

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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Monthly Environmental  
Monitoring and Audit  
Report for Reclamation  
Works (EP No EP-  
219/2005)  
April 2006

**Second Issue**

Chun Wo Construction &  
Engineering Co Ltd

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May 2006

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Attn : Mr. Jeff S K Yu

11 May 2006

Dear Sir,

**Contract No. HY/2005/06**  
**Castle Peak Road Improvement – West of Tsing Lung Tau**  
**Monthly EM&A Report for Reclamation Works (EP No. EP-219/2005) – April 2006**

We refer to the Monthly EM&A Report for Reclamation Works (EP No. EP-219/2005) – April 2006 received via emails on 8 May 2006 from Ove Arup & Partners Hong Kong Ltd., the Environmental Team (ET) of Castle Peak Road Improvement – West of Tsing Lung Tau (Remaining Contract).

Having addressed the IEC's comment on 11 May 2006, the Monthly EM&A Report for Reclamation Works (EP No. EP-219/2005) – April 2006 is verified to be acceptable for onward submission to the Engineer, HyD, EPD and AFCD.

Should you have any inquiry or comment, please do not hesitate to contact the undersigned or our Miss Connie Wong at 3105 8530.

Yours faithfully  
for and on behalf of  
**Maunsell Environmental  
Management Consultants Ltd**



Y T Tang  
Independent Environmental Checker

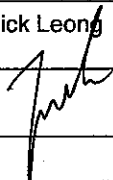


cc MHJV - Mr. Simon Illingworth (Fax: 2559 1613)  
Arup - Mr. Sam Tsol / Mr. Fredrick Leong (Fax: 2268 3950)

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## Executive Summary

This is the second monthly environmental monitoring and audit (EM&A) report presenting the progress of environmental monitoring and audit works for the reporting period between 1 April 2006 and 30 April 2006. 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 and bottom positions were 5.4 mg/L and 5.6 mg/L at WWA2 on 4 April 2006 and 26 April 2006 respectively. There was no exceedance of DO level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 15.5 Nephelometric Turbidity Unit (NTU) at WWA2 on 4 April 2006. There were 5 exceedances of Tby levels at WWA1, WWA2 and WWA3 on 4, 10 and 18 April 2006 when compared with the established baseline check criteria in Section 3.3 of this report.

The highest Suspended Solids (SS) level was 21.2 mg/L at WWA3 on 18 April 2006. There were 7 exceedances at WWA1, WWA2, WWA3, WWFCZ1 and WWFCZ2 on 4, 18 and 20 April 2006 when compared with the established baseline check criteria.

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

The lowest DO levels for surface & middle and bottom positions were 5.4 mg/L at WWFCZ1 and 5.6 mg/L at WWFCZ2 respectively on 6 April 2006. There was no exceedance of DO level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 7.3 NTU at WWA3 on 12 April 2006. There were 2 exceedances of Tby levels at WWA2 and WWA3 on 10 and 12 April 2006 respectively when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 17.0 mg/L at WWFCZ2 on 10 April 2006. There was no exceedance of SS level during reporting period when compared with the established baseline check criteria.

### Environmental Auditing

A total of 4 environmental site audits were conducted on a weekly basis in April 2006. No non-conformance to the environmental requirements was identified during the reporting period. The improvement actions against observations during the site audits for the Contractor included:

**Air Quality:** Regular watering during dry and windy days;

**Water quality:** Frequent clearing of mud trails and stagnant water;

**Waste Management:** Frequent clearing of construction waste and general refuse; and

**Handling of waste and chemicals:** Provision of drip tray for oil drum.

### **Waste Disposal**

A total of 89 tonnes of Construction & Demolition (C&D) waste and a total of 12,538 tonnes of C&D materials (Public Fill) were disposed of at WENT Landfills and Public Filling Area in Tuen Mun respectively in April 2006. No chemical waste was disposed of during the reporting period.

### **Complaint Records**

No environmental complaint was received during the reporting period.

### **Exceedance**

On 4 April 2006, the ET's field staff observed some muddy water seepage from the silt curtains at Seawalls A and B works areas, which was likely due to leakage from silt curtain. The CT was advised to immediately check the integrity and normal functioning of the silt curtains and review the marine works procedures to avoid such seepage recurrence, e.g. implementing precautionary measures to avoid breaking silt curtain materials, frequent checking of integrity and maintenance to ensure normal functioning, etc. The CT has immediately ceased the marine works to check the cause of seepage and mobilised underwater divers to inspect the integrity of silt curtain, then sealed and repaired the leakage area where required. The CT closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (6 April 2006) indicated resumption to normal ambient conditions. The exceedances of Tby and SS levels on 4 April 2006 were likely due to construction works of the Project.

For exceedances of Tby on 10 and 12 April 2006, no muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2 and WWA3 on these 2 days by ET's field staff. The exceedances of Tby were only marginal to the Baseline Check Criteria at these 2 monitoring locations. In addition, there were no exceedances of SS levels, which were relatively low (between 9.5 and 11.5 mg/L). Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor has been reminded to monitor the effectiveness of silt curtain and maintain the performance to ensure normal functioning.

ET's field staff observed muddy water at WWA1 and WWA3 on 18 April 2006, which was likely due to leakage from silt curtain. ET conducted further investigation on 20 and 21 April 2006. Openings were observed at ends of silt curtains and muddy water was likely leaked from these openings. The CT was advised to immediately check the integrity and normal functioning of the silt curtains. The CT immediately inspected the integrity of silt curtain, then sealed and repaired the leakage area where required. The CT closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (22, 24, 26 and 28 April 2006) indicated resumption to normal ambient conditions. The exceedances of Tby and SS levels on 18 and 20 April 2006 were likely due to construction works of the Project.

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

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

### **Environmental Licences**

No 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 (Tusen 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.

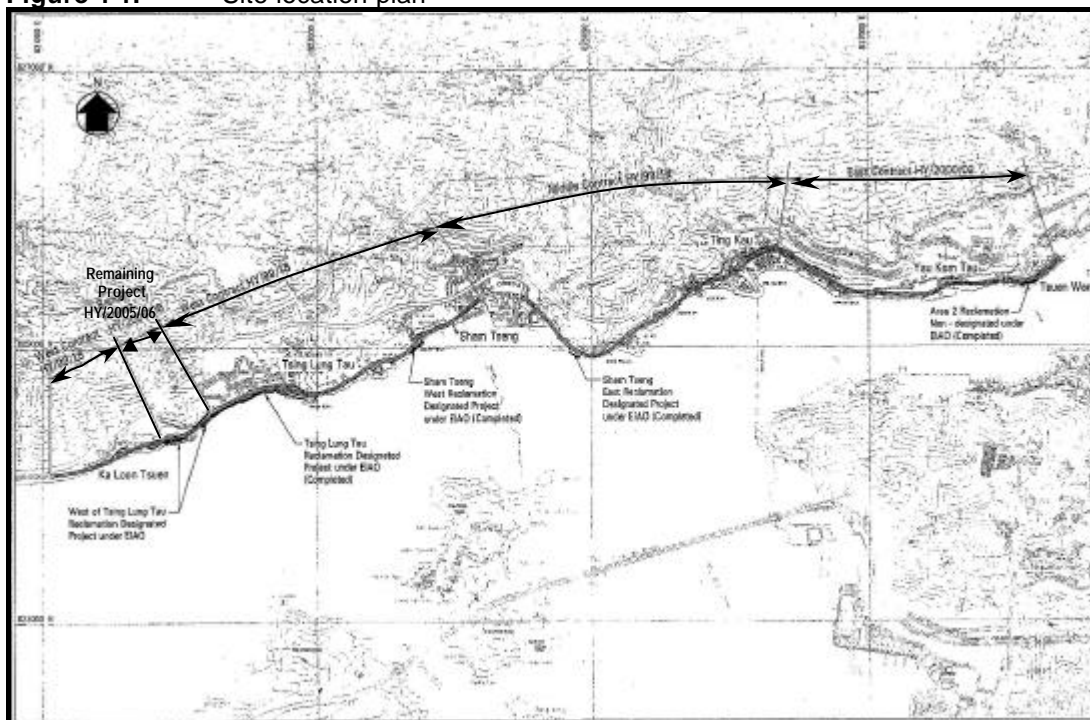
Following subsequent developments, the Route 10 project was placed under review, and Government therefore decided to implement the excised section of CPR (the Remaining Project) under the original CPR Improvement project. **Figure 1-1** shows the site location plan.

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.

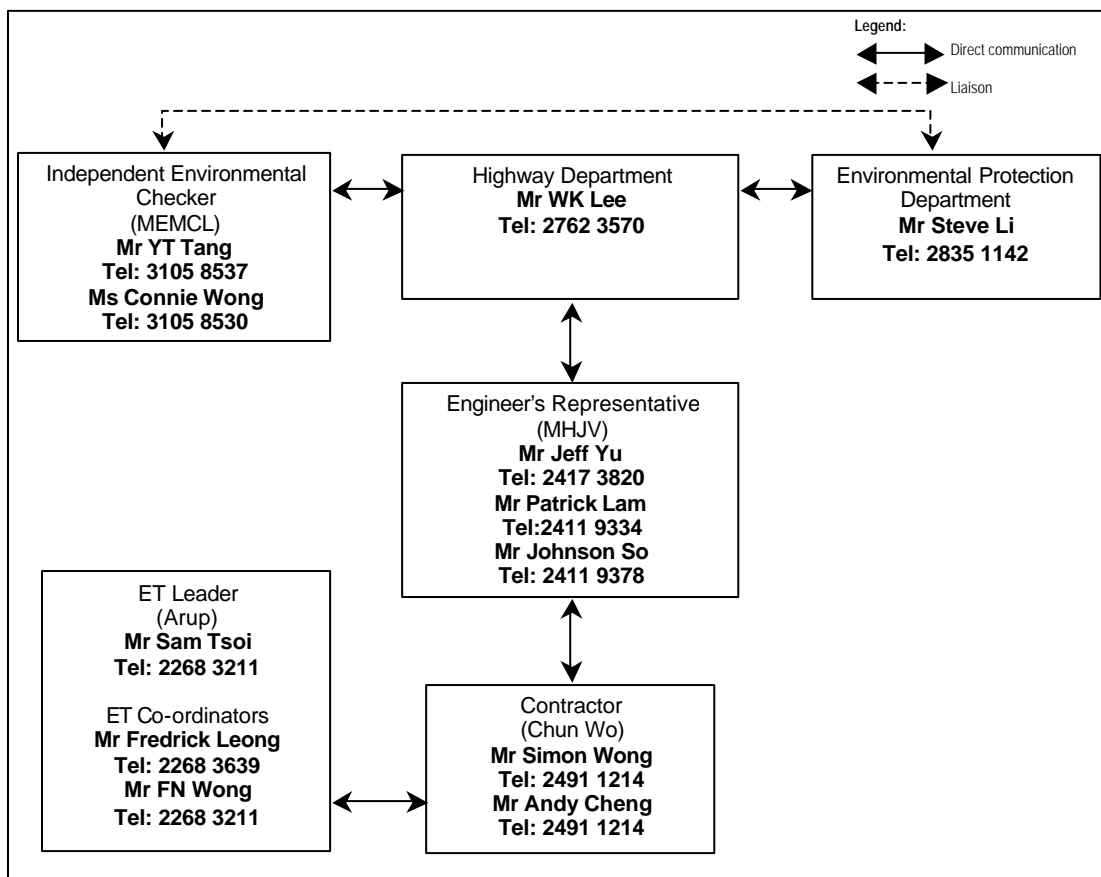
**Figure 1-1:** Site location plan



## 1.2 Project Organisation

The project organisation chart for environmental management is shown in **Figure 1.2**.

**Figure 1-2:** Project organisation chart



The Project Proponent is Highway Department; the Engineer's Representative (ER) is Mouchel Halcrow Joint Venture (MHJV); the Contractor (CT) is Chun Wo Construction & Engineering Co. Ltd; the Independent Environmental Checker (IEC) is Maunsell Environmental Management Consultants Ltd (MEMCL) and the ET leader is Arup.

The overall duties of ET Leader and the team are as follows:

- sampling, analysis and statistical evaluation of monitoring parameters with reference to the EIA study and subsequent reviews recommendations and requirements in respect of noise, dust and water quality;
- environmental site surveillance;
- audit of compliance with environmental protection and pollution prevention and control regulations;
- monitor the implementation of environmental mitigation measures;
- monitor compliance with the environmental protection clauses/specifications in the Contract;
- review construction programme and comment as necessary;
- review construction methodology and comment as necessary;
- complaint investigation, evaluation and identification of corrective measures;
- audit of the effectiveness of mitigation measures and EMS (if applicable) and recommend and implement any changes as appropriate.
- liaison with IEC on all environmental performance matters;
- advice to the CT on environmental improvement, awareness, enhancement matter, etc., on site; and
- Timely submission of the EM&A reports to the ER, IEC and DEP.

The duties of IEC include the followings:

- review and audit all aspects of the EM&A programme;
- validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- carry out random sample check and audit on monitoring data and sampling procedures, etc;
- conduct random site inspection;
- audit the EIA, subsequent reviews and Environmental Permit recommendations and requirements against the status of implementation of environmental protection measures on site.
- review the effectiveness of environmental mitigation measures and project environmental performance;
- audit the CT's construction methodology and agree the least impact alternative in consultation with ET Leader and the CT;
- check compliant cases and the effectiveness of corrective measures;
- review EM&A report submitted by the ET Leader; and
- feedback audit results to ET Leader by signing off relevant EM&A proformas.

### 1.3 Impact EM&A Requirements

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The impact environmental monitoring and audit for the Project included noise, marine water quality and environmental site audit.

### 1.4 Purpose of the Report

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The purpose of the monthly EM&A 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 second monthly EM&A report summarising the monitoring methodology, locations, periods, frequencies, results and any observation from the noise, marine water quality and environmental site audit from 1 April 2006 to 30 April 2006.

## 2 Scope of Construction Works

### 2.1 Construction Programme

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

### 2.2 Construction Activities of the Month

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The major construction activities carried out by CT in April 2006 included:

- Construction of bored pile retaining wall;
- Construction of Seawall A; and
- Construction of Seawall B.

## 3 Summary of EM&A Requirements

Marine water quality and noise monitoring at Grand Bay Villa will be conducted by an ET at all specified monitoring locations during the construction stage. Environmental site audits will also be carried out.

The monitoring schedule for April 2006 and the tentative schedule for May 2006 are attached in **Appendix B**.

### 3.1 Construction Noise

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#### 3.1.1 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.

#### 3.1.2 Monitoring Frequency

Noise measurements will be conducted on a weekly basis. The monitoring time periods, monitoring parameters and frequency are summarised in **Table 3-1**.

**Table 3-1:** 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.

3.1.3 Monitoring Location

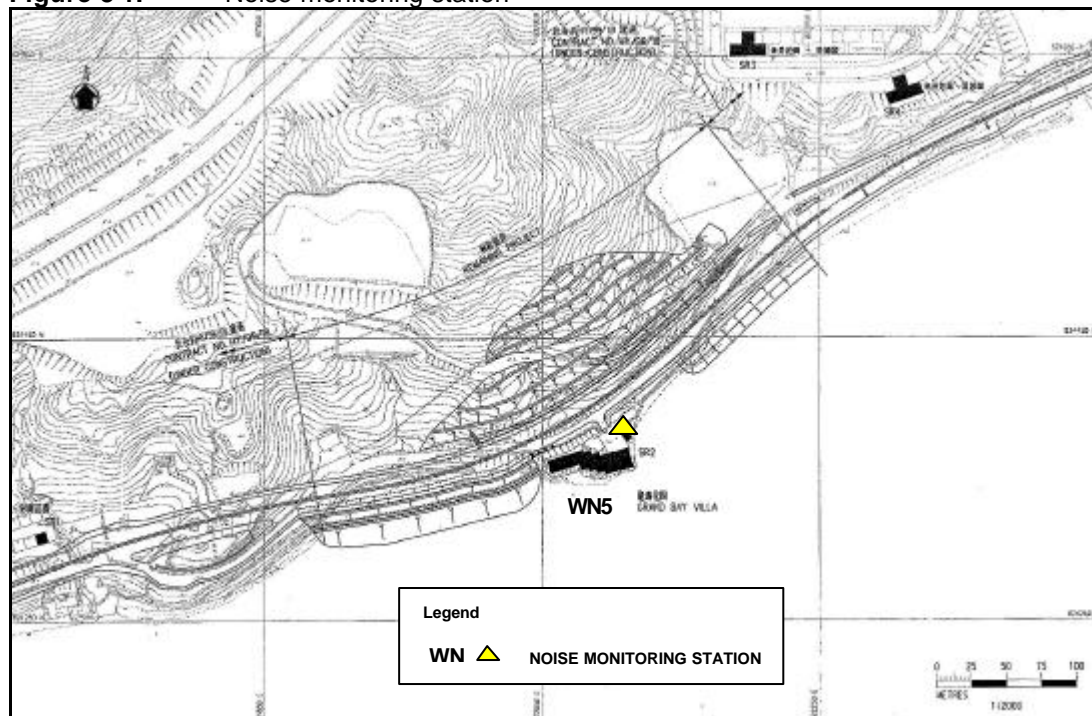
Noise monitoring will be conducted at one designated location as shown in **Figure 3-1**. The details of the noise monitoring location are given in **Table 3-2**. The measurements will be taken at a position 1m from the exterior of building façade and at a position of 1.2m above ground.

**Table 3-2:** 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 3-1:** Noise monitoring station



## 3.2 Marine Water Quality

### 3.2.1 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.

### 3.2.2 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.

### 3.2.3 Monitoring Locations

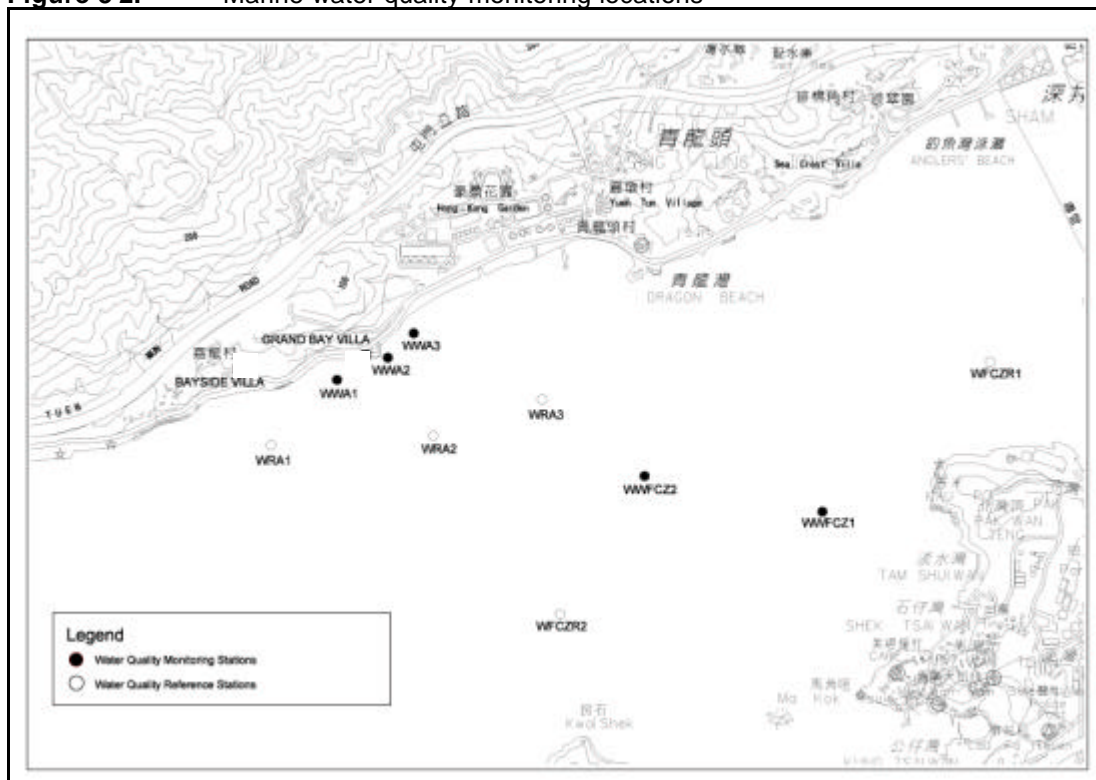
A total of 10 locations, 5 for impact and 5 for control were specified for marine water quality monitoring in accordance with the EM&A Manual, which are summarised in **Table 3-3** and shown in **Figure 3-2**.

**Table 3-3:** 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 3-2:** Marine water quality monitoring locations



### 3.3 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.

#### 3.3.1 Construction Noise

The A/L Levels for the construction noise have been established during the baseline monitoring as summarised in **Table 3-4**.

**Table 3-4:** 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 the case of exceedance of A/L Levels are summarised in the Event and Action Plan in **Table 3-5**.

**Table 3-5: 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>



### 3.3.2 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 3-6**. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event/Action Plan in **Table 3-8** 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 3-7**. 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 3-6**) 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 3-7**). 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 3-6:** 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 & middle level were all below the 5.0 mg/L.

**Table 3-7:** 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

**Table 3-8: Event/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>

### 3.4 Site Inspection and Environmental Complaint Handling

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#### 3.4.1 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.

#### 3.4.2 Site Inspection Procedures

- a) The CT and/or ER will advise the Environmental Auditor (EA) of the ET for all information on any environmental related aspects.
- b) The EA will discuss with the CT and/or ER to sort out and forecast any potential environmental impact.
- c) The EA will conduct a site walk with the CT and/or ER, particularly the areas with extensive construction works.
- d) The EA will conduct inspection for the main environmental facilities and measures such as wheel washing facilities located at site exits, water spraying truck, temporary noise barrier, and internal noise-reducing measures of the heavy equipment etc, to ensure that these environmental facilities operate normally and effectively.
- e) The EA will fill up a site inspection checklist during the site inspection for recording any special observations.
- f) The EA will conduct post-discussion with the CT and/or ER for the establishment of additional/special measures if any non-conformance is found. The completion date for such additional measures will be confirmed during the post-discussion.
- g) The EA will propose a reasonable timeframe together with the CT and/or ER, for the preparation of the proposal for remediation of environmental non-compliance.
- h) The completed site inspection checklist will be signed by the EA, the CT and/or ER, for reference and for taking action in accordance with the agreed procedures, reporting systems and time frame.

