



Stanger Asia

ENVIRONMENTAL MONITORING AND AUDIT REPORT

FOR

CONTRACT No. CV/2002/13

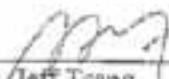
FILL BANK AT TUEN MUN AREA 38

JANUARY 2005

(Revision No. 6)

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EXECUTIVE SUMMARY.

This is the 19th monthly Environmental Monitoring and Audit (EM&A) report for Contract No. CV/2002/13 – Fill Bank at Tuen Mun Area 38. The site has been in operation as a public filling area as part of the reclamation. The site is 24 hours operated except during the Chinese New Year holidays to provide a stable outlet for public fill to serve the construction industry. This report covers the monitoring works conducted during the month of January 2005.

Construction Activities for the Reported Period.

- Public fill operation.
- Operation of tipping hall.
- Installation of CCTV system.
- Construction of drainage system.
- Construction of tipping hall at barge handling area.

Air Quality Monitoring.

Two stations (A1 and A2) have been identified as the locations for the monitoring of 24-hour and 1-hour Total Suspended Particulates (TSP). In this reporting period, the monitoring of 24-hour TSP was carried out on five occasions at A1 and A2. Monitoring of 1-hour TSP was carried out on fifteen occasions at A1 and A2. There was no exceedance to the set action or limit levels for both parameters at both stations.

Water Quality Monitoring.

Water quality in terms of turbidity, dissolved oxygen, suspended solids, temperature, and salinity, was carried out on twelve occasions during flood tide and eleven occasion during ebb tide at FM1, FM2, FC1 and FC2 in this reporting period. There was no exceedance to the set action or limit level for all parameters at all stations.

Landscape Audit.

There was no specific observation regarding landscape in this reporting period.

Waste Management.

122,769m³ public fill was collected to the Fill Bank from land. 13.05t C&D waste and general refuse were disposed of at WENT Landfill. 0.6t of chemical waste stored on site was collected by licensed contractor in this reporting period.

Complaints and Notifications of Summonses and Successful Prosecutions.

No complaints or notification of summonses was received in this reporting period.

Site Inspections.

Four weekly site inspections were conducted on 6th, 13th, 20th and 27th January 2005. Major observations are summarised in the following table.

Observations	Actions by Contractor	Outcome
Drainage system was filled with deposits. (06, 13.01.2005)	Cleaned up the deposits regularly.	Situation improved. (20.01.2005)
Waste chemical drums were found on bare ground inside the chemical waste storage area. (13.01.2005)	Placed all waste drums in chemical waste storage area in drip trays.	The waste drums were placed in drip trays. (20.01.2005)
Soiling at public access near site egress. (27.01.2005)	To clean up the wheel washing bay and carry out road sweeping more frequently.	To be observed in next reporting period.

An Independent Environmental Checker (IEC) audit was conducted on 20th January 2005 with the Environmental Team. Major observations are summarized in the following table.

Observations	Actions by Contractor	Outcome
A few trucks were travelling on the haul road along the eastern boundary which was not dampened sufficiently.	Ensured the trucks travel away from the eastern boundary and covered this area with regular watering.	The haul road was dampened regularly and measures were taken to ensure trucks travel away from that haul road. (27.01.2005)
Dust was observed on public roads around the site entrance.	To change the water for wheel washing and carry out road sweeping more frequently.	To be observed in next reporting period.
The wheel washing bay next to the automatic wheel washing facilities was filled with deposits.	To clean up the deposits and increase the frequency of clean up particularly after heavy rainfall.	To be observed in next reporting period.
The western side of the Fill Bank was only partially hydroseeded.	The Contractor will arrange hydroseeding after slope trimming works completed.	To be observed in the next reporting period.

Future Key Issues.

The tentative works activities, predicted impacts and areas of environmental concern for the following month are summarised in the following table.

Works Activities	Predicted Impacts	Proposed Mitigation Measures
Public filling operation.	<ul style="list-style-type: none">- Dust- Water	<ul style="list-style-type: none">- Dampening of fill materials and exposed area.- Avoid stockpiling fill materials near seafront.- Avoid spillage of fill materials into the marine water.
Operation of tipping hall for unloading public fill into barges.	<ul style="list-style-type: none">- Dust- Water	<ul style="list-style-type: none">- The tipping halls shall be top and 3-sides enclosed.- Avoid spillage of fill materials into the marine water.
Construction of drainage system.	<ul style="list-style-type: none">- Dust- Noise- Water	<ul style="list-style-type: none">- Apply water spray during excavation and earth moving.- Comply with the conditions of construction noise permit.- Treat all wastewater to acceptable prior to discharge.
Construction of new tipping hall at the barge handling area, CREO 3, weighbridge and associated widened concrete paved access road.	<ul style="list-style-type: none">- Dust- Water	<ul style="list-style-type: none">- Apply water spray during dusty operation.- Any materials drop into the sea should be prevented and any wastewater generated should be treated to acceptable prior to discharge.

1. INTRODUCTION.

1.1 Background.

Stanger Asia Ltd. has been commissioned by the Penta-Ocean Construction Co. Ltd. to provide an Environmental Team (ET) to monitor air and water quality and audit landscape works for Contract No.CV/2002/13. The team is to take a pro-active role in all issues, which may be of environmental concern during the establishment, operation and decommissioning phases of the Fill Bank at Tuen Mun Area 38.

The Independent Environmental Checker (IEC) appointed for this project is Materialab Consultants Ltd.

In this report, the air and water quality monitoring works and landscape audit conducted for the January 2005 will be detailed and reviewed. All monitoring works were carried out in accordance to “*Agreement No, PW 01/2002 Project Profile for Fill Bank at Tuen Mun Area 38, Environmental Monitoring and Audit Manual*”.

1.2 Report Structure.

The purpose of this report is to detail and review the air and water quality monitoring works and landscape audit undertaken during January 2005. The impact forecast for the next reporting month and the schedules of monitoring works for the following month is also given.

The report follows the format given below:

Section 1	Introduction and background information to the content of this report.
Section 2	This section gives the information of the project.
Section 3	This section summarises all the environmental permits and licenses.
Section 4	Summary of the EM&A requirements is presented.
Section 5	This section details the implemented mitigation measures.
Section 6	Details monitoring results.
Section 7	Audit the monitoring results.
Section 8	The status for solid and liquid waste management for the site is overviewed.
Section 9	Complaints, notifications of summons and successful prosecutions are summarized.
Section 10	This section gives the predicted impacts of the construction activities.
Section 11	This section gives a conclusion in relation to all monitoring activities.

2. PROJECT INFORMATION.

2.1 Site Description.

The works mainly comprise the construction of temporary storm water system, setting up of C&D material loading/unloading facilities, setting up/ refurbishing site facilities, stockpiling of 4.9 million m³ of public fill, and decommissioning of the temporary fill bank.

The site layout plan is shown in Figure 2.1.

2.2 Project Organization.

Mr. L.M. Chan is the Engineer's Representative for the Civil Engineering and Development Department, Government of the HKSAR. (Tel: 2762 5602, Fax: 2714 0113).

The Independent Environmental Checker (IEC) for this project is headed by Mr. Joseph Poon - Manager of Materialab Consultants Ltd. (Tel: 2450 8238, Fax: 2450 6138).

Mr. Chan Kam Sum, Sunny is the Site Agent for Penta-Ocean Construction Co., Ltd. (Tel: 2491 1584, Fax: 2496 0433).

The Environmental Team (ET) for the project is Stanger Asia Ltd. The team is headed by Mr Jeff Tsang – Environmental Scientist. (Tel: 2682 1203, Fax: 2682 0046).

The Organization Chart with the key personnel contacts names and telephone numbers is given in Appendix I.

2.3 Construction Programme.

The overall construction programme is given in Appendix IX. Details of the construction activities are listed below.

- Site clearance;
- Construction of storm water drainage system;
- Stockpiling of 4.9 million m³ of public fill;
- Construction of landscape works; and
- Removal of stockpiled public fill.

3. ENVIRONMENTAL PERMITS AND LICENSES.

The summary of the status of all environmental permits, licenses and notification for this project as at January 2005 is summarized in the following table.

Table 3.1 Summary of the Environmental Permits and Licenses

Description	Licence/Permit No.	Date of Issue	Date of Expiry	Status
Environmental Permit	EP-153/2003	13-Feb-03	--	Superseded
Registration of Chemical Waste Producer	WPN5296-421-P2800-03	05-Aug-03	--	Issued
Amended Environmental Permit	EP-153/2003/A	30-Oct-03	--	Issued
Construction Noise Permit	GW-RW0628-04	15-Nov-04	14-May-05	Issued

4. SUMMARY OF EM&A REQUIREMENTS.

4.1 Air Quality.

Monitoring Location.

The project has two designated locations (A1 & A2) for the monitoring of air quality. A1 is a fixed location in the vicinity of the site office to monitor the TSP levels at River Trade Terminal and A2 is a movable location to the western boundary of the site that is designed to move as works progress. The air monitoring locations are shown in Figure 4.1.

Table 4.1 Coordinates of Air Quality Monitoring Stations

Station	HK Metric Grid – Easting	HK Metric Grid - Northing
A1	811368	825593
A2	810812*	825096*

* - Coordinates of present location.

Methodology

Measurement of 24-hour and 1-hour TSP levels were carried out in accordance to the high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50). When positioning the high volume samplers, the following requirements have been observed:

- a horizontal platform with appropriate support to secure the high volume sampler against gusty wind, should be provided;
- horizontal distance between the high volume samplers and an obstacle, such as buildings, must be at least twice the height of the obstacle protruding above the high volume samplers;
- a minimum separation of 2 m should be provided from walls, parapets, and penthouses for rooftop high volume samplers;

- a minimum separation of 2 m should be provided from any supporting structure measured horizontally;
- there should not be any furnace or incinerator flues nearby;
- there should be unrestricted airflow around the high volume samplers;
- a minimum separation of 20 m should be provided from the dripline;
- any wire fence and gate employed to protect the high volume samplers should not cause any obstruction during monitoring.

All relevant data including temperature, pressure, weather conditions, elapsed-timer meter reading for the start and finish of the sampling period, identification and weight of the filter paper, and other special phenomena were recorded.

Monitoring Equipment and Calibration Details.

Andersen GMW Model GS2310 high volume samplers were used to carry out the monitoring of 24-hour and 1-hour TSP. The high volume sampler is in compliance with the specifications as listed in the Environmental Schedule, given below:

- 0.6 – 1.7 m³/min (20-60 SCFM) adjustable flow range;
- equipped with a timing / control device with 5 minutes accuracy over 24 hours operations;
- installed with elapsed-time meter with 2 minutes accuracy over 24 hours operations;
- capable of providing a minimum exposed area of 406 cm² (63 in²);
- flow control accuracy: 2.5% deviation over 24-hr sampling period;
- equipped with shelter to protect the filter and sampler;
- incorporated with an electronic mass flow rate controller or other equivalent devices;
- equipped with a flow recorder for continuous monitoring;
- provided with peaked roof inlet, incorporated with manometer;
- able to hold and seal the filter paper to the sampler housing at horizontal position;
- easy to change filter; and
- capable of operating continuously for 24-hr period.

The high volume sampler is calibrated at bi-monthly intervals. The calibration kit (Andersen Model G2535) comprising pressure plates and a transfer standard is traceable to the internationally recognized standard. Calibration records for the high volume sampler is given in Appendix II of this report.

Laboratory Measurement.

Laboratory measurements were carried out in Stanger Asia Ltd. own HOKLAS accredited laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments.

Clean filter papers of size 8”x10” with no pinholes were labelled before sampling. They were conditioned in a dessicator with less than 50% relative humidity for over 24 hours and pre-weighed before use for sampling.

After sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag. The filter papers were then returned to the laboratory for reconditioning in the dessicator with less than 50% relative humidity followed by accurate weighing on an electronic balance regularly calibrated against a traceable standard and readable to 0.1 mg.

Stanger Asia Ltd. operates comprehensive quality assurance and quality control programmes. For QA/AC procedures, all filters were equilibrated and weighed repeatedly until the difference of two consecutive results was less than 0.5 mg.

Monitoring Parameters Frequency.

Table 4.2 Air Quality Monitoring Frequency

Monitoring Locations	Parameter	Frequency
A1 & A2	24-hr TSP	Once in every six days
	1-hr TSP	Three times in every six days

Action and Limit Levels.

The Action levels for air quality monitoring were established from the impact monitoring data of Contract No. CV/2000/01 prior to the commencement of the fill bank utilising the criteria laid out in *section 4.7* of the EM&A Manual for the project. The Limit levels for air quality monitoring has been set in line with statutory guidelines for air quality in Hong Kong. Action and Limit levels for both 24-hour and 1-hour TSP are given in the following table.

Table 4.3 Action and Limit Levels for the Project

Parameter Monitored	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
1-hour TSP	344	500
24-hour TSP	192	260

4.2 Water Quality.

Monitoring Locations.

The EM&A Manual produced for this project has proposed two monitoring stations (FM1 & FM2) and two control stations (FC1 & FC2) for the carrying out of water quality monitoring. Control Station FC1 will act as upstream control station for the mid-ebb tide with control station FC2 acting as upstream control stations for the mid-flood tide.

The designated monitoring stations are shown in Figure 4.2.

Methodology.

Measurements are taken at three water depths, namely 1m below water surface, mid-water and 1m above seabed at both mid-flood and mid-ebb tides, except where the water depth less than 6m, when the mid-depth station may be omitted. Should the water depth have been less than 3m, only the mid-depth was monitored.

Two measurements of turbidity, dissolved oxygen (mg/L), dissolved oxygen (% saturation) and temperature at each depth of each station is taken. The probes are removed from the water after the first measurement and then redeployed for the second measurement. If the difference in value between the first and second reading of each set is more than 25% of the value of the first reading, the readings are discarded and further readings taken. Replicate samples of suspended solids measurements are taken at each depth and at each water quality monitoring and control station. The samples are kept in a chilled condition during delivery to the laboratory and before commencement of analysis. For the purpose of evaluating the water quality, all values for suspended solids and turbidity shall be depth-averaged.

During monitoring works the following shall also be recorded:

- monitoring location;
- depth of water;
- time;
- weather conditions including ambient temperature;
- water temperature;

Monitoring Equipment.

The following equipment was employed for routine water quality monitoring.

- Dissolved Oxygen meter: YSI model 58 with stirrer
- Turbidity meter: Hach 2100P
- Echo sounder: Hummingbird 100SX
- Water sampler: Kahlisco 135WB203
- GPS receiver: Trimble NT2002D
- Thermometer: YSI model 58

Monitoring Equipment Calibration Details.

All on-site monitoring equipment was calibrated three-monthly at Stanger Asia's HOKLAS accredited laboratory. An on-site calibration check was carried out prior to the taking of measurements in accordance with standard water quality monitoring procedures.

Equipment calibration details were given in Appendix II.

Laboratory Analysis.

The laboratory measurements of suspended solids were carried out at Stanger Asia Limited, a HOKLAS accredited laboratory in accordance with Method No. 2540D 17th Edition of APHA.

Stanger Asia operates a comprehensive quality assurance and quality control programmes for QA/AC procedures in accordance with the requirements of HOKLAS accreditation, all filters were equilibrated and weighted repeatedly until the difference of two consecutive results is less than 0.5 mg.

Monitoring Parameters and Frequency.

Table 4.4 Water Quality Monitoring Frequency

Monitoring Locations	Monitoring Parameters	Frequency	Requirements
Designated Control Stations: FC1 & FC2.	Temperature, Salinity, Dissolved Oxygen, Turbidity, Suspended Solids.	Three days per week.	At three depths during mid-ebb and mid-flood tides.
Designated Monitoring Stations: FM1 & FM2.			

Action and Limit Levels.

The Action and Limit levels for water quality monitoring were established from the impact monitoring data of Contract No. CV/2000/01 prior to the commencement of the fill bank utilising the criteria laid out in *section 6.8* of the EM&A Manual for the project.

Table 4.5 Action and Limit Level for Water Quality

Parameter	Action level	Limit level
Dissolved Oxygen in mg/L.		
Surface & Middle	<4.78mg/L	<4mg/L
Bottom.	<4.16mg/L	<2mg/L
Suspended Solids (SS) in mg/L (depth-averaged)	>120% of upstream control station's SS at the same time of the same day.	>130% of upstream control station's SS at the same tide of the same day .
Turbidity (Tby) in NTU	>120% of upstream control station's Tby at the same tide of the same day.	>130% of upstream control station's Tby at the same tide of the same day.

All the figures given in the table are used for reference only and the EPD may amend the figures whenever necessary.

4.3 Event and Action Plans.

The Event and Action Plans for air and water are attached in Appendix III of this report.

5. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES.

The contractor implemented various environmental mitigation measures as recommended in the Project Profile and Environmental Permit. The implementation status is attached in Appendix IV and summarised as follows:

- Wheel washing facilities were provided at the exit point of the site and the wheel washing bay was cleared regularly.
- Slopes were compacted as far as practicable.

- Site accesses were covered with concrete.
- Waste collection points were maintained and cleaned on a regular basis.
- Hoarding was erected along Lung Mun Road and near River Trade Terminal.
- Oil drums were placed in drip trays.
- Water bowsers and road sweepers were in operation.
- Buffer trees were planted.
- Speed limit warning signs were posted.
- Completed slopes were hydroseeded.

6. MONITORING RESULTS.

6.1 Completed Monitoring Works.

Table 6.1 gives the completed monitoring works for the reported period.

Table 6.1 Completed Monitoring Works for January 2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						January 1
2	3	4	5	6	7	8
	WQM (Ebb: 18:26) (Flood: 12:41)		WQM (Ebb: 07:14) (Flood: 14:01) 1 – hr TSP 24 – hr TSP	Site Inspection	WQM (Ebb: 10:09) (Flood: 15:25)	
9	10	11	12	13	14	15
		WQM (Ebb: 13:47) (Flood: 08:41) 1 – hr TSP 24 – hr TSP		WQM (Ebb: 15:20) (Flood: 10:05) Site Inspection		WQM (Ebb: 16:59) (Flood: 11:25)
16	17	18	19	20	21	22
	WQM (Ebb: 19:12) (Flood: 12:42) 1 – hr TSP 24 – hr TSP		WQM (Ebb: 07:31) (Flood: 13:46)	Site Inspection		WQM (Ebb: *) (Flood: 11:31) 1 – hr TSP 24 – hr TSP
23	24	25	26	27	28	29
	WQM (Ebb: 12:30) (Flood: 17:26)		WQM (Ebb: 13:40) (Flood: 08:41)	Site Inspection Landscape Audit	WQM (Ebb: 14:43) (Flood: 09:28) 1 – hr TSP 24 – hr TSP	
30	31					

- Notes:
1. 24 –hr TSP (monitored once every 6 days) at monitoring locations A1 and A2.
 2. 1 hour TSP (monitored three times every six days when highest level of dust generation expected) at monitoring locations A1 and A2.
 3. WQM - water quality monitoring three times per week, on mid-flood and mid-ebb tides. Days of monitoring to be separated by at least 36 hours. Monitoring locations FC1, FM1, FM2 & FC2.
 4. Site inspections to be carried out once per week.
 5. Auditing of landscape works to be carried out once per month.
- * No ebb tide.

6.2 Air Quality Monitoring.

Impact monitoring of 24-Hour TSP was conducted on five occasions at A1 and A2, with the monitoring of 1-Hour TSP being conducted on fifteen occasions at A1 and A2 in this reported period.

The monitoring records for 24-hour and 1-hour TSP are given in the following table. Details of monitoring results are given in Appendix V. The results are presented graphically in Figures 6.1 and 6.2.

Table 6.2 Results of 24-hour TSP Monitoring

Date	A1, $\mu\text{g}/\text{m}^3$	Exceedance (Y/N)	A2, $\mu\text{g}/\text{m}^3$	Exceedance (Y/N)
05/01/2005	79	N	106	N
11/01/2005	128	N	111	N
17/01/2005	84	N	95	N
22/01/2005	106	N	81	N
28/01/2005	72	N	84	N
Action Level	192 $\mu\text{g}/\text{m}^3$			
Limit Level	260 $\mu\text{g}/\text{m}^3$			

Table 6.3 Results of 1-hour TSP Monitoring

Date	A1, $\mu\text{g}/\text{m}^3$	Exceedance (Y/N)	A2, $\mu\text{g}/\text{m}^3$	Exceedance (Y/N)
05/01/2005	340	N	304	N
05/01/2005	249	N	182	N
05/01/2005	165	N	257	N
11/01/2005	301	N	189	N
11/01/2005	307	N	246	N
11/01/2005	277	N	298	N
17/01/2005	236	N	153	N
17/01/2005	213	N	161	N
17/01/2005	271	N	253	N
22/01/2005	323	N	253	N
22/01/2005	188	N	260	N
22/01/2005	255	N	259	N
28/01/2005	162	N	218	N
28/01/2005	169	N	220	N
28/01/2005	187	N	220	N
Action Level	344 $\mu\text{g}/\text{m}^3$			
Limit Level	500 $\mu\text{g}/\text{m}^3$			

Wind speed and direction data from the wind station is given in Appendix XI.

6.3 Water Quality Monitoring.

Water quality monitoring was carried out on twelve occasions during flood tide and eleven occasions during ebb tide at FM1, FM2, FC1 and FC2.

Results for water quality monitoring are summarised in the following tables. Details of monitoring results are presented in Appendix VI. Graphical presentations of the results are shown in Figure 6.3 – Figure 6.10.

Table 6.4 Summary of Water Quality Monitoring Data

Sample Location	Surface & Middle Averaged Dissolved Oxygen (Range), mg/L	Bottom Averaged Dissolved Oxygen (Range), mg/L	Depth Averaged Turbidity (Range), NTU	Depth Averaged Suspended Solids (Range), mg/L
FM1	6.80 (6.67-7.02)	6.66 (6.38-6.92)	7.35 (4.11-15.03)	10.6 (7.5-19.3)
FM2	6.78 (6.57-6.99)	6.65 (6.94-6.17)	7.42 (4.43-14.00)	10.2 (7.2-18.3)
FC1	6.79 (6.59-7.05)	6.70 (6.17-7.05)	7.50 (4.34-13.58)	10.8 (7.3-17.3)
FC2	6.76 (6.21-7.01)	6.65 (6.12-6.94)	7.29 (4.22-13.20)	10.4 (7.5-17.0)

7. AUDIT REPORT.

7.1 Air Quality Monitoring.

No exceedance to set action or limit levels for either 24 or 1-Hour TSP monitoring was recorded at air monitoring station A1 and A2 in this reported period.

7.2 Water Quality Monitoring.

There was no exceedance to the Action and Limit Level for water quality parameters in this reported period.

7.3 Site Inspections.

Four weekly site inspections were conducted on 6th, 13th, 20th and 27th January 2005. Observations by ET, action by the Contractor and outcome are summarised in the following table.

Table 7.1 Summary of Findings, Actions and Outcomes of Site Inspection by ET

Observations	Actions by Contractor	Outcome
Drainage system was filled with deposits. (06, 13.01.2005)	Cleaned up the deposits regularly.	Situation improved. (20.01.2005)
Waste chemical drums were found on bare ground inside the chemical waste storage area. (13.01.2005)	Placed all waste drums in chemical waste storage area in drip trays.	The waste drums were placed in drip trays. (20.01.2005)
Soiling at public access near site egress. (27.01.2005)	To clean up the wheel washing bay and carry out road sweeping more frequently.	To be observed in next reporting period.

The Independent Environmental Checker (IEC) conducted at audit on 20th January 2005. The major observations were summarized in the following table.

Table 7.2 Summary of Findings, Actions and Outcomes of Site Inspection by IEC

Observations	Actions by Contractor	Outcome
A few trucks were travelling on the haul road along the eastern boundary which was not dampened sufficiently.	Ensured the trucks travel away from the eastern boundary and covered this area with regular watering.	The haul road was dampened regularly and measures were taken to ensure trucks travel away from that haul road. (27.01.2005)
Dust was observed on public roads around the site entrance.	To change the water for wheel washing and carry out road sweeping more frequently.	To be observed in next reporting period.
The wheel washing bay next to the automatic wheel washing facilities was filled with deposits.	To clean up the deposits and increase the frequency of clean up particularly after heavy rainfall.	To be observed in next reporting period.
The western side of the Fill Bank was only partially hydroseeded.	The Contractor will arrange hydroseeding after slope trimming works completed.	To be observed in the next reporting period.

7.4 Landscape and Visual.

A landscape audit was conducted on 27th January 2005. There was no specific observation regarding landscape in this reporting period.

8. WASTE MANAGEMENT.

122,769m³ public fill was collected to the Fill Bank. 13.05t C&D waste and general refuse were disposed of at WENT Landfill. 0.6t of chemical waste generated was collected by licensed contractor in this reporting period.

9. COMPLAINTS, NOTIFICATIONS OF SUMMONSES AND SUCCESSFUL PROSECUTIONS.

No complaint was received this month. Complaint Log is attached in Appendix VII. Cumulative statistics on complaints, notifications of summonses and successful prosecutions are attached in Appendix VIII.

