Drainage Service Department

Monthly Environmental Monitoring & Auditing report for

Contract No.DC/2009/22 Drainage Improvement in Shuen Wan, Tai Po – Contract 1

December 2011

Environmental Pioneers & Solutions Limited
Flat A, 19/F, Chaiwan Industrial Building,
20 Lee Chung Street, Chai Wan, Hong Kong
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Contract No. DC/2009/22 - Drainage Improvement in Shuen Wan, Tai Po - Contract 1 Monthly EM&A Report for December 2011

APPROVAL SHEET

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EXECUTIVE SUMMARY

This is the tenth monthly Environmental Monitoring and Audit (EM&A) Report for the drainage improvement works in Shuen Wan, Tai Po under Drainage Services Department Contract No. DC/2009/22 entitled "Drainage Improvement Works in Shuen Wan, Tai Po – Contract 1". This report concludes the impact monitoring for the activities undertaken during the period from 1^{st} of December 2011 to 31^{st} December 2011. The major site activities in this reporting period were mainly pumping station construction, Concreting works for pumping station, excavation works at Ting Kok Road and for proposed intake structure and plant maintenance.

The Environmental Team (ET) is responsible for the EM&A works required in the EM&A manual (revision 3). 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.

In general, waste management was satisfactory during the reporting period.

Impact monitoring for construction noise was conducted in the reporting period. No exceedance of A/L level was reported.

Furthermore, impact monitoring for water quality was conducted. Total 8 abnormal incidents of water quality criteria were recorded in this reporting month. No particular observation of defective site activities were found causing water contamination and such conditions were believed to be mainly attributed by natural fluctuation. However, Excavation works from other construction site was observed on 15th, 17th & 24th December 2011 and were found causing water contamination and such conditions were believed to be mainly attributed by the other construction work.

No exceedance of A/L level was reported for the monitoring of hydrological characteristics in the reporting period.

The ecological monitoring of the Ecological Compensatory Area (ECA) of the
project is conducted. Details of the findings are referred to sections 6.2.Environmental Pioneers and Solutions LimitedP.v

Visual and landscape monitoring has been conducted for the project. Details of the observations are referred to sections 7.3.

There was no complaint, notification of any summons and successful prosecutions against the project received during the reporting period.

Site works proposed to be carried out in the upcoming month at Area A, B & C are refer to section 2.2.

It is expected that noise, air and water quality impacts will be resulted from the works. ET has reminded the contractor to provide environmental pollution control measures wherever necessary and to keep a good environmental management at site practice. The recommended mitigation measures proposed for the project as well as implementation status are refer to section 12.3.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual (revision 3) and Environmental Permit requirement.

1 Introduction

This is the tenth monthly Environmental Monitoring and Audit (EM&A) Report for the drainage improvement works in Shuen Wan, Tai Po under Drainage Services Department Contract No. DC/2009/22 entitled "Drainage Improvement Works in Shuen Wan, Tai Po – Contract 1". The site layout plan is shown in Appendix A. The Environmental Team, Environmental Pioneers & Solutions Limited appointed by Kwan Lee – Kuly Joint Venture, 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 conducted within the reporting period from 1st December 2011 to 31st December 2011. This included the noise monitoring, water quality monitoring, hydrological characteristics monitoring, ecological monitoring, visual and landscape monitoring, and regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the Environmental Permit (EP-303/2008) (EP), EM&A Manual (revision 3) and the Contractor's Environmental Management Plan (EMP).

2 Construction Stage

2.1 Construction activities in the reporting period

Major activities in the reporting period included the followings:

Area A – Construction for Proposed Stromwater Pumping Station.

Area A – Erection formwork and falsework for wall for the Proposed Stormwater Pumping Station.

Area A – Concreting wall for the Proposed Stormwater Pumping Station.

Area A – Open trench excavation and pipes laying for DN2100 along Ting Kok Road.

Area A - Road reinstatement for Ting Kok Road.

Area A - Hoarding erection along the site boundary at Wai Ha River

Area A – Temporary flow diversion for the proposed penstock structure at Wai Ha River.

Area A – Installation of sheetpile for the proposed intake structure near mouth of Wai Ha River.

Area A – Excavation for the proposed intake structure.

Area B – Backfilling of trench for bay 7A.

Area B – Installation of sheetpile for bay 7

Area B – Excavation for bay 7

Area C – In Maintenance Period

2.2 Construction activities for the coming month

Proposed key construction works in the coming month will include:

Area A (Pumping Station)

- 1. Backfilling the gap between sheetpile and the proposed Stormwater Pumping Station wall up to +1.35mPD.
- 2. Erection formwork and falsework for the proposed Stormwater Pumping Station up to +5.15mPD ground floor slab.
- 3. Steel reinforcement bars fixing for the proposed Stormwater Pumping Station up to +5.15mPD ground floor slab.
- 4. Construction for flow meter chamber.

- 5. Installation sheetpile for DN1200 drain & transformer room.
- 6. Construction ground beam for the proposed transformer room.
- 7. Construction discharge chamber for the proposed Stormwater Pumping Station.
- 8. Installation of multi-part cover and backfilling for desilting chamber.
- 9. Construction of DN2100 along Ting Kok Road.
- 10. Construction of intake structure and Penstock.

Area B (Tung Tsz Nursery)

- 1. Excavation for the construction of box culvert in Tung Tsz Nursery
- 2. Construction of box culvert bay 7 and 6
- 3. Backfilling for bay 7 and 6

Area C (HCA)

1. In Maintenance Period

2.3 Environmental Status

Appendix A shows the drawing of the project area.

Locations of the monitoring and control stations with environmental sensitive receivers are presented in Section 3.3, 4.3, and 5.3 for noise, water quality, and hydrological characteristics respectively.

3 Noise Monitoring

3.1 Monitoring Parameters and Methodology

The construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq (30minutes)}$ was used as the monitoring parameter for the impact monitoring in the time period between 0700 to 1900 hours on normal weekdays. For all other time period, $L_{eq (5minutes)}$ was employed for comparison with the Noise Control Ordinance (NCO) criteria.

Noise measurement results obtained from each monitoring location were recorded in the Construction Noise Monitoring Data Sheet (Appendix D) immediately after the measurement. As supplementary information for data auditing, statistical results L_{10} and L_{90} were also be recorded for reference.

In case of non-compliance with the construction noise criteria, more frequent monitoring, as specified in the Action plan in Table 3.5.2, shall be carried out. This additional monitoring shall be carried out until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

3.2 Monitoring Equipment

The sound level meters and calibrators comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum (TM) to the Noise Control Ordinance was deployed as monitoring equipment for noise measurement.

Noise measurement was not be made in the presence of fog, rain, wind with a steady speed exceeding 5ms⁻¹ or wind with gust exceeding 10ms⁻¹. Thus wind speed was checked by the portable wind speed indicator capable of measuring the wind speed in m/s. Table 3.2.1 summarizes the equipment list for noise monitoring

Table 3.2.1 Equipment List for Noise Monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty
Integrated sound level meter	Svantek 949	IEC 651 Type 1 IEC 804 Type 1	2
Windscreen	Microtech gefell model W2	N/A	1
Acoustical calibrator	Svantek SV30A	IEC 942 Type 1	1
Wind speed indicator	Kestrel K1000	N/A	1
Remarks: Calibration	details of the sound level meter is give	n in Appendix C for reference	i

3.3 Monitoring Locations

According to the Environmental Monitoring and Audit manual, impact noise monitoring for contract 1 was undertaken at two locations during the construction phase of the project. The proposed monitoring locations are summarized in Table 3.3.1. Figure 3.3.1 shows the Noise Monitoring Locations

Noise measurement at each monitoring location was taken at a point 1m from the exterior of the selected premises and at a height of 1.2m above ground with no disturbance to the dweller and least obstructed view.

Noise Monitoring Station	Location
M1	14, Shuen Wan Chim Uk
AL1	Joint Village Office for Villages in Shuen Wan, Tai Po

Table 3.3.1 Noise Monitoring Locations during Construction Phase

In accordance with the requirements in the EM&A manual (revision 3), weekly impact monitoring was conducted. For the time period between 0700 and 1900 hours on normal weekdays, and noise parameter of $L_{eq (30minutes)}$ was measured. As if the construction works were carried out during restricted period (i.e. 1900-2300, 2300-0700 of next day and Sundays / general holiday), impact monitoring that comprises 3 consecutive $L_{eq (5minutes)}$ would be carried out.

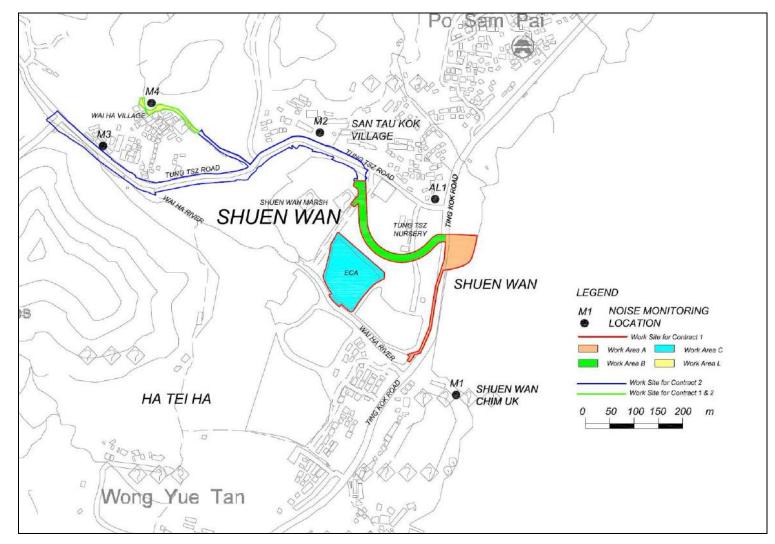


Figure 3.3.1 Impact noise monitoring locations

3.4 Monitoring Results and Interpretation

Relevant details of the noise monitoring results are presented in Table 3.4.1. The results of M1, ranged between 47.5dB (A) and 53.2dB (A), and AL1, ranged between 53.5dB (A) and 58.0dB (A), were within the limit levels and therefore, no exceedance was found.

	Table 3.4.1	Noise Monit	oring Res	sults for th	e reportin	g period	
Location	Parameter	Date*	Time	L _{Aeq} dB(A)	Limit dB(A)	Exceedance	Weather
M1	Leq 30mins	1-Dec-11	14:00	50.5	75	Ν	Sunny
M1	Leq 30mins	8-Dec-11	12:33	49.3	75	Ν	Cloudy
M1	Leq 30mins	15-Dec-11	11:33	47.5	75	Ν	Sunny
M1	Leq 30mins	22- Dec-11	13:04	53.2	75	Ν	Sunny
M1	Leq 30mins	29-Dec-11	12:07	47.8	75	Ν	Sunny
AL1	Leq 30mins	1-Dec-11	14:40	55.1	75	Ν	Cloudy
AL1	Leq 30mins	8-Dec-11	13:06	53.5	75	Ν	Cloudy
AL1	Leq 30mins	15-Dec-11	12:05	53.8	75	Ν	Sunny
AL1	Leq 30mins	22- Dec-11	13:41	58.0	75	Ν	Sunny
AL1	L _{eq 30mins}	29-Dec-11	11:33	57.7	75	Ν	Sunny

Remarks: Raw datasheet for noise monitoring are attached in Appendix D for reference.

3.5 Action and Limit level for Construction noise

The Action and Limit (A/L) levels for construction noise are defined in Table 3.5.1. Should non-compliance of the criteria occur, action in accordance with the Action Plan in Table 3.5.2 should be carried out.

There was no exceedance recorded in the reporting period.

Time Period	Action Level	Limit Level
0700 – 1900 hours on	When one documented	75dB(A)
normal weekdays	complaint is received	/Jub(A)

Table 3.5.1 Action and Limit Levels for Construction noise

3.6 Monitoring Schedule for the next reporting period

Noise monitoring schedule is proposed to be carried out on 5^{th} , 12^{th} and 19^{th} of January 2012.

As informed by contractor, the construction site will be closed during lunar new year (from 26^{th} to 30^{th} January); therefore the monitoring will be stopped from 26^{th} to 30^{th} January and started at 31^{st} January.

EVENT	ET Leader	IEC	ER	CONTRACTOR
Action Level	Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC, ER and Contractor. 4. Discuss with the Contractor and	analysed results submitted by the ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly	 Confirm receipt of notification of failure in writing. Notify Contractor. Require Contractor to propose remedial measures for the analysed noise problem; Check remedial measures are properly implemented. 	 Submit noise mitigation proposals to IEC. Implement noise mitigation proposals.

			Ogenting	4 Tales increasing
Limit Level	1. Notify IEC, ER, EPD 1	C C	Confirm	1. Take immediate
	and Contractor.	ER, ET, and	receipt of	action to avoid
	2. Identify source.	Contractor on the	notification of failure	further exceedance.
	3. Repeat	potential remedial	in writing.	2. Submit proposals
	measurements to	actions. 2.	Notify Contractor.	for remedial actions
	confirm findings. 2	. Review 3.	Require	to IEC within 3
	4. Increase monitoring	C ontractor's'	Contractor to	working days of
	frequency.	remedial actions	propose remedial	notification.
	5. Carry out analysis	whenever necessary	measures for the	3. Implement the
	of Contractor's	to assure their	analysed noise	agreed proposals.
	working procedures	effectiveness and	problem.	4. Resubmit proposals
	to determine	advise the 4.	Check remedial	if problem still not
	possible mitigation to	ER accordingly.	measures properly	under control.
	be implemented.		implemented.	5. Stop the relevant
	6. Inform IEC, ER and	implementation of 5.	If exceedance	portion of works as
	EPD the causes and	remedial measures.	continues, consider	determined by
	actions taken for the		what portion of the	the ER until the
	exceedances.		work is responsible	exceedance is
	7. Assess		and instruct the	abated.
	effectiveness of		Contractor to stop	
	Contractor's		that portion of work	
	remedial actions and		until the exceedance	
	keep IEC, EPD and		is abated.	
	ER informed of the			
	results.			
	8. If exceedance stops,			
	cease additional			
	monitoring.			

4 Water Monitoring

4.1 Water Quality Monitoring Parameters and methodology

Turbidity in Nephelometric Turbidity Unit (NTU), and Dissolved Oxygen (DO) in mg/L, temperature, and pH measurements were in-situ measurements and suspended solids measurements were performed by a HOKLAS accredited laboratory using recommended reference method APHA 2540D.

4.2 Monitoring Equipment

Turbidity, DO, Salinity, pH and temperature was measured by an instrument complied with the following requirements:

The instrument is a portable as well as weatherproof multimeter complete with cable and uses a DC power source. It is capable of measuring:

- A turbidity between 0-800NTU;
- A dissolved Oxygen level in the range of 0-20mg/L and 0-200% saturation;
- A temperature of $0-50^{\circ}$ C;
- Salinity in the range of 0-40ppt;
- pH in the range of 0-14.

The measurements were performed by a portable and weatherproof multi-meter, model TOA-DKK WQC-24. The equipment was calibrated and verified by certified laboratory every 3 months to ensure they perform to the same level of accuracy as stated in the manufacturer's specification. Detailed calibration records of the multi-meter were shown in Appendix C for reference

Suspended solids was determined by the water samples collected from the monitoring locations for further analysis in accredited HOKLAS laboratory. Water samples were contained by polythene bottles, packed in ice (cooled in 4°C without frozen) and delivered to the laboratory for analysis as soon as possible after collection.

4.3 Monitoring Locations

In accordance with the EM&A Manual (revision 3), monitoring stations for contract 1 were established at two locations, which are summarized in Table 4.3.1.

Monitoring Station	Location	Coordinates
W1	Between the Shuen Wan Marsh	E:839301
vv 1	and ECA	N:836386
wo	Between Tolo Harbour and	E:839542
W2	Proposed Penstock	N:836184

Table 4.3.1 – Water Quality Monitoring Stations

As illustrated in Figure 4.3.1, W1 served as the control station while W2 was the monitoring location of water quality.

In accordance with the EM&A Manual (revision 3), measurements shall be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above river bed, except where the water depth less than 6m, the mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station will be monitored.

As the depth of water was less than 3m, water samples were collected at mid-depth of each proposed monitoring stations for measurements and sample collection.

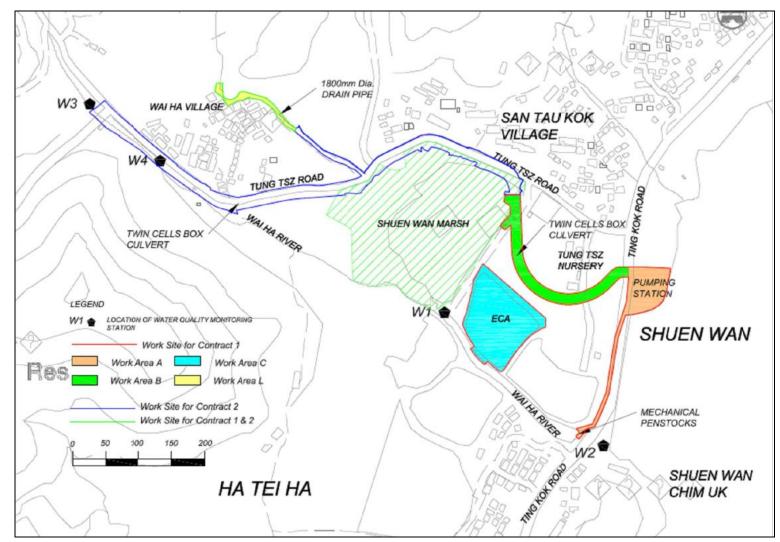


Figure 4.3.1 Water Quality Monitoring Locations

4.4 Monitoring Frequency

Impact water quality monitoring for each monitoring station were performed at mid-flood or mid-ebb tides for 3 days per week during the course of the construction river works.

Monitoring were carried out on 1st, 3rd, 6th, 8th, 10th, 13th, 15th, 17th, 20th, 22nd, 24th, 29th and 31st of December 2011.

4.5 Monitoring Results and Interpretation

Water quality monitoring was carried out thirteen times in this reporting month. Detailed on-site measurements are shown in Appendix E. Table 4.5.1 presents consolidated results throughout the reporting month.

There were 8 abnormal incidents of water quality limits (Dissolved Oxygen, Suspended Solid and Turbidity) were recorded in this reporting month according to the established action and limit levels. ET has arranged site investigations for the abnormal incidents and finding from the investigations showed no particular observations of defective site activities were found. Therefore, such conditions were believed to be attributed by natural fluctuation and are not considered as non-compliance events. However, Excavation works from other construction site was observed on 15th, 17th & 24th December 2011 and were found causing water contamination and such conditions were believed to be mainly attributed by the other construction works; the water condition of Wai Ha River is presented in photo attached in Appendix M and the Location of other construction works was showed in **Figure 4.5.1**

Details information of these incidents was presented in Section 8.

Contract No. DC/2009/22 – Drainage Improvement in Shuen Wan, Tai Po – Contract 1 Monthly EM&A Report for December 2011

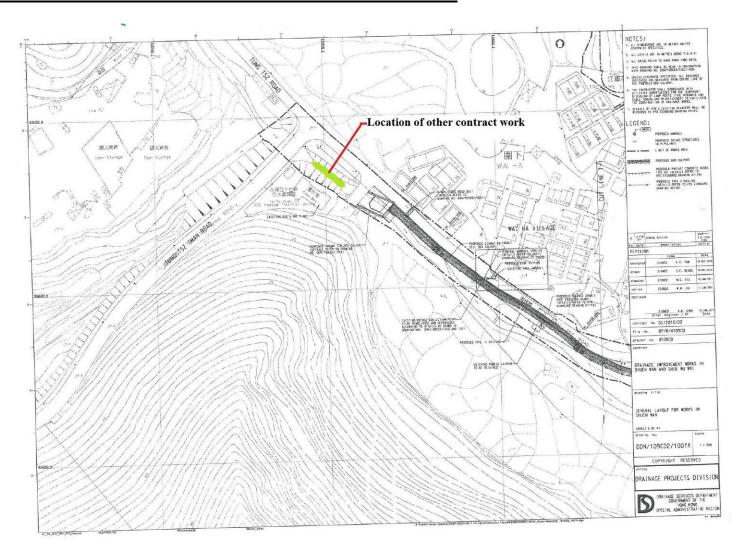


Figure 4.5.1 Location of other construction works

	Average of M	lonitoring R	esults			
	Temperature (°C)	Turbidity (NTU)	pН	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Suspended Solids (mg/L)
W1	20.28	8	7.62	7.34	79.00	5.80
W2	20.19	5.4	7.95	7.24	77.00	5.38

Table 4.5.1 Summary of Water Quality Monitoring Results of this reporting month

Table 4.5.2 Interpretations of abnormal incidents recorded in the reporting month

Date	Tide	Parameter	Interpretations
2011/12/2	Flood	DO	Incident was regarded as natural fluctuation since no particular
2011/12/3	FIOOd	Turbidity	site practice deficiency was observed.
2011/12/8	Ebb	Turbidity	Incident was regarded as natural fluctuation since no particular site practice deficiency was observed.
2011/12/10	Ebb	Turbidity	Incident was regarded as natural fluctuation since no particular site practice deficiency was observed.
		DO	Incident was regarded as construction activities from other
2011/12/15	Flood	Turbidity	construction site since excavation work s at upstream was observed.
2011/12/17	Ebb	Turbidity	Incident was regarded as construction activities from other construction site since excavation work s at upstream was observed.
		Turbidity	Incident was regarded as construction activities from other
2011/12/24	Ebb	Suspended	construction site since excavation work s at upstream was
		Solids	observed.
		Turbidity	Insident was recorded as notical fluctuation since no marticular
2011/12/29	Ebb	Suspended Solids	Incident was regarded as natural fluctuation since no particular site practice deficiency was observed.
2011/12/31	Ebb	Turbidity	Incident was regarded as natural fluctuation since no particular site practice deficiency was observed.

Date	Area	Construction works conducted			
	А	Erecting F4 wall formwork panels and rebars fixing, cutting and bending			
		reinforcement bars for walls and shuttering for F4 formwork panels at pumping			
		station.			
2011/12/3		Stripping off formwork from temporary concrete wall of cofferdam at existing box			
		culvert at Ting Kok Road.			
	В	Fabricating temporary sheet pile stop end wall to facilitate backfilling work for Bay			
		7A			
	С	In maintenance period			
	А	Erecting F4 wall formwork panels and rebars fixing, cutting and bending			
		reinforcement bars at pumping station.			
2011/12/8		Formwork shuttering for walls of manhole at Ting Kok Road.			
2011/12/8	В	Backfilling at box culvert trench, Fabricating I-beam structs to stop end sheet pile			
		wall, Extracting sheetpile shoring at Bay7A			
	С	In maintenance period			
	А	Shuttering and erecting F4 formwork panels for walls, cutting and bending			
		reinforcement bars, rebar fixing at pumping station.			
2011/12/10		Coring dowel bar holes at existing base slab of box culvert for penstock wall			
2011/12/10		construction at Ting Kok Road.			
	В	Extracting sheet pile from trench shoring at Bay 7A			
	С	In maintenance period			
	А	Shuttering and erecting F4 formwork panels and erecting scaffolding for working			
		platform at pumping station.			
2011/12/15		Extracting sheet pile from trench shoring and coring dowel bar holes at existing base			
2011/12/15		slab of box culvert for penstock wall construction at Ting Kok Road.			
	В	Driving Sheet piles for trench shoring at Bay 7A			
	С	In maintenance period			
	А	Shuttering and erecting F4 formwork panels and erecting scaffolding for working			
		platform at pumping station			
		Excavating trench, laying guly and guly pipes and then laying concrete surround and			
2011/12/17		shuttering and concreting of kerb bedding for carriageway reinstatement at Ting Kok			
2011/12/17		Road.			
	В	Driving sheet piles for trench shoring and excavating trench along new sheet pile			
		alignment to remove boulders.			
	С	In maintenance period			
2011/12/24	А	Excavation and trimming to enlarge the haul road/ work area for concreting the wall of			

Table 4.5.3 Construction work conducted during abnormal incidents period

		pumping station.
		Formwork shuttering for walls and top slab of penstock walls at existing box culvert
		and driving sheet piles for shoring at Ting Kok Road.
B Excavating for		Excavating for box culvert trench and fabricating the top layer of I-beam walings at
		Bay 7A
	С	In maintenance period
	А	Concreting to walls at Inlet Chamber, Screen channels and Wet wells.
		Drving sheet piles for cofferdam of intake structure and backfilling to form working
2011/12/29		platform at Ting Kok Road.
	В	No Activities
	С	In maintenance period
	А	Stripping off wall formwork and general housekeeping at pumping station.
2011/12/21		Formwork shuttering for penstock walls at existing box culvert.
2011/12/31	В	Excavating for box culvert trench and fabricating the lower layers of I-beam walings.
	С	In maintenance period

4.6 Action and limit level for Water Quality

Based on the criteria stipulated in EM&A manual (revision 3) and baseline water quality monitoring data obtained, the A/L levels are shown in Table 4.6.1, Table 4.6.2. The A/L levels for W1 were ignored since W1 functions as the control station for contract 1. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 4.6.3 should be taken.

Table 4.6.1 Action and Limit Levels for Water Quality at All Monitoring Stations

Parameters	Action	Limit
DO in ma/I	5 perceptile of baseling data	4 mg/L or 1 percentile of baseline
DO in mg/L	5 percentile of baseline data	data
pH	N/A	6.0 – 9.0
	95 percentile of baseline data or	99 percentile of baseline data or
SS in mg/L	120% of upstream control station's	130% of upstream control station's
	SS	SS
Tuchidita in	95 percentile of baseline data or	99 percentile of baseline data or
Turbidity in	120% of upstream control station's	130% of upstream control station's
NTU	Turbidity	Turbidity

	Monitoring Stations (Flood Tide)			Monitoring Stations (Ebb Tide)				
D (W1		W2		W1		W2	
Parameters	Action	Limit	Action	Limit	Action	Limit	Action	Limit
	Level	Level	Level	Level	Level	Level	Level	Level
DO (mg/L)	8.07	8.07	7.81	7.69	7.12	7.02	6.77	6.31
рН	N/A	6.0-9.0	N/A	6.0-9.0	N/A	6.0-9.0	N/A	6.0-9.0
SS (mg/L)	7.7	8.1	7.7	8.6	10.5	10.9	9.4	9.9
Turbidity (NTU)	4.9	5.3	1.7	1.8	4.2	4.7	3.0	3.5

 Table 4.6.2
 Action and Limit Levels for Water Quality at All Monitoring Stations

Remarks:

For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits

For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Event	ET Leader	IEC	ER C	Contractor
ACTION LEVEL		<u> </u>		
Action level	1. Repeat in-situ	u 1. Discuss mitigation	1. Discuss proposed 1	I. Inform Engineer and
being exceeded	measurements to	measures with ET,	mitigation	confirm in writing
by one sampling	confirm findings;	Engineer and	measures with	notification of the
day	2. Identify reasons fo	r Contractor;	IEC, ET and	non-compliance;
	non-compliance and	2. Review proposals on	Contractor; 2	2. Rectify unacceptable
	source(s) of impact;	mitigation measures	2. Make agreement	practice;
	3. Inform IEC, Contracto	r submitted by	on mitigation 3	3. Check all plant and
	and Engineer;	Contractor and	measures to be	equipment;
	4. Check monitoring data	, advise the Engineer	implemented; 4	1. Consider changes in
	all plant, equipmen		3. Assess	working methods;
	and Contractor's			5. Discuss with ET, IEC
	working methods;	of implemented	implemented	and Engineer and
	5. Discuss mitigation	C C	mitigation	propose mitigation
	measures with IEC	,	measures.	measures to IEC and
	Engineer and	t i i i i i i i i i i i i i i i i i i i		Engineer within three
	Contractor;			working days;
	6. Ensure mitigation		6	6. Implement agreed
	measures are	9		mitigation measures.
	implemented.			
	7. Repeat measuremen	t		
	on next day o	f		
	exceedance.			

Table 4.6.3 Event and action Plan for Water Quality

Contract No. DC/2009/22 – Drainage Improvement in Shuen Wan, Tai Po – Contract 1
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Actionlevel1. Repeatin-situ1. Discussmitigation1. Discussproposed1. InformEndinebeing exceededmeasurementstomeasureswithET,mitigationconfirmconfirmby more thanconfirm findings;Engineerandmeasureswithnotificationtwo consecutive2. Identify reasons for non-complianceContractor;IEC,ETandsampling daysnon-complianceand2. Review proposals on submittedContractor;2. Make agreement practice;practice;3. Inform IEC, Contractor and Engineer;Submittedbyonmitigation3. Check all equipment;4. Check monitoring data, all plant, equipmentaccordingly;3. Assessworking me	gineer and in writing of the
by more than confirm findings; Engineer and measures with notification two consecutive 2. Identify reasons for Contractor; IEC, ET and non-compliance and 2. Review proposals on source(s) of impact; mitigation measures 2. Make agreement practice; 3. Inform IEC, Contractor submitted by on mitigation 3. Check all and Engineer; Contractor and measures to be equipment; 4. Check monitoring data, advise the Engineer implemented; 4. Consider the engineer implemented; 5. Constant of the engin	
two consecutive sampling days2. Identify reasons for non-compliance and source(s) of impact;Contractor; non-compliance and 2. Review proposals on mitigation measuresIEC, ET and contractor;non-compliance practice;3. Inform IEC, Contractor and Engineer;Submittedby 	of the
sampling daysnon-compliance and source(s) of impact;2. Review proposals on mitigation measuresContractor; 2. Make agreement2. Rectify up practice;3. Inform IEC, Contractor and Engineer;submittedby Contractoron mitigation3. Check all equipment;4. Check monitoring data,advise the Engineerimplemented;4. Consider	
source(s) of impact;mitigation measures2. Make agreementpractice;3. Inform IEC, Contractorsubmittedbyonmitigation3. Check alland Engineer;Contractorandmeasurestobeequipment;4. Check monitoring data,advise the Engineerimplemented;4. Consider	ance;
 3. Inform IEC, Contractor submitted by on mitigation 3. Check all and Engineer; 4. Check monitoring data, advise the Engineer implemented; 4. Consider 	nacceptable
and Engineer;Contractorandmeasurestobeequipment;4. Check monitoring data,advise the Engineerimplemented;4. Consider	
4. Check monitoring data, advise the Engineer implemented; 4. Consider	plant and
all plant, equipment accordingly; 3. Assess working me	changes in
	thods;
and Contractor's 3. Assess effectiveness effectiveness of 5. Discuss w	th ET, IEC
working methods; of implemented implemented and Eng	ineer and
5. Discuss mitigation mitigation measures. mitigation propose	mitigation
measures with IEC, measures. measures	to IEC and
Engineer and Engineer	vithin three
Contractor; working da	ys;
6. Ensure mitigation 6. Implement	agreed
measures are mitigation r	neasures.
implemented.	
7. Prepare to increase the	
monitoring frequency to	
daily;	
8. Repeat measurement	
on next day of	
exeedance.	
Limit level 1. Repeat in-situ 1. Discuss mitigation 1. Discuss proposed 1. Inform En	gineer and
being measurements to confirm measures with ET, mitigation confirm	in writing
exceeded by findings; Engineer and measures with notification	of the
one sampling 2. Identify reasons for Contractor; IEC, ET and non-compli	ance;
day non-compliance and 2. Review proposals on Contractor; 2. Rectify u	nacceptable
source(s) of impact; mitigation measures 2. Request practice;	
3. Inform EPD, IEC, submitted by Contractor to 3. Check all	plant and
Contractor and Engineer; Contractor and critically review equipment;	
	changes in
4. Check monitoring data, advise the Engineer the working 4. Consider	thods;
 4. Check monitoring data, advise the Engineer the working 4. Consider all plant, equipment and accordingly; methods; working methods; 	

	methods;	of implemented	on mitigation	and Engineer and
	5. Discuss mitigation	mitigation measures.	measures to be	propose mitigation
	measures with IEC,	miligation modouroo.	implemented;	measures to IEC and
	Engineer and Contractor;		4. Assess	Engineer within three
	6. Ensure mitigation		effectiveness of	working days;
	measures are		implemented 6.	
	implemented;		mitigation	mitigation measures.
	7. Increase the monitoring		measures.	magaton modouroo.
	frequency to daily until no		modouroo.	
	exceedance of Limit			
	level.			
Limit level	1. Repeat in-situ	1. Discuss mitigation	1. Discuss proposed 1.	Inform Engineer and
being	measurements to	measures with ET,	mitigation	confirm in writing
exceeded by	confirm findings;	Engineer and	-	notification of the
more than two	2. Identify reasons for	Contractor;	IEC, ET and	non-compliance;
consecutive	non-compliance and	2. Review proposals on		Rectify unacceptable
sampling days	source(s) of impact;	mitigation measures		practice;
1 0 9	3. Inform EPD, IEC,	submitted by	-	Check all plant and
	Contractor and Engineer;	Contractor and		equipment;
	4. Check monitoring data,	advise the Engineer	the working 4.	Consider changes in
	all plant, equipment and	accordingly;	methods;	working methods;
	Contractor's working	3. Assess effectiveness	3. Make agreement 5.	Discuss with ET, IEC
	methods;	of implemented	on mitigation	and Engineer and
	5. Discuss mitigation	mitigation measures.	measures to be	propose mitigation
	measures with IEC,		implemented;	measures to IEC and
	Engineer and Contractor;		4. Assess	Engineer within three
	6. Ensure mitigation		effectiveness of	working days;
	measures are		implemented 6.	Implement agreed
	implemented.		mitigation	mitigation measures;
	7. Increase the monitoring		measures; 7.	As directed by the
	frequency to daily until		5. Consider and if	Engineer, slow down
	no exceedance of Limit		necessary instruct	or stop all or part of the
	level for two consecutive		Contractor to slow	construction activities
	days.		down or to stop all	until no exceedance of
			or part of the	Limit level.
			construction	
			activities until no	

	exceedance of	
	Limit Level.	

