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

WO HING – PENTA-OCEAN JOINT VENTURE

CONTRACT NO. 9/WSD/08 LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

QUARTERLY EM&A SUMMARY REPORT NO.1

(FROM MAY TO JULY 2010)

Prepared by: _____
LAW, Sau Yee
Senior Environmental Officer

Checked by: _____
LAU, Chi Leung
Environmental Team Leader

Superseding test report no. ENA00795
Issue Date: 15 September 2010 *Report No.: ENA00795A*

ENVIRON

Ref.: WSDWHCMSEI00_0_0094L.10 15th Sep, 2010

Water Supplies Department By Post
Sha Tin Office
6/F Sha Tin Government Offices
1 Sheung Wo Che Road
Sha Tin, NT

Attention: Ms. Candy Wong

Dear Ms. Wong

Re: Contact No. 9/WSD/08
Laying of Western Cross Harbour Main and Associated Land Mains from West Kowloon to Sai Ying Pun
Revised Quarterly Environmental Monitoring and Audit Report No. 1
(for May 2010 to Jul 2010)

Reference is made to Engineer's comment on the Quarterly Environmental Monitoring and Audit Report No. 1 by Email on 13th Sep 2010 (entitled "RE: 9/WSD/08 - Draft Monthly Report (August 10)") and the revision of the report by Environmental Team's Email on 15th Sep 2010.

We are pleased to inform you that we have no comment on the captioned report.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c.	Mott MacDonald Hong Kong Limited	Mr. Kelvin Ho	Fax: 2377 2900
	Wo Hing – Penta-Ocean Joint Venture	Mr. Danny Ho	Fax: 2572 4080
	ETS-TESTCONSULT LIMITED	Mr. C.L. Lau	Fax: 2695 3944

Q:\Projects\WSDWHCMSEI00\Corr\Out\WSDWHCMSEI00_0_0094L.10.doc

www.environcorp.com ENVIRON Hong Kong Ltd. 英環香港有限公司
Room 2310, China Resources Building, 26 Harbour Road, Wan Chai, Hong Kong T: 852.3743 0788 F: 852.3548 6988

TABLE OF CONTENTS

Tables

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. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the Project) under the requirements of "Environmental Monitoring & Audit Manual – Agreement No. CE42/2005(WS) Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the EM&A Manual).

This report documents the findings of EM&A Works conducted during the Project from May to July 2010.

Site Activities

As informed by the Contractor, the site activities in this reporting quarter were as below:

May 2010	• *Dredging of Type 2 marine sediment (contaminated mud).*
June 2010	• *Dredging of Type 1 and Type 2 marine sediment (Portion I);* • *Drilling of pipe piles and vertical drain at Land Portion (Portion J); and* • *Concreting of the concrete coating of the 1200mm dia. water main (Portion H1 & H2).*
July 2010	• *Dredging of Type 1 and Type 2 marine sediment (Portion I);* • *Fabrication of temporary steel working platform (Portion J);* • *Drilling of pipe piles and vertical drain at Land Portion (Portion J);* • *Delivering and unloading of second batch of water pipe (Portion H2); and* • *Concreting of the concrete coating of the 1200mm dia. water main (Portion H1 & H2).*

Environmental Monitoring Works

Noise Monitoring

No exceedances of Action Level of noise monitoring were recorded in this quarter since no complaint on noise issue was received.

In this quarter, twenty-four exceedances in Limit Level were recorded according to the results from night-time noise monitoring on 03 July 2010 (2300-2400) at KS6, CGa, RWM and KY3, 10 July 2010 (2300-2400) at KS6, CGa, RWM and 11 July 2010 (0000-0100) at KY3. However, all of the exceedances were considered to be invalid (not project related) and no further actions were required. Interim notifications of exceedance (NOEs) for all exceedances were issued to EPD, ER, IEC and the Contractor by ET.

Marine Water Quality Monitoring

Marine water quality monitoring was conducted in accordance with the EM&A Manual.

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

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

Wo Hing – Penta-Ocean Joint Venture (WHPOJV) appointed Environmental Team of ETS-Testconsult Limited (ETL) to undertake the Environmental Impact Monitoring for "Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the Project) under the requirements of the "Environmental Monitoring & Audit Manual – Agreement No. CE42/2005(WS) Laying of Western Cross Harbour Main and Associated Land Main from West Kowloon to Sai Ying Pun" (the EM&A Manual) of the approved EIA report (Registration No. AEIAR-109/2007) in accordance with the Environmental Permit (No.: EP-273/2007) (the EP).

This quarterly report documented the findings of EM&A Works conducted during the impact monitoring from May to July 2010.

2.0 PROJECT INFORMATION

2.1 Scope of the Project

The construction works of the Project are located in West Kowloon, across the Victoria Harbour and in Sai Ying Pun.

The construction works under this Project are briefly described, without limitation, as follow:

- Laying of about 1.5km of 1200mm diameter steel fresh water mains at West Kowloon;
- Laying of about 2.1km of 1200mm diameter steel submarine pipeline from West Kowloon to Sai Ying Pun including dredging, cathodic protection system and other associated works;
- Laying of about 0.4km of 1200mm diameter steel fresh water main at Sai Ying Pun;
- Laying of about 0.5km of 800mm diameter steel salt water main at West Kowloon;
- Construction of motorized butterfly valve (MBV) and the associated facilities in the vincinty of Sun Yat Sen Memorial Park at Sai Ying Pun;
- Construction of all chambers associated with pipeworks;
- Making service connections;
- Ancillary works including but not limited to reinstatement of roads, landscaping works.

Areas of the Project present in Appendix H. Locations of environmental monitoring stations and sensitive receivers are shown in Figures 1, 2, 3, 1.2a, 1.2b and 1.2c

2.2 Work Programme

Details of work programme are shown in Appendix F.

2.3 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.

2.4 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

Project Role	*Organization*	*Name of Key Staff*	*Tel. No.*	*Fax No.*
Engineer's Representative	*Mott MacDonald*	*Mr. Kelvin HO*	*2377 2823*	*2377 2900*
IEC	*Environ*	*Mr David Yeung*	*3743 0788*	*3548 6988*
Contractor's Agent	*WHPOJV*	*Mr. Danny HO*	*2695 8318*	*2957 8213*
ET Leader	*ET (ETL)*	*Mr C. L. Lau*	*2946 7791*	*2695 3944*

The proponents' contact and hotline telephone number for the Public to make enquiries by the Contractor is Mr. Peter Yung (Telephone No.: 61137660).

3.0 SUMMARY OF EM&A REQUIREMENTS

3.1 EM&A Programme

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

- *All monitoring parameters;*
- *Action and Limit levels for all environmental parameters;*
- *Event/Action Plans;*
- *Environmental mitigation measures, as recommended in the Project EIA 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 noise and marine water quality due to the Project. The description and detailed locations of monitoring stations for noise and marine water quality are shown in Figures 1, 2 and 3 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 and the manufacturer's instruction.

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 Noise

As the requirement in the EM&A Manual, impact noise monitoring was conducted for a weekly basis in four different time periods, day-time, evening-time, night-time and holiday-time, at designated monitoring locations. The noise levels in the past three months are plotted in Appendix B.

In this quarter, the impact noise monitoring was carried out weekly in the absence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s. As a result, all impact noise monitoring data was considered to be unaffected by the weather condition.

In this quarter, totally twenty-four exceedances in Limit Level were recorded according to the results from night-time noise monitoring on 03 July 2010 (2300-2400) at KS6, CGa, RWM and KY3, 10 July 2010 (2300-2400) at KS6, CGa, RWM and 11 July 2010 (0000-0100) at KY3. After ET investigation, all of the exceedances were considered to be invalid (not project related) and hence no further actions were required. Interim notifications of exceedance (NOEs) for all exceedances were issued to EPD, ER, IEC and the Contractor by ET.

Table 4.1 presents the summary of impact noise monitoring results in the reporting quarter.

Table 4.1 Summary of Impact Monitoring results of Impact Noise Monitoring in the Quarter

Exceedance Level	*Daytime*	*Evening-time*	*Night-time*	*Holiday-time*
Action (May 2010)	*0*	*0*	*0*	*0*
Action (June 2010)	*0*	*0*	*0*	*0*
Action (July 2010)	*0*	*0*	*0*	*0*
Cumulative	*0*	*0*	*0*	*0*
Limit (May 2010)	*0*	*0*	*0*	*0*
Limit (June 2010)	*0*	*0*	*0*	*0*
Limit (July 2010)	*0*	*0*	*24*	*0*
Cumulative	*0*	*0*	*24*	*0*

In this quarter, the major noise sources are from local traffic along West Kowloon Highway and human activities from the Element at KS6 and from local traffic along Connaught Road West and Western Harbour Crossing and human activities at KY3, RWM and CGa.

4.2 Marine Water Quality

In accordance with the EM&A Manual, the marine water quality monitoring was conducted at four control stations and nine impact monitoring stations in the reporting 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.

In this quarter, marine water quality monitoring on 22 July 2010 (mid-ebb) was cancelled due to bad weather (Typhoon Signal No.3). Apart from this, the marine water quality monitoring in this quarter was carried out three days per week at both mid-flood and mid-ebb tides.

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 C.

Table 4.2 Total Number of Marine Water Quality Exceedances in the Quarter

Parameter	*Exceedance Level*	*May 2010*	*June 2010*	*July 2010*
Dissolved Oxygen, DO	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Turbidity (Depth-average)	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Suspended Solids, SS (Depth-average)	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*
Cumulative Exceedances	*Action*	*0*	*0*	*0*
	Limit	*0*	*0*	*0*
	Total	*0*	*0*	*0*

A comparison between the quarterly mean of impact stations (including WSD Seawater Intakes R15 and other eight Impact Stations R5, R6, R7, R8a, R16, R17, R28 and R29) and the 1.3 times of the ambient mean (e.g. 130% of Baseline Mean) of impact stations was made for Dissolved Oxygen, Turbidity and Suspended Solids.

The statistical analysis results are given in Appendix H and it shows that there is no significant difference ($p>0.05$) between the quarterly mean and 1.3 times of ambient mean on Dissolved Oxygen, Turbidity and Suspended Solids. Table 4.3 summarizes the statistical analysis between quarterly mean and ambient mean on Dissolved Oxygen, Turbidity and Suspended Solids.

Table 4.3 Summary of statistical analysis between Quality Mean and 1.3 times of Ambient Mean

Parameter	*Groups involved*	*P-value*	*Significant Difference between quarterly mean and 1.3 times of ambient mean (Y or N)*
DO (Surface, Middle and Bottom)	*Quarterly mean and 1.3 times of ambient mean*	*1*	*N*
SS	*Quarterly mean and 1.3 times of ambient mean*	*1*	*N*
Turbidity	*Quarterly mean and 1.3 times of ambient mean*	*1*	*N*

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. After each site inspection, the Contractor was notified of ET's observations and recommendations. A site inspection checklist detailing the environmental observations was prepared by ET and the Contractor then completed this plan to propose/report their remedial works. A summary of implementation status of mitigation measures on site inspections is presented in Appendix G

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*		*Remarks*
		From	*To*	
Environmental Permit	*EP-273/2007*	*31/07/07*	*End of Project*	*Whole Project*
Water Discharge Licence (West Kowloon)	*WT00005347-2009*	*07/01/10*	*31/01/15*	*Effluent and all other wastewater arising from the construction site through Screen & Sedimentation Tank*
Water Discharge Licence (Sai Yung Pun)	*WT00005800-2010*	*14/01/10*	*31/01/15*	*Effluent arising from the construction site through Sedimentation Tank*
Chemical Waste Producer	*5213-217-W3086-01*	*13/10/09*	*End of Project*	*Spent oil, surplus flammable liquid, surplus paint, soil, rags & containers contaminated with lubricating oil, diesel, flammable liquid & paint, & used batteries*
Construction Noise Permit (West Kowloon)	*GW-RE0063-10*	*01/03/10*	*31/08/10*	*Group A* *One Generator, silenced, <75 dB(A) at 7m* *One Tunnel boring machine* *One Water pump (electric) (CNP 281)* *Groun B* *One Dredger, grab (CNP 063)* *Two Guard boat* *One Tug boat (CNP 221)*
Construction Noise Permit	*GW-RS0234-10*	*22/03/10*	*19/09/10*	*One dredger, grab (CNP 063)* *Two Guard boat* *One Tug boat (CNP 221)* *Hopper barge*
Dumping Licence	*EP/MD/10-086*	*30/04/10*	*29/05/10*	*Bulk quantity of material approved for dumping at the East Sha Chau Contaminated Mud Disposal Site within permit validity period: 282100 cu.m. (for Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal)*

Description	Permit No.	Valid Period		Remarks
		From	To	
Dumping Licence	EP/MD/10-085	30/04/10	30/09/10	Bulk quantity of material approved for dumping at the East Ninepin Mud Disposal Ground within permit validity period: 293800 cu.m. (for Type 1 – Open Sea Disposal)
Dumping Licence	EP/MD/11-024	30/06/10	29/07/10	Bulk quantity of material approved for dumping at the East Sha Chau Contaminated Mud Disposal Site within permit validity period: 239360 cu.m. (for Type 1 – Open Sea Disposal (Dedicated Site) and Type 2 – Confined Marine Disposal)
Dumping Licence	EP/MD/11-039	26/07/10	30/09/10	Bulk quantity of material approved for dumping at the East Ninepin Mud Disposal Ground denoted "LWCHMALM" within permit validity period: 251160 cu.m. (for Type 1 – Open Sea Disposal
Notification under APCO	Application had been submitted to EPD on 25/09/09 and approved from 29/09/09.			

5.3 Advice on Solids and Liquid Waste Management Status

Summary of waste disposal in this quarter is present in Table 5.2.

Table 5.2 Summary of Waste Disposal in this Quarter

Type of Waste		Quantity	Disposal Location	Cumulative Quantity
Inert C&D Materials	Total Quantity Generated (in m^3)	2073.82		4357.04
	Broken Concrete (in m^3)	0	---	0
	Reused in the Contract (in m^3)	0	---	0
	Reused in other Projects (in m^3)	0	---	0
	Disposal as Public Fill (in m^3)	2073.82	SENT Landfill	4357.04
C&D Waste	Metals (in kg)	0	---	0
	Paper/Cardboard Packaging (in kg)	26	Collected by recycling company	39
	Plastics (in kg)	0	---	0
	Chemical Waste (in kg)	0	---	0
	Other, e.g. General Refuse (in m^3)	6.12	SENT Landfill	34.34
Dredged Materials	Type 1 (in m^3)	34200	East Ninepin Mud Disposal Ground	34200
	Type 2 (in m^3)	93440	The East Sha Chau	93440

The Contractor should provide sufficient preventive measures during equipment maintenance works so as to avoid oil leakage on the ground. In the event of any oil leakage, the Contractor should clean up the polluted soil and handle all the materials used for this cleaning works as chemical waste.

Besides, pre-cast drip trays were provided for oil drums at several areas, such as barge and chemical storage area. The Contractor should collect and dispose of any stagnant water accumulated in the drip trays and handle them as chemical waste.

The Contractor should use suitable containers with proper labels to store chemical wastes in accordance with Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The Contractor should also advise their workers of the proper procedures in handling the chemical waste. All the trip tickets for chemical waste disposal were properly kept in the site office. No chemical waste disposal was undertaken in the reporting quarter.

The Contractor was reminded to increase the frequency of inspection and cleaning of the site drainage system, including desilting facilities. Moreover, the Contractor should apply approved pesticides in the stagnant water.

6.0 NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

6.1 Summary of Non-compliance

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

No exceedances of Action Level of noise monitoring were recorded in this reporting quarter since no complaint on noise issue was received.

Totally twenty-four exceedances in Limit Level were recorded according to the results from night-time noise monitoring on 03 July 2010 (2300-2400) at KS6, CGa, RWM and KY3, 10 July 2010 (2300-2400) at KS6, CGa, RWM and 11 July 2010 (0000-0100) at KY3 in this quarter.

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

Refer to Interim notifications of exceedance (NOEs) by ET, all exceedances of night-time noise monitoring recorded in this quarter were due to the noise from local traffic and human activities near the noise monitoring stations and considered to be invalid (not project related).

6.3 Summary of Actions Taken

Since all exceedances of night-time noise monitoring were considered to be invalid (not project related) and 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*
May 2010	*0*	*0*	*0*
June 2010	*0*	*0*	*0*
July 2010	*0*	*0*	*0*
Cumulative	*0*	*0*	*0*

7.0 COMMENTS, CONCLUSIONS AND RECOMMENDATION

Impact monitoring of noise and water quality were carried out at designated locations in accordance with the EM&A Manual in this reporting quarter.

According to the ET weekly site inspections carried out in this quarter, the Contractor generally implemented sufficient dust mitigation measures.

In this quarter, totally twenty-four exceedances in Limit Level were recorded according to the results from night-time noise monitoring on 03 July 2010 (2300-2400) at KS6, CGa, RWM and KY3, 10 July 2010 (2300-2400) at KS6, CGa, RWM and 11 July 2010 (0000-0100) at KY3. However, all of the exceedances were considered to be invalid (not project related) and no further actions were required.

No exceedances of Action Level of noise monitoring were recorded in this reporting quarter since no complaint on noise issue was received.

No exceedances of Action and Limit Level of water quality monitoring results were recorded during the reporting quarter.

No complaints, prosecutions or notifications of summons were received in this quarter.

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

Air Quality

- Ensure the frequency of water spraying on unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke; and
- Implement the dust mitigation measures for the site activities.

Noise

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

Water Quality

- Maintain the drainage system regularly;
- Operate and maintain the silt curtains and silt screen regularly;
- Operate the cleaning vessel regularly;
- Provide proper treatment for the wastewater discharge;
- Clean up the fill material on the barge frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water, 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 works area;
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

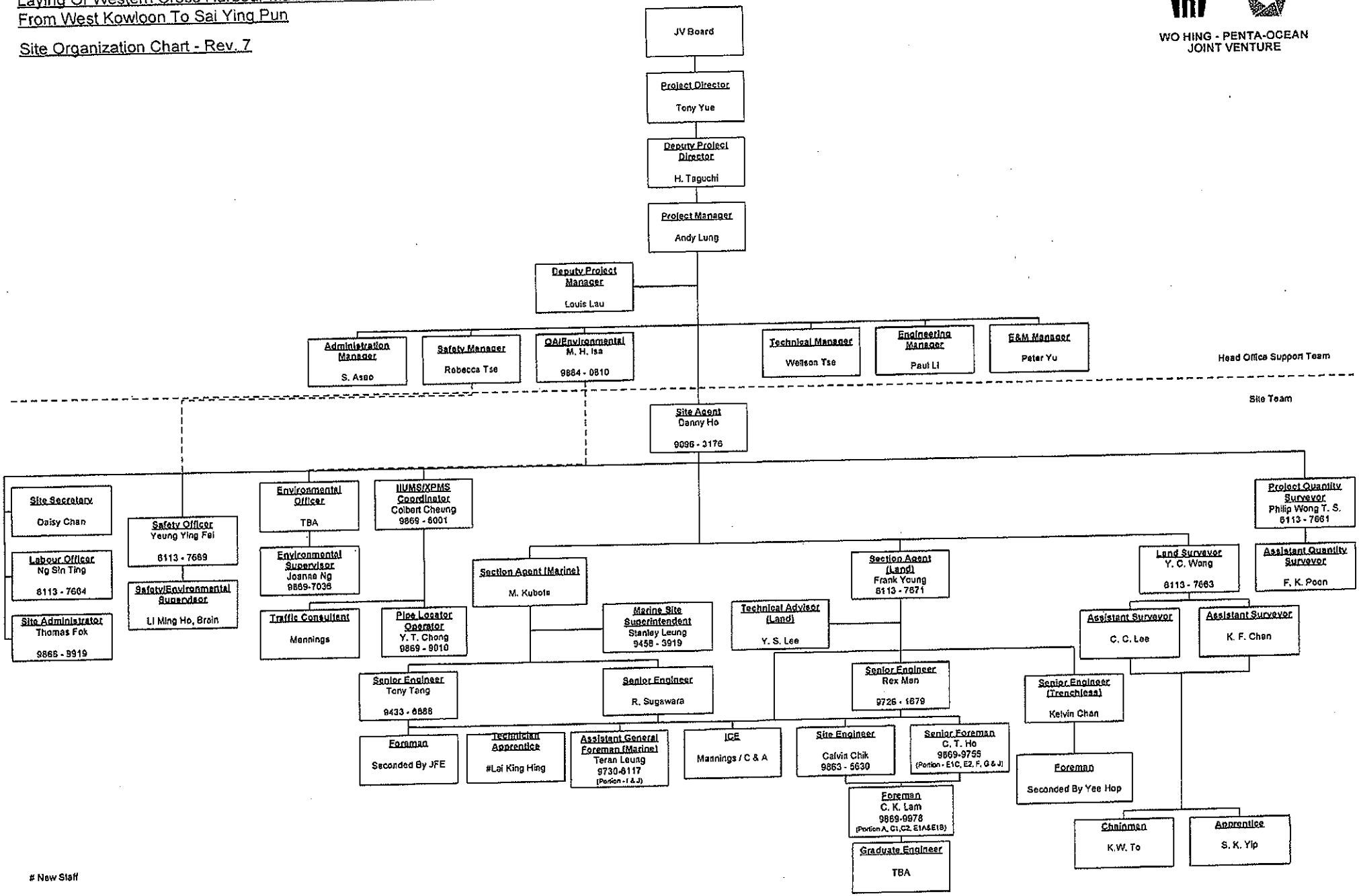
Appendix A

Organization Chart and Lines of Communication

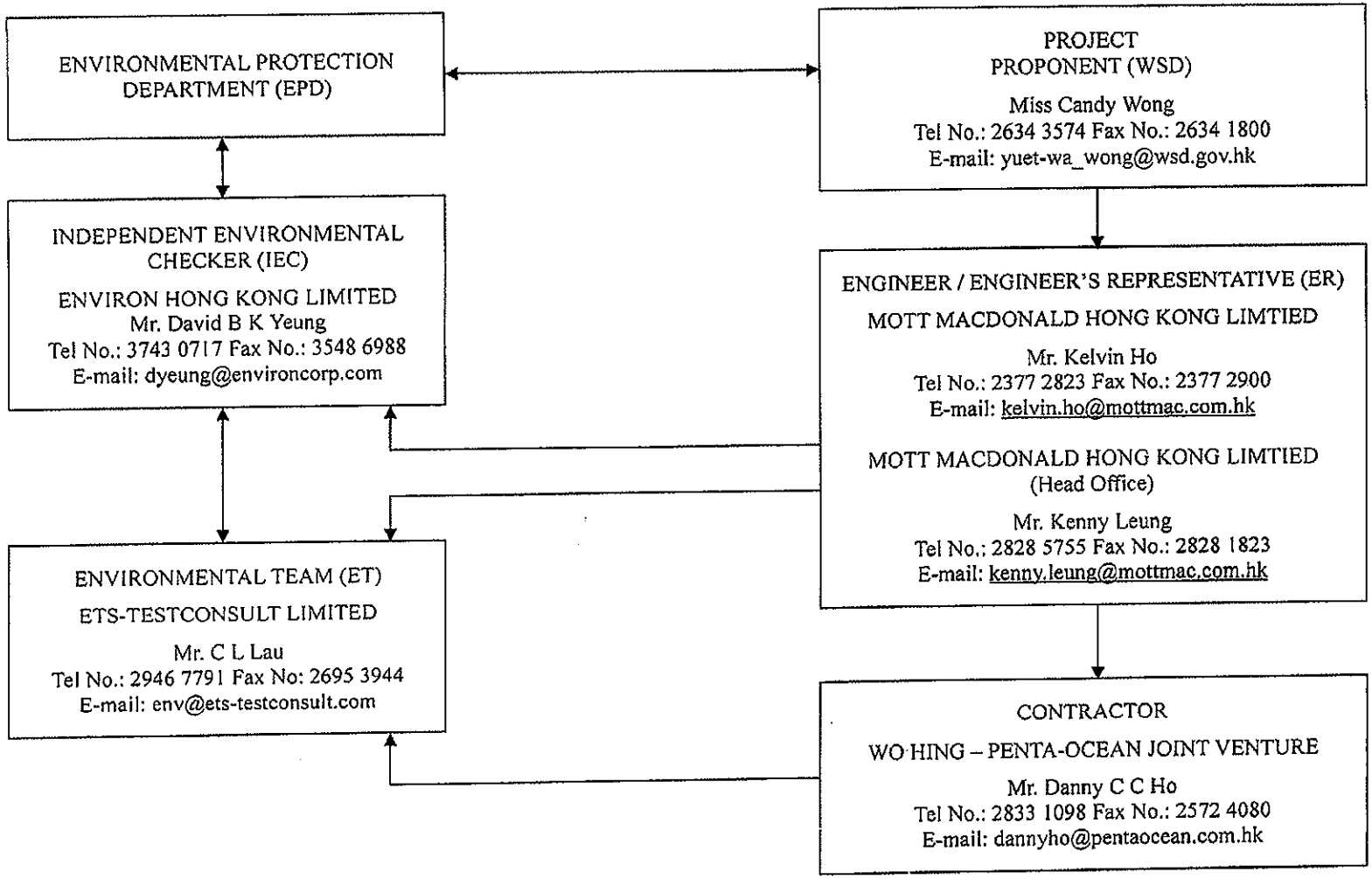
Contract No. 9/WSD/08
Laying Of Western Cross Harbour Main And Associated Land Mains
From West Kowloon To Sai Ying Pun