10. FUTURE KEY ISSUES.

The following are the scheduled construction activities for the next reported period. Scheduled monitoring activities for the following month are given in Appendix IX.

Table 10.1 Works Programme for January 2005

Works Activities	Predicted Impacts	Proposed Mitigation Measures
Public filling operation.	- Dust - Water	- Dampening of fill materials and exposed area. - Avoid stockpiling fill materials near seafront. - Avoid spillage of fill materials into the marine water.
Operation of tipping hall for unloading public fill into barges.	- Dust - Water	- The tipping halls shall be top and 3-sides enclosed. - Avoid spillage of fill materials into the marine water.
Construction of drainage system.	- Dust - Noise - Water	- Apply water spray during excavation and earth moving. - Comply with the conditions of construction noise permit. - Treat all wastewater to acceptable prior to discharge.
Construction of new tipping hall at the barge handling area, CREO 3, weighbridge and associated widened concrete paved access road.	- Dust - Water	- Apply water spray during dusty operation. - Any materials drop into the sea should be prevented and any wastewater generated should be treated to acceptable prior to discharge.

11. CONCLUSION.

All results for the air quality monitoring conducted this month were acceptable with no exceedance to set action or limit levels for either 24 or 1-hour TSP.

In relation to the monitoring of water quality, there was no record of exceedance to the set Action and Limit Level during this reporting period.

There was no specific observation regarding landscape in this reporting period.

Figures

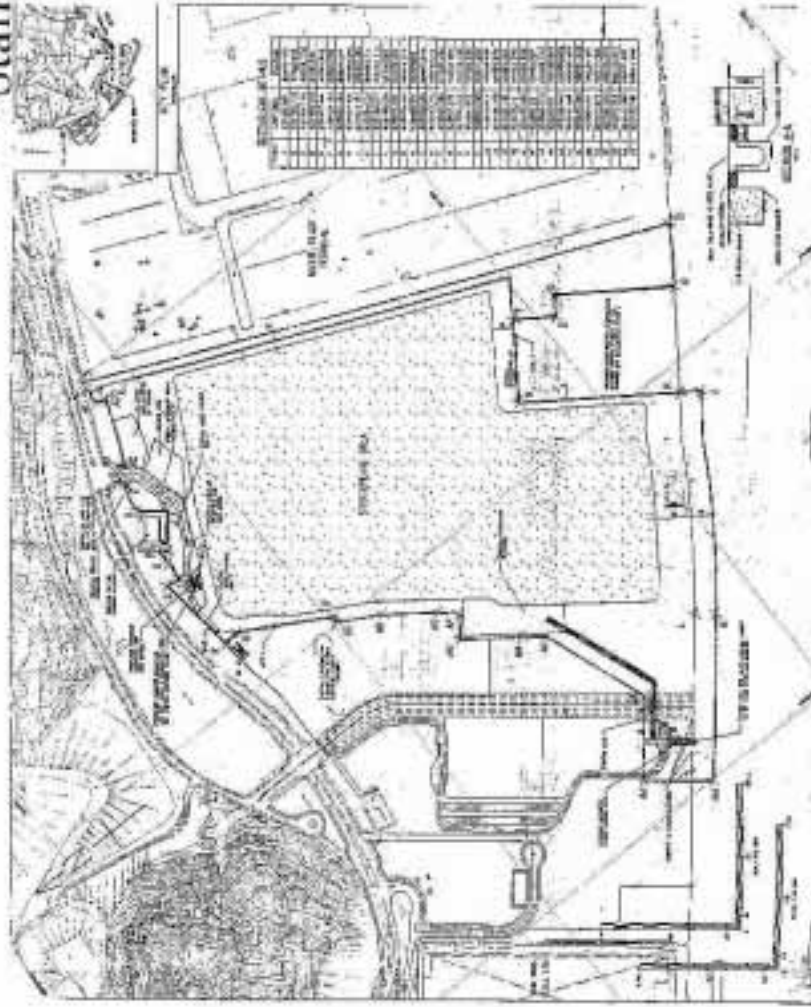


Figure 2.1 - The Site Layout Plan

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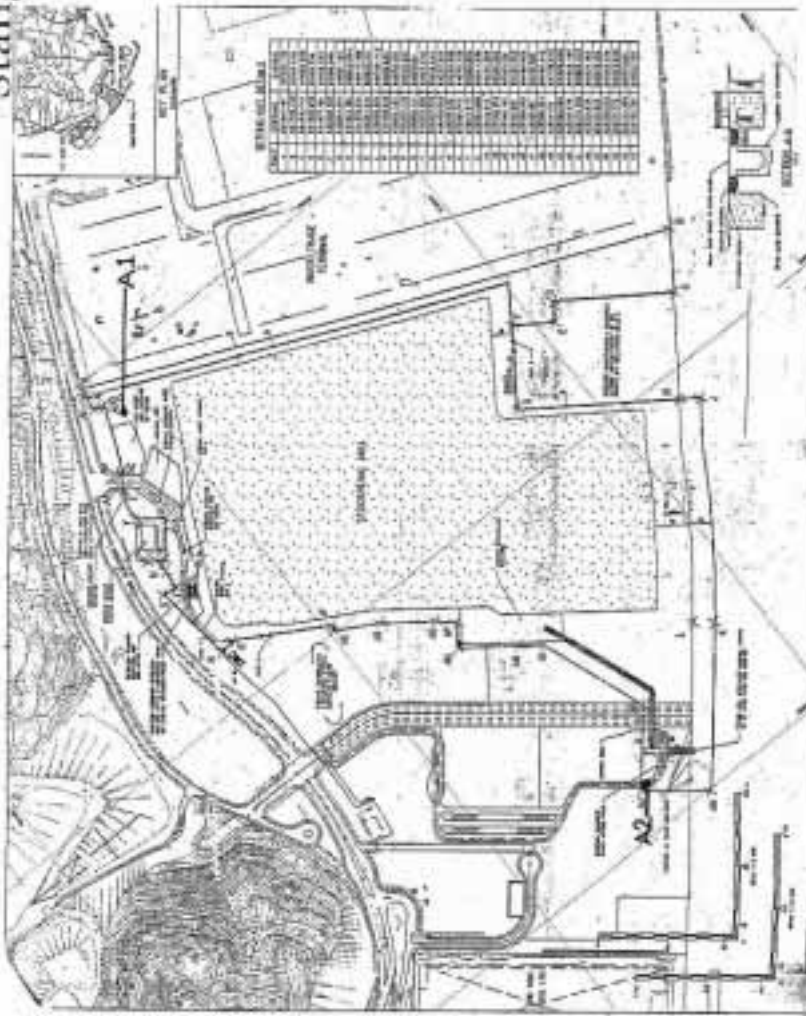


Figure 4.1 – Air Quality Monitoring Stations

The map/site plan of this project is located by Stanger Asia website. It may not be reproduced without the prior written approval of Stanger Asia.

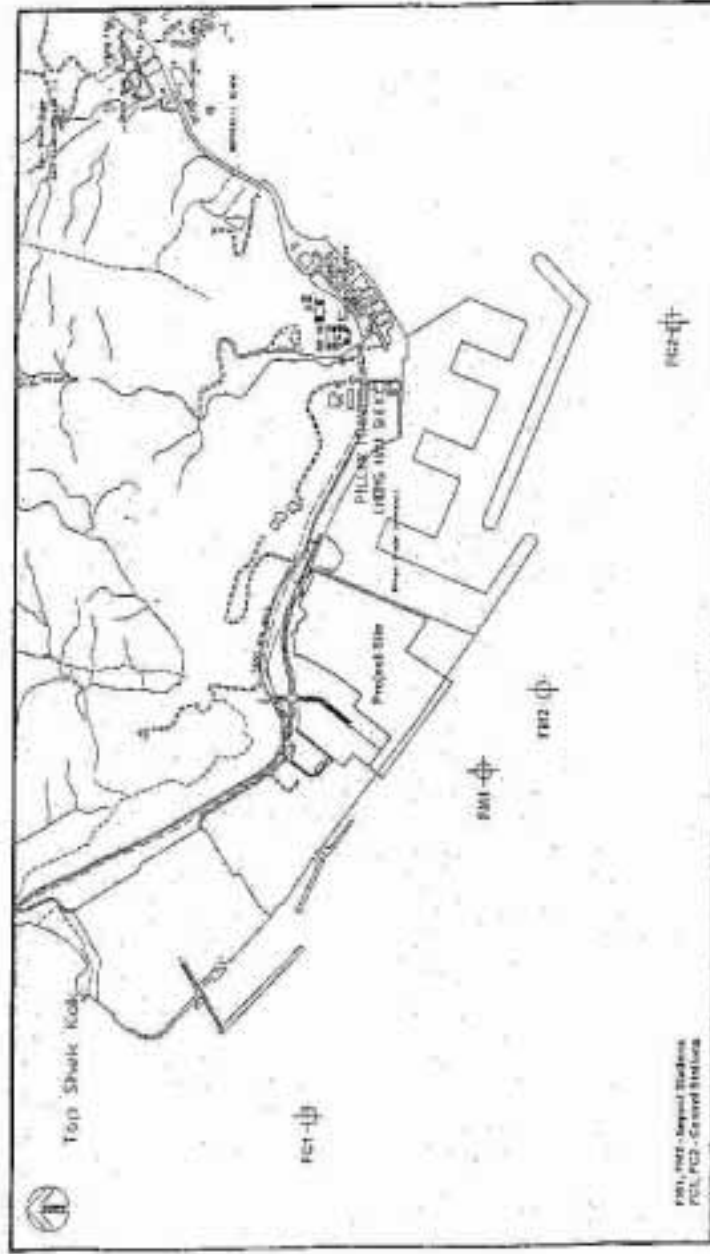


Figure 4.2 – Water Quality Monitoring Stations

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Figure 6.1 - Graphical Plot for 24-hr TSP

