東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

CHINA HARBOUR ENGINEERING CO. LTD.

DELIVERY OF RECLAMATION MATERIAL TO MAINLAND – ENVIRONMENTAL MONITORING AND AUDIT (CONTRACT NO.: CV/2005/01)

TUEN MUN AREA 38 FILL BANK

QUARTERLY EM&A SUMMARY REPORT NO.1

(FROM DECEMBER 2006 TO FEBRUARY 2007)

Prepared by: _____
LAW, Sau Yee
Senior Environmental Officer

Checked by: _____
LAU, Chi Leung
Environmental Team Leader

Issue Date: 14 March 2007 *Report No.: ENA70153*

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Telephone : +852-24508233
Telefax : +852-24506138
Email : mcl@fugro.com.hk

FAX MESSAGE

Priority ☐ normal / ☐ urgent

To	ETS –Testconsult Ltd	Ref. No.	MCLF1595
Country		Fax No.	2695 3944
Attn.	Mr. C. L. Lau / Ms. Linda Law	Date	19 March 2007
From	Joseph Poon	No. of Pages	1 (Incl. this page)
C.c. To	Mr. P. Y. Lu / Mr. H. C. Tang (CEDD)		2714 0113

Subject **Agreement No. CE 9/2005 (EP)
Tuen Mun Area 38 Fill Bank –
Quarterly Environmental Monitoring & Audit Report for December 2006 to February 2007**

We refer to the 1st Quarterly EM&A Report for December 2006 to February 2007 that we received through email on 14 March 2007 and are pleased to confirm we have no comment on the report.

Should you require further information, please feel free to contact us.

Best regards,

Joseph Poon
Independent Environmental Checker

JP/ac

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EXECUTIVE SUMMARY

This is the first Quarterly Environmental Monitoring and Audit (EM&A) Summary Report prepared by ETS-Testconsult Ltd (ET) for the "Contract No. CV/2005/01 Delivery of Reclamation Material to Mainland -Tuen Mun Area 38 Fill Bank" (The Project).

This report documents the findings of EM&A Works conducted during the operation phase of Fill Bank at Tuen Mun Area 38 from December 2006 to February 2007.

Construction Progress

As informed by the Contractor, the construction activities in this reporting quarterly were as below:

- *Takeover and serving RE's Secondary Office, Reception, Record Houses and Exit Offices;*
- *Erection and serving of Contractor's site office;*
- *Setup and operation of Crushing Plant;*
- *Operation at the queuing area for public truck lorries;*
- *Removal & delivery of public fill stockpiled material to PBRII;*
- *Maintenance of haul road within fill bank area; and*
- *Operation of the road water lorries and the road sweeper.*

Environmental Monitoring Works

Air Monitoring

During the reporting quarter, no exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring. The air quality during the operation hours of the Fill Bank was considered acceptable.

Marine Water Quality Monitoring

According to the summary of marine water monitoring results, no exceedances of Action and Limit Level were recorded in this quarter.

Noise Monitoring

According to the Section 26.11 of the Particular Specification of the Project, two noise monitoring stations, TM-N1 and TM-N2 (Planned Holiday Camp Sites) are proposed to be carried out for noise monitoring during impact phase. However, after the site investigation, Environmental Team (ET) found that the two monitoring locations are still wild and vacant in this moment. Since no noise sensitive receivers are noted at these two monitoring locations, the noise monitoring is suspended until the two locations were developed and occupied.

Environmental Complaints, Notification of summons and successful prosecutions

No complaints, notification of summons and prosecutions with respect to environmental issues were received in this quarter.

1.0 INTRODUCTION

China Harbour Engineering Company Limited (CHEC) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for the "Contract No. CV/2005/01 Delivery of Reclamation Material to Mainland – Tuen Mun Area 38 Fill Bank" (The Project).

In accordance with the Section 4 of Environmental Permit (No.: EP-210/2005) (the EP), an EM&A programme as set out in the Project Profile should be implemented. The EM&A programme requires environmental monitoring for air quality, water quality and environmental site inspections for air quality, water quality, landscape and visual, and waste management.

Baseline monitoring was completed in May 2003 by Stanger Asia Ltd. Action and Limit Levels were established for air and water quality parameters based on the baseline monitoring results.

This quarterly report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tuen Mun Area 38 in December 2006, January and February 2007.

2.0 PROJECT INFORMATION

2.1 Construction Programme in this reporting quarter

Details of construction programme are shown in Appendix F.

2.2 Project Organization and Management Structure

The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in Appendix A.

2.3 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	*Name of Key Staff*	*Project Role*	*Tel. No.*	*Fax No.*
CEDD	*Mr. W T CHAU* *Mr. H C TANG* *Mr. P Y LU*	*Engineer's Representative*	*2760 5835*	*2714 0113*
IEC (Materialab)	*Mr Joseph POON*	*IEC*	*2450 8238*	*2450 6138*
Contractor (CHEC)	*Mr. William CHAN*	*Contractor's Agent*	*9772 7055*	*2243 4089*
ET (ETL)	*Mr C. L. Lau*	*ET Leader*	*2946 7791*	*2695 3944*

3.0 SUMMARY OF EM&A REQUIREMENTS

3.1 EM&A Programme

The EM&A programme required environmental monitoring for air quality, marine water quality and environmental site inspections for air quality, marine water quality, landscape and visual, and waste management. The EM&A requirements for each parameter described in the following sections include:

- All monitoring parameters;
- Monitoring schedules for the reporting month and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event/Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

The advice on implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 4 of the Report.

3.2 Monitoring Stations and Parameters

The EM&A Manual designates several locations to monitor environmental impacts in terms of air quality, noise and water quality due to the Project. The description and detailed locations of monitoring stations for air quality, noise and marine water quality are shown in Figures 2, 3 and 4 and relevant sections of this Report.

3.3 Monitoring Methodology and Calibration Details

All monitoring works were conducted and monitoring equipment was calibrated in according with the EM&A Manual. Copies of calibration certificates of monitoring equipments are attached in Appendix B1 and C1.

3.4 Environmental Quality Performance Limits (Action/Limit Levels)

The environmental quality performance limits, i.e. Action/Limit Levels (AL Levels) were derived from the baseline monitoring results. If the measured environmental quality parameters exceed the AL Levels, the respective action plan will be implemented. The AL Levels for each monitoring parameter are given in Appendix D. The event action plan is given in Appendix E.

3.5 Environmental Mitigation Measures

Relevant mitigation measures were recommended in the EM&A Manual for the Contractor to implement. A list of mitigation measures is given in Appendix G.

4.0 MONITORING RESULTS

4.1 Air Quality

In accordance with the EM&A Manual, 1-hr and 24-hr TSP air quality monitoring are to be conducted three times and one time per six days correspondingly. In the reporting quarter, all the 1-hr and 24-hr TSP monitoring results complied with the AL Levels. The monitoring trend of air quality during the reporting quarter are given in Appendix B2.

Major dust sources in the Fill Bank were dump truck traffic and hauling activities at BHA.

Table 4.1 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring event included regular monitoring events and additional ones.

Table 4.1 Summary of Number of Exceedances for 1-hr and 24-hr TSP Monitoring

Monitoring Parameter	Level of Exceedance	December 2006	January 2007	February 2007
24-hr TSP	No of monitoring events	6	5	5
	Action Level	0	0	0
	Limit Level	0	0	0
	Total	0	0	0
1-hr TSP	No of monitoring events	18	14	14
	Action Level	0	0	0
	Limit Level	0	0	0
	Total	0	0	0

4.2 Noise

According to the Section 26.11 of the Particular Specification of the Project, two noise monitoring stations, TM-N1 and TM-N2 (Planned Holiday Camp Sites) are proposed to be carried out for noise monitoring during impact phase. However, after the site investigation, Environmental Team (ET) found that the two monitoring locations are still wild and vacant in this moment. Since no noise sensitive receivers are noted at these two monitoring locations, the noise monitoring is suspended until the two locations were developed and occupied.

4.3 Marine Water Quality

In accordance with the Project Profile, impact marine water quality monitoring was conducted at two control monitoring stations (TM-FC1 and TM-FC2) and two impact monitoring stations (TM-FM1and TM-FM2) in this quarter.

Impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-ebb and mid-flood tides at three depths (i.e. 1m below surface, mid depth and 1m above seabed). The AL Levels are included in Appendix D.

No exceedances of all marine water quality monitoring parameters were recorded in this quarter.

Table 4.2 presents the total number of marine water quality exceedances in the reporting quarter. The trend of marine water quality in the past three months is depicted in Appendix C2.

Table 4.2 Total Number of Marine Water Quality Exceedances in this quarter

Parameter	Exceedance Level	December 2006	January 2007	February 2007
Number of monitoring days		12	13	10
Dissolved Oxygen, DO (S&M)	Action	0	0	0
	Limit	0	0	0
	Total	0	0	0
Dissolved Oxygen, DO (B)	Action	0	0	0
	Limit	0	0	0
	Total	0	0	0
Turbidity	Action	0	0	0
	Limit	0	0	0
	Total	0	0	0
Suspended Solids, SS	Action	0	0	0
	Limit	0	0	0
	Total	0	0	0
Total Number of DO, Turbidity and SS Exceedances	Action	0	0	0
	Limit	0	0	0
	Total	0	0	0

A comparison between the quarterly mean/median of SS and the 1.3 times of the baseline mean was made for each tide at each station. The statistical analysis results are given in Appendix I and it shows that a generally better marine quality was recorded in the reporting quarter in respect to 130% of the baseline mean. Monitoring stations with significant difference ($p<0.05$) is summarized in Table 4.3.

Table 4.3 Summary of Statistically Significant Results of SS

Monitoring Station		Significant difference?	
		Mid-ebb	Mid-flood
Designated Control Station	FC1	√	√
	FC2	√	√
Designated Monitoring Station	FM1	√	√
	FM2	√	√

5.0 INSPECTION RESULTS

5.1 Implementation Status of Environmental Mitigation Measures

ET conducted weekly site inspections to monitor the Contractor's implementation of environmental mitigation measures.

Air quality was the major environmental issue in the reporting quarter. The Contractor generally implemented most of the environmental mitigation measures in the reporting quarter. Dump truck traffic was the major dust source in the Fill Bank. Generally, the Contractor implemented adequate dust mitigation measures in the reporting quarter including dampening of haul roads, water spraying on the truckloads, during loading and unloading of material and for crushing plant, operation of automatic wheel washing facilities, dampening of fill material prior to handling or stockpiling, etc.

The major noise source was dump truck traffic in the Fill Bank. All site equipment and machinery were well maintained and no noise nuisance was observed during operating.

Drainage channels and wastewater treatment facilities were found maintained in good condition for merit function. No mud, silt and rubbish were observed inside the drainage channel. The Contractor was still reminded to arrange site workers to maintain the drainage channel regularly

Although there were a few observations regarding improper handling of oil drums and chemical containers, such as lack of drip tray and accumulated of stagnant water in the drip tray, the Contractor rectified most of these problems. Besides, the Contractor should provide tarpaulin sheets before repairing and maintenance works and also carry out proper cleaning activities immediately after such works.

Overall site area was found tidy and clean. The Contractor was reminded to collect and dispose of the general refuse and other C&D waste in a timely manner.

5.2 Status of Environmental Licensing and Permitting

The status of licences and permits is summarized in Table 5.1.

Table 5.1 Summary of environmental licensing and permit status

Description	*Permit No.*	*Valid Period*		*Section*
		From	*To*	
Amended Environmental Permit	*EP-134/2002/F*	*26/01/06*	*---*	*(Valid)* ▪ *Site clearance* ▪ *Construction of a temporary storm water system* ▪ *Stockpiling of 6 million m3 of public fill* ▪ *Setting up two barging points for transporting the stockpiled public fill by barges* ▪ *Setting up a temporary barging point at the existing Explosive Off-loading Barging Point for the period of May 2004 to December 2004 for transporting the stockpiled public fill by barge* ▪ *Construction of operation of a construction and Demolition Material Sorting Facility (C&DMSF)* ▪ *Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin* ▪ *Remove the temporary fill bank*
Chemical Waste Producer.	*5123-839-C1186-05*	*04/01/07*	*---*	*Spent Lubricating oil / Spent Flammable Liquid / Spent Battery / Surplus Paint*
Effluent Discharge License	*Application is under progress*			

5.3 Advice on Solids and Liquid Waste Management Status

Table 5.2 summarizes data on offsite waste disposal in the quarter.

Table 5.2 Estimated Offsite Waste Disposal in the Reporting Quarter

Waste Type	*Examples*	*December 2006*	*January 2007*	*February 2007*
C&D Waste (tons)	*Domestic waste (site) collected in garbage bins and general refuse*	*0*	*0*	*0*
Chemical Waste	*Waste oil (L) / Chemical Waste (kg)*	*0*	*0*	*0*

6.0 NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

6.1 Summary of Non-compliance

In this reporting quarter, no exceedances of Action and Limit Level of marine water quality, 24-hr and 1-hr TSP monitoring results were recorded.

6.2 Review of the Reasons for and the Implications of Non-compliance

Since there were no exceedances on marine water quality and air quality monitoring parameters recorded in this monitoring quarter, the review of the reasons for the non-compliance was not required.

6.3 Summary of Actions Taken

Since no exceedances were recorded, no further actions were required.

6.4 Summary of Environmental Complaint, Notifications of Summons and Successful Prosecutions Handling

No complaints, notifications of summons and successful prosecutions were received. A summary of environmental complaints and prosecutions was given in Table 6.1.

Table 6.1 Summary of Environmental Complaints and Prosecutions

Period	Complaints logged	Summon served	Successful Prosecution
December 2006	0	0	0
January 2007	0	0	0
February 2007	0	0	0
Cumulative	0	0	0

7.0 COMMENTS, CONCLUSIONS AND RECOMMENDATION

This report presents the first quarter of the Fill Bank operation. Major activity in the Fill Bank was the import and dumping of fill material. Air quality was the major environmental issue in the Fill Bank. Generally, the Contractor implemented most of the mitigation measures to minimize the dust impact.

No exceedances of Action and Limit Level of marine water quality monitoring were recorded in this reporting quarter.

There were no air quality exceedances recorded in the reporting quarter.

No complaints, notification of summons and prosecutions with respect to environmental issues were received in this quarter.

According to the ET weekly site inspection and IEC site audits carried out in this quarter, it was indicated that site practices of the Contractor were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was up to standard.

According to the environmental site inspections performed in the reporting quarter, the following recommendations were provided:

Air Quality

- Ensure the frequency of water spraying on haul roads, unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Conduct road sweeping on the public road and the main haul roads outside and near the site egress by the road sweeper;
- Undertake water spraying on stockpiling area;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke;
- Provide water spraying onto the truckloads during inspection of fill material;
- Erect adequate speed limit signs to advise the truck drivers of the speed limit;
- Implement the dust mitigation measures for the construction activities; and
- Ensure all vehicles to be washed before leaving the site egress through the provision, operation and maintenance of automatic wheel washing facilities.

Noise

- Conduct noisy activities at a farther location from the NSRs.

Water Quality

- Maintain the drainage system regularly;
- Operate the cleaning vessel regularly; and
- Remove the stagnant water or provide pesticide for the stagnant water in the permanent desilting chambers, if any.

