

Chun Wo Construction &  
Engineering Co Ltd

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**Contract No HY/2005/06  
Castle Peak Road  
Improvement – West of  
Tsing Lung Tau**

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Quarterly Environmental  
Monitoring and Audit  
Summary Report for  
Reclamation Works (EP  
No EP-219/2005) –  
December 2006 to  
February 2007

**Second Issue**

Chun Wo Construction &  
Engineering Co Ltd

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**Contract No HY/2005/06  
Castle Peak Road  
Improvement – West of  
Tsing Lung Tau**

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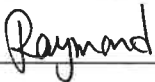
Quarterly Environmental  
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Reclamation Works (EP  
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February 2007

April 2007

Job title Contract No HY/2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau Job number 24583

Document title Quarterly Environmental Monitoring and Audit Summary Report for Reclamation Works (EP No EP-219/2005) – December 2006 to February 2007 File reference

Document ref

Revision	Date	Filename	31-Dec06-Feb07(Reclamation).doc		
First Issue	28/03/07	Description	Submit to IEC for comments		
			Prepared by	Checked by	Approved by
		Name	Raymond Liu	Samuel Chan	Sam Tsoi
		Signature			
Second Issue	02/04/07	Filename	31-Dec06-Feb07(Reclamation)-RevA.doc		
		Description	Submit to ER with IEC's verification letter		
			Prepared by	Checked by	Approved by
		Name	Raymond Liu	Samuel Chan	Sam Tsoi
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document

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## Executive Summary

This is the fourth quarterly environmental monitoring and audit (EM&A) summary report presenting the progress of environmental monitoring and audit works for the reporting period between December 2006 and February 2007. Noise monitoring at Grand Bay Villa was temporarily suspended as the premises were vacant with no resident. Marine water monitoring and weekly environmental site audit were carried out during the reporting period.

### **Marine Water Quality**

Impact marine water quality monitoring was conducted during mid-ebb and mid-flood tidal cycles at 10 designated locations including 5 impact and 5 control stations. A baseline check was conducted on 27 February 2006 prior to the commencement of marine works and a compliance checking mechanism was established in accordance with the criteria specified in Baseline Monitoring Report.

#### **Summary of Mid-Ebb Tide**

The lowest DO levels for surface & middle position of 5.45 mg/L was recorded at WWA1 on 28 February 2007 and the lowest DO level for bottom position of 5.37 mg/L was recorded at WWA3 on 23 February 2007. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level of 7.6 Nephelometric Turbidity Unit (NTU) was recorded at WWFCZ2 on 06 January 2007. There was 1 exceedance of Tby Limit Levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level of 25.8 mg/L was recorded at WWA2 on 05 February 2007. There were 21 exceedances of SS Baseline Check Criteria and 1 exceedance of SS Limit Level during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

#### **Summary of Mid-Flood Tide**

The lowest DO levels for surface & middle position of 5.43 mg/L was recorded at WWFCZ2 on 12 February 2007 and the lowest level for bottom position of 5.32 mg/L was recorded at WWFCZ2 on 16 February 2007 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level of 7.0 NTU was recorded at WWFCZ2 on 06 January 2007. There was 1 exceedance of Tby Limit Level on 06 January 2007 during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level of 28.8 mg/L was recorded at WWFCZ1 on 31 January 2007. There were 7 exceedances of SS Baseline Check Criteria, 1 exceedance of Action Level and 1 exceedance of Limit Level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

### **Waste Disposal**

A total of 100.18 tonnes of Construction & Demolition (C&D) waste and 2,155.48 tonnes of C&D materials (Public Fill) were disposed of at WENT Landfills and Public Filling Area in Tuen Mun respectively during the reporting period. No chemical waste was disposed of during the reporting period.

### **Complaint Records**

No environmental complaint was received during the reporting period.

### **Exceedance**

There were no exceedances for noise monitoring during the reporting period. However, there were 33 exceedances of marine water quality monitoring during the reporting period. Investigations have been conducted for the exceedances. No dredging and reclamation works were conducted during the reporting period. Neither muddy water nor abnormal activities were observed during marine water monitoring period. Also, High levels were also recorded at respective control stations. The exceedances were unlikely related to the Project.

### **Notification of Summons and Successful Prosecution**

No notification of summon and prosecution was received during the reporting period.

### **Environmental Licences**

No new environmental licence was granted during the reporting period.

# 1 Introduction

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by the Contractor (CT) – Chun Wo Construction & Engineering Co. Ltd as the Environmental Team (ET) for *Contract No. HY/2005/06 Castle Peak Road Improvements – West of Tsing Lung Tau* (hereafter called the “Project”). The reclamation at west of Tsing Lung Tau is covered by an Environmental Permit (EP) No. EP-219/2005 issued in June 2005 with reference to Section 6 of the Technical Memorandum on Environmental Impact Assessment Ordinance (TM-EIAO). The EP was issued following the approval of the application to apply directly for an EP based upon the Project Profile. In accordance with the EM&A Manual, environmental monitoring for construction noise and marine water quality will be required during the construction and operational phases. The construction phase of the Project commenced on 28 February 2006.

## 1.1 Project Background

The Castle Peak Road (CPR) Improvement works consist of upgrading the existing CPR to provide a dual two-lane carriageway of “Rural Road A” classification between Area 2 (Tsuen Wan) and Ka Loon Tsuen. The CPR Improvement project is divided into three contracts, namely HY/99/18 (West Contract), HY/99/19 (Middle Contract) and HY/2000/02 (East Contract).

Prior to inviting tenders for Contract No. HY/99/18, a section of the proposed works, between Ch.1+800 and Ch.2+240, west of Tsing Lung Tau, was excised from the Project and entrusted to the Route 10 – North Lantau to Yuen Long Highway project. This 440m long section of CPR was located under the proposed Route 10 suspension bridge, and was to form part of the works area for the Route 10 project. The Route 10 project team revised the alignment of this section of CPR accordingly to suit the arrangement of the Route 10 suspension bridge.

Following subsequent developments, the Route 10 project was placed under review, and Government therefore decided to implement the excised section of CPR (the Remaining Project) under the original CPR Improvement project. The site location plan is showed in **Appendix A**.

Additional reclamation (0.58 ha) at west of Tsing Lung Tau is required to support part of the remaining section of road improvement works and the additional reclamation works constitutes a material change to the reclamation works at Tsing Lung Tau.

The scope of the construction works covered by this Project is summarised as follows:

- The area of reclamation to the east of Grand Bay Villa is about 0.12 ha. The length of this part of the reclamation, measured parallel to the road, is about 107 m, and the maximum width, measured from the existing High Water Mark (HWM) to the proposed toe of the scour apron is about 16 m, of which about 13 m is sloping revetment;
- The area of reclamation west of Grand Bay Villa is about 0.46 ha. The length of this part of the reclamation, measured parallel to the road, is about 172 m, and the maximum width, measured from the existing High Water Mark (HWM) to the proposed toe of the scour apron is about 38 m, of which about 15 m is sloping revetment.

## 1.2 Project Organisation

The project organisation chart for environmental management is shown in **Appendix B**. The key personnel contact names and numbers are summarised in **Table 1-1**. The duties of respective parties are listed in Section 1.9 of the EM&A Manual.



**Table 1-1:** Contact Information of Key Personnel

Organisation	Name	Telephone
Highway Department	Mr WK Lee	Tel: 2762 3570
Environmental Protection Department	Mr Thomas To	Tel: 2835 1103
Engineer's Representative (MHJV)	Mr Michael Harfoot	Tel: 2417 3820
Independent Environmental Checker (MEMCL)	Mr YT Tang	Tel: 3105 8537
Contractor (Chun Wo)	Mr Simon Wong	Tel: 2491 1214
ET Leader (Arup)	Mr Sam Tsoi	Tel: 2268 3211

### 1.3 Purpose of the Report

The purpose of the quarterly EM&A summary report is to provide the information on monitoring methodology, monitoring results, environmental permit status, site audit findings, recommendations and conclusions for the scope of impact EM&A specified under EP No. EP-219/2005.

This is the fourth quarterly EM&A summary report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the noise, marine water quality and environmental site audit from December 2006 to February 2007.

## 2 Scope of Construction Works

### 2.1 Construction Programme

The construction work was commenced on 28 February 2006. An up-to-date construction programme is attached in **Appendix C**.

### 2.2 Construction Activities of the Quarter

The site was closed from 15 to 25 February 2007 during Chinese New Year. The major construction activities carried out by CT during the reporting period included:

- Construction of upper RC retaining wall and backfilling at Seawall A
- Installation of precast panel at Seawall A and B; and
- Removal of stockpile at Seawall B.

## 3 Summary of EM&A Requirements

The impact environmental monitoring and audit for the Project included noise, marine water quality and environmental site audit. The monitoring parameters, frequency and locations are shown in **Appendix D**.

### 3.1 Performance Limits and Event and Action Plan

The monitoring results will be checked against appropriate standards and requirements. A two-tier system performance limits have been established in the Project specific EM&A Manual. The "Action Level" and the "Limit Level" (A/L) are established according to the EPD requirements. The ET, ER, IEC, and CT will take corresponding action in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

### 3.1.1 Construction Noise

The A/L Levels for the construction noise have been established during the baseline monitoring as summarised in **Table 3-1**.

**Table 3-1:** Action and Limit Levels of construction noise

Time Period	Action Level	Limit Level
0700 - 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	75dB(A)

The action required to be taken by different parties in case of occurrence of exceedances of A/L Levels and summarised in the Event and Action Plan in **Appendix E**.

### 3.1.2 Marine Water Quality

Based on the baseline water quality monitoring data obtained. The A/L levels established using the baseline marine water quality monitoring data are shown in **Table 3-2**. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event-Action Plan in **Appendix E** should be carried out.

As the baseline monitoring was conducted in September to October 2005, the established A/L Levels will be more representative to the marine water quality during summer months. To cope with any potential variation of baseline levels due to change in weather conditions, baseline check will be conducted in bi-annual basis in order to update any variation of the baseline water quality at the monitoring locations.

The first baseline check was conducted on 27 February 2006 prior to the commencement of marine works and the updated marine water quality monitoring data were summarised in **Table 3-3**. Compliance assessment for future impact monitoring data will be made against the updated baseline check criteria as follows:

- Tier 1 - Comparison of water quality monitoring data at Impact Stations with the A/L Levels (**Table 3-2**) established in the Baseline Monitoring Report. If the data comply with A/L Levels, go to Tier 2. Otherwise, non-compliance will be reported and Event and Action Plan will be triggered.
- Tier 2 - Comparison of water quality monitoring data at Impact Stations with the Baseline Check Level (80% of average values of baseline check data collected at 10 monitoring locations for DO and 120% of average values of baseline check data collected at 10 monitoring locations for Tby and SS) (**Table 3-3**). If the impact water quality is better than Baseline Check Level, compliance will be reported. Otherwise, go to Tier 3.
- Tier 3 - Comparison of water quality monitoring data at Impact Stations with the respective Control Stations. If the impact water quality is better than the respective Control Station, compliance will be reported. Otherwise, non-compliance will be reported and Event and Action Plan will be triggered for implementation of action based on exceedance of Action Level.

**Table 3-2:** Action and Limit Levels of marine water quality established in Baseline Monitoring Report #

Parameters		Monitoring locations									
		WWA1		WWA2		WWA3		WWFCZ1		WWFCZ2	
		Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
<b>Mid-ebb</b>											
DO (mg/L)	Surface & middle	3.5	3.5	3.5	3.4	3.4	3.3	5.0 *	5.0	5.0 *	5.0
	Bottom	3.4	3.4	3.4	3.3	3.4	3.2	3.7	2.0	3.6	2.0
Tby (NTU)		7.4	7.7	6.7	6.9	7.8	8.3	6.4	8.6	6.7	7.0
SS (mg/L)		25.3	26.0	22.2	23.1	24.6	25.2	26.3	30.3	22.6	22.9
<b>Mid-flood</b>											
DO (mg/L)	Surface & middle	3.3	3.3	3.4	3.3	3.5	3.3	5.0 *	5.0	5.0 *	5.0
	Bottom	3.2	3.2	3.2	3.2	3.2	3.2	3.3	2.0	3.5	2.0
Tby (NTU)		6.9	7.2	7.6	8.2	8.7	10.7	7.4	11.0	5.9	6.5
SS (mg/L)		24.1	24.3	23.5	23.6	22.3	23.5	24.4	25.8	27.4	28.0

Notes:

# Action and Limit Level for marine water quality were extracted from Baseline Monitoring Report, January 2006.

\* Based on the criteria in Table 4-6 of Baseline Monitoring Report, the originally established action levels of DO for fish culture zone at surface &amp; middle level were all below the 5.0 mg/L.

**Table 3-3:** Marine water quality data obtained in the baseline check on 27 February 2006

Parameters		Monitoring locations				
		WWA1	WWA2	WWA3	WWFCZ1	WWFCZ2
<b>Mid-ebb</b>						
DO (mg/L)	Surface & middle	5.4	5.4	5.4	5.4	5.4
	Bottom	5.4	5.4	5.4	5.4	5.4
Tby (NTU)		6.5	6.5	6.5	6.5	6.5
SS (mg/L)		13.0	13.0	13.0	13.0	13.0
<b>Mid-flood</b>						
DO (mg/L)	Surface & middle	5.3	5.3	5.3	5.3	5.3
	Bottom	5.3	5.3	5.3	5.3	5.3
Tby (NTU)		6.6	6.6	6.6	6.6	6.6
SS (mg/L)		17.0	17.0	17.0	17.0	17.0

## 3.2 Site Inspection and Environmental Complaint Handling

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### 3.2.1 Site Inspection Frequency and Areas Covered

Regular site inspections will be carried out on a weekly basis. The areas of inspection cover the different environmental impacts, such as air, noise, water and waste, and their pollution controls and mitigation measures for both within and outside the site area.

*Ad hoc* site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event and Action Plans.

### 3.2.2 Environmental Complaints

A 24-hour complaint hotline at 6277 7465 has been established for the Project. In accordance with the EM&A Manual, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of complaints:

During the complaint investigation work undertaken by the ET, the CT and ER should cooperate with the ET on providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary after the investigation, the CT should promptly carry out the required mitigation to the satisfaction of ET. The ER should ensure that the CT has carried out such identified measures.

A flow chart of the complaint response procedures is shown in **Appendix F** for reference.

## 4 Noise Monitoring

### 4.1 Occupancy Status of Grand Bay Villa

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In the reporting period, Grand Bay Villa (WN5) was vacant with no resident and noise monitoring was temporarily suspended.

## 5 Marine Water Quality Monitoring

### 5.1 Summary of Results

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Impact marine water quality monitoring was undertaken during mid-ebb and mid-flood tidal cycles at 10 designated locations including 5 impact and 5 control stations. A baseline check was conducted on 27 February 2006 prior to the commencement of marine works and a compliance checking mechanism was established in accordance with the Baseline Monitoring Report. Graphical presentation of the monitoring results are illustrated in **Appendix G**.

#### 5.1.1 Summary of Mid-Ebb Tide

The lowest DO levels for surface & middle position of 5.45 mg/L was recorded at WWA1 on 28 February 2007 and the lowest DO level for bottom position of 5.37 mg/L was recorded at WWA3 on 23 February 2007. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level of 7.6 Nephelometric Turbidity Unit (NTU) was recorded at WWFCZ2 on 06 January 2007. There was 1 exceedance of Tby Limit Levels during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level of 25.8 mg/L was recorded at WWA2 on 05 February 2007. There were 21 exceedances of SS Baseline Check Criteria and 1 exceedance of SS Limit Level during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

#### 5.1.2 Summary of Mid-Flood Tide

The lowest DO levels for surface & middle position of 5.43 mg/L was recorded at WWFCZ2 on 12 February 2007 and the lowest level for bottom position of 5.32 mg/L was recorded at WWFCZ2 on 16 February 2007 respectively. There were no exceedances of DO levels during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level of 7.0 NTU was recorded at WWFCZ2 on 06 January 2007. There was 1 exceedance of Tby Limit Level on 06 January 2007 during the reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level of 28.8 mg/L was recorded at WWFCZ1 on 31 January 2007. There were 7 exceedances of SS Baseline Check Criteria, 1 exceedance of Action Level and 1 exceedance of Limit Level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

## 6 Implementation Status on Environmental Protection Requirements

The CT had implemented various environmental mitigation measures as stipulated in the EIA Report and EM&A Manual. The implementation status of environmental mitigation measures during the reporting period is summarized in **Appendix H**.

## 7 Quarterly Summary, Environmental Complaint and Non-compliance Record

### 7.1 Summary of Waste Disposal

Disposal of waste material during the reporting period generally complied with the corresponding waste disposal requirements. The waste disposal quantity during the reporting period is summarised in **Table 7-1**.

**Table 7-1:** Waste disposal quantity during the reporting period

Type of waste or material		Disposal at	No. of loads or quantities
C&D waste		WENT Landfill	100.18 tonnes
C&D material	By truck	Public Filling Reception Facility in Tuen Mun Area 38	1,147.48 tonnes
	By barge		1,008 tonnes
Chemical waste		Collected by licensed collector	0

### 7.2 Complaint Record

There was no environmental complaint received during the reporting period.

### 7.3 Summary of Exceedance

There were no exceedances for noise monitoring during the reporting period.