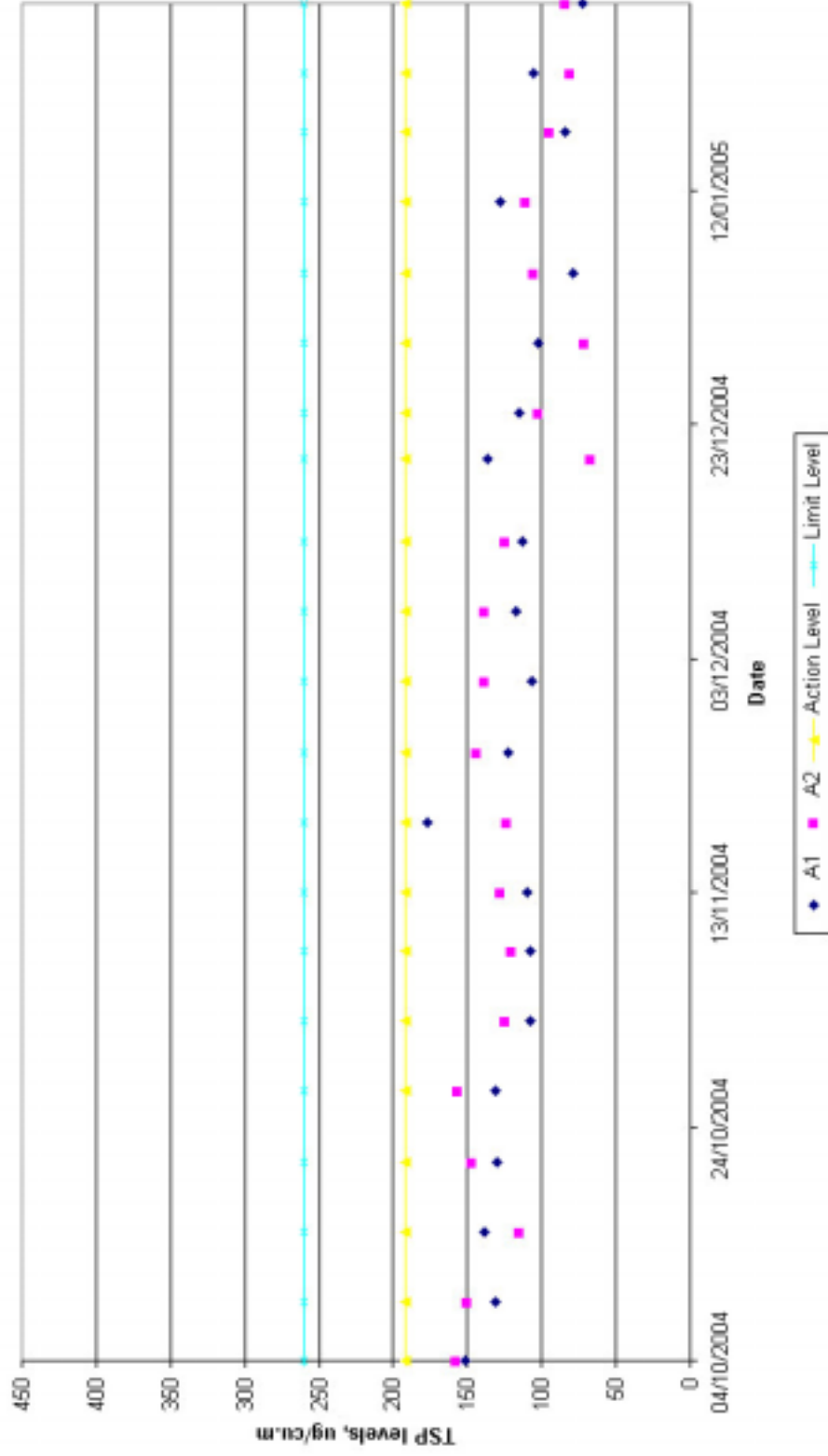


Figure 6.2 - Graphical Plot for 1-hr TSP

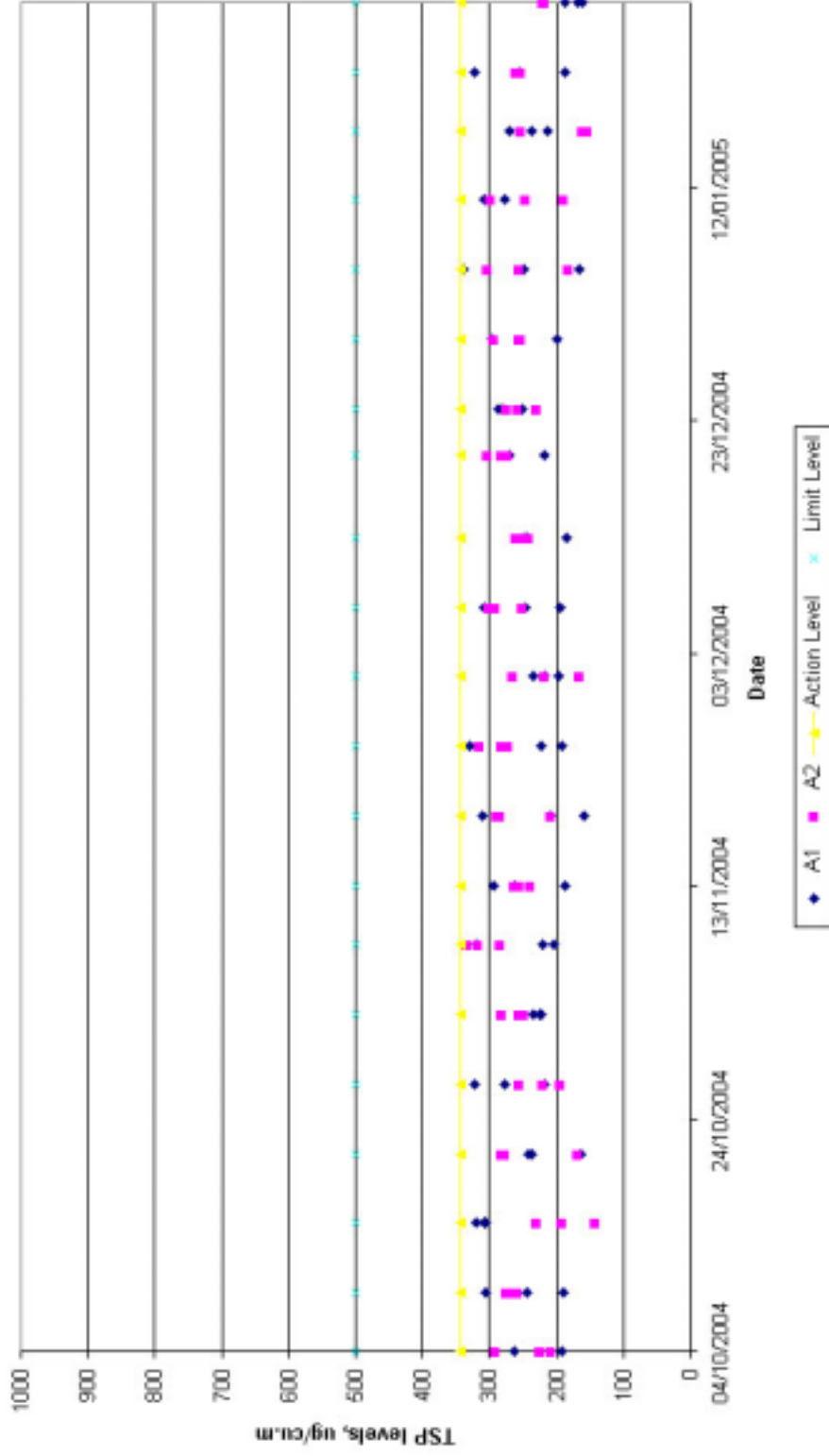


Figure 6.3 - Surface and Middle Averaged Dissolved Oxygen - Mid-Flood

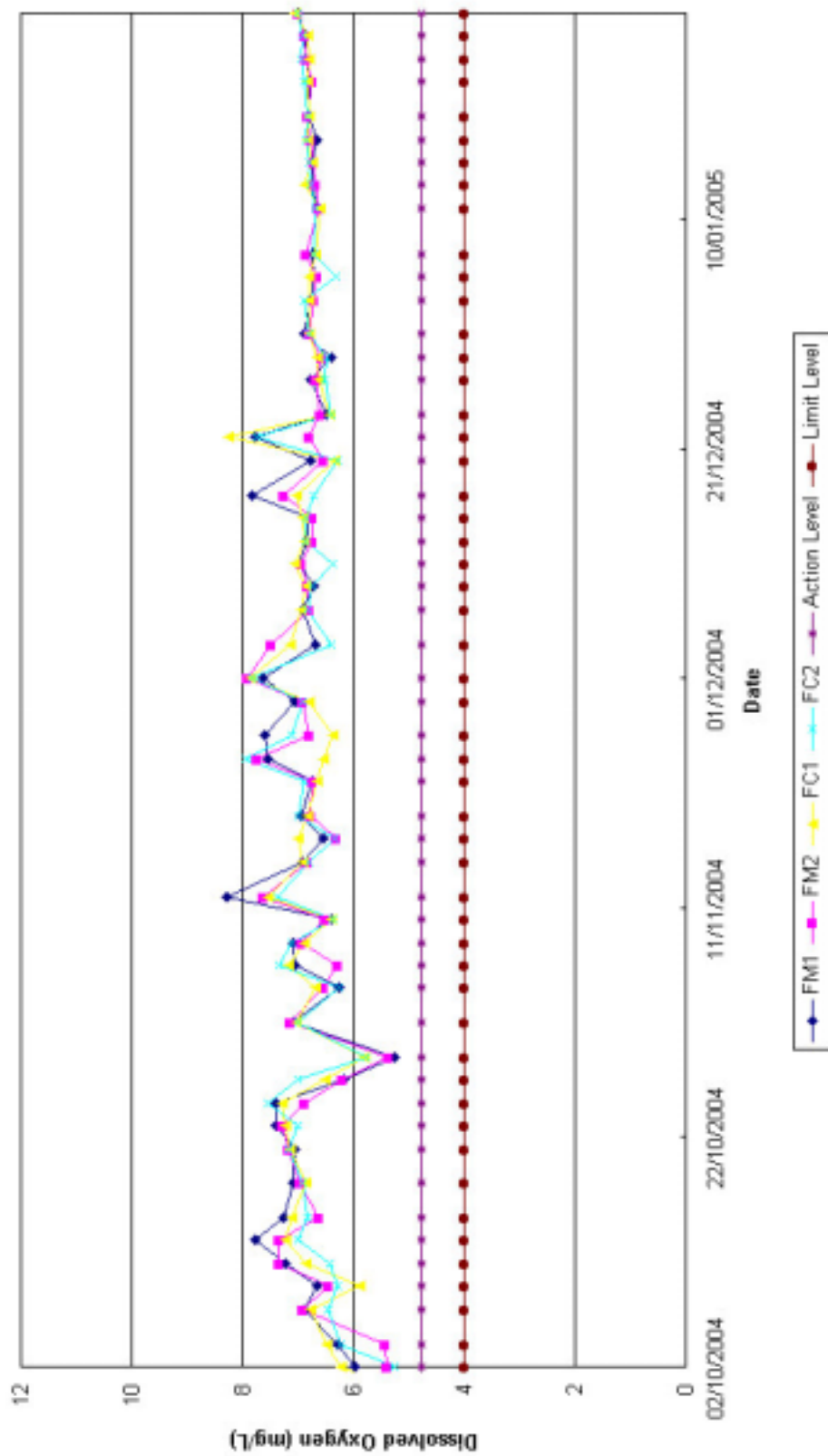


Figure 6.4 - Surface and Middle Averaged Dissolved Oxygen - Mid-Ebb

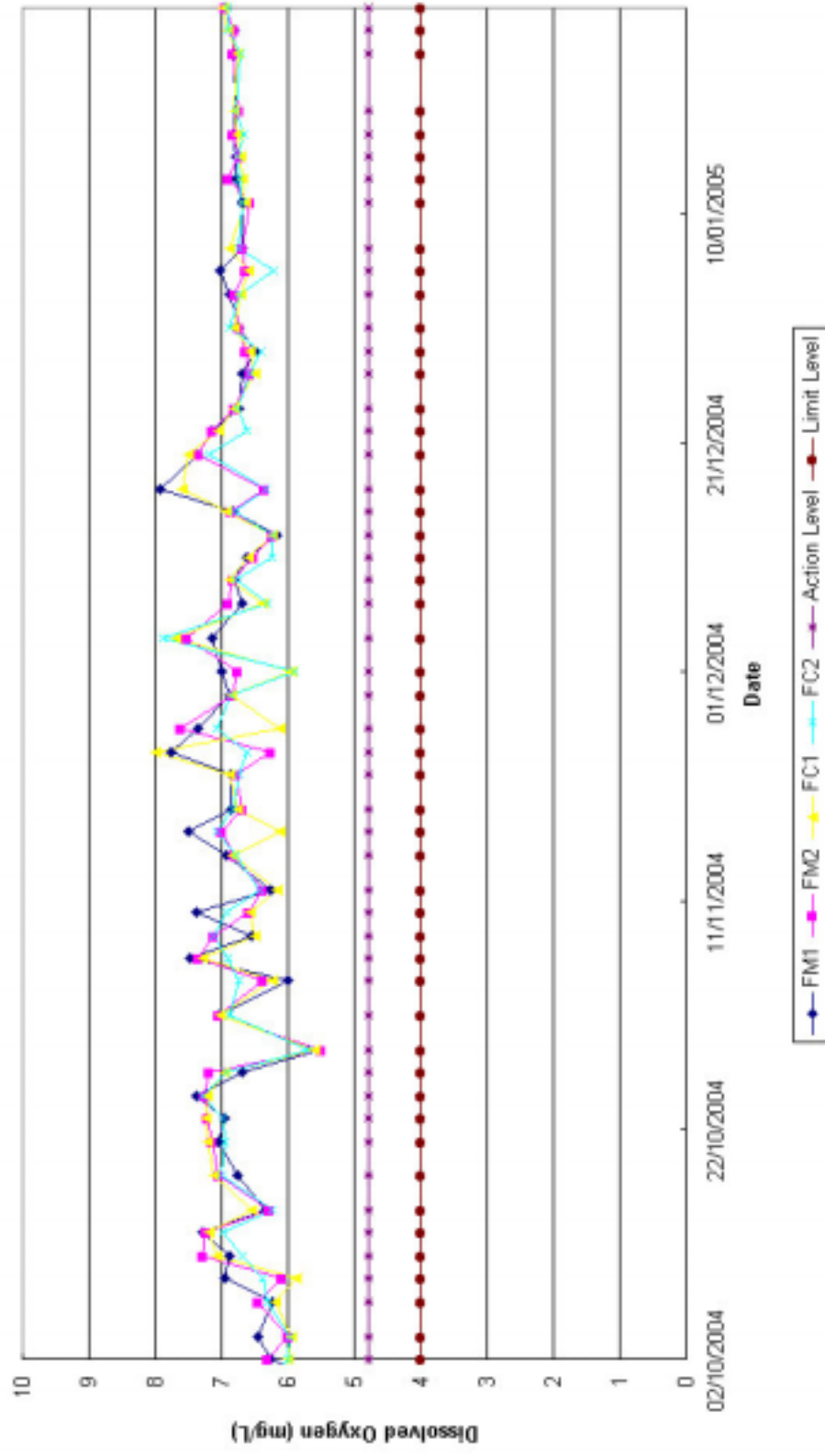


Figure 6.5 - Bottom Averaged Dissolved Oxygen - Mid-Flood

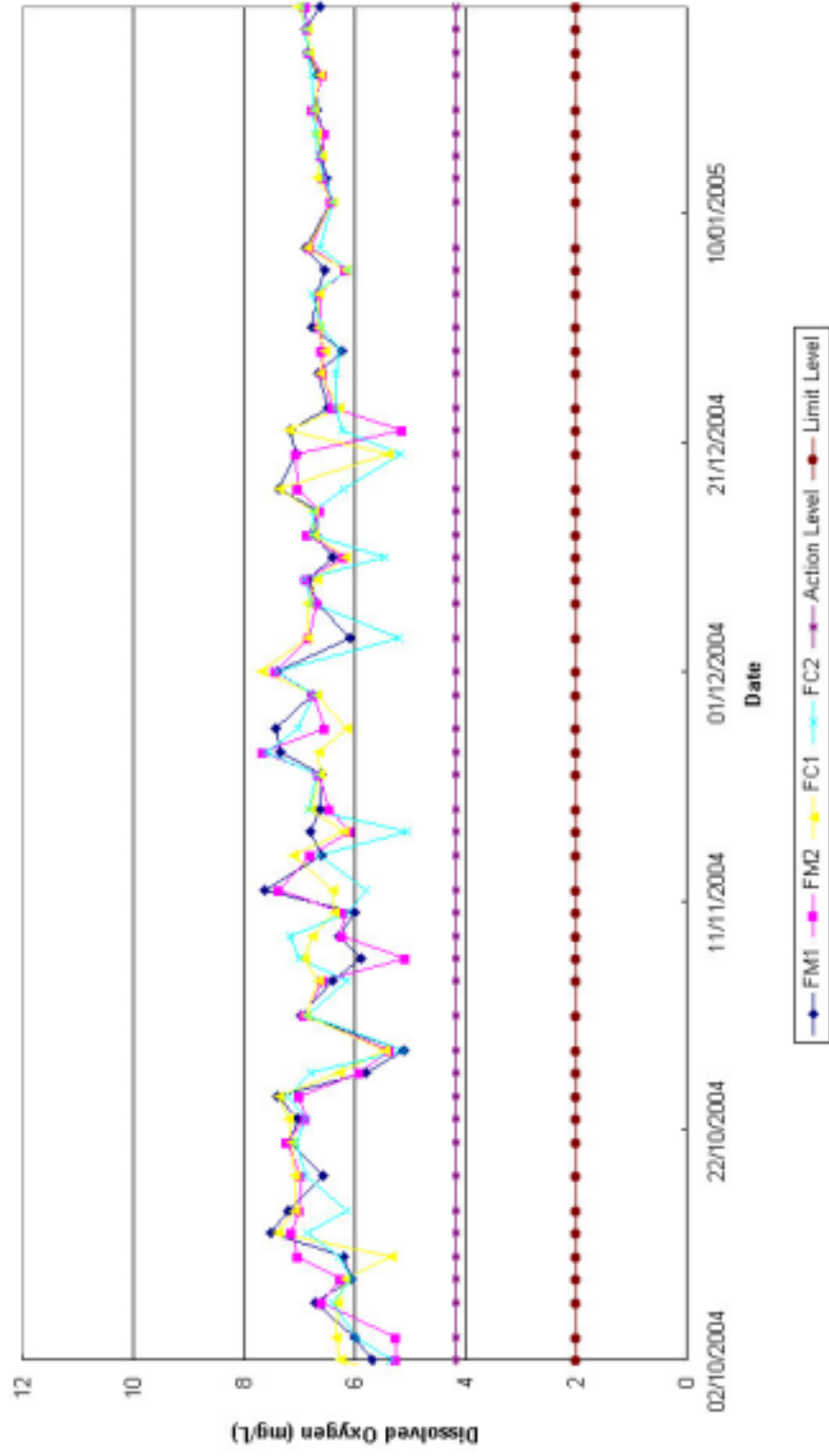


Figure 6.6 - Bottom Averaged Dissolved Oxygen - Mid-Ebb

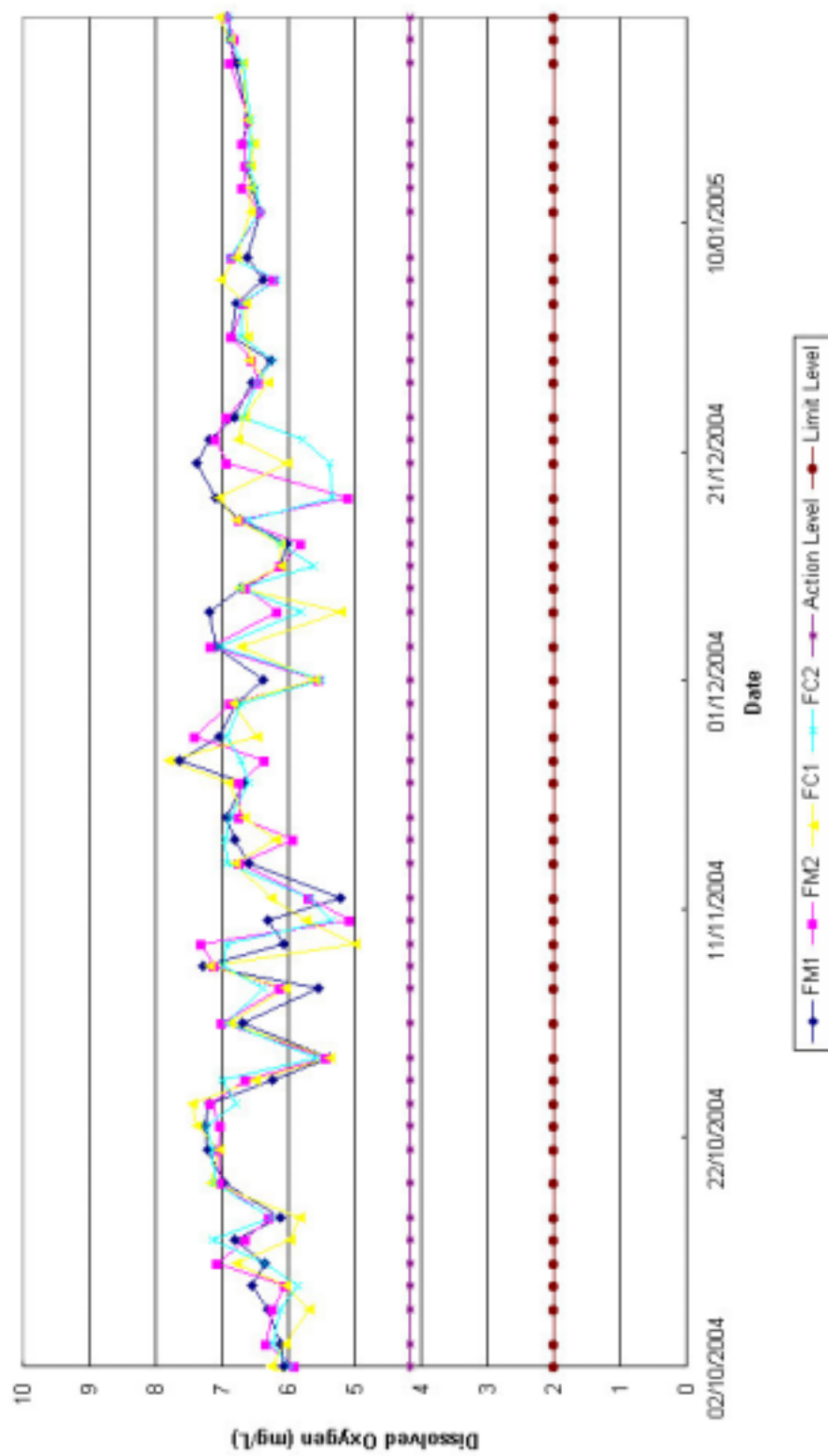


Figure 6.7 - Depth Averaged Turbidity - Mid-Flood

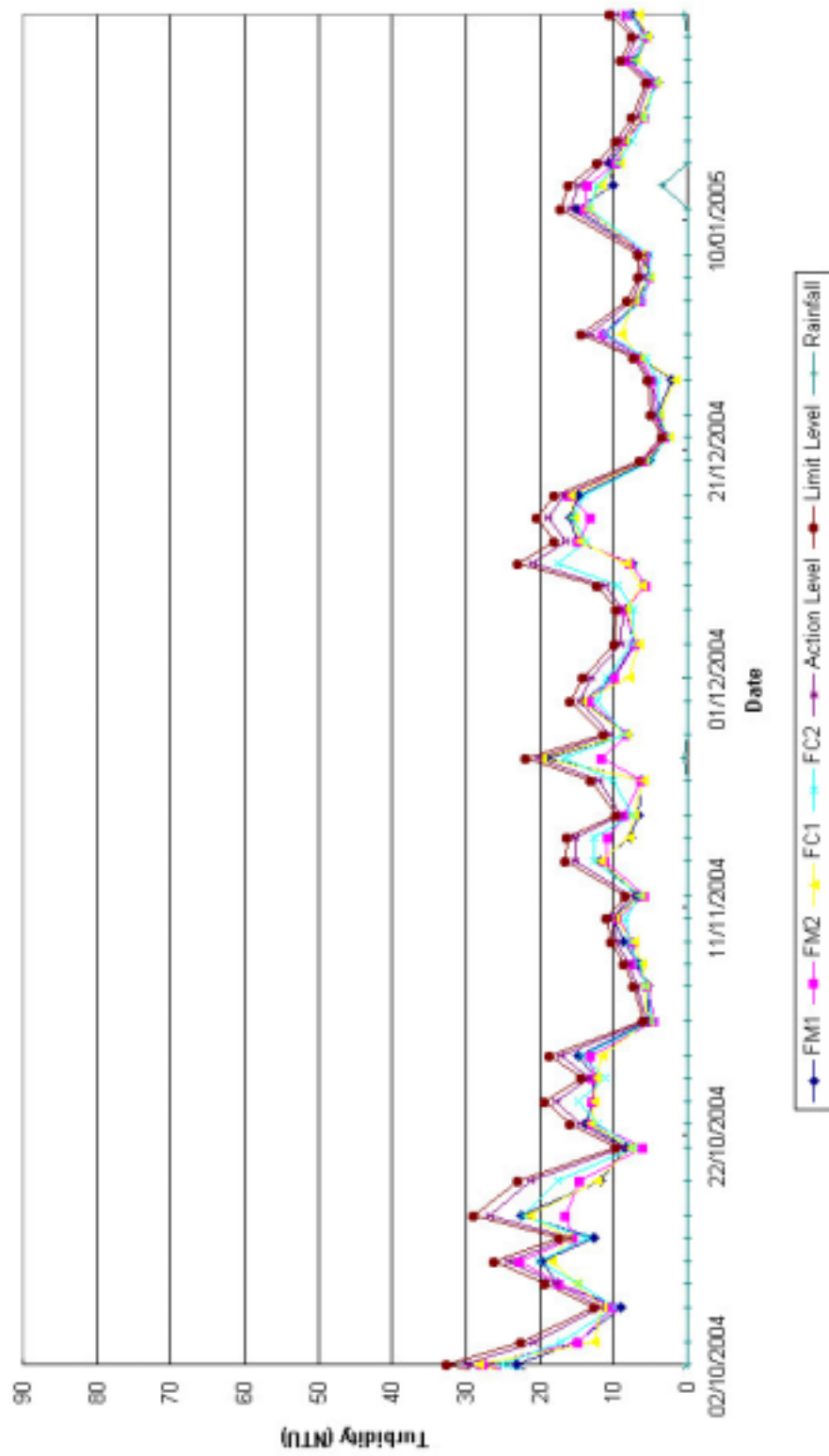


Figure 6.8 - Depth Averaged Turbidity - Mid-Ebb

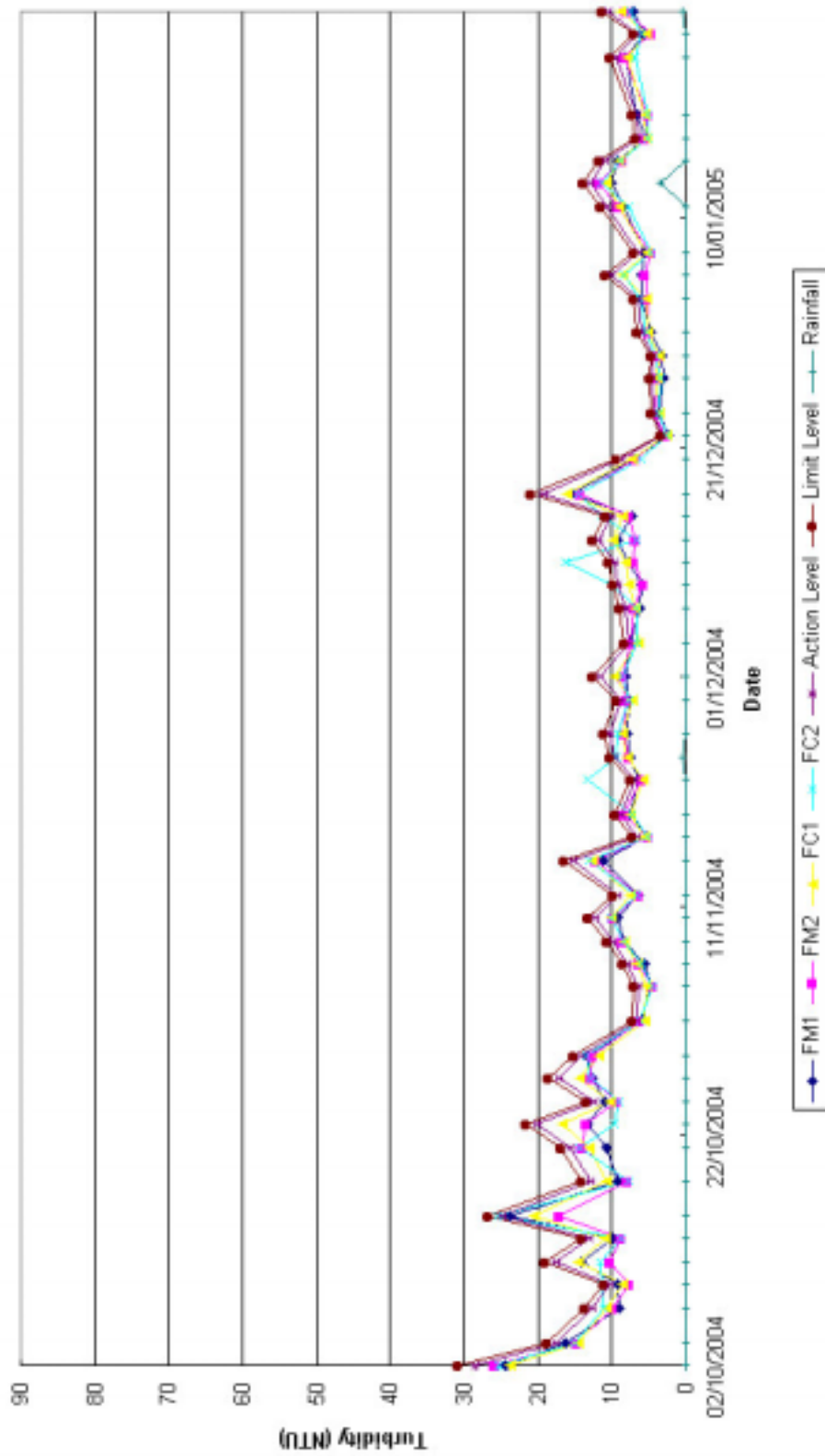


Figure 6.9 - Depth Averaged Suspended Solids - Mid-Flood

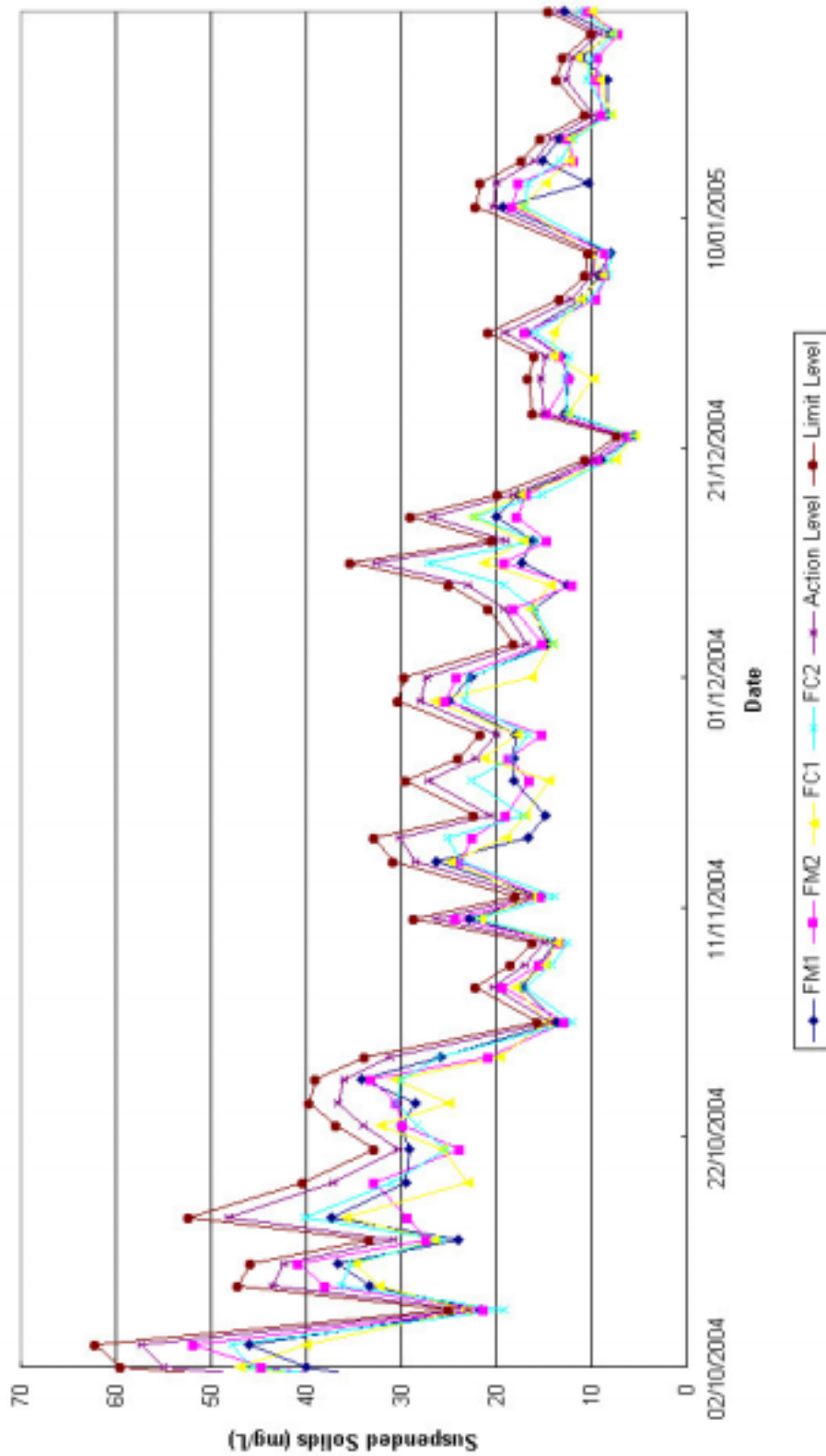
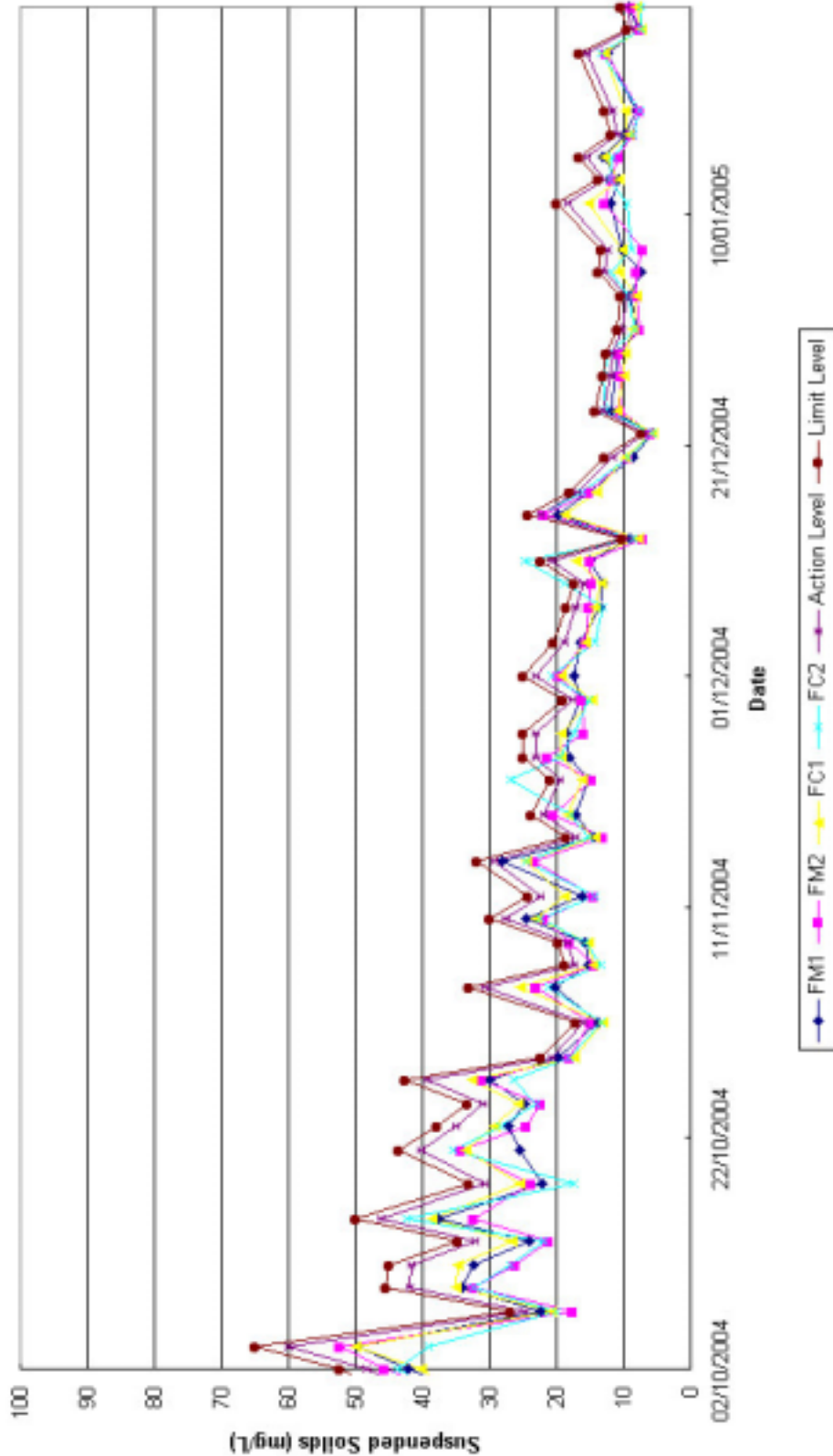
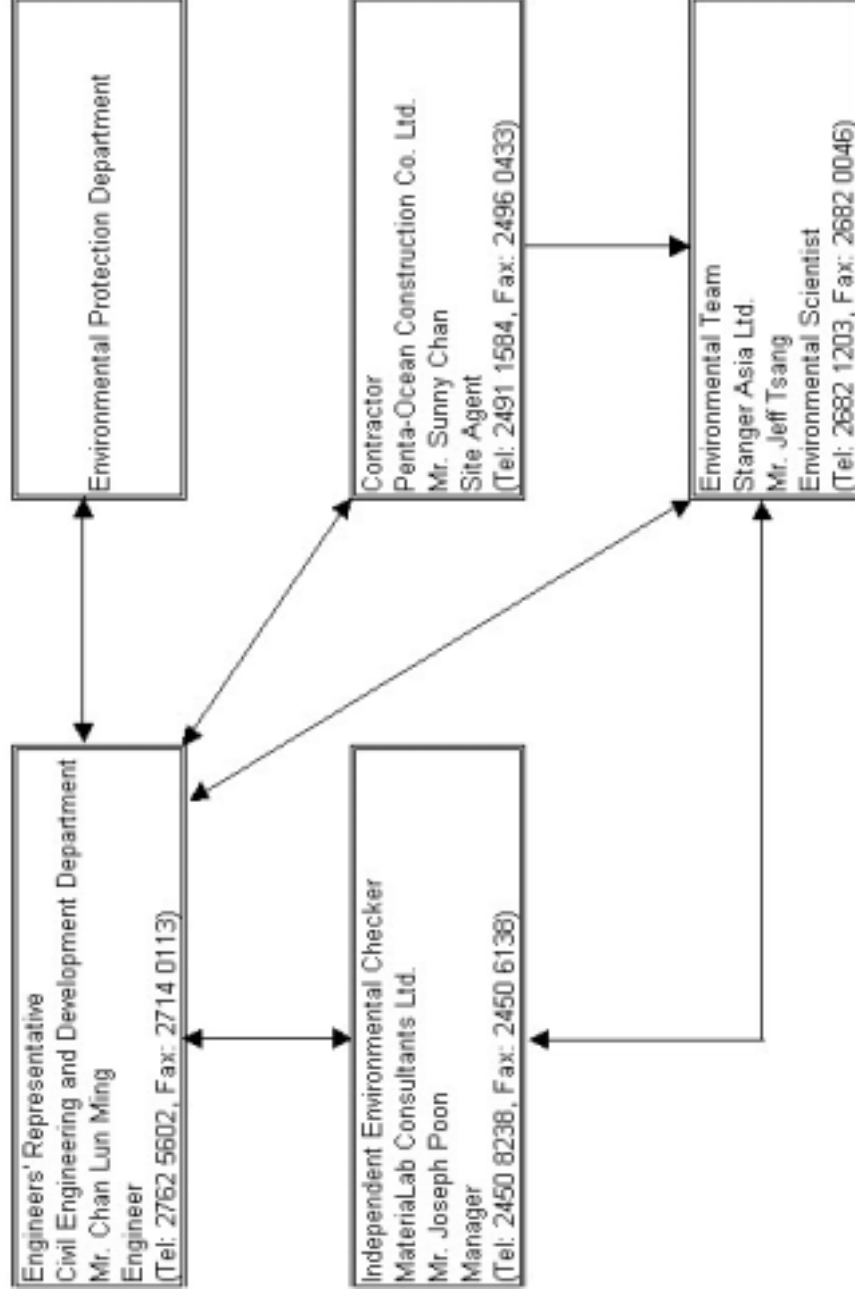