Site Organization Chart - Rev. 7

WO HING - PENTA-OCEAN JOINT VENTURE



New Staff



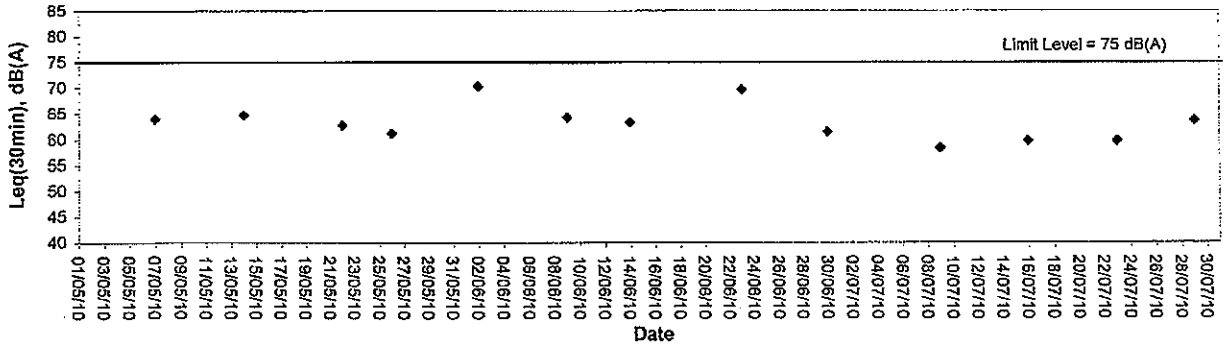
Project	Laying of Western Cross Harbour Main and Associated Land Mains From West Kowloon to Sai Ying Pun - Investigation	Mott MacDonald
Title	Project Organization and Line of Communication	Figure 1.3a
Date Dec 2009		

Appendix B

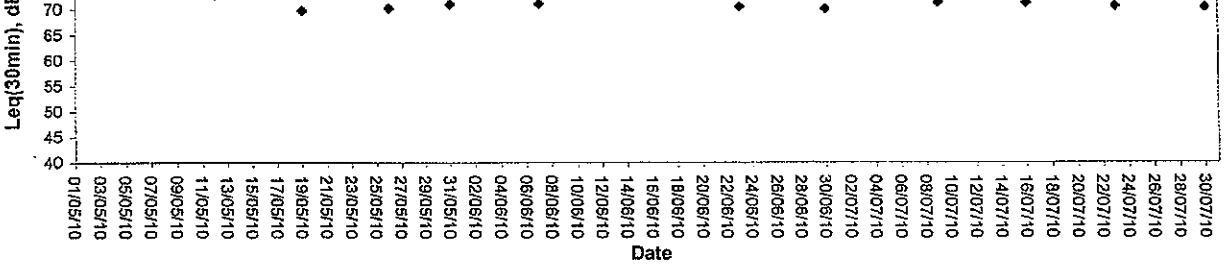
Graphical Plots of Noise Monitoring Data

Noise Monitoring (Day-time)

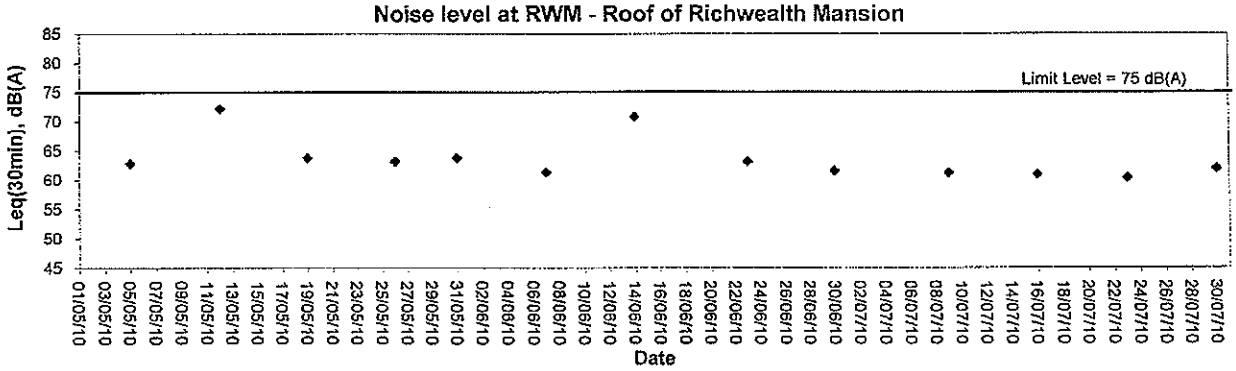
Noise level at KS6 - Podium at the Culliman



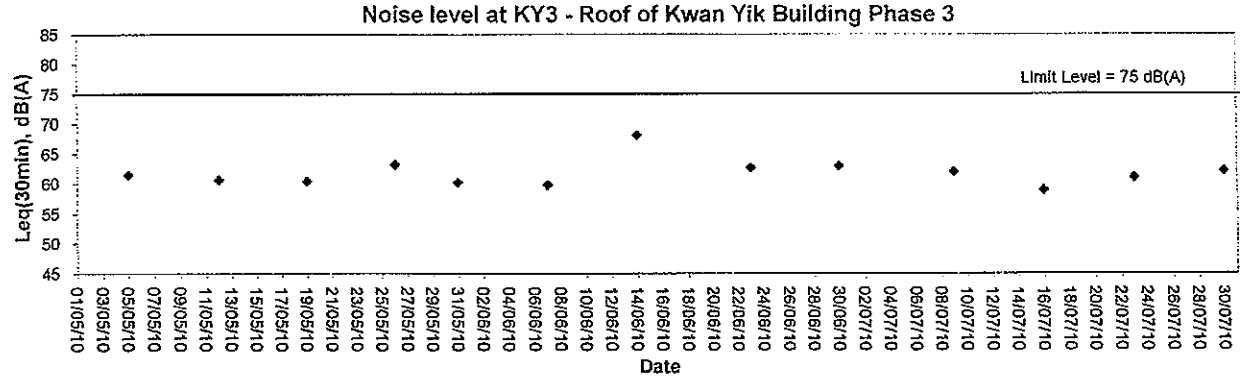
Noise level at CGa - Pavement in front of Connaught Garden



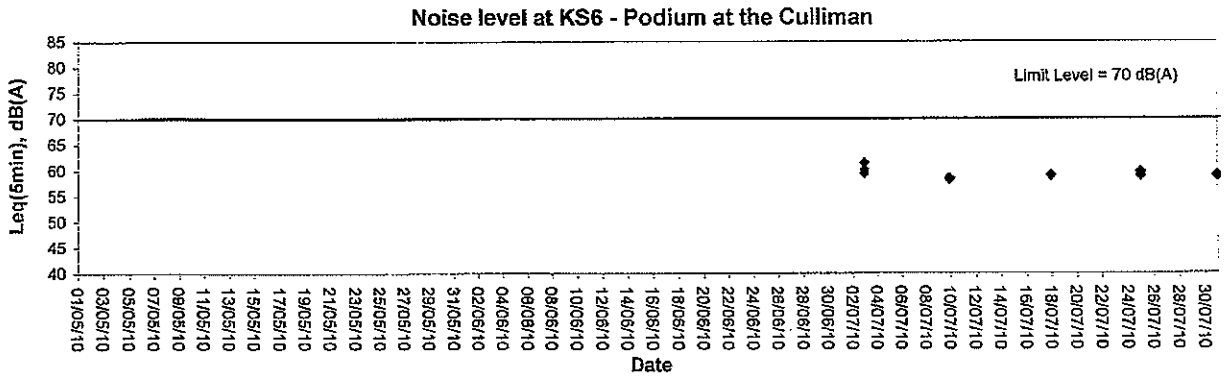
Noise level at RWM - Roof of Richwealth Mansion

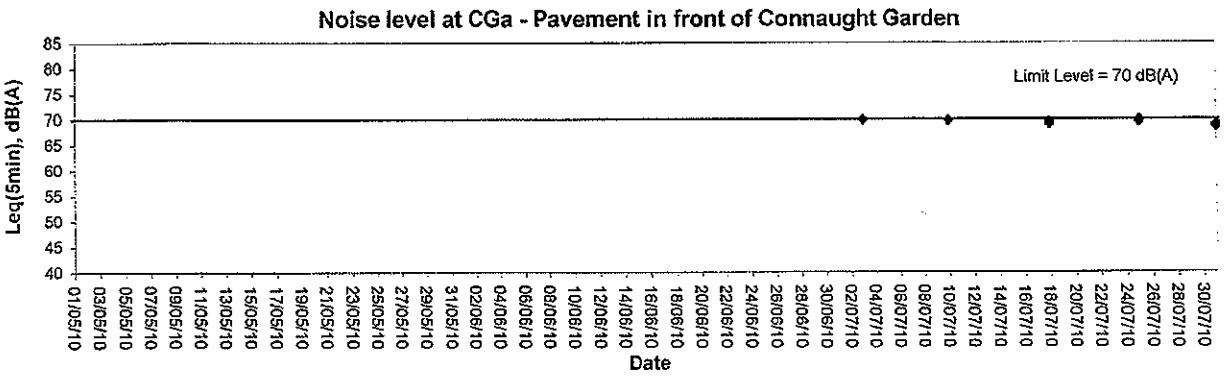


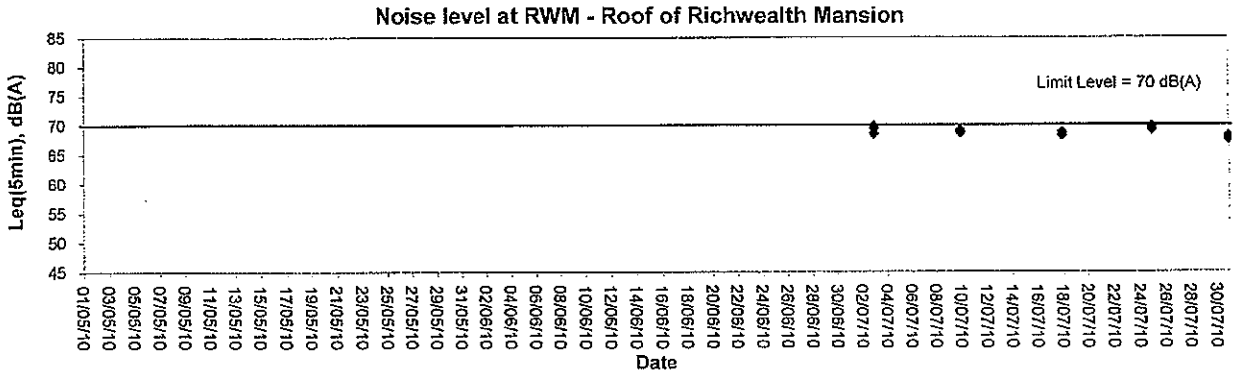
Noise level at KY3 - Roof of Kwan Yik Building Phase 3

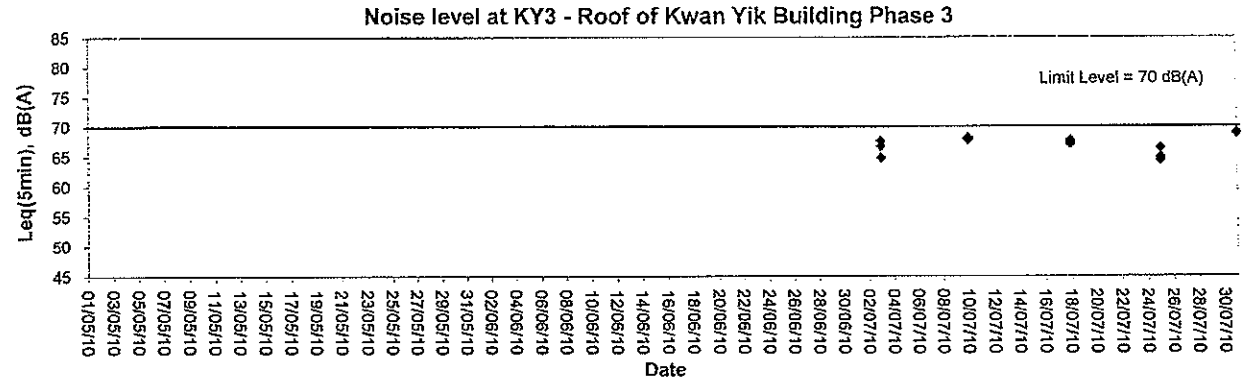


Noise Monitoring (Evening-time)



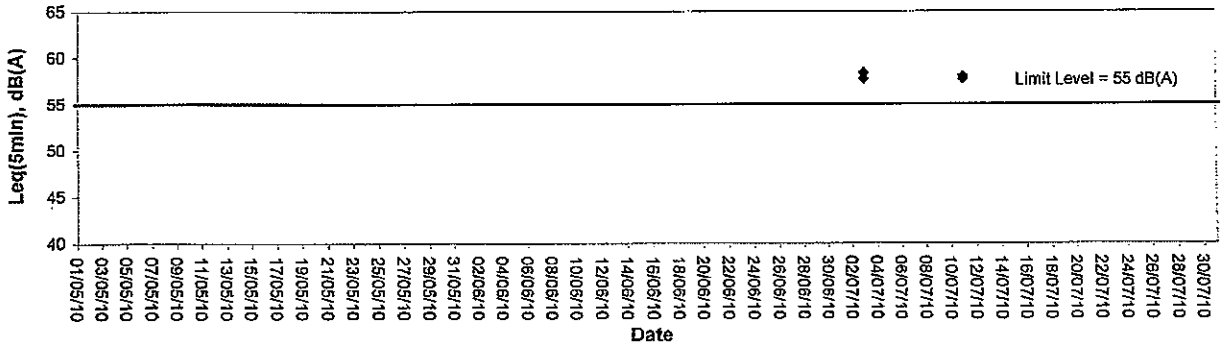




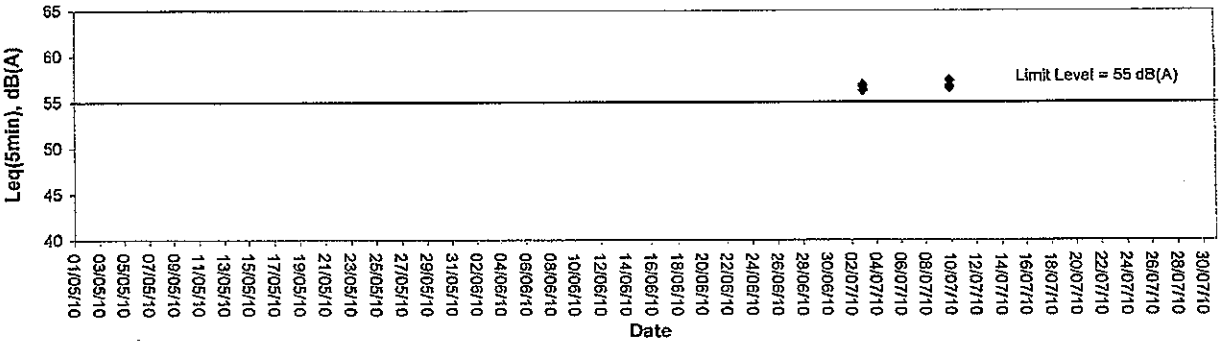


Noise Monitoring (Night-time)

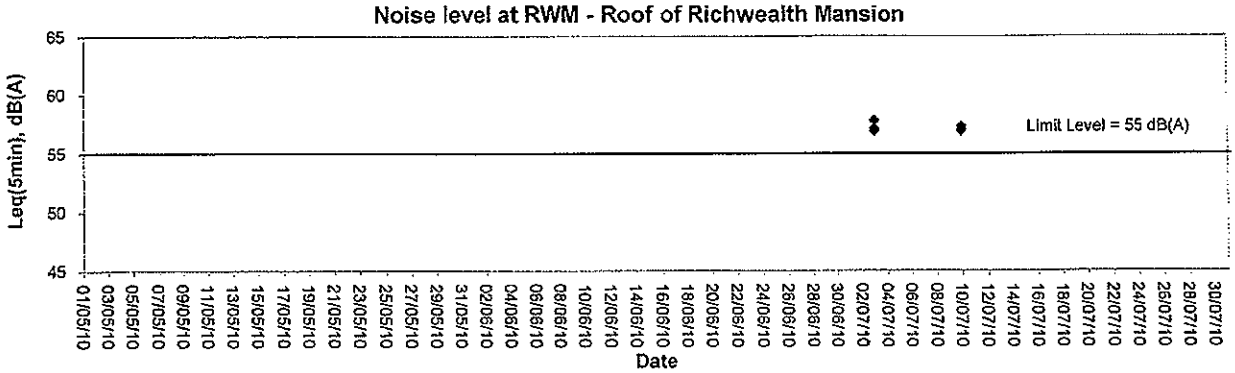
Noise level at KS6 - Podium at the Culliman



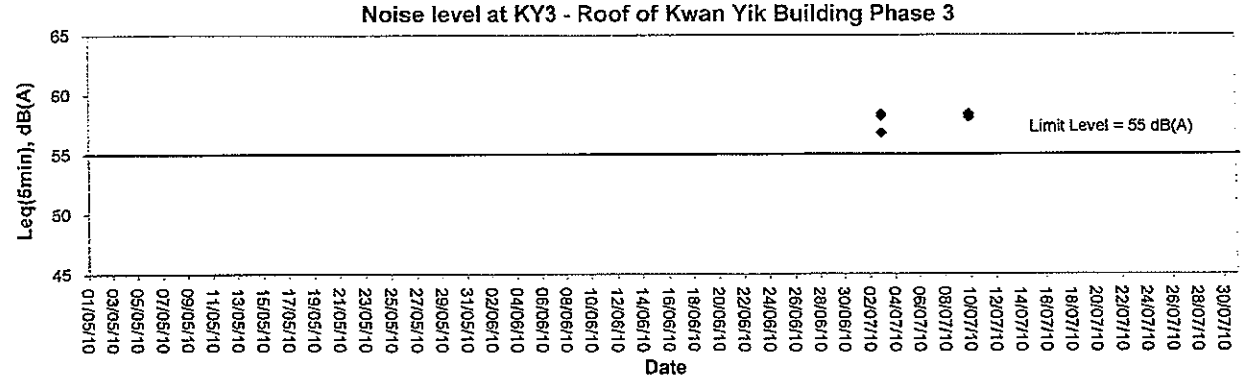
Noise level at CGa - Pavement in front of Connaught Garden



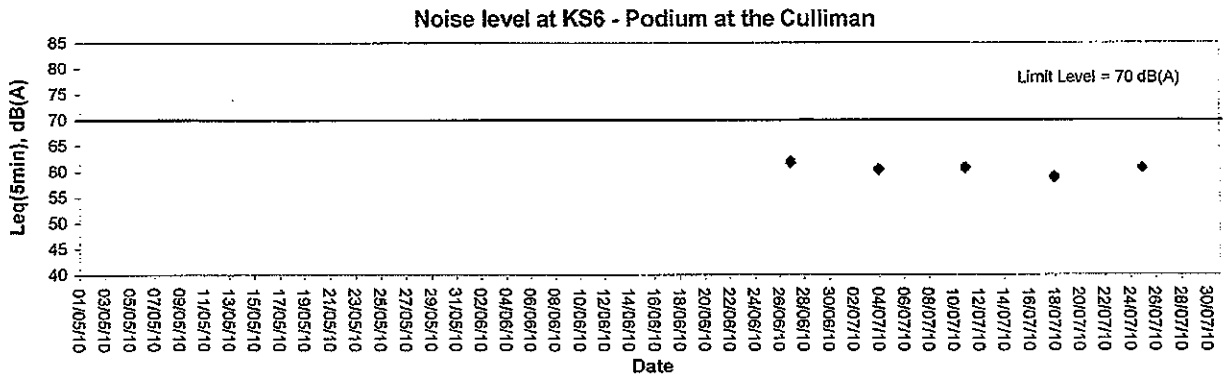
Noise level at RWM - Roof of Richwealth Mansion

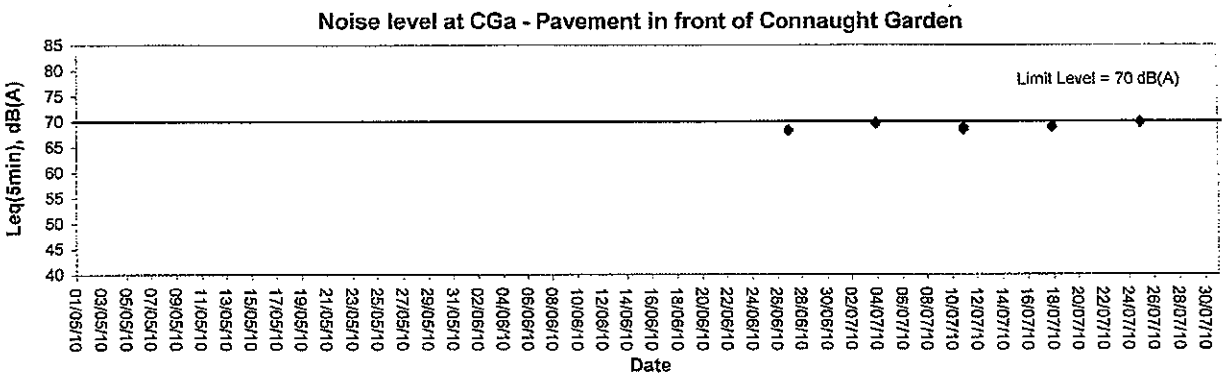


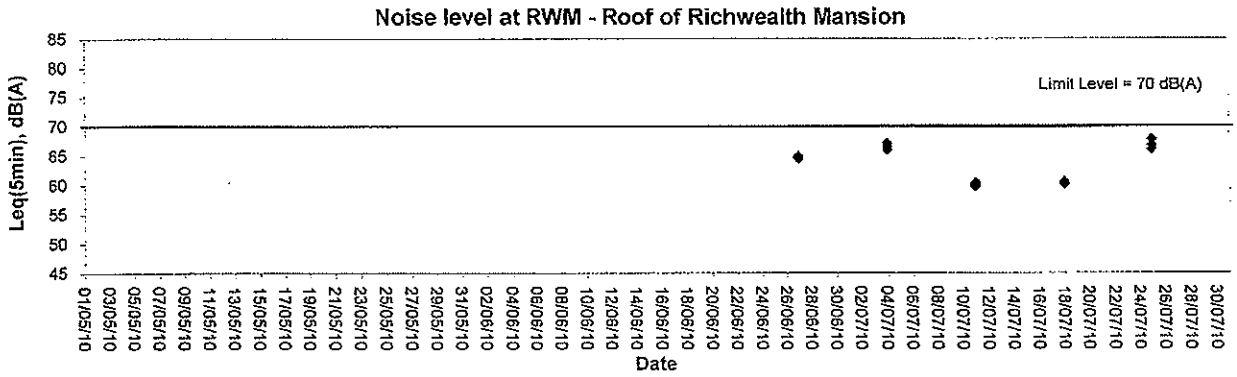
Noise level at KY3 - Roof of Kwan Yik Building Phase 3

