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Report No.: 0394/13/ED/0205B

Quarterly EM&A Report

August - October 2014

Client : China International Water & Electric Corporation

Project: Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel – CV/2013/04

Report No.: 0394/13/ED/0205B

Project Proponent:

Civil Engineering & Development Department
101 Princess Margaret Road,
Homantin,
Kowloon, Hong Kong.

Prepared by: Vincent Chan

Reviewed by: Arthur Cheng

Certified by: _____
Colin Yung
Environmental Team Leader for
MateriaLab Consultants Limited

ENVIRON

Ref.: CEDDWKTBEM00_0_0154L.15 3 February 2015

Mott MacDonald Hong Kong Ltd. By Post and Fax (2419 6218)
20/F, AIA Kowloon Tower,
Landmark East,
100 How Ming Street,
Kwun Tong, Kowloon

Attention: Ir Chau T C, Felix, Engineer's Representative

Dear Ir Chau,

Re: Agreement No. CE 63/2008 (CE)
Dredging Works in Kwai Tsing Container Basin and its Approach Channel – Investigation, Design and Construction

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Verification of Quarterly EM&A Report for August to October 2014

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring & Audit Report for August to October 2014 (ET's Report. No. 0394/13/ED/0205B) received by e-mail on 30 January 2015.

We write to verify the captioned report in accordance with Section 12.4 iii of EM&A Manual (AEIAR-156/2010).

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

Yours sincerely,
For and on behalf of
ENVIRON Hong Kong Limited

Y. H. Hui
Independent Environmental Checker

c.c.	MMHK	Mr. C M Howley	2827 1823 (by fax)
	MateriaLab	Mr. Colin Yung	2450 6138 (by fax)
	CIW&E	Mr. Lam Wai-hung	2419 6028 (by fax)

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EXECUTIVE SUMMARY

i. This is the Second Quarterly Environmental Monitoring Audit (EM&A) Report – August - October 2014 for Contract No. CV/2013/04 – Dredging Works in Kwai Tsing and its Approach Channel (CE63/2008 – Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel). The dredging works commenced on 23 April 2014. This report presents the environmental monitoring and audit works conducted from 23 July 2014 to 22 October 2014.

ii. Construction Activities for the Reporting Period
During this reporting period, the principal work activities included:

August 2014	September 2014	October 2014
• Dredging at Portion D / Zone 13A in EP • Dredging at Portion A / Zone 4A in EP	• Dredging at Portion D / Zone 13A in EP • Dredging at Portion A / Zone 1B, Zone 3B, Zone 4A and Zone 4B in EP • Dredging at Portion B / Zone 6B and Zone 6D in EP	• Dredging at Portion A / Zone 1A, Zone 1B, Zone 3A, Zone 3B and Zone 4A in EP • Dredging at Portion B / Zone 5A, Zone 5B, Zone 6A, Zone 6B, Zone 6C and Zone 6D in EP • Dredging at Portion D / Zone 13A in EP • Dredging at Portion E / Zone 13B in EP

iii. Water Quality Monitoring
Routine impact water quality monitoring at 22 designated monitoring stations namely C1, C2, C3, G1, G2, G3, G4, G5, G6, SR1, SR2, SR3, SR4, SR5, SR6, SR7, SR8, SR9, SR10, SR11, SR12 and SR13 were conducted during the reporting period. Exceedances of DO, Turbidity, Suspended Solids and TIN (in-situ & lab) were recorded at various monitoring stations, detail of exceedance are summarized in **Table I and II**. However, investigation indicated these exceedances were not related to the Project works.

Table I Summary of Water Quality Exceedances – Routine Impact Monitoring (In-situ)

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	1	0	0	0	0	0	-	-	1	0
SR2	Action	1	2	3	1	1	1	0	0	0	0	-	-	5	4
	Limit	28	23	28	30	1	1	0	0	0	0	-	-	57	54
SR3	Action	1	2	3	1	1	3	0	0	0	0	-	-	5	6
	Limit	27	23	29	29	1	1	0	0	0	0	-	-	57	53
SR4	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR5	Action	1	0	0	0	3	3	-	-	-	-	1	0	5	3
	Limit	23	23	27	27	1	3	-	-	-	-	36	36	87	89
SR6	Action	0	0	0	0	14	13	0	0	0	0	-	-	14	13
	Limit	32	34	38	38	7	8	0	0	0	0	-	-	77	80
SR7	Action	1	0	0	0	11	10	0	0	0	0	-	-	12	10
	Limit	26	27	34	33	0	0	0	0	0	0	-	-	60	60

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
SR8	Action	1	2	0	0	10	12	0	0	0	0	-	-	11	14
	Limit	24	25	35	38	5	4	0	0	0	0	-	-	64	67
SR9	Action	3	0	1	2	7	11	-	-	-	-	3	8	14	21
	Limit	13	17	33	33	11	5	-	-	-	-	18	17	75	72
SR10	Action	5	3	0	1	12	11	-	-	-	-	9	8	26	23
	Limit	24	23	34	34	1	3	-	-	-	-	21	17	80	77
SR11	Action	0	0	0	1	6	6	-	-	-	-	12	8	18	15
	Limit	24	23	38	37	1	2	-	-	-	-	11	13	74	75
SR12	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR13	Action	0	1	1	1	0	0	-	-	-	-	-	-	1	2
	Limit	35	33	37	36	0	0	-	-	-	-	-	-	72	69
Total	Action	13	10	8	7	65	70	0	0	0	0	25	24	222	
	Limit	256	251	333	335	29	27	0	0	0	0	86	83	1400	

Table II Summary of Water Quality Exceedances – Routine Impact Monitoring (Laboratory Analysis)

Station	Exceedance Level	Suspended Solids		BOD_5		*E. coli*		NH_3-N		UIA		Synthetic Detergent		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	8	7	0	0	0	0	0	0	0	0	0	0	-	-	7	7
SR2	Action	1	2	-	-	-	-	0	0	0	0	-	-	-	-	1	2
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR3	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR4	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	1	4	0	0	0	0	0	0	0	0	0	0	-	-	1	4
SR5	Action	1	2	-	-	-	-	0	0	0	0	-	-	1	2	2	4
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	28	27	28	27
SR6	Action	8	5	-	-	-	-	0	0	0	0	-	-	-	-	8	5
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR7	Action	0	1	-	-	-	-	0	0	0	0	-	-	-	-	0	1
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR8	Action	1	0	-	-	-	-	0	0	0	0	-	-	-	-	1	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR9	Action	4	3	-	-	-	-	0	0	0	0	-	-	5	4	9	7
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	1	1	1	1
SR10	Action	0	0	-	-	-	-	0	0	0	0	-	-	6	6	6	6
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	0	0	0	0
SR11	Action	0	0	-	-	-	-	0	0	0	0	-	-	1	1	1	1
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	0	0	0	0
SR12	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	4	6	0	0	0	0	0	0	0	0	0	0	-	-	4	6
SR13	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
Total	Action	15	13	0	0	0	0	0	0	0	0	0	0	13	13	54	
	Limit	13	17	0	0	0	0	0	0	0	0	0	0	29	28	87	

Among the 22 monitoring stations, supplementary 24-hr water quality monitoring was also conducted at 7 of the stations, which are SR4, SR5, SR9, SR10, SR11, SR12 and SR13. Exceedances of DO and Turbidity were recorded at various monitoring stations, detail of exceedance are summarized in **Table III**. However, investigation indicated these exceedances were not related to the Project works.

Table III Summary of the Exceedances Recorded in Reporting Quarter – 24-hr Monitoring

Station	Exceedance Level	Turbidity	DO	NH_3-N	Total
SR4	Action	0	0	0	0
	Limit	15	0	0	15
SR5	Action	198	101	-	299
	Limit	40	2573	-	2613
SR9	Action	910	104	-	1014
	Limit	402	811	-	1213
SR10	Action	621	102	-	723
	Limit	84	2814	-	2898
SR11	Action	204	97	-	301
	Limit	352	2453	-	2805
SR12	Action	0	0	0	0
	Limit	111	0	0	111
SR13	Action	1	24	-	25
	Limit	12	4014	-	4026
Total	Action	1934	428	0	2362
	Limit	1016	12665	0	13681

iii. Waste Management

iv. There was marine sediment (Type 1 – Open Sea Disposal and Type 2 – Confined Marine Disposal) disposed to East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2. No inert or non-inert C&D material related to dredging works and a small amount of general refuse were disposed off site in the reporting period.

v. Complaints, Notifications of Summons and Successful Prosecutions
No complaint, notification of prosecutions or summons was received in the reporting period.

Leakage incident was reported at around 04:35 am on 14 October 2014 during the dredging operation at TMTA Grid No. F16 (Portion B, Z5A) in the Container Basin. The loading compartment of the barge was suddenly partially opened and the dredged Cat Hp sediment (Type II) seeped back within Zone 1B. Investigation was carried out immediately and identified that a very rare inconsistent power supply with the damage of electric breaker condition occurred and caused the lost of control on the magnetic pressure valve. The error was immediately rectified by replacing a new device and the loading compartment was back to normal operation. The dredging works was then resumed at around 05:15 a.m. on 14 October 2014, preventive measures was implemented afterwards. Analysis of water quality monitoring data as well as seawater metal levels indicated the impact of the incident is considered not significant. Adequate corrective measures shall be implemented by the Contractor to avoid recurrence of such incident. Incident report on the leakage is under review and will be provided in subsequent EM&A report.

vi. Site Inspections and Audit
The Environmental Team conducted 13 site inspections in the reporting period. No particular observation related to the dredging work was found in the reporting period. However, the

Contractor is reminded to maintain good dredging work practice, including steady transfer of grab bucket, extension of retention time above silt curtain cage, lowering of grab bucket into the hopper barge and close the grab bucket while back transferring to the silt curtain cage. A training session was provided on 11th September for site staffs on maintaining good dredging practice.

The Contractor was also reminded to reduce noise emission from noise emitting parts by enclosing any mechanical equipment. Good housekeeping should be maintained in site area, including using drip tray for storage the mechanical fuel, mechanical fuel and paint solvent and keeping the drainage area clean.

The Contractor is reminded to use well maintained mechanical equipment to reduce black smoke emission from the chimney of vessels.

Chemical waste producer license application was in progress during the reporting period, chemical waste will be stored properly if produced.

vii. Compliance with Specific EP conditions

Implementation of contractor's mitigation for dredging work and the associated dredging records were checked. It was concluded that the dredging is conducted orderly in compliance with the EP requirements on site mitigation measures.

viii. Construction Activities for the Coming Reporting Period

During the coming reporting period, the principal work activities include:

- Dredging at Portion A / Zone 1A, Zone 1B, Zone 2C, Zone 3A, Zone 3B and Zone 4A in EP
- Dredging at Portion B / Zone 5A, Zone 5B, Zone 6A, Zone 6B, Zone 6C and Zone 6D in EP
- Dredging at Portion E / Zone 13B in EP

Future Key Issues include:

- Regular inspection on silt curtain deployment
- Regular inspection on silt screen deployment
- Implementation of EM&A Programme
- Maintain dredging below allowable dredging rate in EP.
- Cleaning of excess material from the decks and exposed fittings of barges and dredgers before the vessel is moved.
- Barge loading shall be monitored to ensure material is not lost during transportation.
- Conditions in dumping permit shall be followed strictly.
- Field trial dredging and monitoring at Zone 2C subzones

1. INTRODUCTION

1.1 Background

1.1.1 The Project objective is to dredge approximately 4.0 million cubic metres of sediment from the seabed of Kwai Tsing Container Basin, as well as portions of Northern Fairway and Western Fairway, to provide sufficient depth of container basin and approach channel to Kwai Tsing Container Terminal (KTCT) for the safe navigation of Ultra Large Container Ships (ULCS).

1.1.2 The environmental monitoring and audit works of this Project is governed by Environmental Permit (EP) No. EP-426/2011/A, EM&A Manual (AEIAR-156/2010) and EM&A TIN (EPD Letter Ref: (34) in Ax(1) to EP2/N3/C/57Pt.7)).

1.1.3 The project proponent was the Civil Engineering & Development Department, HKSAR (CEDD). The Project General Layout is shown in **Figure 1**.

1.1.4 Mott MacDonald Hong Kong Ltd. (MMHK) was commissioned by CEDD as the Engineer for the Project. ENVIRON Hong Kong Ltd. was employed as the Independent Environmental Checker (IEC) in the Project.

1.1.5 China International Water & Electric Corporation Limited (CIW&E) was appointed as the main contractor for the dredging works.

1.1.6 MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Project.

1.1.7 The construction phase of the Project under the EP was commenced on 23 April 2014.The impact EM&A programme of the Project commenced on 23 April 2014.

1.2 Purpose of the Report

1.2.1 This Second Quarterly EM&A Report is prepared by MCL. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Project in 23 July to 22 October 2014.

1.3 Structure of the Report

1.3.1 The structure of this report is as follows:

Section 1: Introduction, including background, purpose and structure of the report
Section 2: Basic Project Information – summaries background and scope of the Contract, site description, project organization and contract details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.
Section 3: Routine Impact Water Quality Monitoring – summaries the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency,

monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: 24-hr Water Quality Monitoring – summaries the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: Environmental Site Inspection – summaries the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: Complaints, notifications of summons and Prosecution – summaries any environmental complaints, environmental summons and successful prosecutions within the reporting period.

Section 8: Conclusions and Recommendation

2. BASIC PROJECT INFORMATION

2.1 Project Organizations

2.1.1 The Project Organization structure is shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 2.1**.

Table 2-1 Key Personnel Contact of the Contract

Party	Position	Name	Telephone	Fax
Engineer's Representative (MMHK)	Senior Resident Engineer	Ir. Felix Chau	2419 6008	2419 6218
Independent Environmental Checker (ENVIRON)	Independent Environmental Checker	Mr. YH Hui	3465 2888	3465 2899
Contractor (CIW&E)	Site Agent	Mr. KO Leung	2419 6008	2419 6218
	Environmental Officer	Mr. WH Lam	2419 6008	2419 6218
Environmental Team (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

2.2 Construction Programme and Synopsis of Work

2.2.1 The construction phase of the Project under the EP commenced on 23 April 2014.

2.2.2 The construction programme of the Project is shown in **Appendix B**.

2.2.3 The environmental mitigation measures implementation schedule is presented in **Appendix F**.

2.3 Works undertaken during the quarter

During the reporting period, according to the Contractor, the principal work activities include:

August 2014	September 2014	October 2014
• Dredging at Portion D / Zone 13A in EP • Dredging at Portion A / Zone 4A in EP	• Dredging at Portion D / Zone 13A in EP • Dredging at Portion A / Zone 1B, Zone 3B, Zone 4A and Zone 4B in EP • Dredging at Portion B / Zone 6B and Zone 6D in EP	• Dredging at Portion A / Zone 1A, Zone 1B, Zone 3A, Zone 3B and Zone 4A in EP • Dredging at Portion B / Zone 5A, Zone 5B, Zone 6A, Zone 6B, Zone 6C and Zone 6D in EP • Dredging at Portion D / Zone 13A in EP • Dredging at Portion E / Zone 13B in EP

Daily dredging quantity in the reporting period is provided in **Table 2.2**.

Table 2-2 Detail Dredging Quantity

Date	Dredged Quantity (in-situ, m^3) Portion A Zone (Maximum Allowable Daily Dredged Rate)	Portion D Max Allowable Daily Dredged Rate=4000	Date	Dredged Quantity (in-situ, m^3) Portion A Zone (Maximum Allowable Daily Dredged Rate)		Portion B Max Allowable Daily Dredged Rate=4000	Portion D Max Allowable Daily Dredged Rate=4000
23/7/2014	0	2600	23/8/2014	4A: 1077 (3440)	0	0	2000
24/7/2014	0	2600	24/8/2014	4A: 1077 (3440)	0	0	2000
25/7/2014	0	2150	25/8/2014	4A: 1077 (3440)	0	0	2500
26/7/2014	0	3250	26/8/2014	4A: 1077 (3440)	0	0	1500
27/7/2014	0	2600	27/8/2014	0	0	0	0
28/7/2014	0	3900	28/8/2014	0	0	0	0
29/7/2014	0	3300	29/8/2014	0	0	0	1000
30/7/2014	0	2650	30/8/2014	4A: 1077 (3440)	0	0	2000
31/7/2014	0	3950	31/8/2014	4A: 1077 (3440)	0	0	2000
1/8/2014	0	3950	1/9/2014	4A: 1077 (3440)	0	0	2500
2/8/2014	0	3300	2/9/2014	4A: 1077 (3440)	0	0	2500
3/8/2014	0	3950	3/9/2014	4A: 538 (3440)	0	0	2000
4/8/2014	0	3950	4/9/2014	4A: 538 (3440)	0	0	2500
5/8/2014	0	3300	5/9/2014	3B: 1077 (3440)	0	0	1500
6/8/2014	0	3950	6/9/2014	4B: 538 (3440)	0	0	2500
7/8/2014	0	3950	7/9/2014	4A: 1077 (3440)	0	0	2000
8/8/2014	0	3300	8/9/2014	0	0	0	1500
9/8/2014	0	3950	9/9/2014	0	0	0	0
10/8/2014	4A: 600 (3440)	3900	10/9/2014	4B: 308 (3440)	0	0	0
11/8/2014	4A: 700 (3440)	3900	11/9/2014	1B: 538 (2050)	4B: 538 (3440)	0	0
12/8/2014	4A: 700 (3440)	3900	12/9/2014	3B: 538 (3440)	0	538	0
13/8/2014	4A: 700 (3440)	2600	13/9/2014	1B: 538 (2050)	3B: 538 (3440)	538	0
14/8/2014	4A: 700 (3440)	0	14/9/2014	3B: 1077 (3440)	0	0	0
15/8/2014	0	0	15/9/2014	3B: 538 (3440)	0	0	0
16/8/2014	0	0	16/9/2014	0	0	0	0
17/8/2014	0	0	17/9/2014	3B: 1077 (3440)	0	0	2500
18/8/2014	0	0	18/9/2014	1B: 1077 (2050)	0	538	3500
19/8/2014	0	0	19/9/2014	1B: 1077 (2050)	0	308	4000
20/8/2014	0	0	20/9/2014	1B: 1077 (2050)	0	0	4000
21/8/2014	0	0	21/9/2014	1B: 1077 (2050)	0	538	3500
22/8/2014	0	1300	22/9/2014	3B: 1077 (3440)	0	538	3500

Date	Dredged Quantity (in-situ, m^3)				
	Portion A		Portion B	Portion D	Portion E
	Zone (Maximum Allowable Daily Dredged Rate)		Max Allowable Daily Dredged Rate=4000		
23/9/2014	4A: 2154 (3440)	0	538	4000	0
24/9/2014	3B: 538 (3440)	0	538	3000	0
25/9/2014	3B: 1615 (3440)	0	538	3000	0
26/9/2014	4A: 1077 (3440)	0	0	500	2500
27/9/2014	3B: 2154 (3440)	0	1077	0	3000
28/9/2014	3B: 2154 (3440)	0	538	0	2500
29/9/2014	0	0	0	0	0
30/9/2014	3B: 1077 (3440)	0	0	0	0
1/10/2014	3A: 1077 (3440)	0	538	0	0
2/10/2014	3B: 1077 (3440)	0	538	0	0
3/10/2014	3B: 2692 (3440)	0	538	0	0
4/10/2014	3A: 1077 (3440)	3B: 1077 (3440)	1077	0	0
5/10/2014	3B: 538 (3440)	4A: 1077 (3440)	0	0	0
6/10/2014	1A: 538 (900)	0	2154	0	0
7/10/2014	3B: 1077 (3440)	4A: 538 (3440)	1077	0	0
8/10/2014	0	0	1615	0	0
9/10/2014	3B: 1077 (3440)	4A: 1077 (3440)	1077	0	0
10/10/2014	3B: 1077 (3440)	4A: 1077 (3440)	538	0	0
11/10/2014	1B: 538 (2050)	0	1077	0	0
12/10/2014	1B: 1077 (2050)	0	1077	0	0
13/10/2014	3A: 2152 (3440)	3B: 538 (3440)	0	0	0
14/10/2014	1B: 1615 (2050)	0	1077	0	0
15/10/2014	3B: 1077 (3440)	4A: 1615 (3440)	0	0	0
16/10/2014	4A: 3231 (3440)	0	0	0	0
17/10/2014	4A: 2154 (3440)	0	0	0	0
18/10/2014	4A: 1615 (3440)	0	538	0	0
19/10/2014	4A: 538 (3440)	0	0	0	0
20/10/2014	4A: 2692 (3440)	0	0	0	0
21/10/2014	4A: 3231 (3440)	0	0	0	0
22/10/2014	3B: 2692 (3440)	0	0	0	0

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Date	Dredged Quantity (in-situ, m^3)				
	Portion A		Portion B	Portion D	Portion E
	Zone (Maximum Allowable Daily Dredged Rate)		Max Allowable Daily Dredged Rate=4000		
23/10/2014	3A: 538 (3440)	0	538	0	0
24/10/2014	1B: 538 (2050)	3A: 1077 (3440)	538	0	0
25/10/2014	3B: 2153 (3440)	0	1077	0	0
26/10/2014	1B: 1077 (2050)	3A: 538 (3440)	538	0	0
27/10/2014	4A: 1077 (3440)	4B: 1077 (3440)	538	0	0
28/10/2014	3B: 1077 (3440)	0	2154	0	0
29/10/2014	4B: 2692 (3440)	0	1077	0	0
30/10/2014	3B: 1615 (3440)	0	1077	0	0
31/10/2014	3B: 1077 (3440)	4A: 1077 (3440)	1077	0	0
1/11/2014	4A: 1600 (1600)	0	1077	0	0
2/11/2014	3A: 538 (1600)	4A: 1600 (1600)	0	0	0
3/11/2014	3A: 1600 (1600)	0	1600	0	0
4/11/2014	3A: 446 (1600)	4A: 892 (1600)	0	0	0
5/11/2014	4A: 800 (1600)	0	800	0	0
6/11/2014	3B: 1200(1600)	0	800	0	0
7/11/2014	3B: 400 (1600)	4B: 1600 (1600)	400	0	0
8/11/2014	4A: 800 (1600)	4B: 400 (1600)	400	0	3500
9/11/2014	3B: 800 (1600)	0	0	0	3500
10/11/2014	0	0	0	0	3500
11/11/2014	0	0	0	0	3500
12/11/2014	0	0	0	0	3500
13/11/2014	0	0	0	0	3500
14/11/2014	0	0	0	0	3500
15/11/2014	0	0	0	0	3500
16/11/2014	0	0	0	0	3000
17/11/2014	4A: 800 (1600)	0	800	1385	0
18/11/2014	2C2: 1100 (1100)	4A: 400 (1600)	0	1500	0
19/11/2014	1A: 800 (900)	3A: 800 (1600)	0	500	0
20/11/2014	2C1: 850 (850)	0	800	0	0
21/11/2014	4A: 1600 (1600)	0	400	0	0
22/11/2014	2C4: 1600 (1600)	0	800	0	0

Maximum allowable daily dredging rate for:

Portion A / Zone 1A: 900m^3, Zone 1B: 2,050m^3, Zone 3A, Zone 3B and Zone 4A: 3,440m^3 for wet season.

Portion B / Zone 5A, Zone 5B, Zone 6A, Zone 6B, Zone 6C and Zone 6D, Portion D / Zone 13A and Portion E / Zone 13B: 4,000m^3 for both wet season and dry season.

3. EM&A REQUIREMENTS – ROUTINE IMPACT MONITORING

3.1 Monitoring Parameters

3.1.1 The monitoring parameters and frequency for both in-situ measurement and laboratory analysis are summarised in **Table 3.1**. Parameters for each monitoring station are specified in **Table 3.2**.

Table 3-1 Monitoring Parameters and Frequency

Parameters	Monitoring Frequency
In-situ Measurement Turbidity (in NTU), pH, Dissolved Oxygen (in mg/L and %), Temperature (in °C), Salinity (in ppt), [1]Ammonia-N (in mg/L-N and UIA); [2]TIN: Ammonia-N (in mg/L), Nitrite (in mg/L), Nitrate (in mg/L) Laboratory Analysis [1]Ammonia-N (in mg/L-N and UIA), Suspended Solids (SS), [2]BOD_5, [2]*E.coli*, [2]Synthetic Detergent; [2]TIN: Ammonia-N (in mg/L), Nitrite (in mg/L), Nitrate (in mg/L)	3 days per week, at mid-flood and mid-ebb tides (except detergent which shall be taken one day per month, at mid-flood and mid-ebb) 36 hours interval was allowed between subsequent sets of measurement.

Notes:

1. Ammonia measurements and samples were taken at SR1, SR2, SR3, SR4, SR12, C1, C2, C3 only;
   UIA: In-situ unionized ammonia was calculated from in-situ measurement of NH_3-N, temperature, pH and salinity; Laboratory determined unionized ammonia was calculated from analysed NH_3-N from water samples and in-situ measurement of temperature, pH and salinity;
2. Total Inorganic Nitrogen (TIN) measurements and samples were taken at SR5, SR9, SR10, SR11, G1, G2, G3, G4, G5, G6 only;
3. BOD_5, *E.coli* and Synthetic Detergent samples were taken at SR1, SR4, SR12, C1, C2, C3 only.

Table 3-2 Water Quality Monitoring Parameters

ID	In-situ Measurement							Laboratory Analysis					
	pH	Temperature	Salinity	Turbidity	Dissolved Oxygen / Dissolved Oxygen%	NH_3-N / UIA	TIN (NH_3-N, NO_2 & NO_3)	Suspended Solids	BOD_5	*E. coli*	NH_3-N / UIA	Synthetic Detergent	TIN (NH_3-N, NO_2 & NO_3)
SR1	O	O	O	O	O	O		O	O	O	O	O	
SR2	O	O	O	O	O	O		O			O		
SR3	O	O	O	O	O	O		O			O		
SR4	O	O	O	O	O	O		O	O	O	O	O	
SR5	O	O	O	O	O		O	O					O
SR6	O	O	O	O	O			O					
SR7	O	O	O	O	O			O					
SR8	O	O	O	O	O			O					
SR9	O	O	O	O	O		O	O					O
SR10	O	O	O	O	O		O	O					O
SR11	O	O	O	O	O		O	O					O
SR12	O	O	O	O	O	O		O	O	O	O	O	
SR13	O	O	O	O	O			O					
G1	O	O	O	O	O		O	O					O
G2	O	O	O	O	O		O	O					O
G3	O	O	O	O	O		O	O					O
G4	O	O	O	O	O		O	O					O
G5	O	O	O	O	O		O	O					O
G6	O	O	O	O	O		O	O					O
C1	O	O	O	O	O	O		O	O	O	O	O	
C2	O	O	O	O	O	O		O	O	O	O	O	
C3	O	O	O	O	O	O		O	O	O	O	O	

Note:

1. UIA: In-situ unionized ammonia was calculated from in-situ measurement of NH_3-N, temperature, pH and salinity; laboratory determined unionized ammonia was calculated from analysed NH_3-N from water samples taken and in-situ measurement of temperature, pH and salinity.

3.2 Monitoring Locations

3.2.1 Impact water quality monitoring was conducted at 22 locations, including 13 sensitive receivers (SR1-13), 6 gradient stations (G1-6) and 3 control stations (C1-3). The locations of the stations are also shown in **Figure 2**.

3.2.2 Revisions on monitoring locations were proposed in previous submission (MateriaLab Report No. Ref: 0394/13/ED/0103 – WATER QUALITY MONITORING LOCATION) and were agreed among AFCD, EMSD, WSD and EPD.

3.3 Results and Observations

3.3.1 Impact water quality monitoring was conducted at all designated monitoring stations in the reporting quarter. Impact water quality monitoring results graphical presentations are provided in **Appendix D**.

3.3.2 Due to adverse weather condition and issuance of No. 8 Storm Signal on 16th September, the impact monitoring on 16th September for mid-flood and mid-ebb tide were cancelled.

3.3.3 During the reporting period, some adverse weather conditions, including Typhoon Signal, Rainstorm Warning and Thunderstorm Warning, were reported. Heavy marine traffic (not associated with the Project) was also commonly observed nearby the Project site and its vicinity, that the propeller wash from vessels could lead to potential disturbance of seabed sediment and affect the water quality.

3.3.4 Exceedances were recorded for Turbidity, DO (S&M), DO (B), Suspended solids, and TIN (in-situ & lab). Number of exceedances recorded in the reporting quarter at each impact station is summarized in **Table 3.6 and 3.7**.

Table 3-3 Summary of Water Quality Exceedance (In-situ Measurement)

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	1	0	0	0	0	0	-	-	1	0
SR2	Action	1	2	3	1	1	1	0	0	0	0	-	-	5	4
	Limit	28	23	28	30	1	1	0	0	0	0	-	-	57	54
SR3	Action	1	2	3	1	1	3	0	0	0	0	-	-	5	6
	Limit	27	23	29	29	1	1	0	0	0	0	-	-	57	53
SR4	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR5	Action	1	0	0	0	3	3	-	-	-	-	1	0	5	3
	Limit	23	23	27	27	1	3	-	-	-	-	36	36	87	89
SR6	Action	0	0	0	0	14	13	0	0	0	0	-	-	14	13
	Limit	32	34	38	38	7	8	0	0	0	0	-	-	77	80
SR7	Action	1	0	0	0	11	10	0	0	0	0	-	-	12	10
	Limit	26	27	34	33	0	0	0	0	0	0	-	-	60	60
SR8	Action	1	2	0	0	10	12	0	0	0	0	-	-	11	14
	Limit	24	25	35	38	5	4	0	0	0	0	-	-	64	67
SR9	Action	3	0	1	2	7	11	-	-	-	-	3	8	14	21
	Limit	13	17	33	33	11	5	-	-	-	-	18	17	75	72
SR10	Action	5	3	0	1	12	11	-	-	-	-	9	8	26	23
	Limit	24	23	34	34	1	3	-	-	-	-	21	17	80	77
SR11	Action	0	0	0	1	6	6	-	-	-	-	12	8	18	15
	Limit	24	23	38	37	1	2	-	-	-	-	11	13	74	75
SR12	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR13	Action	0	1	1	1	0	0	-	-	-	-	-	-	1	2
	Limit	35	33	37	36	0	0	-	-	-	-	-	-	72	69
Total	Action	13	10	8	7	65	70	0	0	0	0	25	24	222	
	Limit	256	251	333	335	29	27	0	0	0	0	86	83	1400	

Table 3-4 Summary of Water Quality Exceedance (Laboratory Analysis)

Station	Exceedance Level	Suspended Solids		BOD_5		*E. coli*		NH_3-N		UIA		Synthetic Detergent		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	8	7	0	0	0	0	0	0	0	0	0	0	-	-	7	7
SR2	Action	1	2	-	-	-	-	0	0	0	0	-	-	-	-	1	2
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR3	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR4	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	1	4	0	0	0	0	0	0	0	0	0	0	-	-	1	4
SR5	Action	1	2	-	-	-	-	0	0	0	0	-	-	1	2	2	4
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	28	27	28	27
SR6	Action	8	5	-	-	-	-	0	0	0	0	-	-	-	-	8	5
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR7	Action	0	1	-	-	-	-	0	0	0	0	-	-	-	-	0	1
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR8	Action	1	0	-	-	-	-	0	0	0	0	-	-	-	-	1	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR9	Action	4	3	-	-	-	-	0	0	0	0	-	-	5	4	9	7
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	1	1	1	1
SR10	Action	0	0	-	-	-	-	0	0	0	0	-	-	6	6	6	6
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	0	0	0	0
SR11	Action	0	0	-	-	-	-	0	0	0	0	-	-	1	1	1	1
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	0	0	0	0
SR12	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	4	6	0	0	0	0	0	0	0	0	0	0	-	-	4	6
SR13	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
Total	Action	15	13	0	0	0	0	0	0	0	0	0	0	13	13	54	
	Limit	13	17	0	0	0	0	0	0	0	0	0	0	29	28	87	

3.3.5 During the reporting period, 23 AL and 507 LL exceedances were recorded for dissolved oxygen (S&M), 15 AL and 668 LL were recorded for dissolved oxygen (B). 135 AL and 56 LL exceedances for turbidity, 49 AL and 169 LL exceedances for TIN (in-situ), 28 AL and 30 LL exceedances for Total Suspended Solids (lab) and 26 AL and 57 LL exceedances for TIN (lab) were recorded.

3.3.6 According to the investigations, the exceedances were considered caused by influences in the vicinity of the station or changes in ambient conditions and not related to the Project.

4. EM&A REQUIREMENTS – 24-HR WATER QUALITY MONITORING

4.1 Monitoring Parameters

4.1.1 Dissolved oxygen, temperature and turbidity are recorded every 5 minutes, 24 hours a day 7 days a week during dredging works.

4.1.2 In-situ NH_3-N at WSD Flushing Water Intake is measured every 20 minutes, 24 hours a day 7 days a week during works.

4.1.3 The water quality parameters measured at particular locations are shown in **Table 4.1**.

Table 4-1 24-hr Water Quality Monitoring Parameters

ID	Description	Parameters				
		Temperature	Turbidity	DO (mg/L)	DO%	NH_3-N
SR4	Tsuen Wan, WSD Flushing Water Intake	O	O	O	O	O
SR5	Ma Wan, Fish Culture Zone	O	O	O	O	
SR9	Cheung Sha Wan, Fish Culture Zone	O	O	O	O	
SR10	Lo Tik Wan, Fish Culture Zone	O	O	O	O	
SR11	Sok Kwu Wan, Fish Culture Zone	O	O	O	O	
SR12	Tsing Yi, WSD Flushing Water Intake	O	O	O	O	O
SR13	EMSD Cooling Water Intake for Kwai Chung Hospital	O	O	O	O	

4.2 Monitoring Locations

4.2.1 As shown in Table 4.1, the 24 hours water quality monitoring works are performed at SR4, SR5, SR9, SR10, SR11, SR12 and SR13.

4.2.2 Revisions on monitoring locations were proposed in previous submission (MateriaLab Report No. Ref: 0394/13/ED/0103 – WATER QUALITY MONITORING LOCATION) and were agreed among AFCD, EMSD, WSD and EPD.

4.3 Results and Observations

4.3.1 24-hr water quality monitoring was conducted at all designated monitoring stations in the reporting quarter. Monitoring result graphical presentations are provided in **Appendix E**.

4.3.2 During the reporting period, red tide occurrences were reported in Hong Kong waters. In addition, some adverse weather conditions, including Rainstorm Warning and Thunderstorm Warning, were reported. Heavy marine traffic (not associated with the Project) was also

commonly observed nearby the Project site and its vicinity, that the propeller wash from vessels could lead to potential disturbance of seabed sediment and affect the water quality. The above conditions may affect monitoring results. Furthermore, the fish culturing or other activities occurring on the fish rack may cause adverse impact on the receiving water, and the monitoring equipment is subject to disturbance from marine organisms like fish or other marine invertebrates.

4.3.3 Exceedances were recorded for turbidity and dissolved oxygen. Number of exceedances recorded in the reporting period at each impact station is summarized in **Table 4.2**.

Table 4-2 Summary of Water Quality Exceedance (24-hr Monitoring)

Station	Exceedance Level	Turbidity	DO	NH_3-N	Total
SR4	Action	0	0	0	0
	Limit	15	0	0	15
SR5	Action	198	101	-	299
	Limit	40	2573	-	2613
SR9	Action	910	104	-	1014
	Limit	402	811	-	1213
SR10	Action	621	102	-	723
	Limit	84	2814	-	2898
SR11	Action	204	97	-	301
	Limit	352	2453	-	2805
SR12	Action	0	0	0	0
	Limit	111	0	0	111
SR13	Action	1	24	-	25
	Limit	12	4014	-	4026
Total	Action	1934	428	0	2362
	Limit	1016	12665	0	13681

4.3.4 2362 AL and 13681 LL exceedances were recorded in the reporting quarter.

4.3.5 According to the investigations, the exceedances were considered caused by influences in the vicinity of the station or changes in ambient conditions and not related to the Project.

5. ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1 Site Inspections

5.1.1 The Environmental Team conducted 13 site inspections in the reporting period. No particular observation related to the dredging work was found in the reporting quarter.

5.1.2 The Contractor was reminded to maintain good dredging work practice, including steady transfer of grab bucket, extension of retention time above silt curtain cage, lowering of grab bucket into the hopper barge and close the grab bucket while back transferring to the silt curtain cage. A training session was provided on 11th September for site staffs on maintaining good dredging practice.

5.1.3 The Contractor was reminded to reduce noise emission from noise emitting parts by enclosing any mechanical equipment. Good housekeeping should be maintained in site area, including using drip tray for storage the mechanical fuel and keeping the drainage area clean.

5.1.4 The Contractor was reminded to use well maintained mechanical equipment to reduce black smoke emission from the chimney of vessels.

5.1.5 Chemical waste producer license application was in progress during the reporting period, chemical waste will be stored properly if produced.

5.2 Implementation Status of Environmental Mitigation Measures

5.2.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix F**. Most of the necessary mitigation measures were implemented properly.

5.2.2 The mitigation measures recommended in the EIA report and required by the EP are considered effective in minimizing environmental impacts. The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage. The Contractor should be reminded to keep the mitigation measures implemented effectively, especially the installation and maintenance of silt screen and silt curtain, and to maintain good condition of hopper barge and grab dredger to ensure their intended effects are fully achieved.

5.3 Summary of Action taken

5.3.1 The exceedances recorded were considered not related to the Project, follow-up actions are not required.

5.4 Advice on the Solid and Liquid Waste Management Status

5.4.1 According to the Contractor, 30m^3 general refuse were generated and disposed of in the reporting period. Summary of waste flow table is detailed in **Appendix G**.

5.4.2 There was marine sediment (Type 1, Open Sea Disposal and Type 2, Confined Marine Disposal) disposed to East Sha Chau Pit IVc or Va and South of Brothers – CMP1 or CMP2. The details can be referred to the **Table 5.2.**

Table 5-1 Waste Quantities of Dredging Works

Month	Marine Sediment Type	Quantity Generated in this month (m^3)	Cumulative-to-date (m^3)	Disposal / Dumping Ground
August 2014	Type 1 – Open Sea Disposal	79600	230850	East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	0	0	NA
	Type 3 – Special Treatment / Disposal	0	0	NA
September 2014	Type 1 – Open Sea Disposal	100700	331550	East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	0	0	NA
	Type 3 – Special Treatment / Disposal	0	0	NA
October 2014	Type 1 – Open Sea Disposal	60450	392000	East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	50400	50400	East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2
	Type 3 – Special Treatment / Disposal	0	0	NA

5.5 Review of Action and Limit Level

5.5.1 Existing Action and Limit Levels for both routine impact monitoring and 24-hr monitoring were derived based on the 4-weeks baseline water quality monitoring data obtained during the dry season in January 2014 prior to the commencement of construction.

5.5.2 Owing to the frequent not project-related exceedances in water quality caused by change of ambient condition or natural fluctuation of water quality in the monitoring site, it is recommended to review the existing Action and Limit Levels.

5.6 Quarterly Review of Constructional Impacts on Water Quality

5.6.1 The construction impact on water quality was assessed by comparing the quarterly mean values with the relevant ambient or baseline mean values. Results showed that the quarterly mean values of DO (S&M) and SS (depth averaged) at all clusters of monitoring stations, turbidity at cluster 3 stations and DO (B) at cluster 1 stations are below the 1.3 x baseline (0.7 x baseline for DO) value. Cluster stations with higher quarterly impact data are statistically analysed to 1.3 x baseline levels (or 0.7 x baseline levels for DO) or other relevant levels to assess the constructional impacts.

5.6.2 Quarterly mean of cluster 2 stations data of DO (B) is compared to 0.7 x baseline data. Results show the quarterly mean is statistically smaller than the 0.7 x baseline level ($p<0.05$). The quarterly impact mean is further compared to the quarterly control level and it shows that the quarterly impact mean is higher than the quarterly control mean ($p<0.05$), meaning the background DO(B) level is low and the project impact is not significant. Both flood tide and ebb tide data are used in the comparison. Quarterly mean of cluster 3 station data of DO(B) is compared to 0.7 x baseline data. Results show the quarterly mean is not significantly different from the 0.7 x baseline level ($p\geq0.05$). Thus the project impact on the station is not significant. Only mid-flood data exceeded the 0.7 x baseline level and is statistically compared for cluster 3 station.

5.6.3 The quarterly turbidity mean of cluster 1 and 2 stations are compared to their 1.3 x baseline levels respectively, and both quarterly impact means are significantly larger than their 1.3 x baseline levels ($p<0.05$). They are further compared to the quarterly control levels at C1, C2 and C3, and the impact levels in both clusters are significantly smaller than the control levels ($p<0.05$), and indicated that the background turbidity is high and the quarterly construction impact is not significant.

5.6.4 Quarterly means of cluster 1 and cluster 2 stations data of TIN are compared to 1.3 x baseline data respectively. Results show the 1.3 x baseline level is significantly smaller than the quarterly mean ($p<0.05$). As TIN is not detected at Control stations, quarterly mean of impact station is further compared to the quarterly mean of gradient stations (G2, G3 and G4 are gradient stations in vicinity of cluster 1 stations; G5 and G6 are gradient stations in vicinity of cluster 2 stations). Data from ebb tide are compared for cluster 2 while data from flood tide are compared for cluster 1 as according to their relative position to the Project (data analysed for relative tide where clustered monitoring stations situate at downstream position and may be subject to project impact, reference made to Figure 3.). For cluster 1, results show TIN level at gradient is significantly smaller than at the impact stations ($p<0.05$), indicating the trend is not increasing towards the project area and project impact is not significant. For cluster 2, at ebb tide, TIN level of gradient (G5 & G6) is not significantly different from that of impact stations (SR9, SR10 & SR11) ($p\geq0.05$), thus gradient stations G1 at the most upstream location is further compared to those cluster 2 impact stations and results indicated TIN level at that cluster 2 impact stations is significantly smaller than that of G1 ($p<0.05$), it indicates the background TIN level is high and the contribution from the project is not significant.

5.6.5 Comparison between quarterly mean and 1.3 x baseline mean (0.7 x baseline mean for DO) is given in Table 5.2, while the summary of key statistical analysis is provided in Table 5.3. Details of key statistical analysis results are provided in **Appendix H**.

5.6.6 As 24-hr monitoring is to supplement the routine WQM activities (EM&A Manual Section 2.1.10) and there is no baseline value and/or control / gradient value for a meaningful statistical analysis. Thus no statistical analysis was done for 24-hr monitoring. Also, statistical analysis was not performed for some parameters without exceendances (Ammonia, UIA, BOD_5, E.coli and Synthetic Detergent) in the reporting quarter.

Table 5-2 Comparison of Quarterly Mean to Baseline Mean

		DO (S&M)						DO (B)						Turbidity					
		Baseline	Baseline x 0.7	Average	Aug - Oct 2014	Average	Smaller than Baseline x 0.7	Baseline	Baseline x 0.7	Average	Aug - Oct 2014	Average	Smaller than Baseline Level	Baseline	Baseline x 1.3	Average	Aug - Oct 2014	Average	Larger than Baseline x 1.3
Control (Flood)	C1	6.39	4.47		4.94		no	6.32	4.42		4.15		yes	2.53	3.30		5.90		yes
	C2	7.51	5.26	NA	5.60	NA	no	7.31	5.12	NA	4.24	NA	yes	0.99	1.30	NA	3.90	NA	yes
	C3	6.98	4.89		5.63		no	6.89	4.82		4.03		yes	0.50	0.70		3.70		yes
Control (Ebb)	C1	6.41	4.49		4.91		no	6.32	4.42		4.17		yes	1.16	1.50		6.10		yes
	C2	7.27	5.09	NA	5.71	NA	no	7.23	5.06	NA	4.21	NA	yes	1.21	1.60	NA	3.40	NA	yes
	C3	7.00	4.90		5.58		no	6.94	4.86		4.12		yes	1.05	1.40		2.90		yes
Gradient (Flood)	G1	6.48	4.54		5.20		no	6.37	4.46		4.33		yes	1.94	2.50		5.40		yes
	G2	6.37	4.46		5.11		no	6.34	4.44		4.38		yes	1.73	2.20		4.10		yes
	G3	6.30	4.41	NA	4.84	NA	no	6.34	4.44	NA	4.00	NA	yes	1.78	2.30	NA	3.90	NA	yes
	G4	5.84	4.09		4.66		no	5.83	4.08		3.86		yes	2.29	3.00		4.00		yes
	G5	7.73	5.41		6.02		no	7.61	5.33		4.76		yes	3.56	4.60		4.80		yes
	G6	7.15	5.01		5.47		no	7.00	4.90		4.13		yes	0.69	0.90		3.60		yes
Gradient (Ebb)	G1	6.44	4.51		5.18		no	6.33	4.43		4.33		yes	1.33	1.70		5.40		yes
	G2	6.32	4.42		5.04		no	6.35	4.45		4.58		no	1.00	1.30		4.00		yes
	G3	6.48	4.54	NA	4.85	NA	no	6.50	4.55	NA	4.03	NA	yes	1.19	1.50	NA	4.40	NA	yes
	G4	5.93	4.15		4.60		no	6.00	4.20		3.86		yes	2.03	2.60		4.20		yes
	G5	7.74	5.42		6.39		no	7.71	5.40		4.99		yes	0.86	1.10		4.20		yes
	G6	7.14	5.00		5.61		no	7.09	4.96		4.19		yes	0.63	0.80		3.00		yes
Cluster 1 (Flood)	SR1	6.79	4.75		5.34			6.72	4.70		5.14			3.06	4.00		4.10		
	SR2	6.39	4.47		5.20			6.37	4.46		4.59			1.13	1.50		3.50		
	SR3	6.28	4.40	4.42	5.28	5.20	no	6.21	4.35	4.38	4.76	4.77	no	1.11	1.40	2.6	3.60	3.83	yes
	SR4	6.07	4.25		5.18			6.06	4.24		4.88			2.24	2.90		3.70		
	SR5	6.40	4.48		5.34			6.31	4.42		4.88			1.94	2.50		4.10		
	SR12	5.92	4.14		4.87			5.90	4.13		4.36			2.40	3.10		4.00		
Cluster 1 (Ebb)	SR1	6.64	4.65		5.30			6.64	4.65		5.13			2.24	2.90		4.20		
	SR2	6.37	4.46		5.06			6.35	4.45		4.65			1.18	1.50		3.10		
	SR3	6.32	4.42	4.39	5.11	5.11	no	6.26	4.38	4.37	4.72	4.75	no	1.06	1.40	2.0	3.20	3.57	yes
	SR4	5.97	4.18		5.12			5.91	4.14		4.82			1.79	2.30		2.80		
	SR5	6.38	4.47		5.27			6.37	4.46		4.88			1.14	1.50		3.60		
	SR12	5.96	4.17		4.80			5.92	4.14		4.27			1.94	2.50		4.50		
Cluster 2 (Flood)	SR6	6.85	4.80		5.17			6.85	4.80		4.50			1.36	1.80		3.60		
	SR7	6.81	4.77		5.48			6.78	4.75		4.51			1.09	1.40		2.70		
	SR8	7.35	5.15	5.06	5.80	5.87	no	7.26	5.08	5.04	4.52	4.63	yes	0.67	0.90	1.2	2.90	2.85	yes
	SR9	7.79	5.45		6.62			7.84	5.49		4.65			1.26	1.60		3.20		
	SR10	7.17	5.02		5.88			7.15	5.01		4.99			0.75	1.00		2.60		
	SR11	7.36	5.15		6.24			7.25	5.08		4.63			0.28	0.40		2.10		
Cluster 2 (Ebb)	SR6	6.80	4.76		5.45			6.78	4.75		4.61			0.97	1.30		3.40		
	SR7	6.74	4.72		5.40			6.80	4.76		4.53			0.73	0.90		2.80		
	SR8	7.27	5.09	5.05	6.04	5.97	no	7.20	5.04	5.01	4.78	4.68	yes	0.53	0.70	0.9	2.70	2.77	yes
	SR9	7.82	5.47		6.86			7.75	5.43		4.52			1.02	1.30		3.30		
	SR10	7.30	5.11		5.89			7.16	5.01		5.00			0.30	0.40		2.40		
	SR11	7.34	5.14		6.17			7.25	5.08		4.62			0.38	0.50		2.00		
Cluster 3 (Flood)	SR13	5.78	4.05	4.05	4.66	4.66	no	5.75	4.03	4.03	3.94	3.94	yes	7.28	9.50	9.5	4.50	4.50	no
Cluster 3 (Ebb)	SR13	5.76	4.03	4.03	4.56	4.56	no	5.73	4.01	4.01	4.03	4.03	no	4.23	5.50	5.5	4.10	4.10	no

NA: Not Applicable

- Control and Gradient stations are compared on individual stations for reference, no clustering analysis was performed. Impact stations are compared in clusters of stations, or
- Parameter is not monitored at the station.

		TIN – Insitu					
		Wet Season Baseline	Baseline x 1.3	Average	Aug - Oct 2014	Average	Larger than Baseline x 1.3
Control (Flood)	C1	NA	NA	NA	NA	NA	NA
	C2	NA	NA		NA		NA
	C3	NA	NA		NA		NA
Control (Ebb)	C1	NA	NA	NA	NA	NA	NA
	C2	NA	NA		NA		NA
	C3	NA	NA		NA		NA
Gradient (Flood)	G1	0.42	0.55	NA	1.10	NA	yes
	G2	0.44	0.57		0.99		yes
	G3	0.42	0.55		0.78		yes
	G4	0.56	0.73		0.73		yes
	G5	0.26	0.34		0.57		yes
	G6	0.20	0.26		0.49		yes
Gradient (Ebb)	G1	0.40	0.52	NA	1.12	NA	yes
	G2	0.38	0.49		0.95		yes
	G3	0.36	0.46		0.77		yes
	G4	0.53	0.69		0.72		yes
	G5	0.21	0.27		0.57		yes
	G6	0.21	0.27		0.48		yes
Cluster 1 (Flood)	SR1	NA	NA	0.51	NA	1.07	yes
	SR2	NA	NA		NA		
	SR3	NA	NA		NA		
	SR4	NA	NA		NA		
	SR5	0.39	0.51		1.07		
	SR12	NA	NA		NA		
Cluster 1 (Ebb)	SR1	NA	NA	0.53	NA	1.09	yes
	SR2	NA	NA		NA		
	SR3	NA	NA		NA		
	SR4	NA	NA		NA		
	SR5	0.41	0.53		1.09		
	SR12	NA	NA		NA		
Cluster 2 (Flood)	SR6	NA	NA	0.27	NA	0.46	yes
	SR7	NA	NA		NA		
	SR8	NA	NA		NA		
	SR9	0.20	0.26		0.50		
	SR10	0.22	0.29		0.47		
	SR11	0.20	0.26		0.42		
Cluster 2 (Ebb)	SR6	NA	NA	0.27	NA	0.47	yes
	SR7	NA	NA		NA		
	SR8	NA	NA		NA		
	SR9	0.20	0.26		0.48		
	SR10	0.22	0.28		0.50		
	SR11	0.20	0.26		0.43		
Cluster 3 (Flood)	SR13	NA	NA	NA	NA	NA	NA
Cluster 3 (Ebb)	SR13	NA	NA		NA		

NA: Not Applicable

- Control and Gradient stations are compared on individual stations for reference, no clustering analysis was performed. Impact stations are compared in clusters of stations, or
- Parameter is not monitored at the station.

		TSS						TIN (lab)					
		Baseline	1.3 x Baseline	Average	Aug - Oct 2014	Average	Larger than Baseline x 1.3	Wet Season Baseline	1.3 x Baseline	Average	Aug - Oct 2014	Average	Larger than Baseline x 1.3
Control (Flood)	C1	7	9	NA	7	NA	no	NA	NA	NA	NA	NA	NA
	C2	4	6		5		no	NA	NA		NA		
	C3	4	5		4		no	NA	NA		NA		
Control (Ebb)	C1	6	7	NA	7	NA	no	NA	NA	NA	NA	NA	NA
	C2	5	7		5		no	NA	NA		NA		
	C3	4	5		4		no	NA	NA		NA		
Gradient (Flood)	G1	7	10	NA	6	NA	no	0.30	0.39	NA	0.78	NA	yes
	G2	5	7		5		no	0.31	0.40		0.68		
	G3	6	8		5		no	0.30	0.39		0.47		
	G4	8	10		6		no	0.35	0.46		0.49		
	G5	6	8		8		no	0.15	0.20		0.36		
	G6	4	5		5		no	0.12	0.16		0.24		
Gradient (Ebb)	G1	5	7	NA	6	NA	no	0.28	0.36	NA	0.77	NA	yes
	G2	5	7		5		no	0.28	0.36		0.63		
	G3	5	7		5		no	0.24	0.31		0.46		
	G4	7	9		6		no	0.34	0.44		0.47		
	G5	5	7		7		no	0.13	0.17		0.34		
	G6	4	5		5		no	0.13	0.17		0.24		
Cluster 1 (Flood)	SR1	7	9	8.67	8	6.00	no	NA	NA	0.38	NA	0.92	yes
	SR2	5	7		5			NA	NA		NA		
	SR3	5	7		5			NA	NA		NA		
	SR4	7	9		6			NA	NA		NA		
	SR5	6	8		6			0.29	0.38		0.92		
	SR12	9	12		6			NA	NA		NA		
Cluster 1 (Ebb)	SR1	7	9	7.33	8	5.83	no	NA	NA	0.36	NA	0.73	yes
	SR2	5	7		5			NA	NA		NA		
	SR3	5	6		5			NA	NA		NA		
	SR4	5	7		5			NA	NA		NA		
	SR5	5	6		6			0.28	0.36		0.73		
	SR12	7	9		6			NA	NA		NA		
Cluster 2 (Flood)	SR6	5	6	6.17	7	5.17	no	NA	NA	0.16	NA	0.24	yes
	SR7	6	8		5			NA	NA		NA		
	SR8	4	5		5			NA	NA		NA		
	SR9	5	7		6			0.11	0.14		0.26		
	SR10	5	7		4			0.13	0.17		0.25		
	SR11	3	4		4			0.12	0.16		0.21		
Cluster 2 (Ebb)	SR6	4	6	5.83	7	5.00	no	NA	NA	0.14	NA	0.24	yes
	SR7	6	8		5			NA	NA		NA		
	SR8	4	5		5			NA	NA		NA		
	SR9	4	6		6			0.11	0.14		0.26		
	SR10	4	5		4			0.11	0.14		0.25		
	SR11	4	5		3			0.11	0.14		0.21		
Cluster 3 (Flood)	SR13	16	21	21.00	6	6.00	no	NA	NA	NA	NA	NA	NA
Cluster 3 (Ebb)	SR13	10	14	14.00	6	6.00	no	NA	NA		NA		

NA: Not Applicable

- Control and Gradient stations are compared on individual stations for reference, no clustering analysis was performed. Impact stations are compared in clusters of stations, or
- Parameter is not monitored at the station.

Table 5-3 Summary of Statistical Analysis

Parameter	Cluster	Compared against	Results and Conclusions
DO (B)	Cluster 2	Quarterly Mean at Impact Stations against 0.7 x Baseline Level Quarterly Mean at Impact Stations against Control Stations	Quarterly mean is significantly smaller than 0.7 x Baseline mean ($p<0.05$). Impact Mean is higher than the Control Mean ($p\leq0.05$), indicating background DO (B) level is low, and Project impact is not significant
DO (B)	Cluster 3	Quarterly Mean at Impact Stations against 0.7 x Baseline Level	Quarterly mean is not significantly different from 0.7 x Baseline mean ($p\geq0.05$), and Project impact is not significant
Turbidity	Cluster 1	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Control Stations	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Impact Mean is significantly smaller than the Control Mean ($p<0.05$), indicating background turbidity level is high, and Project impact is not significant
Turbidity	Cluster 2	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Control Stations	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Impact Mean is significantly smaller than the Control Mean ($p<0.05$), indicating background turbidity level is high, and Project impact is not significant
TIN	Cluster 1	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Quarterly Mean at Gradient Stations	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Gradient Mean is significantly smaller than Impact Mean ($p<0.05$), meaning Project impact is not significant
TIN	Cluster 2	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Upstream Gradient Station	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Impact Mean is significantly smaller than the Upstream Gradient (G1) Mean ($p<0.05$), indicating background TIN level is high, and Project impact is not significant

5.6.7 Exceedance are considered to be due to change in ambient conditions or influences in the vicinity of the stations. Mitigation measures for dredging works were implemented in accordance with EP and EIA requirements.

6. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

6.1.1 In this reporting period, no complaint, inspection notice, notification of summons or prosecution was received. Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Tables 7.1, 7.2 and 7.3**.

Table 6-1 Environmental Complaints Log

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply
Nil	-	-	-	-	-	-

Table 6-2 Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Period	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Table 6-3 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Prosecutions This Period	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

6.1.2 Leakage incident was reported at around 04:35 am on 14 October 2014 during the dredging operation at TMTA Grid No. F16 (Portion B, Z5A) in the Container Basin. The loading compartment of the barge was suddenly partially opened and the dredged Cat Hp sediment (Type II) seeped back within Zone 1B. Investigation was carried out immediately and identified that a very rare inconsistent power supply with the damage of electric breaker condition occurred and caused the lost of control on the magnetic pressure valve. The error was immediately rectified by replacing a new device and the loading compartment was back to normal operation. The dredging works was then resumed at around 05:15 a.m. on 14 October 2014, preventive measures was implemented afterwards. Analysis of water quality monitoring data as well as seawater metal levels indicated the impact of the incident is considered not significant. Adequate corrective measures shall be implemented by the Contractor to avoid recurrence of such incident. Incident report on the leakage is under review and will be provided in subsequent EM&A report.

7. CONCLUSIONS

7.1.1 The dredging works was commenced on 23 April 2014. The EM&A programme was carried out in accordance with the EM&A Manual requirements. As per the EM&A Manual, water quality impact monitoring was conducted during the dredging works.

7.1.2 During the reporting period, exceedances were recorded for turbidity, dissolved oxygen, TIN, and suspended solids in the routine impact monitoring. Exceedances were also recorded in 24-hr monitoring. Investigation found that the exceedances were not project related and were considered caused by influences in the vicinity of the stations or change in ambient conditions. The action and limit level should be reviewed to reduce the false alarm generated.

7.1.3 Environmental site inspections were carried out weekly in the reporting period, no non-compliance from the site audits was observed.

7.1.4 No environmental complaint was received and followed up by Environmental Team in the reporting period.

7.1.5 No notification of summons and prosecution was received in the reporting period.

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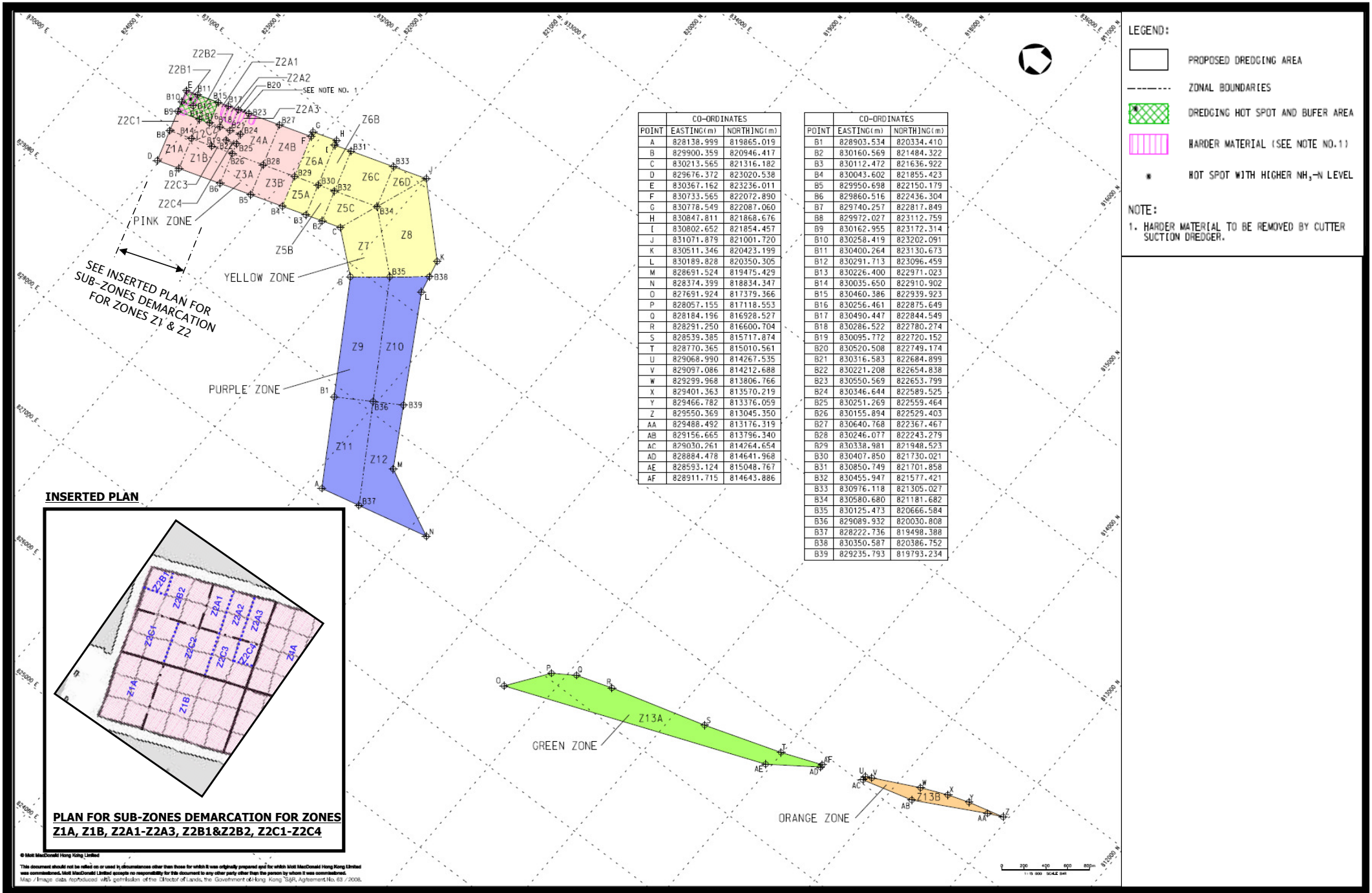
Figure 1

Project General Layout



	CO-ORDINATES	
POINT	EASTING(m)	NORTHING(m)
A	828138.999	819865.019
B	829900.359	820946.417
C	830213.565	821316.182
D	829676.372	823020.538
E	830367.162	823236.011
F	830733.565	822072.890
G	830778.549	822087.060
H	830847.811	821868.676
I	830802.652	821854.457
J	831071.879	821001.720
K	830511.346	820423.199
L	830189.828	820350.305
M	828691.524	819475.429
N	828374.399	818834.347
O	827691.924	817379.366
P	828057.155	817118.553
Q	828184.196	816928.527
R	828291.250	816600.704
S	828539.385	815717.874
T	828770.365	815010.561
U	829068.990	814267.535
V	829097.086	814212.688
W	829299.968	813806.766
X	829401.363	813570.219
Y	829466.782	813376.059
Z	829550.369	813045.350
AA	829488.492	813176.319
AB	829156.665	813796.340
AC	829030.261	814264.654
AD	828884.478	814641.968
AE	828593.124	815048.767
AF	828911.715	814643.886

	CO-ORDINATES	
POINT	EASTING(m)	NORTHING(m)
B1	828903.534	820334.410
B2	830160.569	821484.322
B3	830112.472	821636.922
B4	830043.602	821855.423
B5	829950.698	822150.179
B6	829860.516	822436.304
B7	829740.257	822817.849
B8	829972.027	823112.759
B9	830162.955	823172.314
B10	830258.419	823202.091
B11	830400.264	823130.673
B12	830291.713	823096.459
B13	830226.400	822971.023
B14	830035.650	822910.902
B15	830460.386	822939.923
B16	830256.461	822875.649
B17	830490.447	822844.549
B18	830286.522	822780.274
B19	830095.772	822720.152
B20	830520.508	822749.174
B21	830316.583	822684.899
B22	830221.208	822654.838
B23	830550.569	822653.799
B24	830346.644	822589.525
B25	830251.269	822559.464
B26	830155.894	822529.403
B27	830640.768	822367.467
B28	830246.077	822243.279
B29	830338.981	821948.523
B30	830407.850	821730.021
B31	830850.749	821701.858
B32	830455.947	821577.421
B33	830976.118	821305.027
B34	830580.680	821181.682
B35	830125.473	820666.584
B36	829089.932	820030.808
B37	828222.736	819498.388
B38	830350.587	820386.752
B39	829235.793	819793.234

INSERTED PLAN

PLAN FOR SUB-ZONES DEMARCATION FOR ZONES Z1A, Z1B, Z2A1-Z2A3, Z2B1&Z2B2, Z2C1-Z2C4

Project Title: Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

Figure 2: Zones and Sub-zone of Dredging Plan Layout (Extracted from Figure 2 of Justification for the Proposed Demarcation of the Dredging Zones)

Environmental Permit No.:

EP-426/2011/A

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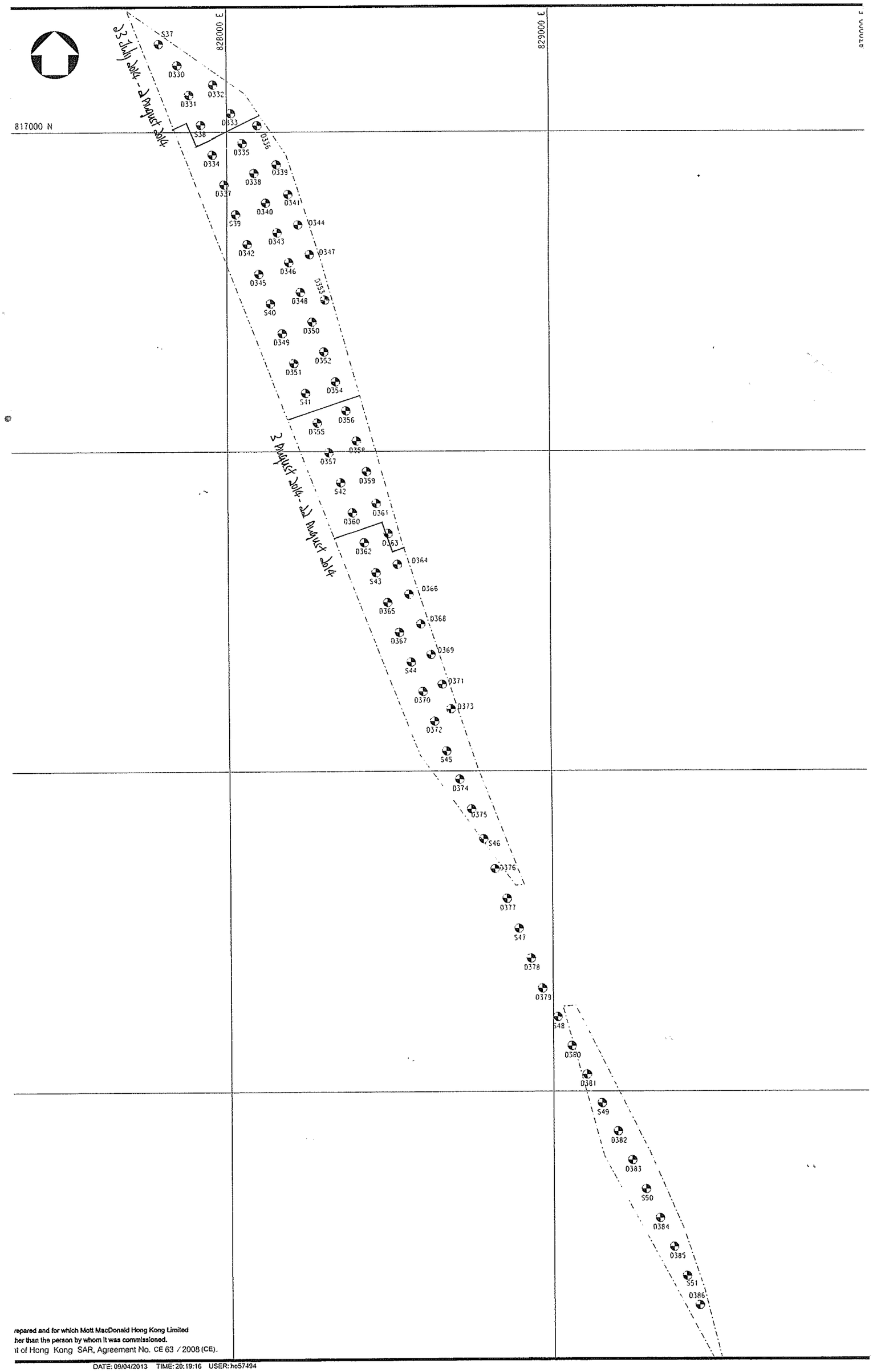
Figure 2

Dredging Work Location during the Reporting Period



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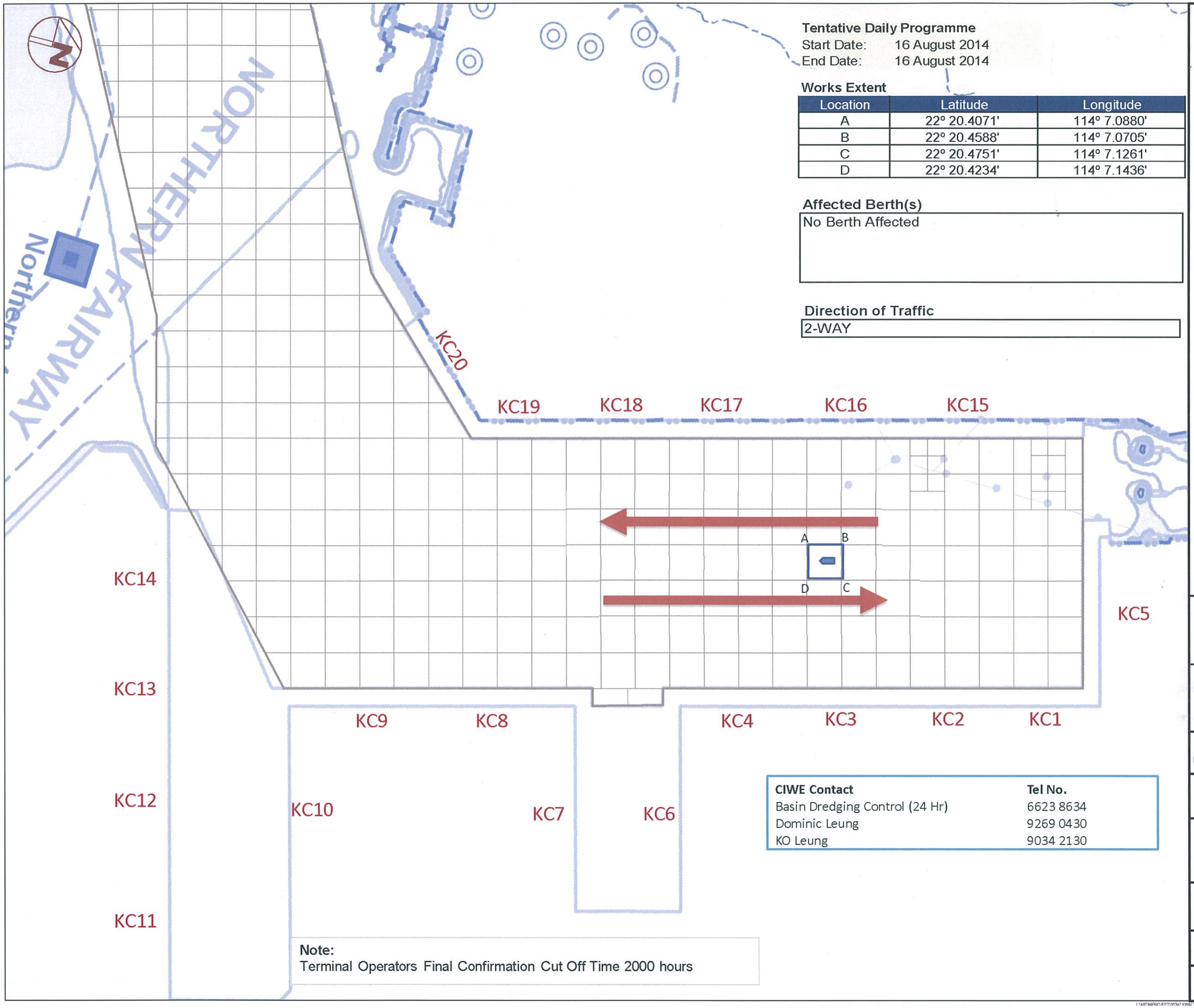

Tentative Daily Programme
Start Date: 16 August 2014
End Date: 16 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)
No Berth Affected

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

16 Aug 2014 - 07:00
16 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department Hong Kong 土木工程拓展署

THE ENGINEER
Mott MacDonald
22/F AIA Kowloon Tower Landmark East 100 How Ming Street Kwun Tong, Kowloon Hong Kong
T +852 2828 5757
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CONTRACTOR
中國水利電力對外公司 CHINA INTERNATIONAL WATER & ELECTRIC CORP.

INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D006

SCALE AT A3 N.T.S.

REV. A

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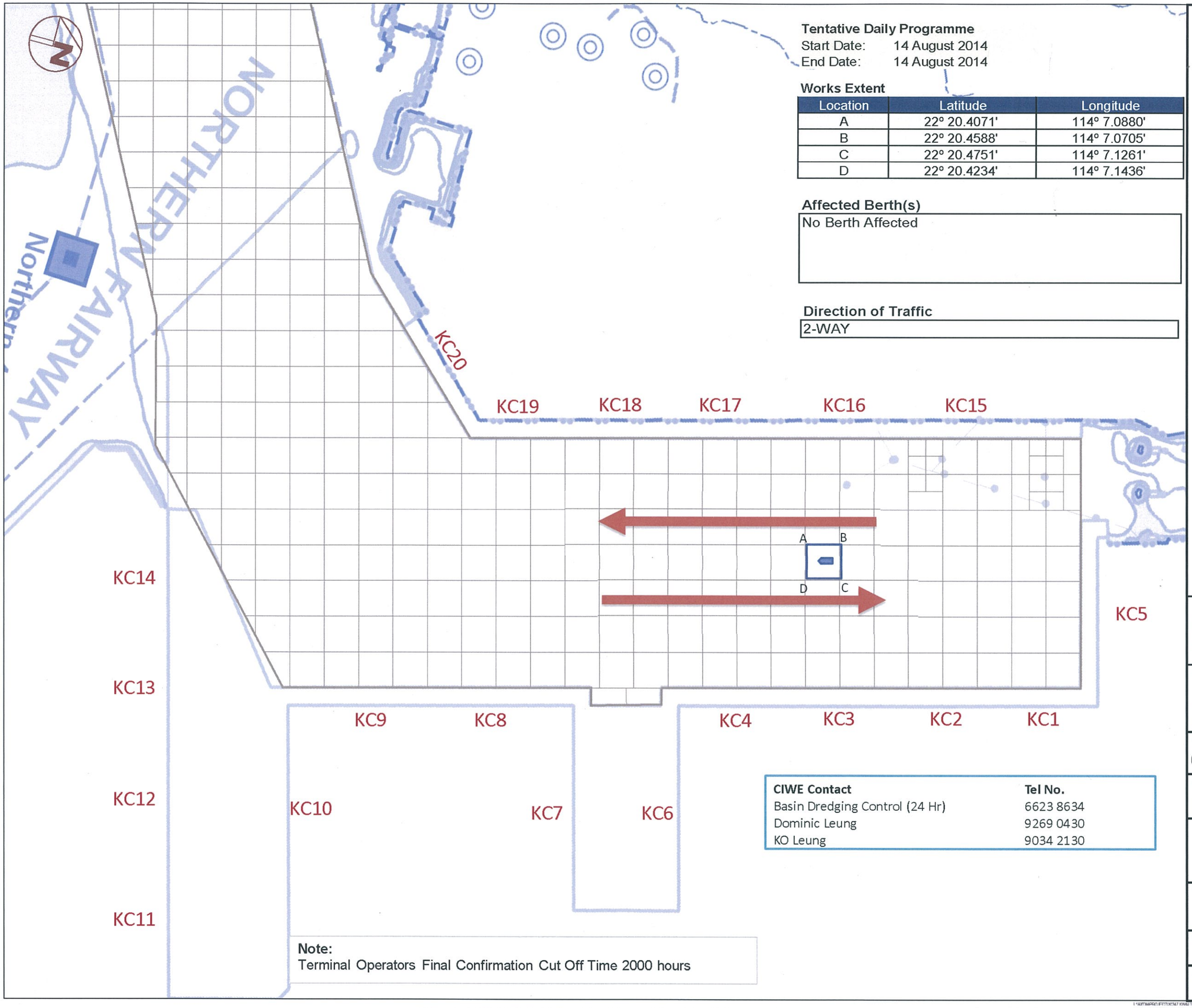

Tentative Daily Programme
Start Date: 14 August 2014
End Date: 14 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)
No Berth Affected

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

14 Aug 2014 - 07:00
14 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department Hong Kong 土木工程拓展署

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CONTRACTOR
中國水利電力對外公司 CHINA INTERNATIONAL WATER & ELECTRIC CORP.

INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D005

SCALE AT A3: N.T.S.
REV.: A

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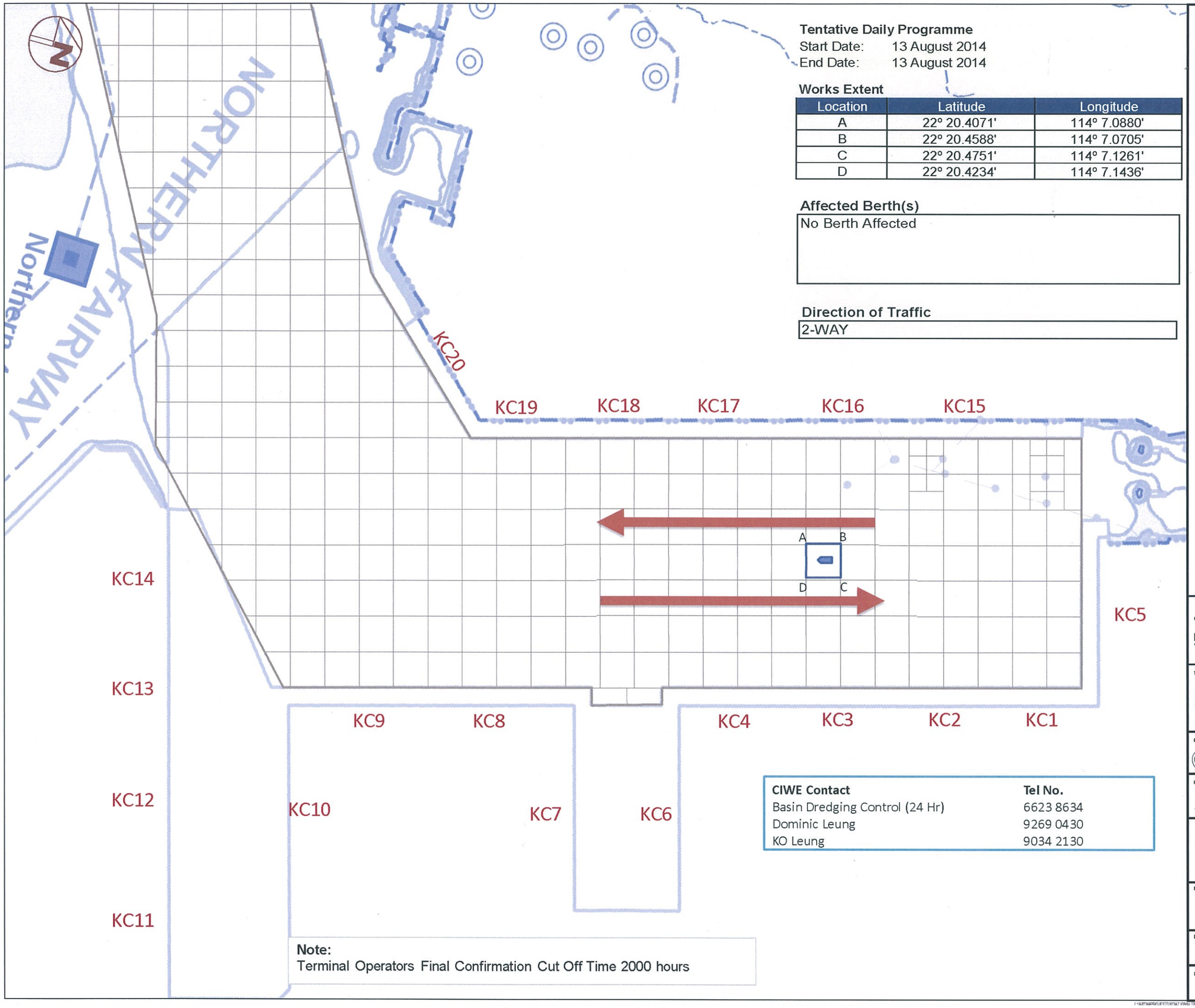

Tentative Daily Programme
Start Date: 13 August 2014
End Date: 13 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)
No Berth Affected

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

13 Aug 2014 - 07:00
13 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department Hong Kong 土木工程拓展署

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INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

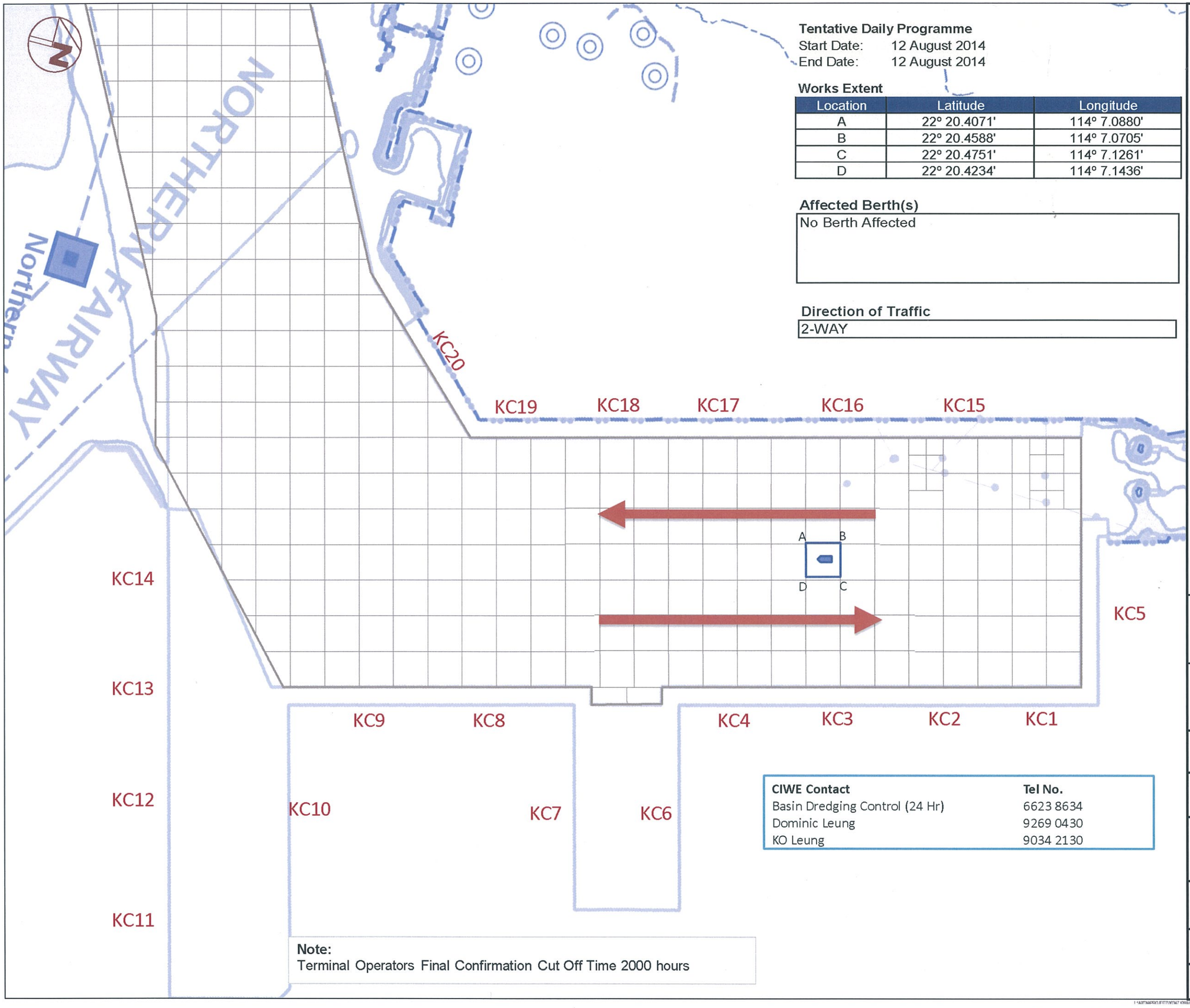
CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D004

SCALE AT A3
N.T.S.

REV.
A



Tentative Daily Programme
Start Date: 12 August 2014
End Date: 12 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)
No Berth Affected

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

12 Aug 2014 - 07:00
12 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department, Hong Kong 土木工程拓展署

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CONTRACTOR
中國水利電力對外公司 CHINA INTERNATIONAL WATER & ELECTRIC CORP.

INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D002

SCALE AT A3: N.T.S.
REV.: A

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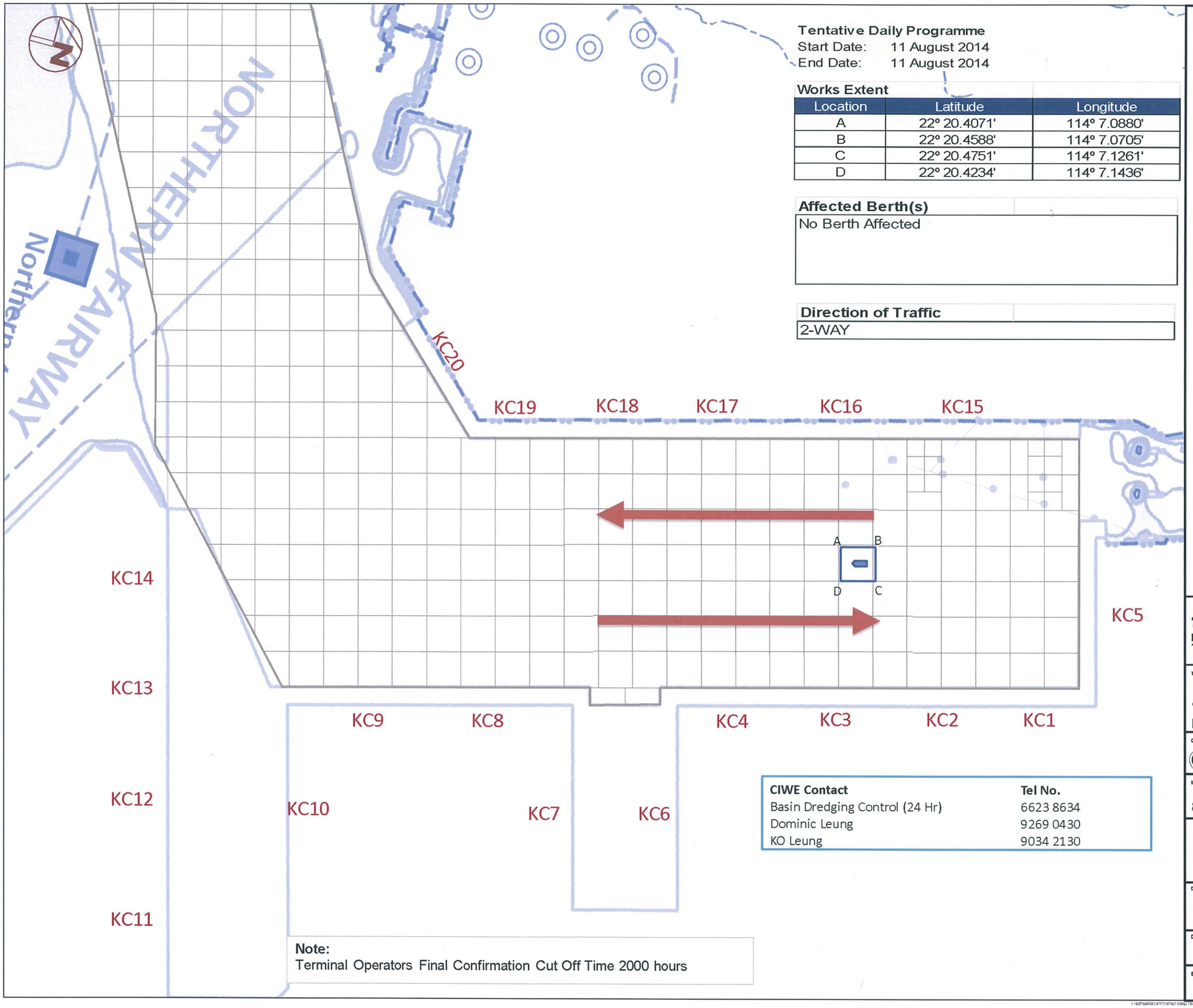

Tentative Daily Programme
Start Date: 11 August 2014
End Date: 11 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)

No Berth Affected

Direction of Traffic

2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

11 Aug 2014 - 07:00
11 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department, Hong Kong 土木工程拓展署

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CONTRACTOR
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INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D001

SCALE AT A3: N.T.S.
REV.: A

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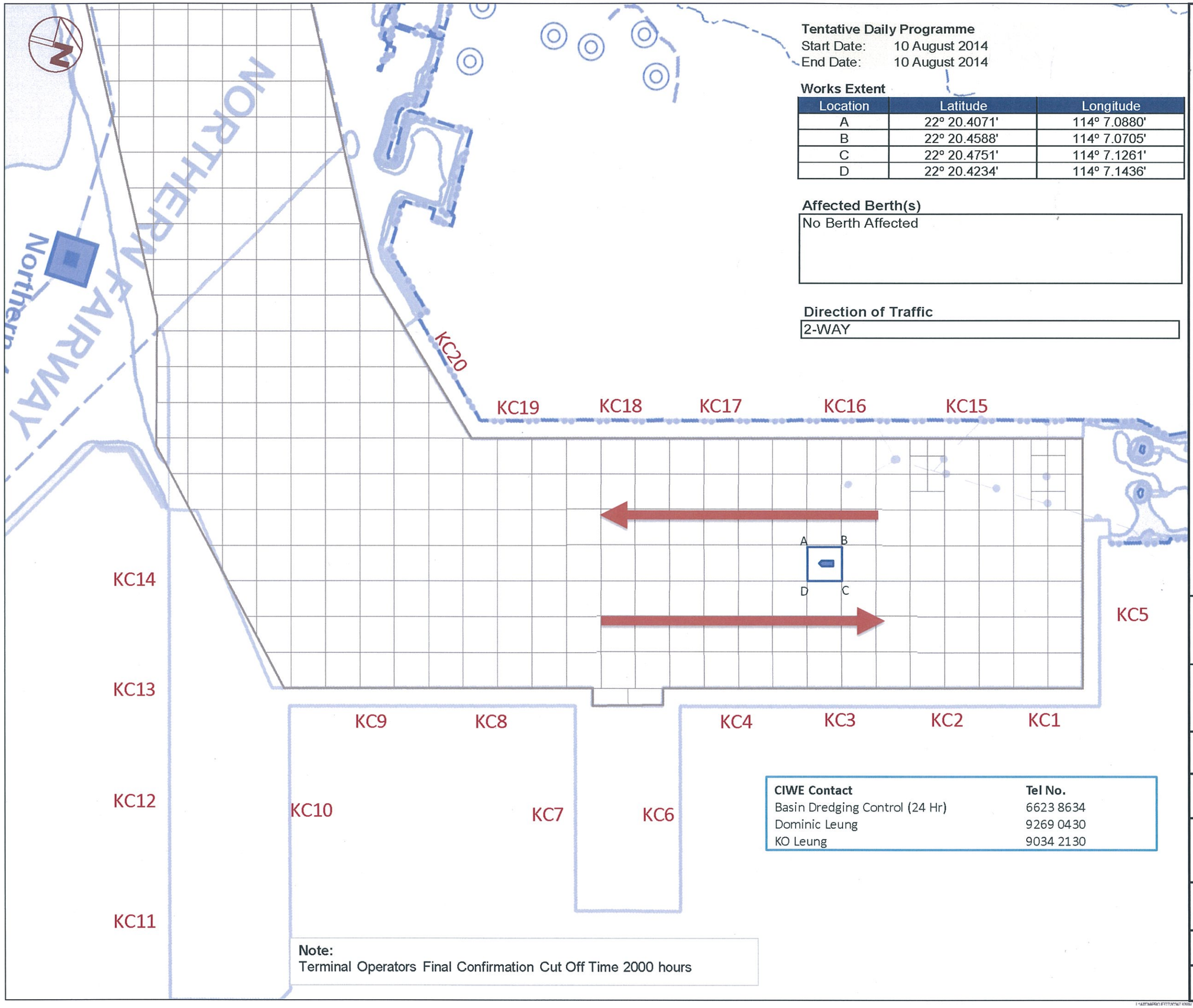

Tentative Daily Programme
Start Date: 10 August 2014
End Date: 10 August 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.4071'	114° 7.0880'
B	22° 20.4588'	114° 7.0705'
C	22° 20.4751'	114° 7.1261'
D	22° 20.4234'	114° 7.1436'

Affected Berth(s)
No Berth Affected

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:

MDN Nr. 95 of 2014

Portion A - Dredging Operation

Dredging Location - Subject to Available Window

Daily Programme

10 Aug 2014 - 07:00
10 Aug 2014 - 23:00

Remarks:

3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position

Ledgend:

Dredging Area

Box No.
D20

CEDD Civil Engineering and Development Department Hong Kong 土木工程拓展署

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INDEPENDENT MARINE TRAFFIC CONSULTANT
AXON CONSULTANCY AXON CONSULTANCY LTD

CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

DRAWING TITLE.
Portion AB - Container Basin
Daily Programme

DRAWING NO.
CIWE-KTCB-D001

SCALE AT A3: N.T.S.
REV.: A

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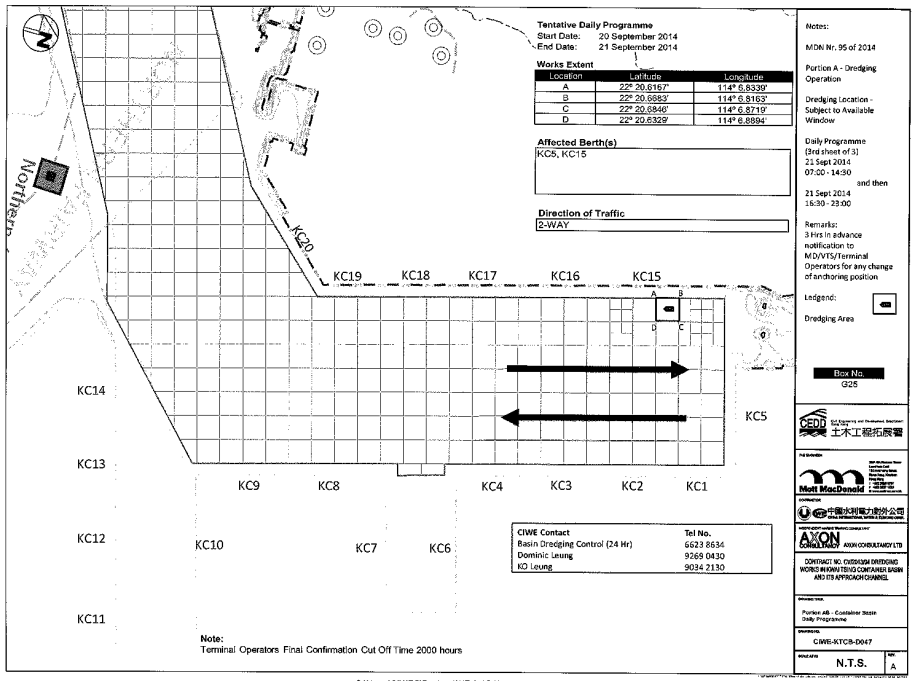

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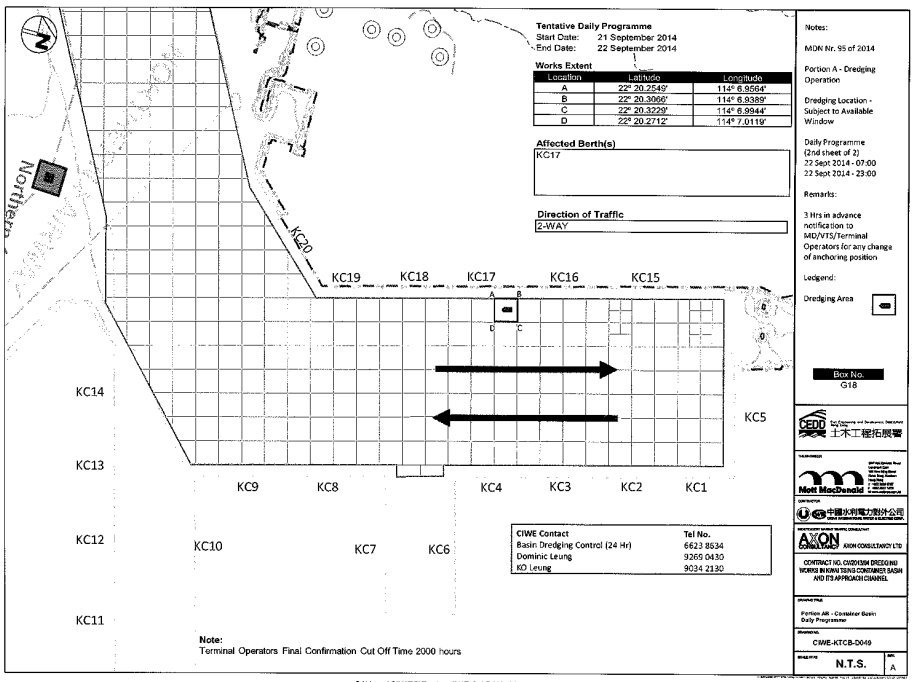

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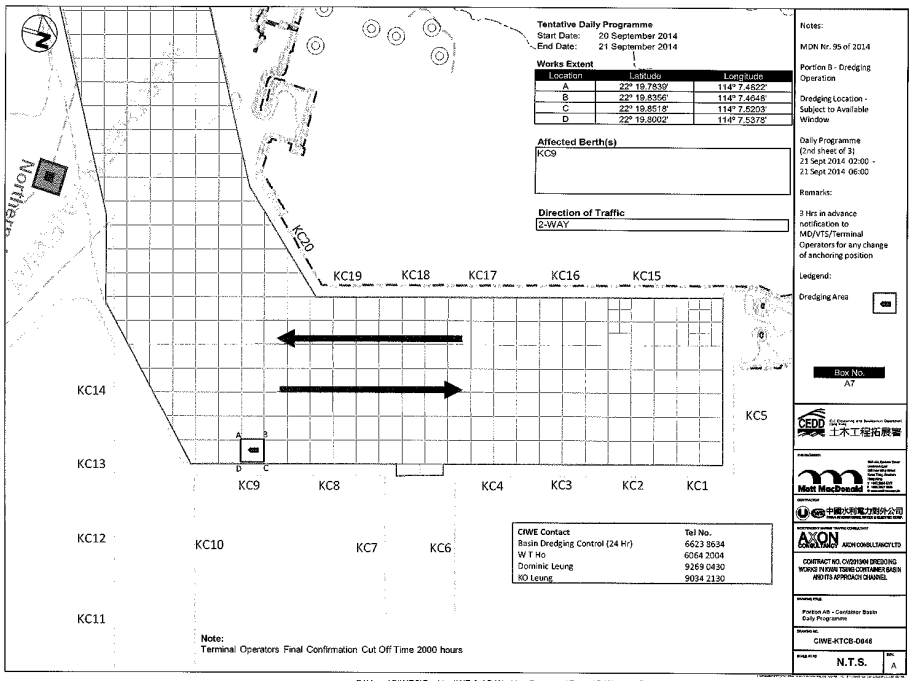

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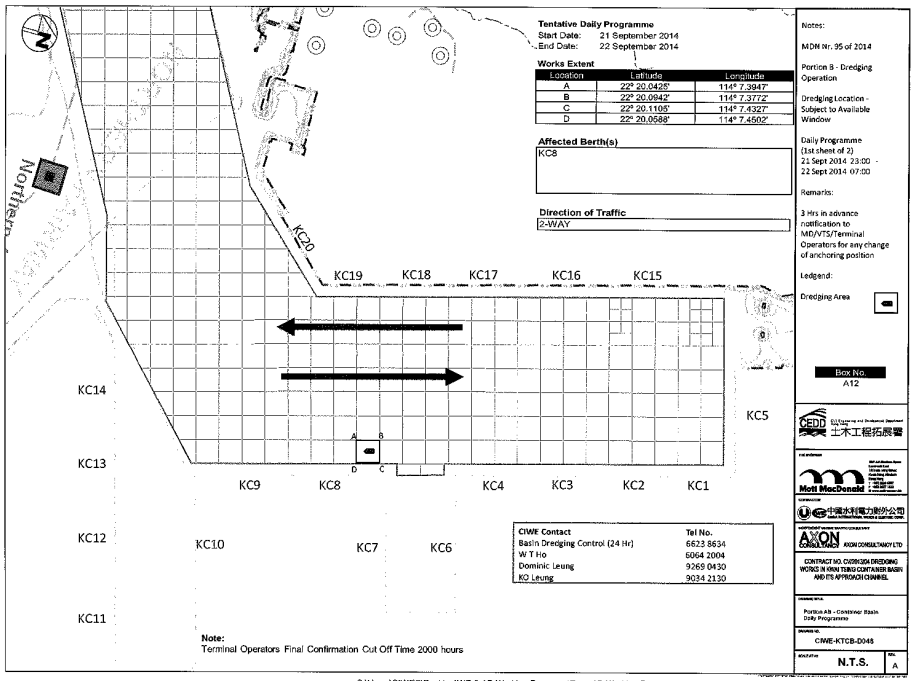

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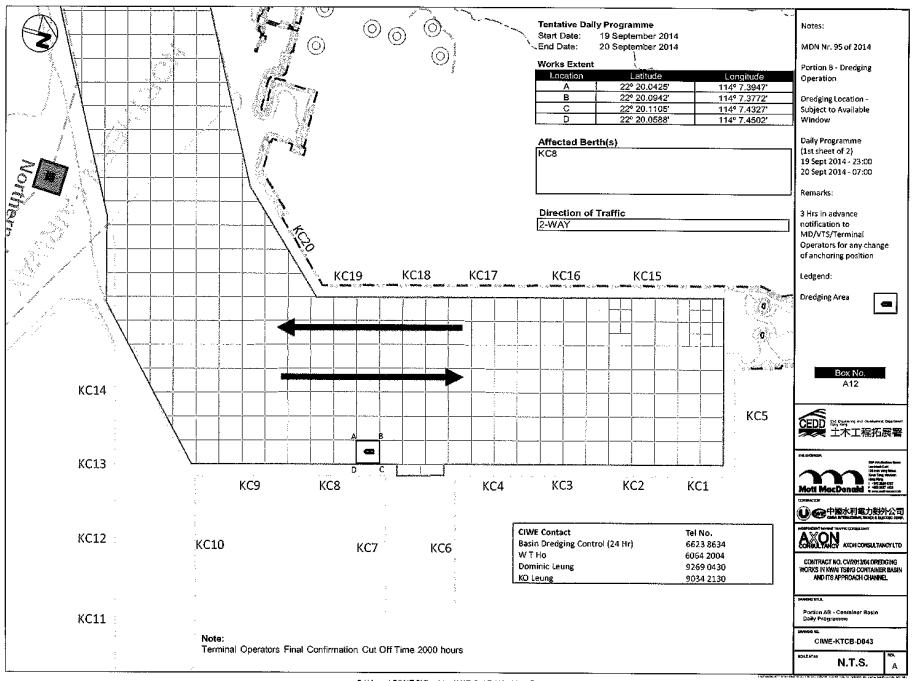

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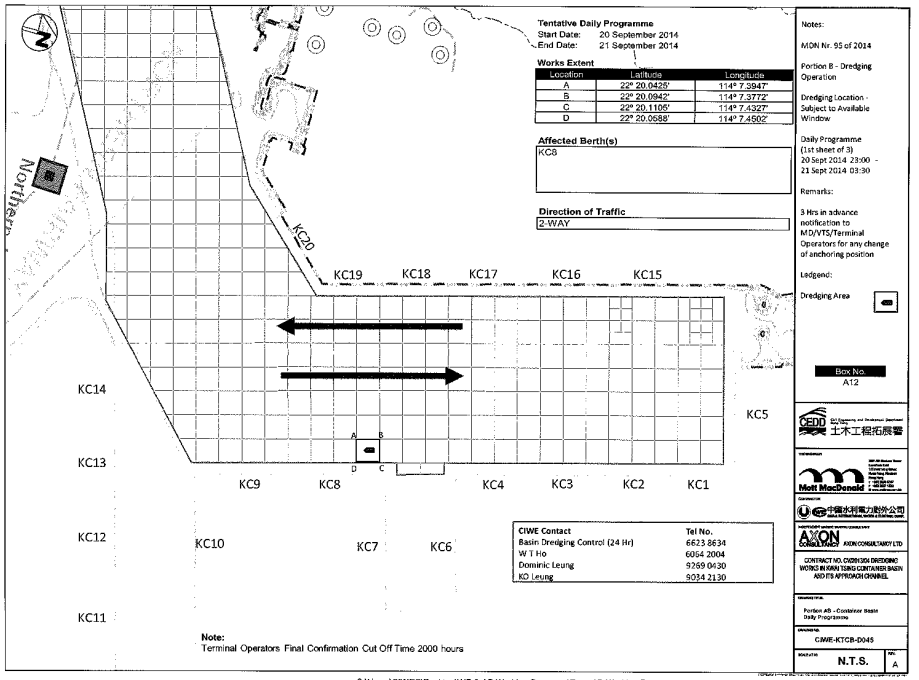

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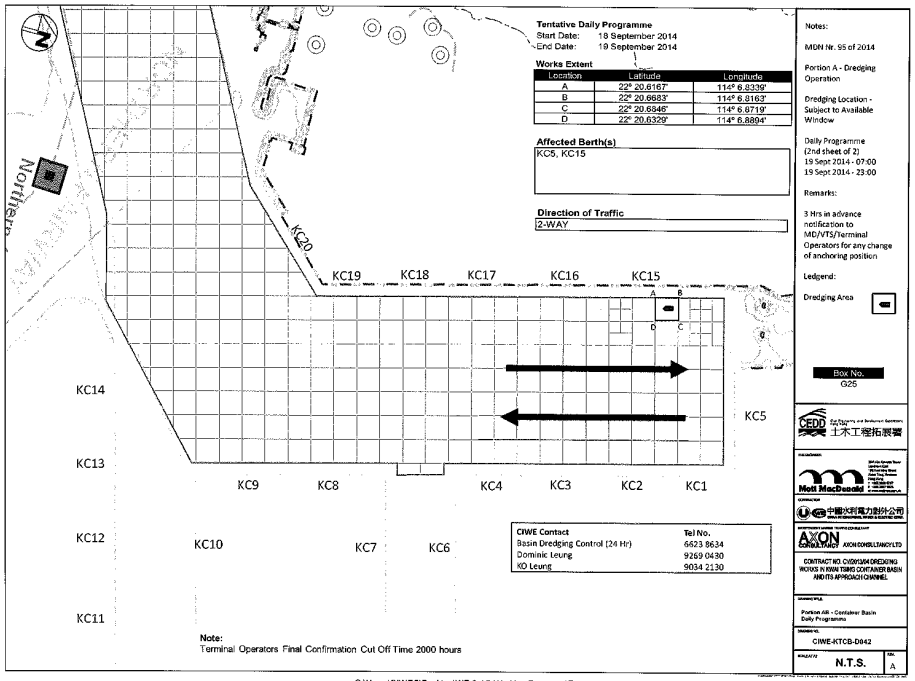

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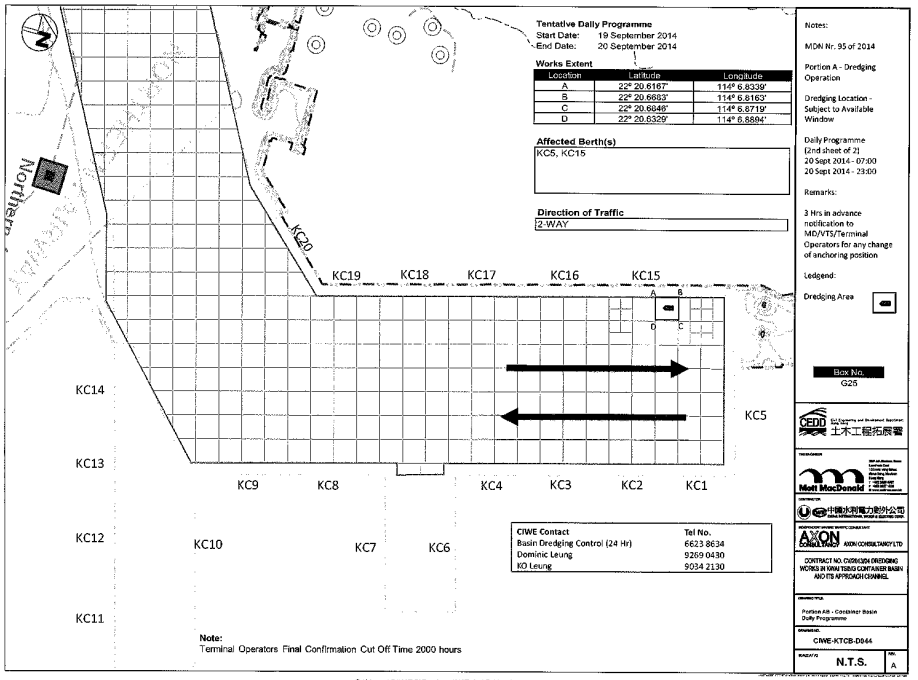

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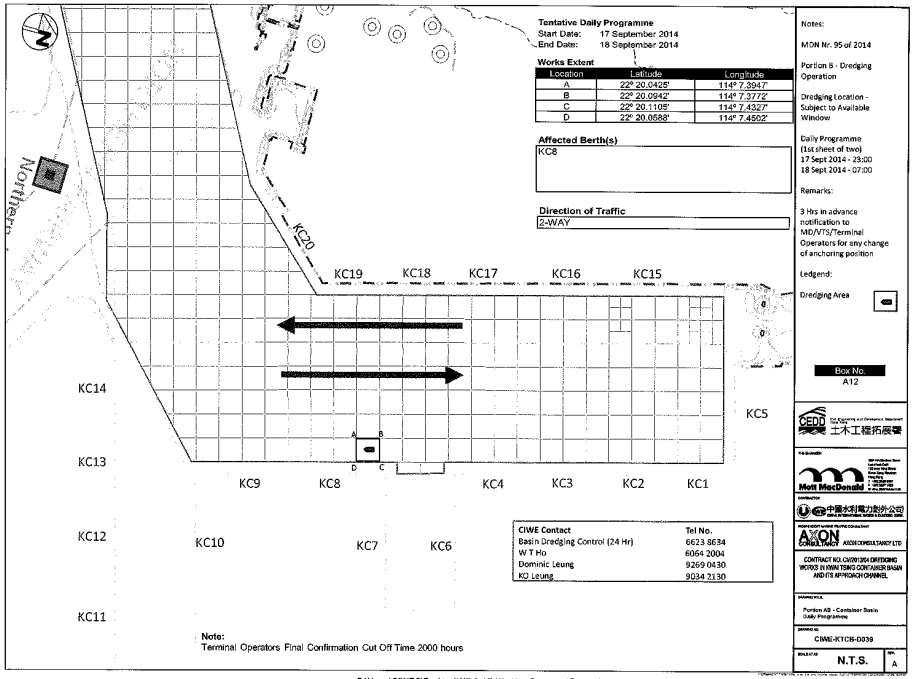

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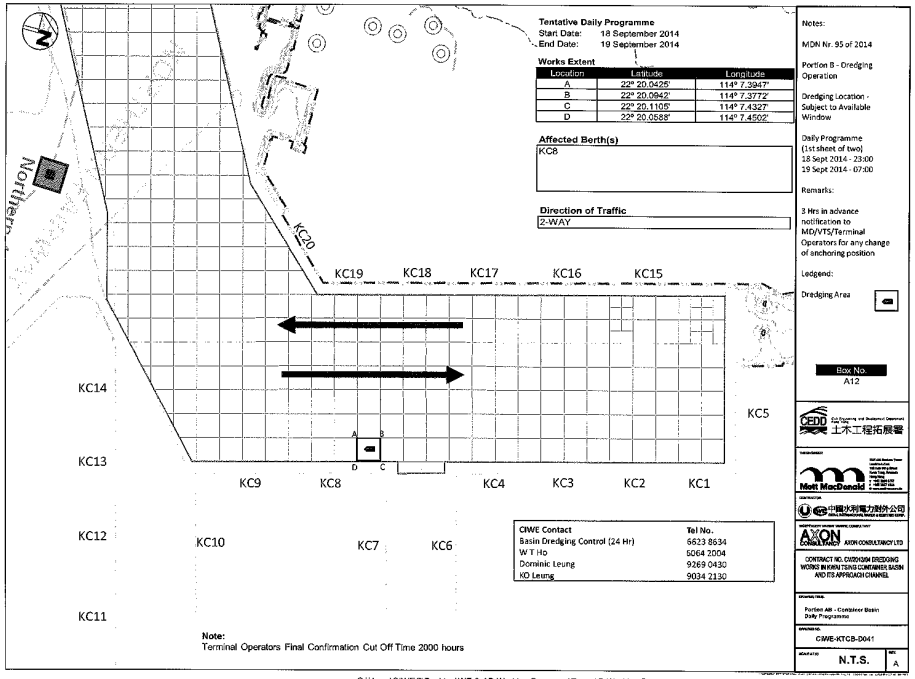

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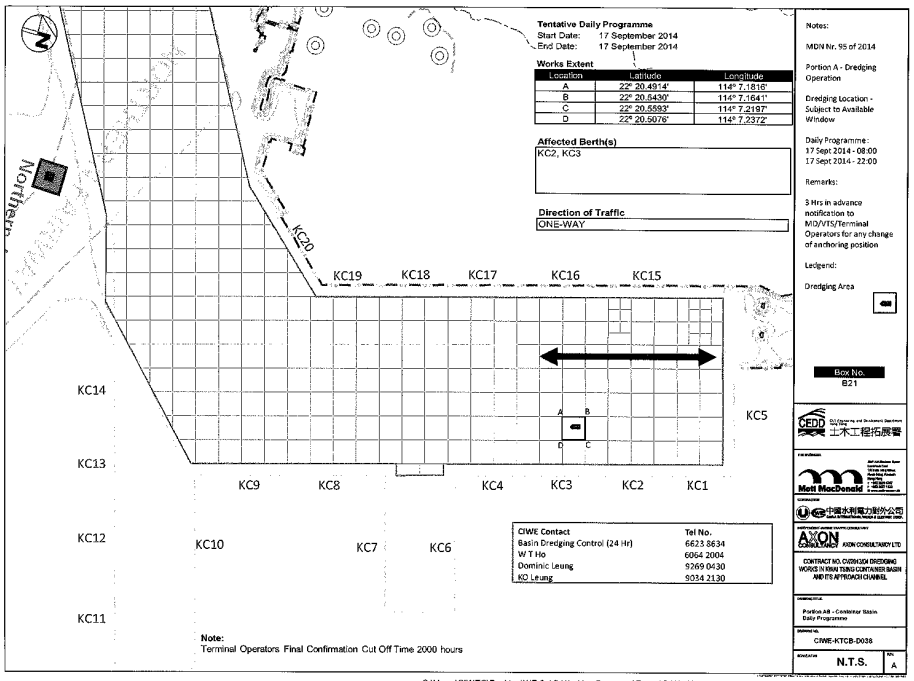

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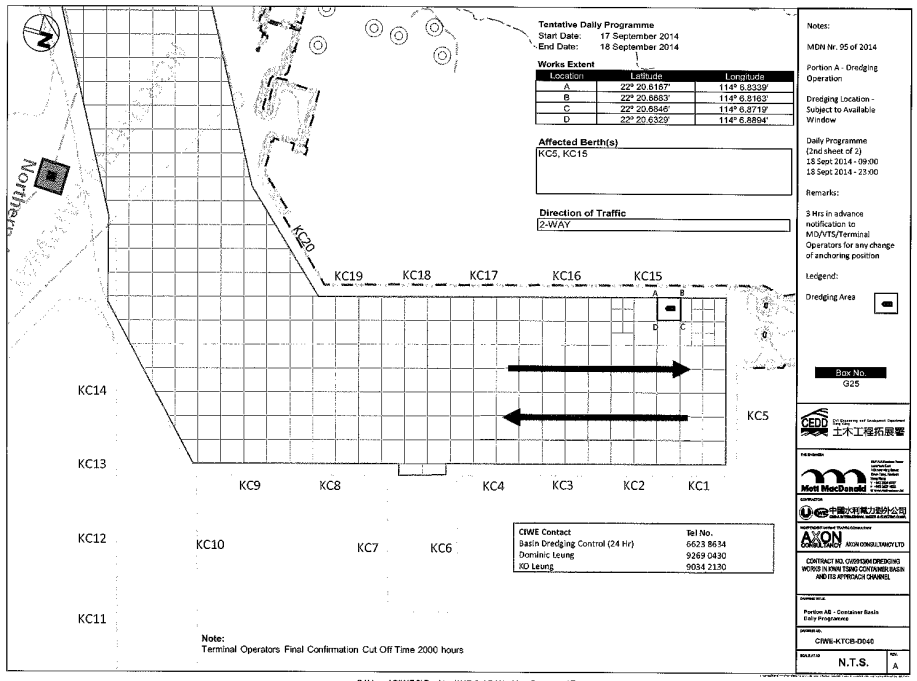

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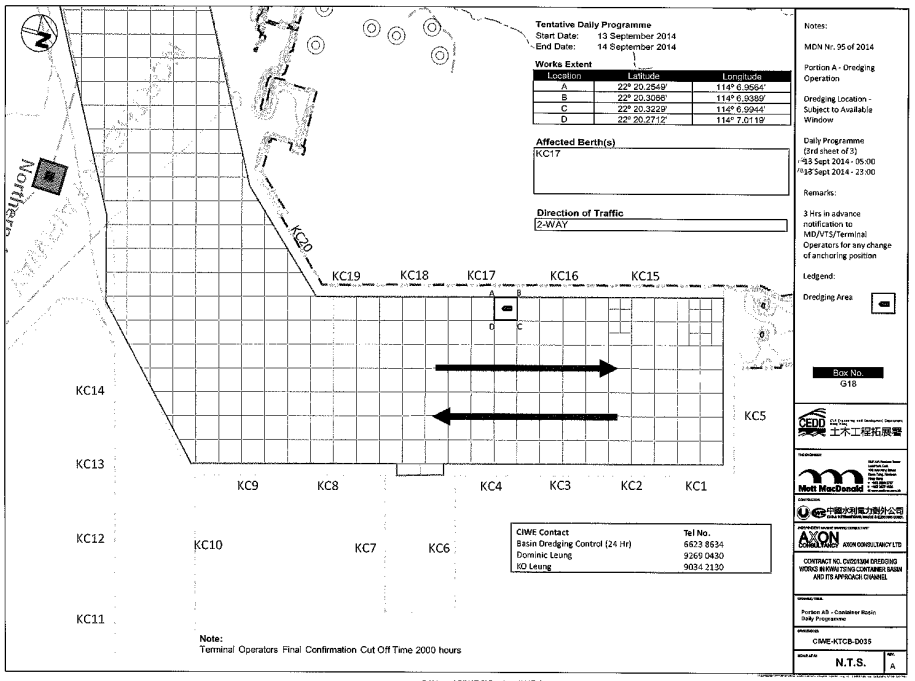

