PROJECT NO.: TCS/00408/08

DSD CONTRACT NO. DC/2007/17
DRAINAGE IMPROVEMENT WORKS IN CHEUNG PO, MA ON KONG, YUEN KONG SAN TSUEN AND TIN SAM TSUEN OF YUEN LONG DISTRICT AND SEWERAGE AT TSENG TAU CHUNG TSUEN, TUEN MUN

FIRST MONTHLY EM&A REPORT – OCTOBER 2008 - KT13

PREPARED FOR
CHINA ROAD & BRIDGE CORPORATION

Quality Index

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13 November 2008	TCS00408/08/600/R0423			
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Rev.	Date	Prepared by:	Certified by:	Approved by:	Description
1	1 Nov 2008	Ben Tam	FN Wong	T.W. Tam	First submission
2	13 Nov 2008	Ben Tam	FN Wong	T.W. Tam	Revised against IEC comment on 13 Nov 08

Executive Summary

ES01 For ease of reporting, it has been agreed among the ER, IEC, CRBC, ET and EPD that the EM&A report under the Project is split to the following three stand-alone parts:
(a) EM&A Report - KT13 (under EP No.EP263/2007);
(b) EM&A Report - KT14A (under No. EP231/2005A); and
(c) EM&A Report - KT12, KT14B and KT14C (Non-Designated works under no Environmental Permit).

ES02 It is also agreed among the ER, IEC, CRBC, ET and EPD that 25th of each month is set as the cut-off day of the reporting month. That is to say, the reporting month is counted from 26th of the previous month to 25th of the reporting month.

ES03 Based on the notification of Drainage work commencement date, KT12, KT14B and KT14C (non-designated works) of construction works were commenced on 7 August 2008, 29 September 2008 and 9 October 2008 respectively, although the construction works for KT13 and KT14A (designated works) were started on 20 October 2008 and 2 October 2008 respectively. The impact EM&A program for air quality, construction noise, water quality and ecology has been started different period.

ES04 This is the first monthly EM&A Report - KT13 (hereinafter 'this Report') for designated works under Environmental Permit No.EP263/2007 (hereinafter 'the EP'), covering a period from 20 to 25 October 2008 (hereinafter 'the Reporting Period') during the designated works commencement.

ES05 For this reporting month, no excedance of Action and Limit levels of air quality, construction noise and ecology are recorded during the Reporting Period. However, totally seven limit exceedances were found in water quality monitoring. The NOE and investigation report was issued and submitted. Based on the construction activities as provided by the Contractor, ET considers that the turbidity and SS exceedances were found at W2 likely due to the exposed river sediment from the channel, however the turbidity exceedances in W6 were identified unlikely due to the project base on no construction activities were proceeded within upstream of W6.. The exceedances are summarized as follows:

Parameter	Quality Criteria Exceeded	No of Exceedance	Sampling Date / Location
Turbidity	Limit Level	5	20 October 2008 – W2 & W6 22 October 2008 – W6 24 October 2008 – W2 & W6
Suspended Solids	Limit Level	2	20 October 2008 – W2 24 October 2008 – W2

ES06 No written or verbal complaints, notifications of summons and successful prosecutions were received (written or verbal) for each media during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit, indicating the implemented mitigation measures for air quality, construction noise, water quality and ecology were effective. Minor deficiencies found in the weekly site inspection and audit was in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

ES07 No adverse environmental impacts were observed during the weekly site inspection and environmental audit, indicating the implemented mitigation measures for air quality, construction noise, water quality and ecology were effective. Minor deficiencies found in the weekly site inspection and audit was in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

ES08 During the rain season is between April and November, turbidity and other water quality pollutants via site surface water runoff into the river within KT13 continues to be the key issue in the forth-coming month. Mitigation measures for water quality should therefore be fully implemented.

ES09 On the other hand, construction dust will continue to become a key environmental issue during dry and windy days. The implemented construction dust mitigation measures should therefore also be maintained and improved as necessary during dry and windy days.

ES10 In addition, special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

ES11 Due to the baseline of water quality monitoring was undertaken at dry season (18 March 2008 to 12 April 2008), so extra water sampling was conducted between 26 August 2008 and 17 October 2008 before the construction works commencement for the contractor's interesting. Totally twenty-one water sampling day were performed in the period in accordance with EM&A requirements.

ES12 Before the construction works commencement, ecology monitoring was performed in May, June, July, August and September 2008 in accordance with the EM&A Manual requirement.

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1 INTRODUCTION

1.1 Basic Project Background

China Road & Bridge Corporation (hereinafter 'CRBC') has been awarded since 25 January 2008 by Drainage Services Department (hereinafter 'DSD') the DSD Contract No. DC/2007/17 Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun (hereinafter "the Project'). The works to be executed under the Project are located in Kam Tin, Pat Heung and Tuen Mun, New Territories as shown in the location plan in ***Appendix A*** and the contract period is about 36 months from 31 December 2008 to 5 October 2010.

The Project forms part of the Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvement Project to relieve the flooding problems in New Territories North and the Sewerage Improvement Works in Tuen Mun for improving the sewerage problems in Tseng Tau Chung Tsuen. The Project involves construction of five drainage channels namely KT12, KT13 (under Environmental Permit No.EP263/2007), KT14A (under Environmental Permit No. EP231/2005A), KT14B and KT14C in Kam Tin and Pat Heung and the sewerage works at Tseng Tau Chung Tsuen in Tuen Mun.

Major construction activities of the Project include:

(a) construction of the five drainage channels in Kam Tin and Pat Heung and the sewerage works in Tuen Mun;
(b) construction of about 1.8 km of secondary drainage channels and about 0.5 km of storm-water box culverts;
(c) construction of DSD maintenance access;
(d) construction of public access road with footpath;
(e) provisioning and re-provisioning of vehicular/ pedestrian crossings;
(f) bank raising of existing channel near Pat Heung Road;
(g) water main laying works;
(h) associated ancillary works;
(i) re-provision of Ma On Kong Playground;
(j) construction of approximately 3.8 km gravity sewers of diameter ranging from 150mm to 225mm and associated manholes at Tseng Tau Chung Tsuen in Tuen Mun;
(k) landscaping works; and
(l) all other works as required under the Contract.

In order to effectively implement the environmental protection measures stipulated in the Project Profile (hereinafter 'the PP'), Environmental Study Report (hereinafter "the ESR'), Environmental Impact Assessment (herein after 'the EIA'), Environmental Permits (hereinafter "the EP') No.EP263/2007 and EP231/2005A, three corresponding Environmental Monitoring and Audit Manuals (hereinafter 'the EM&A Manuals') have been prepared to guide the setup of the EM&A program of the Project.

1.2 Environmental Management Organization

DSD is the Project Proponent; CRBC is the main Contractor of the Project; Environmental Protection Department (hereinafter 'EPD') and Agriculture, Fisheries and Conservation Department (hereinafter 'AFCD') are the supervisory department for environmental protection of the Project; Black & Veatch Hong Kong Ltd is the Engineer's Representative of DSD (hereinafter 'the ER'); ARUP is the Independent Environmental Checker (hereinafter 'the IEC'); Action-United Environmental Services and Consulting (hereinafter 'AUES') is the environmental team (hereinafter 'the ET') while.

Detailed environmental management organization including management structure and key personnel contact names and telephone numbers is presented in ***Appendix B***.

1.3 Construction Program

Construction program is enclosed in ***Appendix C***.

1.4 Environmental Licensing Status

1.4.1 Air Pollution Control (Construction Dust) Regulation

Pursuant to the ***Air Pollution Control (Construction Dust) Regulation***, CRBC has notified EPD, via submission of Form NA dated 14 February 2008, of the scope and nature of the works to be carried out under the Project, including construction activities such as stockpiling, loading and unloading, transfer of dusty material, use of vehicles and debris handling, etc. CRBC will continuously review the status of the environmental licenses and apply the required licenses/permits prior to the commencement of construction work.

1.4.2 Noise Control Ordinance

No ***Construction Noise Permit*** (hereinafter 'CNP') is required for the Project pursuant to the ***Noise Control Ordinance*** (hereinafter 'NCO') and the associated applicable subsidiary regulations of **Noise Control (General) Regulation**, ***Noise Control (Hand-held Percussive Breaker) Regulation*** and ***Noise Control (Air Compressor) Regulation***, as the use of powered mechanical equipment, or conducting construction work in during restricted hours, i.e. 1900 to 0700 hours on normal weekdays and any time on general holidays including Sundays is not anticipated during the whole construction period. CRBC will continuously review the status of the environmental licenses under the NCO and apply the required licenses/permits prior to the commencement of construction work.

1.4.3 Waste Disposal (Charges for Disposal of Construction Waste) Regulation

CRBC has applied for a Billing Account (Construction Work Contract with Value of $1million or Above), under the ***Waste Disposal (Charges for Disposal of Construction Waste) Regulation***. The account number 7006524 has been assigned on 9 Jan 2008.

1.4.4 Water Pollution Control Ordinance

CRBC has applied for a discharge license under Section 20 of the ***Water Pollution Control Ordinance***, and the license No. 1U461/1 has been issued.

1.4.5 Waste Disposal (Chemical Waste) (General) Regulation

CRBC has registered as a Chemical Waste Producer with EPD under the Waste Disposal (Chemical Waste) (General) Regulation and the Waste Producer Number assigned is WPN: 5611-531-C3124-28 dated 2 May 08.

1.5 Implementation Status

1.5.1 Baseline Monitoring

In order to establish environmental quality criteria, i.e. Action and Limit levels, for implementation of the Event and Action Plan of the EM&A program, baseline monitoring for KT13 was carried out during 18 March 2008 to 18 May 2008 in accordance with the requirements set out in the EIA, EP and the EM&A Manual. The ecological baseline monitoring for KT13 was conducted 18 and 21 April 2008 and 16 & 18 May 2008, covering daytime and nighttime. to update habitat map. Details of the baseline monitoring have been presented respectively in the Baseline Monitoring Reports for KT13, which have been submitted to the ER and IEC.

The proposed environmental quality criteria, i.e. Action and Limit levels, have in general been accepted by the ER and IEC to be used in the Event and Action Plan of the EM&A program. They are awaiting EPD's formal approval for implementation.

1.5.2 Works Undertaken during the Reporting Period

Works undertaken during the Reporting Period are shown in the construction program in ***Appendix C***. The construction activities implemented during the Reporting Period were:

(a) Underground utility investigation;
(b) Site clearance
(c) Tree survey, tree pruning and tree transplant;
(d) Structural condition survey
(e) Erect temporary chain link fence at ecological sensitive areas
(f) Excavation work at Section B of Channel

- 20 , 21 and 22 October 2008 at Section B CH316 - CH244
- 23 and 24 October 2008 at Section B CH244 - CH172
- 25 October 2008 at Section B CH172 – CH150

(g) Removal of illegal dumped materials at KT13.

1.5.3 Environmental Protection and Pollution Control Mitigation Measures

In addition to the environmental licensing stated in the previous ***Section 1.4***, CRBC has been delivering committed responsibilities to implement environmental protection and pollution control / mitigation measures including measures for ecological and visual impacts, as recommended in the EIA, EP and the EM&A Manuals, summarized in the mitigation measures implementation schedules in the EM&A Manual. The implemented mitigation measures include

(a) Watering of stockpiles of rip-rap at KT13;
(b) Covering of the loose soil at KT13 to minimize water quality impacts;
(c) Hard pavement of haul road leading to public roads at KT13;
(d) Classification and disposal of illegally dumped construction and demolishment materials at KT13; and
(e) Construction of noise barriers.

2 SUMMARY OF ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

2.1 Monitoring Parameters

The ET has compiled the EM&A requirements set out in the EIA, Environmental Permits No.EP263/2007 (hereinafter 'the EP'), and the associated EM&A Manual in the ***Environmental Monitoring Methodology***, which has been agreed by the ER and IEC. Monitoring parameters are summarized below.

Table 2-1 Summary of Monitoring Parameters

Environmental Aspect	Monitoring Parameters	
Air Quality	(a) 1-Hour Total Suspended Particulate (hereinafter '1-Hr TSP'); and (b) 24-Hour Total Suspended Particulate (hereinafter '24-Hr TSP').	
Construction Noise	(a) A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'Leq(30min)' during the normal working hours; and (b) A-weighted equivalent continuous sound pressure level (5min) (hereinafter 'Leq(5min)' for construction work during the restricted hours.	
Water Quality	(a) In Situ Measurement	temperature, Dissolved Oxygen (hereinafter 'DO'), pH & Turbidity
	(b) Laboratory Analysis	Suspended Solids (hereinafter 'SS'), Ammonia Nitrogen (hereinafter 'NH_3-N') and Zinc (hereinafter 'Zn')
Ecology	Vegetation, All bird species of wetland, Ho Pui Egret, Ma On Hong Egret and Flight Line Survey	
Waste Management	Inspection and the document audit	
Cultural Heritage	Condition survey for a historical grave	
Landscape & Visual	Audit the proposed operation phase mitigation measure in EIA	

2.2 Monitoring Locations

In order to identify and seek access for the monitoring locations designated in the EM&A Manuals, site inspection has been conducted by the ET. Most of the monitoring locations have been identified and the associated access have also been granted, except the four locations, namely A1, N1, N2 & W3, where significant changes have occurred and inevitable replacements of the locations is recommended. Details of the status of the monitoring locations and the associated rationale for the recommended replacements are summarized in ***Table 2-2*** and shown in ***Appendix A***. For ease of reference, '(a)' is denoted for the replacement location IDs to differentiate from the EM&A Manual' locations.

Table 2-2 Summary of Monitoring Locations

Env. Aspect	Monitoring Location ID	Identified Address / Co-ordinates	Status of Monitoring Locations / Rationale for Recommended Replacement
Air	A1(a)	No.68 Ho Pui Village	The original location of EM&A Manuals A1 has permanently been abandoned. No access can be acquired in the vicinity of A1. Taken into consideration that Ho Pui Village is one of the most important sensitive receivers near KT-13 without monitoring, the most fronting house, No. 68 Ho Pui Village, is therefore recommended as the replacement location A1(a).
	A2	No.1 Ma On Kong Village	Original location of the EM&A Manual; access granted.
Noise	N1(a)	168-169 Kam Ho Road, Ma On Kong Village,	Original location of N1 identified in the EM&A Manual was relocated to proposed area as recommended by IEC.
	N2(a)	No. 68 Ho Pui Village,	The original location of EM&A Manuals N2 has permanently been abandoned. No access can be acquired in the vicinity of N2. Taken into consideration that Ho Pui Village is one of the most important sensitive receivers near KT-13 without monitoring, the most fronting house, No. 68 Ho Pui Village, is therefore recommended as the replacement location N2(a).
	N3	No.1 Ma On Kong Village	Original locations of the EM&A Manual; access granted.
Water	W1	E824539 / N830283	Original locations of the EM&A Manual; access resolved.
	W2	E824693 / N830258	Original locations of the EM&A Manual; access resolved.

Env. Aspect	Monitoring Location ID	Identified Address / Co-ordinates	Status of Monitoring Locations / Rationale for Recommended Replacement
	W3(a)	E824833 / N830374	The W3 is proposed to relocate about 55m down stream for safety reason. The recommendation is based on there on any discharge point is observed between W3 and the proposed location.
	W4	E824936 / N830618	Original locations of the EM&A Manual; access resolved.
	W5	E825008 / N830812	Original locations of the EM&A Manual; access resolved.
	W6	E825100 / N830987	Original locations of the EM&A Manual; access resolved.
Ecology	Ma On Kong	Refer to EM&A Manual (KT13) Figure 6.1.	
Waste Management	Whole constriction site and document		
Cultural Heritage	Ma On Kong	Refer to EM&A Manual (KT13) Figure 7.1.	
Landscape & Visual	Refer to EIA Section 10		

2.3 Monitoring Frequency

The monitoring frequency and duration as specified in the EM&A Manuals are summarized below.

2.3.1 Impact Monitoring

Impact environmental monitoring is conducted upon commencement of the construction activities and throughout the whole construction period to detect and minimize any adverse environmental impacts generated from the construction activities of the Project.

The impact monitoring frequency and duration for air quality, construction noise, water quality and ecology are summarized below.

Air Quality

Frequency: Once every 6 days for 24-Hr TSP and three times every 6 days for 1-Hr TSP, when the highest construction dust impacts are anticipated.

Duration: Throughout the construction period when the major construction activities were undertaken

Construction Noise

Frequency: Once a week during 0700-1900 on normal weekdays for Leq30min

If the construction work is undertake at restrict hour at KT13, the frequency of noise monitoring will be conducted in accordance with the related Construction Noise Permit requirement issued by EPD as follow

- 3 consecutive Leq5min at restrict hour from 1700 – 2300;
- 3 consecutive Leq5min for restrict hour from 2300 – 0700 next day;
- 3 consecutive Leq5min for Sunday or public holiday from 0700 – 1900;

Duration: Throughout the construction period when the major construction activities were undertaken

Water Quality

Frequency: Three times a week with no consecutive two intervals is less than 36 hours

Depths: All measurements shall be carried out at three water depths, namely, 1 m below water surface, mid-water depth, and 1 m above river bed. If the water depth is less than 6 m, the mid-depth measurement is omitted. If the depth is less than 3 m, only the mid-depth measurement needs to the taken.

Duration: Throughout the construction period when the major channel construction activities were undertaken.

Ecology

The Ecology Monitoring is required in accordance with the EM&A Manual.

Parameters: Vegetation, All bird species including wetland birds, Ho Pui and Ma On Hong Egretries and Flight line survey

Frequency: Vegetation – Impact monitoring – monthly;
Photographic records/checks against baseline records– six monthly
Wetland Bird survey – Monthly of half-day survey;
Ma On Kong egretry – Monthly between March to August; and
Ho Pui egretry – Bi-weekly between March and August;
Flight line Survey – Month during the period from April to June

Duration: Throughout the whole construction period

Waste Management Audit

Frequency: Once per month
Duration: Throughout the construction period.

Cultural Heritage

Frequency: Bi-monthly
Requirement: Condition survey of a Qing Dynasty Grave.
Duration: Throughout the construction phase period.

Landscape & Visual

Frequency: Bi-weekly
Duration: Throughout the construction phase period.

2.4 Monitoring Equipment and Procedure

The monitoring equipment and procedures for air quality, construction noise, stream water quality and ecology are summarized below.

2.4.1 Air Quality

Monitoring Equipment

A list of air quality monitoring equipment is shown below.

Table 2-4-1 Air Quality Monitoring Equipment

Equipment	Model
24-Hr TSP	
High Volume Air Sampler (herein after 'HVS')	Grasby Anderson GMWS 2310 HVS
Calibration Kit	TISCH Model TE-5028A
1-Hr TSP	
Portable Dust Meter	TSI DustTrak Model 8520 / Sibata LD-3 Laser Dust Meter

Monitoring Procedure

1-Hr TSP

Operation of the 1-Hr TSP meter will follow manufacturer's Operation and Service Manual. The 1-Hr TSP monitor, a TSI Dust Track Aerosol Monitor Model 8520, or Sibata LD-3 Laser Dust Meter is a portable, battery-operated laser photometer. The 1-hr TSP meter provides a real time 1-hr TSP measurement based on 90^0 light scattering. The 1-hr TSP monitor consists of the following:

i. A pump to draw sample aerosol through the optic chamber where TSP is measured;
ii. A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
iii. A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

The 1-Hr TSP meter to be used will be within the valid period, calibrated by the manufacturer prior to purchasing. Zero response of the instrument will be checked before and after each monitoring event.

24-hr TSP

The equipment used for 24-Hr TSP measurement is the HVS brand named Thermo Andersen, Model GS2310 TSP high volume air sampling system, which complied with EPA Code of Federal Regulation, Appendix B to Part 50. The HVS consists of the following:

(a) An anodized aluminum shelter;
(b) A 8"x10" stainless steel filter holder;
(c) A blower motor assembly;
(d) A continuous flow/pressure recorder;
(e) A motor speed-voltage control/elapsed time indicator;
(f) A 6-day mechanical timer, and
(g) A power supply of 220v/50 Hz

The HVS will be operated and calibrated on a regular basis following the manufacturer's instruction using the NIST-certified standard calibrator brand named TISCH Calibration Kit Model TE-5025A. Regular HVS operation and maintenance as well as filter paper installation and collection will be performed by the ET's competent technicians, whereas laboratory analyses are conducted in a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (herein after 'ALS'. The analyzed 24-hr TSP filters will be kept in ALS for six months prior to disposal.

Meteorological Information

All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper will be recorded in details. The meteorological information will down loaded from the Hong Kong Observatory (Lau Fau Shan Station). The data will include wind direction, wind speed, humidity, rainfall, air pressure and temperature etc that in general is required for evaluating the air quality impact arising from the construction activities.

2.4.2 Construction Noise

Monitoring Equipment

A list of construction noise monitoring equipment is shown below.

Table 2-4-2 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K Type 2236 & 2238
Calibrator	B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer

Monitoring Procedure

Sound level meters listed above comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications, as recommended in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO).

All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq(30 min) in six consecutive Leq(5 min) measurements will be used as the monitoring parameter for the time period between 0700-1900 hours on weekdays throughout the construction period. Leq(15min) in three consecutive Leq(5 min) measurements for other time periods (e.g. during restricted hours) will only be conducted for monitoring the construction noise during restricted hours as necessary.

The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.

Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0dB. Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s. Calibration certificates are shown in ***Appendix D***.

2.4.3 Water Quality

Monitoring Equipment

Monitoring Equipments for water quality are shown below.

Table 2-4-3 Water Quality Monitoring Equipment

Equipment	Model / Description
Water Depth Detector	Eagle Sonar
Water Sampler	Teflon bailer / bucket
Thermometer & DO meter	YSI 550A DO Meter
pH meter	Hanna HI 98128
Turbidimeter	Hach 2100p
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box

Monitoring Procedure

Water Depth

Water quality monitoring will be conducted at the middle of the water columns (Mid-Depth) if the depths of the water columns at the sampling locations are less than 1.5 meters during monitoring. Or else, monitoring will be performed at two depths, at 0.5 meter from surface and bottom respectively. Water depths will be determined prior to measurement and sampling, using a portable battery operated depth detector, brand named 'Eagle Sonar', if the depths exceed 1.5 meter. For the depths well below 1 meter, an appropriate steel ruler or rope with appropriate weight will be used for the depth estimation.

Dissolved Oxygen (DO)

A portable YSI 550A DO Meter will be used for in-situ DO measurement. The DO meter is capable of measuring DO in the range of 0 - 20 mg/L and 0 - 200 % saturation and checked against water saturated ambient air on each monitoring day prior to monitoring. Although the DO Meter automatically compensates ambient water temperature to a standard temperature of 20^0C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter will be recorded in the field data sheets. Calibration of the equipment will be performed by ALS on quarterly basis.

pH

A portable Hanna pH Meter will be used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1. Standard buffer solutions of pH 7 and pH 10 are used for calibration of the instrument before and after measurement. Quarterly calibration of the equipment will be performed by ALS.

Turbidity

A portable Hach 2100p turbidity Meter will be used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU. Calibration of the equipment will be performed by ALS on quarterly basis.

Suspended Solids (SS)

SS will be determined by ALS upon receipt of the water samples using HOKLAS accredited analytical methods namely ALS Method EA-025.

Ammonia Nitrogen(NH_3-N)

NH_3-N will be examined by ALS upon receipt of the water samples using HOKLAS accredited analytical methods namely ALS Method EK-055A.

Zinc(Zn)

Zn will be analyzed by ALS upon receipt of the water samples using HOKLAS accredited analytical methods namely ALS Method EG-020.

Water Sampler

Water samples will be collected by the ET using a plastic sampler to prevent metal contamination. For water depths deeper than 1.5 meter, a cleaned plastic bailer bucket will be used for sample collection. Or else a plastic bucket with a rope of appropriate length will be used for water sampling. The sampler will be rinsed before collection with the sample to be taken.

One littre or 1000 mL water sample will be collected from each depth for SS determination. The samples collected are stored in a cool box maintained at 4^0C and delivered to ALS upon completion of the sampling by end of each sampling day. Sampling in the stream with shallow water condition, plastic bucket will be used for sample collection.

Sample Container

Water samples will be contained in screw-cap PE (Poly-Ethylene) bottles, which will be provided and pretreated and 'PE' (Poly-Ethylene) sampling bottles provided and pre-treated according to corresponding analytical requirements of HOKLAS and ALS. Where appropriate, the sampling bottles will be rinsed with the water to be contained. Water sample is then transferred from the sampler to the sample bottles to 95% bottle capacity to allow possible volume expansion during delivery and storage.

Sample Storage

A 'Willow' 33-litter plastic cool box packed with ice will be used to preserve the collected water samples prior to arrival at the laboratory. The water temperature of the cool box will be maintained at a temperature as close to 4^0C as possible without being frozen. Samples collected will be delivered to the laboratory upon collection within the maximum storage time requirement.

2.4.4 Ecology

Monthly walk through survey will be conducted along the boundary of work area for KT13. Bird monitoring will be conducted in the study areas monthly for KT13. Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted between April to June. Photographic record should be made at six month intervals.

Monitoring Equipment

The following equipment will be used for monitoring:-

Standard portable field survey equipment was used for ecological monitoring, including

1) Binoculars of 10 x 40 magnifications;
2) Digital camera; and
3) Notebook.

Study Area

The areas for the ecological monitoring programme would cover 60m on either side of the existing channel as well as the proposed bypass culvert, as shown in Figure 6.1 of the EM&A Manual. Within these, emphasis will be given to the area around the Ho Pui and Ma On Kong egretries and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretry and Ma On Kong egretry (The Ma On Kong egretry is outside the demarcated monitoring area but is also monitored to identify any adverse effects on the breeding egrets).

Survey Method

Monthly monitoring will be conducted by means of walk through survey, along the boundary of work area for KT13. Any adverse impacts to the habitats outside the site, in particular the Conservation Area (CA) zone and Ho Pui Egretry, will be checked and reported.

Photographic records will be made every six months on the fixed photo record points selected during the baseline survey. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline, which are used as the baseline conditions.

Bird monitoring will be conducted in the study areas monthly for KT13. Attention should be paid on wetland species and species identified as being of conservation importance, and the habitats utilized should also be recorded. Bird surveys should commence no later than 2 hours after dawn.

Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. The frequency would be twice per month during March to May. Depending upon the nesting conditions at Ho Pui egretry, the frequency could be reduced to monthly between June and August if no egret nest found by the end of May, or maintained at twice per month till the end of August if there are egret nests. Number of active nests, species and number of birds present and breeding stage should be recorded.

Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted twice per month between April to June. The number and species of flying egrets, and their landing habitats and locations should be recorded.

2.4.5 Others Monitoring Implementation for the Contract

The Waste Management, Cultural Heritage and Landscape & Visual monitoring is required for KT13 as stipulated in the EM&A manual [382047/E/EMA/Issue5] ***Section 5***, ***Section 7*** and ***Section 8*** accordingly.

Waste Management

During the monthly audit, ETL will pay attention to the issues relating to waste management, and check whether the Contractor has followed the relevant contract Specifications and the procedures specified under the law of HKSAR

Cultural Heritage

Condition survey by a qualified archaeologist is required for the historical grave near Ma On Kong before and during the construction phase. The method statement of condition survey of Ma On Kong Historic Grave (KT13-02-02) was issued to EPD and endorsed on 27 July 2008, the frequency of the condition survey during the construction phase and given the open cut method would be adopted for the construction of the proposed bypass box culvert under KT13 project, subject to the result of the condition survey carried out before the construction stage, it is recommended that bi-monthly condition survey be undertaken during the construction work within 100m area from the grave.

Landscape and Visual

In accordance with the EM&A manual [382047/E/EMA/Issue5] ***Section 8*** landscape and visual mitigation measures are required during construction and operation phase.

Site inspection will be undertaken at least once every two weeks throughout the construction period to ensure compliance with the intended aims of the proposed mitigation measures.

3 QUALITY ASSURANCE PROCEDURES AND DATA MANAGEMENT

3.1 Documentation of the Environmental Monitoring

Field data including in-situ monitoring results, weather conditions and water sampling information and observation will be recorded in corresponding Field Data Sheets, which will be signed and dated by the respective environmental technician prior to submission to the ETL for validation and endorsement at the end of the monitoring day.

3.2 Data Management and Analysis

All impact monitoring data will be processed by the AUES data recording and management system, which complies with in-house Quality (***ISO 9001:2000***) Management System. Monitoring results recorded in the monitoring equipment e.g. 1-Hr TSP Meters and Noise Meters will be downloaded directly from the equipment at the end of the monitoring period.

The downloaded monitoring data will be input into a computerized database maintained by the ET. Laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

3.3 Quality Assurance Procedures

Appropriate and standard QA/QC measures will be adopted for the environmental monitoring to ensure the scientific integrity of the data produced. Sources of error in the impact monitoring will be properly controlled with the following QA/QC procedures:

(a) Appropriate field monitoring and sampling techniques, including monitoring equipment, storage and delivery of samples;

(b) Well organized systematic field-data system e.g. all baseline monitoring information, field observation, results, weather conditions and water sampling information, etc. will be recorded in the field monitoring record sheets. The laboratory analysis records will be maintained by the HOKLAS following HOKLAS requirements;

(c) HOKLAS requirements for QA/QC of all laboratory testing to ensure acceptable accuracy and reproducibility of the laboratory analysis indicated by consistent agreement between duplicate samples, validity of the analytical results by compliance with the required blanks and recovery of standard addition.

3.4 Records

All impact monitoring data will be clearly and systematically documented in both hardware and software format and the software copy will be available for inspection upon request. All the document and data will be kept for at lest one year after completion of the Project.

Field Data Sheets are used to record the impact monitoring information, field observation, results, weather conditions and water sampling information, etc., will be properly maintained and kept by the ET.

The copies of laboratory analysis records from ALS will be keep by the ET throughout the at least one year after completion of the EM&A program of the Project.

4 REPORTING

4.1 General Requirements for Report Submission

General requirements for Monthly EM&A report submission as stipulated in the EIA, EP and EM&A Manual are summarized below.

Table 4-1 Requirements for Report Submission

Report	Submission
Monthly EM&A Report	• Within 10 working days of the end of each reporting month.
Quarterly EM&A Summary Report	• No specific requirement, proposed three weeks after endorsement of the 3rd monthly EM&A report within a particular quarter.
Final EM&A Summary Report	• No specific requirement, proposed one month upon completion of entire EM&A program

4.2 Cut-Off Day of the Reporting Month

It is also agreed among the ER, IEC, CRBC, ET and EPD that, in order to avoid unnecessary delay of the EM&A report submission due to the time required for laboratory analyses for those environmental monitoring samples collected at the ends or near the ends of the reporting months, in particular on eve of public holidays, the cutoff day is 25th of each month. That is to say, the reporting month is counted from 26th of the previous month to 25th of the reporting month.