Figure 6.10 - Depth Averaged Suspended Solids - Mid-Ebb



Appendix I
Organization Chart

Project Organization (Environmental)
Fill Bank at Tuen Mun Area 38
Contract No. CV/2002/13



Appendix II

Calibration Certificates of the Monitoring Equipment

SDMP ENV052 : CALIBRATION RECORD OF HIGH VOLUME AIR SAMPLER (TSP)

Date: 16/12/2024

Equipment No.: 030002

Temp: 20 °C

Serial No.:

Calibration No.:

At. Press: 704 mm Hg

Flow	Flow Rate (m ³ /min)	True Flow (CFM)	Corrected Flow (CFM)
18	1.810	10.1	55.47
13	1.490	8.2	44.42
9.5	1.227	6.9	35.33
7	0.980	5.5	27.26
5	0.750	4.2	20.13

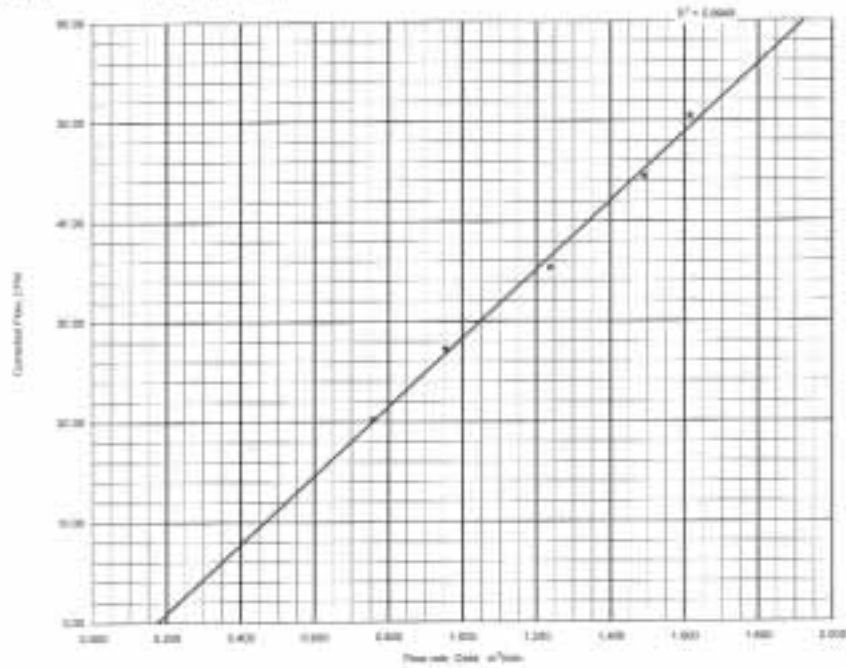
Calibrated by: Dennis Teo

Next Calibration Due Date: 16/02/2025

Remarks: The correlation coefficient is larger than 0.99 indicates the calibration is okay.

 Station: 04-266407
 Manager: 0217529

Location: Tuas Man Area 26 - A1


 Tester: Dennis Teo

 Checked by: Arthur Chang

SDMP ENV052, Rev 001, 04/1

03 Dec 2024

Form 101



SOMP ENV052 - CALIBRATION RECORD OF HIGH VOLUME AIR SAMPLER (TSF)

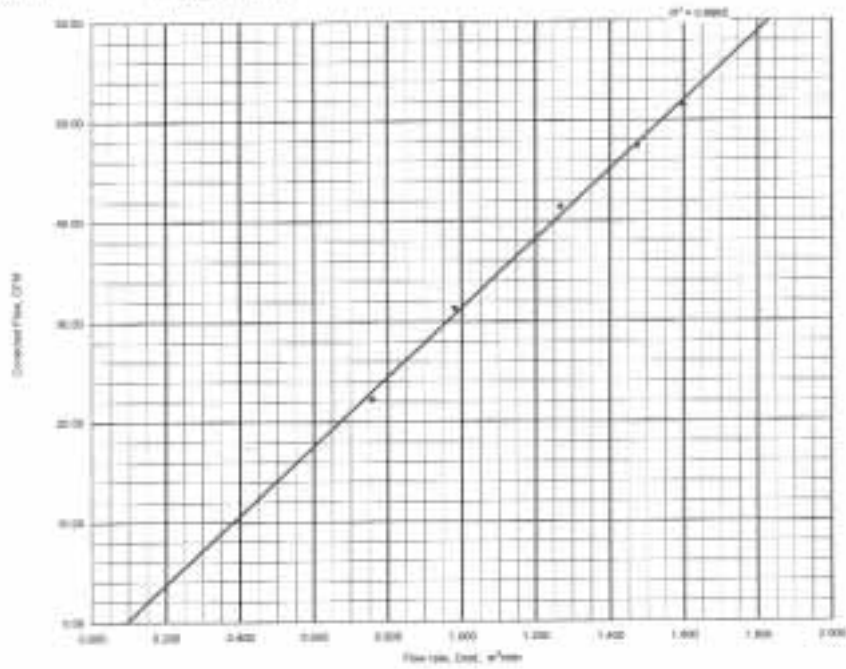
Date: 16/12/2024
Temp.: 20 °C
At. Press: 104 mm Hg
Calibrated by: Dennis Teo
Next Calibration Due Date: 16/12/2025

Equipment No.: EM0002
Serial No.: 11000000
Calibration No.:

Plate	Flow Rate (m ³ /min)	True m ³ /min	Corrected Flow (CFM)
18	1.123	0.9	33.48
13	1.474	0.6	47.44
10	1.258	0.2	41.59
7	0.962	0.1	31.23
8	0.728	0.1	22.21

Remarks: The correlation coefficient is larger than 0.99 indicates the calibration is linear.
Slope* 34.509436
Intercept* -0.218908

Location: Twin Mun Area 3B - A2



Tester: Dennis Teo

Checked By: Arthur Cheong

SOMP ENV052 - Issue 001 Rev 1

16 December 2021

SDMP ENV062- CALIBRATION RECORD OF TURBIDIMETER

Date of Calibration: 24/12/2004

Due Date of Next Calibration: 24/03/2005

Equipment No.: EM 2365

Manufacturer: HACH

Model: 2100P

Serial No.: 970500014289

Turbidimeter Calibration standard (HACH): No.1: 20 NTU
 No.2: 100 NTU
 No.3: 800 NTU

Stock Calibration standard No.: 896

Three-point calibration accepted: Y / N

Stock Calibration checking standards No: QCS 865

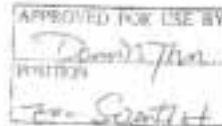
Turbidity value - Checking standards (NTU)		
Actual value	Measured value	Accepted* Y/N
0	0	Y
5	5.31	Y
10	10.8	Y
50	52.3	Y
100	103	Y
400	406	Y

*Allowing Deviation: +/- 10%

 Tested by: 
 Dennis Taur

 Checked by: 
 Jeff Teang

**SOMP ENV066 : CALIBRATION RECORD OF YSI MODEL 30
HANDHELD SALINITY, CONDUCTIVITY &
TEMPERATURE SYSTEM**

Calibration No. 04/4305Equipment No. EM 3694Serial No. 00F0285AADate of Calibration: 17/12/2004Due Date of Next Calibration: 17/03/2005Stock Calibration Standard Potassium Chloride No. 315Stock Calibration Check Potassium Chloride No. 648Volumetric glassware employed: V20, V17, V100, V105, V109, V119

Calibration Check of the Salinity, Conductivity and Temperature System	
Calibration Check Solutions, ppt	Meter reading, ppt
0.0	0.0
10.0	10.3
20.0	21.0
30.0	31.6
40.0	43.5
Allowing deviation: $\pm 10\%$	

Tested by: *Dennis Tsui*
Dennis TsuiChecked By: *Jeff Tang*
Jeff Tang

**SOMP ENV064 : CALIBRATION RECORD OF DISSOLVED OXYGEN
METER**

Dissolved Oxygen Meter Equipment No.: EM 961

Dissolved Oxygen Serial No.: 93M12874

Dissolved Oxygen Probe Serial No.: 96K0145

Date of Calibration: 24-12-2004

Due Date of Next Calibration: 24-03-2005

Molarity of sodium thiosulphate solution: 0.0250M

Potassium Bi-iodate No.: 480

Standardisation of Sodium Thiosulphate Solution			
Standard Solution	Initial burette reading B, mL	Final burette reading C, mL	Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ used A, mL = (C - B)
Standard 1	0.00	20.00	20.00
Standard 2	0.00	20.00	20.00
Standard 3	0.00	20.10	20.10
Average Value			20.03

Calibration of the Dissolved Oxygen Meter					
Standard Solutions	Initial burette reading B, mL	Final burette reading C, mL	Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ used A, mL = (C - B)	D.O. by titration, mg/L	Meter reading, mg/L
A	0.00	1.95	1.95	1.95	1.99
B	0.00	5.60	5.60	5.61	5.65
C	0.00	7.05	7.05	7.06	7.12
D	0.00	8.22	8.22	8.23	8.35
Allowing deviation : $\pm 10\%$					

Tested by :

Dennis Tsui

Checked By :

Jeff Tsang

**SCMP ENV071: CALIBRATION RECORD OF DISSOLVED OXYGEN,
SALINITY, CONDUCTIVITY, TEMPERATURE SYSTEM**
Equipment No.: EM 6167Model No.: YS185Equipment Serial No.: 0411806Date of Calibration.: 15-12-2004Due Date of Next Calibration.: 15-03-2005Molarity of sodium thiosulphate solution: 0.0250MPotassium Bi-iodate No.: 480Stock Calibration Standard Potassium Chloride No. 316Stock Calibration Check Potassium Chloride No. 648Reference Thermometer No. RJ2358*Calibration Check for Dissolved Oxygen*

Standardisation of Sodium Thiosulphate Solution			
Standard Solution	Initial burette reading B, mL	Final burette reading C, mL	Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ used A, mL = (C - B)
Standard 1	0.00	20.00	20.00
Standard 2	0.00	20.00	20.00
Standard 3	0.00	20.10	20.10
Average Value			20.03

Calibration of the Dissolved Oxygen					
Standard Solution	Initial burette reading B, mL	Final burette reading C, mL	Vol. of $\text{Na}_2\text{S}_2\text{O}_3$ used A, mL = (C - B)	D.O. by titration, mg/L	Meter reading, mg/L
A	0.00	2.44	2.44	2.44	2.38
B	0.00	5.45	5.45	5.46	5.40
C	0.00	7.10	7.10	7.11	7.01
D	0.00	8.31	8.31	8.32	8.21
Allowing deviation : $\pm 10\%$					

Calibration Check for Salinity

Calibration Check of the Salinity	
Calibration Check Solutions, ppt	Meter reading, ppt
0.0	0.0
10.0	10.4
20.0	20.9
30.0	31.8
40.0	42.5
Allowing deviation : $\pm 10\%$	

SCMP ENV071 : Issue 2004 No.1

15 December 2004

Calibration Check for Temperature

Calibration Check of the Temperature	
Reference Thermometer reading, °C	Meter reading, °C
0.00	0.0
15.10	15.1
24.90	25.0
30.10	30.1
Allowing deviation : ± 0.5 °C	

Tested by : 
Dennis TsuiChecked By : 
Jeff Tsang

Appendix III

Event and Actions Plans

Event and Action Plan for Air Quality

EVENT	ACTION			CONTRACTOR
	ET Leader	IC (E)	ER	
Action Level Exceedance for one sample	<ol style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures. Inform ER, IEC and Contractor. Repeat measurement to confirm findings. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET. Check Contractor's working methods. 	<ol style="list-style-type: none"> Notify Contractor. 	<ol style="list-style-type: none"> Rectify unacceptable practice. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures. Inform IEC and Contractor. Repeat measurement to confirm findings. Increase monitoring frequency to daily. Discuss with IEC and Contractor on remedial actions. If exceedance continues, arrange meeting with IEC and ER. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> Check monitoring data submitted by ET. Check Contractor's working method. Discuss with ET and Contractor on possible remedial measures. Advise the ER on the effectiveness of the proposed remedial measures. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing. Notify Contractor. Ensure remedial actions are properly implemented. 	<ol style="list-style-type: none"> Submit proposals for remedial actions to ER within 3 working days of notification. Implement the agreed proposals. Amend proposals if appropriate.

Event and Action Plan for Air Quality (cont'd)

EVENT	ACTION			CONTRACTOR
	ET Leader	IC (E)	ER	
Limit Level Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform ER, Contractor and EPD. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET. 2. Check Contractor's working method. 4. Discuss with ET and Contractor on possible remedial measures. 5. Advise the ER on the effectiveness of the proposed remedial measures. 6. Supervisor implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Ensure remedial actions properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedances. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform IEC, ER and Contractor and EPD. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation measure(s) to be implemented. 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken. 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions. 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented. 4. Ensure remedial measures properly implemented. 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level				
Action level being exceeded by one sampling day.	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify source(s) of impacts; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurements on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise ER accordingly; 3. Assess the effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures.
Action level being exceeded by more than one consecutive sampling day.	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify source(s) of impact; 3. Inform contractor and IEC; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurements on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the proposed mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor advise ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.

Event and Action Plan for Water Quality (Cont'd)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level				
Limit level being exceeded by one sampling day.	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify source(s) of impact; 3. Inform contractor and IEC; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the ER accordingly; 3. Assess the effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures.
Limit level being exceeded by more than one sampling day.	<ol style="list-style-type: none"> 1. Repeat in-situ measurements to confirm findings; 2. Identify source(s) of impact; 3. Inform contractor and IEC; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise ER accordingly; 3. Assess the effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures. 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of works identified as the cause of exceedance until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the Engineer, slow down or stop all or part of the works identified as the cause of exceedance or construction activities.

Appendix IV

Implementation Status of Mitigation Measures

IMPLEMENTATION STATUS OF MITIGATION MEASURES

Area	Mitigation Measures	Implementation Period	Implementation Status
1. General	Maximum stockpiling height to be limited to a maximum of +35mPD.	Throughout the operation period	Implemented
2. Air Quality	Working areas where excavation or earthmoving operations are taking place shall be sprayed with water or a dusty suppression chemical.	Throughout the operation period	Implemented
	Any stockpiling of excavated material shall be covered by impervious sheeting or sprayed with water or a dust suppression chemical.	Throughout the operation period	Occasionally implemented
	All roads within the site to be covered with concrete, bituminous materials, hardcore or metal plates.	Throughout the operation period	Implemented
	Erect a hoarding of at least 2.4m high along the northern and eastern boundaries of the site except at the site entrance/exit. Before occupation of the Recovery Park Phase I and II, site hoarding of at least 2.4m high should also be erected along the western boundary of the fill bank.	Throughout the operation period	Implemented
	Install/refurnish vehicle wheel washing facilities including high pressure water jets provided at designated vehicle exit points.	Throughout the operation period	Implemented
	At the barging point, the drop height between the barge and dump trucks shall be minimized.	Throughout the operation period	Implemented
	Tipping halls provided for transfer of public fill from trucks to barges shall be top and 3-sides enclosed.	Throughout the operation period	Implemented
Water lorries and/or road sweepers shall be provided and used in dust suppression.	Throughout the operation period	Implemented	
The designated main haul roads shall be watered at approximately every 2 hours to ensure that the roads are kept sufficiently dampened.	Throughout the operation period	Implemented	

Area	Mitigation Measures	Implementation Period	Implementation Status
2. Air Quality	Truck speed to be controlled to within 10 km/hr.	Throughout the operation period	Implemented
	All dusty fill material shall be sprayed with water or a dust suppression chemical prior to loading, unloading or transfer.	Throughout the operation period	Occasionally Implemented
	Frequent watering (at least three times per day) of the work sites with active dusty operations is recommended. The frequency shall be increased when the weather is dry.	Throughout the operation period	Implemented
	Loading of public fill delivered to the site shall be sprayed with water at the material landing point to minimize dust emission except when the materials are sufficiently dampened when landing.	Throughout the operation period	Occasionally Implemented
	Vehicle washing facilities including high pressure water jet at the existing exits shall be maintained and operated by designated staff to ensure that these dust control measures are being used.	Throughout the operation period	Implemented
	Before leaving the fill bank site, every vehicle shall be washed to remove any dusty materials from its body and wheels.	Throughout the operation period	Occasionally Implemented
	Trucks carrying dusty loads entered to the site shall be sprayed with water once the impervious sheeting covering the load is removed.	Throughout the operation period	Implemented
	A minimum buffer distance of 20m shall always be maintained between the edge of public fill stockpiling area and the nearest air sensitive receivers at the River Trade Terminal.	Throughout the operation period	Implemented
	An area of 100m x 100m in the north-eastern corner of the stockpiling area shall be managed by the Contractor as a "truckload control zone". Number of trucks travelling to the control zone shall be limited to a maximum of 64 vehicles per hour, and a daily maximum of 633 vehicles per day.	Throughout the operation period	Implemented

Area	Mitigation Measures	Implementation Period	Implementation Status
2. Air Quality	Frequent mist spraying should be applied on dusty areas. The frequency of spraying required will depend upon local meteorological conditions such as rainfall, temperature, wind speed and humidity. The amount of mist spraying should be just enough to dampen the material without over-watering.	Throughout the operation period	Implemented
3. Noise	No project activities associated with land-based intake of public fill shall be carried out between 20:00 and 08:00 hrs daily.	Throughout the operation period	Implemented
	All construction works should be carried out during the non-restricted hours (i.e. 7:00 a.m. to 7:00 p.m. on weekdays other than General Holidays).	Throughout the operation period	N/A
	Before the commencement of any works that may generate a significant noise impact, the Contractor should submit to the Engineer for approval the method of working, equipment and sound-reducing measures (e.g. use of silenced type equipment).	Throughout the operation period	N/A
	The fill bank should not be in operation from 8:00 p.m. to 8:00 a.m. the next day.	Throughout the operation period	N/A
4. Water Quality	Trapezoidal surface channels should be constructed to intercept polluted surface runoff. These channels shall be equipped with sand/de-silting traps such that the effluent discharged from site during the establishment, operation and decommissioning phases will meet the required discharge limits.	Throughout the operation period	Implemented
	Tipping halls at the waterfront provided for transfer of public fill from trucks to barges shall be enclosed design with the top 3-sides enclosed to prevent spillage of material into the marine water.	Throughout the operation period	Implemented
	Before the completion of the surface drainage channels at the commencement of the project, earth bunds and sand bag barriers shall be use at required locations to effectively divert storm water to available drainage channels constructed under the reclamation works.	Throughout the operation period	N/A

Area	Mitigation Measures	Implementation Period	Implementation Status
4. Water Quality	Temporary drainage facilities provided shall allow polluted stormwater to be diverted to existing intercepting channels before stockpiling of public fill should begin.	Throughout the operation period	Implemented
	Intercepting channels shall be equipped with sand/silt removal facilities to allow the stormwater to be treated before discharge at the designated outfalls.	Throughout the operation period	Implemented
	Effluent discharged shall meet the relevant discharge limits.	Throughout the operation period	N/A
	A minimum buffer distance of 50m will be provided between the edge of the stockpiling area of the fill bank and seafront.	Throughout the operation period	Implemented
	Open channels and/or other effective drainage system shall be constructed at the perimeter of the site for intercepting and directing runoff to sand/silt removal facilities prior to discharge.	Throughout the operation period	Implemented
	The unpaved area on the seaward side of the channels shall be covered with gravel and formed with slope so that polluted stormwater will be intercepted by the channels.	Throughout the operation period	Implemented
	Any excavated material generated near the seafront (e.g. from the construction of the barging point) not required to be backfilled immediately should be transported away from the seafront to avoid potential water quality impact especially during the rainy season.	Throughout the operation period	Implemented
	Public fill transported to the stockpiling area for storage should not contain unsuitable material such as peat, vegetation, timber, organic, soluble or perishable material, dangerous or toxic material, floatable materials (such as bottle, plastic bags, foam box), and materials susceptible to combustion.	Throughout the operation period	Implemented

Area	Mitigation Measures	Implementation Period	Implementation Status
4. Water Quality	<p>Temporary slope surfaces shall be covered as far as practicable and as soon as possible with tarpaulin or other impermeable sheets, or protected by other methods approved by CED when rainstorms are likely, especially when a rainstorm is imminent or forecast.</p> <p>Final slope surfaces shall be treated by compaction, followed by hydroseeding, vegetation planting or other suitable stabilizer approved by CED to prevent the washing away of stockpiled material.</p> <p>Adequately designed and constructed catchpits, sand and silt removal facilities and intercepting channels should be maintained, and the deposited silt and grit should be removed weekly and on a as need basis especially during the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.</p> <p>A wheel washing bay should be provided at the site exit and washwater should have sand and silt settled out or removed before the water is being reused or discharged into storm drains.</p> <p>All vehicles and plant bodies should be cleaned before they leave the fill bank site to ensure that no earth, mud or debris is deposited by them on roads.</p> <p>The section of construction road between the wheel washing bay and the public road should be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public roads drains.</p>	Throughout the operation period	Partially Implemented
		Throughout the operation period	Partially Implemented
		Throughout the operation period	Implemented
		Throughout the operation period	Implemented
		Throughout the operation period	Occasionally Implemented
		Throughout the operation period	Implemented

Area	Mitigation Measures	Implementation Period	Implementation Status
4. Water Quality	<p>Sewage from toilets and similar facilities should be discharged into a foul sewer, or chemical toilets should be provided. Should chemical toilets be employed these must be provided by a licensed contractor, who will be responsible for appropriate disposal and maintenance of these facilities.</p> <p>Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewers via grease traps.</p> <p>Drainage systems provided at car parking areas shall be provided with oil interceptors in addition to sand/silt removal facilities.</p> <p>All barges used in the transportation of fill material during the operation/decommissioning stages should be properly licensed under the Shipping and Port Control Ordinance, and of appropriate size such that adequate clearance is maintained between the vessels and the sea bed at all states of the tide.</p>	Throughout the operation period	Implemented
		Throughout the operation period	N/A
		Throughout the operation period	N/A
		Throughout the operation period	Implemented
		Throughout the operation period	Implemented
		Throughout the operation period	N/A
		Throughout the operation period	N/A
		Throughout the operation period	Implemented

Area	Mitigation Measures	Implementation Period	Implementation Status
4. Water Quality	The design of the specific transfer methods shall be as such that the pathway of material delivery from barge to the waterfront will not be directly on top of the marine water.	Throughout the operation period	Implemented
	Barges should not be filled to a level which may cause overflow of material during loading or transportation.	Throughout the operation period	Implemented
	Barge effluents (e.g. muddy water) should be properly collected and treated prior to disposal.	Throughout the operation period	Implemented
	Work activities should not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging point.	Throughout the operation period	Implemented
	A waste collection vessel shall be deployed to remove floating refuse on the sea near the fill bank for proper disposal.	Throughout the operation period	Occasionally Implemented
	5. Landfill Gas	Main site offices of the fill bank shall be constructed within the site area lying outside the 250m consultation zone of the restored Siu Lang Shui Landfill.	Throughout the operation period
The container office(s) to be set up at the site entrance/exit which is situated within the construction zone of the landfill shall be constructed on a raised hollow platform, or equivalent.		Throughout the operation period	Implemented
No underground structures such as drainage and sewage systems, underground pipelines and chambers shall be constructed at the site area lying within the consultation zone.		Throughout the operation period	Implemented
In the unlikely event that any sign of leachate-contaminated groundwater be encountered during the establishment, operation or decommissioning phases of the fill bank, the landfill operator should be informed so that this can be collected for proper treatment and disposal.		Throughout the operation period	Implemented

