


PROJECT No.: TCS/00408/08

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

**FIRST QUARTERLY EM&A SUMMARY REPORT –  
KT13  
OCTOBER – DECEMBER 2008**

PREPARED FOR  
**CHINA ROAD & BRIDGE CORPORATION**

**Quality Index**

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### Executive Summary

ES01 This is the first quarterly EM&A summary report for KT13, covering the construction period from 20 October to 25 December 2008.

#### Breaches of AL levels

ES02 Monitoring results demonstrated that no exceedances of environmental quality criteria of air quality, construction noise and ecology were recorded during the Reporting Period.

ES03 No cultural heritage monitoring was conducted during the Reporting Period as no construction works were undertaken within 100 m area from the historical grave. The conditions of the landscape resources during the Reporting Period remained the same as the baseline, except minor changes of river/stream/fish pond landscape character area at LR1, LR2.1, LR2.2, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13.

ES04 For water quality however, a total of 44 exceedances of Limit levels were recorded at W2 and W6 during the Reporting Period as shown below:

Location	Exceedance	DO	Turbidity	pH	SS	NH <sub>4</sub> <sup>+</sup> N	Zc	Total
<b>October 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	3	0	0	0	0	3
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	2	0	0	7
<b>November 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	1	5
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	10	0	8	0	1	19
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	12	0	10	0	2	24
<b>December 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	4	0	0	9
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	7	0	6	0	0	13
Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	24	0	18	0	2	44
<b>Compliance (%)</b> (Number of monitoring occasions per parameter per location = 38)		<b>Action Level</b>	100	100	100	100	100	100
		<b>Limit Level</b>	100	68.4	100	76.3	100	97.4

ES05 Investigation concluded that the exceedances are not related to the works under the Project. No corrective actions were therefore recommended. Nevertheless, channel excavation near W2 and W6 may have potential water quality impacts to elevation of concentrations of certain water quality parameters, in particular Turbidity and SS. As the attribution of the construction impacts can not be over ruled, it is recommended that water quality mitigation measures stipulated in the EIA and summarized in mitigation measures implementation schedule in the EM&A Manual, including containment structure such as temporary earth bunds, sand bags, sheet pile barriers or other similar techniques, is fully implemented. In addition, the implemented mitigation measures in particular the erected dams with sand bags downstream the excavation site within the water course of KT13 may also be improved to enhance sedimentation of Turbidity and SS, e.g. by using silt curtain, as appropriate.

### **Environmental Complaint, Notifications of Summons and Prosecutions**

ES06 No documented complaints, notifications of summons and 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, indicating 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 No reporting changes were made during the Reporting Period.

### **Future key issues**

ES08 As dry season has approached, construction dust has become a key environmental issue. Construction dust suppression measures should therefore be fully implemented. In addition, the implemented construction dust mitigation measures should also be maintained and improved, as necessary, during dusty works including vehicle movement on dry and windy days.

ES09 Moreover, water quality mitigation measures to avoid ingress of turbidity and other water quality pollutants via site surface water runoff into the river within KT13 should be properly maintained or improved, as appropriate. In addition, special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

### **Recommendation**

ES10 It is strongly recommended that the consensual pH range used in the EPD water discharge license and Technical Memorandum for Effluents Discharged into Drainage and Sewerage System, Inland and Coastal Water, etc. be used in place of the existing pH Action and Limit level. The recommended pH A/L levels are summarized as follows:

<u>Parameter</u>	<u>Location</u>	<u>Action Level</u>	<u>Limit Level</u>
pH (pH Value)	W2 & W6	6.5 – 8.5	6.0 – 9.0

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## 1 INTRODUCTION

### 1.1 BASIC PROJECT BACKGROUND

CRBC has been awarded the DSD Contract No. DC/2007/17 (hereinafter “the Project”). The works to be executed under the Project are located in Kam Tin, Pat Heung and Tuen Mun, New Territories. The location plan of the Project is shown in **Appendix A**.

The Project involves construction of five drainage channels, namely KT12, KT13 (under Environmental Permit No. EP263/2007), KT14A (under Environmental Permit No. EP231/2005A), KT14B and KT14C in Kam Tin and Pat Heung and the sewerage works at Tseng Tau Chung Tsuen in Tuen Mun. For ease of reporting, the EM&A report under the Project is split to the following three stand-alone parts:

1. EM&A Report - KT13 (under EP No. EP263/2007);
2. EM&A Report - KT14A (under EP No. EP231/2005A); and
3. EM&A Report - KT12, KT14B and KT14C (Non-Designated works under no Environmental Permit)

This report is the part of the EM&A report for KT13 under EP No. No. EP263/2007, and this is the first Quarterly EM&A Summary Report (hereinafter “this Report”), covering the first quarter from 20 October to 25 December 2008 (hereinafter “the Reporting Period”).

### 1.2 REPORT STRUCTURE

This Report is structured as follows:

<b>Section 1</b>	Introduction
<b>Section 2</b>	Summary of Impact Environmental Monitoring and Audit Requirements
<b>Section 3</b>	Monitoring Results and Breaches of Environmental Quality Criteria
<b>Section 4</b>	Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions
<b>Section 5</b>	Conclusion

### 1.3 PROJECT ORGANISATION AND CONSTRUCTION PROGRESS

#### 1.3.1 ENVIRONMENTAL MANAGEMENT ORGANIZATION

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

#### 1.3.2 WORKS UNDERTAKEN DURING THE QUARTER REPORTING PERIOD

Construction activities implemented during the Reporting Period are presented in **Appendix C**. In addition to the preparation works and site clearance, including underground utility investigation, tree survey, tree pruning and tree transplant, major construction activities are summarized as follows:

##### **20 to 25 October 2008**

- (a) Structural condition survey
- (b) Erect temporary chain link fence at ecological sensitive areas
- (c) Excavation work at Section B of Channel
  - 20, 21 and 22 October 2008 at Section B CH316 - CH244
  - 23 and 24 October 2008 at Section B CH244 - CH172
  - 25 October 2008 at Section B CH172 – CH150
- (d) Removal of illegal dumped materials at KT13.

##### **26 October to 25 November 2008**

- (e) Structural Survey
- (f) Channel excavation at Section A CH 250-225 on 17 Nov 2008
- (g) Channel excavation at Section A CH 225-198 on 18 Nov 2008

- (h) Channel excavation at Section A CH 198-175 on 19 Nov 2008
- (i) Channel excavation at Section A CH 175-148 on 20 Nov 2008
- (j) Channel excavation at Section A CH 148- 120 on 21 Nov 2008
- (k) Channel excavation at Section A CH 120-96 on 22 Nov 2008
- (l) Channel excavation at Section A CH 96-66 on 24 Nov 2008
- (m) Channel excavation at Section A CH 66-30 on 25 Nov 2008

**26 November to 25 December 2008**

- (n) Structural Survey
- (o) Channel excavation at Section B CH 80 - 115 on 8 Dec 2008
- (p) Channel excavation at Section B CH 115 - 136 on 9 Dec 2008
- (q) Channel excavation at Section B CH 136 - 170 on 10 Dec 2008
- (r) Channel excavation at Section B CH 170 - 205 on 11 Dec 2008
- (s) Channel excavation at Section B CH 205 - 230 on 12 Dec 2008
- (t) Channel excavation at Section B CH 230 - 248 on 13 Dec 2008
- (u) Channel excavation at Section B CH 248 - 262 on 15 Dec 2008
- (v) Channel excavation at Section B CH 262 - 280 on 16 Dec 2008
- (w) Channel excavation at Section A CH 0 - 50 on 17 Dec 2008

**1.3.3 ENVIRONMENTAL LICENSING STATUS**

The environmental licensing status in the quarter reporting period is summarized in **Table 2-1**.

**Table 1 Status of Environmental Licenses and Permits**

Item	License / Permit Description	Status
1	Air Pollution Control (Construction Dust)	Notified EPD on 14-Feb-08
2	Water Pollution Control (Discharge License) License No. 1U461/1	Valid
3	Chemical Waste Producer Registration WPN: 5611-531-C3124-28	Registration on 2-May-08
4	Construction Waste Disposal Billing Account Number 7006524	Valid on 9 Jan 2008
5	Environmental Protection Department Permit Issued under the Dumping at Sea Ordinance 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 Civil Engineering and Development Department.	Permit no. EP/I4D/08-095, dated 18 September 2008, permit validity period of six months from 18 September 2008 to 17 March 2009.

**2 SUMMARY OF IMPACT ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS**

**2.1 MONITORING PARAMETERS**

Monitoring parameters are summarized below.

**Table 2-1 Summary of Monitoring Parameters**

Environmental Aspect	Monitoring Parameters
Air Quality	(a) 1-Hour Total Suspended Particulate (hereinafter '1-Hr TSP'); and (b) 24-Hour Total Suspended Particulate (hereinafter '24-Hr TSP').
Construction Noise	(a) A-weighted equivalent continuous sound pressure level (30min) (hereinafter 'Leq(30min)' during the normal working hours; and (b) A-weighted equivalent continuous sound pressure level (5min) (hereinafter 'Leq(5min)' for construction work during the restricted hours.
Water Quality	(a) In Situ Measurement temperature, Dissolved Oxygen (hereinafter 'DO'), pH & Turbidity

Environmental Aspect	Monitoring Parameters	
	(b) Laboratory Analysis	Suspended Solids (hereinafter 'SS'), Ammonia Nitrogen (hereinafter 'NH <sub>3</sub> -N') and Zinc (hereinafter 'Zn')
Ecology	Vegetation, All bird species of wetland, Ho Pui Egret, Ma On Hong Egret and Flight Line Survey	
Waste Management	Inspection and the document audit	
Cultural Heritage	Condition survey for a historical grave	
Landscape & Visual	To audit the implementation of the proposed construction phase mitigation measure stipulated in EIA.	

## 2.2 MONITORING LOCATIONS

Monitoring locations are summarized in *Table 2-2* and shown in *Appendix A*.

**Table 2-2 Summary of Monitoring Locations**

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

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

### 2.3.1 Air Quality

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

**Duration:** Throughout the construction period

### 2.3.2 Construction Noise

**Frequency:** Measurement of Leq 30min: Once a week during 0700-1900 on normal weekdays for Leq30min

If the construction work is undertaken at restricted hour, 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 Leq5min at restricted hour from 1700 – 2300;
- 3 consecutive Leq5min for restricted hour from 2300 – 0700 next day;
- 3 consecutive Leq5min for Sunday or public holiday from 0700 – 1900;

**Duration:** Throughout the construction period

### 2.3.3 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 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.

**Duration:** Throughout the construction period.

### 2.3.4 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 – Month during the period from April to June

**Duration:** Throughout the whole construction period

### 2.3.5 Waste Management Audit

**Frequency:** Once per month

**Duration:** Throughout the construction period.

### 2.3.6 Cultural Heritage

**Frequency:** Bi-monthly

**Requirement:** Condition survey of a Qing Dynasty Grave.

**Duration:** Throughout the construction phase period.

### 2.3.7 Landscape & Visual

**Frequency:** Bi-weekly

**Duration:** Throughout the construction phase period.



## 2.4 ENVIRONMENTAL QUALITY CRITERIA

The environmental quality criteria i.e. Action and Limit levels (herein after 'A/L levels') are summarized as follows:

**Table 2-4-1 Summary of Air Quality Monitoring Results at KT14A-A8(a)**

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

**Table 2-4-2 Action and Limit Levels of Construction Noise Monitoring**

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

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

**Table 2-4-3 Water Quality Action and Limit Levels**

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

Notes: # Act as Control Station for the Impact Water Quality Monitoring.

\* Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 120% of upstream control station of same day.

\*\* Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 130% of upstream control station of same day.

**Table 2-4-4 Action and Limit Levels for Cultural Heritage Resources**

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

**Table 2-4-5 Ecological Action and Limit Levels**

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

## 2.5 ENVIRONMENTAL MITIGATION MEASURES

CRBC has committed to implement environmental protection and pollution control and mitigation measures, as recommended in the EIA, EP and the EM&A Manuals, summarized in the Mitigation Measures Implementation Schedules in the EM&A Manual and enclosed in **Appendix D**. The implemented mitigation measures include:

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

## 3 MONITORING RESULTS AND BREACHES OF ENVIRONMENTAL QUALITY CRITERIA

### 3.1 AIR QUALITY

Monitoring results are presented in graphic plots in **Appendix E**. Breaches of air quality A/L levels during the Reporting Period are summarized in **Table 3-1-1** and **3-1-2**.

**Table 3-1-1 Summaries of Air Quality of 1-hr and 24-hr TSP in the Quarter Reporting period**

Channel	Station	1-Hour TSP			24-Hour TSP		
		Max	Min	Mean	Max	Min	Mean
KT13	A1	222	64	139	66	12	32
<b>Recorded in the date</b>		16 Dec 08	10 Dec 08	11 events	15 Dec 08	31 Oct 08	13 events
KT13	A2	231	75	143	50	17	28
<b>Recorded in the date</b>		16 Dec 08	10 Dec 08	11 events	31 Oct 08	24 Dec 08	13 events

**Table 3-1-2 Summaries of Breaches of Air Quality A/L Levels**

Location	Exceedance	1-Hour TSP	24-Hour TSP	Total
KT13A (A1)	Action Level	0	0	0
	Limit Level	0	0	0
KT13A (A2)	Action Level	0	0	0
	Limit Level	0	0	0

As shown in graphic plots in **Appendix E**, all the 1-Hr TSP and 24-Hr TSP results fluctuated below the corresponding A/L level. **Table 3-1** above and graphic plots in **Appendix E** also demonstrated no exceedances of the 1-HR TSP and 24-Hr TSP A/L levels were registered during the Reporting Period. Neither notification of exceedance of environmental quality criteria (hereinafter 'NOE') nor corrective action was recommended for the parameters.

### 3.2 CONSTRUCTION NOISE

Monitoring results are presented in graphic plots in **Appendix E**. Breaches of construction noise A/L levels during the Reporting Period are summarized in **Table 3-2-1** and **3-2-2**.

**Table 3-2-1 Summaries of Breaches of Construction Noise A/L Levels**

Channel	Station	Leq30min		Action Level in dB(A)	Limit Level in dB(A)
		Max	Min		
KT13	N1(a)	67.7	51.0	When one documented complaint is received	75* dB(A)
<b>Recorded in the date</b>		<b>5 Nov 08</b>	<b>10 Dec 08</b>		
KT13	N2(a)	67.6	48.5		
<b>Recorded in the date</b>		<b>11 Nov 08</b>	<b>22 Nov 08</b>		
KT13	N3	68.1	49.4		
<b>Recorded in the date</b>		<b>5 Nov 08</b>	<b>22 Nov 08</b>		

**Table 3-2-2 Summaries of Breaches of Construction Noise A/L Levels**

Channel	Station	Exceedance of Environmental Quality Criteria	
		Action Level	Limit Level
KT13	N1(a), N2(a), N3	0	0

As shown in **Tables 3-2** and graphic plots in **Appendix E**, all the construction noise results fluctuated below the Limit level. Neither documented construction complaint nor exceedance of Limit level was recorded during the Reporting Period. Neither NOE nor corrective action was recommended for the parameter.

### 3.3 WATER QUALITY

#### 3.3.1 Breaches of the Existing Water Quality A/L Levels

Monitoring results are presented in graphic plots in **Appendix E**. Statistics including minimum, maximum and average of the monitoring results are summarized in **Table 3-3-1**.

**Table 3-3-1 Statistics of the Monitoring Results**

Statistics	DO (mg/L)		Turbidity (NTU)		pH (pH Value)		SS (mg/L)		NH <sub>4</sub> <sup>+</sup> -N (mg/L)		Zn (mg/L)	
	W2	W6	W2	W6	W2	W6	W2	W6	W2	W6	W2	W6
Minimum	2.55	2.04	3.00	5.80	6.70	6.80	2	12	0.02	0.04	<10	10
Average	3.84	3.18	38	64	6.91	6.93	95	130	1.90	10.93	95	78
Maximum	5.68	4.57	258	310	7.20	7.30	1160	920	11.40	38.80	1140	270

Breaches of water quality A/L levels during the Reporting Period are summarized in **Table 3-3-2**.

**Table 3-3-2 Summaries of Breaches of the Existing Water Quality A/L Levels**

Location	Exceedance	DO	Turbidity	pH	SS	NH <sub>4</sub> <sup>+</sup> -N	Zc	Total
<b>October 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	3	0	0	0	0	3
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	2	0	0	7
<b>November 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	1	5
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	10	0	8	0	1	19
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	12	0	10	0	2	24
<b>December 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	4	0	0	9
Sub-Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	7	0	6	0	0	13
Total	Action Level	0	0	0	0	0	0	0
	Limit Level	0	24	0	18	0	2	44
<b>Compliance (%)</b> (Number of monitoring occasions per parameter per location = 38)		<b>Action Level</b>	100	100	100	100	100	100
		<b>Limit Level</b>	100	68.4	100	76.3	100	97.4

As shown in **Tables 3-3** and graphic plots in **Appendix E**, a total of 44 exceedances of water quality Limit levels, namely 13 Limit level exceedances at W2 and 31 Limit level exceedances at W6, were recorded during the Reporting Period.

The NOE and the associated investigation report have been issued upon confirmation of the results and construction information, although agreement from the ER and IEC for closure of some of the NOE is still pending.

It is noted that untreated or under-treated agricultural wastewater, which contains significant amount of pig manure, is illegally discharged from surrounding pig farms to the stream water under KT13. The pig manure comprises very high concentration of Turbidity, SS, Biochemical Oxygen Demand (BOD), Ammoniacal Nitrogen (NH<sub>4</sub><sup>+</sup>-N) as well as heavy metal e.g. Copper (Cu) and Zn. The illegal discharge of the agricultural farm wastewater has been well known to be the main pollution sources of the receiving water bodies of the Yuen Long area, including KT13 stream water. They are

significantly attributed to the Turbidity and SS exceedances recorded at W2 and W6 during the Reporting Period.

As stated in section **1.2 Works Undertaken During the Reporting Period**, channel excavation near W2 at Section B CH 115 - 205 during 9 to 11 Dec 2008 and near W6 at Section A CH 0 - 50 on 17 Dec 2008 were undertaken during the Reporting Period. The excavation activities may have potential water quality impacts to elevate concentrations of certain water quality parameters, in particular Turbidity and SS. Attribution of the impacts of the construction activities to the Turbidity and SS Limit level exceedances at W2 and W6 can not be over ruled. In order to minimize the construction impacts on the water quality environment within KT13, it is recommended that water quality mitigation measures stipulated in the EIA and summarized in mitigation measures implementation schedule in the EM&A Manual, including containment structure such as temporary earth bunds, sand bags, sheet pile barriers or other similar techniques, is fully implemented. In addition, implemented mitigation measures in particular the erected dams with sand bags downstream the excavation site within the water course of KT13 may also be improved to enhance sedimentation of Turbidity and SS, e.g. by using silt curtain, as appropriate.