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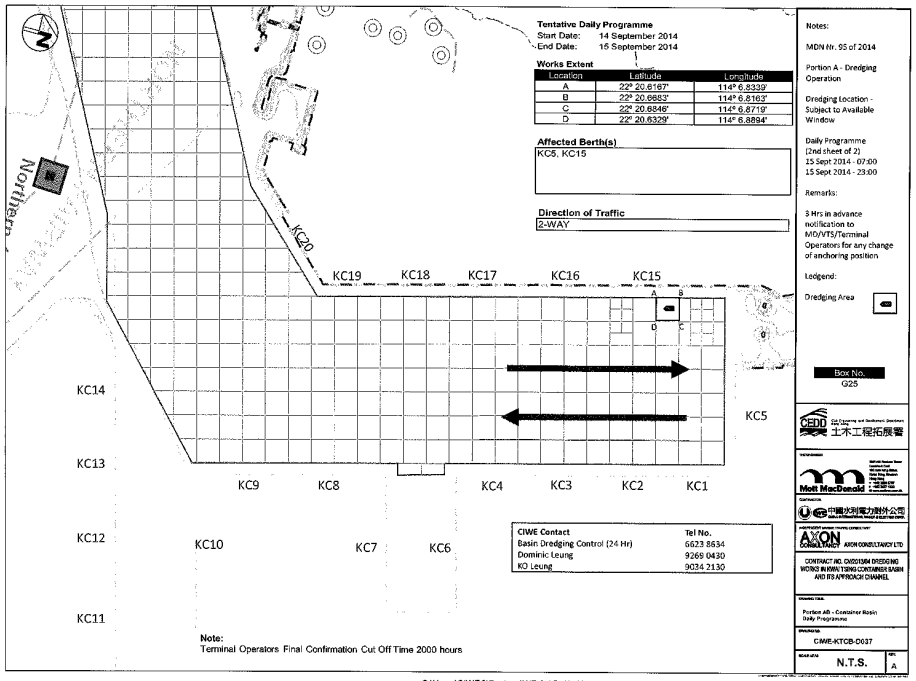

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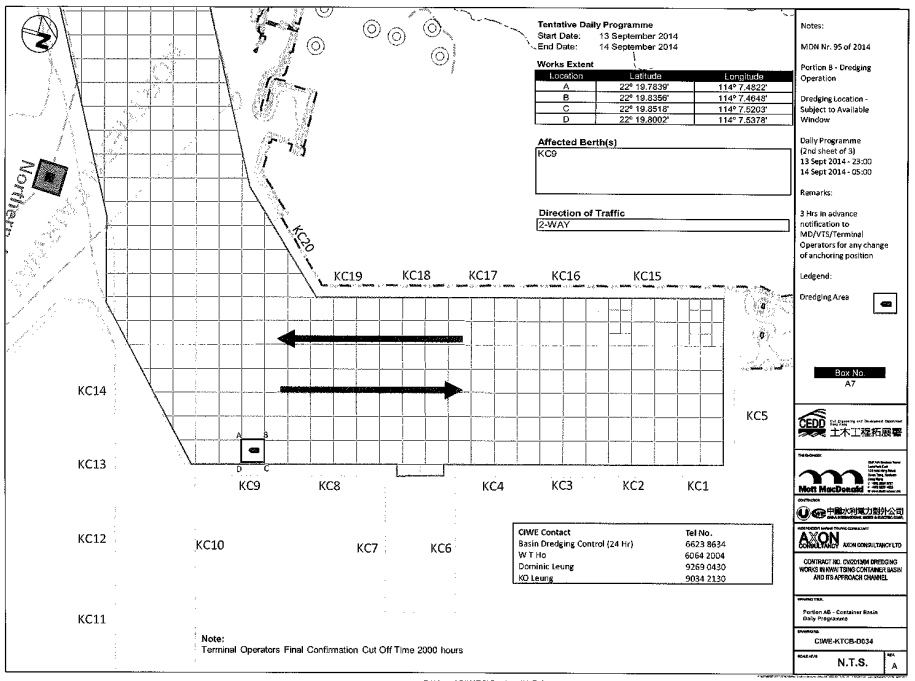

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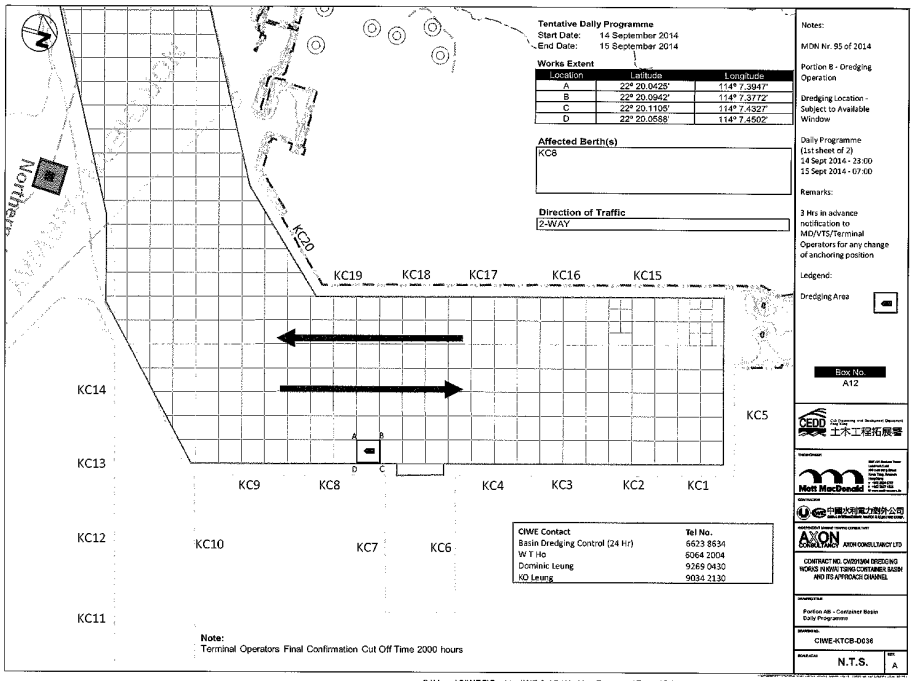

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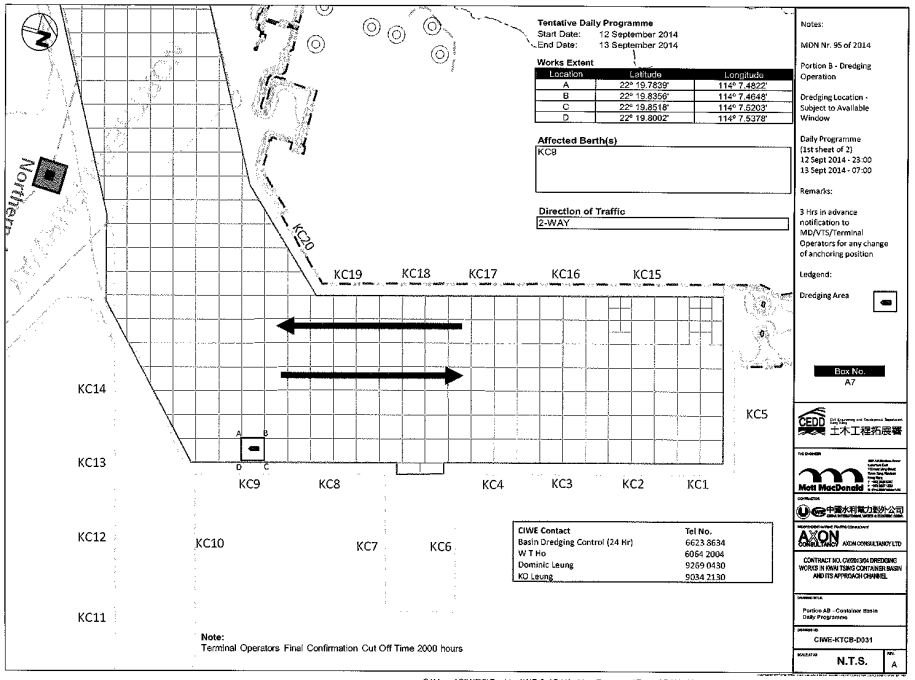

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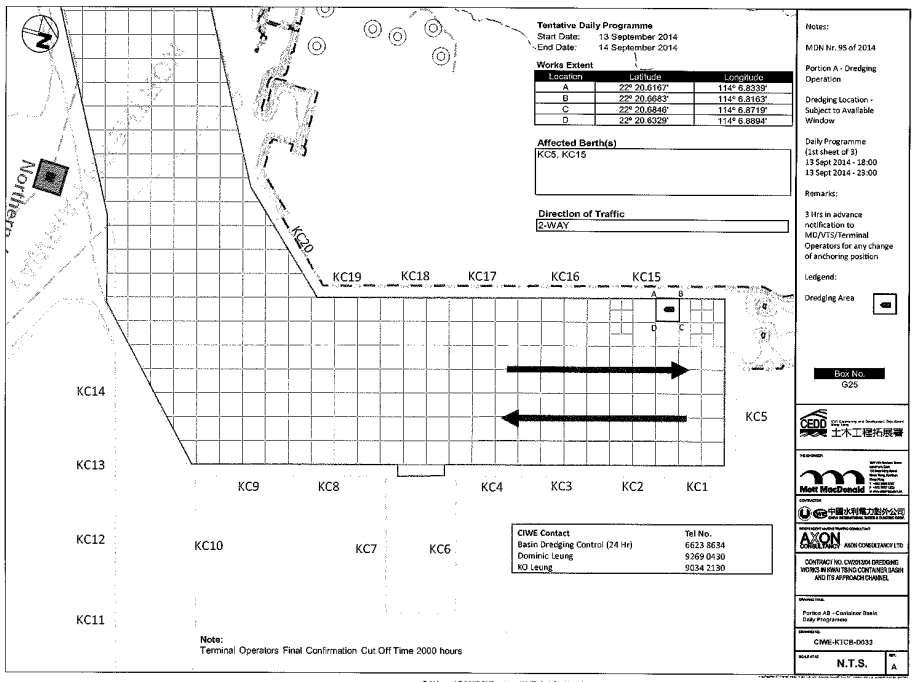

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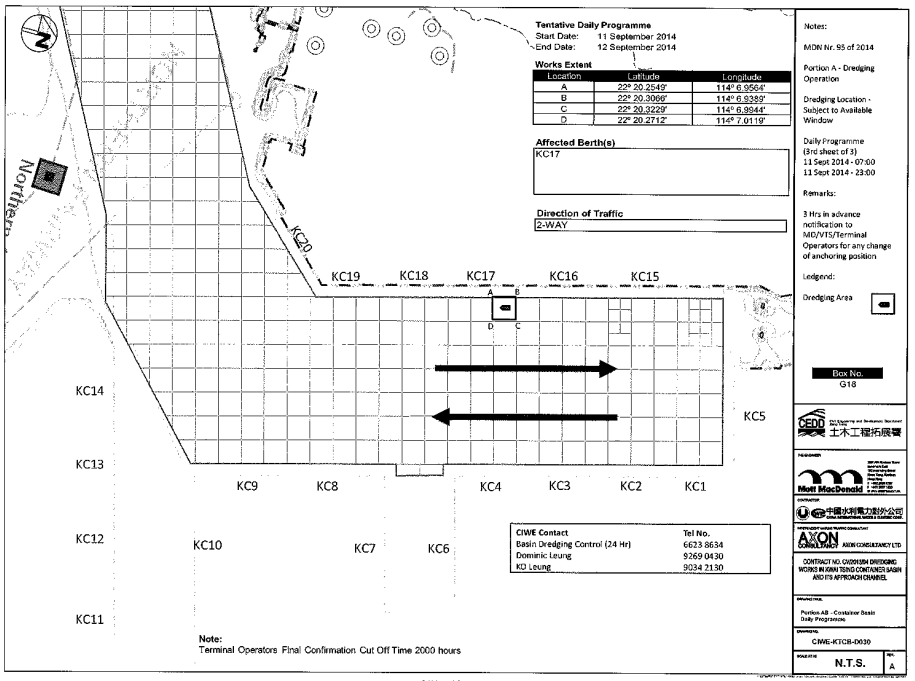

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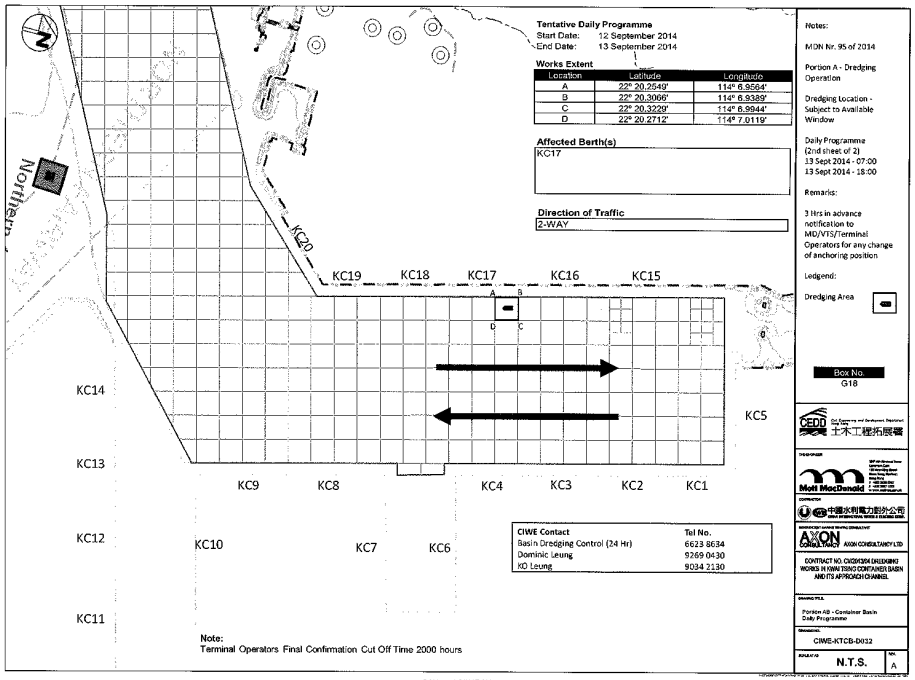

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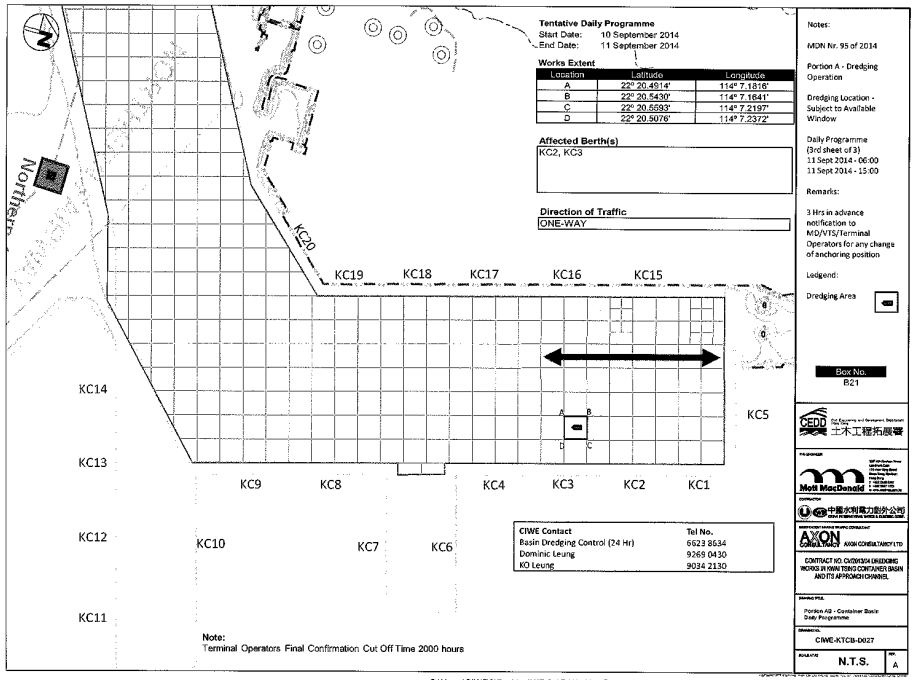

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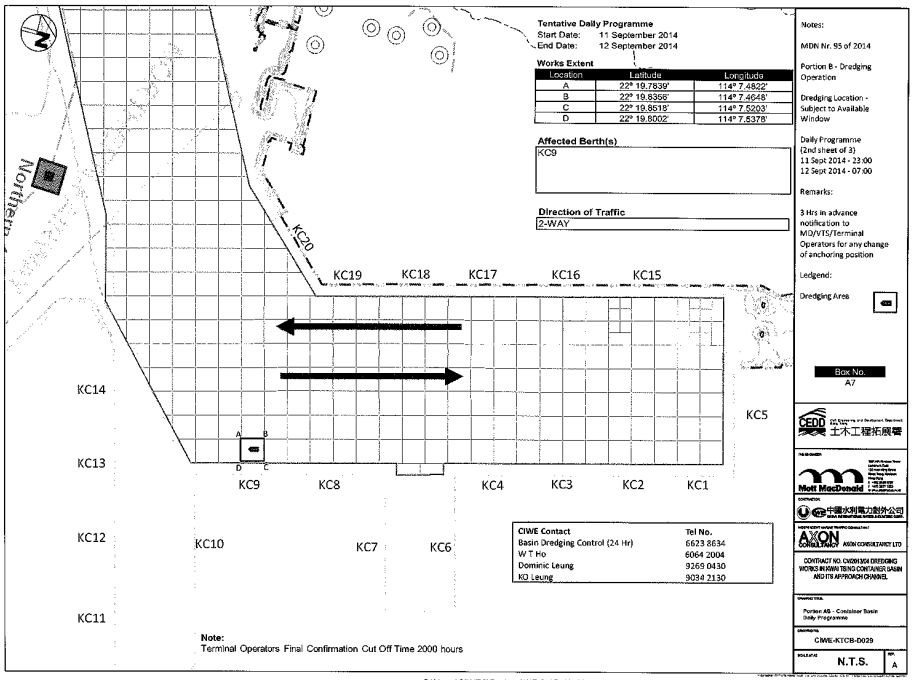

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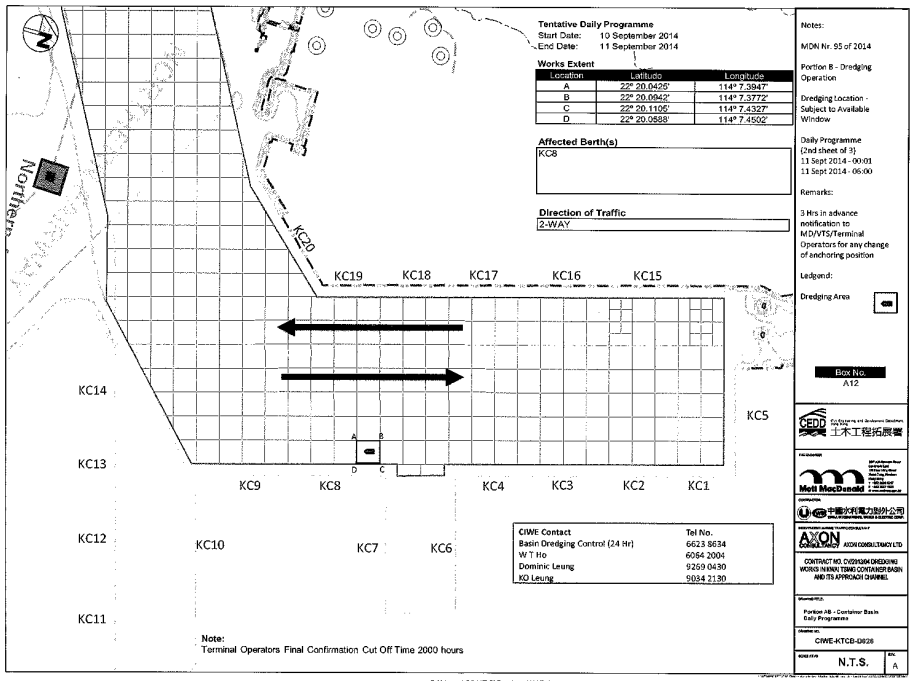

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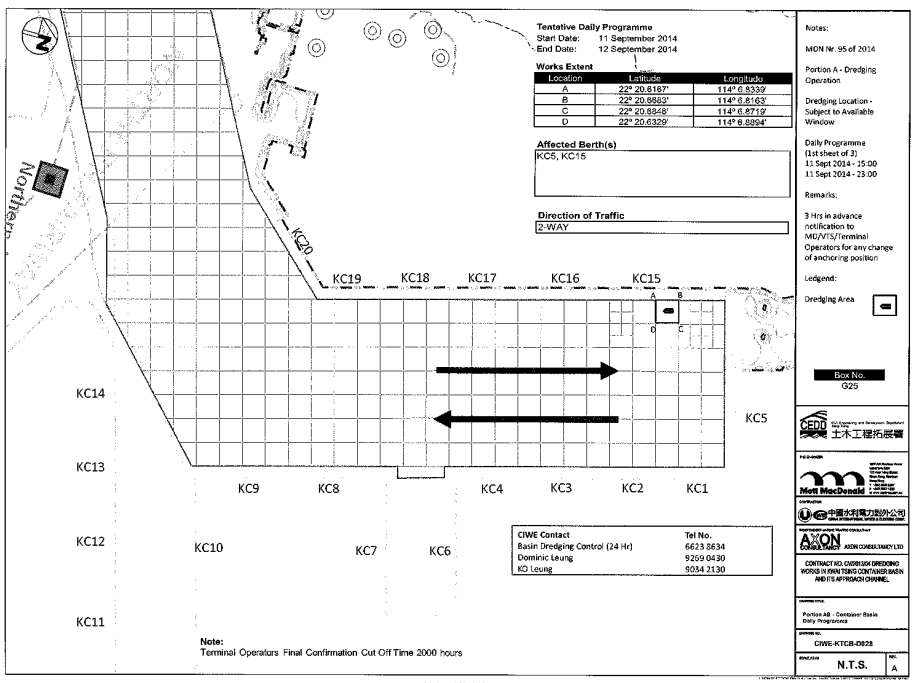

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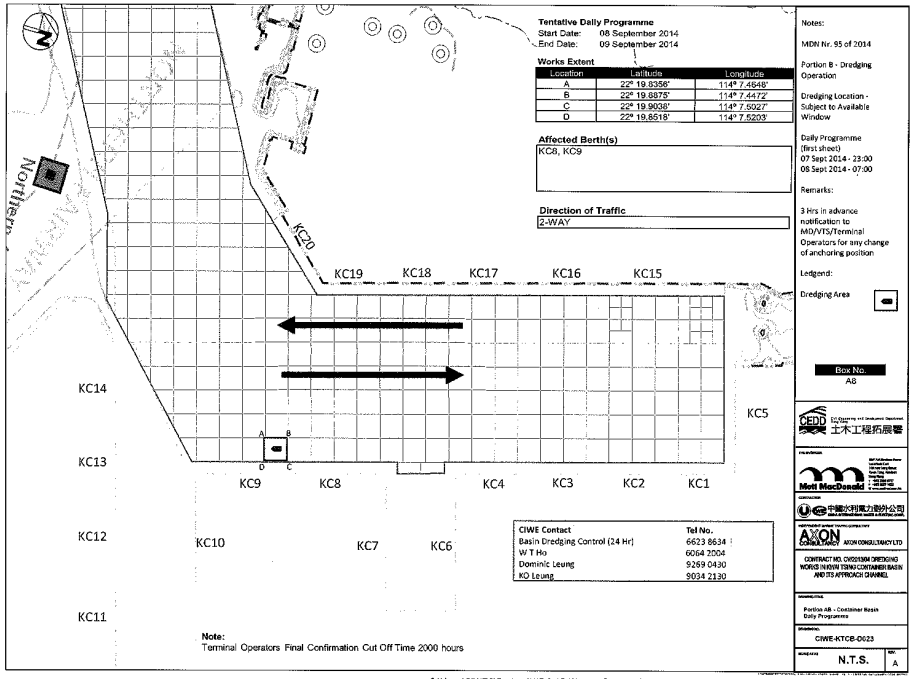

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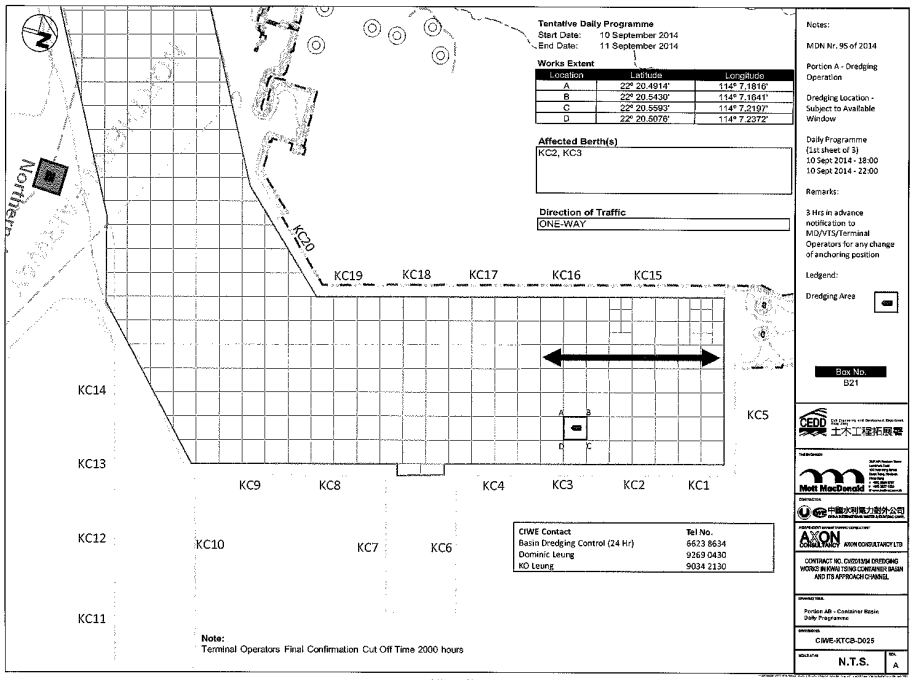

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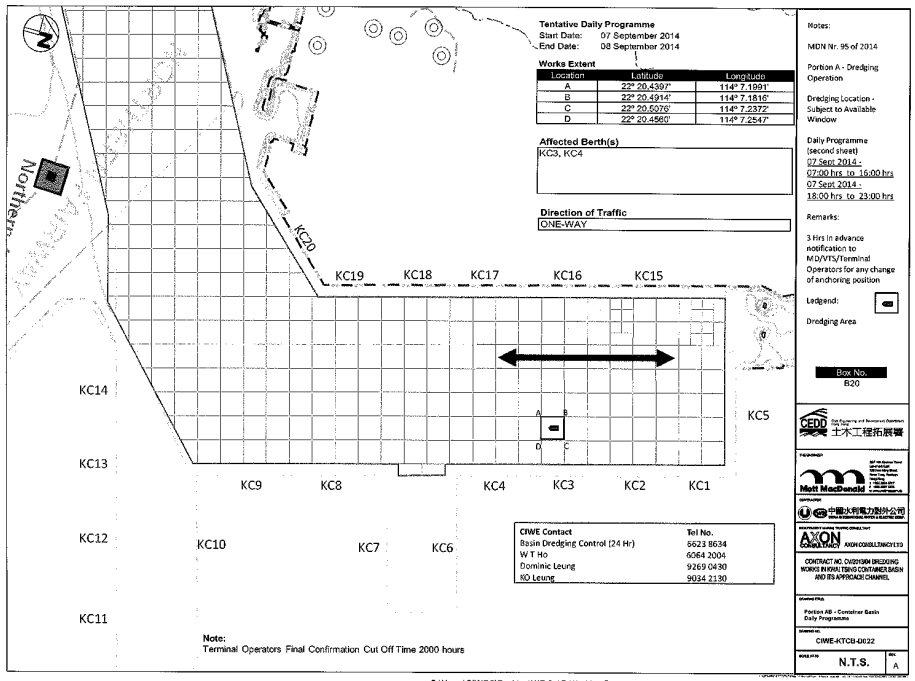

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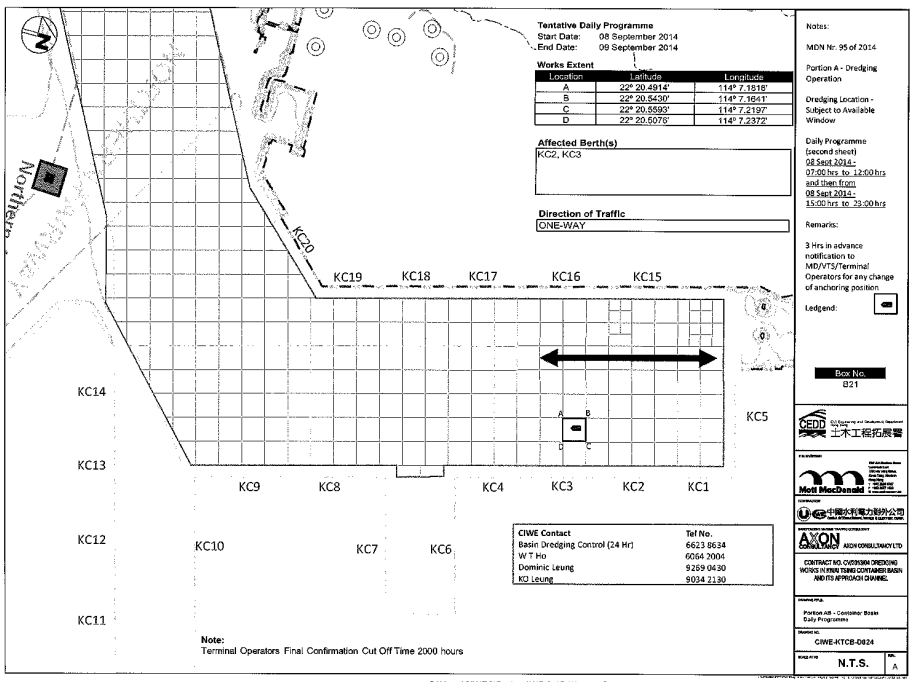

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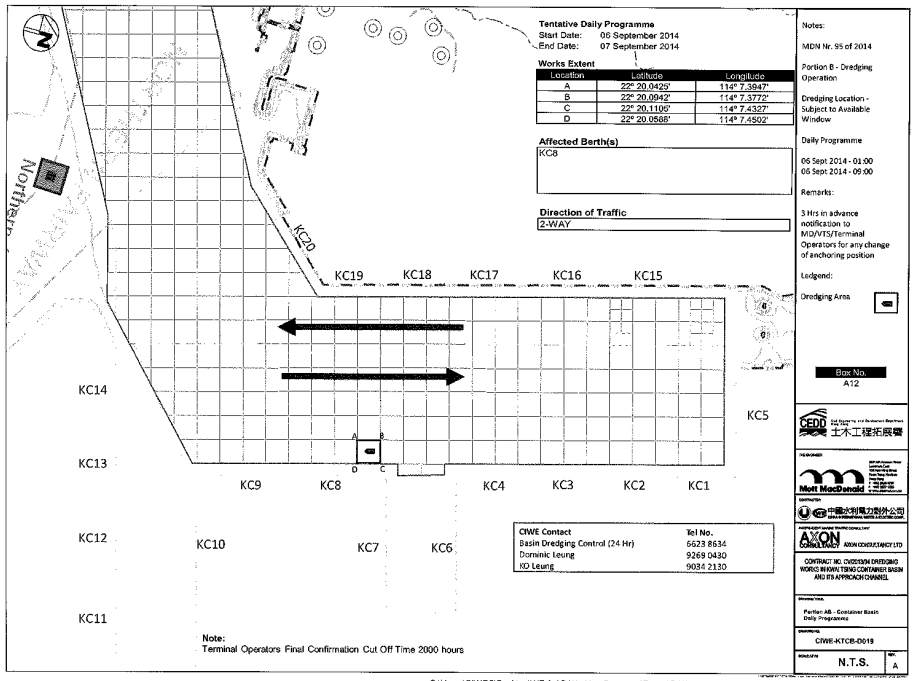

Tentative Daily Programme
Start Date: 06 September 2014
End Date: 07 September 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.0425'	114° 7.3947'
B	22° 20.0942'	114° 7.3772'
C	22° 20.1105'	114° 7.4327'
D	22° 20.0588'	114° 7.4502'

Affected Berth(s)
KC8

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:
MDN Nr. 95 of 2014
Portion B - Dredging Operation
Dredging Location - Subject to Available Window
Daily Programme
05 Sept 2014 - 01:00
06 Sept 2014 - 09:00
Remarks:
3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position
Ledgend:
Dredging Area

Box No.
A12

CEDD 土木工程拓展署
Mott MacDonald
中國水利電力對外公司
AXON CONSULTANCY LTD
CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL
Portion AB - Container Basin Daily Programme
CIWE-KTCB-D019
N.T.S.
A

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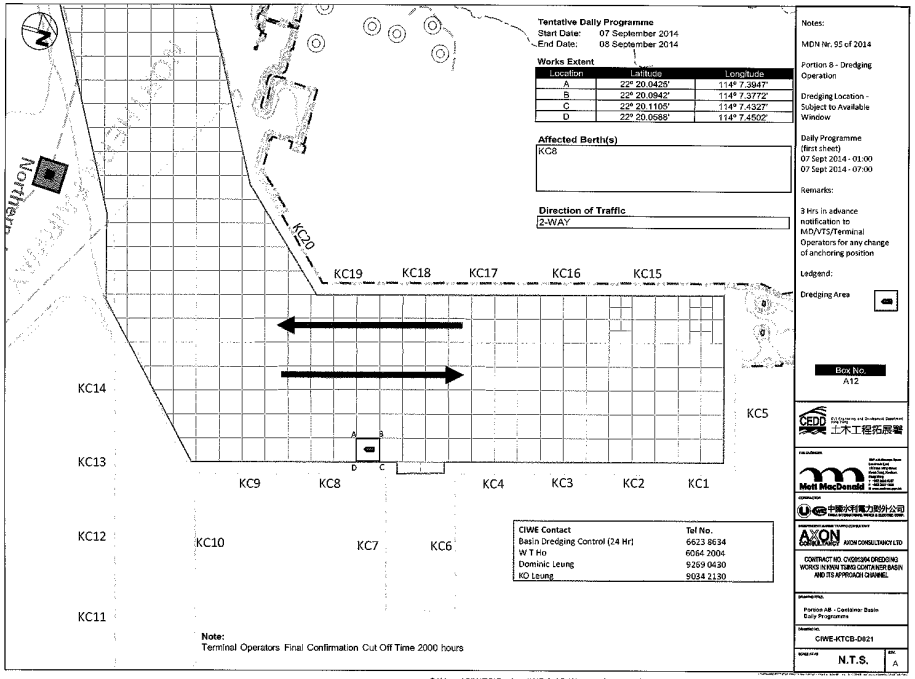

Tentative Daily Programme
Start Date: 07 September 2014
End Date: 08 September 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.0425'	114° 7.3947'
B	22° 20.0942'	114° 7.3772'
C	22° 20.1105'	114° 7.4327'
D	22° 20.0588'	114° 7.4502'

Affected Berth(s)
KC8

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
W T Ho	6064 2004
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:
MDN Nr. 95 of 2014
Portion B - Dredging Operation
Dredging Location - Subject to Available Window
Daily Programme (first sheet)
07 Sept 2014 - 01:00
07 Sept 2014 - 07:00
Remarks:
3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position
Ledgend:
Dredging Area

Box No.
A12

CEDD 土木工程拓展署
Mott MacDonald
中國水利電力對外公司
AXON CONSULTANCY LTD
CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL
Portion AB - Container Basin Daily Programme
CIWE-KTCB-D021
N.T.S.
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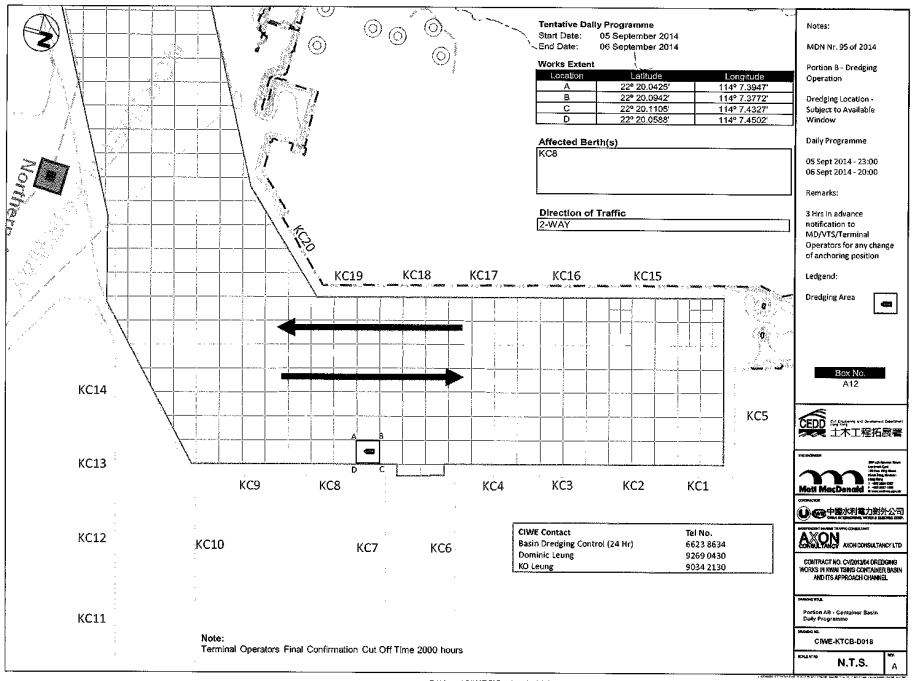

Tentative Daily Programme
Start Date: 05 September 2014
End Date: 06 September 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.0425'	114° 7.3947'
B	22° 20.0942'	114° 7.3772'
C	22° 20.1105'	114° 7.4327'
D	22° 20.0588'	114° 7.4502'

Affected Berth(s)
KC8

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:
MDN Nr. 95 of 2014
Portion B - Dredging Operation
Dredging Location - Subject to Available Window
Daily Programme
05 Sept 2014 - 23:00
06 Sept 2014 - 20:00
Remarks:
3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position
Ledgend:
Dredging Area

Box No.
A12

CEDD 土木工程拓展署
Mott MacDonald
中國水利電力對外公司
AXON CONSULTANCY LTD
CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL
Portion AB - Container Basin Daily Programme
CIWE-KTCB-D018
N.T.S.
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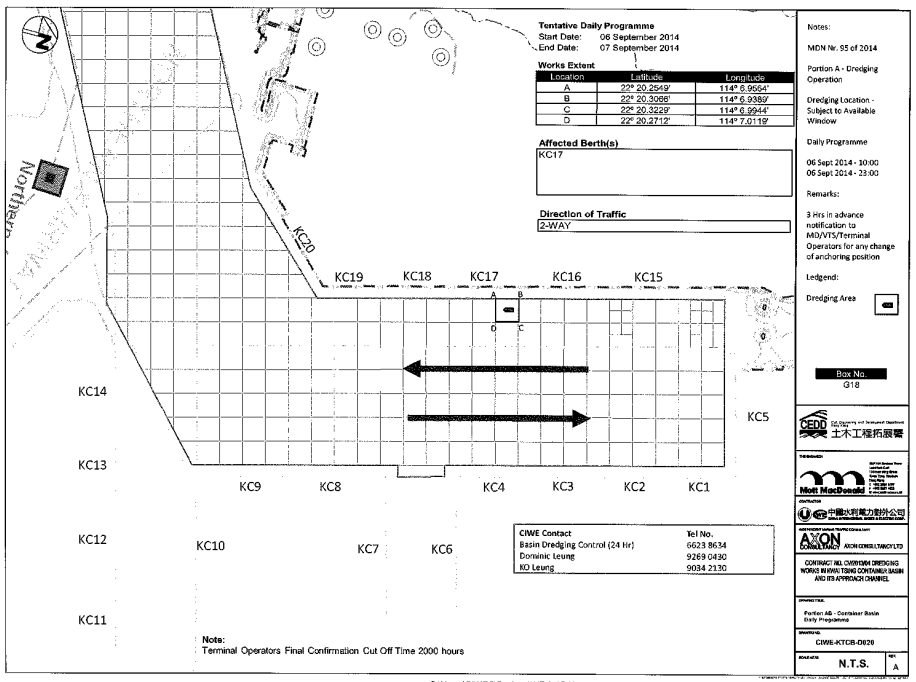

Tentative Daily Programme
Start Date: 06 September 2014
End Date: 07 September 2014

Works Extent

Location	Latitude	Longitude
A	22° 20.2549'	114° 6.9564'
B	22° 20.3066'	114° 6.9389'
C	22° 20.3229'	114° 6.9944'
D	22° 20.2712'	114° 7.0119'

Affected Berth(s)
KC17

Direction of Traffic
2-WAY

CIWE Contact	Tel No.
Basin Dredging Control (24 Hr)	6623 8634
Dominic Leung	9269 0430
KO Leung	9034 2130

Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Notes:
MDN Nr. 95 of 2014
Portion A - Dredging Operation
Dredging Location - Subject to Available Window
Daily Programme
06 Sept 2014 - 10:00
06 Sept 2014 - 23:00
Remarks:
3 Hrs in advance notification to MD/VTS/Terminal Operators for any change of anchoring position
Ledgend:
Dredging Area

Box No.
G18

CEDD 土木工程拓展署
Mott MacDonald
中國水利電力對外公司
AXON CONSULTANCY LTD
CONTRACT NO. CV/2013/04 DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL
Portion AB - Container Basin Daily Programme
CIWE-KTCB-D020
N.T.S.
A

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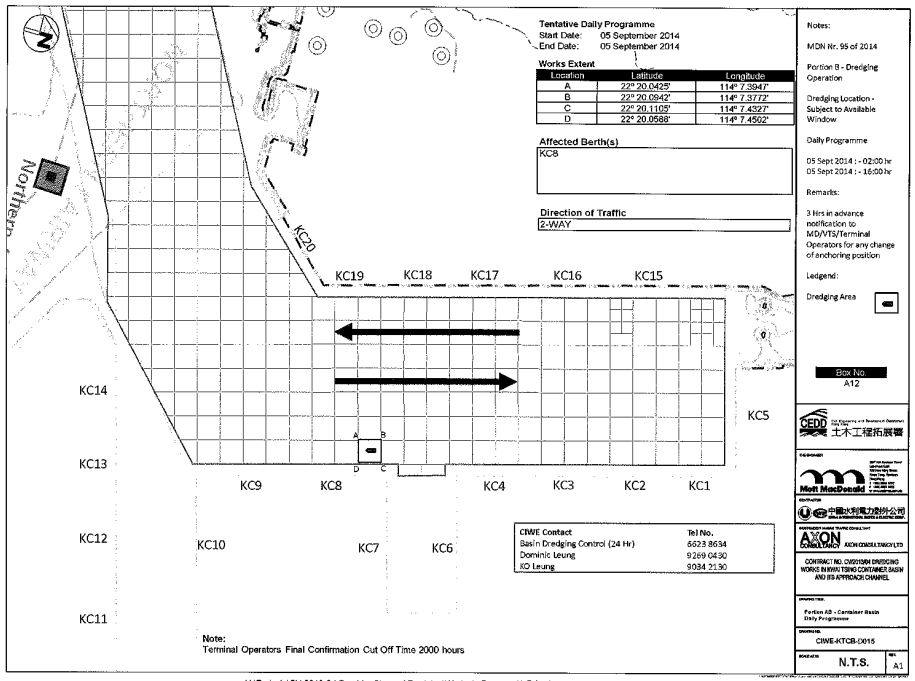

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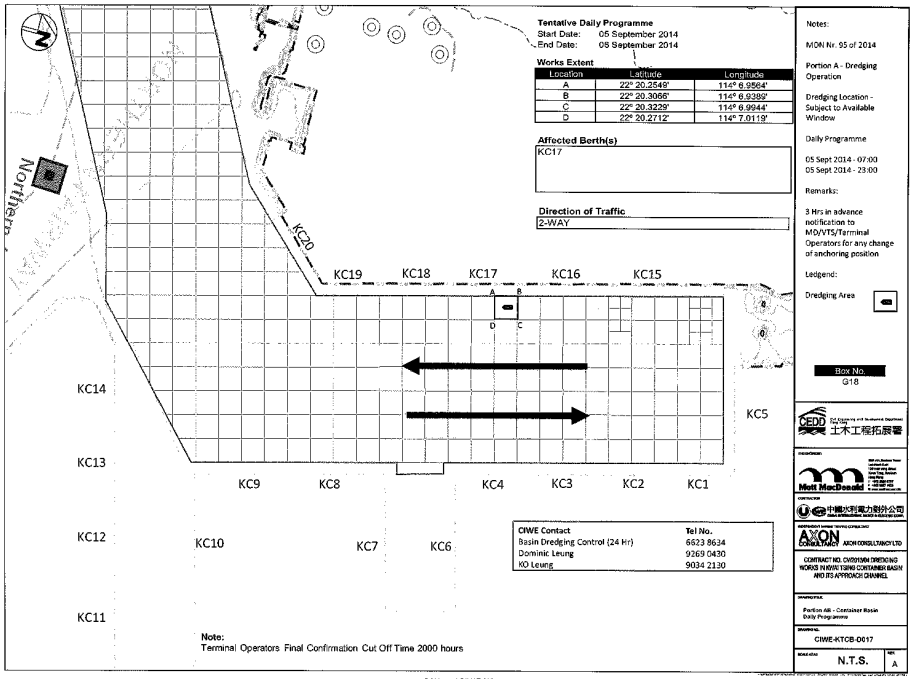

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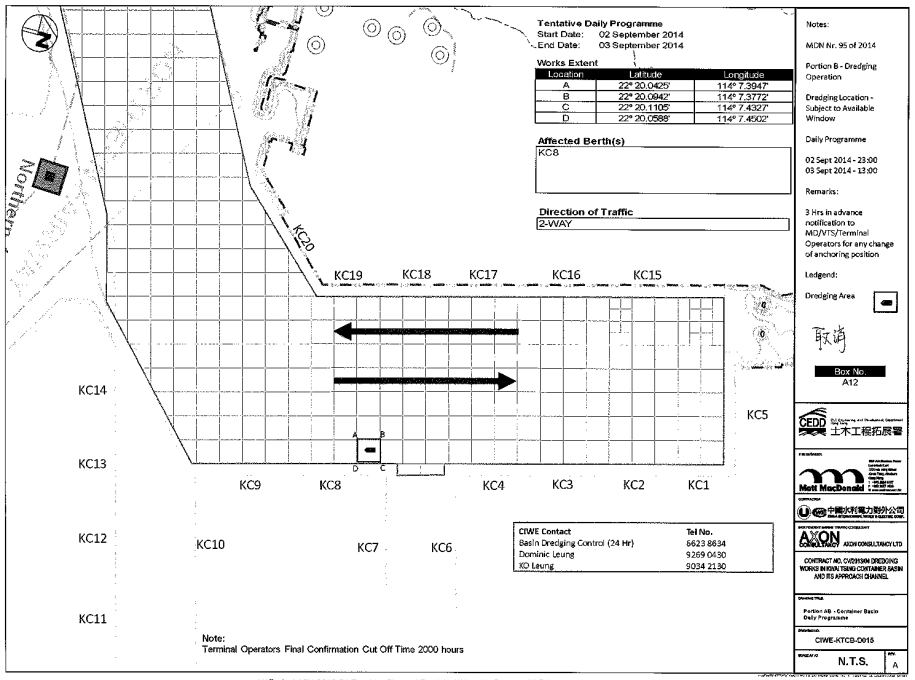

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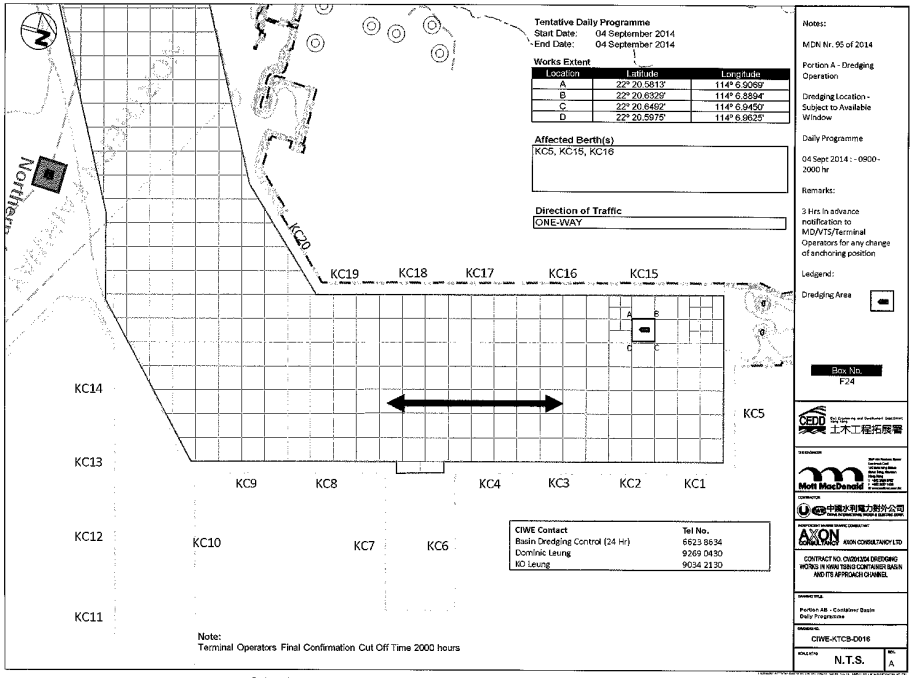

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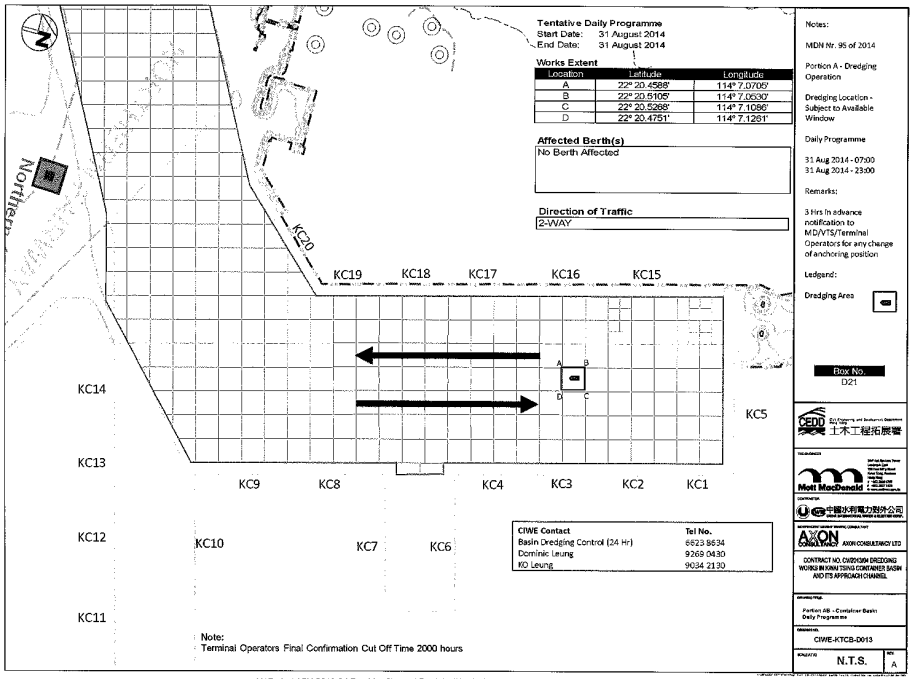

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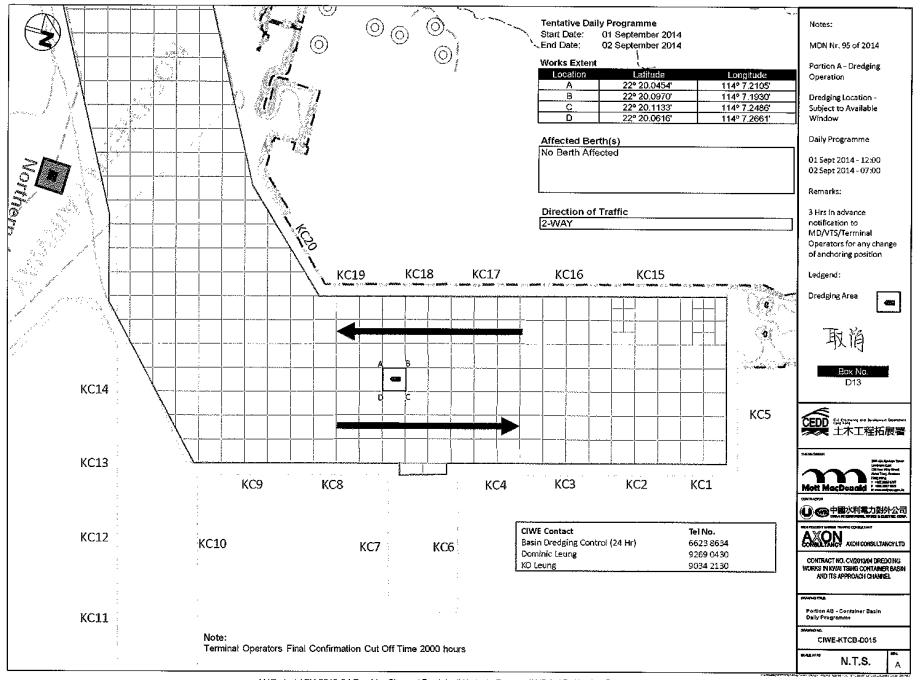

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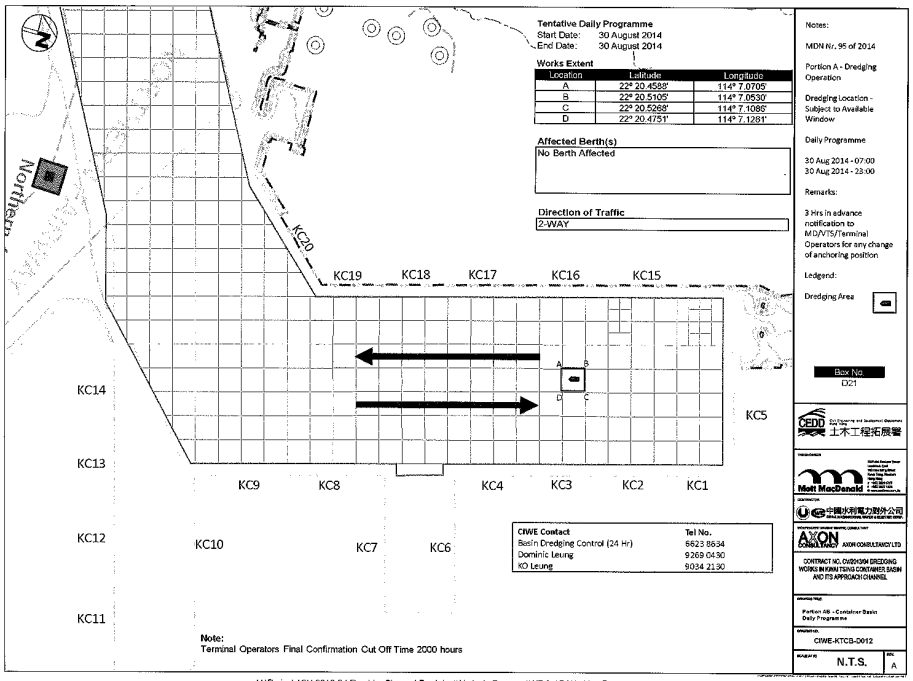

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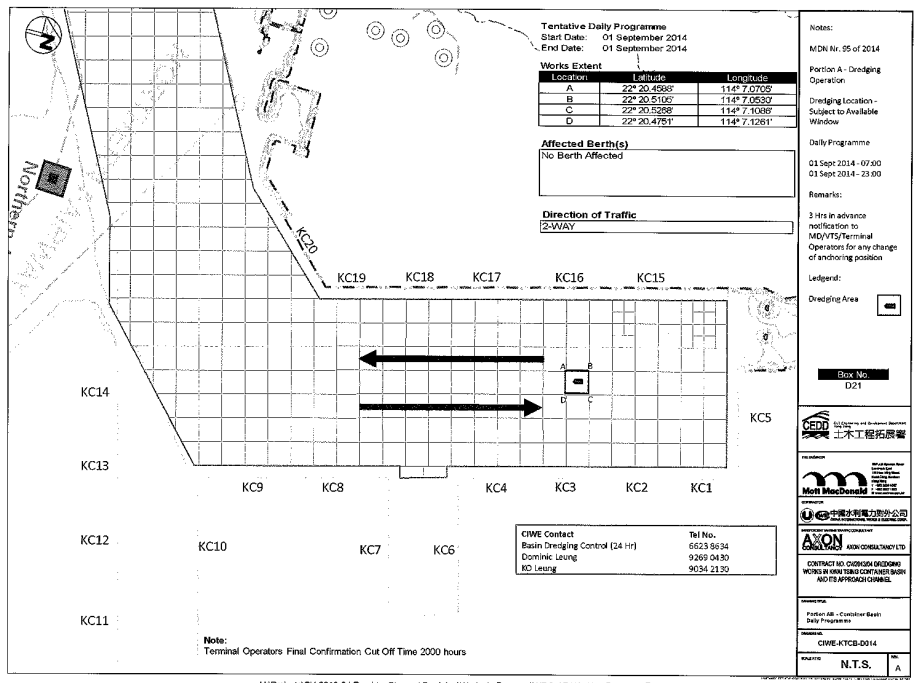

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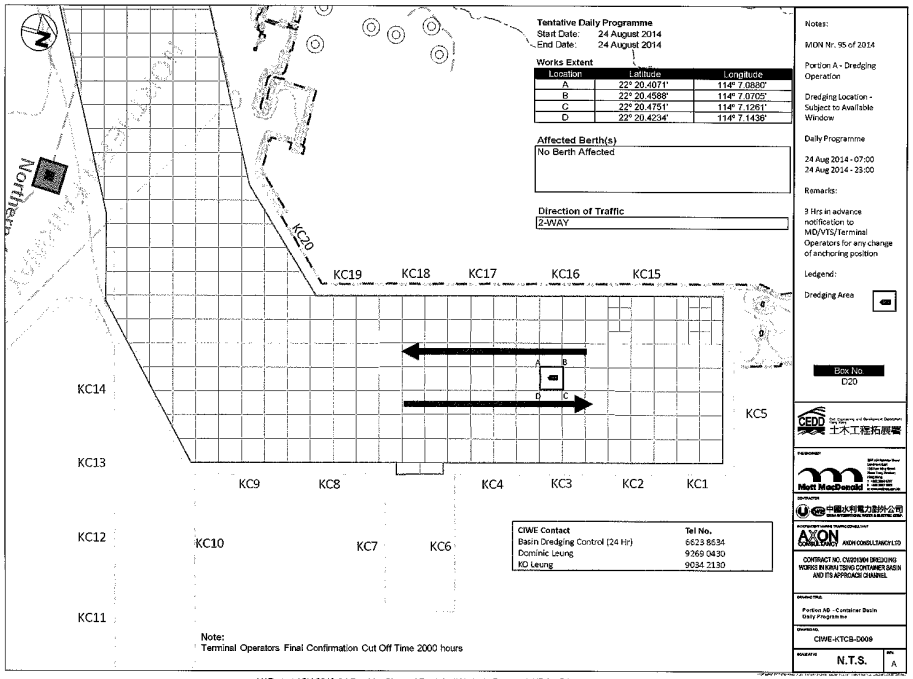

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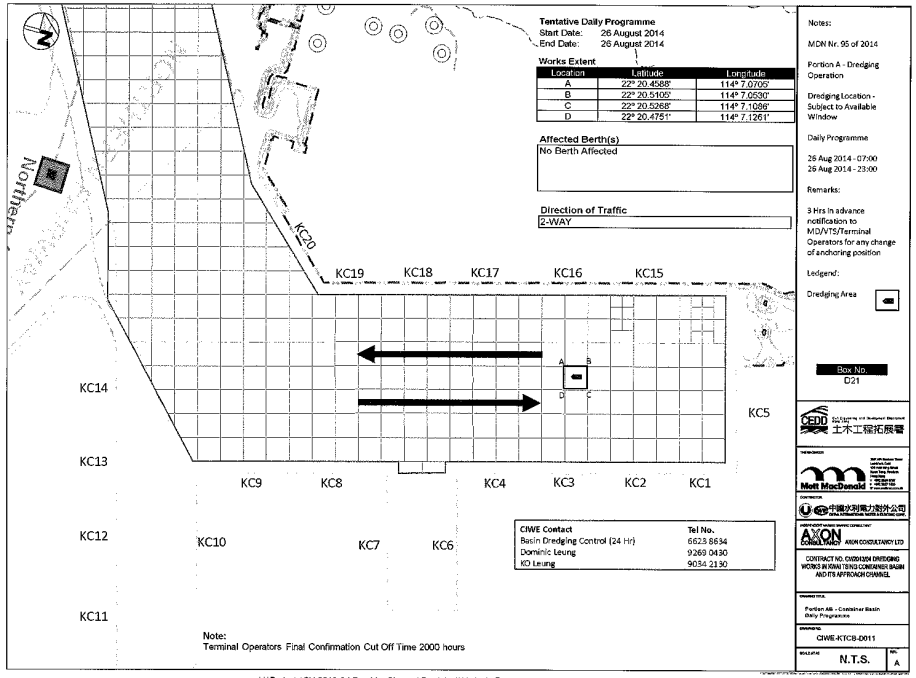

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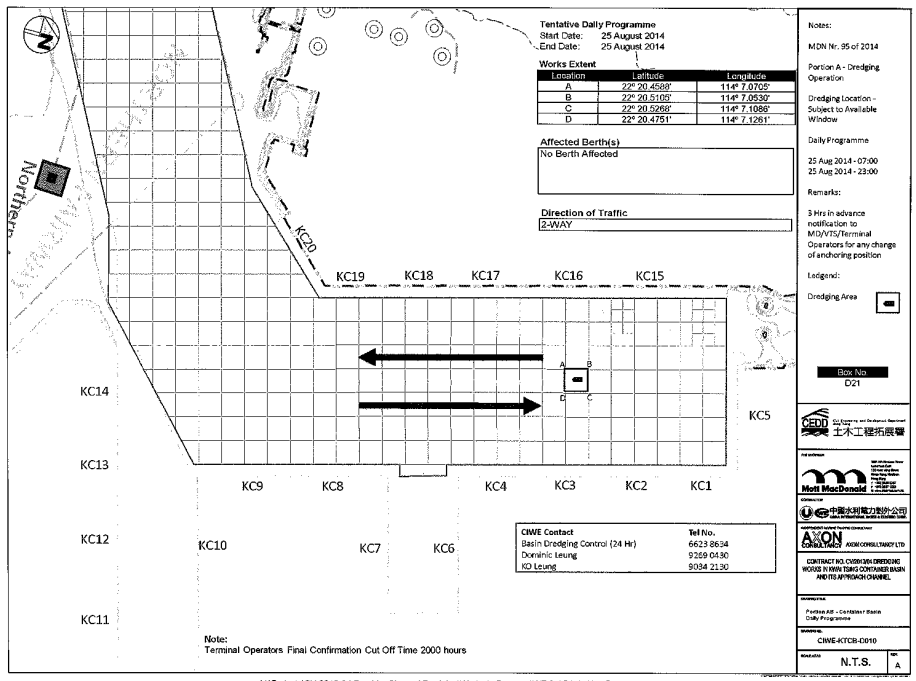

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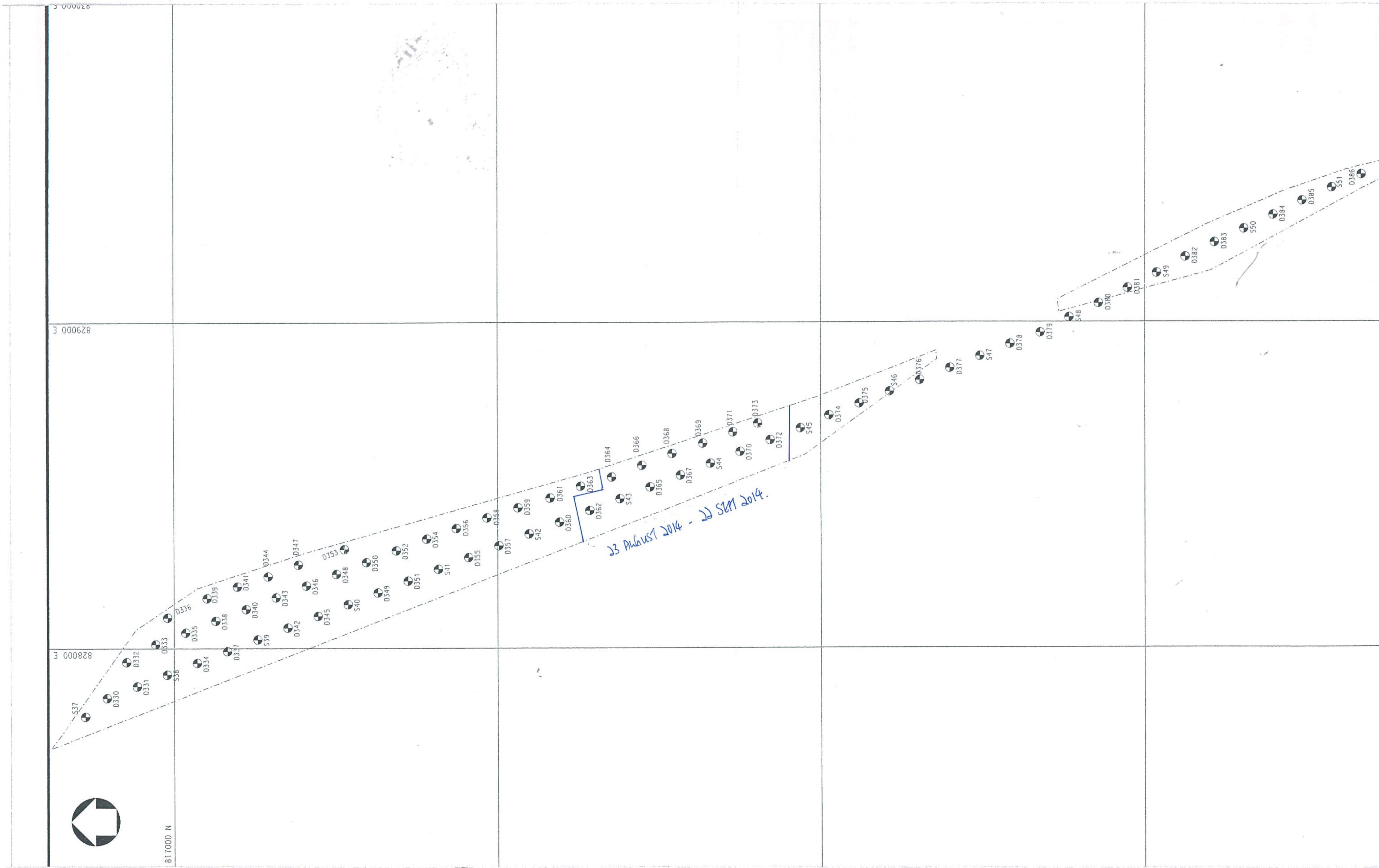

repared and for which Mott MacDonald Hong Kong Limited
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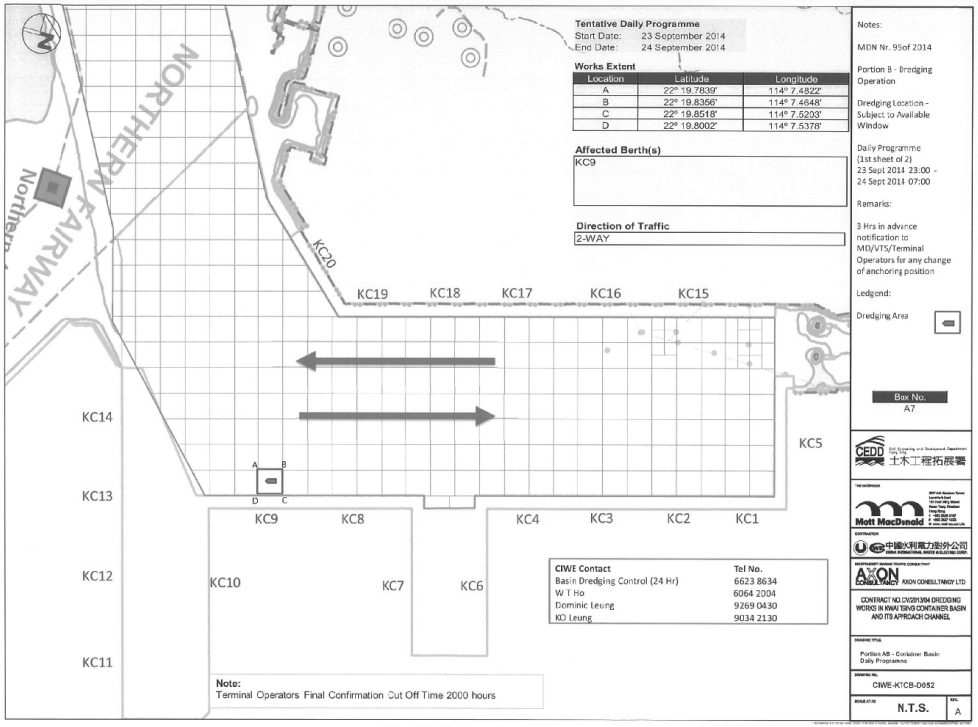

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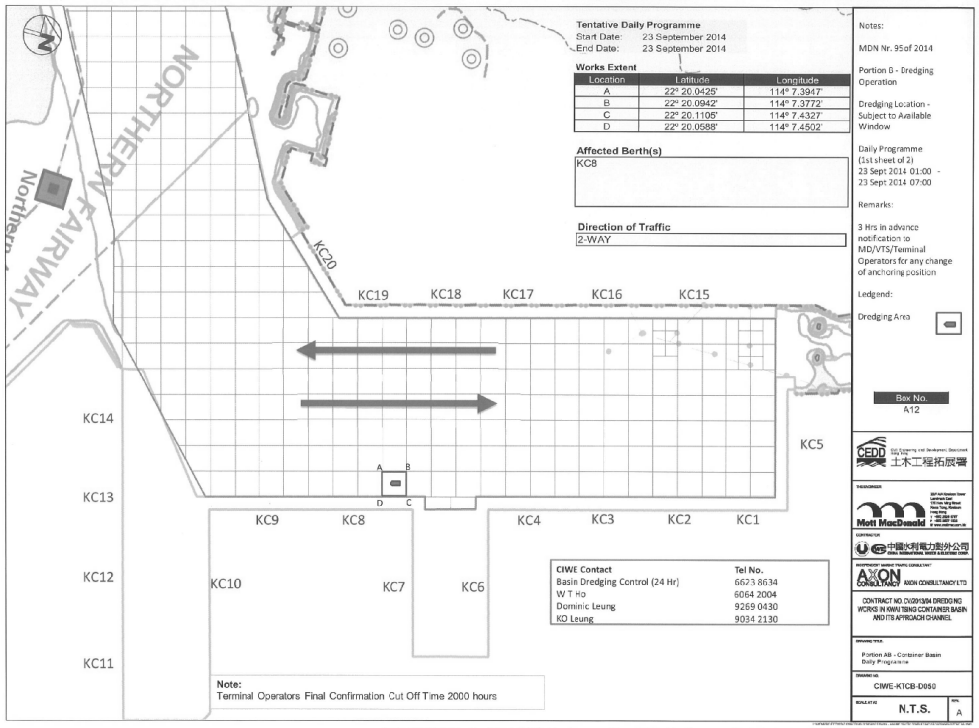

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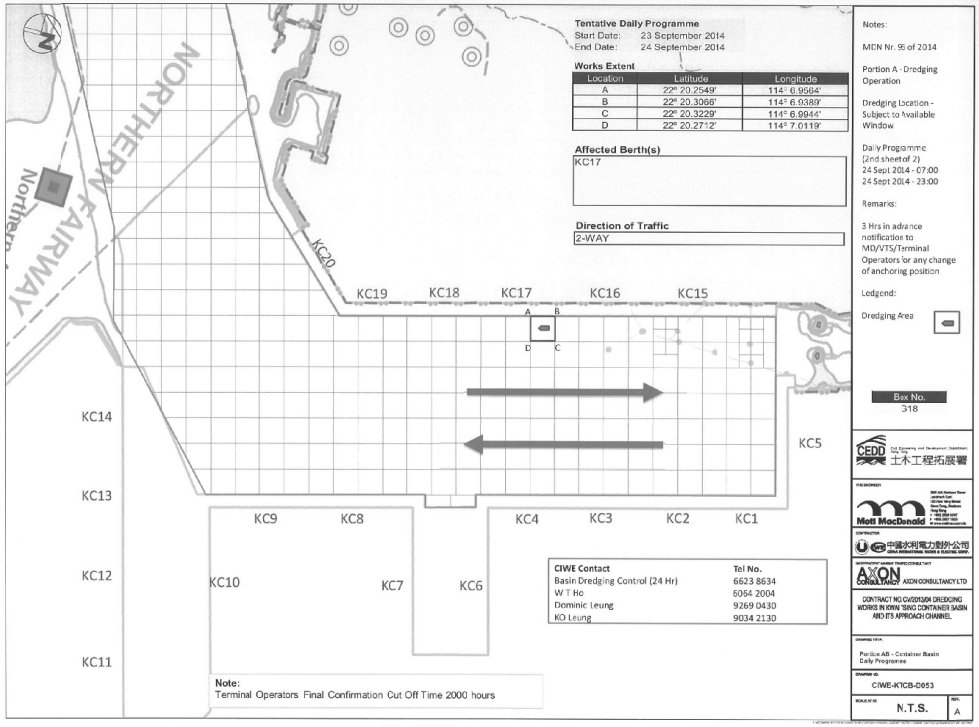

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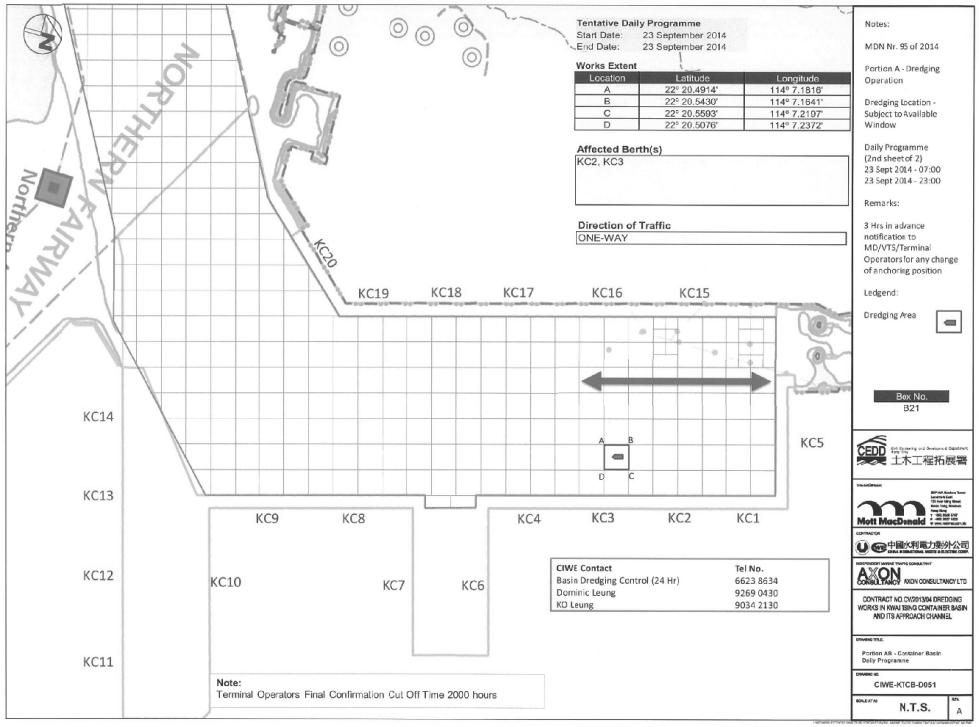

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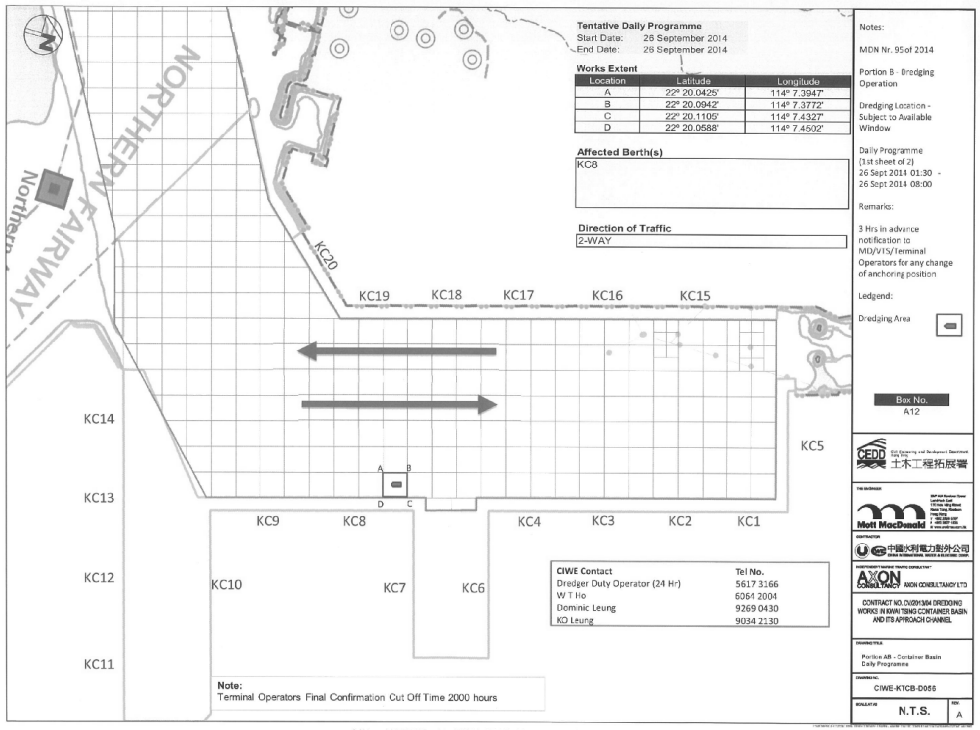

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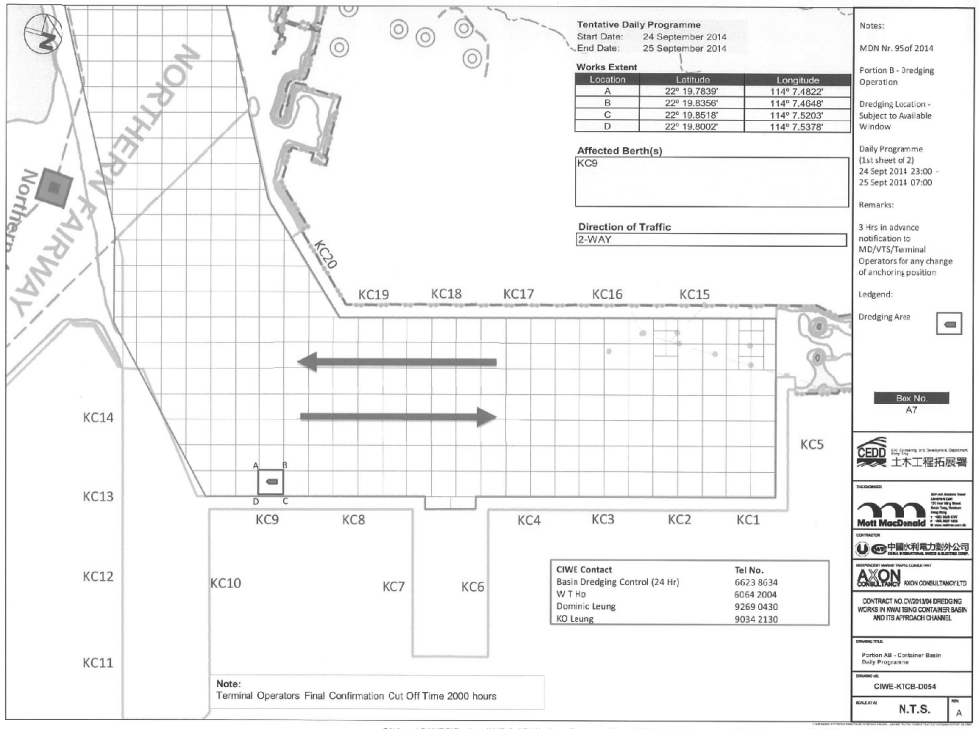

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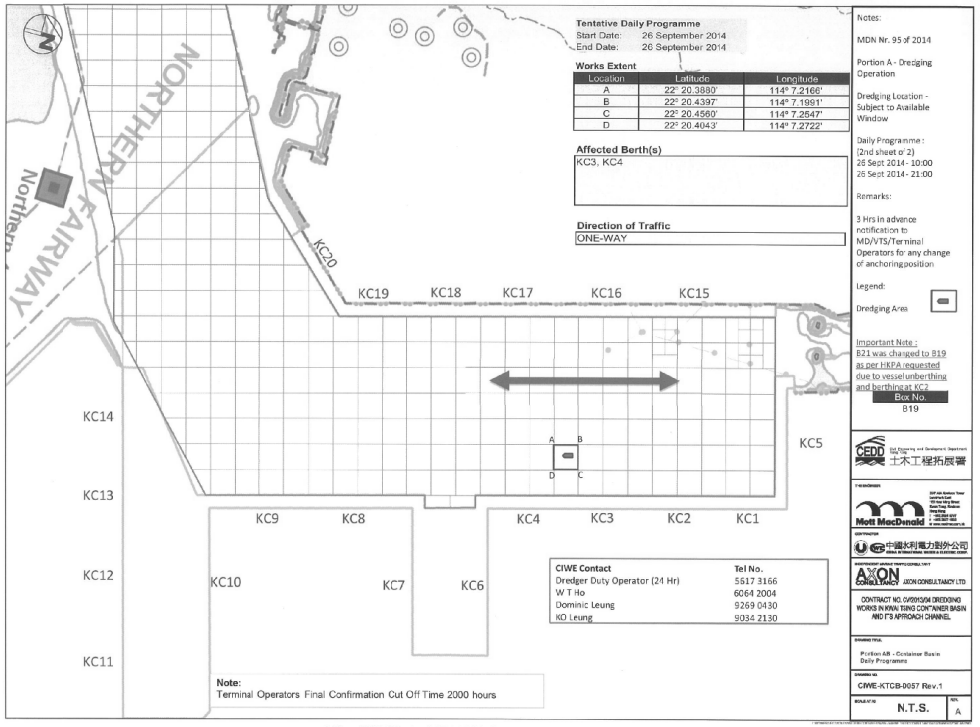

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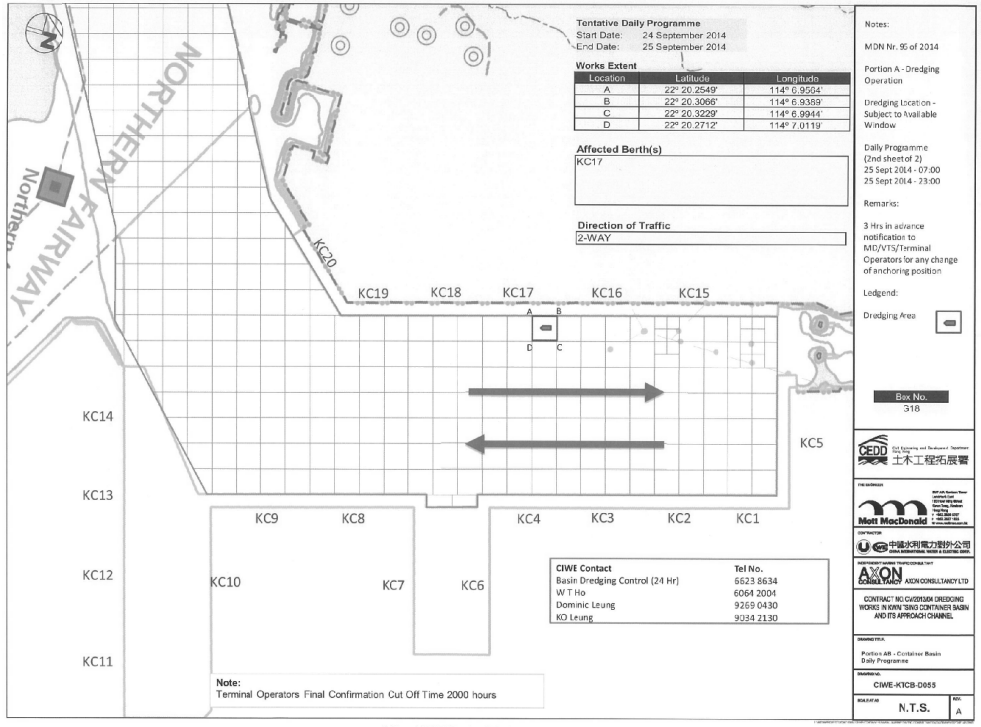

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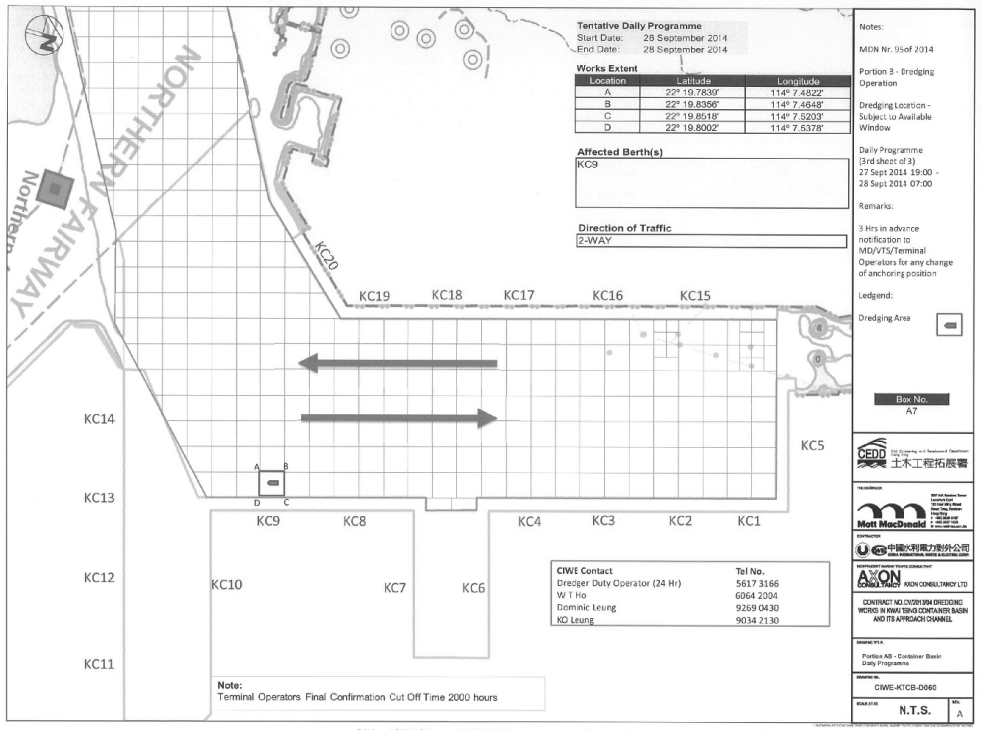

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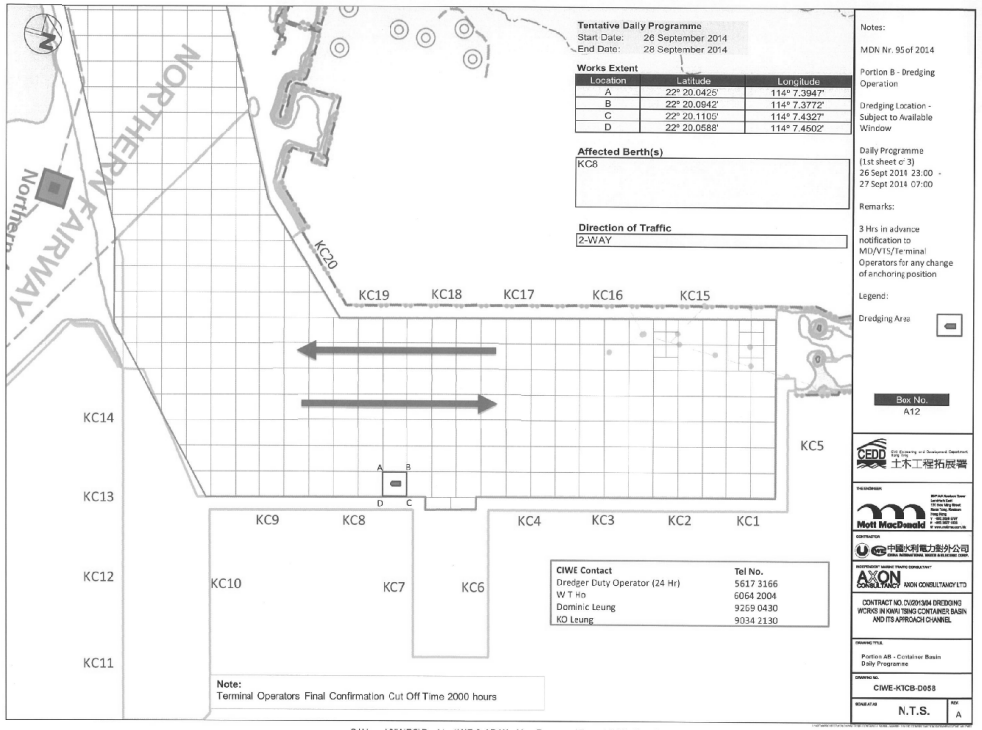

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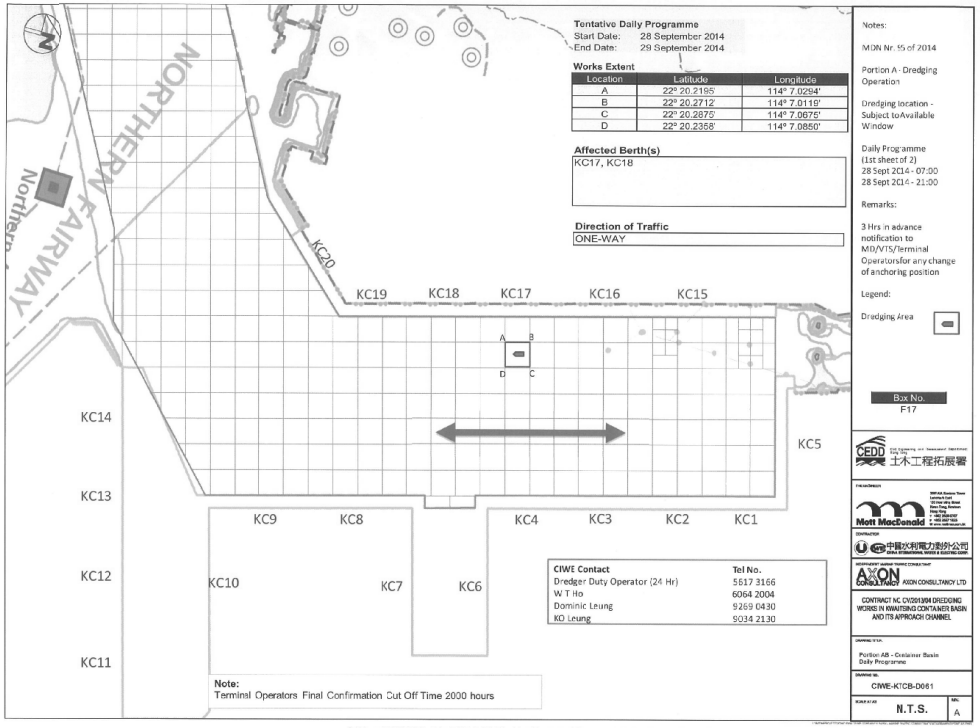

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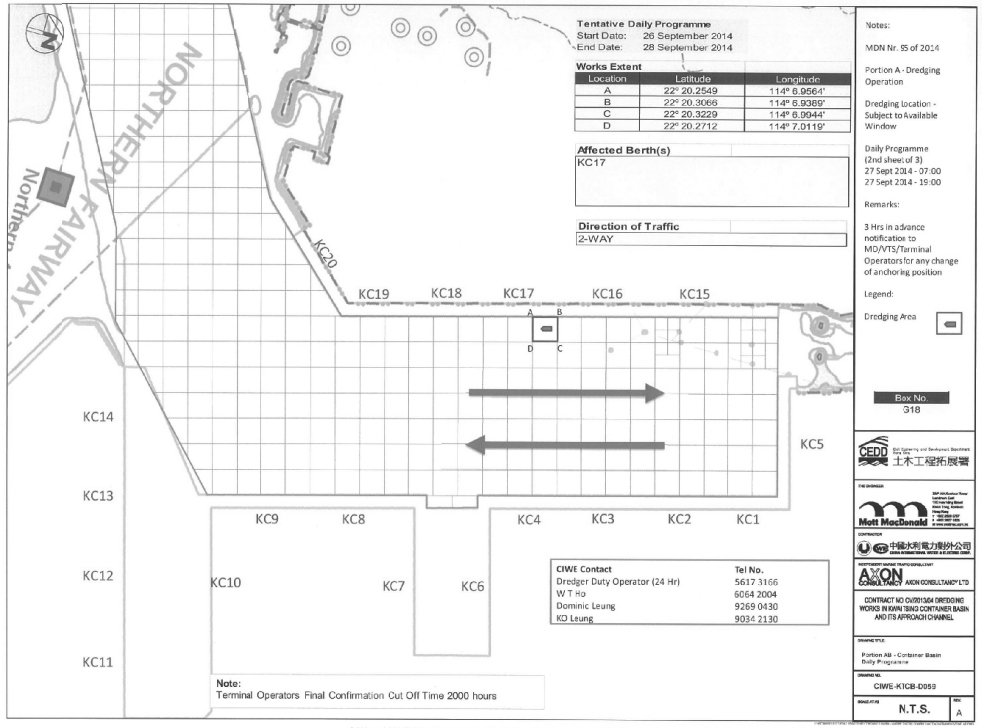

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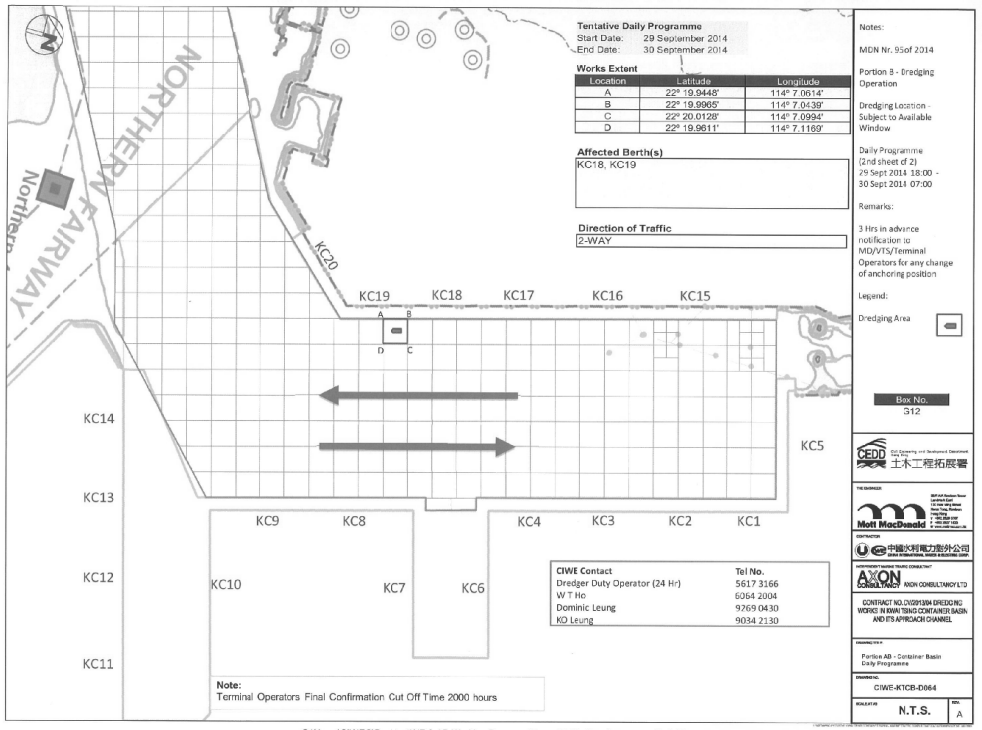

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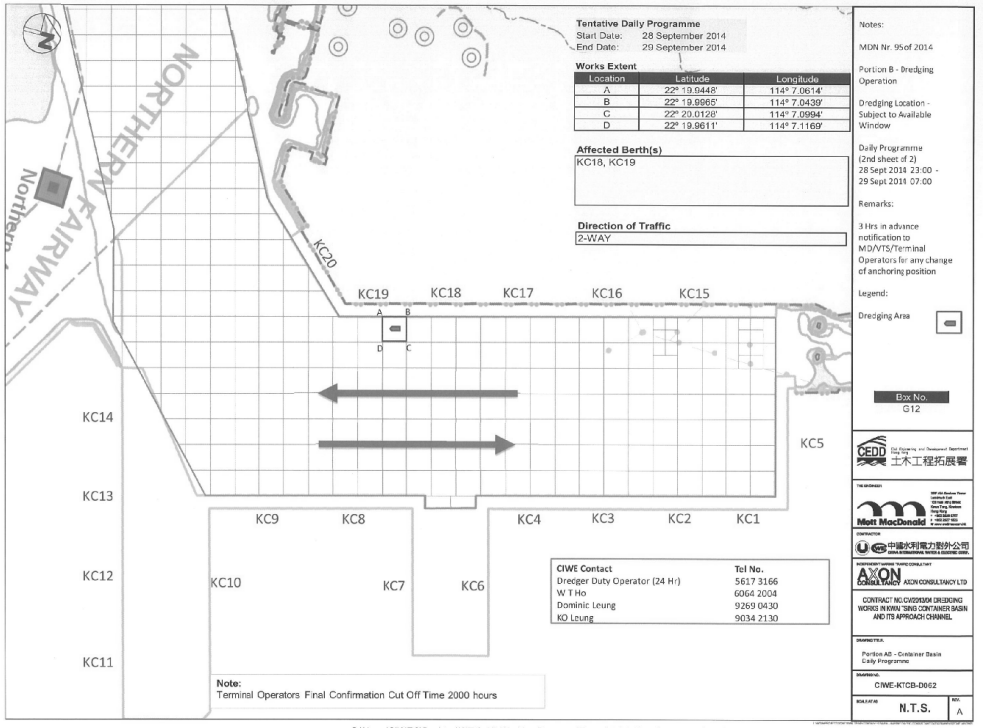

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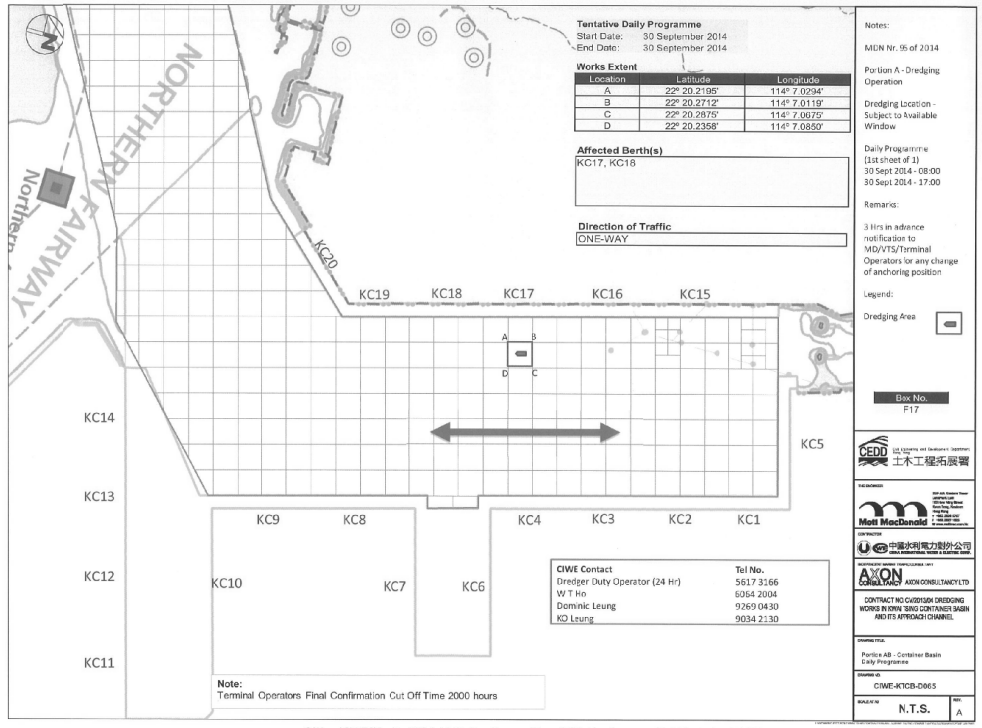

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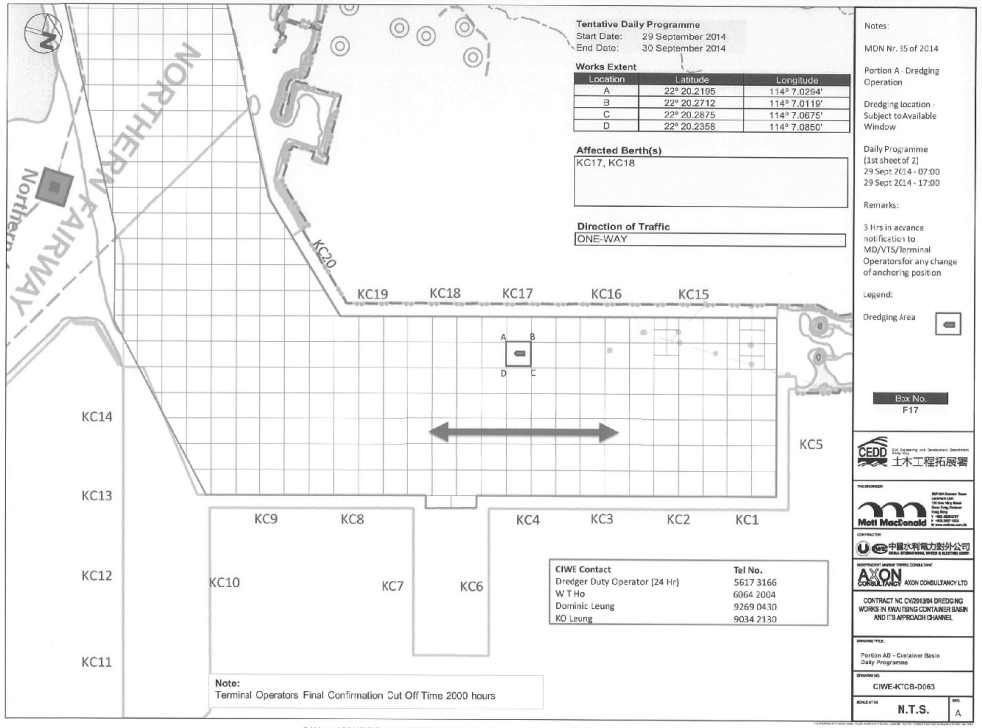

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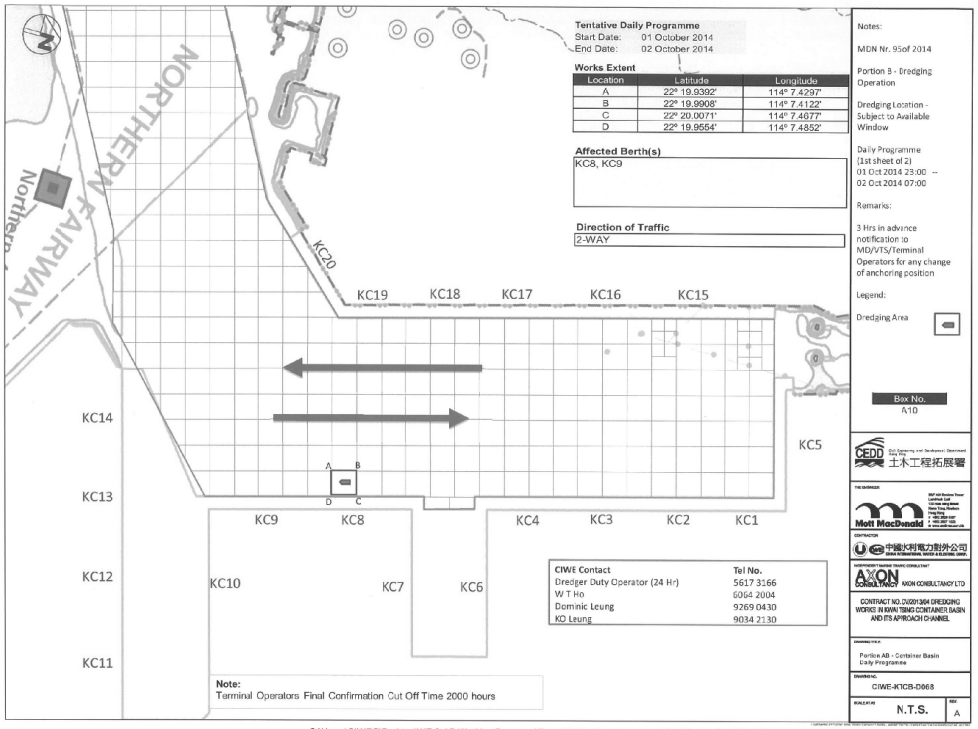

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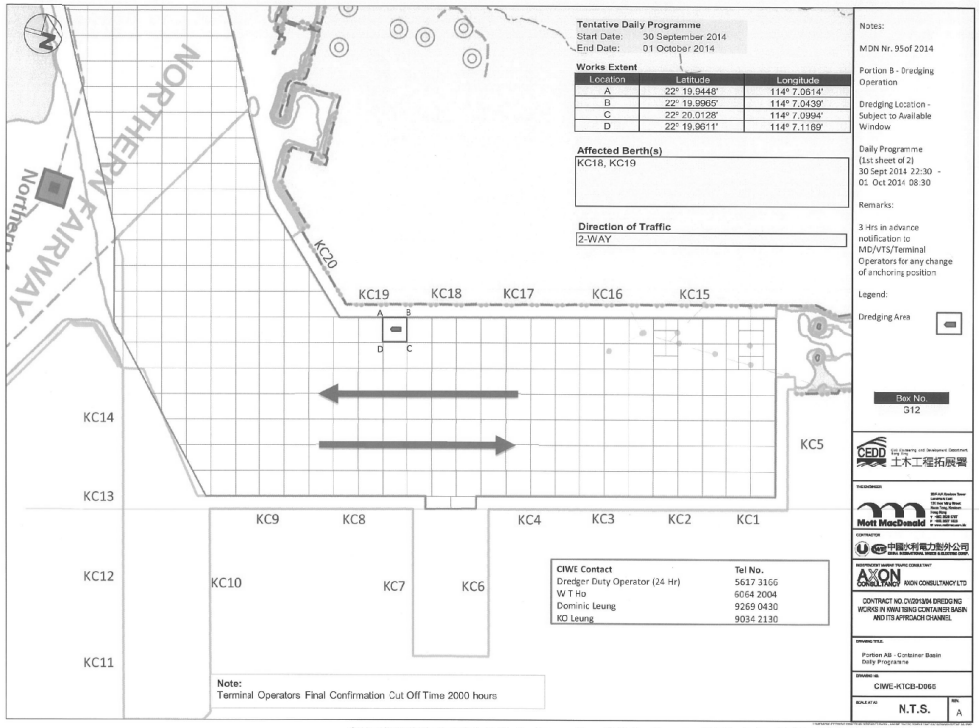

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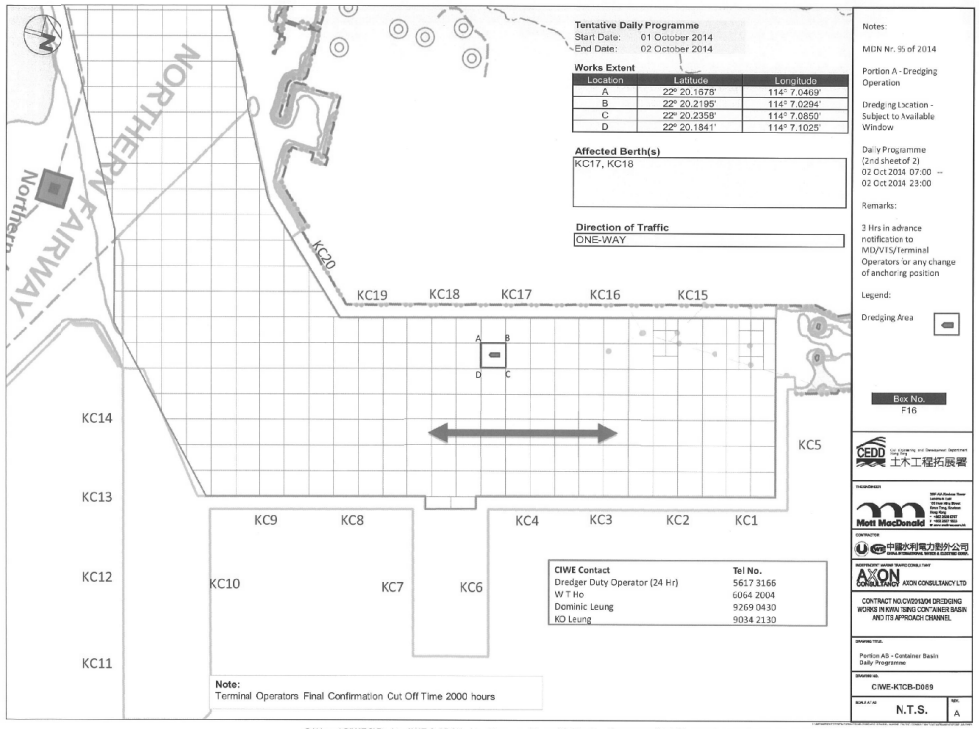

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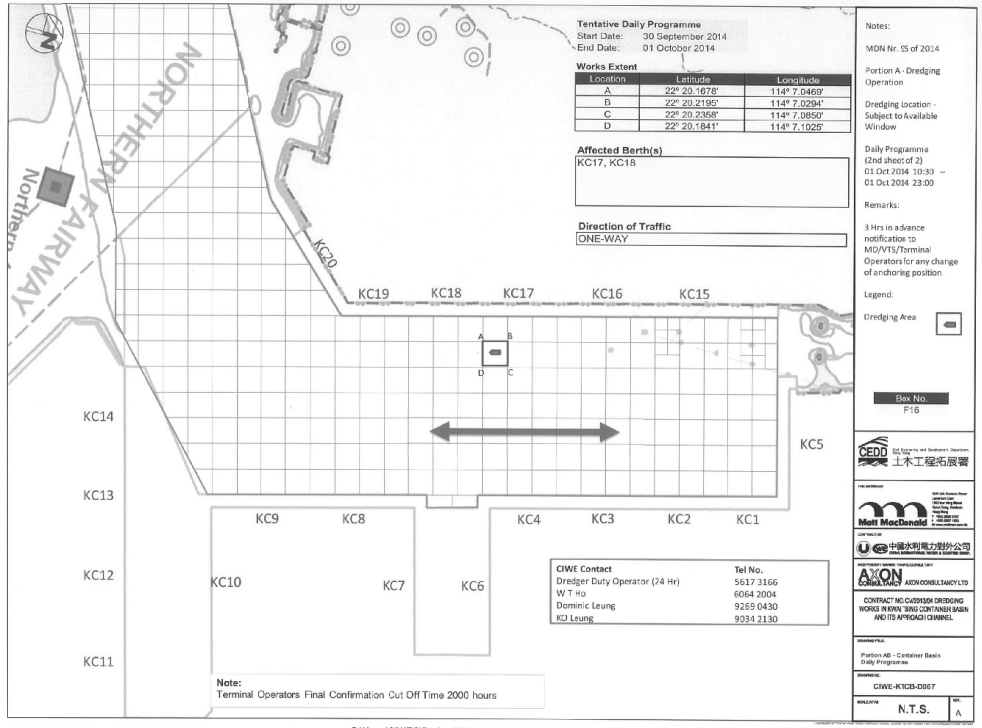

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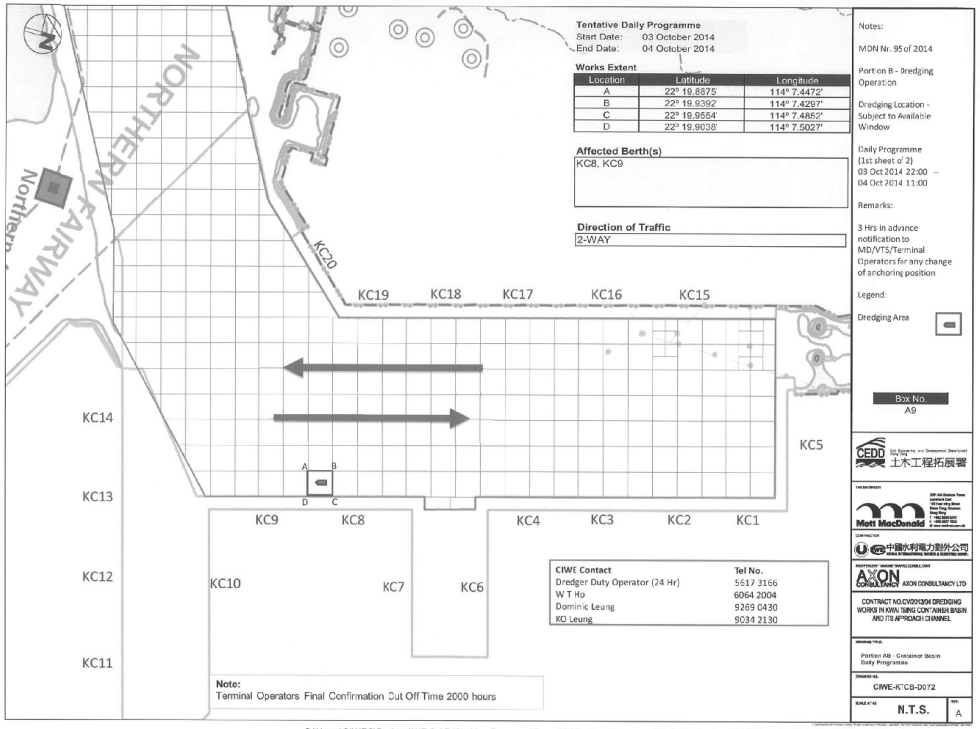

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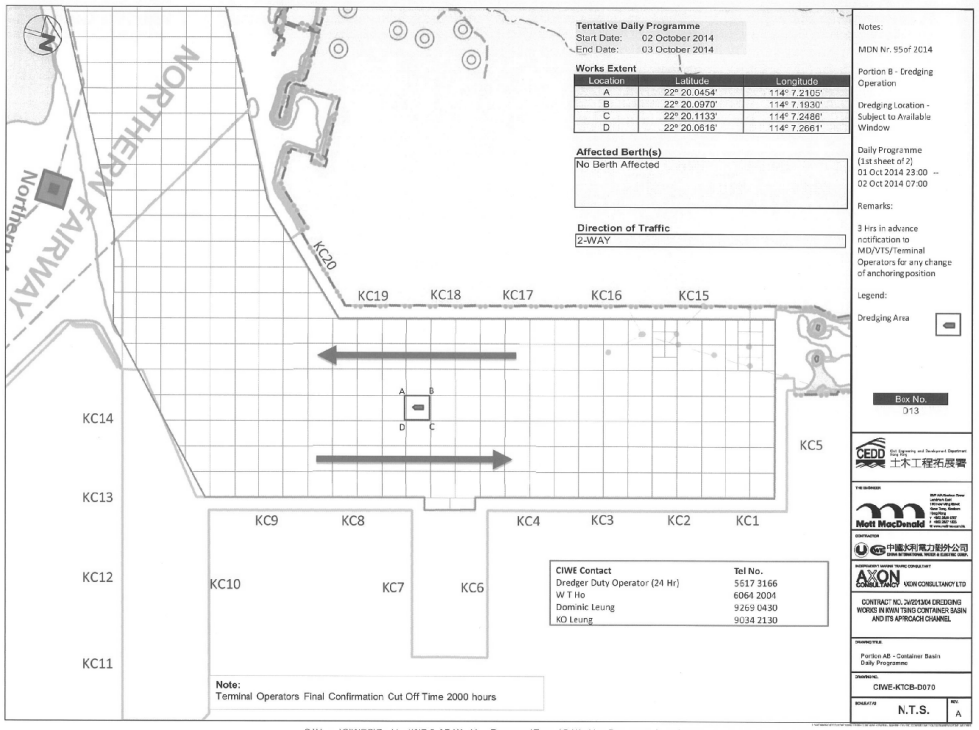

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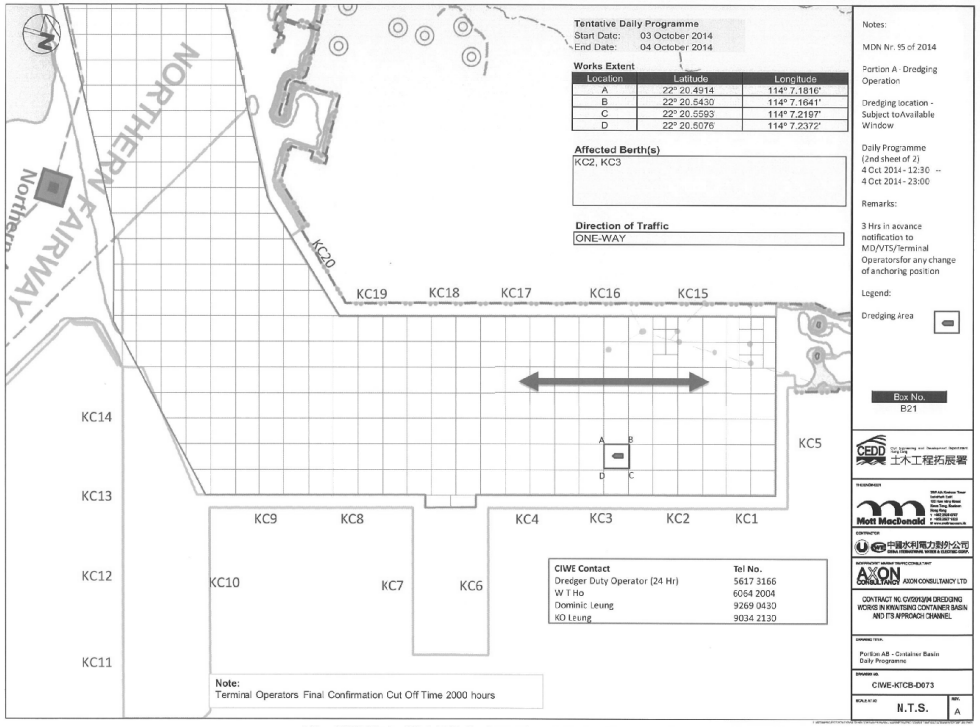

