

Expansion of Hong Kong International Airport into a Three-Runway System

Construction Phase Monthly EM&A Report No.1
(28 December 2015 to 31 January 2016)

March 2016

Airport Authority Hong Kong

Expansion of Hong Kong International Airport into a Three-Runway System

Construction Phase Monthly EM&A Report No.1
(28 December 2015 to 31 January 2016)

March 2016

Airport Authority Hong Kong

HKIA Tower, 1 Sky Plaza Road, Hong Kong International Airport, Lantau, Hong Kong

The first and final submission of the Construction Phase Monthly EM&A

Report No. 1 on 12 February 2016 and 2 March 2016 respectively

have been reviewed and certified by the Environmental Team Leader

(ETL) in accordance with Condition 3.5 of

Environmental Permit No. EP-489/2014.

Certified by:



Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date

2 March 2016

Our Ref : 60440482/C/JCHL160303

By Email

Airport Authority Hong Kong
HKIA Tower, 1 Sky Plaza Road,
Hong Kong International Airport
Lantau, Hong Kong

Attn: Mr. Lawrence Tsui, Senior Manager

3 March 2016

Dear Sir,

Contract No. 3102
3RS Independent Environmental Checker Consultancy Services

Construction Phase Monthly EM&A Report No.1 (28 December 2015 – 31 January 2016)

Reference is made to the Environmental Team's final submission of Construction Phase Monthly EM&A Report No.1 under Condition 3.5 of the Environmental Permit No. EP-489/2014 certified by the ET Leader on 2 March 2016. First submission of the captioned report has been made on 12 February 2016.

We would like to inform you that we have no adverse comment on the captioned submission. Therefore we write to verify the captioned submission in accordance with the requirement stipulated in Condition 3.5 of EP-489/2014.

Should you have any query, please feel free to contact our Isabella Yeung at 3922 9348 or the undersigned at 3922 9376.

Yours faithfully,
AECOM Asia Co. Ltd.



Jackel Law
Independent Environmental Checker

Contents

Chapter	Title	Page
	Executive Summary	i
1	Introduction	1
1.1	Background	1
1.2	Project Scope	1
1.3	Scope of this Report	2
1.4	Project Organisation	2
1.5	Summary of Construction Works	3
1.6	Summary of EM&A Programme Requirements	3
2	Air Quality Monitoring	7
2.1	Monitoring Stations	7
2.2	Monitoring Requirements and Schedule	7
2.3	Monitoring Equipment	7
2.4	Monitoring Methodology	7
2.5	Analysis and Interpretation of Monitoring Results	8
3	Noise Monitoring	9
3.1	Monitoring Stations	9
3.2	Monitoring Requirements and Schedule	9
3.3	Monitoring Equipment	9
3.4	Monitoring Methodology	10
3.5	Analysis and Interpretation of Monitoring Results	11
4	Waste Monitoring	12
4.1	Monitoring Requirements	12
4.2	Waste Management Status	12
5	Environmental Site Inspection and Audit	13
5.1	Weekly Environmental Site Inspection	13
5.2	Audit of Diversion and Speed Control of the SkyPier High Speed Ferries	13
5.3	Status of Submissions under Environmental Permits	14
5.4	Compliance with Other Statutory Environmental Requirements	15
5.5	Analysis and Interpretation of Complaints, Notification of Summons and Status of Prosecutions	15
6	Future Key Issues and Other EIA & EM&A Issues	16
6.1	Construction Programme for the Coming Reporting Period	16
6.2	Key Environmental Issues for the Coming Reporting Period	16
6.3	Monitoring Schedule for the Coming Reporting Period	16
6.4	Other EIA / EM&A Issues	16
7	Conclusion and Recommendation	17

Tables

Table 1.1:	Contact Information of Key Personnel _____	3
Table 1.2:	Summary of EM&A requirement and the status for all environmental aspects under the Updated EM&A Manual _____	4
Table 2.1:	Locations of Impact Air Quality Monitoring Stations _____	7
Table 2.2:	Action and Limit Levels for 1-hour TSP _____	7
Table 2.3:	Air Quality Monitoring Equipment _____	7
Table 2.4:	Summary of 1-hour TSP Monitoring Results _____	8
Table 3.1:	Locations of Impact Noise Monitoring Stations _____	9
Table 3.2:	Action and Limit Levels for Construction Noise _____	9
Table 3.3:	Noise Monitoring Equipment _____	10
Table 3.4:	Summary of Construction Noise Monitoring Results _____	11
Table 4.1:	Action and Limit Levels for Construction Waste _____	12
Table 5.1:	Observations during Weekly Site Inspections for the P560(R) _____	13
Table 5.2:	Status of Submissions under Environmental Permit _____	14

Figures

Figure 1	Proposed Temporary Works Area For Land Formation Activities
Figure 2	Diversion of Sha Chau Fuel Pipelines
Figure 3	Location Plan- Diversion of Submarine 11kV Cable
Figure 4	Location Plan- Airfield Facilities
Figure 5	Location Plan- Passenger Facilities
Figure 6	Location Plan- Terminal 2 Road Network
Figure 7	Location Plan- South Cargo Road Improvement Works
Figure 8	Location Plan- Extension of South Perimeter Road
Figure 9	Gravity Sewer to be Upgraded
Figure 10	Locations of Key Construction Activities in this reporting period
Figure 11	Locations of Air and Noise Monitoring Stations and Chek Lap Kok Wind Station

Appendices

Appendix A	Construction Programme and Contract Description
Appendix B	Project Organization Chart
Appendix C	Event and Action Plan for Air Quality, Noise and Waste Monitoring
Appendix D	Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase
Appendix E	Calibration Certificates
Appendix F	Monitoring Schedule
Appendix G	Monitoring Results
Appendix H	Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecutions

Executive Summary

The “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) serves to meet the future air traffic demands at Hong Kong International Airport (HKIA). On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the Project was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual.

This is the 1st Construction Phase Monthly EM&A Report for the Project which summarizes the monitoring results and audit findings of the EM&A programme during the reporting period from 28 December 2015 to 31 January 2016.

Key Construction Activities in the Reporting Month

The land-based construction works of Contract P560(R) Aviation Fuel Pipeline Diversion Works (P560(R)) commenced on 28 December 2015 on the airport island. The key construction activities in the reporting period involved required site preparation works. This will be followed by construction plant mobilization and installation before any drilling works would begin.

EM&A Activities Conducted in the Reporting Period

The monthly EM&A programme was undertaken in accordance with the Updated EM&A Manual of the Project. During the reporting period, the ET conducted thirty-six sets of air quality measurements, twenty-five sets of construction noise measurements, as well as six environmental site inspections and waste monitoring for the Project’s construction works.

The diversion and speed control of high speed ferries (HSF) of SkyPier has been implemented since 28 December 2015. Training workshops and reviews were undertaken by the ET with the ferry operators to ensure safe implementation of the route diversion and speed control in accordance with the Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan). Further analysis of the effectiveness will also be conducted upon completion of relevant Chinese White Dolphin (CWD) monitoring.

Results of Impact Monitoring

All 1-hour total suspended particulate (TSP) monitoring was conducted as scheduled in the reporting period. Two exceedance cases of action level were recorded at 10am and 11am on 21 January 2016. It was confirmed from the field investigation that only some minor site preparation works including hoarding erection were undertaken, and there were no major dusty construction activities that were conducted by the P560(R) Contractor when the exceedances were measured. It is thus considered that the exceedances were not due to construction works of the Project.

All construction noise and waste monitoring were conducted as scheduled in the reporting period. No exceedance of the Action/ Limit Levels was recorded.

Summary of Upcoming Key Issues

Major site activities anticipated in the next reporting period for the Project are expected to be associated with the continuation of site preparation works under the P560(R) Contract and these will include:

- Continuation of site establishment including erection of the hoarding;
- Excavation and installation of temporary drainage system and wheel washing system;
- Site excavation and concrete footing construction; and
- Construction plant mobilization and installation.

The key environmental issues will be associated with dust and noise generation, surface runoffs and construction waste management and the implementation of required mitigation measures by the P560(R) Contractor will be monitored by the ET.

Summary of Other Key Environmental Issues

The progress of other related environmental surveys and baseline monitoring is as follows:

- A pre-construction egretry surveys at Sha Chau was conducted between April and July 2015. The survey findings will be presented in the Egretry Survey Plan to be submitted to EPD under EP Condition 2.14;
- A pre-construction phase dive survey for corals along the northern and northeastern seawall of the airport island and at the daylighting location on Sha Chau was undertaken on 29 January 2016;
- Baseline monitoring of Chinese White Dolphin (CWD) was on-going during the reporting period; and
- A baseline water quality monitoring programme is scheduled to be commenced in April 2016.

Summary Table

The following table summarizes the key findings of the EM&A programme during the reporting period from 28 December 2015 to 31 January 2016:

	Yes	No	Details	Analysis / Recommendation / Remedial Actions
Breaches of Limit Level [^]		✓	No exceedance of project-related limit level was recorded.	Nil
Breaches of Action Level [^]		✓	No exceedance of project-related action level was recorded.	Nil
Complaints Received		✓	No construction activities related complaints were received.	Nil
Notification of any summons and status of prosecutions		✓	Neither notifications of summons nor prosecution were received.	Nil
Changes that affect the EM&A		✓	There were no changes to the construction works that may affect the EM&A	Nil

Remarks: [^] only exceedance of action/ limit level related to Project works will be highlighted.

1 Introduction

1.1 Background

On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual (the Manual) submitted under EP Condition 3.1. The Manual is available on the Project’s dedicated website (accessible at: <http://env.threerunwaysystem.com/en/index.html>). AECOM Asia Company Limited (AECOM) was employed by AAHK as the Independent Environmental Checker (IEC) for the Project.

The Project covers the expansion of the existing airport into a three-runway system (3RS) with key project components comprising land formation of about 650 ha and all associated facilities and infrastructure including taxiways, aprons, aircraft stands, a passenger concourse, an expanded Terminal 2, all related airside and landside works and associated ancillary and supporting facilities. The existing submarine aviation fuel pipelines and submarine power cables also require diversion as part of the works. **Figures 1 to 9** presents location plans for the planned construction works of the Project.

Construction of the Project is to proceed in the general order of diversion of the submarine aviation fuel pipelines, diversion of the submarine power cables, land formation, and construction of infrastructure, followed by construction of superstructures. The land-based construction works of the Contract P560(R) Aviation Fuel Pipeline Diversion Works (P560(R)) commenced on 28 December 2015 on the airport island. All marine works, including the submarine power cable diversion and land formation, will only commence after completion of the gazettal process required under the Foreshore and Sea-bed (Reclamations) Ordinance (FSRO).

1.2 Project Scope

This project is for expansion of Hong Kong International Airport (HKIA) into a 3RS with associated facilities and infrastructure. The project comprises the following key components:

- Construction of a third runway, related taxiway systems and navigation aids, and airfield facilities;
- Construction of the third runway aprons and passenger concourses;
- Land formation of about 650 ha to the north of the existing airport island including a portion over the contaminated mud pits;
- Expansion of part of the midfield freighter apron on the existing airport island;
- Expansion of the existing passenger Terminal 2 on the existing airport island;
- Extension of the automated people mover from the existing airport island to the passenger concourses of the third runway;
- Extension of the baggage handling system from the existing airport island to the aprons of the third runway;
- Improvement of the road network in the passenger and cargo areas and new landside transportation facilities including new car parks on the existing airport island;
- Reuse of treated sewage effluent from a treatment plant;

- Modifications to existing marine facilities including the underwater aviation fuel pipelines and 11kV submarine cable between Hong Kong International Airport and the off-airport fuel receiving facilities, sea rescue facilities and aids to navigation; and
- Any other modifications, reconfiguration, and/or improvement of the existing facilities on the existing airport island as a result of the third runway.

The overall phasing programme of all construction works is provided in **Appendix A**. It shall be noted that given the scale and complexity of the Project, a number of key project components are still subject to detailed design and employment of contractors before implementation. Therefore, as highlighted in the overall phasing programme, more updated programme for the works may only be presented after the completion of the FSRO gazettal process and detailed design process.

The construction programme of the submarine aviation fuel pipeline diversion works to be implemented under P560(R) is also presented in **Appendix A**. Diversion of the existing submarine aviation fuel pipelines will use a horizontal directional drilling (HDD) method by drilling through bedrock from a launching site located at the west of the airport island to a daylighting point adjacent to the offshore receiving platform at Sha Chau as also described for P560(R) in **Appendix A**.

1.3 Scope of this Report

This is the 1st Construction Phase Monthly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 28 December 2015 to 31 January 2016. Taking into account the nature of works involved and that the start date of the works is very close to the end of the calendar month of December 2015, EPD's prior agreement was obtained for the reporting period of the 1st monthly EM&A report for January 2016 to also cover the reporting period of 28 December 2015 to 31 December 2015. Similarly, EPD also indicated agreement that the 1st quarterly and annual EM&A report may cover the reporting periods of 28 December 2015 to 31 March 2016, and 28 December 2015 to 31 December 2016 respectively.

1.4 Project Organisation

The Project's organization structure is shown in **Appendix B**. Contact details of the key personnel are summarized in **Table 1.1**.

Table 1.1: Contact Information of Key Personnel

Party	Position	Name	Telephone
Project Manager's Representative (Airport Authority Hong Kong)	Senior Manager, Environment	Lawrence Tsui	2183 2734
Environmental Team (ET) (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Terence Kong	2828 5919
	Deputy Environmental Team Leader	Heidi Yu	2828 5704
	Deputy Environmental Team Leader	Keith Chau	2972 1721
Independent Environmental Checker (IEC) (AECOM Asia Company Limited)	Independent Environmental Checker	Jackel Law	3922 9376
	Deputy Independent Environmental Checker	Joanne Tsoi	3922 9423
Contractor			
Contract P560(R) Aviation Fuel Pipeline Diversion Works (Langfang Huayuan Mechanical and Electrical Engineering Co., Ltd.)	Project Manager	Shih Wei	2117 0566
	Environmental Coordinator	Ivy Tam	2151 2090

1.5 Summary of Construction Works

During the reporting period, construction works undertaken by the P560(R) Contractor involved site preparation works including the erection of hoarding and required site excavation works at the HDD launching site located at the western side of the airport. The launching site and stockpile area of the P560(R) are around 3 km and 900 m away respectively from the nearest air and noise sensitive receivers in Tung Chung and the villages in North Lantau. About 700 m³ of excavated material generated from the site preparation works at the launching site was transported to a vacant site available near Chun Ming Road adjacent to Tradeport Logistic Centre on the airport island for temporary storage. The excavated material temporarily stockpiled at the vacant site will be reused subsequently in the Project, including as backfilling material at the launching site. The locations of the P560(R) works areas are presented in **Figure 10**.

1.6 Summary of EM&A Programme Requirements

As presented in the updated EM&A Manual, the environmental aspects of interest for the Project include air quality, noise, water quality, waste management, land contamination, terrestrial ecology, marine ecology, fisheries, landscape and visual, sewage and sewerage, and hazard to human life. The overall EM&A programme generally covers the following measurements and audit activities for the key environmental aspects, where applicable:

- Baseline monitoring;
- Impact monitoring;
- Monitoring of compliance;
- Undertaking remedial actions in accordance with the relevant Event and Action Plans in cases the specific criteria as presented in the Updated EM&A Manual were exceeded;
- Logging and keeping records of monitoring results; and
- Preparation and submission of Monthly and Final EM&A Reports.

The summary of EM&A requirement and the status for all environmental aspects is presented in **Table 1.2**.

Table 1.2: Summary of EM&A requirement and the status for all environmental aspects under the Updated EM&A Manual

Parameters	EM&A Manual Requirements	Status
Air Quality		
Baseline Monitoring	At least 14 consecutive days before commencement of construction work.	The baseline air quality monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD on 14 December 2015 under EP Condition 3.4.
Impact Monitoring	At least 3 times every 6 days.	On-going.
Noise		
Baseline Monitoring	Daily for a period of at least two weeks prior to the commencement of construction works.	The baseline noise monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD on 14 December 2015 under EP Condition 3.4.
Impact Monitoring	Weekly.	On-going.
Water Quality		
General Baseline Water Quality Monitoring for reclamation, water jetting and field joint works	Three days per week, at mid-flood and mid-ebb tides, for at least four weeks prior to the commencement of marine works.	Baseline water quality monitoring programme is scheduled to be commenced in April 2016.
General Impact Water Quality Monitoring for reclamation, water jetting and field joint works	Three days per week, at mid-flood and mid-ebb tides.	To be commenced with the relevant construction works.
Initial Intensive Deep Cement Mixing (DCM) Water Quality Monitoring	At least four weeks.	To be commenced with the relevant construction works.
Regular DCM Water Quality Monitoring	Three times per week until completion of DCM works.	To be commenced with the relevant construction works.
Waste Management		
Waste Monitoring	At least weekly.	On-going.
Land Contamination		
Supplementary Contamination Assessment Plan (CAP)	At least 3 months before commencement of any soil remediation works.	To be submitted with the relevant construction works.
Contamination Assessment Report (CAR)	CAR to be submitted for golf course first; programme for submission of supplementary CAR at the other areas to be agreed.	To be submitted with the relevant construction works.
Terrestrial Ecology		
Pre-construction Egret Survey Egret Survey Plan	Once per month in the breeding season between April and July, prior to the commencement of HDD drilling works.	A pre-construction egret survey at Sha Chau was conducted between April and July 2015. The survey findings have been presented in the Egret Survey Plan to be submitted to EPD under EP Condition 2.14.
Ecological Monitoring	Monthly monitoring during the HDD construction works period from August to March.	To be commenced with the relevant construction works.
Marine Ecology		
Pre-Construction Phase Coral Dive Survey	Prior to marine construction works.	A pre-construction phase dive survey for corals along the northern and northeastern seawall of the airport island and at the daylighting location on Sha Chau was undertaken on 29 January 2016.

Parameters	EM&A Manual Requirements	Status
Chinese White Dolphins (CWD)		
Vessel survey, land-based theodolite track and passive acoustic monitoring (PAM)		
Baseline Monitoring	6 months of baseline surveys before the commencement of land-formation related construction works at a frequency of two full surveys per month.	On-going.
Impact Monitoring	Vessel surveys: Two full surveys per month; Land-based theodolite tracking: One day per month at the Sha Chau station and one day per month at the Lung Kwu Chau Station; and PAM: For the whole duration for land formation related construction works.	To be commenced with the relevant construction works.
Landscape and Visual		
Baseline Monitoring	One-off survey within the Project site boundary prior to commencement of any construction works.	The baseline landscape and visual monitoring result has been reported in Baseline Monitoring Report (Version 1) and submitted to EPD on 14 December 2015 under EP Condition 3.4.
Impact Monitoring	Weekly.	On-going.
Environmental Auditing		
Regular site inspection	Weekly.	On-going.
Skypier High Speed Ferries (HSF) implementation measures	Monitor and Check	On-going.
Construction and Associated Vessels Implementation measures	Monitor and Check	To be commenced with the relevant construction works.
Complaint Hotline and Email channel	Construction Phase	On-going
Environmental Log Book	Construction Phase	On-going

Taking into account the nature of the land-based construction works involved in the P560(R) Contract, the required impact monitoring focused on those environmental aspects including air quality, noise and waste management that are relevant to the land-based construction works as recommended in the Updated EM&A Manual. The Event and Action Plans for air quality, noise and waste as presented in the Updated EM&A Manual are reproduced in **Appendix C**.

In addition to air quality, noise and waste monitoring, the EM&A programme focusing on the P560(R) Contract also involved weekly site inspections and related auditing conducted by the ET for checking the implementation of the required environmental mitigation measures recommended in the approved EIA Report.

The EM&A programme followed the recommendations presented in the approved EIA Report and the Updated EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project is provided in **Appendix D**.

With reference to Appendix E of the Updated EM&A Manual, it is noted that the key assumptions adopted in approved EIA report for the construction phase are still valid and no major changes are involved. The

environmental mitigation measures recommended in the approved EIA Report remain applicable and shall be implemented in undertaking construction works for the Project.

2 Air Quality Monitoring

2.1 Monitoring Stations

Air quality monitoring was conducted at two representative monitoring stations in the vicinity of air sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Updated EM&A Manual of the Project. **Table 2.1** describes the details of the monitoring stations. **Figure 11** shows the locations of the monitoring stations.

Table 2.1: Locations of Impact Air Quality Monitoring Stations

Monitoring Station	Location
AR1A	Man Tung Road Park
AR2	Village House at Tin Sum

2.2 Monitoring Requirements and Schedule

In accordance with the Updated EM&A Manual, baseline 1-hour total suspended particulate (TSP) levels at the two air quality monitoring stations were established as presented in the Baseline Monitoring Report (Version 1 dated December 2015). Impact 1-hour TSP monitoring was conducted for at least three times every 6 days. The Action and Limit Levels of the air quality monitoring are provided in **Table 2.2**. The air quality monitoring schedule involved in the reporting period is provided in **Appendix F**.

Table 2.2: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AR1A	306	500
AR2	298	

2.3 Monitoring Equipment

Portable direct reading dust meter was used to carry out the 1-hour TSP monitoring. The brand and model of the equipment are given in **Table 2.3**.

Table 2.3: Air Quality Monitoring Equipment

Equipment	Brand and Model
Portable direct reading dust meter (Laser dust monitor)	SIBTA LD-3B-002 (Serial No. 974350)

2.4 Monitoring Methodology

2.4.1 Measuring Procedure

The measurement procedure involved in the impact 1-hr TSP monitoring can be summarised as follows:

- The portable direct reading dust meter was mounted on a tripod at a height of 1.2 m above the ground.
- Prior to the measurement, the equipment was set up for 1 minute span check and 6 second background check.
- The one hour dust measurement was started. Site conditions and dust sources at the nearby area were recorded on a record sheet.
- When the measurement completed, the "Count" reading per hour was recorded for result calculation.

2.4.2 Maintenance and Calibration

The portable direct reading dust meter is calibrated every year against high volume sampler (HVS) to check the validity and accuracy of the results measured by direct reading method. The latest calibration certificates of the portable direct reading dust meter are provided in **Appendix E**. The corresponding calibration record of the HVS is also given in **Appendix E**.

2.5 Analysis and Interpretation of Monitoring Results

The monitoring results for 1-hour TSP are summarized in **Table 2.4**. Detailed impact monitoring results are presented in **Appendix G**.

