

Contract No. : DC/2007/06
River Improvement Works in Upper Lam Tsuen,
She Shan River and Upper Tai Po River

ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT of

UPPER TAI PO RIVER

for June 2012

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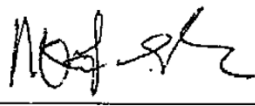
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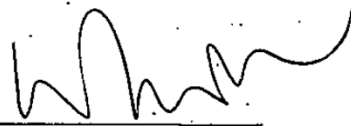
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Executive summary

This is the forty sixth monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River”. This report concludes the impact monitoring for the activities undertaken during the period from 1st June 2012 to 30th June 2012. Construction of riverbed, gabion walls, retaining walls, inclined gabion/no-fines mass concrete walls and stilling basin, installation of the steel deck for footbridge and ground investigation were the major site activities being carried out in this reporting period.

The Environmental Team (ET) is responsible for the EM&A works required in the EM&A manual. Site inspections were carried out on weekly basis to investigate and audit the equipment and work methodologies with respect to pollution control and environmental mitigation. The weekly inspections records and photos taken were kept.

The next ecological impact monitoring has been arranged on 5th July 2012. The summary of ecological site inspection findings and implementation status of environmental protection and mitigation for ecology, prepared by the Ecologist, are provided in table 6.2 and Appendix G respectively.

Environmental Team had carried out construction noise monitoring on weekly basis and no exceedance was found. Noise monitoring records for the reporting month and the data are presented in Section 4. The location plan and the graphical plots presenting the data are provided in Appendix D.

Piling works has been omitted. Therefore, no vibration monitoring was conducted by ET during the reporting month.

There was no non-compliance events recorded in this reporting month.

There was no formal complaint in relation to environmental issue received in the reporting month.

There was no breach of action and limit levels for this reporting month.

There was no reporting change for this month.

Construction of riverbed, gabion walls, dwarf walls retaining walls, inclined gabion/no-fines mass concrete walls and stilling basin would be carried out in the upcoming month.

ET has reminded the contractor to provide environmental pollution control measures wherever necessary and to keep a good environmental management at site practice.

1.0 Introduction

This is the forty sixth monthly Environmental Monitoring and Audit (EM&A) Report for the river improvement works at Upper Tai Po River under Drainage Services Department Contract No. DC/2007/06 entitled “River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River”. The site layout plan is shown in Figure 2.1. The Environmental Team, Environmental Pioneers & Solutions Limited appointed by Chiu Hing Construction and Transportation Company Limited, prepares the report. The report is to be submitted to the Contractor, the Engineer and the IEC.

This report presents the results of the environmental monitoring of the project activities for Upper Tai Po River conducted during the month of June 2012. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the Environmental Permit (EP-223/2005/A) (EP), EM&A Manual and the Contractor’s Environmental Management Plan (EMP).

2.0 Environmental status

2.1 Project area

The location of the project site – Upper Tai Po River starts from Ta Tit Yan of Yai Mo Shan, flows from southeast to northeast alongside Wilson Trail, turning northward before joining the Lam Tsuen River and then runs towards Tai Po Market. For the east of the river, there are active and abandoned cultivated lands. Village settlements are mainly located on the west and northeast side of the river bank, where the San Uk Ka and Lai Chi Shan establishment also lie. The Project site is indicated in Figure 2.1.

2.2 Construction programme

Approximately 0.6km of Upper Tai Po River will be improved to enhance the hydraulic performance of the river. The improvement works comprise the following:

- (1) Re-profiling and realignment of the Channel;
- (2) Inclusion of gabions and retaining wall for bank protection whilst providing a natural channel bed; and
- (3) Re-provisioning of footbridges and footpaths along the channel

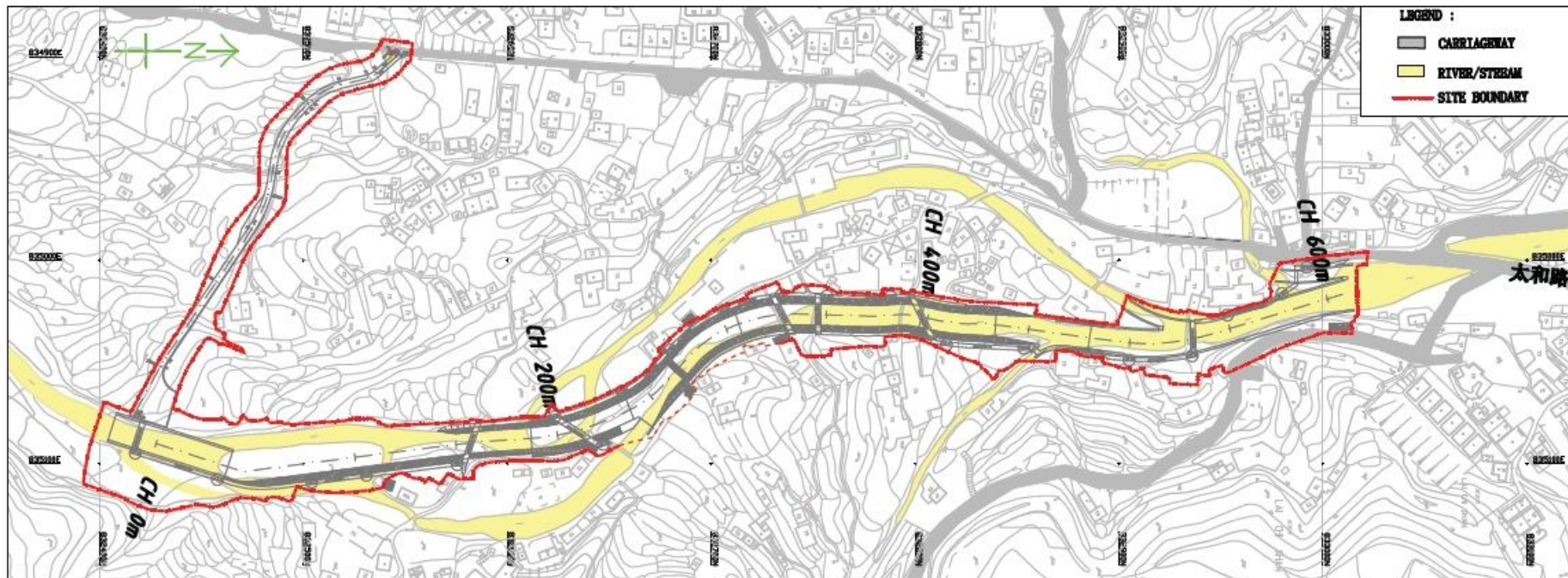
The construction of the proposed improvement works for Upper Tai Po River has been commenced on September 15th 2008 and anticipated to complete in December 2012.

2.3 Proposed construction sequences

The proposed construction sequences are shown in the following:

- (1) Site clearance and preparation works
- (2) Construction of the maintenance access which involves the construction of retaining walls
- (3) River channel construction and excavation, involving the excavation works, construction of retaining walls and gabion walls
- (4) Construction of additional boulder trap and additional stilling basins with baffle blocks
- (5) Provision of riverbed treatment
- (6) Re-provisioning of footbridges
- (7) Construction of footpaths
- (8) Landscaping works

Fig 2.1 Layout of construction area



Upper Tai Po River

2.4 Construction activities for the reporting period

Major construction activity carried out by the contractor during this reporting period includes:

- 1.) Construction of Riverbed
- 2.) Construction of Gabion Walls
- 3.) Construction of Retaining Walls
- 4.) Construction of Inclined Gabion/No-fines Mass Concrete Walls
- 5.) Installation of the Fabricated/Steel Deck for Footbridge
- 6.) Construction of Stilling Basin
- 7.) Ground Investigation Works

2.5 Construction activities for the next reporting period

Major construction activities carried out by the contractor anticipated for the coming month include:

- 1.) Construction of Riverbed
- 2.) Construction of Gabion Walls
- 3.) Construction of Dwarf Walls
- 4.) Construction of Retaining Walls
- 5.) Construction of Inclined Gabion/No-fines Mass Concrete Walls
- 6.) Construction of Stilling Basin

2.6 Exceedance with the environmental performance limits

There was no exceedance with the environmental performance limits for this reporting month. The event and action plan for Ecology is shown in Appendix A. The action and limit level for Noise is shown in Appendix B. The reference standards for vibration are shown in Appendix C.

2.7 Summary of complaints

No formal complaint in relation to environmental issue was received in the reporting month. In total, twenty-four complaints had been received since the commencement of the contract. The cumulative complaint log is shown in Appendix F.

3.0 Ecological monitoring results

No ecological survey was carried out in this reporting period. The next ecological impact monitoring has been arranged on 5th July 2012.

4.0 Noise monitoring results

In accordance with the EM&A Manual, monitoring locations were established at 11 N.S.R. locations. The descriptions of all 11 N.S.R. are shown in Table 4.1.

Table 4.1 Description of Noise Sensitive Receivers

Sensitive Receiver No.	Location and Description
UTP1	54B, Sheung Wun Yiu
UTP2	Village House in Lai Chi Shan
UTP3	Village House near Upper Tai Po River
UTP4	Village House near Upper Tai Po River
UTP5	Village House near Upper Tai Po River
UTP6	Village House near Upper Tai Po River
UTP7	Village House near Upper Tai Po River
UTP8	Village House near Upper Tai Po River
UTP9	49A, Pun Shan Chau
UTP10	Village House near the proposed access road
UTP11	49G, San Uk Ka

Noise monitoring was carried out by the Environmental Team on weekly basis for this reporting month. The scheduled monitoring dates were 7th, 14th, 21st and 28th June 2012. Measured $L_{eq(30min)}$ results ranged from 52.9dB(A) to 72.5dB(A).

For further details of the monitoring results, graphical plots and the location plan, please refer to the Appendix D.

5.0 Vibration monitoring results

There was no vibration monitoring results for this reporting month. Vibration monitoring will be started once the piling works start in Upper Tai Po River.

6.0 Environmental issues and actions

6.1 Site inspections and key environmental issues

Site inspections were undertaken routinely to inspect the construction activities in Upper Tai Po River to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Implementation status of environmental protection and mitigation measures is shown in Appendix G.

Within this reporting month, site inspections were conducted on 6th, 13th, 20th and 26th June 2012. A detailed checklist of each site inspections together with comments and relevant photos have been filed and kept for record. The findings from inspections were summarized in Table 6.1.

Ecological inspections by the Ecologist Dr. Mark Shea were carried out on 4th, 11th, 18th, 25th and 30th June 2012. Details of findings were summarized in Table 6.2.

Table 6.1 Summary results of site inspections findings

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
6 Oct 11	Noise barriers were not yet erected by Contractor along UTPR.	Observation	Contractor was urged to install noise barriers to minimize the noise impact arisen from construction activities.	To be followed during the next reporting period.	Ongoing	--
9 May 12	The mitigation measures for the rock breaking at ch.0 of UTPR were insufficient.	Observation	Contractor was seriously advised to wrap the breaker tip with sound insulating material and provide water spraying facility to minimize the noise and dust impact to the nearest sensitive receivers.	Repairing of the acoustic material has been provided by Contractor for the rock breaker. However, water spraying was still missing. The incident will be followed in next month.	Ongoing	--
9 May 12	Ground water seepage causing soil washing was observed at ch.50 of UTPR. The muddy surface runoff entered into the river directly.	Observation	Contractor was reminded to provide earth bund to avoid the surface runoff enter into the river directly.	The ground water seepage was properly directed and muddy surface runoff was not observed	20 Jun 12	--
16 May 12	Muddy water generated from excavation work was observed to be entered into the river through gabion walls at ch.400.	Observation	Contractor was advised that the muddy water should be diverged to de-silting facility before discharge into the river and dewatering of the excavated area should be done prior to the execution of excavation works. Contractor was advised to provide bunding or sandbags to avoid untreated water directly entering into the river.	The channel was filled. Site water was temporarily stored inside an enclosed sump pit and no seepage or leakage of the site water into the river was observed	6 Jun 12	--
23 May 12	Oil drums were observed to be without secondary containment at ch.50 and	Observation	Contractor was reminded to provide drip tray for storing chemical and oil containers to	To be followed during the next reporting period.	Ongoing	--

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
	ch.400.		avoid land contamination as if leakage.			
23 May 12	The unused sedimentation tank at ch.600 of UTPR was observed to be full of sand and silt.	Observation	Contractor was reminded to provide cleaning and maintenance to the tank before use.	The sedimentation tank was not in use during the inspection and the mud on the channel nearby was observed to be removed. As reported by Contractor, clearance of silt and mud for the tank and channel has been provided.	13 Jun 12	--
30 May 12	Some construction material was observed within the river channel at ch.50.	Observation	Contractor was reminded to remove the construction material as soon as possible to avoid polluting the river and maintain good housekeeping.	The construction material observed within the river channel was removed by contractor.	6 Jun 12	--
30 May 12	Execution of construction near the river was observed. Excavation and unloading of soil was observed to be carrying out near a natural riverstream at ch.50 of UTP. Dropping of soil into the river was observed by the abovementioned activities and caused pollution to the river.	Observation	Contractor was reminded to avoid carrying out construction works near the river and provide sufficient preventive measures prior to executing these works. Contractor was recommended to provide bunding or sandbag barriers to prevent soil dropped into the river.	No operation of construction machines and no execution of construction works was observed. Potential source of river pollution was not identified	20 Jun 12	--
6 Jun 12	No particular observation	--	--	--	--	--
13 Jun 12	No particular observation	--	--	--	--	--
20 Jun 12	Stagnant water was observed at ch.0	Observation	Contractor was advised to remove the stagnant water immediately to avoid mosquito breeding.	To be followed during the next reporting period.	Ongoing	--
20 Jun 12	The tree protective net was observed to be damaged at ch.50.	Observation	Contractor was recommended to repair the net for proper tree protection.	The damaged tree protective net was repaired	26 Jun 12	--
20 Jun 12	The river water was flowing across the haul road at ch.100 and polluted by soil washing and operation of construction vehicles.	Observation	Contractor was urged to provide channel to diverge the water for preventing pollution of river water.	To be followed during the next reporting period.	Ongoing	--
26 Jun 12	No particular observation	--	--	--	--	--

The summary of ecological inspection prepared by the Ecologist, Dr. Mark Shea is shown in Table 6.2.

