
**Improvements to
San Tin Interchange
(Contract No. HY/2004/09)**

**Monthly Environmental
Monitoring & Audit Report**

Report No. 4

September 2005

ATKINS

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Executive Summary

Atkins China Limited (ACL) has been appointed by Chun Wo Construction & Engineering Co., Ltd. to implement the Environmental Monitoring and Audit (EM&A) programme for the construction works under Contract No. HY/2004/09 Improvements to San Tin Interchange (hereinafter, the Project).

The construction of the Project commenced since 21st June 2005. This report is the fourth monthly EM&A report for the Project which summarises the monitoring results and audit findings during the reporting period from 1st to 30th September 2005.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual. A summary of the monitoring activities in this reporting period is listed below:

- Site inspections were undertaken jointly with the Contractor and Engineer's Representative (ER) on 1st, 8th, 15th, 22nd and 29th September 2005. The Independent Environmental Checker (IEC) joined the site inspection on 29th September 2005.
- Noise monitoring at three designated monitoring stations was undertaken on 7th, 8th, 14th, 20th and 28th September 2005 during normal hours, and 11th and 18th September 2005 during restricted hours.
- Visual site surveillance for water quality was undertaken 3 days per week.
- Site inspections for landscape and visual resources were undertaken on 20th and 29th September 2005.

Breaches of Action and Limit Levels

There were two environmental exceedances recorded during the restricted hours noise monitoring on 11th and 18th September 2005 during this reporting period. The mentioned exceedances were, however proved not to have been caused by the site activities of the Contractor.

Complaint Log

There were no environmental complaints received during this reporting period.

Notifications of Summons and Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

This report has been developed in compliance with the reporting requirements for the subsequent monthly EM&A reports as required by the Project EM&A Manual.

Future Key Issues

Piling works at both North and South Division will commence in October 2005.

1 ENVIRONMENTAL STATUS

1.1 Works undertaken during the Reporting Period

The major construction activities undertaken during this reporting period are summarised below:

- Pre-bored H-piling;
- Pre-drilling works;
- Bored piling works;
- Laying of drainage pipes;
- Tree felling and transplantation;
- Temporary platform formation;
- Trench works;
- Subway extension; and
- Implementation of temporary traffic arrangement schemes.

The site plan of the Project is shown in Figure 1. The Contractor's works programme is provided in Annex A.

1.2 Environmental Permit and Licences

There were no changes or clarification to the Environmental Permit (EP-190/2004) during the reporting period.

Three Construction Noise Permits (CNP) were issued in September 2005. Details of the CNP are summarised in Table 1.1.

Table 1.1 Details of Permits and Licences issued in September 2005

Permit / License	Reference No.	Issue Date	Expiry Date
Construction Noise Permit	GW-RN0421-05	10 th September 2005	9 th March 2006
Construction Noise Permit	GW-RN0422-05	10 th September 2005	9 th March 2006
Construction Noise Permit	GW-RN0455-05	22 nd September 2005	5 th October 2005

1.3 Environmental Document Submissions to EPD

A summary of the status of the submissions specified in the Project EP as provided during the month of September 2005 is presented in Table 1.2.

Table 1.2 Summary of Environmental Document Submissions to EPD

Item No.	Document Title	Date of Submission
1	Monthly EM&A Report No. 3 for August 2005	15 th September 2005

1.4 Environmental Monitoring Locations

Noise monitoring was undertaken at three monitoring stations and the locations are shown on Figure 1. Description of these monitoring stations is provided in Table 1.3.

Table 1.3 Noise Monitoring Stations

Monitoring Station ID	Description	Easting	Northing
CM1	Village house near San Tin Highway	826133	839839
CM2	Village house near San Tin Highway	826291	839918
CM3	Village house near Kwu Tung Road	826605	840076

2 ENVIRONMENTAL MEASURES AND IMPLEMENTATION STATUS

The mitigation measures listed in the Project EIA Report, EM&A Manual and Environmental Permit and the implementation status are provided in Annex B. Based on the site inspection findings, it appears that the Contractor has implemented the required mitigation measures during construction works to date.

3 MONITORING RESULTS

3.1 Noise Monitoring

3.1.1 Noise Monitoring Equipment

The details of the noise monitoring equipment are listed below and the calibration certificates are presented in Annex C:

- Sound level meter ONO-SOKKI LA-5110
- Acoustical calibrator ONO-SOKKI SC-2110
- Hand-held anemometer

3.1.2 Noise Monitoring Methodology

The sound level meter was calibrated with an acoustical calibrator prior to each measurement. It was set on a tripod at 1.2 m above local ground level at the monitoring station. Measurement of the A-weighted $L_{eq(30 \text{ minutes})}$ noise level for normal daytime hours was undertaken. Three consecutive A-weighted $L_{eq(5 \text{ minutes})}$ noise levels were measured for restricted hours monitoring. Wind speed was checked during the monitoring period using the hand-held anemometer to ensure steady wind speed did not exceed 5 m/s, or gusts did not exceed 10 m/s. After the noise measurement the sound level meter was re-calibrated using the acoustical calibrator.

3.1.3 Noise Monitoring Results

Noise monitoring was undertaken on a weekly basis when noise generating activities were underway. The noise monitoring results obtained during the normal daytime hours and restricted hours in September 2005 are summarised in Table 3.1 and Table 3.2, respectively. There were no environmental exceedances of the Action and Limit Levels for noise monitoring recorded during the normal daytime hours in this

reporting period but two exceedances were recorded during the restricted hours. Details of the monitoring time period and weather condition during the monitoring period and the graphical presentation of the noise monitoring results are provided in Annex D.

