



PROJECT NO.: TCS/00408/08

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

MONTHLY EM&A REPORT FOR KT14A
(JULY 2009)

PREPARED FOR
CHINA ROAD & BRIDGE CORPORATION

Quality Index

Date	Reference No.	Prepared By	Certified by
12 August 2009	TCS00408/08/600/R1163v2	 Nicola Hon Environmental Consultant	 Andrew Lau Environmental Team Leader

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1	8 August 2009	Nicola Hon	Andrew Lau	First submission
2	12 August 2009	Nicola Hon	Andrew Lau	Amended against IEC's comment on 11 August 2009

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Ove Arup & Partners
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Date 14 August 2009

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Attention: Mr. Clive Cheng

ARUP

Dear Mr. Cheng,

Contract No. DC/2007/17 Drainage Improvement Works in Cheung Po, Ma On Kong, Yuen King San and Tin Sam Tsuen of Yuen Long District and Sewerage at Tseng Tau Chung Tsuen, Tuen Mun
Monthly EM&A Report for KT14A (July 2009) – Version 2

We refer to the captioned report (ref.: TCS00408/08/600/R1163v2) and advise that we have no further comment on the captioned submission.

We hereby endorse the captioned report for your onward submission.

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

Yours sincerely,



Coleman Ng
Independent Environmental Checker

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

ES01 This is the **10th** monthly EM&A report for Channel KT14A, covering the construction period from **26 June 2009 to 25 July 2009** (the Reporting Period).

Breaches of Action and Limit Levels

ES02 Monitoring results demonstrated no exceedances of environmental quality criteria for air quality and construction noise during the Reporting Period.

ES03 For water quality, a total of seventeen (17) exceedances of the existing Action/Limit Levels were recorded where all were recorded at Location W8B downstream of the works area. Other parameters of the 17 samples with exceedances are shown below:

Location	Exceedance	DO	Turbidity	pH	SS	NH4+-N	Zn	Total
W8B	Action Level	5	1	0	1	0	0	7
	Limit Level	0	1	0	6	2	1	10

ES04 Investigations of the cause of exceedances are in progress. In general, the exceedances were within the values monitored during the baseline study and therefore could be due to natural variations. To minimize false alarms of this nature, a proposal for the revision of existing Action Limit Levels has been agreed by the Engineer's Representative (ER) and the Independent Environmental Checker (IEC) and had been submitted to EPD for formal.

Environmental Complaint, Notification of Summons and Prosecution

ES05 No documented complaint, notification of summons and successful prosecution was received during the Reporting Period. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines, which indicated that the implemented mitigation measures for air quality, construction noise and ecology were effective. The environmental performance of the Project was, therefore, considered satisfactory.

ES06 No adverse environmental impacts were observed during the weekly site inspections and environmental audit, which indicated that the implemented mitigation measures for air quality, construction noise and ecology were effective. Minor deficiencies found in the weekly site inspection were in general rectified within the specified deadlines.

Reporting Changes

ES07 No reporting changes were made during the Reporting Period.

Future Key Issues

ES08 As wet season continues, water quality mitigation measures to avoid ingress of runoff into Channel KT14A should be properly installed and maintained, as appropriate. In particular, open stockpiles, loose soil and exposed slope should be covered thoroughly with tarpaulin sheet or similar material, as appropriate.

ES09 The temporary noise barrier located at KT14A was dismantled Contractor in July due to site constraint for completion of works. 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.

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1 ENVIRONMENTAL STATUS

This is the **10th monthly** EM&A report for Channel KT14A, covering the construction period from **26 June 2009 to 25 July 2009** (the Reporting Period).

1.1 PROJECT AREA AND CONSTRUCTION PROGRAMME

Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations are enclosed in **Appendix A**, while CRBC's construction program is enclosed in **Appendix B**.

1.2 WORKS UNDERTAKEN DURING THE REPORTING PERIOD

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

- (a) Construction of manhole, catchpit and drainpipe along the sides of channel;
- (b) Dismantling of noise barrier;
- (c) Installation of sign plate;
- (d) Installation of type 2 railing, and
- (e) Landscaping works

1.3 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 (the ER); ARUP is the Independent Environmental Checker (IEC) and Action-United Environmental Services and Consulting (AUES) is the environmental team (ET), are presented in **Appendix C**.

1.4 LICENSING STATUS

1.4.1 Air Pollution Control (Construction Dust) Regulation

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

1.4.2 Noise Control Ordinance

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

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

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

1.4.4 Water Pollution Control Ordinance

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

1.4.5 Waste Disposal (Chemical Waste) (General) Regulation

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

1.5 ENVIRONMENTAL PROTECTION AND POLLUTION CONTROL MITIGATION MEASURES

CRBC has committed to implement environmental protection and pollution control and mitigation measures as recommended in the PP, EP and the EM&A Manual. Continuous up-dating of the Mitigation Measures Implementation Schedules attached in the EM&A Manual is required under the PS. The updated Environmental Mitigation Measures Schedule will be enclosed in **Appendix I** if any amendment is made during the Reporting Period. No amendment was in June 2009 and **Appendix I** is not used. The implemented mitigation measures include:

- (a) Watering of exposed dry and dusty surface, including stock piles of dusty materials;
- (b) Covering of the loose soil to minimize water quality impacts;
- (c) Hard pavement of haul road leading to public roads;
- (d) Wheel washing facility at to avoid construction dust impacts on the public roads; and
- (e) Construction of noise barriers.
- (f) During construction works nearly the seasonal wetland, mitigation measures of Ecology will be followed in accordance with EM&A Manual Annex A ECO.1 and ECO.3;

2 MONITORING METHODOLOGY

2.1 MONITORING PARAMETERS

According to the EM&A requirements set out in the EIA, Environmental Permits No. EP231/2005A (EP) and the associated EM&A Manual, monitoring parameters are summarized as follows.

Table 2-1 Summary of Monitoring Parameters

Environmental Issue	Monitoring Parameters	
Air Quality	(a) 1-hour Total Suspended Particulate (1-hour TSP); and (b) 24-hour Total Suspended Particulate (24-hour TSP).	
Construction Noise	(a) A-weighted equivalent continuous sound pressure level (30min) (Leq(30min)) during the normal working hours; and (b) A-weighted equivalent continuous sound pressure level (5min) (Leq(5min)) for construction work during the Restricted Hours.	
Water Quality	(a) In Situ Measurement	temperature, dissolved oxygen (DO), pH & turbidity
	(b) Laboratory Analysis	suspended solids (SS), ammonia nitrogen (NH ₃ -N) and zinc (Zn)

2.2 MONITORING LOCATIONS

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

Table 2-2 Summary of Monitoring Locations

Issues	Monitoring Location ID	Identified Address / Co-ordinates
Air	A8(a)	Entrance of Strong Sing Garden
Noise	N8	Ground floor of Strong Sing Garden H502
Water	W8A	E825274 / N831712
	W8B	E825143 / N831786

2.3 MONITORING FREQUENCY, DURATION AND SCHEDULE

2.3.1 Monitoring Frequency and Duration

Environmental monitoring is conducted upon commencement of the construction activities and throughout the whole construction period to detect and minimize any adverse environmental impacts generated from the construction activities of the Project. The monitoring frequency and duration for air quality, construction noise, water quality, ecology and other parameters are summarized below.

Air Quality

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

Duration: Throughout the construction period

Construction Noise

Frequency: Measurement of Leq(30min): Once a week during 0700-1900 hours on normal weekdays for Leq(30min).

If the construction work is undertaken at Restricted Hours, the frequency of noise monitoring will be conducted in accordance with the requirements under the related Construction Noise Permit issued by EPD as follows:

- 3 consecutive Leq(5min) during Restricted Hours from 1700 – 2300 hours;
- 3 consecutive Leq(5min) during Restricted Hours from 2300 – 0700 next day;
- 3 consecutive Leq(5min) during Sunday or public holiday from 0700 – 1900 hours;

Duration: Throughout the construction period

Water Quality

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

Depths: As the water columns in the stream water within KT14A 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.

2.3.2 Environmental Monitoring Schedule

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

2.4 MONITORING EQUIPMENT AND PROCEDURE

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

2.4.1 Weather Conditions during the Reporting Period

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

2.4.2 Air Quality

Monitoring Equipment

A list of air quality monitoring equipment is shown below.

Table 2-4-1 Air Quality Monitoring Equipment

Equipment	Model	Serial Number
<u>24-hour TSP</u>		
High Volume Air Sampler	Grasby Anderson GMWS 2310 HVS	-
Calibration Kit	TISCH Model TE-5025A	1612
<u>1-hour TSP</u>		
Portable Dust Meter	TSI DustTrak Model 8520	21060 / 23080 / 23079

Monitoring Procedure

1-hour TSP

The 1-hour TSP measurement follows manufacturer's Operation and Service Manual, using a 1-hour TSP monitor brand named TSI Dust Track Aerosol Monitor Model 8520 or Sibata LD-3 Laser Dust Meter, which is a portable, battery-operated laser photometer to record the real time 1-hour TSP based on 900 light scattering. The 1-hour TSP monitor consists of the following:

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

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

24-hour TSP

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

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

The HVS is operated and calibrated on a regular basis following the manufacturer's instruction using the NIST-certified standard calibrator brand named TISCH Calibration Kit Model TE-5028A. Regular HVS operation and maintenance as well as filter paper installation and collection is performed by the ET's competent technicians, whereas laboratory analyses are conducted in a local HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (ALS). The 24-hour TSP filters will be kept in ALS for six months prior to disposal.

All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper are recorded in details.

2.4.3 Construction Noise

Monitoring Equipment

A list of construction noise monitoring equipment is shown below.

Table 2-4-2 Construction Noise Monitoring Equipment

Equipment	Model	Serial Number
Integrating Sound Level Meter	Cesva SC-20c/ Bruel & Kjaer 2238	T212509 2285762 / 2285690
Calibrator	Cesva CB-5 / Bruel & Kjaer 4231	030934 2292168 / 2326408
Portable Wind Speed Indicator	Testo Anemometer	-

Monitoring Procedure

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

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

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

Immediately prior to and following each noise measurement the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known

frequency. Measurements will be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0dB. No noise measurement will be made in the present of significant fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed is checked with a portable wind speed meter capable of measuring the wind speed in m/s.

2.4.4 Water Quality

Monitoring Equipment

Monitoring Equipment for water quality is listed below.

Table 2-4-3 Water Quality Monitoring Equipment

Equipment	Model / Description	Serial Number
Water Depth Detector	Eagle Sonar	-
Water Sampler	Teflon bailer / bucket	-
Thermometer & DO meter	YSI 550A	05F2063AZ
pH meter	Hanna HI98107	s411364
Turbidimeter	Hach 2100p	08070C31408
Hand Refractometer	ATAGO	289468
Sample Container	High density polythene bottles (provided by	-
Storage Container	'Willow' 33-litter plastic cool box	-

Monitoring Procedure

Water Depth

As the water columns in the stream water within KT14A is generally less than 3 m, measurement is performed at the mid-depths of the monitoring locations. In case the water columns are deeper than 6 m, measurement shall be carried out at three water depths, namely, 1 m below water surface, mid-depth, and 1 m above river bed. If the water depths are between 3 to 6 m, the mid-depth measurement is omitted.

Water depths are determined prior to measurement and sampling, using a portable battery operated depth detector, brand named 'Eagle Sonar', if the depths exceed 1.5 meter. For the depths well below 1 meter, the depths of water columns are measured with a steel ruler with appropriate weight.

Dissolved Oxygen (DO)

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

pH

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

Turbidity

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

Salinity

A portable hand Refractometer AGATO will be used for in-situ salinity measurement. The refractometer is capable of measuring salinity in the range of 0-70ppt with accuracy $\pm 1\%$ reading. Calibration of the equipment will be performed by ALS on quarterly basis.

Suspended Solids (SS)

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

Ammonia Nitrogen(NH₃-N)

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

Zinc(Zn)

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

Water Sampler

Water samples will be collected using a plastic sampler to prevent metal contamination. As the water depths in the stream water within KT14A are generally less than 0.5 m, a plastic bucket with a rope of appropriate length is used for water sampling. The sampler is rinsed before collection with the sample to be taken. For water depths deeper than 0.5 meter, a cleaned plastic bailer bucket will be used for sample collection. 1000 mL water sample is collected from each depth for SS determination. The samples collected are stored in a cool box maintained at 4⁰C and delivered to ALS upon completion of the sampling by end of each sampling day.

Sample Container

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

Sample Storage

A 'Willow' 33-litter plastic cool box packed with ice will be used to preserve the collected water samples prior to arrival at ALS. The water temperature of the cool box will be maintained at a temperature as close to 4⁰C as possible without being frozen. Samples collected will be delivered to the laboratory upon collection within the maximum storage time required under the HOKLAS and ALS analytical requirements

2.4.6 Waste Management

Waste management requirements for KT14A are stipulated in the EM&A Manual [382047/E/EMA/Issue 5]. During the monthly audit, waste management issued will be checked to see if the relevant contract specifications and relevant statutory provisions have been followed..

2.5 QUALITY ASSURANCE PROCEDURES AND DATA MANAGEMENT

2.5.1 Documentation of the Environmental Monitoring

Field data including in-situ monitoring results, weather conditions and water sampling information and observation will be recorded in corresponding Field Data Sheets.

2.5.2 Data Management and Analysis

All impact monitoring data will be processed by the AUES data recording and management system, which complies with in-house Quality (**ISO 9001:2000**) Management System. Monitoring results recorded in the monitoring equipment e.g. 1-hour TSP Meters and Noise Meters will be downloaded directly from the equipment at the end of the monitoring period and input into a computerized database maintained by the ET. Laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.

2.5.3 Quality Assurance Procedures

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

- (a) Appropriate field monitoring and sampling techniques, including monitoring equipment, storage and delivery of samples;
- (b) Well organized systematic field-data system e.g. all baseline monitoring information, field observation, results, weather conditions and water sampling information, etc. will be recorded in the field monitoring record sheets. The laboratory analysis records will be maintained by the HOKLAS following HOKLAS requirements;
- (c) HOKLAS requirements for QA/QC of all laboratory testing to ensure acceptable accuracy and reproducibility of the laboratory analysis indicated by consistent agreement between duplicate samples, validity of the analytical results by compliance with the required blanks and recovery of standard addition.

2.5.4 Records

All impact monitoring data will be clearly and systematically documented in both hardware and software format and the software copy will be available for inspection upon request. All the document and data will be kept for at least one year after completion of the Project. Field Data Sheets used to record the impact monitoring information, field observation, results, weather conditions and water sampling information, etc., will be properly maintained and kept by the ET. The copies of laboratory analysis records from ALS will be kept by the ET throughout the at least one year after completion of the EM&A program of the Project.