5 MONITORING RESULTS

This is the first monthly EM&A Report - KT13 for designated works under Environmental Permit (hereinafter 'this Report'), covering a period from 20 to 25 October 2008 (hereinafter 'the Reporting Period').

5.1 Air Quality

5.1.1 Action and Limit Levels

According to Baseline Monitoring Report of KT13, the Action and Limit Levels for 24-Hr and 1-Hr TSP are illustrated as follow

Table 5-1-1 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level (μg /m³)		Limit Level (μg/m³)	
	1-Hr TSP	24-Hr TSP	1-Hr TSP	24-Hr TSP
ASR14(A1(a))	>309	>144	> 500	> 260
ASR15(A2)	>307	>141	> 500	> 260

5.1.2 Event Action Plan

Should non-compliance of the air quality criteria occurs, the Contractor's ET, the ER and the Contractor shall undertake the relevant action in accordance with the Action Plan are attached in ***Appendix H***.

5.1.3 Results

Results of air quality monitoring at the identified locations during the Reporting Period are summarized in ***Tables 5-1-3-1*** and ***5-1-3-2*** as below. Monitoring Schedules for the Reporting Period and Forth-Coming Month are presented in ***Appendix E***. The data of 24-hr TSP is listed in ***Appendix F***.

Table 5-1-3-1 Summary of Air Quality Monitoring Results – ASR14(A1(a))

1-Hour TSP (μg/m³)						24-Hour TSP (μg/m³)	
Date	Start Time	1st Hr	2nd Hr	3rd Hr	Average	Date	Results
24-Oct-08	09:12	179	175	178	177	20-Oct-08	23
						25-Oct-08	28
Max / Min / Mean		179/175/177				28 / 23 / 25.5	
Action Level		309				144	
Limit Level		500				260	

Table 5-1-3-2 Summary of Air Quality Monitoring Results – ASR15(A2)

1-Hour TSP (μg/m³)						24-Hour TSP (μg/m³)	
Date	Start Time	1st Hr	2nd Hr	3rd Hr	Average	Date	Results
24-Oct-08	09:31	155	157	158	157	20-Oct-08	23
						25-Oct-08	26
Max/ Min / Mean		158 / 155 / 157				26 / 23 / 24.5	
Action Level		307				141	
Limit Level		500				260	

5.1.4 Discussion and Conclusion

Meteorological data in the ***Appendix E*** indicates that the air quality monitoring of the Reporting Period was in general conducted under normal weather conditions.

As shown in ***Tables 5-1-3-1 and 5-1-3-2***, the 1-HR TSP and 24-Hr TSP results fluctuated well below the Action level. As no exceedance of Action and Limit levels was recorded during the Reporting Period, no Notification of Exceedance (NOE) of air quality criteria was therefore issued and no associated corrective action was required.

Extra air quality monitoring was undertaken before the construction commencement day. There have totally 54 events of 1-hr TSP and 16 events of 24-hr TSP were carried out between 29 August 2008 and 19 October 2008. The extra measurement results are shown in ***Appendix K*** for reference due to the baseline was conducted in April 2008 dry season.

5.2 Construction Noise

5.2.1 Action and Limit Levels

The Action and Limit levels for construction noise are illustrated in ***Table 5-2-1***.

Table 5-2-1 Action and Limit Levels of Construction Noise Monitoring

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

Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.

5.2.2 Event Action Plan

In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Action Plan is attached in ***Appendix H***, shall be carried out. The additional monitoring shall be continued until the recorded noise levels are rectified or proved to be irrelevant to the construction activities. The ET, the ER and the Contractor shall undertake the relevant action in accordance with the Action Plan accordingly.

5.2.3 Results

Results of construction noise monitoring at the identified locations N1(a), N2(a) and N3 during the Reporting Period are summarized in ***Tables 5-2-3-1*** to ***5-2-3-3*** as below.

Table 5-2-3-1 Summary of Construction Noise Monitoring Results – N1(a)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
24-Oct-08	11:15	53.2	54.6	54.3	57.8	53.3	54.2	54.9
Limit Level		-						> 75 dB(A)

Table 5-2-3-2 Summary of Construction Noise Monitoring Results – N2(a)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
24-Oct-08	09:45	52.2	48.4	50.6	48.1	48.9	45.4	49.4
Limit Level		-						> 75 dB(A)

Table 5-2-3-3 Summary of Construction Noise Monitoring Results – N3

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
24-Oct-08	10:29	51.6	52.1	52.0	50.1	51.7	50.9	51.5
Limit Level		-						> 75 dB(A)

5.2.4 Discussion and Conclusion

During the monitoring on 24 October 2008, the construction noise monitoring was undertaken under no raining condition and also with the wind speed less than 5m/s. The meteorological data is shown in ***Appendix E***.

As shown in ***Tables 5-2-3-1***, ***5-2-3-2*** and ***5-2-3-3***, all the construction noise results fluctuated well below the Limit level. As no exceedance of Limit levels was recorded during the Reporting Period, no Notification of Exceedance (NOE) of construction noise quality criteria was therefore issued and no associated corrective action was required.

Totally 27 extra noise measurement were conducted at the three identified monitoring station N1(a), N2(a) and N3 between 29 August 2008 and 18 October 2008 before 20 October 2008 of the commencement day. The extra noise measurement results are shown in ***Appendix K*** for reference.

5.3 Water Quality

5.3.1 Action and Limit Levels

The Action and Limit levels for water quality are illustrated in ***Table 5-3-1***.

Table 5-3-1 Action and Limit Levels for Water Quality Monitoring

Monitoring Location	DO (mg/L)		Turbidity (NTU)		pH		SS (mg/L)		Ammonia (μg/L)		Zinc (μg/L)	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
W1 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W2 (Downstream) Impact Station	1.04	1.00	36.81	37.16	8.65	8.69	79.0	86.2	16.85	16.89	234.95	266.19
W3(a) (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W4 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W5 (Upstream) Control Station	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
W6 (Downstream) Impact Station	0.93	0.91	27.88	30.02	8.7	8.7	73.40	78.68	51.62	54.56	191.90	201.58

Notes: # Act as Control Station for the Impact Water Quality Monitoring.
* Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 120% of upstream control station of same day.
** Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 130% of upstream control station of same day.

5.3.2 Event Action Plan

Should the monitoring results at any designated impact monitoring stations indicate that the Action and Limit levels are exceeded, the actions specified in ***Appendix H*** shall be carried out.

5.3.3 Results

In this reporting month, total 3 sampling days were performed on 20, 22 and 24 October. Results data of water quality monitoring at location W1, W2, W3(a), W4, W5 and W6 during the Reporting Period are shown in ***Appendix F***.

For this reporting month, no excedance of Action and Limit levels of DO, pH, NH_3-N and Zinc are recorded during the Reporting Period. However, totally seven limit exceedances were found in turbidity and suspended solids (SS). The NOEs were issued and submitted. Based on the construction activities as provided by the Contractor, ET considers that the turbidity and SS exceedances were found at W2 likely due to the exposed river sediment from the channel, however the turbidity exceedances in W6 were identified unlikely due to the project base on no construction activities were proceeded within upstream of W6. The investigation reports are prepared for IEC endorsement. During the report submission date still not yet closed.

A summary of water exceedances during this reporting month is presented in ***Table 5-3-3-1***.

Table 5-3-3-1 Summary of Marine Water Quality Exceedances

Station	Exceedance	DO	Turbidity	pH	SS	NH_3-N	Zinc	Total
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	3	0	0	0	0	3
Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	2	0	0	7

5.3.3 Discussion, Conclusion and Recommendation

Works Related Water Quality Deterioration

The exceedances were elevated the construction program and observation during the regular site inspection demonstrated that no effluent was generated and discharged to the stream within KT13

from the construction site, however sediment exposal is undertaken nearly the W2, so consider that the exceedances at W2 are indicated due to the project. The mitigation measurement of dam (sand bag) with silt curtain is recommended to erect at the downstream of the exposed area for water quality implementation.

Non-Works Related Water Quality Deterioration

Compared with the baseline water conditions measured in April 2008, Turbidity, SS, NH_3-N and Zinc were elevated. Updated construction Program and observation during the regular site inspection demonstrated no construction activities undertaken nearly W6. In addition, no effluent was generated and discharged to the stream within KT13 nearly W6. The elevation of Turbidity exceedances at W6 is therefore concluded not works related. Therefore the associated corrective action was not required.

5.4 Ecology

Between 20 and 25 October of the reporting period, the Ecology Monitoring was undertaken on 20 October 2008 in accordance with the EM&A Manual.

5.4.1 Action and Limit Levels

The Action and Limit levels for Construction Ecology Monitoring are shown in ***Table 5-4-1*** to according with the EM&A manual.

Table 5-4-1 Action and Limit Levels for Construction Ecology Monitoring

Parameters	Action Level	Limit Level
Decrease in number of breeding egrets since previous year	>20%	> 40%

5.4.2 Event Action Plan

Should the ecology monitoring is indicated to exceed the Action and Limit Level, the event action plan in specified in ***Appendix H*** shall be undertaken.

5.4.3 Survey Results

Bird Survey

37 individuals of birds from 13 species were recorded during the survey for the present monthly monitoring on 20 October. Among the birds recorded, no wetland dependent birds were recorded. Ecology Impact Monitoring Results are presented in the **Table 5-3-2**.

Table 5-4-2 Summary of Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 Oct 08)	Habitat utilized
Birds				
Little Egret	*Egretta garzetta*	✓		
Cattle Egret	*Bubulcus ibis*	✓		
Chinese Pond Heron	*Ardeola bacchus*	✓		
Crested Serpent Eagle	*Spilornis cheela*	✓		
Bonelli's Eagle	*Hieraaetus fasciatus*	✓		
Eurasian Hobby	*Falco subbuteo*	✓		
White-breasted Waterhen	*Amaunornis phoenicurus*	✓		
Spotted Dove	*Streptopelia chinensis*	✓	2	Woodland, bare ground
Common Koel	*Eudynamys scolopacea*	✓		
Greater Coucal	*Centropus sinensis*	✓		
Little Swift	*Apus affinis*	✓		
White-Throated Kingfisher	*Halcyon smyrnensis*	✓		
Barn Swallow	*Hirundo rustica*	✓		
Red-Whiskered Bulbul	*Pycnonotus jocosus*	✓	5	Woodland
Chinese Bulbul	*Pycnonotus sinensis*	✓	3	Woodland

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 Oct 08)	Habitat utilized
Long-Tailed Shrike	*Lanius schach*	✓	1	Low-lying grassland
Oriental Magpie Robin	*Copsychus saularis*	✓	2	Woodland, bare ground
Masked Laughingthrush	*Garrulax perspicillatus*	✓	2	Woodland
Yellow-Bellied Prinia	*Prinia flaviventris*	✓	1	Low-lying grassland
Common Tailorbird	*Orthotomus sutorius*	✓		
Great Tit	*Parus major*	✓	1	Woodland
Japanese White-Eye	*Zosterops japonicus*	✓		
White-Rumped Munia	*Lonchura striata*	✓	6	Low-lying grassland
Eurasian Tree Sparrow	*Passer montanus*	✓	4	Bare ground Low lying grassland
Black-Collared Starling	*Sturnus nigricollis*	✓	1	Bare ground
Common Myna	*Acridotheres tristis*	✓		
Crested Myna	*Acridotheres cristatellus*	✓	4	Bare ground
Black Kite	*Milvus migrans*			
White Wagtail	*Motacilla alba*		5	Bare ground
Plain Prinia	*Prinia inornata*			
Blue Magpie	*Urocissa eythrorhyncha*			
Fork-tailed Sunbird	Aethopyga christinae			
Indian Cuckoo	*Cuculus micropterus*			
Common Mapie	*Pica pica*			
Species Number		27	13	
Individual Number		NA	37	

Wetland dependent species recorded with abundance during the baseline study with the names bolded

Due to the Contract was awarded in 2008, so no any factor of breeding egrets came from previous year to indicate the exceedance.

No egretry and fight line survey were undertaken in this reporting monitoring month in accordance with EM&A manual

Vegetation Impact monitoring

For the vegetation walk through survey was carry out on 20 October 2008, along the boundary of work area for KT13. No intrusions into the CA and Ho Pui egretry /adverse impact on habitats outside the site were found during the reporting period. No non-compliance of ecology was recorded.

Photographic record will be scheduled in future month (six-month intervals), and thus is required in the present monthly monitoring.

Due to the construction works at KT13 was commenced on 20 October 2008, so the extra Ecology monitoring results report was conduct in May, June July, August and September 2008 to present in ***Appendix H*** for reference only.

5.5 Other Monitoring or Audit

5.5.1 Waste Management

Waste management audit was performed on 24 October 2008. A Billing Account (The account number 7006524) under the ***Waste Disposal (Charges for Disposal of Construction Waste) Regulation*** has already been assigned on 9 Jan 2008, a discharge license No. 1U461/1 under Section 20 of the ***Water Pollution Control Ordinance*** has been issued. Aslo CRBC has registered as a Chemical Waste Producer with EPD under the Waste Disposal (Chemical Waste) (General) Regulation and the Waste Producer Number assigned is WPN: 5611-531-C3124-28 dated 2 May 08.

5.5.2 Cultural Heritage

For the reporting period, there was no construction work conducted within 100m area from the grave, so the captioned monitoring was not required in accordance with the approved methodology.

5.5.2.1 Action and Limit Levels

The Action and Limit levels for Cultural Heritage Monitoring are shown in ***Table 5-5-2-1*** to according with the EM&A manual.

Table 5-5-2-1 Action and Limit Levels for Cultural Heritage Resources

Action Level	Limit Level
When damage or structural instability is first detected	Signs of deterioration and structural instability continues on subsequent visits after action level is triggered

5.5.2.2 Event Action Plan

The following event/action plan in ***Appendix H*** shall be adopted during construction phase condition survey..

5.5.3 Landscape and Visual

Site audit was undertaken by Landscape Auditor. The audit report is attached in ***Appendix G***, The mitigation measures are also proposed to show in the audit report.

6 REPORT ON NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS, SUCCESSFUL PROSECUTIONS AND OTHERS

6.1 Non-compliance

As concluded in ***Section 5.1*** to ***5.5***, no non-compliance (exceedances) of the environmental quality performance limits (Action and Limit Levels) was recorded during the Reporting Period except SS and turbidity of water quality. ET concluded that the exceedances in W2 is likely due to the project during the river sediment expose; and the exceedances in W6 is unlikely due to the project, which is based on the construction activities as provided by the Contractor, and associated corrective actions were therefore required. The NOEs and investigation report were issued and submitted to IEC. During the report submission, the NOEs still not yet close.

6.2 Environmental Complaints

No written or verbal complaints were received (written or verbal) for each medial were registered during the Reporting Period.

6.3 Notifications of Summons and Successful Prosecutions

No notifications of summons and successful prosecutions were recorded during the Reporting Period.

6.4 Others

6.4.1 Waste Management Status

All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil and sediment

Waste generated, re-used, recycled and disposed of during the Reporting Period is shown in ***Appendix G***: ***Monthly Summary Waste Flow Table for 2008***. The quantities of Type I and Type II contaminated material for disposal in this reporting period are summarized in ***Tables 6-4-1-1*** and ***6-4-1-2.***:

Table 6-4-1-1 Summary of Quantities of Type I Contaminated Material disposal off site

Date	No of Truck	Quantity (m3)	Location of disposal
20/10/2008	120	720	East Sha Chau facility

Table 6-4-1-2 Summary of Quantities of Type II Contaminated Material disposal off site

Date	No of Truck	Quantity (m3)	Location of disposal
23/10/2008	110	660	East Sha Chau facility
24/10/2008	120	720	East Sha Chau facility
25/10/2008	120	720	East Sha Chau facility

6.4.2 Site Inspection and Environmental Audit

In this reporting period, one occasion of weekly environmental site inspection and audit were conducted on 24 October 2008 jointly by the ER, EO and ET during the Reporting Period. As no major construction activities were undertaken, no adverse environmental impacts were registered, indicating the mitigation measures implemented were effective and sufficient for the construction activities or preparation work and site clearance undertaken. Minor deficiencies found in the site inspection and audit was in general rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized below.

Table 6-4-2 Summary of findings of Site Inspection and Environmental Audit

Date	Findings / Deficiencies	Follow-Up Status
24 Oct 2008	Excavation works were observed at position B during the site inspection, temporary noise barriers are erected. Noise and water quality impact is reminded to implement by the contractor. Other than preparation work and site clearance were undertaken. Housekeeping should be undertaken to ensure the environmental performance.	To be follow.

6.4.3 Works to be Undertaken in the Forth-Coming Month

Works to be undertaken in the forth-coming month are shown in the construction program enclosed in ***Appendix C***. In addition, the activities undertaken in the Reporting Period including construction, preparation and site clearance activities will also be continued in the forth-coming month.

6.4.4 Future Key Issues and Mitigation Measures for the Forth-Coming Month

The rain season in Hong Kong normal has been approach in April to November; therefore turbidity and other water quality pollutants via site surface water runoff into the river within KT13 continues to be the key issue in the forth-coming month. Mitigation measures for water quality should therefore be fully implemented.

On the other hand, construction dust will continue to become a key environmental issue during dry and windy days. The implemented construction dust mitigation measures should therefore also be maintained and improved as necessary during dry and windy days.

In addition, special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule (EMIS) should be fully implemented. The updating EMIS is list in ***Appendix K***.

7 CONCLUSIONS AND RECOMMENDATIONS

i) For ease of reporting, it has been agreed among the ER, IEC, CRBC, ET and EPD that the EM&A report for the Project is split to the following three stand-alone parts:
   (d) EM&A Report - KT13 (under EP No.EP263/2007);
   (e) EM&A Report - KT14A (under No. EP231/2005A); and
   (f) EM&A Report - KT12, KT14B and KT14C (for Non-Designated works under no Environmental Permit).

ii) It is also agreed among the ER, IEC, CRBC, ET and EPD that the cut-off day is 25th of each month. That is to say, the reporting month is counted from 26th of the previous month to 25th of the reporting month.

iii) Synchronizing commencement of preparation, site clearance and construction works at KT13, the EM&A program for air quality, construction noise, water quality and ecology survey have been started since 20 October 2008. This is the first monthly EM&A Report - KT13 for designated works under Environmental Permit EP-263/2007, covering a period from 20 to 25 October 2008.

iv) Monitoring results demonstrated that air quality and construction noise with ecology monitoring are full compliance with the environmental quality criteria, no exceedance of Action and Limit levels recorded during the Reporting Period.

v) For the water quality monitoring, no excedance of Action and Limit levels of DO, pH, NH_3-N and Zinc are recorded during the Reporting Period. However, totally seven limit exceedances were found in turbidity and suspended solids (SS). The NOEs were issued and submitted. Based on the construction activities and mitigation measures as provided by the Contractor, ET considers that the turbidity and SS exceedances were found at W2 likely due to the excavated river sediment from the drainage channel, however the turbidity exceedances at W6 were identified unlikely due to the project to be based on no any construction activities process within the upstream of W6 for demonstration. The investigation reports with the proposed mitigation measures are recommended. ET, the Contractor and ER will follow the action and reporting to close the exceedance issue.

vi) No written or verbal complaints, notifications of summons and and successful prosecutions were received (written or verbal) for each media during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit on 24 October 2008, indicating the implemented mitigation measures for air quality, construction noise and ecology were effective except water quality during exposed river sediment. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered to be implement water quality impact and mitigation measurement are recommended in accordance with EIA, EP and EM&A manual to be provided

vii) As rain season has approached, ingression of turbidity and other water quality pollutants via site surface water runoff into the river within KT13 continues to be the key issue in the forth-coming month. Mitigation measures for water quality should therefore be fully implemented.

viii) On the other hand, construction dust will continue to become a key environmental issue during dry and windy days. The implemented construction dust mitigation measures should therefore also be maintained and improved as necessary during dry and windy days.

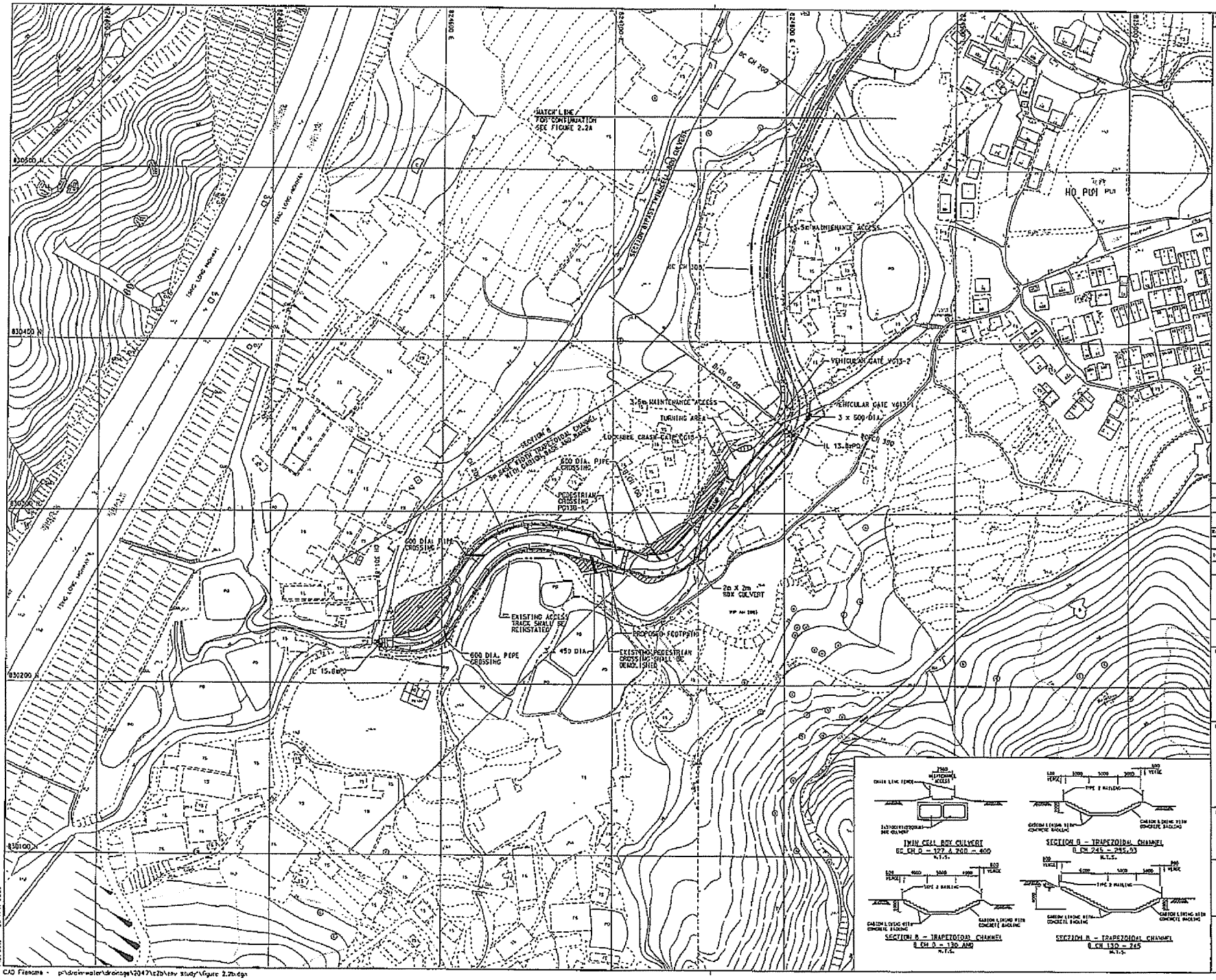
ix) In addition, special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

x) Extra monitoring included water quality, air quality, construction noise and ecology survey were conducted before the construction commencement. The extra measurement results and survey are also attached in this monthly report for reference only.

END OF TEXT

Appendix A

Location Plan of the Project and Environmental Monitoring Locations



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. GRID LINES ARE HONG KONG METRIC GRID 1980.
3. TYPE 2 RAILING WITH DEBRIS TRAP BAR AND GENERAL MESH FILL SHALL BE PROVIDED AT BOTH SIDES OF THE CHANNEL BANKS

LEGEND :

- SITE BOUNDARY
- PROPOSED CHANNEL
- PROPOSED SLOPE
- AREA TO BE FILLED TO ADJACENT GROUND LEVEL
- I.L. INVERT LEVEL
- PROPOSED RETAINING WALL

Revision	Date	Description	Initial
C	03/06	AMENDMENT TO BY-PASS CULVERT	KIL
B	10/05	MINOR AMENDMENT TO CHANNEL LAYOUT	KIL
A	05/05	MINOR AMENDMENTS TO SITE BOUNDARY	KIL

	Designed	Checked	Drawn	Verified
Initial	TW	KIL	MK	KIL
Date	04/04	04/04	04/04	04/04

Approved

AGREEMENT NO. CE 67/98

Contract title

YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE 1, PHASE 2B - KAM TIN

Drawing title

MA ON KONG CHANNEL KT13 PROPOSED LAYOUT PLAN (SHEET 2 OF 2)

Drawing no. FIGURE 1.3b

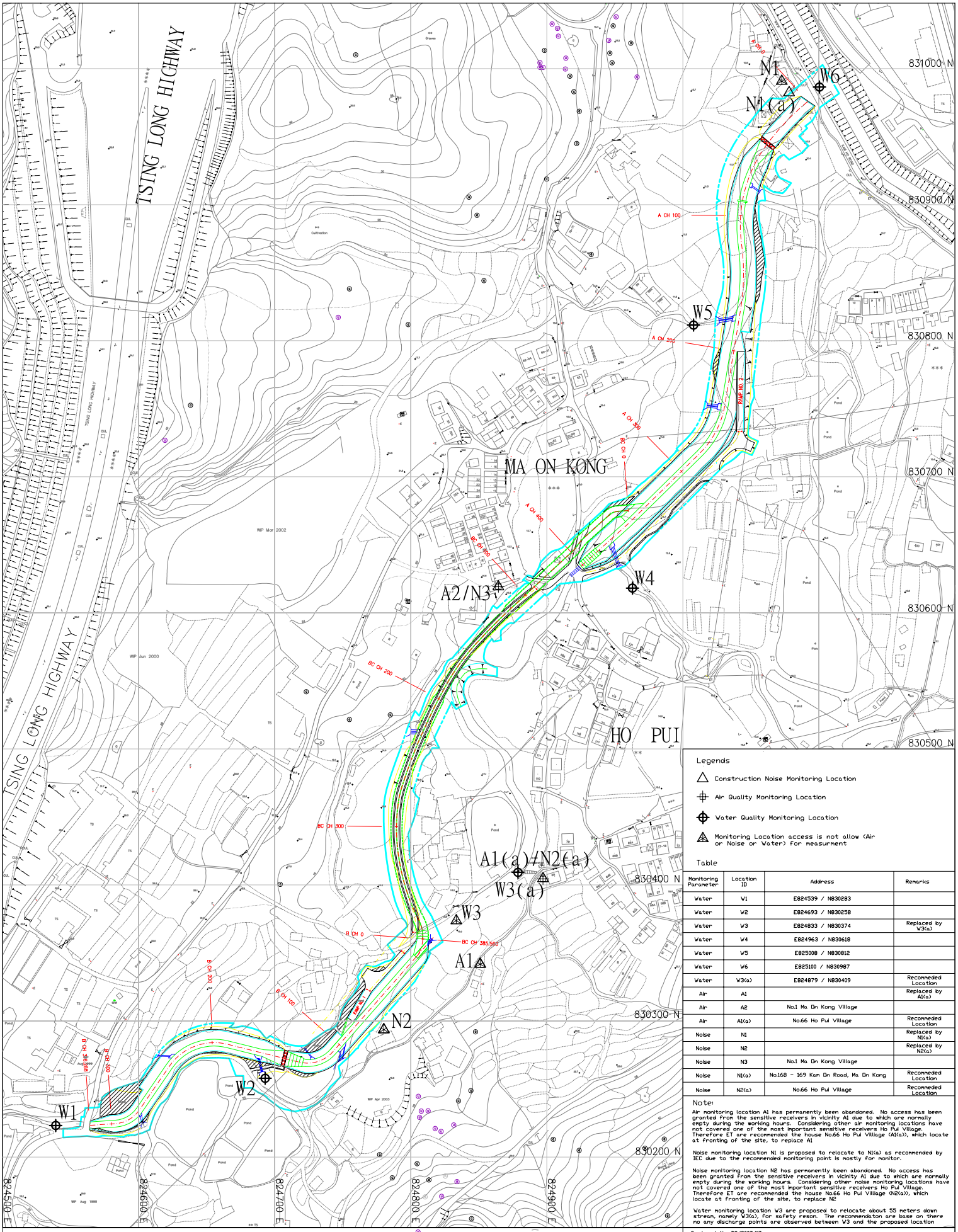
Scale 1:1000 A1, 1:2000 A3

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

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

Plot Date - 26 APR 2006

CAD Filename - p:\drainwater\drainage\2047\e2b\env study\figure 2.2b.dgn



Legends

- Construction Noise Monitoring Location
- Air Quality Monitoring Location
- Water Quality Monitoring Location
- Monitoring Location access is not allow (Air or Noise or Water) for measurment

Table

Monitoring Parameter	Location ID	Address	Remarks
Water	W1	E824539 / N830283	
Water	W2	E824693 / N830258	
Water	W3	E824833 / N830374	Replaced by W3(a)
Water	W4	E824963 / N830618	
Water	W5	E825008 / N830812	
Water	W6	E825100 / N830987	
Water	W3(a)	E824879 / N830409	Recommeded Location
Air	A1		Replaced by A1(a)
Air	A2	No.1 Ma On Kong Village	
Air	A1(a)	No.66 Ho Pui Village	Recommeded Location
Noise	N1		Replaced by N1(a)
Noise	N2		Replaced by N2(a)
Noise	N3	No.1 Ma On Kong Village	
Noise	N1(a)	No.168 - 169 Kam On Road, Ma On Kong	Recommeded Location
Noise	N2(a)	No.66 Ho Pui Village	Recommeded Location

Note:

Air monitoring location A1 has permanently been abandoned. No access has been granted from the sensitive receivers in vicinity A1 due to which are normally empty during the working hours. Considering other air monitoring locations have not covered one of the most important sensitive receivers Ho Pui Village. Therefore ET are recommended the house No.66 Ho Pui Village (A1(a)), which locate at fronting of the site, to replace A1

Noise monitoring location N1 is proposed to relocate to N1(a) as recommended by IEC due to the recommended monitoring point is mostly for monitor.