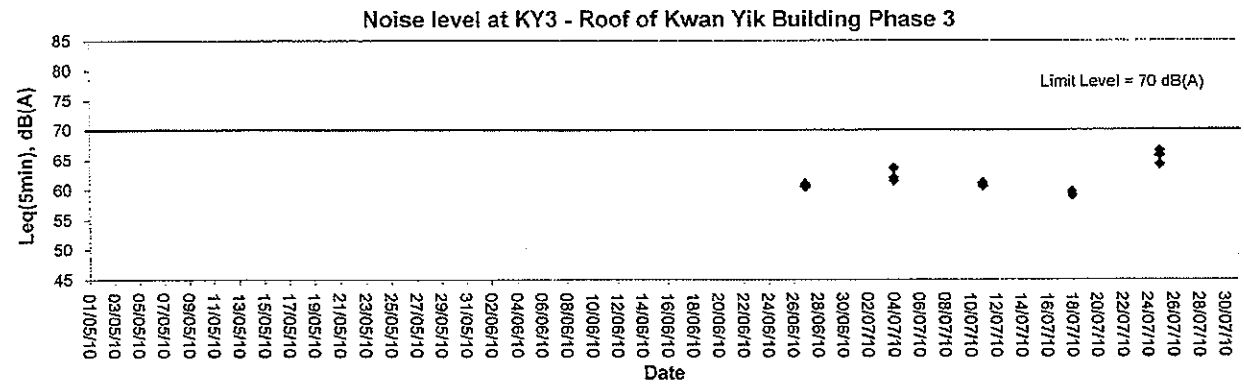


Noise Monitoring (Holiday-time)





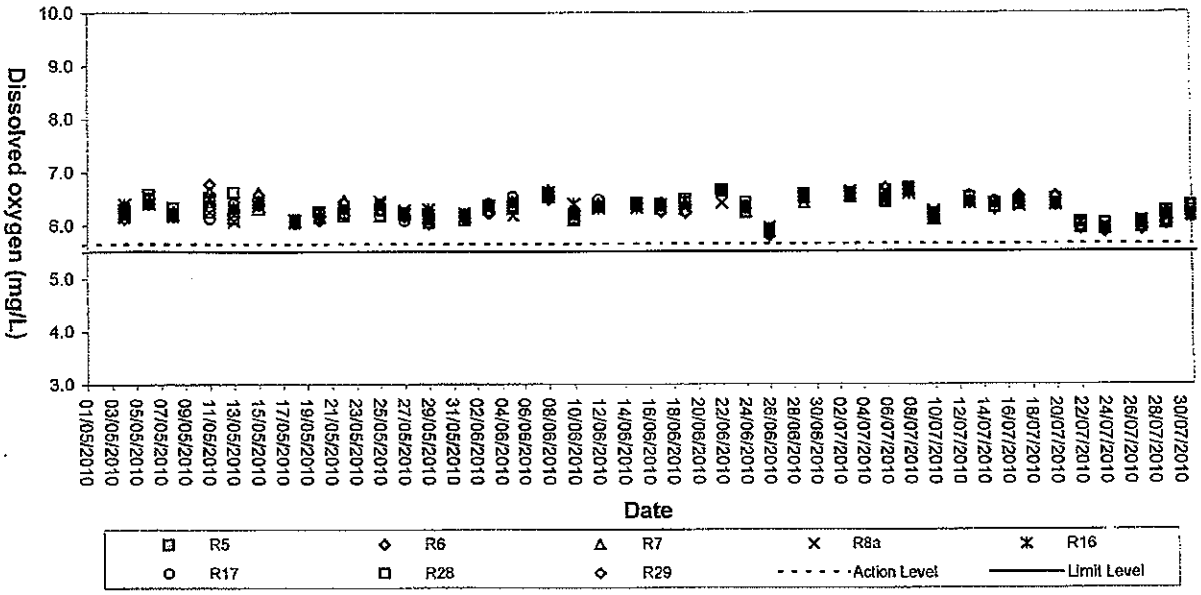




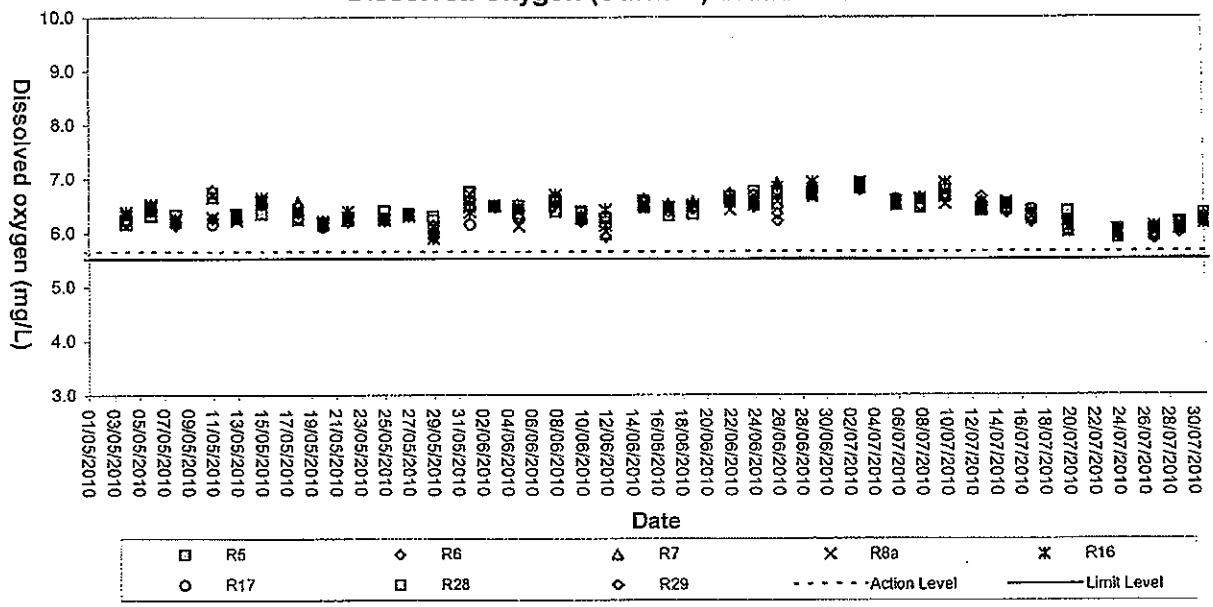
Appendix C

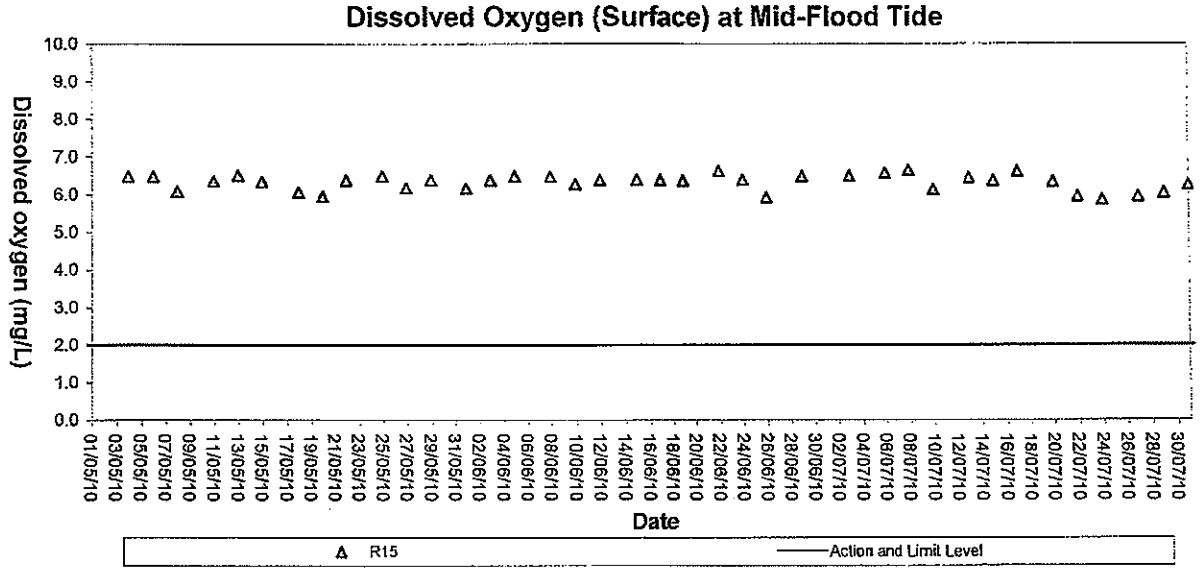
Graphical Plots of Impact Marine Water Quality Monitoring Data

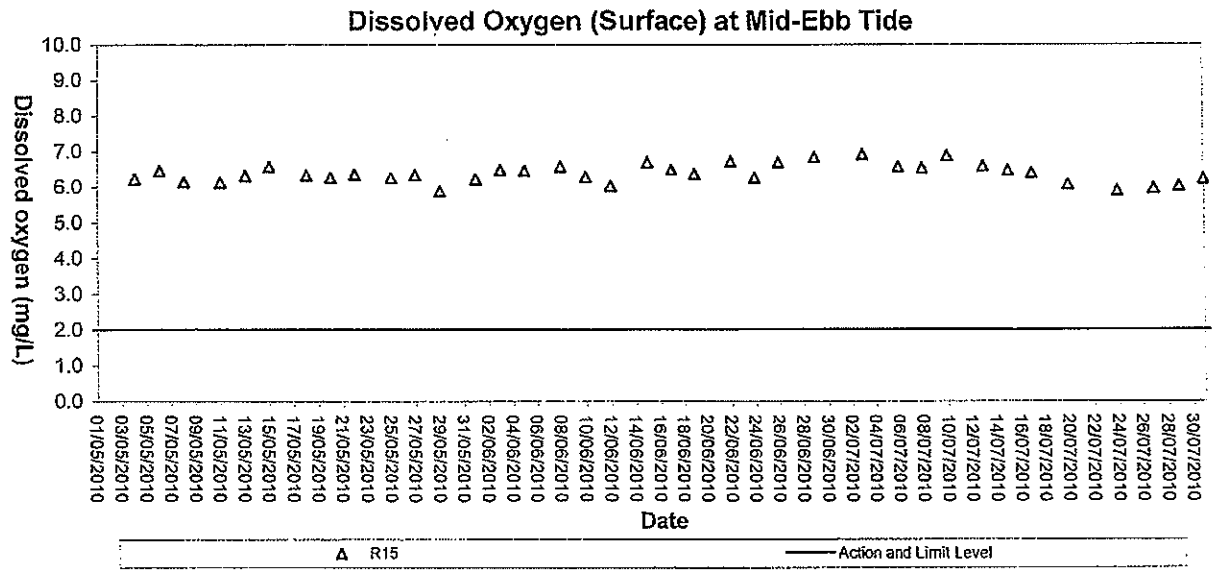
Dissolved Oxygen (Surface) at Mid-Flood Tide



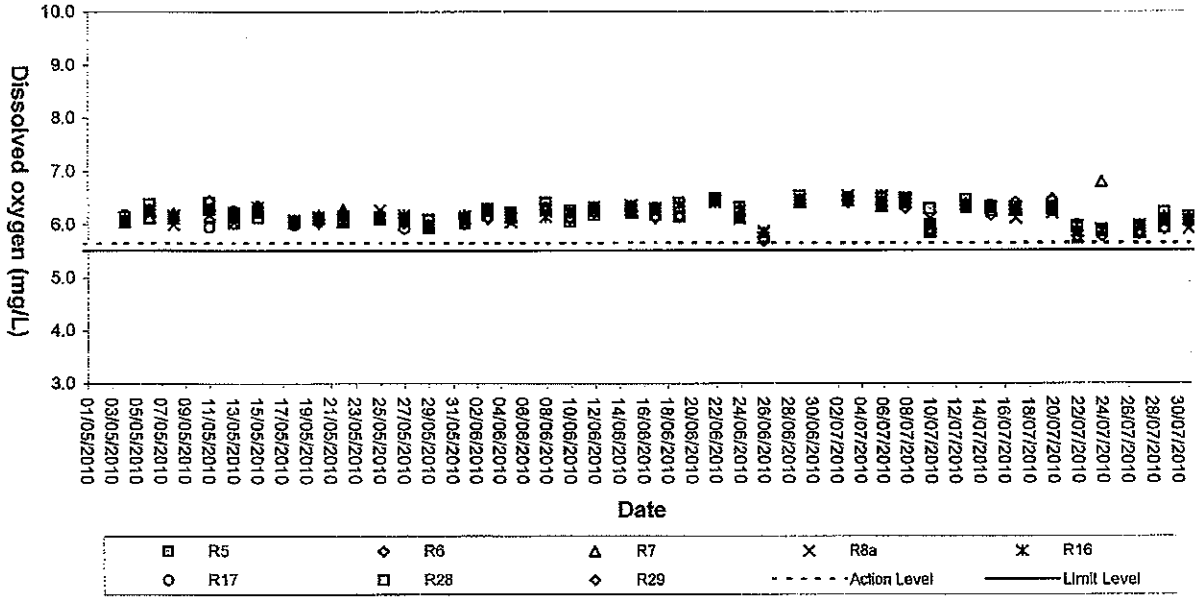
Dissolved Oxygen (Surface) at Mid-Ebb Tide



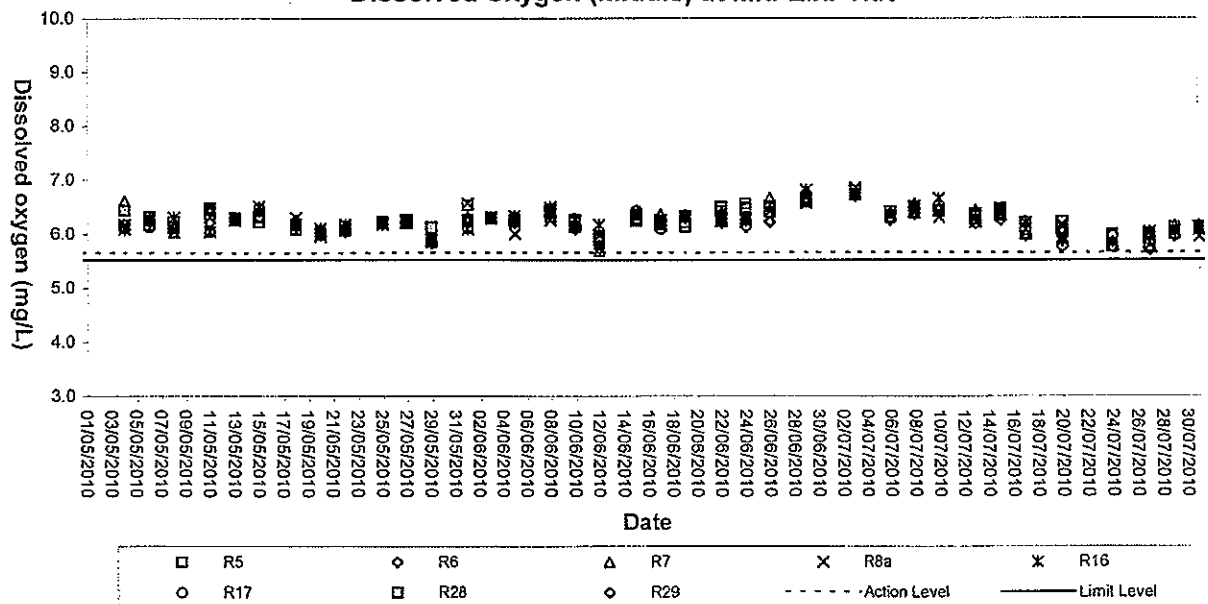

Dissolved Oxygen (Surface) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/10
03/05/10
05/05/10
07/05/10
09/05/10
11/05/10
13/05/10
15/05/10
17/05/10
19/05/10
21/05/10
23/05/10
25/05/10
27/05/10
29/05/10
31/05/10
02/06/10
04/06/10
06/06/10
08/06/10
10/06/10
12/06/10
14/06/10
16/06/10
18/06/10
20/06/10
22/06/10
24/06/10
26/06/10
28/06/10
30/06/10
02/07/10
04/07/10
06/07/10
08/07/10
10/07/10
12/07/10
14/07/10
16/07/10
18/07/10
20/07/10
22/07/10
24/07/10
26/07/10
28/07/10
30/07/10
Date
R15
Action and Limit Level

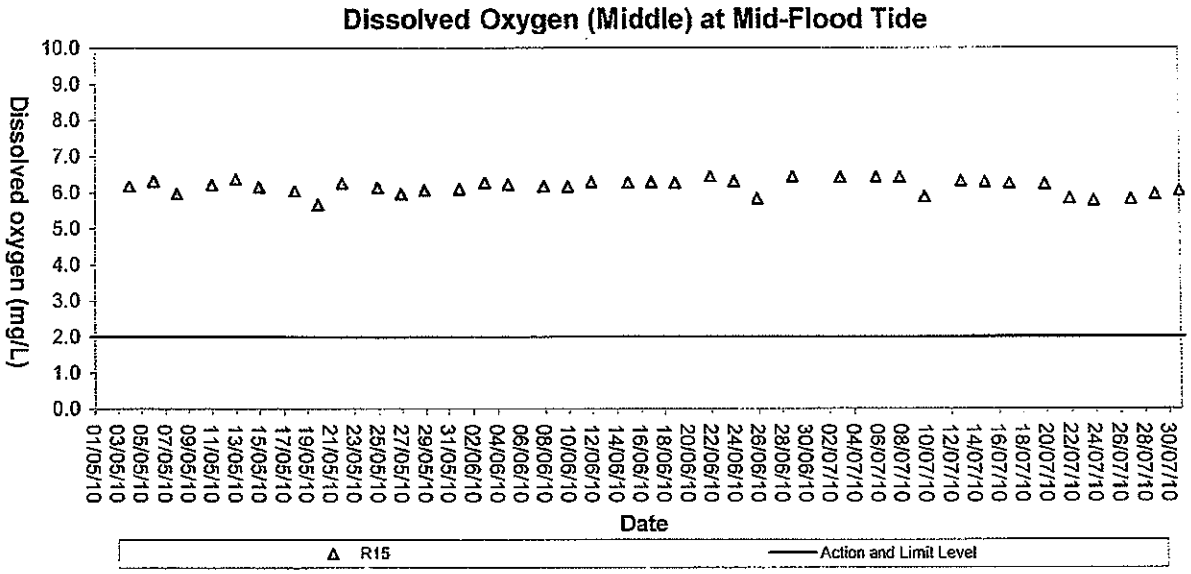

Dissolved Oxygen (Surface) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/2010
03/05/2010
05/05/2010
07/05/2010
09/05/2010
11/05/2010
13/05/2010
15/05/2010
17/05/2010
19/05/2010
21/05/2010
23/05/2010
25/05/2010
27/05/2010
29/05/2010
31/05/2010
02/06/2010
04/06/2010
06/06/2010
08/06/2010
10/06/2010
12/06/2010
14/06/2010
16/06/2010
18/06/2010
20/06/2010
22/06/2010
24/06/2010
26/06/2010
28/06/2010
30/06/2010
02/07/2010
04/07/2010
06/07/2010
08/07/2010
10/07/2010
12/07/2010
14/07/2010
16/07/2010
18/07/2010
20/07/2010
22/07/2010
24/07/2010
26/07/2010
28/07/2010
30/07/2010
Date
R15
Action and Limit Level

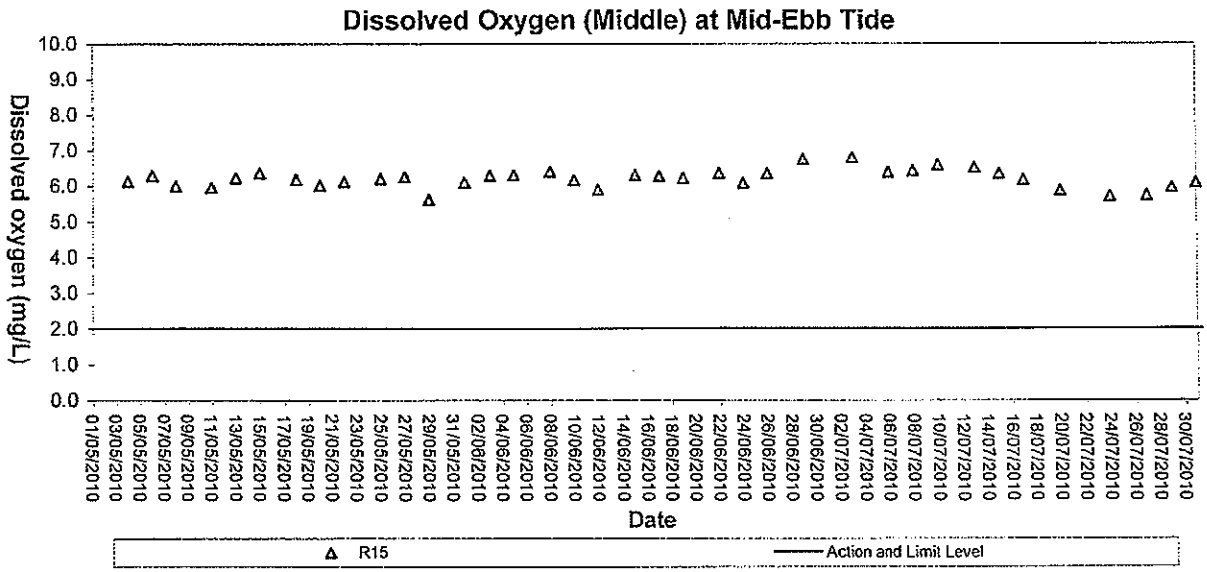
Dissolved Oxygen (Middle) at Mid-Flood Tide