Table 2.4: Summary of 1-hour TSP Monitoring Results

Monitoring Station	1-hr TSP Concentration Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AR1A	12 - 320	306	500
AR2	34 - 288	298	

Two exceedance cases of action level of air quality monitoring were recorded at AR1A on 21 January 2016 in the 1-hour TSP monitoring that started at 10:00am and 11:00am. Actions were taken accordingly based on the established Event and Action Plan as presented in the Updated EM&A Manual. IEC and AAHK were informed of the exceedances. It was confirmed from the field investigation that only some minor site preparation works including hoarding erection were undertaken, and there were no major dusty construction activities that were conducted by the P560(R) Contractor when the exceedances were measured. It is thus considered that the exceedances were not due to construction works of the Project.

General meteorological conditions throughout the impact monitoring period were recorded. Wind data for each monitoring day including wind speed and wind direction was collected from the Chek Lap Kok Wind Station.

3 Noise Monitoring

3.1 Monitoring Stations

Noise monitoring was conducted at five representative monitoring stations in the vicinity of noise sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Updated EM&A Manual of the Project. **Figure 11** shows the locations of the monitoring stations and these are described in **Table 3.1** below. As described in Section 4.3.3 of the Updated EM&A Manual, monitoring at NM2 will commence when the future residential buildings in Tung Chung West Development become occupied.

Table 3.1: Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Type of measurement
NM1A	Man Tung Road Park	Free field
NM2 ⁽¹⁾	Tung Chung West Development	To be determined
NM3A	Site Office	Facade
NM4	Ching Chung Hau Po Woon Primary School	Free field
NM5	Village House in Tin Sum	Free field
NM6	House No. 1, Sha Lo Wan	Free field

Note: (1) As described in Section 4.3.3 of the Updated EM&A Manual, noise monitoring at NM2 will only commence after occupation of the future Tung Chung West Development.

3.2 Monitoring Requirements and Schedule

In accordance with the Updated EM&A Manual, baseline noise levels at the noise monitoring stations were established as presented in the Baseline Monitoring Report (Version 1 dated December 2015). Impact noise monitoring was conducted at least once per week in the form of 30-minute measurements of L_{eq} , L_{10} and L_{90} levels recorded at each monitoring station between 0700 and 1900 on normal weekdays. The Action and Limit levels of the noise monitoring are provided in **Table 3.2**. The construction noise monitoring schedule involved in the reporting period is provided in **Appendix F**.

Table 3.2: Action and Limit Levels for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level, $L_{eq(30mins)}$ dB(A)
NM1A, NM2, NM3A, NM4, NM5 and NM6	0700-1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A) ⁽ⁱ⁾

Note: ⁽ⁱ⁾ reduce to 70dB(A) for school and 65dB(A) during school examination periods.

3.3 Monitoring Equipment

Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was used to check the sound level meters by a known sound pressure level for field measurement. The brand and model of the equipment are given in **Table 3.3**.

Table 3.3: Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	B&K 2238 (Serial No. 2684503)
	B&K 2238 (Serial No. 2808432)
Acoustic Calibrator	B&K 4231 (Serial No. 3003246)
	B&K 4231 (Serial No. 3004068)

3.4 Monitoring Methodology

3.4.1 Monitoring Procedure

The monitoring procedure involved in the noise impact monitoring can be summarised as follows:

- a. The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at monitoring stations NM1A, NM4, NM5 and NM6. A correction of +3 dB(A) was applied to the free field measurements.
- b. Façade measurements were made at the monitoring station NM3A.
- c. Parameters such as frequency weighting, the time weighting and the measurement time were set.
- d. Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- e. During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a record sheet.
- f. Noise measurement results were corrected with reference to the baseline monitoring levels.

Observations were recorded when high intrusive noise (e.g. dog barking, helicopter noise) was observed during the monitoring.

3.4.2 Maintenance and Calibration

The maintenance and calibration procedures are summarised below:

- a. The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- b. The meter and calibrator were sent to the supplier or laboratory accredited under Hong Kong Laboratory Accreditation Scheme (HOKLAS) to check and calibrate at yearly intervals.

Calibration certificates of the sound level meters and acoustic calibrators used in the noise monitoring are provided in **Appendix E**.

3.5 Analysis and Interpretation of Monitoring Results

The construction noise monitoring results are summarized in **Table 3.4** and the detailed monitoring data are provided in **Appendix G**.

Table 3.4: Summary of Construction Noise Monitoring Results

Monitoring Station	Noise Level Range, dB(A) L_{eq} (30 mins)	Limit Level, dB(A) L_{eq} (30 mins)
NM1A ⁽ⁱ⁾	71	75
NM3A	57- 69	75
NM4 ⁽ⁱ⁾	60- 66	70 ⁽ⁱⁱ⁾
NM5 ⁽ⁱ⁾	53- 59	75
NM6 ⁽ⁱ⁾	62- 68	75

Note: (i) +3 dB(A) Façade correction included;
(ii) Reduced to 65 dB(A) during school examination periods.

Major background noise sources observed when the construction noise impact monitoring was carried out included aircraft noise at NM3A, NM5 and NM6; road traffic noise at NM1A; and school activities at NM4.

No exceedances of the Limit Level were recorded at all monitoring stations in the reporting period.

4 Waste Monitoring

4.1 Monitoring Requirements

In accordance with the Updated EM&A Manual, the waste generated from construction activities was audited at least once per week to determine if wastes are being managed in accordance with the Waste Management Plan (WMP) prepared for the Project, contract-specific WMP, and any statutory and contractual requirements. All aspects of waste management including waste generation, storage, transportation and disposal were assessed during the audits. The Action and Limit levels of the construction waste are provided in **Table 4.1**.

Table 4.1: Action and Limit Levels for Construction Waste

Monitoring Stations	Action Level	Limit Level
Construction Area	When one valid documented complaint is received	Non-compliance of the WMP, contract-specific WMPs, any statutory and contractual requirements

4.2 Waste Management Status

Weekly monitoring of the Project construction works were carried out by the ET on 29 December 2015 as well as on 5, 12, 19, 26 and 28 January 2016 to check and monitor the implementation of proper waste management practices during the construction phase.

The P560(R) Contractor has implemented waste management practice on-site. About 700 m³ excavated material from the launching site has been delivered and temporarily stored at a storage and stockpiling area at Chun Ming Road adjacent to Tradeport Logistic Centre on the airport island. The excavated material will be reused in the Project, including as backfilling material at the launching site.

The P560(R) Contractor was advised to properly maintain a recording system, maximize the reuse of Construction and Demolition (C&D) materials and properly maintain the site tidiness.

No chemical waste has been generated during the reporting period. Yet, it is noted that the P560(R) Contractor has already registered with EPD as a chemical waste producer. The Contractor was reminded that chemical waste containers should be properly handled and stored temporarily in designated chemical waste storage area on-site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

No exceedances of the Action and Limit Levels were recorded in the reporting period.

5 Environmental Site Inspection and Audit

5.1 Weekly Environmental Site Inspection

Weekly site inspections of the Project construction works were carried out by the ET on 29 December 2015 as well as on 5, 12, 19, 26 and 28 January 2016 to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The site inspection on 29 December 2015 was conducted by the ET in the presence of EPD’s inspectors when they visited the Project site. Bi-weekly site inspections were also conducted independently by the Project’s IEC on 8 and 19 January 2016. All site observations made by the ET were recorded in the site inspection checklists and passed to the Contractor together with the recommended follow-up actions where required.

Table 5.1: Observations during Weekly Site Inspections for the P560(R)

Inspection Date	Observations	Close-out Date
29 Dec 2015	No adverse observation	N/A
5, 12, 19, 26 and 28 Jan 2016	No adverse observation	N/A

During the reporting period, the key construction activities for the P560(R) involved site preparation works including hoarding erection and required site excavation works at the HDD launching site. No adverse observations were noted as shown in **Table 5.1**.

A summary of implementation status of the environmental mitigation measures for the construction phase of the Project is provided in **Appendix D**.

5.2 Audit of Diversion and Speed Control of the SkyPier High Speed Ferries

The Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan) has been submitted to the Advisory Council on the Environment (ACE) for comment and then submitted and approved in November 2015 by EPD under EP Condition 2.10. The approved SkyPier Plan is available on the dedicated website of the Project.

In the SkyPier Plan, AAHK committed to implement the mitigation measure of requiring high speed ferries (HSFs) of SkyPier travelling between HKIA and Zhuhai / Macau to start using a diversion with an associated speed control across an area (i.e., Speed Control Zone or SCZ) with high Chinese White Dolphin (CWD) abundance by the end of 2015. On 9 December 2015, the ET held a training workshop with the SkyPier HSF operators to familiarise them with the requirements of the diverted route, SCZ and related rules as well as other operational, monitoring and control arrangements.

The diverted route and speed control zone have been implemented since 28 December 2015 with the understanding that all parties would need to familiarise with the diversion and speed control requirements during the initial implementation period, and fine-tuning of the associated monitoring and control systems would be performed accordingly.

During the initial implementation period, all SkyPier HSFs travelling between HKIA and Zhuhai / Macau had all switched to the diverted route and followed the speed control requirements. The ET have conducted checking of all the relevant information, including automatic identification system (AIS) data, daily SkyPier HSF movements, record of potential deviations and the responses provided by the ferry

operators, to ensure full compliance with the requirements of the SkyPier Plan. The IEC of the Project has also performed audit on the compliance of the SkyPier Plan requirements as part of the EM&A programme.

In the first couple of weeks of implementation, there were cases of straying out of the SCZ and difficulties in maintaining the speed of 15 knots in the SCZ. In accordance with the implementation plan of the SkyPier Plan, further training workshops and follow-up dialogue sessions have been held with the three SkyPier operators on 12, 21 and 27 January 2016 with an aim to reviewing and optimizing the operational practices and to ensure adherence to the routing and speed control requirements.

The number of cases with deviations from the SCZ and the speed control requirements were largely improved after the training workshops. Feedback from the operators has revealed that in isolated instances, unexpected adverse sea and inclement weather conditions could cause ferries to temporarily deviate from the SCZ and speed control requirements, and may impose risk on safe operation of the ferries. Ongoing liaison will be undertaken with the relevant operators and the relevant authorities, including Marine Department, on the implementation details to ensure safe implementation of the route diversion and speed control in accordance with the SkyPier Plan.

The highest daily movement in the reporting month is below the maximum allowable daily movement of 125 as specified in the SkyPier Plan. The annual average daily movement will be compared with the annual average daily cap of 99 in the first Annual EM&A Report.

The 6-months baseline CWD monitoring has also started in December 2015. The relevant CWD baseline monitoring data, including those collected from the vessel line transect survey over North Lantau area and the land-based theodolite survey at Sha Chau and Lung Kwu Chau, will be used for the analysis of the effectiveness of the HSF route diversion over time. The analysis will be presented to EPD and AFCD soon after the completion of the six-month baseline monitoring period.

5.3 Status of Submissions under Environmental Permits

The current status of submissions under the EP before and during the reporting period is presented in **Table 5.2**.

Table 5.2: Status of Submissions under Environmental Permit

EP Condition	Submission	Status
2.1	Complaint Management Plan	Accepted / approved by EPD
2.4	Management Organizations	
2.5	Construction Works Schedule and Location Plans	
2.7	Marine Park Proposal	Submitted to ACE for comment
2.8	Marine Ecology Conservation Plan	
2.9	Marine Travel Routes and Management Plan for Construction and Associated Vessels	Accepted / approved by EPD
2.10	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier	
2.13	Fisheries Management Plan	Submitted to ACE for comment
2.16	Spill Response Plan	
2.19	Waste Management Plan	Accepted / approved by EPD
3.1	Updated EM&A Manual	

EP Condition	Submission	Status
3.4	Baseline Monitoring Report	

5.4 Compliance with Other Statutory Environmental Requirements

During the reporting period, environmental related licenses and permits required for the construction activities were checked. No non-compliance with environmental legislative requirements was recorded during the reporting period.

5.5 Analysis and Interpretation of Complaints, Notification of Summons and Status of Prosecutions

5.5.1 Complaints

During the reporting period, no construction activities related complaints were received.

One public enquiry was received during the reporting period regarding the Baseline Monitoring Report and has been responded accordingly.

5.5.2 Notifications of Summons or Status of Prosecution

During the reporting period, neither notifications of summons nor prosecution were received.

5.5.3 Cumulative Statistics

Cumulative statistics on complaints, notifications of summons and status of prosecutions are summarized in **Appendix H**.

6 Future Key Issues and Other EIA & EM&A Issues

6.1 Construction Programme for the Coming Reporting Period

The major site activities anticipated in the coming reporting period are expected to be associated with the continuation of site preparation works under the P560(R) Contract and these will include:

- Continuation of site establishment including erection of the hoarding;
- Excavation and installation of temporary drainage system and wheel washing system;
- Site excavation and concrete footing construction; and
- Construction plant mobilization and installation.

6.2 Key Environmental Issues for the Coming Reporting Period

The key environmental issues for the Project in the coming reporting period are expected to be associated with the implementation of the P560(R) Contract and these include:

- Generation of dust from construction works;
- Noise impact from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Management of stockpiles;
- Sorting, recycling, storage and disposal of general refuse and construction waste; and
- Management of chemicals and avoidance of oil spillage on-site.

6.3 Monitoring Schedule for the Coming Reporting Period

A tentative schedule of the planned environmental monitoring work in the next reporting period is provided in **Appendix F**.

6.4 Other EIA / EM&A Issues

6.4.1 Completed Survey

The pre-construction egret surveys at Sha Chau were conducted between April and July 2015. The survey findings will be presented in the Egret Survey Plan to be submitted to EPD under EP Condition 2.14.

A pre-construction phase dive survey for corals along the northern and northeastern seawall of the airport island and at the daylighting location on Sha Chau was conducted on 29 January 2016.

6.4.2 On-going and Fore-coming Baseline Monitoring

Baseline monitoring of CWD by vessel surveys, land-based theodolite tracking and passive acoustic monitoring (PAM) have commenced. The baseline monitoring results will be presented in a separate Baseline Monitoring Report for the marine works.

A baseline water quality monitoring programme is scheduled to be commenced in April 2016.

7 Conclusion and Recommendation

The key construction activities in the reporting period involved site preparation works, including erection of site hoarding and required site excavation works at the HDD launching site for diversion of the submarine aviation fuel pipelines. Construction dust, noise and waste monitoring were carried out in the reporting period. Two exceedance cases involving Action Level of 1-hour TSP monitoring were recorded during the reporting period. The investigation results indicated that the exceedances were not project-related. No breach of the Action or Limit Levels in relation to the construction noise and waste monitoring were recorded in the reporting month. Environmental weekly site inspections were carried out during the reporting period by the ET and no adverse observations were noted.

The diversion and speed control of HSFs of SkyPier has been implemented since 28 December 2015. Training workshops and reviews were undertaken by the ET with the ferry operators to ensure the safe implementation of the route diversion and speed control in accordance with the SkyPier Plan. Further analysis of the effectiveness will be conducted upon completion of the related CWD monitoring.



Figures

PAK CHAU

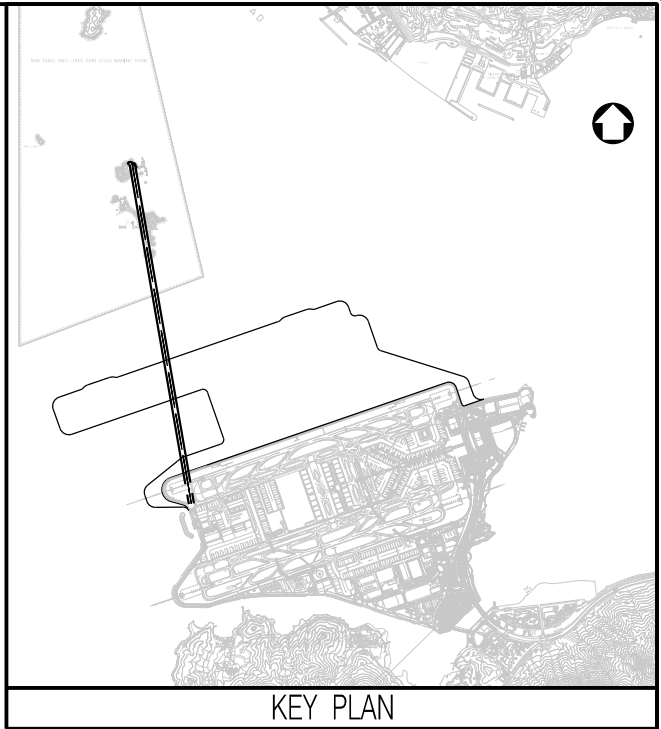


PORITION OF THE FUEL PIPE ABOVE GROUND

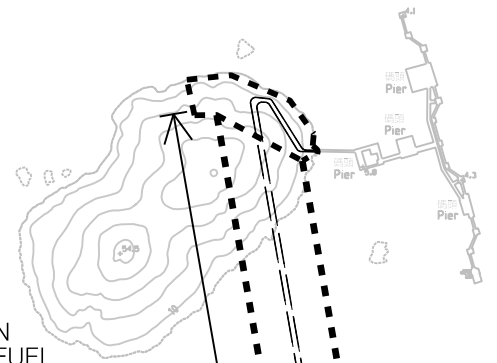
沙洲
SHA CHAU

SHA CHAU AND
LUNG KWU CHAU
MARINE PARK

CONSTRUCTION OF
AVIATION FUEL
PIPELINES BY HORIZONTAL
DIRECTIONAL DRILLING
METHOD



KEY PLAN



ZOOMED IN WORKS AREA AT SHA CHAU

SCALE 1:7500

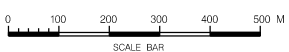
CONSTRUCTION OF AVIATION FUEL PIPELINES BY HORIZONTAL DIRECTIONAL DRILLING METHOD

NOTES


1. EXACT DAYLIGHT LOCATION OF FUEL PIPELINES AT SHA CHAU SUBJECT TO CONFIRMATION DURING CONSTRUCTION STAGE
2. FOR CONTINGENCY SHOULD ENGINEERING DIFFICULTIES BE ENCOUNTERED DURING PIPELINES INSTALLATION, STAND-BY BARGES NEAR SHEUNG SHA CHAU ISLAND WOULD BE NECESSITATED.

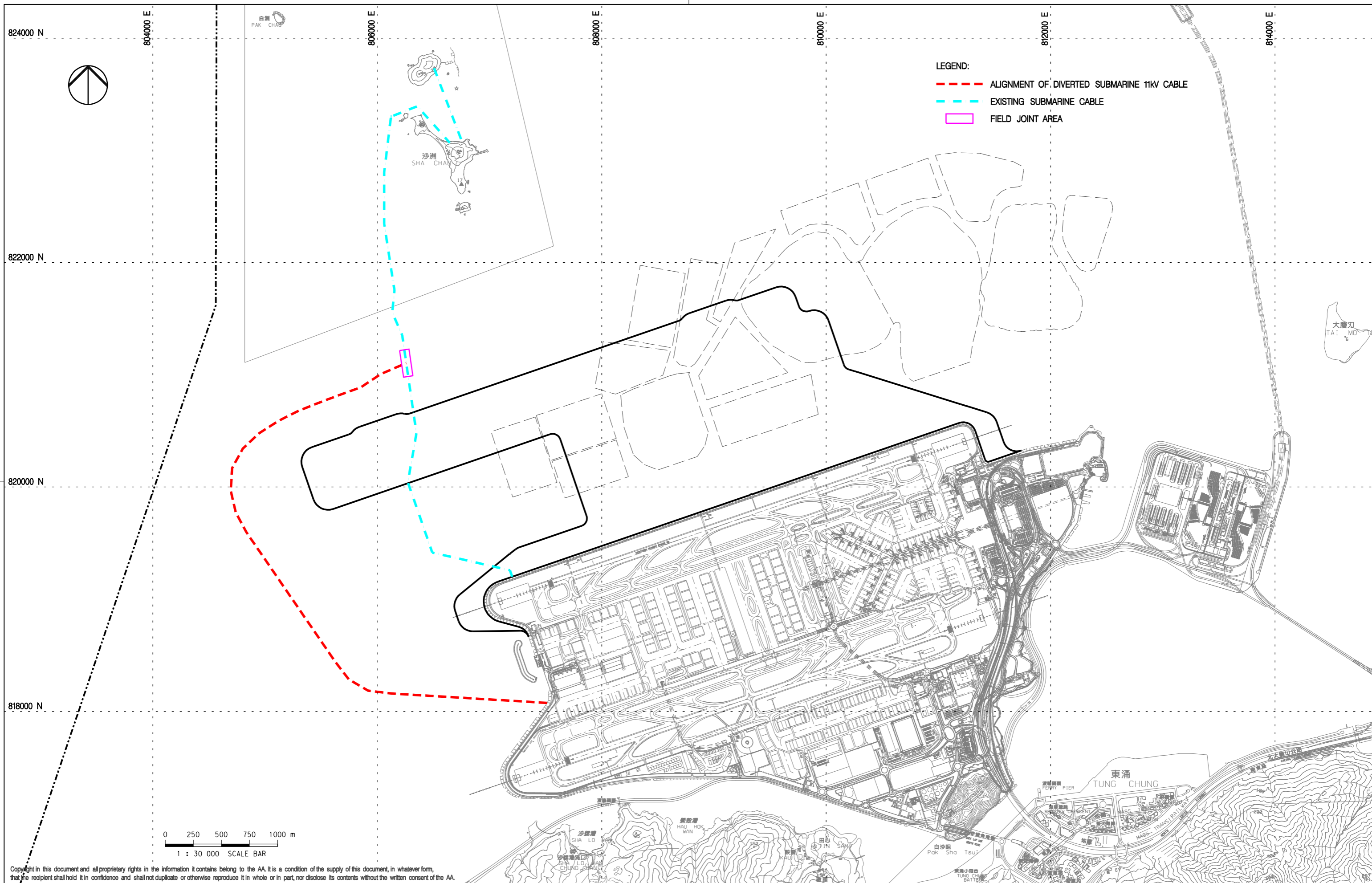
LEGEND

- ■ ■ ■ WORKS LOCATION
- — — UNDERGROUND FUEL PIPELINES
- — — EXPOSED FUEL PIPELINES ABOVE GROUND



HONG KONG
INTERNATIONAL
AIRPORT

				Title DIVERSION OF SHA CHAU FUEL PIPELINES	Design	Date	Hong Kong International Airport	
					Designer	22.07.14	Drawing No.	
				Checked	22.07.14	FIGURE 2		
				Approved	22.07.14	Scale	1 : 15000 (A3)	Rev.
Rev.	Date	Description	Checked	Approver	22.07.14			A