Noise monitoring location N2 has permanently been abandoned. No access has been granted from the sensitive receivers in vicinity A1 due to which are normally empty during the working hours. Considering other noise monitoring locations have not covered one of the most important sensitive receivers Ho Pui Village. Therefore ET are recommended the house No.66 Ho Pui Village (N2(a)), which locate at fronting of the site, to replace N2

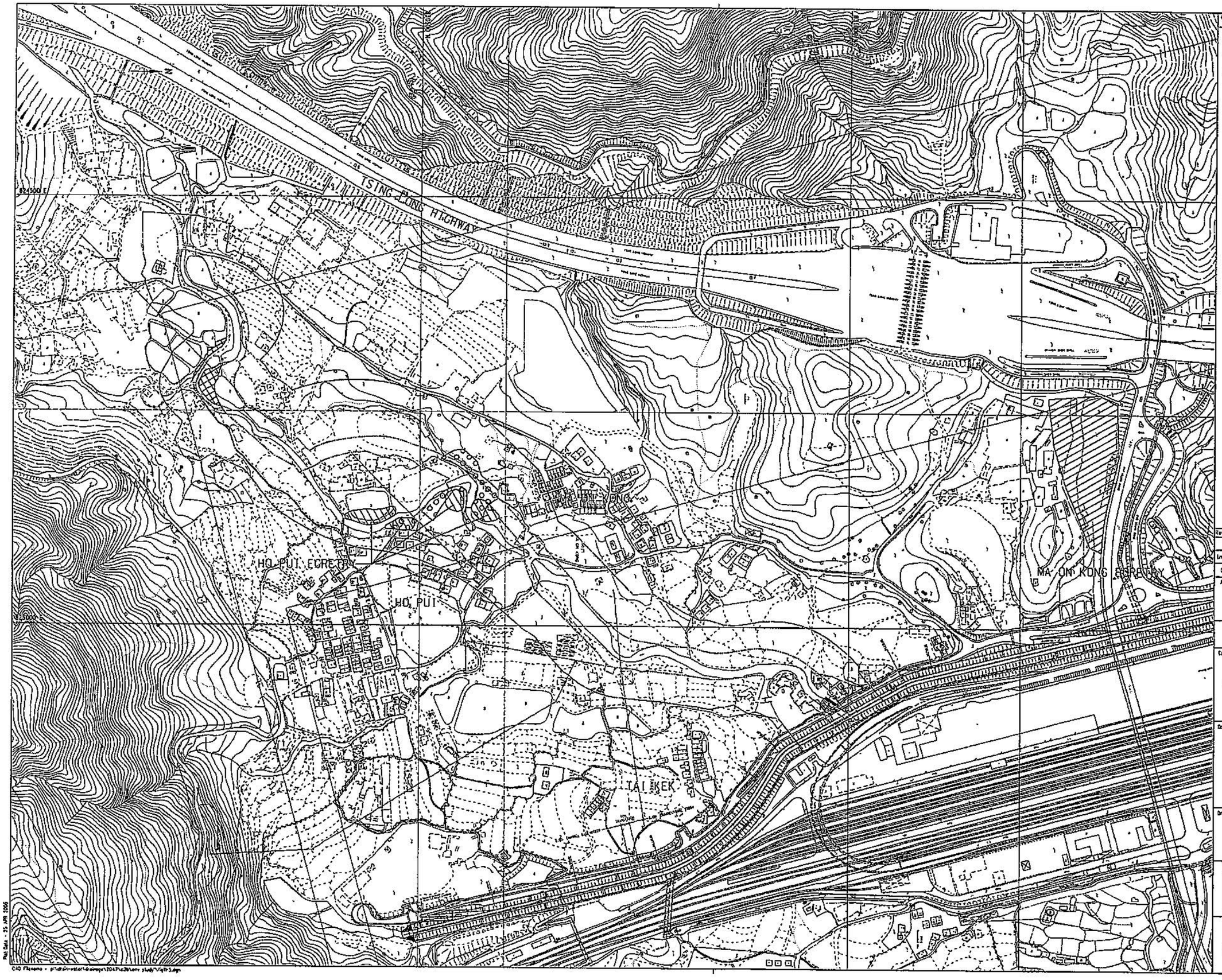
Water monitoring location W3 are proposed to relocate about 55 meters down stream, namely W3(a), for safety reson. The recommendaton are base on there no any discharge points are observed between W3 and the proposed location

Drawing:

Air, Noise and Stream Water Monitoring Location at KT-13

Contract No. DC/2007/17-
Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin San Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

AUES



NOTES :

1. GRID LINES ARE HONG KONG METRIC GRID 1980.

LEGEND:

- MA ON KONG AND HO PUI ECRETARIES
- PROPOSED COMPENSATORY TREE PLANTING
- CONSERVATION AREA DENOTED ON OUTLINE ZONING PLAN
- WORKS BOUNDARY OF CHANNEL KY13
- ECOLOGY MONITORING AREAS

Revision	Date	Description			Initial
	Designed	Checked	Drawn		Checked
Initial	MC	KIL	YLL		KIL
Date	09/05	09/05	09/05		09/05

Approved

AGREEMENT NO. CE 67/98

Contract title

YUEN LONG, KAM TIN,
NGAU TAM MEI AND TIN SHUI WAI
DRAINAGE IMPROVEMENT, STAGE 1,
PHASE 2B – KAM TIN

Drawing title

ECOLOGY MONITORING AREAS
RECOMMENDED FOR
CONSTRUCTION PHASE AND
OPERATION PHASE

Drawing no.

Figure 6.1

Scale

1:2000 A1
1:4000 A3

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

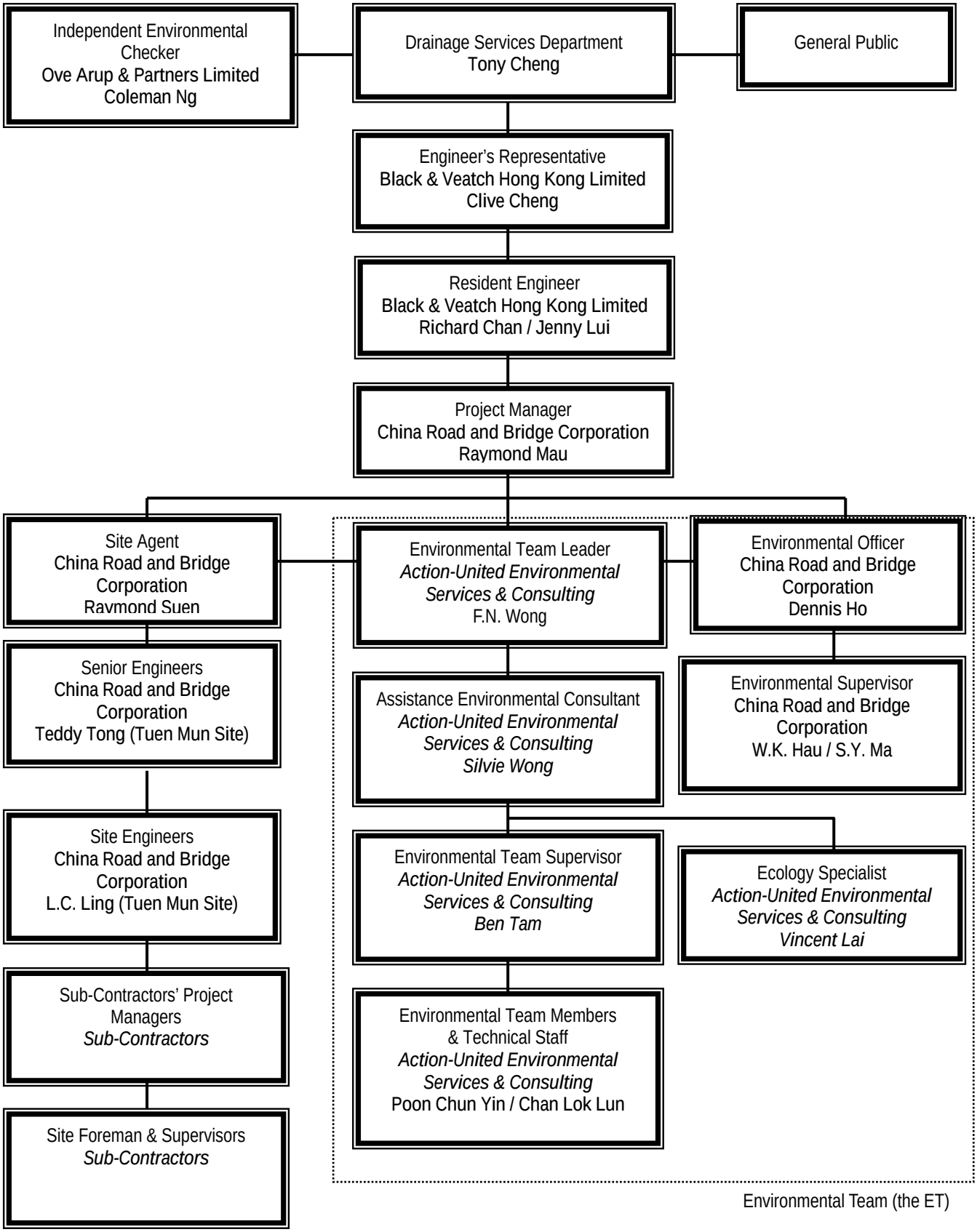
BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

Plot Date : 25 APR 2006

CAD Filename : p:\drainage\2047\c2b\env study\fig1-1.dgn

Appendix B

Environmental Management Organization and Contacts of Key Personnel



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. Tony Cheng	2594 7264	2827-8526
B&V	Engineer's Representative	Mr. Clive Cheng	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Richard Chan	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Jenny Lui	2478-9161	2478-9369
OAP	Independent Environmental Checker	Mr. Coleman Ng	2268 3097	2268 3950
CRBC	Project Director	Mr. Wang Yanhua	22831688	2283-1689
CRBC	Project Manager	Mr. Raymond Mau	9048-3669	2283-1689
CRBC	Site Agent	Mr. Raymond Suen	9779-8871	2283-1689
CRBC	Senior Engineer (Tuen Mun Site)	Mr. Teddy Tong	6283 9684	2283-1689
CRBC	Site Engineer (Tuen Mun Site)	Mr. L.C. Ling	6770 4010	2283-1689
CRBC	Environmental Officer	Mr. Dennis Ho	6474-6975	2283-1689
CRBC	Environmental / Construction Supervisor (Tuen Mun and Yuen Long site)	Mr. W.K. Hau	6283 9696	2283-1689
CRBC	Environmental / Construction Supervisor (Yuen Long site)	Mr. S.Y. Ma	9401 6296-	2283-1689
CRBC	Safety Officer	Kenny Sze	9374-8954	2283-1689
AUES	Environmental Team Leader	Mr. FN Wong	2959-6059	2959-6079
AUES	Assistance Environmental Consultant	Miss Sylvie Wong	2959-6059	2959-6079
AUES	Environmental Site Inspector	Mr. Ben Tam	2959-6059	2959-6079
AUES	Ecologist	Mr. Vincent Lai	2959-6059	2959-6079

Legend:

DSD (Employer) – Drainage Services Department

B&V (Engineer) – Black & Veatch Hong Kong Limited

CRBC (Main Contractor) – China Road and Bridge Corporation

OAP (IEC) – Ove Arup & Partners Ltd

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

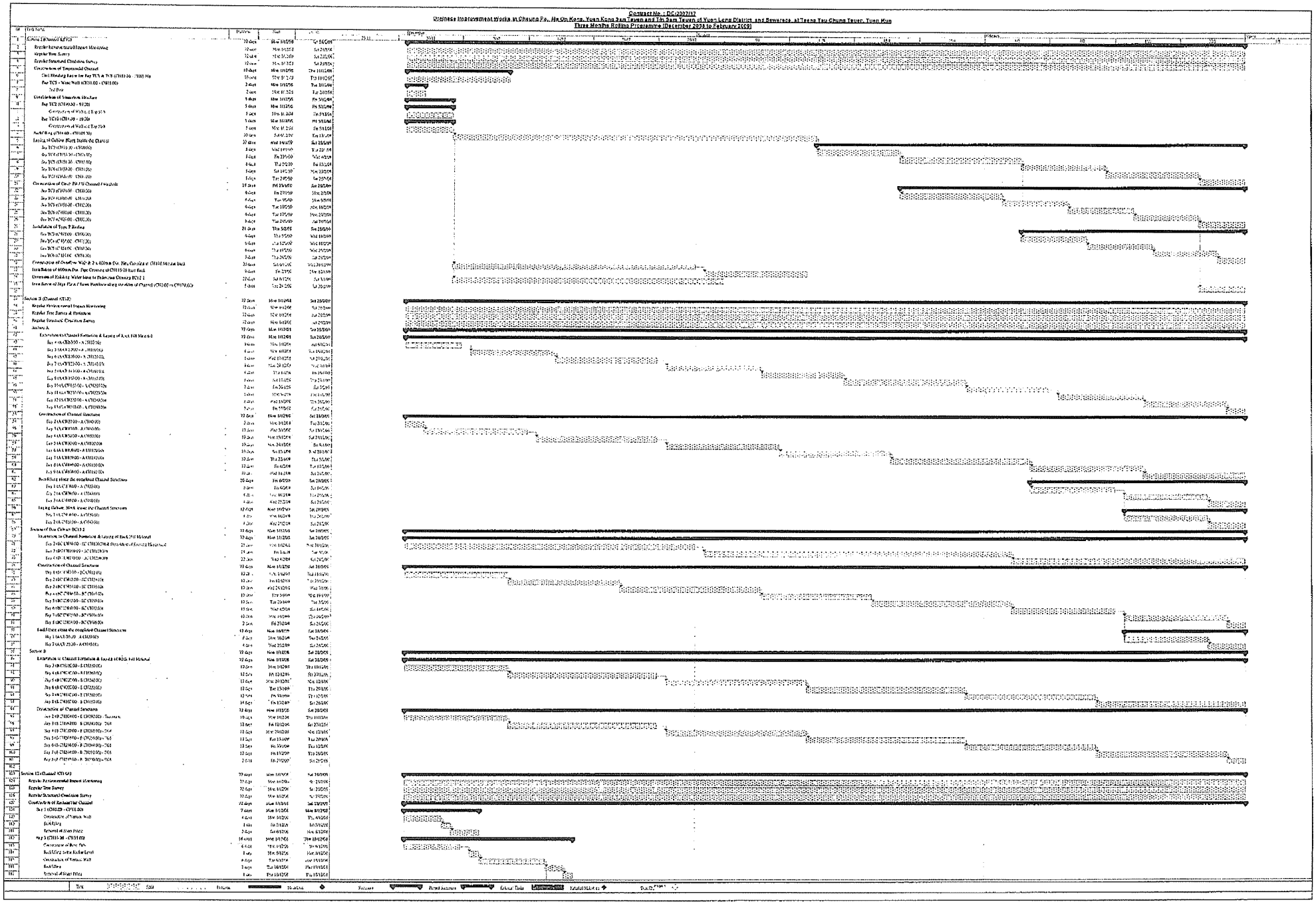
Appendix C

Construction Program

Contract No. : DC/2007/12

Drainage Improvement Works at Cheung Po, Ha Chi Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Reversion at Tsoas Tau Chung Tsuen, Tuen Mun

Three Months Rolling Programme (December 2008 to February 2009)



Contract No.: DC/2007/17

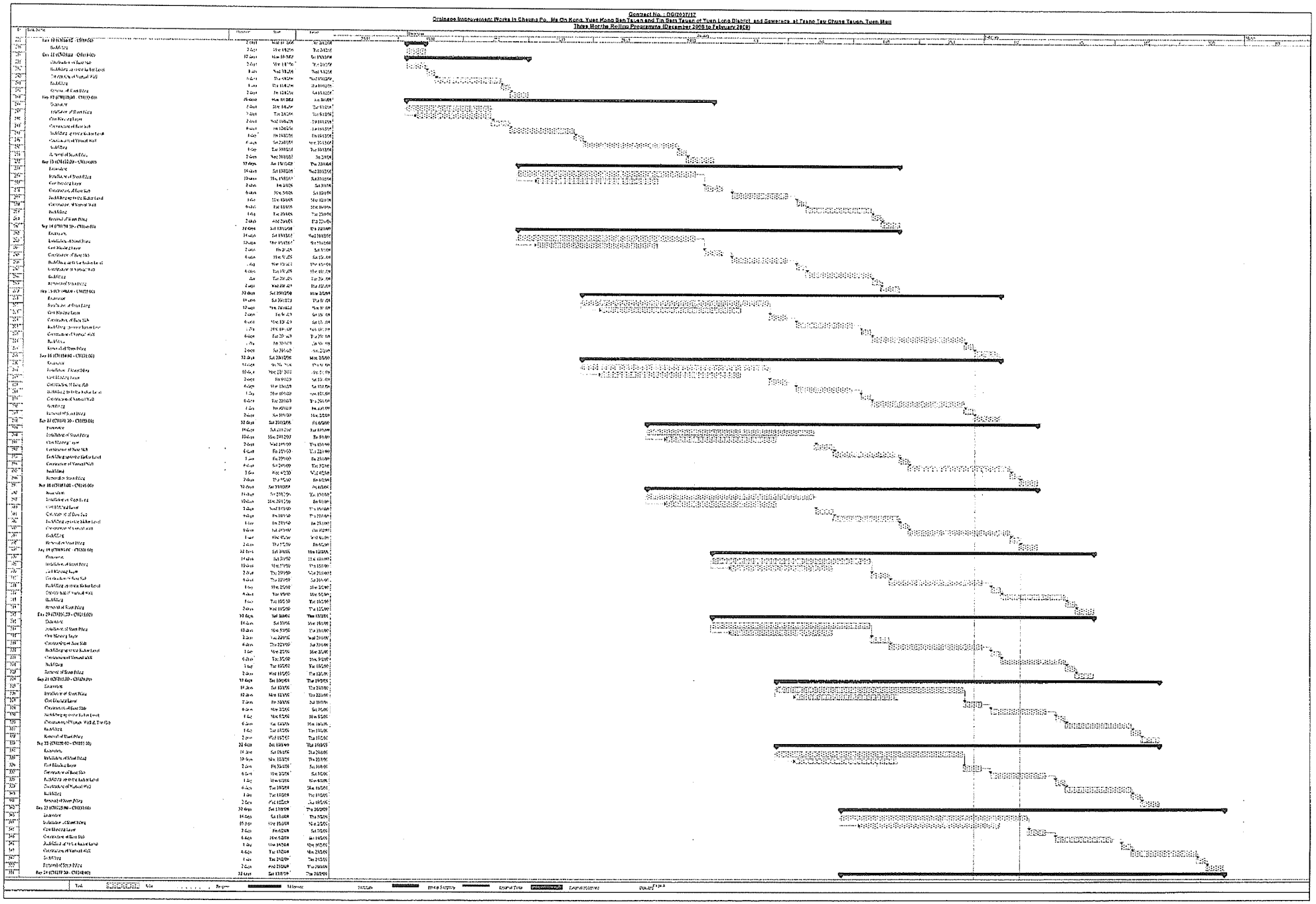
Drainage Improvement Works in Chaung Po., Ha On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen at Yuen Long District and Sewerage at Tsang Tsui Chuen Tsuen, Tuen Mun

Three Months Rolling Programme (December 2008 to February 2009)

Contract No. : DG/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin San Tsuen of Yuen Long District and Sewerage at Tsang Tsui Chung Tsuen, Tuen Mun

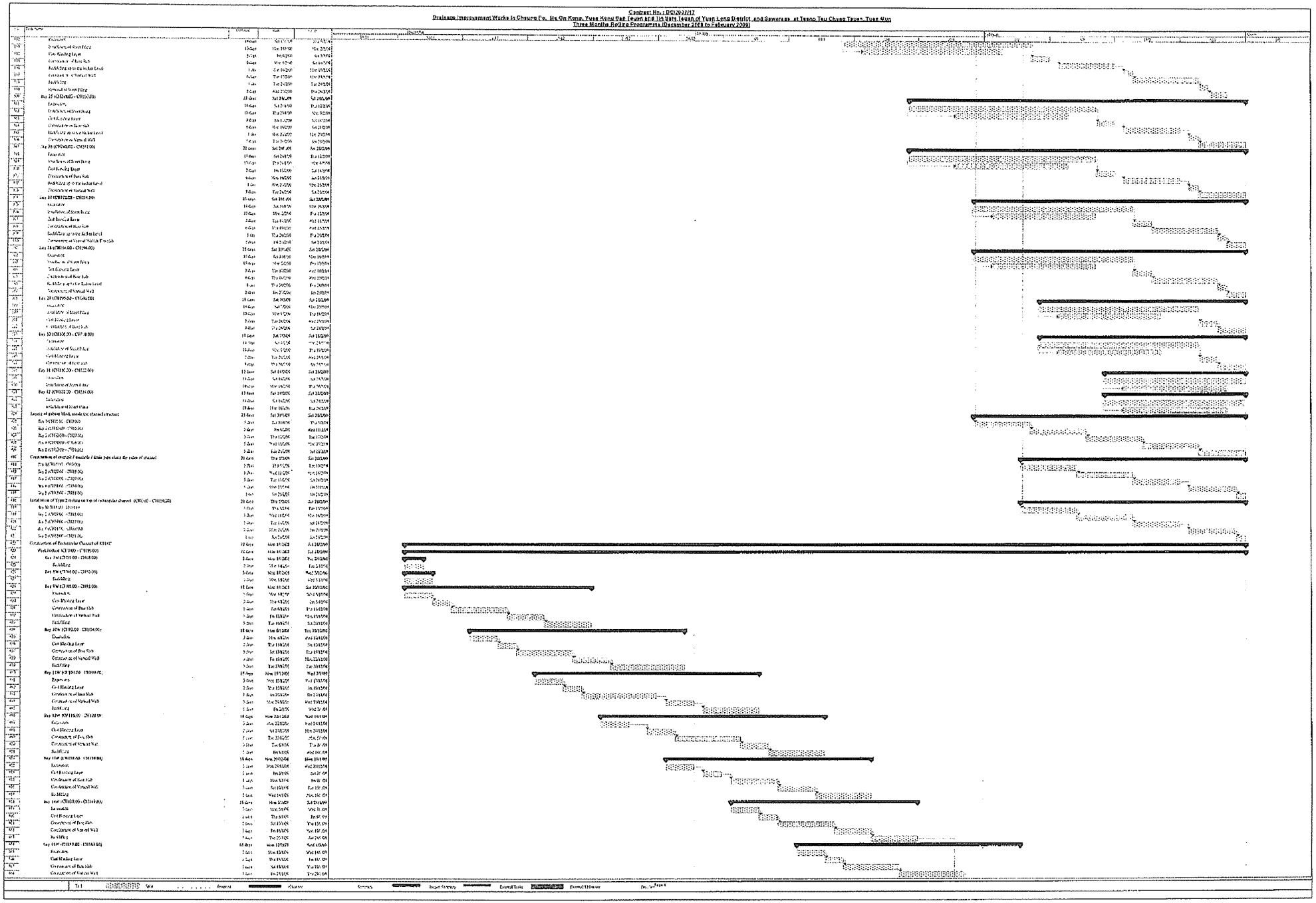
Three Months Rolling Programme (December 2008 to February 2009)



Contract No.: DO/2007/17

Drainage Improvement Works in Cheung Po, Ha On Kong, Yuen Hong Wai Tsuen and Tin Wah Tsuen of Yuen Long District and Sewerages at Tsang Tsui Cheon Tsuen, Tuen Mun

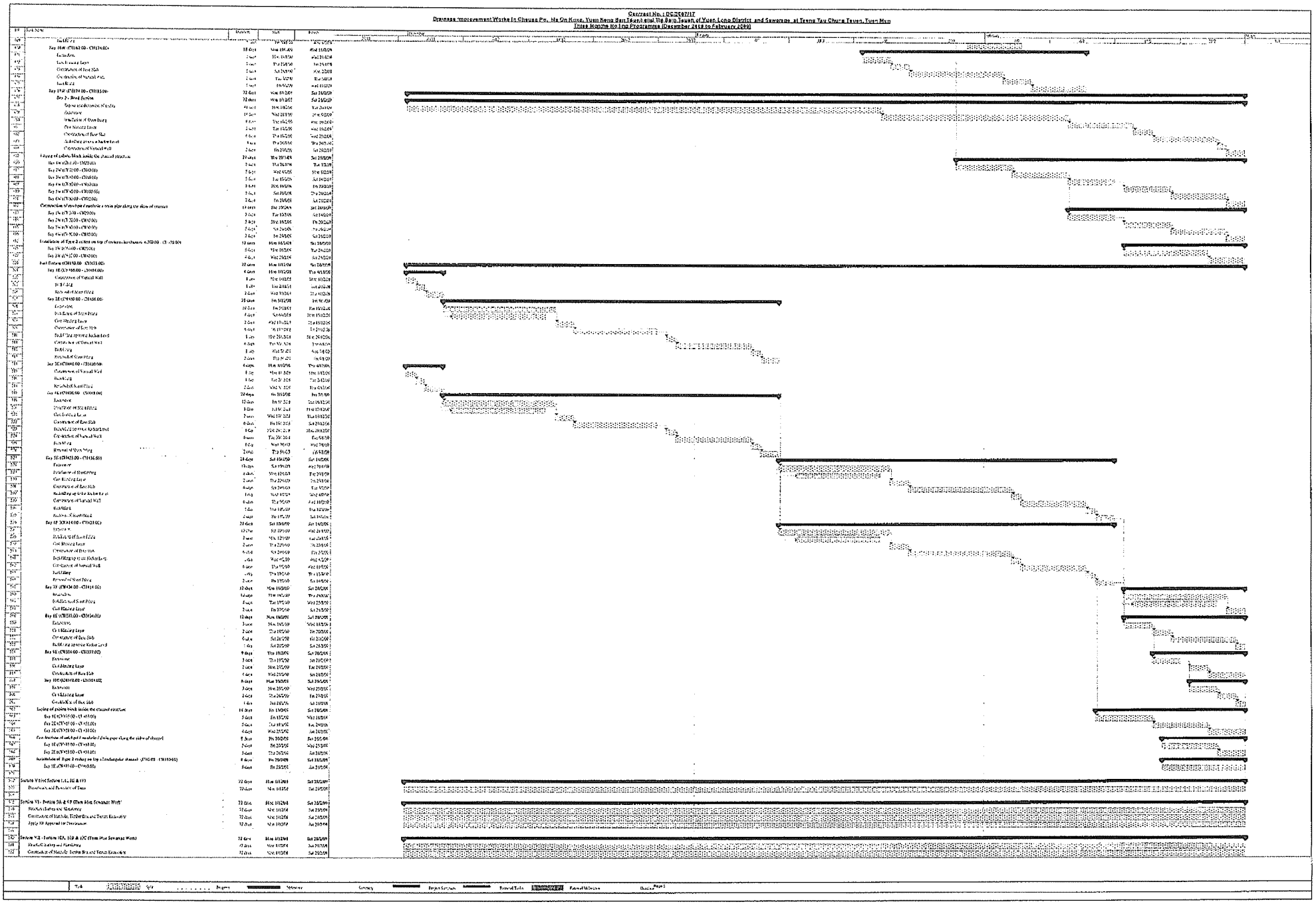
Three Months Rolling Programme (December 2008 to February 2009)



Contract No.: DC/2007/17

Drainage Improvement Works in Chuqua Po., Ma On Kong, Yuen Kong San Tsuen and Ha San Tsuen, of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Three Months Ten Day Programme (December 2008 to February 2009)



Appendix D

Calibration Certificates and HOKLAS-Accreditation Certificate

CERTIFICATE OF ANALYSIS

Batch: HK0817539
Date of Issue: 17/10/2008
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of Thermometer

Item : YSI Multimeter

Model No. : YSI 550A

Serial No. : 05F2063AZ

Equipment No.: - -

Calibration Method : In-house Method

Date of Calibration : 17 October, 2008

Testing Results :

Reference Temperature (^{0}C)	Recorded Temperature (^{0}C)
23.2 °C 31.5 °C	23.3°C 31.4 °C
Allowing Deviation	±0.2 mg/L

Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS

Batch: HK0817539
Date of Issue: 17/10/2008
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of DO System

Item : YSI Multimeter

Model No. : YSI 550A

Serial No. : 05F2063AZ

Equipment No. : --

Calibration Method : This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-0C & G

Date of Calibration : 17 October, 2008

Testing Results :

Expected Reading	Recording Reading
4.88 mg/L 6.52 mg/L 7.89 mg/L	4.76 mg/L 6.38 mg/L 7.86 mg/L
Allowing Deviation	±0.2 mg/L

Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS

Batch: HK0815012
Date of Issue: 19/09/2008
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of Turbidity System

Item : HACH Turbidimeter

Model No. : HACH 2100P

Serial No. : 950900008735

Equipment No. : EQ091

Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B

Date of Calibration : 01 September, 2008

Testing Results :

Expected Reading	Recording Reading
0.00	0.23
1.00	1.08
2.00	2.17
4.00	3.78
16.0	15.1
40.0	37.5
80.0	74.9
160	149
Allowing Deviation	± 0.2

Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS

Batch: HK0817540
Date of Issue: 17/10/2008
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of Salinity System

Item : HAND REFRACTOMETER

Model No. : ATAGO

Serial No. : 289468

Equipment No. : EQ114

Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2520 A and B

Date of Calibration : 17 October, 2008

Testing Results :

Expected Reading	Recording Reading
10 g/L	10 g/L
20 g/L	19 g/L
30 g/L	28 g/L
40 g/L	38 g/L
Allowing Deviation	±10%

Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS

Batch: HK0810119
Date of Issue: 09/07/2008
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of pH System

Item : HANNA pH Meter

Model No. : HI98107

Serial No. : S388220

Equipment No. : 0800542

Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 4500-H^+B

Date of Calibration : 27 June, 2008

Testing Results :

Expected Reading	Recording Reading
4.00	3.8
7.00	6.9
10.0	10.0
Allowing Deviation	± 0.2

Ms Wong Wai Man, Alice
Laboratory Manager - Hong Kong

輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C082016

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ006)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285762

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C082016.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

Date of Issue : 22 April 2008

Certified by : K C Lee

The test equipment used for testing are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C082016

Calibration Report

ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ006)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 2238
SERIAL NO. : 2285762

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)℃ RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 21 April 2008 ***JOB NO.*** : IC08-0992

TEST RESULTS

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

Tested by : *H C Chan* *Date : 22 April 2008*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Report No. : C082016

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the B&K acoustic calibrator 4231, S/N 2326408 was performed before the test.

