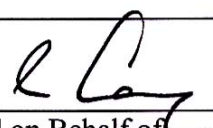


**Proposed Extension of Public Golf Course  
at Kau Sai Chau Island, Sai Kung**

**Monthly Environmental Monitoring & Audit (EM&A) Report  
for April 2006**

**(Report No. 382210/004)**

Report Authorized For  
Issue By:



For and on Behalf of  
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**May 2006**

## Table of Content

### Executive Summary

#### 1. Introduction

- 1.1 *Background of the Project*
- 1.2 *Purpose of the Report*
- 1.3 *Structure of the Report*

#### 2. Project Information

- 2.1 *Background*
- 2.2 *Site Description*
- 2.3 *Project Organization*
- 2.4 *Construction Programme*
- 2.5 *Status of Environmental Submission*
- 2.6 *Summary of EM&A Requirements*

#### 3. Environmental Monitoring Requirements

- 3.1 *Air Quality*
- 3.2 *Water Quality*
- 3.3 *Ecology*
- 3.4 *Landscape and Visual*
- 3.5 *Archaeology (Watching Brief)*
- 3.6 *Land Contamination*

#### 4. Implementation Status on Environmental Protection Requirements

#### 5. Monitoring Results

- 5.1 *Air Quality*
- 5.2 *Water Quality*
- 5.3 *Ecology*
- 5.4 *Landscape and Visual*
- 5.5 *Archaeology (Watching Brief)*
- 5.6 *Land Contamination*

#### 6. Environmental Site Auditing

#### 7. Environmental Non-Conformance

- 7.1 *Summary of Environmental Non-Compliance*
- 7.2 *Summary of Environmental Complaint*
- 7.3 *Summary of Environmental Summons*

#### 8. Future Key Issues

- 8.1 *Key Issues for coming month*
- 8.2 *Monitoring Schedule for the coming month*
- 8.3 *Construction programme for the next three month*

#### 9. Recommendations and Conclusions

**List of Figure**

- 1.1 Master Layout Plan of the Proposed Third Golf Course
- 1.2 Project Organisation and Lines of Communication
- 3.1 Proposed Air Quality Monitoring Locations
- 3.2 Proposed Water Quality Monitoring Locations (Construction phase)
- 3.3 Proposed Ecology Monitoring Locations
- 3.4 Locations of Coral and Seagrass Monitoring (Sites D2, D3 and C)
- 3.4b Indicative locations of the tagged corals at Site B2 under the revised monitoring regime
- 3.5 Coral Transplantation Location
- 3.6 Watching Brief Monitoring Area
- 3.7 Sampling Locations for Land Contamination

**List of Table**

- Table 1.1 Structure of the Report
- Table 2.1 Summary of Compliance with EP Conditions
- Table 2.2 Summary of Impact EM&A Requirements
- Table 3.1 Action and Limit Levels for 1-hour TSP
- Table 3.2 Action and Limit Levels for 24-hour TSP
- Table 3.3 TSP Monitoring Parameter and Frequency
- Table 3.4 Air Quality Monitoring Equipment
- Table 3.5 Derived Summaries of Action and Limit Levels for Marine Water Quality
- Table 3.6 Derived Summaries of Action and Limit Levels for Freshwater Water Quality
- Table 3.7 Water Quality Monitoring Parameter, Frequency and Locations
- Table 3.8 Water Quality Monitoring Locations during Construction Phase
- Table 3.9 Analytical Methods to be applied to Water Quality Samples
- Table 5.2-1 Marine Water Exceedance Summary March – April 2006
- Table 5.2-2 Freshwater Exceedance Summary March – April 2006
- Table 5.3-1 Conditions of tagged corals at Site B2
- Table 5.3-2 Baseline conditions of additional corals tagged in April 2006 at Site B2
- Table 5.3-3 Conditions of tagged corals at Site C
- Table 5.3-4 Conditions of tagged corals at Control Site
- Table 6.1 Summary of Environmental Licensing and Permit Status

**List of Annex**

- Annex A Tentative Construction Programme
- Annex B Monitoring Programme for the reporting month
- Annex C Event Action Plan
- Annex D Implementation status on Environmental Protection Requirements
- Annex E Monitoring results
- Annex F Calibration Certificates
- Annex G Monitoring Programme for the next three months
- Annex H Construction Programme for the next three months

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Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

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## **Executive Summary**

This is the fourth monthly Environmental Monitoring and Audit (EM&A) report prepared by Black & Veatch, the designated Environmental Team (ET), for the Project “Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung”. The construction works of golf course was commenced on 16<sup>th</sup> January 2006. This report presents the results of the EM&A works conducted in the month of April 2006 (25<sup>th</sup> March 2006 to 24<sup>th</sup> April 2006).

### Summary of construction works undertaken during this report period

Vegetation clearance at Holes 1, 2, 3, 8, 9 & 18 were completed. For Hole 17, approximate 30% of vegetation was cleared. Haul roads located at centre and northern part of the project was completed to link up Holes between 1-10, 17&18. Major cut & fill work was carried at Holes 1, 2, 3, 8, 9, 17 & 18 during the reporting month.

The temporary barging point was completed at early April 2006. The floating pontoon was located at the EP location. Site formation for the concrete batching plant was completed and the construction of concrete batching plant was on-going. No concrete production was recorded during the monitoring month. Site office was started to construct near the mid-April 2006 near the existing maintenance building. No chemical storage area was available on site.

For the desalination plant, no dredging work for the desalination plant intake and outfall pipelines was carried out. Only land formation work for the desalination plant was carried out.

Stream buffer zone was demarcated at Stream A and partially at Stream B (tributary mainly). Construction of temporary bridge no. 9 was completed at the end of March 2006 within the Stream A buffer zone area. The intrusion of buffer zone area was mainly the abutment area for the temporary bridge no. 9. Temporary bridge no. 5, across the existing freshwater marsh near to existing Hole N15, was started to construct at the end of this reporting month.

### Environmental Monitoring and Audit Progress

A summary of monitoring activities in this reporting period is shown as follows:

24-hour Total Suspended Particulates (TSP) monitoring at GCA B1	5 times
Water quality monitoring (marine + freshwater)	10 times
Terrestrial Ecology	1 time
Marine Ecology	1 time
Landscaping & Visual	2 times

### Air Quality

5 sets of 24-hour TSP monitoring were carried out on 30<sup>th</sup>, 4<sup>th</sup>, 11<sup>th</sup>, 18<sup>th</sup> & 22<sup>nd</sup> April 2006 at Bungalow A (GCA B1) at Kau Sai Chau during this reporting month. One exceedance (TSP = 235 µg/m<sup>3</sup>) of action level of 24-TSP was recorded at GCA B1 on 4<sup>th</sup> April 2006.

### Water Quality

10 sets of water quality monitoring were carried out on 27<sup>th</sup>, 29<sup>th</sup> and 31<sup>st</sup> March 2006 and 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 12<sup>th</sup>, 19<sup>th</sup> and 24<sup>th</sup> April 2006 at 9 marine and 7 freshwater monitoring locations. Monitoring was performed on schedule. The extra set of water quality sampling was carried out due to the amber, red and black rain storm event occurred on 24<sup>th</sup> April 2006.

For marine water, (i) three limit level exceedances of turbidity and (ii) five limit level exceedances of SS were recorded at KLW, M\_Marsh, TTC, M\_BP and KS on 24<sup>th</sup> April 2006 due to the heavy rainstorm.

During the reporting month, (i) three action and nine limit level exceedances of turbidity and SS were recorded at Stream A, (ii) one action and seven limit level exceedances of turbidity and SS were recorded at Streams B and C and (iii) three action and five limit levels exceedances of turbidity and SS were recorded at the downstream of freshwater inland marsh.

### Ecology

Terrestrial ecology was conducted on 21<sup>st</sup> and 26<sup>th</sup> April 2006. The demarcation of the stream buffer zone had been established for Stream A and Stream B, and a temporary access bridge had been constructed as a crossing for Stream A. Stream C buffer zone demarcation establishment will be finished by the Contractor before the works fronts reach Stream C. In general, except the temporary bridge crossing point at Stream A, the streams and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey.

Marine ecology was conducted on 27<sup>th</sup> & 28<sup>th</sup> April 2006 at Site B2, Site C and Control Site. A seawall had constructed at Site B2 as the landing point of the temporary barging point. The monitoring regime At Site B2 was adjusted. The total numbers of tagged corals at Site B2 were increased from 20 to 50. Minor sedimentation coverage ranged from 3 to 5% was observed at Site B2 but the percentage was smaller than the action level standard (i.e. 15%), and thus did not trigger response plan. Site C and the Control Site still remained similar conditions as during the Baseline Survey. No mortality, sedimentation or bleaching was found on the tagged corals in these two sites.

### Landscaping & Visual

Landscape and visual monitoring and site audits were carried on 4<sup>th</sup> and 20<sup>th</sup> April 2006. Vegetation clearance work, site formation and erection of site office were being carried out at present. Some of the trees had been already transplanted to final location. Stockpiles of cleared vegetation were found stored on site and require removal.

### Environmental Site Auditing

Four weekly joint environmental site audits were carried out on 29<sup>th</sup> March, 4<sup>th</sup>, 11<sup>th</sup> and 21<sup>st</sup> April 2006 with the Contractor's representative. A monthly joint environmental site audit was carried out on 21<sup>st</sup> April 2006 by the Contractor's Representative ET's representative and Independent Environmental Checker (IC(E)).

### Environmental Non-conformance

#### *Air Quality*

One exceedance (TSP = 235 µg/m<sup>3</sup>) of action level of 24-TSP was recorded at GCA B1 on 4<sup>th</sup> April 2006. The exceedance was considered project-related. Follow up action on review of the dust suppression mitigation measure is required.

#### *Freshwater and Marine Water*

For marine water, all eight exceedances of SS and turbidity were recorded at KLW, M\_Marsh, TTC, M\_BP and KS on 24<sup>th</sup> April 2006 due to the heavy rainstorm event. For the exceedances at KLW and KS, they were considered not attributed to the works. No further action was required. The exceedances were mainly due to natural variation of marine water after heavy rainstorm event.

Major silty runoff was observed on 24<sup>th</sup> April 2006 during the site investigation after the heavy rainstorm event from Stream A, haul road near temporary barging point and existing freshwater inland marsh. Six exceedances (three exceedances of SS and three exceedances of turbidity) were recorded at M\_Marsh, TTC and M\_BP. All six exceedances were, considered project-related.

The exceedances recorded at Stream A were mainly attributed to from runoff from filling area of Hole 17 and temporary bridge no. 9 and heavy rainstorm event on 24<sup>th</sup> April 2006. As no construction work adjacent to the Streams B & C, those exceedances were considered natural variation of the streams and considered not project-related. The exceedances recorded at freshwater inland marsh were mainly attributed to the runoff from Holes 1 & 18 to the existing freshwater inland marsh and considered project-related.

All notifications of exceedances have been forwarded to the relevant parties and the subsequent exceedance incident report prepared by the ET was reviewed by the IEC before issuing to relevant parties.

For those considered project-related freshwater and marine water exceedances, the Contractor was required to urgently review the temporary drainage management plan and implement necessary improvement to prevent runoff from the construction site to the marine and stream courses. The Contractor was also requested to rectify the situation as soon as possible. The water quality monitoring results revealed that the temporary drainage installed on site was insufficient.

No environmental complaint was received in this reporting period. No environmental summon was received in this reporting period.

#### Implementation Status of Environmental Mitigation Measures

The Contractor was reminded the following issues and take actions if necessary

- Watering the haul road especially in conjunction to the existing golf course and during excavation work areas regularly;
- Provide dust suppression mitigation measures especially potential dust generation activities such as rock breaking;
- Minimize the water quality impact when undertaking excavation works. Temporary drainage system and contingency plan should be proposed to the Engineer's Representative (ER) for approval and ET for comment. It is important to provide sufficient temporary drainage at critical areas to confine, collect and provide proper treatment before discharge to marine water and stream courses to ensure the water quality is comply with WPCO requirement;
- Minimize the exposed areas by controlling the vegetation clearance area. Vegetation should be kept in-situ as much as possible until works require at the construction areas;
- Minimize the cut-and-fill areas;
- Removal of the vegetation stockpiles;
- Strengthen the preventive/interim measures for the silty runoff along the boundary of the exposed areas especially at low lying areas. More frequency maintenance on the silt fence is necessary;
- Modification at major haul road to prevent the silty runoff is necessary; and
- Providing wheel washing facilities.

Future Key Issues

Key issues to be considered in the coming month include:

- Implementation of sufficient temporary drainage system on site;
- Dust generation from activities on-site : cut-and-fill at mainly Holes 1-9 & 17-18, concrete batching plant operation, temporary haul road construction;
- Construction of site office and storage areas near the existing maintenance building;
- Construction of temporary bridge no. 5 near Holes 5 & 6;
- Land formation works for the desalination plant near to the existing pier;
- Silty runoff due to vegetation clearance and exposed excavated areas from construction site to marine and stream courses;
- Storage of chemicals/fuel and chemical waste/waste oil on site; and
- Sewage and general refuse generated from workers.

Potential environmental impacts arising from the construction activities in the coming month are expected to be mainly associated with dust, site runoff and waste management.



## 1. Introduction

### 1.1 Background of the Project

1.1.1 Black & Veatch (hereinafter called the "ET") was appointed by Hong Kong Jockey Club (hereinafter called the "Project Proponent") to undertake Environmental Monitoring and Audit (EM&A) for "Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung" (hereinafter called the "Project"). Under the requirements of Section 4 of Environmental Permit EP-224/2005, EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, water quality, terrestrial and marine ecology, landscape and visual, archaeology (watching brief) and land contamination are required for the Project.

1.1.2 This report summarises the environmental monitoring and audit works for the Project in April 2006 (from 25<sup>th</sup> March to 24<sup>th</sup> April 2006).

### 1.2 Purpose of the Report

1.2.1 This is the fourth EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **25<sup>th</sup> March to 24<sup>th</sup> April 2006**.

### 1.3 Structure of the Report

1.3.1 The structure of the report is shown in Table 1.1.

**Table 1.1 Structure of the Report**

Section		Description
1	Introduction	Details the scope and structure of the report
2	Project Information	Summarizes background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of environmental permits/licenses during the reporting period.
3	Environmental Monitoring Requirement	Summarizes the monitoring parameters, programmes, methodology, frequency, location, action and limit levels, event action plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
4	Implementation Status on Environmental Mitigation Measures	Summarizes the implementation of environmental protection measures during the reporting period.
5	Monitoring Results	Summarizes the monitoring results obtained in the reporting period.
6	Environmental Site Auditing	Summarizes the audit findings of the weekly site inspections undertaken within the reporting period.
7	Environmental Non-conformance	Summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.
8	Future Key Issues	Summarizes the impact forecast and monitoring schedule for the next three month (25 Apr – 24 Jul 2006).
9	Recommendations and Conclusions	Lists out any recommendations and provides an overall conclusion of the results and findings of the EM&A programme for the reporting period.

## 2. Project Information

### 2.1 Background

2.1.1 The Project comprises the following major components:

- Construction of a third 18-hole public golf course on the east side of the island, south of the existing golfing area;
- A new irrigation lake to collect surface runoff from new 18-hole golf course. Water stored at the new irrigation lake can also be diverted to existing reservoir for tertiary treatment and recycling;
- A new desalination plant adjacent to the existing pier to serve as an additional irrigation water supply for the new golf course during dry season; and
- Expansion of existing administration and maintenance buildings.

2.1.2 The potential environmental impacts of the Project have been studied in the Environmental Impact Assessment (EIA) report (EIAO Register No. AEIAR- 091/2005). The EIA was approved on 14 November 2005 under the EIAO. An Environmental Permit (EP-224/2005) was granted on 28 November 2005.

### 2.2 Site Description

2.2.1 A layout plan of the Project is provided in **Figure 1.1**.

### 2.3 Project Organization

2.3.1 Project organization and lines of communication are shown in **Figure 1.2**.

### 2.4 Construction Programme

2.4.1 The tentative construction programme for the Project is presented in **Annex A**. The construction works were commenced on 16 January 2006 and are scheduled to be completed by end of July 2007.

### 2.5 Status of Environmental Submission

2.5.1 A summary of the reporting requirement for compliance with EP conditions of the Project is listed in Table 2.1.

**Table 2.1 Summary of Compliance with EP Conditions**

EP-224/2005	Environmental Permit Submission	Status	Remarks
2.3	Management organization of the main construction companies and/or any form of joint ventures associated with the construction of the Project.	Submitted	At least one week before the commencement of construction of the Project.
2.4	Contamination Assessment Plan (CAP) submission. If land contamination is confirmed by the site investigation, submission of a Remediation Assessment	Submitted	The site investigation was carried out on 14 <sup>th</sup> and 15 <sup>th</sup> February 2006. The CAR was submitted on 23 <sup>rd</sup> March 2006. Based on the results, all hotspots are not contaminated. Therefore, RAP is not

EP-224/2005	Environmental Permit Submission	Status	Remarks
	Plan (RAP) including a Contamination Assessment Report (CAR) is required.		required.
3.6	Detailed methodology for Coral Transplantation submission to the Director for approval.	In progress	At least one month before commencement of the Coral Transplantation.
4.1	EM&A Manual (revised)	Submitted	At least two weeks before commencement of construction of the Project.
4.3	Baseline Monitoring Report	Submitted	At least two weeks before commencement of construction of the Project
4.5	Monthly EM&A Report	Submitted	within 10 working days after the end of the reporting month
5.1	Set up a dedicated web site and notify the Director in writing the Internet address.	Completed	Within 6 weeks after the commencement of construction of the Project ( <a href="http://www.kscgolf.com/ema/index.asp">http://www.kscgolf.com/ema/index.asp</a> )

## 2.6 Summary of EM&A Requirements

2.6.1 The EM&A programme requires environmental monitoring for air quality, water quality, terrestrial and marine ecology, landscape and visual, archaeology (watching brief) and land contamination. The EM&A requirements for each parameter are described in subsequent sections, including:

- All monitoring parameters;
- Action and Limit Levels for all environmental parameters;
- Event and Action Plans; and
- Environmental mitigation measures, as recommended in the project EIA final report.

2.6.2 A summary of impact EM&A requirements is presented in Table 2.2.

**Table 2.2 Summary of Impact EM&A Requirements**

<b>Impacts</b>	<b>Parameters/descriptions</b>	<b>Locations</b>	<b>Frequencies</b>	<b>Duration</b>
<b>Air Quality</b>	24-Hour TSP	1 Location	Once every 6 days	During Construction
	1-Hour TSP	1 Location	Three times in every 6 days	During Construction (As required when complaint received)
<b>Water Quality</b>	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity and SS	9 marine and 7 freshwater locations	<b>First 3 months</b> 3 times a week, mid-ebb and mid-flood tides. If there is no exceedance occurs for the first 3 months, reduce to once per week.	During Construction
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP and selected pesticides.	9 marine and 7 freshwater locations	Once per week. If there is no exceedance occurs, monitoring frequency is subjected to change and shall be agreed with EPD.	During Construction: turf establishment period (permanent low flow drainage is not completed)
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP, Chl-a and selected pesticides.	9 marine and 6 freshwater locations	A 2-year of monitoring period for the operation phase is proposed. Monitoring should be carried out on bi-weekly basis for the first 12 months, after when the frequency will be reviewed by EPD.	During Operation
	Dissolved Oxygen, Temperature, Turbidity, pH, Salinity, SS, NO3-N, NO2-N, NH3-N, TP, Chl-a and selected pesticides	8 marine locations	Additional water quality monitoring shall be carried out after heavy rain storm or when there is an overflow event from the reservoir, irrigation buffer lake or detention ponds/tanks.	During Construction and Operation
<b>Terrestrial Ecology</b>	Monitoring aquatic fauna	Streams B, C & D	Once a month	During Construction
	Environmental Site Inspection mainly on intact of buffer zones	Streams A, B and C	Once a week	During Construction

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

Impacts	Parameters/descriptions	Locations	Frequencies	Duration
Marine Ecology	Transplanted corals	Site D2	Quarterly for one year after transplantation	During construction
	Natural corals	Site C, Site B2, Site D2, and the Control Site.	<p><b>For Site D2 and the Control Site:</b>                      Weekly at the first two weeks of dredging works for the desalination plant pipelines. If no exceedance was recorded, the monitoring schedule would be changed to biweekly till the pipeline construction works are finished.</p> <p><b>For Site C, B2 and the Control Site:</b>                      Monthly for the first three months of the construction phase. If no exceedance was recorded, the monitoring schedule would be changed to quarterly during the rest of the construction phase.</p>	During Construction
		Site C, Site D2 and the Control Site.	First three months would be monthly conducted during the first two years of the operation phase. If no exceedance was recorded, the monitoring schedule would be changed to semi-annually, i.e. once in dry season and once in wet season.	During Operation
	Seagrass bed	Site D3, and at Site D2 if seagrasses were found during the baseline monitoring.	Weekly during the first two weeks of dredging works, and then biweekly till the pipeline construction works are finished.	During Construction
		Site D3, and at Site D2 if seagrasses were found during the baseline monitoring.	During the first two years of the operation phase.  The monitoring schedule during the first three months would be monthly. After that, the monitoring schedule would be changed to semi-annually, i.e. once in dry season and once in wet season.	During Operation
	Landscape and Visual	Audits to ensure effective implementation of mitigation measures	Project area and at visual sensitive receivers	Auditing inspections and reporting shall be undertaken once every two weeks of the construction phase and once every two months of the operation phase.
Archaeology (Watching Brief)	Monitor archaeological potential sites at major cut areas	Hole 2, Hole 11, Hole 12, Hole 14, Hole 15 and Hole 16.	The archaeologist should keep the AMO informed of the progress of watching brief. The archaeologist should submit progress reports every 3 months during the programme of the watching brief.	During Construction
Land Contamination	Total Sulphur and Total Lead	Locations 2, 3, 6, 7 & 8	One month before commencement of work at the identified 5 hotspots	During Construction
General Site Conditions	Environmental Site Inspection	Works areas and areas affected by works	Periodically (weekly basis)	During Construction

### 3. Environmental Monitoring Requirements

#### 3.1 Air Quality

##### Monitoring Requirement

- 3.1.1 24-hour TSP monitoring was carried out at GCA B1 to monitor the construction dust impact level in this reporting period.
- 3.1.2 The established Action/Limit Levels (AL levels) for the 1-hour and 24-hour TSP monitoring works are summarized in Table 3.1 and Table 3.2.

**Table 3.1 Action and Limit Levels for 1-hour TSP**

Location	Description	Action Level	Limit Level
GCA B1	Bungalow A adjacent to Kau Sai Chau Public Golf Course Administration Building	277.2 $\mu\text{g m}^{-3}$	500 $\mu\text{g m}^{-3}$

Note: The action levels for GCA B1 are developed based on baseline monitoring result.

**Table 3.2 Action and Limit Levels for 24-hour TSP**

Location	Description	Action Level	Limit Level
GCA B1	Bungalow A adjacent to Kau Sai Chau Public Golf Course Administration Building	187.4 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$

Note: The action levels for GCA B1 are developed based on baseline monitoring result.

##### Monitoring Parameters, Frequency and Programme

- 3.1.3 The monitoring parameters and frequency are summarized in Table 3.3. The monitoring programme for the reporting period is shown in **Annex B**.

**Table 3.3 TSP Monitoring Parameter and Frequency**

Parameter	Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days (as required in case of complaints)

##### Monitoring Locations

- 3.1.4 In accordance with the EM&A Manual, one monitoring station (GCA B1) was selected and shown in **Figure 3.1**.

##### Monitoring Equipment

- 3.1.5 24-hour and 1-hour TSP (in case of complaints received) were performed using High Volume Samplers (HVS) and measured in-situ respectively. 24-hour TSP level of samples will be collected using filters and High Volume Sampler and the collected samples will be determined by a local HOKLAS accredited laboratory upon receipt of the samples and 1-hour TSP level will be performed in-situ.

3.1.6 High volume samplers (HVS - Model GS-2310 Accu-vol) complete with the appropriate sampling inlets were installed for 24-hour TSP sampling. The HVS is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B). A portable dust meter was used for the 1-hour TSP monitoring. Table 3.4 summarises the equipment used.

**Table 3.4 Air Quality Monitoring Equipment**

Equipment	Model
HVS Sampler	GS 2310 Accu-vol system
Calibrator	GMW 25
1-hour TSP Dust Meter	Laser Dust Monitor – Model LD-1 (L)

Monitoring Methodology and Calibration Details

*24-hour TSP Monitoring*

(i) Field Monitoring, Operation & Analytical Procedures

3.1.7 Operating/analytical procedures for the operation of HVS are as follows. The sampler was placed on a horizontal platform with appropriate supporting structure such that:

- the filter was at least 1.3 meters above ground;
- no two samplers should be placed less than 2 metres apart;
- the distance between the sampler and an obstacle, such as buildings, would be at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 metres separation from walls, parapets and penthouses would be required for the rooftop samplers;
- a minimum of 2 metres separation from any supporting structure, measured horizontally would be required;
- airflow around the sampler would be unrestricted;
- no furnaces or incineration flues would be operating near the sampler;
- the sampler would be more than 20 metres from the dripline; and
- any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.

3.1.8 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m<sup>3</sup>/min. and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

3.1.9 For TSP sampling, fibreglass filters (G810) were used [Note: these filters have a collection efficiency of > 99% for particles of 0.3 mm diameter].

3.1.10 The power supply was checked to ensure the sampler worked properly.

3.1.11 On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

3.1.12 The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.

- 3.1.13 The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- 3.1.14 The shelter lid was closed and secured with the aluminum strip.
- 3.1.15 The timer was then programmed. Information was recorded on the record sheeting, which included the starting time, the weather condition, and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- 3.1.16 After sampling, the filter was transferred from the filter holder of the HVS to a sealable plastic bag and sent to the laboratory for weighing. The elapsed time was also recorded.
- 3.1.17 Before weighing, all filters were conditioned for 24 hours before weighing under temperature of  $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$  and the relative humidity (RH)  $< 50\% \pm 5\%$ , preferably 40%. The HOKLAS laboratory (ALS Technichem (HK) Pty Ltd) has comprehensive quality assurance and quality control programmes.

(ii) Maintenance

- 3.1.18 Proper maintenance would be provided for the HVS as described below:
- 3.1.19 The HVS motors and their accessories have been properly maintained. Appropriate maintenance such as routine motor brushes replacement (time interval for replacement is about 500 hours) and electrical wiring checking have been conducted to ensure that the equipment and necessary power supply were in good working condition.
- 3.1.20 Initial calibration of HVS was conducted upon installation of equipment. The subsequent calibration would be provided at 2-month intervals using GMW-25 Calibration Kit.

*1-hour TSP Monitoring*

(i) Measuring Procedures

- 3.1.21 The measuring procedures of the 1-hour dust meter have been in accordance with the Manufacturer's Instruction Manual as follows:
- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
  - Push the knob at MEASURE position.
  - Push "O-ADJ" button. (Then meter's indication is 0).
  - Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
  - Pull out the knob and return it to MEASURE position.
  - Push "START" button.
  - All measurement procedures in section 2.3 of the approved EM&A Manual are followed during the reporting period.

(ii) Maintenance

- 3.1.22 The 1-hour TSP meter would be checked at 3 month intervals and calibrated at 1-year intervals throughout all stages of the air quality baseline monitoring.



Event and Action Plans

3.1.23 The Event and Action Plan (EAP) for air quality monitoring is presented in **Annex C**.

**3.2 Water Quality**

Monitoring Requirement

3.2.1 Water quality monitoring was conducted in accordance with the EM&A Manual. Tables 3.5 & 3.6 show the established Action/Limit Levels for the water environmental monitoring parameters.

**Table 3.5 Derived Summaries of Action and Limit Levels for Marine Water Quality**

Parameters	Location	Action	Location	Limit
<b>DO (Surface &amp; Middle)</b>	FCZ	6.0 mg/L	FCZ	5.3 mg/L
	All except FCZ	4.9 mg/L	All except FCZ	4.6 mg/L
<b>DO (Bottom)</b>	All	3.7 mg/L	All	3.4 mg/L
<b>pH (depth-averaged)</b>		N/A	All	6.5 - 8.5
<b>SS (Depth-averaged)☆</b>	FCZ	4.5 mg/L	FCZ	5.6 mg/L
	All except FCZ	6.1 mg/L	All except FCZ	10.6 mg/L
<b>SS (Depth-averaged) Dredging for submarine pipelines⊕</b>	M_ROI	6.1 mg/L	M_ROI	10.6 mg/L
<b>Turbidity (Tby) (depth-averaged) ☆</b>	FCZ	2.9 NTU☼	FCZ	3.9 NTU☼
	All except FCZ	3.3 NTU☼	All except FCZ	6.2 NTU☼
<b>Ammonia Nitrogen (depth-averaged)</b>	FCZ	0.02 mg/L	FCZ	0.03 mg/L
	All except FCZ	0.05 mg/L Δ	All except FCZ	0.05 mg/L Δ
<b>Nitrate Nitrogen (depth-averaged)</b>	FCZ	0.08 mg/L	FCZ	0.09 mg/L
	All except FCZ	0.09mg/L Δ	All except FCZ	0.09 mg/L Δ
<b>Nitrite Nitrogen (depth-averaged)</b>	FCZ	0.02 mg/L θ	FCZ	0.02 mg/L θ
	All except FCZ	0.02 mg/L	All except FCZ	0.04 mg/L
<b>TIN (depth-averaged)</b>	FCZ	0.12 mg/L	FCZ	0.14 mg/L
	All except FCZ	0.16 mg/L	All except FCZ	0.18 mg/L
<b>Total Phosphorus (depth-averaged)</b>	All	0.09 mg/L Δ	All	0.09 mg/L Δ

Remarks:

☆ : Action and limit levels are subjected to review especially for wet season throughout the construction phase of the project.

⊕ : Action and limit levels are subjected to review before the dredging works.

☼ : All are based on EM&A baseline monitoring data due to marked difference between EPD turbidity data and those from the baseline survey.

Δ : For nutrient monitoring (except NO<sub>2</sub>-N) at non-FCZ stations, the trigger level has made reference to the existing golf course guideline values. The guideline value of NO<sub>2</sub>-N is below the current detection limit of 0.01mg/L and thus not used.

θ : The same action and limit level of 0.02 mg/L is determined from the EM&A baseline data as 78% of the NO<sub>2</sub>-N data are ≤ 0.01 mg/L and all remaining 22% equal to 0.02 mg/L.

FCZ including fish culture zones of Kai Lung Wan, Tai Tau Chau and Kau Sai

All except FCZ including remaining impact monitoring station of M\_RO1, M\_Marsh, M\_BP and M\_Coral.

Control monitoring locations: M\_A & M\_B

**Table 3.6 Derived Summaries of Action and Limit Levels for Freshwater Water Quality**

Parameters	Location	Action	Location	Limit
DO (mid-depth)		6.3 mg/L	All	4 mg/L ξ
pH (mid-depth)		N/A	All	6.0 - 9.0
SS (mid-depth) ☆	All	3.8 mg/L or 120% of upstream control station's SS at the same tide of the same day	All	8 mg/L or 130% of upstream control station's SS at the same tide of the same day
Turbidity (Tby) (mid-depth) ☆	All	3.1 NTU or 120% of upstream control station's Tby at the same tide of the same day	All	4 NTU or 130% of upstream control station's Tby at the same tide of the same day
Ammonia Nitrogen (mid-depth)		N/A	All	0.01 mg/L
Nitrate Nitrogen (mid-depth)	All	0.10 mg/L	All	0.11 mg/L
Nitrite Nitrogen (mid-depth)		N/A	All	0.01 mg/L
TIN (mid-depth)	All	0.12 mg/L	All	0.13 mg/L
Total Phosphorus (mid-depth)		N/A	All	0.02 mg/L

Remarks:

☆ : Action and limit levels are subjected to review especially for wet season.

Freshwater monitoring locations: F\_UA, F\_DA, F\_UB, F\_DB, F\_UC, F\_DC and F\_Inland Marsh

As most of the freshwater samples were reported of NH<sub>3</sub>-N, NO<sub>2</sub>-N levels below the detection limit of 0.01 mg/L, limit level is set at 0.01 mg/L. Similarly for TP, a limit level of 0.02 mg/L (the detection limit of TP) is imposed.

ξ : Water Quality Objectives of the Port Shelter

Monitoring Parameters, Frequency and Programme

3.2.2 For marine water quality, measurements shall be taken at both mid-flood and mid-ebb tides and at three water depths (1 m below water surface, mid-depth and 1 m above sea bed, except where the water depth is less than 6 m, in which case the mid-depth station may be omitted). Should the water depth be less than 3 m, only the mid-depth station will be monitored.

3.2.3 For the stream course, measurements shall be taken at mid-water depth.

3.2.4 The water quality parameters which need to be monitored are as follows:

- Marine water quality - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS), pH and salinity
  - Freshwater water quality - dissolved oxygen (DO), temperature, turbidity, suspended solids (SS) , pH and salinity
- 3.2.5 Additional marine and freshwater water quality monitoring parameters for the impact monitoring during construction include nitrate nitrogen (NO<sub>3</sub>-N), nitrite nitrogen (NO<sub>2</sub>-N), ammonia nitrogen (NH<sub>3</sub>-N), total phosphate (TP) and selected pesticides.
- 3.2.6 The ET Leader shall propose the additional monitoring parameters for approval by IC(E), Engineer, EPD and AFCD, and shall submit such information for approval at least 2 weeks before the turf establishment period.
- 3.2.7 Additional water quality monitoring at Tai Tau Chau FCZ (TTC), Kai Lung Wan FCZ (KLW), Kau Sai FCZ (KS), downstream of the existing marsh (M\_Marsh), marine water of Port Shelter (M\_Coral), existing reservoir (F\_Inland M) and Control stations (M\_A and M\_B) shall be carried out after heavy rain storm or when there is an overflow event from the reservoir, irrigation buffer lake or detention ponds/tanks. The heavy rain storm shall be defined when there is an amber/red/black rainstorm warning signal issued by the Hong Kong Observatory. The water sample shall be taken within 24 hours after the black/red/amber rainstorm warning signal is cancelled. Please refer to revised EM&A manual for the sampling condition requirement after a heavy rain storm event occurs. The monitoring parameters shall include dissolved oxygen, temperature, turbidity, suspended solids, pH and salinity. Additional parameters shall be the same as stated in paragraphs 3.2.5-3.2.6.

*Monitoring Frequency*

- 3.2.8 The monitoring parameters and frequency are summarized in Table 3.7. The monitoring programme for the reporting period is shown in **Annex B**.

**Table 3.7 Water Quality Monitoring Parameter, Frequency and Locations**

Parameters	Frequency	Location	
Dissolved Oxygen (mg/L)	<b>3 days per week</b>	<b><u>Marine Water</u></b> Fish culture zone stations: TTC, KLW, KS	
Temperature (°C)			Control stations: M_A, M_B
Turbidity (NTU)			Impact stations: M_BP, M_RO1, M_Marsh, M_Coral
pH		<b><u>Freshwater Water</u></b> Stream A (F_UA, F_DA) Stream B (F_UB, F_DB) Stream C (F_UC, F_DC) Inland Marsh (F_Inland_M)	
Salinity (ppt)			
Suspended Solids (mg/L)			

Monitoring Locations

3.2.9 The water quality monitoring locations for marine and freshwater (**Figure 3.2**) are summarized in Table 3.8.

**Table 3.8 Water Quality Monitoring Locations during Construction Phase**

Identification Number	Location	Co-ordinates		Approx. Water Depth	No. of Depth
		latitude	longitude		
<i>Marine Water (9 stations)</i>					
TTC	Tai Tau Chau Fish Culture Zone	22° 22' 03.7"	114° 19' 19.6"	9.5 m	3
KLW	Kai Lung Wan Fish Culture Zone	22° 22' 10.6"	114° 18' 01.4"	13 m	3
KS	Kau Sai Fish Culture Zone	22° 20' 26.5"	114° 18' 59.9"	11 m	3
M_BP	Temporary barging point	22° 21' 50.6"	114° 19' 16.7"	9.6 m	3
M_RO1	Desalination plant south of the existing pier	22° 21' 51.8"	114° 18' 17.7"	5 m	2
M_Marsh	Discharge point at the existing marsh	22° 22' 19.8"	114° 19' 05.4"	7.7 m	3
M_Coral	Marine water of Port Shelter	22° 21' 21.3"	114° 19' 42.7"	10.2m	3
M_A	Water Control Station of Port Shelter	22° 22' 51.3"	114° 18' 34.5"	7.5 m	3
M_B	Water Control Station of Port Shelter	22° 20' 26.4"	114° 20' 11.8"	16.5 m	3
<i>Fresh Water (7 stations)</i>					
F_UA	Upstream and downstream of stream A	22° 21' 32.3"	114° 19' 06.5"	-	1
F_DA		22° 21' 33.5"	114° 19' 06.8"		1
F_UB	Upstream and downstream of stream B	22° 21' 23.9"	114° 19' 16.1"	-	1
F_DB		22° 21' 27.2"	114° 19' 16.0"		1
F_UC	Upstream and downstream of stream C	22° 21' 14.8"	114° 19' 26.4"	-	1
F_DC		22° 21' 03.5"	114° 19' 32.0"		1
F_Inland M	Downstream of the existing marsh (Inland)	22° 22' 17.9"	114° 18' 59.1"	-	1

Monitoring Equipment

3.2.10 The equipment listed below shall be supplied by the ET and approved by the IC(E) and the Engineer for water quality monitoring.

*Dissolved Oxygen and Temperature Measuring Equipment*

3.2.11 The instrument shall be a portable and weatherproof DO measuring instrument complete with cable and sensor, and use a DC power source. The equipment shall be capable of measuring:

- dissolved oxygen levels in the range of 0 - 20 mg L<sup>-1</sup> and 0 - 200% saturation; and
- a temperature of 0 - 45 degrees Celsius.

3.2.12 It shall have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables shall be available for replacement where

necessary. (For example, YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

- 3.2.13 Should salinity compensation not be built-in in the DO equipment, in-situ salinity shall be measured to calibrate the DO equipment prior to each DO measurement.

*Turbidity Measurement Instrument*

- 3.2.14 Turbidity shall be measured in situ by the nephelometric method. The instrument shall be portable and weatherproof turbidity measuring instrument using a DC power source complete with cable, sensor and comprehensive operation manuals. It shall have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument). The cable shall not be less than 25m in length. The meter shall be calibrated in order to establish the relationship between NTU units and the levels of suspended solids.

*Suspended Solids*

- 3.2.15 A water sample at least 2.5L in capacity with messenger and using a 10m line should be collected. Samples should be submitted to HOKLAS accredited laboratory as soon as possible for gravimetric analysis for suspended.

*Sampler*

- 3.2.16 A water sampler is required. It shall comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler shall have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

*Water Depth Detector*

- 3.2.17 A portable, battery-operated echo sounder shall be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat, if the same vessel is to be used throughout the monitoring programme.

*Salinity*

- 3.2.18 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) shall be provided for measuring salinity of the water at each monitoring location.

*pH*

- 3.2.19 The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 shall be used for calibration of the instrument before and after use. Details of the method shall comply with APHA, 19th ed. 4500-HTB.

*Flow Rate Meter*

- 3.2.20 A portable, battery-operated flow meter should be used for the determination of water depth at each designated monitoring location and record in m<sup>3</sup>/s. A hand held or meter fixed to the underside of the survey boat may be used.

*Sample Containers and Storage*

- 3.2.21 Water samples for laboratory analysis shall be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analysed as soon as possible after collection. Sufficient volume of samples shall be collected to achieve the required detection limit.

*Monitoring Position Equipment*

- 3.2.22 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication or other equipment instrument of similar accuracy, shall be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

Monitoring Methodology and Calibration Details

- 3.2.23 Dissolved oxygen (DO), temperature, turbidity, pH and salinity were measured in situ at the designated water quality monitoring stations. General observation, weather conditions, with the sampling time, date and location were marked on the field record sheet.
- 3.2.24 Water samples were taken from each monitoring station for laboratory analysis. The sample identification number, sampling location, date, time, project name and analyses were required.
- 3.2.25 The samples were placed in a cooler with ice (to 4°C without being frozen) and kept away from sunlight. Samples were submitted to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) or other international accredited laboratory for analysis within 24 hours of sampling.

*Calibration of In-Situ Instruments*

- 3.2.26 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter were carried out before measurement at each monitoring location.

*Laboratory Analysis*

- 3.2.27 All laboratory work were carried out by ALS Technichem Pty Ltd (HOKLAS accredited laboratory). Water samples were collected at the monitoring and control stations for carrying out the laboratory determinations. The determination work will start within 24 hours after collection of the water samples. The analysis shall follow the standard methods according to APHA Standard Methods for the Examination of Water and Wastewater, 19th Edition, or an equivalent method approved by EPD.

**Table 3.9 Analytical Methods to be applied to Water Quality Samples**

Determinant	Standard Method	Reporting Limit
Suspended Solids	APHA 2540 D	2 mg/L
Nitrate Nitrogen	APHA 4500-NO <sub>3</sub> <sup>-</sup>	0.01 mg/L
Nitrite Nitrogen	APHA 4500-NO <sub>2</sub> <sup>-</sup>	0.01 mg/L
Ammonia Nitrogen	APHA 4500-NH <sub>3</sub> (D)	0.01 mg/L
Total phosphorus	ASTM D515-88B	0.02 mg/L*
Chlorophyll a	APHA 10200 H2 &3	0.5 µg/L

Remarks: \*After review baseline data, the detection limit report will be revised to 0.02 mg/L.

### *QA/QC Procedure*

- 3.2.28 ALS Technichem Pty Ltd. has comprehensive quality assurance and quality control programmes. For QA/QC procedures of parameters, one duplicate sample was analysed for every batch of 20 samples as required by HOKLAS.

### Event and Action Plans

- 3.2.29 The Event and Action Plan (EAP) for water quality monitoring is presented in **Annex C**.

## **3.3 Ecology**

### Introduction

- 3.3.1 The marine and terrestrial ecological monitoring surveys for the ecological EM&A were conducted in accordance with the EM&A manual.
- 3.3.2 As stipulated in the EM&A Manual, the ecological monitoring surveys for terrestrial ecology would be conducted monthly during the construction phase. Monitoring survey would consist of aquatic fauna survey. While the majority of the Project Area would be subject to site formation, natural streams would be partially or fully preserved and protected by buffer zones, and therefore would constitute the primary target of the terrestrial ecological monitoring. Special attention should thus be paid to ecologically sensitive streams to ensure minimum damage to existing vegetation and streams. The purpose of the monitoring survey was to check the conditions of the stream habitat and the associated aquatic fauna communities.
- 3.3.3 While the ecological monitoring surveys for marine ecology included coral monitoring at both the eastern and western coasts of Kau Sai Chau Island. The coral monitoring at the western coast would be conducted concurrently with the dredging works which has yet to conduct, and therefore had not been commenced. The coral monitoring at the eastern Kau Sau Chau would be monthly during the construction phase. Monitoring survey would consist of checking tagged corals at both impact sites and control site. The purpose of the monitoring survey was to check the conditions of the tagged corals and the impact sites.

### Ecological Mitigation Measures and Implementations

- 3.3.4 Ecological mitigation measures to be implemented during the construction phase include the following:
- Establishment of buffer zones for the natural stream courses during both construction phase.
  - Provision of temporary bypass channels or pipes during construction phase for stream courses subject to pipe culverting.
  - Protection of water quality of the natural stream courses and temporary bypass channels or pipes.
  - Transplantation of coral colonies within the dredging area for the desalination plant prior to the dredging works.
  - Avoidance of corals when the anchoring points are deployed, and to shift the floating temporary barging point to the location with least corals within the mapping area.
  - Regular site audit of ecological mitigation measures and good site practice.

### Monitoring Frequency and Schedule

#### **Terrestrial Ecology**

- 3.3.5 As reported in the EIA Report, there were four perennial natural streams (Streams A-D) within the Assessment Area for the EIA Study. Streams A, B & C were located within the Project Area, while Stream D was outside the Project Areas and acted as the main stream draining the western part of the Assessment Area. Buffer Zone would be established for the three streams within the Project Area along their partial length (Stream A) or full length (Streams B & C) (**Figure 3.3**). Moreover, Streams B, C & D would be monitored for aquatic fauna monthly during the construction phase. Monitoring on the implementation of the mitigation measures for stream protection, the effectiveness of stream buffer zones, and the aquatic fauna in streams would be conducted during the entire construction phase.
- 3.3.6 The objectives of the monitoring survey are to check the status of *Caridina trifasciata* and *Nanhaipotamon hongkongensis*. The surveys covered natural stream courses within the assessment area (Streams A to D), and aquatic fauna were studied by various sampling methods depending upon site conditions. Methods included direct observation, active searching, and sample collection using hand-nets. Hand nets were used to collect swimming organisms such as shrimps and fish. Where necessary boulders on the stream beds were overturned to locate aquatic organisms such as crabs. Aquatic species encountered was recorded, with special attention to rare or protected species.

#### **Marine Ecology**

- 3.3.7 As required in the EM&A Manual, prior to the commencement of all construction works, a baseline survey of natural corals were conducted in December 2005. At each of the Site C, Site B2, Site D2 and a Control Site near the AFCD's Coral Buoy at Sharp Island (**Figure 3.4**), 20 natural coral colonies in good conditions (i.e. generally intact and no sign of bleaching) and significant sizes (over 20 cm in diameter) were selected and tagged. Each of the tagged coral colonies was identified to species level and their conditions, in terms of percentages of survival, sedimentation and bleaching, were recorded. Each coral was attached with a plastic label with assigned number and then photographed. The species and the size of each tagged corals were also recorded. The species of corals to have been tagged included the following 15 species: *Cyphastrea serailia*, *Favia speciosa*, *Favites abdita*, *Favites pentagona*, *Goniastrea aspera*, *Goniopora columna*, *Hydnophora exesa*, *Leptastrea pruinosa*, *Lithophyllon undulatum*, *Pavona decussate*, *Platygyra acuta*, *Platygyra carnosus*, *Plesiastrea versipora*, *Psammocora superficialis*, and *Turbinaria peltata*. All tagged corals were in good conditions, without significant sign of bleaching or being covered by sediments. The seagrass beds in Site D3 were also surveyed for their extent, coverage percentage and health conditions. The results of the baseline survey were presented in the Baseline Report.
- 3.3.8 The coral monitoring regime at Site B2 was adjusted at the present survey due to the damages on tagged corals reported in the last monitoring report (March 2006). The tagged corals B-11 to B-20, which were distributed in linear formation parallel to the seawall and within the area covered by the temporary barging point, would be retained for monitoring purpose, while another 40 additional corals would be tagged, 20 on each side of the temporary barging point. The total number of tagged corals at Site B2 was thus increased from 20 to 50, and included corals within and outside the sea area covered by the temporary barging point. The indicative locations of the 50 tagged corals were shown in **Figure 3.4b**.
- 3.3.9 The reporting month (April 2006) was the Month Four of the construction programme. As the dredging works for the desalination plant had not been commenced, the impact sites to be monitored in this monitoring survey were Site B2 and Site C (impact sites on the eastern Kau



Sai Chau Island for the new golf course) only, while Site D2 and Site D3 (impact sites on the western Kau Sai Chau Island for desalination plant) were not required in this survey. The coral transplantation, which should be conducted prior to the commencement of dredging works, had not been performed. The monitoring on transplanted corals on the bedrock at Site D2 (see **Figure 3.5**) therefore was not needed in this survey.

- 3.3.10 The schedule for the impact sites on the eastern Kau Sai Chau Island during construction would be monthly in the first three months of the construction programme, and if no exceedance was recorded then quarterly till the end of the construction. As coral damage incident was reported in Month Three of the construction programme, AFCD requested the monthly monitoring should be extended to cover another three months (April, May and June 2006). The present survey was the fourth monitoring survey (the fourth monthly survey). The survival and health conditions of the coral colonies were recorded.
- 3.3.11 During the weekly site inspection, ET also monitored and audited the implementation of the recommended mitigation measures for terrestrial and marine ecology. Monitoring locations for ecology are shown in **Figures 3.3 – 3.5**. The monitoring programme for the reporting period is shown in **Annex B**.

#### Event and Action Plans

- 3.3.12 The Event and Action Plan (EAP) for ecology monitoring is presented in **Annex C**.

### **3.4 Landscape and Visual**

- 3.4.1 The EIA concluded that the landscape and visual impacts associated with the construction of the third golf course are anticipated to be acceptable with mitigation. In order to ensure that the effective management and implementation of landscape mitigation measures developed and defined in the EIA, the ET conducted regular site inspections of the construction work sites.
- 3.4.2 Auditing inspections and reporting are undertaken once every two weeks of the construction phase. The effectiveness of the mitigation works has been audited in order to ensure impact reduction levels are achieved as described in the EIA report for this monitoring month. The monitoring programme for the reporting period is shown in **Annex B**.

### **3.5 Archaeology (Watching Brief)**

#### Introduction

- 3.5.1 The archeological impact assessment conducted in the EIA concluded that some potential for archaeological material remains at the Wan Chai Archaeological Site and a watching brief is recommended during the construction phase.
- 3.5.2 A watching brief is a process whereby a qualified and licensed archaeologist monitors the excavation works during the construction phase in areas identified (and agreed with the Antiquities and Monuments Office (AMO)) to be of archaeological potential.
- 3.5.3 The archaeologist conducting the watching brief should obtain a licence prior to commencement of works as stipulated in Section 12 of the Antiquities and Monuments Ordinance (Cap. 53). The licence was granted on 22<sup>nd</sup> December 2005.

Monitoring Location

- 3.5.4 The monitoring locations include Hole 2, Hole 11, Hole 12, Hole 14, Hole 15 & Hole 16. The monitoring locations are present in **Figure 3.6**.

Monitoring Frequency

- 3.5.5 A total of 18 days of monitoring is considered as minimum, and additional arrangement for watching brief should be made in consultation with AMO in case significant archaeological findings are unearthed in the course of excavation work.

Progress Report

- 3.5.6 Archaeologist should submit progress reports every 3 months during the programme of the watching brief.
- 3.5.7 A summary table for categories of archaeological find and recommended action is presented in **Annex C**.

**3.6 Land Contamination**

Potential Areas Recommended for Further Investigation

- 3.6.1 Contamination Assessment Plan (CAP) shall be submitted to EPD for approval before site investigation. If land contamination is confirmed by the site investigation, submission of a Remediation Assessment Plan (RAP) including a Contamination Assessment Report (CAR) is required. Potential 5 land contamination hotspots are presented in **Figure 3.7**.

#### **4. Implementation Status on Environmental Protection Requirements**

- 4.1.1 The major works at construction site were (i) excavation at Holes 1, 2, 3, 8, 9, 17 & 18, (ii) construction of concrete batching plant at Hole 2, (iii) construction of site office near the maintenance building, (iv) land formation for desalination plant near existing KSC pier, (v) haul road for Holes 3 to 8 and (vi) construction of temporary bridge no. 5 between Holes 5 & 6 during this reporting month.
- 4.1.2 The construction of temporary barging point was completed on early April 2006 and floating pontoon was located at the designated location according to Environmental Permit.
- 4.1.3 The Contractor has provided interim/minimum preventive mitigation measures (silt fence mainly, rock bund covered with geotextile fabric at some low lying areas) to control silty runoff. Sedimentation basins with rock bunds were provided at Holes 1 & 18 low lying areas and modification at the discharge outlet (distribution channel was paved with small rocks and geotextile fabric underneath) near the existing maintenance building to freshwater inland marsh was observed. No cut-off drainage was observed implemented on site during the site audit.
- 4.1.4 For dust suppression, the Contractor was providing mainly at Holes 2 & 9 (with water sprayer) during rock breaking activities. Watering of haul road was observed during the site audit.
- 4.1.5 No dredging work has been carried out near to the existing pier for the desalination plant pipelines.
- 4.1.6 The construction of the site office and chemical storage area were on-going and located near to the existing maintenance building.
- 4.1.7 Silty runoff was observed during the construction of temporary bridge no. 9 across the Stream A. The Contractor was reminded to provide sufficient silty runoff mitigation measures at temporary bridges no. 9 and no. 5 with sufficient temporary drainage system to cater and prevent the runoff discharge to the stream course and freshwater inland marsh respectively.
- 4.1.8 Heavy rainstorm event occurred on early morning 24<sup>th</sup> April 2006 with the Amber, Red and Black rain storm warnings (from 1:15 am till 7:45 am). An ad-hoc site walk was conducted and observed numerous areas of major silty runoff concerns. The site conditions are summarized below:
- Silt fence has collapsed at various locations especially low lying areas leading to direct silty runoff to marine water and Stream A;
  - Silty runoff from the low areas of Holes 1 & 18 near the existing maintenance building leading to direct silty discharge to freshwater inland marsh and overflow from the weir to marine water;
  - Rocks and soils were washed to Stream A and temporary bridge no. 9 causing direct silty runoff; and
  - Silty runoff was observed at marine water from the haul road near temporary barging point.