However, there were 33 exceedances of marine water quality monitoring during the reporting period. Investigations have been conducted for the exceedances. No dredging and reclamation works were conducted during the reporting period. Neither muddy water nor abnormal activities were observed during marine water monitoring period. Also, High levels were also recorded at respective control stations. The exceedances were unlikely related to the Project.

The investigation summary of marine water quality are given in **Appendix I**. The exceedances are summarized in the **Table 7-2**.

A comparison between the quarterly mean of SS and the 1.3 times the baseline mean was conducted for each monitoring station and the results are shown in **Table 7-3**. The quarterly mean of SS monitoring data collected in the reporting period was lower than 1.3 times of the baseline mean at both mid-ebb and mid-flood tides. The statistical analysis results are given in **Appendix J**.

**Table 7-2:** Summary of exceedances of marine water quality monitoring (not related to) construction works from December 2006 to February 2007.

Tide	Month	Number of exceedances									Total
		DO (mg/L)			Tby (NTU)			SS (mg/L)			
		Baseline Check	Action Level	Limit Level	Baseline Check	Action Level	Limit Level	Baseline Check	Action Level	Limit Level	
Mid-Ebb	Dec	0	0	0	0	0	0	9	0	0	9
	Jan	0	0	0	0	0	1	7	0	0	8
	Feb	0	0	0	0	0	0	5	0	1	6
Mid-flood	Dec	0	0	0	0	0	0	4	0	0	4
	Jan	0	0	0	0	0	1	1	1	1	4
	Feb	0	0	0	0	0	0	2	0	0	2
<b>Total</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>28</b>	<b>1</b>	<b>2</b>	<b>33</b>

**Table 7-3:** Comparison of quarterly mean and 130% of the baseline mean

Monitoring Station		Mid-ebb		Mid-flood	
		130% Baseline Mean	Quarterly Mean	130% Baseline Mean	Quarterly Mean
Impact Station	WWA1	22.1	10.0	20.9	9.5
	WWA2	24.8	10.0	21.6	9.9
	WWA3	22.5	9.3	22.6	10.4
	WWFCZ1	24.6	9.2	21.6	11.9
	WWFCZ2	22.7	9.6	22.8	12.3
Control Station	WRA1	22.2	9.6	23.1	11.3
	WRA2	22.5	10.3	23.2	11.8
	WRA3	22.8	9.9	21.2	11.1
	WFCZR1	23.4	9.7	22.5	14.2
	WFCZR2	26.0	9.7	24.2	11.7

#### 7.4 Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting period.

#### 7.5 Environmental Licenses

No new environmental licence was granted during the reporting period. The CT applied for extension for disposal of C&D materials to PFRF at Tuen Mun Area 38 by barge and CEDD approved the application on 30 January 2007. A summary of the valid environmental licences is given in **Table 7-4**.



**Table 7-4:** Summary of valid environmental licences during the reporting period

Type of Licence	Reference No.	Valid from	Valid to
Environmental Permit	EP-219/2005	20 Jun 2005	Not applicable
Registration of Chemical Waste Producer	5111-336-C2869-49	16 Feb 2006	Not applicable
Water Discharge Licence	EP-760/336/011348 I	31 Mar 2006	31 Mar 2011
Construction Noise Permit	GW-RW0326-06	09 Jun 2006	08 Dec 2006
Construction Noise Permit	GW-RW0349-06	23 Jun 2006	22 Dec 2006
Construction Noise Permit	GW-RW 0654-06	14 Nov 2006	15 Mar 2007
Delivery of C&D Materials to PFRF at Tuen Mun Area 38 by Barge	Application No.: CEDD00160	30 Jan 2007	30 Jun 2007

## 8 Comments, Recommendation and Conclusion

### 8.1 Comments and Recommendations

Regarding the air quality, unpaved area within the site was observed dry and dusty. Water spraying was not provided during rock breaking works occasionally. The CT had implemented mitigation measures upon requested by the ET. These included frequent watering of dry and dusty haul road and clearing of mud trails.

Accumulation of general refuse and C&D waste were occasionally observed by the ET. The CT had cleared the waste upon requested by the ET. Some oil drums were not equipped with drip tray. The CT was reminded to provide drip tray for all oil drums.

The silt curtain at Seawall B was observed broken on 13 February 2007. The CT was advised to repair the silt curtain promptly.

The environmental monitoring methodologies and procedures were regularly reviewed by the ET. No modification to the existing EM&A programme was recommended.

### 8.2 Conclusion

The EM&A programme was implemented during the reporting period, including marine water quality monitoring and environmental site audits. The environmental performance of the Contractor during the reporting period was in general satisfactory. Upon advised by the ET, remedial measures had been taken to mitigate the environmental impacts caused by the construction activities. As a whole, EM&A programme had been well conducted in the reporting period.

## 9 References

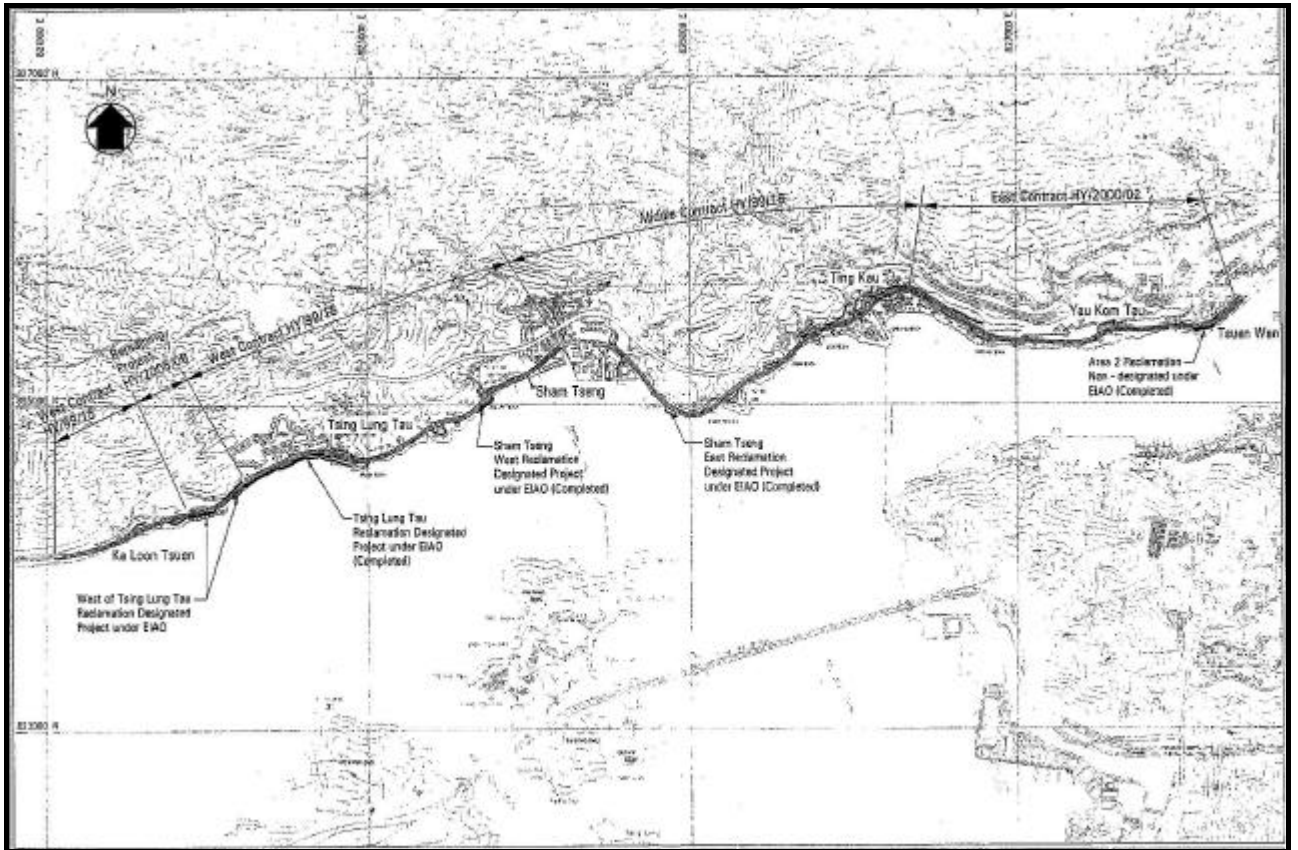
- [1] Mouchel Halcrow Joint Venture. January 2006. Supplementary Agreement No.1 – Remaining Project EM&A Manual for Construction of Reclamation West of Tsing Lung Tau.
- [2] Ove Arup & Partners Hong Kong Limited. January 2006. Castle Peak Road Improvement – West of Tsing Lung Tau. Contract No.HY2005/06. Environmental Baseline Monitoring Report (Second Issue)

Appendix A

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**Project Location Plan**

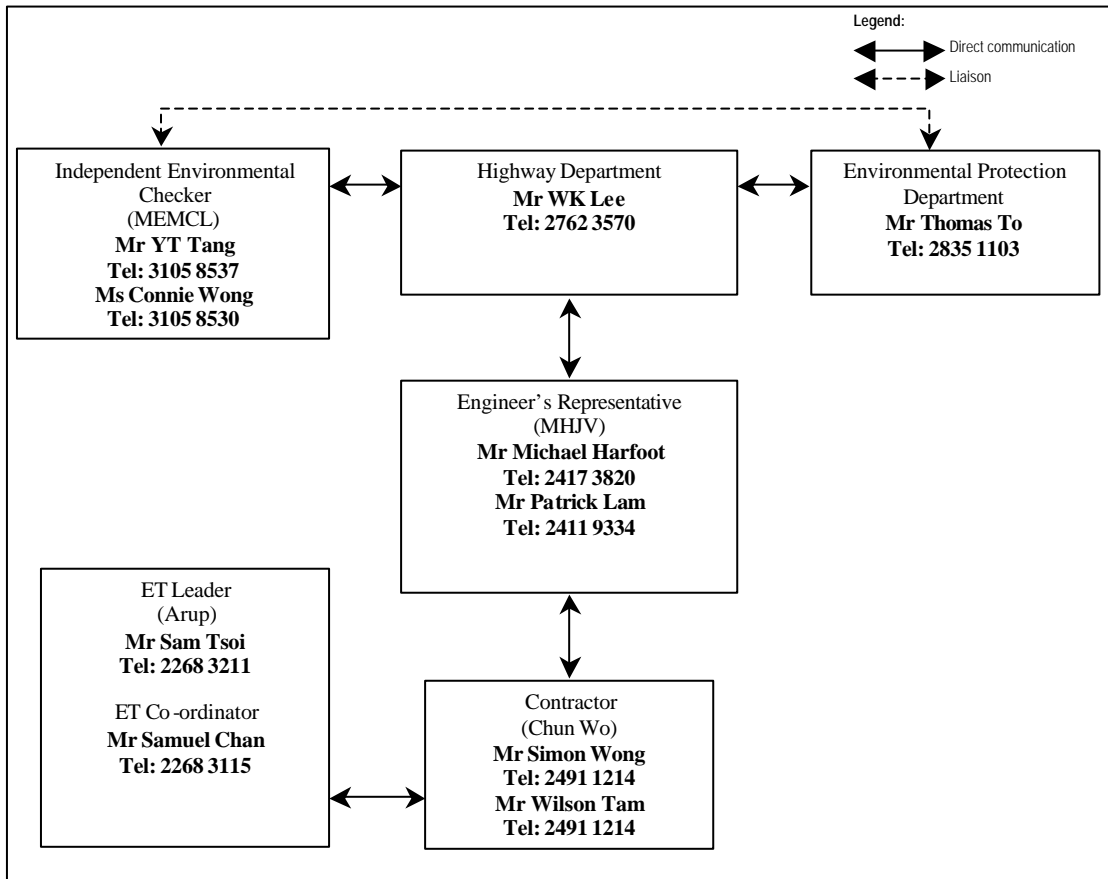
# Project location plan



Appendix B  
**Project Organisation  
Chart**

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# Project Organisation



Appendix C

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**Construction  
Programme**

Activity ID	Activity Description	Orig. Est. Start	Early Start	Early Finish	2006	2007
FRW2200	Diver the original road to the new road (WB)	1/22/03/07	02/03/07	02/03/07	DEC	JAN
FRW2200	WB clear existing road surface	12/03/06/07	16/03/07	16/03/07	FEB	MAR
FRW2200	Construct WB carriageway road surfacing	19/02/07/07	24/01/07	24/01/07	NOV	DEC
FRW2200	T/M Staging Preparation	11/24/07/07	24/01/07	24/01/07	JAN	FEB
FRW2200	T/MG Meeting	13/26/07/07	08/02/07	08/02/07	MAR	APR
FRW2200	RMO/Roadwork Advice				MAY	JUN
FRW2200	WB clear existing road surface, 1 lane	12/14/06/06	27/10/06	27/10/06	JUL	AUG
FRW2200	Construct WB carriageway road surfacing, 1 lane	5/28/06/06	04/11/06	04/11/06	SEP	OCT
FRW2200	Diver the original road to the new lane	1/06/01/06	06/01/06	06/01/06	NOV	DEC
FRW2200	WB clear existing road surface, 1 lane	12/07/10/06	20/11/06	20/11/06	JAN	FEB
FRW2200	Construct WB carriageway road surfacing, 1 lane	8/21/11/06	27/11/06	27/11/06	MAR	APR
FRW2200	WB clear existing road surface, 1 lane	12/29/11/06	17/12/06	17/12/06	MAY	JUN
FRW2200	Construct WB carriageway road surfacing, 1 lane	4/19/12/06	18/12/06	18/12/06	JUL	AUG
FRW2200	WB clear existing road surface, 1 lane	12/21/12/06	06/01/07	06/01/07	SEP	OCT
FRW2200	Construct WB carriageway road surfacing, 1 lane	8/05/01/07	13/01/07	13/01/07	NOV	DEC
FRW2200	T/M Staging Preparation	19/11/06/06	09/10/06	09/10/06	JAN	FEB
FRW2200	Diver the original road to the new lane	1/18/06/06	19/12/06	19/12/06	MAR	APR
FRW2200	T/MG Meeting	1/04/10/06	04/10/06	04/10/06	MAY	JUN
FRW2200	RMO/Roadwork Advice	13/05/10/06	17/10/06	17/10/06	JUL	AUG
<b>Area 2 Construction (Ch1-705 to Ch1+825)</b>						
FRW0990	WB Excavation & demolish existing road surface	12/21/04/07	06/09/06	06/09/06	NOV	DEC
ADU10272	1m Watermain Connection to Ch1825 (25 m) E/B	8/25/05/06	20/08/06	20/08/06	JAN	FEB
ADU10272	Cross Road Duct Laying E/WB	8/23/06/06	03/10/06	03/10/06	MAR	APR
ADU10272	Utilities Laying E/B	4/21/06/07	13/2/07	13/2/07	MAY	JUN
ADU10272	1m Watermain Connection to Ch1805 (25 m) WB	8/25/05/06	20/08/06	20/08/06	JUL	AUG
ADU10272	Utilities Laying WB	12/16/06/07	12/02/07	12/02/07	SEP	OCT
FRW1000	Construct WB, E/B, U/G drain, watermain, etc	11/16/06/06	30/09/06	30/09/06	NOV	DEC
FRW1500	Construct WB, E/B Kerb/Berms/road surfacing	19/21/06/06	4/10/06	4/10/06	JAN	FEB
FRW2000	Diver the original road to the new road (E/WB)	1/18/10/06	16/10/06	16/10/06	MAR	APR
FRW2000	Construct WB, E/B Beam Barrier & Footpath	24/17/10/06	14/11/06	14/11/06	MAY	JUN
FRW2500	S/S Re-Excav & demolish at road surface	12/17/10/06	18/09/07	18/09/07	JUL	AUG
FRW3000	Strip Re-UG exchange & utilities	82/01/10/06	08/09/07	08/09/07	SEP	OCT
FRW3500	Construct S/S Re surfacing work	18/09/02/07	07/03/07	07/03/07	NOV	DEC
ADU10272	Construction of Car Park	5/21/08/08	21/11/06	21/11/06	JAN	FEB
FRW3510	T/M Staging Preparation	15/26/09/06	12/09/06	12/09/06	MAR	APR
FRW3520	T/MG Meeting	1/15/09/06	13/09/06	13/09/06	MAY	JUN
FRW3530	RMO/Roadwork Advice	10/14/09/06	25/08/06	25/08/06	JUL	AUG
<b>Slope Remedial Works</b>						
SW3500	Remedial works to Slope No. 65W-DIF286	5/7/30/01/07	19/04/07	19/04/07	NOV	DEC
SW3500	Remedial works to Slope No. 65W-DIF286	18/7/04/06	31/11/06	31/11/06	JAN	FEB
SW4000	Remedial works to Slope No. 65W-DIF89	15/07/13/06/06	10/11/06	10/11/06	MAR	APR
SW5000	Remedial works to Slope No. 65W-DIF83	6/7/16/10/06	22/01/07	22/01/07	MAY	JUN
SW5000	Remedial works to Slope No. 65W-DIF82	15/7/15/06/06	06/11/06	06/11/06	JUL	AUG
SW6000	Remedial works to Slope No. 65W-DIF81	9/7/12/12/06	02/02/07	02/02/07	SEP	OCT
<b>Section II - Landscaping Works</b>						
ADU10272	Tree Transplant	2/00/08/02/06	06/10/06	06/10/06	JAN	FEB
ADU10272	Landscaping Work	5/24/02/07	24/08/07	24/08/07	MAR	APR

