



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

MONTHLY EM&A REPORT FOR KT13
(MAY 2011)

PREPARED FOR
CHINA ROAD & BRIDGE CORPORATION

Quality Index

Date	Reference No.	Prepared By	Certified by
20 June 2011	TCS00408/08/600/R1618v2	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

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1	13 June 2011	Nicola Hon	T.W. Tam	First submission
2	20 June 2011	Nicola Hon	T.W. Tam	Amended against IEC's comments on 20 June 2011

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By Fax & Post

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21 June 2011

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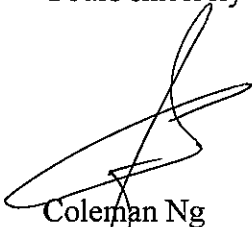
Contract No. DC/2007/17 Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen King San and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
Monthly EM&A Report for KT13 (May 2011) – Version 2

We refer to the captioned report (ref.: TCS00408/08/600/R1618v2) and advise that we have no comments on the captioned submission.

We hereby endorse the captioned report for your onward submission.

If you require any further information, please do not hesitate to contact the undersigned.

Yours sincerely



Coleman Ng
Independent Environmental Checker

cc China Road and Bridge Corporation (Mr. Raymond Mau) (Fax: 2478 9612)
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Executive Summary

- ES01 This is the 32nd monthly EM&A report for the Channel KT13, covering the construction period from 26 April to 25 May 2011 (the Reporting Period).

Breaches of Action and Limit Levels

- ES02 Monitoring results of the Reporting Period demonstrated no exceedances of environmental quality criteria for air quality, construction noise and ecology monitoring.
- ES03 For stream water quality monitoring, there were a total of 48 Action/ Limit Level exceedances recorded, namely 24 exceedances at upstream Location W2 and 24 exceedances downstream Location W6 which included parameters of Turbidity, Suspended Solids, NH_4^+-N and Zinc. Investigation concluded that the exceedances were not related to the works under the Project.
- ES04 For cultural heritage, five (5) events of weekly settlement monitoring for the historic grave were undertaken in this reporting month and the monitoring results demonstrated no exceedance was recorded.
- ES05 Landscape inspections were conducted on 6 and 20 May 2011. No significant changes were observed for the identified landscape resources and visual sensitive receivers, except for minor changes due to channel excavation, site clearance and preparation work at the identified landscape resources including LR1, LR2.1, LR2.2, LCA1, LCA3 and LCA4.

Environmental Complaint, Notification of Summons and Prosecution

- ES06 No documented complaint, notification of summons or successful prosecution was received during the Reporting Period. Environmental audit of the Reporting Period indicated that the implemented mitigation measures for air quality, construction noise and ecology were effective. 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 satisfactory.

Reporting Changes

- ES07 There is no reporting change in this reporting month.

Future Key Issues

- ES08 During wet season, water quality mitigation measures to avoid ingress of runoff from wheel wash facilities and loose soil surface into Channel KT13 should be properly installed and maintained to prevent any muddy or sandy runoff from overflow on the site boundary.
- ES09 Special attention should be also paid on construction noise and other environmental issues identified in the EM&A Manual as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule. CRBC was reminded to implement the required mitigation measures during construction as far as possible.
- ES10 In viewing that the major construction activities of the Project are substantially completed, the Contractor is reminded to maintain the housekeeping of the site in good standard.

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1 ENVIRONMENTAL STATUS

This is the 32nd monthly EM&A report for KT13, covering the construction period from **26 April to 25 May 2011** (the Reporting Period).

1.1 PROJECT AREA AND CONSTRUCTION PROGRAMME

Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations are presented in **Appendix A**, and the construction program in **Appendix B**.

1.2 WORKS UNDERTAKEN DURING THE REPORTING PERIOD

Apart from general works of tree survey, structural survey and environmental monitoring & audit, works undertaken during the Reporting Period with fine tuning of construction activities showing the inter-relationship with environmental protection/mitigation measures for the month are summarized as follows:

- Structural survey for the grave at KT13;
- Gabion installation at Section A & B of KT13;
- Construction of surface drainage system at Section A & B of KT13;
- Construction of maintenance access at Section B of KT13;
- Installation of boundary fencing at Section A & B of KT13;
- Compensatory planting.

1.3 ENVIRONMENTAL MANAGEMENT ORGANIZATION

Management structure and key personnel contact names and telephone numbers of the environmental management organization are presented in Appendix C, where DSD is the Project Proponent; CRBC is the main Contractor; EPD and AFCD are the supervisory departments for environmental protection of the Project; BVHKL is the Engineer's Representative of DSD (the ER); ARUP is the Independent Environmental Checker (the IEC) and Action-United Environmental Services and Consulting (AUES) is the environmental team (the ET).

1.4 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** (CNP) is required for the Project pursuant to the Noise Control Ordinance (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.

1.4.6 Dumping at Sea Permit

CRBC has been granted by the Environmental Protection Department a Permit Issued under the **Dumping at Sea Ordinance** (Permit no. EP/I4D/08-095, dated 18 September 2008, permit validity period of six months from 18 September 2008 to 17 March 2009) for disposal of 18,469 m³ sediment, requiring Type 1 – open sea disposal at East Sha Chau Contaminated Mud Disposal Site – Pit IV b, to be capped as directed by the Management Team of the Civil Engineering and Development Department. Note that this permit has expired. As there is no need for further sea disposal, no further permits will be required in the future.

1.5 ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL MITIGATION MEASURES

CRBC has committed to implement environmental protection and pollution control and mitigation measures, as recommended in the EIA, EP, EM&A Manuals, and summarized in the Mitigation Measures Implementation Schedules. 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 demolition materials at KT13;
- (e) Construction of noise barriers; and
- (f) Erection of dams with sand bags downstream the excavation site within the water course of KT13 to enhance sedimentation of turbidity and suspended solids (SS).

2 MONITORING METHODOLOGY

2.1 MONITORING PARAMETERS

According to the EM&A requirements set out in the EIA, Environmental Permit No. EP-263/2007/A (the EP) and the associated EM&A Manual, the required monitoring parameters are summarized as follows.

Table 2-1 Summary of Monitoring Parameters

Environmental Issue	Monitoring Parameters	
Air Quality	(a) 1-hour Total Suspended Particulate (1-hour TSP); and (b) 24-hour Total Suspended Particulate (24-hour TSP).	
Construction Noise	(a) A-weighted equivalent continuous sound pressure level (30min) (Leq(30min) during the normal working hours; and (b) A-weighted equivalent continuous sound pressure level (5min) (Leq(5min) for construction work during the Restricted Hours.	
Water Quality	(a) In Situ Measurement	temperature, dissolved oxygen (DO), pH & turbidity
	(b) Laboratory Analysis	suspended solids (SS), Ammonia Nitrogen (NH ₃ -N) and Zinc (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	To audit the implementation of the proposed construction phase mitigation measure stipulated in EIA.	

2.2 MONITORING LOCATIONS

Details of the monitoring locations are summarized in **Table 2-2** and shown in **Appendix A**. For ease of reference, monitoring locations denoted with “(a)” are relocated locations to differentiate them from the original ‘EM&A Manual’ locations.

Table 2-2 Summary of Monitoring Locations

Environmental Issues	Monitoring Location	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.

Environmental Issues	Monitoring Location	Identified Address / Co-ordinates	Status of Monitoring Locations / Rationale for Recommended Replacement
	W2	E824693 / N830258	Original locations of the EM&A Manual; access resolved.
	W3(a)	E824833 / N830374	The W3 is proposed to be relocated about 55 m down stream to W3(a) for safety reason as there is no any discharge point observed between W3 and the proposed W3(a).
	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	Monthly monitoring along the boundary of the works area to confirm that there are no adverse impacts on habitats outside the site in particular the Conservation Area (CA) zone and Ho Pui Egretty. Photographic records at six-month intervals; Monthly monitoring of all bird numbers including wetland species and species identified as being of conservation importance; Monitoring of Ho Pui egretty during March to August. The Ma On Kong egretty is also surveyed to provide reference information on the breeding egrets nearby; and Flight line surveys twice per month during April to June.		
Waste Management	Whole construction 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, DURATION AND SCHEDULE

2.3.1 Monitoring Frequency and Duration

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

Air Quality

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

Duration: Throughout the construction period

Construction Noise

Frequency: Measurement of Leq(30min): Once a week during 0700-1900 hours on normal weekdays. If the construction work is undertake at restricted hours, the frequency of noise monitoring will be conducted in accordance with the requirements under the related Construction Noise Permit issued by EPD as follows:

- 3 consecutive Leq(5min) at restrict hour from 1700 – 2300 hours;
- 3 consecutive Leq(5min) for restrict hour from 2300 – 0700 hours next day;
- 3 consecutive Leq(5min) for Sunday or public holiday from 0700 – 1900 hours;

Duration: Throughout the construction period

Water Quality

Frequency: Three times a week with at least 36 hour intervals between any two consecutive monitoring events

Depths: As the water columns in the stream water within KT13 is generally less than 3m, measurement is performed at the mid-depths of the monitoring locations. In case the water columns are deeper than 6m, measurement shall be carried out at three water depths, namely, 1m below water surface, mid-depth, and 1m above river bed. If the water depths are between 3 to 6m, the mid-depth measurement is omitted.

Duration: Throughout the construction period.

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 Egrettries 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 egrettry – Monthly between March to August; and
Ho Pui egrettry – Bi-weekly between March and August;
Flight line Survey – twice per 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

Scope: Condition survey and settlement monitoring of a Qing Dynasty Grave.

Frequency: Condition survey - Bi-monthly
Settlement monitoring - Bi-weekly

Duration: Throughout the construction phase period. (When construction work entered the 100m of the cultural heritage site)

Landscape & Visual

Frequency: Bi-weekly

Duration: Throughout the construction phase period.

2.3.2 Environmental Monitoring Schedule

The monitoring schedules for the Reporting Period and next month are presented in **Appendix D**.

2.4 MONITORING EQUIPMENT AND PROCEDURE

The monitoring equipment and procedures are summarized below. Calibration certificates of the equipment and the related laboratories are presented in **Appendix E**.

2.4.1 Weather Conditions during the Reporting Period

All meteorological information is extracted from the Hong Kong Observatory (Lau Fau Shan Station). The meteorological data include wind direction, wind speed, humidity, rainfall, air pressure and temperature etc., that are generally required for evaluating the environmental impact arising from the construction activities. The meteorological data are presented in **Appendix D**.

2.4.2 Air Quality

Monitoring Equipment

A list of air quality monitoring equipment is shown below.

Table 2-4-2 Air Quality Monitoring Equipment

Equipment	Model	Serial Number
24-hour TSP		
High Volume Air Sampler	Grasby Anderson GMWS 2310 HVS	-
Calibration Kit	TISCH Model TE-5025A	1483
1-hour TSP		
Portable Dust Meter	TSI DustTrak Model 8520	21060

Monitoring Procedure

1-hour TSP

The 1-hour TSP measurement follows manufacturer's Operation and Service Manual, using a 1-hour TSP monitor brand named TSI Dust Track Aerosol Monitor Model 8520 or Sibata LD-3 Laser Dust Meter, which is a portable, battery-operated laser photometer to record the real time 1-hour TSP based on 90° light scattering. The 1-hour TSP monitor consists of the following:

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

The 1-hour 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-hour TSP

The equipment used for 24-hour TSP measurement is the high volume air sampling system (hereinafter 'HVS') brand named Thermo Andersen, Model GS2310 TSP. The HVS complies with US 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 is 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 is 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 24-hour TSP filters of the 24-hour TSP will be kept in ALS for six months prior to disposal.

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 are recorded in details.

2.4.3 Construction Noise

Monitoring Equipment

A list of construction noise monitoring equipment is shown below.

Table 2-4-3 Construction Noise Monitoring Equipment

Equipment	Model	Serial Number
Integrating Sound Level Meter	Bruel & Kjaer 2238	2285721
Calibrator	Bruel & Kjaer 4231	2713428
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 is 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 is fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point is normally 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 is 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 is 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. No noise measurement will be made in the present of significant fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed is checked with a portable wind speed meter capable of measuring the wind speed in m/s.

2.4.4 Water Quality

Monitoring Equipment

Monitoring Equipment for water quality is listed below.

Table 2-4-4 Water Quality Monitoring Equipment

Equipment	Model	Serial Number
Water Depth Detector	Eagle Sonar	-
Water Sampler	Teflon bailer / bucket	-
Thermometer & DO meter	YSI 550A	05F2063AZ
pH meter	Extech pH Meter EC500	Work Order: HK1109433
Turbidimeter	Hach 2100p	950900008735
Hand Refractometer	ATAGO	289468
Sample Container	High density polythene bottles (provided by laboratory)	-
Storage Container	'Willow' 33-litter plastic cool box	-

Monitoring Procedure

Water Depth

As the water columns in the stream water within KT13 is generally less than 3 m, measurement is performed at the mid-depths of the monitoring locations. In case the water columns are deeper than 6 m, measurement shall be carried out at three water depths, namely, 1 m below water surface, mid-depth, and 1 m above river bed. If the water depths are between 3 to 6 m, the mid-depth measurement is omitted.

Water depths are 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, the depths of water columns are measured with a steel ruler with appropriate weight.

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°C 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 Extech 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.

Salinity

A portable hand Refractometer AGATO will be used for in-situ salinity measurement. The refractometer is capable of measuring salinity in the range of 0-70ppt with accuracy ±1% reading. 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 the HOKLAS accredited analytical method - ALS Method EA-025.

Ammonia Nitrogen(NH₃-N)

NH₃-N will be examined by ALS upon receipt of the water samples using the HOKLAS accredited analytical methods - ALS Method EK-055A.

Zinc(Zn)

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

Water Sampler

Water samples will be collected using a plastic sampler to prevent metal contamination. As the water depths in the stream water within KT13 are generally less than 0.5 m, a plastic bucket with a rope of appropriate length is used for water sampling. The sampler is rinsed before collection with the sample to be taken. For water depths deeper than 0.5 meter, a cleaned plastic bailer bucket will be used for sample collection.

1000 mL water sample is collected from each depth for SS determination. The samples collected are stored in a cool box maintained at 4°C and delivered to ALS upon completion of the sampling by end of each sampling day.

Sample Container

Water samples are contained in screw-cap PE (Poly-Ethylene) bottles, which are provided and pretreated according to corresponding HOKLAS and ALS analytical requirements. Where appropriate, the sampling bottles are rinsed with the water to be contained. Water samples are then transferred from the water sampler to the sampling 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 ALS. The water temperature of the cool box will be maintained at a temperature as close to 4°C as possible without being frozen. Samples collected will be delivered to the laboratory upon collection within the maximum storage time required under the HOKLAS and ALS analytical requirements

2.4.5 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 egretty and Ma On Kong egretty 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

- (a) Binoculars of 10 x 40 magnifications;
- (b) Digital camera; and
- (c) Notebook.

Study Area

The areas for the ecological monitoring programme would cover 60 m 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 egretties and habitats of at least moderate ecological value. In addition, monitoring would also be undertaken at the Ho Pui egretty and Ma On Kong egretty (The Ma On Kong egretty 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 Egret, 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 egret and Ma On Kong egret 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 egret, 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.

2.4.6 Waste Management, Cultural Heritage and Landscape & Visual

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

2.5 QUALITY ASSURANCE PROCEDURES AND DATA MANAGEMENT

2.5.1 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.

2.5.2 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-hour TSP Meters and Noise Meters will be downloaded directly from the equipment at the end of the monitoring period and 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.

2.5.3 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.

2.5.4 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 least one year after completion of the Project. Field Data Sheets 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 kept by the ET throughout the at least one year after completion of the EM&A program of the Project.

2.6 REPORTING

2.6.1 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 2-6 Requirements for Report Submission

Report	Submission
Monthly EM&A Report	<ul style="list-style-type: none"> • Within 10 working days of the end of each reporting month.
Quarterly EM&A Summary Report	<ul style="list-style-type: none"> • No specific requirement, proposed three weeks after endorsement of the 3rd monthly EM&A report within a particular quarter.
Final EM&A Summary Report	<ul style="list-style-type: none"> • No specific requirement, proposed one month upon completion of entire EM&A program

2.6.2 Cut-Off Day of the Reporting Month

It was agreed among the ER, IEC, CRBC, ET and EPD that, in order to streamline the EM&A report submission and to cater for the occasional delay in obtaining laboratory analysis results, the cutoff day for each month is the 25th i.e. the first day of each report is the 26th of the last month and the end day, the 25th of that month.

3 MONITORING RESULTS

The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results and statutory criteria. In case the measured data exceed the environmental quality criteria, remedial actions will be triggered according to the Event and Action Plan enclosed in **Appendix F**. The environmental monitoring results are tabulated below and the details of 24-hour TSP data and graphical plots of trends of monitored parameters at key stations over the past four Reporting Periods are presented in **Appendices G** and **H**.

3.1 AIR QUALITY

3.1.1 Action and Limit Levels

According to the Baseline Monitoring Report for KT13, the Action and Limit Levels for 24-hour and 1-hour TSP are established as follows:

Table 3-1-1 Air Quality Action and Limit Levels

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
KT13(A1(a))	309	144	500	260
KT13(A2)	307	141	500	260

3.1.2 Results

Results of air quality monitoring at the identified locations during the Reporting Period are summarized in **Tables 3-1-2-1** and **3-1-2-2** below.

Table 3-1-2-1 Summary of Air Quality Monitoring Results at KT13-A1(a)

1-hour TSP ($\mu\text{g}/\text{m}^3$)						24-hour TSP ($\mu\text{g}/\text{m}^3$)	
Date	Start Time	1 st hour	2 nd hour	3 rd hour	Average	Date	Results
26-Apr-11	14:45	70	66	68	68	27-Apr-11	64
3-May-11	13:45	37	42	46	42	9-May-11	34
9-May-11	14:00	41	45	49	45	14-May-11	37
14-May-11	14:02	78	57	59	65	19-May-11	22
20-May-11	14:00	38	40	45	41	25-May-11	42
Average (range)		52 (37-78)				Average (range) 40 (22-64)	

Table 3-1-2-2 Summary of Air Quality Monitoring Results at KT13-A2

1-hour TSP ($\mu\text{g}/\text{m}^3$)						24-hour TSP ($\mu\text{g}/\text{m}^3$)	
Date	Start Time	1 st hour	2 nd hour	3 rd hour	Average	Date	Results
26-Apr-11	15:00	71	68	69	69	27-Apr-11	52
3-May-11	14:00	45	46	51	47	9-May-11	20
9-May-11	14:15	26	33	34	31	14-May-11	20
14-May-11	14:37	65	68	73	69	19-May-11	23
20-May-11	14:30	50	52	66	56	25-May-11	42
Average (range)		54 (26-73)				Average (range) 31 (20-52)	

3.1.3 Discussion

As shown in **Tables 3-1-2-1** and **3-1-2-2**, 1-hour TSP and 24-hour TSP results fluctuated well below the Action Level. No exceedance of Action or Limit Levels was recorded during the Reporting Period. Neither Notification of Exceedance (hereinafter 'NOE') of air quality criteria or corrective action was required.

3.2 CONSTRUCTION NOISE

3.2.1 Action and Limit Levels

The Action and Limit Levels for construction noise are illustrated in **Table 3-2-1**.

Table 3-2-1 Construction Noise Action and Limit Levels

Time Period	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hours 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.

3.2.2 Results

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

The baseline monitoring for N1(a) and N2(a) was performed on the 1st floor of the bedroom of 168-169 Kam Ho Road, Ma On Kong Village and No. 68 Ho Pui Village respectively. The impact noise monitoring, however, was performed on the ground floor of the same house due to denial of access to the 1st floor. The change of noise monitoring from 1st floor to ground floor will negate the need for a 3dB(A) façade correction but will not introduce any significant difference in detection and minimization of the of construction noise impacts, or alteration of the established A/L Levels. The ET has obtained the approval from EPD with consultation with the ER and IEC.

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

Date	Start Time	1 st set Leq5	2 nd set Leq5	3 rd set Leq5	4 th set Leq5	5 th set Leq5	6 th set Leq5	Leq30
26-Apr-11	14:09	56.8	55.9	55.8	54.4	55.9	55.7	55.8
3-May-11	13:45	59.9	58.5	58.8	57.5	60.4	59.0	59.1
9-May-11	14:07	54.8	54.5	53.8	53.7	52.7	59.4	55.5
14-May-11	13:54	57.3	58.1	57.5	57.7	59.3	58.3	58.1
20-May-11	14:38	58.0	58.4	55.4	56.4	53.9	56.6	56.7
Limit Level								75

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

Date	Start Time	1 st set Leq5	2 nd set Leq5	3 rd set Leq5	4 th set Leq5	5 th set Leq5	6 th set Leq5	Leq30
26-Apr-11	15:57	55.8	51.0	54.8	54.9	62.5	63.0	59.1
3-May-11	15:43	65.1	55.4	54.7	53.4	54.1	53.3	58.8
9-May-11	15:49	54.3	55.4	55.3	54.9	56.9	57.2	55.8
14-May-11	14:47	59.2	57.4	57.7	58.9	59.3	60.2	58.9
20-May-11	16:17	56.5	56.6	55.3	62.1	63.1	61.9	60.3
Limit Level								75

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

Date	Start Time	1 st set Leq5	2 nd set Leq5	3 rd set Leq5	4 th set Leq5	5 th set Leq5	6 th set Leq5	Leq30
26-Apr-11	15:13	59.1	58.6	60.7	61.1	58.4	58.8	59.6
3-May-11	14:53	53.5	59.1	51.8	57.2	54.7	53.4	55.7
9-May-11	15:05	54.5	55.2	56.3	56.2	55.4	54.5	55.4
14-May-11	15:38	54.7	55.6	54.3	53.9	54.8	56.2	55.0
20-May-11	15:35	56.3	51.3	57.4	54.5	56.8	57.9	56.2
Limit Level								75

3.2.3 Discussion

It is confirmed that no raining during the course of noise monitoring as fulfill EM&A manual requirements. As shown in **Tables 3-2-2-1, Table 3-2-2-2 and Table 3-2-2-3**, all the construction noise results fluctuated well below the Limit Level. No exceedance of Limit Level or documented construction complaint was recorded during the Reporting Period. No NOE or corrective action was therefore required.

3.3 WATER QUALITY

3.3.1 Action and Limit Levels

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

Table 3-3-1 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

3.3.2 Results

Water quality monitoring results measured at W1, W2, W3(a), W4, W5 and W6 during the Reporting Period are presented in tabulation and graphical plots in **Appendix G**.

3.3.2 Discussion

In this Reporting Period, the exceedances registered at impact station W2 and W6 as shown in **Table 3-3-2**.

Table 3-3-2 Summary of Water Quality Exceedances

Location	Exceedance	DO	Turbidity	pH	SS	NH ₄ ⁺ N	Zn	Total
W2	Action Level	0	0	0	1	0	2	3
	Limit Level	0	6	0	6	5	4	21
W6	Action Level	0	1	0	0	0	0	1
	Limit Level	0	7	0	8	0	8	23
Total	Action Level	0	1	0	1	0	2	4
	Limit Level	0	13	0	14	5	12	44

DO and pH

No exceedances of Action and Limit Levels were recorded during the Reporting Period. No Notifications of Environmental Quality Limit Exceedances (NOE) or corrective actions were therefore required for these parameters.

Turbidity, Suspended Solids, NH_4^+ -N and Zinc

In stream water quality monitoring, a total of 48 Action / Limit Level exceedances were recorded, namely 24 exceedances at upstream Location W2 and 24 exceedances downstream Location W6. According to the observation during site inspections by ET and information provided by the Contractor, installation of gabion lining was conducted at downstream. No direct disturbance was made to the stream but pigsty discharge was observed near monitoring location W2. Since high levels of Turbidity, Suspended Solids, NH_4^+ -N and Zinc were also recorded at upstream and control station, it is believed that the exceedances were likely due to the discharge from the agriculture farm and livestock at the vicinity as water quality throughout the channel was affected. Therefore, it is concluded that the exceedances were not related to the works under the Project.

3.4 ECOLOGY

3.4.1 Action and Limit Levels

The Action and Limit Levels for Construction Ecology Monitoring are shown in **Table 3-4-1** to according with the EM&A manual.

Table 3-4-1 Ecological Action and Limit Levels

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

3.4.2 Results

Fifty-six (56) individuals of birds from **eighteen (18)** species were recorded during the survey on **28 May 2011**. Among the birds recorded, **five (5)** individuals of wetland dependent birds (from **2 species**) were recorded. The summary of KT13 ecology bird survey can be referred to **Table 3-4-2**.