Chemical and Waste Management

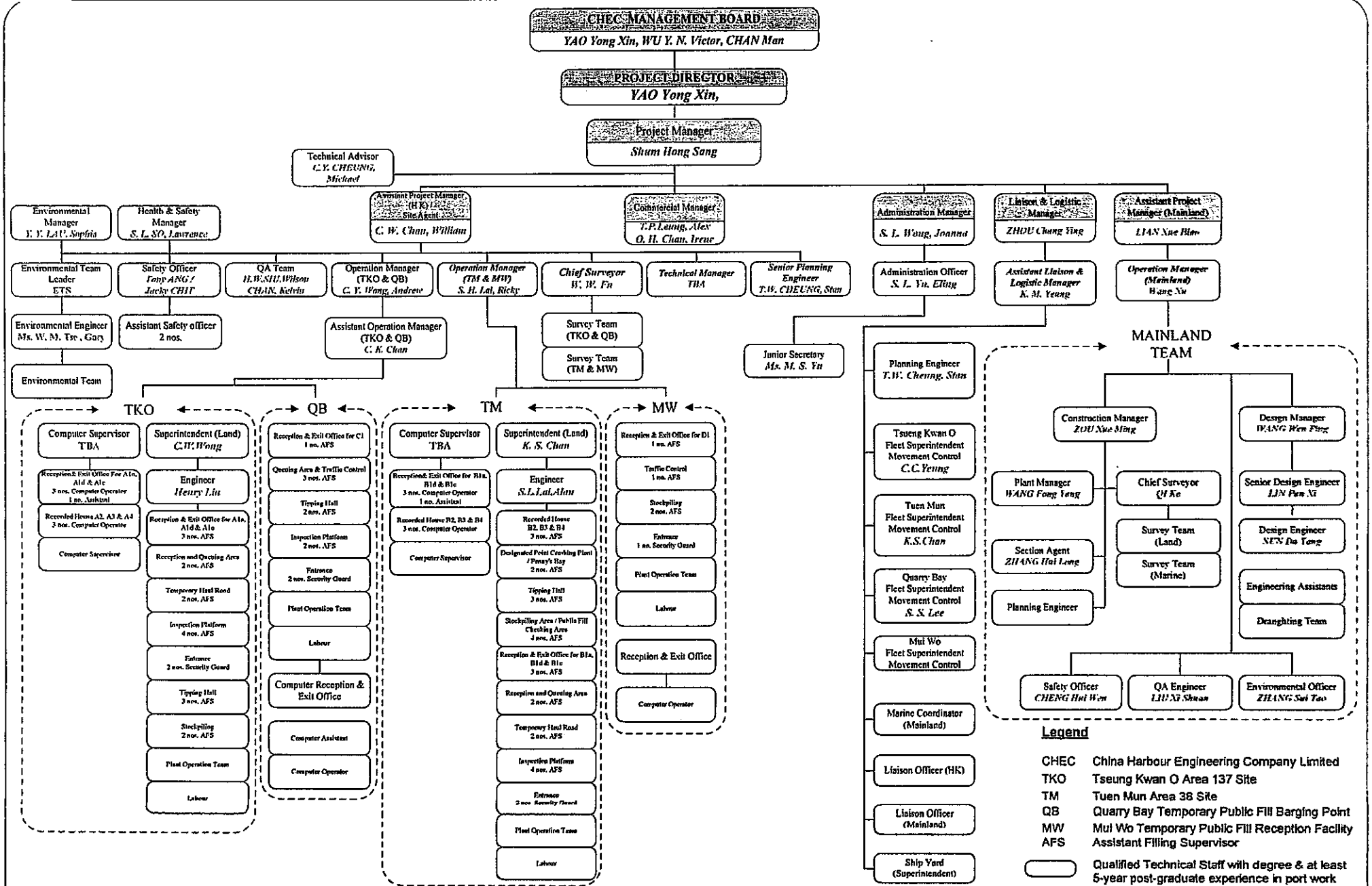
- Remove waste materials from the site to avoid accumulation regularly;
- Handle and store chemical wastes properly;
- Remove unwanted material in the existing stockpiles and avoid further dumping of such material;
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain good housekeeping at the workshop area;
- Ensure sufficient tarpaulin sheets are provided to cover drip trays; and
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

Landscape and Visual

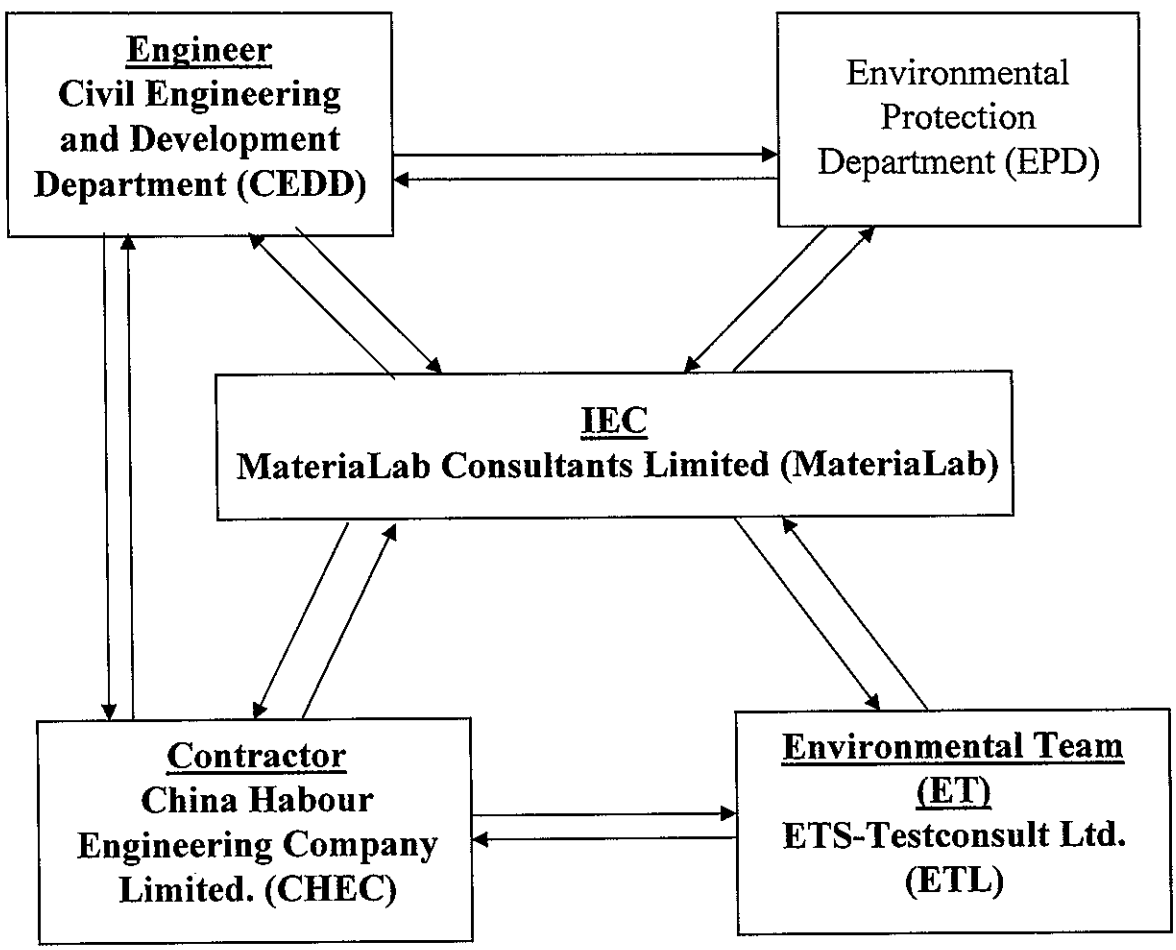
- Provide hydroseeding on the exposed slopes, on which the final profile has been formed;
- Erect all the site hoarding/chaining fences in accordance with agreed design at proper location; and
- Maintain the hydroseeding slopes in accordance with the Landscape Plan.

Appendix A

Organization Chart and Lines of Communication


CHEC MANAGEMENT BOARD
YAO Yong Xin, WU Y. N. Victor, CHAN Man
PROJECT DIRECTOR
YAO Yong Xin,
Project Manager
Shum Hong Sang
Technical Advisor
C.Y. CHEUNG, Michael
Environmental Manager
Y. Y. LAU, Sophia
Health & Safety Manager
S. L. SO, Lawrence
Assistant Project Manager (HK) / Site Agent
C. W. Chan, William
Commercial Manager
T.P.Leung, Alex
O. H. Chan, Irene
Administration Manager
S. L. Wong, Joanna
Liaison & Logistic Manager
ZHOU Chang Ying
Assistant Project Manager (Mainland)
LIAN Xue Biao
Environmental Team Leader
ETS
Safety Officer
Tony ANG / Jacky CHIT
QA Team
H.W.SHU,Wilson
CHAN, Kelvin
Operation Manager (TKO & QB)
C. Y. Wong, Andrew
Operation Manager (TM & MW)
S. H. Lai, Ricky
Chief Surveyor
W. W. Fu
Technical Manager
TBA
Senior Planning Engineer
T.W. CHEUNG, Stan
Administration Officer
S. L. Yu, Eling
Assistant Liaison & Logistic Manager
K. M. Yeung
Operation Manager (Mainland)
Wang Xu
Environmental Engineer
Ms. W. M. Tse , Gary
Assistant Safety officer
2 nos.
Assistant Operation Manager (TKO & QB)
C. K. Chan
Survey Team (TKO & QB)
Survey Team (TM & MW)
Junior Secretary
Ms. M. S. Yu
Environmental Team
Planning Engineer
T.W. Cheung, Stan
MAINLAND TEAM
TKO
QB
TM
MW
Computer Supervisor
TBA
Superintendent (Land)
C.W.Wong
Engineer
Henry Liu
Reception& Exit Office For A1a, A1d & A1e
3 nos. Computer Operator
1 no. Assistant
Recorded Hours A2, A3 & A4
3 nos. Computer Operator
Computer Supervisor
Reception & Exit Office for A1a, A1d & A1e
3 nos. AFS
Reception and Queuing Area
2 nos. AFS
Temporary Haul Road
2 nos. AFS
Inspection Platform
4 nos. AFS
Entrance
2 nos. Security Guard
Tipping Hall
3 nos. AFS
Stockpiling
2 nos. AFS
Plant Operation Team
Labour
Reception & Exit Office for C1
1 no. AFS
Queuing Area & Traffic Control
3 nos. AFS
Tipping Hall
2 nos. AFS
Inspection Platform
2 nos. AFS
Entrance
2 nos. Security Guard
Plant Operation Team
Labour
Computer Reception & Exit Office
Computer Assistant
Computer Operator
Computer Supervisor
TBA
Superintendent (Land)
K. S. Chan
Engineer
S.L.Lai,Alan
Reception& Exit Office for B1a, B1d & B1e
3 nos. Computer Operator
1 no. Assistant
Recorded Hours B2, B3 & B4
3 nos. Computer Operator
Computer Supervisor
Recorded Hours B2, B3 & B4
3 nos. AFS
Designated Point Crushing Plant / Penny's Bay
2 nos. AFS
Tipping Hall
3 nos. AFS
Stockpiling Area / Public Fill Checking Area
4 nos. AFS
Reception & Exit Office for B1a, B1d & B1e
3 nos. AFS
Reception and Queuing Area
2 nos. AFS
Temporary Haul Road
2 nos. AFS
Inspection Platform
4 nos. AFS
Entrance
2 nos. Security Guard
Plant Operation Team
Labour
Reception & Exit Office for D1
1 no. AFS
Traffic Control
1 no. AFS
Stockpiling
2 nos. AFS
Entrance
1 no. Security Guard
Plant Operation Team
Labour
Reception & Exit Office
Computer Operator
Tseung Kwan O Fleet Superintendent Movement Control
C.C.Yeung
Tuen Mun Fleet Superintendent Movement Control
K.S.Chan
Quarry Bay Fleet Superintendent Movement Control
S. S. Lee
Mui Wo Fleet Superintendent Movement Control
Marine Coordinator (Mainland)
Liaison Officer (HK)
Liaison Officer (Mainland)
Ship Yard (Superintendent)
Construction Manager
ZOU Xue Ming
Plant Manager
WANG Fong Yang
Section Agent
ZHANG Hai Long
Planning Engineer
Chief Surveyor
QI Ke
Survey Team (Land)
Survey Team (Marine)
Design Manager
WANG Wen Ping
Senior Design Engineer
LIN Pan Xi
Design Engineer
SUN Da Yang
Engineering Assistants
Draughting Team
Safety Officer
CHENG Hui Wen
QA Engineer
LIU Xi Shuan
Environmental Officer
ZHANG Sui Tao
Legend
CHEC China Harbour Engineering Company Limited
TKO Tseung Kwan O Area 137 Site
TM Tuen Mun Area 38 Site
QB Quarry Bay Temporary Public Fill Barging Point
MW Mui Wo Temporary Public Fill Reception Facility
AFS Assistant Filling Supervisor
Qualified Technical Staff with degree & at least 5-year post-graduate experience in port work

Lines of Communication



Appendix B1

Calibration Certificates for Air Quality Monitoring Equipments

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
8/F., Block B, Verlstrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 09 November 2006

Serial No. : 9503 (ET / EA / 003 / 03)

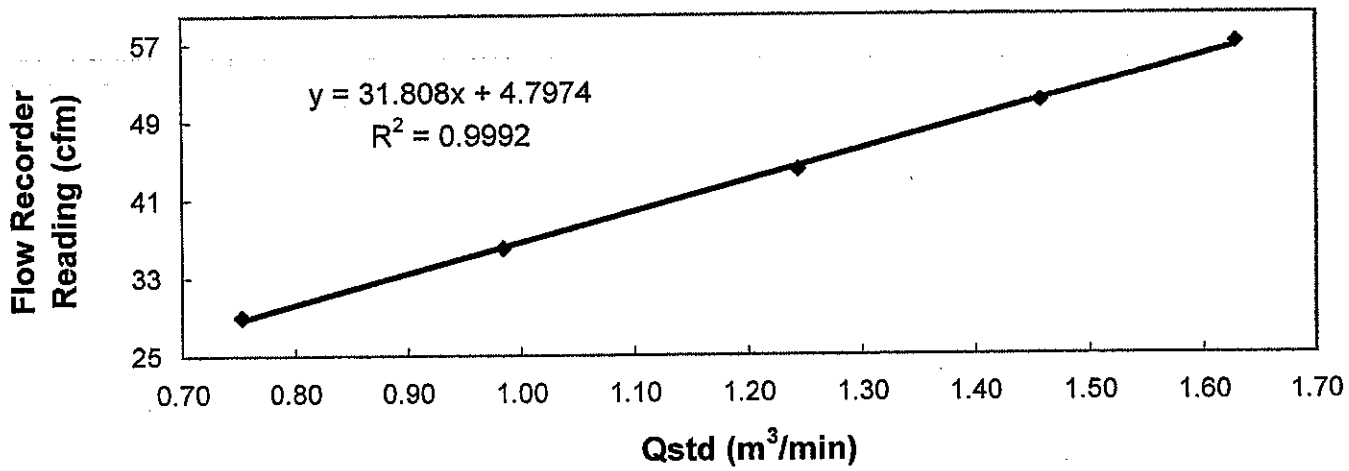
Calibration Due Date : 08 January 2007

Method : Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A

Results :

Flow recorder reading (cfm)	57	51	44	36	29
Qstd (Actual flow rate, m^3/min)	1.63	1.46	1.24	0.98	0.75
Pressure : 756.81 mm Hg		Temp. : 295 K			

Sampler 9503 Calibration Curve
Site: Tuen Mun 38 (AM-1)
Date of Calibration: 09 November 2006



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : Danny Wong (Technician)

Approved by : H. T. Chow (Asst. Environmental Officer)

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
8/F., Block B, Verlstrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 09 January 2007