4.7 Monitoring Schedule for the next reporting period

Water quality monitoring schedule is proposed to be carried out on 3rd, 5th, 7th, 10th, 12th, 14th, 17th, 19th, 21st and 31st of January 2012.

As informed by contractor, the construction site will be closed during lunar new year (from 26^{th} to 30^{th} January); therefore the monitoring will be stopped from 26^{th} to 30^{th} January and started at 31^{st} January.

5 Hydrological Characteristics Monitoring

5.1 Hydrological Characteristics Monitoring Parameters and methodology

Impact monitoring of hydrological characteristics was undertaken to establish hydrological characteristics of sections of Wai Ha River adjacent to Drainage Improvement Works in Shuen Wan, Tai Po.

The hydrological characteristics of sections of Wai Ha River were measured by water flow rate and depth.

5.2 Monitoring Equipment

Monitoring performed by a portable echo-sounder, model Greyline Stingray. The equipment was calibrated and verified by certified laboratory or manufacturer every year to ensure they perform to the same level of accuracy as stated in the manufacturer's specification.

Calibration Certificate of the multi-meter is given in Appendix C.

5.3 Monitoring Locations

In accordance with the EM&A Manual (revision 3), monitoring stations for contract 1 were established at two locations and summarized in Table 5.3.1.

Monitoring Station	Location	Coordinates
H1	Between the Shuen Wan Marsh and	E:839301
	ECA	N:836386
H2	Route to Sam Kung Temple	E:839163
		N:836433

Table 5.3.1 – Water Quality Monitoring Stations

As illustrated in Figure 5.3.1, H2 served as the control station while H1 was the monitoring location of hydrological characteristics.

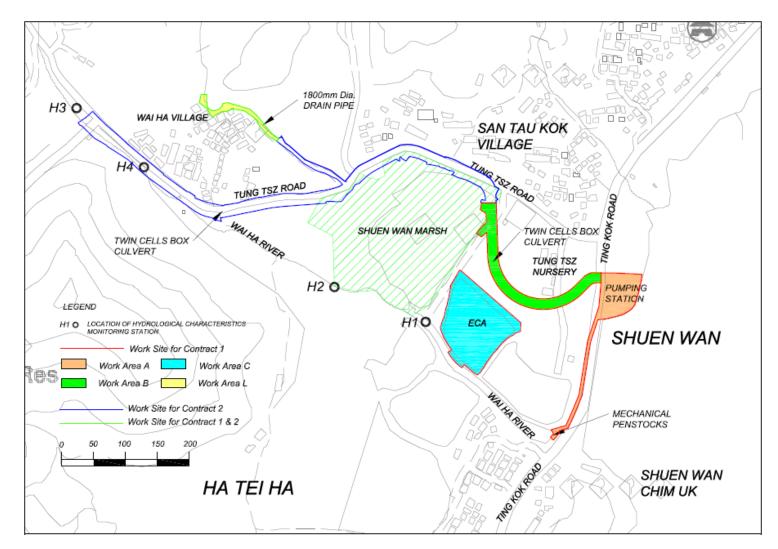


Figure 5.3.1 Hydrological Characteristics Monitoring Locations

5.4 Monitoring Frequency

Hydrological characteristics monitoring for each monitoring station were performed at mid-flood and mid-ebb tides for once per week during the course of the construction river works.

Monitoring was carried out on 3rd, 10th, 17th, 24th and 31st of December 2011.

5.5 Monitoring Results and Interpretation

Hydrological characteristics monitoring was carried out five times in this reporting period. The monitoring results are summarized in Table 5.5. All results were within the action and limit levels, therefore, no exceedance was found.

	Average of Monitoring Results	
	Water Depth (m)	Water Flow Rate (m ³ /s)
H1	~0.25*	0.100
H2	~0.35*	0.502

 Table 5.5
 Summary of Water Quality Monitoring Results

*: Since the water levels were too low for the depth detector to determine, tape measure was instead adopted for estimation.

Details of the monitoring data were presented in Appendix F.

5.6 Action and limit level for Hydrological Characteristics

The Action and Limit levels for all monitoring stations are summarized in Table 5.6.1, which would be applied for compliance assessment of hydrological characteristics for this project. If the hydrological characteristics monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 5.6.2 should be taken.

Parameters	Action	Limit
Water Depth at Mid-flood (m)	0.08	0.06
Water Depth at Mid-ebb (m)	0.08	0.06
Water Flow Rate (m ³ /s)	120% of control station's water flow rate on the same day of measurement	140% of control station's water flow rate on the same day of measurement

Table 5.6.1 Action and Limit Levels for Hydrological Characteristics at All Monitoring Stations

Table 5.6.2 Event and action Plan for Hydrological Characteristics

Event	ET	Leader	IEC			ER	Cont	ractor
ACTION LEVE	L							
Action level	1.	Repeat in-situ	1.	Discuss mitigati	ion	1. Discuss	1.	Inform Engineer
being		measurements to		measures with I	ET,	proposed		and confirm in
exceeded by	,	confirm findings;		Engineer a	Ind	mitigation		writing notification
one	2.	Identify reasons for		Contractor;		measures with		of the
sampling		non-compliance and	2.	Review propos	als	IEC, ET and		non-compliance;
day		source(s) of impact;		on mitigati	ion	Contractor;	2.	Rectify
	3.	Inform IEC, Contractor		measures		2. Make		unacceptable
		and Engineer;		submitted	by	agreement on		practice;
	4.	Check monitoring data,		Contractor a	Ind	mitigation	3.	Check working
		Contractor's working		advise t	the	measures to be		methods and any
		methods and any		Engineer		implemented;		excavation works
		excavation works or		accordingly;		3. Assess		or dewatering
		dewatering processes;	3.	Assess		effectiveness of		processes;
	5.	Discuss mitigation		effectiveness	of	implemented	4.	Consider changes
		measures with IEC,		implemented		mitigation		in working
		Engineer and		mitigation		measures.		methods and
		Contractor;		measures.				plans;
	6.	Ensure mitigation					5.	Discuss with ET,
		measures are						IEC and Engineer
		implemented.						and propose
	7.	Repeat measurement						mitigation
		on next day of						measures to IEC

	1				1			
		exceedance.						and Engineer
								within three
								working days;
							6.	Implement agreed
								mitigation
								measures.
Action level	1.	Repeat in-situ	1.	Discuss mitigation	1	. Discuss	1.	Inform Engineer
being		measurements to		measures with ET,		proposed		and confirm in
exceeded by		confirm findings;		Engineer and		mitigation		writing notification
more than	2.	Identify reasons for		Contractor;		measures with		of the
two		non-compliance and	2.	Review proposals		IEC, ET and		non-compliance;
consecutive		source(s) of impact;		on mitigation		Contractor;	2.	Rectify
sampling	3.	Inform IEC, Contractor		measures	2	2. Make		unacceptable
days		and Engineer;		submitted by	r	agreement on		practice;
	4.	Check monitoring data,		Contractor and		mitigation	3.	Check working
		Contractor's working		advise the		measures to be		methods and any
		methods and any		Engineer		implemented;		excavation works
		excavation works or		accordingly;	3	3. Assess		or dewatering
		dewatering processes;	3.	Assess		effectiveness of		processes;
	5.	Discuss mitigation		effectiveness of		implemented	4.	Consider changes
		measures with IEC,		implemented		mitigation		in working
		Engineer and		mitigation		measures.		methods and
		Contractor;		measures.				plans;
	6.	Ensure mitigation					5.	Discuss with ET,
		measures are						IEC and Engineer
		implemented.						and propose
	7.	Prepare to increase the						mitigation
		monitoring frequency to						measures to IEC
		daily;						and Engineer
	8.	Repeat measurement						within three
		on next day of						working days;
		exeedance.					6.	Implement agreed
								mitigation
								measures.
Limit level	1.	Repeat in-situ	1.	Discuss mitigation	1	l. Discuss	1.l	nform Engineer and
being		measurements to		measures with ET,		proposed	С	confirm in writing
					1			

exceeded by		confirm findings;		Engineer ar	nd		mitigation		notification of th
one	2.	Identify reasons for		Contractor;			measures with		non-compliance;
sampling		non-compliance and	2.	Review proposa	als		IEC, ET and		2.Rectify unacceptabl
day		source(s) of impact;		on mitigatio	on		Contractor;		practice;
	3.	Inform AFCD, IEC,		measures		2	. Request		3.Check workin
		Contractor and		submitted I	by		Contractor to		methods and an
		Engineer;		Contractor ar	nd		critically review	r	excavation works of
	4.	Check monitoring data,		advise th	he		the working		dewatering
		and Contractor's		Engineer			methods;		processes;
		working methods and		accordingly;		3	. Make		4.Consider changes i
		any excavation works	3.	Assess			agreement on		working method
		or dewatering		effectiveness	of		mitigation		and plans;
		processes;		implemented			measures to be		5.Discuss with ET, IE
	5.	Discuss mitigation		mitigation			implemented;		and Engineer an
		measures with IEC,		measures.		4	. Assess		propose mitigatio
		Engineer and					effectiveness of	F	measures to IEC an
		Contractor;					implemented		Engineer within thre
	6.	Ensure mitigation					mitigation		working days;
		measures are					measures.		6.Implement agree
		implemented;							mitigation measures
	7.	Increase the monitoring							
		frequency to daily until							
		no exceedance of Limit							
		level.							
Limit level	1.	Repeat in-situ	1.	Discuss mitigation	on	1.	Discuss	1.	Inform Engineer an
being		measurements to		measures with E	Τ,		proposed		confirm in writin
exceeded by		confirm findings;		Engineer ar	nd		mitigation		notification of th
more than	2.	Identify reasons for		Contractor;			measures with		non-compliance;
two		non-compliance and	2.	Review proposa	als		IEC, ET and	2.	Rectify unacceptabl
consecutive		source(s) of impact;		on mitigatio	on		Contractor;		practice;
sampling	3.	Inform AFCD, IEC,		measures		2.	Request	3.	Check workin
days		Contractor and		submitted I	by		Contractor to		methods and ar
		Engineer;		Contractor ar	nd		critically review	r	excavation works of
	4.	Check monitoring data,		advise th	he		the working		dewatering
		and Contractor's		Engineer			methods;		processes;
		working methods and		accordingly;		3.	Make	4.	Consider changes
		any excavation works	3.	Assess			agreement on		working method

	or dewatering	effectiveness of		mitigation	and plans;
	processes;	implemented		measures to be 5	5. Discuss with ET, IEC
5.	Discuss mitigation	mitigation		implemented;	and Engineer and
	measures with IEC,	measures.	4.	Assess	propose mitigation
	Engineer and			effectiveness of	measures to IEC and
	Contractor;			implemented	Engineer within three
6.	Ensure mitigation			mitigation	working days;
	measures are			measures; 6	6. Implement agreed
	implemented.		5.	Consider and if	mitigation measures;
7.	Increase the monitoring			necessary 7	. As directed by the
	frequency to daily until			instruct	Engineer, slow down
	no exceedance of Limit			Contractor to	or stop all or part of
	level for two			slow down or to	the construction
	consecutive days.			stop all or part	activities until no
				of the	exceedance of Limit
				construction	level.
				activities until	
				no exceedance	
				of Limit Level.	

5.7 Monitoring Schedule for the next reporting period

Hydrological characteristics monitoring schedule is proposed to be carried out on 7th, 14th and 21st of January 2011.

As informed by contractor, the construction site will be closed during lunar new year (from 26^{th} to 30^{th} January); therefore the monitoring will be stopped from 26^{th} to 30^{th} January and started at 31^{st} January.

6 Ecological Monitoring of ECA

6.1 Introduction

The Ecological Monitoring of the Ecological Compensatory Area (ECA) of the Project is conducted to fulfill Clauses 5.2 and 5.4 of EP-303/2008 and the monitoring requirements in accordance with Section 6 of the approved updated EM&A Manual (approved by EPD on 7th November 2011) and the approved updated Habitat Creation Plan (HCP) (approved by EPD on 8th December 2011) of the Project.

This report documents monitoring findings on the site inspections in the ECA undertaken in December 2011.

6.2 Ecological Monitoring of ECA

6.2.1 Scope of Monitoring

A specific ecological monitoring programme and ecological monitoring requirements of the ECA are detailed in Section 7 of the approved Habitat Creation Plan (HCP) and Section 6.18 of the approved updated Environmental Monitoring & Audit (EM&A) Manual of the Project.

During the construction phase of the ECA, monthly monitoring of vegetation health (including the planted, retained and transplanted trees and shrubs, and the proposed planting) and weekly site inspections should be undertaken. Monthly monitoring of in situ water quality will be carried out once the ECA is filled with water from the nearby Wai Ha River.

During the 12-month establishment phase of the ECA, monitoring of habitat types, vegetation cover, intertidal fauna and other fauna (including avifauna, herpetofauna, fish, odonates and butterflies) will be undertaken on a six-monthly basis, while the vegetation health and in situ water quality will be monitored monthly. Site inspections will be conducted twice per month.

6.2.2 Monitoring Methodology during the construction phase

Monitoring of vegetation health

Monthly monitoring of the health condition of the retained and transplanted trees and vegetation will be conducted. Following planting of vegetation in the ECA, monitoring of the growth and health conditions of the planted vegetation in the created habitats (i.e. brackish marsh, mangrove, woodland areas of planted trees and shrubs, and wooded areas with retained and (trans)planted trees) within the ECA is to be conducted during the construction and establishment phases. General health and growth status of the retained trees within the ECA are recorded and recommendation of appropriate tree care will be made to the maintenance party.

All planted, retained and transplanted trees and shrubs will be surveyed to

update their growth and health status. Any signs of pests and/ or poor growth of planted, retained and transplanted trees and shrubs will be recorded. Appropriate treatment or removal of pests will be implemented if necessary. Supplemental planting will be arranged if needed.

A fixed transect line will be run through the wetland habitats (including intertidal mudflat, brackish marsh and mangrove) and the general growth and health of the planted vegetation along both sides of the transect will be inspected and evaluated. Any adverse plant health, such as dieback of planted species, will be noted and supplemental planting will be arranged. Any signs of pests which cause adverse health problems to the plants will be identified and recorded.

Monitoring of water quality

Since there will be free movement of brackish river water in and out of the ECA, water quality in the ECA will be largely dependent on water quality in the river. In this open system it is not appropriate to set specific targets for water quality parameters. Nevertheless, baseline data on water quality, in particular seasonal patterns, would potentially be useful long term management of the ECA. Once the ECA is filled with water during the construction phase of the ECA, in-situ water quality will be measured once per month during both Construction and Establishment Phases. Parameters, including temperature, pH, salinity, turbidity and dissolved oxygen, will be monitored. Additional measurements of these parameters should also be made by the ecologist in response to unexpected

events (e.g. algal blooms or fish die-offs) in order to inform remedial management measures.

Site inspection

Weekly site inspection will be carried out by the Wetland Specialist to update the status and monitor the progress of the construction of the ECA. Any adverse ecological impact resulting from the construction should be identified and remedial action should be undertaken.

6.2.3 Monitoring Methodology during the establishment phase

Monitoring of vegetation health

Same monitoring methodology as in Section 7.2.2.

Monitoring of water quality

Same monitoring methodology as in Section 7.2.2.

Site inspection

Site inspection during the establishment phase of the ECA will be conducted twice per month for monitoring the health and condition of the wetland during the establishment period. Any unsatisfied health and habitat criteria of the wetland will be identified and remedial action should be recommended.

Twice monthly establishment phase monitoring has been commenced in November 2011.

Monitoring of habitat types and vegetation cover

Monitoring of habitat types and vegetation cover will be conducted twice during the 12 month Establishment Phase of the ECA; specifically at the end of the dry season and the end of the subsequent wet season after completion of the planting work. The monitoring aims to determine the exact extent of the wetland habitats and vegetation cover (i.e. open water, intertidal mudflat, brackish marsh and mangrove) during the establishment period and control any excessive colonization of unwanted vegetation specific habitats.

Monitoring of intertidal fauna

As the ECA largely comprises an intertidal mudflat, monitoring for intertidal fauna will be conducted. Recolonisation will take time: accordingly monitoring will be tentatively conducted in February 2012 and August 2012. As the important aim of monitoring of intertidal fauna in the ECA is to examine the diversity of the colonising community, a qualitative manner by walk-through survey (i.e. walk through the site with species and relative abundance recorded) will be conducted. Core sampling will also be conducted at different levels to record infauna. Three samples at each level (low, middle and high) will be conducted at low tide.

Monitoring of other fauna

Monitoring of other faunal groups, including birds, herpetofauna, fish, odonate and butterflies, will be conducted. Monitoring of any aquatic invertebrates will be covered by the intertidal surveys. Since the site will be intertidal, it is considered unsuitable for local amphibian species. Therefore, no nighttime survey for detection of mating calls of amphibians is necessary and only daytime surveys are needed. Monitoring of these faunal groups will be conducted on a walk-through survey basis. The surveyor will walk through the site, recording and counting the fauna observed. Microhabitats for herpetofauna will be actively searched. This monitoring will be conducted twice within the establishment period (once in the dry season (tentatively in February 2012) and once in the wet season (tentatively in August 2012).

Monitoring of wild mammals is not necessary in this case; however, if signs of wild mammals are observed (such as footprints) during any field surveys, these will be recorded.

6.2.4 Monitoring time and weather condition

Site inspection and monitoring of vegetation, fauna groups and water quality should be carried out during day-time with calm weather. Monitoring of birds should commence within one hour of sunrise, when is the peak activity period for birds. Other fauna groups shall be undertaken during the warmer part of the monitoring day.

6.3 Monitoring Results

6.3.1 Description of vegetation monitoring in Ecological Compensatory Area

The vegetation monitoring during the construction period was conducted on a monthly basis in the Ecological Compensatory Area (ECA) during the establishment period in December 2011. The growth and health of the recorded vegetation was inspected and detail vegetation information was shown in Appendix L.

Monitoring of transplanted trees were carried out and continued since the first transplantation (**Appendix L(B**)).

Three specimens of protected species *Pavetta hongkongensis* were transplanted to ECA. Weekly monitoring was carried out since transplantation on 20th December 2011.

All trees surveyed were evaluated according to the following criteria (Webb 1991)

• Trees of good form, moderate to large size and in good health are classified as **good**;

• Trees of reasonable form, with few or no visible defects or health problems are classified as being **fair**;

• Trees that are of poor form, badly damaged or clearly suffering from decay die back or the effects of very heavy vine growth are classified as **poor**.

6.3.2 Description of vegetations and remarks

Vegetation monitoring in the ECA was carried out on site and growth/health conditions were recorded.

A total of 21 plant species were retained or newly succeed within ECA in which 6 of them were retained plant species including *Terminalia catappa*, *Cocculus orbiculatus*, *Mangifera indica*, *Dimocarpus longan*, *Michelia x alba* and *Macaranga tanarius*. Detailed information of the recorded vegetation was given in **Appendix L**.

The general growth/health of the retained or newly succeed vegetations was in fair condition.

The trees transplanted from works area within Contract 1 and 2 to ECA, including 13 *Bombax ceiba*, 2 *Melaleuca quinquenervia* and 1 *Celtis sinensis*, were in fair condition since the transplantation in June (**Appendix L (B**)).

A total of 370 trees were newly planted for amenity purpose within the ECA since September 2011. The 370 individual trees were randomly planted at different zones, except zone for F, within ECA as showed in Figure **6.3.2.1**.

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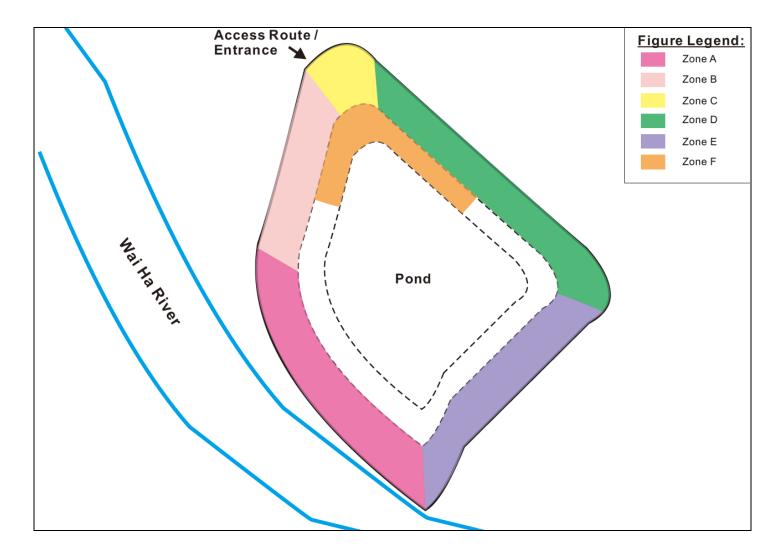


Figure 6.3.2.1 Landscape floor plan of ECA during establishment phase in November 2011.

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The newly planted trees included *Celtis sinensis* (95), *Hibiscus tiliaceus* (114), *Macarango tanarius* (57), *Ficus superb var japonica* (28) and *Viburnum odoratissimum* (76).

Newly planted trees in Zone A, B and C were in fair condition.

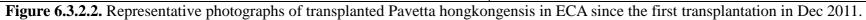
However, trees in Zone D and E were in poor condition in terems of sparse crown and yellow leaves. These were:

- Hibiscus tiliaceus: tag no. 55 60; 64 77; 238 241; 245 252; 257 261 & 264.
- *Ficus superb var japonica*: tag no. 38, 39
- Macaranga tanarius: tag no. 321
- Celtis sinensis: tag no. 1, 12, 18, 130

Mangrove seedlings were planted in Zone F, but most of them were in poor condition or almost wilting, in particular for those planted along the slope. Sandy soil and nutrient leaching during surface runoff appear to be the concerns. Regular irrigation and improving soil texture are recommended.

Three specimens of protected species *Pavetta hongkongensis* were transplanted from work area under Contract 2 to ECA at Zone D on 20th December 2011. Weekly monitoring was carried out and their overall conditions are fair so far (**Appendix L(C)**). Representative photographs of the transplanted *P. hongkongenesis* are showed on **Figure 6.3.2.2**.





Regular watering is recommended to improve the condition of the newly planted trees. Relevant mitigation measures will be proposed when necessary.

There is no sign of pest outbreak or dieback took place in the current monitoring.

6.3.3 Summary

In total, 21 trees, shrubs, climbers and herbs were retained or newly succeed in the ECA during the establishment period in December 2011. A total of 16 trees and three specimens of protected species *Pavetta hongkongensis* were transplanted to ECA. All of them were in fair condition. In addition, 370 trees, including *Celtis sinensis, Hibiscus tiliaceus, Macarango tanarius, Ficus superb var japonica* and *Viburnum odoratissimum*, were newly planted in ECA since September 2011 for amenity purpose. Although there is no sign of pest outbreak or dieback, regular watering and close monitoring will still be recommended.

6.3.4 References

Webb, R (ed.) 1991, Tree Planting & Maintenance in Hong Kong, Hong Kong Government, Hong Kong

6.3.5 Monitoring of Water Quality

The point of linkage between the ECA and Wai Ha River at the southern pond bund of the wetland was completed on 30th August 2011. The constructed wetland habitats in the ECA have been filled with the tidal water from Wai Ha River. Monitoring of in situ water quality in the ECA was commenced in September 2011 by the IEC's ecologist.

6.3.6 Site Inspections

Twice monthly establishment phase monitoring has been commenced in November 2011. Two site inspections were carried out on 8th and 20th December 2011. Table 7-1 summarizes the observations and recommendations for each site inspection

Table 6-1. Observations and recommendations for each site inspection, December 2011.

Inspection Date	Observation	Recommendation
8 December 2011	A general site inspection to update the ecological function of the created wetland and status of the planted terrestrial trees and shrubs. The wetland has been functioning normally since the start of the establishment period. Pond water of the ECA has been replenished by regular tidal movement and stream flow from the adjacent Wai Ha River. No large solid domestic waste has been washed into the ECA. Some of the planted compensatory trees (especially <i>Hibiscus tiliaceus</i> and <i>Celtis sinensis</i>) showed wilt and dry leaves. The uprooted and fallen compensatory tree <i>Celtis sinensis</i> (Tree No. N13) was replanted.	The Contractor was recommended to undertake close monitoring and maintain frequent watering of all planted terrestrial trees and shrubs.
20 December 2011	The second site inspection of the created wetland in December 2011. The mangrove planting has established satisfactorily (Photo 1). Two individuals of the protected shrub <i>Pavetta hongkongensis</i> were newly transplanted (transplanted on 20 th December 2011) and watered at the northeastern part of the ECA next to Tung Tsz Nursery (Photos 2-3). These two individuals were transplanted under the shade of the existing tree group. The replanted compensatory tree <i>Celtis sinensis</i> (Tree No. N13) was found partly fallen again (Photo 4). All planted terrestrial shrubs and trees were found to be very dry, implying that the watering practice is not adequate.	The Contractor was reminded to replant the uprooted tree as soon as possible and maintain more frequent and adequate watering of each planted terrestrial trees and shrubs.

Photo 1. The mangrove planting along the northern and northeastern part of the created wetland has established satisfactorily.

Photo 2. The newly transplanted and watered *Pavetta hongkongensis* (Specimens (T1) and (T2) in the ECA.



Photo 3. The newly transplanted and watered *Pavetta hongkongensis* (Specimen (T3) in the ECA.

Photo 4. The replanted compensatory tree *Celtis sinensis* (Tree No. N13) was found partly fallen again in the ECA.



6.4 Management Activities

6.4.1 Ecological Issues/ Management Activities

No significant ecological issues were identified from the site inspection by the Wetland Specialist in December 2011.

The ECA has been maintained in acceptable condition, in which its normal ecological function has been achieved (such as wetland-dependent birds Little Egret, Grey Heron and White Wagtail have been recorded as utilizing the created wetland bund and intertidal mudflat in the ECA). Pond water of the ECA has been replenished by regular tidal movement and stream flow from the adjacent Wai Ha River and large solid domestic waste was not found being washed into the ECA.

As observed, the planted terrestrial trees and shrubs and their surrounding soil were found to be too dry in December 2011. The Contractor should maintain frequent (such as at least twice per week) and adequate watering for all planted terrestrial plants throughout the establishment period of the ECA

6.5 Implication of the Survey Findings

6.5.1 Implication to the Wetland design of the ECA

No implication to the wetland design from these two site inspections in December 2011

The Contractor should undertake regular monitoring, and maintain frequent and adequate watering of all planted terrestrial trees and shrubs throughout the establishment period of the ECA. In additional, adequate watering should be applied on all transplanted trees and the newly transplanted protected shrubs of *Pavetta hongkongensis*.

The Contractor should replant the partly fallen tree *Celtis sinensis* (Tree No. N13) as soon as possible, and ensure all planted compensatory trees and transplanted trees have been stabilized by the bamboo staking.

7 Landscape and Visual

7.1 Introduction

The Landscape and Visual Monitoring of the Project is conducted to fulfill Clauses 5.2 and 5.4 of EP-303/2008 and the monitoring requirements in accordance with Section 7 of the approved updated EM&A Manual (approved by EPD on December 2010) of the Project. A Baseline Review on updating the landscape and visual condition, and the mitigation measures of the Project (including Contracts 1 and 2 of the Project) was undertaken before the commencement of the Project. The review findings were updated in the Baseline Environmental Monitoring Report submitted to the EPD on 14 February 2011.

This monthly monitoring report will detail the scope of landscape and visual monitoring work, monitoring findings and observations, and any recommendation and advice on proper implementation of the landscape mitigation measures in the works areas under Contract 1 of the Project.

7.2 Scope of Monitoring

7.2.1 Monitoring Objectives

Landscape and Visual Monitoring of the Project should be conducted in a bi-weekly basis for checking the design, implementation and maintenance of the landscape and visual mitigation measures throughout the construction phase and in a quarterly basis during operational phase of the Project. Observations of any potential conflicts between the proposed mitigation measures and the project works carried out by the Contractors should be recorded. Recommendation and advice on proper implementation of the landscape mitigation measures should be provided to the Contractor for minimizing any potential impacts on the landscape and visual elements.

7.2.2 Monitoring during Construction Phase

The following landscape and visual mitigation measure should be implemented during the

construction phase of the project to minimize the potential impacts:

- *Visual Screen* Use of hoardings as visual screens for the construction in the works areas;
- *Contaminant/ Sediment Control* Use of temporary barriers, covers and drainage provision around the construction works as contaminant/ sediment control to prevent the contaminants and sediments from entering the sensitive water-based habitats;
- *Pollution Control* Implementation of pollution control measures to minimize any adverse environmental impacts to the surrounding habitats;
- *Liaison with Nursery* Liaison with the nursery operator as necessary to minimize any adverse impact to the daily operation and plant holding capacity of the nursery;
- *Existing Trees within Works Area* Maintenance and protection of the existing trees, especially their crowns, trunks and roots, within work sites; and
- *Construction Light* Provision of construction light should be controlled at night to avoid excessive glare to the surrounding villages and to Plover Cove.

7.2.3 Monitoring during Operational Phase

The following landscape and visual mitigation measure should be implemented during the operational phase of the project to minimize the potential impacts:

- Viewing area formation by planting with shrubs, grasses and benches along the area;
- Architectural design of the pump house will help it fit into the existing suburban, natural to semi-natural surroundings;
- Landscape design of pump house by providing sufficient planting around its boundary fence;
- Enhancement planting along Tung Tsz Road with shrubs/ trees of suitable species to help protect the stream and marshes;
- Construction of box culvert should be with at least 1.0m soil depth for enhancement planting;
- Transplanting of existing affected trees to adjacent locations should be carried out;

- Preparation for transplanting is needed to allow sufficient time for root pruning and rootball preparation prior to transplanting; and
- Reinstatement of affected area should be carried out to check that the works areas are properly reinstated.

7.3 Landscape and Visual Monitoring Results

7.3.1 Monitoring Date(s)

This monthly Landscape and Visual Monitoring (December 2011) was conducted to cover only Areas A, B and C of Contract 1 of the Project. The bi-weekly monitoring was conducted on 2nd, 15th and 28th December 2011.

All photos stated in this section are recorded in Appendix G.

Contract 2 of the Project has been commenced in July 2011 and the bi-weekly monitoring was also undertaken on 2nd, 15th and 28th December 2011. The monitoring findings and recommendation will be submitted in a separate Monthly EM&A Report under Contract DC/2010/02.