It is stated in the EP for Channel KT13 that the monitoring of the Ho Pui egretty 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 egretty 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.

Previously the monitoring during March 2010 to May 2010 did not record any nest in Ho Pui Egretty, and thus the construction works could be conducted within 100m of the ecological buffer area until February 2011. And the egretty monitoring frequency from June to August this year can be downgraded to monthly. No nest was found at the Ho Pui egretty during these surveys. Even though, as there had been no nest recorded at Ho Pui egretty in 2009 and 2010, the action/limit level for ecology is complied.

Biweekly egretty surveys on Ho Pui Egretty were conducted on 14 and 28 May 2011. No nest was found at the Ho Pui egretty during these surveys. Even though, as there had been no nest recorded at Ho Pui egretty in 2010, the action/limit level for ecology is complied, and thus the construction works could be conducted within 100m of the ecological buffer area until February 2012.

Ma On Kong egretty was also surveyed 14 May 2011 to provide reference information on the breeding. No nest was found at Ma On Kong egretty neither. Flight line surveys are required between April to June, but as no nest was found in either egretty, no flight line was recorded in the present monitoring.

During the walk through survey on 14 May 2011, other than the bamboo trees which are within Ho Pui Egretty boundary as shown in the EM&A manual and had been found to be cleared by villagers during site inspection on 11 July 2009, no further adverse impacts on habitats outside the boundary of the works area including the Conservation Area and the remaining Ho Pui Egretty was found. Ecological impact monitoring results are presented in the **Table 3-4-2**.

Photo records of trees are required in six-month interval and it is not required in this reporting month.

Table 3-4-2 Summary of KT13 Ecology Impact Monitoring Bird Survey

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (28 May 2011)	Habitat utilized
Birds				
Little Egret	<i>Egretta garzetta</i>	✓		
Cattle Egret	<i>Bubulcus ibis</i>	✓		
Chinese Pond Heron	<i>Ardeola bacchus</i>	✓	2	Stream
Crested Serpent Eagle	<i>Spilornis cheela</i>	✓		
Bonelli's Eagle	<i>Hieraetus fasciatus</i>	✓		
Eurasian Hobby	<i>Falco subbuteo</i>	✓		
White-breasted Waterhen	<i>Amaunornis phoenicurus</i>	✓	3	Stream
Spotted Dove	<i>Streptopelia chinensis</i>	✓	6	Woodland, bare ground
Common Koel	<i>Eudynamis scolopacea</i>	✓	1	Woodland
Greater Coucal	<i>Centropus sinensis</i>	✓	1	Woodland
Little Swift	<i>Apus affinis</i>	✓		
White-Throated Kingfisher	<i>Halcyon smyrnensis</i>	✓		
Barn Swallow	<i>Hirundo rustica</i>	✓	7	Bare ground
Red-Whiskered Bulbul	<i>Pycnonotus jocosus</i>	✓	5	Woodland, bare ground
Chinese Bulbul	<i>Pycnonotus sinensis</i>	✓	4	Woodland
Long-Tailed Shrike	<i>Lanius schach</i>	✓		
Oriental Magpie Robin	<i>Copsychus saularis</i>	✓	4	Bare ground/stream
Masked Laughingthrush	<i>Garrulax perspicillatus</i>	✓	3	Vare gournd
Yellow-Bellied Prinia	<i>Prinia flaviventris</i>	✓	2	Low lyung grassland
Common Tailorbird	<i>Orthotomus sutorius</i>	✓		
Great Tit	<i>Parus major</i>	✓	2	Bare geround
Japanese White-Eye	<i>Zosterops japonicus</i>	✓	4	Woodland, low lying grassland
White-Rumped Munia	<i>Lonchura striata</i>	✓		
Eurasian Tree Sparrow	<i>Passer montanus</i>	✓	6	Bare ground, lying grassland
Black-Collared Starling	<i>Sturnus nigricollis</i>	✓	3	Bare ground,
Common Myna	<i>Acridotheres tristis</i>	✓		
Crested Myna	<i>Acridotheres cristatellus</i>	✓	4	Bare ground/low-lying grassland
Black Kite	<i>Milvus migrans</i>	\		
White Wagtail	<i>Motacilla alba</i>	\	2	Stream
Plain Prinia	<i>Prinia inornata</i>	\		
Blue Magpie	<i>Urocissa eythrorhyncha</i>	\	2	Woodland
Species Number		27	18	
Individual Number		NA	56	

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

3.5 WASTE MANAGEMENT, CULTURAL HERITAGE AND LANDSCAPE & VISUAL

3.5.1 Waste Management

In order to comply with the waste management requirements, CRBC has been:

- (a) Assigned, since 9 Jan 2008, a Billing Account (account number 7006524) under the **Waste Disposal (Charges for Disposal of Construction Waste) Regulation**;
- (b) Issued a Discharge License No. 1U461/1 under Section 20 of the **Water Pollution Control Ordinance**;
- (c) Registered as a Chemical Waste Producer under the **Waste Disposal (Chemical Waste) (General) Regulation** (the Waste Producer Number assigned is WPN: 5611-531-C3124-28 dated 2 May 08); and
- (d) Granted by the Environmental Protection Department a Permit Issued under the **Dumping at Sea Ordinance** (Permit no. EP/I4D/08-095, dated 18 September 2008, permit validity period of six months from 18 September 2008 to 17 March 2009) for 18, 469 m³ sediment requiring Type 1 – open sea disposal at East Sha Chau Contaminated Mud Disposal Site – Pit IV b to be capped as directed by the management Team of the CEDD.

3.5.2 Cultural Heritage

The Action and Limit Levels for Cultural Heritage are shown in **Table 3-5-2** according to the EM&A Manual.

Table 3-5-2 Cultural Heritage Resources Action and Limit Levels

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

The historical grave KT13-02-02 was identified during the EIA stage of the project. A pre-construction condition survey report was issued in **July 2008** and already agreed by AMO. The details of the grave could be referred to in a report entitled “*Pre-construction condition survey on July 2008*”.

During the Reporting Period, construction work at Channel KT13 had entered the area within 100m of the cultural heritage site (the grave) since 21 October 2009. To update the condition of the grave, supplementary information of condition survey was undertaken on 31 August 2009 (when no construction activities were carried out within 100m areas from the grave). The monitoring result of the supplementary survey would be adopted as the updated initial reading of the settlement level as agreed by ET and IEC.

Under the current EM&A programme and approved monitoring methodology, the condition survey would be conducted by ERM Limited on a bi-monthly basis and the settlement monitoring will be conducted by CRBC, again bi-weekly. Should any exceedance was recorded, the frequency of the settlement monitoring shall be increased to weekly and the condition survey shall be increased to bi-weekly. In the settlement monitoring, five settlement marker points (13GS01 to 13GS05) were established to record the coordinates and elevation of the grave in order to monitor any ground movement or settlement during the construction works.

In this reporting period, weekly settlement monitoring was taken on **27 April, 7, 12 and 19 May 2011** to compare with the initial readings to determine if there is any significant tilting or settlement of the grave. Monitoring result demonstrated no exceedance was triggered and the settlement monitoring results are shown in **Table 3-5-3**. Besides, the condition survey of the grave was last carried out by ERM Limited on 26 February 2011 and it will not be included in this reporting month.

Table 3-5-3 Record of Five Settlement Marker Points of the Qing Dynasty Grave

Monitoring Point Date	Level (mpd)	Diff. (mm)	Level (mpd)	Diff. (mm)	Level (mpd)	Diff. (mm)	Level (mpd)	Diff. (mm)	Level (mpd)	Diff. (mm)
	13GS01		13GS02		13GS03		13GS04		13GS05	
31/08/09 (Initial reading)	19.222	0	19.985	0	20.644	0	19.943	0	19.211	0
27/04/11	19.223	+1	19.986	+1	20.643	-1	19.944	+1	19.210	-1
07/05/11	19.222	0	19.985	0	20.643	-1	19.944	+1	19.210	-1
12/05/11	19.222	0	19.986	+1	20.644	0	19.944	+1	19.210	-1
19/05/11	19.223	+1	19.986	+1	20.643	-1	19.944	+1	19.210	-1
Breach of A/L Level	-		-		-		-		-	

Note: Action level exceedance would be triggered when the settlement difference is ± 2 mm.

Limit level exceedance would be triggered when the settlement difference is ± 5 mm.

3.5.3 Landscape and Visual

Landscape and visual inspections were conducted on **6 and 20 May 2011**. Current situation of the identified landscape resources remained the same as those of the baseline, except minor changes of river/stream/fish pond landscape character area at LR1, LR2.1, LR2.2, LCA1, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13. Updated landscape and visual status is presented in **Appendix J**.

4 NON-COMPLIANCE, COMPLAINT, NOTIFICATION OF SUMMONS, SUCCESSFUL PROSECUTION AND OTHERS

4.1 NON-COMPLIANCE

Exceedances in water quality monitoring were recorded but it concluded that all the exceedances were not project related in this reporting month as discussed in **Section 3.1 to 3.5**. No other non-compliance or deficiency was identified during regular site inspection and environmental audit. No associated remedial action was necessary.

4.2 ENVIRONMENTAL COMPLAINT

No written or verbal complaint was received for each environmental issue during the Reporting Period. No associated remedial action was necessary.

4.3 NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

No notifications of summons and successful prosecutions were recorded during the Reporting Period. No associated remedial action was necessary.

4.4 OTHERS

4.4.1 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 K: Monthly Summary Waste Flow Table**. No Type I or Type II excavated soil were recorded in this Reporting Period.

4.4.2 Site Inspection and Environmental Audit

In this Reporting Period, **five** occasions of weekly environmental site inspection and audit were conducted during the Reporting Period jointly by the ER, EO and ET. No adverse environmental impacts were registered, indicating that the mitigation measures implemented were effective and sufficient for the construction activities undertaken. Minor deficiencies found in the site inspection and audit were in general rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized below.

Table 4-4-1 Summary of Findings of Site Inspection and Environmental Audit

Date	Findings / Deficiencies	Follow-Up Status
26 April 2011	<ul style="list-style-type: none"> • C&D waste was observed on the gabion blocks, the Contractor is reminded to maintain good housekeeping of the site. • The Contractor should implement air quality mitigation measure such as water spraying when handling dusty activity. 	Recommendation based on the observation on 3 May 2011 was followed.
3 May 2011	<ul style="list-style-type: none"> • C&D waste was scattered at the construction site, the Contractor is reminded to maintain good housekeeping. 	Recommendation based on the observation on 11 May 2011 was followed.
11 May 2011	<ul style="list-style-type: none"> • C&D waste was cumulated at upstream of the channel, the Contractor is reminded to maintain good housekeeping. 	Recommendation based on the observation on 20 May 2011 was followed.

20 May 2011	<ul style="list-style-type: none"> No adverse environmental issue was observed during site inspection 	N.A.
24 May 2011	<ul style="list-style-type: none"> The Contractor is reminded to hydro-seed the exposed slope promptly to prevent generation of muddy runoff to the channel during wet season. 	To be followed

4.4.3 Works to be Undertaken Next Month

Works to be undertaken next month are shown in the construction program enclosed in **Appendix B**. The construction activities undertaken in the Reporting Period including:

- Structural survey for the grave at KT13;
- Gabion installation at Section B of KT13;
- Construction of surface drainage system at Section B of KT13;
- Compensatory planting.

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

As wet season is approaching, water quality mitigation measures to avoid ingress of runoff from wheel wash facilities and loose soil surface into Channel KT13 should be properly installed and maintained to prevent any muddy or sandy runoff from overflow on the site boundary.

Special attention should be also paid on construction noise and other environmental issues identified in the EM&A Manual as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule. CRBC was reminded to implement the required mitigation measures during construction as far as possible.

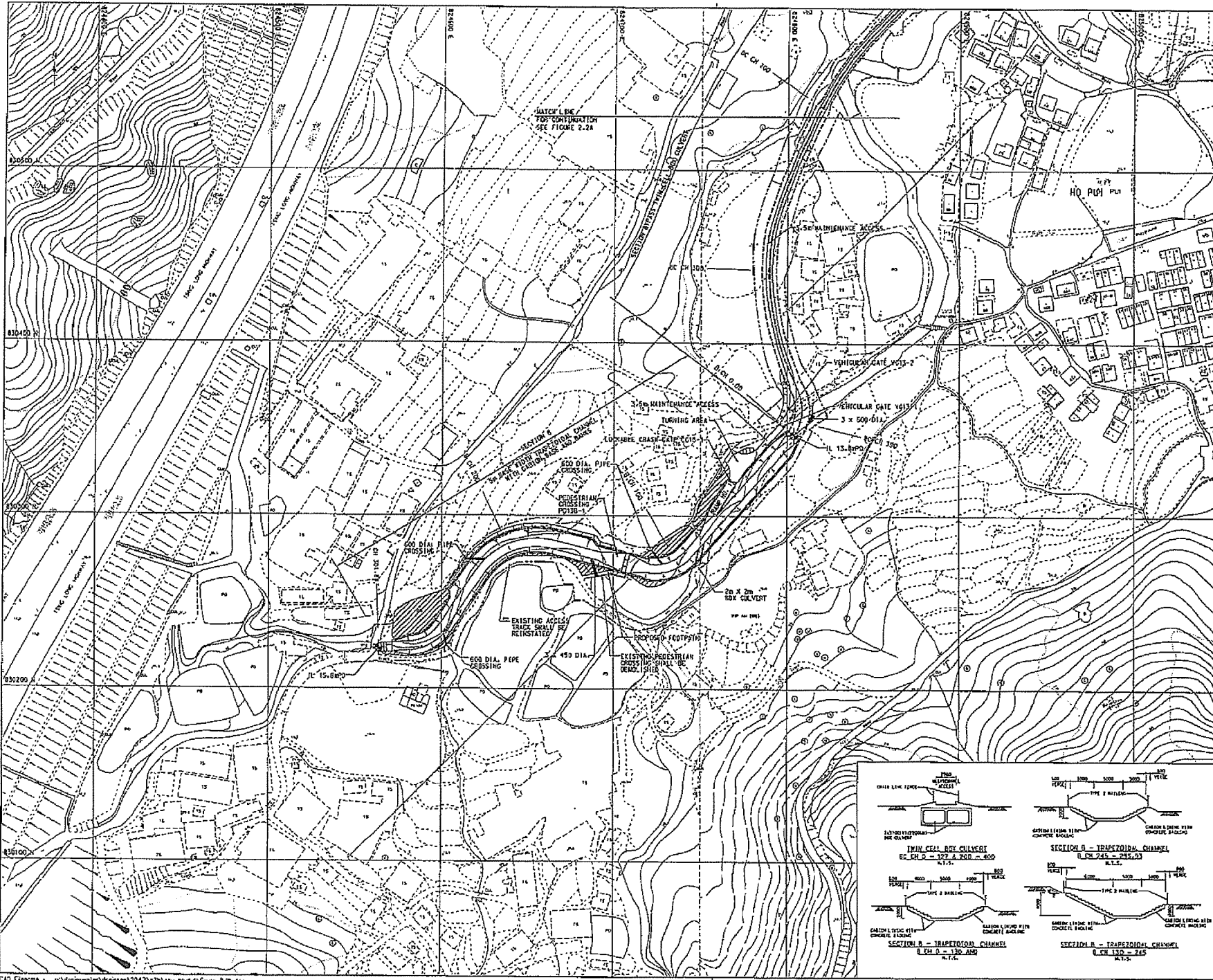
In viewing that the major construction activities of the Project are substantially completed, the Contractor is reminded to maintain the housekeeping of the site in good standard.

5 CONCLUSIONS AND RECOMMENDATIONS

- i) This is the **32nd** monthly EM&A report for Channel KT13, covering the construction period from **26 April to 25 May 2011** (the Reporting Period).
- ii) Monitoring results of the Reporting Period demonstrated no exceedances of environmental quality criteria for air quality, construction noise and ecology monitoring.
- iii) For stream water quality monitoring, there were a total of 48 Action/ Limit Level exceedances recorded, namely 24 exceedances at upstream Location W2 and 24 exceedances downstream Location W6 which included parameters of Turbidity, Suspended Solids, NH_4^+-N and Zinc. Investigation concluded that the exceedances were not related to the works under the Project.
- iv) For cultural heritage, five (5) events of weekly settlement monitoring for the historic grave were undertaken in this reporting month and the monitoring results demonstrated no exceedance was recorded.
- v) Landscape inspections were conducted on **6 and 20 May 2011**. No significant changes were observed for identified landscape resources and visual sensitive receivers, except for minor changes due to channel excavation, site clearance and preparation work at the identified landscape resources including LR1, LR2.1, LR2.2, LCA1, LCA3 and LCA4.
- vi) To control the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are fully in compliance with the relevant license/permit requirements, such as the effluent discharge licence and the chemical waste producer registration. CRBC is also reminded to implement the recommended environmental mitigation measures according to the Project Environmental Monitoring and Audit Manual.
- vii) No documented complaints, notifications of summons or successful prosecutions were received during the Reporting Period. No adverse environmental impacts were observed during the weekly site inspection and environmental audit of the Reporting Period, which suggested that the implemented mitigation measures for air quality, construction noise and ecology were effective. 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 satisfactory.
- viii) During wet season, water quality mitigation measures to avoid ingress of runoff from wheel wash facilities and loose soil surface into Channel KT13 should be properly installed and maintained to prevent any muddy or sandy runoff from overflow on the site boundary.
- ix) Special attention should be also paid on construction noise and other environmental issues identified in the EM&A Manual as recommended in the EIA and summarized in Mitigation Measure Implementation Schedule. CRBC was reminded to implement the required mitigation measures during construction as far as possible.
- x) In viewing that the major construction activities of the Project are substantially completed, the Contractor is reminded to maintain the housekeeping of the site in good standard.

END OF TEXT

Appendix A
Location Plan and
Environmental Monitoring Locations
Under the Project



- © Copyright by Black & Veatch Hong Kong Limited and Government of HONG KONG
- 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 WEAR PILES 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. THWART LEVEL
 - PROPOSED RETAINING WALL

C	05/06	AMENDMENT TO	BY-PASS CULVERT	K.I.L.
B	10/05	MINOR AMENDMENT TO	CHANNEL LAYOUT	K.I.L.
A	05/05	MINOR AMENDMENTS TO	SITE BOUNDARY	K.I.L.

REVISION	DATE	DESCRIPTION	BY	CHECKED	DATE
1	04/04		AK	AK	04/04
2	04/04		AK	AK	04/04

AGREEMENT NO. CE 62/93

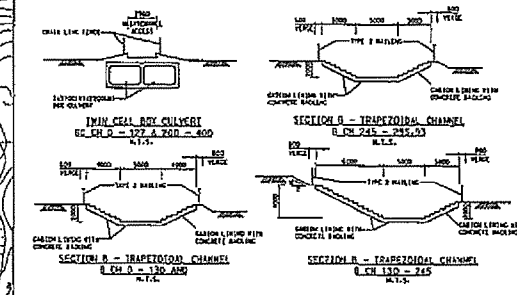
Contract Title:

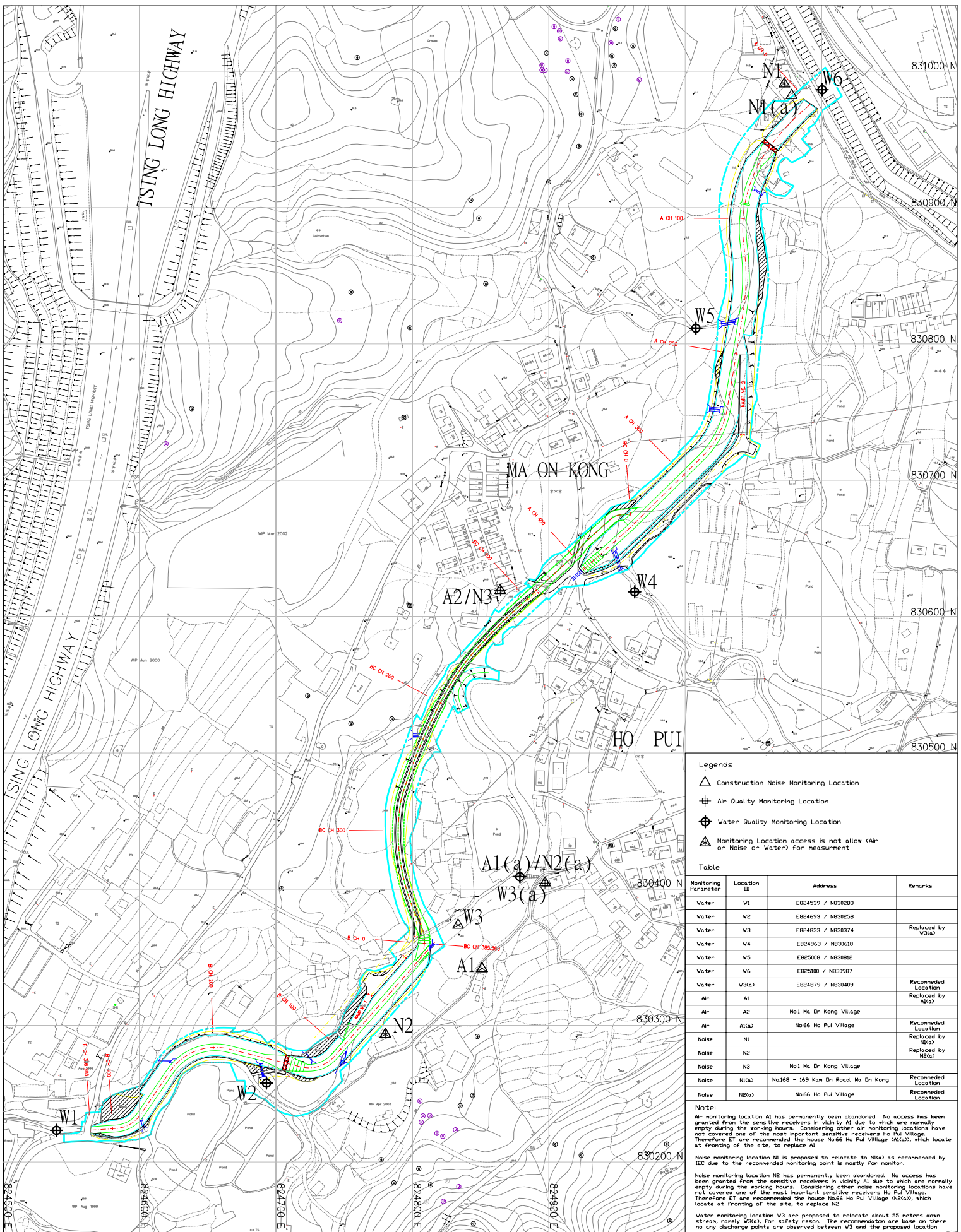
YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI DRAINAGE IMPROVEMENT, STAGE 1, PHASE 2B - KAM TIN

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

FIGURE 1.3b

Scale: 1:2000 A1, 1:2000 A3





- 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 measurement

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	Recommended Location
Air	A1		Replaced by A1(a)
Air	A2	No.1 Ma On Kong Village	
Air	A1(a)	No.66 Ho Pul Village	Recommended 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 Kan Dn Road, Ma On Kong	Recommended Location
Noise	N2(a)	No.66 Ho Pul Village	Recommended 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 Pul Village. Therefore ET are recommended the house No.66 Ho Pul 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 N2 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 Pul Village. Therefore ET are recommended the house No.66 Ho Pul 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 reason. The recommendation 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. IC/2007/17-
 Drainage Improvement Works in Cheung Po
 Koi, San Tin, Ma On Kong, Tai Tam and San
 Tin, Tuen Mun, Tuen Mun District and Sewerage
 at Tsing Tau Chung Tsuen, Tuen Mun



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Government of HKSAR

NOTES:
1. GRID LINES ARE HONG KONG METRIC GRID 1980.