#### 3.4.3 Environmental Complaints

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:

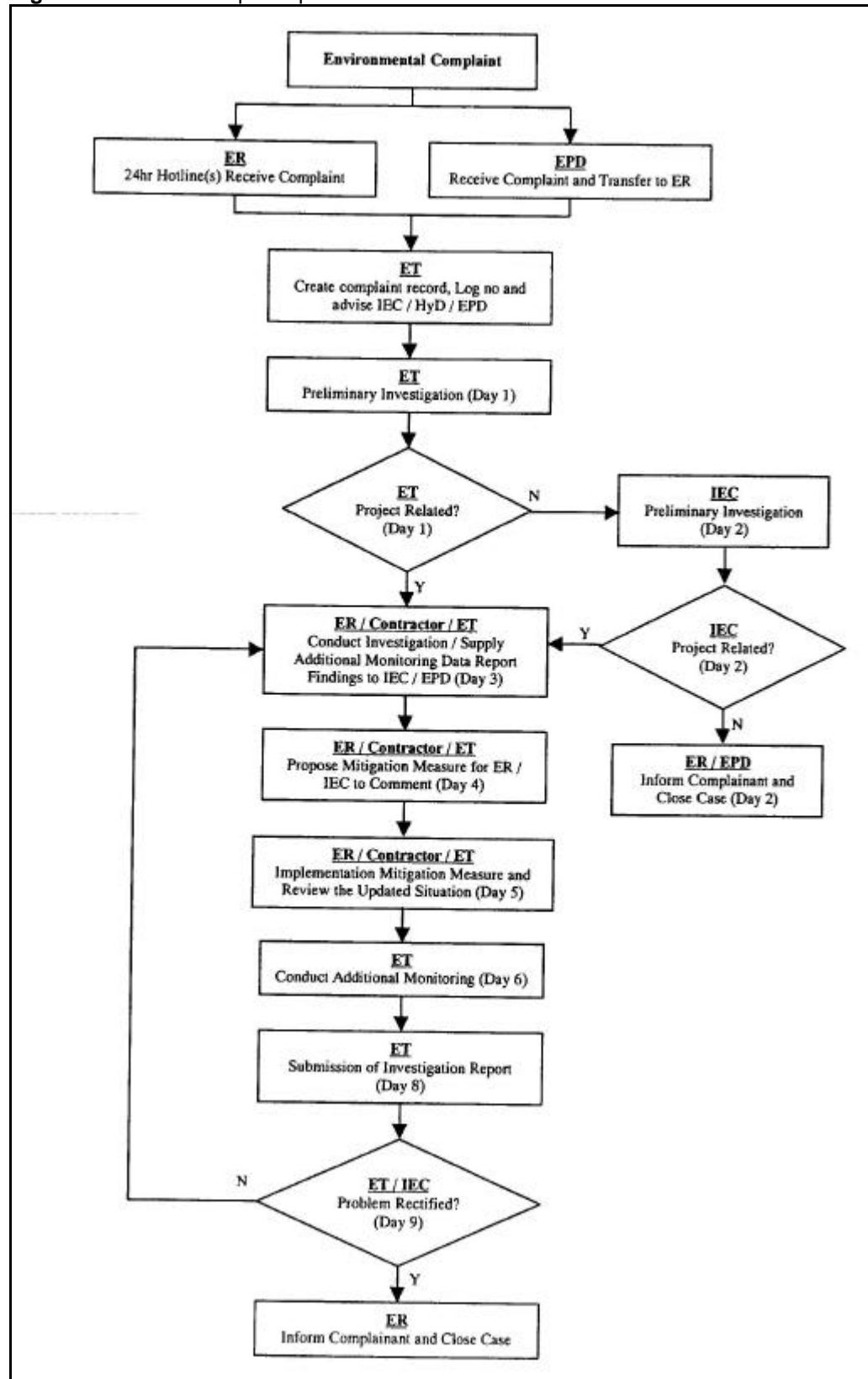
- a) The ET will record the details of the complaint and the date of receipt into the complaint database, and inform ER immediately.
- b) The ET will perform compliant investigation to determine its validity and to assess whether the source of the problem is due to work activities.
- c) The ER will instruct the CT to identify mitigation measures in consultation with the ET, if the compliant is valid and due to works.
- d) The ET will liaise with the CT on their mitigation measure proposals and implementation, if required.

- e) The ET will conduct review of the CT's response on the identified mitigation measures, and of the updated situation.
- f) The ET will submit interim report to EPD if the complaint is received via EPD. The interim report will clearly state the status of the complaint investigation and the follow-up action within the time frame assigned by EPD.
- g) The ET will undertake additional monitoring and audit to verify the situation if necessary, and ensure that any valid reason for complaint does not recur.
- h) The ET will report on the investigation results and the subsequent actions to the source of complaint for responding to the complainant. If the source of complaint is via EPD, the results will be reported within the time frame assigned by EPD.
- i) The ET will record the details of the complaint, investigation, subsequent actions and results in the monthly EM&A report.

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 **Figure 3-3** for reference.

**Figure 3-3:** Complaint procedure



## 4 Noise Monitoring

### 4.1 Monitoring Equipment

Details of the integrating sound level meters used in the noise monitoring are shown in **Table 5-1**.

**Table 5-1:** Equipment list for construction noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrating sound level meter	Rion NA-27	IEC 651 Type 1 IEC 804 Type 1	1
Windshield	Briel & Kjaer UA0237		1
Acoustical calibrator	Briel & Kjaer 4226		1
LCD wind speed indicator	Kestrel Vane Anemometer	--	1

### 4.2 Methodology

#### 4.2.1 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.

#### 4.2.2 Field Measurement

- The sound level meter and battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.
- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level ( $L_{eq}$ ),  $L_{10}$  and  $L_{90}$  were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

#### 4.2.3 Equipment Maintenance and Calibration

All sound level meters comply with the standards of IEC 651 (Fast, Slow, Impulse RMS detector tests) and IEC 804 ( $L_{eq}$  functions). The acoustical calibrator model no. 4226 complies with IEC 942.



### 4.3 Results and Observations

#### 4.3.1 Occupancy Status of Grand Bay Villa

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 Marine Water Quality Monitoring Equipment

Monitoring of Turbidity (Tby) in NTU, Dissolved Oxygen (DO) in mg/L and Suspended Solids (SS) in mg/L was carried to ensure that any deteriorating water quality would be readily detected and timely action would be taken to rectify the situation. Tby and DO were measured in-situ while SS was determined in the laboratory. A list of the marine water quality monitoring equipment is summarised in **Table 5-1**.

**Table 5-1:** Marine water quality monitoring equipment

Equipment	Manufacturer & Model No.	Qty
Handheld DO, Temperature & Salinity Meter	YSI Model 85	1
pH meter	Hanna	1
Turbidimeter	HACH 2100P	1

### 5.2 Methodology

#### 5.2.1 DO, Temperature and Salinity Measuring Equipment

The equipment to measure DO, temperature and salinity complied with the following:

- i. The instrument was a portable, weatherproof dissolved oxygen measuring instrument complete with cable and used a DC power source. It was capable of measuring:
  - A dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation;
  - A temperature of 0-45°C; and
  - A salinity level in the range of 0-40 ppt.
- ii. It had a membrane electrode with automatic temperature compensation complete with a cable.

#### 5.2.2 Turbidity Measurement Instrument

The instrument was a portable, weatherproof turbidity-measuring instrument complete with comprehensive operations manual. The equipment used a DC power source. It had a photoelectric sensor capable of measuring turbidity between 0-1000 NTU and was complete with a cable.

#### 5.2.3 SS

The following equipment was used to monitor the SS:

- i. A water sampler comprised a transparent PVC cylinder, with a capacity of not less than 2 litres and which can be effectively sealed with latex cups at both ends. The sampler had a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth.

- ii. Water samples for SS measurement were collected in high density polythene bottles, packed in ice (cooled at 4°C without being frozen) and delivered to the laboratory as soon as possible after collection.

#### 5.2.4 Water Depth Detector

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring.

#### 5.2.5 Location of the Monitoring Site

A hand-held Global Positioning System (GPS) was used during monitoring to ensure the monitoring vessel was at the correct location before taking measurements.

#### 5.2.6 Calibration and Accuracy of Instrumentation

All *in-situ* monitoring instruments were checked, calibrated and certified by a HOKLAS accredited laboratory or any other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring. Response of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring location. The calibration certificates are attached in **Appendix C**. For the on site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" was followed.

### 5.3 Results and Observations

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#### 5.3.1 Weather Conditions and Other Factors

No adverse weather conditions were recorded during the reporting period.

#### 5.3.2 Summary of Results

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. Detailed water quality monitoring results are given in **Appendix D**. Graphical presentation of the monitoring results are illustrated in **Figures 5-1 to 5-8**.

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

The lowest DO levels for surface & middle and bottom positions were 5.4 mg/L and 5.6 mg/L at WWA2 on 4 April 2006 and 26 April 2006 respectively. There was no exceedance of DO level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

The highest depth-averaged Tby level was 15.5 Nephelometric Turbidity Unit (NTU) at WWA2 on 4 April 2006. There were 5 exceedances of Tby levels at WWA1, WWA2 and WWA3 on 4, 10 and 18 April 2006 when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 21.2 mg/L at WWA3 on 18 April 2006. There were 7 exceedances of SS levels at WWA1, WWA2, WWA3, WWFCZ1 and WWFCZ2 on 4, 18 and 20 April 2006 when compared with the established baseline check criteria in Section 3.3 of this report.

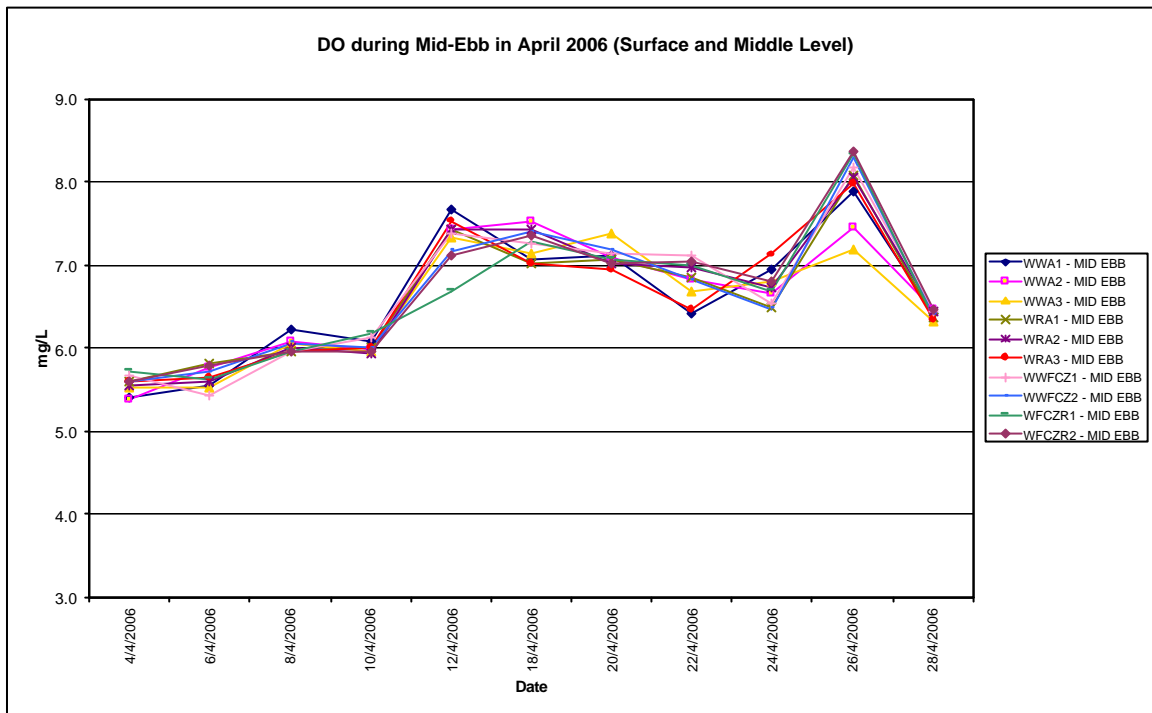
### **Summary of Mid-Flood Tide**

The lowest DO levels for surface & middle and bottom positions were 5.4 mg/L at WWFCZ1 and 5.6 mg/L at WWFCZ2 respectively on 6 April 2006. There was no exceedance of DO level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

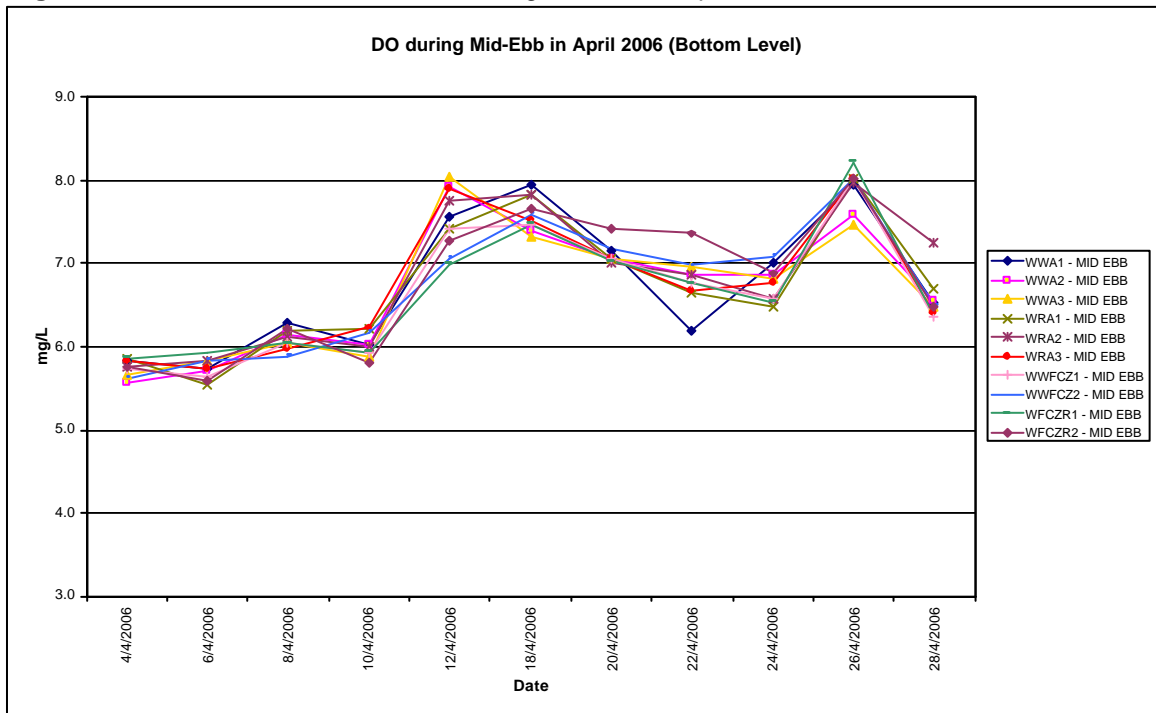
The highest depth-averaged Tby level was 7.3 NTU at WWA3 on 12 April 2006. There were 2 exceedances of Tby levels at WWA2 and WWA3 on 10 and 12 April 2006 respectively when compared with the established baseline check criteria in Section 3.3 of this report.

The highest SS level was 17.0 mg/L at WWFCZ2 on 10 April 2006. There were no exceedance of SS level during reporting period when compared with the established baseline check criteria in Section 3.3 of this report.

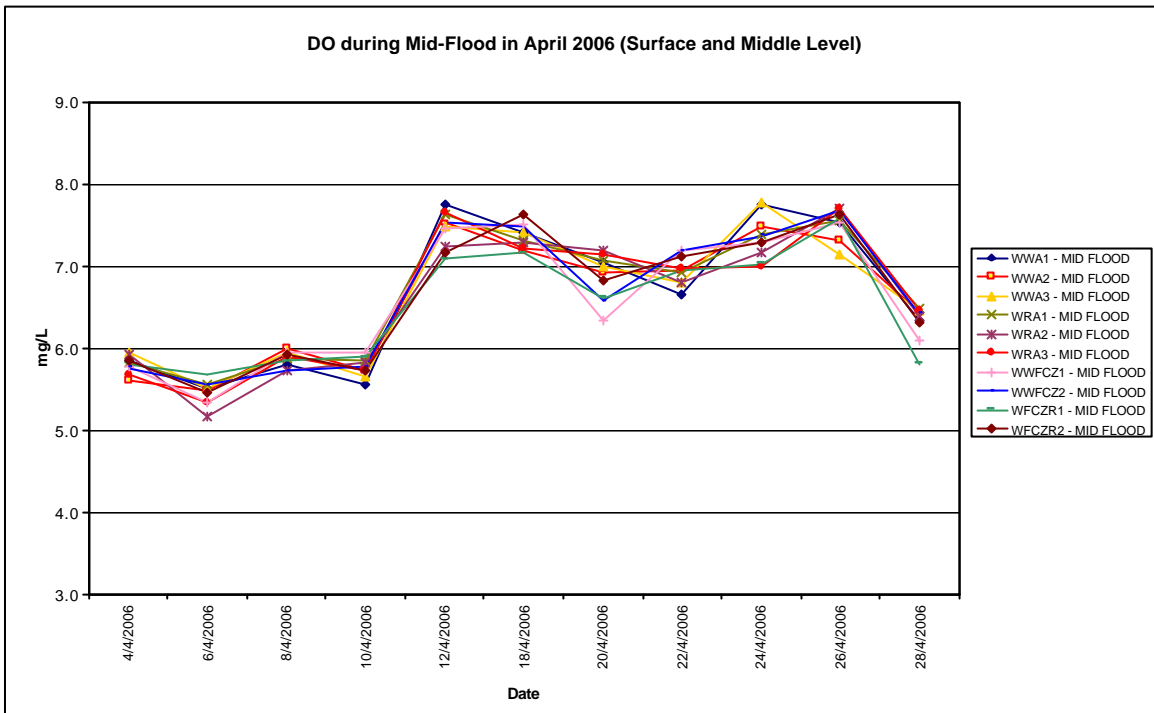
**Figure 5-1:** DO levels at surface and mid-depth during mid-ebb in April 2006



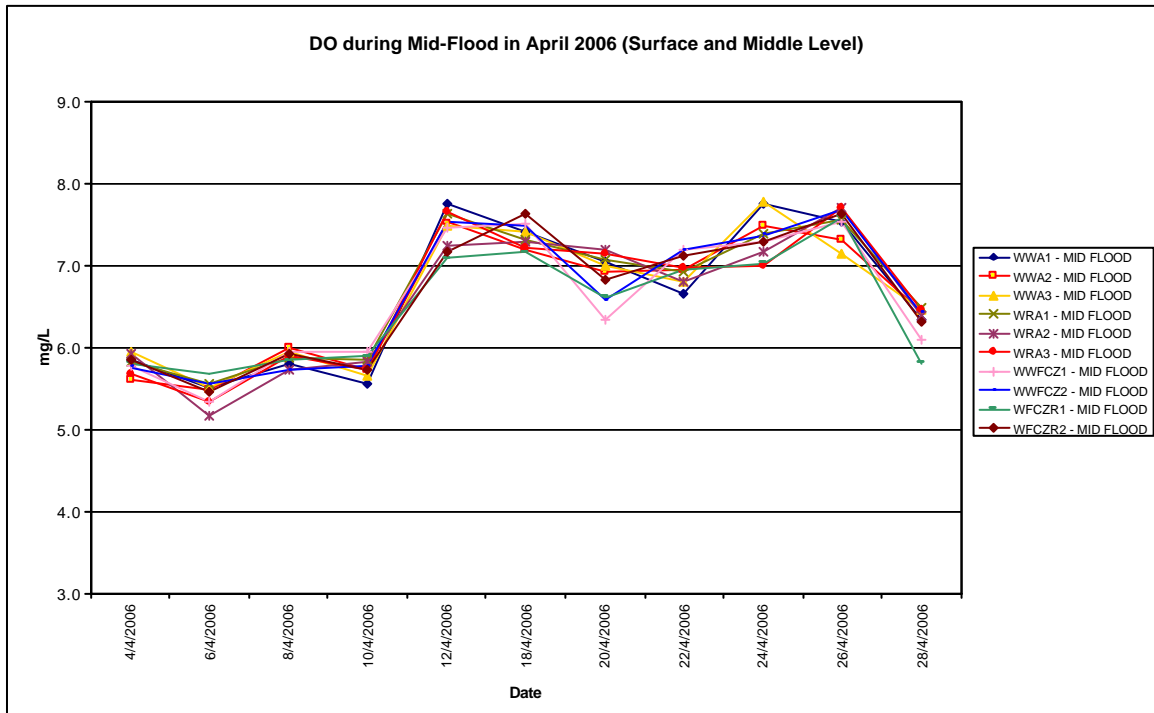
**Figure 5-2:** DO levels at bottom during mid-ebb in April 2006



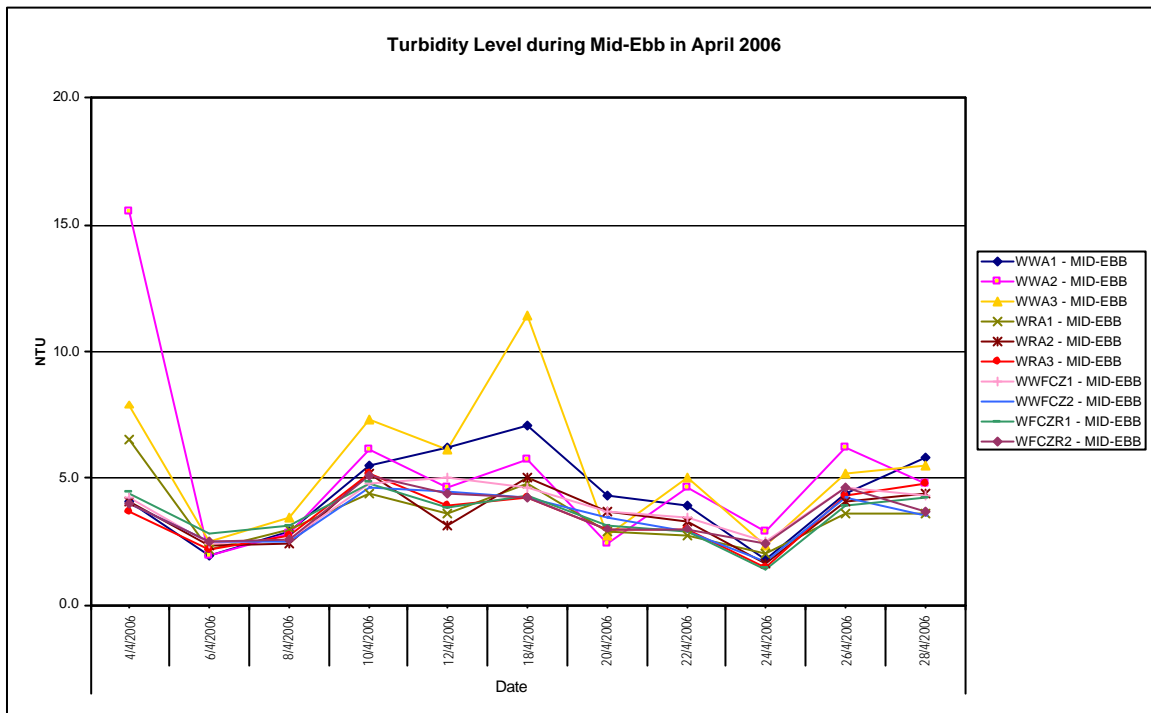
**Figure 5-3:** DO levels at surface and mid-depth during mid-flood in April 2006