LEGEND:
 --- ALIGNMENT OF DIVERTED SUBMARINE 11KV CABLE
 --- EXISTING SUBMARINE CABLE
 [] FIELD JOINT AREA

0 250 500 750 1000 m
 1 : 30 000 SCALE BAR

Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

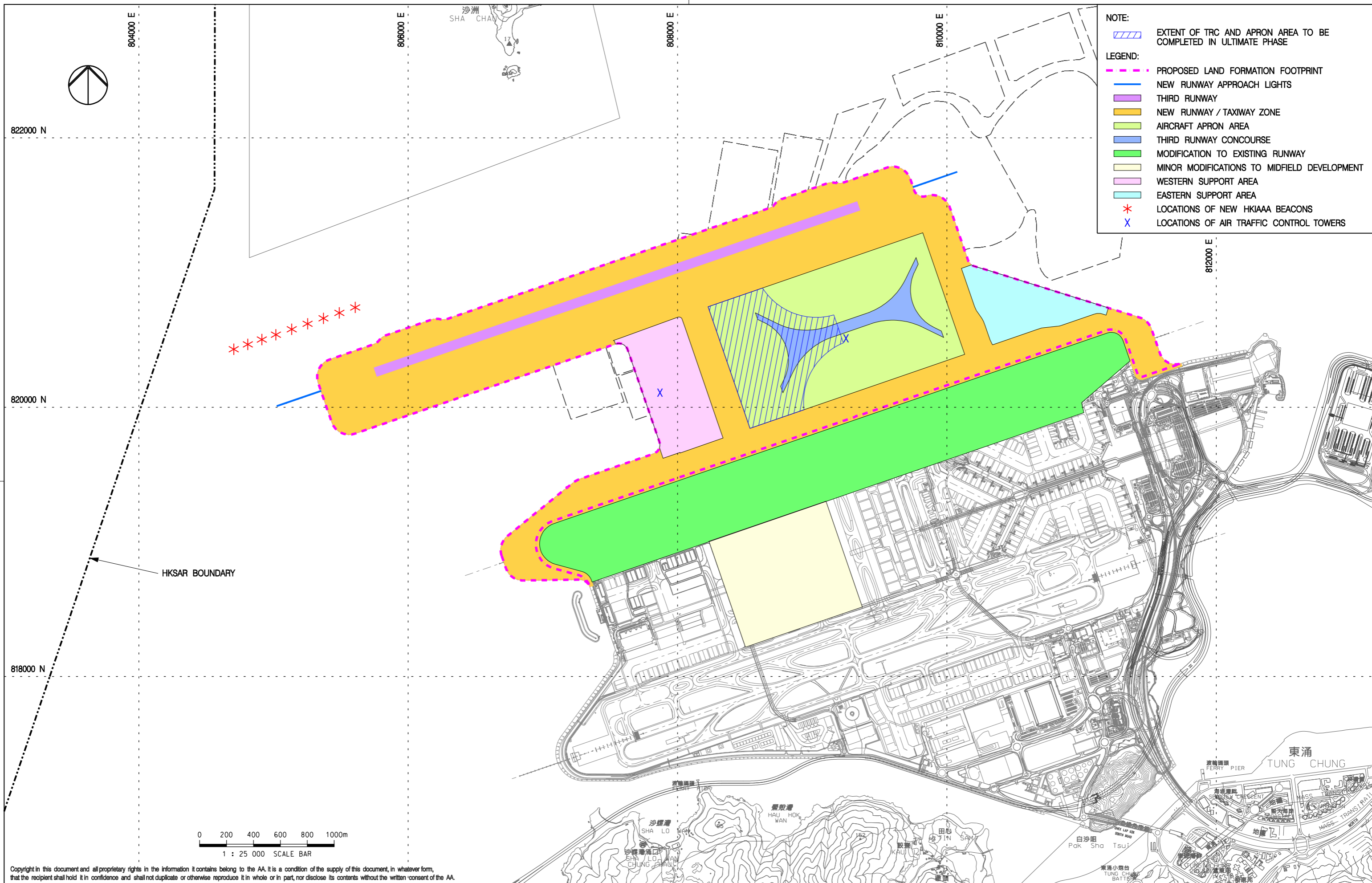
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	22OCT15	GENERAL REVISION	DC



Title
**LOCATION PLAN –
 DIVERSION OF SUBMARINE 11KV CABLE**

Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 30000
FIGURE 3	Rev. B



- NOTE:**
- EXTENT OF TRC AND APRON AREA TO BE COMPLETED IN ULTIMATE PHASE
- LEGEND:**
- PROPOSED LAND FORMATION FOOTPRINT
 - NEW RUNWAY APPROACH LIGHTS
 - THIRD RUNWAY
 - NEW RUNWAY / TAXIWAY ZONE
 - AIRCRAFT APRON AREA
 - THIRD RUNWAY CONCOURSE
 - MODIFICATION TO EXISTING RUNWAY
 - MINOR MODIFICATIONS TO MIDFIELD DEVELOPMENT
 - WESTERN SUPPORT AREA
 - EASTERN SUPPORT AREA
 - LOCATIONS OF NEW HKIAAA BEACONS
 - LOCATIONS OF AIR TRAFFIC CONTROL TOWERS

Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

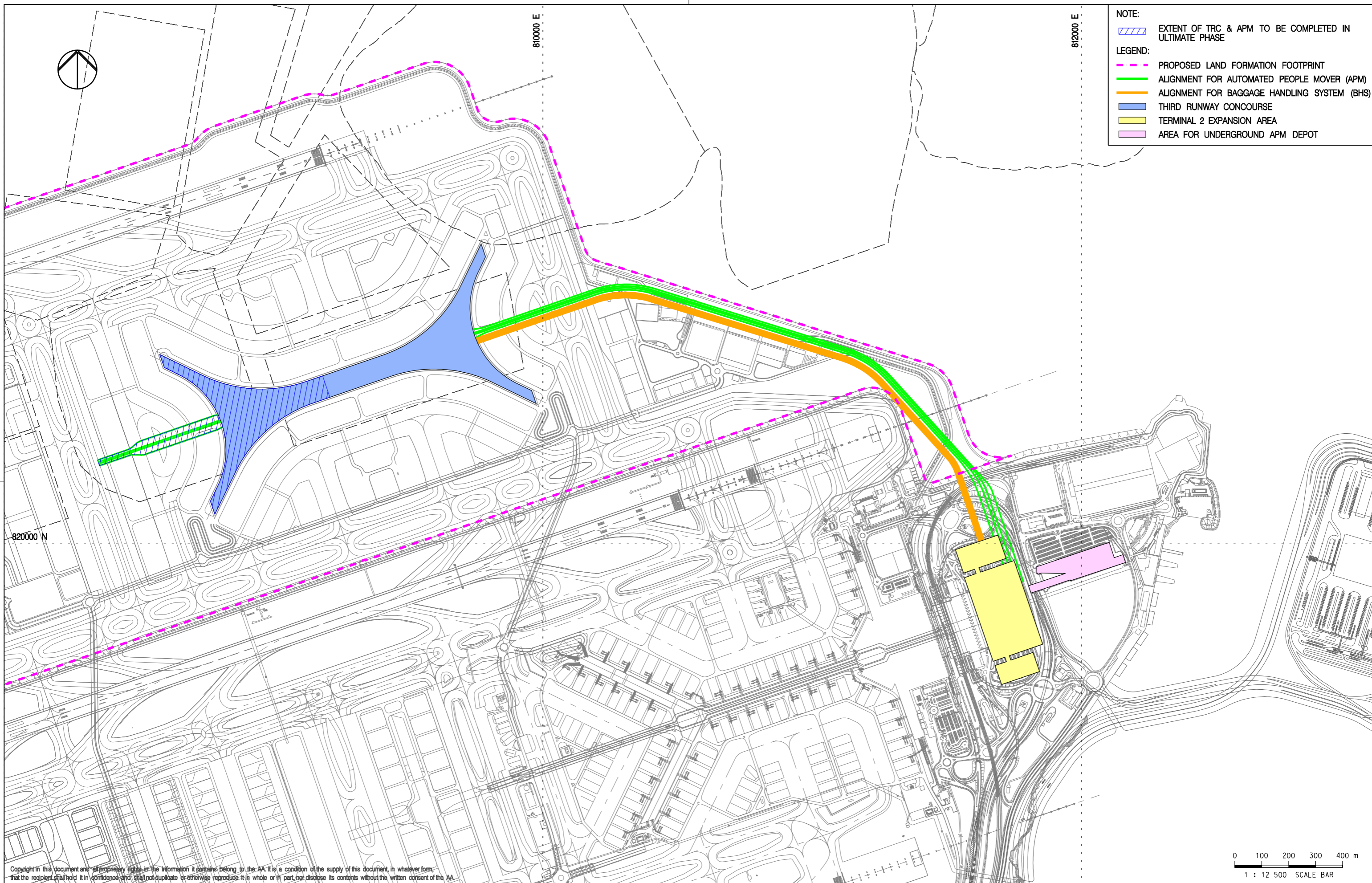
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	17SEP15	GENERAL REVISION	DC
C	22OCT15	GENERAL REVISION	DC



Title
LOCATION PLAN – AIRFIELD FACILITIES

Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 25000
FIGURE 4	Rev. C



- NOTE:**
 [Hatched box] EXTENT OF TRC & APM TO BE COMPLETED IN ULTIMATE PHASE
- LEGEND:**
 [Magenta dashed line] PROPOSED LAND FORMATION FOOTPRINT
 [Green line] ALIGNMENT FOR AUTOMATED PEOPLE MOVER (APM)
 [Orange line] ALIGNMENT FOR BAGGAGE HANDLING SYSTEM (BHS)
 [Blue area] THIRD RUNWAY CONCOURSE
 [Yellow area] TERMINAL 2 EXPANSION AREA
 [Pink area] AREA FOR UNDERGROUND APM DEPOT

Copyright in this document and all proprietary rights in the information it contains, belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

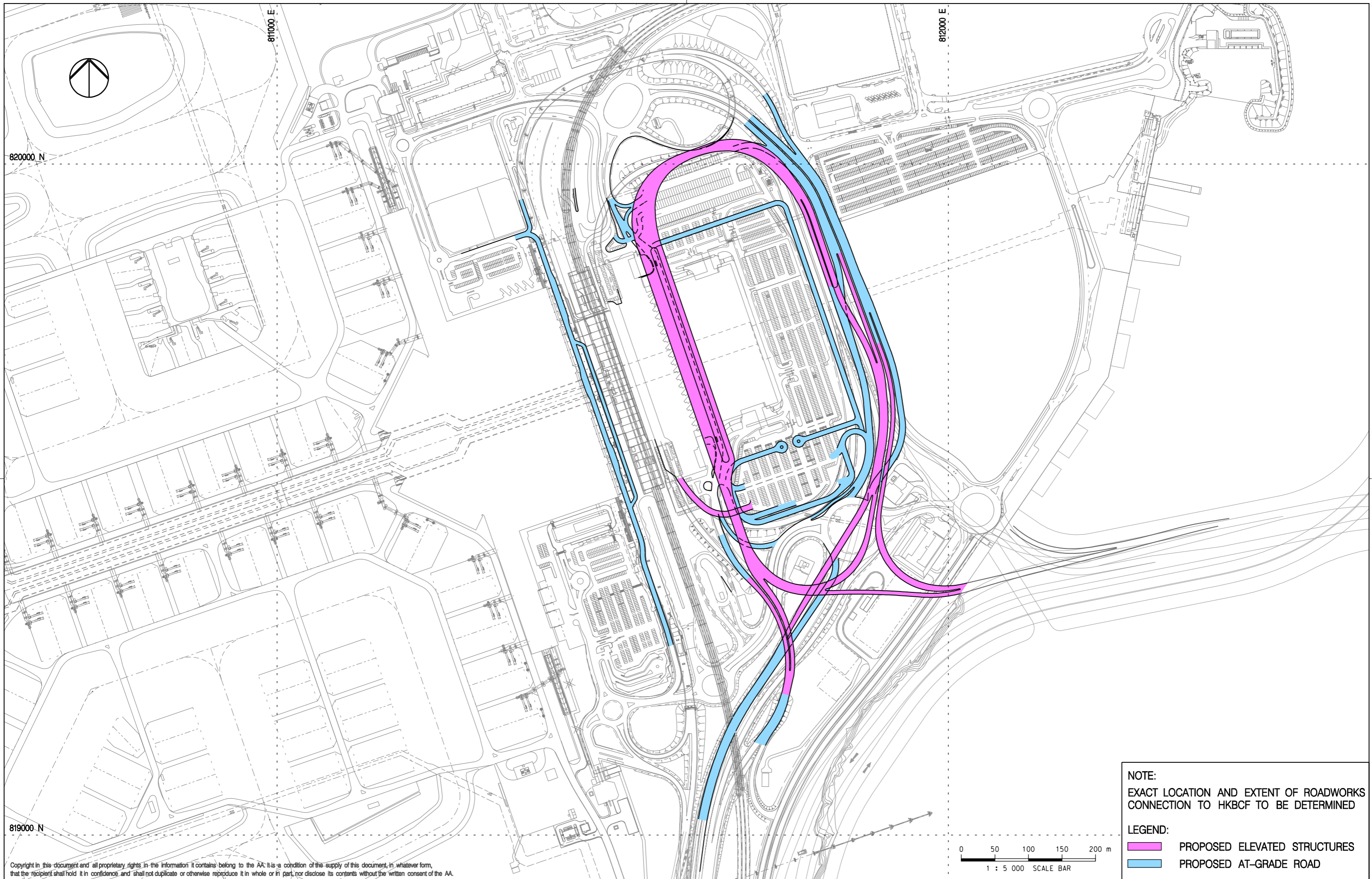
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	22OCT15	GENERAL REVISION	DC



Title
LOCATION PLAN – PASSENGER FACILITIES

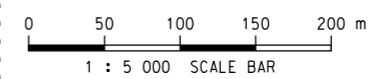
Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 5
Scale at A3	1 : 12500
Rev.	B



NOTE:
EXACT LOCATION AND EXTENT OF ROADWORKS CONNECTION TO HKBCF TO BE DETERMINED

LEGEND:
 PROPOSED ELEVATED STRUCTURES
 PROPOSED AT-GRADE ROAD



Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

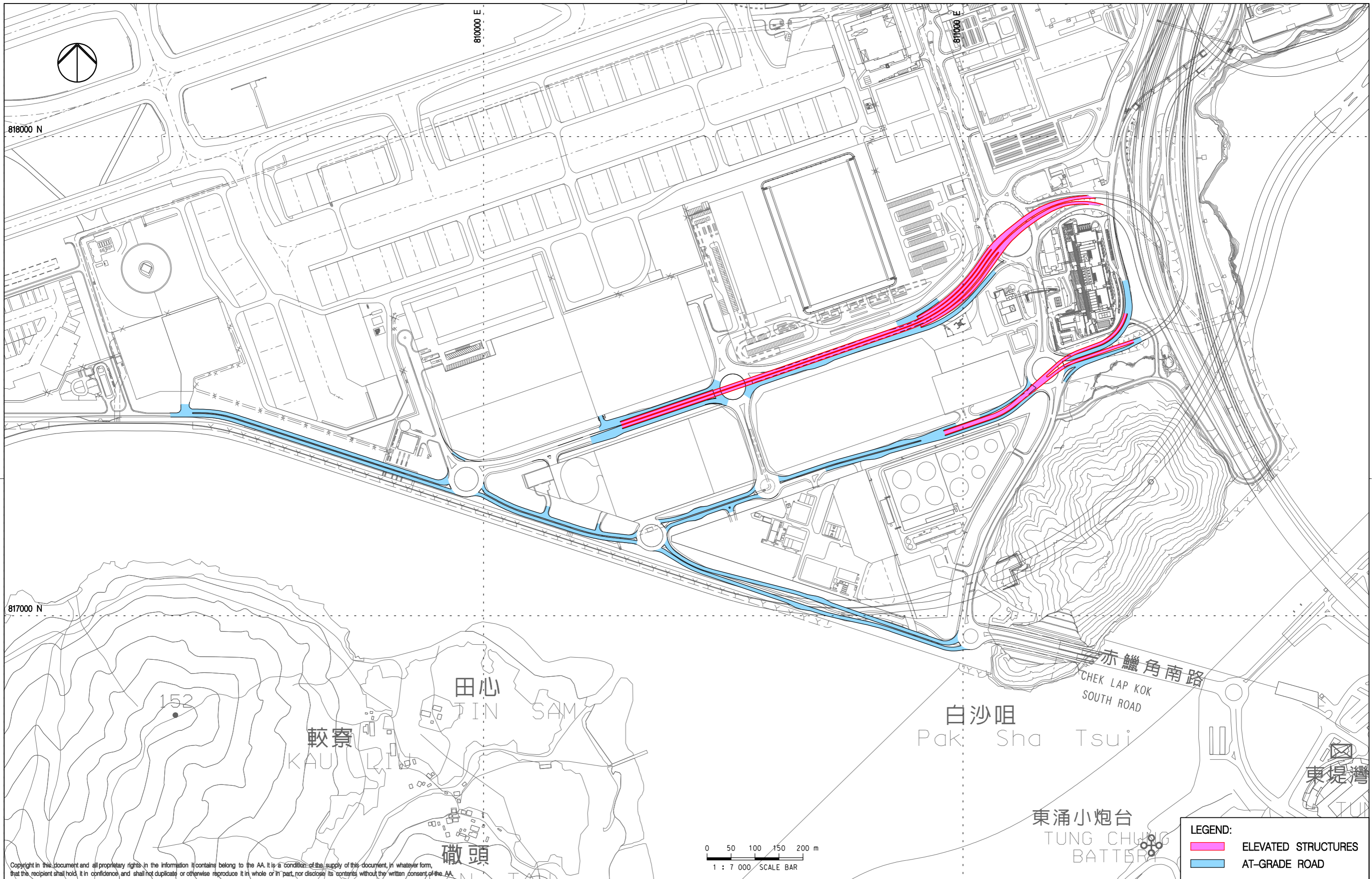
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	22OCT15	GENERAL REVISION	DC



Title
**LOCATION PLAN –
TERMINAL 2 ROAD NETWORK**

Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3
Drawing No.	FIGURE 6	1 : 5000
Rev.	B	



Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

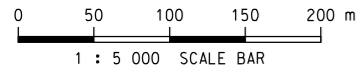
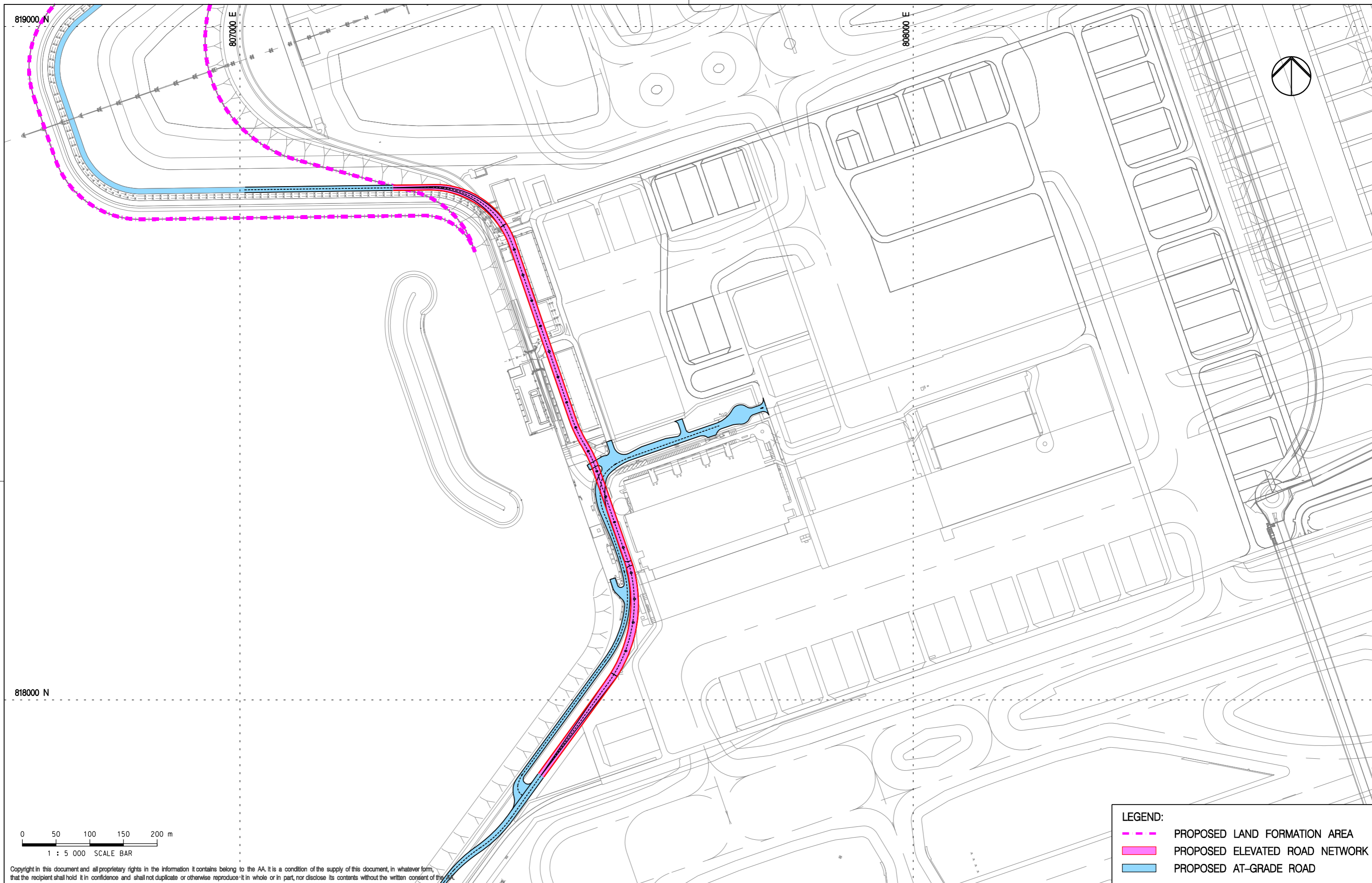
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	22OCT15	GENERAL REVISION	DC



Title
LOCATION PLAN - SOUTH CARGO ROAD IMPROVEMENT WORKS

Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 7000
FIGURE 7	Rev. B



LEGEND:

