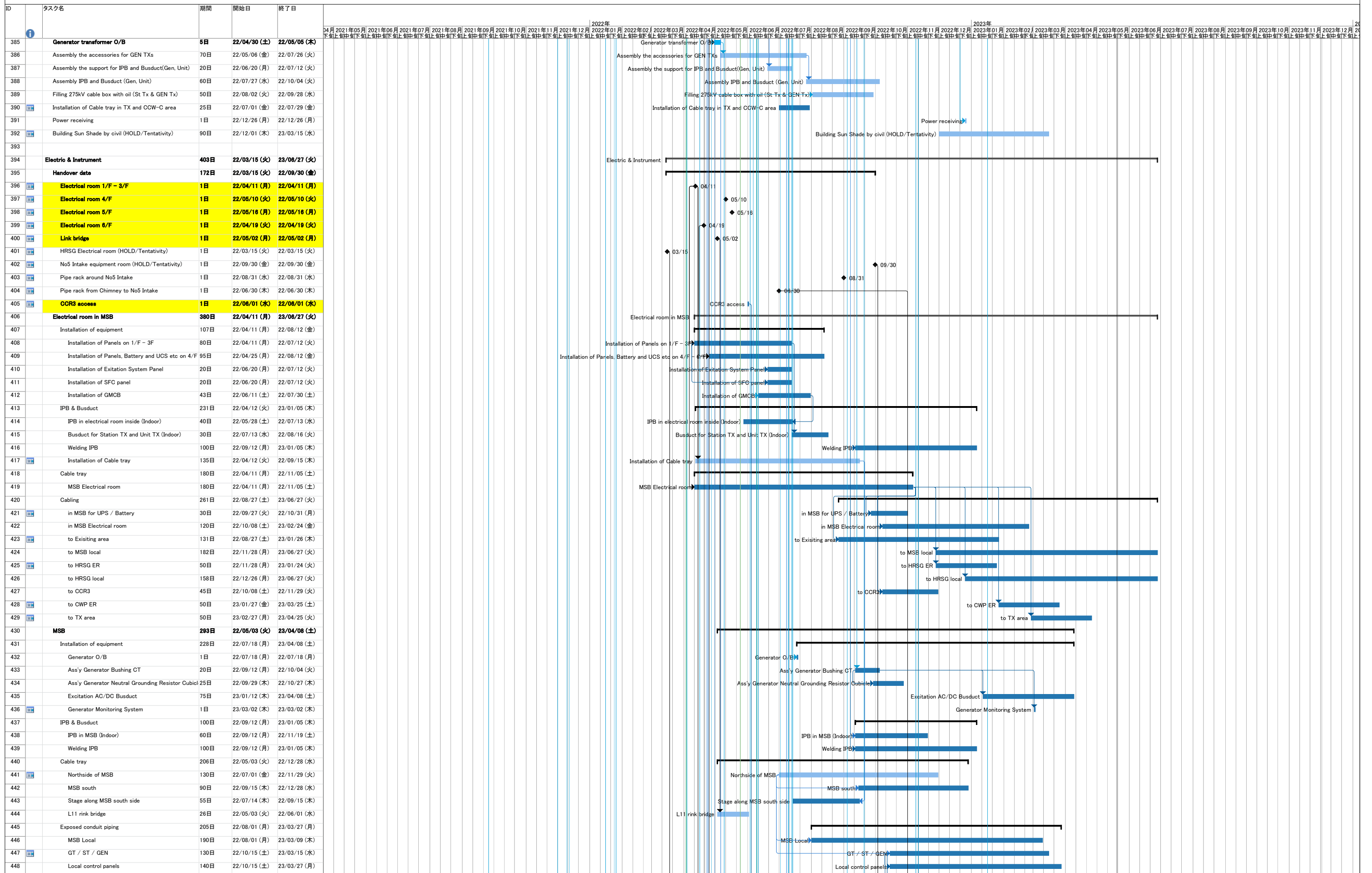
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