### 3.3.2 Recommendation on Revision of the Existing pH A/L Levels

As pointed out in the monthly EM&A reports of the Reporting Period, the percentile definition deviates from the consensus of the pH significance and should not be applied for establishment of pH A/L levels. A proposal on the recommended pH range of 6 to 9 to be used in place of the existing pH Action and Limit level has been submitted and awaiting EPD's approval.

## 3.4 ECOLOGY

Monitoring results are presented in Appendix E. No breaches of ecological A/L levels were recorded during the Reporting Period.

## 3.5 OTHER MONITORING AND AUDIT

### 3.5.1 Waste Management

Waste management audit was performed regularly on a monthly basis. A Billing Account (The account number 7006524) under the **Waste Disposal (Charges for Disposal of Construction Waste) Regulation** has already been assigned on 9 Jan 2008, a discharge license No. 1U461/1 under Section 20 of the **Water Pollution Control Ordinance** has been issued. CRBC has also 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.

### 3.5.2 Cultural Heritage

There was no construction work conducted within 100 m area from the grave, so the captioned monitoring was not required for the Reporting Period.

### 3.5.3 Landscape and Visual

Regular landscape and visual audit is undertaken twice a month by the Landscape Auditor. Since the construction under the Project commenced on 20 October 2008, no landscape and visual audit was undertaken during October 2008.

A total of four (4) occasions of landscape and visual audit was undertaken on 7 and 21 November and 5 and 20 December 2008. The landscape and visual audit confirmed that the conditions of the identified landscape resources during the Reporting Period 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, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13.

Detailed landscape and visual reports and the associated mitigation measures can be found in the appendix of the corresponding previous monthly EM&A reports of the Reporting Period.

## 4 NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

### 4.1 NON-COMPLIANCE

Apart from the exceedances of air and water quality A/L levels respectively summarized in **Table 3-1** and **Table 3-3** above, no non-compliance or deficiency was identified during regular site inspection and environmental audit. No associated remedial actions were recommended. No other non-compliance or deficiency was identified during regular site inspection and environmental audit. No associated remedial actions were recommended.

### 4.2 ENVIRONMENTAL COMPLAINTS

No written or verbal complaints were received for each environmental issue during the Reporting Period. No associated remedial actions were recommended.

### 4.3 NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

No notifications of summons and successful prosecutions were recorded during the Reporting Period. No associated remedial actions were recommended.

### 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 F: Monthly Summary Waste Flow Table**. Disposal of Type I and Type II contaminated sediment is also presented in **Appendix F**.

#### 4.4.2 Site Inspection and Environmental Audit

A total of thirteen (13) occasions of weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET during the Reporting Period. Minor deficiencies found during the site inspection and audit were in general rectified within the specified deadlines. Findings of the site inspection and environmental audit are summarized in **Table 4**.

**Table 4 Summary of Findings of Site Inspection and Environmental Audit**

Date	Findings / Deficiencies	Follow-Up Status
4 Oct 2008	Debris of general refuse are observed surrounding at working area, the contractor was reminded that the housekeeping should be undertaken.	Rubbish bin is observed to provide in the working site on 9 October 2008.
9 Oct 2008	No adverse environmental impacts were observed however the contractor was reminded the provided noise mitigation measures should be met the EP, PP and EM&A manual requirement,	Only reminder
16 Oct 2008	No adverse environmental impacts were observed during the site inspection. Dust suppression measures were reminded for KT14A during vehicle release to site.	Wheel wash was observed in site exist during inspection on 24 October 2008.
24 Oct 2008	No adverse environmental impacts were observed. Excavation and formwork were observed at working site. Noise and water quality impact is reminded to implement by the contractor. Housekeeping should be undertaken to ensure the environmental performance.	Only reminder
31 Oct 2008	No adverse environmental impacts were observed during the site inspection. However, as dry season has approached, construction dust suppression measures, in particular construction dust suppression measures including watering of dry and dusty haul roads within the Site during dusty construction activities on dry and windy days, are reminded to be fully implemented.	Reminded measures based on the observation were observed on 6 Nov 2008.
6 Nov 2008	Haul road within the site were observed dry on excavation site. Watering is reminded.	Reminded measures based on the observation were observed on 13 Nov 2008.
13 Nov 2008	Vehicle movement was observed on excavation site. Thorough wheel washing of the vehicles leaving the site is reminded.	Reminded measures based on the observation were observed on 20 Nov 2008.
20 Nov	Stock piles of dusty materials were observed. Construction dust suppression measures e.g.	Reminded measures based on

2008	covering with tarpaulin sheeting or watering or preferably removal from site or appropriate disposal is reminded	the observation to be followed-up on the forth coming site inspection.
28 Nov 2008	No adverse environmental impacts were observed during the site inspection. However, as dry season has approached, The Contractor is reminded to fully implement construction dust suppression measures when carrying out dusty works including vehicle movement during dry and sunny days.	Reminded measures based on the observation were observed on 04 Dec 2008.
04 Dec 2008	Vehicle movement was observed on excavation site. Thorough wheel washing of the vehicles leaving the site is reminded. Also house keeping is reminded as general waste was observed.	Reminded measures based on the observation were observed on 11 Dec 2008.
11 Dec 2008	It is observed that C&D material was scattered after formwork. House Keeping is reminded to be improved. Haul road within the site were observed dry and general waste was found scattered on excavation site. Watering is reminded.	Reminded measures based on the observation were observed on 16 Dec 2008.
16 Dec 2008	Sand bag barriers were worn out that should be replaced. Also, as dry season has approached, The Contractor is reminded to fully implement construction dust suppression measures when carrying out dusty works including vehicle movement during dry and sunny days	Reminded measures based on the observation were observed on 22 Dec 2008.
22 Dec 2008	Dry and dusty haul road and stock piles of excavated materials on site. Construction dust suppression measures are reminded during dusty construction activities including vehicle movement on dry and windy days. Further improvement of house keeping on site is recommended prior to X'mas holiday	Reminded measures based on the observation to be followed-up on the forth coming site inspection.

## 5 CONCLUSIONS

- 5.1 This is the first quarterly EM&A summary report for KT13, covering the construction period from 20 October to 25 December 2008.
- 5.2 Monitoring results demonstrated that no exceedances of environmental quality criteria of air quality, construction noise and ecology were recorded during the Reporting Period.
- 5.3 No cultural heritage monitoring was conducted during the Reporting Period as no construction works were undertaken within 100 m area from the historical grave. The conditions of the landscape resources during the Reporting Period remained the same as the baseline, except minor changes of river/stream/fish pond landscape character area at LR1, LR2.1, LR2.2, LCA3 and LCA4 due to site clearance, soil stockpiling and preparation work within KT13.
- 5.4 For water quality however, a total of 44 exceedances of Limit levels were recorded at W2 and W6 during the Reporting Period as shown below:

Location	Exceedance	DO	Turbidity	pH	SS	NH <sub>4</sub> <sup>+</sup> -N	Zc	Total
<b>October 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	3	0	0	0	0	3
<b>Sub-Total</b>	<b>Action Level</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Limit Level</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>7</b>
<b>November 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	1	5
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	10	0	8	0	1	19
<b>Sub-Total</b>	<b>Action Level</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Limit Level</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>2</b>	<b>24</b>
<b>December 2008</b>								
W2	Action Level	0	0	0	0	0	0	0
	Limit Level	0	2	0	2	0	0	4
W6	Action Level	0	0	0	0	0	0	0
	Limit Level	0	5	0	4	0	0	9
<b>Sub-Total</b>	<b>Action Level</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
	<b>Limit Level</b>	<b>0</b>	<b>7</b>	<b>0</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>13</b>

Location	Exceedance	DO	Turbidity	pH	SS	NH <sub>4</sub> <sup>+</sup> N	Zc	Total
<b>October 2008</b>								
<b>Total</b>	<b>Action Level</b>	0	0	0	0	0	0	0
	<b>Limit Level</b>	0	24	0	18	0	2	44
<b>Compliance (%)</b> (Number of monitoring occasions per parameter per location = 38)	<b>Action Level</b>	100	100	100	100	100	100	100
	<b>Limit Level</b>	100	68.4	100	76.3	100	97.4	90.4

- 5.5 The NOE and the associated investigation report have been issued upon confirmation of the results and construction information, although agreement from the ER and IEC for closure of some of the NOE is still pending. Investigation concluded that the exceedances are not related to the works under the Project. No corrective actions were therefore recommended.

Nevertheless, channel excavation near W2 and W6 may have potential water quality impacts to elevation of concentrations of certain water quality parameters, in particular Turbidity and SS. As the attribution of the construction impacts can not be over ruled, it is recommended that water quality mitigation measures stipulated in the EIA and summarized in mitigation measures implementation schedule in the EM&A Manual, including containment structure such as temporary earth bunds, sand bags, sheet pile barriers or other similar techniques, is fully implemented. In addition, the implemented mitigation measures in particular the erected dams with sand bags downstream the excavation site within the water course of KT13 may also be improved to enhance sedimentation of Turbidity and SS, e.g. by using silt curtain, as appropriate.

- 5.6 No documented complaints, notifications of summons and 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, indicating 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.
- 5.7 As dry season has approached, construction dust has become a key environmental issue. Construction dust suppression measures should therefore be fully implemented. In addition, the implemented construction dust mitigation measures should also be maintained and improved, as necessary, during dusty works including vehicle movement on dry and windy days.
- 5.8 Moreover, water quality mitigation measures to avoid ingress of turbidity and other water quality pollutants via site surface water runoff into the river within KT13 should be properly maintained or improved, as appropriate.
- 5.9 In addition, special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule should be fully implemented.
- 5.10 It is recommended that the consensual pH range used in the EPD water discharge license and Technical Memorandum for Effluents Discharged into Drainage and Sewerage System, Inland and Coastal Water, etc. be used in place of the existing pH Action and Limit level. The recommended pH A/L levels are summarized as follows:

<u>Parameter</u>	<u>Location</u>	<u>Action Level</u>	<u>Limit Level</u>
pH (pH Value)	W2 & W6	6.5 – 8.5	6.0 – 9.0

**END OF TEXT**



## **Appendix A**

### **Location Plan of the Project and Environmental Monitoring Locations**

CONTROL BY MA 3, TONG HING HOA LIMITED AND  
 THE GOVERNMENT OF HONG KONG

**NOTES:**  
 1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS  
 STATED OTHERWISE.  
 2. GRID LINES ARE LONG LONG METRIC GRID 1980.  
 3. TOP OF WALLS WITH CEMENTS, TYP. AND  
 AT OTHER STAGES OF THE CHANNEL BANKS.

LEGEND:

	SITE BOUNDARY
	PROPOSED CHANNEL
	PROPOSED SLOPE
	AREA TO BE FILLED TO ADJUST CHANNEL LEVEL
	WREST LEVEL
	PROPOSED RETAINING WALL

C	10/400	CONCRETE	TO KIL
D	10/400	CONCRETE	TO KIL
E	10/400	CONCRETE	TO KIL
F	10/400	CONCRETE	TO KIL
G	10/400	CONCRETE	TO KIL
H	10/400	CONCRETE	TO KIL
I	10/400	CONCRETE	TO KIL
J	10/400	CONCRETE	TO KIL
K	10/400	CONCRETE	TO KIL
L	10/400	CONCRETE	TO KIL
M	10/400	CONCRETE	TO KIL
N	10/400	CONCRETE	TO KIL
O	10/400	CONCRETE	TO KIL
P	10/400	CONCRETE	TO KIL
Q	10/400	CONCRETE	TO KIL
R	10/400	CONCRETE	TO KIL
S	10/400	CONCRETE	TO KIL
T	10/400	CONCRETE	TO KIL
U	10/400	CONCRETE	TO KIL
V	10/400	CONCRETE	TO KIL
W	10/400	CONCRETE	TO KIL
X	10/400	CONCRETE	TO KIL
Y	10/400	CONCRETE	TO KIL
Z	10/400	CONCRETE	TO KIL

AGREEMENT NO. CE 67/98

PROJECT TITLE:  
 YUEN LONG KAM TIN,  
 NGAU TAM MEI AND TIN SHI WAI  
 DRAINAGE IMPROVEMENT, STAGE 1,  
 PHASE 2B - KAM TIN

DATE:  
 2000

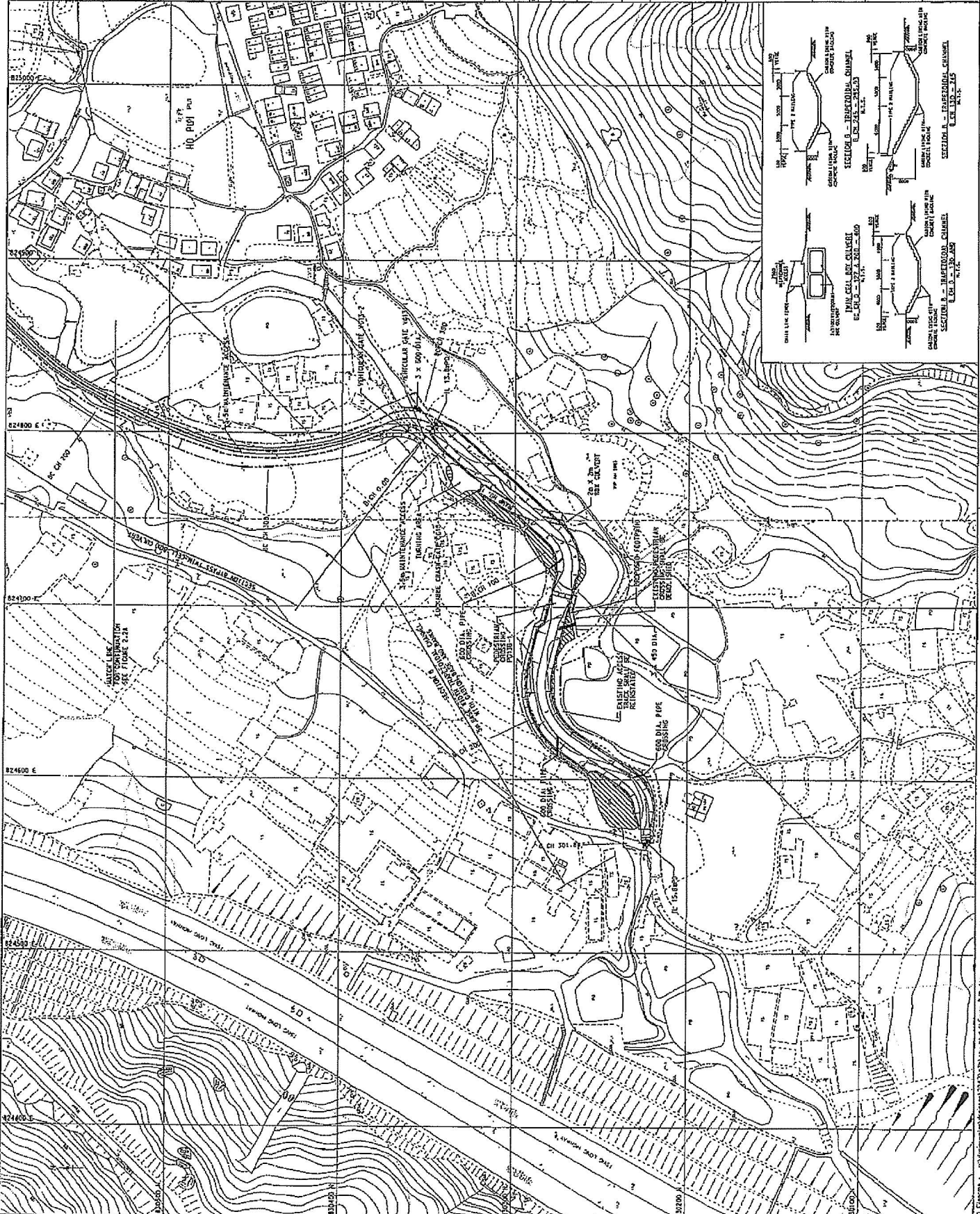
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 1:2000 AS

MA ON KONG CHANNEL K113  
 PROPOSED LAYOUT PLAN  
 (SHEET 2 OF 2)

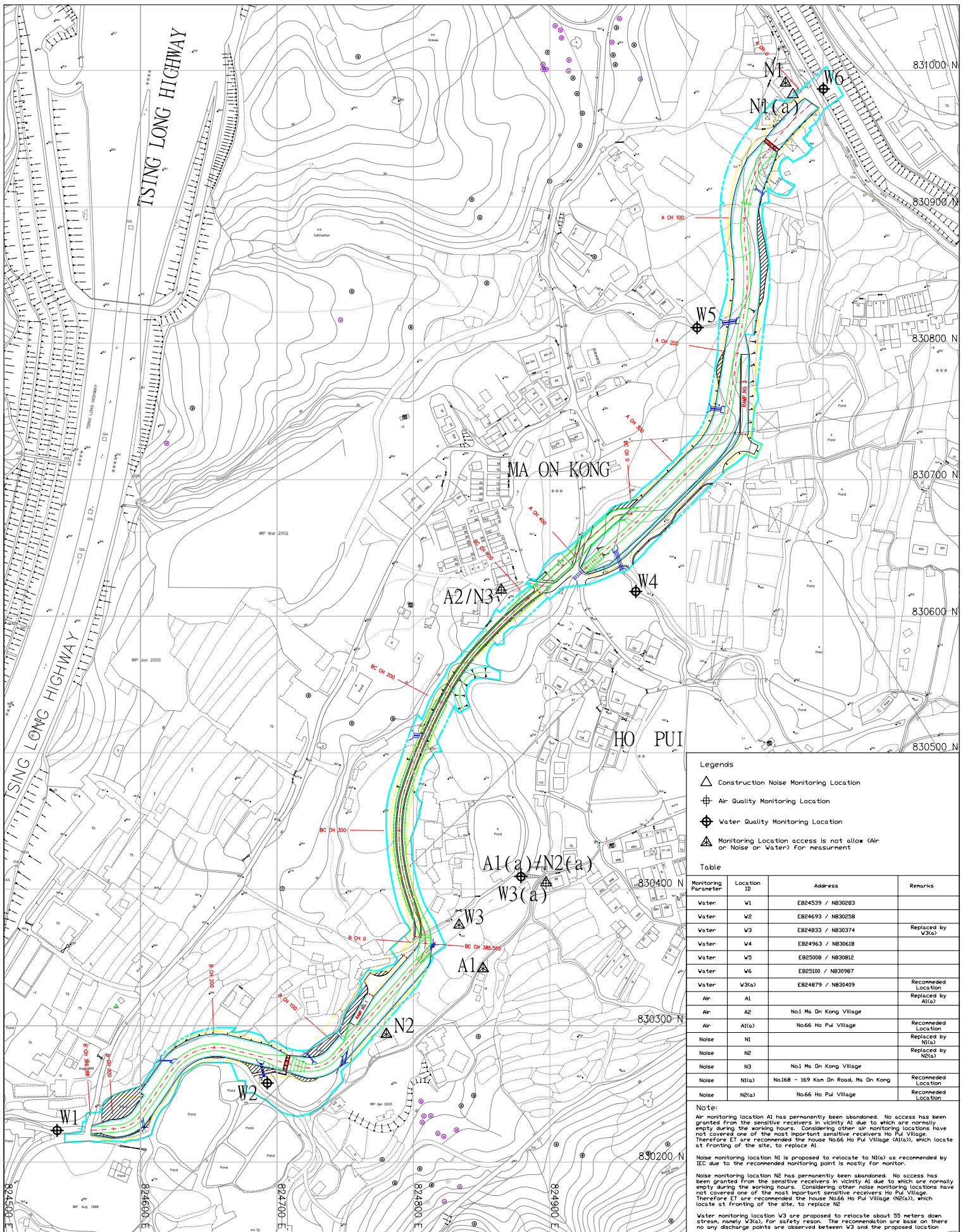
FIGURE 1.36

香港特別行政區政府  
 THE GOVERNMENT OF THE  
 SPECIAL ADMINISTRATIVE REGION  
 DRAINAGE SERVICES DEPARTMENT

SLACK & VEATCH HONG KONG LIMITED  
 荷蘭士堅設計有限公司



Plot Date: 26 APR 2000



**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 Pui 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 On Road, Ma On Kong	Recommended Location
Noise	N2(a)	No.66 Ho Pui 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 Pui Village. Therefore EI are recommended the house No.66 Ho Pui Village (A1(a)), which locate at fronting of the site, to replace A1

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

Noise monitoring location N2 has permanently been abandoned. No access has been granted from the sensitive receivers in vicinity 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 Pui Village. Therefore EI are recommended the house No.66 Ho Pui Village (N2(a)), which locate at fronting of the site, to replace N2

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

Contract No. BC/2007/17-  
 Biologie Improvements, Vigas In Cheung Po,  
 Ho Pui Village, Ma On Kong, Tsuen Wan and Tin  
 Shui, Tsuen Wan District and Sewerage  
 at Tsing Tau Chung (Suen) Tsuen Run

Drawing:

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



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 Environment of HKSAR

NOTES:  
 1. GRID LINES ARE IN METRIC UNITS 1:5000.