2006  
DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

2007  
JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC

Sheet 4 of 4

Chun Wo Construction & Eng. Co. Ltd  
Contract No. BY2005306  
Castle Peak Road Improvement, West of Tsing Lung Tau  
CSD Works Programme Rev 1

Start Date: 31/12/06  
Finish Date: 22/12/06  
Drawn By: K.Y. Ho  
Rev. Date: 22/12/06  
Rev. Date: 22/12/06  
Rev. Date: 22/12/06

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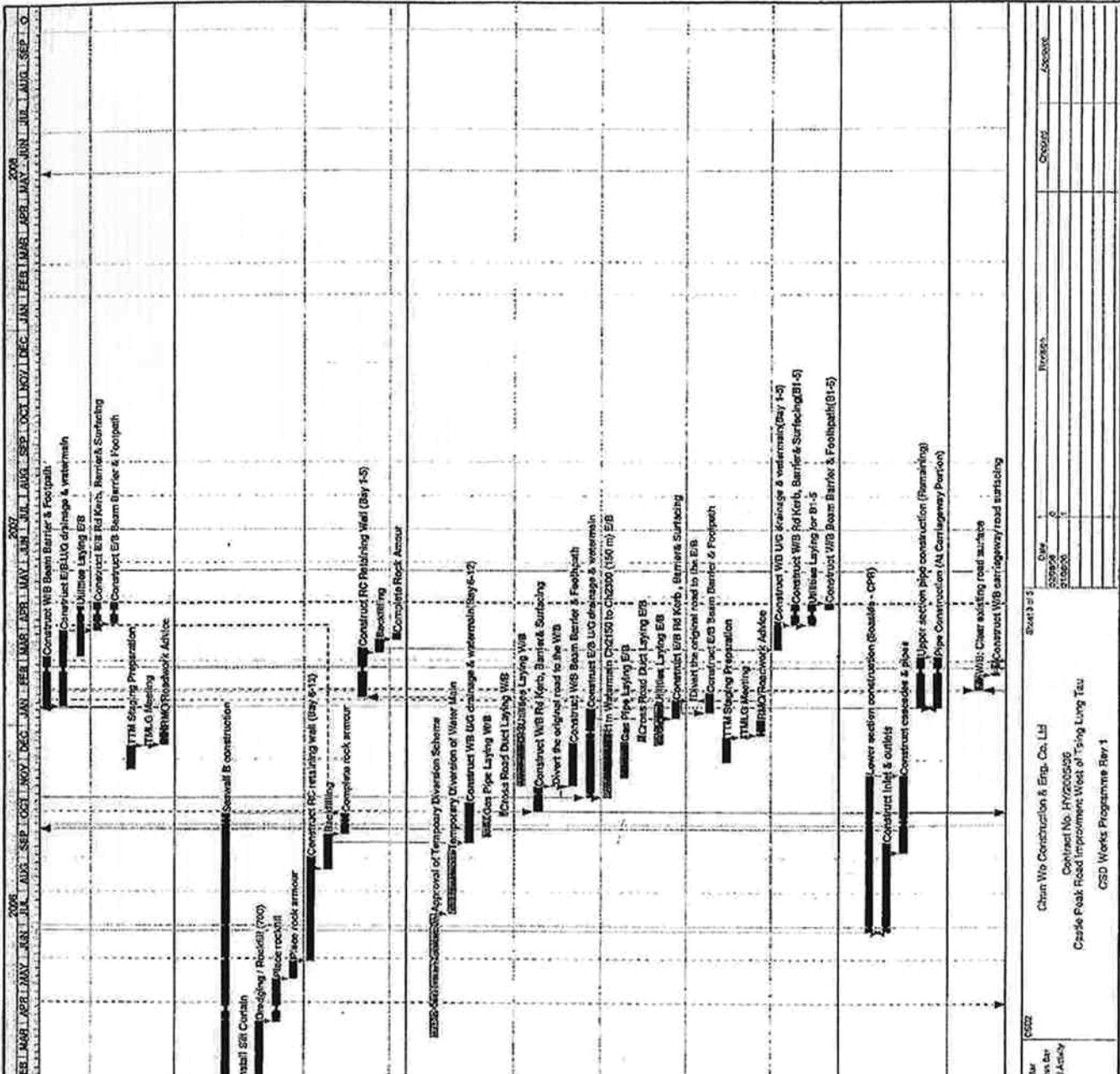
Author: [Name]

Checker: [Name]

Drawn: [Name]

Checked: [Name]

Scale: 1:1000



Activity ID	Activity Description	Orig Dur	Early Start	Early Finish
SRW2505	Construct WB Beam Barrier & Footpath	57	19/01/07	26/03/07
SRW2506	Construct EB UG drainage & watermain	59	19/01/07	26/03/07
A02RW1500	Utilities Laying EB	38	06/03/07	20/04/07
SRW2507	Construct EB Rd Kerb, Barriers & Surfacing	19	06/03/07	24/04/07
SRW2508	Construct EB Beam Barrier & Footpath	14	06/03/07	24/04/07
SRW2509	TTM Staging Preparation	19	21/11/06	10/12/06
SRW2510	TTMLG Meeting	1	12/12/06	13/12/06
SRW2511	RMC/Roadwork Advice	16	14/12/06	28/12/06
<b>Area 5 Construction (Ch2+150 to Ch2+300)</b>				
SRW1600	Seawall B construction	204	04/03/06	14/10/06
A02RW1100	Install Silt Curtain	3	04/03/06	07/03/06
SRW1100	Designing / Rockfill (700)	59	04/03/06	03/04/06
SRW1101	Place rockfill	28	04/04/06	12/05/06
SRW1102	Place rock armour	14	13/05/06	26/05/06
SRW1103	Construct RC retaining wall (Bay 6-12)	60	13/05/06	01/06/06
SRW1104	Backfilling	26	22/05/06	17/06/06
SRW1105	Complete rock armour	14	23/06/06	07/07/06
A02RW1200	Construct RC Retaining Wall (Bay 7-5)	25	25/01/07	19/03/07
A02RW1300	Backfilling	19	29/03/07	26/04/07
A02RW1400	Complete Rock Armour	5	21/03/07	26/03/07
<b>Roadworks Construction</b>				
A02RW0100	Approval of Temporary Diversion Scheme	90	26/03/06	11/07/06
A02RW0200	Temporary Diversion of Water Main	50	15/07/06	07/09/06
SRW3000	Construct WB UG drainage & watermain (Bay 6-12)	30	16/09/06	21/10/06
A02RW1000	Gas Pipe Laying WB	14	21/09/06	05/10/06
A02RW1100	Cross Road Duct Laying WB	4	10/10/06	13/10/06
A02RW1200	Utilities Laying WB	45	09/10/06	20/12/06
SRW3010	Construct WB Rd Kerb, Barriers & Surfacing	18	14/10/06	04/11/06
SRW3020	Divert the original road to the WB	1	04/11/06	04/11/06
SRW3030	Construct WB Beam Barrier & Footpath	55	04/11/06	19/12/06
SRW3040	Construct EB UG drainage & watermain	65	27/10/06	16/01/07
A02RW2100	Gas Pipe Laying EB	28	15/11/06	04/12/06
A02RW2200	Cross Road Duct Laying EB	4	16/12/06	19/12/06
A02RW2300	Utilities Laying EB	28	15/12/06	29/01/07
SRW3050	Divert the original road to the EB	15	08/01/07	24/01/07
SRW3060	Construct EB Beam Barrier & Footpath	15	13/01/07	28/01/07
SRW3070	TTM Staging Preparation	19	29/11/06	21/12/06
SRW3080	TTMLG Meeting	1	20/12/06	22/12/06
SRW3090	RMC/Roadwork Advice	10	23/12/06	02/01/07
A02RW1100	Construct WB UG drainage & watermain (Bay 1-5)	22	13/03/07	07/04/07
A02RW1200	Construct WB Rd Kerb, Barriers & Surfacing (B1-5)	13	04/04/07	22/04/07
A02RW1300	Utilities Laying for B1-5	13	04/04/07	22/04/07
A02RW1400	Construct WB Beam Barrier & Footpath (B1-5)	5	19/04/07	24/04/07
<b>OUTFALL EA &amp; EB CONSTRUCTION</b>				
SRW1000	Lower section construction (Routes - CRF)	120	04/06/06	16/11/06
SRW1100	Construct inlet & outlet	70	05/06/06	15/09/06
SRW1200	Construct cascades & pipes	58	07/09/06	16/11/06
SRW1300	Upper section pipe construction (Remaining)	35	18/01/07	05/03/07
SRW1400	Pipe Construction (At Carriageway Perion)	35	18/01/07	06/03/07
<b>Area 1 Construction (Ch1+500 to Ch1+705)</b>				
SRW1500	WB: Clear existing rock surface	12	10/02/07	16/02/07
SRW1500	Construct WB carriageway road surfacing	5	17/02/07	01/03/07

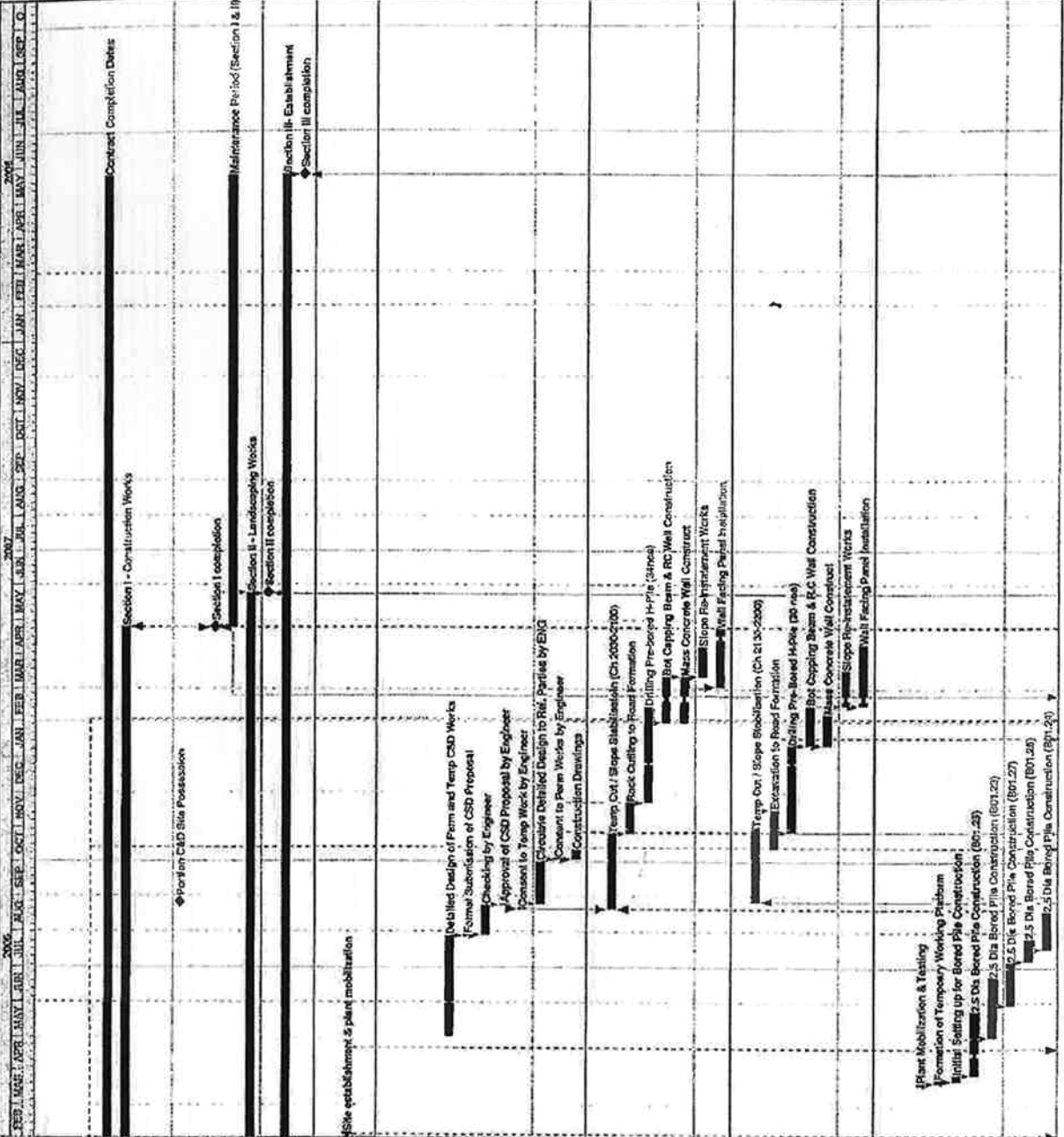
Client: Chin Wo Construction & Eng. Co. Ltd  
 Contract No: HW200509  
 Casale Peak Road Improvement West of Tsing Lung Tau  
 GSD Works Programme Rev 1

Scale: 1:1000  
 Date: 20/04/09

Author: [Name]  
 Checker: [Name]  
 Approver: [Name]







**GENERAL KEY DATES**

Activity ID	Activity Description	Orig Bar	Early Start	Early Finish
K00570	Commencement of Works	0	21/12/05	
KD1600	Contract Completion Dates	35	21/12/05	22/02/06
KD1100	Section I - Construction Works	49	21/12/05	23/07/07
KD1110	Portion A Site Possession	0	21/12/05	
KD1120	Portion B Site Possession	0	21/12/05	
KD1300	Portion C&D Site Possession	0	27/08/06	
KD1140	Portion E Site Possession	0	21/12/05	
KD1200	Section II construction	0	54/2/07	
KD1300	Maintenance Period (Section I & II)	385	25/10/07	22/05/08
KD1400	Section III completion	503	21/12/06	24/03/07
KD1500	Section II completion	0	24/03/07	
KD1600	Section III Establishment	665	21/12/05	22/05/08
KD1700	Section III completion	0	22/05/08	

**PRELIMINARIES**

P1000	Site establishment & plant mobilisation	40	21/12/05	05/02/06
P1010	Submit TTM Schematic Drawing (FS1, FS1 (E))	0	20/12/05	

**Area 4 Construction (Ch2-030 to Ch2-150)**

**Pre-Bored H-Pile Wall at Both Ends at GL**

Activity ID	Activity Description	Orig Bar	Early Start	Early Finish
4P0000	Pre-Construction			
4P0100	Detailed Design of Perm and Temp C&D Works	72	02/05/07	27/07/06
4P0110	Formal Submission of CSD Proposal	1	28/07/06	28/07/06
4P0120	Checking by Engineer	20	28/07/06	24/08/06
4P0130	Approval of CSD Proposal by Engineer	125	28/06/06	20/08/06
4P0135	Consent to Temp Work by Engineer	1	21/09/06	1/09/06
4P0140	Contractor's Detailed Design to Ref. Parties by ENG	31	25/09/06	20/09/06
4P0155	Consent to Perm Works by Engineer	1	09/10/06	09/10/06
4P0160	Construction Drawings	7	09/10/06	12/10/06
4P0162	Construction - West Side			
4P0162	Temp C&D Slope Stabilisation (Ch 2000-2100)	58	21/08/06	25/10/06
4P0163	Rock Culling to Road Formation	22	26/10/06	21/11/06
4P0163	Drilling Pre-bored H-Pile (31nos)	48	22/11/06	13/02/07
4P0164	Bat Capping Beam & RC Wall Construction	39	21/10/07	12/03/07
4P0165	Mass Concrete Wall Construct	30	21/10/07	12/03/07
4P0166	Slope Reinforcement Works	22	12/03/07	07/04/07
4P0167	Wall Facing Panel Installation	41	03/03/07	22/04/07
4P0200	Construction - East Side			
4P0200	Temp C&D Slope Stabilisation (Ch 2130-2200)	51	28/08/06	29/10/06
4P0200	Excavation to Road Formation	28	03/10/06	15/11/06
4P0200	Drilling Pre-bored H-Pile (25 nos)	66	27/10/06	10/01/07
4P0200	Bat Capping Beam & RC Wall Construction	38	11/01/07	14/02/07
4P0210	Mass Concrete Wall Construct	24	11/01/07	07/02/07
4P0210	Slope Reinforcement Works	22	15/02/07	17/03/07
4P0210	Wall Facing Panel Installation	40	15/02/07	09/04/07

**Bored Pile Retaining Wall Construction**

Activity ID	Activity Description	Orig Bar	Early Start	Early Finish
4B0000	Bored Pile Construction - B01.28 - B01.38			
4B0000	Plant Mobilization & Testing	2	20/03/06	21/03/06
4B0010	Formation of Temporary Working Platform	1	20/03/06	21/03/06
4B0020	Initial Setting up for Bored Pile Construction	5	20/03/06	22/03/06
4B0030	2.5 Dia Bored Pile Construction (B01.25)	41	20/03/06	22/05/06
4B0040	2.5 Dia Bored Pile Construction (B01.27)	41	02/05/06	22/06/06
4B0050	2.5 Dia Bored Pile Construction (B01.27)	21	02/05/06	06/07/06
4B0060	2.5 Dia Bored Pile Construction (B01.26)	45	08/07/06	28/07/06
4B0070	2.5 Dia Bored Pile Construction (B01.26)	28	18/07/06	18/08/06

Sheet 1 of 2  
 Client: Chuan Wo Construction & Eng. Co. Ltd  
 Contact No. H7200506  
 Daeje Peak Road Improvement West of T'ising Lung Tau  
 CSD Works Programme Rev 1  
 Date: 20/03/06  
 Drawn by: [Signature]  
 Checked by: [Signature]  
 Approved by: [Signature]

Activity ID	Activity Description	Orig Dur	Start	Finish	2007	2008
EP1000	Establishment works	335	25-05-07	12-05-08	FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OCT   NOV   DEC   JAN   FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OCT	JAN   FEB   MAR   APR   MAY   JUN   JUL   AUG   SEP   OCT

**Section III - Establishment Period**

Establishment works

Plan Date Rev Date Run Date	25/05/07 25/05/07 20/06/07 13:52	CSD09 Project No Grid Name	Sheets of 5 Date Drawn Checkd Title
99Primeviz Systems, Inc.		Chun Wo Construction & Eng. Co. Ltd Contract No. 1172005366 Castle Peak Road Improvement Work of Tsing Lung Tau CSD Work Programme Rev 1	

Appendix D  

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**Summary of EM&A  
Requirements**

## Construction Noise

### Monitoring Parameters

Construction noise monitoring will be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{10}$  and  $L_{90}$  will also be recorded as supplementary reference information for data auditing.