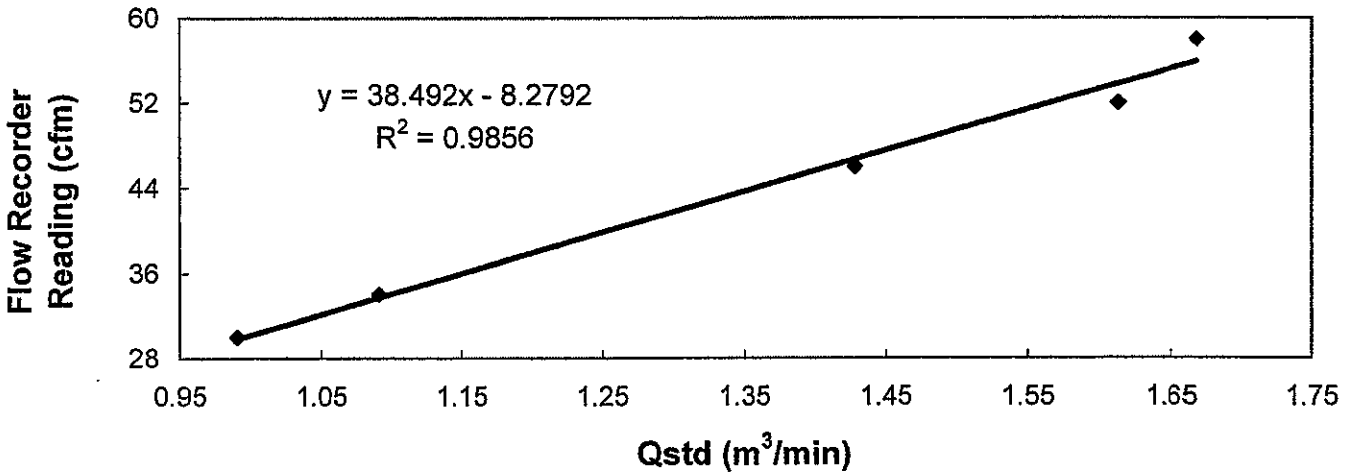
Serial No. : 9503 (ET / EA / 003 / 03) Calibration Due Date : 08 March 2007

Method : Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A

Results :

Flow recorder reading (cfm)	58	52	46	34	30
Qstd (Actual flow rate, m^3/min)	1.67	1.61	1.43	1.09	0.99
Pressure : 773.31 mm Hg		Temp. : 290 K			

Sampler 9503 Calibration Curve
Site: Tuen Mun 38 (AM-1)
Date of Calibration: 09 January 2007



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : _____
Kenneth CHIU
(Asst. Technician)

Approved by : _____
H. T. CHOW
(Asst. Environmental Officer)

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
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Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW

Date of Calibration : 09 November 2006

Serial No. : 8115 (ET / EA / 003 / 13)

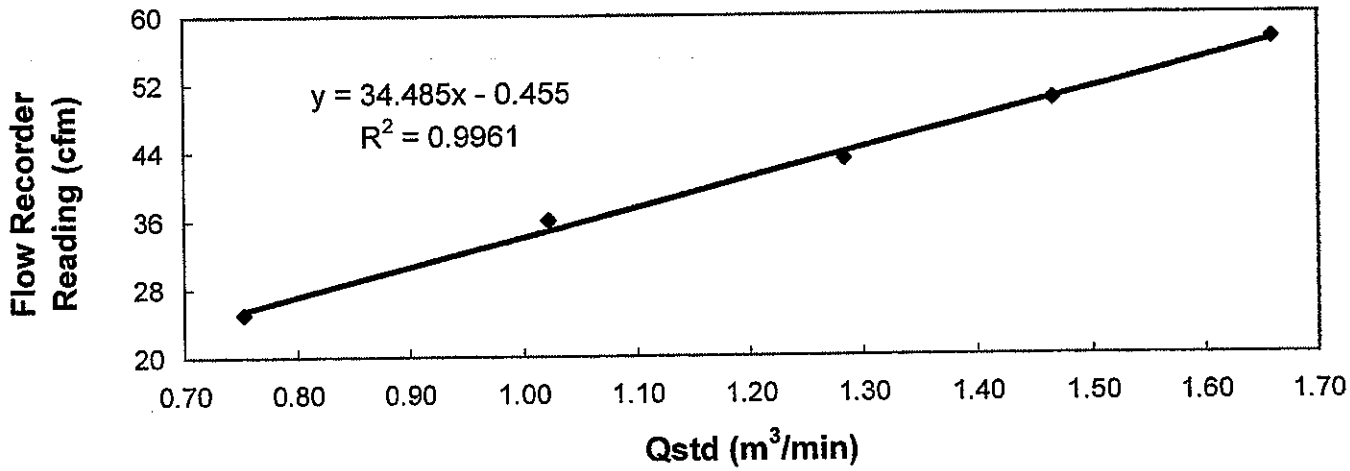
Calibration Due Date : 08 January 2007

Method : Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A

Results :

Flow recorder reading (cfm)	57	50	43	36	25
Qstd (Actual flow rate, m^3/min)	1.66	1.47	1.28	1.02	0.75
Pressure : 756.81 mm Hg		Temp. : 295 K			

Sampler 8115 Calibration Curve
Site: Tuen Mun 38 (AM-2)
Date of Calibration: 09 November 2006



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : Danny Wong (Technician)

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東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED
8/F., Block B, Verlstrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

Calibration Report of High Volume Air Sampler

Manufacturer : Graseby GMW Date of Calibration : 09 January 2007

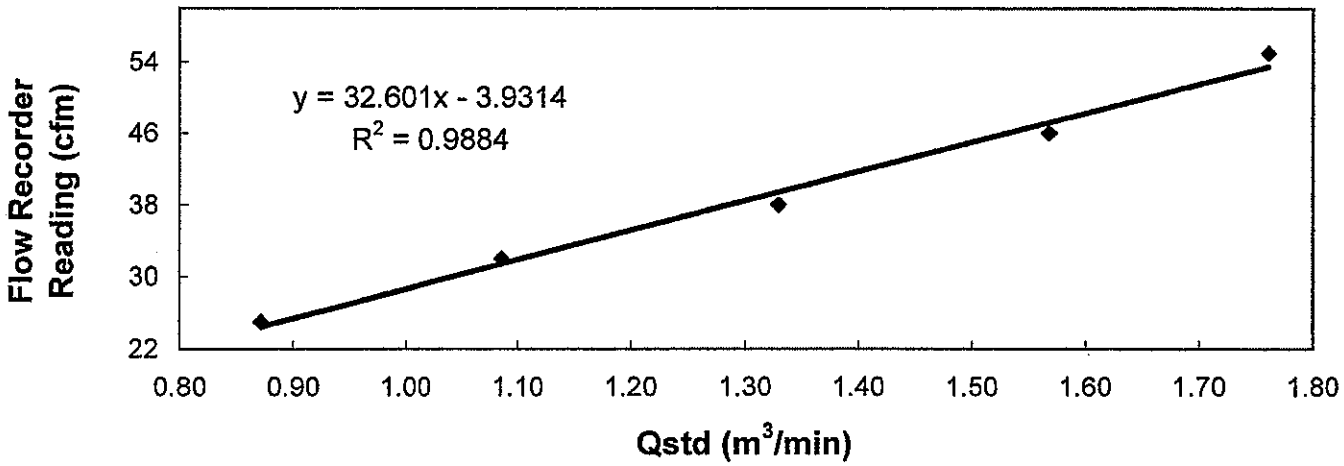
Serial No. : 8115 (ET / EA / 003 / 13) Calibration Due Date : 08 March 2007

Method : Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A

Results :

Flow recorder reading (cfm)	55	46	38	32	25
Qstd (Actual flow rate, m^3/min)	1.76	1.57	1.33	1.09	0.87
Pressure : 774.06 mm Hg		Temp. : 290 K			

Sampler 8115 Calibration Curve
Site: Tuen Mun 38 (AM-2)
Date of Calibration: 09 January 2007



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable */ ~~unacceptable~~ * for use.

Calibrated by : Kenneth CHIU (Asst. Technician)

Approved by : H. T. CHOW (Asst. Environmental Officer)

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 16, 2006 Rootsmeter S/N 9833620 Ta (K) - 296
Operator Tisch Orifice I.D. - 1061 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3950	3.1	2.00
2	NA	NA	1.00	0.9820	6.3	4.00
3	NA	NA	1.00	0.8770	7.8	5.00
4	NA	NA	1.00	0.8360	8.6	5.50
5	NA	NA	1.00	0.6910	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9935	0.7122	1.4125		0.9959	0.7139	0.8866
0.9893	1.0074	1.9976		0.9916	1.0098	1.2539
0.9872	1.1256	2.2334		0.9895	1.1283	1.4019
0.9862	1.1797	2.3424		0.9885	1.1825	1.4703
0.9809	1.4195	2.8251		0.9832	1.4229	1.7732
Qstd slope (m) =		1.99638		Qa slope (m) =		1.25010
intercept (b) =		-0.01172		intercept (b) =		-0.00736
coefficient (r) =		0.99998		coefficient (r) =		0.99998
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

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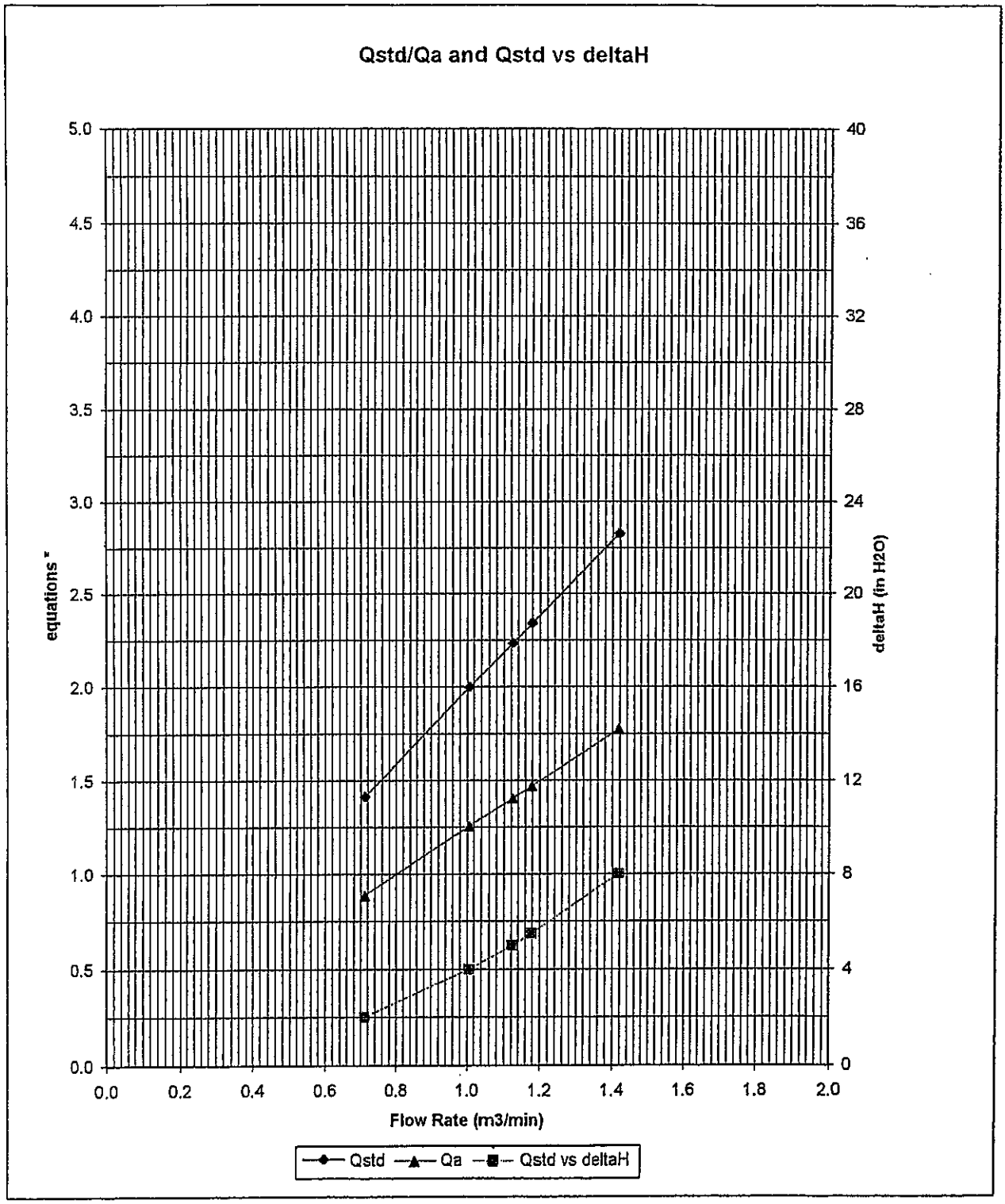
AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

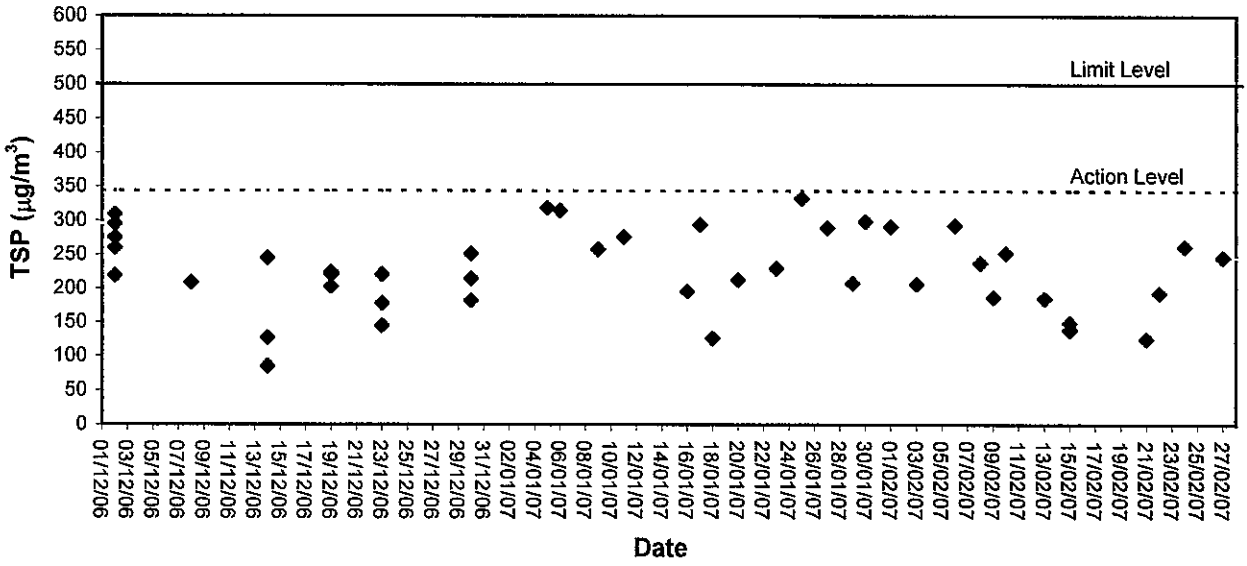
Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#1061