LEGEND:

- IA ON YUEN AND TAI KWOS
- PROPOSED CONSERVATION TREE PLANTING
- CONSERVATION AREA
- WORKS BOUNDARY OF CHANNEL R113
- ECOLOGY MONITORING AREAS



REVISION	DATE	DESCRIPTION	INITIAL
1	08/05	Issue	K.L.
2	09/05	Revise	K.L.
3	09/05	Revise	K.L.
4	09/05	Revise	K.L.
5	09/05	Revise	K.L.

AGREEMENT NO. CE 67/98

PROJECT TITLE

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

SCALE 1:5000

ECOLOGY MONITORING AREAS  
 RECOMMENDED FOR  
 CONSTRUCTION PHASE AND  
 OPERATION PHASE

Figure 6.1

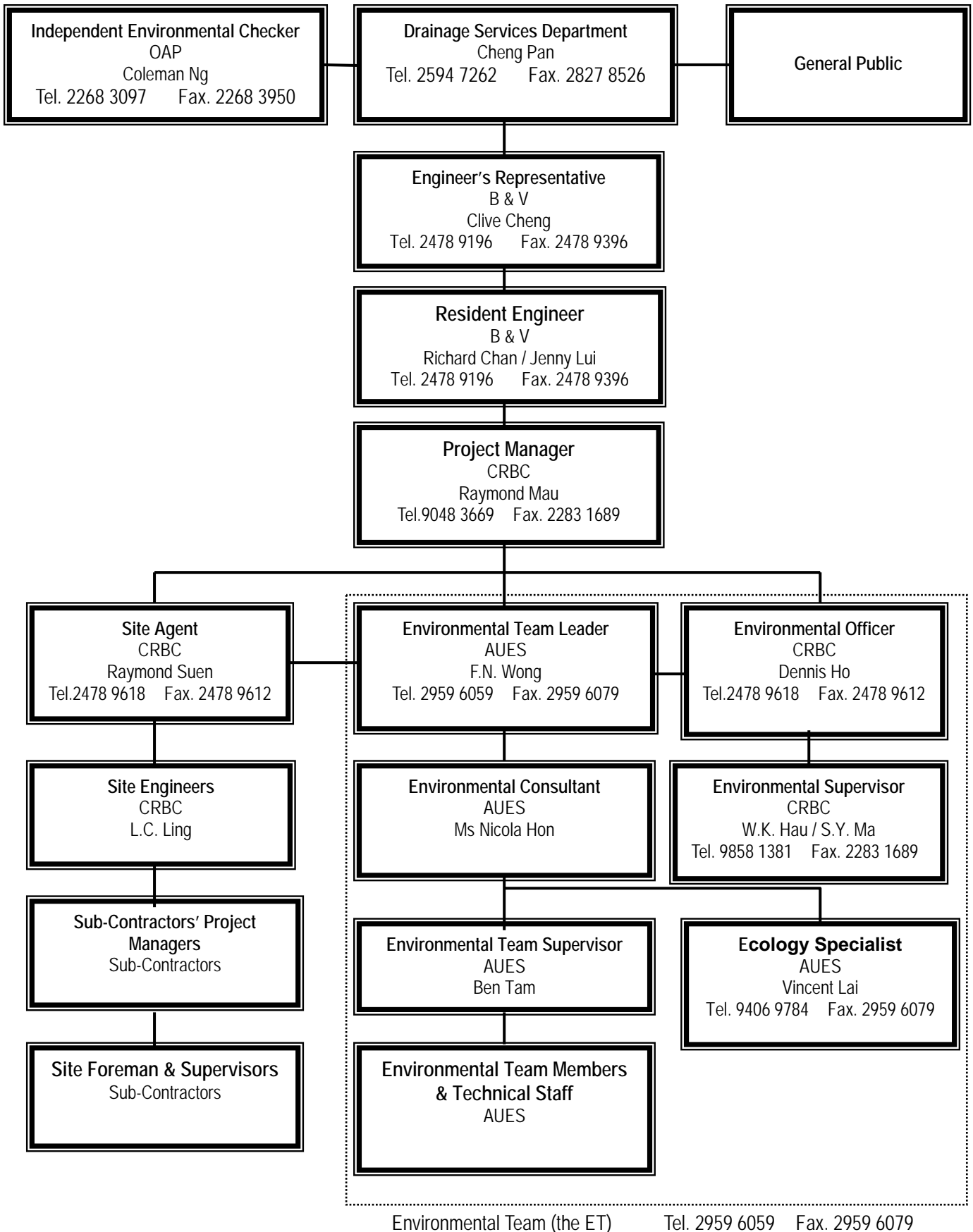
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香港特別行政區政府  
 THE GOVERNMENT OF THE  
 SPECIAL ADMINISTRATIVE REGION  
 環境保護署 環境保護處

BLACK & VEATCH HONG KONG LIMITED  
 黑石工程顧問有限公司

**Appendix B**

**Environmental Management Organization and  
Contacts of Key Personnel**



**Environmental Management Organization**

**Contact Details of Key Personnel**

<b>Organization</b>	<b>Project Role</b>	<b>Name of Key Staff</b>	<b>Tel No.</b>	<b>Fax No.</b>
DSD	Employer	Mr. Cheng Pan	2594 7264	2827-8526
B&V	Engineer's Representative	Mr. Clive Cheng	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Richard Chan	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Jenny Lui	2478-9161	2478-9369
OAP	Independent Environmental Checker	Mr. Coleman Ng	2268 3097	2268 3950
CRBC	Project Director	Mr. Wang Yanhua	22831688	2283-1689
CRBC	Project Manager	Mr. Raymond Mau	9048-3669	2283-1689
CRBC	Site Agent	Mr. Raymond Suen	9779-8871	2478 9612
CRBC	Site Engineer (Tuen Mun Site)	Mr. L.C. Ling	6770 4010	2478 9612
CRBC	Environmental Officer	Dennis Ho	2478 9618	2478 9612
CRBC	Environmental Supervisor	Mr. W.K. Hau	6283 9696	2283-1689
CRBC	Environmental Supervisor	Mr. S.Y. Ma	9401 6296-	2283-1689
CRBC	Safety Officer	Kenny Sze	9374-8954	2283-1689
AUES	Environmental Team Leader	Mr. F.N. Wong	2959-6059	2959-6079
AUES	Environmental Consultant	Ms 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 C**

### **Construction Program**



**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 Programme (December 2008)**

ID	Task Name	Duration	Start	Finish	30/11/2008			7/12/2008			14/12/2008			21/12/2008			28/12/2008											
					Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue
1	<b>Section I (Channel KT12)</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
2	Regular Environmental Impact Monitoring	25 days	2008/12/1	2008/12/31																								
3	Regular Tree Survey	25 days	2008/12/1	2008/12/31																								
4	Regular Structural Condition Survey	25 days	2008/12/1	2008/12/31																								
5	<b>Construction of Trapezoidal Channel</b>	<b>24 days</b>	<b>2008/12/1</b>	<b>2008/12/30</b>																								
6	Bay TC5 - West Wall (CH51.00 - CH63.00)	8 days	2008/12/1	2008/12/9																								
7	1st Pour	4 days	2008/12/1	2008/12/4																								
8	2nd Pour	4 days	2008/12/5	2008/12/9																								
9	Bay TC4 - West Wall (CH63.00 - CH78.00)	8 days	2008/12/10	2008/12/18																								
10	1st Pour	4 days	2008/12/10	2008/12/13																								
11	2nd Pour	4 days	2008/12/15	2008/12/18																								
12	Bay TC6 - West Wall (CH39.00 - CH51.00)	8 days	2008/12/19	2008/12/30																								
13	1st Pour	4 days	2008/12/19	2008/12/23																								
14	2nd Pour	4 days	2008/12/24	2008/12/30																								
15	Bay TC7 - West Wall (CH27.00 - CH39.00)	8 days	2008/12/19	2008/12/30																								
16	1st Pour	4 days	2008/12/19	2008/12/23																								
17	2nd Pour	4 days	2008/12/24	2008/12/30																								
18	<b>Construction of Transition Structure</b>	<b>21 days</b>	<b>2008/12/5</b>	<b>2008/12/31</b>																								
19	Bay TC2 (CH90.00 - 97.00)	10 days	2008/12/5	2008/12/16																								
20	Construction of Base Slab	5 days	2008/12/5	2008/12/10																								
21	Construction of Wall	5 days	2008/12/11	2008/12/16																								
28	Bay TC10 (CH4.00 - 10.00)	5 days	2008/12/8	2008/12/12																								
29	Construction of Wall	5 days	2008/12/8	2008/12/12																								
22	Bay TC8 - East Wall (CH17.00 - CH27.00)	8 days	2008/12/19	2008/12/30																								
23	1st Pour	4 days	2008/12/19	2008/12/23																								
24	2nd Pour	4 days	2008/12/24	2008/12/30																								
25	Bay TC9 (CH10.00 - CH17.74)	9 days	2008/12/19	2008/12/31																								
26	Construction of Base Slab	4 days	2008/12/19	2008/12/23																								
27	Construction of Wall	5 days	2008/12/24	2008/12/31																								
30	Backfilling (CH4.00 - CH105.00)	14 days	2008/12/13	2008/12/31																								
31	2 x 600mm Dia. Pipe Crossing at CH178.00 East Bank	14 days	2008/12/13	2008/12/31																								
32	Diversion of Existing Water Main to Pedestrian Crossing PC12-1	14 days	2008/12/13	2008/12/31																								
33																												
34	<b>Section II (Channel KT13)</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
35	Regular Environmental Impact Monitoring	25 days	2008/12/1	2008/12/31																								
36	Regular Tree Survey & Protection	25 days	2008/12/1	2008/12/31																								
37	Regular Structural Condition Survey	25 days	2008/12/1	2008/12/31																								
38	<b>Section A</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
39	<b>Excavation to Channel Formation &amp; Laying of Rock Fill Material</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
40	Bay 1 (A CH00.00 - A CH20.00)	8 days	2008/12/1	2008/12/9																								
41	Bay 2 (A CH20.00 - A CH40.00)	8 days	2008/12/10	2008/12/18																								
42	Bay 3 (A CH40.00 - A CH60.00)	8 days	2008/12/19	2008/12/30																								
43	Bay 4 (A CH60.00 - A CH80.00)	1 day	2008/12/31	2008/12/31																								
44	<b>Section of Box Culvert BC13-1</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
45	<b>Excavation to Channel Formation &amp; Laying of Rock Fill Material</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																								
46	Bay 1 (BC CH00.00 - BC CH50.00)	25 days	2008/12/1	2008/12/31																								

Task Progress Summary External Tasks Deadline

Split Milestone Project Summary External Milestone

**Contract No. : DC/2007/17**

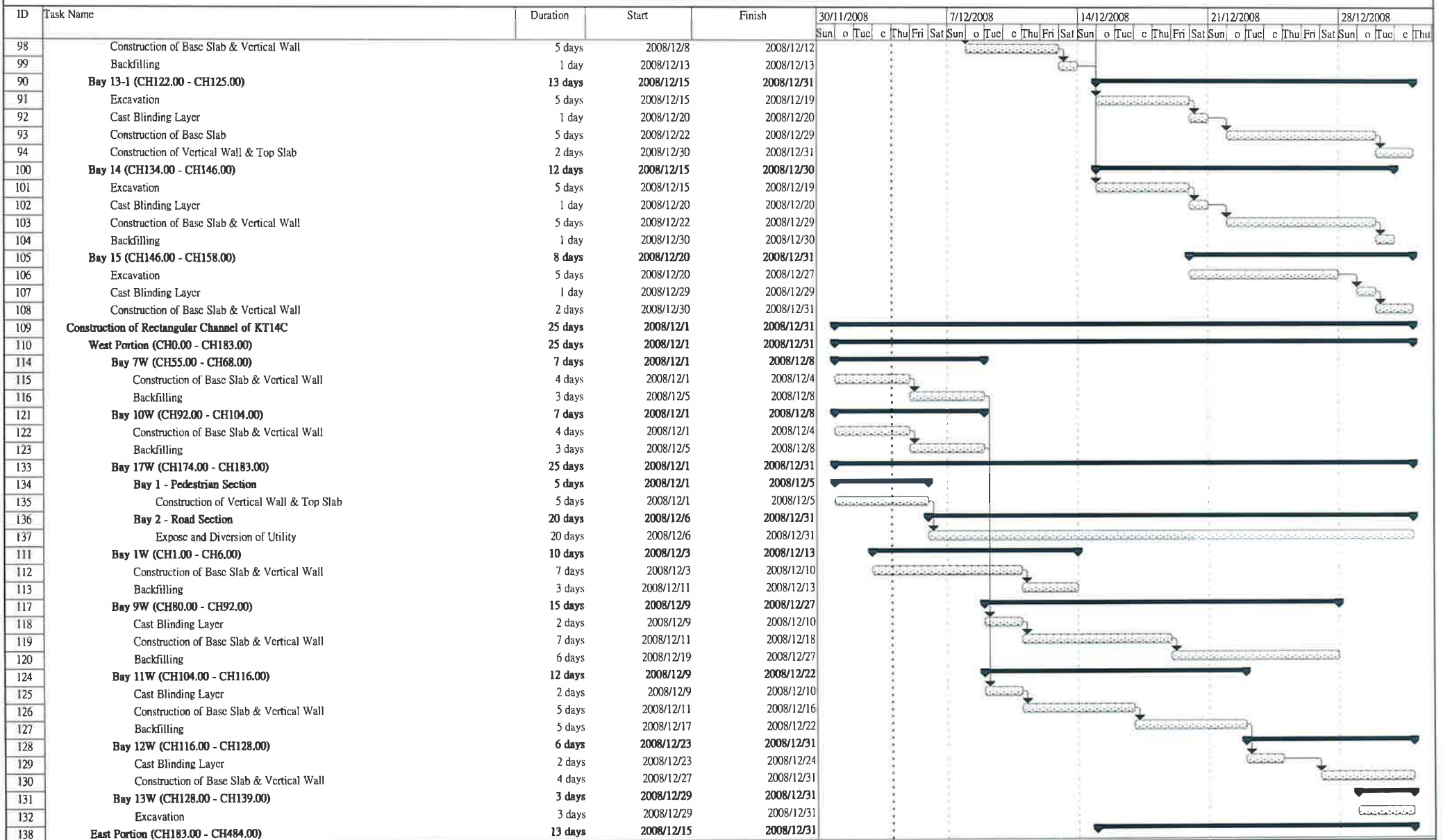
**Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen Kong San Tsuen and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun  
Monthly Programme (December 2008)**