- LEGEND:
- MA ON KONG AND HO PUT ECRETIES
 - PROPOSED COMPENSATORY TREE PLANTING
 - CONSERVATION AREA DENOED ON OUTLINE ZONING PLAN
 - WORKS BOUNDARY OF CHANNEL XT13
 - ECOLOGY MONITORING AREAS

Revision	Date	Description			Initial
		Designed	Checked	Drawn	
Initial		MC	KIL	YLL	KIL
Date	09/05	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.	Scale
Figure 6.1	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
黑域工程顧問有限公司

Plot Date: 25 APR 2006
CAD Filename: p:\d\dr\water\dr\map\120471c2\hkm\120471c2.dwg

Appendix B

Construction Program

Monthly Rolling Programme - May 2011

ID	Task Name	Duration	Start	Finish	May				
					1/5	8/5	15/5	22/5	29/5
1	EOT was granted up to 28 February 2011	1 day	Tue 3/5/11	Tue 3/5/11					
2									
3	Section II (Channel KT13)	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
4	Regular Environmental Impact Monitoring	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
5	Regular Tree Survey & Protection	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
6	Regular Structural Condition Survey	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
7	Section A	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
8	Construction of Dry Weather Flow Channel (VO-107)	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
9	Re-installation of Gabion Lining along Dry Flow Channel from Bay A34 to Bay A9	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
10	Construction of Catchpit / Manhole / Drain Pipe along Channel Sides	12 days	Tue 3/5/11	Tue 17/5/11	[Solid bar]				
11	Bay A25 (A CH244.23 - A CH257.09) - TG2 (WB)	2 days	Tue 3/5/11	Wed 4/5/11	[Dotted bar]				
12	Bay A24 (A CH237.50 - A CH244.23) - TG2 (WB)	2 days	Thu 5/5/11	Fri 6/5/11	[Dotted bar]				
13	Bay A23 (A CH225.47 - A CH237.50) - TG2 (WB)	2 days	Sat 7/5/11	Mon 9/5/11	[Dotted bar]				
14	Bay A22 (A CH213.44 - A CH225.47) - TG2 (WB)	2 days	Wed 11/5/11	Thu 12/5/11	[Dotted bar]				
15	Bay A21 (A CH201.41 - A CH213.44) - TG2 (WB)	2 days	Fri 13/5/11	Sat 14/5/11	[Dotted bar]				
16	Bay A20 (A CH190.69 - A CH201.41) - TG2 (WB)	2 days	Mon 16/5/11	Tue 17/5/11	[Dotted bar]				
17	Hydroseeding & Compensatory Planting	6 days	Wed 18/5/11	Tue 24/5/11	[Dotted bar]				
18	Installation of Additional Boundary Railings and Fences (VO-105)	12 days	Wed 18/5/11	Tue 31/5/11	[Dotted bar]				
19	Completion of Section B of KT13	0 days	Tue 31/5/11	Tue 31/5/11	[Milestone diamond]				
20	Section B	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
21	Construction of Dry Weather Flow Channel (VO-107)	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
22	Re-installation of Gabion Lining along Dry Flow Channel from Bay B28 to Bay B3	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
23	Construction of Catchpit / Manhole / Drain Pipe along Channel Sides	15 days	Tue 3/5/11	Fri 20/5/11	[Solid bar]				
24	Bay B30 (B CH302.00 - B CH312.00) - Transition	1 day	Tue 3/5/11	Tue 3/5/11	[Dotted bar]				
25	Bay B29 (B CH294.00 - B CH302.00) - Transition	1 day	Wed 4/5/11	Wed 4/5/11	[Dotted bar]				
26	Bay B28 (B CH282.00 - B CH294.00) - TG4	1 day	Thu 5/5/11	Thu 5/5/11	[Dotted bar]				
27	Bay B27 (B CH270.00 - B CH282.00) - TG4	1 day	Fri 6/5/11	Fri 6/5/11	[Dotted bar]				
28	Bay B26 (B CH260.00 - B CH270.00) - TG4	1 day	Sat 7/5/11	Sat 7/5/11	[Dotted bar]				
29	Bay B25 (B CH248.00 - B CH260.00) - TG5	1 day	Mon 9/5/11	Mon 9/5/11	[Dotted bar]				
30	Bay B24 (B CH236.00 - B CH248.00) - TG5	1 day	Wed 11/5/11	Wed 11/5/11	[Dotted bar]				
31	Bay B23 (B CH224.00 - B CH236.00) - TG5	1 day	Thu 12/5/11	Thu 12/5/11	[Dotted bar]				
32	Bay B22 (B CH212.00 - B CH224.00) - TG5	1 day	Fri 13/5/11	Fri 13/5/11	[Dotted bar]				
33	Bay B21 (B CH200.00 - B CH212.00) - TG8	1 day	Sat 14/5/11	Sat 14/5/11	[Dotted bar]				
34	Bay B20 (B CH188.00 - B CH200.00) - TG8	1 day	Mon 16/5/11	Mon 16/5/11	[Dotted bar]				
35	Bay B19 (B CH174.00 - B CH188.00) - TG8	1 day	Tue 17/5/11	Tue 17/5/11	[Dotted bar]				
36	Bay B18 (B CH162.00 - B CH174.00) - TG8	1 day	Wed 18/5/11	Wed 18/5/11	[Dotted bar]				
37	Bay B17 (B CH154.00 - B CH162.00) - Transition	1 day	Thu 19/5/11	Thu 19/5/11	[Dotted bar]				
38	Bay B16 (B CH147.00 - B CH154.00) - Transition	1 day	Fri 20/5/11	Fri 20/5/11	[Dotted bar]				
39	Bay B15 (B CH144.00 - B CH147.00) - Transition & Pedestrian Crossing	1 day	Tue 3/5/11	Tue 3/5/11	[Dotted bar]				
40	Bay B14 (B CH137.00 - B CH144.00) - Transition	1 day	Wed 4/5/11	Wed 4/5/11	[Dotted bar]				
41	Bay B13 (B CH129.00 - B CH137.00) - Transition	1 day	Thu 5/5/11	Thu 5/5/11	[Dotted bar]				
42	Bay B12 (B CH119.00 - B CH129.00) - TG3	1 day	Fri 6/5/11	Fri 6/5/11	[Dotted bar]				
43	Bay B11 (B CH107.00 - B CH119.00) - TG3	1 day	Sat 7/5/11	Sat 7/5/11	[Dotted bar]				
44	Bay B10 (B CH94.00 - B CH107.00) - TG3	1 day	Mon 9/5/11	Mon 9/5/11	[Dotted bar]				
45	Bay B9 (B CH80.00 - B CH94.00) - TG3	1 day	Wed 11/5/11	Wed 11/5/11	[Dotted bar]				
46	Bay B8 (B CH68.00 - B CH80.00) - TG3	1 day	Thu 12/5/11	Thu 12/5/11	[Dotted bar]				
47	Bay B7 (B CH57.00 - B CH68.00) - TG3	1 day	Fri 13/5/11	Fri 13/5/11	[Dotted bar]				
48	Bay B6 (B CH46.00 - B CH57.00) - TG3	1 day	Sat 14/5/11	Sat 14/5/11	[Dotted bar]				
49	Bay B5 (B CH34.00 - B CH46.00) - TG3	1 day	Mon 16/5/11	Mon 16/5/11	[Dotted bar]				
50	Bay B4 (B CH24.00 - B CH34.00) - TG3	1 day	Tue 17/5/11	Tue 17/5/11	[Dotted bar]				
51	Bay B3 (B CH14.00 - B CH24.00) - TG3	1 day	Wed 18/5/11	Wed 18/5/11	[Dotted bar]				
52	Bay B2 (B CH07.00 - B CH14.00) - Transition	1 day	Thu 19/5/11	Thu 19/5/11	[Dotted bar]				
53	Bay B1 (B CH00.00 - B CH07.00) - Transition	1 day	Fri 20/5/11	Fri 20/5/11	[Dotted bar]				
54	Construction of Ramp No.1	4 days	Mon 16/5/11	Thu 19/5/11	[Dotted bar]				
55	Construct 3.5m Access Road at B CH14.00 - B CH94.00 (North Bank)	5 days	Fri 20/5/11	Wed 25/5/11	[Dotted bar]				
56	Installation of Traffic Sign Plate / Railing Street / Furniture	5 days	Thu 26/5/11	Tue 31/5/11	[Dotted bar]				
57	Hydroseeding & Compensatory Planting	5 days	Thu 26/5/11	Tue 31/5/11	[Dotted bar]				
58	Completion of Section B of KT13	0 days	Tue 31/5/11	Tue 31/5/11	[Milestone diamond]				
59									
60	Section V	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
61	Preservation and Protection of Tree for Section II	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
62	Preservation and Protection of Tree at Ma Tong Road	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				
63									
64	Others	24 days	Tue 3/5/11	Tue 31/5/11	[Solid bar]				
65	Installation of Retro-reflective Identification Tags in Manholes at Tseng Tau Chung Tsuen	24 days	Tue 3/5/11	Tue 31/5/11	[Dotted bar]				

Task [Dotted bar] Split [Dotted bar] Progress [Solid bar] Milestone [Diamond] Summary [Arrow]

Three Months Rolling Programme - June 2011 to August 2011

ID	Task Name	Duration	Start	Finish	June				July			August					
					29/5	5/6	12/6	19/6	26/6	3/7	10/7	17/7	24/7	31/7	7/8	14/8	21/8
1	<u>EOT was granted up to 28 February 2011</u>	1 day	Wed 1/6/11	Wed 1/6/11													
2																	
3	Section II (Channel KT13)	77 days	Wed 1/6/11	Wed 31/8/11													
4	Regular Tree Survey & Protection	77 days	Wed 1/6/11	Wed 31/8/11													
5	Section A	77 days	Wed 1/6/11	Wed 31/8/11													
6	Remedial Works	77 days	Wed 1/6/11	Wed 31/8/11													
7	Section of Box Culvert BC13-1	77 days	Wed 1/6/11	Wed 31/8/11													
8	Remedial Works	77 days	Wed 1/6/11	Wed 31/8/11													
9	Section B	77 days	Wed 1/6/11	Wed 31/8/11													
10	Remedial Works	77 days	Wed 1/6/11	Wed 31/8/11													
11																	
12	Section V	77 days	Wed 1/6/11	Wed 31/8/11													
13	Preservation and Protection of Tree for Section II	77 days	Wed 1/6/11	Wed 31/8/11													
14																	
15	Others	77 days	Wed 1/6/11	Wed 31/8/11													
16	Installation of Retro-reflective Identification Tags in Manholes at Tseng Tau Chung Tsuen	77 days	Wed 1/6/11	Wed 31/8/11													
17	Rehabilitation Works for Existing Sewerage at Leung Tin Tsuen	77 days	Wed 1/6/11	Wed 31/8/11													

Task Split Progress Milestone Summary

Monthly Rolling Programme - June 2011

ID	Task Name	Duration	Start	Finish	June				
					29/5	5/6	12/6	19/6	26/6
1	Section II (Channel KT13)	25 days	Wed 1/6/11	Thu 30/6/11	▶				
2	Regular Environmental Impact Monitoring	25 days	Wed 1/6/11	Thu 30/6/11	▨				
3	Regular Tree Survey & Protection	25 days	Wed 1/6/11	Thu 30/6/11	▨				
4	Section A	25 days	Wed 1/6/11	Thu 30/6/11	▶				
5	Remedial Works	25 days	Wed 1/6/11	Thu 30/6/11	▨				
6	Hydroseeding & Compensatory Planting	6 days	Fri 10/6/11	Thu 16/6/11	▨				
7	Section B	25 days	Wed 1/6/11	Thu 30/6/11	▶				
8	Re-installation of Gabion Lining	15 days	Wed 1/6/11	Sat 18/6/11	▨				
9	Construction of U-Channel	15 days	Wed 1/6/11	Sat 18/6/11	▨				
10	Remedial Works	25 days	Wed 1/6/11	Thu 30/6/11	▨				
11	Hydroseeding & Compensatory Planting	6 days	Fri 10/6/11	Thu 16/6/11	▨				
12					▨				
13	Section V	25 days	Wed 1/6/11	Thu 30/6/11	▶				
14	Preservation and Protection of Tree for Section II	25 days	Wed 1/6/11	Thu 30/6/11	▨				

Task Split Progress Milestone Summary

Three Months Rolling Programme - July 2011 to September 2011

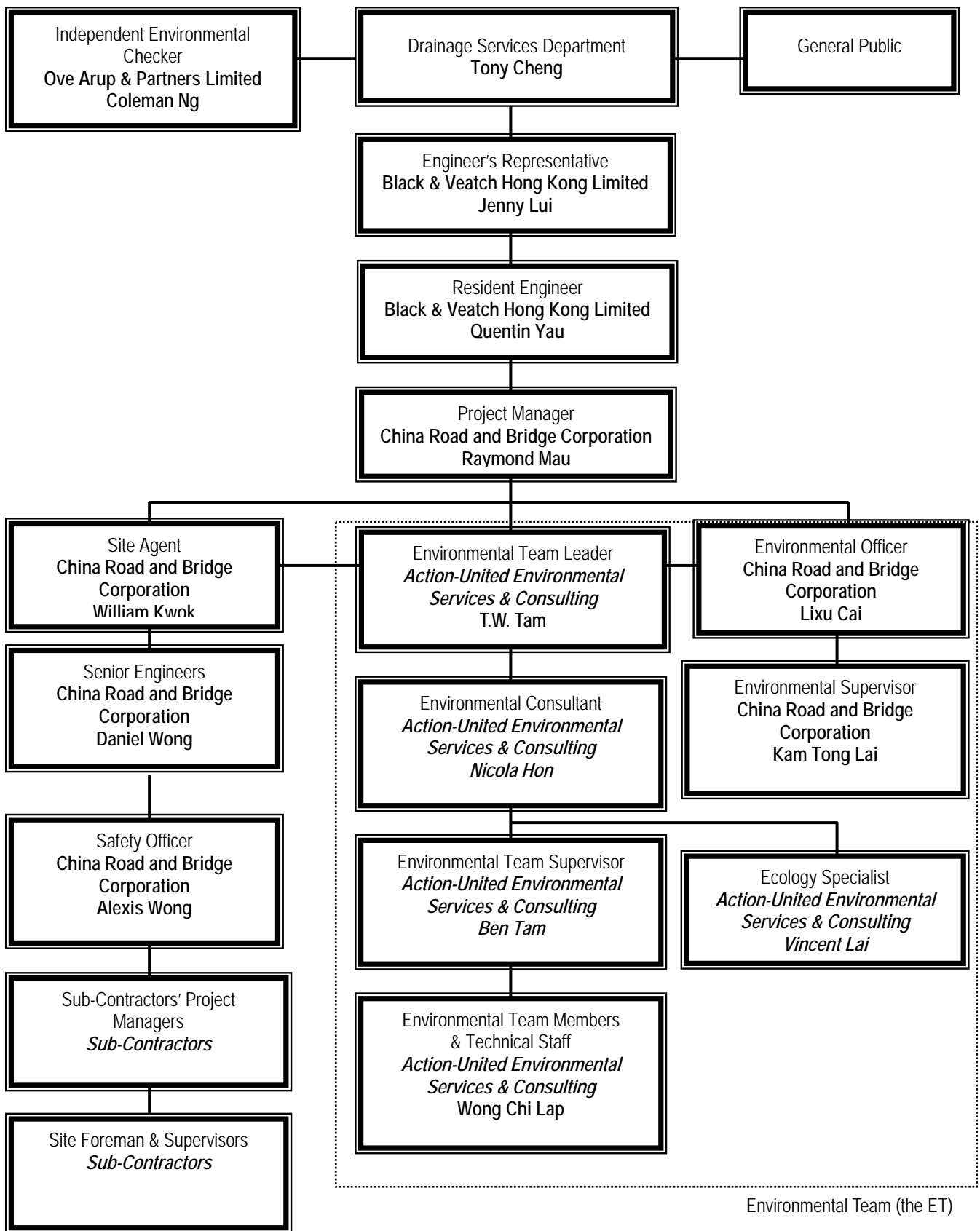
ID	Task Name	Duration	Start	Finish	July					August				September					
					26/6	3/7	10/7	17/7	24/7	31/7	7/8	14/8	21/8	28/8	4/9	11/9	18/9	25/9	
1	Section II (Channel KT13)	77 days	Sat 2/7/11	Fri 30/9/11															
2	Regular Tree Survey & Protection	77 days	Sat 2/7/11	Fri 30/9/11															
3	Section A	77 days	Sat 2/7/11	Fri 30/9/11															
4	Remedial Works	77 days	Sat 2/7/11	Fri 30/9/11															
5	Section of Box Culvert BC13-1	77 days	Sat 2/7/11	Fri 30/9/11															
6	Remedial Works	77 days	Sat 2/7/11	Fri 30/9/11															
7	Section B	77 days	Sat 2/7/11	Fri 30/9/11															
8	Remedial Works	77 days	Sat 2/7/11	Fri 30/9/11															
9																			
10	Section V	77 days	Sat 2/7/11	Fri 30/9/11															
11	Preservation and Protection of Tree for Section II	77 days	Sat 2/7/11	Fri 30/9/11															
12																			
13	Others	77 days	Sat 2/7/11	Fri 30/9/11															
14	Installation of Retro-reflective Identification Tags in Manholes at Tseng Tau Chung Tsuen	77 days	Sat 2/7/11	Fri 30/9/11															
15	Rehabilitation Works for Existing Sewerage at Leung Tin Tsuen	77 days	Sat 2/7/11	Fri 30/9/11															

Task Split Progress Milestone Summary

Appendix C

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	Ms. Jenny Lui	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Quentin Yau	2478-9161	2478-9369
OAP	Independent Environmental Checker	Mr. Coleman Ng	2268-3097	2268-3950
CRBC	Project Director	Mr. Wang Yanhua	2283-1688	2283-1689
CRBC	Project Manager	Mr. Raymond Mau	9048-3669	2283-1689
CRBC	Site Agent	Mr. William Kwok	2478-9618	2478-9612
CRBC	Senior Engineer (Tuen Mun Site)	Mr. Daniel Wong	9858-3176	2478-9612
CRBC	Environmental Officer	Mr. Lixu Cai	6474-6975	2478-9612
CRBC	Environmental / Construction Supervisor	Mr. Lai Tsz Chung	2478-9618	2478-9612
CRBC	Safety Officer	Mr. Alexis Wong	2478-9618	2478-9612
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	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 D

(a) Monitoring Schedules

(b) Meteorological Data

Monitoring Schedule for KT 13 for Reporting Period – May 2011

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		1-hour TSP	24-hour TSP			
Tue	26-Apr-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Wed	27-Apr-11		A1(a), A2			
Thu	28-Apr-11				W1, W2, W3(a), W4, W5 & W6	
Fri	29-Apr-11					
Sat	30-Apr-11				W1, W2, W3(a), W4, W5 & W6	
Sun	1-May-11					
Mon	2-May-11					
Tue	3-May-11	A1(a), A2	A1(a), A2	N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Wed	4-May-11					
Thu	5-May-11				W1, W2, W3(a), W4, W5 & W6	
Fri	6-May-11					
Sat	7-May-11				W1, W2, W3(a), W4, W5 & W6	
Sun	8-May-11					
Mon	9-May-11	A1(a), A2	A1(a), A2	N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Tue	10-May-11					
Wed	11-May-11				W1, W2, W3(a), W4, W5 & W6	
Thu	12-May-11					
Fri	13-May-11					
Sat	14-May-11	A1(a), A2	A1(a), A2	N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Sun	15-May-11					
Mon	16-May-11				W1, W2, W3(a), W4, W5 & W6	
Tue	17-May-11					
Wed	18-May-11				W1, W2, W3(a), W4, W5 & W6	
Thu	19-May-11		A1(a), A2			
Fri	20-May-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Sat	21-May-11					
Sun	22-May-11					
Mon	23-May-11					
Tue	24-May-11				W1, W2, W3(a), W4, W5 & W6	
Wed	25-May-11		A1(a), A2			

Cultural Heritage

Frequency: Condition survey - Bi-monthly
Settlement monitoring - Bi-weekly

Landscape & Visual

Frequency: Bi-weekly

	Monitoring Day
	Sunday or Public Holiday

Monitoring Schedule of KT 13 for next reporting month – June 2011

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		1-hour TSP	24-hour TSP			
Thu	26-May-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Fri	27-May-11					
Sat	28-May-11				W1, W2, W3(a), W4, W5 & W6	
Sun	29-May-11					
Mon	30-May-11				W1, W2, W3(a), W4, W5 & W6	
Tue	31-May-11		A1(a), A2			
Wed	1-June-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Thu	2-June-11					
Fri	3-June-11					
Sat	4-June-11		A1(a), A2		W1, W2, W3(a), W4, W5 & W6	
Sun	5-June-11					
Mon	6-June-11					
Tue	7-June-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Wed	8-June-11					
Thu	9-June-11				W1, W2, W3(a), W4, W5 & W6	
Fri	10-June-11		A1(a), A2			
Sat	11-June-11				W1, W2, W3(a), W4, W5 & W6	
Sun	12-June-11					
Mon	13-June-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Tue	14-June-11					
Wed	15-June-11				W1, W2, W3(a), W4, W5 & W6	
Thu	16-June-11		A1(a), A2			
Fri	17-June-11					
Sat	18-June-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Sun	19-June-11					
Mon	20-June-11				W1, W2, W3(a), W4, W5 & W6	
Tue	21-June-11					
Wed	22-June-11		A1(a), A2		W1, W2, W3(a), W4, W5 & W6	
Thu	23-June-11					
Fri	24-June-11	A1(a), A2		N1(a), N2(a) & N3	W1, W2, W3(a), W4, W5 & W6	
Sat	25-June-11					

Cultural Heritage

Frequency: Condition survey - Bi-monthly
Settlement monitoring - Bi-weekly

Landscape & Visual

Frequency: Bi-weekly

	Monitoring Day
	Sunday or Public Holiday

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather	Lau Fau Shan Weather Station				
			Total Rainfall (mm)	Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
26-Apr-11	Tue	Mainly fine and dry.	Maintenance				
27-Apr-11	Wed	Cloudy with a few rain patches and mist.	0	26.3	12	76	W
28-Apr-11	Thu	Showers and a few squally thunderstorms.	0.4	25.5	12	83.5	E
29-Apr-11	Fri	Moderate southerly winds	6.3	23	9.7	92	E/NE
30-Apr-11	Sat	Cloudy with sunny intervals.	0.1	25.6	11.2	88	E
1-May-11	Sun	Holiday					
2-May-11	Mon	Holiday					
3-May-11	Tue	Moderate southerly winds	Trace	28.5	16.7	70.7	S/SE
4-May-11	Wed	Mainly fine and dry.	0.7	23	14	85.5	W/NW
5-May-11	Thu	Light winds	Trace	24.6	8	83.5	E/SE
6-May-11	Fri	Fine and dry.	Trace	27.9	13.5	75	S/SE
7-May-11	Sat	Fine and hot. Light winds	Trace	29.1	12.2	67	S/SE
8-May-11	Sun	Moderate southerly winds	0	29.9	16.5	82	E/SE
9-May-11	Mon	Sunny periods	0	28.3	8.7	79	E/SE
10-May-11	Tue	Holiday					
11-May-11	Wed	Light winds	0	30.7	14.2	71.5	S/SE
12-May-11	Thu	Misty with occasional rain	0.2	29.1	16.2	79.5	S
13-May-11	Fri	Mainly cloudy with occasional rain.	33.5	27.2	17	86.5	E/NE
14-May-11	Sat	a few squally thunderstorms.	14.5	27.5	17	76.2	E/NE
15-May-11	Sun	Moderate easterly winds	2.9	25.9	11.7	85.5	E/NE
16-May-11	Mon	Cloudy with one or two rain patches at first.	7.5	26.4	13.5	86.5	E
17-May-11	Tue	Moderate northeasterly winds.	0.3	23.2	9.2	84.2	E/NE
18-May-11	Wed	Cloudy with a few rain patches	Trace	26	12.2	58	E
19-May-11	Thu	Moderate northerly winds	0	26.2	10.2	67	E
20-May-11	Fri	Cloudy with a few rain patches.	0	27	12.1	78	E
21-May-11	Sat	Light to moderate northerly winds.	42.8	28.7	17.5	75.2	SE
22-May-11	Sun	Mainly fine and dry.	69.8	24.4	25	90	SE
23-May-11	Mon	Isolated showers	9.3	23	11.2	85	NE
24-May-11	Tue	Moderate east to northeasterly winds.	4.9	22	12	80	E/NE
25-May-11	Wed	Mainly fine and hot.	0.3	22.1	10.5	80	E/NE

Appendix E

Calibration Certificates and

HOKLAS-Accreditation Certificate

Equipment Calibration List for 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

Item	Issue	Description of Equipment	Date of Calibration	Date of Next Calibration
1 ⁽²⁾	Air	Tisch Calibration Kit Model TE-5025A (Serial No. 1483)	2 Jun 10	2 Jun 11
2 ⁽¹⁾		TSP Sampler Calibration Spreadsheet for KT13-A1a	1 Apr	1 Jun 11
3 ⁽¹⁾		TSP Sampler Calibration Spreadsheet for KT13-A2	1 Apr	1 Jun 11
4 ^(*)		TSI DustTrak Model 8520 (Serial No. 21060)	27 Jan 11	27 Jan 12
5 ^(*)	Noise	Bruel & Kjaer Integrating Sound Level Meter 2238 (Serial No. 2285721)	19 Apr 11	19 Apr 12
6 ^(*)		Bruel & Kjaer Acoustical Calibrator 4231 (Serial No. 2713428)	19 Apr 11	19 Apr 12
7 ⁽¹⁾	Water	YSI 550A (Serial No. 05F2063AZ)	19 Apr 11	19 Jul 11
8 ⁽¹⁾		Extech pH Meter EC500 (Work Order: HK1109433)	19 Apr 11	19 Jul 11
9 ⁽¹⁾		Turbidimeter HACH 2100p (Serial No. 950900008735)	19 Apr 11	19 Jul 11
10 ⁽¹⁾		Hand Refractometer ATAGO EQ114 (Serial No. 289468)	19 Apr 11	19 Jul 11

Note: * Calibration certificates will only provide when monitoring equipment is re-calibrate or new.