Date	Observations	Advice from Ecologist	Action Taken	Closing Date
4 June 2012	No Major findings for this inspection	No Advice is required	No Action is required to be taken	N/A

11 June 2012	No Major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
18 June 2012	No Major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
25 June 2012	No Major findings for this inspection	No Advice is required	No Action is required to be taken	N/A
30 June 2012	No Major findings for this inspection	No Advice is required	No Action is required to be taken	N/A

6.2 Non-compliance

There was no non-compliance events recorded in this reporting month.

6.3 Recommendations

Contractor was reminded that all the measures stated in the Environmental Permit should be followed. Contractor was advised that excavation work shall be carried out in sections and in enclosed dewatered condition. Dewatering of the excavation area should be carried out prior to excavation work. All site water shall be well de-silted and treated before discharge. Regular checking and maintenance on the de-silting facilities should be provided to ensure sufficient capacity for treating the site water. Also, sufficient temporary earth bunds and barriers should be used to entirely enclose the excavation area and exposed slope surface should be covered (e.g. by tarpaulin sheet) to prevent river contamination. Contractor was reminded that discharge of contaminated water is an environmental offence and should be prohibited.

Contractor should also implement necessary measures to mitigate air quality impact from construction works. Earthy stockpiles should be covered with tarpaulin coverings and dusty static area should be dampened regularly for dust suppression.

In order to minimize the noise impact to the noise sensitive receivers, Contractor was reminded to implement proper mitigation measures as stated in Environmental Permit and EM&A Manual, i.e. erecting 2m high noise barriers at locations stated in Environmental Permit, orientating noisy plants away from the nearby NSRs, using movable barriers and acoustic mat, etc.

6.4 Implementation status and effectiveness of the mitigation measures

Referring to the table 6.1 and Section 6.2, contractor was seriously recommended to implement necessary mitigation measures to address environmental problem arisen from site activities.

7.0 Waste management status

It is the contractor's responsibility to ensure that all wastes produced during construction phase for the drainage improvement works are handled, stored and disposed in accordance with good waste management practices and EPD's regulation and requirement. Waste materials generated during construction activities such as construction and demolition (C&D) material, chemical wastes and general refuse, are recommended to be audited at regular intervals to ensure that proper storage, transportation and disposal practices are being implemented. Table 7.1 is the Waste Disposal recorded by the Contractor in this month.

From the report of Contractor, non-inert waste was sent to the North East New Territories (NENT) Landfill. Chemical waste were first collected by a black plastic bag with labeling (collection point, chemical name, producer's name), then placed into the Chemical Storing Area for temporary storage. A licensed collector was appointed for the collection and disposal of the chemical waste. All chemical waste was transported to the Chemical Waste Treatment Centre (CWTC). The following table showed the amount of waste generation, reused and disposed from this project site in this reporting month.

The following table showed amount of waste generation, reused and disposed from this project site in this reporting month.

Table 7.1 Summary of Waste generated and disposed in June 2012

Type of waste	Amount generated	Amount reused	Amount disposed
Inert waste	0	0	0
Non-inert waste	30 kg	0	30 kg
Chemical waste	0	N/A	0

The cumulative waste flow table is shown in Appendix H.

8.0 Status of environmental licensing and permit

This project requires different permits and licenses to be run legally. Table 8.1 is the summary of permits/ licenses for this project.

Table 8.1 Summary of Environmental Licensing and Permit Status

Description	License / Permit No.	Date of Issue	Date of Expiry	Remarks
Environmental Permit	EP-223/2005	31 st Aug, 2005	N/A	Superseded by EP-223/2005/A
Amended Environmental Permit	EP-223/2005/A	18 th Nov, 2008	N/A	Issued
Construction Noise Permit	N/A	N/A	N/A	N/A
Effluent Discharge License	3678	14 th Mar, 2008	31 st Mar, 2013	Issued
Registration as a Chemical Waste Producer	5213-724-C3251-03	19 th Dec, 2007	Not applicable	Issued
Billing Account for Disposal of Construction Waste	7006101	N/A	N/A	N/A

9.0 Future key issues

Construction of riverbed, gabion walls, dwarf walls, inclined gabion/no-fines mass concrete walls and stilling basin would be carried out in the upcoming month. The construction activities for these items will generate environmental impacts in several aspects.

For the proposed construction activities, heavy plants and vehicles may be occupied and those would generate certain noise impacts to the sensitive receivers. To minimize noise generation, noisy activities should be well planned and scheduled to avoid parallel operation of multiple plants. Erection of noise barriers and/or movable barriers should be implemented whenever necessary.

To minimize water quality impact arising from construction activities within river channel, water quality mitigation measures should be implemented as far as practicable. Any muddy water, underground water or wastewater generated from construction activities should be diverted to proper treatment facility prior to discharge.

Contractor was reminded to provide regular water spraying to dusty static area for dust suppression. Excessive storage of earthy stockpile and/or C&D wastes should be prevented to minimize air quality impact arisen by wind erosion.

As wet season arrived, Contractor was reminded that construction material and equipments should be relocated away from the river channel to prevent blocking the river during rainfall. Stagnant water should be removed to prevent mosquito breeding. Exposed soil stockpile and river bank should be covered to prevent erosion and to minimize siltation during rainfall.

Aforementioned construction works may generate wastes on site. Contractor is advised to assign a site area for temporary waste storage and segregation. Wastes accumulation should be prevented on site; licensed waste collection and disposal should be implemented regularly for hygiene issues.

10.0 Conclusion

Construction of riverbed, gabion walls, retaining walls, inclined gabion/no-fines mass concrete walls and stilling basin, installation of the steel deck for footbridge and ground investigation were the major site activities being carried out in this reporting period.

Regular site meetings and inspection audits led by the seniors for discussing environmental issues were held among project proponent, Contractor and the Environmental Team on weekly basis.

Environmental Team had carried out construction noise monitoring on weekly basis. All results obtained were within limit and therefore no exceedance was recorded in this reporting month.

Piling works has been omitted. Therefore, no vibration monitoring was conducted during the reporting month.

From the summary of ecological site inspection findings and implementation status of environmental protection and mitigation for ecology, prepared by the Ecologist Dr. Mark Shea, there is no abnormal finding observed in the reporting month. The ecologist has no further advice and no action suggested to the contractor.

The next ecological impact monitoring has been arranged on 5th July 2012.

There was no non-compliance events recorded in this reporting month.

There was no formal complaint in relation to environmental issue received in the reporting month.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

Appendix A: Event and action plan for ecology

Event and action plan for ecology

In the event of non-compliance, the Event / Action plan prepared by the ecologist shall be followed. Detailed Event/ Action plan was shown in **Appendix Table 1** for reference.

It is not proposed to set population size of the three species (i.e. Three-lined Chinese Stream Catfish, Predaceous and the Hong Kong Newt) or other faunal species for the Action Level and Limit Level in the revised EM&A manual in considering the following reasons:

- I. The schedule capture surveys would let to decrease in the populations of the target species; and
- II. The planned drainage works would also temporally de-fauna the stream habitat.

It is considered logical and appropriate to audit non-compliance events in relation with ecological mitigation measures, which were specified in the EP and the PS of the project.

APPENDIX TABLE 1 Event / Action plan table for Ecology

Event	Action			
	ET	ER	IEC	Contractor
Non-conformity on one occasion	1. Identify Source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial actions until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures, 4. Advise the Contractor on effectiveness of proposed remedial measures 5. Check implementation of remedial measures	1. Ensure Remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non conformity	1. Identify Source 2. Inform the IEC and the ER 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring	1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ET and the Contractor on possible remedial measures 4. Advise the Contractor on effectiveness of proposed remedial measures 5. Check implementation of remedial measures	1. Ensure Remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake any necessary replacement

Appendix B: Action and limit level for construction noise

The Action and Limit levels for construction noise are defined in **Appendix Table 2**

Appendix Table 2: Action and Limit Levels for Construction Noise

Time Period	Action	Limit
0700 – 1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)*
0700 – 2300hrs on holidays; and 1900 – 2300 hrs on all other days		Subject to the control of Noise Control Ordinance
2300 – 0700 hrs of next day		Subject to the control of Noise Control Ordinance

*Limit level set in accordance with Particular Specification Section 26

Appendix C: Reference standards for vibration

Guidance regarding vibration limits is provided by the following British Standards (or their equivalent ISO standards):

BS 7385 - Measurement and evaluation of vibration in buildings. Part 2: Guide to damage levels from ground borne vibration.

BS 7385 suggests vibration levels, below which damage is unlikely to occur in 95% of buildings. For cosmetic damage, the level is 15 mm/s at 4 Hz, increasing to 20 mm/s at 15 Hz, increasing to 50 mm/s at 40 Hz and above. Minor structural damage is possible at vibration levels twice those given above, major damage at four times the levels given.

Appendix Table 3: Transient vibration guide values for cosmetic building damage (BS7385:Part 2 1993)

	Type of Building	Peak component particle velocity (mm/s) in frequency range of predominant pulse
1	Reinforced or framed structures	50 at 4 Hz and above
2	Un-reinforced or light framed structures	15 at 4 Hz, increasing to 20 at 15 Hz, increasing to 50 at 40 Hz and above.

The vibration magnitudes and frequencies refer to Peak Particle Velocities (PPV) occurring in any single direction, measured on the ground level of the building concerned.