ID	Task Name	Duration	Start	Finish	30/11/2008			7/12/2008			14/12/2008			21/12/2008			28/12/2008											
					Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue
47	<b>Section B</b>	25 days	2008/12/1	2008/12/31																								
48	Excavation to Channel Formation & Laying of Rock Fill Material	24 days	2008/12/1	2008/12/30																								
49	Bay 1 (B CH300.00 - B CH316.00)	12 days	2008/12/1	2008/12/13																								
50	Bay 2 (B CH300.00 - B CH292.00) - Transition	12 days	2008/12/15	2008/12/30																								
51	<b>Construction of Channel Structures</b>	1 day	2008/12/31	2008/12/31																								
52	Bay 1 (B CH300.00 - B CH316.00)	1 day	2008/12/31	2008/12/31																								
53																												
54	<b>Section III (Channel KT14A)</b>	25 days	2008/12/1	2008/12/31																								
55	Regular Environmental Impact Monitoring	25 days	2008/12/1	2008/12/31																								
56	Regular Tree Survey	25 days	2008/12/1	2008/12/31																								
57	Regular Structural Condition Survey	25 days	2008/12/1	2008/12/31																								
58	<b>Construction of Rectangular Channel</b>	22 days	2008/12/4	2008/12/31																								
59	Bay 1 (CH0.00 - CH11.00)	17 days	2008/12/4	2008/12/23																								
60	Excavation	5 days	2008/12/4	2008/12/9																								
61	Installation of Sheet Piling	4 days	2008/12/5	2008/12/9																								
62	Cast Blinding Layer	1 day	2008/12/10	2008/12/10																								
63	Construction of Base Slab	4 days	2008/12/11	2008/12/15																								
64	Backfilling to the Kicker Level	1 day	2008/12/16	2008/12/16																								
65	Construction of Vertical Wall	4 days	2008/12/17	2008/12/20																								
66	Backfilling	1 day	2008/12/22	2008/12/22																								
67	Removal of Sheet Piling	1 day	2008/12/23	2008/12/23																								
68	Bay 2 (CH11.00 - CH23.00)	11 days	2008/12/16	2008/12/30																								
69	Excavation	5 days	2008/12/16	2008/12/20																								
70	Installation of Sheet Piling	4 days	2008/12/17	2008/12/20																								
71	Cast Blinding Layer	1 day	2008/12/22	2008/12/22																								
72	Construction of Base Slab	4 days	2008/12/23	2008/12/29																								
73	Backfilling to the Kicker Level	1 day	2008/12/30	2008/12/30																								
74	Bay 3 (CH23.00 - CH35.00)	2 days	2008/12/30	2008/12/31																								
75	Excavation	2 days	2008/12/30	2008/12/31																								
76	Installation of Sheet Piling	1 day	2008/12/31	2008/12/31																								
77																												
78	<b>Section IV (Channel KT14B &amp; KT14C)</b>	25 days	2008/12/1	2008/12/31																								
79	Regular Environmental Impact Monitoring	25 days	2008/12/1	2008/12/31																								
80	Regular Tree Survey & Protection	25 days	2008/12/1	2008/12/31																								
81	Regular Structural Condition Survey	25 days	2008/12/1	2008/12/31																								
82	<b>Construction of Kam Sheung Road (Portion 8B)</b>	25 days	2008/12/1	2008/12/31																								
83	Construction of Channel between existing and CP9	25 days	2008/12/1	2008/12/31																								
84	<b>Construction of Rectangular Channel of KT14B</b>	25 days	2008/12/1	2008/12/31																								
85	Bay 12 (CH110.00 - CH122.00)	12 days	2008/12/1	2008/12/13																								
86	Excavation	5 days	2008/12/1	2008/12/5																								
87	Cast Blinding Layer	1 day	2008/12/6	2008/12/6																								
88	Construction of Base Slab & Vertical Wall	5 days	2008/12/8	2008/12/12																								
89	Backfilling	1 day	2008/12/13	2008/12/13																								
95	Bay 13-2 (CH125.00 - CH134.00)	12 days	2008/12/1	2008/12/13																								
96	Excavation	5 days	2008/12/1	2008/12/5																								
97	Cast Blinding Layer	1 day	2008/12/6	2008/12/6																								

Task Progress Summary External Tasks Deadline   
 Split Milestone Project Summary Page 2 External Milestone

**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 Programme (December 2008)**



Task  Progress  Summary  External Tasks  Deadline 

Split  Milestone  Project Summary  External Milestone 

**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 Programme (December 2008)**

ID	Task Name	Duration	Start	Finish	30/11/2008			7/12/2008			14/12/2008			21/12/2008			28/12/2008														
					Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	Fri	Sat	Sun	o	Tue	c	Thu	
139	<b>Bay 1E (CH466.00 - CH484.00)</b>	<b>13 days</b>	<b>2008/12/15</b>	<b>2008/12/31</b>																											
140	Excavation	10 days	2008/12/15	2008/12/27																											
141	Installation of Sheet Piling	8 days	2008/12/16	2008/12/24																											
142	Cast Blinding Layer	2 days	2008/12/29	2008/12/30																											
143	Construction of Base Slab	1 day	2008/12/31	2008/12/31																											
144	<b>Bay 3E (CH448.00 - CH460.00)</b>	<b>13 days</b>	<b>2008/12/15</b>	<b>2008/12/31</b>																											
145	Excavation	10 days	2008/12/15	2008/12/27																											
146	Installation of Sheet Piling	8 days	2008/12/16	2008/12/24																											
147	Cast Blinding Layer	2 days	2008/12/29	2008/12/30																											
148	Construction of Base Slab	1 day	2008/12/31	2008/12/31																											
149																															
150	<b>Section V (For Section I, II, III &amp; IV)</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																											
151	Preservation and Protection of Trees	25 days	2008/12/1	2008/12/31																											
152																															
153	<b>Section VI - Portion 9A &amp; 9B (Tuen Mun Sewerage Work)</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																											
154	Structural Survey and Monitoring	25 days	2008/12/1	2008/12/31																											
155	Construction of Manhole, Timber Box and Trench Excavation	25 days	2008/12/1	2008/12/31																											
156	Apply XP Approval for Construction	25 days	2008/12/1	2008/12/31																											
157																															
158	<b>Section VII - Portion 10A, 10B &amp; 10C (Tuen Mun Sewerage Work)</b>	<b>25 days</b>	<b>2008/12/1</b>	<b>2008/12/31</b>																											
159	Structural Survey and Monitoring	25 days	2008/12/1	2008/12/31																											
160	Construction of Manhole, Timber Box and Trench Excavation	25 days	2008/12/1	2008/12/31																											
161	Apply XP Approval for Construction	25 days	2008/12/1	2008/12/31																											

**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  
One Month Rolling Programme (January 2009)**

No	Task Name	Duration	Start	Finish	2008/12/28	2009/1/4	2009/1/11	2009/1/18	2009/1/25
					28/12	4/1	11/1	18/1	25/1
1	Section I (Channel KT12)	23 days	2009/1/2	2009/1/31					
2	Regular Environmental Impact Monitoring	23 days	2009/1/2	2009/1/31					
3	Regular Tree Survey	23 days	2009/1/2	2009/1/31					
4	Regular Structural Condition Survey	23 days	2009/1/2	2009/1/31					
5	Backfilling (CH4.00 - CH105.00)	8 days	2009/1/2	2009/1/10					
6	Bay TC7 - East Wall	7 days	2009/1/5	2009/1/12					
7	1st Pour	5 days	2009/1/5	2009/1/9					
8	2nd Pour	2 days	2009/1/10	2009/1/12					
9	Laying of Gabion Block Inside the Channel	23 days	2009/1/2	2009/1/31					
10	Bay TC3	7 days	2009/1/2	2009/1/9					
11	Bay TC4	7 days	2009/1/10	2009/1/17					
12	Bay TC5	7 days	2009/1/19	2009/1/29					
13	Bay TC6	2 days	2009/1/30	2009/1/31					
14	Construction of Catch Pit / U-Channel / Manhole	23 days	2009/1/2	2009/1/31					
15	Bay TC1	6 days	2009/1/2	2009/1/8					
16	Bay TC2	6 days	2009/1/9	2009/1/15					
17	Bay TC3	6 days	2009/1/16	2009/1/22					
18	Bay TC4	5 days	2009/1/23	2009/1/31					
19	Installation of Type 2 Railing	23 days	2009/1/2	2009/1/31					
20	Bay TC1	5 days	2009/1/2	2009/1/7					
21	Bay TC2	5 days	2009/1/8	2009/1/13					
22	Bay TC7	5 days	2009/1/14	2009/1/19					
23	Bay TC8	5 days	2009/1/20	2009/1/24					
24	Bay TC9	3 days	2009/1/29	2009/1/31					
25	Construction of Inlet at CH178.00	5 days	2009/1/2	2009/1/7					
26	2 x 600mm Dia. Pipe Crossing at CH178.00 East Bank	18 days	2009/1/8	2009/1/31					
27	Diversion of Existing Water Main to Pedestrian Crossing PC12-1	23 days	2009/1/2	2009/1/31					
28	Installation of Sign Plate / Street Furniture along the sides of Channel (CH0.00 to CH178.00)	5 days	2009/1/23	2009/1/31					
29									
30	Section II (Channel KT13)	23 days	2009/1/2	2009/1/31					
31	Regular Environmental Impact Monitoring	23 days	2009/1/2	2009/1/31					
32	Regular Tree Survey & Protection	23 days	2009/1/2	2009/1/31					
33	Regular Structural Condition Survey	23 days	2009/1/2	2009/1/31					
34	Section A	23 days	2009/1/2	2009/1/31					
35	Excavation to Channel Formation & Laying of Rock Fill Material	23 days	2009/1/2	2009/1/31					
36	Bay 1 (A CH00.00 - A CH20.00)	5 days	2009/1/2	2009/1/7					
37	Bay 2 (A CH20.00 - A CH40.00)	5 days	2009/1/8	2009/1/13					
38	Bay 3 (A CH40.00 - A CH60.00)	5 days	2009/1/14	2009/1/19					
39	Bay 4 (A CH60.00 - A CH80.00)	5 days	2009/1/20	2009/1/24					
40	Bay 5 (A CH80.00 - A CH100.00)	3 days	2009/1/29	2009/1/31					
41	Construction of Channel Structures	18 days	2009/1/8	2009/1/31					
42	Bay 1 (A CH00.00 - A CH20.00)	10 days	2009/1/8	2009/1/19					
43	Bay 2 (A CH20.00 - A CH40.00)	8 days	2009/1/20	2009/1/31					
44	Backfilling along the completed Channel Structures	8 days	2009/1/20	2009/1/31					
45	Bay 1 (A CH00.00 - A CH20.00)	8 days	2009/1/20	2009/1/31					
46	Section of Box Culvert BC13-1	23 days	2009/1/2	2009/1/31					
47	Excavation to Channel Formation & Laying of Rock Fill Material	23 days	2009/1/2	2009/1/31					
48	Bay 1 (BC CH00.00 - BC CH12.00)	4 days	2009/1/2	2009/1/6					
49	Bay 2 (BC CH12.00 - BC CH24.00) & Demolition of Existing Playground	4 days	2009/1/7	2009/1/10					

Task Progress Summary External Tasks Deadline

Split Milestone Project Summary External Milestone

**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  
One Month Rolling Programme (January 2009)**

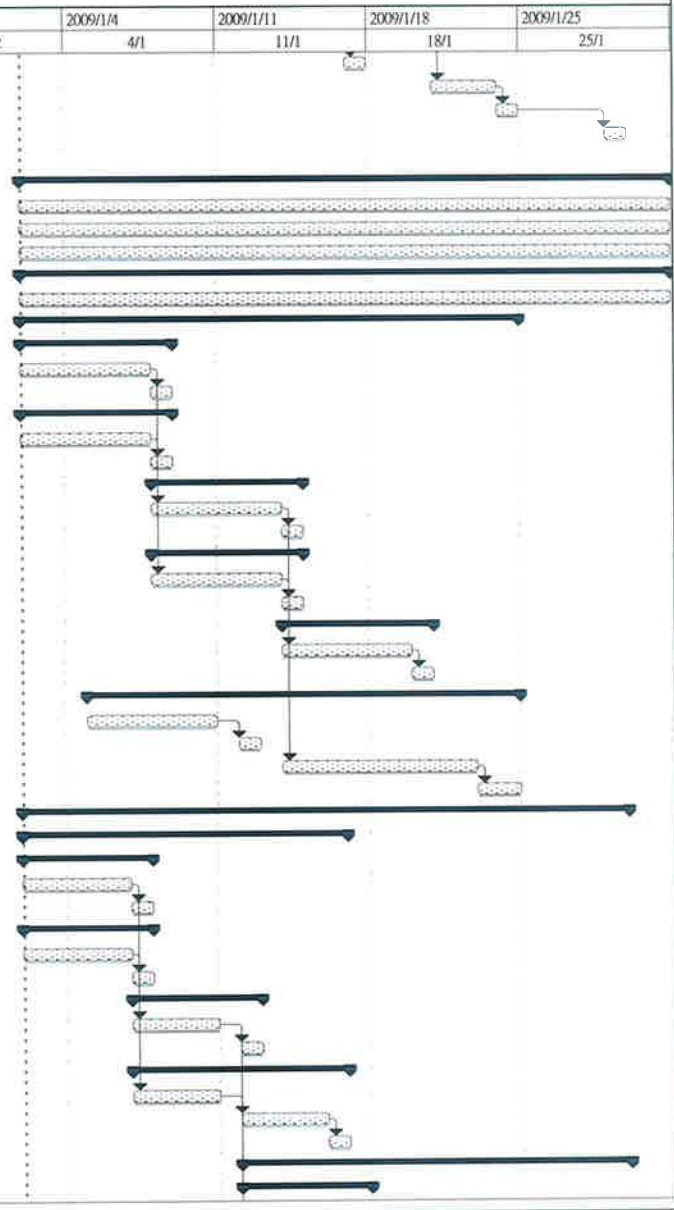
No	Task Name	Duration	Start	Finish	2008/12/28	2009/1/4	2009/1/11	2009/1/18	2009/1/25
					28/12	4/1	11/1	18/1	25/1
50	Bay 3 (BC CH24.00 - BC CH36.00)	4 days	2009/1/12	2009/1/15					
51	Bay 4 (BC CH36.00 - BC CH48.00)	4 days	2009/1/16	2009/1/20					
52	Bay 5 (BC CH48.00 - BC CH60.00)	4 days	2009/1/21	2009/1/24					
53	Bay 6 (BC CH60.00 - BC CH72.00)	3 days	2009/1/29	2009/1/31					
54	Construction of Channel Structures	19 days	2009/1/7	2009/1/31					
55	Bay 1 (BC CH00.00 - BC CH12.00)	10 days	2009/1/7	2009/1/17					
56	Bay 2 (BC CH12.00 - BC CH24.00)	9 days	2009/1/19	2009/1/31					
57	Backfilling along the Completed Channel Structures	8 days	2009/1/19	2009/1/30					
58	Bay 1 (BC CH00.00 - BC CH12.00)	8 days	2009/1/19	2009/1/30					
59	Section B	23 days	2009/1/2	2009/1/31					
60	Excavation to Channel Formation & Laying of Rock Fill Material	23 days	2009/1/2	2009/1/31					
61	Bay 26 (B CH260.00 - B CH272.00)	4 days	2009/1/2	2009/1/6					
62	Bay 27 (B CH272.00 - B CH284.00)	4 days	2009/1/7	2009/1/10					
63	Bay 28 (B CH284.00 - B CH296.00)	4 days	2009/1/12	2009/1/15					
64	Bay 20 (B CH186.00 - B CH198.00)	4 days	2009/1/16	2009/1/20					
65	Bay 21 (B CH198.00 - B CH210.00)	4 days	2009/1/21	2009/1/24					
66	Bay 22 (B CH210.00 - B CH222.00)	3 days	2009/1/29	2009/1/31					
67	Construction of Channel Structures	19 days	2009/1/7	2009/1/31					
68	Bay 26 (B CH260.00 - B CH272.00)	10 days	2009/1/7	2009/1/17					
69	Bay 27 (B CH272.00 - B CH284.00)	9 days	2009/1/19	2009/1/31					
70	Backfilling along the sides of channel & laying of underground drain	5 days	2009/1/19	2009/1/23					
71	Bay 26 (B CH260.00 - B CH272.00)	5 days	2009/1/19	2009/1/23					
72									
73	Section III (Channel KT14A)	23 days	2009/1/2	2009/1/31					
74	Regular Environmental Impact Monitoring	23 days	2009/1/2	2009/1/31					
75	Regular Tree Survey	23 days	2009/1/2	2009/1/31					
76	Regular Structural Condition Survey	23 days	2009/1/2	2009/1/31					
77	Construction of Rectangular Channel	21 days	2009/1/2	2009/1/29					
78	Bay 2 (CH11.00 - CH23.00)	5 days	2009/1/8	2009/1/13					
79	Construction of Vertical Wall	3 days	2009/1/8	2009/1/10					
80	Backfilling	1 day	2009/1/12	2009/1/12					
81	Removal of Sheet Piling	1 day	2009/1/13	2009/1/13					
82	Bay 3 (CH23.00 - CH35.00)	14 days	2009/1/2	2009/1/17					
83	Construction of Base Slab	2 days	2009/1/2	2009/1/3					
84	Backfilling to the Kicker Level	1 day	2009/1/5	2009/1/5					
85	Construction of Vertical Wall	4 days	2009/1/12	2009/1/15					
86	Backfilling	1 day	2009/1/16	2009/1/16					
87	Removal of Sheet Piling	1 day	2009/1/17	2009/1/17					
88	Bay 4 (CH35.00 - CH48.00)	16 days	2009/1/5	2009/1/22					
89	Construction of Base Slab	3 days	2009/1/5	2009/1/7					
90	Backfilling to the Kicker Level	1 day	2009/1/16	2009/1/16					
91	Construction of Vertical Wall	3 days	2009/1/17	2009/1/20					
92	Backfilling	1 day	2009/1/21	2009/1/21					
93	Removal of Sheet Piling	1 day	2009/1/22	2009/1/22					
94	Bay 5 (CH48.00 - CH52.00)	16 days	2009/1/8	2009/1/29					
95	Excavation	4 days	2009/1/8	2009/1/12					
96	Installation of Sheet Piling	3 days	2009/1/9	2009/1/12					
97	Cast Blinding Layer	1 day	2009/1/13	2009/1/13					
98	Construction of Base Slab	3 days	2009/1/14	2009/1/16					

Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

**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  
One Month Rolling Programme (January 2009)**

No	Task Name	Duration	Start	Finish	2008/12/28	2009/1/4	2009/1/11	2009/1/18	2009/1/25
					28/12	4/1	11/1	18/1	25/1
99	Backfilling to the Kicker Level	1 day	2009/1/17	2009/1/17					
100	Construction of Vertical Wall	3 days	2009/1/21	2009/1/23					
101	Backfilling	1 day	2009/1/24	2009/1/24					
102	Removal of Sheet Piling	1 day	2009/1/29	2009/1/29					
103									
104	Section IV (Channel KT14B & KT14C)	23 days	2009/1/2	2009/1/31					
105	Regular Environmental Impact Monitoring	23 days	2009/1/2	2009/1/31					
106	Regular Tree Survey & Protection	23 days	2009/1/2	2009/1/31					
107	Regular Structural Condition Survey	23 days	2009/1/2	2009/1/31					
108	Construction of Kam Sheung Road (Portion 8B)	23 days	2009/1/2	2009/1/31					
109	Construction of Channel between CP9 and CP8	23 days	2009/1/2	2009/1/31					
110	Construction of Rectangular Channel of KT14B	20 days	2009/1/2	2009/1/24					
111	Bay 16 (CH158.00 - CH171.00)	6 days	2009/1/2	2009/1/8					
112	Construction of Base Slab & Vertical Wall	5 days	2009/1/2	2009/1/7					
113	Backfilling	1 day	2009/1/8	2009/1/8					
114	Bay 18 (CH183.00 - CH195.00)	6 days	2009/1/2	2009/1/8					
115	Construction of Base Slab & Vertical Wall	5 days	2009/1/2	2009/1/7					
116	Backfilling	1 day	2009/1/8	2009/1/8					
117	Bay 28 (CH284.00 - CH296.00)	6 days	2009/1/8	2009/1/14					
118	Construction of Base Slab & Vertical Wall	5 days	2009/1/8	2009/1/13					
119	Backfilling	1 day	2009/1/14	2009/1/14					
120	Bay 26 (CH260.00 - CH272.00)	6 days	2009/1/8	2009/1/14					
121	Construction of Base Slab & Vertical Wall	5 days	2009/1/8	2009/1/13					
122	Backfilling	1 day	2009/1/14	2009/1/14					
123	Bay 27 (CH272.00 - CH284.00)	6 days	2009/1/14	2009/1/20					
124	Construction of Base Slab & Vertical Wall	5 days	2009/1/14	2009/1/19					
125	Backfilling	1 day	2009/1/20	2009/1/20					
126	Bay 25 (CH248.00 - CH260.00)	18 days	2009/1/5	2009/1/24					
127	Excavation	6 days	2009/1/5	2009/1/10					
128	Cast Blinding Layer	1 day	2009/1/12	2009/1/12					
129	Construction of Base Slab & Vertical Wall	8 days	2009/1/14	2009/1/22					
130	Backfilling	2 days	2009/1/23	2009/1/24					
131	Construction of Rectangular Channel of KT14C	21 days	2009/1/2	2009/1/29					
132	East Portion (CH183.00 - CH484.00)	13 days	2009/1/2	2009/1/16					
133	Bay 12E (CH348.00 - CH360.00)	5 days	2009/1/2	2009/1/7					
134	Construction of Base Slab & Vertical Wall	4 days	2009/1/2	2009/1/6					
135	Backfilling	1 day	2009/1/7	2009/1/7					
136	Bay 14E (CH324.00 - CH336.00)	5 days	2009/1/2	2009/1/7					
137	Construction of Base Slab & Vertical Wall	4 days	2009/1/2	2009/1/6					
138	Backfilling	1 day	2009/1/7	2009/1/7					
139	Bay 15E-2 (CH310.00 - CH318.00)	5 days	2009/1/7	2009/1/12					
140	Construction of Base Slab & Vertical Wall	4 days	2009/1/7	2009/1/10					
141	Backfilling	1 day	2009/1/12	2009/1/12					
142	Bay 16E (CH298.00 - CH310.00)	9 days	2009/1/7	2009/1/16					
143	Construction of Base Slab	4 days	2009/1/7	2009/1/10					
144	Construction of Vertical Wall & Top Slab	4 days	2009/1/12	2009/1/15					
145	Backfilling	1 day	2009/1/16	2009/1/16					
146	West Portion (CH0.00 - CH183.00)	13 days	2009/1/12	2009/1/29					
147	Bay 13W (CH128.00 - CH139.00)	6 days	2009/1/12	2009/1/17					



Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

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**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  
One Month Rolling Programme (January 2009)**

No	Task Name	Duration	Start	Finish	2008/12/28	2009/1/4	2009/1/11	2009/1/18	2009/1/25
					28/12	4/1	11/1	18/1	25/1
148	Construction of Base Slab & Vertical Wall	5 days	2009/1/12	2009/1/16					
149	Backfilling	1 day	2009/1/17	2009/1/17					
150	Bay 14W (CH139.00 - CH149.00)	6 days	2009/1/12	2009/1/17					
151	Construction of Base Slab & Vertical Wall	5 days	2009/1/12	2009/1/16					
152	Backfilling	1 day	2009/1/17	2009/1/17					
153	Bay 15W (CH149.00 - CH162.00)	6 days	2009/1/17	2009/1/23					
154	Construction of Base Slab & Vertical Wall	5 days	2009/1/17	2009/1/22					
155	Backfilling	1 day	2009/1/23	2009/1/23					
156	Bay 16W (CH162.00 - CH174.00)	8 days	2009/1/17	2009/1/29					
157	Construction of Base Slab	3 days	2009/1/17	2009/1/20					
158	Backfilling to the Kicker Level	1 day	2009/1/21	2009/1/21					
159	Construction of Vertical Wall & Top Slab	3 days	2009/1/22	2009/1/24					
160	Backfilling	1 day	2009/1/29	2009/1/29					
161									
162	Section V (For Section I, II, III & IV)	23 days	2009/1/2	2009/1/31					
163	Preservation and Protection of Trees	23 days	2009/1/2	2009/1/31					
164									
165	Section VI - Portion 9A & 9B (Tuen Mun Sewerage Work)	23 days	2009/1/2	2009/1/31					
166	Structural Survey and Monitoring	23 days	2009/1/2	2009/1/31					
167	Construction of Manhole, Timber Box and Trench Excavation	23 days	2009/1/2	2009/1/31					
168	Apply XP Approval for Construction	23 days	2009/1/2	2009/1/31					
169									
170	Section VII - Portion 10A, 10B & 10C (Tuen Mun Sewerage Work)	23 days	2009/1/2	2009/1/31					
171	Structural Survey and Monitoring	23 days	2009/1/2	2009/1/31					
172	Construction of Manhole, Timber Box and Trench Excavation	23 days	2009/1/2	2009/1/31					
173	Apply XP Approval for Construction	23 days	2009/1/2	2009/1/31					



Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			



**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**  
**Three Months Rolling Programme (February 2009 to April 2009)**

No	Task Name	Duration	Start	Finish	2009/2				2009/3				2009/4				20			
					1/2	8/2	15/2	22/2	1/3	8/3	15/3	22/3	29/3	5/4	12/4	19/4		26/4		
1	Section I (Channel KT12)	95 days	2009/1/2	2009/4/30																
25																				
26	Section II (Channel KT13)	72 days	2009/2/2	2009/4/30																
27	Regular Environmental Impact Monitoring	72 days	2009/2/2	2009/4/30																
28	Regular Tree Survey & Protection	72 days	2009/2/2	2009/4/30																
29	Regular Structural Condition Survey	72 days	2009/2/2	2009/4/30																
30	Section A	72 days	2009/2/2	2009/4/30																
31	Excavation to Channel Formation & Laying of Rock Fill Material	72 days	2009/2/2	2009/4/30																
32	Bay 5 (A CH80.00 - A CH100.00)	2 days	2009/2/2	2009/2/3																
33	Bay 6 (A CH100.00 - A CH120.00)	5 days	2009/2/4	2009/2/9																
34	Bay 7 (A CH120.00 - A CH140.00)	5 days	2009/2/10	2009/2/14																
35	Bay 8 (A CH140.00 - A CH160.00)	5 days	2009/2/16	2009/2/20																
36	Bay 9 (A CH160.00 - A CH180.00)	5 days	2009/2/21	2009/2/26																
37	Bay 10 (A CH180.00 - A CH200.00)	5 days	2009/2/27	2009/3/4																
38	Bay 11 (A CH200.00 - A CH220.00)	5 days	2009/3/5	2009/3/10																
39	Bay 12 (A CH220.00 - A CH240.00)	5 days	2009/3/11	2009/3/16																
40	Bay 13 (A CH240.00 - A CH260.00)	5 days	2009/3/17	2009/3/21																
41	Bay 14 (A CH260.00 - A CH280.00)	5 days	2009/3/23	2009/3/27																
42	Bay 15 (A CH280.00 - A CH300.00)	5 days	2009/3/28	2009/4/2																
43	Bay 16 (A CH300.00 - A CH320.00)	5 days	2009/4/3	2009/4/9																
44	Bay 17 (A CH320.00 - A CH340.00)	5 days	2009/4/14	2009/4/18																
45	Bay 18 (A CH340.00 - A CH360.00)	5 days	2009/4/20	2009/4/24																
46	Bay 19 (A CH360.00 - A CH380.00)	5 days	2009/4/25	2009/4/30																
47	Construction of Channel Structures	72 days	2009/2/2	2009/4/30																
48	Bay 2 (A CH20.00 - A CH40.00)	2 days	2009/2/2	2009/2/3																
49	Bay 3 (A CH40.00 - A CH60.00)	10 days	2009/2/4	2009/2/14																
50	Bay 4 (A CH60.00 - A CH80.00)	10 days	2009/2/16	2009/2/26																
51	Bay 5 (A CH80.00 - A CH100.00)	10 days	2009/2/27	2009/3/10																
52	Bay 6 (A CH100.00 - A CH120.00)	10 days	2009/3/11	2009/3/21																
53	Bay 7 (A CH120.00 - A CH140.00)	10 days	2009/3/23	2009/4/2																
54	Bay 8 (A CH140.00 - A CH160.00)	10 days	2009/4/3	2009/4/18																
55	Bay 9 (A CH160.00 - A CH180.00)	10 days	2009/4/20	2009/4/30																
56	Backfilling along the completed Channel Structures	68 days	2009/2/4	2009/4/28																
57	Bay 2 (A CH20.00 - A CH40.00)	8 days	2009/2/4	2009/2/12																
58	Bay 3 (A CH40.00 - A CH60.00)	8 days	2009/2/16	2009/2/24																
59	Bay 4 (A CH60.00 - A CH80.00)	8 days	2009/2/27	2009/3/7																
60	Bay 5 (A CH80.00 - A CH100.00)	8 days	2009/3/11	2009/3/19																
61	Bay 6 (A CH100.00 - A CH120.00)	8 days	2009/3/23	2009/3/31																
62	Bay 7 (A CH120.00 - A CH140.00)	8 days	2009/4/3	2009/4/16																
63	Bay 8 (A CH140.00 - A CH160.00)	8 days	2009/4/20	2009/4/28																
64	Section of Box Culvert BC13-1	72 days	2009/2/2	2009/4/30																
65	Excavation to Channel Formation & Laying of Rock Fill Material	72 days	2009/2/2	2009/4/30																
66	Bay 6 (BC CH60.00 - BC CH72.00)	3 days	2009/2/2	2009/2/4																
67	Bay 7 (BC CH72.00 - BC CH84.00)	5 days	2009/2/5	2009/2/10																
68	Bay 8 (BC CH84.00 - BC CH96.00)	5 days	2009/2/11	2009/2/16																
69	Bay 9 (BC CH96.00 - BC CH108.00)	5 days	2009/2/17	2009/2/21																
70	Bay 10 (BC CH108.00 - BC CH118.00)	5 days	2009/2/23	2009/2/27																
71	Bay 11 (BC CH118.00 - BC CH122.00)	1 day	2009/2/28	2009/2/28																
72	Cease work (01/03/09 - 31/05/09) - Restriction of EP-263/2007 Requirement	48 days	2009/3/2	2009/4/30																
73	Construction of Channel Structures	72 days	2009/2/2	2009/4/30																
74	Bay 3 (BC CH24.00 - BC CH36.00)	10 days	2009/2/2	2009/2/12																
75	Bay 4 (BC CH36.00 - BC CH48.00)	10 days	2009/2/13	2009/2/24																
76	Bay 5 (BC CH48.00 - BC CH60.00)	4 days	2009/2/25	2009/2/28																
77	Cease work (01/03/09 - 31/05/09) - Restriction of EP-263/2007 Requirement	48 days	2009/3/2	2009/4/30																
78	Backfilling along the Completed Channel Structures	72 days	2009/2/2	2009/4/30																
79	Bay 2 (BC CH12.00 - BC CH24.00)	8 days	2009/2/2	2009/2/10																

Task Progress Summary External Tasks Deadline   
 Split Milestone Project Summary External Milestone

**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  
Three Months Rolling Programme (February 2009 to April 2009)**

No	Task Name	Duration	Start	Finish	2009/2				2009/3				2009/4				20	
					1/2	8/2	15/2	22/2	1/3	8/3	15/3	22/3	29/3	5/4	12/4	19/4		26/4
80	Bay 3 (BC CH24.00 - BC CH36.00)	8 days	2009/2/11	2009/2/19														
81	Bay 4 (BC CH36.00 - BC CH48.00)	8 days	2009/2/20	2009/2/28														
82	Case work (01/03/09 - 31/05/09) - Restriction of EP-263/2007 Requirement	48 days	2009/3/2	2009/4/30														
83	<b>Section B</b>	72 days	2009/2/2	2009/4/30														
84	<b>Excavation to Channel Formation &amp; Laying of Rock Fill Material</b>	72 days	2009/2/2	2009/4/30														
85	Bay 29 (B CH297.00 - B CH305.00)	5 days	2009/2/2	2009/2/6														
86	Bay 30 (B CH305.00 - B CH312.00)	5 days	2009/2/7	2009/2/12														
87	Bay 25 (B CH247.00 - B CH260.00)	5 days	2009/2/13	2009/2/18														
88	Bay 24 (B CH235.00 - B CH247.00)	5 days	2009/2/19	2009/2/24														
89	Bay 23 (B CH222.00 - B CH235.00)	5 days	2009/2/25	2009/3/2														
90	Bay 19 (B CH174.00 - B CH186.00)	5 days	2009/3/3	2009/3/7														
91	Bay 18 (B CH162.00 - B CH174.00)	5 days	2009/3/9	2009/3/13														
92	Bay 17 (B CH154.00 - B CH162.00)	5 days	2009/3/14	2009/3/19														
93	Bay 16 (B CH147.00 - B CH154.00)	5 days	2009/3/20	2009/3/25														
94	Bay 15 (B CH144.00 - B CH147.00)	5 days	2009/3/26	2009/3/31														
95	Bay 14 (B CH137.00 - B CH144.00)	10 days	2009/4/1	2009/4/16														
96	Bay 13 (B CH129.00 - B CH137.00)	10 days	2009/4/17	2009/4/28														
97	Bay 12 (B CH119.00 - B CH129.00)	2 days	2009/4/29	2009/4/30														
98	<b>Construction of Channel Structures</b>	72 days	2009/2/2	2009/4/30														
99	Bay 28 (B CH284.00 - B CH296.00)	12 days	2009/2/2	2009/2/14														
100	Bay 20 (B CH186.00 - B CH198.00)	12 days	2009/2/16	2009/2/28														
101	Bay 21 (B CH198.00 - B CH210.00)	12 days	2009/3/2	2009/3/14														
102	Bay 22 (B CH210.00 - B CH222.00)	12 days	2009/3/16	2009/3/28														
103	Bay 29 (B CH297.00 - B CH305.00)	12 days	2009/3/30	2009/4/16														
104	Bay 30 (B CH305.00 - B CH312.00)	12 days	2009/4/17	2009/4/30														
105	<b>Backfilling along the sides of channel &amp; laying of underground drain</b>	68 days	2009/2/2	2009/4/25														
106	Bay 26 (B CH260.00 - B CH272.00)	3 days	2009/2/2	2009/2/4														
107	Bay 27 (B CH272.00 - B CH284.00)	8 days	2009/2/5	2009/2/13														
108	Bay 28 (B CH284.00 - B CH296.00)	8 days	2009/2/16	2009/2/24														
109	Bay 20 (B CH186.00 - B CH198.00)	8 days	2009/3/2	2009/3/10														
110	Bay 21 (B CH198.00 - B CH210.00)	8 days	2009/3/16	2009/3/24														
111	Bay 22 (B CH210.00 - B CH222.00)	8 days	2009/3/30	2009/4/8														
112	Bay 29 (B CH297.00 - B CH305.00)	8 days	2009/4/17	2009/4/25														
113																		
114	<b>Section III (Channel KT14A)</b>	72 days	2009/2/2	2009/4/30														
226																		
227	<b>Section IV (Channel KT14B &amp; KT14C)</b>	72 days	2009/2/2	2009/4/30														
485																		
486	<b>Section V (For Section I, II, III &amp; IV)</b>	72 days	2009/2/2	2009/4/30														
488																		
489	<b>Section VI - Portion 9A &amp; 9B (Tuen Mun Sewerage Work)</b>	72 days	2009/2/2	2009/4/30														
493																		
494	<b>Section VII - Portion 10A, 10B &amp; 10C (Tuen Mun Sewerage Work)</b>	72 days	2009/2/2	2009/4/30														

Task		Progress		Summary		External Tasks		Deadline	
Split		Milestone		Project Summary		External Milestone			

## **Appendix D**

### **Mitigation Measure Implementation Schedule**

**Appendix A**  
**Mitigation Measures Implementation Schedule**

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

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

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

Air Quality Impact Mitigation								
EIA Ref.	Mitigation Measures	Objectives of Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
					Design	Construction	Operation	
6.5.12	<p>Dust Mitigation Measures</p> <p>The Contractor shall prevent dust nuisance arising from the construction activities. The Contractor is required to follow all the requirements for dust control stipulated in the Air Pollution Control (Construction Dust) Regulation. Dust suppression measures should be installed as part of proper construction practice, and these should be incorporated in the Contract Specification and implemented to minimize dust nuisance to within acceptable levels. The following are examples of the dust suppression measures:</p> <ul style="list-style-type: none"> <li>(i) The Contractor shall frequently clean and water the site to minimize fugitive dust emissions.</li> <li>(ii) Effective water sprays shall be used during the delivery and handling of aggregate, and other similar materials, when dust is likely to be created and to dampen all stored materials during dry and windy weather.</li> <li>(iii) Watering of exposed surfaces shall be exercised as often as possible depending on the circumstances.</li> <li>(iv) Areas within the site where there is a regular movement of vehicles must be regularly watered as often as necessary for effective suppression of dust or as often as directed by the Engineer.</li> <li>(v) Where dusty material are being discharged to vehicle from a conveying system at a fixed transfer point, a three-sided roofed enclosure with a flexible curtain across the entry shall be provided. Exhaust fans shall be provided for this enclosure and vented to a suitable fabric filter system.</li> </ul>	Prevent dust / odour nuisance	To be implemented at the works sites during the Construction Phase.	Construction Contractor		✓		Air Pollution Control Ordinance [Air Pollution Control (Construction Dust) Regulation]

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



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

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

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

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

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

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

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

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



Landscape/Visual Impact Mitigation									
EIA Ref.	Mitigation Measures		Objectives for Proposed Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent(s)	Implementation Stage			Relevant Legislation & Guidelines
						Design	Construction	Operation	
10.8.18 Figures LP-001, LP-002 & 4.13	Compensatory planting of trees and bamboos with requirements as below.		To address both landscape / visual and ecological mitigation needs	To be implemented along KT13 as shown in Figures LP-001 and LP-002 (with reference to Figure 4.13) during Construction Phase / To be completed before commencement of Operation	Construction Contractor		✓		WBTC No. 14/2002 & ETWBTC No. 2/2004
	Size of compensatory tree planting	At least heavy standard size							
	Quantity of compensatory tree planting	2 times of the tree to be felled (approximately 148 nos. of tree to be compensated)							
	Proposed species	<i>Bambusa eutuldoides*</i> <i>Celtis tetrandia</i> <i>Cinnamomum camphora</i> <i>Ficus virens</i> <i>Ficus microcarpa</i>							
	Requirements*	To ensure the right species of bamboo is planted, an experience botanist shall be acquired by the Contractor to source the correct bamboo species. In addition, the bamboos should have a minimum stem diameter of 8-10 cm and clump size of 5 shoots per plant.							