2.6 REPORTING

2.6.1 General Requirements for Report Submission

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

Table 2-6 Requirements for Report Submission

Report	Submission
Monthly EM&A Report	<ul style="list-style-type: none">• Within 10 working days of the end of each reporting month.
Quarterly EM&A Summary Report	<ul style="list-style-type: none">• Within 10 working days of the end of each reporting quarter.
Final EM&A Summary Report	<ul style="list-style-type: none">• One month after completion of post project monitoring

2.6.2 Cut-Off Day of the Reporting Month

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

3 MONITORING RESULTS

The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results. Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in **Appendix F**. The environmental monitoring results are presented in tabulation below and graphical plots in **Appendix G**.

3.1 AIR QUALITY

3.1.1 Action and Limit Levels

According to the Baseline Monitoring Report for KT14A, the Action and Limit Levels for 24-hour and 1-hour TSP are summarized in **Table 3-1-1**.

Table 3-1-1 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-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
KT14A - A8(a)	310	144	500	260

3.1.2 Results

Results of air quality monitoring at KT14A-A8(a) during the Reporting Period are summarized in **Tables 3-1-2**. Details of 24-hour TSP data and graphical plots of trends of monitored parameters at KT14A-A8(a) over the past four reporting periods are presented in **Appendix G**.

Table 3-1-2 Summary of Air Quality Monitoring Results at KT14A-A8(a)

1-hour TSP ($\mu\text{g}/\text{m}^3$)						24-hour TSP ($\mu\text{g}/\text{m}^3$)		
Date	Start Time	1st hour	2nd hour	3rd hour	Average	Date	Results	
29-Jun-09	09:00	37	49	40	42	27-Jun-09	10	
6-Jul-09	09:00	46	55	51	51	4-Jul-09	10	
11-Jul-09	09:00	75	82	78	78	10-Jul-09	46	
17-Jul-09	09:00	49	58	55	54	16-Jul-09	13	
23-Jul-09	09:15	47	46	46	46	22-Jul-09	20	
Average (Range)		54 (37-82)				Average (Range)		20 (10-46)

3.1.4 Discussion

As shown in **Tables 3-1-2**, the 1-hour and 24-hour TSP results fluctuated well below the Action Level during the Reporting Period. Neither Notification of Exceedance (NOE) of air quality criteria nor corrective action was required.

3.2 CONSTRUCTION NOISE

3.2.1 Action and Limit Levels

The Action and Limit Levels for construction noise at KT14A-N8 are summarized in **Table 3-2-1**.

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

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

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

3.2.2 Results

Construction noise monitoring results during the Reporting Period are summarized in **Table 3-2-2**. The noise monitoring data of L10 and L90 have been recorded and are available for reference or inspection upon request. Graphical plots of trends of monitored parameters at KT14A-N8 over the past four months are presented in **Appendix G**.

Although the baseline monitoring was performed in a free-field situation, impact monitoring, is performed in a non-free-field situation at the same sensitive receiver as stipulated in the EM&A Manual due to denial of access by the owner. After the change, it no longer requires a 3dB(A) façade correction and it will not introduce any significant change in detection of construction noise impact; nor would that alter the existing construction noise A/L Levels. Nonetheless, the ET has written to inform and get formal approval from EPD upon agreement with the ER and IEC.

Table 3-2-2 Summary of Construction Noise Monitoring Results at KT14A-N8

Date	Start Time	1 st Leq5	2 nd Leq5	3 rd Leq5	4 th Leq5	5 th Leq5	6 th Leq5	Leq30
29-Jun-09	09:00	49.7	48.3	50.1	51.4	49.6	48.1	49.7
6-Jul-09	09:00	46.5	46.9	47.1	47.4	46.8	46.6	46.9
11-Jul-09	09:05	63.8	62.4	56.6	62.1	63.5	63.5	62.5
17-Jul-09	09:05	52.2	51.5	48.6	63.4	50.9	51.0	56.7
23-Jul-09	09:15	52.9	52.4	55.1	56.4	52.8	53.6	54.1
Limit Level								75 dB(A)

3.2.3 Discussion

As shown in **Tables 3-2-2**, all the construction noise results fluctuated below the Limit Level. No exceedances of Limit Levels or documented construction complaints were recorded during the Reporting Period. Neither NOE of construction noise nor corrective action was, therefore, required for the parameter.

3.3 WATER QUALITY

3.3.1 Action and Limit Levels

Existing Water Quality Action and Limit Levels

The existing water quality Action and Limit Levels were established using one of the approaches stipulated in the EM&A Manual - up-stream control station approach. They are summarized in **Table 3-3-1**.

Table 3-3-1 Existing Water Quality Action/Limit Levels Using Up-stream Control Station Approach

Parameter	Monitoring Location	Type of Station	Action Level	Limit Level
DO (mg/L)	W8A	Control	NA	NA
	W8B	Impact	6.378	4.00
Turbidity (NTU)	W8A	Control	NA	NA
	W8B	Impact	120% of the results of upstream control station's of the same day	130% of the results of upstream control station's of the same day
pH	W8A	Control	NA	NA
	W8B	Impact	9.2 (95%-ile of baseline results)	9.3 (99%-ile of baseline results)
SS (mg/L)	W8A	Control	NA	NA
	W8B	Impact	120% of the results of upstream control station's of the same day	130% of the results of upstream control station's of the same day
Ammonia (µg/L)	W8A	Control	NA	NA
	W8B	Impact	120% of the results of upstream control station's of the same day	130% of the results of upstream control station's of the same day
Zinc (µg/L)	W8A	Control	NA	NA
	W8B	Impact	120% of the results of upstream control station's of the same day	130% of the results of upstream control station's of the same day

Changes of Baseline Conditions

It is noted that abnormally high frequency of exceedance of the existing water quality criteria has occurred even when no construction activities were commenced during 26 August to 2 October 2008. A proposal has been submitted for agreement of the ER and IEC prior to seek formal approval from EPD on the revision of the A/L Levels. A percentile approach as recommended in the EM&A Manual is applied to the baseline monitoring data with replenishment of the most recent monitoring data obtained under zero construction impacts. The recommended refined A/L Levels are presented in **Table 3-3-2**.

Table 3-3-2 Proposed Water Quality Action and Limit Levels for KT14A

Parameter	Monitoring Location	Type of Station	Action Level	Limit Level
DO*	W8A	Impact Monitoring Station	2.22	1.80

Parameter	Monitoring Location	Type of Station	Action Level	Limit Level
(mg/L)	W8B	Impact Monitoring Station	4.06	4.04
Turbidity (NTU)	W8A	Impact Monitoring Station	36.5	39.6
	W8B	Impact Monitoring Station	18.6	52.0
pH ⁺	W8A	Impact Monitoring Station	6.5 – 8.5	6.0 – 9.0
	W8B	Impact Monitoring Station	6.5 – 8.5	6.0 – 9.0
SS (mg/L)	W8A	Impact Monitoring Station	70	95
	W8B	Impact Monitoring Station	29	39
Ammonia (mg/L)	W8A	Impact Monitoring Station	40.8	43.7
	W8B	Impact Monitoring Station	3.46	4.44
Zinc (µg/L)	W8A	Impact Monitoring Station	136	166
	W8B	Impact Monitoring Station	54	63

- * A/L Levels of DO are respectively set at 5%-ile and 1%-ile of baseline level
- + A/L Levels of pH are respectively set at out side the ranges of 6.5 - 8.5 and 6 – 9 as generally used for environmental water quality standards.
- # Zn obtained at W8A on 18 March (458 ug/L) and 2 September 2008 (228 ug/L), as well as Turbidity, SS and Zn obtained at W8B on 2 September 2008 (161.5 NTU, 473mg/L and 492ug/L respectively) and SS and Zn obtained at W8B on 24 September 2008 (492mg/L and 107ug/L respectively) are considered as outliers and excluded from A/L Level calculation

3.3.2 Results and Discussion

Results

Water quality monitoring results at KT14A-W8A and KT14A-W8B during the Reporting Period are tabulated in **Appendix G**, where graphical plots of trends of the monitored parameters over the past four months are also presented.

According to the existing A/L Levels, a total of seventeen (17) exceedances of environmental quality criteria, namely seven (7) Action Level and ten (10) Limit Level exceedances, were recorded during the Reporting Period. They are summarized in **Table 3-3-3**.

Table 3-3-3 Summary of Exceedances of Existing Action and Limit Levels

Location	Exceedance	DO	Turbidity	pH	SS	NH4+-N	Zn	Total
W8A	Action Level	N.A	N.A	N.A	N.A	N.A	N.A	N.A
	Limit Level	N.A	N.A	N.A	N.A	N.A	N.A	N.A
W8B	Action Level	5	1	0	1	0	0	7
	Limit Level	0	1	0	6	2	1	10

Discussion

DO

A total of five (5) exceedances of DO Action Level were recorded during the Reporting Period. Notices of Exceedance of environmental quality criteria (NOE) were issued upon confirmation of the monitoring results, and investigations of the NOE were conducted upon receipt of the information of construction activities and the implemented mitigation measures provided by CRBC. The exceedances were concluded not to be related to the works under the Project but due to changes of the ambient conditions and up-stream control station as discussed previously in **Section 3.3.1**. As a matter of fact, the DO levels during the Reporting Period fluctuated within a range of 4.75 to 7.79 with an average of 6.34 mg/L, which is considered not too bad.

pH

pH fluctuated within a range of 6.8 to 7.0 with an average of 6.9, which significantly within from the existing Action Level of 9.2 and Limit Level of 9.3. All the pH results are considered acceptable. No NOE or remedial actions were needed for the parameter.

Turbidity and SS

According to the existing A/L Levels, a total of two (2) Action/ Limit Level of turbidity and seven (7) Action/ Limit Level exceedances of SS were registered during the Reporting Period respectively. NOE were issued upon confirmation of the monitoring results, and investigations of the NOE were

conducted upon receipt of the information of construction activities and the implemented mitigation measures provided by CRBC. During the exceedance period, construction of U-channel and some landscaping works were progress. Water mitigation measures such as sandbags and sedimentation tank were fully implemented while no adverse impacts were found during site inspection. Preliminary investigations concluded that the exceedances were unlikely due to the works under the project.

Moreover, due to changes of the ambient conditions have been determined as discussed previously in **Section 3.3.1** and these are believed to be the cause of the exceedances than the works of this Project. No remedial actions were therefore required for the exceedances. Nevertheless, CRBC is reminded to fully implement the required water quality mitigation measures during construction under the Project, in particular when excavation and the associated channel works are undertaken and construction wastewater is generated and discharged to the Channel KT14A.

NH₄⁺-N and Zinc

Two (2) Limit Level exceedances of NH₄⁺-N and one (1) Limit Level of Zn were recorded during the Reporting Period. NOE was issued upon confirmation of the monitoring results, investigation concluded that the exceedance of NH₄⁺-N and Zn were not project related as no nitrogen and zinc compound were generated from the construction activities. Moreover, illegal discharge from the vicinity pig farm was observed during site inspection. The ET's investigations are being reviewed by the ER and IEC.

3.4 WASTE MANAGEMENT

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

- (a) Been assigned, since 9 Jan 2008, a Billing Account (account number 7006524) under the **Waste Disposal (Charges for Disposal of Construction Waste) Regulation**;
- (b) Been issued Discharge License No. 1U461/1 under Section 20 of the **Water Pollution Control Ordinance** has been issued; and
- (c) Been registered as a Chemical Waste Producer under the **Waste Disposal (Chemical Waste) (General) Regulation** (the Waste Producer Number assigned is WPN: 5611-531-C3124-28 dated 2 May 08).

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

4.1 NON-COMPLIANCE

In this reporting period, a total of 17 exceedances of water quality Limit Levels were recorded and summarized in **Table 3-3-3**. No non-compliance or deficiency was identified during regular site inspections and environmental audits. Exceedances of environmental quality criteria have been discussed in **Sections 3.1 to 3.4**. No other non-compliance or deficiency was identified during regular the site inspections and environmental audits. No remedial actions were required.

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 I: Monthly Summary Waste Flow Table**.

4.4.2 Site Inspection and Environmental Audit

In this month, **four** occasions of weekly environmental site inspection and audit were conducted jointly by the ER, EO and ET. No adverse environmental impacts were registered which indicated that the mitigation measures implemented were effective for the construction activities or preparation work and site clearance undertaken. Minor deficiencies found in the site inspection and audit were in general rectified within the specified deadlines. Findings are summarized below.

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

Date	Findings / Deficiencies	Follow-Up Status
30 June 2009	No adverse environmental impacts were observed during the site inspection	N/A
7 July 2009	No adverse environmental impacts were observed during the site inspection	N/A
14 July 2009	Water accumulated within the drip tray and eye-holes of concrete blocks shall be drained or filled with soil.	Recommendations based on the observation on 14 July 2009 were followed.
23 July 2009	General refuse was observed, house keeping shall be improved to maintain site tidiness.	Recommendations will be followed in next reporting month.

4.4.3 Works to be Undertaken in the Forth-Coming Month

Works to be undertaken next month are shown in the construction program in **Appendix B**. Apart from general works of tree survey, structural survey and environmental monitoring and audit, works to be undertaken during the forth-coming month are summarized as follows:

- (a) Compensatory Planting and Landscaping works

4.4.4 Future Key Issues and Mitigation Measures for Next Month

The temporary noise barrier located at KT14A was dismantled by the Contractor in July due to site constraint for completion of works prior to EPD's approval. To ensure such event does not conflict with the environmental permit requirement, a noise assessment in related to the dismantling of noise barriers was conducted which reviewed by IEC and EPD. In addition to control the plant usage for compliance with condition set out in the noise assessment, moveable noise barriers will be available on site to screen out any noisy operations.

As wet season continues, water quality mitigation measures to avoid ingress of turbid water and other water quality pollutants via site surface runoff into the river should be properly maintained or improved. In particular open stockpiles and exposed slope should be covered thoroughly with tarpaulin sheet and hydroseeding on the filled slope surface should be applied as appropriate.

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

5 CONCLUSIONS AND RECOMMENDATIONS

This is the **10th** monthly EM&A report for Channel KT14A, covering the construction period from **26 June 2009 to 25 July 2009** (the Reporting Period).

Monitoring results of the Reporting Period demonstrated no exceedance of environmental quality criteria for air quality and construction noise.

For water quality however, a total of 17 exceedances of environmental quality criteria were recorded during the Reporting Period.