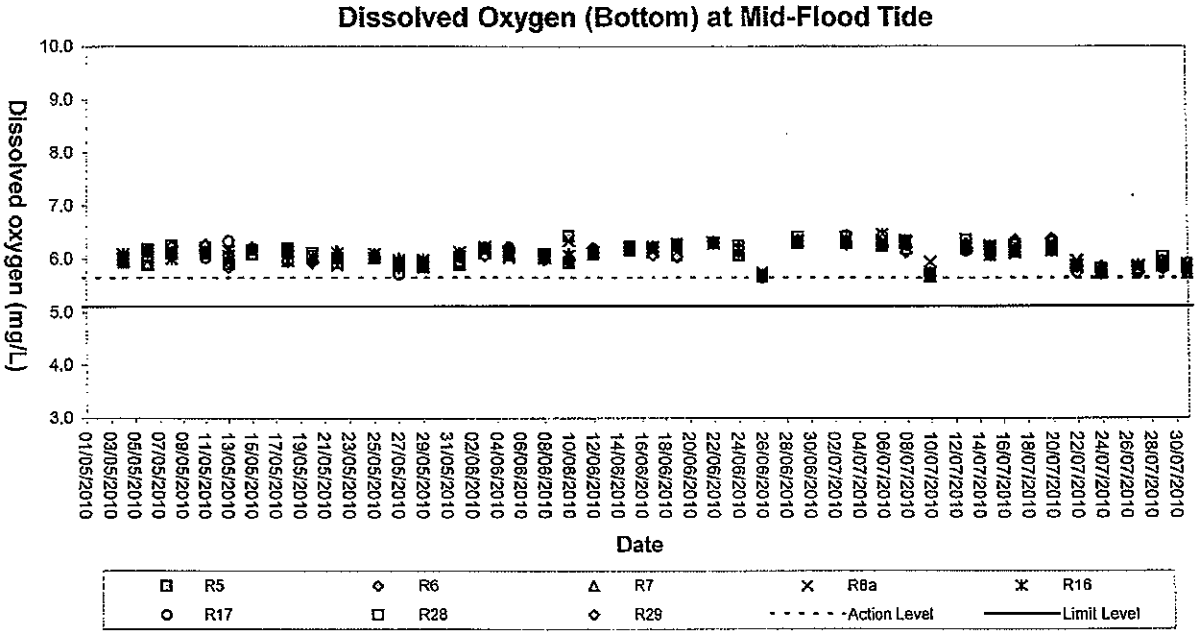


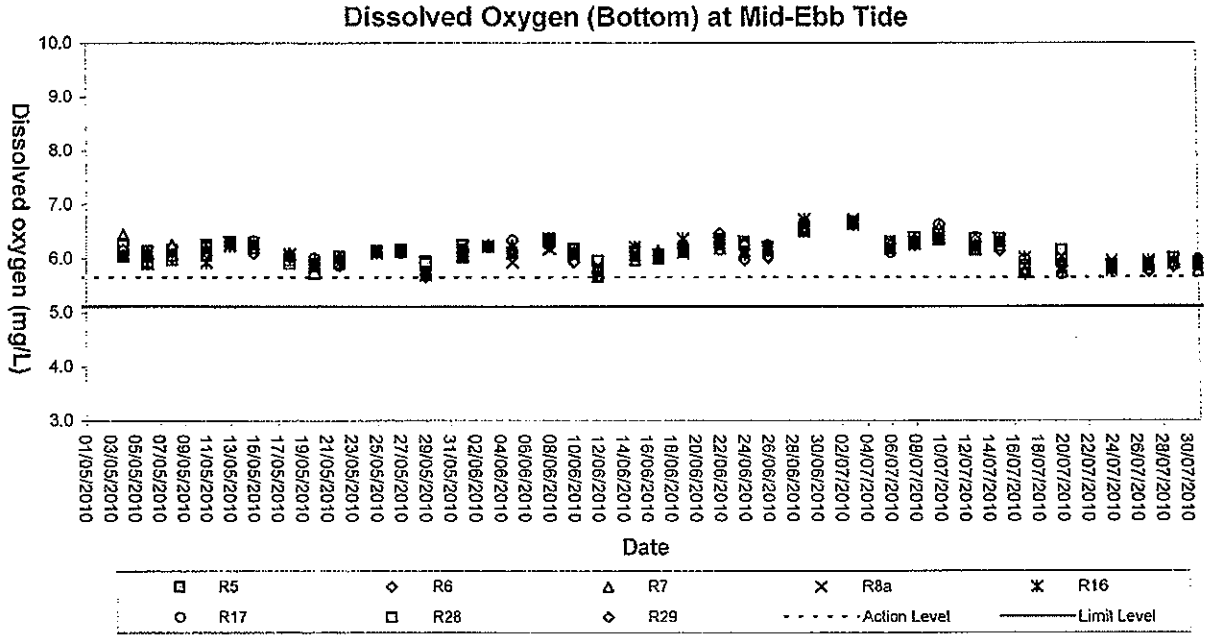
Dissolved Oxygen (Middle) at Mid-Ebb Tide

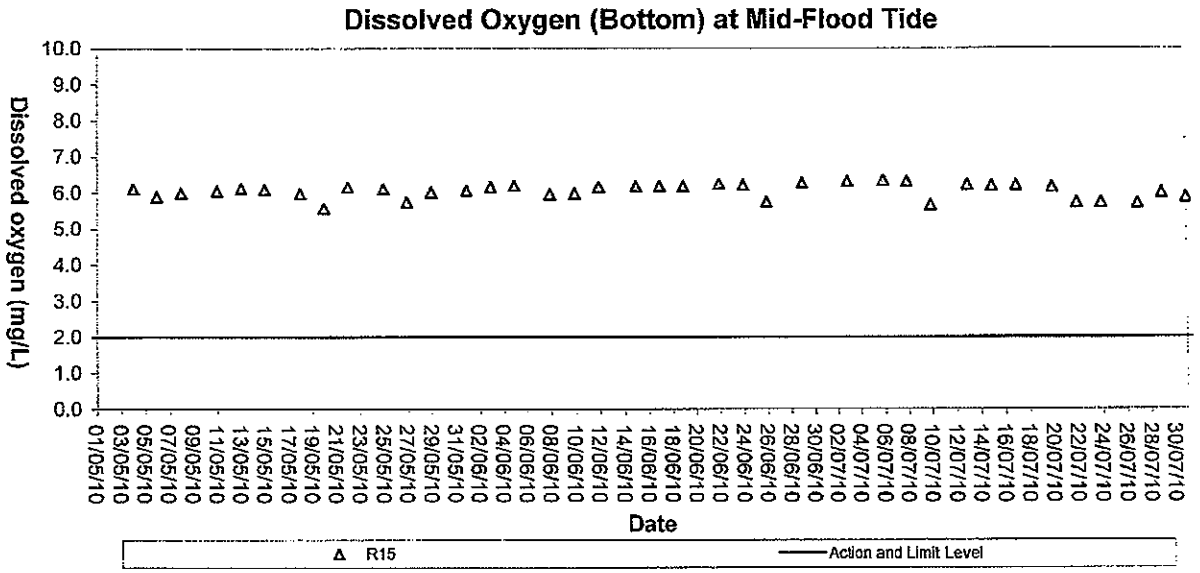


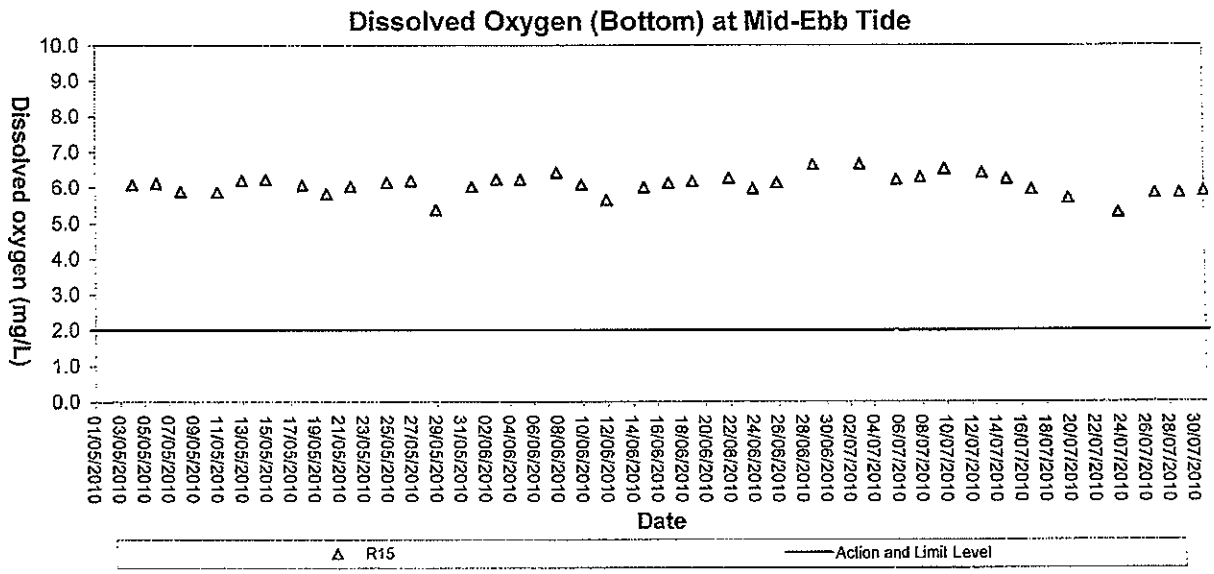

Dissolved Oxygen (Middle) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/10
03/05/10
05/05/10
07/05/10
09/05/10
11/05/10
13/05/10
15/05/10
17/05/10
19/05/10
21/05/10
23/05/10
25/05/10
27/05/10
29/05/10
31/05/10
02/06/10
04/06/10
06/06/10
08/06/10
10/06/10
12/06/10
14/06/10
16/06/10
18/06/10
20/06/10
22/06/10
24/06/10
26/06/10
28/06/10
30/06/10
02/07/10
04/07/10
06/07/10
08/07/10
10/07/10
12/07/10
14/07/10
16/07/10
18/07/10
20/07/10
22/07/10
24/07/10
26/07/10
28/07/10
30/07/10
Date
R15
Action and Limit Level


Dissolved Oxygen (Middle) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/2010
03/05/2010
05/05/2010
07/05/2010
09/05/2010
11/05/2010
13/05/2010
15/05/2010
17/05/2010
19/05/2010
21/05/2010
23/05/2010
25/05/2010
27/05/2010
29/05/2010
31/05/2010
02/06/2010
04/06/2010
06/06/2010
08/06/2010
10/06/2010
12/06/2010
14/06/2010
16/06/2010
18/06/2010
20/06/2010
22/06/2010
24/06/2010
26/06/2010
28/06/2010
30/06/2010
02/07/2010
04/07/2010
06/07/2010
08/07/2010
10/07/2010
12/07/2010
14/07/2010
16/07/2010
18/07/2010
20/07/2010
22/07/2010
24/07/2010
26/07/2010
28/07/2010
30/07/2010
Date
R15
Action and Limit Level

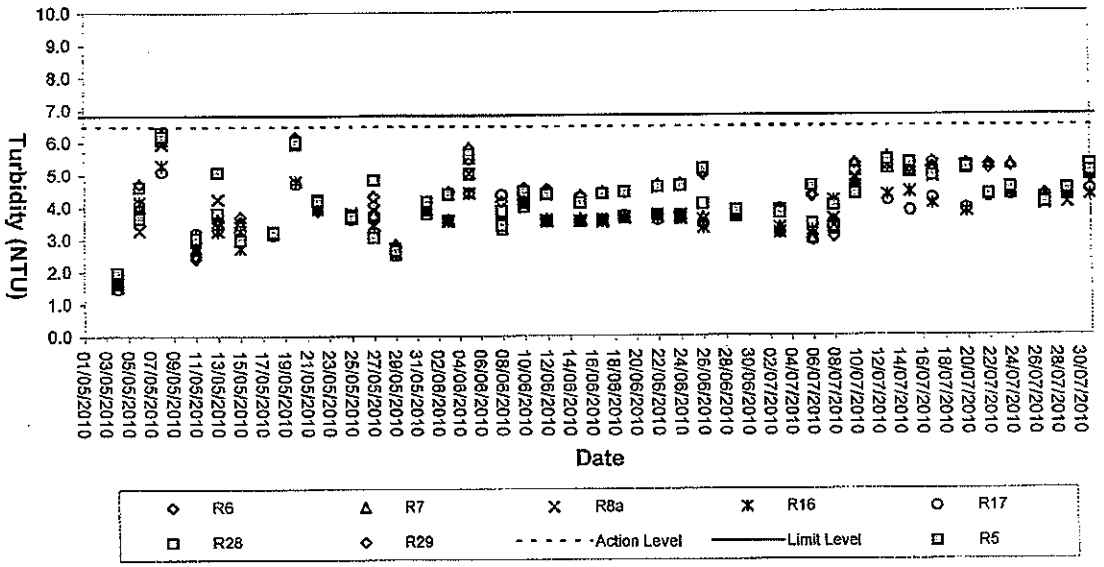

Dissolved Oxygen (Bottom) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
01/05/2010
03/05/2010
05/05/2010
07/05/2010
09/05/2010
11/05/2010
13/05/2010
15/05/2010
17/05/2010
19/05/2010
21/05/2010
23/05/2010
25/05/2010
27/05/2010
29/05/2010
31/05/2010
02/06/2010
04/06/2010
06/06/2010
08/06/2010
10/06/2010
12/06/2010
14/06/2010
16/06/2010
18/06/2010
20/06/2010
22/06/2010
24/06/2010
26/06/2010
28/06/2010
30/06/2010
02/07/2010
04/07/2010
06/07/2010
08/07/2010
10/07/2010
12/07/2010
14/07/2010
16/07/2010
18/07/2010
20/07/2010
22/07/2010
24/07/2010
26/07/2010
28/07/2010
30/07/2010
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level


Dissolved Oxygen (Bottom) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
01/05/2010
03/05/2010
05/05/2010
07/05/2010
09/05/2010
11/05/2010
13/05/2010
15/05/2010
17/05/2010
19/05/2010
21/05/2010
23/05/2010
25/05/2010
27/05/2010
29/05/2010
31/05/2010
02/06/2010
04/06/2010
06/06/2010
08/06/2010
10/06/2010
12/06/2010
14/06/2010
16/06/2010
18/06/2010
20/06/2010
22/06/2010
24/06/2010
26/06/2010
28/06/2010
30/06/2010
02/07/2010
04/07/2010
06/07/2010
08/07/2010
10/07/2010
12/07/2010
14/07/2010
16/07/2010
18/07/2010
20/07/2010
22/07/2010
24/07/2010
26/07/2010
28/07/2010
30/07/2010
Date
R5
R6
R7
R8a
R16
R17
R28
R29
Action Level
Limit Level

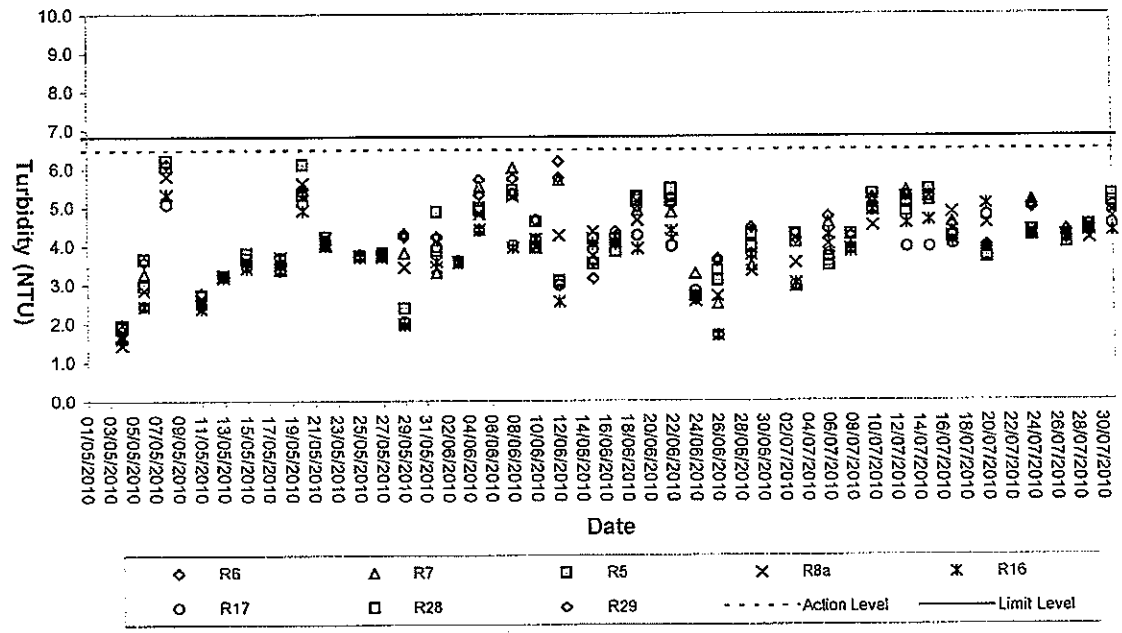

Dissolved Oxygen (Bottom) at Mid-Flood Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/10
03/05/10
05/05/10
07/05/10
09/05/10
11/05/10
13/05/10
15/05/10
17/05/10
19/05/10
21/05/10
23/05/10
25/05/10
27/05/10
29/05/10
31/05/10
02/06/10
04/06/10
06/06/10
08/06/10
10/06/10
12/06/10
14/06/10
16/06/10
18/06/10
20/06/10
22/06/10
24/06/10
26/06/10
28/06/10
30/06/10
02/07/10
04/07/10
06/07/10
08/07/10
10/07/10
12/07/10
14/07/10
16/07/10
18/07/10
20/07/10
22/07/10
24/07/10
26/07/10
28/07/10
30/07/10
Date
R15
Action and Limit Level


Dissolved Oxygen (Bottom) at Mid-Ebb Tide
Dissolved oxygen (mg/L)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
01/05/2010
03/05/2010
05/05/2010
07/05/2010
09/05/2010
11/05/2010
13/05/2010
15/05/2010
17/05/2010
19/05/2010
21/05/2010
23/05/2010
25/05/2010
27/05/2010
29/05/2010
31/05/2010
02/06/2010
04/06/2010
06/06/2010
08/06/2010
10/06/2010
12/06/2010
14/06/2010
16/06/2010
18/06/2010
20/06/2010
22/06/2010
24/06/2010
26/06/2010
28/06/2010
30/06/2010
02/07/2010
04/07/2010
06/07/2010
08/07/2010
10/07/2010
12/07/2010
14/07/2010
16/07/2010
18/07/2010
20/07/2010
22/07/2010
24/07/2010
26/07/2010
28/07/2010
30/07/2010
Date
R15
Action and Limit Level

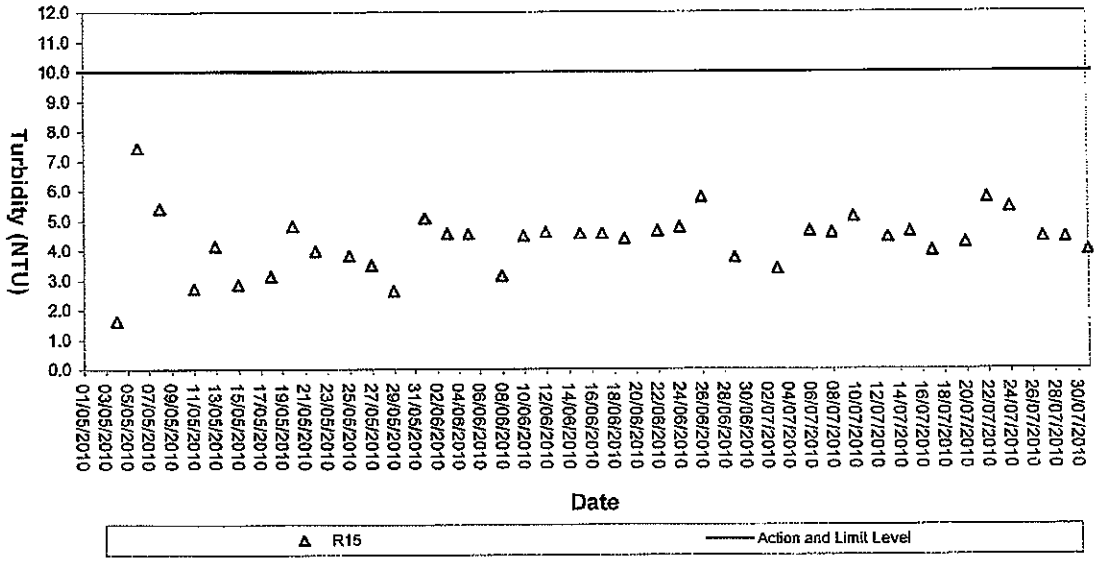
Turbidity (Depth-average) at Mid-Flood Tide



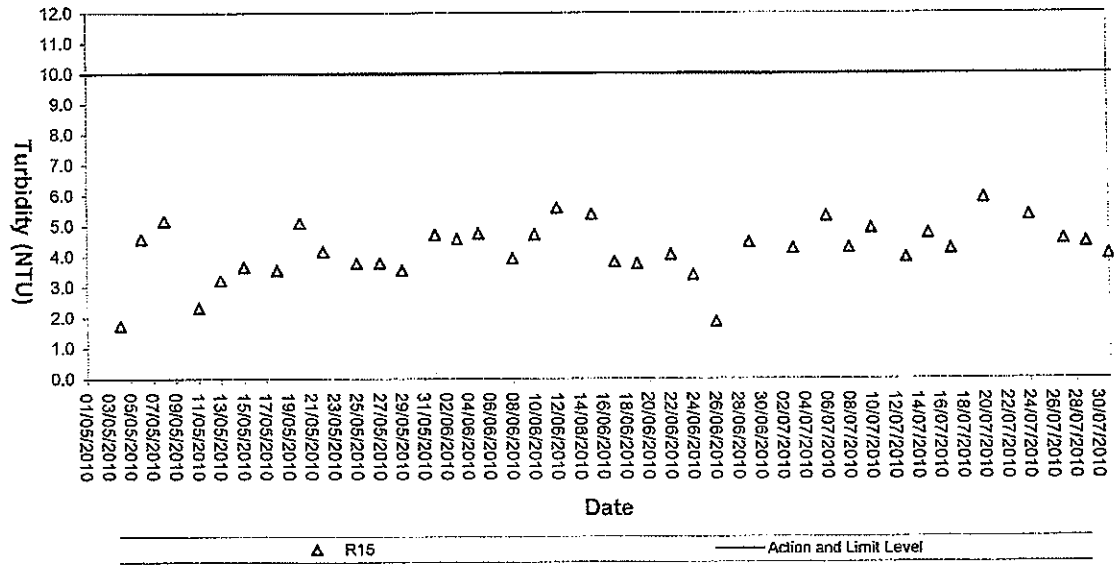
Turbidity(Depth-average) at Mid-Ebb Tide



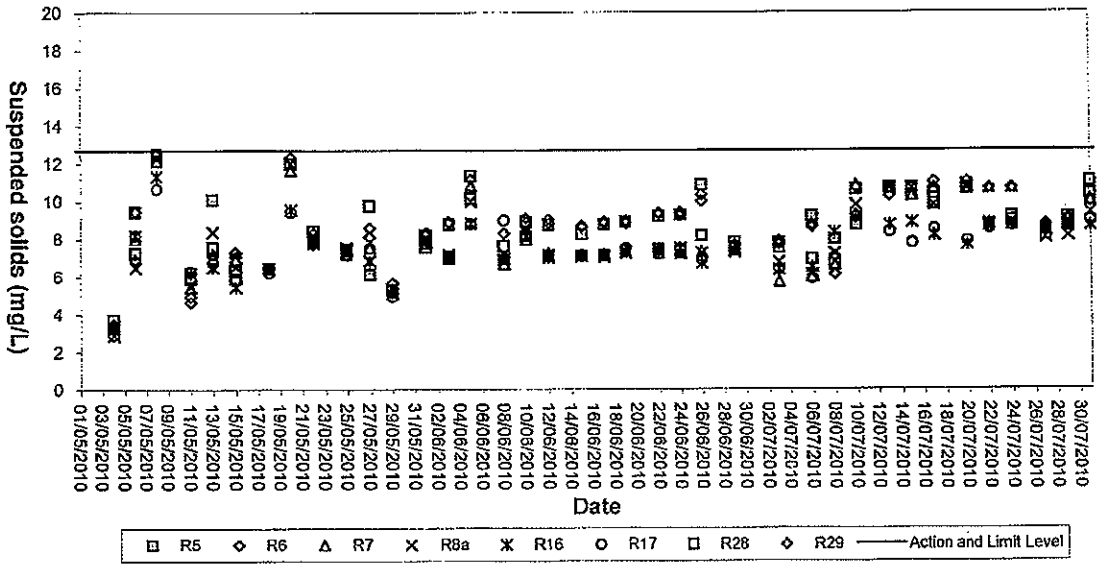
Turbidity (Depth-average) of R15 at Mid-Flood Tide