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	C080037
CL281	Multifunction Acoustic Calibrator	DC080007

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Freq. (kHz)		
20 - 100	L_{AFP}	A	F	94.00	1	93.9	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Freq. (kHz)	
40 - 120	L_{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		113.9

IEC 651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Freq. (kHz)		
20 - 100	L_{AFP}	A	F	94.00	1	94.0	Ref.
	L_{ASP}		S			94.0	± 0.1
	L_{AIP}		I			94.0	± 0.1

Report No. : C082016

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.00	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	104.9	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	101.9	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Freq.		
20 - 100	L_{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.6	-16.1 ± 1.0
					500 Hz	90.6	-3.2 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	95.0	+1.2 ± 1.0
					4 kHz	94.8	+1.0 ± 1.0
					8 kHz	92.6	-1.1 (+1.5 ; -3.0)
					12.5 kHz	88.8	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Parameter	Freq. Weight	Time Weight	Level (dB)	Freq.		
20 - 100	L_{CFP}	C	F	94.00	31.5 Hz	91.0	-3.0 ± 1.5
					63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.5	-0.2 ± 1.0
					500 Hz	93.8	0.0 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.0
					4 kHz	93.1	-0.8 ± 1.0
					8 kHz	90.7	-3.0 (+1.5 ; -3.0)
					12.5 kHz	86.9	-6.2 (+3.0 ; -6.0)

Report No. : C082016

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Freq. Weight	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
30 - 110	Leq	A	10 sec.	4	1	1/10	110.0	100	100.2	± 0.5
						$1/10^2$		90	90.2	± 0.5
			60 sec.			$1/10^3$		80	79.8	± 1.0
			5 min.			$1/10^4$		70	69.5	± 1.0

Remarks : - Mfr's Spec. : IEC 651 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB :	31.5 Hz - 125 Hz	: ± 0.40 dB
	500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz	: ± 0.40 dB
	4 kHz	: ± 0.50 dB
	8 kHz	: ± 0.70 dB
	12.5 kHz	: ± 1.20 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 Calibration Report 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.

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C081990

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter (EQ067)

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00410221

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C081990.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

Date of Issue : 22 April 2008

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F. Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C081990

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter (EQ067)
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00410221

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)℃ RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2008 ***JOB NO.*** : IC08-0992

TEST RESULTS

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

Tested by : *H C Chan* *Date : 22 April 2008*

Report No. : C081990

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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	C080037
CL281	Multifunction Acoustic Calibrator	DC080007

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)		
20 - 100	L_A	A	Fast	94.00	1	93.7	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

IEC 651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq. (kHz)		
20 - 100	L_A	A	Fast	94.00	1	93.7	Ref.
			Slow			93.7	± 0.1

Report No. : C081990

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Burst Duration		
20 - 110	L_A	A	Fast	106.00	Continuous	106.0	Ref.
	L_{Amax}				200 ms	105.1	-1.0 ± 1.0
	L_A		Slow		Continuous	106.0	Ref.
	L_{Amax}				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 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.		
20 - 100	L_A	A	Fast	94.00	31.5 Hz	54.6	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					500 Hz	90.5	-3.2 ± 1.0
					1 kHz	93.7	Ref.
					2 kHz	94.9	+1.2 ± 1.0
					4 kHz	94.4	+1.0 ± 1.0
					8 kHz	89.9	-1.1 (+1.5 ; -3.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Range (dB)	Mode	Weight	Response	Level (dB)	Freq.		
20 - 100	L_C	C	Fast	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.0
					500 Hz	93.8	0.0 ± 1.0
					1 kHz	93.7	Ref.
					2 kHz	93.5	-0.2 ± 1.0
					4 kHz	92.6	-0.8 ± 1.0
					8 kHz	88.0	-3.0 (+1.5 ; -3.0)

Report No. : C081990

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Weight	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
20 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	90.0	± 0.5
			60 sec.			$1/10^3$		80	80.0	± 1.0
			5 min.			$1/10^4$		70	70.0	± 1.0

Remarks : - Mfr's Spec. : IEC 651 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5Hz - 125 Hz : ± 0.35 dB
  500 Hz : ± 0.30 dB
  1 kHz : ± 0.20 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  104 dB : 1 kHz : ± 0.30 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 Calibration Report 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.

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C082026

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ016)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2292167

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C082026.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

Date of Issue : 22 April 2008

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C082026

Calibration Report

ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ016)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 4231
SERIAL NO. : 2292167

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)℃ RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 21 April 2008 ***JOB NO.*** : IC08-0992

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification & user's specified acceptance criteria.
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
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by : *H C Chan* *Date : 22 April 2008*

Report No. : C082026

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
TST150A	Measuring Amplifier	C080751
CL129	Universal Counter	C072995
CL281	Multifunction Acoustic Calibrator	DC080007

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	User's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.3	± 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

Remarks : - The user's specified acceptance criteria (user's spec.) is a customer pre-defined operating tolerance of the UUT, suitable for one's own intended use.

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

Note :
The values given in this Calibration Report 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.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	No.68 Ho Pui Village	Date of Calibration:	29-Aug-08
Location ID :	ASR14 (A1(a))	Next Calibration Date:	29-Nov-08
		Technician:	Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1008.6	Corrected Pressure (mm Hg)	756.45
Temperature (^{o}C)	29.1	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.8	4.8	9.6	2.001	53	52.16	Slope = 42.5208
13	4.0	4.0	8.0	1.828	47	46.25	Intercept = -32.2624
10	3.3	3.3	6.6	1.661	39	38.38	Corr. coeff. = 0.9994
7	2.6	2.6	5.2	1.476	31	30.51	
5	1.4	1.4	2.8	1.087	14	13.78	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

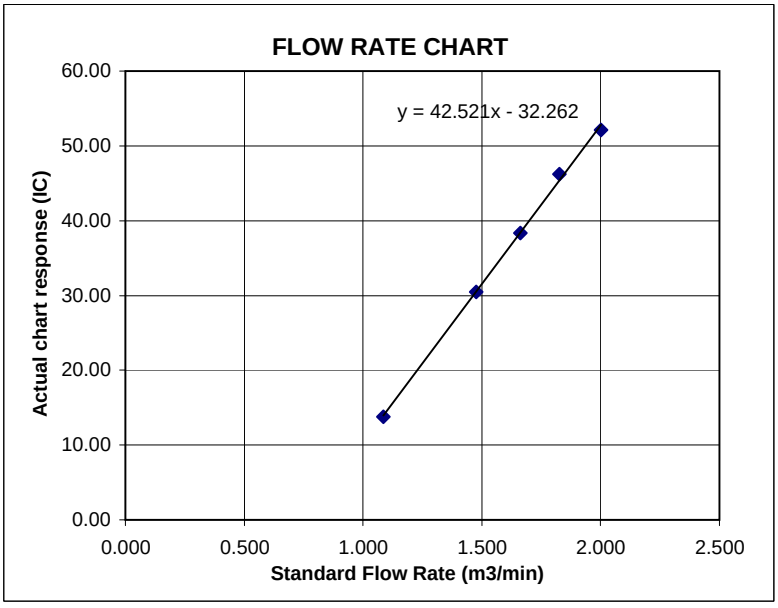
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	No.1 Ma On Kong Village	Date of Calibration:	29-Aug-08
Location ID :	ASR15 (A2)	Next Calibration Date:	29-Nov-08
		Technician:	Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1008.6	Corrected Pressure (mm Hg)	756.45
Temperature (^{o}C)	29.1	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.54431
Model->	515N	Qstd Intercept ->	-0.01988

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.0	5.0	10.0	2.042	51	50.19	Slope = 38.4505
13	3.7	3.7	7.4	1.758	41	40.35	Intercept = -27.3792
10	2.8	2.8	5.6	1.531	34	33.46	Corr. coeff. = 0.9961
7	2.1	2.1	4.2	1.328	24	23.62	
5	1.5	1.5	3.0	1.124	15	14.76	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

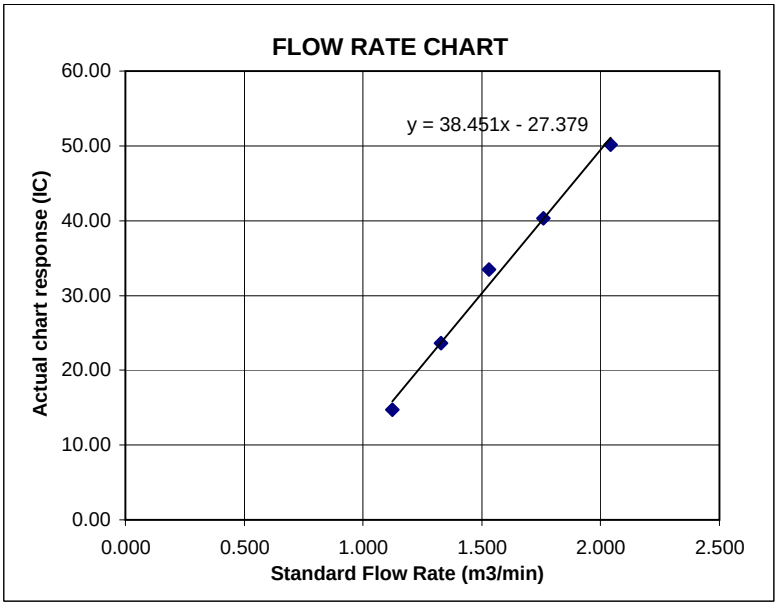
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



AUES

Equipment Calibration Record

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata
Serial No.	362337
Equipment Ref:	EQ094
Sensitivity	722 CPM

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	Village House in Tin Sam San Tsuen
Equipment Ref:	A10
Last Calibration Date:	07 May 2008

Equipment Calibration Results:

Calibration Date: 20 June 2008

Hour	Time	Temp °C	RH %	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
1	11:30 ~ 12:30	31.2	82	0.133	3818	63.6
1	14:30 ~ 15:30	32.1	77	0.056	1430	23.8
1	16:30 ~ 17:30	29.2	81	0.058	1468	24.5

Sensitivity Adjustment Scale Setting (Before Calibration) 722 (CPM)

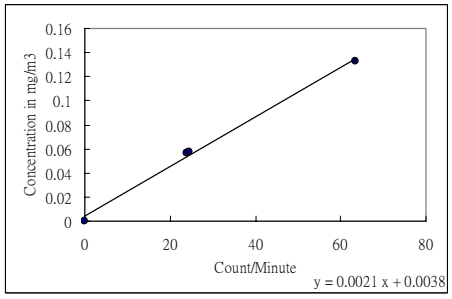
Sensitivity Adjustment Scale Setting (After Calibration) 722 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0021

Correlation Coefficient 0.9977

Validity of Calibration Record 24 June 2008



Operator : Ben Tam Signature : Date : 24 June 2008

QC Reviewer : Ken Wong Signature : Date : 24 June 2008

Equipment Calibration Record

AUES

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata
Serial No.	362359
Equipment Ref:	EQ096
Sensitivity	769 CPM

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	Village House in Cheung Chun San Tsuen
Equipment Ref:	A1
Last Calibration Date:	07 May 2008

Equipment Calibration Results:

Calibration Date: 20 June 2008

Hour	Time	Temp °C	RH %	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
1	11:30 ~ 12:30	31.2	82	0.133	4240	70.7
1	14:30 ~ 15:30	32.1	77	0.056	1602	26.7
1	16:30 ~ 17:30	29.2	81	0.058	1764	29.4

Sensitivity Adjustment Scale Setting (Before Calibration) 769 (CPM)

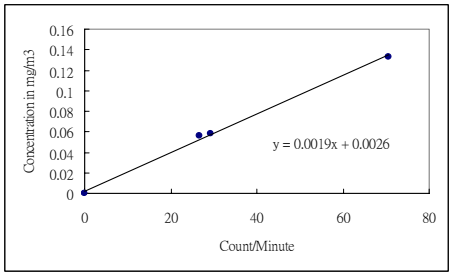
Sensitivity Adjustment Scale Setting (After Calibration) 769 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0019

Correlation Coefficient 0.9988

Validity of Calibration Record 24 June 2008



Operator : Ben Tam Signature : Date : 24 June 2008

QC Reviewer : Ken Wong Signature : Date : 24 June 2008

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，
of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as
獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
listed in the HOKLAS Directory of Accredited Laboratories within the test category of
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
這項認可資格表示在指定範疇所需的技術能力及實驗所質量管理體系的運作
quality management system (refer joint ISO-ILAC-IAF Communiqué dated 18 June 2005).
(見國際標準化組織、國際實驗所認可合作組織及國際認可論壇於二零零五年六月十八日的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 3 May 2006
簽發日期：二零零六年五月三日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 000126

Appendix E

(a) Monitoring Schedules

(b) Meteorological Data

(A1) First Month of Environmental Monitoring Schedule - October 2008

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		Hour TSP	24-Hour TSP			
1-Oct-08	Wed					
2-Oct-08	Thu					
3-Oct-08	Fri					
4-Oct-08	Sat					
5-Oct-08	Sun					
6-Oct-08	Mon					
7-Oct-08	Tue					
8-Oct-08	Wed					
9-Oct-08	Thu					
10-Oct-08	Fri					
11-Oct-08	Sat					
12-Oct-08	Sun					
13-Oct-08	Mon					
14-Oct-08	Tue					
15-Oct-08	Wed					
16-Oct-08	Thu					
17-Oct-08	Fri					
18-Oct-08	Sat					
19-Oct-08	Sun					
20-Oct-08	Mon					**Veg. & B. Survey**
21-Oct-08	Tue					
22-Oct-08	Wed					
23-Oct-08	Thu					
24-Oct-08	Fri					
25-Oct-08	Sat					
26-Oct-08	Sun					
27-Oct-08	Mon					
28-Oct-08	Tue					
29-Oct-08	Wed					
30-Oct-08	Thu					
31-Oct-08	Fri					

	Monitoring Day
	Sunday or Public Holiday

Remarks: Impact Monitoring Frequency

Air Quality :Once every 6 days for 24-Hr TSP and three times every 6 days for 1-Hr TSP, when the highest construction dust impacts are anticipated.

Noise :Once a week during 0700-1900 on normal weekdays for Leq30min

Water Quality :Three times a week with intervals of at least 36 hours between two consecutive monitoring events

Ecology

Vegetation (Veg.):	Monthly survey and each six months take photographic to checks against baseline records
Wetland Bird survey (B. Survey):	Monthly of half-day survey;
Ma On Kong egretry:	Monthly between March to August; and
Ho Pui egretry:	Bi-weekly between March and August;
Flight line Survey:	Monthly during the period from April to June

A(2) Come Month of Environmental Monitoring Schedule – November 2008

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		1-Hour TSP	24-Hour TSP			
1-Nov-08	Sat					
2-Nov-08	**Sun**					
3-Nov-08	Mon				■	
4-Nov-08	Tue		■			
5-Nov-08	Wed	■		■	■	
6-Nov-08	Thu					
7-Nov-08	Fri				■	
8-Nov-08	Sat					**Veg. & B. Survey**
9-Nov-08	**Sun**					
10-Nov-08	Mon		■		■	
11-Nov-08	Tue	■		■		
12-Nov-08	Wed				■	
13-Nov-08	Thu					
14-Nov-08	Fri				■	
15-Nov-08	Sat		■			
16-Nov-08	**Sun**					
17-Nov-08	Mon	■		■	■	
18-Nov-08	Tue					
19-Nov-08	Wed				■	
20-Nov-08	Thu					
21-Nov-08	Fri		■		■	
22-Nov-08	Sat	■		■		
23-Nov-08	**Sun**					
24-Nov-08	Mon				■	
25-Nov-08	Tue					
26-Nov-08	Wed				■	
27-Nov-08	Thu		■			
28-Nov-08	Fri	■		■	■	
29-Nov-08	Sat					
30-Nov-08	**Sun**					

■	Monitoring Day
	Sunday or Public Holiday

Remarks: Impact Monitoring Frequency

Air Quality :Once every 6 days for 24-Hr TSP and three times every 6 days for 1-Hr TSP, when the highest construction dust impacts are anticipated.

Noise :Once a week during 0700-1900 on normal weekdays for Leq30min

Water Quality :Three times a week with intervals of at least 36 hours between two consecutive monitoring events

Ecology

Vegetation (Veg.):	Monthly survey and each six months take photographic to checks against baseline records
Wetland Bird survey (B. Survey):	Monthly of half-day survey;
Ma On Kong egretry:	Monthly between March to August; and
Ho Pui egretry:	Bi-weekly between March and August;
Flight line Survey:	Monthly during the period from April to June

(B) Meteorological Data Extracted from HKO in the Reporting Period

Date		Weather		Lau Fau Shan Weather Station			
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Oct-08	Wed	Holiday					
2-Oct-08	Thu	sunny periods/moderate	3.0	27.9	9.0	68.0	E/NE
3-Oct-08	Fri	cloudy/overcast/rain/moderate/fresh/strong	2.4	27.6	17.0	70.0	E
4-Oct-08	Sat	cloudy/scattered showers/squally thunderstorm/moderate/fresh	14.0	28.1	17.0	78.0	E
5-Oct-08	Sun	cloudy/moderate/fresh	122.6	25.0	29.5	88.5	S/SE
6-Oct-08	Mon	cloudy/moderate/fresh	Trace	24.0	27.5	80.5	N/NW
7-Oct-08	Tue	Holiday					
8-Oct-08	Wed	cloudy/sunny periods/moderate/fresh	0.5	25.0	12.0	77.0	E/NE
9-Oct-08	Thu	sunnyperiods/cloudy/moderate/fresh	Trace	27.7	14.0	72.0	E
10-Oct-08	Fri	fine/dry/moderate	0.0	28.3	10.0	70.0	E/SE
11-Oct-08	Sat	fine/dry/moderate/fresh	0.0	28.2	13.5	68.5	E/NE
12-Oct-08	Sun	cloudy/rain/fresh/strong	Trace	26.6	12.0	73.0	E/NE
13-Oct-08	Mon	cloudy/rain/fresh/strong	0.3	24.5	11.0	83.0	E/NE
14-Oct-08	Tue	cloudy/haze/sunny periods/moderate/fresh	Trace	25.6	13.5	75.5	E/NE
15-Oct-08	Wed	fine/dry/moderate/fresh	Trace	26.9	9.0	71.0	E
16-Oct-08	Thu	fine/hazy/cloudy/moderate	0.0	27.4	12.0	71.0	E/SE
17-Oct-08	Fri	cloudy/rain/moderate/fresh	0.1	26.8	11.7	69.5	E/SE
18-Oct-08	Sat	sunny periods/cloudy/moderate/fresh	0.0	28.5	10.7	71.5	E/SE
19-Oct-08	Sun	fine/dry/moderate/fresh	1.6	28.6	9.5	66.2	E/SE
20-Oct-08	Mon	fine/dry/moderate/fresh	Trace	28.3	14.5	66.5	E/SE
21-Oct-08	Tue	fine/moderate	0.0	27.4	13.5	66.5	E
22-Oct-08	Wed	fine/moderate	0.0	27.0	9.0	74.0	E/SE
23-Oct-08	Thu	fine/hot/haze/light winds	0.0	26.7	10.5	76.2	S/SE
24-Oct-08	Fri	cloudy/sunny intervals/moderate/fresh	0.0	28.0	11.5	68.0	E/NE
25-Oct-08	Sat	cloudy/sunny intervals/moderate/fresh	Trace	27.6	15.5	68.0	E
26-Oct-08	Sun	cloudy/sunny intervals/moderate/fresh	0.0	27.4	11.7	70.5	E/SE
27-Oct-08	Mon	fine/haze/moderate	Trace	27.3	10.5	74.3	E/NE
28-Oct-08	Tue	fine/cloudy/rain/moderate/fresh	0.1	26.0	9.7	73.5	E
29-Oct-08	Wed	sunny intervals/cloudy/moderate	0.0	27.5	10.2	6.9	E/SE
30-Oct-08	Thu	fine/moderate/fresh/rain	0.0	28.0	9.0	71.5	E/SE
31-Oct-08	Fri	sunny intervals/cloudy/moderate/fresh	0.0	28.5	12.5	71.7	E

Appendix F

Environmental Monitoring Data

24-Hour TSP Monitoring

IMPACT 24-Hour TSP Monitoring Results - KT13(A1)

DSD CONTRACT NO. DC/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Cal Graph Slope 42.5208

Cal Graph Intercept -32.2624

DATE	SAMPLE NUMBER	STANDARD										BLANK				SAMPLE OF FILTER PAPER				Dust 24-Hr TSP in Air ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)			WEIGHT (g)						
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP (°C)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INTIAL	FINAL	DIFF	INITIAL	FINAL	DUST COLLECTION			
20-Oct-08	SY28	1024.82	1048.64	1429.20	34	35	34.5	26.9	1014.1	1.57	2241	NA	3.6459	3.6419	-0.0040	3.5714	3.6197	0.0483	23	144	260
25-Oct-08	SY98	1048.64	1071.73	1385.40	32	33	32.5	26.3	1014.1	1.52	2108	NA	3.6459	3.6419	-0.0040	3.6044	3.6591	0.0547	28	144	260

IMPACT 24-Hour TSP Monitoring Results - KT13(A2)

DSD CONTRACT NO. DC/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Cal Graph Slope 38.4505

Cal Graph Intercept -27.3792

DATE	SAMPLE NUMBER	STANDARD										BLANK				SAMPLE OF FILTER PAPER			Dust 24-Hr TSP in Air ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)			WEIGHT (g)					
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP (°C)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INTIAL	FINAL	DIFF	INITIAL	FINAL	DUST COLLECTION			
20-Oct-08	SY30	1000.03	1023.84	1428.60	34	35	34.5	26.9	1014.1	1.61	2295	NA	3.6459	3.6419	-0.0040	3.5714	3.6197	0.0483	23	141	260
25-Oct-08	SY99	1023.84	1047.25	1404.60	33	34	33.5	26.3	1014.1	1.58	2222	NA	3.6459	3.6419	-0.0040	3.6044	3.6591	0.0547	26	141	260

Water Quality Monitoring

DSD Contract No. DC/2007/17 -
Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
Summary of Water Quality Monitoring Results - KT13

AUES

Date	20-Oct-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:55	0.14	28.3	28.3	3.71	3.72	47.2	47.4	2.4	2.7	0	0.0	7	7.0	4	4.0	0.16	0.16	12	12.0
			28.3		3.73		47.6		2.9		0		7		4		0.16		12	
W2	11:45	0.12	28.3	28.3	3.64	3.63	45.9	45.6	57.9	**57.9**	0	0.0	7	7.0	87	**87.0**	5.02	5.02	108	108.0
			28.3		3.61		45.3		57.8		0		7		87		5.02		108	
W3	11:35	0.21	27.8	27.8	3.54	3.55	43.6	43.7	87.6	87.3	0	0.0	6.8	6.8	202	202.0	4.31	4.31	176	176.0
			27.8		3.56		43.8		86.9		0		6.8		202		4.31		176	
W4	11:25	0.14	27.6	27.6	4.01	4.02	50.7	50.9	5.6	5.8	0	0.0	6.9	6.9	6	6.0	2.86	2.86	15	15.0
			27.6		4.03		51.0		5.9		0		6.9		6		2.86		15	
W5	11:20	0.10	28.1	28.1	3.88	3.86	49.2	48.6	32.6	27.2	0	0.0	6.8	6.8	46	46.0	1.46	1.46	50	50.0
			28.1		3.83		48.0		21.7		0		6.8		46		1.46		50	
W6	11:15	0.35	27.7	27.7	3.64	3.62	45.8	45.5	42.5	**42.6**	0	0.0	7	7.0	37	37.0	3.88	3.88	28	28.0
			27.7		3.6		45.1		42.7		0		7		37		3.88		28	

Date	22-Oct-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	12:40	0.18	28.4	28.4	3.57	3.55	43.7	43.4	2.6	2.9	0	0.0	6.9	6.9	<2	2.0	0.10	0.10	<10	10.0
			28.4		3.53		43.1		3.1		0		6.9		<2		0.10		<10	
W2	12:30	0.15	28.5	28.5	3.44	3.43	42.6	42.4	23.8	23.6	0	0.0	6.8	6.8	52	52.0	0.86	0.86	35	35.0
			28.5		3.41		42.1		23.4		0		6.8		52		0.86		35	
W3	12:20	0.22	28.2	28.2	3.41	3.42	42.0	42.2	25.2	25.1	0	0.0	6.8	6.8	34	34.0	2.45	2.45	30	30.0
			28.2		3.43		42.4		24.9		0		6.8		34		2.45		30	
W4	12:10	0.16	27.9	27.9	4.13	4.15	52.6	52.8	6.1	6.3	0	0.0	7.0	7.0	37	37.0	1.00	1.00	14	14.0
			27.9		4.16		52.9		6.4		0		7.0		37		1.00		14	
W5	12:05	0.12	27.6	27.6	3.71	3.72	46.7	46.9	21.0	21.1	0	0.0	6.9	6.9	8	8.0	2.90	2.90	11	11.0
			27.6		3.73		47.0		21.2		0		6.9		8		2.90		11	
W6	12:00	0.26	27.8	27.8	3.56	3.58	43.7	43.9	45.0	**44.9**	0	0.0	6.8	6.8	45	45.0	4.44	4.44	25	25.0
			27.8		3.59		44.1		44.7		0		6.8		45		4.44		25	

Date	24-Oct-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:30	0.18	26.8	26.8	3.17	3.16	38.6	38.4	3.2	3.0	0	0.0	7.1	7.1	10	10.0	1.01	1.01	<10	10.0
			26.8		3.15		38.1		2.7		0		7.1		10		1.01		<10	
W2	11:35	0.09	26.9	26.9	3.39	3.40	42.9	43.1	256.0	**258.0**	0	0.0	6.9	6.9	374	**374.0**	0.72	0.72	223	223.0
			26.9		3.4		43.2		260.0		0		6.9		374		0.72		223	
W3	11:15	0.14	26.7	26.7	3.66	3.65	45.3	45.2	8.5	8.7	0	0.0	7.0	7.0	49	49.0	2.88	2.88	32	32.0
			26.7		3.64		45.0		8.9		0		7.0		49		2.88		32	
W4	11:05	0.26	26.7	26.7	4.06	4.07	50.2	50.4	4.1	4.4	0	0.0	6.8	6.8	9	9.0	4.06	4.06	10	10.0
			26.7		4.08		50.5		4.7		0		6.8		9		4.06		10	
W5	10:55	0.11	27.1	27.1	4.28	4.27	56.3	56.0	12.7	12.6	0	0.0	6.9	6.9	14	14.0	0.99	0.99	13	13.0
			27.1		4.25		55.7		12.4		0		6.9		14		0.99		13	
W6	10:50	0.29	27.2	27.2	3.71	3.73	47.2	47.4	33.3	**33.6**	0	0.0	6.8	6.8	12	12.0	10.8	10.80	19	19.0
			27.2		3.74		47.6		33.8		0		6.8		12		10.8		19	

Appendix G

Landscape and Visual Audit Report – October 2008

Current Situation of Physical, Human and Cultural Landscape Resources at KT13, inspected on 29 October 2008

The physical resources that will be affected during the Construction Phase and Operational Phase, together with their sensitivity to change, are described below. The locations of the baseline landscape resources are mapped in Drawing no. LR-001. The Landscape Resources in direct conflict with the Project are mapped together with their extent outside study boundary for integrity of information. Photo views illustrating the landscape resources of the study area are illustrated in Drawing Nos. PR-001 to 002 inclusive. For ease of reference and co-ordination between text, tables and figures each landscape resources is given an identity number.

Table compares the baseline study and the current situation for KT13: (Landscape Resources)

Section in EIA Report	**Identify number – Landscape Resources**	**Photo No**	**Baseline Study, Environmental Impact Assessment Final Report [382047/E/EIA/Issue 9]**	**Current Situation**
Drainage				
10.7.3	LR1 – River/ Stream	A1 - A5	There is a semi-natural drainage features (the Ma On Kong Channel) in the study area with untrained natural upstream and partial trained downstream with a total length of 800m. The Channel originates from the South-West of the valley and discharge to the existing Primary Channel by Kam Ho Road running through and along the site area spanning across majority of the river valley, together with the existing vegetations forming the central part of riparian landscape network. They have medium landscape value and sensitive to change.	Minor change due to site clearance and preparation work within site boundary
Fish Pond				
10.7.4	LR2.1 (Fish Pond) within site boundary LR2.2 (Fish Pond) outside site boundary	A6 A7	There are 4 numbers of fallowed fish ponds at the upstream of the Ma On Kong Channel. A chain of fish ponds near downstream but distant from the Channel is noted. The fish ponds cover area of in total 23,000 m2. Most of them are heavily colonized by aquatic plants, which attribute to their low visual quality as a water landscape element. They have low landscape value and sensitive to change.	Minor change due to site clearance and preparation work within site boundary

Marsh				
10.7.5	LR3 (Marsh)	A8	It comprises 2 marshes at the upstream channel of the Channel. They are inundated lowland heavily colonized with wetland aquatic plants. They have low landscape value and sensitive to change.	Remain the same as the baseline
Vegetation				
10.7.7	LR4 (Woodland/ Wooded Area)	A9 A10	It comprises two major communities of woodland/ wooded area. One is dense natural woodland stretching across the Conservation Area and area behind Ma On Kong and consists approximate 450 numbers of trees based on visual estimation. The trees are mainly native species and mature in size. It is dominated by *Schefflera octophylla, Pinus massoniana, Aporusa chinensis, Celtis sinensis, Bridelia tomentosa, Cinnamomum cmaphora, Rhus chinensis* and *Phus succedanes*. Another one is a natural more sparse riparian wooded area at upstream of the Channel and consists approximate 60 numbers of trees based on visual estimation. The trees are mainly pioneer species and poorer in form and maturity. It is dominated by Ficus hispide and Macaranga tanarius. They have high landscape value and sensitivity to change.	Remain the same as the baseline
10.7.8	LR5 (Orchard/ Horticultural Trees)	A11	It comprises two groups of trees at downstream below Ma On Kong and north of Ho Pui Amongst there are approximate 400 numbers of trees based on visual estimation. They are fruit trees and landscape plants of horticultural practices. It is dominated by *Dimocarpus longan, Delonix regian, Roystonea regia and Pachira macrocarpa*. For their anthropogenic and not permanent in nature, they have medium landscape value and sensitivity to change.	Remain the same as the baseline
10.7.9	LR6 (Low-Lying Agricultural Land/ Fallowed Land)	A12	It comprises fallowed land and agricultural land in low rate of uses. The vegetation is mainly grass and sedge with mosaics of shrubs approaching the Channel. It fills up the about half of the existing landscape within the study area. They have low landscape value and sensitivity to change.	Remain the same as the baseline.