Investigations of the cause of exceedances are in progress. In general, the exceedances were within the values monitored during the baseline study and therefore could be due to natural variations. To minimize false alarms of this nature, a proposal for the revision of existing Action Limit Levels has been agreed by the Engineer's Representative (ER) and the Independent Environmental Checker (IEC) and had been submitted to EPD for formal approval.

No documented complaint, notification of summons and successful prosecution were received during the Reporting Period.

As wet season continues, water quality mitigation measures to avoid ingress of runoff into Channel KT14A should be properly installed and maintained, as appropriate. In particular, open stockpiles and exposed slope should be covered thoroughly with tarpaulin sheet or treated with hydroseeding, as appropriate.

No adverse environmental impacts were observed during the weekly site inspections. In general it is reminded that good house keeping practice shall be maintained. Minor deficiencies found in the weekly site inspections were in general rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.

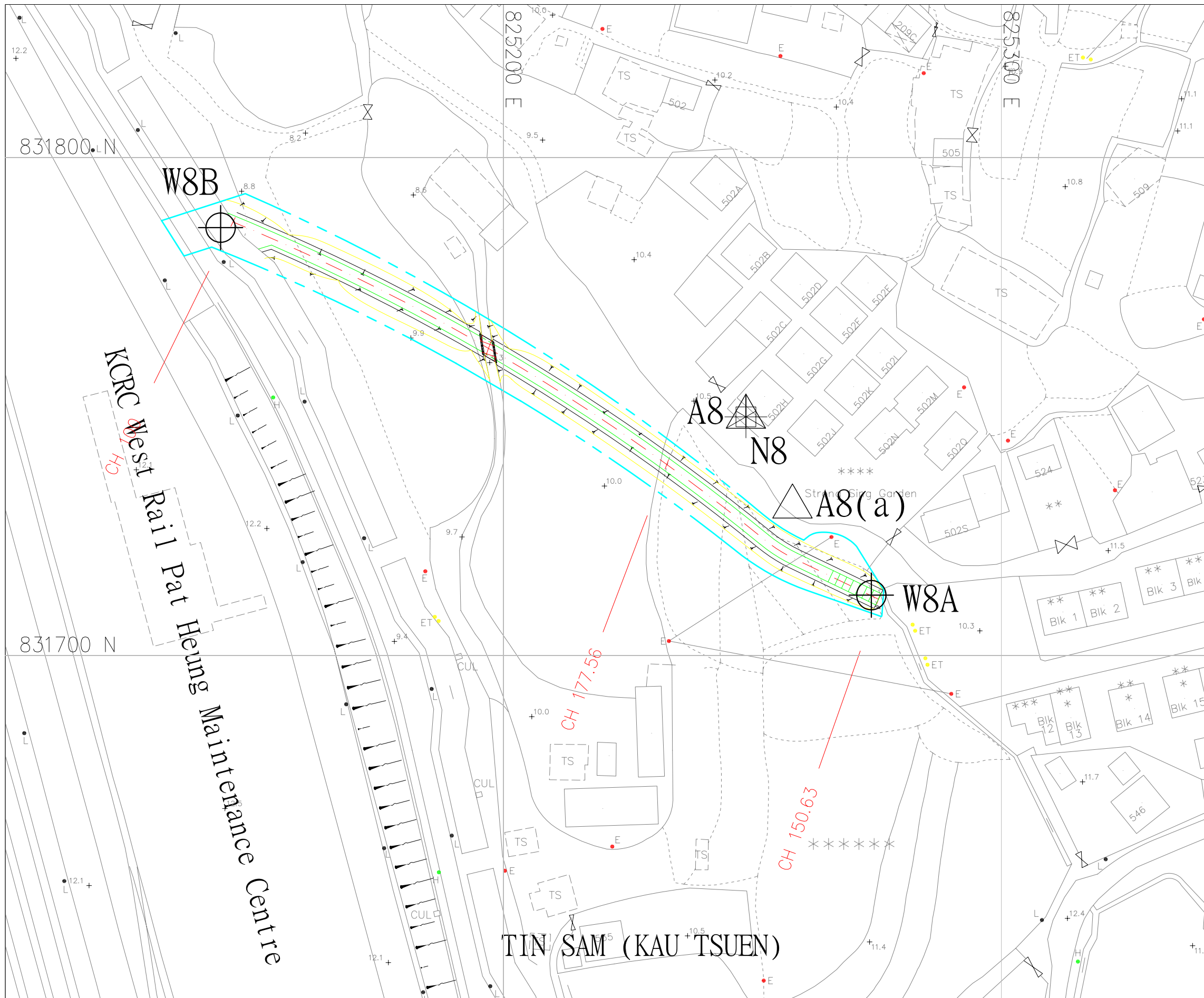
The temporary noise barrier located at KT14A was dismantled by the Contractor in July due to site constraint for completion of works. Special attention should also be paid to construction noise and other environmental issues identified in the EM&A Manual. Mitigation measures recommended in the EIA and summarized in Mitigation Measure Implementation Schedule should be fully implemented.

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


Appendix A

Location Plan and

Environmental Monitoring Locations



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	W8A	E825274 / N831712	
Water	W8B	E825143 / N831786	
Air	A8		Replaced by A8(a)
Air	A8(a)	Entrance of Strong Sing Garden	Recommended Location
Noise	N8	No. 205H of Strong Sing Garden	

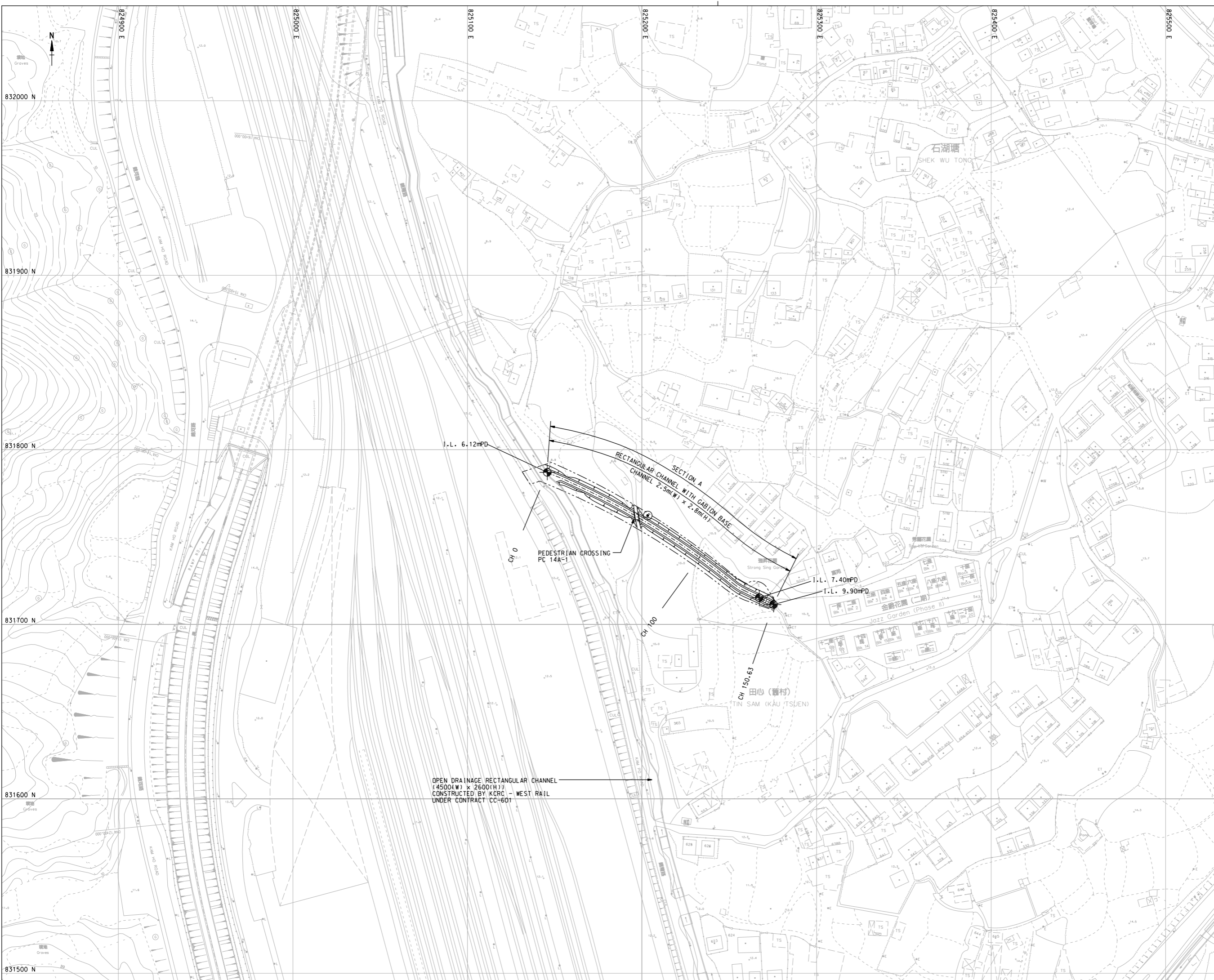
Note:
 Air Monitoring Location A8 are proposed to relocate at the entrance of Strong Sing Garden A8(a) due to request of the property management. The relocated monitoring point is considered suitable as representative sensitive receiver for Strong Sing Garden.

Drawing:
 Air, Noise and Stream Water Monitoring Location at KT-14A

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

AUES

NOTES :
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 021.



Revision	Date	Description	Initial	
	Designed	Checked	Drawn	Verified
Initial	BW	WLC	LWL	KIL
Date	09/07	09/07	09/07	09/07
Approved				

CONTRACT NO. DC /2007 /17

Contract title
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

Drawing title
CHANNEL KT14
GENERAL LAYOUT PLAN
(SHEET 1 OF 2)

Drawing no.	Scale
024	1:1000 A1 1:2000 A3



Plot Date : 9/25/2007

Appendix B

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

Three Months Rolling Programme - September 2009 to November 2009

ID	Task Name	Duration	Start	9/2009					10/2009			11/2009							
				30/8	6/9	13/9	20/9	27/9	4/10	11/10	18/10	25/10	1/11	8/11	15/11	22/11	29/11		
1	Section II (Channel KT13)	75 days	2009/9/1	—————▶															
116																			
117	Section III (Channel KT14A - Tin Sam Tsuen)	17 days	2009/9/1	—————▶															
118	Regular Environmental Impact Monitoring	17 days	2009/9/1															
119	Regular Tree Survey	17 days	2009/9/1															
120	Regular Structural Condition Survey	17 days	2009/9/1															
121																			
122	Section IV (Channel KT14B & 14C and Portion 8A & 8B)	75 days	2009/9/1	—————▶															
235																			
236	Section V	75 days	2009/9/1	—————▶															
238																			
239	Section VI - Portion 9A & 9B (Tuen Mun Sewerage Work)	75 days	2009/9/1	—————▶															
242																			
243	Section VII - Portion 10A, 10B & 10C (Tuen Mun Sewerage Work)	75 days	2009/9/1	—————▶															

Task  Split  Progress  Milestone  Summary 

Monthly Rolling Programme - August 2009

ID	Task Name	Duration	Start	2009/8					
				26/7	2/8	9/8	16/8	23/8	30/8
1	Section II (Channel KT13)	26 days	2009/8/1	[Summary bar from 26/7 to 30/8]					
2	Regular Environmental Impact Monitoring	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
3	Regular Tree Survey & Protection	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
4	Regular Structural Condition Survey	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
5	Section A	26 days	2009/8/1	[Summary bar from 26/7 to 30/8]					
6	Excavation to channel formation & laying of rock fill material (A CH0.00 - A CH402.00)	26 days	2009/8/1	[Summary bar from 26/7 to 30/8]					
7	Bay A2 (A CH09.00 - A CH18.00) - RC2	3 days	2009/8/1	[Task bar from 26/7 to 28/7]					
8	Bay A11 (A CH83.00 - A CH95.00) - TG2	3 days	2009/8/5	[Task bar from 29/7 to 31/7]					
9	Bay A18 (A CH170.00 - A CH180.00) - TG2	3 days	2009/8/8	[Task bar from 31/7 to 2/8]					
10	Bay A19 (A CH180.00 - A CH191.00) - TG2	3 days	2009/8/12	[Task bar from 5/8 to 7/8]					
11	Bay A20 (A CH191.00 - A CH201.00) - TG2	3 days	2009/8/15	[Task bar from 8/8 to 10/8]					
12	Bay A21 (A CH201.00 - A CH214.00) - TG2	3 days	2009/8/19	[Task bar from 11/8 to 13/8]					
13	Bay A22 (A CH214.00 - A CH226.00) - TG2	3 days	2009/8/22	[Task bar from 14/8 to 16/8]					
14	Bay A23 (A CH226.00 - A CH245.00) - TG2	3 days	2009/8/26	[Task bar from 17/8 to 19/8]					
15	Bay A24 (A CH245.00 - A CH258.00) - TG2	2 days	2009/8/29	[Task bar from 20/8 to 21/8]					
16	Construction of channel structure (RC2, Transition, and TG2)	26 days	2009/8/1	[Summary bar from 26/7 to 30/8]					
17	Bay A15 (A CH133.00 - A CH145.00) - TG2	2 days	2009/8/1	[Task bar from 26/7 to 27/7]					
18	Bay A17 (A CH157.00 - A CH170.00) - TG2	2 days	2009/8/4	[Task bar from 28/7 to 29/7]					
19	Bay A2 (A CH09.00 - A CH18.00) - RC2	4 days	2009/8/6	[Task bar from 30/7 to 3/8]					
20	Bay A11 (A CH83.00 - A CH95.00) - TG2	4 days	2009/8/11	[Task bar from 5/8 to 8/8]					
21	Bay A18 (A CH170.00 - A CH180.00) - TG2	4 days	2009/8/15	[Task bar from 9/8 to 12/8]					
22	Bay A19 (A CH180.00 - A CH191.00) - TG2	4 days	2009/8/20	[Task bar from 13/8 to 16/8]					
23	Bay A20 (A CH191.00 - A CH201.00) - TG2	4 days	2009/8/25	[Task bar from 17/8 to 20/8]					
24	Bay A21 (A CH201.00 - A CH214.00) - TG2	2 days	2009/8/29	[Task bar from 21/8 to 22/8]					
25	Backfilling along the channel sides / laying underground drain pipe	26 days	2009/8/1	[Summary bar from 26/7 to 30/8]					
26	Bay A3 (A CH18.00 - A CH26.00) - RC2	2 days	2009/8/1	[Task bar from 26/7 to 27/7]					
27	Bay A4 (A CH26.00 - A CH34.00) - Transition	2 days	2009/8/4	[Task bar from 28/7 to 29/7]					
28	Bay A5 (A CH34.00 - A CH41.00) - Transition	2 days	2009/8/6	[Task bar from 30/7 to 31/7]					
29	Bay A6 (A CH41.00 - A CH44.00) & Pedestrian Crossing	2 days	2009/8/8	[Task bar from 1/8 to 2/8]					
30	Bay A7 (A CH44.00 - A CH51.00) - Transition	2 days	2009/8/11	[Task bar from 3/8 to 4/8]					
31	Bay A8 (A CH51.00 - A CH59.00) - Transition	2 days	2009/8/13	[Task bar from 5/8 to 6/8]					
32	Bay A11 (A CH83.00 - A CH95.00) - TG2	2 days	2009/8/15	[Task bar from 7/8 to 8/8]					