### Monitoring Frequency

Noise measurements will be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table D-1**.

**Table D-1:** Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq}(30 \text{ min})$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq}(5 \text{ min})^*$		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

\* The  $L_{eq}(5 \text{ min})$  will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

### Monitoring Location

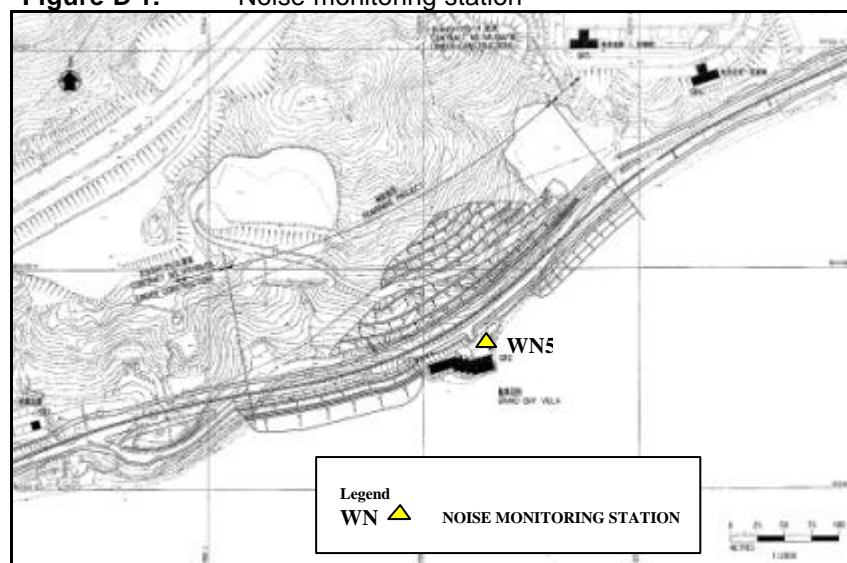
Noise monitoring will be conducted at one designated location as shown in **Figure D-1**. The details of the noise monitoring location are given in **Table D-2**. The measurements will be taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

**Table D-2:** Construction noise monitoring locations

Noise Monitoring Station No.	Location	Monitoring Point	Remarks
WN5	Grand Bay Villa	G/F, House 1	Monitoring temporarily suspended *

\* Grand Bay Villa is currently vacant with no resident. Construction noise monitoring at WN5 temporarily suspended until the premises are occupied.

**Figure D-1:** Noise monitoring station



### Occupancy Status of Grand Bay Villa

The property management company of Grand Bay Villa (WN5) will be coordinated a monthly basis within 10 working days of each month to confirm the occupancy status of these premises. Once this location is confirmed occupied, noise monitoring will be resumed within 1 week.

## Marine Water Quality

### Monitoring Parameters

Marine water quality monitoring will include Turbidity (Tby) in the unit of NTU, Dissolved Oxygen (DO) in the unit of mg/L and Suspended Solids (SS) in the unit of mg/L. In addition to the water quality parameters, other relevant data such as monitoring location/position, time, water depth, water temperature, salinity, DO saturation, weather conditions, sea conditions, tidal stage will be recorded as far as practicable together with observations of any special phenomena, works underway at the construction site, etc.

### Monitoring Frequency

Impact marine water quality monitoring will be conducted three times per week, at mid-flood and mid-ebb tides and at 10 designated monitoring locations. The interval between two sets of monitoring will not be less than 36 hours.

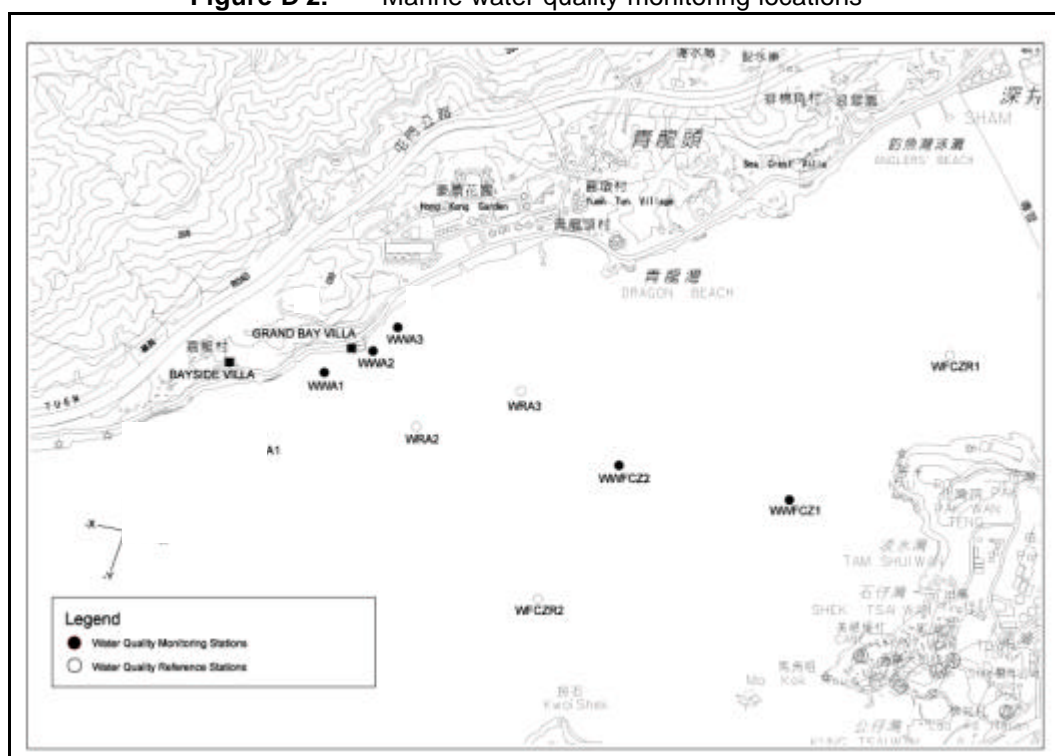
### Monitoring Locations

A total of 10 locations, 5 for impact and 5 for control were specified for marine water quality monitoring in accordance with the EM&A Manual, which are summarised in **Table D-3** and shown in **Figure D-2**.

**Table D-3:** Marine water quality monitoring locations

Marine Water Quality Monitoring Location No.		Location	
		Eastings	Northings
West of Grand Bay Villa	WWA1 (Impact Location)	821981	824282
	WRA1 (Control Location)	821776	824078
Grand Bay Villa	WWA2 (Impact Location)	822141	824352
	WRA2 (Control Location)	822283	824107
East of Grand Bay Villa	WWA3 (Impact Location)	822222	824429
	WRA3 (Control Location)	822625	824222
Ma Wan Fish Culture Zone	WWFCZ1 (Impact Location)	823500	823870
	WWFCZ2 (Impact Location)	822943	823983
	WFCZR1 (Control Location)	824024	824333
	WFCZR2 (Control Location)	822677	823547

**Figure D-2:** Marine water quality monitoring locations



Appendix E

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**Event and Action Plan**

## Construction Noise

**Table E-1:** Event and Action Plan for construction noise

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



## Marine Water Quality

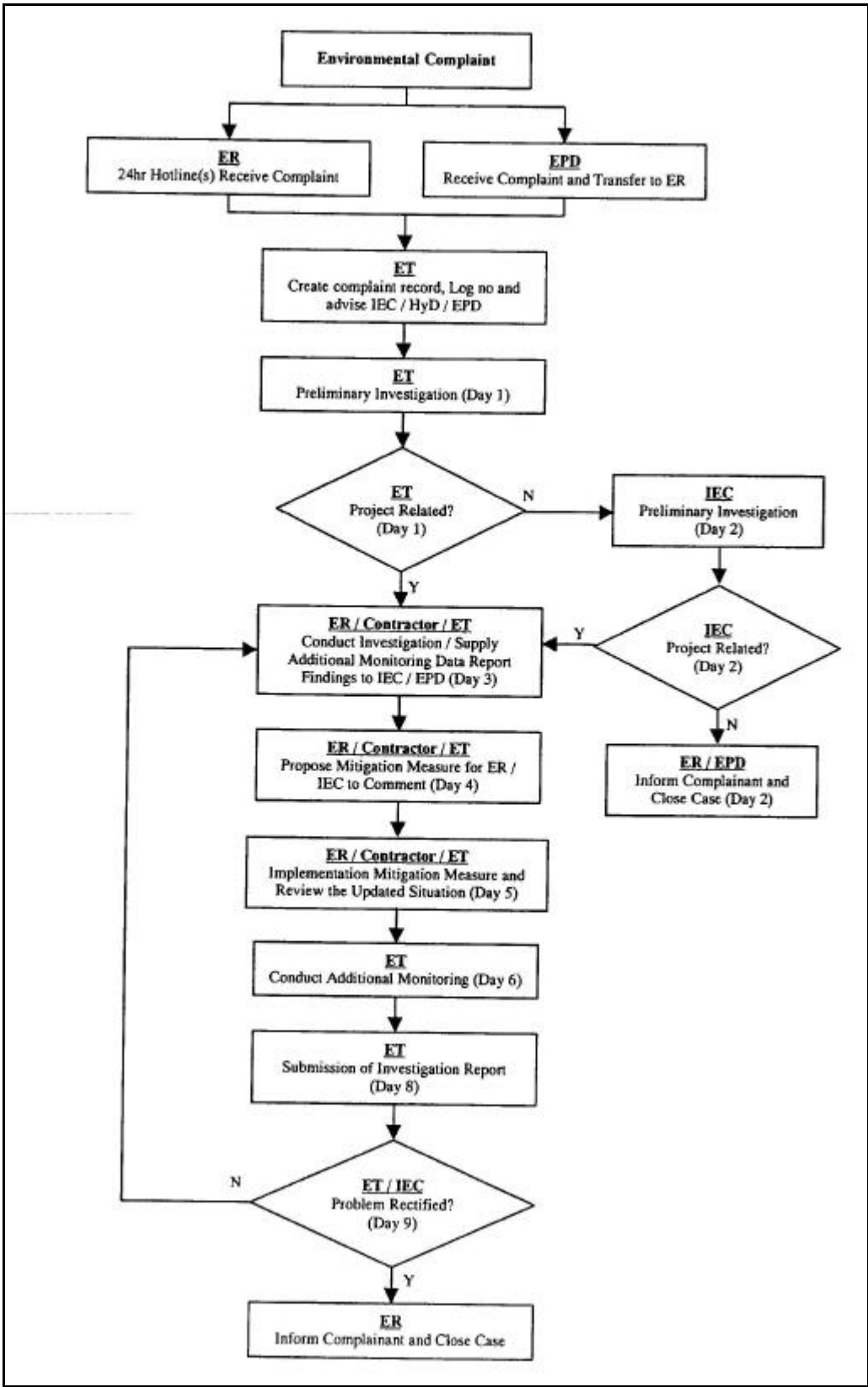
**Table E-2: Event and Action plan for marine water quality**

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Action Level</b>				
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm findings.</li> <li>Identify source(s) of impact.</li> <li>Inform the IEC and the Contractor.</li> <li>Check monitoring data, all plant, equipment and the Contractor's working methods.</li> <li>Discuss mitigation measures with the IEC and the Contractor.</li> <li>Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with the ET Leader and the Contractor on the mitigation measures.</li> <li>Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with the IEC on the proposed mitigation measures.</li> <li>Make agreement on the mitigation measures to be implemented.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the ER and confirm notification of the non-compliance in writing.</li> <li>Rectify unacceptable practice.</li> <li>Check all plants and equipment.</li> <li>Consider changes of working methods.</li> <li>Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER.</li> <li>Implement the agreed mitigation measures.</li> </ol>
Action level being exceeded by more than one consecutive days	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm findings.</li> <li>Identify source(s) of impact.</li> <li>Inform the IEC and the Contractor.</li> <li>Check monitoring data, all plant, equipment and the Contractor's working methods.</li> <li>Discuss mitigation measures with the IEC and the Contractor.</li> <li>Ensure mitigation measures are implemented.</li> <li>Prepare to increase the monitoring frequency to daily.</li> <li>Repeat measurement on next day of exceedance.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with the ET Leader and the Contractor on the mitigation measures.</li> <li>Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IEC on the proposed mitigation measures.</li> <li>Make agreement on the mitigation measures to be implemented.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the ER and confirm notification of the non-compliance in writing.</li> <li>Rectify unacceptable practice.</li> <li>Check all plants and equipment.</li> <li>Consider changes of working methods.</li> <li>Discuss with the ET Leader and the IEC and propose mitigation measures to the IEC and the ER within 3 working days.</li> <li>Implement the agreed mitigation measures.</li> </ol>
<b>Limit Level</b>				
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm findings.</li> <li>Identify source(s) of impact.</li> <li>Inform the IEC, the Contractor and the DEP.</li> <li>Check monitoring data, all plant, equipment and the Contractor's working methods.</li> <li>Discuss mitigation measures with the IEC, the ER and the Contractor.</li> <li>Ensure mitigation measures are implemented.</li> <li>Increase the monitoring frequency to daily until no exceedance of the Limit Level.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with the ET Leader and the Contractor on the mitigation measures.</li> <li>Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures.</li> <li>Request the Contractor to critically review the working methods.</li> <li>Make agreement on the mitigation measures to be implemented.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the ER and confirm notification of the non-compliance in writing.</li> <li>Rectify unacceptable practice.</li> <li>Check all plants and equipment.</li> <li>Consider changes of working methods.</li> <li>Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days.</li> <li>Implement the agreed mitigation measures.</li> </ol>
Limit level being exceeded by more than one consecutive days	<ol style="list-style-type: none"> <li>Repeat in-situ measurement to confirm findings.</li> <li>Identify source(s) of impact.</li> <li>Inform the IEC, the Contractor and the DEP.</li> <li>Check monitoring data, all plant, equipment and the Contractor's working methods.</li> <li>Discuss mitigation measures with the IEC, the ER and the Contractor.</li> <li>Ensure mitigation measures are implemented.</li> <li>Increase the monitoring frequency to daily until no exceedance of the Limit Level for two consecutive days.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with the ET Leader and the Contractor on the mitigation measures.</li> <li>Review proposals on mitigation measures submitted by the Contractor and advised the ER accordingly.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>Discuss with IEC, the ET Leader and the Contractor on the proposed mitigation measures.</li> <li>Request the Contractor to critically review the working methods.</li> <li>Make agreement on the mitigation measures to be implemented.</li> <li>Assess the effectiveness of the implemented mitigation measures.</li> <li>Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.</li> </ol>	<ol style="list-style-type: none"> <li>Inform the ER and confirm notification of the non-compliance in writing.</li> <li>Rectify unacceptable practice.</li> <li>Check all plants and equipment.</li> <li>Consider changes of working methods.</li> <li>Discuss with the ET Leader, the IEC and the ER, and propose mitigation measures to the IEC and the ER within 3 working days.</li> <li>Implement the agreed mitigation measures.</li> <li>As directed by the ER, slow down or stop all or part of the construction activities.</li> </ol>