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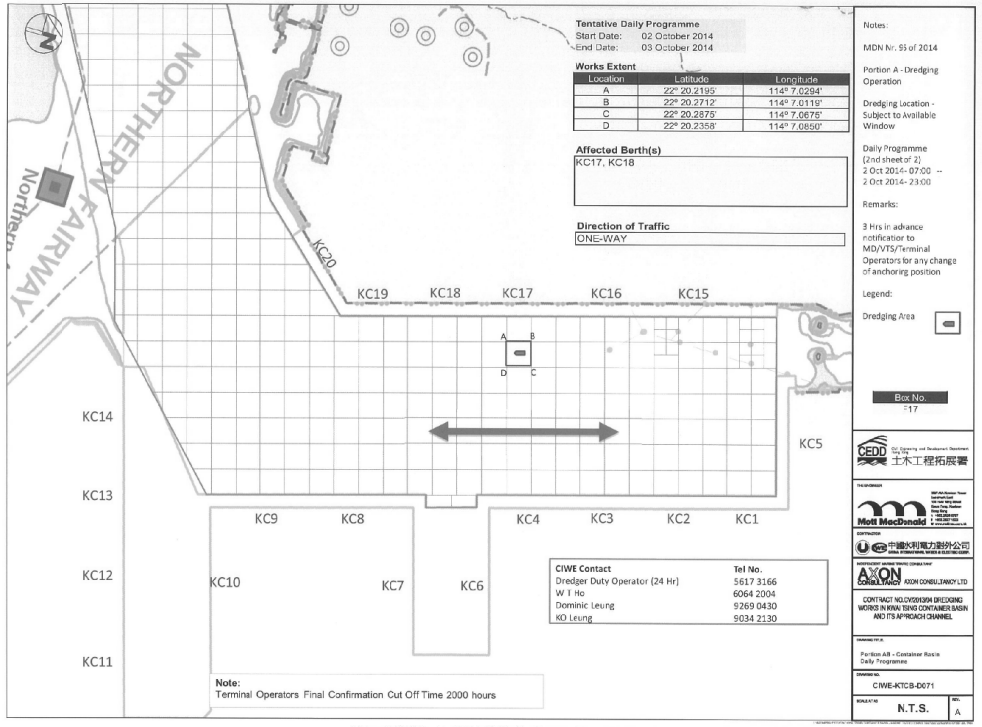

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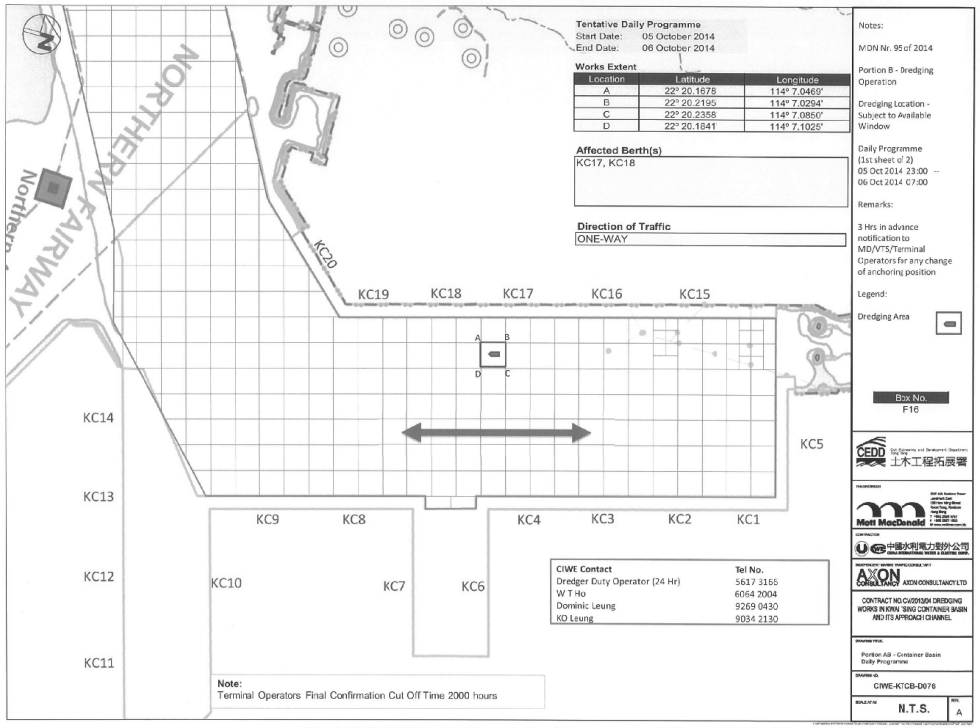

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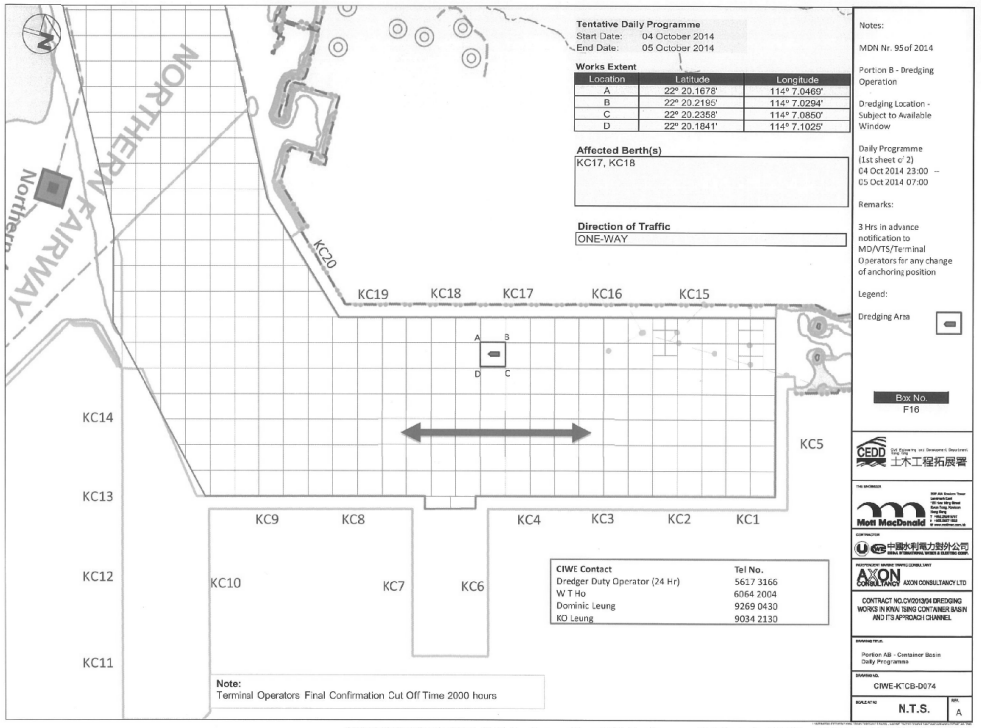

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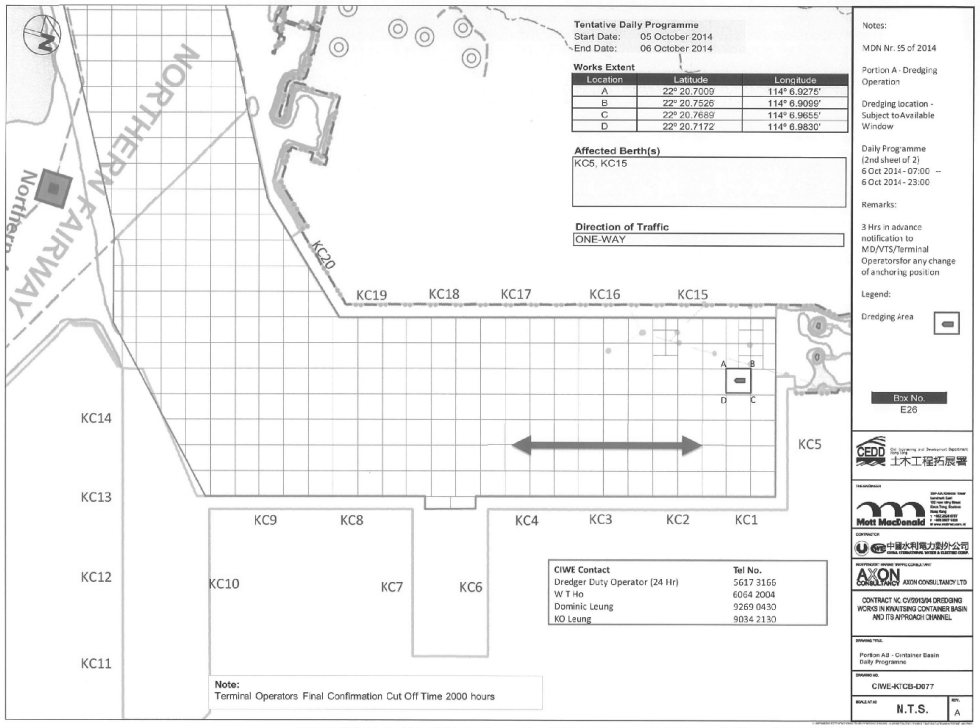

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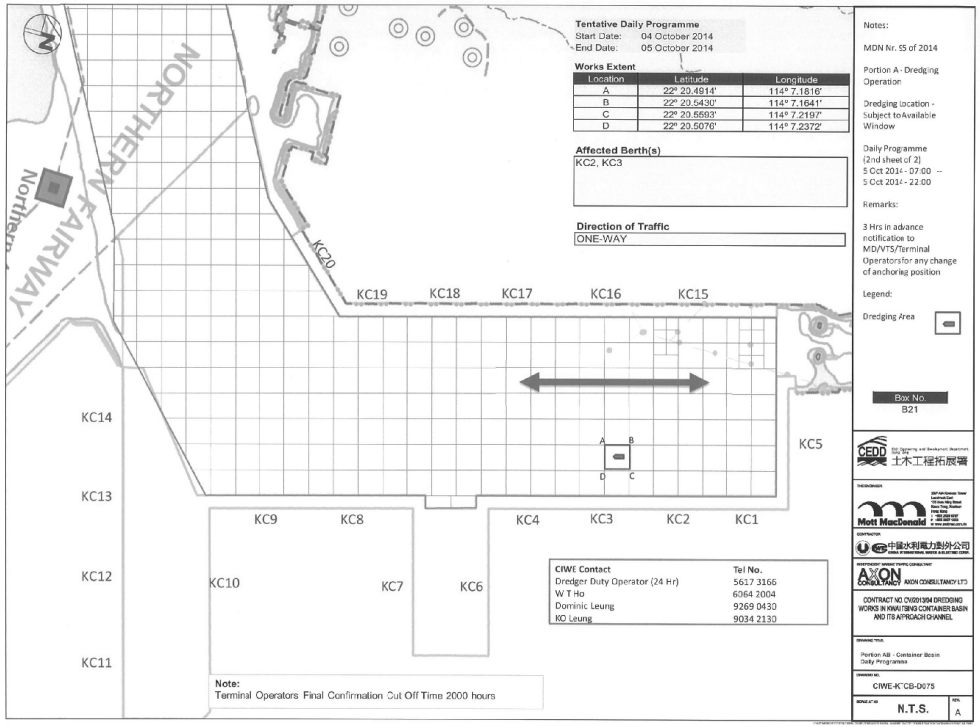

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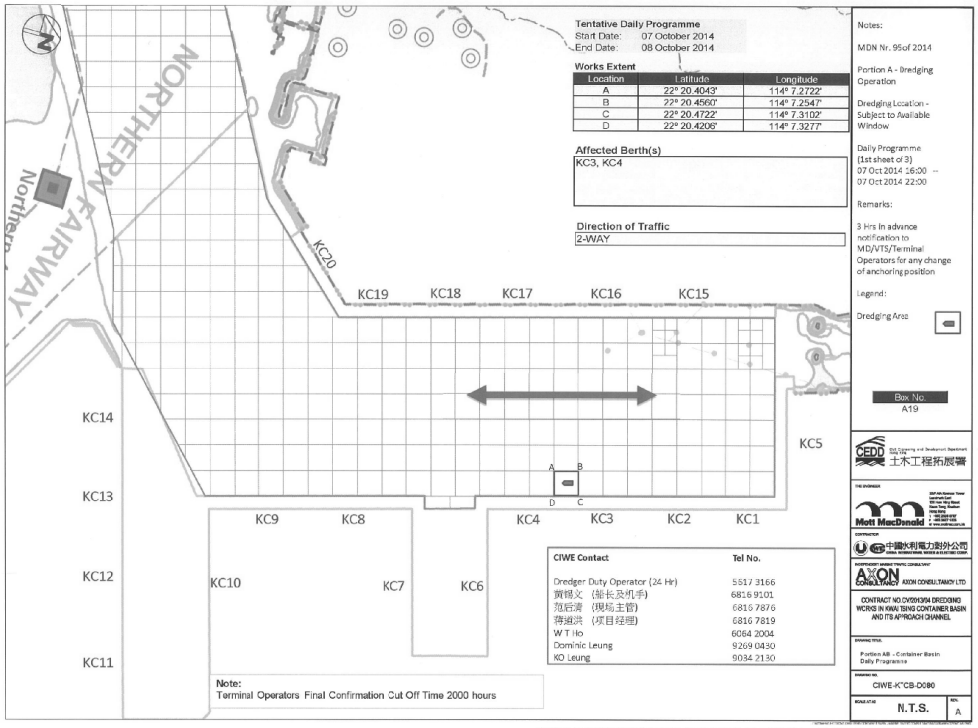

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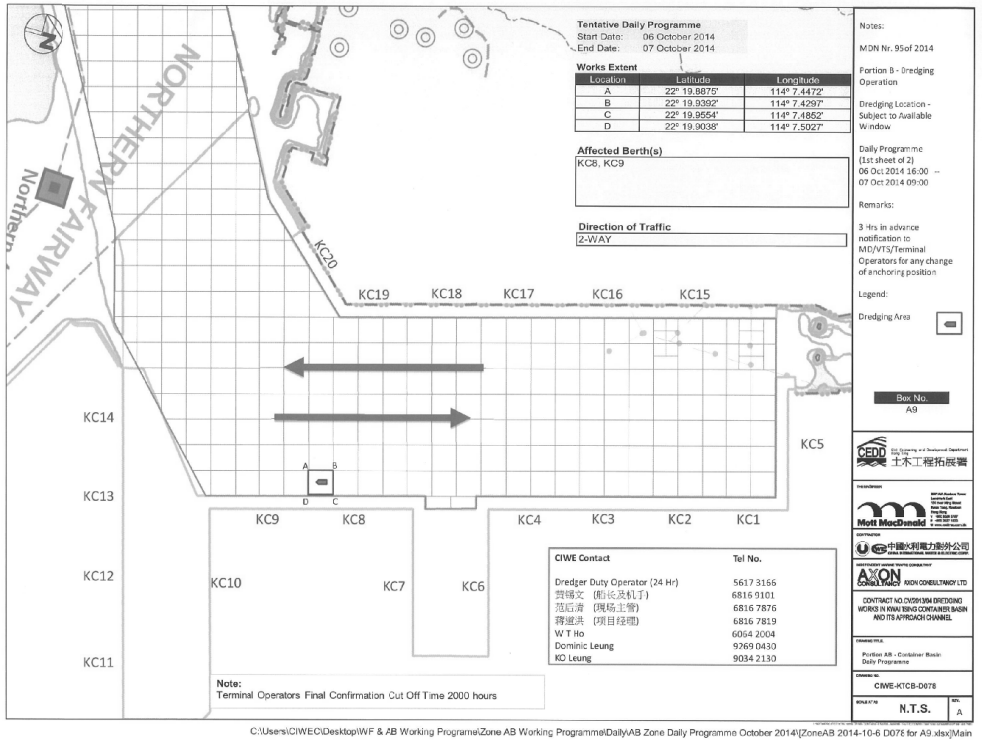

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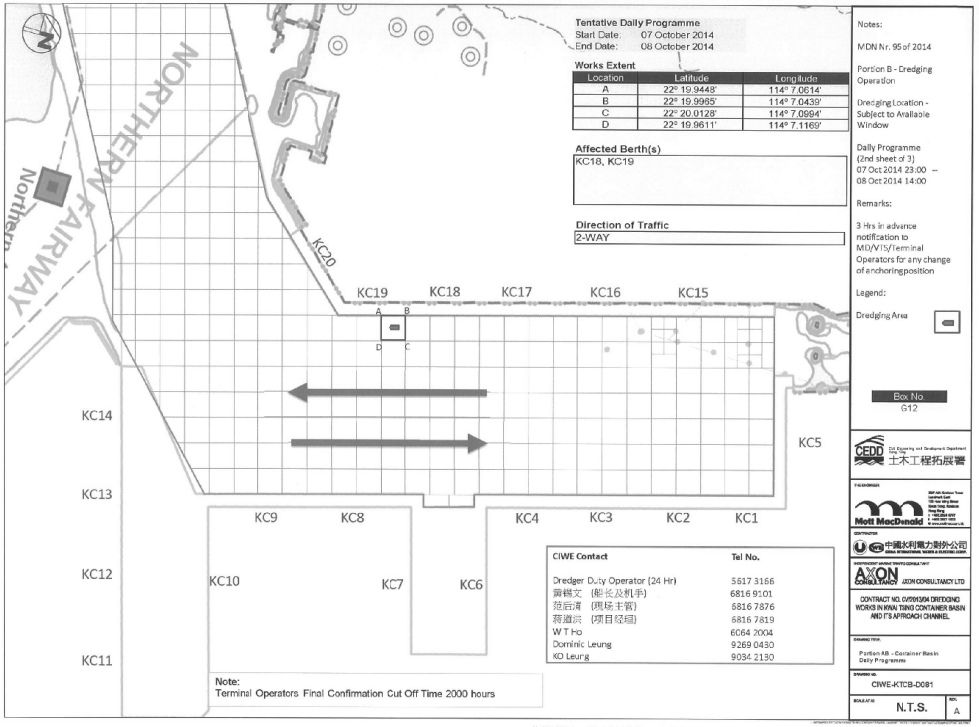

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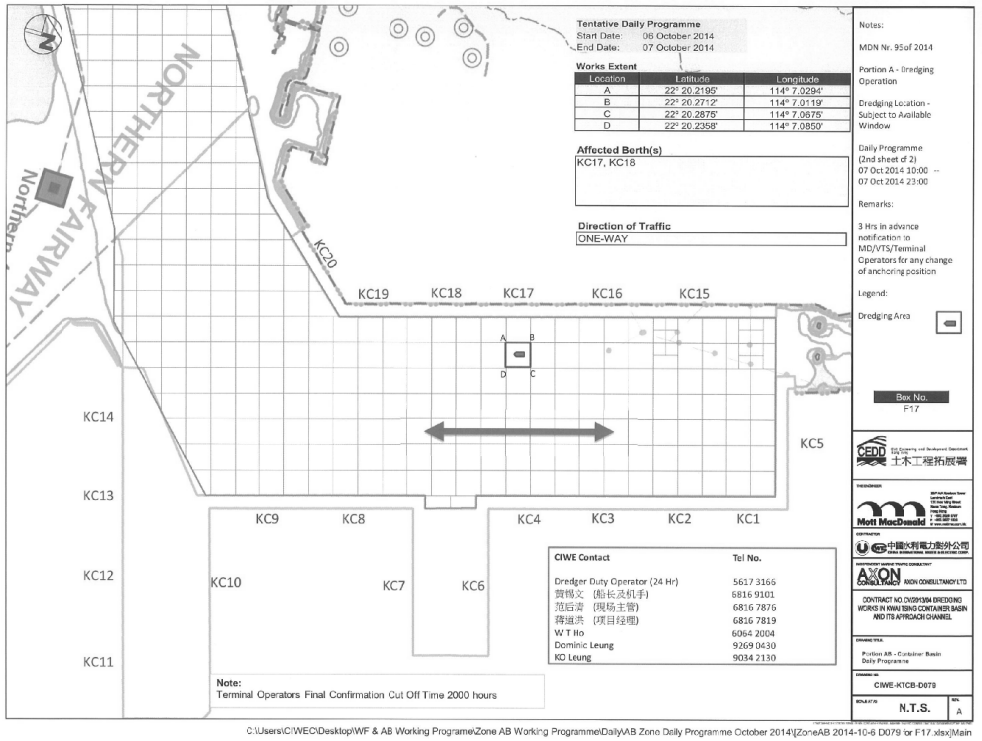

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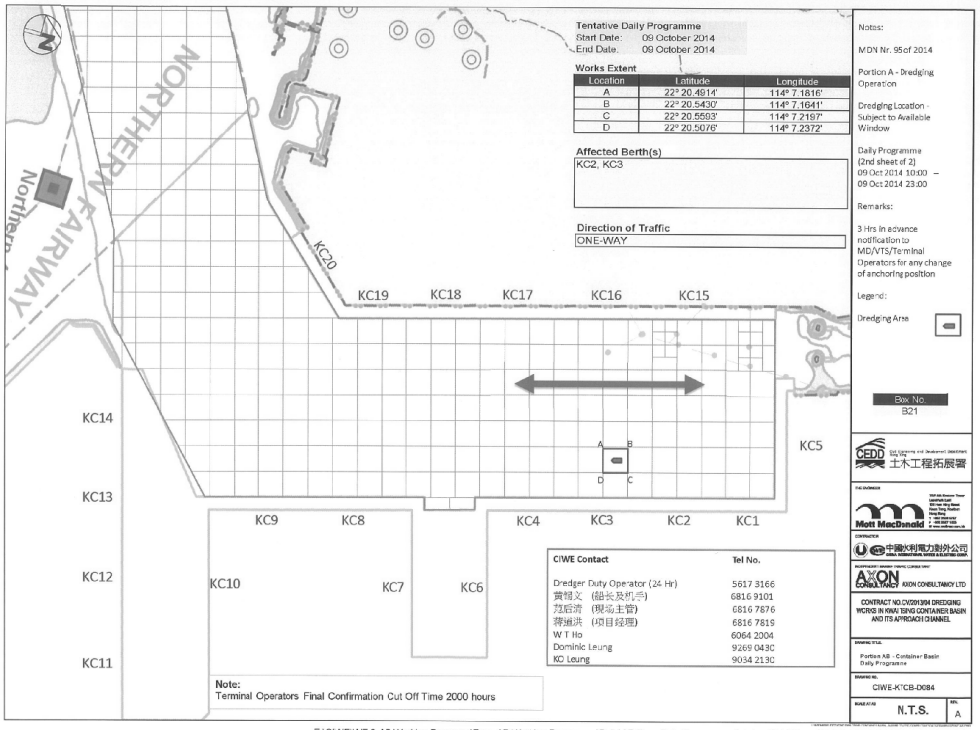

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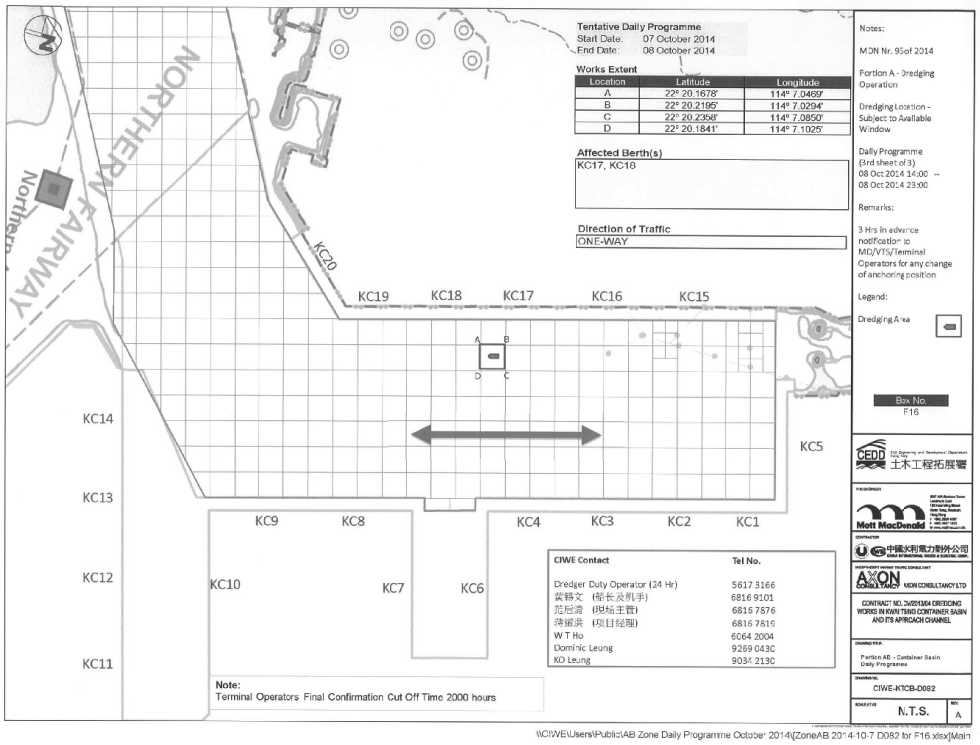

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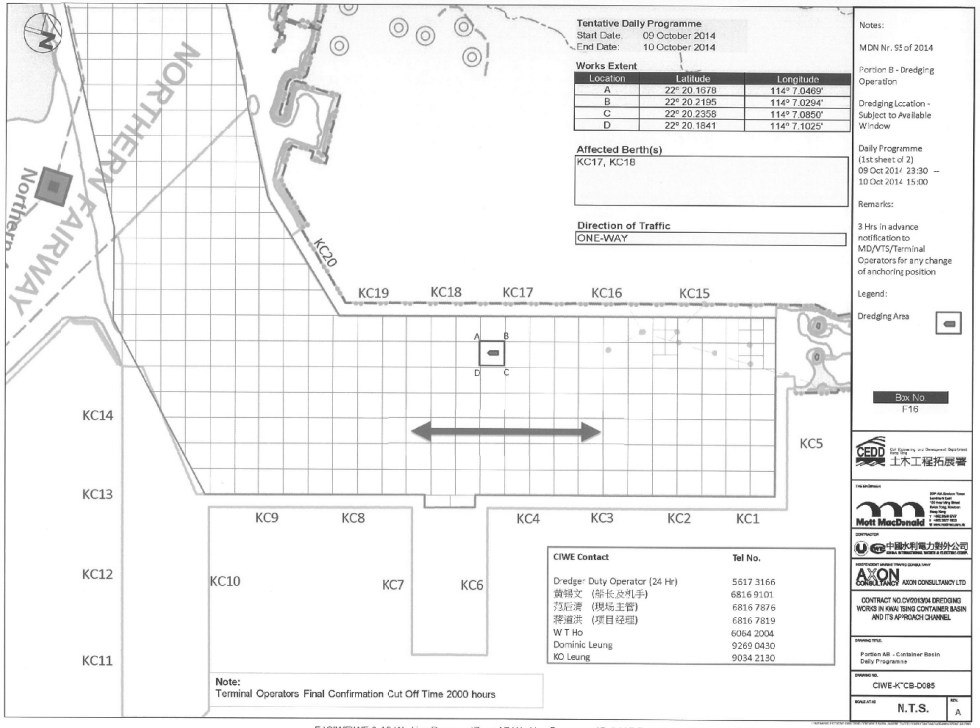

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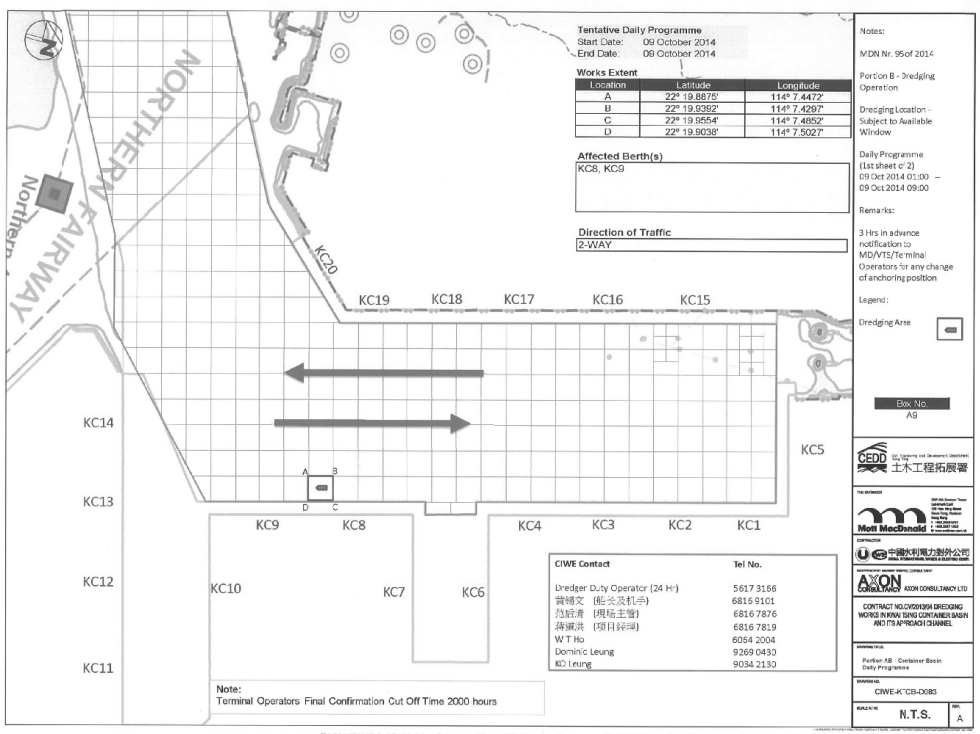

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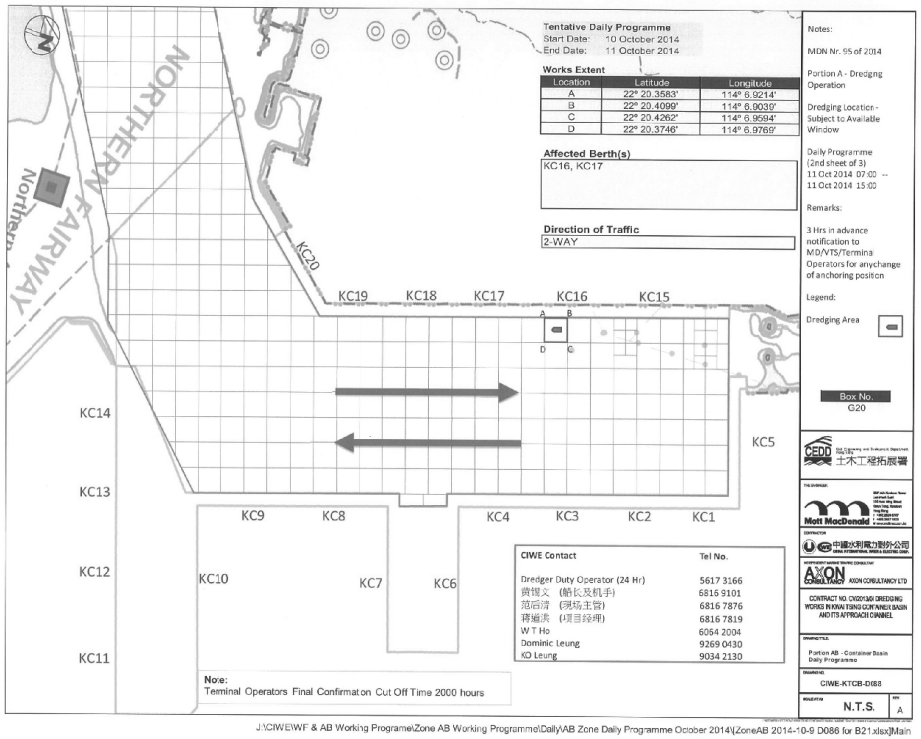

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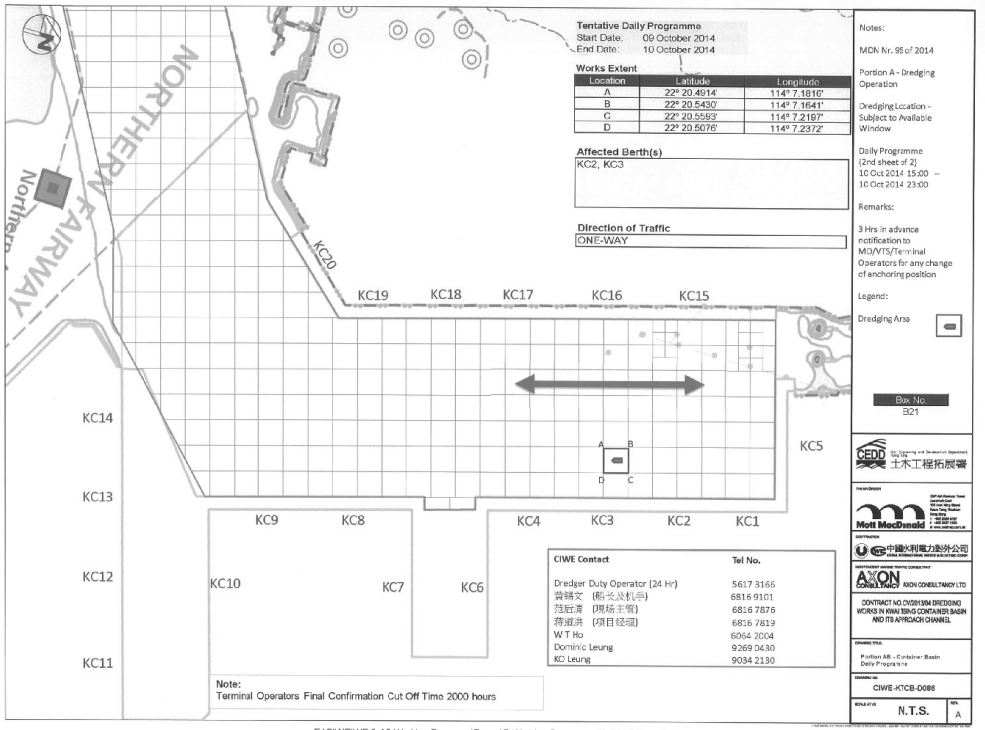

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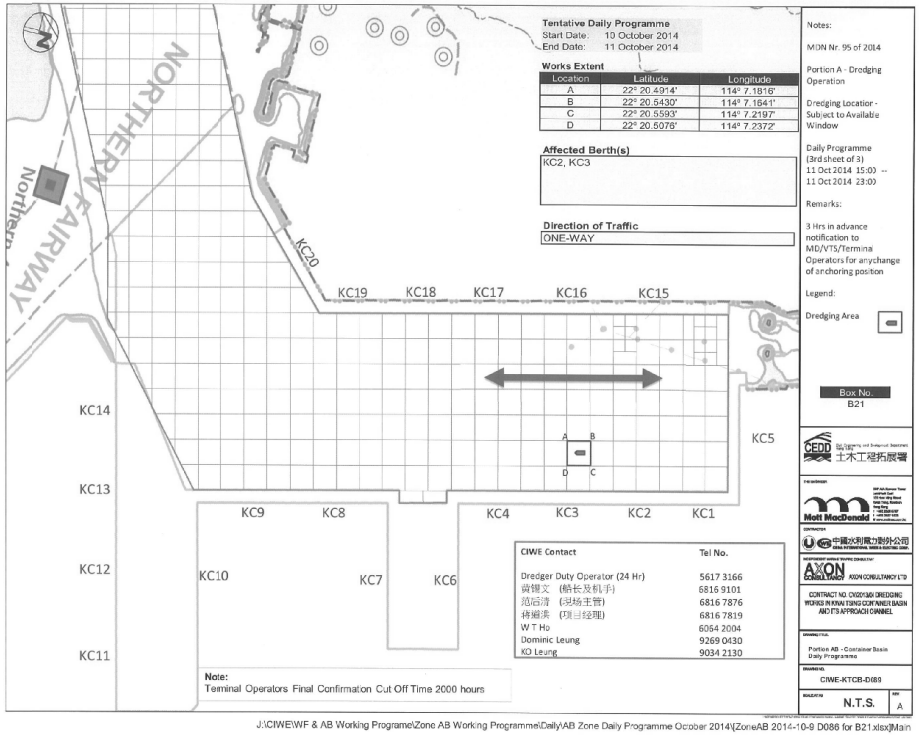

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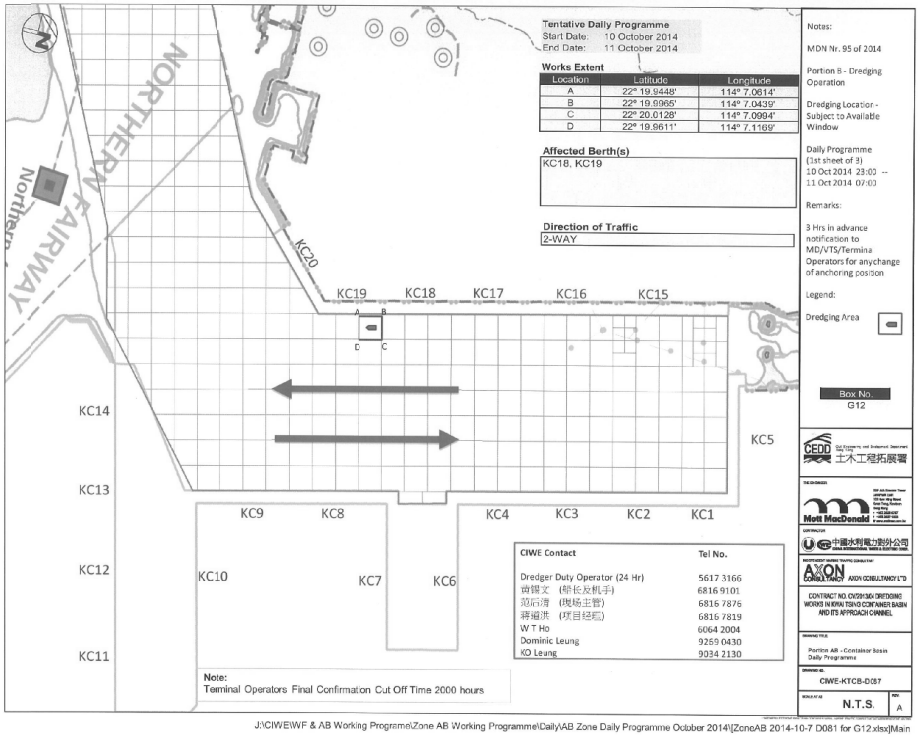

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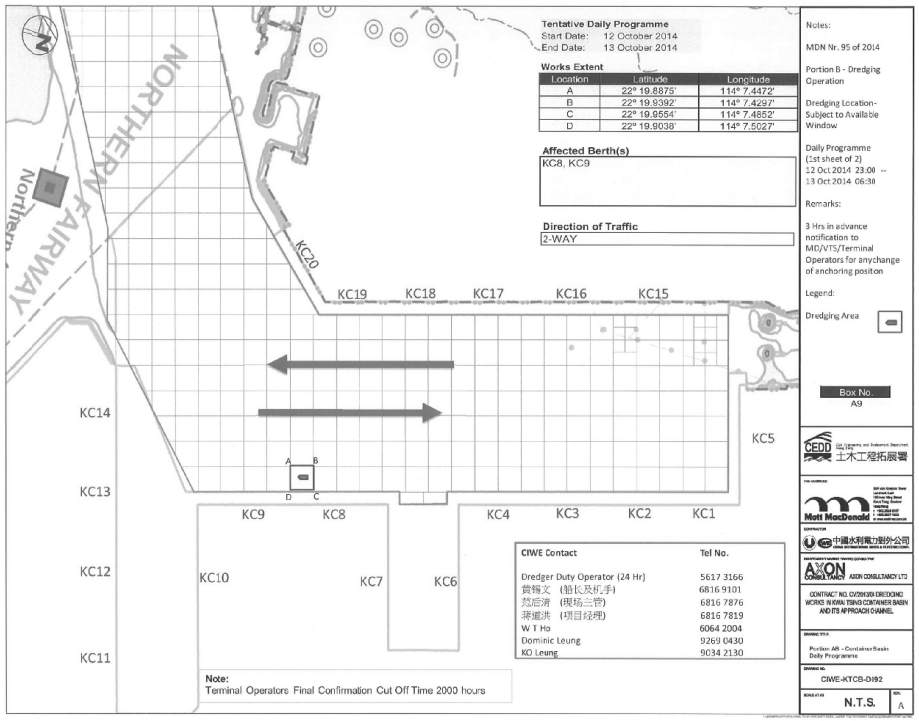

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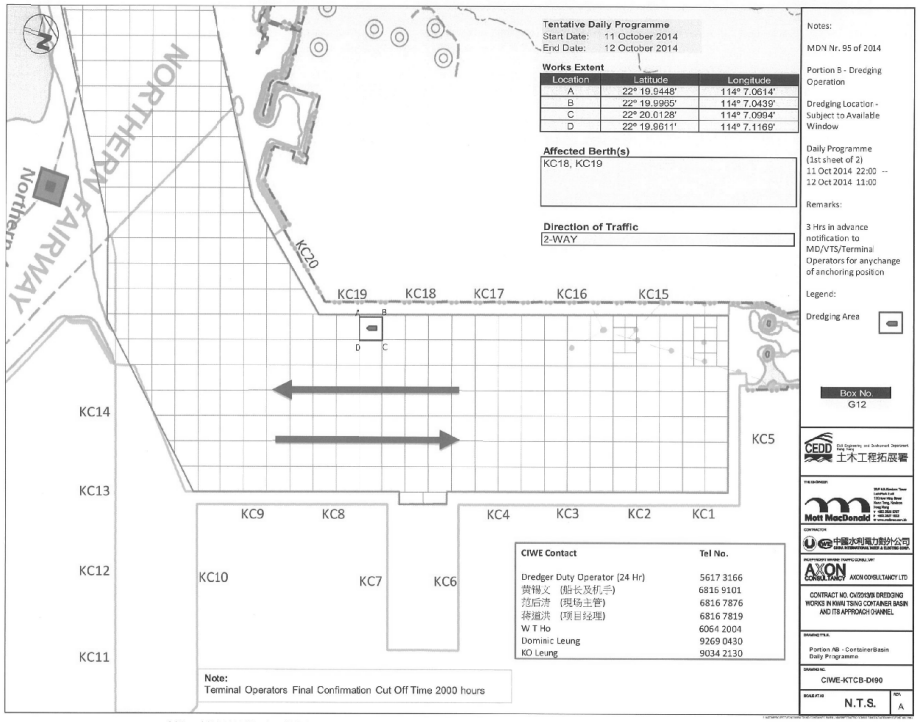

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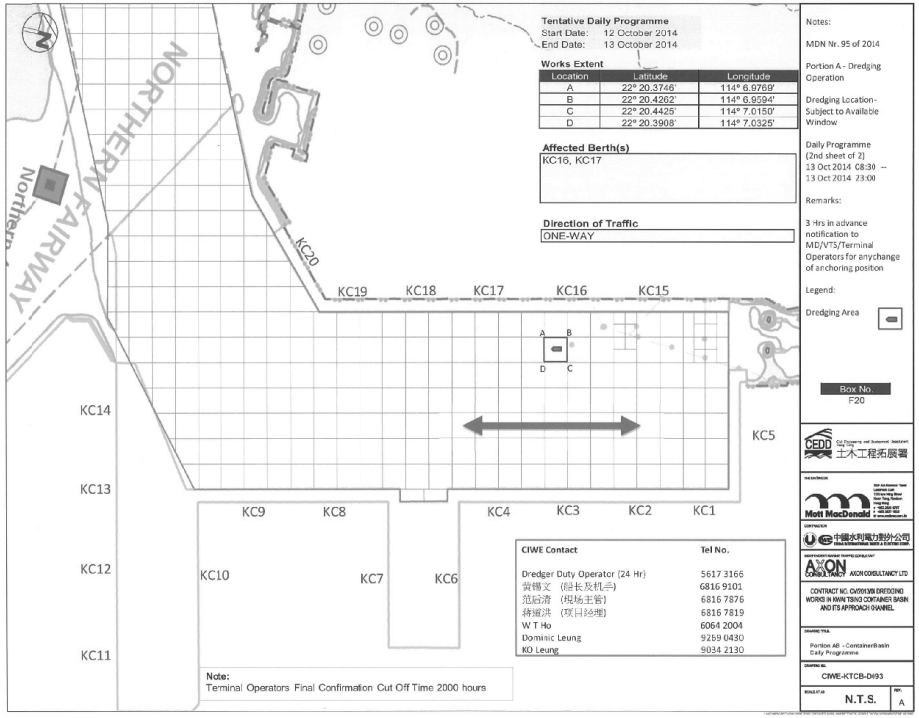

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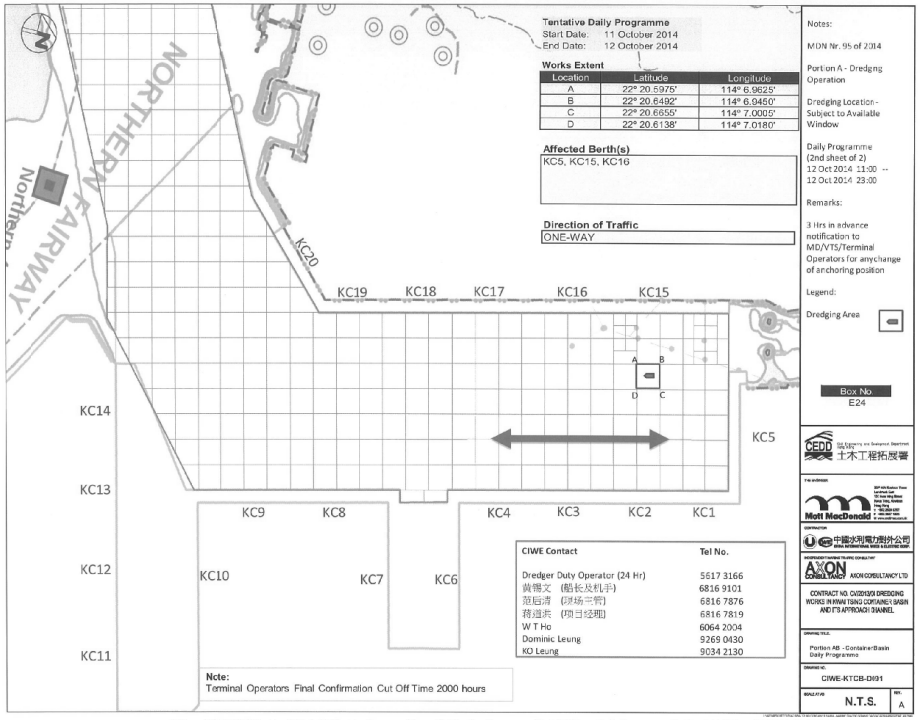

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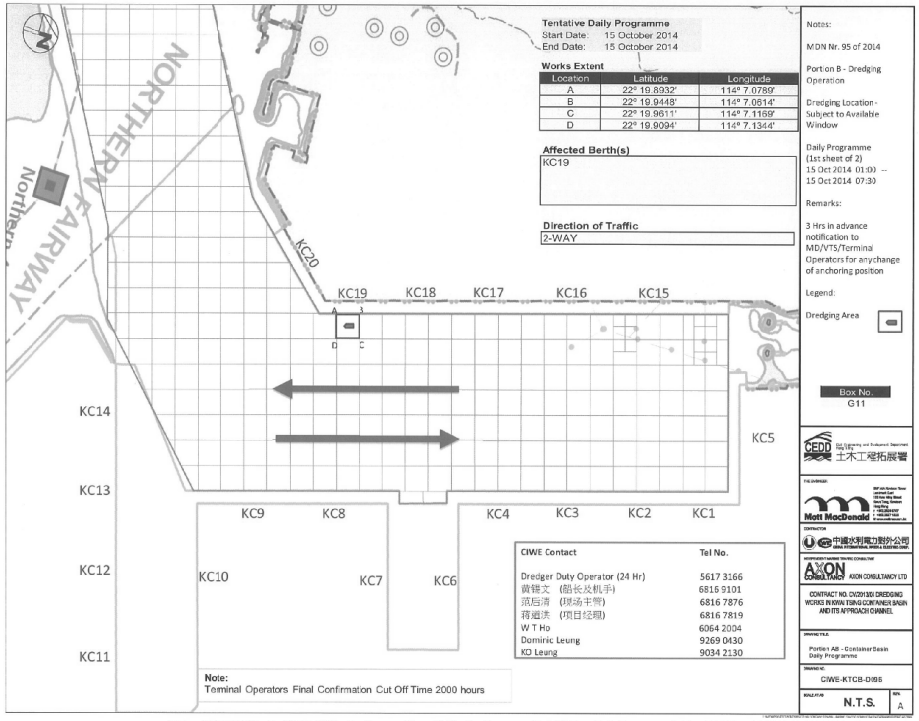

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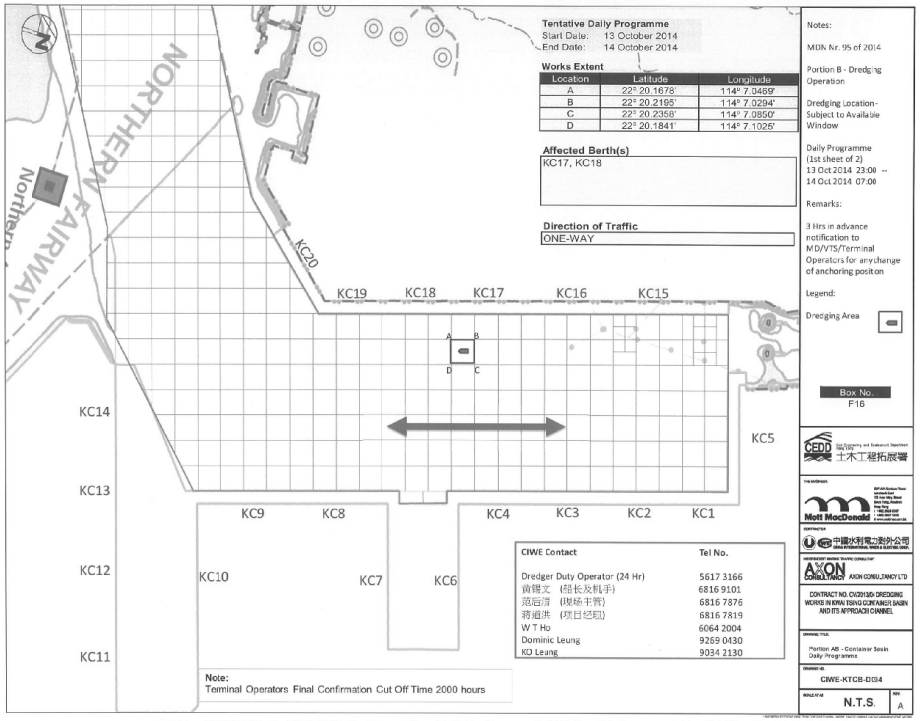

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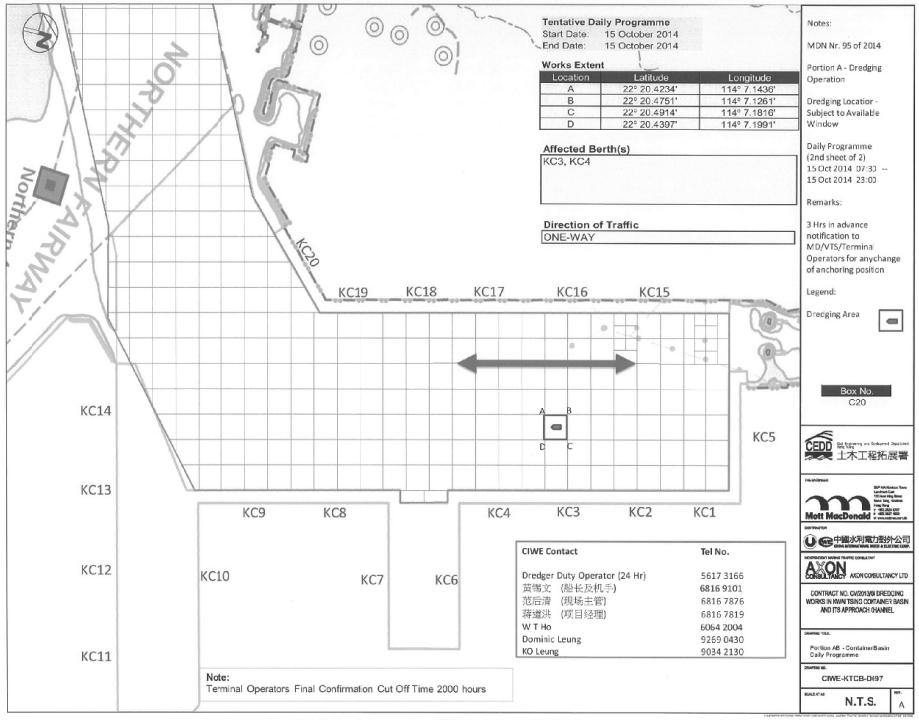

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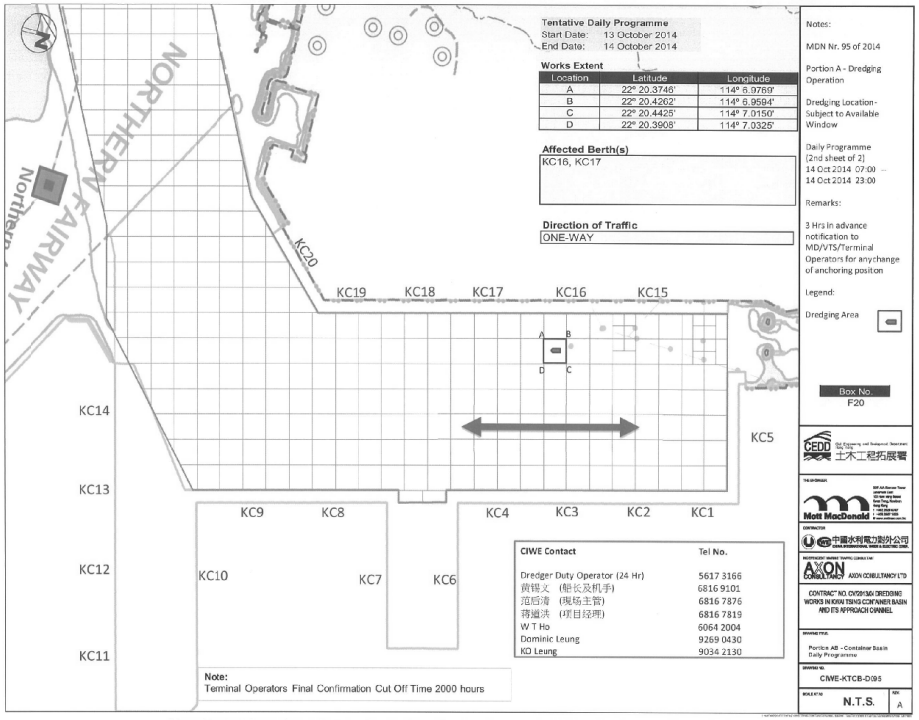

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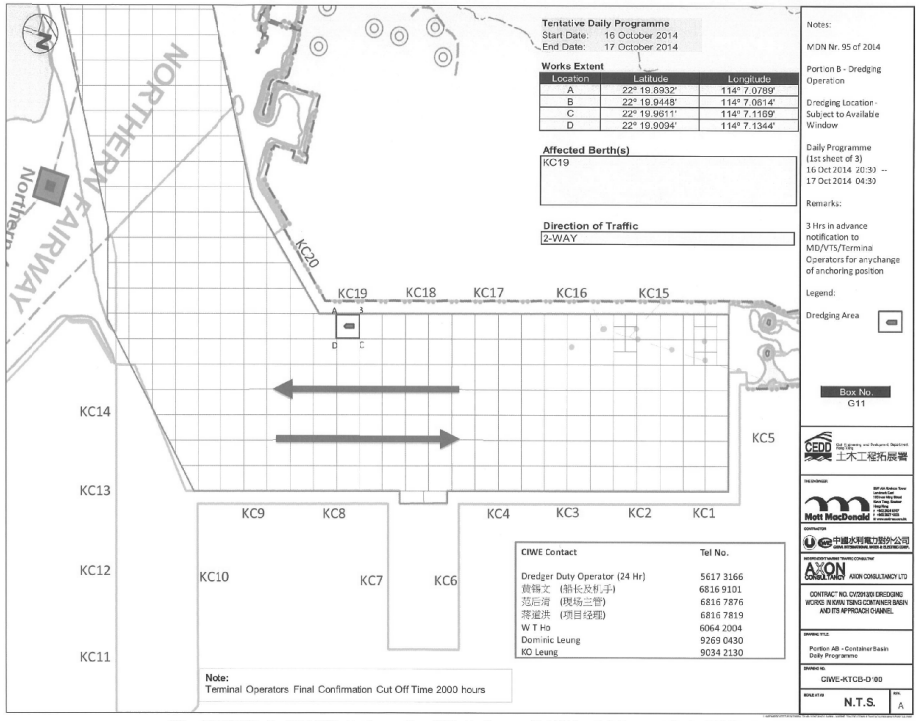

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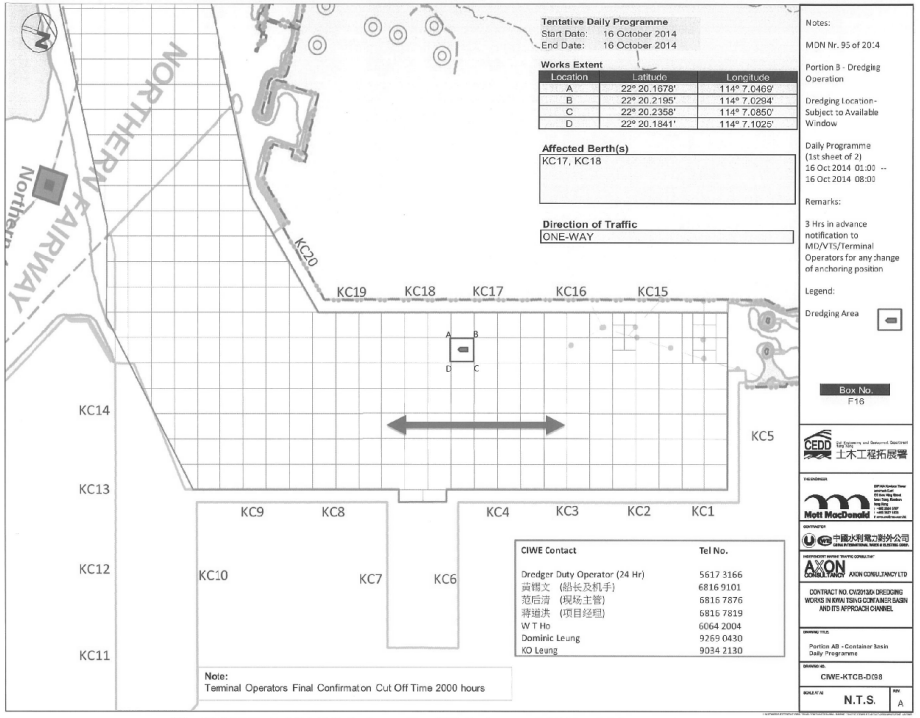

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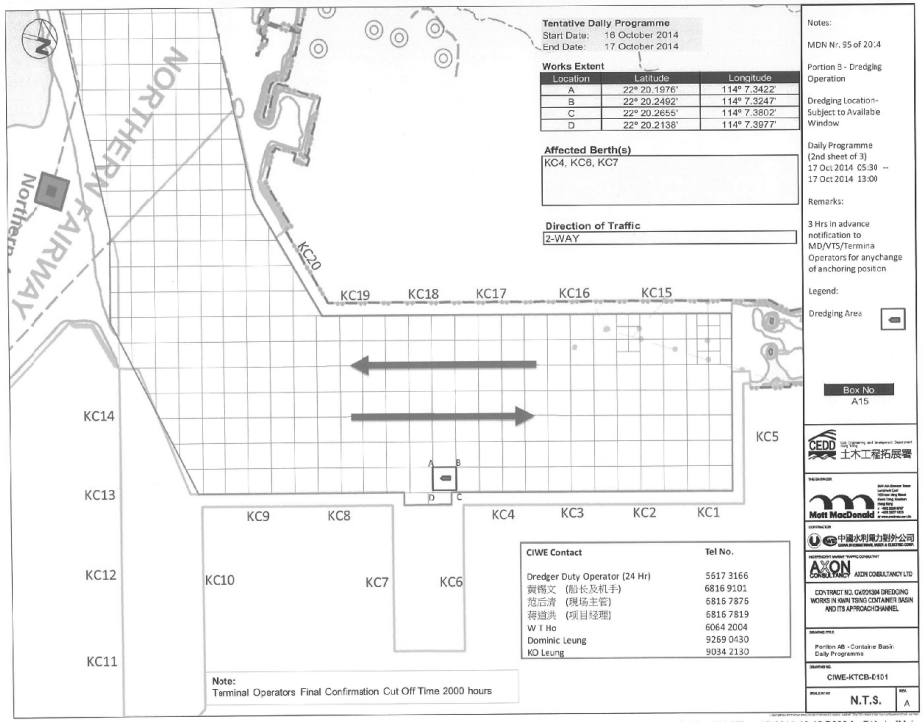

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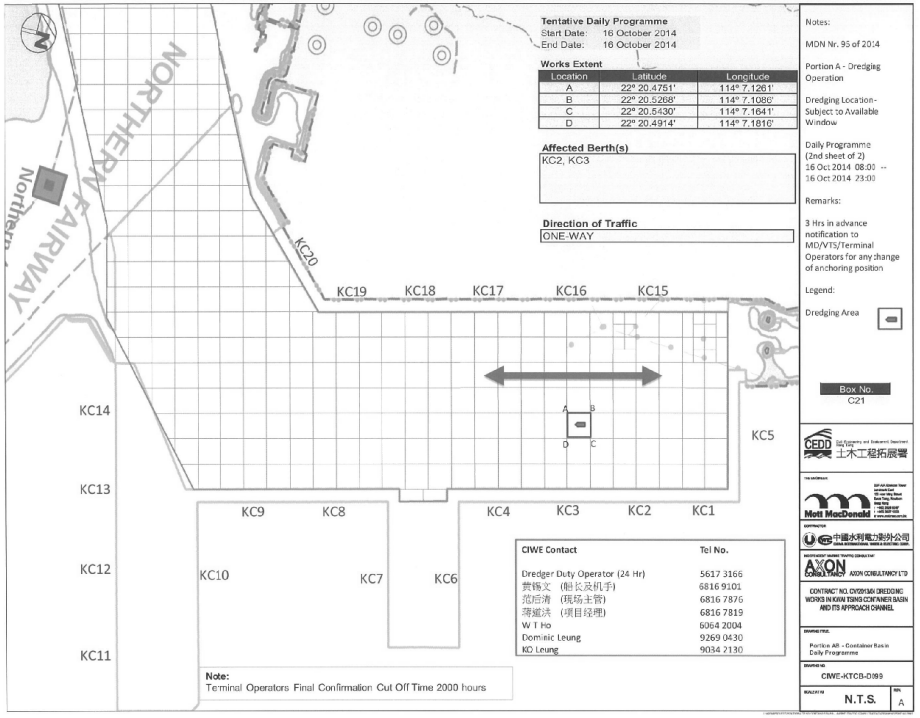

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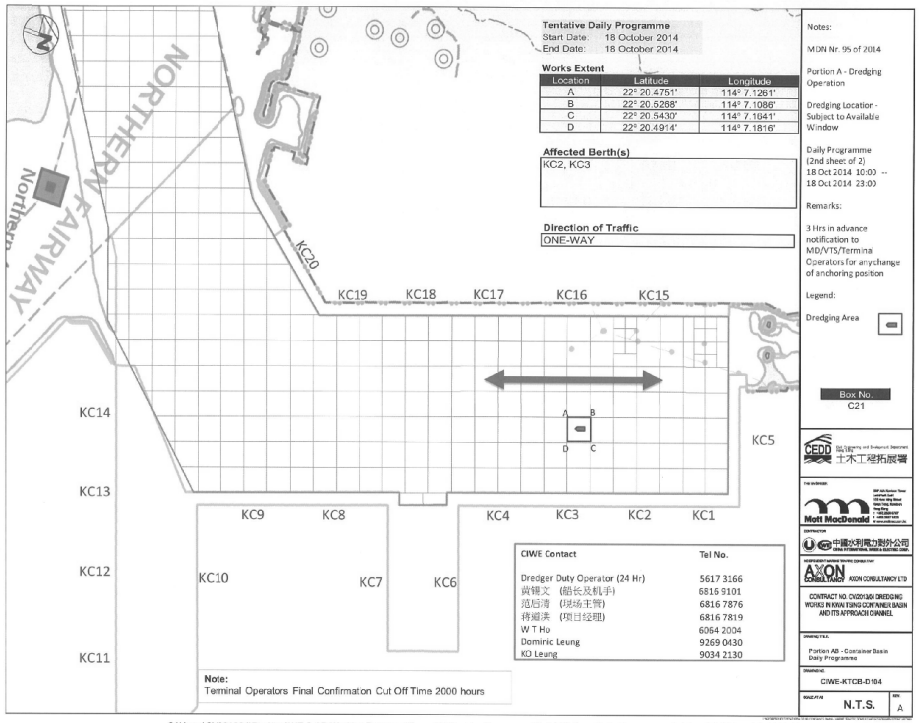

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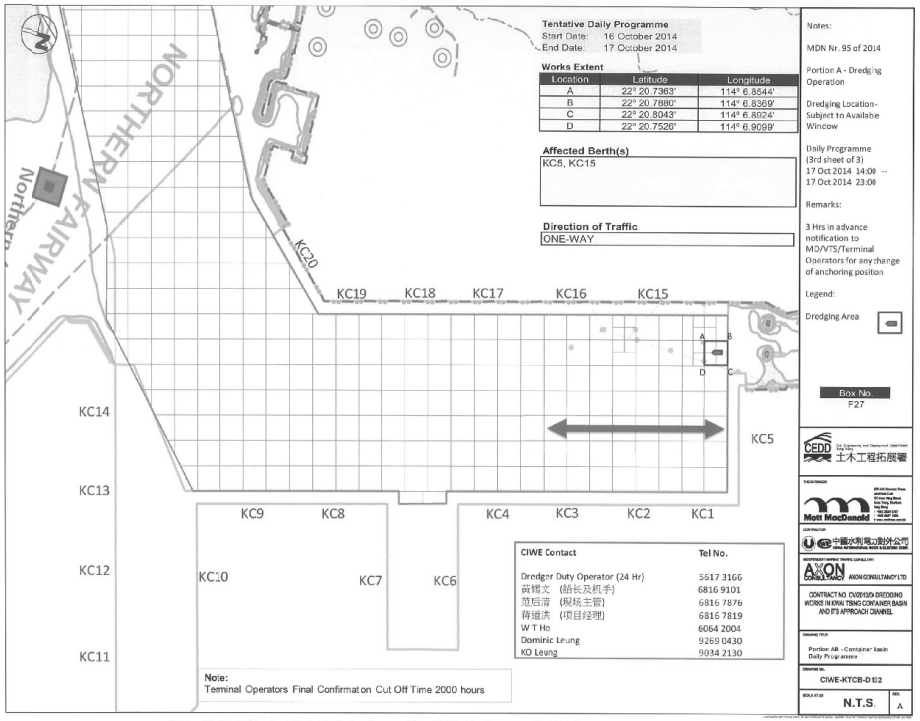

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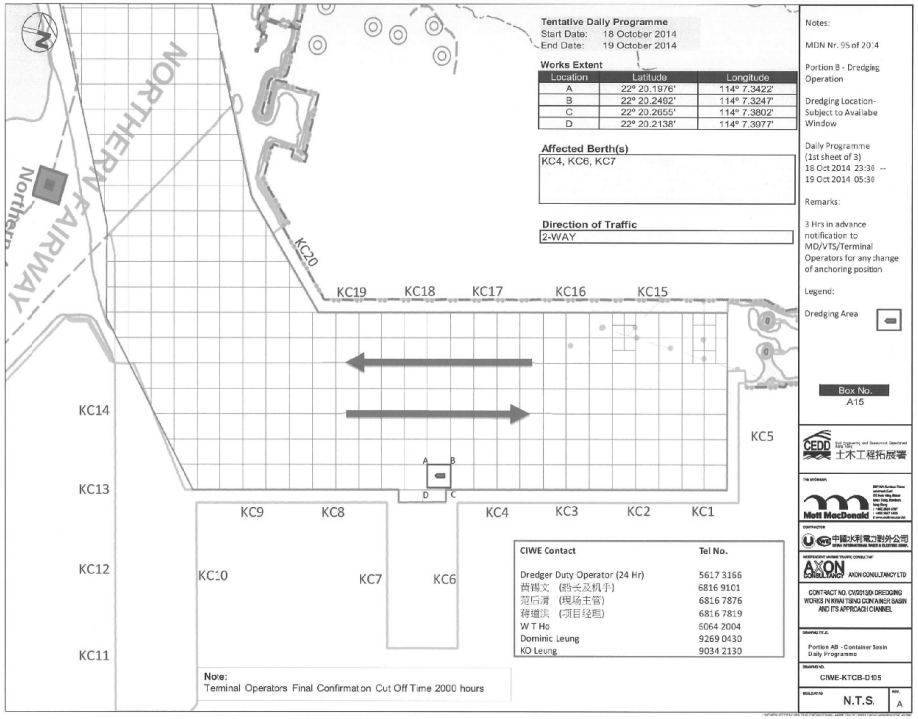

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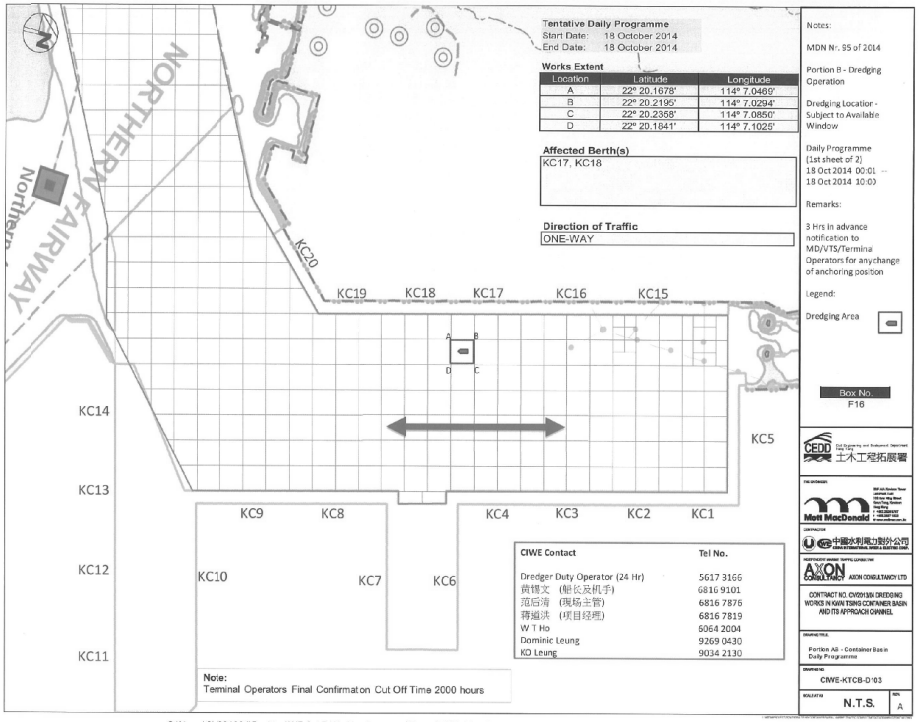

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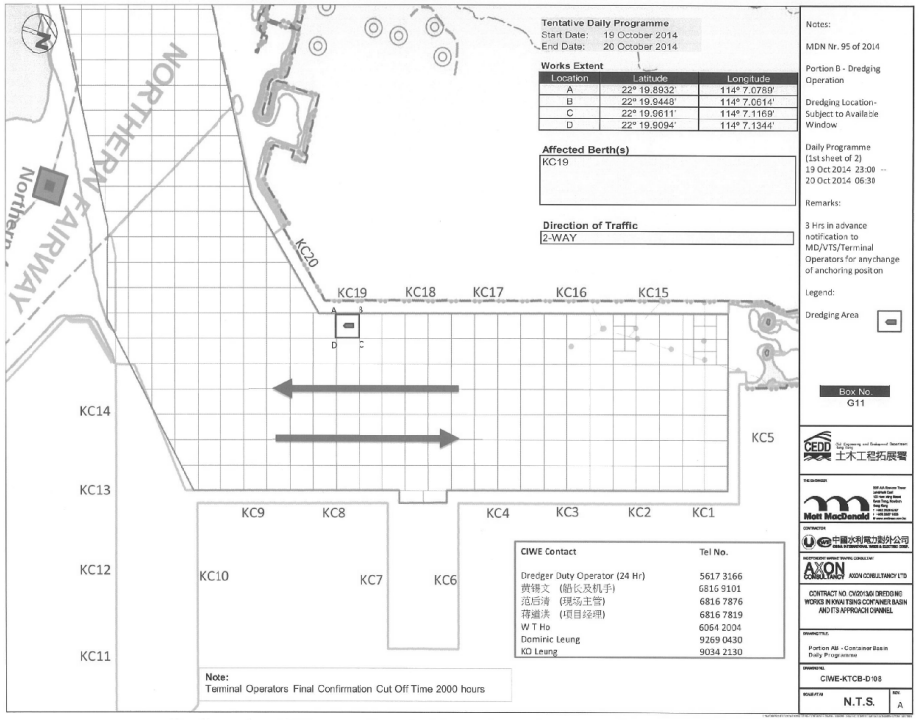

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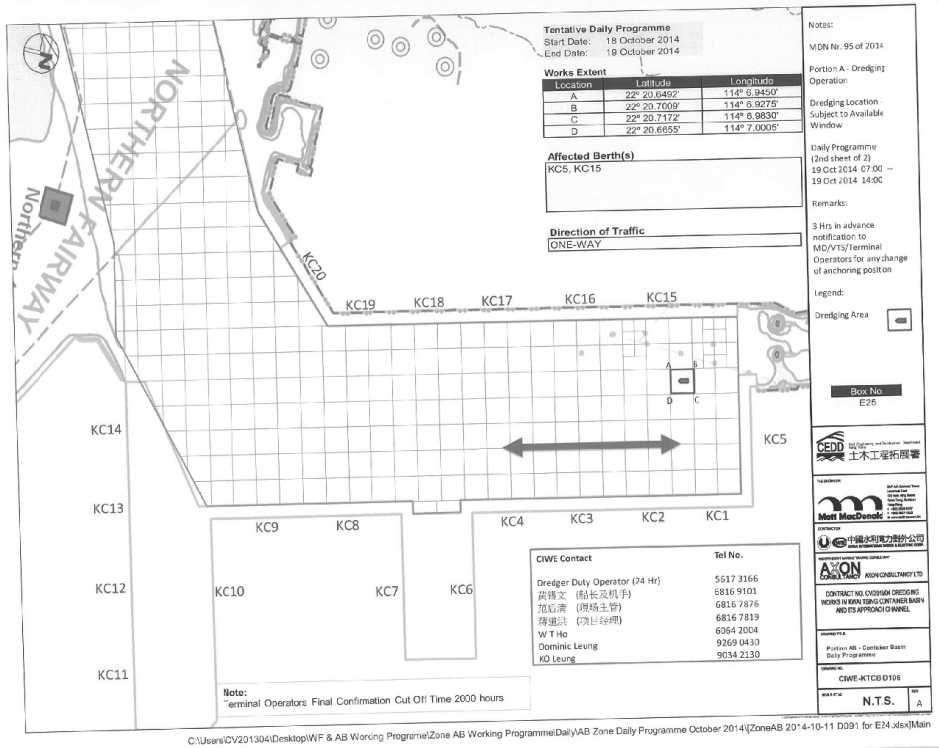

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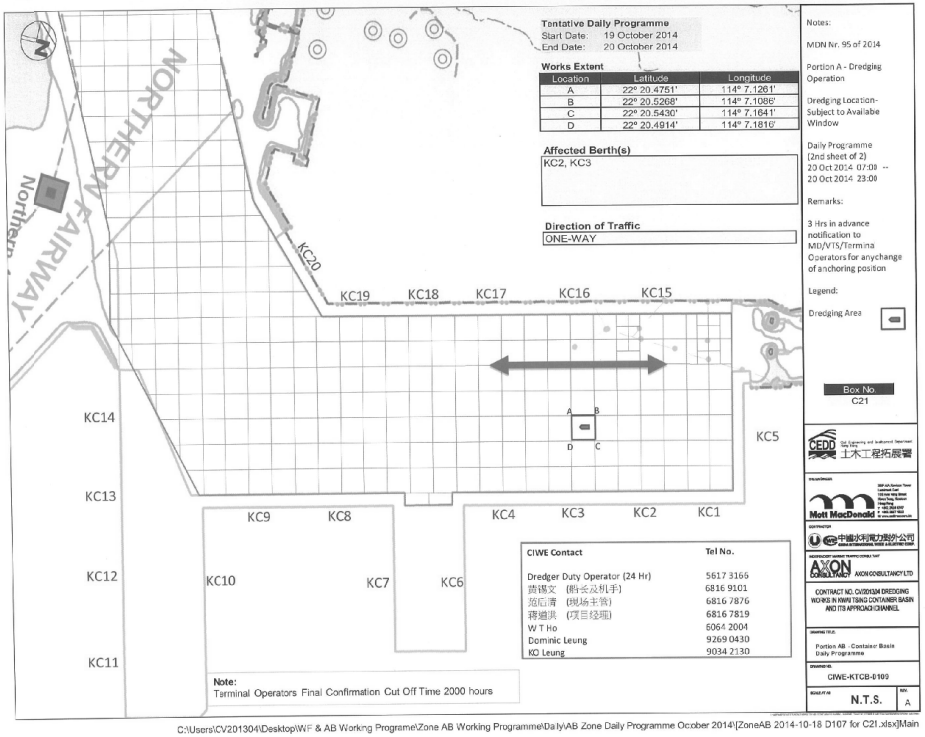

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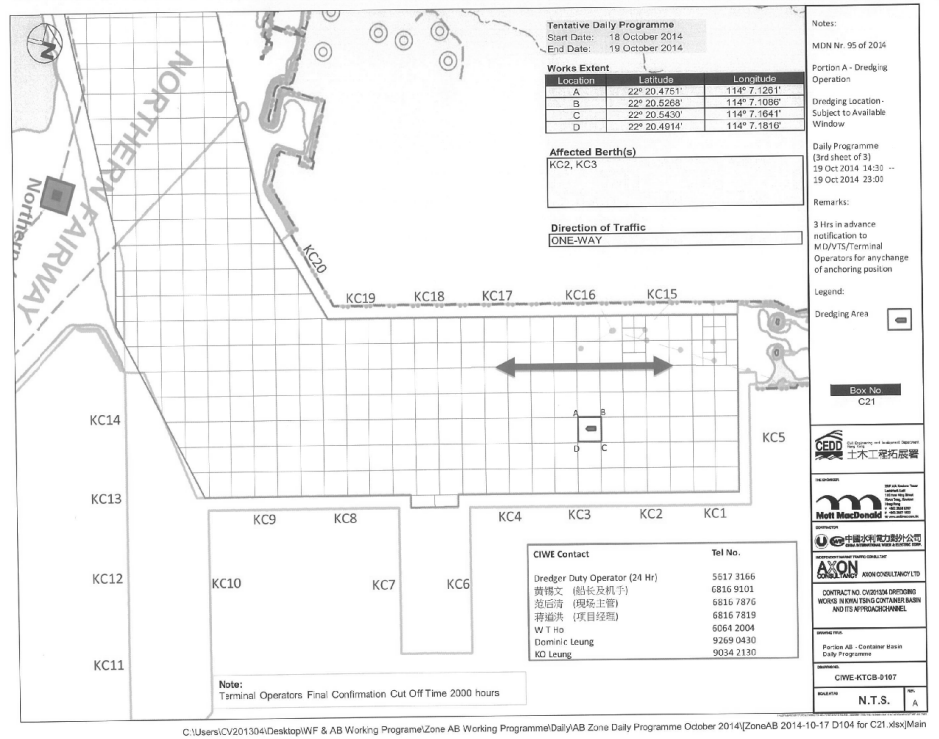

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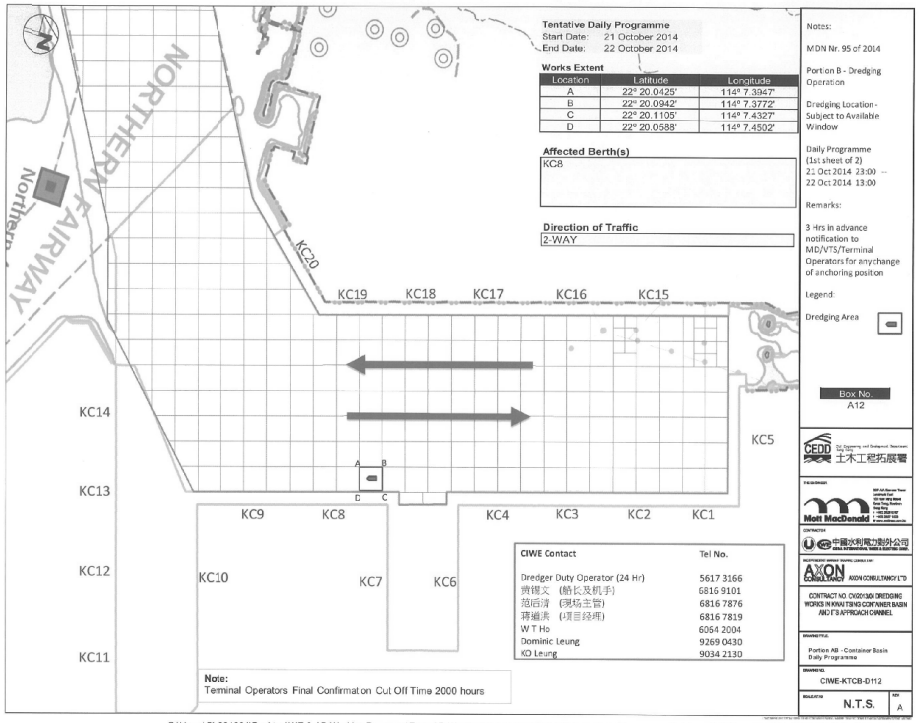

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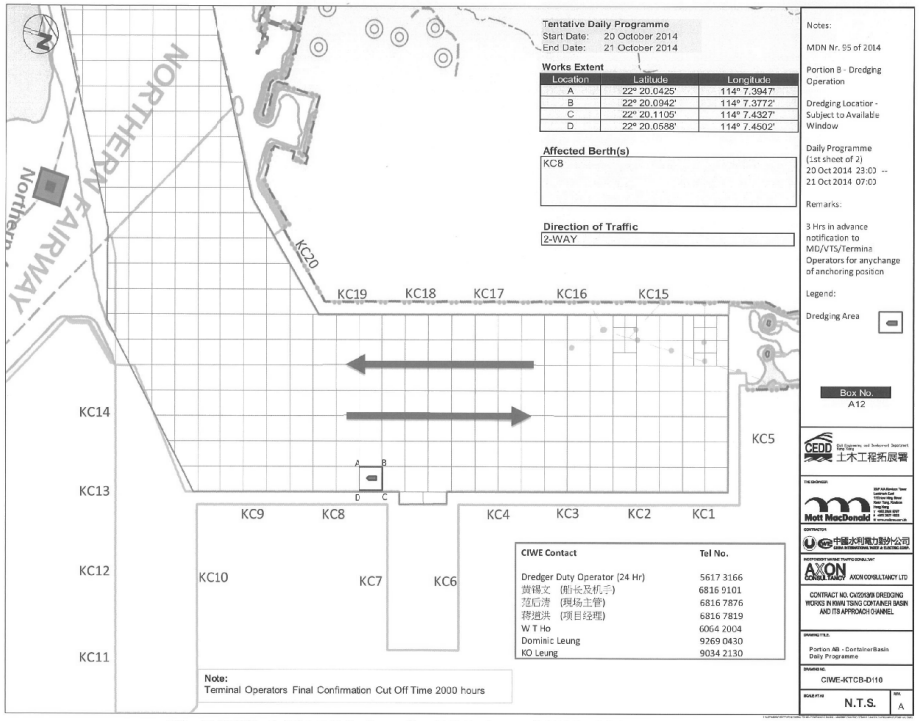

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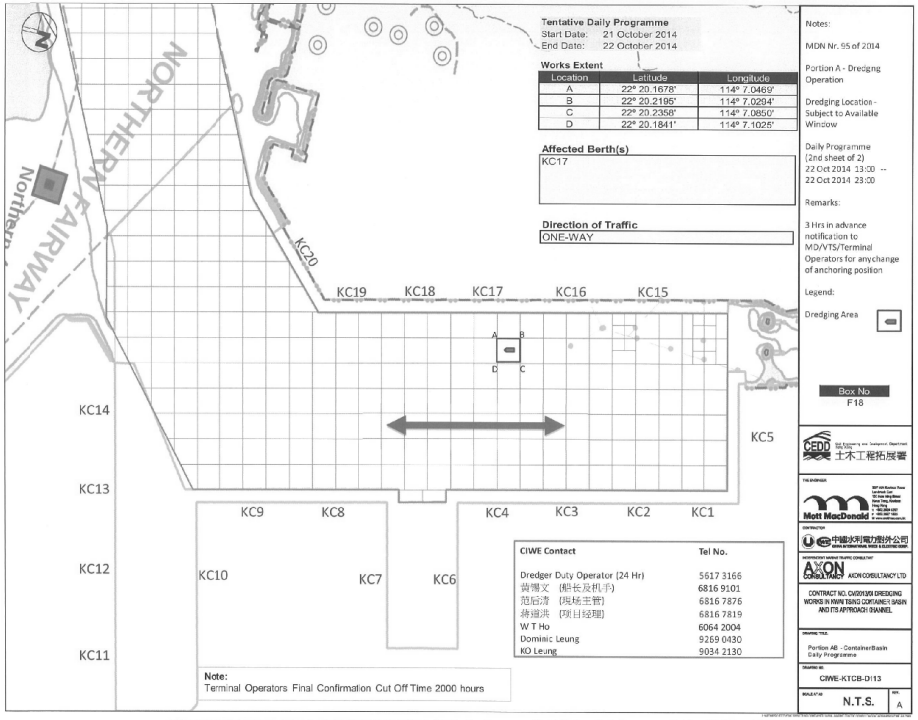

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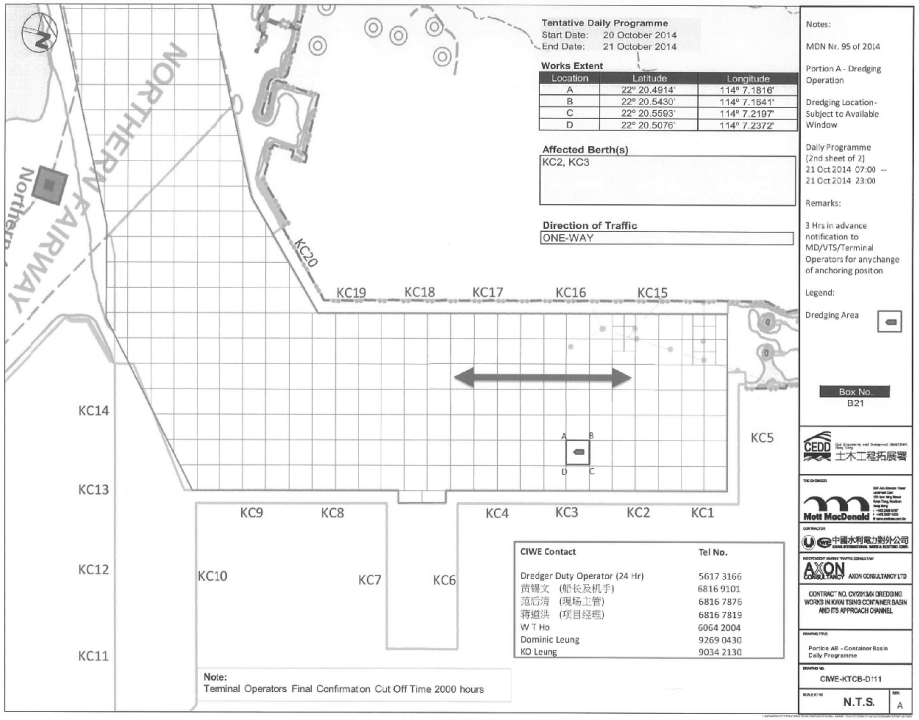

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repared and for which Mott MacDonald Hong Kong Limited
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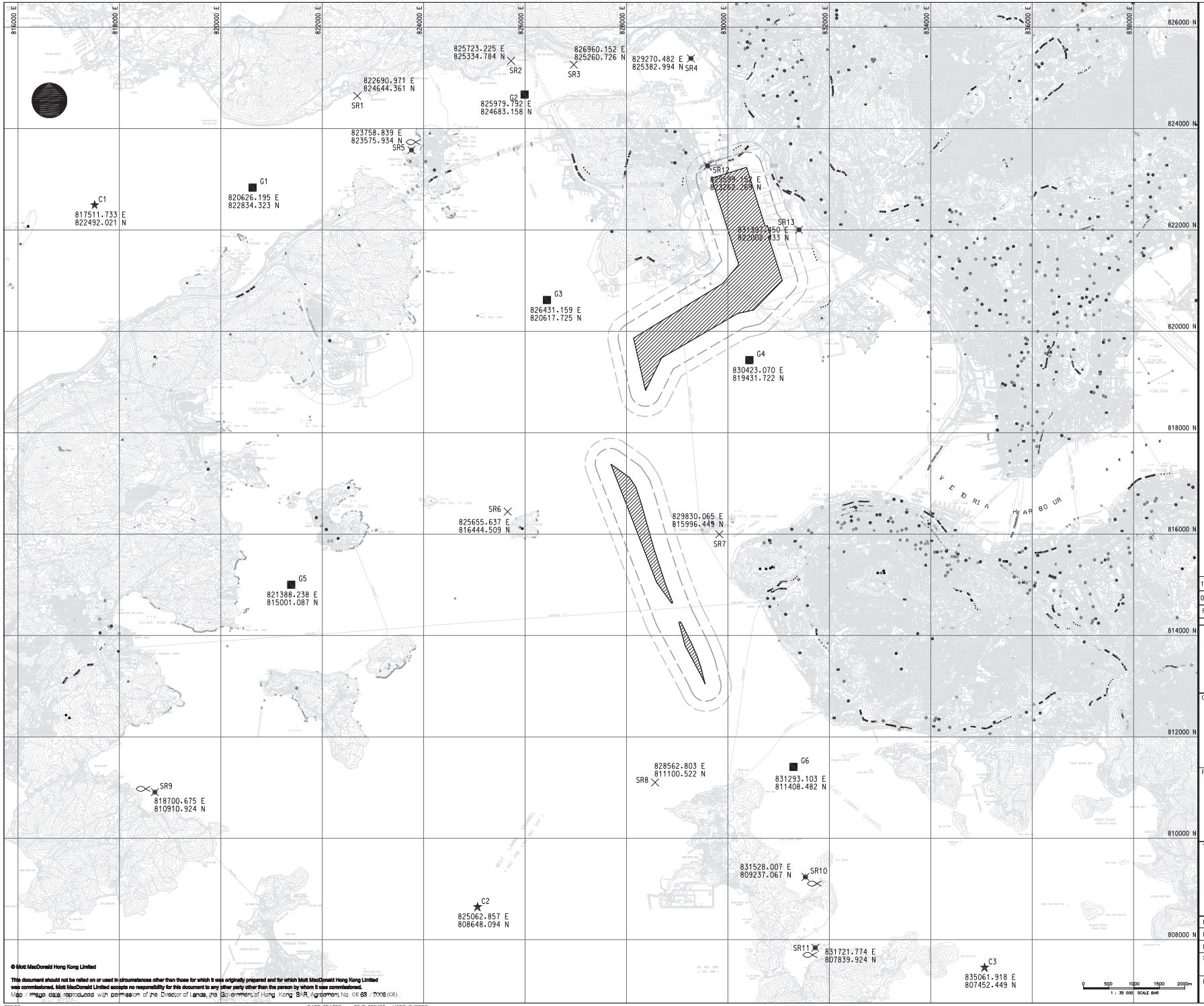
DATE: 09/04/2013 TIME: 20:19:16 USER: ho57494

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Figure 3

Locations of Water Quality Monitoring Stations



NOTES:

1. ALL COORDINATES ARE IN HONG KONG METRIC GRID (1980).
2. THE CONTRACTOR SHALL REFER TO RELEVANT SECTION(S) AND APPENDICES OF THE PARTICULAR SPECIFICATION REGARDING THE WATER QUALITY MONITORING.

LEGEND:

- SITE BOUNDARY
- MONITORING STATION
- CONTROL STATION
- GRADIENT STATION
- 24-HRS MONITORING STATION
- FISH CULTURE ZONE

Rev	Date	Drawn	Description	Ch'k'd	App'd
1	APR 13	WH	TENDER ADDENDUM NO. 1	SL	CMH
0	APR 13	WH	TENDER DRAWING	SL	CMH

Mott MacDonald

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

CONTRACT NO. : CV/2013/04
DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

Title

PROVISIONAL LOCATION OF WATER QUALITY MONITORING STATIONS

Designed	FC		Eng check	SL	
Drawn	WH		Coordination	TF	
Dwg check	FC		Approved	CMH	
Scale at A1	1:35000	Status	TEN	Rev	2

Drawing Number

MMH/259053/EM/403

$FILES DATE:$DATES TIME:$TIME$ USER:$USER$

MATERIALAB CONSULTANTS LIMITED
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Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
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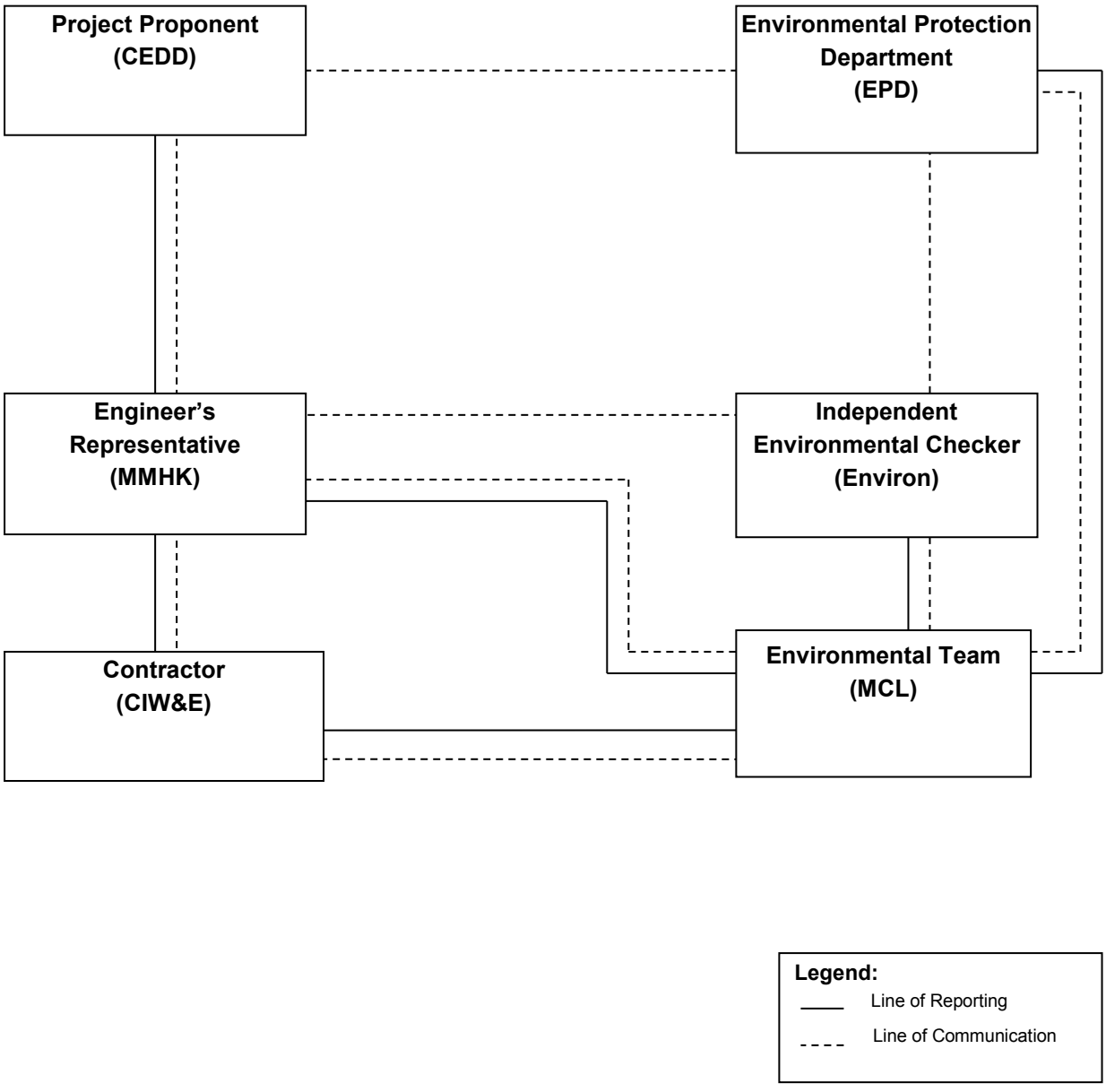
Email : mcl@fugro.com.hk

Appendix A

Project Organization Chart


Project Proponent
(CEDD)
Environmental Protection
Department
(EPD)
Engineer's
Representative
(MMHK)
Independent
Environmental Checker
(Environ)
Contractor
(CIW&E)
Environmental Team
(MCL)
Legend:
Line of Reporting
Line of Communication

MATERIALAB CONSULTANTS LIMITED
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Email : mcl@fugro.com.hk

Appendix B

Construction Programme

中國水利電力對外公司
CHINA INTERNATIONAL WATER & ELECTRIC CORP.
中國長江三峽集團成員

Our ref: CV201304/C1a/0964/KO/pl
Your ref:

Date: 19 August 2014

Mott MacDonald Hong Kong Ltd.
Engineer's Representative's Office
Kwai Yue Lane, Kwai Tsing,
New Territories, Hong Kong.

By Hand Only

Attn: Mr. Felix T C CHAU

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and Its Approach Channel
Revised GCC Clause 16 Programme (Version 7)

Please find attached the captioned for your information.

Yours faithfully
For and on behalf of
China International Water & Electric Corp.

K O Leung
Site Agent

Encl.

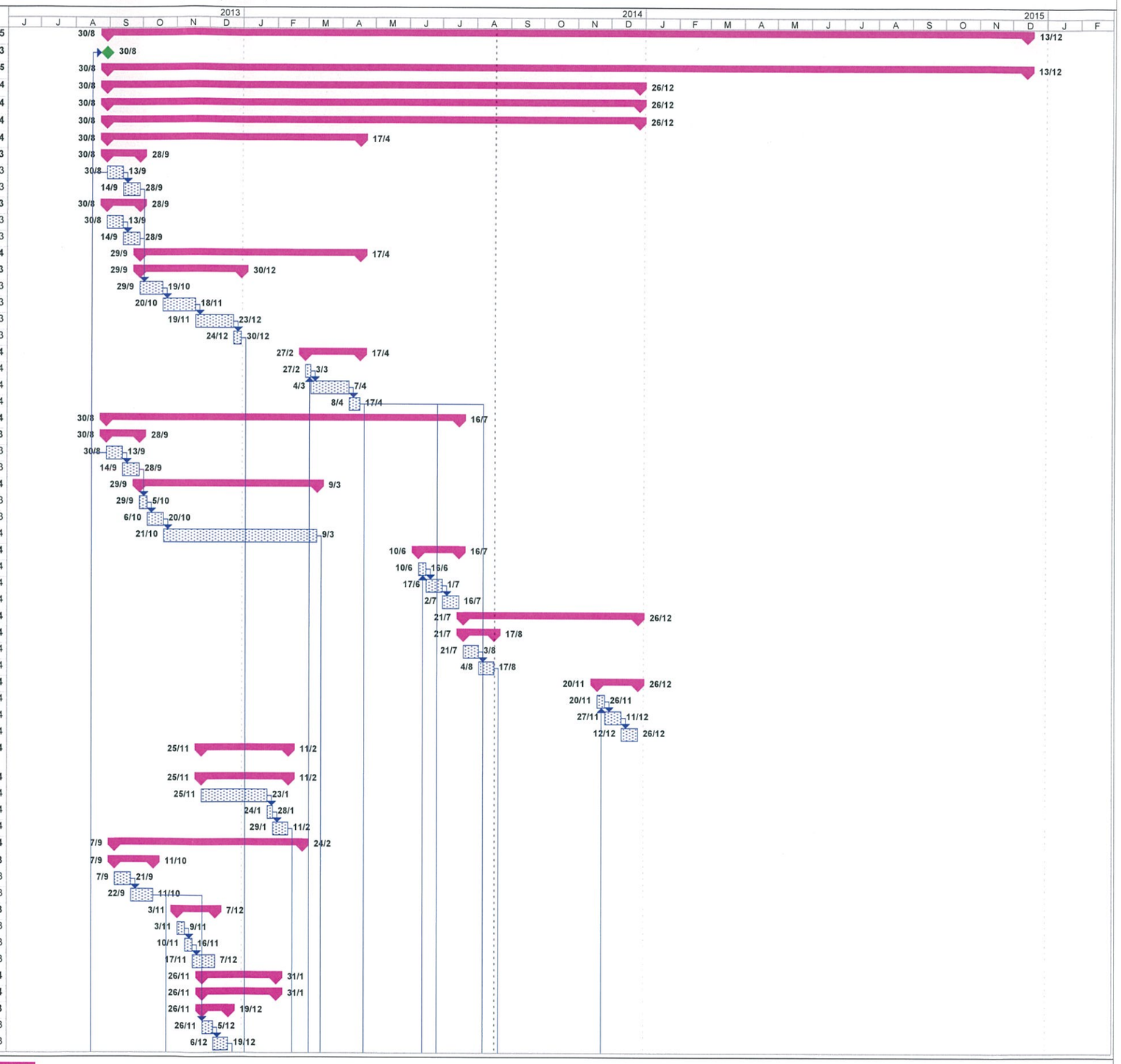
c.c. CE/FM, CEDD - Messrs. Johnny Wong & Bill Ho (w/o) (fax only: 2714 0113)
Head Office/Site

Rm.1508, 15/F., Fortress Tower,
250 King's Road, North Point,
Hong Kong.
Tel : (852) 2508 0983
Fax : (852) 2508 0987

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18 August 2014

ID	Task Name	Duration	Start	Finish
1	**Contract Period**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
2	**Contract Commencement Date**	**0 days**	**Fri 30/8/13**	**Fri 30/8/13**
3	**Section 1**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
4	**Submission**	**484 days**	**Fri 30/8/13**	**Fri 26/12/14**
5	**Routine Monitoring / Temporary Marine Traffic Management**	**484 days**	**Fri 30/8/13**	**Fri 26/12/14**
6	**Environmental Management**	**484 days**	**Fri 30/8/13**	**Fri 26/12/14**
7	**Baseline monitoring**	**231 days**	**Fri 30/8/13**	**Thu 17/4/14**
8	**ETL and relevant site personal**	**30 days**	**Fri 30/8/13**	**Sat 28/9/13**
9	Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
10	Comment and approval	15 days	Sat 14/9/13	Sat 28/9/13
11	**Test Lab**	**30 days**	**Fri 30/8/13**	**Sat 28/9/13**
12	Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
13	Comment and approval	15 days	Sat 14/9/13	Sat 28/9/13
14	**Monitoring (Location see Drg No. EM/401)**	**201 days**	**Sun 29/9/13**	**Thu 17/4/14**
15	**Plan**	**93 days**	**Sun 29/9/13**	**Mon 30/12/13**
16	Preparation and submission to Mott and IEC	21 days	Sun 29/9/13	Sat 19/10/13
17	Comment and resubmission	30 days	Sun 20/10/13	Mon 18/11/13
18	Approval by Mott and ICE	35 days	Tue 19/11/13	Mon 23/12/13
19	Approval by EPD	7 days	Tue 24/12/13	Mon 30/12/13
20	**Report**	**50 days**	**Thu 27/2/14**	**Thu 17/4/14**
21	Preparation of report	5 days	Thu 27/2/14	Mon 3/3/14
22	Approval by Mott and IEC	35 days	Tue 4/3/14	Mon 7/4/14
23	Approval by EPD	10 days	Tue 8/4/14	Thu 17/4/14
24	**Grab sample (Portions A, B & C)**	**321 days**	**Fri 30/8/13**	**Wed 16/7/14**
25	**Grab sample specialist**	**30 days**	**Fri 30/8/13**	**Sat 28/9/13**
26	Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
27	Comment and approval by Mott	15 days	Sat 14/9/13	Sat 28/9/13
28	**Sediment testing and sampling plan**	**162 days**	**Sun 29/9/13**	**Sun 9/3/14**
29	Prepararion and submission	7 days	Sun 29/9/13	Sat 5/10/13
30	Approval by Mott	15 days	Sun 6/10/13	Sun 20/10/13
31	Approval by EPD	140 days	Mon 21/10/13	Sun 9/3/14
32	**Sediment report**	**37 days**	**Tue 10/6/14**	**Wed 16/7/14**
33	Preparation of report	7 days	Tue 10/6/14	Mon 16/6/14
34	Approval by Mott	15 days	Tue 17/6/14	Tue 1/7/14
35	Approval by EPD	15 days	Wed 2/7/14	Wed 16/7/14
36	**Vibro-coring (Portions A, B & C)**	**159 days**	**Mon 21/7/14**	**Fri 26/12/14**
37	**Sediment testing and sampling plan**	**28 days**	**Mon 21/7/14**	**Sun 17/8/14**
38	Prepararion and submission	14 days	Mon 21/7/14	Sun 3/8/14
39	Approval by Mott	14 days	Mon 4/8/14	Sun 17/8/14
40	**Sediment report**	**37 days**	**Thu 20/11/14**	**Fri 26/12/14**
41	Preparation of report	7 days	Thu 20/11/14	Wed 26/11/14
42	Approval by Mott	15 days	Thu 27/11/14	Thu 11/12/14
43	Approval by EPD	15 days	Fri 12/12/14	Fri 26/12/14
44	**24 Hours monitoring station and TIN Measuring Device (Location see Drg No. EM/401)**	**79 days**	**Mon 25/11/13**	**Tue 11/2/14**
45	**Instrumentation**	**79 days**	**Mon 25/11/13**	**Tue 11/2/14**
46	Preparation and submission	60 days	Mon 25/11/13	Thu 23/1/14
47	Approval by Mott and IEC	5 days	Fri 24/1/14	Tue 28/1/14
48	Approval by EPD	14 days	Wed 29/1/14	Tue 11/2/14
49	**Survey**	**171 days**	**Sat 7/9/13**	**Mon 24/2/14**
50	**Surveyor**	**35 days**	**Sat 7/9/13**	**Fri 11/10/13**
51	Preparation and submission	15 days	Sat 7/9/13	Sat 21/9/13
52	Approval by Mott	20 days	Sun 22/9/13	Fri 11/10/13
53	**Geophysicist**	**35 days**	**Sun 3/11/13**	**Sat 7/12/13**
54	Prepararion and submission	7 days	Sun 3/11/13	Sat 9/11/13
55	Approval by Mott	7 days	Sun 10/11/13	Sat 16/11/13
56	Approval by Marine Department	21 days	Sun 17/11/13	Sat 7/12/13
57	**Land Survey (Container Basin & DSD Tsing Yi Plant)**	**67 days**	**Tue 26/11/13**	**Fri 31/1/14**
58	**Settlement markers**	**67 days**	**Tue 26/11/13**	**Fri 31/1/14**
59	**Method Statement for Installation and Monitoring**	**24 days**	**Tue 26/11/13**	**Thu 19/12/13**
60	Preparation and submission	10 days	Tue 26/11/13	Thu 5/12/13
61	Approval by Mott	14 days	Fri 6/12/13	Thu 19/12/13



China International Water & Electric Corp.

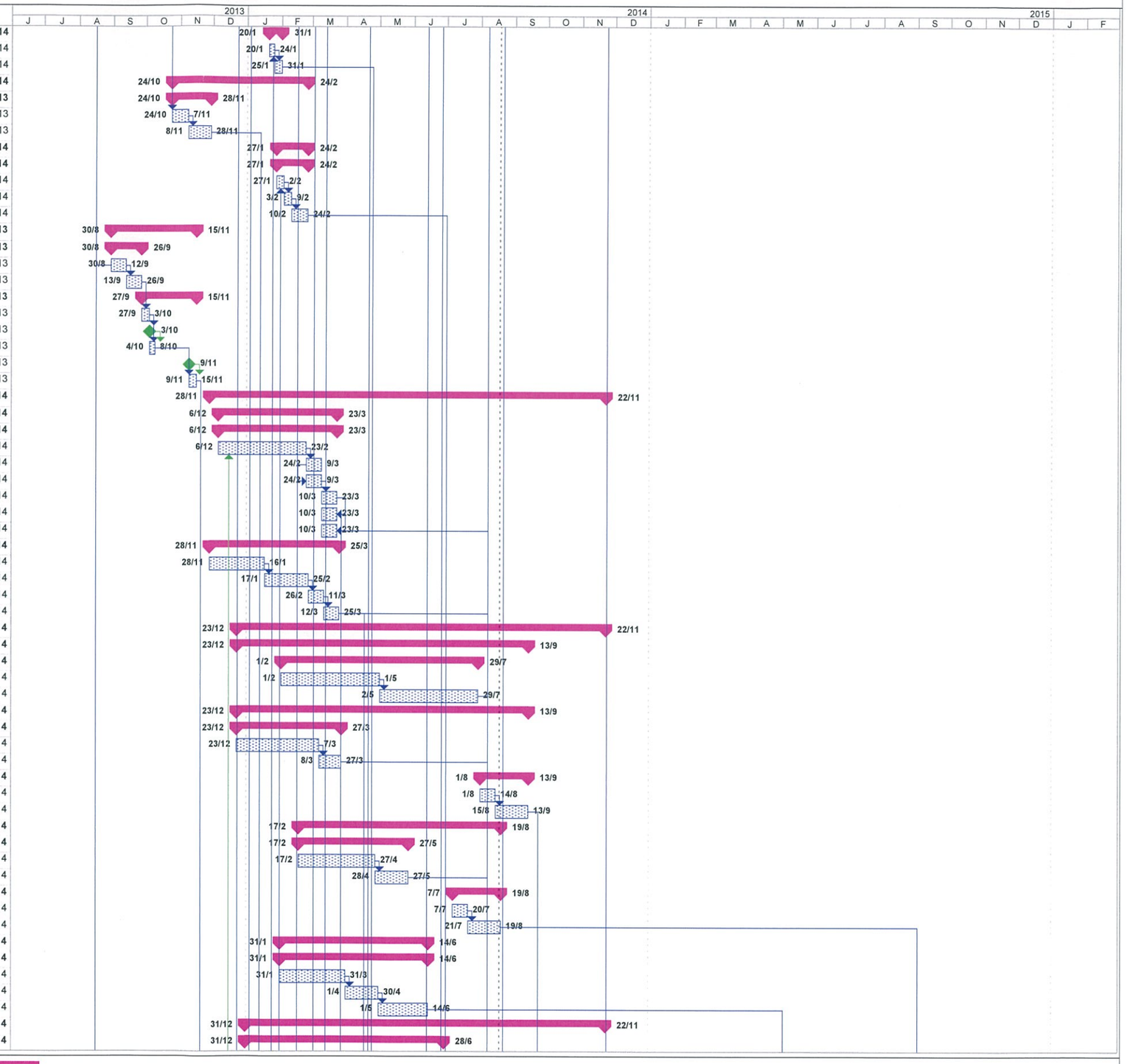
Task | Critical Task | Milestone | Summary

* Subject to availabity of working windows (ID 199 & 200)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18 August 2014

ID	Task Name	Duration	Start	Finish
62	**Initial report**	**12 days**	**Mon 20/1/14**	**Fri 31/1/14**
63	Preparation and submission	5 days	Mon 20/1/14	Fri 24/1/14
64	Approval by Mott	7 days	Sat 25/1/14	Fri 31/1/14
65	**Hydrographic Survey (Portions A to E)**	**124 days**	**Thu 24/10/13**	**Mon 24/2/14**
66	**Method Statement**	**36 days**	**Thu 24/10/13**	**Thu 28/11/13**
67	Preparation and submission	15 days	Thu 24/10/13	Thu 7/11/13
68	Approval by Mott	21 days	Fri 8/11/13	Thu 28/11/13
69	**Initial survey**	**29 days**	**Mon 27/1/14**	**Mon 24/2/14**
70	**Report**	**29 days**	**Mon 27/1/14**	**Mon 24/2/14**
71	Preparation and submission	7 days	Mon 27/1/14	Sun 2/2/14
72	Approval by Mott	7 days	Mon 3/2/14	Sun 9/2/14
73	Approval by Marine Department	15 days	Mon 10/2/14	Mon 24/2/14
74	**Temporary Marine Traffic Management (Portions A to E)**	**78 days**	**Fri 30/8/13**	**Fri 15/11/13**
75	**Consultant, Risk Manager and Marine Traffic Engineer**	**28 days**	**Fri 30/8/13**	**Thu 26/9/13**
76	Preparation and submission	14 days	Fri 30/8/13	Thu 12/9/13
77	Approval by Mott	14 days	Fri 13/9/13	Thu 26/9/13
78	**Webbase software and Trial Run**	**50 days**	**Fri 27/9/13**	**Fri 15/11/13**
79	Preparation and submission of methodology	7 days	Fri 27/9/13	Thu 3/10/13
80	Comment recevied by Mott	0 days	Thu 3/10/13	Thu 3/10/13
81	Rectification	5 days	Fri 4/10/13	Tue 8/10/13
82	Final submission	0 days	Sat 9/11/13	Sat 9/11/13
83	Approval by Mott	7 days	Sat 9/11/13	Fri 15/11/13
84	**Dredging Works (Portions A to E)**	**360 days**	**Thu 28/11/13**	**Sat 22/11/14**
85	**Silt screen (Location see Drg No. EM/401)**	**108 days**	**Fri 6/12/13**	**Sun 23/3/14**
86	**Method statement**	**108 days**	**Fri 6/12/13**	**Sun 23/3/14**
87	Preparation and submission	80 days	Fri 6/12/13	Sun 23/2/14
88	Approval by Mott	14 days	Mon 24/2/14	Sun 9/3/14
89	Approval by IEC	14 days	Mon 24/2/14	Sun 9/3/14
90	Approval by WSD	14 days	Mon 10/3/14	Sun 23/3/14
91	Approval by EMSD	14 days	Mon 10/3/14	Sun 23/3/14
92	Approval by EPD	14 days	Mon 10/3/14	Sun 23/3/14
93	**Dredging method statement and silt curtain deployment plan**	**118 days**	**Thu 28/11/13**	**Tue 25/3/14**
94	Preparation and submission	50 days	Thu 28/11/13	Thu 16/1/14
95	Approval by Mott	40 days	Fri 17/1/14	Tue 25/2/14
96	Approval by IEC	14 days	Wed 26/2/14	Tue 11/3/14
97	Approval by EPD	14 days	Wed 12/3/14	Tue 25/3/14
98	**Dredging Works at Portions A and B**	**335 days**	**Mon 23/12/13**	**Sat 22/11/14**
99	**General seabed**	**265 days**	**Mon 23/12/13**	**Sat 13/9/14**
100	**Marine Notice approval by Marine Departemnt**	**179 days**	**Sat 1/2/14**	**Tue 29/7/14**
101	Preparation and submission	90 days	Sat 1/2/14	Thu 1/5/14
102	Approval by MD	89 days	Fri 2/5/14	Tue 29/7/14
103	**Noise Permit**	**265 days**	**Mon 23/12/13**	**Sat 13/9/14**
104	**General**	**95 days**	**Mon 23/12/13**	**Thu 27/3/14**
105	Preparation and submission	75 days	Mon 23/12/13	Fri 7/3/14
106	Approval by EPD	20 days	Sat 8/3/14	Thu 27/3/14
107	**Portion A from 11pm to 7am next day**	**44 days**	**Fri 1/8/14**	**Sat 13/9/14**
108	Preparation and submission	14 days	Fri 1/8/14	Thu 14/8/14
109	Approval by EPD	30 days	Fri 15/8/14	Sat 13/9/14
110	**Dumping Permit**	**184 days**	**Mon 17/2/14**	**Tue 19/8/14**
111	**Type 1 and Tpye 2 Sediment**	**100 days**	**Mon 17/2/14**	**Tue 27/5/14**
112	Preparation and submission	70 days	Mon 17/2/14	Sun 27/4/14
113	Approval by EPD	30 days	Mon 28/4/14	Tue 27/5/14
114	**Type 3 Sediment**	**44 days**	**Mon 7/7/14**	**Tue 19/8/14**
115	Preparation and submission	14 days	Mon 7/7/14	Sun 20/7/14
116	Approval by EPD	30 days	Mon 21/7/14	Tue 19/8/14
117	**Type 3 Cat Hf Sediment (Portion A)**	**135 days**	**Fri 31/1/14**	**Sat 14/6/14**
118	**Method statement for disposal**	**135 days**	**Fri 31/1/14**	**Sat 14/6/14**
119	Preparation and submission	60 days	Fri 31/1/14	Mon 31/3/14
120	Approval by Mott and IEC	30 days	Tue 1/4/14	Wed 30/4/14
121	Approval by EPD	45 days	Thu 1/5/14	Sat 14/6/14
122	**Hot Spot (Portion A)**	**327 days**	**Tue 31/12/13**	**Sat 22/11/14**
123	**Proposal for field trial at Zone Z2C**	**180 days**	**Tue 31/12/13**	**Sat 28/6/14**



China International Water & Electric Corp.