Task [Pattern] Split [Pattern] Progress [Pattern] Milestone [Symbol] Summary [Pattern]

Monthly Rolling Programme - August 2009

ID	Task Name	Duration	Start	2009/8								
				26/7	2/8	9/8	16/8	23/8	30/8			
33	Bay A14 (A CH120.00 - A CH133.00) - TG2	2 days	2009/8/18									
34	Bay A15 (A CH133.00 - A CH145.00) - TG2	2 days	2009/8/20									
35	Bay A16 (A CH145.00 - A CH157.00) - TG2	2 days	2009/8/22									
36	Bay A17 (A CH157.00 - A CH170.00) - TG2	2 days	2009/8/25									
37	Bay A18 (A CH170.00 - A CH180.00) - TG2	2 days	2009/8/27									
38	Bay A19 (A CH180.00 - A CH191.00) - TG2	2 days	2009/8/29									
39	Section B	26 days	2009/8/1									
40	Excavation for channel formation & laying of rock fill material (B CH0.00 - B CH316.00)	4 days	2009/8/15									
41	Bay B6 (B CH46.00 - B CH57.00) - TG3	2 days	2009/8/15									
42	Bay B5 (B CH34.00 - B CH46.00) - TG3	2 days	2009/8/18									
43	Construction of channel structure (Transition, TG3, TG4, TG5, and TG8)	8 days	2009/8/20									
44	Bay B6 (B CH46.00 - B CH57.00) - TG3	4 days	2009/8/20									
45	Bay B5 (B CH34.00 - B CH46.00) - TG3	4 days	2009/8/25									
46	Installation of Type 2 railing on top of channel wall	26 days	2009/8/1									
47	Bay B14 (B CH137.00 - B CH144.00) - Transition	3 days	2009/8/1									
48	Bay B13 (B CH129.00 - B CH137.00) - Transition	3 days	2009/8/5									
49	Bay B12 (B CH119.00 - B CH129.00) - TG3	3 days	2009/8/8									
50	Bay B11 (B CH107.00 - B CH119.00) - TG3	3 days	2009/8/12									
51	Bay B10 (B CH94.00 - B CH107.00) - TG3	3 days	2009/8/15									
52	Bay B9 (B CH80.00 - B CH94.00) - TG3	3 days	2009/8/19									
53	Bay B8 (B CH68.00 - B CH80.00) - TG3	3 days	2009/8/22									
54	Bay B7 (B CH57.00 - B CH68.00) - TG3	3 days	2009/8/26									
55	Bay B6 (B CH46.00 - B CH57.00) - TG3	2 days	2009/8/29									
56												
57	Section III (Channel KT14A - Tin Sam Tsuen)	26 days	2009/8/1									
58	Regular Environmental Impact Monitoring	26 days	2009/8/1									
59	Regular Tree Survey	26 days	2009/8/1									
60	Regular Structural Condition Survey	26 days	2009/8/1									
61	Compensatory Planting	10 days	2009/8/1									
62												
63	Section IV (Channel KT14B & 14C and Portion 8A & 8B)	26 days	2009/8/1									
64	Regular Environmental Impact Monitoring	26 days	2009/8/1									

Task Split Progress Milestone Summary

Monthly Rolling Programme - August 2009

ID	Task Name	Duration	Start	2009/8					
				26/7	2/8	9/8	16/8	23/8	30/8
65	Regular Tree Survey & Protection	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
66	Regular Structural Condition Survey	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
67	Portion 8B (CP1 to CP9) - Kam Sheung Road (1050 Dia. Pipe)	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
68	Manhole MH7 - Manhole MH6 (Pipe Jacking)	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
69	Construction of Jacking Pit and Receiving Pit	14 days	2009/8/1	[Task bar from 26/7 to 10/8]					
70	Construction of Thrust Frame and Setting up of Equipments	12 days	2009/8/18	[Task bar from 18/8 to 30/8]					
71	Channel 14B	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
72	Construction of rectangular channel Type RC1 (CH0.00 - CH339.00)	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
73	Installation of Type 2 railing on top of channel walls	16 days	2009/8/10	[Task bar from 10/8 to 26/8]					
74	Bay 29 (CH297.00 - CH299.00)	4 days	2009/8/10	[Task bar from 10/8 to 14/8]					
75	Bay 30 (CH299.00 - CH303.00) & Pedestrian Crossing PC14B-1	4 days	2009/8/14	[Task bar from 14/8 to 18/8]					
76	Bay 31 (CH303.00 - CH317.00)	4 days	2009/8/19	[Task bar from 19/8 to 23/8]					
77	Bay 32 (CH317.00 - CH326.00)	4 days	2009/8/24	[Task bar from 24/8 to 30/8]					
78	Laying of gabion block inside the channel structure	14 days	2009/8/15	[Task bar from 15/8 to 29/8]					
79	Bay 28 (CH285.00 - CH297.00)	3 days	2009/8/15	[Task bar from 15/8 to 18/8]					
80	Bay 29 (CH297.00 - CH299.00)	3 days	2009/8/19	[Task bar from 19/8 to 22/8]					
81	Bay 30 (CH299.00 - CH303.00) & Pedestrian Crossing PC14B-1	3 days	2009/8/22	[Task bar from 22/8 to 25/8]					
82	Bay 31 (CH303.00 - CH317.00)	3 days	2009/8/26	[Task bar from 26/8 to 29/8]					
83	Bay 32 (CH317.00 - CH326.00)	2 days	2009/8/29	[Task bar from 29/8 to 30/8]					
84	Construction of catchpit / manhole / drain pipe along the sides of the channel	26 days	2009/8/1	[Task bar from 26/7 to 30/8]					
85	Bay 6 (CH37.00 - CH50.00)	3 days	2009/8/1	[Task bar from 26/7 to 29/7]					
86	Bay 7 (CH50.00 - CH62.00)	3 days	2009/8/5	[Task bar from 30/7 to 2/8]					
87	Bay 8 (CH62.00 - CH74.00)	3 days	2009/8/8	[Task bar from 3/8 to 6/8]					
88	Bay 9 (CH74.00 - CH86.00)	3 days	2009/8/12	[Task bar from 7/8 to 10/8]					
89	Bay 10 (CH86.00 - CH98.00)	3 days	2009/8/15	[Task bar from 11/8 to 14/8]					
90	Bay 11 (CH98.00 - CH110.00)	3 days	2009/8/19	[Task bar from 15/8 to 18/8]					
91	Bay 12 (CH110.00 - CH122.00)	3 days	2009/8/22	[Task bar from 18/8 to 21/8]					
92	Bay 13 (CH122.00 - CH135.00)	3 days	2009/8/26	[Task bar from 22/8 to 25/8]					
93	Bay 14 (CH135.00 - CH147.00)	2 days	2009/8/29	[Task bar from 26/8 to 28/8]					
94	Channel KT14C	19 days	2009/8/10	[Task bar from 10/8 to 29/8]					
95	Rectangular channel 2.5m(W) x 2.0m(H) Type RC-1 (CH0.00 - CH475.00)	19 days	2009/8/10	[Task bar from 10/8 to 29/8]					
96	Excavation to channel formation (CH180.00 - CH475.00) & Laying rock fill material	19 days	2009/8/10	[Task bar from 10/8 to 29/8]					

Task [Pattern] Split [Pattern] Progress [Pattern] Milestone [Pattern] Summary [Pattern]

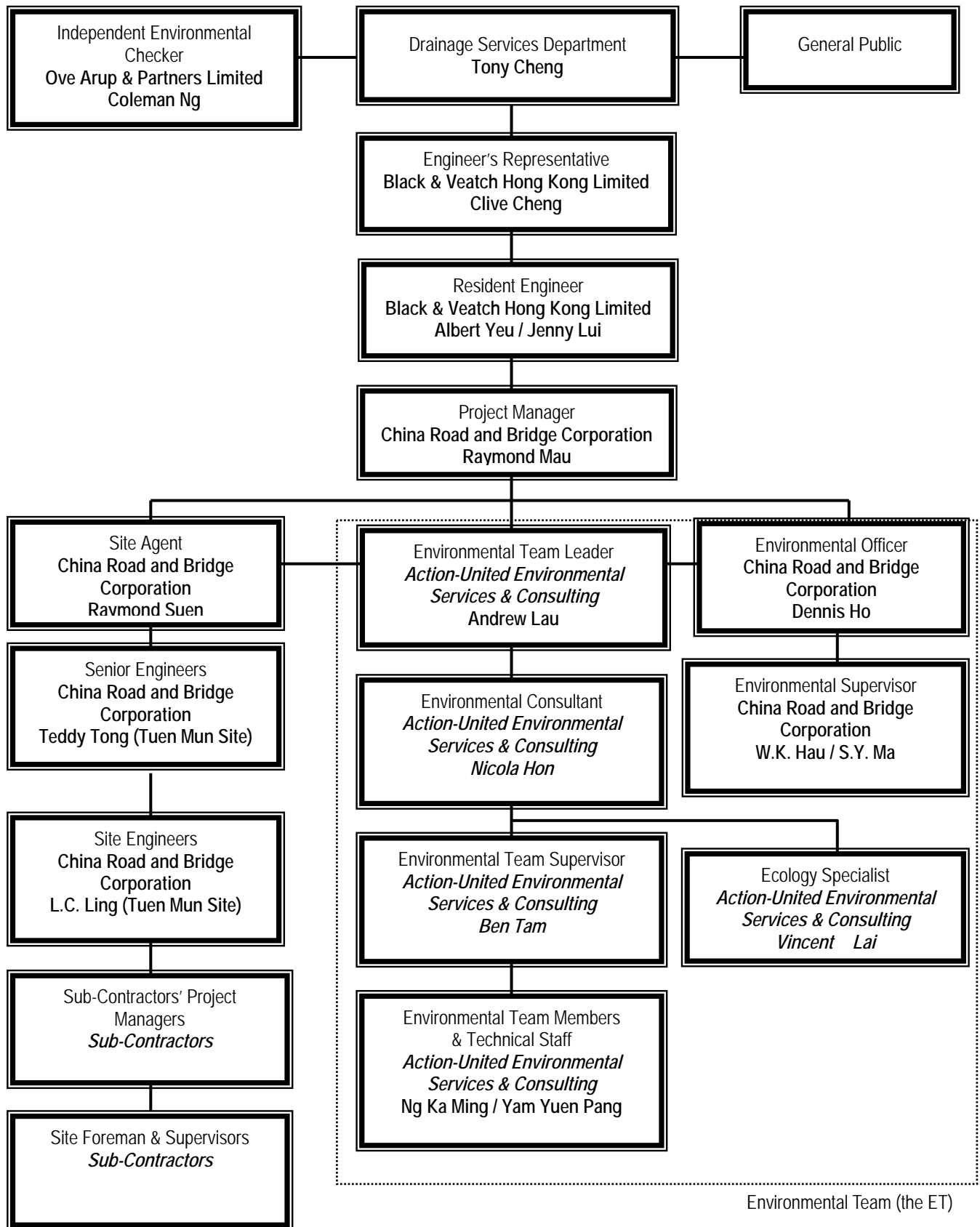
Monthly Rolling Programme - August 2009

ID	Task Name	Duration	Start	26/7	2/8	9/8	16/8	23/8	30/8
97	Bay 1E (CH475.00 - CH466.00) & Vehicular Crossing VC14C-1	5 days	2009/8/10			■			
98	Bay 2E (CH466.00 - CH460.00)	5 days	2009/8/15			■	■		
99	Bay 3E (CH460.00 - CH448.00)	5 days	2009/8/21				■	■	
100	Bay 4E (CH448.00 - CH435.00)	4 days	2009/8/27					■	■
101	Construction of channel structure (CH180.00 - CH475.00)	14 days	2009/8/15			■	■	■	■
102	Bay 1E (CH475.00 - CH466.00) & Vehicular Crossing VC14C-1	8 days	2009/8/15			■	■		
103	Bay 2E (CH466.00 - CH460.00)	6 days	2009/8/25					■	■
104	Construction of catchpit / manhole / drain pipe	19 days	2009/8/10			■	■	■	■
105	Bay 17E-1 (CH299.00 - CH292.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	4 days	2009/8/10			■			
106	Bay 17E-2 (CH292.00 - CH285.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	4 days	2009/8/14			■	■		
107	Bay 18E (CH285.00 - CH279.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	4 days	2009/8/19				■	■	
108	Bay 19E (CH279.00 - CH267.00)	4 days	2009/8/24					■	■
109	Bay 20E (CH267.00 - CH255.00)	3 days	2009/8/28						■
110	Installation of Type 2 railing on top of channel walls	14 days	2009/8/15			■	■	■	■
111	Bay 16E (CH311.00 - CH299.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	2 days	2009/8/15				■		
112	Bay 17E-1 (CH299.00 - CH292.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	2 days	2009/8/18				■	■	
113	Bay 17E-2 (CH292.00 - CH285.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	2 days	2009/8/20					■	■
114	Bay 18E (CH285.00 - CH279.00) - 2.5m(W) x 2.0m(H) Box Culvert (Type BC2)	2 days	2009/8/22						■
115	Bay 19E (CH279.00 - CH267.00)	2 days	2009/8/25						■
116	Bay 23E (CH235.00 - CH222.00)	2 days	2009/8/27						■
117	Bay 24E (CH222.00 - CH210.00)	2 days	2009/8/29						■
118									
119	Section V	26 days	2009/8/1	■	■	■	■	■	■
120	Preservation and protection of tree for Section I, II, III and IV	26 days	2009/8/1	■	■	■	■	■	■
121									
122	Section VI - Portion 9A & 9B (Tuen Mun Sewerage Work)	26 days	2009/8/1	■	■	■	■	■	■
123	Structural Survey and Monitoring	26 days	2009/8/1	■	■	■	■	■	■
124	Construction of Manhole, Timber Box and Trench Excavation	26 days	2009/8/1	■	■	■	■	■	■
125									
126	Section VII - Portion 10A, 10B & 10C (Tuen Mun Sewerage Work)	26 days	2009/8/1	■	■	■	■	■	■
127	Structural Survey and Monitoring	26 days	2009/8/1	■	■	■	■	■	■
128	Construction of Manhole, Timber Box and Trench Excavation	26 days	2009/8/1	■	■	■	■	■	■