- 4.1.9 The Contractor was reminded to implement proper temporary drainage measures and critically reviewed the temporary drainage measures. We recommended the Contractor shall urgently further discuss with the Engineer on the effectiveness and site-specific mitigation measures if necessary to prevent runoff to marine water and stream courses.
- 4.1.10 The Contractor was repeatedly reminded to ensure the revised programme should indicate minimize the exposed area in wet season, control vegetation clearance at sensitive areas and provide sufficient mitigation measures to minimize the potential silty runoff from the construction site.
- 4.1.11 According to the construction programme, turf establishment will start at the August 2006. The Contractor was reminded to provide temporary drainage system to collect and divert the runoff to the existing reservoir when the permanent drainage system is not completed yet. The Contractor was recommended that turf establishment should not be concentrated in a short period of time to reduce the potential nutrients and pesticides runoff to freshwater and marine water sensitive receivers.
- 4.1.12 Summary of implementation status is provided in **Annex D**.

## 5. Monitoring Results

### 5.1 Air Quality

- 5.1.1 Dust monitoring was conducted as scheduled in the reporting month. Monitoring of air quality was conducted on 5 occasions in March and April 2006. All monitoring data are provided in **Annex E**. Monitoring of 24-hour TSP was conducted at GCA B1 on 30<sup>th</sup>, 4<sup>th</sup>, 11<sup>th</sup>, 18<sup>th</sup> & 22<sup>nd</sup> April 2006. The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**.
- 5.1.2 One exceedance (TSP = 235 µg/m<sup>3</sup>) of action level of 24-TSP was recorded at GCA B1 on 4<sup>th</sup> April 2006 in the reporting month. No 1-hour TSP measurement was required due to no complaint was received during this monitoring month.
- 5.1.3 ET reviewed the Air Pollutant Index (API) for all air quality monitoring stations in Hong Kong during the reporting month. There was a decreasing trend of API recorded from 30<sup>th</sup> March 2006 to 5<sup>th</sup> April 2006. The average API was ranging from 52-63 (medium to high) (**Annex E**). The 24-hr TSP monitoring results at GCA B1 on 30<sup>th</sup> Apr 2006 and 4<sup>th</sup> April 2006 were 36.9 µg/m<sup>3</sup> and 235 µg/m<sup>3</sup> respectively. During the monitoring period, the wind directions were dominated by East and Southeast which could cause a direct dust impact to the monitoring station at Bungalow A. In addition, the cut-and-fill area and exposed area was also increased during the reporting month. The exceedance was considered attributed to the works. The Contractor was reminded to provide sufficient dust suppression mitigation measures on site.

### 5.2 Water Quality

- 5.2.1 Marine and freshwater water quality monitoring were conducted at the 9 and 7 designated monitoring stations respectively. All monitoring data are provided in **Annex E**.
- 5.2.2 Monitoring of marine and freshwater locations was conducted on 10 occasions in March and April 2006 (27<sup>th</sup>, 29<sup>th</sup> and 31<sup>st</sup> March 2006 and 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 12<sup>th</sup>, 19<sup>th</sup> and 24<sup>th</sup> April 2006). The QA/QC results for laboratory testing in the reporting month were acceptable. The QA/QC results are summarised in **Annex F**.

#### Marine Water

- 5.2.3 For marine water, (i) three limit level exceedances of turbidity and (ii) five limit level exceedances of SS were recorded at KLW, M\_Marsh, TTC, M\_BP and KS on 24<sup>th</sup> April 2006 due to the heavy rainstorm. The marine water exceedances were summarised in **Table 5.2-1**.

**Table 5.2-1 Marine Water Exceedance Summary March – April 2006**

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
KLW	Limit Level	24 <sup>th</sup> Apr 2006	SS	No
TTC	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	Yes
KS	Limit Level	24 <sup>th</sup> Apr 2006	SS	No
M Marsh	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	Yes
M BP	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	Yes

Remarks: Exceedances were mainly due to the cause of heavy rainstorm event.

5.2.4 For the SS and turbidity exceedances at KLW and KS, they were considered not attributed to the works due to the following reasons: (a) no site runoff was observed from the land formation site of desalination plant during the site investigation on 24<sup>th</sup> April 2006, (b) similar order of magnitude of SS and turbidity increase were also recorded at control stations (M\_A and M\_B), (c) no construction work at southern part of Kau Sai Chau. Therefore, no further action was required. The exceedances at KLW and KS were mainly due to natural variation of marine water after heavy rainstorm event.

5.2.5 However, silty runoff was observed during the site investigation on 24<sup>th</sup> April 2006 after the heavy rainstorm event from Stream A, haul road near temporary barging point and existing freshwater inland marsh. Six SS and turbidity exceedances at M\_Marsh, TTC and M\_BP were considered project-related.

Freshwater

5.2.6 During the reporting month, (i) three action and nine limit level exceedances of DO, pH, turbidity and SS were recorded at Stream A, (ii) one action and seven limit level exceedances of turbidity and SS were recorded at Streams B and C and (iii) three action and five limit level exceedances of DO, pH, turbidity and SS were recorded at the downstream of freshwater inland marsh. The freshwater water exceedances were summarised in **Table 5.2-2**.

**Table 5.2-2 Freshwater Exceedance Summary March – April 2006**

Monitoring Station	Exceedance Level	Date	Parameters	Project-related
F DA	Limit Level	27 <sup>th</sup> Mar 2006	SS, Turbidity	Yes*
	Action Level	29 <sup>th</sup> Mar 2006	Turbidity	Yes*
	Limit Level	29 <sup>th</sup> Mar 2006	SS	Yes*
	Action Level	31 <sup>st</sup> Mar 2006	Turbidity	Yes*
	Limit Level	31 <sup>st</sup> Mar 2006	SS	Yes*
	Limit Level	10 <sup>th</sup> Apr 2006	Turbidity	Yes*
	Limit Level	10 <sup>th</sup> Apr 2006	SS	Yes*
	Action Level	24 <sup>th</sup> Apr 2006	DO	Yes**
	Limit Level	24 <sup>th</sup> Apr 2006	pH	Yes**
	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	Yes**
F DB	Limit Level	27 <sup>th</sup> Mar 2006	SS	No
	Action Level	4 <sup>th</sup> Apr 2006	Turbidity	No
	Limit Level	4 <sup>th</sup> Apr 2006	SS	No
	Limit Level	6 <sup>th</sup> Apr 2006	SS	No
	Limit Level	10 <sup>th</sup> Apr 2006	Turbidity	No
	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	No
F DC	Limit Level	27 <sup>th</sup> Mar 2006	SS	No
F Inland Marsh	Action Level	10 <sup>th</sup> Apr 2006	SS	No
	Limit Level	10 <sup>th</sup> Apr 2006	Turbidity	No
	Action Level	12 <sup>th</sup> Apr 2006	SS	No
	Limit Level	12 <sup>th</sup> Apr 2006	Turbidity	No
	Limit Level	24 <sup>th</sup> Apr 2006	DO, pH	Yes**
	Limit Level	24 <sup>th</sup> Apr 2006	SS, Turbidity	Yes**

Remarks:

\* - Exceedances were mainly due to the insufficient mitigation measures at temporary bridge no.9

\*\* - Exceedances were mainly due to the cause of heavy rainstorm event

- 5.2.7 The exceedances recorded at Stream A were mainly attributed to (i) insufficient mitigation measure provided at the bridge abutment during the construction of temporary bridge no. 9 and (ii) silty runoff was observed from the filling area of Hole 17 to Stream A2 and deck of the temporary bridge no. 9 during the heavy rainstorm event on 24<sup>th</sup> April 2006. The temporary bridge was constructed by sheet piles and no temporary drainage was provided to collect and divert the runoff from the temporary bridge located within the Stream A buffer zone.
- 5.2.8 As no construction work adjacent to the Streams B & C, those exceedances were considered natural variation of the streams and considered not project-related.
- 5.2.9 The exceedances recorded at freshwater inland marsh were mainly attributed to the silty runoff from Holes 1 & 18 to the existing freshwater inland marsh and considered project-related.

### **5.3 Ecology**

- 5.3.1 Terrestrial and marine ecology monitoring photos are provided in **Annex E**.

#### Terrestrial Ecology

- 5.3.2 The Monitoring Survey for the reporting month was conducted on 21<sup>st</sup> & 26<sup>th</sup> April 2006. Site clearance works were advancing eastward and southward, and some earth works had been being conducted at the northern part of the new golf course site (areas closer to the existing golf course). There were also pathways beyond the works fronts to facilitate the land surveying works and the EM&A sampling on environmental parameters such as water quality and air quality by ET personnel.
- 5.3.3 Although the surveyed streams have not been previously affected by developments or pollution sources, they are relatively small. Water depth was less than 0.3m in most of the stream reaches even during wet season. Currently (still within dry season) these streams had very small surface flow or even had no surface flow for most of the length.
- 5.3.4 Stream A is located within the Project Area. Its main stream section (downstream to the confluence of two tributaries) would be protected by stream buffer zone (**Figure 3.3**). Stream A was heavily silted with sediments from eroded hillsides all year round, particularly at the main stream section. The stream had low flow.
- 5.3.5 Stream B is located within the Project Area. It had clear flow (with little sediment in the stream beds) of moderate volume during the wet season. This stream also has two main tributaries, B1 and B2. The full length of Stream B (two tributaries and the main stream) would all be protected by buffer zone (**Figure 3.3**). Stream B also contains a long estuarine section of muddy sandy substrate.
- 5.3.6 Stream C is located within the Project Area. This stream also has two main tributaries. It has had low but clear flow. In contrast to Stream B, Stream C drains to a sandy beach at Kau Chung Wan, and therefore lacks a clear estuarine zone. The full length of Stream C (two tributaries and the main stream) would all be protected by buffer zone (**Figure 3.3**).
- 5.3.7 Stream D is located outside the Project Area but within the Assessment Area and is the main stream draining the west side of the Assessment Area. It had clear water and moderate flow levels. Stream D is the only stream with deeper water depth among the four streams (water depth over 0.3 m in some of the stream reaches). As Stream D is outside the construction area, buffer zone would not be needed for this stream.

- 5.3.8 In general, the streams and the riparian vegetation were still in natural conditions. The only exception was the sections of stream banks right beneath the temporary access bridge at Stream A. Water levels in the 4 streams were still low, but higher than in previous monitoring surveys during dry season. For the two tributaries in Stream B, the flow in B2 tributary was similar but B1 tributary was still dry. The majority of Stream C had been found dry in previous monitoring surveys, but in the present survey surface flow was present in even upstream section. Stream D had shallow surface flow at the most upper reach. Photos of Streams A to D were shown in **Photo Plate 5.3-1 (Annex E)**.
- 5.3.9 The habitats and vegetation generally remained intact within a large portion of the project site (beyond the works fronts), within the stream buffer zone and outside the project area. No earthwork, human disturbance or fire disturbance was observed beyond the works fronts other than the historical erosion of hillsides and the access paths to the project site.
- 5.3.10 Aquatic fauna communities were checked during the monitoring survey. Atyid shrimp *Caridina trifasciata* were found in Stream B, Stream C & Stream D during the present monitoring survey (**Annex E - Photo Plate 5.3-2**). Although the rainfall in the early wet season had slightly increased the flow in the streams, abundance of this species was still low in all streams. It is anticipated that their abundance will increase more significantly later.
- 5.3.11 Another species of Atyid shrimp, *Caridina cantonensis*, which is common and widespread in Hong Kong was found in all four streams (Stream A to D), even in Stream A which had been affected by sediment. Other aquatic fauna and flora encountered during the monitoring included Freshwater snail *Brotia hainanensis*, which is usually found in streams with good water quality, found at B2 tributary of Stream B, and Long-armed Palemond shrimp *Macrobrachia hainanensis* in rock pools in Stream A, and a juvenile Chiromantes haematocheir near Stream A (**Annex E - Photo Plate 5.3-2**).
- 5.3.12 The demarcation of the stream buffer zone had been fully established at Stream A main stream and Tributary B2 of Stream B at the time of the monitoring survey. Except at the temporary access bridge at Stream A, riparian vegetation within the buffer zone was not disturbed by construction works. As the construction works fronts had not exceeded Stream A, it is anticipated that the establishment of stream buffer zone demarcation will be finished before the works fronts reach Tributary B1 and Stream C.

#### Marine Ecology

- 5.3.13 The present Marine Ecological Monitoring Survey was conducted on 27<sup>th</sup> & 28<sup>th</sup> April 2006. The weather conditions were cloudy but calm, the underwater visibility was fine (approximately 5m). Less much macro algae were found at all three monitored sites on the surfaces of boulder or corals than in the last (February 2006) monitoring. At each site to be monitored for corals, the 20 colonies of natural corals selected during the Baseline Survey were recovered and checked for conditions.
- 5.3.14 Site B2 was the location for the temporary barging point. Site formation works were conducted at the nearby abandoned pier and the intertidal zone of the barging point location, and a seawall formed by rectangular concrete blocks was constructed along the seaward side of the intertidal zone. This area was used as the landing point of the temporary barging point. The temporary barging point had been installed at the location specified in the EP when the present monitoring survey was conducted.
- 5.3.15 The conditions of the tagged corals B-11 to B-20 during the present survey were compared with the conditions during the Baseline Survey (**Annex E - Photo Plates 5.3-3 to 5.3-4**). Among these 10 tagged corals, some of them had sedimentation coverage on the surface ranging from 3



- to 5% (i.e. B-12, B-13, and B-14, see **Table 5-3-1** below). As the sedimentation percentages were smaller than 15%, this observation did not trigger the action level response plan for corals.
- 5.3.16 40 additional natural corals were selected and tagged with plastic labels with codes ranging from B-21 to B-60. The distribution of these selected corals covered the areas to the south and to the north of the floating barging point boundary (see **Figure 3.4b**). The selected corals included *Favites abdita*, *Favia speciosa*, *Cyphastrea serailia*, *Platygyra acuta*, *Platygyra carnosus*, *Goniopora columna*, *Turbinaria peltata*, *Leptastrea pruinosa*, *Goniastrea aspera*, and *Psammocora superficialis*. Sizes of these tagged corals ranged from 13 cm to 39 cm. The selected species include various growth forms (massive - *Favia speciosa*, *Goniastrea aspera*, *Platygyra acuta* & *Cyphastrea serailia*; encrusting - *Leptastrea pruinosa*, *Goniastrea aspera* & *Cyphastrea serailia*; laminar - *Turbinaria peltata*) and species previously recorded in the site during the EIA study.
- 5.3.17 All selected corals were not covered by sediment (0% coverage of sediment) and had no sign of bleaching (0% bleaching) (**Table 5-3-2** below). Some corals had been observed with polyp recently died (B31, B-31, B-58 & B-60), but the percentages were minor (3-5% mortality) and would not affect the monitoring purpose. Photographs of each tagged coral were taken. These data and photos would be used as the baseline conditions of these tagged corals and would be compared with the data and photos from the coming construction phase monitoring surveys,
- 5.3.18 Site C was on the south-eastern coast of Kau Sai Chau Island and had a high coral coverage among the sites investigated during the EIA Study. The sizes of coral colonies at Site C were also larger than those at other sites. Site C was away from the boundary of the new golf course and would not be subject to direct impacts during construction. The site and its vicinity still remained similar conditions as during the Baseline Survey. All 20 tagged corals were recovered. No mortality, sedimentation or bleaching was found on any of the tagged corals (see **Table 5.3-3**). The corals remained similar conditions as during the Baseline Survey (**Annex E - Photo Plates 5.3-9 to 5.3-12**).
- 5.3.19 The Control Site is the buoy of coral marker established by AFCD in Sharp Island. Similar with Site C, both the coral coverage percentage and the sizes of coral colonies were high at this site and would not be impacted by the Project. The site and its vicinity still remained similar conditions as during the Baseline Survey. All 20 tagged corals were recovered. No mortality, sedimentation or bleaching was found on any of the tagged corals (see **Table 5.3-4**). The corals remained similar conditions as during the Baseline Survey (**Annex E - Photo Plates 5.3-13 to 5.3-16**).
- 5.3.20 **Photo Plates 5.3-3 to 5.3-16** showed the photos of each tagged corals. The assigned numbers, species, mortality percentage, sedimentation coverage percentage and bleaching percentage of the tagged corals during baseline survey and the present survey were presented in **Tables 5.3-1 to 5.3-4** below. Minor sedimentation was observed on some of the tagged corals at Site B2, but the percentages were smaller than the action level standard.

**Table 5.3-1 Conditions of tagged corals at Site B2**

Code of tagged corals	Species*	Baseline Survey (December 2005)			Month Four (April 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-11	<i>Turbinaria peltata</i>	0	0	0	0	0	0
B-12	<i>Plesiastrea versipora</i>	0	0	0	0	3	0
B-13	<i>Plesiastrea versipora</i>	0	0	0	0	5	0
B-14	<i>Goniastrea aspera</i>	0	0	0	0	5	0
B-15	<i>Lithophyllon undulatum</i>	0	0	0	0	0	0
B-16	<i>Favia speciosa</i>	0	0	0	0	0	0
B-17	<i>Favia speciosa</i>	0	0	0	0	0	0
B-18	<i>Turbinaria peltata</i>	0	0	0	0	0	0
B-19	<i>Favia speciosa</i>	0	0	0	0	0	0
B-20	<i>Favia speciosa</i>	0	0	0	0	0	0

\* show sign of damage

**Table 5.3-2 Baseline conditions of additional corals tagged in April 2006 at Site B2**

Code of tagged corals	Species	Size (cm)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-21	<i>Favia speciosa</i>	32	0	0	0
B-22	<i>Cyphastrea serailia</i>	29	0	0	0
B-23	<i>Favia speciosa</i>	15	0	0	0
B-24	<i>Favia speciosa</i>	18	0	0	0
B-25	<i>Favites abdita</i>	17	0	0	0
B-26	<i>Cyphastrea serailia</i>	18	0	0	0
B-27	<i>Favia speciosa</i>	15	0	0	0
B-28	<i>Goniopora columna</i>	34	0	0	0
B-29	<i>Cyphastrea serailia</i>	21	0	0	0
B-30	<i>Favia speciosa</i>	17	0	0	0
B-31	<i>Platygyra acuta</i>	25	5	0	0
B-32	<i>Favia speciosa</i>	17	3	0	0
B-33	<i>Turbinaria peltata</i>	23	0	0	0
B-34	<i>Cyphastrea serailia</i>	29	0	0	0
B-35	<i>Cyphastrea serailia</i>	18	0	0	0
B-36	<i>Platygyra acuta</i>	15	0	0	0
B-37	<i>Favia speciosa</i>	27	0	0	0
B-38	<i>Cyphastrea serailia</i>	16	0	0	0
B-39	<i>Cyphastrea serailia</i>	35	0	0	0
B-40	<i>Favia speciosa</i>	22	0	0	0
B-41	<i>Leptastrea pruinosa</i>	18	0	0	0
B-42	<i>Goniastrea aspera</i>	21	0	0	0
B-43	<i>Favia speciosa</i>	17	0	0	0
B-44	<i>Cyphastrea serailia</i>	27	0	0	0
B-45	<i>Platygyra acuta</i>	21	0	0	0
B-46	<i>Favia speciosa</i>	18	0	0	0
B-47	<i>Favites abdita</i>	32	0	0	0

Code of tagged corals	Species	Size (cm)	Mortality (%)	Sedimentation (%)	Bleaching (%)
B-48	<i>Cyphastrea serailia</i>	38	0	0	0
B-49	<i>Goniopora columna</i>	39	0	0	0
B-50	<i>Favia speciosa</i>	18	0	0	0
B-51	<i>Psammocora superficialis</i>	37	0	0	0
B-52	<i>Favia speciosa</i>	22	0	0	0
B-53	<i>Favia speciosa</i>	19	0	0	0
B-54	<i>Favia speciosa</i>	14	0	0	0
B-55	<i>Goniastrea aspera</i>	29	0	0	0
B-56	<i>Platygyra carnosus</i>	35	0	0	0
B-57	<i>Goniastrea aspera</i>	28	0	0	0
B-58	<i>Favia speciosa</i>	35	5	0	0
B-59	<i>Favia speciosa</i>	14	0	0	0
B-60	<i>Favia speciosa</i>	13	5	0	0

Table 5.3-3 Conditions of tagged corals at Site C

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Four (April 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
C-01	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-02	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-03	<i>Favia speciosa</i>	0	0	0	0	0	0
C-04	<i>Favites abdita</i>	0	0	0	0	0	0
C-05	<i>Turbinaria peltata</i>	0	0	0	0	0	0
C-06	<i>Favia speciosa</i>	0	0	0	0	0	0
C-07	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-08	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-09	<i>Favia speciosa</i>	0	0	0	0	0	0
C-10	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-11	<i>Favia speciosa</i>	0	0	0	0	0	0
C-12	<i>Platygyra acuta</i>	0	0	0	0	0	0
C-13	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-14	<i>Favia speciosa</i>	0	0	0	0	0	0
C-15	<i>Goniopora columna</i>	0	0	0	0	0	0
C-16	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-17	<i>Goniopora columna</i>	0	0	0	0	0	0
C-18	<i>Platygyra carnosus</i>	0	0	0	0	0	0
C-19	<i>Favites pentagona</i>	0	0	0	0	0	0
C-20	<i>Favia speciosa</i>	0	0	0	0	0	0

**Table 5.3-4 Conditions of tagged corals at Control Site**

Code of tagged corals	Species	Baseline Survey (December 2005)			Month Four (April 2006)		
		Mortality (%)	Sedimentation (%)	Bleaching (%)	Mortality (%)	Sedimentation (%)	Bleaching (%)
X-01	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-02	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-03	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-04	<i>Pavona decussata</i>	0	0	0	0	0	0
X-05	<i>Hydnophora exesa</i>	0	0	0	0	0	0
X-06	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-07	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-08	<i>Favites abdita</i>	0	0	0	0	0	0
X-09	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
X-10	<i>Cyphastrea serailia</i>	0	0	0	0	0	0
X-11	<i>Platygyra carnosus</i>	0	0	0	0	0	0
X-12	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-13	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-14	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-15	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-16	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-17	<i>Favia speciosa</i>	0	0	0	0	0	0
X-18	<i>Platygyra acuta</i>	0	0	0	0	0	0
X-19	<i>Goniastrea aspera</i>	0	0	0	0	0	0
X-20	<i>Cyphastrea serailia</i>	0	0	0	0	0	0

#### 5.4 Landscape and Visual

5.4.1 Landscape resource changes during the site clearance work comprises of the loss of scrubland. As the construction progress, more vegetation and shrubs will be cleared, which will be followed by planting works.

#### 5.5 Archaeology (Watching Brief)

5.5.1 Excavation was carried out at Hole 2 during this monitoring month and watching brief monitoring was carried out. According to the latest construction programme, the Hole 2 will not be completed in May 2006. Approximate 40% of the Hole 2 area was being excavated and the watching brief at Hole 2 will have to further extend. The first progress report (January to March 2006) had been sent to AMO for comments on 31<sup>st</sup> March 2006. The progress report will be submitted to AMO on quarterly basis. For the excavation at watching brief concern areas (Holes 11, 12, 14, 15 & 16), the excavation programme could be further delay to next dry season. Under the EP requirement, construction works within the buffer zone area is restricted within the November to March. As no temporary bridge was being constructed at Streams B and C buffer zone area, no construction work at southern part of Kau Sai Chau is expected unless the successfully apply for the Variation of EP.

## **5.6 Land Contamination**

- 5.6.1 The Contamination Assessment Plan (CAP) was approved by EPD 17<sup>th</sup> February 2006. Site investigation was carried out on 14<sup>th</sup> and 15<sup>th</sup> February 2006. Site audit was carried out with IEC on 14<sup>th</sup> February 2006 with the Contractor's representatives. The CAP was approved on 17<sup>th</sup> February 2006. Contamination Assessment Report (CAR) was submitted to EPD for approval on 23<sup>rd</sup> March 2006. Based on the results, all 5 hotspots are not contaminated by Lead and Sulfur. Therefore, Remediation Assessment Plan (RAP) is not required.

## **6. Environmental Site Auditing**

6.1.1 A joint site inspection was conducted with EPD and Contractor's representatives on 13<sup>th</sup> April 2006. During the site inspection, EPD has verbally raised their following concerns:

- (i) A barge was berthing on the south side of the floating pontoon (tagged corals were underneath the barge) and intended to unload the sheet piles onto the floating pontoon rather than at far end of the floating pontoon (anchor points) during the site inspection. EPD commented that Environmental Permit Holder (Hong Kong Jockey Club) might be prosecuted due to the violation of the EP Clause 3.11 (Photos 1-2).
- (ii) Some sedimentation basins and rock bunds were provided at areas of Holes 1 and 18 near to the existing maintenance building mainly as part of the silty runoff mitigation measures. However, the cut off temporary storm water drain from the natural catchment to the construction site was not implemented as revealed during the site inspection. EPD expressed concern over the silty water runoff to the marine water and stream courses and commended that the silt fence may not be sufficient/effective to prevent the silty runoff. In addition, EPD commented on the integrity of the silt fence along the construction site boundary. EPD recommended that in addition to the silt fence, a secondary treatment (temporary drainage system outside the silt fence) to confine, collect and pre-treat the water runoff before discharge is required in order to prevent direct silty runoff to marine and stream courses.
- (iii) No sufficient dust suppression mitigation measure was provided during the rock breaking activities at Hole 2. EPD reminded the Contractor to provide sufficient dust suppression measure during the rock breaking activities as required under the APCO.
- (iv) Stockpiles located near Stream A were not covered. EPD reminded the Contractor to properly cover exposed stockpiles as soon as possible to prevent silty runoff to Stream A.
- (v) For temporary bridge no. 9 at Stream A, EPD commented that the implemented mitigation measure at the abutment areas was insufficient and required further improvement. EPD recommended the Contractor to provide impermeable materials to cover the haul roads / other means to the temporary bridge no. 9 to prevent silty runoff to the Stream A. EPD also recommended the Contractor to provide preventive measures and temporary drainage at the temporary bridge no. 9.
- (vi) EPD reminded the Contractor that no construction activities should be carried out at Stream buffer zones areas. Application of Variation of Environmental Permit (VEP) is required before any works are permitted at these sensitive areas.
- (vii) EPD reminded the Contractor to provide sufficient temporary drainage system at the concrete batching plant area to recycle and reuse the water within the site according to the Contractor's previous submission to EPD and no water discharge from the concrete batching plant is allowed.
- (viii) EPD recommended the Contractor to strengthen the preventative mitigation measures at the temporary barging point as follows:
  - (a) Provide facilities along the seawall block and both side of the ramp to prevent any object/material falling into the marine water.
  - (b) Provide good housekeeping (keep the pontoon clean) especially at the far end of the floating pontoon in order to minimize the risk of any object/material falling into the

marine water

- (c) The surface of the ramp should be paved/properly covered (few holes were observed at the ramp) to prevent any falling objects/materials from the ramp.
- (d) Keep the height of the stockpiles at the floating pontoon similar to / lower than the bund height at both sides.
- (e) Keep the floating pontoon and rock filling pier free of storage at all times.

6.1.2 The Contractor is reminded to urgently rectify and improve the mitigation measures at the construction site. The Contractor is also urgently requested to submit the incident report and remedial work on the improper berthing at the temporary floating pontoon.

6.1.3 The weekly site inspections were conducted by the ET with Contractor's representative and/or Jockey Club's representative on 29<sup>th</sup> March, 4<sup>th</sup>, 11<sup>th</sup> and 21<sup>st</sup> April 2006 and the monthly joined site inspection with IEC and the Contractor's representative undertaken on 21<sup>st</sup> April 2006. The following observations and recommendations were made.

#### Dust Mitigation Measures

6.1.4 Excavation work was carried out at Holes 1, 2, 3, 8, 9, 17, & 18. Haul road was constructed linking up Holes 1-9, 17 & 18. Sprinklers were provided when the rock breaking activities were carried out for dust suppression at Holes 2 & 9 only. A standby water tank was available on site. The Contractor was reminded to minimize the dust generated by the site vehicles moving along the haul road. For other excavation or earth moving areas, the Contractor was reminded to provide sufficient dust suppression measure.

6.1.5 The Contractor has been installed hoarding near to existing S3, S4 & S6.

6.1.6 Concrete batching plant was started to construct at early April 2006. It will require few weeks for testing and commissioning. No temporary drainage was observed on site to collect and reuse the water from the concrete batching plant during the site audit. The Contractor was reminded to provide the temporary drainage before the start of the operational phase of the concrete batching plant.

#### Water Quality

##### ***Temporary Drainage Master Plan***

6.1.7 A temporary drainage master plan (TDMP), which concentrates at Holes 1-9, 17-18 only, had been formally submitted on 29<sup>th</sup> March 2006 by the Contractor for ER to review during this monitoring month. ET initial comments are summarized below:

- (i) In some of construction areas, part of the runoff from the natural catchment will mix up with the construction site contaminated runoff before directly discharge to marine or stream courses.
- (ii) The TDMP indicates that there are many discharge points along the construction boundary to the marine water and streams. The basic temporary drainage principle submitted by CHEC is that the construction site contaminated runoff will pass through the silt fence / rock channel and then discharge/overflow to marine or stream courses. The construction site contaminated runoff will not be confined, collected and properly treat before water discharge.

Under the Water Pollution Control Ordinance (WPCO), the principle of discharges subject to Control is listed as the followings:

*“Discharges of domestic sewage communal sewers and unpolluted water into stormwater drains, river courses and water bodies are not under control. However, the discharges from sewage treatment plants and septic tanks are subject to control”.*

*“All other effluents, whether discharged into communal sewers, stormwater drains, river courses or water bodies, are subject to control. These include effluents from all types of industrial, manufacturing, commercial, institutional and construction activities”.*

*“For a discharge subject to control, the discharger should apply for a licence from EPD and comply with its terms and conditions”.*

- 6.1.8 ET recommends the runoff from the upper catchment (without construction work areas) should be cut off and divert away from the construction site as much as possible in order to minimize the mixing of contaminated water within the construction site area.
- 6.1.9 The water discharge from the construction site should be confined and pre-treat before discharge and the discharge water quality should comply with the WPCO.
- 6.1.10 The present submitted TDMP is only for the control of silty runoff. The Contractor is reminded to prepare the temporary drainage plan for approval and implement before turf grass establishment. This is a major concern because pesticide is a prohibited substance which is not allowed to be discharged to any water bodies under the WPCO.

#### ***Site Audit***

- 6.1.11 Silt fences and rock bund covered with geotextile fabric were installed and strengthen some of at the relative some low areas (vulnerable to silty runoff) of the construction site boundary at Holes 1, 2, 9 and 17 as a preventative silty runoff measure. Sedimentation basins were provided at low lying areas at Holes 1 & 18. However, some installed silt fence areas along the site boundary were poorly maintained. The Contractor was reminded to maintain the integrity and function of the silt fences on regular basis to prevent the silty runoff from construction site.
- 6.1.12 The mitigation measure provided at the temporary bridge no. 9 had been enhancement but it was still cannot cater for polluted water directly discharge to Stream A during the rainstorm event on 24<sup>th</sup> April 2006. The Contractor was reminded to provide adequate facilities on site to ensure no polluted runoff discharge from the construction works to Stream A. A sufficient temporary drainage should also be provided to confine and divert away any polluted runoff from the temporary bridge away from the stream. Any discharge of polluted runoff to the stream is prohibited.
- 6.1.13 The Contractor was repeatedly reminded to provide adequate temporary drainage system at haul road between temporary barging point to Hole 2. Based on the site observation on 24<sup>th</sup> April 2006, sediment in the sump has been accumulated and blocked. Silty runoff was observed at the low lying area of the haul road and discharge into the adjacent inactive fish culture zone. The Contractor was recommended to frequently remove the accumulated sediment and maintain in a clean condition before and after rain.
- 6.1.14 Construction of temporary barging point was completed at early April 2006. The Contractor was reminded to provide the temporary drainage at the rock filling pier to prevent silty runoff to marine water.



- 6.1.15 Wheel washing facility was not available on site. The Contractor was suggested to provide at the following exit/entrance.
- (i) Adjacent to the existing maintenance building,
  - (ii) Desalination plant exit/entrance; and
  - (iii) Temporary barging point

#### Ecology

- 6.1.16 Only Stream buffer zone at Stream A has been established during this reporting month. The whole buffer zone aims to protect the streams and avoid any works/equipment intrusion into the buffer zone. No work has been carried out near Streams B and C. The Contractor was reminded to demarcate Streams B and C buffer zones before any construction work close to the buffer zone areas.
- 6.1.17 For the construction of floating pontoon, the Contractor was reminded to locate all anchoring points on the shore and/or at least 40m seaward to avoid coral communities near shore according to EP.

#### Waste / Chemical Management

- 6.1.18 Cleared vegetation was stockpile and located mainly in Holes 1 and 17 or along the site boundary (outside the silt fences) for wind/sun drying before proper disposal. The Contractor was reminded to remove the vegetation stockpiles and construction waste and dispose off-site properly according to the waste management plan.
- 6.1.19 No chemical storage area was available on site during the reporting month. Some oil tanks were required as the standby fuel. Drip trays were provided underneath the oil tanks to prevent leakage on the bare ground. The Contractor was reminded to provide chemical storage areas for chemical storage.
- 6.1.20 Site office was under construction near existing maintenance building. Mobile chemical toilets were provided on site. The number of workers could be increased up to 200 persons on site. The Contractor was reminded to provide sufficient sewage treatment facility and/or mobile chemical toilets on site to cater for the needs.

#### Landscape and Visual

- 6.1.21 The landscape and visual monitoring and site audits were carried out on 4th and 20th April 2006. During the site audit, site formation and vegetation clearance works were being carried out. Trees within the construction area were protected properly.
- 6.1.22 Eighteen trees (T903, T905, T906, T908, T909, T913, T966, T967, T970, T973, T981, T982, T1008, T1009, T1010, T1081, T1083, T1084) near the administrative building and two (T1230 and T1233) near the workshop have been transplanted to final location. However, this transplantation works were not carried out with a rootball preparation period of at least 1 month.
- 6.1.23 A two-storey high site office is being constructed near the administrative building during the second visit. The height of the office complies with the EIA requirements.
- 6.1.24 Stockpiles of cleared vegetation were still recorded on site.
- 6.1.25 Green hoardings were erected near the desalination plant and next to administrative building to reduce visual impacts.

Status of Environmental Licensing and Permitting

6.1.26 Permits / licences submission and approval status are summarised in Table 6.1.

**Table 6.1 Summary of Environmental Licensing and Permit Status**

Permit/licence/notification form title	Submission date	Status	Registration No./ Remarks
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work.	21 <sup>st</sup> Jan 2006	Approved on 16 <sup>th</sup> February 2006	GW-RE0012-06 (valid until 3 <sup>rd</sup> July 2006)
Application for a construction noise permit for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work.	13 <sup>th</sup> Mar 2006	Approved on 6 <sup>th</sup> April 2006	GW-RE0067-06 (valid until 22 <sup>nd</sup> August 2006)
Notification of the air pollution control (construction dust) regulation	21 <sup>st</sup> Jan 2006	Acknowledge receipt from EPD on 27 <sup>th</sup> February 2006	Ref. no.: 001006902
Registration as a chemical waste producer	10 <sup>th</sup> Jan 2006	Register on 7 <sup>th</sup> February 2006	WPN-5213-813-C1186-04
Application for a permit to dump material at sea under the Dumping at Sea Ordinance	10 <sup>th</sup> Jan 2006	Deferred by CHEC on 17 <sup>th</sup> March 2006 (CHEC/KSC3.9.1/0459)	No dredging work will be carried out between May to December 2006.
Application of exemption account for the construction waste charging scheme	12 <sup>th</sup> Jan 2006	Approved on 16 <sup>th</sup> January 2006	A/C no. 5005322 (valid until 2 <sup>nd</sup> August 2007)
Application for a licence for production pursuant to Section 14 of Air pollution Control Ordinance	2 <sup>nd</sup> Mar 2006	The total silo capacity for the cement works was 45 tonnes which is lower than 50 tonnes. It is not a specified process, application is not required.	EPD letter refer. no.: EP640/EA/SK/015
Application for a licence under Water Pollution Ordinance – Sewage treatment for toilets and pantry	14 <sup>th</sup> Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0414)	
Application for a licence under Water Pollution Ordinance – temporary drainage	16 <sup>th</sup> Mar 2006	Awaiting for approval (CHEC/KSC3/9.1/0460)	

## **7. Environmental Non-Conformance**

### **7.1 Summary of Environmental Non-Compliance**

#### Air Quality

- 7.1.1 One exceedance of action level of 24-TSP was recorded at GCA B1 on 4<sup>th</sup> April 2006 in the reporting month. The exceedance was considered attributed to the works. The Contractor was reminded to provide sufficient dust suppression mitigation measures on site.

#### Marine Water Quality

- 7.1.2 For marine water, two exceedances of SS recorded on 24<sup>th</sup> April 2006 at KLW and KS were considered not attributed to the works. However, three exceedances of SS and three exceedances of turbidity recorded at M\_Marsh, TTC and M\_BP were considered project-related due to the heavy rainstorm event on 24<sup>th</sup> April 2006.

#### Freshwater Quality

- 7.1.3 All exceedances (twenty in total of SS, turbidity, DO and pH), except Streams B and C (eight in total of SS and turbidity), were considered project-related and mainly due to the heavy rainstorm event on 24<sup>th</sup> April 2006.

#### Marine Ecology

- 7.1.4 Minor sedimentation was observed on some of the tagged corals at Site B2, but the percentages were smaller than the action level standard (i.e. 15%). The exceedance was considered project-related.

### **7.2 Summary of Environmental Complaint**

- 7.2.1 No environmental complaint was received during the reporting month.

### **7.3 Summary of Environmental Summons**

- 7.2.2 There was no notification of summons with respect to environmental issues registered in this month.

## **8. Future Key Issues**

### **8.1 Key Issues for coming month**

8.1.1 Works to be taken for the coming monitoring period are summarized as follows.

- Operation of temporary barging point
- Construction of temporary bridge no.5 between Holes 5 & 6
- Construction of site office
- Construction and operation of concrete batching plant
- Land formation for desalination plant
- Cut and fill at Golf Holes 1-9 & 17-18

### **8.2 Monitoring Schedule for the coming month**

8.2.1 The tentative schedule of air, water, ecology and landscape & visual monitoring for the next three months is presented in **Annex F**. The environmental monitoring will be conducted at the same monitoring locations in this reporting month. The monitoring programme has been reviewed and was considered as adequate to cater the nature of works to be undertaken.

### **8.3 Construction programme for the next three month**

8.3.1 The construction programme for the next three months is presented in **Annex G**.

## **9. Recommendations and Conclusions**

9.1.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 25<sup>th</sup> March 2006 to 24<sup>th</sup> April 2006 in accordance with EM&A Manual and the requirement under EP-224/2005.

### Air Quality

9.1.2 One exceedance of the action level of 24-hour TSP was recorded at GCA B1.

### Marine Water

9.1.3 Out of eight exceedances, six exceedances of limit level for suspended solids and turbidity were recorded at TTC, M\_Marsh and M\_BP and all of them were considered project-related.

### Freshwater

9.1.4 Out of twenty eight exceedances (SS, turbidity, DO and pH), eight of them were considered not project-related (Streams B & C). Twenty of exceedances were considered project-related.

9.1.5 For terrestrial ecology, the streams (except Stream A – temporary bridge am) and the riparian vegetation were in natural conditions similar to the condition during the Baseline Survey.

9.1.6 Minor sedimentation was observed on some of the tagged corals at Site B2, but the percentages were smaller than the action level standard (i.e. 15%). The exceedance was considered project-related. For Site C and the Control Site still remained similar conditions as during the Baseline Survey. No mortality, sedimentation or bleaching was found on the tagged corals in these two sites.

9.1.7 The Contractor shall rectify the mal-pruning practice on the transplanted trees and was reminded to dispose the vegetation stockpiles properly.

9.1.8 One environmental non-compliance was recorded during the site investigation on 24<sup>th</sup> April 2006 due to the heavy rainstorm. No environmental complaint and environmental summons/prosecutions were received during the reporting period since the commencement of the Project.

9.1.9 The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

# **Annex A**

## **Tentative Construction Programme**

Activity ID	Activity Description	Orig Dur	Early Start	Early Finish	Total Float	2005												2006												2007											
						O	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
<b>SUMMARY PROGRAMME</b>																																									
SU00100	Possession of Site	0	03/01/06A			◆ Possession of Site																																			
SU00110	Completion of Section 1	0		09/12/06	-67	◆ Completion of Section 1																																			
SU00120	Completion of Section 2	0		26/06/07	-266	◆ Completion of Section 2																																			
SU00130	Completion of Section 3	0		16/12/06	-11	◆ Completion of Section 3																																			
SU00140	Completion of Section 4	0		13/03/07	-7	◆ Completion of Section 4																																			
SU00150	Completion of Section 9	0		07/09/07	-37	◆ Completion of Section 9																																			
SU00160	S1: Low level intake pumping station	183*	24/04/06	30/11/06	-56	S1: Low level intake pumping station																																			
SU00170	S1: Gravity drain & rising main	182*	06/05/06	09/12/06	-56	S1: Gravity drain & rising main																																			
SU00180	S1: Trench excavation (Provisional)	35*	20/07/06	29/08/06	29	S1: Trench excavation (Provisional)																																			
SU00190	S2: Desalination plant	354*	18/02/06A	02/05/07	-168	S2: Desalination plant																																			
SU00200	S2: Transformer/switch room	111*	08/05/06	15/09/06	7	S2: Transformer/switch room																																			
SU00210	S2: Seawater pumping station	100*	12/05/06	07/09/06	-4	S2: Seawater pumping station																																			
SU00220	S2: Seawater intake & discharge pipe	394*	24/02/06A	26/06/07	-213	S2: Seawater intake & discharge pipe																																			
SU00230	S2: Retaining wall No.1	93*	21/04/06	11/08/06	-12	S2: Retaining wall No.1																																			
SU00240	S2: Lake No.1 and pump house No.1	99*	24/05/06	18/09/06	-13	S2: Lake No.1 and pump house No.1																																			
SU00250	S2: Roundabout and access road	80*	15/07/06	18/10/06	-12	S2: Roundabout and access road																																			
SU00260	S3: Existing maintenance building	234*	07/03/06A	16/12/06	-10	S3: Existing maintenance building																																			
SU00270	S4: Existing admin. building area 1	290*	21/03/06A	13/03/07	-6	S4: Existing admin. building area 1																																			
SU00280	S4: Existing admin. building area 2	119*	14/07/06	02/12/06	14	S4: Existing admin. building area 2																																			
SU00290	S4: Existing admin. building area 3	172*	21/03/06A	18/10/06	14	S4: Existing admin. building area 3																																			
SU00300	S4: Existing admin. building area 4	214*	21/03/06A	07/12/06	-6	S4: Existing admin. building area 4																																			
SU00310	S4: Existing admin. building area 5	156*	07/03/06A	13/09/06	0	S4: Existing admin. building area 5																																			
SU00330	S9: Earth/slope construction works	364*	10/03/06A	05/06/07	-29	S9: Earth/slope construction works																																			
SU00350	S9: Drainage & Irrigation	343*	16/05/06	11/07/07	-23	S9: Drainage & Irrigation																																			
SU00360	S9: Sand Capping (GH3, 5, 8, 18)	43*	20/07/06	07/09/06	42	S9: Sand Capping (GH3, 5, 8, 18)																																			
SU00370	S9: Sand Capping (GH4, 6, 7)	48*	20/11/06	17/01/07	-23	S9: Sand Capping (GH4, 6, 7)																																			
SU00380	S9: Sand Capping (GH1, 2 & 9-17)	159*	18/01/07	03/08/07	-32	S9: Sand Capping (GH1, 2 & 9-17)																																			
SU00390	S9: Grassing (GH3, 5, 8, 18)	54*	23/08/06	26/10/06	88	S9: Grassing (GH3, 5, 8, 18)																																			
SU00400	S9: Grassing (GH4, 6, 7)	57*	12/01/07	22/03/07	4	S9: Grassing (GH4, 6, 7)																																			
SU00410	S9: Grassing (GH1, 2 & 9-17)	137*	23/03/07	07/09/07	-32	S9: Grassing (GH1, 2 & 9-17)																																			

2005												2006												2007													
O	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

Start Date	28/12/05	Summary Bar
Finish Date	07/09/07	Progress Bar
Data Date	21/04/06	
Run Date	02/05/06 16:38	

KS04
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Sheet 1 of 1

**China Harbour Engineering Co.**  
**Third Golf Course at Kau Sai Chau**  
**Summary Programme**

Date	Revision	Checked	Approved
28/12/05	4th Final for Submission	Tim	
01/03/06	Ver 5th (KST5)	Tim	

# **Annex B**

## **Monitoring Programme for the reporting month**



Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

<b>March 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
						25
26	27 WQ	28	29 WQ	30 AQ	31 WQ	

<b>April 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
						1
2	3	4 LV AQ WQ	5	6 WQ	7	8 WQ
9	10 WQ	11 AQ	12 WQ	13	14	15
16	17	18 AQ	19 WQ	20 LV	21 TE	22
23	24 WQ*	25	26 TE	27 ME	28 ME	29
30						

Remarks: AQ = TSP, WQ = Freshwater and Marine water quality, TE = Terrestrial Ecology, ME = Marine Ecology, LV = Landscape & Visual

\* : rainstorm event (additional sample)

# **Annex C**

## **Event Action Plan**

**Event / Action Plan for Air Quality**

EVENT	ACTION			
	ET	IC(E)	Engineer	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IC(E) and Engineer; 3. Repeat measurement to confirm finding; 4. Increase to daily monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and Engineer; 3. Advise Engineer on effectiveness of proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase to daily monitoring; 6. Discuss with IC(E) and Contractor remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and Engineer; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor possible remedial measures; 4. Advise ET on the effectiveness of proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm in writing receipt of notification of exceedance; 2. Notify Contractor; 3. Supervise proper implementation of remedial measures.	1. Submit proposals for remedial measures to Engineer within three working days of notification; 2. Implement agreed proposals; 3. Amend proposal if appropriate.
<b>LIMIT LEVEL</b>				
1. Exceedance for one sample	1. Identify source, investigate causes of exceedance and propose remedial measures; 2. Inform IC(E), Engineer, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase to daily monitoring; 5. Assess effectiveness of Contractor's remedial actions	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor possible remedial measures; 4. Advise Engineer on effectiveness of proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm in writing receipt of notification of exceedance; 2. Notify Contractor; 3. Supervise proper implementation of remedial measures.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposals if appropriate.

EVENT	ACTION			
	ET	IC(E)	Engineer	CONTRACTOR
	and keep IC(E), EPD and Engineer informed of results.			
2 Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IC(E), Engineer, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase to daily monitoring;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation measures to be implemented;</li> <li>6. Arrange meeting with IC(E) and Engineer to discuss remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and Engineer informed of results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<p>Discuss amongst Engineer, ET, and Contractor the potential remedial actions;</p> <p>Review Contractor's remedial actions whenever necessary to assure their effectiveness, and advise Engineer accordingly;</p> <p>Supervise implementation of remedial measures.</p>	<p>Confirm receipt of notification of exceedance in writing;</p> <p>Notify Contractor;</p> <p>In consultation with the IC(E), agree with the Contractor the remedial measures to be implemented;</p> <p>Supervise proper implementation of remedial measures;</p> <p>If exceedance continues, consider what portion of the works is responsible and instruct the Contractor to stop that portion of work until exceedance has abated.</p>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within three 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 portion of works as instructed by Engineer until the exceedance is abated.</li> </ol>

**Event and Action Plan for Water Quality**

Event	ET Leader	IC(E)	Engineer	Contractor
<b>ACTION LEVEL</b>				
Action level being exceeded by one sampling day	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Repeat measurement on next day of exceedance.	Discuss mitigation measures with ET and Contractor ; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss proposed mitigation measures with IC(E); Make agreement on mitigation measures to be implemented. Assess effectiveness of the implemented mitigation measures.	Inform the Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods; Discuss with ET and IC(E) and propose mitigation measures to IC(E) and Engineer; Implement agreed mitigation measures.
Action level being exceeded by more than two consecutive sampling days	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Ensure mitigation measures are implemented; Prepare to increase to daily monitoring; Repeat measurement on next day of exceedance.	Discuss mitigation measures with ET and Contractor ; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss the proposed mitigation measures with IC(E); Make agreement on mitigation measures to be implemented; Assess effectiveness of implemented mitigation measures.	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods; Discuss with ET and IC(E) and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures.
<b>LIMIT LEVEL</b>				
Limit level being exceeded by one sampling day	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) Contractor and EPD; Check monitoring data, all plant, equipment	Discuss mitigation measures with ET and Contractor; Review proposals on mitigation measures submitted by Contractor and advise the Engineer accordingly; Assess effectiveness of implemented	Discuss proposed mitigation measures with IC(E), ET and Contractor; Request Contractor to critically review the working methods; Make agreement on mitigation measures to be implemented;	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes in working methods;

Event	ET Leader	IC(E)	Engineer	Contractor
	and Contractor's working methods; Discuss mitigation measures with IC(E), Engineer and Contractor; Ensure mitigation measures are implemented; Increase to daily monitoring until no exceedance of Limit level.	mitigation measures.	Assess effectiveness of implemented mitigation measures.	Discuss with ET, IC(E) and Engineer and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures.
Limit level being exceeded by more than two consecutive sampling days	Repeat <i>in situ</i> measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E), Contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E), Engineer and Contractor; Ensure mitigation measures are implemented; Increase to daily monitoring until no exceedance of Limit level for two consecutive days.	Discuss mitigation measures with ET and Contractor; Review proposals on mitigation measures submitted by Contractor and advise Engineer accordingly; Assess effectiveness of implemented mitigation measures.	Discuss proposed mitigation measures with IC(E), ET and Contractor; Request Contractor to critically review working methods; Make agreement on mitigation measures to be implemented; Assess effectiveness of implemented mitigation measures; Consider and if necessary instruct Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	Inform Engineer and confirm in writing notification of the non-compliance; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IC(E) and Engineer and propose mitigation measures to IC(E) and Engineer within three working days; Implement agreed mitigation measures; As directed by the Engineer, slow down or stop all or part of the construction activities until no exceedance of Limit level.

**Action and Limit level and Event Action Plan for natural corals monitoring**

<b>Parameters</b>	<b>Action Level</b>	<b>Limit Level</b>
Sedimentation	a 15% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites
Bleaching	a 15% increase in the percentage of bleaching of hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of bleaching of hard corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites
Mortality	a 15% increase in the percentage of partial mortality of corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites	a 25% increase in the percentage of partial mortality of corals occurs at more than 20% of the tagged coral colonies at one or more monitoring sites

<b>Action</b>	<b>Action Level</b>	<b>Limit Level</b>
Construction phase	If the Action Level is exceeded the ET Leader should inform all parties (Contractor, Project Proponent, EPD, AFCD and IEC). The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (for SS and/or turbidity) the ET Leader should discuss with the Contractor the most appropriate method of reducing suspended solids during dredging (e.g. reduce the rate of dredging), and/or control sedimentation during earth works (e.g. check the intactness and effectiveness of the temporary drainage system and stream buffer zone). This mitigated method should then be enacted on the next working day.	If the Limit Level is exceeded the ET Leader should inform all parties (Contractor, Project Proponent, EPD, AFCD and IEC) immediately. Should the Limit Level be exceeded, the contractor should stop dredging and/or earth works immediately and work out the solution according to the requirements of EPD and AFCD. The ET Leader should inform the Contractor to suspend dredging and/or earth works until an effective solution is identified. Once the solution has been identified and agreed with all parties dredging and/or earth works may commence
Operation phase	If the Action Level is exceeded the ET Leader should inform Golf Course Operator, EPD, and AFCD. The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (salinity and/or pesticides) the ET Leader should discuss with the Golf Course Operator the most appropriate method of reducing salinity (e.g. reduce the daily operation time of the desalination plant), and/or control chemicals from runoff (e.g. reduce the frequency and quantity of chemical applied, check the intactness and effectiveness of the closed drainage system and stream buffer zone). This mitigated method should then be enacted on the next working day.	If the Limit Level is exceeded the ET Leader should inform all parties Golf Course Operator, EPD, and AFCD immediately. Should the Limit Level be exceeded, the Golf Course Operator should stop the operation of the desalination plant and/or the application of chemicals immediately and work out the solution according to the requirements of EPD and AFCD. The operation of the desalination plant and/or the application of chemicals would be suspended until an effective solution is identified.