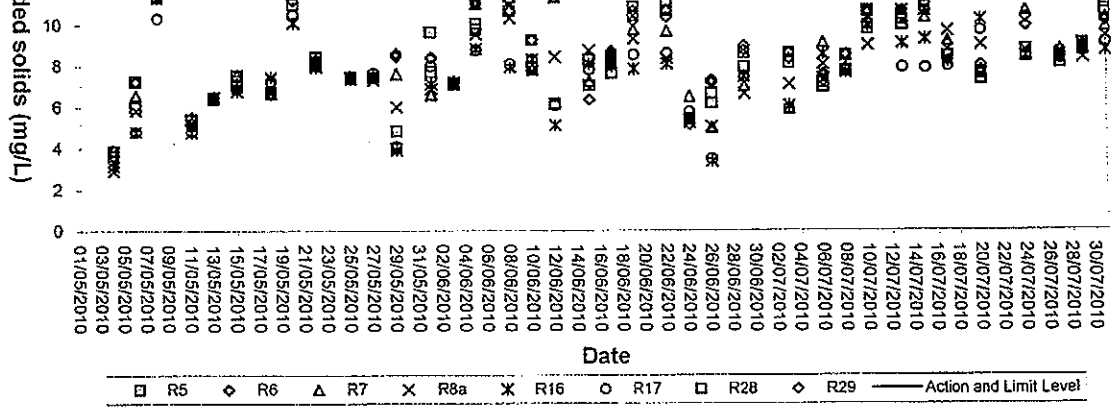
Turbidity(Depth-average) of R15 at Mid-Ebb Tide



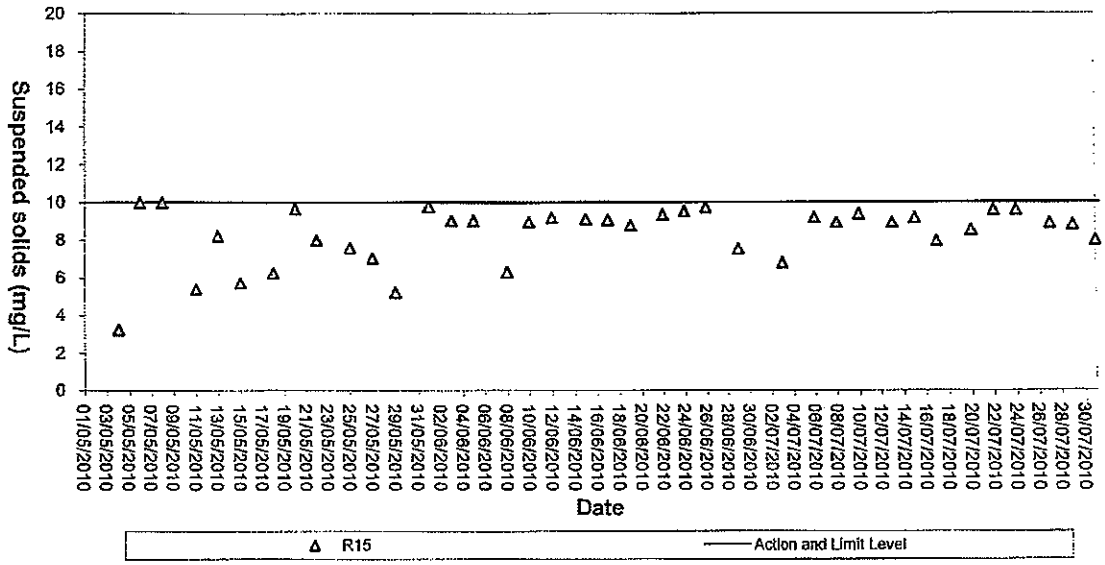
Suspended solids (Depth-average) at Mid-Flood Tide



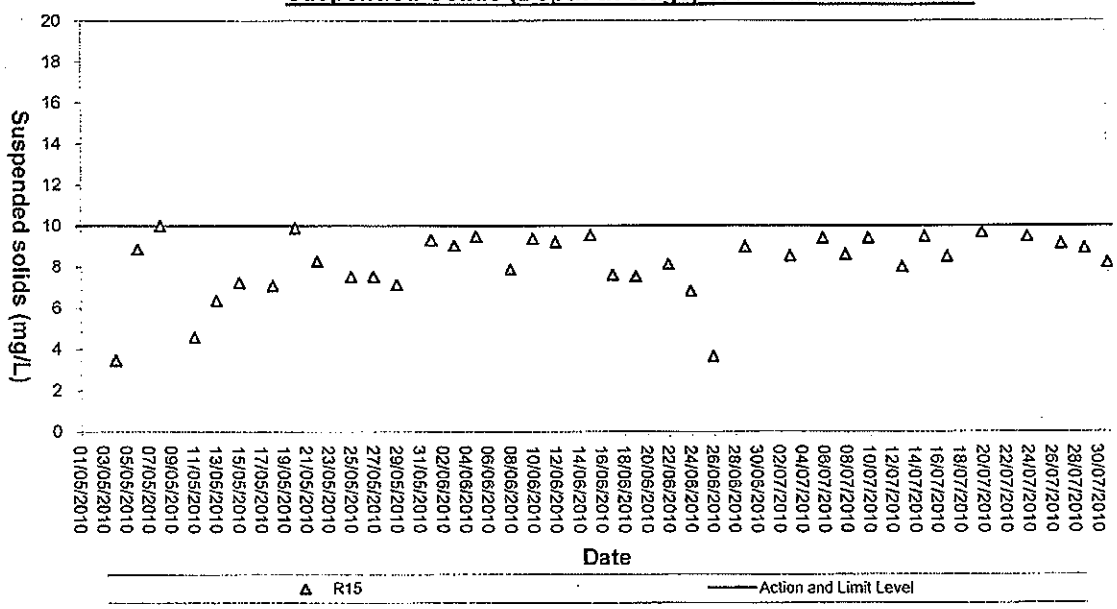
Suspended Solids (Depth-average) at Mid-Ebb Tide



Suspended solids (Depth-average) of R15 at Mid-Flood Tide



Suspended Solids (Depth-average) of R15 at Mid-Ebb Tide



Appendix D

Environmental Quality Performance (Action / Limit Levels)

Action and Limit Levels for Noise Monitoring

Time Period	Action	Limit
0700 –1900 hrs on normal weekday (Day-time)	When one documented complaint is received	75 dB(A) *
1900-2300 hrs (Evening-time)		70 dB(A)
0700-1900 hrs on Holiday (Holiday-time)		70 dB(A)
Restricted hours (2300-0700 hrs of next day) (Night-time)		55 dB(A)

* reduce to 70dB(A) for school and 65dB(A) during school examination periods

Action and Limit Levels for Marine Water Qualilty

Parameter	Action Level	Limit Level
DO (mg/L) (Surface, Middle & Bottom)	Surface, Middle & Bottom WSD Seawater Intakes 2 mg/L (For R15) Other Impact Monitoring Stations 5.65 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)	Surface & Middle WSD Seawater Intakes 2 mg/L (For R15) Other Impact Monitoring Stations 5.51 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29) Bottom 5.11 mg/L (For R15, R5, R6, R7, R8a, R16, R17, R28 and R29)
SS (mg/L) (Depth-averaged)	WSD Seawater Intakes 10 mg/L (For R15) Other Impact Monitoring Stations 12.7 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)	WSD Seawater Intakes 10 mg/L (For R15) Other Impact Monitoring Stations 12.7 mg/L (For R5, R6, R7, R8a, R16, R17, R28 and R29)
Turbidity (NTU) (Depth-averaged)	WSD Seawater Intakes 10 NTU Other Impact Monitoring Stations 6.48 NTU (For R5, R6, R7, R8a, R16, R17, R28 and R29)	WSD Seawater Intakes 10 NTU Other Impact Monitoring Stations 6.82 NTU (For R5, R6, R7, R8a, R16, R17, R28 and R29)

Notes:
1. *"depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.*
2. *For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.*
3. *For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.*
4. *All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.*

Appendix E

Event-Action Plans

Event and Action Plan for Construction Noise

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation measures.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Identify the source. 2. Notify IEC, ER, EPD and the Contractor. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	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 activity of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality for Construction Phase

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level				
Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 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; and 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented.	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; and 6. Implement the agreed mitigation measures.
Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 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. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; and 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; and 3. Assess the effectiveness of the implemented mitigation measures.	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 ET and IEC and propose mitigation measures to IEC and ER within 3 working days; and 6. Implement the agreed mitigation measures.

Event and Action Plan for Water Quality for Construction Phase

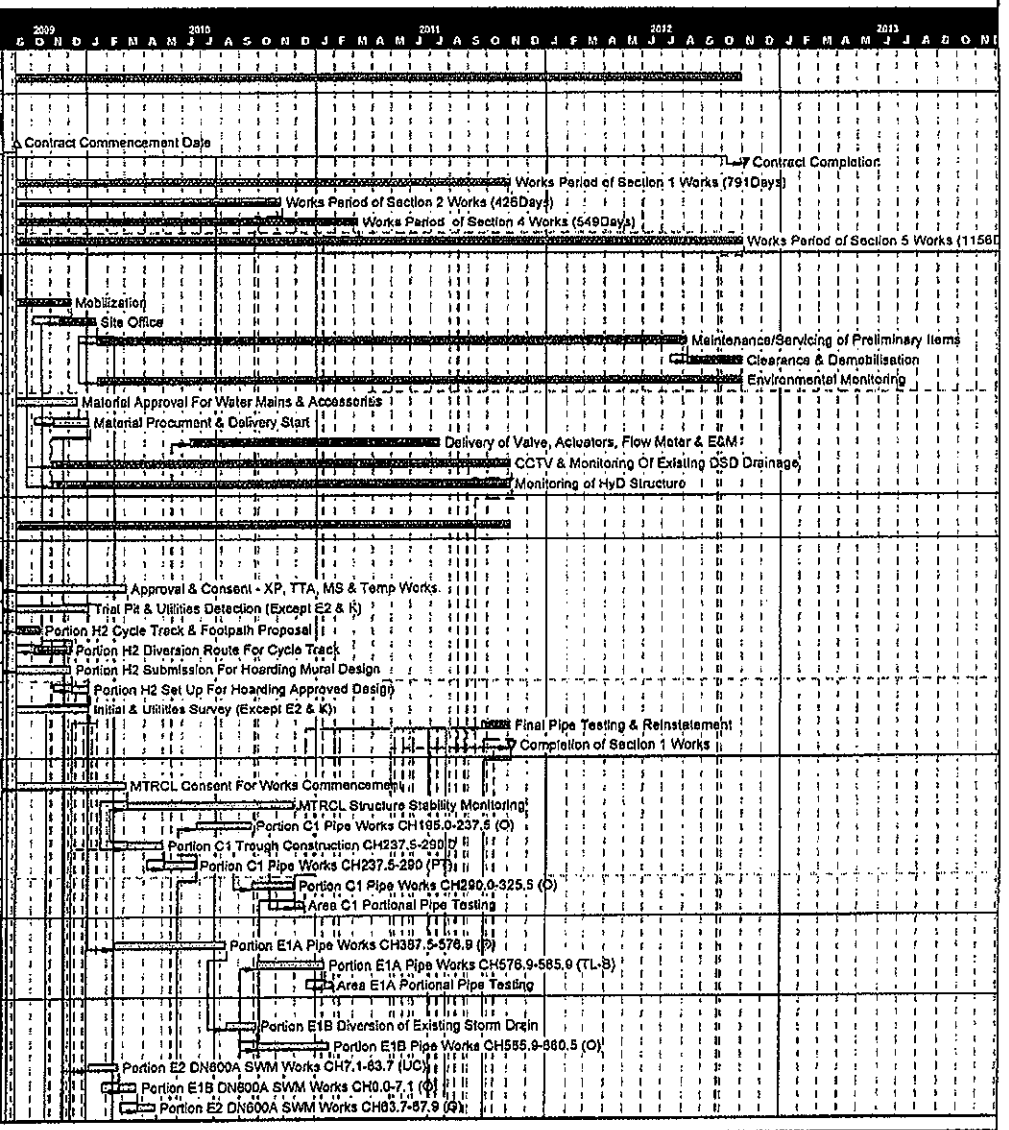
Event	Action			
	ET Leader	IEC	ER	Contractor
Limit Level				
Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; and 7. Increase the monitoring frequency to daily until no exceedance of Limit level.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; and 4. Assess the effectiveness of the implemented mitigation measures.	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 ET and IEC and ER and propose mitigation measures to IEC and ER within 3 working days; and 6. Implement the agreed mitigation measures.
Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; and 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 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; and 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. 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 ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; and 7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.

Appendix F

Work Programme

Contract No.9/WSD/08
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
General Information								
		1156	07SEP09	05NOV12	07SEP09	05NOV12	0	0
Key Dates								
KD-1010	Contract Commencement Date	0	07SEP09		07SEP09		0	0
KD-1020	Contract Completion	0		05NOV12		05NOV12	0	0
KD-1030	Works Period of Section 1 Works (791Days)	791	07SEP09	06NOV11	07SEP09	06NOV11	0	0
KD-1040	Works Period of Section 2 Works (426Days)	426	07SEP09	06NOV10	07SEP09	06NOV10	0	0
KD-1050	Works Period of Section 4 Works (549Days)	549	07SEP09	09MAR11	07SEP09	09MAR11	0	0
KD-1060	Works Period of Section 5 Works (1156Days)	1156	07SEP09	05NOV12	07SEP09	05NOV12	0	0
Preliminaries								
B1-1000	Mobilization	90	07SEP09	05DEC09	07SEP09	05DEC09	0	0
B1-1110	Site Office	60	16NOV09	14JAN10	16NOV09	14JAN10	0	0
B1-1120	Maintenance/Servicing of Preliminary Items	838	15JAN10	09AUG12	15JAN10	09AUG12	0	0
B1-1130	Clearance & Demobilisation	88	10AUG12	05NOV12	10AUG12	05NOV12	0	0
B1-1140	Environmental Monitoring	1026	15JAN10	05NOV12	15JAN10	05NOV12	0	0
B1-1150	Material Approval For Water Mains & Accessories	100	07SEP09	15DEC09	21SEP09	29DEC09	14d	0
B1-1160	Material Procument & Delivery Start	60	06NOV09	04JAN10	20NOV09	18JAN10	14d	0
B1-1160B	Delivery of Valve, Actuators, FlowMeter & E&M	400	14JUN10	18JUL11*	14JUN10	18JUL11*	0	0
B1-1170	CCTV & Monitoring Of Existing DSD Drainage	731	06NOV09	06NOV11	06NOV09	06NOV11	0	0
B1-1180	Monitoring of HyD Structure	731	06NOV09	06NOV11	06NOV09	06NOV11	0	0
Section 1								
		791	07SEP09	06NOV11	07SEP09	06NOV11	0	0
Land Works								
General								
S1-1010	Approval & Consent - XP, TTA, MS & Temp Works	180	07SEP09	05MAR10	10SEP09	08MAR10	3d	0
S1-1020	Trial Pit & Utilities Detection (Except E2 & K)	120	07SEP09	04JAN10	09NOV09	08MAR10	63d	40d
S1-1030	Portion H2 Cycle Track & Footpath Proposal	40	07SEP09	16OCT09	07SEP09	16OCT09	0	0
S1-1040	Portion H2 Diversion Route For Cycle Track	60	07OCT09	05DEC09	07OCT09	05DEC09	0	0
S1-1050	Portion H2 Submission For Hoarding Mural Design	90	07SEP09	05DEC09	17SEP09	15DEC09	10d	0
S1-1060	Portion H2 Set Up For Hoarding Approved Design	30	06DEC09	04JAN10	16DEC09	14JAN10	10d	0
S1-1080	Initial & Utilities Survey (Except E2 & K)	120	07SEP09	04JAN10	09NOV09	08MAR10	63d	0
S1-2010	Final Pipe Testing & Reinstatement	45	23SEP11	06NOV11	23SEP11	06NOV11	0	0
S1-2020	Completion of Section 1 Works	0		06NOV11*		06NOV11*	0	0
Portion C1								
S1-3010	MTRCL Consent For Works Commencement	180	07SEP09	05MAR10	18MAR10	13SEP10	192d	0
S1-3020	MTRCL Structure Stability Monitoring	270	06MAR10	30NOV10	13DEC10	08SEP11	282d	0
S1-3030	Portion C1 Pipe Works CH195.0-237.5 (O)	90	24JUN10	21SEP10	21FEB11	21MAY11	242d	0
S1-3040	Portion C1 Trough Construction CH237.5-290.0	60	06MAR10	04MAY10	14SEP10	12NOV10	192d	0
S1-3050	Portion C1 Pipe Works CH237.5-290 (PT)	90	05MAY10	23JUN10	13NOV10	01JAN11	192d	0
S1-3060	Portion C1 Pipe Works CH290.0-325.5 (O)	70	22SEP10	30NOV10	22MAY11	30JUL11	242d	0
S1-3070	Area C1 Portional Pipe Testing	14	01DEC10	14DEC10	09SEP11	22SEP11	282d	282d
Portion E1A								
S1-4020	Portion E1A Pipe Works CH387.5-576.9 (O)	180	14FEB10	12AUG10	29SEP10	27MAR11	227d	0
S1-4030	Portion E1A Pipe Works CH576.9-585.9 (TL-B)	108	01OCT10	16JAN11	24MAY11	08SEP11	235d	0
S1-4050	Area E1A Portional Pipe Testing	14	17JAN11	30JAN11	09SEP11	22SEP11	235d	235d
Portion E1B + E2 SWM								
S1-4010	Portion E1B Diversion of Existing Storm Drain	50	13AUG10	01OCT10	28MAR11	16MAY11	227d	0
S1-4040	Portion E1B Pipe Works CH585.9-660.5 (O)	115	02OCT10	24JAN11	17MAY11	08SEP11	227d	0
S1-4410	Portion E2 DN600A SWM Works CH7.1-63.7 (UC)	50	05JAN10	23FEB10	26JUL10	13SEP10	202d	0
S1-4420	Portion E1B DN600A SWM Works CH0.0-7.1 (O)	30	24FEB10	25MAR10	14SEP10	13OCT10	202d	0
S1-4430	Portion E2 DN600A SWM Works CH63.7-67.9 (O)	30	26MAR10	24APR10	14OCT10	12NOV10	202d	0



Start date	07SEP09
Finish date	05NOV12
Data date	07SEP09
Run date	02NOV09
Page number	1A