7.3.2 Visual Screen

No follow-up action by the Contractor is required as from the Monthly EM&A Report for November 2011.

Observation

Construction hoardings have been erected in Area A along the entire site boundary.

A section of temporary hoarding has been erected from northwest to southwest parts of Tung Tsz Nursery in Area B (approximately along the works boundary from Trees U42 to U62), whilst line of hoardings have been maintained to the western part of Area B falling within the northwestern part of Tung Tsz Nursery.

A line of chain link fence has been erected to replace the temporary hoarding and surrounded Area C (Photo 1).

Recommendation

No specific recommendation is required.

7.3.3 Contaminant/ Sediment Control

No follow-up action by the Contractor is required as from the Monthly *EM&A Report for November 2011*.

Observation

Area A

Provision of dust control measure (such as vehicle wheel washing facilities) was observed at the exit point of Area A.

Used water for washing vehicle wheel and groundwater from the excavated sites were pumped into the silt/sand removal facilities for filtration before discharging into the manhole adjacent to Area A.

Area B

Used water was collected and drained directly to the sedimentation tank placed adjacent to the fenced Area C. The water was further filtrated through the silt/sand removal facilities in the tank before discharging into the manhole adjacent to Area C.

Area C

The establishment phase of the Ecological Compensatory Area (ECA) has commenced and the pond of the ECA is connected with the Wai Ha River to the south. No water resulting from any construction works or wetland maintenance practice was pumped out from the ECA.

Recommendation

No specific recommendation is required.

7.3.4 Pollution Control

All used water for washing vehicle wheel and construction works was filtrated and drained to the manholes, as following the recommendation stated in *Monthly EM&A Report for November 2011*.

Observation

Area A

Provision of vehicle wheel washing facilities was observed at the exit point of Area A to reduce the contamination to the surrounding habitats in Plover Cove. Used water for washing vehicle wheel and groundwater from the excavated sites were pumped into the silt/sand removal facilities for filtration before discharging into the manhole adjacent to Area A. The drainage pipes were maintained appropriately to discharge the used water to the manhole at Ting Kok Road.

Area B

No direct discharge of contaminants or any fluid was observed within the active works area during the inspections. All used water was collected and drained directly to the sedimentation tank placed adjacent to the fenced Area C. This water was further filtrated through the silt/sand removal facilities in the tank before discharging into the manhole adjacent to Area C.

Area C

The pond of the ECA was observed to be connected to Wai Ha River directly as following the scheme design of Habitat Compensatory Plan (Photo 2). No direct discharge of turbid water into the adjacent Wai Ha River was observed.

Recommendation

No specific recommendation is required for Areas A, B and C. As a reminder, the Contractor should regularly check the condition of the drainage pipe and ensure that the used water should be appropriately filtrated and discharged to the manhole/other Environmental Pioneers and Solutions Limited P.46 discharge point agreed by the Engineer and EPD. This is to avoid any potential contamination to the vegetation in Shuen Wan marsh and other vegetated/marinated areas adjacent to the active works area.

7.3.5 Liaison with Nursery

As observed in December 2011, active construction works within Tung Tsz Nursery was still mainly restricted within the fenced areas to the southwest of the nursery. Other designed works areas within nursery have been under the normal operation and maintenance of Tung Tsz Nursery.

The health condition of the *Grevillea robusta* (U58) has been closely monitored on a bi-weekly basis and regular watering of the retained trees and transplanted trees was anticipated.

The works practice and maintenance of trees within the nursery generally follow the recommendation as stated in Monthly EM&A Report for November 2011. Any observed issues related to the liaison with the nursery are highlighted in this section.

Observation

The temporary hoarding and hoarding footings have been maintained from northwest to southwest parts of Tung Tsz Nursery since April 2011. Major construction work within the temporary hoarding area has been observed since April 2011.

Poor health condition for the transplanted tree U58 *Grevillea robusta* was reported since late April. Regular monitoring for the subject tree was conducted bi-weekly. Tree defects of chlorotic leaves and some defoliation were still found but newly regenerated leaves were observed on the branches. Health condition of this transplanted tree has remained poor in December 2011 (**Photo 3**) but its structure has still remained in fair condition.

No additional tree transplantation work were reported by the Main Contractor and observed during the inspections in December 2011.

Recommendation

The works area and the construction works should be properly managed and implemented without influencing the daily operation of the nursery (i.e. provide enough access road and works area for the nursery operation).

All transplanted trees should be watered regularly (e.g. at least every two days) by the appointed landscape contractor.

Regular monitoring and watering of *Grevillea robusta* (U58) are still recommended to be the major treatment to the tree. The appointed landscape contractor and the Contractor should closely monitor the health conditions throughout the establishment period.

7.3.6 Existing Trees within Works Areas

3.6.1 Tree Protection Zones (TPZs) in Areas A and B were demarcated within the construction sites as following the recommendation stated in the Monthly EM&A Report for November 2011. Almost all major temporarily stored construction materials within the TPZs for trees in Area A were stored as observed in the monitoring on 28th December 2011 (see details in the following section).

Regular watering of the retained trees, transplanted trees and the compensatory planting was anticipated. Maintenance of the existing trees within the works areas generally follows the recommendation as stated in *Monthly EM&A Report for November 2011*, except the observations as highlighted in the following sections.

Observation

Area A

The large, temporarily stored construction materials found within the TPZs of the trees to be transplanted (E16 to E20) were removed as observed in the monitoring on 28^{th} December 2011 (**Photos 4-5**).

No significant damages on the crowns, trunks and roots of the remaining trees were observed during the monitoring in December 2011 in Area A.

Area B

Trees, including retained and transplanted specimens, within the nursery were maintained generally in fair condition, with no significant damages on tree crowns, trunks and roots observed during the monitoring in December 2011. Newly regenerated leaves were found on the branches of the transplanted tree U58 but its physiological condition has still remained in poor after the transplant.

The health conditions of U34 (**Photo 6**), U35 (**Photo 7**) and U37 (**Photo 8**) were found to be poor, with no leaves in the canopies and the trunks with dried, loose tree bark. The tree tag of U35 was found on the ground (**Photo 9**).

The planter for a palm to be transplanted (A36) was still not yet repaired by the time of the inspections in December 2011. Two ropes have been used for guying the tree to prevent tree failure (**Photo 10**). Broken planters for 2 transplanted trees (U54 and one tree with no tag to the south of U54) were observed at their temporary receptor sites (**Photo 11**). Both planters were enclosed by orange construction net to prevent further damage to the remained planters.

A sheet of shading net has been found tied around the trunk of the transplanted tree U57 since the transplantation in April 2011 (**Photo 12**).

The tree to be transplanted T97 was found resprouting in November 2011 but the sprouts were removed as observed in the monitoring on 28th December 2011 (**Photo 13**). As reported by the Main Contractor, no recommended tree remedial work at this area has been commenced. Therefore, it was suspected that the sprouts were removed by the responsible government department as a routine vegetation maintenance practice.

No significant damages on the crowns, trunks and roots of the remaining trees were observed during the monitoring in December 2011 in Area B.

Area C

The existing trees were maintained generally in fair health condition. No branch pruning and tree felling were observed in the monitoring. No significant damages on the crowns, trunks and roots on trees within Area C were observed during the monitoring in December 2011. Defoliation was observed on the transplanted trees T152 (Photo 14), T153 (Photo 15), T250 (Photo 16) and one newly transplanted tree without a tree tag (Photo 17). These four trees were suspected dying with poor health condition, possibly due to transplantation shock and as unsuitable species for transplantation.

Three specimens (Tree No.: PH01, PH02 and PH03) of the protected shrub species of conservation interest *Pavetta hongkongensis* were transplanted to the northeastern part of the Area C on 20th December 2011 (**Photos 18 and 19**) following the Transplantation Proposal approved by EPD.

A compensatory tree *Celtis sinensis* (Tree No. N13) was found uprooted and fallen along the southeastern bund of the created wetland pond (**Photo 20**).

Recommendations

Area A

Maintenance of proper TPZs with no temporarily stored construction materials should be continued throughout the construction period. The Contractor should continue notifying the on-site workers not to stockpile soil/construction materials or place construction equipments within the TPZs.

All retained trees or trees to be transplanted should be watered regularly (e.g. at least every two days) by the appointed landscape contractor. The Contractor should conduct regular inspection on the health condition and protection measures of each existing trees within the Area A.

Area B

All transplanted trees should be watered regularly (e.g. at least every two days) by the appointed landscape contractor. This is a necessary maintenance practice to improve the survival rates and growth for trees showing poor health conditions (e.g. for trees U34, U35 and U37) resulting from the transplantation shock. Regular check of the health conditions of these trees should be conducted.

update their health conditions and any tree defects. If these trees are found to be dead specimens for a prolonged period in the future, the Contractor should replace these specimens for compensation.

The Contractor has been informed to repair the planters of A36, U54 and the tree with no tag to the south of U54 as soon as possible. In addition, the Contractor should ensure that all planters have been properly maintained. Manual weeding of overgrowth vegetation within the tree planters is recommended.

Tree tag of U35 should be re-tagged on the tree trunk to facilitate the on-site tree maintenance.

The shading net tied on the trunk of U57 should be removed..

Area C

All transplanted trees, planted compensatory trees and the three transplanted individuals of the protected shrub species of conservation interest *Pavetta hongkongensis* should be watered regularly (e.g. at least every two days) by the appointed landscape contractor. Regular check of the health conditions of these trees should be conducted. If these trees are found to be dead specimens for a prolonged period in the future, the Contractor should replace these specimens for compensation.

7.3.7 Construction Lights

No follow-up action on maintenance of construction light is required as from the *Monthly EM&A Report for November 2011*.

Observation

No construction light impact to the surrounding villages and to Plover Cove as all construction activities and construction sites are halted at 1800. No construction light at night is provided by the Main Contractor.

Recommendation

No specific recommendation is required.

7.4 Audit Schedule

The next bi-weekly Landscape & Visual Monitoring in January 2012 is scheduled to be conducted in the weeks of 9th and 23rd January 2012.

8 Action taken in Event of Exceedance

If the measurements (Noise, Water, Hydrological Characteristics, and Ecology) exceed the action / limit level, exceedance details will be reported and follow-up actions will be taken by relevant parties involved.

During the reporting month there was no exceedance for noise, hydrological characteristics, and ecological measurements recorded; therefore, no actions were taken.

For water quality monitoring, total 8 abnormal incidents of water quality limits (Dissolved Oxygen, Suspended solids and Turbidity) were recorded in this reporting month according to the established level. ET has arranged site investigations for the incidents. No major site activity that may affect water quality was observed and no particular observations of defective site activities were found. However, Excavation works from other construction site was observed on 15th, 17th & 24th December 2011 and were found causing water contamination and such conditions were believed to be mainly attributed by the other construction work; the water condition of Wai Ha River is presented in photo attached in Appendix M. During the incidents occurred, Contractor had already implemented sedimentation tank to prevent water quality impact. As no particular defect of site practices was observed, such conditions were believed to be attributed by natural fluctuation except the abnormal incidents at 15th, 17th & 24th December 2011. No further actions for those incidents are required.

9 Construction waste disposal

It is the contractor's responsibility to ensure that all wastes produced during the construction phase for the drainage improvement works are handled, stored and disposed of 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 9.1 is a summary of figures of the construction wastes disposal provided by Contractor.

	Actual Quantities of Inert C & D Materials Generated Monthly					Actual Quantities of C & D Wastes Generated Monthly					
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note3)	Chemical Waste	Others, e.g. general refuse
	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)
Mar-11	0.330	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00	0.055
Apr-11	0.280	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.02
May-11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Jun-11	5.475	0.00	5.475	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
July-11	3.200	0.00	2.85	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aug-11	1.608	0.00	0.868	0.00	0.00	0.740	0.00	0.00	0.00	0.00	0.00
Spet-11	0.045	0.00	0.04	0.00	0.005	0.00	0.00	0.00	0.00	0.00	0.00
Oct-11	0.425	0.00	0.41	0.00	0.015	0.00	0.00	0.00	0.00	0.00	0.00
Nov-11	0.330	0.00	0.00	0.315	0.015	0.00	0.00	0.00	0.00	0.00	0.00
Dec-11	0.065	0.00	0.06	0.00	0.005	0.00	0.00	0.00	0.00	0.00	0.02
Total	11.758	0.00	9.703	0.665	0.650	0.74	0.00	0.00	0.00	0.00	0.115
			Forec	cast of Total Quantitie	es of C & D Mate	rials to be Generat	ted from the Co	ntract			
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/cardboard packaging	Plastics (see note3)	Chemical Waste	Others, e.g. general refuse
	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000m3)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)
	37.37	8.27	12.09	0.00	25.28	2.1	10	2	0.5	1	1
Notes (1)			The Per	formance targets	are given in PS	Clause 26.23 (1	4)			
					-	-					
(2)	Т	he waste flow table	e shall also include C	C & D materials	hat are specified	in the Contract	to be imported for us	ed at the sites		
(3)		Pla	astics refer to plastic	s bottles/containe	ers, plastic sheets	/foam from pac	kaging materials.			
((4) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring in accordance with the PS Clause 25.20A(4)										

Table 9.1 Summary of Construction Waste Disposal

Environmental Pioneers and Solutions Limited

10 Status of Permits and Licenses obtained

Table 10.1 is the updated status of environmental related permits/ license obtained for the construction activities

Description	License / Permit No.#	Date of Issue Site		Date of expiry	Status	
Environmental Permit	EP-303/2008	2008/2/25	Area A, B & C	not applicable	Valid	
Discharge Licence	WT00006448-2010	2010/6/15	Area A, B & C	30/6/2015	Valid	
Registration as a Chemical Waste Producer	316597	2010/4/26	Area A, B & C	not applicable	Valid	
Waste Disposal	7010348	2010/3/2	Area A, B & C	not applicable	Valid	

Table 10.1 Status of Permits and Licenses Obtained

11 Compliant Log

There was no formal complaint received during the reporting period. Therefore, follow up actions for the environmental complaint is not required.

	Noise	Water	Ecology	Others
Mar 2011	0	0	0	0
April 2011	0	0	0	0
May 2011	0	0	0	0
June 2011	0	0	0	0
July 2011	0	0	0	0
August 2011	0	0	0	0
September 2011	0	0	0	0
October 2011	0	0	0	0
November 2011	0	0	0	0
December 2011	0	0	0	0
Total	0	0	0	0

Table 11.1 Summary of Formal Complaints received

12 Site Environmental Audits

12.1 Site Inspection

Site inspections were undertaken weekly to inspect the construction activities in active site areas to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented.

Within this reporting period, site inspections were conducted on 1st, 8th, 15th, 19th and 30th of December 2011. A detailed checklist of each site inspection together with comments and relevant photos have been filed and kept. The findings from inspection were summarized in Table 12.1.

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
20 Oct 2011	Stagnant water was observed inside the ditch at Area B	Observation	Contractor was advised to remove the stagnant water and fill the concaved area of the cover with sand to prevent the accumulation of stagnant water and mosquito breeding.	Stagnant water inside the drip tray was removed by contractor	1 Dec 2011	-
3, 10 & 17 Nov 2011	Earthy stockpiles were observed without covering at Area A	Observation	Contractor was reminded that the earthy stockpiles should be covered by tarpaulin.	Earthly stockpile was removed by contractor	1 Dec 2011	-
17 Nov 2011	Damaged protective fence was observed at Area A.	Observation	Contractor was reminded to replace the fencing and provide a protective zone for the trees.	Damaged tree protective fence was repaired by contractor	1 Dec 2011	-

Table 12.1 Summary results of site inspections findings

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
1 Dec 2011	It was observed that the haul road is dry and dusty at Area A	Observation	Contractor was reminded that routine watering should be implemented for dust suppression.	Routine watering to the haul road was implemented at Area A	19 Dec 2011	-
1, 8, 15, Dec 2011	Construction was waste was observed at Area A	Observation	Contractor was reminded that C & D waste should be stored at proper location. Contractor should assign licensed waste collector to collect and dispose observed waste as soon as possible	Outstanding	-	Part of Construction waste was removed by contractor at 8, 19 & 30 Dec 2011
8 & 30 Dec 2011	Damaged protective fence was observed at Area A	Observation	Contractor was reminded to replace the fences to provide a protective zone for the trees.	Outstanding	-	The issue was rectified at 19 Dec 2011, but reappeared at 30 Dec 2011
15 Dec 2011	Algae floating on the water surface of soak away tank was observed	Observation	Contractor was reminded to remove the algae from soak away tank.	Algae was removed from the soak away tank	19 Dec 2011	-
15 Dec 2011	General wastes were observed at Area A	Observation	Contractor was advised to clean the general wastes or	Outstanding	-	-

Date	Findings	Identification	Advice from ET	Action taken	Closing date	Remarks
			store at proper location for temporary storage.			
15 & 30 Dec 2011	Construction wastes were observed inside the tree protective zone	Observation	Contractor was reminded to remove the construction waste from tree protective zone and set up the tree protective fence.	Outstanding	-	-
	Earthy stockpile was observed without cover at Area A	Observation	Contractor was reminded that earthy stockpile should be covered with tarpaulin for dust suppression.	Outstanding	-	-

12.2 Compliance with legal and Contractual requirement

There was no non-compliance recorded for the month of December 2011.

12.3 Implementation status and effectiveness of the mitigation measures

Contractor has implemented mitigation measures to address those problems as advised by ER and ET. Some of the measures taken by the contractor were considered as effective to minimize negative impact to the environment. Ongoing investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in next month.

As there were some ongoing follow up practices, contractor was reminded to regularly review and rectify the discrepancy once found and maintain good site condition. The contractor implemented various environmental mitigation measures as recommended in the Environmental Permit and Final Mitigation Measures Report.

The recommend mitigation measures of EM&A manual (revision 3) are

presented in Appendix H (A).

The implemented statues of mitigation measures are presented in Appendix H (B)

13 Future Key issues and recommendations

According to the forecasted site activities, key environmental issued to be considered should at least include:

- Site water control and relevant protective measures.
- Quality of effluent discharge from Area A.
- Noise abatement measures for piling works.
- Control and disposal for construction wastes generated from works.

Tree protective measure for tree planting and transplanting, such as tree protection zone and regular watering.

14 Conclusions

Pumping station construction, Concreting works for box culvert and pumping station and plant maintenance were major site activities being carried out within this reporting period.

Regular site meetings and inspection audits led by the seniors for discussing site environmental matters were held among Project Proponent, Contractor and the ET on weekly basis. Also monthly site meeting and inspection audits with the above parties and IEC were carried out on 19th of December 2011.

For noise level monitoring, all results were within the established A/L limits.

For water quality monitoring, total 8 abnormal accidents of water quality limits (Dissolved Oxygen, Suspended solids and Turbidity) were recorded in this reporting month according to the established level. ET has arranged site investigations for the abnormal incidents. No particular observations of defective site activities were found causing the incidents and such conditions were believed to be attributed by natural fluctuation. However, Excavation works from other construction site was observed on 15th, 17th & 24th December 2011 and were found causing water contamination and such conditions were believed to be mainly attributed by the other construction work.

For ecological monitoring survey, all vegetations recorded were in fair

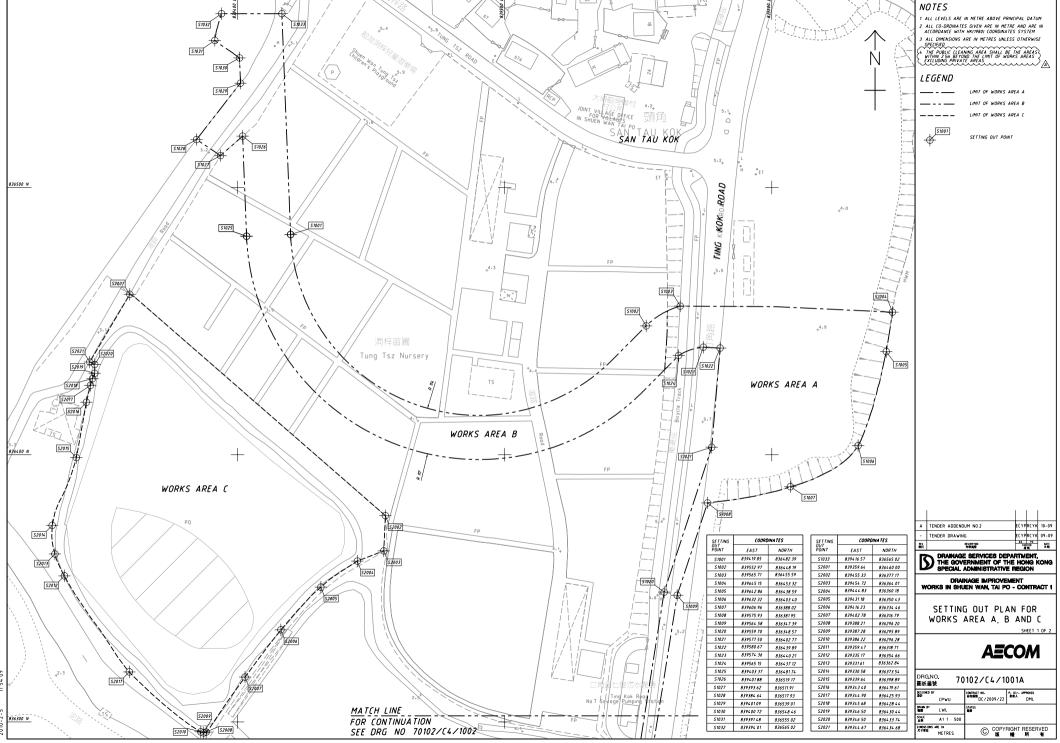
condition, with no significance sign of health deterioration for the retained trees. In addition, there was no ecological water quality monitoring conducted in this reporting period.

Also, there were not any notifications of summons recorded during the reporting period. Furthermore, there were not any formal prosecution and complaints recorded.

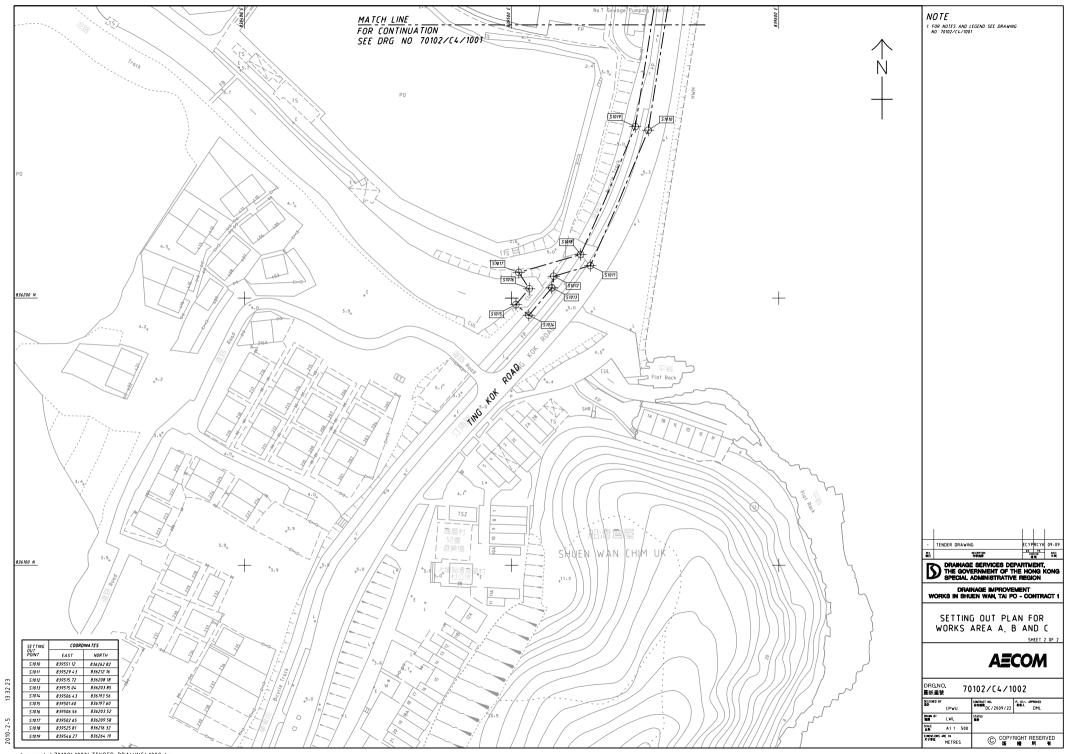
ET has reminded the contractor to provide environmental pollution control measures wherever necessary, and to keep a good environmental management at site practice.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual (revision 3) and Environmental Permit requirement.

Appendix A: Site Location



p:\projects\70102\1000\TENDER_ADDENDUM_NO_2\1001A.dgn



p:\projects\70102\1000\TENDER_DRAWING\1002.dgn

Appendix B: Key Personal Contact information chart

Post	Name	Contact No.	Contact Fax	e-mail
Project Manager	Mr. W. K. Chan	6821 1136	2674 6688	dc200922jv_pmcwk @yahoo.com.hk
Site Agent	Mr. C. L. Wong	9280 0166	2674 6688	dc200922jv_sa@yaho o.com.hk
Environmental Officer / Sub-agent	Mr. K. M. Ma	9552 1734	2674 6688	dc200922jv_suba@ya hoo.com.hk
Environmental Supervisor	Mr. Anthony Chan	9179 2092	2674 6688	anthony277@hotmail. com
Asia Ecological Consultants Ltd. (Wetland Specialist)	Dr. Mike Leven	2486 2885	2471 8389	mrleven@asiaecol.co m.hk
Environmental Pioneers & Solutions Limited (Environmental Team)	Miss. Goldie Fung	2556 9172	2856 2010	goldiefung@fseng.co m.hk

Appendix C: Calibration Certificates for measuring instruments



Certificate No	. 11494		Page 1 of	3 Pages
Customer :	Environmental Pioneers and	Solutions Limited	· · · · ·	
Address :	Flat B, 6/F., Hop Shi Factory	Building, 29 Lee Ch	nung Street, Chai Wan, Hong K	ong.
Order No. :	Q10260		Date of receipt :	15-Mar-11
Item Tested				·•• ,
Description	: Digital Sound Level Meter			
Manufacturer	: SVAN			
Model	: 949		Serial No. : 8571	
Test Condit	tions			
Date of Test :	17-Mar-11		Supply Voltage :	
Ambient Tem	perature : (23 ± 3)°C		Relative Humidity : (50 ±	25) %
Test Specif	ications			· · · · · · · · · · · · · · · · · · ·
Calibration che Ref. Document	vck. //Procedure: Z01.			
Test Result	s			
	e within the IEC 651 Type 1 & IE shown in the attached page(s)	,	sification.	
Main Test equi	pment used [.]			
Equipment No.	•	Cert. No.	Traceable	to
S017A	Multi-Function Generator	07279	SCL-HKS/	
S024	Sound Level Calibrator	04062		& SCL-HKSAR
	•			
overloading, mis-ha	wance for the equipment long term dri	ft, variations with enviror aboratory to repeat the n	at the time of the test and any uncertant mental changes, vibration and shock neasurement. Hong Kong Calibration	during transportation.
The test equipmen The test results ap	t used for calibration are traceable to l ply to the above Unit-Under-Test only	nternational System of L	Jnits (SI).	
	1 -			
Calibrated by	:_ llum	А	pproved by : DST.	th
	P. F. Wong		Dorothy Cl	neuk

}

21-Mar-11

This Certificate is issued by: Date: Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong, Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 11494

Page 2 of 3 Pages

Results :

1. SPL Accuracy

	UUT Set	ting			
Level Range	Octave Filter	Weight	Response	Applied Value (dB)	UUT Reading (dB)
105 dB	OFF	А	Fast	94.0	93.9
			Slow] [93.9
		С	Fast		93.9
130 dB	OFF	Α	Fast	94.0	94.0
			Slow] [94.0
		С	Fast		94.0
	OFF	А	Fast	114.0	113.8
			Slow]	113.8
		C	Fast		113.8

IEC 651 Type 1 Spec. : \pm 0.7 dB Uncertainty : \pm 0.1 dB

 Level Stability : 0.0 dB IEC 651 Type 1 Spec. : ± 0.3 dB Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

<u></u>				
UUT Range	Applied			IEC 651 Type 1 Spec.
(dB)	Value (dB)	UUT Reading (d	B) Variation (dB)	(inside Primary)
130	114.0	114.0	0.0	± 0.7 dB
	104.0	104.0	0.0	
	94.0	94.0 (Re	ef.)	
105	84.0	84.2	-0.2	
	74.0	74.1	-0.1	
	64.0	64.1	-0.1	
	54.0	54.2	-0.2	

Uncertainty : $\pm 0.1 \text{ dB}$



Certificate No. 11494

Page 3 of 3 Pages

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Read	ling (dB)	Variation (dB)	IEC 651 Type 1 Spec.
130	84.0	84.1		-0.1	± 0.4 dB
	94.0	94.0	(Ref.)	0.0	
	95.0	95.0		0.0	$\pm 0.2 \text{ dB}$

Uncertainty : $\pm 0.1 \text{ dB}$

4. Frequency Weighting

A weighting		
Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.8	- 39.4 dB, ± 1.5 dB
63 Hz	-26.5	- 26.2 dB, ± 1.5 dB
125 Hz	-16.5	$-16.1 dB, \pm 1 dB$
250 Hz	-9.0	- $8.6 dB, \pm 1 dB$
500 Hz	-3.4	- $3.2 dB, \pm 1 dB$
1 kHz	0.0 (Ref)	$0 dB, \pm 1 dB$
2 kHz	+1.6	$+ 1.2 dB, \pm 1 dB$
4 kHz	+1.6	$+ 1.0 dB, \pm 1 dB$
8 kHz	-0.5	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-6.3	$- 6.6 \text{ dB}, + 3 \text{ dB} \sim -\infty$

Uncertainty : $\pm 0.1 \text{ dB}$

5. Time Averaging

Applied Burst duty Factor	Applied Leq. Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	50.0		
1/10	50.0	50.3	± 0.5 dB
1/10 ²	50.0	49.8	
1/10 ³	50.0	50.0	± 1.0 dB
1/10 ⁴	50.0	50.0	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 012 hPa.

----- END -----



Certificate No. 11218	Page 1 of 3 Pages
Customer: Environmental Pioneers and Solutions Limited	l .
Address : Flat B, 6/F., Hop Shi Factory Building, 29 Lee	Chung Street, Chai Wan, Hong Kong.
Order No. : Q10260	Date of receipt : 1-Mar-11
Item Tested	
Description : Digital Sound Level Meter	
Manufacturer : SVAN	
Model : 949	Serial No. : 8569
Test Conditions	
Date of Test: 14-Mar-11	Supply Voltage :
Ambient Temperature : (23 ± 3)°C	Relative Humidity : (50 ± 25) %
Test Specifications	
Calibration check.	
Ref. Document/Procedure: Z01.	
Test Results	
All results were within the IEC 651 Type 1 & IEC 804 Type 1 sp	pecification after adjustment.
The results are shown in the attached page(s).	