**Categories of Archaeological Finds and Recommended Action**

Categories of Archaeological Material	Retrieval Procedure
Human burial <ul style="list-style-type: none"> <li>• Skeleton remains</li> <li>• Items associated with human burial, i.e. grave goods</li> </ul>	Full recording and recovering of human remains and associated features <ul style="list-style-type: none"> <li>• Complete recording by photography, drawing, written description</li> <li>• Full measurement of burial and surrounding matrix</li> <li>• Retrieval of human remains and associated materials</li> <li>• Retrieval of surrounding soil for further analysis</li> </ul>
Intact features <ul style="list-style-type: none"> <li>• Structural/architectural remains</li> <li>• Undisturbed context, such as hearth, midden, habitation area, assemblages of artefacts and/or environmental material</li> </ul>	Limited recording and recovery of archaeological features <ul style="list-style-type: none"> <li>• Recording and measurement of salient features by photography, drawing and written description</li> <li>• Retrieval of all archaeological material</li> <li>• Retrieval of samples from the surrounding matrix</li> </ul>
Intact artefacts <ul style="list-style-type: none"> <li>• Complete objects such as pottery, metal objects, stone and bone tools. The objects are complete but isolated and are no part of assemblages or feature.</li> </ul>	Recovery of artefacts <ul style="list-style-type: none"> <li>• Recovery of objects</li> <li>• Sampling of the surrounding matrix</li> <li>• Proper treatment with cleaning, marking and packing under international acceptable standards</li> </ul>
Isolated material <ul style="list-style-type: none"> <li>• Sherds, non-human bone, artefact fragments (metal, pottery, glass). There are no complete objects, the material is isolated and fragmentary in nature.</li> </ul>	Recovery of artefact fragments/archaeological material <ul style="list-style-type: none"> <li>• Recovery of material, such as artefact fragments, environmental material and sampling of surrounding matrix</li> </ul>
Deposits with archaeological potential <ul style="list-style-type: none"> <li>• Soil deposits which exhibit characteristics associated with archaeological remains in Hong Kong</li> </ul>	Sampling of the deposit <ul style="list-style-type: none"> <li>• Collection of soil samples from deposits displaying archaeological potential</li> </ul>



# **Annex D**

## **Implementation status on Environmental Protection Requirements**

**IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES**

**Table 1 Implementation Schedule of Air Quality Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
<b>Air Quality - Construction Phase</b>									
4.7.1		<p>In order that nuisance to air sensitive receivers is minimized, it is important to minimize dust emissions from construction activities including cut and fill operations and trucks movements on haul road.</p> <p>Dust control techniques should be considered to control dust to a level not exceeding the AQOs as well as the 1-hour TSP guideline level. These measures include:</p> <ul style="list-style-type: none"> <li>• Adoption of good site practices;</li> <li>• Avoid practices likely to raise dust level;</li> <li>• Frequent cleaning and damping down of stockpiles, dusty areas of the Site and the haul roads;</li> <li>• Reduce the speed of the vehicles (say 10 kph) on the haul road;</li> <li>• Reducing drop height during material handling;</li> <li>• Provision of wheel-washing facilities for Site vehicles leaving the Site;</li> <li>• Regular plant maintenance to minimize exhaust emission;</li> <li>• If concrete batching plant or rock crushing plant is planned to used, a license from EPD may be required depending on the total silo capacity since they are specified processes under the APCO. Modern plant should be designed to limit emissions</li> </ul>	Work site / during construction	All contractors		√		EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation	
									√
									√
									√
									Not available on site
									√
									As confirmed by Contractor, the concrete batching plant is not a specific process.
4.7.2		Providing watering four times a day for dust suppression.							

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation; N/A = Not applicable

**Table 2 Implementation Schedule of Water Quality Control Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
<b>Water Quality – Construction phase</b>									
6.11.4		<u>Proposed 18 holes Golf Course Layout Design</u> 20 m buffer zones on both sides of the streams will be demarcated as a preventative mitigation measure to reduce the disturbance during construction phase of the golf course except for the portions of Streams A which is of low ecological value and an old tributary of Stream B. On one side of part of the Stream B, the buffer zone would be reduced to 5m.	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	Stream A buffer zone was provided. Streams B & C will be demarcated in advance when works approach to those areas.
6.11.5		For the construction activity which is unavoidable near natural streams (within the buffer zone), mainly the construction of crossings, preventative mitigation measures during the construction stage should be follow by the Contractor, they are shown as follows: <ul style="list-style-type: none"> <li>• The proposed works site inside or in the proximity of natural streams should be temporarily isolated, through by placement of sandbags or silt curtains and properly supported by props, to prevent adverse impacts on the stream water qualities;</li> <li>• The natural bottom and existing flow in the stream should be preserved to avoid disturbance to the stream habitats;</li> <li>• No direct and indirect discharge into the natural stream is allowed from any construction work activities;</li> <li>• Stockpiling of construction material, if any, should be properly covered and located away from any natural stream;</li> <li>• Monitor rain forecast closely and cover any exposed spoil when rainstorms are forecated. Debris should be properly disposed of before rainstorm to avoid any inadvertent wash away into the stream; and</li> <li>• Removal of existing vegetation alongside the stream should be avoided. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environmental upon completion of works.</li> </ul>						Temporary bridge no.9 across Stream A was constructed within the buffer zone areas. The Contractor was reminded to ensure no discharge/runoff to the Stream A from the construction activity especially within the buffer zone areas.  Temporary bridge no. 5 was under construction near at freshwater inland marsh. The Contractor was reminded to provide sufficient mitigation measures during construction to prevent silty runoff from the brige.	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
								No permanent precast concrete bridge was constructed during the reporting month.	
6.11.13		<p><u>Runoff and Drainage Management</u></p> <ul style="list-style-type: none"> <li>• <b>Diversion of upstream flows around the works areas for stream crossings and underground pipes:</b> To minimize the impact of upstream runoff on the Works area by preventing storm flows reaching the work areas. This will be done through provision of upstream cut-off drains to intercept the flows and divert them around the Works area. It would convey flows to downstream stream courses, or other elements of temporary drainage systems (such as storage facilities).</li> <li>• <b>Temporary covering the works areas during severe storm events:</b> Significant rainstorm events can be reasonably well forecast and when heavy rain is predicted, mitigation measures should be provided for the vulnerable areas by using tarpaulins, plastic sheets or other temporary covering to protect works area and minimize damage and erosion. It is recommended not to cover the newly establishment grass areas, and if unavoidable, this should only be done on a short term basis (less than 24 hours).</li> <li>• <b>Silt traps and sedimentation tanks for main discharge routes form works area:</b> Sufficient and suitably sized silt traps and/or sedimentation tanks should be provided at the downstream ends of the systems to remove suspended solids prior to discharge. The discharge water quality shall be compliant with the <i>TM on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters</i> under the WPCO. The required volume of the sedimentation tanks will depend on the catchment area served. Multiple tanks in series may also be required where</li> </ul>	Work site / During the construction period	All contractors		√		<p>ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water</p> <p>The temporary drainage plan submitted by Contractor to ER on 29<sup>th</sup> March 2006 for comments during this reporting month.</p> <p>The implementation of temporary preventative measure for silty runoff was installation of silt fence along the site boundary, provide some sedimentation basins at Hole 1 low areas and rock bunds at some low lying areas. Some of the silt fence areas are poorly maintain which could cause potential runoff to marine and stream. The incident on 24<sup>th</sup> April 2006 reflected on this issue and silty runoff was observed from the low lying areas to marine and stream courses.</p>	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p>runoff might be expected to be silty.</p> <ul style="list-style-type: none"> <li>The design details of the temporary drainage system at turf establishment area follow the same principles of the permanent drainage system. However the component pipes, tanks, lakes and/or pumps may differ in size, shape, location, etc. from that of the permanent system, dependent upon the temporary runoff areas as compared with those of the permanent system. Additionally or alternatively, the temporary drainage system may consist of other methods to control soil erosion and/or to facilitate the collection of surface water runoff.</li> </ul> <p>The temporary drainage system will function during the period of time in which the permanent system is not yet completed. This circumstance will arise from the fact that the golf holes, inclusive of the permanent drainage system, will be constructed individually. As a result, the permanent drainage system may not be completed in its entirety until connection is made from each respective golf hole area to the lake/reservoir. As the permanent drainage system is completed for each hole, the corresponding temporary system will be decommissioned and reused elsewhere.</p> <p>The temporary drainage system will be in use until the permanent system is functional in a given area. Once the permanent system is functional in a given area, the temporary system will be decommissioned and, wherever possible, the components re-used in another temporary drainage system installed elsewhere. It is anticipated that the maximum duration of use for the temporary drainage system in any given area will be one-year.</p> <p>The storage tanks and/or lakes will be designed to segregate suspended solids (or pollutants as may be the case in plant/equipment storage and refueling areas) as may be necessary by contract requirements and reuse.</p>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<ul style="list-style-type: none"> <li>No irrigation, fertilizer and pesticide applications to the turf would be permitted during rainstorm events or when heavy rainstorm is predicted 24 hours before the application.</li> <li>Runoff from materials storage areas, particularly fuel and chemicals storage area should be separated from the main drainage systems (bunded, if necessary) and provided with dedicated facilities throughout the construction period, such as petrol interceptors.</li> </ul>				√			
6.11.14		<p>The Contractor shall follow good site practices and be responsible for the design, construction, operation, and maintenance of all the mitigation measures as specified in <i>ProPECC PNI/94</i> on construction site drainage through the construction period. These practices include:</p> <ul style="list-style-type: none"> <li>Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via a silt retention pond.</li> <li>All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times.</li> <li>Excavation of soil that cannot be avoided during the wet season, and exposed surface or open stockpiles should be covered with tarpaulin or other means. Other measures that need to be implemented before, during and after rainstorms are summarized in <i>ProPECC PNI/94</i>.</li> <li>Exposed soil areas should be minimized to reduce potential for increase siltation and contamination of runoff.</li> <li>Earthwork final surfaces should be well compacted and subsequent permanent work (turf establishment) should be immediately performed.</li> <li>The Contractor shall contain within the site all surface runoff generated from the construction works, concreting works, dust control and vehicle washing, etc.</li> <li>The Contractor shall arrange other measures, such as</li> </ul>	Work site / During the construction period	All Contractor		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	The temporary drainage plan has been submitted by Contractor to ER for comments on 29 <sup>th</sup> March 2006 during this reporting month.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p>provision of sand bags or temporary diversion systems to prevent washing away of soil, silt or debris into any nearby natural streams. Any runoff shall be diverted into appropriate sediment traps before discharging to the nearby drainage system. The discharge water quality shall be compliant with the <i>TM on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters</i> under the WPCO.</p> <ul style="list-style-type: none"> <li>The Contractor shall observe and comply with the Water Pollution Control Ordinance (WPCO) and its subsidiary regulations by implementing environmental protection measures (such as the use of silt traps) and preventing any point or non-point source of pollution.</li> </ul>							
6.11.15		<p><u>Concrete bridge construction</u></p> <p>No work is allowed to come into contact with the underlying stream bed during the concrete bridge construction. During the construction of precast concrete bridge, if necessary, precaution measures should be taken to ensure no potentially polluting liquid or solid wastes fall into the stream. This is essential to avoid water quality impacts within ecologically sensitive streams.</p>	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	Temporary bridge no.9 construction was completed before April 2006.
6.11.16		<p>The Contractor shall good site follow practices, including, but no limited to::</p> <ul style="list-style-type: none"> <li>Construction work area for the precast concrete should be outside the designated stream buffer zone area;</li> <li>The designated work area for precast concrete work should be covered to minimize the potential water runoff during rain from the construction area;</li> <li>All water used within the concrete work area should be collected, stored and recycled to reduce resource consumption. Stormwater runoff from the works areas fro precast concreting works should drain under gravity towards a sedimentation basin. The overlying water from the sedimentation basin should be recycled for reuse within the plant. The deposited sediment should be dewatered and</li> </ul>						No concrete bridge was under construction during the reporting month.	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
		<p>the dry matter should require disposal off-site. No water should be discharged outside the boundary of the precast concrete works area;</p> <ul style="list-style-type: none"> <li>The use of tarpaulin sheet or other means (water impermeable texture) should be placed beneath precast concrete beam level (must be above the stream bed level) to capture any falling object during installation of precast concrete bridge on the footings or abutments;</li> <li>Prohibition of any direct and indirect discharge into the streams;</li> <li>The concrete bridge and footings of abutments must be completely above the high water mark;</li> <li>All equipment and machinery must be free of leaks or excess oil and grease;</li> <li>Equipment refueling or servicing or storage of fuel must be undertaken at a minimum of 30 meters from the stream;</li> <li>Prevent soil and trash from getting into stream during construction by use of silt fence, fiber rolls, gravel bags and other effective means;</li> <li>All bare soil (abutment slope or temporary stockpile) must be covered with tarpaulin or other means before forecast rain; and</li> <li>Wash out concrete trucks or pumps only into designated washout pits.</li> </ul>							
6.11.19		<p><u>Dredging during Construction of Desalination Plant's intake and outfall</u></p> <p>The intake and outfall pipelines will be constructed by dredging the seabed to form a trench and backfilled with a layer of bedding material (quarry run stone) before putting the pipelines in place. Once in place, the pipelines are covered with layers of rock armour on top of the pipelines to protect the pipelines against damage by wave action. The alternative backfilling material is from rock excavated during site formation if suitable.</p>	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	No dredging work for the desalination plant pipelines was carried out. The only work for the desalination plant was the land formation for the desalination plant during the reporting month.
6.11.20		<p>The materials used for the backfilling at the intake and outfall pipelines are stone and rock armour only. Transfer of backfilling</p>							



EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.21		<p>materials onto the seabed from barge should be conducted by careful grabbing and unloading to seabed (to minimize sediment migration), thereby minimize impacts on water quality to nearby water sensitive receivers. As a preventative measures, silt curtain will also be required during the backfilling activities. The expected backfilling duration is approximate 2 months.</p> <p>The Contractor shall use backhoe for dredging works at a water depth of less than 2m and use close grab dredger for works with water depth of more than 2m. The estimated dredging works is about 50m long (where backhoe should be used for water less than 2m deep) and 70m long (where close grab dredger should be used for water more than 2m deep). Only one dredging method should be used at any one time.</p>							
6.11.22		<p>In order to avoid pollution during dredging, transporting and dumping of marine mud. Pollution avoidance measures shall include but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• The maximum daily dredging rate for closed grab dredger should be 45m<sup>3</sup>/day;</li> <li>• The maximum daily dredging rate for backhoe should be 20m<sup>3</sup>/day;</li> <li>• Silt curtain should be installed for any dredging methods to protect the WSRs;</li> <li>• Closed grabs or sealed grabs should only be used for locations with water depths <math>\geq 2m</math>;</li> <li>• Backhoe should only be used for locations with water depths <math>\leq 2m</math>;</li> <li>• All equipment should be designed and maintained to minimise the risk of silt and other contaminants being released into the water column or deposited in locations other than designated location;</li> <li>• Mechanical grabs should be designed and maintained to avoid spillage and should seal tightly while being lifted;</li> <li>• No trailing suction hopper dredgers would be deployed for the dredging of marine mud;</li> </ul>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.23		<ul style="list-style-type: none"> <li>All vessels should be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>All pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;</li> <li>Before moving the vessels which are used for transporting dredged materials excess material should be cleaned from the decks and exposed fittings of vessels and the excess materials should never be dumped into the sea except at the approved locations;</li> <li>Adequate freeboard should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>The Contractor should monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The contractor should keep and produce logs and other records to demonstrate compliance and that journey times are consistent with designated locations and copies of such records should be submitted to the engineer;</li> <li>All bottom dumping vessels should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>Loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and vessels should not be filled to a level which will cause overflowing of material or polluted water during loading or transportation; and</li> <li>The engineer may monitor any or all vessels transporting material to check that no dumping outside the approved location nor loss of material during transportation takes place. The contractor should provide all reasonable assistance to the engineer for this purpose.</li> </ul> <p>In addition, baseline water quality monitoring before commencement of the marine works shall be carried out in the nearby waters to obtain baseline information for subsequence monitoring. Regular and frequent water quality monitoring shall be carried out throughout the whole construction period to ensure</p>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.24		the water quality during construction is well within the established environmental guidelines and standards.							
6.11.25		<p>Silt Curtain</p> <p>In order to minimize impacts during the whole construction period of desalination plant's intake and discharge outfall, silt curtains should be utilized to minimize sediment migration. The Contractor shall be responsible for the design, installation and maintenance of the silt curtains to minimize the impacts on the water quality and the protection of water sensitive receivers. The design and specification of the silt curtains shall be submitted by the Contractor to the Engineer for approval. Area of the silt curtain to enclose the works area should be minimized in order to reduce the disturbance of ecological sensitive areas nearby.</p> <p>A typical suspended solids reduction of 75% can be achieved with the incorporation of silt curtain. Two-layer silt curtains have generally been used for dredging projects of larger scale to further ensure this reduction. However, as the scale of proposed project is considered small, it is recommended to use single layer silt curtain which can achieve a minimum 75% suspended solids reduction.</p>							
6.11.26		Silt curtains shall be formed from tough, abrasion resistant, permeable membranes, suitable for the purpose, supported on floating booms in such a way as to ensure that the sediment plume shall be restricted to within the limit of the works area.							
6.11.27		The silt curtain shall be formed and installed in such a way that tidal rise and fall are accommodated, with the silt curtains always extending from the surface to the bottom of the water column. The removal and reinstallation of such curtains during typhoon conditions shall be as agreed with the Director of Marine Department.							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.28		The Contractor shall regularly inspect the silt curtains and check that they are moored and marked to avoid danger to marine traffic. Any damage to the silt curtain shall be repaired by the Contractor promptly and the works shall be stopped until the repair is effected to the satisfaction of the Engineer.							
6.11.29		<u>General Construction Activities</u> Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering adjacent watercourse. Stockpiles of construction materials should be kept covered when not being used.	Work site / During the construction period	All contractors		√		√	
6.11.30		Oils and fuels should only be stored/handled in designated areas with pollution prevention facilities. Oil interceptors need to be regularly inspected and cleaned to avoid wash-out of oil during storm conditions.						√	
6.11.31		Contractor should provide a safe storage area for chemicals on site. The Contractor is required to register as a chemical waster producer if chemical wastes would be produced from the construction activities.						Not available on site during this reporting month	
6.11.32		All fuel tanks should be provided with locks and be sited on sealed areas within bunds of capacity equal to 110% of the storage capacity of the largest tank.						Drip trays were provided underneath the oil tanks.	
6.11.33		Good housekeeping practices and staff training are required to minimize careless spillage and keep the work space in a tidy and clean conditions at all times. Accidental spillage of chemicals in the works area would directly affect the aquatic environment. It is recommended that the Contractor should develop management procedures for chemical and implement an emergency plan to deal with chemical spillage in case of an accident.						N/A	

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.34		Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The chemical waste should be transported to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility at Tsing Yi. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes details the requirements to deal with chemical wastes.						N/A	
6.11.35		<u>On-Site Sewage Effluents</u>  In order to prevent sewage effluents affecting water courses, the following mitigation measures should be provided by the Contractor:- <ul style="list-style-type: none"> <li>• Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site to handle sewage from the workforce;</li> <li>• The toilet facilities should be more than 30 m from any watercourse;</li> <li>• Temporary storage tank should be provided to collect wastewater from kitchens or canteen, if any;</li> <li>• A licensed waste collector should be deployed to clean the chemical toilets on a regular basis which will be and disposed of at government sewage treatment facilities;</li> <li>• Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures; and</li> <li>• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the project.</li> </ul>	Work site / During the construction period	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	
									√
									√
									N/A (no canteen on site)
									√
√									
6.11.36		<u>Concrete batching plant</u>  All water used within the concrete batching plant will be	Work site / During the construction	All contractors		√		ProPECC PN 1/94; WPCO; TM-Effluent Standards	The concrete batching plant is under construction and

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.37		<p>collected, stored and recycled to reduce resource consumption. This includes water used in the concrete batching process, truck cleaning, yard washing and dust suppression spraying. All spent dust suppression effluent will be collected and recycled. To minimize the potential water quality impacts that may generate from the concrete batching plant, a drainage system should be provided in this site. The batching plant area should be channelled to collect concrete washings for further treatment before reuse on-site and prevent concrete washings from directly entering the any stream or seawater. Site runoff should also be collected through the drainage system. To minimize the generation of contaminated site runoff from concrete production area, the concrete batching plant should be sheltered.</p> <p>Concrete washings and site runoff should be pumped to a wastewater treatment system with a sedimentation unit for removal of suspended solids such as waste concrete particles, silt and grit in order to achieve the discharge standards. pH adjustment should also be applied if the pH value of the collected concrete washings and site runoff is higher than the pH range specified in the discharge licence. This can be achieved by adding neutralizing regents, i.e. acidic additive. A discharge licence should be applied from EPD for discharge of effluent from the site. Analysis of effluent quality may be required as one of the licensing conditions of the discharge licence. The Contractor should collect effluent samples at the final discharge point in accordance with the required sampling frequency to test the specified water quality parameters. The quality of the discharged effluent should comply with the discharge licence requirements. It is recommended to reuse the treated effluent for dust suppression and general cleaning on site, wherever possible.</p>	period				for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Water	<p>expected commencement date will be by the end of May 2006. Temporary drainage system to reuse the wastewater on site was not observed. The Contractor was reminded to provide the temporary drainage system before any concrete production on site.</p>	
6.11.38		<p>The drainage system should be maintained on a regular basis to remove the deposits on the channels. The sedimentation and pH adjustment systems should also be checked and maintained by competent persons to ensure that the systems are functioning properly at all times.</p>							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines	Implementation Status
					D	C	O		
6.11.39		The deposited sediment will be dewatered and the dry matter will require disposal off-site. The estimated maximum concentrate batching operation period during construction is 20 months.							
6.11.40		Sand, gravel and other bulk materials will be delivered from the production area by conveyor boats or derrick barges to the temporary barging point, and the material will then be loaded onto dump trucks by loaders and delivered to the on-site storage areas.							
6.11.41		Regular environmental inspections should be conducted to check the environmental performance of daily operation. These inspections will ensure proper installation and maintenance of pollution control measures, such as checking of sedimentation basin, wastewater recycling facility and enclosure of stockpiles, and the implementation of other mitigation measures.							

\* All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and/or accepted public comment to the proposed project.

\*\* Des - Design, C = Construction, O = Operation

N/A Not applicable

**Table 3 Implementation Schedule of Waste Management Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
<b>Waste Management - Construction Phase</b>									
7.7.2		<p>Good site practice to minimize solid waste generation, including:</p> <ul style="list-style-type: none"> <li>• nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility;</li> <li>• training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>• provision of sufficient waste disposal points and regular collection for disposal;</li> <li>• appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</li> <li>• regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>• a Waste Management Plan should be prepared and should be submitted to the Engineer for approval. One may make reference to ETWB TCW No. 15/2003 for details; and</li> <li>• a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed.</li> </ul>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√
7.7.4		<p>Good management and control can prevent the generation of significant amounts of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>• segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>• separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors;</li> <li>• any unused chemicals or those with remaining functional capacity shall be recycled;</li> </ul>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√ √ N/A



EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		<ul style="list-style-type: none"> <li>maximising the use of reusable steel formwork to reduce the amount of C&amp;D material;</li> <li>prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials;</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste;</li> <li>minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering.</li> </ul>							N/A
									N/A
									N/A
									N/A
									N/A
7.7.6		<p><u>Site Clearance Waste</u> Scrub and other vegetation will be stripped for the tees, fairways, greens and access roads. The normal route for disposal for such material is landfill but in this case it is proposed that vegetation is passed through a "chipper" to break down the material into a medium that can be used as mulch / compost and provide a seed-bank for natural hydroseeding of exposed areas.</p>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance ; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√ The Contractor was reminded to dispose the vegetation stockpiles properly.
7.7.7		Non-inert materials should be kept separate and reused on-site as fill in preference to disposal at public filling areas which are operated by CEDD or disposal at landfill.							√
7.7.8		<p><u>Excavated Materials</u> Material generated during open cut works, and access route formation will comprise rock and soil and all this material will be reused in the site shaping process. It is anticipated that there will be no material requiring disposal off-site in public filling areas.</p>	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	√
7.7.9		<p><u>Construction and Demolition (C&amp;D) Material</u> The C&amp;D material generated from the site formation and demolition works should be sorted on-site into inert C&amp;D material and C&amp;D waste.</p>	Work site / During the construction	All Contractors		√		WDO; Public Health and Municipal	√

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material should be reused on-site as backfilling material. C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed of to landfill. A suitable area(s) should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. The stockpiling/sorting area should be located far away from the identified sensitive receivers.	period					Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	
7.7.10		<u>Site fencing</u> Some site fencing may be required. Attention should be paid to WBTC No. 19/2001 which introduces a new policy requiring the use of metallic site hoardings and signboards in order to reduce the amount of timber used on construction sites.	Work site / During the construction period	All Contractors		√		WBTC No. 19/2001	√ Plastic fencing / metallic hoarding was used on site.
7.7.12		<u>Chemical Waste</u> Where the construction processes produce chemical waste, the Contractor must register with EPD as a Chemical Waste Producer. Wastes classified as chemical wastes are listed in the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> . These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be provided.	Work site / During the construction period	All Contractors		√		Waste Disposal (Chemical Waste) (General) Regulation	Chemical waste storage area was not available on site. Tiny amount of chemical waste was stored on site temporarily.
7.7.14		Hard standing surfaces draining via oil interceptors shall be provided in works area compounds. Interceptors will be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded to prevent discharge due to accidental spillages or breaches of tanks. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.							
7.7.15		Any construction plant which is likely to leak oil, should have absorbent inert material e.g. sand, placed beneath it. This material should be							

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
7.7.16		replaced on a regular basis and the contaminated material should be stored in a designated, secure place. Any sand used for soaking oil waste is classified as chemical waste and should be disposed of in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulations</i> .							
7.7.17		Lubricants and waste oils are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants will be collected and stored in individual containers which are fully labelled. The containers should be stored in a designated secure place. If possible such waste should be sent to oil recycling companies; there are also companies which collect empty oil drums for reuse or refill.							
7.7.18		Oil and lubricant wastes are classified as chemical wastes, and if not recycled, should be collected by licensed collector and should be treated at the Chemical Waste Treatment Centre, Tsing Yi, or other sites licensed for disposal of waste oil. A trip ticket system operates to control the movement of such chemical waste and tickets have to be produced upon the request of EPD.							
7.7.19		Some paints and solvents are classified as chemical waste and, if used on site, will be subject to the stringent requirements of the <i>Waste Disposal (Chemical Waste) (General) Regulation</i> . Empty paint cans should be recycled or collected as waste. Any dry paint waste should be swept up and collected in containers for disposal.							
7.7.20		<u>Sewage</u> An adequate number of portable toilets should be provided for the on-site construction workforce. The portable toilets shall be maintained in a state that will not deter the workers from using them.	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions)	Portable toilets were available on site.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
								Ordinance; ETWB TCW NO. 15/2003.	
7.7.21		<u>General Refuse</u> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.	Work site / During the construction period	All Contractors		√		WDO; Public Health and Municipal Services Ordinance; The Land (Miscellaneous Provisions) Ordinance; ETWB TCW NO. 15/2003.	Temporary stored in a defined area on site and dispose regularly.
7.7.22		Solid and liquid wastes will be generated by the construction workers during the clearance/construction period. The refuse (mainly non-recyclable materials) will be collected regularly in black refuse bags and delivered to the existing solid waste disposal system and transferred to landfill for disposal.							
7.7.23		<u>Marine Sediments</u> The basic requirements and procedures for dredged mud disposal are specified under the ETWB TCW No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the Marine Fill Committee (MFC), while the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP). The dredged marine sediments will be loaded onto barges and transported to the designated disposal site.	Marine Dredging area / During the construction period	All Contractors		√		ETWB TCW NO. 34/2002.	No dredging works was carried out during the reporting month.
7.7.25		During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimise potential impacts on water quality: <ul style="list-style-type: none"> <li>• Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.</li> </ul>							

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation; N/A = Not applicable

**Table 4 Implementation Schedule of Ecological Impact Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
<b>Construction Phase</b>									
8.7.1		<u>Terrestrial Ecology</u> Haul roads would be located on future fairway and cart paths alignments to minimise temporary disturbance of habitats.	Work site / During the construction period	All Contractor		√		-	√
8.6.39		Avoid disturbance of stream bed during the construction of the permanent bridges by using precast unit of the bridge segments transported from other locations and installed to the proposed locations.	Stream crossing/ During the construction period	All Contractor		√		-	√
8.7.4		Good site practice. Construction materials must be stored at locations away the stream courses. Site runoff would be desilted in settling ponds to reduce the potential for suspended sediments, organics and other contaminants to enter stream and marine environment.	Work site / During the construction period	All Contractor		√		-	Not observed.
8.9	Table 4.1	Streams B, C, and D will be monitored monthly during the construction phase to determine the status of <i>Caridina trifasciata</i> (shrimp) and <i>Nanhaipotamon hongkongensis</i> (freshwater crab). Stream condition will be recorded with reference to the protective buffer zone. Encroachment onto the buffer zone will be reported to the ER/ET. Sheet piling will be installed at the buffer zone perimeter as needed to prevent further encroachment. Stream sedimentation will be reported to the ER/ET, the agent causing sedimentation will be discovered, and sedimentation will be stopped.	Stream B, C & D/ During the construction phase	All Contractor		√			Monitoring has been carried out during this reporting month.
9.7.22		<u>Marine Ecology</u> The temporary drainage system, which would receive flows from all areas subject to earth works, would collect all site runoff. The collected runoff would be retained for turf grass irrigation.	Work site / During the construction period	All Contractor		√			On-going
9.8.5		Dredging for the two pipelines for the desalination plant would be require 50 days and would be scheduled to the extent possible from January to April 2006. This would	Dredging area/ during dredging period	All Contractor		√			N/A

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
		avoid the flowering season for the seagrass <i>Halophila ovalis</i> , i.e. November and December (Fong et al. 2005) and the spawning season for corals, i.e. July to October (Lam 2000; Storlazzi, C. D. 2004).							
9.8.2	4.2.12	Coral colonies within the silt curtain, in particular the 79 colonies identified during the coral mapping survey, (see Appendix A9.2) would be transplanted. Prior to commencement of any marine construction works for the proposed project, the affected coral colonies would be tagged using plastic labels and a number would be assigned to each. The tagged corals in the dredging area at D2 site will be transplanted to the bedrock area about 80 m south of the ferry pier. All these transplantation works should be conducted by experienced marine ecologist(s) and should be completed before the commencement of marine construction works.	Dredging area/Prior to dredging	All Contractor		√			N/A
9.8.5		Silt curtains will be deployed during dredging for the desalination plant. With the deployment of silt curtains around the dredging area for the desalination plant, adverse water quality impacts associated with the dredging and backfilling would be controlled to acceptable levels.	Dredging area/Prior to dredging	All Contractor		√			N/A
		All anchoring points/structures of the floating pier would be located on the shore and/or at least 40m seaward to avoid the coral colonies at Site B2 which are concentrated within the first 15m seaward from the coastline and none recorded over 35m seaward.	Temporary barging point/ during construction of the barging point	All Contractor		√			Construction of the temporary barging point was completed on early April 2006. Floating pontoon was located at designated location according to EP during the reporting month.
		The location of the floating pier would also be shifted from the original location for barging point at Zone 2 and Zone 3 of the mapping area in Site B2 (see Figure 2 in Appendix A9.2), to Zone 5 to further protect corals. Impacts to corals are not expected.	Temporary barging point/ during the entire construction phase	All Contractor		√			√

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Table 5 Implementation Schedule of Fisheries Impact Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
10.8.2		<u>Construction phase</u> In addition to the temporary drainage system which would collect site runoff for re-use for irrigation, site runoff would also be controlled by general site practices during the construction period.	Work site / During the construction period	All Contractor		√		N/A	N/A
10.8.3		Silt curtains will be deployed during dredging for the desalination plant. With the deployment of silt curtains around the construction area, adverse water quality impacts associated with the dredging and back-filling would be controlled.	Work site / During the construction period	All Contractor		√		N/A	N/A
10.7.12		The majority of the heavy construction works, in particular, the cut and fill earth works, would be conducted within the 2005-2006 dry season.	Work site / During the construction period	All Contractor		√		N/A	Master Programme indicates that excavation will be carried out throughout the year 2006 to Jul 2007.

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Table 6 Implementation Schedule of Landscape and Visual Impact Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
<b>Landscape and Visual Impact - Construction Phase</b>									
Table 12.13	MC1	Site offices and construction yards: <ul style="list-style-type: none"> <li>Site offices and the construction yard shall be decommissioned after construction.</li> <li>Haul roads shall be decommissioned and restored with hydroseeding works after construction.</li> </ul>	All site offices	All contractors		√		EIAO Guidance Note No. 8/2002	To commence
Table 12.13	MC2	Height of site offices: <ul style="list-style-type: none"> <li>The height of site offices shall be controlled in order to avoid visual impacts.</li> </ul>	All site offices	All contractors		√		EIAO Guidance Note No. 8/2002	Being constructed
Table 12.13	MC3	Hoarding and screening: <ul style="list-style-type: none"> <li>Where practical the site offices areas, construction yards and storage areas shall be screened using olive green coated hoarding or vegetation around the peripheries of the works area until the completion of relevant construction phases.</li> </ul>	All site office and construction yard areas.	All contractors		√		EIAO Guidance Note No. 8/2002	Complied. Green hoarding is found erected near the desalination plant and the area next the administration building.
Table 12.13	MC4	Construction plant and building material: <ul style="list-style-type: none"> <li>Shall be orderly and carefully stored in order to appear neat and avoid visibility from outside where practical;</li> <li>Excess materials shall be removed from site as soon as practical;</li> <li>All construction plant shall be removed from site upon completion of construction works.</li> </ul>	In all construction yards.	All contractors		√		EIAO Guidance Note No. 8/2002	Stockpiles of vegetation are temporarily stored on site.



EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MC5	<p>Construction light:</p> <ul style="list-style-type: none"> <li>To be oriented away from the viewing location of VSRs; and</li> <li>All lighting shall have frosted diffusers and reflective covers.</li> <li>While construction at night might be required from time to time, this should be controlled and minimised.</li> </ul>	All construction lights.	All contractors		√		EIAO Guidance Note No. 8/2002	No construction lights at present.
Table 12.13	MC6	<p>Vegetation:</p> <ul style="list-style-type: none"> <li>Temporary construction sites shall be restored to standards as good as, or better than, the original condition. In this respect, areas that are not covered by golf course grassing works shall be hydro seeded;</li> <li>The potential for soil erosion shall be reduced at the construction stage by minimizing the extent of vegetation disturbance on site and providing a protective cover over exposed ground; and</li> <li>No plant or building materials shall be stored under the dripline of retained trees and no vehicle movement or other construction activities like washing, concrete mixing etc shall be carried out under the dripline of trees.</li> </ul>	All temporary construction sites.	All contractors		√		EIAO Guidance Note No. 8/2002	Complied.
Table 12.13	MT1	<p>Compensation for losses:</p> <ul style="list-style-type: none"> <li>The tree compensation to tree loss ratio shall be between 1:2 and 1:3;</li> <li>At least 700 new trees shall have be of light standard or larger size.</li> </ul>	As shown on mitigation measures plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MT2	The majority of compensation species shall comprise species that already occurs within the LIA boundaries;	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MT3	Where practical, trees that require removal shall be transplanted on Site;	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: Partial Completed of transplantation works.
Table 12.13	MT4	New trees shall be planted in groups in order to screen visual impacts and to provide additional shade at the administration building, rain shelters and halfway houses.	As shown on mitigation measure plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	MT5	Tree Planting on Slopes: <ul style="list-style-type: none"> <li>New slopes with a gradient larger than 30° shall have whip tree planting.</li> <li>Such whip trees shall comprise tree species with shrub-like characteristics, such as <i>Gordonia axillaries</i> (大頭茶) and <i>Raphiolepis indica</i> (車輪梅).</li> </ul>	General.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	MT6	Tree planting works at the hill where the desalination plant will be located shall be carefully positioned in order to represent its original profile.	At the desalination plant.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	MT7	Tree Preservation: <ul style="list-style-type: none"> <li>No tree shall be transplanted or felled without prior approval by relevant Government departments in accordance with WBTC 24/94, WBTC 14/2002 and ETWB 2/2004;</li> <li>All trees that are marked for retention shall be fenced off with a 1.2m high fence around the dripline of trees or larger area;</li> <li>Transplant preparation works shall be carried as soon as possible after commencement of construction. Rootball and crown pruning shall be carried out over at least 1 month.</li> </ul>	All areas with existing trees	All contractors	√	√		WBTC 24/94, WBTC 14/2002, ETWB 2/2004	Design Stage: Tree felling approved.  Construction Stage: Trees near site clearance area are protected.  Tree transplantation commenced. Preparation period not complied.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	MT8	<p>Buffer Areas</p> <ul style="list-style-type: none"> <li>For streams the width of the buffer zones will be 20m from the stream bank. The only exception would be the buffer zone in the reach of upper tributary of stream B lying between the two parts of Hole 10, where the buffer will zone will be 5m, the dry tributary of stream B that will be converted to an underground culvert and the secondary tributary of stream A that will also be converted to an underground culvert.</li> <li>No construction activities will be allowed in the buffer zones, except for site formation works, which are required for the construction of bridge footings.</li> </ul>	At streams	All contractors	√	√		EIAO Guidance Note No. 8/2002	<p>Design Stage: Complied</p> <p>Construction Stage: No works in buffer areas at present.</p>
Table 12.13	MS1	<p>Bulk hydroseeding:</p> <ul style="list-style-type: none"> <li>Bulk site formation works shall be followed with bulk hydroseeding as soon as practical.</li> </ul>	General.	All contractors		√		EIAO Guidance Note No. 8/2002	<p>Design Stage: Complied</p> <p>Construction Stage: To commence.</p>
Table 12.13	MS2	<p>Grassing:</p> <ul style="list-style-type: none"> <li>In the case of golf course areas, grassing shall be carried out as soon as practical after sanding and shaping; and</li> <li>Sanding, shaping and grassing works shall be phased in sections.</li> </ul>	At proposed grassing areas.	All contractors		√		EIAO Guidance Note No. 8/2002	<p>Design Stage: Complied</p> <p>Construction Stage: To commence.</p>

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
	MS3	Restoration: <ul style="list-style-type: none"> <li>In the case of residual areas that were disturbed during construction, which will not be part of the golf course areas, detailed site formation works and shaping shall be followed by hydroseeding and shrub planting as soon as practical; and</li> <li>The hydroseeding mix shall be composed of the following grass species: <i>Eragrostis curvula</i> <i>Lolium Perenne</i> <i>Neyraudia reynaudiana</i> <i>Pennisetum purpureum</i>; and the following shrub / small tree species: <i>Gordonia axillaries</i>, <i>Rhaphiolepis indica</i> and <i>Rhodomyrtus tomentosa</i>.</li> </ul>	At all residual areas.	All contractors		√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	ME1	Screening: <ul style="list-style-type: none"> <li>Bridges and pumping stations shall be screened by tree and shrub planting; and</li> <li>Retaining wall shall be covered with climber plants.</li> </ul>	All bridges and pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	ME2	Abutments of bridges shall be surfaced with stone of volcanic origin with a colour and texture similar to that of rock in the surrounding landscape;	All bridges.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	ME3	Above-ground walls and foundations of pumping stations shall be surfaced with stone of volcanic origin with a colour and texture similar to that of rock in the surrounding landscape.	All pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	ME4	Above-ground covers of pumping stations shall have an olive green coating.	All pumping stations.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.
Table 12.13	ME5	The desalination plant shall be located within the hill behind the pier. Slope cutting of this hill shall have a natural appearance with hydroseeding cover.	As shown on the mitigation measure plans.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied  Construction Stage: To commence.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
Table 12.13	ME6	Water tanks shall be located below surface level. Above-ground components shall be coated in olive green.	All water tanks.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB1	Extensions of the clubhouse shall have a surface cover that is in visual harmony with the clubhouse itself.	All new extensions of the clubhouse.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB2	Shrub planting shall be implemented in front of the new golf cart parking area in order to screen low-level views.	The new golf cart parking area.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB3	Tree and shrub planting shall be implemented on the peripheries of the maintenance building and its extensions.	At the maintenance building.	All contractors	√	√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.
Table 12.13	MB4	Halfway houses and rain shelters shall be surfaced with either stone or beige and olive green paint.	At all halfway houses and rain shelters.	All contractors		√		EIAO Guidance Note No. 8/2002	Design Stage: Complied Construction Stage: To commence.

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Table 7 Implementation Schedule of Cultural Heritage Mitigation Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation Status
					D	C	O		
<b>Construction Phase</b>									
Table 13.4		Wan Chai Archaeological Site - Archaeological Watching Brief	Site formation and construction works	All Contractors		√		EIAO	√
Table 13.4		Grave #1 – Preservation in-situ - Fenced off three metre buffer zone around the grave	Site formation and construction works	All Contractors		√		EIAO	N/A
Table 13.4		Grave #5 - Preservation by record; and recovery of structural elements (if required by AMO)	Construction phase (prior to commencement of works)	All Contractors		√		EIAO	N/A
Table 13.4		Grave #20 - Preservation by record; and recovery of structural elements (if required by AMO)	Construction phase (prior to commencement of works)	All Contractors		√		EIAO	N/A
Table 13.4		Any, as of yet unidentified graves at Kap Lo Kok. If a grave is found works will stop in the immediate vicinity of the grave until it can be inspected by AMO staff.	Site formation and construction works	All Contractors		√		EIAO	√

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

**Table 8 Implementation Schedule of Land Contamination Mitigation Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation status
					D	C	O		
<b>Land Contamination - Construction Phase</b>									
11.9.2		<p>Since the exact cut areas on site during construction by the Contractor have not been determined at this stage, the Contractor should implement the suitable precautions and preventive measures for the discovery of buried or abandoned ordnance during the construction. Moreover, it is recommended that standard good practice should be implemented during the construction phase in order to minimize any potential exposure to contaminated soils or groundwater. These measures include:</p> <ul style="list-style-type: none"> <li>• The Contractor should sweep the area of intended excavation with a metal detector to check any ordnance underneath the ground prior to any excavation.</li> <li>• For any detection of metals under the ground, the Contractor should cease work immediately before confirming the identity of the cause. For any suspect of artillery ordnance, Hong Kong Police Force should be informed.</li> <li>• The use of bulk earth-moving excavator equipment would minimise construction workers' potential contact with the contaminated materials;</li> <li>• Exposure to any contaminated materials can be minimised by the wearing of appropriate clothing and personal protective equipment such as gloves (when interacting directly with suspected contaminated material), providing adequate hygiene and washing facilities and preventing smoking and eating during such activities;</li> <li>• Stockpiling of contaminated soil should be avoided. If this cannot be avoided, the stockpile of contaminated materials should be segregated from the uncontaminated ones. Moreover, the contaminated materials should be properly covered with waterproof material (e.g. tarpaulin sheet) to avoid leaching of contaminants, especially during rainy season.</li> <li>• Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be</li> </ul>	Work site / During the construction period	All Contractors		√		Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35); Water Pollution Control Ordinance (Cap 358).	N/A CAR was submitted to EPD for approval on 23 <sup>rd</sup> March 2006. Base on the result, the 5 hotspots are not contaminated. RAP is not required.

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines	Implementation status
					D	C	O		
		sealed to prevent any leakage during transport or during wet conditions; <ul style="list-style-type: none"> <li>Only licensed waste haulers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of waste does not occur;</li> <li>Necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the <i>Waste Disposal Ordinance (Cap 354)</i>, <i>Waste Disposal (Chemical Waste) (General) Regulation (Cap 35)</i>, as required;</li> <li>Records of the quantities of wastes generated and disposed of should be maintained;</li> <li>Adequate washing facilities should be provided on site; and</li> <li>In accordance with good construction practice, silt traps should be used to reduce the impact to drainage caused by suspended solids arising from disturbed ground, or any construction materials such as cement and gravel. Groundwater should be disposed of in accordance with the <i>Water Pollution Control Ordinance (Cap 358)</i>.</li> </ul>							
11.11.1		Based on preliminary site investigation, the site is considered as a potentially land contaminated site as hotspots of contamination of lead and sulphur were identified. Further investigation for land contamination at this site is therefore required and is detailed in the Contamination Assessment Plan (CAP) of this section to be undertaken prior to commencement of excavation works. A Contamination Assessment Report (CAR) should be prepared and if the results of the site investigation reveal contamination at the subject site, a Remediation Action Plan (RAP) should also be prepared and submitted together with the CAR to EPD for approval.	Work site / During the construction period	All Contractors		√		Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35); Water Pollution Control Ordinance (Cap 358).	CAR was submitted to EPD for approval on 23 <sup>rd</sup> March 2006. EPD commented on the CAR. The CAR will be revised by the Contractor accordingly.

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable



# **Annex E**

## **Monitoring results**

# **Air Quality**

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

Date		Weather description	Temperature (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
3月25日	Sat	Cloudy.	17.5	93	89	6.6	NE
3月26日	Sun	Cloudy with a few rain patches.	18.5	96	94	3	NE
3月27日	Mon	Sunny periods.	18	96	94	1.1	NE
3月28日	Tue	Sunny intervals.	19.5	75	36	-	NE
3月29日	Wed	Sunny intervals.	19.8	74	57	-	E
3月30日	Thu	Sunny periods	20.5	84	81	Trace	E
3月31日	Fri	Mainly cloudy with few showers.	21.8	86	83	Trace	E to SE
4月1日	Sat	Showers.	23.2	86	68	Trace	S to SE
4月2日	Sun	Sunny periods with few showers.	23.4	88	86	0.1	S
4月3日	Mon	Sunny periods with isolated showers.	23.9	90	81	Trace	S
4月4日	Tue	Sunny periods with isolated showers.	25.5	83	79	-	SE
4月5日	Wed	Sunny periods with isolated showers.	26.3	82	87	-	S to SE
4月6日	Thu	Sunny periods with isolated showers.	24.4	86	83	Trace	N to NE
4月7日	Fri	Sunny periods with isolated showers.	22.2	88	86	Trace	NE
4月8日	Sat	Cloudy with a few rain patches.	22.3	73	81	-	N
4月9日	Sun	Cloudy with a few rain patches.	24.1	89	86	Trace	E to N
4月10日	Mon	Cloudy with light rain.	27	83	85	Trace	E
4月11日	Tue	Sunny periods with isolated showers.	27.6	80	86	Trace	SE
4月12日	Wed	Sunny period. Some showers later.	27.8	77	81	Trace	S to SE
4月13日	Thu	Some rain with thunderstorms.	23.2	86	97	0.9	N to NE
4月14日	Fri	Bright periods.	19.5	87	99	0.1	NE
4月15日	Sat	Cloudy with a few rain patches.	16.8	83	90	1	N
4月16日	Sun	Cloudy with a few rain patches.	17.5	80	87	Trace	E to N
4月17日	Mon	Cloudy with light rain.	20.5	74	76	-	E
4月18日	Tue	Bright periods.	22.8	81	57	-	E

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

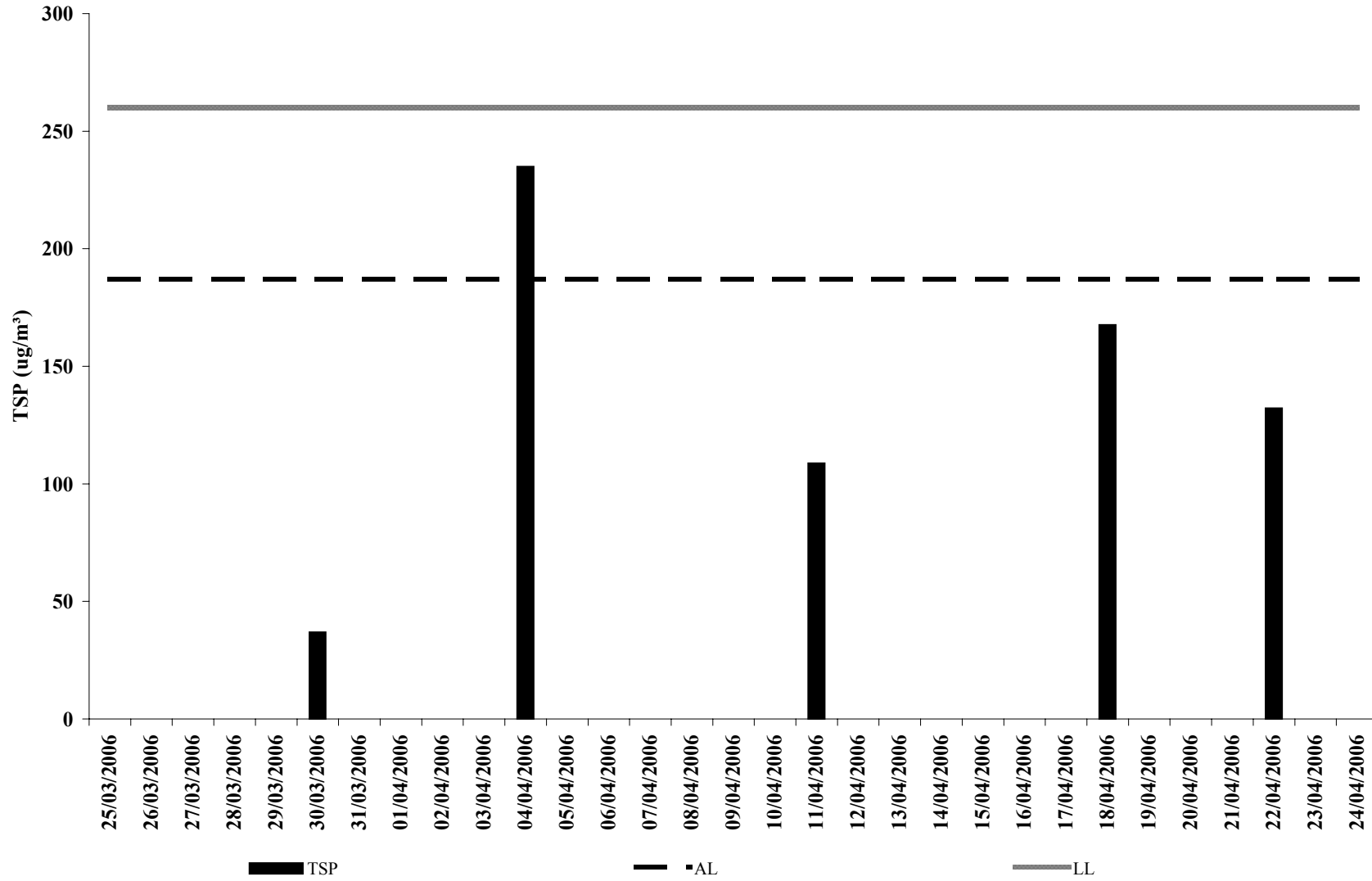
Date		Weather description	Temperature (°C)	Relative Humidity (%)	Mean amount of cloud (%)	Total Rainfall (mm)	Wind direction
4月19日	Wed	Bright periods.	25.5	75	39	-	E
4月20日	Thu	Bright periods.	24.7	84	69	0.2	E to SE
4月21日	Fri	Sunny periods.	23.3	84	77	-	E to SE
4月22日	Sat	Sunny periods.	26.1	81	73	-	S
4月23日	Sun	Showers.	27.4	82	81	-	S to SE
4月24日	Mon	Isolated showers and sunny intervals.	24.3	94	90	<b>109.4</b>	E to SE

**Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung**  
**24-hour TSP Monitoring Results at Station GCA B1**

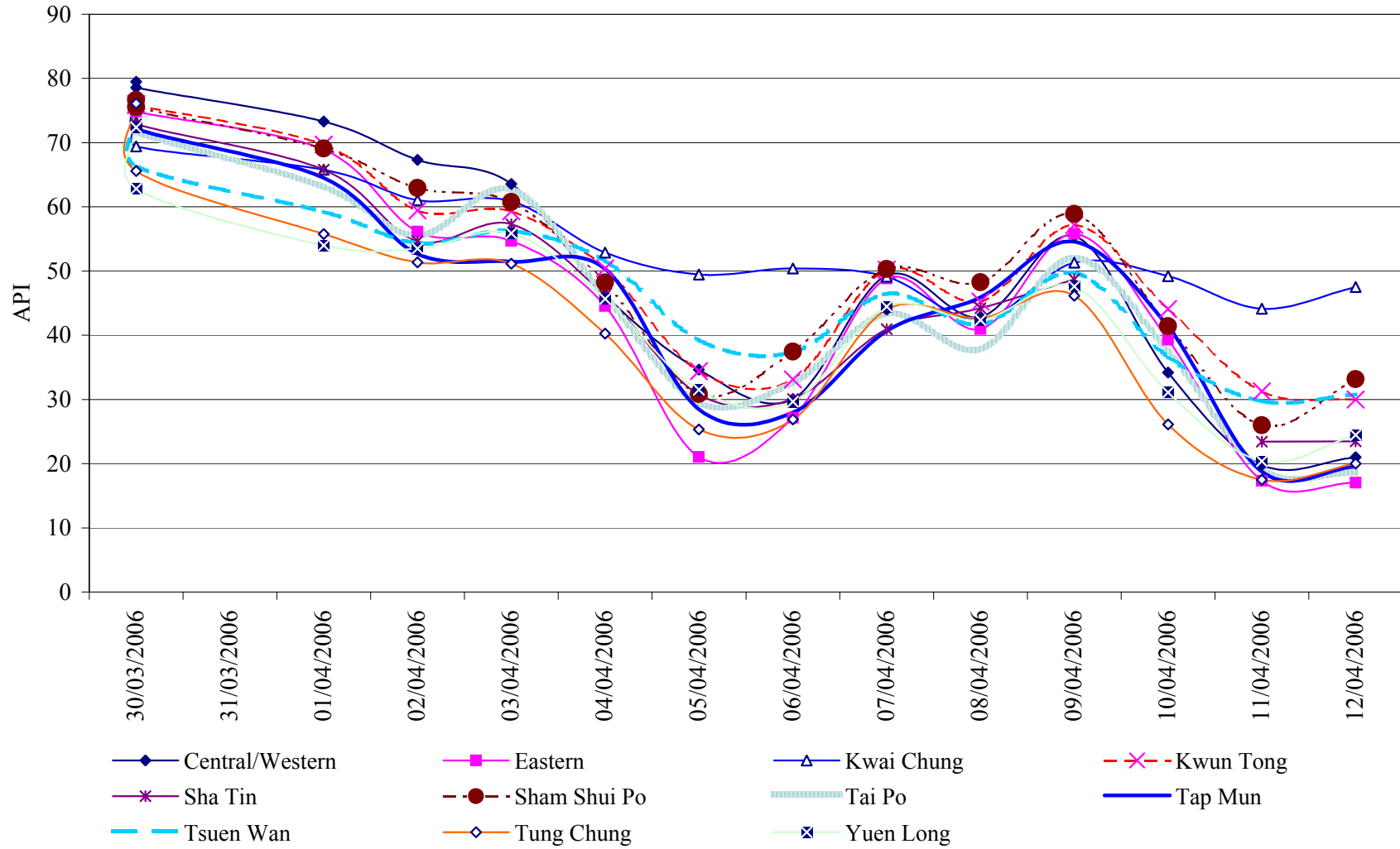
Date	Filter Weight (g)		Flow Rate (m <sup>3</sup> /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )	Weather Condition	Particulate weight(g)	Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )
	Initial	Final	Initial	Final	Initial	Final						
30-Mar-06	3.5325	3.5955	1.19	1.19	9766.9	9790.9	24.0	36.9	Sunny	0.06	1.19	1707.8
04-Apr-06	3.5401	4.0429	1.49	1.49	9790.9	9814.9	24.0	<b>235.0</b>	Sunny	0.50	1.49	2139.8
11-Apr-06	3.4035	3.6294	1.44	1.44	9814.9	9838.9	24.0	108.8	Sunny	0.23	1.44	2076.5
18-Apr-06	3.5133	3.9042	1.62	1.62	9838.9	9862.9	24.0	167.6	Sunny	0.39	1.62	2332.8
22-Apr-06	3.5675	3.8263	1.36	1.36	9862.9	9886.9	24.0	132.1	Sunny	0.26	1.36	1958.4
								Min	36.9			
								Max	235.0			
								Average	136.1			