Appendix F

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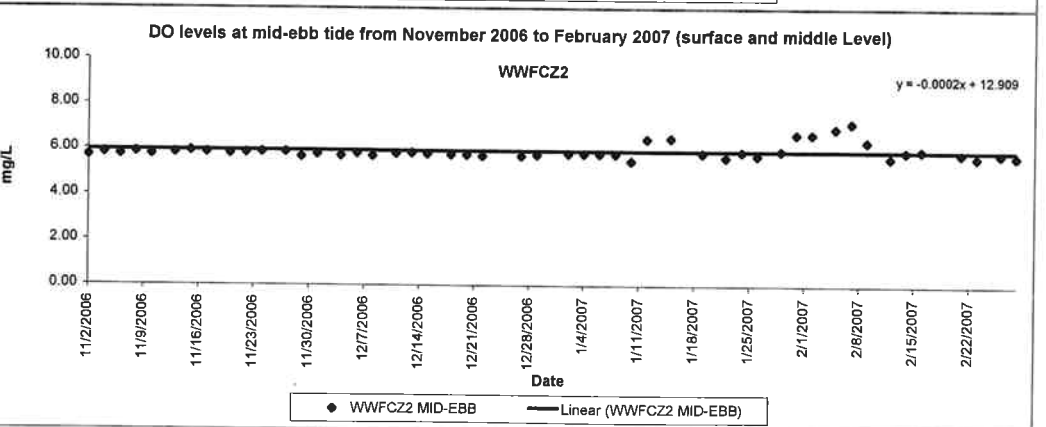
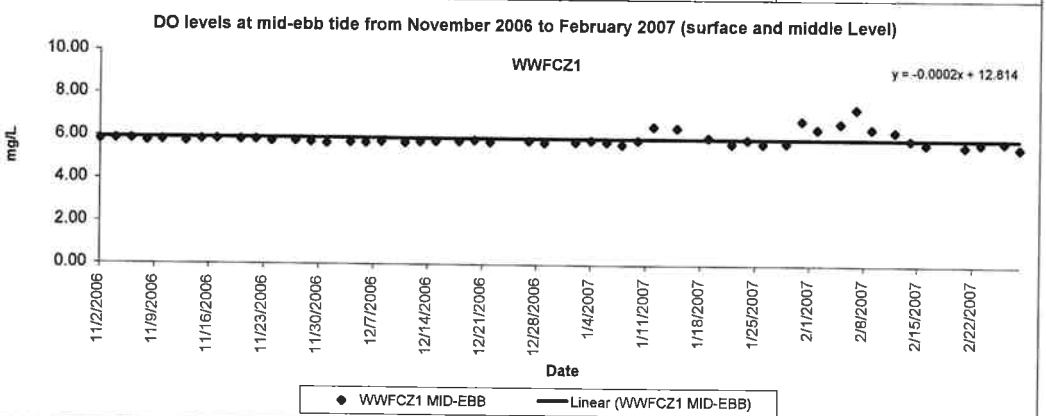
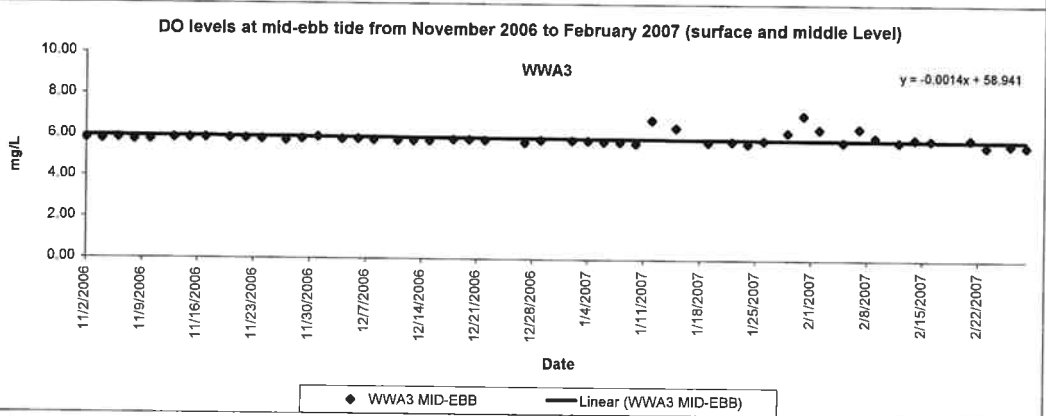
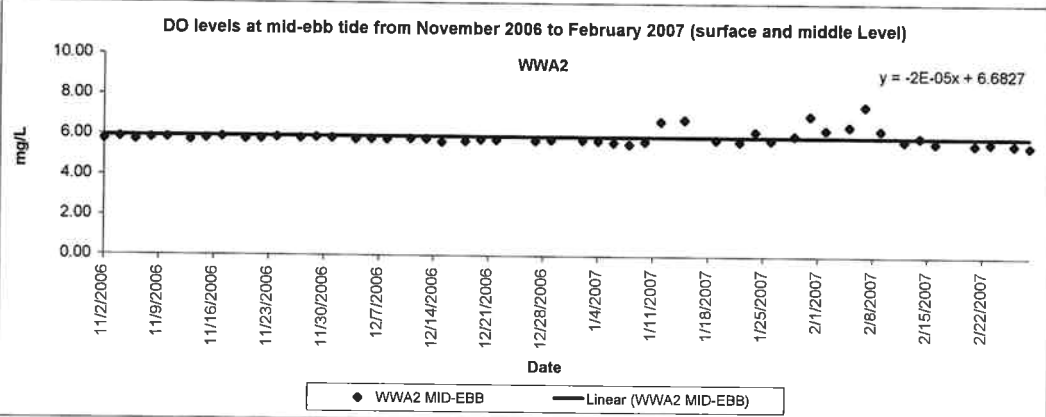
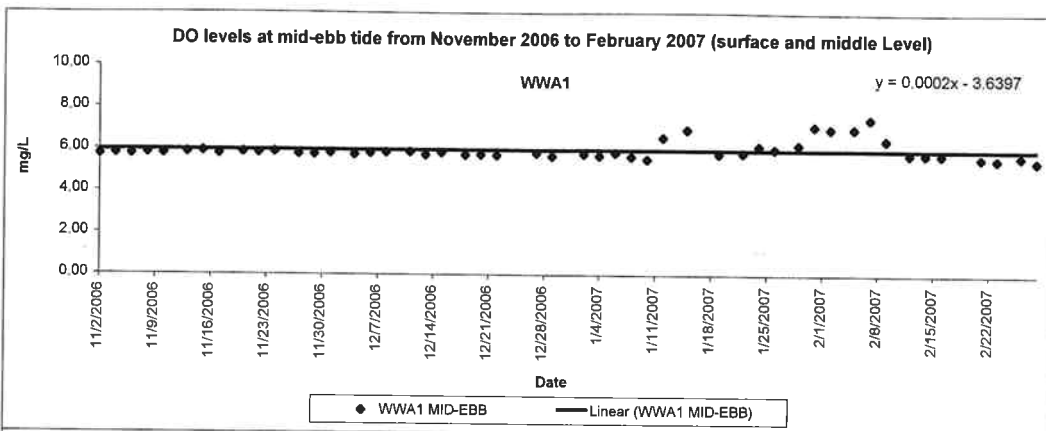
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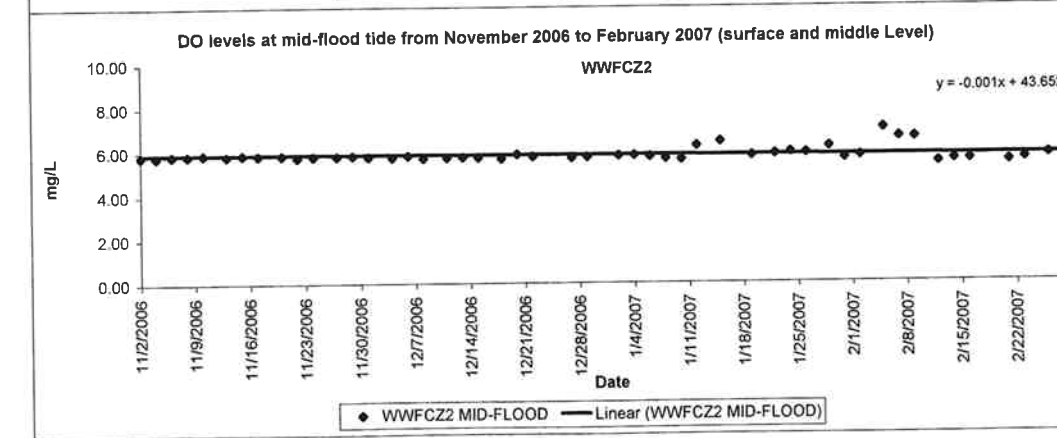
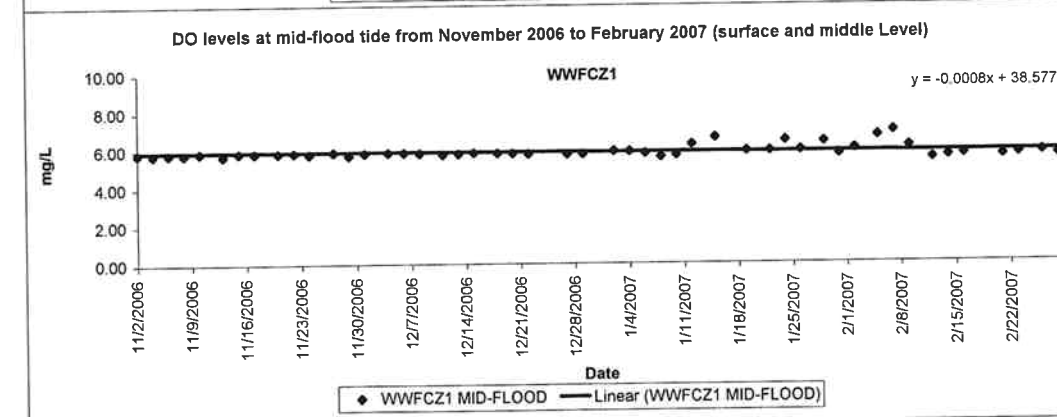
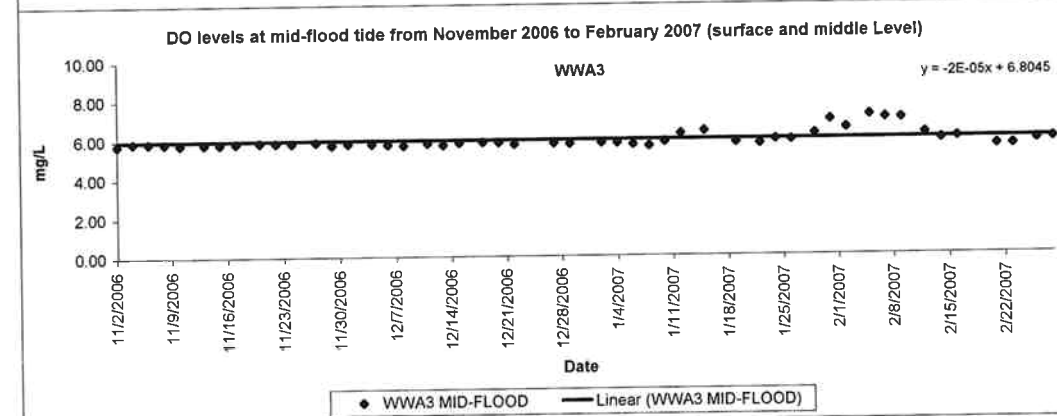
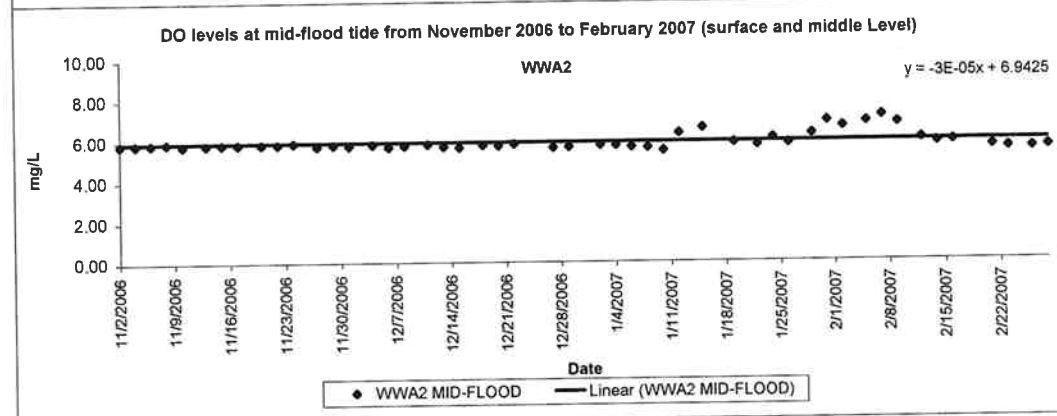
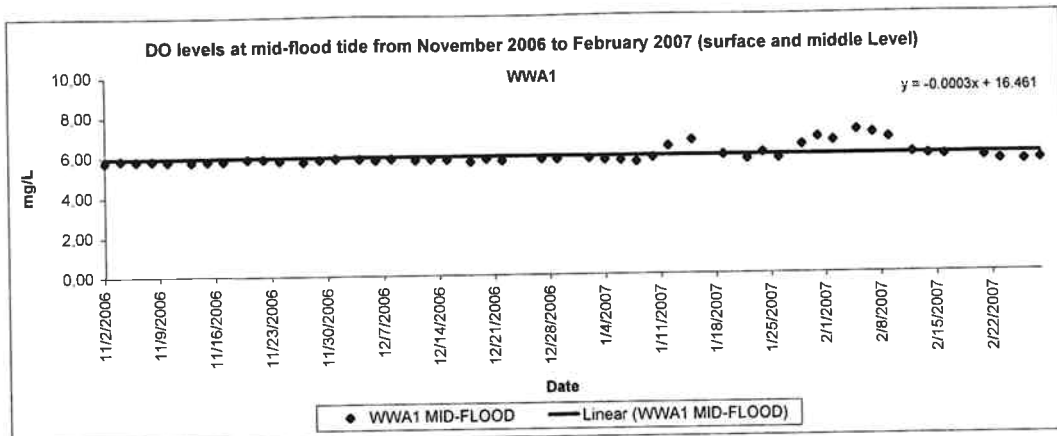


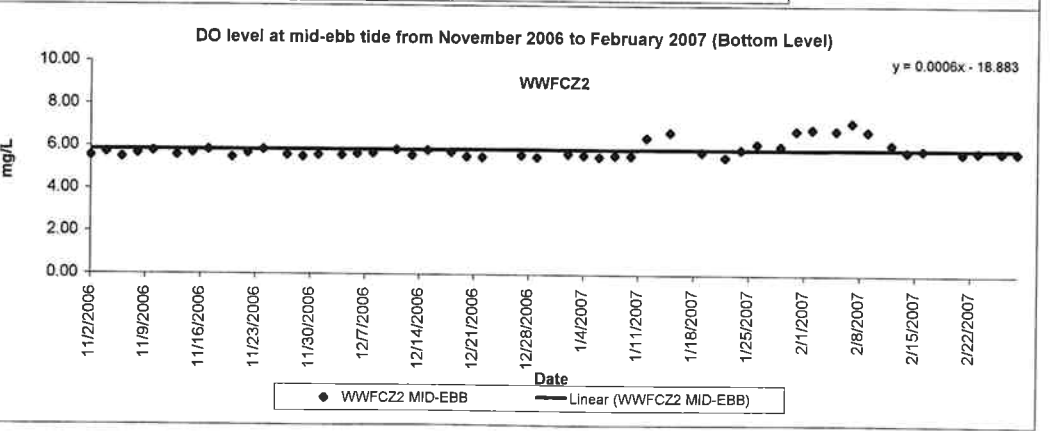
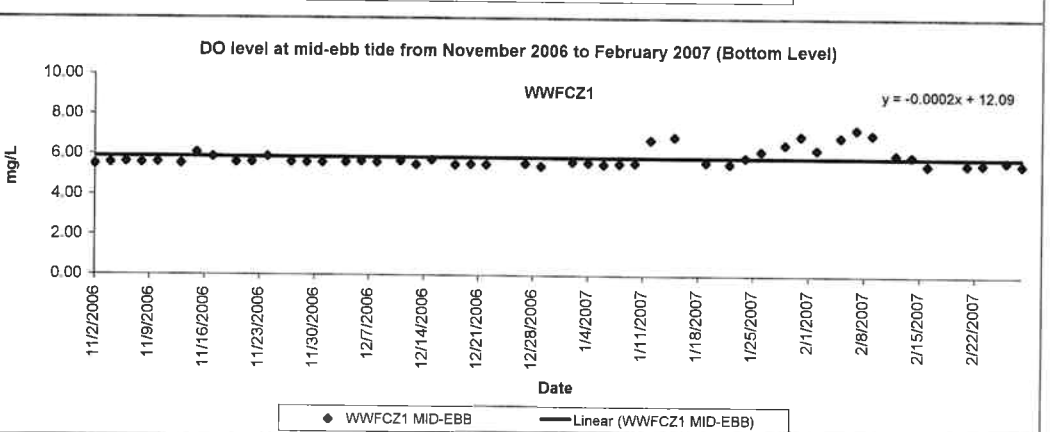
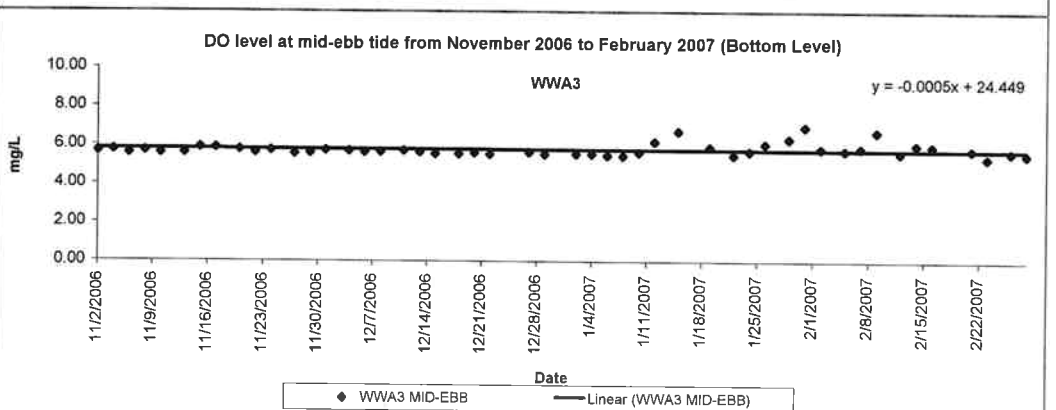
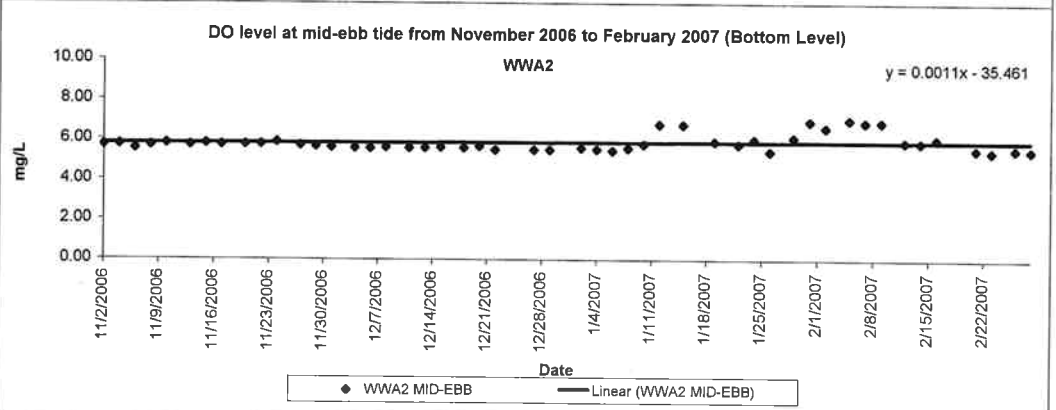
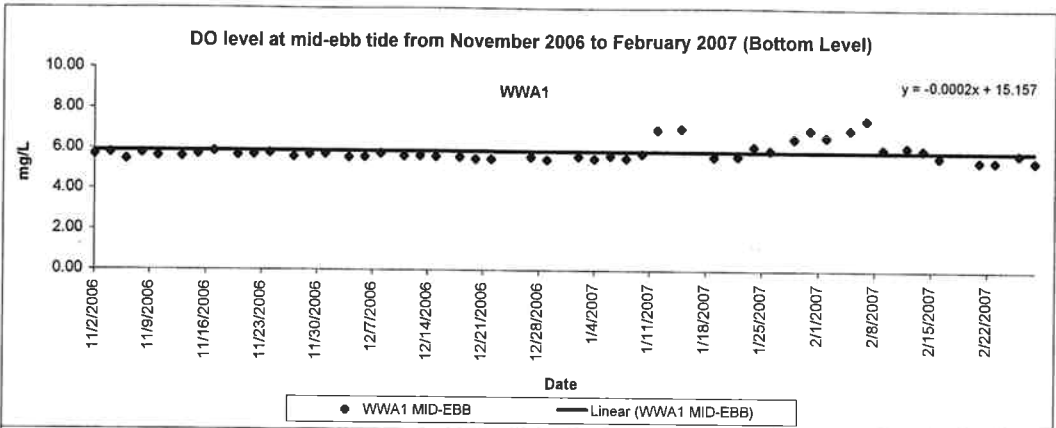
Appendix G