Main Test equipment used:					
Equipment No.	Description	<u>Cert. No.</u>	Traceable to		
S017A	Multi-Function Generator	07279	SCL-HKSAR		
S024	Sound Level Calibrator	04062	NIM-PRC & SCL-HKSAR		

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI). The test results apply to the above Unit-Under-Test only

Calibrated by :

P. F. Wong

Approved by : Dorothy Cheuk Date: 15-Mar-11

This Certificate is issued by: Da Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong. Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 11218

Page 2 of 3 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value	UUT Reading (dB)		
Level Range	Octave Filter	Weight	Response	(dB)	Before Adjust.	After Adjust.
105 dB	OFF	A	Fast	94.0	*92.2	93.9
			Slow			93.9
		С	Fast]	·	93.9
130 dB	OFF	А	Fast	94.0		93.9
			Slow			93.9
		С	Fast			93.9
	OFF	А	Fast	114.0		113.9
			Slow			113.9
		С	Fast			113.9

IEC 651 Type 1 Spec. : \pm 0.7 dB Uncertainty : \pm 0.1 dB

 Level Stability : 0.0 dB IEC 651 Type 1 Spec. : ± 0.3 dB Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

J.1 DOVDED					· · · · · · · · · · · · · · · · · · ·
	Applied				IEC 651 Type 1 Spec.
UUT Range	Value (dB)	UUT Reading (dB)		Variation (dB)	(inside Primary)
130	114.0	113.9		0.0	$\pm 0.7 \text{ dB}$
	104.0	103.9		0.0	
	94.0	93.9	(Ref.)		
105	84.0	83.9		0.0	
	74.0	74.0		+0.1	
	64.0	64.1		-0.2	
	54.0	54.1		-0.2	

Uncertainty : $\pm 0.1 \text{ dB}$



Certificate No. 11218

Page 3 of 3 Pages

3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Read	ing (dB)	Variation (dB)	IEC 651 Type 1 Spec.
130	84.0	83.9		0.0	$\pm 0.4 \text{ dB}$
	94.0	93.9	(Ref.)		
	95.0	95.0		-0.1	± 0.2 dB

Uncertainty : $\pm 0.1 \text{ dB}$

4. Frequency Weighting

A weighting		
Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.7	- 39.4 dB, ± 1.5 dB
63 Hz	-26.5	- 26.2 dB, ± 1.5 dB
125 Hz	-16.5	- 16.1 dB, ± 1 dB
250 Hz	-9.0	- 8.6 dB, ± 1 dB
500 Hz	-3.5	- $3.2 dB, \pm 1 dB$
1 kHz	0.0 (Ref)	$0 \text{ dB}, \pm 1 \text{ dB}$
2 kHz	+1.5	$+ 1.2 dB, \pm 1 dB$
4 kHz	+1.4	$+ 1.0 \text{ dB}, \pm 1 \text{ dB}$
8 kHz	-0.7	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-6.6	- 6.6 dB, $+ 3 dB \sim -\infty$

Uncertainty : $\pm 0.1 \text{ dB}$

5. Time Averaging

Applied Burst duty Factor	Applied Leq. Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0		
1/10	40.0	40.1	± 0.5 dB
1/10 ²	40.0	40.0	
1/10 ³	40.0	40.2	± 1.0 dB
1/104	40.0	40.0	

Uncertainty : $\pm 0.1 \text{ dB}$

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 010 hPa.
- 4. *Out of Specification

----- END -----



Hong Kong Calibration Ltd. 香港校正_{有限公司}

Calibration Certificate

Certificate No.	11495		Page	1 0	of 2	Pages
Customer :	Environmental Pioneers and Solu	utions Limited				
Address :	Flat B, 6/F., Hop Shi Factory Buil	ding, 29 Lee Chung	Street, Chai Wa	an, Hor	ng Kong	
Order No. :	Q10260		Date of receipt	: :		15-Mar-11
Item Tested						
Description :	Sound Level Calibrator			r		
Manufacturer :	Svantek					
Model :	SV30A		Serial No.	: 7	908	
Test Conditi	ons		<u>, 10 17 17 17 17 17 17 17 17 17 17 17 17 17 </u>			
Date of Test :	17-Mar-11		Supply Voltage	e :	-	
Ambient Temp	erature : (23 ± 3)°C		Relative Humic		50 ± 25)	%
Test Specific	cations					
Calibration chec	k					
	Procedure : F21, Z02.					
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
Test Results	;					
All results were	within the IEC 942 Class 1 specifi	cation.				
The results are	shown in the attached page(s).					
Main Test equip	ment used:					
Equipment No.		Cert. No.		Trace	able to	
S014	Spectrum Analyzer	03926		NIM-F	7RC & S	CL-HKSAR
S024	Sound Level Calibrator	04062		NIM-F	RC & S	CL-HKSAR
S041	Universal Counter	04461		SCL-ł	HKSAR	
S206	Sound Level Meter	04462		SCL-ł	HKSAR	
will not include allow overloading, mis-ha	this Calibration Certificate only relate to th vance for the equipment long term drift, vanching, or the capability of any other labor age resulting from the use of the equipme	ariations with environment atory to repeat the meas	ntal changes, vibratio	on and s	hock durii	ng transportation,

The test equipment used for calibration are traceable to International System of Units (SI). The test results apply to the above Unit-Under-Test only

Approved by : 5/300 Calibrated by : Un P. F. Wong **Dorothy Cheuk** 21-Mar-11 Date: This Certificate is issued by: Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong. Tel: 2425 8801 Fax: 2425 8646



Certificate No. 11495

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.08	± 0.3.dB
114	114.18	

Uncertainty : $\pm 0.1 \text{ dB}$

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.000 kHz	± 2 %

Uncertainty : \pm 3.6 x 10⁻⁶

- Level Stability : 0.0 dB IEC 942 Class 1 Spec. : ± 0.1 dB Uncertainty : ± 0.01 dB
- Total Harmonic Distortion : < 1.0 % IEC 942 Class 1 Spec. : < 3 % Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

- 2. The above measured values are the mean of 3 measurements.
- 3. The uncertainty claimed is for a confidence probability of not less than 95%.
- 4. Atmospheric Pressure : 1012 hPa.

----- END -----

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: Date of Issue: Client:	 26/11/2011 ENVIRONMENTAL PIONEERS & SOLUTIONS LTD		
Scope of Test:			
Description:	FLOW METER		
Brand Name:	Global Water		
Model No.:	FP201		
Serial No.:	45360		
Equipment No.:			
Date of Calibration:	15/12/2010		
Date of next Calibratio	n: 14/12/2011		

Parameters:

Flow Meter

In house method

Expected Reading (MPH)	Displayed Reading (MPH)	Tolerance (%)
60	65	-8
150	144	-4
800	773	-1
	Tolerance Limit (±%)	10.0



ALS Technichem (HK) Pty Ltd



Certificate N	lo. 17082		Page 1 of	2 Pages
Customer	: Environmental Pioneers an	d Solutions Limited		
Address	: Flat A, 19/F., Chai Wan Inc	lustrial Centre Building, 21 Le	e Chung Street, Chai	Wan, HK.
Order No.			te of receipt :	28-Nov-11
Item Test	ed			
Description	: Protable Level-Velocity Log	jger		
Manufactur	er: Greyline	_		05
Model	: Stingray	Se	rial No. : 455	
Test Con	ditions			
Date of Tes	t: 6-Dec-11		pply Voltage :	
Ambient Te	emperature : (23 ± 3)°C	Re	lative Humidity : (50	± 25) %
Test Spe	cifications			
Calibration of Ref. Docum	check. ient/Procedure : V12, T03, M07	,		
Test Res	ults			
• •	·			
	vere within the tolerance(s).			
i ne results	are shown in the attached page	5(5).		
Main Test e	equipment used:			
	No. Description	Cert. No.	Traceal	
S179	Std. Tape	10789	NIM-PF	
S136A	Stop Watch	07481	SCL-HI	
S223	Std. Thermometer	13173	NIM-PF	RC
will not includ overloading, r for any loss o	ven in this Calibration Certificate only r e allowance for the equipment long ter nis-handling, or the capability of any o r damage resulting from the use of the	ther laboratory to repeat the measure equipment.	ement. Hong Kong Calibra	
The test equi	pment used for calibration are traceabl Its apply to the above Unit-Under-Test	e to International System of Units (S only	I).	
	$\langle \rangle$	_	The the	Alt.
Calibrated	i by :	_ Appro	ved by :	
	Y, K. Wong	Date:	7-Dec-11)
This Contificate is	iscued by			

Hong Kong Calibration Ltd. Unit 88, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong. Tel: 2425 8801 Fax: 2425 8646

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Certificate No. 17082

Page 2 of 2 Pages

Results :

1. Flow Rate

Γ	Applied Value (Ft/s)	UUT Reading (Ft/s)	Tolerance	Uncertainty
ł	1.67	1.6	± 5 %	±1%

2. Level

Applied Value (Ft)	UUT Reading (Ft)	Tolerance	Uncertainty
1.00	1.00	± 5 %	± 0.1 %
1.75	1.75		
3.00	3.00		

3. Temperature

Applied Value (°C)	UUT Reading (°C)	Tolerance	Uncertainty
23.0	24	± 2 °C	± 0.2 °C

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Sensor Used : Model : QZ02L-UT-01-PS

S/N:10D18289

----- END -----



ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR ALLEN CHAN CLIENT: ENVIRONMENTAL PIONEERS & SOLUTIONS LTD ADDRESS: FLAT 19A, CHAI WAN INDUSTRIAL CENTRE BUILDING, 20 LEE CHUNG STREET, CHAI WAN, HONG KONG. PROJECT: --

WORK ORDER:	HK1125080
LABORATORY:	HONG KONG
DATE RECEIVED:	24/10/2011
DATE OF ISSUE:	02/11/2011

COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory. Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal aceptance criteria of ALS will be followed.

Scope of Test:	Conductivity, Dissolved Oxygen, pH, Temperature and Turbidity
Description:	Multi-meter
Brand Name:	DKK-TOA
Model No.:	WQC-24
Serial No.:	617892
Equipment No.: Date of Calibration:	

NOTES

This is the Final Report and supersedes any preliminary report with this batch number. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

11/F Chung Shun Knitting Centre 1-3 Wing Yip Street Kwai Chung HONG KONG
 Phone:
 852-2610 1044

 Fax:
 852-2610 2021

 Email:
 hongkong@alsglobal.com

Godfrey -terri Chan Laboratory Mahager – Hong Kong

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Page 1 of 3

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong PHONE +852 2610 1044 FAX +852 2610 2021 ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 🐊

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order:HK1125080Date of Issue:02/11/2011Client:ENVIRONMENTAL PIONEERS & SOLUTIONS LTD



Description: Brand Name: Model No.: Serial No.:	Multi–meter DKK–TOA WQC–24 617892		
Equipment No.:	 26 Ostala - 2011		261 2012
Date of Calibration:	26 October, 2011	Date of next Calibration:	26 January, 2012

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Meenoa ken Alma (213) Caldon), 23100				
Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)		
146.9	133	-9.5		
6667	6660	-0.1		
12890	12700	-1.5		
58670	56700	-3.4		
		10.0		
	Tolerance Limit (%)	10.0		

Dissolved Oxygen

Method Ref: APHA (21st edition), 45000: G

Displayed Reading (mg/L)	Tolerance (mg/L)			
5.00	-0.04			
6.52	0.04			
7.66	0.19			
Tolerance Limit (±mg/L)	0.20			
	Displayed Reading (mg/L) 5.00 6.52 7.66			

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.00	3.93	-0.07
7.00	7.06	0.06
10.0	10.01	0.01
	Tolerance Limit (±unit)	0.2

Mr/Chan Kw/k Fai, Oodfrey Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

 Work Order:
 HK1125080

 Date of Issue:
 02/11/2011

 Client:
 ENVIRONMER

C

HK1125080 02/11/2011 ENVIRONMENTAL PIONEERS & SOLUTIONS LTD



Description:	Multi–meter		
Brand Name:	DKK-TOA		
Model No.:	WQC-24		
Serial No.:	617892		
Equipment No.:			
Date of Calibration:	26 October, 2011	Date of next Calibration:	26 January, 2012

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.				
Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)		
11.0	10.2	-0.8		
25.0	24.1	-0.9		
40.0	39.0	-1.0		
	Tolerance Limit (°C)	2.0		

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.00	0.0	
4.00	4.3	7.5
40.0	43.6	9.0
80.0	86.3	7.9
400	420	5.0
800	853	6.6
	Tolerance Limit (±%)	10.0

Mr Chan Kwok Fai, Codfrey Laboratory Manager - Hong Kong Page 3 of 3

Appendix D: Construction Noise Monitoring Data

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitorin	g	2011/12/1	2011/12/1
Weather Conditio	'n	Sunny	Sunny
Measurement Sta	art Time (hh:mm)	14:00	14:40
Measurement Tin	ne Length (mins)	30 r	nins
SLM Model & S/N	l	SVA	N 949
Wind Speed (m/s)	1.38	0.95
	L _{eq} (dB(A))	50.5	55.1
Measurement Results	L ₁₀ (dB(A))	53.7	56.9
	L ₉₀ (dB(A))	39.8	38.1
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise

<u>Name</u>

<u>Signature</u>

<u>Date</u>

Huz

<u>2011/12/1</u>

Perpared by:

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitorin	g	2011/12/8	2011/12/8
Weather Condition	n	Cloudy	Cloudy
Measurement Sta	art Time (hh:mm)	12:33	13:06
Measurement Tin	ne Length (mins)	30 r	nins
SLM Model & S/N	l	SVA	N 949
Wind Speed (m/s)	1.4	0.56
	L _{eq} (dB(A))	49.3	53.5
Measurement Results	L ₁₀ (dB(A))	51.0	55.6
	L ₉₀ (dB(A))	40.0	39.8
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise

<u>Name</u>

<u>Signature</u>

<u>Date</u>

Huz

<u>2011/12/8</u>

Perpared by:

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitorin	g	2011/12/15	2011/12/15
Weather Condition	n	Sunny	Sunny
Measurement Sta	art Time (hh:mm)	11:33	12:05
Measurement Tin	ne Length (mins)	30 r	nins
SLM Model & S/N	1	SVAN	N 949
Wind Speed (m/s)	0.64	0.82
	L _{eq} (dB(A))	47.5	53.8
Measurement Results	L ₁₀ (dB(A))	50.0	57.5
	L ₉₀ (dB(A))	35.6	35.9
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise

<u>Name</u>

<u>Signature</u>

<u>Date</u>

Huz

2011/12/15

Perpared by:

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1
Monitoring Method		Façade	Façade
Date of Monitorin	g	2011/12/22	2011/12/22
Weather Condition	n	Sunny	Sunny
Measurement Sta	art Time (hh:mm)	13:04	13:41
Measurement Tin	ne Length (mins)	30 r	nins
SLM Model & S/N	1	SVAN	N 949
Wind Speed (m/s)	0.43	0.36
	L _{eq} (dB(A))	53.2	58.0
Measurement Results	L ₁₀ (dB(A))	57.1	60.1
	L ₉₀ (dB(A))	43.0	45.3
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise

<u>Name</u>

<u>Signature</u>

<u>Date</u>

Huz

22/12/2011

Perpared by:

Noise Monitoring Data Sheet

Monitoring Location		M1	AL1	
Monitoring Method		Façade	Façade	
Date of Monitorin	g	2011/12/29	2011/12/29	
Weather Condition	n	Sunny	Sunny	
Measurement Sta	art Time (hh:mm)	12:07	11:33	
Measurement Tin	ne Length (mins)	30 mins		
SLM Model & S/N	1	SVA	N 949	
Wind Speed (m/s)	0.22	0.12	
	L _{eq} (dB(A))	47.8	57.7	
Measurement Results	L ₁₀ (dB(A))	51.9	59.2	
	L ₉₀ (dB(A))	34.5	43.1	
Major Construction Noise Source(s) During Monitoring		The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	The measured noise level was dominated by the background noise in the immediate vicinity of the monitoring location due to its large distance from the construction activities	
Other Noise Source(s) During Monitoring		– Background Noise – Traffic Noise	– Background Noise – Traffic Noise	

<u>Name</u>

<u>Signature</u>

<u>Date</u>

Huz

<u>29/12/2011</u>

Perpared by:

Appendix E: Water Quality Monitoring Data

Remark:

Red highlighting: The value is exceeding limit level.

Yellow highlighting: The value is exceeding action level but within limit level.

Environmental Pioneers and Solutions Limited

Date of Sampling : 3/12/2011

Weather: Sunny

Monitoring Location	W1	W2		
Time (hhmm)	13:15	13:00		
Tide Mode	Mid-	flood	flood	
River Condition	Normal	Noi	rmal	
Water Depth (m)	<1	<1		
pH value	7.80	7.78		
Salinity (ppt)	1.8	12.9		
Temperature (°C)	19.8	19.4		
Turbidity (NTU)	1.0	2.1	2.1	
DO (mg/L)	7.46	7.38		
DO Saturation (%)	85%	84%		
Suspended Solids (mg/L)	1.0	1.4	1.4	

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

3/12/2011

Date of Sampling : 6/12/2011

Weather: Cloudy

Monitoring Location	W1	W2		
Time (hhmm)	10:20	9:53		
Tide Mode	Mid	Mid-ebb		
River Condition	Turbid	Turbid		
Water Depth (m)	<1	<1		
pH value	7.63	8.47		
Salinity (ppt)	1.4	13		
Temperature (°C)	20.9	21.2		
Turbidity (NTU)	1.10	2.1	2.1	
DO (mg/L)	7.27	7.11		
DO Saturation (%)	78%	76%		
Suspended Solids (mg/L)	1.4	4.4 4.4		

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

6/12/2011

Date of Sampling : 8/12/2011

Weather: Sunny

Monitoring Location	W1	W2	
Time (hhmm)	12:00	11:34	
Tide Mode	mid	-ebb	
River Condition	Turbid	Turbid	
Water Depth (m)	<1	<1	
pH value	7.51	7.69	
Salinity (ppt)	2	12	
Temperature (°C)	23.1	22	
Turbidity (NTU)	5.0	3.0	3.0
DO (mg/L)	7.09	6.92	
DO Saturation (%)	74%	72%	
Suspended Solids (mg/L)	4.8	3.2	3.2

Remark or Observation :

Turbid water from upstream (right)

Name

<u>Signature</u>

Date

Huz

8/12/2011

Date of Sampling: 10/12/2011

Weather: Sunny

Monitoring Location	W1	W2	
Time (hhmm)	11:25	11:10	
Tide Mode	mid	-ebb	
River Condition	Normal	Normal	
Water Depth (m)	<1	<1	
pH value	7.49	8.04	
Salinity (ppt)	2.8	17.8	
Temperature (°C)	16.7	17.7	
Turbidity (NTU)	1.0	4.4	4.4
DO (mg/L)	8.23	8.34	
DO Saturation (%)	85%	83%	
Suspended Solids (mg/L)	6.0	2.2	2.2

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

10/12/2011

Date of Sampling : 13/12/2011

Weather: Sunny

Monitoring Location	W1	W2	
Time (hhmm)	13:30	13:50	
Tide Mode	mid	-ebb	
River Condition	Turbid	Turbid	
Water Depth (m)	<1	<1	
pH value	7.51	7.99	
Salinity (ppt)	4.3	18.3	
Temperature (°C)	19.8	19.2	
Turbidity (NTU)	1.8	1.8	1.8
DO (mg/L)	7.48	7.42	
DO Saturation (%)	78%	78%	
Suspended Solids (mg/L)	2.0	3.6	3.6

Remark or Observation :		Turbid water from upstream	
	Name	Signature	Date
		Huz	
Prepared By :	Lai Chi Hang	ð	13/12/2011

Date of Sampling : 15/12/2011

Weather: Sunny

Monitoring Location	W1	W2	
Time (hhmm)	14:30	15:04	
Tide Mode	mid	-ebb	
River Condition	Turbid	Turbid	
Water Depth (m)	<1	<1	
pH value	7.50	7.97	
Salinity (ppt)	2.7	16.8	
Temperature (°C)	21.5	21.6	
Turbidity (NTU)	51.6	13.6	13.6
DO (mg/L)	6.42	6.67	
DO Saturation (%)	72%	74%	
Suspended Solids (mg/L)	22.0	8.6	8.6

Remark or Observation :

Turbid water from W3 (Riverbed maintainance)

Name

<u>Signature</u>

Date

Huz

15/12/2011

Date of Sampling : 17/12/2011

Weather: Sunny

Monitoring Location	W1	W2	
Time (hhmm)	16:30	16:52	
Tide Mode	Mid	-ebb	
River Condition	Turbid	Turbid	
Water Depth (m)	<1	<1	
pH value	8.20	8.20	
Salinity (ppt)	22.7	25.4	
Temperature (°C)	19.3	19.7	
Turbidity (NTU)	10.4	4.2	4.2
DO (mg/L)	7.52	6.99	
DO Saturation (%)	83%	78%	
Suspended Solids (mg/L)	9.80	5.20	5.20

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

17/12/2011

Date of Sampling : 20/12/2011

Weather: Cloudy

Monitoring Location	W1	W2		
Time (hhmm)	9:26	9:06		
Tide Mode	Mid	-ebb		
River Condition	Normal	tur	bid	
Water Depth (m)	<1	<1		
pH value	7.50	7.79		
Salinity (ppt)	8.9	16	5.1	
Temperature (°C)	19.4	18	3.9	
Turbidity (NTU)	2.1	2.9	2.9	
DO (mg/L)	7.34	7.43		
DO Saturation (%)	71%	72%		
Suspended Solids (mg/L)	1.00	3.00	3.00	

Remark or Observation :

sludge cleaning of reiver bed at upstream(W3)

<u>Name</u>

<u>Signature</u>

Date

Huz

20/12/2011

Date of Sampling: 22/12/2011

Weather: Sunny

Monitoring Location	W1	W2		
Time (hhmm)	10:43	10	:23	
Tide Mode	Mid	-ebb		
River Condition	Normal	Noi	rmal	
Water Depth (m)	<1	<1		
pH value	7.27	7.46		
Salinity (ppt)	7.1	1	5	
Temperature (°C)	22.4	22	2.8	
Turbidity (NTU)	1.0	1.2	1.2	
DO (mg/L)	7.25	7.00		
DO Saturation (%)	78%	76%		
Suspended Solids (mg/L)	1.00	3.60	3.60	

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

22/12/2011

Date of Sampling: 24/12/2011

Weather: Sunny

Monitoring Location	W1	W2			
Time (hhmm)	12:41	12:15			
Tide Mode	Mid	-ebb			
River Condition	Turbid	Tu	rbid		
Water Depth (m)	<1	<1			
pH value	7.71	7.95			
Salinity (ppt)	2.7	15	5.4		
Temperature (°C)	17.4	15	5.8		
Turbidity (NTU)	21.5	20.8	20.8		
DO (mg/L)	7.48	7.49			
DO Saturation (%)	77%	74%			
Suspended Solids (mg/L)	12.00	13.00 13.00			

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

24/12/2011

Date of Sampling : 29/12/2011

Weather: Sunny

Monitoring Location	W1	W2		
Time (hhmm)	15:00	15:19		
Tide Mode	Mid	-ebb		
River Condition	Normal	Nor	mal	
Water Depth (m)	<1	<1		
pH value	7.56	7.86		
Salinity (ppt)	4.5	17	7.7	
Temperature (°C)	21.3	20).7	
Turbidity (NTU)	3.5	8.7	8.7	
DO (mg/L)	7.09	7.00		
DO Saturation (%)	76%	76%		
Suspended Solids (mg/L)	4.20	16.00 16.00		

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

29/12/2011

Date of Sampling: 31/12/2011

Weather: Sunny

Monitoring Location	W1	W2			
Time (hhmm)	16:30	16:45			
Tide Mode	Mid	-ebb			
River Condition	Turbid	Tu	rbid		
Water Depth (m)	<1	<1			
pH value	7.96	8.14			
Salinity (ppt)	6.1	20).7		
Temperature (°C)	20.4	20).7		
Turbidity (NTU)	2.1	4.6	4.6		
DO (mg/L)	7.39	7.12			
DO Saturation (%)	80%	78%			
Suspended Solids (mg/L)	2.80	3.60	3.60		

Remark or Observation :

Name

<u>Signature</u>

Date

Huz

31/12/2011

Appendix F: Hydrological Characteristics Monitoring Data

Location	Position	Tide	Date**	Time	Weather	Water Depth	Water Flow	Water Flow
Location	POSILION	Tide	Dale		Time Weather	(m)*	(m/s)	(m³/s)
H1	Mid	Flood	3-Dec-2011	13:15	Sunny	0.12	0.06	0.075
H1	Mid	Flood	10-Dec-2011	15:00	Sunny	0.24	0.06	0.075
H1	Mid	Flood	17-Dec-2011	12:45	Sunny	0.37	0.12	0.150
H1	Mid	Flood	24-Dec-2011	16:30	Sunny	0.06	0.06	0.075
H1	Mid	Flood	31-Dec-2011	12:45	Sunny	0.18	0.06	0.075
H2	Mid	Flood	3-Dec-2011	13:30	Sunny	0.14	0.12	0.754
H2	Mid	Flood	10-Dec-2011	16:00	Sunny	0.14	0.06	0.377
H2	Mid	Flood	17-Dec-2011	13:00	Sunny	0.37	0.06	0.377
H2	Mid	Flood	24-Dec-2011	16:15	Sunny	0.43	0.06	0.377
H2	Mid	Flood	31-Dec-2011	12:15	Sunny	0.61	0.12	0.754
H1	Mid	Ebb	3-Dec-2011					
H1	Mid	Ebb	10-Dec-2011	11:25	Sunny	0.18	0.06	0.075
H1	Mid	Ebb	17-Dec-2011	16:30	Sunny	0.24	0.12	0.150
H1	Mid	Ebb	24-Dec-2011	12:41	Sunny	0.18	0.06	0.075
H1	Mid	Ebb	31-Dec-2011	16:30	Cloudy	0.67	0.12	0.150
H2	Mid	Ebb	3-Dec-2011					
H2	Mid	Ebb	10-Dec-2011	12:00	Sunny	0.12	0.06	0.377
H2	Mid	Ebb	17-Dec-2011	16:15	Sunny	0.37	0.06	0.377
H2	Mid	Ebb	24-Dec-2011	12:15	Sunny	0.43	0.06	0.377
H2	Mid	Ebb	31-Dec-2011	12:15	Cloudy	0.61	0.12	0.754

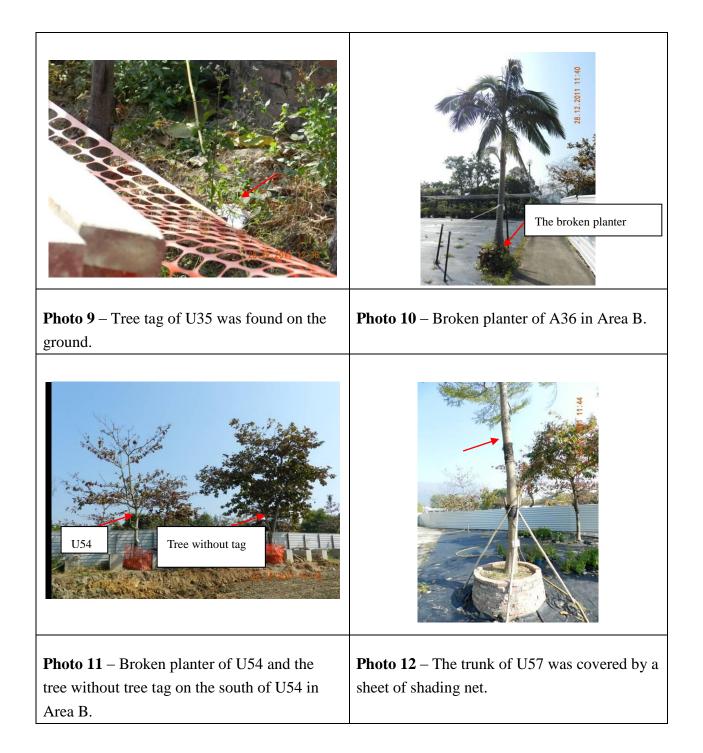
* : Since the water levels were too low for the depth detector to determine, a tape measure was used for estimation.

**: Only one mid-tide is within working hours of construction activity on 3/12/2011

Appendix G: Landscape and Visual Monitoring Photos







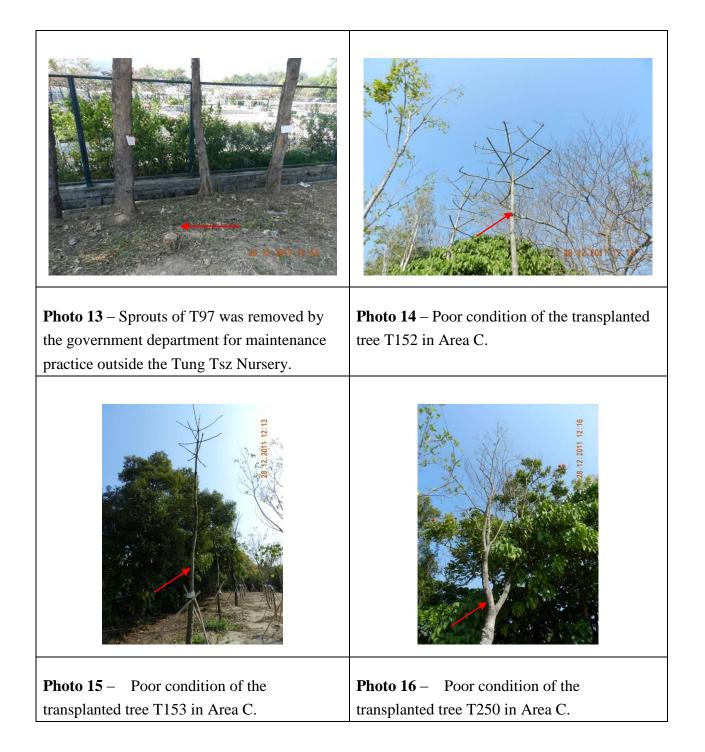


Photo 17 – Poor health condition of the transplanted tree without tree tag in Area C.	Photo 18 – The protected shrubs species of conservation interest <i>Pavetta hongkongensis</i> (PH01 and PH02) were transplanted to Area C.
The trip coming of the trip comi	
Photo 19 – The protected shrub species of conservation interest <i>Pavetta hongkongensis</i> (PH03) was transplanted to Area C.	Photo 20 – The compensatory tree <i>Celtis sinensis</i> (N13) was found uprooted and fallen in Area C.