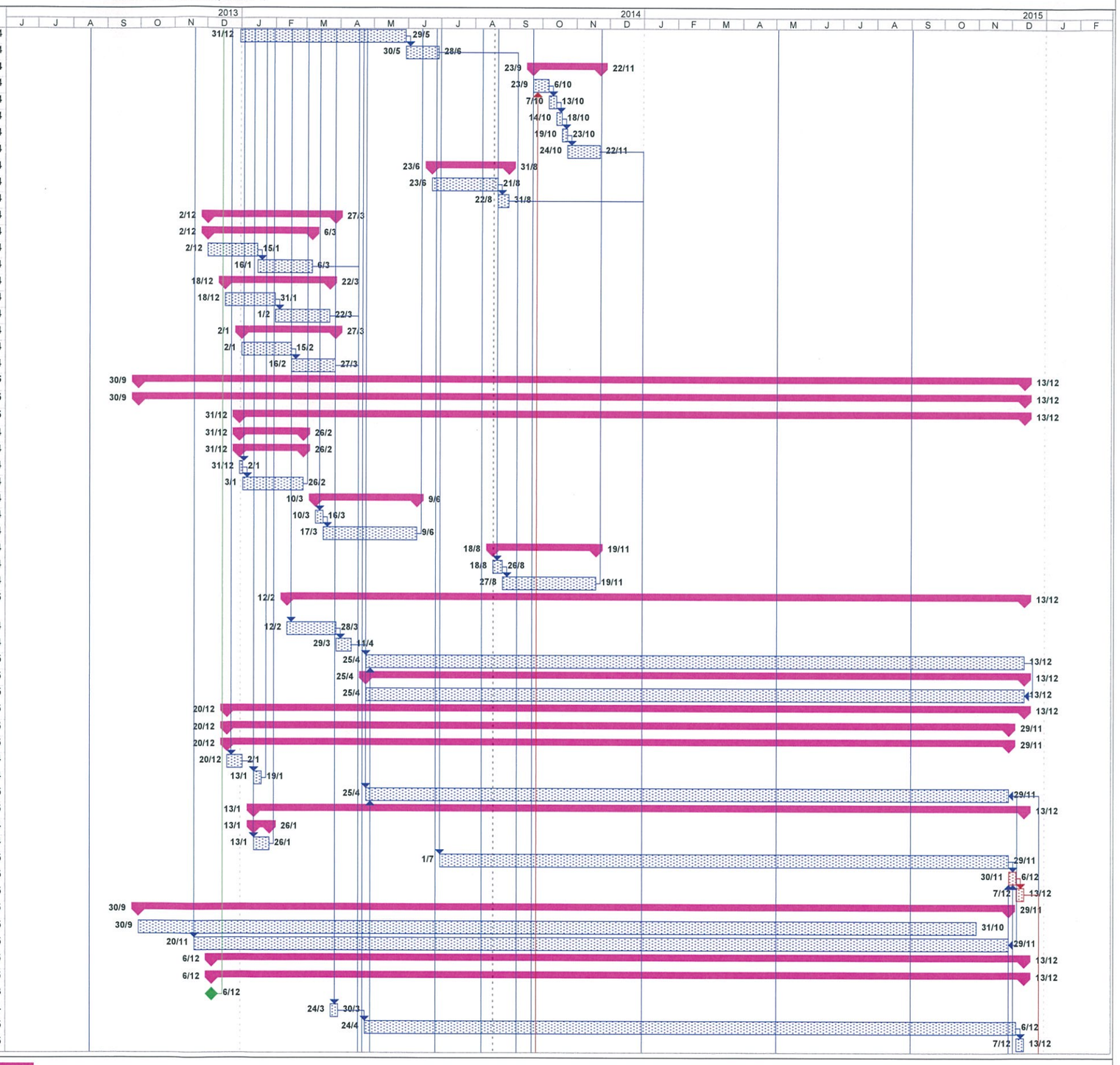
Task | Critical Task | Milestone | Summary

* Subject to availability of working windows (ID 199 & 200)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18 August 2014

ID	Task Name	Duration	Start	Finish
124	Preparation and submission	150 days	Tue 31/12/13	Thu 29/5/14
125	Approval by Mott	30 days	Fri 30/5/14	Sat 28/6/14
126	**Method statement for dredging works at Zone Z2B**	**61 days**	**Tue 23/9/14**	**Sat 22/11/14**
127	Preparation and submission	14 days	Tue 23/9/14	Mon 6/10/14
128	Approval by Mott	7 days	Tue 7/10/14	Mon 13/10/14
129	Endorsed by ETL	5 days	Tue 14/10/14	Sat 18/10/14
130	Verified by IEC	5 days	Sun 19/10/14	Thu 23/10/14
131	Approval by EPD	30 days	Fri 24/10/14	Sat 22/11/14
132	**Method staement for dredging hard material**	**70 days**	**Mon 23/6/14**	**Sun 31/8/14**
133	Preparation and submission	60 days	Mon 23/6/14	Thu 21/8/14
134	Approval by Mott	10 days	Fri 22/8/14	Sun 31/8/14
135	**Dredging Works at Portions C, D and E**	**116 days**	**Mon 2/12/13**	**Thu 27/3/14**
136	**Marine Notice approval by Marine Departemnt**	**95 days**	**Mon 2/12/13**	**Thu 6/3/14**
137	Preparation and submission	45 days	Mon 2/12/13	Wed 15/1/14
138	Approval by MD	50 days	Thu 16/1/14	Thu 6/3/14
139	**Noise Permit**	**95 days**	**Wed 18/12/13**	**Sat 22/3/14**
140	Preparation and submission	45 days	Wed 18/12/13	Fri 31/1/14
141	Approval by EPD	50 days	Sat 1/2/14	Sat 22/3/14
142	**Dumping Permit**	**85 days**	**Thu 2/1/14**	**Thu 27/3/14**
143	Preparation and submission	45 days	Thu 2/1/14	Sat 15/2/14
144	Approval by EPD	40 days	Sun 16/2/14	Thu 27/3/14
145	**Works**	**805 days**	**Mon 30/9/13**	**Sun 13/12/15**
146	**Routine Monitoring / Temporary Marine Traffic Management**	**805 days**	**Mon 30/9/13**	**Sun 13/12/15**
147	**Environmental Management**	**713 days**	**Tue 31/12/13**	**Sun 13/12/15**
148	**Baseline monitoring**	**58 days**	**Tue 31/12/13**	**Wed 26/2/14**
149	**Monitoring (Location see Drg No. EM/401)**	**58 days**	**Tue 31/12/13**	**Wed 26/2/14**
150	Mobilization	3 days	Tue 31/12/13	Thu 2/1/14
151	Field works and Lab Test	55 days	Fri 3/1/14	Wed 26/2/14
152	**Grab sample (Portions A, B & C)**	**92 days**	**Mon 10/3/14**	**Mon 9/6/14**
153	Grab sample specialist mobilization	7 days	Mon 10/3/14	Sun 16/3/14
154	Grab sample (field works) and Lab Test	85 days	Mon 17/3/14	Mon 9/6/14
155	**Vibro-coring (Portions A, B & C)**	**94 days**	**Mon 18/8/14**	**Wed 19/11/14**
156	Vibro-coring specialist mobilization	9 days	Mon 18/8/14	Tue 26/8/14
157	Vibro-coring (field works) and Lab Test	85 days	Wed 27/8/14	Wed 19/11/14
158	**24 Hours monitoring station and TIN Measuring Device (Location see Drg No. EM/401)**	**670 days**	**Wed 12/2/14**	**Sun 13/12/15**
159	Procurement and delivery	45 days	Wed 12/2/14	Fri 28/3/14
160	Installation	14 days	Sat 29/3/14	Fri 11/4/14
161	Monitoring	598 days	Fri 25/4/14	Sun 13/12/15
162	**Impact monitoring (Location see Drg No. EM/401)**	**598 days**	**Fri 25/4/14**	**Sun 13/12/15**
163	Impact monitoring and report submission	598 days	Fri 25/4/14	Sun 13/12/15
164	**Survey**	**724 days**	**Fri 20/12/13**	**Sun 13/12/15**
165	**Land Survey (Container Basin & DSD Tsing Yi Plant)**	**710 days**	**Fri 20/12/13**	**Sun 29/11/15**
166	**Settlement markers**	**710 days**	**Fri 20/12/13**	**Sun 29/11/15**
167	Installation	14 days	Fri 20/12/13	Thu 2/1/14
168	Initial survey	7 days	Mon 13/1/14	Sun 19/1/14
169	Interim monitoring	584 days	Fri 25/4/14	Sun 29/11/15
170	**Hydrographic Survey (Portions A to E)**	**700 days**	**Mon 13/1/14**	**Sun 13/12/15**
171	**Initial survey**	**14 days**	**Mon 13/1/14**	**Sun 26/1/14**
172	Field works	14 days	Mon 13/1/14	Sun 26/1/14
173	Interim survey	517 days	Tue 1/7/14	Sun 29/11/15
174	Final survey	7 days	Mon 30/11/15	Sun 6/12/15
175	Final survey report	7 days	Mon 7/12/15	Sun 13/12/15
176	**Temporary Marine Traffic Management (Portions A to E)**	**791 days**	**Mon 30/9/13**	**Sun 29/11/15**
177	Organizing meeting for information collection	762 days	Mon 30/9/13	Sat 31/10/15
178	Temporary marine traffic management and TMTM meeting	740 days	Wed 20/11/13	Sun 29/11/15
179	**Dredging Works (Portions A to E)**	**738 days**	**Fri 6/12/13**	**Sun 13/12/15**
180	**Silt screen (Location see Drg No. EM/401)**	**738 days**	**Fri 6/12/13**	**Sun 13/12/15**
181	Receiving of as-built record of water intake from WSD/EMSD	0 days	Fri 6/12/13	Fri 6/12/13
182	Installation of silt screen	7 days	Mon 24/3/14	Sun 30/3/14
183	Maintenance of silt screen	592 days	Thu 24/4/14	Sun 6/12/15
184	Removal of silt screen	7 days	Mon 7/12/15	Sun 13/12/15



China International Water & Electric Corp.

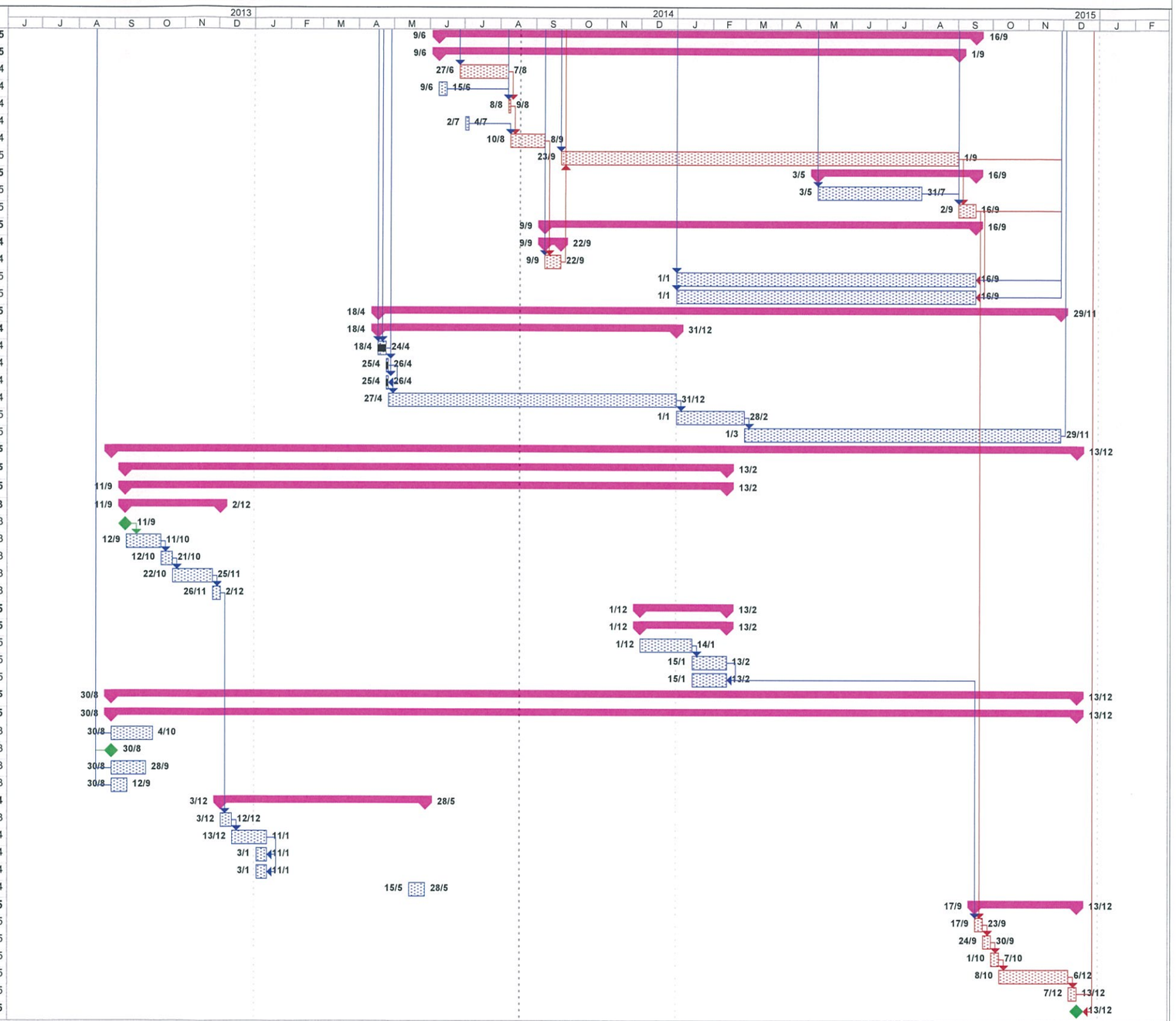
Task | Critical Task | Milestone | Summary

* Subject to availabity of working windows (ID 199 & 200)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18 August 2014

ID	Task Name	Duration	Start	Finish
185	**Dredging Works at Portions A and B**	**465 days**	**Mon 9/6/14**	**Wed 16/9/15**
186	**General seabed**	**450 days**	**Mon 9/6/14**	**Tue 1/9/15**
187	Mobililzation	42 days	Fri 27/6/14	Thu 7/8/14
188	Fabrication of silt curtain	7 days	Mon 9/6/14	Sun 15/6/14
189	Pilot test for silt curtain	2 days	Fri 8/8/14	Sat 9/8/14
190	Monitoring brief for unidentified sonar contacts & masked areas	3 days	Wed 2/7/14	Fri 4/7/14
191	Dredging works 1 (subject to availability of working windows)	30 days	Sun 10/8/14	Mon 8/9/14
192	Dredging works 2 (subject to availability of working windows)	344 days	Tue 23/9/14	Tue 1/9/15
193	**Type 3 Cat Hf Sediment (Portion A)**	**137 days**	**Sun 3/5/15**	**Wed 16/9/15**
194	Procurement and delivery of Geo-container	90 days	Sun 3/5/15	Fri 31/7/15
195	Dredging works	15 days	Wed 2/9/15	Wed 16/9/15
196	**Hot Spot (Portion A)**	**373 days**	**Tue 9/9/14**	**Wed 16/9/15**
197	**Proposal for field trial at Zone Z2C**	**14 days**	**Tue 9/9/14**	**Mon 22/9/14**
198	Field trial at Zone Z2C	14 days	Tue 9/9/14	Mon 22/9/14
199	Dredging works at Z2B *	259 days	Thu 1/1/15	Wed 16/9/15
200	Dredging of hard material *	259 days	Thu 1/1/15	Wed 16/9/15
201	**Dredging Works for Portions C, D and E**	**591 days**	**Fri 18/4/14**	**Sun 29/11/15**
202	**Dredging Works for Portion D**	**258 days**	**Fri 18/4/14**	**Wed 31/12/14**
203	Mobililzation	7 days	Fri 18/4/14	Thu 24/4/14
204	Pilot test of silt curtain	2 days	Fri 25/4/14	Sat 26/4/14
205	Trial dredging	2 days	Fri 25/4/14	Sat 26/4/14
206	Dredging works	249 days	Sun 27/4/14	Wed 31/12/14
207	Dredging Works for Portion E	59 days	Thu 1/1/15	Sat 28/2/15
208	Dredging Works for Portion C	274 days	Sun 1/3/15	Sun 29/11/15
209	**Section 2**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
210	**Submission**	**521 days**	**Wed 11/9/13**	**Fri 13/2/15**
211	**Preliminaries (Portion F)**	**521 days**	**Wed 11/9/13**	**Fri 13/2/15**
212	**Engineer Principal Accommodation**	**83 days**	**Wed 11/9/13**	**Mon 2/12/13**
213	Preparation and submisssion of location and layout	0 days	Wed 11/9/13	Wed 11/9/13
214	Approval of location and layout	30 days	Thu 12/9/13	Fri 11/10/13
215	Preparation of calculation	10 days	Sat 12/10/13	Mon 21/10/13
216	Comment and resubmission of calculation	35 days	Tue 22/10/13	Mon 25/11/13
217	Approval of calculation	7 days	Tue 26/11/13	Mon 2/12/13
218	**Outfall Modification Works (Location see Drg No. S202)**	**75 days**	**Mon 1/12/14**	**Fri 13/2/15**
219	**Method statement**	**75 days**	**Mon 1/12/14**	**Fri 13/2/15**
220	Preparation and submission	45 days	Mon 1/12/14	Wed 14/1/15
221	Approval by Mott	30 days	Thu 15/1/15	Fri 13/2/15
222	Approval by DSD	30 days	Thu 15/1/15	Fri 13/2/15
223	**Works**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
224	**Preliminaries (Portion F)**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
225	Contractor's mobilization	36 days	Fri 30/8/13	Fri 4/10/13
226	Security Guard	0 days	Fri 30/8/13	Fri 30/8/13
227	Temporary electricity power supply	30 days	Fri 30/8/13	Sat 28/9/13
228	Engineer's Initial Temporary Accommodation	14 days	Fri 30/8/13	Thu 12/9/13
229	**Engineer Principal Accommodation**	**177 days**	**Tue 3/12/13**	**Wed 28/5/14**
230	Material ordering and delivery	10 days	Tue 3/12/13	Thu 12/12/13
231	Construction	30 days	Fri 13/12/13	Sat 11/1/14
232	Computer installation	9 days	Fri 3/1/14	Sat 11/1/14
233	Furniture and office equipment	9 days	Fri 3/1/14	Sat 11/1/14
234	Car Park	14 days	Thu 15/5/14	Wed 28/5/14
235	**Outfall Modification Works (Location see Drg No. S202)**	**88 days**	**Thu 17/9/15**	**Sun 13/12/15**
236	Dye test	7 days	Thu 17/9/15	Wed 23/9/15
237	Video filming	7 days	Thu 24/9/15	Wed 30/9/15
238	Dredging works	7 days	Thu 1/10/15	Wed 7/10/15
239	Modification works	60 days	Thu 8/10/15	Sun 6/12/15
240	As-built video submission	7 days	Mon 7/12/15	Sun 13/12/15
241	**Contract Completion Date**	**0 days**	**Sun 13/12/15**	**Sun 13/12/15**



China International Water & Electric Corp.

Task | Critical Task | Milestone | Summary

* Subject to availabity of working windows (ID 199 & 200)

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Appendix C

Action and Limit Levels

Action and Limit Levels for Routine Water Quality Montioring

Monitoring Station	DO (mg/L) Surface & Middle		DO (mg/L) Bottom		Turbidity (NTU) Depth Averaged		Suspended Solids (mg/L) Depth-averaged		BOD_5(mg/L) Depth-averaged		*E.coli* (CFU /100mL) Depth-averaged		NH_3-N (mg/L) Depth-averaged		UIA (mg/L) Depth-averaged		Synthetic Detergent as MBAS (mg/L) Depth-averaged		Wet Season TIN (mg/L) Depth Averaged		Dry Season TIN (mg/L) Depth Averaged	
	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
Seawater Intake																						
SR1 SR4 SR12	2	2	2	2	<10	<10	<10	<10	<10	<10	<20,000	<20,000	<1	<1	0.021	0.021	<5	<5	NA	NA	NA	NA
Fish Culture Zone																						
SR5	5.45	5.39#	5.43	5.27+	6.7 or 120%C*	10.1 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.45	0.50	0.36	0.39
SR9 SR10 SR11	6.11	6.02#	6.11	6.04+	2.9 or 120%C*	4.8 or 130%C^	9 or 120%C*	18 or 130%C^											0.37	0.49	0.22	0.29
Gazetted Beach																						
SR2 SR3	5.45	5.39#	5.43	5.27+	6.7 or 120%C*	10.1 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	0.21 or 120%C*	0.24 or 130%C^	0.021	0.021	NA	NA	NA	NA	NA	NA
Corals																						
SR6 SR7 SR8	6.11	6.02#	6.11	6.04+	2.9 or 120%C*	4.8 or 130%C^	9 or 120%C*	18 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EMSD Cooling Water Intake																						
SR13	5.31	5.22#	5.29	5.12+	13.1 or 120%C*	15.7 or 130%C^	23 or 120%C*	38 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Action and Limit Levels for 24-hr Water Quality Monitoring

Monitoring Station	DO (mg/L) Surface		Turbidity (NTU) Surface		Ammonia-N (mg/L) Surface	
	AL	LL	AL	LL	AL	LL
WSD Seawater Intake						
SR4	2	2	<10	<10	<1	<1
SR12						
Fish Culture Zone						
SR5	5.46	5.39	6.0	7.9	NA	NA
SR9	6.12	5.97	2.8	4.7		
SR10						
SR11						
EMSD Cooling Water Intake						
SR13	5.28	5.22	11.9	13.3	NA	NA

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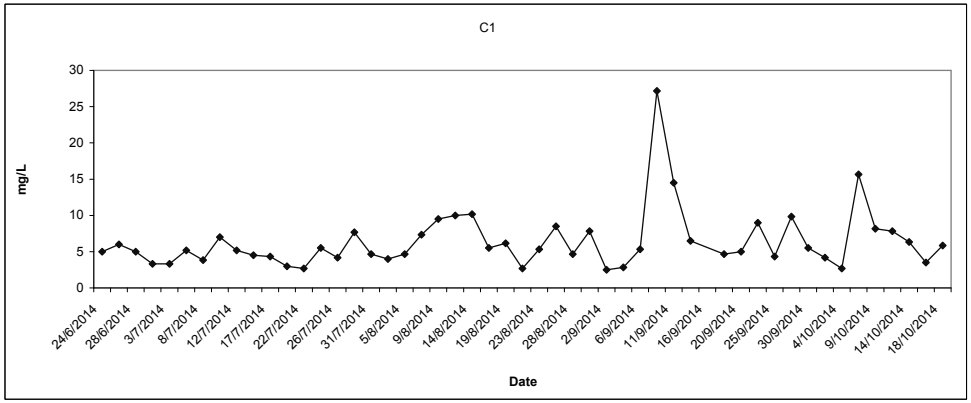
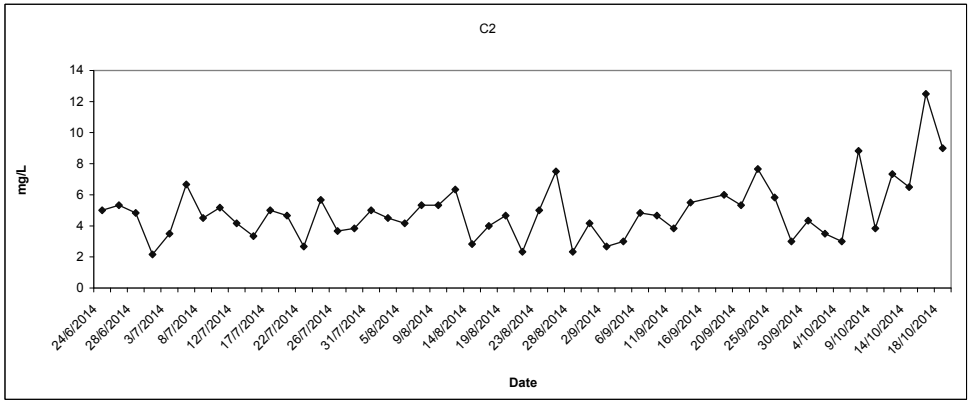
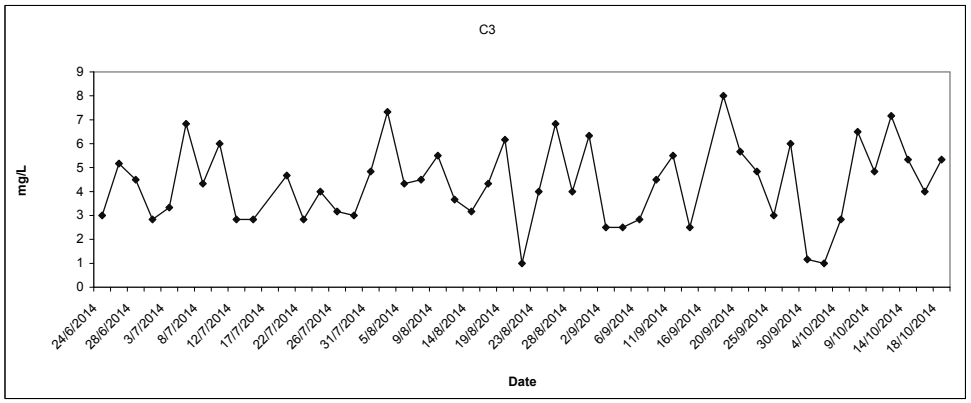
Appendix D

Graphical Presentation – Routine Impact Monitoring Results

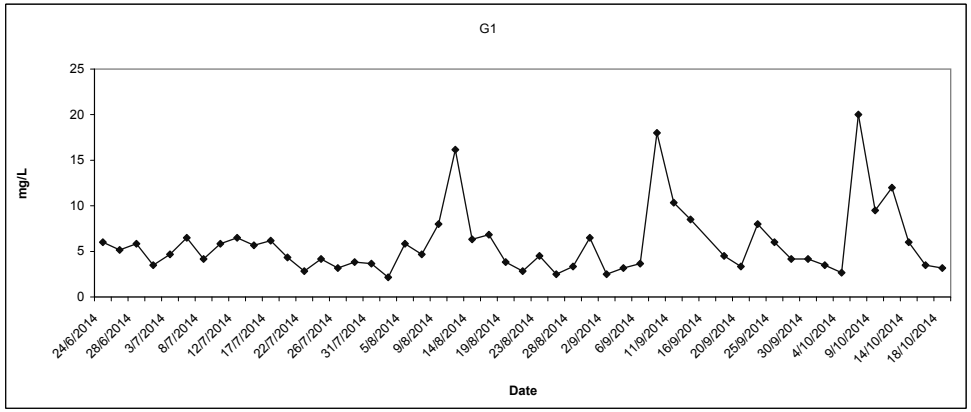
Total Suspended Solids (Depth average) at Mid-Flood Tide

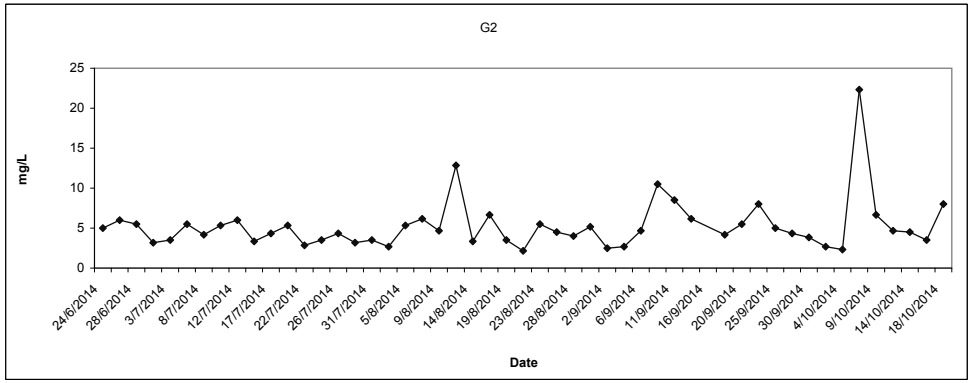


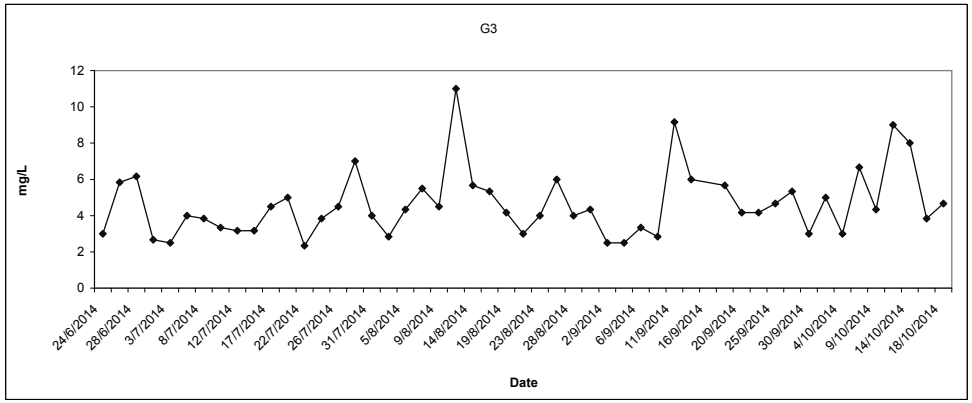




Total Suspended Solids (Depth average) at Mid-Flood Tide

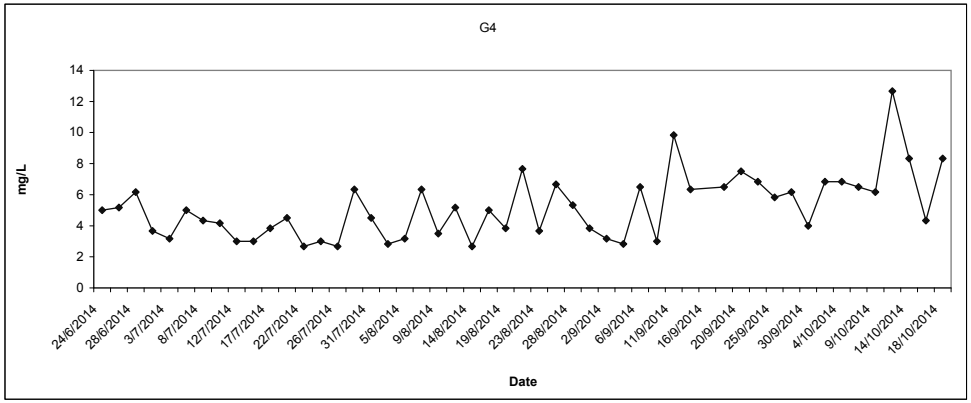


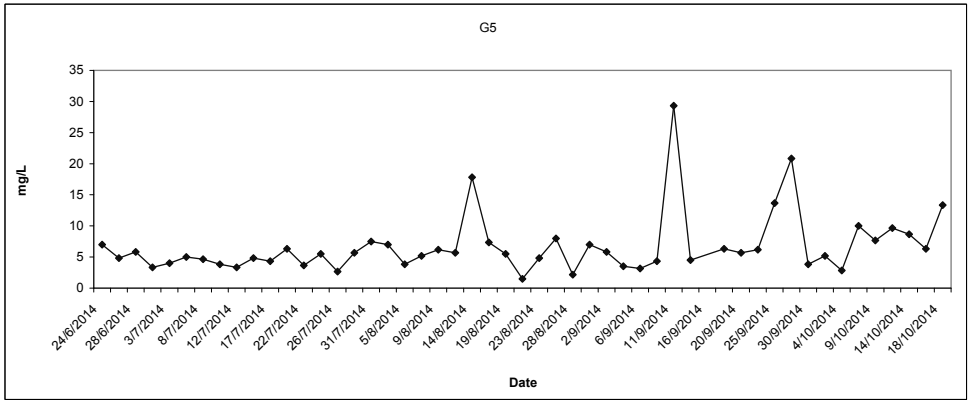


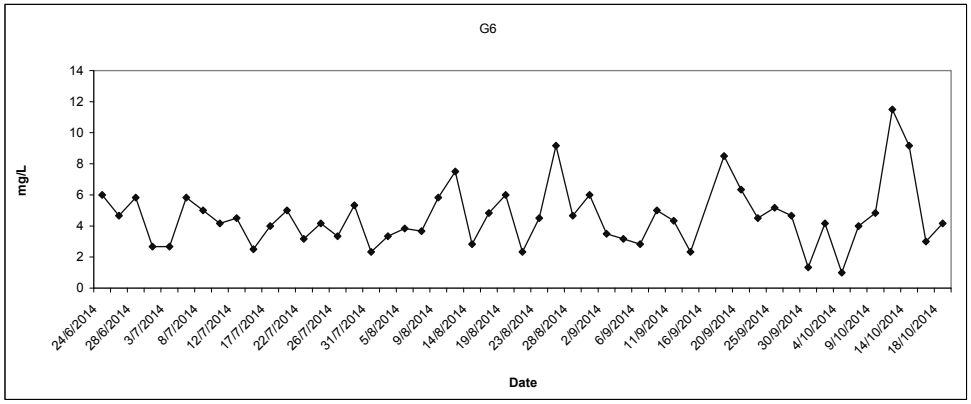


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

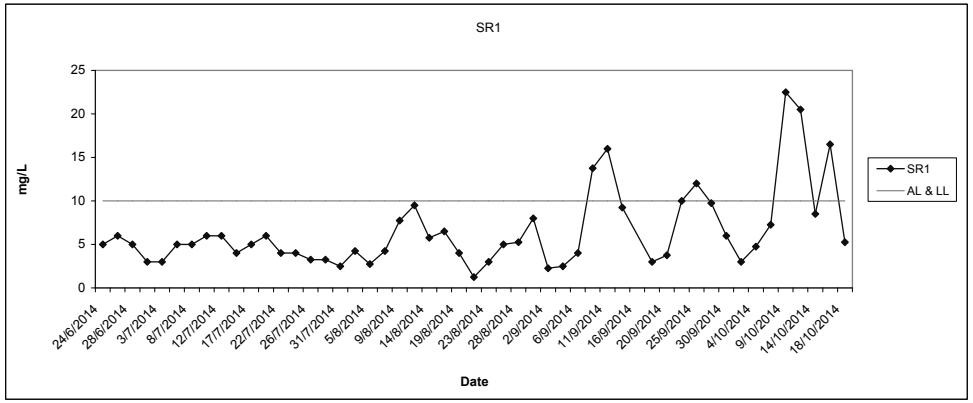
Total Suspended Solids (Depth average) at Mid-Flood Tide

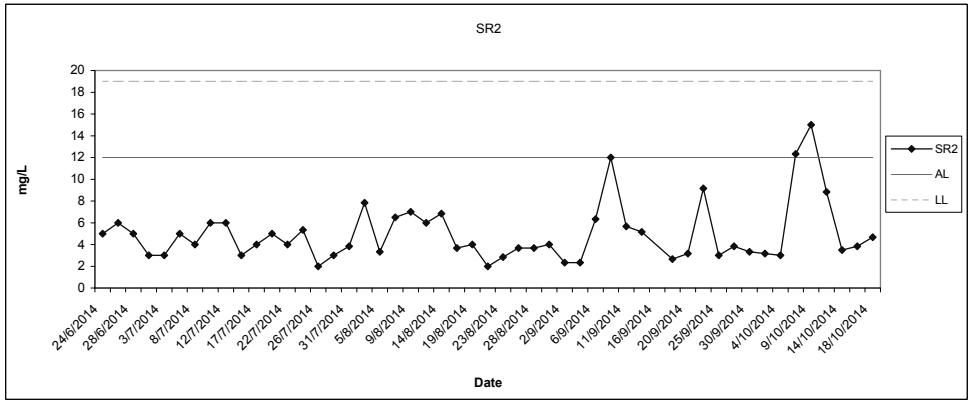


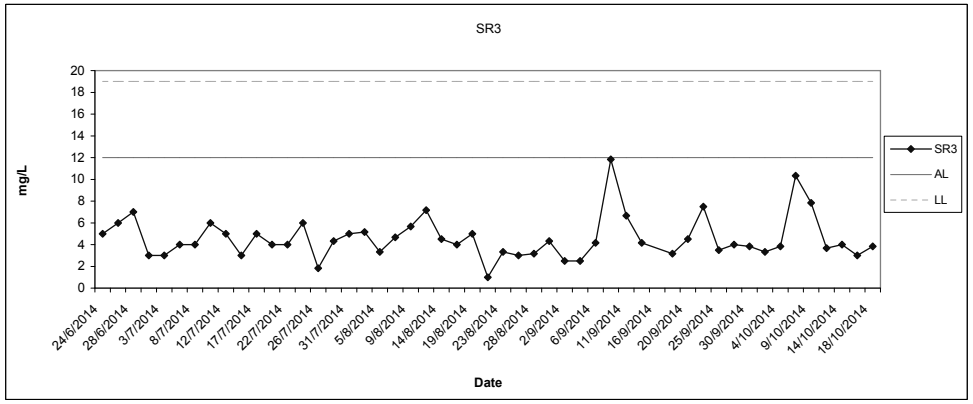




Total Suspended Solids (Depth average) at Mid-Flood Tide







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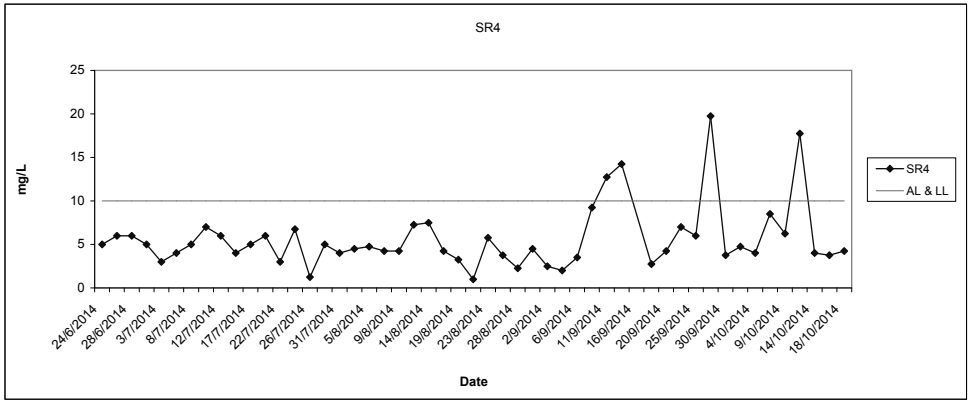
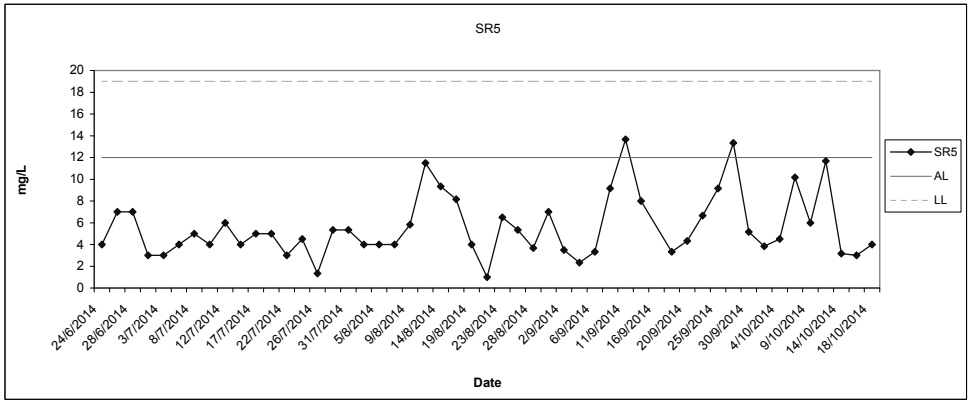
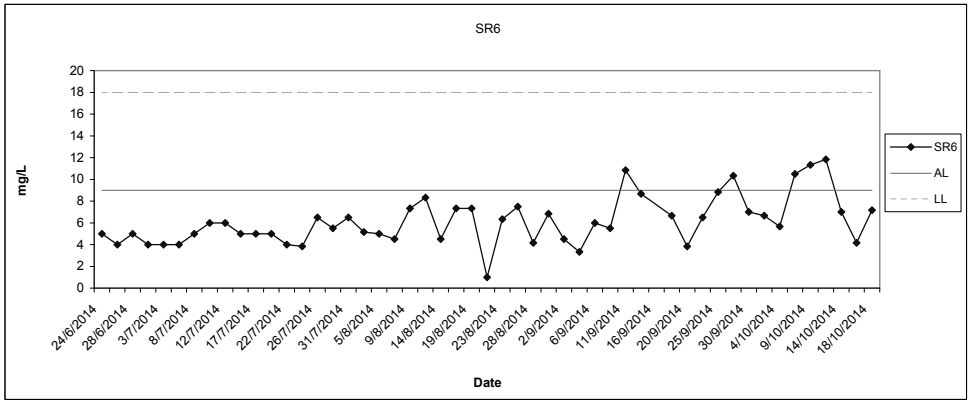
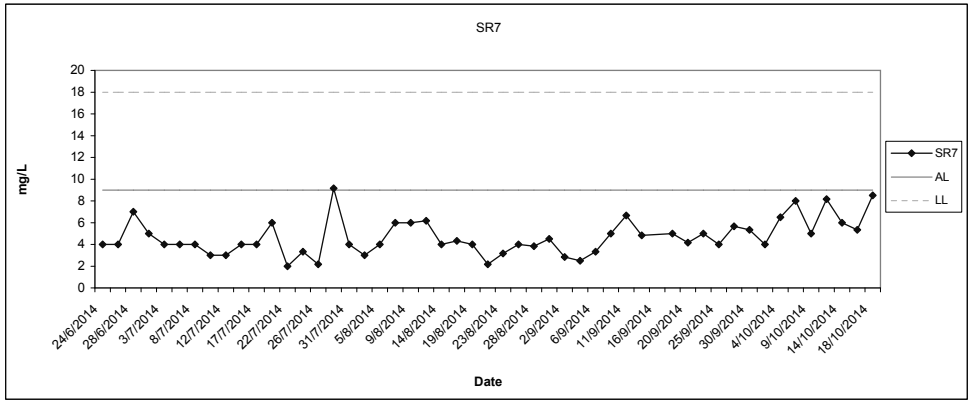
Total Suspended Solids (Depth average) at Mid-Flood Tide

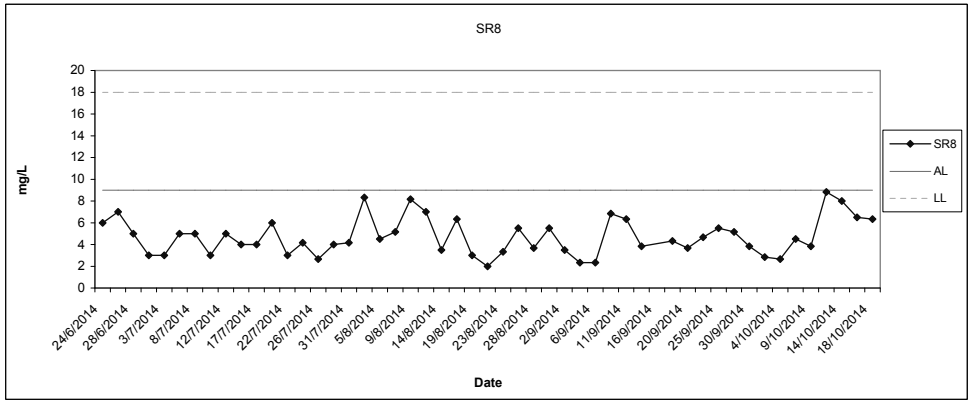


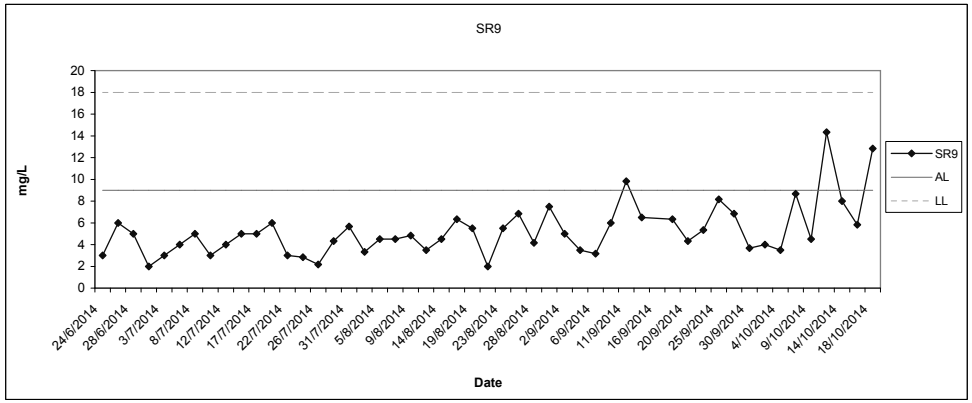




Total Suspended Solids (Depth average) at Mid-Flood Tide

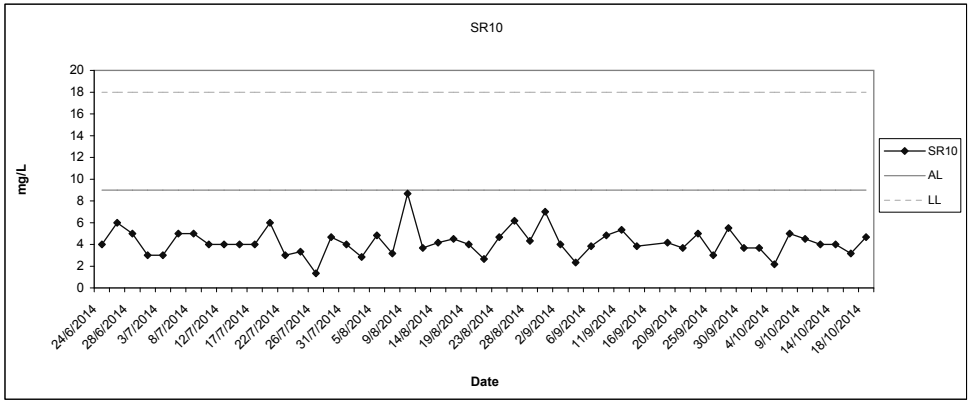


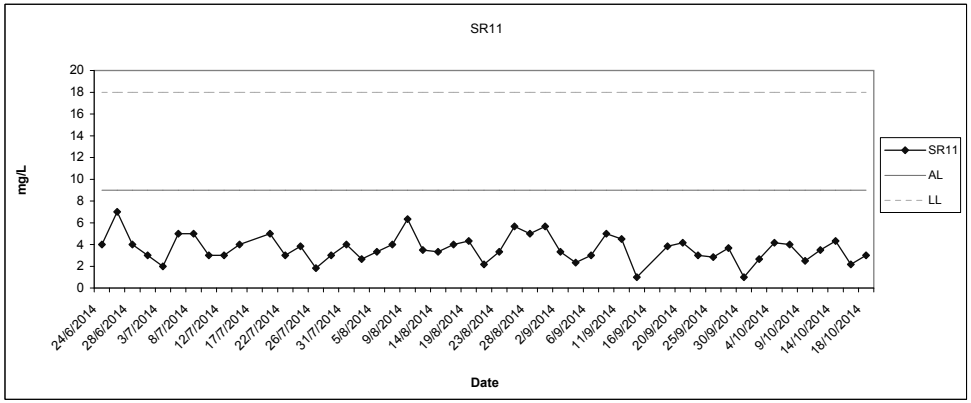


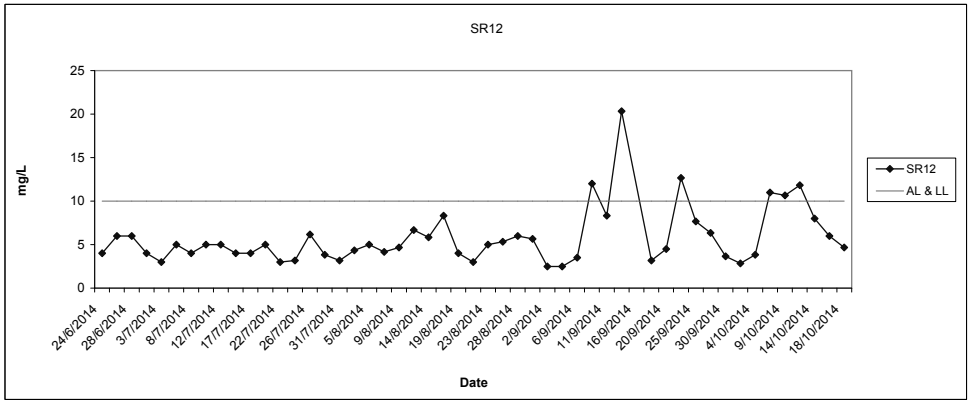


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

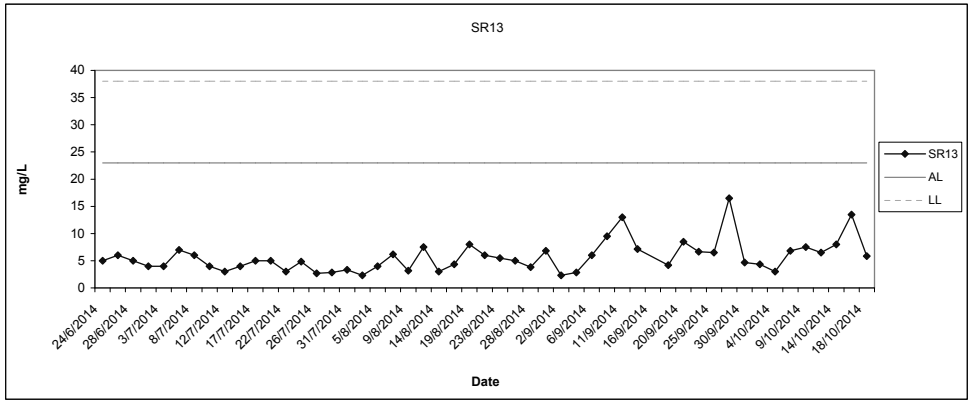
Total Suspended Solids (Depth average) at Mid-Flood Tide





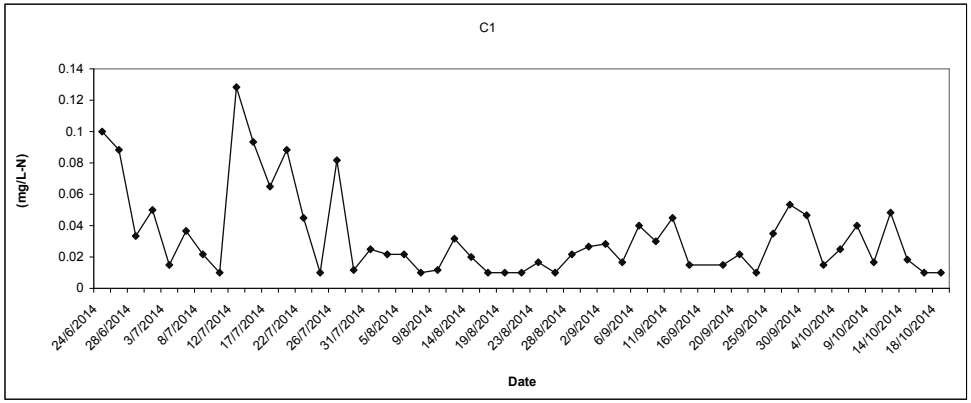


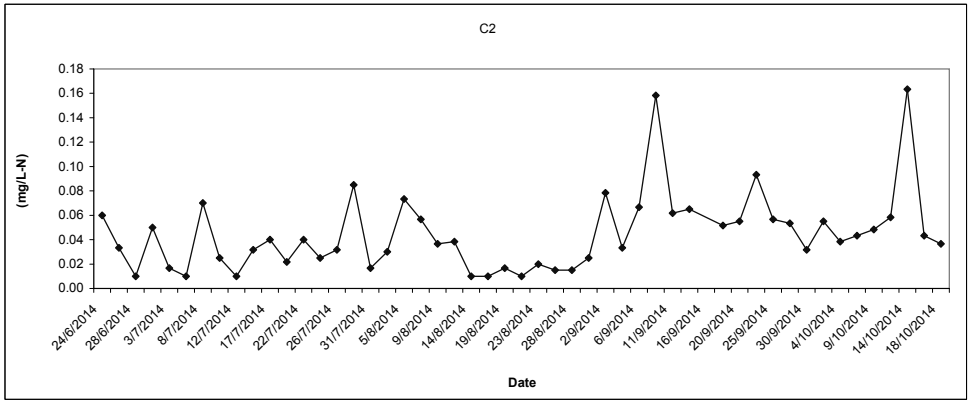
Total Suspended Solids (Depth average) at Mid-Flood Tide

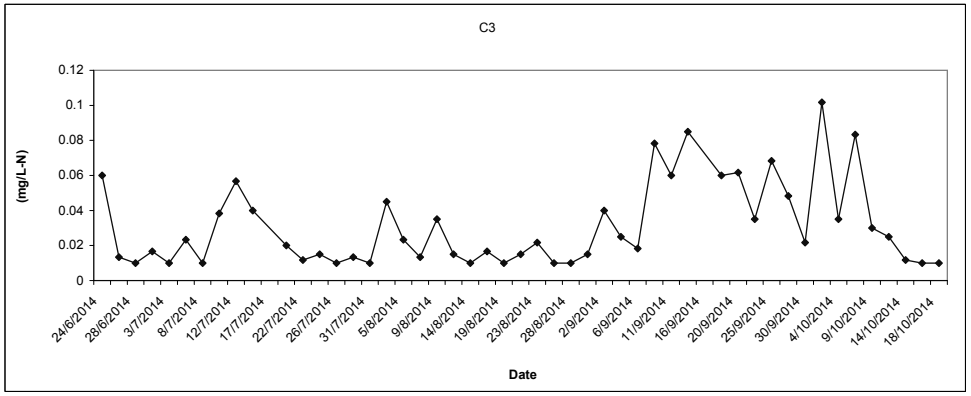


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

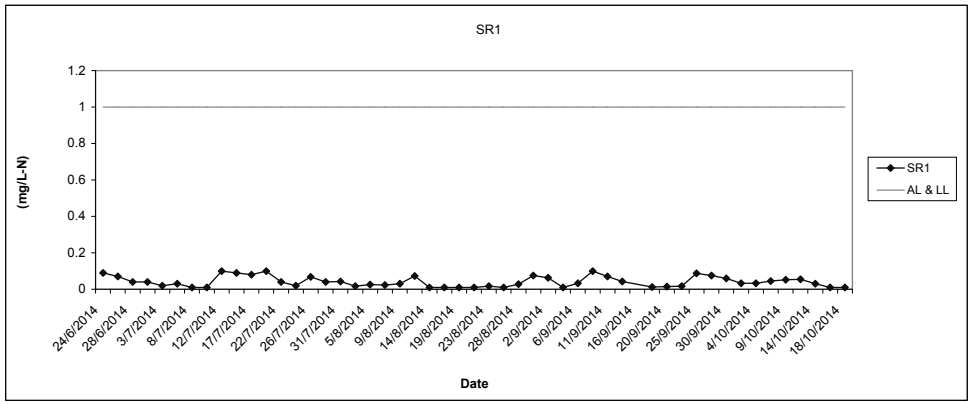
Ammonia Nitrogen (Depth average) at Mid-Flood Tide

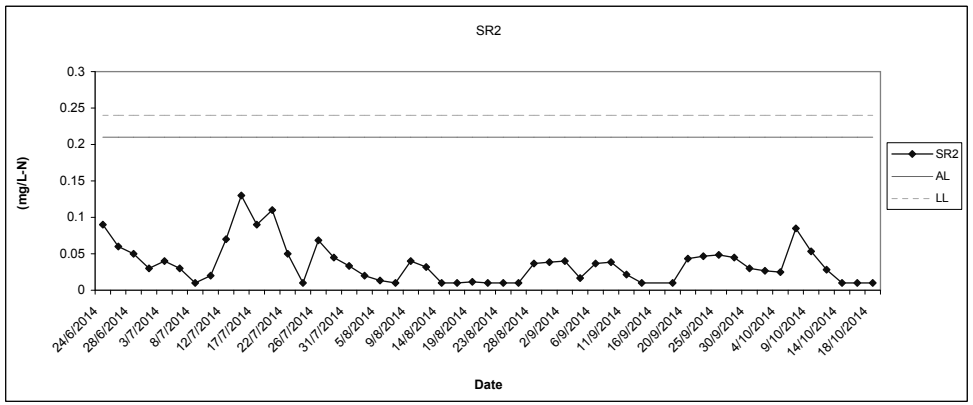


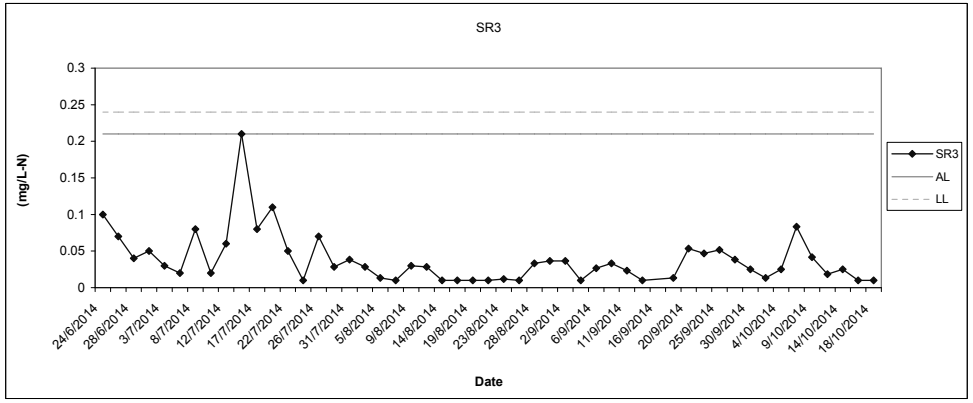




Ammonia Nitrogen (Depth average) at Mid-Flood Tide

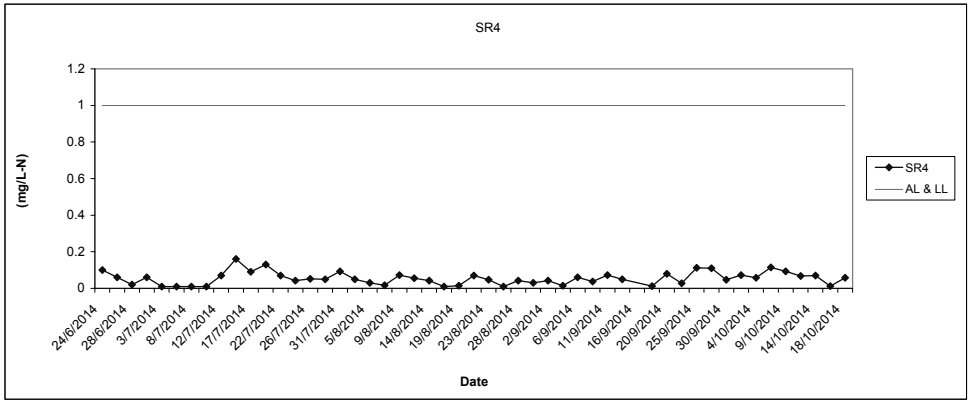


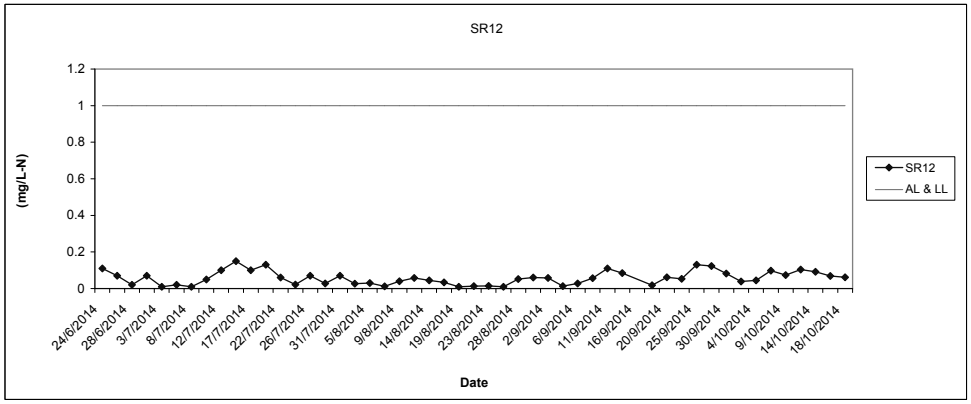




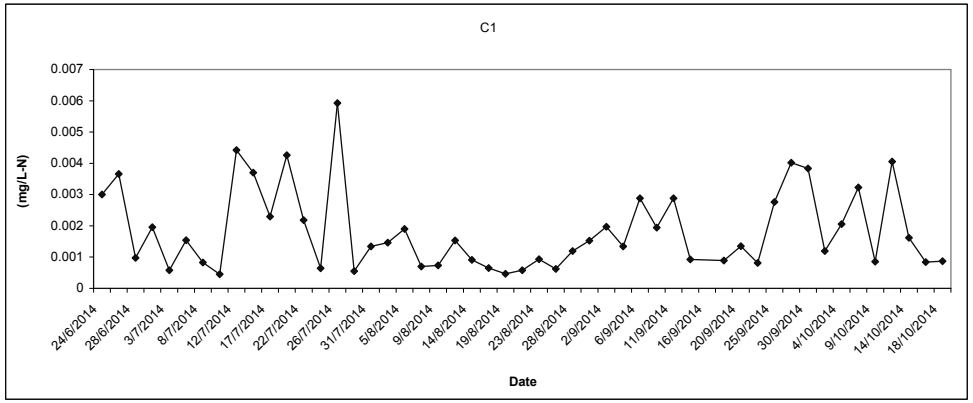
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

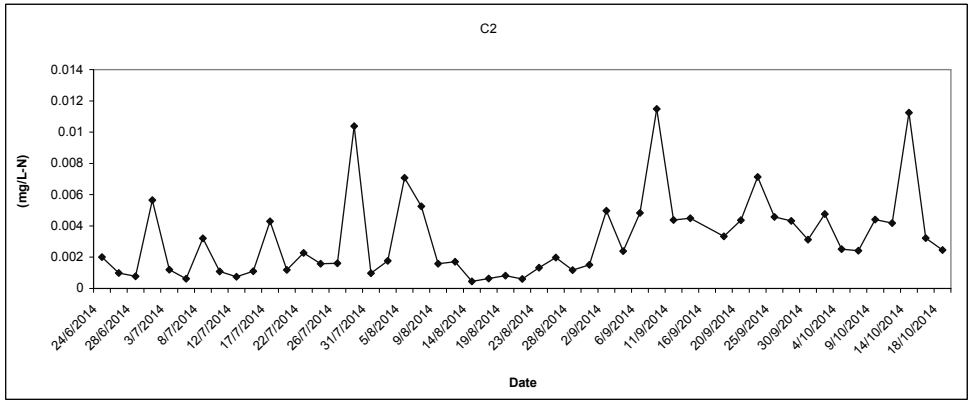
Ammonia Nitrogen (Depth average) at Mid-Flood Tide

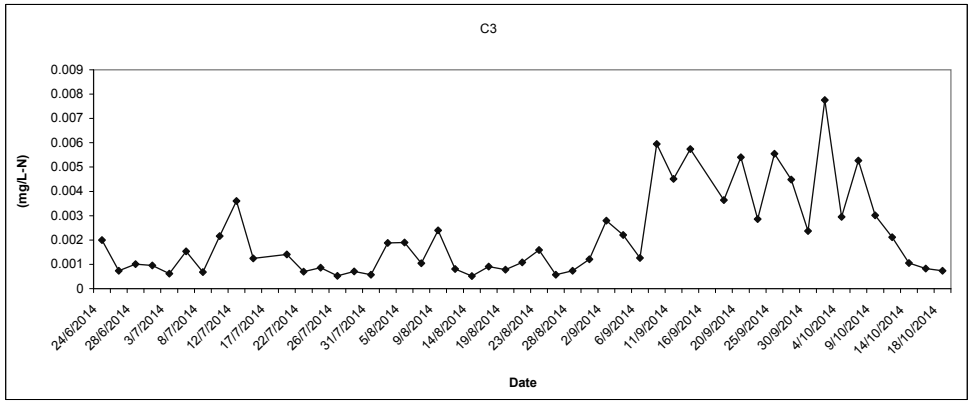




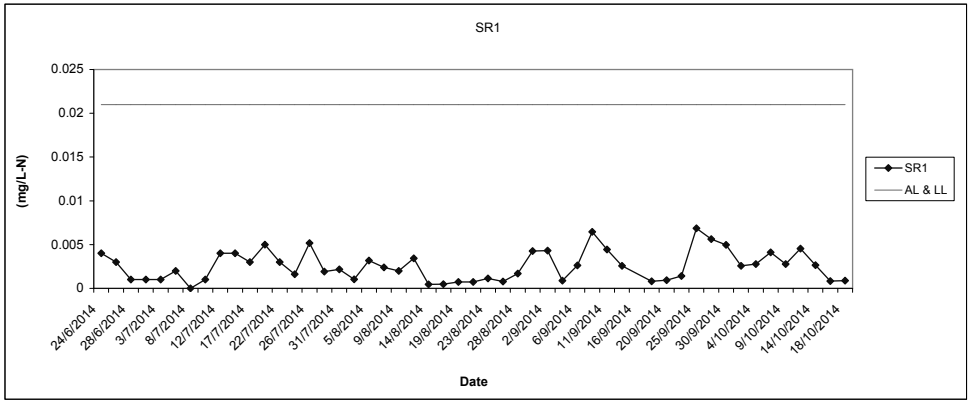
Laboratory Analysis UIA (Depth average) at Mid-Flood Tide

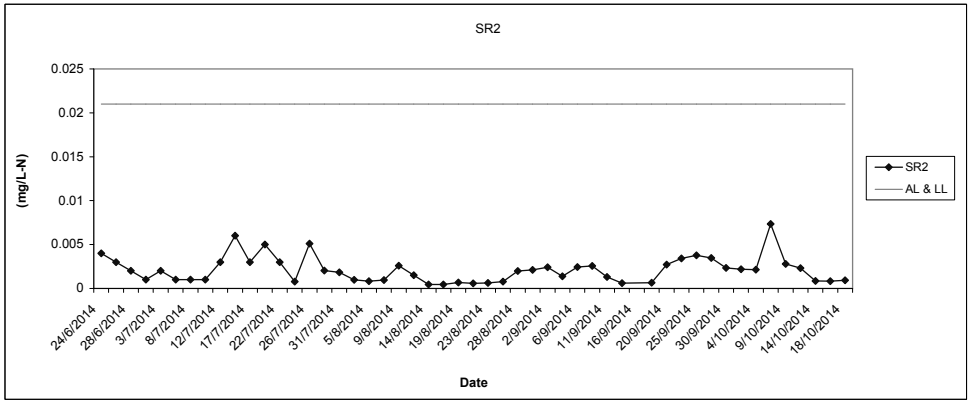


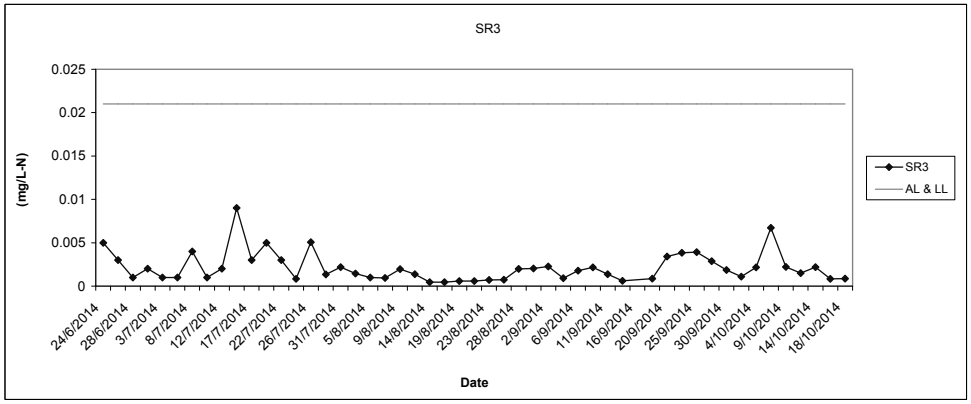




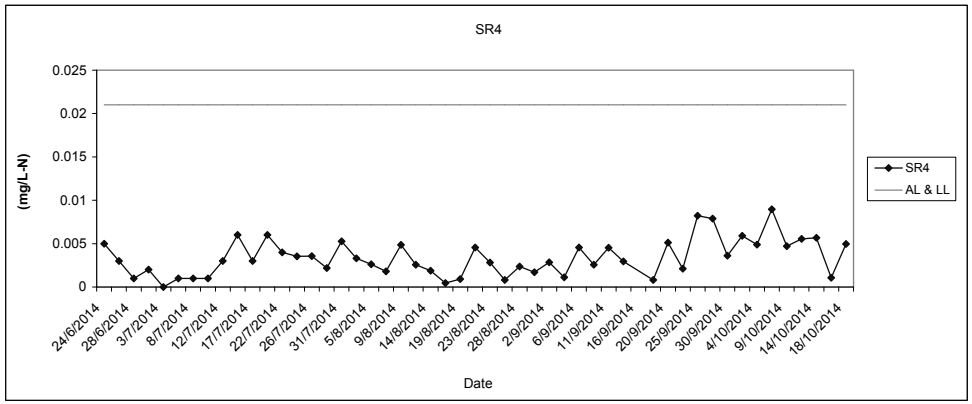
Laboratory Analysis UIA (Depth average) at Mid-Flood Tide

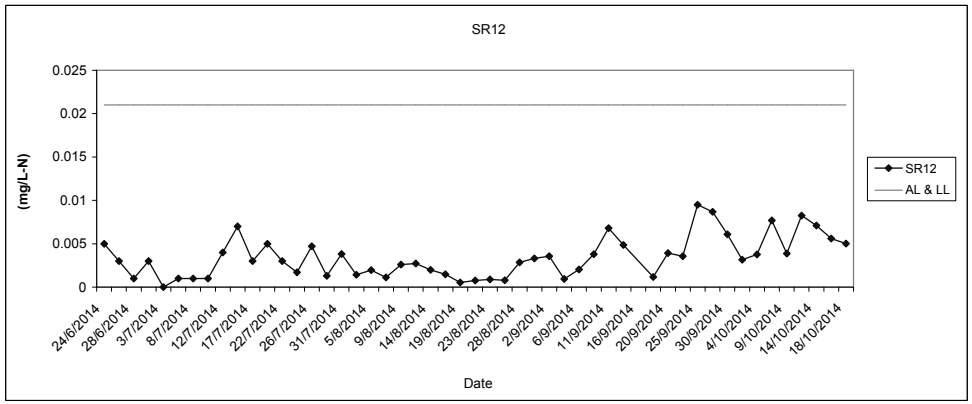






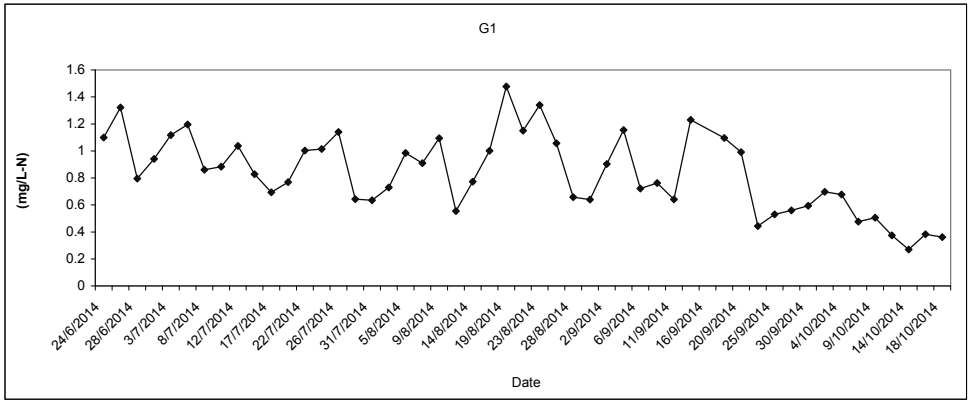
Laboratory Analysis UIA (Depth average) at Mid-Flood Tide

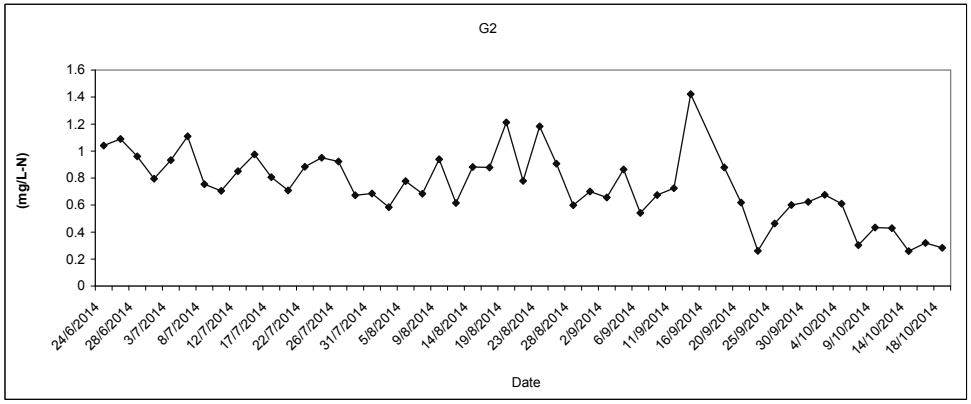


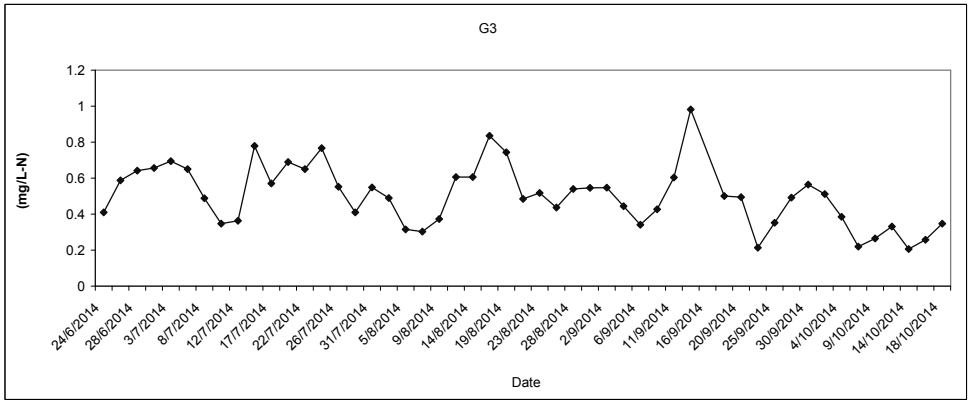


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

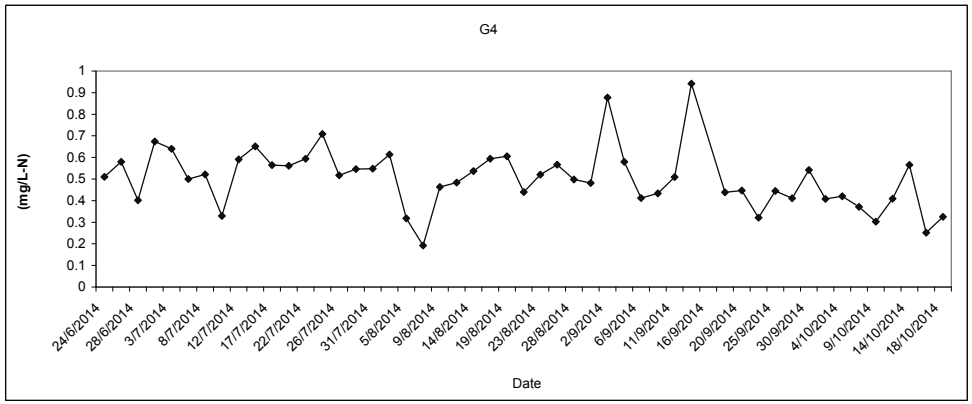
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide

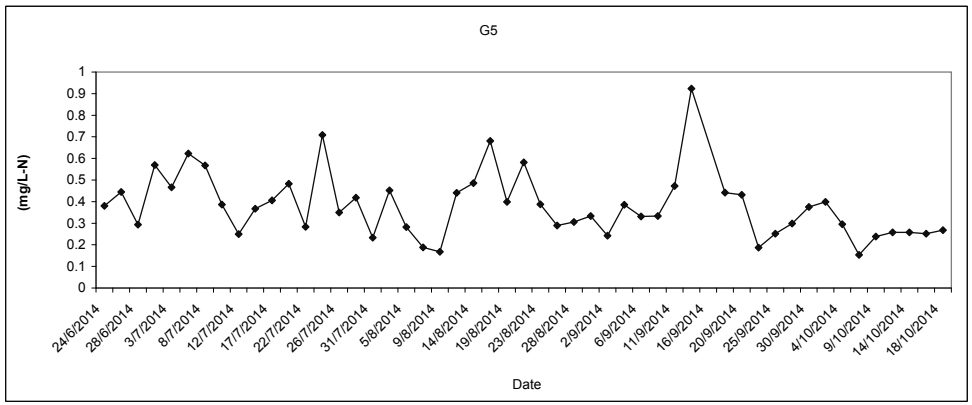


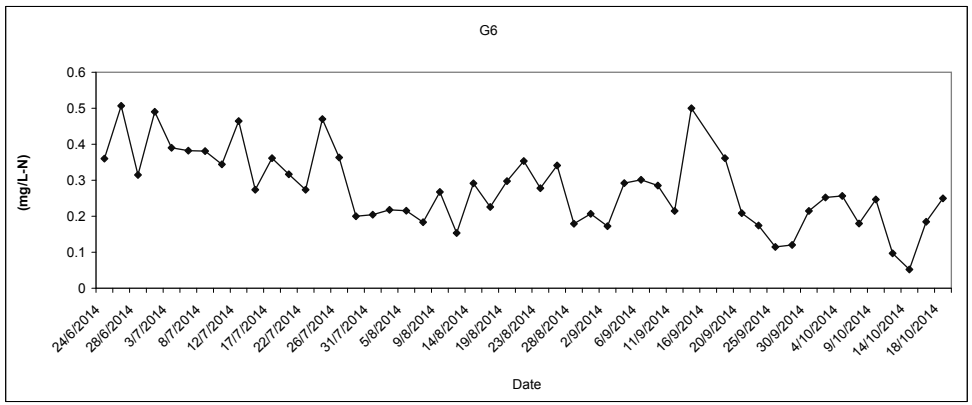




Laboratory Analysis TIN (Depth average) at Mid-Flood Tide

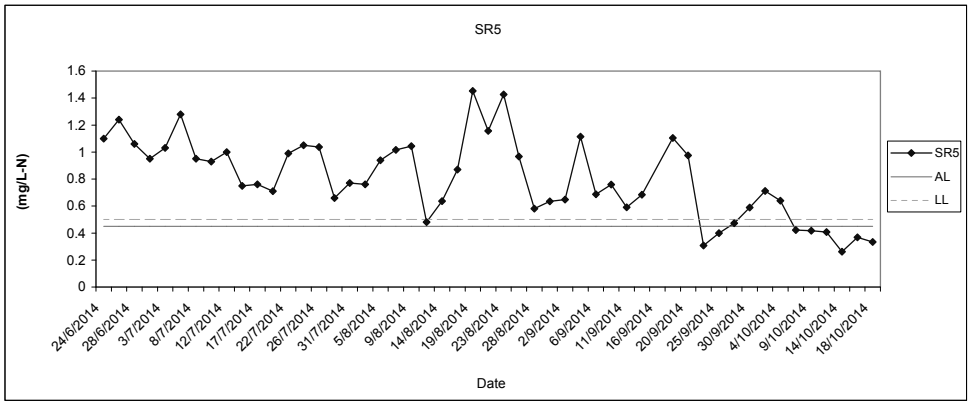


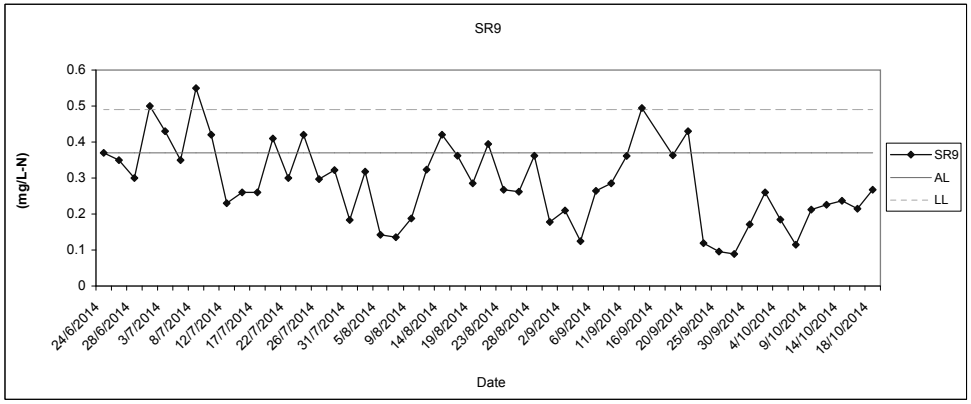


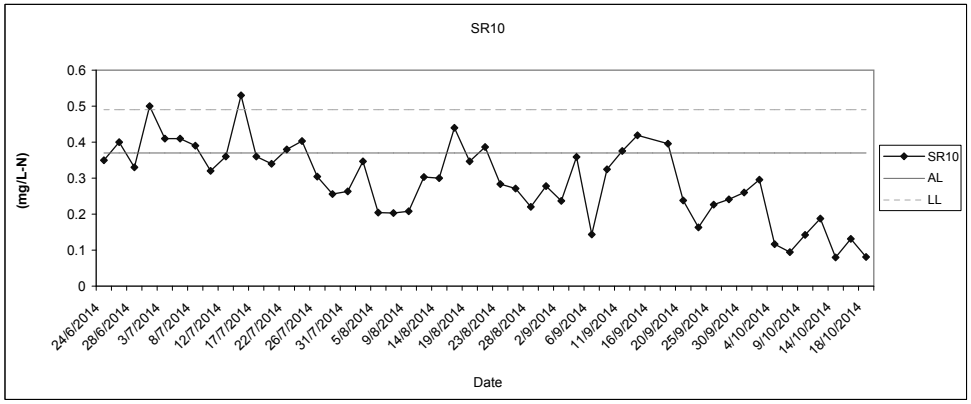


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

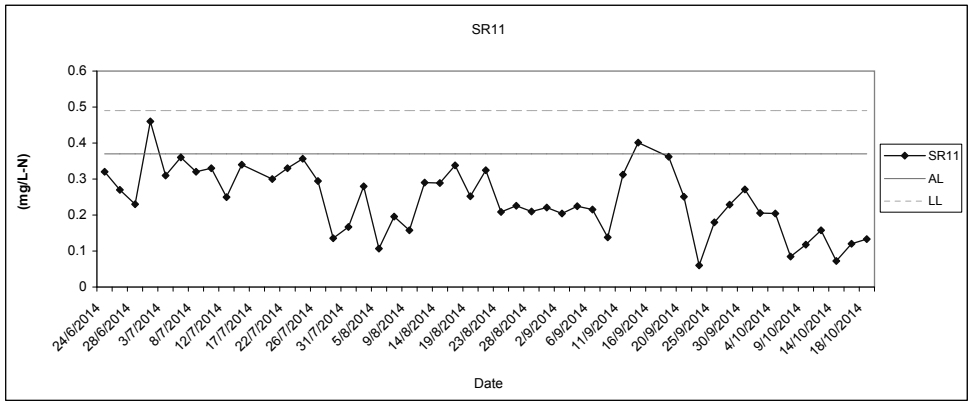
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide



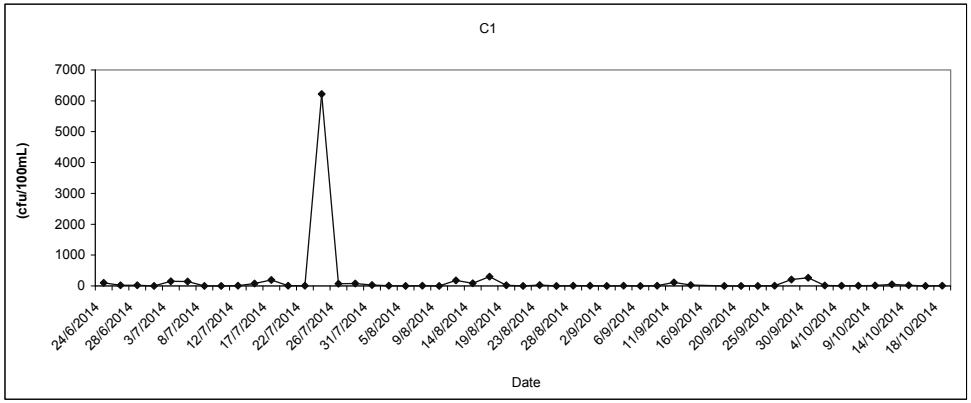


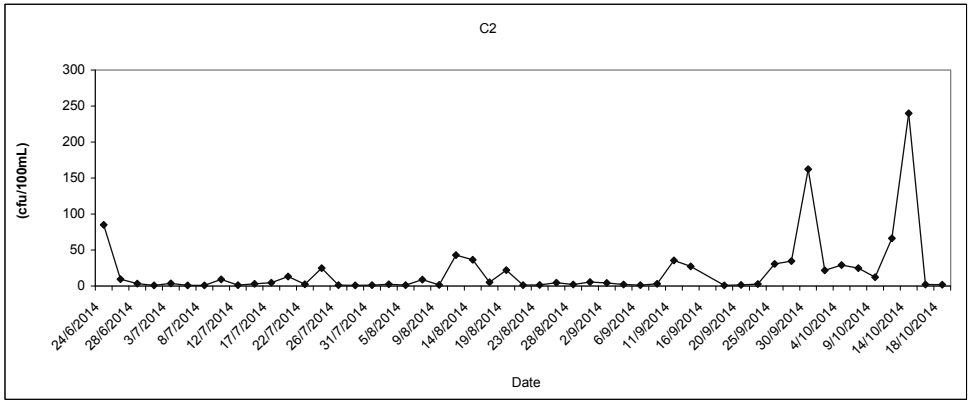


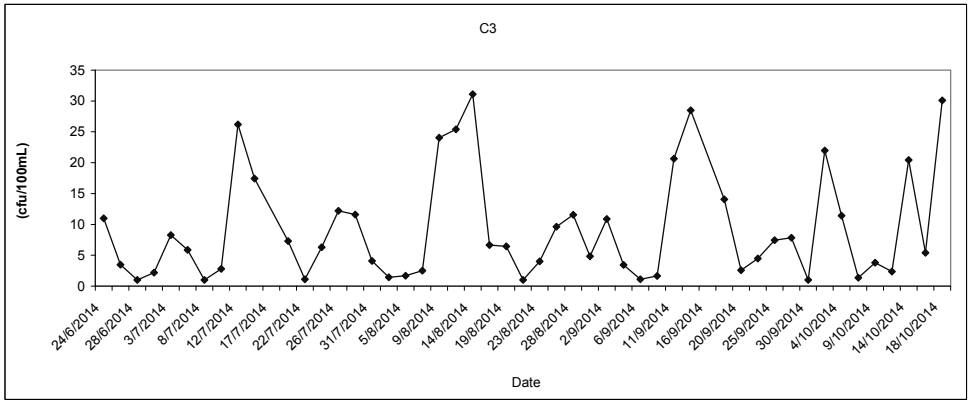
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide



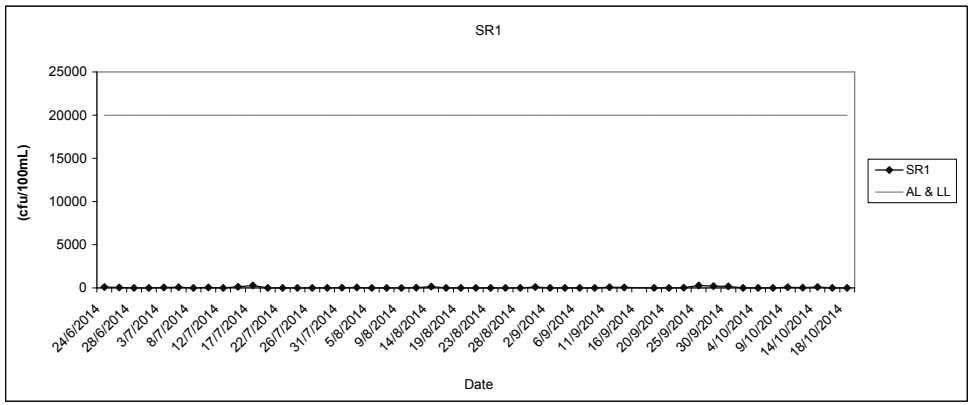
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

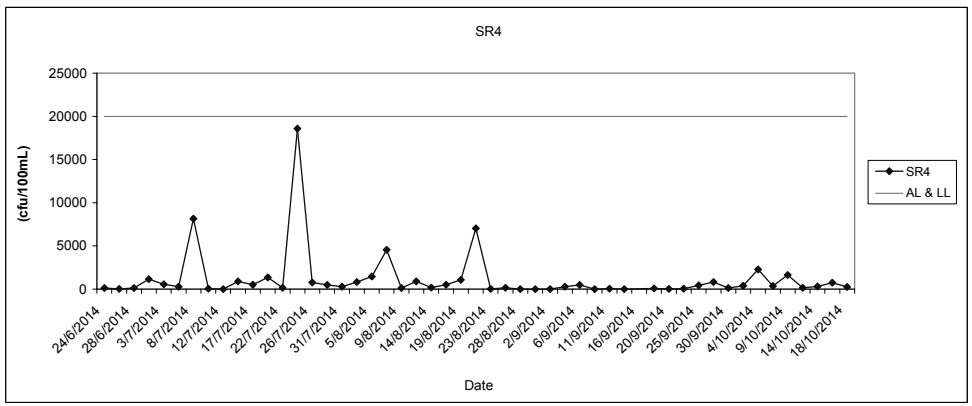


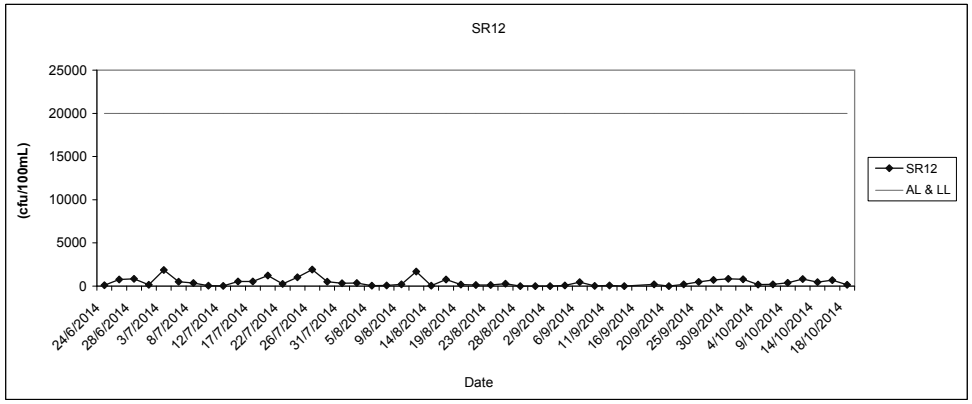




E.coli (Depth average) at Mid-Flood Tide

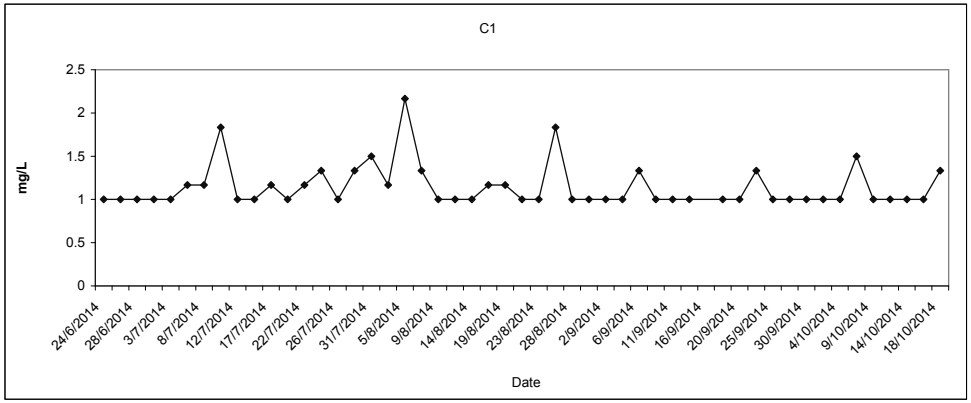


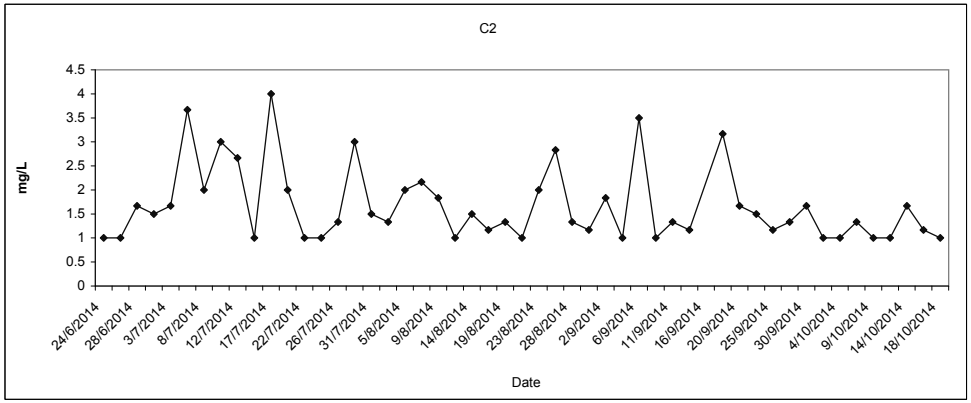


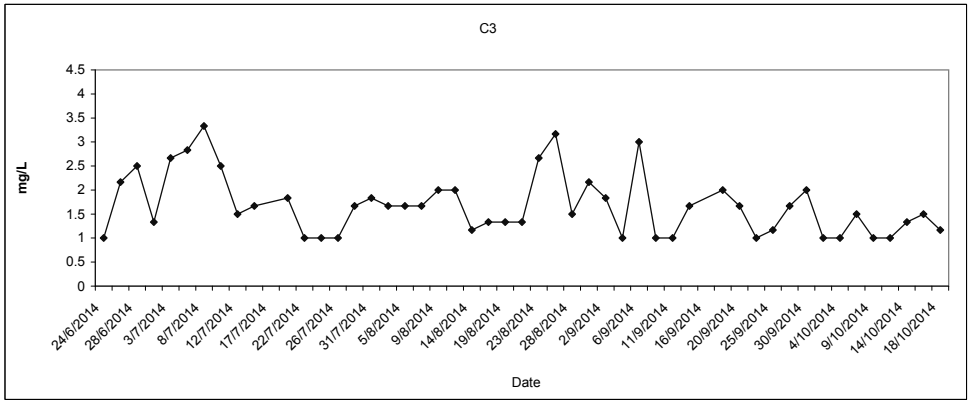


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

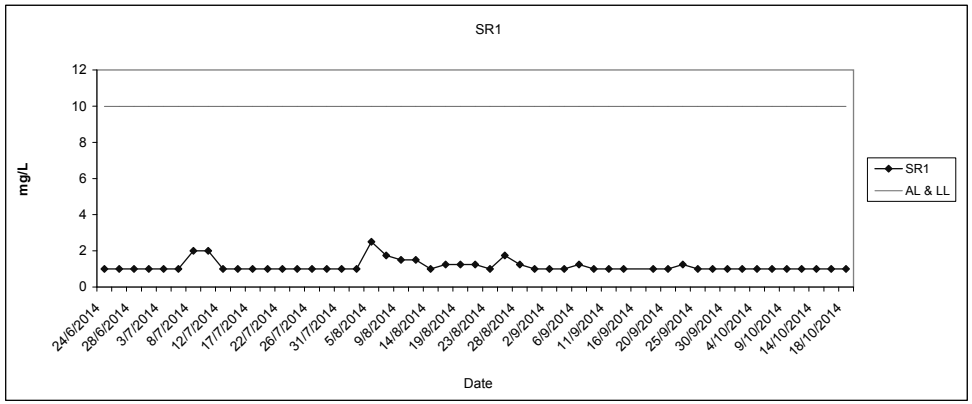
BOD_5 (Depth average) at Mid-Flood Tide

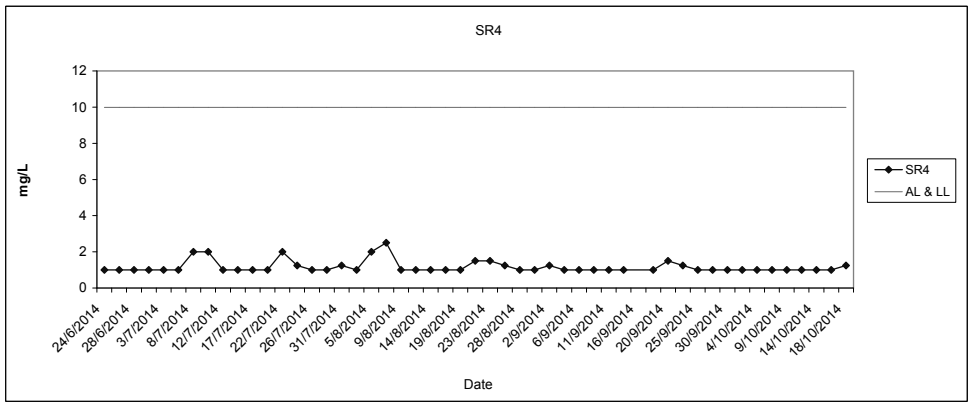


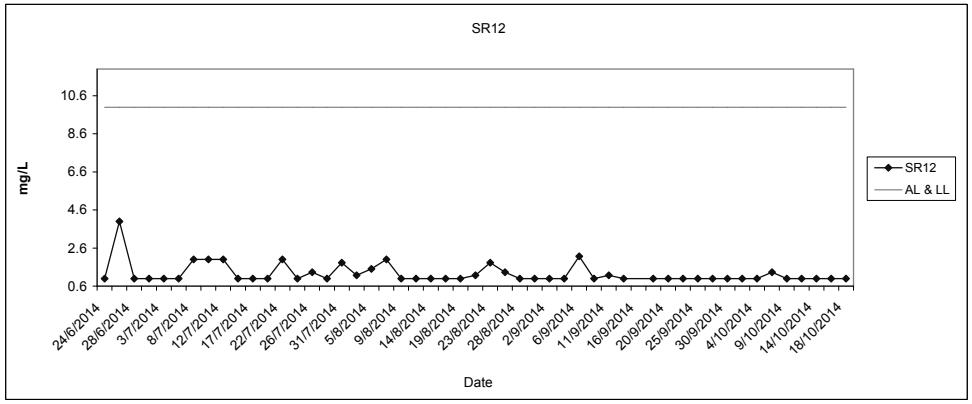




BOD_5 (Depth average) at Mid-Flood Tide

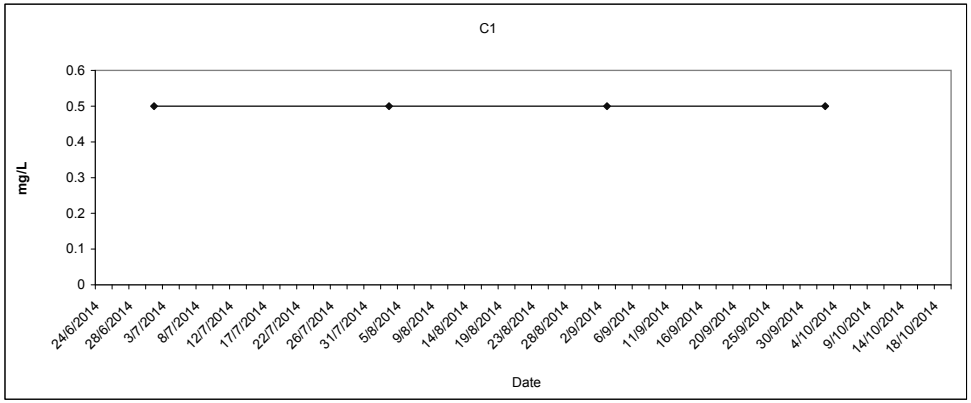


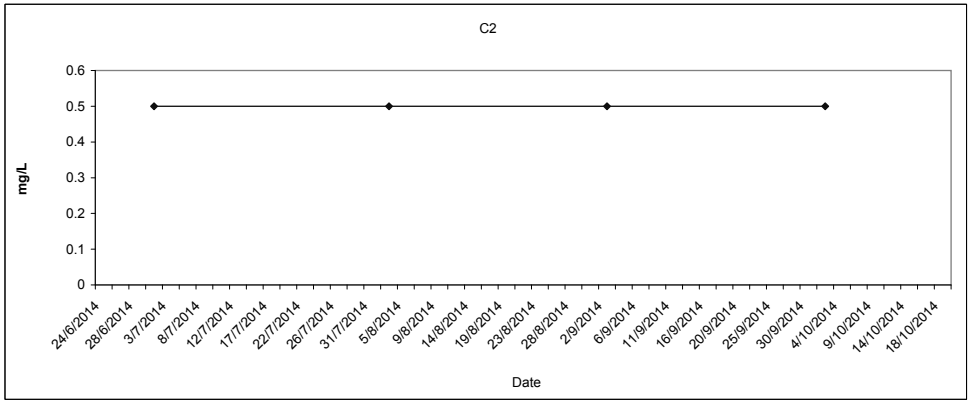


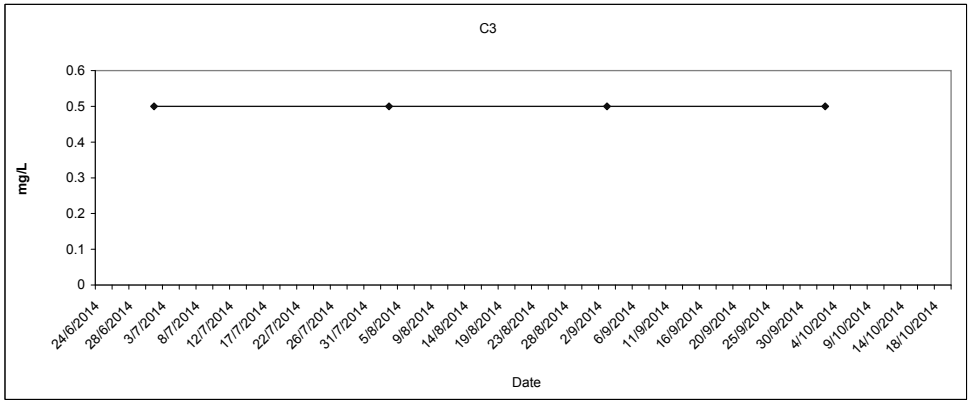


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

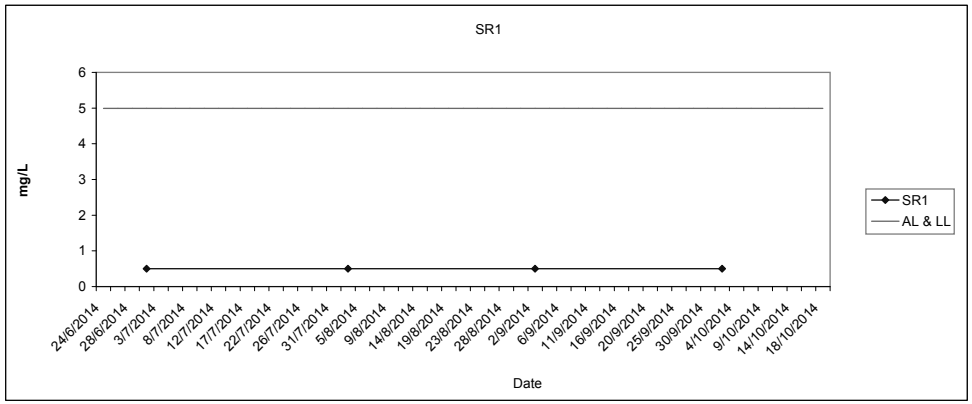
Synthetic Detergent (Depth average) at Mid-Flood Tide

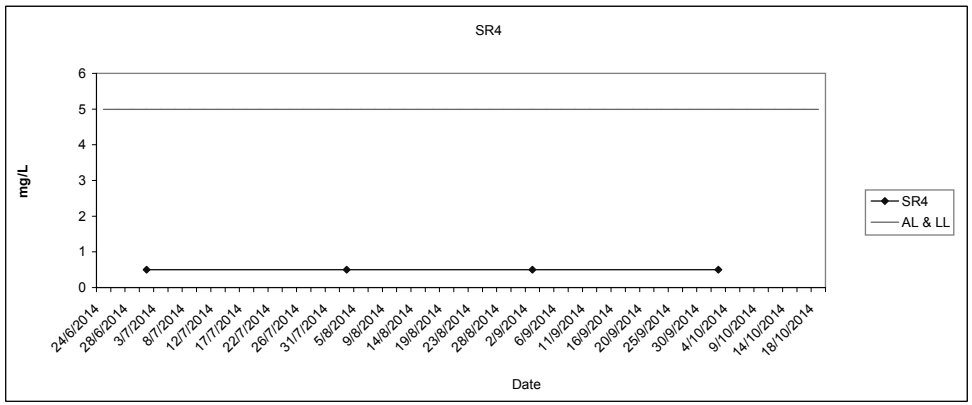


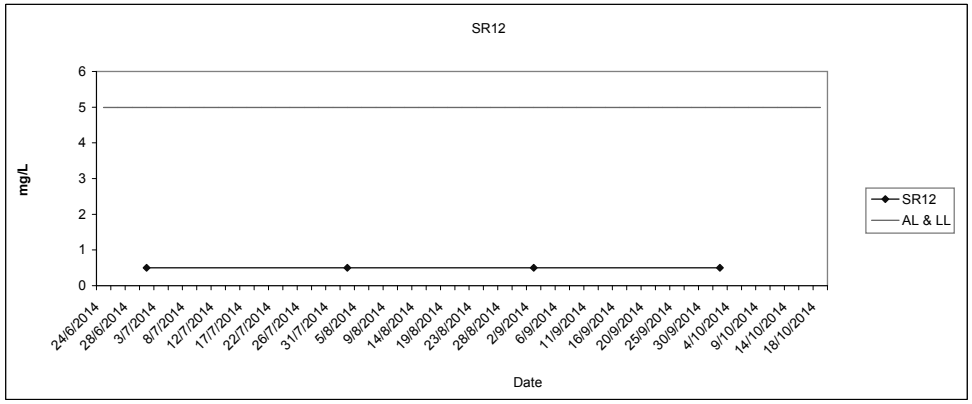




Synthetic Detergent (Depth average) at Mid-Flood Tide

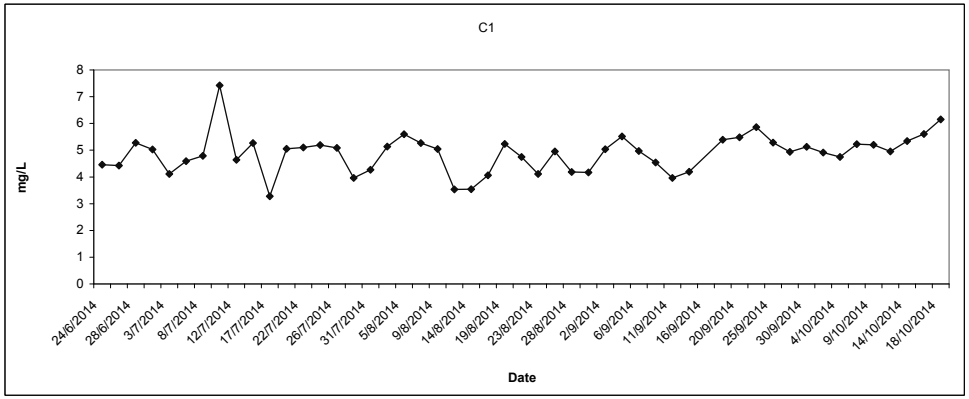


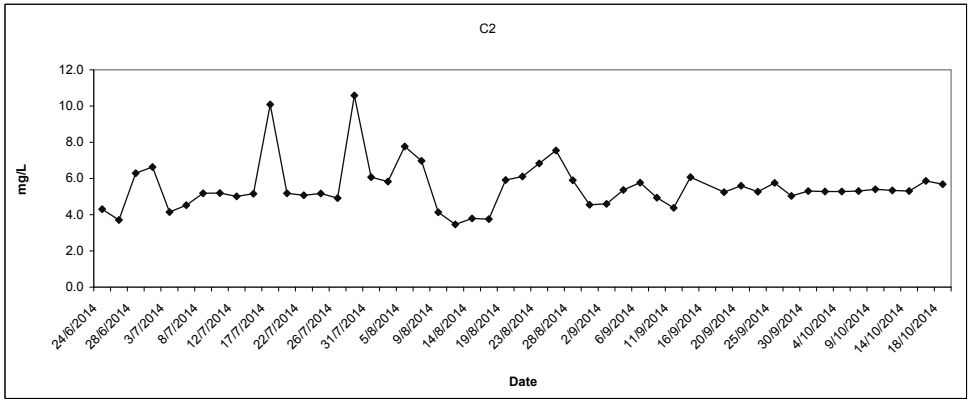


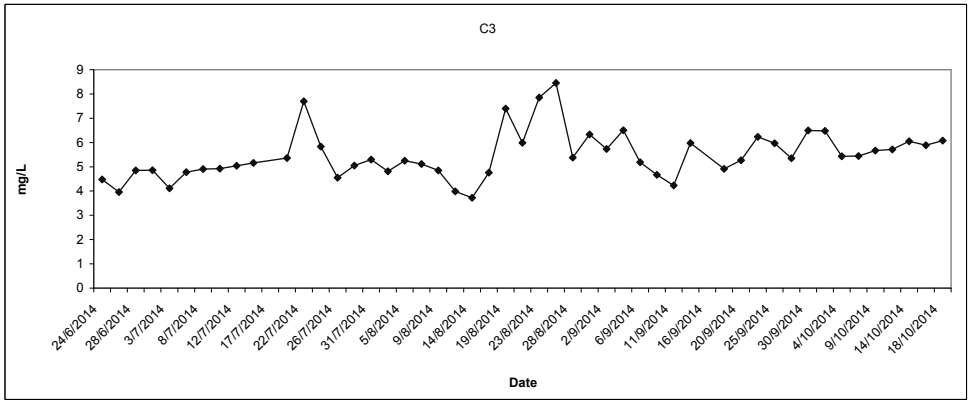


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

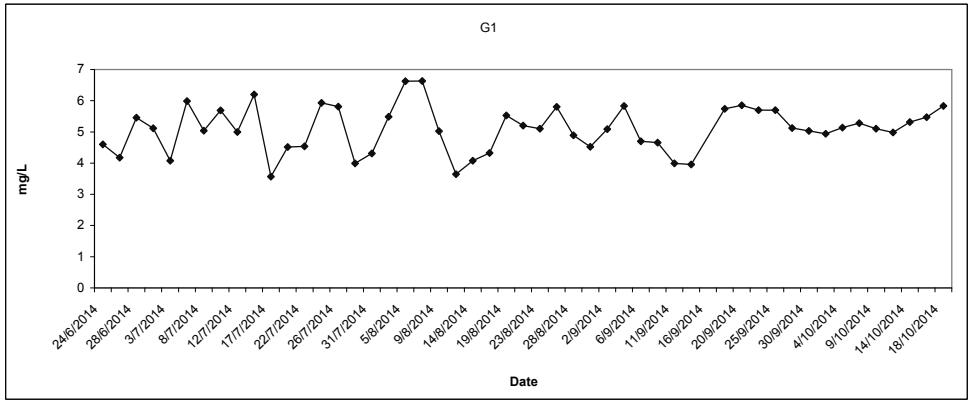
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

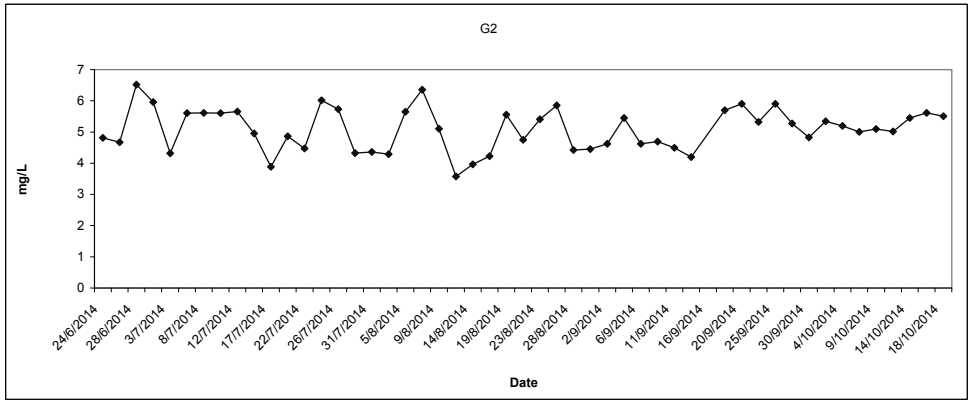


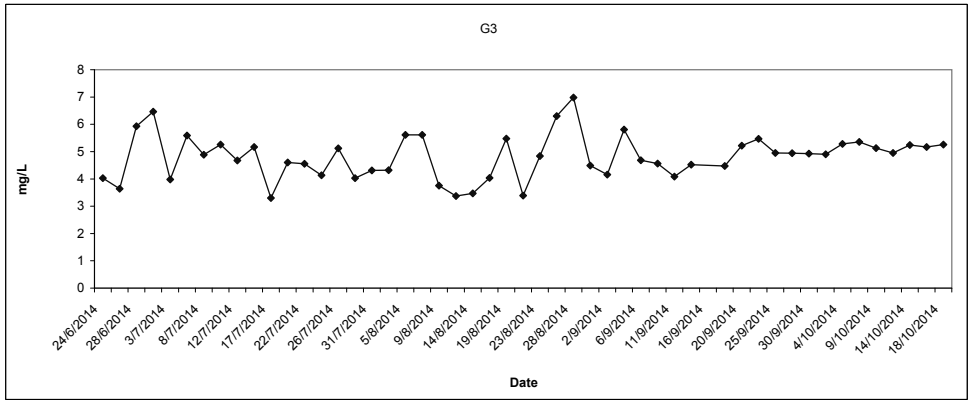




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

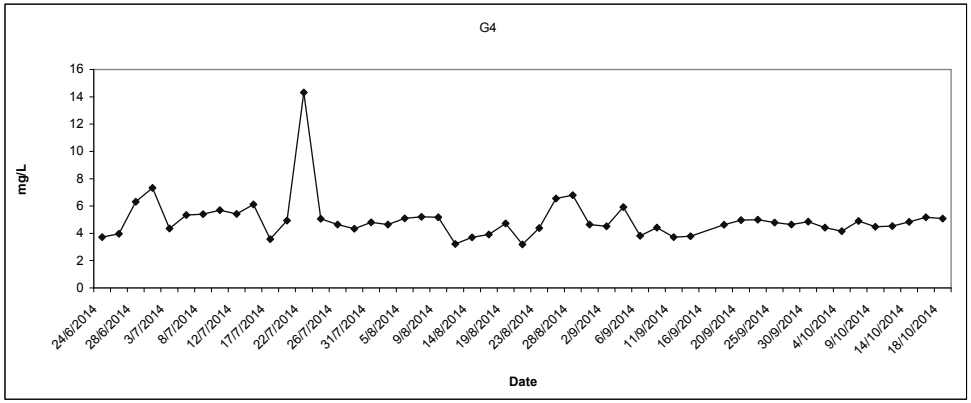


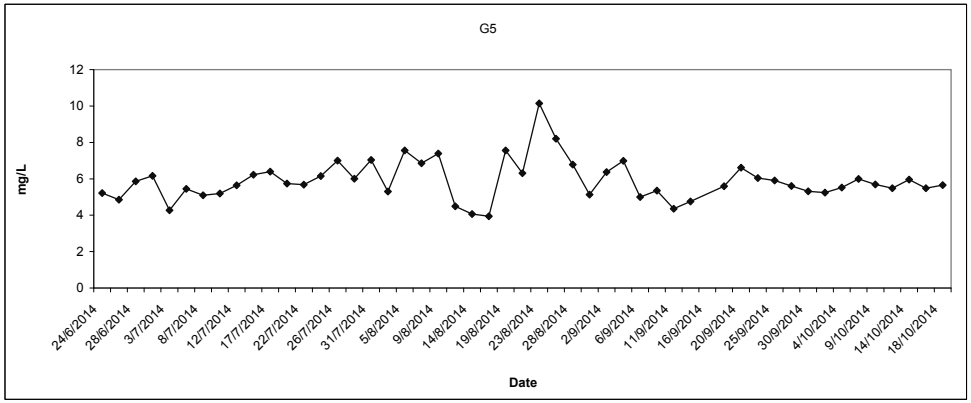


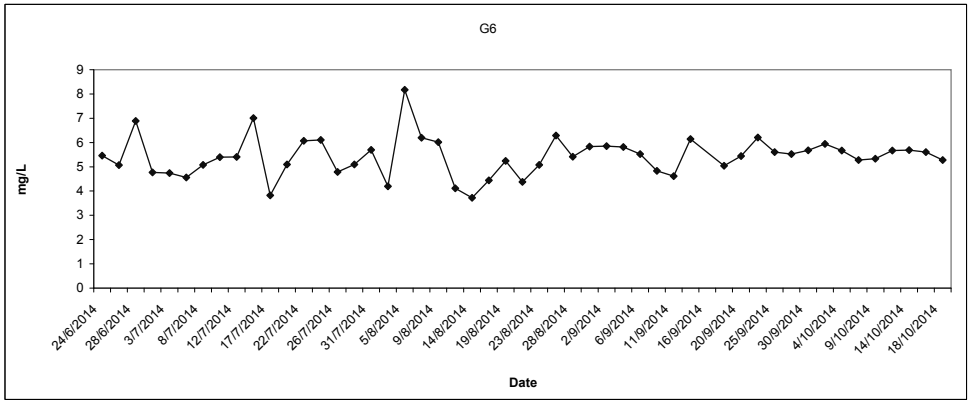


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

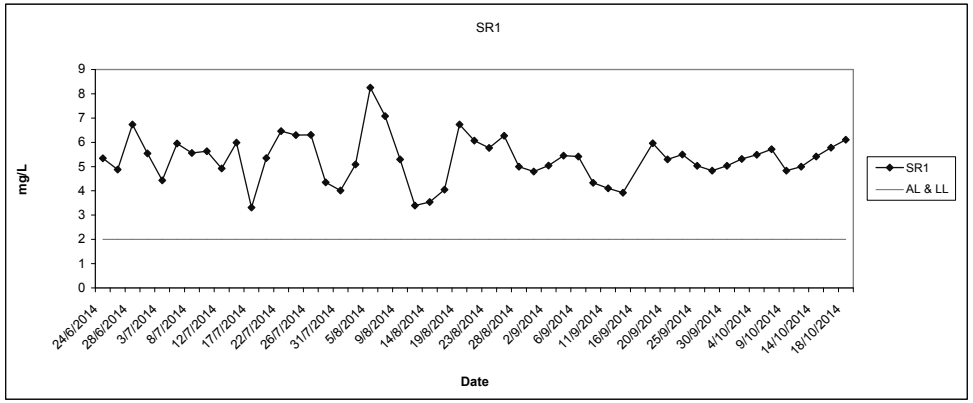
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