Sitting-Out Area				
10.7.10	LR7 (Sitting-Out Area at Ma On Kong)	A13	It is located at the Ma On Kong next to the access road. It is a small sitting-out area primarily hard-paved with only 3 amenity trees and on pavilion. It has low landscape value and sensitivity to change.	Remain the same as the baseline
Landscape Character Areas				
10.7.12	LCA1 (Agricultural Landscape Character Area)	B1 & B2	This comprises fallowed land & agricultural land not in active uses. This character area is flat and gentle sloping in landform and vegetated with grass of various heights. It forms the majority of the landscape character of the entire river valley and the connecting landscape element between other landscape character areas. The sensitivity to change of this area is low.	Remain the same as the baseline
10.7.13	LCA2 (Woodland Landscape Character Area)	B3	This is natural woodland between southern Ma On Kong and the Channel extending up to the access road behind Ma On Kong. The trees are mature in size forming a close woodland landscape. It is the location of egretry of conservation importance. The sensitivity to change of this area is high.	Remain the same as the baseline
10.7.14	LCA3 (River/ Stream Landscape Character Area)	B4 – B7	This is the main stream of the Channel in associate with its riparian vegetation. It meanders through the river valley landscape. It is used as a receptor of agricultural effluent from poultry farm around upstream, which contribute to the polluted appearance of the character area around upstream. The sensitivity to change of this area is medium.	Minor change due to site clearance and preparation work within site boundary
10.7.15	LCA4 (Fish Pond Landscape Area)	B8	This comprises a number of fish ponds of various sizes distributed about the Channel. Most of them are abandoned or with limited uses and colonized with aquatic plants. The sensitivity to change of this area is medium.	Minor change due to site clearance and preparation work within site boundary

10.7.16	LCA5 (Village Landscape Character Area)	B9 & B10	This comprises the four major village types rural settlement encompassing tai Kek, Ma On Kong, Ho Pui and north of Ho Pui. Except Tai Kek which is less revitalized and actively resided, all other three are actively resided. This area is lightly urbanized with low rise village house. The sensitivity to change of this area is low.	Remain the same as the baseline
10.7.17	LCA6 (Industrial Landscape Character Area)	B11 & B12	This comprise collection of slummy-built temporary structure and open storage uses land, which are characterized with metallic hoarding and used for poultry, recycling, vehicle repairing etc. The sensitivity to change of this area is low.	Remain the same as the baseline
10.7.18	LCA7 (Nullah Landscape Character Area)	B13	This is the trained nullah next to Kam Ho Road. It is the primary tributary connecting and receiving outflow from the Ma On Kong Channel. The area is man-made and with poor and monotonous riverside vegetation. The sensitivity to change of this area is low.	Remain the same as the baseline

10.7.19 Visual Character

The visual quality of the river valley of Ma On Kong Channel is semi-natural based on combination of rural landscape elements including agricultural land, village houses, woodland and pond and stream and industrial landscape elements including open storage and temporary structures. Interspersed landscape elements on general flat landform with minor undulation render numerous small enclosed views. No major vista and high quality open view identified.

10.7.20 Visual Sensitive Receiver (VSR)

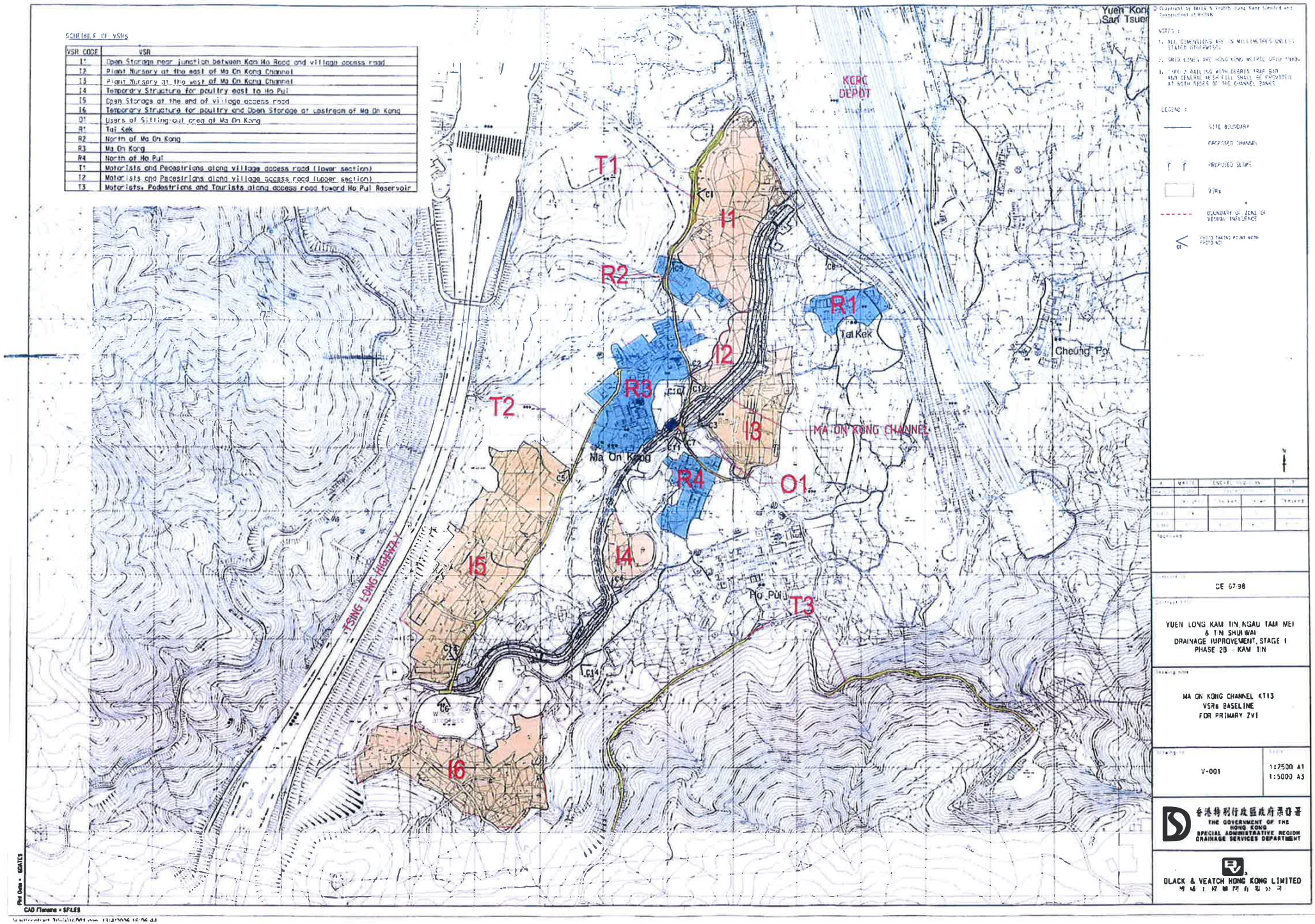
Within the ZVI, a number of key Visual Sensitive Receivers (VSRs) have been identified. These VSRs are mapped in Drawing V-001. They are listed, together with their sensitivity, in Table 10/5. Photo views illustrating the VSRs are illustrated in Drawing nos. PV-001 to 002 inclusive. For the ease of reference, each VSR is given an identity number, which is used in the text, tables and figures.

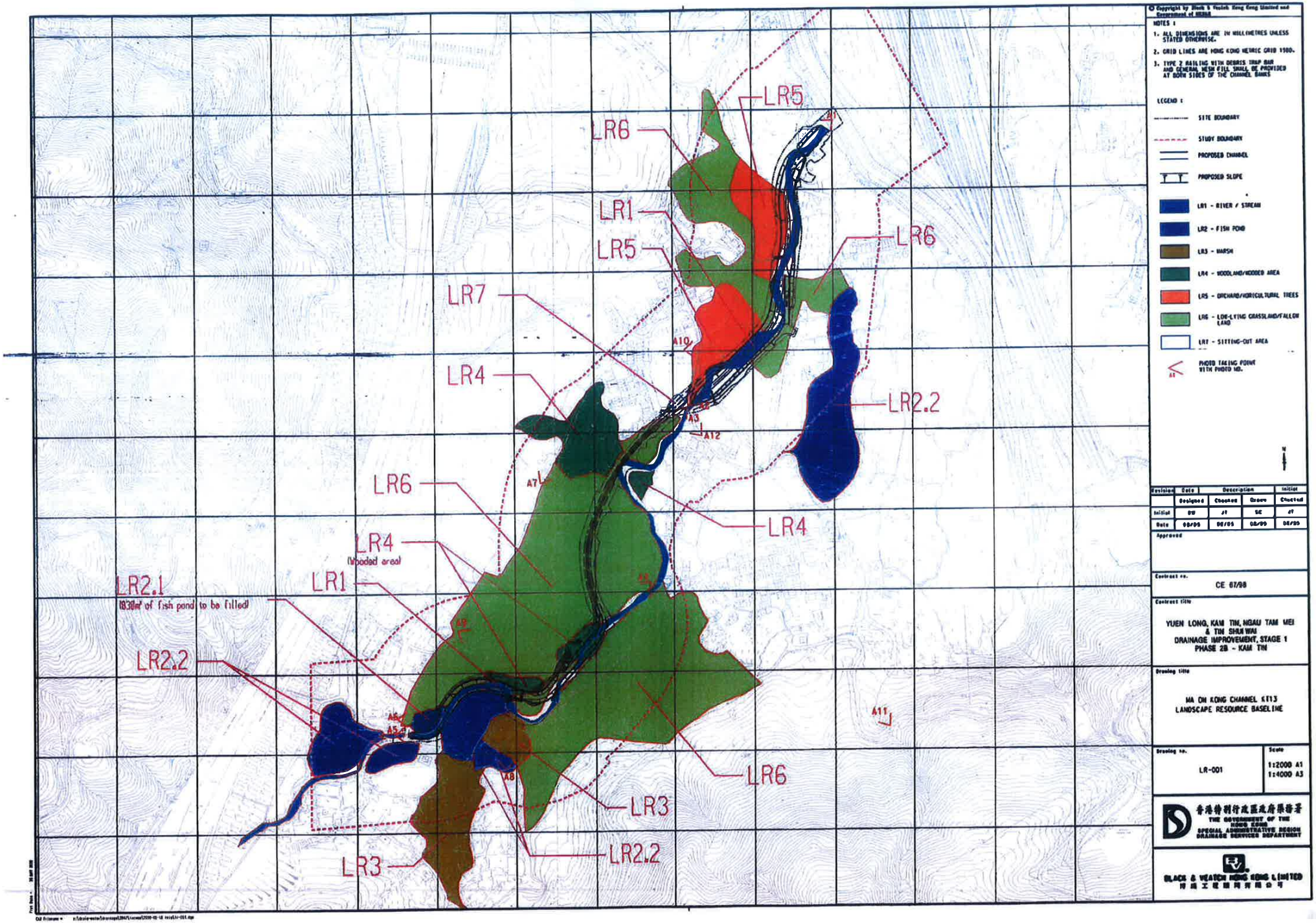
Table compares the baseline study and the current situation for KT13: (Visual Sensitive Receiver)

Section in EIA Report	**Identify number – VSR**	**Photo No.**	**Baseline Study, Environmental Impact Assessment Final Report [382047/E/EIA/Issue 9]**	**Current Situation**
Industrial VSRs				
10.7.21	I1	C1	Open storage near junction between Kam Ho Road and Village access The VSRs is workers of the open storage. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.22	I2	C2	Plant Nursery at the east of Ma On Kong Channel The VSRs is workers of the plant nursery. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.23	I3	C3	Plant Nursery at the west of Ma On Kong Channel The VSRs is workers of the plant nursery. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.24	I4	C4	Temporary Structure for poultry east to Ho Pui The VSRs is workers of the temporary structure. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.25	I5	C5	Open Storage at the end of village access road The VSRs is workers of the open storage. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.26	I6	C6	Temporary Structure for poultry and Open Storage at upstream of Ma On Kong Channel The VSRs is workers of the temporary structure and open storage. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline

Open Space / Sitting – Out Area VSRs				
10.7.27	O1	C7	Users of Sitting-out Area at Ma On Kong The VSRs is future users of the re-provided sitting-out area during operation phase. The number of individual is few and their sensitivity to visual impacts is medium.	Remain the same as the baseline
Residential VSRs				
10.7.28	R1	C8	Tai Kek The VSRs is residents of the village. The number of individual is very few and their sensitivity to visual impacts in high.	Remain the same as the baseline
10.7.29	R2	C9	North of Ma On Kong The VSRs is residents of the village. The number of individual is very few and their sensitivity to visual impacts is high.	Remain the same as the baseline
10.7.30	R3	C10	Ma On Kong The VSRs is residents of the village. The number of individual is very few and their sensitivity to visual impacts is high.	Remain the same as the baseline
10.7.31	R4	C11	North of Ho Pui The VSRs is residents of the village. The number of individual is few and their sensitivity to visual impacts is high.	Remain the same as the baseline

Transport-related VSRs				
10.7.32	T1	C12	Motorists and Pedestrians along village access road (lower section) The VSRs is the road users of the road section. The number of individual is few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.33	T2	C13	Motorists and Pedestrians along village access road (high section) The VSRs is the road users of the road section. The number of individual is very few and their sensitivity to visual impacts is low.	Remain the same as the baseline
10.7.34	T3	C14	Motorists, Pedestrians and Tourists along access road toward Ho Pui Reservoir The VSRs is the road users of the road section, part of which are tourist to Ho Pui Reservoir. The number of individual is very few and their sensitivity to change is low.	Remain the same as the baseline


SCHEDULE OF VSRs
VSR CODE | VSR
I1* | Open Storage near junction between Kam Ho Road and village access road
I2 | Plant Nursery at the east of Ma On Kong Channel
I3 | Plant Nursery at the west of Ma On Kong Channel
I4 | Temporary Structure for poultry east to Ho Pui
I5 | Open Storage at the end of village access road
I6 | Temporary Structure for poultry and Open Storage at upstream of Ma On Kong
O1 | Users of Sitting-out area at Ma On Kong
R1 | Tai Kek
R2 | North of Ma On Kong
R3 | Ma On Kong
R4 | North of Ho Pui
T1 | Motorists and Pedestrians along village access road (lower section)
T2 | Motorists and Pedestrians along village access road (upper section)
T3 | Motorists, Pedestrians and Tourists along access road toward Ho Pui Reservoir
T1
T2
T3
I1
I2
I3
I4
I5
I6
R1
R2
R3
R4
O1
KCRC DEPOT
Tai Kek
Cheung Po
Ma On Kong
Ho Pui
MA ON KONG CHANNEL
TSING LONG HIGHWAY
NOTES :
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. GRID LINES ARE HONG KONG METRIC GRID 1980.
3. TYPE 2 RAILING WITH DEBRIS TRAP BAR AND GENERAL WASH FILL SHALL BE PROVIDED AT BOTH SIDES OF THE CHANNEL BANKS.
LEGEND :
SITE BOUNDARY
PROPOSED CHANNEL
PROPOSED SLOPE
VSRs
BOUNDARY OF ZONE OF VISUAL INFLUENCE
VIEWING POINT WITH VIEWING NO.
CE 67/98
YUEN LONG KAM TIN, NGAU TAM MEI & TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE I PHASE 2B - KAM TIN
MA ON KONG CHANNEL KT13 VSRs BASELINE FOR PRIMARY ZVI
V-001
1:2500 A1
1:5000 A3
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION DRAINAGE SERVICES DEPARTMENT
BLACK & VEATCH HONG KONG LIMITED
Plot Date = 10/4/2006
CAD Filename = SFILE3



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. GRID LINES ARE HONG KONG METRIC GRID 1980.
3. TYPE 2 RAILING WITH DEBRIS TRAP BAR AND GENERAL MESH FILL SHALL BE PROVIDED AT BOTH SIDES OF THE CHANNEL BANKS

LEGEND :

- SITE BOUNDARY
- STUDY BOUNDARY
- PROPOSED CHANNEL
- PROPOSED SLOPE
- LR1 - RIVER / STREAM
- LR2 - FISH POND
- LR3 - MARSH
- LR4 - WOODLAND/WOODED AREA
- LR5 - ORCHARD/HORTICULTURAL TREES
- LR6 - LOW-LYING GRASSLAND/FALLOW LAND
- LR7 - SITTING-OUT AREA
- PHOTO TAKING POINT WITH PHOTO NO.

Revision	Date	Description			Initial
	Designed	Checked	Drawn	Checked
Initial	BW	JY	SC	JY
Date	08/99	08/99	08/99	08/99

Approved

Contract no.: CE 67/98

Contract title: YUEN LONG, KAM TIN, NGAU TAM MEI & TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE 1 PHASE 2B - KAM TIN

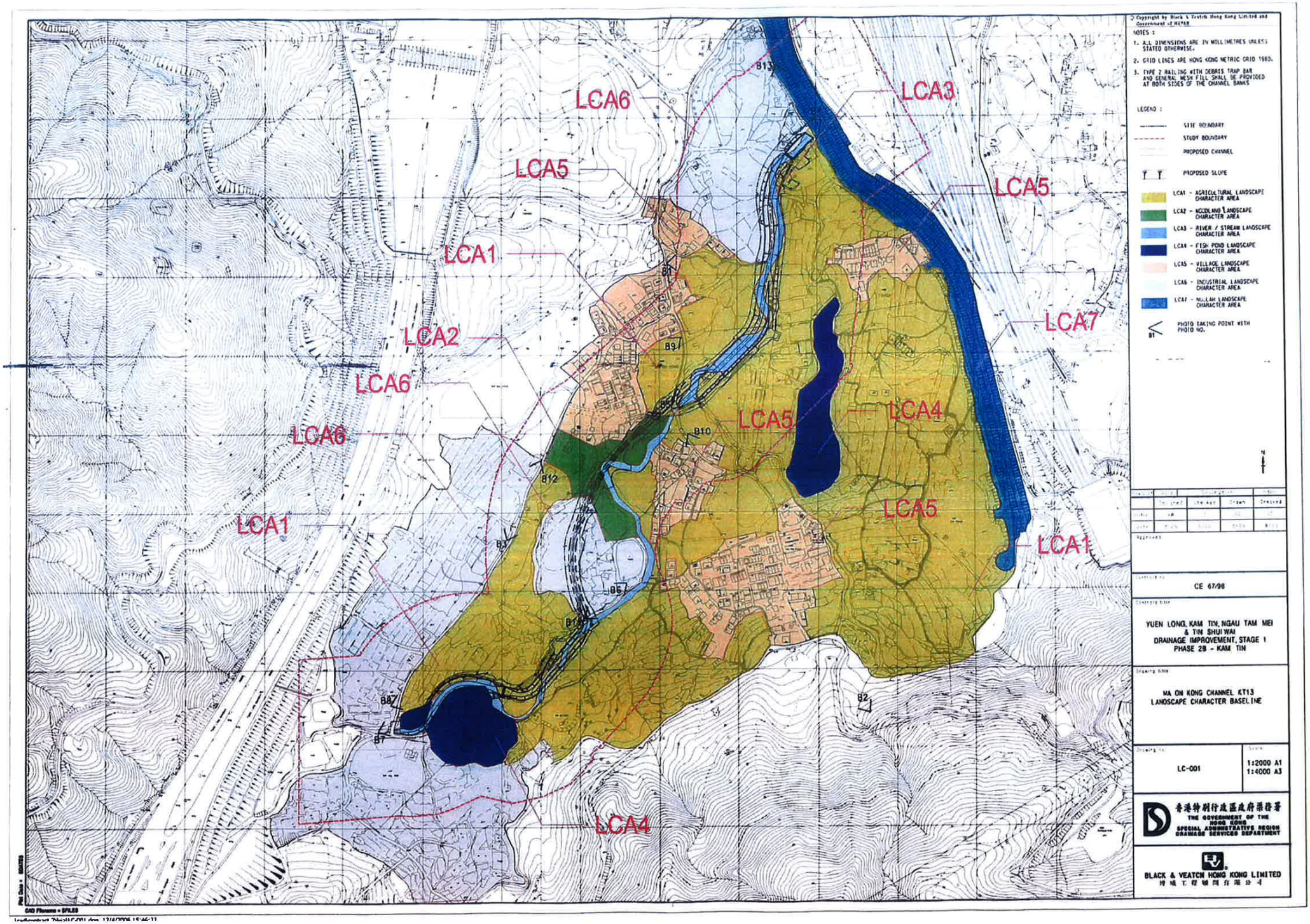
Drawing title: MA ON KONG CHANNEL KT13 LANDSCAPE RESOURCE BASELINE

Drawing no.: LR-001

Scale: 1:2000 A1, 1:4000 A3

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

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司



NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
2. GRID LINES ARE HONG KONG METRIC GRID 1980.
3. TYPE 2 RAILING WITH DEBRIS TRAP BAR AND GENERAL MESH FILL SHALL BE PROVIDED AT BOTH SIDES OF THE CHANNEL BANKS

LEGEND :

- SITE BOUNDARY
- STUDY BOUNDARY
- PROPOSED CHANNEL
- PROPOSED SLOPE
- LCA1 - AGRICULTURAL LANDSCAPE CHARACTER AREA
- LCA2 - WOODLAND LANDSCAPE CHARACTER AREA
- LCA3 - RIVER / STREAM LANDSCAPE CHARACTER AREA
- LCA4 - FISH POND LANDSCAPE CHARACTER AREA
- LCA5 - VILLAGE LANDSCAPE CHARACTER AREA
- LCA6 - INDUSTRIAL LANDSCAPE CHARACTER AREA
- LCA7 - NULLAH LANDSCAPE CHARACTER AREA
- B1 PHOTO FACING POINT WITH PHOTO NO.

N

	Designed	Drawn	Checked	

Approved

CE 67/98

YUEN LONG, KAM TIN, NGAU TAM MEI & TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE 1 PHASE 2B - KAM TIN

HA ON KONG CHANNEL KT13 LANDSCAPE CHARACTER BASELINE

Drawing No. LC-001

Scale 1:2000 A1 1:4000 A3

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

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

CAD Filename = SFILES

Photo No. A1 – LR1 River/Stream

Photo No. A2 – LR1 River/Stream

Photo No. A3 – LR1 River/Stream

Photo No. A4 – LR1 River/Stream

Photo No. A5 – LR1 River/Stream

Photo No. A6 – LR2.1 Fish Pond within site boundary

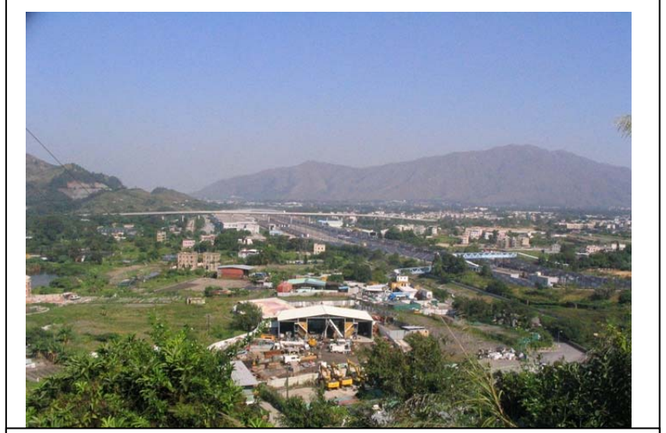


Photo No. A7 – LR2.2 River/Stream

Photo No. A8 – LR3 River/Stream

Photo No. A9 – LR4 Woodland/Wooded Area

Photo No. A10 – LR4 Woodland

Photo No. A11 – LR5 Orchard/ Horticultural Trees

Photo No. A12 – LR6 Low-Lying Agricultural Land/ Fallowed Land

Photo No. A13 –LR7 Sitting-Out Area at Ma On Kong

Photo No. B1 – LCA1 Agricultural Landscape Character Area

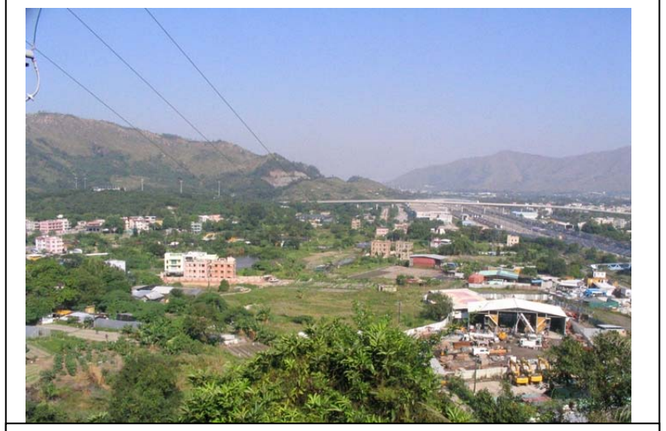


Photo No. B2 – LCA1 Agricultural Landscape Character Area

Photo No. B3– LCA2 Woodland Landscape Character Area

Photo No. B4 – LCA3 River/ Stream Landscape Character Area

Photo No. B5 – LCA3 River/ Stream Landscape Character Area

Photo No. B6 – LCA3.1 River/ Stream Landscape Character Area

Photo No. B7 – LCA3 River/ Stream Landscape Character Area

Photo No. B8 – LCA4 Fish Pond Landscape Area

Photo No. B9– LCA5 Village Landscape Character Area

Photo No. B10—LCA 5 Village Landscape Character Area

Photo No. B11—LCA 6 Industrial Landscape Character Area

Photo No. B12—LCA 6 Industrial Landscape Character Area

Photo No. B13—LCA 7 Nullah Landscape Character Area

Photo No. C1 – I1 Open storage near junction between Kam Ho Road and Village access road

Photo No. C2—I2 Plant Nursery at the east of Ma On Kong Channel

Photo No. C3—I3 Plant Nursery at the east of Ma On Kong Channel

Photo No. C4—I4 Temporary Structure for poultry east to Ho Pui

Photo No. C5—I5 Open Storage at the end of village access road

Photo No. C6—I6 Temporary Structure for poultry and Open Storage at upstream of Ma On Kong Channel

Photo No. C7—O1 Sitting-out Area at Ma On Kong

Photo No. C8—R1 Tei Kek

Photo No. C9—R2 North of Ma On Kong

Photo No. C10—R3 Ma On Kong

Photo No. C11—R4 North of Ho Pui

Photo No. C12—T1 Motorists and Pedestrians along village access road (lower section)

Photo No. C13—T2 Motorists and Pedestrians along village access road (high section)

Photo No. C14—T3 Motorists, Pedestrians and Tourists along access road toward Ho Pui Reservoir

Appendix H

Event Action Plan

Air

Event/Action Plan for Air Quality

EVENT	ACTION			
	Contractor's ET leader	**IEC**	**ER**	**Contractor**
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source 2. Inform IEC, ER and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by Contractor's ET leader 2. Check Contractor's working method	1. Notify Contractor	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1. Identify source 2. Inform IEC, ER and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with IEC, Contractor and ER on remedial actions required 6. If exceedance continue, arrange meeting with IEC, ER and Contractor 7. If exceedance stops, cease additional monitoring	1. Checking monitoring data submitted by Contractor's ET leader. 2. Check Contractor's working method 3. Discuss with Contractor's ET leader and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measures properly implemented	1. Submit proposals for remedial actions to IEC and ER within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source 2. Inform IEC, ER, EPD and Contractor 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of the results	1. Check monitoring data submitted by Contractor's ET leader 2. Check Contractor's working method 3. Discuss with Contractor's ET leader and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Audit implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid for the exceedance 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst ER, Contractor's ET leader and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Audit the implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. In consultation with IEC, agree with the Contractor on the remedial measures to be implemented 4. Ensure remedial measures properly implemented 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.	1. Take immediate action to avoid for the exceedance 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abate.

Noise

Event/Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	CONTRACTOR'S ET LEADER	IEC	ER	Contractor
Action Level	1. Notify IEC, Contractor and ER 2. Carry out investigation 3. Report the results of investigation to the IEC, Contractor and ER 4. Discuss with the Contractor and formulate remedial measures 5. Double monitoring frequency 6. Check compliance to Action/Limit Levels after application of mitigation measures	1. Review the analysed results submitted by the Contract's ET leader 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Review the implementation of remedial measures	1. Confirm receipt of notification of complaint in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to ER and IEC 2. Implement noise mitigation proposals
Limit Level	1. Notify IEC, ER, EPD and Contractor 2. Identify Source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst ER, Contractor's ET leader and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Audit the implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 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	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Water Quality

Event and Action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	Repeat in-site measurement to confirm findings; Identify Source(s) of impact; Inform IEC an Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Repeat measurement on next day of exceedance	Discuss with ET and Contractor on the mitigation measures Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented;	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check al plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling days	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.	Discuss with ET and Contractor on the mitigation measures Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC on the proposed mitigation measures; Made agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC, contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level.	Discuss with ET and Contractor on the mitigation measures Review proposals on mitigation measures submitted by Contractor and advise the R accordingly Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contract to critically review the working methods; Made agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures/
Limit level being exceeded by more than one consecutive sampling days	Repeat in-situ measurement to confirm fundings; Identify source(s) of impact; Inform IEC, contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the Monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	Discuss with ET and Contractor on the mitigation measures Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level.	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures; As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.