Area	Mitigation Measures	Implementation Period	Implementation Status
6. Landscape and Visual	Hydroseeding or coloured geo-textile matting (dark green/brown) shall be provided on the slopes of the fill bank along the eastern, northern and western sides of the fill bank as the slopes of each layer of platform are formed.	Throughout the operation period	Partially Implemented
	A buffer tree planting strip should be provided along the northern perimeter of the site where space permits. A row of approximately 3m high native evergreen tree species with a tall habit when fully grown (e.g. Casuarina equisetifolia) shall be planted at the early establishment/ operational phase of the project.	Throughout the operation period	Implemented
	The design, colour and finish of structures at the fill bank should be such that they are visually recessive. Reflectivity should be reduced through selection of material or surface treatment.	Throughout the operation period	Implemented
	The surface colour selected should be of an earthy tone with strong natural qualities (e.g. green/grey/brown). The use of bold colour schemes should be avoided.	Throughout the operation period	Implemented
	The existing 2.4m high site hoarding located along Lung Mun Road should be maintained to help screening of the fill bank.	Throughout the operation period	Implemented

Appendix V

Air Quality Monitoring Results

Report on 24-hour Total Suspended Particulate Monitoring - A1

Sample Number	Location Code	Date and Time of Sampling	Start Counter Reading	Stop Counter Reading	Temperature, °C Initial/Final	Pressure, mmHg Initial/Final	Weather Conditions	Wind Direction	Weight of Filter, g Initial/Final	Flow rate Q _{as} , std. m ³ /min	Total air volume of sample, std. m ³	Mass Concentration of TSP, µg/std. m ³
13412	A1	05/01/2005 16:00	2594.67	2619.97	17/18	766/765	Cloudy	E	2.8646/3.0234	1.32	2004	79
13416	A1	11/01/2005 15:31	2622.97	2647.12	17/16	766/766	Sunny	E	2.8745/3.1194	1.32	1913	128
13423	A1	17/01/2005 13:50	2660.12	2675.33	14/16	766/765	Cloudy	E	2.8457/3.0139	1.32	1997	84
13472	A1	22/01/2005 15:15	2678.33	2703.46	17/18	766/764	Cloudy	E	2.8061/3.0203	1.34	2020	106
13490	A1	28/01/2005 14:45	2706.46	2731.53	19/18	759/759	Rainy	NE	2.8459/2.9942	1.37	2061	72

Report on 24-hour Total Suspended Particulate Monitoring - A2

Sample Number	Location Code	Date and Time of Sampling	Start Counter Reading	Stop Counter Reading	Temperature, °C Initial/Final	Pressure, mmHg Initial/Final	Weather Conditions	Wind Direction	Weight of Filter, g Initial/Final	Flow rate Q _{as} , std. m ³ /min	Total air volume of sample, std. m ³	Mass Concentration of TSP, µg/std. m ³
13413	A2	05/01/2005 16:10	10769.00	10793.00	17/18	766/765	Cloudy	E	2.8594/3.0726	1.4	2016	106
13418	A2	11/01/2005 15:51	10796.00	10820.00	17/16	766/766	Sunny	E	2.8361/3.0669	1.43	2059	111
13425	A2	17/01/2005 14:10	10823.00	10847.00	14/16	766/765	Cloudy	E	2.8409/3.0374	1.43	2059	95
13474	A2	22/01/2005 15:35	10849.99	10874.00	17/18	766/764	Cloudy	E	2.8051/2.9642	1.37	1974	81
13489	A2	28/01/2005 14:55	10877.00	10901.00	19/18	758/759	Rainy	NE	2.9225/3.0845	1.34	1930	84

Report on 1-hour Total Suspended Particulate Monitoring - A1

Sample Number	Location Code	Date and Time of Sampling	Start Counter Reading	Stop Counter Reading	Temperature, °C	Pressure, mmHg	Weather Conditions	Wind Direction	Weight of Filter, g Initial/Final	Flow rate Q_{as} , std. m ³ /min	Total air volume of sample, std. m ³	Mass Concentration of TSP, µg/std. m ³
13403	A1	05/01/2005 09:45	2591.67	2592.67	17	766	Cloudy	E	2.8478 2.8770	1.43	86	340
13406	A1	05/01/2005 10:55	2592.67	2593.67	17	766	Cloudy	E	2.8471 2.8685	1.43	86	249
13409	A1	05/01/2005 13:20	2593.67	2594.63	17	766	Cloudy	E	2.8638 2.8774	1.43	82	165
13429	A1	11/01/2005 09:30	2619.97	2620.97	17	766	Sunny	E	2.8341 2.8605	1.46	88	301
13428	A1	11/01/2005 10:31	2620.97	2621.97	17	766	Sunny	E	2.8404 2.8673	1.46	88	307
13427	A1	11/01/2005 14:30	2621.97	2622.97	17	766	Sunny	E	2.8355 2.8598	1.46	88	277
13448	A1	17/01/2005 09:20	2647.12	2648.12	14	766	Cloudy	E	2.8438 2.8653	1.52	91	236
13449	A1	17/01/2005 10:20	2648.12	2649.12	14	766	Cloudy	E	2.8425 2.8619	1.52	91	213
13450	A1	17/01/2005 11:20	2649.12	2650.12	14	766	Cloudy	E	2.8478 2.8725	1.52	91	271
13463	A1	22/01/2005 09:30	2675.33	2676.33	17	766	Cloudy	E	2.8622 2.8899	1.43	86	323
13466	A1	22/01/2005 10:31	2676.33	2677.33	17	766	Cloudy	E	2.8555 2.8715	1.42	85	188
13469	A1	22/01/2005 11:40	2677.33	2678.33	17	766	Cloudy	E	2.8404 2.8618	1.4	84	255
13480	A1	28/01/2005 10:15	2703.46	2704.46	19	758	Rainy	NE	2.8917 2.9065	1.52	91	162
13483	A1	28/01/2005 11:25	2704.46	2705.46	19	758	Cloudy	NE	2.8688 2.8824	1.34	80	169
13487	A1	28/01/2005 13:40	2705.46	2706.46	19	758	Cloudy	NE	2.8530 2.8701	1.52	91	187

Report on 1-hour Total Suspended Particulate Monitoring - A2

Sample Number	Location Code	Date and Time of Sampling	Start Counter Reading	Stop Counter Reading	Temperature, °C	Pressure, mmHg	Weather Conditions	Wind Direction	Weight of Filter, g Initial/Final	Flow rate Q _{as} , std. m ³ /min	Total air volume of sample, std. m ³	Mass Concentration of TSP, µg/std. m ³
13404	A2	06/01/2006 09:55	10786.00	10767.00	17	766	Cloudy	E	2.8341 2.8602	1.43	86	304
13407	A2	06/01/2006 11:00	10767.00	10768.00	17	766	Cloudy	E	2.8584 2.8737	1.4	84	182
13410	A2	06/01/2006 13:35	10768.00	10769.00	17	766	Cloudy	E	2.8581 2.8792	1.37	82	257
13435	A2	11/01/2006 09:55	10793.00	10794.00	17	766	Sunny	E	2.8391 2.8553	1.43	86	189
13434	A2	11/01/2006 10:56	10794.00	10795.00	17	766	Sunny	E	2.8368 2.8579	1.43	86	246
13433	A2	11/01/2006 14:50	10795.00	10796.00	17	766	Sunny	E	2.8411 2.8667	1.43	86	298
13439	A2	17/01/2006 09:40	10820.00	10821.00	14	766	Cloudy	E	2.8462 2.8593	1.43	86	153
13440	A2	17/01/2006 10:40	10821.00	10822.00	14	766	Cloudy	E	2.8461 2.8599	1.43	86	161
13441	A2	17/01/2006 11:40	10822.00	10823.00	14	766	Cloudy	E	2.8383 2.8600	1.43	86	253
13465	A2	22/01/2006 09:50	10847.00	10848.00	17	766	Cloudy	E	2.8060 2.8259	1.31	79	253
13468	A2	22/01/2006 10:51	10848.00	10849.99	17	766	Cloudy	E	2.8411 2.8613	1.31	78	260
13470	A2	22/01/2006 11:52	10848.99	10849.99	17	766	Cloudy	E	2.8079 2.8292	1.37	82	259
13481	A2	28/01/2006 10:30	10874.00	10875.00	19	758	Cloudy	NE	2.8737 2.8924	1.43	86	218
13484	A2	28/01/2006 11:40	10875.00	10876.00	19	758	Cloudy	NE	2.8824 2.9001	1.34	80	220
13496	A2	28/01/2006 13:50	10876.00	10877.00	19	758	Cloudy	NE	2.9038 2.9215	1.34	80	220

Appendix VI

Water Quality Monitoring Results

Project: Contract No. CV20020213 Fill Bank At Tera Mun Area 38		Client: Penta-Ocean Construction Co., Ltd.		Job No.: 4494.1								
Date of Sampling: 09/01/2005		Weather Condition: Sunny		Tide State: Mid-Ebb								
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	Temperature, °C	Disolved Oxygen, mg/L	Salinity, ppt	Turbidity, NTU	Suspended Solids, mg/L	Remarks		
			a	b	a	b	a	b	Average	Depth		
					Average				Average	Average		
F01 S			1.0	21.5	21.4	6.95	6.93	32.3	5.95	5.89	9	9
F01 M	18:45	Small wave	17.0	8.5	21.3	6.80	6.87	32.1	5.78	5.70	9	9
F01 B			16.0	21.0	21.0	6.78	6.79	32.2	6.24	6.12	8	10
F02 S			1.0	21.3	21.3	6.72	6.81	32.1	4.48	4.58	6	8
F02 M	18:55	Small wave	18.0	9.0	21.2	6.88	6.80	32.2	3.95	3.87	8	9
F02 B			17.0	20.8	20.6	6.64	6.69	32.1	6.94	6.81	9	8
F03 S			1.0	21.2	21.1	6.89	6.72	32.1	4.22	4.34	6	7
F03 M	18:30	Small wave	22.0	11.0	21.1	6.74	6.70	32.2	6.21	6.35	10	10
F03 B			21.0	20.9	21.0	6.69	6.60	31.9	5.69	5.81	7	8
F02 S			1.0	21.1	21.1	6.70	6.84	32.1	7.59	7.31	10	11
F02 M	19:05	Small wave	18.0	9.0	21.0	6.71	6.72	32.2	6.69	6.69	8	9
F02 B			17.0	20.7	20.6	6.78	6.65	32.0	5.67	5.74	8	9
<u>Solid data with single underline indicates an exceedance to Action Level</u>												
<u>Table data with double underline indicates an exceedance to Limit Level</u>												
Equipment used	Disolved Oxygen Meter	EM	961	Calibration Check:	100%: ok	Sampled By:						
	Turbidity Meter	EM	2365	Calibration Check:	4.52, 45.7, 453 NTU	Checked By:						
	Salinity Meter	EM	3594	Calibration Check:	58.8 mS	Date:						
	Thermometer	ET	961									

CV/2002/13 Fill Bank At Tuen Mun Area 3B		Weather Condition:		Client: Benta-Ocean Construction Co., Ltd.		Job No.:		4494.1								
05/01/2005		Cloudy		Ambient Temperature °C:		17		Tide State: Mid-Flood								
Sea Condition	Overall Depth, m	Sampling Depth, m		Temperature, °C		Dissolved Oxygen, mg/L		Salinity, ppt		Turbidity, NTU		Suspended Solids, mg/L		Remarks		
		a	b	a	b	a	b	a	b	a	b	Average	Depth			
Small wave	18.0	1.0	17.5	17.5	17.5	5.97	7.05	89.4	88.5	32.1	32.1	4.10	4.38	9	8	
		9.0	17.6	17.6	17.6	6.36	6.47	6.72	85.5	32.1	32.1	5.87	5.47	10	8	9.2
		17.0	17.1	17.1	17.1	6.65	6.41	6.53	86.8	32.3	32.3	6.15	6.23	10	10	
Small wave	19.0	1.0	17.6	17.6	17.6	6.72	6.75	86.4	87.5	32.0	32.0	4.78	4.52	8	8	
		9.5	17.4	17.4	17.4	6.56	6.61	6.66	86.5	32.2	32.2	4.89	4.88	8	9	8.5
		18.0	17.3	17.3	17.3	6.20	6.14	6.17	83.0	32.3	32.3	5.41	5.23	10	8	
Small wave	24.0	1.0	17.6	17.6	17.6	6.56	6.62	84.7	85.5	32.1	32.1	4.63	4.59	11	10	
		12.0	17.5	17.5	17.5	7.00	7.02	6.80	87.7	32.0	32.0	5.03	4.90	8	10	8.8
		23.0	17.4	17.4	17.4	6.14	6.20	6.17	81.4	32.4	32.4	5.75	5.94	7	7	
Small wave	18.0	1.0	17.7	17.7	17.7	6.26	6.30	82.6	83.8	32.0	32.0	4.60	4.38	9	8	
		9.0	17.6	17.6	17.6	6.34	6.35	6.31	83.6	32.2	32.2	5.51	5.50	9	8	8.2
		17.0	17.8	17.8	17.8	6.14	6.09	6.12	82.6	32.3	32.3	5.19	5.40	7	8	
<u>a underline indicates an exceedance to Action Level</u> <u>underline indicates an exceedance to Limit Level</u>																
Dissolved Oxygen Meter:		EM	951	Calibration Check:		0mg/L	ok	100%		ok	Sampled By:					
Turbidity Meter:		EM	2365	Calibration Check:		4.47	44.1	460		NTU	Checked By:					
Salinity Meter:		EM	3694	Calibration Check:		58.8	mS	Date:								
Thermometer:		ET	951													

Project: Contract No. CV20020213 Fill Bank At Tera Mun Area 38		Weather Condition:		Sunny		Client: Penta-Ocean Construction Co., Ltd.		Job No.:		4494.1					
Date of Sampling: 07/01/2005		Temperature, °C:		22		Tide State:		Mid-Flotid							
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	Temperature, °C	Disolved Oxygen, mg/L	Average	Disolved Oxygen, %	Average	Salinity, ppt	Turbidity, NTU	Average	Suspended Solids, mg/L	Depth	Remarks
F01 S				1.0	21.9	21.9	6.73	6.69	90.5	89.8	32.0	32.1	4.61	4.57	5
F01 M	15:50	Small wave	18.0	9.0	21.8	21.8	6.78	6.74	91.1	90.3	32.2	32.3	5.46	5.31	8
F01 B				17.0	21.8	21.7	6.89	6.86	91.4	89.4	32.3	32.2	6.75	6.70	11
F02 S				1.0	21.7	21.7	6.99	6.94	97.6	96.7	32.1	32.2	4.56	4.51	5
F02 M	15:40	Small wave	17.0	8.5	21.8	21.7	6.73	6.82	90.2	91.5	32.1	32.3	5.81	5.88	10
F02 B				16.0	21.6	21.5	6.85	6.73	93.4	89.9	32.2	32.1	6.01	6.05	11
F03 S				1.0	21.8	21.8	6.75	6.61	89.4	88.1	32.3	32.2	4.58	4.65	6
F03 M	16:00	Small wave	22.0	11.0	21.7	21.6	6.61	6.73	88.5	89.6	32.2	32.1	6.93	6.99	13
F03 B				21.0	21.5	21.4	6.84	6.88	94.0	92.2	32.4	32.3	6.81	6.84	12
F04 S				1.0	21.9	22.0	6.64	6.77	88.7	89.0	32.2	32.3	4.72	4.72	5
F04 M	15:25	Small wave	18.0	9.0	21.7	21.7	6.71	6.75	89.3	89.6	32.0	32.1	5.14	5.16	8
F04 B				17.0	21.6	21.6	6.67	6.60	88.8	88.1	31.9	32.0	5.27	5.33	9
Field data with single underline indicates an exceedance to Action Level															
Table data with double underline indicates an exceedance to Alert Level															
Equipment used:	Disolved Oxygen Meter:	EM	961	Calibration Check:	0mg/L	ok	100%	ok	Sampled By:						
	Turbidity Meter:	EM	2365	Calibration Check:	4.49	45.1	450	NTU	Checked By:						
	Salinity Meter:	EM	3594	Calibration Check:	58.8	mS			Date:						
	Thermometer:	ET	961												

Project: Contract No. CV20020213 Fill Bank At Tern Mun Area 38		Weather Condition:		Sunny		Ambient Temperature, °C:		20		Tide State:		Mid-Ebb		4494.1	
Date of Sampling: 07/01/2005		Sea Condition:		Small wave		Temperature, °C:		20		Turbidity, NTU:		Average		Remarks	
Station	Time	Overall Depth, m	Sampling Depth, m	a	b	Disolved Oxygen, mg/L	a	b	Salinity, ppt	a	b	Disolved Oxygen, %	a	b	Suspended Solids, mg/L
F01 S			1.0	21.0	20.9	6.74	6.64		32.1	32.1	4.80	4.78			7
F01 M	10:20	17.0	8.5	20.7	20.7	6.65	6.75	6.70	32.3	32.2	5.35	5.39	69.3		10
F01 B			16.0	20.6	20.6	6.68	6.68	6.63	32.2	32.3	6.56	6.50	89.8		10
F02 S			1.0	20.8	20.8	6.66	6.72		32.3	32.4	4.61	4.62	87.9		14
F02 M	10:30	17.0	8.5	20.6	20.7	6.70	6.64	6.68	32.2	32.2	4.54	4.54	89.3		7
F02 B			16.0	20.4	20.5	6.64	6.68	6.66	32.2	32.3	4.68	4.67	88.3		8
F03 S			1.0	20.7	20.7	6.95	6.99		32.0	32.0	5.45	5.53	93.2		6
F03 M	10:10	23.0	11.5	20.7	20.8	6.81	6.71	6.87	32.4	32.3	5.20	5.25	94.0		6
F03 B			22.0	20.5	20.6	6.73	6.82	6.78	32.2	32.1	5.59	5.61	90.1		10
F04 S			1.0	20.9	20.9	6.69	6.74		32.3	32.3	3.49	3.56	89.9		9
F04 M	10:45	17.0	8.5	20.8	20.8	6.72	6.77	6.73	32.2	32.2	5.08	5.04	90.2		11
F04 B			16.0	20.7	20.8	6.67	6.66	6.67	32.1	32.0	5.74	5.61	91.6		12
Field data with single underline indicates an exceedance to Action Level															
Table data with double underline indicates an exceedance to Test Level															
Equipment used:	Disolved Oxygen Meter:	EM	961	Calibration Check:		0mg/L:	ok	100%:	ok	Sampled By:					
	Turbidity Meter:	EM	2365	Calibration Check:		4.57:	45.2:	465:	NTU	Checked By:					
	Salinity Meter:	EM	3594	Calibration Check:		58.8:	mS			Date:					
	Thermometer:	ET	961												

Project: Contract No. CV2002013 Fill Bank At Tuen Mun Area 38		Weather Condition:		Rainy		Client: Penta-Ocean Construction Co., Ltd.		Job No.:		4494.1									
Date of Sampling: 13/01/2005		Temperature, °C		Dissolved Oxygen, mg/L		Salinity, ppt		Turbidity, NTU		Tide State: Mid-Flood									
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	a	b	a	b	a	b	Average	Suspended Solids, mg/L	Depth Average	Remarks					
FMI S				1.0	15.9	15.9	6.77	6.87	92.3	93.8	91.7	31.8	31.7	5.50	5.38	8	7		
FMI M	10:20	Small wave	17.0	8.5	15.6	15.5	6.63	6.69	90.1	90.6		31.7	31.8	9.49	9.57	10	11	10.3	
FMI B				16.0	15.3	15.4	6.52	6.50	88.6	88.4	88.5	31.9	31.9	14.90	15.40	12	14		
FNC S				1.0	15.8	15.8	6.69	6.74	90.7	91.2	90.6	31.9	31.8	10.20	10.30	12	12		
FNC M	10:10	Small wave	17.0	8.5	15.7	15.7	6.61	6.69	89.8	90.6		31.8	31.8	11.00	11.20	13.52	16	18	17.7
FNC B				16.0	15.6	15.7	6.56	6.55	89.2	89.1	89.2	31.9	31.9	18.90	19.50	23	25		
FC1 S				1.0	15.7	15.7	6.99	6.91	96.9	96.3	94.7	31.7	31.7	11.70	11.80	16	13		
FC1 M	10:35	Small wave	23.0	11.5	15.7	15.6	6.80	6.87	92.6	93.0		31.9	31.9	10.40	10.80	11.85	14	13	14.8
FC1 B				22.0	15.3	15.4	6.75	6.63	92.0	90.7	91.4	31.8	31.7	12.90	13.50	16	17		
FC2 S				1.0	15.8	15.8	6.84	6.92	93.5	94.5	92.1	32.0	31.9	10.10	10.50	13	15		
FC2 M	10:00	Small wave	17.0	8.5	15.6	15.6	6.61	6.76	89.4	90.9		31.8	31.9	12.50	12.60	12.32	17	16	16.7
FC2 B				16.0	15.7	15.7	6.60	6.57	88.1	88.5	88.3	31.7	31.8	13.90	14.30	19	20		
Bold data with single underline indicates an exceedance to Action Level																			
<i>Italic data with double underline indicates an exceedance to Limit Level</i>																			
Equipment used	Dissolved Oxygen Meter	EM	961	Calibration Check:	0mg/L	ok	100%	ok			Sampled By:								
	Turbidity Meter	EM	2365	Calibration Check:	4.52	45.7	448	NTU			Checked By:								
	Salinity Meter	EM	3694	Calibration Check:	98.8	mS					Date:								
	Thermometer	ET	961																

Project: Contract No. CV2002013 Fill Bank At Tuan Man Area 38		Weather Condition: Sunny		Client: Penta-Ocean Construction Co., Ltd.		Job No.: 4494.1						
Date of Sampling: 15/01/2005		Weather Condition: Sunny		Ambient Temperature, °C: 19		Tide State: Mid Flood						
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	Temperature, °C	Disolved Oxygen, mg/L	Salinity, ppt	Turbidity, NTU	Disolved Oxygen, %	Average	Suspended Solids, mg/L	Remarks
					a b	a b	a b	a b	a b	Average	Depth	
F01 S				1.0	19.3 19.3	6.62 6.75	32.4 32.4	10.60 10.70	91.8 91.8	90.7	17 15	
F01 M	11:45	Small wave	17.0	8.5	19.0 19.0	6.70 6.65	32.5 32.5	10.40 10.90	88.7 88.7	10.98	16 15	15.2
F01 B				16.0	18.7 18.8	6.61 6.60	32.3 32.3	10.80 10.10	87.5 87.5	10.10	15 13	
F02 S				1.0	19.2 19.3	6.78 6.70	32.3 32.3	9.11 9.36	91.1 91.1	9.36	10 8	
F02 M	11:35	Small wave	17.0	8.5	19.1 19.2	6.65 6.69	32.4 32.5	9.12 9.47	88.1 88.7	9.74	16 13	11.8
F02 B				16.0	18.8 18.9	6.58 6.61	32.4 32.4	10.70 10.70	87.9 87.9	10.70	12 12	
F01 S				1.0	19.1 19.1	6.72 6.81	32.4 32.5	9.54 9.81	92.2 92.2	9.81	14 12	
F01 M	12:00	Small wave	22.0	11.0	19.1 19.2	6.67 6.74	32.2 32.2	9.27 9.46	91.4 89.0	9.19	11 13	12.3
F01 B				21.0	18.9 18.8	6.50 6.67	32.3 32.3	8.32 8.71	88.0 87.0	8.71	12 12	
F02 S				1.0	19.3 19.2	6.85 6.80	32.4 32.4	8.48 8.92	92.3 92.3	8.92	15 16	
F02 M	11:25	Small wave	17.0	8.5	19.2 19.1	6.78 6.71	32.2 32.2	9.41 9.37	91.6 92.0	9.43	11 12	13.3
F02 B				16.0	19.0 19.1	6.64 6.69	32.3 32.3	10.30 10.10	89.2 88.8	10.10	12 14	
Bold data with single underline indicates an exceedance to Action Level												
<i>Italic data with double underline indicates an exceedance to Limit Level</i>												
Equipment used	Disolved Oxygen Meter	EM	961	Calibration Check: 0mg/L ok	100% ok	Sampled By:						
	Turbidity Meter	EM	2365	Calibration Check: 4.53, 45.9, 461	NTU	Checked By:						
	Salinity Meter	EM	3694	Calibration Check: 58.8	mS	Date:						
	Thermometer	ET	961									