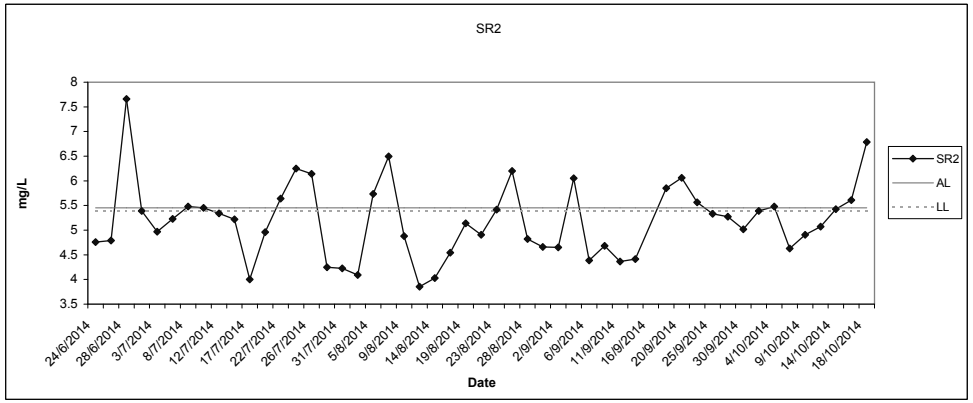


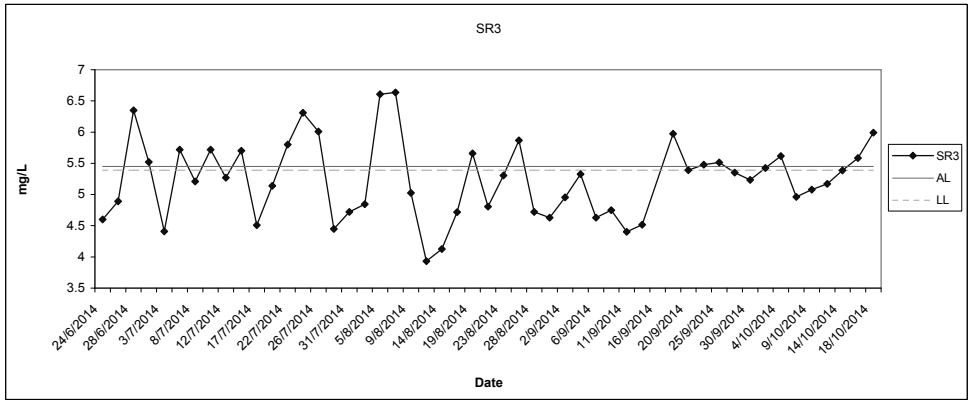




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

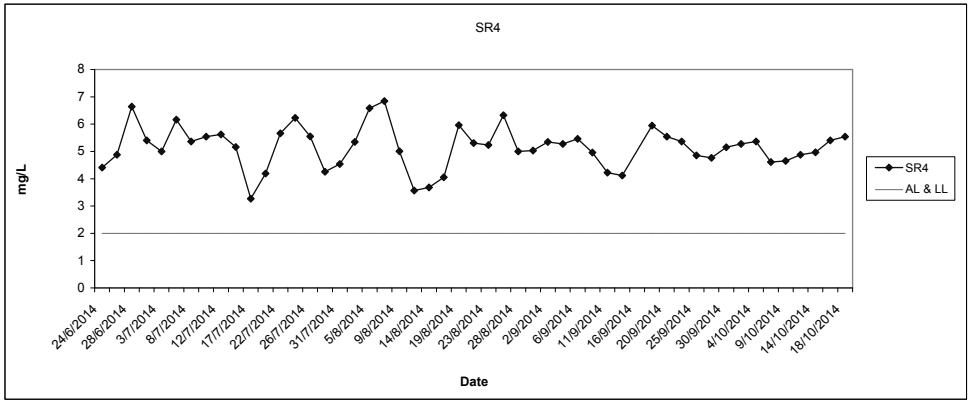


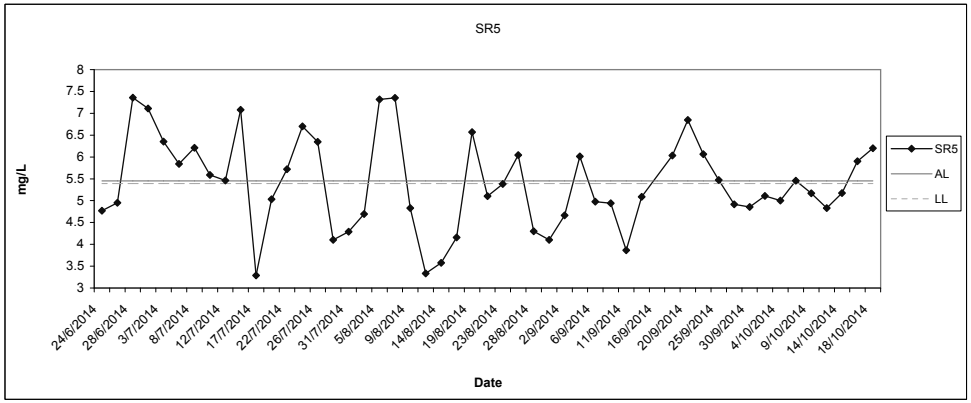


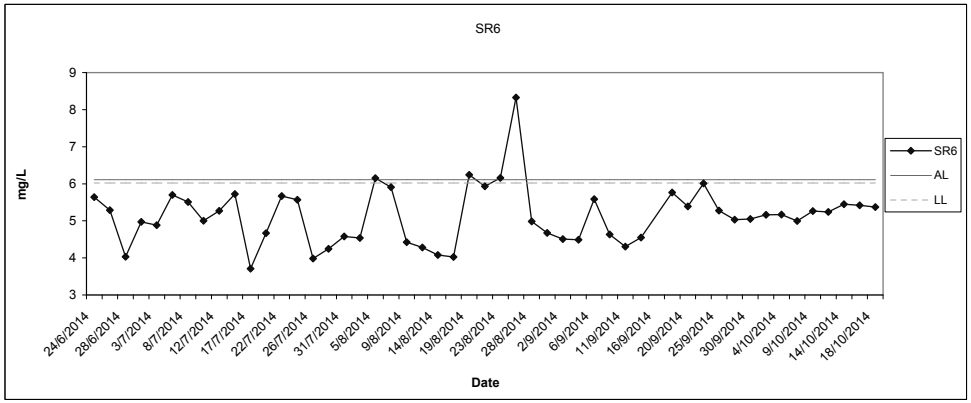


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

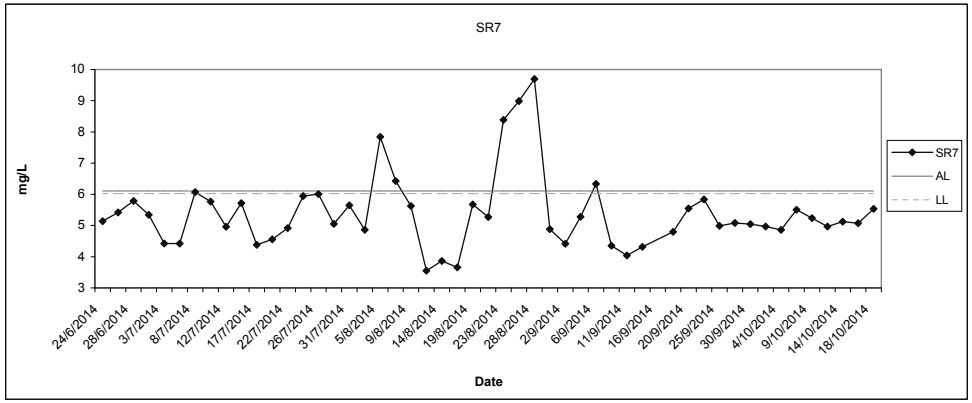
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

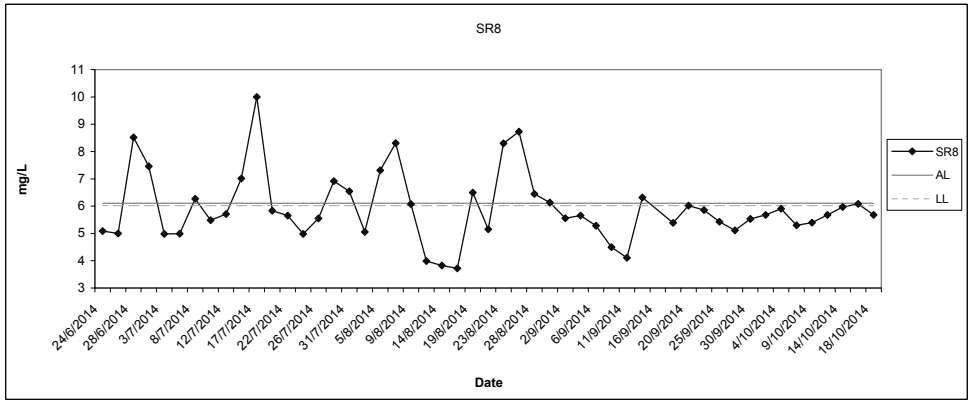


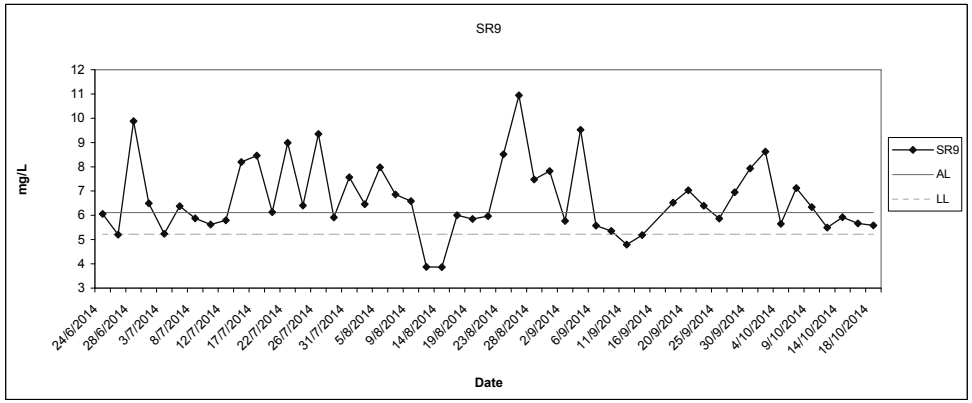




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

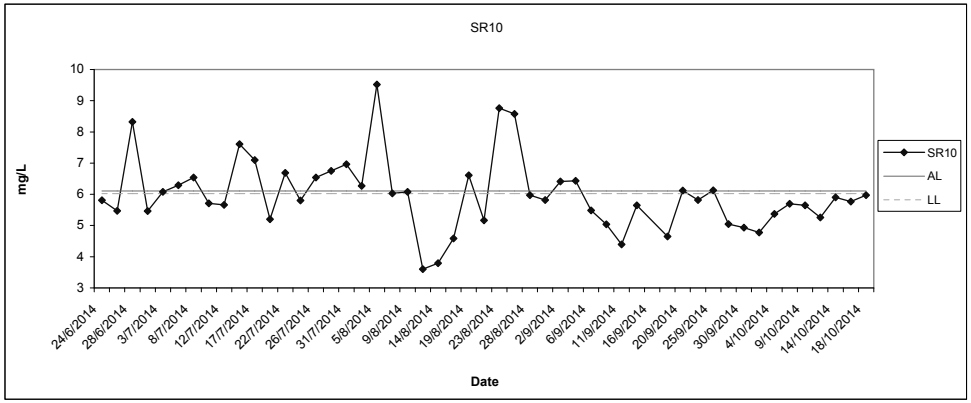


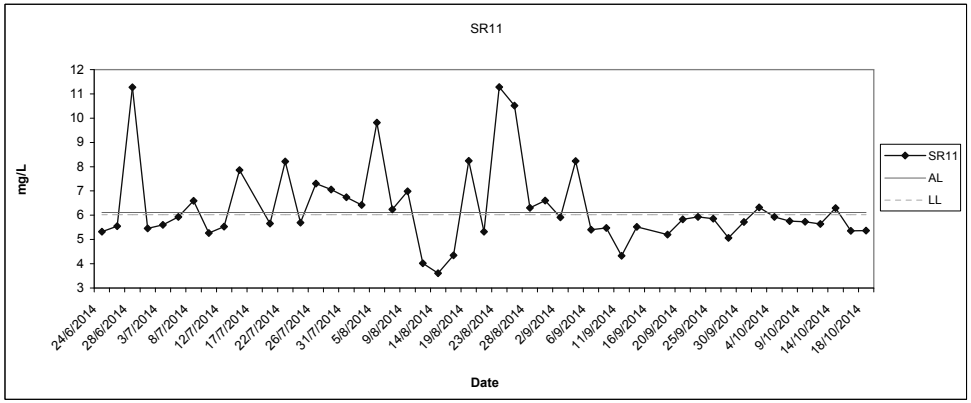


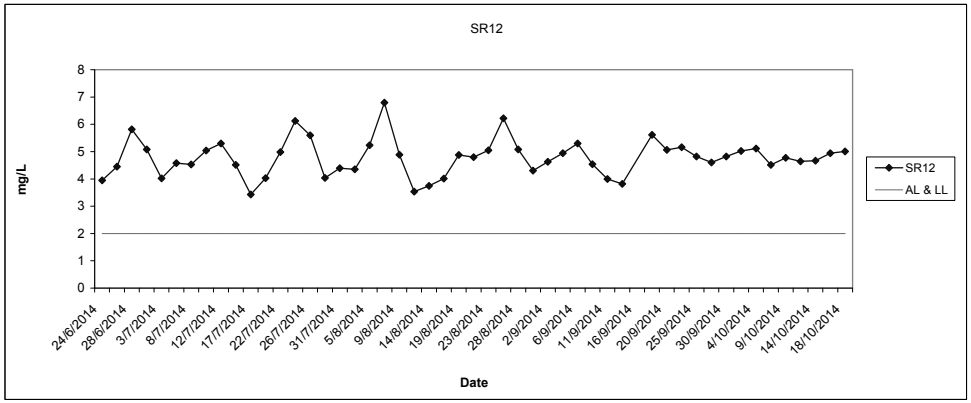


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

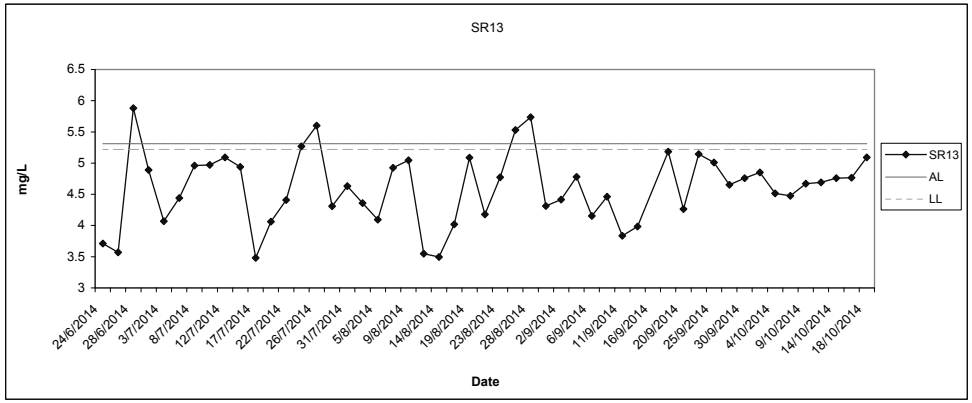
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide





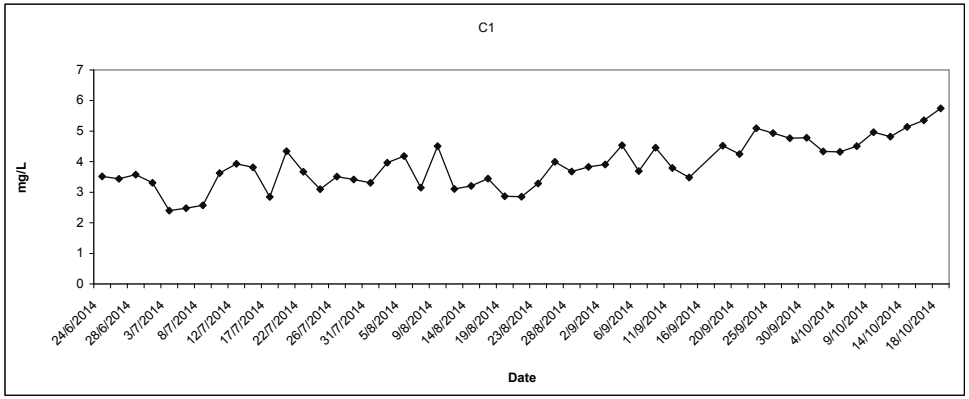


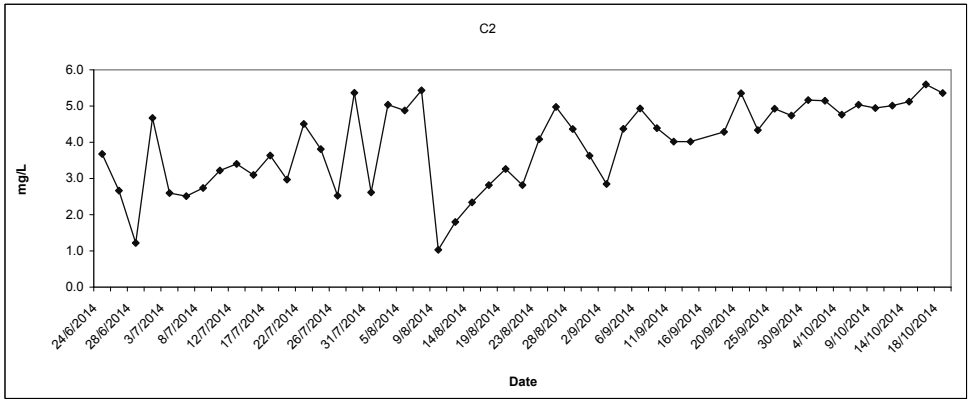
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

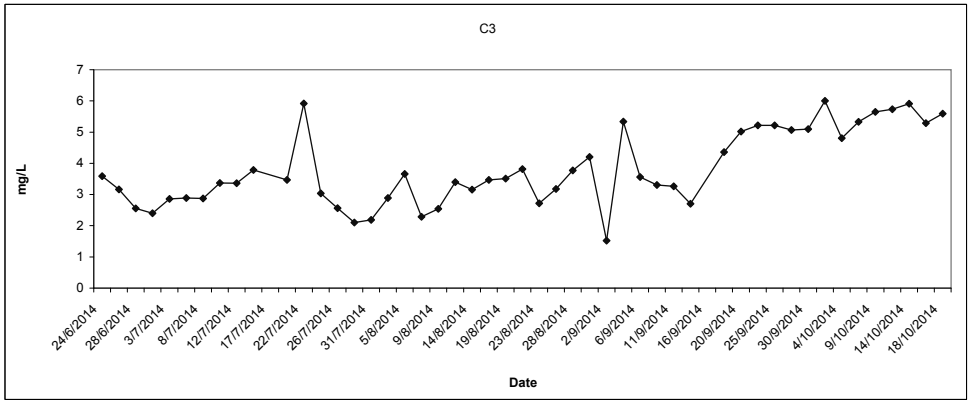


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

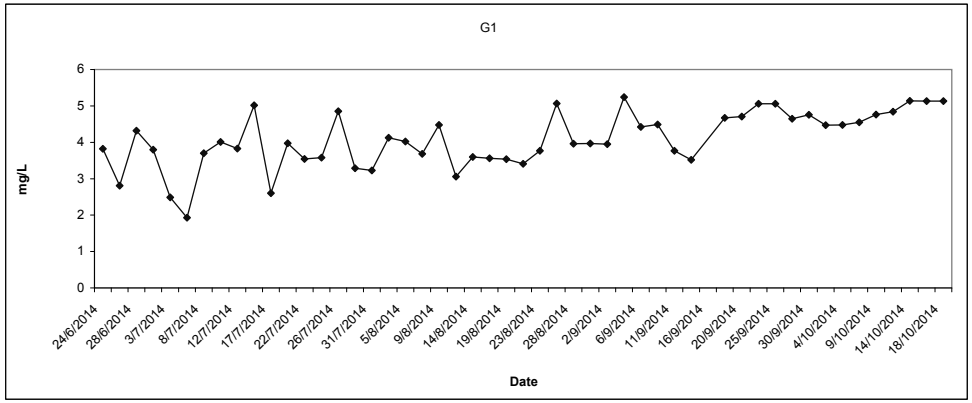
Dissolved Oxygen (Bottom) at Mid-Flood Tide

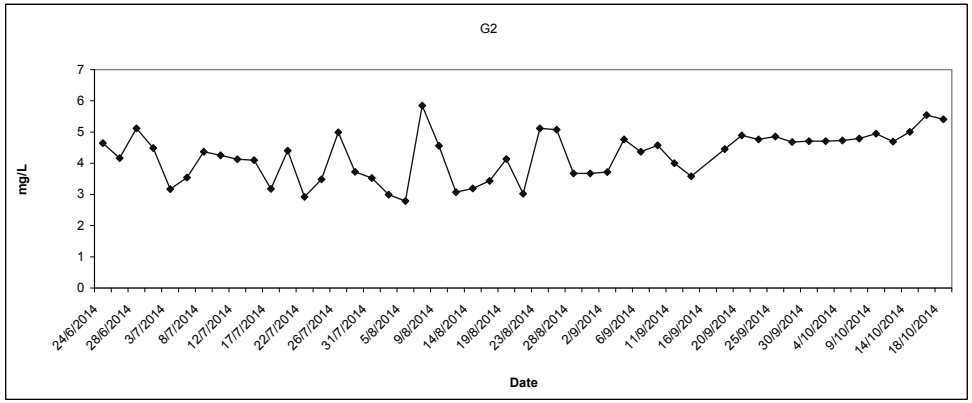


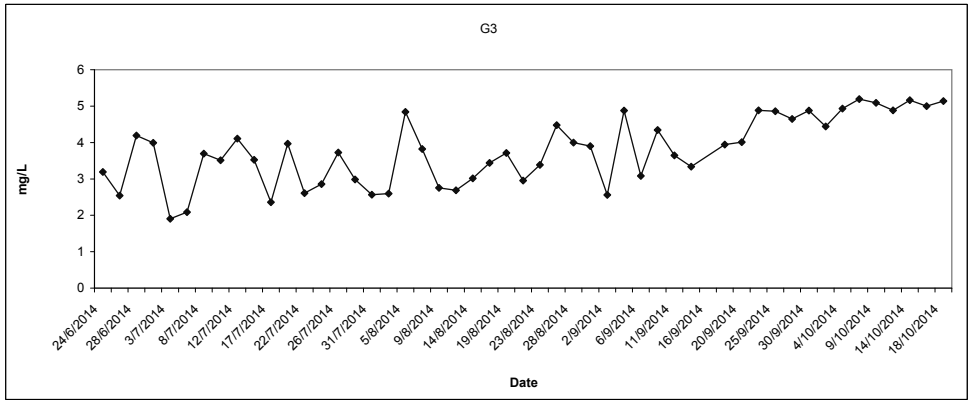




Dissolved Oxygen (Bottom) at Mid-Flood Tide

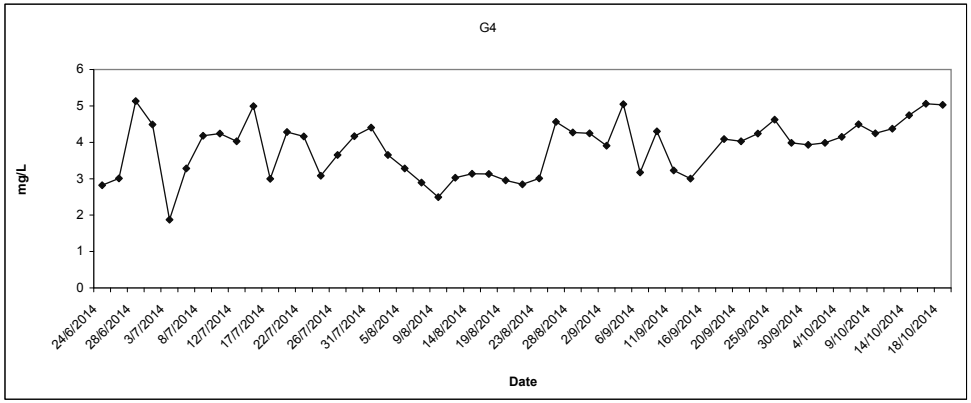


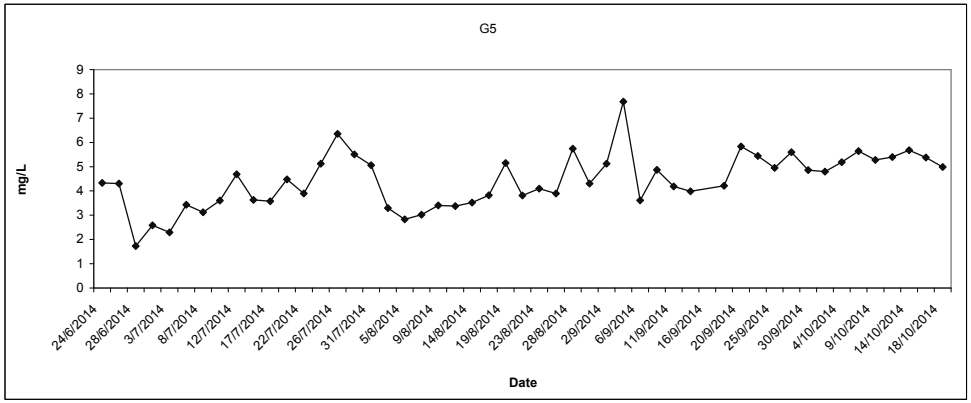


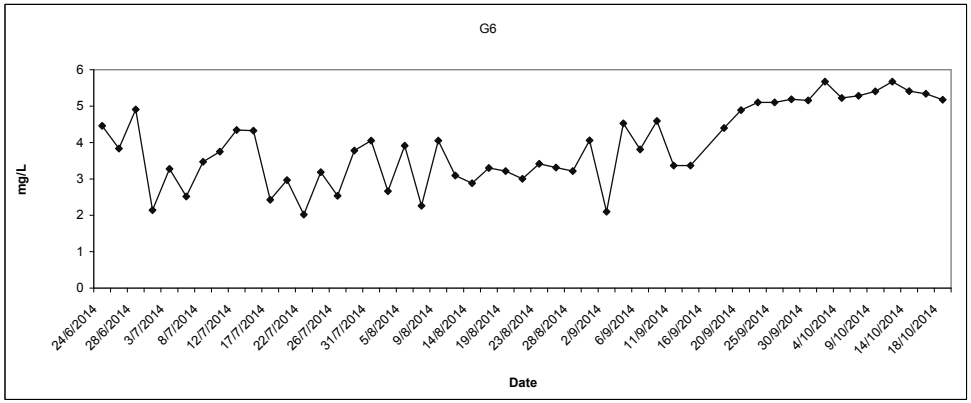


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

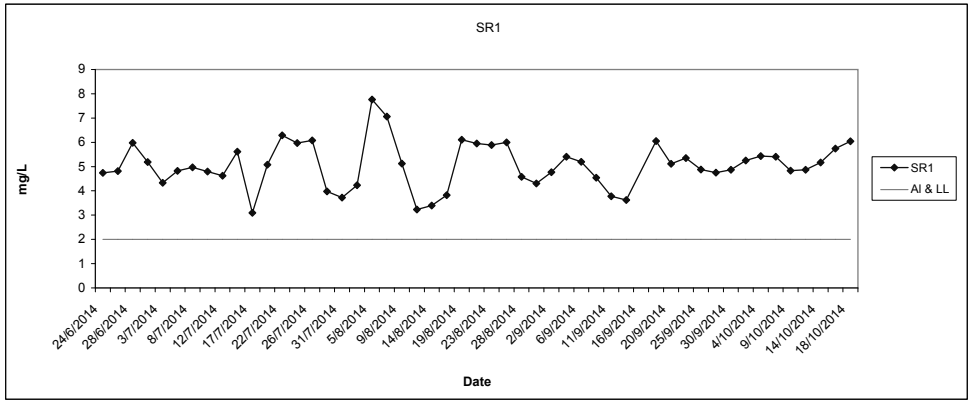
Dissolved Oxygen (Bottom) at Mid-Flood Tide

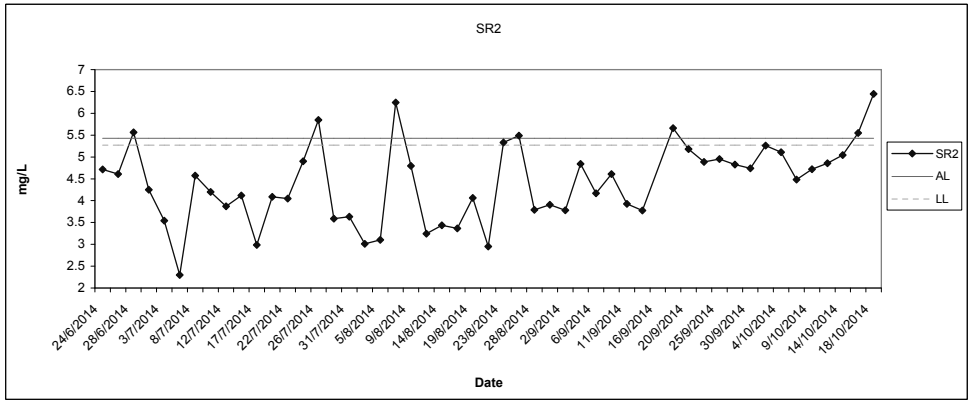


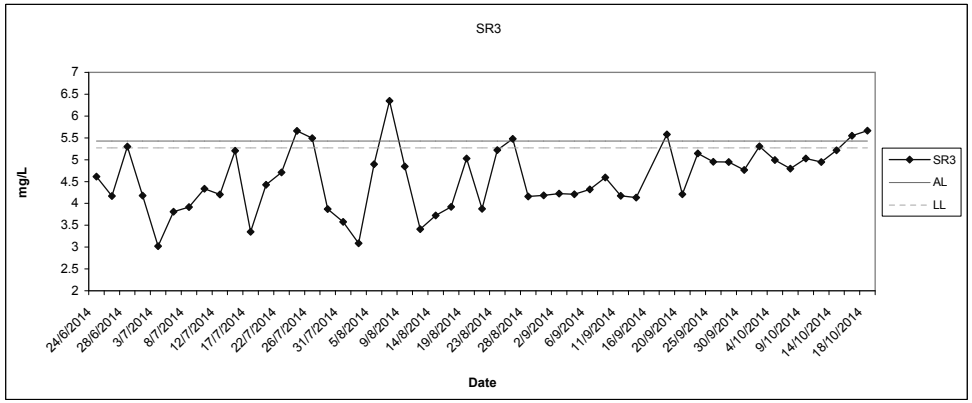




Dissolved Oxygen (Bottom) at Mid-Flood Tide

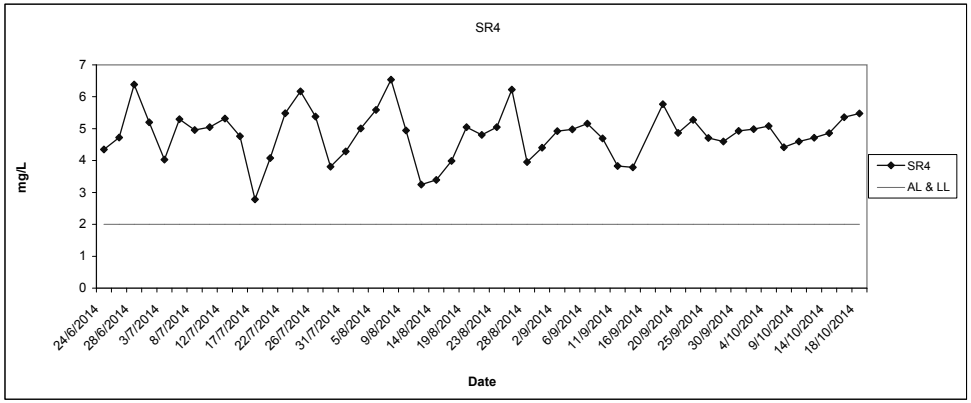


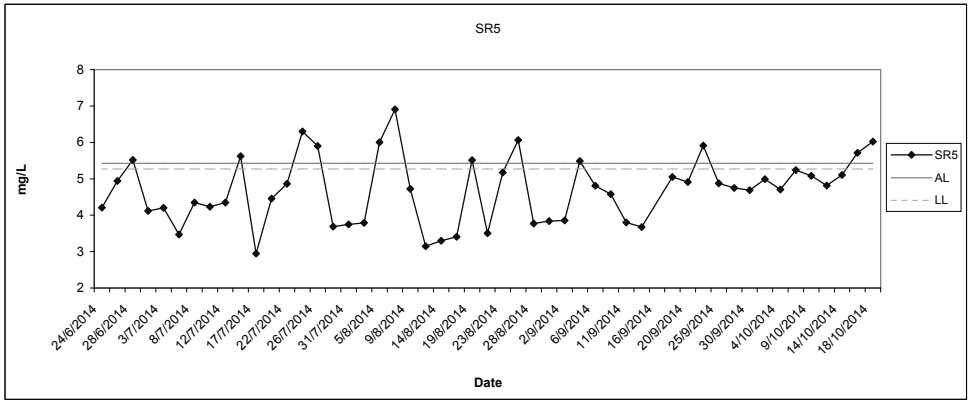


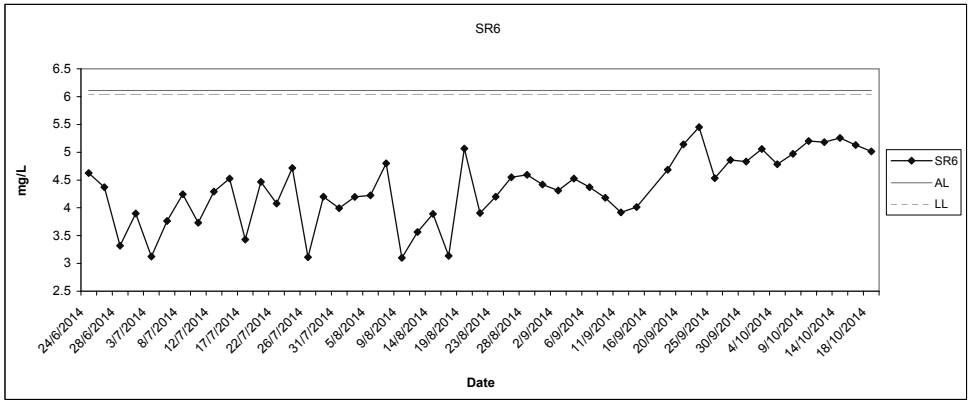


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

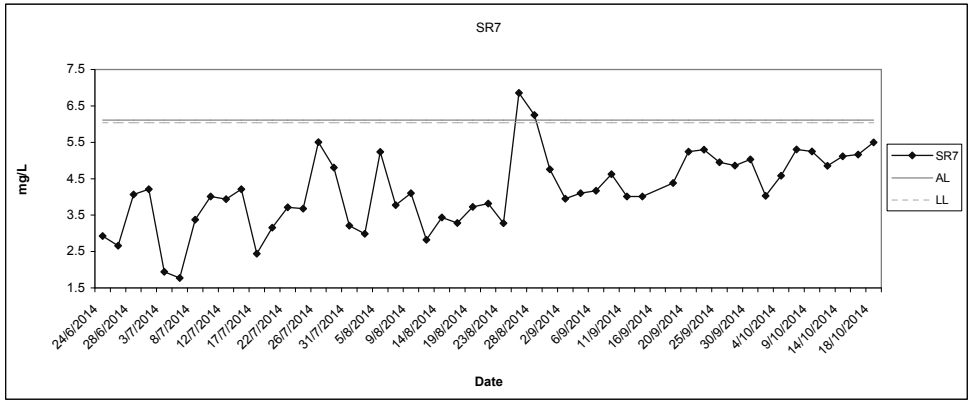
Dissolved Oxygen (Bottom) at Mid-Flood Tide

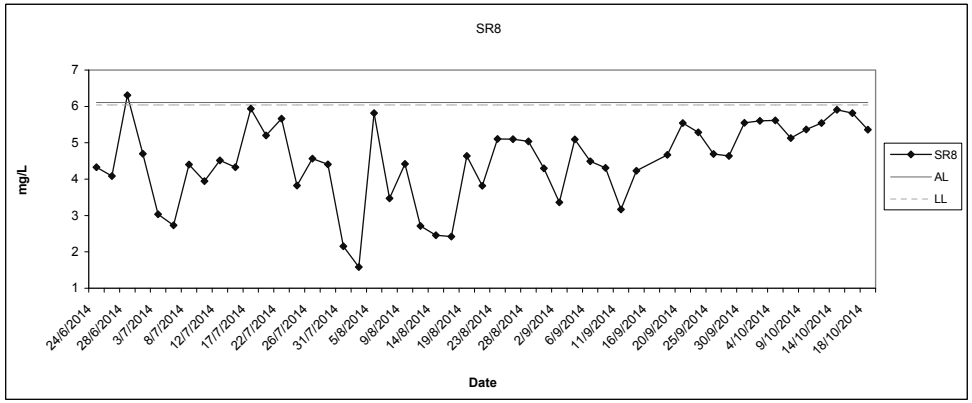


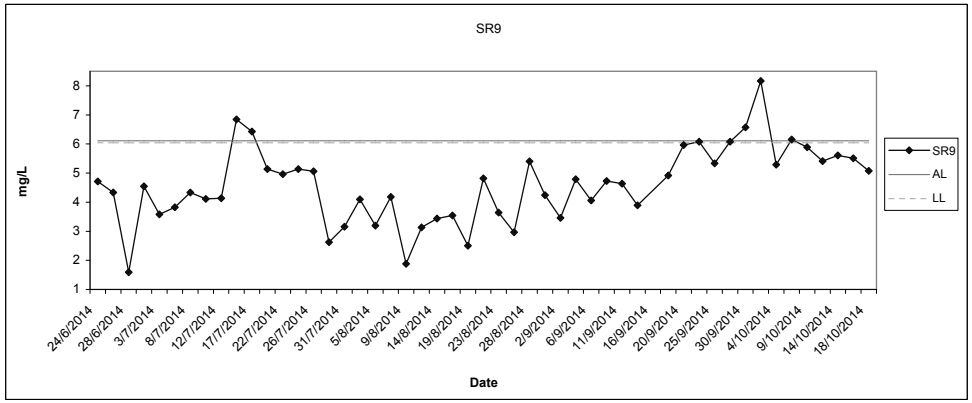




Dissolved Oxygen (Bottom) at Mid-Flood Tide

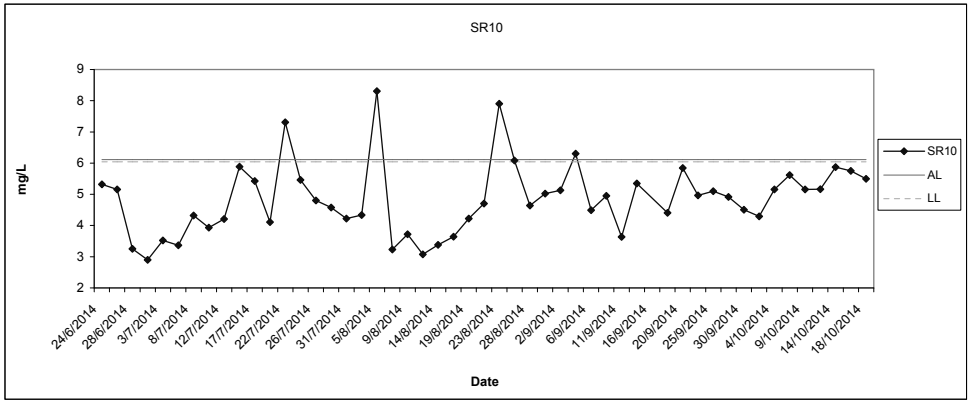


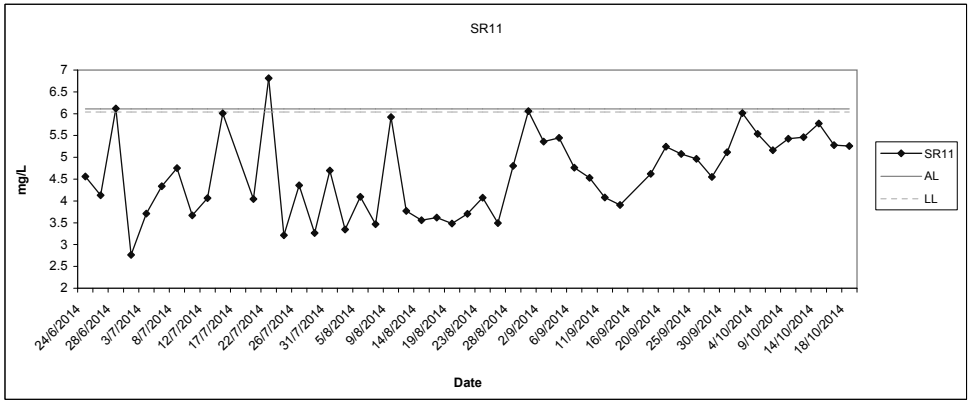


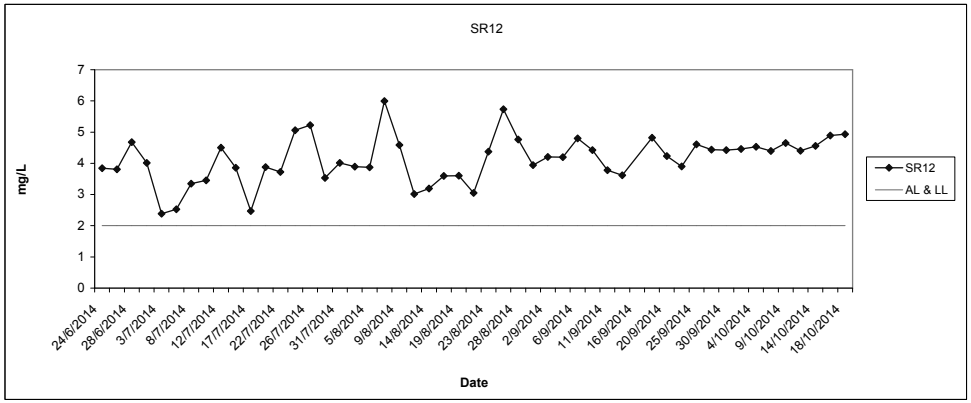


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

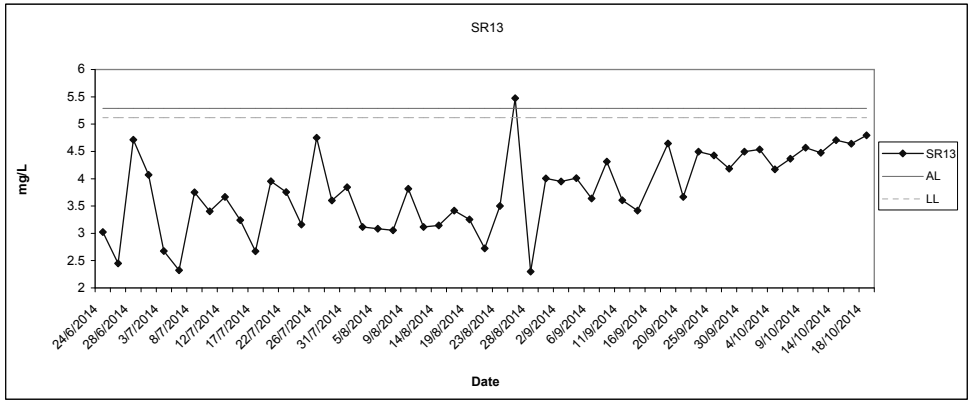
Dissolved Oxygen (Bottom) at Mid-Flood Tide





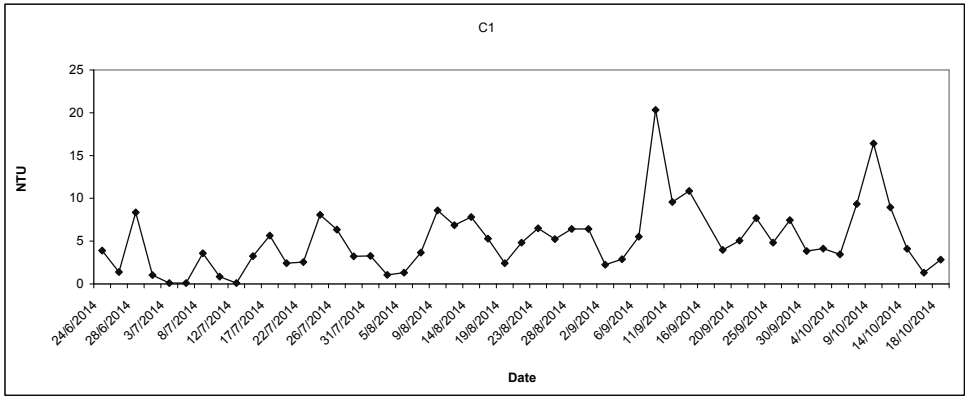


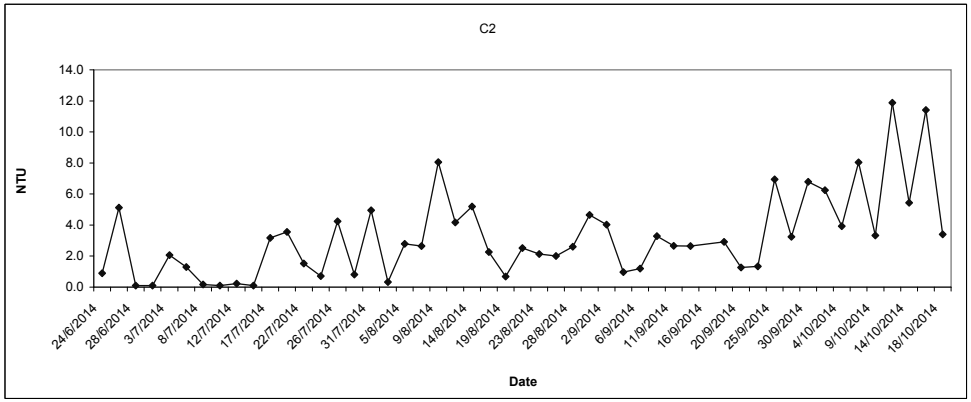
Dissolved Oxygen (Bottom) at Mid-Flood Tide

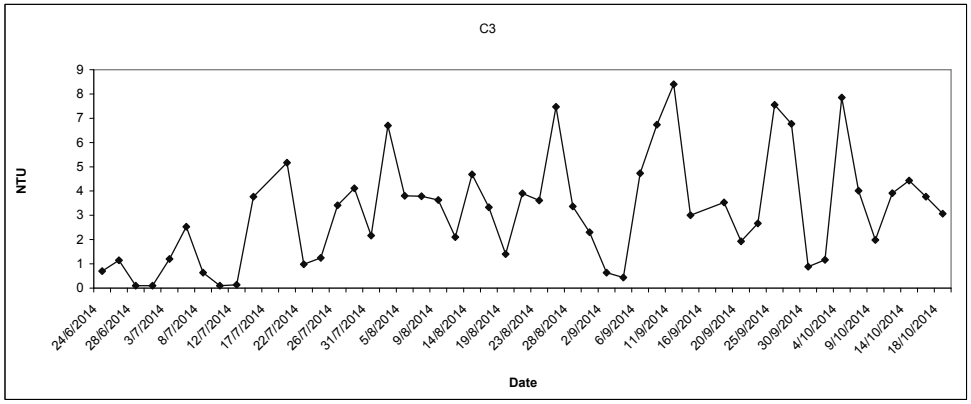


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

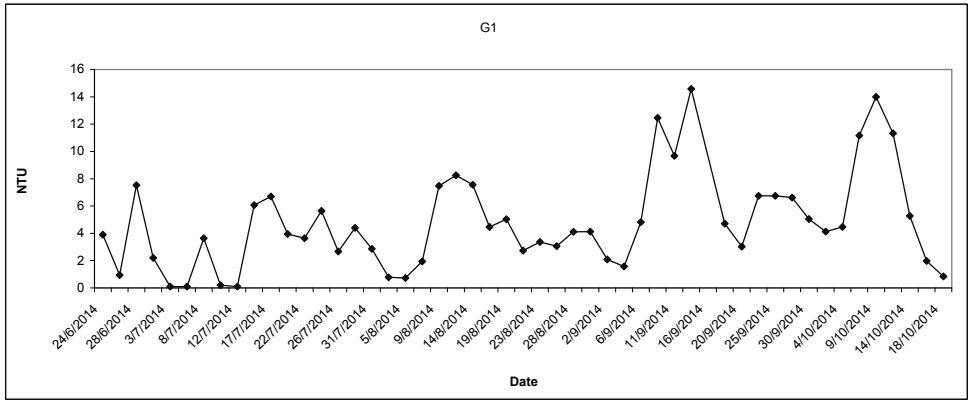
Turbidity (Depth average) at Mid-Flood Tide

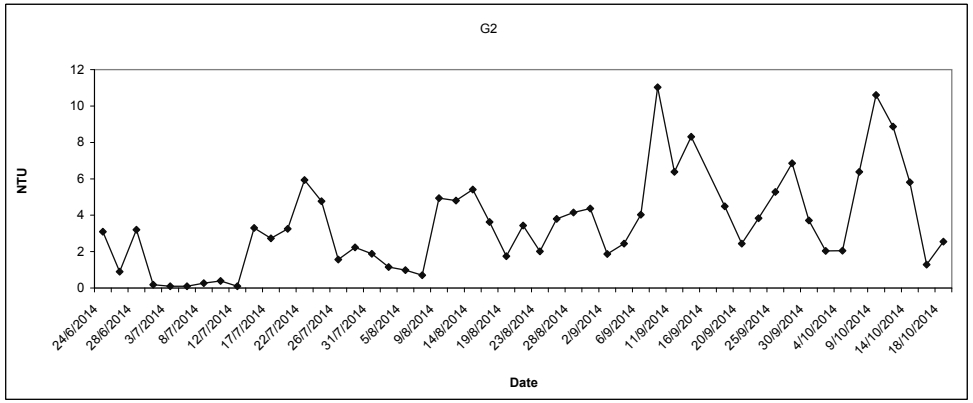


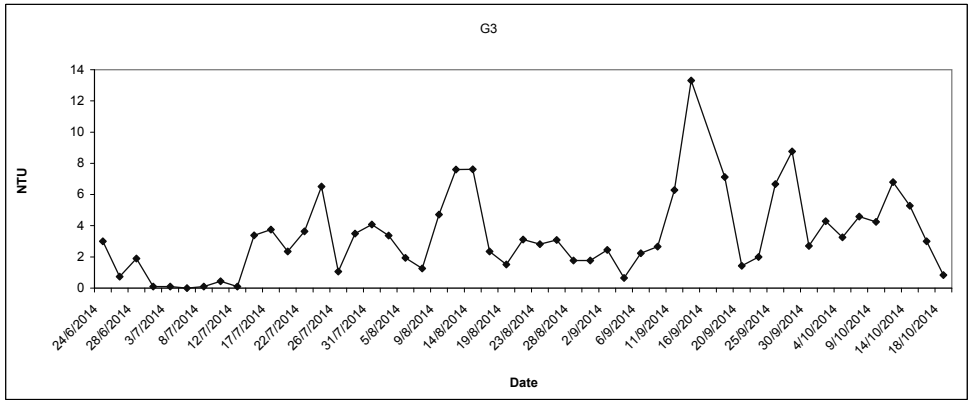




Turbidity (Depth average) at Mid-Flood Tide

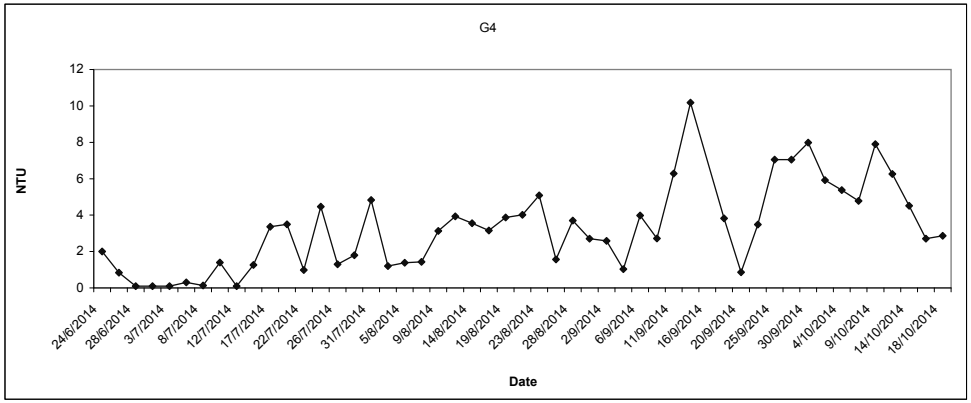


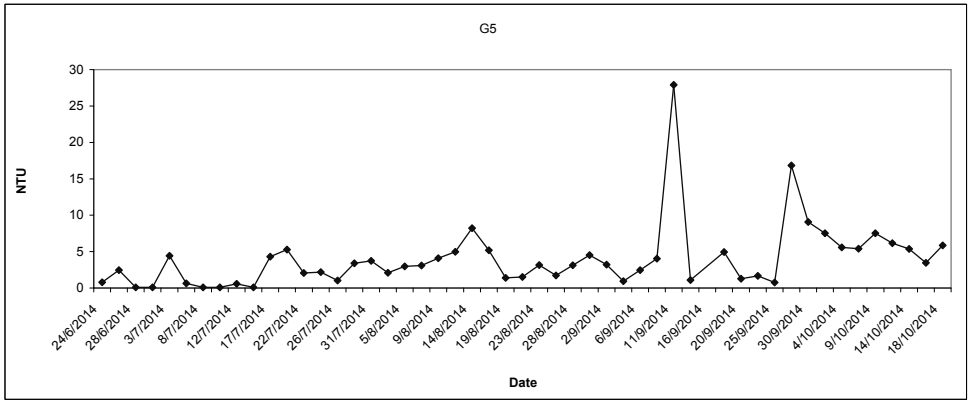


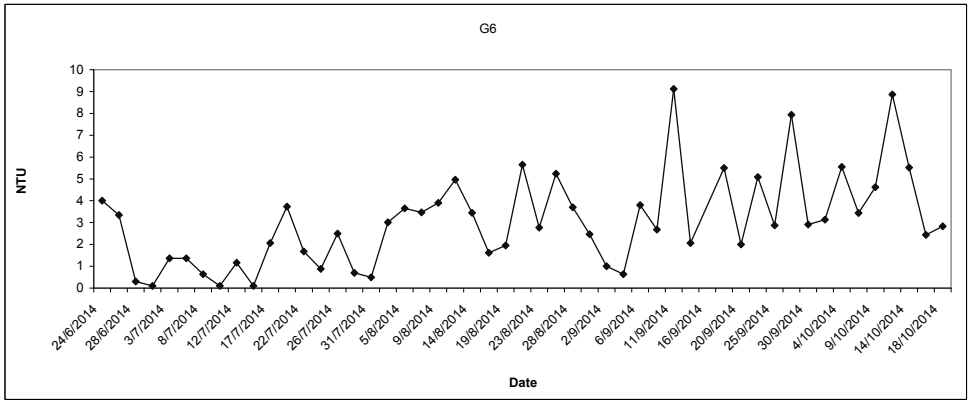


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

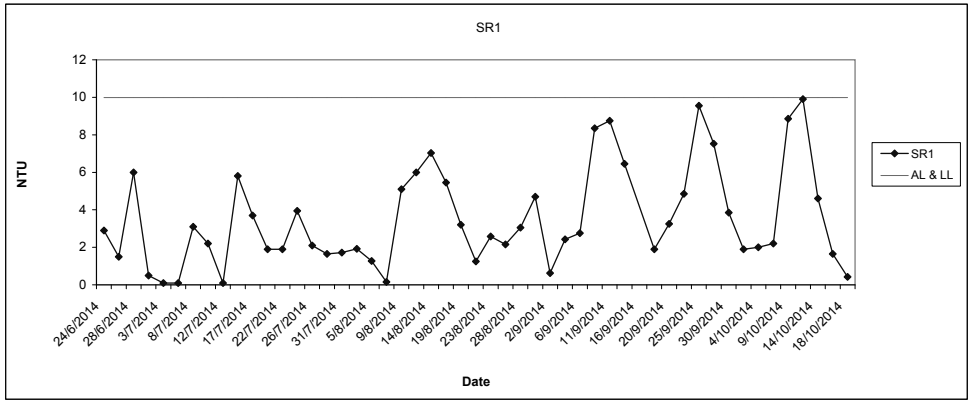
Turbidity (Depth average) at Mid-Flood Tide

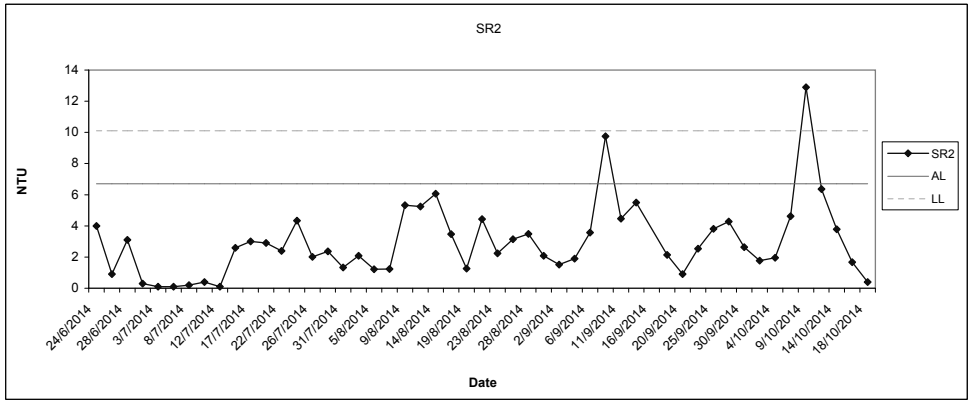


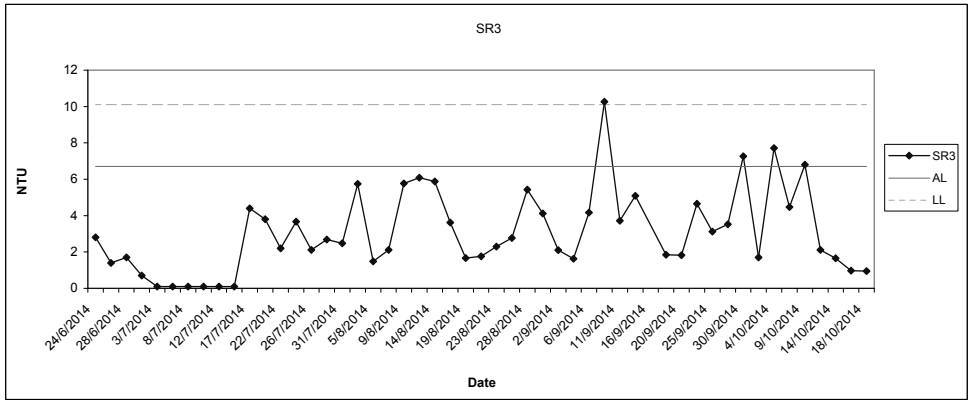




Turbidity (Depth average) at Mid-Flood Tide

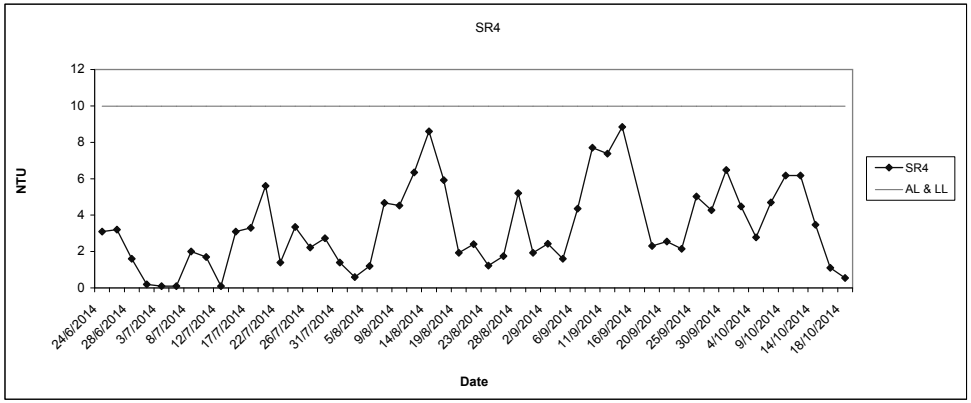


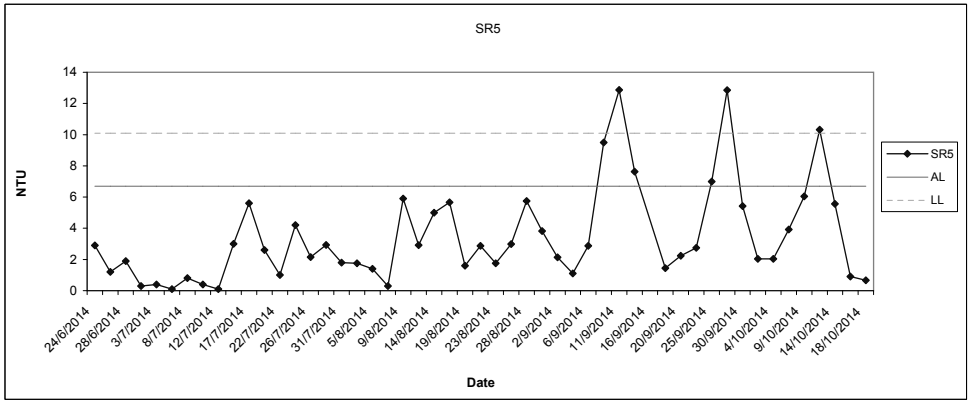


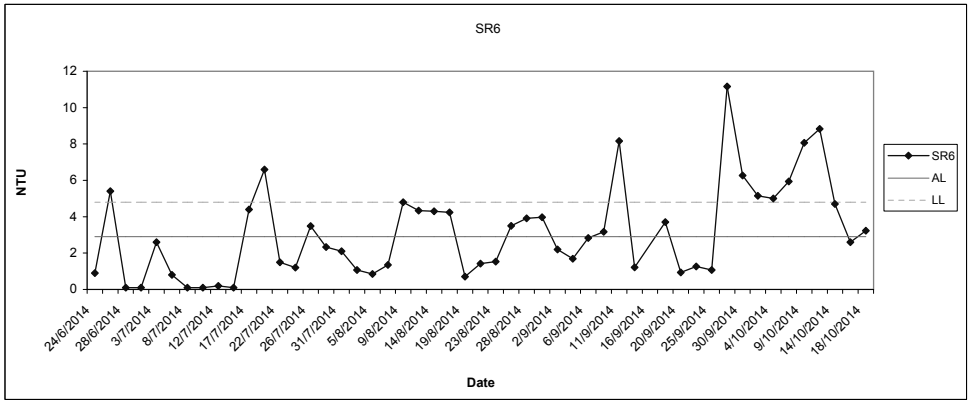


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

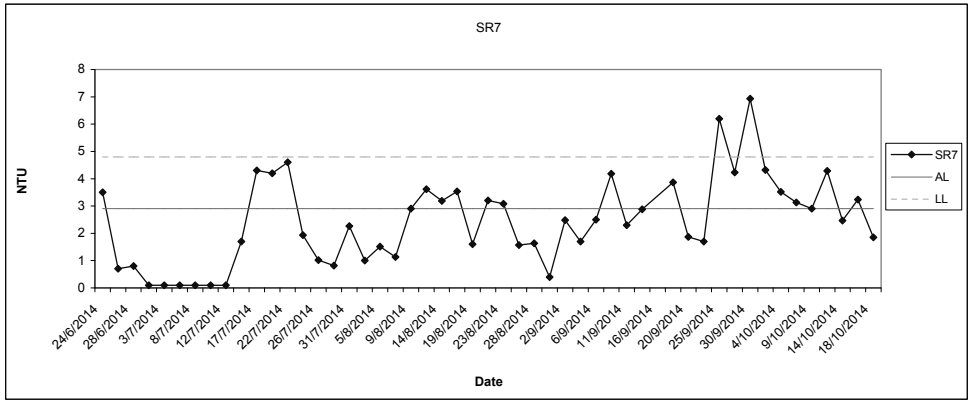
Turbidity (Depth average) at Mid-Flood Tide

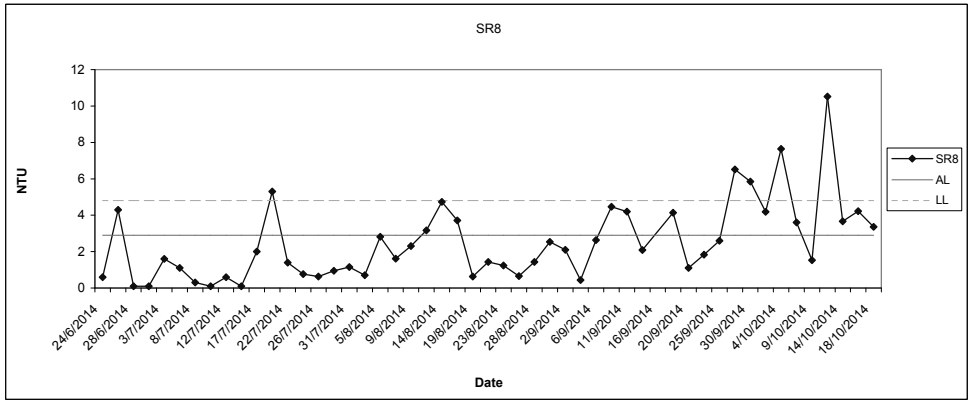


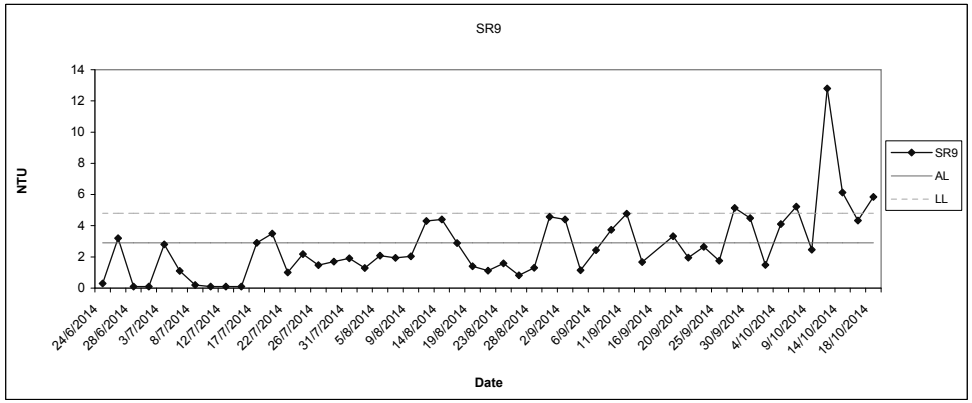




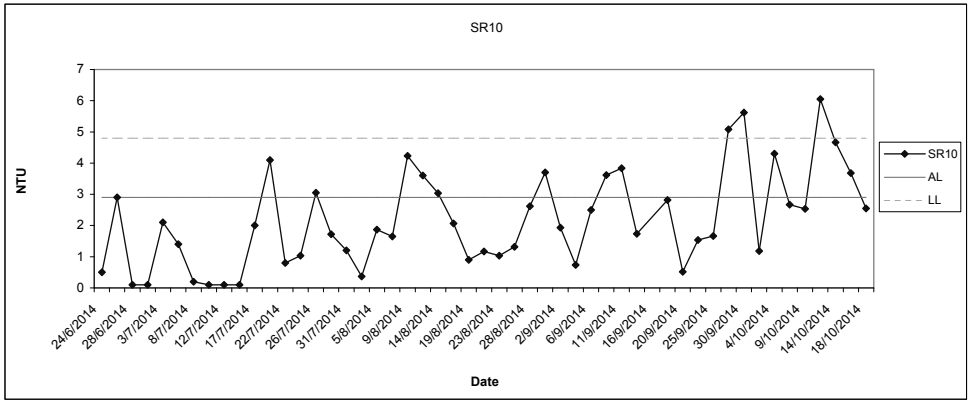
Turbidity (Depth average) at Mid-Flood Tide

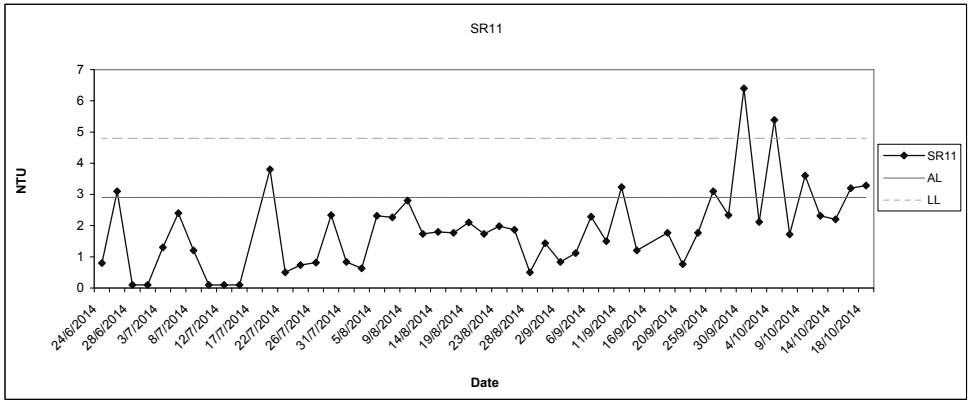


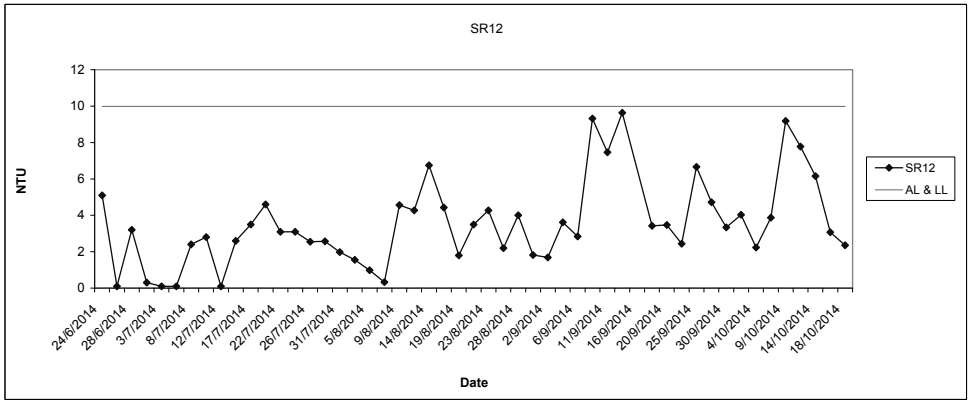




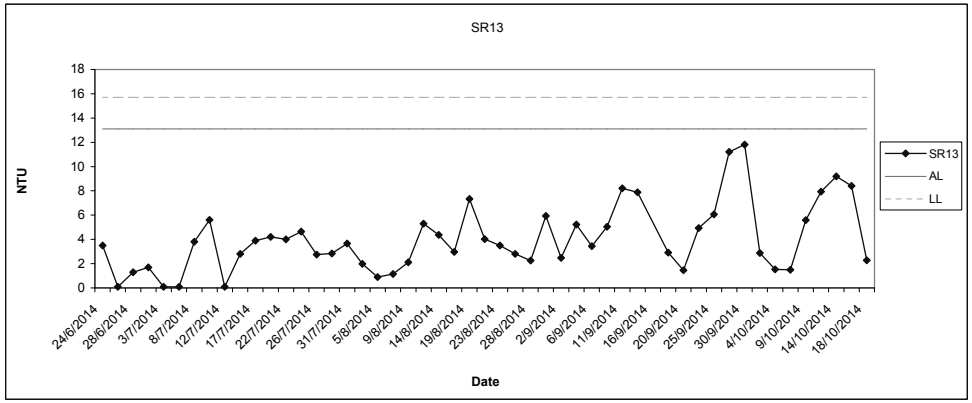
Turbidity (Depth average) at Mid-Flood Tide





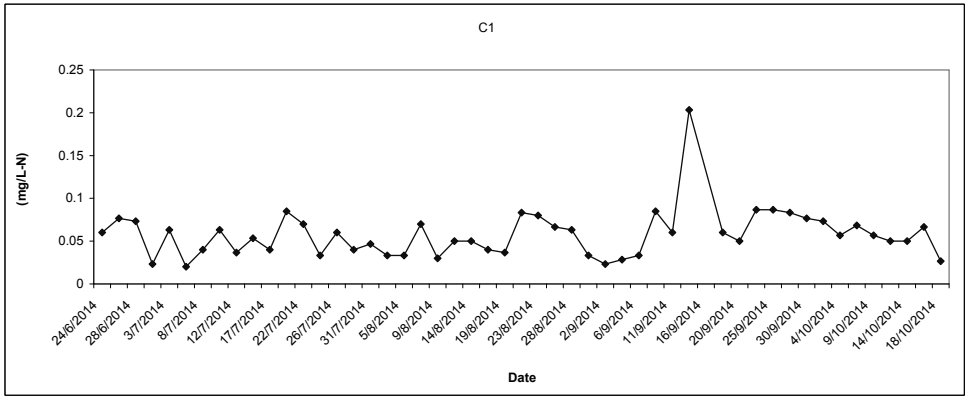


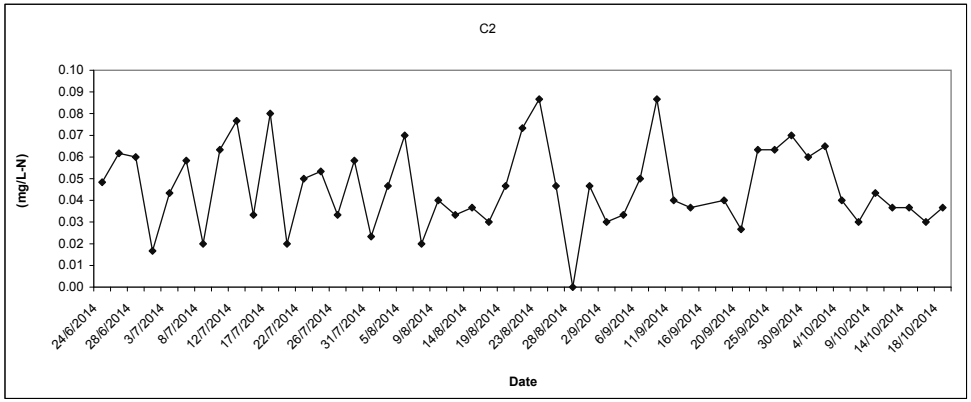
Turbidity (Depth average) at Mid-Flood Tide

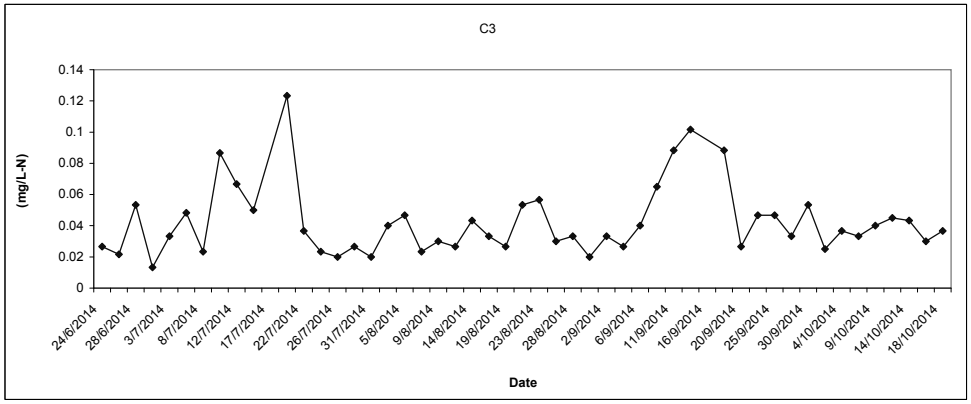


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

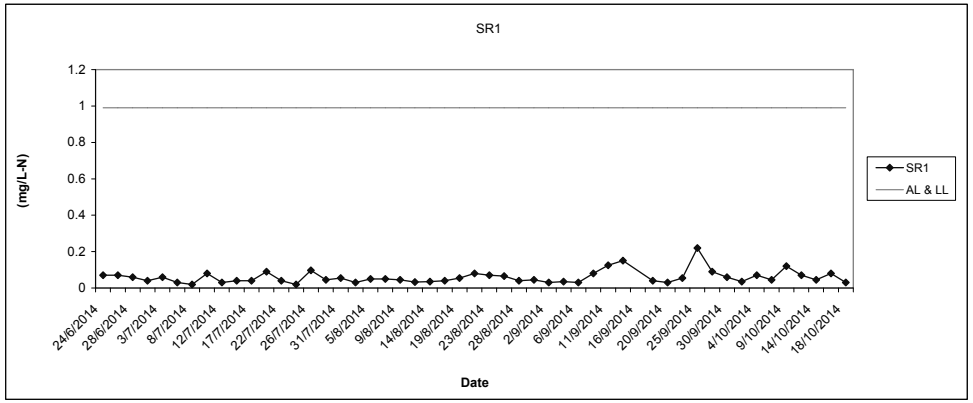
In-situ Ammonia (Depth average) at Mid-Flood Tide

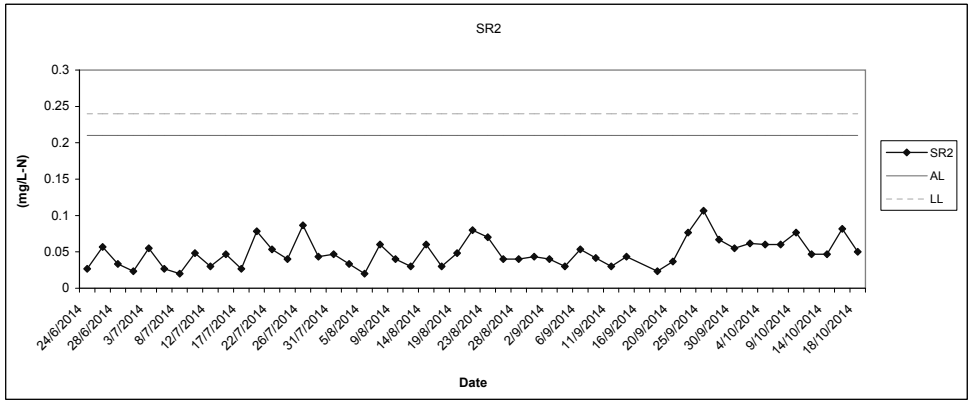


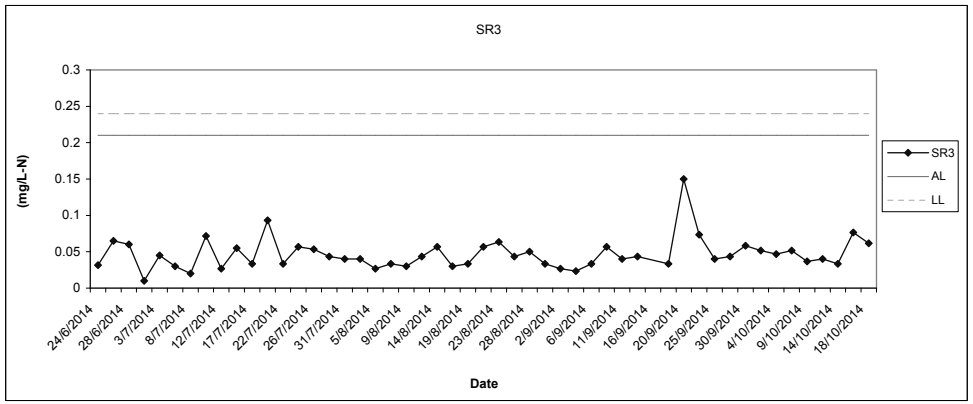




In-situ Ammonia (Depth average) at Mid-Flood Tide

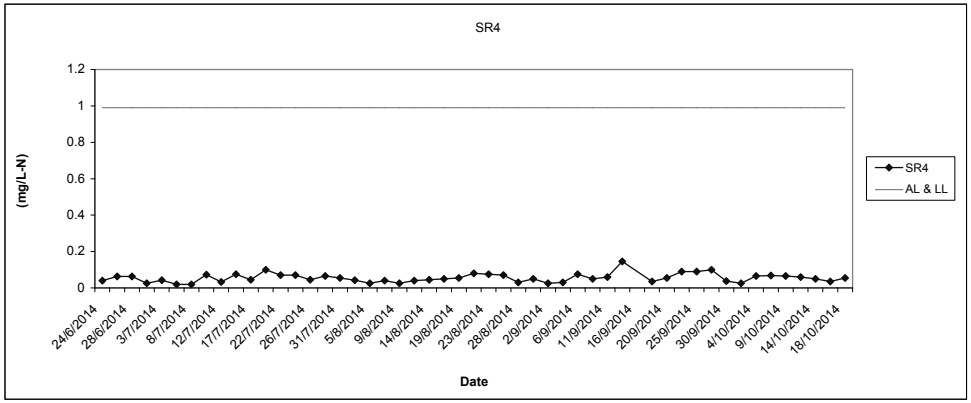


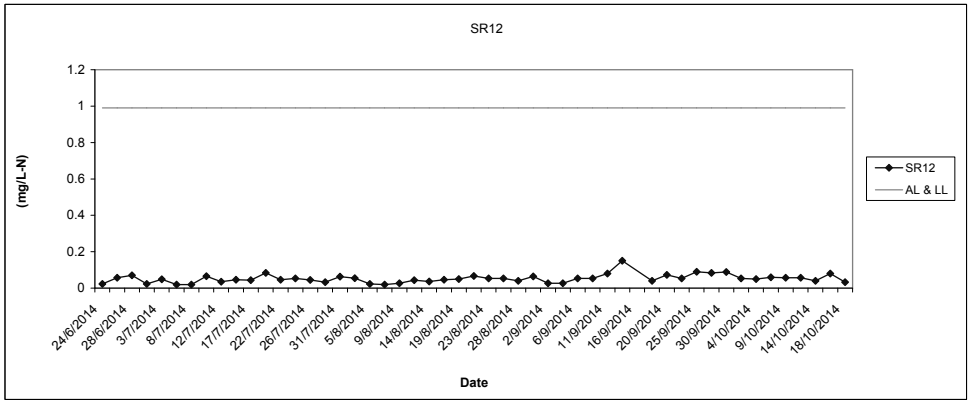




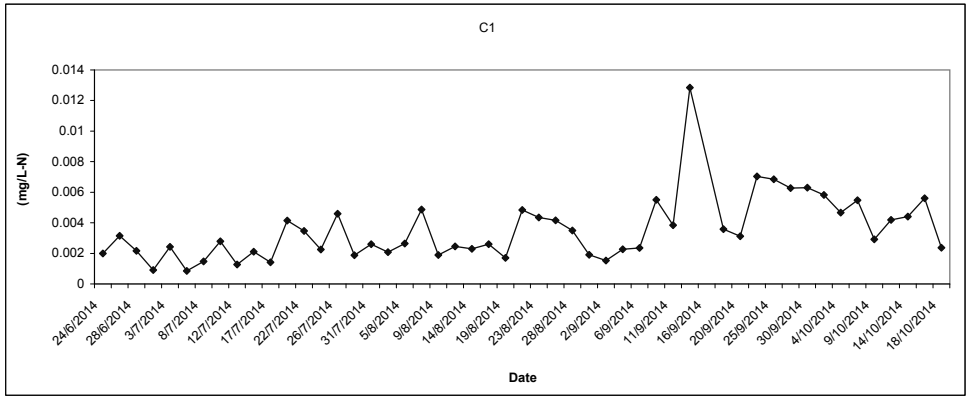
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

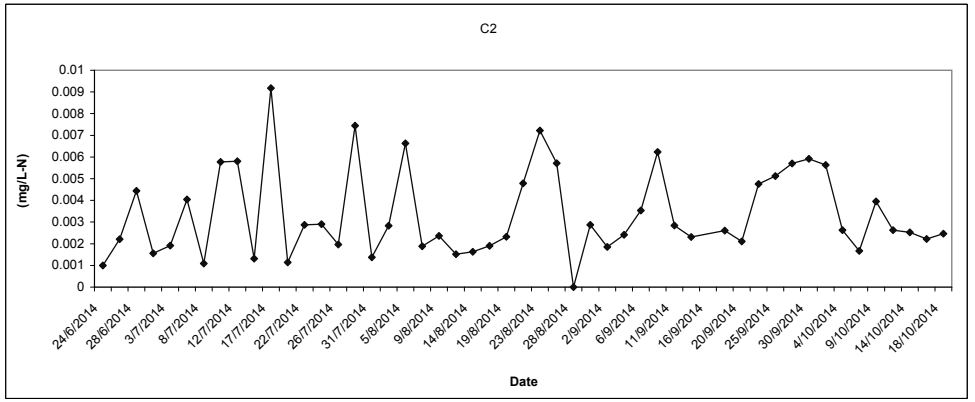
In-situ Ammonia (Depth average) at Mid-Flood Tide

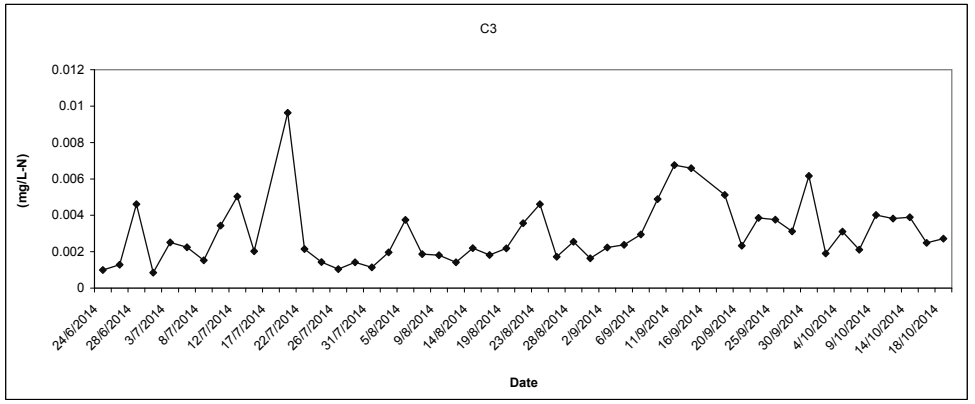




In-situ UIA (Depth average) at Mid-Flood Tide

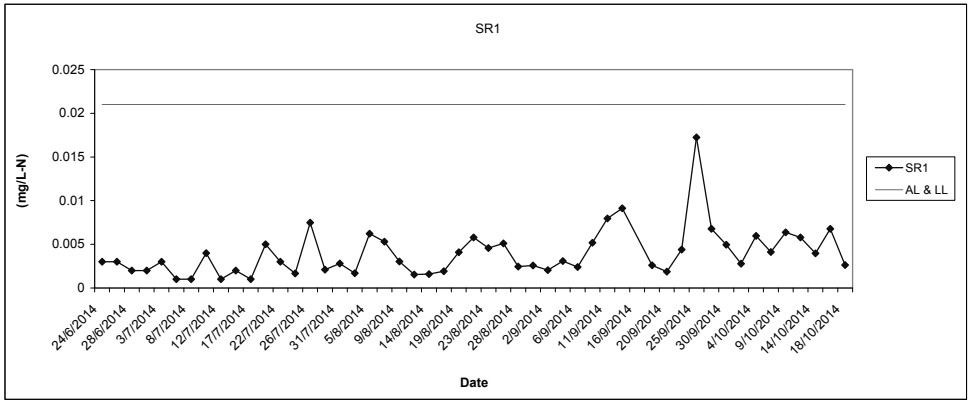


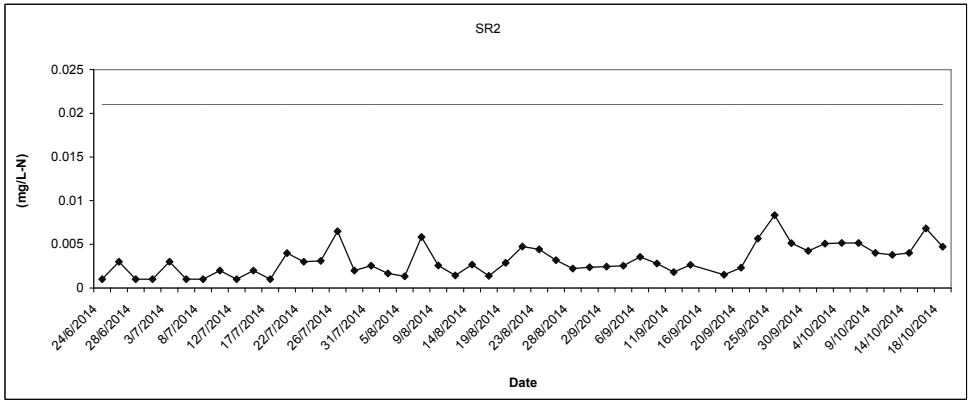


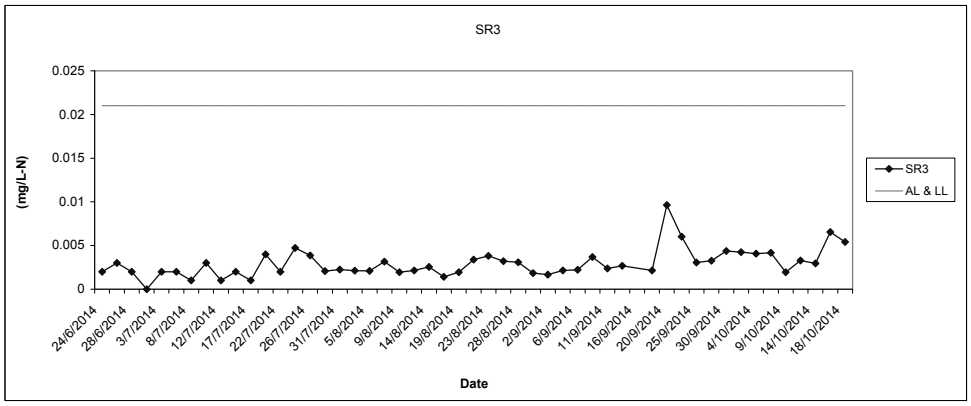


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

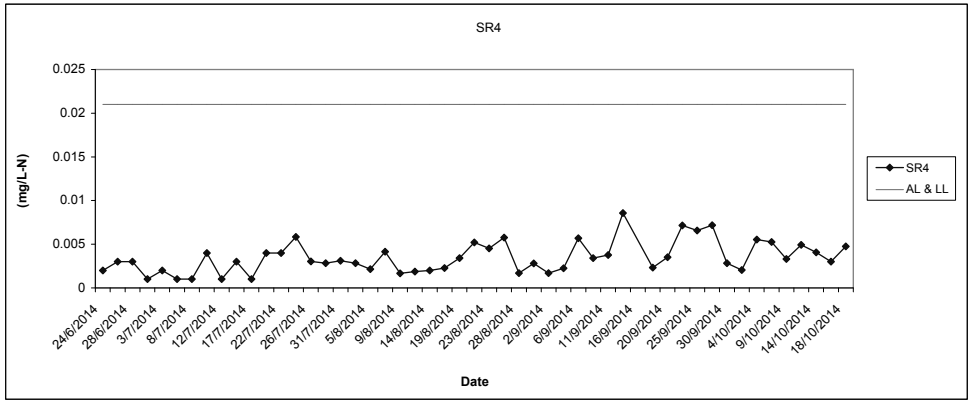
In-situ UIA (Depth average) at Mid-Flood Tide

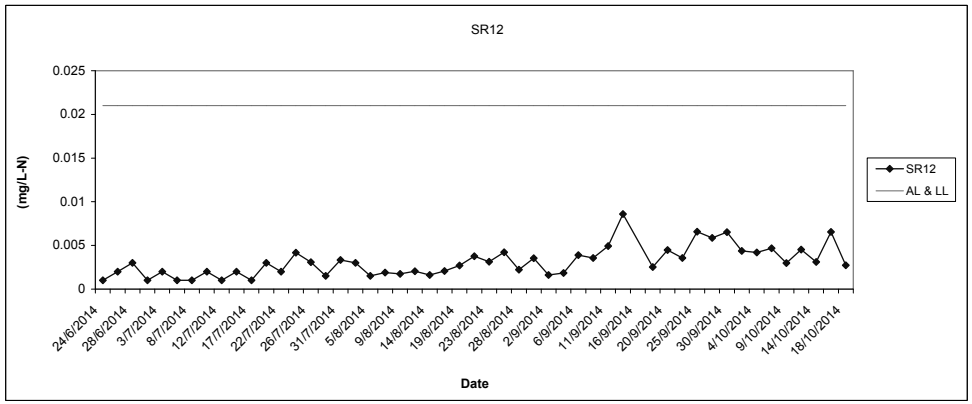






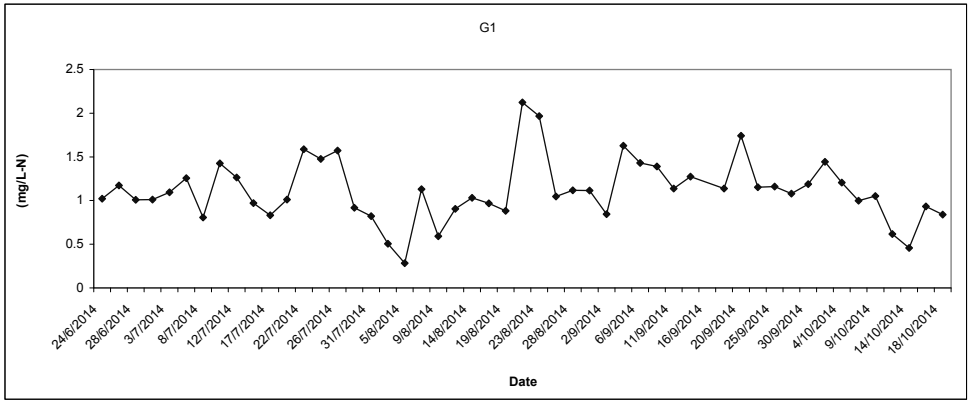
In-situ UIA (Depth average) at Mid-Flood Tide

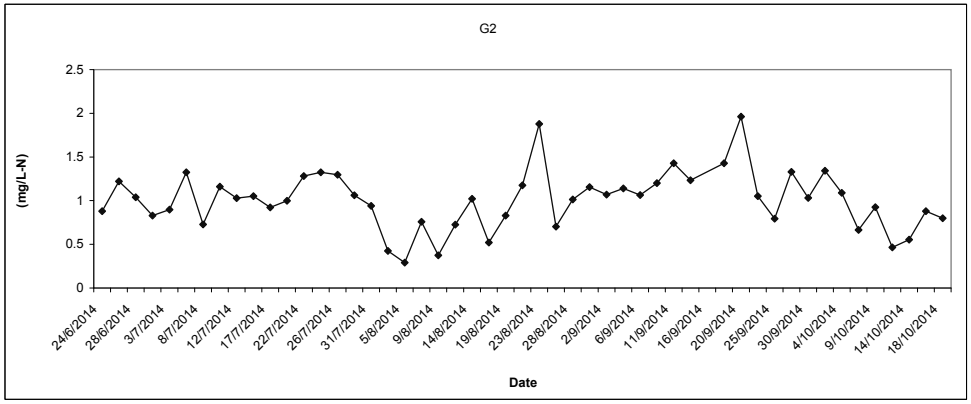


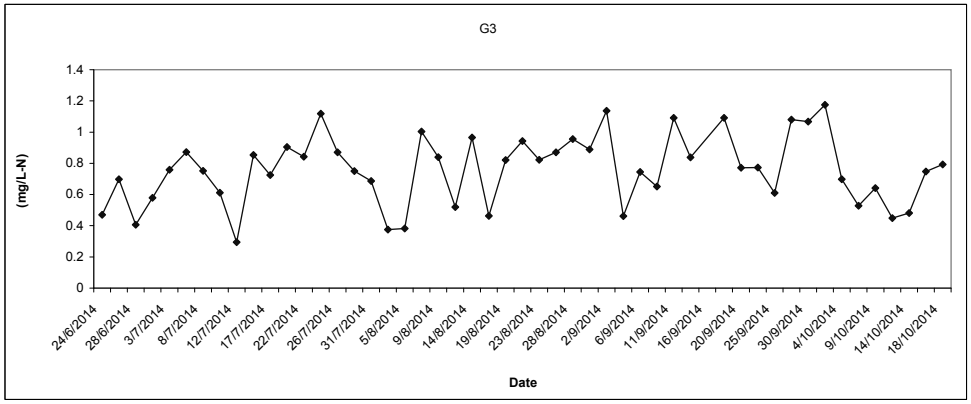


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

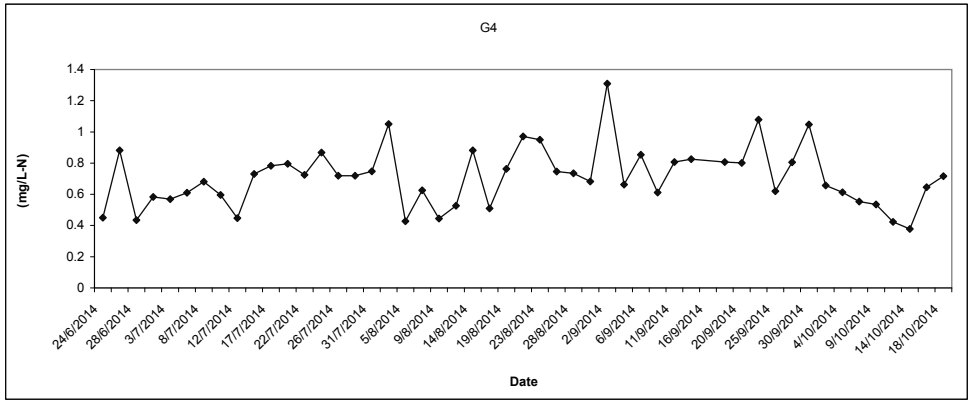
In-situ TIN (Depth average) at Mid-Flood Tide

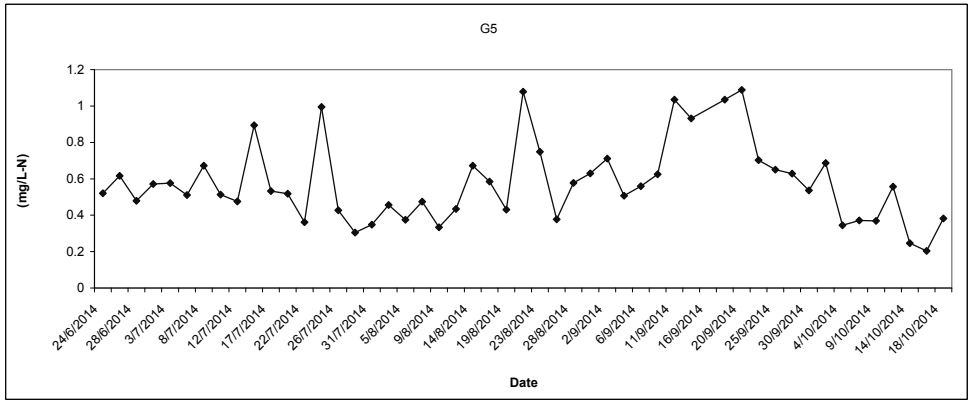


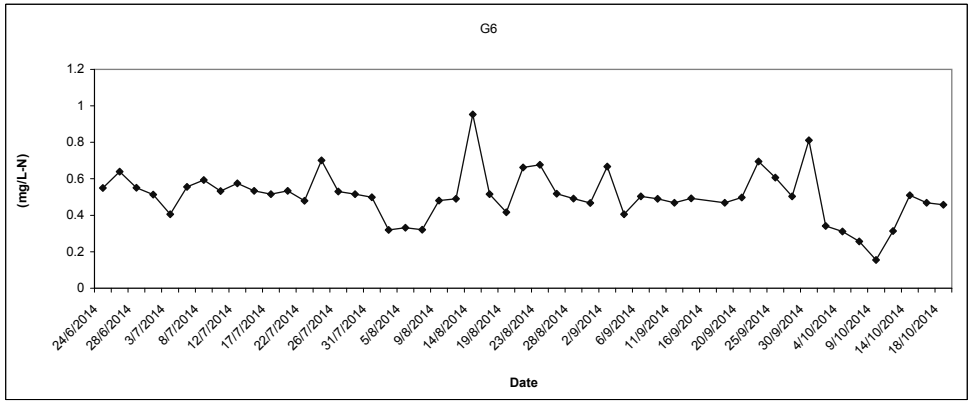




In-situ TIN (Depth average) at Mid-Flood Tide

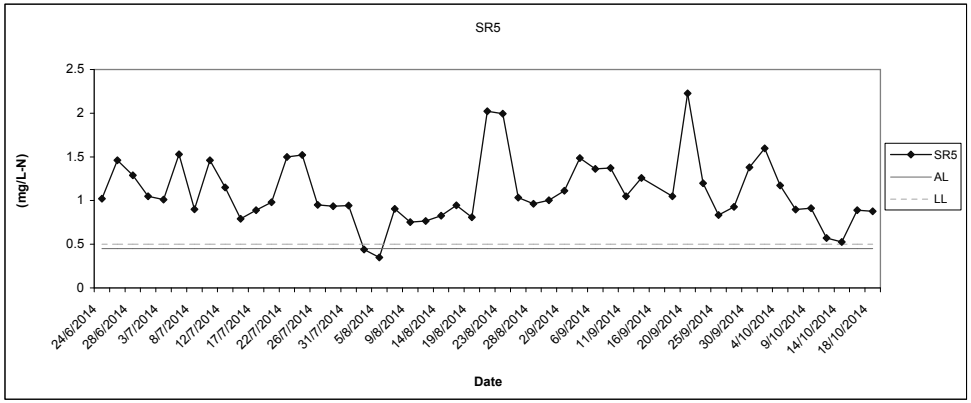


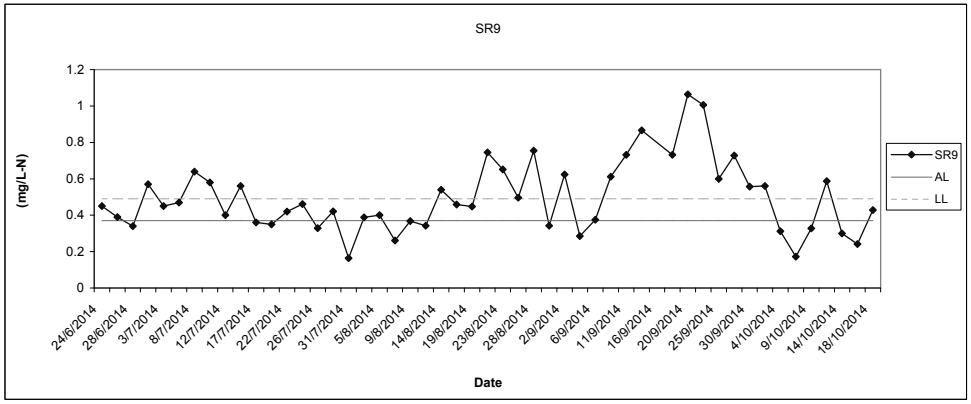


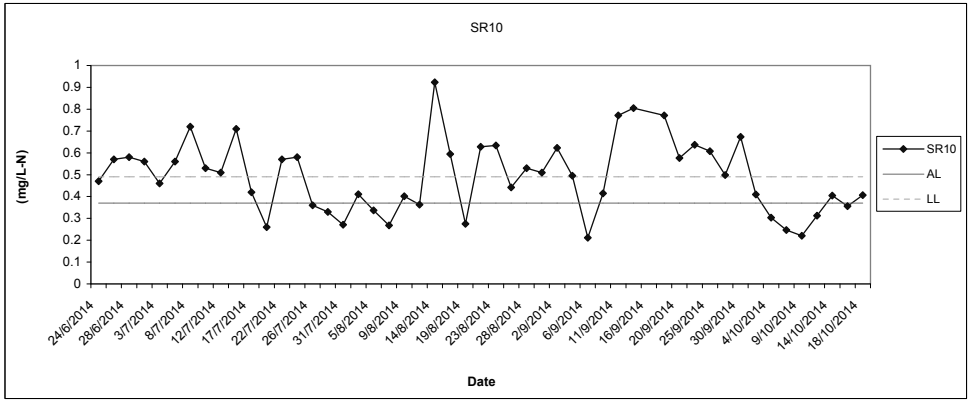


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

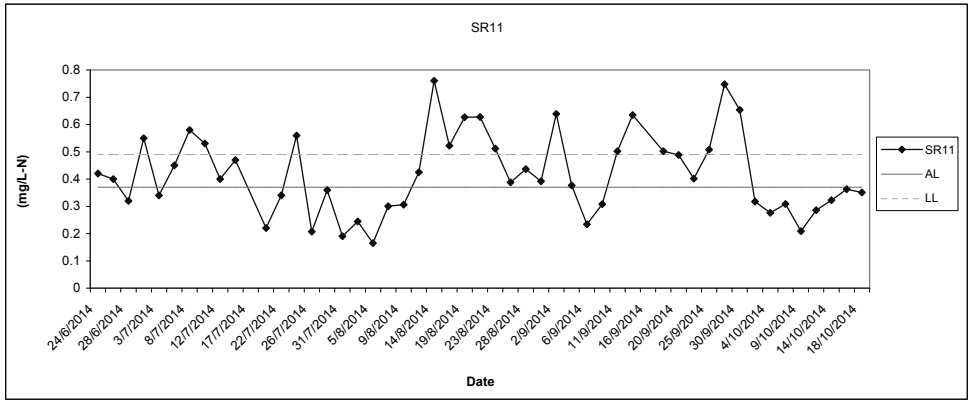
In-situ TIN (Depth average) at Mid-Flood Tide





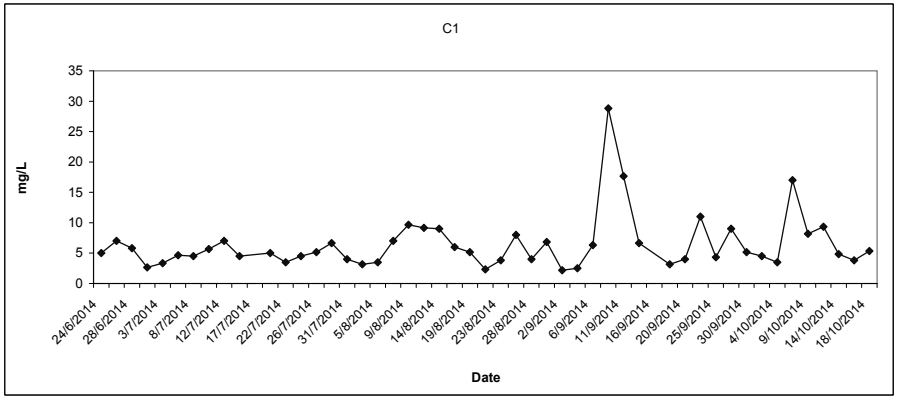


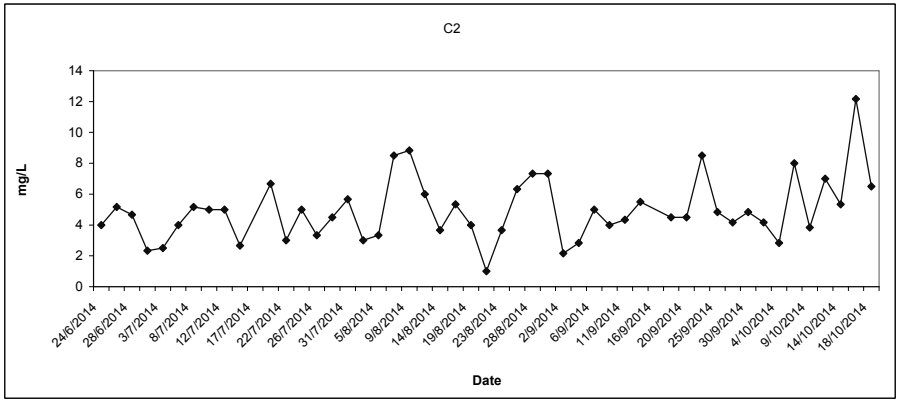
In-situ TIN (Depth average) at Mid-Flood Tide

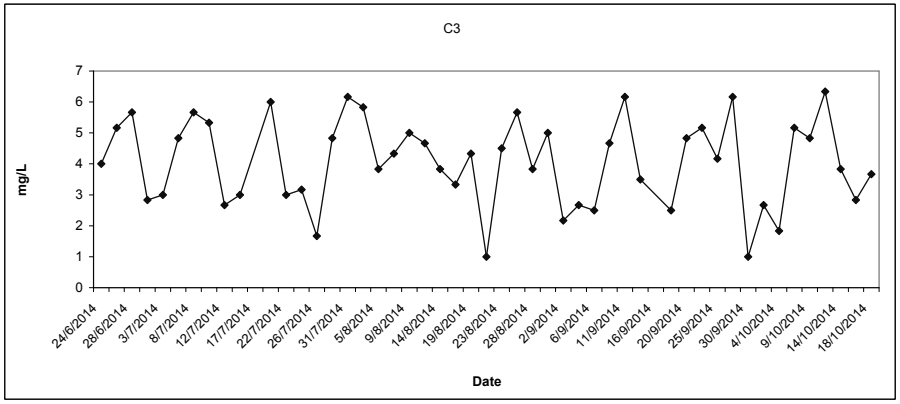


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

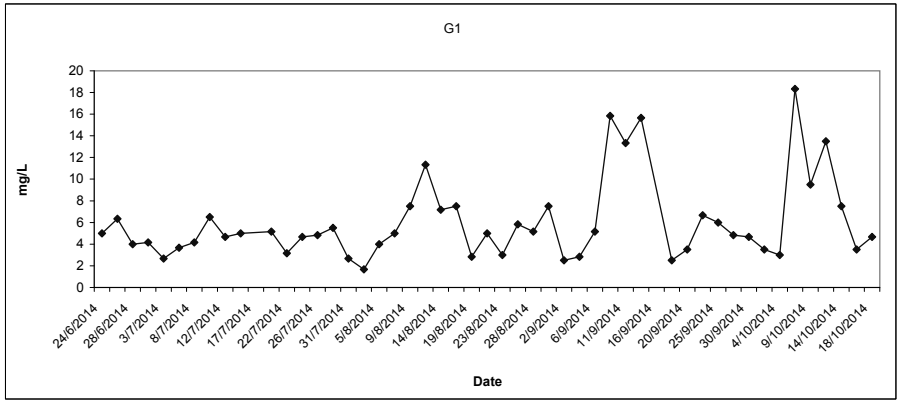
Total Suspended Solids (Depth average) at Mid-Ebb Tide

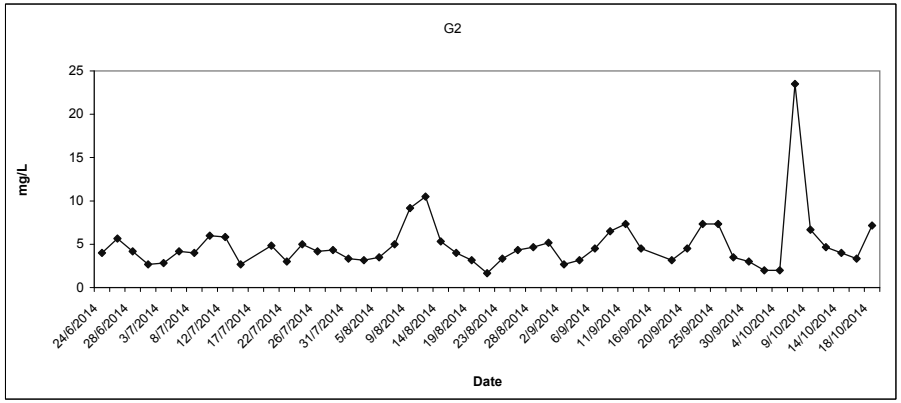


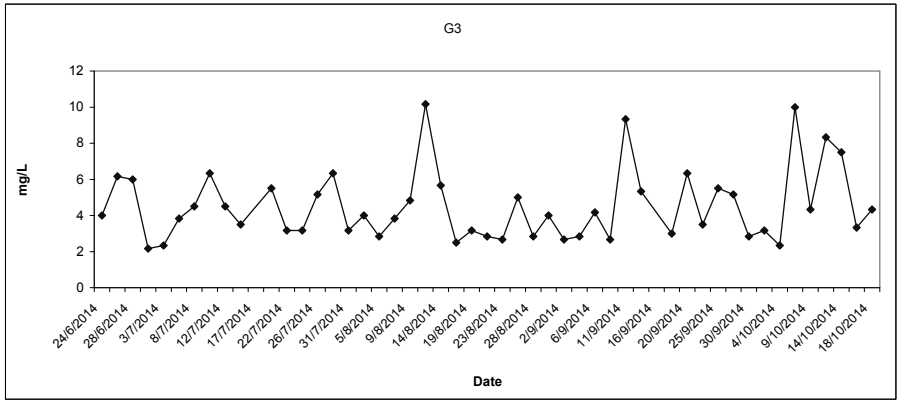




Total Suspended Solids (Depth average) at Mid-Ebb Tide

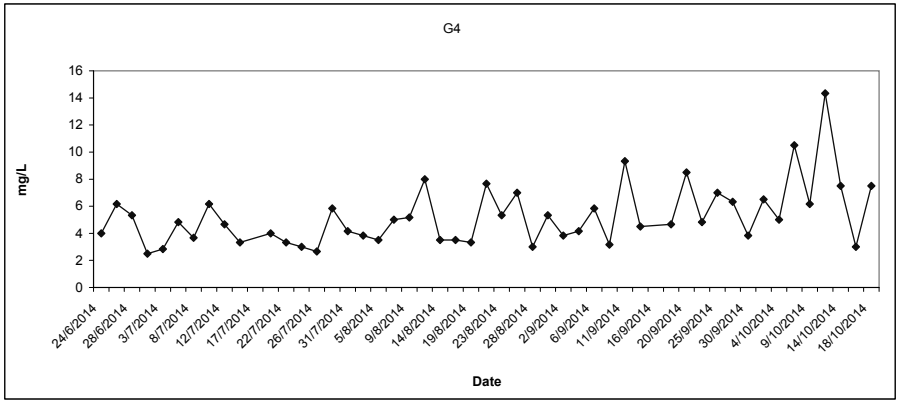


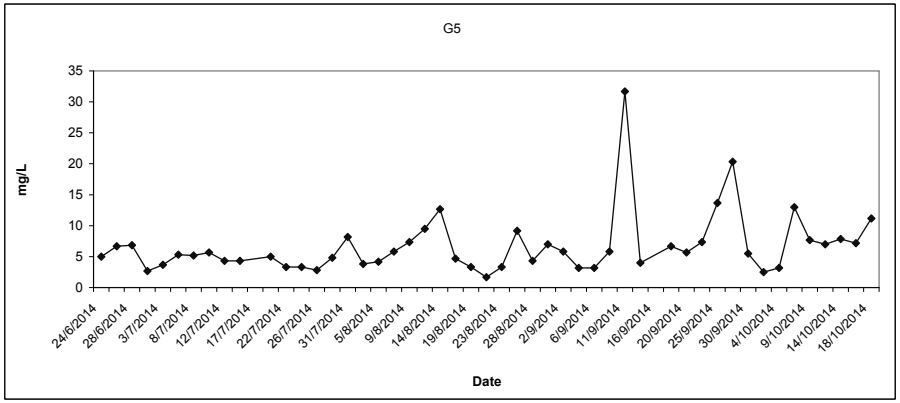


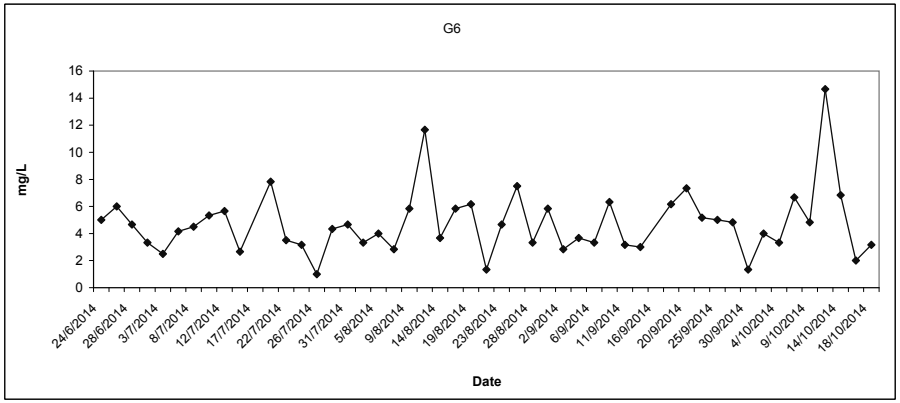


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

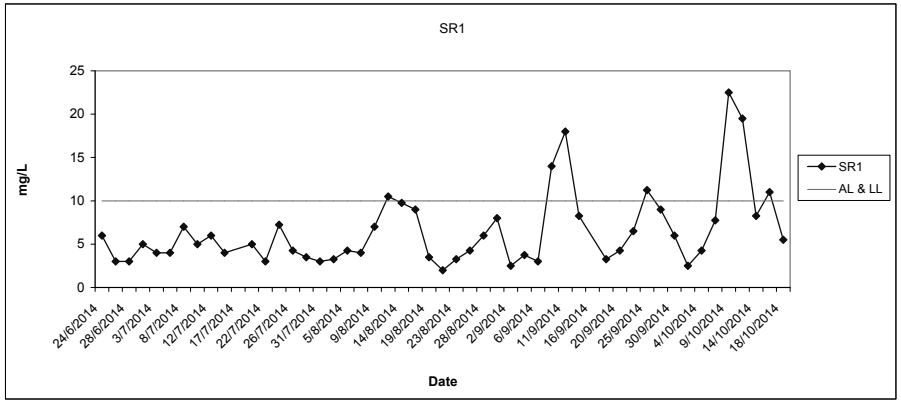
Total Suspended Solids (Depth average) at Mid-Ebb Tide