Ecology

Event/Action Plan for Ecology

EVENT	ACTION			
	ET Leader	**IEC**	**Engineer**	**Contractor**
ACTION LEVEL REACHED	1. Carry out investigation 2. Review results and assess whether amendment to action level is appropriate 3. Report the results of investigation to the IEC 4. Notify Contractor and Engineer 5. Discuss with the Contractor and formulate remedial measures 6. Repeat survey to confirm results	1. Review the analysed results submitted by ET 2. Review the proposed remedial measures by the Contractor and advice the Engineer accordingly 3. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed problem 4. Ensure remedial measures properly implemented	1. Take immediate action to avoid further problem 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control
LIMIT LEVEL REACHED	1. Carry out investigation 2. Review results and assess whether amendment to limit level is appropriate 3. Report the results of investigation to the IEC 4. Notify Contractor and Engineer 5. Discuss with the Contractor and formulate remedial measures 6. Repeat survey to confirm results	1. Review the analysed results submitted by ET 2. Review the proposed remedial measures by the Contractor and advice the Engineer accordingly 3. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed problem 4. Ensure remedial measures properly implemented 5. Issue instruction to stop the relevant portion of the works until the problem is abated (construction period only).	1. Take immediate action to avoid further problem 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the Engineer until the problem is abated (construction period only)

Cultural Heritage

Event and Action Plan for Cultural Heritage

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
Action Level	Notify IEC and Contractor to carry out investigation Report reasons of structural damage or instability to the IEC and Contractor Discuss with the Contractor and formulate remedial measures Increase monitoring frequency to once per week to check mitigation effectiveness	Review report of structural damage or instability by the ET. Review proposed remedial measures by the Contractor and advise the ER and Antiquities and Monuments Office (AMO) accordingly Supervise the implementation of remedial measures, with approval from AMO.	Confirm receipt of notification of failure in writing Notify Contractor Require Contractor to propose remedial measures and to notify and seek approval from AMO. Ensure remedial measures are properly implemented.	Notify AMO concerning the damage or structural instability of the cultural heritage resources Submit proposals for repair of damage to cultural heritage resources to AMO for approval and to implement approved measures.
Limit Level	Notify IEC and Contractor to carry out investigation and to stop construction work within 100m of cultural heritage resource to avoid further impact until AMO are satisfied that the relevant structure has been repaired or stabilized to an acceptable level. Report reasons of continued structural damage or instability to the IEC and Contractor Discuss with the Contractor and formulate remedial measures Increase monitoring frequency to daily to check mitigation effectiveness	Review report of structural damage or instability by the ET. Review proposed remedial measures by the Contractor and advise the ER and Antiquities and Monuments Office (AMO) accordingly. Supervise the implementation of remedial measures, with approval from AMO.	Confirm receipt of notification of failure in writing Notify Contractor Require Contractor to propose remedial measures and to notify and seek approval from AMO. Ensure remedial measures are properly implemented.	To carry out investigation and to stop construction work within 100m of cultural heritage resource to avoid further impact until AMO are satisfied that the relevant structure has been repaired or stabilized to an acceptable level. Propose remedial measures for the repair and stabilization of cultural heritage resources, up to liaison of moving and rebuilding the relevant structure with the approval of owner (usually the clan members) and AMO.

Landscape & Visual

Event and Action Plan for Landscape and Visual Impact - Construction Phase

Action Level	Environmental Team Leader (ETL)	Independent Evnironmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	1. Identify source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC and the ER 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

Appendix I

Updated Environmental Mitigation Implementation Schedule - October 2008

Appendix A
Mitigation Measures Implementation Schedule

Ecological Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
4.9.2	To avoid potential impacts to the egretry and the associated habitats, the proposed layout and gabion structures shown in Figures 2.2A, 2.2B and 2.4 of the EIA shall be adopted. The bypass culvert design shall ensure that continuous flow of the existing unmodified stream is maintained. Reprovide the stream section affected by the bypass culvert with gabion banks and natural substrates as stream bed materials.	Minimize loss of egretry, stream and conservation area, and the associated ecological habitats	Design Stage Refer to Figures 2.2A, 2.2B and 2.4 for locations	Detailed Design Engineer	✓	✓		Environmental Impact Assessment Ordinance (EIAO)
4.9.7	Chain link fence to be provided along the site boundary near the CA zone and Ho Pui Egretry (Figure 4.13). Prohibit the disturbance of vegetation outside the site boundary. Signage to be provided at conspicuous location to warn workers from entering and disturbing the sensitive areas.	Minimize the disturbance and access to the CA zone and Ho Pui Egretry during construction	Construction Stage at locations shown in Figure 4.13 of the EIA before commencement of bypass culvert construction	Construction Contractor		✓		EIAO
4.9.8	Compensatory planting of about 148 heavy standard size trees (in 2:1 ratio) for the approximately 74 trees to be felled.	Compensatory planting of trees that inevitably need to be felled	Construction Stage at locations shown in Figures 4.13, LP-001 and LP-002 of the EIA before commencement of operation stage	Construction Contractor		✓		EIAO
4.9.9 & Table 4.35	Planting an area (855 m²) of appropriate tree and bamboo species as shown in Figure 4.13: *Bambusa eutuldoides* 40% of total species *Cinnamomum camphora* 15% of total species *Celtis tetranda* 15% of total species *Ficus virens* 15% of total species *Ficus microcarpa* 15% of total species	Replace lost vegetation and conservation area by enhancing a stream side area to become suitable habitats for egrets	Construction Stage at locations shown in Figure 4.13 of the EIA before commencement of operation stage	Construction Contractor		✓		EIAO

Ecological Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
4.9.2 (ii)	Potentially adverse impacts arising from the maintenance of the channelized sections will be minimized by restricting routine channel maintenance to annual silt removal by hand or light machinery during the dry season (October to March). The management of woody / emergent vegetation will be limited to manual cutting, to be carried out only when unchecked growth of such vegetation is very likely to impede channel flow.	Minimize impacts arising from the maintenance of KT13	KT13 during Operation Stage	DSD (or DSD's maintenance contractor)			✓	EIAO

Noise Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
5.5.22	Level 1 Mitigation Measure Plant to be used in the construction phase are listed in Appendix F1 of the EIA. Quiet and silenced plant should be used (Appendix F2). No nighttime works will be carried out.	Prevent noise impact at sensitive receivers	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		EIAO
5.5.23 - 5.5.24	Level 2 Mitigation Measure Temporary noise barrier of minimum height 3m should be erected along the site boundary of the construction work which is closest to the NSRs. These barrier shall be gap free apart from the necessary entrances/exits. The overall length for which noise barriers are required is shown in Figure 5.3. These barriers shall be constructed in such a way that no construction works and PME are visible from the low rise noise sensitive receivers they protect. A minimum surface density of 10 kg/m² is required. Where the affected sensitive receivers are very close to the construction works so that they cannot be adequately screened by the proposed temporary noise barrier as described on Figure 5.3, the Contractor is required to fully or partially modify the design of the temporary noise barriers, such as adding cantilevered portion or the use of mobile barrier, to screen the construction works away from the line of sight of the affected sensitive receivers.	Prevent noise impact at sensitive receivers	To be implemented at the works sites during the Construction Phase (see Figure 5.3).	Construction Contractor		✓		EIAO

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.12	Dust Mitigation Measures The Contractor shall prevent dust nuisance arising from the construction activities. The Contractor is required to follow all the requirements for dust control stipulated in the Air Pollution Control (Construction Dust) Regulation. Dust suppression measures should be installed as part of proper construction practice, and these should be incorporated in the Contract Specification and implemented to minimize dust nuisance to within acceptable levels. The following are examples of the dust suppression measures: (i) The Contractor shall frequently clean and water the site to minimize fugitive dust emissions. (ii) Effective water sprays shall be used during the delivery and handling of aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather. (iii) Watering of exposed surfaces shall be exercised as often as possible depending on the circumstances. (iv) Areas within the site where there is a regular movement of vehicles must be regularly watered as often as necessary for effective suppression of dust or as often as directed by the Engineer. (v) Where dusty material are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented to a suitable fabric filter system.	Prevent dust / odour nuisance	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Air Pollution Control Ordinance [Air Pollution Control (Construction Dust) Regulation]

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.12 (cont'd)	(vi) The Contractor shall restrict all motorised vehicles within the site, excluding those on public roads, to a maximum speed of 15 km per hour and confine haulage and delivery vehicles to designated roadways inside the site. (vii) Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The Contractor shall submit details of proposals for the wheel cleaning facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity on the site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road. (viii) All vehicle exhausts should be directly vertically upwards or directed away from the ground. (ix) Any materials dropped on paved roads will need to be cleaned up immediately to prevent dust nuisance. *Odour Mitigation Measures* (x) Any odourous excavated material should be placed away from sensitive receivers. The material shall be removed within 1 day. (xi) Any odourous material stockpiled should be of the shortest duration. Also, all stockpiled materials must be stored in covered skips. Any leachate from these storage skips shall be collected in covered tanks or buckets and removed from site with toilet waste by licensed collectors for discharging to government sewer.							

Air Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.4	No on-site concrete batching plant shall be erected.	Prevent dust nuisance	To be implemented at the works sites during the construction phase			✓		Air Pollution Control Construction Dust Regulation
6.5.13	During the Operation Phase, excavated sediment deposits should be regularly removed from the channel to maintain adequate water flow as well as to remove odourous materials. Potentially odourous materials should be stockpiled for the minimum time possible and away from ASRs. The material should be stored in covered impermeable skips and removed from site within 1 day.	Prevent odor nuisance during operation phase	To be implemented along KT13 during the Operation Phase.	DSD's Maintenance Contractor			✓	

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.5 - 7.5.7	Temporary earth bunds and sand barriers should be used to direct stormwater run-off to temporary settlement area. The settlement area should be within the channel itself. A cofferdam should be formed to keep the working area dry. The channel will be dug out to a depth of around 1 – 2m for a length of approximately 12m, to form a sedimentation area. The volume will be approximately 50m^3 (with a channel width of 3.5m). Sediment flowing downstream should settle in this settlement pond, while run-off from the surface should be channel through a local site drainage system into the settlement area. The settlement area should be maintained and the deposited materials should be removed regularly, at the onset of and after each rainstorm to ensure proper functioning at all times. No sediment removal shall be allowed in rainy weather. Open stockpiles susceptible to erosion should be covered with tarpaulin or similar fabric, especially during the wet season (Apr-Sep) or when heavy rainstorm is predicted.	Prevent additional pollution load being added to stream due to KT13 works (site formation)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)
7.5.8 - 7.5.10	The Contractor should provide temporary drainage diversion during construction to ensure continuous water flow to the unmodified portion of the stream. The use of containment structure such as temporary earth bunds, sand bags, sheetpile barriers or similar techniques is recommended to facilitate a dry or at least confined excavation within watercourses. Excavated sediment from streams and channel is likely to be wet and contaminated. The material should be stored in covered impermeable skips and disposed on the same day, or within 1 day, to avoid both odour and inadvertent release of contaminants to nearby water bodies.	Prevent additional pollution load being added to stream due to KT13 works (stream diversion and dredging)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.11 - 7.5.12	Runoff should be carefully channelled to prevent concrete-contaminated water from entering watercourses. Adjustment of pH can be achieved by adding a suitable neutralising reagent to wastewater prior to discharge. Re-use of the supernatant from the sediment pits for washing out of concrete lorries should be practised. Any exceedance of acceptable range of pH levels in the nearby water bodies caused by inadvertent release of site runoff containing concrete should be monitored and rectified under the EM&A programme for this Project.	Prevent additional pollution load being added to stream due to KT13 works (concreting work)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)
7.5.13	Any Contractor generating waste oil or other chemicals as a result of his activities should register as a chemical waste producer and provide a safe storage area for chemicals on site. The storage site should be located away from existing water courses. Hard standing compounds should drain via an oil interceptor. To prevent spillage of fuels or other chemicals to water courses, all fuel tanks and storage areas should be sited on sealed areas, within a bund of a capacity equal to 110% of the storage capacity of the largest tank. Disposal of the waste oil should be done by a licensed collector. Oil interceptors should be regularly inspected and cleaned to avoid wash-out of oil during storm conditions. A bypass should be provided to avoid overload of the interceptor's capacity. Good housekeeping practices should be implemented to minimise careless spillage and to keep the storage and the work space in a tidy and clean condition. Appropriate training including safety codes and relevant manuals should be given to the personnel who regularly handle the chemicals on site.	Prevent additional pollution load being added to stream due to KT13 works (site workshop or depot)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Water Quality Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
7.5.14 - 7.5.15	Sewage arising from the additional population of workers on site should be collected in a suitable storage facility, such as portable chemical toilets. An adequate number of portable toilets should be provided for the construction workforce. The portable toilets should be maintained in a state that will not deter the workers from using them. The collected wastewater from sewage facilities and also from eating areas or washing facilities must be disposed of properly, in accordance with the WPCO requirements. Wastewater collected should be discharged into foul sewers and collected by licensed collectors. Either chemical toilets or other types of sewage treatment facilities without local discharge of wastewater shall be used to handle the foul water effluent arising from the project sites.	Prevent additional pollution load being added to stream due to KT13 works (wastewater from workers)	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Water Pollution Control Ordinance ProPECC Note (PN 1/94)

Waste Management

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
8.2.5	All construction wastes shall be sorted on site into inert and non-inert components. Non-inert materials (wood, glass and plastics) shall be recycled or reused and disposed to NENT Landfill as a last resort. Inert materials (soil, rubble, sand, rock, brick and concrete) shall be separated and reused on site prior to final disposal at the public filling facility at Tuen Mun Area 38.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.7	Any excavated material from the stream shall be removed within 1 day of excavation, taking measures to reduce odour and potential runoff.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.13 – 8.2.18 & 8.3.3	The excavated sediments shall be managed in accordance with ETWB TCW No. 34/2002 and WBTC No. 12/2000. The excavated sediment shall be disposed to marine disposal sites allocated by the Marine Fill Committee (MFC) – Pit IVa / Pit IVb of the East Sha Chau facility as capping material for Type 1 disposal and Pit IVc of the East Sha Chau facility for Type 2 disposal. The general allocation conditions as stipulated by the MFC shall be followed.	To properly manage the excavated sediment	Proposed works area during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 34/2002 Dumping at Sea Ordinance
8.2.20	Dry concrete waste shall be sorted out from the other wastes and recycled at Tuen Mun Area 38 to form aggregates for road sub-base.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.22 – 8.2.24	Hoarding, shutters, form works and false works made of reusable materials such as steel or plastic / concrete panels shall be used as a preferred alternative to non-reusable materials such as wood and timber, with reference to WBTC No. 19/2001 - Metallic Site Hoarding and Signboards.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 19/2001

Waste Management

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
8.2.25 – 8.2.29	Where the construction processes produce chemical waste, the contractor must register with EPD as a Chemical Waste Producer. Storage, handling, transport and disposal of chemical waste shall be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD. All chemical waste shall be collected by a licensed collector for disposal at a licensed chemical waste treatment facility.	Waste reduction, re-use, recycling and proper disposal of chemical waste	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		Waste Disposal Ordinance Waste Disposal (Chemical Waste) (General Regulation)
8.2.30	Settled sediments from wheel wash facilities should be dried and disposed of in the same way as inert excavated material.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		WBTC No. 12/2000 ETWB TCW No. 33/2002 19/2005 31/2004
8.2.32	A temporary refuse collection station shall be set up by the Contractor. Municipal waste shall be collected regularly and delivered to the North East New Territories (NENT) Landfill.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		Waste Disposal Ordinance Public Health and Municipal Services Ordinance
8.4.2	Appropriate waste management measures should be incorporated as part of the Environmental Management Plan (EMP) to be prepared and implemented by the Contractor.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 19/2005
8.4.3	Training of construction staff should be undertaken by the Contractor in order to increase awareness of waste management issues.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 19/2005
8.3.4 & 8.4.9	The Contractor shall refer and strictly follow the requirements stipulated in the ETWB TCW No. 31/2004 – Trip Ticket System for Disposal of Construction and Demolition Materials.	Waste reduction, re-use, recycling and proper disposal	Throughout the construction sites during the Construction Phase	Construction Contractor		✓		ETWB TCW No. 31/2004

Cultural Heritage

EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
Table 9.3	A condition survey will be required before and during the construction phase to ensure the structure of the identified historic grave (KT13-02-02) remains intact. Measures will have to be taken to ensure the structural stability of the identified historic grave (KT13-02-02). Details will be presented in the condition survey.	To ensure the structure of the identified historic grave (KT13-02-02) remains intact during construction phase	Historic grave (KT13-02-02) / Before and during construction of the bypass culvert	Construction Contractor / Qualified archaeologist to conduct condition survey		✓		EIAO

Landscape/Visual Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives for Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
Table 10.2	CONSTRUCTION PHASE CM1 Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. CM2 Temporary access to site should be planned with care and located to minimize disturbance to existing riparian vegetation. CM3 Existing trees to be retained on site should be carefully protected during construction. CM4 Trees unavoidably affected by the works should be transplanted where practical. CM5 Compensatory tree planting should be provided to compensate for felled trees. CM6 Erection of decorative screen hoarding compatible with the surrounding rural setting.	Improves visual quality of project area and proposed works	To be implemented along KT13 works area during the Construction Phase.	Construction Contractor		✓		Works Bureau Technical Circular No. 14/2002
Table 10.3, Figures LP-001 & LP-002	OPERATION PHASE OM1 Buffer planting of trees and shrubs to screen off and blend in the channel with the adjacent settings OM2 Compensation planting of tree and bamboo species as recommended in Ecological Assessment compensates and reinstates riparian woodland disturbed on top of hydroseeding. OM3 Gabion embankment and substratum for natural colonization of vegetation OM4 Chromatic treatment of vehicular and pedestrian crossing to match adjacent setting. OM5 Aesthetic/ Quality design to re-provision of sitting out area of Ma On Kong. OM6 Approximate 50m stretch of grasscrete lined maintenance access road within CA zone.	Improved visual quality of proposed project	To be implemented along KT13 as shown in Figures LP-001 & LP-002 during Construction Phase / To be completed before commencement of Operation	Construction Contractor		✓		WBTC No. 14/2002 & ETWBTC No. 2/2004

Landscape/Visual Impact Mitigation

EIA Ref.	Mitigation Measures	Objectives for Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
10.8.18 Figures LP-001, LP-002 & 4.13	Compensatory planting of trees and bamboos with requirements as below.	To address both landscape / visual and ecological mitigation needs	To be implemented along KT13 as shown in Figures LP-001 and LP-002 (with reference to Figure 4.13) during Construction Phase / To be completed before commencement of Operation	Construction Contractor		✓		WBTC No. 14/2002 & ETWBTC No. 2/2004

Size of compensatory tree planting	At least heavy standard size
Quantity of compensatory tree planting	2 times of the tree to be felled (approximately 148 nos. of tree to be compensated)
Proposed species	*Bambusa eutuldoides** *Celtis tetranda* *Cinnamomum camphora* *Ficus virens* *Ficus microcarpa*
Requirements*	To ensure the right species of bamboo is planted, an experience botanist shall be acquired by the Contractor to source the correct bamboo species. In addition, the bamboos should have a minimum stem diameter of 8-10 cm and clump size of 5 shoots per plant.

Appendix J

Monthly Summary Waste Flow Table for 2008

Monthly Summary Waste Flow Table

Date: 31-Oct-08
Year/Month: Oct-08

Monthly Summary Waste Flow Table for October 2008										
Year	Actual Quantities of Inert C & D Materials Generated Monthly					Estimated Annual Quantities of C & D Wastes Generated Monthly				
	Total Quantitiy Generated	Broken Concrete (see note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ Cardboard packaging	Plastics (see note 3)	Chemical Waste	Others, e.g. General refuse
	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000M^3)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000M^3)
Jan	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0
May	0.08	0.04	0.04	0	0	0	0	0	0	0
Jun	0.00	0.001	0.001	0	0	0	0	0	0	0
Sub-Total	0.08	0.041	0.041	0	0	0	0	0	0	0
Jul	0.021	0.003	0.018	0	0	0	0	0	0	0
Aug	0.899	0.005	0.894	0	0	0	0	0	0	0.01
Sep	5.055	0.003	3.480	0	1.572	0	0	0	0	0.06
Oct	4.044	0.002	2.526	0	1.516	0	0	0	0	0
Nov										
Dec										
Total	10.102	0.054	6.959	0.000	3.088	0.000	0.000	0.000	0.000	0.070

Notes: (1) The performance targets are given in PS Clause 28.10(14)
(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(3) Plastics refer to plastic bottles/ containers, plastic sheets/ foam form packaging material
(4) Broken concrete for recycling into aggregates

Appendix K

Extra Environmental Measurement and Survey Results (Before Commencement date on 20 October 2008)

Noise

Impact Noise Monitoring at KT13(N1)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Limit Level
29-Aug-08	15:09	55.2	56.1	53.0	55.2	53.1	57.1	55.2	75.0
4-Sep-08	15:18	56.2	56.7	55.2	56.2	55.9	55.4	56.0	75.0
10-Sep-08	11:07	56.0	55.1	58.1	58.0	56.0	54.8	56.5	75.0
17-Sep-08	11:16	55.1	56.0	56.7	54.7	55.6	55.3	55.6	75.0
23-Sep-08	10:36	56.9	55.7	57.8	56.6	55.5	55.5	56.4	75.0
29-Sep-08	10:57	54.9	55.6	56.4	55.3	56.8	55.2	55.8	75.0
6-Oct-08	11:12	54.5	54.6	54.2	54.6	53.5	54.8	54.4	75.0
13-Oct-08	10:48	55.8	54.1	55.4	54.3	55.0	54.6	54.9	75.0
18-Oct-08	10:43	54.2	54.6	55.3	54.7	54.3	55.1	54.7	75.0

Impact Noise Monitoring at KT13(N2)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Limit Level
29-Aug-08	13:36	52.4	53.8	53.4	51.3	50.9	52.9	52.6	75.0
4-Sep-08	13:43	50.9	52.0	51.1	53.7	52.1	54.9	52.7	75.0
10-Sep-08	10:12	51.5	52.5	49.6	51.8	53.7	53.8	52.4	75.0
17-Sep-08	10:27	50.9	50.7	52.8	53.6	52.6	50.8	52.1	75.0
23-Sep-08	11:24	52.6	51.1	51.0	51.6	51.5	52.3	51.7	75.0
29-Sep-08	09:31	51.4	53.7	54.1	53.8	53.6	52.7	53.3	75.0
6-Oct-08	09:33	53.2	52.7	53.0	52.4	51.6	52.3	52.6	75.0
13-Oct-08	09:22	51.4	52.8	52.7	52.3	51.4	51.8	52.1	75.0
18-Oct-08	09:29	51.8	52.0	51.8	52.0	53.2	52.6	52.3	75.0

Impact Noise Monitoring at KT13(N3)

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Limit Level
29-Aug-08	14:23	45.4	45.3	44.5	46.2	46.7	47.6	46.1	75.0
4-Sep-08	14:23	44.5	46.7	47.6	49.0	47.1	46.2	47.1	75.0
10-Sep-08	09:28	47.1	49.2	48.3	49.5	51.9	52.8	50.3	75.0
17-Sep-08	09:40	49.6	50.6	49.8	51.4	50.9	49.2	50.3	75.0
23-Sep-08	09:39	52.4	51.0	54.6	51.8	54.9	51.5	53.0	75.0
29-Sep-08	10:12	54.6	53.2	53.7	51.5	52.4	53.6	53.3	75.0
6-Oct-08	10:15	52.2	53.1	50.5	51.3	54.2	51.4	52.3	75.0
13-Oct-08	10:04	53.1	51.5	49.6	52.7	53.6	51.2	52.1	75.0
18-Oct-08	10:13	51.7	50.3	49.4	48.7	49.5	48.6	49.8	75.0

Air Quality

IMPACT 24-Hour TSP Monitoring Results - KT13(A1)

DSD CONTRACT NO. DC/2007/17
Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Cal Graph Slope 42.5208
Cal Graph Intercept -32.2624

DATE	SAMPLE NUMBER	STANDARD										BLANK				SAMPLE OF FILTER PAPER			Dust 24-Hr TSP in Air ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)			WEIGHT (g)					
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP (°C)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INTIAL	FINAL	DIFF	INITIAL	FINAL	DUST COLLECTION			
30-Aug-08	SO54	833.72	857.85	1447.80	32	33	32.5	29.5	1008.8	1.52	2194	NA	3.6459	3.6419	-0.0040	3.5260	3.6391	0.1131	53	144	260
5-Sep-08	SU11	857.85	881.97	1447.20	35	36	35.5	27.6	1010.1	1.59	2299	NA	3.6459	3.6419	-0.0040	3.5550	3.5779	0.0229	12	144	260
11-Sep-08	SV05	881.97	905.7	1423.80	34	35	34.5	29.4	1007.2	1.56	2224	NA	3.6459	3.6419	-0.0040	3.6158	3.7256	0.1098	51	144	260
18-Sep-08	SV87	905.70	929.55	1431.00	35	36	35.5	29.2	1008.9	1.59	2270	NA	3.6459	3.6419	-0.0040	3.6165	3.7680	0.1515	69	144	260
24-Sep-08	SV39	929.55	953.43	1432.80	31	32	31.5	27.1	1003.8	1.49	2140	NA	3.6459	3.6419	-0.0040	3.6236	3.6519	0.0283	15	144	260
30-Sep-08	SW16	953.43	977.34	1434.60	35	36	35.5	27.7	1011.0	1.59	2279	NA	3.6459	3.6419	-0.0040	3.6090	3.7182	0.1092	50	144	260
8-Oct-08	SX13	977.34	1001.03	1421.40	34	35	34.5	25.5	1013.8	1.57	2231	NA	3.6459	3.6419	-0.0040	3.5628	3.6031	0.0403	20	144	260
14-Oct-08	SY26	1001.03	1024.82	1427.40	34	35	34.5	26.1	1015.9	1.57	2241	NA	3.6459	3.6419	-0.0040	3.5740	3.6069	0.0329	16	144	260

IMPACT 24-Hour TSP Monitoring Results - KT13(A2)

DSD CONTRACT NO. DC/2007/17

Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

Cal Graph Slope 38.4505

Cal Graph Intercept -27.3792

DATE	SAMPLE NUMBER	STANDARD										BLANK				SAMPLE OF FILTER PAPER			Dust 24-Hr TSP in Air ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)			WEIGHT (g)					
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP (°C)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INTIAL	FINAL	DIFF	INITIAL	FINAL	DUST COLLECTION			
30-Aug-08	SU33	809.90	833.83	1435.80	33	34	33.5	29.5	1008.8	1.57	2261	NA	3.6459	3.6419	-0.0040	3.5260	3.6391	0.1131	52	141	260
5-Sep-08	SU12	833.83	857.56	1423.80	37	39	38.0	27.6	1010.1	1.69	2413	NA	3.6459	3.6419	-0.0040	3.5550	3.5779	0.0229	11	141	260
11-Sep-08	SV06	857.56	881.39	1429.80	36	37	36.5	29.4	1007.2	1.65	2361	NA	3.6459	3.6419	-0.0040	3.6158	3.7256	0.1098	48	141	260
18-Sep-08	SV88	881.39	905.01	1417.20	37	38	37.5	29.2	1008.9	1.68	2379	NA	3.6459	3.6419	-0.0040	3.6165	3.7680	0.1515	65	141	260
24-Sep-08	SV40	905.01	928.83	1429.20	31	32	31.5	27.1	1003.8	1.52	2179	NA	3.6459	3.6419	-0.0040	3.6236	3.6519	0.0283	15	141	260
30-Sep-08	SW17	928.83	952.59	1425.60	36	37	36.5	27.7	1011.0	1.66	2361	NA	3.6459	3.6419	-0.0040	3.6090	3.7182	0.1092	48	141	260
8-Oct-08	SX14	952.59	976.32	1423.80	35	36	35.5	25.5	1013.8	1.63	2328	NA	3.6459	3.6419	-0.0040	3.5628	3.6031	0.0403	19	141	260
14-Oct-08	SY27	976.32	1000.03	1422.60	33	34	33.5	26.1	1015.9	1.58	2252	NA	3.6459	3.6419	-0.0040	3.5740	3.6069	0.0329	16	141	260

IMPACT 1-Hr TSP Data Input - KT13(A1)

Date	Start Time	1st Reading	2nd Reading	3rd Reading	NO Average	Action Level	Limit Level
29-Aug-08	13:34	31	37	37	35	309	500
4-Sep-08	13:42	21	24	25	23	309	500
10-Sep-08	09:27	44	43	47	45	309	500
17-Sep-08	09:39	178	170	174	174	309	500
23-Sep-08	09:24	131	138	132	134	309	500
29-Sep-08	09:16	189	186	185	187	309	500
06-Oct-08	09:20	94	97	97	96	309	500
13-Oct-08	09:07	197	202	196	198	309	500
18-Oct-08	09:14	131	137	141	136	309	500

IMPACT 1-Hr TSP Data Input - KT13(A2)

Date	Start Time	1st Reading	2nd Reading	3rd Reading	NO Average	Action Level	Limit Level
29-Aug-08	13:17	33	36	37	35	307	500
4-Sep-08	13:26	48	51	58	52	307	500
10-Sep-08	09:14	65	68	72	68	307	500
17-Sep-08	09:23	213	216	218	216	307	500
23-Sep-08	09:37	152	163	159	158	307	500
29-Sep-08	09:27	171	177	174	174	307	500
06-Oct-08	09:32	75	76	76	76	307	500
13-Oct-08	09:20	176	175	173	175	307	500
18-Oct-08	09:28	112	116	113	114	307	500

Water Quality

DSD Contract No. DC/2007/17 -
Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
Summary of Water Quality Monitoring Results - KT13

AUES

Date	26-Aug-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	15:05	0.17	29.1	29.1	4.11	4.10	55.0	54.9	4.5	4.8	0	0.0	6.9	6.9	3	3.0	0.64	0.64	<10	<10
			29.1		4.09		54.7		5.1		0		6.9		3		0.64		<10	
W2	15:10	0.19	29.2	29.2	4.32	4.35	61.8	62.2	4.7	4.8	0	0.0	6.9	6.9	<2	2.0	0.67	0.67	<10	10.0
			29.2		4.38		62.5		4.9		0		6.9		<2		0.67		<10	
W3	15:25	0.25	29.1	29.1	4.23	4.22	59.7	59.5	4.4	4.6	0	0.0	7	7.0	2	2.0	0.62	0.62	<10	<10
			29.1		4.2		59.3		4.8		0		7		2		0.62		<10	
W4	15:35	0.13	29.4	29.4	4.19	4.17	57.5	57.2	4.8	5.1	0	0.0	6.8	6.8	9	9.0	0.64	0.64	<10	<10
			29.4		4.15		56.8		5.3		0		6.8		9		0.64		<10	
W5	15:45	0.09	29.6	29.6	4.06	4.08	55.6	55.9	4.8	4.9	0	0.0	6.8	6.8	3	3.0	0.6	0.60	<10	<10
			29.6		4.1		56.1		5.0		0		6.8		3		0.6		<10	
W6	15:55	0.28	29.3	29.3	4.14	4.16	58.0	58.4	5.4	5.7	0	0.0	6.9	6.9	3	3.0	0.6	0.60	<10	10.0
			29.3		4.18		58.7		5.9		0		6.9		3		0.6		<10	