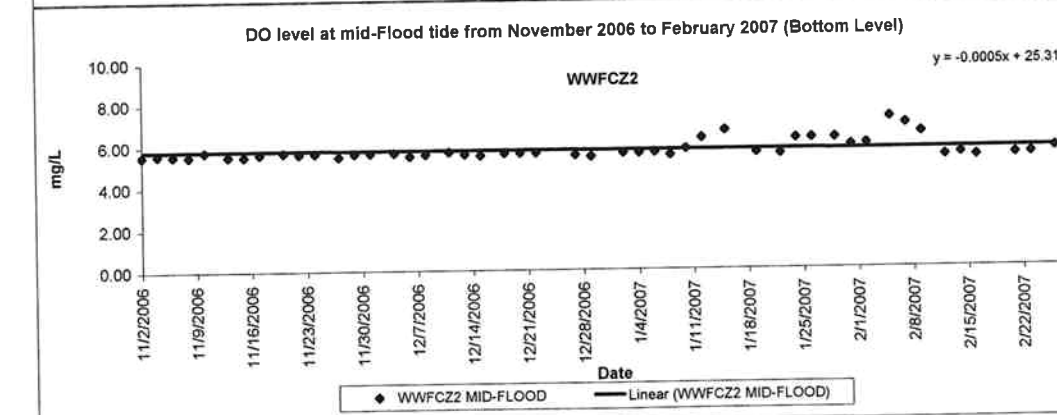
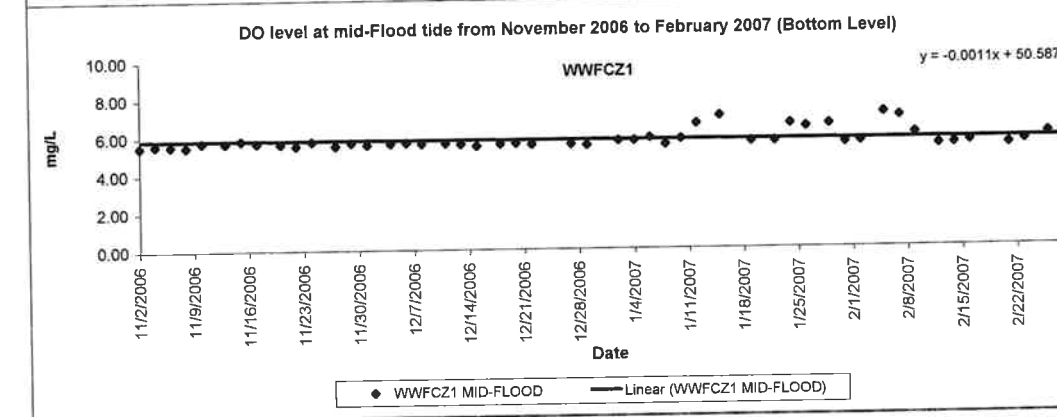
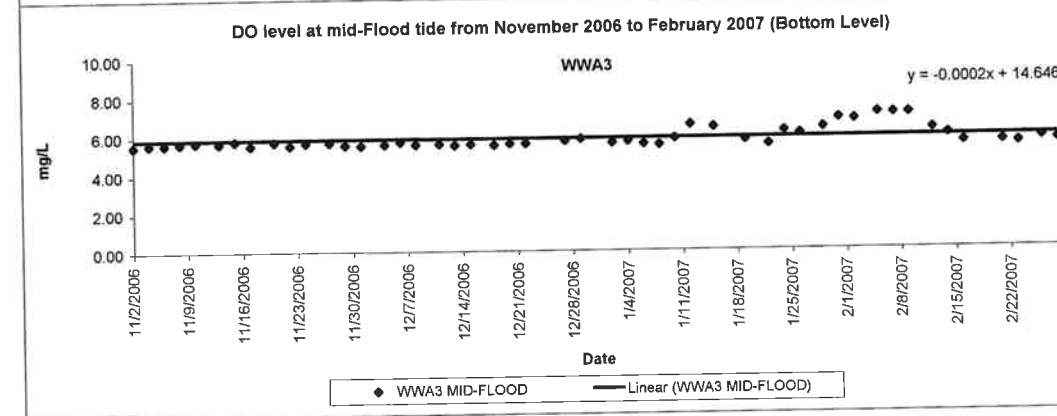
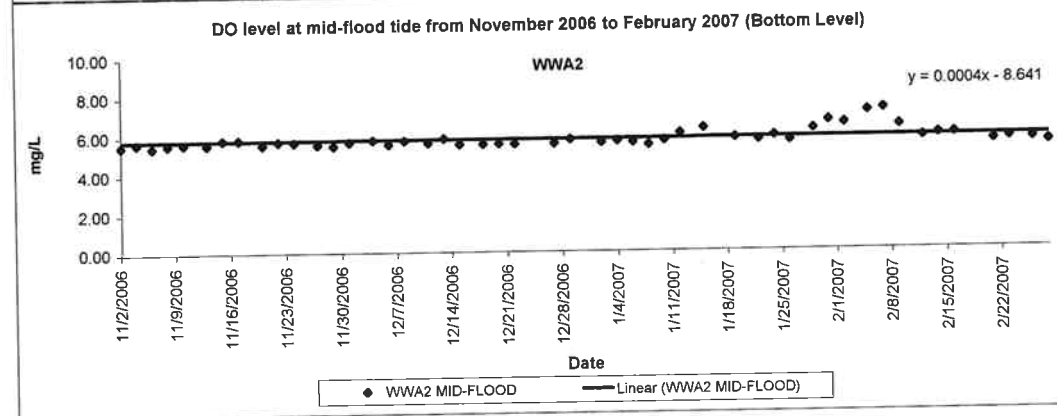
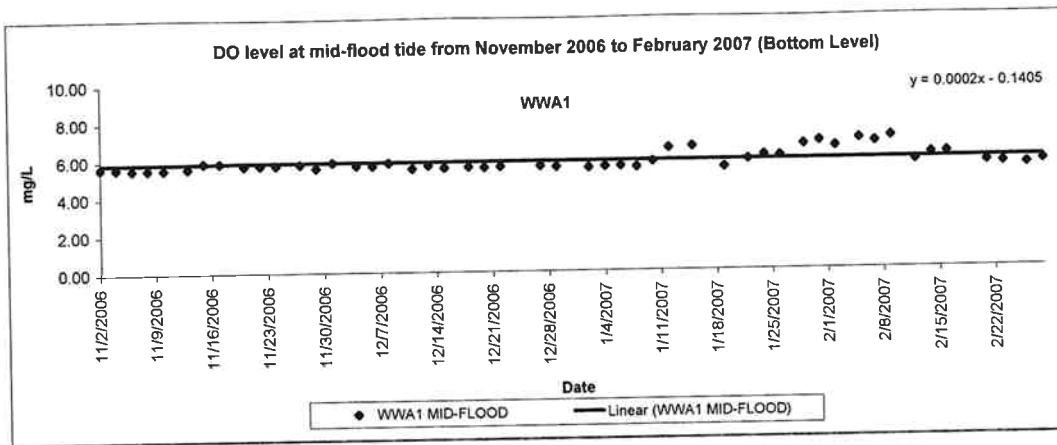
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**Graphical Presentation  
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Monitoring Results**

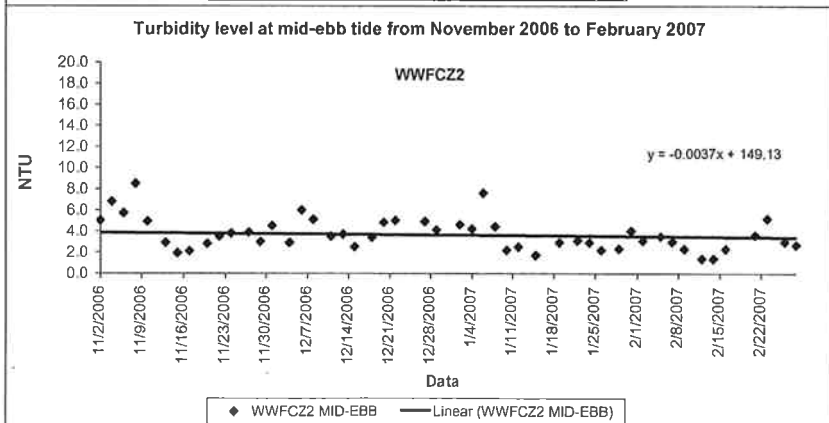
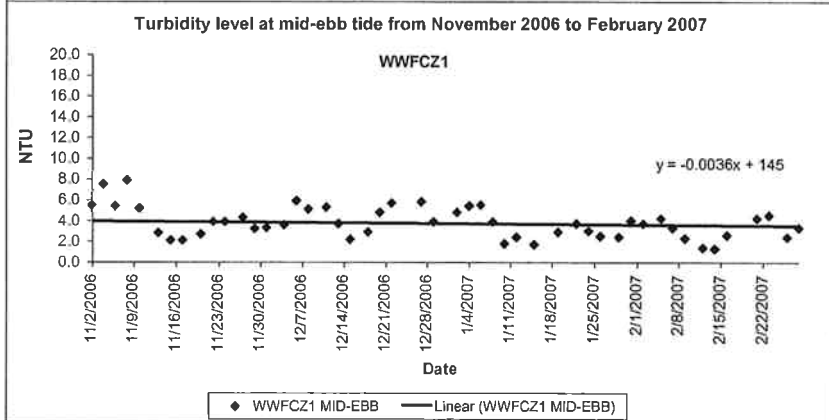
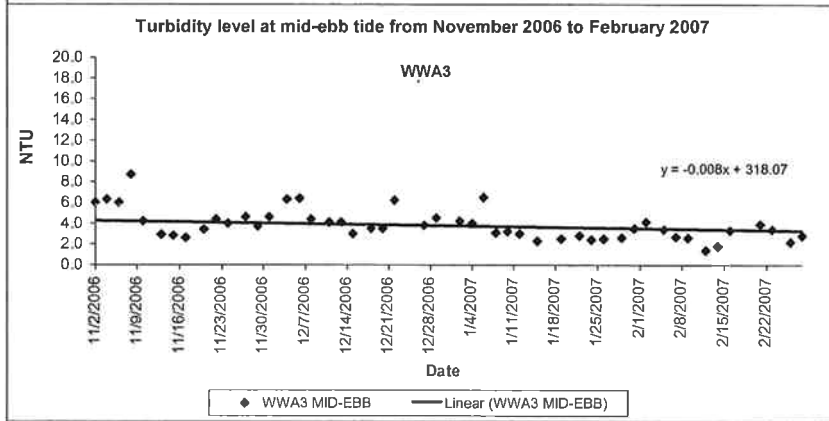
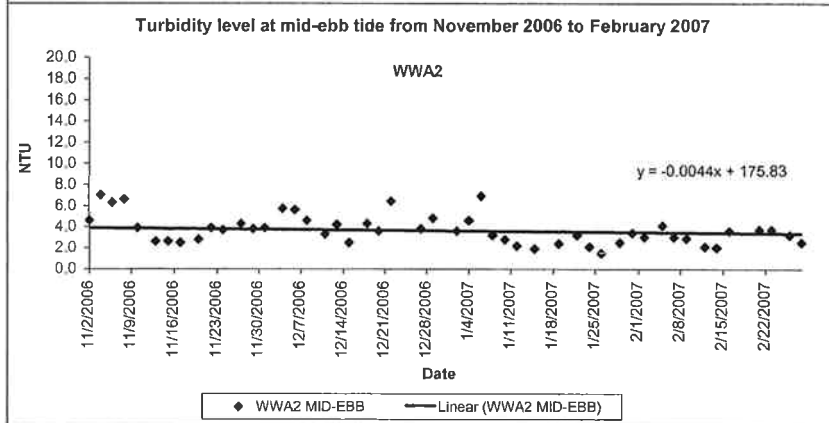
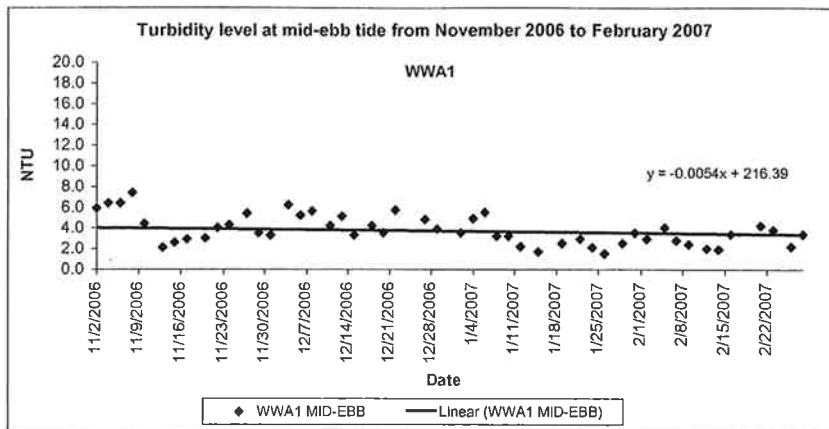