Task ■ Split Progress — Milestone ◆ Summary —

Appendix C

Environmental Management Organization and Contacts of Key Personnel



Environmental Management Organization

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. Tony Cheng	2594-7264	2827-8526
B&V	Engineer's Representative	Mr. Clive Cheng	2478-9161	2478-9369
B&V	Resident Engineer	Mr. Albert Yeu	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	2283-1688	2283-1689
CRBC	Project Manager	Mr. Raymond Mau	9048-3669	2283-1689
CRBC	Site Agent	Mr. Raymond Suen	9779-8871	2283-1689
CRBC	Senior Engineer (Tuen Mun Site)	Mr. Teddy Tong	6283-9684	2283-1689
CRBC	Site Engineer (Tuen Mun Site)	Mr. L.C. Ling	6770-4010	2283-1689
CRBC	Environmental Officer	Mr. Dennis Ho	6474-6975	2283-1689
CRBC	Environmental / Construction Supervisor (Tuen Mun and Yuen Long site)	Mr. W.K. Hau	6283--9696	2283-1689
CRBC	Environmental / Construction Supervisor (Yuen Long site)	Mr. S.Y. Ma	9401-6296-	2283-1689
CRBC	Safety Officer	Kenny Sze	9374-8954	2283-1689
AUES	Environmental Team Leader	Mr. Andrew Lau	2959-6059	2959-6079
AUES	Environmental Consultant	Miss Nicola Hon	2959-6059	2959-6079
AUES	Environmental Site Inspector	Mr. Ben Tam	2959-6059	2959-6079
AUES	Ecologist	Mr. Vincent Lai	2959-6059	2959-6079

Legend:

DSD (Employer) – Drainage Services Department

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

CRBC (Main Contractor) – China Road and Bridge Corporation

OAP (IEC) – Ove Arup & Partners Ltd

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

Appendix D

- (a) Monitoring Schedules**
- (b) Meteorological Data**

A(1) Monitoring Schedule for the reporting period

Date		Air Quality		NOISE LEQ 30MIN	WATER QUALITY
		1-Hour TSP	24-Hour TSP		
26-June-09	Fri				W8A & W8B
27-June-09	Sat		A8(a)		
28-June-09	Sun				
29-June-09	Mon	A8(a)		N8	W8A & W8B
30-June-09	Tue				
1-July-09	Wed				
2-July-09	Thu				W8A & W8B
3-July-09	Fri				
4-July-09	Sat		A8(a)		W8A & W8B
5-July-09	Sun				
6-July-09	Mon	A8(a)		N8	W8A & W8B
7-July-09	Tue				
8-July-09	Wed				W8A & W8B
9-July-09	Thu				
10-July-09	Fri		A8(a)		W8A & W8B
11-July-09	Sat	A8(a)		N8	
12-July-09	Sun				
13-July-09	Mon				W8A & W8B
14-July-09	Tue				
15-July-09	Wed				W8A & W8B
16-July-09	Thu		A8(a)		
17-July-09	Fri	A8(a)		N8	W8A & W8B
18-July-09	Sat				
19-July-09	Sun				
20-July-09	Mon				W8A & W8B
21-July-09	Tue				
22-July-09	Wed		A8(a)		W8A & W8B
23-July-09	Thu	A8(a)		N8	
24-July-09	Fri				W8A & W8B
25-July-09	Sat				

	Monitoring Day
	Sunday or Public Holiday

A (2) Monitoring Schedule for the next reporting month

Date		Air Quality		NOISE LEQ 30MIN	WATER QUALITY
		1-Hour TSP	24-Hour TSP		
26-July-09	Sun				
27-July-09	Mon				W8A & W8B
28-July-09	Tue		A8(a)		
29-July-09	Wed	A8(a)		N8	W8A & W8B
30-July-09	Thu				
31-July-09	Fri				W8A & W8B
1-Aug-09	Sat				
2-Aug-09	Sun				
3-Aug-09	Mon		A8(a)		W8A & W8B
4-Aug-09	Tue	A8(a)		N8	
5-Aug-09	Wed				W8A & W8B
6-Aug-09	Thu				
7-Aug-09	Fri				W8A & W8B
8-Aug-09	Sat		A8(a)		
9-Aug-09	Sun				
10-Aug-09	Mon	A8(a)		N8	W8A & W8B
11-Aug-09	Tue				
12-Aug-09	Wed				W8A & W8B
13-Aug-09	Thu				
14-Aug-09	Fri		A8(a)		W8A & W8B
15-Aug-09	Sat	A8(a)		N8	
16-Aug-09	Sun				
17-Aug-09	Mon				W8A & W8B
18-Aug-09	Tue				
19-Aug-09	Wed				W8A & W8B
20-Aug-09	Thu		A8(a)		
21-Aug-09	Fri	A8(a)		N8	W8A & W8B
22-Aug-09	Sat				
23-Aug-09	Sun				
24-Aug-09	Mon				W8A & W8B
25-Aug-09	Tue				

	Monitoring Day
	Sunday or Public Holiday

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

Date	Weather	Lau Fau Shan Weather Station					
		Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
26-Jun-09	Fri	cloudy/squally	17.7	28.8	12	79.2	E/NE
27-Jun-09	Sat	cloudy/rain/fresh/strong	46.9	26.7	23.5	80	E/NE
28-Jun-09	Sun	cloudy/showers/squally	48.7	27.3	23.5	85	S/SE
29-Jun-09	Mon	a few showers/sunny	Trace	28.5	16	82.5	S/SE
30-Jun-09	Tue	hot/sunny periods/isolated	0.1	30.4	18.5	Maintenance	S/SE
31-May-09	Sun	fine/light winds	0	26.6	13.7	65	S/SE
1-Jul-09	Wed	Holiday					
2-Jul-09	Thu	hot/sunny periods/moderate/fresh	Trace	30.2	18.2	72	S/SW
3-Jul-09	Fri	cloudy/a few showers/sunny	0.5	29.6	20.5	73.5	S/SW
4-Jul-09	Sat	cloudy/showers/squally	17.4	26.2	17.2	80	S/SE
5-Jul-09	Sun	cloudy/scattered showers/squally	49.6	27.3	21	84	S/SE
6-Jul-09	Mon	fine/isolated showers/moderate	31.2	28.3	16.5	81.5	E/SE
7-Jul-09	Tue	fine/hot/isolated showers/light winds	20.1	29.4	13	76.5	S/SE
8-Jul-09	Wed	fine/hot/light winds	0	29.5	13	75.5	S/SE
9-Jul-09	Thu	fine/very hot/lihght winds	0	29.9	14.5	71.5	W/SW
10-Jul-09	Fri	fine/vey hot/moderate	Trace	30.2	16	75	W/SW
11-Jul-09	Sat	cloudy/squally showers/fresh/strong	8.1	29.7	16.5	70.7	E/NE
12-Jul-09	Sun	fine/moderate	Trace	30.4	12	75.5	E/SE
13-Jul-09	Mon	fine/hot/light winds	0	29.8	11	55	E/NE
14-Jul-09	Tue	fine/ery hot/isolated showers/moderate	0	28.8	12.2	72.5	W/SW
15-Jul-09	Wed	cloudy/a few showers/sunny	4.8	29.4	12.5	80.2	E/NE
16-Jul-09	Thu	fine/very hot/isolated	0.8	30.3	14	74.5	E/SE
17-Jul-09	Fri	fine/very hot/lihght winds	0.4	29.8	11	73	E/SE
18-Jul-09	Sat	very hot/hazy/squally showers/moderate	11.7	30.7	12	73.5	W/SW
19-Jul-09	Sun	sunny periods/islated	124.6	26.6	20	82.5	S/SE
20-Jul-09	Mon	sunny periods/isolated	8.1	29.1	13.7	81	SE
21-Jul-09	Tue	fine/hot/moderate	0.6	29.4	15	76	S/SE
22-Jul-09	Wed	a few showers/sunny periods/moderate	0	29.3	10	74.5	S/SE
23-Jul-09	Thu	a few showers/sunny	0.6	28.7	13.5	78	S/SE
24-Jul-09	Fri	hot/a few showers/moderate/fresh/sunny	2.6	29.5	16.5	79.5	S/SE
25-Jul-09	Sat	hot/sunny periods/a few	8.3	30.1	15	79.5	S/SW

Appendix E

**Calibration Certificates and
HOKLAS-Accreditation Certificate**

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

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1	Air	Tisch Calibration Kit Model TE-5025A (Serial No. 1612)	2 Jun 09	2 Jun 10
2		TSP Sampler Calibration Spreadsheet for KT14A -A8(a)	15 Jun 09	15 Aug 09
3		TSI DustTrak Model 8520 (Serial No. 21060)	30 Aug 08	30 Aug 09
4*		TSI DustTrak Model 8520 (Serial No. 23080)	30 Aug 08	30 Aug 09
5*		TSI DustTrak Model 8520 (Serial No. 23079)	30 Aug 08	30 Aug 09
6	Noise	Cesva SC-20c Sound Level Meter (Serial No. T212509)	28 Apr 09	28 Apr 10
7		Cesva CB-5 Acoustical Calibrator (Serial No. 030934)	28 Apr 09	28 Apr 10
8*		Bruel & Kjaer Integrating Sound Level Meter 2238 (Serial No. 2285762)	30 Apr 09	30 Apr 10
9*		Bruel & Kjaer Integrating Sound Level Meter 2238 (Serial No. 2285690)	30 Apr 09	30 Apr 10
10*		Bruel & Kjaer Acoustical Calibrator 4231 (Serial No. 2292168)	28 Apr 09	28 Apr 10
11*		Bruel & Kjaer Acoustical Calibrator 4231 (Serial No. 2326408)	28 Apr 09	28 Apr 10
12*	Water	YSI 550A (Serial No. 05F2063AZ)	21 Apr 09 17 July 09	21 July 09 17 Oct 09
13		Hanna pH Meter HI98107 (Serial No. S411364)	6 May 09	6 Aug 09
14		Turbidimeter HACH 2100p (Serial No. 08070C31408)	4 May 09	4 Aug 09
15*		Hand Refractometer ATAGO (Serial No. 289468)	21 Apr 09 21 Jul 09	21 Jul 09 21 Oct 09

Note: *Calibration certificates will only provide when monitoring equipment is re-calibrate or new.
 The rest of calibration certificates could be referred to the previous EM&A monthly report (June 2009)

CERTIFICATE OF ANALYSIS



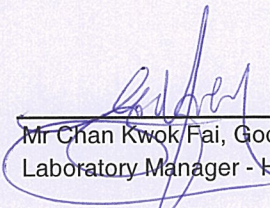
Batch: HK0914729
Date of Issue: 25/07/2009
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of Salinity System

Item : HAND REFRACTOMETER
Model No. : ATAGO
Serial No. : 289468
Equipment No. : EQ114
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2520 A and B
Date of Calibration : 21 July, 2009

Testing Results :

Expected Reading	Recording Reading
10 g/L	10 g/L
20 g/L	18 g/L
30 g/L	27 g/L
40 g/L	36 g/L
Allowing Deviation	±10%


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS



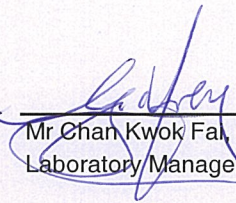
Batch: HK0914287
Date of Issue: 17/07/2009
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of Thermometer

Item : YSI Multimeter
Model No. : YSI 550A
Serial No. : 05F2063AZ
Equipment No.: - -
Calibration Method : In-house Method
Date of Calibration : 17 July, 2009

Testing Results :

Reference Temperature (°C)	Recorded Temperature (°C)
23.5 °C	23.1 °C
27.0 °C	26.4 °C
Allowing Deviation	±2.0°C


Mr. Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

CERTIFICATE OF ANALYSIS



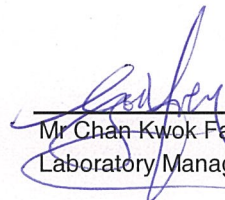
Batch: HK0914287
Date of Issue: 17/07/2009
Client: ACTION UNITED ENVIRO SERVICES
Client Reference:

Calibration of DO System

Item : YSI Multimeter
Model No. : YSI 550A
Serial No. : 05F2063AZ
Equipment No. : --
Calibration Method : This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-0C & G
Date of Calibration : 17 July, 2009

Testing Results :

Expected Reading	Recording Reading
5.18 mg/L	5.33 mg/L
5.59 mg/L	5.55 mg/L
7.34 mg/L	7.51 mg/L
Allowing Deviation	±0.2 mg/L


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

Equipment Calibration Record

Equipment Calibrated:

Type: Dust Trak Model 8520
 Manufacturer: TSI
 Serial No. 23079
 Equipment Ref: EQ064

Standard Equipment:

Standard Equipment: Higher Volume Sampler
 Location & Location ID: Village house No. 96 of Tai Po Mei (A2)
 Equipment Ref: A-2
 Last Calibration Date: 29-Aug-08

Equipment Calibration Results:

Calibration Date: 30-Aug-08

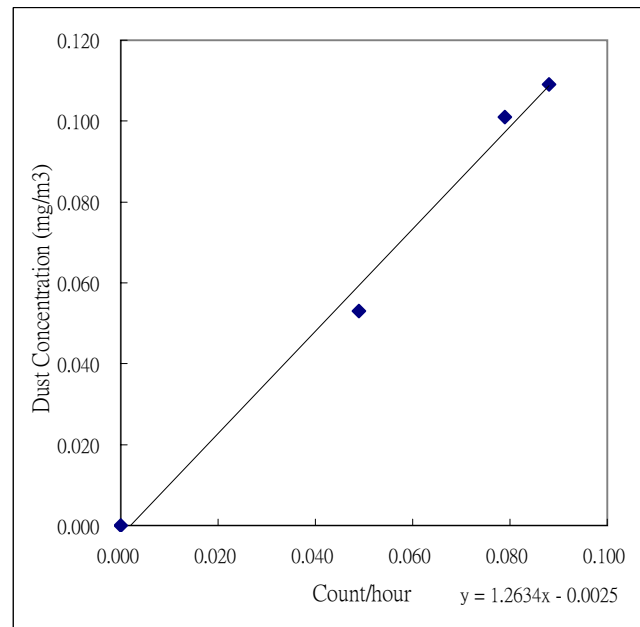
Hour	Time	Temp °C	RH %	Dust Concentration in mg/m ³	
				(Standard Equipment)	(Calibrated Equipment)
1	12:15 ~ 13:15	32.7	74	0.049	0.053
1	13:20 ~ 14:20	33.5	74	0.088	0.109
1	14:28 ~ 15:28	35.8	74	0.079	0.101