Remark: Bold value indicated an Action level exceedance  
 Bold & Italic value indicated an Limit level exceedance

### 24-hour TSP Monitoring Results at Station GCA B1



Air Pollutant Index - API (source: EPD)



# Water Quality



M RO1		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:01	5.4	1.0	18.8	31.7	7.2	8.1	±0
	29/03/2006	10:31	5.4	1.0	19.2	31.9	7.9	8.0	±0
	31/03/2006	11:31	5.2	1.0	19.3	32.0	7.9	8.0	±0
	04/04/2006	14:03	5.6	1.0	21.9	32.0	7.7	7.6	±0
	06/04/2006	15:01	5.7	1.0	23.8	32.1	7.5	7.9	±0
	08/04/2006	12:01	5.3	1.0	21.7	32.2	7.9	7.9	±0
	10/04/2006	09:01	5.8	1.0	22.1	31.9	8.1	8.0	±0
	12/04/2006	11:01	5.5	1.0	23.3	31.7	8.0	8.0	±0
	19/04/2006	08:21	5.4	1.0	21.5	32.1	7.7	8.0	±0
	24/04/2006	08:31	5.5	1.0	20.5	32.0	7.8	8.1	1.5

M RO1		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:01	5.6	1.0	18.7	32.0	7.4	8.1	±0
	29/03/2006	08:01	5.3	1.0	19.0	31.8	7.8	7.9	±0
	31/03/2006	09:01	5.2	1.0	19.6	31.9	7.7	7.9	±0
	04/04/2006	08:17	5.8	1.0	21.6	31.8	8.3	7.8	±0
	06/04/2006	09:01	5.4	1.0	23.3	31.9	7.7	7.8	±0
	08/04/2006	09:01	5.1	1.0	21.5	31.8	8.0	7.6	±0
	10/04/2006	13:31	5.6	1.0	23.0	31.8	8.0	8.0	±0
	12/04/2006	15:01	5.8	1.0	23.5	32.2	8.0	8.0	±0
	19/04/2006	13:31	5.5	1.0	22.2	32.6	7.5	8.0	±0
	24/04/2006	14:31	5.3	1.0	20.3	32.3	7.7	8.0	±0

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

M RO1		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006								
	29/03/2006								
	31/03/2006								
	04/04/2006								
	06/04/2006								
	08/04/2006								
	10/04/2006								
	12/04/2006								
	19/04/2006								
	24/04/2006								

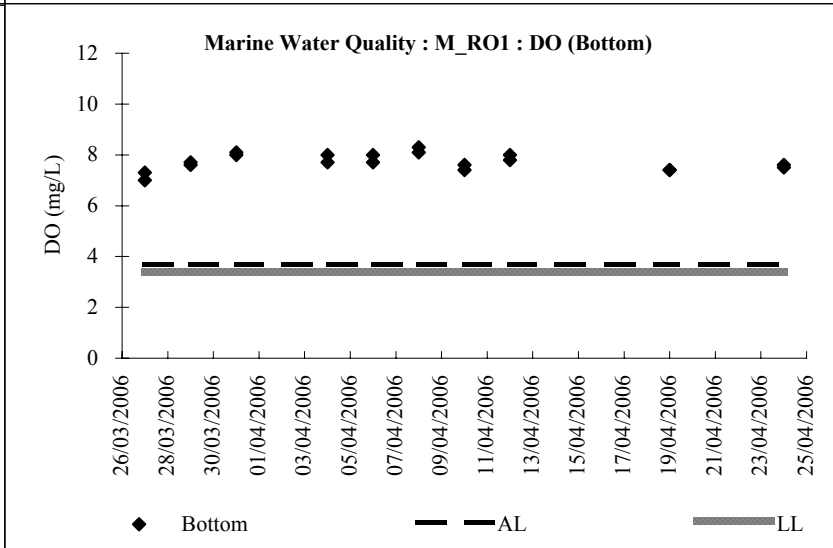
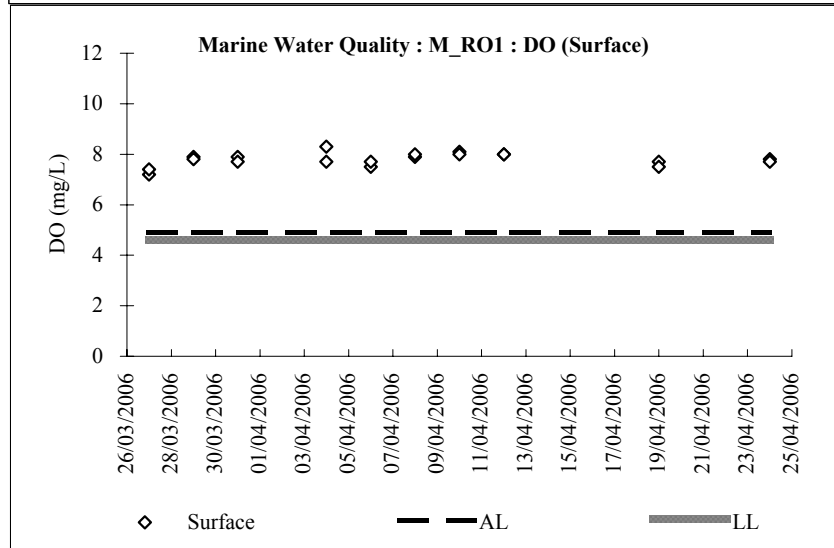
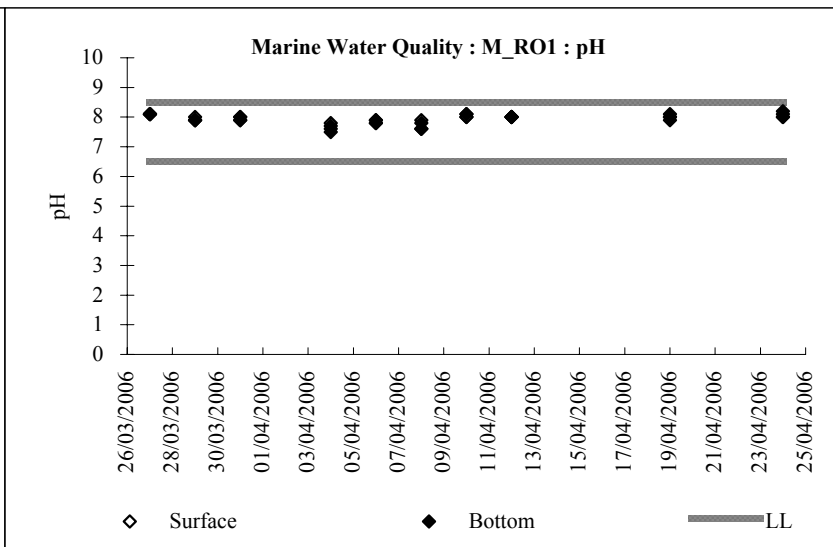
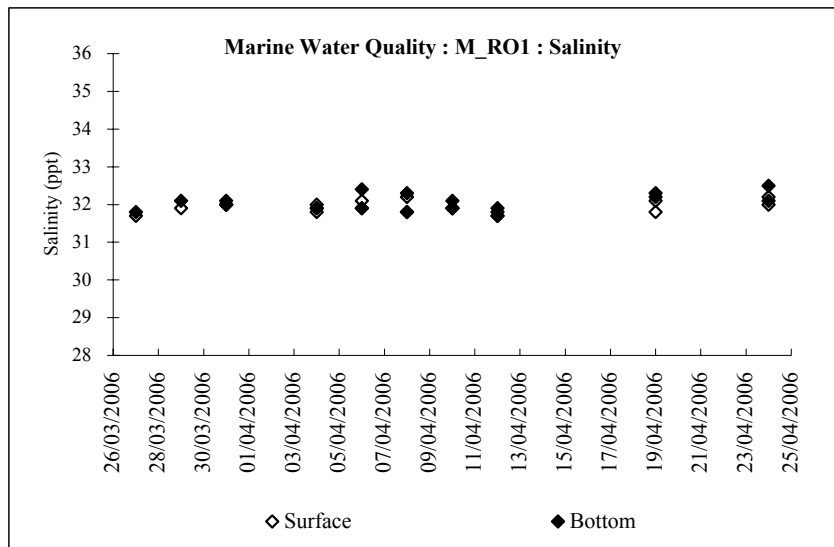
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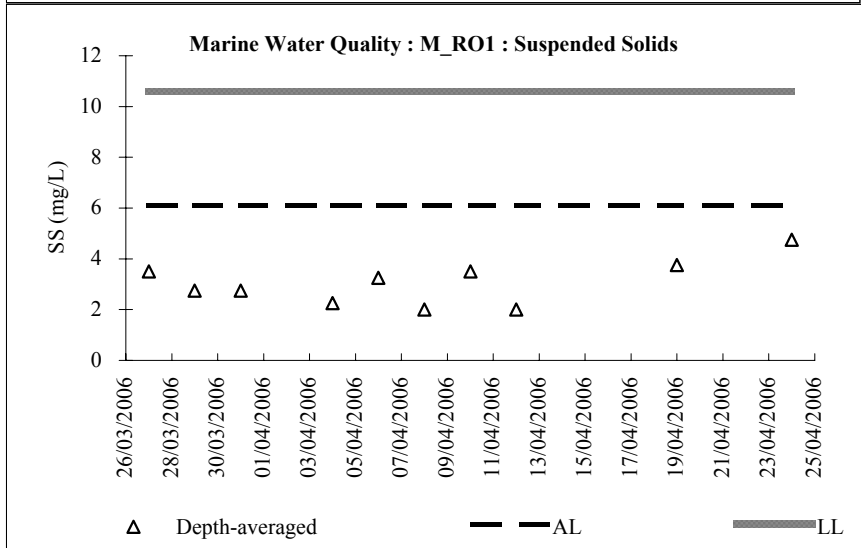
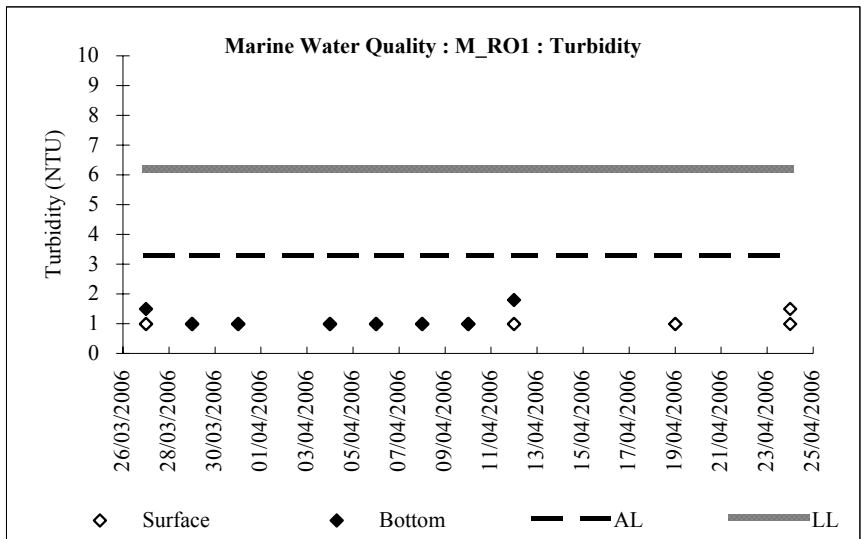
M RO1		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006								
	29/03/2006								
	31/03/2006								
	04/04/2006								
	06/04/2006								
	08/04/2006								
	10/04/2006								
	12/04/2006								
	19/04/2006								
	24/04/2006								

M RO1		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	9:00	5.4	4.4	18.7	31.8	7.0	8.1	1.5
	29/03/2006	10:30	5.4	4.4	19.2	32.1	7.6	7.9	±0
	31/03/2006	11:30	5.2	4.2	19.4	32.0	8.0	8.0	±0
	04/04/2006	14:02	5.6	4.6	19.9	31.9	8.0	7.5	±0
	06/04/2006	15:00	5.7	4.7	23.2	32.4	8.0	7.9	±0
	08/04/2006	12:00	5.3	4.3	22.2	32.3	8.1	7.8	±0
	10/04/2006	9:00	5.8	4.8	20.6	32.1	7.4	8.1	±0
	12/04/2006	11:00	5.5	4.5	23.2	31.7	8.0	8.0	±0
	19/04/2006	8:20	5.4	4.4	21.5	32.2	7.4	7.9	1.3
	24/04/2006	8:30	5.5	4.5	20.3	32.1	7.6	8.2	1.2

M RO1		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:00	5.6	4.6	18.7	32.1	7.3	8.1	±0
	29/03/2006	8:00	5.3	4.3	19.1	31.9	7.7	7.9	±0
	31/03/2006	9:00	5.2	4.2	19.3	31.9	8.1	7.9	±0
	04/04/2006	8:16	5.8	4.8	20.7	31.8	7.7	7.7	1.8
	06/04/2006	9:00	5.4	4.4	22.8	31.9	7.7	7.8	±0
	08/04/2006	9:00	5.1	4.1	21.0	31.9	8.3	7.6	0.9
	10/04/2006	13:30	5.6	4.6	22.0	32.3	7.6	8.1	±0
	12/04/2006	15:00	5.8	4.8	24.3	32.5	7.8	8.0	±0
	19/04/2006	13:30	5.5	4.5	21.8	32.5	7.4	8.1	±0
	24/04/2006	14:30	5.3	4.3	20.4	32.4	7.5	8.0	1.8

M_RO1	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	3.0	-	3.0	2.0	-	6.0	3.5
29/03/2006	5.0	-	2.0	<del>2.0</del>	-	<del>2.0</del>	2.8
31/03/2006	<del>2.0</del>	-	4.0	2.0	-	3.0	2.8
04/04/2006	<del>2.0</del>	-	3.0	<del>2.0</del>	-	2.0	2.3
06/04/2006	<del>2.0</del>	-	<del>2.0</del>	7.0	-	<del>2.0</del>	3.3
08/04/2006	<del>2.0</del>	-	2.0	<del>2.0</del>	-	<del>2.0</del>	2.0
10/04/2006	3.0	-	4.0	<del>2.0</del>	-	5.0	3.5
12/04/2006	<del>2.0</del>	-	<del>2.0</del>	<del>2.0</del>	-	<del>2.0</del>	2.0
19/04/2006	<del>2.0</del>	-	4.0	3.0	-	6.0	3.8
24/04/2006	4.0	-	4.0	6.0	-	5.0	4.8





KLW		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:12	14.3	1.0	18.7	31.6	7.3	8.1	±0
	29/03/2006	10:42	14.0	1.0	19.0	31.9	7.8	8.0	±0
	31/03/2006	11:42	14.3	1.0	19.4	32.1	7.8	8.0	±0
	04/04/2006	14:14	14.0	1.0	22.5	31.9	7.3	7.7	±0
	06/04/2006	15:12	14.0	1.0	24.2	32.2	7.6	7.9	±0
	08/04/2006	12:12	14.0	1.0	23.6	32.6	7.8	7.9	±0
	10/04/2006	09:12	14.9	1.0	22.2	31.8	8.1	8.0	±0
	12/04/2006	11:12	15.2	1.0	23.3	31.7	7.7	8.1	±0
	19/04/2006	08:32	14.7	1.0	21.5	32.1	7.6	8.1	±0
	24/04/2006	08:42	15.0	1.0	21.0	30.6	7.8	8.1	2.3

KLW		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:12	13.1	1.0	18.8	31.8	7.4	8.1	±0
	29/03/2006	08:12	13.9	1.0	19.1	31.8	7.8	8.0	±0
	31/03/2006	09:12	14.4	1.0	19.7	31.8	7.9	8.0	±0
	04/04/2006	08:11	12.8	1.0	22.0	28.8	8.2	7.8	±0
	06/04/2006	09:12	14.0	1.0	23.7	31.9	7.6	7.8	±0
	08/04/2006	09:12	14.0	1.0	22.3	31.8	7.7	7.8	±0
	10/04/2006	13:42	14.8	1.0	23.1	31.9	8.0	7.9	±0
	12/04/2006	15:12	15.1	1.0	24.2	32.2	7.9	8.0	±0
	19/04/2006	13:42	15.0	1.0	22.0	32.5	7.6	8.0	±0
	24/04/2006	14:42	14.7	1.0	21.3	30.8	7.7	8.0	2.0

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

KLW		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:11	14.3	7.2	18.7	31.9	7.2	8.1	±0
	29/03/2006	10:41	14.0	7.0	18.9	32.0	7.9	8.1	±0
	31/03/2006	11:41	14.3	7.2	19.1	32.0	8.1	8.0	±0
	04/04/2006	14:13	14.0	7.0	19.3	31.9	7.4	7.5	±0
	06/04/2006	15:11	14.0	7.0	21.3	32.2	8.0	7.8	±0
	08/04/2006	12:11	14.0	7.0	21.2	32.2	8.1	7.8	±0
	10/04/2006	09:11	14.9	7.5	20.9	32.0	8.1	8.0	±0
	12/04/2006	11:11	15.2	7.6	22.8	31.5	7.9	8.0	±0
	19/04/2006	08:31	14.7	7.4	21.4	32.1	7.6	8.1	±0
	24/04/2006	08:41	15.0	7.5	21.3	30.8	7.6	8.0	2.0

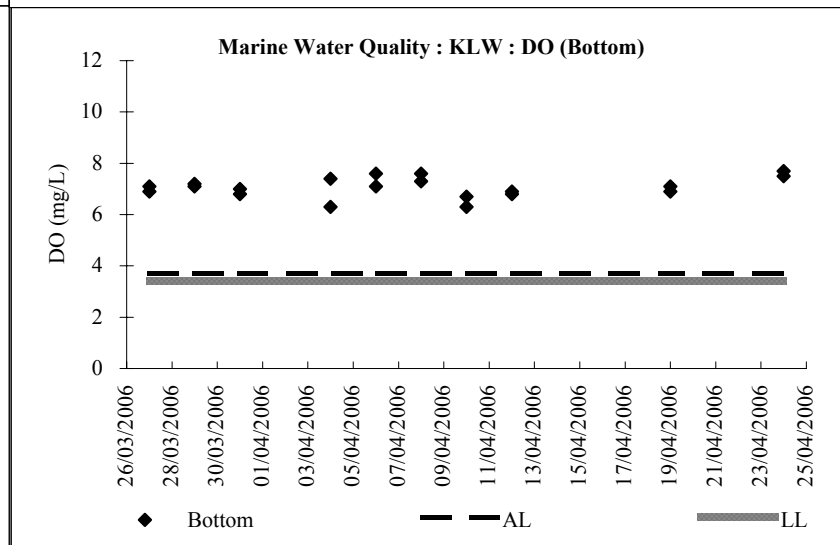
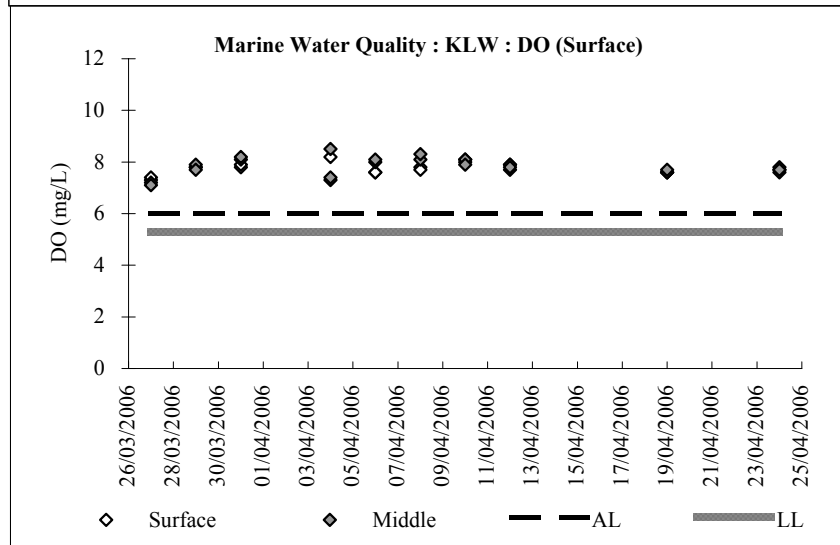
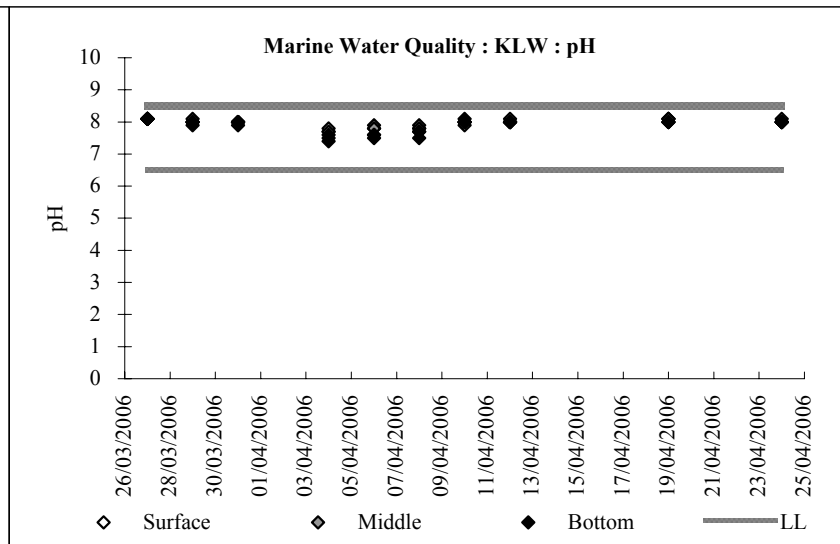
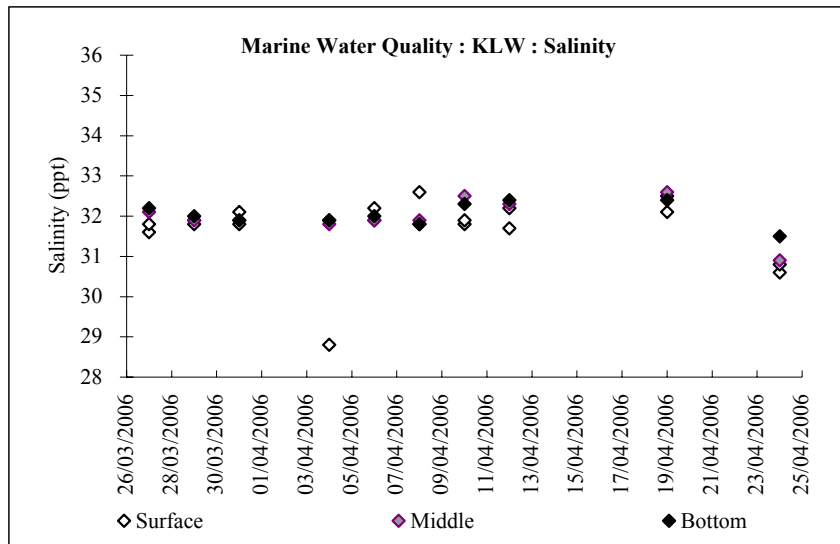
KLW		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:11	13.1	6.6	18.7	32.1	7.1	8.1	±0
	29/03/2006	08:11	13.9	7.0	18.9	31.9	7.7	8.0	±0
	31/03/2006	09:11	14.4	7.2	19.0	31.9	8.2	8.0	±0
	04/04/2006	08:10	14.4	6.4	19.5	31.8	8.5	7.7	±0
	06/04/2006	09:11	14.0	7.0	20.4	31.9	8.1	7.6	±0
	08/04/2006	09:11	14.0	7.0	20.3	31.9	8.3	7.7	±0
	10/04/2006	13:41	14.8	7.4	21.3	32.5	7.9	8.0	±0
	12/04/2006	15:11	15.1	7.6	23.2	32.3	7.8	8.0	±0
	19/04/2006	13:41	15.0	7.5	22.3	32.6	7.7	8.1	±0
	24/04/2006	14:41	14.7	7.4	21.5	30.9	7.7	8.0	1.6

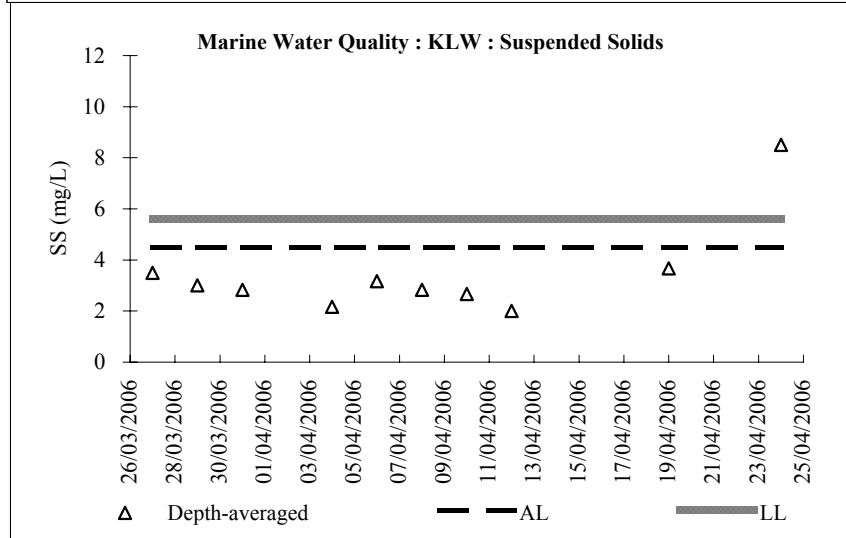
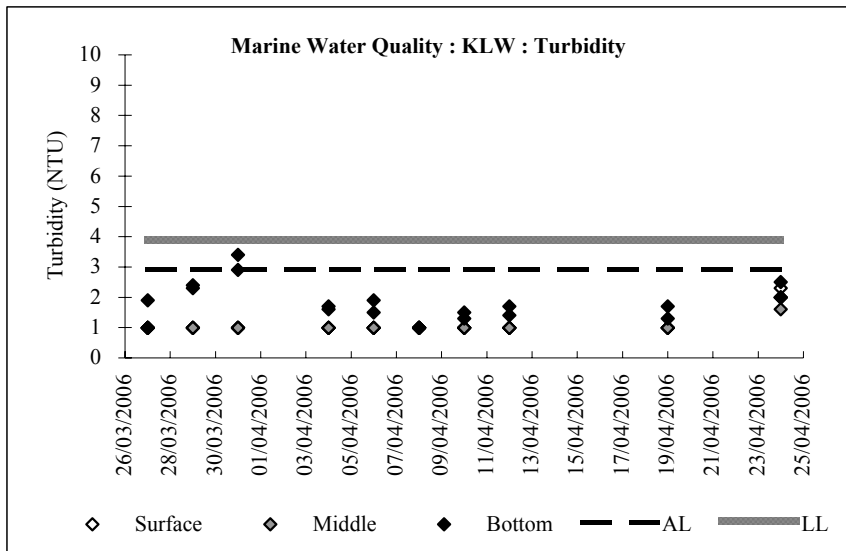


KLW		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	9:10	14.3	13.3	18.7	31.9	6.9	8.1	1.9
	29/03/2006	10:40	14.0	13.0	18.8	32.2	7.1	8.0	2.4
	31/03/2006	11:40	14.3	13.3	19.0	32.1	7.0	8.0	2.9
	04/04/2006	14:12	14.0	13.0	19.1	32.0	6.3	7.4	1.7
	06/04/2006	15:10	14.0	13.0	19.5	32.6	7.1	7.6	1.9
	08/04/2006	12:10	14.0	13.0	19.9	32.3	7.3	7.7	1.9
	10/04/2006	9:10	14.9	13.9	19.9	32.0	6.3	8.1	1.5
	12/04/2006	11:10	15.2	14.2	20.4	31.8	6.9	8.0	1.4
	19/04/2006	8:30	14.7	13.7	20.4	32.0	6.9	8.0	1.7
	24/04/2006	8:40	15.0	14.0	21.4	31.3	7.7	8.0	2.5

KLW		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:10	13.1	12.1	18.7	32.2	7.1	8.1	1.9
	29/03/2006	8:10	13.9	12.9	18.7	32.0	7.2	7.9	2.3
	31/03/2006	9:10	14.4	13.4	18.9	31.9	6.8	7.9	3.4
	04/04/2006	8:26	14.4	13.4	9.2	31.9	7.4	7.6	1.6
	06/04/2006	9:10	14.0	13.0	19.3	32.0	7.6	7.5	1.5
	08/04/2006	9:10	14.0	13.0	19.7	31.8	7.6	7.5	1.9
	10/04/2006	13:40	14.8	13.8	20.5	32.3	6.7	8.0	1.3
	12/04/2006	15:10	15.1	14.1	20.6	32.4	6.8	8.0	1.7
	19/04/2006	13:40	15.0	14.0	20.9	32.4	7.1	8.0	1.3
	24/04/2006	14:40	14.7	13.7	21.3	31.5	7.5	8.0	2.0

KLW	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	5.0	4.0	5.0	2.0	<del>2.0</del>	3.0	3.5
29/03/2006	3.0	3.0	3.0	<del>2.0</del>	3.0	4.0	3.0
31/03/2006	<del>2.0</del>	<del>2.0</del>	4.0	3.0	2.0	4.0	2.8
04/04/2006	3.0	2.0	<del>2.0</del>	2.0	<del>2.0</del>	2.0	2.2
06/04/2006	5.0	5.0	2.0	2.0	3.0	<del>2.0</del>	3.2
08/04/2006	4.0	3.0	2.0	<del>2.0</del>	3.0	3.0	2.8
10/04/2006	2.0	<del>2.0</del>	5.0	3.0	2.0	2.0	2.7
12/04/2006	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	2.0
19/04/2006	2.0	4.0	5.0	3.0	2.0	6.0	3.7
24/04/2006	8.0	5.0	8.0	7.0	15.0	8.0	<b>8.5</b>





M_A		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:32	8.0	1.0	18.7	32.1	7.0	8.0	±0
	29/03/2006	11:02	7.9	1.0	19.2	31.9	7.6	8.0	±0
	31/03/2006	12:02	8.1	1.0	19.8	32.3	7.8	8.0	±0
	04/04/2006	14:34	8.0	1.0	22.6	31.9	7.1	7.9	±0
	06/04/2006	15:32	8.0	1.0	23.6	32.3	7.4	7.9	±0
	08/04/2006	12:32	7.9	1.0	23.7	32.4	7.3	8.0	±0
	10/04/2006	09:32	7.6	1.0	22.3	31.8	7.7	7.9	±0
	12/04/2006	11:32	8.2	1.0	24.0	31.8	7.3	8.0	±0
	19/04/2006	08:52	8.1	1.0	21.5	32.2	7.6	8.1	±0
	24/04/2006	09:02	8.0	1.0	21.5	32.0	7.6	8.2	1.6

M_A		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:32	7.4	1.0	18.8	31.9	6.7	8.0	±0
	29/03/2006	08:32	7.8	1.0	19.0	31.8	7.6	8.0	1.1
	31/03/2006	09:32	7.9	1.0	19.7	31.9	7.6	8.0	±0
	04/04/2006	08:48	7.8	1.0	22.4	31.9	7.6	7.9	±0
	06/04/2006	09:32	8.0	1.0	23.5	32.0	7.4	7.9	±0
	08/04/2006	09:32	7.9	1.0	22.3	31.9	7.0	7.9	±0
	10/04/2006	14:02	8.0	1.0	23.1	31.9	7.4	8.0	±0
	12/04/2006	15:32	7.8	1.0	24.3	32.1	7.6	8.0	±0
	19/04/2006	14:02	7.9	1.0	21.6	32.5	7.6	8.0	±0
	24/04/2006	15:02	7.9	1.0	21.8	32.2	7.7	8.1	1.4

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

M_A		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:31	8.0	4.0	18.7	32.2	6.9	8.1	2.6
	29/03/2006	11:01	7.9	4.0	19.2	31.9	7.3	8.0	1.5
	31/03/2006	12:01	8.1	4.1	19.5	31.9	7.6	8.0	1.1
	04/04/2006	14:33	8.0	4.0	20.9	32.0	7.6	7.9	±0
	06/04/2006	15:31	8.0	4.0	22.2	32.5	7.7	7.9	±0
	08/04/2006	12:31	7.9	4.0	22.6	32.1	7.4	7.9	±0
	10/04/2006	09:31	7.6	3.8	21.8	31.9	7.6	7.9	±0
	12/04/2006	11:31	8.2	4.1	23.6	31.8	7.5	7.9	1.5
	19/04/2006	08:51	8.1	4.1	21.3	32.2	7.4	8.1	±0
	24/04/2006	09:01	8.0	4.0	21.5	32.2	7.5	8.0	1.0

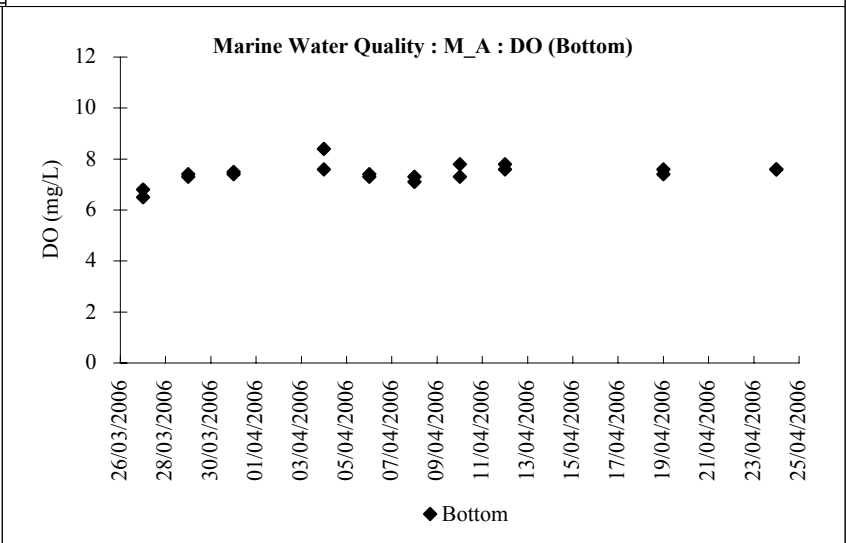
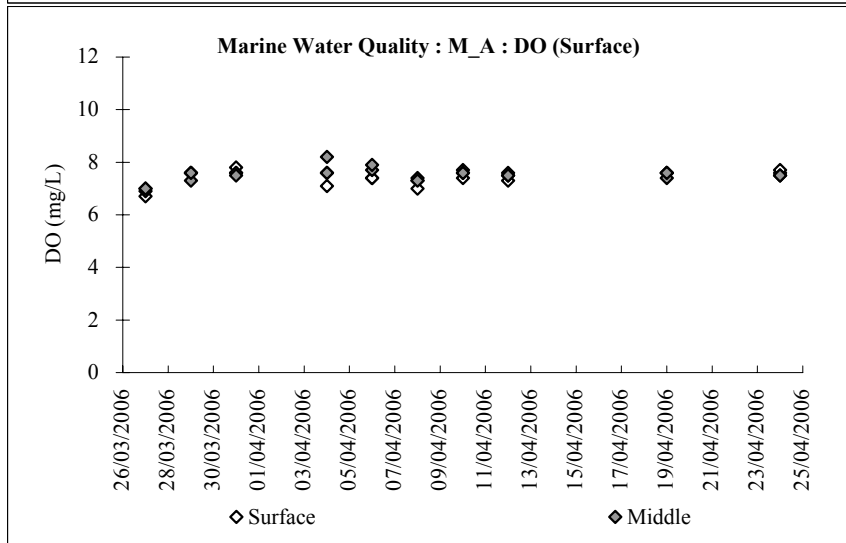
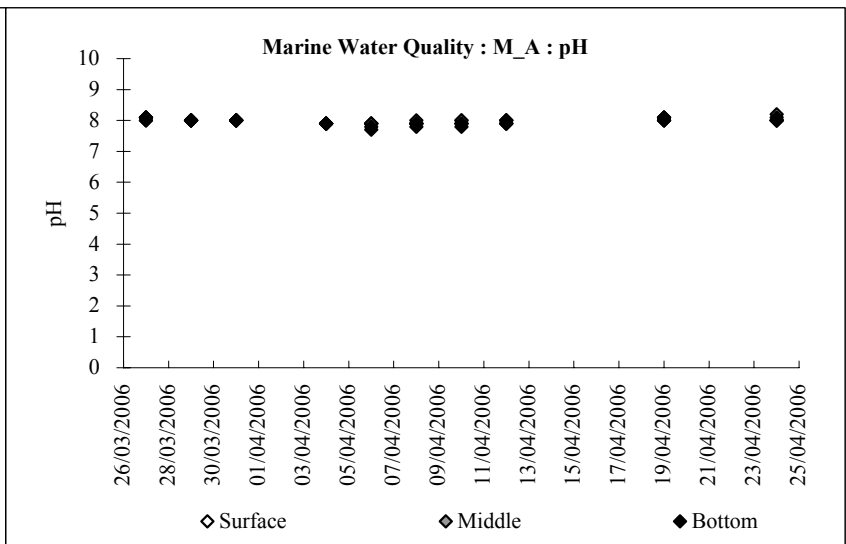
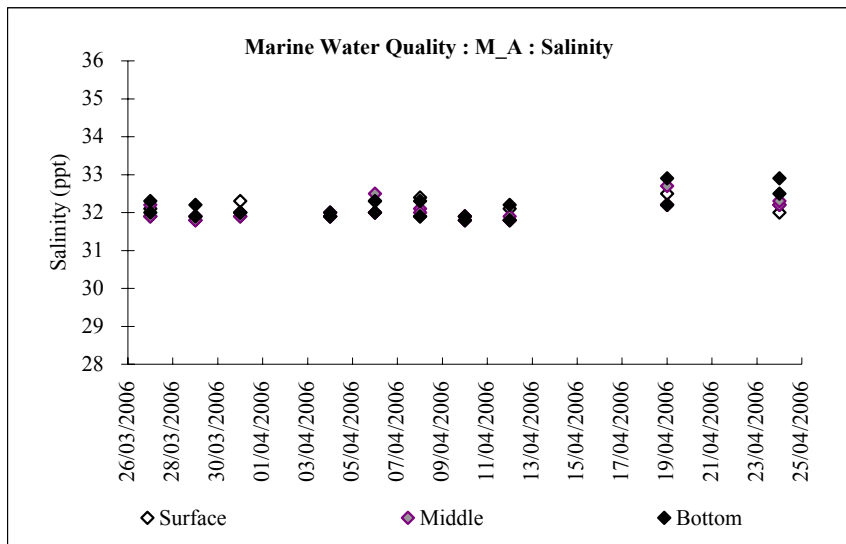
M_A		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:31	7.4	3.7	18.7	31.9	7.0	8.1	1.1
	29/03/2006	08:31	7.8	3.9	19.0	31.8	7.6	8.0	1.3
	31/03/2006	09:31	7.9	4.0	19.5	32.0	7.5	8.0	1.4
	04/04/2006	08:47	7.8	3.9	20.9	31.9	8.2	7.9	1.1
	06/04/2006	09:31	8.0	4.0	21.8	32.0	7.9	7.9	±0
	08/04/2006	09:31	7.9	4.0	21.4	32.0	7.3	7.9	±0
	10/04/2006	14:01	8.0	4.0	22.3	31.8	7.6	8.0	±0
	12/04/2006	15:31	7.8	3.9	24.3	31.9	7.5	7.9	±0
	19/04/2006	14:01	7.9	4.0	22.0	32.7	7.6	8.0	±0
	24/04/2006	15:01	7.9	4.0	21.3	32.3	7.5	8.0	1.3

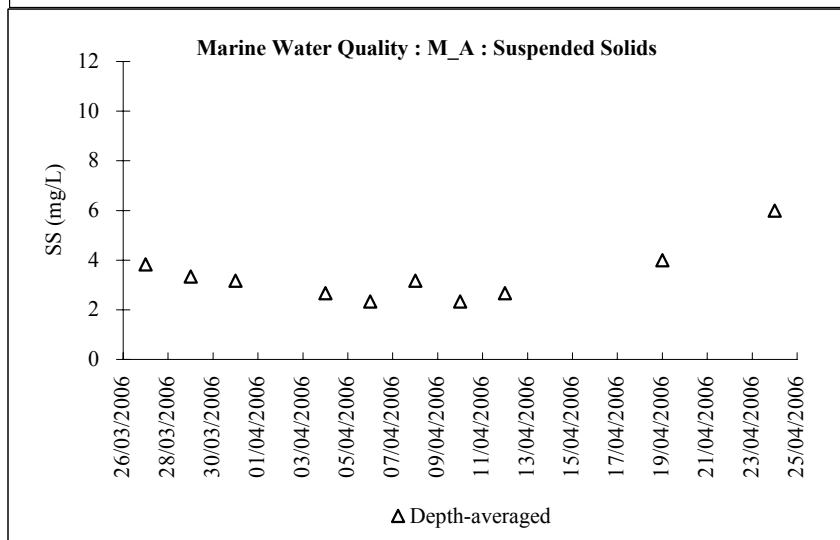
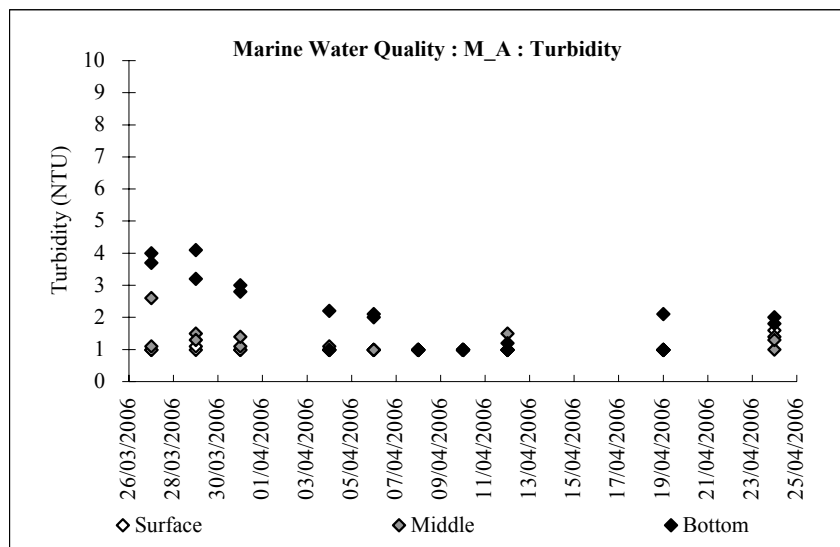
M_A		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	9:30	8.0	7.0	18.7	32.3	6.8	8.1	<b>4.0</b>
	29/03/2006	11:00	7.9	6.9	19.2	32.2	7.3	8.0	3.2
	31/03/2006	12:00	8.1	7.1	19.4	32.0	7.5	8.0	2.8
	04/04/2006	14:32	8.0	7.0	20.0	32.0	7.6	7.9	2.2
	06/04/2006	15:30	8.0	7.0	20.0	32.3	7.4	7.8	2.1
	08/04/2006	12:30	7.9	6.9	20.1	32.3	7.3	7.9	<del>1.0</del>
	10/04/2006	9:30	7.6	6.6	21.3	31.9	7.8	7.8	<del>1.0</del>
	12/04/2006	11:30	8.2	7.2	22.8	31.8	7.6	7.9	1.2
	19/04/2006	8:50	8.1	7.1	20.8	32.2	7.4	8.0	2.1
	24/04/2006	9:00	8.0	7.0	21.3	32.5	7.6	8.0	2.0

M_A		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:30	7.4	6.4	18.8	32.0	6.5	8.1	<b>3.7</b>
	29/03/2006	8:30	7.8	6.8	18.9	31.9	7.4	8.0	<b>4.1</b>
	31/03/2006	9:30	7.9	6.9	19.4	32.0	7.4	8.0	3.0
	04/04/2006	8:46	7.8	6.8	19.9	31.9	8.4	7.9	<del>1.0</del>
	06/04/2006	9:30	8.0	7.0	20.0	32.0	7.3	7.7	2.0
	08/04/2006	9:30	7.9	6.9	19.8	31.9	7.1	7.8	<del>1.0</del>
	10/04/2006	14:00	8.0	7.0	22.0	31.8	7.3	7.9	<del>1.0</del>
	12/04/2006	15:30	7.8	6.8	23.6	32.2	7.8	8.0	<del>1.0</del>
	19/04/2006	14:00	7.9	6.9	21.3	32.9	7.6	8.1	<del>1.0</del>
	24/04/2006	15:00	7.9	6.9	21.4	32.9	7.6	8.0	1.8

M_A	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	3.0	4.0	6.0	3.0	3.0	4.0	3.8
29/03/2006	4.0	2.0	5.0	<del>2.0</del>	4.0	3.0	3.3
31/03/2006	3.0	2.0	4.0	3.0	4.0	3.0	3.2
04/04/2006	3.0	<del>2.0</del>	<del>2.0</del>	3.0	3.0	3.0	2.7
06/04/2006	<del>2.0</del>	3.0	2.0	<del>2.0</del>	2.0	3.0	2.3
08/04/2006	4.0	2.0	3.0	<del>2.0</del>	4.0	4.0	3.2
10/04/2006	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	4.0	<del>2.0</del>	2.3
12/04/2006	3.0	3.0	4.0	<del>2.0</del>	<del>2.0</del>	2.0	2.7
19/04/2006	4.0	4.0	4.0	4.0	4.0	4.0	4.0
24/04/2006	4.0	8.0	5.0	4.0	7.0	8.0	6.0







M_Marsh		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:47	7.4	1.0	18.7	32.2	6.6	8.0	±0
	29/03/2006	11:17	7.8	1.0	19.2	32.2	7.0	8.0	±0
	31/03/2006	12:17	8.2	1.0	19.8	32.3	7.0	8.0	±0
	04/04/2006	14:49	8.2	1.0	22.9	32.0	7.2	8.0	±0
	06/04/2006	15:47	8.3	1.0	24.1	32.5	7.5	8.0	±0
	08/04/2006	12:47	8.1	1.0	23.3	32.4	7.2	7.9	±0
	10/04/2006	09:47	7.6	1.0	22.0	32.1	7.1	7.9	±0
	12/04/2006	11:47	7.7	1.0	24.1	32.1	6.9	7.9	±0
	19/04/2006	09:07	8.6	1.0	21.7	32.7	7.5	8.1	±0
	24/04/2006	07:02	7.6	1.0	20.5	27.5	6.5	8.2	<b>26.8</b>

M_Marsh		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:47	7.6	1.0	18.8	32.1	6.5	8.0	±0
	29/03/2006	08:47	7.9	1.0	18.9	31.9	7.2	8.0	1.1
	31/03/2006	09:47	8.3	1.0	19.7	32.1	7.5	8.0	±0
	04/04/2006	09:03	8.1	1.0	22.3	32.1	7.5	7.9	±0
	06/04/2006	09:47	8.5	1.0	23.5	32.3	7.4	8.0	±0
	08/04/2006	09:47	7.9	1.0	22.3	31.9	7.0	7.9	±0
	10/04/2006	14:17	7.9	1.0	22.3	32.6	7.3	8.0	±0
	12/04/2006	15:47	8.2	1.0	24.5	32.6	6.8	8.0	±0
	19/04/2006	14:17	8.2	1.0	22.0	32.9	7.3	8.0	±0
	24/04/2006	15:17	8.0	1.0	20.7	27.8	6.9	8.1	<b>6.4</b>

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

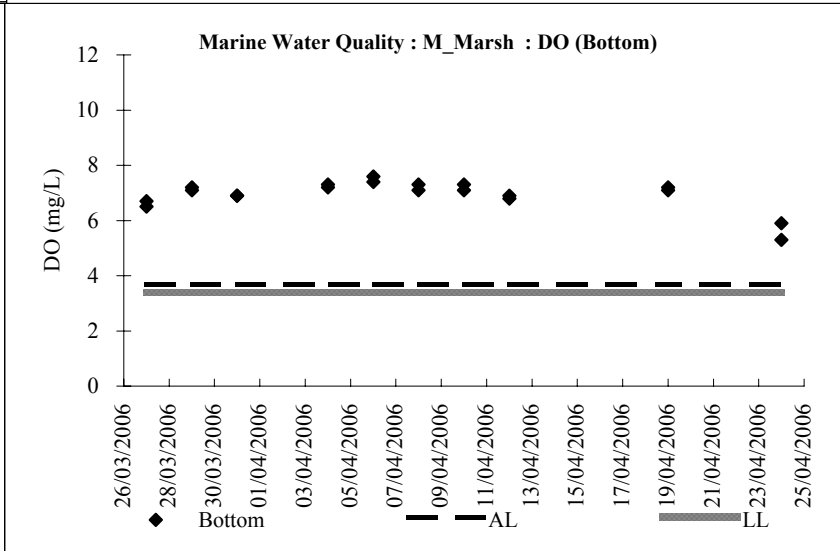
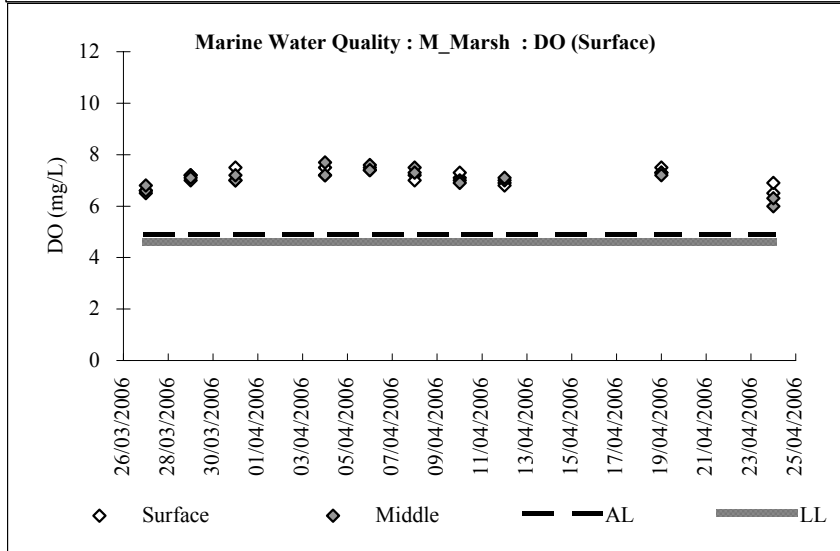
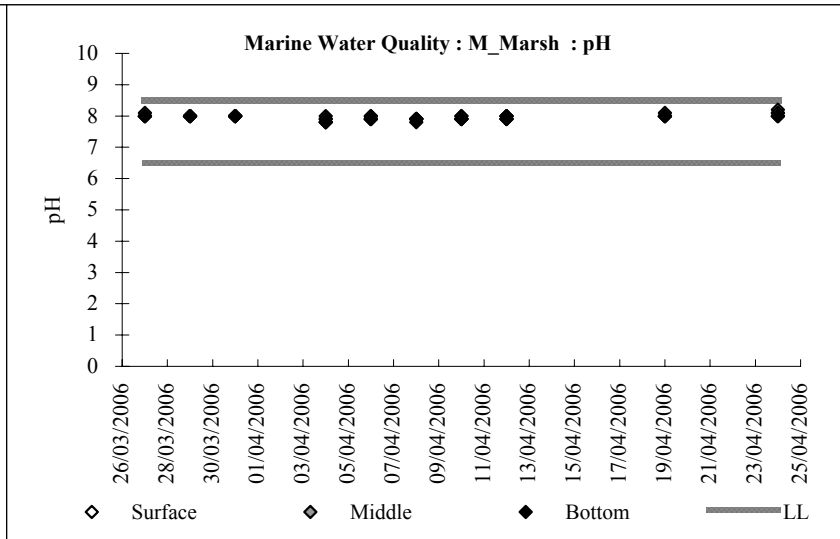
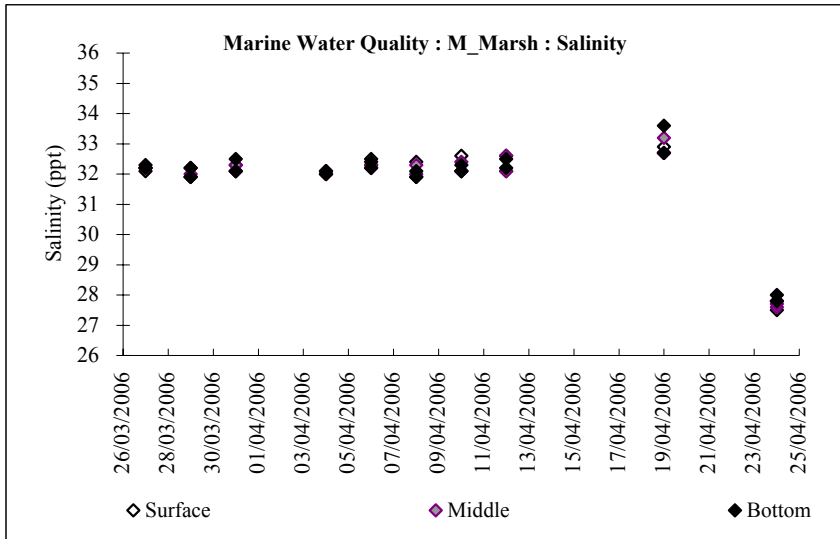
M_Marsh		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	09:46	7.4	3.7	18.8	32.2	6.6	8.0	±0
	29/03/2006	11:16	7.8	3.9	18.9	32.0	7.2	8.0	1.5
	31/03/2006	12:16	8.2	4.1	19.8	32.3	7.0	8.0	1.1
	04/04/2006	14:48	8.2	4.1	21.7	32.0	7.2	7.9	1.3
	06/04/2006	15:46	8.3	4.2	22.7	32.3	7.6	7.9	1.0
	08/04/2006	12:46	8.1	4.1	22.3	32.3	7.5	7.9	±0
	10/04/2006	09:46	7.6	3.8	21.5	32.1	7.0	7.9	±0
	12/04/2006	11:46	7.7	3.9	23.7	32.1	7.0	8.0	1.2
	19/04/2006	09:06	8.6	4.3	21.6	32.7	7.3	8.0	±0
	24/04/2006	07:01	7.6	3.8	20.9	27.6	6.0	8.0	<b>118.0</b>