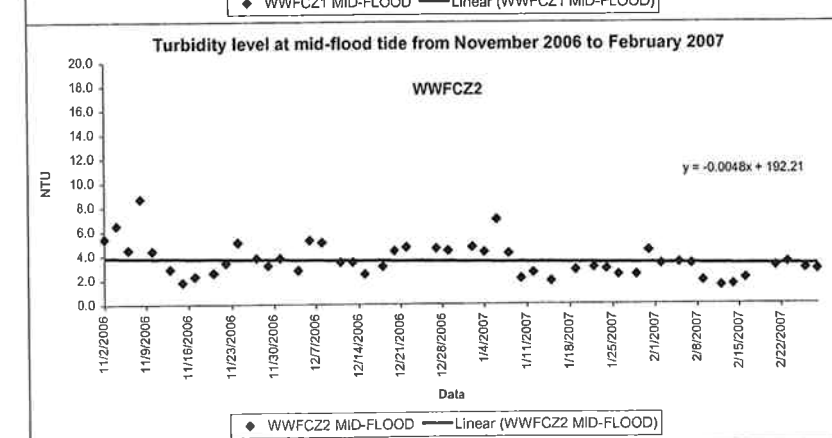
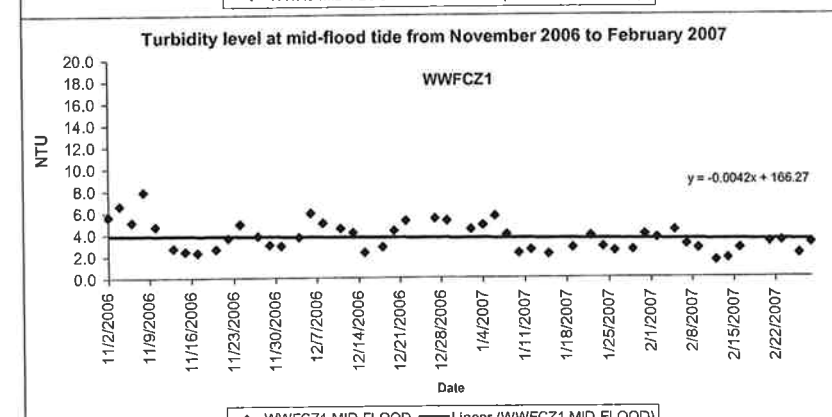
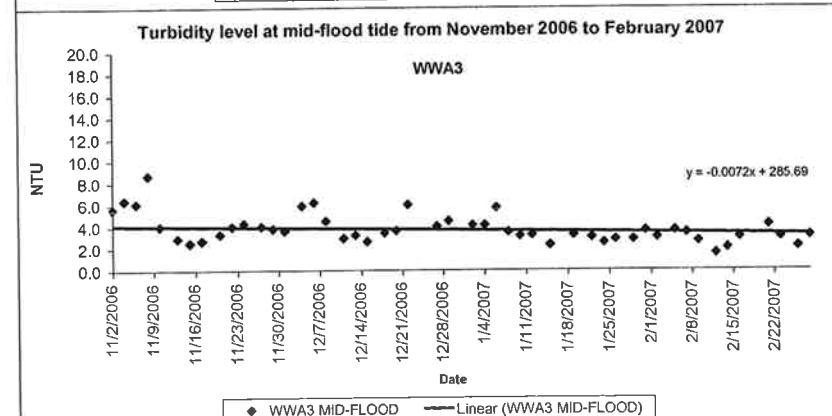
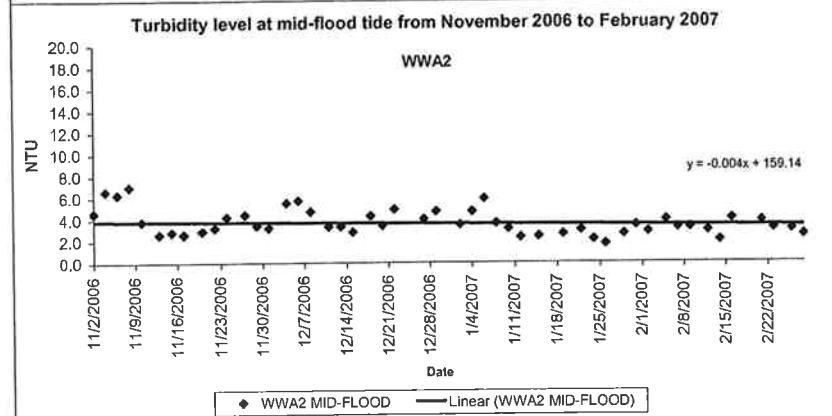
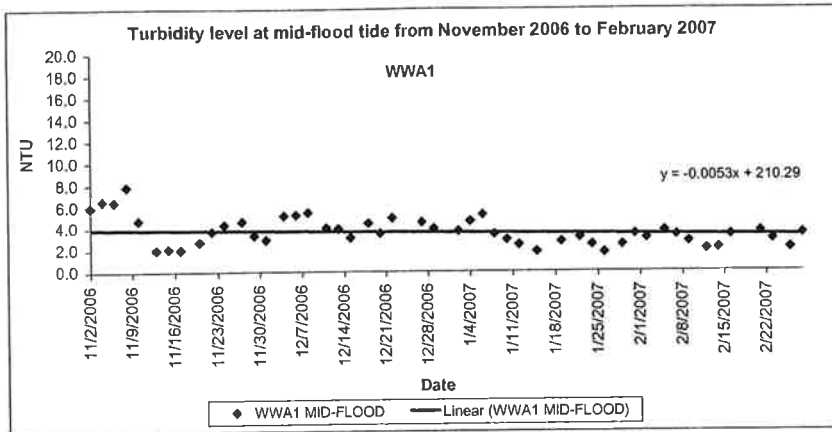


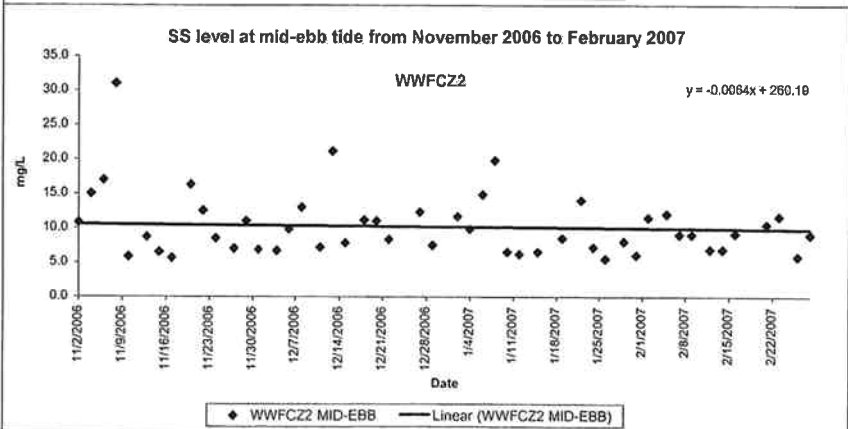
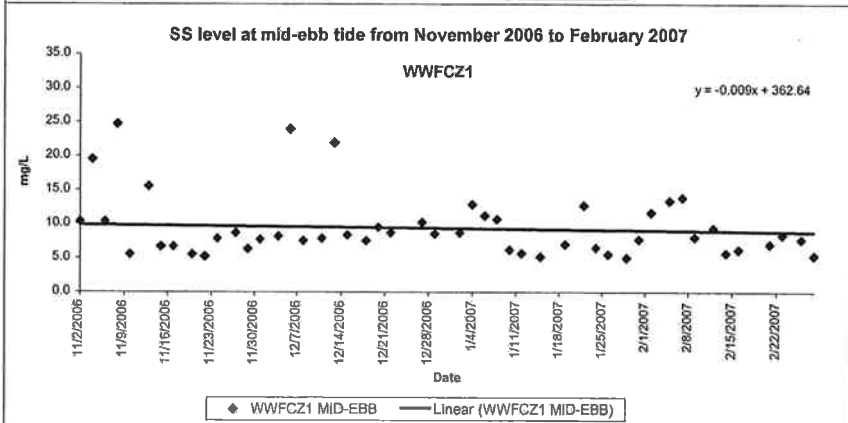
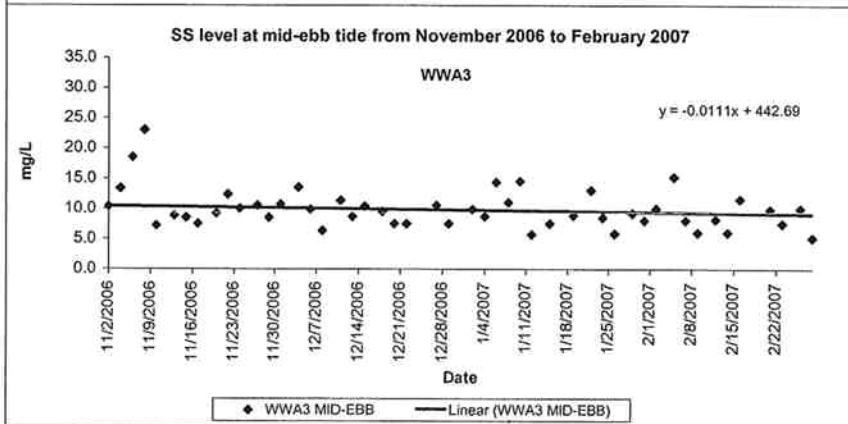
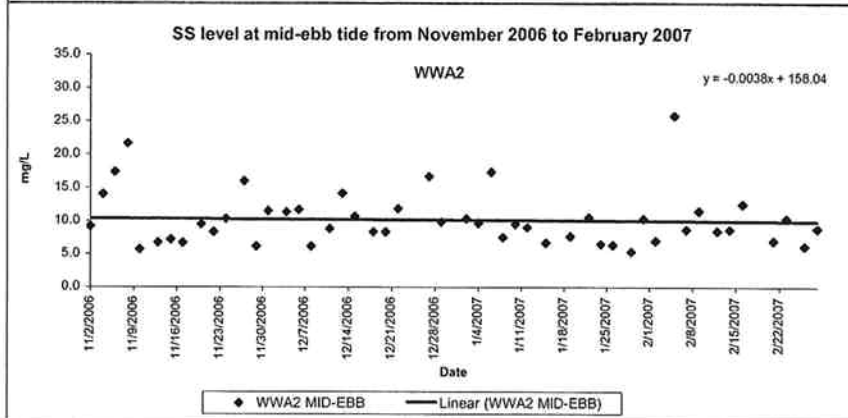
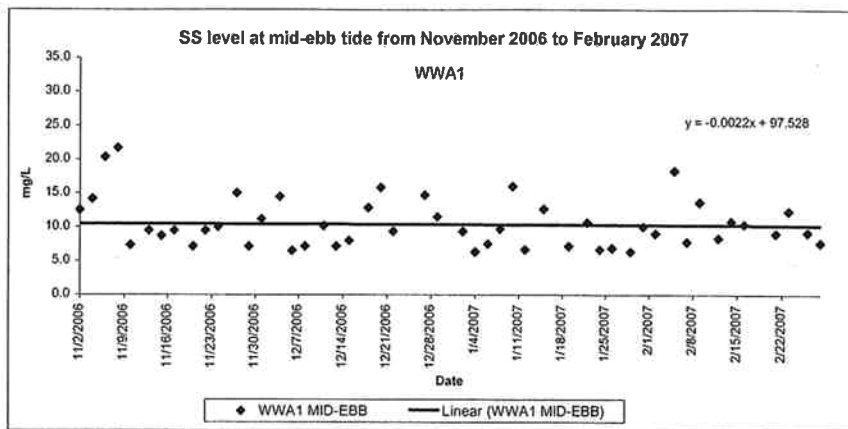


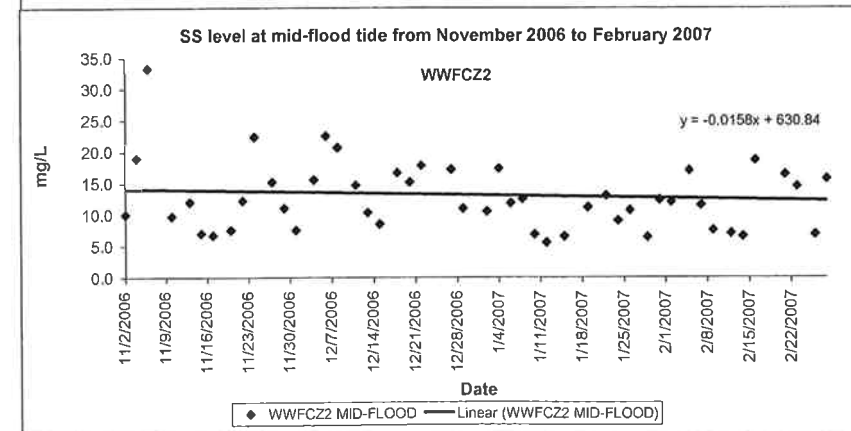
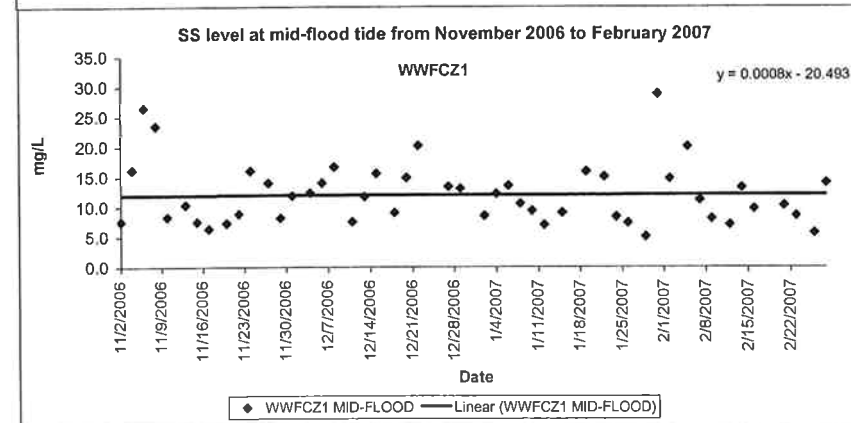
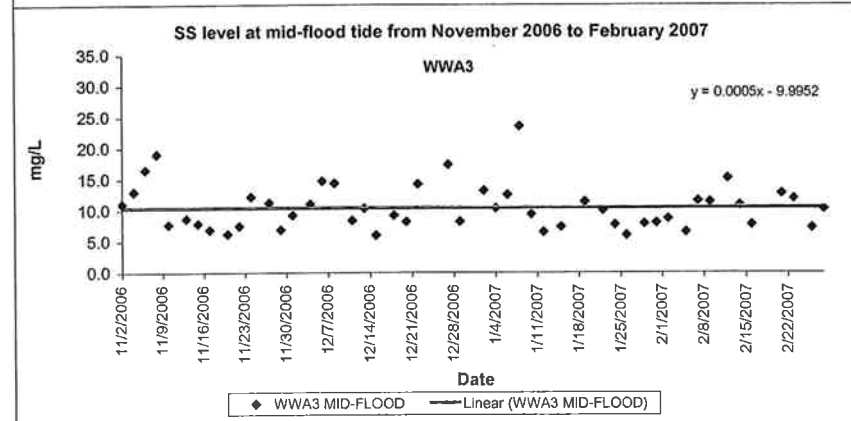
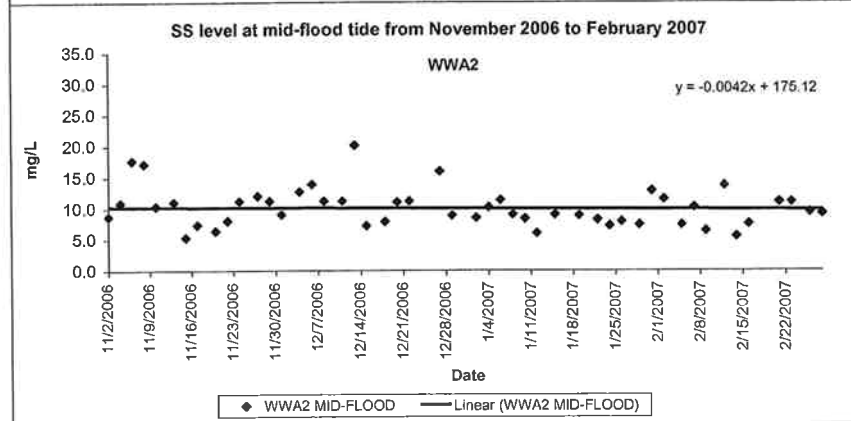
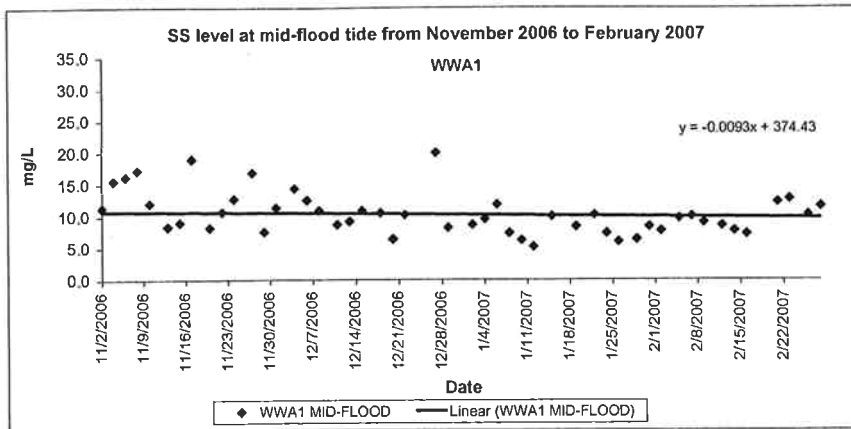












Appendix H

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**Implementation Status  
on Environmental  
Protection  
Requirements**

**HY/2005/06 Castle Peak Road Improvement – West of Tsing Lung Tau (EP No. EP219/2005)  
Environmental Mitigation Implementation Schedule**

Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages				Implementation Status
				Design	Construction	Operation	Decommission	
<b>Construction Noise</b>								
Noisy equipment and activities should be sited by the Contractor as far away from sensitive receivers as is practical	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
Replace noisy plant with quieter alternatives	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
Schedule noisy activities to reduce duration and severity of noise exposure	All areas	Contractor	TMEIA and Project Profile		✓			Implemented
In the event that Grand Bay Villa becomes occupied during the construction: <ul style="list-style-type: none"> <li>• 5m high temporary noise barriers with a material surface density of at least 7 kg/m<sup>2</sup> shall be erected to screen the façade of along Castle Peak Road and the Western end façade.</li> <li>• Whenever the grab dredger is operating within 50 the reclamation west of Grand Bay Villa, the land based power mechanical equipment</li> <li>• No more than a total of 2 derrick lighters shall be used for marine dredging works at the same time.</li> </ul>	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.11		✓			To be implemented when Grand Bay Villa becomes occupied