Appendix H:

A)

The recommended mitigation measures of EM&A manual (revision 3)

B)

Implementation status of environmental protection and mitigation measures

A) The recommended mitigation measures of EM&A manual (revision 3)

EIA Ref.		Recommended Mitigation		-	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
S 3.30	2.18	Good Site Practice:	To minimize construction	Contractor	Works areas	Construction	EIAO-TM
		 Only well-maintained plant shall 	noise impacts			phase	NCO
		be operated on-site and plant shall					
		be serviced regularly during the					
		construction program					
		 Silencers or mufflers on 					
		construction equipment shall be					
		utilized and shall be properly					
		maintained during the construction					
		program					
		 Mobile plant, if any, shall be sited 					
		as far from NSRs as possible					
		 Machines and plant (such as 					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		trucks) that may be in intermittent					
		use shall be shut down between					
		work periods or shall be throttled					
		down to a minimum					
		 Plant known to emit noise 					
		strongly in one direction shall,					
		wherever possible, be orientated so					
		that the noise is directed away from					
		the nearby NSRs					
		 Material stockpiles and other 					
		structures shall be effectively					
		utilized, wherever practicable, in					
		screening noise from on-site					
		construction activities.					
S 3.31 -	2.19	Use of quieter PME	To minimize construction	Contractor	Works areas	Construction	EIAO-TM
3.32			noise impacts			phase	NCO
S 3.33 –	2.20-2.	Use of temporary noise barrier	To minimize construction	Contractor	Works areas as	Construction	EIAO-TM
3.34	21		noise impacts		shown in Figure	phase	NCO

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
3.36-3.3	2.23-2.				3.5		
8	24						
S 3.35	2.22	Use of alternative quieter	To minimize construction	Contractor	Part of the works	Construction	EIAO-TM
and		construction method (the Low	noise impacts		area for pipe	phase	NCO
Table		Impact Method)			laying in Wai Ha		
3.6					(refer to Figure		
					3.5)		
3.36	2.23-2.	Use of noise enclosure	To minimize construction	Contractor	Part of the works	Construction	EIAO-TM
-3.38	24		noise impacts		area for pipe	phase	NCO
					laying in Wai Ha		
					(refer to Figure		
					3.5)		
В		Air Quality Impact	l		L		
S4.16	3.5	Implementation of mitigation	To minimize construction	Contractor	Construction	Construction	EIAO-TM
		measures stipulated in the Air	dust impacts		Sites	Phase	
		Pollution Control (Construction Dust)					
		Regulation and good site practices					
		including but not limited to the					
		following:					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 Use of regular watering to reduce 					
		dust emissions from exposed site					
		surfaces and unpaved road, with					
		complete coverage, particularly					
		during dry weather;					
		 Use of frequent watering for 					
		particularly dusty static construction					
		areas and areas close to ASRs;					
		 Tarpaulin covering of all dusty 					
		vehicle loads transported to, from					
		and between site location;					
		 Establishment and use of vehicle 					
		wheel and body washing facilities at					
		the exit points of the site;					
		 Routing of vehicles and 					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		positioning of construction plant					
		should be at the maximum possible					
		distance from ASRs.					
		 Stockpiled excavated materials 					
		should be covered with tarpaulin,					
		and should be removed off-site					
		within 24 hours to avoid any odour					
		nuisance arising.					
С	1	Water Quality Impact					
S5.29	4.5	Construction Site Run-off and	To minimize water quality	Contractor	Works sites	Construction	ProPECC PN 1/94
		Drainage:	impacts			phase	Construction Site
							Drainage
		 Before commencing any site 					
		formation work, all sewer and					
		drainage connections shall be					
		sealed to prevent debris, soil, sand					
		etc. from entering public					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		sewers/drains.					
		 Temporary ditches shall be 					
		provided to facilitate run-off					
		discharge into appropriate					
		watercourses, via a silt retention					
		pond. No site run-off shall enter the					
		fishponds at Shuen Wan.					
		 Sand/silt removal facilities such 					
		as sand traps, silt traps and					
		sediment basins shall be provided to					
		remove sand/silt particles from					
		runoff to meet the requirements of					
		the Technical Memorandum					
		standard under the Water Pollution					
		Control Ordinance. The design of					
		silt removal facilities shall be based					
		on the guidelines provided in					
		ProPECC PN 1/94. All drainage					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		facilities and erosion and sediment					
		control structures shall be inspected					
		monthly and maintained to ensure					
		proper and efficient operation at all					
		times and particularly during					
		rainstorms.					
		 Water pumped out from 					
		excavated pits shall be discharged					
		into silt removal facilities.					
		 During rainstorms, exposed 					
		slope/soil surfaces shall be covered					
		by a tarpaulin or other means.					
		Other measures that need to be					
		implemented before, during, and					
		after rainstorms as summarized in					
		ProPECC PN 1/94 shall be followed.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 Exposed soil areas shall be 					
		minimized to reduce potential for					
		increased siltation and					
		contamination of runoff.					
		 Earthwork final surfaces shall be 					
		well compacted and subsequent					
		permanent work or surface					
		protection shall be immediately					
		performed to reduce the potential of					
		soil erosion.					
		 Open stockpiles of construction 					
		materials or construction wastes					
		on-site shall be covered with					
		tarpaulin or similar fabric during					
		rainstorms.					
S5.30	4.7	Further precautionary measures	To minimize water quality	Contractor	Works areas near	Rainy seasons	EIAO-TM
		during rainy season:	impacts to the designated		the Conservation	during	Water Pollution
			Conservation Area		Area	construction	Control Ordinance

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 For the construction of the box 				phase	(WPCO)
		culvert next to the existing channel					
		of the Wai Ha River, sand bags					
		should be deployed around the					
		boundary of the works trench to					
		prevent muddy water ingress into					
		the adjacent CA or Wai Ha River.					
		Sand bags should also be used to					
		surround the excavated trench.					
		Generally, the sand bags will be					
		placed up to a height of 300mm to					
		provide adequate allowance for the					
		built-up water level during rainstorm					
		event. With sand bags in place,					
		surface runoff will be intercepted					
		and flow to Wai Ha River or					
		collected by the existing drainage					
		system as usual. ■ For the construction of the box					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		culvert in the extreme northeast corner of Shuen Wan Marsh					
		Conservation Area sand bags					
		should be deployed along the limit					
		of the works area to prevent muddy water ingress into the CA. Sand					
		bags should be placed to a height					
		of at least 300mm from ground level and +2.5 mPD (whichever is					
		greater) to provide adequate allowance for the built-up water					
		level during rainstorm events.					
		Unpolluted surface runoff within the					
		works area should then be					
		collected and directed into the					
		existing drainage system.					
		 Sheet-piles, which would be 					
		installed around the works trench					
		near the Conservation Area, would					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		be extended above ground level for					
		about 2m to serve as hoardings to					
		isolate the works site.					
		 Tarpulin sheets would be used to 					
		cover the excavation areas during					
		heavy rainstorms. This would					
		prevent the ingress of rainwater into					
		the trench minimising the risk of					
		muddy water getting into Wai Ha					
		River and the adjacent Conservation					
		Area.					
		 Any concrete washing water 					
		would be contained inside the works					
		site surrounded by the extended					
		sheet piles. A pump sump at the					
		bottom of the trench would be					
		provided to pump any excess water					
		during concrete washing.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 Stockpiling the excavated 					
		materials adjacent to the					
		Conservation Area would not be					
		allowed. The excavated materials					
		would be either removed off site					
		immediately after excavation, or					
		stockpile at location(s) away from					
		the Conservation Area. The					
		stockpile locations shall be					
		approved by the site engineer.					
S5.31-S	4.8-4.9	General Construction Activities:	To minimize water quality	Contractor	Works sites	Construction	EIAO-TM
5.32		 Debris and refuse generated 	impacts			phase	WPCO
		on-site should be collected, handled					
		and disposed of properly to avoid					
		entering the Wa Ha River and fish					
		ponds at Shuen Wan. Stockpiles					
		of cement and other construction					
		materials should be kept covered					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		when not being used.					
		 Oils and fuels should only be 					
		used and stored in designated areas					
		which have pollution prevention					
		facilities. To prevent spillage of					
		fuels and solvents to nearby water					
		bodies, all fuel tanks and storage					
		areas should be provided with locks					
		and be sited on sealed areas, within					
		bunds of a capacity equal to 110%					
		of the storage capacity of the largest tank. The bund should be drained					
		of rainwater after a rain event.					
S5.33	4.10	Sewage from Construction	To minimize water quality	Contractor	Works sites	Construction	EIAO-TM
		workforce:	impacts			phase	WPCO
		 Temporary sanitary facilities, 					
		such as portable chemical toilets,					
		should be employed on-site. A					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		licensed contractor would be					
		responsible for appropriate disposal					
		and maintenance of these facilities.					
S5.34	4.11	River Channel Excavation Works:	To minimize water quality	Contractor	Works sites	Construction	EIAO-TM
			impacts			phase	WPCO
		The excavation works within the					
		upstream end of the existing river					
		channel of the Wai Ha River for the					
		construction of the proposed box					
		culvert shall be carried out in dry					
		condition. Containment					
		measures such as bunds and					
		barriers shall be used within the					
		affected length of the river channel					
		and the excavation works restricted					
		to within an enclosed dry section of					
		the channel. The excavation works					
		within Wai Ha River shall be					
		restricted to the period from October					

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to
		to April.					achieve?
_							
D		Waste Management Implications					
S6.20 –	5.5	Good site practices:	To reduce waste	Contractor	Works sites	Construction	ETWB TCW
6.22			management impacts			phase	No.19/2005
		 Nomination of approved 					ETWB TCW
		personnel, such as a site manager,					No.31/2004
		to be responsible for good site					
		practices and making arrangements					
		for collection of all wastes generated					
		at the site and effective disposal to					
		an appropriate facility.					
		 Training of site personnel in 					
		proper waste management and					
		chemical waste handling					
		procedures.					
		 Provision of sufficient waste 					
		disposal points and regular					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		collection for disposal.					
		 Appropriate measures to 					
		minimise windblown litter and dust					
		during transportation of waste by					
		either covering trucks or by					
		transporting wastes in enclosed					
		containers.					
		 Separation of chemical waste for 					
		special handling and appropriate					
		treatment at the Chemical Waste					
		Treatment Facility.					
		 Regular cleaning and 					
		maintenance programme for					
		drainage systems, sumps and oil					
		interceptors.					
		 A Waste Management Plan 					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		should be prepared and submitted to					
		the Engineer for approval. One					
		may make reference to ETWB TCW					
		No. 15/2003 for details.					
		 A recording system for the 					
		amount of wastes generated,					
		recycled and disposed (including the					
		disposal sites) should be proposed.					
S6.23-	5.7	Waste reduction measures:	To achieve waste reduction	Contractor	Works sites	Construction	EIAO-TM
6.24						phase	
		 Segregation and storage of 					
		different types of waste in different					
		containers, skips or stockpiles to					
		enhance reuse or recycling of					
		materials and their proper disposal.					
		 To encourage collection of 					
		aluminium cans by individual					
		collectors, separate labelled bins					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		shall be provided to segregate this					
		waste from other general refuse					
		generated by the work force.					
		 Any unused chemicals or those 					
		with remaining functional capacity					
		shall be recycled.					
		 Maximising the use of reusable 					
		steel formwork to reduce the amount					
		of C&D material.					
		 Proper storage and site practices 					
		to minimise the potential for damage					
		or contamination of construction					
		materials.					
		 Plan and stock construction 					
		materials carefully to minimise					
		amount of waste generated and					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		avoid unnecessary generation of					
		waste.					
S6.25-		Construction & Demolition (C&D)	To minimize off-site disposal	Contractor	Works sites	Construction	EIAO-TM
6.26		Material:	of C&D material			phase	
		Excavated material with suitable	To minimize environmental				
		characteristics/size should be	impacts during the handling				
		reused on-site as fill material as far	of C&D material				
		as practicable, such as for					
		backfilling of the box culvert and					
		drainage pipe works.					
		 Suitable areas should be 					
		designated within the works site					
		boundaries for temporary stockpiling					
		of C&D material.					
		 Within stockpile areas, the 					
		following measures should be taken					
		to control potential environmental					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		impacts or nuisance:					
		- covering material during					
		heavy rainfall;					
		- locating stockpiles to minimize					
		potential visual impacts; and					
		- minimizing land intake of					
		stockpile areas as far as possible.					
		 When disposing C&D material at 					
		a public filling area, the material					
		shall only consist of soil, rock,					
		concrete, brick, cement					
		plaster/mortar, inert building debris,					
		aggregates and asphalt. The					
		material shall be free from marine					
		mud, household refuse, plastic,					
		metals, industrial and chemical					
		waste, animal and vegetable matter,					
		and other material considered to be					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		unsuitable by the Filling Supervisor.					
S6.27		Chemical waste:	To minimize environmental	Contractor	Works sites	Construction	EIAO-TM
		 Contractor should register with 	impacts during the handling,			phase	Waste Disposal
		the EPD as a Chemical Waste	transportation and disposal				(Chemical Waste)
		Producer and to follow the	of chemical waste				(General) Regulation
		guidelines stated in the Code of					
		Practice on the Packaging,					
		Labelling and Storage of Chemical					
		Wastes.					
		 Good quality containers 					
		compatible with the chemical					
		wastes should be used, and					
		incompatible chemicals should be					
		stored separately.					
		 Appropriate labels should be 					
		securely attached on each chemical					
		waste container indicating the					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		corresponding chemical					
		characteristics of the chemical					
		waste, such as explosives,					
		flammable, oxidizing, irritant, toxic,					
		harmful, corrosive, etc.					
		The Contractor should use a					
		licensed collector to transport and					
		dispose of the chemical wastes					
		generated at the Chemical Waste					
		Treatment Centre at Tsing Yi, or					
		other licenced facility, in accordance					
		with the Waste Disposal (Chemical					
		Waste) (General) Regulation.					
S6.28		General refuse:	To minimize environmental	Contractor	Works sites	Construction	EIAO-TM
		It should be stored in enclosed	impacts during the handling			phase	
		bins or compaction units separate	and transportation of general				
		from C&D material.	refuse				
		 A reputable waste collector 					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		should be employed by the					
		contractor to remove general refuse					
		from the site, separately from C&D					
		material.					
		An enclosed and covered area					
		is preferred to reduce the					
		occurrence of 'wind blown' light					
		material.					
E		Ecological Impact			<u> </u>		<u> </u>
S. 7.95	6.6	 Sheet-pilings, which will be 	To minimize the impacts on	Contractor	Whole site	Construction	EIAO-TM
		installed around the trench of	the stream and natural river			Phase	
		excavation, should be extended	bank				
		above ground level for ~2m to act as					
		hoarding to isolate the works site.					
		 The trenching works for the 					
		construction of the proposed box					
		culvert should be carried out in					
		phases, with a trench length of not					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		more than 120m in each phase.					
		The trench should be backfilled and					
		compacted with suitable materials					
		upon completion of each phase of					
		the construction works.					
S7.117	6.6	 The construction of intercept 	To minimize the impacts on	Contractor	Whole site	Construction	EIAO-TM
		point of twin cell box culvert at the	the stream and natural river			Phase	
		upstream of Wai Ha River should be	bank				
		confined to only one side of the river					
		bank.					
		 To restore and enhance the 					
		ecological value of the stream, the					
		affected river bank should be					
		reinstated to its original condition or					
		lined with rock-filled gabion.					
		 Planting pits should be provided 					
		in the gabion bank to allow the					
		re-establishment of riparian					
		vegetation.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 The existing natural riverbed and 					
		substrates should be retained and					
		the natural pool-riffle sequence					
		should be re-created in the new					
		channel bed.					
S 7.118	6.7	 All works carried out within the 	To minimise sedimentation/	Contractor	Whole Site	Construction	EIAO-TM
		the river channel of Wai Ha River	water quality impacts			Phase	
		should be carried out from October					
		to April, with construction carried out					
		by land-based plant.					
		 Works within river/stream 					
		channels should be restricted to an					
		enclosed dry section of the river,					
		with containment measures such as					
		bunds and barriers used within the					
		river to minimize the impacts upon					
		the downstream water body.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		 Site runoff should be directed 					
		towards regularly cleaned and					
		maintained silt traps and oil/grease					
		separators to minimize the risk of					
		sedimentation and pollution of river					
		water.					
		 The silt and oil/grease separators 					
		should be appropriately designed for					
		the local drainage and ground					
		conditions.					
		 To minimize leakage and loss of 					
		sediments during excavation in					
		narrow channels, tightly sealed					
		closed grab excavators should be					
		deployed where material to be					
		handled is wet.					
S 7.119	6.8	 The construction of the 	To protect plant species of	Contractor/	Whole site	Construction	EIAO-TM
		proposed box-culvert would have the	conservation interest	qualified		Phase	
		potential to directly impact a few		botanist/horticu			

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		individual of a plant species of		lturalist			
		conservation interest (Hong Kong					
		Pavetta, Pavetta hongkongensis).					
		The affected individuals should be					
		transplanted to a suitable nearby					
		habitats prior to the construction					
		phase.					
		 A detailed vegetation survey of 					
		the affected species of conservation					
		interest should be conducted by a					
		suitably qualified botanist/ecologist					
		to identify the affected individuals in					
		order to provide details for					
		transplantation scheme.					
		 Transplantation should be 					
		supervised by a suitably qualified					
		botanist/horticulturalist. A detailed					
		transplantation methodology should					
		be formulated during the detailed					
		design stage of this Project.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
S 7.120	6.9	 Noise mitigation measures such 	To minimise disturbance	Contractor	Whole site	Construction	EIAO-TM
		as the use of quieter construction	impacts.			Phase	
		plant and temporary noise barriers					
		should be implemented to minimize					
		disturbance to habitats adjacent to					
		the works areas.					
		Temporary noise barriers should					
		be used during the construction of					
		the box-culvert along Tung Tsz					
		Road, the floodwater pumping					
		station, the mechanical gate, and					
		drainage pipe to minimize potential					
		construction phase disturbance to					
		ardeids and avifauna foraging in					
		marsh habitat.					
		 Noise generating construction 					
		works near the Shuen Wan Egretry					
		SSSI should be avoided as far as					
		practicable during the breeding					
		season (March to June) of the					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		ardeids.					
		 Works near the SSSI (i.e. 					
		installation of mechanical gate)					
		should be restricted to be executed					
		outside the breeding season by					
		provision of special conditions in the					
		contract document.					
		 Hoardings with minimum height 					
		of 2m should be set up along the					
		south side of the proposed box					
		culvert works area adjacent to the					
		marsh, extending at least 20m at					
		both ends, throughout the					
		construction period.					
S 7.121	6.10	 Placement of equipment or 	To minimise disturbance to	Contractor	Whole site	Construction	EIAO-TM
		stockpile in designated works areas	habitats.			Phase	
		and access routes selected on					
		existing disturbed land to minimise					
		disturbance to natural or					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		moderate-high ecological value					
		habitats.					
S 7.121	6.10	 Construction activities should be 	To minimise disturbance to	Contractor	Whole site	Construction	EIAO-TM
		restricted to work areas that would	natural habitats outside			Phase	
		be clearly demarcated. The work	works area.				
		areas should be reinstated after					
		completion of the works.					
S 7.121	6.10	 Waste skips should be provided 	To minimise disturbance to	Contractor	Whole site	Construction	EIAO-TM
		to collect general refuse and	habitats.			Phase	
		construction wastes. The wastes					
		would be disposed of timely and					
		properly off-site.					
S 7.121	6.10	General drainage arrangements	To minimise sedimentation/	Contractor	Whole site	Construction	EIAO-TM
		should include sediment and oil	water quality impacts			Phase	
		traps to collect and control					
		construction site run-off.					
S 7.121	6.10	 Open burning on works sites is 	To prevent accidental	Contractor	Whole site	Construction	EIAO-TM
		illegal, and should be strictly	hill-fires.			Phase	
		prohibited.					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
S 7.122	6.11	 De-silting should be limited to the 	To minimise sedimentation/	Maintenance	Whole site	Operation	EIAO-TM
		dry season.	water quality impacts	parties of the		Phase	
				channel			
S 7.122	6.11	 Waste material produced during 	To minimise sedimentation/	Maintenance	Whole site	Operation	EIAO-TM
		de-silting should be disposed of in a	water quality impacts	parties of the		Phase	
		timely and appropriate manner.		channel			
S 7.123	6.12	 Planting of trees should be 	To compensate the loss of	Contractor	Whole site	Construction	EIAO-TM
		provided within the project area to	vegetation			Phase	
		compensate for the unavoidable					
		loss of approximately 0.08ha					
		secondary woodland habitat due to					
		the Project.					
		 Planting of trees and other 					
		vegetation within project area along					
		the banks of Wai Ha River and Tung					
		Tsz Road should be carried out to					
		provide compensation for					
		unavoidable tree-felling and loss of					
		riparian vegetation resulting from the					

EIA Ref.	EM&A	Recommended Mitigation	Objectives of the	Who to	Location of the	When to	What requirements
	Ref.	Measures	Recommended Measure &	implement the	measure	implement the	or standards for the
			Main Concern to Address	measure?		measure?	measure to
							achieve?
		Project.					
		 The compensatory planting 					
		should make use of native plant					
		species with flowers/fruits attractive					
		to wildlife.					
S 7.124	6.13	 Compensation would be required 	To compensate the loss of	Contractor /	The recreational	Construction	EIAO-TM
		for the loss of a small area of marsh	marsh habitat and enhance	qualified	fish pond located	Phase	
		habitat (about 0.30ha) within the CA	the quality compensatory	ecologist	to the southwest		
		resulting from the construction of the	habitat		of the existing		
		box-culvert.			Tung Tsz Nursery		
		 An existing low ecological value 					
		recreational fishpond on government					
		land adjacent to the marsh would be					
		used as a proposed area (about					
		0.8ha) for the compensation for the					
		marsh as well as secondary					
		woodland habitats loss (0.08ha).					
		 The pond should be enhanced 					
		by removing boardwalks around the					

EIA Ref.		Recommended Measure &	Who to implement the measure?	When to implement the measure?	What requirements or standards for the measure to achieve?
	 existing pond, and restoring vegetation along the pond bunds, and it would be re-profiled to provide areas of shallow water (approximately 15-50cm deep), creating a suitable foraging habitat for avifauna, particularly ardeids and other waders. Screen planting of shrubs and trees along the south-eastern bund of the pond should be implemented to minimise disturbance to avifauna and other wildlife from the adjacent recreational fishpond. The enhanced pond is expected to provide a moderate-high ecological value wetland habitat. 				

EIA Ref.	EM&A Ref.	•	Objectives of the Recommended Measure & Main Concern to Address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
F		Landscape and Visual					
Table 8.4	7.6	Visual screen, contaminant/ liaison with nursery, protection of existing trees with works area and construction light are used or practiced to mitigate the impacts during construction phase.	To mitigate the landscape	Contractor	Whole site	Construction	EIAO-TM
Table 8.4	7.7	Viewing area formation, architectural design for pump house, landscape design for pump house, enhancement planting along Tung Tsz Road, sufficient soil depth for enhancement planting, transplanting of trees to adjacent locations, preparation for transplanting and reinstatement of affected area are practiced to mitigate the impacts during operational phase.	To mitigate the landscape and visual impacts during the operational phase.	Contractor	Whole site	Detail Design / Operational Phase	EIAO-TM

B) Implementation status of environmental protection and mitigation

EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status
	Use well maintained construction plant			Construction phase	EIAO-TM NCO	Implemented
	Shut down plants between work periods		Works areas			Implemented
2.18	Install silencers on construction equipment					Implemented
	Locate mobile plant far away from NSRs	To minimize construction noise impact				Implemented
	Quiet plants should be used					Implemented
2.19	Use of quieter PME					Not applicable
2.20 - 2.21	Use of temporary noise barrier		Pipe laying in Wai Ha			Not applicable
2.22	Use of alternative quieter construction method		Part of the Works Pipe laying in Wai Ha			Not applicable
2.23 - 2.24	Use of noise enclosure		Pipe laying in Wai Ha			Not applicable

EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status
	Implement regular watering and vehicle washing facilities					Outstandinng
3.5	Cover excavated or stockpile of dusty material by impervious sheeting or sprayed with water	To minimize construction dust impact	Construction Site	Construction phase	EIAO-TM	Implemented
	Use tarpaulin to cover dusty materials on vehicles					Implemented
4.5	Provide silt trap and oil interceptor to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before pumped to the public storm water drainage system					Implemented
4.5	During rainstorms, exposed slope/soil surfaces shall be covered by a tarpaulin or other means. Others measures that need to be implemented before, during, and after rainstorms as summarized in ProPECC PN 1/94 shall be followed	To minimize water quality impact	Construction Site	Construction phase	EIAO-TM WPCO	Not applicable

EM&A Ref. 4.10	Recommended Mitgation Measures Provide site toilet facilities	Objectives of the Recommended Measure & main concern to Address To minimize water quality	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve? EIAO-TM	Implementation status
4.7	Further precautionary measures during rainy season:For the construction of the box culvert next to the existing channel of the Wai Ha River, sand bags should be deployed around the boundary of the works trench to prevent muddy water ingress into the adjacent CA or Wai Ha River. Sand bags should also be used to surround the excavated trench. Generally, the sand bags will be placed up to a height of 300mm to provide adequate allowance for the built-up water level during rainstorm event. With sand bags in place, surface runoff will be intercepted and flow to Wai Ha River or collected by the existing drainage system as usual.For the construction of the box culvert in the extreme northeast corner of Shuen Wan Marsh Conservation Area sand bags should be deployed along the limit of the works area to prevent muddy water ingress into the CA. Sand bags should be placed to a height of at least 300mm from round level and +2.5 mPD (whichever is greater) to provide adequate allowance	impact To minimize water quality impact to the designated Conservation Area	Works areas near the Conservation Area	Rainy seasons during construction	EIAO-TM WPCO	Not applicable

EM&A	Recommended	Objectives of the	Location of the	When to implement	What requirements	Implementation status
Ref.	Mitgation Measures	Recommended	measure	the measure?	or standards for the	
		Measure & main			measure to achieve?	
		concern to Address				
	for the built-up water level during rainstorm events. Unpolluted surface runoff within the					
	works area should then be collected and directed into the existing drainage system.					
	Sheet-piles, which would be installed around the works trench near the Conservation Area, would be extended above ground level for about 2m to serve as hoardings to isolate the works site.					
	Tarpulin sheets would be used to cover the excavation areas during heavy rainstorms. This would prevent the ingress of rainwater into the trench minimising the risk of muddy water getting into Wai Ha River and the adjacent Conservation Area.					
	Any concrete washing water would be contained inside the works site surrounded by the extended sheet piles. A pump sump at the bottom of the trench would be provided to pump any excess water during concrete					
5.9	Reuse excavated material as much as possible					Implemented
5.7	Any unused chemicals or those with remaining functional capacity shall be recycled.	To achieve waste reduction	Works areas	Construction phase	EIAO-TM	Not applicable
	Recycle scrap metals or abandoned equipment					Implemented

EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status
5.5	A recording system for the amount of wastes generated, recycled and disposed should be proposed Adopt a trip ticket system for the disposal of	To reduce waste	Works areas	Construction phase	ETWB TCW No. 19/2005 ETWB TCW NO. 31/2004	Implemented
5.11	C&D materials All general refuse should be segregated and stored in enclosed bins or compaction units	management impacts	Works areas			Implemented
5.10	Contractor should be a required to register with the EPD as a Chemical Waste Producer and to follow the guidelines states in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and Incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful,	To minimize the environmental impacts associated with the handling, transportation and disposal of chemical waste.	Work site	Construction phase	EIAO-TM Waste Disposal (Chemical Waste)(General) Regulation	Implemented Not applicable

EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status	
5.5	A recording system for the amount of wastes generated, recycled and disposed should be proposed	To reduce waste management impacts	Works areas	Construction phase	ETWB TCW No. 19/2005 ETWB TCW NO. 31/2004	Implemented	
6.6	Sheet-pilings, which will be installed around the trench of excavation, should be extended above ground level for ~2m to act as hoarding to isolate the works site. The trenching works for the construction of the proposed box culvert should be carried out in phases, with a trench length of not more than 120m in each phase. The trench should be backfilled and compacted with suitable materials upon completion of each phase of the construction works.	To minimize the impacts on the steam and natural river bank.	Whole site	Construction phase	EIAO-TM	Implemented	
6.6	The construction of intercept oint of twin cell box culvert at the upstream of Wai Ha River should be confined to only one side of the river bank. To restore and enhance the ecological value of the stream, the affected river bank should be reinstated to its original condition or lined with rock-filled gabion. Planting pits should be provided in the gabion bank to allow the re-establishment of riparian vegetation.	To minimize the impacts on the steam and natural river bank.	Whole site	Construction phase	EIAO-TM	No applicable	

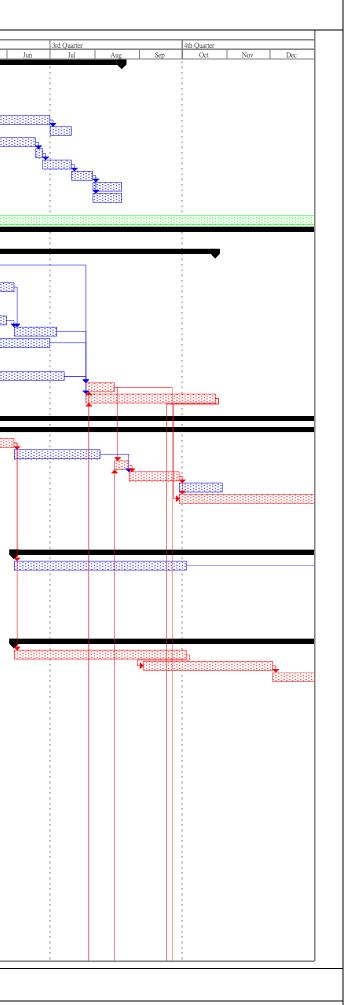
EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status
	The existing natural riverbed and substrates should be retained and the natural pool-riffle sequence should be re-created in the new channel bed. All works carried out within the the river					
	channel of Wai Ha River should be carried out from October to April, with construction carried out by land-based plant. Works within river/stream channels should be restricted to an enclosed dry section of the river, with containment measures such as bunds and barriers used within the river to minimize the impacts upon the downstream water body.	To minimize sedimentation/				
6.7	Site runoff should be directed towardsregularly cleaned and maintained silt traps andoil/grease separators to minimize the risk ofsedimentation and pollution of river water.The silt and oil/grease separators should beappropriately designed for the local drainageand ground conditions.To minimize leakage and loss of sedimentsduring excavation in narrow channels, tightlysealed closed grab excavators should bedeployed where material to be handled is wet.	water quality impacts	Whole site	Construction phase	EIAO-TM	No applicable

EM&A Ref.	Recommended Mitgation Measures	Objectives of the Recommended Measure & main concern to Address	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status	
6.8	The construction of the proposed box-culvert would have the potential to directly impact a few individual of a plant species of conservation interest (Hong Kong Pavetta, Pavetta hongkongensis). The affected individuals should be transplanted to a suitable nearby habitats prior to the construction phase. A detailed vegetation survey of the affected species of conservation interest should be conducted by a suitably qualified botanist/ecologist to identify the affected individuals in order to provide details for transplantation scheme. Transplantation should be supervised by a suitably qualified botanist/horticulturalist. A detailed transplantation methodology should be formulated during the detailed design stage of this Project.	To protect plant species of conservation interest	Whole site	Construction phase	EIAO-TM	No applicable	
6.9	Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimize disturbance to natural or moderate-high ecological value habitats.	To minimise disturbance to habitats.	Whole site	Construction phase	EIAO-TM	No applicable	
6.13	General drainage arrangements should include sediment and oil traps to collect and control construction site run-off.	To minimise sedimentation/ water quality impacts	Whole site	Construction phase	EIAO-TM	Implemented	

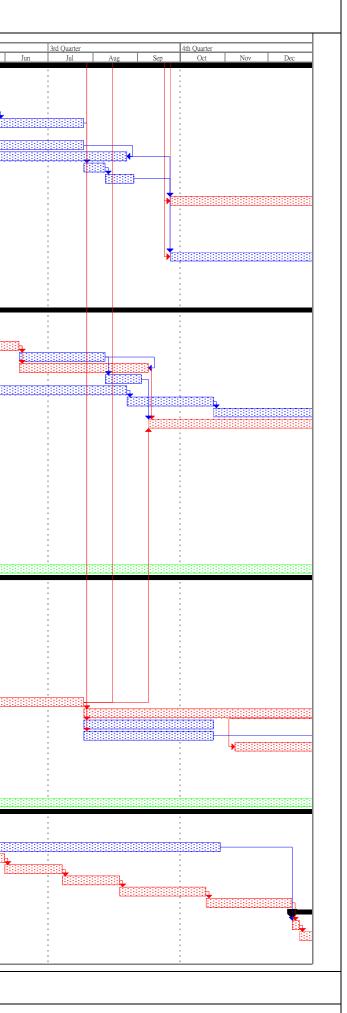
EM&A Ref.	Recommended Mitgation Measures	Objectives of the RecommendedLocation of the measureMeasure & main concern to AddressMeasure		When to implement the measure?	What requirements or standards for the measure to achieve?	Implementation status
6.13	Construction activities should be restricted to work areas that would be clearly demarcated. The work areas should be reinstated after completion of the works.	To minimise disturbance to natural habitats outside works area.	Whole site	Construction phase	EIAO-TM	Implemented
6.13	Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimize disturbance to natural or moderate-high ecological value habitats.	To minimise disturbance to natural habitats	Whole site	Construction phase	EIAO-TM	Implemented
7.6	Visual screen, contaminant/ liaison with nursery, protection of existing trees with works area and construction light are used or practiced to mitigate the impacts during construction phase	To mitigate the landscape and visual impacts during the Construction phase	Whole site	Construction phase	EIAO-TM	Implemented
7.7	Viewing area formation, architectural design for pump house, landscape design for pump hose, enhancement planting along Tung Tsz Road, sufficient soil depth for enhancement planting, transplanting of trees to adjacent locations preparation for transplanting and reinstatement of affected area are practiced to mitigate the impacts during operational phase.	To mitigate the landscape and visual impacts during the operational phase	Whole site	Detail Design / Operational Phase	EIAO-TM	Not Applicable