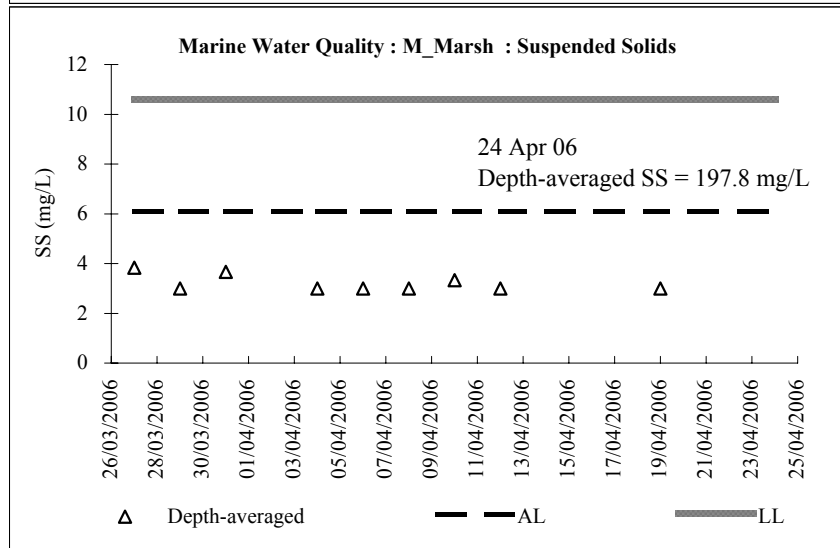
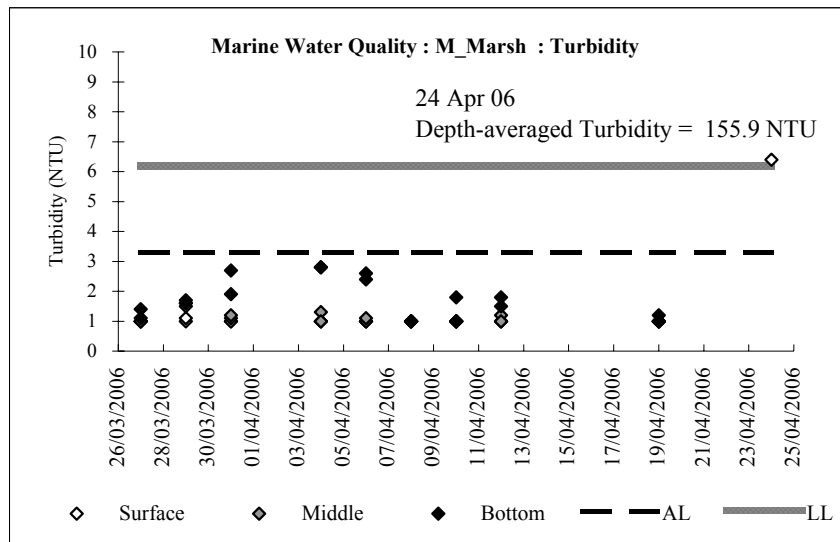
M_Marsh		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:46	7.6	3.8	18.9	32.2	6.8	8.1	±0
	29/03/2006	08:46	7.9	4.0	18.8	31.9	7.1	8.0	1.7
	31/03/2006	09:46	8.3	4.2	19.7	32.1	7.2	8.0	1.2
	04/04/2006	09:02	8.1	4.1	19.6	32.1	7.7	7.8	±0
	06/04/2006	09:46	8.5	4.3	23.1	32.2	7.4	7.9	1.1
	08/04/2006	09:46	7.9	4.0	21.4	32.0	7.3	7.9	±0
	10/04/2006	14:16	7.9	4.0	22.1	32.4	6.9	8.0	±0
	12/04/2006	15:46	8.2	4.1	23.8	32.6	7.1	7.9	1.0
	19/04/2006	14:16	8.2	4.1	22.5	33.2	7.2	8.0	±0
	24/04/2006	15:16	8.0	4.0	20.8	27.7	6.3	8.1	<b>69.4</b>

<b>M_Marsh</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	9:45	7.4	6.4	18.8	32.3	6.5	8.0	1.4
	29/03/2006	11:15	7.8	6.8	18.7	32.2	7.2	8.0	1.6
	31/03/2006	12:15	8.2	7.2	19.5	32.5	6.9	8.0	1.9
	04/04/2006	14:47	8.2	7.2	19.6	32.0	7.3	7.8	2.8
	06/04/2006	15:45	8.3	7.3	20.0	32.4	7.6	7.9	2.4
	08/04/2006	12:45	8.1	7.1	20.0	32.1	7.3	7.9	±0
	10/04/2006	9:45	7.6	6.6	21.0	32.1	7.1	7.9	1.8
	12/04/2006	11:45	7.7	6.7	21.4	32.2	6.8	8.0	1.8
	19/04/2006	9:05	8.6	7.6	21.5	32.7	7.1	8.0	1.2
	24/04/2006	7:00	7.6	6.6	21.2	27.8	5.3	8.0	<b>433.0</b>

<b>M_Marsh</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:45	7.6	6.6	18.7	32.2	6.7	8.0	1.1
	29/03/2006	8:45	7.9	6.9	18.8	31.9	7.1	8.0	1.6
	31/03/2006	9:45	8.3	7.3	19.3	32.1	6.9	8.0	2.7
	04/04/2006	9:01	8.1	7.1	19.4	32.1	7.2	7.8	2.8
	06/04/2006	9:45	8.5	7.5	20.1	32.2	7.4	7.9	2.6
	08/04/2006	9:45	7.9	6.9	19.8	31.9	7.1	7.8	±0
	10/04/2006	14:15	7.9	6.9	21.3	32.3	7.3	7.9	±0
	12/04/2006	15:45	8.2	7.2	21.5	32.5	6.9	7.9	1.5
	19/04/2006	14:15	8.2	7.2	21.9	33.6	7.2	8.0	±0
	24/04/2006	15:15	8.0	7.0	21.3	28.0	5.9	8.0	<b>282.0</b>

M_Marsh	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	2.0	3.0	4.0	3.0	5.0	6.0	3.8
29/03/2006	2.0	3.0	3.0	4.0	3.0	3.0	3.0
31/03/2006	3.0	3.0	6.0	3.0	3.0	4.0	3.7
04/04/2006	2.0	3.0	5.0	<del>2.0</del>	<del>2.0</del>	4.0	3.0
06/04/2006	<del>2.0</del>	<del>2.0</del>	6.0	3.0	<del>2.0</del>	3.0	3.0
08/04/2006	3.0	5.0	3.0	3.0	<del>2.0</del>	<del>2.0</del>	3.0
10/04/2006	2.0	3.0	4.0	4.0	<del>2.0</del>	5.0	3.3
12/04/2006	<del>2.0</del>	4.0	4.0	3.0	2.0	3.0	3.0
19/04/2006	2.0	3.0	4.0	2.0	3.0	4.0	3.0
24/04/2006	40.0	183.0	479.0	7.0	120.0	358.0	<b>197.8</b>







TTC		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:07	8.6	1.0	18.9	32.9	6.2	8.1	1.3
	29/03/2006	11:37	10.2	1.0	19.2	32.2	7.2	8.0	±0
	31/03/2006	12:37	9.8	1.0	19.9	32.6	7.5	8.0	±0
	04/04/2006	15:09	10.1	1.0	22.9	32.1	7.2	8.0	±0
	06/04/2006	16:07	10.0	1.0	23.5	32.6	7.6	8.0	±0
	08/04/2006	13:07	10.0	1.0	23.3	32.0	7.3	8.0	±0
	10/04/2006	10:07	9.9	1.0	22.1	32.3	7.1	7.9	±0
	12/04/2006	12:07	10.0	1.0	24.1	32.5	7.2	8.0	±0
	19/04/2006	09:27	10.3	1.0	21.7	32.9	7.3	7.9	±0
	24/04/2006	07:12	9.8	1.0	21.0	29.8	7.3	8.0	<b>8.4</b>

TTC		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:57	9.3	1.0	18.8	32.0	6.2	8.0	±0
	29/03/2006	08:57	10.1	1.0	19.1	32.0	7.0	8.0	±0
	31/03/2006	09:57	10.1	1.0	19.8	32.4	7.9	8.1	±0
	04/04/2006	09:13	10.1	1.0	22.3	32.2	7.7	7.9	±0
	06/04/2006	09:57	10.0	1.0	23.3	32.5	7.5	8.1	±0
	08/04/2006	09:57	9.7	1.0	22.0	32.4	7.1	8.0	±0
	10/04/2006	14:27	9.9	1.0	23.0	32.6	7.3	8.0	±0
	12/04/2006	15:57	9.8	1.0	24.3	32.6	7.1	8.1	±0
	19/04/2006	14:27	10.0	1.0	22.3	33.5	7.2	7.9	±0
	24/04/2006	15:27	10.0	1.0	21.3	30.1	7.5	8.0	1.8

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

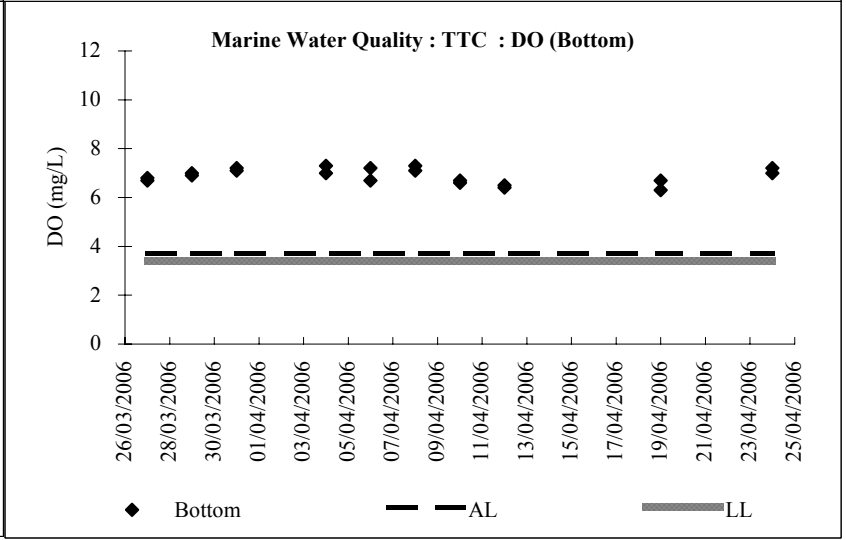
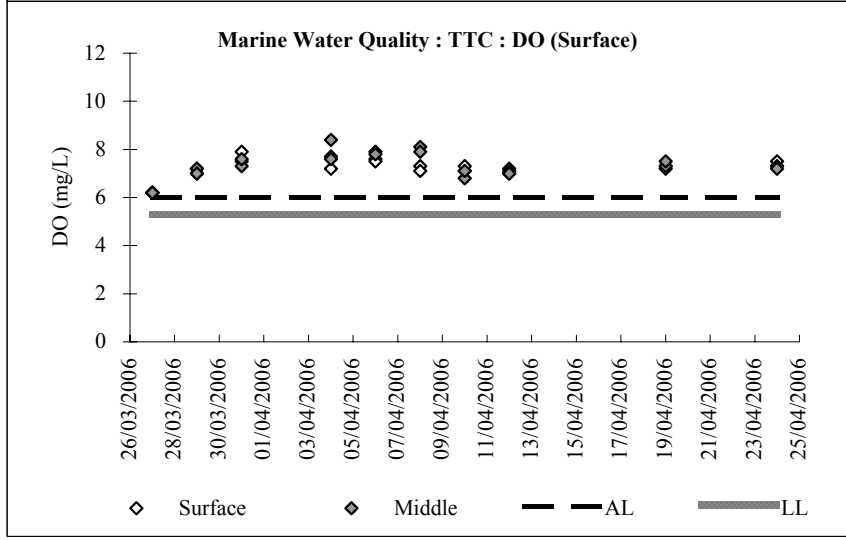
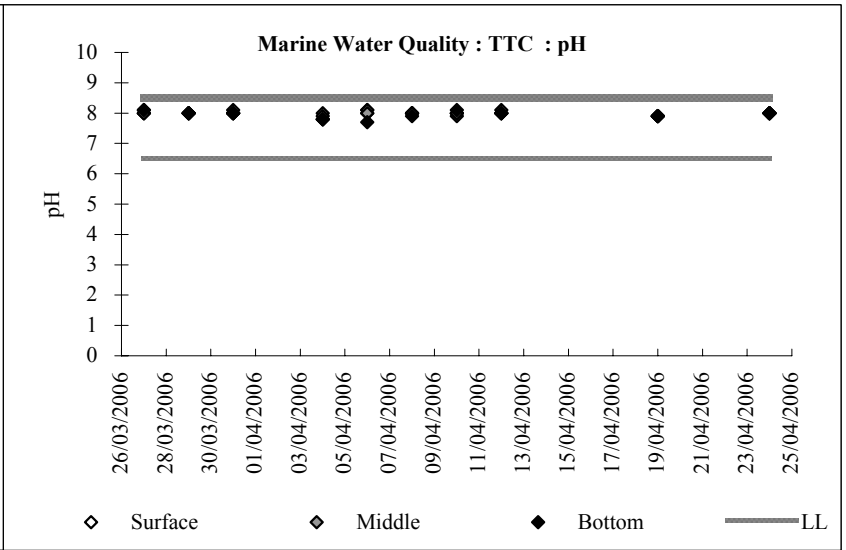
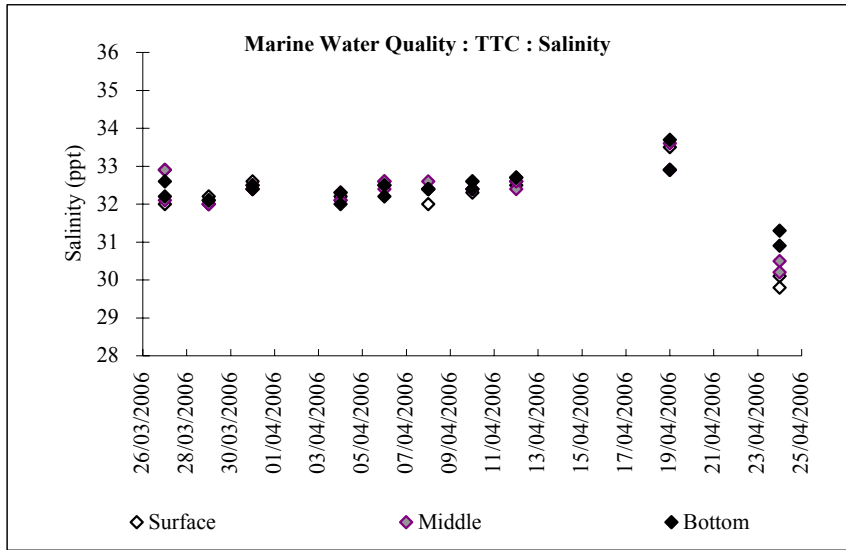
TTC		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:06	8.6	4.3	18.9	32.9	6.2	8.0	1.0
	29/03/2006	11:36	10.2	5.1	19.1	32.0	7.2	8.0	±0
	31/03/2006	12:36	9.8	4.9	19.6	32.5	7.3	8.0	±0
	04/04/2006	15:08	10.1	5.1	19.8	32.1	7.6	7.8	±0
	06/04/2006	16:06	10.0	5.0	22.7	32.4	7.9	8.1	±0
	08/04/2006	13:06	10.0	5.0	20.9	32.6	8.1	8.0	±0
	10/04/2006	10:06	9.9	5.0	21.2	32.4	6.8	8.0	±0
	12/04/2006	12:06	10.0	5.0	22.9	32.4	7.0	8.0	±0
	19/04/2006	09:26	10.3	5.2	21.6	32.9	7.3	7.9	±0
	24/04/2006	07:11	9.8	4.9	21.6	30.2	7.3	8.0	4.7

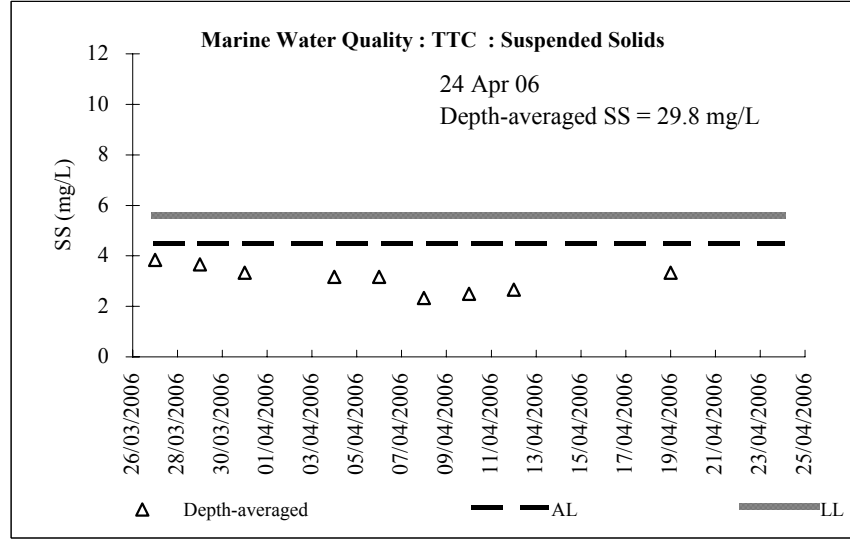
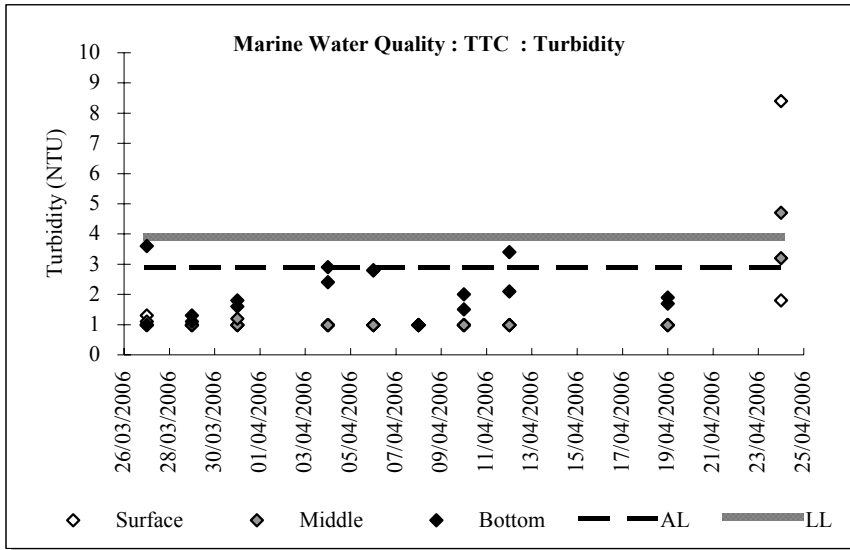
TTC		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:56	9.3	4.7	18.9	32.1	6.2	8.0	1.1
	29/03/2006	08:56	10.1	5.1	18.9	32.0	7.0	8.0	±0
	31/03/2006	09:56	10.1	5.1	19.5	32.4	7.6	8.0	1.2
	04/04/2006	09:12	10.1	5.1	19.6	32.3	8.4	7.8	±0
	06/04/2006	09:56	10.0	5.0	22.6	32.6	7.8	8.0	±0
	08/04/2006	09:56	9.7	4.9	20.6	32.4	7.9	8.0	±0
	10/04/2006	14:26	9.9	5.0	21.5	32.4	7.1	8.0	±0
	12/04/2006	15:56	9.8	4.9	23.6	32.6	7.0	8.0	±0
	19/04/2006	14:26	10.0	5.0	22.3	33.6	7.5	7.9	±0
	24/04/2006	15:26	10.0	5.0	21.4	30.5	7.2	8.0	3.2

TTC		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:05	8.6	7.6	18.8	32.6	6.8	8.0	1.0
	29/03/2006	11:35	10.2	9.2	18.7	32.1	7.0	8.0	1.1
	31/03/2006	12:35	9.8	8.8	19.3	32.5	7.1	8.1	1.6
	04/04/2006	15:07	10.1	9.1	19.3	32.0	7.0	7.8	2.9
	06/04/2006	16:05	10.0	9.0	19.5	32.2	7.2	7.8	2.8
	08/04/2006	13:05	10.0	9.0	20.5	32.4	7.3	7.9	1.0
	10/04/2006	10:05	9.9	8.9	20.3	32.4	6.7	8.0	2.0
	12/04/2006	12:05	10.0	9.0	20.6	32.7	6.4	7.9	3.4
	19/04/2006	9:25	10.3	9.3	21.0	32.9	6.7	7.9	1.7
	24/04/2006	7:10	9.8	8.8	21.8	30.9	7.0	8.0	22.9

TTC		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	13:55	9.3	8.3	18.7	32.2	6.7	8.1	3.6
	29/03/2006	8:55	10.1	9.1	18.8	32.1	6.9	8.0	1.3
	31/03/2006	9:55	10.1	9.1	19.2	32.4	7.2	8.0	1.8
	04/04/2006	9:11	10.1	9.1	19.3	32.3	7.3	7.8	2.4
	06/04/2006	9:55	10.0	9.0	19.3	32.5	6.7	7.7	2.8
	08/04/2006	9:55	9.7	8.7	20.0	32.4	7.1	7.9	1.0
	10/04/2006	14:25	9.9	8.9	20.5	32.6	6.6	8.1	1.5
	12/04/2006	15:55	9.8	8.8	21.3	32.7	6.5	8.0	2.1
	19/04/2006	14:25	10.0	9.0	21.5	33.7	6.3	7.9	1.9
	24/04/2006	15:25	10.0	9.0	21.8	31.3	7.2	8.0	17.9

TTC	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	2.0	2.0	5.0	3.0	5.0	6.0	3.8
29/03/2006	3.0	5.0	5.0	2.0	4.0	3.0	3.7
31/03/2006	3.0	3.0	3.0	3.0	4.0	4.0	3.3
04/04/2006	2.0	3.0	6.0	3.0	2.0	3.0	3.2
06/04/2006	2.0	3.0	2.0	5.0	5.0	2.0	3.2
08/04/2006	2.0	2.0	4.0	2.0	2.0	2.0	2.3
10/04/2006	3.0	2.0	2.0	2.0	4.0	2.0	2.5
12/04/2006	2.0	4.0	3.0	2.0	2.0	3.0	2.7
19/04/2006	4.0	3.0	4.0	2.0	3.0	4.0	3.3
24/04/2006	20.0	38.0	55.0	6.0	20.0	40.0	<b>29.8</b>





M_BP		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:17	9.5	1.0	18.7	32.6	7.0	8.0	1.0
	29/03/2006	11:47	10.0	1.0	19.0	32.3	7.3	8.0	1.0
	31/03/2006	12:47	10.2	1.0	19.9	32.4	7.5	8.1	1.0
	04/04/2006	15:19	10.3	1.0	22.8	32.1	7.3	8.0	1.0
	06/04/2006	16:17	10.2	1.0	23.5	32.4	7.9	8.0	1.0
	08/04/2006	13:17	10.3	1.0	22.5	32.6	7.5	8.0	1.0
	10/04/2006	10:17	10.1	1.0	22.0	32.4	7.6	7.9	1.0
	12/04/2006	12:17	10.3	1.0	24.0	32.6	8.2	7.9	1.0
	19/04/2006	09:37	10.9	1.0	21.8	33.0	7.3	8.0	1.0
	24/04/2006	07:22	10.8	1.0	20.3	28.1	6.8	8.1	<b>21.0</b>

M_BP		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:07	8.9	1.0	18.8	32.0	7.1	8.1	1.0
	29/03/2006	09:07	10.2	1.0	19.1	32.0	7.2	8.0	1.0
	31/03/2006	10:07	10.1	1.0	19.8	32.5	7.8	8.1	1.0
	04/04/2006	09:23	10.6	1.0	22.1	29.9	7.9	7.9	1.0
	06/04/2006	10:07	10.8	1.0	23.1	32.5	7.8	8.1	1.0
	08/04/2006	10:07	10.2	1.0	22.2	32.4	7.2	8.1	1.0
	10/04/2006	14:37	10.2	1.0	23.0	32.5	7.7	8.0	1.0
	12/04/2006	16:07	10.3	1.0	24.6	32.8	7.9	8.0	1.0
	19/04/2006	14:37	10.5	1.0	22.4	33.6	7.2	8.0	1.0
	24/04/2006	15:37	10.6	1.0	20.5	28.0	6.5	8.0	<b>3.8</b>

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

M_BP		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:16	9.5	4.8	18.9	32.9	6.7	8.1	±0
	29/03/2006	11:46	10.0	5.0	19.0	32.1	7.0	8.0	1.1
	31/03/2006	12:46	10.2	5.1	19.9	32.5	7.4	8.1	±0
	04/04/2006	15:18	10.3	5.2	19.5	32.1	7.6	7.9	±0
	06/04/2006	16:16	10.2	5.1	21.3	32.7	8.0	8.0	±0
	08/04/2006	13:16	10.3	5.2	20.9	32.6	7.9	8.0	±0
	10/04/2006	10:16	10.1	5.1	20.7	32.5	8.0	7.9	±0
	12/04/2006	12:16	10.3	5.2	21.7	32.8	8.2	8.0	1.2
	19/04/2006	09:36	10.9	5.5	21.4	33.0	7.2	8.0	±0
	24/04/2006	07:21	10.8	5.4	20.9	27.6	6.6	8.0	22.4

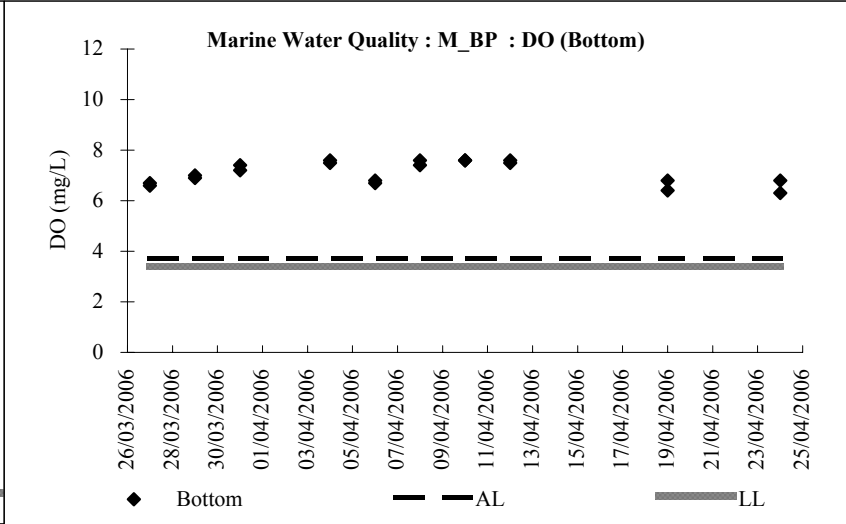
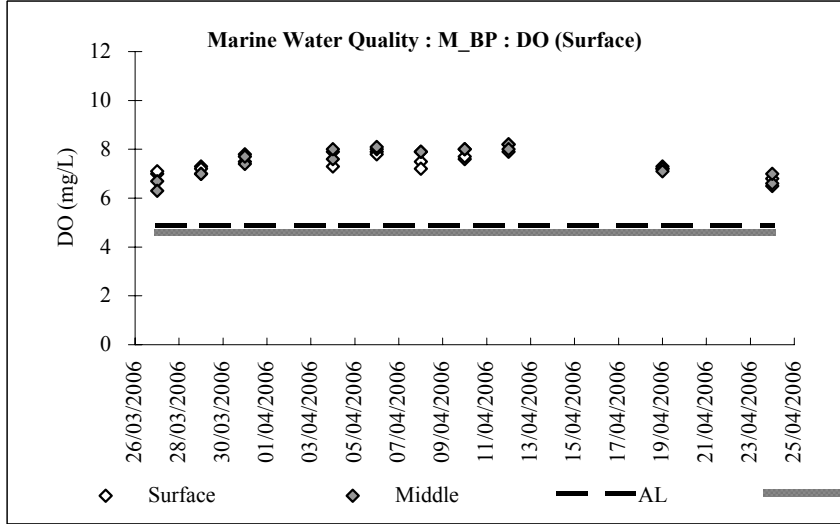
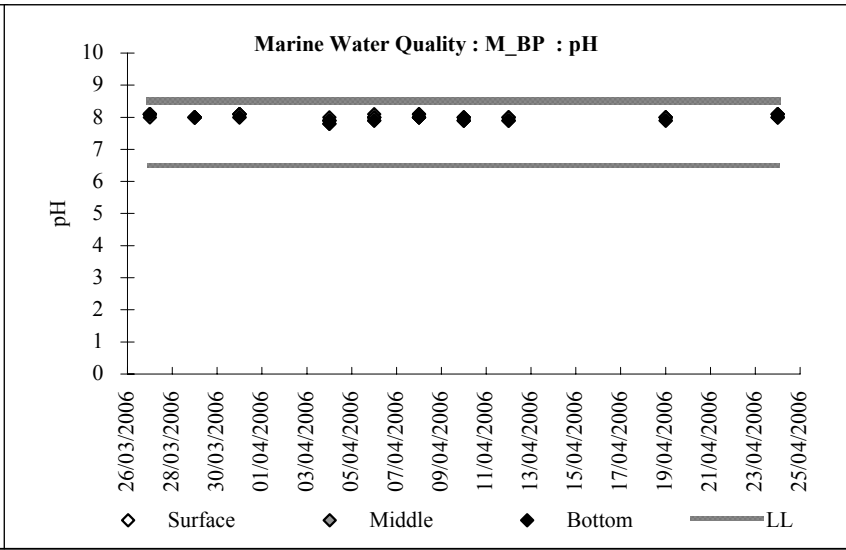
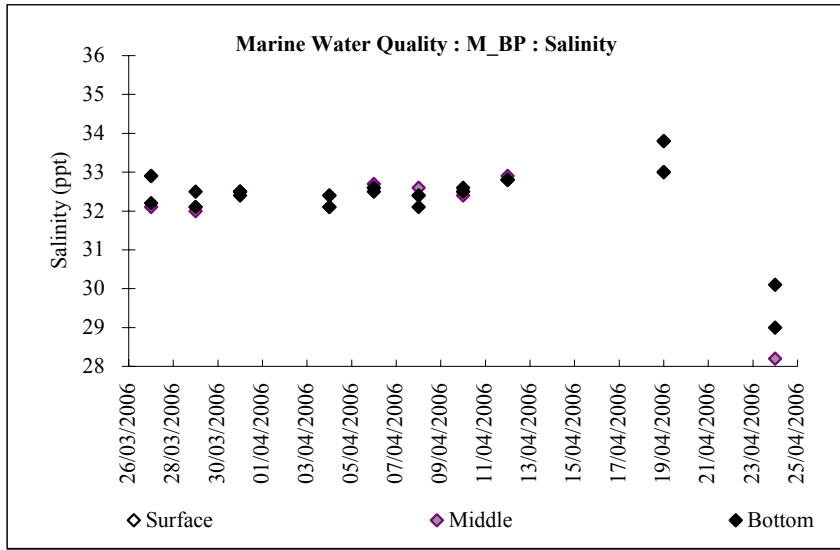
M_BP		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:06	8.9	4.5	18.9	32.1	6.3	8.1	1.5
	29/03/2006	09:06	10.2	5.1	19.0	32.0	7.0	8.0	1.0
	31/03/2006	10:06	10.1	5.1	19.7	32.5	7.7	8.1	±0
	04/04/2006	09:22	10.6	5.3	19.4	32.4	8.0	7.8	±0
	06/04/2006	10:06	10.8	5.4	21.4	32.6	8.1	8.0	±0
	08/04/2006	10:06	10.2	5.1	20.6	32.4	7.9	8.0	±0
	10/04/2006	14:36	10.2	5.1	21.3	32.4	8.0	8.0	±0
	12/04/2006	16:06	10.3	5.2	22.5	32.9	8.0	8.0	±0
	19/04/2006	14:36	10.5	5.3	22.1	33.8	7.1	8.0	±0
	24/04/2006	15:36	10.6	5.3	21.3	28.2	7.0	8.1	1.1

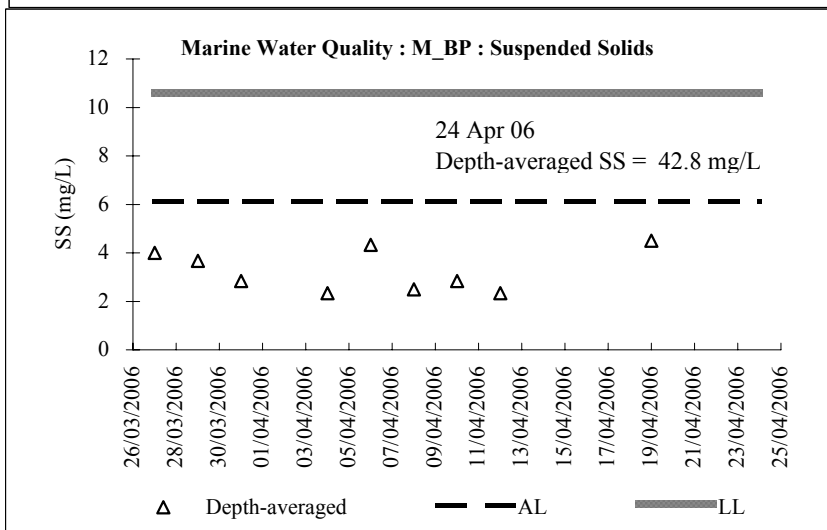
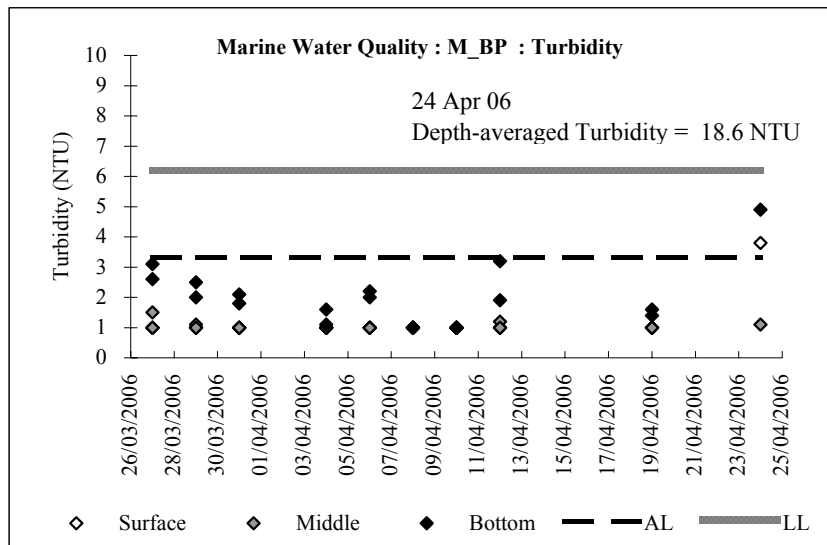


<b>M_BP</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	10:15	9.5	8.5	18.8	32.9	6.7	8.1	3.1
	29/03/2006	11:45	10.0	9.0	19.0	32.5	7.0	8.0	2.5
	31/03/2006	12:45	10.2	9.2	19.2	32.4	7.2	8.0	1.8
	04/04/2006	15:17	10.3	9.3	19.3	32.1	7.5	7.9	1.1
	06/04/2006	16:15	10.2	9.2	19.5	32.6	6.8	7.9	2.0
	08/04/2006	13:15	10.3	9.3	20.0	32.1	7.6	8.1	±0
	10/04/2006	10:15	10.1	9.1	20.4	32.5	7.6	7.9	±0
	12/04/2006	12:15	10.3	9.3	20.7	32.8	7.5	7.9	3.2
	19/04/2006	9:35	10.9	9.9	20.9	33.0	6.8	7.9	1.6
	24/04/2006	7:20	10.8	9.8	21.2	29.0	6.3	8.1	<b>58.5</b>

<b>M_BP</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:05	8.9	7.9	18.8	32.2	6.6	8.1	2.6
	29/03/2006	9:05	10.2	9.2	18.8	32.1	6.9	8.0	2.0
	31/03/2006	10:05	10.1	9.1	19.3	32.5	7.4	8.0	2.1
	04/04/2006	9:21	10.6	9.6	19.3	32.4	7.6	7.8	1.6
	06/04/2006	10:05	10.8	9.8	19.3	32.5	6.7	7.9	2.2
	08/04/2006	10:05	10.2	9.2	20.0	32.4	7.4	8.0	±0
	10/04/2006	14:35	10.2	9.2	20.6	32.6	7.6	8.0	±0
	12/04/2006	16:05	10.3	9.3	21.3	32.8	7.6	7.9	1.9
	19/04/2006	14:35	10.5	9.5	21.3	33.8	6.4	7.9	1.4
	24/04/2006	15:35	10.6	9.6	21.3	30.1	6.8	8.0	<b>4.9</b>

M_BP	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	3.0	4.0	4.0	3.0	4.0	6.0	4.0
29/03/2006	6.0	3.0	4.0	2.0	4.0	3.0	3.7
31/03/2006	2.0	3.0	<del>2.0</del>	3.0	4.0	3.0	2.8
04/04/2006	3.0	2.0	3.0	2.0	<del>2.0</del>	<del>2.0</del>	2.3
06/04/2006	<del>2.0</del>	3.0	6.0	5.0	3.0	7.0	4.3
08/04/2006	<del>2.0</del>	2.0	2.0	4.0	<del>2.0</del>	3.0	2.5
10/04/2006	<del>2.0</del>	2.0	<del>2.0</del>	2.0	4.0	5.0	2.8
12/04/2006	<del>2.0</del>	<del>2.0</del>	3.0	<del>2.0</del>	3.0	<del>2.0</del>	2.3
19/04/2006	5.0	3.0	3.0	6.0	5.0	5.0	4.5
24/04/2006	48.0	63.0	123.0	7.0	5.0	11.0	<b>42.8</b>





M_Coral		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	11:27	10.5	1.0	18.7	31.9	7.1	8.1	±0
	29/03/2006	12:57	10.5	1.0	19.0	32.3	7.6	8.0	±0
	31/03/2006	13:57	11.3	1.0	19.8	32.1	8.1	8.0	±0
	04/04/2006	15:13	11.1	1.0	21.9	32.2	7.5	8.0	±0
	06/04/2006	17:27	11.8	1.0	23.5	32.6	7.9	7.9	±0
	08/04/2006	14:27	11.6	1.0	23.1	32.4	7.9	8.0	±0
	10/04/2006	11:27	11.6	1.0	22.1	33.0	8.0	8.1	±0
	12/04/2006	13:27	10.8	1.0	23.8	32.3	7.8	8.0	±0
	19/04/2006	10:47	11.1	1.0	22.2	32.7	7.8	8.1	±0
	24/04/2006	07:32	11.2	1.0	21.3	27.7	7.9	8.0	1.3

M_Coral		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:17	9.8	1.0	18.8	32.2	7.0	8.1	±0
	29/03/2006	09:17	10.0	1.0	19.2	32.2	7.7	8.0	±0
	31/03/2006	10:17	11.0	1.0	19.7	32.2	8.0	8.0	±0
	04/04/2006	09:33	11.5	1.0	21.4	29.6	7.9	7.9	±0
	06/04/2006	10:17	11.3	1.0	23.2	32.4	7.6	7.9	±0
	08/04/2006	10:17	12.0	1.0	22.0	32.7	7.5	8.0	±0
	10/04/2006	14:47	11.2	1.0	23.1	33.2	7.9	8.0	±0
	12/04/2006	16:17	10.9	1.0	24.6	32.6	7.8	8.0	±0
	19/04/2006	14:47	10.9	1.0	22.5	33.2	7.4	8.0	±0
	24/04/2006	15:47	11.0	1.0	21.5	29.0	7.8	8.0	1.1

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

M_Coral		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	11:26	10.5	5.3	18.8	32.1	6.8	8.1	±0
	29/03/2006	12:56	10.5	5.3	19.0	32.1	7.2	8.0	±0
	31/03/2006	13:56	11.3	5.7	19.4	32.3	7.8	8.0	±0
	04/04/2006	15:12	11.1	5.6	19.4	32.1	7.7	8.0	±0
	06/04/2006	17:26	11.8	5.9	21.3	32.6	8.0	8.0	±0
	08/04/2006	14:26	11.6	5.8	20.8	32.4	7.9	7.9	±0
	10/04/2006	11:26	11.6	5.8	20.9	33.1	8.3	8.0	±0
	12/04/2006	13:26	10.8	5.4	23.3	32.3	8.0	8.0	±0
	19/04/2006	10:46	11.1	5.6	21.4	32.6	7.9	8.0	±0
	24/04/2006	07:31	11.2	5.6	21.0	28.0	7.8	8.1	1.5

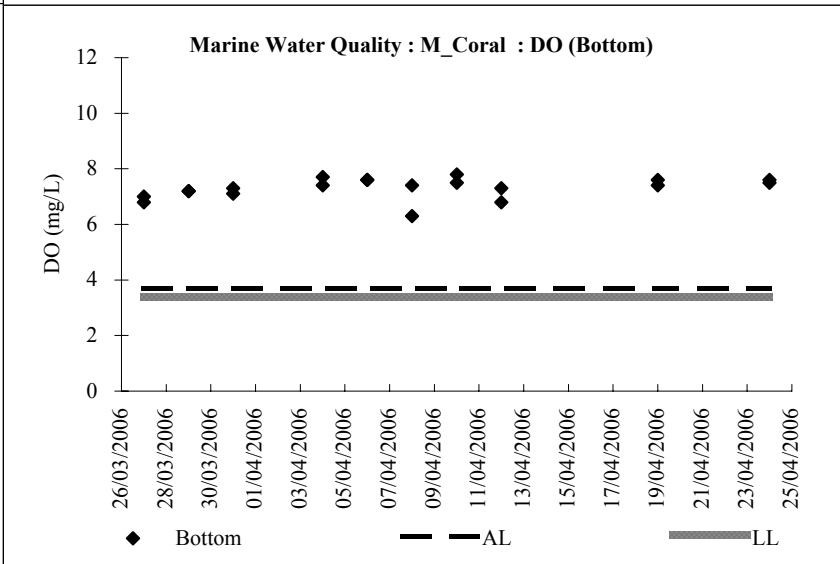
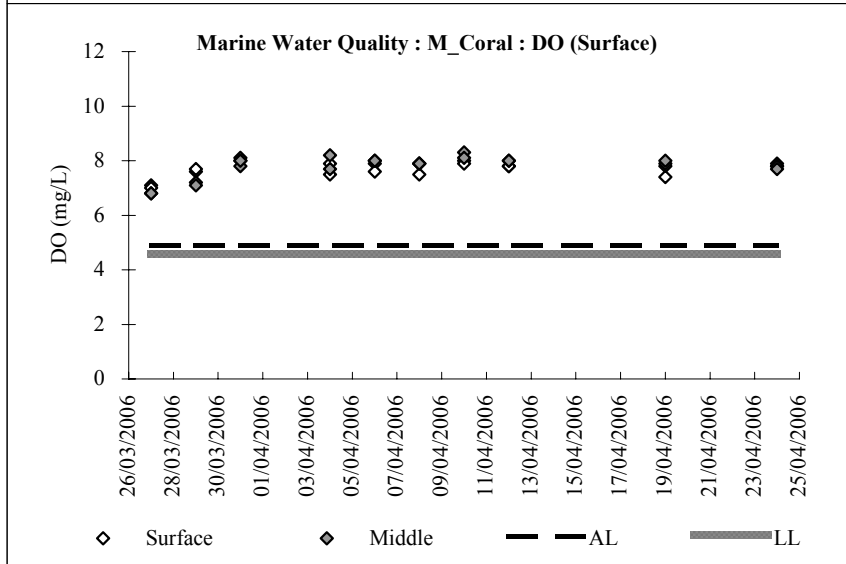
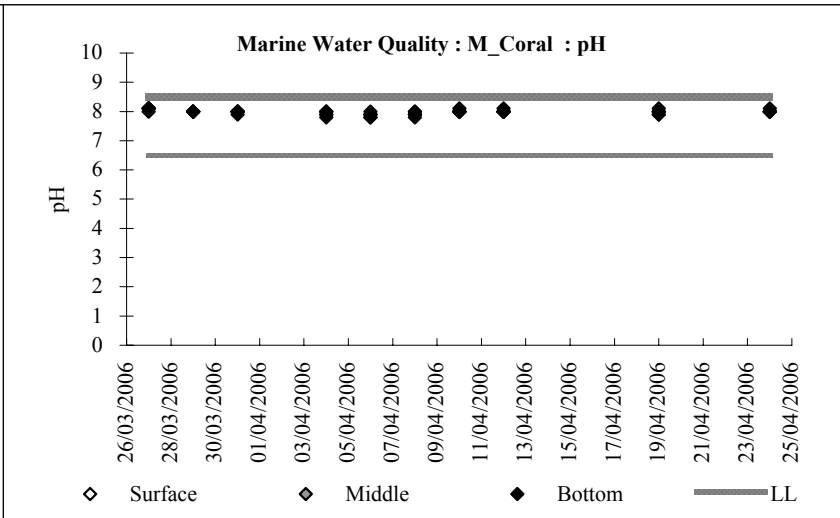
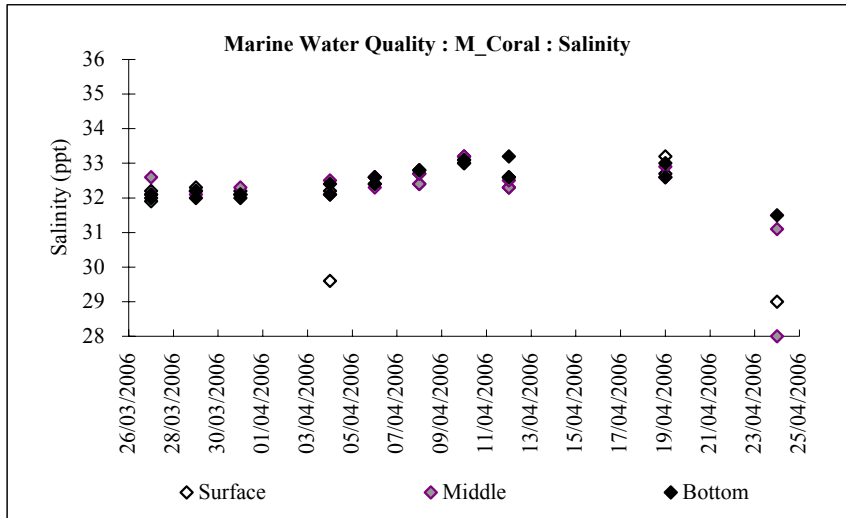
M_Coral		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:16	9.8	4.9	18.9	32.6	6.8	8.0	±0
	29/03/2006	09:16	10.0	5.0	19.2	32.2	7.1	8.0	±0
	31/03/2006	10:16	11.0	5.5	19.5	32.1	8.0	8.0	±0
	04/04/2006	09:32	11.5	5.8	19.6	32.5	8.2	7.9	±0
	06/04/2006	10:16	11.3	5.7	20.0	32.3	8.0	7.9	±0
	08/04/2006	10:16	12.0	6.0	20.5	32.7	7.9	7.9	±0
	10/04/2006	14:46	11.2	5.6	21.8	33.2	8.1	8.0	±0
	12/04/2006	16:16	10.9	5.5	24.0	32.5	8.0	8.0	±0
	19/04/2006	14:46	10.9	5.5	21.8	32.9	8.0	8.0	±0
	24/04/2006	15:46	11.0	5.5	21.3	31.1	7.7	8.0	1.3

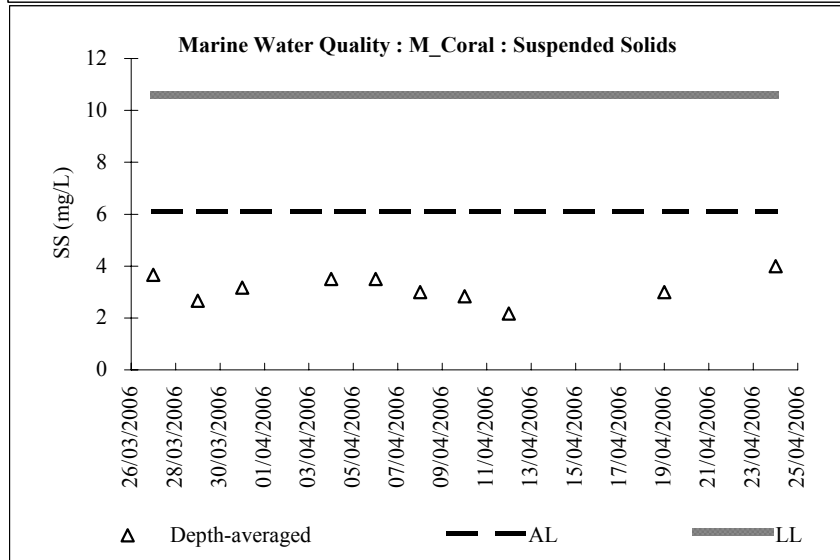
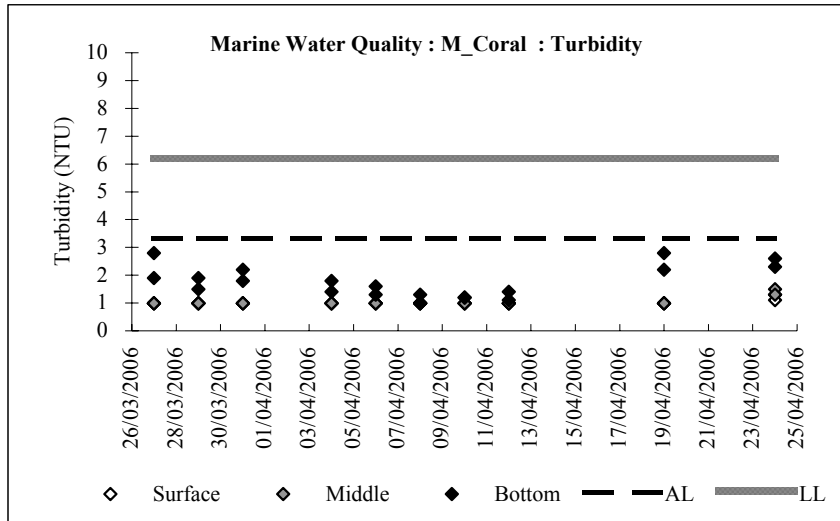
<b>M_Coral</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	11:25	10.5	9.5	18.7	32.1	6.8	8.1	2.8
	29/03/2006	12:55	10.5	9.5	18.9	32.2	7.2	8.0	1.9
	31/03/2006	13:55	11.3	10.3	19.0	32.0	7.3	8.0	2.2
	04/04/2006	15:11	11.1	10.1	19.3	32.1	7.7	8.0	1.4
	06/04/2006	17:25	11.8	10.8	19.4	32.6	7.6	7.8	1.6
	08/04/2006	14:25	11.6	10.6	19.8	32.8	7.4	7.9	1.3
	10/04/2006	11:25	11.6	10.6	20.6	33.1	7.8	8.0	1.2
	12/04/2006	13:25	10.8	9.8	21.1	32.6	6.8	8.1	1.1
	19/04/2006	10:45	11.1	10.1	20.9	32.6	7.6	7.9	2.8
	24/04/2006	7:30	11.2	10.2	21.1	27.9	7.6	8.0	2.3