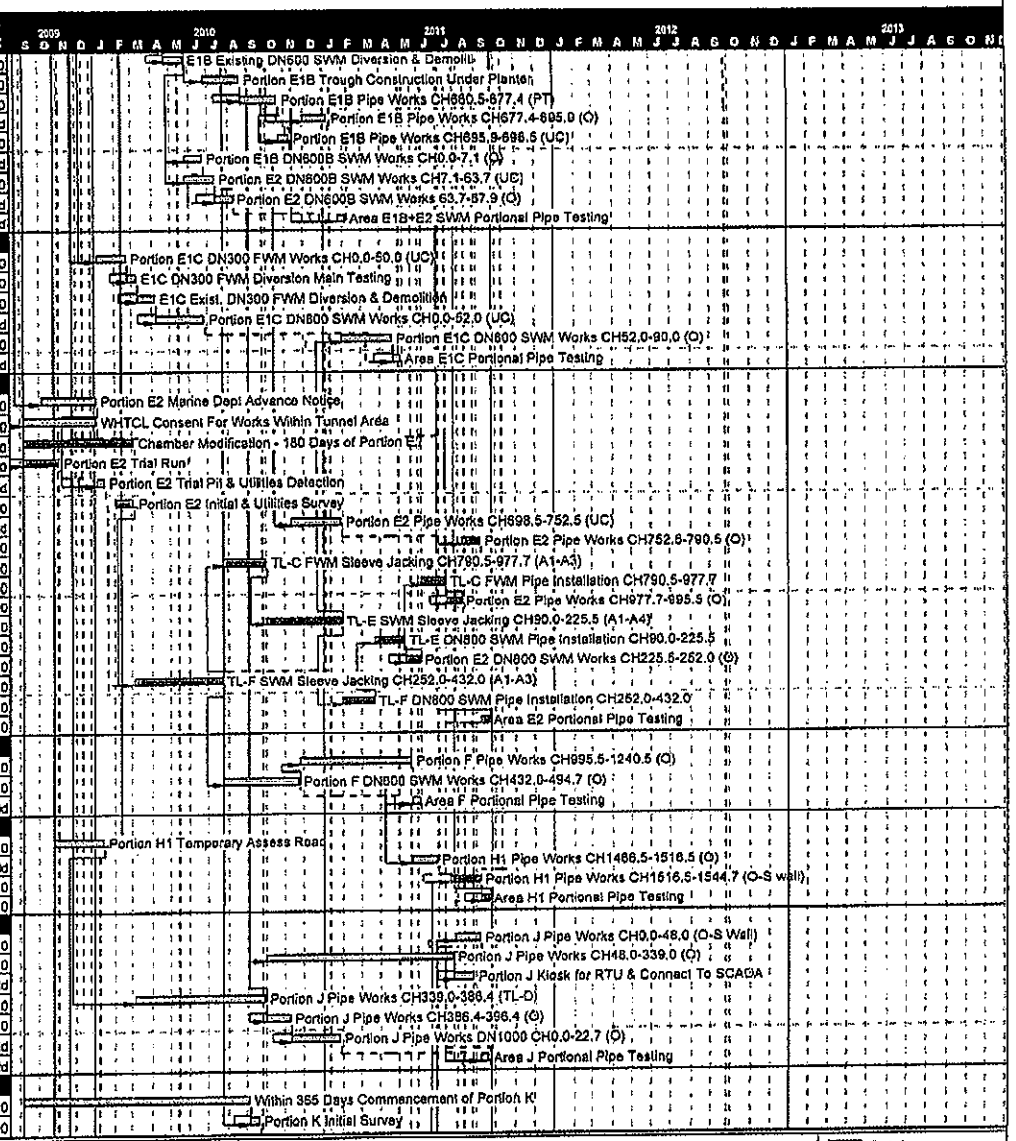
Wo Hing - Penta-Ocean Joint Venture

Master Programme Rev. B1

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Contract No.9WSD/08
Laying of Western Cross Habour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-4440	E1B Existing DN600 SWM Diversion & Demolition	30	25APR10	24MAY10	13NOV10	12DEC10	202d	0
S1-4445	Portion E1B Trough Construction Under Planter	60	24JUN10	22AUG10	02JAN11	02MAR11	192d	0
S1-4450	Portion E1B Pipe Works CH660.5-677.4 (PT)	60	23AUG10	21OCT10	03MAR11	01MAY11	192d	0
S1-4460	Portion E1B Pipe Works CH677.4-695.9 (O)	40	01DEC10	09JAN11	31JUL11	08SEP11	242d	15d
S1-4470	Portion E1B Pipe Works CH695.9-698.5 (UC)	20	22OCT10	10NOV10	02MAY11	21MAY11	192d	0
S1-4480	Portion E1B DN600B SWM Works CH0.0-7.1 (O)	30	25MAY10	23JUN10	02JAN11	31JAN11	222d	20d
S1-4490	Portion E2 DN600B SWM Works CH7.1-63.7 (UC)	50	25MAY10	15JUL10	13DEC10	31JAN11	202d	0
S1-4500	Portion E2 DN600B SWM Works 63.7-87.9 (O)	30	14JUL10	12AUG10	01FEB11	02MAR11	202d	10d
S1-4510	Area E1B+E2 SWM Portional Pipe Testing	14	25JAN11	07FEB11	09SEP11	22SEP11	227d	227d
Portion E1C + E1D								
S1-4710	Portion E1C DN300 FWM Works CH0.0-50.0 (UC)	50	05JAN10	23FEB10	29DEC10	18FEB11	358d	0
S1-4720	E1C DN300 FWM Diversion Main Testing	14	24FEB10	09MAR10	17FEB11	02MAR11	358d	0
S1-4730	E1C Exist. DN300 FWM Diversion & Demolition	30	10MAR10	08APR10	03MAR11	01APR11	358d	0
S1-4740	Portion E1C DN600 SWM Works CH0.0-52.0 (UC)	80	09APR10	27JUN10	02APR11	20JUN11	358d	218d
S1-4750	Portion E1C DN600 SWM Works CH52.0-90.0 (O)	80	01FEB11	21APR11	21JUN11	08SEP11	140d	0
S1-4760	Area E1C Portional Pipe Testing	14	22APR11	05MAY11	09SEP11	22SEP11	140d	140d
Portion E2								
S1-5010	Portion E2 Marine Dept Advance Notice	90	07OCT09	04JAN10	21NOV09	18FEB10	45d	0
S1-5020	WHTCL Consent For Works Within Tunnel Area	120	07SEP09	04JAN10	22OCT09	18FEB10	45d	0
S1-5030	Chamber Modification - 180 Days of Portion E2	180	07SEP09	05MAR10	07SEP09	05MAR10	0	0
S1-5040	Portion E2 Trial Run	60	07SEP09	05NOV09*	07SEP09	05NOV09*	0	0
S1-5050	Portion E2 Trial Pit & Utilities Detection	15	05JAN10	19JAN10	19FEB10	05MAR10	45d	45d
S1-5060	Portion E2 Initial & Utilities Survey	30	04FEB10	05MAR10	04FEB10	05MAR10	0	0
S1-5070	Portion E2 Pipe Works CH698.5-752.5 (UC)	60	11NOV10	26JAN11	22MAY11	09AUG11	192d	192d
S1-5080	Portion E2 Pipe Works CH752.5-790.5 (O)	30	10AUG11	06SEP11	10AUG11	06SEP11	0	0
S1-5090	TL-C FWM Sleeve Jacking CH790.5-977.7 (A1-A3)	70	26JUL10	03OCT10	26JUL10	03OCT10	0	0
S1-5095	TL-C FWM Pipe Installation CH790.5-977.7	40	09JUN11	15JUL11	09JUN11	15JUL11	0	0
S1-5100	Portion E2 Pipe Works CH977.7-995.5 (O)	25	16JUL11	09AUG11	16JUL11	09AUG11	0	0
S1-5110	TL-E SWM Sleeve Jacking CH90.0-225.5 (A1-A4)	120	04OCT10	31JAN11	04OCT10	31JAN11	0	0
S1-5115	TL-E DN800 SWM Pipe Installation CH90.0-225.5	50	23MAR11	11MAY11	23MAR11	11MAY11	0	0
S1-5120	Portion E2 DN800 SWM Works CH225.5-252.0 (O)	25	12MAY11	05JUN11	12MAY11	05JUN11	0	0
S1-5130	TL-F SWM Sleeve Jacking CH252.0-432.0 (A1-A3)	142	08MAR10	25JUL10	08MAR10	25JUL10	0	0
S1-5135	TL-F DN800 SWM Pipe Installation CH252.0-432.0	50	01FEB11	22MAR11	01FEB11	22MAR11	0	0
S1-5140	Area E2 Portional Pipe Testing	14	09SEP11	22SEP11	09SEP11	22SEP11	0	0
Portion F								
S1-6010	Portion F Pipe Works CH995.5-1240.5 (O)	180	23NOV10	21MAY11	13DEC10	10JUN11	20d	0
S1-6020	Portion F DN800 SWM Works CH432.0-494.7 (O)	120	26JUL10	22NOV10	15AUG10	12DEC10	20d	0
S1-6030	Area F Portional Pipe Testing	14	22MAY11	04JUN11	09SEP11	22SEP11	110d	110d
Portion H1								
S1-7010	Portion H1 Temporary Assess Road	60	27OCT09	14JAN10	31OCT09	18JAN10	4d	0
S1-7020	Portion H1 Pipe Works CH1466.5-1516.5 (O)	40	22MAY11	30JUN11	11JUN11	20JUL11	20d	20d
S1-7030	Portion H1 Pipe Works CH1516.5-1544.7 (O-S wall)	50	21JUL11	08SEP11	21JUL11	08SEP11	0	0
S1-7040	Area H1 Portional Pipe Testing	14	09SEP11	22SEP11	09SEP11	22SEP11	0	0
Portion J								
S1-8010	Portion J Pipe Works CH0.0-48.0 (O-S Wall)	40	29JUL11	06SEP11	31JUL11	08SEP11	2d	0
S1-8020	Portion J Pipe Works CH48.0-339.0 (O)	300	01OCT10	27JUL11	04OCT10	30JUL11	3d	0
S1-8030	Portion J Kiosk for RTU & Connect To SCADA	30	28JUL11	26AUG11	10AUG11	08SEP11	13d	11d
S1-8040	Portion J Pipe Works CH339.0-386.4 (TL-D)	209	06MAR10	30SEP10	09MAR10	03OCT10	3d	0
S1-8050	Portion J Pipe Works CH386.4-396.4 (O)	40	01OCT10	09NOV10	12MAY11	20JUN11	223d	0
S1-8060	Portion J Pipe Works DN1000 CH0.0-22.7 (O)	60	10NOV10	28JAN11	21JUN11	08SEP11	223d	221d
S1-8070	Area J Portional Pipe Testing	14	07SEP11	20SEP11	09SEP11	22SEP11	2d	2d
Portion K								
S1-9010	Within 365 Days Commencement of Portion K	365	07SEP09	06SEP10	02NOV09	01NOV10	56d	0
S1-9020	Portion K Initial Survey	15	07SEP10	21SEP10	02NOV10	16NOV10	56d	0



Start date	07SEP09
Finish date	05NOV12
Data date	07SEP09
Run date	02NOV09
Page number	2A
© Primavera Systems, Inc.	

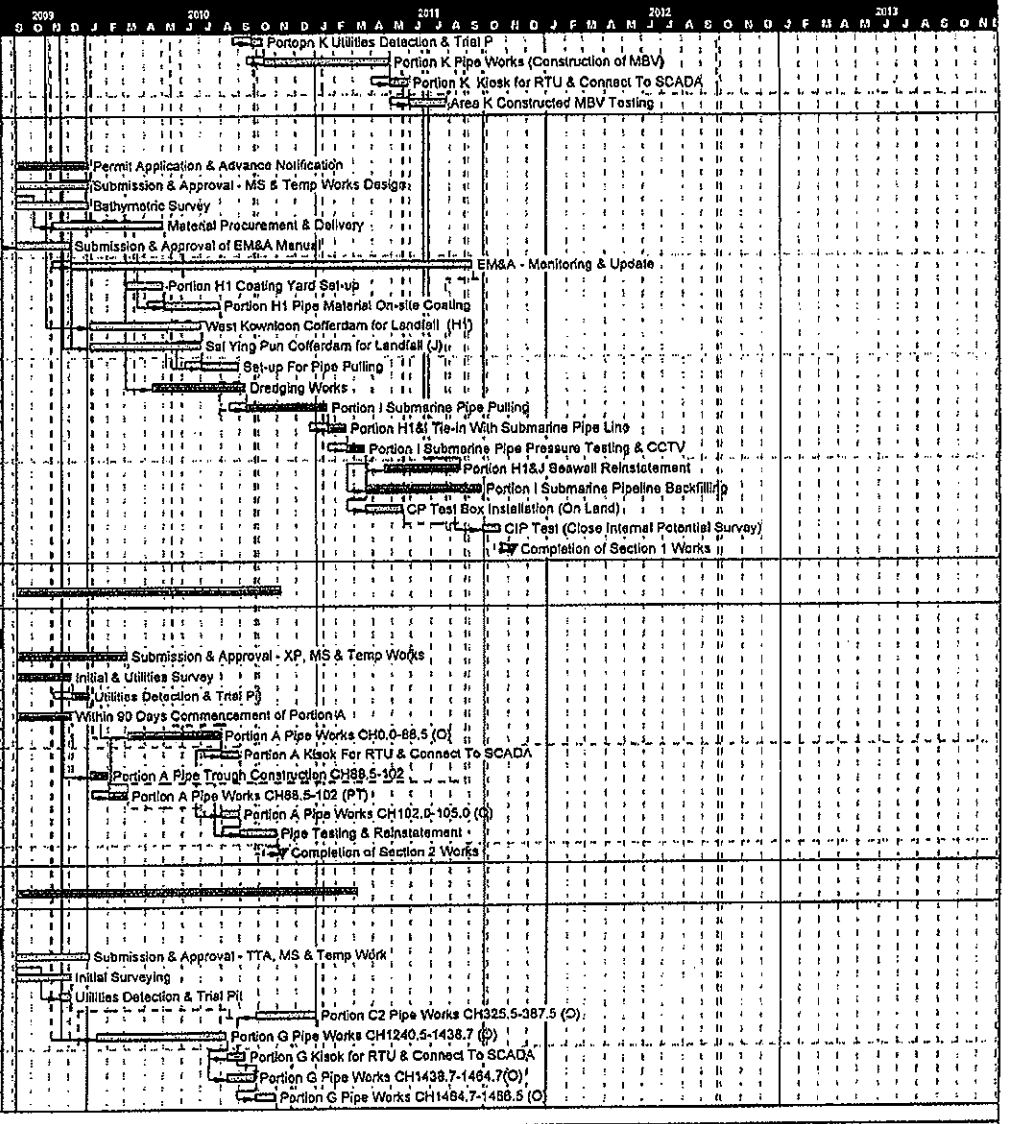
Wo Hing - Penta-Ocean Joint Venture

Master Programme Rev. B1

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Contract No.9/WSD/08
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S1-9030	Portopn K Utilities Detection & Trial Pit	20	22SEP10	11OCT10	17NOV10	08DEC10	56d	0
S1-9040	Portion K Pipe Works (Construction of MBV)	200	12OCT10	29APR11	07DEC10	24JUN11	56d	0
S1-9050	Portion K Kiosk for RTU & Connect To SCADA	30	30APR11	29MAY11	25JUN11	24JUL11	56d	0
S1-9060	Area K Constructed MBV Testing	60	30MAY11	28JUL11	25JUL11	22SEP11	56d	56d
Marine Works (Portion I)								
S1-M1000	Permit Application & Advance Notification	120	07SEP09	04JAN10	07SEP09	04JAN10	0	0
S1-M1010	Submission & Approval - MS & Temp Works Design	120	07SEP09	04JAN10	02OCT09	29JAN10	25d	0
S1-M1020	Bathymetric Survey	120	07SEP09	04JAN10	17SEP09	14JAN10	10d	0
S1-M1030	Material Procurement & Delivery	180	06NOV09	04MAY10	01DEC09	29MAY10	25d	0
S1-M1040	Submission & Approval of EM&A Manual	90	07SEP09	05DEC09	06OCT09	05JAN10	31d	0
S1-M1050	EM&A - Monitoring & Update	840	06DEC09	06SEP11	06JAN10	07OCT11	31d	15d
S1-M1060	Portion H1 Coating Yard Set-up	60	09MAR10	04MAY10	31MAR10	29MAY10	25d	0
S1-M1070	Portion H1 Pipe Material On-site Coating	90	05MAY10	02AUG10	30MAY10	27AUG10	25d	15d
S1-M1080	West Kowloon Cofferdam for Landfall (H1)	180	05JAN10	03JUL10	15JAN10	13JUL10	10d	0
S1-M1090	Sai Ying Pun Cofferdam for Landfall (J)	180	05JAN10	03JUL10	15JAN10	13JUL10	10d	0
S1-M2060	Set-up For Pipe Pulling	60	04JUL10	01SEP10	14JUL10	11SEP10	10d	10d
S1-M2070	Dredging Works	150	15APR10	11SEP10	15APR10	11SEP10	0	0
S1-M2080	Portion I Submarine Pipe Pulling	130	12SEP10	19JAN11	12SEP10	19JAN11	0	0
S1-M2090	Portion H1&I Tie-In With Submarine Pipe Line	30	20JAN11	18FEB11	20JAN11	18FEB11	0	0
S1-M2100	Portion I Submarine Pipe Pressure Testing & CCTV	30	19FEB11	20MAR11	18FEB11	20MAR11	0	0
S1-M2110	Portion H1&J Seawall Reinstatement	120	20APR11	17AUG11	20APR11	17AUG11	0	0
S1-M2120	Portion I Submarine Pipeline Backfilling	165	21MAR11	21SEP11	21MAR11	21SEP11	0	0
S1-M2130	CP Test Box Installation (On Land)	60	21MAR11	19MAY11	25JUL11	22SEP11	125d	125d
S1-M2140	CIP Test (Close Internal Potential Survey)	30	22SEP11	21OCT11	06OCT11	06NOV11	15d	16d
S1-M2150	Completion of Section 1 Works	0		06NOV11*		06NOV11*	0	0
Section 2								
		428	07SEP09	06NOV10	07SEP09	06NOV10	0	0
Land Works								
S2-1010	Submission & Approval - XP, MS & Temp Works	180	07SEP09	05MAR10	07SEP09	05MAR10	0	0
S2-1020	Initial & Utilities Survey	90	07SEP09	05DEC09	07SEP09	05DEC09	0	0
S2-1030	Utilities Detection & Trial Pit	30	06DEC09	04JAN10	06DEC09	04JAN10	0	0
S2-1040	Within 90 Days Commencement of Portion A	90	07SEP09	05DEC09*	07SEP09	06DEC09*	0	0
S2-2010	Portion A Pipe Works CH0.0-88.5 (O)	150	06MAR10	02AUG10	06MAR10	02AUG10	0	0
S2-2020	Portion A Kiosk For RTU & Connect To SCADA	30	03AUG10	01SEP10	09AUG10	07SEP10	6d	0
S2-2030	Portion A Pipe Trough Construction CH88.5-102	30	05JAN10	03FEB10	05JAN10	03FEB10	0	0
S2-2040	Portion A Pipe Works CH88.5-102 (PT)	30	04FEB10	05MAR10	04FEB10	05MAR10	0	0
S2-2050	Portion A Pipe Works CH102.0-105.0 (O)	30	03AUG10	01SEP10	09AUG10	07SEP10	6d	0
S2-2060	Pipe Testing & Reinstatement	60	02SEP10	31OCT10	08SEP10	06NOV10	6d	6d
S2-3010	Completion of Section 2 Works	0		06NOV10*		06NOV10*	0	0
Section 4								
		549	07SEP09	09MAR11	21OCT09	09MAR11	0	0
Land Works								
S4-1010	Submission & Approval - TTA, MS & Temp Work	120	07SEP09	04JAN10	21OCT09	17FEB10	44d	0
S4-1020	Initial Surveying	90	07SEP09	05DEC09	21OCT09	18JAN10	44d	40d
S4-1030	Utilities Detection & Trial Pit	20	16NOV09	05DEC09	30DEC09	18JAN10	44d	40d
S4-2010	Portion C2 Pipe Works CH325.5-387.5 (O)	100	27SEP10	04JAN11	01OCT10	06JAN11	4d	0
S4-2020	Portion G Pipe Works CH1240.5-1438.7 (O)	210	15JAN10	12AUG10	19JAN10	16AUG10	4d	0
S4-2030	Portion G Kiosk for RTU & Connect To SCADA	30	13AUG10	11SEP10	08FEB11	09MAR11	179d	179d
S4-2040	Portion G Pipe Works CH1438.7-1464.7(O)	45	13AUG10	26SEP10	17AUG10	30SEP10	4d	0
S4-2050	Portion G Pipe Works CH1464.7-1486.5 (O)	35	27SEP10	31OCT10	05DEC10	08JAN11	69d	65d



Start date	07SEP09
Finish date	05NOV12
Data date	07SEP09
Run date	02NOV09
Page number	3A
© Primavera Systems, Inc.	

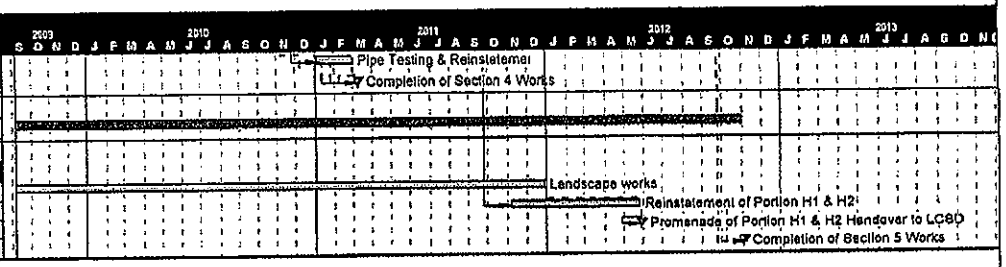
Wo Hing - Penta-Ocean Joint Venture

Master Programme Rev. B1

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Contract No.9/WSD/06
Laying of Western Cross Harbour Main & Associated Land Mains from West Kowloon to Sai Ying Pun

Act ID	Description	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Free Float
S4-3010	Pipe Testing & Reinstatement	60	05JAN11	05MAR11	09JAN11	09MAR11	4d	4d
S4-3020	Completion of Section 4 Works	0		09MAR11 *		09MAR11 *	0	0
Section 5								
		1158	07SEP09	05NOV12	14JUL10	05NOV12	0	0
Landscape Softworks and Establishment Works								
B9-9010	Landscape works	848	07SEP09	31DEC11	14JUL10	05NOV12	310d	310d
B9-9020	Reinstatement of Portion H1 & H2	203	07NOV11	27MAY12	17APR12	05NOV12	162d	0
B9-9030	Promenade of Portion H1 & H2 Handover to LCSD	0		27MAY12		05NOV12	162d	162d
B9-9300	Completion of Section 5 Works	0		05NOV12 *		05NOV12 *	0	0



Start date	07SEP09
Finish date	05NOV12
Data date	07SEP09
Run date	02NOV09
Page number	4A
© Primavera Systems, Inc.	

Wo Hing - Penta-Ocean Joint Venture

Master Programme Rev. B1

Early bar
Progress bar
Critical bar
Summary bar
Start milestone point
Finish milestone point

Appendix G

Implementation Schedule of Environmental Mitigation Measures (EMIS)

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	√			
▪ Any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading.	All areas	√			
▪ The working area of excavation should be sprayed with water immediately before, during and immediately after the operations so as to maintain the entire surface wet.	All areas	√			
▪ The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle	All areas	√			
▪ Where a site boundary adjoins a road, streets or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;.	All areas	√			
▪ The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	Site Egress				√
▪ Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	All haul roads	√			
▪ The portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials.	All areas	√			
▪ All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet.	All areas	√			
▪ Vehicle speed should be limited to 10 kph except on completed access roads.	All areas	√			
▪ Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	All areas	√			
▪ The public road around the site entrance should be kept clean and free from dust.	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	√			
▪ The constructions works should be scheduled to minimize noise nuisance. Concurrent noisy works should be carried out at different time slots or spread around the construction sites in order to help to reduce the cumulative noise effect produced in the construction process.	All areas	√			
▪ Noisy equipment and mobile plant shall always be site away from NSRs.	All areas	√			
▪ Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	All areas	√			
▪ Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	All areas	√			
▪ Mobile or movable noise barriers should be erected near to the construction plants to reduce the noise levels from stationary items of PME whenever practicable.	All areas	√			
▪ Quality Powered mechanical equipment (Quality PME), which are construction plants and equipments that are notably quieter, more environmental friendly and efficiently, recognized by the Noise Control Authority for the purpose of CNP application should be used to reduce the noise generated from the construction plants effectively. The Contractor shall note the required procedures involved in application of the QPME.	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Noise Impact					
▪ Well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	All areas	√			
▪ Air compressors and hand held breakers should have noise labels.	All areas	√			
▪ Compressors and generators should operate with door closed.	All areas	√			
▪ Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	All areas	√			
Water Quality					
Mitigation Measures for Dredging					
▪ Dredging should be undertaken using one grab dredger only with a maximum production rate of 4,000m^3 per day.	Marine	√			
▪ Deployment of frame type silt curtain should be fully enclose the grab while dredging works are in progress.	Marine		√ *		
▪ Deployment of silt screen should be at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress	Marine		√ *		
▪ Tight-closing grabs should be used to minimize the loss of sediment to suspension during dredging works. For dredging of any contaminated mud, closed watertight grabs must be used.	Marine	√			
▪ All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash	Marine	√			
▪ The decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard	Marine	√			
▪ Adequate free board shall be maintained on barges to ensure that decks are not washed by wave action.	Marine	√			
▪ All barges used for the transport of dredged materials should be fitted with tight bottom seals to prevent leakage of material during loading and transport	Marine	√			
▪ Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present in the water within the site or dumping grounds	Marine	√			
▪ Loading of barges should be controlled to prevent splashing of material into the surrounding waters. Barges should not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation	Marine	√			
▪ The speed of vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments	Marine	√			
Mitigation Measures for other Construction Activities					
▪ Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity should be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped	All areas	√			
▪ Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the storm runoff being directed into foul sewers	All areas	√			
▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads.	All areas				√
▪ An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process.	All areas				√
▪ The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains	All areas				√
▪ Fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour and Western Harbour WCZs	All areas	√			

Remark (*): Dredging work was suspended while the silt curtain / silt screen was repairing immediately.

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Water Quality					
Mitigation Measures for other Construction Activities					
▪ Portable chemical toilets should be used to handle construction workforce sewage prior to discharge to the existing trunk sewer. Sufficient numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers. The Contractor shall also be responsible for waste disposal and maintenance practices.	All areas	√			
▪ Construction site runoff should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the Victoria Harbour WCZ under the TM-DSS.	All areas	√			
▪ Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	All areas	√			
Waste Management					
C&D Materials					
▪ Excavated materials should be reused on-site as backfilling material and for landscaping works as far as practicable.	All areas				√
▪ C&D material generated from excavation works should be disposed of at public fill reception facilities for other beneficial uses.	All areas				√
▪ A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed	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	√			
Chemical Waste					
▪ Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately.	All areas	√			
▪ Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.	All areas	√			
▪ The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility.	All areas	√			
General Refuse					
▪ General refuse should be stored in enclosed bins or compaction units separate from C&D material.	All areas	√			
▪ A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material.	All areas	√			
▪ An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	All areas	√			
Marine Dredged Sediment (During transportation and disposal)					
▪ Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and dredgers before the vessel is moved	Marine	√			
▪ Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the EPD	Marine	√			
▪ Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.	Marine	√			
Good Site Practices					
▪ Nomination of an approved person, such as a 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	All areas	√			
▪ Provision of sufficient waste disposal points and regular collection of waste	All areas	√			

Environmental Protection Measures	Location	Implementation Status			
		Implemented	Partially implemented	Not implemented	Not Applicable
Waste Management					
Good Site Practices					
▪ 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	√			
▪ Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	All areas	√			
Waste Reduction Measures					
▪ Sort C&D material from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals	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	√			
▪ Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force	All areas	√			
▪ Proper storage and site practices to minimise the potential for damage or contamination of construction materials	All areas	√			
▪ Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste	All areas	√			
Marine Ecology					
▪ Use of one grab dredger only with a maximum production rate of 4,000m^3 per day for dredging.	Marine	√			
▪ Deployment of frame type silt curtain to fully enclose the grab while dredging works are in progress.	Marine		√ *		
▪ Deployment of silt screen at the sea water intake at Kowloon South Salt Water Pumping Station while dredging works are in progress.	Marine		√ *		
▪ Good site practices to avoid silt runoff from construction works associated with the construction of the submarine watermain.	Marine	√			
Good Site Practices					
▪ The Environmental Permit should be displaced conspicuously on site.	All areas	√			
▪ Construction noise permits should be posted at site entrance or available for site inspection.	All areas	√			
▪ Chemical storage area provided with lock and located on sealed areas.	All areas	√			
▪ All chemicals should be placed at the banded area with adequate band capacity (>110% of largest tank).	All areas		√		
▪ Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	√			
▪ All generators, fuel and oil storage are within bundle areas.	All areas	√			
▪ Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.	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	√			

Remark (*): Dredging work was suspended while the silt curtain / silt screen was repairing immediately.