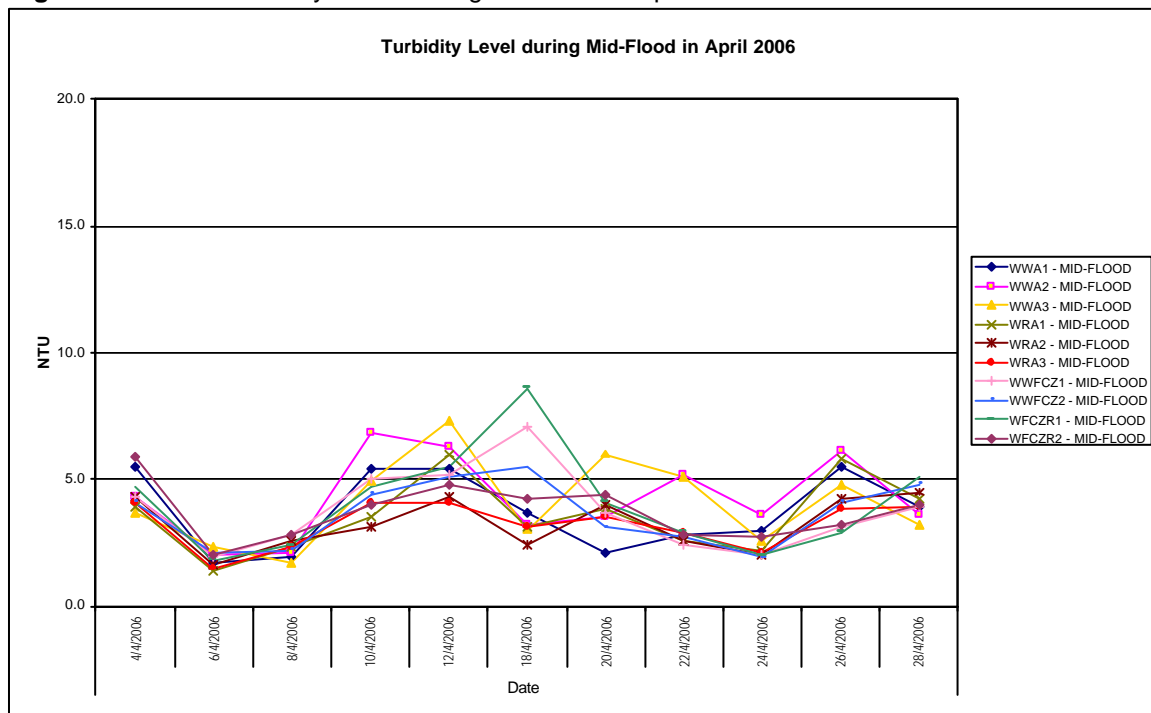
**Figure 5-4:** DO levels at bottom during mid-flood in April 2006



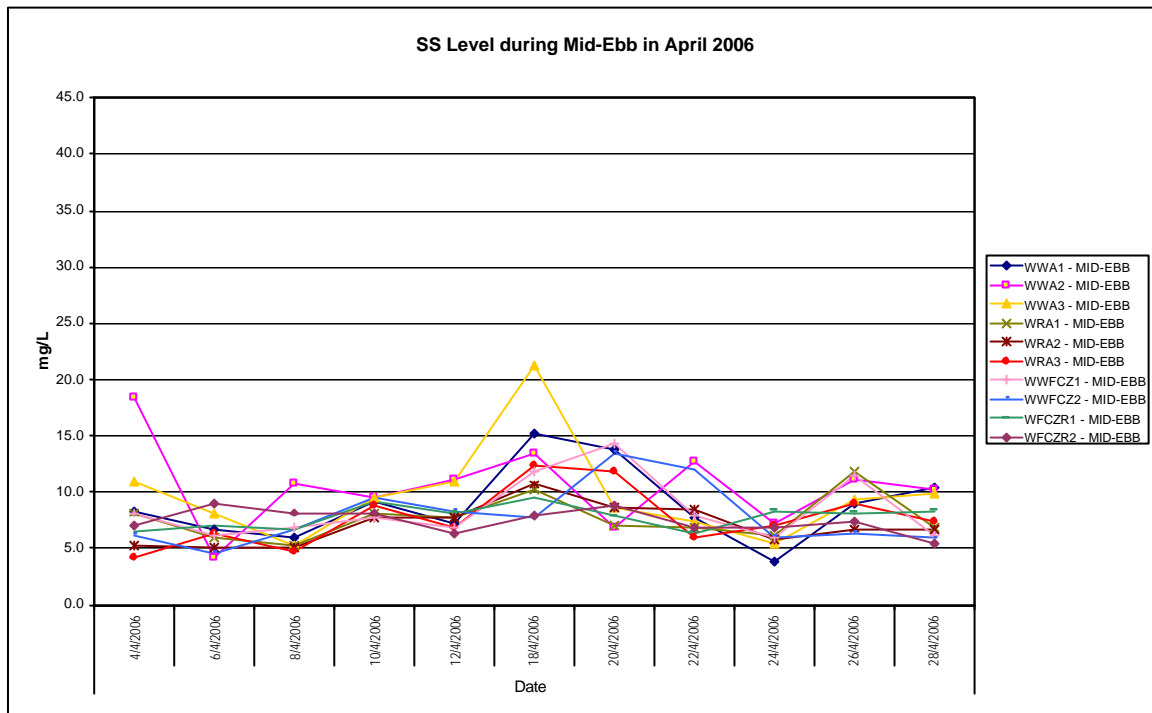
**Figure 5-5:** Turbidity levels during mid-ebb in April 2006



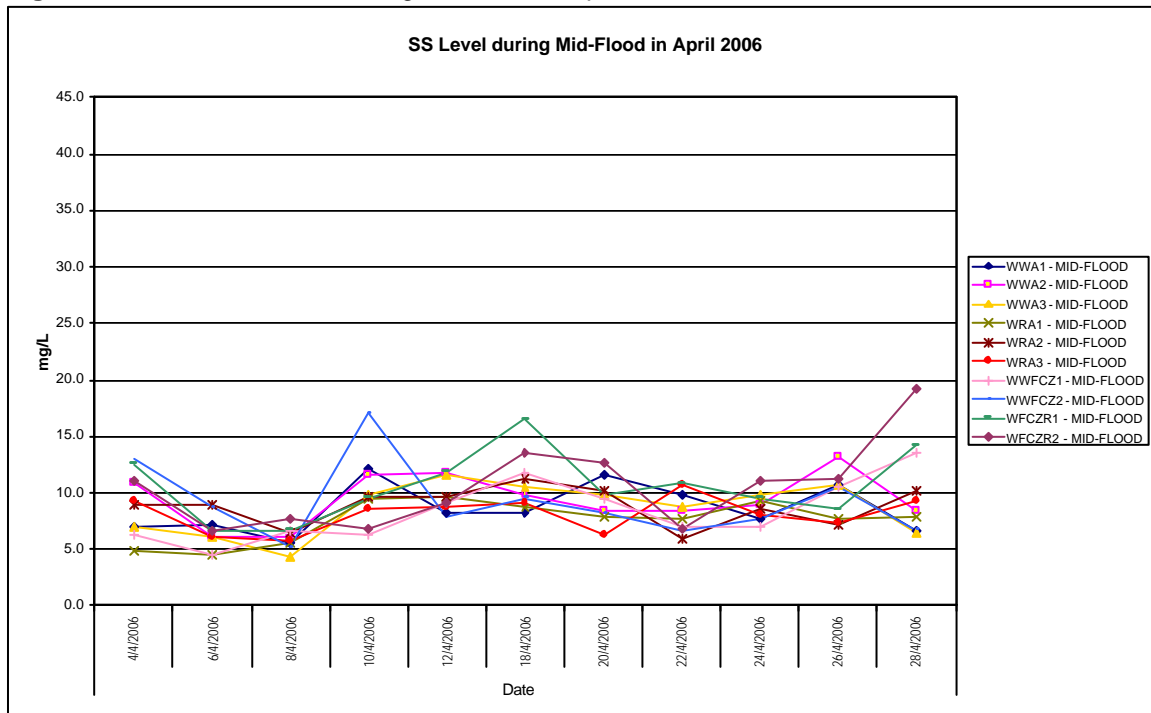
**Figure 5-6:** Turbidity levels during mid-flood in April 2006



**Figure 5-7:** SS levels during mid-ebb in April 2006



**Figure 5-8:** SS levels during mid-flood in April 2006



## 6 Site Inspection, Waste Disposal, environmental complaints, environmental licenses and non-compliance records

### 6.1 Site Audit Findings

Four weekly environmental site audits were carried out on 6, 12, 21 and 27 April 2006. The findings of the site audits are summarised in **Table 6-1**.

**Table 6-1:** Findings of weekly environmental site audit in April 2006

Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
06 April 2006 (WTLT 011)	1. Excavation was observed within the site.	Contractor was reminded to conduct dust suppression measures.	Agreed with the ET's advice.	12 April 2006
	2. Oil drum was observed without driptray within the carpark area..	Contractor was reminded to provide driptray and proper storage of oil in designated storage area.	Agreed with the ET's advice.	
	3. Silt curtain was observed loosen at one end (near carpark area).	Contractor was reminded to provide proper maintenance.	Agreed with the ET's advice.	
	4. Classification of construction waste was observed within the site..	Contractor was reminded to conduct regular clearing of classified waste to avoid excessive accumulation.	Agreed with the ET's advice.	
12 April 2006 (WTLT 012)	1. Haul road was observed dry and dusty within carpark area.	Contractor was reminded to maintain regular watering during dry and windy days and dusty work.	Agreed with the ET's advice.	21 April 2006
	2. Generator was observed without driptray within seaside of the marine works area.	Contractor was reminded to provide driptray to avoid spillage of oil into sea.	Agreed with ET's advice.	
	3. Scattered soil, which arose from loading of the excavated materials, was observed on the Castle Peak Road.	Contractor was reminded to conduct regular and adequate clearing of the soil from Castle Peak Road.	Agreed with ET's advice.	
21 April 2006 (WTLT 013)	1. One oil drum was observed without driptray at carpark area.	Contractor was reminded to provide driptray and proper storage of oil in designated storage area..	Agreed with the ET's advice.	27 April 2006
	2. Exposed areas and haul road within the carpark area was observed dry and dusty.	Contractor was reminded to maintain regular watering during dry and windy days and dusty work.	Agreed with the ET's advice.	



Date of Issue Raised	Observation	Advice from EA	CT's Response / Environmental Outcomes	Closing Date
	3. Loading of dredged sediment to vehicles was observed.	Contractor was reminded to cover the vehicles with tarpaulin sheet.	Agreed with the ET's advice.	
	4. Turbid water and floating waste were observed within the silt curtain of Seawall A and B.	Contractor was reminded to conduct regular clearing of the floating waste and maintenance of the silt curtain.	Agreed with the ET's advice.	
	5. Oil stain was observed on the haul road near Seawall B. The source was found to be a defected excavator, which was labelled 'under repair and not to be used'.	Contractor was reminded to clear the oil stain.	Agreed with the ET's advice.	
27 April 2006 (WTLT 014)	1. Tarpaulin sheet, which was used for covering water treatment plant facility, was observed blown up on the corners.	Contractor was reminded to provide proper maintenance to avoid water ponding during rainy season.	Agreed with the ET's advice.	03 May 2006
	2. Silt curtain at one end of Seawall A was opened for surveying works.	Contractor was reminded to re-instate the enclosed silt curtain upon completion of the surveying works.	Agreed with the ET's advice.	
	3. A fallen tree was observed on the slope beside Castle Peak Road near Seawall B.	Contractor was reminded to clear the tree.	Agreed with the ET's advice.	
	4. An oil drum was observed without dripray at carpark area.	Contractor was reminded to provide dripray.	Agreed with the ET's advice.	
	5. The drain of dripray was observed opened.	Contractor was reminded to block or close the openings to avoid oil leakage.	Agreed with the ET's advice.	

## 6.2 Waste Disposal

Disposal of waste material in the reporting period generally complied with the corresponding waste disposal requirements. The waste disposal quantity in the reporting month is summarised in **Table 6-2**.

**Table 6-2:** Waste disposal quantity in April 2006

Type of waste or material		Disposal at	No. of loads or quantities
C&D waste		WENT Landfill	89 tonnes
C&D material		Public Filling Area in Tuen Mun	12,538 tonnes
Chemical waste	Spent lube oil	Collected by licensed collector	0

With reference to MHJV's letters (Ref.: HY/2005/06/C15/300-0278 dated 12 April 2006 and HY/2005/06/C15/300-0327 dated 27 April 2006), there were incidents of dump trucks rejected by the Public Fill Reception Facility (PFRF) at Tuen Mun Area 38 on 11 April 2006 and 21 April 2006 and the loaded C&D materials were then disposed of at the Construction Waste Sorting Facilities. The Contractor carried out investigation and revealed that the loaded C&D materials were mixed with general refuse that was unsuitable for delivery at PFRF. The Contractor has taken the following action to prevent the recurrence of such incidents:

- Provision of on-site sorting of C&D materials;
- Ensuring no waste disposal at the Construction Waste Sorting Facilities at Tuen Mun Area 38;
- Truck drivers are reminded to return the site if the loaded C&D materials were rejected by PFRF; and
- C&D materials leaving the site shall be inspected thoroughly to ensure no mixing with general refuse.

### 6.3 Complaint Record

There was no environmental complaint received in April 2006.

### 6.4 Exceedance

There were exceedances of Tby and SS levels for marine water quality in April 2006 when compared with baseline check criteria. These exceedances levels are summarised in **Table 6.3**.

**Table 6-3:** Summary of exceedances of marine water quality monitoring in April 2006

Date	Monitoring Station	Monitoring Data		Baseline Check Level	
		SS	Tby	SS	Tby
<u>Mid-Ebb</u>					
4-April	WWA2	18.3 (5.2)	15.5 (4.1)	13.0	6.5
	WWA3	---	7.9 (3.7)		
10-April	WWA3	---	7.3 (5.2)		
18-April	WWA1	15.2 (10.2)	7.1 (4.8)		
	WWA2	13.3 (10.7)	---		
	WWA3	21.2 (12.3)	11.4 (4.2)		
20-April	WWA1	13.8 (7.0)	---		
	WWFCZ1	14.3 (7.8)	---		
	WWFCZ2	13.5 (8.8)	---		
<u>Mid-flood</u>					
10-April	WWA2	---	6.8 (3.1)	17.0	6.6
12-April	WWA3	---	7.3 (4.1)		

\* ( ) represents level at control station

On 4 April 2006, the ET's field staff observed some muddy water seepage from the silt curtains at Seawalls A and B works areas, which was likely due to leakage from silt curtain. The CT was advised to immediately check the integrity and normal functioning of the silt curtains and review the marine works procedures to avoid such seepage recurrence, e.g. implementing precautionary measures to avoid breaking silt curtain materials, frequent checking of integrity and maintenance to ensure normal functioning, etc. The CT has immediately ceased the marine works to check the cause of seepage and mobilised underwater divers to inspect the integrity of silt curtain, then sealed and repaired the leakage area where required. The CT closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (6 April 2006) indicated resumption to normal ambient conditions. The exceedances of Tby and SS levels on 4 April 2006 were likely due to construction works of the Project.

For exceedances of Tby on 10 and 12 April 2006, no muddy water and abnormal activities which would likely cause deterioration of water quality were observed at WWA2 and WWA3 on these 2 days by ET's field staff. The exceedances of Tby were only marginal to the Baseline Check Criteria at these 2 monitoring locations. In addition, there were no exceedances of SS levels, which were relatively low (between 9.5 and 11.5 mg/L). Hence, the exceedances were unlikely due to the construction works of the Project. Nevertheless, the Contractor has been reminded to monitor the effectiveness of silt curtain and maintain the performance to ensure normal functioning.

ET's field staff observed muddy water at WWA1 and WWA3 on 18 April 2006, which was likely due to leakage from silt curtain. ET conducted further investigation on 20 and 21 April 2006. Openings were observed at ends of silt curtains and muddy water was likely leaked from these openings. The CT was advised to immediately check the integrity and normal functioning of the silt curtains. The CT immediately inspected the integrity of silt curtain, then sealed and repaired the leakage area where required. The CT closely monitored the effectiveness of silt curtain and maintained the performance to ensure normal functioning. With the remedial work implemented, the subsequent marine water quality monitoring data (22, 24, 26 and 28 April 2006) indicated resumption to normal ambient conditions. The exceedances of Tby and SS levels on 18 and 20 April 2006 were likely due to construction works of the Project.

## 6.5 Notification of Summons and Successful Prosecution

No notification of summons and prosecution was received in April 2006.

## 6.6 Environmental Licenses

A summary of the valid environmental licenses is given in **Table 6-4**. There was no environmental license granted during the reporting period.

**Table 6-4:** Summary of valid environmental licences in April 2006

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

## 7 Conclusions

The construction phase of the Project was commenced on 28 February 2006. The EM&A programme has been implemented since then, including marine water quality monitoring and environmental site audits. Noise monitoring at Grand Bay Villa was temporarily suspended as these premises were vacant with no resident.

Exceedances of marine water quality were detected from the monitoring data, which triggered the Event and Action Plan for remedial action. With the remedial work implemented in progress, the subsequent results of marine water quality monitoring indicated resumption of normal ambient conditions was achieved.

No complaint, summons or prosecution related to environmental issues was received during the reporting month.

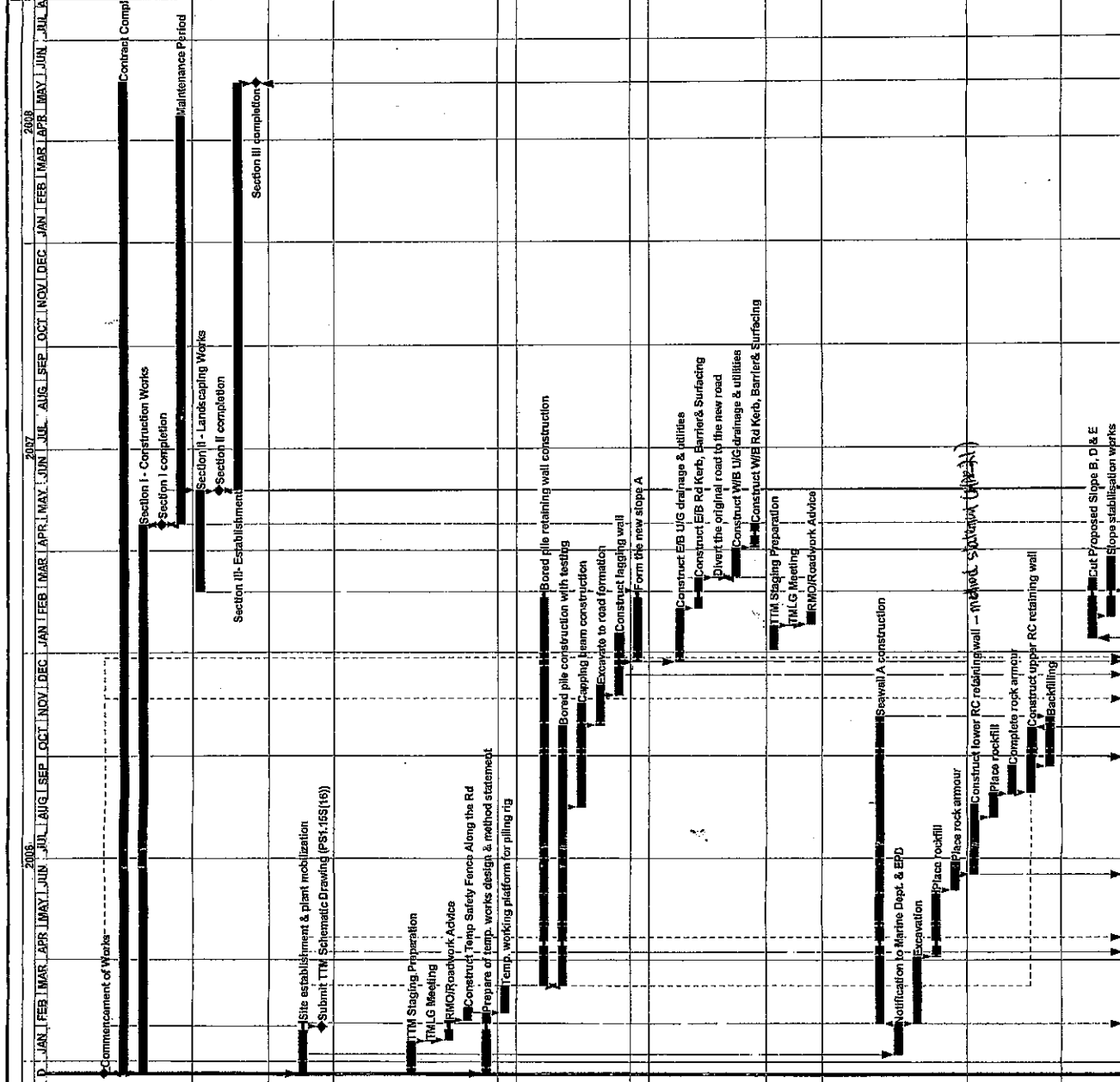
Weekly environmental site audit was carried out during the reporting month. The major environmental concerns were related to air quality, water quality, waste management and handling of chemical waste.