⁽¹⁾ The calibration certificates could be referred to the previous EM&A monthly report – April 2011

⁽²⁾ The calibration certificates could be referred to the previous EM&A monthly report – August 2010

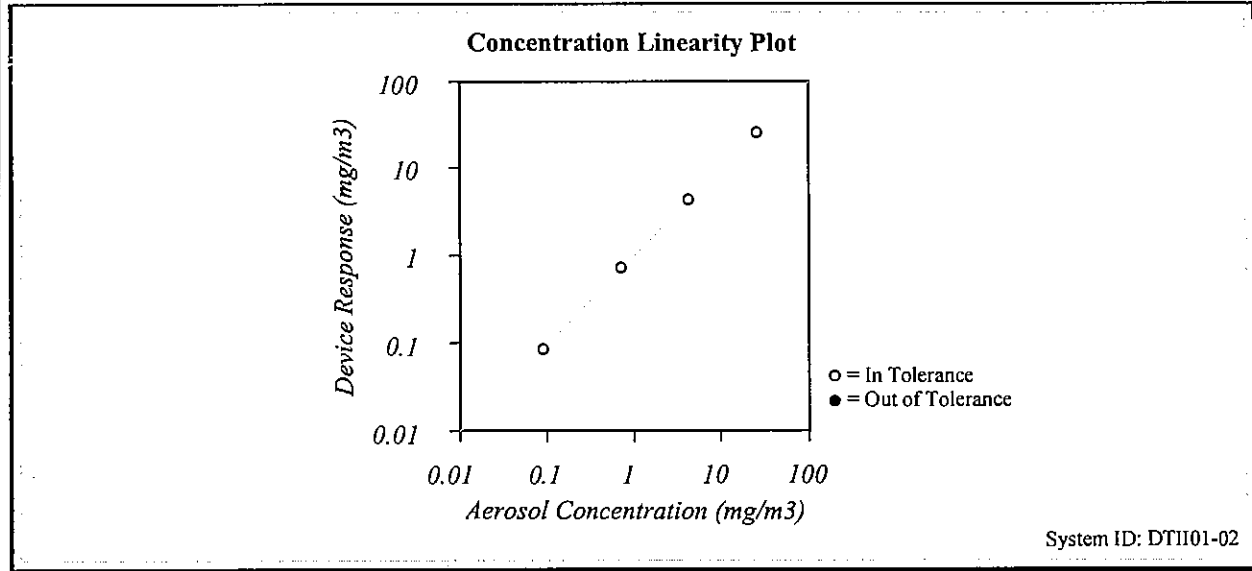


CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

Environment Condition			Model	8520
Temperature	73.6 (23.1)	°F (°C)		
Relative Humidity	16	%RH	Serial Number	21060
Barometric Pressure	28.76 (973.9)	inHg (hPa)		

<input checked="" type="checkbox"/> As Left	<input checked="" type="checkbox"/> In Tolerance
<input type="checkbox"/> As Found	<input type="checkbox"/> Out of Tolerance



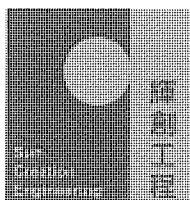
Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m ³	0.000 :mg/m ³	0.001 :mg/m ³	4:00 :hrs.

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Barometric Pressure	E003733	01-15-11	02-15-12	Temperature	E002873	11-24-10	11-24-11
Humidity	E002873	11-24-10	11-24-11	DC Voltage	E003314	01-05-11	01-05-12
DC Voltage	E003315	01-05-11	01-05-12	Photometer	E003319	07-30-10	01-30-11
Microbalance	E001324	01-04-11	01-04-12	Flow and Temperature	E003769	06-15-10	06-15-11
Pressure	E003511	11-12-10	11-12-11				

Final Function Check
 January 27, 2011

Calibrated Date



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112202

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ010)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285721

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C112202.*

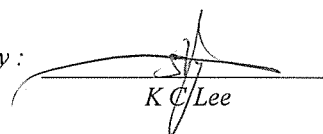
The equipment is supplied by

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 : 19 April 2011

Certified by :


K C Lee

The test equipment used for calibration 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

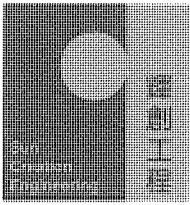
c/o 4/F, Tsing Shan Wan Exchange Building, I Hing On Lane, Tuen Mun, New Territories, Hong Kong

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. : C112202

Calibration Report

ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ010)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 2238
SERIAL NO. : 2285721

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


L L Cheung

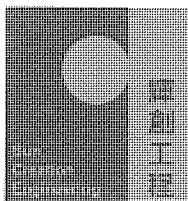
Date : 19 April 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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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

Page 1 of 4



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 : 2713428 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C110018
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

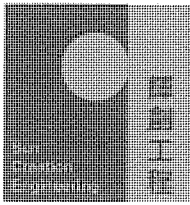
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L _{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

The test equipment used for calibration are traceable to the 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 Report

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

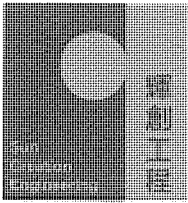
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		101.9	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.6	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration 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 Report

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5	
			60 sec.					1/10 ²	90	89.6	± 0.5
			5 min.					1/10 ³	80	79.3	± 1.0
								1/10 ⁴	70	69.9	± 1.0

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

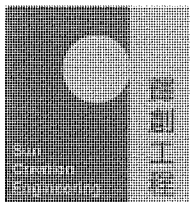
- Uncertainties of Applied Value :
 - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
 - 250 Hz - 500 Hz : ± 0.30 dB
 - 1 kHz : ± 0.20 dB
 - 2 kHz : ± 0.40 dB
 - 4 kHz : ± 0.50 dB
 - 8 kHz : ± 0.70 dB
 - 12.5 kHz : ± 1.20 dB
 - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 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.

The test equipment used for calibration 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.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112201

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ082)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2713428

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C112201.*

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 : 19 April 2011

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
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Calibration and Testing Laboratory of Sun Creation Engineering Limited

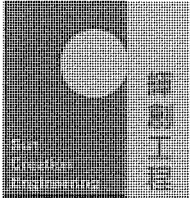
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

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. : C112201

Calibration Report

ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ082)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 4231
SERIAL NO. : 2713428

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

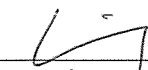
TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


L L Cheung

Date : 19 April 2011

The test equipment used for calibration 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

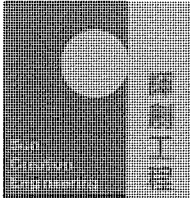
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



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 :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1006860
TST150A	Measuring Amplifier	C101008

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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

Note :

The values given in this 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.

Appendix F

Event and Action Plan

Event/Action Plan for Air Quality

EVENT	ACTION			
	Contractor's ET leader	IEC	ER	Contractor
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source Inform IEC, ER and Contractor Repeat measurement to confirm findings Increase monitoring frequency to daily 	<ol style="list-style-type: none"> Check monitoring data submitted by Contractor's ET leader Check Contractor's working method 	<ol style="list-style-type: none"> Notify Contractor 	<ol style="list-style-type: none"> Rectify any unacceptable practice Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source Inform IEC, ER and Contractor Repeat measurement to confirm findings Increase monitoring frequency to daily Discuss with IEC, Contractor and ER on remedial actions required If exceedance continue, arrange meeting with IEC, ER and Contractor If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> Checking monitoring data submitted by Contractor's ET leader. Check Contractor's working method Discuss with Contractor's ET leader and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Supervise implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> Submit proposals for remedial actions to IEC and ER within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source Inform IEC, ER, EPD and Contractor Repeat measurement to confirm findings Increase monitoring frequency to daily Assess effectiveness of Contractor's remedial actions and kept IEC, EPD and ER informed of the results 	<ol style="list-style-type: none"> Check monitoring data submitted by Contractor's ET leader Check Contractor's working method Discuss with Contractor's ET leader and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Audit implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> Take immediate action to avoid for the exceedance Submit proposals for remedial actions to IEC and ER within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify IEC, ER, Contractor and EPD Identify source Repeat measurement to confirm findings Increase monitoring frequency to daily Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> Discuss amongst ER, Contractor's ET leader and Contractor on the potential remedial actions Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly Audit the implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor In consultation with IEC, agree with the Contractor on the remedial measures to be implemented Ensure remedial measures properly implemented 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. 	<ol style="list-style-type: none"> Take immediate action to avoid for the exceedance Submit proposals for remedial actions to IEC and ER within 3 working days of notification Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant portion of works as determined by the ER until the exceedance is abate.

Event and Action Plan for Water Quality

Event	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	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; 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 all 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, 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 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 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.

Event/Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	CONTRACTOR'S ET LEADER	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to ER and IEC 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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

Event/Action Plan for Ecology

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
ACTION REACHED LEVEL	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 REACHED LEVEL	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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). 	<ol style="list-style-type: none"> 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)

Event and Action Plan for Cultural Heritage

EVENT	ACTION			
	ET Leader	IEC	ER	Contractor
Action Level	<p>Notify IEC and Contractor to carry out investigation</p> <p>Report reasons of structural damage or instability to the IEC and Contractor Discuss with the Contractor and formulate remedial measures</p> <p>Increase monitoring frequency to once per week to check mitigation effectiveness</p>	<p>Review report of structural damage or instability by the ET.</p> <p>Review proposed remedial measures by the Contractor and advise the ER and Antiquities and Monuments Office (AMO) accordingly</p> <p>Supervise the implementation of remedial measures, with approval from AMO.</p>	<p>Confirm receipt of notification of failure in writing</p> <p>Notify Contractor</p> <p>Require Contractor to propose remedial measures and to notify and seek approval from AMO.</p> <p>Ensure remedial measures are properly implemented.</p>	<p>Notify AMO concerning the damage or structural instability of the cultural heritage resources</p> <p>Submit proposals for repair of damage to cultural heritage resources to AMO for approval and to implement approved measures.</p>
Limit Level	<p>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.</p> <p>Report reasons of continued structural damage or instability to the IEC and Contractor Discuss with the Contractor and formulate remedial measures</p> <p>Increase monitoring frequency to daily to check mitigation effectiveness</p>	<p>Review report of structural damage or instability by the ET.</p> <p>Review proposed remedial measures by the Contractor and advise the ER and Antiquities and Monuments Office (AMO) accordingly.</p> <p>Supervise the implementation of remedial measures, with approval from AMO.</p>	<p>Confirm receipt of notification of failure in writing</p> <p>Notify Contractor</p> <p>Require Contractor to propose remedial measures and to notify and seek approval from AMO.</p> <p>Ensure remedial measures are properly implemented.</p>	<p>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.</p> <p>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.</p>

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

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 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) 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

Appendix G

(a) Impact Environmental Monitoring Data

(b) Graphic Plot of Monitoring

- 1. Construction Noise**
- 2. Air Quality**
- 3. 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

24-Hour TSP Monitoring Results

DATE	SAMPLE NUMBER	STANDARD											BLANK			SAMPLE OF FILTER PAPER			Dust 24-Hr TSP in Air ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)		WEIGHT (g)						
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP ($^{\circ}\text{C}$)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INITIAL	FINAL	DIFF	INITIAL	FINAL	DUST COLLECTION			
KT13(A1(a))																					
Date of Calibration: 1-Apr-2010 Next Calibration Date: 1-Jun-2011 Cal Graph Slope = 39.5631 Intercept = -14.7808																					
27-Apr-11	23600	3892.91	3916.70	1427.40	31	33	32.0	25.9	1007.8	1.18	1683	NA	2.8315	2.8316	0.0001	2.8037	2.9117	0.1080	64	144	260
9-May-11	23654	3916.70	3940.48	1426.80	30	32	31.0	27.3	1007.5	1.15	1644	NA	2.8300	2.8295	-0.0005	2.9444	3.0000	0.0556	34	144	260
14-May-11	23576	3940.48	3964.12	1418.40	32	36	34.0	25.0	1012.4	1.23	1748	NA	2.8325	2.8332	0.0007	2.801	2.8667	0.0657	37	144	260
19-May-11	23709	3964.12	3987.76	1418.40	32	34	33.0	26.8	1010.0	1.20	1708	NA	2.833	2.8328	-0.0002	2.7239	2.7608	0.0369	22	144	260
25-May-11	23681	3987.76	4011.58	1429.20	34	36	35.0	23.0	1010.0	1.26	1800	NA	2.8326	2.8324	-0.0002	2.9155	2.9915	0.0760	42	144	260
KT13(A2)																					
Date of Calibration: 1-Apr-2010 Next Calibration Date: 1-Jun-2011 Cal Graph Slope = 40.2636 Intercept = -15.5037																					
27-Apr-11	23602	3846.16	3870.75	1475.40	31	33	32.0	25.9	1007.8	1.18	1736	NA	2.8315	2.8316	0.0001	2.9340	3.0250	0.0910	52	141	260
9-May-11	23655	3870.75	3895.32	1474.20	30	32	31.0	27.3	1007.5	1.15	1695	NA	2.8300	2.8295	-0.0005	2.9500	2.9840	0.0340	20	141	260
14-May-11	23577	3895.32	3919.73	1464.60	32	38	35.0	25.0	1012.4	1.25	1836	NA	2.8325	2.8332	0.0007	2.8031	2.8399	0.0368	20	141	260
19-May-11	23708	3919.73	3944.14	1464.60	32	34	33.0	25.8	1010.0	1.20	1761	NA	2.833	2.8328	-0.0002	2.738	2.7778	0.0398	23	141	260
25-May-11	23682	3944.14	3968.64	1470.00	34	36	35.0	23.0	1010.0	1.26	1846	NA	2.8326	2.8324	-0.0002	2.8978	2.9757	0.0779	42	141	260

Summary of Water Quality Monitoring Results - KT13

Date 26-Apr-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	16:35	0.20	25.3	25.3	5.04	5.0	61.7	61.4	30.6	30.2	7.26	7.3	61	61.0	6.99	6.99	168	168.0
			25.3		4.99		61.0		29.8		7.25		61		6.99		168	
W2	16:29	0.20	25.7	25.7	4.95	4.9	59.6	58.9	33.7	33.4	7.3	7.3	73	73.0	7.12	7.12	203	203.0
			25.7		4.91		58.1		33.1		7.28		73		7.12		203	
W3	15:10	0.20	25.9	25.9	5.34	5.3	62.2	62.3	35.7	35.4	7.27	7.3	72	72.5	11.9	11.90	130	130.0
			25.9		5.35		62.3		35.0		7.27		73		11.9		130	
W4	15:04	0.15	24.8	24.8	4.65	4.6	54.1	53.9	29.3	28.9	7.04	7.1	52	52.0	11.4	11.40	116	116.0
			24.8		4.61		53.7		28.4		7.07		52		11.4		116	
W5	14:50	0.10	25.0	25.0	5.17	5.1	61.3	61.0	42.1	41.8	7.33	7.3	130	130.0	3.34	3.34	94	94.0
			25.0		5.12		60.7		41.5		7.31		130		3.34		94	
W6	14:24	0.25	25.3	25.3	4.92	4.9	55.5	54.6	24.6	24.3	7.2	7.2	47	47.0	11.4	11.40	130	130.0
			25.3		4.88		53.7		23.9		7.22		47		11.4		130	

Date 28-Apr-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	13:19	0.10	26.7	26.7	8.91	8.9	82.8	82.9	35.4	35.8	7.78	7.8	529	529.0	8.68	8.68	1070	1070.0
			26.7		8.87		82.9		36.2		7.76		529		8.68		1070	
W2	13:24	0.20	26.6	26.6	8.97	8.9	83.4	83.0	39.2	39.0	7.93	7.9	528	528.0	6.91	6.91	1520	1520.0
			26.6		8.84		82.6		38.7		7.9		528		6.91		1520	
W3	13:29	0.15	26.6	26.6	7.62	7.6	77.2	77.0	40.6	40.4	7.89	7.9	748	748.0	23.3	23.30	2260	2260.0
			26.6		7.54		76.8		40.1		7.86		748		23.3		2260	
W4	13:40	0.20	26.5	26.5	8.59	8.5	81.9	81.7	39.6	39.0	8.12	8.4	524	524.0	10.9	10.90	1350	1350.0
			26.5		8.42		81.4		38.4		8.6		524		10.9		1350	
W5	13:46	0.15	26.6	26.6	7.94	7.9	78.3	78.0	43.1	42.9	7.78	7.7	544	544.0	24.8	24.80	1520	1520.0
			26.6		7.78		77.6		42.6		7.71		544		24.8		1520	
W6	13:56	0.10	26.6	26.6	7.85	7.7	78.1	77.8	45.5	45.2	7.89	7.9	728	728.0	18.7	18.70	2070	2070.0
			26.6		7.63		77.4		44.8		7.81		728		18.7		2070	

Date 30-Apr-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	10:08	0.10	26.4	26.4	7.14	7.1	77.8	77.5	41.2	41.0	7.91	8.0	227	227.0	25.5	25.50	668	668.0
			26.4		7.02		77.1		40.8		8.03		227		25.5		668	
W2	10:13	0.20	26.3	26.3	7.23	7.2	79.3	78.7	40.1	40.0	7.86	7.8	332	332.0	23.5	23.50	1170	1170.0
			26.3		7.18		78.1		39.8		7.71		332		23.5		1170	
W3	10:19	0.15	26.4	26.4	8.04	8.0	96.3	96.2	63.2	63.0	7.88	7.9	364	364.0	34	34.00	1100	1100.0
			26.4		8.01		96.1		62.8		7.83		364		34		1100	
W4	10:26	0.20	26.4	26.4	7.09	7.1	77.5	77.3	38.4	38.3	7.99	8.0	210	210.0	14	14.00	657	657.0
			26.4		7.02		77.1		38.1		7.94		210		14		657	
W5	10:38	0.10	26.5	26.5	8.13	8.0	94.4	94.3	69.2	68.6	7.74	7.7	489	489.0	39.8	39.80	1440	1440.0
			26.5		7.95		94.2		67.9		7.69		489		39.8		1440	
W6	10:48	0.10	26.5	26.5	8.18	8.2	100.3	99.8	62.5	62.3	8.12	8.1	336	336.0	35.9	35.90	1100	1100.0
			26.5		8.14		99.2		62.3		8.06		336		35.9		1100	

Date 3-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	16:00	0.30	27.0	27.0	6.15	6.1	77.1	75.8	41.7	41.1	7.84	7.8	65	65.0	19.4	19.40	188	188.0
			27.0		6.06		74.5		40.5		7.8		65		19.4		188	
W2	15:35	0.25	27.2	27.2	6.22	6.2	77.7	77.2	43.6	42.7	7.62	7.6	80	80.0	18.5	18.50	237	237.0
			27.2		6.15		76.7		41.8		7.66		80		18.5		237	
W3	14:49	0.20	27.4	27.4	6.33	6.3	78.6	78.6	59.2	58.8	7.77	7.8	93	93.0	10.9	10.90	239	239.0
			27.4		6.35		78.5		58.4		7.73		93		10.9		239	
W4	14:41	0.20	26.8	26.8	6.21	6.2	75.9	75.7	71.4	71.1	8.02	8.0	118	118.0	10.2	10.20	351	351.0
			26.8		6.13		75.4		70.8		8		118		10.2		351	
W5	14:30	0.10	26.9	26.9	6.3	6.2	76.8	76.6	60.8	61.0	7.58	7.6	97	97.0	4.13	4.13	75	75.0
			26.9		6.18		76.4		61.2		7.62		97		4.13		75	
W6	14:00	0.30	27.4	27.4	6.08	6.1	76.3	75.8	74.8	73.0	7.94	7.9	330	330.0	7.11	7.11	422	422.0
			27.4		6.03		75.2		71.2		7.91		330		7.11		422	

Date 5-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	13:08	0.10	27.4	27.4	6.28	6.2	91.9	88.6	52.5	51.2	7.96	7.9	175	175.0	10.9	10.90	134	134.0
			27.4		6.17		85.3		49.8		7.79		175		10.9		134	
W2	13:16	0.15	27.4	27.4	6.49	6.4	94.3	94.1	79.1	77.1	7.99	7.9	214	214.0	12.2	12.20	392	392.0
			27.4		6.37		93.8		75.1		7.87		214		12.2		392	
W3	13:24	0.20	27.5	27.5	5.62	5.7	77.3	77.2	51.2	48.0	7.6	7.6	334	334.0	13	13.00	299	299.0
			27.5		5.69		77.1		44.8		7.52		334		13		299	
W4	13:31	0.10	27.5	27.5	6.89	6.8	96.2	95.8	90.1	85.2	7.98	8.0	388	388.0	5.32	5.32	393	393.0
			27.5		6.77		95.4		80.2		7.94		388		5.32		393	
W5	13:36	0.20	27.6	27.6	5.58	5.5	74.6	74.4	87.1	84.1	7.71	7.7	248	248.0	13.7	13.70	409	409.0
			27.6		5.46		74.2		81.1		7.69		248		13.7		409	
W6	13:49	0.15	27.6	27.6	5.14	5.1	73.2	72.9	55.8	54.7	7.7	7.7	252	252.0	8.4	8.40	354	354.0
			27.6		5.08		72.6		53.5		7.64		252		8.4		354	

Date 7-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS		Ammonia N		Zinc	
W1	13:08	0.10	27.9	27.9	6.53	6.5	85.2	85.0	12.4	12.4	7.91	7.9	58	58.0	16.9	16.90	123	123.0
			27.9		6.51		84.8		12.3		7.89		58		16.9		123	
W2	13:16	0.15	27.8	27.8	6.48	6.4	83.6	81.5	13.4	14.4	7.84	7.8	111	111.0	12	12.00	99	99.0
			27.8		6.36		79.4		15.4		7.77		111		12		99	
W3	13:24	0.20	27.8	27.8	5.59	5.6	74.8	74.7	20.1	19.3	7.96	7.9	212	212.0	12.7	12.70	193	193.0
			27.8		5.56		74.6		18.5		7.87		212		12.7		193	
W4	13:31	0.15	27.8	27.8	6.38	6.4	78.8	78.2	16.6	14.8	7.86	7.8	147	147.0	15.1	15.10	227	227.0
			27.8		6.32		77.5		12.9		7.76		147		15.1		227	
W5	13:46	0.20	27.7	27.7	6.14	6.1	76.8	76.1	26.6	26.3	8.06	8.0	357	357.0	13.2	13.20	369	369.0
			27.7		6.02		75.4		25.9		8.01		357		13.2		369	
W6	13:57	0																

Summary of Water Quality Monitoring Results - K113

Date 11-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	13:09	0.10	30.1	30.1	3.26	7.2	78.5	78.0	79.1	80.0	7.87	7.8	159	159.0	16.8	16.80	530	530.0
			30.1		7.18		77.4		80.9		7.82		159		16.8		530	
W2	13:16	0.15	30.2	30.2	7.14	7.1	76.3	76.1	84.3	84.9	7.96	7.9	181	181.0	22.4	22.40	620	620.0
			30.2		7.09		75.9		85.5		7.93		181		22.4		620	
W3	13:24	0.20	30.2	30.2	8.13	8.0	95.3	94.3	106.0	108.0	8.06	8.0	408	408.0	17.7	17.70	1200	1200.0
			30.2		7.96		93.2		110.0		8.01		408		17.7		1200	
W4	13:31	0.10	30.1	30.1	7.19	7.2	77.6	77.0	86.8	87.5	7.54	7.4	165	165.0	16.8	16.80	503	503.0
			30.1		7.14		76.3		88.2		7.26		165		16.8		503	
W5	13:37	0.15	30.3	30.3	8.26	8.2	98.7	98.0	101.0	101.5	7.79	7.8	176	176.0	16.6	16.60	605	605.0
			30.3		8.2		97.3		102.0		7.71		176		16.6		605	
W6	13:48	0.20	30.3	30.3	8.25	8.2	97.4	97.4	125.0	120.0	7.68	7.7	199	199.0	23.1	23.10	673	673.0
			30.3		8.21		97.3		115.0		7.62		199		23.1		673	