Appendix H

Statistical Analysis of the Monitoring Parameters between Quarterly Mean and Ambient Mean

Statistical Analysis of the Trend of Dissolved Oxygen

t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	2025	6.2152	0.2397	0.0053
1.3 times of Ambient Mean (130% of Baseline Mean)	648	8.1835	0.2680	0.0105

Result:

Probability that two variances are equal (f-test) = 0.00018

Difference between means = 1.9683 (Std Dev = 0.3731 and SE = 0.0118)
(95% CI : 1.9683 < Diff < 1.9914)

t-value of difference = 166.821 (999 degrees of freedom)
P = 1 (>0.05)

Conclusion:

There is no statistically significant difference of Dissolved Oxygen between 1.3 times of ambient mean and quarterly mean.

Statistical Analysis of the Trend of Turbidity

t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	675	4.0952	0.9379	0.0361
1.3 times of Ambient Mean (130% of Baseline Mean)	216	6.7413	1.3077	0.0892

Result:

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

Difference between means = 2.6461 (Std Dev = 1.6327 and SE = 0.096)
(95% CI : 2.4579 < Diff < 2.8343)

t-value of difference = 27.557 (289 degrees of freedom)
P = 1 (>0.05)

Conclusion:

There is no statistically insignificant difference of Turbidity between 1.3 times of ambient mean and quarterly mean.

Statistical Analysis of the Trend of Suspended Solids

t-test

Group Name	N	Mean	Std Dev	SE
Quarterly Mean	675	8.1542	1.8637	0.0718
1.3 times of Ambient Mean (130% of Baseline Mean)	216	12.7839	2.4624	0.1679

Result:

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

Difference between means = 4.6297 (Std Dev =3.1455 and SE = 0.1823)
(95% CI : 4.2725 < Diff < 4.9869)

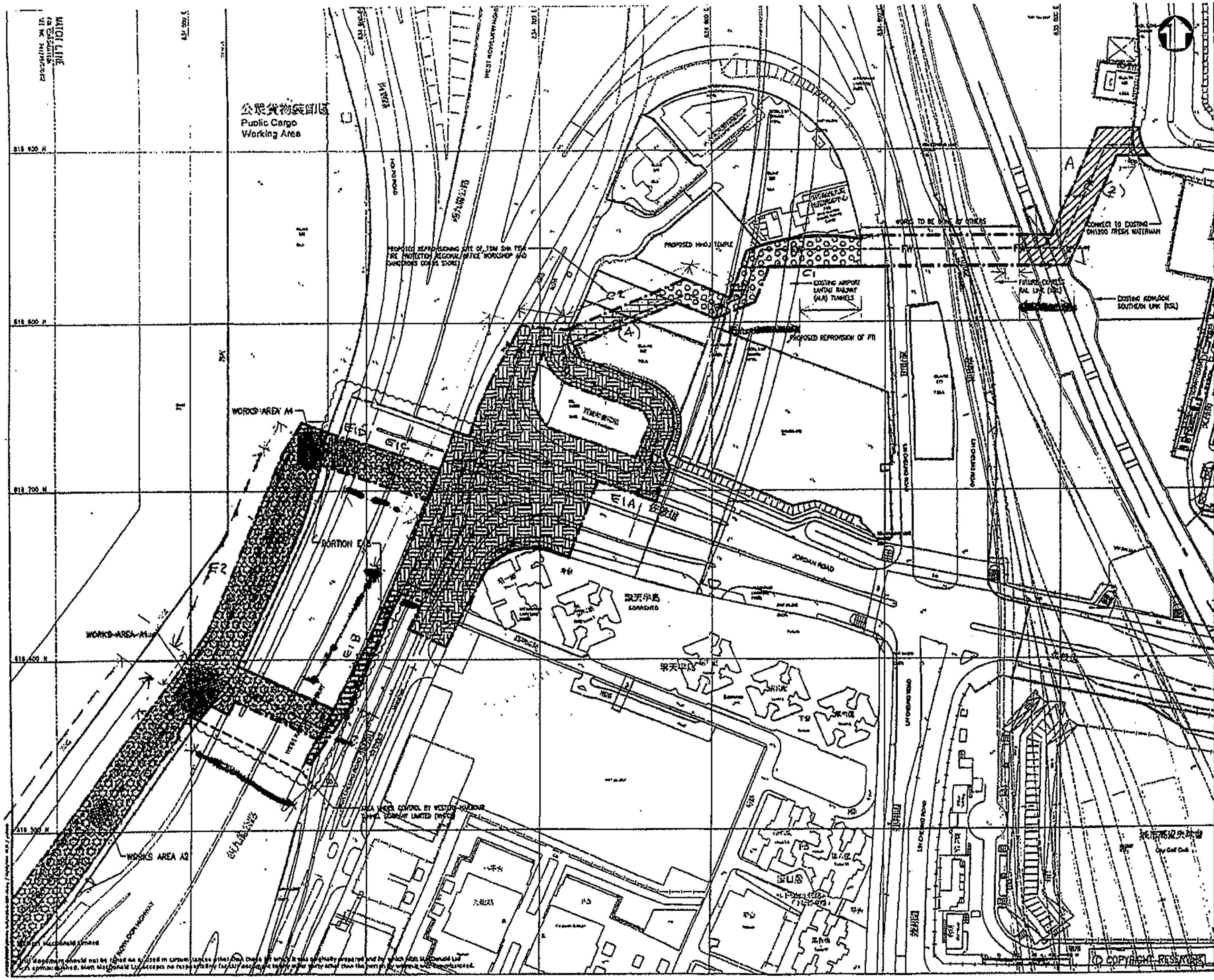
t-value of difference = 25.402 (297 degrees of freedom)
P = 1 (>0.05)

Conclusion:

There is no statistically insignificant difference of Suspended Solids between 1.3 times of ambient mean and quarterly mean.

Appendix I

Site General Layout plan



NOTES :

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0302 TO 0305.

LEGEND :

- PROPOSED FRESH WATERMAIN
- PROPOSED SALT WATERMAIN
- PROPOSED WORKS LIMIT
- GLA / STT
- PORTION A (Section 2)
- PORTION C1
- PORTION C2 (Section 4)
- PORTION E1A
- PORTION E1B
- PORTION E1C
- PORTION E1D
- PORTION E2
- PORTION F
- PORTION G (Section 4)
- PORTION H
- PORTION I
- PORTION J
- PORTION K
- PORTION L
- WORKS AREA WITHIN NEW YAU MA TEI PUBLIC CARGO WORKING AREA FORMING PART OF PORTION C2 OF THE SITE (TO BE FENCED OFF BY CONCRETE BARRIERS AS PART OF TEMPORARY TRAFFIC ARRANGEMENT BY THE CONTRACTOR, DETAIL REFER TO HYD STANDARD DRAWING NO. H2104)

Section 1
Section 2
Section 4

05	MAY 09		TENDER ADDENDUM NO. 6	
04	APR 09	PL	TENDER ADDENDUM NO. 5	KL
03	APR 09	PL	TENDER ADDENDUM NO. 4	KL
02	MAR 09	PL	TENDER ADDENDUM NO. 3	KL
01	FEB 09	PL	TENDER ADDENDUM NO. 2	KL
0	DEC 08	PL	ISSUE FOR TENDER	KL

Mott MacDonald

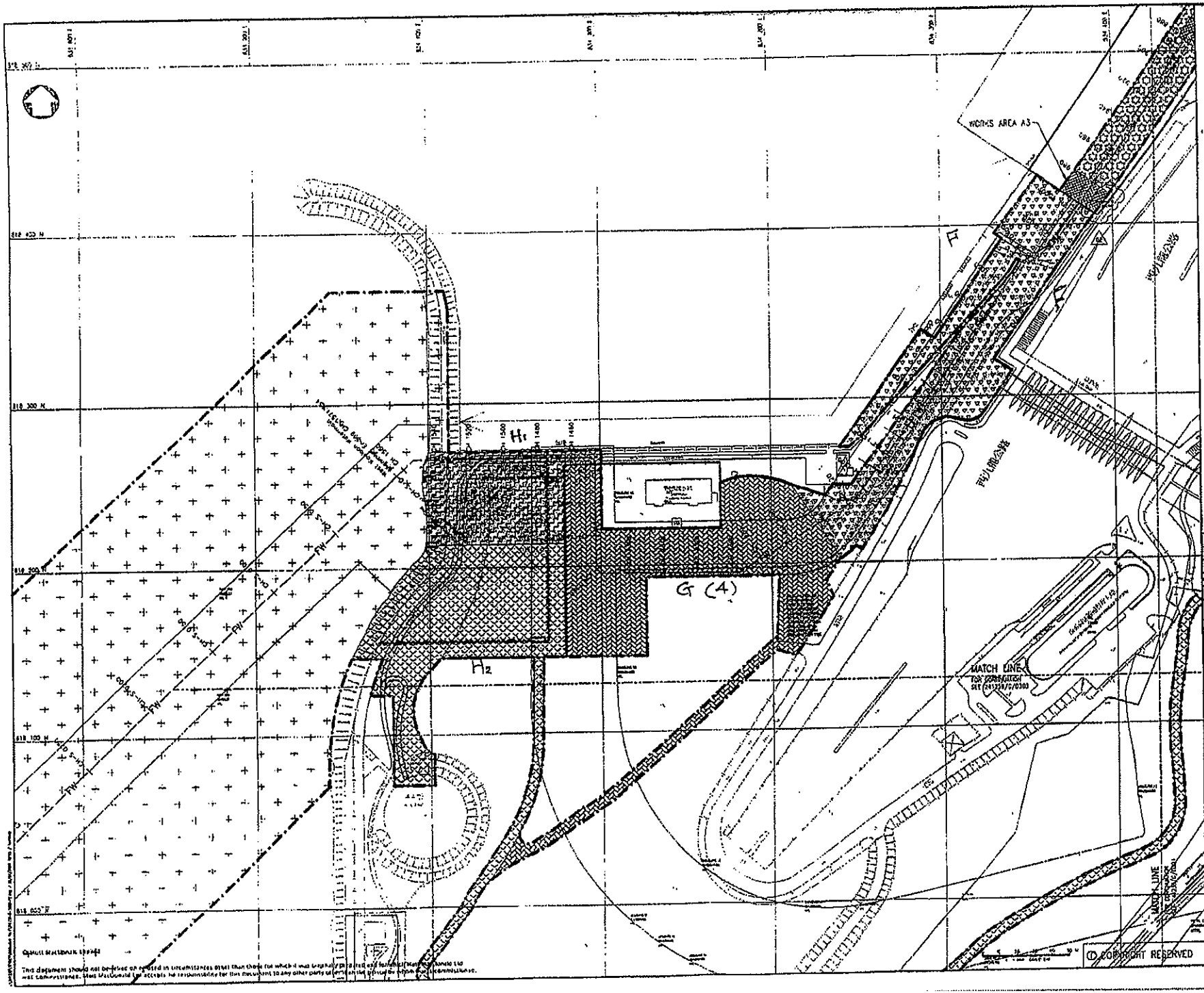
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

Contract No. 9/WSD/08

LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

POSSESSION OF SITE
(SHEET 1 OF 5)

Designed	KSC		Eng Chk	KL	
Drawn	PL		Coordination	SHC	
Dwg Chk	KL		Approved	SHC	
Scale 1:1000 @A1		Project 241239		[illegible] TEN	
Drawing No. 241239/G/0301				Rev 05	



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS 241239/G/0301 AND 0303 TO 0305.
2. THE LEGEND SHALL REFER TO DRAWING NO 241239/G/0301.

No	Date	By	Description	Chk'd	App'd
02	APR 09	PL	TENDER ADDENDUM NO. 4	RL	RHL
01	MAR 09	PL	TENDER ADDENDUM NO. 3	RL	SHC
0	DEC 08	PL	ISSUE FOR TENDER	RL	SHC

Mott MacDonald

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

Contract No. 9/WSD/08

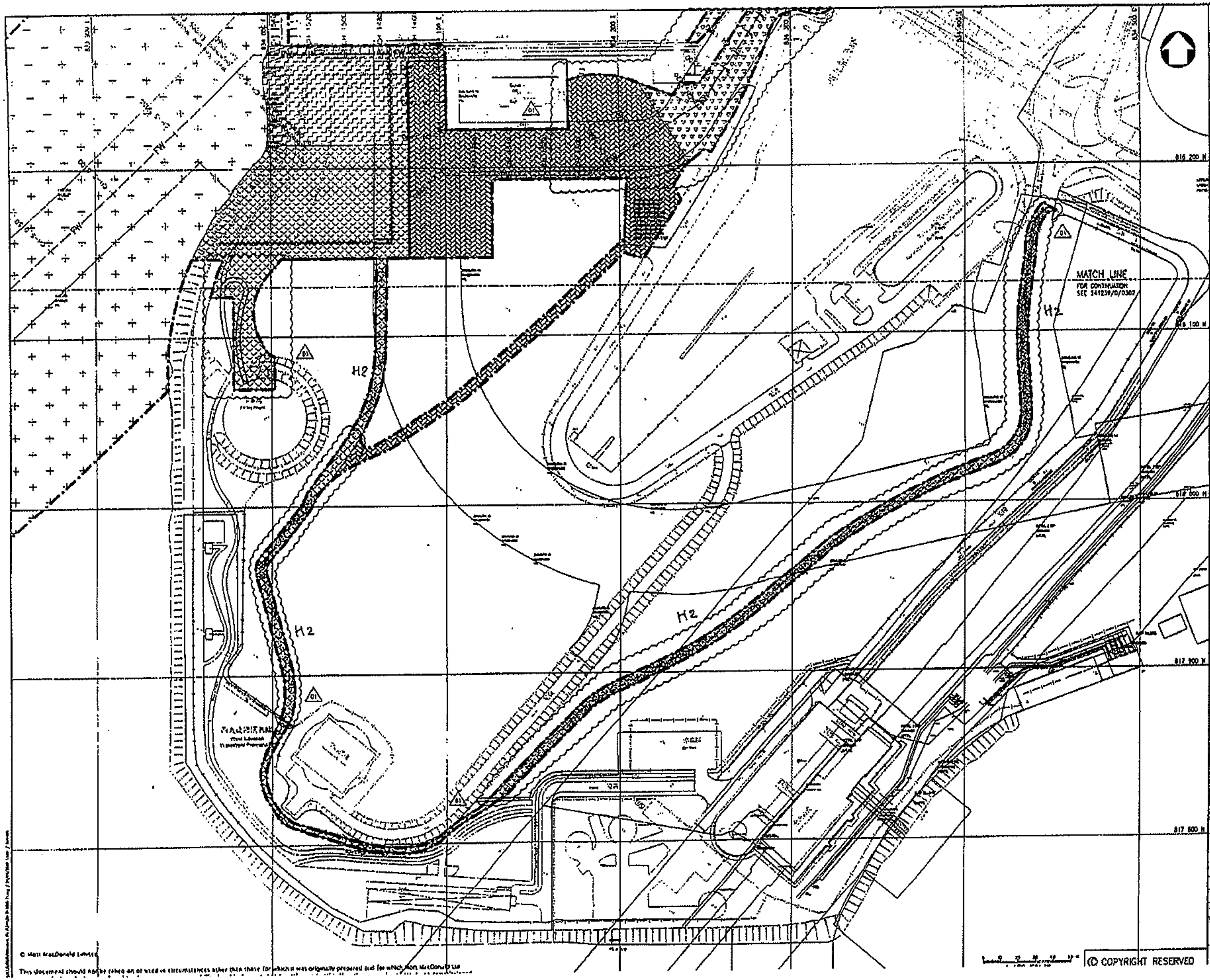
Project
LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

Title
POSSESSION OF SITE
(SHEET 2 OF 5)

Designed	KSC		Eng Chk'd	RL	
Drawn	PL		Construction	SHC	
Eng Chk'd	RL		Approved	SHC	

Scale: 1:1000 @ A1 | Project: 241239 | Version: TEN

Drawing No. 241239/G/0302 | Rev: 02



NOTES :

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0302 AND 0304 TO 0305.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

Rev	Date	Drawn	Description	Ch'k'd	App'd
01	MAR 09		TENDER ADDENDUM NO. 3		
0	DEC 08	PL	ISSUE FOR TENDER	KL	SHC

Mott MacDonald

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

Contract No. 9/WSD/08

Project: LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

Title: POSSESSION OF SITE (SHEET 3 OF 5)

Designed	KSC		Eng Chk	KL	
Drawn	PL		Coordination	SHC	
Dwg Chk	KL		Approved	SHC	

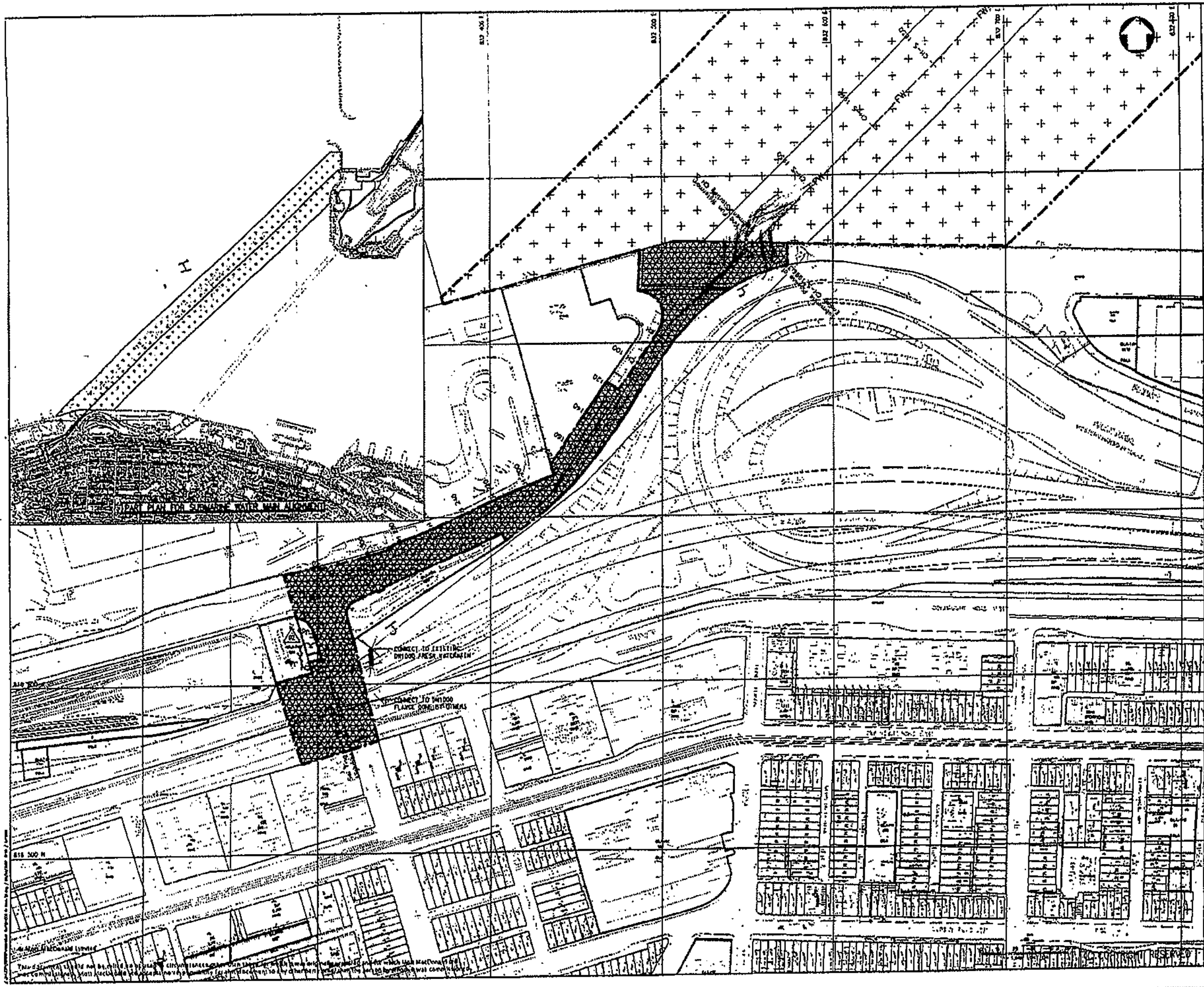
Scale: 1:1000 @A1

Project: 241239

Status: TEN

Drawing No. 241239/G/0303

Rev 01



NOTES :

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0303 AND 0305.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

Rev	Date	Drawn	Description	Ch'k'd	App'd
02	APR 09		TENDER ADDENDUM NO. 4		
01	MAR 09	PL	TENDER ADDENDUM NO. 3	CF	SHC
0	DEC 08	PL	ISSUE FOR TENDER	CF	SHC

Mott MacDonald

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

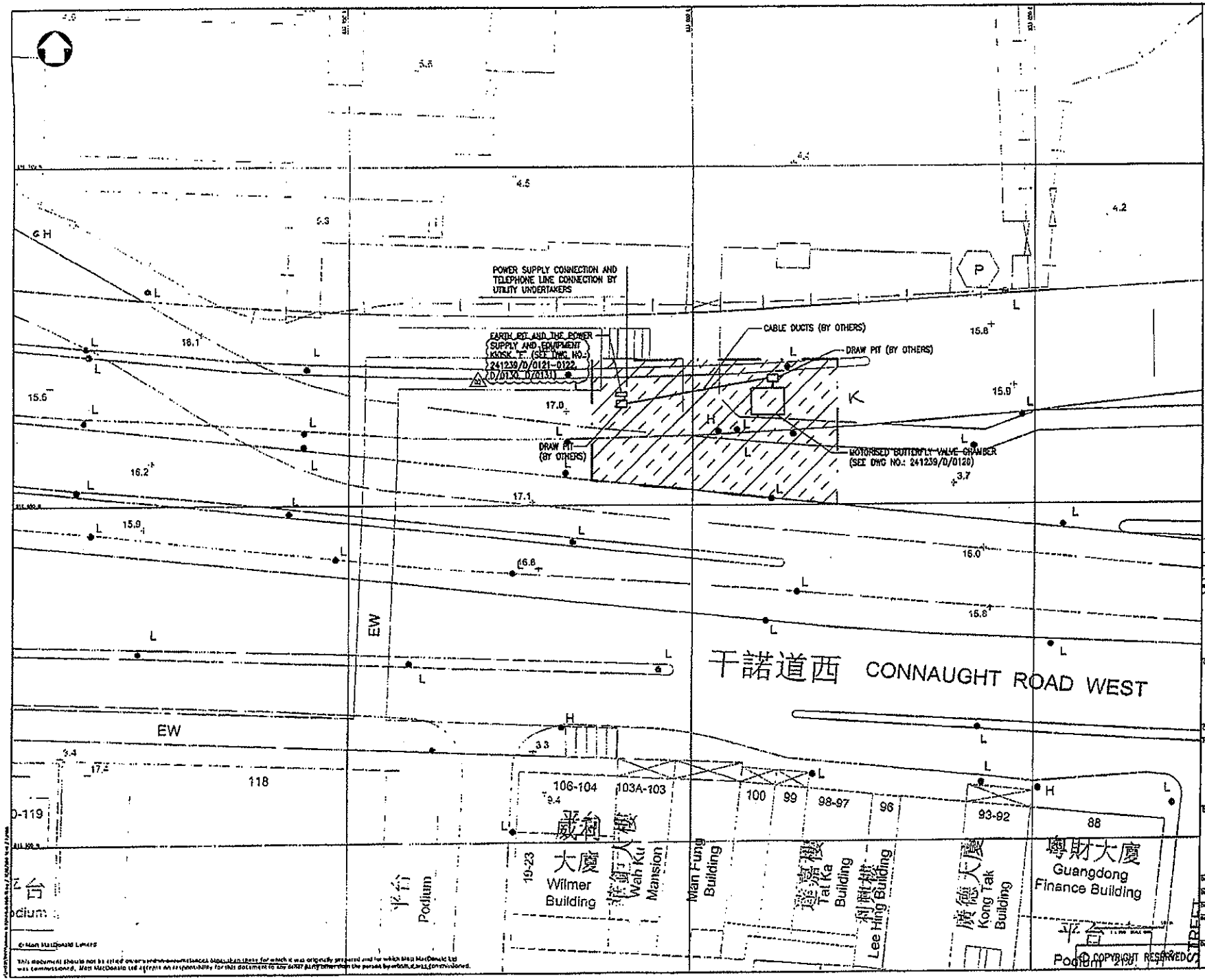
Contract No. 9/WSD/08

LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

POSSESSION OF SITE
(SHEET 4 OF 5)

Scale 1:1000 @A1 | Project 241239 | Status TEN

Drawing No. 241239/G/0304 | Rev 02



NOTES .