Project: Contract No. CV20020213 Fill Bank At Tern Mun Area 38		Weather Condition:		Sunny		Ambient Temperature, °C:		19		Tide State:		Mid-Ebb		4494.1		
Date of Sampling: 15/01/2005		Sea Condition:		Temperature, °C		Dissolved Oxygen, mg/L		Salinity, ppt		Turbidity, NTU		Suspended Solids, mg/L		Remarks		
Station	Time	Overall Depth, m	Sampling Depth, m	a	b	a	b	a	b	a	b	a	b	Depth Average		
F01 S			1.0	19.5	19.4	6.80	6.86	92.3	92.7	32.3	32.3	9.19	9.23	15	14	
F01 M	17:15	Small wave	9.0	19.1	19.0	6.71	6.79	91.6	92.2	32.2	32.2	9.36	9.44	12	11	
F01 B			17.0	18.9	19.0	6.69	6.66	88.4	88.8	32.1	32.2	8.68	8.92	14	12	
F02 S			1.0	19.4	19.3	6.81	6.72	92.5	91.5	32.3	32.2	9.59	9.72	13	11	
F02 M	17:25	Small wave	9.0	19.0	19.0	6.75	6.67	91.4	89.0	32.1	32.3	7.98	8.04	12	13	
F02 B			17.0	18.8	18.6	6.69	6.60	89.0	87.0	32.2	32.4	8.38	8.21	8	7	
F03 S			1.0	19.3	19.3	6.72	6.78	91.1	92.0	32.1	32.2	9.18	9.06	13	15	
F03 M	17:00	Small wave	11.5	19.1	19.2	6.69	6.68	89.2	88.7	32.0	32.1	8.72	8.57	12	11	
F03 B			22.0	19.2	19.1	6.59	6.53	87.9	87.6	32.3	32.3	9.27	9.44	13	13	
F04 S			1.0	19.4	19.3	6.77	6.84	91.8	92.4	32.4	32.5	8.69	8.91	12	12	
F04 M	17:36	Small wave	8.5	19.1	19.0	6.66	6.75	88.7	90.5	32.0	32.1	8.64	8.76	11	10	
F04 B			16.0	19.0	19.2	6.69	6.61	87.5	88.3	32.2	32.3	8.96	9.06	12	13	
Field data with single underline indicates an exceedance to Action Level																
Table data with double underline indicates an exceedance to Test Level																
Equipment used:	Dissolved Oxygen Meter:	EM	961	Calibration Check:		0mg/L:	ok	100%:		ok	Sampled By:					
	Turbidity Meter:	EM	2365	Calibration Check:		4.57:	45.8:	460:		NTU	Checked By:					
	Salinity Meter:	EM	3594	Calibration Check:		58.9:	mS	Date:								
	Thermometer:	ET	961													

Project: Contract No. CV2002013 Fill Bank At Tuan Man Area 38		Weather Condition:		Client: Penta-Ocean Construction Co., Ltd.		Job No.:		4494.1						
Date of Sampling: 19/01/2005		Weather Condition: Cloudy		Ambient Temperature, °C:		Turbidity, NTU		Tide State: Mid Flood						
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	Temperature, °C	Disolved Oxygen, mg/L	Salinity, ppt	Disolved Oxygen, %	Suspended Solids, mg/L	Remarks				
					a b	a b	a b	a b	Average	Depth Average				
F01 S				1.0	18.6	18.6	6.85	6.89	32.3	32.3	4.51	4.40	6	6
F01 M	14:05	Small wave	18.0	9.0	18.5	18.5	6.77	6.74	93.0	32.3	6.84	6.97	7	8
F01 B				17.0	18.5	18.5	6.70	6.68	89.8	32.2	7.24	7.03	12	11
F02 S				1.0	18.4	18.5	6.88	6.83	92.3	32.2	5.92	5.72	9	9
F02 M	13:55	Small wave	17.0	8.5	18.5	18.5	6.82	6.82	90.8	32.2	6.22	6.20	9	8
F02 B				16.0	18.4	18.4	6.75	6.77	89.7	32.1	5.06	5.17	9	9
F01 S				1.0	18.4	18.4	6.80	6.83	92.3	32.3	5.85	5.98	6	7
F01 M	14:20	Small wave	22.0	11.0	18.5	18.4	6.78	6.81	90.7	32.1	5.48	5.49	7	6
F01 B				21.0	18.5	18.5	6.75	6.70	89.8	32.2	6.89	6.95	12	10
F02 S				1.0	18.3	18.4	6.86	6.87	94.0	32.4	4.78	4.78	8	8
F02 M	13:45	Small wave	18.0	9.0	18.5	18.4	6.81	6.77	93.0	32.3	5.89	5.79	8	9
F02 B				17.0	18.3	18.3	6.72	6.74	89.4	32.2	6.37	6.50	6	6
Bold data with single underline indicates an exceedance to Action Level														
Italic data with double underline indicates an exceedance to Limit Level														
Equipment used	Disolved Oxygen Meter	EM	951	Calibration Check:	0mg/L	ok	100%	ok	Sampled By:					
	Turbidity Meter	EM	2365	Calibration Check:	4.61	44.6	452	NTU	Checked By:					
	Salinity Meter	EM	3694	Calibration Check:	58.8	mS			Date:					
	Thermometer	ET	951											

Project: Contract No. CV20002013 Fill Bank At Tuam Main Area 3B		Client: Panta-Ocean Construction Co., Ltd.		Job No.: 4494.1														
Date of Sampling: 26/01/2006		Weather Condition: Cloudy		Tide State: Mid-Ebb														
Station	Time	Sea Condition	Overall Depth, m	Sampling Depth, m	Temperature, °C	Disolved Oxygen, mg/L	Salinity, ppt	Turbidity, NTU	Suspended Solids, mg/L	Remarks								
					a	b	a	b	a	Depth Average								
F01 S				1.0	18.4	18.3	6.80	6.82	82.9	83.3	33.3	33.3	5.37	5.44	6	7		
F01 M	15:29	Small wave	17.0	8.5	18.4	18.2	6.84	6.82	83.5	83.6	33.3	33.2	5.75	5.79	5.56	10	9	7.7
F01 B				16.0	18.2	18.2	6.85	6.88	83.4	83.9	33.2	33.2	5.52	5.50	7	7		
F02 S				1.0	18.3	18.4	6.80	6.83	83.1	83.0	33.2	33.3	5.39	5.41	7	7		
F02 M	15:37	Small wave	17.0	8.5	18.3	18.3	6.85	6.81	83.4	83.4	33.2	33.2	3.44	3.42	4.71	8	8	7.7
F02 B				16.0	18.1	18.1	6.80	6.83	83.4	83.6	33.3	33.3	5.30	5.27	8	8		
F03 S				1.0	18.2	18.3	6.90	6.86	84.2	84.0	33.2	33.3	5.36	5.39	7	7		
F03 M	15:16	Small wave	22.0	11.0	18.3	18.2	6.92	6.90	84.4	84.1	33.2	33.3	5.51	5.46	5.45	8	9	7.3
F03 B				21.0	18.2	18.2	6.87	6.87	84.0	84.0	33.2	33.1	5.52	5.46	7	6		
F04 S				1.0	18.2	18.2	6.91	6.91	84.5	84.1	33.1	33.2	5.78	5.83	7	7		
F04 M	15:47	Small wave	18.0	9.0	18.2	18.1	6.89	6.93	83.9	84.2	33.2	33.2	5.56	5.56	6.05	8	7	7.5
F04 B				17.0	18.1	18.1	6.90	6.88	83.7	84.1	33.2	33.2	6.77	6.81	8	8		
Result data with single underline indicates an exceedance to Action Level Italic data with double underline indicates an exceedance to Limit Level																		
Equipment used:	Disolved Oxygen Meter	EM	961	Calibration Check:	0mg/L	ok	100%	ok	Sampled By:									
	Turbidity Meter	EM	2365	Calibration Check:	4.53	45.1	455	NTU	Checked By:									
	Salinity Meter	EM	3654	Calibration Check:	58.8	mS			Date:									
	Thermometer	ET	961															

Appendix VII
Complaint Log

CONTRACT No. CV/2002/13 – FILL BANK AT TUEN MUN AREA 38 - ENVIRONMENTAL COMPLAINTS LOG.

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply and to Whom
001	07.02.2004	From: Public By: Home Affairs Department	Cleanliness of public roads.	N/A	The situation was rectified.	N/A
002	29.06.2004	From: Public By: EPD	Dust generation in Fill Bank.	N/A	The situation was rectified.	N/A
003	31.07.2004	From: Public By: EPD	Dust generation at Lung Mun Road near Fill Bank.	07.08.2004	The situation was rectified.	N/A
004	13.08.2004	From: Public By: EPD	Dust emission within the site.	18.08.2004	The situation was rectified.	N/A
005	26.08.2004	From: Public By: EPD	Dust emission and debris leakage from dump trucks near Government Depot.	07.09.2004	Not site related.	N/A
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

Appendix VIII

Cumulative Statistics on Complaints, Notifications of Summonses and Successful Prosecutions

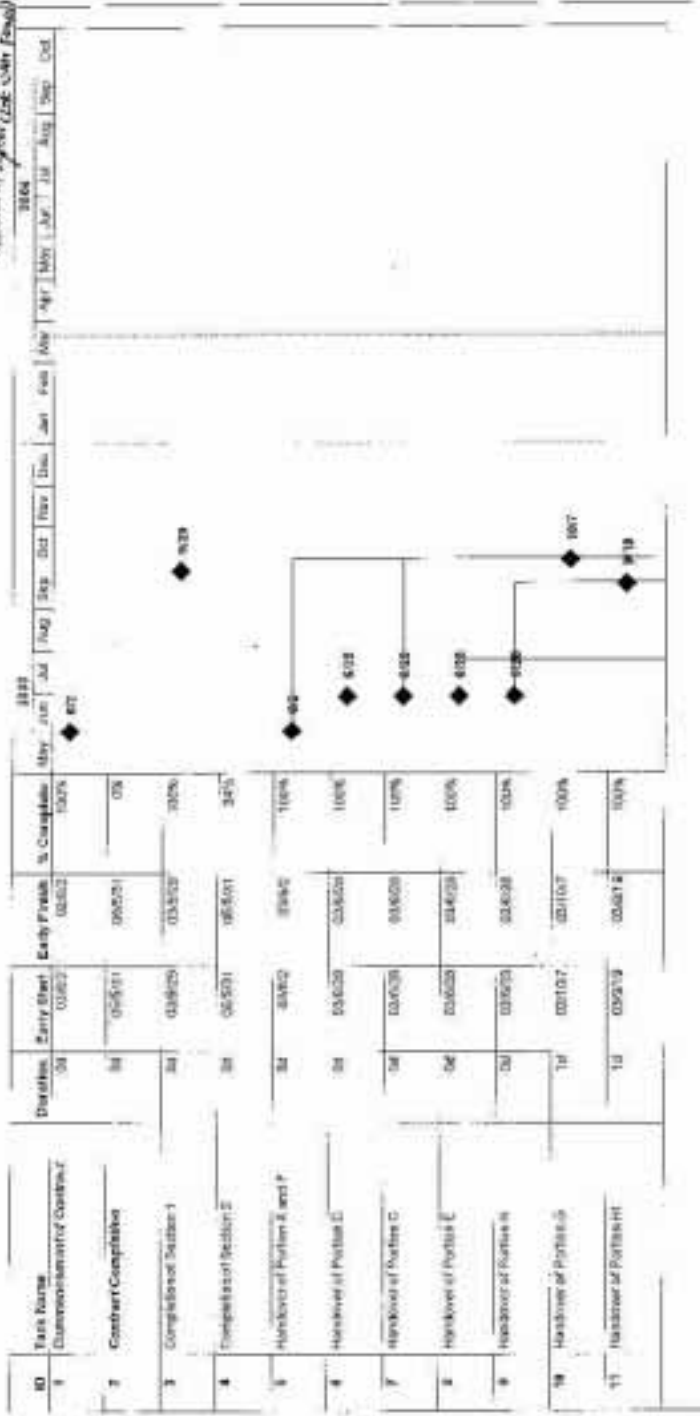
CONTRACT No. CV/2002/13 – FILL BANK AT TUEN MUN AREA 38			
Cumulative Statistics on Complaints			
Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Number to Date
Air	4	---	4
Noise	0	---	0
Water	0	---	0
Waste	1	---	1
Landscape & Visual	0	---	0
Total	0	---	5

Appendix IX

Master Construction Programme

Three month rolling programme (Mar 2004 - May 2004)

Prepared by: [Signature]
 Reviewed by: [Signature]
 Approved by: [Signature] (Date: 04/05/2004)



Contract No. CV/2003/17
 P18 Block at Tuon Man Area B3
 Issue: 1 May 2004

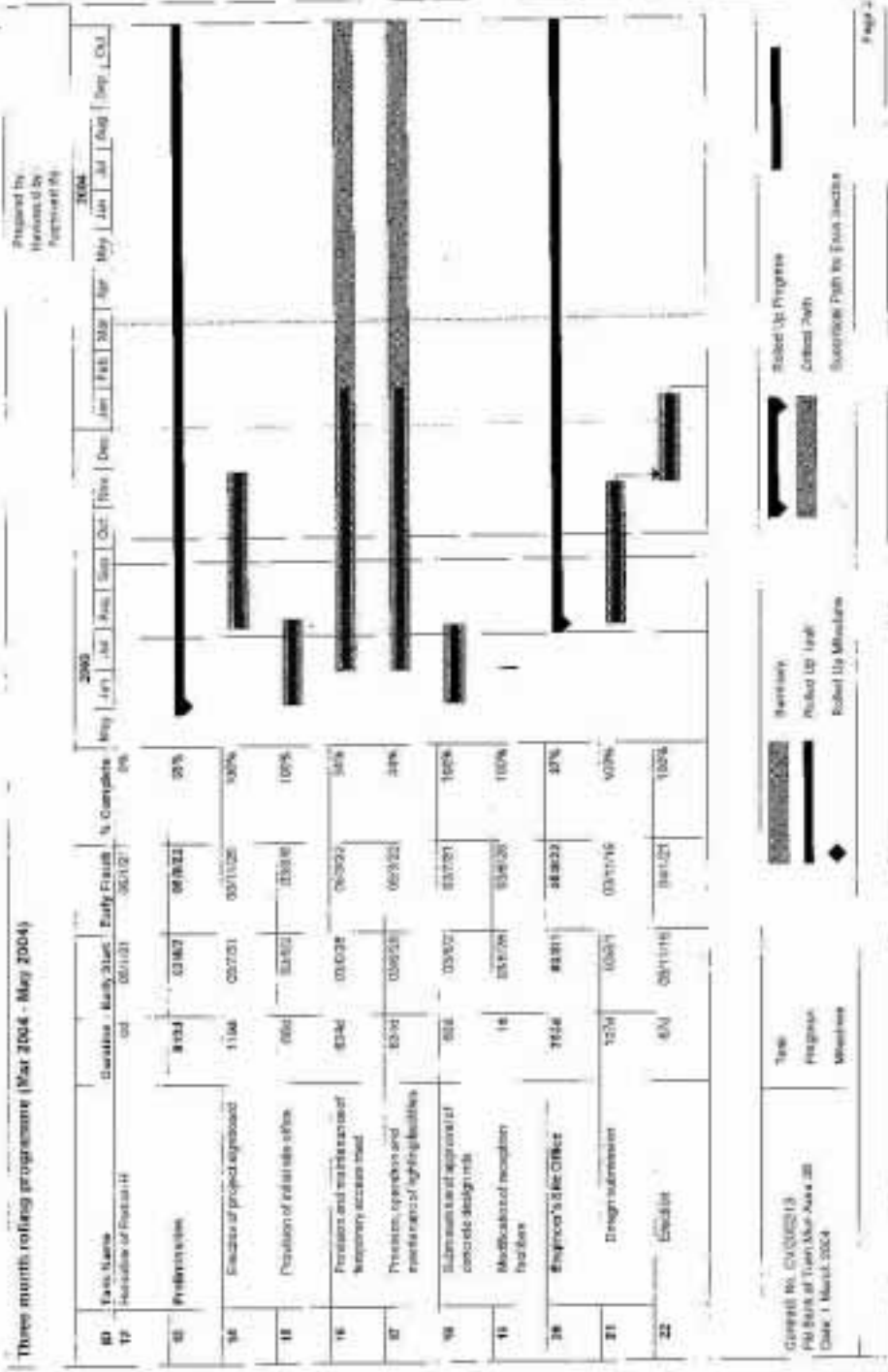
Task: []
 Progress: []
 Milestone: []

Summary: []
 Rolled Up Task: []
 Rolled Up Milestone: []

Legend:
 Rolled Up Progress: []
 Critical Path: []
 Milestone Path for Each Section: []

Page 1

Three month rolling programme (Mar 2004 - May 2004)



Control No. CU000213
 PG 2004 of Turn M&A Area 2B
 Date: 1 March 2004

Task: Progress
 Milestone: Milestone

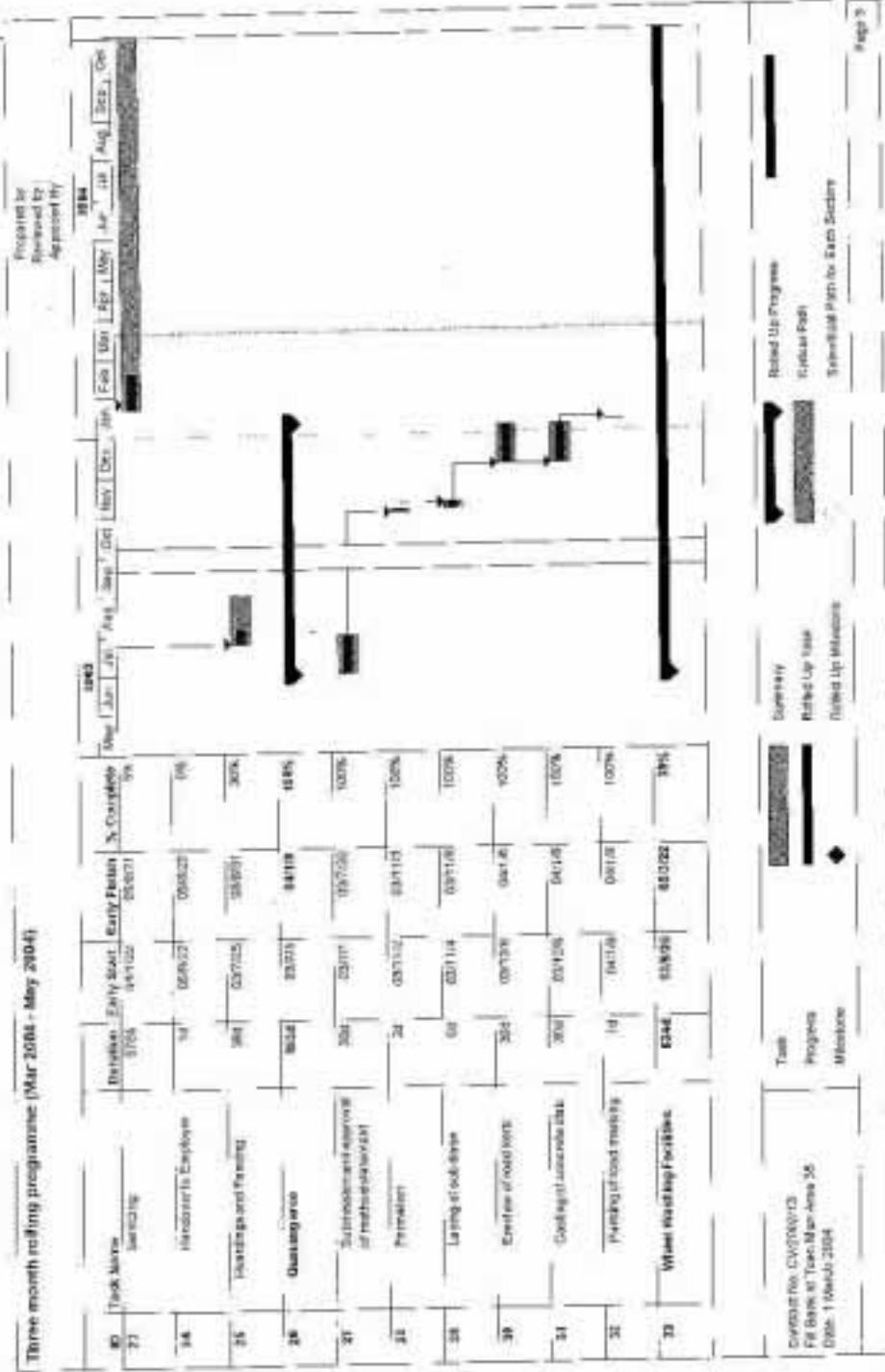
Review: Review
 Mobilize: Mobilize
 Progress: Progress
 Milestone: Milestone

Prepared by: [Redacted]
 Handled by: [Redacted]

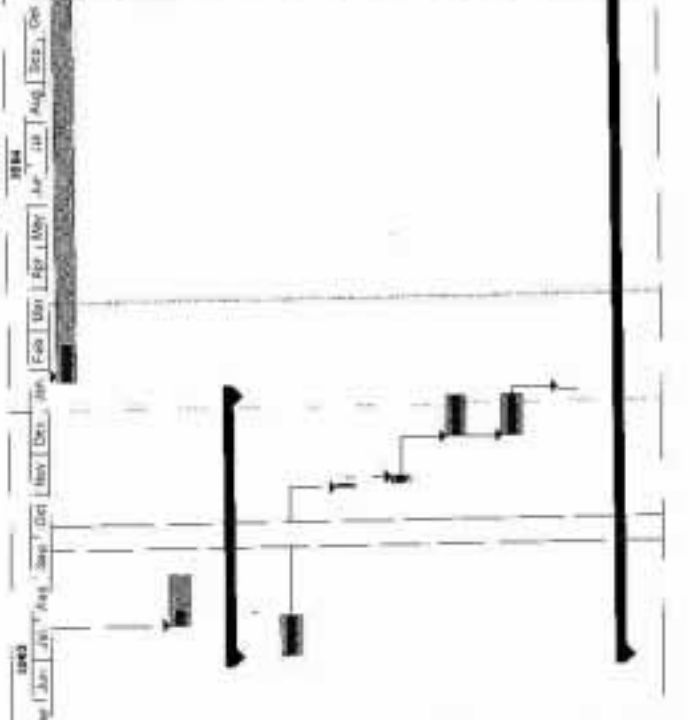
2003: May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
 2004: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec

Page 2

Three month rolling programme (Mar 2004 - May 2004)



Prepared by
Reviewed by
Approved by

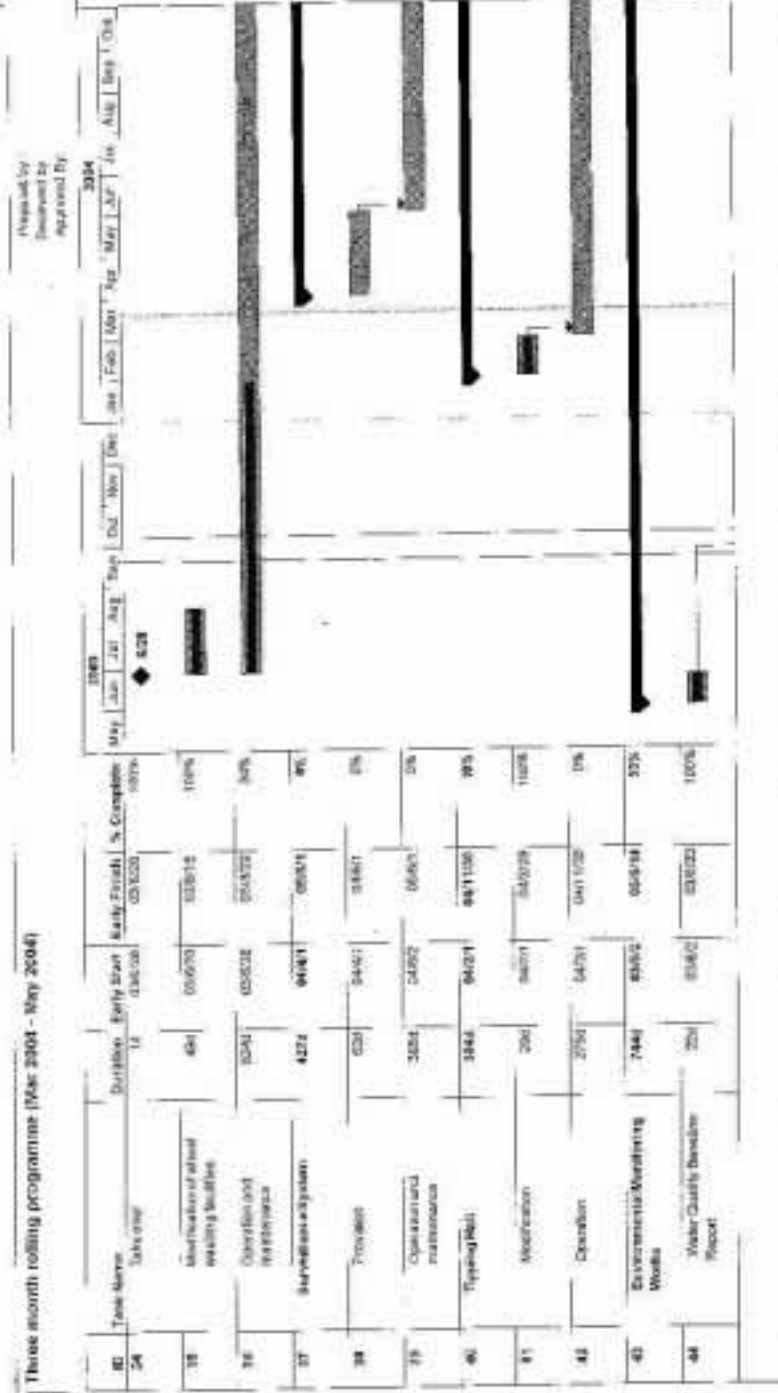


Contract No. CV0200113
Fill Basin at Tean Mar Area 25
Date: 1 March 2004

Task
Program
Milestone

Roll Up Progress
Roll Up Path
Roll Up Milestone

Three month rolling programme (Mar 2004 - May 2004)