Sensitivity Adjustment Zero Calibration (Before Calibration) 0 (mg/m³)

Sensitivity Adjustment Zero Calibration (After Calibration) 0 (mg/m³)

Linear Regression of Y or X

Slope: 0.0792
 Correlation Coefficient 0.9960
 Validity of Calibration Record 30-Aug-09



Operator : Ben Tam

Signature : [Signature]

Date : 2008/8/30

QC Reviewer F.N.Wong

Signature : [Signature]

Date : 2008/8/30

Equipment Calibration Record

Equipment Calibrated:

Type: Dust Trak Model 8520
 Manufacturer: TSI
 Serial No. 23080
 Equipment Ref: EQ063

Standard Equipment:

Standard Equipment: Higher Volume Sampler
 Location & Location ID: Village house No. 96 of Tai Po Mei (A2)
 Equipment Ref: A-2
 Last Calibration Date: 29-Aug-08

Equipment Calibration Results:

Calibration Date: 30-Aug-08

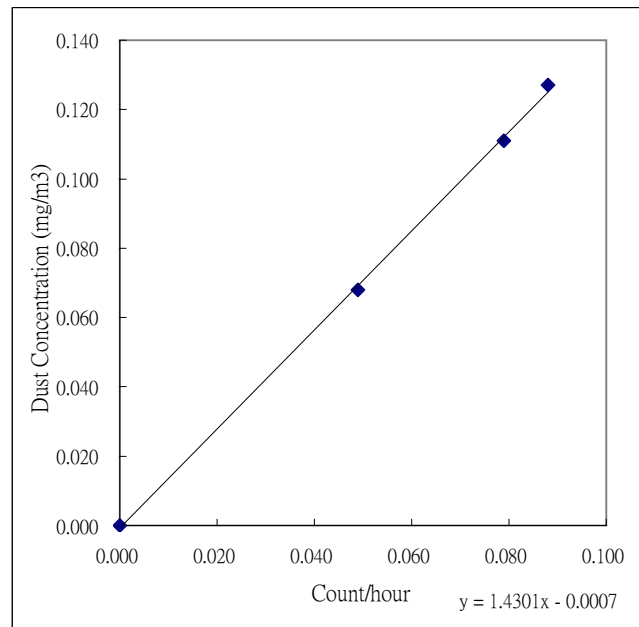
Hour	Time	Temp °C	RH %	Dust Concentration in mg/m ³	
				(Standard Equipment)	(Calibrated Equipment)
1	12:15 ~ 13:15	32.7	74	0.049	0.068
1	13:20 ~ 14:20	33.5	74	0.088	0.127
1	14:28 ~ 15:28	35.8	74	0.079	0.111

Sensitivity Adjustment Zero Calibration (Before Calibration): 0 (mg/m³)

Sensitivity Adjustment Zero Calibration (After Calibration): 0 (mg/m³)

Linear Regression of Y or X

Slope: 0.0801
 Correlation Coefficient: 0.9996
 Validity of Calibration Record: 30-Aug-09



Operator : Ben Tam

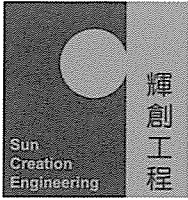
Signature : [Signature]

Date : 2008/8/30

QC Reviewer F.N.Wong

Signature : [Signature]

Date : 2008/8/30



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092085

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ006)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285762

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092085.*

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 30 April 2009

Certified by :

K C Lee

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

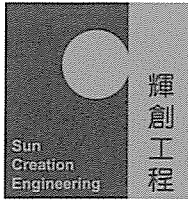
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092112

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ008)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285690

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092112.*

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 30 April 2009

Certified by :

K/C Lee

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

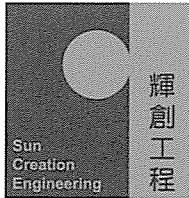
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

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Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092063

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ081)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2326408

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092063.*

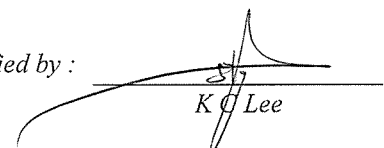
The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 28 April 2009

Certified by :


K O Lee

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

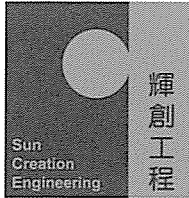
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C092064

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ017)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2292168

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C092064.*

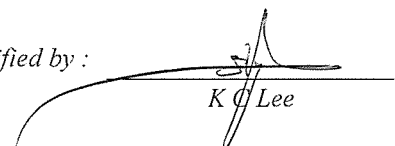
The equipment is supplied by

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35-41 Tai Lin Pai Road, Kwai Chung, N.T.*

Date of Issue : 28 April 2009

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K O Lee

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Website: www.suncreation.com

Appendix F

Event Action Plan

Event/Action Plan for Air Quality

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

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
ACTION LEVEL	<ol style="list-style-type: none"> 1. Notify Contractor and Engineer 2. Carry out investigation 3. Report the results of investigation to the IEC and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by ET 2. Review the proposed remedial measures by the Contractor and advice the Engineer accordingly 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals for remedial actions to IEC 2. Implement the agreed proposals
LIMIT LEVEL	<ol style="list-style-type: none"> 1. Notify IEC, Engineer, EPD and Contractor 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, Engineer and EPD the causes & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Engineer informed of the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst Engineer, ET and Contractor on potential remedial actions 2. Review Contractor's remedial actions whether necessary to assure their effectiveness and advice the Engineer accordingly 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the Engineer until the exceedance is abated

Event and Action Plan for Stream Water Quality

Event	ET Leader	IEC	Engineer	Contractor
ACTION LEVEL (being exceeded by one sampling day)	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC and Contractor 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC and Contractor 6. Repeat measurement on next day of exceedance 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures 2. Make agreement on the mitigation measures to be implemented 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET and Contractor and propose mitigation measures to IEC and Engineer 6. Implement the agreed mitigation measures
ACTION LEVEL (being exceeded by more than one sampling day)	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC, Engineer and Contractor 6. Repeat measurement on next day of exceedance 7. Ensure mitigation measures are implemented 8. Prepare to increase the monitoring frequency to daily 9. Repeat measurement on next day of exceedance 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures 2. Make agreement on the mitigation measures to be implemented 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET and IEC and propose mitigation measures to IEC and Engineer within 3 working days 6. Implement the agreed mitigation measures
LIMIT LEVEL (being exceeded by one sampling days)	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC, Engineer and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit Level 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures 2. Request Contractor to critically review the working methods 3. Make agreement on the mitigation measures to be implemented 4. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within 3 working days 6. Implement the agreed mitigation measures
LIMIT LEVEL (being exceeded by more than one sampling days)	<ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform Contractor, Engineer, IEC and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Engineer and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures 2. Request Contractor to critically review the working methods 3. Make agreement on the mitigation measures to be implemented 4. Assess the effectiveness of the implemented mitigation measures 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until daily until no exceedance of Limit Level 	<ol style="list-style-type: none"> 1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within 3 working days 6. Implement the agreed mitigation measures; 7. As directed by Engineer, to slow down or to stop all or part of the construction activities

Appendix G

(A) Environmental Monitoring Data

(B) Graphic Plot of Monitoring

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

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

24-Hour TSP Monitoring Results

DATE	SAMPLE NUMBER	STANDARD										BLANK			SAMPLE OF FILTER PAPER			Dust 24-Hr TSP in Air ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	
		ELAPSED TIME			CHART READING		AVERAGE			FLOW	AIR	SAMPLE NUMBER	WEIGHT (g)			WEIGHT (g)					
		INITIAL	FINAL	(min)	MIN	MAX	CHART READING	TEMP ($^{\circ}\text{C}$)	PRESS (hPa)	RATE (m^3/min)	VOLUME (std m^3)		INITIAL	FINAL	DIFF	INITIAL	FINAL				DUST COLLECTION
KT14 A8(a) Date of Calibration: 15-June-2009 Next Calibration Date: 15-Aug-2009 Cal Graph Slope = 39.2131 Intercept = -11.2436																					
27-Jun-09	20074	1657.13	1681.34	1452.60	37	38	37.5	26.7	1003.9	1.24	1795	NA	3.6459	3.6419	-0.0040	2.8252	2.8398	0.0146	10	144	260
4-Jul-09	20118	1681.34	1705.09	1425.00	38	39	38.5	28.5	1006.1	1.26	1795	NA	3.6459	3.6419	-0.0040	2.8600	2.8742	0.0142	10	144	260
10-Jul-09	20168	1705.09	1729.24	1449.00	36	38	37.0	30.2	1003.1	1.22	1764	NA	3.6459	3.6419	-0.0040	2.8037	2.8801	0.0764	46	144	260
16-Jul-09	20190	1729.24	1753.38	1448.40	36	38	37.0	29.2	1005.5	1.22	1767	NA	3.6459	3.6419	-0.0040	2.8013	2.8197	0.0184	13	144	260
22-Jul-09	20231	1753.38	1777.58	1452.00	36	38	37.0	28.9	1006.7	1.22	1773	NA	3.6459	3.6419	-0.0040	2.8144	2.8454	0.0310	20	144	260

Summary of Water Quality Monitoring Results - KT14A

Date 26-Jun-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	09:20	0.15	27.1	27.1	3.55	3.54	38.4	38.2	16.2	16.0	0	0.0	7.3	7.3	5	5.0	20.8	20.80	24	24.0
			27.1		3.53		38.0		15.7		0		7.3		5		20.8		24	
W8B	09:10	0.16	27.3	27.3	6.71	6.68	70.4	70.1	12.4	12.1	0	0.0	6.9	6.9	14	14.0	0.03	0.03	<10	10.0
			27.3		6.64		69.7		11.8		0		6.9		14		0.03		<10	

Date 29-Jun-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	10:10	0.17	26.6	26.6	3.3	3.26	36.3	35.7	13.6	13.2	0	0.0	7.2	7.2	6	6.0	6.09	6.09	31	31.0
			26.6		3.21		35.1		12.8		0		7.2		6		6.09		31	
W8B	10:00	0.21	27.0	27.0	6.6	6.57	68.9	68.5	18.4	18.1	0	0.0	7.1	7.1	10	10.0	6.37	6.37	24	24.0
			27.0		6.53		68.0		17.8		0		7.1		10		6.37		24	

Date 2-Jul-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	10:35	0.17	28.6	28.6	2.31	2.29	30.2	30.1	15.8	15.3	0	0.0	7.5	7.5	4	4.0	11.6	11.60	14	14.0
			28.6		2.26		30.0		14.8		0		7.5		4		11.6		14	
W8B	10:30	0.21	30.8	30.8	6.58	6.51	88.3	88.1	13.6	13.4	0	0.0	7.2	7.2	2	2.0	0.27	0.27	<10	10.0
			30.8		6.44		87.8		13.1		0		7.2		2		0.27		<10	

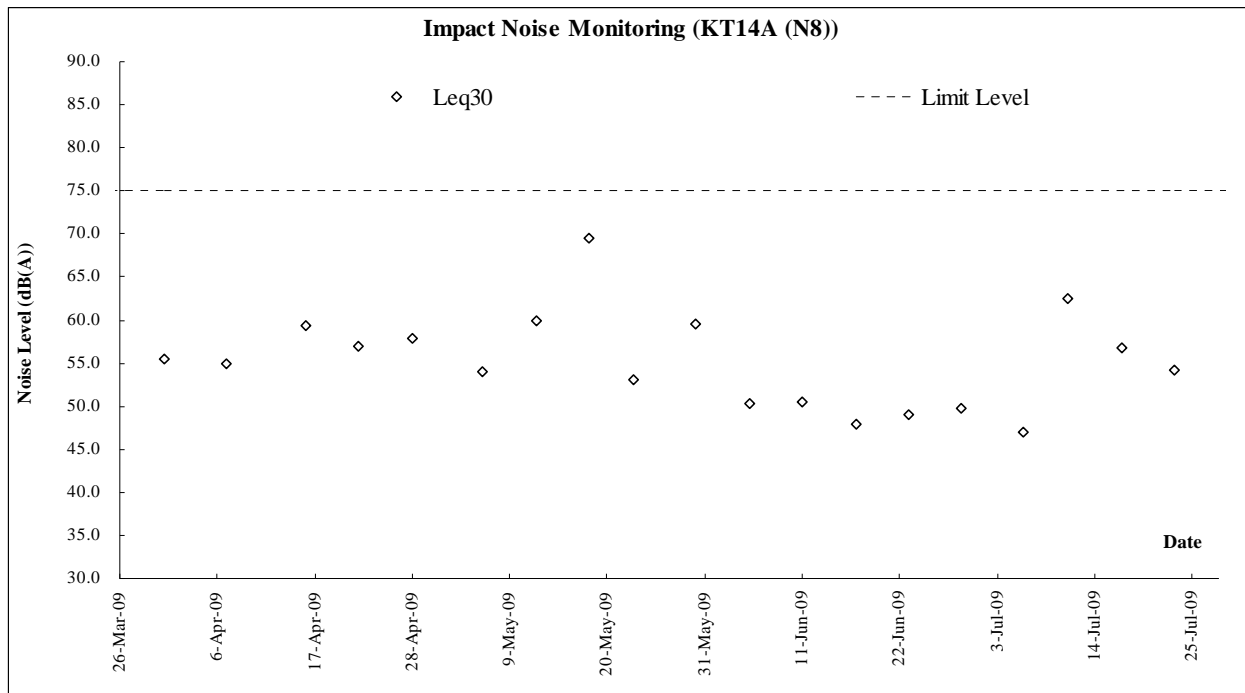
Date 4-Jul-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	10:30	0.10	30.7	30.7	3.43	3.42	36.9	36.5	20.2	20.0	0	0.0	7	7.0	6	6.0	7.83	7.83	55	55.0
			30.7		3.4		36.1		19.7		0		7		6		7.83		55	
W8B	10:35	0.20	31.1	31.1	7.8	7.79	72.8	72.4	16.6	16.4	0	0.0	6.9	6.9	9	9.0	0.03	0.03	12	12.0
			31.1		7.77		71.9		16.2		0		6.9		9		0.03		12	