## 8 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  
**Construction  
programme**

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Activity ID	Activity Description	Orig Dur	%	Early Start	Early Finish	Total Float
<b>GENERAL</b>						
<b>KEY DATES</b>						
KD0500	Commencement of Works	0	0	02/12/05		
KD1000	Contract Completion Dates	885	0	21/12/05*	24/05/08	
KD1100	Section I - Construction Works	400	0	21/12/05	24/04/07*	
KD1200	Section I completion	0	0	24/04/07		
KD1300	Maintenance Period	365	0	25/04/07	23/04/08	
KD1400	Section II - Landscaping Works	90	0	24/02/07	24/05/07	
KD1500	Section II completion	0	0	24/05/07		
KD1600	Section III - Establishment	365	0	25/05/07	23/05/08	
KD1700	Section III completion	0	0	23/05/08		
<b>PRELIMINARIES</b>						
P1000	Site establishment & plant mobilization	40	0	21/12/05	05/02/06	
P1010	Submit T.M. Schematic Drawing (P51, 155(16))	0	0		31/01/06	
<b>Area 4 Construction (Ch2+030 to Ch2+150)</b>						
<b>Bored Pile Retaining Wall Construction</b>						
<b>Pre-construction</b>						
4BR0100	TTM Staging Preparation	23	0	21/12/05	19/01/06	
4BR0110	TTM Staging Meeting	1	0	19/01/06	19/01/06	
4BR0120	RM/O/Roadwork Advice	10	0	20/01/06	06/02/06	
4BR0195	Construct Temp Safety Fence Along the Rd	11	0	07/02/06	18/02/06	
4BR0200	Prepare of temp. works design & method statement	40	0	21/12/05	13/02/06	
4BR0300	Temp. working platform for piling rig	20	0	14/02/06	08/03/06	
<b>Construction</b>						
4BR1000	Bored pile retaining wall construction	283*	0	09/03/06	24/02/07	
4BR1500	Bored pile construction with testing	190	0	09/03/06	27/10/06	
4BR1600	Capping beam construction	75	0	17/08/06	15/11/06	
4BR1700	Excavate to road formation	30	0	28/10/06	02/12/06	
4BR1800	Construct lagging wall	45	0	23/11/06	18/01/07	
4BR2000	Form the new slope A	47	0	23/12/06	24/02/07	
<b>ROADWORK CONSTRUCTION</b>						
4RW4100	Construct EB U/G drainage & utilities	38	0	23/12/06	08/02/07	
4RW4110	Construct EB Rd Kerb, Barrier & Surfacing	18	0	03/02/07	07/03/07	
4RW4500	Divert the original road to the new road	1	0	09/03/07	09/03/07	
4RW4500	Construct W/S U/G drainage & utilities	21	0	09/03/07	02/04/07	
4RW4610	Construct W/S Rd Kerb, Barrier & Surfacing	15	0	03/04/07	24/04/07	
4RW4620	TTM Staging Preparation	19	0	03/01/07	24/01/07	
4RW4630	TTM Staging Meeting	1	0	25/01/07	25/01/07	
4RW4640	RM/O/Roadwork Advice	10	0	28/01/07	08/02/07	
<b>Area 3 Construction (Ch1+825 to Ch2+030)</b>						
<b>Seawall A Construction</b>						
3SWA0500	Seawall A construction	223*	0	04/02/06	03/11/06	
3SWA0600	Notification to Marine Dept. & EPD	28	0	07/01/06	03/02/06	
3SWA1000	Excavation	50	0	04/02/06	03/04/06	
3SWA1100	Place rock armour	45	0	04/04/06	02/05/06	
3SWA1200	Place rock armour	21	0	03/06/06	27/06/06	
3SWA1300	Construct lower RC retaining wall	55	0	18/06/06	19/08/06	
3SWA1400	Place rockfill	20	0	07/08/06	28/08/06	
3SWA1500	Complete rock armour	22	0	29/08/06	22/09/06	
3SWA1600	Construct upper RC retaining wall	47	0	03/08/06	23/10/06	
3SWA1700	Backfilling	34	0	22/09/06	03/11/06	
<b>SLOPE WORKS</b>						
3SW1000	Cut Proposed Slope B, D & E	40	0	13/01/07	06/03/07	
3SW2000	Slope stabilisation works	40	0	02/02/07	28/03/07	

Sheet 1 of 3

Chun Wo Construction & Engineering Co., Ltd.  
Contract No. HW2005/06  
Caslia Peak Road Improvement West of Tsing Lung Tau  
Initial Construction Programme Rev. B dated 14-Feb-06

Start Date	End Date	Activity	Early Bar
21/12/05	21/12/05	Programme Bar	
21/12/05	15/02/06 09:11	Critical Activity	

Date: 05/01/06  
Rev A Initial Programme  
14/02/06  
Rev B Initial Programme

Checked: \_\_\_\_\_  
Approved: \_\_\_\_\_







Appendix B  
**Monitoring schedule for  
April and May 2006**

### Environmental Monitoring and Audit Schedule - April 2006

Note 1: MW denotes Marine Water Quality monitoring

Apr-2006						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

### Tentative Environmental Monitoring and Audit Schedule - May 2006

Note 1: MW denotes Marine Water Quality monitoring

May-2006						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
7	1	2	3 Site Inpsection	4	5	6
	8	9 MW	10 Site Inpsection	11 MW	12	13 MW
14	15 MW	16	17 MW	18	19 MW	20
21	22	23 MW	24 Site Inpsection	25 MW	26	27 MW
28	29 MW	30 MW	31			

Appendix C

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**Calibration certificates  
of marine water  
monitoring equipment**



## CALIBRATION REPORT

Client : OVE ARUP & PARTNERS H.K. LTD.  
Address : Level 5 Festival Walk,  
80 Tat Chee Avenue,  
Kowloon Tong,  
Kowloon.

Report No. : CR 000072  
Page No. : 1 of 5  
Issue Date : 20/02/2006

Received Date : 16/02/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 18/02/2006

### Calibration Results:

Item : YSI Model 85-10 FT Handheld Salinity, Conductivity & Temperature Instrument

Serial No. : 02D1076 AB

Calibration Method : APHA 18e 2520 A & B

Date of Calibration : 16/02/2006

Results: :

#### Salinity

Expected Reading (ppt)	Recorded Reading (ppt)
0	0
7.4	7.3
15	14.4
35	33.8
39.3	37.7

Approval Signatory:



Environmental Management Division

## CALIBRATION REPORT

Client : OVE ARUP & PARTNERS H.K. LTD.  
Address : Level 5 Festival Walk,  
80 Tat Chee Avenue,  
Kowloon Tong,  
Kowloon.

Report No. : CR 000072  
Page No. : 2 of 5  
Issue Date : 20/02/2006

Received Date : 16/02/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 18/02/2006

### Calibration Results:

Item : YSI Model 85 Handheld Salinity, Conductivity & Temperature Instrument

Serial No. : 02D1076 AB

Calibration Method : In house method

Date of Calibration : 17/02/2006

Results :

#### Temperature

Expected Reading (°C)	Recorded Reading (°C)
10.0	9.5
20.0	19.8
30.0	29.5
40.0	39.5

Approval Signatory:



## CALIBRATION REPORT

Client : OVE ARUP & PARTNERS H.K. LTD.  
Address : Level 5 Festival Walk,  
80 Tat Chee Avenue,  
Kowloon Tong,  
Kowloon.

Report No. : CR 000072  
Page No. : 3 of 5  
Issue Date : 20/02/2006

Received Date : 16/02/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 18/02/2006

### Calibration Results:

Item : YSI Model 85 Handheld Salinity, Conductivity & Temperature Instrument  
Serial No. : 99G0526  
Calibration Method : APHA 18e 4500-O A, B, C & D  
Date of Calibration : 16/02/2006  
Results: :

#### Dissolved Oxygen

Expected Reading (mg/L)	Recorded Reading (mg/L)
2.90	3.10
5.00	5.14
6.70	6.88
7.70	7.90
8.60	8.74

Approval Signatory:



## CALIBRATION REPORT

Client : OVE ARUP & PARTNERS H.K. LTD.  
Address : Level 5 Festival Walk,  
80 Tat Chee Avenue,  
Kowloon Tong,  
Kowloon.

Report No. : CR 000072  
Page No. : 4 of 5  
Issue Date : 20/02/2006

Received Date : 16/02/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 18/02/2006

### Calibration Results:

Item : HACH 2100P Turbidimeter

Serial No. : 011100024354

Calibration Method : APHA 18e 2130 B

Date of Calibration : 16/02/2006

Results: :

#### Turbidity

Expected Reading (NTU)	Recorded Reading (NTU)
0	0
2	2.18
4	4.38
16	16.8
40	41.3
80	83.4

Approval Signatory:





## CALIBRATION REPORT

Client : OVE ARUP & PARTNERS H.K. LTD.  
Address : Level 5 Festival Walk,  
80 Tat Chee Avenue,  
Kowloon Tong,  
Kowloon.

Report No. : CR 000072  
Page No. : 5 of 5  
Issue Date : 20/02/2006

Received Date : 16/02/2006  
Approved Signatory : Grace Ting  
Remarks :

Completion Date : 18/02/2006

### Calibration Results:

Item : HANNA instrument HI 98128 membrane pH meter  
Serial No. : 1377140  
Calibration Method : In house method  
Date of Calibration : 17/02/2006  
Results: :

#### pH

Expected Reading (pH unit)	Recorded Reading (pH unit)
4	4.50
7	7.65
10	10.75

Approval Signatory:

Appendix D  
**Marine water quality  
monitoring results**

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Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
1	WWA1	S	MID-EBB	4-Apr-06	16:28	8.00	21.9	5.35	5.29	5.41	81.3	79.9	8.0	29.4	3.0	3.5	4.1	6.0	8.3
2	WWA1	M	MID-EBB	4-Apr-06			21.5	5.53	5.47		84.8	83.1	8.0	30.1	4.6	4.2		6.5	
3	WWA1	B	MID-EBB	4-Apr-06			21.3	5.82	5.83		76.2	75.9	8.0	30.4	4.9	4.6		12.5	
4	WWA2	S	MID-EBB	4-Apr-06	16:20	8.00	21.6	5.10	5.03	5.38	72.7	72.0	8.0	30.3	8.0	7.8	15.5	11.0	18.3
5	WWA2	M	MID-EBB	4-Apr-06			21.5	5.74	5.63		86.4	84.4	8.0	30.3	17.6	17.4		23.0	
6	WWA2	B	MID-EBB	4-Apr-06			21.4	5.61	5.55		84.5	83.0	8.0	30.3	20.6	21.5		21.0	
7	WWA3	S	MID-EBB	4-Apr-06	16:10	7.00	22.1	5.41	5.40	5.52	77.4	76.7	8.0	30.4	10.8	10.5	7.9	16.0	11.0
8	WWA3	M	MID-EBB	4-Apr-06			21.8	5.67	5.59		86.2	84.7	8.0	30.5	6.2	6.1		7.5	
9	WWA3	B	MID-EBB	4-Apr-06			21.5	5.69	5.65		83.2	82.2	8.0	30.4	6.8	7.1		9.5	
10	WRA1	S	MID-EBB	4-Apr-06	16:38	24.00	21.2	5.58	5.52	5.61	84.0	82.5	8.0	30.4	4.9	5.0	6.5	5.5	8.2
11	WRA1	M	MID-EBB	4-Apr-06			21.0	5.69	5.63		83.9	82.7	8.0	30.7	6.5	6.4		10.0	
12	WRA1	B	MID-EBB	4-Apr-06			20.9	5.88	5.82		84.7	83.6	8.0	30.8	8.4	7.8		9.0	
13	WRA2	S	MID-EBB	4-Apr-06	16:48	34.00	21.2	5.53	5.47	5.54	83.3	81.6	8.0	30.4	4.3	4.4	4.1	5.0	5.2
14	WRA2	M	MID-EBB	4-Apr-06			21.1	5.60	5.54		86.3	84.8	8.0	30.6	4.3	4.4		4.5	
15	WRA2	B	MID-EBB	4-Apr-06			20.9	5.80	5.74		84.0	83.1	8.0	30.5	3.7	3.8		6.0	
16	WRA3	S	MID-EBB	4-Apr-06	16:58	28.00	21.4	5.79	5.75	5.61	85.2	83.7	8.0	30.1	2.6	2.5	3.7	5.0	4.2
17	WRA3	M	MID-EBB	4-Apr-06			20.9	5.48	5.41		81.3	80.3	8.0	30.6	4.3	4.4		3.0	
18	WRA3	B	MID-EBB	4-Apr-06			20.8	5.86	5.82		84.5	83.5	8.0	30.6	4.2	4.3		4.5	
19	WWFCZ1	S	MID-EBB	4-Apr-06	17:15	30.00	21.6	5.72	5.68	5.66	86.7	85.3	8.0	30.1	3.7	3.6	4.2	8.5	8.2
20	WWFCZ1	M	MID-EBB	4-Apr-06			21.1	5.64	5.58		85.1	83.5	8.0	3.5	4.5	4.3		6.5	
21	WWFCZ1	B	MID-EBB	4-Apr-06			20.9	5.77	5.71		84.9	83.8	8.0	30.8	4.5	4.5		9.5	
22	WWFCZ2	S	MID-EBB	4-Apr-06	17:05	38.00	21.7	5.63	5.58	5.60	81.3	80.4	8.0	29.6	3.4	3.5	4.0	5.0	6.2
23	WWFCZ2	M	MID-EBB	4-Apr-06			21.1	5.62	5.56		82.3	81.2	8.0	30.7	4.4	4.6		6.0	
24	WWFCZ2	B	MID-EBB	4-Apr-06			20.8	5.65	5.59		84.6	83.3	8.0	31.0	4.2	4.2		7.5	
25	WFCZR1	S	MID-EBB	4-Apr-06	17:25	43.00	21.7	5.64	5.59	5.73	85.8	83.9	8.0	30.3	3.4	3.7	4.4	7.5	6.5
26	WFCZR1	M	MID-EBB	4-Apr-06			21.1	5.87	5.80		86.2	84.9	8.0	30.8	4.7	5.0		5.0	
27	WFCZR1	B	MID-EBB	4-Apr-06			20.8	5.90	5.81		87.9	86.6	8.0	31.2	4.6	4.7		7.0	
28	WFCZR2	S	MID-EBB	4-Apr-06	16:58	42.00	22.0	5.46	5.38	5.60	82.1	80.5	8.0	28.9	3.7	3.9	4.0	6.5	7.1
29	WFCZR2	M	MID-EBB	4-Apr-06			21.1	5.83	5.73		82.6	81.8	8.0	30.5	4.8	4.2		6.3	
30	WFCZR2	B	MID-EBB	4-Apr-06			20.9	5.78	5.72		84.2	82.7	8.0	30.6	3.5	4.1		8.5	
31	WWA1	S	MID-FLOOD	4-Apr-06	11:48	8.00	21.2	5.79	5.74	5.86	84.8	83.4	8.0	30.3	4.2	4.3	5.5	5.0	7.0
32	WWA1	M	MID-FLOOD	4-Apr-06			20.9	6.00	5.91		84.2	83.8	8.0	30.7	6.0	6.1		10.0	
33	WWA1	B	MID-FLOOD	4-Apr-06			20.9	5.93	5.85		88.1	86.9	8.0	30.8	6.0	6.1		6.0	
34	WWA2	S	MID-FLOOD	4-Apr-06	11:55	9.00	21.0	5.70	5.63	5.62	81.0	80.4	8.0	30.3	3.3	3.4	4.3	10.0	10.8
35	WWA2	M	MID-FLOOD	4-Apr-06			20.8	5.60	5.55		87.8	85.9	8.0	30.8	4.4	4.3		12.0	
36	WWA2	B	MID-FLOOD	4-Apr-06			20.8	6.03	5.99		87.8	86.6	8.0	30.9	5.4	5.0		10.5	
37	WWA3	S	MID-FLOOD	4-Apr-06	12:05	8.00	21.1	6.17	6.08	5.95	90.9	89.2	8.0	30.2	2.9	3.0	3.7	7.5	7.0
38	WWA3	M	MID-FLOOD	4-Apr-06			20.9	5.79	5.75		84.3	83.0	8.0	30.8	5.9	5.4		6.0	
39	WWA3	B	MID-FLOOD	4-Apr-06			20.8	5.83	5.85		81.5	80.1	8.0	30.8	2.7	2.6		6.0	
40	WRA1	S	MID-FLOOD	4-Apr-06	11:38	34.00	21.0	5.78	5.65	5.83	84.1	82.9	8.0	30.7	3.8	3.9	3.9	6.0	4.9
41	WRA1	M	MID-FLOOD	4-Apr-06			20.8	5.96	5.93		86.2	85.4	8.0	30.9	4.8	4.8		4.5	
42	WRA1	B	MID-FLOOD	4-Apr-06			20.6	6.15	6.12		88.0	86.9	8.0	31.0	2.9	2.9		4.3	
43	WRA2	S	MID-FLOOD	4-Apr-06			20.8	5.80	5.73		86.5	85.0	8.0	30.8	3.4	3.3		6.0	

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
44	WRA2	M	MID-FLOOD	4-Apr-06	11:28	32.00	20.7	6.11	6.04	5.92	88.9	87.4	8.0	31.0	4.4	4.9	4.3	11.0	9.0
45	WRA2	B	MID-FLOOD	4-Apr-06			20.6	6.16	6.10		89.5	88.2	8.0	31.1	5.3	4.8		10.0	
46	WRA3	S	MID-FLOOD	4-Apr-06			21.0	5.56	5.55		74.2	74.3	8.0	30.6	3.6	3.9		7.5	
47	WRA3	M	MID-FLOOD	4-Apr-06	11:20	28.00	20.9	5.81	5.75	5.67	85.0	83.7	8.0	30.9	4.3	4.0	4.1	10.5	9.3
48	WRA3	B	MID-FLOOD	4-Apr-06			20.7	6.11	6.05		89.0	87.8	8.0	30.9	4.5	4.3		10.0	
49	WWFCZ1	S	MID-FLOOD	4-Apr-06			21.4	5.86	5.73		88.9	86.4	7.9	29.2	2.1	2.4		5.5	
50	WWFCZ1	M	MID-FLOOD	4-Apr-06	10:54	33.00	21.2	5.82	5.71	5.78	87.9	86.1	7.9	29.9	5.1	4.8	4.3	4.5	6.3
51	WWFCZ1	B	MID-FLOOD	4-Apr-06			20.9	5.83	5.77		88.5	86.8	7.9	30.7	5.8	5.7		9.0	
52	WWFCZ2	S	MID-FLOOD	4-Apr-06			21.1	5.61	5.54		81.6	80.4	8.0	30.3	4.9	4.8		9.5	
53	WWFCZ2	M	MID-FLOOD	4-Apr-06	11:02	40.00	21.0	5.97	5.91	6.07	87.7	86.1	8.0	30.4	2.8	2.9	4.1	16.0	13.0
54	WWFCZ2	B	MID-FLOOD	4-Apr-06			20.9	6.09	6.04		89.4	87.4	7.9	30.5	4.6	5.0		13.5	
55	WWFCZ1	S	MID-FLOOD	4-Apr-06			21.6	5.73	5.68		83.8	82.7	7.9	29.4	2.7	2.6		5.0	
56	WFCZR1	M	MID-FLOOD	4-Apr-06	10:45	40.00	21.0	5.95	5.88	6.01	86.0	84.9	7.9	28.7	5.6	5.5	4.7	15.0	12.5
57	WFCZR1	B	MID-FLOOD	4-Apr-06			20.6	6.11	6.06		88.9	87.5	7.9	31.7	6.1	5.9		17.5	
58	WFCZR2	S	MID-FLOOD	4-Apr-06			21.1	5.76	5.67		87.1	85.3	8.0	30.4	5.1	4.9		7.5	
59	WFCZR2	M	MID-FLOOD	4-Apr-06	11:10	43.00	20.9	6.00	5.95	6.18	87.2	85.8	8.0	30.8	6.5	7.2	5.9	13.0	11.0
60	WFCZR2	B	MID-FLOOD	4-Apr-06			20.8	6.19	6.16		89.8	88.4	8.0	30.7	5.8	6.1		12.5	
61	WWA1	S	MID-EBB	6-Apr-06			17:50	7.00	23.0		5.53	5.59	5.56	74.2	74.4	7.9		29.5	
62	WWA1	M	MID-EBB	6-Apr-06	22.4	5.57			5.54	74.2	74.1	7.9		29.5	1.9	1.9	6.5		
63	WWA1	B	MID-EBB	6-Apr-06	22.2	5.78			5.67	80.4	80.1	7.9		29.6	2.3	2.2	5.5		
64	WWA2	S	MID-EBB	6-Apr-06	17:59	8.30	22.5	5.77	5.74	5.77	81.3	80.6	8.0	29.4	1.8	1.8	1.9	5.0	4.2
65	WWA2	M	MID-EBB	6-Apr-06			22.1	5.81	5.75		81.0	80.5	8.0	29.6	1.7	1.9		3.5	
66	WWA2	B	MID-EBB	6-Apr-06			21.9	5.74	5.69		79.6	79.4	8.0	29.6	2.0	2.3		4.0	
67	WWA3	S	MID-EBB	6-Apr-06	18:10	9.50	22.2	5.43	5.44	5.53	75.2	74.7	7.9	29.6	2.3	2.3	2.5	7.5	8.0
68	WWA3	M	MID-EBB	6-Apr-06			22.1	5.64	5.62		73.1	72.9	7.9	29.7	3.0	2.9		8.0	
69	WWA3	B	MID-EBB	6-Apr-06			21.8	5.82	5.84		77.4	78.0	7.9	29.8	2.2	2.4		8.5	
70	WRA1	S	MID-EBB	6-Apr-06	17:38	35.30	22.0	5.78	5.77	5.82	80.7	79.9	7.9	29.7	1.8	1.8	2.2	6.0	6.0
71	WRA1	M	MID-EBB	6-Apr-06			22.0	5.90	5.82		82.0	81.5	7.9	30.0	2.3	2.3		6.5	
72	WRA1	B	MID-EBB	6-Apr-06			21.1	5.55	5.54		77.2	76.5	7.9	30.8	2.7	2.3		5.5	
73	WRA2	S	MID-EBB	6-Apr-06	17:26	29.30	21.9	5.41	5.38	5.60	70.9	70.8	8.0	30.0	2.4	2.7	2.3	5.5	5.0
74	WRA2	M	MID-EBB	6-Apr-06			21.6	5.78	5.81		79.7	78.8	8.0	29.9	1.9	2.0		5.5	
75	WRA2	B	MID-EBB	6-Apr-06			21.2	5.87	5.79		80.9	80.4	8.0	30.5	2.7	2.4		4.0	
76	WRA3	S	MID-EBB	6-Apr-06	17:14	42.80	21.8	5.76	5.67	5.65	73.1	72.2	8.1	29.9	1.9	1.9	2.2	6.0	6.3
77	WRA3	M	MID-EBB	6-Apr-06			21.6	5.59	5.57		76.7	76.2	8.1	30.0	2.1	2.1		6.5	
78	WRA3	B	MID-EBB	6-Apr-06			21.1	5.80	5.68		82.1	81.1							