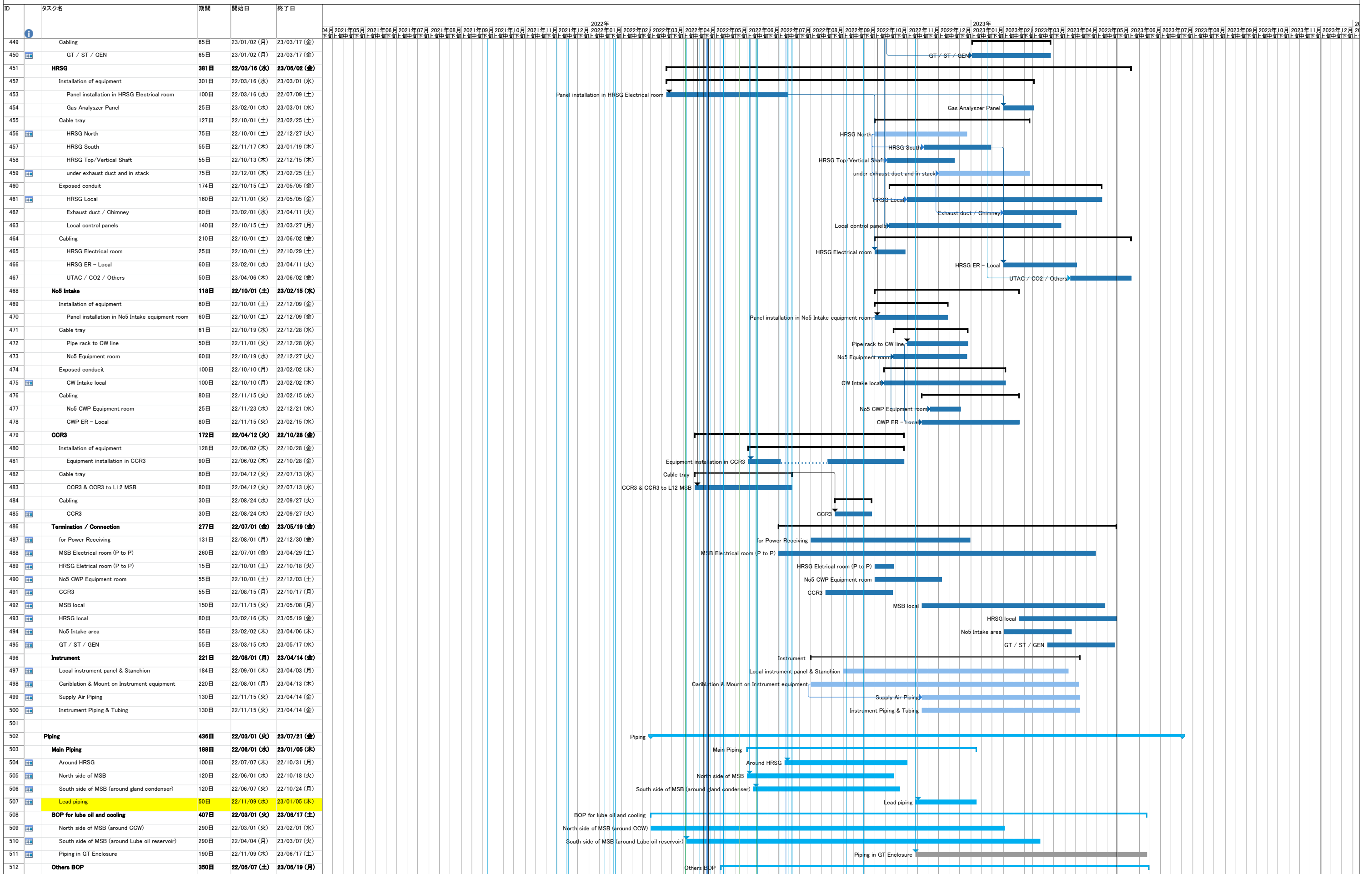
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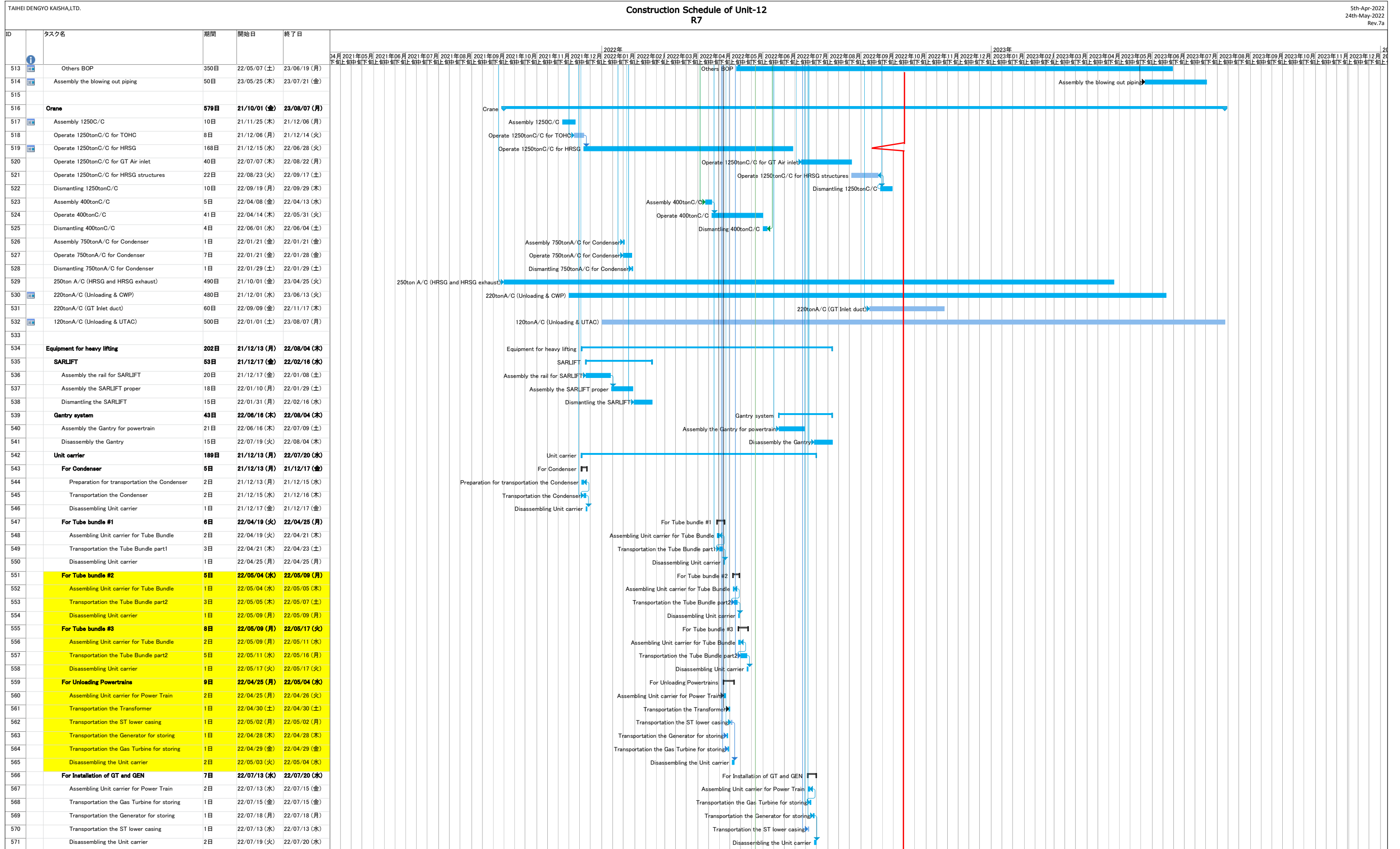
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iii) Corrected by the comment of HKE on 11th-May-2022