- - - PROPOSED LAND FORMATION AREA
- PROPOSED ELEVATED ROAD NETWORK
- PROPOSED AT-GRADE ROAD

Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

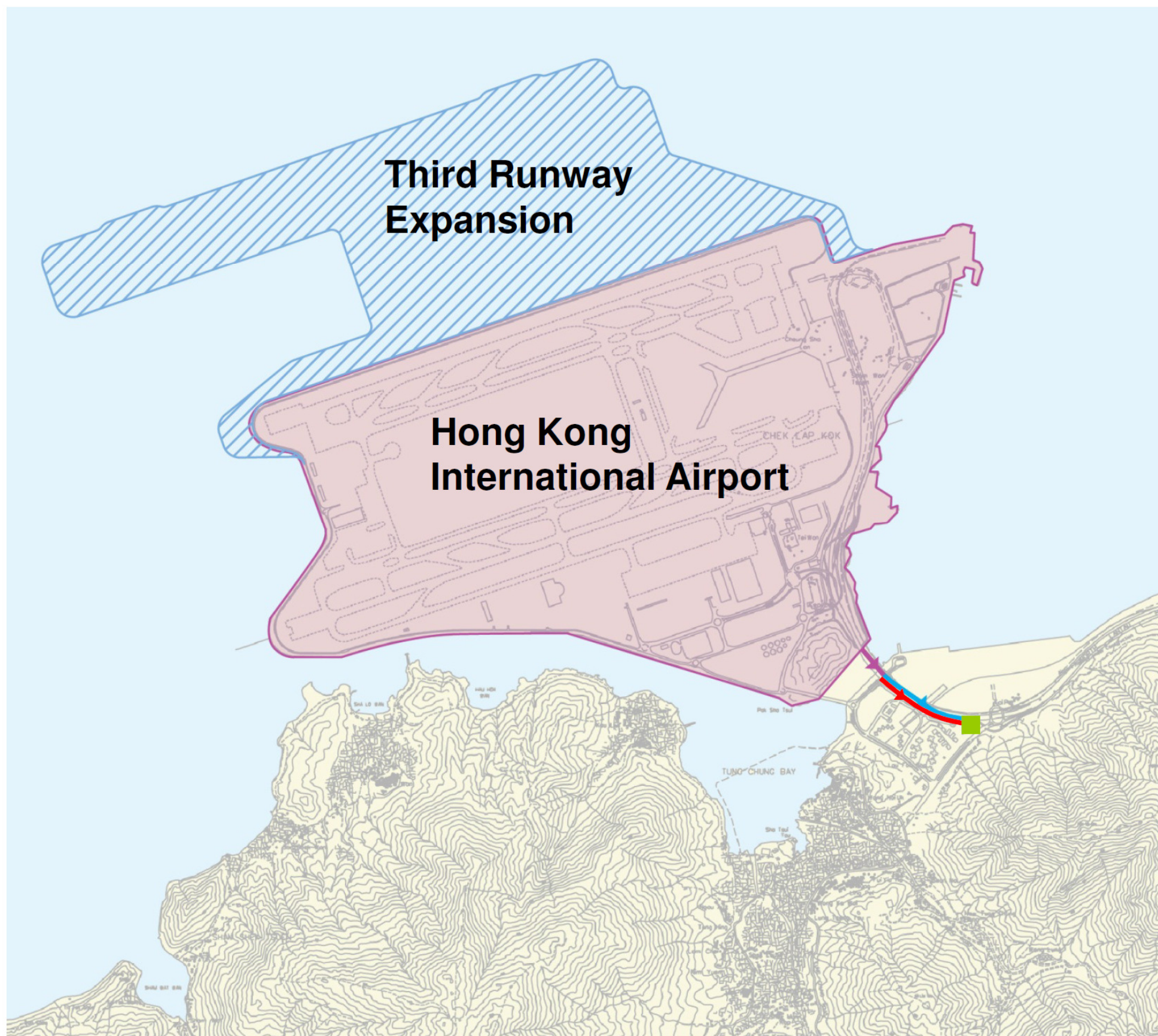
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC
B	22OCT15	GENERAL REVISION	DC







Title
**LOCATION PLAN –
EXTENSION OF SOUTH PERIMETER ROAD**

Consultant's Signatures for Approval		Date
Design	DC	22OCT15
Checkers	DC	22OCT15
Approver	EC	22OCT15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 5000
FIGURE 8	Rev. B



-  Gravity Sewer to be upgraded by AAHK
-  Existing Rising Main from Airport to Tung Chung
-  Existing Gravity Sewer from Airport to TCSPS
-  Tung Chung Sewage Pumping Station (TCSPS)

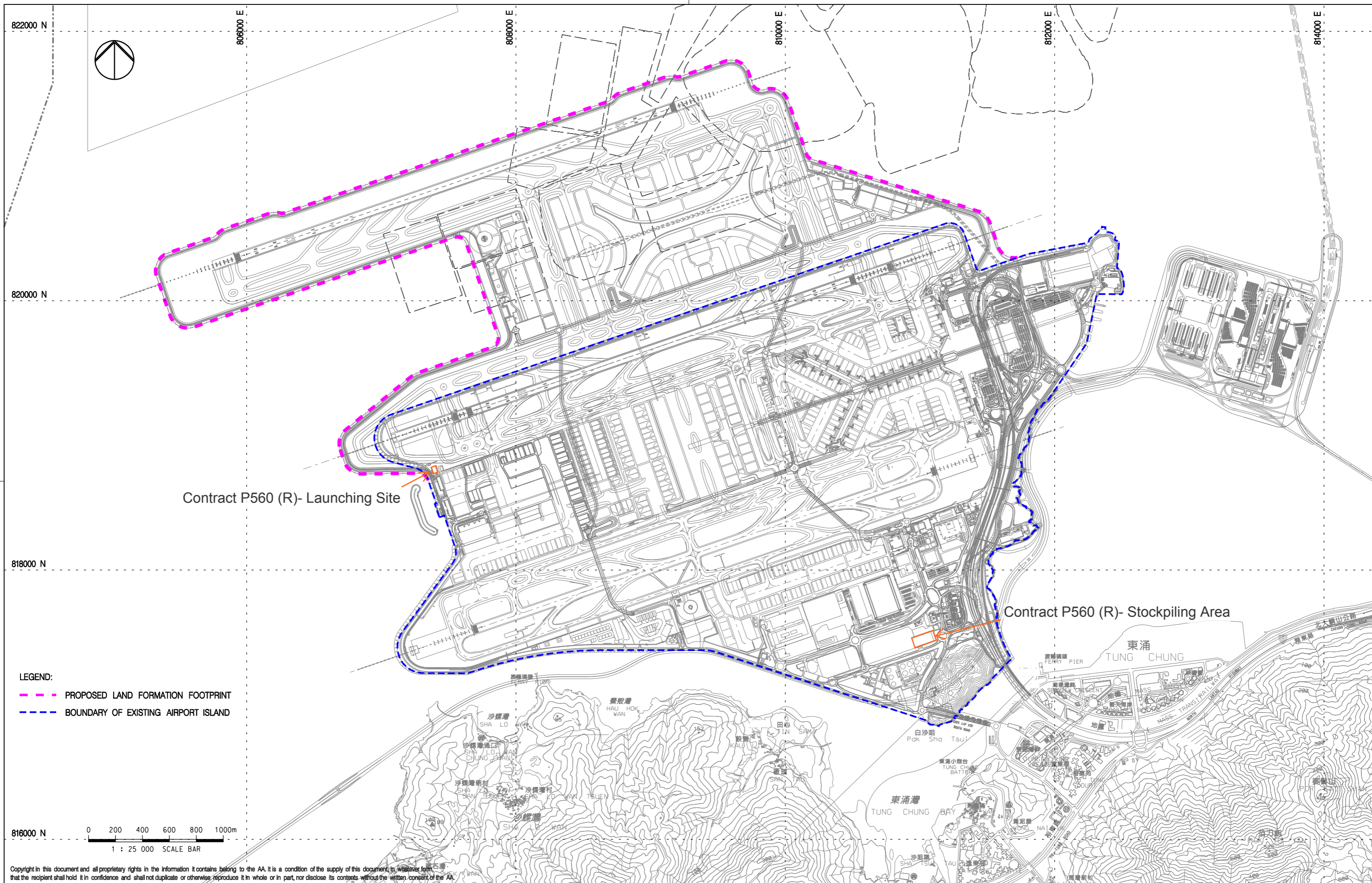
Rev.	Date	Description	Checked
A	31AUG15	FIRST ISSUE	DC



Title
GRAVITY SEWER TO BE UPGRADED

Consultant's Signatures for Approval	Date
Design DC	31AUG15
Checkers DC	31AUG15
Design Supervisor EC	31AUG15
Authorised Representative JFP	31AUG15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 9
Scale at A3	1 : 30000
Rev.	A



LEGEND:
 - - - - - PROPOSED LAND FORMATION FOOTPRINT
 - - - - - BOUNDARY OF EXISTING AIRPORT ISLAND

Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

Rev.	Date	Description	Checked
A	11DEC15	FIRST ISSUE	RO



Title
LOCATIONS OF KEY CONSTRUCTION ACTIVITIES IN THIS REPORTING PERIOD

Consultant's Signatures for Approval		Date
Design	AM	11DEC15
Checkers	AM / TK	11DEC15
Approver	EC	11DEC15

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 10
Scale at A3	1 : 25000
Rev.	A



808000 E.

808000 E.

810000 E.

812000 E.

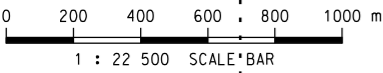
814000 E.

820000 N.

818000 N.

LEGEND:

- - - PROPOSED RECLAMATION AREA
- NOISE MONITORING STATION (UPDATED EM&A MANUAL)
- ▲ AIR QUALITY MONITORING STATION (UPDATED EM&A MANUAL)
- + CHEK LAP KOK WIND STATION



Copyright in this document and all proprietary rights in the information it contains belong to the AA. It is a condition of the supply of this document, in whatever form, that the recipient shall hold it in confidence and shall not duplicate or otherwise reproduce it in whole or in part, nor disclose its contents without the written consent of the AA.

Rev.	Date	Description	Checked
A	06JAN16	FIRST ISSUE	RO
B	29JAN16	GENERAL REVISION	RO
C	11FEB16	GENERAL REVISION	RO

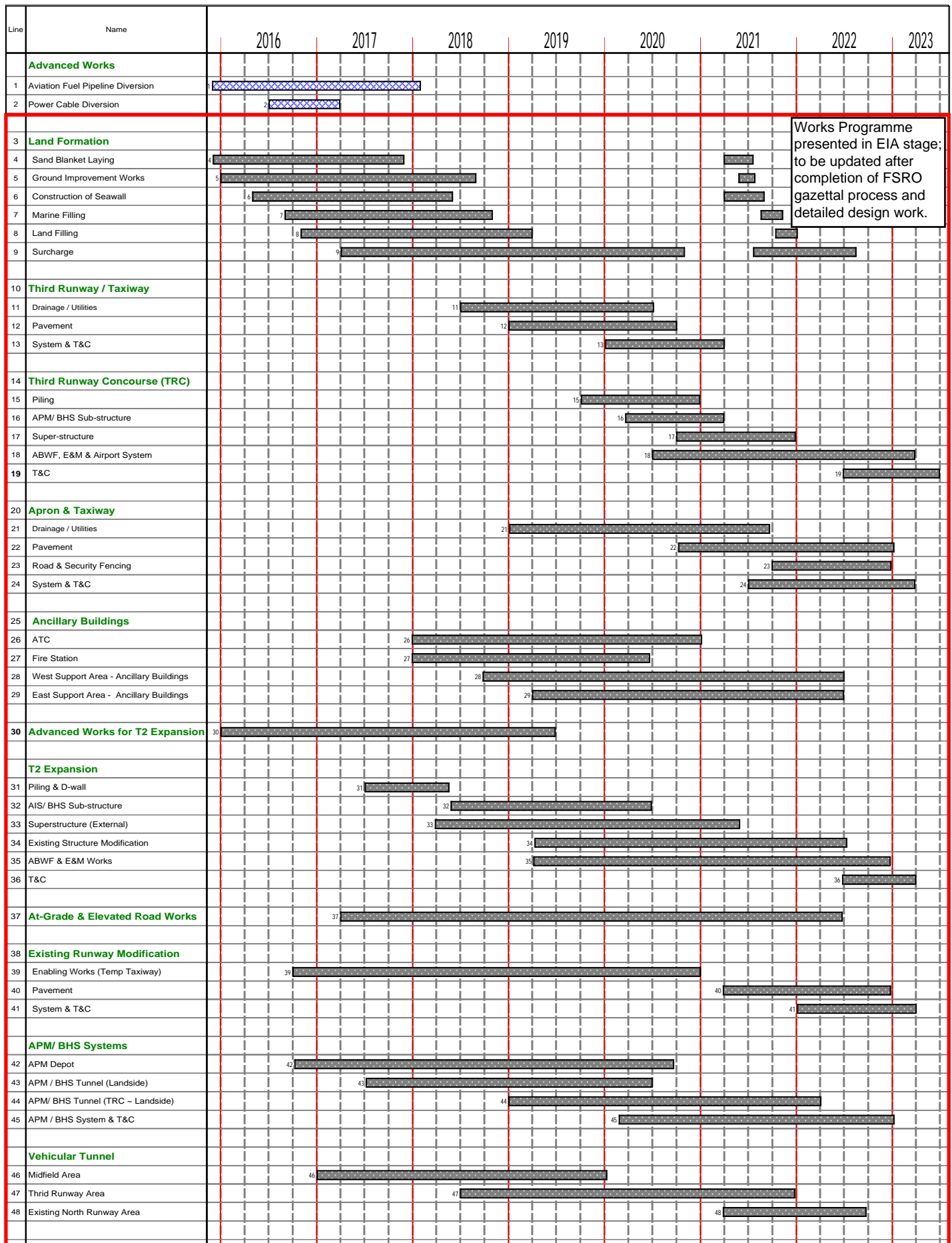


Title
LOCATIONS OF AIR AND NOISE MONITORING STATIONS AND CHEK LAP KOK WIND STATION

Consultant's Signatures for Approval		Date
Design	AM	11FEB16
Checkers	AM / TK	11FEB16
Approver	EC	11FEB16

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	FIGURE 11
Scale at A3	1 : 22500
Rev.	C

Appendix A. Construction Programme and Contract Description



Works Programme presented in EIA stage; to be updated after completion of FSRO gazettal process and detailed design work.

Legend
 Latest updated works programme (Attachments II & III refer for further details)

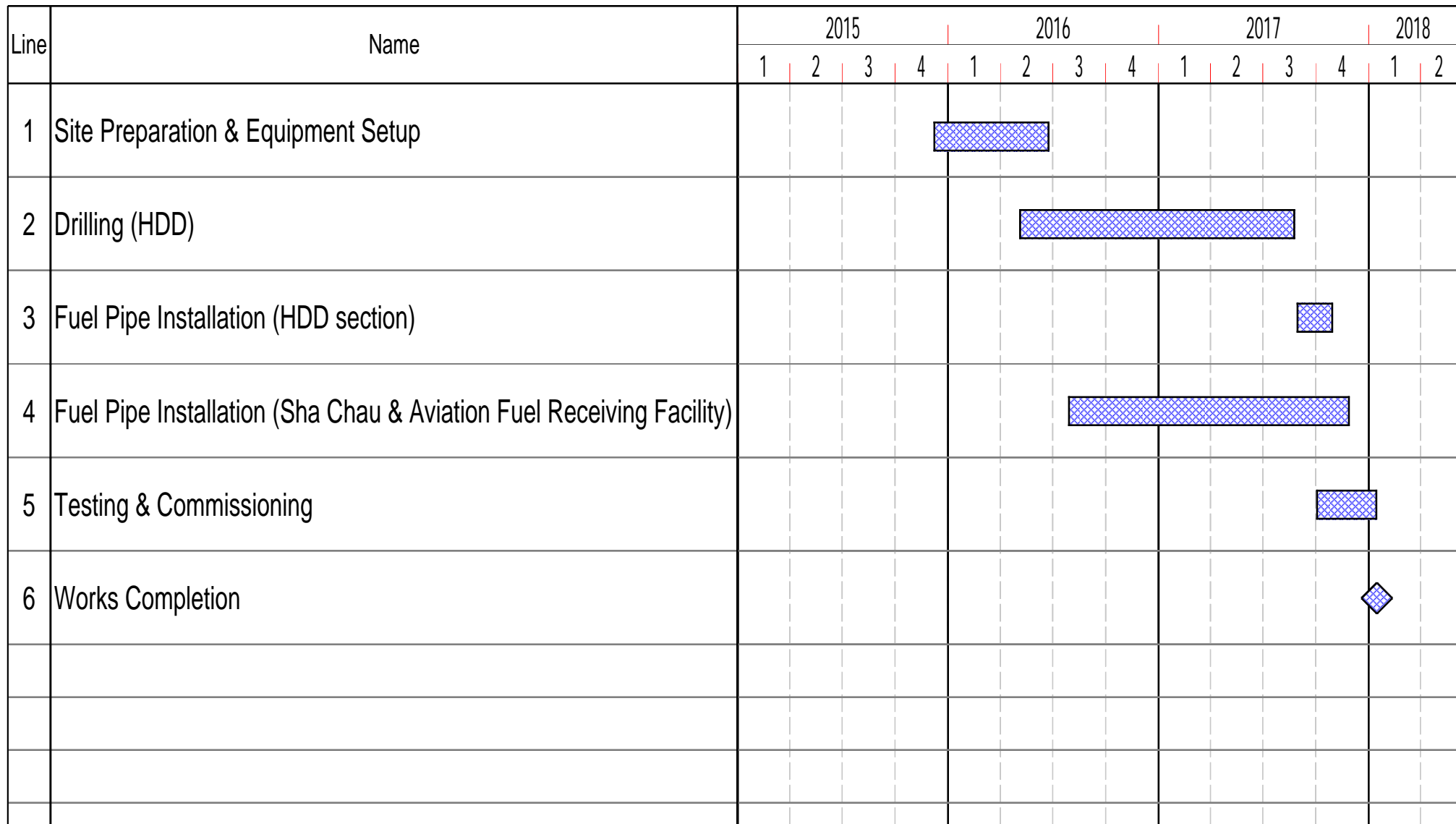
Programme No.	00001
Revision/Date	C/ 20-Oct-15
Prepared	VT
Checked	PY

3RS Phasing Programme



Contract Description

Contract No.	Contract Title	Contractor	Key Construction Activities
P560 (R)	Aviation Fuel Pipeline Diversion Works	Langfang Huayuan Mechanical and Electrical Engineering Co., Ltd.	Diversion of the existing submarine aviation fuel pipelines will use a horizontal directional drilling (HDD) method forming two rock drill holes by drilling through bedrock from a launching site located at the west of the airport island to a daylighting point adjacent to the offshore receiving platform at Sha Chau. Two new pipelines will be installed through the drilled tunnels. The total length is approximately 5 km. Drilling works will proceed from the HDD launching site at the airport island.



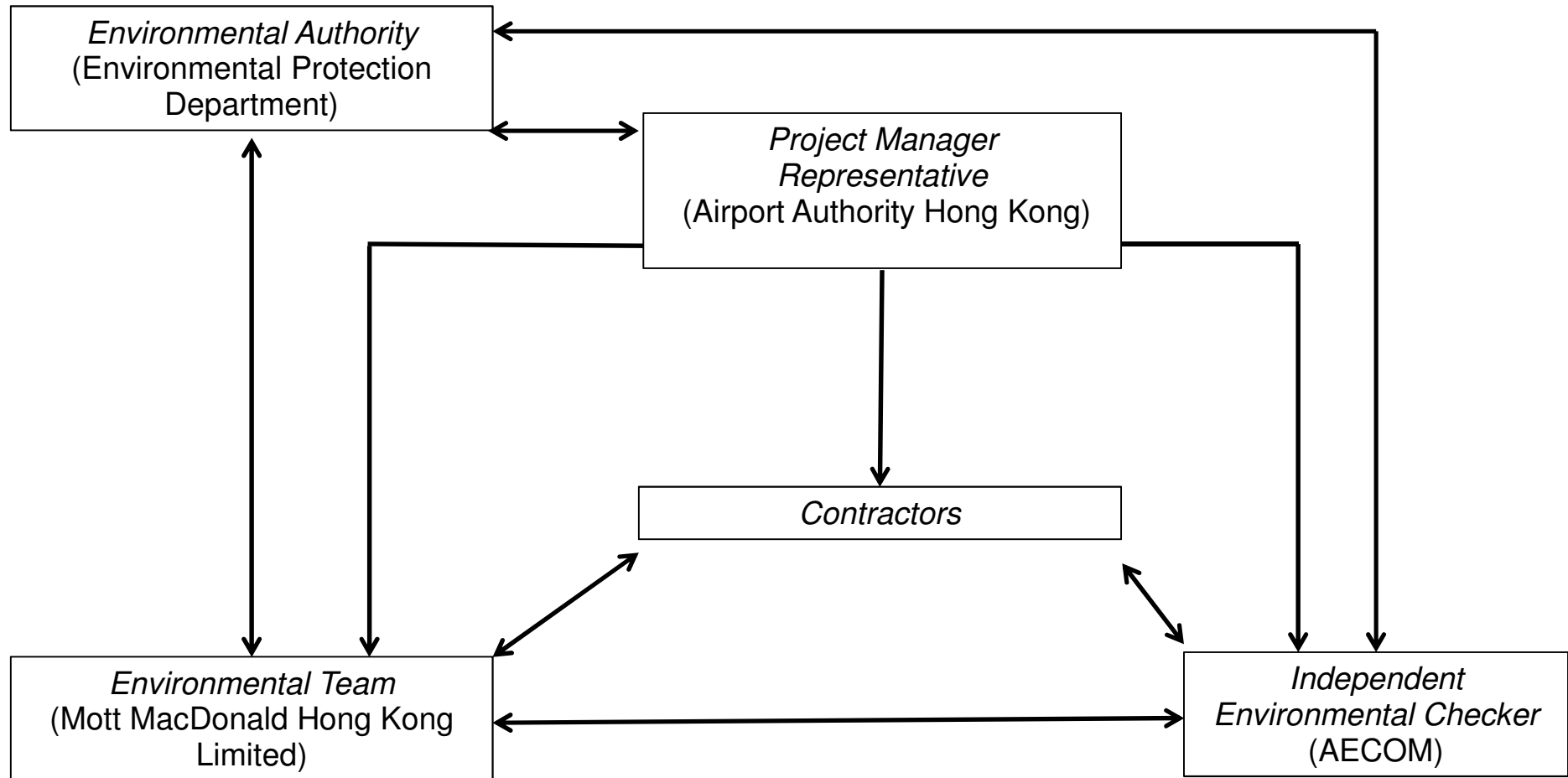
Reference	EM001
Date	31-Aug-15

THREE RUNWAY SYSTEM
 Aviation Fuel Pipeline Diversion Works
 Construction Programme