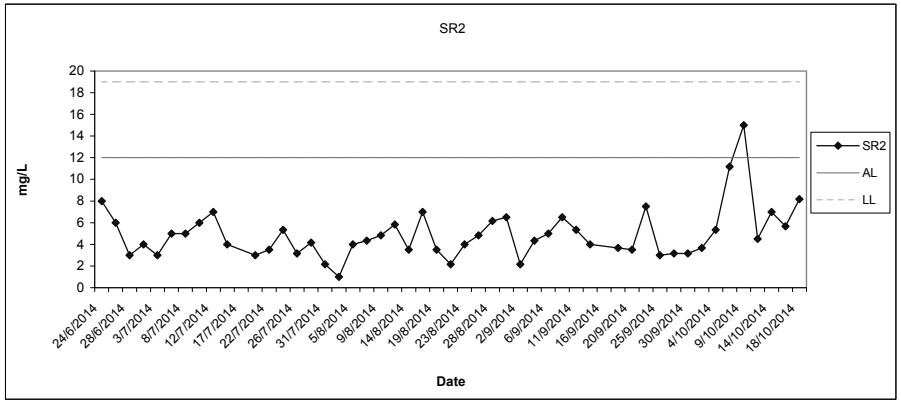


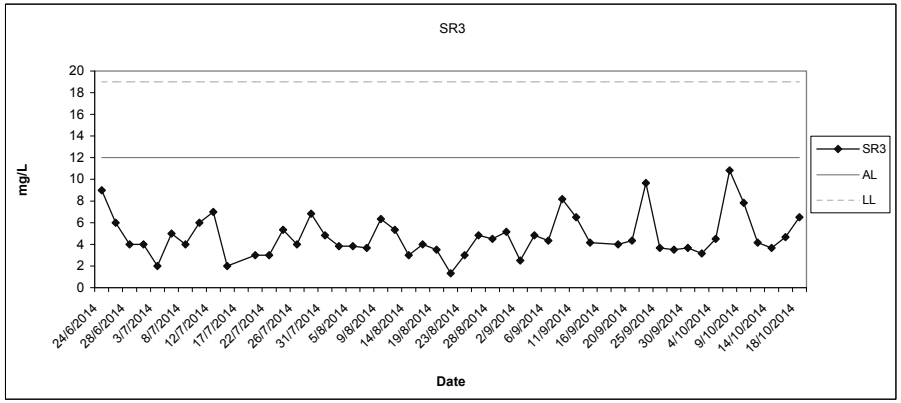




Total Suspended Solids (Depth average) at Mid-Ebb Tide

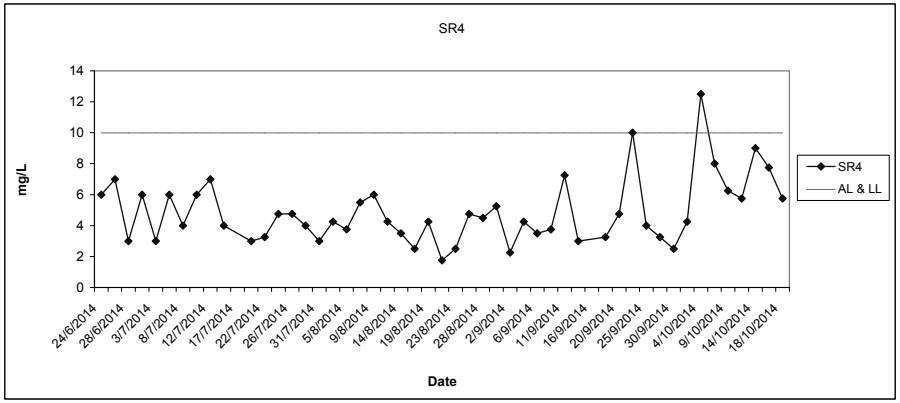


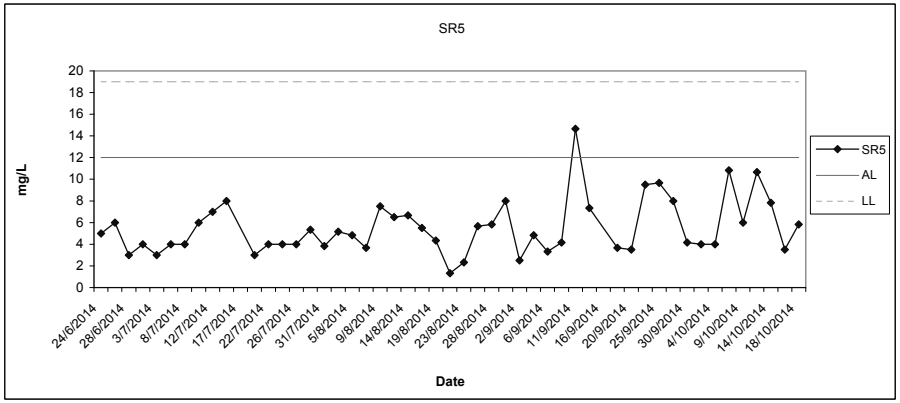


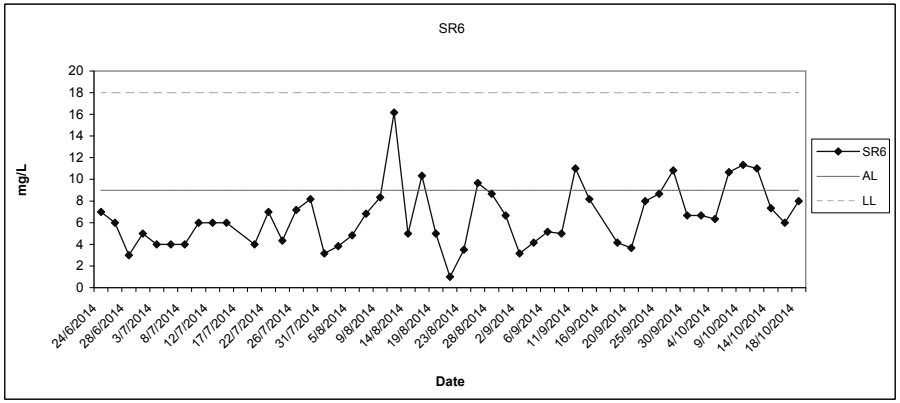


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

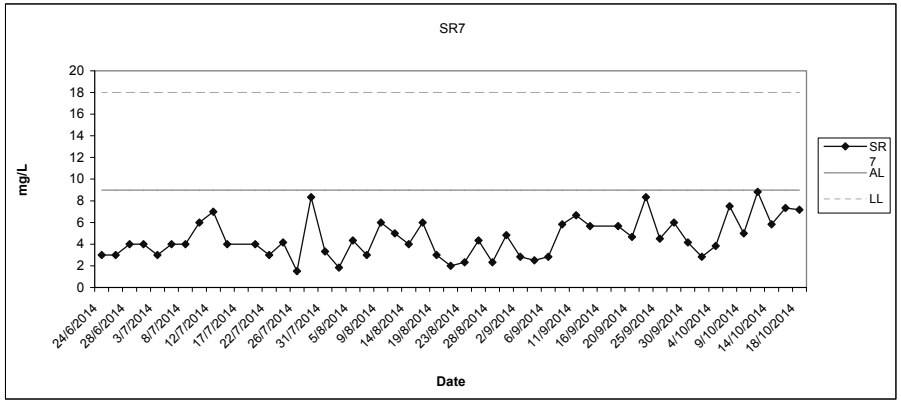
Total Suspended Solids (Depth average) at Mid-Ebb Tide

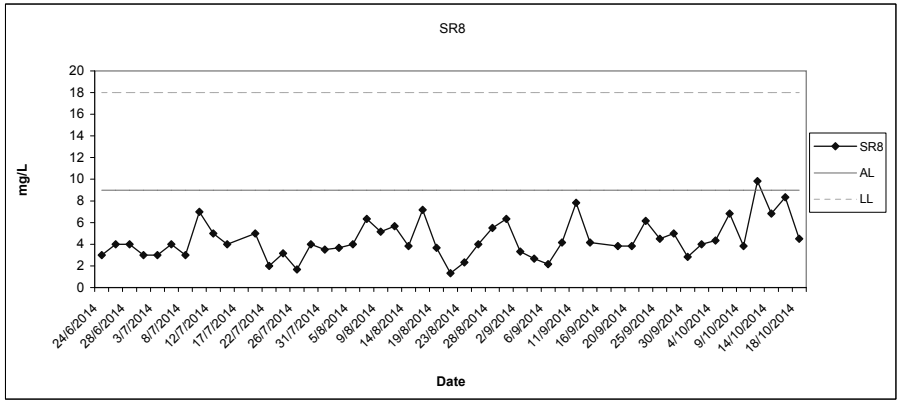


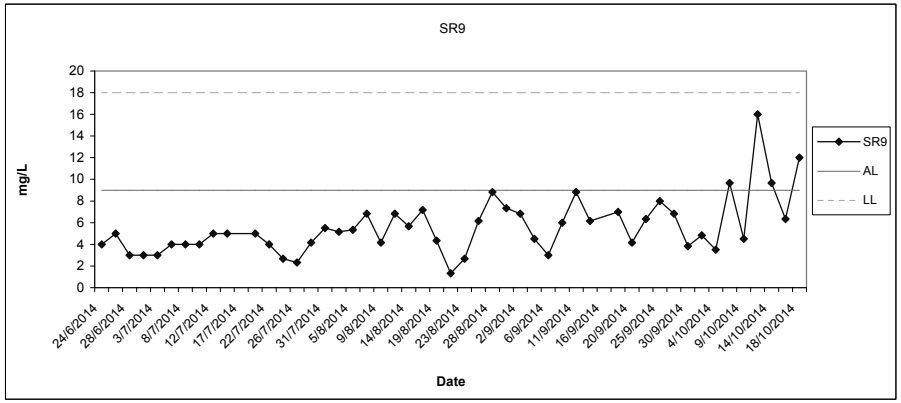




Total Suspended Solids (Depth average) at Mid-Ebb Tide

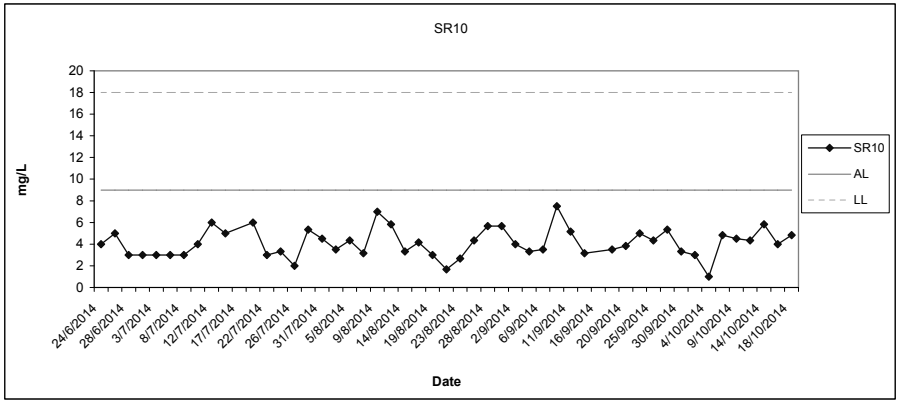


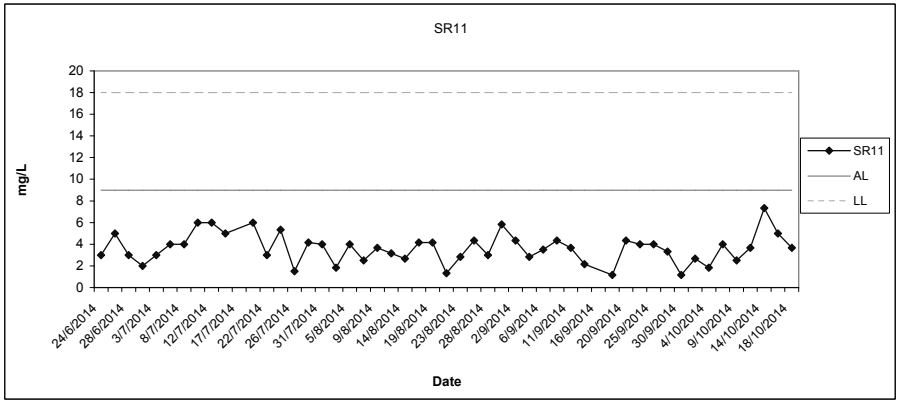


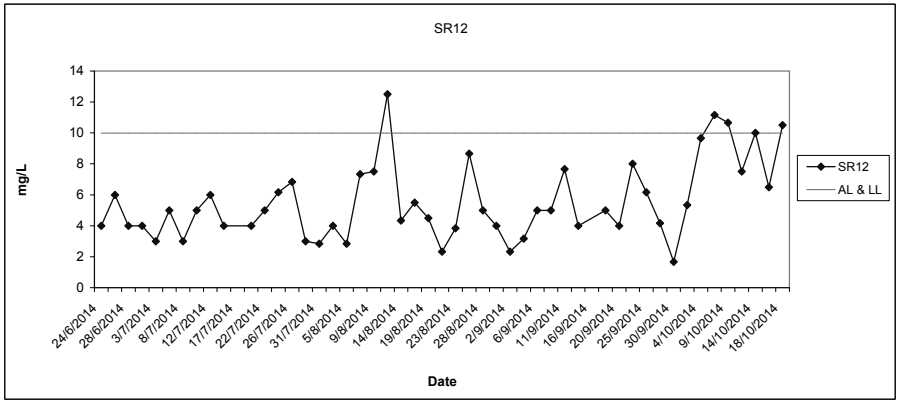


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

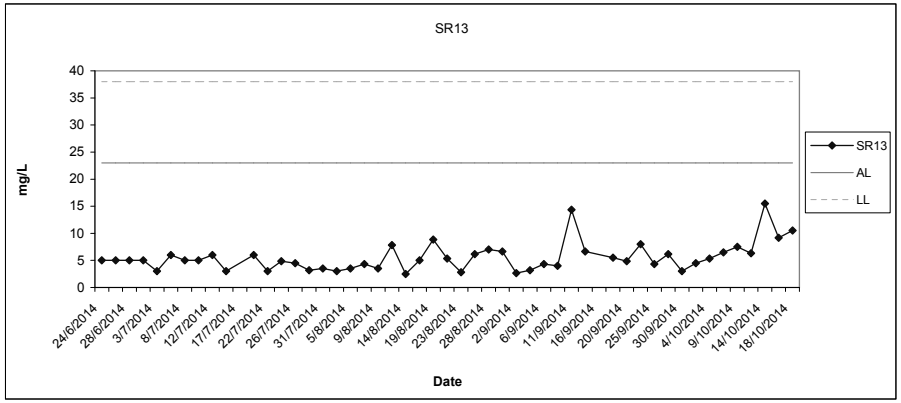
Total Suspended Solids (Depth average) at Mid-Ebb Tide





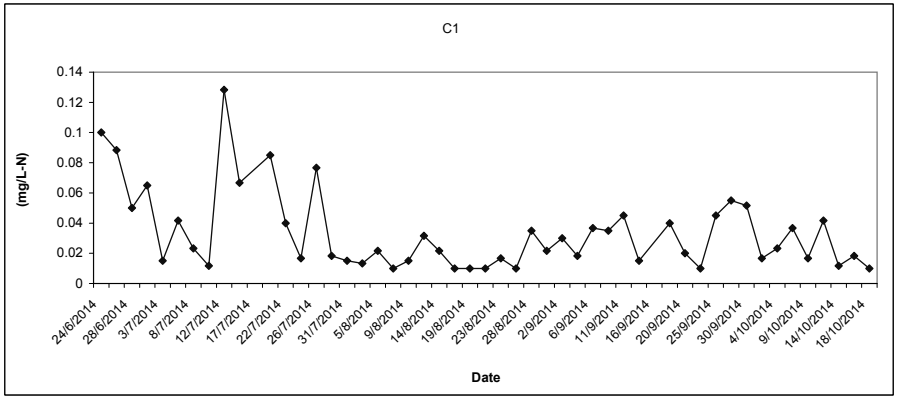


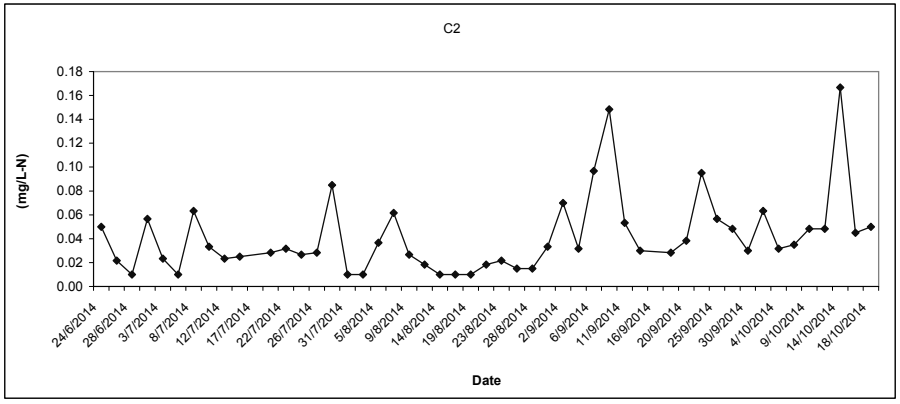
Total Suspended Solids (Depth average) at Mid-Ebb Tide

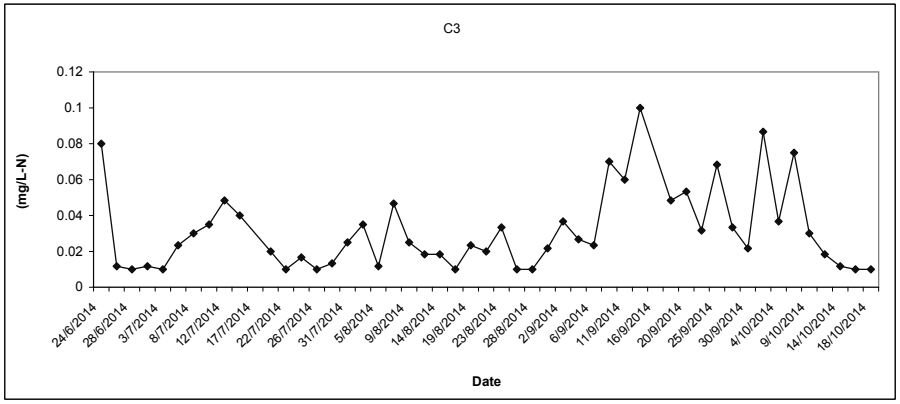


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

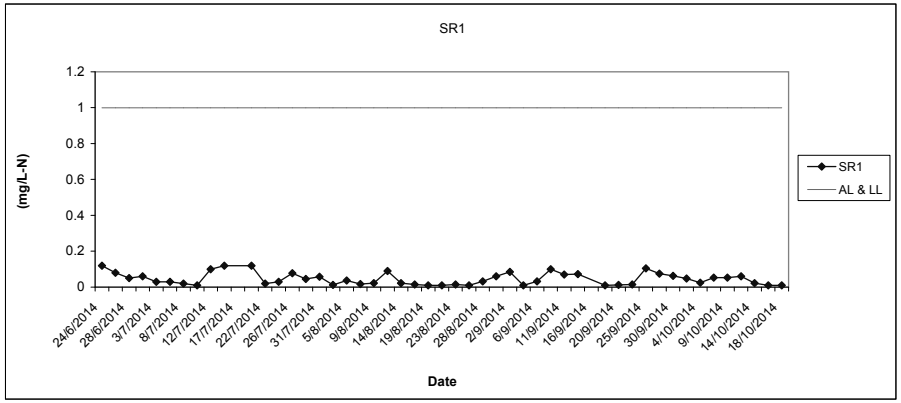
Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

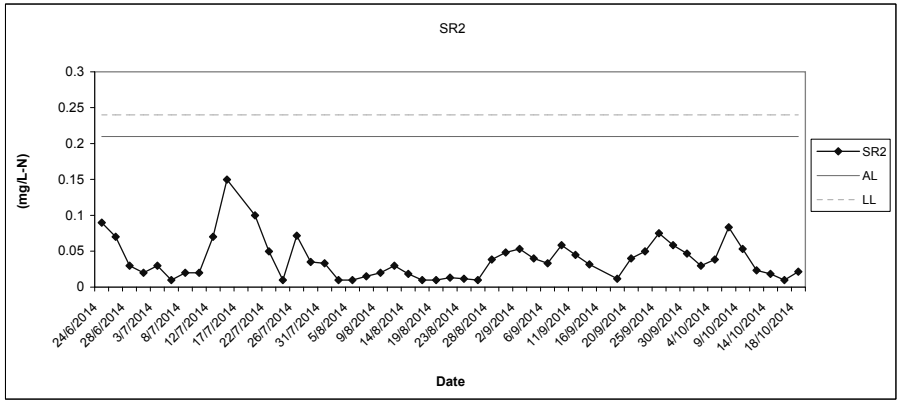


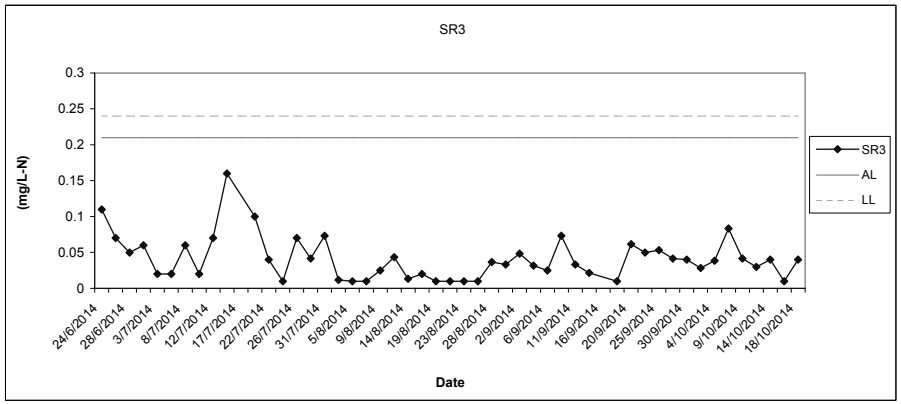




Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

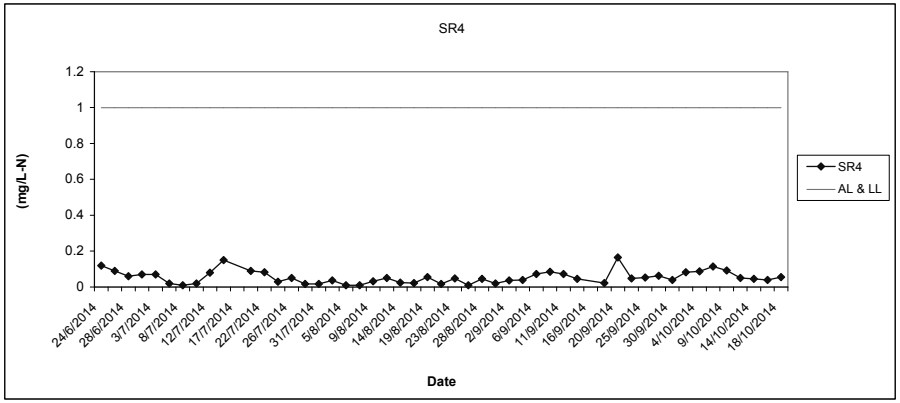


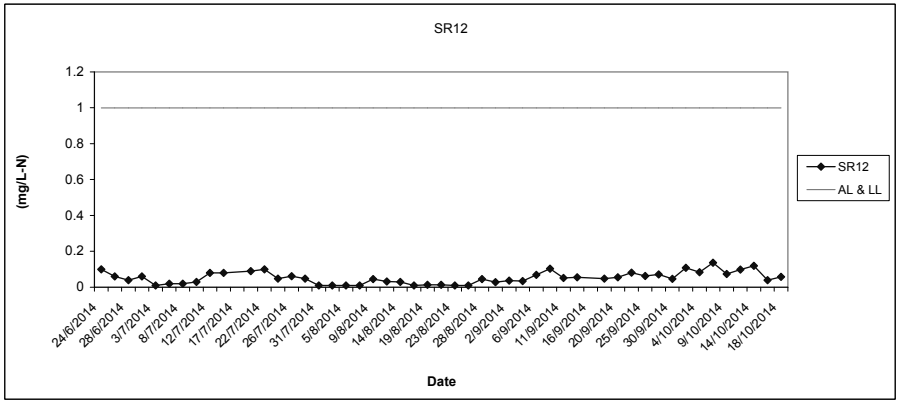




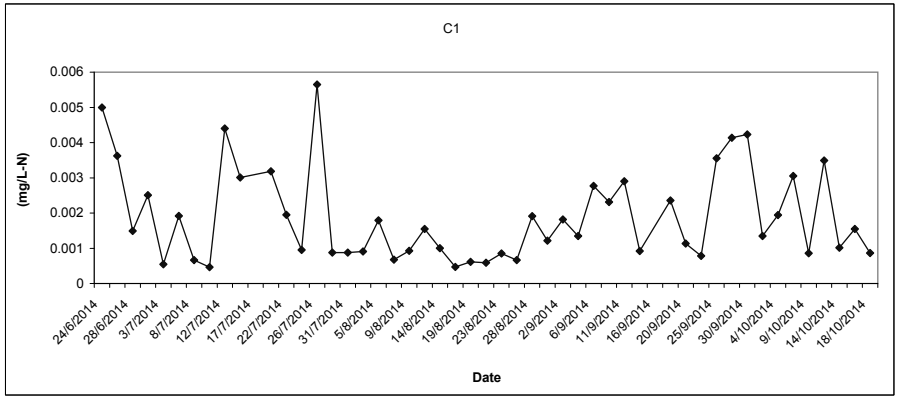
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

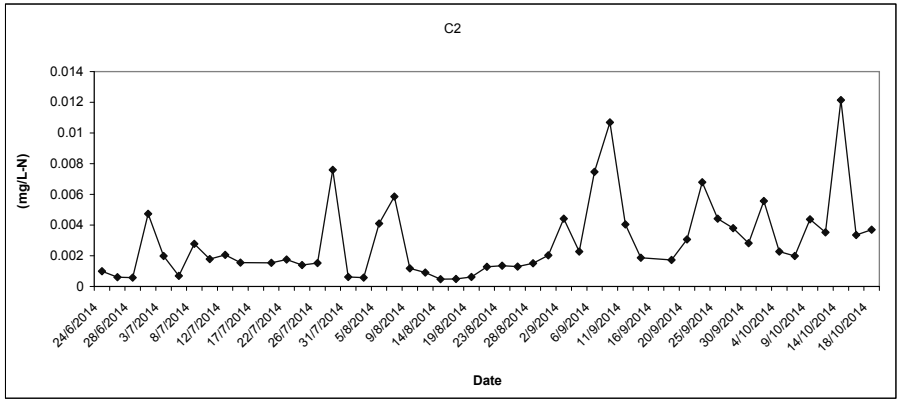
Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

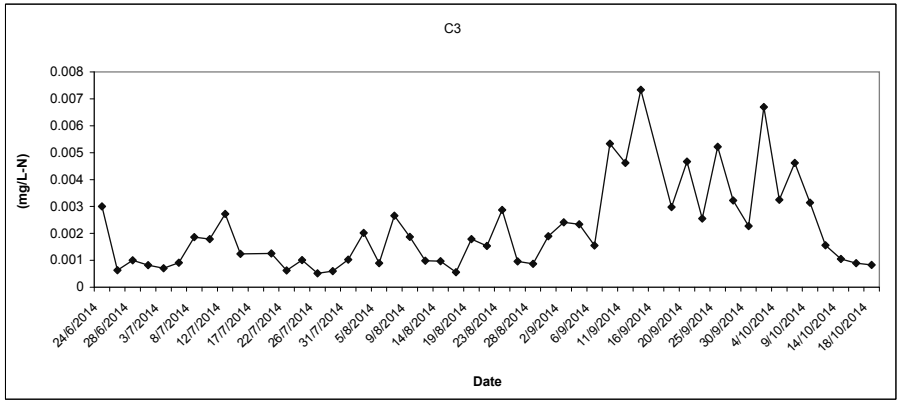




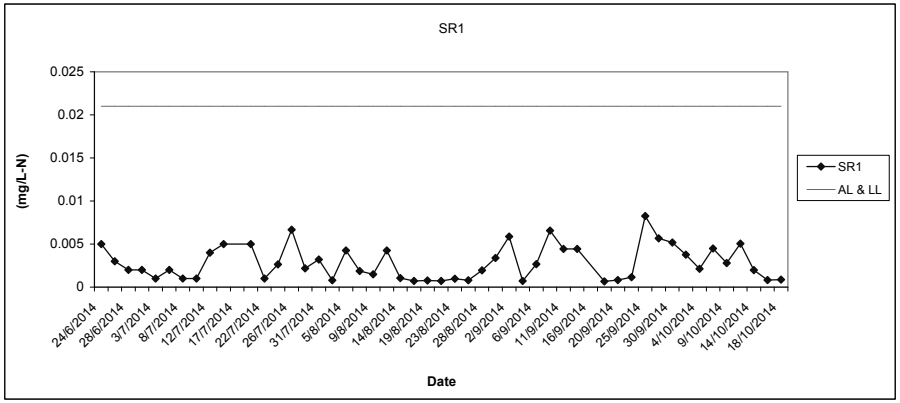
Laboratory Analysis UIA (Depth average) at Mid-Ebb Tide

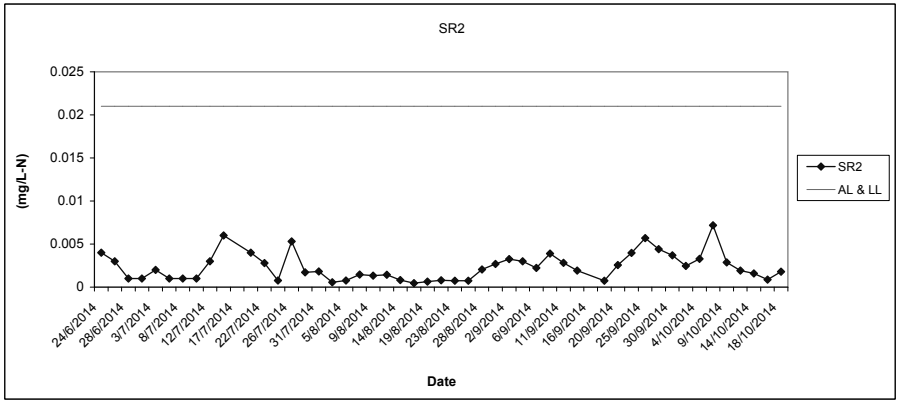


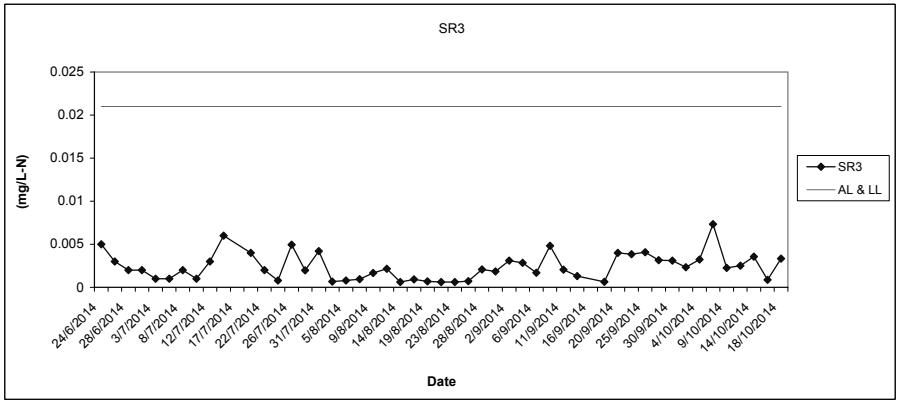




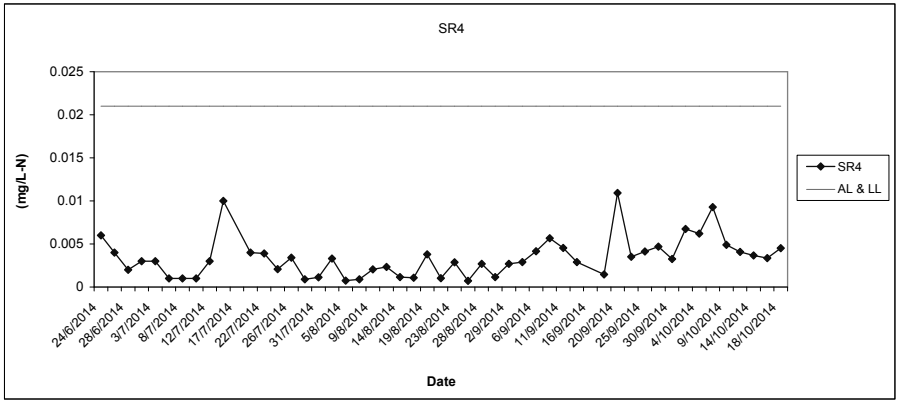
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

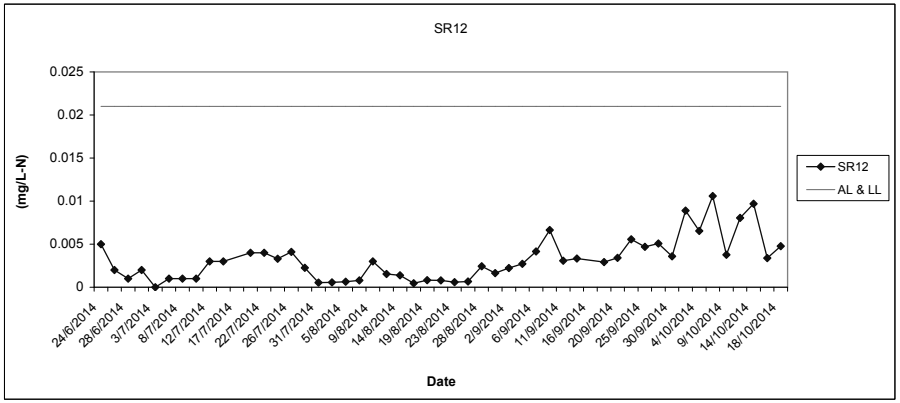






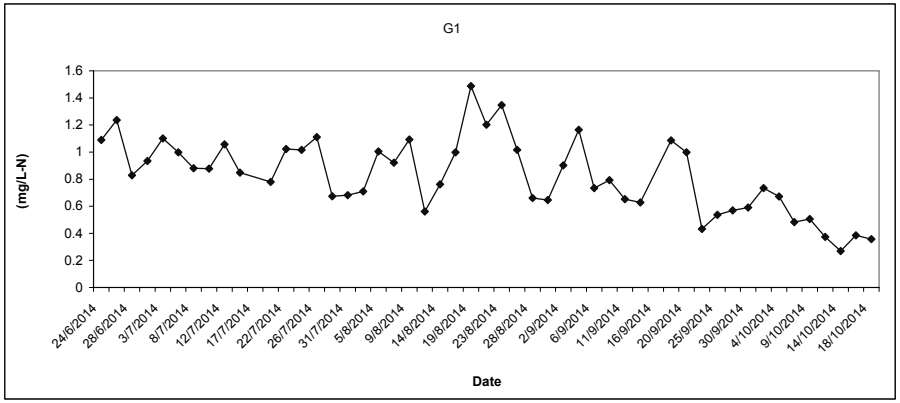
Laboratory Analysis UIA (Depth average) at Mid-Ebb Tide

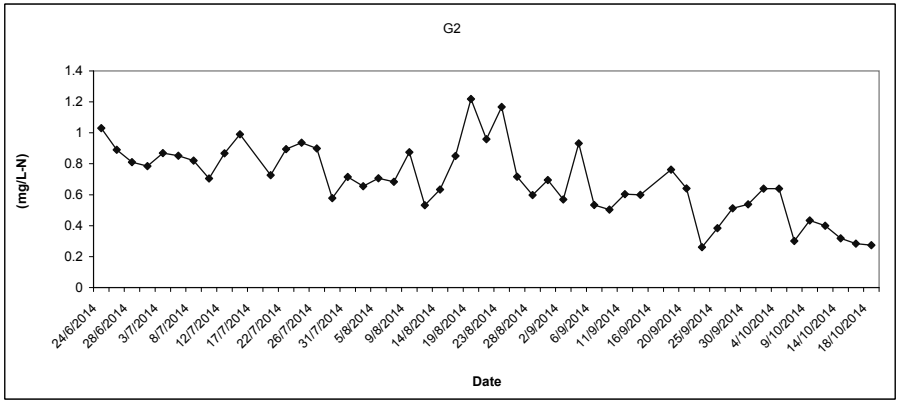


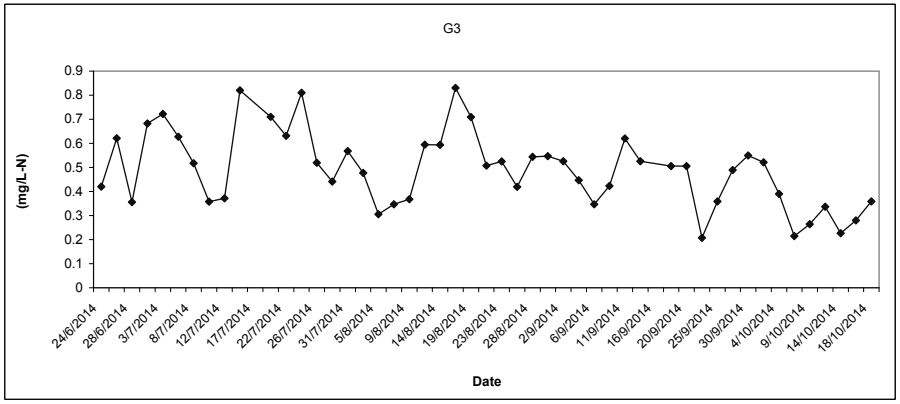


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

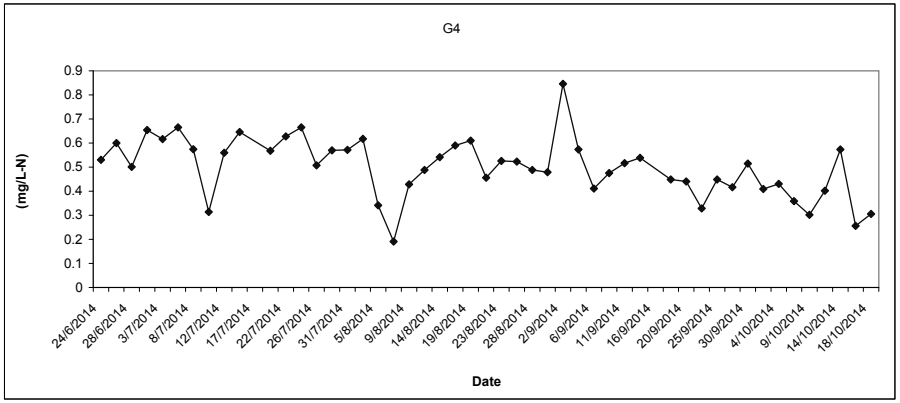
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

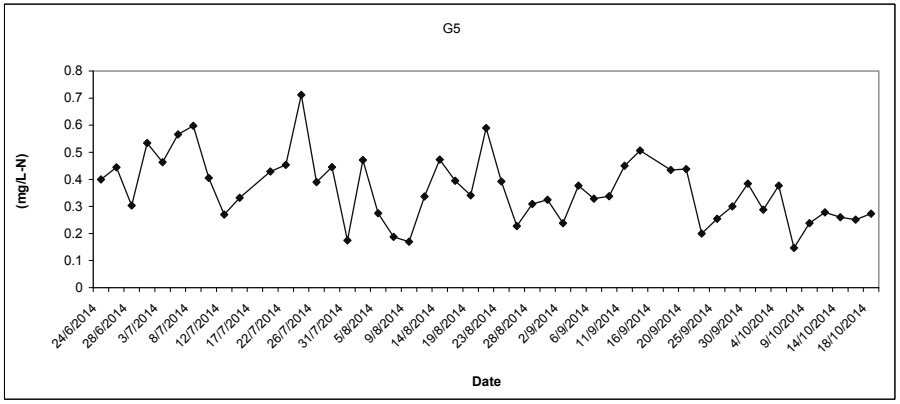


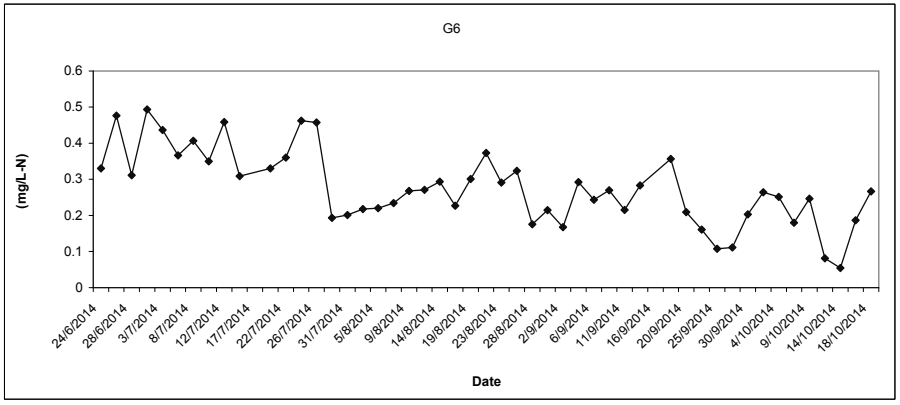




Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

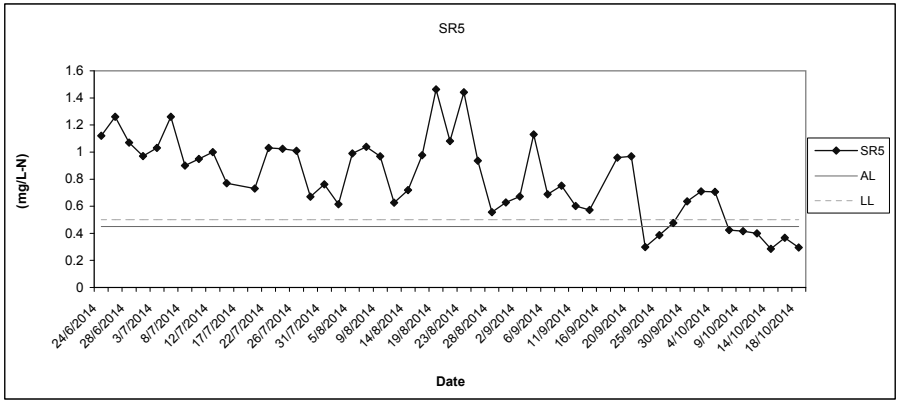


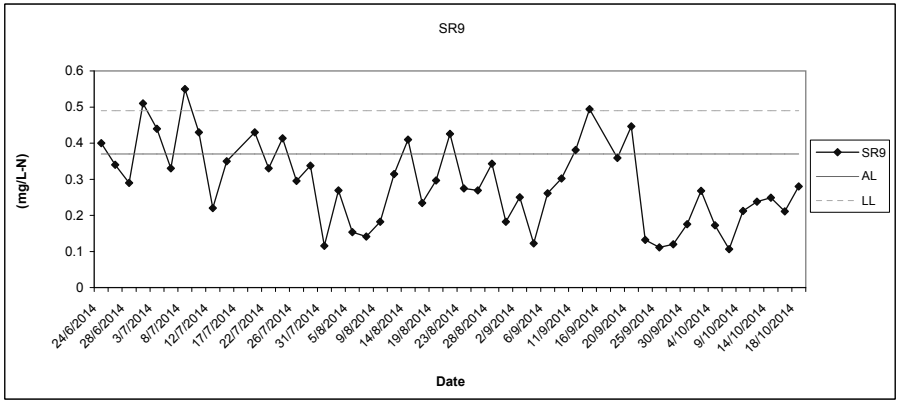


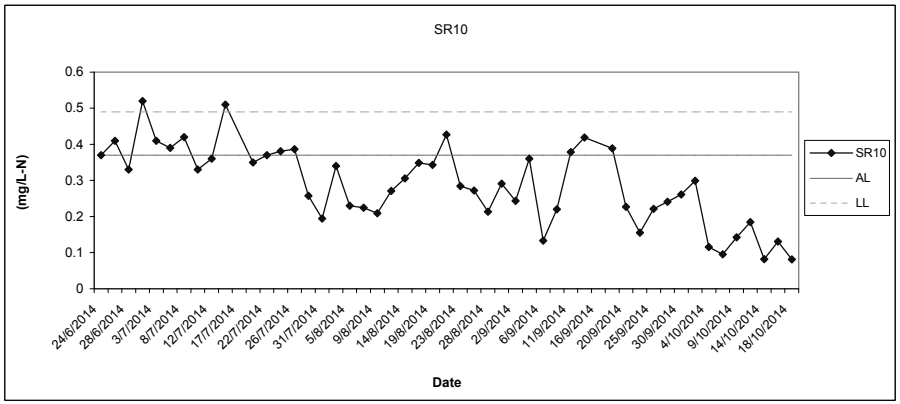


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

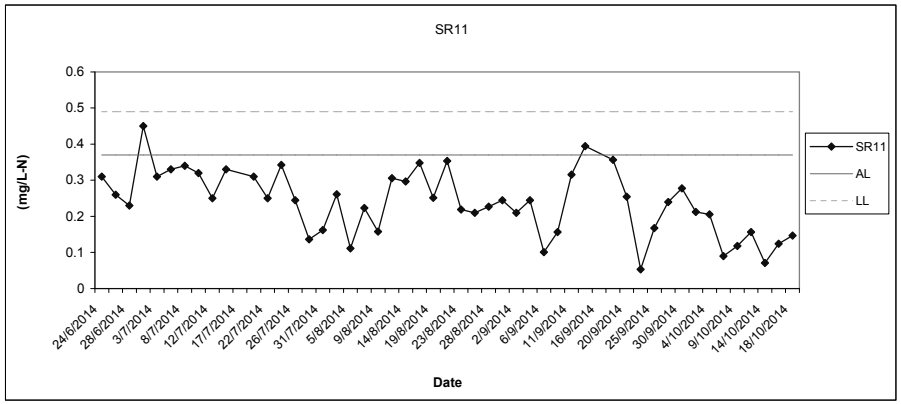
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide





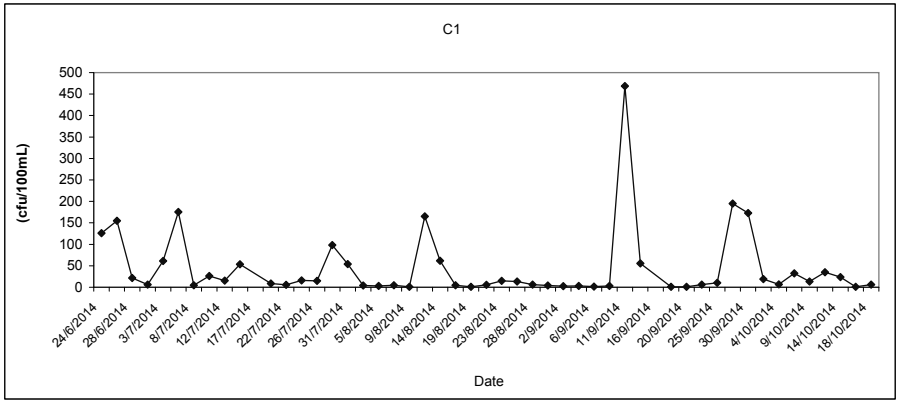


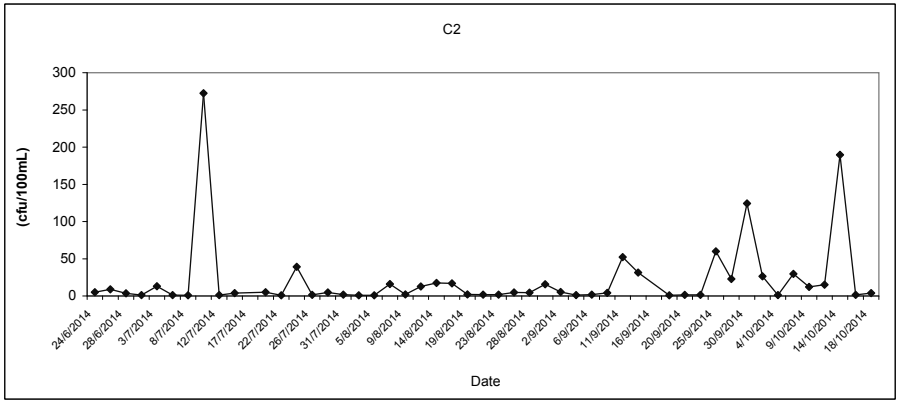
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

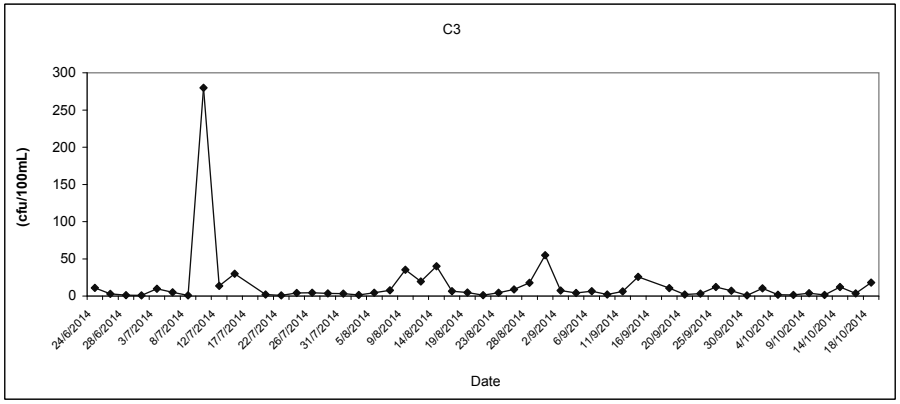


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

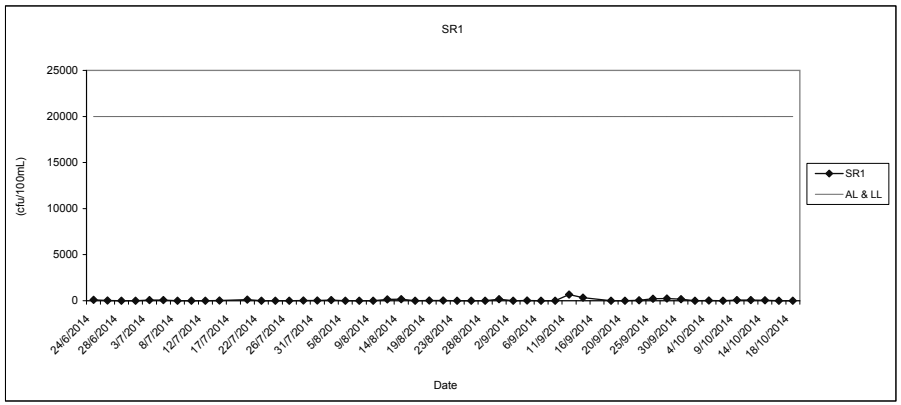
E.coli (Depth average) at Mid-Ebb Tide

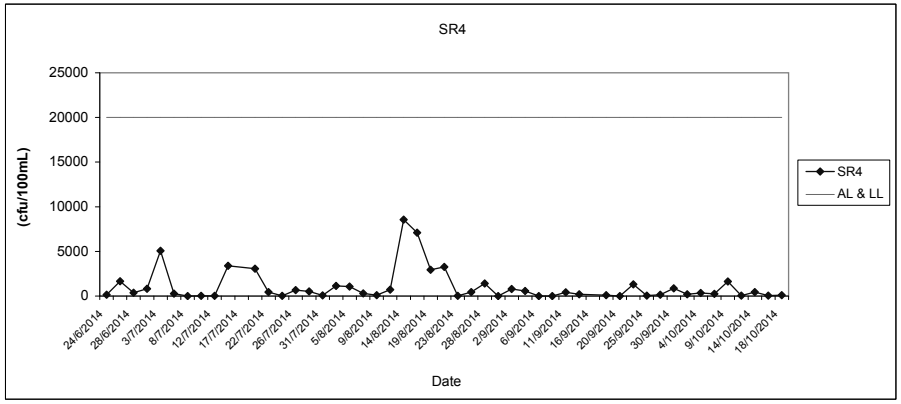


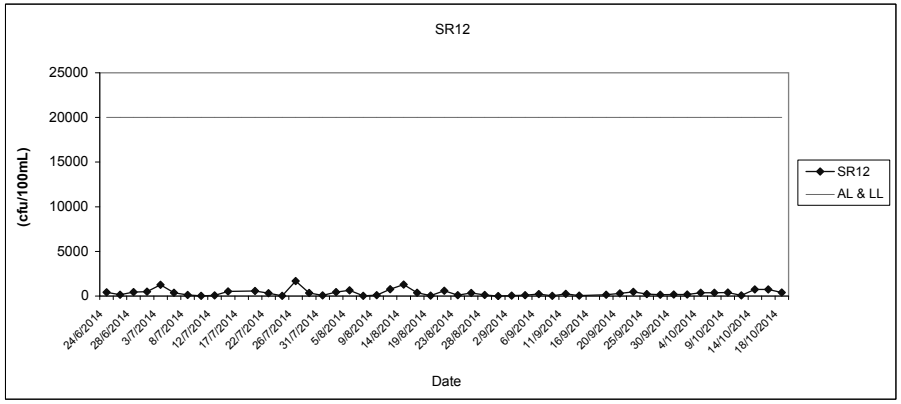




E.coli (Depth average) at Mid-Ebb Tide

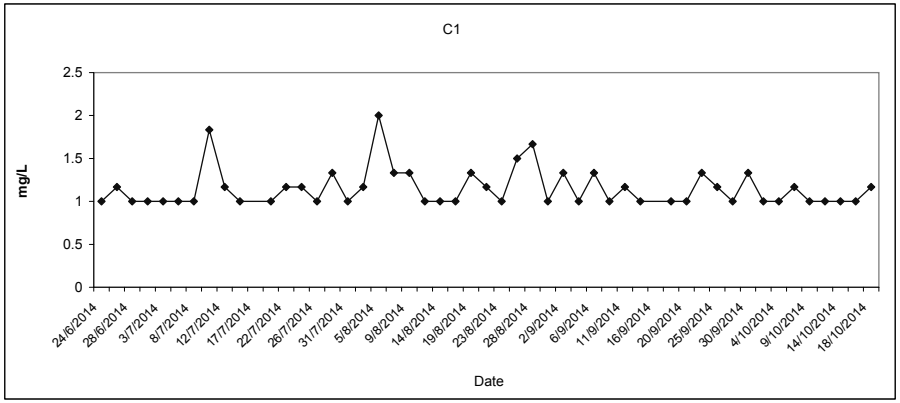


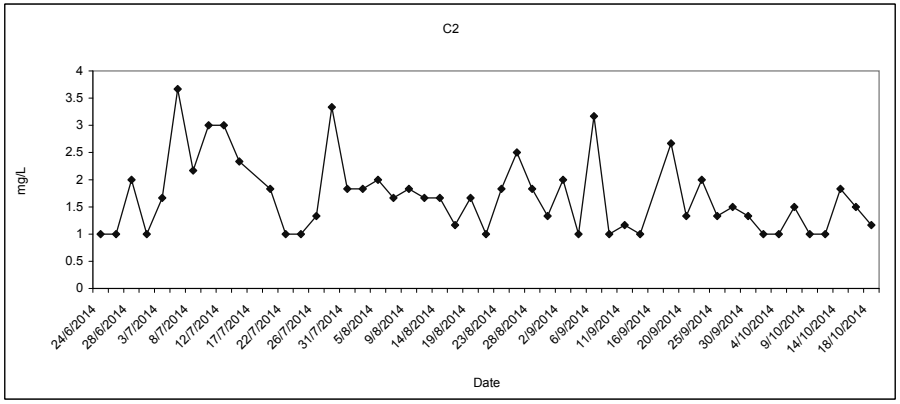


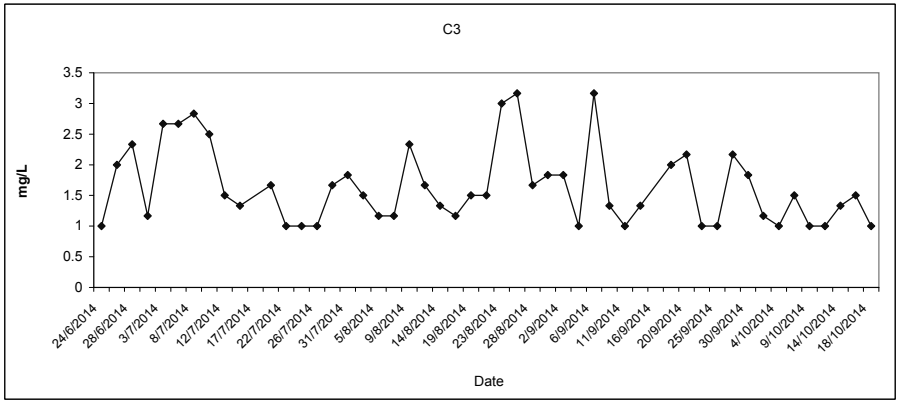


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

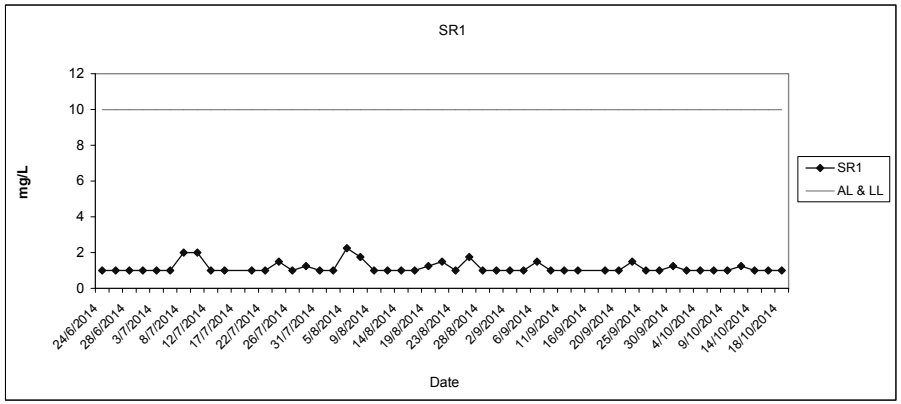
BOD_5 (Depth average) at Mid-Ebb Tide

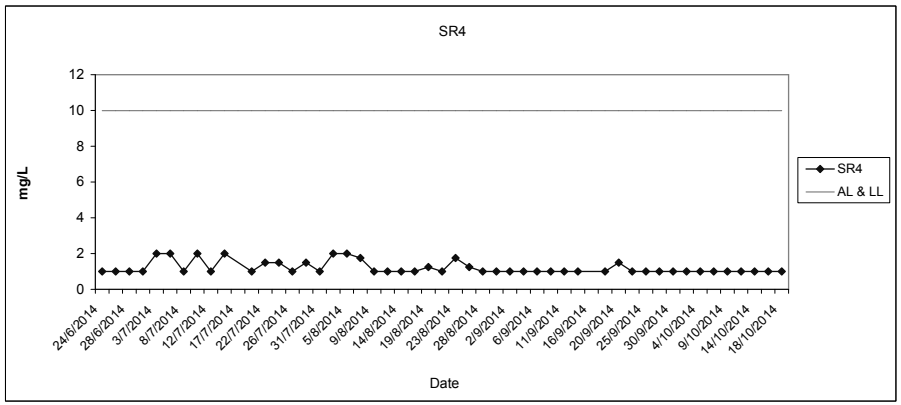


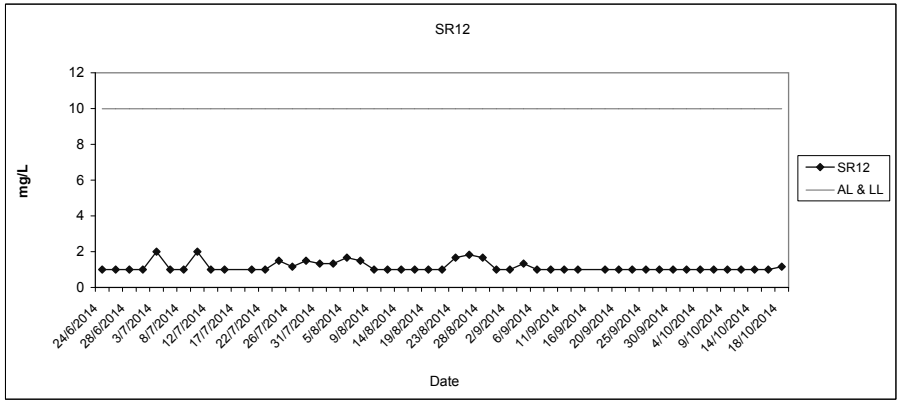




BOD_5 (Depth average) at Mid-Ebb Tide

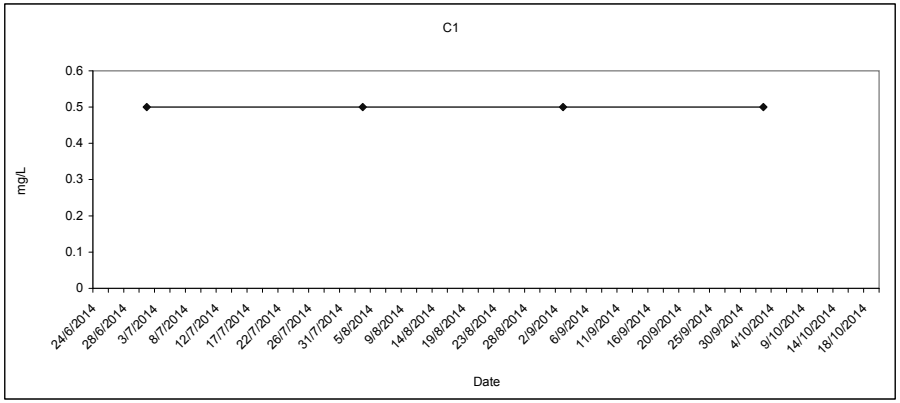


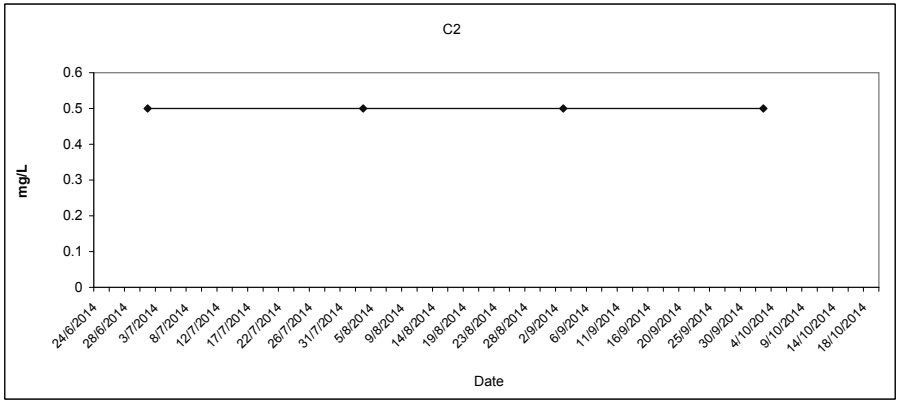


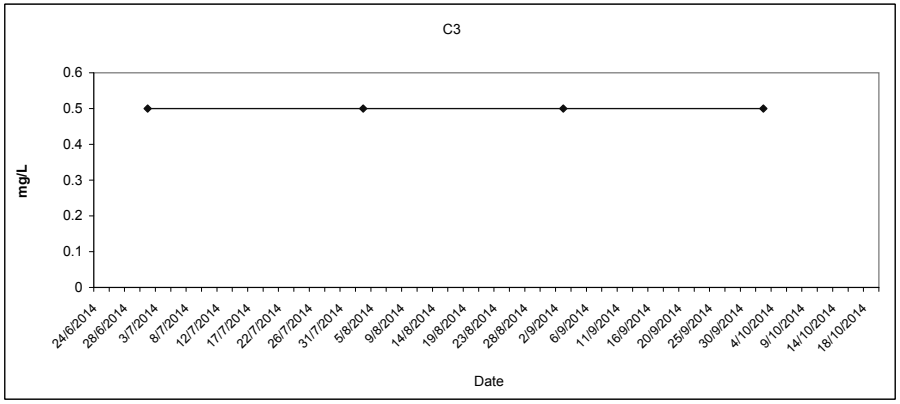


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

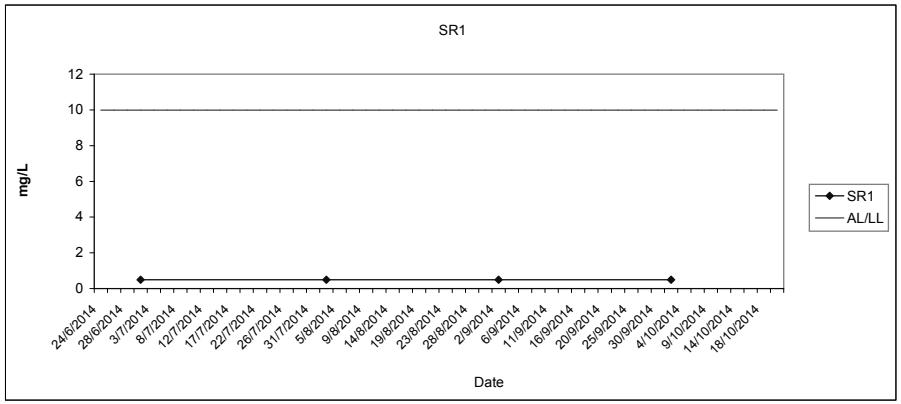
Synthetic Detergent (Depth average) at Mid-Ebb Tide

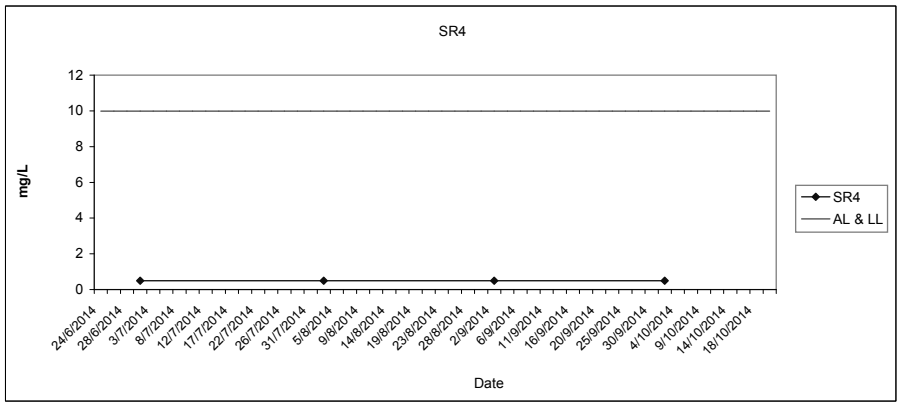


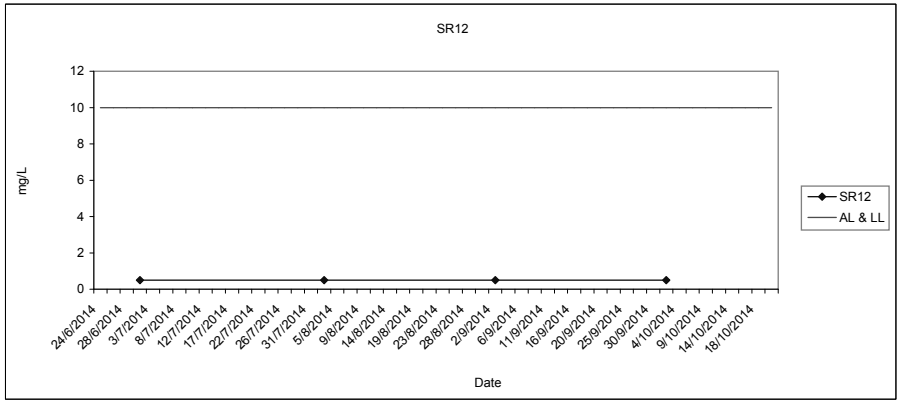




Synthetic Detergent (Depth average) at Mid-Ebb Tide

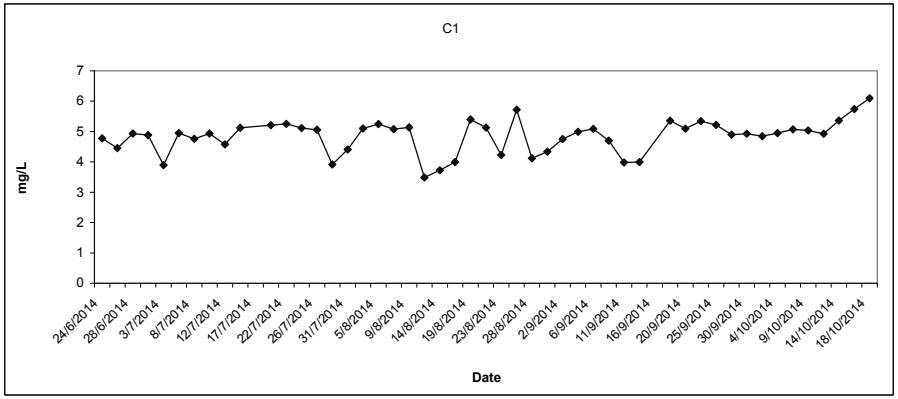


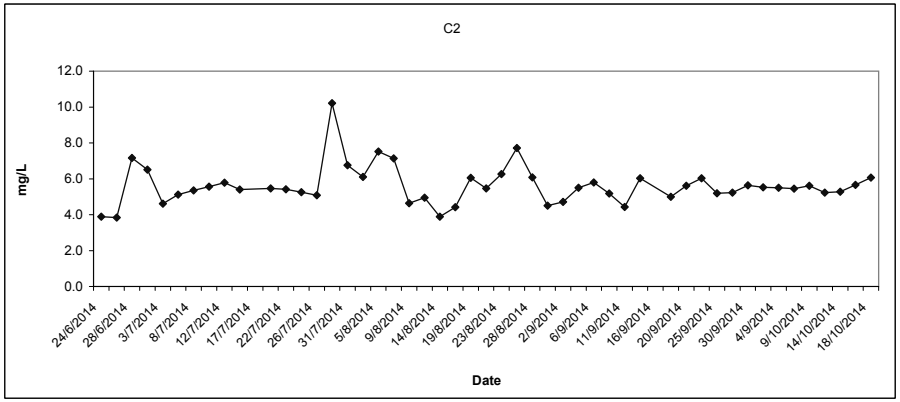


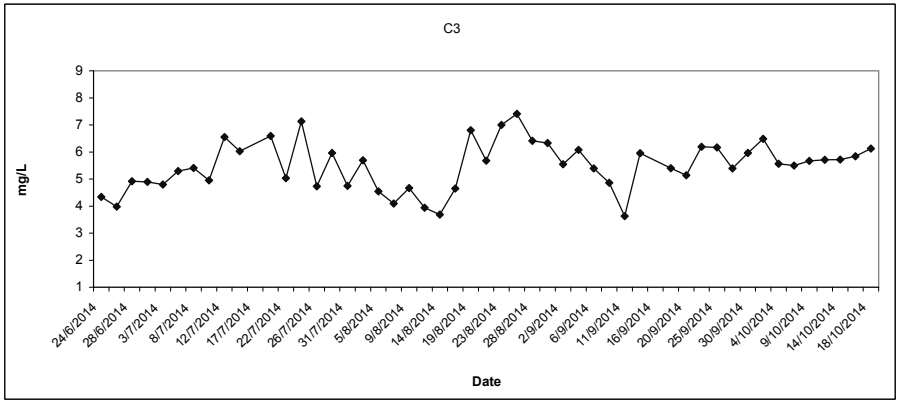


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

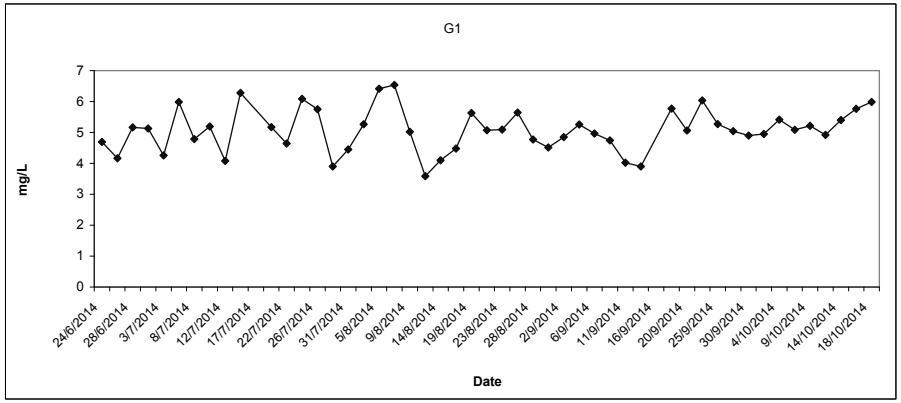
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

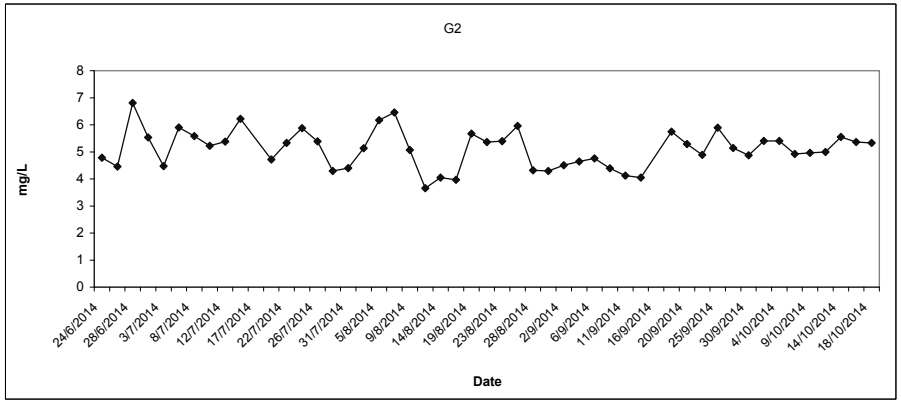


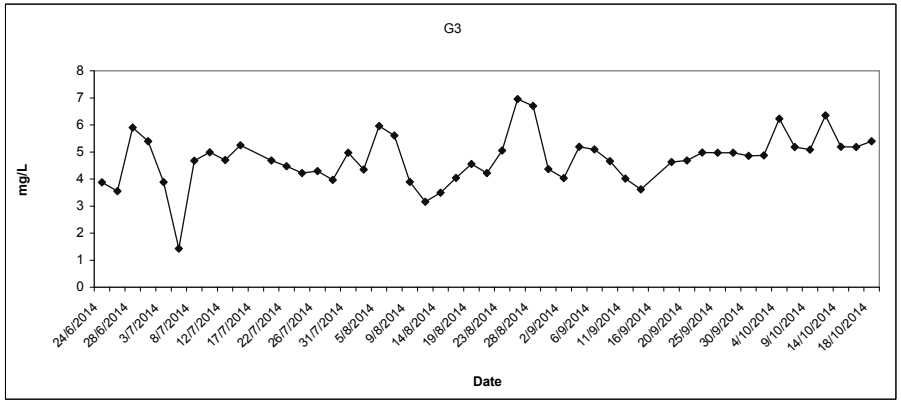




Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

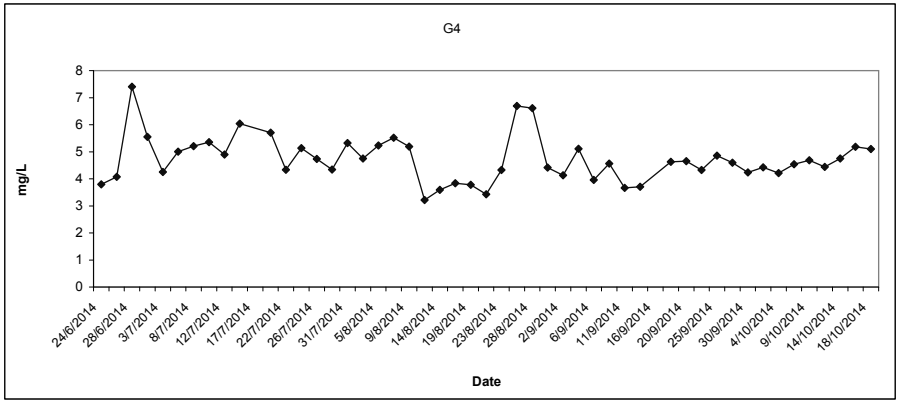


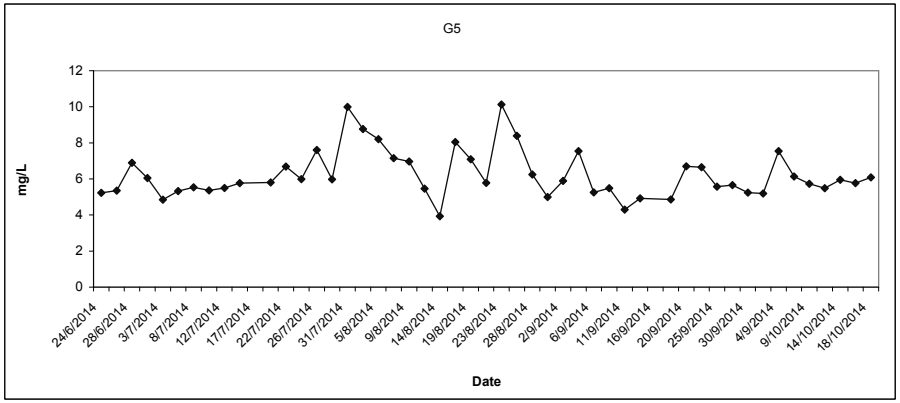


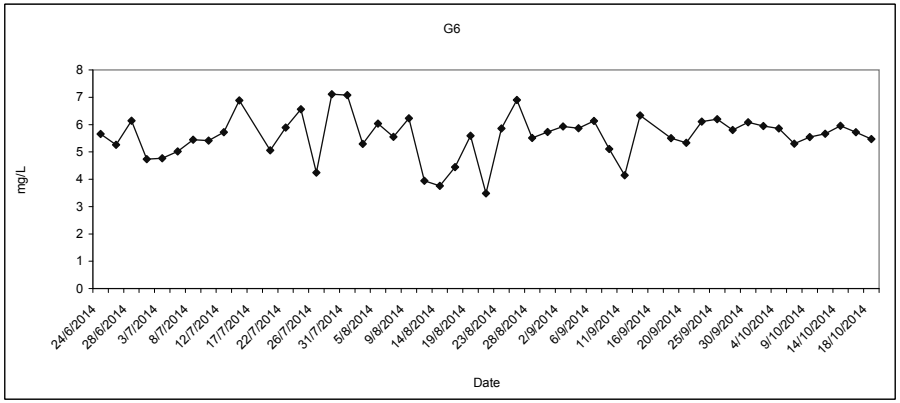


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

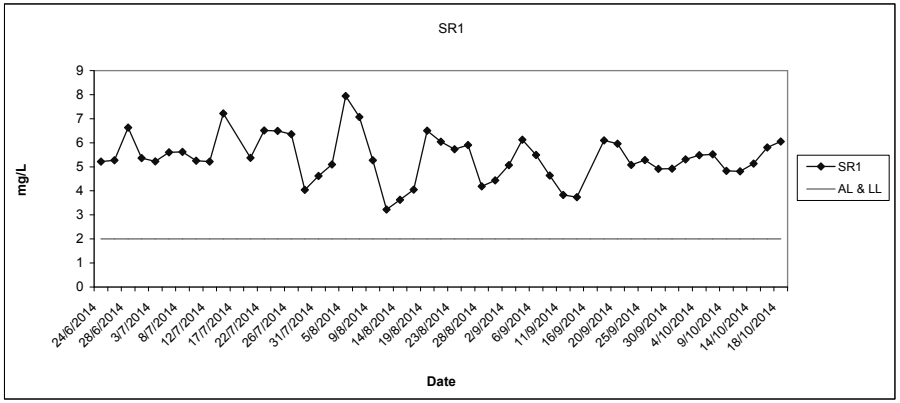
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

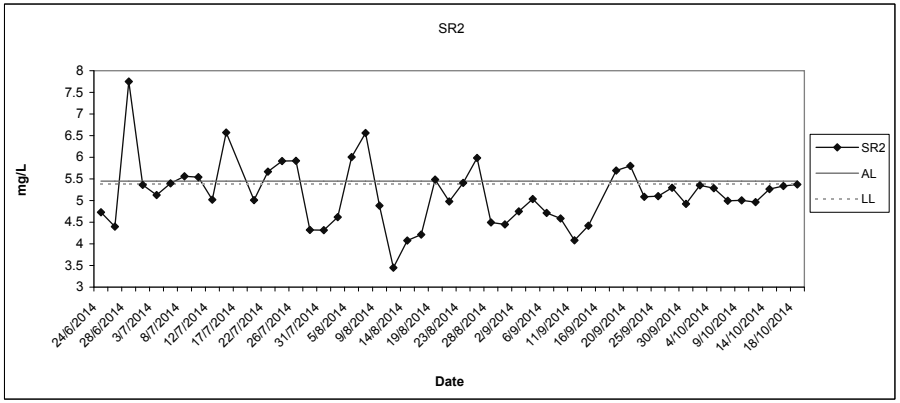


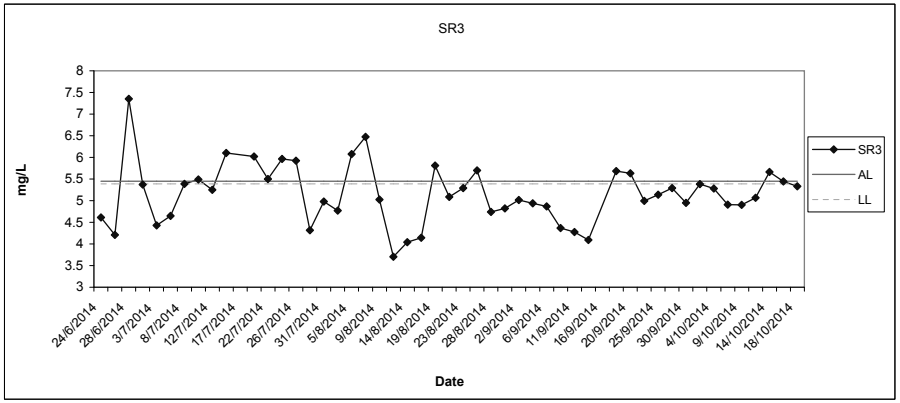




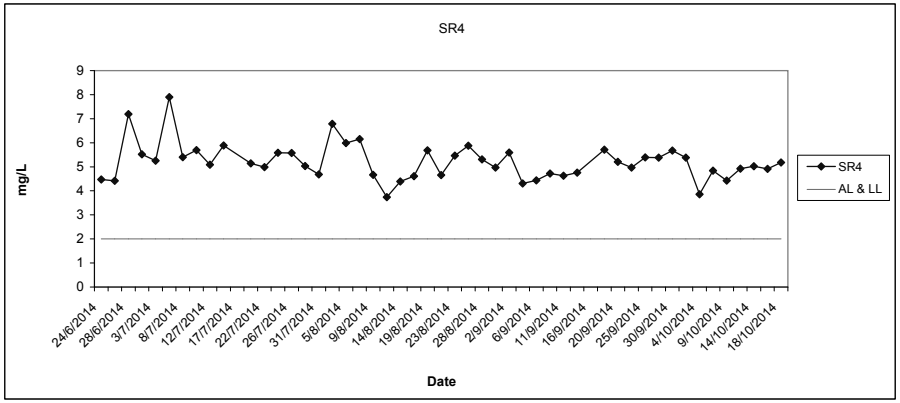
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

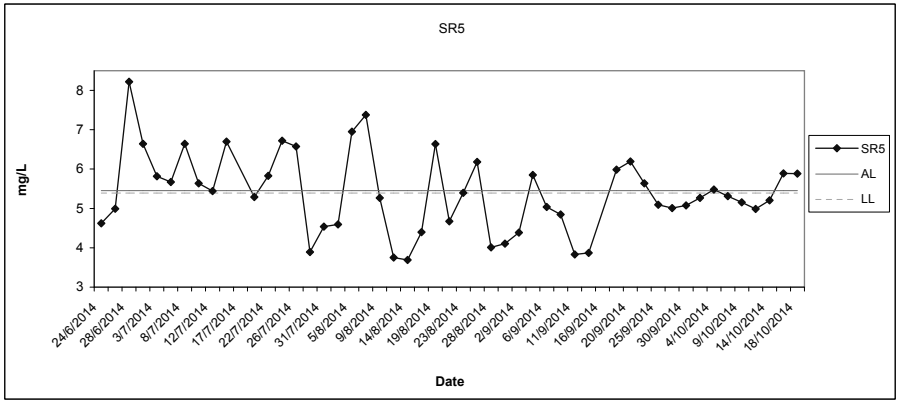


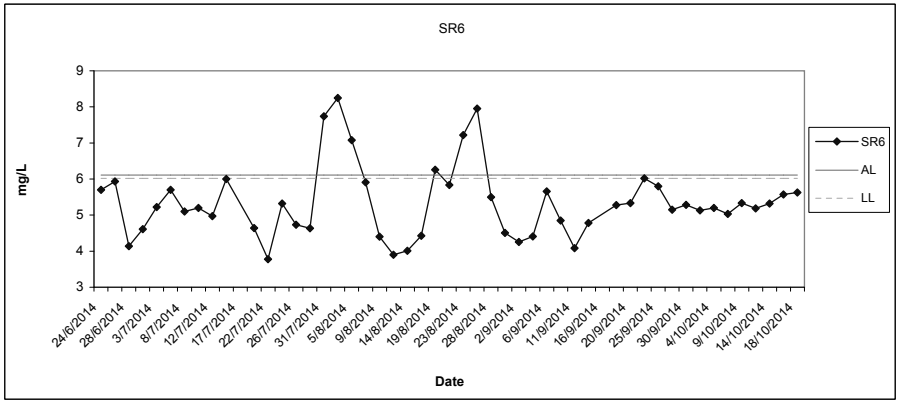




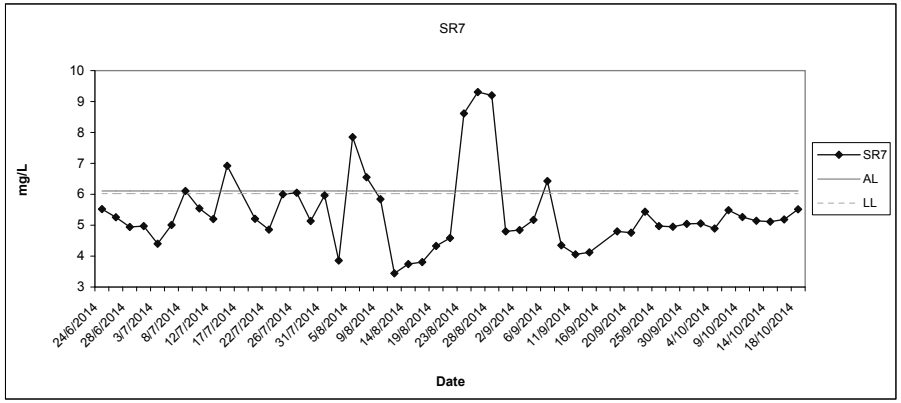
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

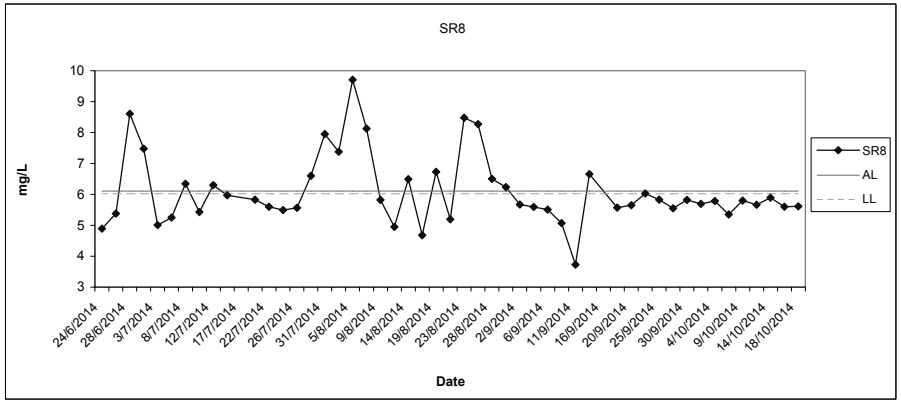


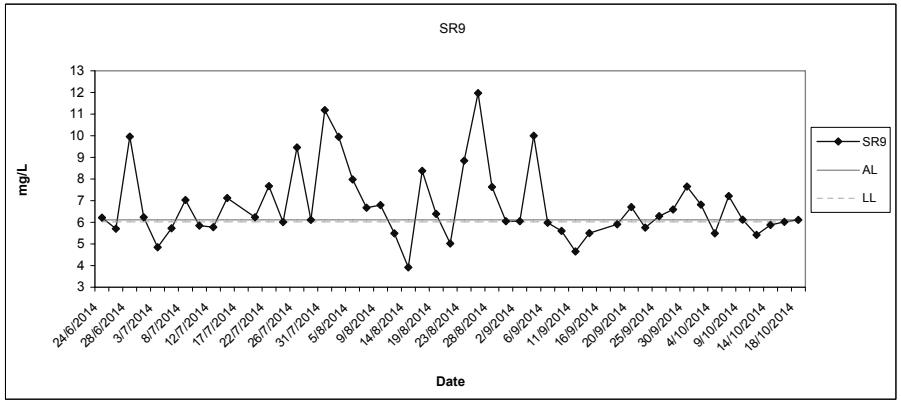




Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

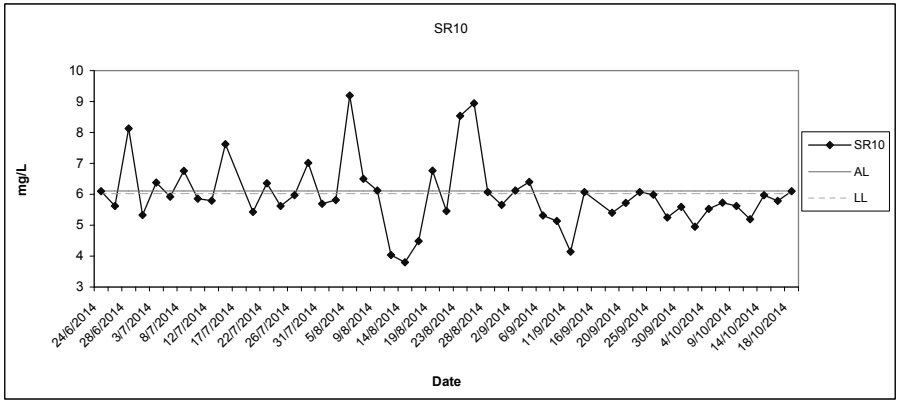


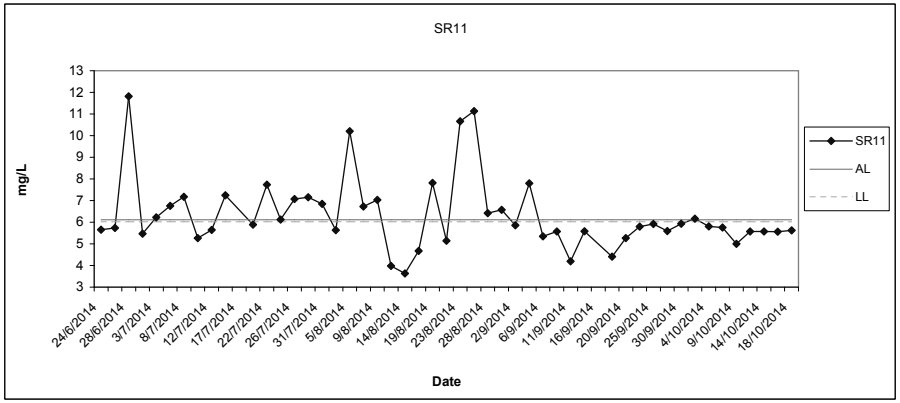


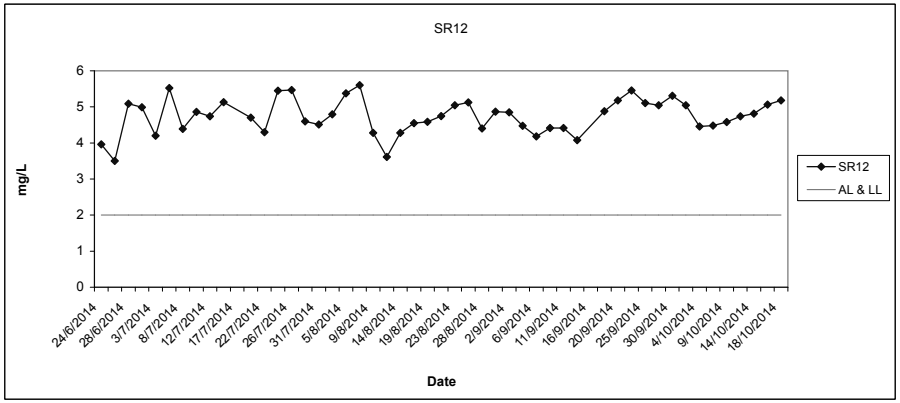


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

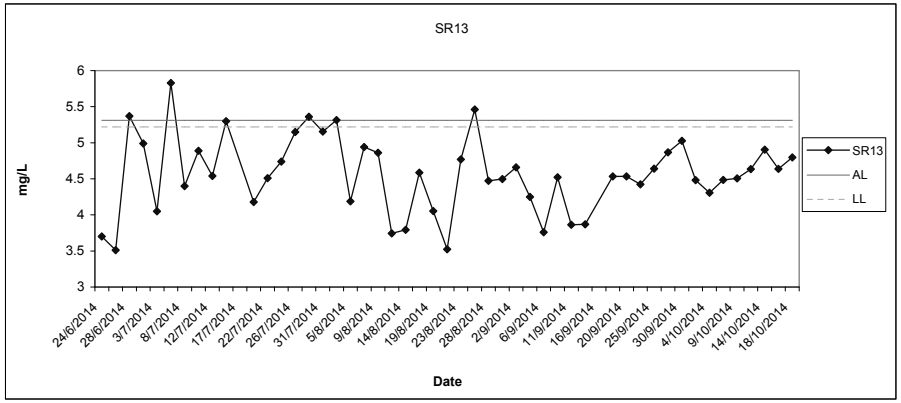
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide





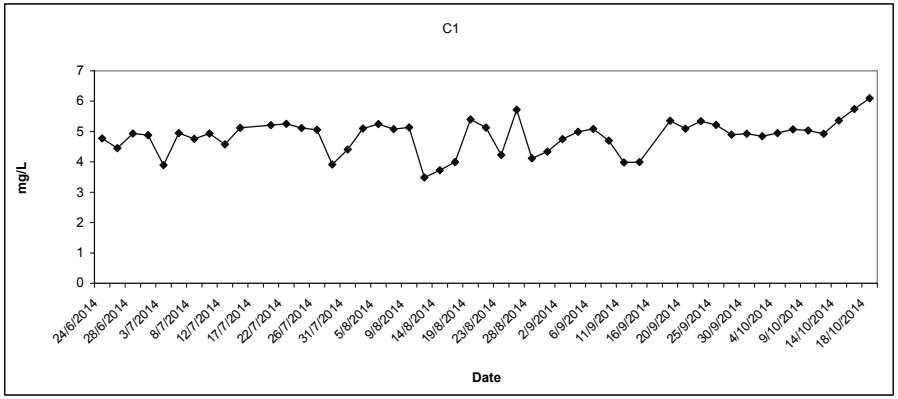


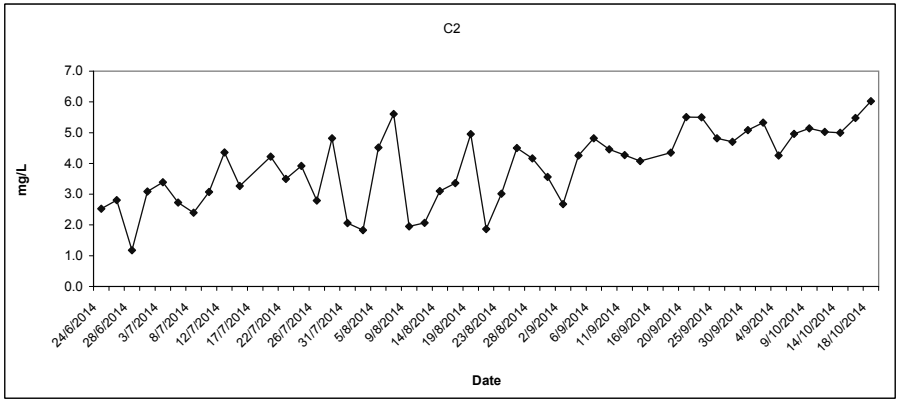
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

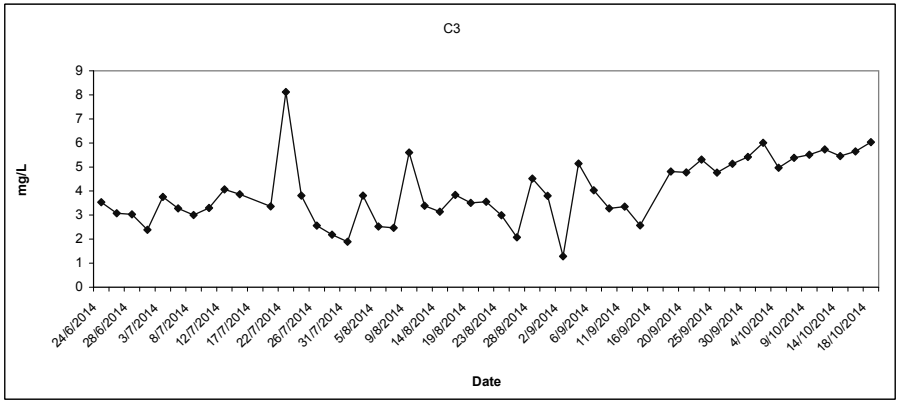


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

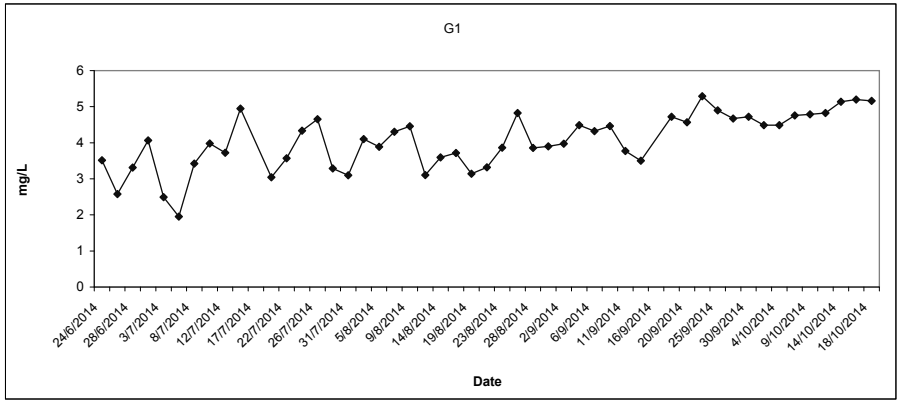
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

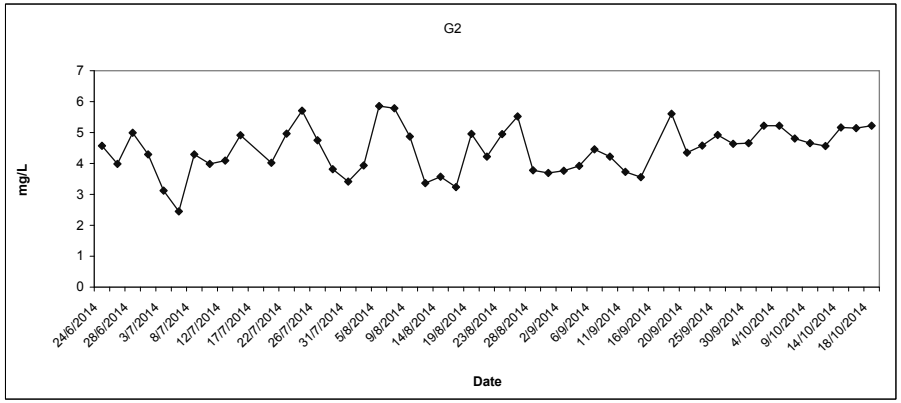


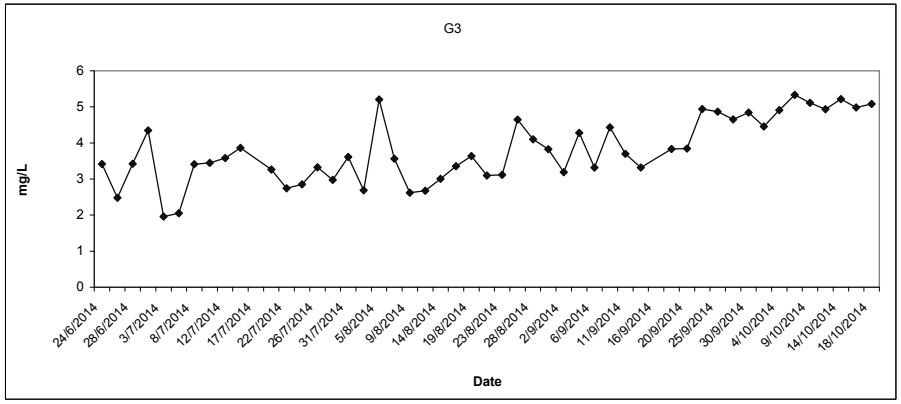




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

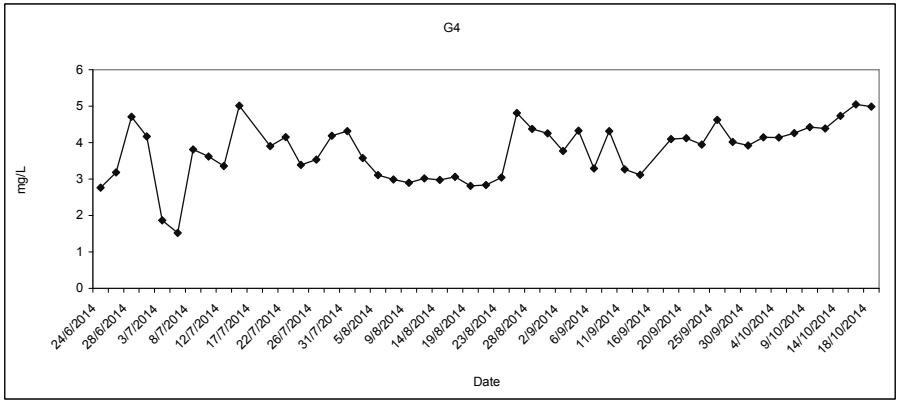


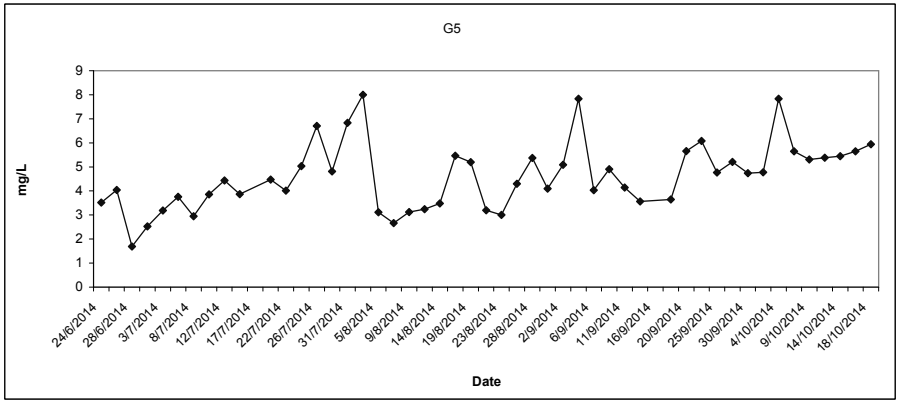


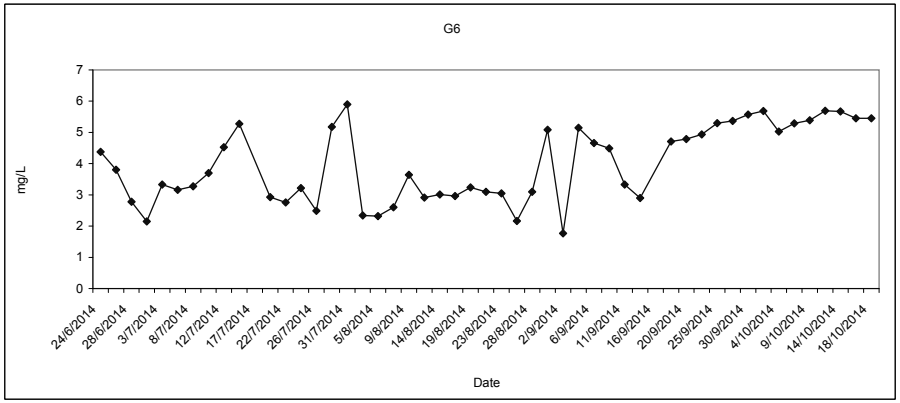


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

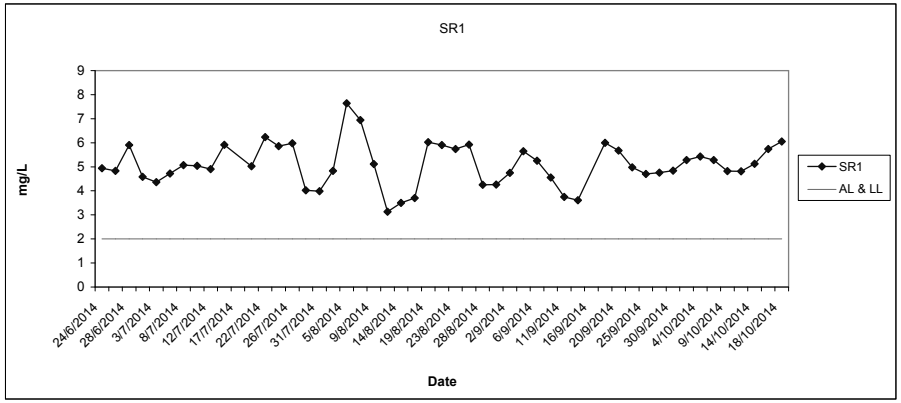
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

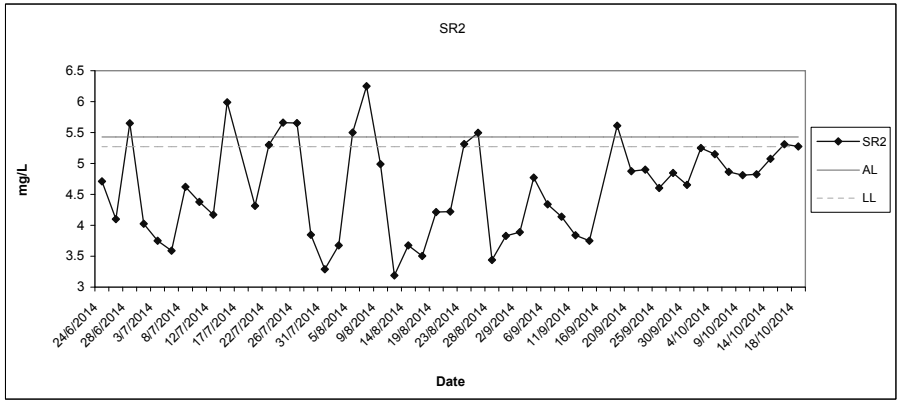


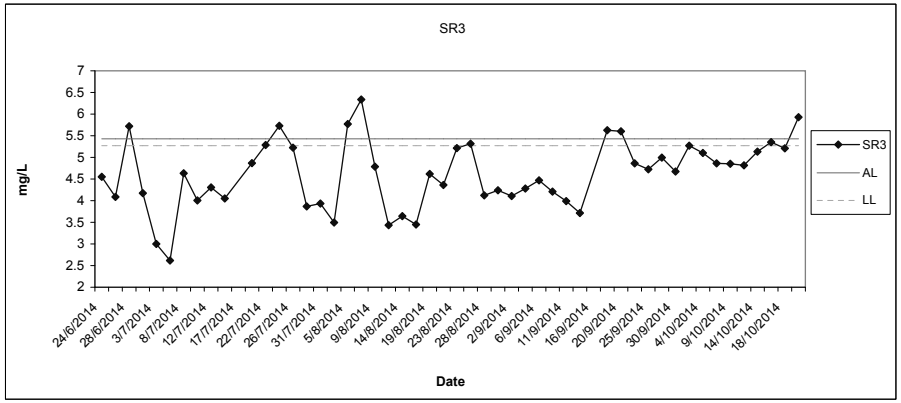




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

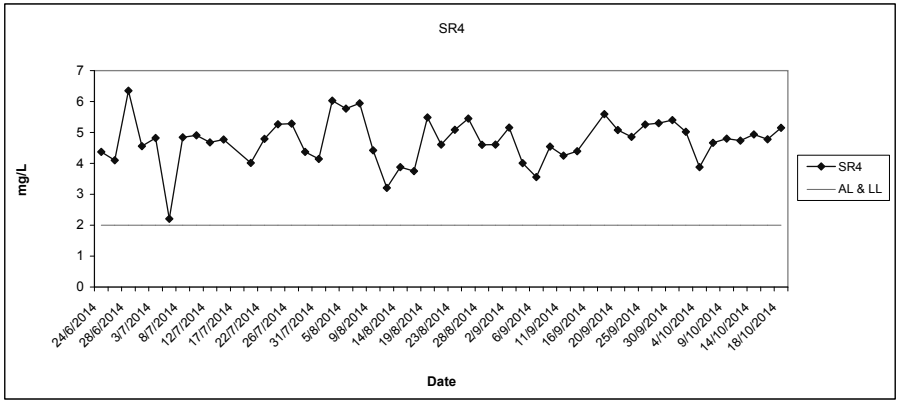


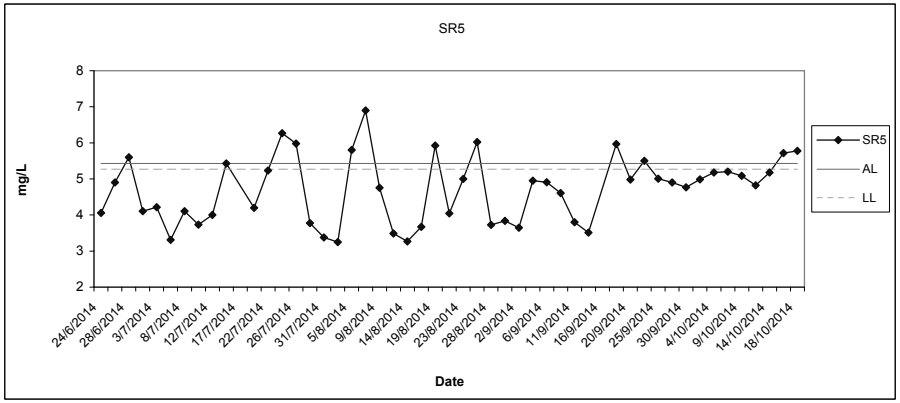


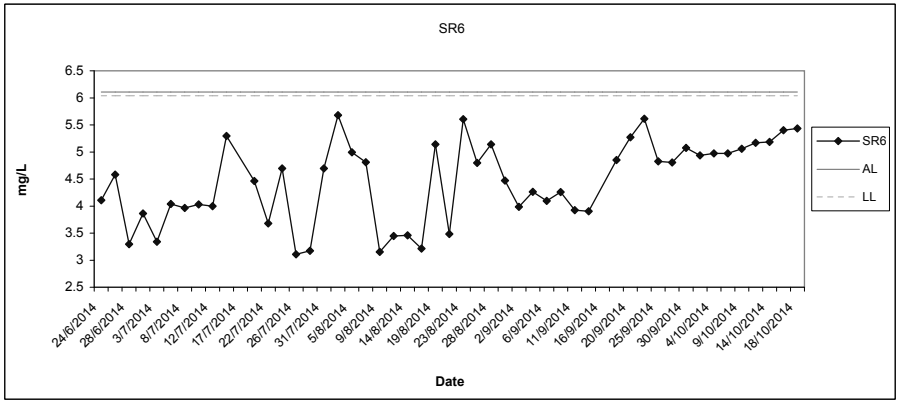


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

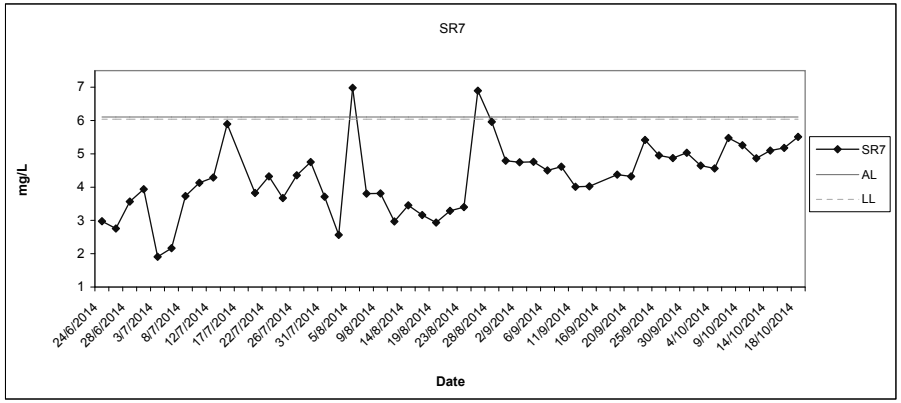
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

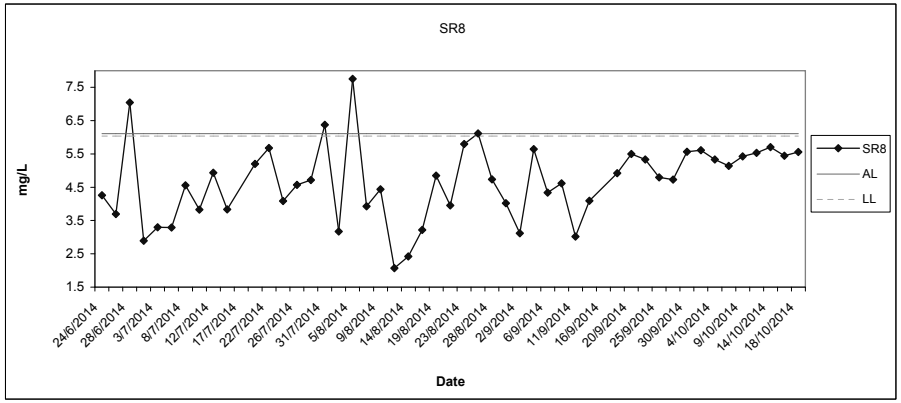


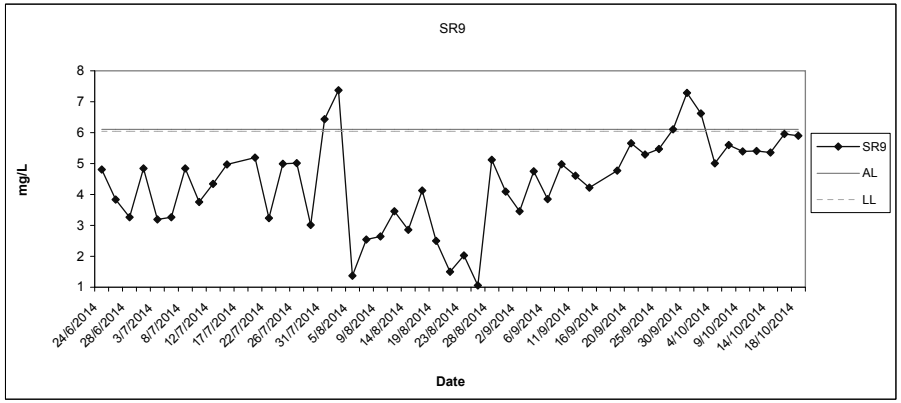




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

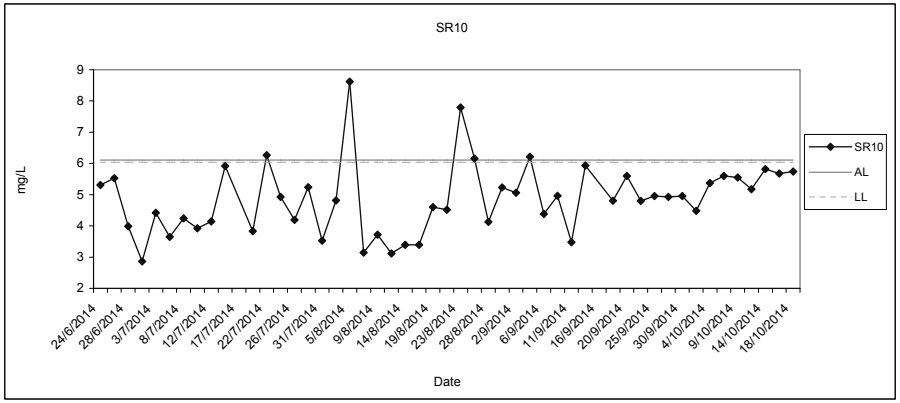


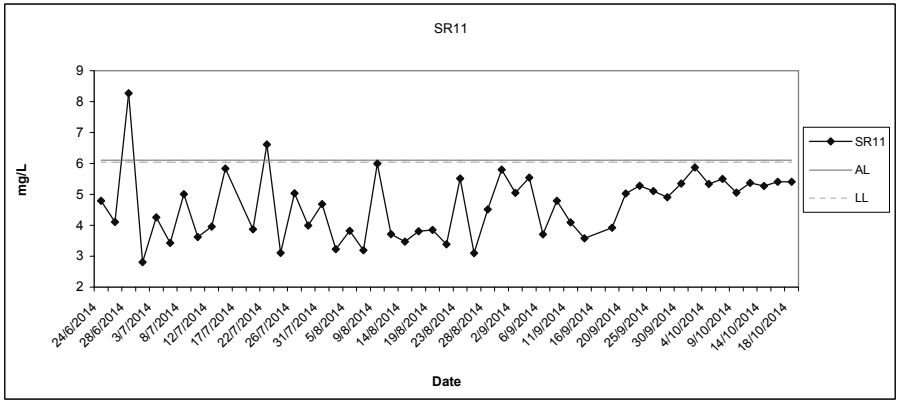


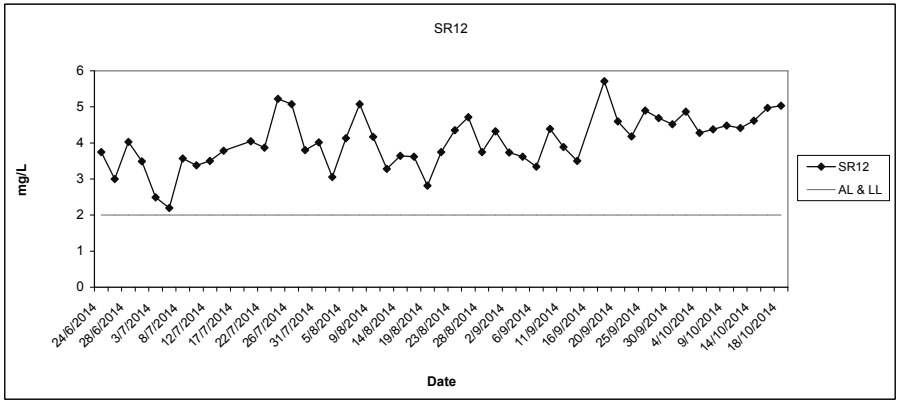


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

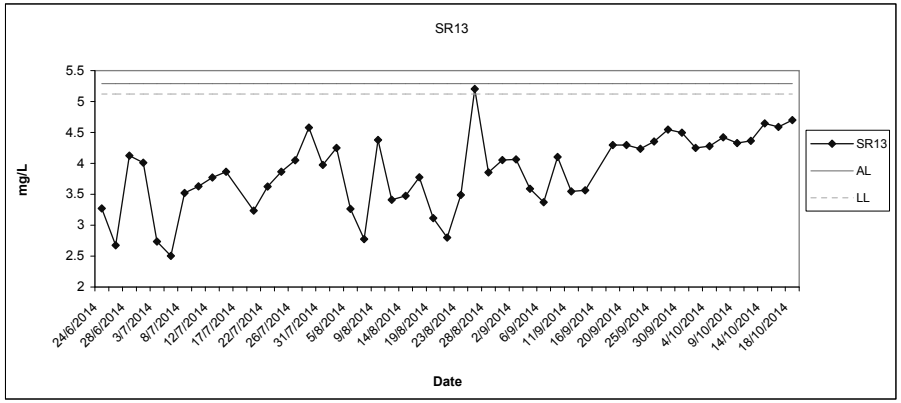
Dissolved Oxygen (Bottom) at Mid-Ebb Tide