Appendix D: Noise monitoring results, graphical plots and location plan

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	64.7	68.2	57.2	7-Jun-12	13:17-13:47	N/A	- Background noise - Traffic noise	Sunny	Façade
UTP 2	61.3	63.0	51.6	7-Jun-12	12:44-13:14	N/A	- Background noise - Traffic noise	Sunny	Façade
UTP 3	70.0	73.3	59.6	7-Jun-12	13:49-14:19	River sorting	- Background noise	Sunny	Façade
UTP 4	61.2	64.8	53.8	7-Jun-12	14:54-15:24	N/A	- Background noise	Sunny	Façade
UTP 5	62.5	65.9	54.4	7-Jun-12	14:23-14:53	N/A	- Background noise	Sunny	Façade
UTP 6	58.3	56.0	49.7	7-Jun-12	11:32-12:02	N/A	- Background noise	Sunny	Façade
UTP 7	65.2	68.5	53.4	7-Jun-12	11:02-11:32	N/A	- Background noise	Sunny	Façade
UTP 8	68.0	71.0	55.5	7-Jun-12	9:58-10:28	River sorting	- Background noise	Sunny	Façade
UTP 9	59.5	62.2	55.4	7-Jun-12	10:29-10:59	River sorting	- Background noise	Sunny	Façade
UTP 10	60.1	64.4	50.0	7-Jun-12	9:10-9:40	Rock breaking	- Background noise	Sunny	Façade
UTP 11	64.9	68.2	53.7	7-Jun-12	8:39-9:09	Rock breaking	- Background noise	Sunny	*Free field

Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	65.7	66.6	58.2	14-Jun-12	13:35	N/A	- Traffic noise - Background noise	Sunny	Façade
UTP 2	58.3	59.3	48.6	14-Jun-12	13:00	N/A	- Traffic noise - Background noise	Sunny	Façade
UTP 3	70.1	72.4	59.2	14-Jun-12	14:10	Operation of back hoe	- Background noise	Sunny	Façade
UTP 4	54.9	57.9	48.6	14-Jun-12	14:55	Excavation	- Background noise	Sunny	Façade
UTP 5	54.9	55.5	52.0	14-Jun-12	15:30	Excavation	- Background noise	Sunny	Façade
UTP 6	52.9	52.4	49.2	14-Jun-12	11:30	N/A	- Background noise	Sunny	Façade
UTP 7	54.9	56.2	50.1	14-Jun-12	10:55	N/A	- Background noise	Sunny	Façade
UTP 8	72.2	74.6	57.4	14-Jun-12	10:20	Operation of back hoe	- Background noise	Sunny	Façade
UTP 9	64.8	68.3	57.6	14-Jun-12	9:45	Operation of back hoe	- Background noise	Sunny	Façade
UTP 10	60.2	61.3	50.2	14-Jun-12	9:05	N/A	- Background noise	Sunny	Façade
UTP 11	59.3	63.1	48.2	14-Jun-12	8:30	N/A	- Background noise	Sunny	*Free field

Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	66.2	68.3	54.1	21-Jun-12	13:40	N/A	-Traffic noise - Background noise	Sunny	Façade
UTP 2	59.3	62.1	52.3	21-Jun-12	13:05	N/A	-Traffic noise - Background noise	Sunny	Façade
UTP 3	72.3	74.4	60.2	21-Jun-12	14:15	Operation of back hoe	- Background noise	Sunny	Façade
UTP 4	60.1	62.3	54.1	21-Jun-12	14:50	N/A	- Background noise	Sunny	Façade
UTP 5	58.2	59.0	51.1	21-Jun-12	15:25	N/A	- Background noise	Sunny	Façade
UTP 6	57.9	54.3	48.1	21-Jun-12	11:35	Rock Breaking	- Background noise	Sunny	Façade
UTP 7	56.4	56.1	46.4	21-Jun-12	11:00	N/A	- Background noise	Sunny	Façade
UTP 8	72.5	72.8	68.9	21-Jun-12	10:25	Operation of back hoe	- Background noise	Sunny	Façade
UTP 9	61.2	63.4	54.2	21-Jun-12	9:50	Rock Breaking	- Background noise	Sunny	Façade
UTP 10	59.3	61.4	52.1	21-Jun-12	9:05	Rock Breaking	- Background noise	Sunny	Façade
UTP 11	61.9	63.2	52.4	21-Jun-12	8:30	N/A	- Background noise	Sunny	*Free field

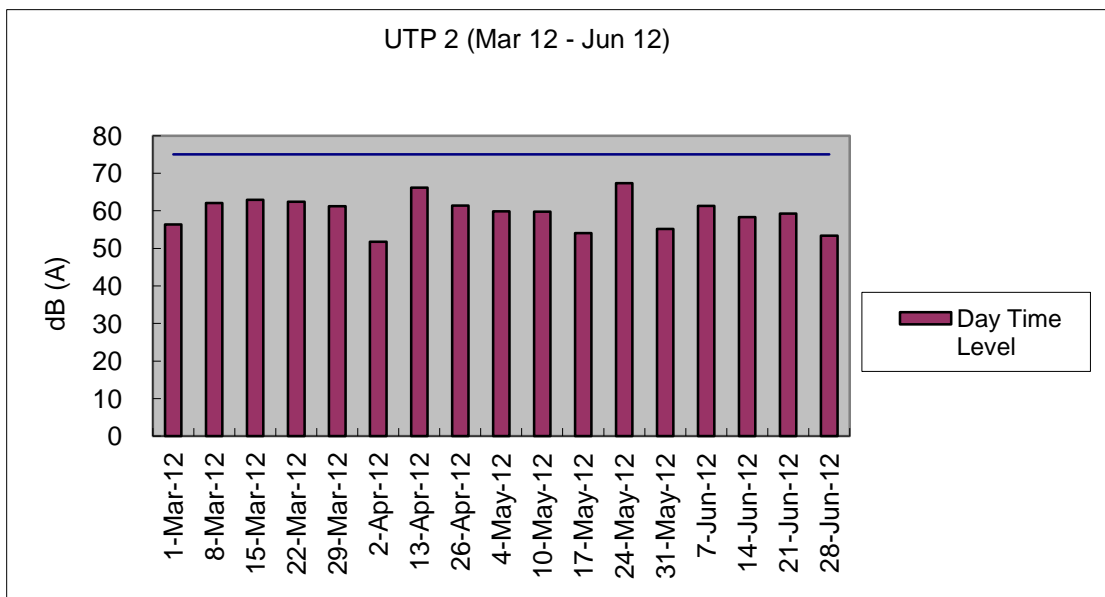
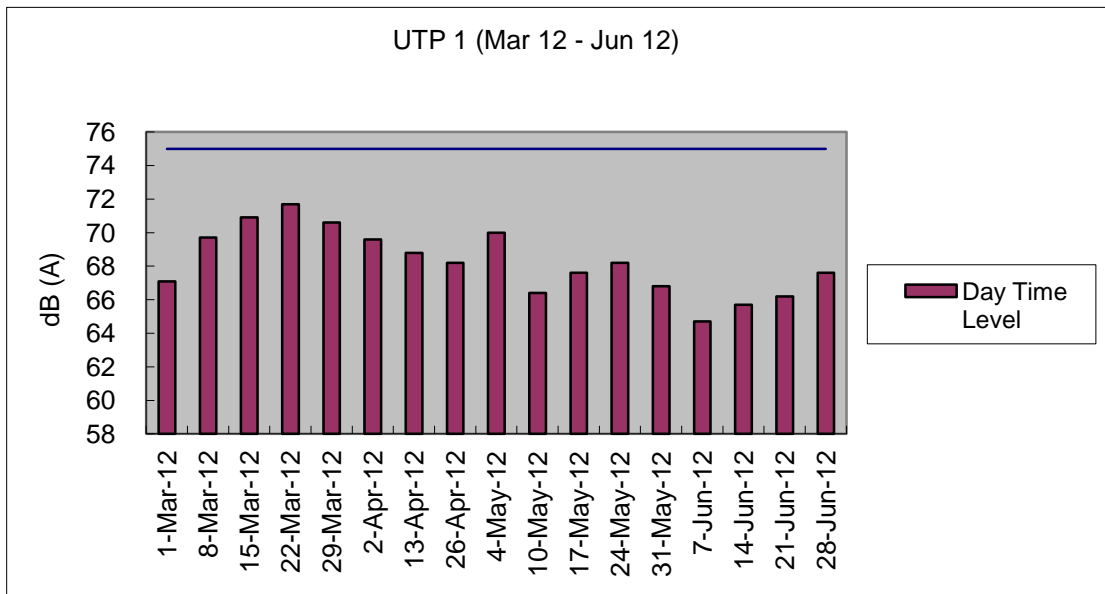
Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

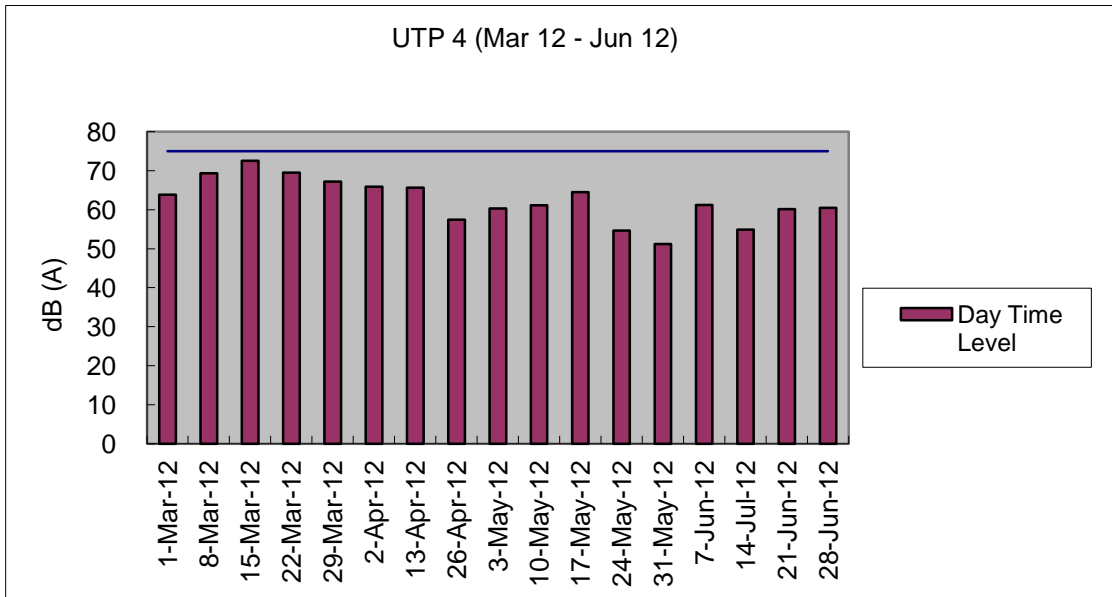
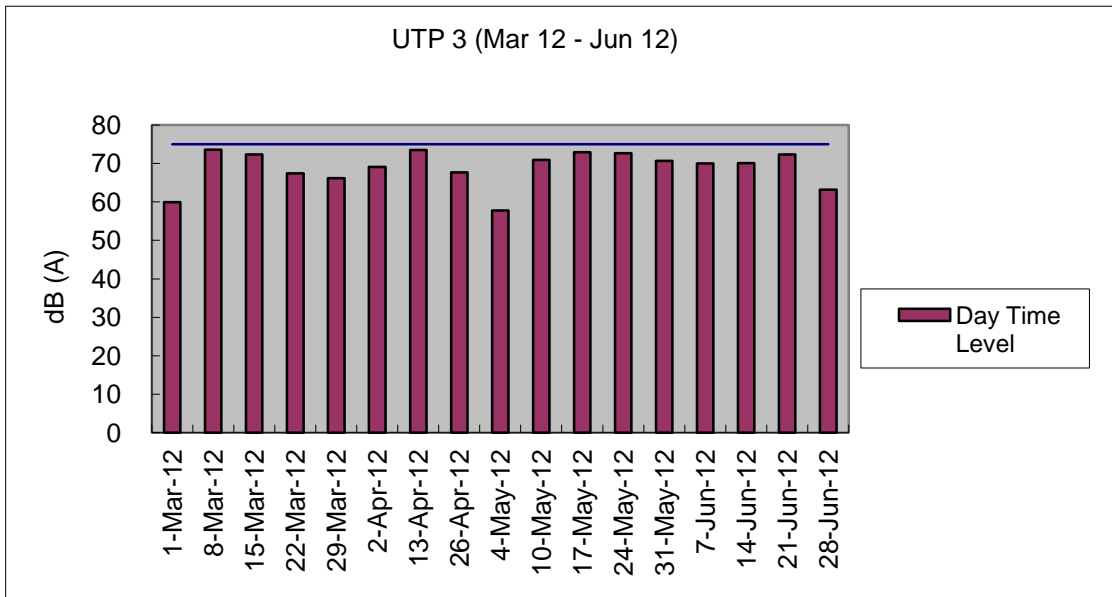
Location	Leq 30min	L ₁₀ 30min	L ₉₀ 30min	Date	Time Duration	Major Construction Noise	Other Noise source	Weather	Location description
UTP 1	67.6	69.9	60.3	28-Jun-12	15:25-15:55	N/A	-Traffic noise - Background noise	Sunny	Façade
UTP 2	53.4	55.9	51.2	28-Jun-12	14:50-15:20	N/A	-Traffic noise - Background noise	Sunny	Façade
UTP 3	63.2	65.4	55.2	28-Jun-12	14:10-14:40	N/A	- Background noise	Sunny	Façade
UTP 4	60.5	65.1	57.7	28-Jun-12	13:00-13:30	N/A	- Background noise	Sunny	Façade
UTP 5	68.4	69.8	56.8	28-Jun-12	13:30-14:00	N/A	- Background noise	Sunny	Façade
UTP 6	64.1	66.6	59.4	28-Jun-12	11:20-11:50	N/A	- Background noise	Sunny	Façade
UTP 7	65.4	67.2	56.9	28-Jun-12	10:50-11:20	N/A	- Background noise	Sunny	Façade
UTP 8	61.2	63.9	54.7	28-Jun-12	10:15-10:45	N/A	- Background noise	Sunny	Façade
UTP 9	69.7	71.3	58.3	28-Jun-12	9:45-10:15	N/A	- Background noise	Sunny	Façade
UTP 10	63.7	66.8	59.4	28-Jun-12	9:00-9:30	N/A	- Background noise	Sunny	Façade
UTP 11	61.9	62.8	53.4	28-Jun-12	8:30-9:00	N/A	- Background noise	Sunny	*Free field