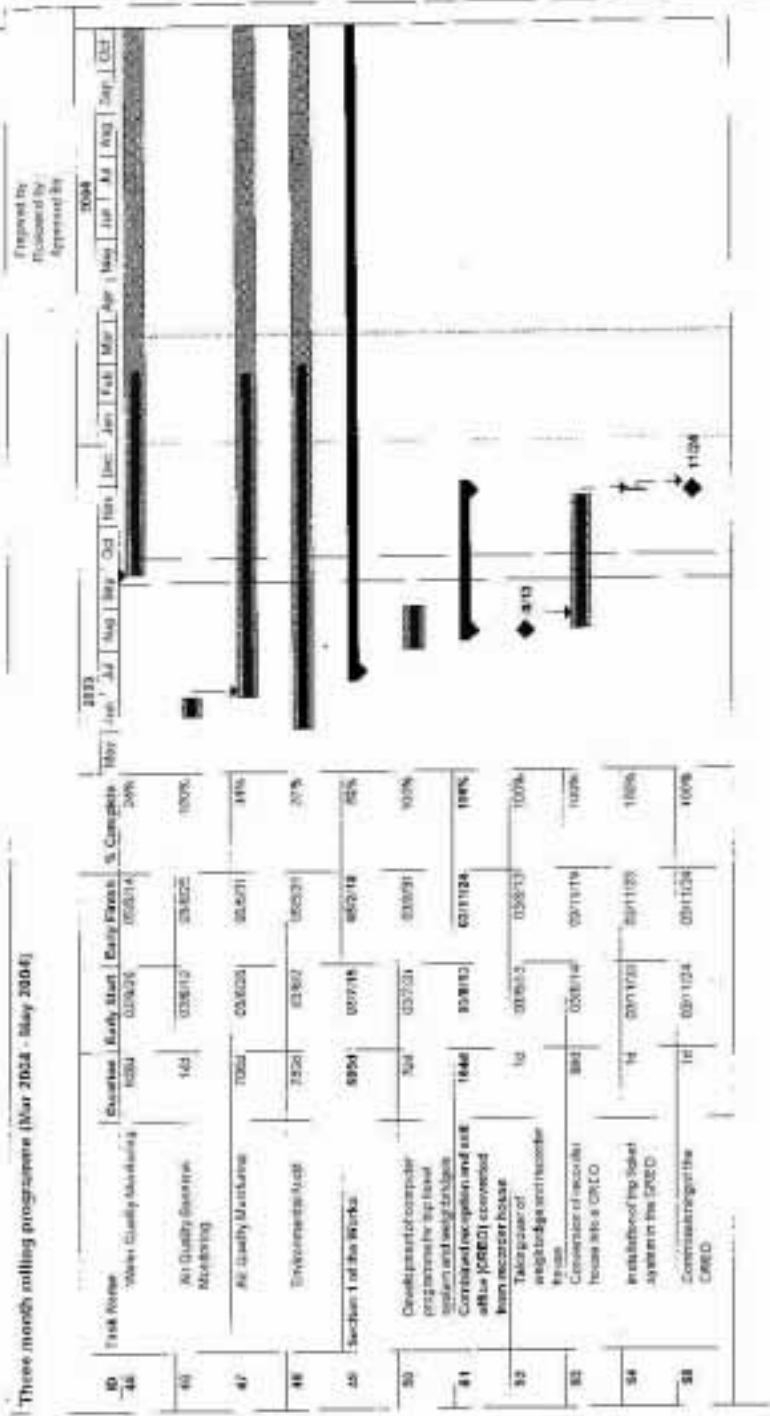
Contract No: 03/0000175
 Proj Serv: J1 Tiers Main Area J4
 Date: 1 March 2004

Task: Inception, Progress, Completion

Summary: Rolled Up Task, Water Quality Bandwidth Project

Legend: Rolled Up Progress, Critical Path, Multiple Paths for Each Section

Three month rolling programme (Mar 2004 - May 2004)



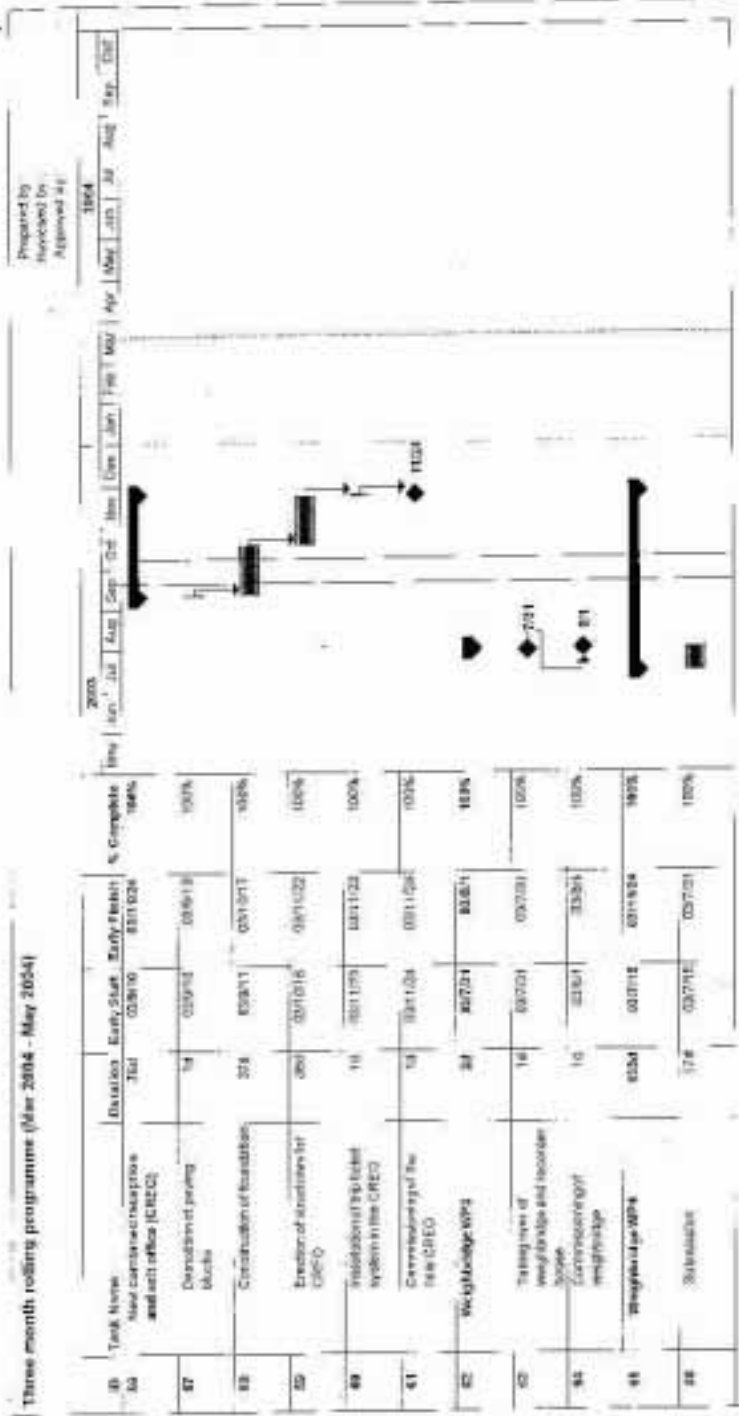
Contract No. 01/0002/13
 R1 Bank of Town Moor Area 16
 Date: 1 March 2004

Task Progress Milestone

Summary
 Rolled Up Task
 Rolled Up Milestone

Legend
 Rolled Up Progress
 Critical Path
 Milestone

Three month rolling programme (Mar 2004 - May 2004)

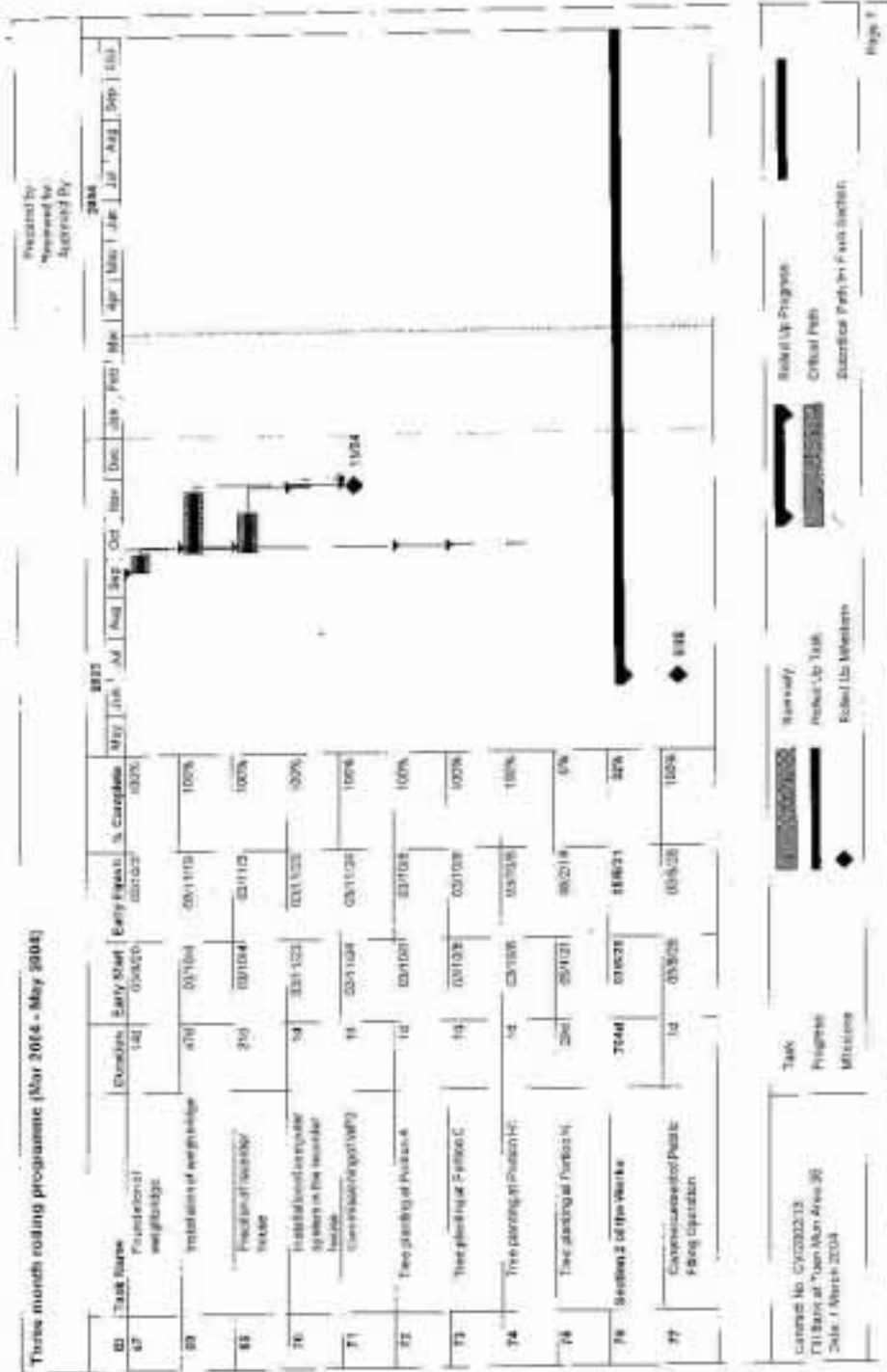


Prepared by: [Name]
 Approved by: [Name]

2003: May, Jun, Jul, Aug, Sep, Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec, 2004

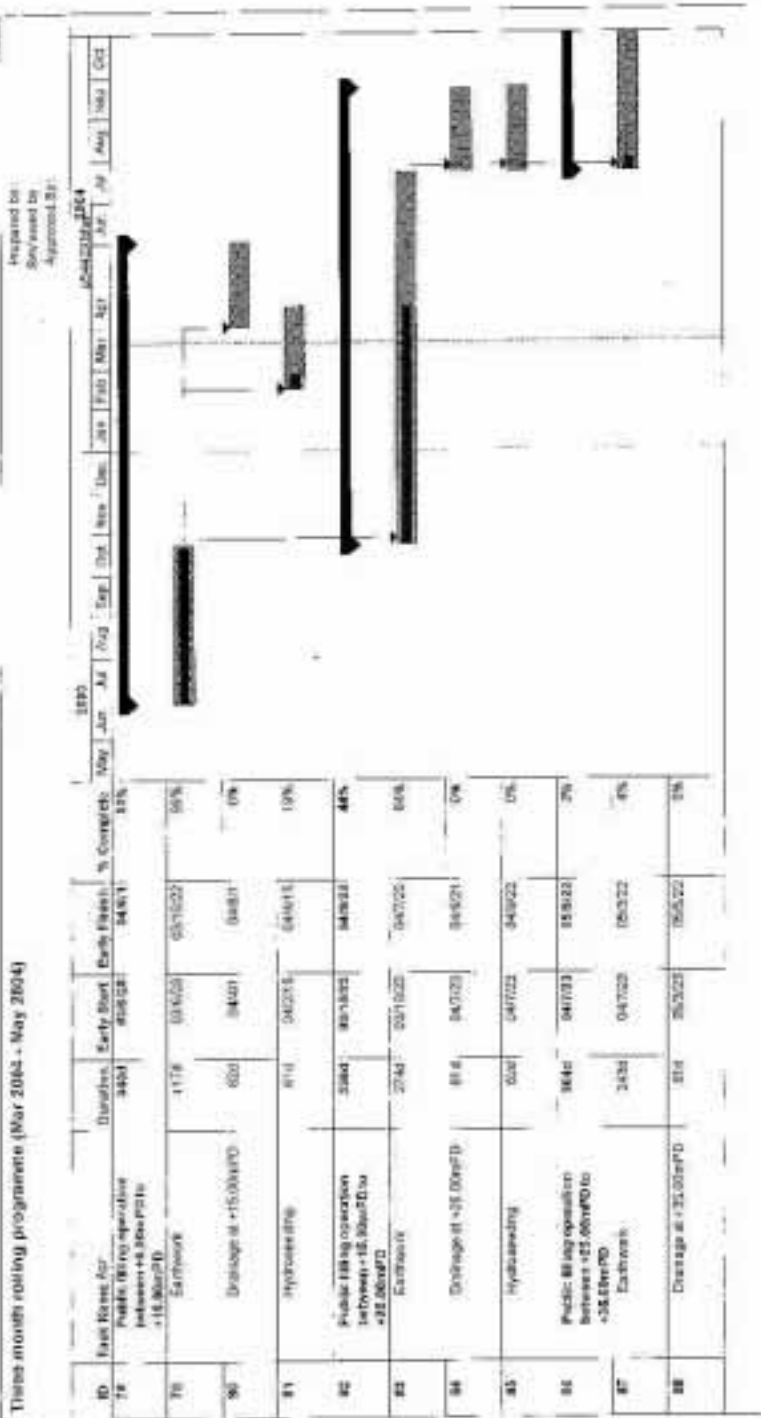
Symbol: [Legend]
 Legend:
 Task: [Bar]
 Milestone: [Diamond]
 Submittal Path for Phase Section: [Dashed Line]

Three month rolling programme (Mar 2004 - May 2004)



Legend:
 Task: [Bar] Task
 Progress: [Bar with pattern] Progress
 Milestone: [Diamond] Milestone
 Review: [Bar with diagonal lines] Review
 Roll Up Task: [Bar with dots] Roll Up Task
 Roll Up Progress: [Bar with diagonal lines] Roll Up Progress
 Critical Path: [Bar with diagonal lines] Critical Path
 Resource Profile in Focus Section: [Bar with diagonal lines] Resource Profile in Focus Section

Three month rolling programs (Mar 2004 - May 2004)



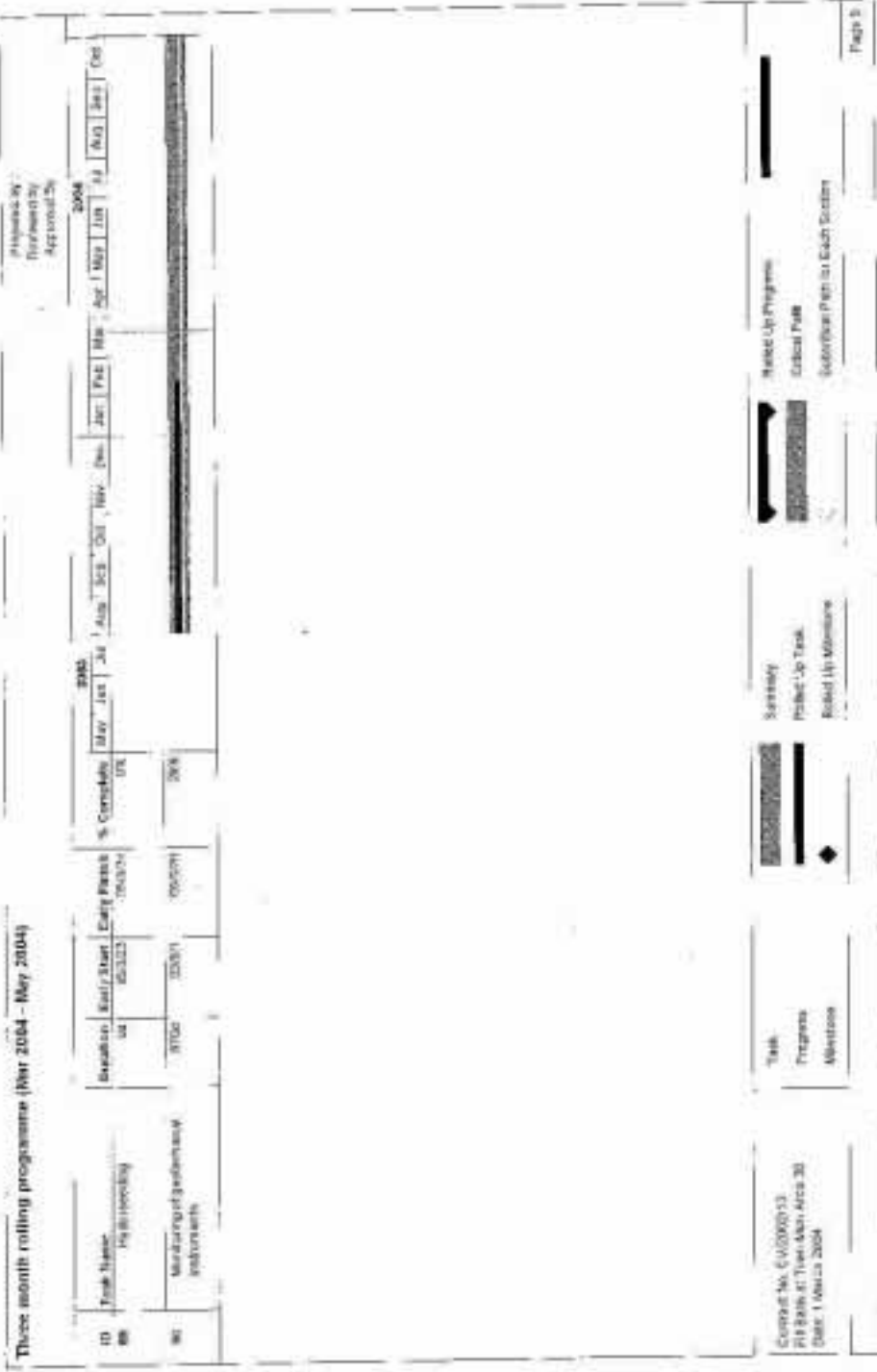
Contract No: 02/000013
 PM Date: 01 Feb 2004
 Date: 1 March 2004

Task: Summary, Risky Up, Risky, Risky Up
 Legend: Summary (white), Risky Up (black), Risky (hatched), Risky Up (hatched)

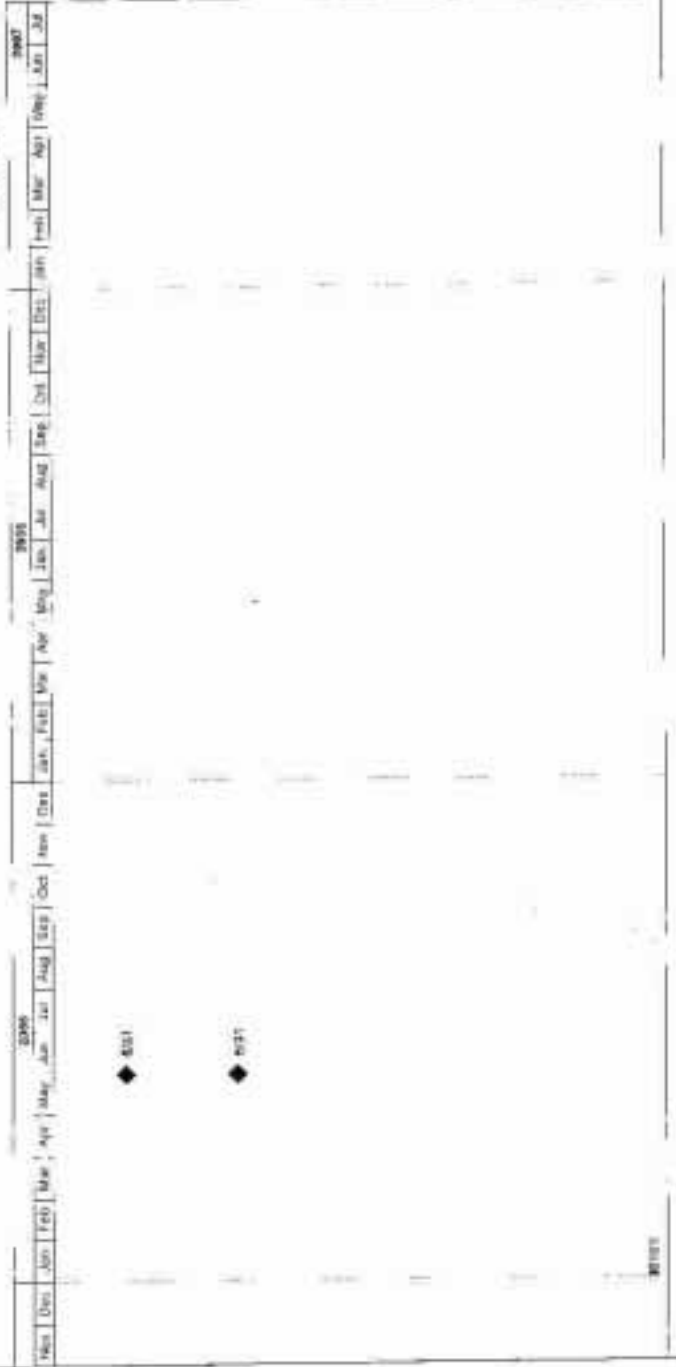
Risky Up Progress
 Critical Path
 Subcritical Paths to Each Section

Page 3

Three month rolling programme (Mar 2004 - May 2004)



Three month rolling programme (Mar 2004 - May 2004)