<b>M_Coral</b>		<b>Bottom</b>							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:15	9.8	8.8	18.7	32.0	7.0	8.1	1.9
	29/03/2006	9:15	10.0	9.0	19.0	32.0	7.2	8.0	1.5
	31/03/2006	10:15	11.0	10.0	19.1	32.1	7.1	7.9	1.8
	04/04/2006	9:31	11.5	10.5	19.2	32.4	7.4	7.8	1.8
	06/04/2006	10:15	11.3	10.3	19.5	32.4	7.6	7.8	1.3
	08/04/2006	10:15	12.0	11.0	19.6	32.8	6.3	7.8	1.0
	10/04/2006	14:45	11.2	10.2	21.3	33.0	7.5	8.0	1.2
	12/04/2006	16:15	10.9	9.9	21.4	33.2	7.3	8.0	1.4
	19/04/2006	14:45	10.9	9.9	21.3	33.0	7.4	7.9	2.2
	24/04/2006	15:45	11.0	10.0	21.3	31.5	7.5	8.0	2.6

M_Coral	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	4.0	3.0	4.0	3.0	3.0	5.0	3.7
29/03/2006	6.0	<del>2.0</del>	<del>2.0</del>	2.0	2.0	2.0	2.7
31/03/2006	3.0	2.0	4.0	2.0	5.0	3.0	3.2
04/04/2006	<del>2.0</del>	6.0	6.0	3.0	<del>2.0</del>	2.0	3.5
06/04/2006	3.0	3.0	5.0	3.0	5.0	<del>2.0</del>	3.5
08/04/2006	2.0	4.0	4.0	<del>2.0</del>	4.0	2.0	3.0
10/04/2006	<del>2.0</del>	3.0	4.0	<del>2.0</del>	<del>2.0</del>	4.0	2.8
12/04/2006	<del>2.0</del>	<del>2.0</del>	3.0	<del>2.0</del>	2.0	<del>2.0</del>	2.2
19/04/2006	2.0	3.0	5.0	2.0	2.0	4.0	3.0
24/04/2006	4.0	<del>2.0</del>	3.0	9.0	2.0	4.0	4.0







<b>M B</b>		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:12	17.3	1.0	18.2	32.5	7.6	8.1	±0
	29/03/2006	13:42	17.2	1.0	18.6	32.5	7.8	8.0	±0
	31/03/2006	14:42	17.5	1.0	19.2	32.6	8.2	8.0	±0
	04/04/2006	15:32	17.7	1.0	21.9	32.2	7.7	8.0	±0
	06/04/2006	18:12	17.2	1.0	21.4	32.6	7.8	8.0	±0
	08/04/2006	15:12	17.6	1.0	21.9	32.5	7.9	8.0	±0
	10/04/2006	12:12	17.4	1.0	21.7	33.2	8.2	8.0	±0
	12/04/2006	14:12	17.7	1.0	23.4	32.4	7.9	8.0	±0
	19/04/2006	11:32	17.8	1.0	22.3	32.5	7.9	8.1	±0
	24/04/2006	07:47	17.5	1.0	21.5	31.8	8.0	8.1	±0

<b>M B</b>		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:27	17.0	1.0	18.6	32.6	7.7	8.1	±0
	29/03/2006	09:27	16.8	1.0	18.8	32.5	7.9	8.0	±0
	31/03/2006	10:27	17.3	1.0	19.3	32.2	8.0	7.9	±0
	04/04/2006	10:29	17.6	1.0	21.0	32.4	8.0	7.8	±0
	06/04/2006	10:27	17.7	1.0	21.6	32.2	8.0	7.8	±0
	08/04/2006	10:27	17.1	1.0	21.8	32.8	7.6	8.1	±0
	10/04/2006	14:57	17.0	1.0	22.2	33.6	8.2	8.0	±0
	12/04/2006	16:27	17.6	1.0	24.1	32.6	8.0	8.0	±0
	19/04/2006	14:57	17.5	1.0	22.6	32.8	7.7	8.1	±0
	24/04/2006	15:57	17.8	1.0	21.8	33.1	8.1	8.0	±0

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

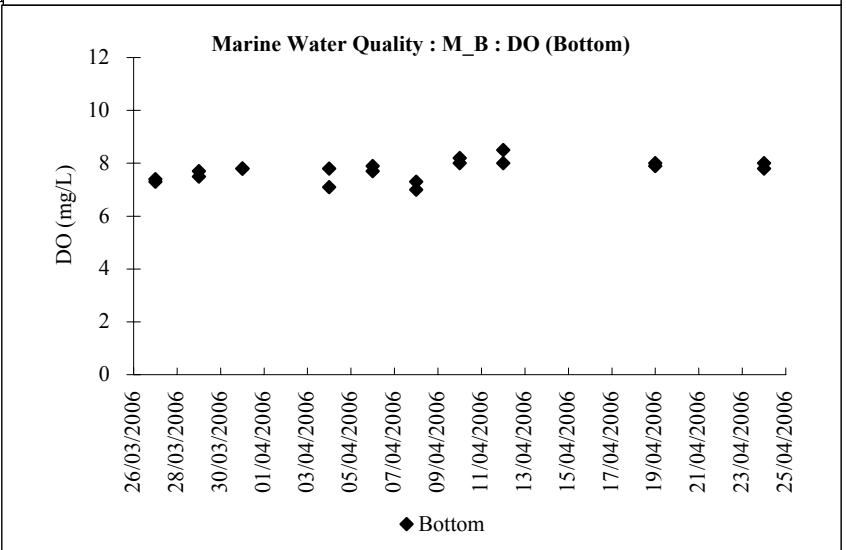
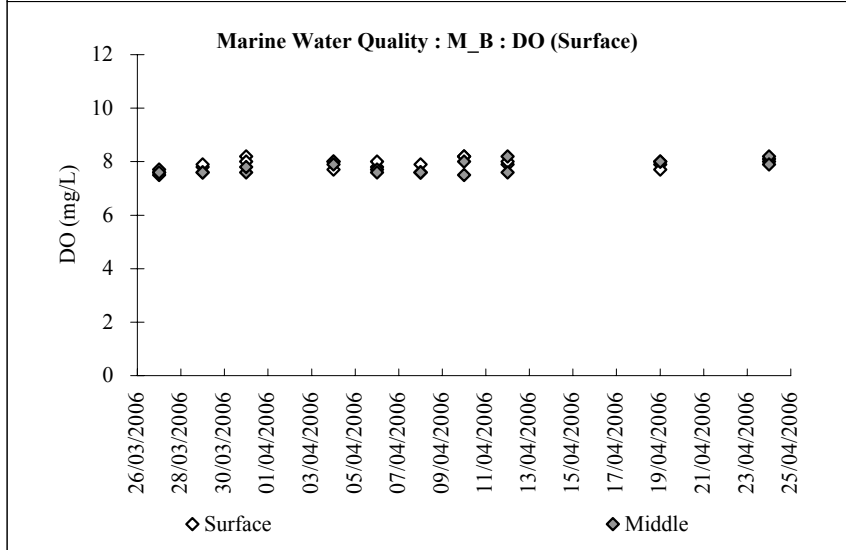
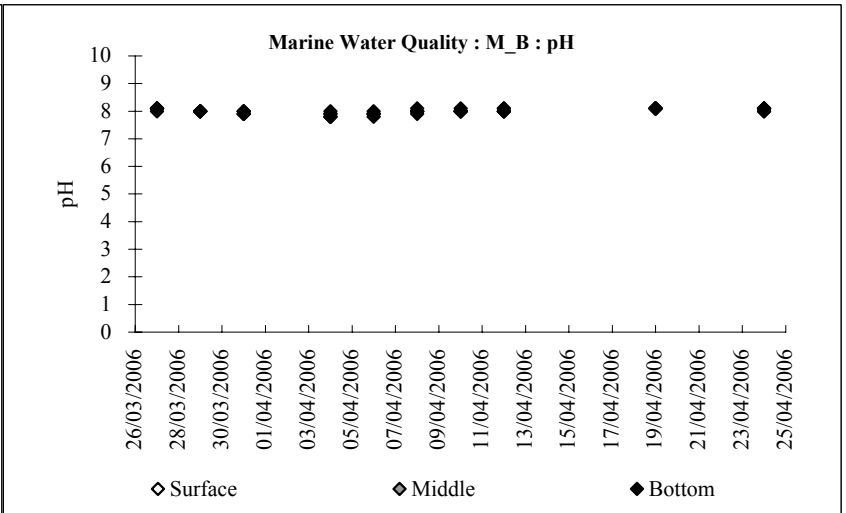
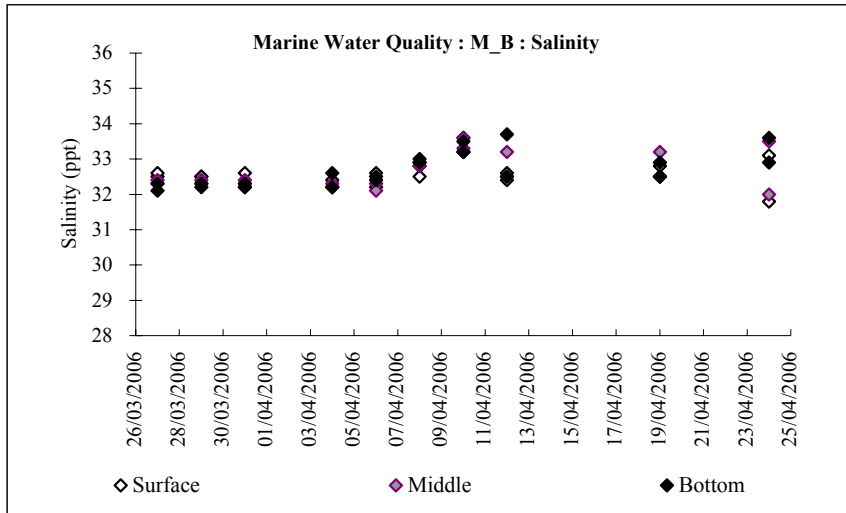
<b>M B</b>		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:11	17.3	8.7	18.0	32.3	7.5	8.1	±0
	29/03/2006	13:41	17.2	8.6	18.8	32.4	7.6	8.0	±0
	31/03/2006	14:41	17.5	8.8	19.2	32.4	7.6	8.0	±0
	04/04/2006	15:31	17.7	8.9	19.3	32.2	8.0	7.9	±0
	06/04/2006	18:11	17.2	8.6	20.0	32.3	7.7	7.9	±0
	08/04/2006	15:11	17.6	8.8	20.6	32.8	7.6	8.0	±0
	10/04/2006	12:11	17.4	8.7	20.8	33.3	8.0	8.0	±0
	12/04/2006	14:11	17.7	8.9	20.8	32.5	8.2	8.1	±0
	19/04/2006	11:31	17.8	8.9	21.3	32.5	8.0	8.1	±0
	24/04/2006	07:46	17.5	8.8	21.6	32.0	8.2	8.1	±0

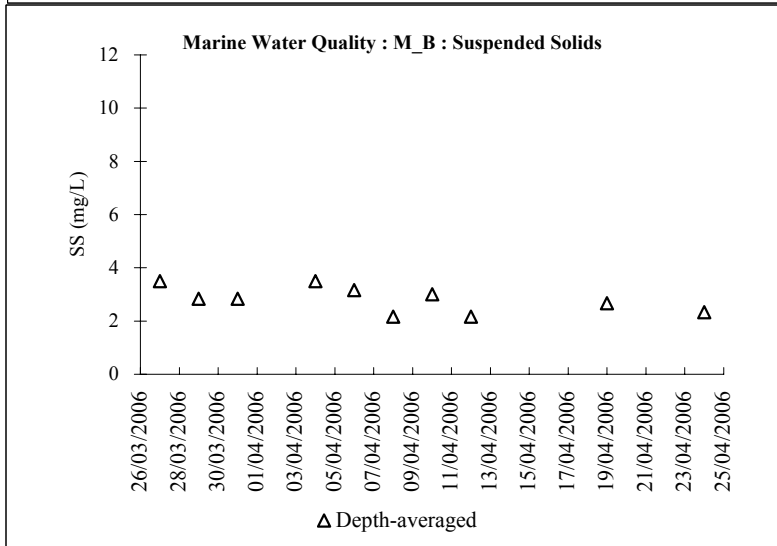
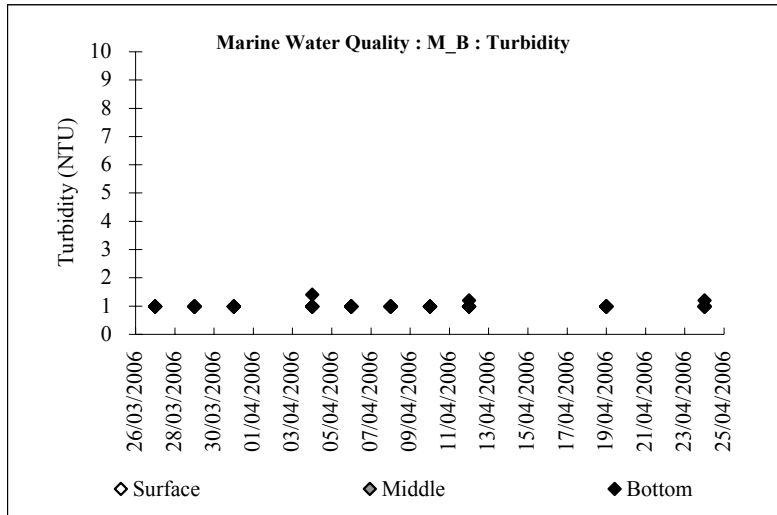
<b>M B</b>		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:26	17.0	8.5	18.1	32.4	7.6	8.0	±0
	29/03/2006	09:26	16.8	8.4	18.7	32.3	7.6	8.0	±0
	31/03/2006	10:26	17.3	8.7	19.1	32.3	7.8	7.9	±0
	04/04/2006	10:28	17.6	8.8	19.2	32.3	7.9	7.8	±0
	06/04/2006	10:26	17.7	8.9	19.8	32.1	7.6	7.9	±0
	08/04/2006	10:26	17.1	8.6	20.4	32.9	7.6	8.0	±0
	10/04/2006	14:56	17.0	8.5	21.6	33.6	7.5	8.0	±0
	12/04/2006	16:26	17.6	8.8	21.4	33.2	7.6	8.0	±0
	19/04/2006	14:56	17.5	8.8	21.6	33.2	8.0	8.1	±0
	24/04/2006	15:56	17.8	8.9	21.6	33.5	7.9	8.1	±0

<b>M B</b>		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:10	17.3	16.3	17.9	32.1	7.3	8.1	±0
	29/03/2006	13:40	17.2	16.2	19.0	32.2	7.7	8.0	±0
	31/03/2006	14:40	17.5	16.5	19.0	32.3	7.8	8.0	±0
	04/04/2006	15:30	17.7	16.7	19.1	32.2	7.1	7.9	±0
	06/04/2006	18:10	17.2	16.2	19.5	32.4	7.7	7.9	±0
	08/04/2006	15:10	17.6	16.6	19.5	33.0	7.3	8.0	±0
	10/04/2006	12:10	17.4	16.4	20.5	33.2	8.0	8.1	±0
	12/04/2006	14:10	17.7	16.7	20.5	32.5	8.5	8.1	1.2
	19/04/2006	11:30	17.8	16.8	21.1	32.5	7.9	8.1	±0
	24/04/2006	7:45	17.5	16.5	21.6	32.9	7.8	8.1	1.2

<b>M B</b>		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:25	17.0	16.0	18.1	32.3	7.4	8.1	±0
	29/03/2006	9:25	16.8	15.8	19.0	32.3	7.5	8.0	±0
	31/03/2006	10:25	17.3	16.3	19.0	32.2	7.8	7.9	±0
	04/04/2006	10:27	17.6	16.6	19.5	32.6	7.8	7.8	1.4
	06/04/2006	10:25	17.7	16.7	19.5	32.5	7.9	7.9	±0
	08/04/2006	10:25	17.1	16.1	19.5	32.9	7.0	7.9	±0
	10/04/2006	14:55	17.0	16.0	21.1	33.5	8.2	8.0	±0
	12/04/2006	16:25	17.6	16.6	21.0	33.7	8.0	8.0	±0
	19/04/2006	14:55	17.5	16.5	21.6	32.9	8.0	8.1	±0
	24/04/2006	15:55	17.8	16.8	21.8	33.6	8.0	8.0	±0

M_B	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	3.0	2.0	4.0	4.0	5.0	3.0	3.5
29/03/2006	3.0	2.0	<del>2.0</del>	3.0	4.0	3.0	2.8
31/03/2006	3.0	<del>2.0</del>	3.0	2.0	4.0	3.0	2.8
04/04/2006	2.0	3.0	6.0	<del>2.0</del>	<del>2.0</del>	6.0	3.5
06/04/2006	3.0	4.0	<del>2.0</del>	<del>2.0</del>	6.0	<del>2.0</del>	3.2
08/04/2006	3.0	2.0	2.0	<del>2.0</del>	2.0	<del>2.0</del>	2.2
10/04/2006	3.0	<del>2.0</del>	<del>2.0</del>	5.0	3.0	3.0	3.0
12/04/2006	<del>2.0</del>	2.0	3.0	<del>2.0</del>	<del>2.0</del>	2.0	2.2
19/04/2006	<del>2.0</del>	2.0	2.0	2.0	4.0	4.0	2.7
24/04/2006	3.0	2.0	2.0	2.0	3.0	2.0	2.3







KS		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:42	12.6	1.0	18.7	31.9	7.6	8.1	±0
	29/03/2006	14:12	12.3	1.0	19.0	31.9	7.6	8.0	±0
	31/03/2006	15:12	11.8	1.0	19.2	32.5	7.6	8.0	±0
	04/04/2006	16:02	13.2	1.0	22.2	32.3	7.8	8.0	±0
	06/04/2006	18:42	11.9	1.0	22.0	32.3	7.8	8.0	±0
	08/04/2006	15:42	12.3	1.0	22.1	32.6	7.6	8.0	±0
	10/04/2006	12:42	13.0	1.0	22.6	32.9	7.9	7.9	±0
	12/04/2006	14:42	13.1	1.0	23.7	32.4	7.8	8.0	±0
	19/04/2006	12:02	12.3	1.0	22.6	32.6	7.6	8.2	±0
	24/04/2006	08:17	12.9	1.0	22.0	32.6	7.7	8.1	±0

KS		Surface							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:57	12.0	1.0	18.8	32.0	7.5	8.0	±0
	29/03/2006	09:57	11.4	1.0	18.9	31.8	7.6	8.0	±0
	31/03/2006	10:57	11.9	1.0	19.2	32.4	7.8	7.9	±0
	04/04/2006	10:59	11.9	1.0	21.5	32.3	8.0	7.9	±0
	06/04/2006	10:57	11.9	1.0	21.3	32.6	7.8	7.8	±0
	08/04/2006	10:57	11.4	1.0	21.0	32.9	7.9	8.1	±0
	10/04/2006	15:27	11.9	1.0	22.9	33.1	7.6	8.0	±0
	12/04/2006	16:57	12.5	1.0	24.3	33.0	7.4	8.0	±0
	19/04/2006	15:27	12.5	1.0	23.0	33.4	7.4	8.1	±0
	24/04/2006	16:27	12.8	1.0	22.2	33.6	7.6	8.1	±0

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

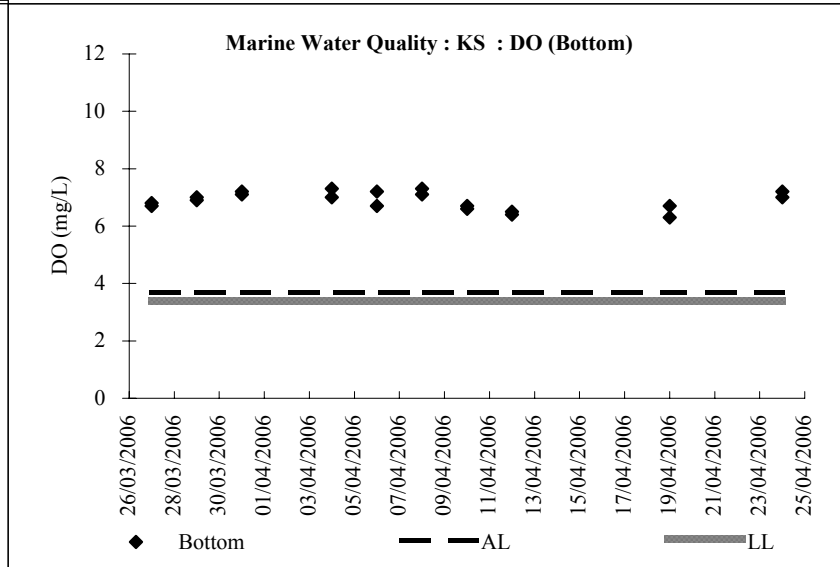
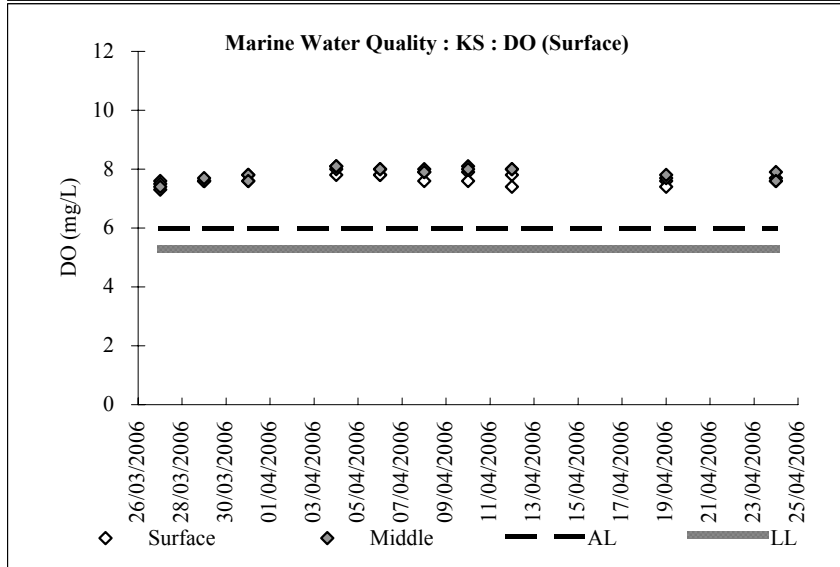
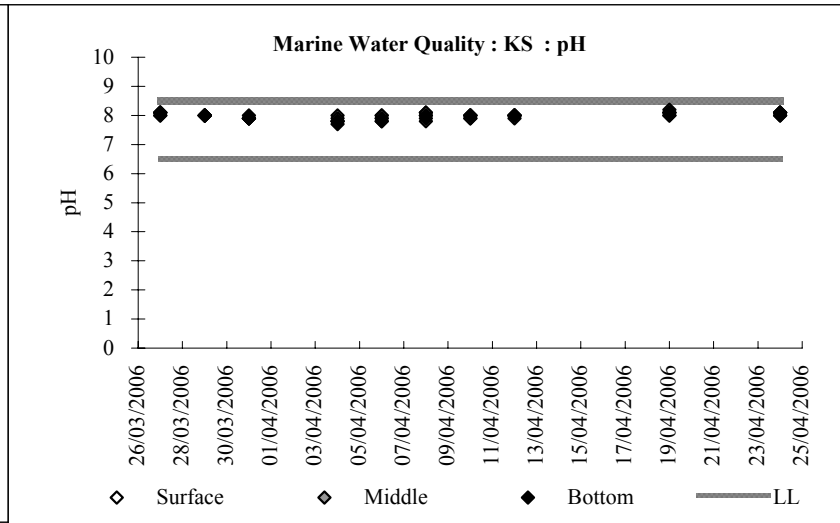
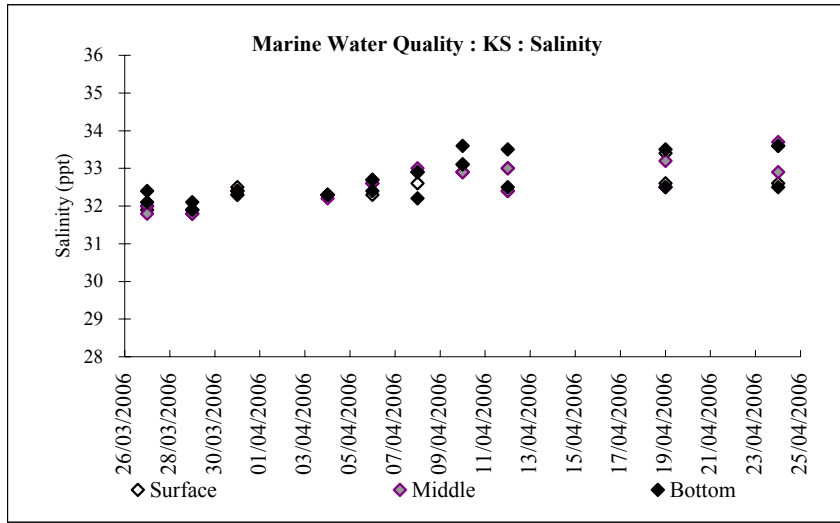
KS		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:41	12.6	6.3	18.7	32.0	7.3	8.1	±0
	29/03/2006	14:11	12.3	6.2	18.7	31.9	7.6	8.0	±0
	31/03/2006	15:11	11.8	5.9	19.2	32.4	7.8	7.9	±0
	04/04/2006	16:01	13.2	6.6	19.2	32.2	8.1	7.8	±0
	06/04/2006	18:41	11.9	6.0	21.3	32.7	8.0	7.9	±0
	08/04/2006	15:41	12.3	6.2	21.0	32.9	8.0	7.8	±0
	10/04/2006	12:41	13.0	6.5	22.5	32.9	8.1	7.9	±0
	12/04/2006	14:41	13.1	6.6	22.8	32.4	8.0	8.0	±0
	19/04/2006	12:01	12.3	6.2	21.4	32.5	7.7	8.1	±0
	24/04/2006	08:16	12.9	6.5	22.5	32.9	7.9	8.1	±0

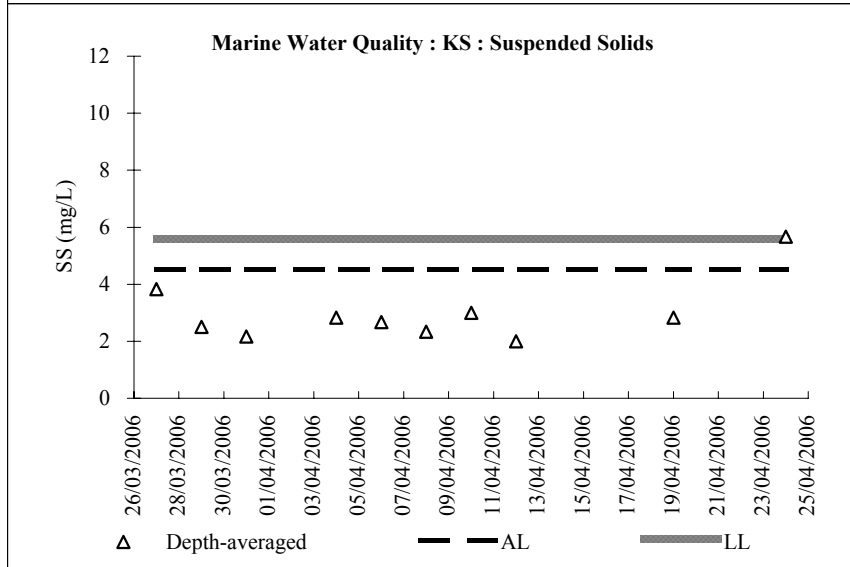
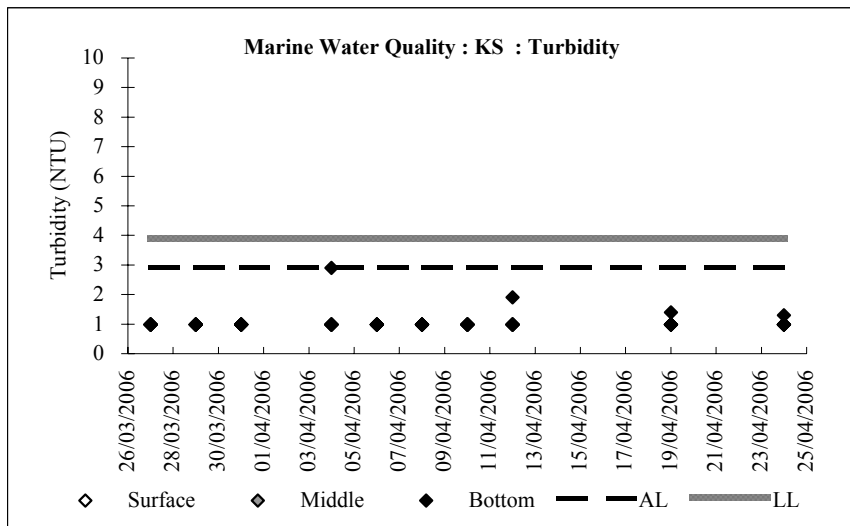
KS		Middle							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:56	12.0	6.0	18.7	31.8	7.4	8.1	±0
	29/03/2006	09:56	11.4	5.7	18.6	31.8	7.7	8.0	±0
	31/03/2006	10:56	11.9	6.0	19.0	32.3	7.6	7.9	±0
	04/04/2006	10:58	11.9	6.0	21.0	32.3	8.1	7.8	±0
	06/04/2006	10:56	11.9	6.0	21.0	32.6	8.0	8.0	±0
	08/04/2006	10:56	11.4	5.7	20.9	33.0	7.9	8.1	±0
	10/04/2006	15:26	11.9	6.0	23.4	32.9	8.0	8.0	±0
	12/04/2006	16:56	12.5	6.3	23.5	33.0	8.0	7.9	±0
	19/04/2006	15:26	12.5	6.3	22.3	33.2	7.8	8.0	±0
	24/04/2006	16:26	12.8	6.4	22.6	33.7	7.6	8.0	±0

KS		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	12:40	12.6	11.6	18.7	32.1	7.0	8.1	±0
	29/03/2006	14:10	12.3	11.3	18.8	32.1	7.3	8.0	±0
	31/03/2006	15:10	11.8	10.8	18.9	32.3	7.5	7.9	±0
	04/04/2006	16:00	13.2	12.2	19.1	32.3	6.9	7.8	±0
	06/04/2006	18:40	11.9	10.9	20.2	32.4	7.3	7.9	±0
	08/04/2006	15:40	12.3	11.3	21.3	32.2	7.9	7.9	±0
	10/04/2006	12:40	13.0	12.0	21.0	33.1	8.0	8.0	±0
	12/04/2006	14:40	13.1	12.1	20.4	32.5	7.6	8.0	1.9
	19/04/2006	12:00	12.3	11.3	20.9	32.5	7.3	8.1	1.4
	24/04/2006	8:15	12.9	11.9	21.9	32.5	7.7	8.0	1.3

KS		Bottom							
tide condition	Date	time	Water depth (m)	Sampling depth (m)	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)
	27/03/2006	14:55	12.0	11.0	18.7	32.4	6.9	8.0	±0
	29/03/2006	9:55	11.4	10.4	18.7	31.9	7.6	8.0	±0
	31/03/2006	10:55	11.9	10.9	18.9	32.4	7.4	7.9	±0
	04/04/2006	10:57	11.9	10.9	19.0	32.3	6.8	7.7	2.9
	06/04/2006	10:55	11.9	10.9	20.0	32.7	7.3	7.8	±0
	08/04/2006	10:55	11.4	10.4	20.8	32.9	7.7	8.0	±0
	10/04/2006	15:25	11.9	10.9	21.6	33.6	8.1	8.0	±0
	12/04/2006	16:55	12.5	11.5	21.4	33.5	7.8	8.0	±0
	19/04/2006	15:25	12.5	11.5	21.2	33.5	7.3	8.0	±0
	24/04/2006	16:25	12.8	11.8	22.0	33.6	7.6	8.1	±0

KS	Mid-Ebb			Mid-Flood			Depth-averaged
	Surface	Middle	Bottom	Surface	Middle	Bottom	SS (mg/L)
27/03/2006	2.0	4.0	3.0	5.0	5.0	4.0	3.8
29/03/2006	<del>2.0</del>	3.0	2.0	<del>2.0</del>	3.0	3.0	2.5
31/03/2006	<del>2.0</del>	2.0	<del>2.0</del>	3.0	<del>2.0</del>	2.0	2.2
04/04/2006	<del>2.0</del>	3.0	3.0	<del>2.0</del>	3.0	4.0	2.8
06/04/2006	2.0	2.0	3.0	5.0	<del>2.0</del>	<del>2.0</del>	2.7
08/04/2006	2.0	3.0	2.0	3.0	<del>2.0</del>	2.0	2.3
10/04/2006	<del>2.0</del>	4.0	2.0	4.0	2.0	4.0	3.0
12/04/2006	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	<del>2.0</del>	2.0
19/04/2006	2.0	3.0	<del>2.0</del>	4.0	3.0	3.0	2.8
24/04/2006	4.0	5.0	3.0	14.0	4.0	4.0	5.7





F UA		Mid depth					
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	11:05	18.0	<0.1	9.1	7.2	3.6	3.0
29/03/2006	12:35	17.3	<0.1	9.9	7.2	3.8	2.0
31/03/2006	13:35	20.0	<0.1	9.1	7.5	3.6	3.0
04/04/2006	12:35	24.0	<0.1	8.4	7.3	3.1	3.0
06/04/2006	17:05	24.3	<0.1	8.2	7.4	3.3	3.0
08/04/2006	14:05	21.1	<0.1	8.7	7.6	4.3	2.0
10/04/2006	11:05	24.9	<0.1	7.7	7.4	3.3	2.0
12/04/2006	13:05	26.3	<0.1	7.8	7.1	4.0	3.0
19/04/2006	10:25	22.8	<0.1	8.8	7.2	2.8	2.0
24/04/2006	08:10	20.2	<0.1	5.3	5.3	432.0	282.0

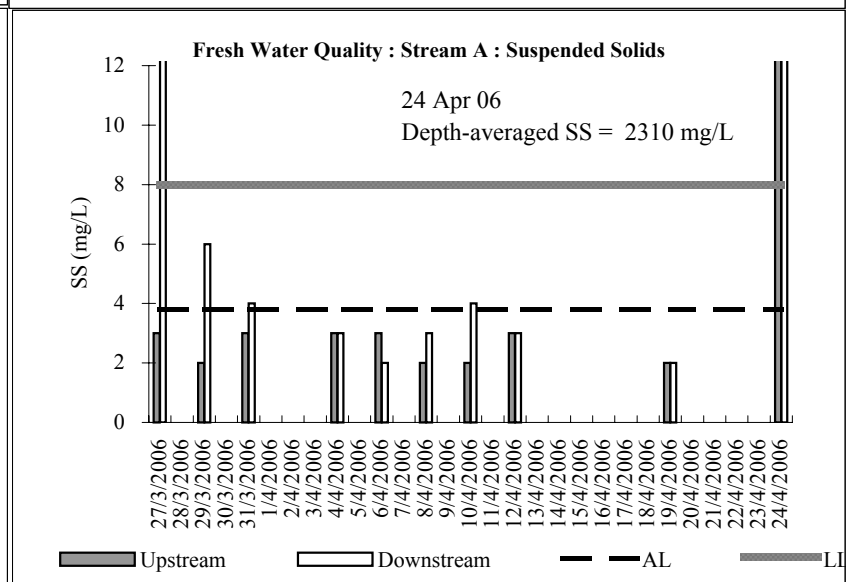
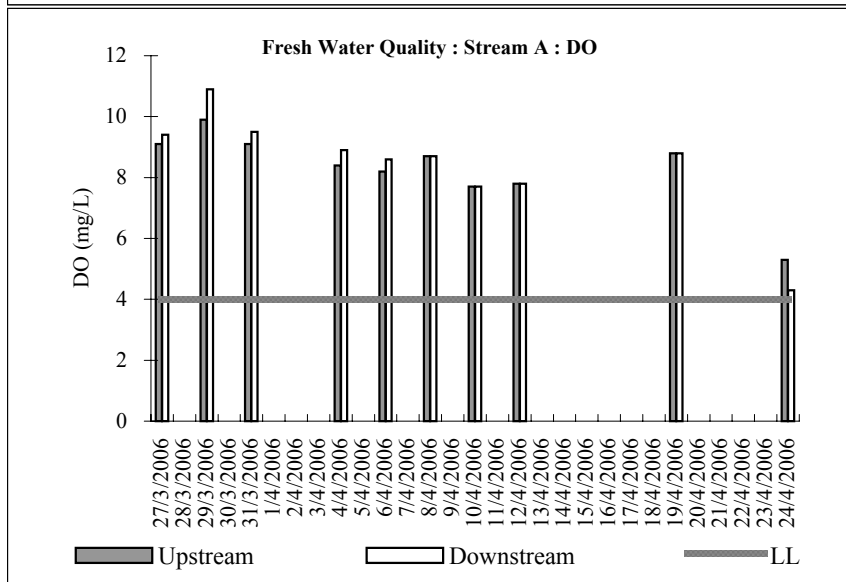
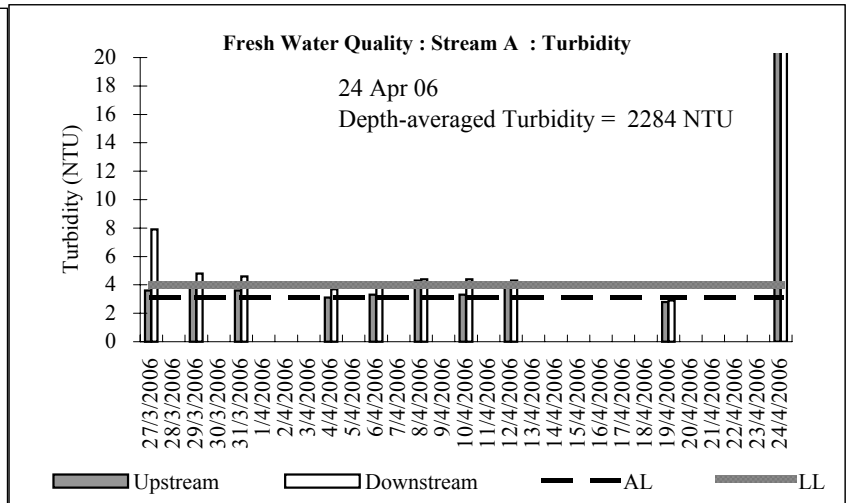
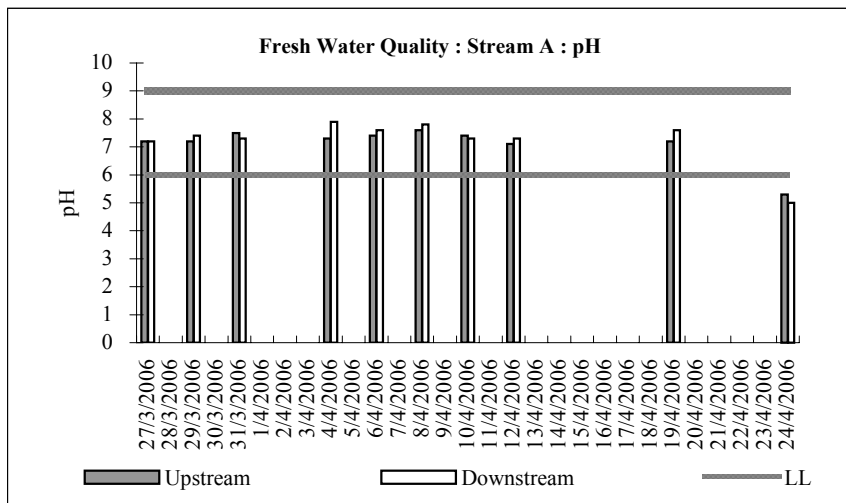
Sample next to existing scaring area (before adjoint Stream A2) 

463.0	399.0
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F DA		Mid depth					
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	11:10	18.2	<0.1	9.4	7.2	<b>7.9</b>	<b>17.0</b>
29/03/2006	12:40	18.6	<0.1	10.9	7.4	<b>4.8</b>	<b>6.0</b>
31/03/2006	13:40	20.4	<0.1	9.5	7.3	<b>4.6</b>	<b>4.0</b>
04/04/2006	12:40	25.7	<0.1	8.9	7.9	<b>3.7</b>	3.0
06/04/2006	17:10	25.6	<0.1	8.6	7.6	<b>3.9</b>	2.0
08/04/2006	14:10	21.4	<0.1	8.7	7.8	<b>4.4</b>	3.0
10/04/2006	11:10	25.5	<0.1	7.7	7.3	<b>4.4</b>	<b>4.0</b>
12/04/2006	13:10	27.1	<0.1	7.8	7.3	<b>4.3</b>	3.0
19/04/2006	10:30	24.3	<0.1	8.8	7.6	2.9	2.0
24/04/2006	08:15	20.5	<0.1	<b>4.3</b>	<b>5.0</b>	<b>2284.0</b>	<b>2310.0</b>

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey



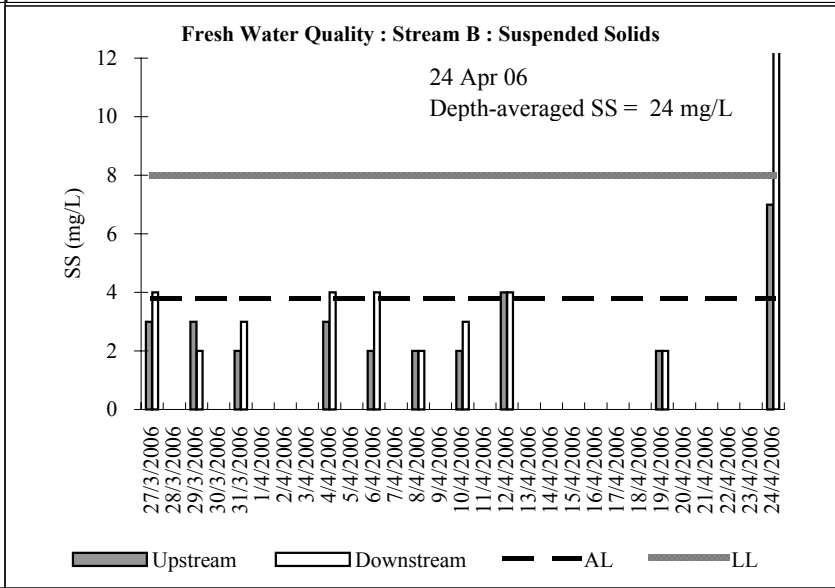
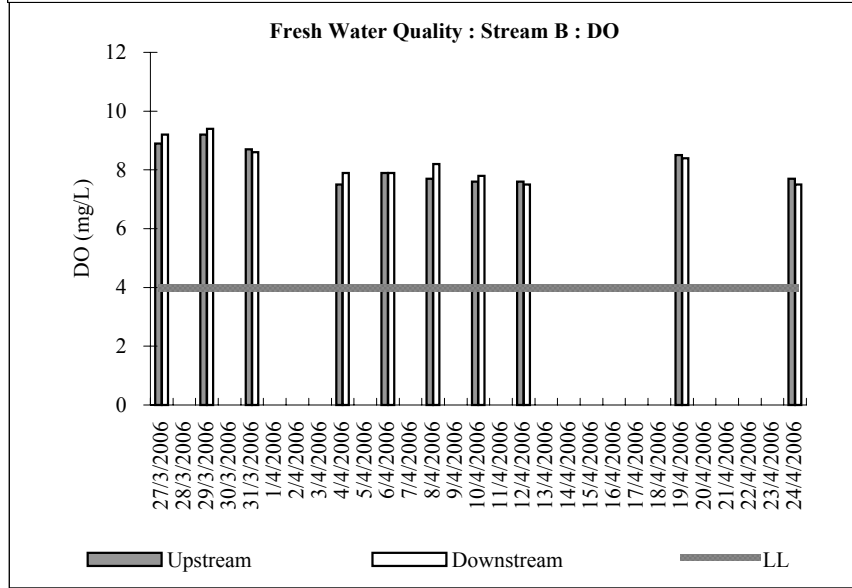
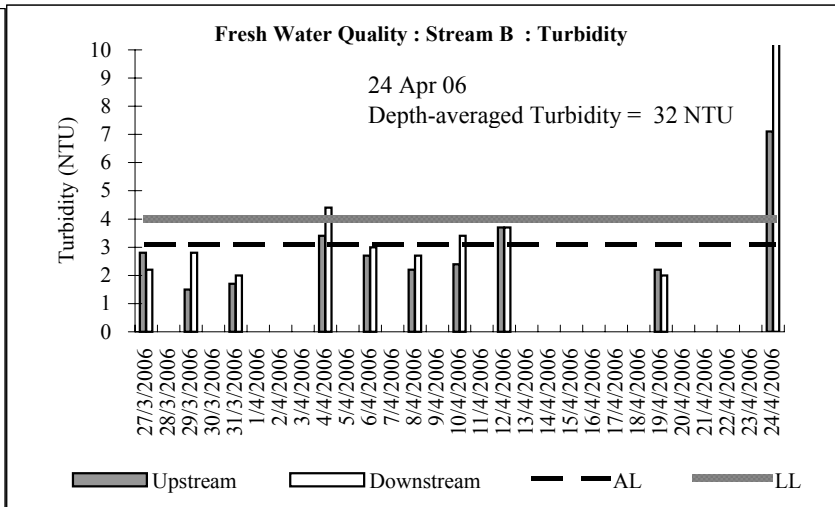
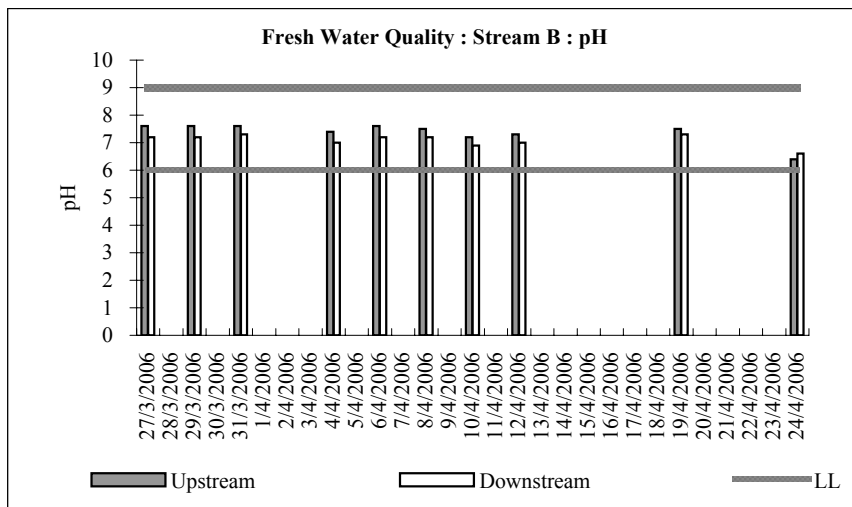


<b>F UB</b>	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	10:40	17.8	<0.1	8.9	7.6	2.8	3.0
29/03/2006	12:10	17.4	<0.1	9.2	7.6	1.5	3.0
31/03/2006	13:10	19.3	<0.1	8.7	7.6	1.7	2.0
04/04/2006	12:10	21.6	<0.1	7.5	7.4	3.4	3.0
06/04/2006	16:40	24.3	<0.1	7.9	7.6	2.7	2.0
08/04/2006	13:40	21.6	<0.1	7.7	7.5	2.2	2.0
10/04/2006	10:40	24.5	<0.1	7.6	7.2	2.4	2.0
12/04/2006	12:40	25.8	<0.1	7.6	7.3	3.7	4.0
19/04/2006	10:00	23.4	<0.1	8.5	7.5	2.2	2.0
24/04/2006	07:45	21.1	<0.1	7.7	6.4	7.1	7.0

<b>F DB</b>	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	10:50	17.7	<0.1	9.2	7.2	2.2	<b>4.0</b>
29/03/2006	12:20	17.5	<0.1	9.4	7.2	2.8	2.0
31/03/2006	13:20	19.5	<0.1	8.6	7.3	2.0	3.0
04/04/2006	12:20	22.6	<0.1	7.9	7.0	<b>4.4</b>	<b>4.0</b>
06/04/2006	16:50	23.2	<0.1	7.9	7.2	3.0	<b>4.0</b>
08/04/2006	13:50	21.3	<0.1	8.2	7.2	2.7	2.0
10/04/2006	10:50	24.9	<0.1	7.8	6.9	<b>3.4</b>	3.0
12/04/2006	12:50	25.9	<0.1	7.5	7.0	<b>3.7</b>	<b>4.0</b>
19/04/2006	10:10	23.9	<0.1	8.4	7.3	2.0	2.0
24/04/2006	07:55	21.9	<0.1	7.5	6.6	<b>32.0</b>	<b>24.0</b>

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey

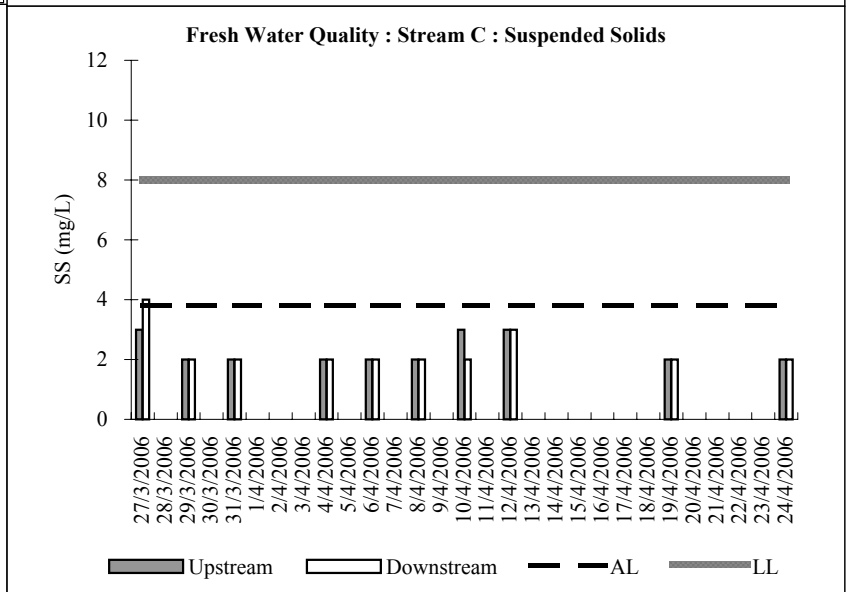
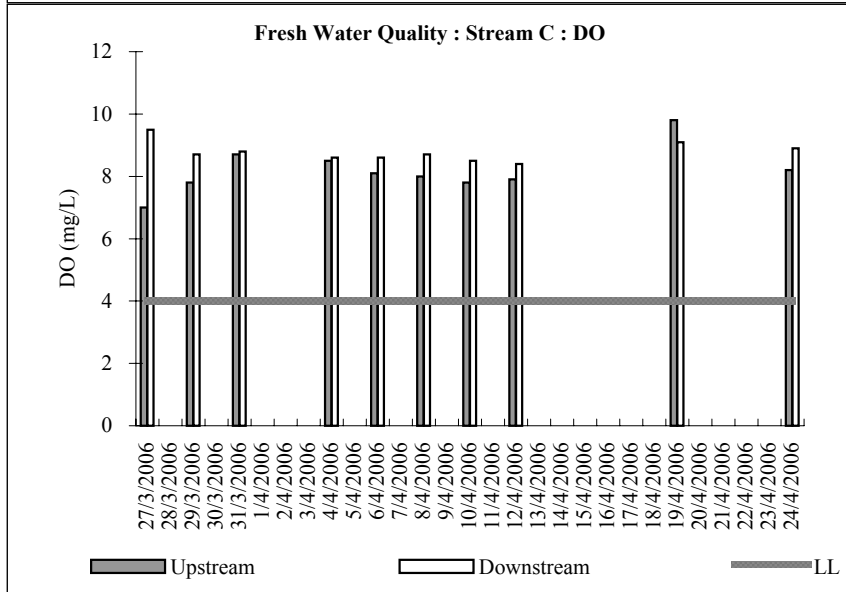
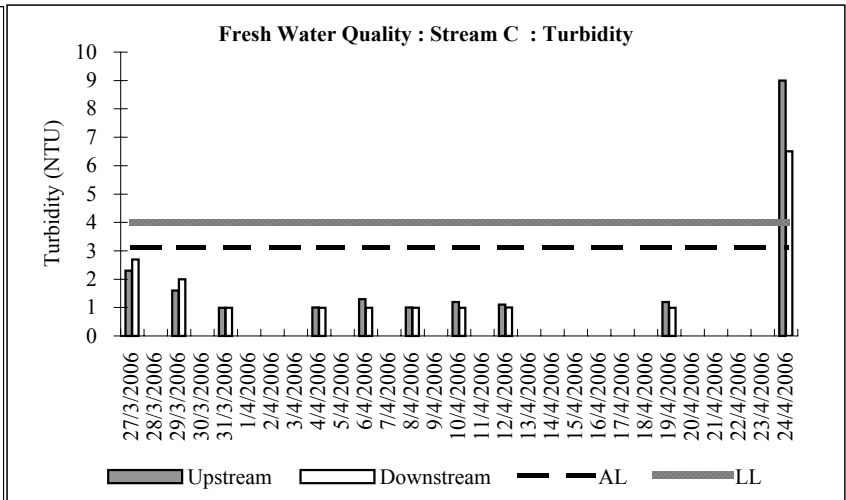
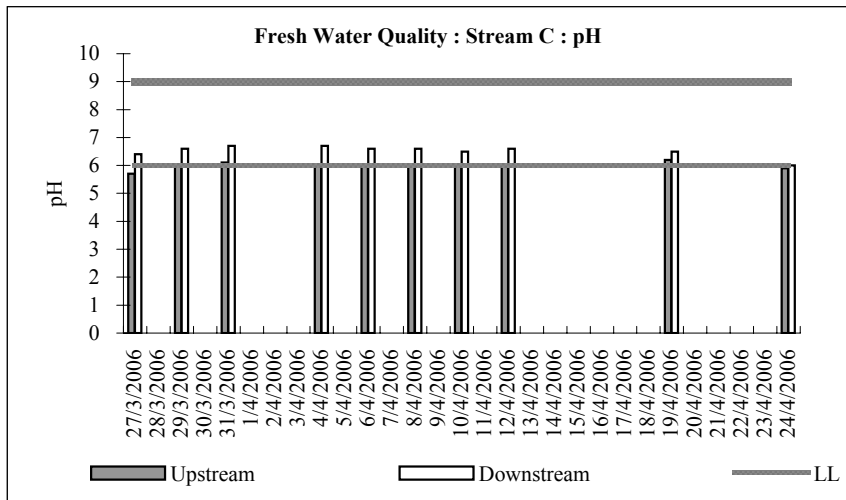