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
87	WFCZR1	B	MID-EBB	6-Apr-06			20.8	5.96	5.90	5.93	79.3	79.4	8.0	31.8	3.4	3.4	2.8	8.0	7.0
88	WFCZR2	S	MID-EBB	6-Apr-06			22.8	5.60	5.61		77.0	76.6	7.9	27.9	1.9	1.9		7.0	
89	WFCZR2	M	MID-EBB	6-Apr-06	17:00	42.00	21.0	5.96	5.94	5.78	77.2	76.6	7.9	31.0	2.4	2.3		8.5	
90	WFCZR2	B	MID-EBB	6-Apr-06			21.0	5.60	5.57	5.59	75.4	74.9	7.9	31.0	3.1	3.3	2.5	11.5	9.0
91	WWA1	S	MID-FLOOD	6-Apr-06			22.0	5.54	5.46		78.9	78.0	8.1	29.4	1.0	1.2		7.5	
92	WWA1	M	MID-FLOOD	6-Apr-06	11:50	7.40	21.8	5.51	5.52	5.51	75.8	74.2	8.2	28.7	3.0	3.3		6.5	
93	WWA1	B	MID-FLOOD	6-Apr-06			21.6	5.86	5.79	5.83	80.6	80.1	8.1	29.5	0.9	1.1	1.7	7.5	7.2
94	WWA2	S	MID-FLOOD	6-Apr-06			22.2	5.56	5.51		77.0	76.4	8.1	29.2	2.7	2.5		7.5	
95	WWA2	M	MID-FLOOD	6-Apr-06	11:59	10.90	21.7	5.48	5.42	5.49	76.2	75.8	8.1	29.6	1.3	1.4		5.5	
96	WWA2	B	MID-FLOOD	6-Apr-06			21.5	5.62	5.52	5.57	77.7	77.3	8.1	29.6	2.2	1.7	2.0	5.5	6.2
97	WWA3	S	MID-FLOOD	6-Apr-06			22.8	5.32	5.30		74.7	73.7	8.1	29.0	2.1	2.2		6.0	
98	WWA3	M	MID-FLOOD	6-Apr-06	12:09	7.80	21.7	5.71	5.67	5.50	78.3	78.0	8.0	29.6	3.3	3.2		6.5	
99	WWA3	B	MID-FLOOD	6-Apr-06			21.6	5.91	5.86	5.89	75.0	74.0	8.0	29.3	1.6	1.5	2.3	6.0	6.2
100	WRA1	S	MID-FLOOD	6-Apr-06			22.2	5.45	5.43		76.6	75.4	7.9	29.3	1.3	1.4		4.0	
101	WRA1	M	MID-FLOOD	6-Apr-06	11:39	30.00	21.7	5.71	5.70	5.57	78.7	78.0	7.8	30.5	1.8	1.7		5.0	
102	WRA1	B	MID-FLOOD	6-Apr-06			21.2	5.70	5.61	5.66	80.0	79.4	7.8	31.0	1.1	1.3	1.4	4.5	4.5
103	WRA2	S	MID-FLOOD	6-Apr-06			22.0	5.21	5.16		73.0	71.8	7.8	29.7	2.0	2.1		9.0	
104	WRA2	M	MID-FLOOD	6-Apr-06	11:28	31.20	21.2	5.17	5.12	5.17	71.5	70.4	7.8	30.5	1.0	0.9		9.5	
105	WRA2	B	MID-FLOOD	6-Apr-06			21.0	5.86	5.88	5.87	79.1	78.7	7.8	30.9	2.1	1.8	1.6	8.5	9.0
106	WRA3	S	MID-FLOOD	6-Apr-06			22.1	5.32	5.25		75.0	74.2	7.8	30.0	1.2	1.3		7.5	
107	WRA3	M	MID-FLOOD	6-Apr-06	11:16	26.90	21.4	5.41	5.39	5.34	74.5	74.1	7.8	30.1	1.6	1.5		5.0	
108	WRA3	B	MID-FLOOD	6-Apr-06			21.0	5.51	5.54	5.53	74.8	73.9	7.8	31.0	1.7	1.7	1.5	6.0	6.2
109	WWFCZ1	S	MID-FLOOD	6-Apr-06			21.9	5.30	5.35		69.9	69.1	8.1	29.1	1.6	1.7		3.8	
110	WWFCZ1	M	MID-FLOOD	6-Apr-06	10:40	35.00	21.1	5.39	5.37	5.35	75.1	74.5	8.1	31.0	1.9	1.8		3.5	
111	WWFCZ1	B	MID-FLOOD	6-Apr-06			21.0	5.65	5.63	5.64	76.8	76.5	8.1	30.7	2.0	2.5	1.9	6.0	4.4
112	WWFCZ2	S	MID-FLOOD	6-Apr-06			22.1	5.47	5.48		74.1	74.0	8.1	28.3	2.1	2.1		10.5	
113	WWFCZ2	M	MID-FLOOD	6-Apr-06	10:51	42.00	21.2	5.64	5.61	5.55	77.3	77.0	8.1	30.5	2.0	2.0		6.0	
114	WWFCZ2	B	MID-FLOOD	6-Apr-06			21.0	5.59	5.51	5.55	77.4	76.6	8.1	30.9	2.3	2.2	2.1	9.5	8.7
115	WFCZR1	S	MID-FLOOD	6-Apr-06			22.1	5.83	5.72		83.9	82.5	8.2	29.3	1.7	1.6		8.0	
116	WFCZR1	M	MID-FLOOD	6-Apr-06	10:30	37.70	21.4	5.59	5.58	5.68	75.2	75.4	8.2	30.7	1.7	1.8		7.5	
117	WFCZR1	B	MID-FLOOD	6-Apr-06			20.9	5.41	5.35	5.38	74.2	73.9	8.2	31.3	2.2	2.2	1.8	4.5	6.7
118	WFCZR2	S	MID-FLOOD	6-Apr-06			22.6	5.48	5.50		74.6	74.2	8.1	27.6	1.8	1.8		6.0	
119	WFCZR2	M	MID-FLOOD	6-Apr-06	11:00	42.20	21.2	5.44	5.41	5.46	75.3	74.9	8.1	30.8	1.4	1.6		5.0	
120	WFCZR2	B	MID-FLOOD	6-Apr-06			20.8	5.66	5.65	5.66	78.2	76.9	8.1	31.4	2.4	3.3	2.0	9.0	6.7
121	WWA1	S	MID-EBB	8-Apr-06			21.7	6.29	6.20		91.9	90.2	8.0	30.1	3.4	3.4		6.0	
122	WWA1	M	MID-EBB	8-Apr-06	13:50	8.00	21.5	6.23	6.18	6.23	88.6	87.9	8.0	30.4	2.8	2.2		6.5	
123	WWA1	B	MID-EBB	8-Apr-06			21.5	6.30	6.29	6.30	91.2	89.7	8.0	30.3	2.5	2.9	2.9	5.5	6.0
124	WWA2	S	MID-EBB	8-Apr-06			22.0	6.04	5.99		91.3	89.9	8.0	30.1	1.2	1.8		10.5	
125	WWA2	M	MID-EBB	8-Apr-06	13:42	7.00	21.8	6.14	6.10	6.07	89.3	88.5	8.0	30.2	3.4	3.0		10.0	
126	WWA2	B	MID-EBB	8-Apr-06			21.7	6.17	6.11	6.14	89.6	88.7	8.0	30.2	4.0	3.6	2.8	12.0	10.8
127	WWA3	S	MID-EBB	8-Apr-06			22.2	6.05	5.97		88.2	87.2	8.0	30.2	2.7	2.8		5.5	
128	WWA3	M	MID-EBB	8-Apr-06	13:35	7.00	22.0	6.15	6.08	6.06	91.2	89.8	8.0	30.3	3.8	4.0		6.0	
129	WWA3	B	MID-EBB	8-Apr-06			21.8	6.09	6.00	6.05	91.4	90.0	8.0	30.2	3.7	3.6	3.4	4.5	5.3

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
130	WRA1	S	MID-EBB	8-Apr-06			21.4	5.92	5.85		90.2	88.3	8.0	30.4	2.6	2.6		3.3	
131	WRA1	M	MID-EBB	8-Apr-06	14:00	30.00	21.3	6.04	6.00	5.95	88.5	87.2	8.0	30.7	3.2	3.1		8.0	
132	WRA1	B	MID-EBB	8-Apr-06			21.1	6.21	6.19	6.20	90.1	88.8	8.0	30.8	3.0	3.3	3.0	4.5	5.3
133	WRA2	S	MID-EBB	8-Apr-06			21.3	6.03	5.96		92.2	90.2	8.0	30.3	2.1	2.3		4.0	
134	WRA2	M	MID-EBB	8-Apr-06	14:08	28.00	21.1	6.04	5.98	6.00	87.4	86.4	8.0	30.8	2.4	2.3		3.8	
135	WRA2	B	MID-EBB	8-Apr-06			21.1	6.13	6.11	6.12	90.0	88.6	8.0	30.8	2.5	2.6	2.4	7.5	5.1
136	WRA3	S	MID-EBB	8-Apr-06			21.3	6.06	5.97		94.0	91.9	8.0	30.4	2.6	3.0		5.5	
137	WRA3	M	MID-EBB	8-Apr-06	14:17	25.00	21.1	5.92	5.86	5.95	88.6	86.7	8.0	30.8	2.9	2.5		3.5	
138	WRA3	B	MID-EBB	8-Apr-06			21.1	6.00	5.93	5.97	90.2	88.4	8.0	30.9	2.7	2.8	2.7	5.0	4.7
139	WWFCZ1	S	MID-EBB	8-Apr-06			21.4	5.80	5.69		89.6	87.7	8.0	30.2	2.2	2.3		8.0	
140	WWFCZ1	M	MID-EBB	8-Apr-06	14:45	50.00	21.0	6.23	6.17	5.97	90.1	89.0	8.0	31.1	2.7	3.1		6.0	
141	WWFCZ1	B	MID-EBB	8-Apr-06			21.1	6.06	6.01	6.04	90.3	88.3	8.0	30.8	2.8	2.6	2.6	6.5	6.8
142	WWFCZ2	S	MID-EBB	8-Apr-06			21.4	6.25	6.19		92.2	90.5	8.0	30.4	1.8	2.1		7.5	
143	WWFCZ2	M	MID-EBB	8-Apr-06	14:37	39.00	21.1	5.94	5.87	6.06	88.1	86.6	8.0	30.9	2.1	2.6		5.5	
144	WWFCZ2	B	MID-EBB	8-Apr-06			21.0	5.91	5.86	5.89	89.8	87.6	8.0	31.0	3.2	3.2	2.5	7.0	6.7
145	WFCZR1	S	MID-EBB	8-Apr-06			21.4	6.10	6.06		90.7	88.8	8.0	30.2	2.0	2.3		5.5	
146	WFCZR1	M	MID-EBB	8-Apr-06	14:55	42.00	21.0	5.87	5.83	5.97	85.3	84.1	8.0	31.2	3.5	3.9		9.5	
147	WFCZR1	B	MID-EBB	8-Apr-06			20.9	6.08	5.99	6.04	90.1	88.0	8.0	31.4	3.4	3.7	3.1	5.0	6.7
148	WFCZR2	S	MID-EBB	8-Apr-06			21.3	5.93	5.85		91.4	89.3	8.1	30.3	2.3	2.2		4.5	
149	WFCZR2	M	MID-EBB	8-Apr-06	14:27	34.00	21.0	6.08	6.03	5.97	91.4	89.6	8.1	30.3	2.8	2.9		10.5	
150	WFCZR2	B	MID-EBB	8-Apr-06			20.9	6.23	6.19	6.21	92.3	90.6	8.1	31.3	2.5	2.9	2.6	9.5	8.2
151	WWA1	S	MID-FLOOD	8-Apr-06			21.5	5.60	5.55		86.6	85.0	8.0	30.8	1.5	1.8		6.5	
152	WWA1	M	MID-FLOOD	8-Apr-06	12:00	8.00	21.4	6.06	6.01	5.81	86.4	85.5	8.0	30.8	1.9	1.9		5.0	
153	WWA1	B	MID-FLOOD	8-Apr-06			21.4	6.00	5.95	5.98	87.6	86.2	8.0	30.8	2.0	2.2	1.9	5.0	5.5
154	WWA2	S	MID-FLOOD	8-Apr-06			21.3	6.05	5.96		92.1	90.3	8.0	30.7	1.9	2.1		8.5	
155	WWA2	M	MID-FLOOD	8-Apr-06	12:08	9.00	21.3	6.02	5.97	6.00	86.6	85.6	8.0	30.7	1.7	2.3		6.0	
156	WWA2	B	MID-FLOOD	8-Apr-06			21.3	5.72	5.69	5.71	84.6	83.4	8.0	30.7	2.0	2.6	2.1	3.5	6.0
157	WWA3	S	MID-FLOOD	8-Apr-06			21.4	6.05	5.99		90.6	88.8	8.0	30.7	1.8	1.6		2.8	
158	WWA3	M	MID-FLOOD	8-Apr-06	12:15	8.00	21.3	5.90	5.85	5.95	90.3	88.5	8.0	30.8	1.3	1.7		4.5	
159	WWA3	B	MID-FLOOD	8-Apr-06			21.3	6.01	5.94	5.98	88.5	86.7	8.0	30.7					

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
173	WWFCZ2	M	MID-FLOOD	8-Apr-06	11:10	44.00	21.3	5.67	5.61	5.72	86.5	85.1	8.0	31.2	2.5	3.0		5.5	
174	WWFCZ2	B	MID-FLOOD	8-Apr-06			21.1	5.90	5.83	5.87	86.7	85.7	8.0	31.4	1.7	1.6	2.2	5.5	5.2
175	WFCZR1	S	MID-FLOOD	8-Apr-06			21.5	5.83	5.77		88.1	87.0	8.0	30.7	2.4	2.6		5.0	
176	WFCZR1	M	MID-FLOOD	8-Apr-06	10:50	36.00	21.4	5.90	5.84	5.84	87.0	85.6	8.0	30.8	2.8	1.8		6.0	
177	WFCZR1	B	MID-FLOOD	8-Apr-06			21.3	6.00	5.95	5.98	89.0	87.3	8.0	31.1	2.8	2.4	2.4	9.0	6.7
178	WFCZR2	S	MID-FLOOD	8-Apr-06			21.5	5.93	5.85		88.3	86.1	8.0	30.3	2.1	1.9		7.0	
179	WFCZR2	M	MID-FLOOD	8-Apr-06	11:20	39.00	21.1	5.97	5.92	5.92	88.0	86.6	8.0	31.0	3.2	3.0		7.5	
180	WFCZR2	B	MID-FLOOD	8-Apr-06			21.0	6.04	5.95	6.00	91.4	89.9	8.0	31.4	3.4	3.4	2.8	8.5	7.7
181	WWA1	S	MID-EBB	10-Apr-06			23.1	6.13	6.05		88.2	87.6	8.0	25.9	5.2	5.5		7.5	
182	WWA1	M	MID-EBB	10-Apr-06	14:00	8.00	22.9	6.10	6.04	6.08	87.8	87.2	8.0	26.9	5.2	5.5		10.0	
183	WWA1	B	MID-EBB	10-Apr-06			22.9	6.02	6.03	6.03	88.7	86.2	8.0	27.6	5.8	5.6	5.5	10.0	9.2
184	WWA2	S	MID-EBB	10-Apr-06			23.2	5.98	5.94		88.5	87.2	8.0	25.9	5.6	5.3		6.5	
185	WWA2	M	MID-EBB	10-Apr-06	13:50	9.00	23.3	6.02	5.97	5.98	88.4	87.5	8.0	27.0	6.6	6.7		13.0	
186	WWA2	B	MID-EBB	10-Apr-06			23.2	6.04	6.01	6.03	86.5	85.6	8.0	26.6	6.4	6.1	6.1	9.0	9.5
187	WWA3	S	MID-EBB	10-Apr-06			23.5	6.12	6.03		93.3	91.4	8.0	27.3	8.0	6.9		7.5	
188	WWA3	M	MID-EBB	10-Apr-06	13:40	7.00	23.4	5.89	5.84	5.97	87.7	86.7	8.0	27.2	7.9	7.2		12.5	
189	WWA3	B	MID-EBB	10-Apr-06			23.1	5.91	5.87	5.89	87.7	86.3	8.0	27.5	7.1	7.0	7.3	8.5	9.5
190	WRA1	S	MID-EBB	10-Apr-06			23.3	5.91	5.90		80.7	80.2	8.1	24.8	4.3	4.6		7.0	
191	WRA1	M	MID-EBB	10-Apr-06	14:10	33.00	22.9	6.13	6.07	6.00	88.0	86.9	8.1	26.9	4.8	4.6		8.5	
192	WRA1	B	MID-EBB	10-Apr-06			22.8	6.23	6.18	6.21	88.2	87.7	8.1	26.8	3.9	3.9	4.4	9.0	8.2
193	WRA2	S	MID-EBB	10-Apr-06			23.3	5.88	5.80		90.0	88.4	8.0	25.0	5.7	5.0		7.5	
194	WRA2	M	MID-EBB	10-Apr-06	14:19	29.00	23.1	6.04	5.98	5.93	87.5	86.7	8.0	26.1	5.2	5.3		8.0	
195	WRA2	B	MID-EBB	10-Apr-06			23.0	6.04	5.95	6.00	89.2	87.9	8.0	23.2	5.1	5.2	5.2	7.5	7.7
196	WRA3	S	MID-EBB	10-Apr-06			23.3	6.20	6.09		90.0	88.8	8.0	24.9	4.6	5.6		7.5	
197	WRA3	M	MID-EBB	10-Apr-06	14:29	28.00	23.0	5.87	5.83	6.00	86.6	85.7	8.0	26.1	5.7	5.3		7.0	
198	WRA3	B	MID-EBB	10-Apr-06			22.9	6.24	6.21	6.23	89.2	88.4	8.0	27.3	4.8	5.2	5.2	12.0	8.8
199	WWFCZ1	S	MID-EBB	10-Apr-06			23.4	6.34	6.30		89.8	89.2	8.0	24.7	4.8	4.8		7.5	
200	WWFCZ1	M	MID-EBB	10-Apr-06	15:07	44.00	23.0	5.96	5.89	6.12	87.5	86.3	8.0	26.9	4.6	5.0		9.0	
201	WWFCZ1	B	MID-EBB	10-Apr-06			22.7	5.98	5.90	5.94	88.3	87.2	8.0	28.4	4.6	5.2	4.8	6.5	7.7
202	WWFCZ2	S	MID-EBB	10-Apr-06			23.5	6.10	6.00		88.3	87.3	8.0	24.2	4.5	4.2		9.0	
203	WWFCZ2	M	MID-EBB	10-Apr-06	14:47	35.00	23.2	5.98	5.92	6.00	88.1	86.8	8.0	25.7	4.8	4.9		9.5	
204	WWFCZ2	B	MID-EBB	10-Apr-06			23.2	6.20	6.16	6.18	88.6	87.4	8.0	24.9	4.6	4.5	4.6	10.0	9.5
205	WFCZR1	S	MID-EBB	10-Apr-06			23.4	6.30	6.23		90.1	89.5	8.0	24.1	5.3	4.4		11.0	
206	WFCZR1	M	MID-EBB	10-Apr-06	14:57	30.00	23.4	6.11	6.07	6.18	88.5	87.5	8.0	24.6	4.2	4.6		10.0	
207	WFCZR1	B	MID-EBB	10-Apr-06			23.3	5.97	5.91	5.94	88.1	86.8	8.0	25.4	5.4	5.1	4.8	6.5	9.2
208	WFCZR2	S	MID-EBB	10-Apr-06			23.5	6.03	5.97		89.0	87.9	8.0	24.0	5.3	4.9		8.0	
209	WFCZR2	M	MID-EBB	10-Apr-06	14:39	35.00	23.3	5.96	5.87	5.96	87.9	87.0	8.0	25.4	5.4	5.5		8.5	
210	WFCZR2	B	MID-EBB	10-Apr-06			23.1	5.84	5.78	5.81	87.7	86.4	8.0	25.5	4.8	4.9	5.1	8.0	8.2
211	WWA1	S	MID-FLOOD	10-Apr-06			21.9	5.39	5.35		83.7	82.4	8.0	30.0	4.2	4.4		11.0	
212	WWA1	M	MID-FLOOD	10-Apr-06	11:45	8.00	21.9	5.80	5.73	5.57	84.1	83.5	8.0	30.5	5.9	5.1		14.5	
213	WWA1	B	MID-FLOOD	10-Apr-06			21.8	5.67	5.63	5.65	81.6	80.9	8.0	30.8	7.0	6.1	5.4	11.0	12.2
214	WWA2	S	MID-FLOOD	10-Apr-06			21.9	5.89	5.82		86.9	85.3	8.0	30.5	5.3	5.2		11.0	
215	WWA2	M	MID-FLOOD	10-Apr-06	11:52	9.00	21.8	5.64	5.60	5.74	81.8	81.0	8.0	30.7	7.2	7.8		12.0	