Appendix I: Construction programme

					Sound		ovement Works in Shuen War ster Programme (Rev. 6)		
ID no. in Rev.	ID no. in Rev.	ID no. in Rev. ID no.	in Rev. Task Name	Duration	Start	Finish	Predecessors	Successors	2010 1st Quarter 2nd Qu
									Jan Feb Mar A
2	2	2	Preliminary Works (Area I - Pak Shek Kok) 2 Commencement of Works	0 days	Fri 26/2/10 Fri 26/2/10	Thu 19/8/10 Fri 26/2/10		3,83,88,10	
3	3		3 Design & Construction of Site Hoarding	30 days	Fri 26/2/10	Sat 27/3/10	2	4FS-5 day	V
4	4	4	4 Site Clearance	10 days	Tue 23/3/10	Thu 1/4/10	3FS-5 days	8FS+10 days,	and the second se
5	5	5	5 Design of Engineer's Site Office	30 days	Fri 2/4/10	Sat 1/5/10	4		6
6	6	6	6 Construction of Engineer's Site Office	60 days	Sun 2/5/10	Wed 30/6/10	5		7
7	7	7	7 Engineer's Site Office - Setup the Internal Finishing / Furniture/ Equipment	15 days	Thu 1/7/10	Thu 15/7/10	6		1
8	8	8	8 Construction of Contractor's Accommodation	70 days	Mon 12/4/10	Sun 20/6/10	4FS+10 days		9
9	9		9 Installation of Sewerage Storage Tank	5 days	Mon 21/6/10	Fri 25/6/10	8	1	
10			10 Contractor Accommodation - Setup the Internal Finishing / Furniture / Equipment	20 days	Sat 26/6/10	Thu 15/7/10	9	1	
11			Establishment of Vehicular Gate, Storage Area 12 Establishment of Welfare Facilities for Workers	15 days	Fri 16/7/10	Fri 30/7/10	10	12,1	
12			12 Establishment of Welfare Facilities for Workers Temporary Drainage System	20 days 20 days	Sat 31/7/10 Sat 31/7/10	Thu 19/8/10 Thu 19/8/10	11		-
15	15	15	Temporary Drankge Oysen	20 atys	540 517 110	1110 15/010	11		-
15	15	15	15 Time for Completion of Section I	915 days	Fri 26/2/10	Tue 28/8/12			
16	16	16	16 Section I (Area A,B - Shuen Wan)	915 days	Fri 26/2/10	Tue 28/8/12			
17			17 Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10		19FS+30 days,35,111,22,20,2	8 26/2
18			18 Preliminary Works	240 days	Fri 26/2/10	Sat 23/10/10			
19			19 Seek clarification regarding Environmental Permit	30 days	Sun 28/3/10	Mon 26/4/10	17FS+30 days	3	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
20			20 Design of TTA Scheme for Site Access	40 days	Fri 26/2/10 Wed 7/4/10	Tue 6/4/10 Set 5/6/10	17	2	
21 22			Submission of TTA to TMLG for Approval 22 Site Clearance	60 days 50 days	Wed 7/4/10 Fri 26/2/10	Sat 5/6/10 Fri 16/4/10	20	23,20	
22			22 She Clearance 23 Project Signboard	50 days 5 days	Sat 17/4/10	Wed 21/4/10	22	23,2	
24			24 Hoarding Erection	40 days	Thu 22/4/10	Mon 31/5/10	22	2	
25			25 Establish Site Access	30 days	Sun 6/6/10	Mon 5/7/10	24,21	3	
26			26 Ground Investigation	75 days	Sat 17/4/10	Wed 30/6/10	22	3	จ
] ↓ :
28			28 Tree Survey	75 days	Fri 26/2/10	Tue 11/5/10	17	2	
29			29 Submission of Tree Survey Record	60 days	Wed 12/5/10	Sat 10/7/10	28	30,3	
30			30 Tree Felling	20 days	Mon 26/7/10 Mon 26/7/10	Sat 14/8/10	29,139,25,26,19	94,99,3 04ES 20 days 00ES 20 days 40ES 20 days	
31	31	31	31 Tree Transplanting	90 days	ivion 20///10	Sat 23/10/10	29,139	94FS-30 days,99FS-30 days,40FS-30 day	
33	33	33	33 Pumping Station	915 days	Fri 26/2/10	Tue 28/8/12		352	2
34			34 Piling Works	485 days	Fri 26/2/10	Sat 25/6/11			
35			35 Submission of Method Statement	100 days	Fri 26/2/10	Sat 5/6/10	17	46,54,3	6
36	36	36	Material Ordering & Delivery to Site	60 days	Sun 6/6/10	Wed 4/8/10	35	3	8
37	37	37	36 Ground Preparation for Piling	10 days	Sun 15/8/10	Tue 24/8/10	139,30	3	8
38			37 Preliminary Pile	35 days	Wed 25/8/10	Tue 28/9/10	37,36	39,4	จิ
39			39 Loading Test	30 days	Wed 29/9/10	Thu 28/10/10	38		
40		40	38 Working Piles	110 days	Wed 29/9/10	Sun 16/1/11	38,31FS-30 days	4	
41	41	4.1	Loading Test for working piles	30 days	Mon 17/1/11	Tue 15/2/11	40	4	
42			40 Sheetpiling 41 Excavation to Pile Cut Off Level / Shoring	30 days 100 days	Wed 16/2/11 Fri 18/3/11	Thu 17/3/11 Sat 25/6/11	41 42	4	
43	43	42	TI Excavation to File Cut OII Level / Shoring	100 days	111 10/3/11	Sat 23/0/11	42	4	
45	45	44	43 Main Structure of Pumping Station	815 days	Sun 6/6/10	Tue 28/8/12			-
46			44 Temporary Works Submission	120 days	Sun 6/6/10	Sun 3/10/10	35	4	7
47	47	46	45 Reinforced Concrete Works	210 days	Sun 26/6/11	Sat 21/1/12	46,43	118SS+80 days,75,48,68,62,74,5	
48			46 Roofing	50 days	Sun 22/1/12	Sun 11/3/12	47	49,5	
49			47 Manmade Slope	50 days	Mon 12/3/12	Mon 30/4/12	48	5	
50			48 Internal Finishing Works	70 days	Mon 12/3/12	Sun 20/5/12	48	5	· · · ·
51	51	50	49 External Finishing Works	100 days	Mon 21/5/12	Tue 28/8/12	50,49	12:	2
53	53	52	51 E & M	815 days	Sun 6/6/10	Tue 28/8/12			
54			52 Submission of E & M Design	120 days	Sun 6/6/10	Sun 3/10/10	35	55FS-30 day	s
55			53 Approval of E & M Design	90 days	Sat 4/9/10	Thu 2/12/10	54FS-30 days	5518 50 449	
56			54 Fabrication & Delivery of Plant & Material	415 days	Fri 3/12/10	Sat 21/1/12	55	5	7
57	57	56	55 Plumbing & E&M works	150 days	Sun 22/1/12	Tue 19/6/12	56,47	58FS-30 day	s
58	58	57	56 Final Testing Works	100 days	Mon 21/5/12	Tue 28/8/12	57FS-30 days	12	5
60			58 External Structure	220 days	Sun 22/1/12	Tue 28/8/12			-1 1
61			59 Pumping Station to Outfall Structure	220 days	Sun 22/1/12	Tue 28/8/12			
62			60 Installation of Cofferdam & Site Hoarding Phase 2 61 Excavation	30 days 30 days	Sun 22/1/12 Tue 21/2/12	Mon 20/2/12 Wed 21/3/12	47 62	6	
64			62 Construction of 2nos. of 1500mm dia. Drainage Pipes	50 days	Thu 22/3/12	Thu 10/5/12	62	6	
65			63 2 nos. of Outfall Structures	110 days	Fri 11/5/12	Tue 28/8/12	64	12:	
				110 00,5				12.	-
67	67	66	65 Tide Level Monitoring Chamber	220 days	Sun 22/1/12	Tue 28/8/12			1 :
68			66 Installation of Cofferdam & Site Hoarding Phase 2	30 days	Sun 22/1/12	Mon 20/2/12	47	6	9
69			67 Excavation	30 days	Tue 21/2/12	Wed 21/3/12	68	7	
70			68 Construction of Pipe & Tide Level Monitoring Chambers	50 days	Thu 22/3/12	Thu 10/5/12	69	7	
71	71	70	69 Outfall Structure	110 days	Fri 11/5/12	Tue 28/8/12	70	12	5
			71 Testano Mire West		0	The 00/0/10			-
73 74			71 External Misc. Works 72 Boundary Wall & Fencing	220 days	Sun 22/1/12 Sun 22/1/12	Tue 28/8/12 Fri 29/6/12	47	7	8
74			73 Boundary wall & Fencing 73 3nos. of Flow Measurement chambers and Pipes	60 days	Sun 22/1/12 Sun 22/1/12	Wed 21/3/12	47	76,7	
75			73 Surface Drainage System & Catchpits	60 days	Thu 22/3/12	Sun 20/5/12	47	70,7	
77			76 Concrete Pavement	20 days	Mon 21/5/12	Sat 9/6/12	75	7:	
78			77 Landscaping Works	60 days	Sat 30/6/12	Tue 28/8/12	77,74	12	
79			225mm dia. Sewer Across Ting Kok Road and Connection to Existing Manholes	120 days	Thu 22/3/12	Thu 19/7/12	75	8	
80	80		Sewer Manhole SM1	40 days	Fri 20/7/12	Tue 28/8/12	79	12	5
									1
		1							
		Task	Progress Summary	Rolled Up	Critical Task	Rolled U	Jp Progress	External Tasks	Group By Summary
ramme - Rev 2010-2-26	V. 0		Rolled Up Task		Milestone				Deadline 🗸



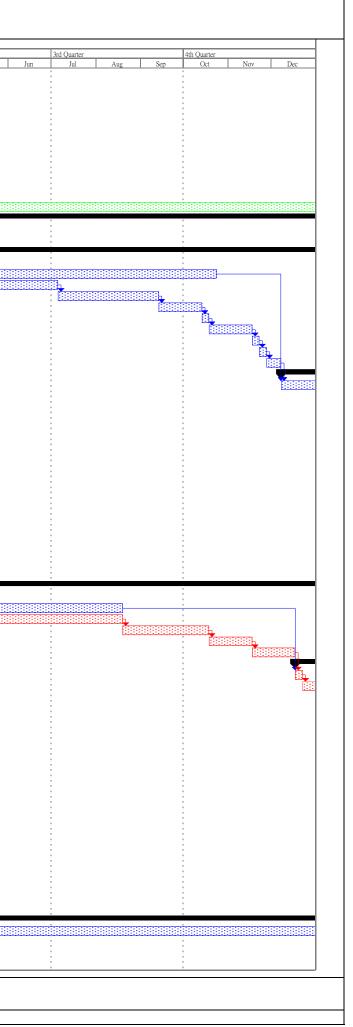
								Ma	aster Programme (Rev. 6)		
ID		D no. in Rev. 1	D no. in Rev.		ev. Task Name	Duration	Start	Finish	Predecessors	Successors	2010
	5	4	2	2							1st Quarter 2nd Quarter Jan Feb Mar Apr
	82	82	80	79	Twin Cell Box Culvert	915 days	Fri 26/2/10	Tue 28/8/12			
_	83	83	81	80	Liaison with LCSD Determination of Box Culvert Alignment	15 days 30 days	Fri 26/2/10 Sat 13/3/10	Fri 12/3/10 Sun 11/4/10	83	8	
_	85	85	83	82	Record Survey	30 days	Mon 12/4/10	Tue 11/5/10	84	8	
	86	86	84	83	Condition Survey of Existing Structure	15 days	Wed 12/5/10	Wed 26/5/10	85	8	
	87	87	85	84	Submission of Method Statement to LCSD	60 days	Thu 27/5/10	Sun 25/7/10	86	9	Γ I
	88	88	86	85	Design of Temporary Traffic Arrangement	60 days	Fri 26/2/10	Mon 26/4/10	2	89,9	J
	89	89	87	86	Submission of TTA to TMLG for Approval	90 days	Tue 27/4/10	Sun 25/7/10	88	90F1	
	90	90	88	87	Excavation Permit	120 days	Tue 27/4/10	Tue 24/8/10	88,89FF	9	
	91	91	89	88	Temporary Removal of Structure and Facilities / Reprovision	15 days	Mon 26/7/10	Mon 9/8/10	87	9	
	92 93	92 93	01	89	Provision of Temporary Irrigation Pipes	20 days	Tue 10/8/10 Wed 1/2/12	Sun 29/8/10	91	9.	
-	93	93	91 92	90	Box Culvert at Chainage 0 - 25 Box Culvert at Chainage 25 - 75	150 days 100 days	Fri 24/9/10	Fri 29/6/12 Sat 1/1/11	31FS-30 days,30,92	9	
	95	95	93	91	Box Culvert at Chainage 25 75 Box Culvert at Chainage 75 - 125	100 days	Sun 2/1/11	Mon 11/4/11	94	9	
	96	96	94	92	Box Culvert at Chainage 125 - 175	100 days	Tue 12/4/11	Wed 20/7/11	95	9	ī
	97	97	95	93	Box Culvert at Chainage 175 - 225	100 days	Thu 21/7/11	Fri 28/10/11	96	9	5
	98	98	96	94	Box Culvert at Chainage 225 - 275	95 days	Sat 29/10/11	Tue 31/1/12	97	9.	
	99	99	97	95	Box Culvert at Chainae 275 - 300	450 days	Fri 24/9/10	Sat 17/12/11	90,31FS-30 days,30	10	
	100	100	98	96	Box Culvert at Chainage 300 - 350 (Including Outfall & Desilting Chamber)	150 days	Sun 18/12/11	Tue 15/5/12	99	10	
_	101	101	99 100	07	1200mm dia. Drainage Pipe Reinstallation and Reinstatement of Existing Structure. Eacilities and Traes	40 days	Wed 16/5/12 Sat 30/6/12	Sun 24/6/12	93,101	10	
	102	102	100	97	Reinstallation and Reinstatement of Existing Structure, Facilities and Trees	60 days	Sat 30/0/12	Tue 28/8/12	93,101	12.	-
-	104	104	102	99	Dia. 2100mm Drainage Pipe	915 days	Fri 26/2/10	Tue 28/8/12			
-	104	104	102	100	Record Survey	15 days	Fri 26/2/10	Fri 12/3/10	2	10	
	106	106	104	101	Site Investigation (Trial Pit)	50 days	Sat 13/3/10	Sat 1/5/10	105	10	
	107	107	105	102	Design of Temporary Traffic Arrangement	40 days	Sun 2/5/10	Thu 10/6/10	106	108,10	
	108	108	106	103	Submission of TTA to TMLG for Approval	60 days	Fri 11/6/10	Mon 9/8/10	107	110,109F	
	109	109	107	104	Excavation Permit	90 days	Fri 11/6/10	Wed 8/9/10	107,108FF	11-	
	110	110	108	105	Liaison with HyD / LCSD for Planter Removal	25 days	Tue 10/8/10	Fri 3/9/10	108	11-	▼
	111 112	111 112	109	105	E&M Design of Penstocks Submission for Approval	180 days 60 days	Fri 26/2/10 Wed 25/8/10	Tue 24/8/10 Sat 23/10/10	17	11:	
_	112	112	110	100	Fabrication & Delivery of Penstocks	240 days	Sun 24/10/10	Mon 20/6/11	111	12	
	115	113	112	107	MH 04 to MH 05	180 days	Thu 9/9/10	Mon 7/3/11	109,139,110	11	
	115	115	113	109	MH 03 to MH 04	90 days	Tue 8/3/11	Sun 5/6/11	114	116,11	
	116	116	114	110	Intake to MH 03	150 days	Mon 6/6/11	Wed 2/11/11	115	120FS-30 days,121FS-30 days,11	ī
	117	117	115	115	Reinstatement of Existing Planter	50 days	Thu 3/11/11	Thu 22/12/11	116		
	118	118	116	111	MH 05 to MH 06	60 days	Wed 14/9/11	Sat 12/11/11	47SS+80 days		
	119	119		110	Temporary Drainage Management Plan	90 days	Mon 6/6/11	Sat 3/9/11	115	12	
	120	120	118	112	Intake (As required in Dry Season) Modification of Existing Outlet Structure of Wai Ha River	150 days 150 days	Tue 4/10/11 Tue 4/10/11	Thu 1/3/12 Thu 1/3/12	116FS-30 days,113,119 116FS-30 days	12. 122F1	
	121	121	119	115	Installation of 4 nos of Mechanical Penstocks	30 days	Wed 1/2/12	Thu 1/3/12 Thu 1/3/12	110FS-30 days 121FF	122Fi	
	122	122	120	**7	E & M Works	120 days	Fri 2/3/12	Fri 29/6/12	122,120	12	
	124	124	122		Misc. Works & Reinstatement	60 days	Sat 30/6/12	Tue 28/8/12	123	12	
	125	125	123	116	Completion of Section I	0 days	Tue 28/8/12	Tue 28/8/12	78,124,102,51,58,65,71,80		1
_	127 128	127 128	125 126	118	Time for Completion of Section II Section II (Area C - Ecological Compensation Area at Shuen Wan)	365 days 365 days	Fri 26/2/10 Fri 26/2/10	Fri 25/2/11 Fri 25/2/11		359,358,360	
-	128	120	120	119	Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10		131,132,13	
-	130	130	128	120	Preliminary Works	45 days	Fri 26/2/10	Sun 11/4/10		1011102110	
	131	131	129	122	Site Clearance	10 days	Fri 26/2/10	Sun 7/3/10	129	13	4 <u>11</u>
	132	132	130	123	Hoarding Erection	15 days	Fri 26/2/10	Fri 12/3/10	129	13	
	133	133	131	124	Pumping Water out of Pond	10 days	Fri 26/2/10	Sun 7/3/10	129	13	
	134	134	132	125	Check actual Tidal against Predicted Tidal Level	15 days	Mon 8/3/10	Mon 22/3/10	131	136FS-10 day	
	135	135	133	126	Survey Existing Pond Bed	5 days	Mon 8/3/10	Fri 12/3/10	133	13	
	136	136	134	127	Design of of Ecological Compensation Area	30 days	Sat 13/3/10	Sun 11/4/10	135,134FS-10 days,132	13	-
	138	138	136	129	Submission of Design of Ecological Compensation Area to EPD for Approval	0 days	Sun 11/4/10	Sun 11/4/10	136	13	J
	138	138	130	129	Refer to Permit Requirement plus 15 weeks for Approval and Commencement of Works	105 days	Mon 12/4/10	Sun 25/7/10	138	140,114,30,31,37,141,14	· · · · · · · · · · · · · · · · · · ·
	140	140	137	130	Fill of Pond to Designed Level	165 days	Mon 26/7/10	Thu 6/1/11	139	143FS-60 day	
	141	141	139	132	Transplanting	90 days	Mon 26/7/10	Sat 23/10/10	139		1
	142	142			Temporary Drainage Management Plan	90 days	Mon 26/7/10	Sat 23/10/10	139	14.	j -
	143	143	141	133	Planting Works at Upper Level	60 days	Mon 8/11/10	Thu 6/1/11	140FS-60 days	14	
	144	144	142	134	Planting Works at Lower Level	30 days	Fri 7/1/11	Sat 5/2/11	143	14	
	145	145	143	135	Setting up Water Circulation System	20 days	Sun 6/2/11	Fri 25/2/11	144,142	14	4
	146	146	144	136	Completion of Section II	0 days	Fri 25/2/11	Fri 25/2/11	145		-
	148	148	146	138	Time for Completion of Section III	915 days	Fri 26/2/10	Tue 28/8/12			-
	140	140	140	139	Section III (Area D - To Lo Wan Shan)	915 days	Fri 26/2/10	Tue 28/8/12			
	150	150	148	140	Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10		15	1 26/2
_	151	151	149	141	Liaison with Local Villagers	45 days	Fri 26/2/10	Sun 11/4/10	150	152,15	s
	152	152	150	142	Liaison with MTR & Highway Department - Submit Method Statement for Approval	200 days	Mon 12/4/10	Thu 28/10/10	151	15	
	153	153	151	143	Record Survey	50 days	Mon 12/4/10	Mon 31/5/10	151	15-	
	154	154	152	144	Condition Survey & Structural Monitoring	40 days	Tue 1/6/10	Sat 10/7/10	153	15	
	155 156	155 156	153	145	Design of Temporary Traffic Arrangement	40 days	Sun 11/7/10 Fri 20/8/10	Thu 19/8/10 Mon 18/10/10	154	15	
	156	156	154	146	Submission of TTA to TMLG for Approval Excavation Permit	60 days 60 days	Fri 20/8/10 Tue 19/10/10	Mon 18/10/10 Fri 17/12/10	155	15	
-	157	157	155	147	Stage 1 (Pipe Label - 36269507.2)	185 days	Sat 18/12/10	Mon 20/6/11	1.20	15	-
-	150	159	150	140	Trial Pits	5 days	Sat 18/12/10	Wed 22/12/10	157,152	16	: ت
	160	160	158	150	Utilities Diversion	20 days	Thu 23/12/10	Tue 11/1/11	159	16	
	161	161	159	151	Construction of 1200mm Dia. Drainage Pipe & Manhole	140 days	Wed 12/1/11	Tue 31/5/11	160	16	
		162	160	152	Backfilling & Road Reinstatement	20 days	Wed 1/6/11	Mon 20/6/11	161	16	F
	162	102									
			ċ								
og : 2	162 gramme - Rev. 2010-2-26		Task Critical Tasl		Progress Summary		Critical Task	Rolled Split	Up Progress	External Tasks	Group By Summary



ID	ID no. in Rev. 5	ID no. in Rev. 4	1D no. 1n Rev. 3	1D no. in Rev. 2	Task Name
163	163	163	161	153	Stage 2
164	164	164	162	155	Tri
165	165	165	163	155	Ut
166	166	166	164	156	Co
167	167	167	165	157	Ba
168	168	168	166	158	Stage 3
169	169	169	167	159	Tri
170	170	170	168	160	Ut
171	171	171	169	161	Co
172 173	172	172	170	162	Ba Completion
174	1/5	115	1/1	105	Completion
175	175	175	173	165	Time for Co
176	176	176	174	166	Section IV
177	177	177	175	167	Comme
178					
179	179	179	177	169	Area E
180	180	180	178	170	Ini
181 182	181 182	181	179	171	Lia De
182	182	182	180	172	Su
184	184	185	181	173	Ex
185	185	185			Im
186	186	186			En
187	187	187			For
188	188	188	183	175	Tri
189	189	189	184	176	Ut
190	190	190	185	177	Sta
191 192	191	191	186	178	
192	192	192	187	175	
194	194	194			
195					
196	196	196	190	182	Sta
197	197	197	191	183	
198	198	198	192	184	
199	000	000	104	106	0.
200 201	200 201	200 201	194 195	186	Sta
201	201	201	195	187	
203	203	203	197	189	
204					
205	205	205	199	191	Sta
206	206	206	200	192	
207	207	207	201	193	
208	200	200	202	105	Area F
209 210	209 210	209	203 204	195	Alca P Ini
210	210	210	201	190	Lia
212	212	212	206	198	De
213	213	213	207	199	Sui
214	214	214	208	200	Ex
215	215	215	209	201	Te
216	216	216	210	202	Sta
217	217	217	211	203	
218 219	218	218	212 213	204 205	
220	219	219	215	205	
221					
222	222	222	216	208	Sta
223	223	223	217	209	
224	224	224	218	210	
225	225	225	219	211	
226	226	226	220	212	
227	000			21.4	c .
228 229	228 229	228 229	222 223	214 215	Sta
229	229	229	223	215	
230	230	230	224	210	
232	232	231	225	218	
233	233	233	227	219	
234					
235	235	235	229	221	Sta
236	236	236	230	222	
237	237	237	231	223	
238	1				

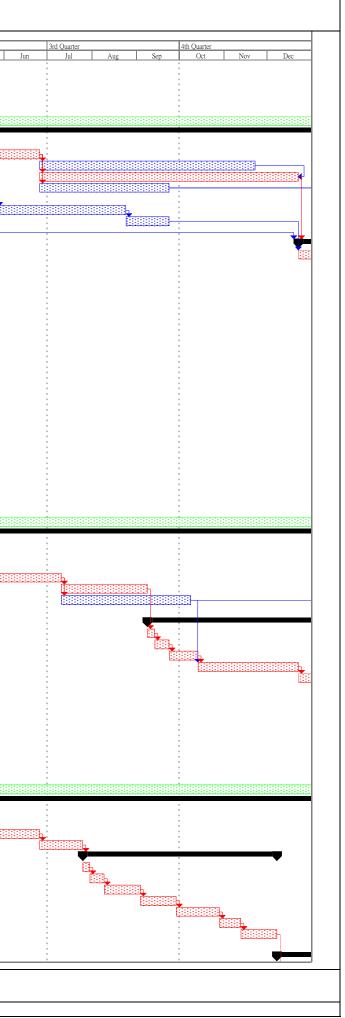
Contract No.: DC/2009/22 Contract Title: Drainage Improvement Works in Shuen Wan, Tai Po - Contract 1 Master Programme (Rev. 6) Duration Star Predecessors Successors 2010 1st Quarter Finish

	2	4	2	2							Jan Feb Mar Apr May
63	163	163	161		Stage 2 (Pipe Label - 36269506.2)	220 days	Tue 21/6/11	Thu 26/1/12			
54	164	164	162		Trial Pits	5 days	Tue 21/6/11	Sat 25/6/11	162	165	
65	165	165	163		Utilities Diversion	20 days	Sun 26/6/11	Fri 15/7/11	164	166	4
56	166	166	164		Construction of 1200mm Dia. Drainage Pipe & Manhole	175 days	Sat 16/7/11	Fri 6/1/12	165	167	
7	167	167	165	157	Backfilling & Road Reinstatement	20 days	Sat 7/1/12	Thu 26/1/12 Tue 28/8/12	166	169	
i8 i9	168 169	168 169	166 167	158	Stage 3 (Pipe Label - 36269505.2) Trial Pits	215 days 5 days	Fri 27/1/12 Fri 27/1/12	Tue 28/8/12 Tue 31/1/12	167	170	
0	109	109	167	159	Utilities Diversion	20 days	Wed 1/2/12	Mon 20/2/12	169	170	
, I	170	170	169		Construction of 1200mm Dia. Drainage Pipe & Manhole	170 days	Tue 21/2/12	Wed 8/8/12	170	171	
2	171	171	170		Backfilling & Road Reinstatement	20 days	Thu 9/8/12	Tue 28/8/12	170	172	
3	172	172	170	162	Completion of Section III	0 days	Tue 28/8/12	Tue 28/8/12	172	115	
4											
75	175	175	173	165	Time for Completion of Section IV	915 days	Fri 26/2/10	Tue 28/8/12			
76	176	176	174	166	Section IV (Area E, F, G - Siu Lek Yuen)	915 days	Fri 26/2/10	Tue 28/8/12		366	-
7	177	177	175	167	Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10		210,240,180	↓ _26/2
8											
79	179	179	177	169	Area E -Siu Lek Yuen Road Playground	610 days	Fri 26/2/10	Fri 28/10/11			
30	180	180	178		Initial Survey	40 days	Fri 26/2/10	Tue 6/4/10	177	181,182	
81	181	181	179		Liaison with LCSD - Submit Method Statement for Approval	200 days	Wed 7/4/10	Sat 23/10/10	180	191	
3	182	182 183	180 181	172	Design of Temporary Traffic Arrangement	90 days 70 days	Wed 7/4/10 Tue 6/7/10	Mon 5/7/10 Mon 13/9/10	180	183	
4	183	185	181		Submission to TMLG for Approval Excavation Permit	30 days	Tue 14/9/10	Wed 13/10/10	182	185	
5	185	185	102	1/4	Implementation of Pedestrian Diversion	5 days	Thu 14/10/10	Mon 18/10/10	185	185	
6	185	185			Erection of Site Hoarding	30 days	Tue 19/10/10	Wed 17/11/10	185	183	
7	187	187			Formation of Site Access	5 days	Thu 18/11/10	Mon 22/11/10	185	188	
38	188	188	183	175	Trial Pit	5 days	Tue 23/11/10	Sat 27/11/10	187	189	
)	189	189	184		Utilities Diversion	10 days	Sun 28/11/10	Tue 7/12/10	188	191	
)	190	190	185	177	Stage 1 (Pipe Label: 1605.1)	170 days	Wed 8/12/10	Thu 26/5/11			
l	191	191	186	178	Construction of Outfall Structure	70 days	Wed 8/12/10	Tue 15/2/11	181,189	192	
2	192	192	187	179	Construction of 1650mm Dia. Drainage Pipe	60 days	Wed 16/2/11	Sat 16/4/11	191	193	
3	193	193	188	180	Backfilling & Reinstatement	30 days	Sun 17/4/11	Mon 16/5/11	192	194	
4	194	194			Installation of Flap Valve	10 days	Tue 17/5/11	Thu 26/5/11	193	197	
5	107			104			D.1 00/01/11	W. 100 5 11			
,	196	196	190	182	Stage 2 (Pipe Label - 1603.1 to 1604.1)	55 days	Fri 27/5/11	Wed 20/7/11	101		
3	197	197 198	191	183	Construction of 1650mm Dia. Drainage Pipe & Manholes Backfilling	45 days 10 days	Fri 27/5/11 Mon 11/7/11	Sun 10/7/11 Wed 20/7/11	194	198 201	
,	198	198	192	164	Backinning	10 days	NIOII 11///11	wed 20/7/11	197	201	
,	200	200	194	186	Stage 3 (Pipe Label - 1602.1)	50 days	Thu 21/7/11	Thu 8/9/11			
	200	200	195	180	Construction of 1650mm Dia. Drainage Pipe & Manholes	30 days	Thu 21/7/11	Fri 19/8/11	198	202	
	202	201	195		Connect to Existing Manhole	10 days	Sat 20/8/11	Mon 29/8/11	201	203	
	203	203	197		Remove of Existing Pub End	10 days	Tue 30/8/11	Thu 8/9/11	202	206	
1											
5	205	205	199	191	Stage 4	50 days	Fri 9/9/11	Fri 28/10/11			
,	206	206	200		Planting Standard Size Melaleuca Leucadendron	30 days	Fri 9/9/11	Sat 8/10/11	203	207	
7	207	207	201	193	Reinstatement in Siu Lek Yuen Road Playground	20 days	Sun 9/10/11	Fri 28/10/11	206	241	
8											
9	209	209	203		Area F - Lek Yuen Street Rest Garden & Sha Tin Rural Committee Road	915 days	Fri 26/2/10	Tue 28/8/12	199		
0	210	210	204	196	Initial Survey Liaison with LCSD	25 days	Fri 26/2/10	Mon 22/3/10	177	211,212	
2	211 212	211 212	205 206	197 198	Design of Temporary Traffic Arrangement	150 days 150 days	Tue 23/3/10 Tue 23/3/10	Thu 19/8/10 Thu 19/8/10	210	217	
3	212	212	200	198	Submission of TTA to TMLG for Approval	60 days	Fri 20/8/10	Mon 18/10/10	210	213	keenenenenenenenenenenen
1	213	213	207		Excavation Permit	30 days	Tue 19/10/10	Wed 17/11/10	213	215	
	215	215	209		Temporary Relocation of Existing Directional Sign	30 days	Thu 18/11/10	Fri 17/12/10	214	217	
6	216	216	210		Stage 1 (Lek Yuen Street Rest Garden to First Slow Lane)	195 days	Sat 18/12/10	Thu 30/6/11			
7	217	217	211	203	Trial Pit	5 days	Sat 18/12/10	Wed 22/12/10	215,211	218	
3	218	218	212	204	Utilities Diversion	10 days	Thu 23/12/10	Sat 1/1/11	217	219	
	219	219	213		Construction of 1650 Drainage Pipe	150 days	Sun 2/1/11	Tue 31/5/11	218	220	
	220	220	214	206	Backfilling & Road Reinstatement	30 days	Wed 1/6/11	Thu 30/6/11	219	223	
	222	222	216		Stage 2 (Second Slow Lane)	175 days	Fri 1/7/11	Thu 22/12/11	200	***	
	223	223	217		Trial Pit	5 days	Fri 1/7/11	Tue 5/7/11	220	224	
	224 225	224	218 219		Utilities Diversion Construction of 1650 Drainage Pipe	10 days 130 days	Wed 6/7/11 Sat 16/7/11	Fri 15/7/11 Tue 22/11/11	223	225	
5	225	225	219		Backfilling & Road Reinstatement	30 days	Wed 23/11/11	Tue 22/11/11 Thu 22/12/11	224	220	
-	220	220	220	212	Daukinning or road Reinstatement	50 days	wcu 25/11/11	1110 22/12/11	222	229	
	228	228	222	214	Stage 3 (Second Fast Lane)	205 days	Fri 23/12/11	Sat 14/7/12			
_	229	229	223	214	Trial Pit	5 days	Fri 23/12/11	Tue 27/12/11	226	230	
-	230	230	224		Utilities Diversion	10 days	Wed 28/12/11	Fri 6/1/12	229	231	
1	231	231	225	217	Construction of 1650 Drainage Pipe	130 days	Sat 7/1/12	Tue 15/5/12	230	232	
	232	232	226		Connect to Existing Box Culvert	30 days	Wed 16/5/12	Thu 14/6/12	231	233	
	233	233	227	219	Backfilling & Road Reinstatement	30 days	Fri 15/6/12	Sat 14/7/12	232	236	
	235	235	229	221	Stage 4	45 days	Sun 15/7/12	Tue 28/8/12			
	236	236	230		Remove of Existing Pub End in Existing Pipe	15 days	Sun 15/7/12	Sun 29/7/12	233	237	
	237	237	231	223	Fill up of Abandoned 1200mm Dia. Drainage Pipe & Manholes	30 days	Mon 30/7/12	Tue 28/8/12	236	247	
	000	000		007	Anna Oli Mana Olina Olina		B-1 0/0//0	Th. 0/////2			
_	239	239	233		Area G - Ngan Shing Streeet	700 days	Fri 26/2/10	Thu 26/1/12	100	A.000	
	240 241	240 241	234 235	226	Maintain of Existing Drains & Manhole	700 days 20 days	Fri 26/2/10 Sat 29/10/11	Thu 26/1/12 Thu 17/11/11	207	245FF 242	
	241 242	241 242	235		Implementation of TTA (Stage 1) for Remove of Temporary Plug Implementation of TTA (Stage 2) for Remove of Temporary Plug	20 days 20 days	Fri 18/11/11	Wed 7/12/11	207	242 243	
2	242	242	230		Implementation of TTA (Stage 2) for Remove of Temporary Plug Implementation of TTA (Stage 3) for Remove of Temporary Plug	20 days 20 days	Thu 8/12/11	Tue 27/12/11	241 242	243	
	212	275	122	2.30	implementation of the forego of tor nonzore of temporary ring	20 uays		1 400 21112011	272	244	<u> </u>
r Progra	amme - Rev. 6		Task		Progress Summary	Polled Up	Critical Task	Rolled	Up Progress	External Tasks	Group By Summary
	10-2-26			1							
			Critical Tas	SK	Milestone Rolled Up Task	Rolled Up	Milestone 🚫	Split		Project Summary	Deadline
									Page 3		