Date 14-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	13:02	0.10	23.7	23.6	3.26	3.8	37.6	43.1	17.2	15.4	7.6	7.7	41	41.0	6.98	6.98	68	68.0
			23.5		4.37		48.5		13.6		7.7		41		6.98		68	
W2	13:22	0.10	23.5	23.6	4.93	5.0	54.2	54.7	9.6	9.1	7.9	7.8	55	55.0	7.13	7.13	62	62.0
			23.6		5.02		55.1		8.5		7.7		55		7.13		62	
W3	13:37	0.10	23.7	23.7	3.17	3.0	37.2	35.4	20.3	21.0	7.9	8.0	63	63.0	7.72	7.72	117	117.0
			23.6		2.88		33.6		21.6		8		63		7.72		117	
W4	13:40	0.10	23.4	23.5	3.62	3.6	41.3	40.7	15.7	15.2	7.7	7.7	79	79.0	6.87	6.87	120	120.0
			23.6		3.51		40.0		14.6		7.6		79		6.87		120	
W5	13:59	0.10	23.5	23.6	4.03	3.6	45.6	41.5	32.6	30.8	7.6	7.6	39	39.0	7.06	7.06	63	63.0
			23.6		3.12		37.3		29.0		7.5		39		7.06		63	
W6	14:08	0.10	23.7	23.6	1.9	2.4	24.1	28.8	24.4	25.1	7.6	7.6	38	38.0	7.12	7.12	72	72.0
			23.5		2.82		33.4		25.7		7.6		38		7.12		72	

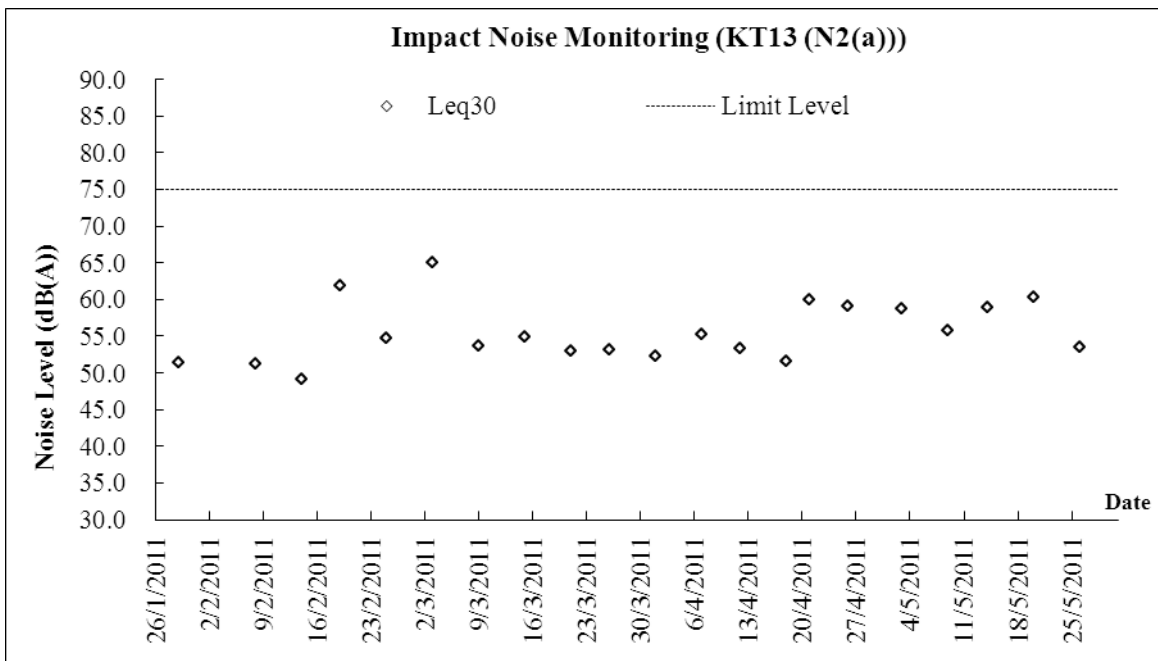
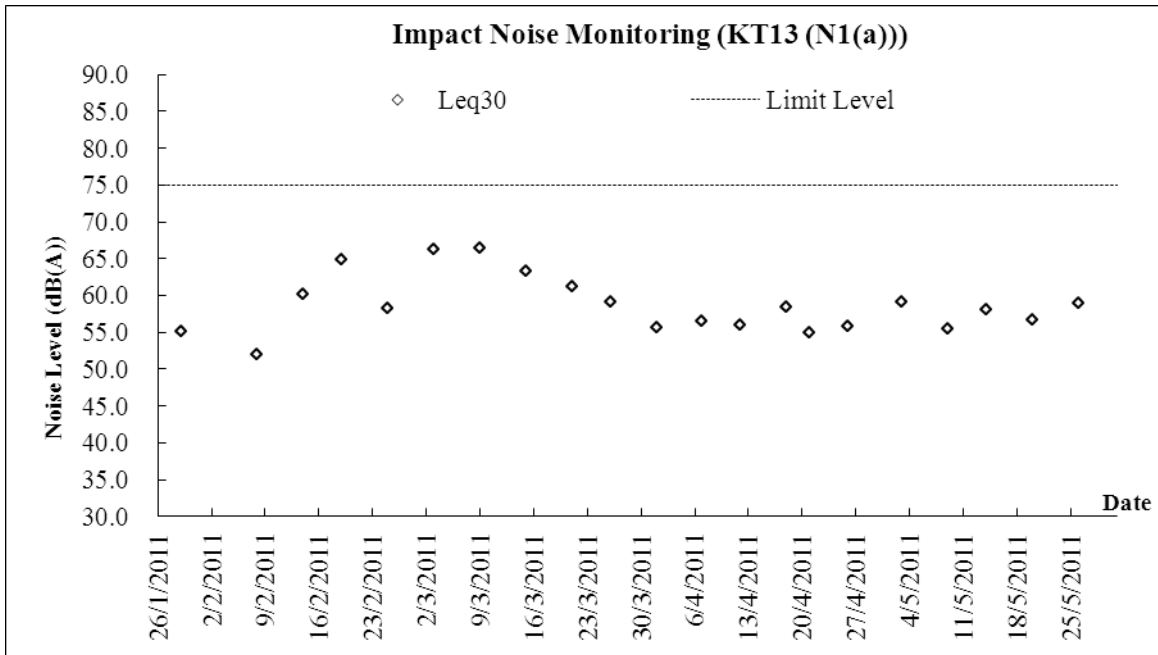
Date 16-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	16:01	0.10	24.3	24.2	2.14	2.0	29.4	28.4	24.1	23.9	7.9	7.8	98	98.0	23.3	23.30	253	253.0
			24.1		1.88		27.3		23.6		7.7		98		23.3		253	
W2	16:20	0.10	24.1	24.1	2.63	2.9	35.2	37.8	20.7	22.5	7.9	8.0	89	89.0	24.6	24.60	250	250.0
			24.0		3.14		40.3		24.3		8		89		24.6		250	
W3	16:28	0.10	24.1	24.1	1.31	2.0	22.4	28.8	31.4	34.1	8	8.1	24	24.0	6.27	6.27	51	51.0
			24.0		2.61		35.2		36.7		8.1		24		6.27		51	
W4	16:35	0.10	23.9	24.0	2.79	3.1	37.1	40.1	40.3	35.4	8.1	8.1	79	79.0	23.2	23.20	200	200.0
			24.1		3.43		43.1		30.5		8		79		23.2		200	
W5	16:51	0.10	23.9	23.9	4.17	3.7	50.4	46.1	29.7	35.5	8.1	8.0	118	118.0	6.55	6.55	192	192.0
			23.8		3.26		41.8		41.2		7.8		118		6.55		192	
W6	17:03	0.10	24.2	24.1	4.02	4.0	49.7	48.9	36.8	45.6	7.8	7.9	43	43.0	6.61	6.61	65	65.0
			24.0		3.9		48.1		54.3		7.9		43		6.61		65	

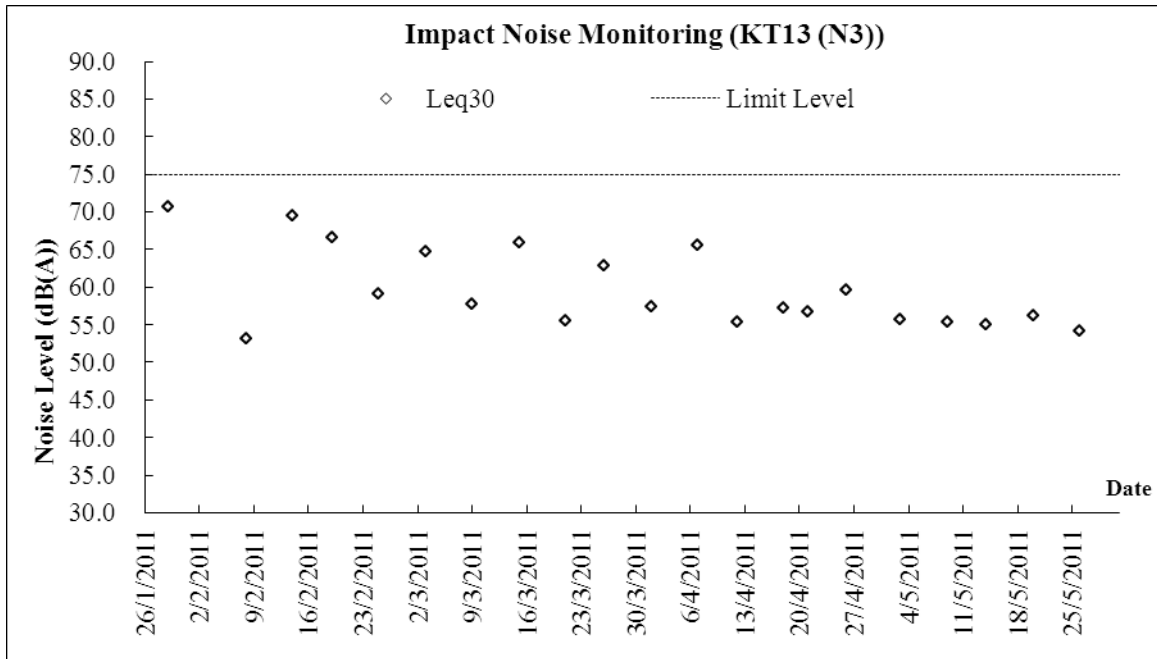
Date 18-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	13:09	0.10	26.3	26.3	6.38	6.4	91.6	88.5	60.3	60.1	7.75	7.7	62	62.0	24.4	24.40	178	178.0
			26.3		6.34		85.3		59.8		7.69		62		24.4		178	
W2	13:16	0.15	26.4	26.4	7.14	7.1	98.7	98.3	70.1	70.0	7.86	7.8	44	44.0	27.9	27.90	161	161.0
			26.4		7.06		97.9		69.9		7.82		44		27.9		161	
W3	13:28	0.20	26.4	26.4	8.14	8.1	96.2	95.7	77.3	76.9	8.09	8.1	82	82.0	31.9	31.90	177	177.0
			26.4		8.06		95.1		76.5		8.01		82		31.9		177	
W4	13:35	0.20	26.3	26.3	7.85	7.8	79.3	78.8	72.4	72.5	7.89	7.9	60	60.0	25.2	25.20	150	150.0
			26.2		7.81		78.2		72.6		7.83		60		25.2		150	
W5	13:44	0.15	26.2	26.2	8.11	8.0	95.2	94.2	80.4	81.2	8.45	8.4	122	122.0	25.1	25.10	305	305.0
			26.2		7.96		93.2		81.9		8.36		122		25.1		305	
W6	13:56	0.10	26.3	26.3	7.97	7.8	78.6	77.7	86.1	87.6	8.49	8.5	149	149.0	36.8	36.80	348	348.0
			26.3		7.58		76.8		89.0		8.42		149		36.8		348	

Date 20-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	16:27	0.25	29.6	29.6	2.35	2.3	29.6	29.5	32.9	32.9	7.31	7.3	63	63.0	13	13.00	168	168.0
			29.5		2.34		29.4		32.8		7.32		63		13		168	
W2	16:20	0.25	29.2	29.0	2.96	2.9	36.2	36.0	20.2	19.6	7.33	7.3	30	30.0	11.7	11.70	48	48.0
			28.7		2.93		35.8		18.9		7.31		30		11.7		48	
W3	15:30	0.20	29.3	29.3	2.59	2.6	31.6	31.4	19.0	18.4	7.25	7.3	95	95.0	7.56	7.56	136	136.0
			29.2		2.55		31.1		17.7		7.26		95		7.56		136	
W4	15:22	0.20	29.0	29.0	2.75	2.7	34.4	34.2	56.3	53.1	7.11	7.1	212	212.0	6.31	6.31	264	264.0
			29.0		2.68		33.9		49.9		7.1		212		6.31		264	
W5	15:15	0.10	29.1	29.2	4.14	4.1	52.1	52.0	6.0	5.6	7.16	7.2	37	37.0	1.57	1.57	41	41.0
			29.2		4.02		51.9		5.2		7.17		37		1.57		41	
W6	14:49	0.40	29.2	29.2	3.26	3.2	41.1	41.0	22.7	22.4	7.27	7.3	54	54.0	7.65	7.65	133	133.0
			29.1		3.21		40.9		22.0		7.26		54		7.65		133	

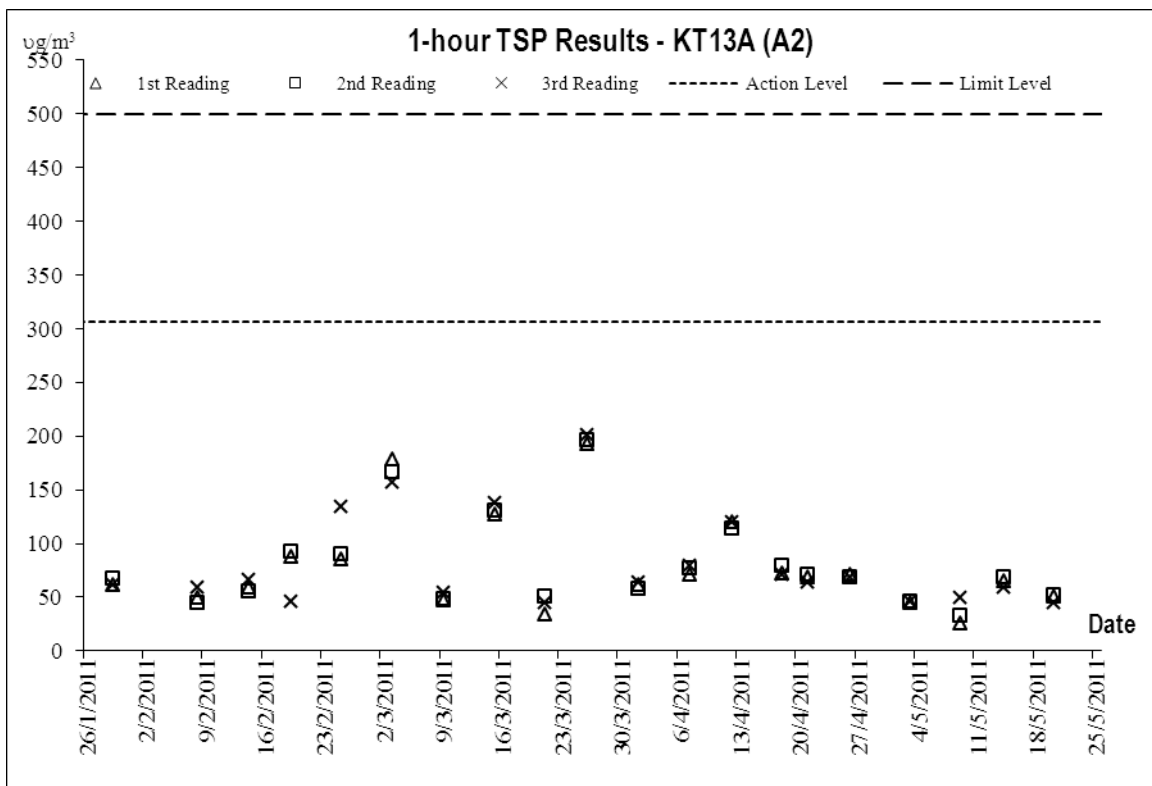
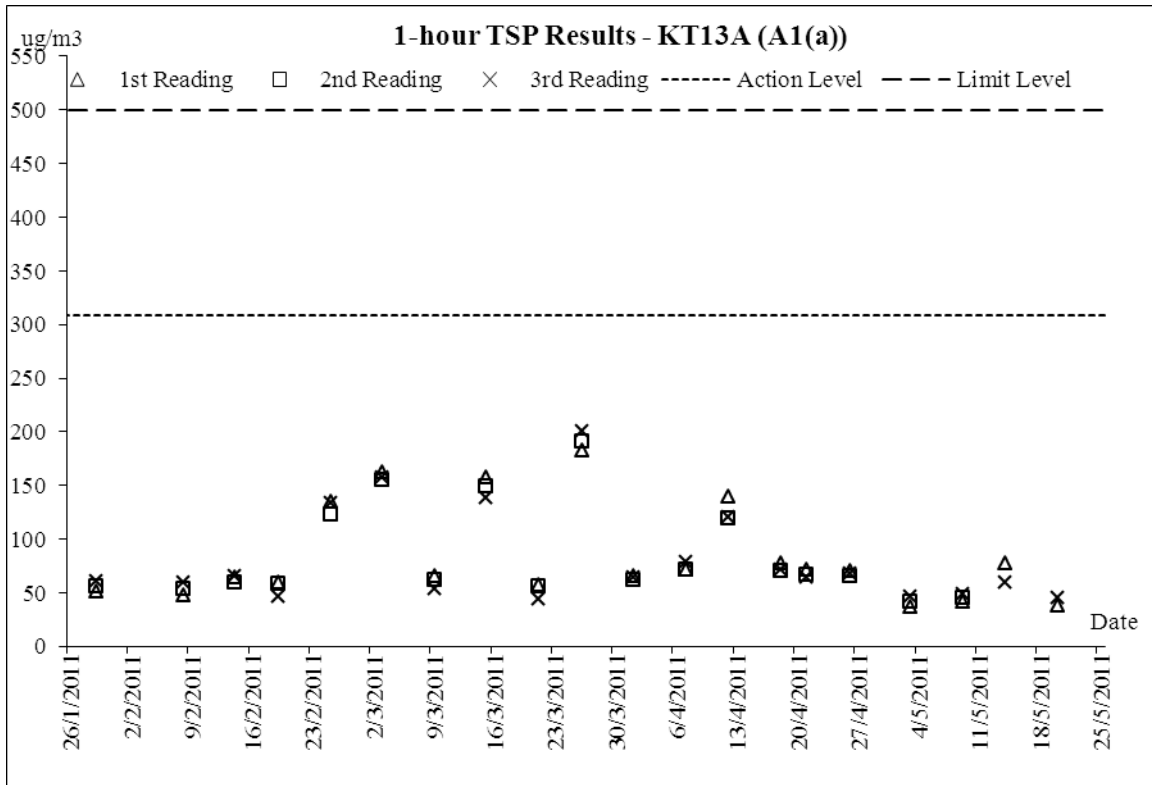
Date 24-May-11																		
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		pH		SS	Ammonia N		Zinc		
W1	13:16	0.10	24.1	24.1	7.39	7.3	75.6	75.0	12.2	11.8	7.4	7.4	18	18.0	3.26	3.26	35	35.0
			24.1		7.27		74.3		11.4		7.35		18		3.26		35	
W2	13:24	0.15	23.8	23.8	6.01	6.0	81.6	80.0	11.9	11.7	7.39	7.4	16	16.0	3.66	3.66	37	37.0
			23.8		5.96		78.4		11.5		7.35		16		3.66		37	
W3	13:36	0.20	23.3	23.3	5.99	6.0	91.4	89.3	13.8	13.2	7.33	7.3	15	15.0	3.56	3.56	34	34.0
			23.3		5.95		87.2		12.6		7.31		15		3.56		34	
W4	13:44	0.15	23.7	23.7	7.19	7.1	72.4	72.0	11.7	11.6	7.28	7.3	14	14.0	3.47	3.47	34	34.0
			23.7		7.05		71.6		11.5		7.25		14		3.47		34	
W5	13:51	0.15	23.8	23.8	6.91	6.9	76.9	76.1	13.3	13.1	7.29	7.3	17	17.0	3.5	3.50	37	37.0
			23.8		6.82		75.2		12.8		7.34		17		3.5		37	
W6	14:01	0.20	23.6	23.6	6.61	6.6	94.3	93.4	15.8	15.2	7.44	7.4	17	17.0				

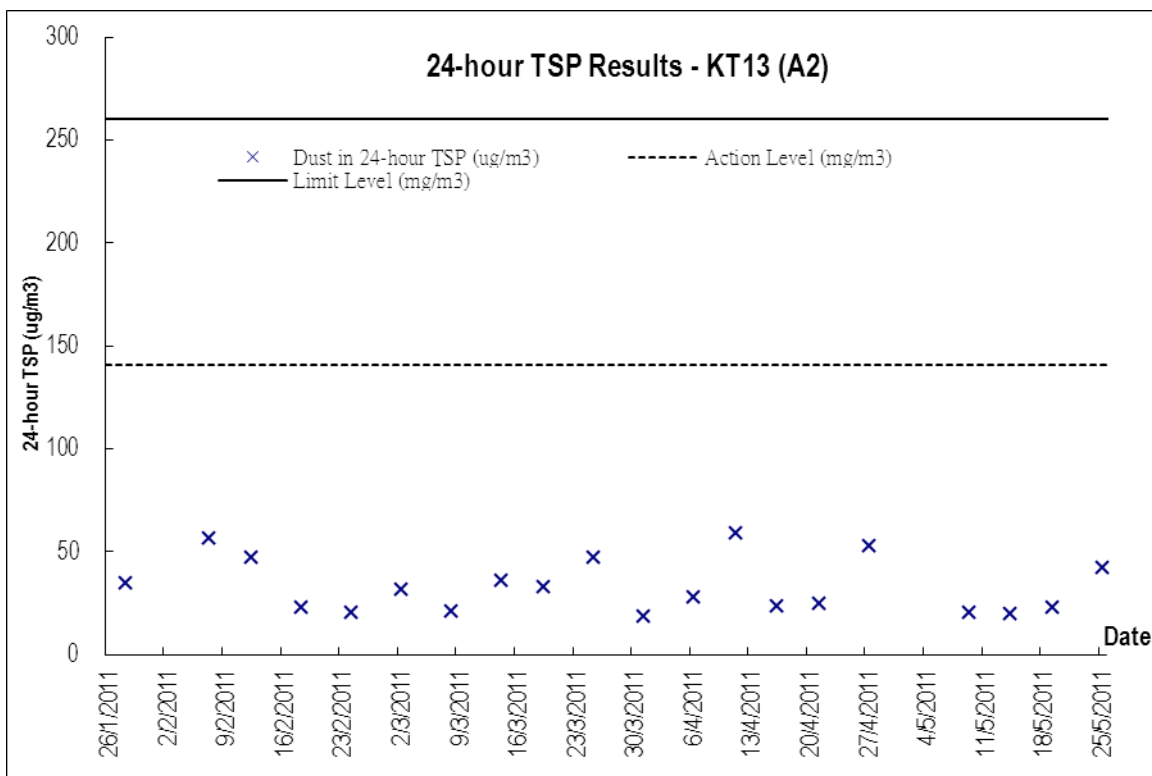
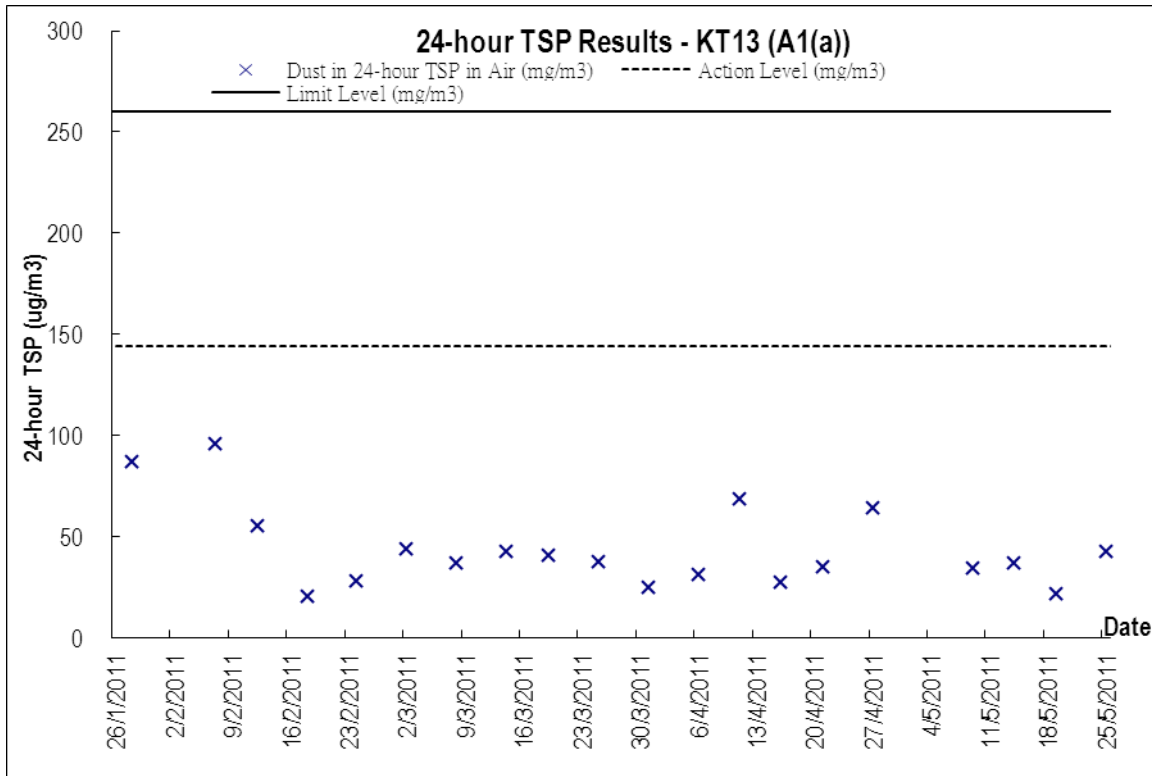
Graphic Plot of Monitoring - Construction Noise