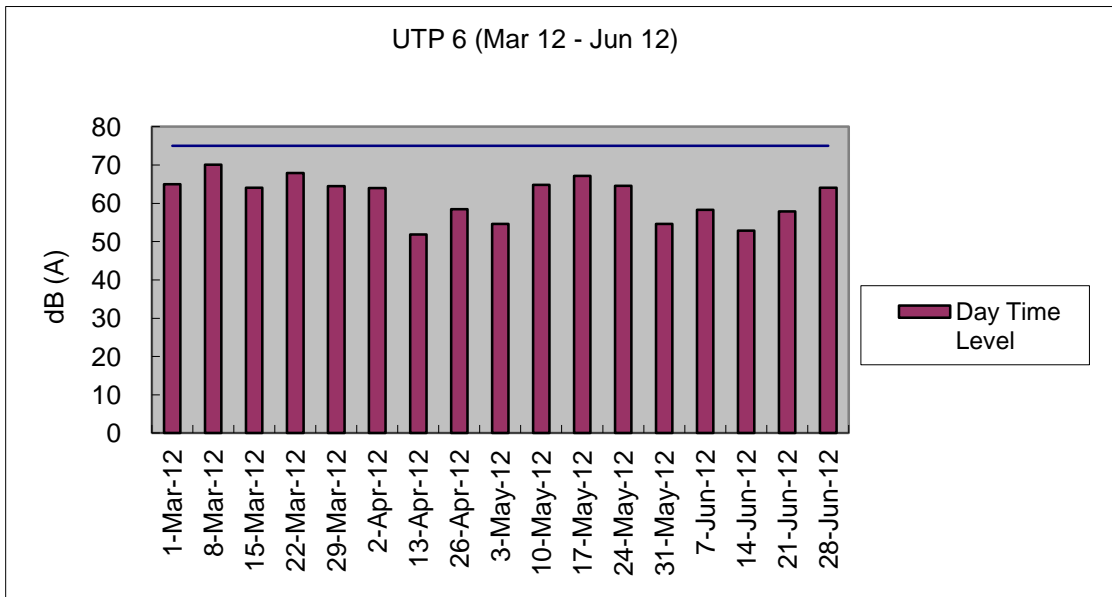
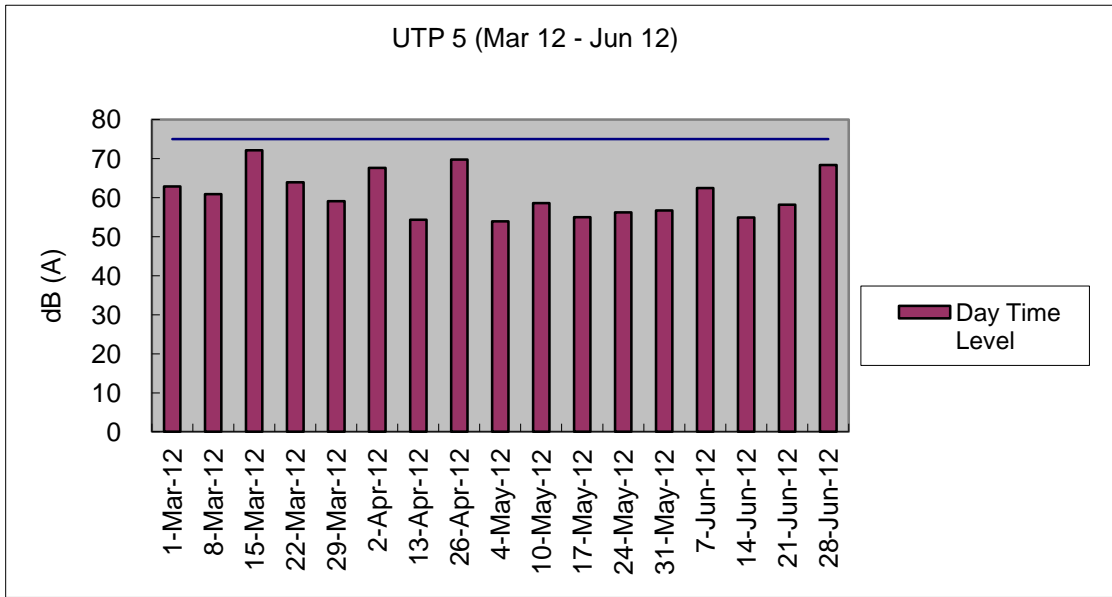
Note* An Additional of 3dB(A) had been added to the measurement result due to Free Field Correction

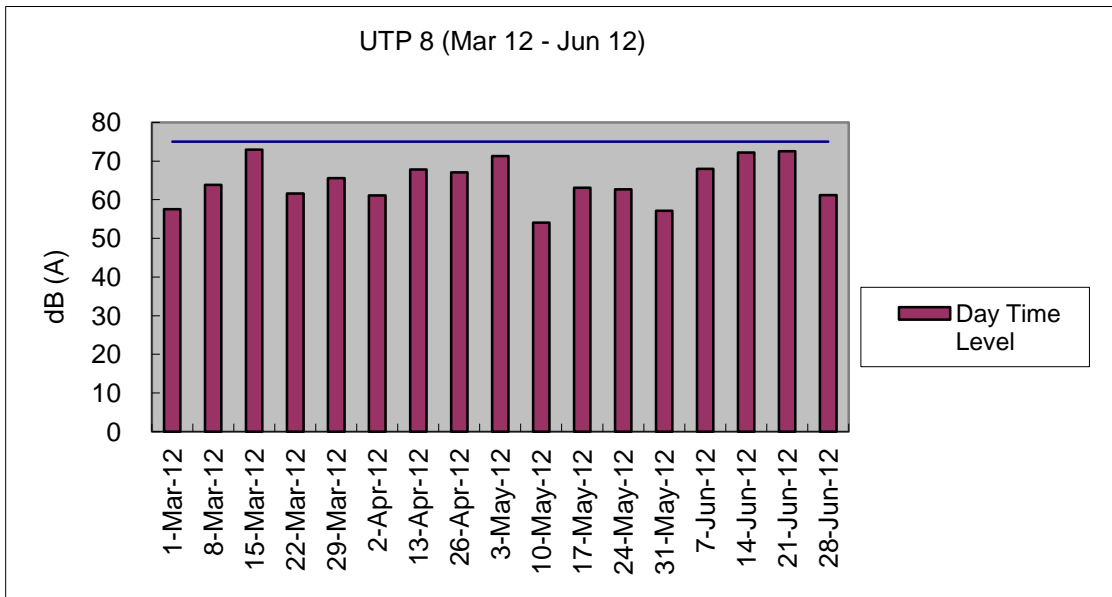
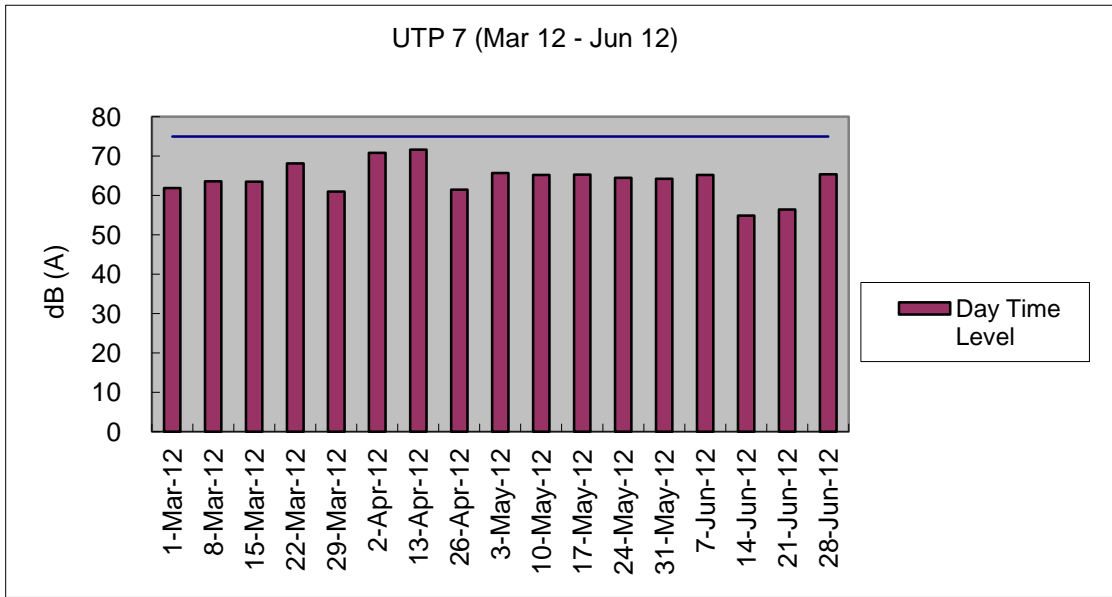
Graphical plot for noise measurements

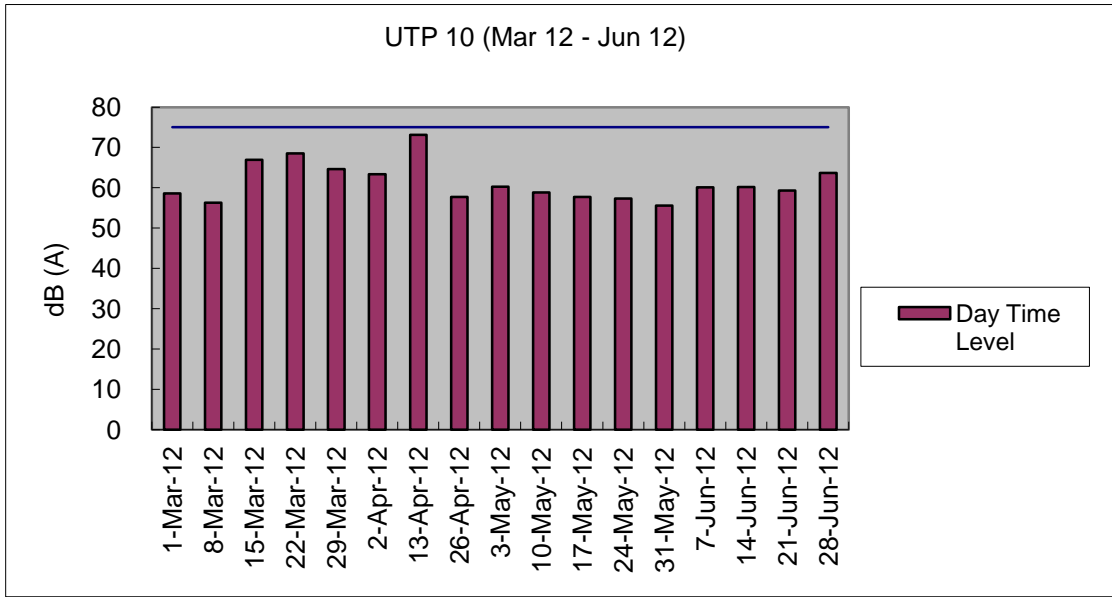
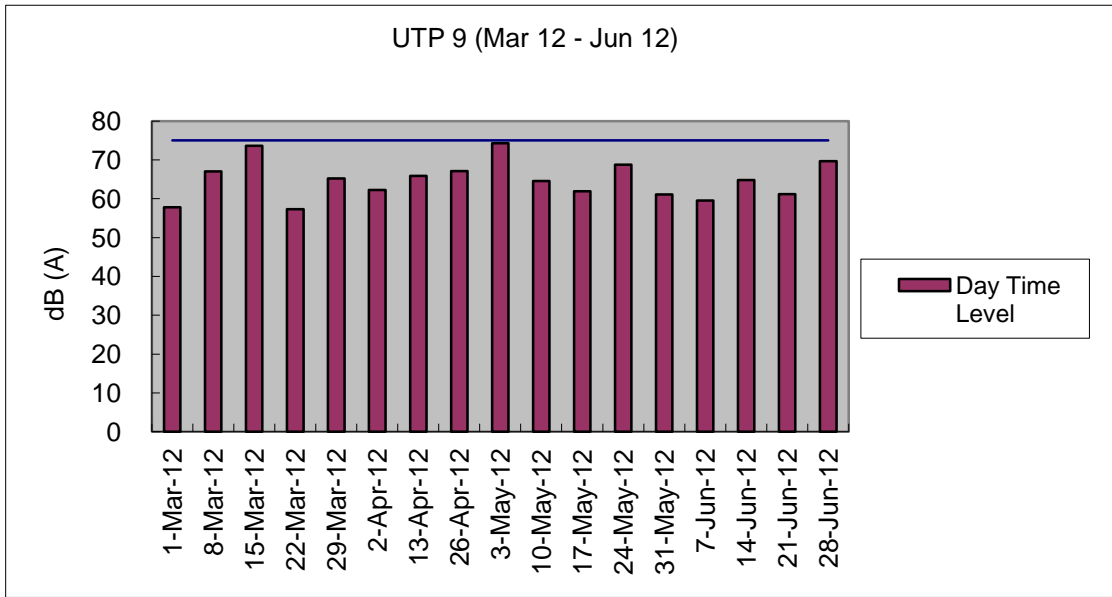
The followings were the graphical plots for the 11 monitoring locations. Each plot showed the date of measurement taken, day time limit of 75 dB(A) as well as the measured daytime level for each location. The graphs contain the data recorded from March 2012 to June 2012.