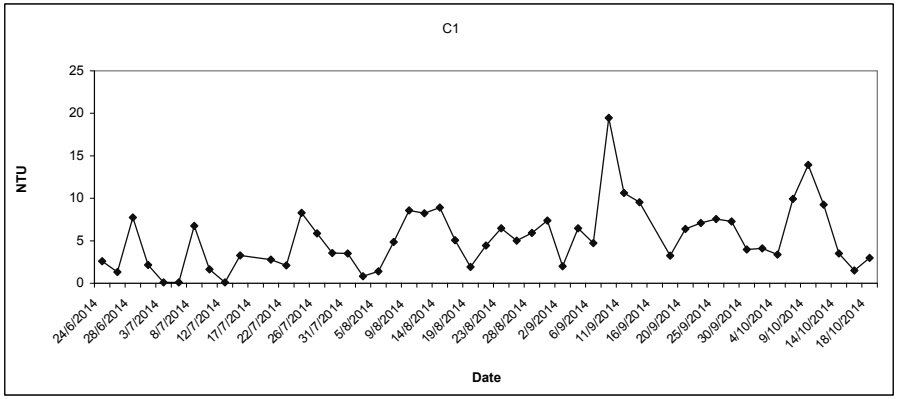


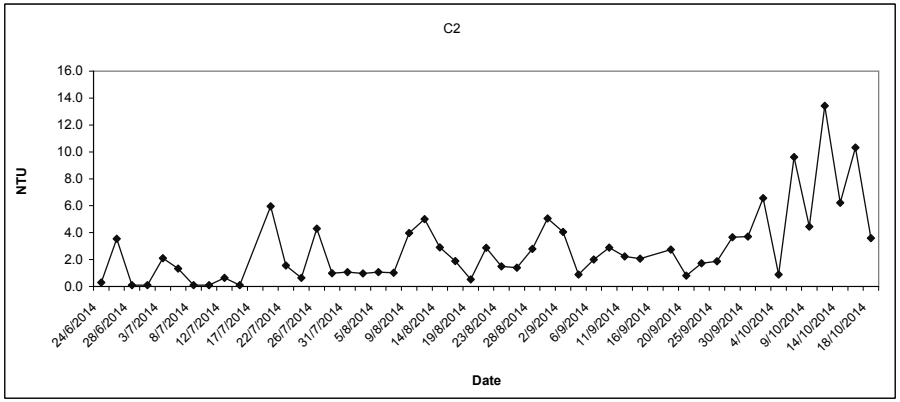
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

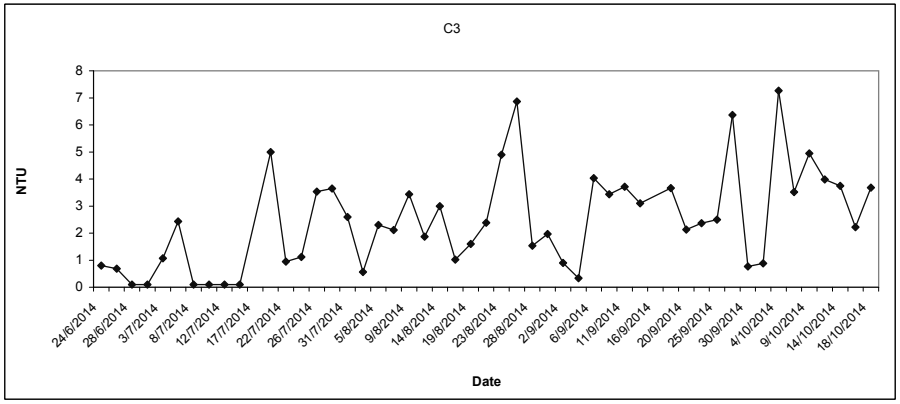


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

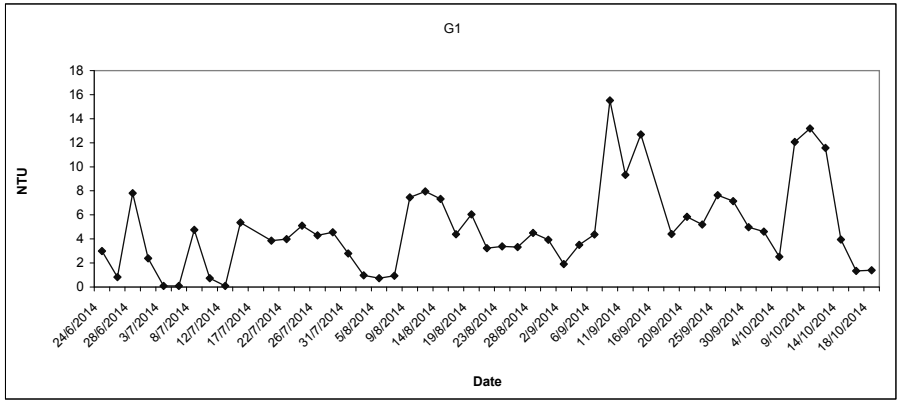
Turbidity (Depth average) at Mid-Ebb Tide

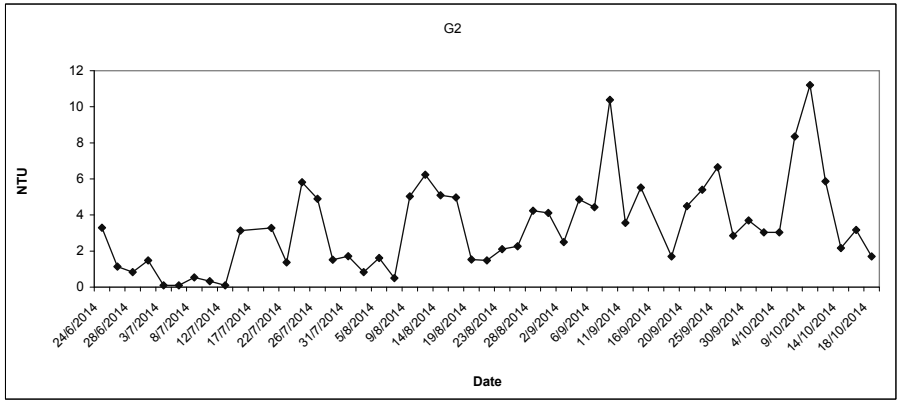


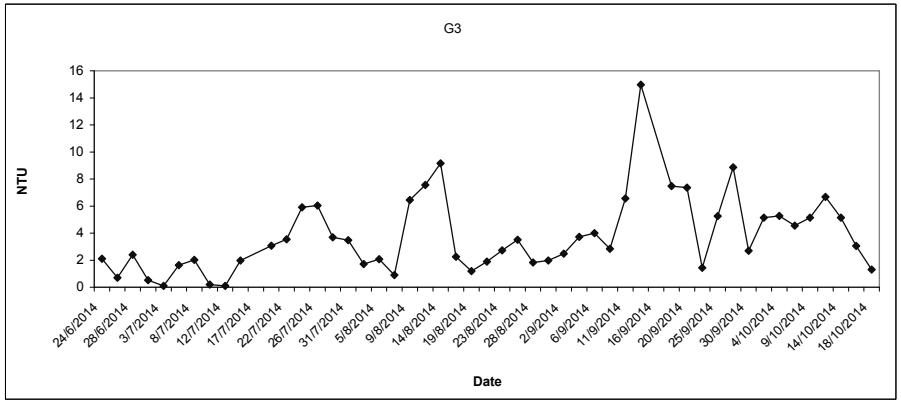




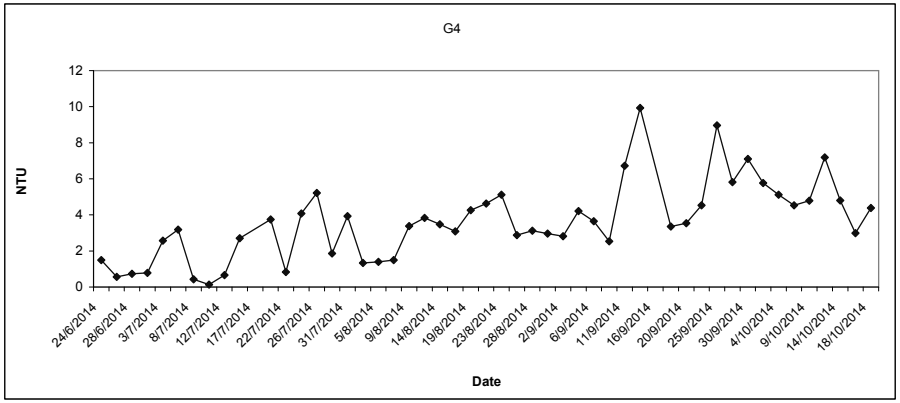
Turbidity (Depth average) at Mid-Ebb Tide

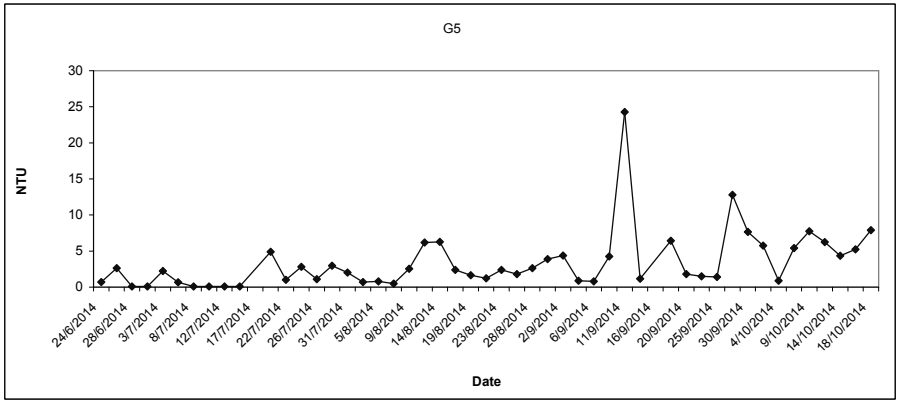


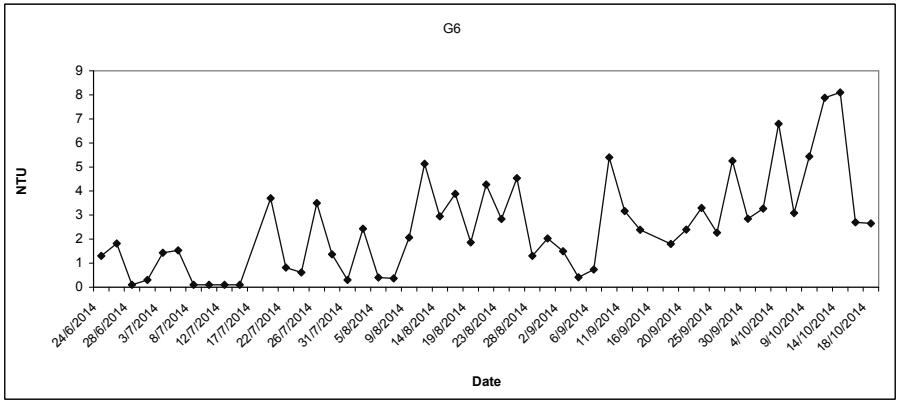




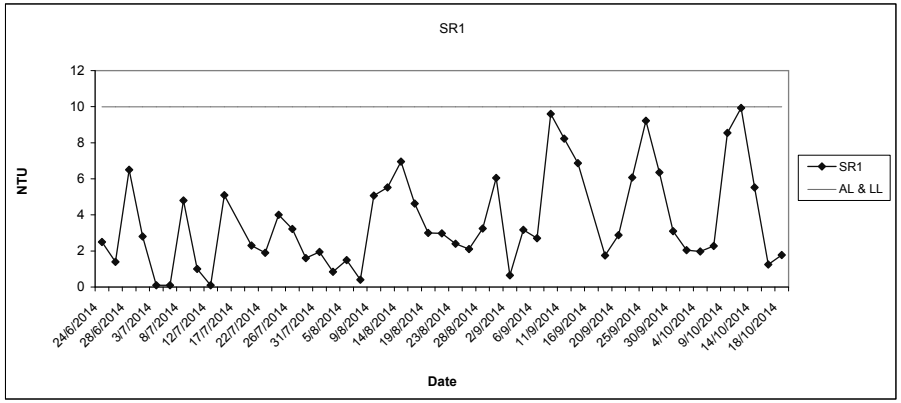
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

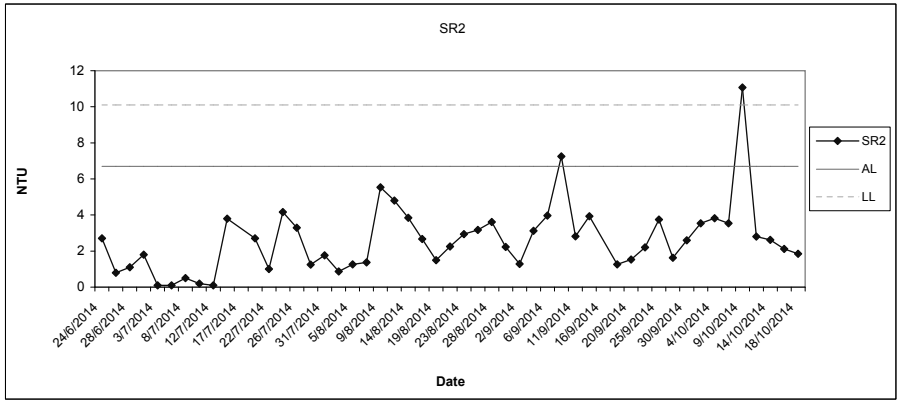


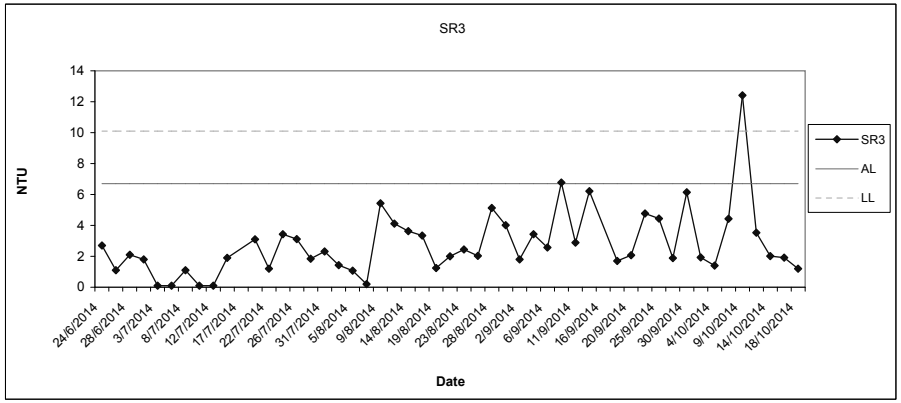




Turbidity (Depth average) at Mid-Ebb Tide

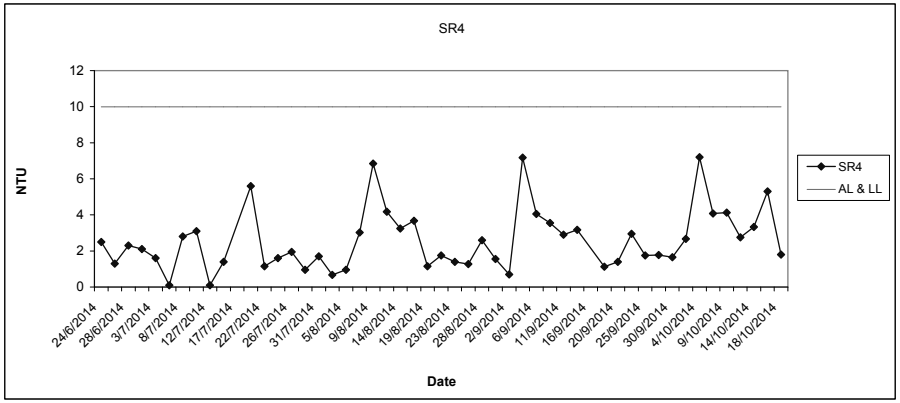


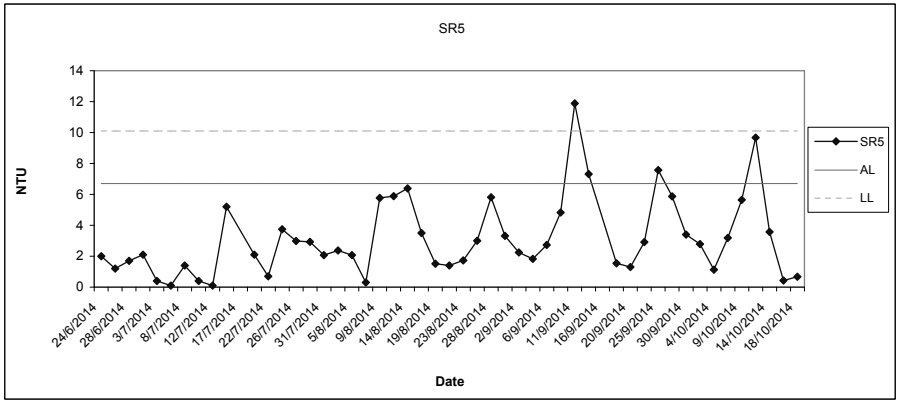


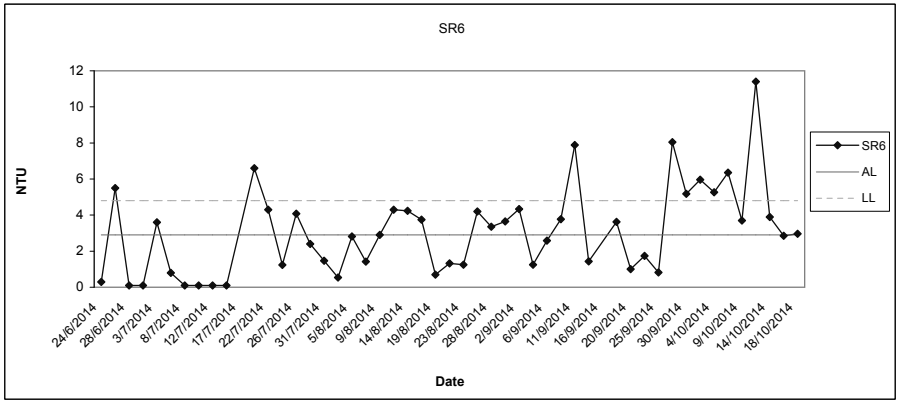


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

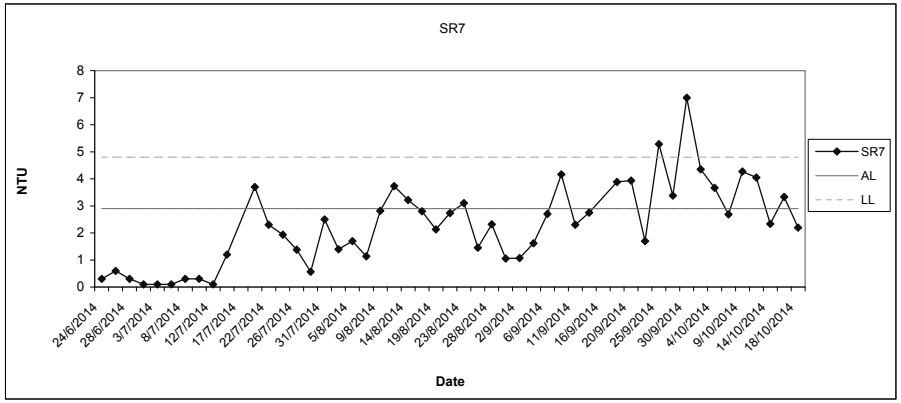
Turbidity (Depth average) at Mid-Ebb Tide

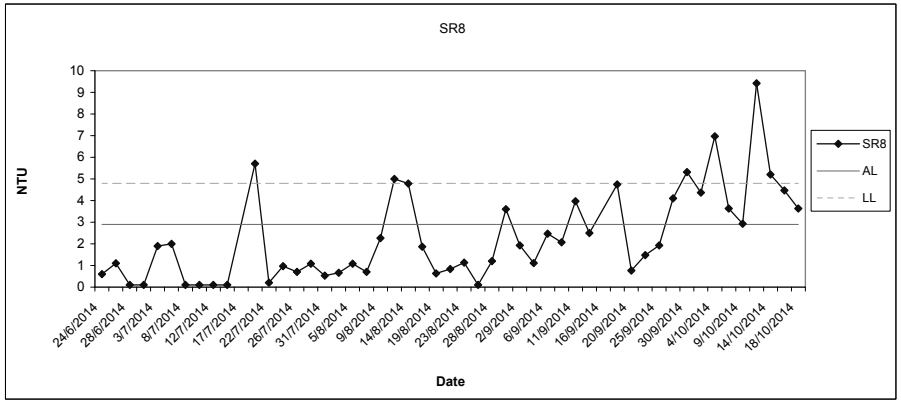


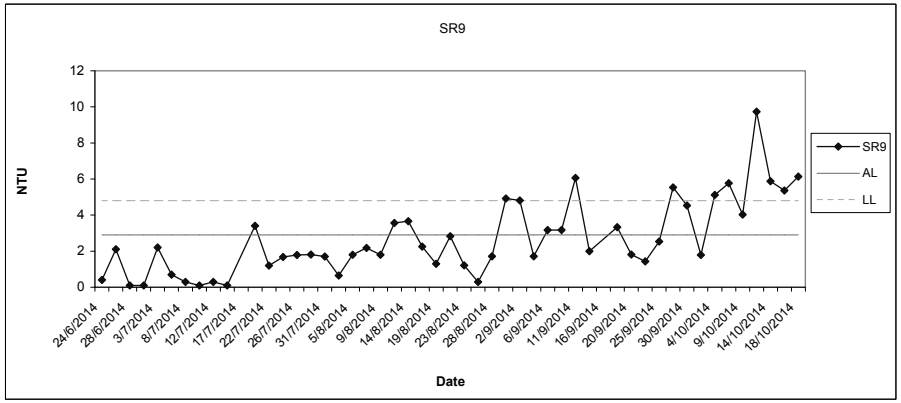




Turbidity (Depth average) at Mid-Ebb Tide

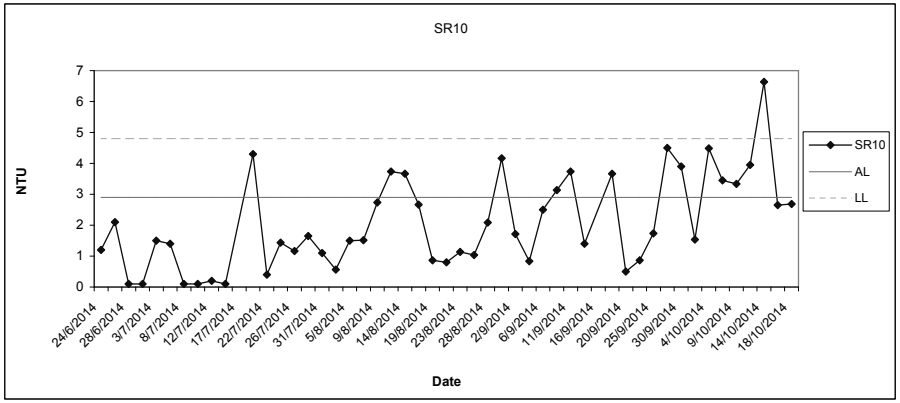


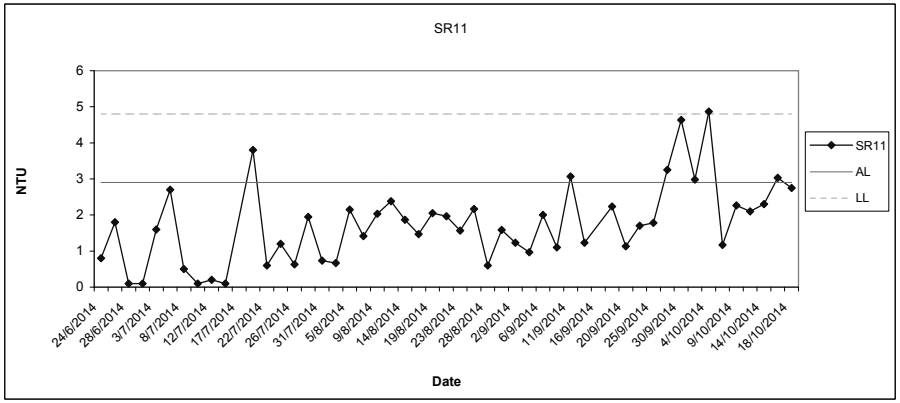


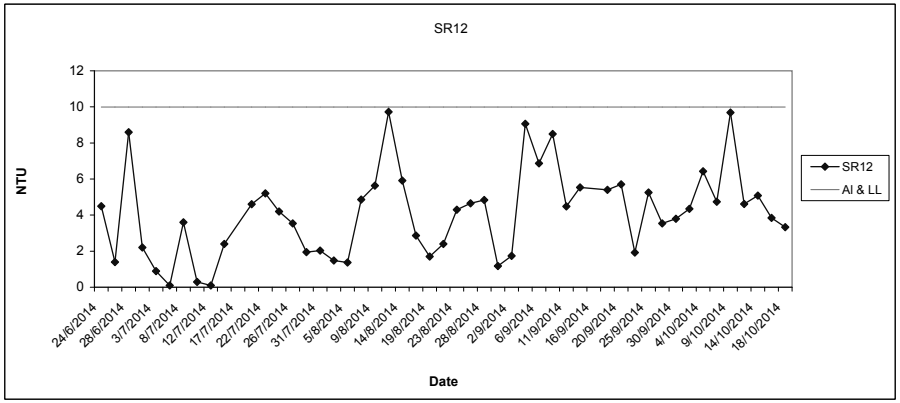


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

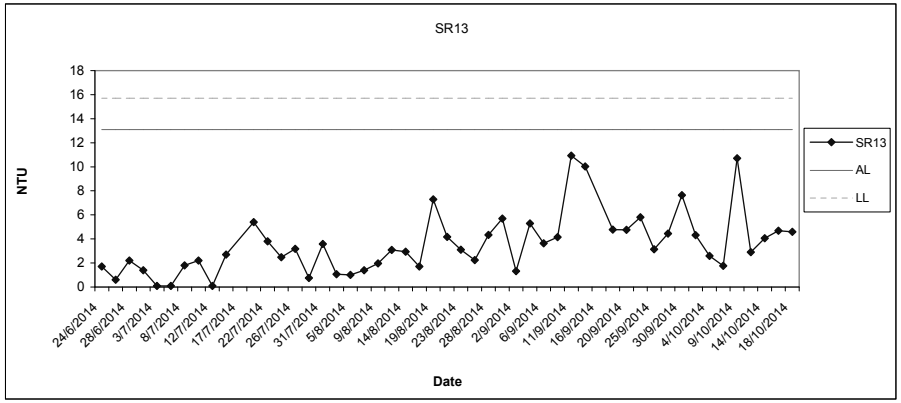
Turbidity (Depth average) at Mid-Ebb Tide





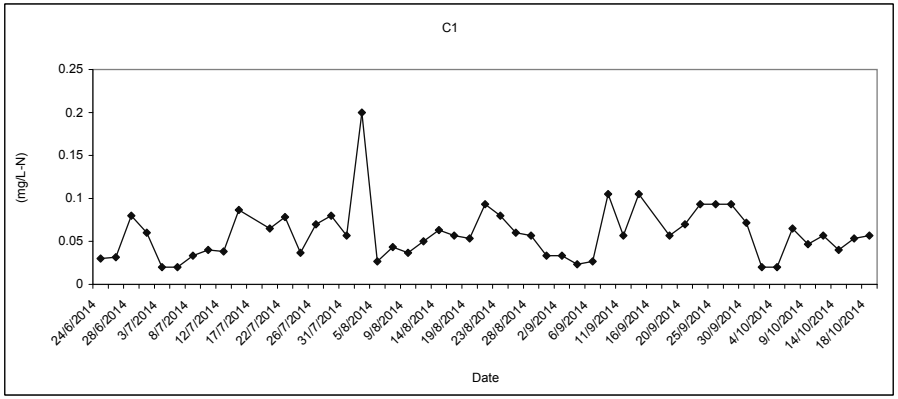


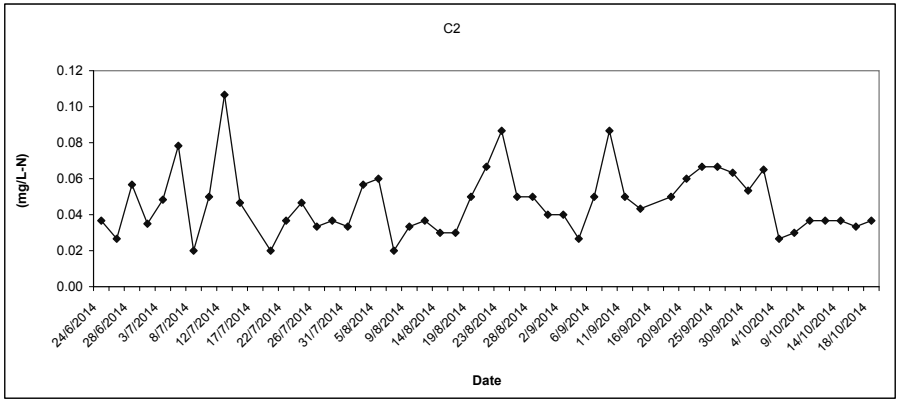
Turbidity (Depth average) at Mid-Ebb Tide

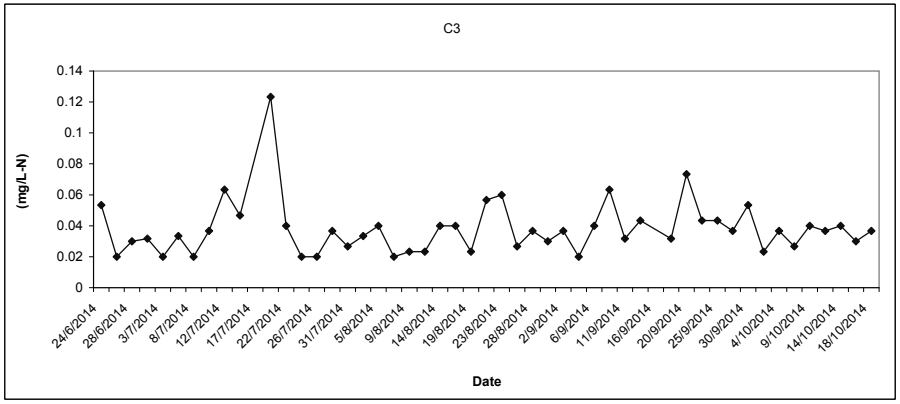


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

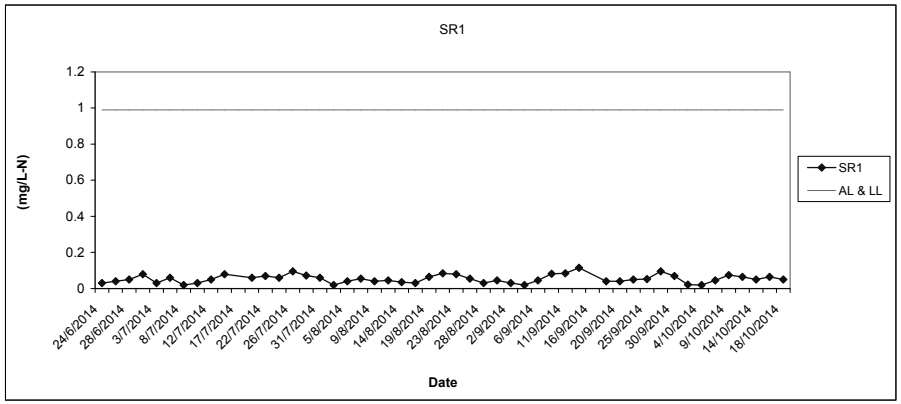
In-situ Ammonia (Depth average) at Mid-Ebb Tide

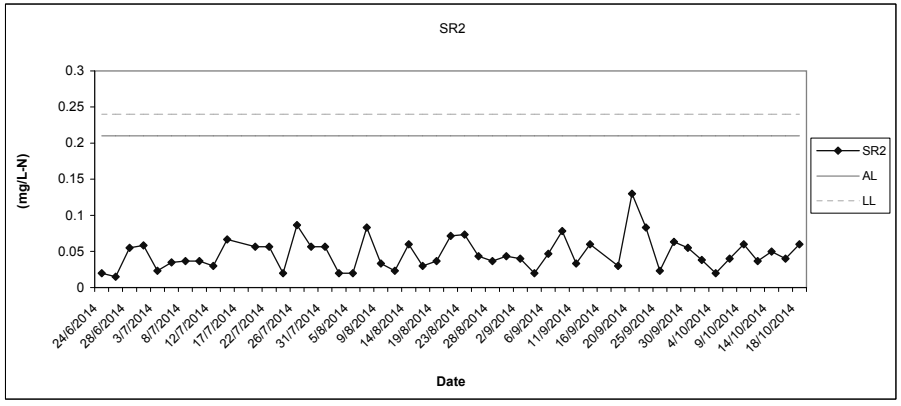


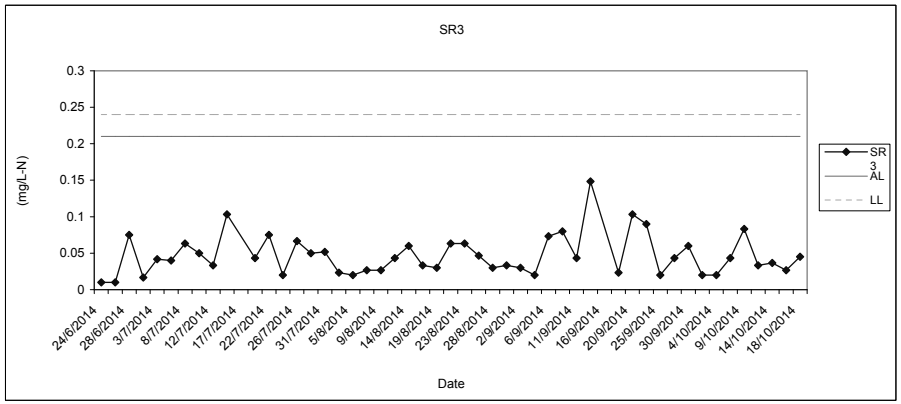




In-situ Ammonia (Depth average) at Mid-Ebb Tide

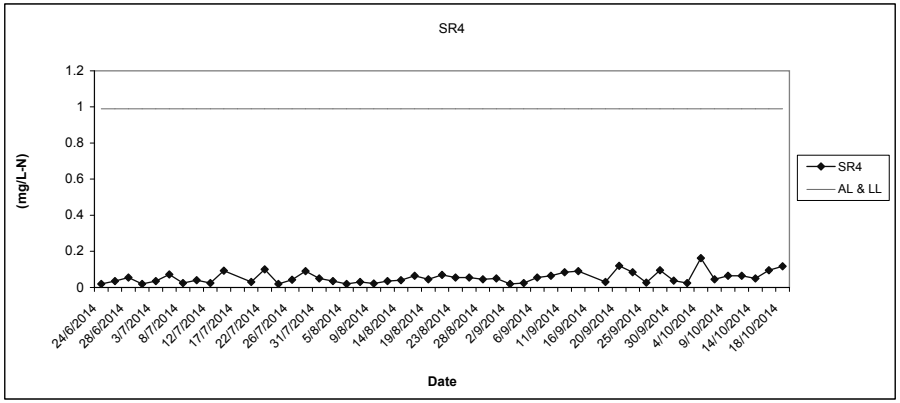


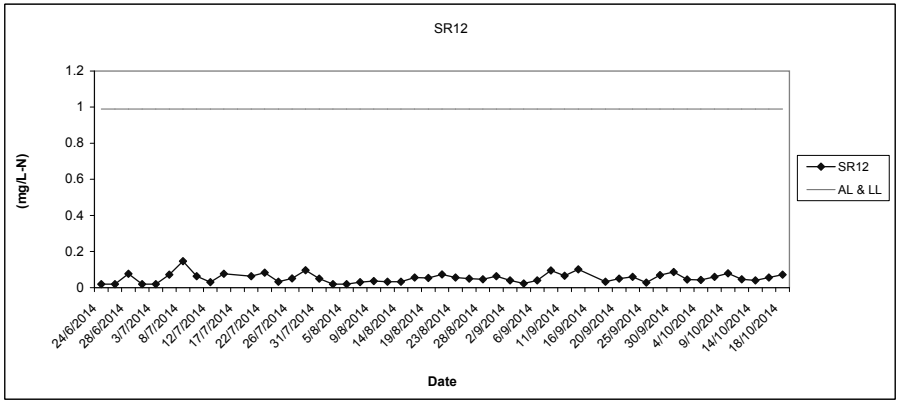




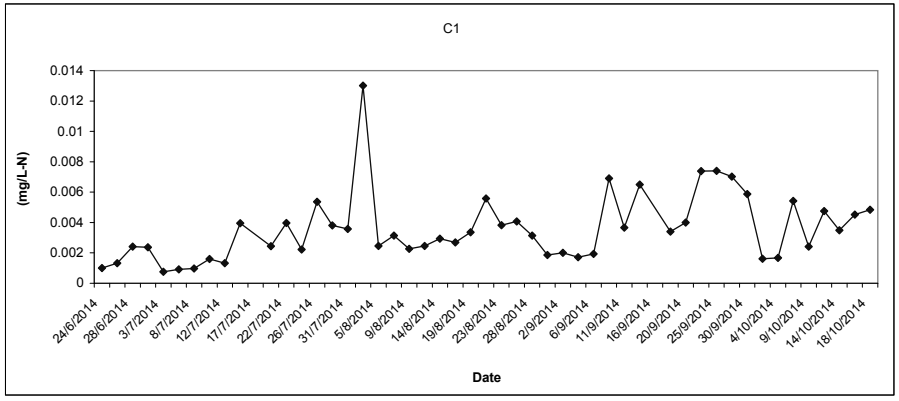
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

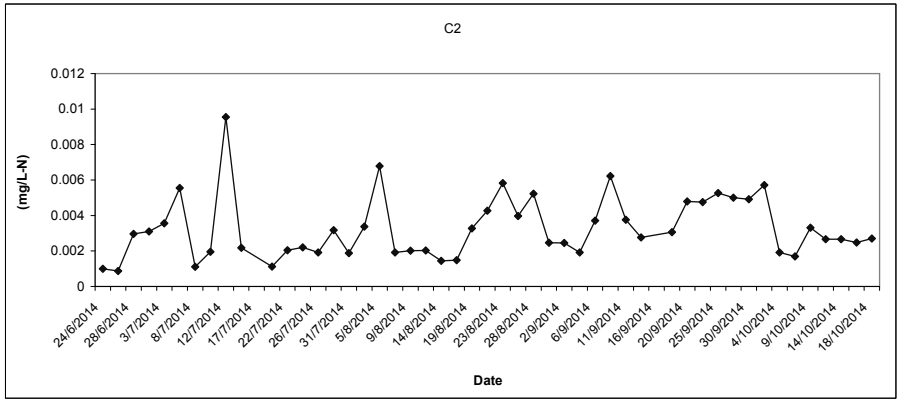
In-situ Ammonia (Depth average) at Mid-Ebb Tide

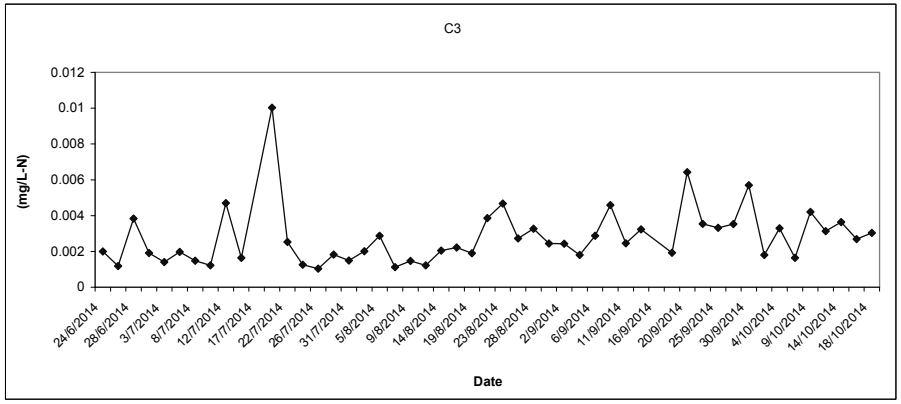




In-situ UIA (Depth average) at Mid-Ebb Tide

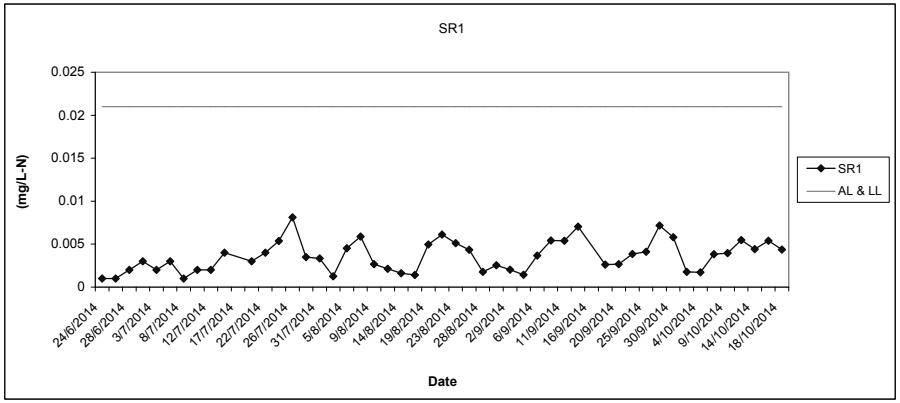


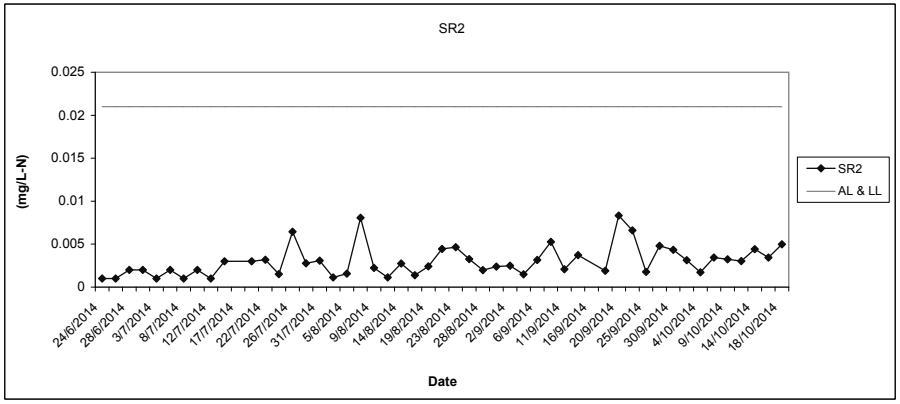


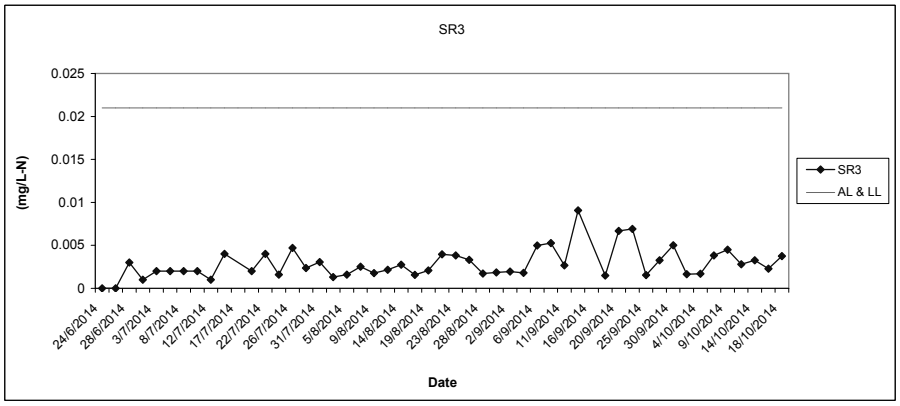


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

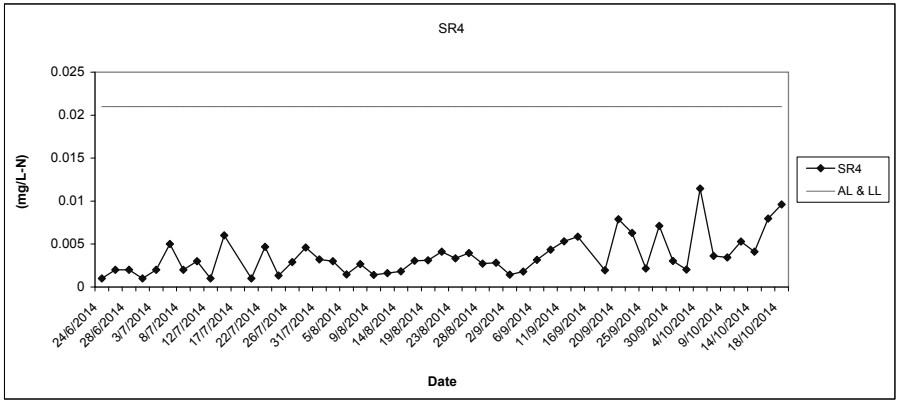
In-situ UIA (Depth average) at Mid-Ebb Tide

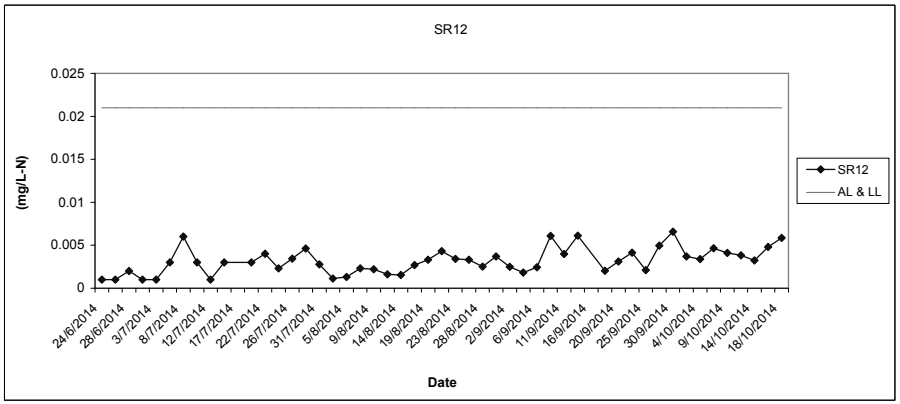






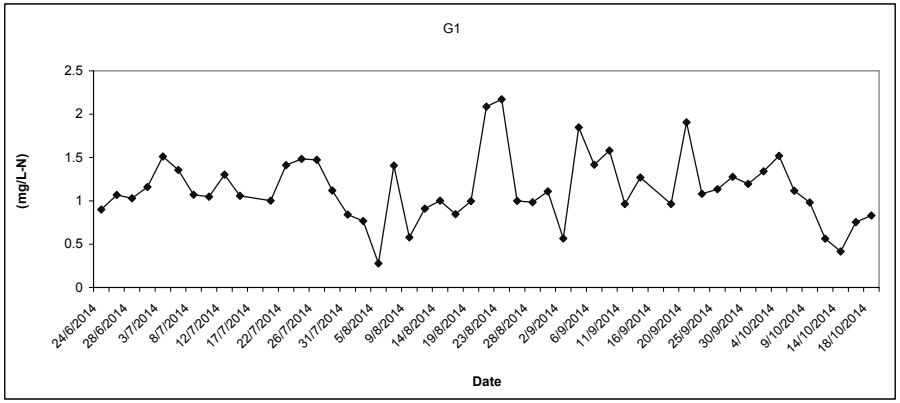
In-situ UIA (Depth average) at Mid-Ebb Tide

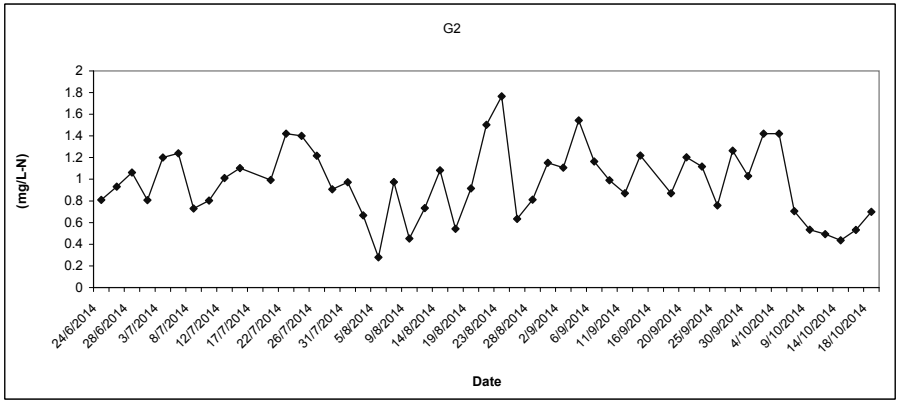


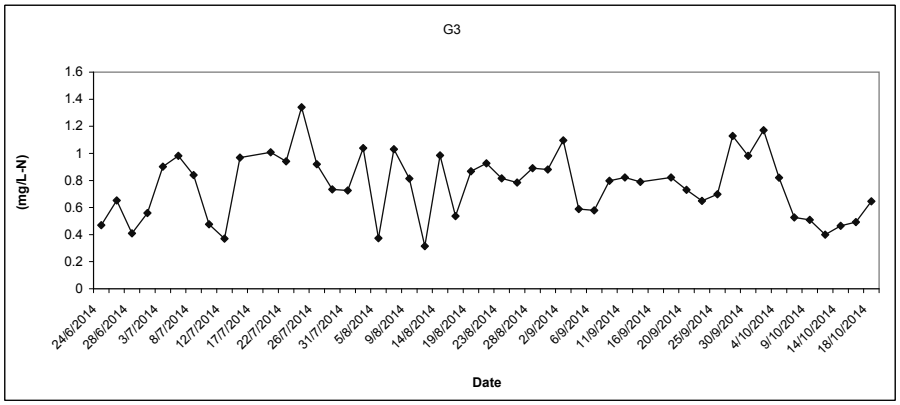


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

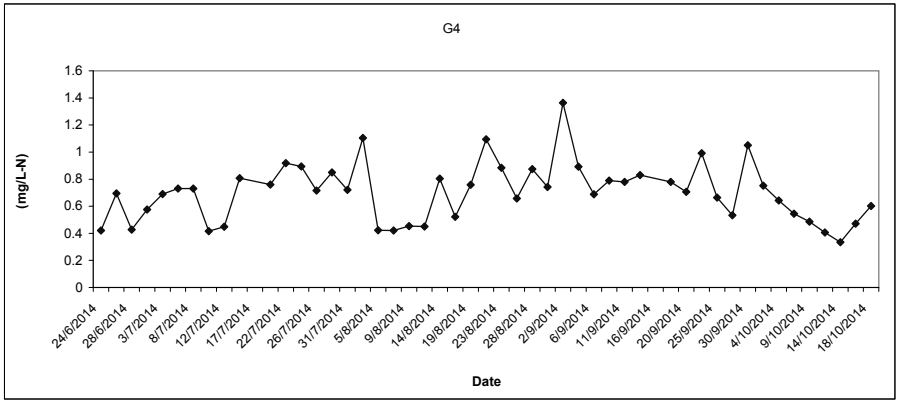
In-situ TIN (Depth average) at Mid-Ebb Tide

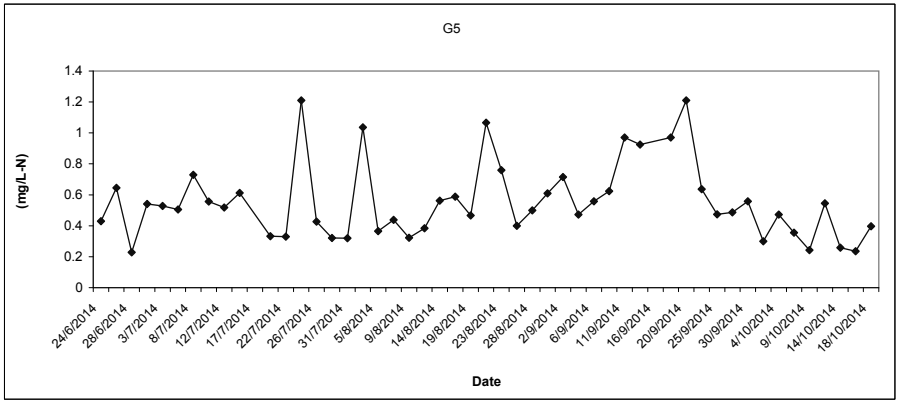


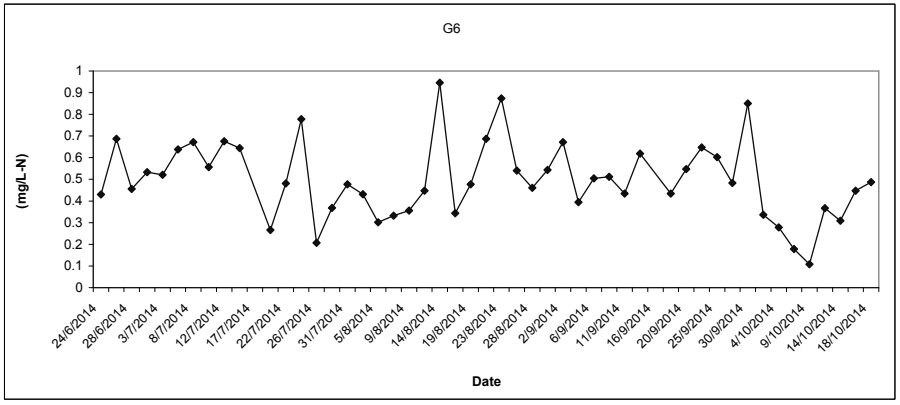




In-situ TIN (Depth average) at Mid-Ebb Tide

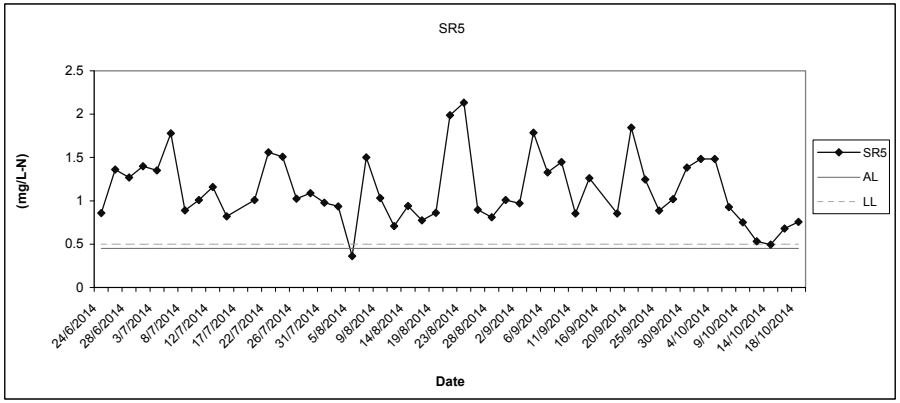


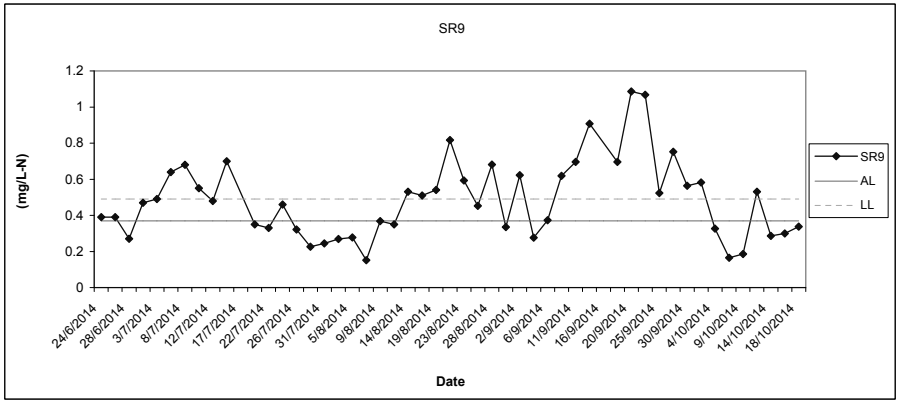


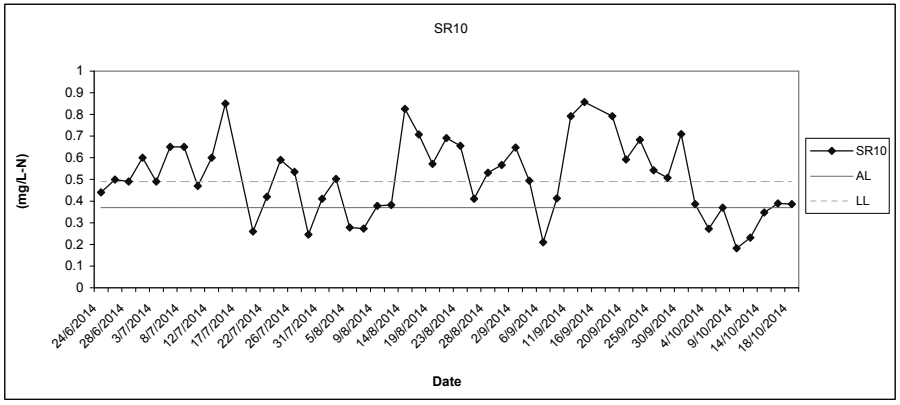


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

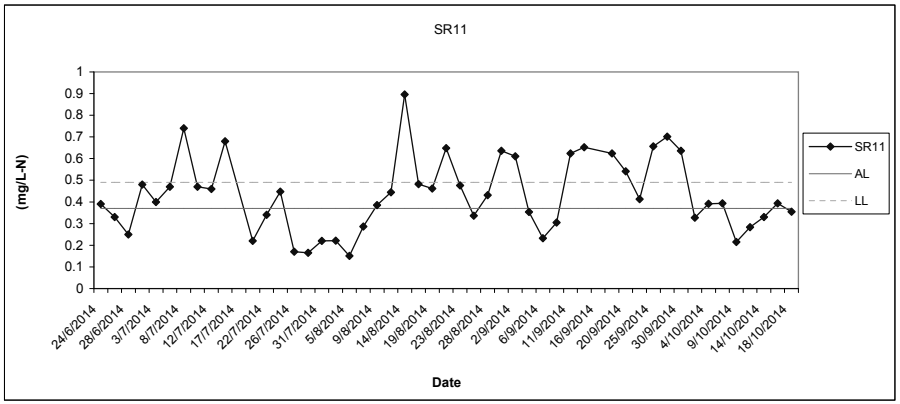
In-situ TIN (Depth average) at Mid-Ebb Tide







In-situ TIN (Depth average) at Mid-Ebb Tide



Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

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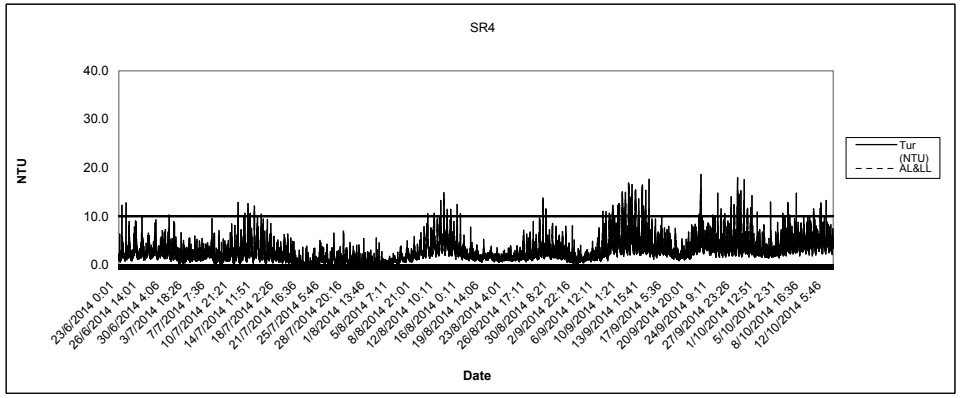
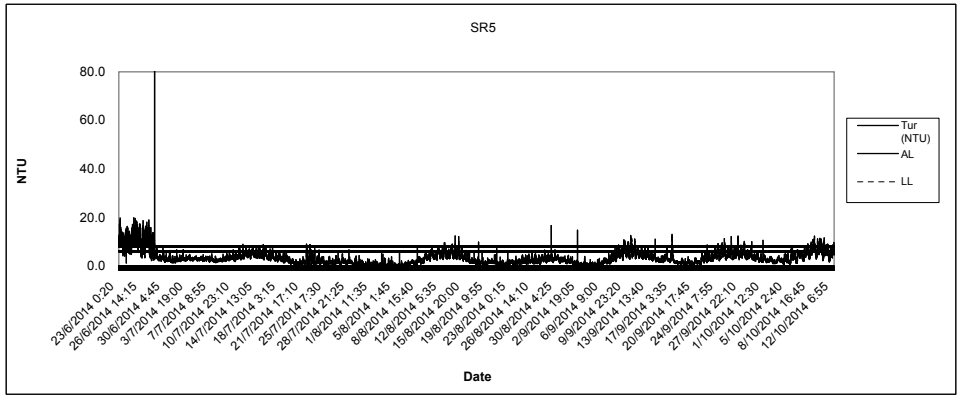
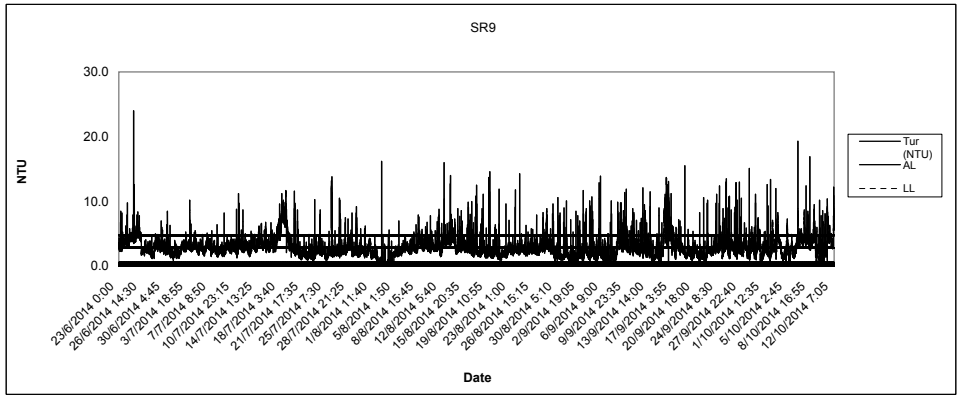
Appendix E

Graphical Presentation – 24-hr Monitoring Results

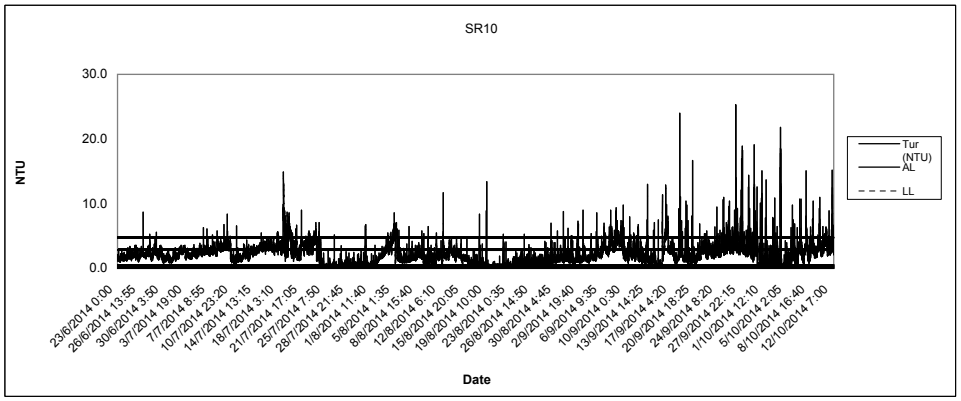
Turbidity
24-hr Water Quality Monitoring

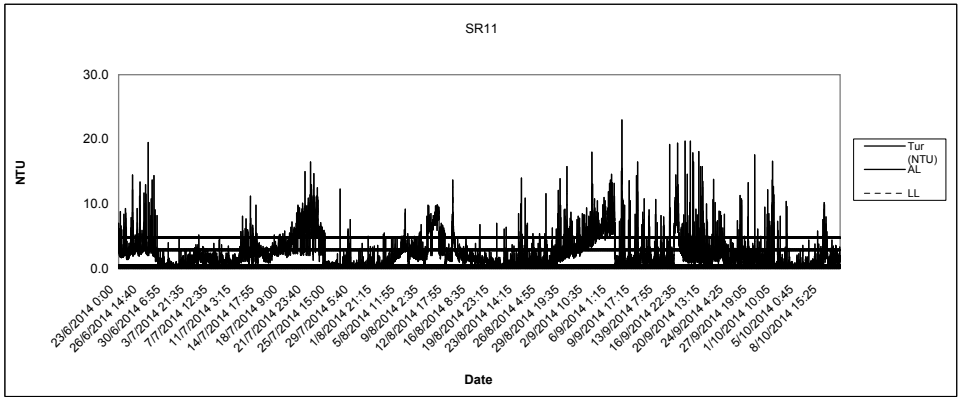


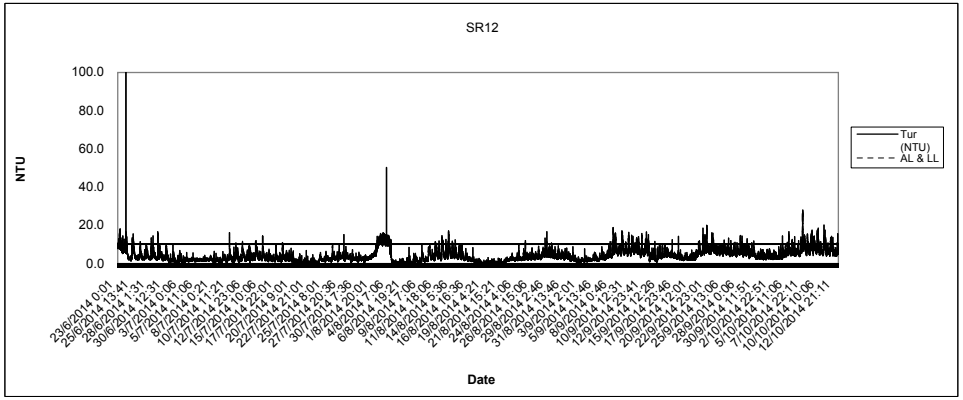




Turbidity
24-hr Water Quality Monitoring

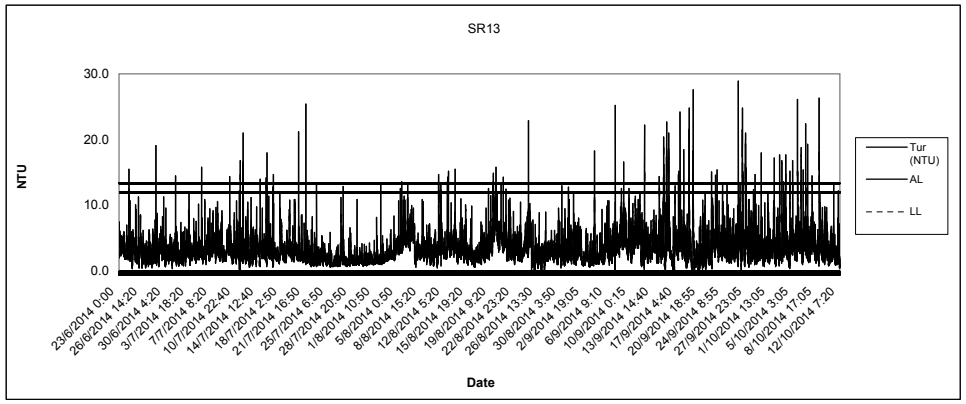




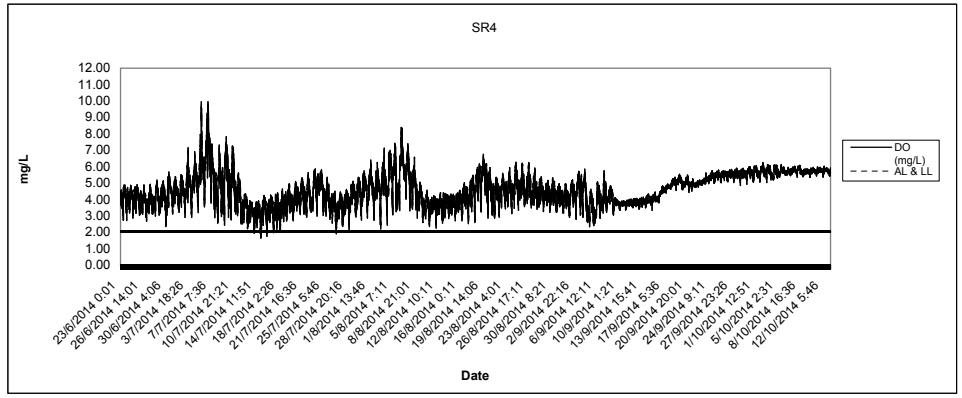


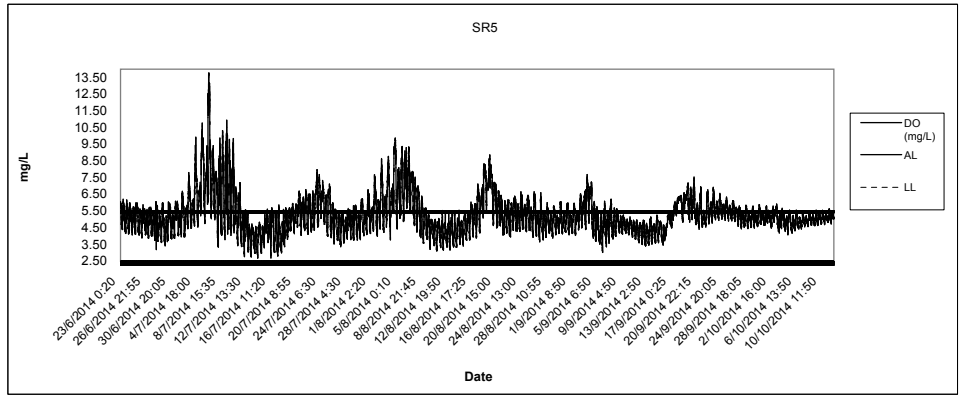
Providing Sufficient Water Depth for Kwai Tsing Container and its Approach Channel

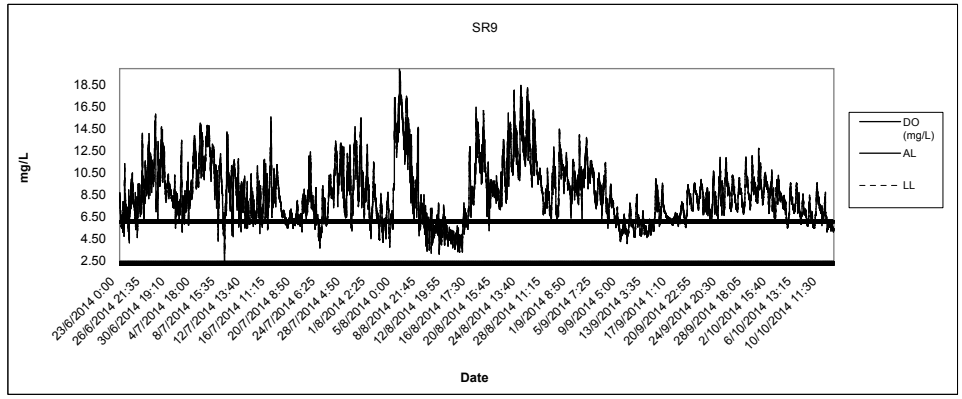
Turbidity
24-hr Water Quality Monitoring



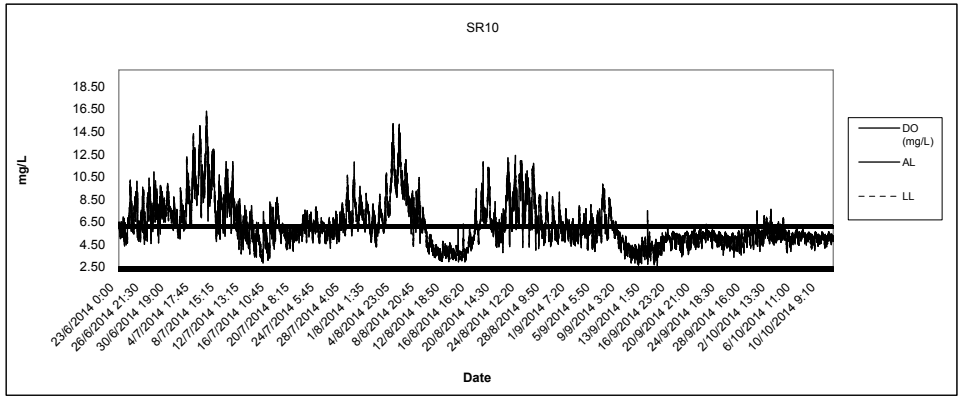
Dissolved Oxygen
24-hr Water Quality Monitoring

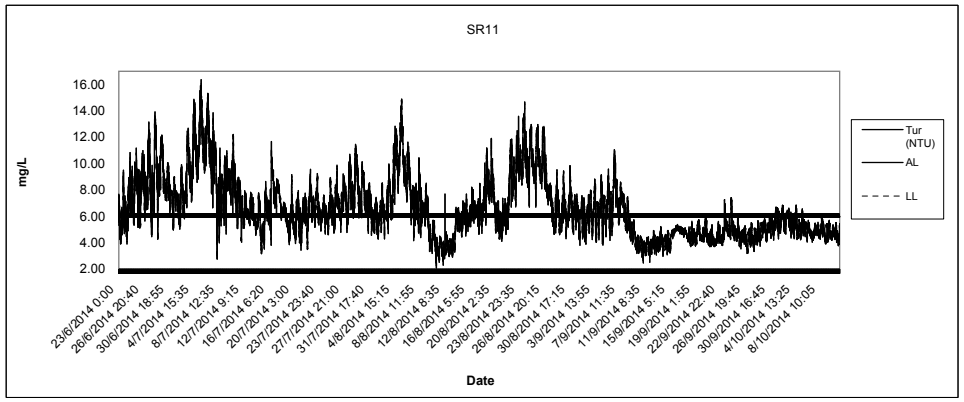


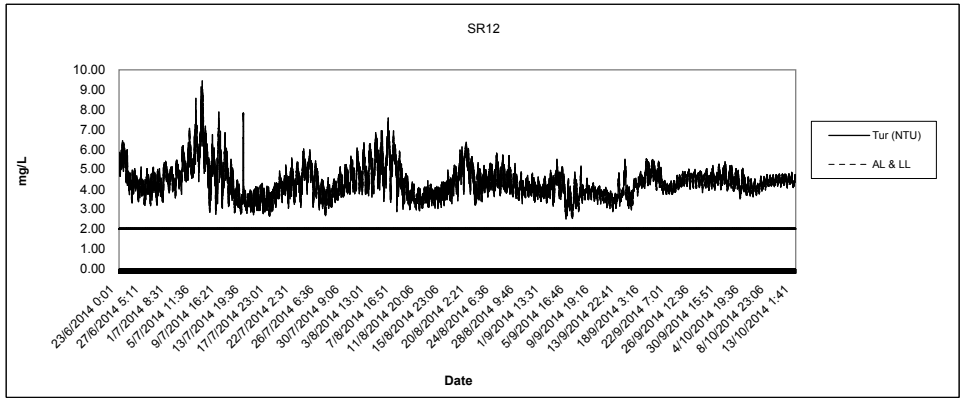




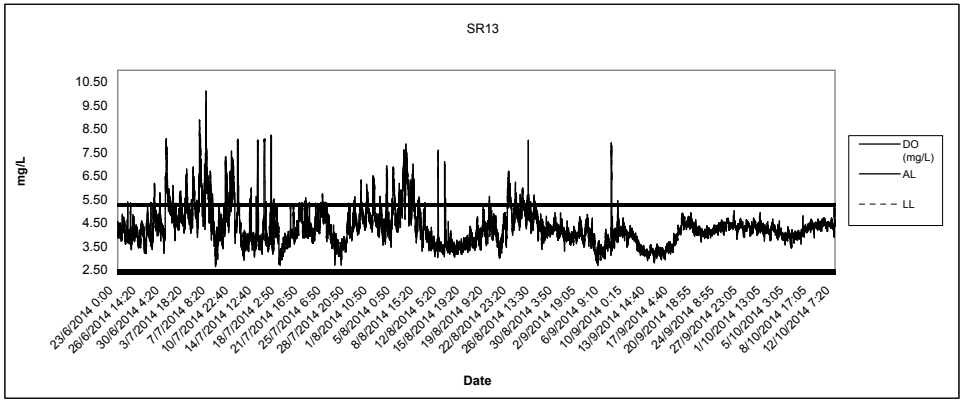
Dissolved Oxygen
24-hr Water Quality Monitoring





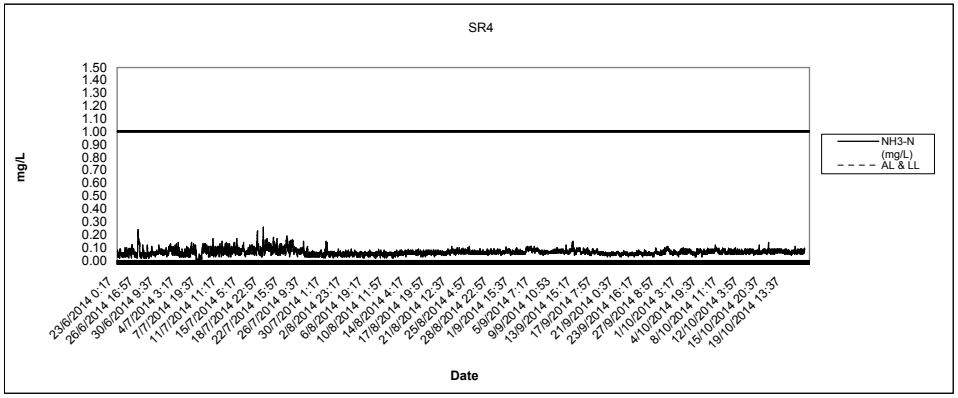


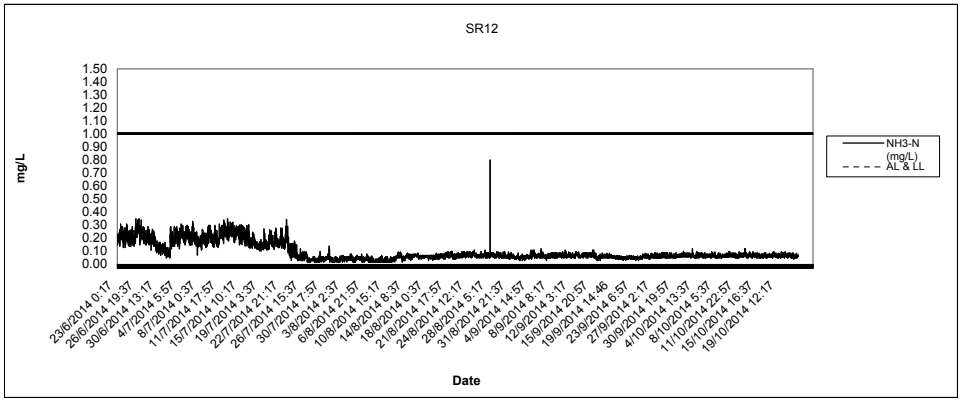
Dissolved Oxygen
24-hr Water Quality Monitoring



Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

Ammonia-N
24-hr Water Quality Monitoring





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Appendix F

Environmental Mitigation Implementation Schedule

EIA Ref	EM&A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
		A	Water Quality					
3.8	2.9		Use of Silt Screens	Minimize the effect of potential increase in SS levels at the seawater intakes	Contractor	WSD8, WSD9 and EMSD1	Construction Phase	
		A1	Silt Screens shall be installed at the flushing water intakes WSRs WSD1, WSD8~~, WSD9~~ and EMSD1 to minimise the effect of potential increase in SS levels at the seawater intakes.					Implemented
3.8	2.9		Use of Silt Curtains	Minimize the release of suspended soil from the dredging area	Contractor	Construction Work Sites	Construction Phase	
		A2	To minimize the potential SS impact from dredging, deployment of silt curtains around the grab dredgers is recommended; and Before commencement of dredging works, the holder of the Environmental Permit shall submit detailed proposal of the design and arrangement of the frame type silt curtain to EPD for approval.					Implemented
3.10	2.9	A3	Water Quality Monitoring Program	Perform water quality monitoring at sensitive receivers during construction phase	ET	Monitoring Locations as stated in Table 2.1 of the EM&A Manual	Construction Phase	
			Water quality monitoring shall be carried out in accordance with Section 2 of the Environmental Monitoring and Audit (EM&A) Manual. Event and Action Plan (EAP) for water quality shall be followed in case of any exceedance in action and limit level.					Implemented
3.8 (EP Ref 3)	-		Dredging Operation	Minimize potential adverse effect as a result of dredging activities	Contractor	Construction Work Sites	Construction Phase	
		A4	Only two types of dredgers are allowed for this Project: (a) grab dredger with closed grab, and (b) ~~cutter suction dredger~~ spud pole grab dredger.					Implemented
		A5	The speed of any construction vessels shall not exceed 10 knots when passing through the area of the Project.					Implemented
		A6	No more than ~~three~~ two grab dredgers with closed grab ~~(or one cutter suction dredger with two closed grab dredgers)~~ shall be operated within the Project Area at any one time for the Project.					Implemented
		A7	Only one closed grab dredger ~~or one cutter suction dredger~~ shall be operated in Zone 2B and during which no other closed grab dredger shall be allowed in other zones within the Project Area.					NA-no work in such location
		A8	No more than one grab dredger with closed ~~grab (or one cutter suction dredger)~~ shall be operated within each of the five main zones at any one time for the ~~Project in which the cutter suction dredger shall only be operated in Zones 2 and 4 with maximum dredging rate of 700 m³ in 30 minutes in any given hour (max. 8,400 m³/day, based on a 12-hour operation per day)~~.					Implemented
		A9	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 1 to 2 (subzones Z1A, Z1B, Z2A, Z2B and Z2C) shall follow the Dredging Plan for the Hotspot, as shown in EP-426/2011/A.					Implemented
		A10	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 3 to 4 (subzones Z3A to Z4B) shall not exceed 1,600 m³ per day during dry season or 3,440 m³ per day during wet season as shown in EP-426/2011/A.					Implemented
		A11	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 5 to 6 (subzones Z5A, Z5B and Z6A) shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					Implemented
		A12	The maximum dredging rate for closed grab dredger at Rambler Channel –					Implemented

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			Zones 5 to 8 (subzones Z5C, Z6B, Z6C, Z6D, Z7 and Z8) shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					
		A13	The maximum dredging rate for closed grab dredger at Northern Fairway – Zones 9 to 12 shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					NA-no work in such location
		A14	The maximum dredging rate for closed grab dredger at Western Fairway – Zone 13A shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					Implemented
		A15	The maximum dredging rate for closed grab dredger at Western Fairway – Zone 13B shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					Implement
		A16	~~The dredging pump of cutter suction dredger shall be operated during cutting to reduce the sediment loss to water body.~~					NA-no CSD employed
		A17	Project dredging works within Zone 1 to 6 (including sub-zones) of the Container Basin shall not be carried out at the same time with Terminal Operator's maintenance dredging activities.					Implemented
		A18	~~Cutter suction dredger is only to be deployed for the removal of harder material during daytime only (07:00 to 19:00) in Zone 2 (including subzones) of the Container Basin.~~					NA-no CSD employed
		A19	In case of rainstorm warning in effect during dredging works, the dredged material on barge shall be covered properly before transportation to disposal site.					Implemented
		A20	In case of exceedance of SS and NH3-N at the Tsing Yi WSD flushing intake due to dredging operation is evidenced, the Contractor shall propose mitigation measures not limited to reducing dredging rate. If exceedance persists, the Contractor shall propose not to undertake dredging operation in close proximity to the Tsing Yi flushing water intake during flood tide. The Contractor shall liaise with the ETL, IEC, ER, EPD and WSD for the proposed mitigation measures.					NA-no exceedance due to dredging operation
		A21	If further mitigation measures are required due to continuous exceedance of SS and NH_3-N, consideration shall then be given to dredge only on the state of the tide which would avoid migration of SS towards the WSD and EMSD intakes.					NA-no exceedance due to dredging operation
		A22	Dredging sub-zone Z2B where high NH_3-N in sediment is found shall be isolated with dredging works to be carried out towards the end of construction programme.					NA-no work in such location
		A23	Administrative control in terms of dredging rate adjustment in controlling the release of contaminants shall be employed as mitigation measures.					Implemented
		A24	Field trials shall be carried out to propose the most effective dredging process and rate to control the release of ammoniacal nitrogen and UIA into the water column and achieve compliance at the WSD1 seawater intake (NH_3-N) and at the beaches for UIA. Capital dredging works in dredging sub-zone Z2B (Figure 1.2h refers) should not therefore be carried out until the proposed method and rate are confirmed.					NA-no work in such location

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
		A25	Detailed dredging plan shall be prepared providing details of individual dredging subzones and dredging rate taking into account of the field trial results.					Implemented
3.8	-		Other Good Site Practices for Dredging	Minimize potential adverse effect as a result of dredging activities	Contractor	Construction Work Sites	Construction Phase	
		A26	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.					Implemented
		A27	The speed of all Contractor's vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments.					Implemented
		A28	All barges / dredgers used should be fitted with tight fitting seals to their bottom openings to prevent leakage of material.					Implemented
		A29	Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds.					Implemented
		A30	No overflow of dredged mud should be allowed. Barges or hopper should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation.					Implemented
		B	**Waste Management**					
			Good Site Practices	Minimize potential adverse effect arising from the handling of dredged material	Contractor	Construction Work Sites (General)	Construction Phase	
4.5	3.3	B1	Obtain the profile of different sediment categories and careful planning of sediment removal.					Implemented
		B2	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.					Implemented
		B3	Training of site personnel in proper waste management and chemical handling procedures.					Implemented
		B4	Provision of sufficient waste disposal points and regular collection of waste.					Implemented
		B5	Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting sediment material is not anticipated.					Implemented
		B6	Use well maintained PME on site.					Implemented
			General Refuse	Minimize the adverse effect arising from the handling of site general refuse	Contractor	Construction Work Sites (General)	Construction Phase	
4.5	3.3	B7	General refuse should be stored in enclosed bins. A reputable waste collector should be employed by the contractor to remove general refuse from the site.					Implemented
			Chemical Waste	Minimize the adverse effect arising from the handling of site chemical waste	Contractor	Construction Work Site	Construction Phase	
4.5	3.3	B8	If chemical wastes are produced at the construction site, the Contractor shall be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes shall be used, and incompatible chemicals should be stored separately. Appropriate labels shall 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. The Contractor shall use a licensed collector to transport and dispose of the chemical					Implemented

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					
4.5	3.3		Marine Dredged Sediment	Control of transportation and disposal of dredged material in a manner to minimize potential impacts on water quality	Contractor	Construction Work Site	Construction Phase	
		B9	Control of transportation and disposal of dredged material in a manner to minimize potential impacts on water quality.					Implemented
		B10	Bottom opening of barges will 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.					Implemented
		B11	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.					Implemented
		B12	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.					Implemented
		B13	Sediment Quality Report shall be prepared and submit to EPD under DASO.					Implemented
		B14	If disposal of Type 3 sediment is identified, agreement with EPD shall be reached regarding the treatment of sediment before disposal.					NA – no type 3 material disposed
		B15	Project works shall not be carried out before obtaining confirmation from MFC on disposal option.					Implemented
		B16	Follow strictly all conditions stipulated in the dumping permit.					Implemented
		C	**Marine Ecology**	Review and assess the potential adverse effect on marine ecology	Contractor	Construction Work Sites	Construction Phase	
5.7	4.1	C1	Water quality monitoring results shall be reviewed from time to time to assess if there were any impact to marine ecology due to dredging operation.					Implemented
		D	**Fisheries**	Review and assess the potential adverse effect on fisheries	Contractor	Construction Work Sites	Construction Phase	
6.7	5.1	D1	Water quality monitoring results shall be reviewed from time to time to assess if there were any impact to fisheries due to dredging operation.					Implemented
		E	**Hazard to Life**		Contractor	Construction Work Sites (General)	Construction Phase	
7.8.2	6.2	E1	Sound communication channel shall be established with the oil companies, Marine Department, and Fire Services Department for effective notification and emergency evacuation in case of accidents.					Implemented
		E2	Proper safety and emergency training shall be given to the relevant operation staff at the dredging site. Emergency plans and procedures should be prepared and drills should be performed periodically.					Implemented
		F	**Landscape Visual and Glare**	Minimize landscape and visual impacts during construction phase	Contractor	Construction activities' area	Throughout design, construction phase	
8.9 Table 8-3 & 8-6	7.2	F1	Visa shields to the lights of dredgers shall be provided.					Implemented
		F2	The light source shall not point directly to any VSRs.					Implemented
		F3	Lights shall be switched off if they are not in use.					Implemented
		G	**Cultural Heritage**	Minimize potential marine archaeological impact during dredging activities	Contractor	Locations of the 20 unidentified sonar	During Construction works	
9.5	8		Monitoring Brief					
		G1	A monitoring brief shall be conducted during the dredging. It shall only be required during dredging at the locations of the 20 unidentified sonar					NA-no work in such location

EIA Ref	EM&A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			contacts and masked areas and does not need to cover all of the dredging activities. Dredging staff should be briefed about the possibility of locating archaeological objects and a marine archaeologist shall be available to monitor the dredged spoil and provide advice. If material indicative of archaeological remains is retrieved, the AMO should be contacted as soon as possible.			contacts and masked areas		
		H	**Noise**					
10.8	9		<u>Good Site Practices</u>	Control and minimize the generation of undue noise nuisance	Contractor	Construction Work Sites (Along the alignment of dredging	Construction Phase	
		H1	Only well-maintained plant shall be operated on-site and plant should be serviced regularly during the construction program.					Implemented
		H2	Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.					Implemented
		H3	Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from nearby NSRs.					Implemented
		H4	If dredging is to be carried out during restricted hours, work locations close to NSRs shall be avoided.					Implemented
		I	**Construction Dust**					
11.7	10		<u>Dust Control</u>	Good site practice to control dust and odour impact to the nearby sensitive receivers	Contractor	Construction Work Sites (General)	Construction Phase	
		I1	Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during the construction period.					Implemented
			<u>Odour</u>		Contractor	Construction Work Sites (General)	Construction Phase	
		I2	To minimize potential odour emissions, if dredged sediment is anticipated to be placed on barge for more than a day the load shall be properly covered as far as practicable to minimise the exposed area and potential odour.					NA-no work in such condition
		I3	If dredged sediment is found to be malodorous it shall be removed from site as soon as possible within one hour after the barge being filled up.					NA-no work in such condition

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Appendix G

Waste Generation in Reporting Period

Name of Department : Civil Engineering and Development Department
Contract No. : CV/2013/04

Monthly Summary Waste Flow Table for _2014__ (year)

Year	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Jan	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Feb	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Mar	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.05
Apr	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
May	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Jun	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Jul	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Aug	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Sep	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Oct	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Nov	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-
Total	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.14

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(3) Broken concrete for recycling into aggregates

Yearly Summary Waste Flow Table

Year	Estimated Annual Quantities of Inert C&D Materials (in '000m^3)										Estimated Annual of C&D Wastes									
	Total Quantity Generated		Broken Concrete (see Note 3)		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(a-b-c-d)		(in '000 kg)		(in '000 kg)		(in '000 kg)		(in '000 kg)		(in '000 m^3)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
2013	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.003	0.01
2014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	-
2015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020																				
2021																				
Grand Total																			0.2	

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

(3) Broken concrete for recycling into aggregates

Monthly Summary of Sediment Disposal (2014)

Marine Sediment Type	Type 1 – Open Sea Disposal	Type 2 – Confined Marine Disposal	Type 3 – Special Treatment / Disposal
Month	Monthly Quantity (m^3)	Monthly Quantity (m^3)	Monthly Quantity (m^3)
Jan	nil	nil	nil
Feb	nil	nil	nil
Mar	nil	nil	nil
Apr	nil	nil	nil
May	3,700	nil	nil
Jun	66,950	nil	nil
Jul	80,600	nil	nil
Aug	79,600	nil	nil
Sep	100,700	nil	nil
Oct	60,450	50,400	nil
Nov	-	-	-
Dec	-	-	-
Total	392,000	50,400	nil

MATERIALAB CONSULTANTS LIMITED
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Appendix H

Quarterly Assessment of Construction Impact

Cluster 2 DO (B)
0.7 x Baseline vs Impact

0.7 x Baseline DO (B) (mg/L) data			
SR6	04/01/2014	Mid-Flood	4.90
SR6	07/01/2014	Mid-Flood	4.27
SR6	09/01/2014	Mid-Flood	4.27
SR6	11/01/2014	Mid-Flood	4.35
SR6	14/01/2014	Mid-Flood	5.11
SR6	16/01/2014	Mid-Flood	4.99
SR6	18/01/2014	Mid-Flood	4.66
SR6	21/01/2014	Mid-Flood	4.56
SR6	23/01/2014	Mid-Flood	5.11
SR6	25/01/2014	Mid-Flood	4.67
SR6	27/01/2014	Mid-Flood	5.37
SR6	29/01/2014	Mid-Flood	5.30
SR7	04/01/2014	Mid-Flood	4.73
SR7	07/01/2014	Mid-Flood	4.10
SR7	09/01/2014	Mid-Flood	4.34
SR7	11/01/2014	Mid-Flood	4.34
SR7	14/01/2014	Mid-Flood	4.97
SR7	16/01/2014	Mid-Flood	4.90
SR7	18/01/2014	Mid-Flood	4.48
SR7	21/01/2014	Mid-Flood	4.65
SR7	23/01/2014	Mid-Flood	4.61
SR7	25/01/2014	Mid-Flood	5.11
SR7	27/01/2014	Mid-Flood	5.35
SR7	29/01/2014	Mid-Flood	5.40
SR8	04/01/2014	Mid-Flood	5.25
SR8	07/01/2014	Mid-Flood	4.48
SR8	09/01/2014	Mid-Flood	4.48
SR8	11/01/2014	Mid-Flood	4.63
SR8	14/01/2014	Mid-Flood	5.25
SR8	16/01/2014	Mid-Flood	5.33
SR8	18/01/2014	Mid-Flood	5.04
SR8	21/01/2014	Mid-Flood	4.83
SR8	23/01/2014	Mid-Flood	5.40
SR8	25/01/2014	Mid-Flood	5.00
SR8	27/01/2014	Mid-Flood	5.44
SR8	29/01/2014	Mid-Flood	5.82
SR9	04/01/2014	Mid-Flood	5.81
SR9	07/01/2014	Mid-Flood	4.69
SR9	09/01/2014	Mid-Flood	4.38
SR9	11/01/2014	Mid-Flood	4.58
SR9	14/01/2014	Mid-Flood	4.88
SR9	16/01/2014	Mid-Flood	5.13
SR9	18/01/2014	Mid-Flood	5.11
SR9	21/01/2014	Mid-Flood	5.64
SR9	23/01/2014	Mid-Flood	6.29
SR9	25/01/2014	Mid-Flood	6.43
SR9	27/01/2014	Mid-Flood	5.92
SR9	29/01/2014	Mid-Flood	6.98
SR10	04/01/2014	Mid-Flood	4.97
SR10	07/01/2014	Mid-Flood	4.34
SR10	09/01/2014	Mid-Flood	4.41
SR10	11/01/2014	Mid-Flood	4.64
SR10	14/01/2014	Mid-Flood	5.42
SR10	16/01/2014	Mid-Flood	5.08
SR10	18/01/2014	Mid-Flood	4.82
SR10	21/01/2014	Mid-Flood	4.88
SR10	23/01/2014	Mid-Flood	5.29
SR10	25/01/2014	Mid-Flood	5.32
SR10	27/01/2014	Mid-Flood	5.31
SR10	29/01/2014	Mid-Flood	5.62
SR11	04/01/2014	Mid-Flood	4.90
SR11	07/01/2014	Mid-Flood	4.55
SR11	09/01/2014	Mid-Flood	4.41
SR11	11/01/2014	Mid-Flood	4.68
SR11	14/01/2014	Mid-Flood	5.25
SR11	16/01/2014	Mid-Flood	5.36
SR11	18/01/2014	Mid-Flood	5.06
SR11	21/01/2014	Mid-Flood	4.93
SR11	23/01/2014	Mid-Flood	5.14
SR11	25/01/2014	Mid-Flood	5.16
SR11	27/01/2014	Mid-Flood	5.48
SR11	29/01/2014	Mid-Flood	5.95

Impact DO (B) (mg/L) data													
SR6	24/07/2014	Mid-Flood	4.72	SR8	24/07/2014	Mid-Flood	3.83	SR10	24/07/2014	Mid-Flood	5.46
SR6	26/07/2014	Mid-Flood	3.11	SR8	26/07/2014	Mid-Flood	4.57	SR10	26/07/2014	Mid-Flood	4.80
SR6	29/07/2014	Mid-Flood	4.20	SR8	29/07/2014	Mid-Flood	4.41	SR10	29/07/2014	Mid-Flood	4.58
SR6	31/07/2014	Mid-Flood	4.00	SR8	31/07/2014	Mid-Flood	2.16	SR10	31/07/2014	Mid-Flood	4.22
SR6	02/08/2014	Mid-Flood	4.20	SR8	02/08/2014	Mid-Flood	1.59	SR10	02/08/2014	Mid-Flood	4.34
SR6	05/08/2014	Mid-Flood	4.23	SR8	05/08/2014	Mid-Flood	5.82	SR10	05/08/2014	Mid-Flood	8.31
SR6	07/08/2014	Mid-Flood	4.80	SR8	07/08/2014	Mid-Flood	3.47	SR10	07/08/2014	Mid-Flood	3.23
SR6	09/08/2014	Mid-Flood	3.10	SR8	09/08/2014	Mid-Flood	4.42	SR10	09/08/2014	Mid-Flood	3.72
SR6	12/08/2014	Mid-Flood	3.57	SR8	12/08/2014	Mid-Flood	2.71	SR10	12/08/2014	Mid-Flood	3.08
SR6	14/08/2014	Mid-Flood	3.89	SR8	14/08/2014	Mid-Flood	2.46	SR10	14/08/2014	Mid-Flood	3.38
SR6	16/8/2014	Mid-Flood	3.14	SR8	16/8/2014	Mid-Flood	2.42	SR10	16/8/2014	Mid-Flood	3.64
SR6	19/08/2014	Mid-Flood	5.07	SR8	19/08/2014	Mid-Flood	4.64	SR10	19/08/2014	Mid-Flood	4.22
SR6	21/8/2014	Mid-Flood	3.91	SR8	21/8/2014	Mid-Flood	3.82	SR10	21/8/2014	Mid-Flood	4.71
SR6	23/08/2014	Mid-Flood	4.20	SR8	23/08/2014	Mid-Flood	5.11	SR10	23/08/2014	Mid-Flood	7.91
SR6	26/08/2014	Mid-Flood	4.55	SR8	26/08/2014	Mid-Flood	5.10	SR10	26/08/2014	Mid-Flood	6.09
SR6	28/8/2014	Mid-Flood	4.60	SR8	28/8/2014	Mid-Flood	5.04	SR10	28/8/2014	Mid-Flood	4.64
SR6	30/8/2014	Mid-Flood	4.42	SR8	30/8/2014	Mid-Flood	4.30	SR10	30/8/2014	Mid-Flood	5.02
SR6	02/09/2014	Mid-Flood	4.31	SR8	02/09/2014	Mid-Flood	3.36	SR10	02/09/2014	Mid-Flood	5.13
SR6	04/09/2014	Mid-Flood	4.53	SR8	04/09/2014	Mid-Flood	5.10	SR10	04/09/2014	Mid-Flood	6.31
SR6	06/09/2014	Mid-Flood	4.37	SR8	06/09/2014	Mid-Flood	4.49	SR10	06/09/2014	Mid-Flood	4.49
SR6	09/09/2014	Mid-Flood	4.18	SR8	09/09/2014	Mid-Flood	4.31	SR10	09/09/2014	Mid-Flood	4.95
SR6	11/09/2014	Mid-Flood	3.92	SR8	11/09/2014	Mid-Flood	3.17	SR10	11/09/2014	Mid-Flood	3.64
SR6	13/9/2014	Mid-Flood	4.02	SR8	13/9/2014	Mid-Flood	4.23	SR10	13/9/2014	Mid-Flood	5.35
SR6	16/9/2014	Mid-Flood		SR8	16/9/2014	Mid-Flood		SR10	16/9/2014	Mid-Flood	
SR6	18/09/2014	Mid-Flood	4.69	SR8	18/09/2014	Mid-Flood	4.67	SR10	18/09/2014	Mid-Flood	4.41
SR6	20/9/2014	Mid-Flood	5.14	SR8	20/9/2014	Mid-Flood	5.55	SR10	20/9/2014	Mid-Flood	5.85
SR6	23/9/2014	Mid-Flood	5.45	SR8	23/9/2014	Mid-Flood	5.29	SR10	23/9/2014	Mid-Flood	4.97
SR6	25/9/2014	Mid-Flood	4.54	SR8	25/9/2014	Mid-Flood	4.70	SR10	25/9/2014	Mid-Flood	5.10
SR6	27/9/2014	Mid-Flood	4.86	SR8	27/9/2014	Mid-Flood	4.64	SR10	27/9/2014	Mid-Flood	4.92
SR6	30/9/2014	Mid-Flood	4.83	SR8	30/9/2014	Mid-Flood	5.55	SR10	30/9/2014	Mid-Flood	4.51
SR6	02/10/2014	Mid-Flood	5.06	SR8	02/10/2014	Mid-Flood	5.61	SR10	02/10/2014	Mid-Flood	4.29
SR6	04/10/2014	Mid-Flood	4.79	SR8	04/10/2014	Mid-Flood	5.62	SR10	04/10/2014	Mid-Flood	5.16
SR6	07/10/2014	Mid-Flood	4.97	SR8	07/10/2014	Mid-Flood	5.13	SR10	07/10/2014	Mid-Flood	5.62
SR6	09/10/2014	Mid-Flood	5.20	SR8	09/10/2014	Mid-Flood	5.37	SR10	09/10/2014	Mid-Flood	5.16
SR6	11/10/2014	Mid-Flood	5.18	SR8	11/10/2014	Mid-Flood	5.55	SR10	11/10/2014	Mid-Flood	5.17
SR6	14/10/2014	Mid-Flood	5.26	SR8	14/10/2014	Mid-Flood	5.91	SR10	14/10/2014	Mid-Flood	5.88
SR6	16/10/2014	Mid-Flood	5.66	SR8	16/10/2014	Mid-Flood	6.22	SR10	16/10/2014	Mid-Flood	6.19
SR6	18/10/2014	Mid-Flood	5.02	SR8	18/10/2014	Mid-Flood	5.36	SR10	18/10/2014	Mid-Flood	5.50
SR6	21/10/2014	Mid-Flood	5.44	SR8	21/10/2014	Mid-Flood	6.01	SR10	21/10/2014	Mid-Flood	5.60
SR7	24/07/2014	Mid-Flood	3.68	SR9	24/07/2014	Mid-Flood	5.14	SR11	24/07/2014	Mid-Flood	3.22
SR7	26/07/2014	Mid-Flood	5.51	SR9	26/07/2014	Mid-Flood	5.06	SR11	26/07/2014	Mid-Flood	4.36
SR7	29/07/2014	Mid-Flood	4.81	SR9	29/07/2014	Mid-Flood	2.63	SR11	29/07/2014	Mid-Flood	3.27
SR7	31/07/2014	Mid-Flood	3.21	SR9	31/07/2014	Mid-Flood	3.16	SR11	31/07/2014	Mid-Flood	4.70
SR7	02/08/2014	Mid-Flood	2.99	SR9	02/08/2014	Mid-Flood	4.10	SR11	02/08/2014	Mid-Flood	3.35
SR7	05/08/2014	Mid-Flood	5.24	SR9	05/08/2014	Mid-Flood	3.20	SR11	05/08/2014	Mid-Flood	4.10
SR7	07/08/2014	Mid-Flood	3.78	SR9	07/08/2014	Mid-Flood	4.18	SR11	07/08/2014	Mid-Flood	3.47
SR7	09/08/2014	Mid-Flood	4.10	SR9	09/08/2014	Mid-Flood	1.88	SR11	09/08/2014	Mid-Flood	5.92
SR7	12/08/2014	Mid-Flood	2.83	SR9	12/08/2014	Mid-Flood	3.13	SR11	12/08/2014	Mid-Flood	3.77
SR7	14/08/2014	Mid-Flood	3.44	SR9	14/08/2014	Mid-Flood	3.44	SR11	14/08/2014	Mid-Flood	3.56
SR7	16/8/2014	Mid-Flood	3.29	SR9	16/8/2014	Mid-Flood	3.55	SR11	16/8/2014	Mid-Flood	3.62
SR7	19/08/2014	Mid-Flood	3.73	SR9	19/08/2014	Mid-Flood	2.50	SR11	19/08/2014	Mid-Flood	3.49
SR7	21/8/2014	Mid-Flood	3.82	SR9	21/8/2014	Mid-Flood	4.82	SR11	21/8/2014	Mid-Flood	3.71
SR7	23/08/2014	Mid-Flood	3.28	SR9	23/08/2014	Mid-Flood	3.65	SR11	23/08/2014	Mid-Flood	4.08
SR7	26/08/2014	Mid-Flood	6.86	SR9	26/08/2014	Mid-Flood	2.97	SR11	26/08/2014	Mid-Flood	3.50
SR7	28/8/2014	Mid-Flood	6.25	SR9	28/8/2014	Mid-Flood	5.40	SR11	28/8/2014	Mid-Flood	4.81
SR7	30/8/2014	Mid-Flood	4.76	SR9	30/8/2014	Mid-Flood	4.24	SR11	30/8/2014	Mid-Flood	6.06
SR7	02/09/2014	Mid-Flood	3.95	SR9	02/09/2014	Mid-Flood	3.46	SR11	02/09/2014	Mid-Flood	5.36
SR7	04/09/2014	Mid-Flood	4.10	SR9	04/09/2014	Mid-Flood	4.79	SR11	04/09/2014	Mid-Flood	5.45
SR7	06/09/2014	Mid-Flood	4.17	SR9	06/09/2014	Mid-Flood	4.06	SR11	06/09/2014	Mid-Flood	4.77
SR7	09/09/2014	Mid-Flood	4.63	SR9	09/09/2014	Mid-Flood	4.73	SR11	09/09/2014	Mid-Flood	4.53
SR7	11/09/2014	Mid-Flood	4.01	SR9	11/09/2014	Mid-Flood	4.64	SR11	11/09/2014	Mid-Flood	4.08
SR7	13/9/2014	Mid-Flood	4.01	SR9	13/9/2014	Mid-Flood	3.89	SR11	13/9/2014	Mid-Flood	3.91
SR7	16/9/2014	Mid-Flood		SR9	16/9/2014	Mid-Flood		SR11	16/9/2014	Mid-Flood	
SR7	18/09/2014	Mid-Flood	4.38	SR9	18/09/2014	Mid-Flood	4.92	SR11	18/09/2014	Mid-Flood	4.62
SR7	20/9/2014	Mid-Flood	5.25	SR9	20/9/2014	Mid-Flood	5.97	SR11	20/9/2014	Mid-Flood	5.25
SR7	23/9/2014	Mid-Flood	5.30	SR9	23/9/2014	Mid-Flood	6.08	SR11	23/9/2014	Mid-Flood	5.08
SR7	25/9/2014	Mid-Flood	4.96	SR9	25/9/2014	Mid-Flood	5.34	SR11	25/9/2014	Mid-Flood	4.97
SR7	27/9/2014	Mid-Flood	4.86	SR9	27/9/2014	Mid-Flood	6.08	SR11	27/9/2014	Mid-Flood	4.55
SR7	30/9/2014	Mid-Flood	5.03	SR9	30/9/2014	Mid-Flood	6.58	SR11	30/9/2014	Mid-Flood	5.12
SR7	02/10/2014	Mid-Flood	4.03	SR9	02/10/2014	Mid-Flood	8.17	SR11	02/10/2014	Mid-Flood	6.02
SR7	04/10/2014	Mid-Flood	4.58	SR9	04/10/2014	Mid-Flood	5.29	SR11	04/10/2014	Mid-Flood	5.54
SR7	07/10/2014	Mid-Flood	5.31	SR9	07/10/2014	Mid-Flood	6.16	SR11	07/10/2014	Mid-Flood	5.17
SR7	09/10/2014	Mid-Flood	5.25	SR9	09/10/2014	Mid-Flood	5.89	SR11	09/10/2014	Mid-Flood	5.43
SR7	11/10/2014	Mid-Flood	4.86	SR9	11/10/2014	Mid-Flood	5.41	SR11	11/10/2014	Mid-Flood	5.46
SR7	14/10/2014	Mid-Flood	5.12	SR9	14/10/2014	Mid-Flood	5.61	SR11	14/10/2014	Mid-Flood	5.78
SR7	16/10/2014	Mid-Flood	5.06	SR9	16/10/2014	Mid-Flood	5.71	SR11	16/10/2014	Mid-Flood	5.42
SR7	18/10/2014	Mid-Flood	5.50	SR9	18/10/2014	Mid-Flood	5.08	SR11	18/10/2014	Mid-Flood	5.26
SR7	21/10/2014	Mid-Flood	5.45	SR9	21/10/2014	Mid-Flood	5.77	SR11	21/10/2014	Mid-Flood	5.43

Cluster 2 DO (B)
0.7 x Baseline vs Impact

0.7 x Baseline DO (B) (mg/L) data			
SR6	04/01/2014	Mid-Ebb	4.90
SR6	07/01/2014	Mid-Ebb	4.27
SR6	09/01/2014	Mid-Ebb	4.27
SR6	11/01/2014	Mid-Ebb	4.26
SR6	14/01/2014	Mid-Ebb	5.06
SR6	16/01/2014	Mid-Ebb	4.84
SR6	18/01/2014	Mid-Ebb	4.74
SR6	21/01/2014	Mid-Ebb	4.80
SR6	23/01/2014	Mid-Ebb	4.85
SR6	25/01/2014	Mid-Ebb	4.89
SR6	27/01/2014	Mid-Ebb	5.24
SR6	29/01/2014	Mid-Ebb	4.86
SR7	04/01/2014	Mid-Ebb	4.90
SR7	07/01/2014	Mid-Ebb	4.20
SR7	09/01/2014	Mid-Ebb	4.32
SR7	11/01/2014	Mid-Ebb	4.34
SR7	14/01/2014	Mid-Ebb	4.98
SR7	16/01/2014	Mid-Ebb	4.97
SR7	18/01/2014	Mid-Ebb	4.60
SR7	21/01/2014	Mid-Ebb	4.80
SR7	23/01/2014	Mid-Ebb	4.52
SR7	25/01/2014	Mid-Ebb	5.48
SR7	27/01/2014	Mid-Ebb	4.95
SR7	29/01/2014	Mid-Ebb	5.05
SR8	04/01/2014	Mid-Ebb	5.25
SR8	07/01/2014	Mid-Ebb	4.55
SR8	09/01/2014	Mid-Ebb	4.55
SR8	11/01/2014	Mid-Ebb	4.55
SR8	14/01/2014	Mid-Ebb	5.12
SR8	16/01/2014	Mid-Ebb	5.31
SR8	18/01/2014	Mid-Ebb	5.19
SR8	21/01/2014	Mid-Ebb	4.84
SR8	23/01/2014	Mid-Ebb	5.19
SR8	25/01/2014	Mid-Ebb	5.20
SR8	27/01/2014	Mid-Ebb	5.12
SR8	29/01/2014	Mid-Ebb	5.58
SR9	04/01/2014	Mid-Ebb	6.30
SR9	07/01/2014	Mid-Ebb	4.62
SR9	09/01/2014	Mid-Ebb	4.27
SR9	11/01/2014	Mid-Ebb	4.49
SR9	14/01/2014	Mid-Ebb	4.78
SR9	16/01/2014	Mid-Ebb	4.91
SR9	18/01/2014	Mid-Ebb	5.51
SR9	21/01/2014	Mid-Ebb	6.27
SR9	23/01/2014	Mid-Ebb	6.08
SR9	25/01/2014	Mid-Ebb	6.67
SR9	27/01/2014	Mid-Ebb	5.55
SR9	29/01/2014	Mid-Ebb	5.66
SR10	04/01/2014	Mid-Ebb	4.97
SR10	07/01/2014	Mid-Ebb	4.45
SR10	09/01/2014	Mid-Ebb	4.48
SR10	11/01/2014	Mid-Ebb	4.56
SR10	14/01/2014	Mid-Ebb	5.43
SR10	16/01/2014	Mid-Ebb	5.11
SR10	18/01/2014	Mid-Ebb	4.90
SR10	21/01/2014	Mid-Ebb	4.99
SR10	23/01/2014	Mid-Ebb	5.18
SR10	25/01/2014	Mid-Ebb	5.57
SR10	27/01/2014	Mid-Ebb	5.20
SR10	29/01/2014	Mid-Ebb	5.34
SR11	04/01/2014	Mid-Ebb	5.18
SR11	07/01/2014	Mid-Ebb	4.59
SR11	09/01/2014	Mid-Ebb	4.41
SR11	11/01/2014	Mid-Ebb	4.66
SR11	14/01/2014	Mid-Ebb	5.31
SR11	16/01/2014	Mid-Ebb	5.35
SR11	18/01/2014	Mid-Ebb	4.90
SR11	21/01/2014	Mid-Ebb	5.06
SR11	23/01/2014	Mid-Ebb	5.13
SR11	25/01/2014	Mid-Ebb	5.28
SR11	27/01/2014	Mid-Ebb	5.27
SR11	29/01/2014	Mid-Ebb	5.79