2nd Quarter

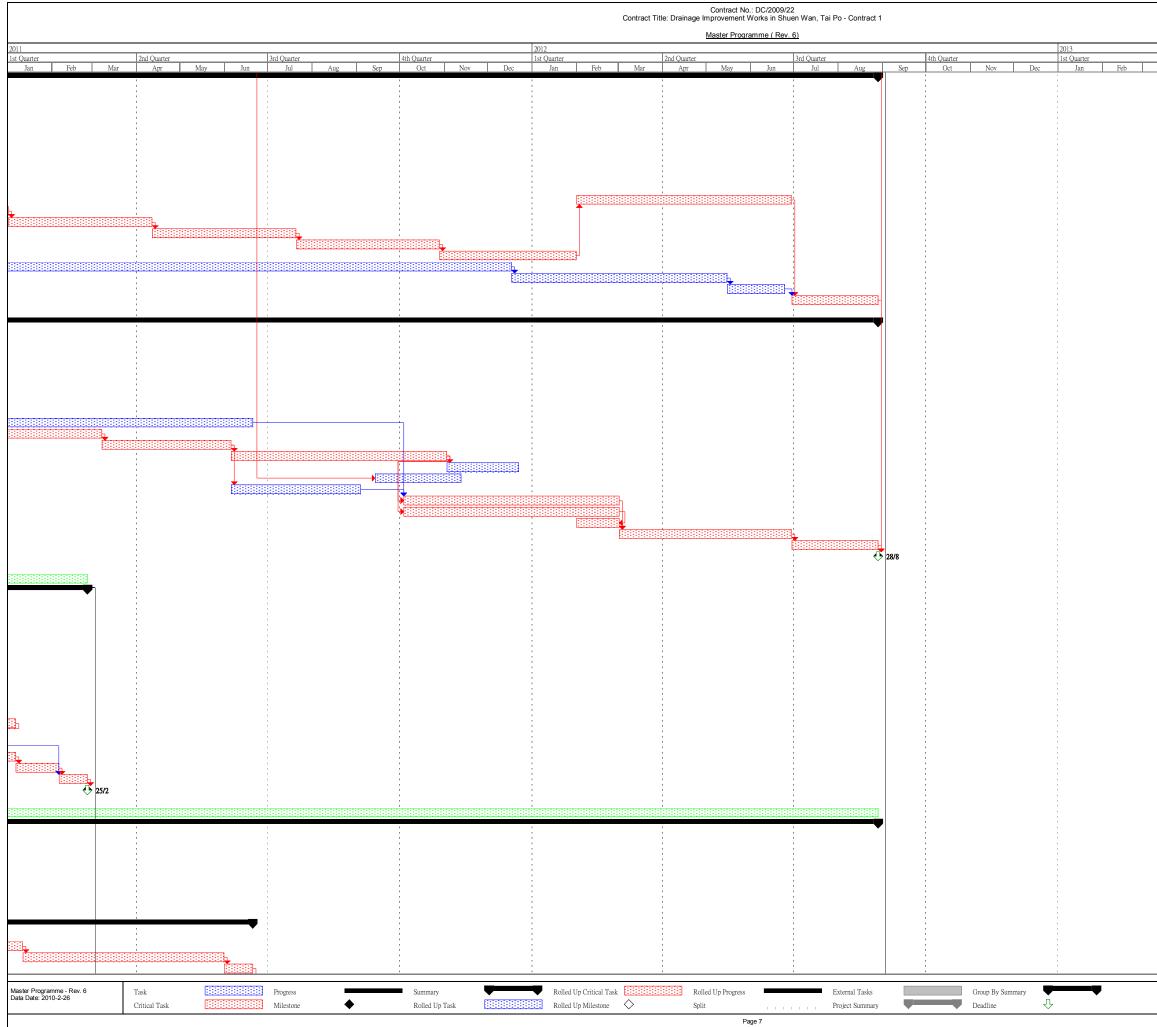
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245 245 247 247 249 249 250 250 251 251 252 252 253 255 256 256 257 257 258 256 257 257 258 256 257 257 258 256 257 257 258 256 257 257 258 263 260 260 261 261 265 265 266 266 267 277 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284		3		ev. Task Name	Duration	Start	Finish	Predecessors	Successors 2	010
245 245 247 247 249 249 250 250 251 251 252 252 253 255 256 256 257 257 258 256 257 257 258 256 257 257 258 256 257 257 258 256 257 257 258 263 260 260 261 261 265 265 266 266 267 277 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284			2						1:	st Quarter 2nd Quarter Jan Feb Mar Apr
247 247 249 249 250 250 251 251 252 252 253 255 256 256 257 257 258 258 259 259 250 256 257 257 258 258 259 259 260 260 261 261 262 262 263 263 264 264 265 266 266 266 267 267 268 268 269 269 271 271 272 273 273 273 274 274 275 276 276 277 277 277 278 289 280 280 281	245	238	231	Implementation of TTA (Stage 4) for Remove of Temporary Plug	20 days	Wed 28/12/11	Mon 16/1/12	243	245	Jan reb Mar Apr
249 249 250 250 251 251 253 253 254 255 255 255 256 257 257 257 258 258 259 259 250 260 251 256 256 256 257 257 258 258 250 260 261 261 262 262 263 263 264 266 265 266 266 266 267 267 270 271 272 272 273 273 274 274 275 275 276 276 277 277 278 281 281 281 282 282 283		239	227	Fill up of Existing 750mm dia. drainage pipes	10 days	Tue 17/1/12	Thu 26/1/12	244,240FF	247	
249 249 250 250 251 251 253 253 254 255 255 255 256 257 257 257 258 258 259 259 250 260 251 256 256 256 257 257 258 258 250 260 261 261 262 262 263 263 264 266 265 266 266 266 267 267 270 271 272 272 273 273 274 274 275 275 276 276 277 277 278 281 281 281 282 282 283										
250 250 251 251 252 252 253 254 255 255 256 256 257 257 258 256 257 257 258 256 257 257 258 256 259 259 260 260 261 261 263 263 264 264 265 266 266 266 267 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284 285 285 286 289 290 291	247	24	233	Completion of Section IV	0 days	Tue 28/8/12	Tue 28/8/12	237,245		
250 250 251 251 252 252 253 254 255 255 256 256 257 257 258 256 257 257 258 256 257 257 258 256 259 259 260 260 261 261 263 263 264 264 265 266 266 266 267 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284 285 285 286 289 290 291	249	243	235	Time for Completion of Section V	915 days	Fri 26/2/10	Tue 28/8/12			
251 251 252 252 253 253 254 255 256 256 257 257 258 258 259 259 250 256 257 257 258 258 259 259 260 260 261 261 262 263 264 264 265 266 266 266 267 267 268 268 269 269 269 269 269 269 271 271 272 273 273 273 274 274 275 276 276 276 277 277 278 281 281 281 282 282 284		244		Section V (Area H - Sai Sha Road)	915 days	Fri 26/2/10	Tue 28/8/12			
253 253 254 254 255 255 256 257 257 257 258 258 259 259 250 260 261 261 262 262 263 263 264 266 265 266 266 266 267 267 268 268 269 269 271 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 281 281 282 282 281 283 285 284 285 285 285 286 285 287 287 288		24		Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10		252,256,259	26/2
254 255 255 255 256 257 257 257 258 258 250 259 250 260 261 261 263 263 264 264 265 266 266 266 267 267 268 268 269 269 271 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284 285 285 285 286 288 289 289 290 290 291 291 292 293 293	252	240	238	Design of Temporary Traffic Arrangement	120 days	Fri 26/2/10	Fri 25/6/10	251	253,255,254	
255 255 256 256 257 257 258 256 257 257 258 250 259 259 260 260 261 261 263 263 264 264 265 266 266 266 267 267 268 268 269 269 271 271 273 273 274 274 275 276 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284 285 285 286 289 290 291 291 292 293 293 293 294		24		Submission of TTA to TMLG for Approval	150 days	Sat 26/6/10	Mon 22/11/10	252	254FF	
256 257 257 257 258 258 259 259 260 260 261 261 262 262 263 265 266 266 267 267 268 268 269 269 261 265 266 266 267 267 268 268 271 271 273 273 274 274 275 276 276 276 277 277 278 278 279 279 280 280 281 281 282 285 284 285 285 288 289 289 290 291 291 291 292 295 293		248		Excavation Permit	180 days	Sat 26/6/10	Wed 22/12/10	252,253FF	260	
257 257 258 258 259 259 260 260 261 261 262 262 263 263 264 266 265 266 266 266 267 267 268 268 269 267 271 271 273 273 274 274 275 276 276 276 277 277 278 278 279 279 280 280 281 281 282 282 283 285 284 285 285 286 287 287 288 289 290 290 291 293 292 293 293 293 294		249		Temporary Drainage Management Plan Tree Survey	90 days 90 days	Sat 26/6/10 Fri 26/2/10	Thu 23/9/10 Wed 26/5/10	252	264,276	
258 258 259 259 260 260 261 261 263 263 264 264 265 266 266 266 267 267 268 268 269 269 271 271 273 273 274 274 275 276 276 277 277 277 278 278 279 279 280 280 281 281 282 281 284 285 285 285 286 285 287 281 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297		25		Submission of Tree Survey Report	90 days 90 days	Thu 27/5/10	Tue 24/8/10	256	258	
259 259 260 260 261 262 263 263 264 264 265 266 266 266 267 267 268 268 269 269 267 267 268 268 269 269 271 272 273 273 274 274 275 276 276 276 277 277 278 278 279 279 280 280 281 281 285 285 286 286 287 287 288 289 290 290 291 291 292 293 293 293 294 294 295 295 296		25		Tree Felling	30 days	Wed 25/8/10	Thu 23/9/10	257	250	
260 260 261 261 263 263 264 264 265 265 266 266 267 267 268 268 269 269 271 271 273 273 274 274 275 276 276 276 277 277 273 274 274 274 275 276 276 276 277 277 278 278 280 280 281 281 282 282 284 285 285 285 286 286 287 291 290 290 291 291 292 293 293 293 294 294 295				Utilities Survey	20 days	Fri 26/2/10	Wed 17/3/10	251	260	
261 261 262 263 264 264 265 265 266 266 267 267 268 268 269 269 271 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 284 285 286 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 299 300 301	259	253	241	Construction of Cross Box Culvert Chainage Stage 1 (Ch 0 -16)	300 days	Thu 23/12/10	Tue 18/10/11	254,259		
262 262 263 263 264 266 265 266 267 267 268 268 269 269 271 271 273 273 274 274 275 276 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 284 285 285 286 286 287 287 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 303 303		254		Preliminary Works for TTA Implementation (Setback of Road Kerb)	30 days	Thu 23/12/10	Fri 21/1/11	258	262	
263 263 264 264 265 266 266 267 267 267 268 268 269 269 271 272 273 273 274 274 275 276 276 277 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 285 286 287 287 287 280 289 290 290 291 291 292 293 293 293 294 294 295 296 296 297 297 297 298 298 300 303 301		25	_	Trial Pit	5 days	Sat 22/1/11	Wed 26/1/11	261	263	
264 264 265 265 266 266 267 267 268 268 269 269 271 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 288 289 290 290 290 291 291 292 293 293 293 294 294 295 295 296 296 297 297 298 298 300 303 301 301 302		250		Utilities Diversion Temporary Diversion of Kwun Hang River	20 days	Thu 27/1/11 Wed 16/2/11	Tue 15/2/11 Sun 20/2/11	262 263,255	264 265	:
265 265 266 266 267 267 268 269 269 269 271 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 285 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 301 301 301 302 303 303 303 304		25		Excavation	5 days 30 days	Mon 21/2/11	Tue 22/3/11	263,255	265	
266 267 267 267 268 268 269 269 271 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 298 298 298 300 300 301 301 302 303 303 303 304 304 305 306 306		250		Demolish of Existing Box Culvert & Wing Wall	30 days	Won 21/2/11 Wed 23/3/11	Thu 21/4/11	204	200	
267 267 268 268 269 269 271 271 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 284 285 285 286 286 287 281 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 303 303 304 304 304 305 306 306		260		Construction of Box Culvert	70 days	Fri 22/4/11	Thu 30/6/11	266	268	
269 269 271 271 272 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 307 308 308		26		Construction of Wing Wall	60 days	Fri 1/7/11	Mon 29/8/11	267	269	
271 271 272 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 285 286 286 287 287 288 289 290 290 291 291 292 293 293 293 294 294 295 295 296 296 297 297 298 298 300 301 301 301 302 303 303 303 304 304 305 306 306 308 307		262		Backfilling	30 days	Tue 30/8/11	Wed 28/9/11	268	270	
272 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 307 308 308 308 309 303 310	269	26.	251	Road Reinstatement	20 days	Thu 29/9/11	Tue 18/10/11	269	273	
272 272 273 273 274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 307 308 308 308 309 303 310	071					W-110//2/1	Tu: 00/0/12			
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274 274 275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 288 289 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 306 307 308 308 308 309 301 311 311 312 313 313		260		Trial Pit	30 days 5 days	Fri 18/11/11	Thu 1//11/11 Tue 22/11/11	270	274 275	
275 275 276 276 277 277 278 278 279 279 280 280 281 281 282 282 283 284 284 284 285 285 286 286 287 287 288 289 290 290 291 291 292 293 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 309 300 310 311 311 312 312		26		Utilities Diversion	20 days	Wed 23/11/11	Mon 12/12/11	273	275	
277 277 278 278 279 279 280 280 281 281 282 282 284 285 285 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 307 309 310 310 311 311 312 313 313 313 314 314 315 315 316 316 317		269		Temporary Diversion of Kwun Hang River	5 days	Tue 13/12/11	Sat 17/12/11	275,255	277	
278 278 279 279 280 280 281 281 282 282 284 284 285 285 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 303 303 303 304 304 305 306 306 308 309 309 310 310 311 311 312 313 313 313 314 314 315 315 316 316 317	276	270	258	Excavation	30 days	Sun 18/12/11	Mon 16/1/12	276	278	
279 279 280 280 281 281 282 282 284 285 285 285 286 286 287 287 288 288 289 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 308 308 308 309 300 310 310 311 311 312 313 313 313 314 314 315 315 316 316 317		27		Demolish of Existing Box Culvert	30 days	Tue 17/1/12	Wed 15/2/12	277	279	
280 280 281 281 282 282 284 284 285 285 286 286 287 287 288 288 289 289 290 290 291 291 292 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 309 300 310 311 311 311 312 312 313 314 315 315 316 316 317 317 318 318 319		272		Construction of Box Culvert	70 days	Thu 16/2/12	Wed 25/4/12	278	280	
281 281 282 282 284 284 285 285 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 309 309 310 311 311 311 312 312 313 314 315 315 316 316 317 317 318 318		273		Construction of Wing Wall	60 days	Thu 26/4/12	Sun 24/6/12 Fri 3/8/12	279 280	281 282	
282 282 284 284 285 285 286 286 287 287 288 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 309 309 310 310 311 311 312 312 313 314 315 315 316 316 317 317 318 318		27-		Backfilling Road Reinstatement	40 days 25 days	Mon 25/6/12 Sat 4/8/12	Tue 28/8/12	280	282	
284 284 285 285 286 287 287 287 288 289 290 290 291 291 292 293 293 293 294 294 295 296 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 308 309 309 310 310 311 311 312 313 313 313 314 314 315 315 316 316 317 317 318 319		27		Completion of Section V	0 days	Tue 28/8/12	Tue 28/8/12	281	205	
285 285 286 286 287 287 288 289 289 289 280 290 291 291 292 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 308 309 309 310 311 311 311 312 312 313 314 315 315 316 316 317 318 319 319										
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287 287 288 288 289 289 290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 308 308 309 309 310 311 312 312 313 313 314 314 315 315 316 316 317 318 319 319		279		Section VI (Area J - Pak Shing Street)	485 days	Fri 26/2/10	Sat 25/6/11			V
288 288 289 289 290 290 291 291 293 293 294 294 295 295 296 297 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		280		Commencement of Works	0 days	Fri 26/2/10	Fri 26/2/10	007	288	◆_26/2 ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
289 289 290 290 291 291 293 293 294 294 295 295 296 297 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		28		Site Investigation (Trial Pits) Design of Temporary Traffic Arrangement	30 days 45 days	Fri 26/2/10 Sun 28/3/10	Sat 27/3/10 Tue 11/5/10	287 288	289 290	
290 290 291 291 293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 306 308 308 309 309 310 311 311 311 312 312 313 314 315 315 316 316 317 318 318 318		283		Submission of TTA to TMLG for Approval	60 days	Wed 12/5/10	Sat 10/7/10	289	290	
293 293 294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 308 309 309 310 311 312 312 313 314 315 315 316 316 317 317 318 318 319 319		284		Excavation Permit	60 days	Sun 11/7/10	Wed 8/9/10	290	295	
294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 309 301 310 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319	291	28	270	Submission of Method Statement of Works	90 days	Sun 11/7/10	Fri 8/10/10	290	298,304	
294 294 295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 309 301 310 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319										
295 295 296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 306 308 308 309 309 310 311 312 312 313 314 315 315 316 316 317 317 318 318 319 319		287		Stage 1 (Pipe Label - 9425.1 to 9404.3)	135 days	Thu 9/9/10	Fri 21/1/11			
296 296 297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 306 308 308 309 309 310 311 311 311 312 312 313 314 315 315 316 316 317 318 319 319		288		Trial Pit	5 days	Thu 9/9/10	Mon 13/9/10	291	296	
297 297 298 298 300 300 301 301 302 302 303 303 304 304 305 306 306 306 308 308 309 309 310 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		289		Utilities Diversion Modification of Overflow Chamber No. 1	10 days 20 days	Tue 14/9/10 Fri 24/9/10	Thu 23/9/10 Wed 13/10/10	295 296	297 298	
298 298 300 300 301 301 302 302 303 303 304 304 305 305 306 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		29		Construction of 450mm Dia. Drainage Pipe	20 days 70 days	Thu 14/10/10	Wed 22/12/10	297,292	298	
300 300 301 301 302 302 303 303 304 304 305 305 306 306 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 319		292		Construction of Manhole (Type E)	30 days	Thu 23/12/10	Fri 21/1/11	298	302	:
301 301 302 302 303 303 304 304 305 305 306 306 308 309 301 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319										
302 302 303 303 304 304 305 306 306 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		294		Stage 2 (Pipe Label - 9410.2)	155 days	Sat 22/1/11	Sat 25/6/11			
303 303 304 304 305 305 306 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 319		295		Trial Pit	5 days	Sat 22/1/11	Wed 26/1/11	299	303	
304 304 305 305 306 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 319		290		Utilities Diversion Construciton of 600mm Dia. Drainage Pipe	10 days 70 days	Thu 27/1/11 Sun 6/2/11	Sat 5/2/11 Sat 16/4/11	302 303,292	304 305	
305 305 306 306 308 309 300 310 310 310 311 311 312 312 313 313 314 314 315 316 317 317 318 318 319 319		29		Modification of Overflow Chamber No. 3	30 days	Sun 0/2/11 Sun 17/4/11	Mon 16/5/11	303,292	305	:
306 306 308 308 309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		290		Construction of Overflow Chamber No. 3 & Type F	40 days	Tue 17/5/11	Sat 25/6/11	305	307	
309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		300		Completion of Section VI	0 days	Sat 25/6/11	Sat 25/6/11	306		
309 309 310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319										
310 310 311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		302		Time for Completion of Section VII	365 days	Fri 26/2/10	Fri 25/2/11			
311 311 312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		303		Section VII (Area K - Ting Kok Road near Chung Nga Road)	365 days	Fri 26/2/10	Fri 25/2/11			
312 312 313 313 314 314 315 315 316 316 317 317 318 318 319 319		304		Commencement of Works Design of Temporary Traffic Arrangement	0 days 40 days	Fri 26/2/10 Fri 26/2/10	Fri 26/2/10 Tue 6/4/10	311	312	26/2
313 313 314 314 315 315 316 316 317 317 318 318 319 319		30:		Design of Temporary Traffic Arrangement Submission of TTA to TMLG for Approval	40 days 80 days	Wed 7/4/10	Fri 25/6/10	311 312	313	<u> :2:2:2:2:2:2:2:2:2:2:2:2:2:2:2:2:2:2:2</u>
314 314 315 315 316 316 317 317 318 318 319 319		30		Excavation Permit	30 days	Sat 26/6/10	Sun 25/7/10	313	315	
316 316 317 317 318 318 319 319		308		Stage 1 (Fast Lane of Eastbound & Westbound Carriageway of Ting Kok Road)	135 days	Mon 26/7/10	Tue 7/12/10	314		
317 317 318 318 319 319		309		Trial Pit	5 days	Mon 26/7/10	Fri 30/7/10		317	1
318 318 319 319		310		Utilities Diversion	10 days	Sat 31/7/10	Mon 9/8/10	316	318	
319 319		31		Excavation	25 days	Tue 10/8/10	Fri 3/9/10	317	319	
		312		Demolish of Existing Box Culvert Construction of 1650 Drainage Pipe (Pipe Label - 3201.A)	25 days 30 days	Sat 4/9/10 Wed 29/9/10	Tue 28/9/10 Thu 28/10/10	318 319	320	;
3/01 3/01	319	31.		Construction of 1050 Drainage Pipe (Pipe Label - 3201.A) Construction of Manhole	30 days 15 days	Fri 29/10/10	Fri 12/11/10	319	321	
321 321		31:		Backfilling & Road Reinstatement	25 days	Sat 13/11/10	Tue 7/12/10	320	325	
					25 6435					
323 323	323	317	305	Stage 2 (Slow Lane of Eastbound Carriageway of Ting Kok Road)	80 days	Wed 8/12/10	Fri 25/2/11			
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gramme - Rev. 6 T. 2010-2-26		Task		Progress Summary		Critical Task	Rolled Up	Progress External	Tasks	Group By Summary



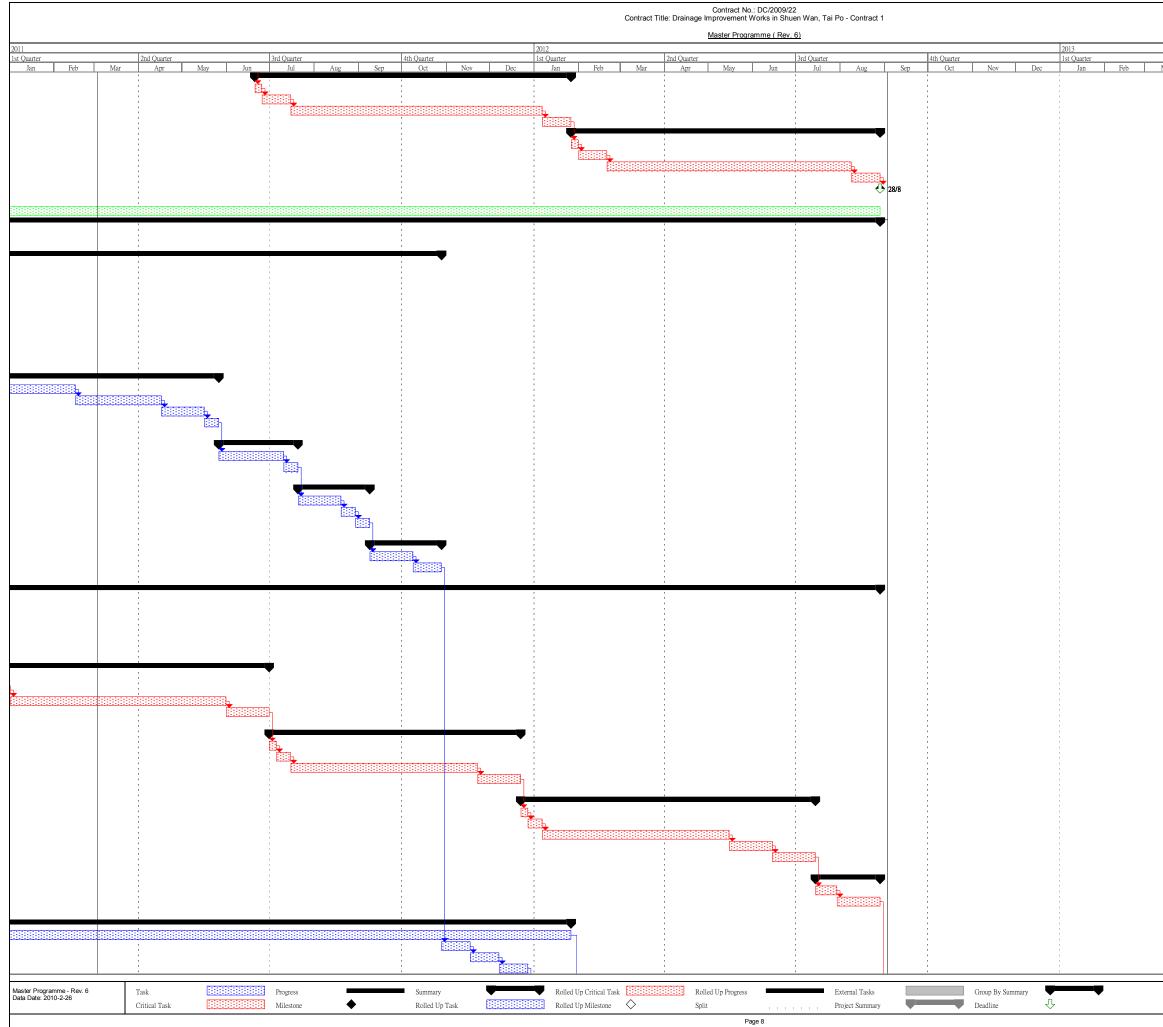
				ovement Works in Shuen Wan, T		
		1		ter Programme (Rev. 6)		
ID no. in Rev. ID no. in Rev. ID no. in Rev. ID no. in Rev. Task Name 5 4 3 2	Duration	Start	Finish	Predecessors	Successors	2010 3rd Quarter 4th Quarter 1st Quarter 2nd Quarter 3rd Quarter 4th Quarter Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov
324 324 318 306 Trial Pit	5 days	Wed 8/12/10	Sun 12/12/10	322	326	6
325 325 319 307 Utilities Diver	on 10 days	Mon 13/12/10	Wed 22/12/10	325	327	7
326 326 320 308 Excavation	20 days	Thu 23/12/10	Tue 11/1/11	326	328	8
327 327 321 309 Demolish of E	sting Box Culvert 10 days	Wed 12/1/11	Fri 21/1/11	327	329	
	1650 Drainage Pipe (Pipe Label - 3201.A) 15 days	Sat 22/1/11	Sat 5/2/11	328	330	
329 329 323 311 Construction o		Sun 6/2/11	Tue 15/2/11	329	331	
	oad Reinstatement 10 days	Wed 16/2/11	Fri 25/2/11	330	332	2
331 331 325 313 Completion of Section	VII 0 days	Fri 25/2/11	Fri 25/2/11	331		
333 333 327 315 Time for Completion o		Fri 26/2/10	Tue 28/8/12			
334 338 328 316 Section VIII (Area L -		Fri 26/2/10	Tue 28/8/12			
335 335 329 317 Commencement of		Fri 26/2/10	Fri 26/2/10		337	
336 336 330 318 Liaison with Local		Fri 26/2/10	Thu 10/6/10	336	338	8
	r Manhole & Pipe bt. W h061 - Wh 062 90 days	Fri 11/6/10	Wed 8/9/10	337	339	
	r Manhole & Pipe bt. Wh062 - Wh 063 90 days	Thu 9/9/10	Tue 7/12/10	338	340	
	r Manhole & Pipe bt. Wh 060 -Wh 063 90 days	Wed 8/12/10	Mon 7/3/11	339	341	1
	r Manhole & Pipe bt. Wh 063 - Wh 064 90 days	Tue 8/3/11	Sun 5/6/11	340	342	2
	r Manhole & Pipe bt. Wh 064 - Ex 1A 90 days	Mon 6/6/11	Sat 3/9/11	341	343	3
	r Manhole & Pipe bt. Ex 1A - Ex 2A 90 days	Sun 4/9/11	Fri 2/12/11	342	344	4
	r Manhole & Pipe bt. Ex 2A - Ex 3A 90 days	Sat 3/12/11	Thu 1/3/12	343	345	5
	r Manhole & Pipe bt. Ex 3A - Wh 033 90 days	Fri 2/3/12	Wed 30/5/12	344	346	6
	r Manhole & Pipe bt. Wh 033 - Ex 9 90 days	Thu 31/5/12	Tue 28/8/12	345	347	7
346 346 340 328 Completion of Section	VIII 0 days	Tue 28/8/12	Tue 28/8/12	346		
		10 L A C A U A				
348 348 342 330 Time for Completion of		Fri 26/2/10	Wed 28/8/13			
349 349 343 331 Section IX (Area A, B		Fri 26/2/10	Wed 28/8/13		252	
350 350 344 332 Commencement of ' 351 351 345 333 Landscape Establish		Fri 26/2/10	Fri 26/2/10	22.251	352	2 2 2 2 2 2 2 2 2 2 2
	nent Works in Area A & B 365 days	Wed 29/8/12	Wed 28/8/13	33,351	353	5
352 352 346 334 Completion of Section	X 0 days	Wed 28/8/13	Wed 28/8/13	352		
354 354 348 336 Time for Completion o	0 - Mar 17	E: 2(2/10	WL 1 20/0/12			
	· · · · · · · · · · · · · · · · · · ·	Fri 26/2/10 Fri 26/2/10	Wed 28/8/13 Wed 28/8/13			
					250 250 260	
356 356 350 338 Commencement of ' 358 358 353 341 Ecological Monitori		Fri 26/2/10 Sat 26/2/11	Fri 26/2/10 Sat 25/2/12	128,357	358,359,360	
				128,357	361	
	nent Works in Area C 365 days ygical Compensation Area 915 days	Sat 26/2/11 Sat 26/2/11	Sat 25/2/12 Wed 28/8/13	128,357	301	
361 361 355 343 Completion of Section		Wed 28/8/13	Wed 28/8/13	359,358,360	501	
Joi Joi Joi Completion of Section	a 0 days	w cu 20/0/13	WCU 20/0/13	000,000,700		
363 363 357 345 Time for Completion of	Section XI 1280 days	Fri 26/2/10	Wed 28/8/13			
364 364 358 346 Section XI	1280 days	Fri 26/2/10	Wed 28/8/13			
365 365 359 347 Commencement of		Fri 26/2/10	Fri 26/2/10		366	
	ent works in Area E, F, G 365 days	Wed 29/8/12	Wed 28/8/13	176,365	300	
367 367 361 349 Completion of Section		Wed 28/8/12 Wed 28/8/13	Wed 28/8/13	366	307	
	•• 0 days	W Cu 20/0/13	WGu 20/0/13	000		
369 369 363 351 Time for Completion of	Section XII 1280 days	Fri 26/2/10	Wed 28/8/13			
370 370 364 352 Section XII	1280 days	Fri 26/2/10	Wed 28/8/13			
371 371 365 353 Commencement of	· · · · · · · · · · · · · · · · · · ·	Fri 26/2/10	Fri 26/2/10			◆ 26/2
	ection of Existing Trees within the Site and all remaining of the Works 1280 days	Fri 26/2/10	Wed 28/8/13		272	
372 372 300 354 Preservation and Pro 373 373 367 355 Completion of Section		Wed 28/8/13	Wed 28/8/13	372	3/3	
Completion of Section	11 U days	wcu 20/0/13	wcu 20/0/13	512		