F UC	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	11:45	18.1	<0.1	7.0	5.7	2.3	3.0
29/03/2006	13:15	20.0	<0.1	7.8	6.0	1.6	2.0
31/03/2006	14:15	21.1	<0.1	8.7	6.1	1.0	2.0
04/04/2006	10:22	23.3	<0.1	8.5	6.0	1.0	2.0
06/04/2006	17:45	23.8	<0.1	8.1	6.0	1.3	2.0
08/04/2006	14:45	22.0	<0.1	8.0	6.0	1.0	2.0
10/04/2006	11:45	24.6	<0.1	7.8	6.0	1.2	3.0
12/04/2006	13:45	25.2	<0.1	7.9	6.0	1.1	3.0
19/04/2006	11:05	24.0	<0.1	9.8	6.2	1.2	2.0
24/04/2006	09:55	20.3	<0.1	8.2	5.9	9.0	2.0

F DC	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	11:55	17.6	<0.1	9.5	6.4	2.7	<b>4.0</b>
29/03/2006	13:25	18.9	<0.1	8.7	6.6	2.0	2.0
31/03/2006	14:25	20.5	<0.1	8.8	6.7	1.0	2.0
04/04/2006	10:32	22.7	<0.1	8.6	6.7	1.0	2.0
06/04/2006	17:55	22.9	<0.1	8.6	6.6	1.0	2.0
08/04/2006	14:55	22.4	<0.1	8.7	6.6	1.0	2.0
10/04/2006	11:55	23.6	<0.1	8.5	6.5	1.0	2.0
12/04/2006	13:55	24.1	<0.1	8.4	6.6	1.0	3.0
19/04/2006	11:15	22.8	<0.1	9.1	6.5	1.0	2.0
24/04/2006	10:05	20.8	<0.1	8.9	6.0	<b>6.5</b>	2.0

Remarks:

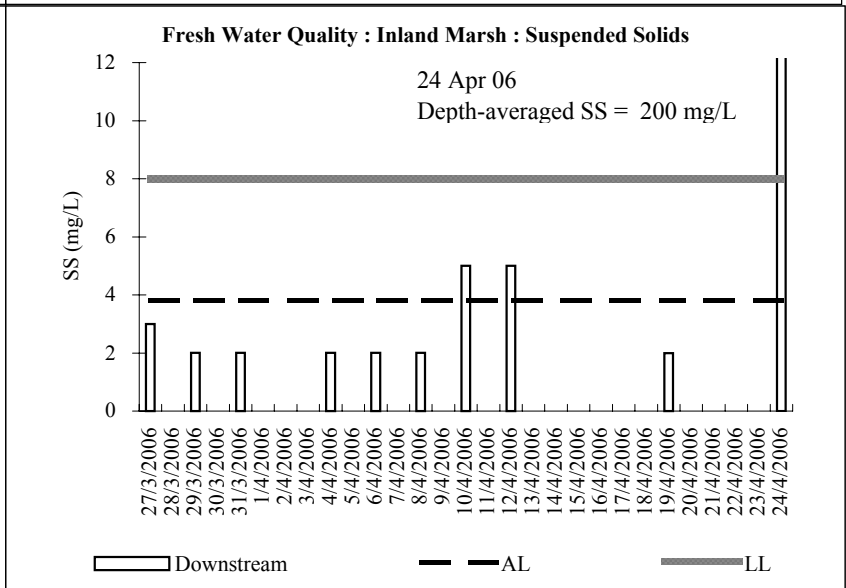
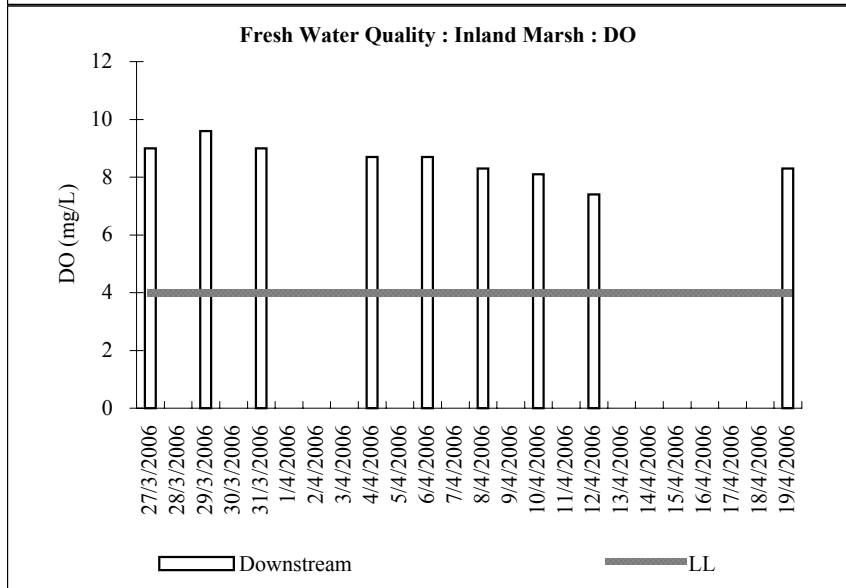
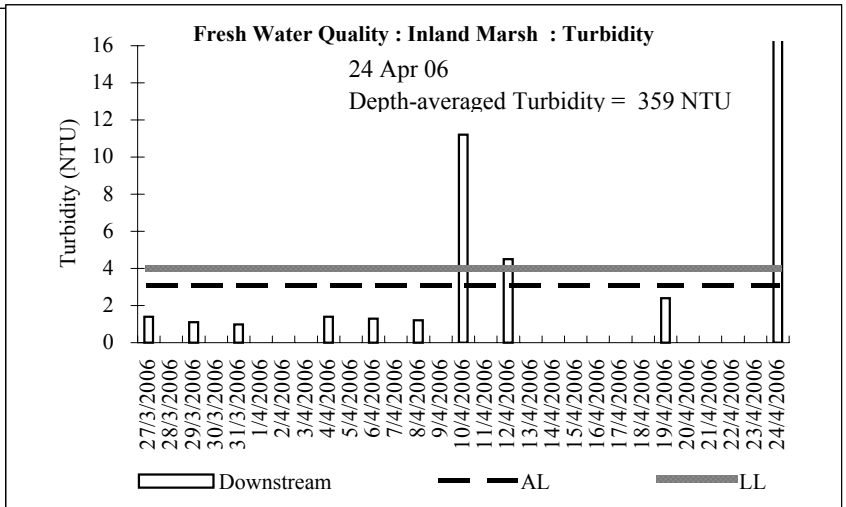
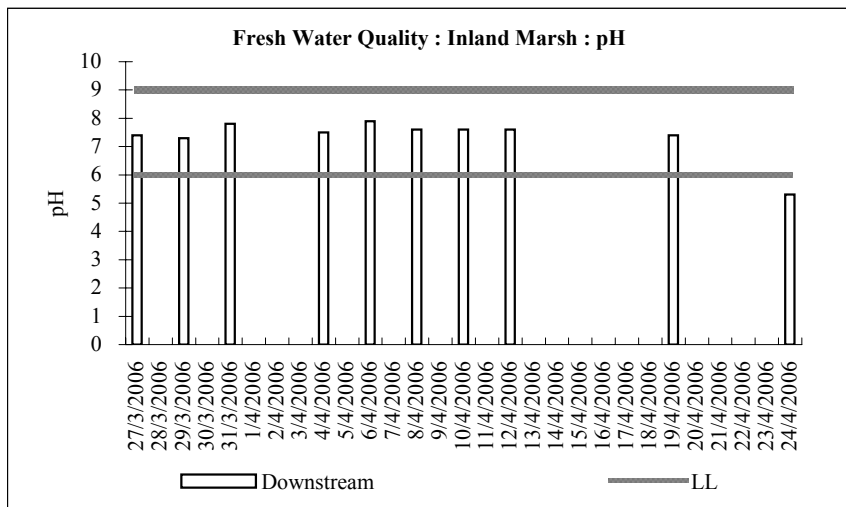
Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey



<b>F Inland M</b>	Mid depth						
Date	time	Temp (°C)	Salinity (ppt)	DO (mg/L)	pH	Turbidity (NTU)	SS (mg/L)
27/03/2006	09:55	18.2	<0.1	9.0	7.4	1.4	3.0
29/03/2006	11:25	17.8	<0.1	9.6	7.3	1.1	2.0
31/03/2006	12:25	19.7	<0.1	9.0	7.8	<del>1.0</del>	2.0
04/04/2006	14:57	23.3	<0.1	8.7	7.5	1.4	2.0
06/04/2006	15:55	22.9	<0.1	8.7	7.9	1.3	2.0
08/04/2006	12:55	21.6	<0.1	8.3	7.6	1.2	2.0
10/04/2006	09:55	23.5	<0.1	8.1	7.6	<b>11.2</b>	<b>5.0</b>
12/04/2006	11:55	25.1	<0.1	7.4	7.6	<b>4.5</b>	<b>5.0</b>
19/04/2006	09:15	21.8	<0.1	8.3	7.4	2.4	2.0
24/04/2006	08:30	20.7	<0.1	<b>3.8</b>	<b>5.3</b>	<b>359.0</b>	<b>200.0</b>

Remarks:

Action level	<b><i>Bold &amp; Italic</i></b>
Limit level	<b>Bold</b>
< detection limit	Grey



# Ecology

# Plate 5.3-1 Photos of Stream Habitat



Stream A



Stream A close-up



Stream B



Stream B close-up



Stream C



Stream C  
close-up



Stream D



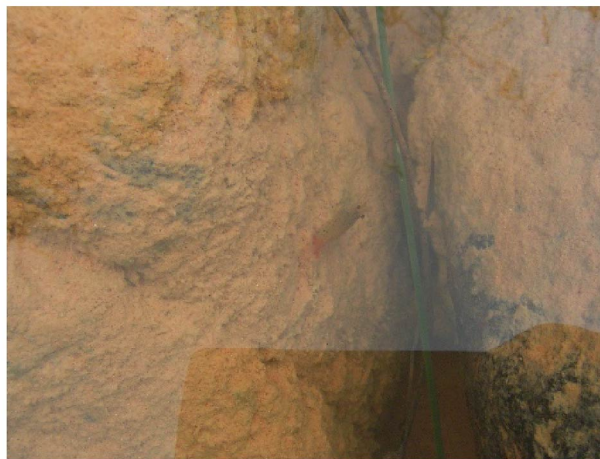
Stream D close-up



Plate 5.3-2 Photos of Aquatic Fauna



*Caridina trifasciata*



*Caridina cantonensis*



Juvenile *Chiromantes haematocheirus*



Freshwater snail *Bortia hainanensis*

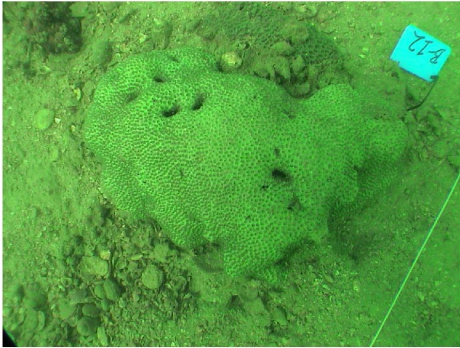
Baseline Survey

Month Four (April 2006)

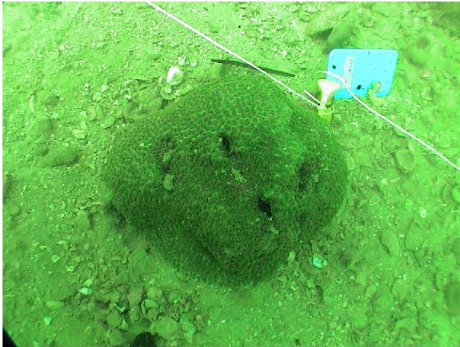
B-11



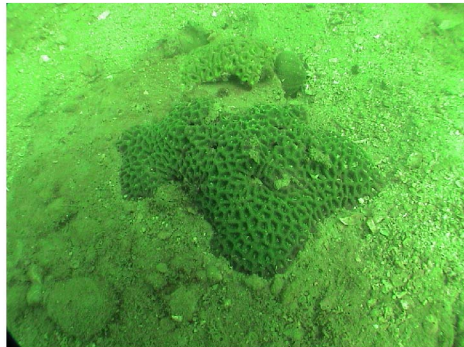
B-12



B-13



B-14



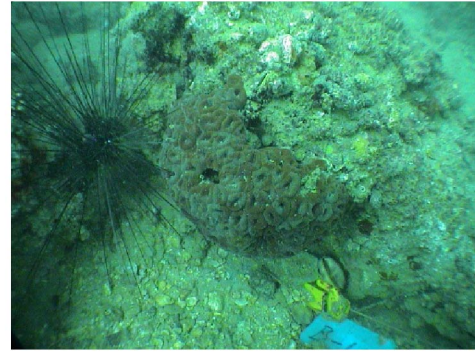
B-15



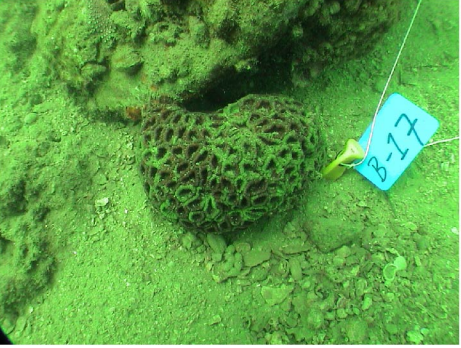
Baseline Survey

Month Four (April 2006)

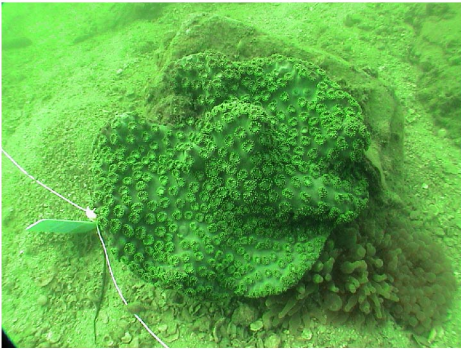
B-16



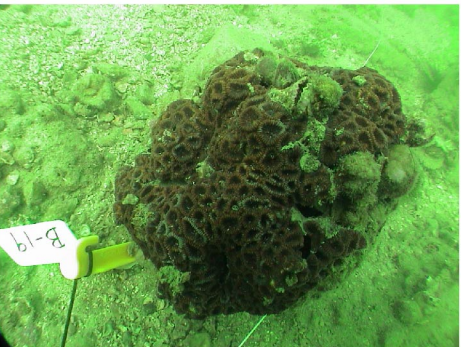
B-17



B-18



B-19



B-20



Baseline conditions of additional tagged corals in April 2006

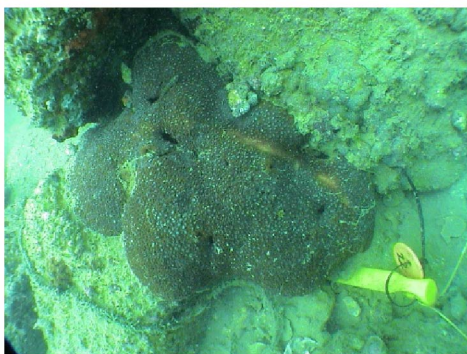
B-21



B-26



B-22



B-27



B-23



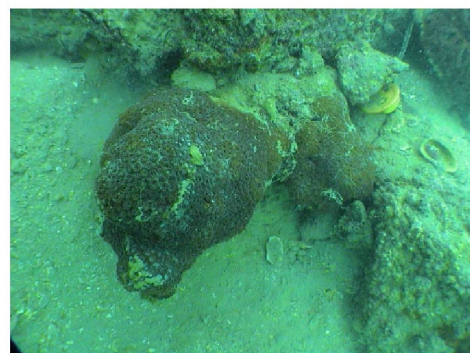
B-28



B-24



B-29



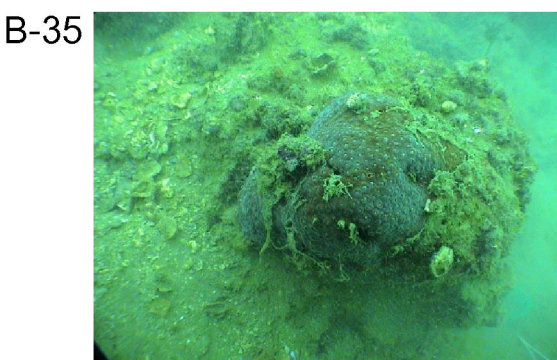
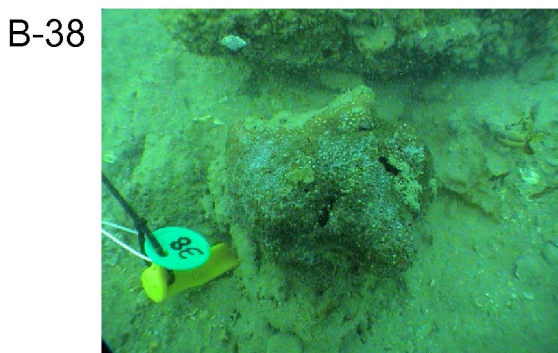
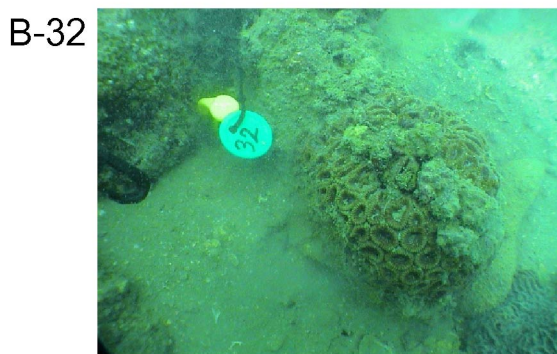
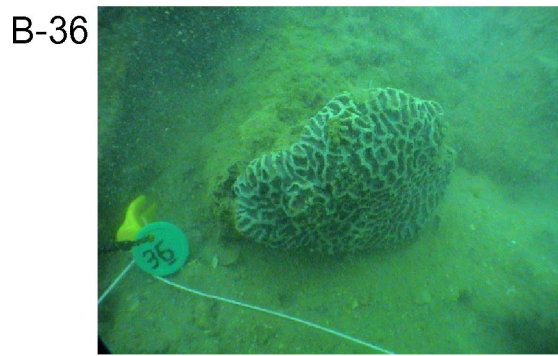
B-25



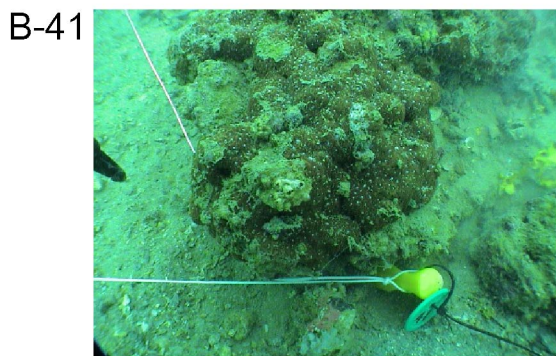
B-30



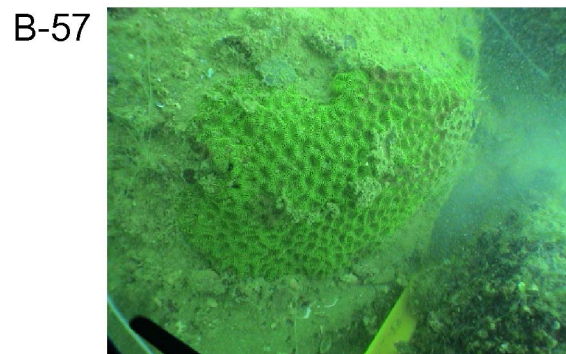
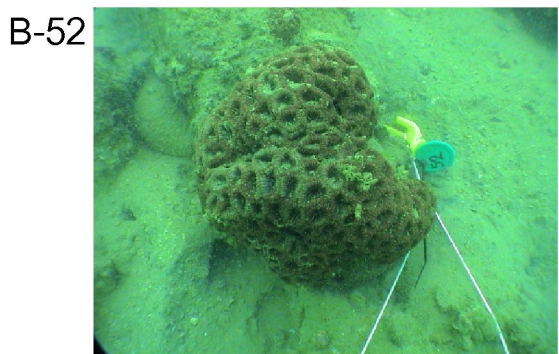
Baseline conditions of additional tagged corals in April 2006



Baseline conditions of additional tagged corals in April 2006



Baseline conditions of additional tagged corals in April 2006



Baseline Survey

Month Four (April 2006)

C-01



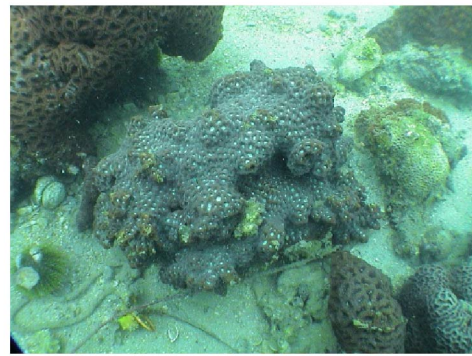
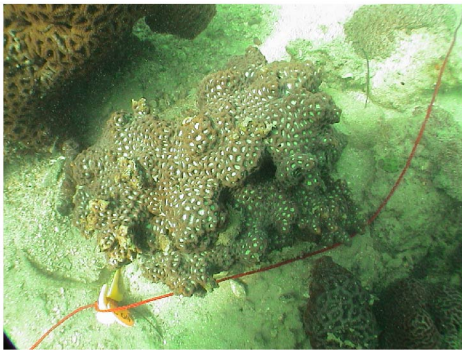
C-02



C-03



C-04



C-05





# Baseline Survey

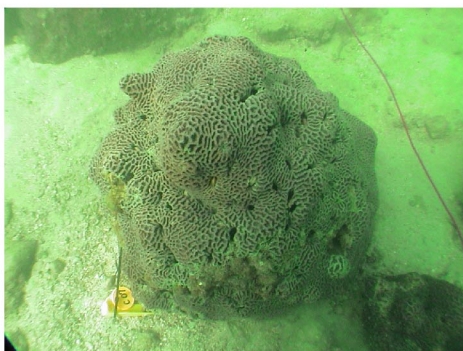
C-06



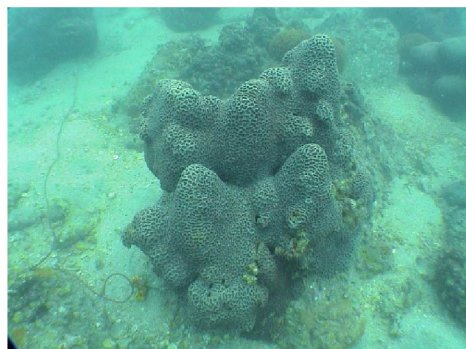
# Month Four (April 2006)



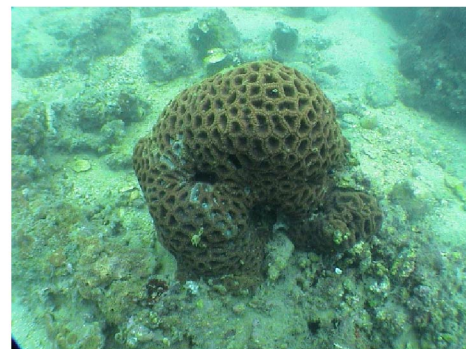
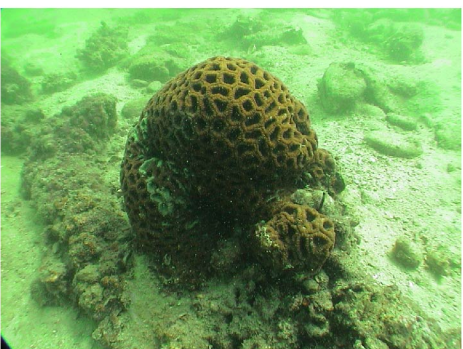
C-07



C-08



C-09



C-10



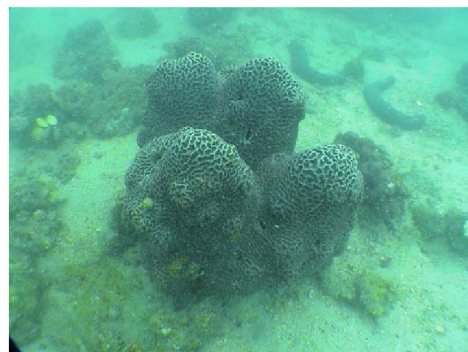
Baseline Survey

Month Four (April 2006)

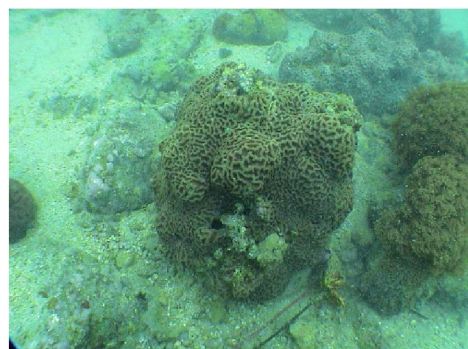
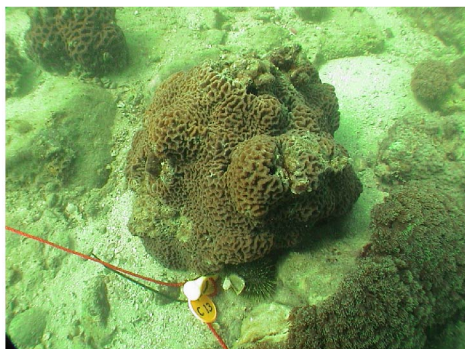
C-11



C-12



C-13



C-14



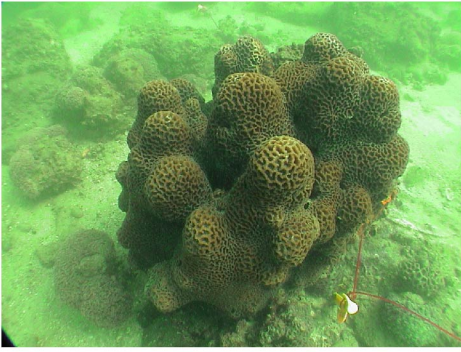
C-15



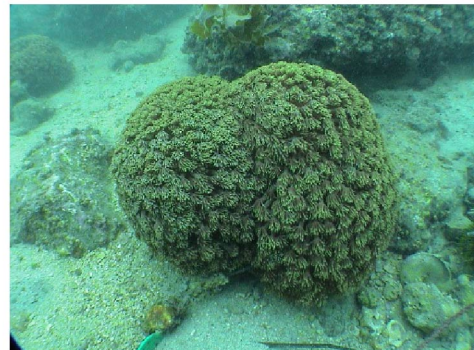
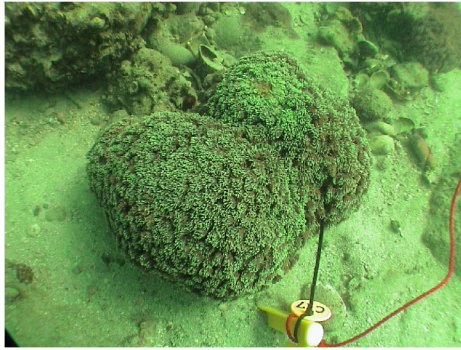
Baseline Survey

Month Four (April 2006)

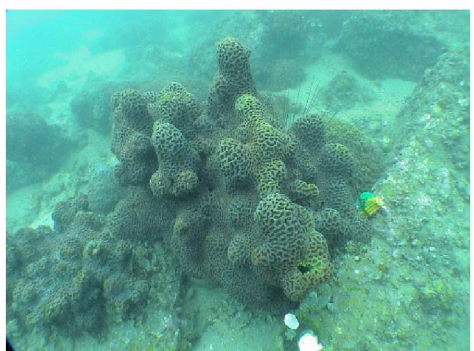
C-16



C-17



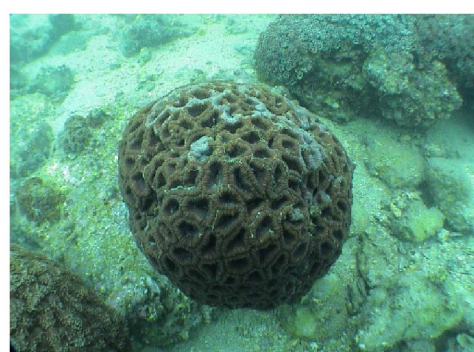
C-18



C-19

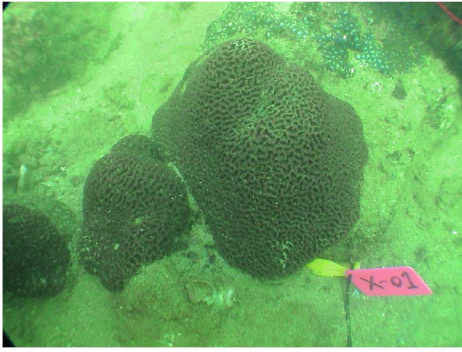


C-20

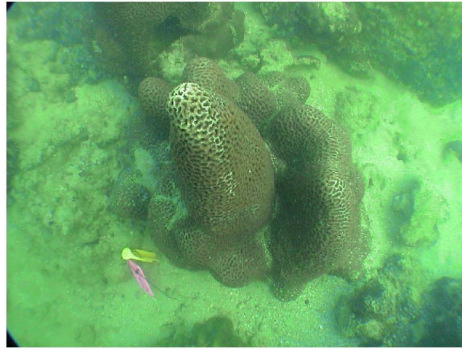


# Baseline Survey

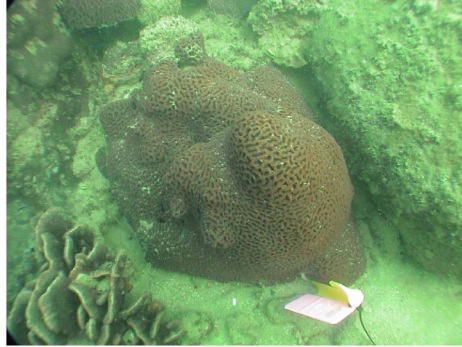
X-01



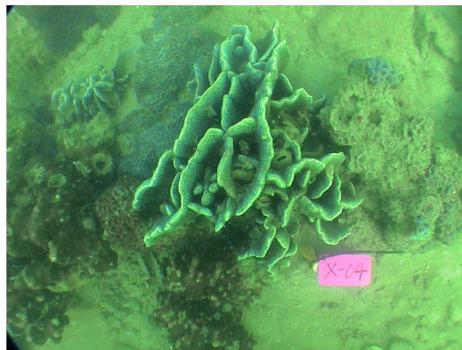
X-02



X-03



X-04



X-05

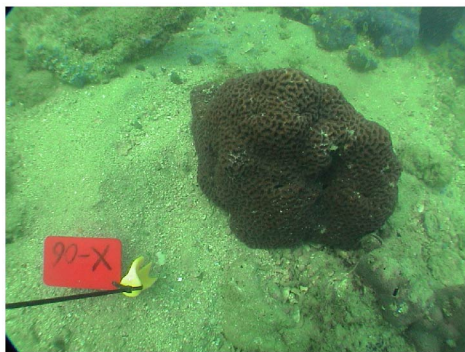


# Month Four (April 2006)

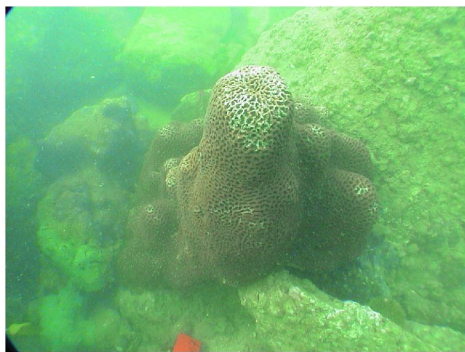


# Baseline Survey

X-06



X-07



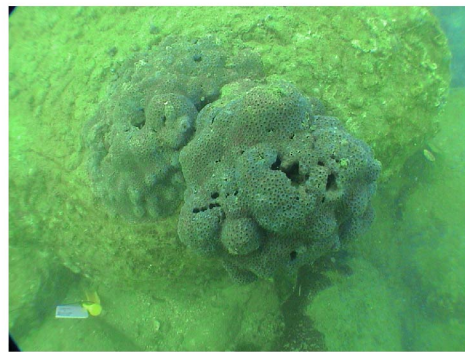
X-08



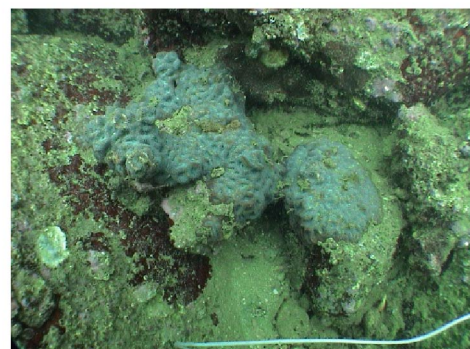
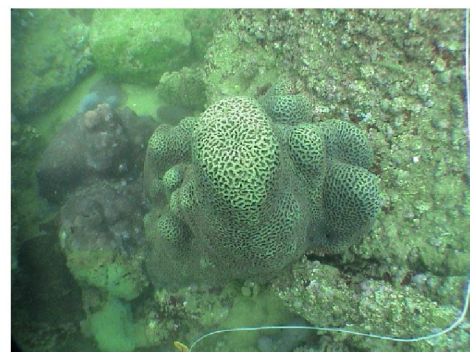
X-09



X-10



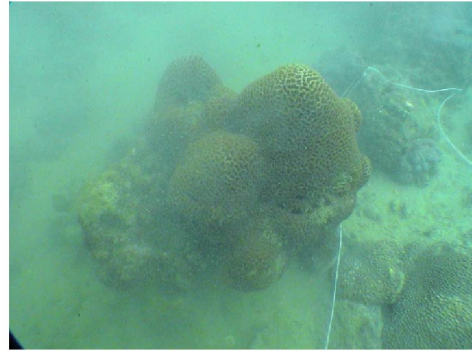
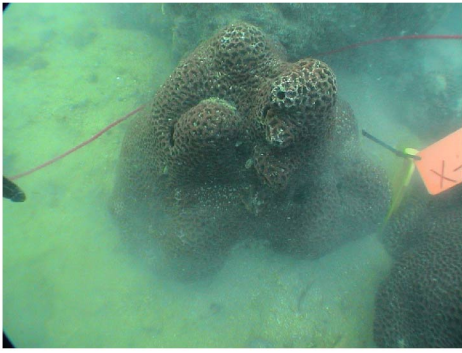
# Month Four (April 2006)



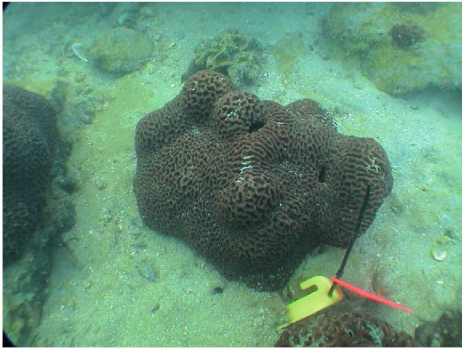
Baseline Survey

Month Four (April 2006)

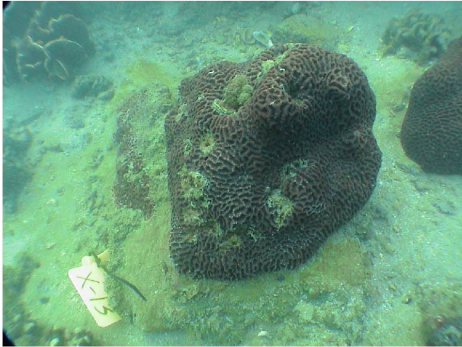
X-11



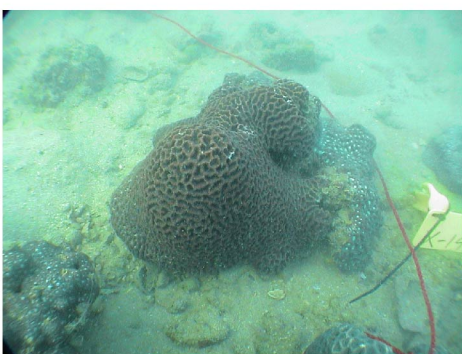
X-12



X-13



X-14

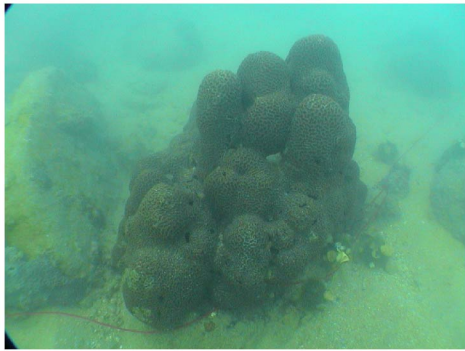


X-15

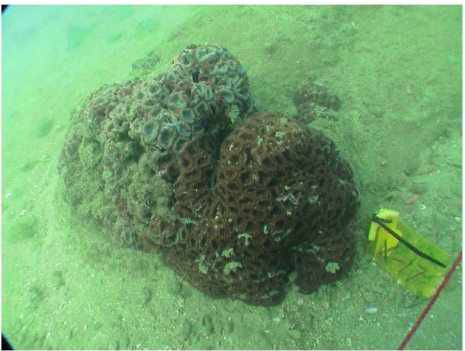


Baseline Survey

X-16



X-17



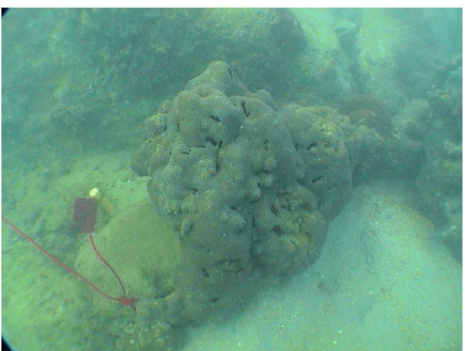
X-18



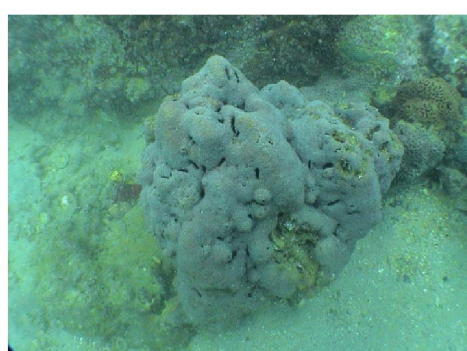
X-19



X-20



Month Four (April 2006)



# **Annex F**

## **Calibration Certificates**



Maunsell

**Maunsell Environmental Management Consultants Ltd.**  
**TSP High Volume Sampler**  
**Field Calibration Report**

Station: KSC Public Golf Course Bungalow A (GCA B1) Operator: Porky Chu  
 Cal. Date: 13-Mar-06 Next Due Date: 13-May-06  
 Equipment No.: A-001-47T Serial No.: B/M200HX

Ambient Condition			
Temperature, Ta (K)	283	Pressure, Pa (mmHg)	765.5

Orifice Transfer Standard Information					
Serial No.	988	Slope, mc	2.00878	Intercept, bc	0.00015
Last Calibration Date:	15-Nov-05	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	15-Nov-06	$Qstd = \{ [DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc \} / mc$			

Calibration of TSP Sampler					
Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m <sup>3</sup> /min) X-axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	13.7	3.81	1.90	53.0	54.58
13	10.3	3.31	1.65	46.0	47.37
10	7.4	2.80	1.39	39.0	40.16
7	5.5	2.42	1.20	34.0	35.02
5	3.0	1.78	0.89	26.0	26.78

By Linear Regression of Y on X  
 Slope, mw = 27.5880 Intercept, bw = 2.0071  
 Correlation Coefficient\* = 0.9995  
 \*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 1.30m<sup>3</sup>/min  
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC =  $(mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$  36.77

Remarks: \_\_\_\_\_

QC Reviewer: Eddie Young Signature: [Signature] Date: 15.3.2006





**ALS Environmental**

**CERTIFICATE OF ANALYSIS**

**CONTACT:** MR WONG SIU HO  
**CLIENT:** ENOVATIVE ENV TECHNOLOGY CO  
**ADDRESS:** RM 3704 SIK MAN HOUSE  
HOMANTIN ESTATE  
KOWLOON  
**ORDER No.:**  
**PROJECT:**

**Batch:** HK49168  
**Sub Batch:** 0  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 25/01/2006  
**DATE OF ISSUE:** 03/02/2006  
**SAMPLE TYPE:** EQUIPMENT  
**No. of SAMPLES:** 1

**COMMENTS**

The calibration procedure used for the analysis has been applied for the calibration of the above instrument.

**NOTES**


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

**ISSUING LABORATORY: HONG KONG**

**Address**

ALS Technichem (HK) Pty Ltd  
11/F  
Chung Shun Knitting Centre  
1-3 Wing Yip Street  
Kwai Chung  
HONG KONG

**Phone:** 852-2610 1044  
**Fax:** 852-2610 2021  
**Email:** hongkong@alsenviro.com

  
\_\_\_\_\_  
Alice W M Wong  
Laboratory Manager - Hong Kong

**Other ALS Environmental Laboratories**

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**AUSTRALIA**

**AMERICAS**

Brisbane            Hong Kong  
Melbourne        Singapore  
Sydney            Kuala Lumpur  
Newcastle        Bogor

Vancouver  
Santiago  
Amtofagasta  
Lima

**Abbreviations:** % SPK REC denotes percentage spike recovery  
CHK denotes duplicate check sample  
LOR denotes limit of reporting  
LCS % REC denotes Laboratory Control Sample percentage recovery



# CERTIFICATE OF ANALYSIS

Batch: HK49168  
 Sub Batch : 0  
 Date of Issue: 03/02/2006  
 Client: ENOVATIVE ENV TECHNOLOGY CO  
 Client Reference:

## Calibration of Turbidimeter

Item : YSI SONDE Environmental Monitoring System  
 Model No. : 6920  
 Serial No. : 000109DF  
 Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B  
 Date of Calibration : 25 January, 2006

### Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.10 NTU
4.00 NTU	3.80 NTU
16.0 NTU	16.0 NTU
80.0 NTU	78.9 NTU
160 NTU	158 NTU
Allowing Deviation	±10%

  
 Alice W M Wong  
 Laboratory Manager - Hong Kong



# CERTIFICATE OF ANALYSIS

Batch: HK49168  
 Sub Batch : 0  
 Date of Issue: 03/02/2006  
 Client: ENOVATIVE ENV TECHNOLOGY CO  
 Client Reference:

## Calibration of Conductivity System

Item : YSI SONDE Environmental Monitoring System  
 Model No. : 6920  
 Serial No. : 000109DF  
 Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2510B  
 Date of Calibration : 25 January,2006

### Testing Results :

Expected Reading	Recording Reading
1412 uS/cm 6667 uS/cm 58670 uS/cm	1400 uS/cm 6596 uS/cm 57890 uS/cm
Allowing Deviation	±10%

  
 Alice W M Wong  
 Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS




Batch: HK49168  
Sub Batch : 0  
Date of Issue: 03/02/2006  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of Salinity System

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2520 A and B  
Date of Calibration : 25 January,2006

### Testing Results :

Expected Reading	Recording Reading
10.0 g/L	10.1 g/L
20.0 g/L	21.0 g/L
30.0 g/L	30.4 g/L
Allowing Deviation	±10%

  
Alice W M Wong  
Laboratory Manager - Hong Kong

# CERTIFICATE OF ANALYSIS




Batch: HK49168  
Sub Batch : 0  
Date of Issue: 03/02/2006  
Client: ENOVATIVE ENV TECHNOLOGY CO  
Client Reference:

## Calibration of Thermometer

Item : YSI SONDE Environmental Monitoring System  
Model No. : 6920  
Serial No. : 000109DF  
Calibration Method : In-house Method  
Date of Calibration : 25 January, 2006

### Testing Results :

Reference Temperature (°C)	Recorded Temperature (°C)
0 °C	0 °C
21.5 °C	21.3 °C
Allowing Deviation	±2.0°C

  
Alice W M Wong  
Laboratory Manager - Hong Kong



# CERTIFICATE OF ANALYSIS


**Batch:** HK49168  
**Sub Batch :** 0  
**Date of Issue:** 03/02/2006  
**Client:** ENOVATIVE ENV TECHNOLOGY CO  
**Client Reference:**

## Calibration of DO System

**Item :** YSI SONDE Environmental Monitoring System  
**Model No. :** 6920  
**Serial No. :** 000109DF  
**Calibration Method :** This meter was calibrated in accordance with standard method APHA (18th Ed.) 4500-OC & G  
**Date of Calibration :** 25 January,2006

### Testing Results :

Expected Reading	Recording Reading
0.00 mg/L	0.10 mg/L
2.70 mg/L	2.90 mg/L
5.20 mg/L	5.00 mg/L
9.00 mg/L	8.80 mg/L
Allowing Deviation	±0.2 mg/L

  
 Alice W M Wong  
 Laboratory Manager - Hong Kong



**Annex G**  
**Monitoring Programme**  
**for the next three months**

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

<b>April 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
23	24	25	26	27	28 AQ	29
30						

<b>May 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
	1	2	3 WQ	4 AQ	5 TE	6
7	8 WQ	9 LV	10 AQ	11	12 TE	13
14	15	16 AQ	17 WQ	18 ME	19 ME	20
21	22 AQ	23 LV	24 WQ	25	26	27 AQ
28	29 WQ	30	31			

<b>Jun 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
				1	2	3 AQ
4	5 WQ LV	6	7	8	9 AQ TE	10
11	12 WQ	13	14	15 AQ	16 TE	17
18	19 WQ LV	20	21 AQ	22 ME	23 ME	24

Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung  
 Monthly EM&A Report

<b>Jun 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
25	26	27	28	29	30	
	WQ	AQ				

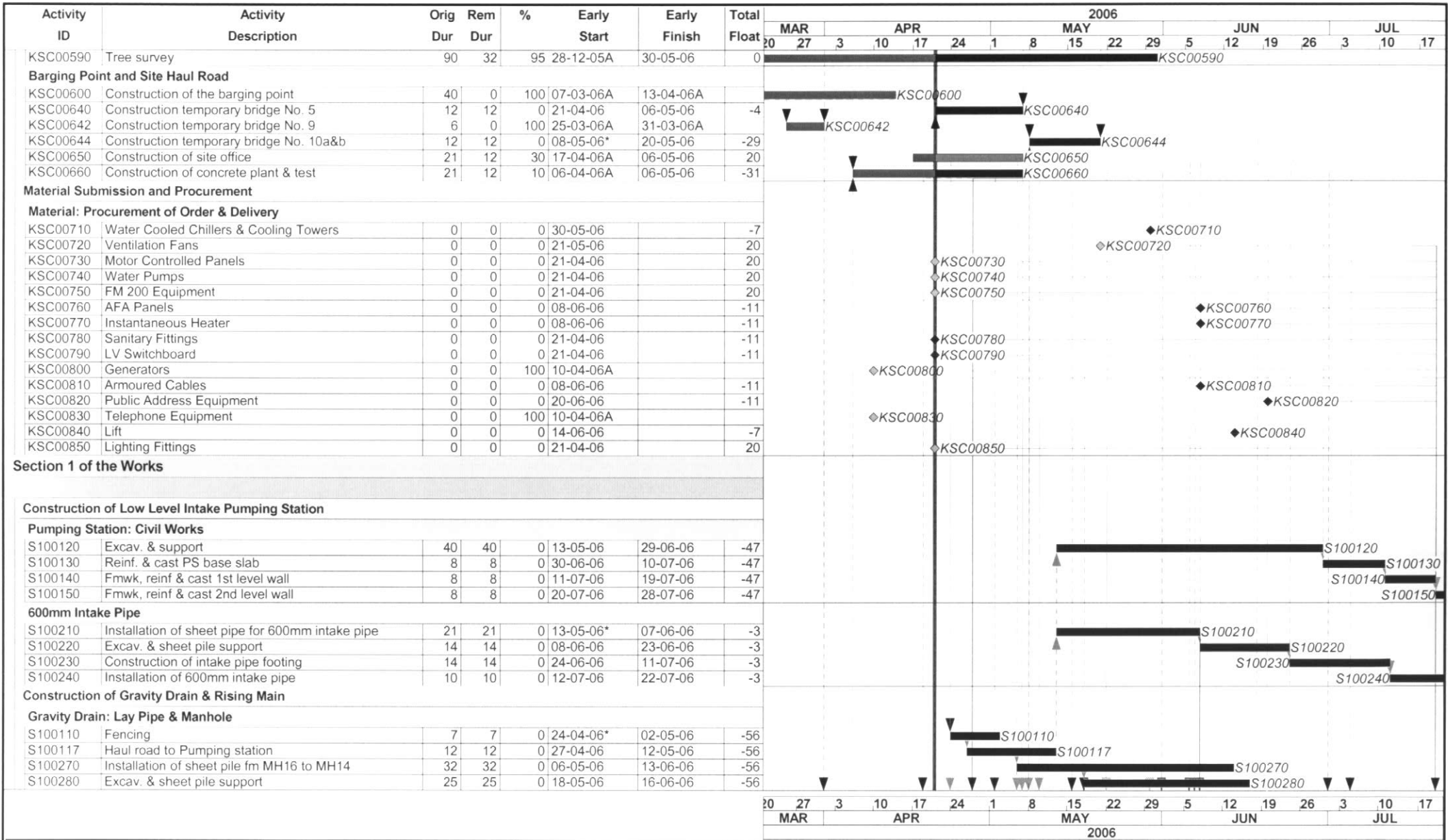
<b>Jul 2006</b>						
<b>Sun</b>	<b>Mon</b>	<b>Tue</b>	<b>Wed</b>	<b>Thu</b>	<b>Fri</b>	<b>Sat</b>
						1
2	3	4	5	6	7	8
	AQ WQ	LV			TE	AQ
9	10	11	12	13	14	15
	WQ				AQ TE	
16	17	18	19	20	21	22
	WQ	ME LV	ME	AQ		
23	24	25	26	27	28	29
	WQ		AQ			
30	31					
	WQ					

Remarks: AQ = TSP, WQ = Freshwater and Marine water quality, TE = Terrestrial Ecology, ME = Marine Ecology, LV = Landscape & Visual.

If no exceedance was found during the three months of coral monitoring (Apr – Jun 2006) at the temporary barging point, the monitoring frequency will be changed on quarterly basis till the end of the construction phase.