Table 3.1 Summary of Noise Monitoring Results during Normal Daytime Hours

Date of Monitoring	Normal Hours. Noise Monitoring Results $L_{eq(30 \text{ minutes})}$ noise		
	CM1	CM2	CM3
7 th September 2005	67.2	70.1	Cancelled due to adverse weather
8 th September 2005	-	-	62.2
14 th September 2005	66.3	70.9	54.9
20 th September 2005	66.4	70.1	60.5
28 th September 2005	67.8	70.2	57.6

Table 3.2 Summary of Noise Monitoring Results during Restricted Hours

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15 \text{ minutes})}$ noise		
	CM1	CM2	CM3
11 th September 2005	63.2	<u>67.0</u>	53.4
20 th September 2005	62.3	<u>66.1</u>	53.7

Remark: Noise monitoring on 4th and 25th September 2005 was cancelled due to adverse weather conditions.
Underlined figure indicates exceedance of Limit Level (65 dB(A)).

3.2 Water Quality Monitoring

Visual site surveillance for water quality were undertaken for 3 days per week. Based on the visual inspection results, the Contractor has followed all necessary site practices to control the surface runoff, including (1) proper maintenance of sandbag barriers – sandbags that have fallen apart should be replaced with new ones; (2) pumping away of accumulated rainwater inside silt retention pond; and (3) regular maintenance of the temporary drainage channels. The inspection results were found to be acceptable. The details of the water quality visual inspection reports are provided in Annex E.

3.3 Landscape & Visual Resources

Site inspection on the landscape & visual resources were undertaken two times during September 2005. Tree transplantation was in progress. During the second inspection, it was found that the root parts of some trees in the South Division (which are to be transplanted) were partially exposed due to soil erosion. The Contractor was requested to expedite the transplantation for these trees, and provide protection to the roots by wrapping in tarpaulin as an intermediate measure. The details of the inspections are provided in Annex F.

3.4 Ad-hoc Air Quality Monitoring

No ad-hoc air quality monitoring was required during the reporting period.

3.5 Waste Management

The Contractor has adopted a trip ticket system for the disposal of construction wastes. According to the records provided by the Contractor, the disposal of construction waste within the reporting period is summarised in Table 3.3.

Table 3.3 Summary of Waste Disposal for September 2005

Waste Type	Destination	No. of Trips	Quantity
C & D Waste	NENT	62	310 m ³
C & D Waste	WENT	2	10 m ³
Building debris	CEDD's Tuen Mun Area 38 Fill Bank	139	695 m ³
Chemical Toilet Waste	Collected by Proenvironmental Services Ltd.	21	-
Sewage Holding Tank Waste	Collected by Waylung Waste Services Ltd.	12	-

4 ENVIRONMENTAL AUDITS

4.1 Site Inspection and Audit

Site inspections were undertaken on 1st, 8th, 15th and 22nd September 2005, and jointly with the IEC on 29th September 2005. Specific locations within the site were identified during the inspection for improvements in proper implementation of the environmental mitigation measures. These include:

- Some sandbags were observed to have fallen apart at discharge outlet near N1 open lay-down area. The Contractor was advised to replace these with new sandbags.
- Insufficient sandbags were provided for the works area near Link Bridge K in N2 Division. The Contractor was reminded to provide sufficient sandbags for controlling surface runoff.
- No sandbags were provided around the excavation works area at Slip Road B. The Contractor was reminded to provide sandbags around the excavation works area to hold the excavated soil in place.
- A small puddle of stagnant water was observed near N2 Division works area. However, this was cleared immediately. The Contractor was reminded to regularly keep the site clear from stagnant water accumulation.

The record of the weekly site inspection findings is provided in Annex G. Following the environmental inspections, the Contractor has undertaken remedial actions to improve the implementation of mitigation measures.

4.2 Environmental Exceedances

During the reporting period, there were two exceedances of the Limit Level recorded during the restricted hour noise monitoring at monitoring station CM2.

Further to investigation and discussion with the ER, the project-related works being undertaken during the measurement period were located further to the North 2 Division, which is far away from the monitoring stations. The exceedances were due to the high ambient background noise caused by road traffic on San Tin Highway. Thus, the noise exceedances recorded on 11th and 18th September 2005 were found not to be attributable to project works. Records of the notification of environmental exceedances are provided in Annex H. The Action and Limit Levels for impact monitoring are provided in Annex I.

4.3 Environmental Complaint and Prosecution

No environmental complaints and no prosecution or summons were received during the reporting period. Cumulative statistics on complaints, notifications of summons and successful prosecutions for the Project are provided in Annex J.

5 FORECAST AND SCHEDULE

5.1 Key Issues for the Coming Months

The key issues with respect to the works in the forthcoming 2 months include:

- Pile cap construction;
- Bore piles construction;
- Tree transplantation and felling;
- Sheet piling works;
- Driven H-pile installation;
- Pre-bored H-pile installation;
- Temporary support works;
- Subway extension works;
- Band drains installation; and
- Drainage pipe laying works.

5.2 Monitoring Schedules for the Next Month

The schedule for noise monitoring in October 2005 is provided in Table 5.1 below:

Table 5.1 Noise Monitoring Schedule for October 2005

Date	Noise Monitoring Station
5 th October 2005 (Wednesday)	CM1, CM2 & CM3
12 th October 2005 (Wednesday)	CM1, CM2 & CM3
18 th October 2005 (Tuesday)	CM1, CM2 & CM3
26 th October 2005 (Wednesday)	CM1, CM2 & CM3

6 CONCLUSION

There was no environmental non-compliance attributable to the Project works during the reporting period.

There were two exceedances of the Limit Level recorded during the restricted hour noise monitoring during the reporting period. However, they were found not to be attributable to project works.

No environmental complaint, prosecution or summons was received during the reporting period. Mitigation Measures stated in the Project EIA have been implemented.