Date	28-Aug-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:45	0.12	28.1	28.1	4.03	4.05	51.2	51.6	2.2	2.4	0	0.0	6.8	6.8	<2	<2	0.06	0.06	<10	<10
			28.1		4.07		51.9		2.6		0		6.8		<2		0.06		<10	
W2	11:55	0.16	28.1	28.1	4.9	4.91	62.3	62.4	2.6	2.5	0	0.0	6.8	6.8	4	4.0	0.08	0.08	<10	10.0
			28.1		4.91		62.5		2.4		0		6.8		4		0.08		<10	
W3	11:35	0.21	28.4	28.4	4.95	4.97	62.6	62.9	2.8	2.8	0	0.0	6.9	6.9	<2	2.0	0.06	0.06	<10	<10
			28.4		4.98		63.1		2.7		0		6.9		<2		0.06		<10	
W4	11:20	0.13	28.7	28.7	4.82	4.80	61.1	60.8	2.4	2.4	0	0.0	6.7	6.7	<2	2.0	0.06	0.06	<10	<10
			28.7		4.78		60.4		2.4		0		6.7		<2		0.06		<10	
W5	11:10	0.06	28.6	28.6	4.18	4.20	53.4	53.7	3.5	3.6	0	0.0	6.7	6.7	10	10.0	0.05	0.05	<10	<10
			28.6		4.22		54.0		3.7		0		6.7		10		0.05		<10	
W6	11:00	0.28	28.3	28.3	4.42	4.44	56.4	56.7	3.0	3.2	0	0.0	7	7.0	<2	2.0	0.06	0.06	<10	10.0
			28.3		4.45		56.9		3.4		0		7		<2		0.06		<10	

Date	2-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:35	0.13	26.8	26.8	4.33	4.34	55.7	55.8	22.3	22.5	0	0.0	6.9	6.9	46	46.0	0.17	0.17	39	39.0
			26.8		4.34		55.8		22.7		0		6.9		46		0.17		39	
W2	11:40	0.16	26.4	26.4	4.54	4.55	58.9	59.1	15.3	15.6	0	0.0	6.9	6.9	22	22.0	1.48	1.48	57	57.0
			26.4		4.56		59.2		15.9		0		6.9		22		1.48		57	
W3	11:25	0.19	26.5	26.5	4.09	4.11	51.7	52.0	13.1	12.9	0	0.0	6.7	6.7	22	22.0	2.76	2.76	50	50.0
			26.5		4.13		52.2		12.7		0		6.7		22		2.76		50	
W4	11:15	0.24	26.8	26.8	4.63	4.65	60.8	61.1	6.9	7.0	0	0.0	7	7.0	11	11.0	1.19	1.19	20	20.0
			26.8		4.66		61.4		7.1		0		7		11		1.19		20	
W5	11:10	0.12	26.9	26.9	4.42	4.44	57.4	57.7	6.3	6.6	0	0.0	6.7	6.7	8	8.0	0.56	0.56	18	18.0
			26.9		4.46		57.9		6.9		0		6.7		8		0.56		18	
W6	11:05	0.29	26.7	26.7	3.91	3.93	48.9	49.2	43.8	44.5	0	0.0	7.1	7.1	100	100.0	3.73	3.73	227	227.0
			26.7		3.94		49.4		45.1		0		7.1		100		3.73		227	

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Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

AUES

Summary of Water Quality Monitoring Results - KT13

Date	4-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	12:40	0.12	27.1	27.1	4.26	4.27	53.9	54.0	4.1	4.0	0	0.0	6.7	6.7	5	5.0	0.1	0.10	13	13.0
			27.1		4.27		54.1		3.9		0		6.7		5		0.1		13	
W2	12:45	0.14	27.3	27.3	4.13	4.16	52.6	52.9	3.5	3.4	0	0.0	6.8	6.8	5	5.0	0.1	0.10	12	12.0
			27.3		4.18		53.1		3.3		0		6.8		5		0.1		12	
W3	12:30	0.19	27.0	27.0	4.01	3.99	49.9	49.6	7.8	8.1	0	0.0	7	7.0	18	18.0	3.71	3.71	55	55.0
			27.0		3.97		49.3		8.3		0		7		18		3.71		55	
W4	12:20	0.21	26.8	26.8	4.42	4.40	58.3	58.0	6.2	6.3	0	0.0	7.2	7.2	10	10.0	3.57	3.57	16	16.0
			26.8		4.38		57.6		6.3		0		7.2		10		3.57		16	
W5	12:15	0.10	26.9	26.9	4.26	4.25	53.8	53.7	5.8	5.7	0	0.0	7.1	7.1	12	12.0	1.22	1.22	11	11.0
			26.9		4.24		53.5		5.5		0		7.1		12		1.22		11	
W6	12:05	0.33	27.3	27.3	4.03	4.02	50.1	50.0	4.7	4.9	0	0.0	7	7.0	9	9.0	4.66	4.66	33	33.0
			27.3		4.01		49.8		5.0		0		7		9		4.66		33	

Date	6-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:45	0.14	27.5	27.5	3.89	3.91	47.3	47.6	7.1	7.3	0	0.0	6.7	6.7	9	9.0	0.18	0.18	12	12.0
			27.5		3.93		47.9		7.4		0		6.7		9		0.18		12	
W2	11:50	0.14	27.6	27.6	4	4.04	49.6	50.0	4.2	4.1	0	0.0	6.8	6.8	4	4.0	0.12	0.12	<10	10.0
			27.6		4.07		50.3		4.0		0		6.8		4		0.12		<10	
W3	11:35	0.23	27.2	27.2	4.17	4.16	52.6	52.4	8.9	8.7	0	0.0	7	7.0	15	15.0	13.6	13.60	40	40.0
			27.2		4.15		52.1		8.4		0		7		15		13.6		40	
W4	11:25	0.15	27.3	27.3	4.84	4.83	64.9	64.5	4.0	4.0	0	0.0	7.1	7.1	6	6.0	2.39	2.39	16	16.0
			27.3		4.81		64.1		3.9		0		7.1		6		2.39		16	
W5	11:20	0.11	27.0	27.0	4.64	4.62	59.4	59.1	6.2	6.5	0	0.0	7	7.0	9	9.0	0.74	0.74	19	19.0
			27.0		4.6		58.7		6.7		0		7		9		0.74		19	
W6	11:05	0.35	27.5	27.5	4.15	4.13	51.2	51.0	8.5	8.4	0	0.0	6.9	6.9	11	11.0	13.9	13.90	27	27.0
			27.5		4.11		50.7		8.2		0		6.9		11		13.9		27	

Date	9-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	10:50	0.17	27.0	27.0	4.09	4.11	50.8	51.1	24.7	24.6	0	0.0	6.7	6.7	52	52.0	0.22	0.22	22	22.0
			27.0		4.12		51.3		24.4		0		6.7		52		0.22		22	
W2	10:55	0.15	26.9	26.9	4.18	4.17	52.9	52.7	10.3	10.0	0	0.0	6.7	6.7	18	18.0	0.64	0.64	14	14.0
			26.9		4.15		52.4		9.7		0		6.7		18		0.64		14	
W3	10:40	0.26	27.2	27.2	4.06	4.07	49.9	50.1	11.2	11.0	0	0.0	6.9	6.9	31	31.0	5.78	5.78	86	86.0
			27.2		4.08		50.3		10.8		0		6.9		31		5.78		86	
W4	10:30	0.17	27.0	27.0	4.22	4.24	53.1	53.4	9.7	9.6	0	0.0	6.8	6.8	25	25.0	3.7	3.70	19	19.0
			27.0		4.25		53.6		9.4		0		6.8		25		3.7		19	
W5	10:25	0.14	27.2	27.2	4.37	4.35	54.9	54.5	4.7	4.8	0	0.0	7	7.0	9	9.0	2.61	2.61	24	24.0
			27.2		4.33		54.0		4.8		0		7		9		2.61		24	
W6	10:20	0.33	27.1	27.1	4.26	4.24	53.5	53.2	2.6	2.8	0	0.0	7	7.0	3	3.0	9.39	9.39	82	82.0
			27.1		4.21		52.8		2.9		0		7		3		9.39		82	

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Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

AUES

Summary of Water Quality Monitoring Results - KT13

Date	11-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	10:45	0.17	27.5	27.5	4.51	4.51	58.9	58.8	3.6	3.7	0	0.0	6.7	6.7	6	6.0	0.2	0.20	24	24.0
			27.5		4.5		58.7		3.8		0		6.7		6		0.2		24	
W2	10:55	0.15	27.4	27.4	4.47	4.45	58.2	57.8	18.4	18.3	0	0.0	6.7	6.7	43	43.0	0.39	0.39	27	27.0
			27.4		4.43		57.4		18.2		0		6.7		43		0.39		27	
W3	10:35	0.18	27.0	27.0	4.25	4.26	52.8	53.0	10.7	10.5	0	0.0	6.8	6.8	25	25.0	4.66	4.66	68	68.0
			27.0		4.27		53.2		10.3		0		6.8		25		4.66		68	
W4	10:25	0.17	27.1	27.1	4.34	4.32	54.8	54.5	5.7	5.6	0	0.0	7	7.0	8	8.0	5.34	5.34	13	13.0
			27.1		4.3		54.2		5.5		0		7		8		5.34		13	
W5	10:20	0.14	27.6	27.6	4.77	4.76	63.7	63.4	4.8	4.8	0	0.0	6.8	6.8	7	7.0	1.49	1.49	11	11.0
			27.6		4.74		63.0		4.8		0		6.8		7		1.49		11	
W6	10:15	0.31	27.0	27.0	4.2	4.19	52.1	51.7	8.7	8.8	0	0.0	6.7	6.7	17	17.0	10.9	10.90	48	48.0
			27.0		4.17		51.3		8.8		0		6.7		17		10.9		48	

Date	13-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	10:35	0.13	27.2	27.2	4.23	4.23	53.2	53.1	2.7	2.8	0	0.0	7.1	7.1	2	2.0	0.16	0.16	22	22.0
			27.2		4.22		53.0		2.8		0		7.1		2		0.16		22	
W2	10:40	0.14	27.3	27.3	4.31	4.30	54.8	54.5	3.9	3.8	0	0.0	7	7.0	6	6.0	0.32	0.32	24	24.0
			27.3		4.28		54.2		3.7		0		7		6		0.32		24	
W3	10:25	0.19	27.6	27.6	3.79	3.81	47.3	47.6	10.9	11.2	0	0.0	7.1	7.1	35	35.0	4.96	4.96	85	85.0
			27.6		3.82		47.9		11.4		0		7.1		35		4.96		85	
W4	10:15	0.16	26.8	26.8	4.17	4.18	51.7	51.9	4.6	4.7	0	0.0	6.9	6.9	6	6.0	5.57	5.57	14	14.0
			26.8		4.19		52.1		4.8		0		6.9		6		5.57		14	
W5	10:10	0.12	27.0	27.0	4.31	4.34	55.7	56.3	6.7	6.5	0	0.0	6.9	6.9	10	10.0	1.6	1.60	12	12.0
			27.0		4.37		56.9		6.3		0		6.9		10		1.6		12	
W6	10:00	0.30	26.9	26.9	3.73	3.75	46.7	47.0	8.7	8.8	0	0.0	6.8	6.8	14	14.0	12.2	12.20	48	48.0
			26.9		3.76		47.2		8.9		0		6.8		14		12.2		48	

Date	16-Sep-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	10:35	0.12	26.7	26.7	3.98	3.96	50.1	49.8	3.1	3.2	0	0.0	6.9	6.9	5	5.0	0.24	0.24	12	12.0
			26.7		3.94		49.4		3.2		0		6.9		5		0.24		12	
W2	10:40	0.15	26.9	26.9	4.07	4.05	51.3	51.0	2.9	2.8	0	0.0	6.8	6.8	3	3.0	0.13	0.13	<10	10.0
			26.9		4.03		50.6		2.6		0		6.8		3		0.13		<10	
W3	10:25	0.19	27.0	27.0	3.41	3.44	43.9	44.3	21.7	21.5	0	0.0	6.9	6.9	42	42.0	5.42	5.42	117	117.0
			27.0		3.47		44.7		21.2		0		6.9		42		5.42		117	
W4	10:15	0.14	26.6	26.6	4.11	4.12	51.9	52.1	4.7	4.8	0	0.0	6.7	6.7	9	9.0	4.34	4.34	14	14.0
			26.6		4.13		52.3		4.9		0		6.7		9		4.34		14	
W5	10:10	0.12	27.0	27.0	4.29	4.26	53.7	53.4	3.6	3.5	0	0.0	6.9	6.9	6	6.0	1.34	1.34	10	10.0
			27.0		4.22		53.1		3.3		0		6.9		6		1.34		10	
W6	10:05	0.37	27.1	27.1	4	3.99	49.7	49.5	21.6	22.4	0	0.0	6.9	6.9	42	42.0	10.6	10.60	96	96.0
			27.1		3.98		49.3		23.1		0		6.9		42		10.6		96	

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Summary of Water Quality Monitoring Results - KT13

Date	18-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:10	0.16	26.9	26.9	3.54	3.56	44.9	45.2	2.5	2.7	0	0.0	6.8	6.8	3	3.0	0.14	0.14	12	12.0
			26.9		3.57		45.5		2.8		0		6.8		3		0.14		12	
W2	11:05	0.15	26.8	26.8	3.87	3.85	48.7	48.4	3.4	3.5	0	0.0	6.8	6.8	4	4.0	0.14	0.14	13	13.0
			26.8		3.82		48.0		3.5		0		6.8		4		0.14		13	
W3	10:55	0.21	26.5	26.5	3.61	3.62	46.8	47.0	23.9	24.0	0	0.0	7	7.0	41	41.0	2.37	2.37	100	100.0
			26.5		3.63		47.1		24.1		0		7		41		2.37		100	
W4	10:45	0.17	27.1	27.1	4.11	4.10	51.3	51.0	3.7	3.6	0	0.0	6.9	6.9	7	7.0	3.05	3.05	25	25.0
			27.1		4.08		50.6		3.4		0		6.9		7		3.05		25	
W5	10:40	0.13	27.2	27.2	3.54	3.53	44.4	44.1	3.2	3.4	0	0.0	7.1	7.1	6	6.0	0.86	0.86	30	30.0
			27.2		3.51		43.8		3.5		0		7.1		6		0.86		30	
W6	10:30	0.37	26.9	26.9	3.66	3.64	47.4	47.2	14.6	14.9	0	0.0	6.8	6.8	33	33.0	3.67	3.67	70	70.0
			26.9		3.62		46.9		15.2		0		6.8		33		3.67		70	

Date	20-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	13:15	0.13	27.3	27.3	3.61	3.58	47.1	46.7	2.1	2.3	0	0.0	6.7	6.7	2	2.0	0.12	0.12	<10	<10
			27.3		3.54		46.2		2.4		0		6.7		2		0.12		<10	
W2	13:25	0.15	27.2	27.2	3.43	3.41	45.0	44.7	2.8	2.7	0	0.0	6.7	6.7	2	2.0	0.18	0.18	<10	10.0
			27.2		3.38		44.4		2.6		0		6.7		2		0.18		<10	
W3	13:00	0.19	27.6	27.6	3.26	3.28	42.8	43.2	18.7	18.9	0	0.0	6.9	6.9	44	44.0	1.94	1.94	96	96.0
			27.6		3.29		43.5		19.1		0		6.9		44		1.94		96	
W4	12:50	0.19	27.4	27.4	4.06	4.05	51.7	51.5	4.5	4.3	0	0.0	6.8	6.8	9	9.0	1.64	1.64	16	16.0
			27.4		4.03		51.2		4.1		0		6.8		9		1.64		16	
W5	12:45	0.14	26.9	26.9	3.67	3.66	47.9	47.6	4.9	4.7	0	0.0	6.9	6.9	8	8.0	0.48	0.48	22	22.0
			26.9		3.64		47.3		4.5		0		6.9		8		0.48		22	
W6	12:40	0.33	27.0	27.0	3.52	3.50	44.2	44.0	11.0	11.2	0	0.0	7.1	7.1	38	38.0	3.94	3.94	89	89.0
			27.0		3.47		43.7		11.4		0		7.1		38		3.94		89	

Date	24-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:25	0.16	26.7	26.7	3.41	3.40	44.3	44.0	4.3	4.5	0	0.0	6.6	6.6	10	10.0	0.06	0.06	17	17.0
			26.7		3.38		43.6		4.7		0		6.6		10		0.06		17	
W2	11:30	0.17	26.7	26.7	3.06	3.09	38.1	38.7	4.2	4.2	0	0.0	6.7	6.7	9	9.0	0.06	0.06	17	17.0
			26.7		3.12		39.2		4.1		0		6.7		9		0.06		17	
W3	11:15	0.19	26.4	26.4	3.37	3.40	43.2	43.8	47.1	48.5	0	0.0	6.5	6.5	138	138.0	0.69	0.69	77	77.0
			26.4		3.42		44.4		49.9		0		6.5		138		0.69		77	
W4	11:05	0.17	26.8	26.8	4.08	4.06	50.7	50.4	14.5	14.1	0	0.0	6.8	6.8	29	29.0	0.34	0.34	31	31.0
			26.8		4.04		50.1		13.7		0		6.8		29		0.34		31	
W5	11:00	0.13	26.6	26.6	3.59	3.57	45.9	45.6	4.7	4.8	0	0.0	7.2	7.2	13	13.0	0.24	0.24	22	22.0
			26.6		3.54		45.2		4.8		0		7.2		13		0.24		22	
W6	10:50	0.29	26.7	26.7	3.31	3.34	43.0	43.5	22.4	22.8	0	0.0	6.9	6.9	62	62.0	0.82	0.82	53	53.0
			26.7		3.37		43.9		23.1		0		6.9		62		0.82		53	

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AUES

Summary of Water Quality Monitoring Results - KT13

Date	26-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	13:25	0.17	27.6	27.6	3.28	3.27	42.7	42.5	7.3	7.4	0	0.0	6.8	6.8	3	3.0	0.18	0.18	13	13.0
			27.6		3.25		42.2		7.4		0		6.8		3		0.18		13	
W2	13:30	0.15	27.4	27.4	3.01	3.02	38.6	38.8	6.2	6.5	0	0.0	6.7	6.7	<2	2.0	0.11	0.11	<10	2.0
			27.4		3.03		38.9		6.7		0		6.7		<2		0.11		<10	
W3	13:15	0.21	27.0	27.0	3.28	3.31	42.9	43.3	18.2	16.8	0	0.0	6.7	6.7	17	17.0	0.12	0.12	29	29.0
			27.0		3.33		43.6		15.4		0		6.7		17		0.12		29	
W4	13:05	0.19	27.2	27.2	3.98	4.02	50.1	50.6	9.1	8.5	0	0.0	6.8	6.8	18	18.0	0.93	0.93	51	51.0
			27.2		4.06		51.0		7.8		0		6.8		18		0.93		51	
W5	12:55	0.13	27.3	27.3	3.47	3.46	45.6	45.4	6.7	6.8	0	0.0	7	7.0	20	20.0	0.53	0.53	13	13.0
			27.3		3.45		45.1		6.9		0		7		20		0.53		13	
W6	12:50	0.26	27.1	27.1	3.26	3.28	42.3	42.6	27.4	26.6	0	0.0	6.9	6.9	7	7.0	1.9	1.90	20	20.0
			27.1		3.3		42.9		25.8		0		6.9		7		1.9		20	

Date	30-Sep-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	10:50	0.15	26.7	26.7	3.37	3.36	44.3	43.9	6.2	6.5	0	0.0	6.7	6.7	5	5.0	0.12	0.12	11	11.0
			26.7		3.34		43.5		6.7		0		6.7		5		0.12		11	
W2	11:00	0.15	26.8	26.8	3.11	3.13	38.6	38.9	4.3	4.6	0	0.0	6.7	6.7	<2	2.0	0.12	0.12	<10	#DIV/0!
			26.8		3.15		39.1		4.9		0		6.7		<2		0.12		<10	
W3	10:40	0.19	26.4	26.4	3.31	3.34	43.8	44.1	14.5	15.4	0	0.0	6.8	6.8	27	27.0	2.8	2.80	44	44.0
			26.4		3.36		44.3		16.2		0		6.8		27		2.8		44	
W4	10:30	0.17	26.9	26.9	4.15	4.16	53.7	54.0	7.1	7.0	0	0.0	6.7	6.7	4	4.0	2.01	2.01	18	18.0
			26.9		4.17		54.2		6.8		0		6.7		4		2.01		18	
W5	10:25	0.13	27.0	27.0	3.31	3.32	43.2	43.3	9.1	9.7	0	0.0	7	7.0	6	6.0	1.81	1.81	16	16.0
			27.0		3.32		43.3		10.2		0		7		6		1.81		16	
W6	10:15	0.28	26.5	26.5	3.17	3.16	39.2	38.8	24.3	22.8	0	0.0	6.9	6.9	16	16.0	4.01	4.01	32	32.0
			26.5		3.14		38.4		21.2		0		6.9		16		4.01		32	

Date	2-Oct-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	14:05	0.12	27.1	27.1	3.13	3.12	38.6	38.4	2.8	2.9	0	0.0	6.7	6.7	3	3.0	0.12	0.12	<10	#DIV/0!
			27.1		3.1		38.1		2.9		0		6.7		3		0.12		<10	
W2	14:00	0.09	27.0	27.0	3.22	3.21	39.8	39.6	2.1	2.1	0	0.0	6.7	6.7	3	3.0	0.1	0.10	14	14.0
			27.0		3.2		39.4		2.1		0		6.7		3		0.1		14	
W3	13:50	0.18	26.9	26.9	3.47	3.45	45.2	44.9	17.2	17.5	0	0.0	6.8	6.8	30	30.0	3.78	3.78	55	55.0
			26.9		3.42		44.6		17.8		0		6.8		30		3.78		55	
W4	13:40	0.19	27.2	27.2	4.13	4.13	52.3	52.3	4.7	4.9	0	0.0	7	7.0	5	5.0	2.15	2.15	12	12.0
			27.2		4.12		52.2		5.1		0		7		5		2.15		12	
W5	13:30	0.10	27.3	27.3	3.06	3.04	36.1	35.8	16.7	16.5	0	0.0	6.8	6.8	24	24.0	1.02	1.02	10	10.0
			27.3		3.02		35.5		16.2		0		6.8		24		1.02		10	
W6	13:25	0.24	27.1	27.1	3.26	3.24	40.4	40.1	8.9	9.1	0	0.0	6.7	6.7	16	16.0	2.78	2.78	26	26.0
			27.1		3.21		39.8		9.3		0		6.7		16		2.78		26	

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AUES

Summary of Water Quality Monitoring Results - KT13

Date	4-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	14:30	0.14	27.0	27.0	3.06	3.04	35.8	35.5	2.1	2.1	0	0.0	6.9	6.9	<2	#DIV/0!	0.05	0.05	10	10.0
			27.0		3.02		35.2		2.0		0		6.9		<2		0.05		10	
W2	14:25	0.10	27.2	27.2	3.17	3.16	37.4	37.1	3.1	3.3	0	0.0	6.8	6.8	4	4.0	0.17	0.17	10	10.0
			27.2		3.14		36.8		3.5		0		6.8		4		0.17		10	
W3	14:15	0.16	27.1	27.1	3.3	3.29	41.1	40.9	12.4	12.8	0	0.0	6.8	6.8	21	21.0	2.42	2.42	46	46.0
			27.1		3.27		40.7		13.1		0		6.8		21		2.42		46	
W4	14:05	0.17	27.3	27.3	4.17	4.19	52.6	52.8	3.7	3.5	0	0.0	6.7	6.7	4	4.0	2.09	2.09	12	12.0
			27.3		4.2		53.0		3.3		0		6.7		4		2.09		12	
W5	14:00	0.12	27.3	27.3	3.84	3.82	47.7	47.3	21.2	21.6	0	0.0	6.8	6.8	32	32.0	1.35	1.35	20	20.0
			27.3		3.79		46.9		22.0		0		6.8		32		1.35		20	
W6	13:55	0.29	27.1	27.1	3.37	3.36	42.9	42.6	15.6	15.2	0	0.0	6.9	6.9	20	20.0	3.78	3.78	30	30.0
			27.1		3.34		42.3		14.7		0		6.9		20		3.78		30	

Date	6-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	12:25	0.15	27.6	27.6	3.33	3.32	41.7	41.6	1.8	2.1	0	0.0	7	7.0	<2	2.0	0.1	0.10	<10	10.0
			27.6		3.31		41.4		2.3		0		7		<2		0.1		<10	
W2	12:15	0.08	27.6	27.6	3.19	3.21	39.2	39.4	2.7	2.8	0	0.0	6.8	6.8	3	3.0	0.14	0.14	11	11.0
			27.6		3.22		39.6		2.8		0		6.8		3		0.14		11	
W3	12:05	0.18	27.7	27.7	3.42	3.45	43.8	44.3	13.5	13.4	0	0.0	6.9	6.9	22	22.0	0.14	0.14	49	49.0
			27.7		3.48		44.7		13.3		0		6.9		22		0.14		49	
W4	11:55	0.17	27.5	27.5	3.89	3.91	49.2	49.5	3.0	3.1	0	0.0	7.1	7.1	4	4.0	0.63	0.63	17	17.0
			27.5		3.92		49.8		3.1		0		7.1		4		0.63		17	
W5	11:50	0.11	28.3	28.3	3.47	3.48	44.6	44.7	3.9	3.9	0	0.0	6.9	6.9	4	4.0	0.42	0.42	<10	10.0
			28.3		3.48		44.7		3.9		0		6.9		4		0.42		<10	
W6	11:40	0.29	27.2	27.2	3.67	3.67	46.7	46.6	10.4	10.1	0	0.0	6.8	6.8	18	18.0	1.53	1.53	40	40.0
			27.2		3.66		46.5		9.8		0		6.8		18		1.53		40	

Date	9-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	12:05	0.16	27.9	27.9	3.13	3.14	38.7	39.0	2.4	2.3	0	0.0	6.9	6.9	2	2.0	0.08	0.08	<10	10.0
			27.9		3.15		39.2		2.2		0		6.9		2		0.08		<10	
W2	12:00	0.10	27.8	27.8	3.24	3.25	41.5	41.6	7.3	7.6	0	0.0	6.8	6.8	17	17.0	0.31	0.31	21	21.0
			27.8		3.25		41.6		7.8		0		6.8		17		0.31		21	
W3	11:50	0.17	27.6	27.6	3.42	3.43	44.1	44.3	42.6	43.3	0	0.0	6.8	6.8	88	88.0	2.4	2.40	121	121.0
			27.6		3.44		44.5		43.9		0		6.8		88		2.4		121	
W4	11:40	0.15	27.2	27.2	4.13	4.15	53.2	53.7	2.1	2.4	0	0.0	6.7	6.7	3	3.0	1.32	1.32	15	15.0
			27.2		4.17		54.1		2.7		0		6.7		3		1.32		15	
W5	11:35	0.12	28.1	28.1	3.8	3.78	47.9	47.6	36.9	36.7	0	0.0	7	7.0	50	50.0	0.86	0.86	23	23.0
			28.1		3.76		47.2		36.5		0		7		50		0.86		23	
W6	11:30	0.31	27.4	27.4	3.52	3.53	46.1	46.3	8.7	8.6	0	0.0	6.8	6.8	15	15.0	3.33	3.33	25	25.0
			27.4		3.54		46.4		8.5		0		6.8		15		3.33		25	

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AUES

Summary of Water Quality Monitoring Results - KT13

Date	11-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	11:35	0.14	28.2	28.2	3.22	3.24	41.1	41.4	3.2	3.3	0	0.0	6.7	6.7	<2	2.0	0.03	0.03	10	10.0
			28.2		3.26		41.7		3.4		0		6.7		<2		0.03		10	
W2	11:30	0.11	28.1	28.1	3.41	3.44	43.6	44.0	2.9	2.9	0	0.0	6.7	6.7	<2	2.0	0.03	0.03	<10	10.0
			28.1		3.47		44.3		2.9		0		6.7		<2		0.03		<10	
W3	11:20	0.17	27.6	27.6	3.4	3.39	43.2	43.1	28.9	28.8	0	0.0	6.8	6.8	40	40.0	0.41	0.41	55	55.0
			27.6		3.38		42.9		28.6		0		6.8		40		0.41		55	
W4	11:10	0.15	27.8	27.8	4.21	4.22	54.2	54.4	2.7	2.7	0	0.0	6.8	6.8	4	4.0	0.22	0.22	12	12.0
			27.8		4.23		54.6		2.7		0		6.8		4		0.22		12	
W5	11:05	0.13	28.4	28.4	3.66	3.65	47.1	47.0	12.7	12.6	0	0.0	6.9	6.9	24	24.0	0.11	0.11	17	17.0
			28.4		3.64		46.8		12.4		0		6.9		24		0.11		17	
W6	11:00	0.31	27.9	27.9	3.57	3.58	45.9	46.0	11.1	11.1	0	0.0	6.7	6.7	19	19.0	0.6	0.60	36	36.0
			27.9		3.59		46.1		11.0		0		6.7		19		0.6		36	

Date	13-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	13:35	0.17	28.1	28.1	3.37	3.36	42.6	42.3	2.5	2.5	0	0.0	6.8	6.8	<2	2.0	0.11	0.11	14	14.0
			28.1		3.34		41.9		2.4		0		6.8		<2		0.11		14	
W2	13:30	0.14	28.0	28.0	3.21	3.23	39.7	40.2	2.9	3.0	0	0.0	6.7	6.7	<2	2.0	0.11	0.11	<10	10.0
			28.0		3.25		40.6		3.1		0		6.7		<2		0.11		<10	
W3	13:20	0.28	28.0	28.0	3.48	3.48	43.9	43.9	24.4	24.7	0	0.0	6.8	6.8	32	32.0	2.11	2.11	55	55.0
			28.0		3.47		43.8		24.9		0		6.8		32		2.11		55	
W4	13:10	0.16	28.1	28.1	4.06	4.08	51.0	51.2	2.7	2.6	0	0.0	7	7.0	3	3.0	2.34	2.34	13	13.0
			28.1		4.09		51.4		2.5		0		7		3		2.34		13	
W5	13:05	0.12	28.3	28.3	3.66	3.65	47.2	47.0	12.1	12.3	0	0.0	6.8	6.8	25	25.0	0.83	0.83	11	11.0
			28.3		3.64		46.8		12.4		0		6.8		25		0.83		11	
W6	13:10	0.33	27.8	27.8	3.47	3.49	44.2	44.5	6.9	6.8	0	0.0	6.8	6.8	12	12.0	2.8	2.80	30	30.0
			27.8		3.5		44.7		6.6		0		6.8		12		2.8		30	

Date	15-Oct-08																					
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	14:45	0.17	27.9	27.9	3.57	3.58	44.9	45.1	4.7	5.0	0	0.0	6.8	6.8	8	8.0	0.09	0.09	55	55.0
			27.9		3.59		45.2		5.2		0		6.8		8		0.09		55	
W2	14:40	0.15	27.8	27.8	3.52	3.52	44.1	44.1	3.2	3.6	0	0.0	6.9	6.9	6	6.0	0.1	0.10	12	12.0
			27.8		3.51		44.0		3.9		0		6.9		6		0.1		12	
W3	14:30	0.24	27.8	27.8	3.41	3.42	43.0	43.1	62.0	63.0	0	0.0	7	7.0	141	141.0	2.89	2.89	129	129.0
			27.8		3.42		43.2		63.9		0		7		141		2.89		129	
W4	14:20	0.15	27.6	27.6	4.33	4.31	54.9	54.7	2.1	2.0	0	0.0	7	7.0	3	3.0	2.44	2.44	12	12.0
			27.6		4.28		54.4		1.8		0		7		3		2.44		12	
W5	14:10	0.10	27.9	27.9	3.77	3.76	48.2	47.9	7.9	7.8	0	0.0	6.7	6.7	15	15.0	0.96	0.96	10	10.0
			27.9		3.74		47.5		7.6		0		6.7		15		0.96		10	
W6	14:05	0.30	27.7	27.7	3.52	3.54	44.9	45.2	25.9	26.1	0	0.0	6.8	6.8	52	52.0	9.42	9.42	45	45.0
			27.7		3.56		45.4		26.2		0		6.8		52		9.42		45	

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Summary of Water Quality Monitoring Results - KT13

Date	17-Oct-08																			
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W1	14:30	0.16	27.8	27.8	3.46	3.45	43.9	43.6	2.0	2.2	0	0.0	6.7	6.7	3	3.0	0.12	0.12	10	10.0
			27.8		3.44		43.3		2.3		0		6.7		3		0.12		10	
W2	14:20	0.12	27.7	27.7	3.38	3.37	42.8	42.6	2.1	2.1	0	0.0	6.8	6.8	4	4.0	0.14	0.14	10	10.0
			27.7		3.36		42.4		2.0		0		6.8		4		0.14		10	
W3	14:10	0.28	27.7	27.7	3.69	3.68	45.9	45.7	36.8	37.1	0	0.0	6.8	6.8	57	57.0	2.32	2.32	75	75.0
			27.7		3.67		45.5		37.4		0		6.8		57		2.32		75	
W4	14:00	0.16	27.4	27.4	4.2	4.19	53.7	53.6	2.3	2.3	0	0.0	6.7	6.7	3	3.0	3.18	3.18	14	14.0
			27.4		4.17		53.4		2.3		0		6.7		3		3.18		14	
W5	13:55	0.11	28.2	28.2	3.97	3.95	50.6	50.3	9.1	9.3	0	0.0	6.9	6.9	15	15.0	1.49	1.49	17	17.0
			28.2		3.92		49.9		9.4		0		6.9		15		1.49		17	
W6	13:50	0.28	27.9	27.9	3.66	3.66	45.7	45.6	8.4	8.1	0	0.0	6.8	6.8	12	12.0	3.34	3.34	35	35.0
			27..9		3.65		45.5		7.7		0		6.8		12		3.34		35	

Ecology Survey

ECOLOGY MONITORING

1.01 Monthly walk through survey will be conducted along the boundary of work area for KT13. Bird monitoring will be conducted in the study areas monthly for KT13. Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted between April to June. Photographic record should be made at six month intervals.