Appendix B. Project Organization Chart



Appendix C. Event and Action Plan for Air Quality, Noise and Waste Monitoring

Appendix C-1 Event and Action Plan for Air Quality

Event	Action			
	ET	IEC	AAHK / PM	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and AAHK / PM; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and AAHK / PM; 3. Advise the AAHK / PM on the effectiveness of the proposed remedial measures; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required 6. If exceedance continues, arrange meeting with IEC and AAHK / PM 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise AAHK / PM on the effectiveness of the proposed remedial measures; 5. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify the source, investigate the causes of exceedance and propose remedial measures; 2. Inform AAHK / PM and Contractor. If the exceedance is valid, inform EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and AAHK / PM informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise AAHK / PM on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive sample	<ol style="list-style-type: none"> 1. Notify IEC, AAHK / PM, Contractor and EPD; 2. Identify source; 3. Repeat measurement 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions

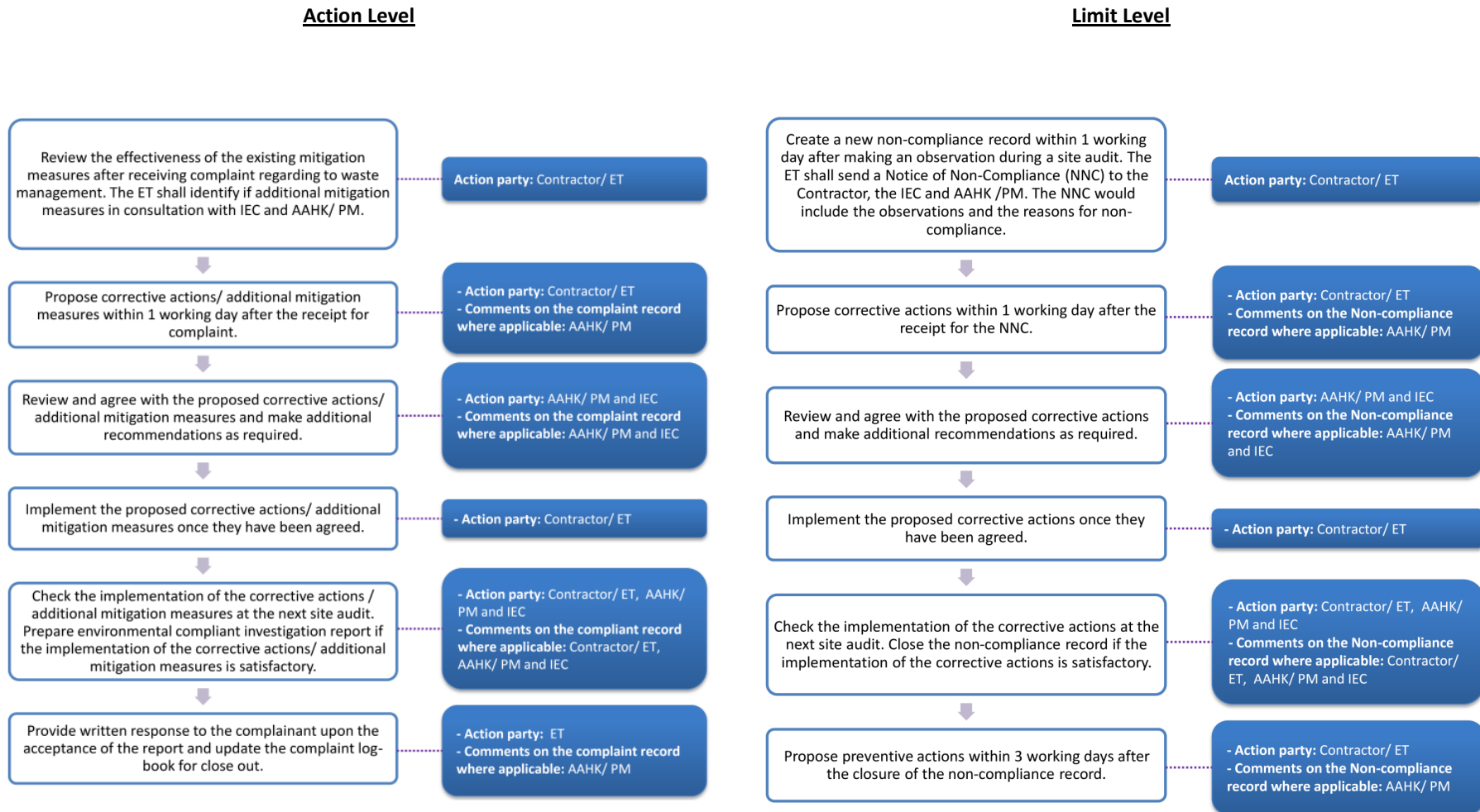
Event	Action			
	ET	IEC	AAHK / PM	Contractor
	<p>to confirm finding;</p> <p>4. Increase monitoring frequency to daily;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Arrange meeting with IEC and AAHK / PM to discuss the remedial actions to be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and AAHK / PM informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>method;</p> <p>3. Discuss amongst AAHK / PM, ET, and Contractor on the potential remedial actions;</p> <p>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise AAHK / PM accordingly;</p> <p>5. Monitor the implementation of remedial measures.</p>	<p>with the IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>to IEC within three working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by AAHK / PM until the exceedance is abated.</p>

Appendix C-2 Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	AAHK / PM	Contractor
Action Level	<p>1. Notify AAHK / PM, IEC and Contractor;</p> <p>2. Carry out investigation;</p> <p>3. Report the results of investigation to the IEC, AAHK / PM and Contractor;</p> <p>4. Discuss with the IEC and Contractor on remedial measures required;</p> <p>5. Increase monitoring frequency to check mitigation effectiveness.</p>	<p>1. Review the investigation results submitted by the ET;</p> <p>2. Review the proposed remedial measures by the Contractor and advise the AAHK / PM accordingly;</p> <p>3. Advise AAHK / PM on the effectiveness of the proposed remedial measures.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Supervise the implementation of remedial measures.</p>	<p>1. Submit noise mitigation proposals to IEC and AAHK / PM;</p> <p>2. Implement noise mitigation proposals.</p>
Limit Level	<p>1. Inform IEC, AAHK / PM and Contractor;</p> <p>2. Repeat measurements to confirm findings;</p> <p>3. Inform EPD after confirming the validity of exceedance;</p> <p>4. Increase monitoring frequency;</p> <p>5. Identify source and investigate the cause of exceedance;</p> <p>6. Carry out analysis of Contractor's working procedures;</p> <p>7. Discuss with the IEC,</p>	<p>1. Discuss amongst AAHK / PM, ET and Contractor on the potential remedial actions;</p> <p>2. Review contractor's remedial actions whenever necessary to assure their effectiveness and advise AAHK / PM accordingly.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Supervise the implementation of remedial measures;</p> <p>5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work</p>	<p>1. Take immediate action to avoid further exceedance;</p> <p>2. Submit proposals for remedial actions to IEC and AAHK / PM within three working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Submit further proposal if problem still not under control;</p> <p>5. Stop the relevant portion of works as</p>

Event	ET	IEC	Action	
			AAHK / PM	Contractor
	Contractor and AAHK / PM on remedial measures required; 8. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and AAHK / PM informed of the results; 9. If exceedance stops, cease additional monitoring.		which causes the exceedance until the exceedance is abated.	instructed by AAHK / PM until the exceedance is abated.

Appendix C-3 Event and Action Plan for Non-compliance of the WMP, Contract-specific WMPs, Any Statutory and Contractual Requirements



Appendix D. Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase

Appendix D Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
Air Quality Impact – Construction Phase					
5.2.6.2	2.1	-	Dust Control Measures <ul style="list-style-type: none"> Water spraying for 12 times a day or once every two hours for 24-hour working at all active works area. 	Within construction site / Duration of the construction phase	N/A
5.2.6.3	2.1	-	<ul style="list-style-type: none"> Covering of at least 80% of the stockpiling area by impervious sheets. Water spraying of all dusty materials immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling. 	Within construction site / Duration of the construction phase	I
5.2.6.4	2.1	-	Dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted. These practices include: Good Site Management <ul style="list-style-type: none"> Good site management is important to help reducing potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning. Disturbed Parts of the Roads <ul style="list-style-type: none"> Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. Exposed Earth <ul style="list-style-type: none"> Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies. Loading, Unloading or Transfer of Dusty Materials <ul style="list-style-type: none"> All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet. Debris Handling	Within construction site / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<ul style="list-style-type: none"> ▪ Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides. ▪ Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped. <p>Transport of Dusty Materials</p> <ul style="list-style-type: none"> ▪ Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards. <p>Wheel washing</p> <ul style="list-style-type: none"> ▪ Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. <p>Use of vehicles</p> <ul style="list-style-type: none"> ▪ The speed of the trucks within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site. ▪ Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. ▪ Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle. <p>Site hoarding</p> <ul style="list-style-type: none"> ▪ Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit. 		
5.2.6.5	2.1	-	<p>Best Practices for Concrete Batching Plant</p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2 as well as in the future Specified Process licence should be adopted. The best practices are recommended to be applied to both the land based and floating concrete batching plants. Best practices include:</p> <p>Cement and other dusty materials</p> <ul style="list-style-type: none"> ▪ The loading, unloading, handling, transfer or storage of cement, pulverised fuel ash (PFA) and/or other equally dusty materials shall be carried in a totally enclosed system acceptable to EPD. All dust-laden air or waste gas generated by the process operations shall be properly extracted and vented to fabric filtering system to meet the required emission limit. ▪ Cement, PFA and/or other equally dusty materials shall be stored in storage silo fitted with audible high level alarms to warn of over-filling. The high-level alarm indicators shall be interlocked with the material filling line such that in the event of the silo approaching an overfilling condition, an audible alarm will 	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<p>operate, and after 1 minute or less the material filling line will be closed.</p> <ul style="list-style-type: none"> ▪ Vents of all silos shall be fitted with fabric filtering system to meet the required emission limit. ▪ Vents of cement/PFA weighing scale shall be fitted with fabric filtering system to meet the required emission limit. ▪ Seating of pressure relief valves of all silos shall be checked, and the valves re-seated if necessary, before each delivery. <p>Other raw materials</p> <ul style="list-style-type: none"> ▪ The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rock, sand, stone aggregate, shall be carried out in such a manner to prevent or minimize dust emissions. ▪ The materials shall be adequately wetted prior to and during the loading, unloading and handling operations. Manual or automatic water spraying system shall be provided at all unloading areas, stock piles and material discharge points. ▪ All receiving hoppers for unloading relevant materials shall be enclosed on three sides up to 3 m above the unloading point. In no case shall these hoppers be used as the material storage devices. ▪ The belt conveyor for handling materials shall be enclosed on top and two sides with a metal board at the bottom to eliminate any dust emission due to wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can achieve same performance. ▪ All conveyor transfer points shall be totally enclosed. Openings for the passage of conveyors shall be fitted with adequate flexible seals. ▪ Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface. ▪ Conveyors discharged to stockpiles of relevant materials shall be arranged to minimize free fall as far as practicable. All free falling transfer points from conveyors to stockpiles shall be enclosed with chute(s) and water sprayed. ▪ Aggregates with a nominal size less than or equal to 5 mm should be stored in totally enclosed structure such as storage bin and should not be handled in open area. Where there is sufficient buffer area surrounding the concrete batching plant, ground stockpiling may be used. ▪ The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side. ▪ Aggregates with a nominal size greater than 5 mm should preferably be stored in a totally enclosed structure. If open stockpiling is used, the stockpile shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping. ▪ The opening between the storage bin and weighing scale of the materials shall be fully enclosed. <p>Loading of materials for batching</p>		

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<ul style="list-style-type: none"> ▪ Concrete truck shall be loaded in such a way as to minimise airborne dust emissions. The following control measures shall be implemented: <ul style="list-style-type: none"> (a) Pre-mixing the materials in a totally enclosed concrete mixer before loading the materials into the concrete truck is recommended. All dust-laden air generated by the pre-mixing process as well as the loading process shall be totally vented to fabric filtering system to meet the required emission limit. (b) If truck mixing batching or other types of batching method is used, effective dust control measures acceptable to EPD shall be adopted. The dust control measures must have been demonstrated to EPD that they are capable to collect and vent all dust-laden air generated by the material loading/mixing to dust arrestment plant to meet the required emission limit. ▪ The loading bay shall be totally enclosed during the loading process. <p>Vehicles</p> <ul style="list-style-type: none"> ▪ All practicable measures shall be taken to prevent or minimize the dust emission caused by vehicle movement. ▪ All access and route roads within the premises shall be paved and adequately wetted. <p>Housekeeping</p> <ul style="list-style-type: none"> ▪ A high standard of housekeeping shall be maintained. All spillages or deposits of materials on ground, support structures or roofs shall be cleaned up promptly by a cleaning method acceptable to EPD. Any dumping of materials at open area shall be prohibited. 		
5.2.6.6	2.1	-	<p>Best Practices for Asphaltic Concrete Plant</p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94) as well as in the future Specified Process licence should be adopted. These include:</p> <p>Design of Chimney</p> <ul style="list-style-type: none"> ▪ The chimney shall not be less than 3 metres plus the building height or 8 metres above ground level, whichever is the greater. ▪ The efflux velocity of gases from the main chimney shall not be less than 12 m/s at full load condition. ▪ The flue gas exit temperature shall not be less than the acid dew point. ▪ Release of the chimney shall be directed vertically upwards and not be restricted or deflected. <p>Cold feed side</p> <ul style="list-style-type: none"> ▪ The aggregates with a nominal size less than or equal to 5 mm shall be stored in totally enclosed structure such as storage bin and shall not be handled in open area. ▪ Where there is sufficient buffer area surrounding the plant, ground stockpiling may be used. The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side. If these aggregates are stored above the feeding hopper, they shall be enclosed at least on top and three 	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
		-	<p>sides and be wetted on the surface to prevent wind-whipping.</p> <ul style="list-style-type: none"> ▪ The aggregates with a nominal size greater than 5 mm should preferably be stored in totally enclosed structure. Aggregates stockpile that is above the feeding hopper shall be enclosed at least on top and three sides. If open stockpiling is used, the stockpiles shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping. ▪ Belt conveyors shall be enclosed on top and two sides and provided with a metal board at the bottom to eliminate any dust emission due to the wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can be achieve the same performance. ▪ Scrapers shall be provided at the turning points of all belt conveyors inside the chute of the transfer points to remove dust adhered to the belt surface. ▪ All conveyor transfer points shall be totally enclosed. Openings for the passages of conveyors shall be fitted with adequate flexible seals. ▪ All materials returned from dust collection system shall be transferred in enclosed system and shall be stored inside bins or enclosures. <p>Hot feed side</p> <ul style="list-style-type: none"> ▪ The inlet and outlet of the rotary dryer shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter. The particulate and gaseous concentration at the exhaust outlet of the dust collector shall not exceed the required limiting values. ▪ The bucket elevator shall be totally enclosed and the air be extracted and ducted to a dust collection system to meet the required particulates limiting value. ▪ All vibratory screens shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings. ▪ Chutes for carrying hot material shall be rigid and preferably fitted with abrasion resistant plate inside. They shall be inspected daily for leakages. ▪ All hot bins shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings. The air shall be extracted and ducted to a dust collection system to meet the required particulates limiting value. ▪ Appropriate control measures shall be adopted in order to meet the required bitumen emission limit as well as the ambient odour level (2 odour units). <p>Material transportation</p> <ul style="list-style-type: none"> ▪ The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rocks, sands, stone aggregates, reject fines, shall be carried out in such a manner as to minimize dust emissions. ▪ Roadways from the entrance of the plant to the product loading points and/or any other working areas where there are regular movements of vehicles shall be paved or hard surfaced. 		

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<ul style="list-style-type: none"> ▪ Haul roads inside the Works shall be adequately wetted with water and/or chemical suppressants by water trucks or water sprayers. <p>Control of emissions from bitumen decanting</p> <ul style="list-style-type: none"> ▪ The heating temperature of the particular bitumen type and grade shall not exceed the corresponding temperature limit of the same type listed in Appendix 1 of the Guidance Note. ▪ Tamper-free high temperature cut-off device shall be provided to shut off the fuel supply or electricity in case the upper limit for bitumen temperature is reached. ▪ Proper chimney for the discharge of bitumen fumes shall be provided at high level. ▪ The emission of bitumen fumes shall not exceed the required emission limit. ▪ The air-to-fuel ratio shall be properly controlled to allow complete combustion of the fuel. The fuel burners, if any, shall be maintained properly and free from carbon deposits in the burner nozzles. <p>Liquid fuel</p> <ul style="list-style-type: none"> ▪ The receipt, handling and storage of liquid fuel shall be carried out so as to prevent the release of emissions of organic vapours and/or other noxious and offensive emissions to the air. <p>Housekeeping</p> <ul style="list-style-type: none"> ▪ A high standard of housekeeping shall be maintained. Waste material, spillage and scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared frequently. The minimum clearing frequency is on a weekly basis. 		
5.2.6.7	2.1	-	<p>Best Practices for Rock Crushing Plants</p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plant) BPM 11/1 (95) as well as in the future Specified Process licence should be adopted. These include:</p> <p>Crushers</p> <ul style="list-style-type: none"> ▪ The outlet of all primary crushers, and both inlet and outlet of all secondary and tertiary crushers, if not installed inside a reasonably dust tight housing, shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter. ▪ The inlet hopper of the primary crushers shall be enclosed on top and 3 sides to contain the emissions during dumping of rocks from trucks. The rock while still on the trucks shall be wetted before dumping. ▪ Water sprayers shall be installed and operated in strategic locations at the feeding inlet of crushers. ▪ Crusher enclosures shall be rigid and be fitted with self-closing doors and close-fitting entrances and exits. Where conveyors pass through the crusher enclosures, flexible covers shall be installed at entries and exits of the conveyors to the enclosure. <p>Vibratory screens and grizzlies</p> <ul style="list-style-type: none"> ▪ All vibratory screens shall be totally enclosed in a housing. Screenhouses shall be rigid and reasonably 	Within Crushing Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<p>dust tight with self-closing doors or close-fitted entrances and exits for access. Where conveyors pass through the screenhouse, flexible covers shall be installed at entries and exits of the conveyors to the housing. Where containment of dust within the screenhouse structure is not successful then a dust extraction and collection system shall be provided.</p> <ul style="list-style-type: none"> ▪ All grizzlies shall be enclosed on top and 3 sides and sufficient water sprayers shall be installed at their feeding and outlet areas. <p>Belt conveyors</p> <ul style="list-style-type: none"> ▪ Except for those conveyors which are placed within a totally enclosed structure such as a screenhouse or those erected at the ground level, all conveyors shall be totally enclosed with windshield on top and 2 sides. ▪ Effective belt scraper such as the pre-cleaner blades made by hard wearing materials and provided with pneumatic tensioner, or equivalent device, shall be installed at the head pulley of designated conveyor as required to dislodge fine dust particles that may adhere to the belt surface and to reduce carry-back of fine materials on the return belt. Bottom plates shall also be provided for the conveyor unless it has been demonstrated that the corresponding belt scraper is effective and well maintained to prevent falling material from the return belt. ▪ Except for those transfer points which are placed within a totally enclosed structure such as a screenhouse, all transfer points to and from conveyors shall be enclosed. Where containment of dust within the enclosure is not successful, then water sprayers shall be provided. Openings for any enclosed structure for the passage of conveyors shall be fitted with flexible seals. <p>Storage piles and bins</p> <ul style="list-style-type: none"> ▪ Where practicable, free falling transfer points from conveyors to stockpiles shall be fitted with flexible curtains or be enclosed with chutes designed to minimize the drop height. Water sprays shall also be used where required. ▪ The surface of all surge piles and stockpiles of blasted rocks or aggregates shall be kept sufficiently wet by water spraying wherever practicable. ▪ All open stockpiles for aggregates of size in excess of 5 mm shall be kept sufficiently wet by water spraying where practicable. ▪ The stockpiles of aggregates 5 mm in size or less shall be enclosed on 3 sides or suitably located to minimize wind-whipping. Save for fluctuations in stock or production, the average stockpile shall stay within the enclosure walls and in no case the height of the stockpile shall exceed twice the height of the enclosure walls. ▪ Scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared regularly. <p>Rock drilling equipment</p> <ul style="list-style-type: none"> • Appropriate dust control equipment such as a dust extraction and collection system shall be used during rock drilling activities. 		