Document no: C0000013
 To: Head of Tech Mar 2004
 Date: 1 March 2004

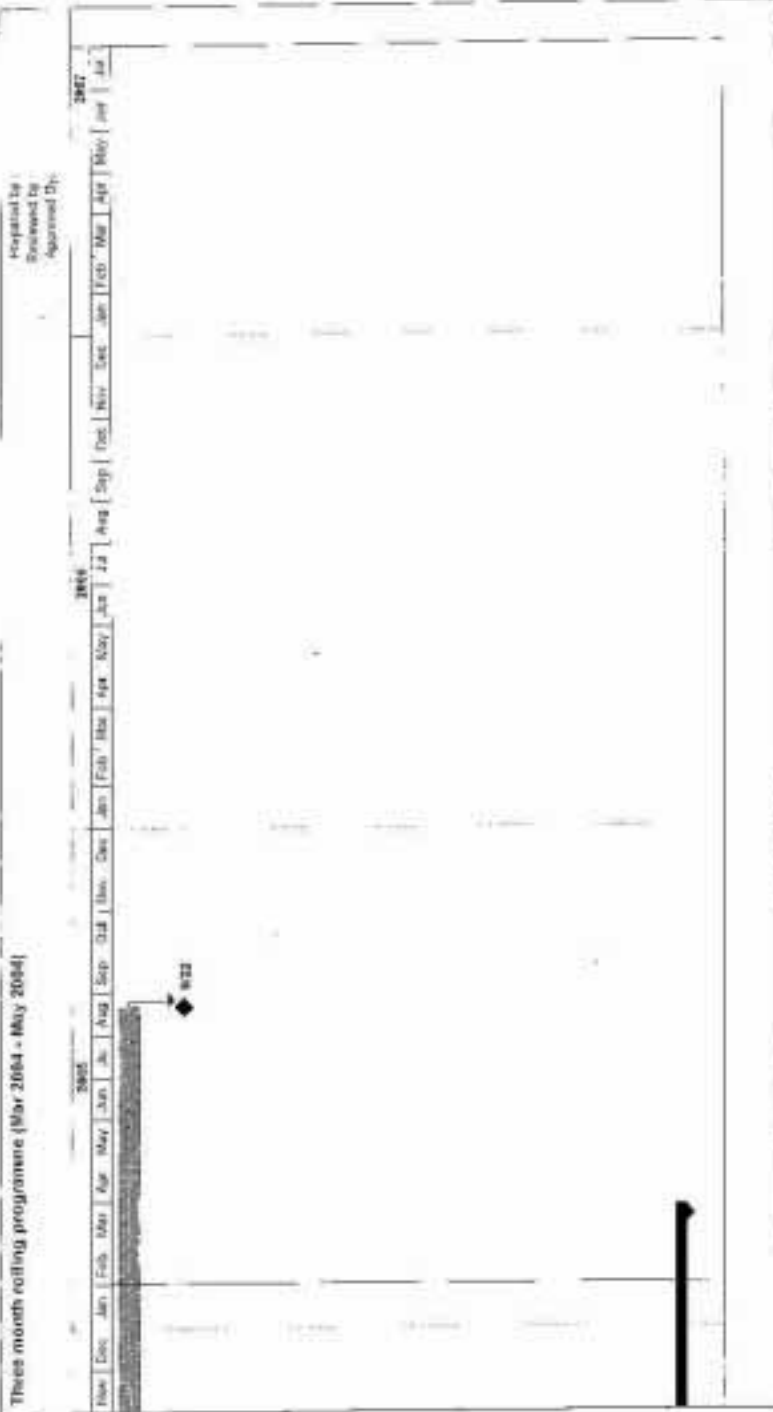
Task Progress Milestone

Summary
 Rollout Up Test
 Rollout Up Milestone

Rollout Up Progress
 Critical Path
 Resource Path for Early Action

Page 10

Three month rolling programme (Mar 2004 - May 2004)



Prepared by:
Reviewed by:
Approved by:

Contract No. CIVIL0213
Project or Task Name: Apsa 20
Date: 13/05/2004

Task
Progress
Milestone

Summary
Rolls Up Task
Print Up Milestone

Rolls Up Progress
Critical Path
Subcontract Path for Earn Section

Three months rolling programme (Mar 2004 - May 2004)

Prepared by:
Reviewed by:
Approved by:



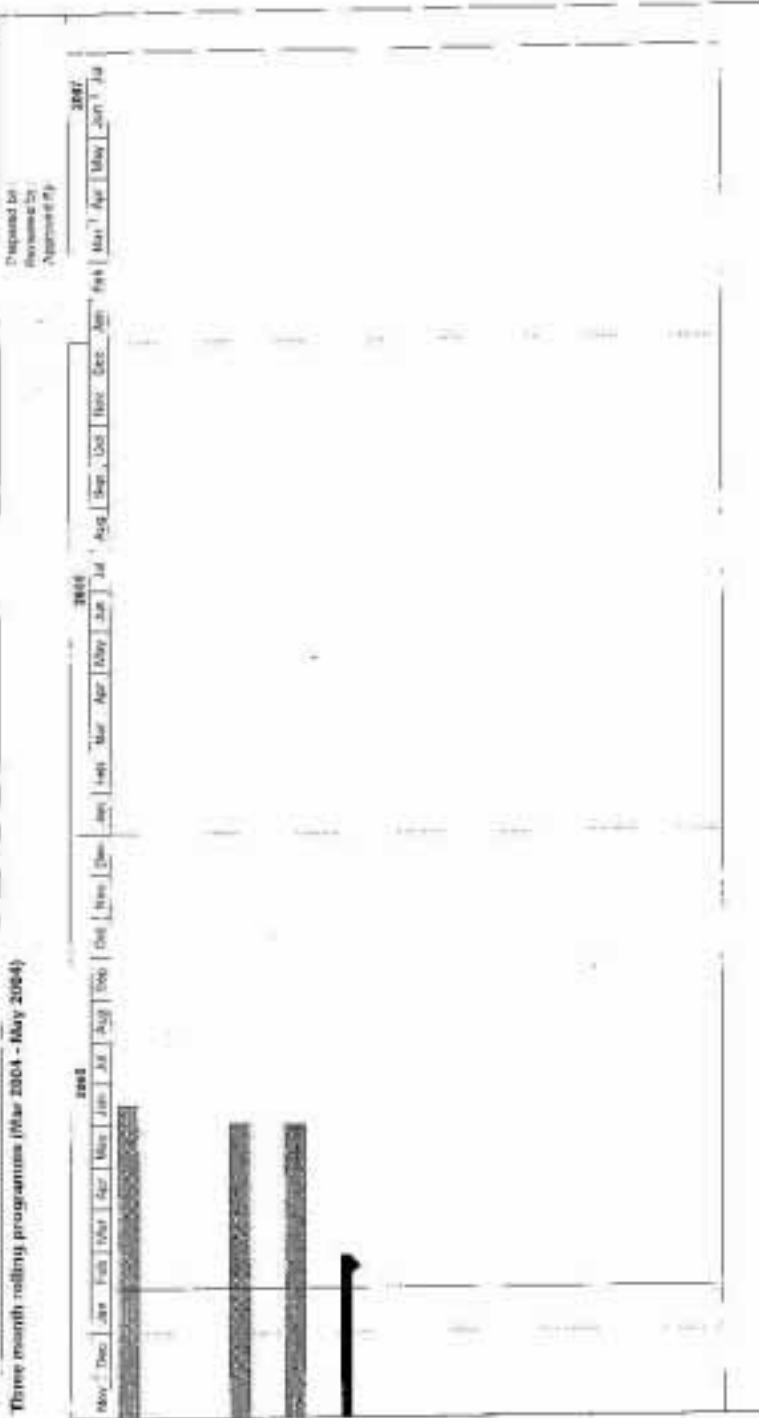
Contract No: C01000210
 # of Work at Train Mile: 4000 36
 Date: 1 March 2004

Task
 Program
 Milestone

Summary
 Roll Up Task
 Roll Up Milestone

Roll Up Program
 Roll Up Path
 Subcontract Path to Work Section

Three month rolling programme (Mar 2004 - May 2004)



Prepared by:
Reviewed by:
Approved by:

Contract No. C/12202/15
FY Bank of Yuan-Min Area JB
From 1 March 2004

Task
Progress
Milestone

Summary
Rolls Up Task
Rolls Up Milestone

Rolls Up Progress
Critical Path
Subcritical Paths for Earth Retain

Three month rolling programs (Mar 2004 - May 2004)

2002												2003												2004														
Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	

Prepared by:
Reviewed by:
Approved by:

Central No. CV1000113
 PE Bids at Ties Mar/Apr 20
 Table 1 Month 2004

Total	Program	Milestone

Turnkey
 Rolled Up Task
 Rolled Up Milestone

Rolled Up Program
 Critical Path
 Submittal Path for Each Bidder

Three month rolling programme (Mar 2004 - May 2004)

Reviewed By:
 Reviewed By:
 Approved By:

2003												2004											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

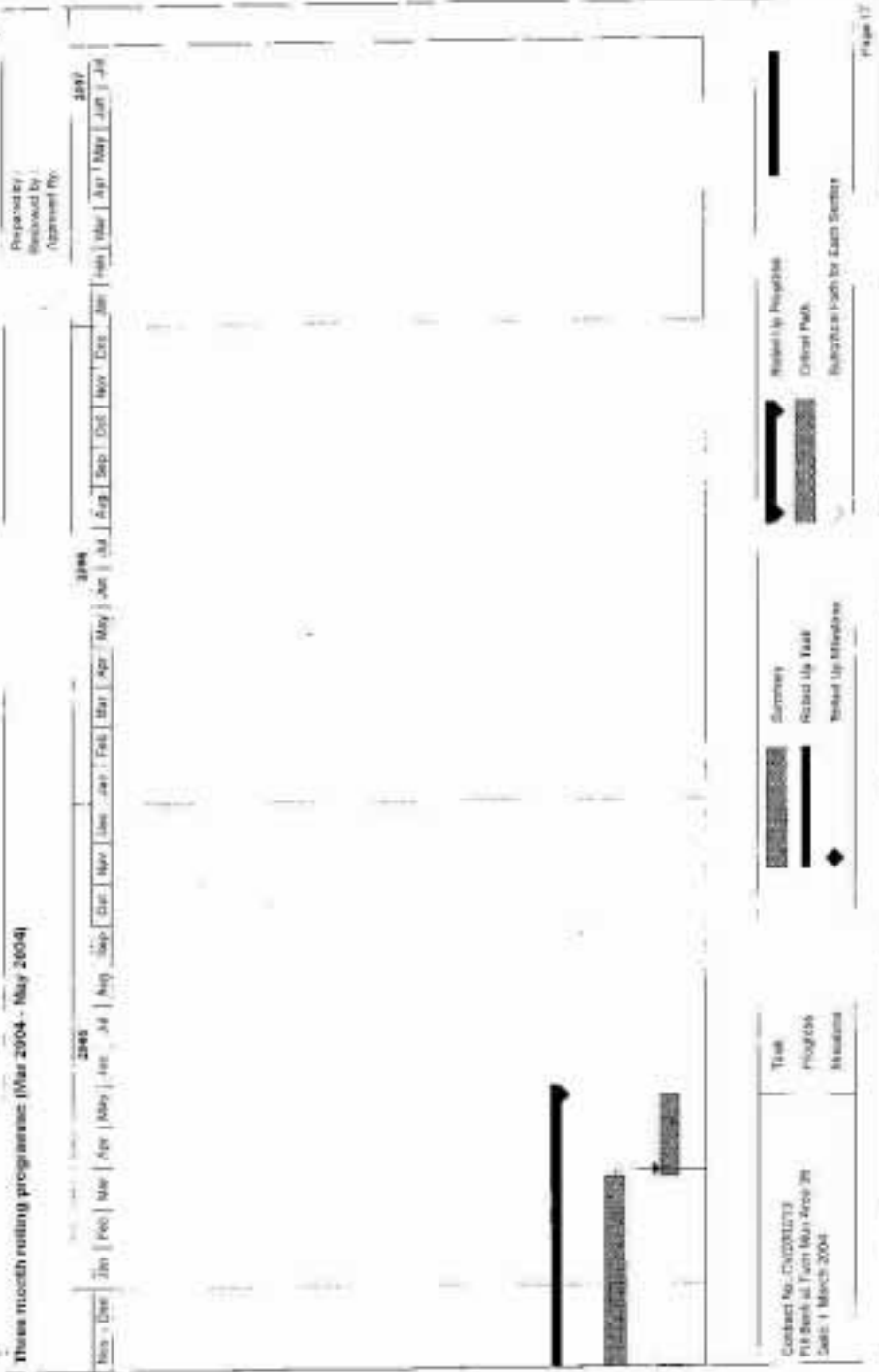
Control No: CV000015
 Prepared at: March 2004
 Date: 1 March 2004

Task
 Progress
 Milestone

Inventory
 Follow Up Task
 Subject's Milestone

Follow Up Progress
 Critical Path
 Subcritical Path to East Sector

Three month rolling programme (Mar 2004 - May 2004)



Prepared by:
Reviewed by:
Approved by:

Contract No: EN0001073
PFI Bank of Town Mui-Arui 26
Date: 1 March 2004

Task
Progress
Milestone

Summary
Rollup Task
Rollup Milestone

Rollup Progress
Rollup Milestone
Rollup Task for Each Section

Three month rolling programme (Mar 2004 - May 2004)



Contract No. CV0000173
 EB Bank @ Team Min. Aes 36
 Date: 1 March 2004

Task
 Progress
 Milestone

Summary
 Rolled Up Task
 Rolled Up Milestone

Rolls Up Progress
 Critical Path
 Sequential Path By Each Taskline

Appendix X

Monitoring Schedule for the following month

Fill Bank at Tuen Mun Area 38
Environmental Monitoring Schedule
February 2005

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		February 1	2	3	4	5
		WQM (Ebb: 17:28) (Flood: 11:15)		WQM (Ebb: 19:56) (Flood: 12:30) 1 – hr TSP 24 – hr TSP Site Inspection		WQM (Ebb: *) (Flood: 09:53)
6	7	8	9	10	11	12
						1 – hr TSP 24 – hr TSP WQM (Ebb: 15:35) (Flood: 09:53) Site Inspection
13	14	15	16	17	18	19
	WQM (Ebb: 16:58) (Flood: 10:38)		WQM (Ebb: 19:07) (Flood: 11:25)	Site Inspection	1 – hr TSP 24 – hr TSP	WQM (Ebb: *) (Flood: 10:23)
20	21	22	23	24	25	26
	WQM (Ebb: 11:52) (Flood: 16:42)		WQM (Ebb: 12:54) (Flood: 18:16)	1 – hr TSP 24 – hr TSP Landscape Audit Site Inspection	WQM (Ebb: 13:49) (Flood: 08:19)	
27	28					

- Notes :
1. 24 –hr TSP (to be monitored once every 6 days) at monitoring locations A1 & A2.
 2. 1 hour TSP (to be monitored three times every six days when highest level of dust generation expected) at monitoring locations A1 & A2.
 3. WQM - water quality monitoring three times per week, on mid-flood and mid-ebb tides. Days of monitoring to be separated by at least 36 hours. Monitoring locations FCI, FM1, FM2 & FC2.
 4. Site inspections to be carried out once per week.
 5. Auditing of landscape works to be carried out once per month.
- * No ebb tide.

Appendix XI

Wind Speed and Direction Data

DATE MON	DATE DAY	TIME HR	TIME MIN	WS:AVG M/S	WS:MAX M/S	WD:AVG DEG	WD:SDV DEG
1	5	0	0	0.1	1	305	43
1	5	1	0	0.7	3	0	25
1	5	2	0	0.1	2	301	33
1	5	3	0	0	1	3	53
1	5	4	0	0	1	358	55
1	5	5	0	0.3	3	13	74
1	5	6	0	1.7	5	87	26
1	5	7	0	2.1	6	86	24
1	5	8	0	1.9	5	95	26
1	5	9	0	1.6	5	99	26
1	5	10	0	2.9	6	104	14
1	5	11	0	2.8	6	102	18
1	5	12	0	2.3	5	110	19
1	5	13	0	2.4	6	107	18
1	5	14	0	2.1	4	109	19
1	5	15	0	1.7	4	109	23
1	5	16	0	1.6	5	155	47
1	5	17	0	0.9	3	257	77
1	5	18	0	0.9	3	296	25
1	5	19	0	0.3	1	292	31
1	5	20	0	0	0	340	36
1	5	21	0	0.3	2	333	21
1	5	22	0	0.5	2	319	20
1	5	23	0	0.7	3	327	20
1	6	0	0	0.7	2	297	24
1	6	1	0	0.8	2	289	26
1	6	2	0	0.4	2	310	70
1	6	3	0	0.2	2	332	44
1	6	4	0	0.8	3	333	40
1	6	5	0	1.1	2	321	7
1	6	6	0	0.1	1	299	81
1	6	7	0	0.3	2	322	56
1	6	8	0	0.3	2	321	36
1	6	9	0	0.4	2	315	49
1	6	10	0	1.2	4	123	47
1	6	11	0	2.1	5	183	44
1	6	12	0	1.4	5	194	34
1	6	13	0	3	7	289	24
1	6	14	0	2.5	6	295	24
1	6	15	0	2.4	5	285	26
1	6	16	0	1.7	5	307	24
1	6	17	0	1.2	3	257	34
1	6	18	0	0.4	2	159	64
1	6	19	0	0.9	3	54	11
1	6	20	0	0.6	2	63	13
1	6	21	0	1.4	3	61	10
1	6	22	0	1.7	4	59	13
1	6	23	0	2.3	5	79	18
1	11	0	0	2.5	6	80	18
1	11	1	0	0.9	4	66	37
1	11	2	0	1	3	67	20
1	11	3	0	1.8	4	76	17
1	11	4	0	1.6	4	73	18
1	11	5	0	1.7	4	71	18
1	11	6	0	0.9	3	70	22
1	11	7	0	2	4	73	18
1	11	8	0	1.7	4	83	18
1	11	9	0	1.9	4	107	24
1	11	10	0	2.6	5	116	20
1	11	11	0	2.2	5	102	22
1	11	12	0	1.5	3	183	35
1	11	13	0	1.4	3	249	31
1	11	14	0	2.9	6	247	20
1	11	15	0	2.9	5	249	19
1	11	16	0	2.3	4	250	20
1	11	17	0	2.1	4	247	20
1	11	18	0	0.6	3	268	33
1	11	19	0	0.1	1	350	55
1	11	20	0	0	1	333	59
1	11	21	0	0.8	2	58	21
1	11	22	0	1.2	4	70	15
1	11	23	0	1.5	4	70	16
1	12	0	0	2	4	79	13
1	12	1	0	1.7	3	85	13
1	12	2	0	1	3	80	23
1	12	3	0	0.8	2	77	23
1	12	4	0	0.5	2	75	28
1	12	5	0	1	3	72	26

1	12	6	0	0.7	2	45	20
1	12	7	0	0.4	3	48	42
1	12	8	0	0.5	3	111	88
1	12	9	0	0.3	2	143	77
1	12	10	0	0.5	4	95	90
1	12	11	0	1.3	5	86	58
1	12	12	0	2.5	7	12	34
1	12	13	0	1.9	7	305	32
1	12	14	0	2.9	7	314	33
1	12	15	0	3.1	6	313	31
1	12	16	0	2.2	6	317	28
1	12	17	0	2.3	6	318	32
1	12	18	0	2.5	6	295	27
1	12	19	0	3.5	7	267	56
1	12	20	0	3.1	7	322	54
1	12	21	0	2.5	6	330	32
1	12	22	0	2.4	5	323	32
1	12	23	0	2.2	4	340	22
1	17	0	0	2	5	196	21
1	17	1	0	2.3	5	183	34
1	17	2	0	2.8	5	136	62
1	17	3	0	2.8	5	254	27
1	17	4	0	2.8	6	271	30
1	17	5	0	2.9	5	289	29
1	17	6	0	2.7	5	304	19
1	17	7	0	2.6	5	304	20
1	17	8	0	2.6	5	303	18
1	17	9	0	2.4	4	320	19
1	17	10	0	2.3	5	321	18
1	17	11	0	2.4	5	320	19
1	17	12	0	2.6	5	313	17
1	17	13	0	1.6	5	320	18
1	17	14	0	2.1	5	336	19
1	17	15	0	2.8	6	323	17
1	17	16	0	1.6	4	312	21
1	17	17	0	1.5	5	324	15
1	17	18	0	1.3	4	314	20
1	17	19	0	1.1	3	308	18
1	17	20	0	1.4	3	313	29
1	17	21	0	0.7	3	302	15
1	17	22	0	1.7	4	295	21
1	17	23	0	0.5	2	258	73
1	18	0	0	0.3	2	209	52
1	18	1	0	1.2	4	241	60
1	18	2	0	2.3	6	319	87
1	18	3	0	1.9	4	313	27
1	18	4	0	1.6	4	301	17
1	18	5	0	1.1	4	307	20
1	18	6	0	1.7	5	299	23
1	18	7	0	1.9	5	303	21
1	18	8	0	1.7	4	295	15
1	18	9	0	1.5	3	316	16
1	18	10	0	2.2	4	297	23
1	18	11	0	2.8	6	300	16
1	18	12	0	3.3	7	355	49
1	18	13	0	2.8	6	329	32
1	18	14	0	2.8	7	335	37
1	18	15	0	3.6	8	330	31
1	18	16	0	3.3	7	338	34
1	18	17	0	3.2	7	284	39
1	18	18	0	3	7	278	38
1	18	19	0	3.9	7	282	39
1	18	20	0	2.8	5	293	36
1	18	21	0	0.9	4	295	37
1	18	22	0	0.7	3	304	25
1	18	23	0	0.7	3	291	34
1	22	0	0	2.3	5	293	32
1	22	1	0	2.5	5	295	30
1	22	2	0	2.1	4	297	29
1	22	3	0	2.8	5	306	25
1	22	4	0	3.2	6	297	32
1	22	5	0	2.9	5	298	28
1	22	6	0	2.3	5	301	23
1	22	7	0	1.8	4	298	26
1	22	8	0	2.5	6	306	17
1	22	9	0	1.9	4	308	18
1	22	10	0	2.6	5	307	20
1	22	11	0	2.8	5	297	90
1	22	12	0	2.8	5	59	53
1	22	13	0	3.1	6	39	60
1	22	14	0	3.7	7	159	75

1	22	15	0	3.2	6	275	56
1	22	16	0	3.3	7	324	61
1	22	17	0	3.6	7	318	42
1	22	18	0	3.4	6	200	70
1	22	19	0	3.4	6	78	83
1	22	20	0	2.9	6	209	60
1	22	21	0	2.7	5	338	39
1	22	22	0	2.6	5	330	33
1	22	23	0	2.7	5	355	35
1	23	0	0	2.1	5	343	32
1	23	1	0	2.4	5	351	45
1	23	2	0	2.3	5	35	49
1	23	3	0	2	4	305	37
1	23	4	0	1.8	4	281	39
1	23	5	0	1.6	4	264	36
1	23	6	0	1.7	3	273	40
1	23	7	0	1.5	4	288	39
1	23	8	0	1.5	3	292	38
1	23	9	0	1.7	4	296	51
1	23	10	0	2.2	4	320	63
1	23	11	0	1.8	4	165	43
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1	23	13	0	2.3	5	256	31
1	23	14	0	1.9	5	206	33
1	23	15	0	1.4	3	167	37
1	23	16	0	1.5	4	131	40
1	23	17	0	1.9	4	169	21
1	23	18	0	1.9	4	184	88
1	23	19	0	2	4	174	77
1	23	20	0	1.7	4	126	49
1	23	21	0	2	4	156	48
1	23	22	0	2	4	353	47
1	23	23	0	2.3	5	8	25
1	28	0	0	2.6	5	353	30
1	28	1	0	2.7	5	4	33
1	28	2	0	2.8	5	10	30
1	28	3	0	2.5	5	15	35
1	28	4	0	2.5	5	30	29
1	28	5	0	1.4	4	22	30
1	28	6	0	1.3	4	37	35
1	28	7	0	1.8	4	66	50
1	28	8	0	0.7	3	108	53
1	28	9	0	1.3	4	97	27
1	28	10	0	1.8	5	150	48
1	28	11	0	1.4	4	164	50
1	28	12	0	0.5	3	346	75
1	28	13	0	0.9	4	60	47
1	28	14	0	1.8	5	44	41
1	28	15	0	1.1	3	145	39
1	28	16	0	1.4	4	214	54
1	28	17	0	0.9	3	176	80
1	28	18	0	1.1	3	83	54
1	28	19	0	0.7	3	128	80
1	28	20	0	1.1	2	124	62
1	28	21	0	0.4	2	347	73
1	28	22	0	0.4	2	352	37
1	28	23	0	0.5	3	16	48
1	29	0	0	0.3	2	50	28
1	29	1	0	0.4	2	125	60
1	29	2	0	0.4	2	106	96
1	29	3	0	0.3	2	38	71
1	29	4	0	1.1	3	140	85
1	29	5	0	1	3	84	79
1	29	6	0	1.6	3	80	61
1	29	7	0	1.7	4	85	69
1	29	8	0	1.9	4	90	73
1	29	9	0	2.3	5	94	80
1	29	10	0	2.7	5	99	97
1	29	11	0	2.7	6	110	68
1	29	12	0	2.5	5	100	87
1	29	13	0	2.7	6	105	82
1	29	14	0	2.6	5	95	92
1	29	15	0	2.8	6	98	65
1	29	16	0	2.8	5	67	55
1	29	17	0	2.6	5	72	43
1	29	18	0	2.6	5	73	31
1	29	19	0	2.6	6	74	33
1	29	20	0	3	6	75	30
1	29	21	0	3.1	6	87	72
1	29	22	0	3.2	6	31	75
1	29	23	0	2.8	6	158	39