Monthly Waste Flow Table for September 2023

Project: Lamma Power Station Extension Civil and Building Works for Unit L12

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2020, 2021, 2022 & 2023

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) ⁽¹⁾	Metals (aluminum can) ⁽¹⁾	Paper / cardboard packaging ⁽¹⁾	Plastics ^{(1) & (4)}	Chemical waste (wasted lubricant oil/oil container)	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)	(in '000kg)
Dec 2020	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	0.00
Jan 2021	0.00	0.00	21020.16	0.00	0.00	0.00	0.00	0.00	8.82	0.00	0.00	0.00	0.00	0.00	0.00
Feb 2021	0.00	0.00	18083.97	0.00	0.00	0.00	0.00	0.00	18.25	0.00	0.25	0.00	0.00	0.00	0.00
Mar 2021	0.00	0.00	9048.21	0.00	0.00	0.00	0.00	0.00	7.69	0.00	0.00	0.00	0.00	0.00	2.61
Apr 2021	0.00	0.00	3205.15	0.00	0.00	0.00	0.00	0.00	28.08	0.00	0.00	0.00	0.00	0.00	14.45
May 2021	0.00	0.00	6267.49	0.00	0.00	0.00	0.00	0.00	34.68	0.00	0.00	0.00	0.00	0.00	0.00
Jun 2021	0.00	0.00	6555.38	0.00	0.00	0.00	0.00	0.00	26.87	0.00	0.00	0.00	0.00	0.00	25.03
Jul 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.95	0.00	0.00	0.00	0.00	0.00	10.97
Aug 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.55	0.00	0.00	0.00	0.00	0.00	3.49
Sep 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.28	0.00	49.15
Oct 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.47	0.00	0.00	0.00	0.00	0.00	62.08
Nov 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08	0.00	0.00	0.00	0.00	0.00	34.17
Dec 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.36	0.00	0.00	0.00	0.00	0.00	52.18
Jan 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.93	0.00	0.00	0.00	0.00	0.00	42.73
Feb 2022	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	8.62
Mar 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.21	0.00	0.000	0.00	0.00	0.00	25.70
Apr 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.51	0.00	0.00	0.00	0.00	0.00	0.00	52.83
May 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.36	0.00	0.00	0.00	0.00	0.00	38.60
Jun 2022	0.00	0.00	6645.22	0.00	0.00	0.00	0.00	5.79	0.00	0.00	0.000	0.00	0.00	0.00	37.38
Jul 2022	0.00	0.00	4710.98	0.00	0.00	0.00	0.00	6.58	11.55	0.00	0.000	0.00	0.00	0.00	25.22
Aug 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.60	0.42	21.74
Sep 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.64	0.00	0.000	0.00	0.00	0.00	48.57
Oct 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	44.71
Nov 2022	0.00	0.00	4930.52	0.00	0.00	0.00	0.00	0.00	6.67	0.00	0.000	0.00	0.00	0.00	12.15
Dec 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.21	0.00	0.000	0.00	0.00	0.00	62.32
Jan 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.57	0.00	0.000	0.00	0.00	0.00	8.89
Feb 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	7.39
Mar 2023	0.00	0.00	4910.49	0.00	0.00	0.00	0.00	0.00	17.09	0.00	0.000	0.00	0.00	0.00	28.59
Apr 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.78	0.00	0.000	0.00	0.00	0.00	29.60
May 2023	0.00	0.00	4953.79	0.00	0.00	0.00	0.00	0.00	7.41	0.00	0.000	0.00	0.00	0.00	13.29
Jun 2023	0.00	0.00	7406.05	0.00	0.00	0.00	0.00	0.00	7.73	0.00	0.000	0.00	0.00	0.00	50.47
Jul 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.82	0.00	0.000	0.00	0.00	0.00	5.68
Aug 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.32	0.00	0.000	0.00	0.00	0.00	28.20
Sep 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	34.00
Total	0.00	0.00	97737.40	0.00	0.00	0.00	0.00	17.79	371.09	0.00	0.25	0.00	1.00	0.70	880.81

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
97755.19 tonnes	371.34 tonnes	880.81 tonnes	0.70 tonnes

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 97755.19 tonnes of inert C&D material were generated from the Project, of which 97737.40 tonnes were reused in this and other contracts, and the remaining 17.79 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.