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
Hazard to Human Life – Construction Phase					
Table 6.40	3.2	-	<ul style="list-style-type: none"> Precautionary measures should be established to request barges to move away during typhoons 	Construction Site / Construction Period	N/A
Table 6.40	3.2	-	<ul style="list-style-type: none"> An appropriate marine traffic management system should be established to minimize risk of ship collision 	Construction Site / Construction Period	N/A
Table 6.40	3.2	-	<ul style="list-style-type: none"> Location of all existing hydrant networks should be clearly identified prior to any construction works. 	Construction Site / Construction Period	N/A
Noise Impact – Construction Phase					
7.5.6	4.3	-	<p>Good Site Practice Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during each phase of construction:</p> <ul style="list-style-type: none"> only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works; machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs; mobile plant should be sited as far away from NSRs as possible; and material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	<p>Adoption of QPME</p> <ul style="list-style-type: none"> QPME should be adopted as far as applicable. 	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	<p>Use of Movable Noise Barriers</p> <ul style="list-style-type: none"> Movable noise barriers should be placed along the active works area and mobile plants to block the direct line of sight between PME and the NSRs. 	Within the Project site / During construction phase / Prior to commencement of operation	N/A
7.5.6	4.3	-	<p>Use of Noise Enclosure/ Acoustic Shed</p> <ul style="list-style-type: none"> Noise enclosure or acoustic shed should be used to cover stationary PME such as air compressor and generator. 	Within the Project site / During construction phase / Prior to commencement of	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
operation					
Water Quality Impact – Construction Phase					
8.8.1.2 and 8.8.1.3	5.1	2.26	<p>Marine Construction Activities</p> <p><u>General Measures to be Applied to All Works Areas</u></p> <ul style="list-style-type: none"> ▪ Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; ▪ Use of Lean Material Overboard (LMOB) systems shall be prohibited; ▪ Excess materials shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessels are moved; ▪ Plants should not be operated with leaking pipes and any pipe leakages shall be repaired quickly; ▪ Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; ▪ All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; ▪ The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site; and ▪ For ground improvement activities including DCM, the wash water from cleaning of the drilling shaft should be appropriately treated before discharge. The Contractor should ensure the waste water meets the WPCO/TM requirements before discharge. No direct discharge of contaminated water is permitted. <p><u>Specific Measures to be Applied to All Works Areas</u></p> <ul style="list-style-type: none"> ▪ The daily maximum production rates shall not exceed those assumed in the water quality assessment in the EIA report; ▪ A maximum of 10 % fines content to be adopted for sand blanket and 20 % fines content for marine filling below +2.5 mPD prior to substantial completion of seawall (until end of Year 2017) shall be specified in the works contract document; ▪ An advance seawall of at least 200m to be constructed (comprising either rows of contiguous permanent steel cells completed above high tide mark or partially completed seawalls with rock core to high tide mark and filter layer on the inner side) prior to commencement of marine filling activities; ▪ Closed grab dredger shall be used to excavate marine sediment; ▪ Silt curtains surrounding the closed grab dredger shall be deployed in accordance with the Silt Curtain Deployment Plan; and ▪ The Silt Curtain Deployment Plan shall be implemented. <p><u>Specific Measures to be Applied to Land Formation Activities prior to Commencement of Marine Filling</u></p>	Within construction site / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			<p><u>Works</u></p> <ul style="list-style-type: none"> Double layer 'Type III' silt curtains to be applied around the active eastern works areas prior to commencement of sand blanket laying activities. The silt curtains shall be configured to minimise SS release during ebb tides. A silt curtain efficiency test shall be conducted to validate the performance of the silt curtains; Double layer silt curtains to enclose WSRs C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of construction; and The silt curtains and silt screens should be regularly checked and maintained. <p><u>Specific Measures to be Applied to Land Formation Activities during Marine Filling Works</u></p> <ul style="list-style-type: none"> Double layer 'Type II' or 'Type III' silt curtains to be applied around the eastern openings between partially completed seawalls prior to commencement of marine filling activities. The silt curtains shall be configured to minimise SS release during ebb tides; Double layer silt curtains to be applied at the south-western opening prior to commencement of marine filling activities; Double layer silt curtain to enclose WSR C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of marine filling activities; and The silt curtains and silt screens should be regularly checked and maintained. <p><u>Specific Measures to be Applied to the Field Joint Excavation Works for the Submarine Cable Diversion</u></p> <ul style="list-style-type: none"> Only closed grabs designed and maintained to avoid spillage shall be used and should seal tightly when operated. Excavated materials shall be disposed at designated marine disposal area in accordance with the Dumping and Sea Ordinance (DASO) permit conditions; and Silt curtains surrounding the closed grab dredger to be deployed as a precautionary measure. 		
8.8.1.4	5.1	-	<p>Modification of the Existing Seawall</p> <ul style="list-style-type: none"> Silt curtains shall be deployed around the seawall modification activities to completely enclose the active works areas, and care should be taken to avoid splashing of rockfill / rock armour into the surrounding marine environment. For the connecting sections with the existing outfalls, works for these connection areas should be undertaken during the dry season in order that individual drainage culvert cells may be isolated for interconnection works. 	At the existing northern seawall / Duration of the construction phase	N/A
8.8.1.5	5.1	-	<p>Construction of New Stormwater Outfalls and Modifications to Existing Outfalls</p> <ul style="list-style-type: none"> During operation of the temporary drainage channel, runoff control measures such as bunding or silt fence shall be provided on both sides of the channel to prevent accumulation and release of SS via the temporary channel. Measures should also be taken to minimise the ingress of site drainage into the culvert excavations. 	Within construction site / Duration of the construction phase	N/A
8.8.1.6	5.1	2.27	<p>Piling Activities for Construction of New Runway Approach Lights and HKIAAA Marker Beacons</p>	Within construction site / Duration of the	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
8.8.1.7			<p>Silt curtains shall be deployed around the piling activities to completely enclose the piling works and care should be taken to avoid spillage of excavated materials into the surrounding marine environment.</p> <p><u>For construction of the eastern approach lights at the CMPs</u></p> <ul style="list-style-type: none"> ▪ Ground improvement via DCM using a close-spaced layout shall be completed prior to commencement of piling works; ▪ Steel casings shall be installed to enclose the excavation area prior to commencement of excavation; ▪ The excavated materials shall be removed using a closed grab within the steel casings; ▪ No discharge of the cement mixed materials into the marine environment will be allowed; and ▪ Excavated materials shall be treated and reused on-site. 	construction phase	
8.8.1.8	5.1	-	<p>Construction Site Runoff and Drainage</p> <p>The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended:</p> <ul style="list-style-type: none"> ▪ Install perimeter cut-off drains to direct off-site water around the site and implement internal drainage, erosion and sedimentation control facilities. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the Contractors prior to the commencement of construction (for works areas located on the existing Airport island) or as soon as the new land is completed (for works areas located on the new landform); ▪ Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM-DSS standards under the WPCO. The design of efficient silt removal facilities should make reference to the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractors prior to the commencement of construction; ▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly; ▪ Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities; ▪ In the event that contaminated groundwater is identified at excavation areas, this should be treated on-site using a suitable wastewater treatment process. The effluent should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge to foul sewers or collected for proper disposal off-site. No direct discharge of contaminated groundwater is permitted; 	Within construction site / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
		-	<ul style="list-style-type: none"> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exits. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. All washwater should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge; Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the construction materials, soil, silt or debris from washing away into the drainage system; Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and to prevent stormwater runoff being directed into foul sewers; and Precautionary measures should be taken at any time of the year when rainstorms are likely. Actions to be taken when a rainstorm is imminent or forecasted are summarized in Appendix A2 of ProPECC Note PN 1/94. This includes actions to be taken during and/or after rainstorms. Particular attention should be paid to the control of silty surface runoff during storm events. 		
8.8.1.9	5.1	-	<p>Sewage Effluent from Construction Workforce</p> <ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	Within construction site / During construction phase	I
8.8.1.10 8.8.1.11	5.1		<p>General Construction Activities</p> <ul style="list-style-type: none"> Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby storm water drain. Stockpiles of cement and other construction materials should be kept covered when not being used. Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event. 	Within construction site / During construction phase	I
8.8.1.12 8.8.1.13	5.1	2.28	<p>Drilling Activities for the Submarine Aviation Fuel Pipelines</p> <p>To prevent potential water quality impacts at Sha Chau, the following measures shall be applied:</p> <ul style="list-style-type: none"> A 'zero-discharge' policy shall be applied for all activities to be conducted at Sha Chau; No bulk storage of chemicals shall be permitted; and A containment pit shall be constructed around the drill holes. This containment pit shall be lined with 	Within construction site / During construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ?^
			<p>impermeable lining and banded on the outside to prevent inflow from off-site areas.</p> <p>At the airport island side of the drilling works, the following measures shall be applied for treatment of wastewater:</p> <ul style="list-style-type: none"> During pipe cleaning, appropriate desilting or sedimentation device should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge. Drilling fluid used in drilling activities should be reconditioned and reused as far as possible. Temporary enclosed storage locations should be provided on-site for any unused chemicals that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. 		
Waste Management Implication – Construction Phase					
10.5.1.1	7.1	-	<p>Opportunities to minimise waste generation and maximise the reuse of waste materials generated by the project have been incorporated where possible into the planning, design and construction stages, and the following measures have been recommended:</p> <ul style="list-style-type: none"> The relevant construction methods (particularly for the tunnel works) and construction programme have been carefully planned and developed to minimise the extent of excavation and to maximise the on-site reuse of inert C&D materials generated by the project as far as practicable. Temporary stockpiling areas will also be provided to facilitate on-site reuse of inert C&D materials. Priority should be given to collect and reuse suitable inert C&D materials generated from other concurrent projects and the Government's PFRF as fill materials for the proposed land formation works. Only non-dredged ground improvement methods should be adopted in order to completely avoid the need for dredging and disposal of marine sediment for the proposed land formation work. Excavation work for constructing the APM tunnels, BHS tunnels and airside tunnels will not be down to the CMPs beneath the fill materials in order to avoid excavating any sediments. For the marine sediments expected to be excavated from the piling works of TRC, APM & BHS tunnels, airside tunnels and other facilities on the proposed land formation area, piling work of marine sections of the approach lights and HKIAAA beacons, basement works for some of T2 expansion area and excavation works for the proposed APM depot should be treated and reused on-site as backfilling materials, although required treatment level / detail and the specific re-use mode are under development. 	Project Site Area / During design and construction phase	N/A
10.5.1.1	7.1	-	<p>The following good site practices should be performed during the construction activities include:</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Training of site personnel in proper waste management and chemical waste handling procedures. Provision of sufficient waste disposal points and regular collection for disposal. 	Project Site Area / Construction Phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			<ul style="list-style-type: none"> ▪ Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks by tarpaulin/ similar material or by transporting wastes in enclosed containers. The cover should be extended over the edges of the sides and tailboards. ▪ Stockpiles of C&D materials should be kept wet or covered by impervious sheets to avoid wind-blown dust. ▪ All dusty materials including C&D materials should be sprayed with water immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling at the barging points/ stockpile areas. ▪ C&D materials to be delivered to and from the project site by barges or by trucks should be kept wet or covered to avoid wind-blown dust. ▪ The speed of the trucks including dump trucks carrying C&D or waste materials within the site should be controlled to about 10 km/hour in order to reduce the adverse dust impact and secure the safe movement around the site. ▪ To avoid or minimise dust emission during transport of C&D or waste materials within the site, each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials. Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. 		
10.5.1.3	7.1	-	<p>The following practices should be performed to achieve waste reduction include:</p> <ul style="list-style-type: none"> ▪ Use of steel or aluminium formworks and falseworks for temporary works as far as practicable. ▪ Adoption of repetitive design to allow reuse of formworks as far as practicable. ▪ Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. ▪ Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force. ▪ Any unused chemicals or those with remaining functional capacity should be collected for reused as far as practicable. ▪ Proper storage and site practices to minimise the potential for damage or contamination of construction materials. ▪ Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 	Project Site Area / Construction Phase	N/A
10.5.1.5	7.1		<ul style="list-style-type: none"> ▪ Inert and non-inert C&D materials should be handled and stored separately to avoid mixing the two types of materials. 	Project Site Area / Construction Phase	N/A
10.5.1.5	7.1	-	<ul style="list-style-type: none"> ▪ Any recyclable materials should be segregated from the non-inert C&D materials for collection by reputable licensed recyclers whereas the non-recyclable waste materials should be disposed of at the designated landfill site by a reputable licensed waste collector. 	Project Site Area / Construction Phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
10.5.1.6	7.1	-	<ul style="list-style-type: none"> A trip-ticket system promulgated shall be developed in order to monitor the off-site delivery of surplus inert C&D materials that could not be reused on-site for the proposed land formation work at the PFRF and to control fly tipping. 	Project Site Area / Construction Phase	I
10.5.1.6	7.1	2.32	<ul style="list-style-type: none"> The Contractor should prepare and implement a Waste Management Plan detailing various waste arising and waste management practices. 	Construction Phase	I
10.5.1.16	7.1	-	<p>The following mitigation measures are recommended during excavation and treatment of the sediments:</p> <ul style="list-style-type: none"> On-site remediation should be carried out in an enclosed area in order to minimise odour/dust emissions; The loading, unloading, handling, transfer or storage of treated and untreated sediment should be carried out in such a manner to prevent or minimise dust emissions; All practical measures, including but not limited to speed control for vehicles, should be taken to minimise dust emission; Good housekeeping should be maintained at all times at the sediment treatment facility and storage area; Treated and untreated sediment should be clearly separated and stored separately; and Surface runoff from the enclosed area should be properly collected and stored separately, and then properly treated to levels in compliance with the relevant effluent standards as required by the Water Pollution Control Ordinance before final discharge. 	Project Site Area / Construction Phase	N/A
10.5.1.18	7.1	-	<p>The marine sediments to be removed from the cable field joint area would be disposed of at the designated disposal sites to be allocated by the MFC. The following mitigation measures should be strictly followed to minimise potential impacts on water quality during transportation of the sediments requiring Type 1 disposal:</p> <ul style="list-style-type: none"> Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by EPD. Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation. 	Project Site Area / Construction Phase	N/A
10.5.1.19	7.1	-	<p>Contractor should register with the EPD as a chemical waste producer and to follow the relevant guidelines. The following measures should be implemented:</p> <ul style="list-style-type: none"> Good quality containers compatible with the chemical wastes should be used; Incompatible chemicals should be stored separately; Appropriate labels must be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc; The contractor will use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the 	Project Site Area / Construction Phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			Waste Disposal (Chemical Waste) (General) Regulation.		
10.5.1.20	7.1	-	<ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separated from inert C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site for disposal at designated landfill sites. An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. 	Project Site Area / Construction Phase	I
10.5.1.21	7.1	-	<ul style="list-style-type: none"> The construction contractors will be required to regularly check and clean any refuse trapped or accumulated along the newly constructed seawall. Such refuse will then be stored and disposed of together with the general refuse. 	Project Site Area / Construction Phase	N/A
Land Contamination – Construction Phase					
11.10.1.2 to 11.10.1.3	8.1	2.32	<p>For areas inaccessible during site reconnaissance survey</p> <ul style="list-style-type: none"> Further site reconnaissance would be conducted once the areas are accessible in order to identify any land contamination concern for the areas. Subject to further site reconnaissance findings, a supplementary Contamination Assessment Plan (CAP) for additional site investigation (SI) (if necessary) may be prepared and submitted to EPD for endorsement prior to the commencement of SI at these areas. After completion of SI, the Contamination Assessment Report (CAR) will be prepared and submitted to EPD for approval prior to start of the proposed construction works at the golf course, the underground and above-ground fuel storage tank areas, emergency power generation units, airside petrol filling station and fuel tank room. Should remediation be required, Remediation Action Plan (RAP) and Remediation Report (RR) will be prepared for EPD's approval prior to commencement of the proposed remediation and any construction works respectively. 	Project Site Area inaccessible during site reconnaissance / Prior to Construction Phase	N/A
11.8.1.2	8.1	-	<p>If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any):</p> <ul style="list-style-type: none"> To minimize the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed; Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site; Stockpiling of contaminated excavated materials on site should be avoided as far as possible; The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out; Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater; 	Project Site Area / Construction Phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			<ul style="list-style-type: none"> Truck bodies and tailgates should be sealed to prevent any discharge; Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping; Speed control for trucks carrying contaminated materials should be exercised. 8km/h is the recommended speed limit; Strictly observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and Maintain records of waste generation and disposal quantities and disposal arrangements. 		
Terrestrial Ecological Impact – Construction Phase					
12.10.1.1	9.2	2.14	Pre-construction Egretty Survey <ul style="list-style-type: none"> Conduct ecological survey for Sha Chau egretty to update the latest boundary of the egretty. 	Breeding season (April - July) prior to commencement of HDD drilling works at HKIA	I
12.7.2.3 and 12.7.2.6	9.1	2.30	Avoidance and Minimisation of Direct Impact to Egretty <ul style="list-style-type: none"> The daylighting location will avoid direct encroachment to the Sheung Sha Chau egretty. The daylighting location and mooring of flat top barge, if required, will be kept away from the egretty; In any event, controls such as demarcation of construction site boundary and confining the lighting within the site will be practised to minimise disturbance to off-site habitat at Sheung Sha Chau Island; and The containment pit at the daylighting location shall be covered or camouflaged. 	During construction phase at Sheung Sha Chau Island	N/A
12.7.2.5	9.1	2.30	Preservation of Nesting Vegetation <ul style="list-style-type: none"> The proposed daylighting location and the arrangement of connecting pipeline will avoid the need of tree cutting, therefore the trees that are used by ardeids for nesting will be preserved. 	During construction phase at Sheung Sha Chau Island	N/A
12.7.2.4 and 12.7.2.6	9.1	2.30	Timing the Pipe Connection Works outside Ardeid's Breeding Season <ul style="list-style-type: none"> All HDD and related construction works on Sheung Sha Chau Island will be scheduled outside the ardeids' breeding season (between April and July). No night-time construction work will be allowed on Sheung Sha Chau Island during all seasons. 	During construction phase at Sheung Sha Chau Island	N/A
12.10.1.1	9.3	-	Ecological Monitoring <ul style="list-style-type: none"> During the HDD construction works period from August to March, ecological monitoring will be undertaken monthly at the HDD daylighting location on Sheung Sha Chau Island to identify and evaluate any impacts with appropriate actions taken as required to address and minimise any adverse impact found. 	at Sheung Sha Chau Island	N/A
Marine Ecological Impact – Pre-construction Phase					

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
13.11.4.1	10.2.2	-	<ul style="list-style-type: none"> Pre-construction phase Coral Dive Survey 	HKIAAA artificial seawall	I
Marine Ecological Impact – Construction Phase					
13.11.1.3 to 13.11.1.6	-	-	<p>Minimisation of Land Formation Area</p> <ul style="list-style-type: none"> Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for marine resources, especially the CWD population. 	Land formation footprint / during detailed design phase to completion of construction	N/A
13.11.1.7 to 13.11.1.10	-	2.31	<p>Use of Construction Methods with Minimal Risk/Disturbance</p> <ul style="list-style-type: none"> Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF; Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on CWDs, fisheries and the marine environment; Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; Avoid bored piling during CWD peak calving season (Mar to Jun); Prohibition of underwater percussive piling; and Use of horizontal directional drilling (HDD) method and water jetting methods for placement of submarine cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources. 	During construction phase at marine works area	N/A
13.11.2.1 to 13.11.2.7	-	-	<p>Mitigation for Indirect Disturbance due to Deterioration of Water Quality</p> <ul style="list-style-type: none"> Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices; Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains); Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources. 	All works area during the construction phase	N/A
13.11.1.12	-	-	<p>Strict Enforcement of No-Dumping Policy</p> <ul style="list-style-type: none"> A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area; Mandatory educational programme of the no-dumping policy be made available to all construction site 	All works area during the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			<p>personnel for all project-related works;</p> <ul style="list-style-type: none"> ▪ Fines for infractions should be implemented; and ▪ Unscheduled, on-site audits shall be implemented. 		
13.11.1.13	-	-	<p>Good Construction Site Practices</p> <ul style="list-style-type: none"> ▪ Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines. ▪ Keep the number of working or stationary vessels present on-site to the minimum anytime ▪ Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators. 	All works area during the construction phase	N/A
13.11.5.4 to 13.11.5.13	10.3.1	-	<p>SkyPier High Speed Ferries' Speed Restrictions and Route Diversions</p> <ul style="list-style-type: none"> ▪ SkyPier HSFs operating to / from Zhuhai and Macau would divert north of SCLKC Marine Park with a 15 knot speed limit to apply for the part-journeys that cross high CWD abundance grid squares as indicatively shown in Drawing No. MCL/P132/EIA/13-023 of the EIA Report. Both the alignment of the northerly route and the portion of routings to be subject to the speed limit of 15 knots shall be finalised prior to commencement of construction based on the future review of up-to-date CWD abundance and EM&A data and taking reference to changes in total SkyPier HSF numbers; and ▪ A maximum of 10 knots will be enforced through the designated SCLKC Marine Park area at all times. <p>Other mitigation measures</p> <ul style="list-style-type: none"> ▪ The ET will audit various parameters including actual daily numbers of HSFs, compliance with the 15-knot speed limit in the speed control zone and diversion compliance for SkyPier HSFs operating to / from Zhuhai and Macau; and ▪ The effectiveness of the CWD mitigation measures after implementation of initial six month SkyPier HSF diversion and speed restriction will be reviewed. 	Area between the footprint and SCLKC Marine Park during construction phase	I
13.11.5.14 to 13.11.5.18	10.3.1	2.31	<p>Dolphin Exclusion Zone</p> <ul style="list-style-type: none"> ▪ Establishment of a 24 hr Dolphin Exclusion Zone (DEZ) with a 250 m radius around the land formation works areas. ▪ A DEZ would also be implemented during ground improvement works (e.g. DCM), water jetting works for submarine cables diversion, open trench dredging at the field joint locations and seawall construction; and ▪ A DEZ would also be implemented during bored piling work but as a precautionary measure only. 	Marine waters around land formation works area during construction phase	N/A
13.11.5.19	10.4	2.31	<p>Acoustic Decoupling of Construction Equipment</p> <ul style="list-style-type: none"> ▪ Air compressors and other noisy equipment that must be mounted on steel barges should be acoustically-decoupled to the greatest extent feasible, for instance by using rubber or air-filled tyres. ▪ Specific acoustic decoupling measures shall be specified during the detailed design of the project for use during the land formation works. 	Around coastal works area during construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
13.11.5.20	10.6.1	2.29	Spill Response Plan <ul style="list-style-type: none"> An oil and hazardous chemical spill response plan is proposed to be established during the construction phase as a precautionary measure so that appropriate actions to prevent or reduce risks to CWDs can be undertaken in the event of an accidental spillage. 	Construction phase	N/A
13.11.5.21 to 13.11.5.23	10.6.1	-	Construction Vessel Speed Limits and Skipper Training <ul style="list-style-type: none"> A speed limit of 10 knots should be strictly observed for construction vessels at areas with the highest CWD densities; and Vessels traversing through the work areas should be required to use predefined and regular routes (which would presumably become known to resident dolphins) to reduce disturbance to cetaceans due to vessel movements. Specific marine routes shall be specified by the Contractor prior to construction commencing. 	All areas north and west of Lantau Island during construction phase	N/A
Fisheries Impact – Construction Phase					
14.9.1.2 to 14.9.1.5	-	-	Minimisation of Land Formation Area <ul style="list-style-type: none"> Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for fisheries resources. 	Land formation footprint / during detailed design phase to completion of construction	N/A
14.9.1.6	-	-	Use of Construction Methods with Minimal Risk/Disturbance <ul style="list-style-type: none"> Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF; Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on fisheries and the marine environment; Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources. 	During construction phase at marine works area	N/A
14.9.1.11	-	-	Strict Enforcement of No-Dumping Policy <ul style="list-style-type: none"> A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area; Mandatory educational programme of the no-dumping policy be made available to all construction site personnel for all project-related works; Fines for infractions should be implemented; and Unscheduled, on-site audits shall be implemented. 	All works area during the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
14.9.1.12	-		Good Construction Site Practices <ul style="list-style-type: none"> Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines; Keep the number of working or stationary vessels present on-site to the minimum anytime; and Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators. 	All works area during the construction phase	N/A
14.9.1.13 to 14.9.1.18	-		Mitigation for Indirect Disturbance due to Deterioration of Water Quality <ul style="list-style-type: none"> Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices; Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains); Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources. 	All works area during the construction phase	N/A
Landscape and Visual Impact – Construction Phase					
Table 15.6	12.3	-	CM1 - The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.	All works areas for duration of works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM2 - Reduction of construction period to practical minimum.	All works areas for duration of works; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	CM3 - Phasing of the construction stage to reduce visual impacts during the construction phase.	All works areas for duration of works; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	CM4 - Construction traffic (land and sea) including construction plants, construction vessels and barges should be kept to a practical minimum.	All works areas for duration of works; Upon handover and completion of works.	I
Table 15.6	12.3	-	CM5 - Erection of decorative mesh screens or construction hoardings around works areas in visually	All works areas for	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
			unobtrusive colours.	duration of works; Upon handover and completion of works. – may be disassembled in phases	
Table 15.6	12.3	-	CM6 - Avoidance of excessive height and bulk of site buildings and structures.	New passenger concourse, terminal 2 expansion and other proposed airport related buildings and structures under the project; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	CM7 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	All works areas for duration of works; Upon handover and completion of works. – may be disassembled in phases	N/A
Table 15.6	12.3	-	CM8 - All existing trees shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas.	All existing trees to be retained; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	CM9 - Trees unavoidably affected by the works shall be transplanted where practical. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.	All existing trees to be affected by the works; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	CM10 - Land formation works shall be followed with advanced hydroseeding around taxiways and runways as soon as practical.	All affected existing grass areas around runways and verges/Duration of works; Upon handover and completion of works.	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented ? [^]
Cultural Heritage Impact – Construction Phase					
	-		Not applicable.		
Health Impact – Aircraft Emissions					
	-		Not applicable.		
Health Impact – Aircraft Noise					
	-		Not applicable.		