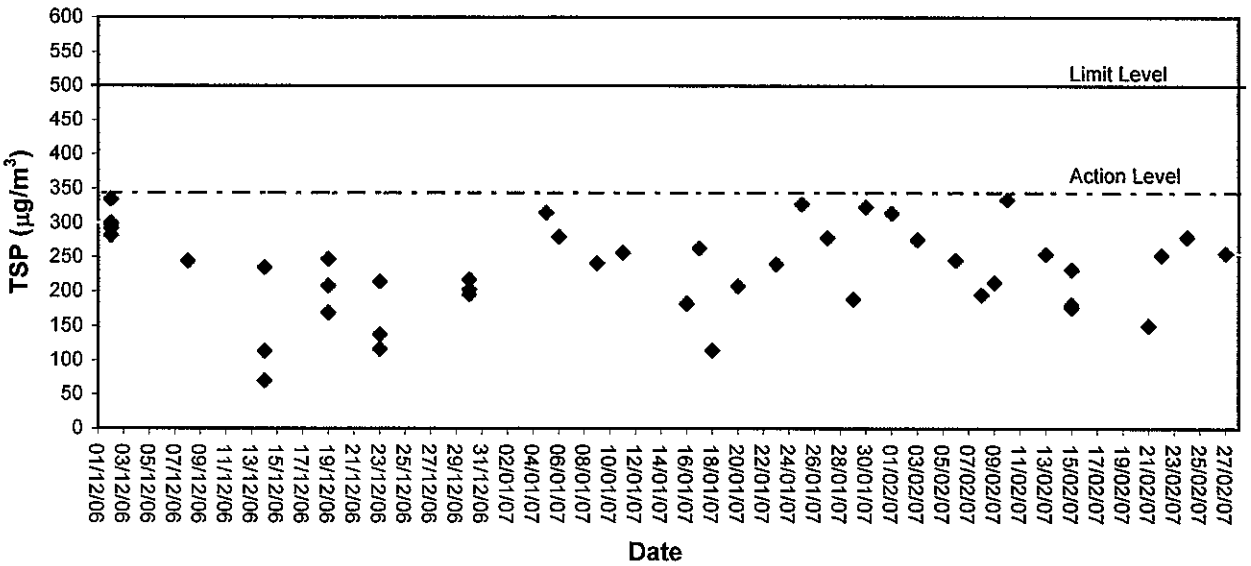
Appendix B2

Graphical Plots of Air Quality Monitoring Data

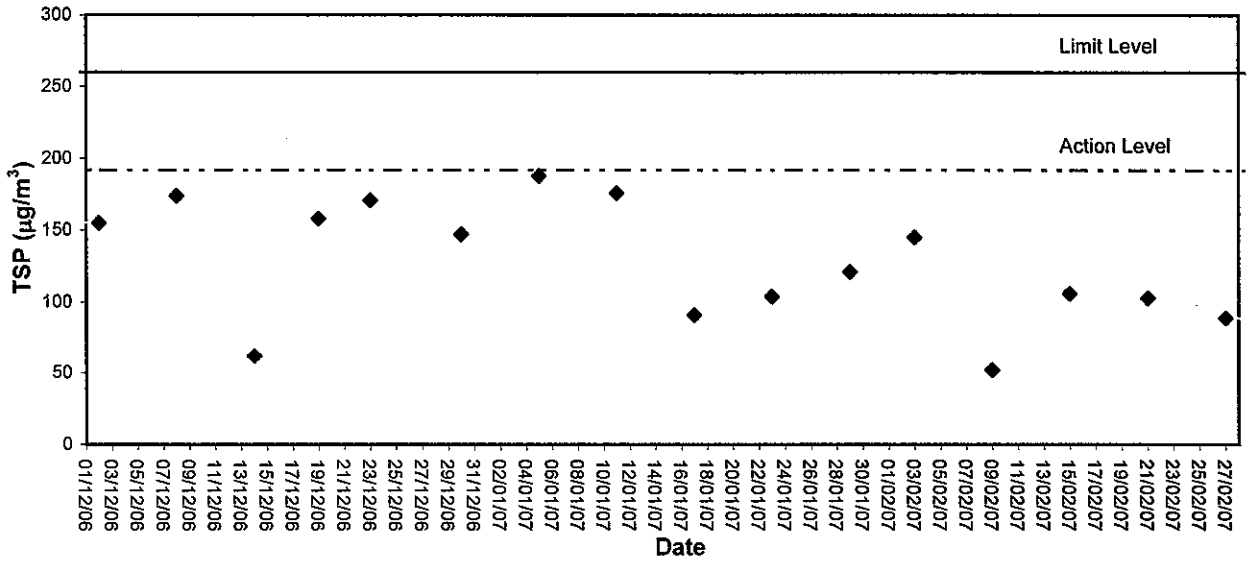
1-hour TSP level at TM-A1



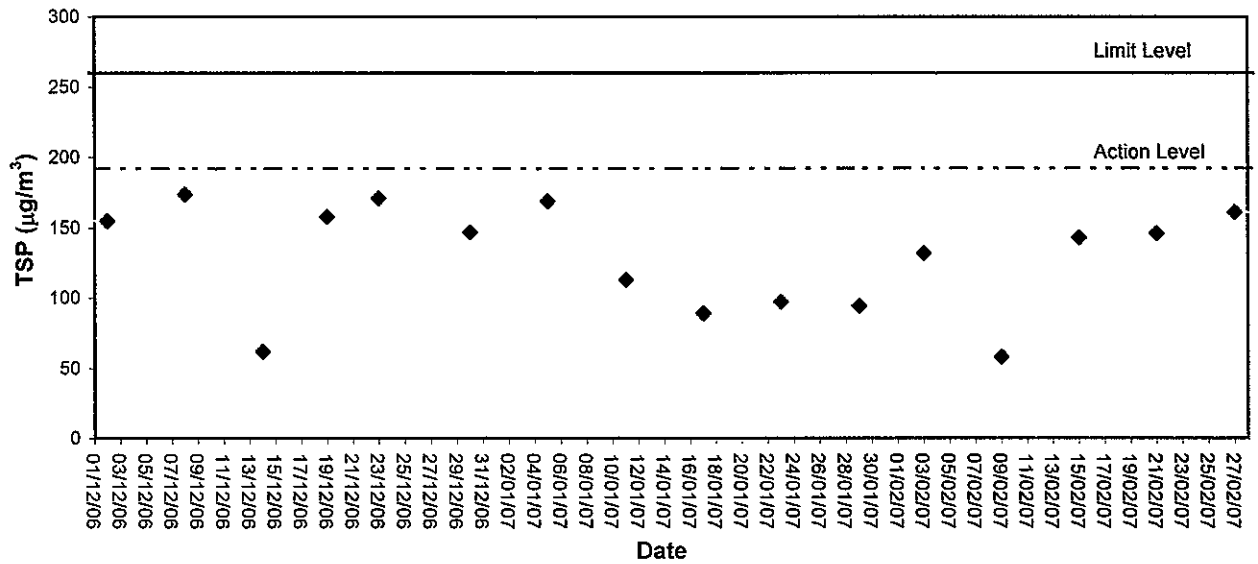
1-hour TSP level at TM-A2



24-hour TSP level at TM-A1



24-hour TSP level at TM-A2



Appendix C1

Calibration Certificates for Marine Water Quality Monitoring Equipments

Internal Calibration Report of Turbidimeter

Equipment Ref. No. : ET/0505/002 Manufacturer : HACH

Model No. : 2100P Serial No. : 930900037028

Date of Calibration : 28/10/06 Calibration Due : 28/1/07

Data

(4.95) 0 - 10 NTU Gelex Vial	(49.0) 10 - 100 NTU Gelex Vial	(409) 100 - 1000 NTU Gelex Vial
4.98	49.2	411

The equipment complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

* Delete as appropriate

Calibrated by : Approved by :

Internal Calibration Report of Turbidimeter

Equipment Ref. No. : ET/0505/002 Manufacturer : HACH

Model No. : 2100P Serial No. : 93090000 3728

Date of Calibration : 27/1/07 Calibration Due : 27/4/07

Data

(4.95) 0 - 10 NTU Gelex Vial	(49.0) 10 - 100 NTU Gelex Vial	(409) 100 - 1000 NTU Gelex Vial
4.93	48.8	406

The equipment complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

* Delete as appropriate

Calibrated by : Approved by : Ida Lam

Performance Check of Salinity Meter

Equipment Ref. No. : ET/0527/001 Manufacturer : YSI

Model No. : Model 30 Serial No. : 99G1183

Date of Calibration : 26/10/06 Due Date : 26/1/07

Ref. No. of Salinity Standard used (30ppt)	J196A

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30	29.3	2.4%

Acceptance Criteria

Difference : <10 %

The salinity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by : _____ Approved by : _____

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Performance Check of Salinity Meter

Equipment Ref. No. : ~~ET/0527/001~~ Izda ET/EW/001/001

Manufacturer : YSI

Model No. : Model 30

Serial No. : 99G1183

Date of Calibration : 27/1/17

Due Date : 26/4/17

Ref. No. of Salinity Standard used (30ppt)	J196A

Salinity Standard (ppt)	Measured Salinity (ppt)	Difference %
30	29.3	2.4%

Acceptance Criteria

Difference : <10 %

The salinity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Checked by : Izda Lau

Approved by : [signature]

Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No.	:	ET/EW/003/001	Manufacturer	:	YSI
Model No.	:	95	Serial No.	:	97H 0407I AD
Date of Calibration	:	20/11/06	Calibration Due Date	:	19/2/07

Ref. No. of Reference Thermometer : ET/2403/01

Ref. No. of Potassium Dichromate : ET/0520/003/02

Temperature Verification

	Temperature (°C)
Thermometer reading	20.0
Meter reading	20.0

Lineality Checking

Purging time, min	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
2	7.51	7.53	7.52	7.48	7.49	7.49	0.40
5	5.29	5.31	5.30	5.22	5.20	5.21	1.71
10	3.56	3.54	3.55	3.61	3.59	3.60	1.40
Linear regression coefficient				0.9990			

Zero Point Checking

DO meter reading, mg/L	0.00

Salinity Checking

Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	6.70	6.72	6.71	6.80	6.82	6.81	1.48
30	6.25	6.23	6.24	6.38	6.36	6.37	2.06

Acceptance Criteria

(1) Differenc between temperature readings from temperature sensor of DO probe and reference thermometer : <0.5 °C
(2) Linear regression coefficient : >0.99
(3) Zero checking: 0.0mg/L
(4) Difference (%) of DO content from the meter reading and by winkler titration : within ± 5%

The equipment complies * / ~~does not comp~~ly * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

* Delete as appropriate

Calibrated by : [signature]

Approved by : [signature]

Internal Calibration Report of Dissolved Oxygen Meter

Equipment Ref. No.	:	ET/EW/003/001	Manufacturer	:	YSI
Model No.	:	95	Serial No.	:	97H 04071 AD
Date of Calibration	:	18/2/07	Calibration Due Date	:	17/5/07

Ref. No. of Reference Thermometer : ET/2403/01

Ref. No. of Potassium Dichromate : ET/0520/003/02

Temperature Verification

	Temperature (°C)
Thermometer reading	20.0
Meter reading	20.0

Lineality Checking

Purging time, min	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
2	7.51	7.53	7.52	7.48	7.49	7.49	0.27
5	5.29	5.31	5.30	5.22	5.20	5.21	1.71
10	3.56	3.54	3.55	3.61	3.59	3.60	1.40
Linear regression coefficient				0.9990			

Zero Point Checking

DO meter reading, mg/L	0.00

Salinity Checking

Salinity (ppt)	DO meter reading, mg/L			Winkler Titration result, mg/L			Difference (%) of DO Content
	1	2	Average	1	2	Average	
10	6.70	6.72	6.71	6.80	6.82	6.81	1.48
30	6.25	6.23	6.24	6.38	6.36	6.37	2.06

Acceptance Criteria

(1) Differenc between temperature readings from temperature sensor of DO probe and reference thermometer : < 0.5 °C
(2) Linear regression coefficient : >0.99
(3) Zero checking: 0.0mg/L
(4) Difference (%) of DO content from the meter reading and by winkler titration : within ± 5%

The equipment complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use.