Date 6-Jul-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	11:00	0.10	28.5	28.5	3.62	3.62	46.8	45.9	16.2	16.0	0	0.0	7.1	7.1	5	5.0	0.56	0.56	42	42.0
			28.5		3.62		44.9		15.8		0		7.1		5		0.56		42	
W8B	10:55	0.10	28.8	28.8	6.89	6.85	88.0	87.3	13.5	13.4	0	0.0	7.5	7.5	3	3.0	0.94	0.94	51	51.0
			28.8		6.8		86.5		13.2		0		7.5		3		0.94		51	

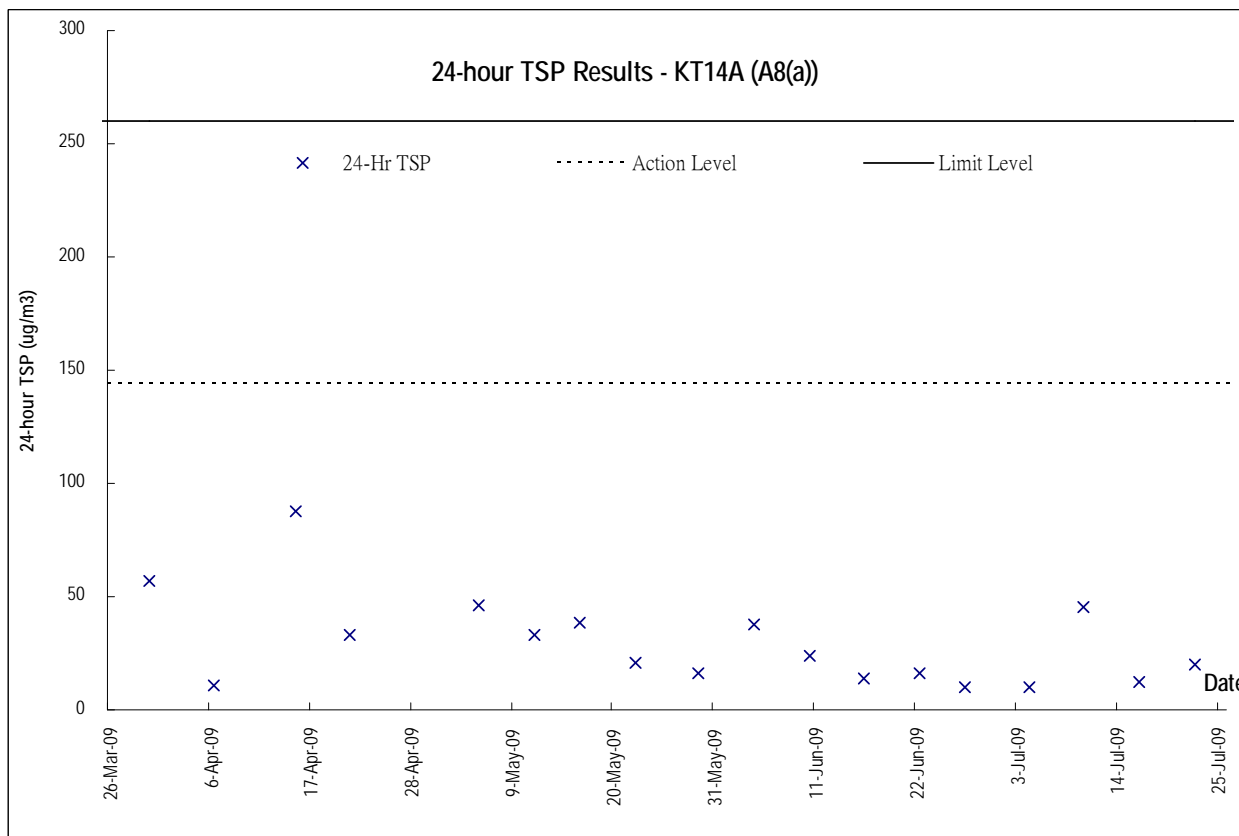
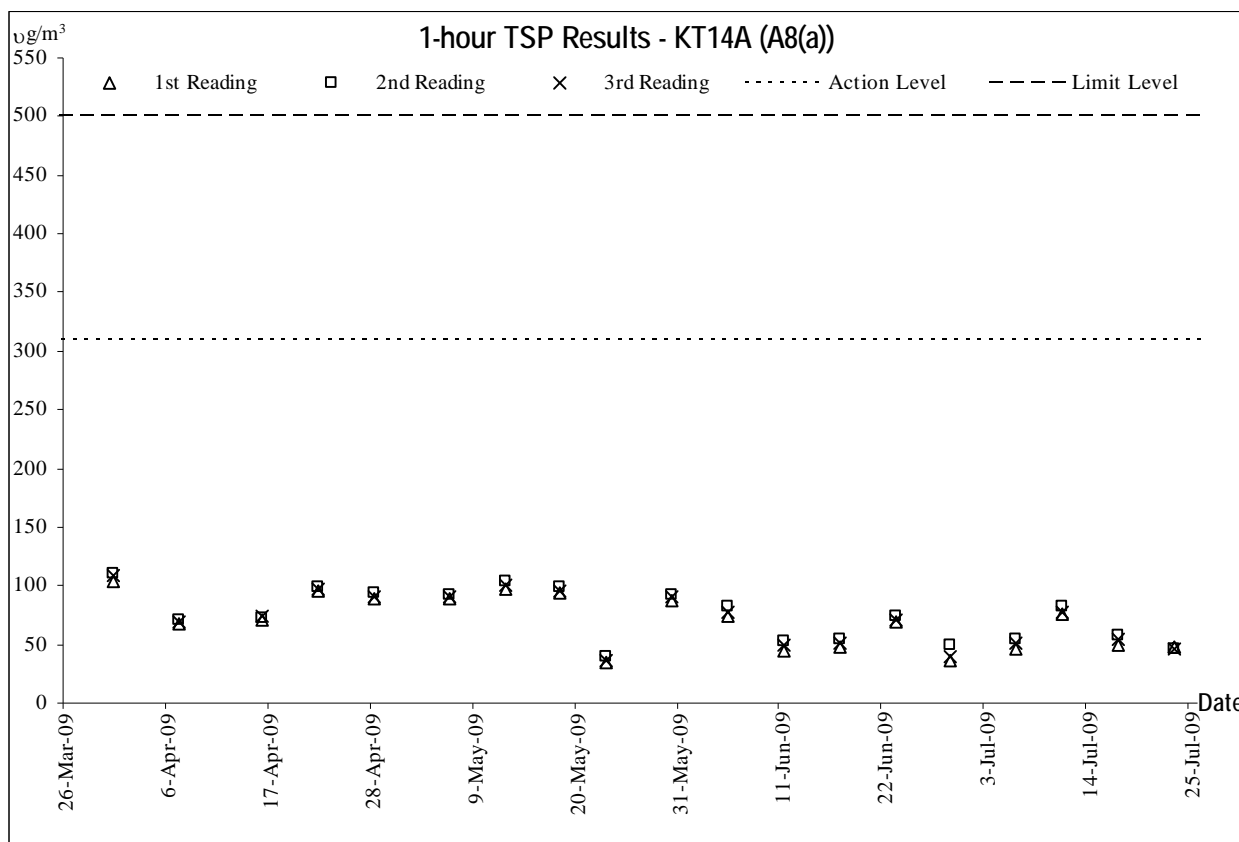
Date 8-Jul-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	11:10	0.10	31.8	31.8	5.43	5.37	68.7	68.2	13.3	14.4	0	0.0	7.8	7.8	6	6.0	2.01	2.01	22	22.0
			31.8		5.3		67.7		15.5		0		7.8		6		2.01		22	
W8B	11:20	0.10	29.7	29.7	6.73	6.69	80.0	79.9	16.0	15.9	0	0.0	7	7.0	51	51.0	0.06	0.06	16	16.0
			29.7		6.65		79.7		15.8		0		7		51		0.06		16	

Date 10-Jul-09																				
Location	Time	Depth (m)	Temp (oC)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity		pH		SS		Ammonia N		Zinc	
W8A	13:45	0.10	30.3	30.3	2.31	2.30	30.8	30.5	16.0	16.1	0	0.0	7.7	7.7	6	6.0	9.71	9.71	21	21.0
			30.3		2.28		30.1		16.2		0		7.7		6		9.71		21	
W8B	14:00	0.10	34.0	34.0	6.66	6.63	69.7	69.3	13.9	14.3	0	0.0	6.9	6.9	48	48.0	0.09	0.09	20	20.0
			34.0		6.6		68.9		14.6		0		6.9		48		0.09		20	

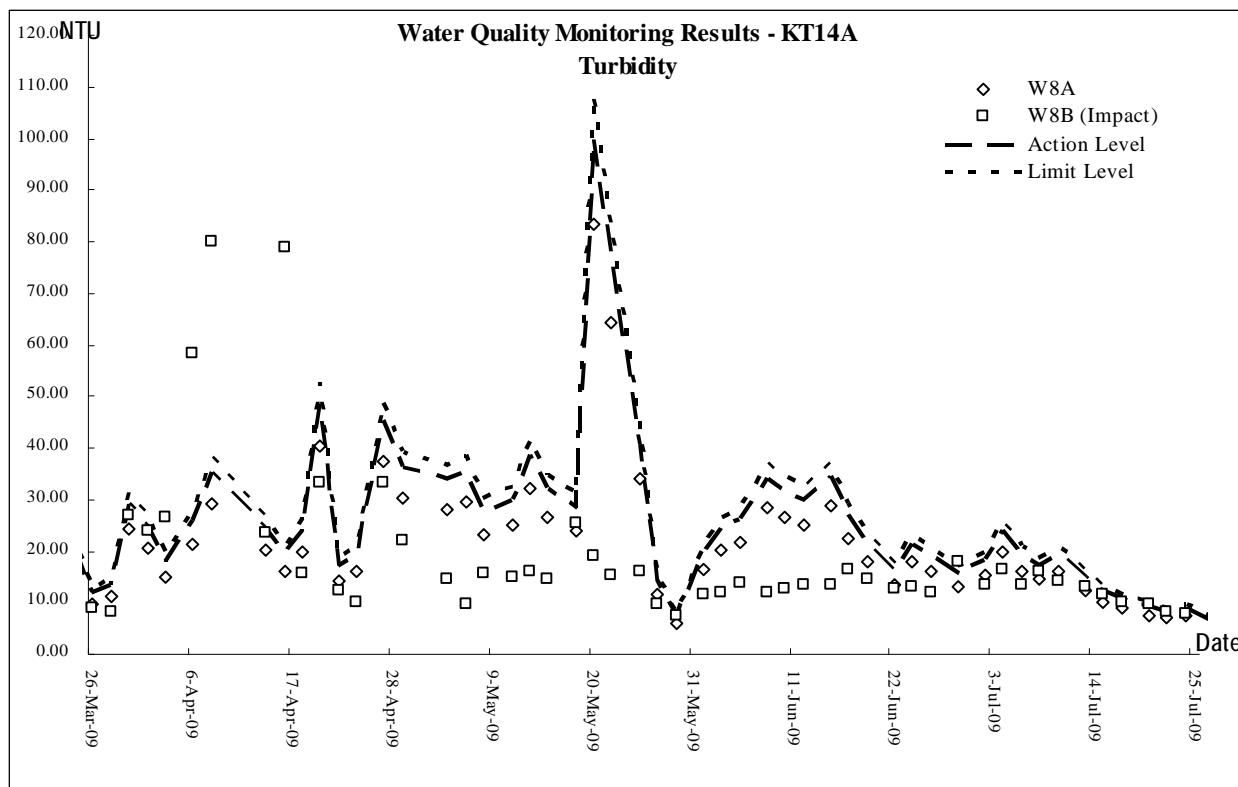
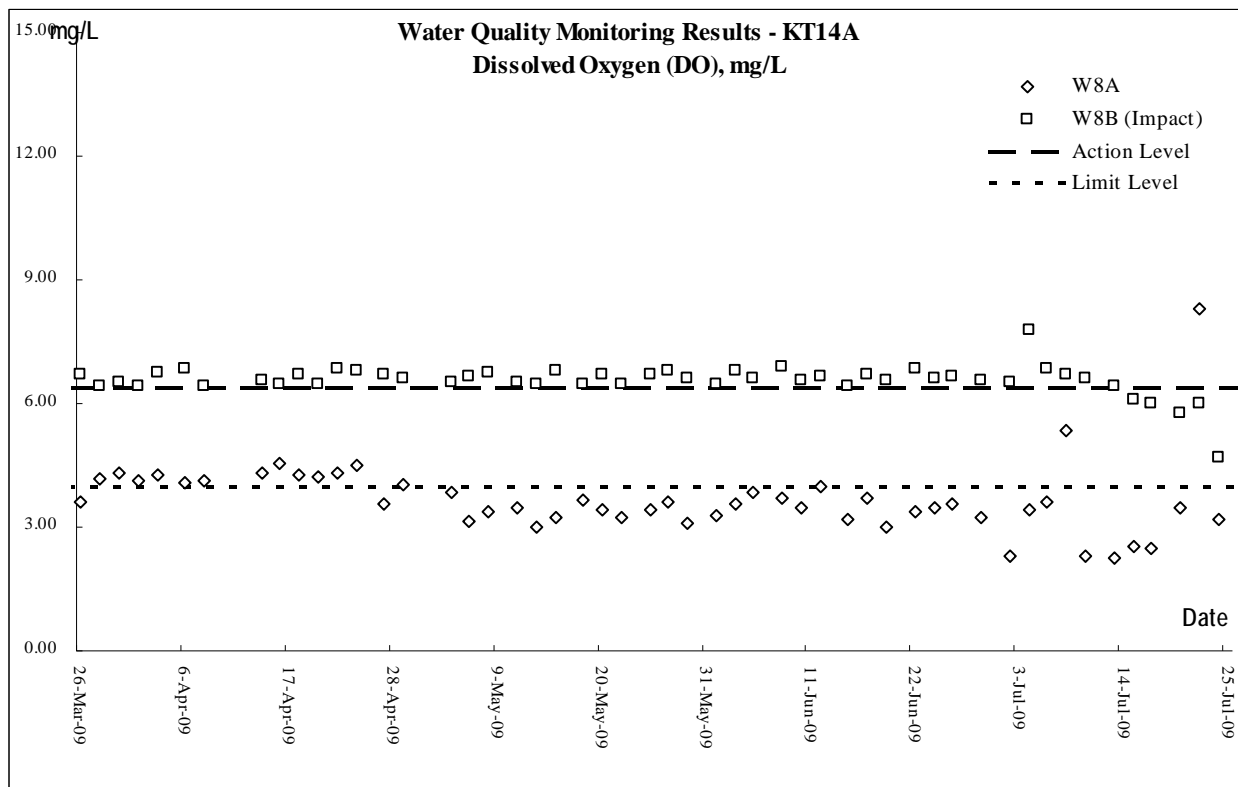
Graphic Plot of Monitoring - Construction Noise