Notes:

I= implemented where applicable; N/A= not applicable to the construction works implemented during the reporting month.

[^] Checked by ET during site inspection



Appendix E. Calibration Certificates

EQUIPMENT CALIBRATION RECORD

Type :	Laser Dust Monitor
Manufacturer / Brand :	SIBATA
Model No.:	LD-3B
Equipment No.:	LD-3B-002
Serial No.:	974350
Sensitivity Adjustment Scale Setting :	622 CPM

Standard Equipment

Equipment :	MFC High Volume Air Sampler
Venue :	Tung Chung Pier
Model No.:	TE-5170 Total Suspended Particulate
Serial No.:	S/N3641
Previous Calibration Date	05/10/2015

Calibration Result

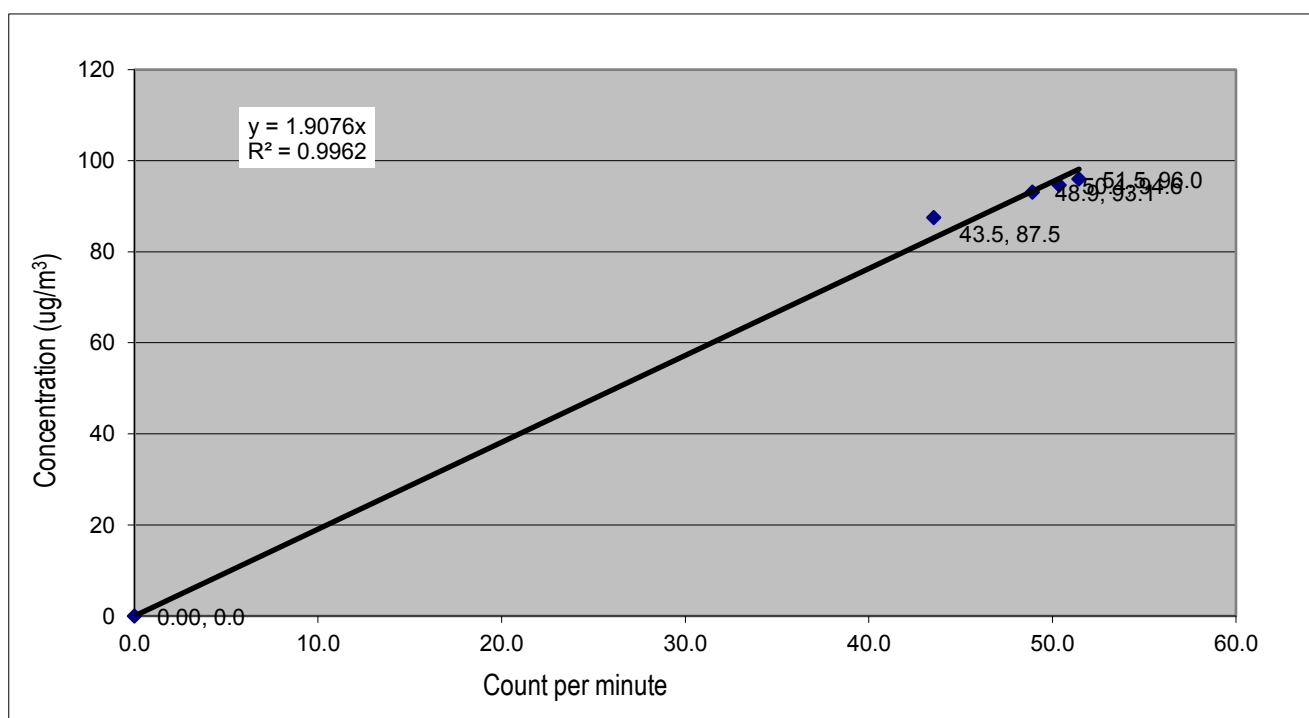
Sensitivity Adjustment Scale Setting (Before Calibration) :	622 CPM
Sensitivity Adjustment Scale Setting (After Calibration) :	622 CPM

Hour	Date (dd-mmm-yy)	Time		Ambient Condition		Concentration (ug/m ³) Y-axis	Total Count	Count/Minute X-axis
				Temp (C)	R.H. (%)			
1	25-Nov-15	14:20	15:20	23.6	68%	87.5	2612	43.5
2	25-Nov-15	15:34	16:34	24.8	60%	93.1	2934	48.9
3	25-Nov-15	16:50	17:50	23.8	60%	96.0	3087	51.5
4	25-Nov-15	18:00	19:00	23.5	50%	94.6	3022	50.4

Be Linear Regression of Y or X

Slope (K-factor): 1.9076
 Correlation coefficient : 0.9962

Remark: _____



Recorded by: Ray Cheng

Signature: _____

Date: 30/11/2015

Checked by: Ketih Chau

Signature: _____

Date: 30/11/2015

ENVIROTECH SERVICES CO.

High-Volume TSP Sampler
5-Point Calibration Record

Location : AMS2(Tung Chung Development Pier)
Calibrated by : P.F.Yeung
Date : 27/11/2015

Sampler

Model : TE-5170
Serial Number : S/N3641

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 24 Mar 2015
Slope (m) : 2.09532
Intercept (b) : -0.03812
Correlation Coefficient(r) : 0.99994

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1022
Ta(K) : 292

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.6	3.456	1.668	58	58.85
2 13 holes	9.4	3.111	1.503	52	52.76
3 10 holes	6.8	2.646	1.281	45	45.66
4 7 holes	4.5	2.153	1.045	36	36.53
5 5 holes	2.8	1.698	0.829	28	28.41

Notes: $Z = \sqrt{dH(Pa/Pstd)(Tstd/Ta)}$, $X = Z/m - b$, $Y(\text{Corrected Flow}) = IC * \{ \sqrt{Pa/Pstd}(Tstd/Ta) \}$

Sampler Calibration Relationship

Slope(m): 36.132 Intercept(b): -1.267

Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan

Date: 03/12/2015

Certificate of Calibration

校正證書

Certificate No. : C154626
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1823) Date of Receipt / 收件日期 : 18 August 2015
Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2684503
Supplied By / 委託者 : Atkins China Limited
19/F., Tower 1, The Gateway Harbour City,
Tsim Sha Tsui, Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 24 August 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : _____
H T Wong
Technical Officer

Certified By : 
核證 : _____
K C Lee
Project Engineer

Date of Issue : 24 August 2015
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C154626
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.2

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C154626

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C154626
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.9	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5	
			60 sec.					1/10 ²	90	90.1	± 0.5
								1/10 ³	80	79.8	± 1.0
								1/10 ⁴	70	69.8	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2682524

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
	104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
	114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
	Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。



Certificate of Calibration

校正證書

Certificate No. : C156299
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-2523) Date of Receipt / 收件日期 : 6 November 2015
Description / 儀器名稱 : Integrating Sound Level Meter
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2808432
Supplied By / 委託者 : Atkins China Limited
19/F., Tower 1, The Gateway Harbour City,
Tsim Sha Tsui, Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

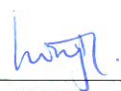
DATE OF TEST / 測試日期 : 10 November 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 : _____
H T Wong
Technical Officer

Certified By : 
核證 : _____
K C Lee
Project Engineer

Date of Issue : 11 November 2015
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C156299

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.3.2.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level :

- 6.1.1 Reference Sound Pressure Level

- 6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	A	F	94.00	1	95.2

- 6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFF}	A	F	94.00	1	94.1	± 1.1

- 6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFF}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				114.00		114.1

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C156299
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	63 Hz	68.0	-26.2 ± 1.5
					125 Hz	78.0	-16.1 ± 1.5
					250 Hz	85.4	-8.6 ± 1.4
					500 Hz	90.9	-3.2 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	92.9	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	63 Hz	93.4	-0.8 ± 1.5
					125 Hz	94.0	-0.2 ± 1.5
					250 Hz	94.1	0.0 ± 1.4
					500 Hz	94.1	0.0 ± 1.4
					1 kHz	94.1	Ref.
					2 kHz	94.0	-0.2 ± 1.6
					4 kHz	93.3	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C156299

證書編號

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2929047

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
250 Hz - 500 Hz : ± 0.30 dB
1 kHz : ± 0.20 dB
2 kHz - 4 kHz : ± 0.35 dB
8 kHz : ± 0.45 dB
12.5 kHz : ± 0.70 dB
104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

for

Description: Sound Level Calibrator
Manufacturer: Bruel & Kjaer
Type No.: 4231
Serial No.: 3003246

Submitted by:

Customer: Atkins
Address: 13/F, Wharf T&T Centre,
Harbour City, Tsim Sha Tsui,
Kowloon, Hong Kong

The apparatus has been calibrated in accordance with the In-house method for acoustics calibrator calibration


Upon receipt for calibration, the instrument was found to be:

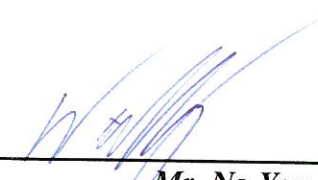
- Within
 Outside

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:
- HOKLAS

Date of calibration: 20 May 2015

Calibrated by: 
Mr. Tang Cheuk Hang
Quality Manager

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

**1. Calibration Specifications:**

Calibration check.

2. Calibration Conditions:

Air Temperature: 21.5 °C
Air Pressure: 1008 hPa
Relative Humidity: 69.5 %

3. Calibration Equipment:

	Type	Serial No.	Last Calibration Date	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	12 May 2015	PA150063	HOKLAS

*Engineering Unit of Reference Microphone: 54.4mV/Pa.

4. Calibration Results

4.1 Sound Pressure Level

Nominal value dB	Accept level lower dB	Accept level upper dB	Measured value dB
94.3	93.8	94.8	94.0

Certificate of Calibration

校正證書

Certificate No. : C153870
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-1591)

Date of Receipt / 收件日期 : 16 July 2015

Description / 儀器名稱 : Acoustical Calibrator
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 3004068
Supplied By / 委託者 : Atkins China Limited
19/F., Tower 1, The Gateway Harbour City,
Tsim Sha Tsui, Kowloon

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 18 July 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By : 
測試 K O Lee

Project Engineer

Certified By : 
核證 K M Wu

Engineer

Date of Issue : 21 July 2015
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C153870

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C153519
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



Appendix F. Monitoring Schedule

Monitoring Schedule of This Reporting Period

DECEMBER 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28 Commencement of HDD Construction Works NM4 NM6	29 NM5/AR2 Site Inspection	30 NM1A/AR1A NM3A	31		
		Notes: NM1A/AR1A - Man Tung Road Park NM3A - Site Office NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan				

January 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 NM5/AR2 NM6	5 NM1A/AR1A NM3A NM4 Site Inspection	6	7	8 AR2	9
10	11 NM1A/AR1A NM3A NM4	12 Site Inspection	13	14 NM5/AR2 NM6	15 AR1A	16
17	18	19 Site Inspection	20 NM5/AR2 NM6	21 NM1A/AR1A NM3A	22 NM4 [^]	23
24	25	26 NM5/AR2 NM6 Site Inspection	27 NM1A/AR1A NM3A NM4	28 Site Inspection	29	30
31		<p>Notes:</p> <p>[^] Noise monitoring at NM4 was cancelled on 21 Jan 2016 due to rain and rescheduled to 22 Jan 2016.</p> <p>NM1A/AR1A - Man Tung Road Park NM3A - Site Office at the northern edge of the reclaimed land NM4 - Ching Chung Hau Po Won Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan</p>				

Tentative Monitoring Schedule of Next Reporting Period

FEBRUARY 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 AR2	2 NM1A/AR1A NM3A NM4	3 Site Inspection	4	5 AR1A AR2 NM5 NM6	6
7	8	9	10	11 NM1A/AR1A NM5/AR2 NM6	12 NM3A NM4 Site Inspection	13
14	15 AR1A AR2	16	17 Site Inspection	18 NM5/AR2 NM6	19 NM1A/AR1A NM3A NM4	20
21	22	23	24 NM5/AR2 NM6 Site Inspection	25 NM1A/AR1A NM3A NM4	26	27
28	29					
		Notes: NM1A/AR1A - Man Tung Road Park NM3A - Site Office at the northern edge of the reclaimed land NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan				

Appendix G. Monitoring Results

Air Quality Monitoring Results

Air Quality Monitoring Result- 1-hour TSP Results

Station: AR1A- Man Tung Road Park

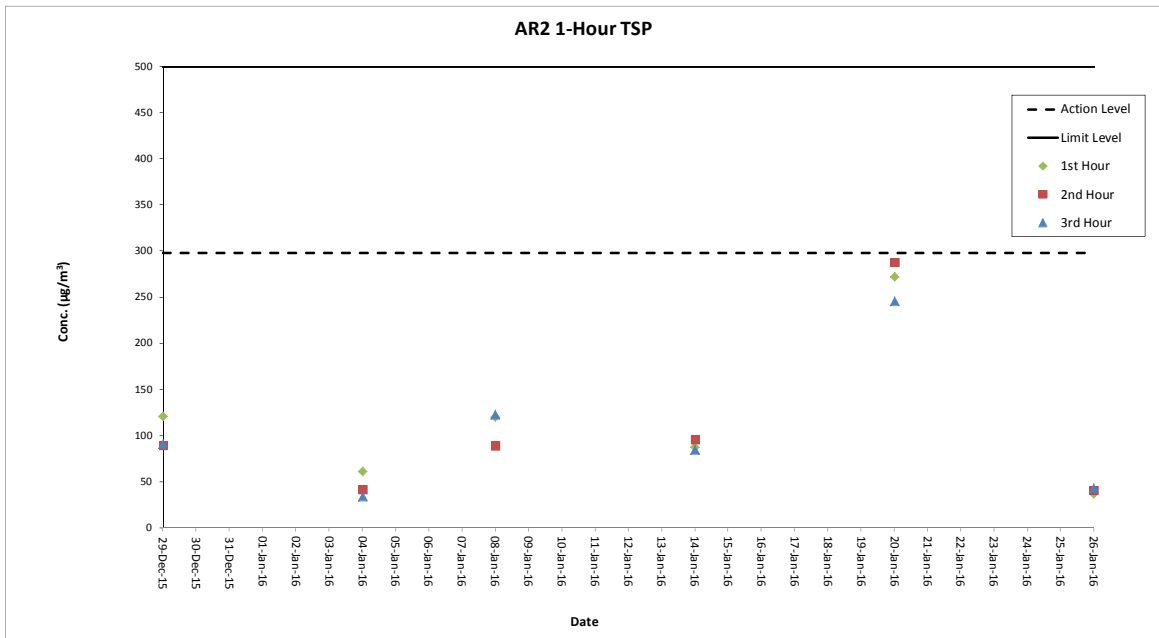
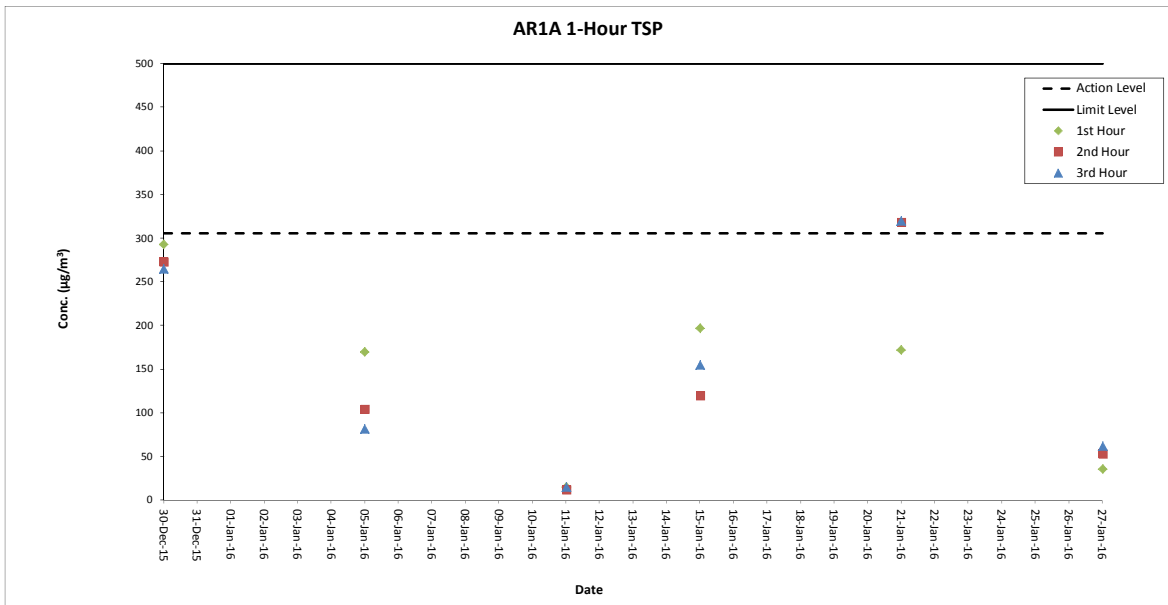
Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
30-Dec-15	9:00	Cloudy	3.8	44	293	306	500
30-Dec-15	10:00	Cloudy	3.3	359	273	306	500
30-Dec-15	11:00	Cloudy	3.3	56	265	306	500
05-Jan-16	9:00	Cloudy	6.3	127	170	306	500
05-Jan-16	10:00	Cloudy	6.9	126	105	306	500
05-Jan-16	11:00	Cloudy	7.3	102	82	306	500
11-Jan-16	09:12	Cloudy	5.4	61	15	306	500
11-Jan-16	10:12	Cloudy	6.4	52	12	306	500
11-Jan-16	11:12	Cloudy	1.9	25	15	306	500
15-Jan-16	09:50	Rainy	5.6	68	197	306	500
15-Jan-16	10:50	Rainy	5.4	72	120	306	500
15-Jan-16	14:11	Rainy	6.8	56	155	306	500
21-Jan-16	09:00	Cloudy and Foggy	3.2	57	172	306	500
21-Jan-16	10:00	Cloudy and Foggy	1.8	18	319	306	500
21-Jan-16	11:00	Cloudy and Foggy	2.7	2	320	306	500
27-Jan-16	13:14	Cloudy	3.1	56	36	306	500
27-Jan-16	14:14	Cloudy	2.2	18	53	306	500
27-Jan-16	15:14	Cloudy	2.8	61	62	306	500

Remark: Bold value indicated an Action Level exceedance. The investigation result of the exceedances can be referred to S2.5 of the EM&A report. The exceedances were identified as non-project-related from the investigation findings.

Air Quality Monitoring Result- 1-hour TSP Results

Station: AR2- Village House, Tin Sum

Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
29-Dec-15	9:00	Sunny	5.8	80	121	298	500
29-Dec-15	10:00	Sunny	4.1	32	90	298	500
29-Dec-15	11:00	Sunny	5	68	91	298	500
04-Jan-16	8:55	Cloudy	3.4	70	61	298	500
04-Jan-16	9:55	Cloudy	5	62	42	298	500
04-Jan-16	10:55	Cloudy	4.4	71	34	298	500
08-Jan-16	09:00	Sunny	3.3	137	120	298	500
08-Jan-16	10:00	Sunny	2.6	29	89	298	500
08-Jan-16	11:00	Sunny	4.9	349	123	298	500
14-Jan-16	09:00	Fine	5.4	85	88	298	500
14-Jan-16	10:00	Fine	5.1	81	96	298	500
14-Jan-16	11:00	Fine	8.5	96	85	298	500
20-Jan-16	08:55	Cloudy	10.1	94	272	298	500
20-Jan-16	09:55	Cloudy	9.4	101	288	298	500
20-Jan-16	10:55	Cloudy	8.8	97	246	298	500
26-Jan-16	09:00	Cloudy	4	78	37	298	500
26-Jan-16	10:00	Cloudy	2.7	63	41	298	500
26-Jan-16	11:00	Cloudy	3.2	63	43	298	500



Noise Monitoring Results

Noise Measurement Results

Station: NM1A- Man Tung Road Park

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
30-Dec-15	Cloudy	09:09	73.0	66.0	71
30-Dec-15	Cloudy	09:14	75.0	67.0	
30-Dec-15	Cloudy	09:19	74.0	66.5	
30-Dec-15	Cloudy	09:24	75.0	67.0	
30-Dec-15	Cloudy	09:29	74.5	66.5	
30-Dec-15	Cloudy	09:34	74.0	66.5	
05-Jan-16	Cloudy	09:44	73.5	66.0	71
05-Jan-16	Cloudy	09:49	73.5	66.5	
05-Jan-16	Cloudy	09:54	73.5	66.5	
05-Jan-16	Cloudy	09:59	74.5	67.0	
05-Jan-16	Cloudy	10:04	73.5	66.0	
05-Jan-16	Cloudy	10:09	74.5	66.5	
11-Jan-16	Cloudy	09:27	73.0	65.5	71
11-Jan-16	Cloudy	09:32	74.5	66.5	
11-Jan-16	Cloudy	09:37	75.0	66.5	
11-Jan-16	Cloudy	09:42	73.5	66.0	
11-Jan-16	Cloudy	09:47	74.0	66.0	
11-Jan-16	Cloudy	09:52	73.5	66.0	
21-Jan-16	Cloudy	09:41	73.0	65.5	71
21-Jan-16	Cloudy	09:46	74.0	65.5	
21-Jan-16	Cloudy	09:51	74.0	66.0	
21-Jan-16	Cloudy	09:56	73.0	70.0	
21-Jan-16	Cloudy	10:01	73.5	66.0	
21-Jan-16	Cloudy	10:06	73.0	66.0	
27-Jan-16	Cloudy	15:21	73.5	65.5	71
27-Jan-16	Cloudy	15:26	73.0	65.5	
27-Jan-16	Cloudy	15:31	72.5	65.5	
27-Jan-16	Cloudy	15:36	73.0	66.0	
27-Jan-16	Cloudy	15:41	73.5	65.5	
27-Jan-16	Cloudy	15:46	74.0	66.5	

Remarks:

^ +3dB (A) correction was applied to free-field measurement.