## Appendix E

- (A) Ecological Monitoring Data
- (B) Graphical Plots
  - (B)(1) Air Quality
  - (B)(2) Construction Noise
  - (B)(3) Water Quality
- (C) Summary of Weather Conditions

## (A) Ecological Monitoring Data

October 2008

### ***Bird Survey***

37 individuals of birds from 13 species were recorded during the survey for the present monthly monitoring on 20 October. Among the birds recorded, no wetland dependent birds were recorded. Ecology Impact Monitoring Results are presented below.

Summary of Ecology Impact Monitoring Bird Survey (October 2008)

Scientific Name	Common Name	Reported in the project profile	Abundance recorded in the present survey (20 Oct 08)	Habitat utilized
<b>Birds</b>				
Little Egret	<i>Egretta garzetta</i>	✓		
Cattle Egret	<i>Bubulcus ibis</i>	✓		
Chinese Pond Heron	<i>Ardeola bacchus</i>	✓		
Crested Serpent Eagle	<i>Spilornis cheela</i>	✓		
Bonelli's Eagle	<i>Hieraaetus fasciatus</i>	✓		
Eurasian Hobby	<i>Falco subbuteo</i>	✓		
White-breasted Waterhen	<i>Amaunornis phoenicurus</i>	✓		
Spotted Dove	<i>Streptopelia chinensis</i>	✓	2	Woodland, bare ground
Common Koel	<i>Eudynamys scolopacea</i>	✓		
Greater Coucal	<i>Centropus sinensis</i>	✓		
Little Swift	<i>Apus affinis</i>	✓		
White-Throated Kingfisher	<i>Halcyon smyrnensis</i>	✓		
Barn Swallow	<i>Hirundo rustica</i>	✓		
Red-Whiskered Bulbul	<i>Pycnonotus jocosus</i>	✓	5	Woodland
Chinese Bulbul	<i>Pycnonotus sinensis</i>	✓	3	Woodland
Long-Tailed Shrike	<i>Lanius schach</i>	✓	1	Low-lying grassland
Oriental Magpie Robin	<i>Copsychus saularis</i>	✓	2	Woodland, bare ground
Masked Laughingthrush	<i>Garrulax perspicillatus</i>	✓	2	Woodland
Yellow-Bellied Prinia	<i>Prinia flaviventris</i>	✓	1	Low-lying grassland
Common Tailorbird	<i>Orthotomus sutorius</i>	✓		
Great Tit	<i>Parus major</i>	✓	1	Woodland
Japanese White-Eye	<i>Zosterops japonicus</i>	✓		
White-Rumped Munia	<i>Lonchura striata</i>	✓	6	Low-lying grassland
Eurasian Tree Sparrow	<i>Passer montanus</i>	✓	4	Bare ground Low lying grassland
Black-Collared Starling	<i>Sturnus nigricollis</i>	✓	1	Bare ground
Common Myna	<i>Acridotheres tristis</i>	✓		
Crested Myna	<i>Acridotheres cristatellus</i>	✓	4	Bare ground
Black Kite	<i>Milvus migrans</i>			
White Wagtail	<i>Motacilla alba</i>		5	Bare ground
Plain Prinia	<i>Prinia inornata</i>			
Blue Magpie	<i>Urocissa eythrorhyncha</i>			
Fork-tailed Sunbird	<i>Aethopyga christinae</i>			
Indian Cuckoo	<i>Cuculus micropterus</i>			
Common Magpie	<i>Pica pica</i>			
Species Number		27	13	
Individual Number		NA	37	

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

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

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

#### Vegetation Impact monitoring

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

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

Prior to commencement of the construction works at KT13 on 20 October 2008, extra ecology monitoring were conducted upon CRBC's request. Results of the extra ecology monitoring conducted in May, June, July, August and September 2008 have been present in **Appendix H** of the first monthly EM&A report (October 2008) for reference.

## November 2008

37 individuals of birds from 40 species were recorded during the survey for the present monthly monitoring on 20 November 2008. Among the birds recorded, 12 individuals of wetland dependent birds (from 4 species) were recorded.

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

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

Egret survey was NOT required in the present monitoring.

During the walk through survey, no adverse impacts on habitats outside the boundary of the works area including the Conservation Area and the location of Ho Pui Egret was found.

No adverse impacts on vegetation were observed during the ecological monitoring. Photographic records of trees are taken during the updated tree survey for the project and have been presented in **Appendix H** of the monthly EM&A report for November 2008.

Ecology Impact Monitoring Results are presented below.

Summary of Ecology Impact Monitoring Bird Survey (November 2008)

Common Name	Scientific Name	Reported in the EIA	Abundance recorded in the present survey (20 Nov 08)	Habitat utilized
<b>Birds</b>				
Little Egret	<i>Egretta garzetta</i>	✓	6	River/strea
Cattle Egret	<i>Bubulcus ibis</i>	✓	3	River/strea
Chinese Pond	<i>Ardeola</i>	✓	1	River/strea
Crested Serpent	<i>Spilornis cheela</i>	✓		
Bonelli's Eagle	<i>Hieraaetus</i>	✓		
Eurasian Hobby	<i>Falco subbuteo</i>	✓		
White-breasted	<i>Amaunornis</i>	✓	2	River/strea
Spotted Dove	<i>Streptopelia</i>	✓	8	Bare ground
Common Koel	<i>Eudynamys</i>	✓		
Greater Coucal	<i>Centropus</i>	✓		
Little Swift	<i>Apus affinis</i>	✓		
White-Throated	<i>Halcyon</i>	✓		
Barn Swallow	<i>Hirundo rustica</i>	✓		
Red-Whiskered	<i>Pycnonotus</i>	✓	10	Woodland
Chinese Bulbul	<i>Pycnonotus</i>	✓	13	Woodland
Long-Tailed	<i>Lanius schach</i>	✓		
Oriental Magpie	<i>Copsychus</i>	✓	4	Woodland
Masked	<i>Garrulax</i>	✓	7	Bare
Yellow-Bellied	<i>Prinia</i>	✓	3	Low-lying
Common	<i>Orthotomus</i>	✓	2	Woodland
Great Tit	<i>Parus major</i>	✓	4	Woodland
Japanese	<i>Zosterops</i>	✓	5	Woodland
White-Rumped	<i>Lonchura striata</i>	✓		Low-lying
Eurasian Tree	<i>Passer</i>	✓	15	Bare
Black-Collared	<i>Sturnus</i>	✓	4	Bare
Common Myna	<i>Acridotheres</i>	✓		
Crested Myna	<i>Acridotheres</i>	✓	6	Bare
Black Kite	<i>Milvus migrans</i>			
White Wagtail	<i>Motacilla alba</i>		4	Agricultural
Plain Prinia	<i>Prinia inornata</i>		1	Low-lying
Blue Magpie	<i>Urocissa</i>			
Fork-tailed	<i>Aethopyga</i>		1	woodland
Indian Cuckoo	<i>Cuculus</i>			
Common Mapie	<i>Pica pica</i>		1	Bare
<b>Species</b>		<b>27</b>	<b>13</b>	
<b>Individual</b>		<b>NA</b>	<b>37</b>	

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

## ***December 2008***

53 individuals of birds from 17 species were recorded during the survey for the present monthly monitoring on 21 December 2008. Among the birds recorded, 7 individuals of wetland dependent birds (from 3 species) were recorded.

It is stated in the EP for 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.

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

Egretty survey was NOT required in the present monitoring.

During the walk through survey, no adverse impacts on habitats outside the boundary of the works area including the Conservation Area and the location of Ho Pui Egretty was found.

No adverse impacts on vegetation were observed during the ecological monitoring. Photographic records are taken at intervals of six-monthly. They will be presented in the attached Appendix H upon completion in May 2009.

Ecology Impact Monitoring Results are presented below.

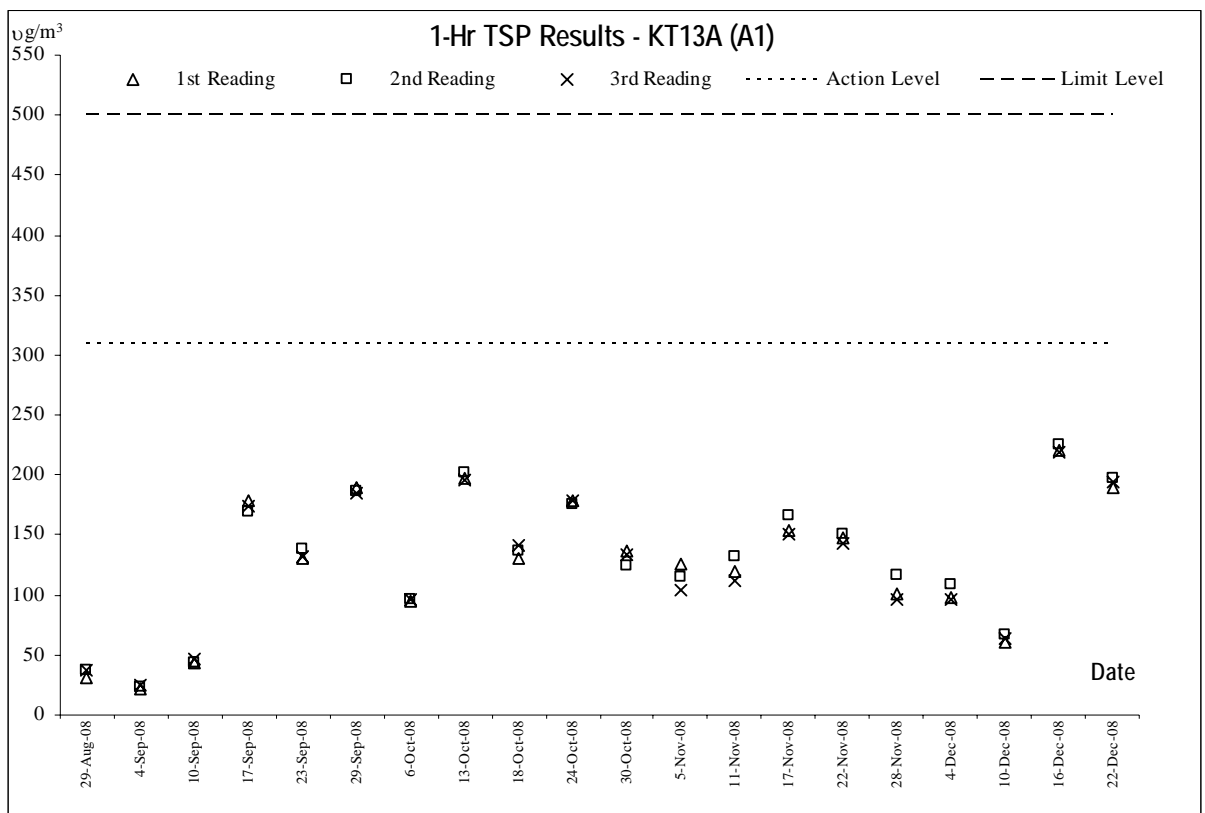
### Summary of Ecology Impact Monitoring Bird Survey (December 2008)

Scientific Name	Common Name	Reported in the	Abundance recorded in	Habitat utilized
<b>Birds</b>				
<b>Little Egret</b>	<i>Egretta garzetta</i>	✓	<b>4</b>	<b>River/stream</b>
<b>Cattle Egret</b>	<i>Bubulcus ibis</i>	✓		
<b>Chinese Pond Heron</b>	<i>Ardeola bacchus</i>	✓	<b>2</b>	<b>River/stream</b>
Crested Serpent Eagle	<i>Spilornis cheela</i>	✓		
Bonelli's Eagle	<i>Hieraaetus fasciatus</i>	✓		
Eurasian Hobby	<i>Falco subbuteo</i>	✓		
<b>White-breasted Waterhen</b>	<i>Amaunornis phoenicurus</i>	✓	<b>1</b>	<b>River/stream</b>
Spotted Dove	<i>Streptopelia chinensis</i>	✓	5	Woodland/bare ground
Common Koel	<i>Eudynamys scolopacea</i>	✓		
Greater Coucal	<i>Centropus sinensis</i>	✓		
Little Swift	<i>Apus affinis</i>	✓		
<b>White-Throated Kingfisher</b>	<i>Halcyon smyrnensis</i>	✓		
Barn Swallow	<i>Hirundo rustica</i>	✓		
Red-Whiskered Bulbul	<i>Pycnonotus jocosus</i>	✓	6	Woodland
Chinese Bulbul	<i>Pycnonotus sinensis</i>	✓	3	Woodland
Long-Tailed Shrike	<i>Lanius schach</i>	✓		
Oriental Magpie Robin	<i>Copsychus saularis</i>	✓	2	Bare ground
Masked Laughingthrush	<i>Garrulax perspicillatus</i>	✓		
Yellow-Bellied Prinia	<i>Prinia flaviventris</i>	✓	2	Low-lying grassland
Common Tailorbird	<i>Orthotomus sutorius</i>	✓		
Great Tit	<i>Parus major</i>	✓	1	Woodland
Japanese White-Eye	<i>Zosterops japonicus</i>	✓		
White-Rumped Munia	<i>Lonchura striata</i>	✓	4	Agricultural land
Eurasian Tree Sparrow	<i>Passer montanus</i>	✓	7	Woodland/low-lying grassland
Black-Collared Starling	<i>Sturnus nigricollis</i>	✓	4	Bare ground
Common Myna	<i>Acridotheres tristis</i>	✓		
Crested Myna	<i>Acridotheres cristatellus</i>	✓	5	Bare ground/agricultural land
Black Kite	<i>Milvus migrans</i>			
White Wagtail	<i>Motacilla alba</i>		3	River/stream
Plain Prinia	<i>Prinia inornata</i>		1	Low-lying grassland
Blue Magpie	<i>Urocissa eythrorhyncha</i>			
Fork-tailed Sunbird	<i>Aethopyga christinae</i>			
Indian Cuckoo	<i>Cuculus micropterus</i>			
Common Mapie	<i>Pica pica</i>			
Green Sandpiper	<i>Tringochropus</i>		<b>1</b>	River/stream
Yellow Wagtail	<i>Motacilla flava</i>		<b>2</b>	River/stream
<b>Species Number</b>		<b>27</b>	<b>17</b>	
<b>Individual Number</b>		<b>NA</b>	<b>53</b>	

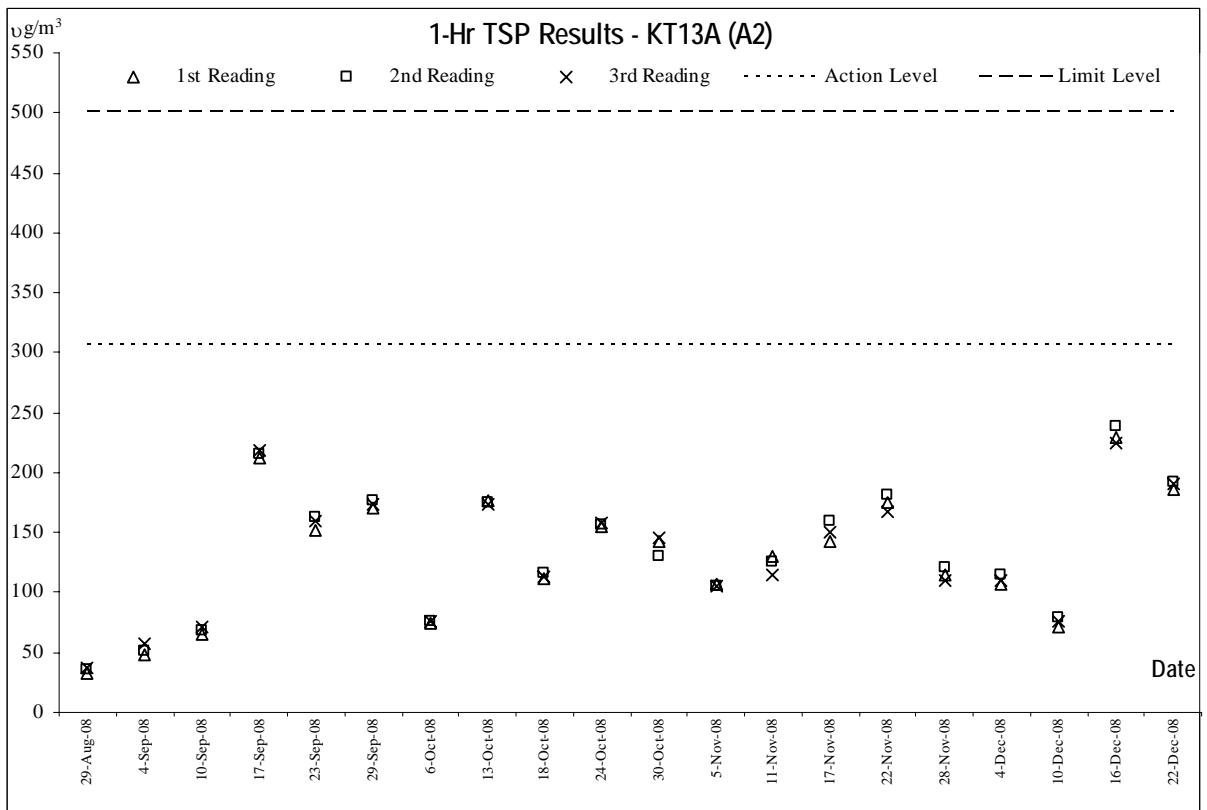
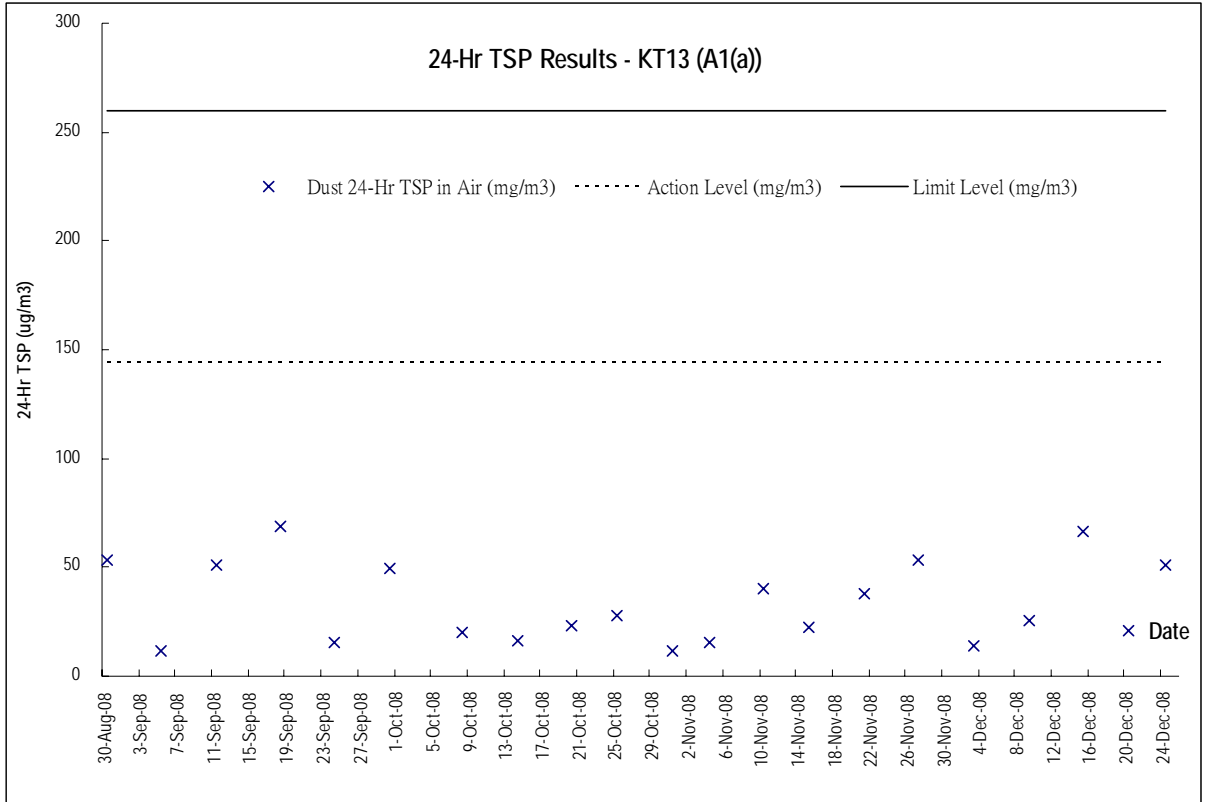
\*Wetland dependent species recorded with abundance during the baseline study with the names bolded