# **Annex H**

## **Construction Programme for the next three months**

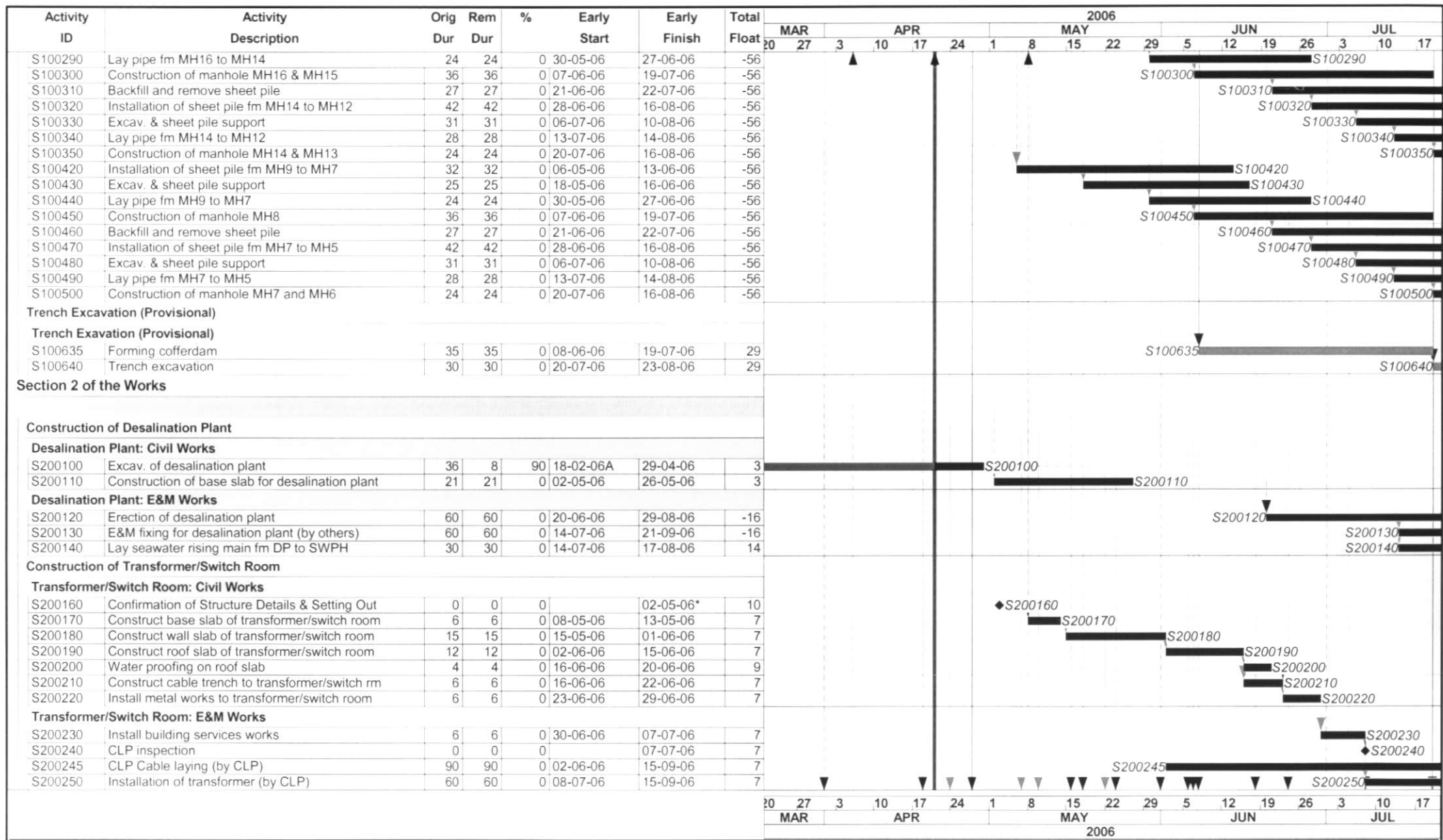


Start Date	28-12-05	Early Bar
Finish Date	07-09-07	Progress Bar
Data Date	21-04-06	Critical Activity
Run Date	02-05-06 16:37	

KS04	Sheet 2 of 10
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**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**

Date	28-12-05	Revision	1st rolling	Checked	Tim	Approved

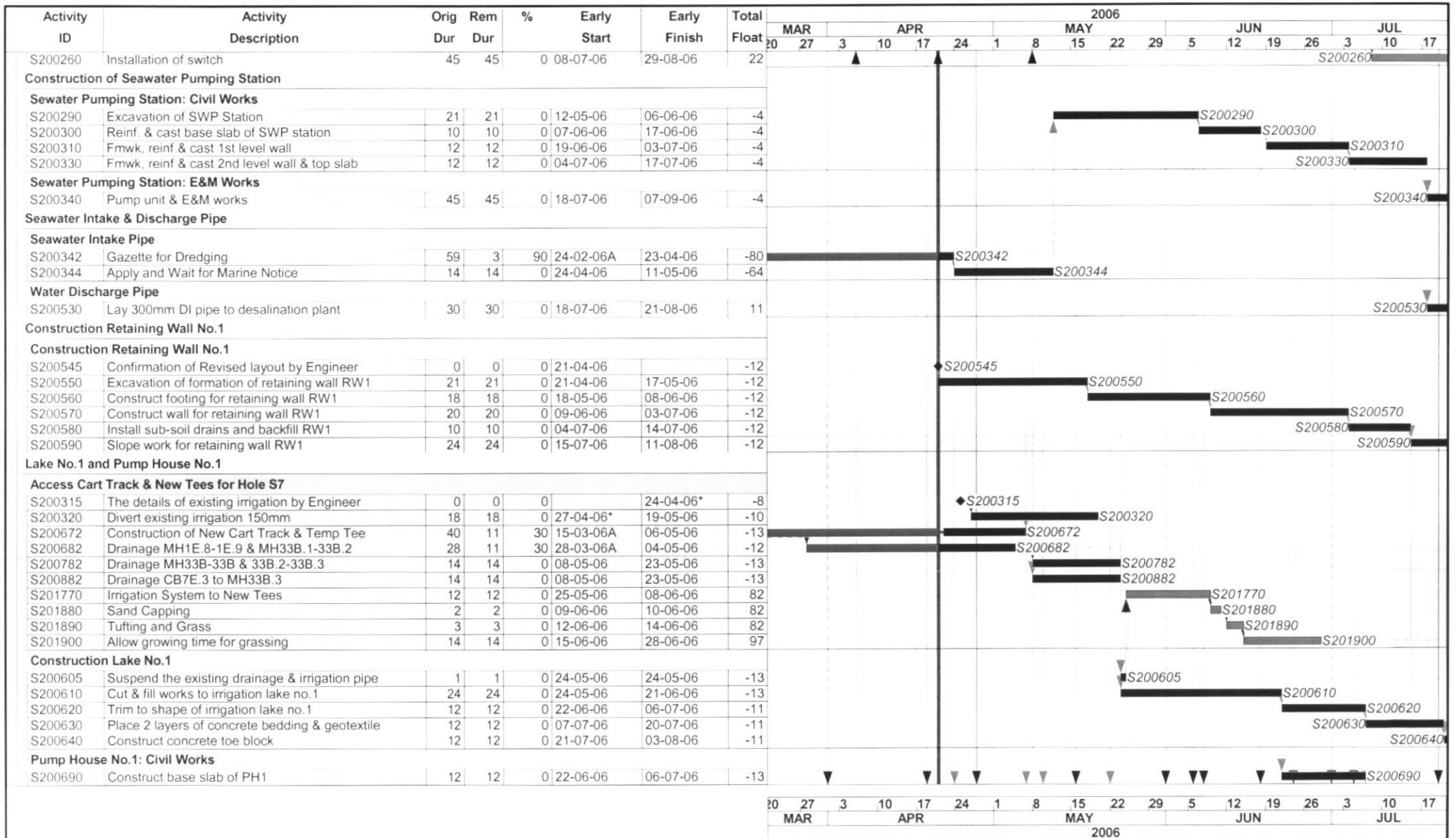


Start Date	28-12-05	█	Early Bar
Finish Date	07-09-07	█	Progress Bar
Data Date	21-04-06	█	Critical Activity
Run Date	02-05-06 16:37		

KS04
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**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**

Date	28-12-05	1st rolling	Revision	Checked Tim	Approved

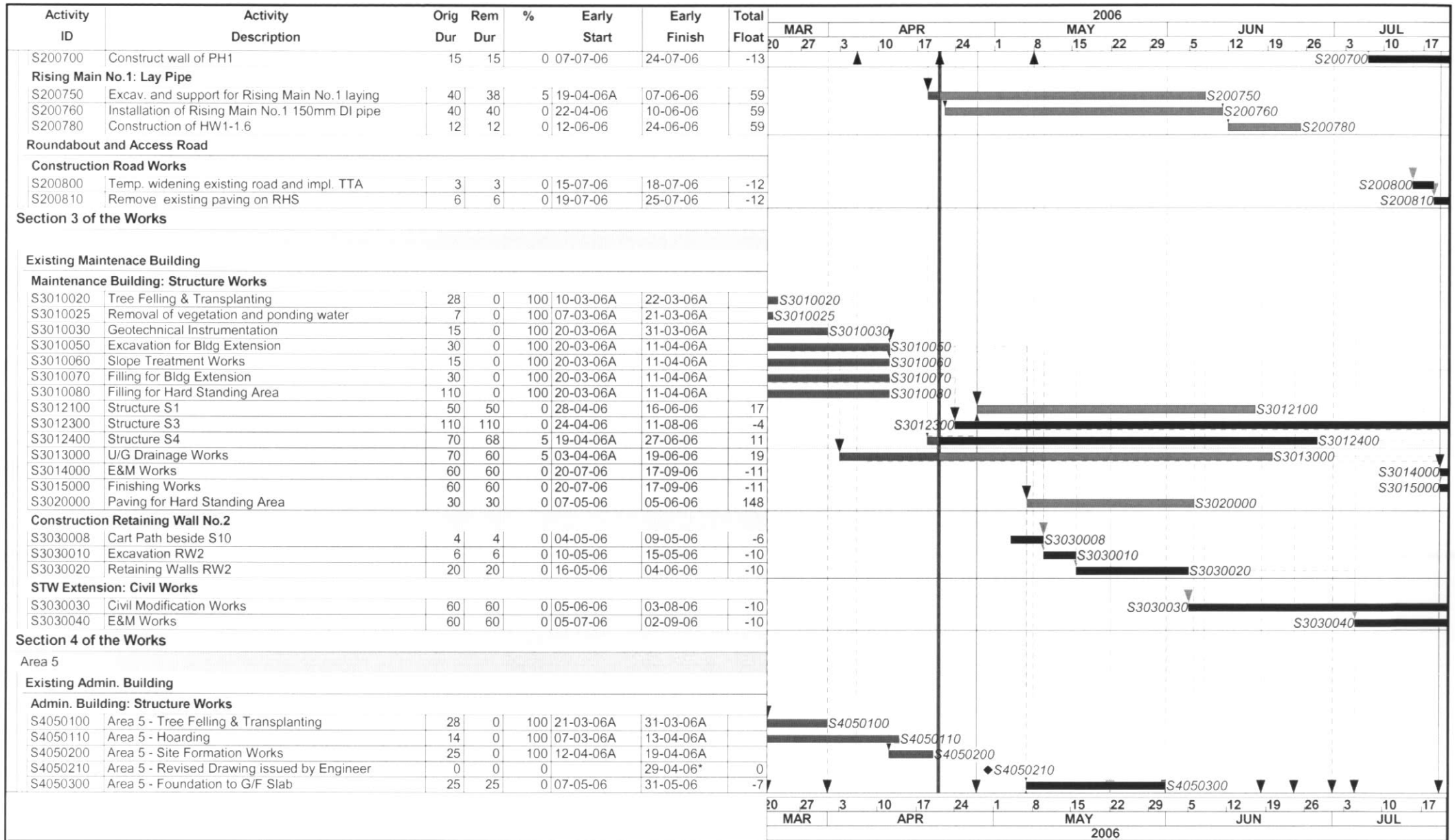


Start Date	28-12-05	Early Bar
Finish Date	07-09-07	Progress Bar
Data Date	21-04-06	Critical Activity
Run Date	02-05-06 16:37	

KS04
Sheet 4 of 10

**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**

Date	Revision	Checked Tim	Approved
28-12-05	1st rolling		



Start Date	28-12-05	Early Bar
Finish Date	07-09-07	Progress Bar
Data Date	21-04-06	Critical Activity
Run Date	02-05-06 16:37	

KS04	Sheet 5 of 10
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**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**

Date	28-12-05	Revision	1st rolling	Checked	Tim	Approved









Activity ID	Activity Description	Orig Dur	Rem Dur	%	Early Start	Early Finish	Total Float	2006											
								MAR 20	MAR 27	MAR 3	APR 10	APR 17	APR 24	MAY 1	MAY 8	MAY 15	MAY 22	MAY 29	JUN 5
<b>Construction of Golf Course Hole No.18</b>																			
<b>Survey and Site Clearance</b>																			
S503445	Site Clearance & UXO at GH18	12	0	100	18-03-06A	31-03-06A		S503445											
<b>GH 18: Cut &amp; Fill Works</b>																			
S503446	Earth/slope works (cut) at GH18	70	60	14	20-03-06A	04-07-06	-23	S503446											
<b>GH 18: Drainage &amp; Duct</b>																			
S503448	Installation of Drainage system at Hole 18	30	30	0	05-07-06	08-08-06	144	S503448											
S503449	Installation of cable duct/pit	30	30	0	05-07-06	08-08-06	144	S503449											
<b>GH 18: Construction of Golf Course</b>																			
S503451	Rough shaping to Hole no. 18	10	10	0	05-07-06	14-07-06	49	S503451											
S503454	Feature construction to Hole no. 18	10	10	0	15-07-06	26-07-06	42	S503454											
Phase 2b																			
<b>Construction of Golf Course Hole No.9</b>																			
<b>GH 09: Cut &amp; Fill Works</b>																			
S502350	Earth/slope works (cut) at GH09	188	155	48	10-03-06A	25-10-06	-19												
<b>Construction of Golf Course Hole No.17</b>																			
<b>GH 17: Cut &amp; Fill Works</b>																			
S503320	Earth/slope works (cut) at GH17	250	212	5	06-03-06A	04-01-07	-28												
Phase 3a																			
<b>Construction of Golf Course Hole No.14</b>																			
<b>Survey and Site Clearance</b>																			
S500746	Site Clearance & UXO at GH14	12	12	0	06-06-06	19-06-06	-29	S500746											
<b>Barging Point and Site Haul Road</b>																			
S500745	Haul Road from GH16 to GH14	12	12	0	06-06-06	19-06-06	-29	S500745											
<b>GH 14: Cut &amp; Fill Works</b>																			
S500750	Earth/slope works (cut) at GH14	199	199	0	20-06-06	17-02-07	-29	S500750											
<b>Construction of Golf Course Hole No.16</b>																			
<b>Survey and Site Clearance</b>																			
S501285	Site Clearance & UXO at GH16	12	12	0	06-06-06	19-06-06	-29	S501285											
<b>Barging Point and Site Haul Road</b>																			
S501185	Haul Road from GH10 to GH16	12	12	0	22-05-06	05-06-06	-29	S501185											
<b>GH 16: Cut &amp; Fill Works</b>																			
S501190	Earth/slope works (cut) at GH16	94	94	0	20-06-06	10-10-06	-29	S501190											
Phase 3b																			
<b>Construction of Golf Course Hole No.13</b>																			
<b>Barging Point and Site Haul Road</b>																			
S500535	Haul Road form GH10 to GH13	14	14	0	22-05-06	07-06-06	75	S500535											

Start Date	28-12-05	Early Bar
Finish Date	07-09-07	Progress Bar
Data Date	21-04-06	Critical Activity
Run Date	02-05-06 16:37	

KS04	Sheet 9 of 10
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**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**




Date	28-12-05	Revision	1st rolling	Checked Tim	Approved

Activity ID	Activity Description	Orig Dur	Rem Dur	%	Early Start	Early Finish	Total Float	2006																	
								MAR			APR			MAY				JUN				JUL			
								20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17
<b>Construction of Golf Course Hole No.12</b>																									
<b>Barging Point and Site Haul Road</b>																									
S500325	Haul Road from GH10 to GH12	14	14	0	08-06-06	23-06-06	79																		
<b>Construction of Golf Course Hole No.11</b>																									
<b>Barging Point and Site Haul Road</b>																									
S500115	Haul Road from GH10 to GH11	14	14	0	24-06-06	11-07-06	123																		
<b>Construction of Golf Course Hole No.15</b>																									
<b>Barging Point and Site Haul Road</b>																									
S500875	Haul Road from GH14 to GH15	14	14	0	20-06-06	06-07-06	187																		

2006																	
MAR			APR			MAY				JUN				JUL			
20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17

Start Date: 28-12-05  
 Finish Date: 07-09-07  
 Data Date: 21-04-06  
 Run Date: 02-05-06 16:37

?Primavera Systems, Inc.

 Early Bar  
 Progress Bar  
 Critical Activity

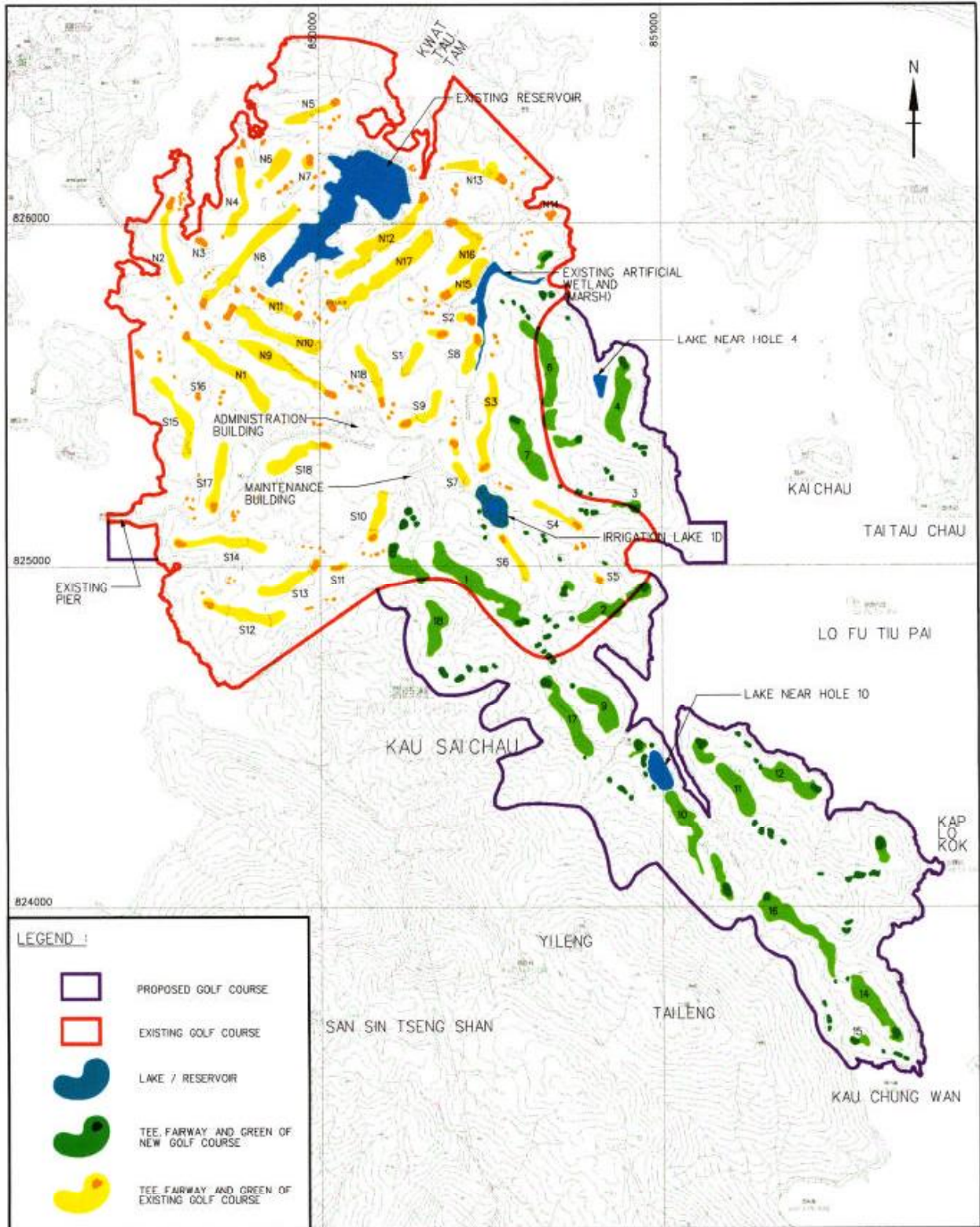
KS04

Sheet 10 of 10

**China Harbour Engineering Company (Group)**  
**The Jockey Club Kau Sai Chau Public Golf Course**  
**3 months rolling programme**

Date	Revision	Checked Tim	Approved
28-12-05	1st rolling		

# FIGURES



**LEGEND :**

-  PROPOSED GOLF COURSE
-  EXISTING GOLF COURSE
-  LAKE / RESERVOIR
-  TEE, FAIRWAY AND GREEN OF NEW GOLF COURSE
-  TEE, FAIRWAY AND GREEN OF EXISTING GOLF COURSE



The Hong Kong Jockey Club

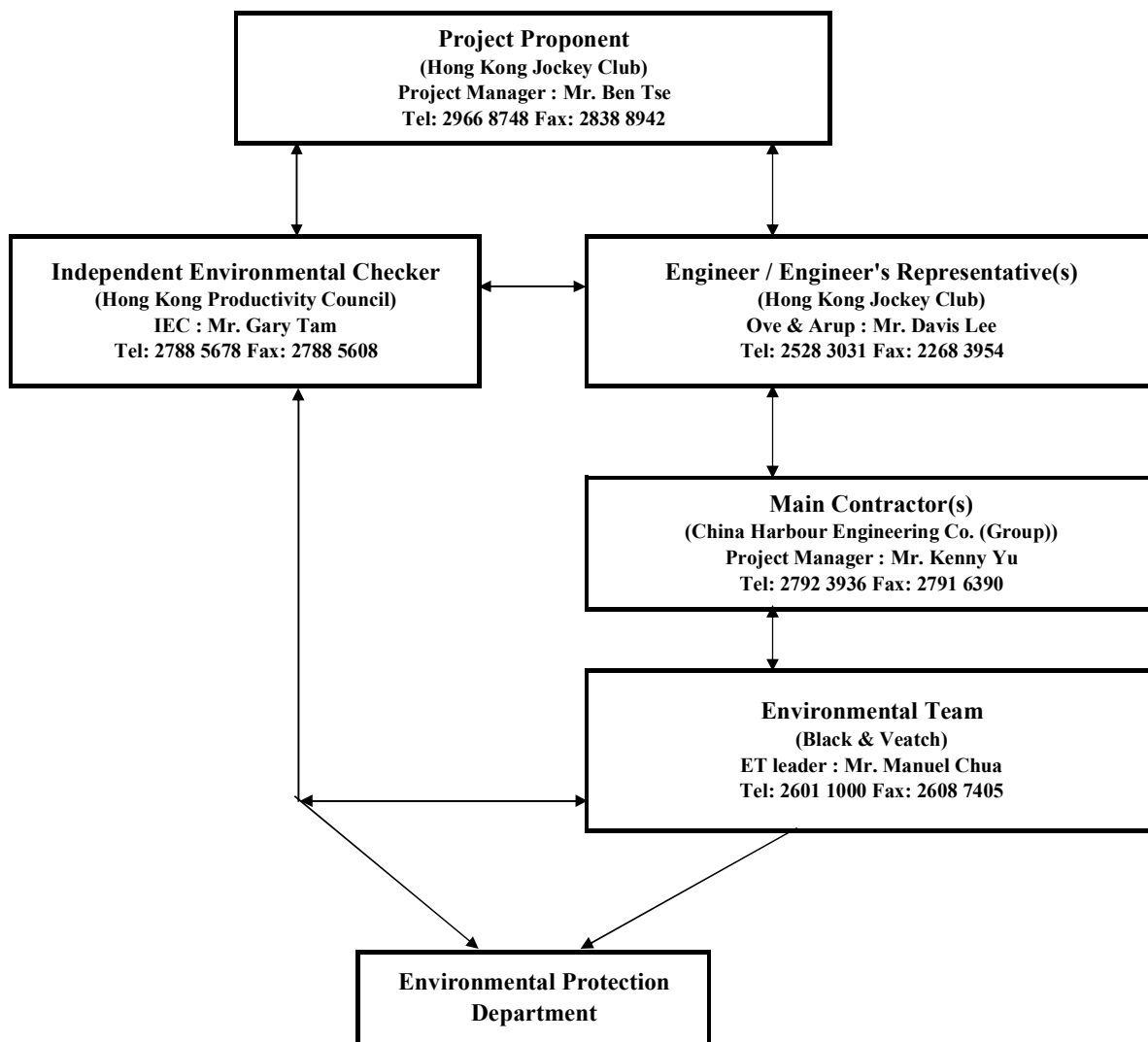
**BLACK & VEATCH HONG KONG LIMITED**  
 博威工程顧問有限公司

PROPOSED EXTENSION OF PUBLIC GOLF COURSE AT KAU SAI CHAU, SAI KUNG

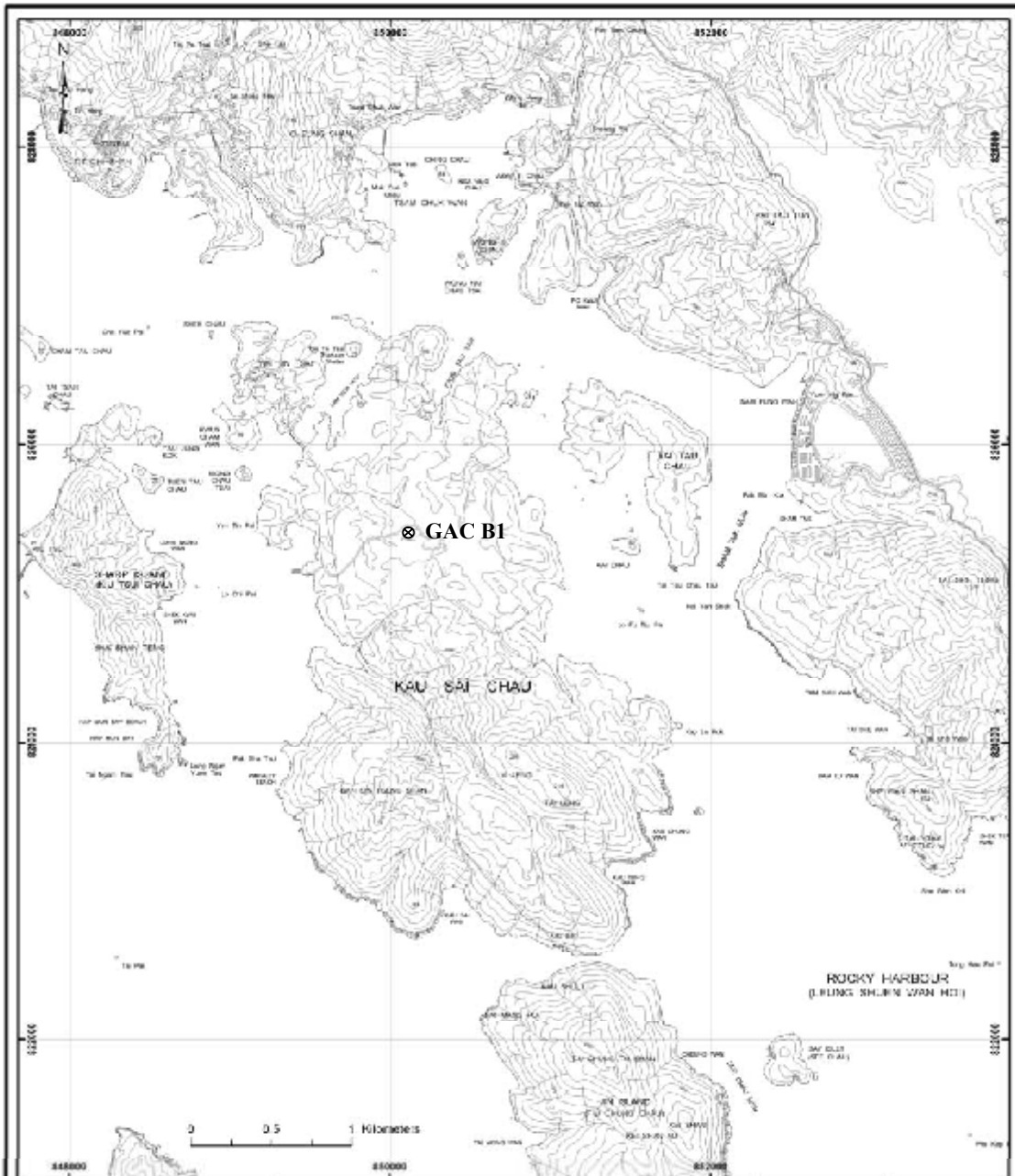
PROPOSED 18-HOLE THIRD GOLF COURSE (MASTER LAYOUT PLAN)

Figure No.	Revision
2.1	-
Reference	File Name
-	3822100201-2.1.DGN
Prepared	Checked
ET	JW
Date	Scale
MAY 2005	1:15000 (A4)

**Figure 1.2**  
**Project Organisation and Lines of Communication**





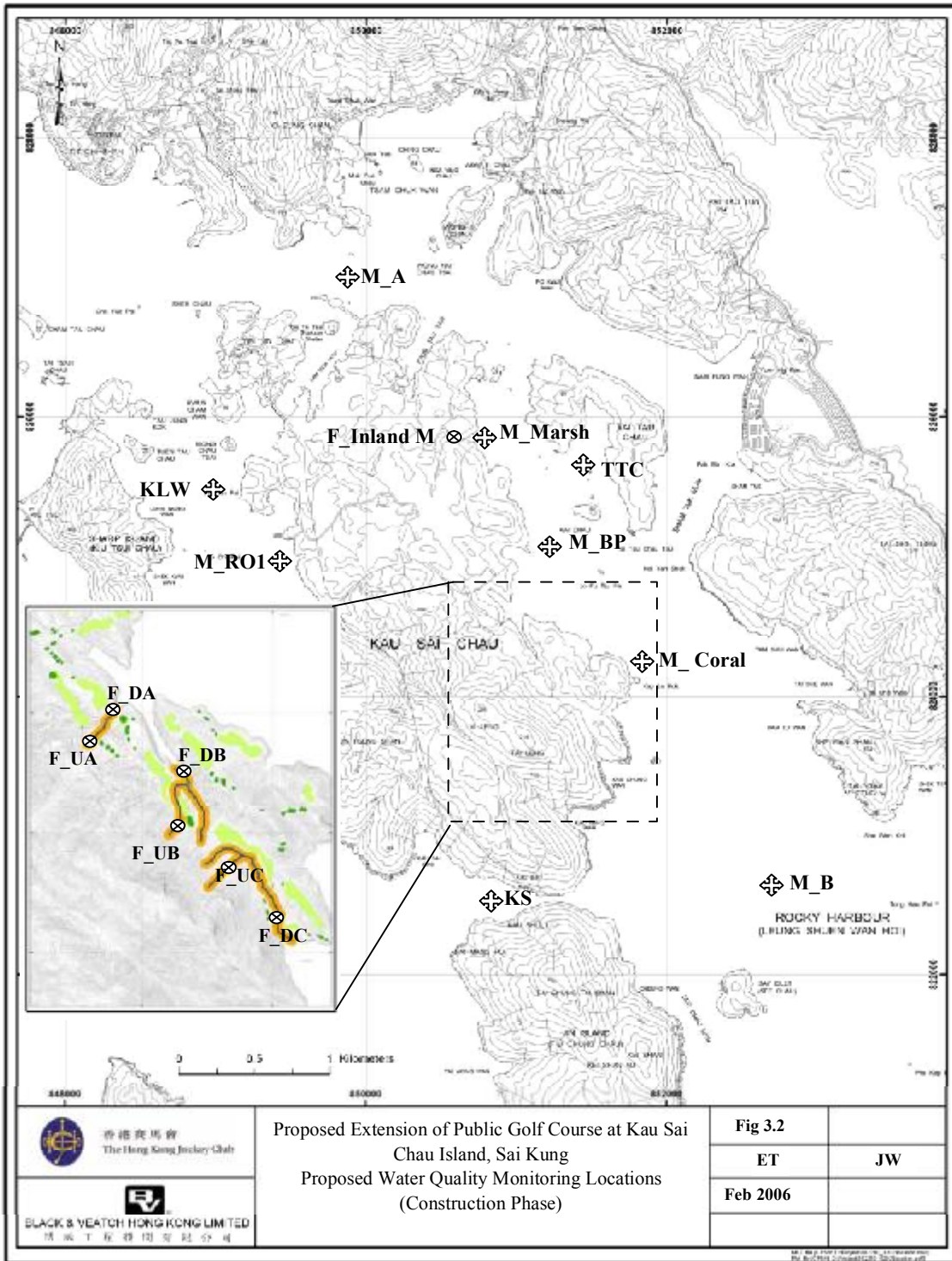



 香港賽馬會  
 The Hong Kong Jockey Club  
  
 BLACK & VEATCH HONG KONG LIMITED  
 黑 威 士 律 師 行 有 限 公 司

Proposed Extension of Public Golf Course at Kau Sai  
 Chau Island, Sai Kung  
 Proposed Air Quality Monitoring Location

<b>Fig 3.1</b>	
<b>ET</b>	<b>JW</b>
<b>Feb 2006</b>	

此圖乃根據香港地政總署提供的地形圖編製而成。  
 The map is based on the topographic map provided by the Government of the Hong Kong.




 香港賽馬會  
 The Hong Kong Jockey Club  
  
 BLACK & VEATCH HONG KONG LIMITED  
 黑 威 士 柏 有 限 公 司

Proposed Extension of Public Golf Course at Kau Sai  
 Chau Island, Sai Kung  
 Proposed Water Quality Monitoring Locations  
 (Construction Phase)

Fig 3.2	
ET	JW
Feb 2006	

1:50,000  
 1:50,000  
 1:50,000



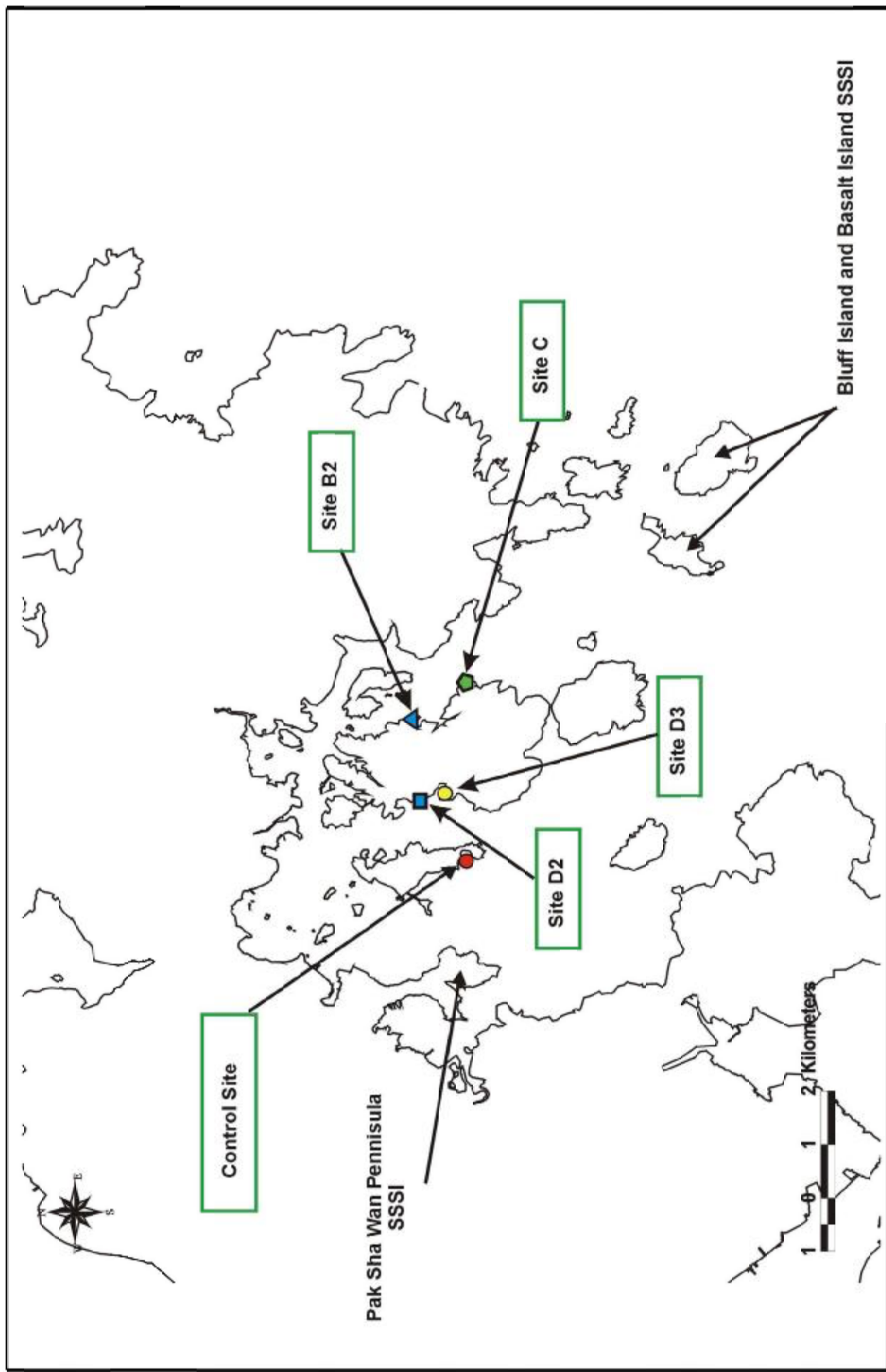


Figure 3.4 Site C, Site B2, Site D2 and a Control Site near the AFCD's Coral Buoy at Sharp Island

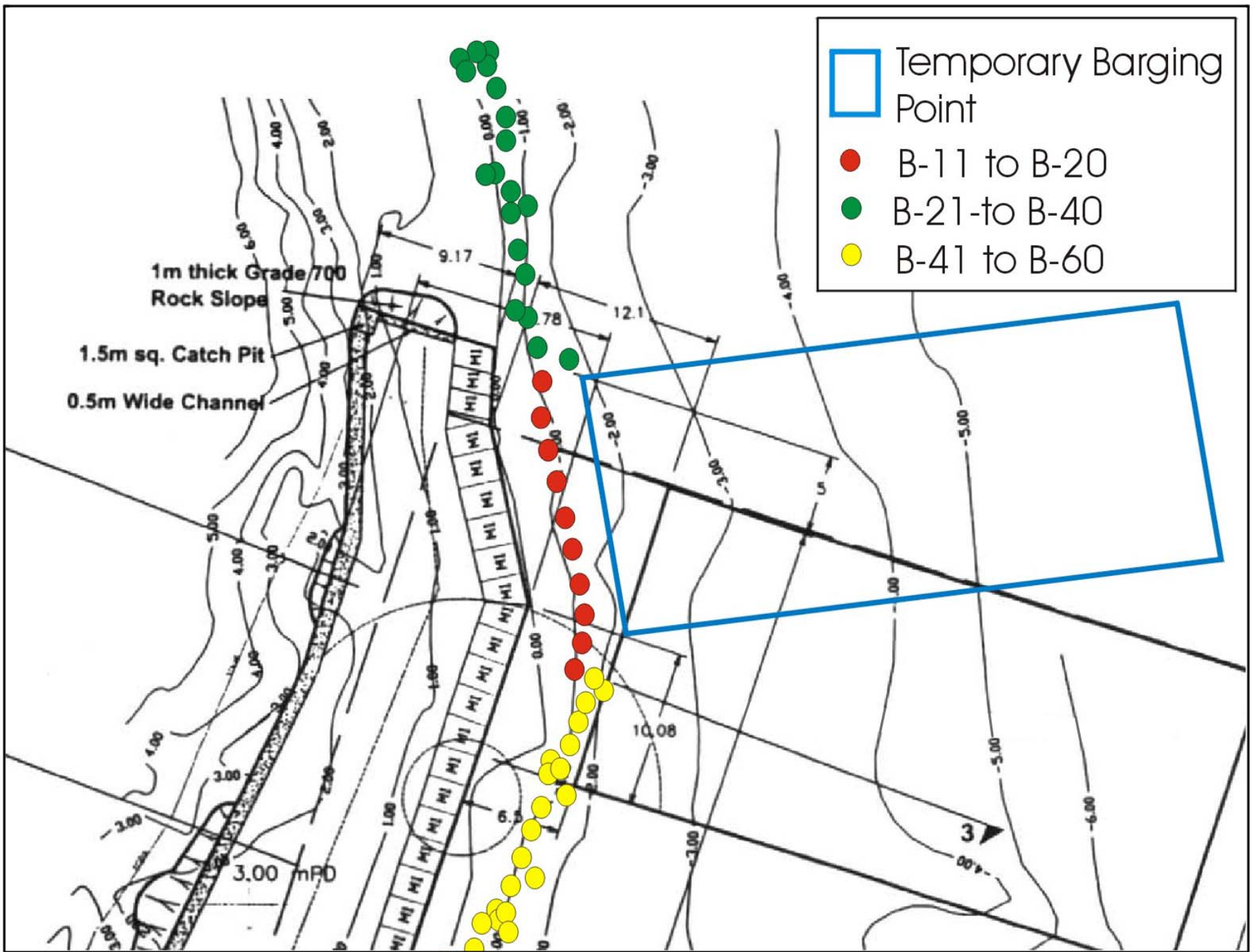
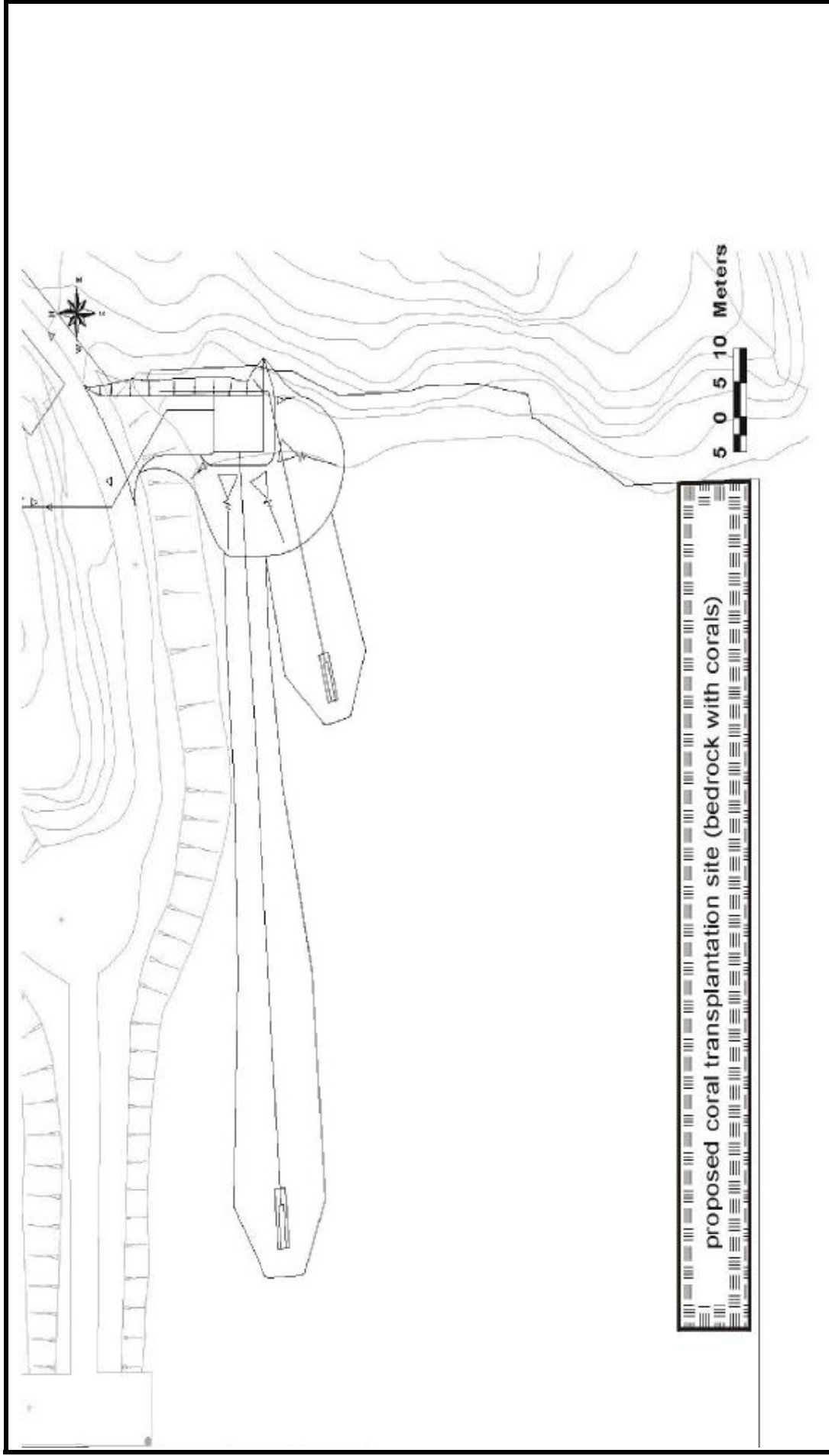


Figure 3.4b  
Indicative map of additional tagged corals at Site B2



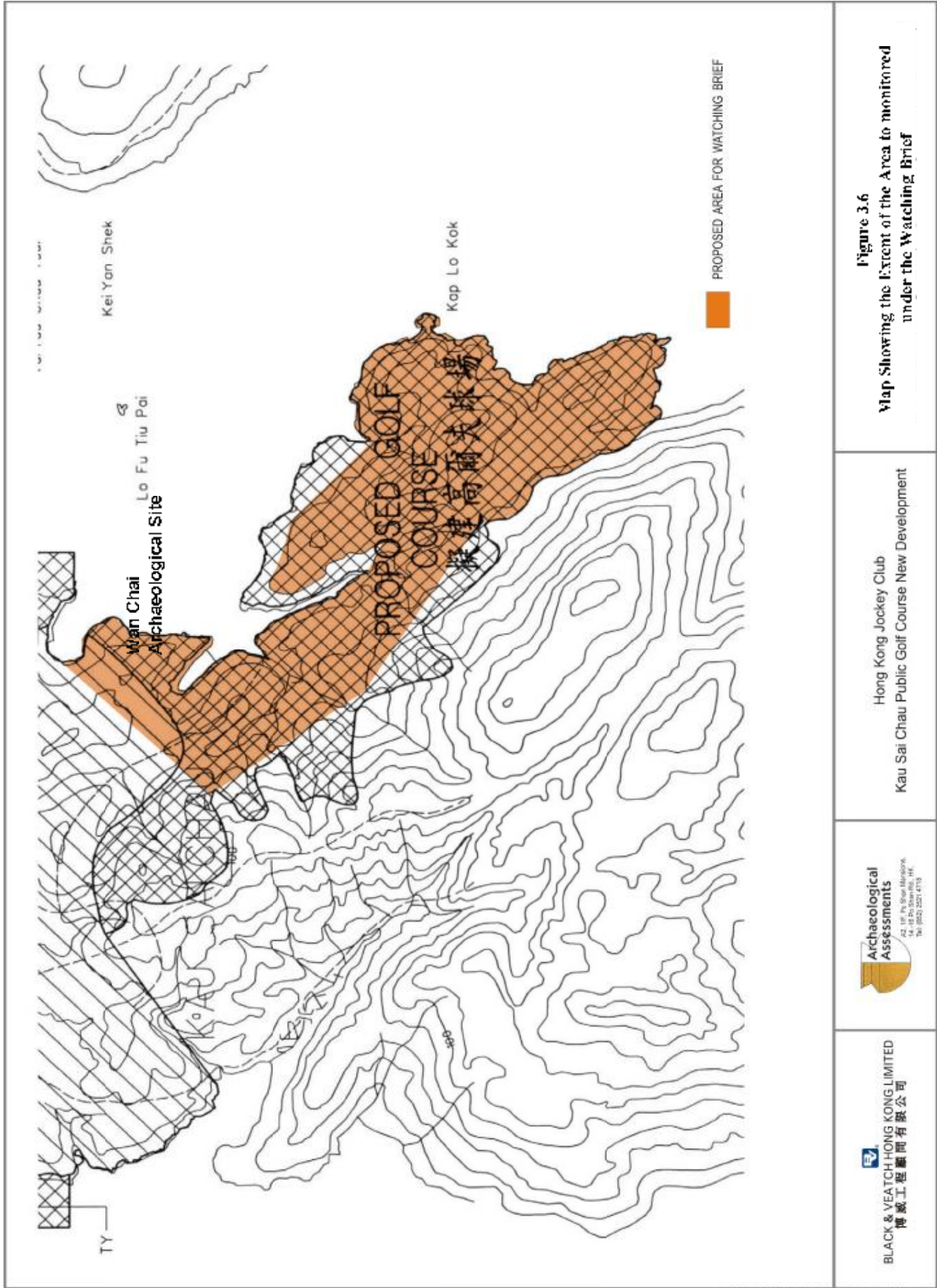
**Fig 3.5**

Prepared	Checked
FT	JW
Date	
	Jun-05

Proposed Extension of Public Golf Course at Kan Sai Chau Island, Sai Kung

Location of proposed coral transplantation site (bedrock with corals)

 香港賽馬會 The Hong Kong Jockey Club	 <b>BLACK &amp; VEATCH HONG KONG LIMITED</b> 博威工程顧問有限公司
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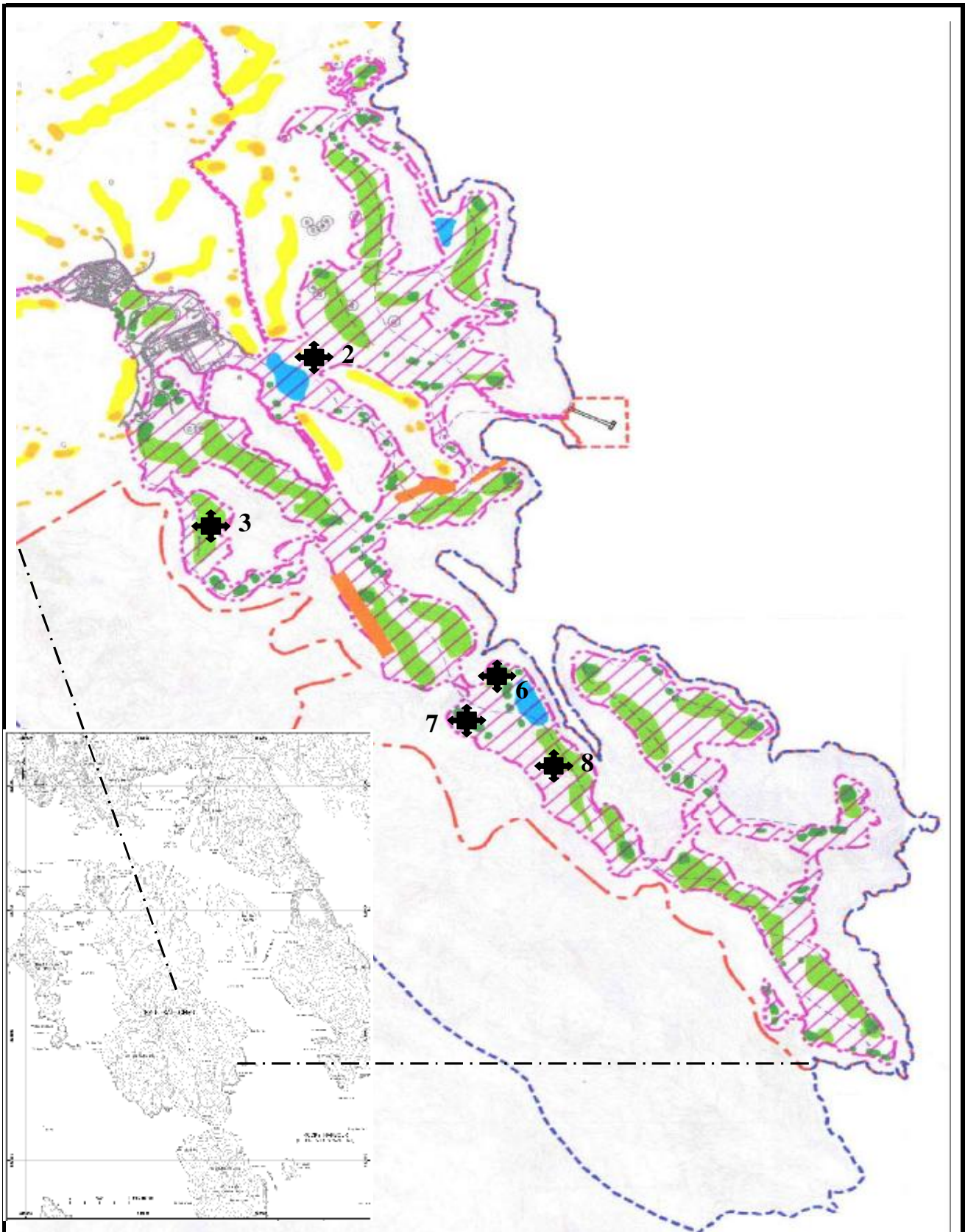


**Figure 3.6**  
**Map Showing the Extent of the Area to be monitored**  
**under the Watching Brief**

Hong Kong Jockey Club  
 Kau Sai Chau Public Golf Course New Development



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 <p>香港賽馬會 The Hong Kong Jockey Club</p>
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Proposed Extension of Public Golf Course at Kau Sai Chau Island, Sai Kung

Sampling location for land contamination

<b>Fig 3.7</b>	
Prepared ET	Checked JW
Date Jun-05	