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
216	WWA2	B	MID-FLOOD	10-Apr-06			21.8	5.77	5.68	5.73	87.2	85.8	8.0	30.7	7.7	7.6	6.8	11.5	11.5
217	WWA3	S	MID-FLOOD	10-Apr-06			21.8	5.53	5.49		82.5	80.9	8.0	30.6	6.1	6.2		9.5	
218	WWA3	M	MID-FLOOD	10-Apr-06	12:20	8.00	21.9	5.82	5.77	5.65	83.8	83.1	8.0	30.6	5.2	4.9		11.0	
219	WWA3	B	MID-FLOOD	10-Apr-06			21.8	5.64	5.57	5.61	84.7	83.5	8.0	29.8	3.7	3.4	4.9	9.0	9.8
220	WRA1	S	MID-FLOOD	10-Apr-06			22.4	6.04	6.00		88.0	86.2	8.0	28.8	3.2	3.4		6.5	
221	WRA1	M	MID-FLOOD	10-Apr-06	11:35	32.00	21.9	5.68	5.65	5.84	87.2	85.8	8.0	30.7	2.6	2.7		9.0	
222	WRA1	B	MID-FLOOD	10-Apr-06			21.6	5.67	5.66	5.67	84.0	82.7	8.0	30.9	4.6	4.5	3.5	13.0	9.5
223	WRA2	S	MID-FLOOD	10-Apr-06			22.4	5.82	5.76		87.6	86.3	8.0	29.9	2.7	3.6		10.0	
224	WRA2	M	MID-FLOOD	10-Apr-06	11:25	26.00	22.0	5.89	5.83	5.83	87.6	86.2	8.0	30.7	4.6	4.2		9.5	
225	WRA2	B	MID-FLOOD	10-Apr-06			21.8	5.90	5.84	5.87	82.9	82.3	8.0	30.9	1.8	1.8	3.1	9.5	9.7
226	WRA3	S	MID-FLOOD	10-Apr-06			22.2	5.67	5.63		85.6	84.5	8.0	30.4	4.3	4.9		8.0	
227	WRA3	M	MID-FLOOD	10-Apr-06	11:16	32.00	21.9	5.84	5.76	5.73	85.3	84.1	8.0	30.7	3.9	3.9		8.0	
228	WRA3	B	MID-FLOOD	10-Apr-06			21.7	5.74	5.73	5.74	83.7	82.8	8.0	30.7	4.0	3.9	4.1	9.5	8.5
229	WWFCZ1	S	MID-FLOOD	10-Apr-06			22.1	6.05	5.99		89.7	88.4	8.0	30.0	4.2	4.3		6.0	
230	WWFCZ1	M	MID-FLOOD	10-Apr-06	10:48	30.00	21.9	5.90	5.85	5.95	88.7	87.5	8.0	30.3	5.0	5.1		5.5	
231	WWFCZ1	B	MID-FLOOD	10-Apr-06			21.7	5.98	5.95	5.97	86.5	85.4	8.0	30.9	6.0	5.4	5.0	7.5	6.3
232	WWFCZ2	S	MID-FLOOD	10-Apr-06			22.0	5.83	5.84		81.9	81.2	8.0	30.0	3.5	4.4		18.0	
233	WWFCZ2	M	MID-FLOOD	10-Apr-06	10:56	38.00	22.1	5.76	5.66	5.77	89.1	87.6	8.0	30.6	4.9	4.8		17.0	
234	WWFCZ2	B	MID-FLOOD	10-Apr-06			21.8	5.90	5.85	5.88	84.1	83.6	8.0	30.5	4.4	4.3	4.4	16.0	17.0
235	WFCZR1	S	MID-FLOOD	10-Apr-06			22.4	5.83	5.70		87.7	86.2	8.0	30.1	3.4	4.1		7.5	
236	WFCZR1	M	MID-FLOOD	10-Apr-06	10:40	34.00	21.8	6.03	5.99	5.89	85.1	85.2	8.0	30.8	5.6	5.5		9.5	
237	WFCZR1	B	MID-FLOOD	10-Apr-06			21.6	5.94	5.86	5.90	88.6	87.3	8.0	31.1	4.9	4.8	4.7	11.5	9.5
238	WFCZR2	S	MID-FLOOD	10-Apr-06			22.3	5.73	5.71		87.5	86.2	8.0	29.4	3.3	3.7		6.0	
239	WFCZR2	M	MID-FLOOD	10-Apr-06	11:06	41.00	22.0	5.79	5.74	5.74	84.6	83.8	8.0	30.3	4.2	4.0		7.0	
240	WFCZR2	B	MID-FLOOD	10-Apr-06			22.0	5.71	5.65	5.68	87.2	85.6	8.0	30.3	4.7	4.1	4.0	7.5	6.8
241	WWA1	S	MID-EBB	12-Apr-06			23.7	7.78	7.76		106.2	105.7	8.1	26.5	5.0	5.1		6.0	
242	WWA1	M	MID-EBB	12-Apr-06	12:06	7.00	23.8	7.60	7.56	7.68	108.5	107.7	8.1	26.7	6.5	6.6		8.0	
243	WWA1	B	MID-EBB	12-Apr-06			23.8	7.57	7.54	7.56	107.0	106.3	8.1	26.6	7.1	7.0	6.2	7.5	7.2
244	WWA2	S	MID-EBB	12-Apr-06			23.5	7.54	7.47		108.5	107.8	8.1	27.2	5.4	5.2		8.5	
245																			

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
259	WWFCZ1	S	MID-EBB	12-Apr-06	11:15	34.00	23.6	7.42	7.39	7.39	105.8	105.3	8.1	27.1	4.3	4.0	5.0	7.0	6.8
260	WWFCZ1	M	MID-EBB	12-Apr-06			23.0	7.39	7.35		108.8	107.2	8.1	29.3	5.6	4.9		6.0	
261	WWFCZ1	B	MID-EBB	12-Apr-06			22.6	7.43	7.40		100.8	100.7	8.1	30.0	5.4	6.0		7.5	
262	WWFCZ2	S	MID-EBB	12-Apr-06	11:24	42.00	23.5	7.30	7.28	7.17	104.5	103.7	8.1	26.9	4.5	3.5	4.5	8.5	8.3
263	WWFCZ2	M	MID-EBB	12-Apr-06			22.9	7.06	7.02		101.8	100.9	8.1	29.0	5.1	4.4		8.5	
264	WWFCZ2	B	MID-EBB	12-Apr-06			22.7	7.08	7.06		101.8	101.0	8.1	29.4	4.9	4.7		8.0	
265	WFCZR1	S	MID-EBB	12-Apr-06	11:00	42.00	24.6	6.40	6.39	6.69	93.2	92.9	8.1	27.9	3.9	3.5	3.8	7.0	8.2
266	WFCZR1	M	MID-EBB	12-Apr-06			24.5	6.99	6.97		99.4	99.5	8.1	28.9	3.8	3.7		6.0	
267	WFCZR1	B	MID-EBB	12-Apr-06			24.1	6.98	6.99		101.9	100.9	8.1	29.2	3.7	4.4		11.5	
268	WFCZR2	S	MID-EBB	12-Apr-06	11:30	41.00	23.6	7.10	7.09	7.11	102.7	101.8	8.1	26.9	4.0	3.9	4.4	5.5	6.3
269	WFCZR2	M	MID-EBB	12-Apr-06			23.0	7.14	7.11		104.2	103.2	8.1	28.4	3.9	3.9		6.5	
270	WFCZR2	B	MID-EBB	12-Apr-06			22.8	7.27	7.26		101.9	101.2	8.1	28.8	4.8	5.7		7.0	
271	WWA1	S	MID-FLOOD	12-Apr-06	14:18	7.00	24.6	7.92	7.87	7.76	109.9	109.7	8.1	24.0	5.0	4.7	5.4	8.0	8.2
272	WWA1	M	MID-FLOOD	12-Apr-06			24.6	7.62	7.61		107.4	107.0	8.1	24.1	5.9	5.8		8.5	
273	WWA1	B	MID-FLOOD	12-Apr-06			24.5	7.73	7.70		109.3	108.6	8.1	24.3	5.3	5.8		8.0	
274	WWA2	S	MID-FLOOD	12-Apr-06	14:10	8.00	24.3	7.48	7.46	7.52	103.2	102.6	8.1	25.2	6.0	6.8	6.3	12.5	11.8
275	WWA2	M	MID-FLOOD	12-Apr-06			24.4	7.58	7.55		107.0	105.8	8.1	25.0	6.9	6.0		11.5	
276	WWA2	B	MID-FLOOD	12-Apr-06			24.3	7.65	7.63		109.2	108.3	8.1	25.4	6.0	6.3		11.5	
277	WWA3	S	MID-FLOOD	12-Apr-06	14:00	7.00	24.6	7.59	7.58	7.48	105.4	105.1	8.0	25.8	6.5	5.8	7.3	8.0	11.5
278	WWA3	M	MID-FLOOD	12-Apr-06			24.5	7.40	7.35		106.8	105.8	8.0	25.8	8.0	8.4		11.0	
279	WWA3	B	MID-FLOOD	12-Apr-06			24.4	7.32	7.30		104.7	103.6	8.0	25.7	7.6	7.3		15.5	
280	WRA1	S	MID-FLOOD	12-Apr-06	14:28	36.00	24.5	7.81	7.77	7.62	107.9	107.3	8.1	24.3	4.7	5.1	6.0	11.0	9.7
281	WRA1	M	MID-FLOOD	12-Apr-06			23.5	7.42	7.46		103.1	102.3	8.1	27.0	7.9	8.4		8.5	
282	WRA1	B	MID-FLOOD	12-Apr-06			23.3	7.35	7.33		104.4	103.8	8.1	27.4	5.1	4.9		9.5	
283	WRA2	S	MID-FLOOD	12-Apr-06	14:38	31.00	24.6	7.34	7.30	7.25	99.8	99.4	8.1	24.1	3.9	3.9	4.3	7.0	9.7
284	WRA2	M	MID-FLOOD	12-Apr-06			23.9	7.20	7.17		98.4	97.9	8.1	23.5	4.7	5.1		11.5	
285	WRA2	B	MID-FLOOD	12-Apr-06			24.3	7.58	7.52		108.6	107.9	8.1	24.7	4.0	4.5		10.5	
286	WRA3	S	MID-FLOOD	12-Apr-06	14:48	29.00	24.5	7.92	7.82	7.66	109.3	108.7	8.1	24.0	3.6	3.7	4.1	8.5	8.7
287	WRA3	M	MID-FLOOD	12-Apr-06			24.6	7.46	7.43		103.0	102.6	8.1	25.3	3.9	4.0		7.5	
288	WRA3	B	MID-FLOOD	12-Apr-06			23.8	7.06	7.07		99.3	98.6	8.1	25.1	4.7	4.6		10.0	
289	WWFCZ1	S	MID-FLOOD	12-Apr-06	15:15	32.00	24.8	7.90	7.83	7.46	106.4	105.4	8.1	24.1	4.4	4.7	5.2	7.5	9.2
290	WWFCZ1	M	MID-FLOOD	12-Apr-06			24.6	7.09	7.03		103.1	102.3	8.1	24.4	4.5	4.4		8.0	
291	WWFCZ1	B	MID-FLOOD	12-Apr-06			24.4	7.20	7.18		102.8	101.9	8.1	24.8	7.1	5.9		12.0	
292	WWFCZ2	S	MID-FLOOD	12-Apr-06	15:05	40.00	24.7	7.70	7.67	7.53	108.3	108.1	8.0	23.9	4.0	4.2	5.1	8.0	7.8
293	WWFCZ2	M	MID-FLOOD	12-Apr-06			23.9	7.40	7.34		105.1	104.9	8.0	25.5	5.6	5.2		8.0	
294	WWFCZ2	B	MID-FLOOD	12-Apr-06			23.4	7.24	7.21		105.9	104.8	8.0	27.1	5.9	5.9		7.5	
295	WFCZR1	S	MID-FLOOD	12-Apr-06	15:24	41.00	24.2	6.87	6.83	7.09	99.5	98.3	8.1	25.0	5.5	5.3	5.5	12.5	11.8
296	WFCZR1	M	MID-FLOOD	12-Apr-06			24.1	7.35	7.31		102.2	102.0	8.1	25.2	5.7	6.0		12.5	
297	WFCZR1	B	MID-FLOOD	12-Apr-06			24.0	6.83	6.77		100.6	99.1	8.1	25.6	5.5	5.1		10.5	
298	WFCZR2	S	MID-FLOOD	12-Apr-06	14:55	38.00	24.7	7.42	7.41	7.16	106.0	105.5	8.0	23.9	4.2	4.1	4.8	7.0	9.2
299	WFCZR2	M	MID-FLOOD	12-Apr-06			24.3	6.93	6.88		97.9	97.0	8.0	24.7	5.2	5.2		9.5	
300	WFCZR2	B	MID-FLOOD	12-Apr-06			24.0	7.20	7.14		102.5	101.9	8.0	25.1	5.0	5.2		11.0	
301	WWA1	S	MID-EBB	18-Apr-06			22.6	6.93	6.92		101.9	100.6	8.1	31.7	7.9	6.8		15.0	

Contract No.HY/2005/06 Castle Peak Road Improvements - West of Tsing Lung Tau  
Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
302	WWA1	M	MID-EBB	18-Apr-06	14:30	8.00	22.4	7.20	7.17	7.06	104.1	103.1	8.1	31.8	5.2	5.4	7.1	14.0	15.2
303	WWA1	B	MID-EBB	18-Apr-06			22.3	7.94	7.93		108.2	107.4	8.1	31.8	9.2	8.1		16.5	
304	WWA2	S	MID-EBB	18-Apr-06			22.7	7.54	7.50		104.1	103.4	8.1	30.4	4.9	4.3		13.0	
305	WWA2	M	MID-EBB	18-Apr-06	14:23	8.00	22.8	7.56	7.51	7.53	106.5	105.5	8.1	31.7	5.6	6.5	5.7	14.0	13.3
306	WWA2	B	MID-EBB	18-Apr-06			22.8	7.41	7.39		110.2	109.4	8.1	31.7	6.4	6.8		13.0	
307	WWA3	S	MID-EBB	18-Apr-06			23.3	6.88	6.85		104.0	102.9	8.1	32.0	9.5	9.3		19.0	
308	WWA3	M	MID-EBB	18-Apr-06	14:15	8.00	22.8	7.43	7.39	7.14	108.8	107.7	8.1	31.8	9.7	10.2	11.4	22.0	21.2
309	WWA3	B	MID-EBB	18-Apr-06			22.6	7.34	7.29		108.8	108.0	8.1	31.6	14.7	14.9		22.5	
310	WRA1	S	MID-EBB	18-Apr-06			22.4	7.19	7.14		106.7	105.4	8.1	31.5	5.9	6.3		8.5	
311	WRA1	M	MID-EBB	18-Apr-06	14:42	31.00	22.3	6.90	6.87	7.03	102.2	100.9	8.1	31.8	4.3	4.5	4.8	11.0	10.2
312	WRA1	B	MID-EBB	18-Apr-06			22.2	7.85	7.81		109.4	108.6	8.1	31.8	3.5	4.2		11.0	
313	WRA2	S	MID-EBB	18-Apr-06			22.4	7.40	7.36		104.6	104.2	8.0	31.5	4.2	4.2		7.0	
314	WRA2	M	MID-EBB	18-Apr-06	14:50	29.00	22.1	7.51	7.48	7.44	108.5	106.7	8.1	31.8	5.3	5.1	5.0	12.0	10.7
315	WRA2	B	MID-EBB	18-Apr-06			22.1	7.84	7.82		110.5	109.3	8.1	31.8	5.9	5.2		13.0	
316	WRA3	S	MID-EBB	18-Apr-06			22.1	7.14	7.12		103.1	102.2	8.0	31.7	3.9	4.3		10.5	
317	WRA3	M	MID-EBB	18-Apr-06	15:00	30.00	22.0	6.93	6.87	7.02	98.1	97.0	8.0	31.9	4.8	5.1	4.2	15.5	12.3
318	WRA3	B	MID-EBB	18-Apr-06			22.0	7.52	7.54		110.8	109.8	8.0	31.9	3.3	3.8		11.0	
319	WWFCZ1	S	MID-EBB	18-Apr-06			22.4	7.23	7.17		104.5	104.1	8.0	31.6	4.1	4.1		8.0	
320	WWFCZ1	M	MID-EBB	18-Apr-06	15:28	32.00	22.3	7.37	7.28	7.26	109.7	108.4	8.0	31.7	4.3	4.3	4.6	12.5	11.8
321	WWFCZ1	B	MID-EBB	18-Apr-06			22.1	7.49	7.46		107.4	106.9	8.0	31.8	5.5	5.6		15.0	
322	WWFCZ2	S	MID-EBB	18-Apr-06			22.2	7.34	7.31		106.0	104.8	8.0	31.5	3.6	3.6		8.0	
323	WWFCZ2	M	MID-EBB	18-Apr-06	15:20	43.00	22.1	7.52	7.44	7.40	109.7	108.3	8.0	31.8	4.6	4.3	4.2	7.0	7.7
324	WWFCZ2	B	MID-EBB	18-Apr-06			22.1	7.60	7.59		109.0	108.1	8.0	31.8	4.5	4.4		8.0	
325	WFCZR1	S	MID-EBB	18-Apr-06			22.3	7.24	7.17		102.6	102.2	8.0	31.5	3.6	3.5		11.0	
326	WFCZR1	M	MID-EBB	18-Apr-06	15:35	40.00	22.2	7.38	7.36	7.29	105.6	104.9	8.0	31.8	4.4	4.6	4.3	9.0	9.5
327	WFCZR1	B	MID-EBB	18-Apr-06			22.1	7.49	7.47		108.2	107.2	8.0	31.8	4.7	4.9		8.5	
328	WFCZR2	S	MID-EBB	18-Apr-06			22.4	7.31	7.25		103.6	103.3	8.0	31.6	3.9	3.9		9.0	
329	WFCZR2	M	MID-EBB	18-Apr-06	15:10	40.00	22.4	7.45	7.38	7.35	109.8	108.3	8.0	31.6	4.4	4.1	4.2	4.0	7.8
330	WFCZR2	B	MID-EBB	18-Apr-06			22.3	7.67	7.64		109.5	107.4	8.0	30.7	4.4	4.6		10.5	
331	WWA1	S	MID-FLOOD	18-Apr-06			21.8	7.33	7.28		105.2	104.5	8.0	31.9	4.3	4.3		7.5	
332	WWA1	M	MID-FLOOD	18-Apr-06	11:12	8.00	21.9	7.54	7.53	7.42	108.8	107.9	8.0	31.8	3.4	3.4	3.7	7.0	8.2
333	WWA1	B	MID-FLOOD	18-Apr-06			21.9	7.77	7.72		109.0	108.6	8.0	31.8	3.5	3.3		10.0	
334	WWA2	S	MID-FLOOD	18-Apr-06			21.9	7.14	7.12		102.1	100.8							

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Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
345	WRA2	B	MID-FLOOD	18-Apr-06			21.9	7.79	7.83	7.81	105.2	104.7	8.0	31.8	2.7	2.9	2.4	15.5	11.2
346	WRA3	S	MID-FLOOD	18-Apr-06			21.8	7.02	6.98		99.6	98.8	8.0	31.8	3.4	3.6		8.0	
347	WRA3	M	MID-FLOOD	18-Apr-06	10:48	31.00	21.8	7.44	7.42	7.22	107.5	106.5	8.0	31.8	2.5	2.4		8.5	
348	WRA3	B	MID-FLOOD	18-Apr-06			21.9	7.62	7.61	7.62	106.6	105.9	8.0	31.7	3.2	3.4	3.1	11.0	9.2
349	WWFCZ1	S	MID-FLOOD	18-Apr-06			22.0	7.37	7.34		99.0	98.7	8.0	31.4	3.8	4.4		6.5	
350	WWFCZ1	M	MID-FLOOD	18-Apr-06	10:18	30.00	21.9	7.67	7.62	7.50	106.3	106.2	8.0	31.7	8.4	8.4		12.0	
351	WWFCZ1	B	MID-FLOOD	18-Apr-06			21.9	7.51	7.50	7.51	104.3	103.8	8.0	31.8	8.7	8.9	7.1	17.0	11.8
352	WWFCZ2	S	MID-FLOOD	18-Apr-06			21.9	7.42	7.36		106.7	106.4	8.1	31.8	6.4	5.5		9.0	
353	WWFCZ2	M	MID-FLOOD	18-Apr-06	10:28	41.00	21.9	7.59	7.56	7.48	107.0	106.3	8.1	31.9	5.1	5.1		7.5	
354	WWFCZ2	B	MID-FLOOD	18-Apr-06			21.9	7.63	7.59	7.61	109.8	109.1	8.1	31.9	5.6	5.6	5.5	12.0	9.5
355	WFCZR1	S	MID-FLOOD	18-Apr-06			22.1	7.12	7.13		99.0	98.5	8.0	32.1	7.6	7.3		16.5	
356	WFCZR1	M	MID-FLOOD	18-Apr-06	10:10		22.0	7.21	7.18	7.16	102.1	101.6	8.0	32.0	9.5	8.4		16.5	
357	WFCZR1	B	MID-FLOOD	18-Apr-06			22.0	7.58	7.57	7.58	106.1	105.5	8.0	32.1	9.3	9.6	8.6	16.5	16.5
358	WFCZR2	S	MID-FLOOD	18-Apr-06			21.8	7.68	7.65		108.1	107.5	8.0	31.7	3.2	3.4		13.0	
359	WFCZR2	M	MID-FLOOD	18-Apr-06	10:38	38.00	21.8	7.63	7.57	7.63	106.6	106.2	8.0	31.7	3.5	4.0		9.5	
360	WFCZR2	B	MID-FLOOD	18-Apr-06			21.8	7.83	7.81	7.82	107.5	108.9	8.0	31.7	5.2	6.2	4.2	18.0	13.5
361	WWA1	S	MID-EBB	20-Apr-06			23.0	7.24	7.12		102.7	101.0	8.0	31.4	2.6	2.6		14.5	
362	WWA1	M	MID-EBB	20-Apr-06	15:28	8.00	23.0	7.12	6.98	7.12	101.1	99.5	8.0	31.3	6.1	6.0		20.0	
363	WWA1	B	MID-EBB	20-Apr-06			22.9	7.19	7.12	7.16	101.3	99.8	8.0	31.4	4.5	4.2	4.3	7.0	13.8
364	WWA2	S	MID-EBB	20-Apr-06			23.1	7.10	7.00		99.2	98.0	8.0	31.2	2.3	2.4		4.0	
365	WWA2	M	MID-EBB	20-Apr-06	15:13	8.00	23.0	7.17	7.13	7.10	100.0	98.7	8.0	31.0	2.6	2.6		11.5	
366	WWA2	B	MID-EBB	20-Apr-06			23.0	7.10	7.04	7.07	99.7	98.0	8.0	31.2	2.2	2.2	2.4	5.0	6.8
367	WWA3	S	MID-EBB	20-Apr-06			23.8	7.61	7.53		91.9	91.3	8.0	31.3	2.3	2.1		5.8	
368	WWA3	M	MID-EBB	20-Apr-06	15:00	8.00	23.4	7.22	7.17	7.38	97.3	96.6	8.0	28.5	2.4	2.6		12.0	
369	WWA3	B	MID-EBB	20-Apr-06			23.2	7.09	7.02	7.06	98.4	97.1	8.0	30.8	3.1	3.4	2.7	8.0	8.6
370	WRA1	S	MID-EBB	20-Apr-06			23.2	7.23	7.08		104.4	102.5	8.1	31.1	2.3	2.2		4.0	
371	WRA1	M	MID-EBB	20-Apr-06	15:40	36.80	22.8	7.03	6.95	7.07	101.4	99.8	8.1	31.4	4.1	4.1		7.5	
372	WRA1	B	MID-EBB	20-Apr-06			22.7	7.09	7.04	7.07	99.0	97.3	8.1	31.4	2.4	2.2	2.9	9.5	7.0
373	WRA2	S	MID-EBB	20-Apr-06			23.2	7.02	6.87		102.9	100.4	8.0	31.1	3.4	3.1		8.0	
374	WRA2	M	MID-EBB	20-Apr-06	15:53	35.90	22.7	7.13	7.02	7.01	101.4	99.9	8.0	31.5	4.0	3.9		11.0	
375	WRA2	B	MID-EBB	20-Apr-06			22.6	7.04	6.97	7.01	100.9	98.9	8.0	31.5	4.2	3.5	3.7	7.0	8.7
376	WRA3	S	MID-EBB	20-Apr-06			22.9	7.20	7.03		104.8	102.5	8.1	31.3	1.8	2.1		12.5	
377	WRA3	M	MID-EBB	20-Apr-06	16:07	27.30	22.6	6.86	6.75	6.96	98.1	94.5	8.1	31.5	4.1	4.2		12.5	
378	WRA3	B	MID-EBB	20-Apr-06			22.6	7.10	7.00	7.05	102.2	100.1	8.1	31.4	2.9	2.8	3.0	10.5	11.8
379	WWFCZ1	S	MID-EBB	20-Apr-06			23.3	7.28	7.18		105.2	102.4	8.1	30.6	3.2	3.5		11.0	
380	WWFCZ1	M	MID-EBB	20-Apr-06	16:46	31.20	22.5	7.13	7.02	7.15	101.7	100.0	8.1	31.7	5.3	5.2		16.0	
381	WWFCZ1	B	MID-EBB	20-Apr-06			22.6	7.06	7.04	7.05	100.8	98.4	8.0	31.7	2.4	2.6	3.7	16.0	14.3
382	WWFCZ2	S	MID-EBB	20-Apr-06			22.9	7.31	7.20		105.3	102.5	8.1	31.3	2.9	3.0		8.5	
383	WWFCZ2	M	MID-EBB	20-Apr-06	16:33	42.10	22.5	7.13	7.06	7.18	100.3	98.5	8.1	31.7	3.8	3.8		15.0	
384	WWFCZ2	B	MID-EBB	20-Apr-06			22.6	7.23	7.13	7.18	103.8	101.6	8.1	31.7	3.4	3.3	3.4	17.0	13.5
385	WFCZR1	S	MID-EBB	20-Apr-06			23.3	7.21	7.13		104.3	101.8	8.1	31.1	2.9	2.5		8.0	
386	WFCZR1	M	MID-EBB	20-Apr-06	17:00	47.20	22.7	7.03	6.95	7.08	100.9	99.1	8.1	31.5	3.0	3.1		6.5	
387	WFCZR1	B	MID-EBB	20-Apr-06			22.6	7.06	7.00	7.03	100.4	98.7	8.1	31.6	3.5	3.6	3.1	9.0	7.8