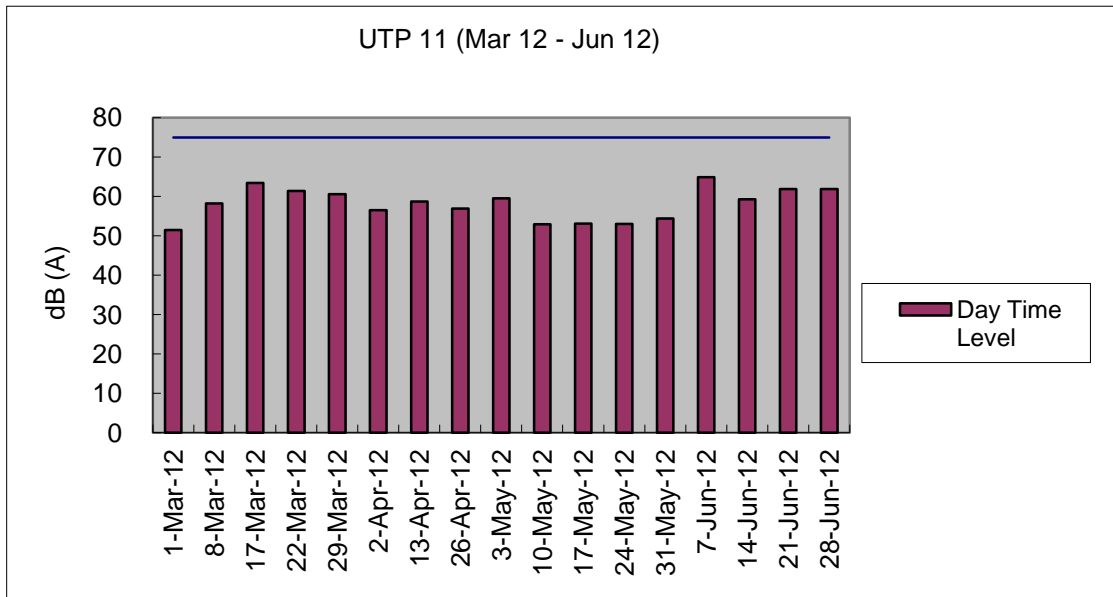


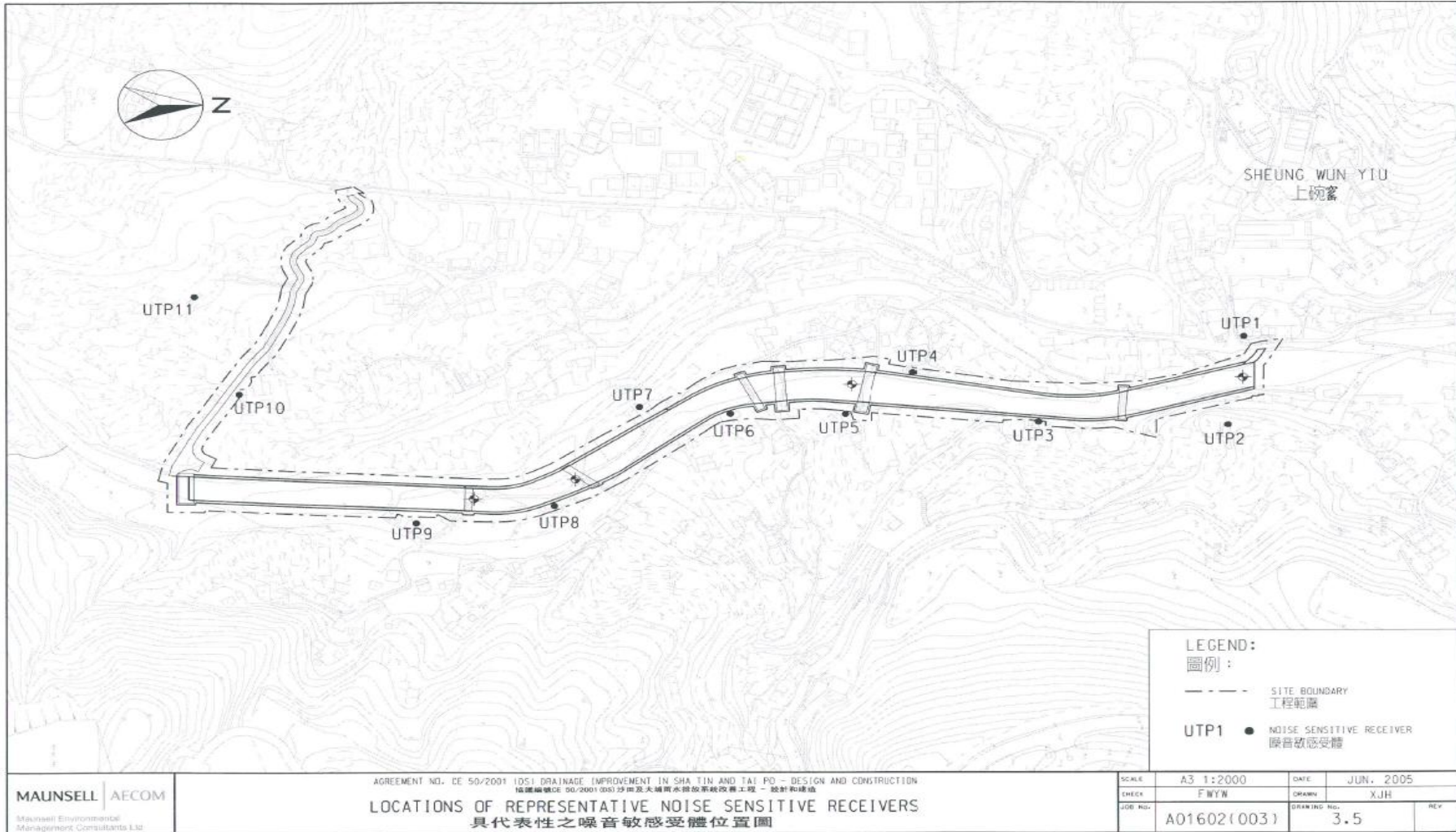












Appendix E: Monitoring schedule for the present and next reporting period

Master Schedule of EM&A works in June 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01/06	02/06
03/06	04/06	05/06	06/06	07/06	08/06	09/06
	Ecological site inspection		Site inspection at afternoon	Noise Monitoring		
10/6	11/06	12/06	13/06	14/06	15/06	16/06
	Ecological site inspection and		Site inspection at afternoon	Noise Monitoring		
17/06	18/06	19/06	20/06	21/06	22/06	23/06
	Ecological site inspection		Site inspection at afternoon	Noise Monitoring		
24/06	25/06	26/06	27/06	28/06	29/06	30/06
	Ecological site inspection	Site inspection & SSEM at afternoon		Noise Monitoring		Ecological site inspection

Master Schedule of EM&A works in July 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01/07	02/07	03/07	04/07	05/07	06/07	07/07
		Ecological site inspection		Site inspection at afternoon, Noise Monitoring & Ecological Impact Monitoring		
08/07	09/07	10/07	11/07	12/07	13/07	14/07
	Ecological site inspection		Site inspection at afternoon	Noise Monitoring		
15/07	16/07	17/07	18/07	19/07	20/07	21/07
	Ecological site inspection and		Site inspection at afternoon	Noise Monitoring		
22/07	23/07	24/07	25/07	26/07	27/07	28/07
	Ecological site inspection	Site inspection & SSEMC at afternoon		Noise Monitoring		
29/07	30/07	31/07				
	Ecological site inspection					

Appendix F: Cumulative complaint log

Environmental Parameters	Cumulative no. Brought forward	No. of complaint June 2012	Overall Total
Air/Dust	7	0	7
Noise	5	0	5
Water	11	0	11
House Keeping Hygiene	1	0	1
Chemical waste	0	0	0
Total	24	0	24

Appendix G: Implementation status of environmental protection and mitigation measures

Implementation status of environmental protection and mitigation

Environmental Aspect	Protection / Mitigation Measures	Implementation status	Follow-up action
Construction Noise	No percussive piling shall be carried out	Implemented	Not required
	-Use well maintained construction plant	Implemented	Not required
	-Shut down plants between work periods	Implemented	Not required
	-Install silencers on construction equipment	Implemented	Not required
	-Locate mobile plant far away from NSRs	Implemented	Not required
	-Quiet plants should be used	Implemented	Not required
	-2m high temporary noise barriers, as stipulated in EP condition 2.9, shall be installed	Deficient	Ongoing
Fugitive Dust Emission	-Implement regular watering and vehicle washing facilities	Implemented	Not required
	-Cover excavated or stockpile of dusty material by impervious sheeting or sprayed with water	Implemented	Not required
	-Use tarpaulin to cover dusty materials on vehicles	Implemented	Not required
Water Quality	Excavation works within the Tai Po River within the Project shall be carried out in stages and excavation area for each stage shall be limited to section of half width of the channel and less than 100m long at any one time in order to maintain water flow within the river during construction stage	Implemented	Not required
	Land-based plant shall be employed and site run-off shall be directed towards regularly cleaned and maintained silt traps and oil / grease separators to minimize leakage and loss of sediments during excavation	Deficient	Ongoing
	Large boulders removed from the Tai Po River within the Project during excavation shall be re-instated upon completion of works A section of 150m long natural riverbank on the western side of the river channel (Ch0 –Ch150) shall be retained	Implemented	Not required
	The excavation area shall be enclosed with bunds or barriers and dewatered prior to excavation to minimize the impacts upon the downstream of the Tai Po River	Implemented	Not required
	Provide silt trap and oil interceptor to remove the oil, lubricants, grease,	Implemented	Not required

	silt, grit and debris from the wastewater before pumped to the public storm water drainage system		
	Provide site toilet facilities	Implemented	Not required
Waste Management	Reuse excavated material as far as possible	Implemented	Not required
	Recycle scrap metals or abandoned equipment	Implemented	Not required
	Adopt a trip ticket system for the disposal of C&D materials	Implemented	Not required
	All general refuse should be segregated and stored in enclosed bins or compaction units	Deficient	Ongoing
Vibration	Percussive piling is to be replaced by bore-hole piling to minimize vibration impacts to the two identified Declared monuments	Not applicable at this stage	Not required
	Carrying out of vibration monitoring to ensure that vibration associated with the construction phase do not exceed the threshold limit otherwise contractor have to review the work method and construction activities have to be slow down or rescheduled to reduce the impacts	Not applicable at this stage	Not required
	Close monitoring and measurement on the cracks of the external wall of Fan Sin Temple during construction works will be carried out. Any changes on the cracks will be recorded for the contractor to slow down the construction activities accordingly; and to review the work methods and equipments immediately	Not Applicable at this stage	Not required

Implementation status of environmental protection and mitigation for ecology,
 prepared by the Ecologist, Dr. Mark Shea.