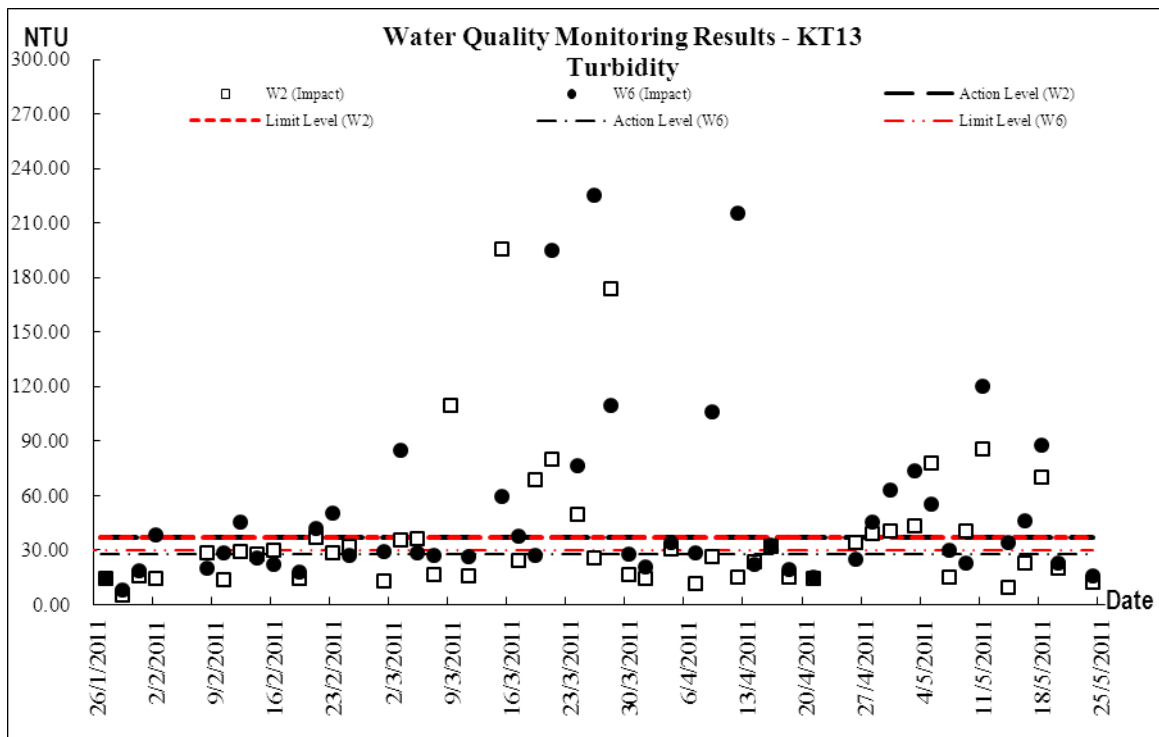
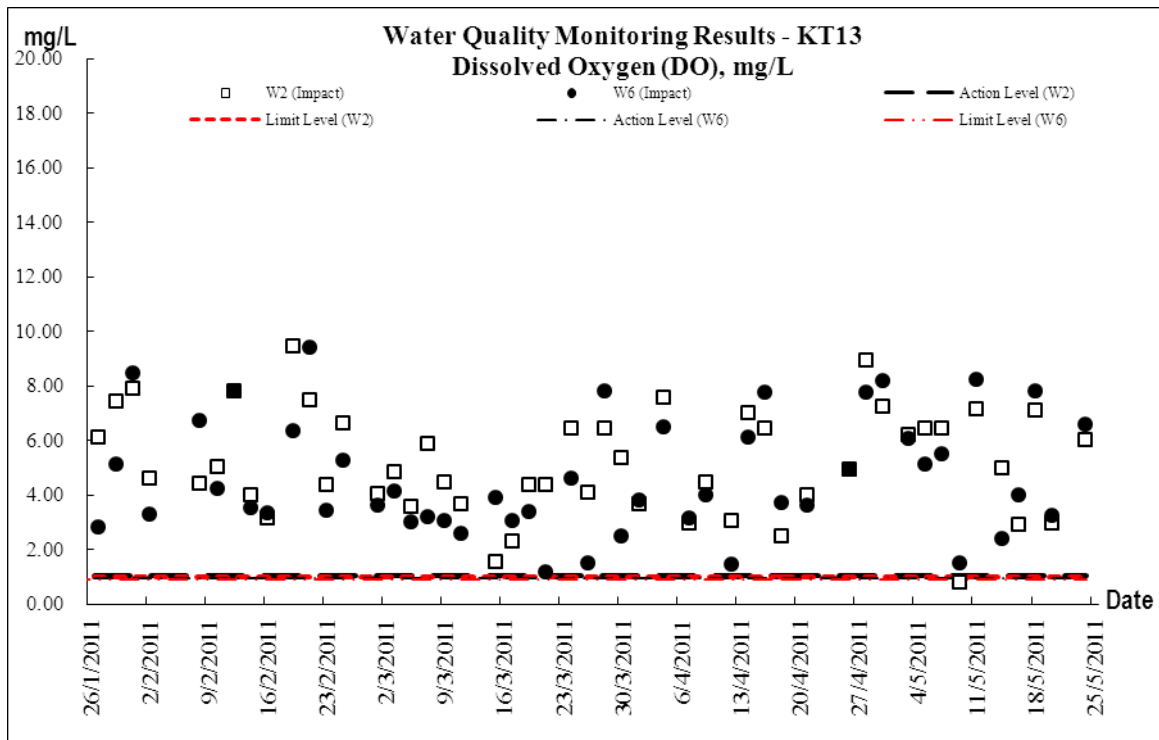


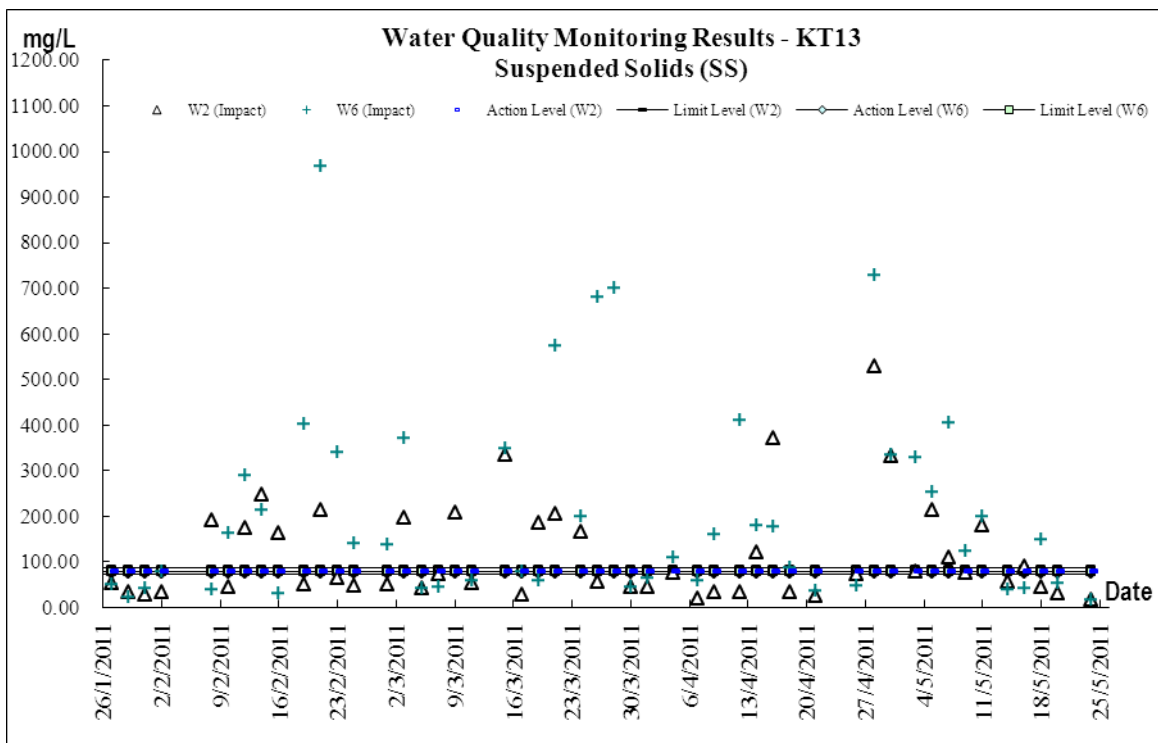
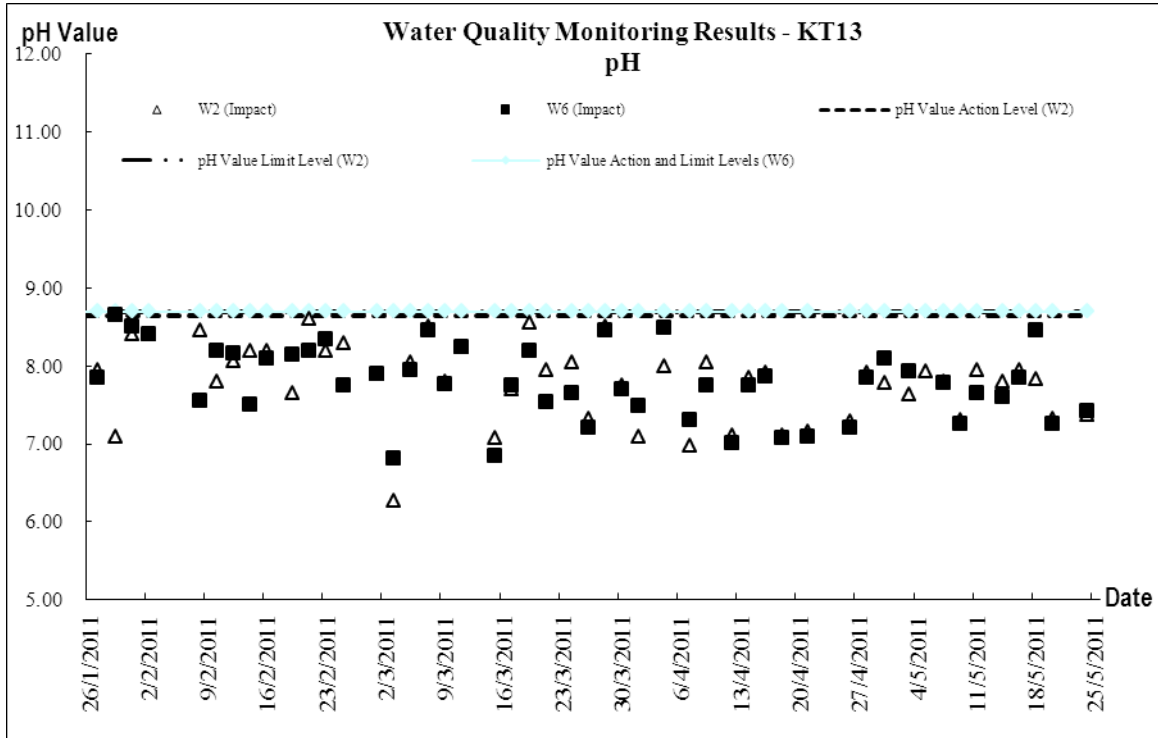
Graphic Plot of Monitoring – Air Quality

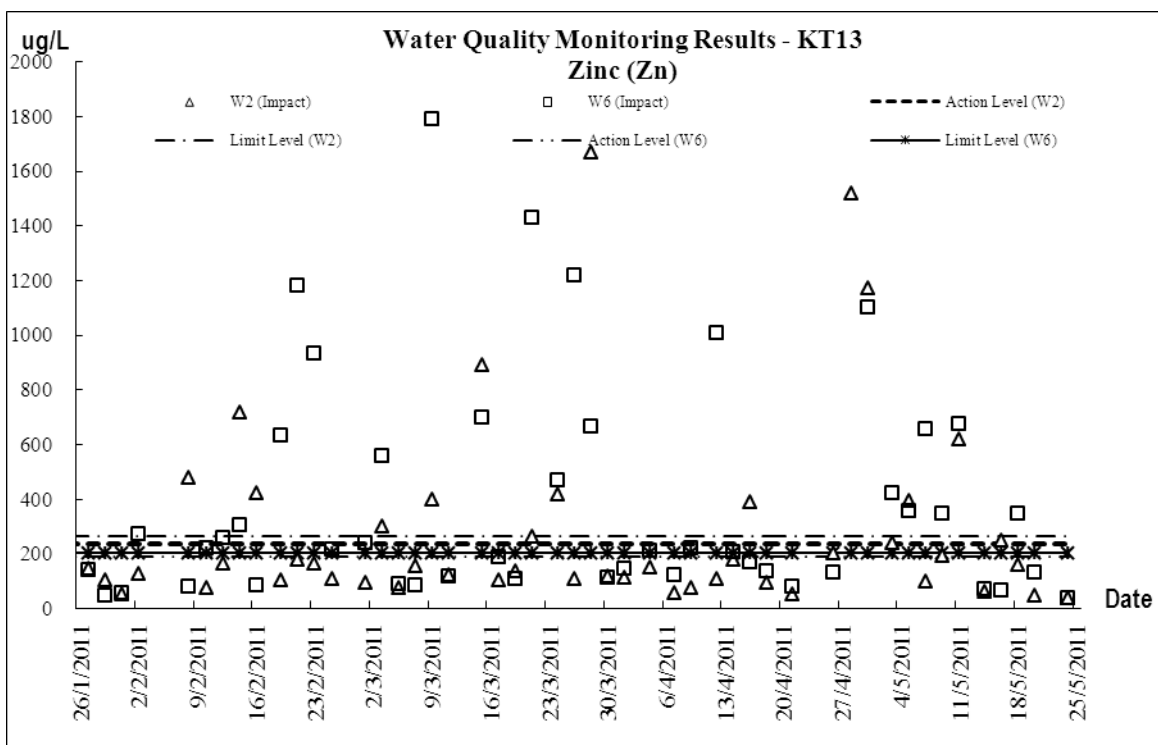
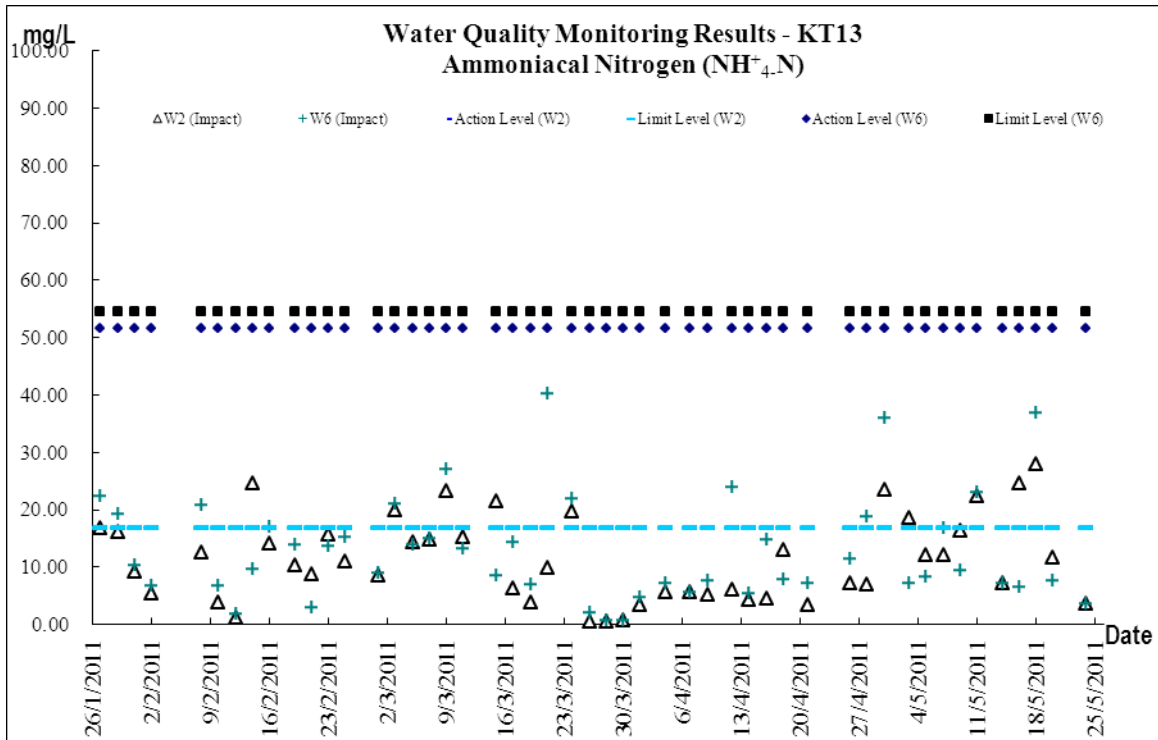




Graphic Plot of Monitoring –Water Quality







Appendix H
Photographic Records of
Ecological Monitoring of Vegetation
(Not Used)

Appendix I

Condition Survey of the Grave during Construction Phase

(Not Used)

Appendix J

Physical, Human and Cultural Landscape Resources at KT13

DC/2007/17

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

Current Situation of Physical, Human and Cultural Landscape Resources at KT13, inspected on 06 and 20 May 2011

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	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 construction work within the site boundary.
		A5		
Fish Pond				
10.7.4	LR2.1 (Fish Pond) within site boundary LR2.2 (Fish Pond) outside site boundary	A6	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 m ² . 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 construction of structures within site boundary. A soil platform was
		A7		

DC/2007/17
 Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen, Tin Sam Tsuen of Yuen Long District and
 Sewerage at Tseng Tau Chung Tsuen, Tuen Mun

				created outside site boundary due to other project was noted.
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 <i>Schefflera octophylla</i> , <i>Pinus massoniana</i> , <i>Aporosa chinensis</i> , <i>Celtis sinensis</i> , <i>Bridelia tomentosa</i> , <i>Cinnamomum cmaphora</i> , <i>Rhus chinensis</i> and <i>Phus succedanes</i> . 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 <i>Ficus hispide</i> and <i>Macaranga tanarius</i> . 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 <i>Dimocarpus longan</i> , <i>Defonix regia</i> , <i>Roystonea regia</i> and <i>Pachira macrocarpa</i> . 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/ Followed 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	Remain the same as the baseline.

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			landscape within the study area. They have low landscape value and sensitivity to change.			
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.			Minor change due to invasion of cows. Some of the grass on the land were consumed.
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 egret 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 construction 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 construction of structures within site boundary.

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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.	Reconstruction of hoarding was conducted by the land owner
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.