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Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
388	WFCZR2	S	MID-EBB	20-Apr-06			23.0	6.93	6.83		101.4	97.3	8.1	31.1	3.0	3.1		8.0	
389	WFCZR2	M	MID-EBB	20-Apr-06	16:19	43.40	22.6	7.22	7.12	7.03	103.1	101.4	8.1	31.5	2.7	2.8		10.0	
390	WFCZR2	B	MID-EBB	20-Apr-06			22.5	7.43	7.38	7.41	102.9	101.2	8.1	31.5	3.1	3.3	3.0	8.5	8.8
391	WWA1	S	MID-FLOOD	20-Apr-06			23.1	7.03	6.93		100.9	98.6	8.1	30.7	2.3	2.6		7.0	
392	WWA1	M	MID-FLOOD	20-Apr-06	12:50	8.50	22.8	7.14	7.06	7.04	100.1	98.2	8.0	31.2	1.7	1.6		14.0	
393	WWA1	B	MID-FLOOD	20-Apr-06			22.7	6.96	6.92	6.94	101.7	99.4	8.0	31.1	2.0	2.1	2.1	13.5	11.5
394	WWA2	S	MID-FLOOD	20-Apr-06			22.7	7.04	6.92		102.8	100.3	8.1	31.0	1.3	1.2		7.8	
395	WWA2	M	MID-FLOOD	20-Apr-06	13:08	10.00	22.7	6.88	6.79	6.91	101.0	98.7	8.1	31.2	4.5	4.4		11.0	
396	WWA2	B	MID-FLOOD	20-Apr-06			22.7	6.94	6.89	6.92	98.4	95.9	8.1	31.3	5.0	4.8	3.5	6.5	8.4
397	WWA3	S	MID-FLOOD	20-Apr-06			22.9	7.04	6.94		102.9	99.5	8.1	30.6	8.1	7.9		11.5	
398	WWA3	M	MID-FLOOD	20-Apr-06	13:21	7.40	22.8	7.03	6.95	6.99	101.2	98.8	8.1	31.2	4.9	4.9		6.0	
399	WWA3	B	MID-FLOOD	20-Apr-06			22.7	6.95	6.84	6.90	101.1	98.9	8.1	31.2	4.7	5.2	6.0	12.0	9.8
400	WRA1	S	MID-FLOOD	20-Apr-06			22.9	7.15	7.06		104.5	102.2	8.1	30.6	3.5	3.9		4.5	
401	WRA1	M	MID-FLOOD	20-Apr-06	12:36	40.30	22.7	7.09	7.01	7.08	102.0	99.1	8.1	31.2	4.4	4.6		8.5	
402	WRA1	B	MID-FLOOD	20-Apr-06			22.7	7.22	7.17	7.20	102.9	100.7	8.1	29.8	3.7	2.9	3.8	10.5	7.8
403	WRA2	S	MID-FLOOD	20-Apr-06			22.9	7.41	7.27		106.1	104.1	8.1	30.7	2.5	2.8		8.3	
404	WRA2	M	MID-FLOOD	20-Apr-06	12:21	28.80	22.6	7.08	6.96	7.18	100.2	98.4	8.1	31.3	4.4	5.0		9.0	
405	WRA2	B	MID-FLOOD	20-Apr-06			22.6	7.11	7.01	7.06	99.9	98.5	8.0	31.4	4.8	4.8	4.0	13.5	10.3
406	WRA3	S	MID-FLOOD	20-Apr-06			22.9	7.20	7.10		100.7	99.4	8.0	30.7	3.4	3.5		7.0	
407	WRA3	M	MID-FLOOD	20-Apr-06	12:07	27.60	22.7	7.19	7.09	7.15	101.7	100.2	8.0	31.4	3.0	3.0		6.0	
408	WRA3	B	MID-FLOOD	20-Apr-06			22.7	6.94	6.76	6.85	100.0	98.1	8.0	31.4	3.8	3.9	3.5	6.0	6.3
409	WWFCZ1	S	MID-FLOOD	20-Apr-06			22.9	6.50	6.41		87.1	86.2	8.0	29.6	1.3	1.4		13.0	
410	WWFCZ1	M	MID-FLOOD	20-Apr-06	11:18	31.50	22.7	6.25	6.20	6.34	82.4	81.9	8.0	31.1	4.9	4.8		9.5	
411	WWFCZ1	B	MID-FLOOD	20-Apr-06			22.5	6.35	6.32	6.34	84.9	83.9	8.0	31.3	5.0	5.0	3.7	6.0	9.5
412	WWFCZ2	S	MID-FLOOD	20-Apr-06			22.9	6.63	6.57		89.1	88.6	8.0	30.6	3.2	2.9		9.0	
413	WWFCZ2	M	MID-FLOOD	20-Apr-06	11:34	40.90	22.8	6.57	6.50	6.57	88.7	87.8	8.0	30.9	3.3	3.1		9.0	
414	WWFCZ2	B	MID-FLOOD	20-Apr-06			2.7	6.66	6.60	6.63	90.6	89.8	8.0	31.0	3.1	3.0	3.1	6.5	8.2
415	WFCZR1	S	MID-FLOOD	20-Apr-06			23.2	6.75	6.67		92.7	91.6	8.0	30.3	2.9	2.8		11.0	
416	WFCZR1	M	MID-FLOOD	20-Apr-06	11:00	43.70	22.9	6.52	6.51										

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
431	WRA1	M	MID-EBB	22-Apr-06	13:25	32.30	23.0	6.73	6.58	6.86	105.0	102.5	8.0	31.4	1.7	1.6		9.0	
432	WRA1	B	MID-EBB	22-Apr-06			23.0	6.67	6.61	6.64	99.0	97.4	8.0	31.6	3.0	3.2	2.7	6.3	6.9
433	WRA2	S	MID-EBB	22-Apr-06			23.0	6.96	6.87		106.2	104.0	8.0	31.2	4.0	3.3		4.8	
434	WRA2	M	MID-EBB	22-Apr-06	13:12	30.10	22.9	7.07	6.98	6.97	107.7	105.5	8.0	31.4	3.2	3.0		12.5	
435	WRA2	B	MID-EBB	22-Apr-06			22.9	6.90	6.84	6.87	104.9	101.9	8.0	31.4	3.1	3.1	3.3	8.0	8.4
436	WRA3	S	MID-EBB	22-Apr-06			23.0	6.37	6.32		96.9	95.4	8.0	31.1	2.9	2.8		3.3	
437	WRA3	M	MID-EBB	22-Apr-06	13:00	31.90	22.9	6.63	6.53	6.46	99.8	98.0	8.0	31.4	3.4	2.6		7.0	
438	WRA3	B	MID-EBB	22-Apr-06			22.9	6.70	6.63	6.67	101.2	98.9	8.0	31.4	3.1	3.0	3.0	7.5	5.9
439	WWFCZ1	S	MID-EBB	22-Apr-06			23.3	7.24	7.19		107.2	105.7	8.0	30.9	3.2	2.6		6.5	
440	WWFCZ1	M	MID-EBB	22-Apr-06	12:13	30.00	23.1	7.05	6.96	7.11	106.3	104.2	8.0	31.3	4.1	3.5		6.0	
441	WWFCZ1	B	MID-EBB	22-Apr-06			23.0	6.83	6.73	6.78	104.9	102.7	8.0	31.5	3.3	3.5	3.4	11.0	7.8
442	WWFCZ2	S	MID-EBB	22-Apr-06			23.1	6.83	6.77		102.8	100.9	8.0	31.2	2.2	2.1		11.0	
443	WWFCZ2	M	MID-EBB	22-Apr-06	12:29	37.60	22.9	6.86	6.81	6.82	104.2	102.1	8.0	31.5	2.8	3.2		11.0	
444	WWFCZ2	B	MID-EBB	22-Apr-06			23.0	7.02	6.93	6.98	107.3	105.2	8.0	31.5	3.4	3.5	2.9	14.0	12.0
445	WFCZR1	S	MID-EBB	22-Apr-06			23.3	7.08	7.01		106.0	104.1	8.0	31.0	3.3	2.7		6.0	
446	WFCZR1	M	MID-EBB	22-Apr-06	12:00	45.90	23.1	7.04	6.88	7.00	105.6	103.8	8.0	31.3	3.2	3.2		8.0	
447	WFCZR1	B	MID-EBB	22-Apr-06			22.9	6.78	6.74	6.76	101.4	99.2	8.0	31.5	2.7	2.7	2.9	5.0	6.3
448	WFCZR2	S	MID-EBB	22-Apr-06			23.2	7.02	6.96		105.0	103.3	8.0	30.9	3.0	3.2		11.0	
449	WFCZR2	M	MID-EBB	22-Apr-06	12:43	37.00	23.0	7.16	7.05	7.05	107.4	105.6	8.0	31.1	2.9	2.8		3.8	
450	WFCZR2	B	MID-EBB	22-Apr-06			23.0	7.40	7.32	7.36	107.6	106.1	8.0	31.1	2.9	3.0	3.0	6.0	6.9
451	WWA1	S	MID-FLOOD	22-Apr-06			23.6	6.73	6.69		101.9	100.9	8.0	31.1	2.3	2.4		9.5	
452	WWA1	M	MID-FLOOD	22-Apr-06	16:30	7.50	23.5	6.63	6.59	6.66	98.8	92.4	8.0	31.1	2.1	3.0		10.5	
453	WWA1	B	MID-FLOOD	22-Apr-06			23.6	7.14	7.08	7.11	107.5	105.8	8.0	31.1	2.6	4.2	2.8	9.5	
454	WWA2	S	MID-FLOOD	22-Apr-06			23.7	6.96	6.87		106.0	104.4	8.0	31.0	3.2	4.0		11.5	
455	WWA2	M	MID-FLOOD	22-Apr-06	16:44	9.50	23.5	7.03	6.92	6.95	103.9	102.8	8.0	31.1	2.8	3.2		8.5	
456	WWA2	B	MID-FLOOD	22-Apr-06			23.3	6.88	6.80	6.84	104.4	102.5	8.0	31.1	9.0	9.4	5.2	5.0	8.3
457	WWA3	S	MID-FLOOD	22-Apr-06			23.7	6.97	6.89		103.9	102.5	8.0	31.0	3.1	3.1		13.5	
458	WWA3	M	MID-FLOOD	22-Apr-06	16:57	6.00	23.3	6.70	6.60	6.79	102.1	100.1	8.0	31.1	8.7	8.3		7.0	
459	WWA3	B	MID-FLOOD	22-Apr-06			23.3	6.85	6.82	6.84	102.8	101.0	8.0	31.1	3.7	4.0	5.1	6.0	8.8
460	WRA1	S	MID-FLOOD	22-Apr-06			23.7	7.11	7.03		104.1	102.9	8.0	30.7	2.0	2.2		7.0	
461	WRA1	M	MID-FLOOD	22-Apr-06	16:17	39.20	23.2	6.79	6.72	6.91	102.5	100.9	8.1	31.2	3.2	3.0		10.0	
462	WRA1	B	MID-FLOOD	22-Apr-06			23.1	6.80	6.69	6.75	105.6	103.3	8.1	31.4	2.7	2.7	2.6	6.0	7.7
463	WRA2	S	MID-FLOOD	22-Apr-06			23.7	6.99	6.89		106.8	105.1	8.0	30.8	2.1	2.8		5.0	
464	WRA2	M	MID-FLOOD	22-Apr-06	16:03	24.90	23.3	6.70	6.62	6.80	103.0	101.1	8.0	31.1	2.5	2.3		6.5	
465	WRA2	B	MID-FLOOD	22-Apr-06			23.3	6.53	6.47	6.50	100.5	95.4	8.1	31.2	2.8	3.1	2.6	6.0	5.8
466	WRA3	S	MID-FLOOD	22-Apr-06			23.3	7.02	6.94		109.2	107.3	8.0	31.1	2.3	2.7		7.5	
467	WRA3	M	MID-FLOOD	22-Apr-06	15:49	28.20	23.0	7.02	6.91	6.97	106.5	104.5	8.0	31.3	2.5	2.6		14.5	
468	WRA3	B	MID-FLOOD	22-Apr-06			22.9	6.90	6.84	6.87	104.4	101.7	8.0	31.6	3.5	3.6	2.9	10.0	10.7
469	WWFCZ1	S	MID-FLOOD	22-Apr-06			23.6	7.37	7.27		109.3	108.0	7.9	30.9	2.0	1.9		5.3	
470	WWFCZ1	M	MID-FLOOD	22-Apr-06	15:12	29.70	23.2	7.11	7.02	7.19	106.2	104.0	8.0	31.2	2.7	2.5		9.5	
471	WWFCZ1	B	MID-FLOOD	22-Apr-06			23.1	7.06	6.96	7.01	105.5	103.7	8.0	31.2	2.4	2.8	2.4	6.0	6.9
472	WWFCZ2	S	MID-FLOOD	22-Apr-06			23.5	7.39	7.25		110.0	108.6	8.0	31.3	2.2	2.3		5.0	
473	WWFCZ2	M	MID-FLOOD	22-Apr-06	15:25	39.30	23.2	7.10	6.97	7.18	107.0	105.3	8.0	31.4	3.0	3.4		8.0	

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
474	WWFCZ2	B	MID-FLOOD	22-Apr-06			23.0	6.87	6.79	6.83	104.2	102.2	8.0	31.4	2.5	2.7	2.7	7.0	6.7
475	WFCZR1	S	MID-FLOOD	22-Apr-06	15:00	42.00	23.6	6.81	6.73		100.5	99.4	7.9	31.1	2.9	2.4		12.0	
476	WFCZR1	M	MID-FLOOD	22-Apr-06			23.4	7.16	7.11	6.95	104.5	103.3	7.9	31.2	2.8	2.8		12.0	
477	WFCZR1	B	MID-FLOOD	22-Apr-06			23.3	6.98	6.94	6.96	105.7	103.5	7.9	31.3	3.5	2.9	2.9	8.5	10.8
478	WFCZR2	S	MID-FLOOD	22-Apr-06			23.5	7.21	7.16		109.8	107.6	8.0	31.3	2.3	2.8		6.5	
479	WFCZR2	M	MID-FLOOD	22-Apr-06	15:39	40.40	23.1	7.08	6.97	7.11	107.8	105.7	8.0	31.4	2.7	2.9		8.5	
480	WFCZR2	B	MID-FLOOD	22-Apr-06			23.0	6.88	6.81	6.85	104.4	102.2	8.0	31.4	3.0	3.2	2.8	5.5	6.8
481	WWA1	S	MID-EBB	24-Apr-06			24.1	6.92	6.83		105.1	103.6	8.0	29.0	1.7	1.7		4.0	
482	WWA1	M	MID-EBB	24-Apr-06	9:58	7.00	24.0	7.03	7.00	6.95	102.5	102.1	8.0	29.5	1.8	1.5		4.0	
483	WWA1	B	MID-EBB	24-Apr-06			23.9	7.04	7.00	7.02	105.6	104.2	8.0	29.7	1.7	2.5	1.8	3.5	3.8
484	WWA2	S	MID-EBB	24-Apr-06			24.0	6.93	6.87		103.1	102.1	8.0	29.5	2.2	2.1		6.0	
485	WWA2	M	MID-EBB	24-Apr-06	9:48	9.00	23.8	6.45	6.41	6.67	101.8	100.3	8.0	30.1	3.8	3.4		9.5	
486	WWA2	B	MID-EBB	24-Apr-06			23.8	6.84	6.87	6.86	101.1	100.1	8.0	30.1	3.1	3.0	2.9	6.0	7.2
487	WWA3	S	MID-EBB	24-Apr-06			24.2	6.58	6.57		98.0	97.6	8.0	29.8	1.5	1.7		7.5	
488	WWA3	M	MID-EBB	24-Apr-06	9:40	6.00	23.9	7.03	7.00	6.80	103.8	102.6	8.0	30.1	2.4	2.1		4.5	
489	WWA3	B	MID-EBB	24-Apr-06			23.8	6.85	6.79	6.82	102.1	100.9	8.0	30.2	3.3	2.8	2.3	4.5	5.5
490	WRA1	S	MID-EBB	24-Apr-06			23.8	6.66	6.62		101.9	100.5	8.0	29.8	1.3	1.5		5.0	
491	WRA1	M	MID-EBB	24-Apr-06	10:07	32.00	23.6	6.39	6.31	6.50	104.4	101.6	8.0	30.6	3.0	2.2		5.0	
492	WRA1	B	MID-EBB	24-Apr-06			23.6	6.52	6.44	6.48	105.4	102.7	8.0	31.0	2.3	1.7	2.0	8.5	6.2
493	WRA2	S	MID-EBB	24-Apr-06			24.0	7.02	6.95		107.9	106.6	8.0	29.3	1.8	1.4		4.0	
494	WRA2	M	MID-EBB	24-Apr-06	10:17	31.00	23.7	6.51	6.47	6.74	105.5	103.8	8.0	30.4	1.8	2.2		7.5	
495	WRA2	B	MID-EBB	24-Apr-06			23.5	6.57	6.56	6.57	98.7	97.5	8.0	31.0	1.3	1.2	1.6	6.0	5.8
496	WRA3	S	MID-EBB	24-Apr-06			24.0	7.29	7.27		108.2	107.4	8.1	29.1	1.3	1.1		5.0	
497	WRA3	M	MID-EBB	24-Apr-06	10:27	30.00	23.6	6.99	6.95	7.13	103.9	102.9	8.1	30.8	1.5	1.5		7.5	
498	WRA3	B	MID-EBB	24-Apr-06			23.5	6.79	6.76	6.78	107.5	104.8	8.1	31.1	1.7	1.9	1.5	8.5	7.0
499	WWFCZ1	S	MID-EBB	24-Apr-06			24.1	6.97	6.92		108.3	106.9	8.1	29.1	1.3	1.9		2.8	
500	WWFCZ1	M	MID-EBB	24-Apr-06	10:57	31.00	23.4	6.12	6.09	6.53	86.2	85.9	8.1	31.3	2.4	2.2		9.5	
501	WWFCZ1	B	MID-EBB	24-Apr-06			23.3	6.61	6.54	6.58	105.0	102.8	8.1	31.3	3.5	3.9	2.5	5.5	5.9
502	WWFCZ2	S	MID-EBB	24-Apr-06															