Environmental Protection Measures	Location/ Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages				Implementation Status
				Design	Construction	Operation	Decommission	
<b>Construction Water Quality</b>								
Dredging of marine sediment shall be limited to the scour apron.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.1		✓			Implemented
No more than a total of 2 derrick lighter shall be used for marine dredger works. The maximum dredging rate shall not be more than 1,000 and 2,000 cum per day at the reclamation east and west of Grand Bay Villa respectively.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.2		✓			Implemented
All filling activities shall be carried behind rockfill and rock armour.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.3		✓			Implemented
Tightly closing grabs shall be used to restrict the loss of fine sediment to suspension.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.4		✓			Implemented
Silt curtain shall be installed along the reclamation area during construction to control sediment suspension within the work area.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.5		✓			Implemented
Marine water quality monitoring and audit programme shall be carried out.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.6		✓			Implemented
The construction method specified in Section 2.1 of the Project Profile (Register No. PP-245/2005) shall be followed during construction.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.7		✓			Implemented
Wastewater collected from canteen kitchens, including from basins, sinks and floor drains shall be discharged into public sewers via grease traps. Drainage system provided at car parking areas shall be equipped with oil interceptors in addition to sand or silt removal facilities.	West of Tsing Lung Tau Reclamation	Contractor	Environmental Permit No. 219/2005 Condition 3.10		✓			Not Applicable

Appendix I

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**Investigation Summary  
on Marine Water  
Quality Exceedances**



Date	Tide	Location	Exceedance of Monitoring Data												ET's Investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tpy (NTU)				SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station				
4-Dec-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	-	13.0	10.5	14.5	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 04 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. The exceedances were marginal against the Baseline Check Criteria. High levels of SS were also recorded at respective control stations. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	2-Jan-07	Refer to ET's field record & CT's daily records.
4-Dec-06	mid-ebb	WWA3	-	-	-	-	-	-	-	-	-	13.0	7.5	13.5	Ditto	Ditto	Ditto	

Date	Tide	Location	Exceedance of Monitoring Data										ET's Investigation	CT's action	Closing Date	Remark		
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
6-Dec-06	mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	-	13.0	11.3	24.0	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 06 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. The location of WWFCZ1 is far away from the construction site and no exceedances were recorded at WWA1, WWA2 and WWA3, which are closer to the construction site. The exceedance was unlikely due to the construction works of the Project and might be due to natural variation of marine water. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	2-Jan-07	Refer to ET's field record & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's Investigation	CT's action	Closing Date	Remark		
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
8-Dec-06	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	-	-	13.0	19.8	20.7	No muddy water and abnormal activities were observed by our field staff during marine water quality monitoring. The location of WWFCZ2 is far away from the construction sites and no exceedances were recorded at other impact monitoring stations (WWA1, WWA2 and WWA3), which are closer to the construction site, on 08 December 2006. In addition, higher level of SS (19.8 mg/L) was also recorded at control station, WFCR2. Hence, the exceedance is considered unlikely due to the construction activities of the Project. However, the Contractor was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	21-Dec-06	Refer to ET's field record & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data												ET's Investigation	CT's action	Closing Date	Remark
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
13-Dec-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	13.0	7.8	14.2	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 13 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. High levels of SS were also recorded at respective control stations. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.			No action	2-Jan-07	Refer to ET's field record & CT's daily records.
13-Dec-06	Mid-flood	WWFCZ1	-	-	-	-	-	-	13.0	11.5	22.0	Ditto			Ditto	Ditto	Ditto	
13-Dec-06	Mid-ebb	WWA2	-	-	-	-	-	-	17.0	12.2	20.2	Ditto			Ditto	Ditto	Ditto	

Date	Tide	Location	Exceedance of Monitoring Data												CT's action	Closing Date	Remark	
			DO (mg/L)				Tby (NTU)				SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
20-Dec-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	-	13.0	12.7	15.8	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 20 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. High levels of SS were also recorded at control station, WWA1. The exceedance is considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	5-Jan-07	Refer to ET's field record & CT's daily records.
22-Dec-06	Mid-flood	WWFCZ2	-	-	-	-	-	-	-	-	-	13.0	14.2	17.8	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 22 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. In addition, the location of WWFCZ2 is far away from the the construction sites. High level of SS was also recorded at control station, WFCZR2. The exceedance is considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	5-Jan-07	Refer to ET's field record & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data												ET's investigation	CT's action	Closing Date	Remark		
			DO (mg/L)			Tby (NTU)			SS (mg/L)											
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station								
27-Dec-06	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	-	13.0	10.2	14.7	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 22 Dec 2006 by ET's field staff. No marine works were being conducted on the same day. High level of SS was also recorded at control station, WFCZR2. In addition, the location of WWFCZ2 is far away from the the construction sites. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	5-Jan-07	Refer to ET's field record & CT's daily records.		
27-Dec-06	Mid-ebb	WWA2	-	-	-	-	-	-	-	-	13.0	8.5	16.7	Ditto					Ditto	Ditto
27-Dec-06	Mid-flood	WWA1	-	-	-	-	-	-	-	-	17.0	14.8	20.0	Ditto					Ditto	Ditto
27-Dec-06	Mid-flood	WWFCZ2	-	-	-	-	-	-	-	-	17.0	12.5	17.2	Ditto	Ditto	Ditto	Ditto	Ditto		

Date	Tide	Location	Exceedance of Monitoring Data												ET's Investigation	CT's action	Closing Date	Remark
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
4-Jan-07	Mid-flood	WWFCZ2	-	-	-	-	-	-	-	-	-	17.0	17.2	17.3	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 04 January 2007 by ET's field staff. The location of WWFCZ2 is far away from the construction sites and no exceedances were recorded at other impact monitoring stations (WWA1, WWA2 and WWA3), which are closer to the construction site. In addition, high level of SS (17.2 mg/L) was recorded at control station, WFCR2. No marine works were being conducted during monitoring period. The exceedance is considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	18-Jan-07	Refer to ET's field record & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data												ET's Investigation	CT's action	Closing Date	Remark
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
6-Jan-07	Mid-ebb	WWA2	-	-	-	-	-	-	13.0	12.8	17.3	-	-	-	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 06 January 2007 by ET's field staff. Higher levels of SS (>10 mg/L) was recorded at control stations. In addition, the location of WWFCZ2 is far away from the construction sites. No marine works were being conducted on the same day. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	22-Jan-07	Refer to ET's field record & CT's daily records.
6-Jan-07	Mid-ebb	WWA3	-	-	-	-	-	13.0	14.2	14.3	-	-	-	-	Ditto	Ditto	Ditto	
6-Jan-07	Mid-ebb	WWFCZ2	-	-	-	-	6.5	6.5	13.0	10.8	14.8	7.6	5.5	5.7	Ditto	Ditto	Ditto	Ditto
6-Jan-07	Mid-flood	WWFCZ2	-	-	-	-	6.5	6.5	-	-	-	7.0	5.7	5.7	Ditto	Ditto	Ditto	Ditto



Date	Tide	Location	Exceedance of Monitoring Data												ET's Investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)				SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
8-Jan-07	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	-	-	13.0	10.8	19.8	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 08 January 2007 by ET's field staff. No marine works were being conducted on the same day. In addition, the location of WWFCZ2 is far away from the construction sites. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	22-Jan-07	Refer to ET's field record & CT's daily records.
8-Jan-07	Mid-flood	WWA3	-	-	-	-	-	-	-	-	-	17.0	6.8	23.5	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data												ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
10-Jan-07	Mid-ebb	WWA1	-	-	-	-	-	-	-	13.0	10.2	16.0	Neither muddy water nor abnormal activities which would likely cause deterioration of water quality were observed at all impact monitoring stations on 10 January 2007 by ET's field staff. No marine works were being conducted on the same day. High SS levels (>10mg/L) were also recorded at respective control stations. The exceedances are considered unlikely due to the construction activities of the Project. The Contractor, however, was reminded to maintain regular clearance of perimeter channels at site boundaries to intercept stormwater entering the site and implement appropriate mitigation measures to minimize run-off of muddy site effluent into storm drains.	No action	26-Jan-07	Refer to ET's field record & CT's daily records.		
10-Jan-07	Mid-ebb	WWA3	-	-	-	-	-	-	13.0	13.5	14.5	Ditto	Ditto	Ditto	Ditto			

Date	Tide	Location	Exceedance of Monitoring Data										ET's Investigation	CT's action	Closing Date	Remark			
			DO (mg/L)					Tby (NTU)									SS (mg/L)		
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station					Control Station	Level at Impact Station	
22-Jan-07	Mid-ebb	WWFCZ2	-	-	-	-	-	-	-	-	-	13.0	5.8	14.0	No action	2-Feb-07	Refer to ET's field record & CT's daily records.		

Date	Tide	Location	Exceedance of Monitoring Data												ET's investigation	CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)				SS (mg/L)							
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
31-Jan-07	Mid-flood	WWFCZ1	-	-	-	-	-	-	-	-	-	17.0	9.8	28.8	Neither muddy water nor abnormal activities were observed by our field staff during marine water quality monitoring. The silt curtain at Seawall B and desilting facilities were properly installed. No marine works was conducted during monitoring period. The monitoring station, WWFCZ1, is located far away from the site. SS Levels at other impact monitoring stations (WWA1, WWA2 and WWA3), locating closer to the construction site, were well within the Action/ Limit Levels. It is likely that the exceedance on 31 Jan 2007 was attributed to an unidentified source near WWFCZ1, and not related to the construction activities of the Project. Subsequent marine water quality monitoring was conducted on 02 February 2007, the Action/Limit Level was satisfied at all impact monitoring stations.	No action	8-Feb-07	Refer to ET's field record & CT's daily records.
5-Feb-07	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	-	13.0	17.3	18.3	The silt curtain at Seawall B and desilting facilities were properly installed during monitoring period. Neither muddy water nor abnormal activities were observed by our field staff on 05 February 2007. No marine works was conducted during monitoring period. In addition, high SS levels were recorded at respective control stations (9.5 - 17.3 mg/L). The exceedances were likely attributed from an unidentified source, and not related to the construction activities of the Project.	No action	15-Feb-07	Refer to ET's field record & CT's daily records.
5-Feb-07	Mid-ebb	WWA2	-	-	-	-	-	-	-	-	-	13.0	12.7	25.8	Ditto	Ditto	Ditto	Ditto

Date	Tide	Location	Exceedance of Monitoring Data												CT's action	Closing Date	Remark
			DO (mg/L)				Tby (NTU)				SS (mg/L)						
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station			
5-Feb-07	Mid-ebb	WWA3	-	-	-	-	-	-	-	-	-	13.0	10.2	15.2	Ditto	Ditto	Ditto
5-Feb-07	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	-	13.0	9.5	13.3	Ditto	Ditto	Ditto
5-Feb-07	Mid-flood	WWFCZ1	-	-	-	-	-	-	-	-	-	17.0	16.5	20.0	Ditto	Ditto	Ditto
7-Feb-07	Mid-ebb	WWFCZ1	-	-	-	-	-	-	-	-	-	13.0	9.2	13.8	No action	15-Feb-07	Refer to ET's field record & CT's daily records.
9-Feb-07	Mid-ebb	WWA1	-	-	-	-	-	-	-	-	-	13.0	10.8	13.7	No action	23-Feb-07	Refer to ET's field record & CT's daily records.

Date	Tide	Location	Exceedance of Monitoring Data										ET's Investigation	CT's action	Closing Date	Remark		
			DO (mg/L)			Tby (NTU)			SS (mg/L)									
			Position	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station	Baseline Check	Control Station	Level at Impact Station						
16-Feb-07	Mid-flood	WWFCZ2	-	-	-	-	-	-	-	-	-	17.0	5.3	18.7	The site was closed during Chinese New Year. No marine works were conducted during monitoring period. The location of WWFCZ2 is far away from the construction site and SS Levels at other impact monitoring stations (WWA1, WWA2 and WWA3), locating closer to the construction site, were well within the Action/Limit Levels. It is likely that the exceedance on 16 February 2007 was attributed to an unidentified source, and not related to the construction activities of the Project, however, the Contractor was reminded to repair the silt curtain promptly to prevent the propagation of sediment plume.	No action	2-Mar-07	Refer to ET's field record & CT's daily records.

Appendix J

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**Statistical Analysis of  
SS Monitoring Data**

## Statistical Analysis for Mid-Ebb Tide

### Station WWA1

#### Mann-Whitney Rank Sum Test

Normality Test: Passed (P = 0.184)  
Equal Variance Test: Failed (P < 0.050)

Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.917	13.417	21.083
Quarterly Mean	37	0	9.333	7.417	11.708

n(small)= 16 n(big)= 37 (P = <0.001)

Results:  
T = 649.500

There is a statistically significant difference between two groups. (P = <0.001).

### Station WWA2

#### t-Test

Normality Test: Passed (P = 0.196)  
Equal Variance Test: Passed (P = 0.558)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	19.104	3.341	0.835
Quarterly Mean	37	0	10.009	3.799	0.625

Difference 9.095

Results:  
t = 8.282 with 51 degrees of freedom (P = <0.001)

There is a statistically significant difference between two groups (P = <0.001).

### Station WWA3

#### Mann-Whitney Rank Sum Test

Normality Test: Passed (P = 0.665)  
Equal Variance Test: Failed (P < 0.050)

Group	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.667	13.750	21.167
Quarterly Mean	37	0	9.167	7.500	10.542

n(small)= 16 n(big)= 37 (P = <0.001)

Results  
T = 698.000

There is a statistically significant difference between two groups (P = <0.001).



**WWFCZ1**

**Mann-Whitney Rank Sum Test**

Normality Test: Failed (P < 0.050)

<b>Group</b>	<b>N</b>	<b>Missing</b>	<b>Median</b>	<b>25%</b>	<b>75%</b>
130% Baseline Mean	16	0	18.250	14.892	21.917
Quarter Mean	51	0	8.000	6.875	10.292

n(small)= 16 n(big)= 37 (P = <0.001)

Results:

T = 695.500

There is a statistically significant difference between two groups (P = <0.001).

**WWFCZ2**

**Mann-Whitney Rank Sum Test**

Normality Test: Failed (P < 0.050)

<b>Group</b>	<b>N</b>	<b>Missing</b>	<b>Median</b>	<b>25%</b>	<b>75%</b>
130% Baseline Mean	16	0	16.692	14.167	20.917
Quarter Mean	37	0	9.000	6.833	11.542

n(small)= 16 n(big)= 37 (P = <0.001)

Results:

T = 685.000

There is a statistically significant difference (P = <0.001).

## Statistical Analysis for Mid-Flood Tide

### WWA1

#### Mann-Whitney Rank Sum Test

Normality Test: Passed (P = 0.260)  
Equal Variance Test: Failed (P < 0.050)

Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	15.333	12.433	19.750
Quarterly Mean	37	0	9.167	7.667	10.833

n(small)= 16 n(big)= 37 (P = <0.001)

Results:  
T = 653.000 (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

### WWA2

#### Mann-Whitney Rank Sum Test

Normality Test: Passed (P = 0.088)  
Equal Variance Test: Failed (P < 0.050)

Group Name	N	Missing	Median	25%	75%
130% Baseline Mean	16	0	16.750	13.558	21.000
Quarterly Mean	37	0	9.000	7.833	11.167

n(small)= 16 n(big)= 37 (P = <0.001)

Results:  
T = 672.500 (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

### WWA3

#### t-test

Normality Test: Passed (P = 0.363)  
Equal Variance Test: Passed (P = 0.240)

Group Name	N	Missing	Mean	Std Dev	SEM
130% Baseline Mean	16	0	17.386	4.337	1.084
Quarterly Mean	37	0	10.441	3.553	0.584

Difference 6.945

Results:  
t = 6.107 with 51 degrees of freedom. (P = <0.001)

There is a statistically significant difference between the input groups (P = <0.001).

**WWFCZ1**

**t-test**

Normality Test: Passed (P = 0.259)  
Equal Variance Test: Passed (P = 0.526)

<b>Group Name</b>	<b>N</b>	<b>Missing</b>	<b>Mean</b>	<b>Std Dev</b>	<b>SEM</b>
130% Baseline Mean	16	0	16.593	4.957	1.239
Quarter Mean	37	0	11.905	4.675	0.768
Difference			4.687		

Results:  
t = 3.292 with 51 degrees of freedom. (P = 0.002)

There is a statistically significant difference between the input groups (P = 0.002).

**WWFCZ2**

**t-test**

Normality Test: Passed (P = 0.401)  
Equal Variance Test: Passed (P = 0.829)

<b>Group Name</b>	<b>N</b>	<b>Missing</b>	<b>Mean</b>	<b>Std Dev</b>	<b>SEM</b>
130% Baseline Mean	16	0	17.507	4.365	1.091
Quarter Mean	37	0	12.311	4.460	0.733
Difference			5.196		

Results:  
t = 3.918 with 51 degrees of freedom. (P <= 0.001)

There is a statistically significant difference between the input groups (P <= 0.001).