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 241239/G/0301 TO 0304.
2. THE LEGEND SHALL REFER TO DRAWING NO. 241239/G/0301.

03	FEB 09	JL	TENDER ADDENDUM NO. 2	JL	SHC
01	JAN 09	PL	TENDER ADDENDUM NO. 1	KL	SHC
0	DEC 08	PL	ISSUE FOR TENDER	KL	SHC
Rev	Date	Drawn	Description	Ch'k'd	App'd

Mott MacDonald

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

Contract No. 9/WSD/08

Project
LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

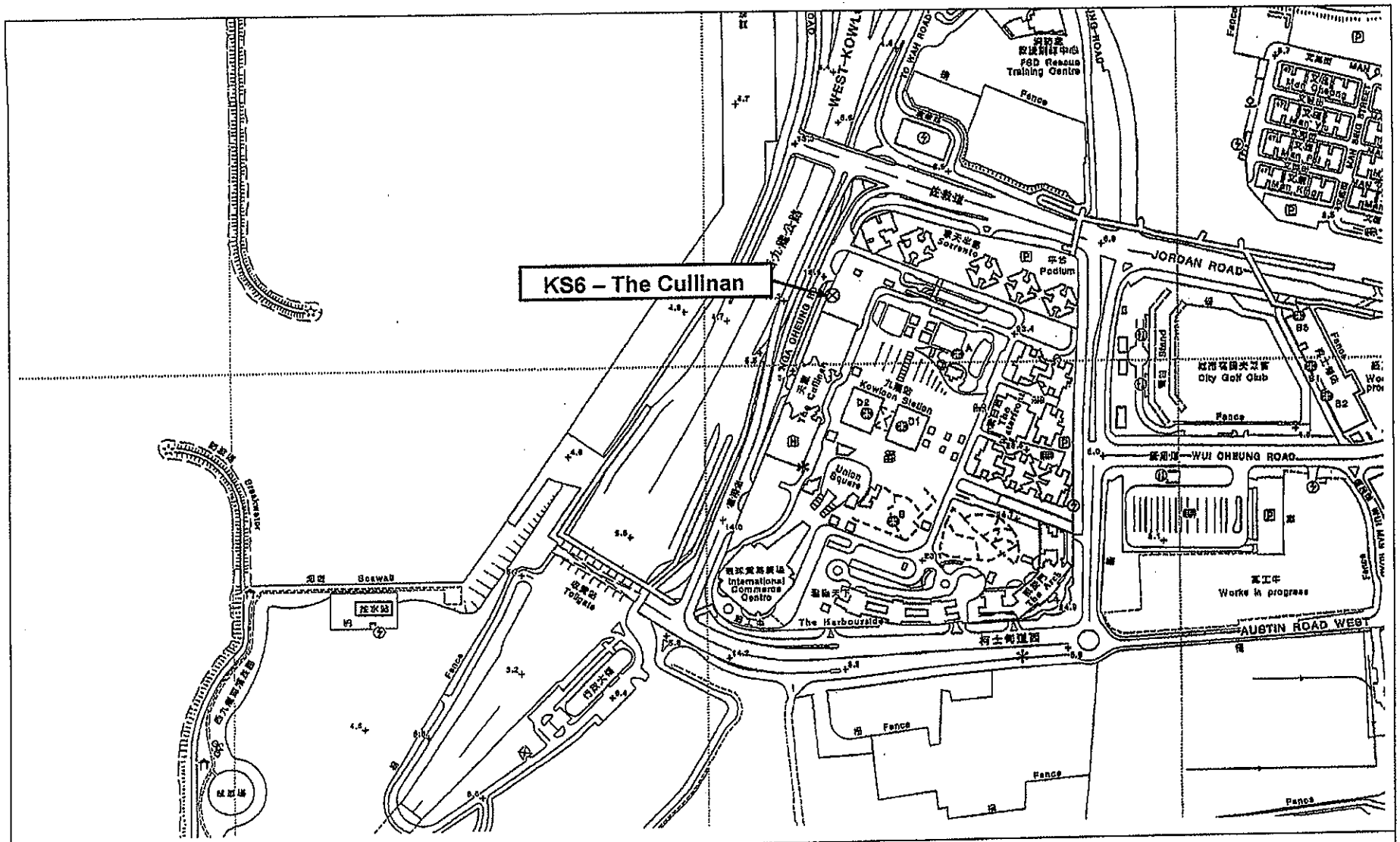
Title
POSSESSION OF SITE
(SHEET 5 OF 5)

Designed	ESC		Checked	KL	
Drawn	PL		Approved	SHC	
Dep'l Dir.	KL		Approved	SHC	

Scale 1:250 @A1 | Project 241239 | Status TEN

Drawing No. 241239/G/0305 | Rev 02

Figures

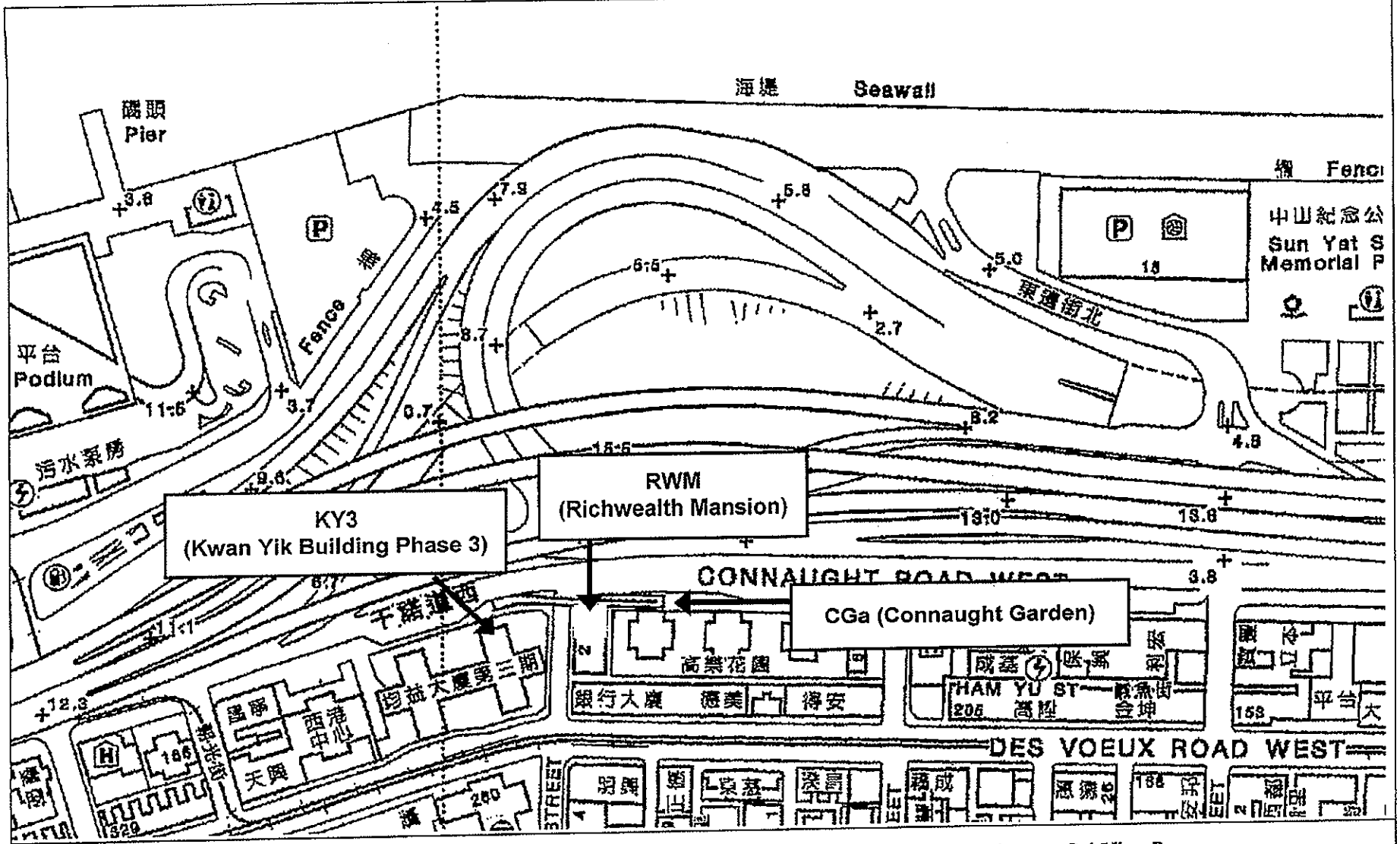


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 1

Location of Noise Monitoring Station at West Kowloon

ETS-TESTCONSULT LIMITED

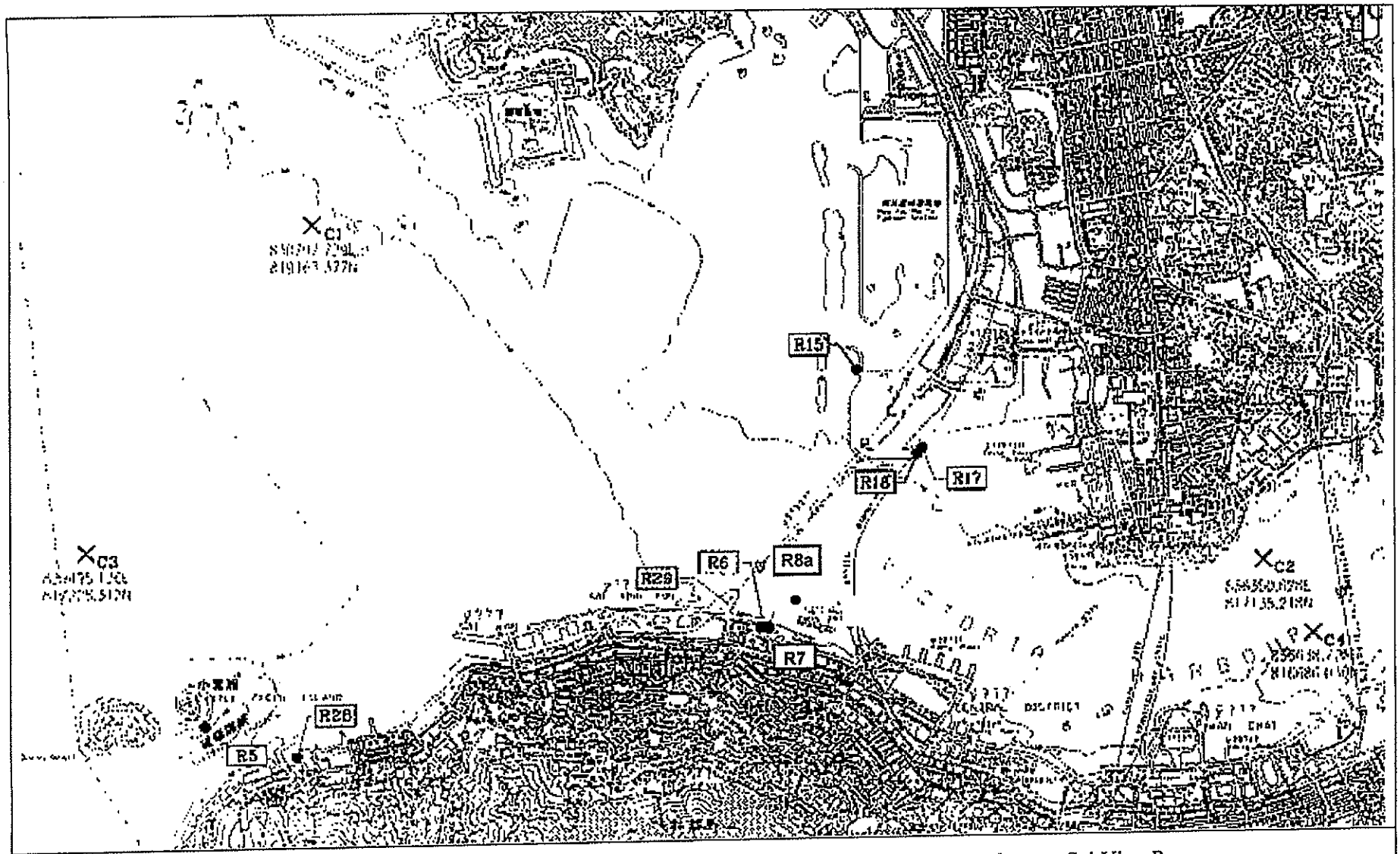


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 2

Locations of Noise Monitoring Stations at Sai Ying Pun

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

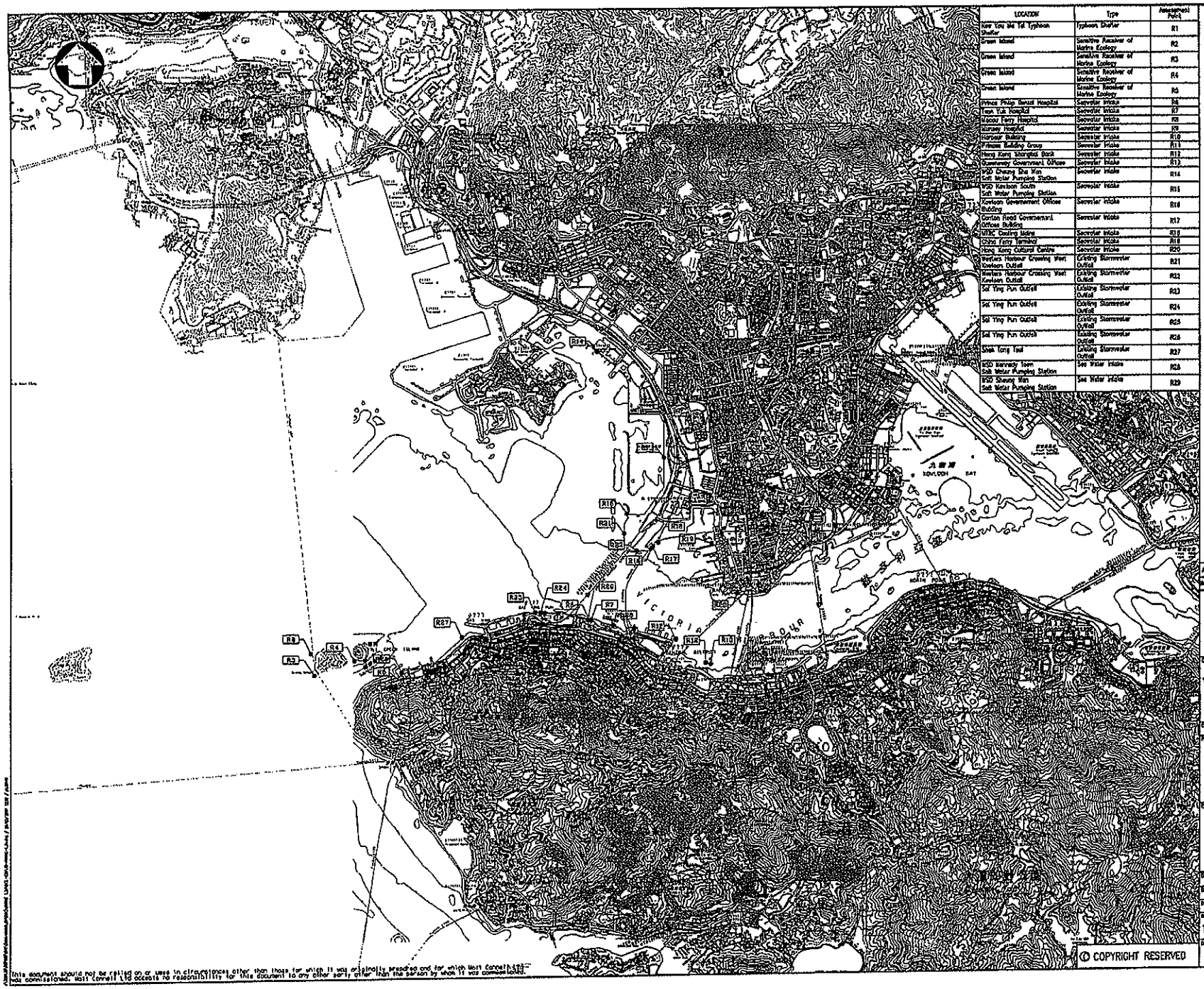


Contract No. 9/WSD/08 Laying of Western Cross Harbour Main and Associated Land Mains for West Kowloon to Sai Ying Pun

Figure 3

Locations of Water Quality Monitoring Stations

東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED



LOCATION	Type	Assessment Point
Sok Kwu Wan Tai Typhoon Shelter	Typhoon Shelter	R1
Green Island	Sensitive Receiver of Marine Ecology	R2
Green Island	Sensitive Receiver of Marine Ecology	R3
Green Island	Sensitive Receiver of Marine Ecology	R4
Green Island	Sensitive Receiver of Marine Ecology	R5
Prince Philip Dental Hospital	Seawater Intake	R6
Tsan Yuk Hospital	Seawater Intake	R7
Macau Ferry Terminal	Seawater Intake	R8
Island Hospital	Seawater Intake	R9
Harbour Building	Seawater Intake	R10
Chinese Building Group	Seawater Intake	R11
Hong Kong Shangrila Hotel	Seawater Intake	R12
Supernary Government Offices	Seawater Intake	R13
WSD Sheung Sha Wan Salt Water Pumping Station	Seawater Intake	R14
WSD Kowloon South Salt Water Pumping Station	Seawater Intake	R15
Kowloon Government Offices Building	Seawater Intake	R16
Canton Road Governmental Offices Building	Seawater Intake	R17
MTRC Cooling Mains	Seawater Intake	R18
China Ferry Terminal	Seawater Intake	R19
Hong Kong Cultural Centre	Seawater Intake	R20
Western Harbour Crossing West Kowloon Outfall	Existing Stormwater Outfall	R21
Western Harbour Crossing West Kowloon Outfall	Existing Stormwater Outfall	R22
Sai Ying Pun Outfall	Existing Stormwater Outfall	R23
Sai Ying Pun Outfall	Existing Stormwater Outfall	R24
Sai Ying Pun Outfall	Existing Stormwater Outfall	R25
Sai Ying Pun Outfall	Existing Stormwater Outfall	R26
Shek Tong Tsui	Existing Stormwater Outfall	R27
WSD Kennedy Town Salt Water Pumping Station	Sea Water Intake	R28
WSD Sheung Wan Salt Water Pumping Station	Sea Water Intake	R29

A	06/06	LYK	PRELIMINARY
Rev	Date	Drawn	Description

Mott Connell Limited
18/F Hopewell Centre
183 Queen's Road East
Hong Kong
Tel 2828 5757
Fax 2827 2062
Web www.mottmac.com

Client

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION WATER SUPPLIES DEPARTMENT

Contract No. CE42/2005(WS)

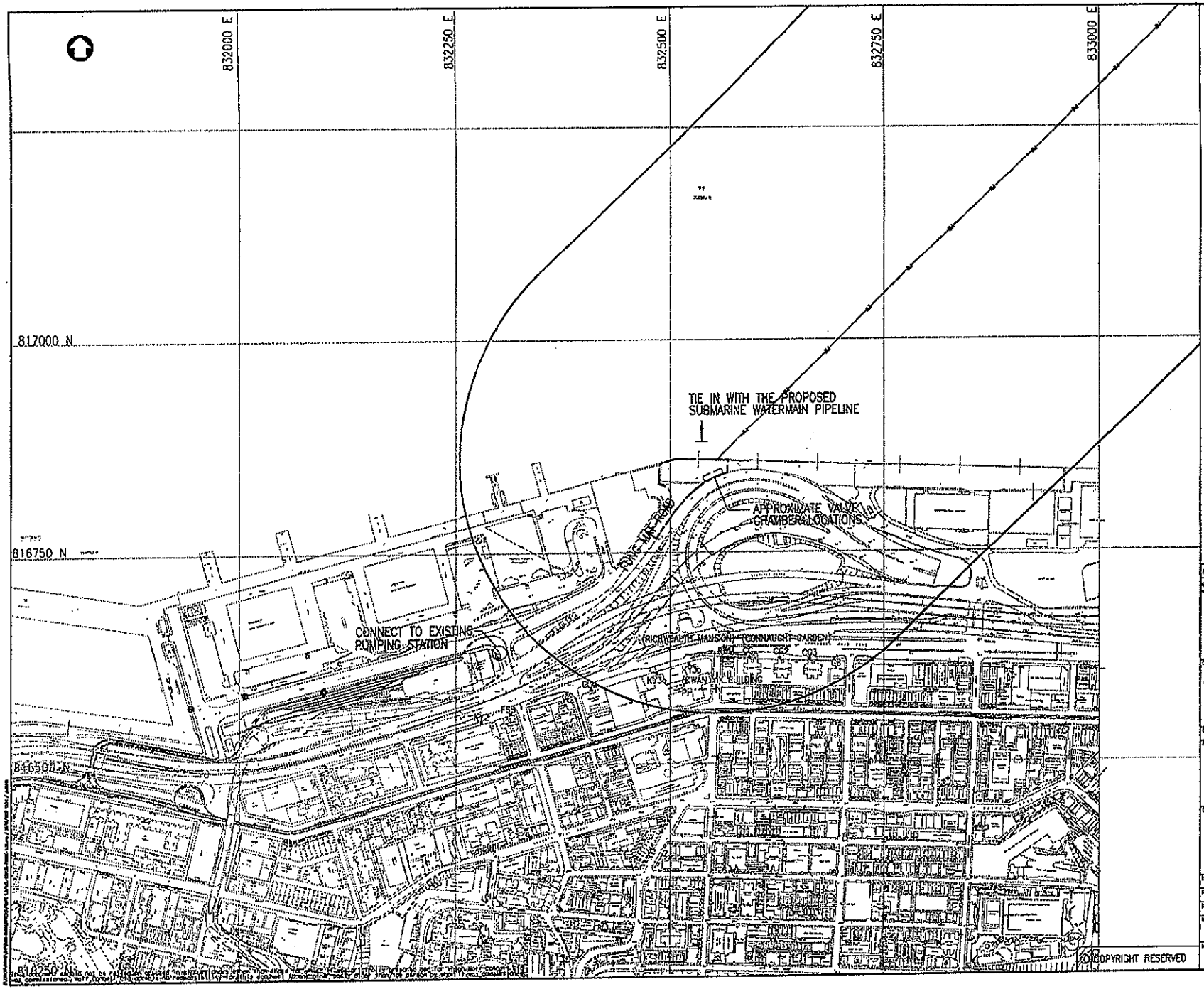
Project

LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN -- INVESTIGATION

Title

LOCATIONS OF WATER SENSITIVE RECEIVERS AND STORMWATER OUTFALLS AT WESTERN HARBOUR

Designed			Eng Chk.		
Drawn	LYK		Checked		
Eng Chk.			Approved		
Scale		Project	228130		Status
1 : 25000@A1		CAD File			
Drawing No.					Rev
FIGURE 1.2a					A



Mott Connell

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
WATER SUPPLIES DEPARTMENT

Contract No. CE42/2005(WS)

LAYING OF WESTERN CROSS HARBOUR MAIN AND ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN – INVESTIGATION

LOCATIONS OF NOISE SENSITIVE RECEIVERS IN SAI YING PUN

1 : 20000@A1

FIGURE 1.2b

A