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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
517	WWA3	S	MID-FLOOD	24-Apr-06	16:25	7.00	24.9	8.03	7.99	7.77	111.1	110.6	8.2	26.8	3.2	3.2	2.6	12.5	9.8
518	WWA3	M	MID-FLOOD	24-Apr-06			24.9	7.56	7.50		111.7	110.6	8.2	27.0	2.1	2.0		9.5	
519	WWA3	B	MID-FLOOD	24-Apr-06			24.6	7.26	7.18		110.0	109.0	8.2	27.7	2.4	2.8		7.5	
520	WRA1	S	MID-FLOOD	24-Apr-06	15:57	34.00	25.1	7.96	7.93	7.38	114.9	114.1	8.2	26.1	2.0	2.1	2.2	9.5	9.3
521	WRA1	M	MID-FLOOD	24-Apr-06			24.0	6.84	6.80		105.7	104.1	8.2	29.4	2.2	2.4		8.5	
522	WRA1	B	MID-FLOOD	24-Apr-06			23.8	6.69	6.64		105.9	103.6	8.2	30.1	2.1	2.2		10.0	
523	WRA2	S	MID-FLOOD	24-Apr-06	15:48	31.00	24.8	7.68	7.64	7.17	113.2	112.4	8.2	26.5	2.0	2.2	2.0	6.0	8.5
524	WRA2	M	MID-FLOOD	24-Apr-06			24.1	6.68	6.66		104.1	102.7	8.2	29.4	2.2	2.1		10.5	
525	WRA2	B	MID-FLOOD	24-Apr-06			23.7	6.99	6.97		107.1	105.5	8.2	30.4	1.8	2.0		9.0	
526	WRA3	S	MID-FLOOD	24-Apr-06	15:40	28.00	24.9	7.26	7.23	6.99	108.4	107.1	8.2	26.5	2.0	2.0	2.1	9.5	8.0
527	WRA3	M	MID-FLOOD	24-Apr-06			24.0	6.76	6.70		101.8	100.7	8.2	30.0	1.7	1.8		8.5	
528	WRA3	B	MID-FLOOD	24-Apr-06			23.7	6.52	6.42		106.5	104.5	8.2	30.5	2.6	2.3		6.0	
529	WWFCZ1	S	MID-FLOOD	24-Apr-06	15:10	29.00	24.7	7.32	7.30	7.28	111.2	110.2	8.1	27.2	1.9	1.9	1.9	7.3	7.7
530	WWFCZ1	M	MID-FLOOD	24-Apr-06			24.2	7.28	7.20		107.3	106.9	8.1	27.5	1.9	2.0		8.0	
531	WWFCZ1	B	MID-FLOOD	24-Apr-06			23.9	7.22	7.15		108.1	107.1	8.1	29.9	2.1	1.9		5.5	
532	WWFCZ2	S	MID-FLOOD	24-Apr-06	15:20	42.00	25.0	7.86	7.82	7.37	115.3	114.7	8.2	26.8	2.1	2.0	2.0	7.5	6.9
533	WWFCZ2	M	MID-FLOOD	24-Apr-06			24.1	6.92	6.86		105.7	104.7	8.2	29.6	1.7	2.1		8.0	
534	WWFCZ2	B	MID-FLOOD	24-Apr-06			23.9	6.79	6.69		105.2	103.8	8.2	29.7	2.0	1.8		7.5	
535	WFCZR1	S	MID-FLOOD	24-Apr-06	15:00	42.00	25.0	7.18	7.10	7.03	109.2	107.8	8.1	27.5	1.8	1.8	2.0	7.0	9.5
536	WFCZR1	M	MID-FLOOD	24-Apr-06			24.1	6.95	6.89		103.3	102.8	8.1	29.7	2.8	2.5		9.5	
537	WFCZR1	B	MID-FLOOD	24-Apr-06			23.8	6.79	6.73		100.3	99.7	8.1	30.5	1.4	1.8		12.0	
538	WFCZR2	S	MID-FLOOD	24-Apr-06	15:30	34.00	25.2	7.86	7.80	7.28	115.2	114.9	8.2	26.2	2.8	2.2	2.7	9.5	11.0
539	WFCZR2	M	MID-FLOOD	24-Apr-06			23.9	6.77	6.69		106.2	105.4	8.2	30.0	2.4	2.7		13.5	
540	WFCZR2	B	MID-FLOOD	24-Apr-06			23.7	7.03	6.94		108.8	107.2	8.2	30.5	2.9	3.0		10.0	
541	WWA1	S	MID-EBB	26-Apr-06	7:58	10.00	25.2	7.78	7.77	7.89	113.4	112.9	8.1	26.5	3.6	3.9	4.4	5.5	9.0
542	WWA1	M	MID-EBB	26-Apr-06			25.1	8.02	7.98		116.2	115.9	8.1	27.2	4.8	4.7		10.0	
543	WWA1	B	MID-EBB	26-Apr-06			25.0	7.94	7.93		114.7	114.2	8.1	27.6	4.5	4.6		11.5	
544	WWA2	S	MID-EBB	26-Apr-06	7:44	8.00	25.1	7.46	7.42	7.60	109.7	109.0	8.1	27.4	4.6	4.1	6.2	10.5	11.2
545	WWA2	M	MID-EBB	26-Apr-06			25.1	7.50	7.47		109.5	108.9	8.1	27.6	7.4	6.2		11.0	
546	WWA2	B	MID-EBB	26-Apr-06			25.2	7.62	7.57		111.9	111.3	8.1	27.6	6.6	8.3		12.0	
547	WWA3	S	MID-EBB	26-Apr-06	7:30	6.20	25.5	7.18	7.17	7.18	102.1	102.2	8.0	27.5	5.7	6.1	5.2	8.5	9.3
548	WWA3	M	MID-EBB	26-Apr-06			25.5	7.20	7.18		105.1	104.7	8.1	27.5	4.9	5.2		10.5	
549	WWA3	B	MID-EBB	26-Apr-06			25.3	7.49	7.45		107.5	107.6	8.1	27.6	4.3	4.7		9.0	
550	WRA1	S	MID-EBB	26-Apr-06	8:13	37.90	25.4	8.34	8.31	8.08	120.7	120.0	8.1	25.9	2.9	3.1	3.6	13.0	11.8
551	WRA1	M	MID-EBB	26-Apr-06			24.9	7.87	7.79		118.4	117.3	8.1	28.1	4.0	3.8		16.0	
552	WRA1	B	MID-EBB	26-Apr-06			24.7	8.04	8.00		116.9	116.3	8.1	28.3	3.8	4.0		6.5	
553	WRA2	S	MID-EBB	26-Apr-06	8:30	33.40	24.9	8.31	8.26	8.06	121.4	120.4	8.1	26.0	4.2	3.8	4.1	7.5	6.8
554	WRA2	M	MID-EBB	26-Apr-06			24.6	7.86	7.82		115.3	114.2	8.1	28.8	5.0	3.7		7.5	
555	WRA2	B	MID-EBB	26-Apr-06			24.7	8.03	7.93		118.6	117.4	8.1	28.2	4.0	4.1		5.3	
556	WRA3	S	MID-EBB	26-Apr-06	8:44	35.70	25.3	8.02	8.01	7.99	115.5	114.6	8.1	26.0	3.8	5.1	4.3	6.0	9.0
557	WRA3	M	MID-EBB	26-Apr-06			24.8	8.03	7.91		119.0	118.2	8.1	28.0	4.1	3.9		11.5	
558	WRA3	B	MID-EBB	26-Apr-06			24.4	8.06	7.98		119.0	117.9	8.1	29.4	4.4	4.6		9.5	
559	WWFCZ1	S	MID-EBB	26-Apr-06			25.1	8.29	8.21		121.6	120.9	8.1	26.8	3.8	3.6		5.5	

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
560	WWFCZ1	M	MID-EBB	26-Apr-06	9:28	33.50	24.9	8.14	8.08	8.18	118.6	117.8	8.1	27.9	4.9	4.8	4.6	14.5	11.5
561	WWFCZ1	B	MID-EBB	26-Apr-06			24.6	8.06	8.00		118.9	117.6	8.1	28.8	5.5	4.8		14.5	
562	WWFCZ2	S	MID-EBB	26-Apr-06			25.6	8.65	8.58		124.5	123.7	8.2	25.8	3.7	3.4		8.5	
563	WWFCZ2	M	MID-EBB	26-Apr-06	9:13	35.10	24.9	8.02	7.94	8.30	117.6	116.9	8.1	28.4	4.8	4.5	4.2	4.0	6.3
564	WWFCZ2	B	MID-EBB	26-Apr-06			24.7	8.04	8.00		118.2	117.4	8.1	28.3	4.5	4.5		6.5	
565	WFCZR1	S	MID-EBB	26-Apr-06			25.5	8.62	8.50		124.7	124.2	8.1	26.3	3.9	3.9		4.0	
566	WFCZR1	M	MID-EBB	26-Apr-06	9:45	45.00	24.9	8.14	8.09	8.34	118.7	118.0	8.1	28.0	4.0	4.1	3.9	7.5	8.2
567	WFCZR1	B	MID-EBB	26-Apr-06			24.6	8.23	8.20		119.3	118.7	8.1	28.8	3.5	3.7		13.0	
568	WFCZR2	S	MID-EBB	26-Apr-06			25.4	8.61	8.60		125.3	124.4	8.1	26.1	3.8	4.8		7.0	
569	WFCZR2	M	MID-EBB	26-Apr-06	9:00	43.50	25.0	8.15	8.10	8.37	119.7	118.7	8.1	27.6	4.2	5.1	4.6	8.0	7.3
570	WFCZR2	B	MID-EBB	26-Apr-06			24.9	8.05	7.98		119.6	118.3	8.1	27.7	4.8	4.7		7.0	
571	WWA1	S	MID-FLOOD	26-Apr-06			24.5	7.51	7.45		112.5	111.5	8.1	30.1	3.6	4.0		9.5	
572	WWA1	M	MID-FLOOD	26-Apr-06	12:57	11.30	24.2	7.58	7.52	7.52	111.6	110.5	8.0	30.5	6.9	6.3	5.5	10.0	10.7
573	WWA1	B	MID-FLOOD	26-Apr-06			24.1	7.60	7.57		114.0	112.5	8.0	30.6	6.2	5.9		12.5	
574	WWA2	S	MID-FLOOD	26-Apr-06			24.3	7.28	7.22		108.5	107.1	8.1	30.6	7.0	7.1		13.0	
575	WWA2	M	MID-FLOOD	26-Apr-06	12:44	7.70	24.3	7.42	7.37	7.32	109.2	108.4	8.1	30.5	6.1	5.6	6.1	12.5	13.2
576	WWA2	B	MID-FLOOD	26-Apr-06			24.2	7.45	7.39		110.3	109.5	8.1	30.5	6.1	4.8		14.0	
577	WWA3	S	MID-FLOOD	26-Apr-06			25.8	6.99	7.01		102.9	102.5	8.0	29.8	4.5	5.4		12.0	
578	WWA3	M	MID-FLOOD	26-Apr-06	12:30	6.00	25.4	7.29	7.24	7.13	110.4	109.5	8.0	30.6	5.5	5.0	4.8	10.0	10.7
579	WWA3	B	MID-FLOOD	26-Apr-06			25.3	7.17	7.10		109.1	107.5	8.1	30.7	4.3	4.0		10.0	
580	WRA1	S	MID-FLOOD	26-Apr-06			24.4	7.61	7.55		114.4	113.1	8.1	30.2	4.2	5.4		6.5	
581	WRA1	M	MID-FLOOD	26-Apr-06	13:10	25.30	24.3	7.57	7.49	7.56	114.3	112.6	8.0	30.5	6.2	5.5	5.8	8.5	7.7
582	WRA1	B	MID-FLOOD	26-Apr-06			24.4	7.60	7.48		116.5	114.2	8.0	30.3	6.8	6.8		8.0	
583	WRA2	S	MID-FLOOD	26-Apr-06			24.3	7.73	7.70		114.1	112.7	8.1	30.0	3.1	3.7		6.0	
584	WRA2	M	MID-FLOOD	26-Apr-06	13:22	38.40	24.1	7.73	7.67										

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
603	WWA1	B	MID-EBB	28-Apr-06			25.0	6.53	6.52	6.53	96.5	95.3	8.1	26.4	6.2	7.8	5.8	10.0	10.3
604	WWA2	S	MID-EBB	28-Apr-06			24.8	6.46	6.41		93.5	92.7	8.1	27.0	3.9	3.3		8.0	
605	WWA2	M	MID-EBB	28-Apr-06	13:13	10.30	24.6	6.53	6.48	6.47	95.6	95.0	8.1	27.3	6.5	5.6		14.0	
606	WWA2	B	MID-EBB	28-Apr-06			24.6	6.58	6.54	6.56	97.5	96.4	8.1	27.3	4.7	4.9	4.8	8.5	10.2
607	WWA3	S	MID-EBB	28-Apr-06			24.7	6.19	6.13		92.8	91.5	8.0	26.7	3.2	3.9		11.0	
608	WWA3	M	MID-EBB	28-Apr-06	13:00	7.60	24.7	6.46	6.44	6.31	95.9	94.7	8.0	27.4	6.0	6.1		9.5	
609	WWA3	B	MID-EBB	28-Apr-06			24.7	6.50	6.46	6.48	96.2	94.8	8.0	27.6	7.2	6.4	5.5	9.0	9.8
610	WRA1	S	MID-EBB	28-Apr-06			25.2	6.26	6.25		92.7	91.7	8.1	25.1	3.6	3.4		5.5	
611	WRA1	M	MID-EBB	28-Apr-06	13:45	35.80	25.1	6.50	6.46	6.37	95.2	94.5	8.1	25.2	3.8	3.7		7.5	
612	WRA1	B	MID-EBB	28-Apr-06			24.9	6.73	6.69	6.71	99.4	97.9	8.1	25.5	3.7	3.7	3.6	7.5	6.8
613	WRA2	S	MID-EBB	28-Apr-06			25.1	6.55	6.51		97.0	95.2	8.1	25.3	3.8	3.9		5.0	
614	WRA2	M	MID-EBB	28-Apr-06	13:57	28.10	24.8	6.39	6.32	6.44	97.2	95.5	8.1	27.0	4.7	4.6		9.5	
615	WRA2	B	MID-EBB	28-Apr-06			24.9	7.34	7.18	7.26	97.6	96.0	8.1	26.3	4.7	4.6	4.4	5.5	6.7
616	WRA3	S	MID-EBB	28-Apr-06			25.1	6.51	6.46		97.1	95.8	8.1	25.5	4.1	3.6		6.0	
617	WRA3	M	MID-EBB	28-Apr-06	14:20	29.80	24.7	6.22	6.22	6.35	93.3	92.4	8.1	27.8	5.1	4.4		4.5	
618	WRA3	B	MID-EBB	28-Apr-06			24.6	6.45	6.38	6.42	98.3	95.9	8.1	28.2	5.9	5.6	4.8	11.5	7.3
619	WWFCZ1	S	MID-EBB	28-Apr-06			25.0	6.66	6.59		97.2	96.1	8.1	25.1	3.1	3.7		7.5	
620	WWFCZ1	M	MID-EBB	28-Apr-06	15:06	33.80	24.7	6.31	6.23	6.45	96.5	94.9	8.1	27.3	4.5	4.5		5.0	
621	WWFCZ1	B	MID-EBB	28-Apr-06			24.8	6.39	6.31	6.35	96.5	94.9	8.1	27.8	4.8	5.3	4.3	6.0	6.2
622	WWFCZ2	S	MID-EBB	28-Apr-06			24.9	6.43	6.36		96.1	93.9	8.1	25.1	3.5	3.3		4.8	
623	WWFCZ2	M	MID-EBB	28-Apr-06	14:33	42.00	24.8	6.45	6.37	6.40	97.2	95.6	8.1	26.0	4.6	3.0		6.0	
624	WWFCZ2	B	MID-EBB	28-Apr-06			24.7	6.50	6.49	6.50	93.5	92.9	8.1	27.3	3.3	3.3	3.5	7.0	5.9
625	WFCZR1	S	MID-EBB	28-Apr-06			25.1	6.32	6.31		90.7	88.9	8.1	25.2	4.0	4.0		7.5	
626	WFCZR1	M	MID-EBB	28-Apr-06	15:19	45.40	24.6	6.45	6.41	6.37	96.2	95.1	8.1	28.1	4.6	4.6		9.0	
627	WFCZR1	B	MID-EBB	28-Apr-06			24.4	6.40	6.37	6.39	96.7	95.2	8.1	28.8	4.7	3.1	4.2	8.5	8.3
628	WFCZR2	S	MID-EBB	28-Apr-06			25.0	6.52	6.50		95.4	94.2	8.1	25.0	3.4	3.6		4.5	
629	WFCZR2	M	MID-EBB	28-Apr-06	14:48	42.50	24.5	6.45	6.37	6.46	97.2	94.3	8.1	28.2	3.8	3.9		5.5	
630	WFCZR2	B	MID-EBB	28-Apr-06			24.4	6.48	6.45	6.47	96.4	95.0	8.1	28.4	3.6	3.9	3.7	6.5	5.5
631	WWA1	S	MID-FLOOD	28-Apr-06			24.7	6.53	6.47		97.1	95.7	8.0	27.1	2.9	2.7		6.5	
632	WWA1	M	MID-FLOOD	28-Apr-06	10:50	9.00	24.7	6.16	6.14	6.33	92.0	90.4	8.0	27.7	5.2	5.0		6.5	
633	WWA1	B	MID-FLOOD	28-Apr-06			24.7	6.52	6.47	6.50	96.9	95.4	8.0	27.6	3.6	3.7	3.9	7.0	6.7
634	WWA2	S	MID-FLOOD	28-Apr-06			24.7	6.55	6.49		97.6	96.3	8.0	27.4	3.4	3.2		8.0	
635	WWA2	M	MID-FLOOD	28-Apr-06	11:03	10.50	24.6	6.39	6.30	6.43	98.2	95.9	8.0	28.2	4.0	4.0		5.5	
636	WWA2	B	MID-FLOOD	28-Apr-06			24.6	6.52	6.45	6.49	96.8	95.5	8.0	27.9	3.9	3.4	3.6	11.5	8.3
637	WWA3	S	MID-FLOOD	28-Apr-06			24.6	6.52	6.43		99.6	97.8	8.0	27.3	2.8	3.2		7.5	
638	WWA3	M	MID-FLOOD	28-Apr-06	11:20	7.00	24.6	6.46	6.39	6.45	98.2	96.9	8.0	28.2	2.8	2.9		5.0	
639	WWA3	B	MID-FLOOD	28-Apr-06			24.5	6.50	6.41	6.46	97.9	96.3	8.0	28.9	3.5	3.7	3.2	7.0	6.5
640	WRA1	S	MID-FLOOD	28-Apr-06			24.4	6.60	6.52		102.0	98.7	8.0	28.2	5.9	3.5		6.0	
641	WRA1	M	MID-FLOOD	28-Apr-06	10:37	35.50	24.4	6.44	6.36	6.48	98.7	96.4	8.0	29.6	1.9	2.2		11.0	
642	WRA1	B	MID-FLOOD	28-Apr-06			24.2	6.59	6.52	6.56	98.6	97.3	8.0	29.9	5.7	5.7	4.2	6.5	7.8
643	WRA2	S	MID-FLOOD	28-Apr-06			24.7	6.32	6.23		94.2	93.1	8.0	27.3	3.6	3.3		9.5	
644	WRA2	M	MID-FLOOD	28-Apr-06	10:20	32.00	24.5	6.53	6.46	6.39	98.6	97.3	8.0	29.5	5.6	6.0		8.0	
645	WRA2	B	MID-FLOOD	28-Apr-06			24.4	6.57	6.54	6.56	99.5	96.7	8.0	29.8	4.6	4.2	4.5	13.0	10.2

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Marine Water Quality Impact Monitoring

Lab ID	Location	Position	Tide	Sampling Date	Time	Water depth, m	Temp. °C	DO, mg/L (1)	DO, mg/L (2)	DO, Average value	DO, % saturation (1)	DO, % saturation (2)	pH, Unit	Salinity, ppt	Turbidity, NTU (1)	Turbidity, NTU (2)	NTU, Averaged Value	Suspended Solid, mg/L	SS, Averaged Value
646	WRA3	S	MID-FLOOD	28-Apr-06			24.7	6.63	6.56		100.3	98.6	8.0	26.7	3.2	3.1		8.0	
647	WRA3	M	MID-FLOOD	28-Apr-06	10:07	28.60	24.5	6.33	6.27	6.45	94.8	93.7	8.0	29.1	4.5	4.3		9.5	
648	WRA3	B	MID-FLOOD	28-Apr-06			24.4	6.40	6.34	6.37	97.8	96.2	8.0	29.5	3.9	4.6	3.9	10.5	9.3
649	WWFCZ1	S	MID-FLOOD	28-Apr-06			24.4	6.07	6.02		88.6	87.4	8.0	26.5	3.4	3.2		14.5	
650	WWFCZ1	M	MID-FLOOD	28-Apr-06	9:15	31.00	24.4	6.17	6.10	6.09	94.1	92.1	8.0	29.5	3.2	3.2		12.5	
651	WWFCZ1	B	MID-FLOOD	28-Apr-06			24.3	6.30	6.24	6.27	93.8	92.9	8.0	30.3	5.2	5.1	3.9	13.5	13.5
652	WWFCZ2	S	MID-FLOOD	28-Apr-06			24.7	6.47	6.41		96.1	94.8	8.0	26.4	4.6	4.9		8.0	
653	WWFCZ2	M	MID-FLOOD	28-Apr-06	9:33	39.40	24.4	6.44	6.35	6.42	97.0	95.7	8.0	29.6	3.5	3.5		6.0	
654	WWFCZ2	B	MID-FLOOD	28-Apr-06			24.3	6.66	6.61	6.64	99.3	98.0	8.0	30.1	6.3	6.3	4.8	6.0	6.7
655	WFCZR1	S	MID-FLOOD	28-Apr-06			24.8	5.76	5.73		84.6	83.7	8.0	27.3	5.5	6.0		11.0	
656	WFCZR1	M	MID-FLOOD	28-Apr-06	9:00	39.20	24.5	5.89	5.86	5.81	86.8	86.1	8.0	29.7	4.5	4.1		14.0	
657	WFCZR1	B	MID-FLOOD	28-Apr-06			24.3	5.96	5.95	5.96	87.5	86.6	8.0	30.7	5.6	4.9	5.1	17.5	14.2
658	WFCZR2	S	MID-FLOOD	28-Apr-06			24.8	6.34	6.27		95.0	93.7	8.0	26.4	6.2	6.1		21.5	
659	WFCZR2	M	MID-FLOOD	28-Apr-06	9:49	35.80	24.4	6.36	6.29	6.32	97.5	96.0	8.0	29.9	3.4	3.0		18.5	
660	WFCZR2	B	MID-FLOOD	28-Apr-06			24.3	6.52	6.47	6.50	99.2	97.7	8.0	30.1	3.1	2.5	4.0	17.5	19.2