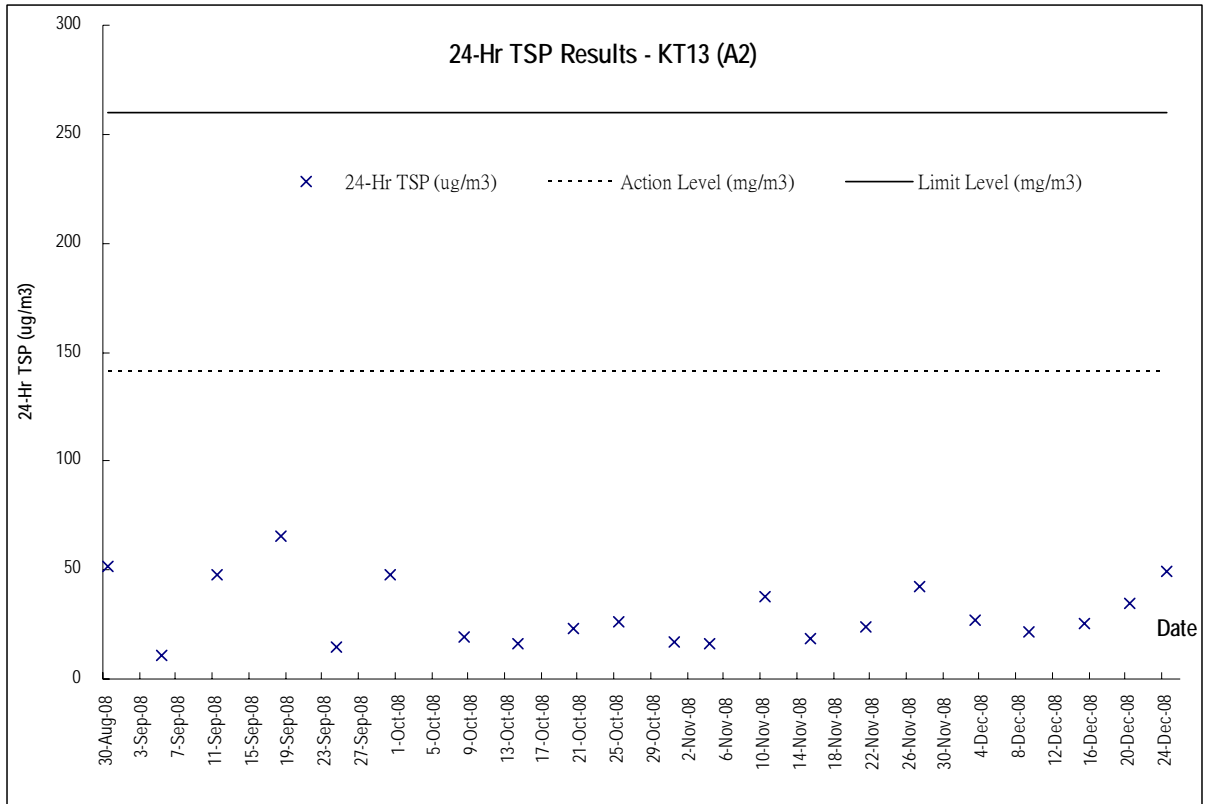
## (B) Graphical Plots

### (B)(1) Air Quality

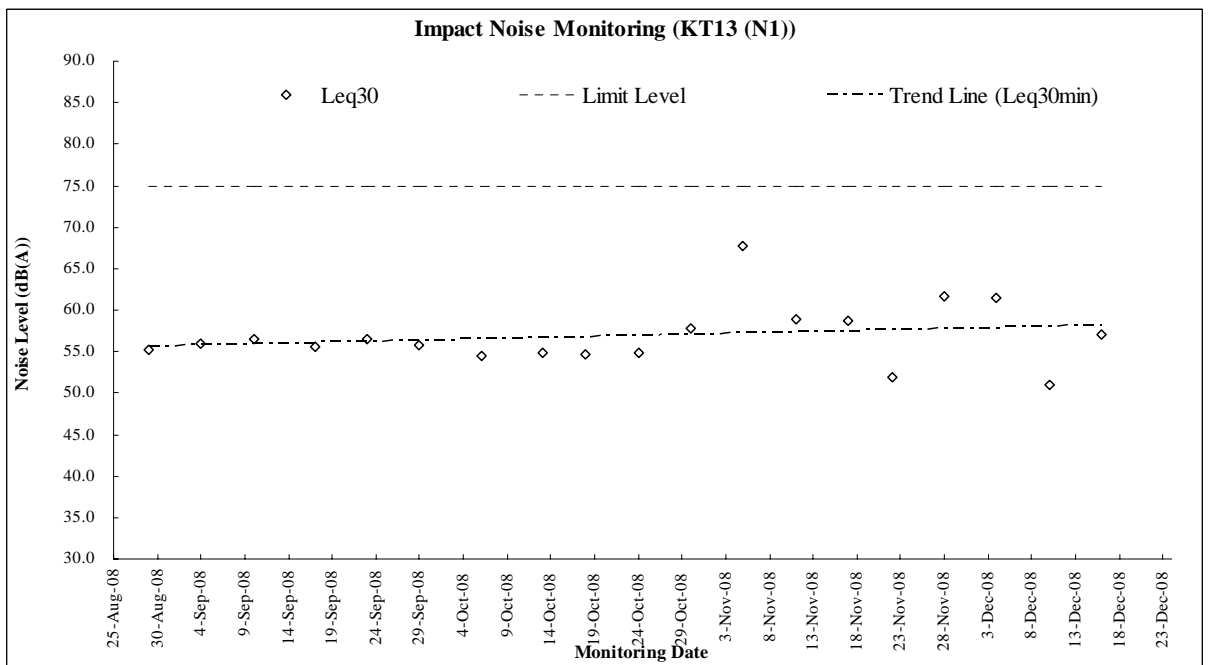


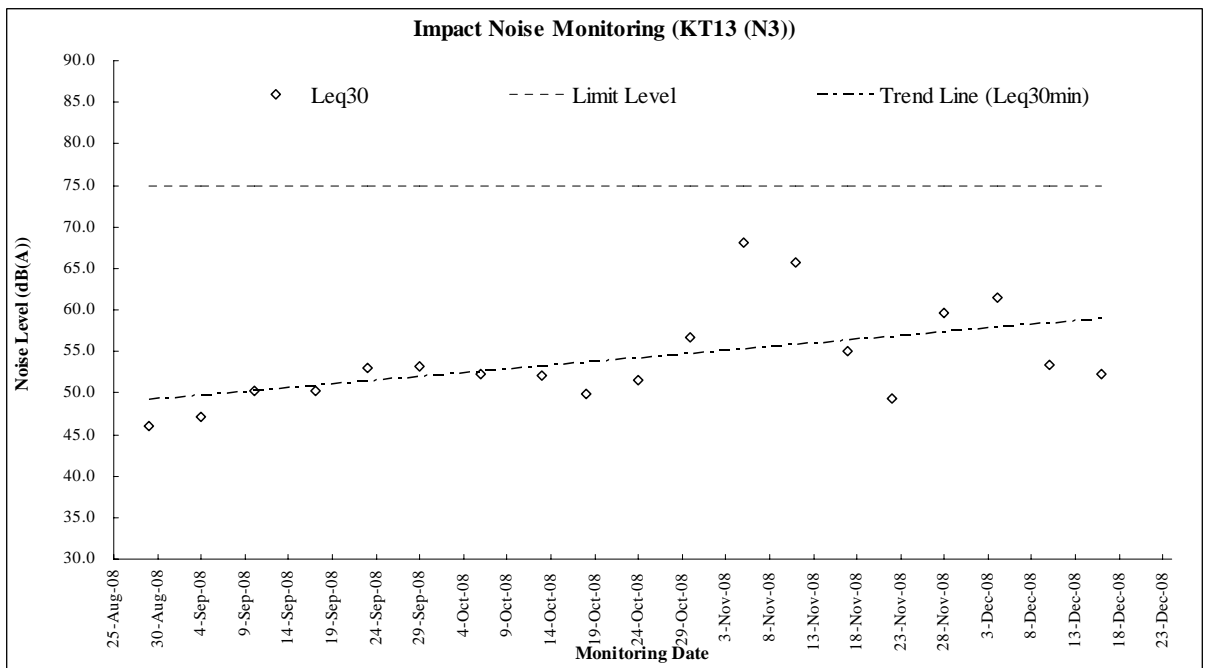
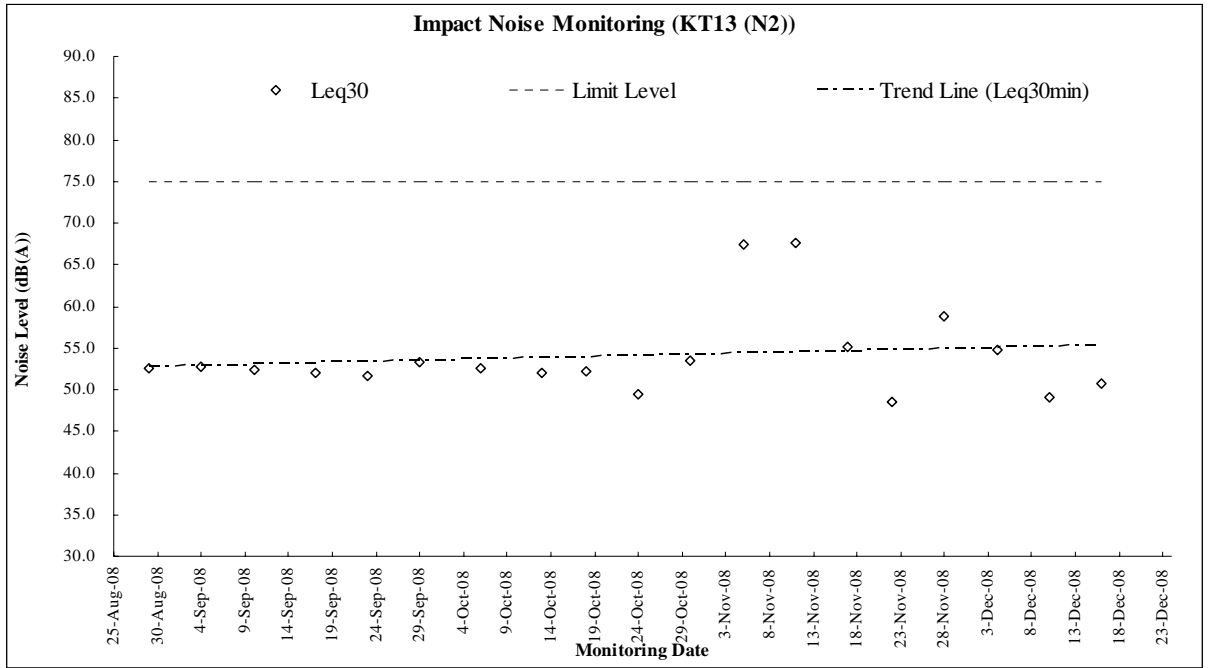




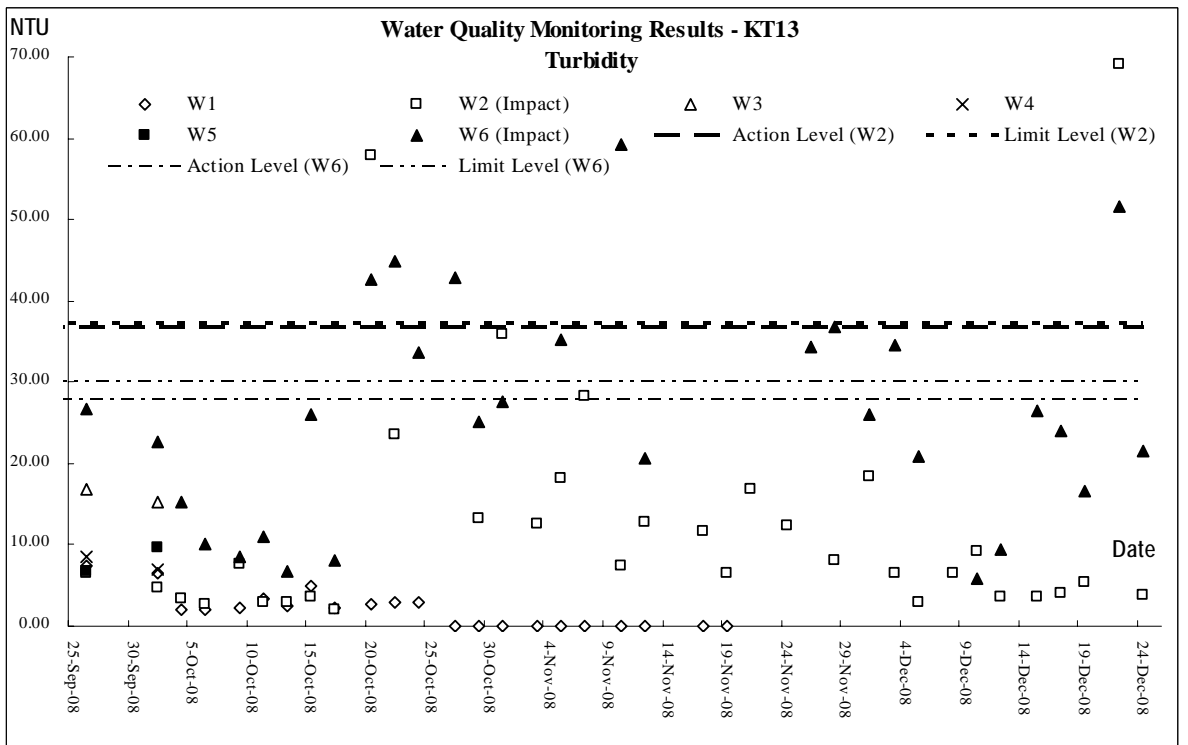
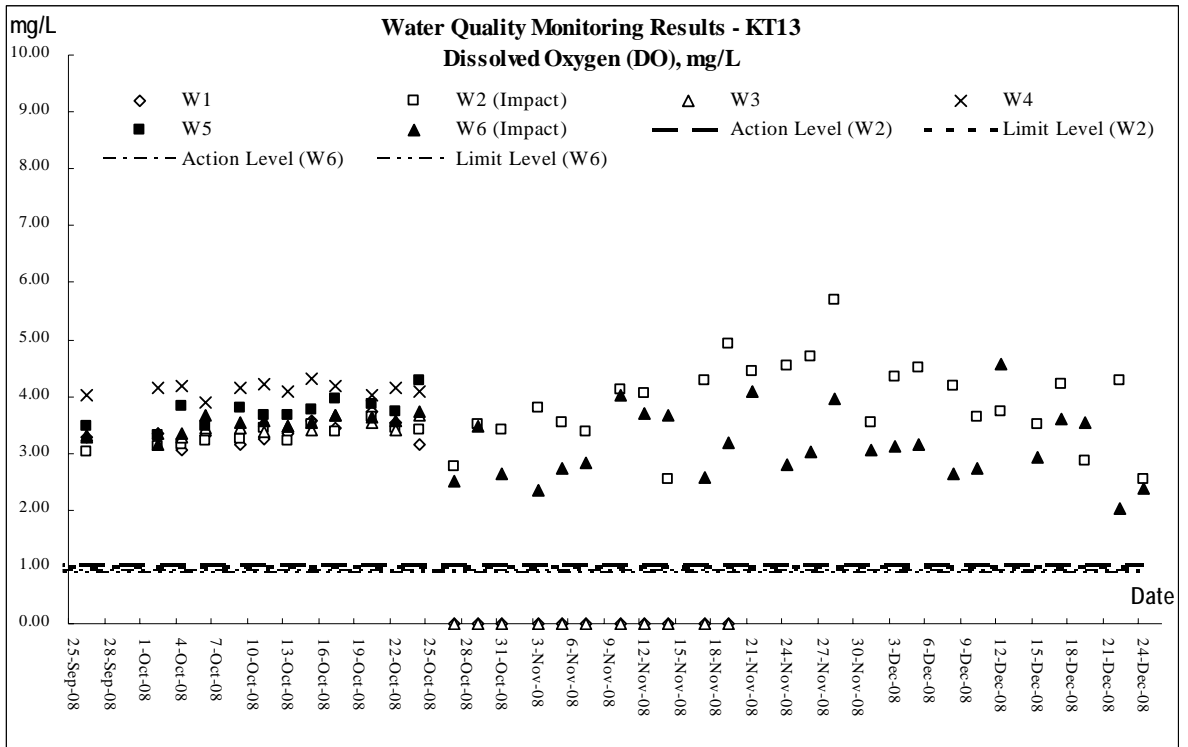