Master Programme - Rev. 6 Data Date: 2010-2-26	Task Critical Task	Progress Milestone	•	Summary Rolled Up Task	Rolled Up Critical Task Rolled Up Milestone	 Rolled Up Progress Split		External Tasks Project Summary	 Group By Summary Deadline	Ŷ	•
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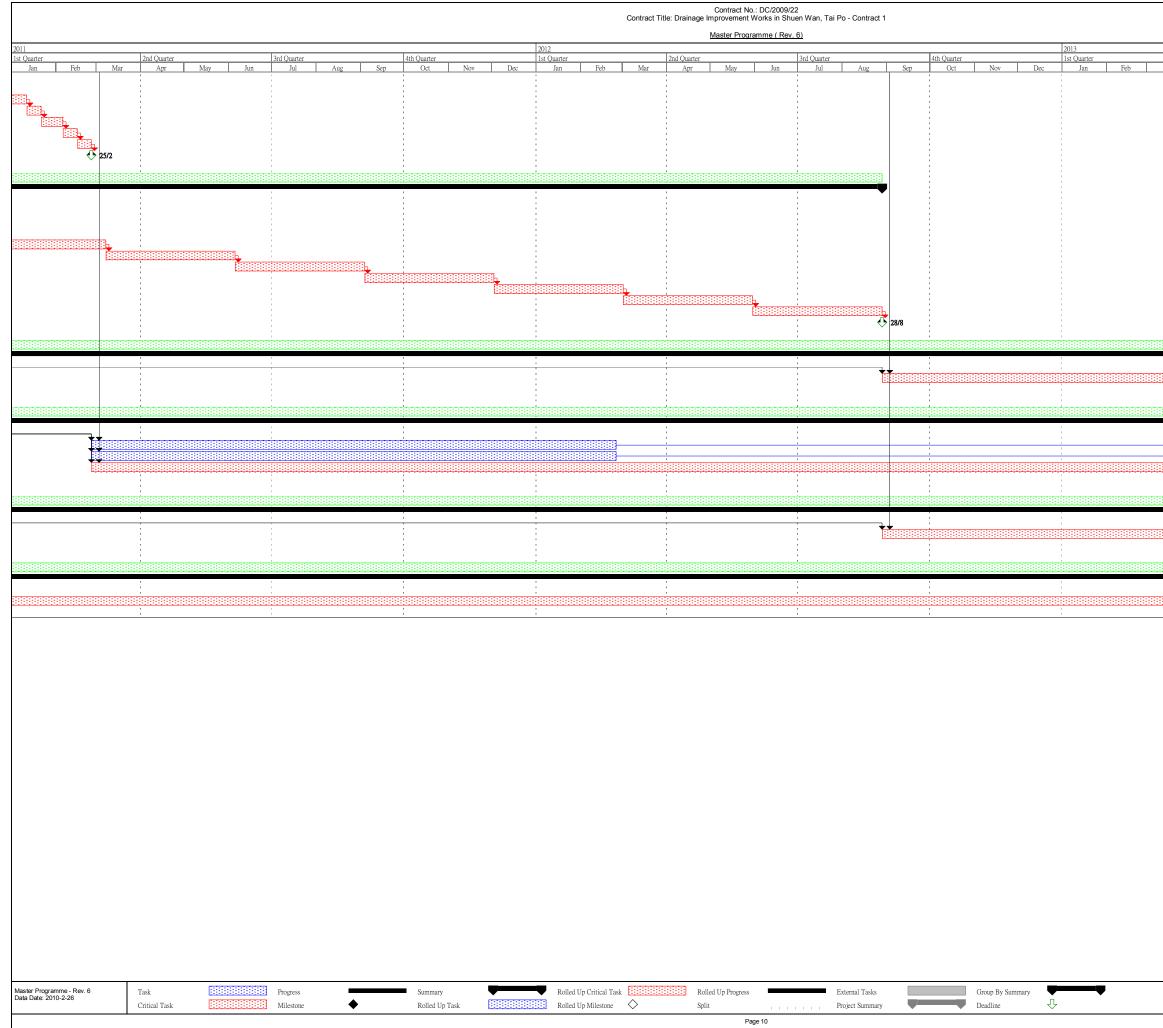
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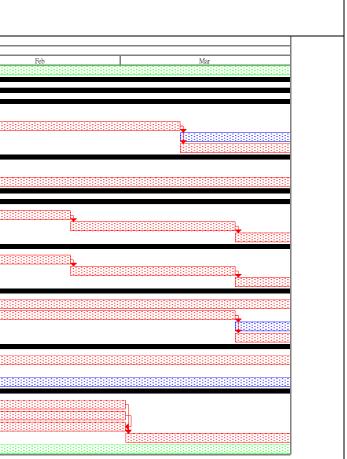


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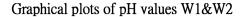
Appendix J: Three month rolling programme

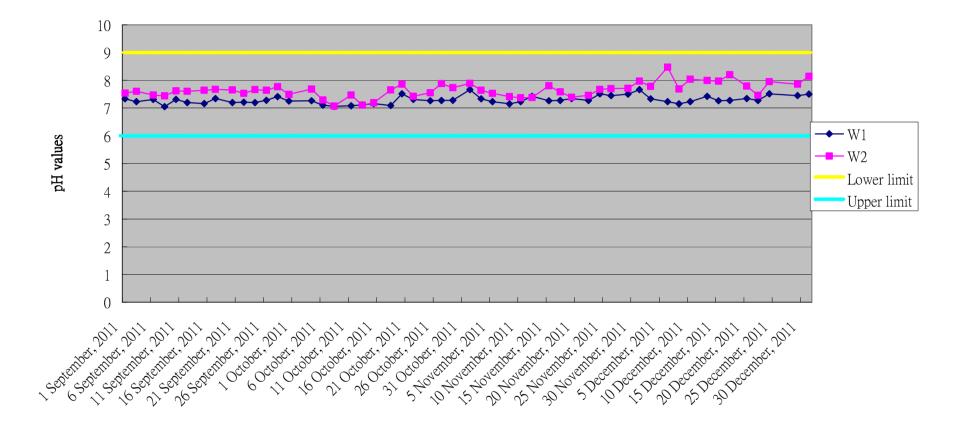
								Mag	ter Programme (Rev. 6)		
		. D ID	D	. D	d Marca	Durt	01.4			0	10000
ID ID n	5. in Kev. 1D no	in Kev. ID n	o. in Rev. ID no	2 10 Kev. 1a	sk name	Duration	Start	Finish	Predecessors	Successors	2012 1st Quarter
	5	*	5	2							Jan
5	15	15	15	15 Ti	me for Completion of Section I	915 days	Fri 26/2/10	Tue 28/8/12			
5	16	16	16	16 Se	ction I (Area A,B - Shuen Wan)	915 days	Fri 26/2/10	Tue 28/8/12			
3	33	33	33	33	Pumping Station	915 days	Fri 26/2/10	Tue 28/8/12			
	45	45	44	43	Main Structure of Pumping Station	815 days	Sun 6/6/10	Tue 28/8/12			
	47	47	46	45	Reinforced Concrete Works	210 days	Sun 26/6/11	Sat 21/1/12	46,43	118SS+80 days,75,48,68,62,74,57	and a second
	48	48	47	46	Roofing	50 days	Sun 22/1/12	Sun 11/3/12	47	49,50	
	49	49	48	47	Manmade Slope	50 days	Mon 12/3/12	Mon 30/4/12	48	51	
	50	50	49	48	Internal Finishing Works	70 days	Mon 12/3/12	Sun 20/5/12	48	51	1
	53	53	52	51	E & M	815 days	Sun 6/6/10	Tue 28/8/12			
	56	56	55	54	Fabrication & Delivery of Plant & Material	415 days	Fri 3/12/10	Sat 21/1/12	55	57	
	57	57	56	55	Plumbing & E&M works	150 days	Sun 22/1/12	Tue 19/6/12	56,47	58FS-30 days	
)	60	60	59	58	External Structure	220 days	Sun 22/1/12	Tue 28/8/12			
	61	61	60	59	Pumping Station to Outfall Structure	220 days	Sun 22/1/12	Tue 28/8/12			i i i i i i i i i i i i i i i i i i i
	62	62	61	60	Installation of Cofferdam & Site Hoarding Phase 2	30 days	Sun 22/1/12	Mon 20/2/12	47	63	
	63	63	62	61	Excavation	30 days	Tue 21/2/12	Wed 21/3/12	62	64	1
	64	64	63	62	Construction of 2nos. of 1500mm dia. Drainage Pipes	50 days	Thu 22/3/12	Thu 10/5/12	63	65	
	67	67	66	65	Tide Level Monitoring Chamber	220 days	Sun 22/1/12	Tue 28/8/12			
	68	68	67	66	Installation of Cofferdam & Site Hoarding Phase 2	30 days	Sun 22/1/12	Mon 20/2/12	47	69	
)	69	69	68	67	Excavation	30 days	Tue 21/2/12	Wed 21/3/12	68	70	
)	70	70	69	68	Construction of Pipe & Tide Level Monitoring Chambers	50 days	Thu 22/3/12	Thu 10/5/12	69	71	
3	73	73	72	71	External Misc. Works	220 days	Sun 22/1/12	Tue 28/8/12			i v
	74	74	73	72	Boundary Wall & Fencing	160 days	Sun 22/1/12	Fri 29/6/12	47	78	
5	75	75	74	73	3nos. of Flow Measurement chambers and Pipes	60 days	Sun 22/1/12	Wed 21/3/12	47	76,79	
	76	76	75	74	Surface Drainage System & Catchpits	60 days	Thu 22/3/12	Sun 20/5/12	75	77	1
	79	79	78		225mm dia. Sewer Across Ting Kok Road and Connection to Existing Manholes	120 days	Thu 22/3/12	Thu 19/7/12	75	80	
	82	82	80	79	Twin Cell Box Culvert	915 days	Fri 26/2/10	Tue 28/8/12			
	93	93	91	89	Box Culvert at Chainage 0 - 25	150 days	Wed 1/2/12	Fri 29/6/12	98	102	
3	98	98	96	94	Box Culvert at Chainage 225 - 275	95 days	Sat 29/10/11	Tue 31/1/12	97	93	
)	100	100	98	96	Box Culvert at Chainage 300 - 350 (Including Outfall & Desilting Chamber)	150 days	Sun 18/12/11	Tue 15/5/12	99	101	
ł	104	104	102	99	Dia. 2100mm Drainage Pipe	915 days	Fri 26/2/10	Tue 28/8/12			
)	120	120	118	12	Intake (As required in Dry Season)	150 days	Tue 4/10/11	Thu 1/3/12	116FS-30 days,113,119	123	
	121	121	119	13	Modification of Existing Outlet Structure of Wai Ha River	150 days	Tue 4/10/11	Thu 1/3/12	116FS-30 days	122FF	
2	122	122		14	Installation of 4 nos of Mechanical Penstocks	30 days	Wed 1/2/12	Thu 1/3/12	121FF	123	
3	123	123	121		E & M Works	120 days	Fri 2/3/12	Fri 29/6/12	122,120	124]
18	148	148	146	38 Ti	me for Completion of Section III	915 days	Fri 26/2/10	Tue 28/8/12			

Master Programme - Rev. 6 Data Date: 2010-2-26	Task	Progress		Summary	 Rolled Up Critical Task		Rolled Up Progress		External Tasks	Group By Summary		_
Data Date: 2010-2-26	Critical Task	Milestone	•	Rolled Up Task	Rolled Up Milestone	\diamond	Split		Project Summary	Deadline	$\hat{\nabla}$	
							Dee	- 1				

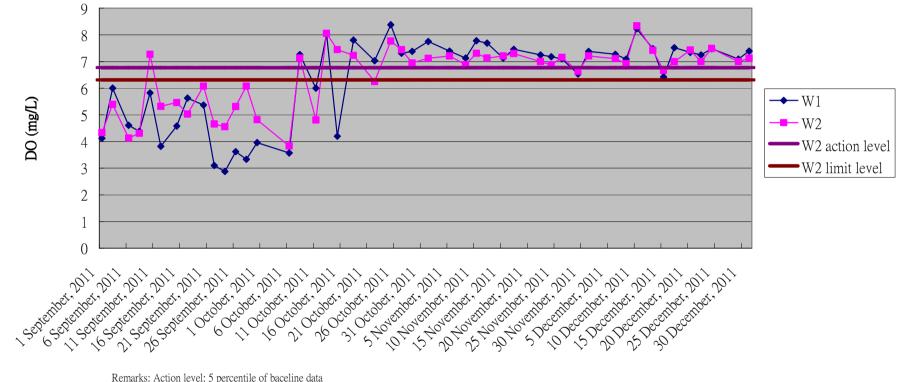


Appendix K. Graphical plots of trends of monitored parameter



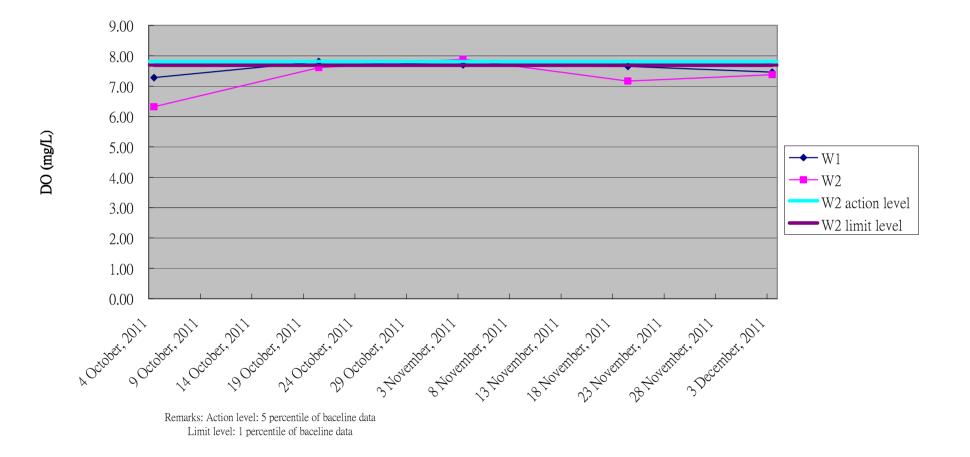


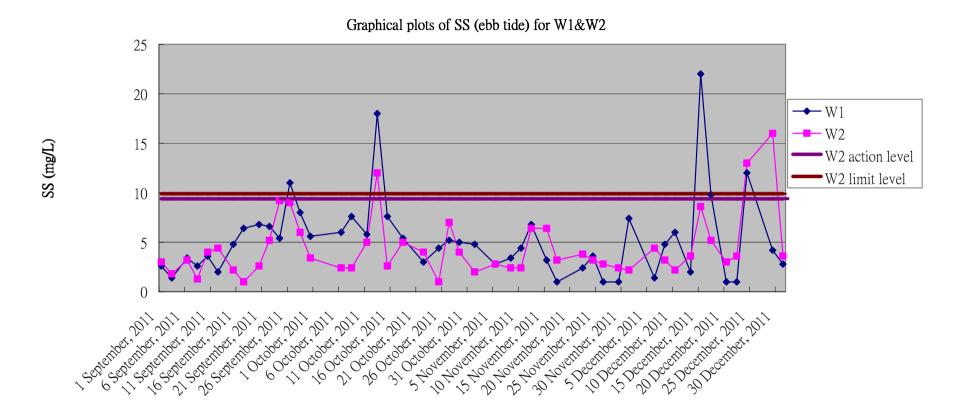
Graphical plots of DO (ebb tide) for W1&W2



Remarks: Action level: 5 percentile of baceline data Limit level: 1 percentile of baceline data

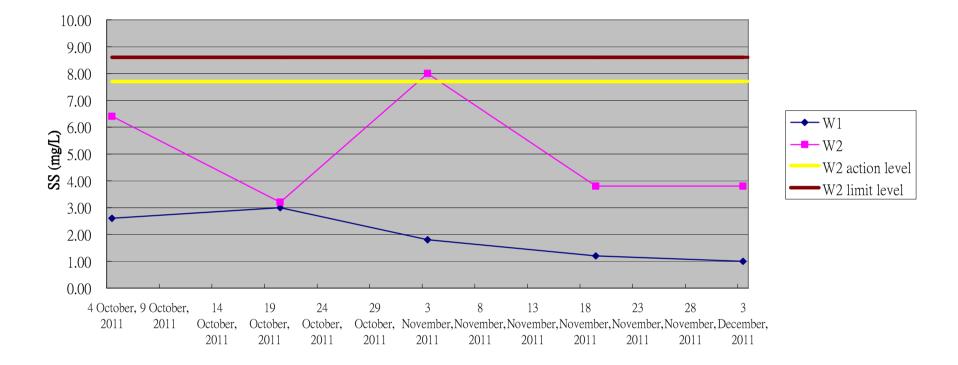
Graphical plot of DO (flood tide) of W1&W2



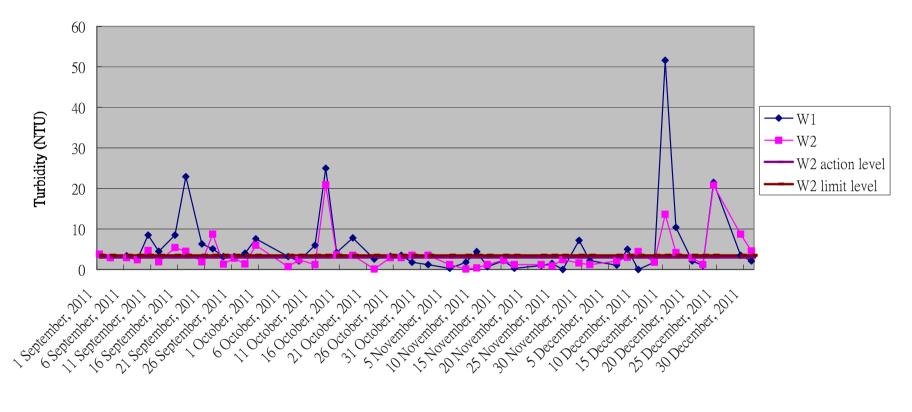


Remarks: Action limit is 95% of baseline data or 120% of upsteam control station's SS Limit level is 99% of baseline data or 130% of upsteam control station's SS

Graphical plots of SS (flood tide) for W1&W2



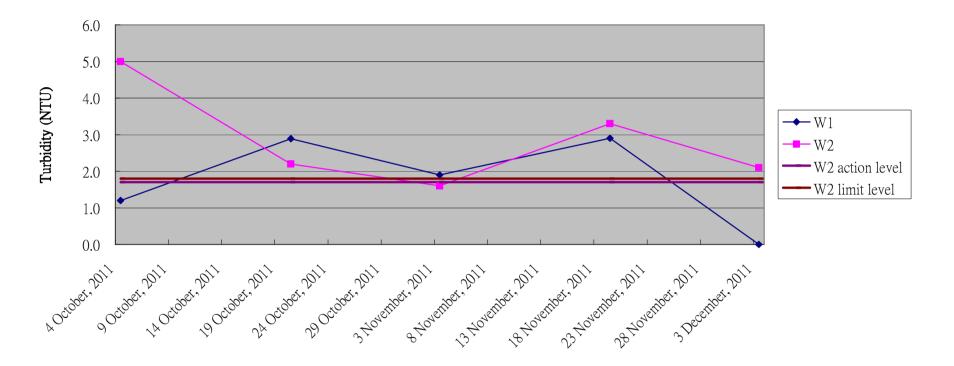
Remarks: Action limit is 95% of baseline data or 120% of upsteam control station's SS Limit level is 99% of baseline data or 130% of upsteam control station's SS



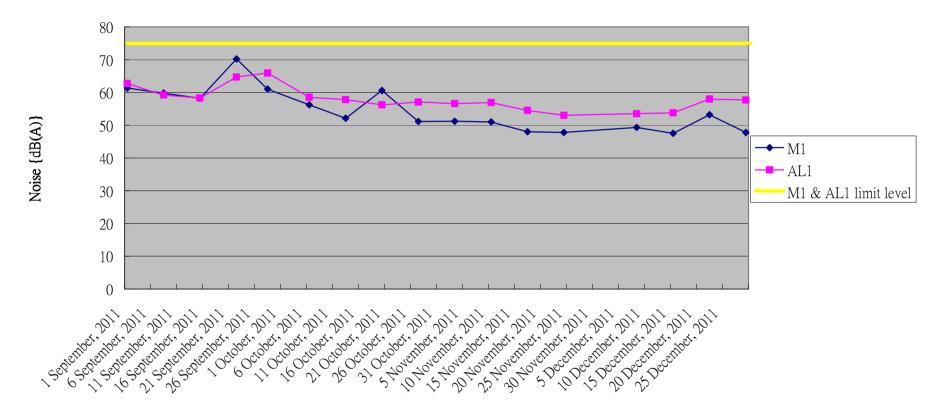
Graphical plots of Turbidity (ebb tide) for W1&W2

Remarks: Action limit is 95% of baseline data or 120% of upsteam control station's Turbidity Limit level is 99% of baseline data or 130% of upsteam control station's Turbidity

Graphical plots of Turbidity (flood tide) for W1&W2

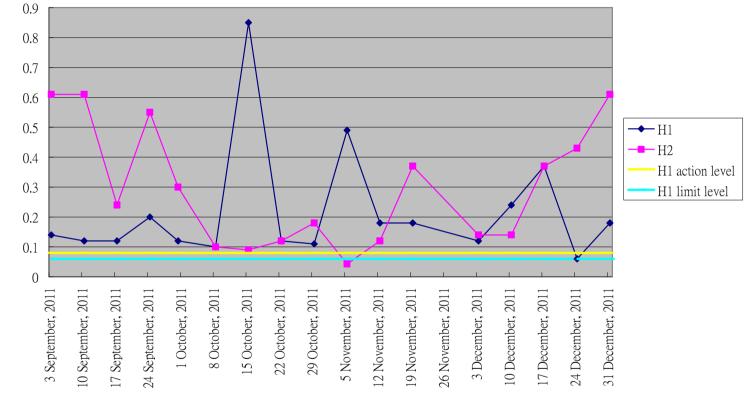


Remarks: Action limit is 95% of baseline data or 120% of upsteam control station's Turbidity Limit level is 99% of baseline data or 130% of upsteam control station's Turbidity



Graphical plots of Noise for M1 & AL1

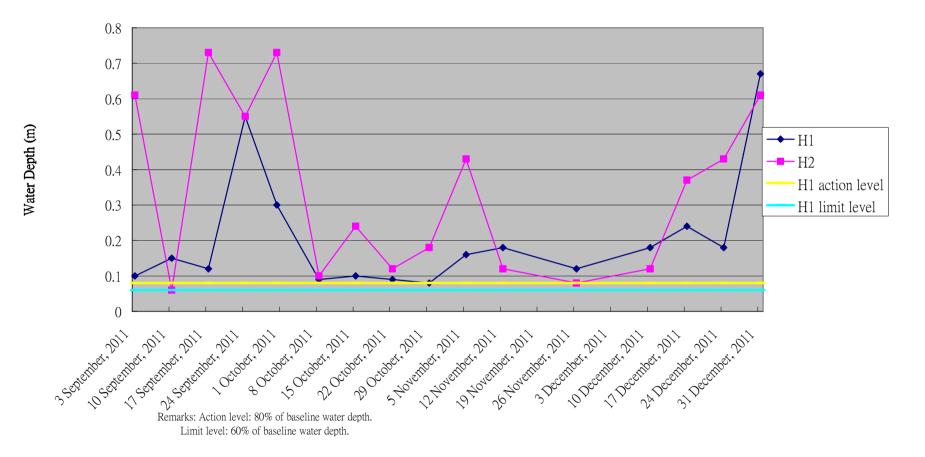
Remarks: Action limit is when one documented complaint is received



Graphical plots of Hydrological Monitoring(water depth at flood tide) for H1 & H2

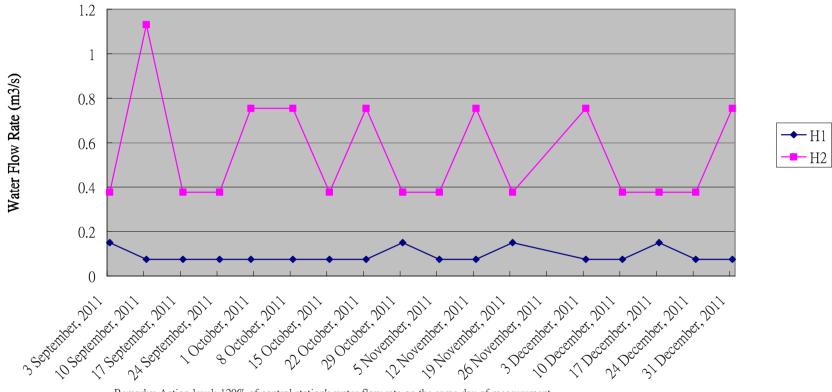
Remarks: Action level: 80% of baseline water depth. Limit level: 60% of baseline water depth.

Water Depth (m)



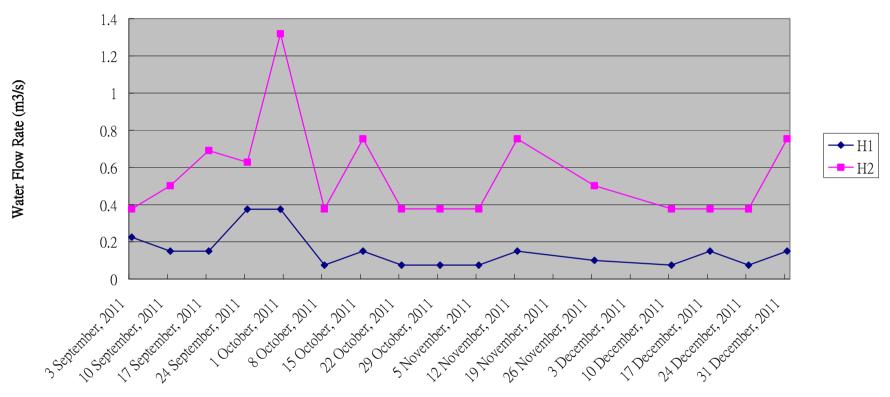
Graphical plots of Hydrological Monitoring(water depth at ebb tide) for H1 & H2

Environmental Pioneers and Solutions Limited



Graphical plots of Hydrological Monitoring(water flow rate at flood tide) for H1 & H2

Remarks: Action level: 120% of control station's water flow rate on the same day of measurement. Limit level: 140% of control station's water flow rate on the same day of measurement.



Graphical plots of Hydrological Monitoring(water flow rate at ebb tide) for H1 & H2

Remarks: Action level: 120% of control station's water flow rate on the same day of measurement. Limit level: 140% of control station's water flow rate on the same day of measurement.

Appendix L.

A). List of recorded vegetation and relative abundance in the Ecological Compensatory Area (ECA) during construction phase in December 2011

B). List of transplanted trees in the Ecological Compensatory Area (ECA) during construction phase in December 2011.

Appendix L(A). List of recorded vegetations and relative abundance in the ECA during establishment phase in December 2011.

Species	*Status in Hong Kong		¹ Status in ECA	² Relative abundance	Condition
Bidens bipinnata	Е	Herbs	S	++	Fair
Panicum maximum	Е	Herbs	S	++	Fair
Celtis sinensis	Ν	Trees	S	+	Fair
Terminalia catappa	Е	Trees	R	+	Fair
Cocculus orbiculatus	N	Climbers	R	+	Fair
Mangifera indica	Е	Trees	R	+	Fair
Dimocarpus longan	Е	Trees	R	+	Fair
Michelia x alba	Е	Trees	R	+	Fair
Oxalis corniculata	N	Herbs	S	+	Fair
Stephania longa	N	Climbers	S	+	Fair
Leucaena leucocephala	Е	Shrubs	S	++	Fair
Amaranthus viridis	N	Herbs	S	+	Fair
Solanum nigrum	N	Herbs	S	+	Fair
Paspalum dialatum	Е	Perennial Herb	S	+	Fair
Mikania micrantha	Е	Climbing Herb	S	+	Fair
Macaranga tanarius	N	Tree	R	+	Fair
Cassia surattensis	Е	Shrub or Small Tree	S	+	Fair
Conyza sumatrensis	Е	Herb	S	+	Fair
Sansevieria trifasciata Prain	E	Perennial Herb	S	+	Fair
Alocasia odora	N	Perennial Herb	S	+	Fair
Livistona chinensis	Е	Tree Palm	S	+	Fair
Total number of species	21				

Key:

*Status in Hong Kong E = Exotic

N = Native

¹Status in ECA: R = retained S = newly succeed ²Relative abundance:

+ = Present

++ = Common

+++ = Abundant

Appendix L(B). List of trees transplanted from Work Areas of Contract 1 & 2 to ECA during establishment phase in December 2011.

Tree No.	Species Name	*Status in Hong Kong	Growth form	Date of transplantation	Condition	Remarks
T150	Bombax ceiba	Е	Tree	22/6/2011	Fair	
T151	Bombax ceiba	E	Tree	22/6/2011	Fair	Sparse crown with some newly emerged small leaves
T152	Bombax ceiba	E	Tree	22/6/2011	Fair	Sparse crown with some newly emerged small leaves
T153	Bombax ceiba	E	Tree	22/6/2011	Fair	Sparse crown with some newly emerged small leaves
T154	Bombax ceiba	E	Tree	14/6/2011	Fair	
T155	Bombax ceiba	E	Tree	14/6/2011	Fair	
T156	Bombax ceiba	E	Tree	14/6/2011	Fair	
T157	Bombax ceiba	E	Tree	14/6/2011	Fair	
T158	Bombax ceiba	E	Tree	14/6/2011	Fair	
T159	Bombax ceiba	E	Tree	14/6/2011	Fair	
T160	Bombax ceiba	Е	Tree	14/6/2011	Fair	
T161	Bombax ceiba	E	Tree	14/6/2011	Fair	
T162	Bombax ceiba	E	Tree	14/6/2011	Fair	
T250	Celtis sinensis	N	Tree	22/6/2011	Fair	
T165	Melaleuca quinquenervia	E	Tree	22/6/2011	Fair	
T168	Melaleuca quinquenervia	Е	Tree	Nov 2011	Fair	

Appendix L(C). Condition of transplanted species *Pavetta hongkongensis* in ECA since 20th Dec 2011.

Specimen No.	Species Name	Growth Form	Height (m)	Date of transplantation	Condition	Remarks
PH01	Pavetta hongkongensis	Tree / Shrub	2	20 th Dec 2011	Fair	
PH02	Pavetta hongkongensis	Tree / Shrub	2	20 th Dec 2011	Fair	Few yellow leaves observed
PH03	Pavetta hongkongensis	Tree / Shrub	1	20 th Dec 2011	Fair	

Appendix M. Photo of Wai Ha River at December2011