Monthly Waste Flow Table for September 2023

Project: Civil Works for No. 5 C.W. Intake and Cable Bridge at Lamma Power Station Extension

Contractor: Paul Y. Construction Company, Limited

Record by: Ben Lam

Year of Record: 2020, 2021, 2022 & 2023

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) ⁽¹⁾	Metals (aluminum can) ⁽¹⁾	Paper / cardboard packaging ⁽¹⁾	Plastics ^{(1) & (6)}	Chemical waste (wasted lubricant oil) ⁽¹⁾	Chemical waste (wasted lubricant oil) ⁽¹⁾	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)							
Oct 2020	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	0.00
Nov 2020	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	0.00
Dec 2020	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.21	0.00	0.00	0.00	0.00	0.00
Jan 2021	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	0.00
Feb 2021	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	0.00
Mar 2021	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	7.49
Apr 2021	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.42	4.85
May 2021	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	22.61
Jun 2021	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	0.00
Jul 2021	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	0.00
Aug 2021	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	0.00
Sep 2021	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	37.84
Oct 2021	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	24.93
Nov 2021	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	0.00
Dec 2021	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	0.00
Jan 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	46.25
Feb 2022	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	13.45
Mar 2022	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	29.86
Apr 2022	0.00	0.00	15076.84	0.00	0.00	0.00	0.00	10.27	0.00	0.00	0.000	0.00	0.00	0.00	43.60
May 2022	0.00	0.00	29151.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	54.64
Jun 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	11.79
Jul 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.04	0.00	0.00	0.000	0.00	0.00	0.00	35.90
Aug 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	41.91
Sep 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	51.26
Oct 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	37.87
Nov 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	31.69
Dec 2022	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.29	0.00	0.000	0.00	0.00	0.00	24.62
Jan 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	39.90
Feb 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.67	0.00	0.000	0.00	0.00	0.00	6.17
Mar 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.59	0.00	0.000	0.00	0.00	0.00	35.13
Apr 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	11.14
May 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.40	0.28	7.85
Jun 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	37.44
Jul 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	50.76
Aug 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	24.27
Sep 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.00	0.00	0.00	11.42
Total	0.00	0.00	44228.78	0.00	0.00	0.00	0.00	34.31	36.76	0.00	0.00	0.00	1.00	0.70	744.64

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
44263.09 tonnes	36.76 tonnes	744.64 tonnes	0.70 tonnes

Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total 44263.09 tonnes of inert C&D material were generated from the Project, of which 44228.78 tonnes were reused in this and other contracts, and the remaining 34.31 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.

Monthly Waste Flow Table for September 2023

Project: LAMMA POWER STATION EXTENSION – Unit 12 Complete Erection, Inspection, Testing & Commissioning of Power Block Facilities
 Contractor: Taihei Dengyo Kaisha, Ltd.
 Record by: Stephen Sin
 Year of Record: 2021, 2022, 2023

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) ⁽¹⁾	Metals (aluminum can) ⁽¹⁾	Paper / cardboard packaging ⁽¹⁾	Plastics ^{(1) & (4)}	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)	
Nov 2021	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
Dec 2021	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 2022	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	10.36
Feb 2022	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	9.29
Mar 2022	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	13.59
Apr 2022	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	19.42
May 2022	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	19.93
Jun 2022	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	18.60
Jul 2022	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	15.57
Aug 2022	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	19.40
Sep 2022	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	20.96
Oct 2022	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	12.89
Nov 2022	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	17.83
Dec 2022	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	14.58
Jan 2023	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	15.11
Feb 2023	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	13.50
Mar 2023	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	22.86
Apr 2023	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	14.30
May 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.76	14.66
Jun 2023	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	15.01
Jul 2023	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	18.40
Aug 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.80	25.43
Sep 2023	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.40	12.80
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.96	344.49

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
0.00 tonnes	0.00 tonnes	344.49 tonnes	50.96 tonnes

- Where (A) Inert C&D materials include bricks, concrete, building debris, rubble and excavated spoil. In total, 0.00 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 0.00 tonnes were disposed in Public Fill and 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.
 - (7) Assume Lube Oil Density = 700 kg/m³
 - (8) 1 m³ = 1000 L