Environmental Aspect	Protection / Mitigation Measures	Implementation status	Follow-up action
Ecology	Large boulders will be returned to the riverbed following the excavation works.	Not applicable	Not required
	Construction works from Ch. 0.0m – Ch. 150m would be along one side of the river only	Not applicable	Not required
	Approximately 150m of the existing natural riverbank on the western side of the river would be retained.	Implemented	Not required
	Excavation works within the river channel should be restricted to an enclosed dewater section of the river, and would be limited to sections 50-100m long at any one time.	Implemented	Not required
	Flows to the area downstream shall be maintained at all times during the construction phase	Implemented	Not required
	Capture survey shall be conducted within the Tai Po River before commencement of works. The captured target species shall be relocated to areas of the watercourse upstream of the watercourse upstream of the Tai Po River	Capture surveys had been conducted at the beginning of the Contract, during the wet season July/August 2008 and 4 th November 2008	Not required
	Temporary noise barriers should be constructed to control noise impacts to habitats and associated wildlife within and adjacent to the proposed works area	Implemented	Not required
	Excavation works shall be carried out by land based plant within enclosed dry section of river channel.	Implemented	Not required
	Compensatory planting of trees and other vegetation along the banks of the newly improved drainage channel should be provided to compensate for the loss of riparian vegetation.	Not applicable	Not required
	Operation phase activities in the improved drainage channel would be limited to periodic channel maintenance such as de-silting.	Not applicable	Not required

Appendix H: Cumulative waste flow tableCumulative waste flow table showing amount of wastes generated, reused and disposed since 15th September 2008

Type of waste	Inert Waste			Non-Inert Waste			Chemical Waste	
	Amount generated	Amount reused	Amount disposed	Amount generated	Amount reused	Amount disposed	Amount generated	Amount disposed*
Year 2008 to 2009	36.9 m ³	0	36.9 m ³	2.000 tonnes	0	2.000 tonnes	20kg	20kg
Year 2010	1955 m ³	1955m ³	0	0.192 tonnes	0	0.192 tonnes	0	0
Year 2011	5505 m ³	5490 m ³	51.9 m ³	0.376 tonnes	0	0.376 tonnes	3kg	3kg
January 2012	1920 m ³	1920 m ³	0	0.030 tonnes	0	0.030 tonnes	2kg	2kg
February 2012	2110 m ³	2110 m ³	0	0.020 tonnes	0	0.020 tonnes	1kg	1kg
March 2012	1401 m ³	1401 m ³	0	0.030 tonnes	0	0.030 tonnes	0	0
April 2012	710 m ³	575 m ³	135 m ³	0.030 tonnes	0	0.030 tonnes	0	0
May 2012	162 m ³	162 m ³	0	0.035 tonnes	0	0.035 tonnes	0	0
June 2012	0	0	0	0.030 tonnes	0	0.030 tonnes	0	0
Total	13799.9 m³	13613 m³	223.8 m³	2.743 tonnes	0	2.743 tonnes	26kg	26kg

Remark*: Chemical wastes generated from the project sites including Upper Tai Po River, Lam Tsuen River and She Shan River were centralized for disposal

Appendix I: Construction programme (Rev. No. 19)

識別碼	任務名稱	工期	開始時間	完成時間	2010年		2011年		2012年		2013年				
					H2	H1	H2	H1	H2	H1	H2	H1			
1	Programme of Upper Tai Po River	750 工作日	5/1/2010	19/11/2012	[Gantt bar spanning from 5/1/2010 to 19/11/2012]										
2	Wet Season of 2010	214 工作日	5/1/2010	31/10/2010	[Patterned bar from 5/1/2010 to 31/10/2010]										
3	Wet Season of 2011	149 工作日	8/3/2011	30/9/2011	[Patterned bar from 8/3/2011 to 30/9/2011]										
4	Works Suspended Due to Villager's Rally	42 工作日	21/10/2010	18/12/2010	[Patterned bar from 21/10/2010 to 18/12/2010]										
5	Ch 230-350	446 工作日	28/1/2011	12/10/2012	[Gantt bar from 28/1/2011 to 12/10/2012]										
6	Gabion Wall (Ch 230-275 RHS) TG1/TG1A (Completed)	40 工作日	28/1/2011	24/3/2011	[Gantt bar from 28/1/2011 to 24/3/2011]										
10	Retaining Wall (Ch 275-330 RHS) TR1 (replaced by AD1) (Completed)	154 工作日	17/3/2011	18/10/2011	[Gantt bar from 17/3/2011 to 18/10/2011]										
17	Drainage & Footpath (CH 275-330 RHS)	21 工作日	6/8/2012	3/9/2012	[Gantt bar from 6/8/2012 to 3/9/2012]										
18	Construction of drainage & footpath	21 工作日	6/8/2012	3/9/2012	[Gantt bar from 6/8/2012 to 3/9/2012]										
19	Inclined Gabion Wall (Ch 290-327 LHS)	109 工作日	3/1/2012	1/6/2012	[Gantt bar from 3/1/2012 to 1/6/2012]										
20	Remove Concrete Blocks and shotcrete (Completed)	30 工作日	3/1/2012	13/2/2012	[Gantt bar from 3/1/2012 to 13/2/2012]										
21	Concreting (Completed)	50 工作日	6/2/2012	13/4/2012	[Gantt bar from 6/2/2012 to 13/4/2012]										
22	No-fine	60 工作日	5/3/2012	25/5/2012	[Gantt bar from 5/3/2012 to 25/5/2012]										
23	Gabion	5 工作日	28/5/2012	1/6/2012	[Gantt bar from 28/5/2012 to 1/6/2012]										
24	Maintenance Staircase (Ch 315 LHS) (Completed)	4 工作日	22/5/2012	25/5/2012	[Gantt bar from 22/5/2012 to 25/5/2012]										
26	Drainage & Footpath (Ch 270-330 LHS)	30 工作日	6/6/2011	15/7/2011	[Gantt bar from 6/6/2011 to 15/7/2011]										
27	Construction of drainage & footpath	30 工作日	6/6/2011	15/7/2011	[Gantt bar from 6/6/2011 to 15/7/2011]										
28															
29	Temp Utility and Pedestrian Diversion at Ch230 (Completed)	192 工作日	21/7/2011	13/4/2012	[Gantt bar from 21/7/2011 to 13/4/2012]										
32															
33	Demolition of Interim Footbridge at Ch230 (Completed)	17 工作日	3/10/2011	25/10/2011	[Gantt bar from 3/10/2011 to 25/10/2011]										
36															
37	Inclined Gabion Wall (Ch 218-240 LHS)	129 工作日	3/1/2012	29/6/2012	[Gantt bar from 3/1/2012 to 29/6/2012]										
38	Remove Shotcrete & concrete block (Completed)	30 工作日	3/1/2012	13/2/2012	[Gantt bar from 3/1/2012 to 13/2/2012]										
39	Concreting	25 工作日	14/5/2012	15/6/2012	[Gantt bar from 14/5/2012 to 15/6/2012]										
40	No-fine	3 工作日	22/6/2012	26/6/2012	[Gantt bar from 22/6/2012 to 26/6/2012]										
41	Gabion	3 工作日	27/6/2012	29/6/2012	[Gantt bar from 27/6/2012 to 29/6/2012]										
42	Maintenance Staircase (Ch 242 LHS)	4 工作日	18/6/2012	21/6/2012	[Gantt bar from 18/6/2012 to 21/6/2012]										
43	Formwork and concreting	4 工作日	18/6/2012	21/6/2012	[Gantt bar from 18/6/2012 to 21/6/2012]										
44	Inclined Gabion Wall (Ch 240-272 LHS)	129 工作日	3/1/2012	29/6/2012	[Gantt bar from 3/1/2012 to 29/6/2012]										
45	Remove Concrete Blocks and shotcrete (Completed)	30 工作日	3/1/2012	13/2/2012	[Gantt bar from 3/1/2012 to 13/2/2012]										
46	Concreting (Completed)	30 工作日	12/3/2012	20/4/2012	[Gantt bar from 12/3/2012 to 20/4/2012]										
47	No-fine	3 工作日	22/6/2012	26/6/2012	[Gantt bar from 22/6/2012 to 26/6/2012]										
48	Gabion	3 工作日	27/6/2012	29/6/2012	[Gantt bar from 27/6/2012 to 29/6/2012]										
49	Inclined RC Wall and Step 2A (Ch 272-290 LHS)	51 工作日	9/4/2012	18/6/2012	[Gantt bar from 9/4/2012 to 18/6/2012]										
50	Concreting (Base)	10 工作日	9/4/2012	20/4/2012	[Gantt bar from 9/4/2012 to 20/4/2012]										
51	Concreting (Ramp)	7 工作日	11/5/2012	21/5/2012	[Gantt bar from 11/5/2012 to 21/5/2012]										
52	Concreting (Slab)	5 工作日	22/5/2012	28/5/2012	[Gantt bar from 22/5/2012 to 28/5/2012]										
53	Concreting (Wall Stem and Step 2A with stilling basin)	15 工作日	29/5/2012	18/6/2012	[Gantt bar from 29/5/2012 to 18/6/2012]										
54	Drainage & Footpath (Ch 230-270 LHS)	20 工作日	16/7/2012	10/8/2012	[Gantt bar from 16/7/2012 to 10/8/2012]										
55	Construction of drainage & footpath	20 工作日	16/7/2012	10/8/2012	[Gantt bar from 16/7/2012 to 10/8/2012]										
56	Step 2(Ch 236)	10 工作日	19/6/2012	2/7/2012	[Gantt bar from 19/6/2012 to 2/7/2012]										
57	Stilling Basin	5 工作日	19/6/2012	25/6/2012	[Gantt bar from 19/6/2012 to 25/6/2012]										

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專案: Master Programme TPR 11 May
日期: 22/5/2012