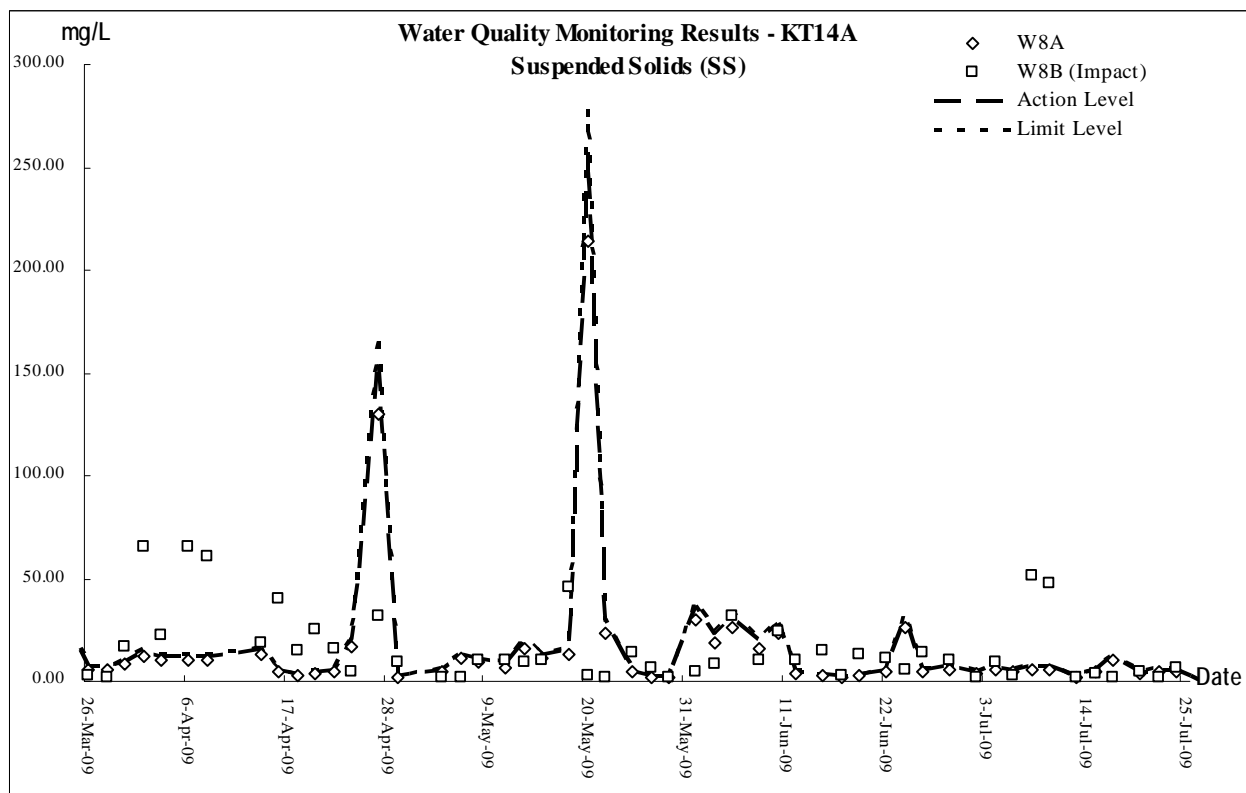
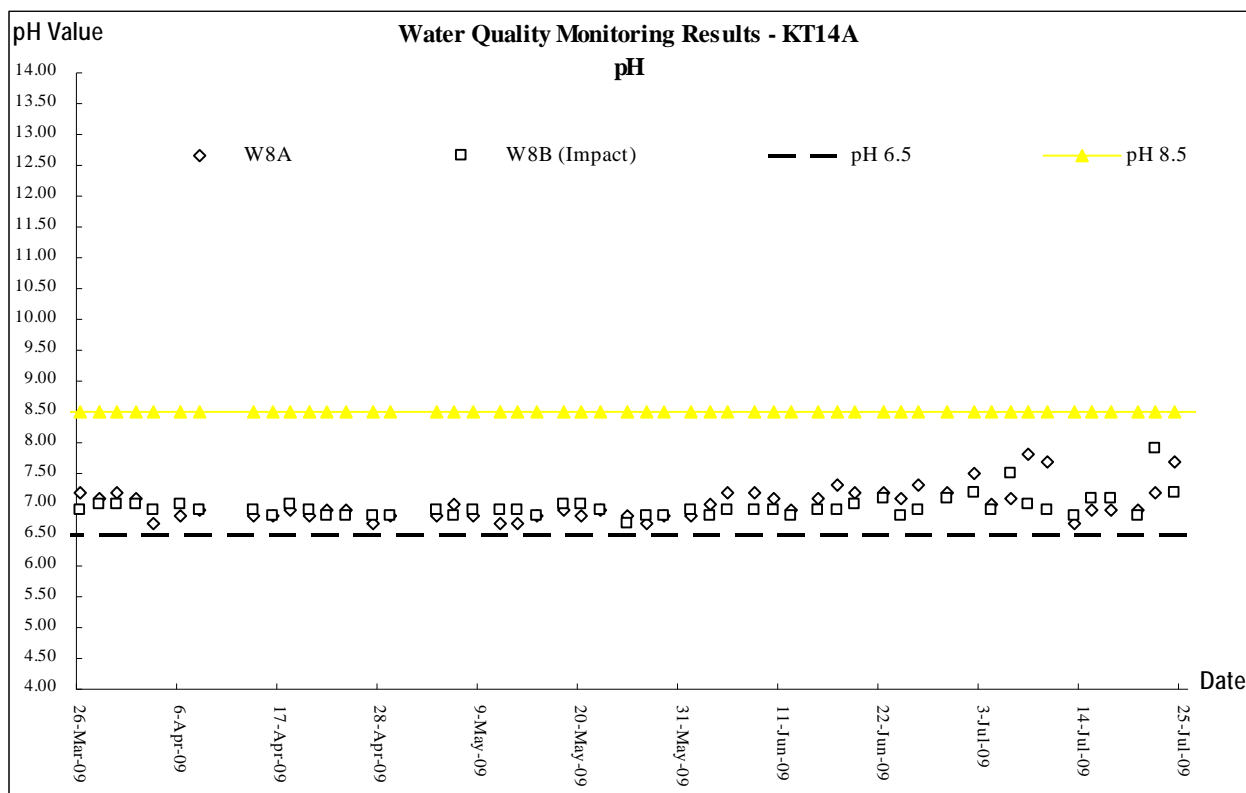


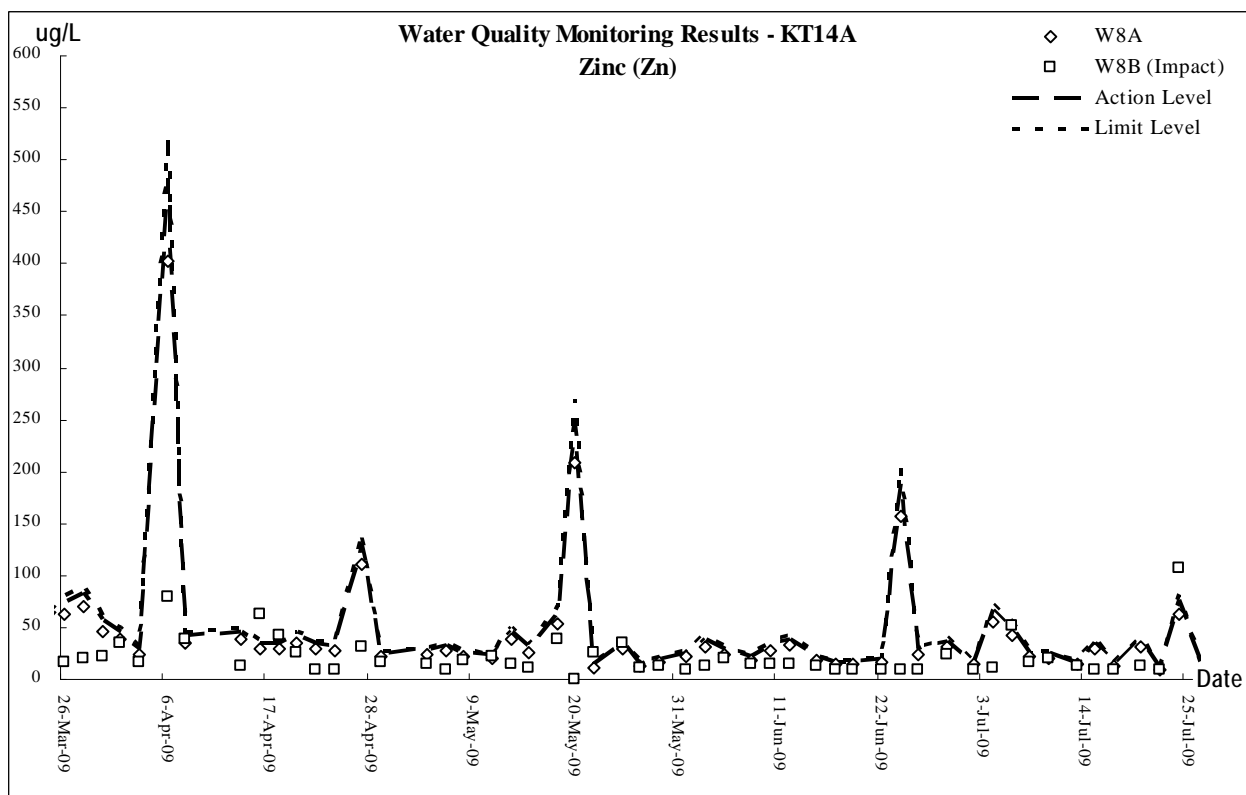
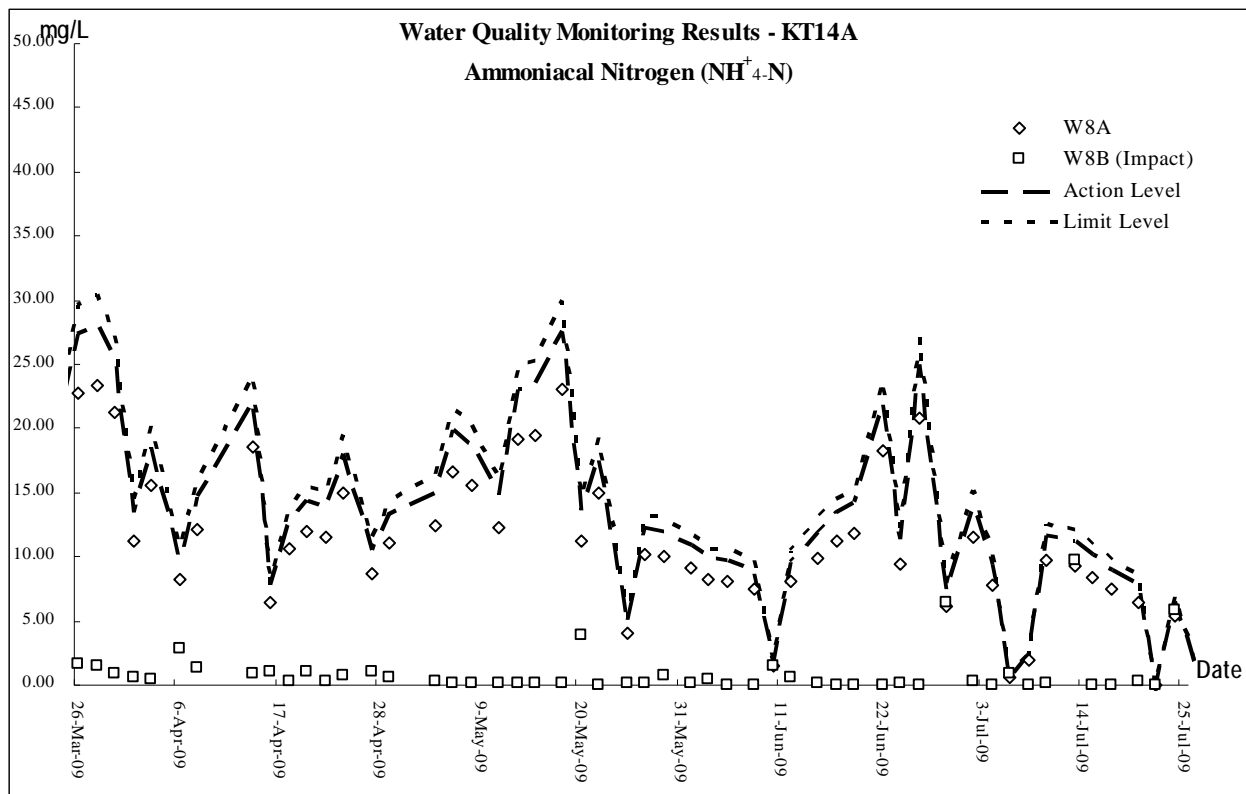
Graphic Plot of Monitoring – Air Quality



Graphic Plot of Monitoring – Water Quality







Appendix H

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table

Date: 31-Jul-09
Year/Month: Jul-09

Monthly Summary Waste Flow Table for July 2009										
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 ³)	(in '000M ³)	(in '000M ³)	(in '000M ³)	(in '000M ³)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000KG)	(in '000M ³)
Jan	6.716	0.008	6.708	0	0	0	0	0	0	0
Feb	8.001	0.009	7.632	0.360	0	0	0	0	0	0
Mar	5.792	0.014	5.778	0	0	0	0	0	0	0
Apr	6.622	0.004	6.864	-0.246	0	0	0	0	0	0
May	7.632	0.006	7.674	-0.048	0	0	0	0	0	0
Jun	6.002	0.008	5.676	-0.498	0.816	0	0	0	0	0
Sub-Total	40.76	0.049	40.332	-0.432	0.816	0	0	0	0	0
Jul	4.163	0.005	5.016	-0.858	0	0	0	0	0	0
Aug										
Sep										
Oct										
Nov										
Dec										
Total	44.928	0.054	45.348	-1.290	0.816	0.000	0.000	0.000	0.000	0.000

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