MONITORING REQUIREMENT

Study Area

1.02 The monitoring areas for the ecological monitoring programme for KT13 would cover 60m on either side of the existing channel as well as the proposed bypass culvert, as shown in Figure 6.1 of the EM&A Manual. Within these, emphasis will be given to the area around the Ho Pui and Ma On Kong egretries and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretry and Ma On Kong egretry (The Ma On Kong egretry is outside the demarcated monitoring area but is also monitored to identify any adverse effects on the breedging egrets).

Survey Method

1.03 Monthly monitoring will be conducted by means of walk through survey, along the boundary of work area for KT13. Any adverse impacts to the habitats outside the site, in particular the Conservation Area (CA) zone and Ho Pui Egretry, will be checked and reported.

1.04 Photographic records will be made every six months on the fixed photo record points selected during the baseline survey. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which are used as the baseline conditions.

1.05 Bird monitoring will be conducted in the study areas monthly for KT13. Attention should be paid on wetland species and species identified as being of conservation importance, and the habitats utilized should also be recorded. Bird surveys should commence no later than 2 hours after dawn.

1.06 Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. The frequency would be twice per month during March to May. Depending upon the nesting conditions at Ho Pui egretry, the frequency could be reduced to monthly between June to August if no egret nest found by the end of May, or maintained at twice per month till the end of August if there are egret nests. Number of active nests, species and number of birds present and breeding stage should be recorded.

1.07 Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted twice per month between April to June. The number and species of flying egrets, and their landing habitats and locations should be recorded.

Equipment

1.08 Standard portable field survey equipment was used for ecological monitoring, including 1) Binoculars of 10 x 40 magnifications; 2) Digital camera; and 3) Notebook.

SURVEY RESULTS

1.09 86 individuals of birds from 20 species were recorded during the survey for the present monthly monitoring on 15 June 2008. Among the birds recorded, wetland dependent birds i.e. White-breasted Waterhen was recorded.

1.10 It is stated in the EP for KT13 that the monitoring of the Ho Pui egretry shall be carried out during the period from 1st March to 31st August as specified in the EM&A Manual. If no egret nest is found at the egretry during the period from 1st March to 31st May, the Permit Holder can start the construction works within 100m of the ecological buffer area upon obtaining the Director's approval until February in the next year. If egret nests are found during the period from 1st March to 31st August, no construction shall take place within 100m of the ecological buffer area before 1st October.

1.11 In addition, it is required in the EM&A manual that biweekly monitoring of the Ho Pui egretry for the period from 1st March to end of May. Should no egret nest be found at the Ho Pui egretry by the end of May, monitoring frequency from June to August can be downgraded to Monthly. As requested by IEC, a special egretry survey was thus performed on 31st May 2008 to verify the conditions of the Ho Pui egretry. No egret nests were found in Ho Pui egretry during the special survey. But two nests were observed in the Ma On Kong egretry. The two nests in Ma On Kong egretry are both Chinese Pond Heron. The breeding stage of the two nests could not be confirmed during the survey as the nests were blocked by other tree branches and the nesting egrets were not active probably due to the rainy weather conditions. Therefore the egretry monitoring frequency should be monthly between June to August 2008..

1.12 No nest was found at the Ho Pui egretry during the present survey. Even though, as there had been no nest recorded at Ho Pui egretry in 2007, the action/limit level for ecology is complied. Ma On Kong egretry was surveyed to provide reference information on the breeding There were at least two (and potentially three) nests in the bomboo trees of Ma On Kong egretry. The brood size could not be determined as all the nests were blocked by tree branches and leaves and could not be observed directly. At least two juveniles of Chinese Pond Heron juveniles were observed.

1.13 Ma On Kong Egretry was checked for flight line twice during the reporting month. Among the ardeids with confirmed landing locations, one CPH at SSE, and two CPHs at NNE, one CPH at ENE, and one CPH at SSW (see Figure 5.1 Flight Direction and Distance Flown from the Ma On Kong Egretry).

1.14 Photographic records are scheduled in six-month intervals, and thus is required in the present monthly monitoring

1.15 Ecology Impact Monitoring Results are presented in the **Table 1-1** and **1-2**.

Table 1-1 Summary of Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (15 June 08)	Habitat utilized
Birds				
Little Egret	***Egretta garzetta***	✓		
Cattle Egret	***Bubulcus ibis***	✓		
Chinese Pond Heron	***Ardeola bacchus***	✓		
Crested Serpent Eagle	*Spilornis cheela*	✓		
Bonelli's Eagle	*Hieraaetus fasciatus*	✓		
Eurasian Hobby	*Falco subbuteo*	✓		
White-breasted Waterhen	***Amaunornis phoenicurus***	✓	**2**	**Stream**
Spotted Dove	*Streptopelia chinensis*	✓	6	Urban
Common Koel	*Eudynamys scolopacea*	✓	1	Agricultural land
Greater Coucal	*Centropus sinensis*	✓	4	Agricultural land
Little Swift	*Apus affinis*	✓		
White-Throated Kingfisher	***Halcyon smyrnensis***	✓		
Barn Swallow	*Hirundo rustica*	✓	10	Agricultural land
Red-Whiskered Bulbul	*Pycnonotus jocosus*	✓	4	Urban
Chinese Bulbul	*Pycnonotus sinensis*	✓	6	Urban
Long-Tailed Shrike	*Lanius schach*	✓		
Oriental Magpie Robin	*Copsychus saularis*	✓	3	Urban
Masked Laughingthrush	*Garrulax perspicillatus*	✓	5	Urban, agricultural land
Yellow-Bellied Prinia	*Prinia flaviventris*	✓	3	Pond
Common Tailorbird	*Orthotomus sutorius*	✓	1	Shrubland
Great Tit	*Parus major*	✓	1	Woodland
Japanese White-Eye	*Zosterops japonicus*	✓	5	Shrubland
White-Rumped Munia	*Lonchura striata*	✓		
Eurasian Tree Sparrow	*Passer montanus*	✓	12	Urban
Black-Collared Starling	*Sturnus nigricollis*	✓	6	Agricultural land
Common Myna	*Acridotheres tristis*	✓	5	Agricultural land
Crested Myna	*Acridotheres cristatellus*	✓		
Black Kite	*Milvus migrans*		1	Shrubland
White Wagtail	*Motacilla alba*		5	Agricultural land
Plain Prinia	*Prinia inornata*		2	Pond
Blue Magpie	*Urocissa eythrorhyncha*		4	Woodland
Species Number		27	**20**	
Individual Number		**NA**	**86**	

Wetland dependent species recorded with abundance during the baseline study with the names bolded

Table 1-2 Summary of Ecology Impact Monitoring Egretry Survey

Species	Ho Pui	Ma On Kong
Chinese Pond Heron	0	2
Little Egret	0	0
Cattle Egret	0	0
No. of pairs	**0**	**2**

1.16 No intrusions into the CA and Ho Pui egretry /adverse impact on habitats outside the site were found during the reporting period. No non-compliance of ecology was recorded.

ECOLOGY MONITORING

1.01 Monthly walk through survey will be conducted along the boundary of work area for KT13. Bird monitoring will be conducted in the study areas monthly for KT13. Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted between April to June. Photographic record should be made at six month intervals.

MONITORING REQUIREMENT

Study Area

1.02 The monitoring areas for the ecological monitoring programme for KT13 would cover 60m on either side of the existing channel as well as the proposed bypass culvert, as shown in Figure 6.1 of the EM&A Manual. Within these, emphasis will be given to the area around the Ho Pui and Ma On Kong egretries and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretry and Ma On Kong egretry (The Ma On Kong egretry is outside the demarcated monitoring area but is also monitored to identify any adverse effects on the breedging egrets).

Survey Method

1.03 Monthly monitoring will be conducted by means of walk through survey, along the boundary of work area for KT13. Any adverse impacts to the habitats outside the site, in particular the Conservation Area (CA) zone and Ho Pui Egretry, will be checked and reported.

1.04 Photographic records will be made every six months on the fixed photo record points selected during the baseline survey. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which are used as the baseline conditions.

1.05 Bird monitoring will be conducted in the study areas monthly for KT13. Attention should be paid on wetland species and species identified as being of conservation importance, and the habitats utilized should also be recorded. Bird surveys should commence no later than 2 hours after dawn.

1.06 Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. The frequency would be twice per month during March to May. Depending upon the nesting conditions at Ho Pui egretry, the frequency could be reduced to monthly between June to August if no egret nest found by the end of May, or maintained at twice per month till the end of August if there are egret nests. Number of active nests, species and number of birds present and breeding stage should be recorded.

1.07 Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted twice per month between April to June. The number and species of flying egrets, and their landing habitats and locations should be recorded.

Equipment

1.08 Standard portable field survey equipment was used for ecological monitoring, including 1) Binoculars of 10 x 40 magnifications; 2) Digital camera; and 3) Notebook.

SURVEY RESULTS

1.09 48 individuals of birds from 17 species were recorded during the survey for the present monthly monitoring on 20 July 2008. Among the birds recorded, wetland dependent birds i.e. Chinese Pond Heron and White-breasted Waterhen were recorded.

1.10 It is stated in the EP for KT13 that the monitoring of the Ho Pui egretry shall be carried out during the period from 1st March to 31st August as specified in the EM&A Manual. If no egret nest is found at the egretry during the period from 1st March to 31st May, the Permit Holder can start the construction works within 100m of the ecological buffer area upon obtaining the Director's approval until February in the next year. If egret nests are found during the period from 1st March to 31st August, no construction shall take place within 100m of the ecological buffer area before 1st October.

1.11 In addition, it is required in the EM&A manual that biweekly monitoring of the Ho Pui egretry for the period from 1st March to end of May. Should no egret nest be found at the Ho Pui egretry by the end of May, monitoring frequency from June to August can be downgraded to Monthly. As requested by IEC, a special egretry survey was thus performed on 31st May 2008 to verify the conditions of the Ho Pui egretry. No egret nests were found in Ho Pui egretry during the special survey. But two nests were observed in the Ma On Kong egretry. The two nests in Ma On Kong egretry are both Chinese Pond Heron. The breeding stage of the two nests could not be confirmed during the survey as the nests were blocked by other tree branches and the nesting egrets were not active probably due to the rainy weather conditions. Therefore the egretry monitoring frequency should be monthly between June to August 2008..

1.12 No nest was found at the Ho Pui egretry during the present survey. Even though, as there had been no nest recorded at Ho Pui egretry in 2007, the action/limit level for ecology is complied. Ma On Kong egretry was surveyed to provide reference information on the breeding. There were two nests near some bomboo trees in Ma On Kong egretry. The brood size could not be determined as all the nests were blocked by tree branches and leaves and could not be observed directly. Juveniles of Chinese Pond Heron juveniles were observed near the bamboo trees.

1.13 Photographic records are scheduled in six-month intervals, and thus is required in the present monthly monitoring.

1.14 Ecology Impact Monitoring Results are presented in the **Table 1-1** and **1-2**.

Table 1-1 Summary of Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 July 08)	Habitat utilized
Birds				
Little Egret	***Egretta garzetta***	✓		
Cattle Egret	***Bubulcus ibis***	✓		
Chinese Pond Heron	***Ardeola bacchus***	✓	**1**	**Stream**
Crested Serpent Eagle	*Spilornis cheela*	✓		
Bonelli's Eagle	*Hieraaetus fasciatus*	✓		
Eurasian Hobby	*Falco subbuteo*	✓		
White-breasted Waterhen	***Amaunornis phoenicurus***	✓	**1**	**Marsh**
Spotted Dove	*Streptopelia chinensis*	✓	5	Woodland
Common Koel	*Eudynamys scolopacea*	✓	1	Woodland
Greater Coucal	*Centropus sinensis*	✓		
Little Swift	*Apus affinis*	✓		
White-Throated Kingfisher	***Halcyon smyrnensis***	✓		
Barn Swallow	*Hirundo rustica*	✓	2	Bare ground
Red-Whiskered Bulbul	*Pycnonotus jocosus*	✓	2	Bare ground, woodland
Chinese Bulbul	*Pycnonotus sinensis*	✓	3	Bare ground, woodland
Long-Tailed Shrike	*Lanius schach*	✓		
Oriental Magpie Robin	*Copsychus saularis*	✓	3	Agricultural land, stream
Masked Laughingthrush	*Garrulax perspicillatus*	✓	4	Woodland
Yellow-Bellied Prinia	*Prinia flaviventris*	✓	2	Low-lying grassland
Common Tailorbird	*Orthotomus sutorius*	✓		
Great Tit	*Parus major*	✓		
Japanese White-Eye	*Zosterops japonicus*	✓	4	Woodland
White-Rumped Munia	*Lonchura striata*	✓		
Eurasian Tree Sparrow	*Passer montanus*	✓	8	Bare ground Agricultural land Low lying grassland
Black-Collared Starling	*Sturnus nigricollis*	✓	3	Bare ground
Common Myna	*Acridotheres tristis*	✓		
Crested Myna	*Acridotheres cristatellus*	✓	5	Bare ground
Black Kite	*Milvus migrans*			
White Wagtail	*Motacilla alba*		2	Stream
Plain Prinia	*Prinia inornata*		1	Low lying grassland
Blue Magpie	*Urocissa eythrorhyncha*			
Fork-tailed Sunbird	Aethopyga christinae		1	Woodland
Species Number		27	**17**	
Individual Number		**NA**	**48**	

Wetland dependent species recorded with abundance during the baseline study with the names bolded

Table 1-2 Summary of Ecology Impact Monitoring Egretry Survey

Species	Ho Pui	Ma On Kong
Chinese Pond Heron	0	2
Little Egret	0	0
Cattle Egret	0	0
No. of pairs	**0**	**2**

1.15 No intrusions into the CA and Ho Pui egretry /adverse impact on habitats outside the site were found during the reporting period. No non-compliance of ecology was recorded.

ECOLOGY MONITORING

1.01 Monthly walk through survey will be conducted along the boundary of work area for KT13. Bird monitoring will be conducted in the study areas monthly for KT13. Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted between April to June. Photographic record should be made at six month intervals.

MONITORING REQUIREMENT

Study Area

1.02 The monitoring areas for the ecological monitoring programme for KT13 would cover 60m on either side of the existing channel as well as the proposed bypass culvert, as shown in Figure 6.1 of the EM&A Manual. Within these, emphasis will be given to the area around the Ho Pui and Ma On Kong egretries and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretry and Ma On Kong egretry (The Ma On Kong egretry is outside the demarcated monitoring area but is also monitored to identify any adverse effects on the breedging egrets).

Survey Method

1.03 Monthly monitoring will be conducted by means of walk through survey, along the boundary of work area for KT13. Any adverse impacts to the habitats outside the site, in particular the Conservation Area (CA) zone and Ho Pui Egretry, will be checked and reported.

1.04 Photographic records will be made every six months on the fixed photo record points selected during the baseline survey. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which are used as the baseline conditions.

1.05 Bird monitoring will be conducted in the study areas monthly for KT13. Attention should be paid on wetland species and species identified as being of conservation importance, and the habitats utilized should also be recorded. Bird surveys should commence no later than 2 hours after dawn.

1.06 Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. The frequency would be twice per month during March to May. Depending upon the nesting conditions at Ho Pui egretry, the frequency could be reduced to monthly between June to August if no egret nest found by the end of May, or maintained at twice per month till the end of August if there are egret nests. Number of active nests, species and number of birds present and breeding stage should be recorded.

1.07 Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted twice per month between April to June. The number and species of flying egrets, and their landing habitats and locations should be recorded.

Equipment

1.08 Standard portable field survey equipment was used for ecological monitoring, including 1) Binoculars of 10 x 40 magnifications; 2) Digital camera; and 3) Notebook.

SURVEY RESULTS

1.09 62 individuals of birds from 19 species were recorded during the survey for the present monthly monitoring on 16 August 2008. Among the birds recorded, wetland dependent birds i.e. Chinese Pond Heron and White-breasted Waterhen were recorded.

1.10 It is stated in the EP for KT13 that the monitoring of the Ho Pui egretry shall be carried out during the period from 1st March to 31st August as specified in the EM&A Manual. If no egret nest is found at the egretry during the period from 1st March to 31st May, the Permit Holder can start the construction works within 100m of the ecological buffer area upon obtaining the Director's approval until February in the next year. If egret nests are found during the period from 1st March to 31st August, no construction shall take place within 100m of the ecological buffer area before 1st October.

1.11 In addition, it is required in the EM&A manual that biweekly monitoring of the Ho Pui egretry for the period from 1st March to end of May. Should no egret nest be found at the Ho Pui egretry by the end of May, monitoring frequency from June to August can be downgraded to Monthly. As requested by IEC, a special egretry survey was thus performed on 31st May 2008 to verify the conditions of the Ho Pui egretry. No egret nests were found in Ho Pui egretry during the special survey. But two nests were observed in the Ma On Kong egretry. The two nests in Ma On Kong egretry are both Chinese Pond Heron. The breeding stage of the two nests could not be confirmed during the survey as the nests were blocked by other tree branches and the nesting egrets were not active probably due to the rainy weather conditions. Therefore the egretry monitoring frequency should be monthly between June to August 2008.

1.12 The survey on egretry was conducted on 24 August 2008. No nest was found at the Ho Pui egretry during the present survey. Even though, as there had been no nest recorded at Ho Pui egretry in 2007, the action/limit level for ecology is complied. Ma On Kong egretry was surveyed to provide reference information on the breeding. There were also no arderids observed in Ma On Kong egretry. Though Chinese Pond Heron juveniles had been observed in July near the bamboo trees in Ma On Kong egretry, the two nests of Chinese Pond Heron previously recorded might have left.

1.13 Photographic records are scheduled in six-month intervals, and thus is required in the present monthly monitoring.

1.14 Ecology Impact Monitoring Results are presented in the **Table 1-1** and **1-2**.

Table 1-1 Summary of Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (16 August 08)	Habitat utilized
Birds				
Little Egret	***Egretta garzetta***	✓		
Cattle Egret	***Bubulcus ibis***	✓		
Chinese Pond Heron	***Ardeola bacchus***	✓	**2**	**Stream**
Crested Serpent Eagle	*Spilornis cheela*	✓		
Bonelli's Eagle	*Hieraaetus fasciatus*	✓		
Eurasian Hobby	*Falco subbuteo*	✓		
White-breasted Waterhen	***Amaunornis phoenicurus***	✓	**2**	**Marsh**
Spotted Dove	*Streptopelia chinensis*	✓	6	Woodland, bare ground
Common Koel	*Eudynamys scolopacea*	✓		
Greater Coucal	*Centropus sinensis*	✓	1	Woodland
Little Swift	*Apus affinis*	✓		
White-Throated Kingfisher	***Halcyon smyrnensis***	✓		
Barn Swallow	*Hirundo rustica*	✓	4	Bare ground
Red-Whiskered Bulbul	*Pycnonotus jocosus*	✓	3	Bare ground, woodland
Chinese Bulbul	*Pycnonotus sinensis*	✓	3	Bare ground, woodland
Long-Tailed Shrike	*Lanius schach*	✓		
Oriental Magpie Robin	*Copsychus saularis*	✓	2	Agricultural land, bare ground
Masked Laughingthrush	*Garrulax perspicillatus*	✓	6	Woodland
Yellow-Bellied Prinia	*Prinia flaviventris*	✓	3	Low-lying grassland
Common Tailorbird	*Orthotomus sutorius*	✓		
Great Tit	*Parus major*	✓	2	Woodland
Japanese White-Eye	*Zosterops japonicus*	✓	6	Woodland
White-Rumped Munia	*Lonchura striata*	✓		
Eurasian Tree Sparrow	*Passer montanus*	✓	6	Bare ground Low lying grassland
Black-Collared Starling	*Sturnus nigricollis*	✓	4	Bare ground
Common Myna	*Acridotheres tristis*	✓		
Crested Myna	*Acridotheres cristatellus*	✓	4	Bare ground
Black Kite	*Milvus migrans*			
White Wagtail	*Motacilla alba*		4	Stream
Plain Prinia	*Prinia inornata*		2	Low lying grassland
Blue Magpie	*Urocissa eythrorhyncha*			
Fork-tailed Sunbird	Aethopyga christinae			
Indian Cuckoo	*Cuculus micropterus*		1	Woodland
Common Mapie	*Pica pica*		1	Bare ground
Species Number		27	**19**	
Individual Number		**NA**	**62**	

Wetland dependent species recorded with abundance during the baseline study with the names bolded

Table 1-2 Summary of Ecology Impact Monitoring Egretry Survey

Species	Ho Pui	Ma On Kong
Chinese Pond Heron	0	0
Little Egret	0	0
Cattle Egret	0	0
No. of pairs	**0**	**0**

1.15 No intrusions into the CA and Ho Pui egretry /adverse impact on habitats outside the site were found during the reporting period. No non-compliance of ecology was recorded.

ECOLOGY MONITORING

1.01 Monthly walk through survey will be conducted along the boundary of work area for KT13. Bird monitoring will be conducted in the study areas monthly for KT13. Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted between April to June. Photographic record should be made at six month intervals..

MONITORING REQUIREMENT

Study Area

1.02 The monitoring areas for the ecological monitoring programme for KT13 would cover 60m on either side of the existing channel as well as the proposed bypass culvert, as shown in Figure 6.1 of the EM&A Manual. Within these, emphasis will be given to the area around the Ho Pui and Ma On Kong egretries and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretry and Ma On Kong egretry (The Ma On Kong egretry is outside the demarcated monitoring area but is also monitored to identify any adverse effects on the breedging egrets).

Survey Method

1.03 Monthly monitoring will be conducted by means of walk through survey, along the boundary of work area for KT13. Any adverse impacts to the habitats outside the site, in particular the Conservation Area (CA) zone and Ho Pui Egretry, will be checked and reported.

1.04 Photographic records will be made every six months on the fixed photo record points selected during the baseline survey. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which are used as the baseline conditions.

1.05 Bird monitoring will be conducted in the study areas monthly for KT13. Attention should be paid on wetland species and species identified as being of conservation importance, and the habitats utilized should also be recorded. Bird surveys should commence no later than 2 hours after dawn.

1.06 Monitoring on the Ho Pui egretry and Ma On Kong egretry will be conducted between March to August. The frequency would be twice per month during March to May. Depending upon the nesting conditions at Ho Pui egretry, the frequency could be reduced to monthly between June to August if no egret nest found by the end of May, or maintained at twice per month till the end of August if there are egret nests. Number of active nests, species and number of birds present and breeding stage should be recorded.

1.07 Flight line surveys to record the feeding areas and the habitat use of breeding egrets will be conducted twice per month between April to June. The number and species of flying egrets, and their landing habitats and locations should be recorded.

Equipment

1.08 Standard portable field survey equipment was used for ecological monitoring, including 1) Binoculars of 10 x 40 magnifications; 2) Digital camera; and 3) Notebook.

SURVEY RESULTS

1.09 36 individuals of birds from 12 species were recorded during the survey for the present monthly monitoring on 20 September 2008. Among the birds recorded, no wetland dependent birds were recorded.

1.10 It is stated in the EP for KT13 that the monitoring of the Ho Pui egretry shall be carried out during the period from 1st March to 31st August as specified in the EM&A Manual. If no egret nest is found at the egretry during the period from 1st March to 31st May, the Permit Holder can start the construction works within 100m of the ecological buffer area upon obtaining the Director's approval until February in the next year. If egret nests are found during the period from 1st March to 31st August, no construction shall take place within 100m of the ecological buffer area before 1st October.

1.11 In addition, it is required in the EM&A manual that biweekly monitoring of the Ho Pui egretry for the period from 1st March to end of May. Should no egret nest be found at the Ho Pui egretry by the end of May, monitoring frequency from June to August can be downgraded to Monthly. No egret nests were found in Ho Pui egretry during the special survey, but two nests were observed in the Ma On Kong egretry previously. Therefore the egretry monitoring was conducted monthly between June to August 2008.

1.12 Egretry survey was NOT required in the present monitoring

1.13 Photographic records are scheduled in six-month intervals, and thus is required in the present monthly monitoring.

1.14 Ecology Impact Monitoring Results are presented in the **Table 1-1.**.

Table 1-1 Summary of Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 Sep 08)	Habitat utilized
Birds				
Little Egret	***Egretta garzetta***	✓		
Cattle Egret	***Bubulcus ibis***	✓		
Chinese Pond Heron	***Ardeola bacchus***	✓		
Crested Serpent Eagle	*Spilornis cheela*	✓		
Bonelli's Eagle	*Hieraaetus fasciatus*	✓		
Eurasian Hobby	*Falco subbuteo*	✓		
White-breasted Waterhen	***Amaunornis phoenicurus***	✓		
Spotted Dove	*Streptopelia chinensis*	✓	3	Woodland, bare ground
Common Koel	*Eudynamys scolopacea*	✓		
Greater Coucal	*Centropus sinensis*	✓		
Little Swift	*Apus affinis*	✓		
White-Throated Kingfisher	***Halcyon smyrnensis***	✓		

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 Sep 08)	Habitat utilized
Barn Swallow	*Hirundo rustica*	✓		
Red-Whiskered Bulbul	*Pycnonotus jocosus*	✓	2	Woodland
Chinese Bulbul	*Pycnonotus sinensis*	✓	3	Woodland
Long-Tailed Shrike	*Lanius schach*	✓		
Oriental Magpie Robin	*Copsychus saularis*	✓	3	Woodland, bare ground
Masked Laughingthrush	*Garrulax perspicillatus*	✓	4	Woodland
Yellow-Bellied Prinia	*Prinia flaviventris*	✓	2	Low-lying grassland
Common Tailorbird	*Orthotomus sutorius*	✓		
Great Tit	*Parus major*	✓	4	Woodland
Japanese White-Eye	*Zosterops japonicus*	✓		
White-Rumped Munia	*Lonchura striata*	✓		
Eurasian Tree Sparrow	*Passer montanus*	✓	5	Bare ground Low lying grassland
Black-Collared Starling	*Sturnus nigricollis*	✓	2	Bare ground
Common Myna	*Acridotheres tristis*	✓		
Crested Myna	*Acridotheres cristatellus*	✓	4	Bare ground
Black Kite	*Milvus migrans*			
White Wagtail	*Motacilla alba*		2	Bare ground
Plain Prinia	*Prinia inornata*		2	Low lying grassland
Blue Magpie	*Urocissa eythrorhyncha*			
Fork-tailed Sunbird	Aethopyga christinae			
Indian Cuckoo	*Cuculus micropterus*			
Common Mapie	*Pica pica*			
Species Number		27	**12**	
Individual Number		**NA**	**36**	

Wetland dependent species recorded with abundance during the baseline study with the names bolded

1.15 No intrusions into the CA and Ho Pui egretry /adverse impact on habitats outside the site were found during the reporting period. No non-compliance of ecology was recorded.