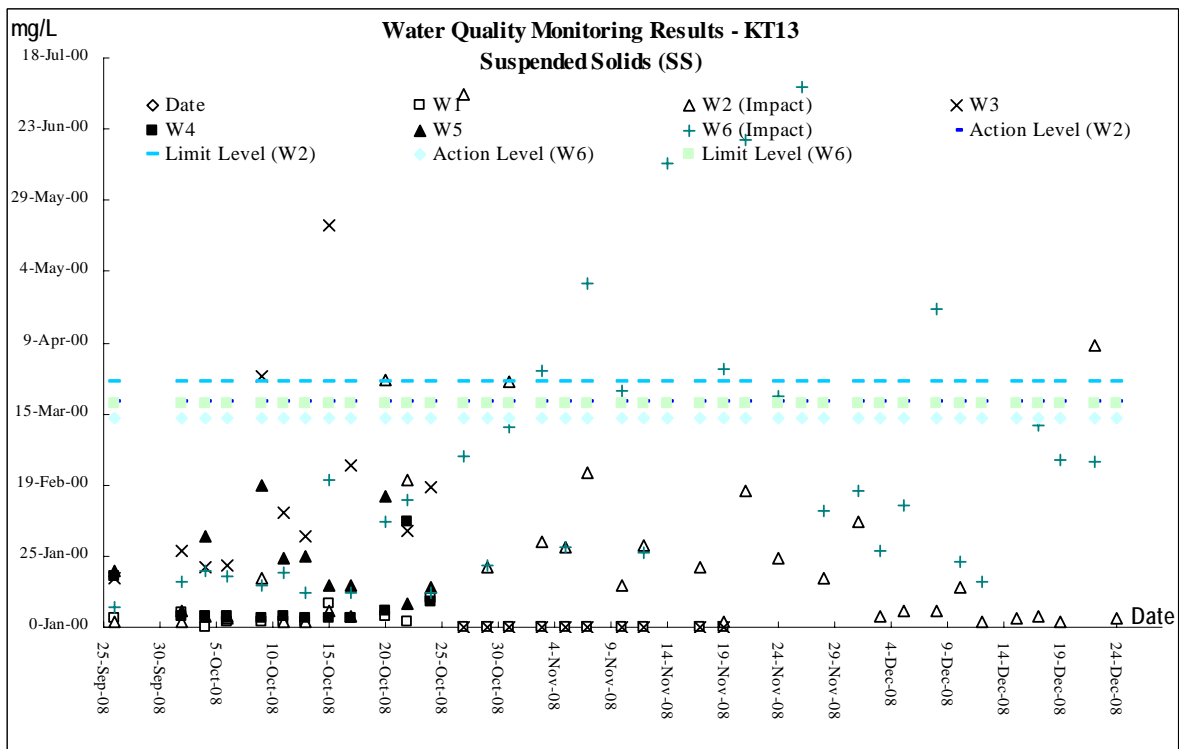
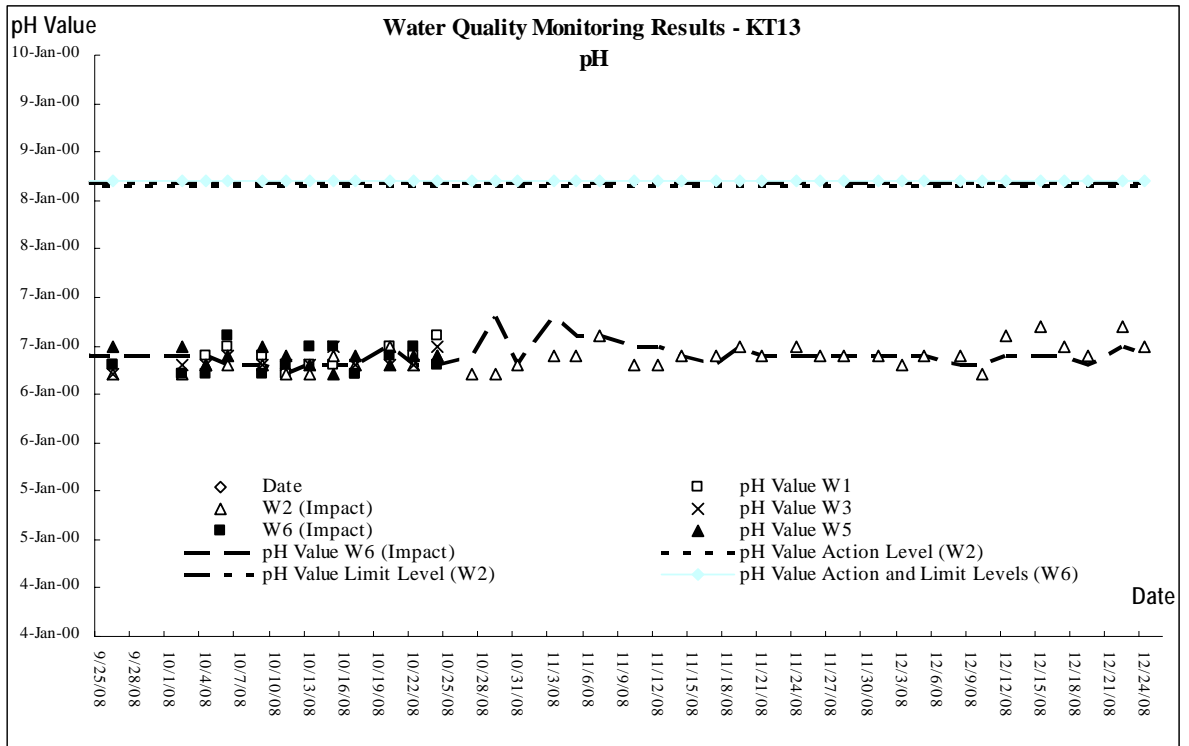
## (B)(2) Construction Noise

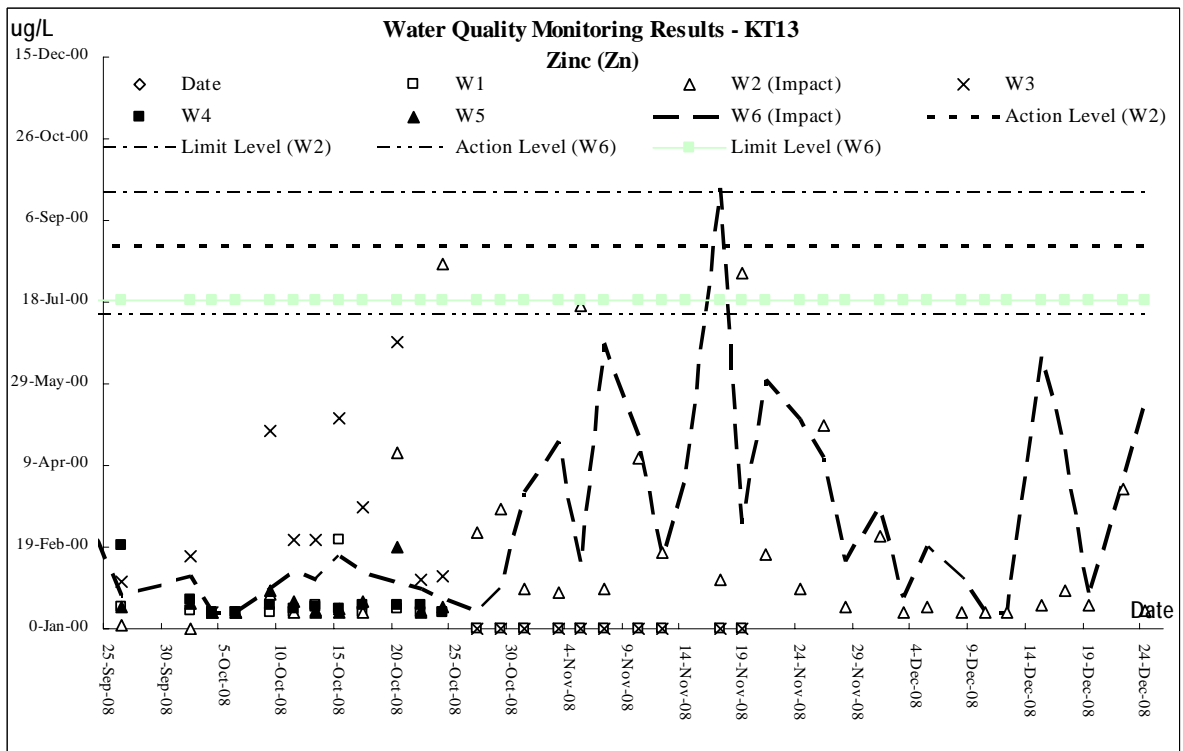
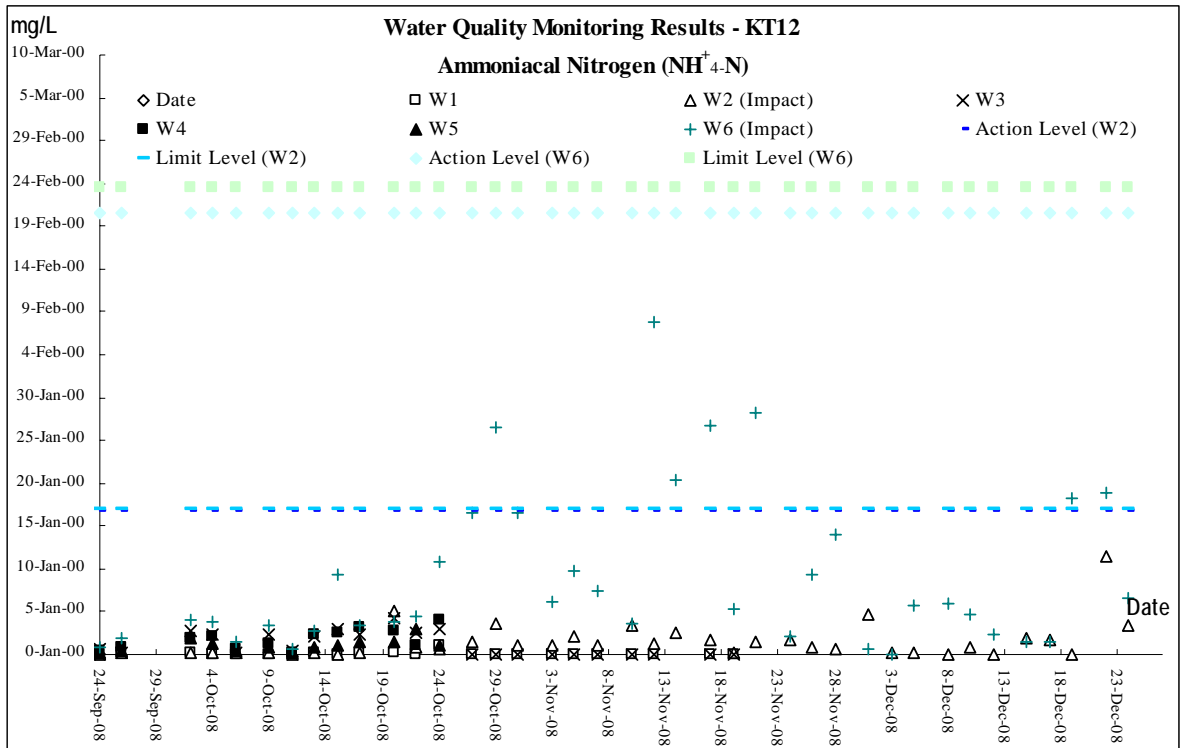




### (B)(3) Water Quality







## (C) **Summary of Weather Conditions of the Reporting Period**

### **October 2008**

October 2008 was unseasonably warm. Both the monthly mean temperature of 26.5 degrees and the mean daily minimum temperature of 24.9 degrees broke the records set in 1983 by 0.1 degrees and 0.2 degrees respectively. The accumulated rainfall since 1 January was 3002.9 millimetres, about 30 percent above the normal figure of 2313.1 millimetres for the same period.

Under the influence of a ridge of high pressure over southern China, local weather was mainly fine for the first two days of the month. Tropical Depression Higos entered the South China Sea on 2 October and intensified into a Tropical Storm the next day. Affected by the outer rainbands of Higos, it became cloudy with a few showers on 3 October. Higos weakened into a Tropical Depression and made landfall over the western part of Guangdong on 4 October. Local weather remained showery on that day. Higos weakened further into an area of low pressure the next morning and moved eastwards along the coast of Guangdong. Under the influence of the remnant of Higos and a cooler airstream over the south China coastal areas, there were some heavy squally showers and thunderstorms in the territory on 5 October.

A weak northeast monsoon reached southern China on the evening of 5 October and brought mainly cloudy condition to Hong Kong from 6 to 8 October. Clouds thinned out gradually and the weather turned generally fine for the ensuing three days. A replenishment of northeast monsoon reached southern China on 11 October and brought windy, rainy and slightly cooler weather to the territory on 12 and 13 October. A dry continental airstream brought generally fine and dry conditions to the territory for the next three days.

Affected by an area of low pressure over the northern part of the South China Sea, the weather became mainly cloudy with a few showers on 17 and 18 October. A ridge of high pressure dominated over the south China coastal areas and brought mainly fine weather to the territory from 19 to 23 October.

A weak cold front moved across the coastal areas of Guangdong on the morning of 24 October. Affected by the northeast monsoon behind the cold front, local weather became mainly cloudy with a few rain patches on 24 and 25 October. Under the influence of a continental airstream over southern China, local weather turned mainly fine for the last six days of the month.

## **November 2008**

November 2008 was brighter and warmer than usual. The total duration of bright sunshine was 216.0 hours, about 21 percent above the normal figure of 178.2 hours. The monthly mean relative humidity was 65 percent, about 5 percent below normal. The monthly mean temperature of 21.9 degrees was 0.5 degrees above normal. The monthly total rainfall of 54.3 millimetres, of which 51.2 millimetres were recorded in a rain episode on 3 November, was about 55 percent above normal. The accumulated rainfall since 1 January was 3057.2 millimetres, about 30 percent above the normal figure of 2348.2 millimetres for the same period.

Affected by a broad cloud band over southern China, the weather in Hong Kong was cloudy with a few light rain patches for the first two days of the month. The passage of a cold front on 3 November brought rainy and slightly cooler weather to the territory on that day. It remained mainly cloudy for the ensuing four days.

Another cold front crossed the coastal areas of Guangdong on the morning of 8 November and the associated northeast monsoon brought cooler weather to Hong Kong on 8 and 9 November. With further strengthening of the northeast monsoon over the south China coastal areas, cool and very dry weather prevailed over the next three days. Under the influence of a continental flow, the weather was sunny from 13 to 18 November.

A replenishment of the northeast monsoon reached the south China coast on 19 November, bringing cool and dry conditions to the territory from 19 to 21 November. A broad cloud band covering the coastal areas of Guangdong and the northern part of the South China Sea brought cloudy weather to Hong Kong on 22 November. The cloud thinned out on 23 November and it was fine and dry from 24 to 26 November. The northeast monsoon affecting southern China intensified and brought cooler, windy and very dry weather to the territory on 27 November. It was rather cool on the morning of 28 November. The air temperature recorded at the Hong Kong Observatory on that day fell to a minimum of 12.5 degrees, the lowest of the month. The weather remained rather cool and very dry for the last two days of the month.



## **December 2008**

December 2008 was warmer and drier than usual. The monthly mean temperature of 18.4 degrees was 0.6 degrees above normal. The monthly total rainfall of 9.0 millimetres was 25.5 millimetres below normal. The annual rainfall for 2008 was 3066.2 millimetres, about 29 percent above the normal figure of 2382.7 millimetres.

Under the influence of a ridge of high pressure over southern China, the weather in Hong Kong was fine and dry for the first two days of the month. An easterly airstream brought a few rain patches to the territory on 3 December.

It was cloudy with some sunny intervals during the day on 4 December. A cold front moved across the south China coastal areas that evening, bringing a few rain patches to Hong Kong at night. The winter monsoon behind the cold front brought rather cool and very dry weather to Hong Kong for the ensuing seven days. Affected by an easterly airstream, it was mainly cloudy with low visibility on 12 December. It was warm with some sunny intervals on 13 December.

A dry northeast monsoon reached the south China coastal areas on the morning of 14 December and brought fine and dry conditions to the territory from 14 to 21 December. Under the influence of an intense winter monsoon, the weather became cold on 22 and 23 December. The temperature recorded at the Hong Kong Observatory fell to 11.5 degrees on the morning of 23 December, the lowest of the month. It was mainly fine and dry on 24 and 25 December.

Affected by a broad cloud band over southern China, the weather became cloudy on 26 December. There were a few rain patches from 27 to 29 December. A cold front crossed the coastal areas of Guangdong in the afternoon of 29 December. The weather in Hong Kong turned cool and rainy for the rest of the month.

## **Appendix F**

### **Monthly Summary Waste Flow Table**

**Monthly Summary Waste Flow Table**

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

<b>Monthly Summary Waste Flow Table for <u>December 2008</u></b>										
Year	Actual Quantities of Inert C & D Materials Generated Monthly					Estimated Annual Quantities of C & D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/ Cardboard packaging	Plastics (see note 3)	Chemical Waste	Others, e.g. General refuse
	(in '000M <sup>3</sup> )	(in '000M <sup>3</sup> )	(in '000M <sup>3</sup> )	(in '000M <sup>3</sup> )	(in '000M <sup>3</sup> )	(in '000KG)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000M <sup>3</sup> )
Jan	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0
May	0.08	0.04	0.04	0	0	0	0	0	0	0
Jun	0.00	0.001	0.001	0	0	0	0	0	0	0
Sub-Total	0.08	0.041	0.041	0	0	0	0	0	0	0
Jul	0.021	0.003	0.018	0	0	0	0	0	0	0
Aug	0.899	0.005	0.894	0	0	0	0	0	0	0.01
Sep	5.055	0.003	3.480	0	1.572	0	0	0	0	0.06
Oct	4.044	0.002	2.526	0	1.516	0	0	0	0	0
Nov	6.647	0.011	5.262	0	1.374	0	0	0	0	0.012
Dec	9.050	0.032	8.286	0	0.732	0	0	0	0	0
<b>Total</b>	<b>25.799</b>	<b>0.097</b>	<b>20.507</b>	<b>0.000</b>	<b>5.194</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.082</b>

- 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

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**Summary of Quantities of Type I Contaminated Material disposal off site**

<b>Date</b>	<b>No of Truck</b>	<b>Quantity (m3)</b>	<b>Location of disposal</b>
20-Oct-2008	120	720	East Sha Chau
17-Nov-2008	115	690	East Sha Chau
18-Nov-2008	115	690	East Sha Chau
19-Nov-2008	110	660	East Sha Chau
20-Nov-2008	110	660	East Sha Chau
21-Nov-2008	100	600	East Sha Chau
22-Nov-2008	100	600	East Sha Chau
24-Nov-2008	100	600	East Sha Chau
25-Nov-2008	100	600	East Sha Chau
8-Dec-2008	100	600	East Sha Chau
9-Dec-2008	100	600	East Sha Chau
10-Dec-2008	100	600	East Sha Chau
11-Dec-2008	100	600	East Sha Chau
12-Dec-2008	100	600	East Sha Chau
13-Dec-2008	100	600	East Sha Chau
15-Dec-2008	90	540	East Sha Chau
16-Dec-2008	100	660	East Sha Chau
17-Dec-2008	100	660	East Sha Chau

**Summary of Quantities of Type II Contaminated Material disposal off site**

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