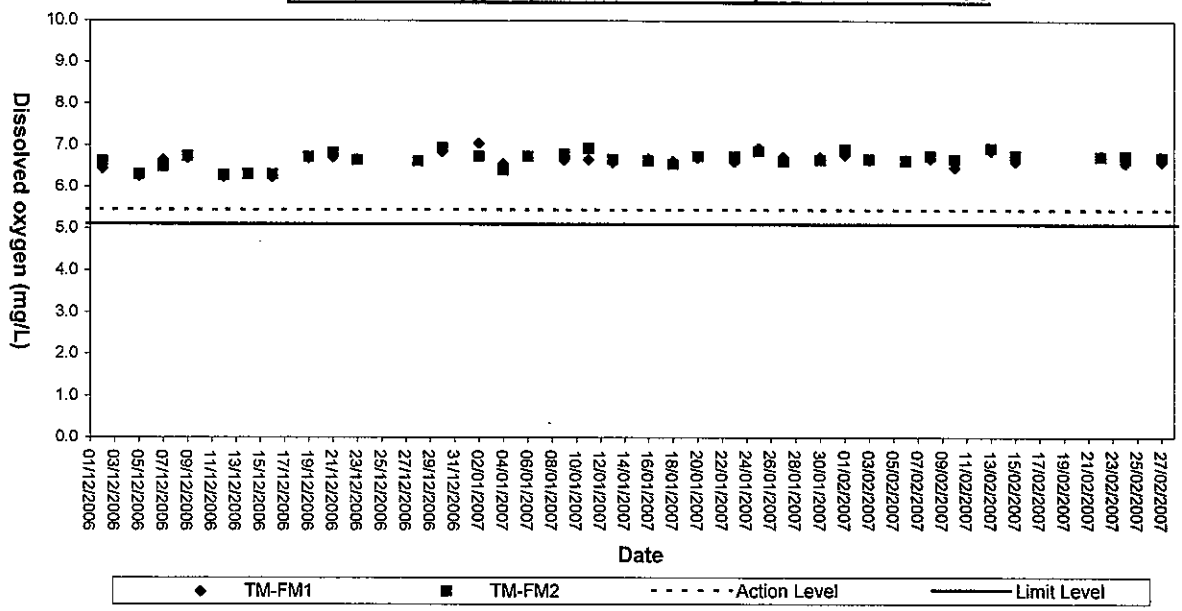
* Delete as appropriate

Calibrated by : _____ Approved by : _____

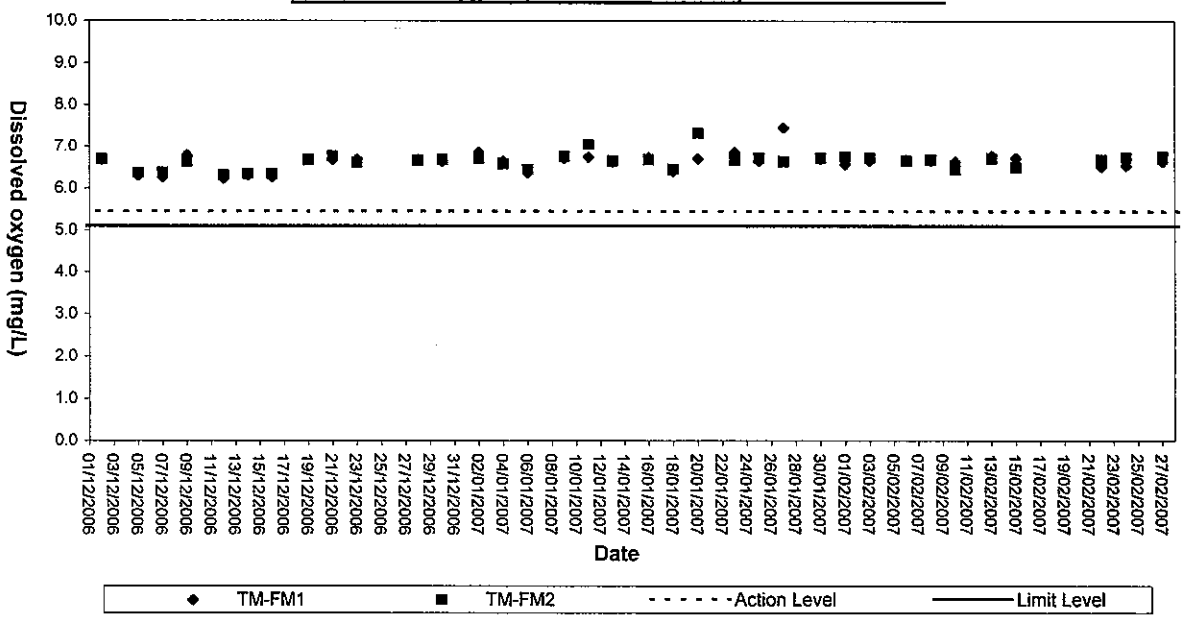
Appendix C2

Graphical Plots of Impact Marine Water Quality Monitoring Data

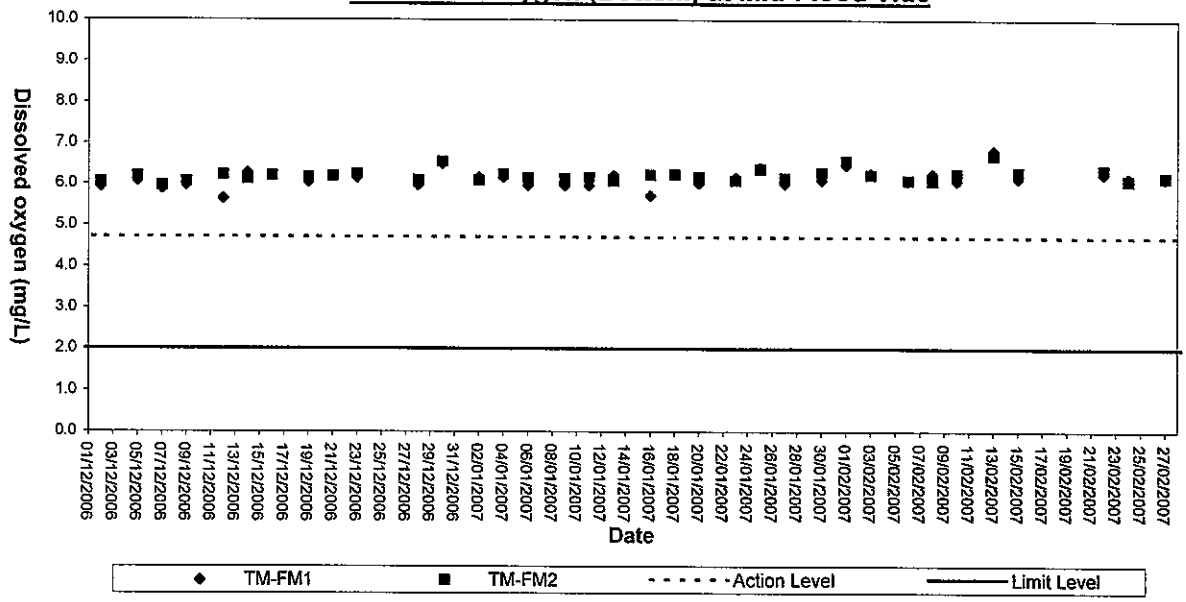
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



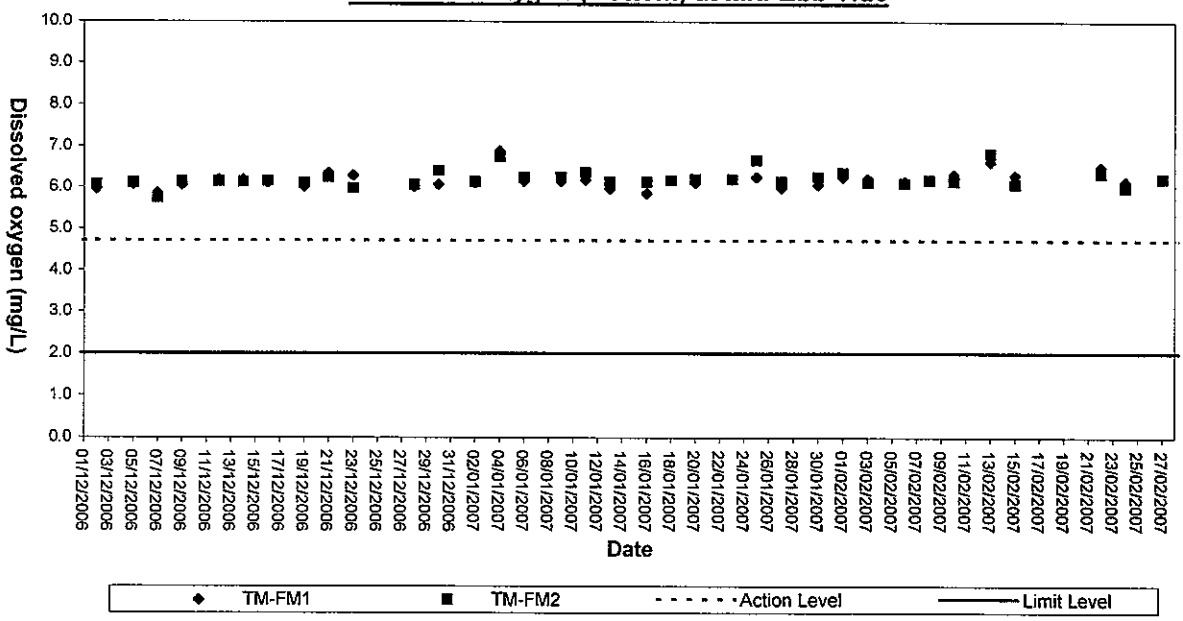
Dissolved Oxygen (Surfact & Middle) at Mid-Ebb Tide



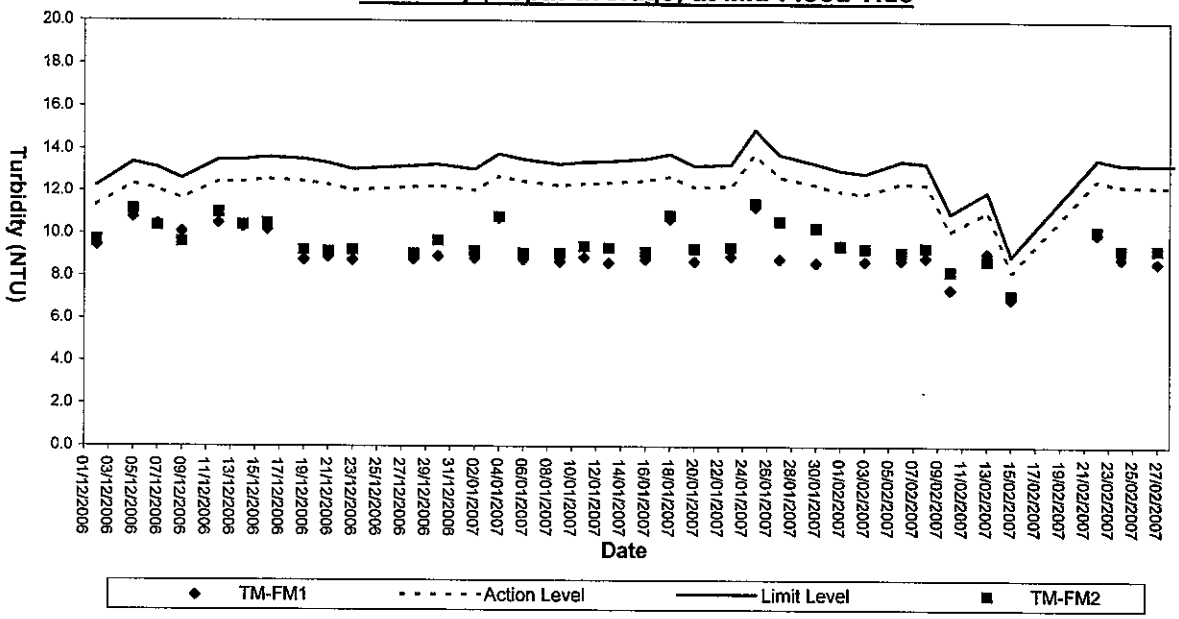
Dissolved Oxygen (Bottom) at Mid-Flood Tide



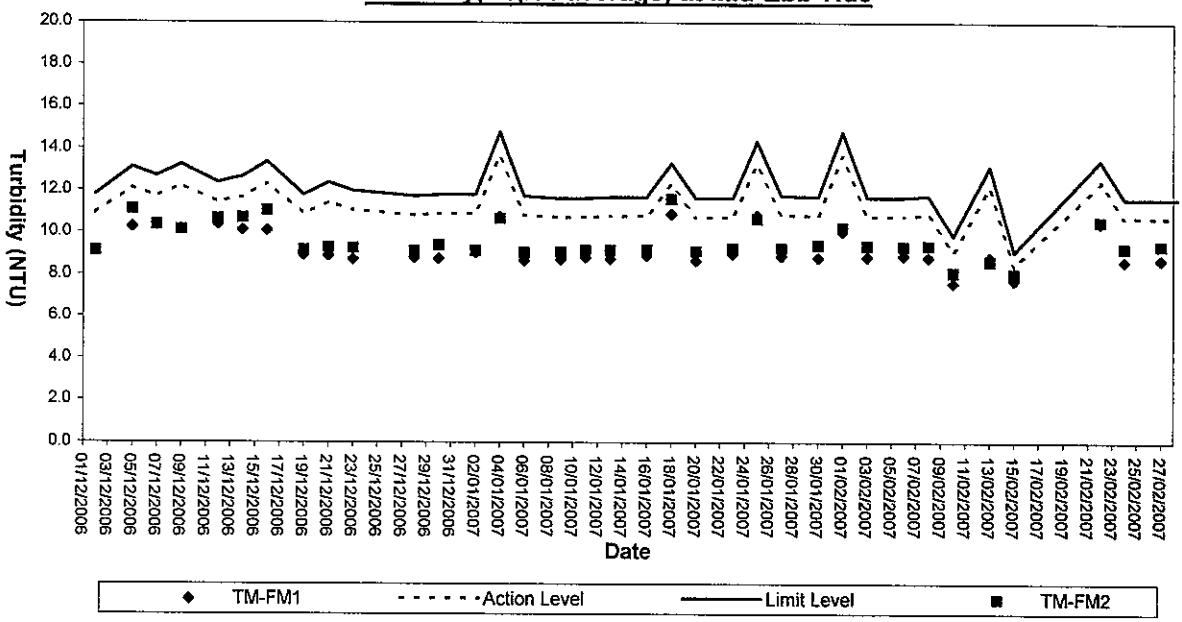
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



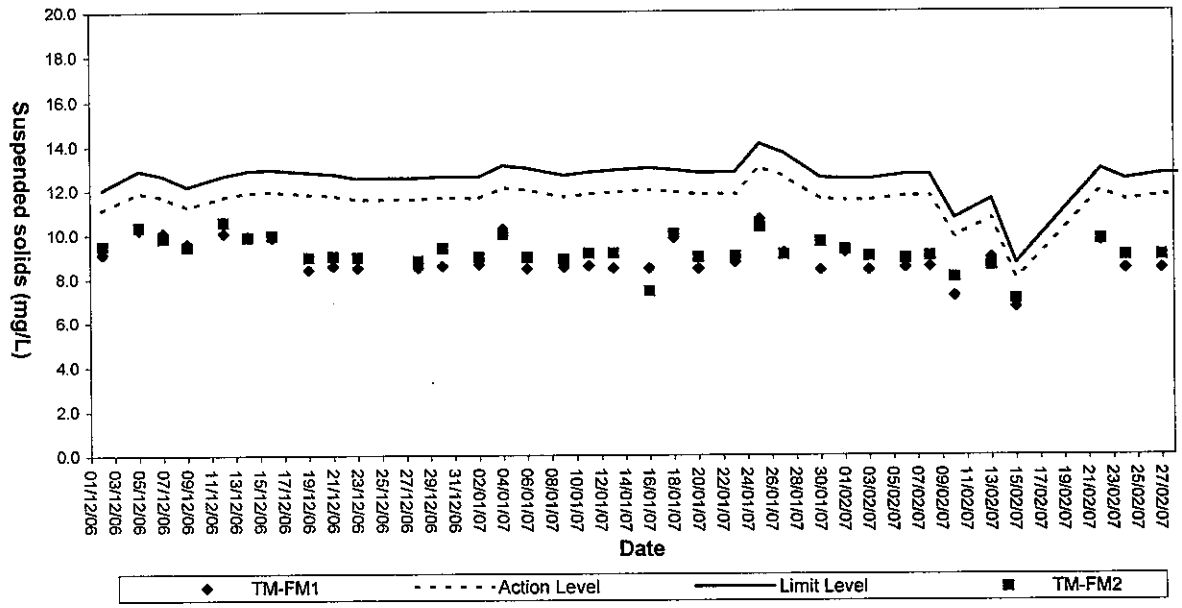
Turbidity (Depth-average) at Mid-Flood Tide



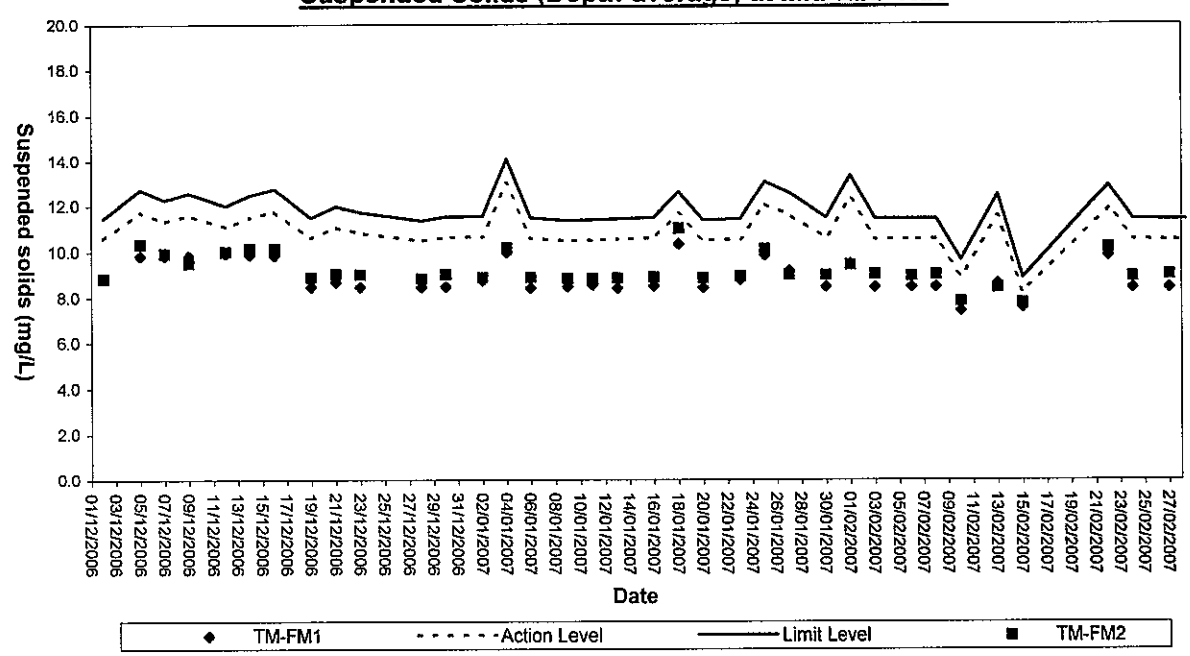
Turbidity(Depth-average) at Mid-Ebb Tide



Suspended solids (Depth-average) at Mid-Flood Tide



Suspended Solids (Depth-average) at Mid-Ebb Tide



Appendix D

Environmental Quality Performance (Action / Limit Levels)

Action and Limit Levels for 1-hour TSP and 24-hour TSP Monitoring

Monitoring Location	24-hr TSP ($\mu g/m^3$)		1-hr TSP ($\mu g/m^3$)	
	Action Level	Limit Level	Action Level	Limit Level
TM-A1	192	260	344	500
TM-A2	192	260	344	500

Action and Limit Levels for Marine Water Quality Monitoring

Parameter	Action Level	Limit Level
DO (mg/L)	Surface & Middle <4.78 mg/L (5%-ile of baseline data) Bottom <4.16 mg/L (5%-ile of baseline data)	Surface & Middle <4.00 mg/L (1%-ile of baseline data) Bottom <2.00 mg/L
SS (mg/L) (Depth-averaged)	>120% of the upstream control station's SS at the same tide on the same day	>130% of the upstream control station's SS at the same tide on the same day
Turbidity (NTU) (Depth-averaged)	>120% of the upstream control station's turbidity at the same tide on the same day	>130% of the upstream control station's turbidity at the same tide on the same day

Appendix E

Event-Action Plans

EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE

EVENT	ACTION			
	ET Leader	IC(E)	ER	Contractor
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Inform ER, IC(E) and Contractor 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by the ET 2. Check contractor's working method	1. Notify Contractor	1. Rectify any unacceptable practise 2. Amend working methods if appropriate
2. Exceedance for two or more consecutive samples	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Inform IC(E) and Contractor 3. Repeat measurements to confirm finding 4. Increase monitoring frequency to daily 5. Discuss with IC(E) and Contractor on remedial actions 6. If exceedance continues, arrange meeting with IC(E) and ER. 7. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by the ET Leader 2. Check the Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify the Contractor 3. Ensure remedial measures properly implemented	1. Submit proposals for remedial actions to IC(E) within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Inform ER, Contractor and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess the effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results	1. Check monitoring data submitted by the ET Leader 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advise the ER on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify the Contractor 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate.

EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE

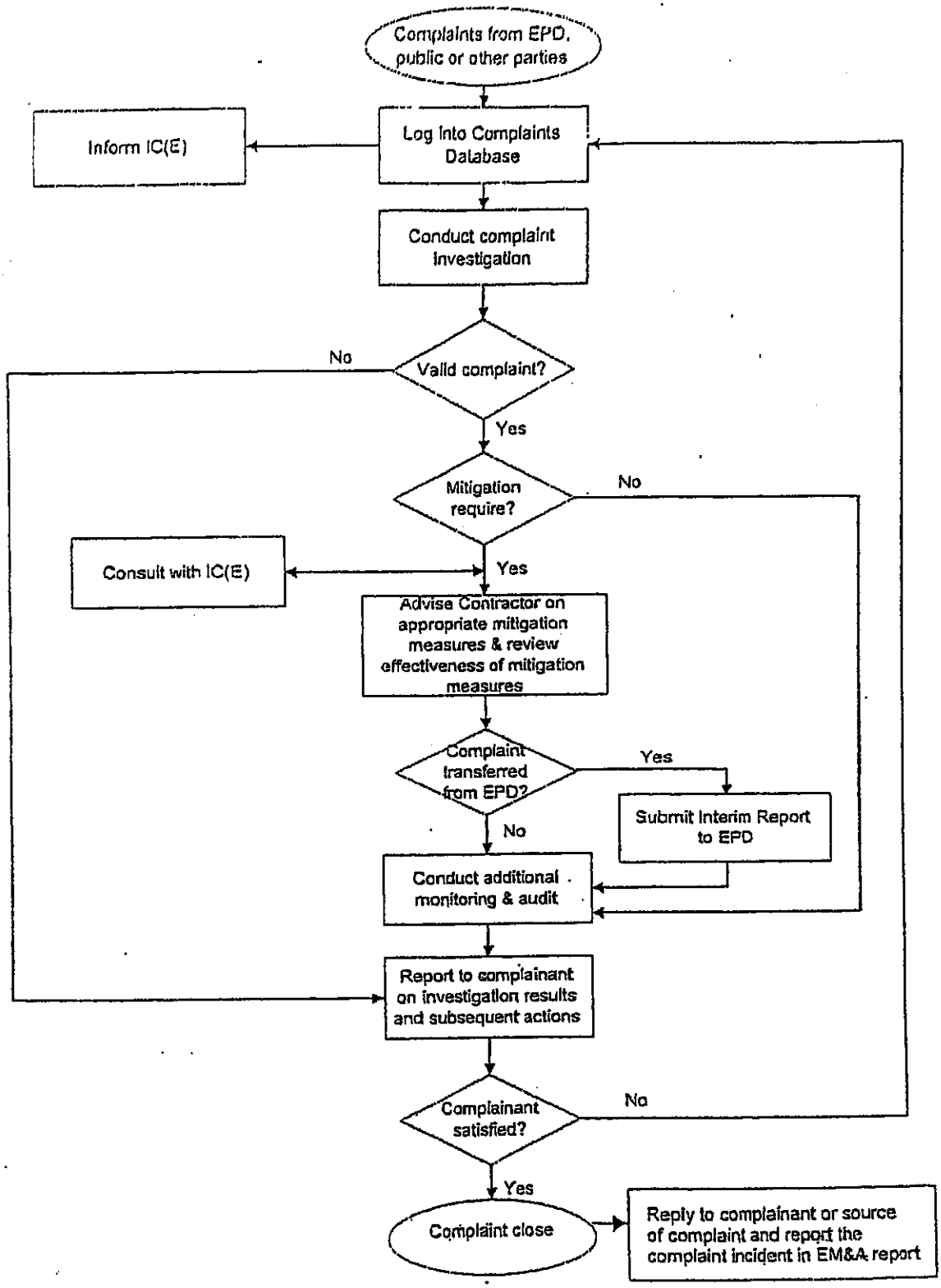
EVENT	ACTION			
	ET Leader	IC(E)	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Notify IC(E), ER, EPD and Contractor 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring	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	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. In consultation with the IC(E), agree with the Contractor on the remedial measures to be implemented 4. Ensure remedial measures are properly implemented 5. If exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedances 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated

Event	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE			
	ACTION			
	ET Leader	Contractor	ER	IEC
Action level being exceeded by one sampling day	1. Identify source(s) of impact; 2. Repeat in-situ measurement to confirm findings; 3. Notify Contractor in writing within 24 hours of identification of the exceedance 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Carry out investigation 6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works 7. Discuss mitigation measures with Contractor if exceedance is due to the construction works within 4 working days 8. Repeat measurement on next day of exceedance if exceedance is due to the construction works	1. Notify the ER and IEC in writing within 24 hours of identification of exceedance 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Submit investigation report to IEC and ER within 3 working days of the identification of an exceedance 5. Consider changes of working method if exceedance is due to the construction works 6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER if exceedance is due to the construction works within 4 working days of identification of an exceedance 7. Implement the agreed mitigation measures within reasonable time scale	1. Notify EPD and other relevant governmental agencies in writing within 24 hours of the identification of the exceedance 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Require contractor to propose remedial measures for the analysed problem if related to the construction works 4. Ensure remedial measures are properly implemented 5. Assess the effectiveness of the mitigation measure	1. Check monitoring data submitted by ET 2. Confirm ET assessment if exceedance is due / not due to the works 3. Discuss with ET, ER and Contractor on the mitigation measures 4. Review contractor's mitigation measures whenever necessary to ensure their effectiveness and advise the ER accordingly 5. Supervise the implementation of mitigation measures

Event	EVENT AND ACTION PLAN FOR WATER QUALITY			
	ACTION			
	ET Leader	Contractor	ER	IEC
Action level being exceeded by more than one consecutive sampling days	1. Identify source(s) of impact; 2. Repeat in-situ measurement to confirm findings 3. Notify Contractor in writing within 24 hours of identification 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Carry out investigation 6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works 7. Discuss mitigation measures with IEC and Contractor within 4 working of identification of an exceedance 8. Ensure mitigation measures are implemented; 9. Prepare to increase the monitoring frequency to daily; 10. Repeat measurement on next day of exceedance.	1. Notify IEC and ER in writing within 24 hours of identification of exceedance 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance 6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days of identification of an exceedance 7. Implement the agreed mitigation measures within reasonable time scale	1. Notify EPD and other relevant governmental agencies in writing within 24 hours of the identification of the exceedance 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Require contractor to propose remedial measures for the analysed problem if related to the construction works 4. Ensure remedial measures are properly implemented 5. Assess the effectiveness of the mitigation measure	1. Check monitoring data submitted by ET 2. Confirm ET assessment if exceedance is due / not due to the works 3. Discuss with ET, ER and Contractor on the mitigation measures. 4. Review contractor's mitigation measures whenever necessary to ensure their effectiveness and advise the ER accordingly 5. Assess the effectiveness of the implemented mitigation measures.

Event	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE			
	ACTION			
	ET Leader	Contractor	ER	IEC
Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Notify Contractor in writing within 24 hours of identification of the exceedance 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Carry out investigation 6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works 7. Discuss mitigation measures with IEC, ER and Contractor within 4 working of identification of an exceedance 8. Ensure mitigation measures are implemented; 9. Increase the monitoring frequency to daily until no exceedance of Limit Level.	1. Notify IEC and ER in writing; within 24 hours of the identification of the exceedance 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance 6. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days of the identification of an exceedance 7. Implement the agreed mitigation measures within reasonable time scale	1. Notify EPD and other relevant governmental agencies in writing within 24 hours of identification of exceedance 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to critically review the working methods; 4. Ensure remedial measures are properly implemented 5. Assess the effectiveness of the implemented mitigation measures.	1. Check monitoring data submitted by ET 2. Confirm ET assessment if exceedance is due / not due to the works 3. Discuss with ET, ER and Contractor on the mitigation measures. 4. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 5. Assess the effectiveness of the implemented mitigation measures

Event	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE			
	ACTION			
	ET Leader	Contractor	ER	IEC
Limit Level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Notify Contractor in writing within 24 hours of identification of the exceedance 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Carry out investigation 6. Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works 7. Discuss mitigation measures with IEC, ER and Contractor; 8. Ensure mitigation measures are implemented; 9. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days.	1. Notify ER and IEC in writing within 24 hours of the identification of the exceedance and 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 8. Submit the results of the investigation to IEC and ER within 3 working days of the identification of an exceedance 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 4 working days; 6. Implement the agreed mitigation measures within reasonable time scale 7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction actives.	1. Notify EPD and other relevant governmental agencies in writing within 24 hours of identification of exceedance 2. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 3. Request Contractor to critically review the working methods; 6. Ensure remedial measures are properly 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 the marine work until no exceedance of Limit Level.	1. Check monitoring data submitted by ET 2. Confirm ET assessment if exceedance is due / not due to the works 3. Discuss with ER, ET and Contractor on the mitigation measures. 4. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly. 5. Assess the effectiveness of the implemented mitigation measures.

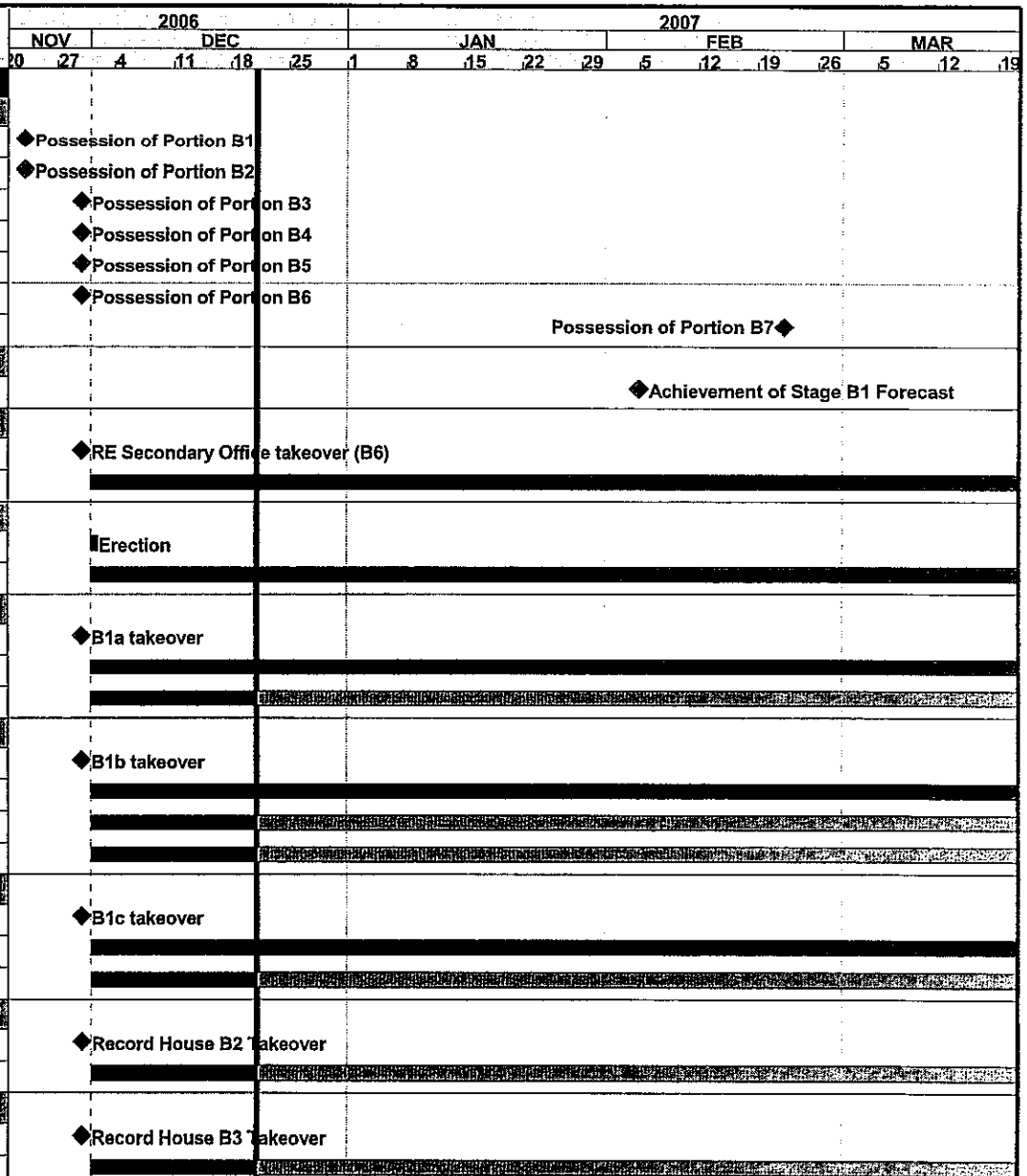


CEDD Contract No. CV/2005/01 Delivery of Reclamation Material to Mainland	Scale : ---	東業運動測試顧問有限公司 ETS-TESTCONSULT LIMITED
Figure 5 Environmental Complaint Handling Procedure - Tuen Mun Area 38 Fill Bank	Date issued : December 2006	

Appendix F

Construction Programme

Activity ID	Activity Description	Orig Dur	Rem Dur	%	Early Start	Early Finish
Tuen Mun						
Possession of Portion						
POPB1000	Possession of Portion B1	0	0	100	23/11/06A	
POPB2000	Possession of Portion B2	0	0	100	23/11/06A	
POPB3000	Possession of Portion B3	0	0	100	30/11/06A	
POPB4000	Possession of Portion B4	0	0	100	30/11/06A	
POPB5000	Possession of Portion B5	0	0	100	30/11/06A	
POPB6000	Possession of Portion B6	0	0	100	30/11/06A	
POPB7000	Possession of Portion B7	0	0	0	22/02/07*	
Completion of Section						
KD0B1100	Achievement of Stage B1 Forecast	0	0	0		04/02/07
Secondary Office at Portion B						
SOB10100	RE Secondary Office takeover (B6)	0	0	100	30/11/06A	
SOB10200	RE Secondary Office Servicing (B6) 24mths	731	711	3	01/12/06A	30/11/08
Contractor's Office at Portion B						
TACB0100	Erection	1	0	100	01/12/06A	01/12/06A
TACB0200	Servicing 24mths	731	711	3	01/12/06A	30/11/08
Combined Reception & Exit Office B1a						
EOB1A100	B1a takeover	0	0	100	30/11/06A	
EOB1A200	B1a Servicing 24mths	731	711	3	01/12/06A	30/11/08
EOB1A300	Measurement System O&M for B1a 104wks	728	708	3	01/12/06A	27/11/08
Combined Reception & Exit Office B1b						
EOB1B100	B1b takeover	0	0	100	30/11/06A	
EOB1B200	B1b Servicing 24mths	731	711	3	01/12/06A	30/11/08
EOB1B300	Measurement System O&M for B1b 104wks	728	708	3	01/12/06A	27/11/08
EOB1B400	Surveillance System O&M for B1b 104wks	728	708	3	01/12/06A	27/11/08
Combined Reception & Exit Office B1c						
EOB1C100	B1c takeover	0	0	100	30/11/06A	
EOB1C200	B1c Servicing 24mths	731	711	3	01/12/06A	30/11/08
EOB1C300	Measurement System O&M for B1c 104wks	728	708	3	01/12/06A	27/11/08
Record House B2						
RHB20100	Record House B2 Takeover	0	0	100	30/11/06A	
RHB20200	Record House B2 Servicing 24mths	731	711	3	01/12/06A	30/11/08
Record House B3						
RHB30100	Record House B3 Takeover	0	0	100	30/11/06A	
RHB30200	Record House B3 Servicing 11mths	335	315	6	01/12/06A	31/10/07



Start Date 10/11/06
Finish Date 30/01/09
Data Date 21/12/06
Run Date 04/01/07 17:42

Early Bar
Progress Bar
Critical Activity

?Primavera Systems, Inc.