任務 進度 摘要 外部任務 期限
 分割 里程碑 專案摘要報告 外部里程碑

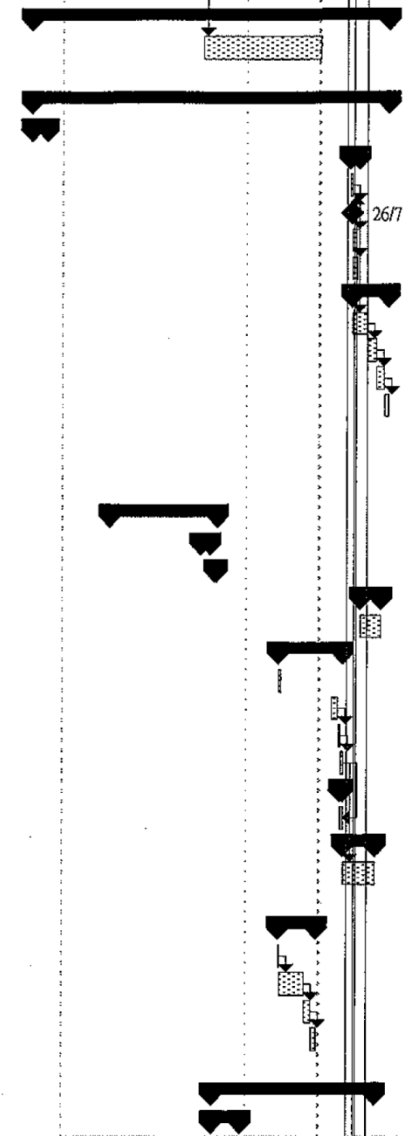
專案: N
日期: 2

識別碼	任務名稱	工期	開始時間	完成時間	2010年		2011年		2012年		2013年	
					H2	H1	H2	H1	H2	H1	H2	H1
58	Ramp and Slab	5 工作日	26/6/2012	2/7/2012								
59	Cascade (Ch 275) (Completed)	21 工作日	28/6/2012	26/7/2012								
62	Lighting at CH 250-320	45 工作日	13/8/2012	12/10/2012								
63	Construction of Drawpits / Ductings	21 工作日	13/8/2012	10/9/2012								
64	Public lighting Installation (CE2318)	12 工作日	11/9/2012	26/9/2012								
65	Public lighting Installation (CE2317)	12 工作日	11/9/2012	26/9/2012								
66	T&C	6 工作日	27/9/2012	4/10/2012								
67	Removal of existing lighting (VA1311-Z1)	6 工作日	5/10/2012	12/10/2012								
68												
69	Footbridge TB04 (Ch 330)	181 工作日	12/10/2011	20/6/2012								
70	Construction of Abutment A (LHS) (Completed)	22 工作日	7/12/2011	5/1/2012								
78	Construction of Abutment B (RHS) (Completed)	24 工作日	12/10/2011	14/11/2011								
87	Construction of decking (steel deck) (Completed)	16 工作日	11/5/2012	1/6/2012								
91	Demolition of Bridge TB-A (Completed)	17 工作日	17/5/2012	8/6/2012								
94	Lighting at Footbridge TB04	11 工作日	6/6/2012	20/6/2012								
95	Construction of Drawpits / Ductings	7 工作日	6/6/2012	14/6/2012								
96	Public lighting Installation (CE2315)	3 工作日	15/6/2012	19/6/2012								
97	Public lighting Installation (CE2316)	3 工作日	15/6/2012	19/6/2012								
98	T&C	1 工作日	20/6/2012	20/6/2012								
99	Construction of Gabion Wall at TB-A (Completed)	5 工作日	11/6/2012	15/6/2012								
103												
104	Footbridge TB05 (ch 350)	353 工作日	10/3/2011	16/7/2012								
105	Construction of Abutment A (LHS) (Completed)	20 工作日	22/5/2012	18/6/2012								
113	Construction of Abutment B (RHS) (Completed)	19 工作日	10/3/2011	5/4/2011								
121	Construction of decking (Completed)	37 工作日	11/5/2012	2/7/2012								
126	Demolition of Bridge TB-B (Completed)	17 工作日	17/5/2012	8/6/2012								
129	Lighting at Footbridge TB05	10 工作日	3/7/2012	16/7/2012								
130	Construction of Drawpits / Ductings	6 工作日	3/7/2012	10/7/2012								
131	Public lighting Installation (CE2313)	3 工作日	11/7/2012	13/7/2012								
132	Public lighting Installation (CE2314)	3 工作日	11/7/2012	13/7/2012								
133	T&C	1 工作日	16/7/2012	16/7/2012								
134	Construction of Gabion Wall at TB-B (Completed)	5 工作日	11/6/2012	15/6/2012								
138												
139												
140	Inclined Gabion Wall (Ch 327-448 LHS) (Completed)	13 工作日	11/5/2012	29/5/2012								
145	Drainage & Footpath (Ch 330-400 LHS)	30 工作日	18/7/2011	26/8/2011								
146	Construction of drainage & footpath	30 工作日	18/7/2011	26/8/2011								
147	Gabion Wall (Ch 330-345 RHS) TG2 (Completed)	16 工作日	15/11/2011	6/12/2011								
151	Drainage & Footpath (Ch 400-450 LHS)	20 工作日	29/8/2011	23/9/2011								
152	Construction of drainage & footpath	20 工作日	29/8/2011	23/9/2011								
153												
154	Step 3 (Ch327)	12 工作日	14/5/2012	29/5/2012								
155	Stilling Basin	7 工作日	14/5/2012	22/5/2012								

專案: Master Programme TPR 11 May
日期: 22/5/2012

任務 進度 摘要 外部任務 期限
 分割 里程碑 專案摘要報告 外部里程碑

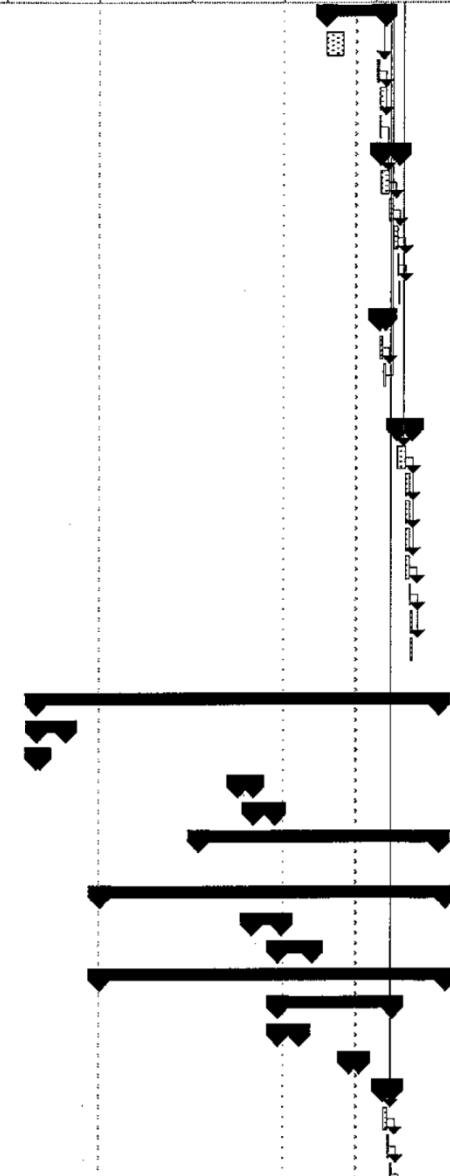
識別碼	任務名稱	工期	開始時間	完成時間	2010年		2011年		2012年		2013年
					H2	H1	H2	H1	H2	H1	H2
156	Ramp and Slab	5 工作日	23/5/2012	29/5/2012							
157											
158	Ch 45-100	505 工作日	1/11/2010	5/10/2012							
159	Additional Boulder Trap	166 工作日	7/10/2011	25/5/2012							
160											
161	Footbridge TB02 (Ch 150)	505 工作日	1/11/2010	5/10/2012							
162	Construction of Abutment A (LHS)	23 工作日	1/11/2010	1/12/2010							
170	Construction of decking	14 工作日	23/7/2012	9/8/2012							
171	Erection of steel deck+ conc deck	4 工作日	23/7/2012	26/7/2012							
172	XXConcreting	0 工作日	26/7/2012	26/7/2012							
173	Deck finishing	10 工作日	27/7/2012	9/8/2012							
174	Railing installation	7 工作日	27/7/2012	6/8/2012							
175	Lighting at Footbridge TB02	51 工作日	27/7/2012	5/10/2012							
176	Construction of Drawpits / Ductings	21 工作日	27/7/2012	24/8/2012							
177	Public lighting Installation (CE2308)	12 工作日	27/8/2012	11/9/2012							
178	Public lighting Installation (CE2309)	12 工作日	12/9/2012	27/9/2012							
179	Removal of existing lighting (VA2642-A1)	6 工作日	28/9/2012	5/10/2012							
180											
181											
182											
183	Gabion Wall (Ch 150-178 LHS) TG3A	154 工作日	5/4/2011	4/11/2011							
187	Gabion Wall (Ch 178-230 LHS) TG5A/TG2	15 工作日	3/10/2011	21/10/2011							
190	Maintenance Staircase (Ch 178 LHS)	4 工作日	31/10/2011	3/11/2011							
192	Drainage & Footpath (Ch 150-Ch230 LHS)	30 工作日	13/8/2012	21/9/2012							
193	Drainage & Footpath	30 工作日	13/8/2012	21/9/2012							
194	Inclined Gabion Wal (Ch 110-130 RHS)	91 工作日	5/3/2012	9/7/2012							
195	Remove shotcrete (Completed)	5 工作日	5/3/2012	9/3/2012							
196	Concreting	10 工作日	18/6/2012	29/6/2012							
197	No-fine	3 工作日	2/7/2012	4/7/2012							
198	Gabion	3 工作日	5/7/2012	9/7/2012							
199	Maintenance Staircase (Ch 130 RHS)	4 工作日	4/7/2012	9/7/2012							
200	Formwork and concreting	4 工作日	4/7/2012	9/7/2012							
201	Drainage & Footpath (Ch 0-150 RHS)	45 工作日	10/7/2012	10/9/2012							
202	Construction of drainage & footpath	45 工作日	10/7/2012	10/9/2012							
203											
204	Inclined Gabion Wall (Ch 130-220 RHS)	55 工作日	5/3/2012	18/5/2012							
205	Remove Shotcrete (Completed)	2 工作日	5/3/2012	6/3/2012							
206	Concreting (Completed)	35 工作日	7/3/2012	24/4/2012							
207	No-fine (Completed)	10 工作日	25/4/2012	8/5/2012							
208	Gabion	8 工作日	9/5/2012	18/5/2012							
209											
210	Footbridge TB03 (Ch 200)	229 工作日	26/10/2011	10/9/2012							
211	Construction of Abutment B (RHS)	41 工作日	26/10/2011	21/12/2011							



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					H2	H1	H2	H1	H2	H1	H2	H1
219	Construction of Decking (TB03)	85 工作日	26/3/2012	20/7/2012								
220	Modification of LHS table top	25 工作日	26/3/2012	27/4/2012								
221	Erection of steel deck+ conc deck	4 工作日	3/7/2012	6/7/2012								
222	Deck finishing	10 工作日	9/7/2012	20/7/2012								
223	Railing installation	2 工作日	9/7/2012	10/7/2012								
224	Lighting at Footbridge TB03	27 工作日	11/7/2012	16/8/2012								
225	Construction of Drawpits / Ductings	12 工作日	11/7/2012	26/7/2012								
226	Public lighting Installation (CE2321)	6 工作日	27/7/2012	3/8/2012								
227	Public lighting Installation (CE2322)	6 工作日	6/8/2012	13/8/2012								
228	T&C	1 工作日	14/8/2012	14/8/2012								
229	Removal of existing lighting (VA1309-Z1)	2 工作日	15/8/2012	16/8/2012								
230	Step 1 (Ch 178)	10 工作日	9/7/2012	20/7/2012								
231	Stilling Basin	5 工作日	9/7/2012	13/7/2012								
232	Ramp and Slab	5 工作日	16/7/2012	20/7/2012								
233												
234	Lighting CH 175-250	21 工作日	13/8/2012	10/9/2012								
235	Construction of Drawpits / Ductings	12 工作日	13/8/2012	28/8/2012								
236	Public lighting Installation (CE2319)	6 工作日	29/8/2012	5/9/2012								
237	Public lighting Installation (CE2320)	6 工作日	29/8/2012	5/9/2012								
238	Public lighting Installation (CE2323)	6 工作日	29/8/2012	5/9/2012								
239	Public lighting Installation (CE2324)	6 工作日	29/8/2012	5/9/2012								
240	T&C	1 工作日	6/9/2012	6/9/2012								
241	Removal of existing lighting (VE2641-A1)	2 工作日	7/9/2012	10/9/2012								
242	Removal of existing lighting (VA1310-A1)	2 工作日	7/9/2012	10/9/2012								
243												
244	Ch -23-45 (Completed)	570 工作日	30/8/2010	2/11/2012								
245	Retaining Wall at Access D (Boulder Trap)	41 工作日	1/9/2010	27/10/2010								
265	Filling Work at Boulder Trap (RHS of downstream)	6 工作日	30/8/2010	6/9/2010								
267	Dwarf Wall (Ch 60-75) RHS	23 工作日	3/10/2011	2/11/2011								
276	Box Culvert 03 (Ch 45) (Completed)	31 工作日	3/11/2011	15/12/2011								
287	Retaining Wall at Access D (Boulder Trap)	340 工作日	18/7/2011	2/11/2012								
319												
320	Ch 350-450	489 工作日	3/1/2011	15/11/2012								
321	Gabion Wall (Ch 350-400 LHS) TR1 (AD) (Completed)	43 工作日	31/10/2011	28/12/2011								
326	Gabion Wall (Ch 400-450 LHS) TR1 (AD) (Completed)	48 工作日	22/12/2011	27/2/2012								
331	TB06	489 工作日	3/1/2011	15/11/2012								
332	Footbridge TB06 (Ch 400)	162 工作日	22/12/2011	3/8/2012								
333	Construction of Abutment A (LHS)	30 工作日	22/12/2011	1/2/2012								
342	Construction of decking	14 工作日	11/5/2012	30/5/2012								
347	Lighting at Footbridge TB06	14 工作日	17/7/2012	3/8/2012								
348	Construction of Drawpits / Ductings	6 工作日	17/7/2012	24/7/2012								
349	Public lighting Installation (CE2311)	3 工作日	25/7/2012	27/7/2012								
350	Public lighting Installation (CE2310)	3 工作日	30/7/2012	1/8/2012								