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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.	Temporary stockpiling was observed
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.	Reconstruction of hoarding was conducted by the land owner
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.	
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

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

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

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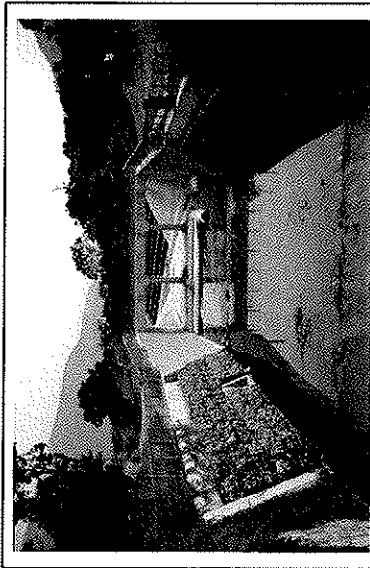


Photo No. A1 - LR1

River/Stream

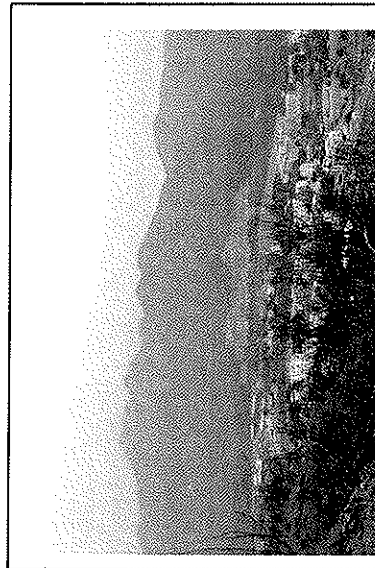


Photo No. A4 - LR1

River/Stream

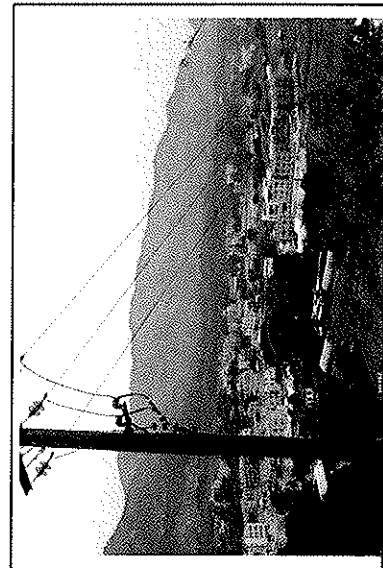


Photo No. A7 - LR2.2

River/Stream

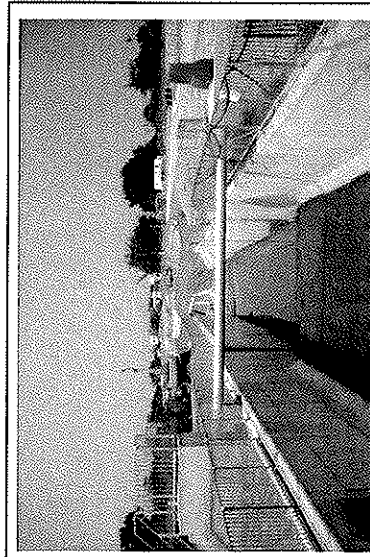


Photo No. A2 - LR1

River/Stream

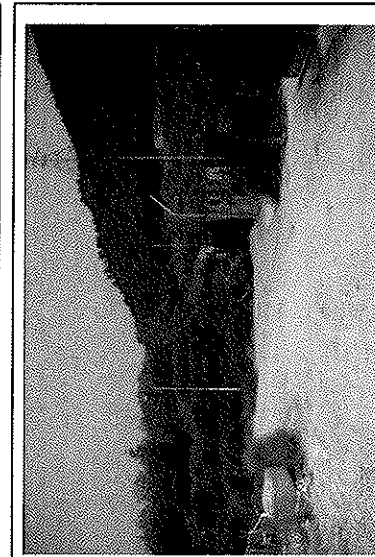


Photo No. A5 - LR1

River/Stream

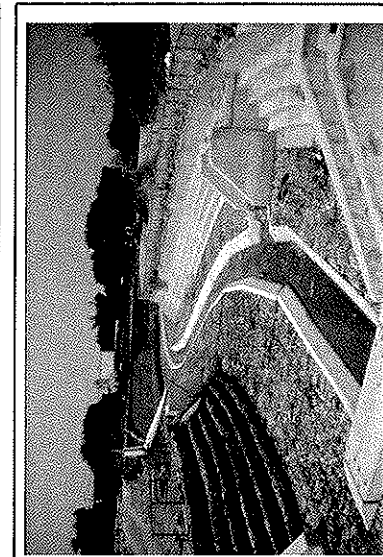


Photo No. A8 - LR3

River/Stream

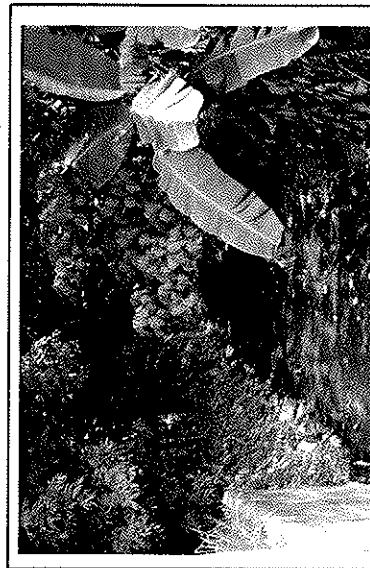


Photo No. A3 - LR1

River/Stream

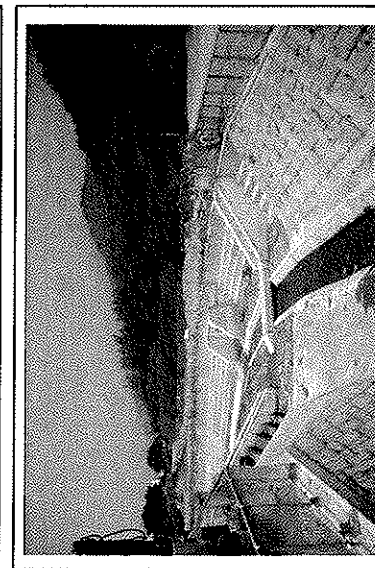


Photo No. A6 - LR2.1

Fish Pond within site boundary



Photo No. A9 - LR4

Woodland/Wooded Area

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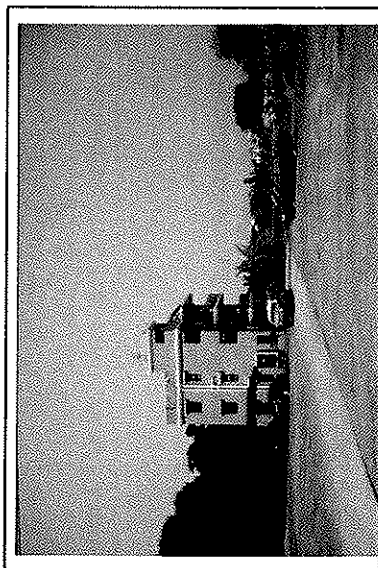


Photo No. A10 – LR4

Woodland

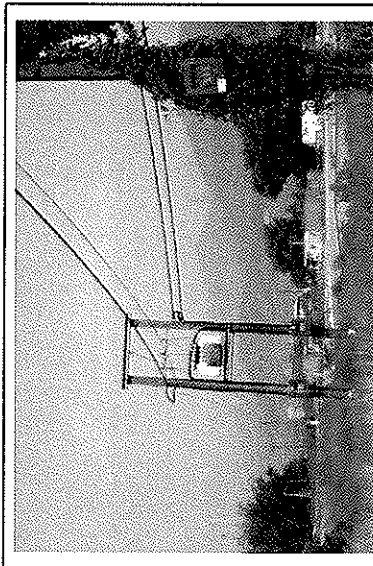


Photo No. A11 – LRS

Orchard/ Horticultural Trees

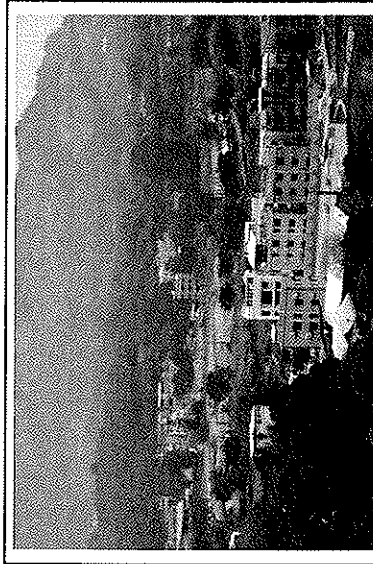


Photo No. A12 – LR6

Low-Lying Agricultural Land/ Followed Land



Photo No. A13 – LR7

Sitting-Out Area at Ma On Kong

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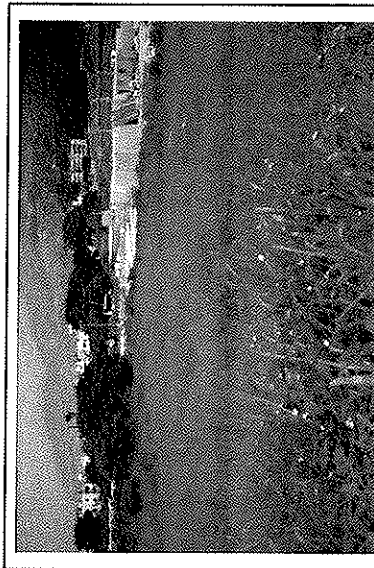


Photo No. B1 - LCA1 Agricultural Landscape Character Area

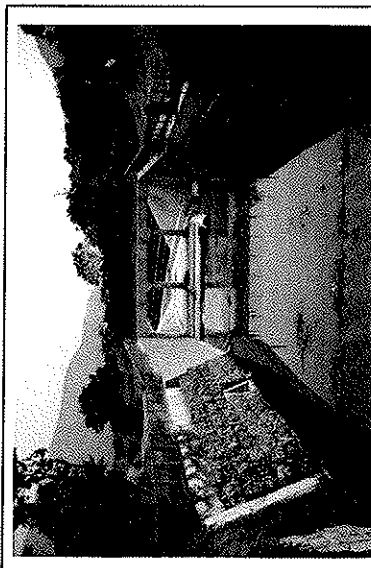


Photo No. B4 - LCA3 River/ Stream Landscape Character Area

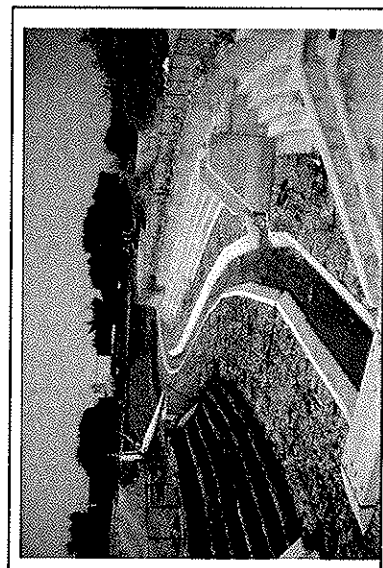


Photo No. B7 - LCA3 River/ Stream Landscape Character Area

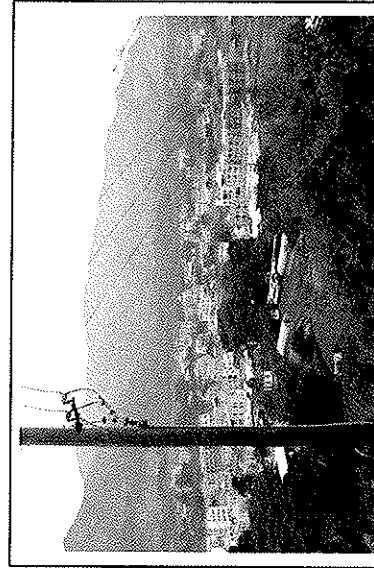


Photo No. B2 - LCA1 Agricultural Landscape Character Area

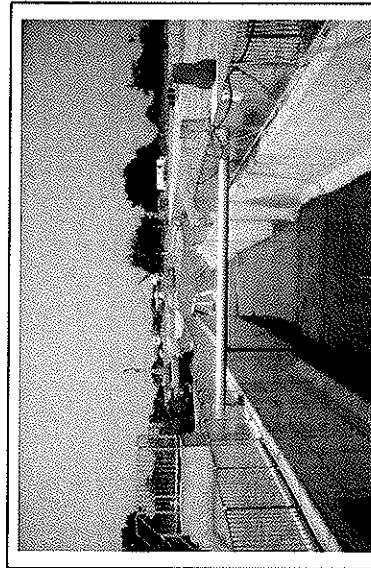


Photo No. B5 - LCA3 River/ Stream Landscape Character Area

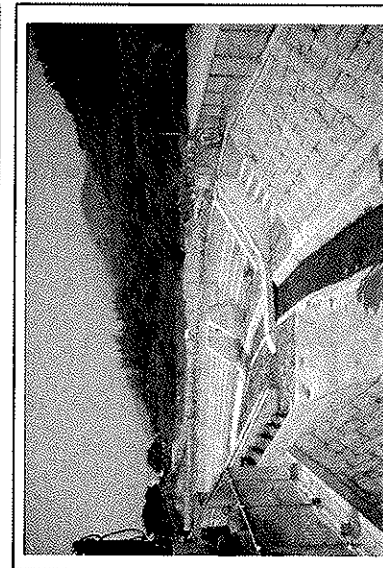


Photo No. B8 - LCA4 Fish Pond Landscape Character Area



Photo No. B3- LCA2 Woodland Landscape Character Area

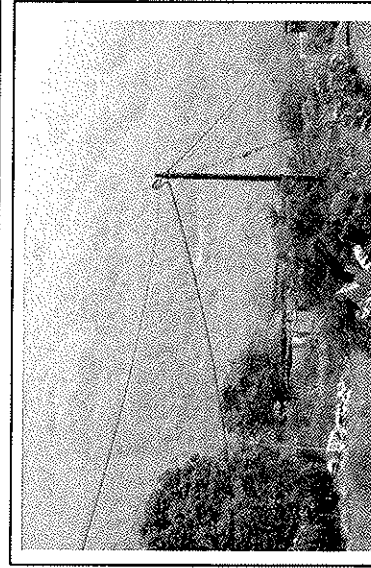


Photo No. B6 - LCA3.1 River/ Stream Landscape Character Area



Photo No. B9- LCA5 Village Landscape Character Area

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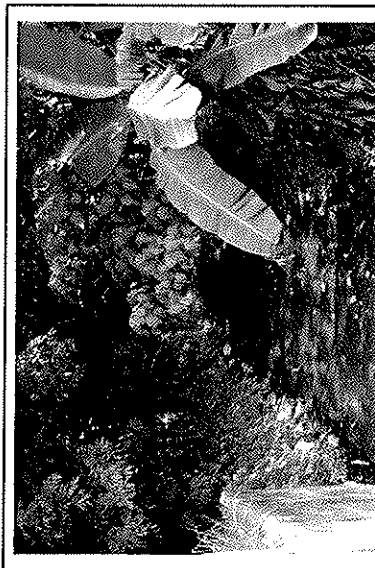


Photo No. B10—LCA 5 Village Landscape Character Area



Photo No. B11—LCA 6 Industrial Landscape Character Area



Photo No. B12—LCA 6 Industrial Landscape Character Area

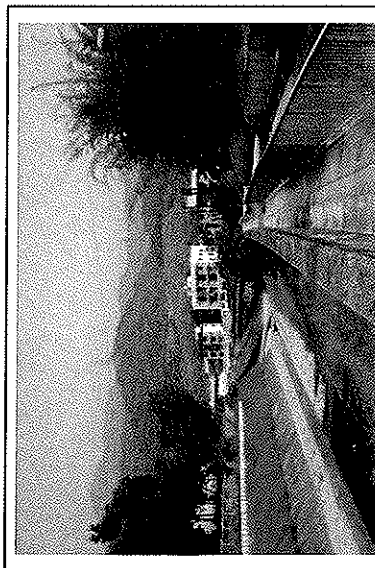


Photo No. B13—LCA 7 Nullah Landscape Character Area

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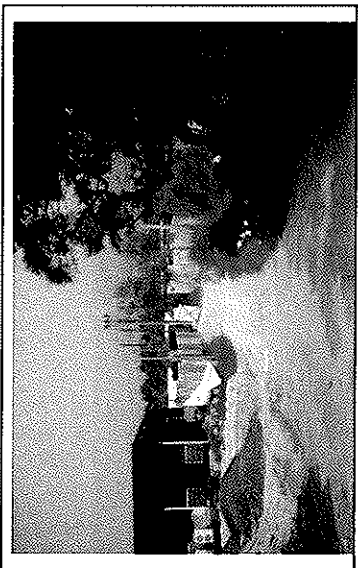


Photo No. C1-11 Open storage near junction between Kam Ho Road and Village access road

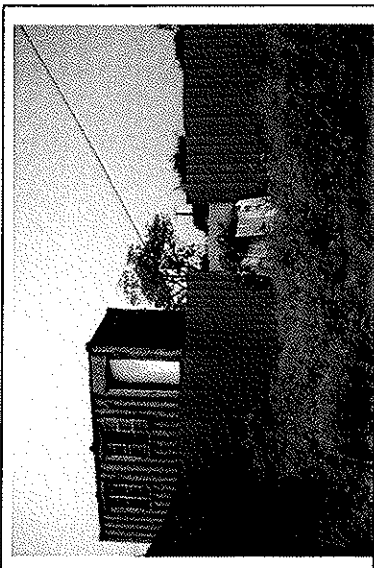


Photo No. C4-14 Temporary Structure for poultry east to Ho Pui

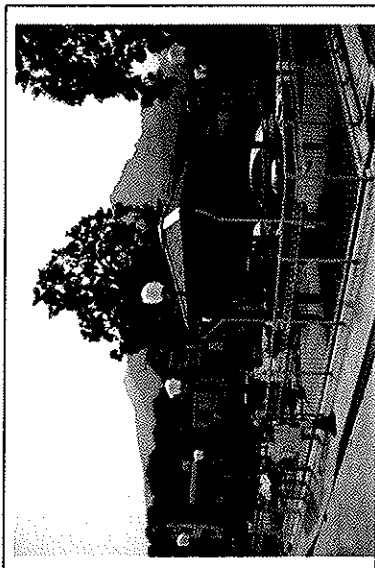


Photo No. C7-01 Sitting-out Area at Ma On Kong

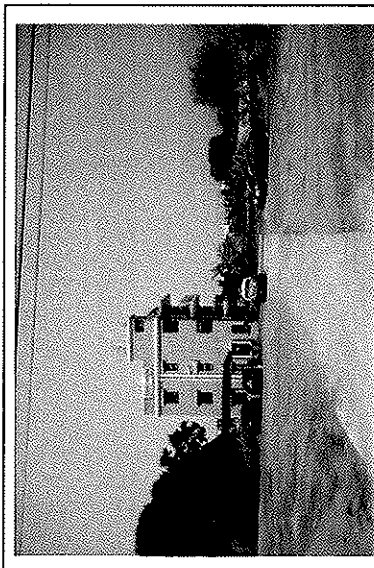


Photo No. C2-12 Plant Nursery at the east of Ma On Kong Channel

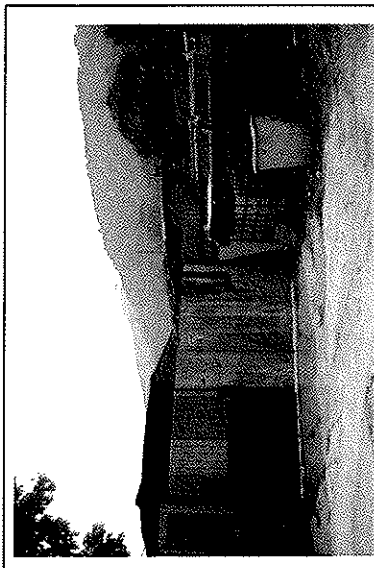


Photo No. C5-15 Open Storage at the end of village access road

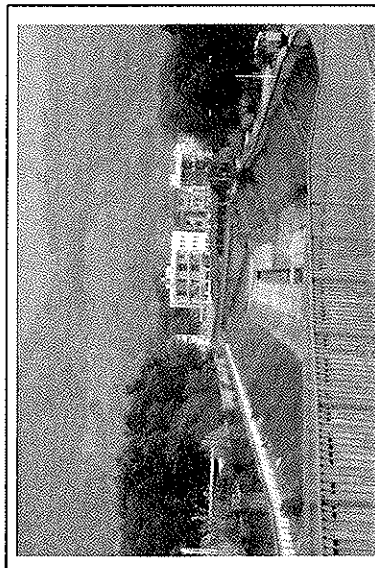


Photo No. C8-R1 Tei Kek

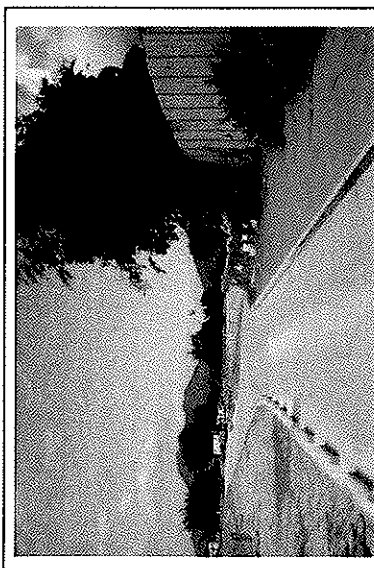


Photo No. C3-13 Plant Nursery at the east of Ma On Kong Channel

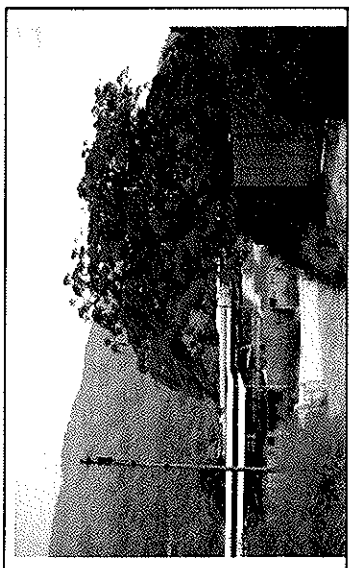


Photo No. C6-16 Temporary Structure for poultry and Open Storage at upstream of Ma On Kong Channel

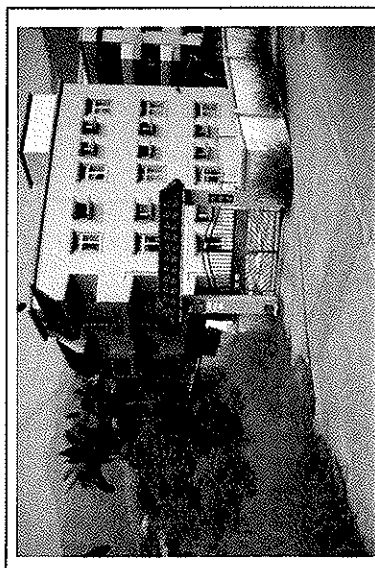


Photo No. C9-R2 North of Ma On Kong

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Photo No. C10—R3

Ma On Kong

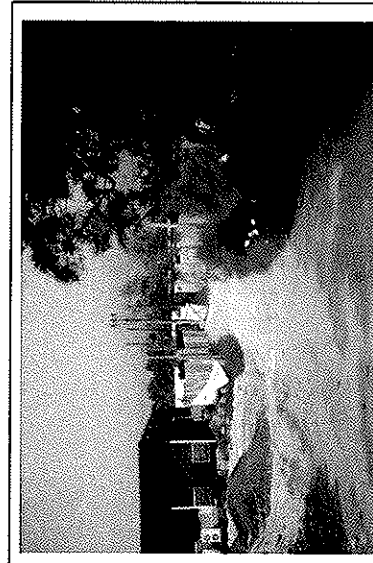


Photo No. C11—R4

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)

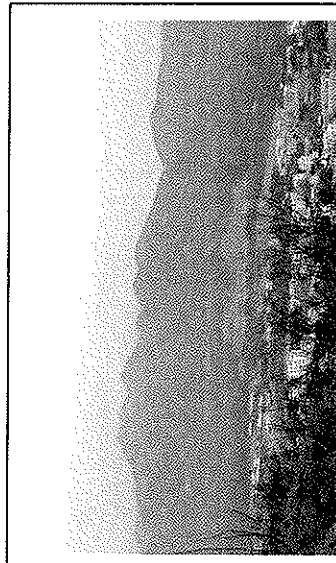


Photo No. C14—T3

Motorists, Pedestrians and Tourists along access road toward Ho Pui Reservoir

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Photo No. A1 - LR1

River/Stream

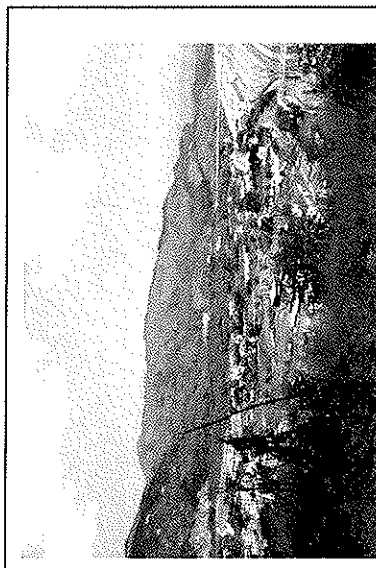


Photo No. A4 - LR1

River/Stream

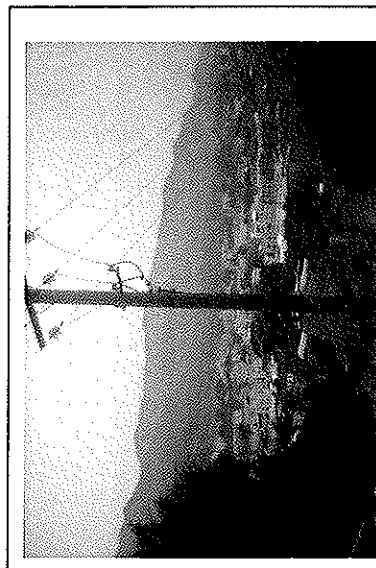


Photo No. A7 - LR2.2

River/Stream

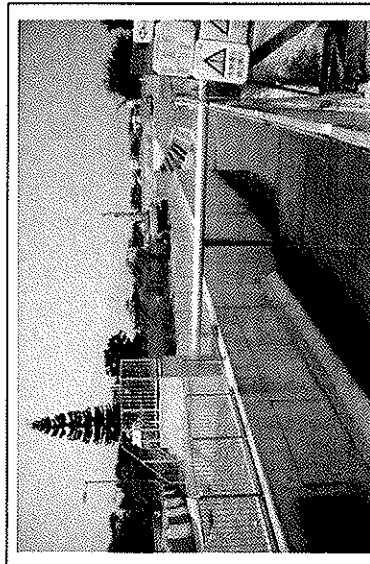


Photo No. A2 - LR1

River/Stream

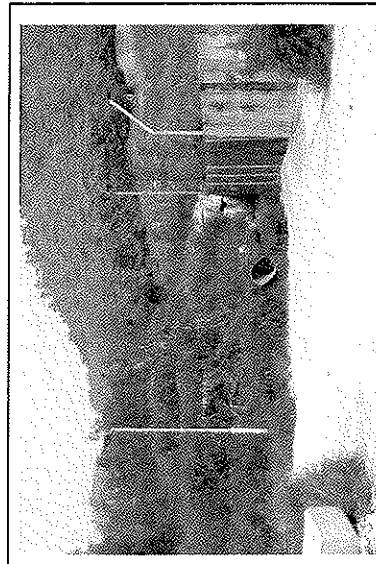


Photo No. A5 - LR1

River/Stream

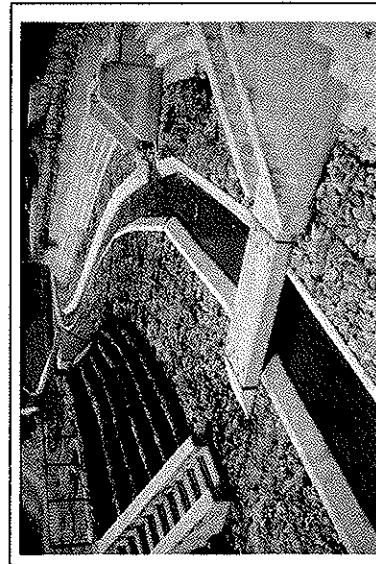


Photo No. A8 - LR3

River/Stream



Photo No. A3 - LR1

River/Stream

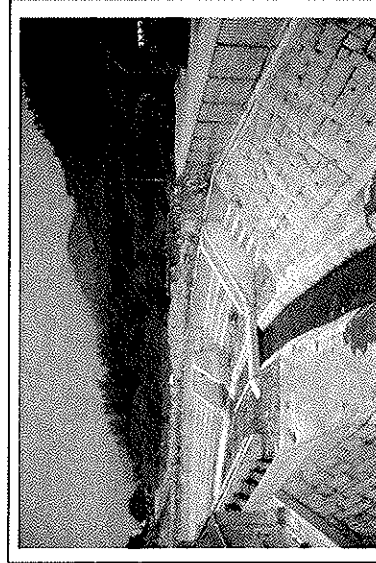


Photo No. A6 - LR2.1

Fish Pond within site boundary



Photo No. A9 - LR4

Woodland/Wooded Area

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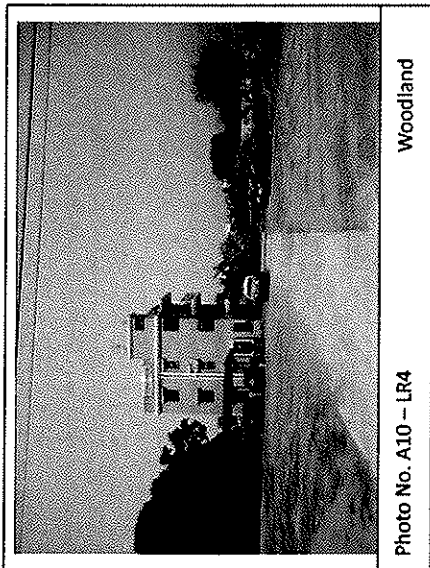