1A01 Sheet 1 of 2

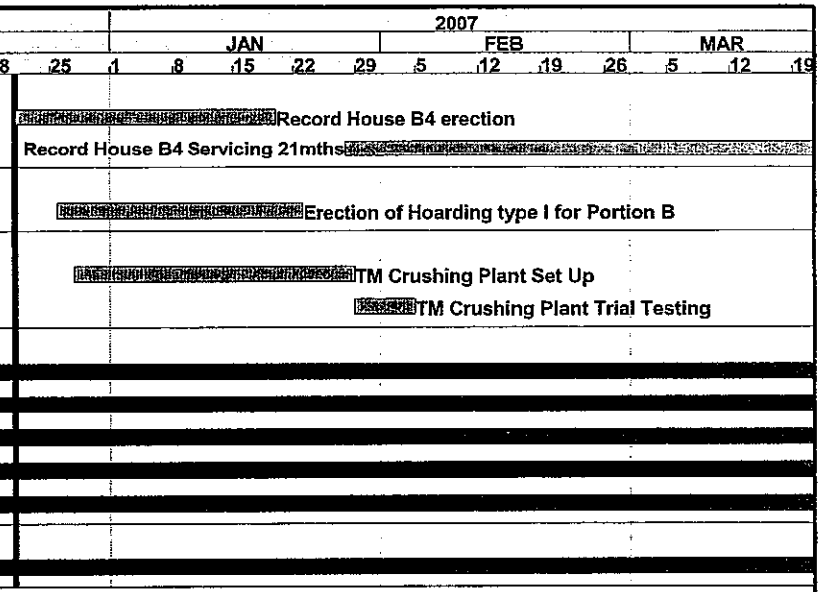
China Harbour Engineering Company Limited

Delivery of Reclamation Material to Mainland

3Mths Rolling Programme for EP - 21/12/06

Date	Revision	Checked	Approved

Activity ID	Activity Description	Orig Dur	Rem Dur	%	Early Start	Early Finish
Record House B4						
RHB40100	Record House B4 erection	30	30	0	21/12/06	19/01/07
RHB40200	Record House B4 Servicing 21mths	640	640	0	28/01/07	28/10/08
General Works						
GW010200	Erection of Hoarding type I for Portion B	28	28	0	26/12/06*	22/01/07
Provisional 6 Crushing Plant in Portion B						
HK040200	TM Crushing Plant Set Up	32	32	0	28/12/06	28/01/07
HK040300	TM Crushing Plant Trial Testing	7	7	0	29/01/07	04/02/07
Section 2 of the Works						
HK050200	Sorting of Stockpiled Public fill	731	711	3	01/12/06A	30/11/08
HK050300	Removal of Stockpiled Public Fill (Contractor's)	731	711	3	01/12/06A	30/11/08
HK050400	Removal of Stockpiled Public Fill (other)	731	711	3	01/12/06A	30/11/08
HK050500	Disposal of unsuitable Material	731	711	3	01/12/06A	30/11/08
HK050600	Compaction of Public Fill	731	711	3	01/12/06A	30/11/08
Section 5 of the Works						
HK110300	TM Tipping Halls Operation 308nr-wks	731	711	3	01/12/06A	30/11/08



Start Date	10/11/06
Finish Date	30/01/09
Data Date	21/12/06
Run Date	04/01/07 17:42

?Primavera Systems, Inc.

Early Bar
Progress Bar
Critical Activity

1A01

Sheet 2 of 2

China Harbour Engineering Company Limited

Delivery of Reclamation Material to Mainland

3Mths Rolling Programme for EP - 21/12/06

Date	Revision	Checked	Approved

Appendix G

Implementation Schedule of Environmental Mitigation Measures (EMIS)

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Environmental Mitigation Implementation Schedule

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
▪ Dust control / mitigation measures shall be provided to prevent dust nuisance.	All areas	√			
▪ Water sprays shall be provided and used to dampen materials.	All areas	√			
▪ All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition.	All areas	√			
▪ Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin.	All areas	√			
▪ Unpaved areas should be watered regularly to avoid dust generation.	Site Egress	√			
▪ The designated site main haul road shall be paved or regular watering.	All haul roads	√			
▪ The public road around the site entrance should be kept clean and free from dust.	All areas	√			
▪ Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	Site Egress	√			
▪ Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	Site Egress	√			
▪ The temporary slope surfaces shall be covered with impermeable sheet or sprayed with water.	All areas	√			
▪ Vehicle and equipment should be switched off while not in use.	All areas	√			√
▪ All plant and equipment should be well maintained e.g. without black smoke emission.	All areas	√			
▪ Open burning should be prohibited.	All areas	√			
Noise Impact					
▪ The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	All areas	√			
▪ Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	All areas	√			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	All areas	√			
▪ Air compressors and hand held breakers should have noise labels.	All areas	√			
▪ Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All areas	√			
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	All areas	√			

Remark: √ = Implemented, ∇ = Partially Implemented X = Not Implemented N/A = Not Applicable

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Water Quality					
▪ The existing / realigned intercepting channels and the sand / silt removal facilities shall be used and maintained.	All areas	√			
▪ Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	All areas	√			
▪ The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	All areas	√			
▪ The material shall be properly covered to prevent washed away especially before rainstorm.	All areas	√			
▪ The temporary slope surfaces shall be covered with impermeable sheet or sprayed with water.	Temporary Slopes	√			
▪ Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	All areas	√			
▪ A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains.	Wheel Washing facility	√			
▪ The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Site Egress	√			
▪ Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided.	Site Office	√			
▪ The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	All areas	√			
▪ Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	Along the seafront	√			
▪ A waste collection vessel shall be deployed to remove floating debris.	Along the seafront	√			
Landscape and Visual					
• The maximum stockpiling height at the fill bank shall be limited to a maximum of +40mPD.	All areas	√			
• Surface of outer slopes of the Fill Bank shall preferably be hydroseeded.	Completed slopes	√			
• Stockpile of public fill shall be removed in a sequence to allow the outer hydrseeded to be removed later than other portions as far as practicable.	Completed slopes	√			
• Casuarina equisetifolia were planted as buffer tree along the northern perimeter of the Site. The height of Casuarina equisetifolia was maintained at least 3m above soil level.	Site boundary	√			
• Lighting shall be set to minimise night-time glare.	All areas	√			
Waste Management					
Construction Waste Management					
▪ Relevant licence / permits for disposal of construction waste or excavated materials available for inspection.	All areas	√			
▪ Excavated material to be generated from construction works to be re-used on-site as far as practicable to reduce off-site disposal.	All areas	√			
▪ Mud and debris should be removed from waterworks access roads and associated drainage systems.	All areas	√			
▪ Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	All areas	√			

Remark: √ = Implemented, ∇ = Partially Implemented X = Not Implemented N/A = Not Applicable

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
▪ Prior to disposal of C&D waste, recyclable materials should be salvaged for reuse (such as wood and metal) and inert waste utilised as public fill to minimise the quantity of waste to be disposed of to landfill.	All areas	√			
▪ In order to monitor the disposal of C&D material and solid wastes at public filling areas and landfills, and to control fly-tipping, a trip-ticket system should be included as one of the contractual requirements.	All areas	√			
▪ Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.	All areas	√			
Chemical Waste Management					
▪ It is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Waste Storage Area			√	
▪ After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	Waste Storage Area	√			
▪ Spent chemicals should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	Waste Storage Area	√			
▪ Chemical wastes should be separated for special handling and appropriate treatment at the Chemical Waste Treatment Facility.	Waste Storage Area	√			
▪ Chemical wastes including waste oil should be stored properly in designated areas, e.g. chemical waste storage area.	Waste Storage Area	√			
▪ The designated chemical waste storage area should only be used for storing chemical wastes.	Waste Storage Area	√			
▪ The set-up of chemical waste storage area should					
▪ Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition.	Waste Storage Area	√			
▪ Be enclosed on at least 3 sides and securely closed.	Waste Storage Area	√			
▪ Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest.	Waste Storage Area	√			
▪ Have adequate ventilation.	Waste Storage Area	√			
▪ Be covered to prevent rainfall entering (water collected within the bund must be tested and disposal as chemical waste if necessary).	Waste Storage Area	√			
▪ Be arranged so that incompatible materials are adequately separated.	Waste Storage Area	√			
▪ Warning panels should be displayed at the waste storage area.	Waste Storage Area	√			
▪ Waste storage area should be cleaned and maintained regularly.	Waste Storage Area	√			
▪ Chemical waste should be transported by a registered chemical waste collector to a facility licensed to receive chemical waste.	All areas	√			
▪ All generators, fuel and oil storage should be within bundle areas.	All areas	√			
▪ Oil leakage from machinery, vehicle and plant should be prevented.	All areas	√			

Remark: √ = Implemented, ∇ = Partially Implemented X = Not Implemented N/A = Not Applicable

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
▪ In the event of chemical waste / dangerous goods / chemicals spillage or leakage, the procedures as outlined in the Spillage Response Plan should be followed.	All areas	√			
• The dangerous goods / chemical spillage or leakage procedures (including equipments) should be in place.	All areas	√			
Good Site Practices					
• Nomination of approved personnel, such as site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	All areas	√			
• Training of site personnel in proper waste management and chemical handling procedures should be provided.	All areas	√			
• Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	All areas	√			
• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All areas	√			
• The Environmental Permit should be displaced conspicuously on site.	Site Entrance	√			
• Construction noise permits should be posted at site entrance or available for site inspection.	Site Entrance				√
• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	All areas	√			
• Chemical storage area provided with lock and located on sealed areas.	Chemical Storage Area	√			
• All chemicals should be placed at the banded area with adequate band capacity (>110% of largest tank).	Chemical Storage Area	√			
• Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	√			
• Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.	All areas	√			
▪ To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	All areas	√			
▪ A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.	All areas	√			
▪ A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be bunded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.	All areas	√			
• Remove wastes in a timely manner.	All areas	√			

Remark: √ = Implemented, ∇ = Partially Implemented X = Not Implemented N/A = Not Applicable

Appendix H

Statistical Analysis of the Trend of Suspended Solids in the Quarter

Statistical Analysis of the Trend of Suspended Solids

For Mid-Flood Tide

Station: TM-FM1

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	5.9733	1.3518	0.4076
Quarterly Mean	35	0	8.9138	0.8535	0.1464

Result:

Probability that two variances are equal (f-test) = 0.01967

Difference between means = 2.9405 (Std Dev = 1.5637 and SE = 0.416)
(95% CI : 2.1251 < Diff < 3.7539)

t-value of difference = 7.068 (14 degrees of freedom)
P = 0 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Station: TM-FM2

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.0267	1.1748	0.3542
Quarterly Mean	35	0	9.1900	0.7324	0.1256

Result:

Probability that two variances are equal (f-test) = 0.01709

Difference between means = 3.1633 (Std Dev = 1.3531 and SE = 0.361)
(95% CI : 2.4557 < Diff < 3.8709)

t-value of difference = 8.762 (14 degrees of freedom)
P = 0 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Statistical Analysis of the Trend of Suspended Solids

For Mid-Flood Tide

Station: TM-FC1

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.6942	1.8839	0.5680
Quarterly Mean	35	0	9.1035	0.7735	0.1327

Result:

Probability that two variances are equal (f-test) = 0.00003

Difference between means = 2.4093 (Std Dev = 1.9613 and SE = 0.5593)
(95% CI : 1.313 < Diff < 3.5056)

t-value of difference = 4.307 (12 degrees of freedom)
P = 0.0011 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Station: TM-FC2

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.3067	1.8674	0.5630
Quarterly Mean	35	0	9.6662	0.6637	0.1137

Result:

Probability that two variances are equal (f-test) = 0

Difference between means = 3.3595 (Std Dev = 1.9044 and SE = 0.5506)
(95% CI : 2.2803 < Diff < 4.4387)

t-value of difference = 6.102 (11 degrees of freedom)
P = 0.0001 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Statistical Analysis of the Trend of Suspended Solids

For Mid-Ebb Tide

Station: TM-FM1

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.0008	1.6394	0.4943
Quarterly Mean	35	0	8.9005	0.7342	0.1259

Result:

Probability that two variances are equal (f-test) = 0.00014

Difference between means = 1.8997 (Std Dev = 1.7329 and SE = 0.4893)
(95% CI : 0.9408 < Diff < 2.8586)

t-value of difference = 3.883 (12 degrees of freedom)
P = 0.0025 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Station: TM-FCM2

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.2758	1.5293	0.4611
Quarterly Mean	35	0	9.2024	0.7009	0.1202

Result:

Probability that two variances are equal (f-test) = 0.00021

Difference between means = 1.9266 (Std Dev = 1.6238 and SE = 0.4571)
(95% CI : 1.0307 < Diff < 2.8225)

t-value of difference = 4.215 (12 degrees of freedom)
P = 0.0014 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Statistical Analysis of the Trend of Suspended Solids

For Mid-Ebb Tide

Station: TM-FC1

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.6392	1.5074	0.4945
Quarterly Mean	35	0	9.0933	0.7320	0.1255

Result:

Probability that two variances are equal (f-test) = 0.00055

Difference between means = 1.4541 (Std Dev = 1.62 and SE = 0.4524)
(95% CI : 0.5674 < Diff < 2.3408)

t-value of difference = 3.214 (12 degrees of freedom)
P = 0.0065 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Station: TM-FC2

t-test

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.6950	1.9561	0.5898
Quarterly Mean	35	0	9.7215	0.7668	0.1315

Result:

Probability that two variances are equal (f-test) = 0.00001

Difference between means = 3.0265 (Std Dev = 2.0219 and SE = 0.5794)
(95% CI : 1.8909 < Diff < 4.1621)