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					H2	H1	H2	H1	H2	H1	H2
351	T&C	2 工作日	2/8/2012	3/8/2012							
352	Demolition of Bridge TB-C	4 工作日	31/5/2012	5/6/2012							
355	Consturction of Gabion Wall at TB-C	35 工作日	6/6/2012	24/7/2012							
359											
360	Gabion Wall (Ch 400-450 RHS) TR1 (replaced by AD1)	30 工作日	3/1/2011	11/2/2011							
364	Step 4	20 工作日	11/5/2012	7/6/2012							
365	Basin	5 工作日	11/5/2012	17/5/2012							
366	Ramp and Slab	5 工作日	18/5/2012	24/5/2012							
367	Step 5	10 工作日	25/5/2012	7/6/2012							
368	Basin	5 工作日	25/5/2012	31/5/2012							
369	Ramp and Slab	5 工作日	1/6/2012	7/6/2012							
370											
371	Box Culvert TB01 (Ch 450) (Completed)	40 工作日	10/3/2011	4/5/2011							
381											
382	Drainage & Footpath (Ch330-450) RHS	30 工作日	4/9/2012	15/10/2012							
383	Drainage & Footpath	30 工作日	4/9/2012	15/10/2012							
384											
385	Lighting at CH 350-380	23 工作日	16/10/2012	15/11/2012							
386	Construction of Drawpits / Ductings	14 工作日	16/10/2012	2/11/2012							
387	Public lighting Installation (CE2312)	7 工作日	5/11/2012	13/11/2012							
388	T&C	2 工作日	14/11/2012	15/11/2012							
389											
390	Ch 450-525	424 工作日	16/3/2011	29/10/2012							
391	Retaining Wall (ch 450-500) TR2 (RHS)	48 工作日	3/10/2011	7/12/2011							
434	Retaining Wall (ch 450-500) TR2 (LHS)	54 工作日	29/11/2011	10/2/2012							
483											
484	Drainage & Footpath (Ch 450-490 RHS)	20 工作日	15/6/2012	12/7/2012							
485	Construction of drainage & footpath and wall stem 2nd portion	20 工作日	15/6/2012	12/7/2012							
486	Retaining Wall (Ch 500-530) TR3 (RHS)	338 工作日	16/3/2011	29/6/2012							
487	Base Slab Construction Bay 1 (RHS)	28 工作日	16/3/2011	22/4/2011							
492	Wall Stem Construction Bay 1 (RHS)	10 工作日	25/4/2011	6/5/2011							
497	Base Slab Construction Bay 1 (RHS)	10 工作日	4/6/2012	15/6/2012							
498	Excavation and Formation	5 工作日	4/6/2012	8/6/2012							
499	Formwork and rebar fixing	3 工作日	11/6/2012	13/6/2012							
500	Concreting	1 工作日	14/6/2012	14/6/2012							
501	Stripping off formwork	1 工作日	15/6/2012	15/6/2012							
502	Wall Stem Construction Bay 2 (RHS)	10 工作日	18/6/2012	29/6/2012							
507											
508	Cascades (Ch 500 LHS)	28 工作日	3/10/2011	9/11/2011							
514											
515	Retaining Wall (Ch 500-530) TR3 (LHS)	54 工作日	9/11/2011	23/1/2012							
538											
539	Drainage & Footpath (Ch 490-525 RHS)	10 工作日	16/10/2012	29/10/2012							

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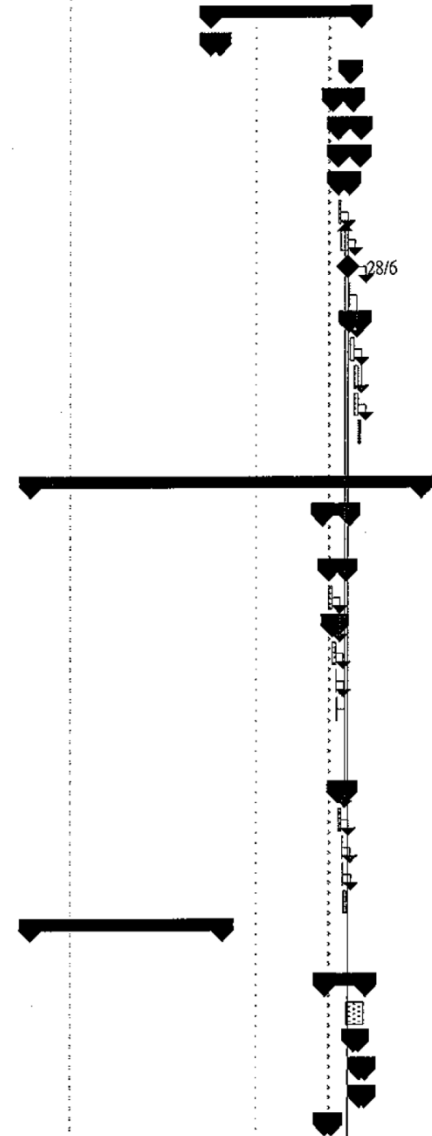


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					H2	H1	H2	H1	H2	H1	H2
540	Construction of drainage & footpath	10 工作日	16/10/2012	29/10/2012							
541											
542	Footbridge TB07 (Ch 525)	213 工作日	3/10/2011	25/7/2012							
543	Temporary Pedestrian Division	14 工作日	3/10/2011	20/10/2011							
545	Demolition of existing Footbridge TB-D (Ch 525)	3 工作日	3/7/2012	5/7/2012							
547	Construction of Abutment A	28 工作日	31/5/2012	9/7/2012							
556	Construction of Abutment B	33 工作日	11/6/2012	25/7/2012							
565	Footbridge TB07 (Ch 525)	31 工作日	11/6/2012	23/7/2012							
566	Construction of decking	16 工作日	11/6/2012	2/7/2012							
567	Erection of steel deck+ conc deck	4 工作日	11/6/2012	14/6/2012							
568	Deck finishing	10 工作日	15/6/2012	28/6/2012							
569	NA	0 工作日	28/6/2012	28/6/2012							
570	Railing installation	2 工作日	29/6/2012	2/7/2012							
571	Footbridge TB07 Lighting	15 工作日	3/7/2012	23/7/2012							
572	Construction of Drawpits / Ducting	7 工作日	3/7/2012	11/7/2012							
573	Public lighting installation (CE2328)	6 工作日	12/7/2012	19/7/2012							
574	Public lighting installation (CE2329)	6 工作日	12/7/2012	19/7/2012							
575	T&C	2 工作日	20/7/2012	23/7/2012							
576											
577	Ch 525-615	547 工作日	15/10/2010	19/11/2012							
578	Retaining Wall (Ch 535-546) TR4 (LHS)	37 工作日	11/5/2012	2/7/2012							
598											
599	Retaining Wall (Ch 535-546) TR4 (RHS)	25 工作日	23/5/2012	26/6/2012							
600	Excavation and Formation	5 工作日	23/5/2012	29/5/2012							
601	Base Slab Construction Bay 1+2 (RHS)	8 工作日	30/5/2012	8/6/2012							
602	Formwork and rebar fixing (with DWF)	5 工作日	30/5/2012	5/6/2012							
603	Concreting	1 工作日	6/6/2012	6/6/2012							
604	Stripping off formwork	2 工作日	7/6/2012	8/6/2012							
605	Wall Stem Construction Bay 1 (RHS) del	0 工作日	8/6/2012	8/6/2012							
610	Base Slab Construction Bay 2 (RHS) del	0 工作日	8/6/2012	8/6/2012							
614	Wall Stem Construction Bay 1+2 (RHS)	12 工作日	11/6/2012	26/6/2012							
615	Formwork and rebar fixing	5 工作日	11/6/2012	15/6/2012							
616	Concreting	1 工作日	18/6/2012	18/6/2012							
617	Stripping off formwork	2 工作日	19/6/2012	20/6/2012							
618	Backfill	4 工作日	21/6/2012	26/6/2012							
619	Retaining Wall TR5 Ch (546-596 RHS) TR5 (AD)	269 工作日	15/10/2010	26/10/2011							
627											
628	Retaining Wall TR5A CH546-585 LHS	58 工作日	16/5/2012	3/8/2012							
629	River diversion, Excavation and Formation	24 工作日	27/6/2012	30/7/2012							
630	Base Slab Construction TR5A Bay 1 LHS	8 工作日	11/7/2012	20/7/2012							
634	Wall Stem Construction TR5A Bay 1 LHS	9 工作日	23/7/2012	2/8/2012							
639	Base Slab Construction TR5A Bay 2 LHS	8 工作日	23/7/2012	1/8/2012							
643	Wall Stem Construction TR5A Bay 2 LHS	9 工作日	16/5/2012	28/5/2012							












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					H2	H1	H2	H1	H2	H1	H1
644	Formwork and rebar fixing	4 工作日	16/5/2012	21/5/2012							
645	Concreting	1 工作日	22/5/2012	22/5/2012							
646	Stripping off formwork	1 工作日	23/5/2012	23/5/2012							
647	Backfill	3 工作日	24/5/2012	28/5/2012							
648	Base Slab Construction TR5A Bay 3 LHS	8 工作日	11/7/2012	20/7/2012							
652	Wall Stem Construction TR5A Bay 3 LHS	10 工作日	23/7/2012	3/8/2012							
657											
658	Box Culvert TB02 (ch 580)	39 工作日	24/1/2012	16/3/2012							
668											
669	Retaining Wall TR5A & TR6 CH585-595 LHS	50 工作日	7/2/2012	16/4/2012							
670	River/Haul Road Diverison (to TR3 and TR5 RHS)	3 工作日	7/2/2012	9/2/2012							
671	Excavation and Blinding	14 工作日	10/2/2012	29/2/2012							
672	Base Slab Construction TR6 Bay 1 LHS	10 工作日	1/3/2012	14/3/2012							
676	Wall Stem Construction TR6 Bay 1 LHS	10 工作日	15/3/2012	28/3/2012							
681	Base Slab Construction TR5A Bay 4 LHS	8 工作日	14/3/2012	23/3/2012							
685	Wall Stem Construction TR5A Bay 4 LHS	10 工作日	26/3/2012	6/4/2012							
690	Base Slab Construction TR5A Bay 5 LHS	8 工作日	22/3/2012	2/4/2012							
694	Wall Stem Construction TR5A Bay 5 LHS	10 工作日	3/4/2012	16/4/2012							
699											
700	Retaining Wall (ch 595-615) TR3 (Bay 3)	36 工作日	3/10/2011	21/11/2011							
715	Concrete Slab (Ch546 - Ch596) LHS	27 工作日	15/6/2012	23/7/2012							
716	Bay 1	11 工作日	15/6/2012	29/6/2012							
717	Excavation/Blinding	3 工作日	15/6/2012	19/6/2012							
718	Formwork and rebar fixing for DWF	4 工作日	20/6/2012	25/6/2012							
719	Concreting of DWF	1 工作日	26/6/2012	26/6/2012							
720	Formwork and rebar fixing for slab	4 工作日	22/6/2012	27/6/2012							
721	Concreting of slab	1 工作日	28/6/2012	28/6/2012							
722	Stripping off formwork	1 工作日	29/6/2012	29/6/2012							
723	Bay 2	12 工作日	20/6/2012	5/7/2012							
724	Excavation/Blinding	2 工作日	20/6/2012	21/6/2012							
725	Formwork and rebar fixing for DWF	4 工作日	26/6/2012	29/6/2012							
726	Concreting of DWF	1 工作日	2/7/2012	2/7/2012							
727	Formwork and rebar fixing for slab	4 工作日	28/6/2012	3/7/2012							
728	Concreting of slab	1 工作日	4/7/2012	4/7/2012							
729	Stripping off formwork	1 工作日	5/7/2012	5/7/2012							
730	Bay 3	14 工作日	22/6/2012	11/7/2012							
731	Excavation/Blinding	2 工作日	22/6/2012	25/6/2012							
732	Formwork and rebar fixing for DWF	4 工作日	29/6/2012	4/7/2012							
733	Concreting of DWF	1 工作日	5/7/2012	5/7/2012							
734	Formwork and rebar fixing for slab	4 工作日	4/7/2012	9/7/2012							
735	Concreting of slab	1 工作日	10/7/2012	10/7/2012							
736	Stripping off formwork	1 工作日	11/7/2012	11/7/2012							
737	Bay 4	16 工作日	26/6/2012	17/7/2012							

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					H2	H1	H2	H1	H2	H1	H2	H1
738	Excavation/Blinding	2 工作日	26/6/2012	27/6/2012								
739	Formwork and rebar fixing for DWF	4 工作日	5/7/2012	10/7/2012								
740	Concreting of DWF	1 工作日	11/7/2012	11/7/2012								
741	Formwork and rebar fixing for slab	4 工作日	10/7/2012	13/7/2012								
742	Concreting of slab	1 工作日	16/7/2012	16/7/2012								
743	Stripping off formwork	1 工作日	17/7/2012	17/7/2012								
744	Bay 5	18 工作日	28/6/2012	23/7/2012								
751												
752	Drainage and Footpath (Ch525-615 LHS & RHS)	15 工作日	16/10/2012	5/11/2012								
753	Construction of footpath & drainage works	15 工作日	16/10/2012	5/11/2012								
754	Lighting at CH 550-610	10 工作日	6/11/2012	19/11/2012								
755	Construction of Drawpits / Ducting	6 工作日	6/11/2012	13/11/2012								
756	Public lighting Installation (CE2325)	2 工作日	14/11/2012	15/11/2012								
757	Public lighting Installation (CE2326)	2 工作日	14/11/2012	15/11/2012								
758	Public lighting Installation (CE2327)	2 工作日	14/11/2012	15/11/2012								
759	T&C	1 工作日	16/11/2012	16/11/2012								
760	Removal of existing lighting (CE1600-B2)	1 工作日	19/11/2012	19/11/2012								

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