Photo No. A10 – LR4

Woodland

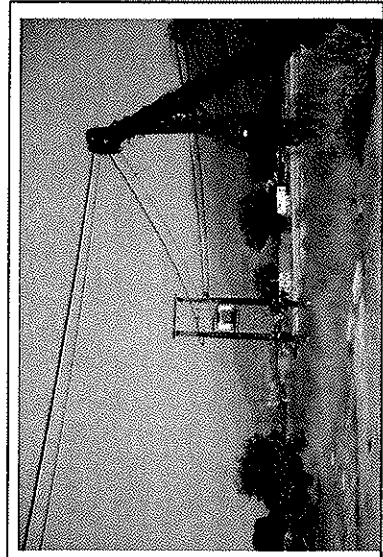


Photo No. A11 – LR5

Orchard/ Horticultural Trees

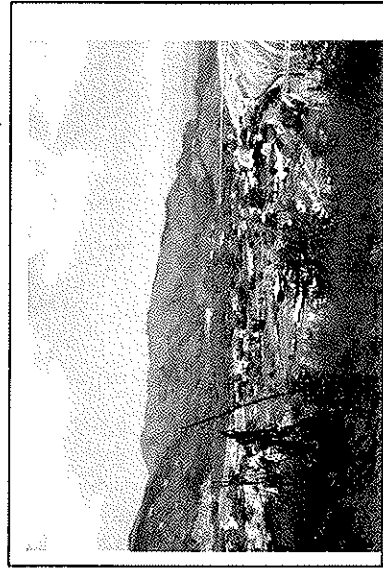


Photo No. A12 – LR6

Low-Lying Agricultural Land/ Fallowed Land

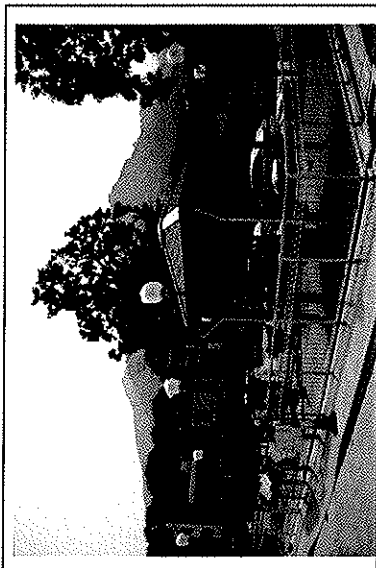


Photo No. A13 –LR7

Sitting-Out Area at Ma On Kong

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Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
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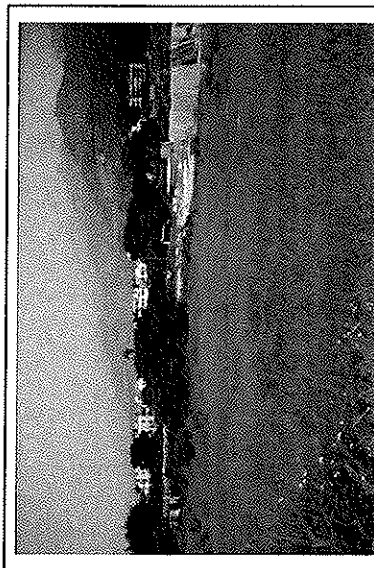


Photo No. B1 - LCA1 Agricultural Landscape Character Area



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

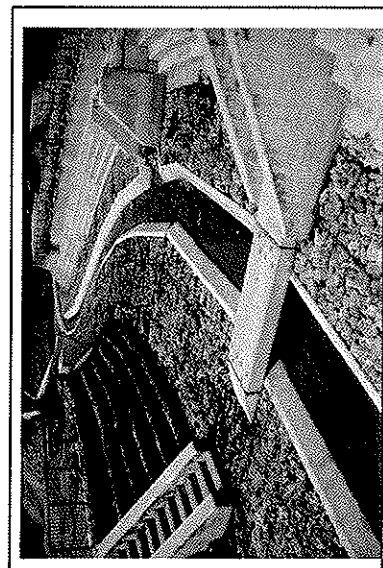


Photo No. B7 - LCA3 River/ Stream Landscape Character Area

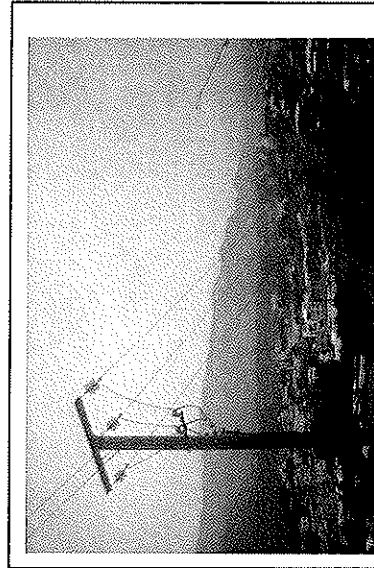


Photo No. B2 - LCA1 Agricultural Landscape Character Area

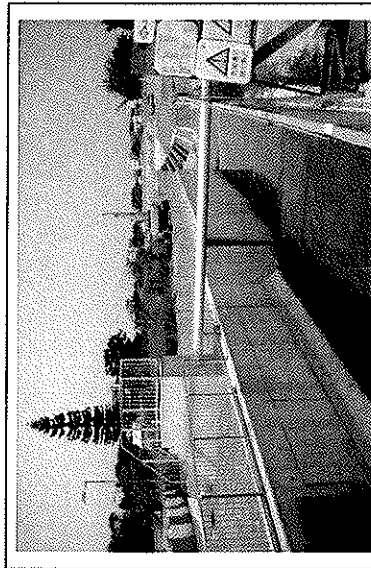


Photo No. B5 - LCA3 River/ Stream Landscape Character Area

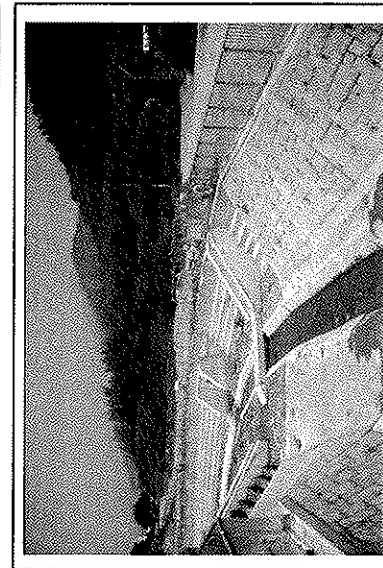


Photo No. B8 - LCA4 Fish Pond Landscape Character Area

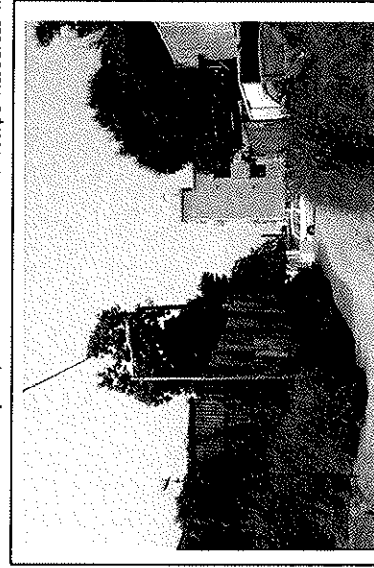


Photo No. B3 - LCA2 Woodland Landscape Character Area

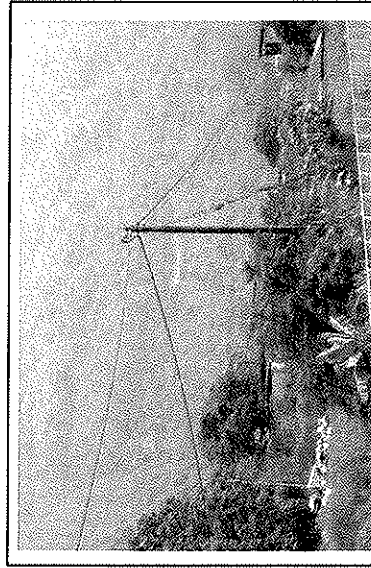


Photo No. B6 - LCA3.1 River/ Stream Landscape Character Area

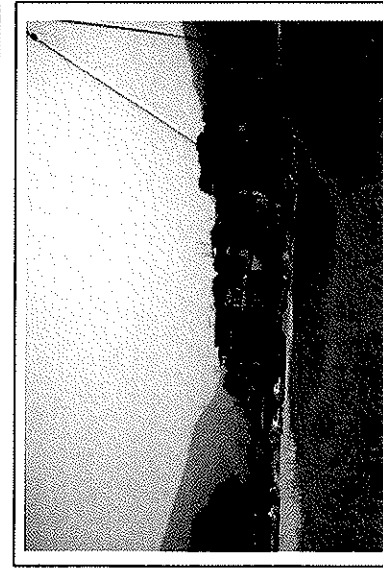


Photo No. B9 - LCA5 Village Landscape Character Area

DC/2007/17
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 Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
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Photo No. B10—LCA 5 Village Landscape Character Area

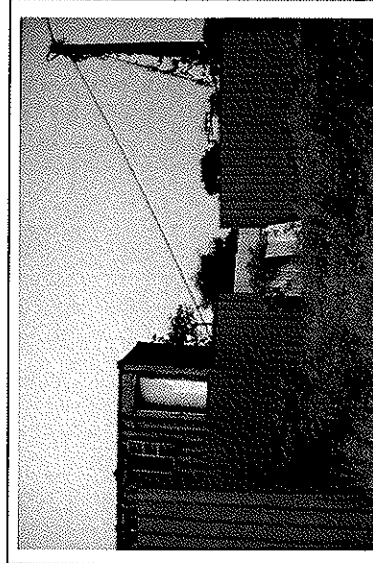


Photo No. B11—LCA 6 Industrial Landscape Character Area

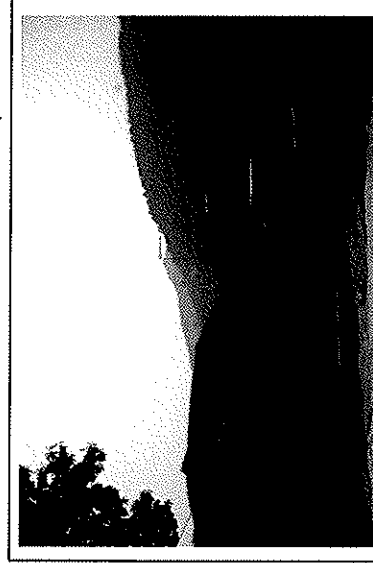


Photo No. B12—LCA 6 Industrial Landscape Character Area

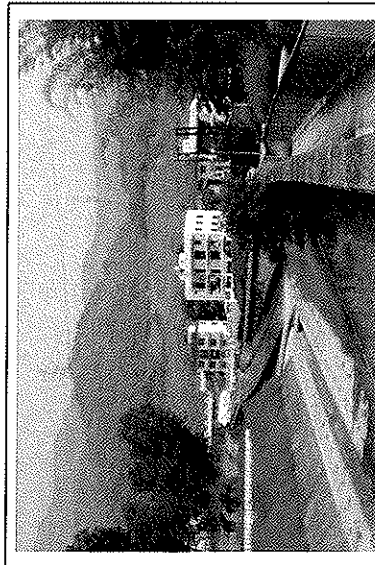


Photo No. B13—LCA 7 Nulish Landscape Character Area

DC/2007/17
Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen, Tin Sam Tsuen of Yuen Long District and
Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
Physical, Human and Cultural Landscape Resources Record

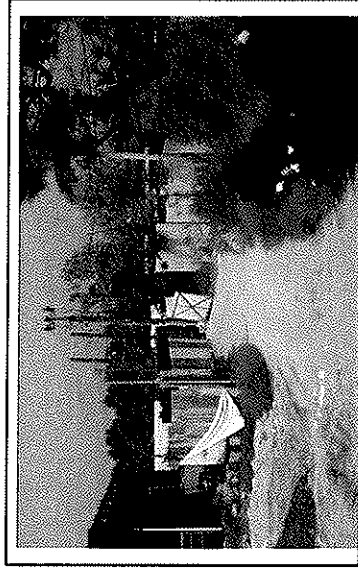


Photo No. C1-11
Open storage near junction between Kam Ho Road and Village access road

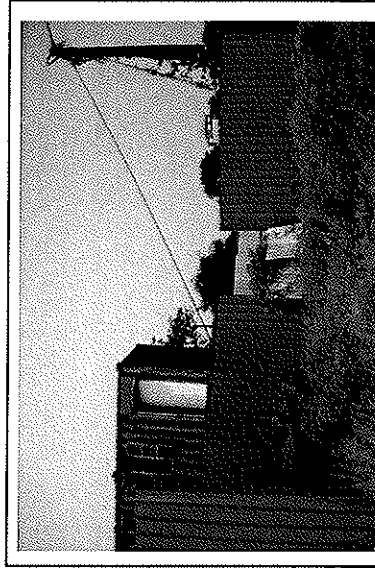


Photo No. C4-14
Temporary Structure for poultry east to Ho Pui

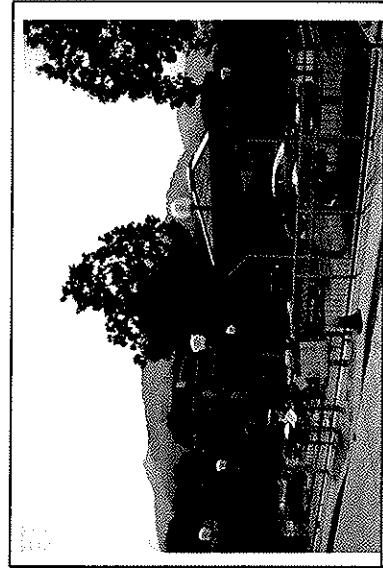


Photo No. C7-01
Sitting-out Area at Ma On Kong

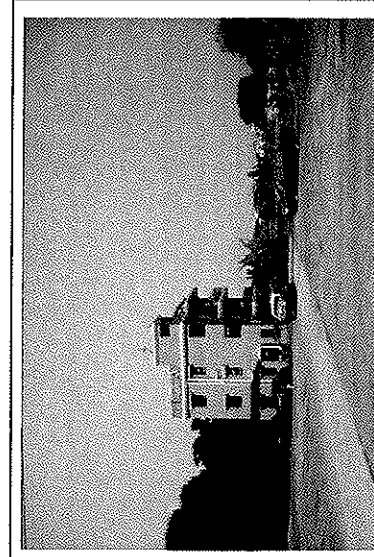


Photo No. C2-12
Plant Nursery at the east of Ma On Kong Channel

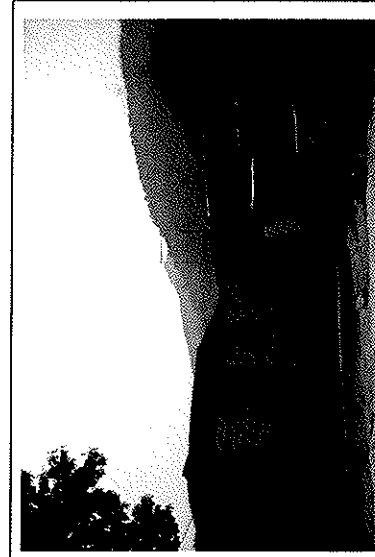


Photo No. C5-15
Open Storage at the end of village access road

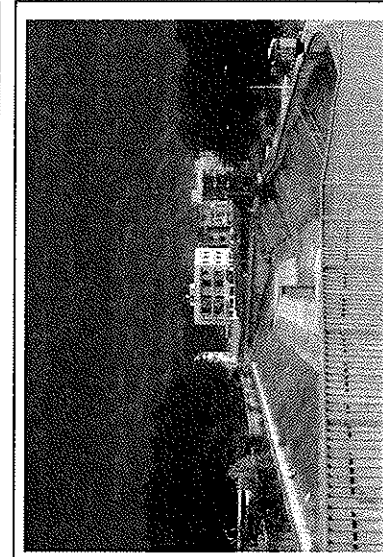


Photo No. C8-R1
Tei Kek

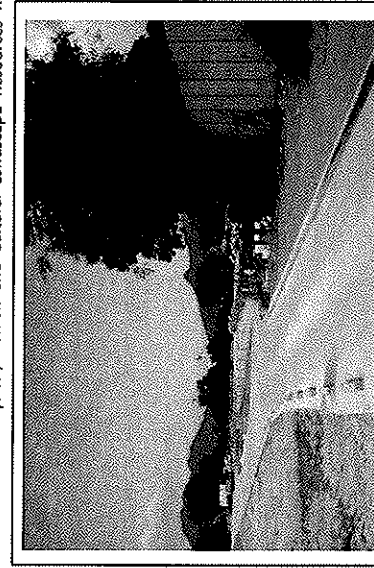


Photo No. C3-13
Plant Nursery at the east of Ma On Kong Channel

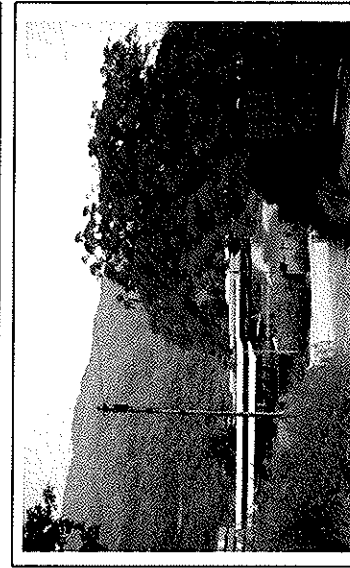


Photo No. C6-16
Temporary Structure for poultry and Open Storage at upstream of Ma On Kong Channel

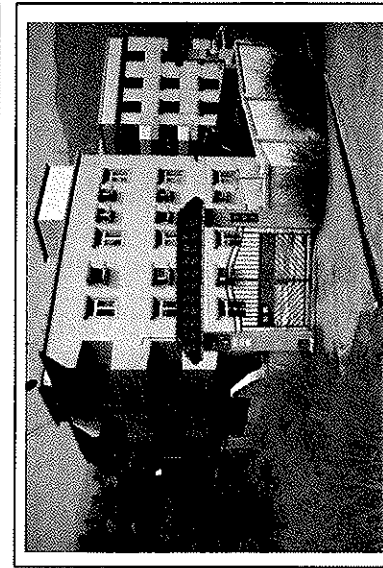


Photo No. C9-R2
North of Ma On Kong

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Photo No. C10—R3

Ma On Kong

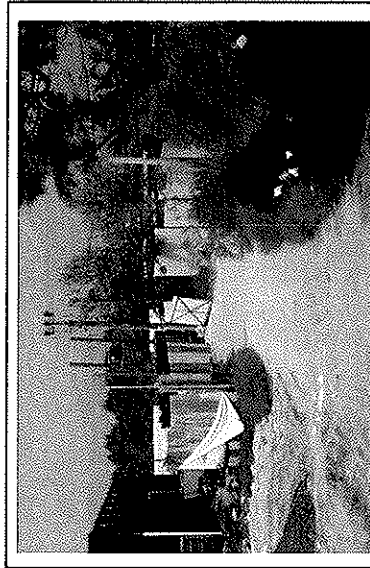


Photo No. C11—R4

North of Ho Pui

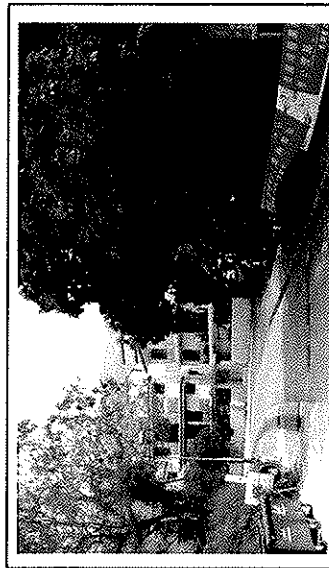


Photo No. C12—T1

Motorists and Pedestrians along village access road
(lower section)



Photo No. C13—T2

Motorists and Pedestrians along village
access road (high section)

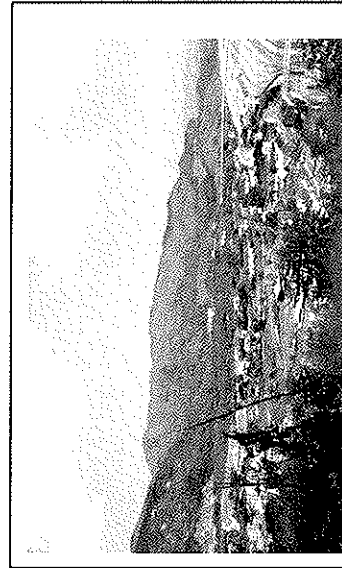


Photo No. C14—T3

Motorists, Pedestrians and Tourists along
access road toward Ho Pui Reservoir

Appendix K

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table

Date: 31-May-11
 Year/Month: May-11

Year	Actual Quantities of Inert C & D Materials Generated Monthly					Estimated Annual Quantities of C & D Wastes Generated Monthly					
	Total Quantity Generated (in '000M ³)	Broken Concrete (see note 4) (in '000M ³)	Reused in the Contract (in '000M ³)	Reused in other Projects (in '000M ³)	Disposed as Public Fill (in '000M ³)	Metals (in '000KG)	Paper/ Cardboard packaging (in '000KG)	Plastics (see note 3) (in '000KG)	Chemical Waste (in '000KG)	Others, e.g. General refuse (in '000M ³)	
Jan	2.452	0.001	2.5355	-0.085	0	0	0	0	0	0	
Feb	4.167	0.001	1.7215	2.444	0	0	0	0	0	0	
Mar	1.894	0.002	2.332	-0.44	0	0	0	0	0	0	
Apr	1.123	0.001	1.551	-0.429	0	0	0	0	0	0	
May	0.567	0	0.5665	0	0	0	0	0	0	0	
Jun	0.000				0	0	0	0	0	0	
Sub-Total	10.20	0.005	8.707	1.490	0	0	0	0	0	0	
Jul	0.000				0	0	0	0	0	0	
Aug	0.000				0	0	0	0	0	0	
Sep	0.000				0	0	0	0	0	0	
Oct	0.000				0	0	0	0	0	0	
Nov	0.000				0	0	0	0	0	0	
Dec	0.000				0	0	0	0	0	0	
Total	10.202	0.005	8.707	1.490	0.000	0.000	0.000	0.000	0.000	0.000	

- 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
 - (5) Negative numbers in "Reused in other Projects" indicate import of materials from other projects.