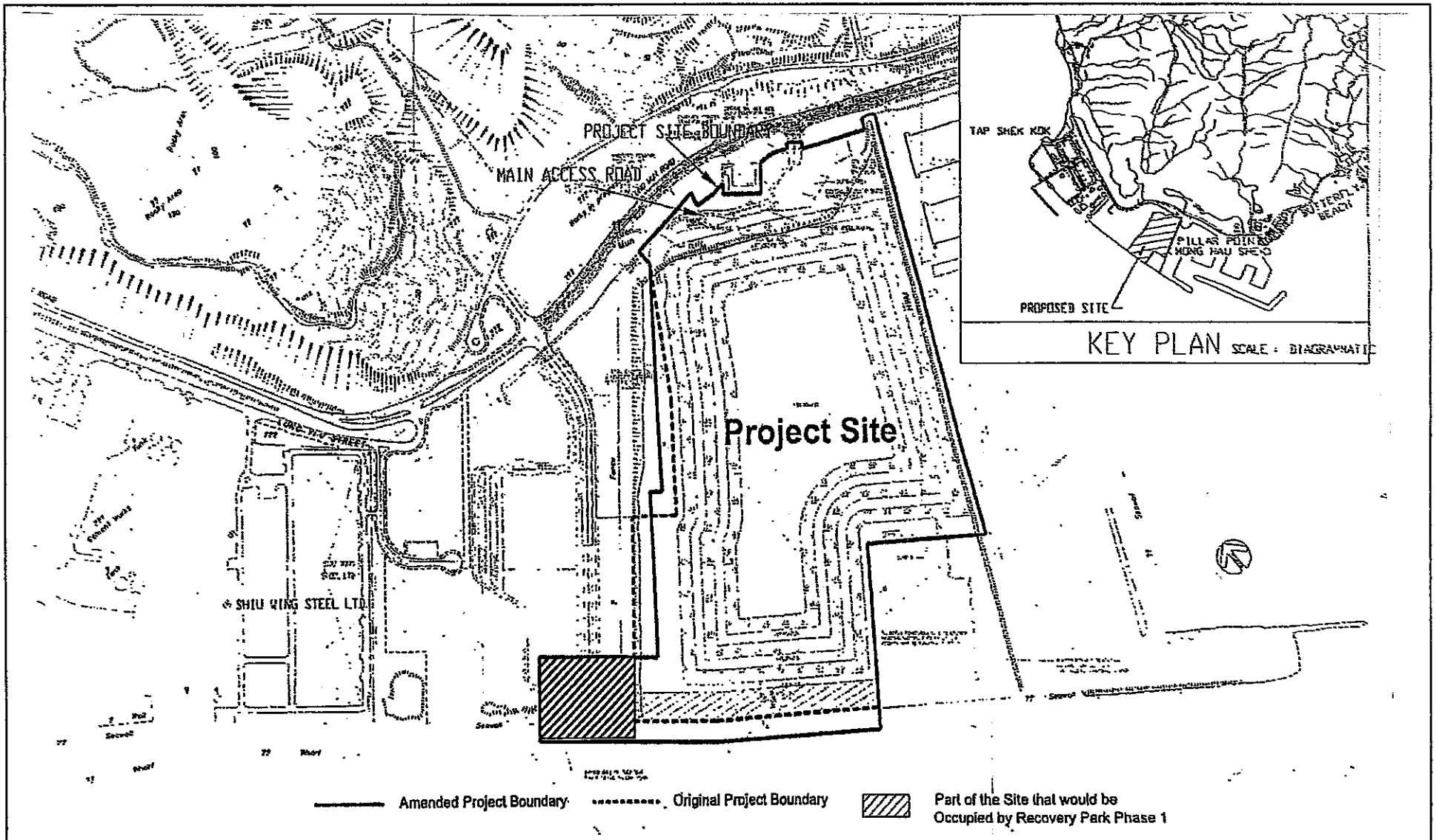
t-value of difference = 5.224 (12 degrees of freedom)
P = 0.0002 (<0.05)

Conclusion:

There is a statistically significant difference between the groups.

Appendix I

Site General Layout plan



CEDD Contract No. CV/2005/01 Delivery of Reclamation Material to Mainland

Figure 1 Site Layout Plan - Tuen Mun Area 38 Fill Bank

Scale : ---

Date issued : December 2006

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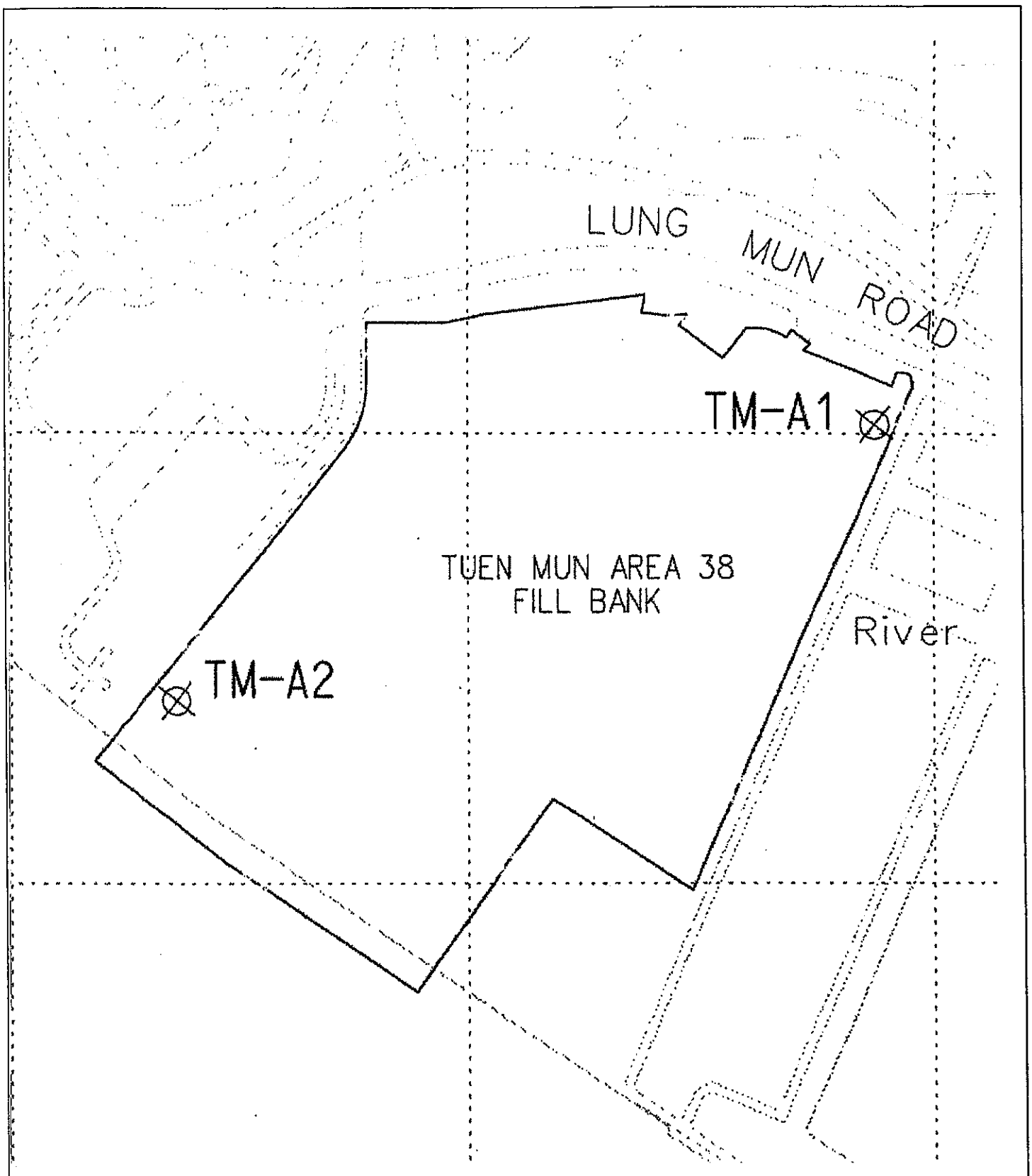
ETS-TESTCONSULT LIMITED

Figures



Contract No. CV/2005/01
Delivery of Reclamation Material to Mainland

Figure 2
Locations of Air Quality Monitoring Stations –
Tuen Mun Area 38 Fill Bank

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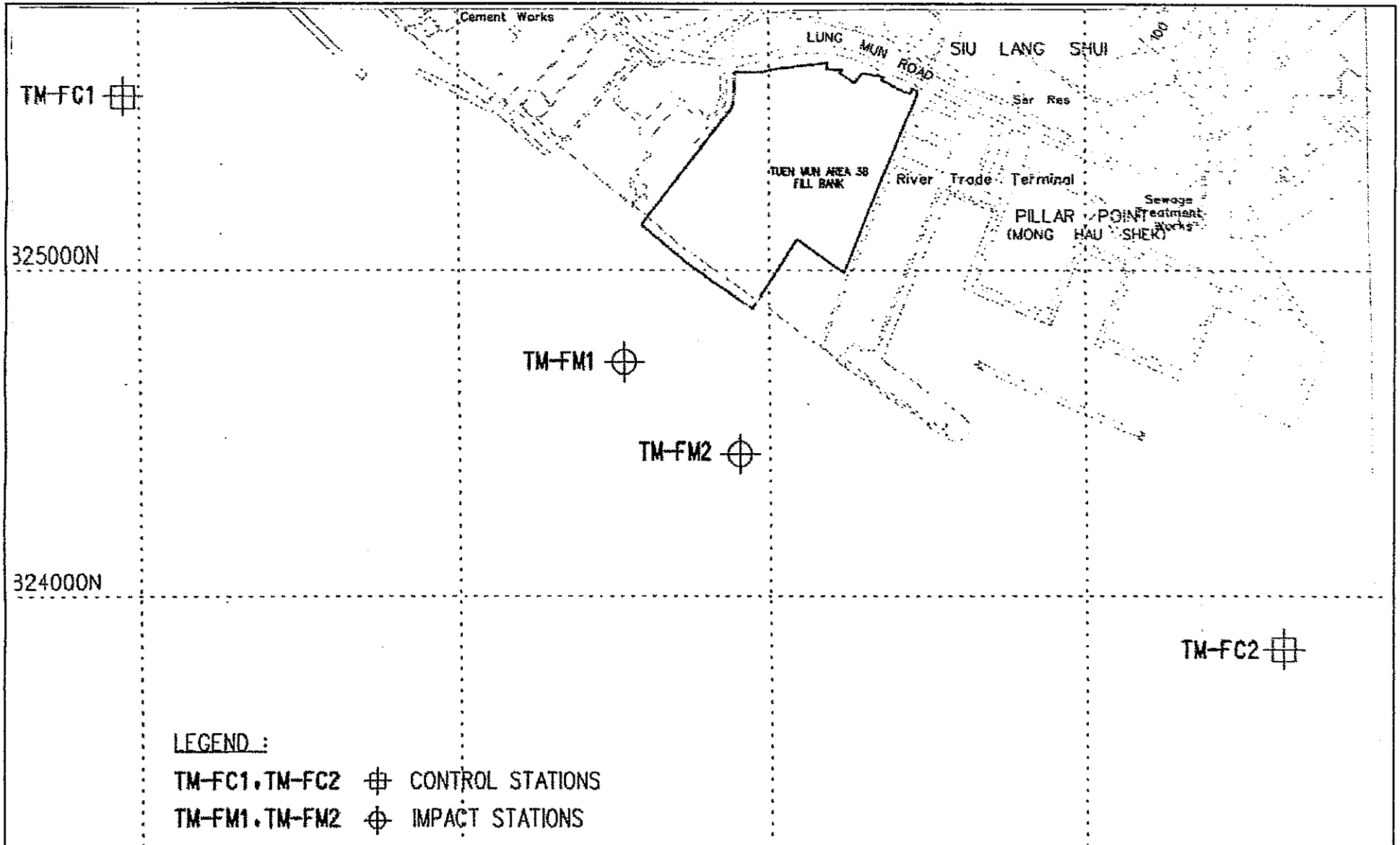


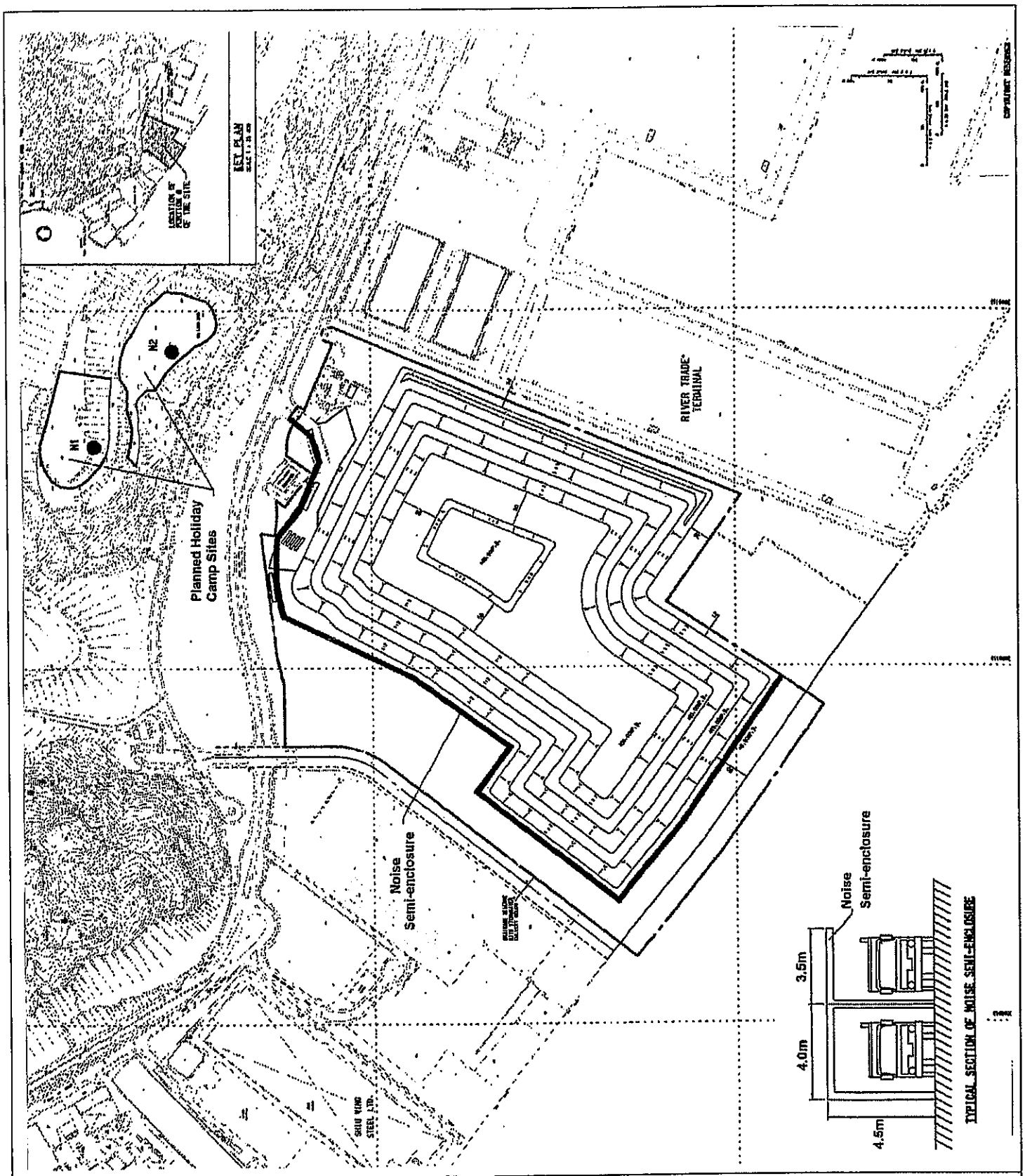
CEDD Contract No. CV/2005/01 Delivery of Reclamation Material to Mainland

Figure 3 Locations of Water Quality Monitoring Stations - Tuen Mun Area 38 Fill Bank

Scale : ---

Date issued : December 2006

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



Contract No. CV/2005/01
Delivery of Reclamation Material to Mainland

Figure 4
Locations of Noise Quality Monitoring Stations –
Tuen Mun Area 38 Fill Bank

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ETS-TESTCONSULT LIMITED