Noise Measurement Results

Station: NM3A- Site Office

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
30-Dec-15	Cloudy	11:45	69.0	59.0	63
30-Dec-15	Cloudy	11:50	68.0	60.5	
30-Dec-15	Cloudy	11:55	72.0	59.5	
30-Dec-15	Cloudy	12:00	68.5	59.5	
30-Dec-15	Cloudy	12:05	66.0	57.5	
30-Dec-15	Cloudy	12:10	71.5	60.0	
05-Jan-16	Cloudy	11:30	69.0	57.5	57
05-Jan-16	Cloudy	11:35	66.5	58.0	
05-Jan-16	Cloudy	11:40	65.5	58.0	
05-Jan-16	Cloudy	11:45	69.0	59.0	
05-Jan-16	Cloudy	11:50	64.0	58.5	
05-Jan-16	Cloudy	11:55	64.5	58.0	
11-Jan-16	Cloudy	14:33	67.5	56.0	57
11-Jan-16	Cloudy	14:38	68.5	57.0	
11-Jan-16	Cloudy	14:43	68.5	57.0	
11-Jan-16	Cloudy	14:48	68.0	57.5	
11-Jan-16	Cloudy	14:53	65.5	57.0	
11-Jan-16	Cloudy	14:58	64.0	57.0	
21-Jan-16	Cloudy	11:31	71.0	64.0	69
21-Jan-16	Cloudy	11:36	71.0	64.0	
21-Jan-16	Cloudy	11:41	71.5	64.5	
21-Jan-16	Cloudy	11:46	71.5	64.5	
21-Jan-16	Cloudy	11:51	71.5	64.5	
21-Jan-16	Cloudy	11:56	71.5	64.5	
27-Jan-16	Cloudy	11:15	67.5	55.5	61
27-Jan-16	Cloudy	11:20	68.5	55.0	
27-Jan-16	Cloudy	11:25	68.0	55.5	
27-Jan-16	Cloudy	11:30	68.5	57.0	
27-Jan-16	Cloudy	11:35	68.0	57.0	
27-Jan-16	Cloudy	11:40	69.5	56.5	

Noise Measurement Results

Station: NM4- Ching Chung Hau Po Won Primary School

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
28-Dec-15	Cloudy	11:05	63.5	59.0	65
28-Dec-15	Cloudy	11:10	63.5	58.5	
28-Dec-15	Cloudy	11:15	63.5	59.0	
28-Dec-15	Cloudy	11:20	62.5	58.5	
28-Dec-15	Cloudy	11:25	64.0	59.0	
28-Dec-15	Cloudy	11:30	64.0	59.0	
05-Jan-16	Cloudy	13:29	64.5	61.0	60
05-Jan-16	Cloudy	13:34	66.5	61.5	
05-Jan-16	Cloudy	13:39	65.5	61.5	
05-Jan-16	Cloudy	13:44	66.5	62.5	
05-Jan-16	Cloudy	13:49	66.5	62.5	
05-Jan-16	Cloudy	13:54	66.0	62.0	
11-Jan-16	Cloudy	13:26	63.0	58.5	64
11-Jan-16	Cloudy	13:31	62.0	58.0	
11-Jan-16	Cloudy	13:36	63.5	57.0	
11-Jan-16	Cloudy	13:41	63.5	57.5	
11-Jan-16	Cloudy	13:46	63.0	58.0	
11-Jan-16	Cloudy	13:51	62.5	58.0	
22-Jan-16	Cloudy	15:32	65.5	61.0	66
22-Jan-16	Cloudy	15:37	65.5	61.0	
22-Jan-16	Cloudy	15:42	66.5	61.0	
22-Jan-16	Cloudy	15:47	66.0	60.5	
22-Jan-16	Cloudy	15:52	64.5	60.5	
22-Jan-16	Cloudy	15:57	65.0	59.5	
27-Jan-16	Cloudy	09:32	65.0	60.0	64
27-Jan-16	Cloudy	09:37	67.5	60.0	
27-Jan-16	Cloudy	09:42	65.0	59.5	
27-Jan-16	Cloudy	09:47	64.0	59.0	
27-Jan-16	Cloudy	09:52	64.5	59.0	
27-Jan-16	Cloudy	09:57	67.0	59.0	

Remarks:

* +3dB (A) correction was applied to free-field measurement.

The examination period for NM4 will be from 14 to 18 March 2016.

Noise Measurement Results

Station: NM5- Village House, Tin Sum

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
29-Dec-15	Sunny	09:05	59.0	53.0	59
29-Dec-15	Sunny	09:10	61.0	53.0	
29-Dec-15	Sunny	09:15	64.0	53.0	
29-Dec-15	Sunny	09:20	62.0	54.0	
29-Dec-15	Sunny	09:25	63.5	54.0	
29-Dec-15	Sunny	09:30	62.0	55.0	
04-Jan-16	Sunny	09:10	62.5	51.5	59
04-Jan-16	Sunny	09:15	64.0	51.5	
04-Jan-16	Sunny	09:20	60.5	53.5	
04-Jan-16	Sunny	09:25	61.5	53.5	
04-Jan-16	Sunny	09:30	58.5	52.5	
04-Jan-16	Sunny	09:35	60.5	52.5	
14-Jan-16	Fine	09:50	59.5	52.5	53
14-Jan-16	Fine	09:55	63.0	52.5	
14-Jan-16	Fine	10:00	59.5	52.5	
14-Jan-16	Fine	10:05	56.0	52.5	
14-Jan-16	Fine	10:10	58.5	52.0	
14-Jan-16	Fine	10:15	58.0	51.5	
20-Jan-16	Cloudy	09:17	62.5	53.5	57
20-Jan-16	Cloudy	09:22	63.5	53.0	
20-Jan-16	Cloudy	09:27	61.5	51.5	
20-Jan-16	Cloudy	09:32	60.5	52.5	
20-Jan-16	Cloudy	09:37	62.0	52.0	
20-Jan-16	Cloudy	09:42	61.5	52.5	
26-Jan-16	Cloudy	09:15	60.0	51.5	53
26-Jan-16	Cloudy	09:20	58.0	51.5	
26-Jan-16	Cloudy	09:25	62.0	52.0	
26-Jan-16	Cloudy	09:30	60.0	50.5	
26-Jan-16	Cloudy	09:35	59.5	48.5	
26-Jan-16	Cloudy	09:40	57.5	49.0	

Remarks:

* +3dB (A) correction was applied to free-field measurement.

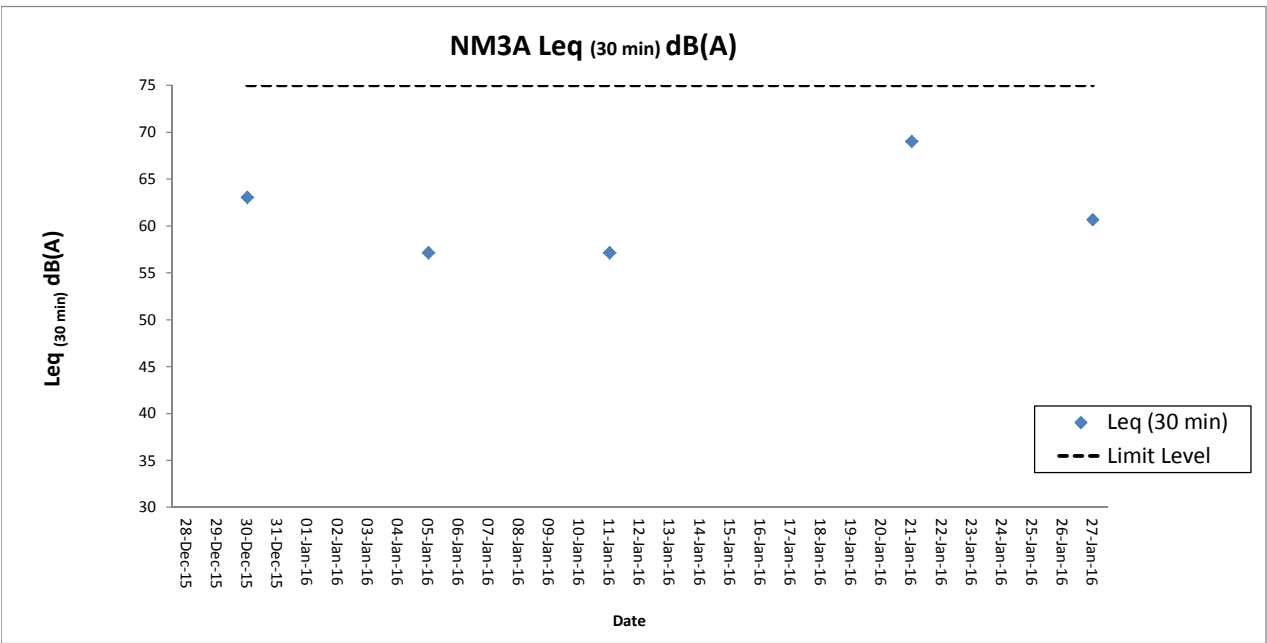
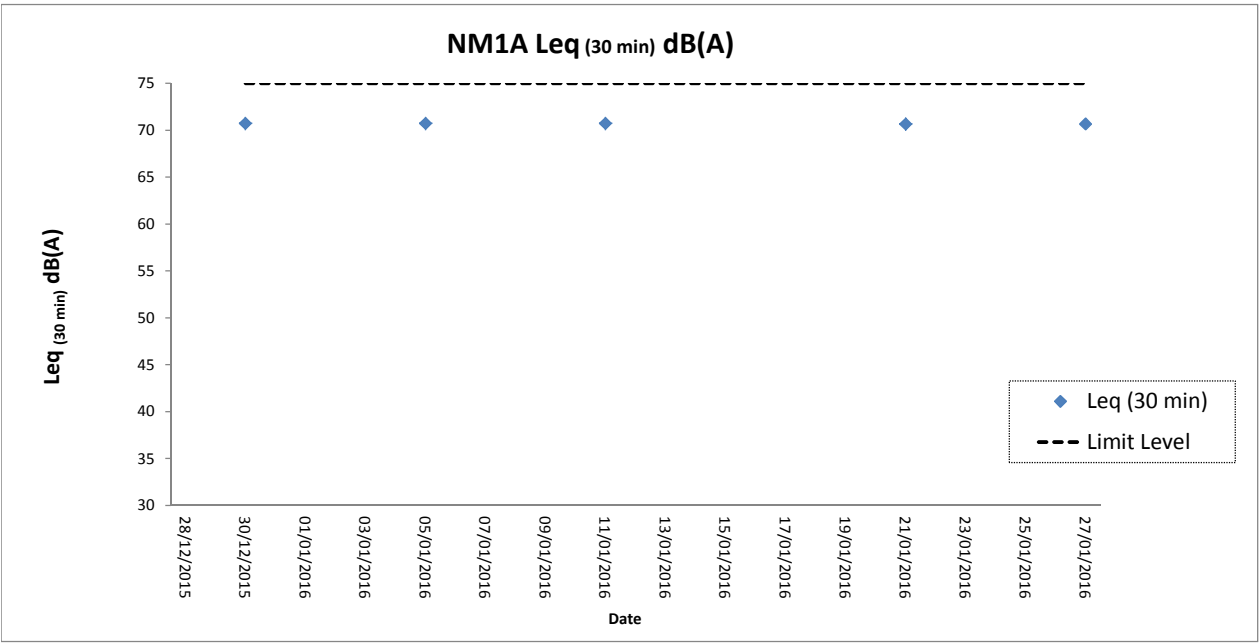
Noise Measurement Results

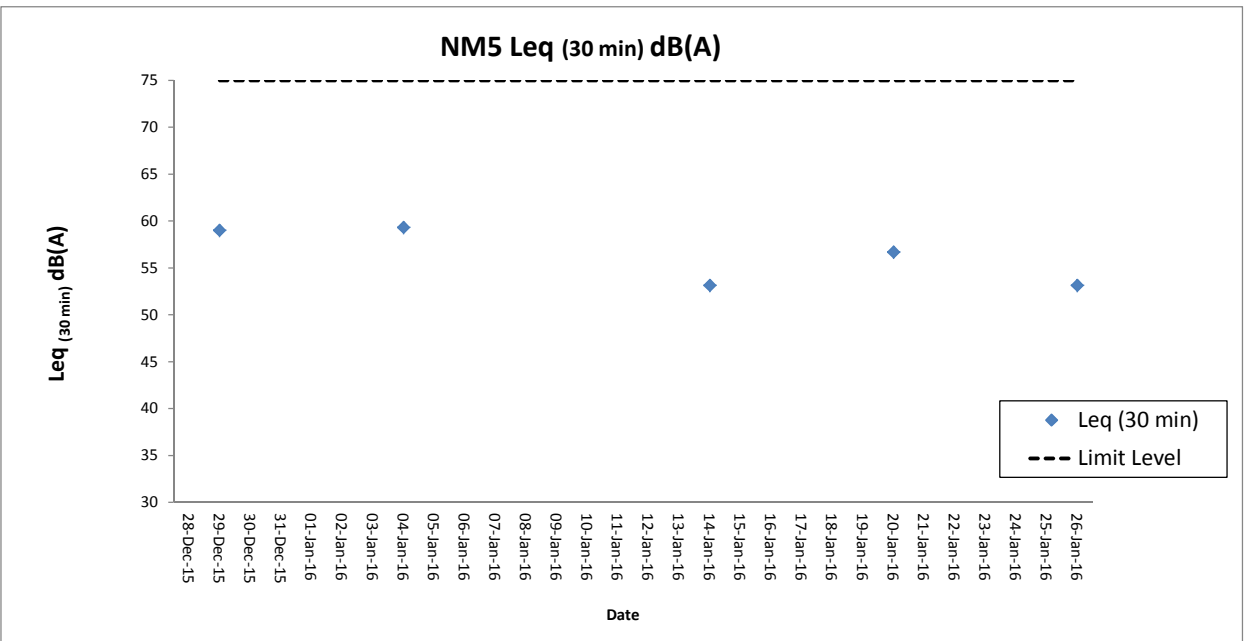
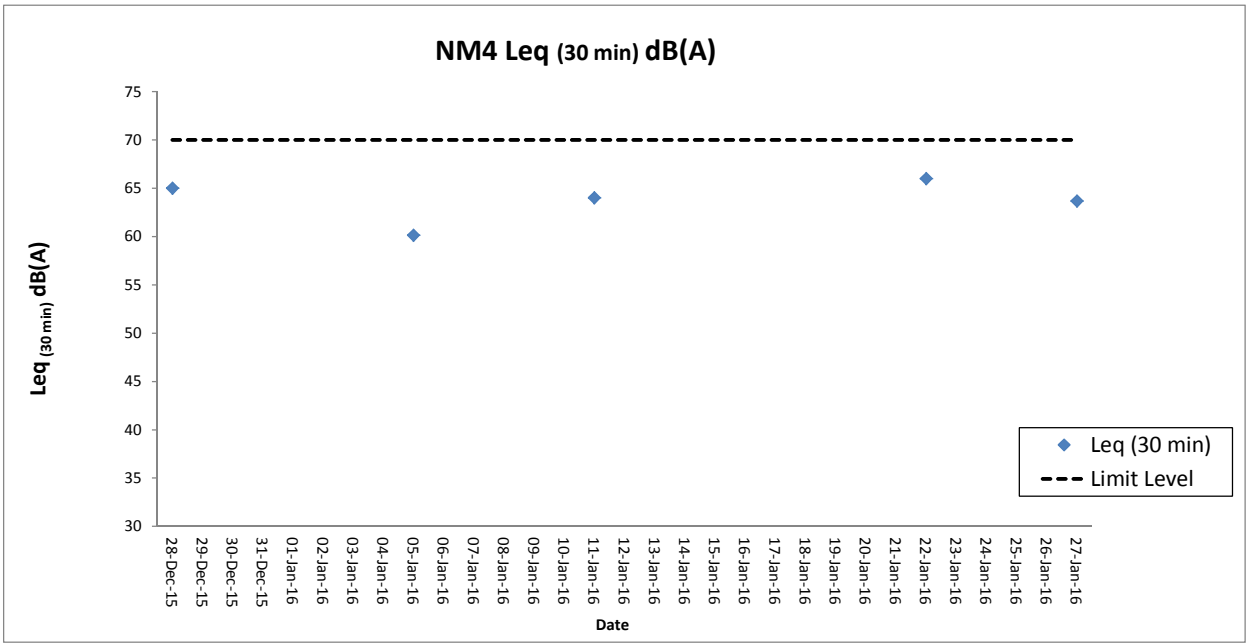
Station: NM6- House No.1 Sha Lo Wan

Date	Weather	Time	Measured L ₁₀ dB(A)	Measured L ₉₀ dB(A)	L _{eq(30mins)} dB(A)
28-Dec-15	Cloudy	09:50	67.5	58.5	62
28-Dec-15	Cloudy	09:55	72.0	60.0	
28-Dec-15	Cloudy	10:00	69.5	61.0	
28-Dec-15	Cloudy	10:05	70.5	59.5	
28-Dec-15	Cloudy	10:10	66.5	59.0	
28-Dec-15	Cloudy	10:15	65.0	58.0	
04-Jan-16	Cloudy	13:10	68.5	56.0	68
04-Jan-16	Cloudy	13:15	63.5	56.0	
04-Jan-16	Cloudy	13:20	66.0	55.0	
04-Jan-16	Cloudy	13:25	64.0	54.0	
04-Jan-16	Cloudy	13:30	67.0	58.0	
04-Jan-16	Cloudy	13:35	70.5	57.5	
14-Jan-16	Cloudy	13:00	65.0	57.5	62
14-Jan-16	Cloudy	13:05	67.0	58.0	
14-Jan-16	Cloudy	13:10	65.5	59.5	
14-Jan-16	Cloudy	13:15	65.0	59.0	
14-Jan-16	Cloudy	13:20	72.0	63.5	
14-Jan-16	Cloudy	13:25	74.0	63.5	
20-Jan-16	Cloudy	13:00	70.5	58.0	66
20-Jan-16	Cloudy	13:05	72.0	56.5	
20-Jan-16	Cloudy	13:10	69.5	56.5	
20-Jan-16	Cloudy	13:15	68.0	58.5	
20-Jan-16	Cloudy	13:20	67.5	57.5	
20-Jan-16	Cloudy	13:25	73.0	58.0	
26-Jan-16	Cloudy	11:05	64.0	57.0	62
26-Jan-16	Cloudy	11:10	64.0	56.0	
26-Jan-16	Cloudy	11:15	62.5	54.5	
26-Jan-16	Cloudy	11:20	62.5	55.0	
26-Jan-16	Cloudy	11:25	63.0	57.0	
26-Jan-16	Cloudy	11:30	78.0	60.0	

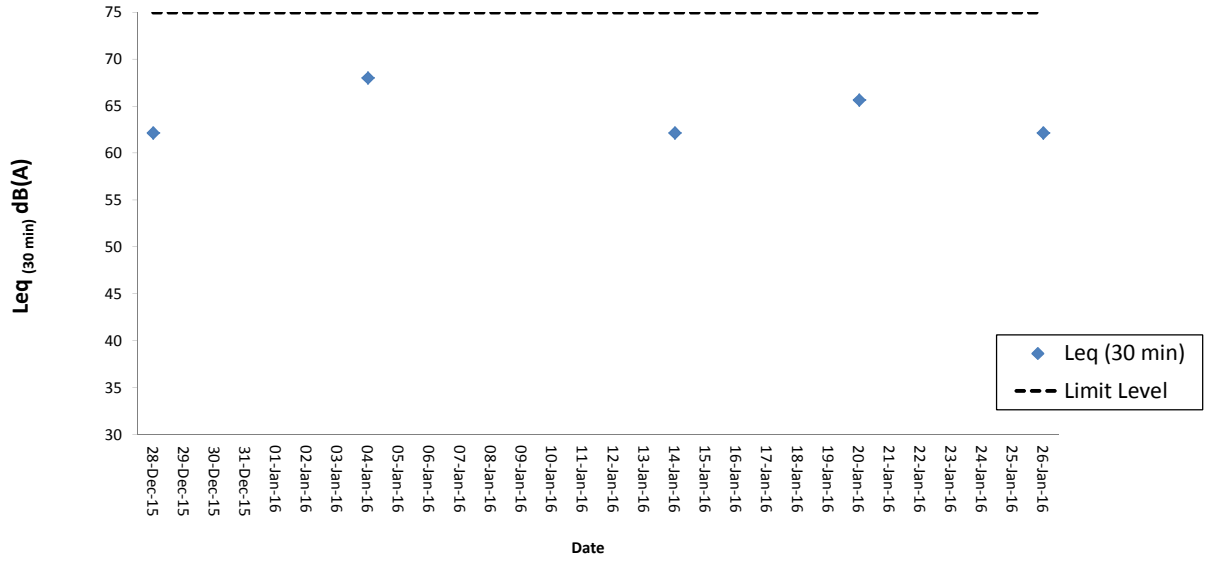
Remarks:

^ +3dB (A) correction was applied to free-field measurement.





NM6 Leq (30 min) dB(A)



Appendix H. Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecutions

Statistics for Exceedances for the Environmental Monitoring

		Total no. recorded in the reporting month	Total no. recorded since the project commenced
1-hr TSP	Action	0	0
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Waste	Action	0	0
	Limit	0	0

Remark: Exceedances, which are not project related, are not shown in this table.

Statistics for Complaints, Notifications of Summons and Prosecution

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Prosecutions
This reporting month	0	0	0
From 28 December 2015 to end of the reporting month	0	0	0