Impact DO (B) (mg/L) data													
SR6	24/07/2014	Mid-Ebb	4.70	SR8	24/07/2014	Mid-Ebb	4.09	SR10	24/07/2014	Mid-Ebb	4.93
SR6	26/07/2014	Mid-Ebb	3.11	SR8	26/07/2014	Mid-Ebb	4.57	SR10	26/07/2014	Mid-Ebb	4.20
SR6	29/07/2014	Mid-Ebb	3.18	SR8	29/07/2014	Mid-Ebb	4.72	SR10	29/07/2014	Mid-Ebb	5.24
SR6	31/07/2014	Mid-Ebb	4.70	SR8	31/07/2014	Mid-Ebb	6.38	SR10	31/07/2014	Mid-Ebb	3.53
SR6	02/08/2014	Mid-Ebb	5.68	SR8	02/08/2014	Mid-Ebb	3.17	SR10	02/08/2014	Mid-Ebb	4.82
SR6	05/08/2014	Mid-Ebb	5.00	SR8	05/08/2014	Mid-Ebb	7.76	SR10	05/08/2014	Mid-Ebb	8.62
SR6	07/08/2014	Mid-Ebb	4.81	SR8	07/08/2014	Mid-Ebb	3.93	SR10	07/08/2014	Mid-Ebb	3.15
SR6	09/08/2014	Mid-Ebb	3.16	SR8	09/08/2014	Mid-Ebb	4.44	SR10	09/08/2014	Mid-Ebb	3.72
SR6	12/08/2014	Mid-Ebb	3.45	SR8	12/08/2014	Mid-Ebb	2.07	SR10	12/08/2014	Mid-Ebb	3.12
SR6	14/08/2014	Mid-Ebb	3.46	SR8	14/08/2014	Mid-Ebb	2.42	SR10	14/08/2014	Mid-Ebb	3.39
SR6	16/8/2014	Mid-Ebb	3.22	SR8	16/8/2014	Mid-Ebb	3.22	SR10	16/8/2014	Mid-Ebb	3.40
SR6	19/08/2014	Mid-Ebb	5.14	SR8	19/08/2014	Mid-Ebb	4.85	SR10	19/08/2014	Mid-Ebb	4.60
SR6	21/8/2014	Mid-Ebb	3.49	SR8	21/8/2014	Mid-Ebb	3.96	SR10	21/8/2014	Mid-Ebb	4.52
SR6	23/08/2014	Mid-Ebb	5.61	SR8	23/08/2014	Mid-Ebb	5.80	SR10	23/08/2014	Mid-Ebb	7.79
SR6	26/08/2014	Mid-Ebb	4.80	SR8	26/08/2014	Mid-Ebb	6.12	SR10	26/08/2014	Mid-Ebb	6.16
SR6	28/8/2014	Mid-Ebb	5.14	SR8	28/8/2014	Mid-Ebb	4.74	SR10	28/8/2014	Mid-Ebb	4.13
SR6	30/8/2014	Mid-Ebb	4.47	SR8	30/8/2014	Mid-Ebb	4.02	SR10	30/8/2014	Mid-Ebb	5.23
SR6	02/09/2014	Mid-Ebb	3.99	SR8	02/09/2014	Mid-Ebb	3.12	SR10	02/09/2014	Mid-Ebb	5.06
SR6	04/09/2014	Mid-Ebb	4.27	SR8	04/09/2014	Mid-Ebb	5.65	SR10	04/09/2014	Mid-Ebb	6.22
SR6	06/09/2014	Mid-Ebb	4.10	SR8	06/09/2014	Mid-Ebb	4.34	SR10	06/09/2014	Mid-Ebb	4.38
SR6	09/09/2014	Mid-Ebb	4.26	SR8	09/09/2014	Mid-Ebb	4.62	SR10	09/09/2014	Mid-Ebb	4.96
SR6	11/09/2014	Mid-Ebb	3.93	SR8	11/09/2014	Mid-Ebb	3.02	SR10	11/09/2014	Mid-Ebb	3.48
SR6	13/9/2014	Mid-Ebb	3.91	SR8	13/9/2014	Mid-Ebb	4.10	SR10	13/9/2014	Mid-Ebb	5.93
SR6	16/9/2014	Mid-Ebb		SR8	16/9/2014	Mid-Ebb		SR10	16/9/2014	Mid-Ebb	
SR6	18/09/2014	Mid-Ebb	4.85	SR8	18/09/2014	Mid-Ebb	4.92	SR10	18/09/2014	Mid-Ebb	4.81
SR6	20/9/2014	Mid-Ebb	5.27	SR8	20/9/2014	Mid-Ebb	5.50	SR10	20/9/2014	Mid-Ebb	5.60
SR6	23/9/2014	Mid-Ebb	5.62	SR8	23/9/2014	Mid-Ebb	5.34	SR10	23/9/2014	Mid-Ebb	4.80
SR6	25/9/2014	Mid-Ebb	4.83	SR8	25/9/2014	Mid-Ebb	4.80	SR10	25/9/2014	Mid-Ebb	4.96
SR6	27/9/2014	Mid-Ebb	4.81	SR8	27/9/2014	Mid-Ebb	4.73	SR10	27/9/2014	Mid-Ebb	4.93
SR6	30/9/2014	Mid-Ebb	5.08	SR8	30/9/2014	Mid-Ebb	5.57	SR10	30/9/2014	Mid-Ebb	4.96
SR6	02/10/2014	Mid-Ebb	4.94	SR8	02/10/2014	Mid-Ebb	5.62	SR10	02/10/2014	Mid-Ebb	4.48
SR6	04/10/2014	Mid-Ebb	4.98	SR8	04/10/2014	Mid-Ebb	5.34	SR10	04/10/2014	Mid-Ebb	5.38
SR6	07/10/2014	Mid-Ebb	4.98	SR8	07/10/2014	Mid-Ebb	5.14	SR10	07/10/2014	Mid-Ebb	5.60
SR6	09/10/2014	Mid-Ebb	5.06	SR8	09/10/2014	Mid-Ebb	5.43	SR10	09/10/2014	Mid-Ebb	5.55
SR6	11/10/2014	Mid-Ebb	5.17	SR8	11/10/2014	Mid-Ebb	5.53	SR10	11/10/2014	Mid-Ebb	5.18
SR6	14/10/2014	Mid-Ebb	5.19	SR8	14/10/2014	Mid-Ebb	5.71	SR10	14/10/2014	Mid-Ebb	5.82
SR6	16/10/2014	Mid-Ebb	5.71	SR8	16/10/2014	Mid-Ebb	5.70	SR10	16/10/2014	Mid-Ebb	5.84
SR6	18/10/2014	Mid-Ebb	5.44	SR8	18/10/2014	Mid-Ebb	5.56	SR10	18/10/2014	Mid-Ebb	5.74
SR6	21/10/2014	Mid-Ebb	5.77	SR8	21/10/2014	Mid-Ebb	5.77	SR10	21/10/2014	Mid-Ebb	5.97
SR7	24/07/2014	Mid-Ebb	3.68	SR9	24/07/2014	Mid-Ebb	5.00	SR11	24/07/2014	Mid-Ebb	3.11
SR7	26/07/2014	Mid-Ebb	4.36	SR9	26/07/2014	Mid-Ebb	5.02	SR11	26/07/2014	Mid-Ebb	5.04
SR7	29/07/2014	Mid-Ebb	4.76	SR9	29/07/2014	Mid-Ebb	3.02	SR11	29/07/2014	Mid-Ebb	3.99
SR7	31/07/2014	Mid-Ebb	3.72	SR9	31/07/2014	Mid-Ebb	6.44	SR11	31/07/2014	Mid-Ebb	4.69
SR7	02/08/2014	Mid-Ebb	2.57	SR9	02/08/2014	Mid-Ebb	7.37	SR11	02/08/2014	Mid-Ebb	3.23
SR7	05/08/2014	Mid-Ebb	6.99	SR9	05/08/2014	Mid-Ebb	1.38	SR11	05/08/2014	Mid-Ebb	3.82
SR7	07/08/2014	Mid-Ebb	3.81	SR9	07/08/2014	Mid-Ebb	2.54	SR11	07/08/2014	Mid-Ebb	3.19
SR7	09/08/2014	Mid-Ebb	3.82	SR9	09/08/2014	Mid-Ebb	2.64	SR11	09/08/2014	Mid-Ebb	5.99
SR7	12/08/2014	Mid-Ebb	2.97	SR9	12/08/2014	Mid-Ebb	3.46	SR11	12/08/2014	Mid-Ebb	3.72
SR7	14/08/2014	Mid-Ebb	3.46	SR9	14/08/2014	Mid-Ebb	2.86	SR11	14/08/2014	Mid-Ebb	3.47
SR7	16/8/2014	Mid-Ebb	3.17	SR9	16/8/2014	Mid-Ebb	4.13	SR11	16/8/2014	Mid-Ebb	3.81
SR7	19/08/2014	Mid-Ebb	2.94	SR9	19/08/2014	Mid-Ebb	2.50	SR11	19/08/2014	Mid-Ebb	3.85
SR7	21/8/2014	Mid-Ebb	3.29	SR9	21/8/2014	Mid-Ebb	1.50	SR11	21/8/2014	Mid-Ebb	3.39
SR7	23/08/2014	Mid-Ebb	3.40	SR9	23/08/2014	Mid-Ebb	2.03	SR11	23/08/2014	Mid-Ebb	5.52
SR7	26/08/2014	Mid-Ebb	6.90	SR9	26/08/2014	Mid-Ebb	1.06	SR11	26/08/2014	Mid-Ebb	3.10
SR7	28/8/2014	Mid-Ebb	5.96	SR9	28/8/2014	Mid-Ebb	5.12	SR11	28/8/2014	Mid-Ebb	4.52
SR7	30/8/2014	Mid-Ebb	4.80	SR9	30/8/2014	Mid-Ebb	4.09	SR11	30/8/2014	Mid-Ebb	5.80
SR7	02/09/2014	Mid-Ebb	4.75	SR9	02/09/2014	Mid-Ebb	3.46	SR11	02/09/2014	Mid-Ebb	5.05
SR7	04/09/2014	Mid-Ebb	4.76	SR9	04/09/2014	Mid-Ebb	4.75	SR11	04/09/2014	Mid-Ebb	5.54
SR7	06/09/2014	Mid-Ebb	4.50	SR9	06/09/2014	Mid-Ebb	3.85	SR11	06/09/2014	Mid-Ebb	3.71
SR7	09/09/2014	Mid-Ebb	4.62	SR9	09/09/2014	Mid-Ebb	4.98	SR11	09/09/2014	Mid-Ebb	4.79
SR7	11/09/2014	Mid-Ebb	4.01	SR9	11/09/2014	Mid-Ebb	4.61	SR11	11/09/2014	Mid-Ebb	4.09
SR7	13/9/2014	Mid-Ebb	4.03	SR9	13/9/2014	Mid-Ebb	4.22	SR11	13/9/2014	Mid-Ebb	3.58
SR7	16/9/2014	Mid-Ebb		SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR7	18/09/2014	Mid-Ebb	4.38	SR9	18/09/2014	Mid-Ebb	4.77	SR11	18/09/2014	Mid-Ebb	3.92
SR7	20/9/2014	Mid-Ebb	4.33	SR9	20/9/2014	Mid-Ebb	5.66	SR11	20/9/2014	Mid-Ebb	5.03
SR7	23/9/2014	Mid-Ebb	5.42	SR9	23/9/2014	Mid-Ebb	5.30	SR11	23/9/2014	Mid-Ebb	5.28
SR7	25/9/2014	Mid-Ebb	4.96	SR9	25/9/2014	Mid-Ebb	5.48	SR11	25/9/2014	Mid-Ebb	5.11
SR7	27/9/2014	Mid-Ebb	4.88	SR9	27/9/2014	Mid-Ebb	6.11	SR11	27/9/2014	Mid-Ebb	4.91
SR7	30/9/2014	Mid-Ebb	5.03	SR9	30/9/2014	Mid-Ebb	7.29	SR11	30/9/2014	Mid-Ebb	5.35
SR7	02/10/2014	Mid-Ebb	4.65	SR9	02/10/2014	Mid-Ebb	6.62	SR11	02/10/2014	Mid-Ebb	5.88
SR7	04/10/2014	Mid-Ebb	4.57	SR9	04/10/2014	Mid-Ebb	5.01	SR11	04/10/2014	Mid-Ebb	5.34
SR7	07/10/2014	Mid-Ebb	5.48	SR9	07/10/2014	Mid-Ebb	5.60	SR11	07/10/2014	Mid-Ebb	5.50
SR7	09/10/2014	Mid-Ebb	5.26	SR9	09/10/2014	Mid-Ebb	5.40	SR11	09/10/2014	Mid-Ebb	5.06
SR7	11/10/2014	Mid-Ebb	4.87	SR9	11/10/2014	Mid-Ebb	5.41	SR11	11/10/2014	Mid-Ebb	5.38
SR7	14/10/2014	Mid-Ebb	5.10	SR9	14/10/2014	Mid-Ebb	5.36	SR11	14/10/2014	Mid-Ebb	5.27
SR7	16/10/2014	Mid-Ebb	5.29	SR9	16/10/2014	Mid-Ebb	6.06	SR11	16/10/2014	Mid-Ebb	5.61
SR7	18/10/2014	Mid-Ebb	5.51	SR9	18/10/2014	Mid-Ebb	5.90	SR11	18/10/2014	Mid-Ebb	5.41
SR7	21/10/2014	Mid-Ebb	5.44	SR9	21/10/2014	Mid-Ebb	5.95	SR11	21/10/2014	Mid-Ebb	5.61

Baseline x 0.7		Impact	
Raw Statistics		Raw Statistics	
Number of Valid Observations	144	Number of Valid Observations	456
Number of Distinct Observations	95	Number of Missing Values	12
Minimum	4.1	Number of Distinct Observations	324
Maximum	6.98	Minimum	1.055
Mean of Raw Data	5.021	Maximum	8.615
Standard Deviation of Raw Data	0.519	Mean of Raw Data	4.655
Kstar	96.46	Standard Deviation of Raw Data	1.082
Mean of Log Transformed Data	1.609	Kstar	16.3
Standard Deviation of Log Transformed Data	0.1	Mean of Log Transformed Data	1.507
		Standard Deviation of Log Transformed Data	0.261
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.974		
Approximate Shapiro Wilk Test Statistic	0.944	Correlation Coefficient R	0.99
Approximate Shapiro Wilk P Value	1.05E-05	Approximate Shapiro Wilk Test Statistic	0.976
Lilliefors Test Statistic	7.03E-02	Approximate Shapiro Wilk P Value	9.67E-03
Lilliefors Critical (0.95) Value	0.0738	Lilliefors Test Statistic	0.0614
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.0415
		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Greater Than or Equal to Background Mean/Median (Form 2)
Alternative Hypothesis	Site or AOC Mean/Median Less Than Background Mean/Median

Area of Concern Data: Impact
Background Data: Baseline x 0.7

Raw Statistics

	Site	Background
Number of Valid Observations	456	144
Number of Missing Values	12	0
Number of Distinct Observations	324	95
Minimum	1.055	4.1
Maximum	8.615	6.98
Mean	4.655	5.021
Median	4.795	4.975
SD	1.082	0.519
SE of Mean	0.0507	0.0433

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC >= Mean/Median of Background

Site Rank Sum W-Stat	130604
WMW Test U-Stat	-3.542
WMW Critical Value (0.050)	-1.645
P-Value	1.98E-04

Conclusion with Alpha = 0.05
Reject H0, Conclude Site < Background
P-Value < alpha (0.05)

Cluster 2 DO (B)
Control vs Impact

0.7 x Baseline DO (B) (mg/L) data								
C1	24/07/2014	Mid-Flood	3.10	C3	24/07/2014	Mid-Flood	3.04
C1	26/07/2014	Mid-Flood	3.51	C3	26/07/2014	Mid-Flood	2.56
C1	29/07/2014	Mid-Flood	3.42	C3	29/07/2014	Mid-Flood	2.11
C1	31/07/2014	Mid-Flood	3.31	C3	31/07/2014	Mid-Flood	2.19
C1	02/08/2014	Mid-Flood	3.97	C3	02/08/2014	Mid-Flood	2.89
C1	05/08/2014	Mid-Flood	4.18	C3	05/08/2014	Mid-Flood	3.66
C1	07/08/2014	Mid-Flood	3.15	C3	07/08/2014	Mid-Flood	2.29
C1	09/08/2014	Mid-Flood	4.51	C3	09/08/2014	Mid-Flood	2.54
C1	12/08/2014	Mid-Flood	3.11	C3	12/08/2014	Mid-Flood	3.40
C1	14/08/2014	Mid-Flood	3.21	C3	14/08/2014	Mid-Flood	3.16
C1	16/8/2014	Mid-Flood	3.45	C3	16/8/2014	Mid-Flood	3.47
C1	19/08/2014	Mid-Flood	2.87	C3	19/08/2014	Mid-Flood	3.51
C1	21/8/2014	Mid-Flood	2.85	C3	21/8/2014	Mid-Flood	3.82
C1	23/08/2014	Mid-Flood	3.29	C3	23/08/2014	Mid-Flood	2.72
C1	26/08/2014	Mid-Flood	4.00	C3	26/08/2014	Mid-Flood	3.18
C1	28/8/2014	Mid-Flood	3.68	C3	28/8/2014	Mid-Flood	3.77
C1	30/8/2014	Mid-Flood	3.83	C3	30/8/2014	Mid-Flood	4.21
C1	02/09/2014	Mid-Flood	3.91	C3	02/09/2014	Mid-Flood	1.52
C1	04/09/2014	Mid-Flood	4.54	C3	04/09/2014	Mid-Flood	5.34
C1	06/09/2014	Mid-Flood	3.69	C3	06/09/2014	Mid-Flood	3.56
C1	09/09/2014	Mid-Flood	4.46	C3	09/09/2014	Mid-Flood	3.31
C1	11/09/2014	Mid-Flood	3.80	C3	11/09/2014	Mid-Flood	3.27
C1	13/9/2014	Mid-Flood	3.49	C3	13/9/2014	Mid-Flood	2.71
C1	16/9/2014	Mid-Flood		C3	16/9/2014	Mid-Flood	
C1	18/09/2014	Mid-Flood	4.52	C3	18/09/2014	Mid-Flood	4.36
C1	20/9/2014	Mid-Flood	4.25	C3	20/9/2014	Mid-Flood	5.02
C1	23/9/2014	Mid-Flood	5.10	C3	23/9/2014	Mid-Flood	5.22
C1	25/9/2014	Mid-Flood	4.94	C3	25/9/2014	Mid-Flood	5.22
C1	27/9/2014	Mid-Flood	4.77	C3	27/9/2014	Mid-Flood	5.07
C1	30/9/2014	Mid-Flood	4.78	C3	30/9/2014	Mid-Flood	5.10
C1	02/10/2014	Mid-Flood	4.34	C3	02/10/2014	Mid-Flood	6.01
C1	04/10/2014	Mid-Flood	4.32	C3	04/10/2014	Mid-Flood	4.81
C1	07/10/2014	Mid-Flood	4.51	C3	07/10/2014	Mid-Flood	5.33
C1	09/10/2014	Mid-Flood	4.96	C3	09/10/2014	Mid-Flood	5.65
C1	11/10/2014	Mid-Flood	4.82	C3	11/10/2014	Mid-Flood	5.73
C1	14/10/2014	Mid-Flood	5.14	C3	14/10/2014	Mid-Flood	5.91
C1	16/10/2014	Mid-Flood	5.49	C3	16/10/2014	Mid-Flood	6.35
C1	18/10/2014	Mid-Flood	5.74	C3	18/10/2014	Mid-Flood	5.59
C1	21/10/2014	Mid-Flood	6.83	C3	21/10/2014	Mid-Flood	5.68
C2	24/07/2014	Mid-Flood	3.81				
C2	26/07/2014	Mid-Flood	2.53				
C2	29/07/2014	Mid-Flood	5.37				
C2	31/07/2014	Mid-Flood	2.62				
C2	02/08/2014	Mid-Flood	5.04				
C2	05/08/2014	Mid-Flood	4.88				
C2	07/08/2014	Mid-Flood	5.44				
C2	09/08/2014	Mid-Flood	1.03				
C2	12/08/2014	Mid-Flood	1.80				
C2	14/08/2014	Mid-Flood	2.34				
C2	16/8/2014	Mid-Flood	2.82				
C2	19/08/2014	Mid-Flood	3.27				
C2	21/8/2014	Mid-Flood	2.82				
C2	23/08/2014	Mid-Flood	4.09				
C2	26/08/2014	Mid-Flood	4.98				
C2	28/8/2014	Mid-Flood	4.37				
C2	30/8/2014	Mid-Flood	3.63				
C2	02/09/2014	Mid-Flood	2.85				
C2	04/09/2014	Mid-Flood	4.37				
C2	06/09/2014	Mid-Flood	4.93				
C2	09/09/2014	Mid-Flood	4.39				
C2	11/09/2014	Mid-Flood	4.02				
C2	13/9/2014	Mid-Flood	4.02				
C2	16/9/2014	Mid-Flood					
C2	18/09/2014	Mid-Flood	4.29				
C2	20/9/2014	Mid-Flood	5.36				
C2	23/9/2014	Mid-Flood	4.34				
C2	25/9/2014	Mid-Flood	4.93				
C2	27/9/2014	Mid-Flood	4.74				
C2	30/9/2014	Mid-Flood	5.17				
C2	02/10/2014	Mid-Flood	5.15				
C2	04/10/2014	Mid-Flood	4.77				
C2	07/10/2014	Mid-Flood	5.04				
C2	09/10/2014	Mid-Flood	4.95				
C2	11/10/2014	Mid-Flood	5.02				
C2	14/10/2014	Mid-Flood	5.13				
C2	16/10/2014	Mid-Flood	5.91				
C2	18/10/2014	Mid-Flood	5.36				
C2	21/10/2014	Mid-Flood	5.81				

Impact DO (B) (mg/L) data												
SR6	24/07/2014	Mid-Flood	4.72	SR8	24/07/2014	Mid-Flood	3.83	SR10	24/07/2014	Mid-Flood	5.46
SR6	26/07/2014	Mid-Flood	3.11	SR8	26/07/2014	Mid-Flood	4.57	SR10	26/07/2014	Mid-Flood	4.80
SR6	29/07/2014	Mid-Flood	4.20	SR8	29/07/2014	Mid-Flood	4.41	SR10	29/07/2014	Mid-Flood	4.58
SR6	31/07/2014	Mid-Flood	4.00	SR8	31/07/2014	Mid-Flood	2.16	SR10	31/07/2014	Mid-Flood	4.22
SR6	02/08/2014	Mid-Flood	4.20	SR8	02/08/2014	Mid-Flood	1.59	SR10	02/08/2014	Mid-Flood	4.34
SR6	05/08/2014	Mid-Flood	4.23	SR8	05/08/2014	Mid-Flood	5.82	SR10	05/08/2014	Mid-Flood	8.31
SR6	07/08/2014	Mid-Flood	4.80	SR8	07/08/2014	Mid-Flood	3.47	SR10	07/08/2014	Mid-Flood	3.23
SR6	09/08/2014	Mid-Flood	3.10	SR8	09/08/2014	Mid-Flood	4.42	SR10	09/08/2014	Mid-Flood	3.72
SR6	12/08/2014	Mid-Flood	3.57	SR8	12/08/2014	Mid-Flood	2.71	SR10	12/08/2014	Mid-Flood	3.08
SR6	14/08/2014	Mid-Flood	3.89	SR8	14/08/2014	Mid-Flood	2.46	SR10	14/08/2014	Mid-Flood	3.38
SR6	16/8/2014	Mid-Flood	3.14	SR8	16/8/2014	Mid-Flood	2.42	SR10	16/8/2014	Mid-Flood	3.64
SR6	19/08/2014	Mid-Flood	5.07	SR8	19/08/2014	Mid-Flood	4.64	SR10	19/08/2014	Mid-Flood	4.22
SR6	21/8/2014	Mid-Flood	3.91	SR8	21/8/2014	Mid-Flood	3.82	SR10	21/8/2014	Mid-Flood	4.71
SR6	23/08/2014	Mid-Flood	4.20	SR8	23/08/2014	Mid-Flood	5.11	SR10	23/08/2014	Mid-Flood	7.91
SR6	26/08/2014	Mid-Flood	4.55	SR8	26/08/2014	Mid-Flood	5.10	SR10	26/08/2014	Mid-Flood	6.09
SR6	28/8/2014	Mid-Flood	4.60	SR8	28/8/2014	Mid-Flood	5.04	SR10	28/8/2014	Mid-Flood	4.64
SR6	30/8/2014	Mid-Flood	4.42	SR8	30/8/2014	Mid-Flood	4.30	SR10	30/8/2014	Mid-Flood	5.02
SR6	02/09/2014	Mid-Flood	4.31	SR8	02/09/2014	Mid-Flood	3.36	SR10	02/09/2014	Mid-Flood	5.13
SR6	04/09/2014	Mid-Flood	4.53	SR8	04/09/2014	Mid-Flood	5.10	SR10	04/09/2014	Mid-Flood	6.31
SR6	06/09/2014	Mid-Flood	4.37	SR8	06/09/2014	Mid-Flood	4.49	SR10	06/09/2014	Mid-Flood	4.49
SR6	09/09/2014	Mid-Flood	4.18	SR8	09/09/2014	Mid-Flood	4.31	SR10	09/09/2014	Mid-Flood	4.95
SR6	11/09/2014	Mid-Flood	3.92	SR8	11/09/2014	Mid-Flood	3.17	SR10	11/09/2014	Mid-Flood	3.64
SR6	13/9/2014	Mid-Flood	4.02	SR8	13/9/2014	Mid-Flood	4.23	SR10	13/9/2014	Mid-Flood	5.35
SR6	16/9/2014	Mid-Flood		SR8	16/9/2014	Mid-Flood		SR10	16/9/2014	Mid-Flood	
SR6	18/09/2014	Mid-Flood	4.69	SR8	18/09/2014	Mid-Flood	4.67	SR10	18/09/2014	Mid-Flood	4.41
SR6	20/9/2014	Mid-Flood	5.14	SR8	20/9/2014	Mid-Flood	5.55	SR10	20/9/2014	Mid-Flood	5.85
SR6	23/9/2014	Mid-Flood	5.45	SR8	23/9/2014	Mid-Flood	5.29	SR10	23/9/2014	Mid-Flood	4.97
SR6	25/9/2014	Mid-Flood	4.54	SR8	25/9/2014	Mid-Flood	4.70	SR10	25/9/2014	Mid-Flood	5.10
SR6	27/9/2014	Mid-Flood	4.86	SR8	27/9/2014	Mid-Flood	4.64	SR10	27/9/2014	Mid-Flood	4.92
SR6	30/9/2014	Mid-Flood	4.83	SR8	30/9/2014	Mid-Flood	5.55	SR10	30/9/2014	Mid-Flood	4.51
SR6	02/10/2014	Mid-Flood	5.06	SR8	02/10/2014	Mid-Flood	5.61	SR10	02/10/2014	Mid-Flood	4.29
SR6	04/10/2014	Mid-Flood	4.79	SR8	04/10/2014	Mid-Flood	5.62	SR10	04/10/2014	Mid-Flood	5.16
SR6	07/10/2014	Mid-Flood	4.97	SR8	07/10/2014	Mid-Flood	5.13	SR10	07/10/2014	Mid-Flood	5.62
SR6	09/10/2014	Mid-Flood	5.20	SR8	09/10/2014	Mid-Flood	5.37	SR10	09/10/2014	Mid-Flood	5.16
SR6	11/10/2014	Mid-Flood	5.18	SR8	11/10/2014	Mid-Flood	5.55	SR10	11/10/2014	Mid-Flood	5.17
SR6	14/10/2014	Mid-Flood	5.26	SR8	14/10/2014	Mid-Flood	5.91	SR10	14/10/2014	Mid-Flood	5.88
SR6	16/10/2014	Mid-Flood	5.66	SR8	16/10/2014	Mid-Flood	6.22	SR10	16/10/2014	Mid-Flood	6.19
SR6	18/10/2014	Mid-Flood	5.02	SR8	18/10/2014	Mid-Flood	5.36	SR10	18/10/2014	Mid-Flood	5.50
SR6	21/10/2014	Mid-Flood	5.44	SR8	21/10/2014	Mid-Flood	6.01	SR10	21/10/2014	Mid-Flood	5.60
SR7	24/07/2014	Mid-Flood	3.68	SR9	24/07/2014	Mid-Flood	5.14	SR11	24/07/2014	Mid-Flood	3.22
SR7	26/07/2014	Mid-Flood	5.51	SR9	26/07/2014	Mid-Flood	5.06	SR11	26/07/2014	Mid-Flood	4.36
SR7	29/07/2014	Mid-Flood	4.81	SR9	29/07/2014	Mid-Flood	2.63	SR11	29/07/2014	Mid-Flood	3.27
SR7	31/07/2014	Mid-Flood	3.21	SR9	31/07/2014	Mid-Flood	3.16	SR11	31/07/2014	Mid-Flood	4.70
SR7	02/08/2014	Mid-Flood	2.99	SR9	02/08/2014	Mid-Flood	4.10	SR11	02/08/2014	Mid-Flood	3.35
SR7	05/08/2014	Mid-Flood	5.24	SR9	05/08/2014	Mid-Flood	3.20	SR11	05/08/2014	Mid-Flood	4.10
SR7	07/08/2014	Mid-Flood	3.78	SR9	07/08/2014	Mid-Flood	4.18	SR11	07/08/2014	Mid-Flood	3.47
SR7	09/08/2014	Mid-Flood	4.10	SR9	09/08/2014	Mid-Flood	1.88	SR11	09/08/2014	Mid-Flood	5.92
SR7	12/08/2014	Mid-Flood	2.83	SR9	12/08/2014	Mid-Flood	3.13	SR11	12/08/2014	Mid-Flood	3.77
SR7	14/08/2014	Mid-Flood	3.44	SR9	14/08/2014	Mid-Flood	3.44	SR11	14/08/2014	Mid-Flood	3.56
SR7	16/8/2014	Mid-Flood	3.29	SR9	16/8/2014	Mid-Flood	3.55	SR11	16/8/2014	Mid-Flood	3.62
SR7	19/08/2014	Mid-Flood	3.73	SR9	19/08/2014	Mid-Flood	2.50	SR11	19/08/2014	Mid-Flood	3.49
SR7	21/8/2014	Mid-Flood	3.82	SR9	21/8/2014	Mid-Flood	4.82	SR11	21/8/2014	Mid-Flood	3.71
SR7	23/08/2014	Mid-Flood	3.28	SR9	23/08/2014	Mid-Flood	3.65	SR11	23/08/2014	Mid-Flood	4.08
SR7	26/08/2014	Mid-Flood	6.86	SR9	26/08/2014	Mid-Flood	2.97	SR11	26/08/2014	Mid-Flood	3.50
SR7	28/8/2014	Mid-Flood	6.25	SR9	28/8/2014	Mid-Flood	5.40	SR11	28/8/2014	Mid-Flood	4.81
SR7	30/8/2014	Mid-Flood	4.76	SR9	30/8/2014	Mid-Flood	4.24	SR11	30/8/2014	Mid-Flood	6.06
SR7	02/09/2014	Mid-Flood	3.95	SR9	02/09/2014	Mid-Flood	3.46	SR11	02/09/2014	Mid-Flood	5.36
SR7	04/09/2014	Mid-Flood	4.10	SR9	04/09/2014	Mid-Flood	4.79	SR11	04/09/2014	Mid-Flood	5.45
SR7	06/09/2014	Mid-Flood	4.17	SR9	06/09/2014	Mid-Flood	4.06	SR11	06/09/2014	Mid-Flood	4.77
SR7	09/09/2014	Mid-Flood	4.63	SR9	09/09/2014	Mid-Flood	4.73	SR11	09/09/2014	Mid-Flood	4.53
SR7	11/09/2014	Mid-Flood	4.01	SR9	11/09/2014	Mid-Flood	4.64	SR11	11/09/2014	Mid-Flood	4.08
SR7	13/9/2014	Mid-Flood	4.01	SR9	13/9/2014	Mid-Flood	3.89	SR11	13/9/2014	Mid-Flood	3.91
SR7	16/9/2014	Mid-Flood		SR9	16/9/2014	Mid-Flood		SR11	16/9/2014	Mid-Flood	
SR7	18/09/2014	Mid-Flood	4.38	SR9	18/09/2014	Mid-Flood	4.92	SR11	18/09/2014	Mid-Flood	4.62
SR7	20/9/2014	Mid-Flood	5.25	SR9	20/9/2014	Mid-Flood	5.97	SR11	20/9/2014	Mid-Flood	5.25
SR7	23/9/2014	Mid-Flood	5.30	SR9	23/9/2014	Mid-Flood	6.08	SR11	23/9/2014	Mid-Flood	5.08
SR7	25/9/2014	Mid-Flood	4.96	SR9	25/9/2014	Mid-Flood	5.34	SR11	25/9/2014	Mid-Flood	4.97
SR7	27/9/2014	Mid-Flood	4.86	SR9	27/9/2014	Mid-Flood	6.08	SR11	27/9/2014	Mid-Flood	4.55
SR7	30/9/2014	Mid-Flood	5.03	SR9	30/9/2014	Mid-Flood	6.58	SR11	30/9/2014	Mid-Flood	5.12
SR7	02/10/2014	Mid-Flood	4.03	SR9	02/10/2014	Mid-Flood	8.17	SR11	02/10/2014	Mid-Flood	6.02
SR7	04/10/2014	Mid-Flood	4.58	SR9	04/10/2014	Mid-Flood	5.29	SR11	04/10/2014	Mid-Flood	5.54
SR7	07/10/2014	Mid-Flood	5.31	SR9	07/10/2014	Mid-Flood	6.16	SR11	07/10/2014	Mid-Flood	5.17
SR7	09/10/2014	Mid-Flood	5.25	SR9	09/10/2014	Mid-Flood	5.89	SR11	09/10/2014	Mid-Flood	5.43
SR7	11/10/2014	Mid-Flood	4.86	SR9	11/10/2014	Mid-Flood	5.41	SR11	11/10/2014	Mid-Flood	5.46
SR7	14/10/2014	Mid-Flood	5.12	SR9	14/10/2014	Mid-Flood	5.61	SR11	14/10/2014	Mid-Flood	5.78
SR7	16/10/2014	Mid-Flood	5.06	SR9	16/10/2014	Mid-Flood	5.71	SR11	16/10/2014	Mid-Flood	5.42
SR7	18/10/2014	Mid-Flood	5.50	SR9	18/10/2014	Mid-Flood	5.08	SR11	18/10/2014	Mid-Flood	5.26
SR7	21/10/2014	Mid-Flood	5.45	SR9	21/10/2014	Mid-Flood	5.77	SR11	21/10/2014	Mid-Flood	5.43

Cluster 2 DO (B)
Control vs Impact

Control DO (B) (mg/L) data							
C1	24/07/2014	Mid-Ebb	3.22	C3	24/07/2014	Mid-Ebb	3.82
C1	26/07/2014	Mid-Ebb	3.44	C3	26/07/2014	Mid-Ebb	2.57
C1	29/07/2014	Mid-Ebb	3.41	C3	29/07/2014	Mid-Ebb	2.19
C1	31/07/2014	Mid-Ebb	3.64	C3	31/07/2014	Mid-Ebb	1.90
C1	02/08/2014	Mid-Ebb	4.15	C3	02/08/2014	Mid-Ebb	3.81
C1	05/08/2014	Mid-Ebb	4.06	C3	05/08/2014	Mid-Ebb	2.53
C1	07/08/2014	Mid-Ebb	3.20	C3	07/08/2014	Mid-Ebb	2.47
C1	09/08/2014	Mid-Ebb	4.45	C3	09/08/2014	Mid-Ebb	5.60
C1	12/08/2014	Mid-Ebb	3.08	C3	12/08/2014	Mid-Ebb	3.39
C1	14/08/2014	Mid-Ebb	3.25	C3	14/08/2014	Mid-Ebb	3.14
C1	16/8/2014	Mid-Ebb	3.41	C3	16/8/2014	Mid-Ebb	3.84
C1	19/08/2014	Mid-Ebb	2.62	C3	19/08/2014	Mid-Ebb	3.51
C1	21/8/2014	Mid-Ebb	2.94	C3	21/8/2014	Mid-Ebb	3.56
C1	23/08/2014	Mid-Ebb	3.32	C3	23/08/2014	Mid-Ebb	3.00
C1	26/08/2014	Mid-Ebb	4.00	C3	26/08/2014	Mid-Ebb	2.08
C1	28/8/2014	Mid-Ebb	3.67	C3	28/8/2014	Mid-Ebb	4.52
C1	30/8/2014	Mid-Ebb	3.84	C3	30/8/2014	Mid-Ebb	3.80
C1	02/09/2014	Mid-Ebb	3.81	C3	02/09/2014	Mid-Ebb	1.29
C1	04/09/2014	Mid-Ebb	4.55	C3	04/09/2014	Mid-Ebb	5.14
C1	06/09/2014	Mid-Ebb	4.00	C3	06/09/2014	Mid-Ebb	4.03
C1	09/09/2014	Mid-Ebb	4.43	C3	09/09/2014	Mid-Ebb	3.28
C1	11/09/2014	Mid-Ebb	3.78	C3	11/09/2014	Mid-Ebb	3.35
C1	13/9/2014	Mid-Ebb	3.47	C3	13/9/2014	Mid-Ebb	2.58
C1	16/9/2014	Mid-Ebb		C3	16/9/2014	Mid-Ebb	
C1	18/09/2014	Mid-Ebb	4.51	C3	18/09/2014	Mid-Ebb	4.81
C1	20/9/2014	Mid-Ebb	4.09	C3	20/9/2014	Mid-Ebb	4.78
C1	23/09/2014	Mid-Ebb	4.86	C3	23/9/2014	Mid-Ebb	5.31
C1	25/9/2014	Mid-Ebb	4.94	C3	25/9/2014	Mid-Ebb	4.77
C1	27/9/2014	Mid-Ebb	4.77	C3	27/9/2014	Mid-Ebb	5.13
C1	30/9/2014	Mid-Ebb	4.78	C3	30/9/2014	Mid-Ebb	5.42
C1	02/10/2014	Mid-Ebb	4.37	C3	02/10/2014	Mid-Ebb	6.01
C1	04/10/2014	Mid-Ebb	4.39	C3	04/10/2014	Mid-Ebb	4.97
C1	07/10/2014	Mid-Ebb	4.71	C3	07/10/2014	Mid-Ebb	5.38
C1	09/10/2014	Mid-Ebb	5.00	C3	09/10/2014	Mid-Ebb	5.51
C1	11/10/2014	Mid-Ebb	4.81	C3	11/10/2014	Mid-Ebb	5.73
C1	14/10/2014	Mid-Ebb	5.15	C3	14/10/2014	Mid-Ebb	5.46
C1	16/10/2014	Mid-Ebb	5.84	C3	16/10/2014	Mid-Ebb	5.90
C1	18/10/2014	Mid-Ebb	5.71	C3	18/10/2014	Mid-Ebb	6.03
C1	21/10/2014	Mid-Ebb	6.93	C3	21/10/2014	Mid-Ebb	5.96
C2	24/07/2014	Mid-Ebb	3.92				
C2	26/07/2014	Mid-Ebb	2.79				
C2	29/07/2014	Mid-Ebb	4.82				
C2	31/07/2014	Mid-Ebb	2.06				
C2	02/08/2014	Mid-Ebb	1.83				
C2	05/08/2014	Mid-Ebb	4.52				
C2	07/08/2014	Mid-Ebb	5.61				
C2	09/08/2014	Mid-Ebb	1.95				
C2	12/08/2014	Mid-Ebb	2.07				
C2	14/08/2014	Mid-Ebb	3.10				
C2	16/8/2014	Mid-Ebb	3.36				
C2	19/08/2014	Mid-Ebb	4.96				
C2	21/8/2014	Mid-Ebb	1.87				
C2	23/08/2014	Mid-Ebb	3.02				
C2	26/08/2014	Mid-Ebb	4.51				
C2	28/8/2014	Mid-Ebb	4.17				
C2	30/8/2014	Mid-Ebb	3.56				
C2	02/09/2014	Mid-Ebb	2.68				
C2	04/09/2014	Mid-Ebb	4.26				
C2	06/09/2014	Mid-Ebb	4.82				
C2	09/09/2014	Mid-Ebb	4.46				
C2	11/09/2014	Mid-Ebb	4.28				
C2	13/9/2014	Mid-Ebb	4.08				
C2	16/9/2014	Mid-Ebb					
C2	18/09/2014	Mid-Ebb	4.35				
C2	20/9/2014	Mid-Ebb	5.51				
C2	23/9/2014	Mid-Ebb	5.50				
C2	25/9/2014	Mid-Ebb	4.82				
C2	27/9/2014	Mid-Ebb	4.71				
C2	30/9/2014	Mid-Ebb	5.08				
C2	02/10/2014	Mid-Ebb	5.33				
C2	04/09/2014	Mid-Ebb	4.26				
C2	07/10/2014	Mid-Ebb	4.96				
C2	09/10/2014	Mid-Ebb	5.14				
C2	11/10/2014	Mid-Ebb	5.03				
C2	14/10/2014	Mid-Ebb	5.00				
C2	16/10/2014	Mid-Ebb	5.76				
C2	18/10/2014	Mid-Ebb	6.03				
C2	21/10/2014	Mid-Ebb	5.86				

Impact DO (B) (mg/L) data												
SR6	24/07/2014	Mid-Ebb	4.70	SR8	24/07/2014	Mid-Ebb	4.09	SR10	24/07/2014	Mid-Ebb	4.93
SR6	26/07/2014	Mid-Ebb	3.11	SR8	26/07/2014	Mid-Ebb	4.57	SR10	26/07/2014	Mid-Ebb	4.20
SR6	29/07/2014	Mid-Ebb	3.18	SR8	29/07/2014	Mid-Ebb	4.72	SR10	29/07/2014	Mid-Ebb	5.24
SR6	31/07/2014	Mid-Ebb	4.70	SR8	31/07/2014	Mid-Ebb	6.38	SR10	31/07/2014	Mid-Ebb	3.53
SR6	02/08/2014	Mid-Ebb	5.68	SR8	02/08/2014	Mid-Ebb	3.17	SR10	02/08/2014	Mid-Ebb	4.82
SR6	05/08/2014	Mid-Ebb	5.00	SR8	05/08/2014	Mid-Ebb	7.76	SR10	05/08/2014	Mid-Ebb	8.62
SR6	07/08/2014	Mid-Ebb	4.81	SR8	07/08/2014	Mid-Ebb	3.93	SR10	07/08/2014	Mid-Ebb	3.15
SR6	09/08/2014	Mid-Ebb	3.16	SR8	09/08/2014	Mid-Ebb	4.44	SR10	09/08/2014	Mid-Ebb	3.72
SR6	12/08/2014	Mid-Ebb	3.45	SR8	12/08/2014	Mid-Ebb	2.07	SR10	12/08/2014	Mid-Ebb	3.12
SR6	14/08/2014	Mid-Ebb	3.46	SR8	14/08/2014	Mid-Ebb	2.42	SR10	14/08/2014	Mid-Ebb	3.39
SR6	16/8/2014	Mid-Ebb	3.22	SR8	16/8/2014	Mid-Ebb	3.22	SR10	16/8/2014	Mid-Ebb	3.40
SR6	19/08/2014	Mid-Ebb	5.14	SR8	19/08/2014	Mid-Ebb	4.85	SR10	19/08/2014	Mid-Ebb	4.60
SR6	21/8/2014	Mid-Ebb	3.49	SR8	21/8/2014	Mid-Ebb	3.96	SR10	21/8/2014	Mid-Ebb	4.52
SR6	23/08/2014	Mid-Ebb	5.61	SR8	23/08/2014	Mid-Ebb	5.80	SR10	23/08/2014	Mid-Ebb	7.79
SR6	26/08/2014	Mid-Ebb	4.80	SR8	26/08/2014	Mid-Ebb	6.12	SR10	26/08/2014	Mid-Ebb	6.16
SR6	28/8/2014	Mid-Ebb	5.14	SR8	28/8/2014	Mid-Ebb	4.74	SR10	28/8/2014	Mid-Ebb	4.13
SR6	30/8/2014	Mid-Ebb	4.47	SR8	30/8/2014	Mid-Ebb	4.02	SR10	30/8/2014	Mid-Ebb	5.23
SR6	02/09/2014	Mid-Ebb	3.99	SR8	02/09/2014	Mid-Ebb	3.12	SR10	02/09/2014	Mid-Ebb	5.06
SR6	04/09/2014	Mid-Ebb	4.27	SR8	04/09/2014	Mid-Ebb	5.65	SR10	04/09/2014	Mid-Ebb	6.22
SR6	06/09/2014	Mid-Ebb	4.10	SR8	06/09/2014	Mid-Ebb	4.34	SR10	06/09/2014	Mid-Ebb	4.38
SR6	09/09/2014	Mid-Ebb	4.26	SR8	09/09/2014	Mid-Ebb	4.62	SR10	09/09/2014	Mid-Ebb	4.96
SR6	11/09/2014	Mid-Ebb	3.93	SR8	11/09/2014	Mid-Ebb	3.02	SR10	11/09/2014	Mid-Ebb	3.48
SR6	13/9/2014	Mid-Ebb	3.91	SR8	13/9/2014	Mid-Ebb	4.10	SR10	13/9/2014	Mid-Ebb	5.93
SR6	16/9/2014	Mid-Ebb		SR8	16/9/2014	Mid-Ebb		SR10	16/9/2014	Mid-Ebb	
SR6	18/09/2014	Mid-Ebb	4.85	SR8	18/09/2014	Mid-Ebb	4.92	SR10	18/09/2014	Mid-Ebb	4.81
SR6	20/9/2014	Mid-Ebb	5.27	SR8	20/9/2014	Mid-Ebb	5.50	SR10	20/9/2014	Mid-Ebb	5.60
SR6	23/9/2014	Mid-Ebb	5.62	SR8	23/9/2014	Mid-Ebb	5.34	SR10	23/9/2014	Mid-Ebb	4.80
SR6	25/9/2014	Mid-Ebb	4.83	SR8	25/9/2014	Mid-Ebb	4.80	SR10	25/9/2014	Mid-Ebb	4.96
SR6	27/9/2014	Mid-Ebb	4.81	SR8	27/9/2014	Mid-Ebb	4.73	SR10	27/9/2014	Mid-Ebb	4.93
SR6	30/9/2014	Mid-Ebb	5.08	SR8	30/9/2014	Mid-Ebb	5.57	SR10	30/9/2014	Mid-Ebb	4.96
SR6	02/10/2014	Mid-Ebb	4.94	SR8	02/10/2014	Mid-Ebb	5.62	SR10	02/10/2014	Mid-Ebb	4.48
SR6	04/10/2014	Mid-Ebb	4.98	SR8	04/10/2014	Mid-Ebb	5.34	SR10	04/10/2014	Mid-Ebb	5.38
SR6	07/10/2014	Mid-Ebb	4.98	SR8	07/10/2014	Mid-Ebb	5.14	SR10	07/10/2014	Mid-Ebb	5.60
SR6	09/10/2014	Mid-Ebb	5.06	SR8	09/10/2014	Mid-Ebb	5.43	SR10	09/10/2014	Mid-Ebb	5.55
SR6	11/10/2014	Mid-Ebb	5.17	SR8	11/10/2014	Mid-Ebb	5.53	SR10	11/10/2014	Mid-Ebb	5.18
SR6	14/10/2014	Mid-Ebb	5.19	SR8	14/10/2014	Mid-Ebb	5.71	SR10	14/10/2014	Mid-Ebb	5.82
SR6	16/10/2014	Mid-Ebb	5.71	SR8	16/10/2014	Mid-Ebb	5.70	SR10	16/10/2014	Mid-Ebb	5.84
SR6	18/10/2014	Mid-Ebb	5.44	SR8	18/10/2014	Mid-Ebb	5.56	SR10	18/10/2014	Mid-Ebb	5.74
SR6	21/10/2014	Mid-Ebb	5.77	SR8	21/10/2014	Mid-Ebb	5.77	SR10	21/10/2014	Mid-Ebb	5.97
SR7	24/07/2014	Mid-Ebb	3.68	SR9	24/07/2014	Mid-Ebb	5.00	SR11	24/07/2014	Mid-Ebb	3.11
SR7	26/07/2014	Mid-Ebb	4.36	SR9	26/07/2014	Mid-Ebb	5.02	SR11	26/07/2014	Mid-Ebb	5.04
SR7	29/07/2014	Mid-Ebb	4.76	SR9	29/07/2014	Mid-Ebb	3.02	SR11	29/07/2014	Mid-Ebb	3.99
SR7	31/07/2014	Mid-Ebb	3.72	SR9	31/07/2014	Mid-Ebb	6.44	SR11	31/07/2014	Mid-Ebb	4.69
SR7	02/08/2014	Mid-Ebb	2.57	SR9	02/08/2014	Mid-Ebb	7.37	SR11	02/08/2014	Mid-Ebb	3.23
SR7	05/08/2014	Mid-Ebb	6.99	SR9	05/08/2014	Mid-Ebb	1.38	SR11	05/08/2014	Mid-Ebb	3.82
SR7	07/08/2014	Mid-Ebb	3.81	SR9	07/08/2014	Mid-Ebb	2.54	SR11	07/08/2014	Mid-Ebb	3.19
SR7	09/08/2014	Mid-Ebb	3.82	SR9	09/08/2014	Mid-Ebb	2.64	SR11	09/08/2014	Mid-Ebb	5.99
SR7	12/08/2014	Mid-Ebb	2.97	SR9	12/08/2014	Mid-Ebb	3.46	SR11	12/08/2014	Mid-Ebb	3.72
SR7	14/08/2014	Mid-Ebb	3.46	SR9	14/08/2014	Mid-Ebb	2.86	SR11	14/08/2014	Mid-Ebb	3.47
SR7	16/8/2014	Mid-Ebb	3.17	SR9	16/8/2014	Mid-Ebb	4.13	SR11	16/8/2014	Mid-Ebb	3.81
SR7	19/08/2014	Mid-Ebb	2.94	SR9	19/08/2014	Mid-Ebb	2.50	SR11	19/08/2014	Mid-Ebb	3.85
SR7	21/8/2014	Mid-Ebb	3.29	SR9	21/8/2014	Mid-Ebb	1.50	SR11	21/8/2014	Mid-Ebb	3.39
SR7	23/08/2014	Mid-Ebb	3.40	SR9	23/08/2014	Mid-Ebb	2.03	SR11	23/08/2014	Mid-Ebb	5.52
SR7	26/08/2014	Mid-Ebb	6.90	SR9	26/08/2014	Mid-Ebb	1.06	SR11	26/08/2014	Mid-Ebb	3.10
SR7	28/8/2014	Mid-Ebb	5.96	SR9	28/8/2014	Mid-Ebb	5.12	SR11	28/8/2014	Mid-Ebb	4.52
SR7	30/8/2014	Mid-Ebb	4.80	SR9	30/8/2014	Mid-Ebb	4.09	SR11	30/8/2014	Mid-Ebb	5.80
SR7	02/09/2014	Mid-Ebb	4.75	SR9	02/09/2014	Mid-Ebb	3.46	SR11	02/09/2014	Mid-Ebb	5.05
SR7	04/09/2014	Mid-Ebb	4.76	SR9	04/09/2014	Mid-Ebb	4.75	SR11	04/09/2014	Mid-Ebb	5.54
SR7	06/09/2014	Mid-Ebb	4.50	SR9	06/09/2014	Mid-Ebb	3.85	SR11	06/09/2014	Mid-Ebb	3.71
SR7	09/09/2014	Mid-Ebb	4.62	SR9	09/09/2014	Mid-Ebb	4.98	SR11	09/09/2014	Mid-Ebb	4.79
SR7	11/09/2014	Mid-Ebb	4.01	SR9	11/09/2014	Mid-Ebb	4.61	SR11	11/09/2014	Mid-Ebb	4.09
SR7	13/9/2014	Mid-Ebb	4.03	SR9	13/9/2014	Mid-Ebb	4.22	SR11	13/9/2014	Mid-Ebb	3.58
SR7	16/9/2014	Mid-Ebb		SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR7	18/09/2014	Mid-Ebb	4.38	SR9	18/09/2014	Mid-Ebb	4.77	SR11	18/09/2014	Mid-Ebb	3.92
SR7	20/9/2014	Mid-Ebb	4.33	SR9	20/9/2014	Mid-Ebb	5.66	SR11	20/9/2014	Mid-Ebb	5.03
SR7	23/9/2014	Mid-Ebb	5.42	SR9	23/9/2014	Mid-Ebb	5.30	SR11	23/9/2014	Mid-Ebb	5.28
SR7	25/9/2014	Mid-Ebb	4.96	SR9	25/9/2014	Mid-Ebb	5.48	SR11	25/9/2014	Mid-Ebb	5.11
SR7	27/9/2014	Mid-Ebb	4.88	SR9	27/9/2014	Mid-Ebb	6.11	SR11	27/9/2014	Mid-Ebb	4.91
SR7	30/9/2014	Mid-Ebb	5.03	SR9	30/9/2014	Mid-Ebb	7.29	SR11	30/9/2014	Mid-Ebb	5.35
SR7	02/10/2014	Mid-Ebb	4.65	SR9	02/10/2014	Mid-Ebb	6.62	SR11	02/10/2014	Mid-Ebb	5.88
SR7	04/10/2014	Mid-Ebb	4.57	SR9	04/10/2014	Mid-Ebb	5.01	SR11	04/10/2014	Mid-Ebb	5.34
SR7	07/10/2014	Mid-Ebb	5.48	SR9	07/10/2014	Mid-Ebb	5.60	SR11	07/10/2014	Mid-Ebb	5.50
SR7	09/10/2014	Mid-Ebb	5.26	SR9	09/10/2014	Mid-Ebb	5.40	SR11	09/10/2014	Mid-Ebb	5.06
SR7	11/10/2014	Mid-Ebb	4.87	SR9	11/10/2014	Mid-Ebb	5.41	SR11	11/10/2014	Mid-Ebb	5.38
SR7	14/10/2014	Mid-Ebb	5.10	SR9	14/10/2014	Mid-Ebb	5.36	SR11	14/10/2014	Mid-Ebb	5.27
SR7	16/10/2014	Mid-Ebb	5.29	SR9	16/10/2014	Mid-Ebb	6.06	SR11	16/10/2014	Mid-Ebb	5.61
SR7	18/10/2014	Mid-Ebb	5.51	SR9	18/10/2014	Mid-Ebb	5.90	SR11	18/10/2014	Mid-Ebb	5.41
SR7	21/10/2014	Mid-Ebb	5.44	SR9	21/10/2014	Mid-Ebb	5.95	SR11	21/10/2014	Mid-Ebb	5.61

Impact		Control	
Raw Statistics		Raw Statistics	
Number of Valid Observations	456	Number of Valid Observations	228
Number of Missing Values	12	Number of Missing Values	6
Number of Distinct Observations	324	Number of Distinct Observations	185
Minimum	1.055	Minimum	1.03
Maximum	8.615	Maximum	6.93
Mean of Raw Data	4.655	Mean of Raw Data	4.154
Standard Deviation of Raw Data	1.082	Standard Deviation of Raw Data	1.14
Kstar	16.3	Kstar	11.29
Mean of Log Transformed Data	1.507	Mean of Log Transformed Data	1.38
Standard Deviation of Log Transformed Data	0.261	Standard Deviation of Log Transformed Data	0.315
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.99	Correlation Coefficient R	0.994
Approximate Shapiro Wilk Test Statistic	0.976	Approximate Shapiro Wilk Test Statistic	0.973
Approximate Shapiro Wilk P Value	9.67E-03	Approximate Shapiro Wilk P Value	3.84E-02
Lilliefors Test Statistic	0.0614	Lilliefors Test Statistic	0.0812
Lilliefors Critical (0.95) Value	0.0415	Lilliefors Critical (0.95) Value	0.0587
Data not Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact
Background Data: Control

Raw Statistics

	Site	Background
Number of Valid Observations	456	228
Number of Missing Values	12	6
Number of Distinct Observations	324	185
Minimum	1.055	1.03
Maximum	8.615	6.93
Mean	4.655	4.154
Median	4.795	4.268
SD	1.082	1.14
SE of Mean	0.0507	0.0755

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	168767
WMW Test U-Stat	5.166
WMW Critical Value (0.050)	1.645
P-Value	1.19E-07

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 3 DO (B)
0.7 x Baseline vs Impact

0.7 x Baseline DO (B) (mg/L) data			
SR1:	04/01/2014	Mid-Flood	4.4
SR1:	07/01/2014	Mid-Flood	3.9
SR1:	09/01/2014	Mid-Flood	3.7
SR1:	11/01/2014	Mid-Flood	3.8
SR1:	14/01/2014	Mid-Flood	3.7
SR1:	16/01/2014	Mid-Flood	4.0
SR1:	18/01/2014	Mid-Flood	4.1
SR1:	21/01/2014	Mid-Flood	4.0
SR1:	23/01/2014	Mid-Flood	4.0
SR1:	25/01/2014	Mid-Flood	4.2
SR1:	27/01/2014	Mid-Flood	4.2
SR1:	29/01/2014	Mid-Flood	4.4

Impact DO (B) (mg/L) data			
SR13	24/07/2014	Mid-Flood	3.2
SR13	26/07/2014	Mid-Flood	4.8
SR13	29/07/2014	Mid-Flood	3.6
SR13	31/07/2014	Mid-Flood	3.8
SR13	02/08/2014	Mid-Flood	3.1
SR13	05/08/2014	Mid-Flood	3.1
SR13	07/08/2014	Mid-Flood	3.1
SR13	09/08/2014	Mid-Flood	3.8
SR13	12/08/2014	Mid-Flood	3.1
SR13	14/08/2014	Mid-Flood	3.1
SR13	16/8/2014	Mid-Flood	3.4
SR13	19/08/2014	Mid-Flood	3.3
SR13	21/8/2014	Mid-Flood	2.7
SR13	23/08/2014	Mid-Flood	3.5
SR13	26/08/2014	Mid-Flood	5.5
SR13	28/8/2014	Mid-Flood	2.3
SR13	30/8/2014	Mid-Flood	4.0
SR13	02/09/2014	Mid-Flood	4.0
SR13	04/09/2014	Mid-Flood	4.0
SR13	06/09/2014	Mid-Flood	3.6
SR13	09/09/2014	Mid-Flood	4.3
SR13	11/09/2014	Mid-Flood	3.6
SR13	13/9/2014	Mid-Flood	3.4
SR13	16/9/2014	Mid-Flood	
SR13	18/09/2014	Mid-Flood	4.6
SR13	20/9/2014	Mid-Flood	3.7
SR13	23/9/2014	Mid-Flood	4.5
SR13	25/9/2014	Mid-Flood	4.4
SR13	27/9/2014	Mid-Flood	4.2
SR13	30/9/2014	Mid-Flood	4.5
SR13	02/10/2014	Mid-Flood	4.5
SR13	04/10/2014	Mid-Flood	4.2
SR13	07/10/2014	Mid-Flood	4.4
SR13	09/10/2014	Mid-Flood	4.6
SR13	11/10/2014	Mid-Flood	4.5
SR13	14/10/2014	Mid-Flood	4.7
SR13	16/10/2014	Mid-Flood	4.8
SR13	18/10/2014	Mid-Flood	4.8
SR13	21/10/2014	Mid-Flood	5.2

Cluster 3 DO (B)
0.7 x Baseline vs Impact

0.7 x Baseline		Impact	
Raw Statistics		Raw Statistics	
Number of Valid Observations	12	Number of Valid Observations	38
Number of Distinct Observations	12	Number of Missing Values	1
Minimum	3.7	Number of Distinct Observations	35
Maximum	4.4	Minimum	2.3
Mean of Raw Data	4.025	Maximum	5.475
Standard Deviation of Raw Data	0.234	Mean of Raw Data	3.943
Kstar	243.5	Standard Deviation of Raw Data	0.724
Mean of Log Transformed Data	1.391	Kstar	26.79
Standard Deviation of Log Transformed Data	0.0579	Mean of Log Transformed Data	1.355
		Standard Deviation of Log Transformed Data	0.192
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.981		
Shapiro Wilk Test Statistic	0.946	Correlation Coefficient R	0.991
Shapiro Wilk Critical (0.95) Value	0.859	Shapiro Wilk Test Statistic	0.978
Approximate Shapiro Wilk P Value	0.681	Shapiro Wilk Critical (0.95) Value	0.938
Lilliefors Test Statistic	0.107	Approximate Shapiro Wilk P Value	0.741
Lilliefors Critical (0.95) Value	0.256	Lilliefors Test Statistic	0.0912
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.144
		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0
Selected Null Hypothesis	Site or AOC Mean Greater Than or Equal to Background Mean (Form 2)
Alternative Hypothesis	Site or AOC Mean Less Than the Background Mean

Area of Concern Data: Impact
Background Data: 0.7 x Baseline

Raw Statistics

	Site	Background
Number of Valid Observations	38	12
Number of Missing Values	1	0
Number of Distinct Observations	35	12
Minimum	2.3	3.7
Maximum	5.475	4.4
Mean	3.943	4.025
Median	3.978	4.01
SD	0.724	0.234
SE of Mean	0.117	0.0675

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background >= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	48	-0.385	-1.677	0.351
Satterthwaite (Unequal Variance)	47.9	-0.607	-1.677	0.273

Pooled SD: 0.645
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Do Not Reject H0, Conclude Site >= Background
* Satterthwaite Test: Do Not Reject H0, Conclude Site >= Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
37	11	9.576	0

Conclusion with Alpha = 0.05
* Two variances are not equal

Cluster 1 Turbidity
1.3 x Baseline vs Impact

1.3 x Baseline Turbidity (NTU)			
SR1	04/01/2014	Mid-Flood	19.8
SR1	07/01/2014	Mid-Flood	12.4
SR1	09/01/2014	Mid-Flood	1.0
SR1	11/01/2014	Mid-Flood	0.2
SR1	14/01/2014	Mid-Flood	0.1
SR1	16/01/2014	Mid-Flood	0.1
SR1	18/01/2014	Mid-Flood	1.7
SR1	21/01/2014	Mid-Flood	5.8
SR1	23/01/2014	Mid-Flood	1.8
SR1	25/01/2014	Mid-Flood	1.0
SR1	27/01/2014	Mid-Flood	3.1
SR1	29/01/2014	Mid-Flood	0.7
SR2	04/01/2014	Mid-Flood	9.1
SR2	07/01/2014	Mid-Flood	2.0
SR2	09/01/2014	Mid-Flood	1.4
SR2	11/01/2014	Mid-Flood	0.6
SR2	14/01/2014	Mid-Flood	0.1
SR2	16/01/2014	Mid-Flood	0.1
SR2	18/01/2014	Mid-Flood	1.7
SR2	21/01/2014	Mid-Flood	0.7
SR2	23/01/2014	Mid-Flood	0.8
SR2	25/01/2014	Mid-Flood	0.2
SR2	27/01/2014	Mid-Flood	0.6
SR2	29/01/2014	Mid-Flood	0.3
SR3	04/01/2014	Mid-Flood	4.9
SR3	07/01/2014	Mid-Flood	3.7
SR3	09/01/2014	Mid-Flood	2.3
SR3	11/01/2014	Mid-Flood	0.1
SR3	14/01/2014	Mid-Flood	0.1
SR3	16/01/2014	Mid-Flood	0.1
SR3	18/01/2014	Mid-Flood	0.5
SR3	21/01/2014	Mid-Flood	1.8
SR3	23/01/2014	Mid-Flood	1.2
SR3	25/01/2014	Mid-Flood	1.0
SR3	27/01/2014	Mid-Flood	0.8
SR3	29/01/2014	Mid-Flood	0.7
SR4	04/01/2014	Mid-Flood	8.3
SR4	07/01/2014	Mid-Flood	7.4
SR4	09/01/2014	Mid-Flood	4.0
SR4	11/01/2014	Mid-Flood	1.0
SR4	14/01/2014	Mid-Flood	0.1
SR4	16/01/2014	Mid-Flood	0.1
SR4	18/01/2014	Mid-Flood	0.4
SR4	21/01/2014	Mid-Flood	4.7
SR4	23/01/2014	Mid-Flood	4.7
SR4	25/01/2014	Mid-Flood	1.7
SR4	27/01/2014	Mid-Flood	1.6
SR4	29/01/2014	Mid-Flood	0.9
SR5	04/01/2014	Mid-Flood	13.2
SR5	07/01/2014	Mid-Flood	5.9
SR5	09/01/2014	Mid-Flood	1.0
SR5	11/01/2014	Mid-Flood	0.4
SR5	14/01/2014	Mid-Flood	0.1
SR5	16/01/2014	Mid-Flood	0.1
SR5	18/01/2014	Mid-Flood	2.5
SR5	21/01/2014	Mid-Flood	2.9
SR5	23/01/2014	Mid-Flood	2.1
SR5	25/01/2014	Mid-Flood	0.6
SR5	27/01/2014	Mid-Flood	0.2
SR5	29/01/2014	Mid-Flood	1.3
SR12	04/01/2014	Mid-Flood	8.6
SR12	07/01/2014	Mid-Flood	8.8
SR12	09/01/2014	Mid-Flood	3.3
SR12	11/01/2014	Mid-Flood	0.5
SR12	14/01/2014	Mid-Flood	1.4
SR12	16/01/2014	Mid-Flood	0.1
SR12	18/01/2014	Mid-Flood	1.3
SR12	21/01/2014	Mid-Flood	3.0
SR12	23/01/2014	Mid-Flood	3.2
SR12	25/01/2014	Mid-Flood	2.8
SR12	27/01/2014	Mid-Flood	3.1
SR12	29/01/2014	Mid-Flood	1.3

Impact Turbidity (NTU)											
SR1	24/07/2014	Mid-Flood	4.0	SR3	24/07/2014	Mid-Flood	3.7	SR5	24/07/2014	Mid-Flood	4.2
SR1	26/07/2014	Mid-Flood	2.1	SR3	26/07/2014	Mid-Flood	2.1	SR5	26/07/2014	Mid-Flood	2.2
SR1	29/07/2014	Mid-Flood	1.7	SR3	29/07/2014	Mid-Flood	2.7	SR5	29/07/2014	Mid-Flood	2.9
SR1	31/07/2014	Mid-Flood	1.7	SR3	31/07/2014	Mid-Flood	2.5	SR5	31/07/2014	Mid-Flood	1.8
SR1	02/08/2014	Mid-Flood	1.9	SR3	02/08/2014	Mid-Flood	5.8	SR5	02/08/2014	Mid-Flood	1.8
SR1	05/08/2014	Mid-Flood	1.3	SR3	05/08/2014	Mid-Flood	1.5	SR5	05/08/2014	Mid-Flood	1.4
SR1	07/08/2014	Mid-Flood	0.2	SR3	07/08/2014	Mid-Flood	2.1	SR5	07/08/2014	Mid-Flood	0.3
SR1	09/08/2014	Mid-Flood	5.1	SR3	09/08/2014	Mid-Flood	5.8	SR5	09/08/2014	Mid-Flood	5.9
SR1	12/08/2014	Mid-Flood	6.0	SR3	12/08/2014	Mid-Flood	6.1	SR5	12/08/2014	Mid-Flood	2.9
SR1	14/08/2014	Mid-Flood	7.0	SR3	14/08/2014	Mid-Flood	5.9	SR5	14/08/2014	Mid-Flood	5.0
SR1	16/8/2014	Mid-Flood	5.5	SR3	16/8/2014	Mid-Flood	3.6	SR5	16/8/2014	Mid-Flood	5.7
SR1	19/08/2014	Mid-Flood	3.2	SR3	19/08/2014	Mid-Flood	1.7	SR5	19/08/2014	Mid-Flood	1.6
SR1	21/8/2014	Mid-Flood	1.3	SR3	21/8/2014	Mid-Flood	1.8	SR5	21/8/2014	Mid-Flood	2.9
SR1	23/08/2014	Mid-Flood	2.6	SR3	23/08/2014	Mid-Flood	2.3	SR5	23/08/2014	Mid-Flood	1.8
SR1	26/08/2014	Mid-Flood	2.2	SR3	26/08/2014	Mid-Flood	2.8	SR5	26/08/2014	Mid-Flood	3.0
SR1	28/8/2014	Mid-Flood	3.1	SR3	28/8/2014	Mid-Flood	5.4	SR5	28/8/2014	Mid-Flood	5.8
SR1	30/8/2014	Mid-Flood	4.7	SR3	30/8/2014	Mid-Flood	4.1	SR5	30/8/2014	Mid-Flood	3.8
SR1	02/09/2014	Mid-Flood	0.6	SR3	02/09/2014	Mid-Flood	2.1	SR5	02/09/2014	Mid-Flood	2.1
SR1	04/09/2014	Mid-Flood	2.4	SR3	04/09/2014	Mid-Flood	1.6	SR5	04/09/2014	Mid-Flood	1.1
SR1	06/09/2014	Mid-Flood	2.8	SR3	06/09/2014	Mid-Flood	4.2	SR5	06/09/2014	Mid-Flood	2.9
SR1	09/09/2014	Mid-Flood	8.4	SR3	09/09/2014	Mid-Flood	10.3	SR5	09/09/2014	Mid-Flood	9.5
SR1	11/09/2014	Mid-Flood	8.8	SR3	11/09/2014	Mid-Flood	3.7	SR5	11/09/2014	Mid-Flood	12.9
SR1	13/9/2014	Mid-Flood	6.5	SR3	13/9/2014	Mid-Flood	5.1	SR5	13/9/2014	Mid-Flood	7.6
SR1	16/9/2014	Mid-Flood		SR3	16/9/2014	Mid-Flood		SR5	16/9/2014	Mid-Flood	
SR1	18/09/2014	Mid-Flood	1.9	SR3	18/09/2014	Mid-Flood	1.9	SR5	18/09/2014	Mid-Flood	1.5
SR1	20/9/2014	Mid-Flood	3	SR3	20/9/2014	Mid-Flood	1.82	SR5	20/9/2014	Mid-Flood	2.23
SR1	23/9/2014	Mid-Flood	4.9	SR3	23/9/2014	Mid-Flood	4.7	SR5	23/9/2014	Mid-Flood	2.8
SR1	25/9/2014	Mid-Flood	9.6	SR3	25/9/2014	Mid-Flood	3.1	SR5	25/9/2014	Mid-Flood	7.0
SR1	27/9/2014	Mid-Flood	7.5	SR3	27/9/2014	Mid-Flood	3.5	SR5	27/9/2014	Mid-Flood	12.9
SR1	30/9/2014	Mid-Flood	3.9	SR3	30/9/2014	Mid-Flood	7.3	SR5	30/9/2014	Mid-Flood	5.4
SR1	02/10/2014	Mid-Flood	1.9	SR3	02/10/2014	Mid-Flood	1.7	SR5	02/10/2014	Mid-Flood	2.0
SR1	04/10/2014	Mid-Flood	2.0	SR3	04/10/2014	Mid-Flood	7.7	SR5	04/10/2014	Mid-Flood	2.0
SR1	07/10/2014	Mid-Flood	2.2	SR3	07/10/2014	Mid-Flood	4.5	SR5	07/10/2014	Mid-Flood	3.9
SR1	09/10/2014	Mid-Flood	8.9	SR3	09/10/2014	Mid-Flood	6.8	SR5	09/10/2014	Mid-Flood	6.1
SR1	11/10/2014	Mid-Flood	9.9	SR3	11/10/2014	Mid-Flood	2.1	SR5	11/10/2014	Mid-Flood	10.3
SR1	14/10/2014	Mid-Flood	4.6	SR3	14/10/2014	Mid-Flood	1.7	SR5	14/10/2014	Mid-Flood	5.6
SR1	16/10/2014	Mid-Flood	1.7	SR3	16/10/2014	Mid-Flood	1.0	SR5	16/10/2014	Mid-Flood	0.9
SR1	18/10/2014	Mid-Flood	0.4	SR3	18/10/2014	Mid-Flood	1.0	SR5	18/10/2014	Mid-Flood	0.7
SR1	21/10/2014	Mid-Flood	9.9	SR3	21/10/2014	Mid-Flood	2.7	SR5	21/10/2014	Mid-Flood	1.9
SR2	24/07/2014	Mid-Flood	4.3	SR4	24/07/2014	Mid-Flood	3.4	SR12	24/07/2014	Mid-Flood	3.1
SR2	26/07/2014	Mid-Flood	2.0	SR4	26/07/2014	Mid-Flood	2.2	SR12	26/07/2014	Mid-Flood	2.6
SR2	29/07/2014	Mid-Flood	2.4	SR4	29/07/2014	Mid-Flood	2.7	SR12	29/07/2014	Mid-Flood	2.6
SR2	31/07/2014	Mid-Flood	1.3	SR4	31/07/2014	Mid-Flood	1.4	SR12	31/07/2014	Mid-Flood	2.0
SR2	02/08/2014	Mid-Flood	2.1	SR4	02/08/2014	Mid-Flood	0.6	SR12	02/08/2014	Mid-Flood	1.6
SR2	05/08/2014	Mid-Flood	1.2	SR4	05/08/2014	Mid-Flood	1.2	SR12	05/08/2014	Mid-Flood	1.0
SR2	07/08/2014	Mid-Flood	1.2	SR4	07/08/2014	Mid-Flood	4.7	SR12	07/08/2014	Mid-Flood	0.3
SR2	09/08/2014	Mid-Flood	5.3	SR4	09/08/2014	Mid-Flood	4.5	SR12	09/08/2014	Mid-Flood	4.6
SR2	12/08/2014	Mid-Flood	5.3	SR4	12/08/2014	Mid-Flood	6.4	SR12	12/08/2014	Mid-Flood	4.3
SR2	14/08/2014	Mid-Flood	6.1	SR4	14/08/2014	Mid-Flood	8.6	SR12	14/08/2014	Mid-Flood	6.8
SR2	16/8/2014	Mid-Flood	3.5	SR4	16/8/2014	Mid-Flood	5.9	SR12	16/8/2014	Mid-Flood	4.4
SR2	19/08/2014	Mid-Flood	1.3	SR4	19/08/2014	Mid-Flood	1.9	SR12	19/08/2014	Mid-Flood	1.8
SR2	21/8/2014	Mid-Flood	4.4	SR4	21/8/2014	Mid-Flood	2.4	SR12	21/8/2014	Mid-Flood	3.5
SR2	23/08/2014	Mid-Flood	2.2	SR4	23/08/2014	Mid-Flood	1.2	SR12	23/08/2014	Mid-Flood	4.3
SR2	26/08/2014	Mid-Flood	3.2	SR4	26/08/2014	Mid-Flood	1.8	SR12	26/08/2014	Mid-Flood	2.2
SR2	28/8/2014	Mid-Flood	3.5	SR4	28/8/2014	Mid-Flood	5.2	SR12	28/8/2014	Mid-Flood	4.0
SR2	30/8/2014	Mid-Flood	2.1	SR4	30/8/2014	Mid-Flood	1.9	SR12	30/8/2014	Mid-Flood	1.8
SR2	02/09/2014	Mid-Flood	1.5	SR4	02/09/2014	Mid-Flood	2.4	SR12	02/09/2014	Mid-Flood	1.7
SR2	04/09/2014	Mid-Flood	1.9	SR4	04/09/2014	Mid-Flood	1.6	SR12	04/09/2014	Mid-Flood	3.6
SR2	06/09/2014	Mid-Flood	3.6	SR4	06/09/2014	Mid-Flood	4.4	SR12	06/09/2014	Mid-Flood	2.8
SR2	09/09/2014	Mid-Flood	9.8	SR4	09/09/2014	Mid-Flood	7.7	SR12	09/09/2014	Mid-Flood	9.3
SR2	11/09/2014	Mid-Flood	4.5	SR4	11/09/2014	Mid-Flood	7.4	SR12	11/09/2014	Mid-Flood	7.5
SR2	13/9/2014	Mid-Flood	5.5	SR4	13/9/2014	Mid-Flood	8.9	SR12	13/9/2014	Mid-Flood	9.6
SR2	16/9/2014	Mid-Flood		SR4	16/9/2014	Mid-Flood		SR12	16/9/2014	Mid-Flood	
SR2	18/09/2014	Mid-Flood	2.1	SR4	18/09/2014	Mid-Flood	2.3	SR12	18/09/2014	Mid-Flood	3.4
SR2	20/9/2014	Mid-Flood	0.90	SR4	20/9/2014	Mid-Flood	2.55	SR12	20/9/2014	Mid-Flood	3.47
SR2	23/9/2014	Mid-Flood	2.5	SR4	23/9/2014	Mid-Flood	2.2	SR12	23/9/2014	Mid-Flood	2.4
SR2	25/9/2014	Mid-Flood	3.8	SR4	25/9/2014	Mid-Flood	5.0	SR12	25/9/2014	Mid-Flood	6.7
SR2	27/9/2014	Mid-Flood	4.3	SR4	27/9/2014	Mid-Flood	4.3	SR12	27/9/2014	Mid-Flood	4.7
SR2	30/9/2014	Mid-Flood	2.6	SR4	30/9/2014	Mid-Flood	6.5	SR12	30/9/2014	Mid-Flood	3.3
SR2	02/10/2014	Mid-Flood	1.8	SR4	02/10/2014	Mid-Flood	4.5	SR12	02/10/2014	Mid-Flood	4.0
SR2	04/10/2014	Mid-Flood	2.0	SR4	04/10/2014	Mid-Flood	2.8	SR12	04/10/2014	Mid-Flood	2.2
SR2	07/10/2014	Mid-Flood	4.6	SR4	07/10/2014	Mid-Flood	4.7	SR12	07/10/2014	Mid-Flood	3.9
SR2	09/10/2014	Mid-Flood	12.9	SR4	09/10/2014	Mid-Flood	6.2	SR12	09/10/2014	Mid-Flood	9.2
SR2	11/10/2014	Mid-Flood	6.4	SR4	11/10/2014	Mid-Flood	6.2	SR12	11/10/2014	Mid-Flood	7.8
SR2	14/10/2014	Mid-Flood	3.8	SR4	14/10/2014	Mid-Flood	3.5	SR12	14/10/2014	Mid-Flood	6.2
SR2	16/10/2014	Mid-Flood	1.7	SR4	16/10/2014	Mid-Flood	1.1	SR12	16/10/2014	Mid-Flood	3.1
SR2	18/10/2014	Mid-Flood	0.4	SR4	18/10/2014	Mid-Flood	0.6	SR12	18/10/2014	Mid-Flood	2.4
SR2	21/10/2014	Mid-Flood	5.0	SR4	21/10/2014	Mid-Flood	1.7	SR12	21/10/2014	Mid-Flood	3.2

Cluster 1 Turbidity
1.3 x Baseline vs Impact

Baseline			
SR1	04/01/2014	Mid-Ebb	12.9
SR1	07/01/2014	Mid-Ebb	12.5
SR1	09/01/2014	Mid-Ebb	0.6
SR1	11/01/2014	Mid-Ebb	0.1
SR1	14/01/2014	Mid-Ebb	0.1
SR1	16/01/2014	Mid-Ebb	1.4
SR1	18/01/2014	Mid-Ebb	0.8
SR1	21/01/2014	Mid-Ebb	2.1
SR1	23/01/2014	Mid-Ebb	1.4
SR1	25/01/2014	Mid-Ebb	1.7
SR1	27/01/2014	Mid-Ebb	0.1
SR1	29/01/2014	Mid-Ebb	1.0
SR2	04/01/2014	Mid-Ebb	5.7
SR2	07/01/2014	Mid-Ebb	2.1
SR2	09/01/2014	Mid-Ebb	0.3
SR2	11/01/2014	Mid-Ebb	0.1
SR2	14/01/2014	Mid-Ebb	8.1
SR2	16/01/2014	Mid-Ebb	0.1
SR2	18/01/2014	Mid-Ebb	0.1
SR2	21/01/2014	Mid-Ebb	0.2
SR2	23/01/2014	Mid-Ebb	1.1
SR2	25/01/2014	Mid-Ebb	0.1
SR2	27/01/2014	Mid-Ebb	0.1
SR2	29/01/2014	Mid-Ebb	0.3
SR3	04/01/2014	Mid-Ebb	4.6
SR3	07/01/2014	Mid-Ebb	4.0
SR3	09/01/2014	Mid-Ebb	3.3
SR3	11/01/2014	Mid-Ebb	0.1
SR3	14/01/2014	Mid-Ebb	0.1
SR3	16/01/2014	Mid-Ebb	0.1
SR3	18/01/2014	Mid-Ebb	0.4
SR3	21/01/2014	Mid-Ebb	2.0
SR3	23/01/2014	Mid-Ebb	1.4
SR3	25/01/2014	Mid-Ebb	0.2
SR3	27/01/2014	Mid-Ebb	0.1
SR3	29/01/2014	Mid-Ebb	0.1
SR4	04/01/2014	Mid-Ebb	8.8
SR4	07/01/2014	Mid-Ebb	7.8
SR4	09/01/2014	Mid-Ebb	1.8
SR4	11/01/2014	Mid-Ebb	0.7
SR4	14/01/2014	Mid-Ebb	0.1
SR4	16/01/2014	Mid-Ebb	0.1
SR4	18/01/2014	Mid-Ebb	0.4
SR4	21/01/2014	Mid-Ebb	1.1
SR4	23/01/2014	Mid-Ebb	2.5
SR4	25/01/2014	Mid-Ebb	2.0
SR4	27/01/2014	Mid-Ebb	0.4
SR4	29/01/2014	Mid-Ebb	2.2
SR5	04/01/2014	Mid-Ebb	8.0
SR5	07/01/2014	Mid-Ebb	3.3
SR5	09/01/2014	Mid-Ebb	0.1
SR5	11/01/2014	Mid-Ebb	0.1
SR5	14/01/2014	Mid-Ebb	0.1
SR5	16/01/2014	Mid-Ebb	0.8
SR5	18/01/2014	Mid-Ebb	0.1
SR5	21/01/2014	Mid-Ebb	1.8
SR5	23/01/2014	Mid-Ebb	1.3
SR5	25/01/2014	Mid-Ebb	1.5
SR5	27/01/2014	Mid-Ebb	0.1
SR5	29/01/2014	Mid-Ebb	0.4
SR12	04/01/2014	Mid-Ebb	7.4
SR12	07/01/2014	Mid-Ebb	8.6
SR12	09/01/2014	Mid-Ebb	2.2
SR12	11/01/2014	Mid-Ebb	0.6
SR12	14/01/2014	Mid-Ebb	0.1
SR12	16/01/2014	Mid-Ebb	0.3
SR12	18/01/2014	Mid-Ebb	0.1
SR12	21/01/2014	Mid-Ebb	3.5
SR12	23/01/2014	Mid-Ebb	1.8
SR12	25/01/2014	Mid-Ebb	2.0
SR12	27/01/2014	Mid-Ebb	1.3
SR12	29/01/2014	Mid-Ebb	2.3

Impact											
SR1	24/07/2014	Mid-Ebb	4.0	SR3	24/07/2014	Mid-Ebb	3.4	SR5	24/07/2014	Mid-Ebb	3.8
SR1	26/07/2014	Mid-Ebb	3.2	SR3	26/07/2014	Mid-Ebb	3.1	SR5	26/07/2014	Mid-Ebb	3.0
SR1	29/07/2014	Mid-Ebb	1.6	SR3	29/07/2014	Mid-Ebb	1.9	SR5	29/07/2014	Mid-Ebb	2.9
SR1	31/07/2014	Mid-Ebb	2.0	SR3	31/07/2014	Mid-Ebb	2.3	SR5	31/07/2014	Mid-Ebb	2.1
SR1	02/08/2014	Mid-Ebb	0.9	SR3	02/08/2014	Mid-Ebb	1.4	SR5	02/08/2014	Mid-Ebb	2.4
SR1	05/08/2014	Mid-Ebb	1.5	SR3	05/08/2014	Mid-Ebb	1.1	SR5	05/08/2014	Mid-Ebb	2.1
SR1	07/08/2014	Mid-Ebb	0.4	SR3	07/08/2014	Mid-Ebb	0.2	SR5	07/08/2014	Mid-Ebb	0.3
SR1	09/08/2014	Mid-Ebb	5.1	SR3	09/08/2014	Mid-Ebb	5.4	SR5	09/08/2014	Mid-Ebb	5.8
SR1	12/08/2014	Mid-Ebb	5.5	SR3	12/08/2014	Mid-Ebb	4.1	SR5	12/08/2014	Mid-Ebb	5.9
SR1	14/08/2014	Mid-Ebb	7.0	SR3	14/08/2014	Mid-Ebb	3.6	SR5	14/08/2014	Mid-Ebb	6.4
SR1	16/8/2014	Mid-Ebb	4.6	SR3	16/8/2014	Mid-Ebb	3.4	SR5	16/8/2014	Mid-Ebb	3.5
SR1	19/08/2014	Mid-Ebb	3.0	SR3	19/08/2014	Mid-Ebb	1.3	SR5	19/08/2014	Mid-Ebb	1.5
SR1	21/8/2014	Mid-Ebb	3.0	SR3	21/8/2014	Mid-Ebb	2.0	SR5	21/8/2014	Mid-Ebb	1.4
SR1	23/08/2014	Mid-Ebb	2.4	SR3	23/08/2014	Mid-Ebb	2.5	SR5	23/08/2014	Mid-Ebb	1.7
SR1	26/08/2014	Mid-Ebb	2.1	SR3	26/08/2014	Mid-Ebb	2.0	SR5	26/08/2014	Mid-Ebb	3.0
SR1	28/8/2014	Mid-Ebb	3.3	SR3	28/8/2014	Mid-Ebb	5.1	SR5	28/8/2014	Mid-Ebb	5.8
SR1	30/8/2014	Mid-Ebb	6.1	SR3	30/8/2014	Mid-Ebb	4.0	SR5	30/8/2014	Mid-Ebb	3.3
SR1	02/09/2014	Mid-Ebb	0.7	SR3	02/09/2014	Mid-Ebb	1.8	SR5	02/09/2014	Mid-Ebb	2.3
SR1	04/09/2014	Mid-Ebb	3.2	SR3	04/09/2014	Mid-Ebb	3.4	SR5	04/09/2014	Mid-Ebb	1.8
SR1	06/09/2014	Mid-Ebb	2.7	SR3	06/09/2014	Mid-Ebb	2.6	SR5	06/09/2014	Mid-Ebb	2.7
SR1	09/09/2014	Mid-Ebb	9.6	SR3	09/09/2014	Mid-Ebb	6.8	SR5	09/09/2014	Mid-Ebb	4.8
SR1	11/09/2014	Mid-Ebb	8.2	SR3	11/09/2014	Mid-Ebb	2.9	SR5	11/09/2014	Mid-Ebb	11.9
SR1	13/9/2014	Mid-Ebb	6.9	SR3	13/9/2014	Mid-Ebb	6.2	SR5	13/9/2014	Mid-Ebb	7.3
SR1	16/9/2014	Mid-Ebb		SR3	16/9/2014	Mid-Ebb		SR5	16/9/2014	Mid-Ebb	
SR1	18/09/2014	Mid-Ebb	1.8	SR3	18/09/2014	Mid-Ebb	1.7	SR5	18/09/2014	Mid-Ebb	1.6
SR1	20/9/2014	Mid-Ebb	3	SR3	20/9/2014	Mid-Ebb	2.07	SR5	20/9/2014	Mid-Ebb	1.30
SR1	23/9/2014	Mid-Ebb	6.1	SR3	23/9/2014	Mid-Ebb	4.8	SR5	23/9/2014	Mid-Ebb	2.9
SR1	25/9/2014	Mid-Ebb	9.2	SR3	25/9/2014	Mid-Ebb	4.5	SR5	25/9/2014	Mid-Ebb	7.6
SR1	27/9/2014	Mid-Ebb	6.4	SR3	27/9/2014	Mid-Ebb	1.9	SR5	27/9/2014	Mid-Ebb	5.9
SR1	30/9/2014	Mid-Ebb	3.1	SR3	30/9/2014	Mid-Ebb	6.2	SR5	30/9/2014	Mid-Ebb	3.4
SR1	02/10/2014	Mid-Ebb	2.1	SR3	02/10/2014	Mid-Ebb	1.9	SR5	02/10/2014	Mid-Ebb	2.8
SR1	04/10/2014	Mid-Ebb	2.0	SR3	04/10/2014	Mid-Ebb	1.4	SR5	04/10/2014	Mid-Ebb	1.1
SR1	07/10/2014	Mid-Ebb	2.3	SR3	07/10/2014	Mid-Ebb	4.4	SR5	07/10/2014	Mid-Ebb	3.2
SR1	09/10/2014	Mid-Ebb	8.6	SR3	09/10/2014	Mid-Ebb	12.4	SR5	09/10/2014	Mid-Ebb	5.7
SR1	11/10/2014	Mid-Ebb	9.9	SR3	11/10/2014	Mid-Ebb	3.5	SR5	11/10/2014	Mid-Ebb	9.7
SR1	14/10/2014	Mid-Ebb	5.5	SR3	14/10/2014	Mid-Ebb	2.0	SR5	14/10/2014	Mid-Ebb	3.6
SR1	16/10/2014	Mid-Ebb	1.3	SR3	16/10/2014	Mid-Ebb	1.9	SR5	16/10/2014	Mid-Ebb	0.4
SR1	18/10/2014	Mid-Ebb	1.8	SR3	18/10/2014	Mid-Ebb	1.2	SR5	18/10/2014	Mid-Ebb	0.7
SR1	21/10/2014	Mid-Ebb	9.7	SR3	21/10/2014	Mid-Ebb	2.8	SR5	21/10/2014	Mid-Ebb	1.5
SR2	24/07/2014	Mid-Ebb	4.2	SR4	24/07/2014	Mid-Ebb	1.6	SR12	24/07/2014	Mid-Ebb	4.2
SR2	26/07/2014	Mid-Ebb	3.3	SR4	26/07/2014	Mid-Ebb	2.0	SR12	26/07/2014	Mid-Ebb	3.5
SR2	29/07/2014	Mid-Ebb	1.3	SR4	29/07/2014	Mid-Ebb	1.0	SR12	29/07/2014	Mid-Ebb	2.0
SR2	31/07/2014	Mid-Ebb	1.8	SR4	31/07/2014	Mid-Ebb	1.7	SR12	31/07/2014	Mid-Ebb	2.0
SR2	02/08/2014	Mid-Ebb	0.9	SR4	02/08/2014	Mid-Ebb	0.7	SR12	02/08/2014	Mid-Ebb	1.5
SR2	05/08/2014	Mid-Ebb	1.3	SR4	05/08/2014	Mid-Ebb	1.0	SR12	05/08/2014	Mid-Ebb	1.4
SR2	07/08/2014	Mid-Ebb	1.4	SR4	07/08/2014	Mid-Ebb	3.0	SR12	07/08/2014	Mid-Ebb	4.9
SR2	09/08/2014	Mid-Ebb	5.5	SR4	09/08/2014	Mid-Ebb	6.9	SR12	09/08/2014	Mid-Ebb	5.6
SR2	12/08/2014	Mid-Ebb	4.8	SR4	12/08/2014	Mid-Ebb	4.2	SR12	12/08/2014	Mid-Ebb	9.7
SR2	14/08/2014	Mid-Ebb	3.9	SR4	14/08/2014	Mid-Ebb	3.3	SR12	14/08/2014	Mid-Ebb	5.9
SR2	16/8/2014	Mid-Ebb	2.7	SR4	16/8/2014	Mid-Ebb	3.7	SR12	16/8/2014	Mid-Ebb	2.9
SR2	19/08/2014	Mid-Ebb	1.5	SR4	19/08/2014	Mid-Ebb	1.2	SR12	19/08/2014	Mid-Ebb	1.7
SR2	21/8/2014	Mid-Ebb	2.3	SR4	21/8/2014	Mid-Ebb	1.8	SR12	21/8/2014	Mid-Ebb	2.4
SR2	23/08/2014	Mid-Ebb	2.9	SR4	23/08/2014	Mid-Ebb	1.4	SR12	23/08/2014	Mid-Ebb	4.3
SR2	26/08/2014	Mid-Ebb	3.2	SR4	26/08/2014	Mid-Ebb	1.3	SR12	26/08/2014	Mid-Ebb	4.7
SR2	28/8/2014	Mid-Ebb	3.6	SR4	28/8/2014	Mid-Ebb	2.6	SR12	28/8/2014	Mid-Ebb	4.8
SR2	30/8/2014	Mid-Ebb	2.2	SR4	30/8/2014	Mid-Ebb	1.6	SR12	30/8/2014	Mid-Ebb	1.2
SR2	02/09/2014	Mid-Ebb	1.3	SR4	02/09/2014	Mid-Ebb	0.7	SR12	02/09/2014	Mid-Ebb	1.7
SR2	04/09/2014	Mid-Ebb	3.1	SR4	04/09/2014	Mid-Ebb	7.2	SR12	04/09/2014	Mid-Ebb	9.1
SR2	06/09/2014	Mid-Ebb	4.0	SR4	06/09/2014	Mid-Ebb	4.1	SR12	06/09/2014	Mid-Ebb	6.9
SR2	09/09/2014	Mid-Ebb	7.3	SR4	09/09/2014	Mid-Ebb	3.6	SR12	09/09/2014	Mid-Ebb	8.5
SR2	11/09/2014	Mid-Ebb	2.8	SR4	11/09/2014	Mid-Ebb	2.9	SR12	11/09/2014	Mid-Ebb	4.5
SR2	13/9/2014	Mid-Ebb	3.9	SR4	13/9/2014	Mid-Ebb	3.2	SR12	13/9/2014	Mid-Ebb	5.5
SR2	16/9/2014	Mid-Ebb		SR4	16/9/2014	Mid-Ebb		SR12	16/9/2014	Mid-Ebb	
SR2	18/09/2014	Mid-Ebb	1.3	SR4	18/09/2014	Mid-Ebb	1.1	SR12	18/09/2014	Mid-Ebb	5.4
SR2	20/9/2014	Mid-Ebb	1.53	SR4	20/9/2014	Mid-Ebb	1.40	SR12	20/9/2014	Mid-Ebb	5.70
SR2	23/9/2014	Mid-Ebb	2.2	SR4	23/9/2014	Mid-Ebb	3.0	SR12	23/9/2014	Mid-Ebb	1.9
SR2	25/9/2014	Mid-Ebb	3.8	SR4	25/9/2014	Mid-Ebb	1.8	SR12	25/9/2014	Mid-Ebb	5.3
SR2	27/9/2014	Mid-Ebb	1.6	SR4	27/9/2014	Mid-Ebb	1.8	SR12	27/9/2014	Mid-Ebb	3.5
SR2	30/9/2014	Mid-Ebb	2.6	SR4	30/9/2014	Mid-Ebb	1.7	SR12	30/9/2014	Mid-Ebb	3.8
SR2	02/10/2014	Mid-Ebb	3.5	SR4	02/10/2014	Mid-Ebb	2.7	SR12	02/10/2014	Mid-Ebb	4.4
SR2	04/10/2014	Mid-Ebb	3.8	SR4	04/10/2014	Mid-Ebb	7.2	SR12	04/10/2014	Mid-Ebb	6.4
SR2	07/10/2014	Mid-Ebb	3.5	SR4	07/10/2014	Mid-Ebb	4.1	SR12	07/10/2014	Mid-Ebb	4.7
SR2	09/10/2014	Mid-Ebb	11.1	SR4	09/10/2014	Mid-Ebb	4.1	SR12	09/10/2014	Mid-Ebb	9.7
SR2	11/10/2014	Mid-Ebb	2.8	SR4	11/10/2014	Mid-Ebb	2.8	SR12	11/10/2014	Mid-Ebb	4.6
SR2	14/10/2014	Mid-Ebb	2.6	SR4	14/10/2014	Mid-Ebb	3.3	SR12	14/10/2014	Mid-Ebb	5.1
SR2	16/10/2014	Mid-Ebb	2.1	SR4	16/10/2014	Mid-Ebb	5.3	SR12	16/10/2014	Mid-Ebb	3.9
SR2	18/10/2014	Mid-Ebb	1.9	SR4	18/10/2014	Mid-Ebb	1.8	SR12	18/10/2014	Mid-Ebb	3.3
SR2	21/10/2014	Mid-Ebb	4.0	SR4	21/10/2014	Mid-Ebb	3.1	SR12	21/10/2014	Mid-Ebb	4.2

Cluster 1 Turbidity
1.3 x Baseline vs Impact

1.3 x Baseline		Impact	
Raw Statistics		Raw Statistics	
Number of Valid Observations	144	Number of Valid Observations	456
Number of Distinct Observations	51	Number of Missing Values	12
Minimum	0.1	Number of Distinct Observations	316
Maximum	19.8	Minimum	0.15
Mean of Raw Data	2.293	Maximum	12.9
Standard Deviation of Raw Data	3.247	Mean of Raw Data	3.695
Kstar	0.623	Standard Deviation of Raw Data	2.445
Mean of Log Transformed Data	-0.141	Kstar	2.385
Standard Deviation of Log Transformed Data	1.537	Mean of Log Transformed Data	1.084
		Standard Deviation of Log Transformed Data	0.708
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.826		
Approximate Shapiro Wilk Test Statistic	0.692	Correlation Coefficient R	0.947
Approximate Shapiro Wilk P Value	0	Approximate Shapiro Wilk Test Statistic	0.883
Lilliefors Test Statistic	0.25	Approximate Shapiro Wilk P Value	0
Lilliefors Critical (0.95) Value	0.0738	Lilliefors Test Statistic	0.115
Data not Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.0415
		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact
Background Data: 1.3 x Baseline

Raw Statistics

	Site	Background
Number of Valid Observations	456	144
Number of Missing Values	12	0
Number of Distinct Observations	316	51
Minimum	0.15	0.1
Maximum	12.9	19.8
Mean	3.695	2.293
Median	3.083	1.1
SD	2.445	3.247
SE of Mean	0.114	0.271

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	153209
WMW Test U-Stat	8.922
WMW Critical Value (0.050)	1.645
P-Value	0

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 1 Turbidity
Control vs Impact

Control Turbidity (NTU)							
C1	24/07/2014	Mid-Flood	8.1	C3	24/07/2014	Mid-Flood	1.3
C1	26/07/2014	Mid-Flood	6.4	C3	26/07/2014	Mid-Flood	3.4
C1	29/07/2014	Mid-Flood	3.2	C3	29/07/2014	Mid-Flood	4.1
C1	31/07/2014	Mid-Flood	3.3	C3	31/07/2014	Mid-Flood	2.2
C1	02/08/2014	Mid-Flood	1.1	C3	02/08/2014	Mid-Flood	6.7
C1	05/08/2014	Mid-Flood	1.3	C3	05/08/2014	Mid-Flood	3.8
C1	07/08/2014	Mid-Flood	3.7	C3	07/08/2014	Mid-Flood	3.8
C1	09/08/2014	Mid-Flood	8.6	C3	09/08/2014	Mid-Flood	3.6
C1	12/08/2014	Mid-Flood	6.9	C3	12/08/2014	Mid-Flood	2.1
C1	14/08/2014	Mid-Flood	7.8	C3	14/08/2014	Mid-Flood	4.7
C1	16/8/2014	Mid-Flood	5.3	C3	16/8/2014	Mid-Flood	3.3
C1	19/08/2014	Mid-Flood	2.4	C3	19/08/2014	Mid-Flood	1.4
C1	21/8/2014	Mid-Flood	4.8	C3	21/8/2014	Mid-Flood	3.9
C1	23/08/2014	Mid-Flood	6.5	C3	23/08/2014	Mid-Flood	3.6
C1	26/08/2014	Mid-Flood	5.2	C3	26/08/2014	Mid-Flood	7.5
C1	28/8/2014	Mid-Flood	6.4	C3	28/8/2014	Mid-Flood	3.4
C1	30/8/2014	Mid-Flood	6.4	C3	30/8/2014	Mid-Flood	2.3
C1	02/09/2014	Mid-Flood	2.2	C3	02/09/2014	Mid-Flood	0.6
C1	04/09/2014	Mid-Flood	2.9	C3	04/09/2014	Mid-Flood	0.4
C1	06/09/2014	Mid-Flood	5.5	C3	06/09/2014	Mid-Flood	4.7
C1	09/09/2014	Mid-Flood	20.3	C3	09/09/2014	Mid-Flood	6.7
C1	11/09/2014	Mid-Flood	9.6	C3	11/09/2014	Mid-Flood	8.4
C1	13/9/2014	Mid-Flood	10.9	C3	13/9/2014	Mid-Flood	3.0
C1	16/9/2014	Mid-Flood		C3	16/9/2014	Mid-Flood	
C1	18/09/2014	Mid-Flood	4.0	C3	18/09/2014	Mid-Flood	3.5
C1	20/9/2014	Mid-Flood	5.1	C3	20/9/2014	Mid-Flood	1.9
C1	23/9/2014	Mid-Flood	7.7	C3	23/9/2014	Mid-Flood	2.7
C1	25/9/2014	Mid-Flood	4.8	C3	25/9/2014	Mid-Flood	7.6
C1	27/9/2014	Mid-Flood	7.5	C3	27/9/2014	Mid-Flood	6.8
C1	30/9/2014	Mid-Flood	3.8	C3	30/9/2014	Mid-Flood	0.9
C1	02/10/2014	Mid-Flood	4.1	C3	02/10/2014	Mid-Flood	1.2
C1	04/10/2014	Mid-Flood	3.5	C3	04/10/2014	Mid-Flood	7.9
C1	07/10/2014	Mid-Flood	9.3	C3	07/10/2014	Mid-Flood	4.0
C1	09/10/2014	Mid-Flood	16.4	C3	09/10/2014	Mid-Flood	2.0
C1	11/10/2014	Mid-Flood	9.0	C3	11/10/2014	Mid-Flood	3.9
C1	14/10/2014	Mid-Flood	4.1	C3	14/10/2014	Mid-Flood	4.4
C1	16/10/2014	Mid-Flood	1.3	C3	16/10/2014	Mid-Flood	3.8
C1	18/10/2014	Mid-Flood	2.8	C3	18/10/2014	Mid-Flood	3.1
C1	21/10/2014	Mid-Flood	3.4	C3	21/10/2014	Mid-Flood	2.8
C2	24/07/2014	Mid-Flood	0.7				
C2	26/07/2014	Mid-Flood	4.2				
C2	29/07/2014	Mid-Flood	0.8				
C2	31/07/2014	Mid-Flood	5.0				
C2	02/08/2014	Mid-Flood	0.3				
C2	05/08/2014	Mid-Flood	2.8				
C2	07/08/2014	Mid-Flood	2.7				
C2	09/08/2014	Mid-Flood	8.1				
C2	12/08/2014	Mid-Flood	4.2				
C2	14/08/2014	Mid-Flood	5.2				
C2	16/8/2014	Mid-Flood	2.3				
C2	19/08/2014	Mid-Flood	0.7				
C2	21/8/2014	Mid-Flood	2.5				
C2	23/08/2014	Mid-Flood	2.1				
C2	26/08/2014	Mid-Flood	2.0				
C2	28/8/2014	Mid-Flood	2.6				
C2	30/8/2014	Mid-Flood	4.7				
C2	02/09/2014	Mid-Flood	4.0				
C2	04/09/2014	Mid-Flood	1.0				
C2	06/09/2014	Mid-Flood	1.2				
C2	09/09/2014	Mid-Flood	3.3				
C2	11/09/2014	Mid-Flood	2.7				
C2	13/9/2014	Mid-Flood	2.7				
C2	16/9/2014	Mid-Flood					
C2	18/09/2014	Mid-Flood	2.9				
C2	20/9/2014	Mid-Flood	1.3				
C2	23/9/2014	Mid-Flood	1.3				
C2	25/9/2014	Mid-Flood	7.0				
C2	27/9/2014	Mid-Flood	3.3				
C2	30/9/2014	Mid-Flood	6.8				
C2	02/10/2014	Mid-Flood	6.3				
C2	04/10/2014	Mid-Flood	3.9				
C2	07/10/2014	Mid-Flood	8.0				
C2	09/10/2014	Mid-Flood	3.3				
C2	11/10/2014	Mid-Flood	11.9				
C2	14/10/2014	Mid-Flood	5.4				
C2	16/10/2014	Mid-Flood	11.4				
C2	18/10/2014	Mid-Flood	3.4				
C2	21/10/2014	Mid-Flood	5.7				

Impact Turbidity (NTU)											
SR1	24/07/2014	Mid-Flood	4.0	SR3	24/07/2014	Mid-Flood	3.7	SR5	24/07/2014	Mid-Flood	4.2
SR1	26/07/2014	Mid-Flood	2.1	SR3	26/07/2014	Mid-Flood	2.1	SR5	26/07/2014	Mid-Flood	2.2
SR1	29/07/2014	Mid-Flood	1.7	SR3	29/07/2014	Mid-Flood	2.7	SR5	29/07/2014	Mid-Flood	2.9
SR1	31/07/2014	Mid-Flood	1.7	SR3	31/07/2014	Mid-Flood	2.5	SR5	31/07/2014	Mid-Flood	1.8
SR1	02/08/2014	Mid-Flood	1.9	SR3	02/08/2014	Mid-Flood	5.8	SR5	02/08/2014	Mid-Flood	1.8
SR1	05/08/2014	Mid-Flood	1.3	SR3	05/08/2014	Mid-Flood	1.5	SR5	05/08/2014	Mid-Flood	1.4
SR1	07/08/2014	Mid-Flood	0.2	SR3	07/08/2014	Mid-Flood	2.1	SR5	07/08/2014	Mid-Flood	0.3
SR1	09/08/2014	Mid-Flood	5.1	SR3	09/08/2014	Mid-Flood	5.8	SR5	09/08/2014	Mid-Flood	5.9
SR1	12/08/2014	Mid-Flood	6.0	SR3	12/08/2014	Mid-Flood	6.1	SR5	12/08/2014	Mid-Flood	2.9
SR1	14/08/2014	Mid-Flood	7.0	SR3	14/08/2014	Mid-Flood	5.9	SR5	14/08/2014	Mid-Flood	5.0
SR1	16/8/2014	Mid-Flood	5.5	SR3	16/8/2014	Mid-Flood	3.6	SR5	16/8/2014	Mid-Flood	5.7
SR1	19/08/2014	Mid-Flood	3.2	SR3	19/08/2014	Mid-Flood	1.7	SR5	19/08/2014	Mid-Flood	1.6
SR1	21/8/2014	Mid-Flood	1.3	SR3	21/8/2014	Mid-Flood	1.8	SR5	21/8/2014	Mid-Flood	2.9
SR1	23/08/2014	Mid-Flood	2.6	SR3	23/08/2014	Mid-Flood	2.3	SR5	23/08/2014	Mid-Flood	1.8
SR1	26/08/2014	Mid-Flood	2.2	SR3	26/08/2014	Mid-Flood	2.8	SR5	26/08/2014	Mid-Flood	3.0
SR1	28/8/2014	Mid-Flood	3.1	SR3	28/8/2014	Mid-Flood	5.4	SR5	28/8/2014	Mid-Flood	5.8
SR1	30/8/2014	Mid-Flood	4.7	SR3	30/8/2014	Mid-Flood	4.1	SR5	30/8/2014	Mid-Flood	3.8
SR1	02/09/2014	Mid-Flood	0.6	SR3	02/09/2014	Mid-Flood	2.1	SR5	02/09/2014	Mid-Flood	2.1
SR1	04/09/2014	Mid-Flood	2.4	SR3	04/09/2014	Mid-Flood	1.6	SR5	04/09/2014	Mid-Flood	1.1
SR1	06/09/2014	Mid-Flood	2.8	SR3	06/09/2014	Mid-Flood	4.2	SR5	06/09/2014	Mid-Flood	2.9
SR1	09/09/2014	Mid-Flood	8.4	SR3	09/09/2014	Mid-Flood	10.3	SR5	09/09/2014	Mid-Flood	9.5
SR1	11/09/2014	Mid-Flood	8.8	SR3	11/09/2014	Mid-Flood	3.7	SR5	11/09/2014	Mid-Flood	12.9
SR1	13/9/2014	Mid-Flood	6.5	SR3	13/9/2014	Mid-Flood	5.1	SR5	13/9/2014	Mid-Flood	7.6
SR1	16/9/2014	Mid-Flood		SR3	16/9/2014	Mid-Flood		SR5	16/9/2014	Mid-Flood	
SR1	18/09/2014	Mid-Flood	1.9	SR3	18/09/2014	Mid-Flood	1.9	SR5	18/09/2014	Mid-Flood	1.5
SR1	20/9/2014	Mid-Flood	3	SR3	20/9/2014	Mid-Flood	1.82	SR5	20/9/2014	Mid-Flood	2.23
SR1	23/9/2014	Mid-Flood	4.9	SR3	23/9/2014	Mid-Flood	4.7	SR5	23/9/2014	Mid-Flood	2.8
SR1	25/9/2014	Mid-Flood	9.6	SR3	25/9/2014	Mid-Flood	3.1	SR5	25/9/2014	Mid-Flood	7.0
SR1	27/9/2014	Mid-Flood	7.5	SR3	27/9/2014	Mid-Flood	3.5	SR5	27/9/2014	Mid-Flood	12.9
SR1	30/9/2014	Mid-Flood	3.9	SR3	30/9/2014	Mid-Flood	7.3	SR5	30/9/2014	Mid-Flood	5.4
SR1	02/10/2014	Mid-Flood	1.9	SR3	02/10/2014	Mid-Flood	1.7	SR5	02/10/2014	Mid-Flood	2.0
SR1	04/10/2014	Mid-Flood	2.0	SR3	04/10/2014	Mid-Flood	7.7	SR5	04/10/2014	Mid-Flood	2.0
SR1	07/10/2014	Mid-Flood	2.2	SR3	07/10/2014	Mid-Flood	4.5	SR5	07/10/2014	Mid-Flood	3.9
SR1	09/10/2014	Mid-Flood	8.9	SR3	09/10/2014	Mid-Flood	6.8	SR5	09/10/2014	Mid-Flood	6.1
SR1	11/10/2014	Mid-Flood	9.9	SR3	11/10/2014	Mid-Flood	2.1	SR5	11/10/2014	Mid-Flood	10.3
SR1	14/10/2014	Mid-Flood	4.6	SR3	14/10/2014	Mid-Flood	1.7	SR5	14/10/2014	Mid-Flood	5.6
SR1	16/10/2014	Mid-Flood	1.7	SR3	16/10/2014	Mid-Flood	1.0	SR5	16/10/2014	Mid-Flood	0.9
SR1	18/10/2014	Mid-Flood	0.4	SR3	18/10/2014	Mid-Flood	1.0	SR5	18/10/2014	Mid-Flood	0.7
SR1	21/10/2014	Mid-Flood	9.9	SR3	21/10/2014	Mid-Flood	2.7	SR5	21/10/2014	Mid-Flood	1.9
SR2	24/07/2014	Mid-Flood	4.3	SR4	24/07/2014	Mid-Flood	3.4	SR12	24/07/2014	Mid-Flood	3.1
SR2	26/07/2014	Mid-Flood	2.0	SR4	26/07/2014	Mid-Flood	2.2	SR12	26/07/2014	Mid-Flood	2.6
SR2	29/07/2014	Mid-Flood	2.4	SR4	29/07/2014	Mid-Flood	2.7	SR12	29/07/2014	Mid-Flood	2.6
SR2	31/07/2014	Mid-Flood	1.3	SR4	31/07/2014	Mid-Flood	1.4	SR12	31/07/2014	Mid-Flood	2.0
SR2	02/08/2014	Mid-Flood	2.1	SR4	02/08/2014	Mid-Flood	0.6	SR12	02/08/2014	Mid-Flood	1.6
SR2	05/08/2014	Mid-Flood	1.2	SR4	05/08/2014	Mid-Flood	1.2	SR12	05/08/2014	Mid-Flood	1.0
SR2	07/08/2014	Mid-Flood	1.2	SR4	07/08/2014	Mid-Flood	4.7	SR12	07/08/2014	Mid-Flood	0.3
SR2	09/08/2014	Mid-Flood	5.3	SR4	09/08/2014	Mid-Flood	4.5	SR12	09/08/2014	Mid-Flood	4.6
SR2	12/08/2014	Mid-Flood	5.3	SR4	12/08/2014	Mid-Flood	6.4	SR12	12/08/2014	Mid-Flood	4.3
SR2	14/08/2014	Mid-Flood	6.1	SR4	14/08/2014	Mid-Flood	8.6	SR12	14/08/2014	Mid-Flood	6.8
SR2	16/8/2014	Mid-Flood	3.5	SR4	16/8/2014	Mid-Flood	5.9	SR12	16/8/2014	Mid-Flood	4.4
SR2	19/08/2014	Mid-Flood	1.3	SR4	19/08/2014	Mid-Flood	1.9	SR12	19/08/2014	Mid-Flood	1.8
SR2	21/8/2014	Mid-Flood	4.4	SR4	21/8/2014	Mid-Flood	2.4	SR12	21/8/2014	Mid-Flood	3.5
SR2	23/08/2014	Mid-Flood	2.2	SR4	23/08/2014	Mid-Flood	1.2	SR12	23/08/2014	Mid-Flood	4.3
SR2	26/08/2014	Mid-Flood	3.2	SR4	26/08/2014	Mid-Flood	1.8	SR12	26/08/2014	Mid-Flood	2.2
SR2	28/8/2014	Mid-Flood	3.5	SR4	28/8/2014	Mid-Flood	5.2	SR12	28/8/2014	Mid-Flood	4.0
SR2	30/8/2014	Mid-Flood	2.1	SR4	30/8/2014	Mid-Flood	1.9	SR12	30/8/2014	Mid-Flood	1.8
SR2	02/09/2014	Mid-Flood	1.5	SR4	02/09/2014	Mid-Flood	2.4	SR12	02/09/2014	Mid-Flood	1.7
SR2	04/09/2014	Mid-Flood	1.9	SR4	04/09/2014	Mid-Flood	1.6	SR12	04/09/2014	Mid-Flood	3.6
SR2	06/09/2014	Mid-Flood	3.6	SR4	06/09/2014	Mid-Flood	4.4	SR12	06/09/2014	Mid-Flood	2.8
SR2	09/09/2014	Mid-Flood	9.8	SR4	09/09/2014	Mid-Flood	7.7	SR12	09/09/2014	Mid-Flood	9.3
SR2	11/09/2014	Mid-Flood	4.5	SR4	11/09/2014	Mid-Flood	7.4	SR12	11/09/2014	Mid-Flood	7.5
SR2	13/9/2014	Mid-Flood	5.5	SR4	13/9/2014	Mid-Flood	8.9	SR12	13/9/2014	Mid-Flood	9.6
SR2	16/9/2014	Mid-Flood		SR4	16/9/2014	Mid-Flood		SR12	16/9/2014	Mid-Flood	
SR2	18/09/2014	Mid-Flood	2.1	SR4	18/09/2014	Mid-Flood	2.3	SR12	18/09/2014	Mid-Flood	3.4
SR2	20/9/2014	Mid-Flood	0.90	SR4	20/9/2014	Mid-Flood	2.55	SR12	20/9/2014	Mid-Flood	3.47
SR2	23/9/2014	Mid-Flood	2.5	SR4	23/9/2014	Mid-Flood	2.2	SR12	23/9/2014	Mid-Flood	2.4
SR2	25/9/2014	Mid-Flood	3.8	SR4	25/9/2014	Mid-Flood	5.0	SR12	25/9/2014	Mid-Flood	6.7
SR2	27/9/2014	Mid-Flood	4.3	SR4	27/9/2014	Mid-Flood	4.3	SR12	27/9/2014	Mid-Flood	4.7
SR2	30/9/2014	Mid-Flood	2.6	SR4	30/9/2014	Mid-Flood	6.5	SR12	30/9/2014	Mid-Flood	3.3
SR2	02/10/2014	Mid-Flood	1.8	SR4	02/10/2014	Mid-Flood	4.5	SR12	02/10/2014	Mid-Flood	4.0
SR2	04/10/2014	Mid-Flood	2.0	SR4	04/10/2014	Mid-Flood	2.8	SR12	04/10/2014	Mid-Flood	2.2
SR2	07/10/2014	Mid-Flood	4.6	SR4	07/10/2014	Mid-Flood	4.7	SR12	07/10/2014	Mid-Flood	3.9
SR2	09/10/2014	Mid-Flood	12.9	SR4	09/10/2014	Mid-Flood	6.2	SR12	09/10/2014	Mid-Flood	9.2
SR2	11/10/2014	Mid-Flood	6.4	SR4	11/10/2014	Mid-Flood	6.2	SR12	11/10/2014	Mid-Flood	7.8
SR2	14/10/2014	Mid-Flood	3.8	SR4	14/10/2014	Mid-Flood	3.5	SR12	14/10/2014	Mid-Flood	6.2
SR2	16/10/2014	Mid-Flood	1.7	SR4	16/10/2014	Mid-Flood	1.1	SR12	16/10/2014	Mid-Flood	3.1
SR2	18/10/2014	Mid-Flood	0.4	SR4	18/10/2014	Mid-Flood	0.6	SR12	18/10/2014	Mid-Flood	2.4
SR2	21/10/2014	Mid-Flood	5.0	SR4	21/10/2014	Mid-Flood	1.7	SR12	21/10/2014	Mid-Flood	3.2

Cluster 1 Turbidity
Control vs Impact

Control Turbidity (NTU)							
C1	24/07/2014	Mid-Ebb	8.3	C3	24/07/2014	Mid-Ebb	1.1
C1	26/07/2014	Mid-Ebb	5.9	C3	26/07/2014	Mid-Ebb	3.5
C1	29/07/2014	Mid-Ebb	3.6	C3	29/07/2014	Mid-Ebb	3.7
C1	31/07/2014	Mid-Ebb	3.5	C3	31/07/2014	Mid-Ebb	2.6
C1	02/08/2014	Mid-Ebb	0.8	C3	02/08/2014	Mid-Ebb	0.6
C1	05/08/2014	Mid-Ebb	1.4	C3	05/08/2014	Mid-Ebb	2.3
C1	07/08/2014	Mid-Ebb	4.9	C3	07/08/2014	Mid-Ebb	2.1
C1	09/08/2014	Mid-Ebb	8.6	C3	09/08/2014	Mid-Ebb	3.4
C1	12/08/2014	Mid-Ebb	8.3	C3	12/08/2014	Mid-Ebb	1.9
C1	14/08/2014	Mid-Ebb	8.9	C3	14/08/2014	Mid-Ebb	3.0
C1	16/8/2014	Mid-Ebb	5.1	C3	16/8/2014	Mid-Ebb	1.0
C1	19/08/2014	Mid-Ebb	1.9	C3	19/08/2014	Mid-Ebb	1.6
C1	21/8/2014	Mid-Ebb	4.4	C3	21/8/2014	Mid-Ebb	2.4
C1	23/08/2014	Mid-Ebb	6.5	C3	23/08/2014	Mid-Ebb	4.9
C1	26/08/2014	Mid-Ebb	5.0	C3	26/08/2014	Mid-Ebb	6.9
C1	28/8/2014	Mid-Ebb	5.9	C3	28/8/2014	Mid-Ebb	1.5
C1	30/8/2014	Mid-Ebb	7.4	C3	30/8/2014	Mid-Ebb	2.0
C1	02/09/2014	Mid-Ebb	2.0	C3	02/09/2014	Mid-Ebb	0.9
C1	04/09/2014	Mid-Ebb	6.5	C3	04/09/2014	Mid-Ebb	0.3
C1	06/09/2014	Mid-Ebb	4.7	C3	06/09/2014	Mid-Ebb	4.0
C1	09/09/2014	Mid-Ebb	19.5	C3	09/09/2014	Mid-Ebb	3.4
C1	11/09/2014	Mid-Ebb	10.6	C3	11/09/2014	Mid-Ebb	3.7
C1	13/9/2014	Mid-Ebb	9.6	C3	13/9/2014	Mid-Ebb	3.1
C1	16/9/2014	Mid-Ebb		C3	16/9/2014	Mid-Ebb	
C1	18/09/2014	Mid-Ebb	3.3	C3	18/09/2014	Mid-Ebb	3.7
C1	20/9/2014	Mid-Ebb	6.4	C3	20/9/2014	Mid-Ebb	2.1
C1	23/09/2014	Mid-Ebb	7.1	C3	23/9/2014	Mid-Ebb	2.4
C1	25/9/2014	Mid-Ebb	7.6	C3	25/9/2014	Mid-Ebb	2.5
C1	27/9/2014	Mid-Ebb	7.3	C3	27/9/2014	Mid-Ebb	6.4
C1	30/9/2014	Mid-Ebb	4.0	C3	30/9/2014	Mid-Ebb	0.8
C1	02/10/2014	Mid-Ebb	4.1	C3	02/10/2014	Mid-Ebb	0.9
C1	04/10/2014	Mid-Ebb	3.4	C3	04/10/2014	Mid-Ebb	7.3
C1	07/10/2014	Mid-Ebb	9.9	C3	07/10/2014	Mid-Ebb	3.5
C1	09/10/2014	Mid-Ebb	13.9	C3	09/10/2014	Mid-Ebb	5.0
C1	11/10/2014	Mid-Ebb	9.3	C3	11/10/2014	Mid-Ebb	4.0
C1	14/10/2014	Mid-Ebb	3.5	C3	14/10/2014	Mid-Ebb	3.8
C1	16/10/2014	Mid-Ebb	1.5	C3	16/10/2014	Mid-Ebb	2.2
C1	18/10/2014	Mid-Ebb	3.0	C3	18/10/2014	Mid-Ebb	3.7
C1	21/10/2014	Mid-Ebb	3.9	C3	21/10/2014	Mid-Ebb	1.7
C2	24/07/2014	Mid-Ebb	0.6				
C2	26/07/2014	Mid-Ebb	4.3				
C2	29/07/2014	Mid-Ebb	1.0				
C2	31/07/2014	Mid-Ebb	1.1				
C2	02/08/2014	Mid-Ebb	1.0				
C2	05/08/2014	Mid-Ebb	1.1				
C2	07/08/2014	Mid-Ebb	1.0				
C2	09/08/2014	Mid-Ebb	4.0				
C2	12/08/2014	Mid-Ebb	5.0				
C2	14/08/2014	Mid-Ebb	2.9				
C2	16/8/2014	Mid-Ebb	1.9				
C2	19/08/2014	Mid-Ebb	0.5				
C2	21/8/2014	Mid-Ebb	2.9				
C2	23/08/2014	Mid-Ebb	1.5				
C2	26/08/2014	Mid-Ebb	1.4				
C2	28/8/2014	Mid-Ebb	2.8				
C2	30/8/2014	Mid-Ebb	5.1				
C2	02/09/2014	Mid-Ebb	4.1				
C2	04/09/2014	Mid-Ebb	0.9				
C2	06/09/2014	Mid-Ebb	2.0				
C2	09/09/2014	Mid-Ebb	2.9				
C2	11/09/2014	Mid-Ebb	2.2				
C2	13/9/2014	Mid-Ebb	2.1				
C2	16/9/2014	Mid-Ebb					
C2	18/09/2014	Mid-Ebb	2.7				
C2	20/9/2014	Mid-Ebb	0.8				
C2	23/9/2014	Mid-Ebb	1.7				
C2	25/9/2014	Mid-Ebb	1.9				
C2	27/9/2014	Mid-Ebb	3.7				
C2	30/9/2014	Mid-Ebb	3.7				
C2	02/10/2014	Mid-Ebb	6.6				
C2	04/09/2014	Mid-Ebb	0.9				
C2	07/10/2014	Mid-Ebb	9.6				
C2	09/10/2014	Mid-Ebb	4.5				
C2	11/10/2014	Mid-Ebb	13.4				
C2	14/10/2014	Mid-Ebb	6.2				
C2	16/10/2014	Mid-Ebb	10.3				
C2	18/10/2014	Mid-Ebb	3.6				
C2	21/10/2014	Mid-Ebb	5.9				

Impact Turbidity (NTU)											
SR1	24/07/2014	Mid-Ebb	4.0	SR3	24/07/2014	Mid-Ebb	3.4	SR5	24/07/2014	Mid-Ebb	3.8
SR1	26/07/2014	Mid-Ebb	3.2	SR3	26/07/2014	Mid-Ebb	3.1	SR5	26/07/2014	Mid-Ebb	3.0
SR1	29/07/2014	Mid-Ebb	1.6	SR3	29/07/2014	Mid-Ebb	1.9	SR5	29/07/2014	Mid-Ebb	2.9
SR1	31/07/2014	Mid-Ebb	2.0	SR3	31/07/2014	Mid-Ebb	2.3	SR5	31/07/2014	Mid-Ebb	2.1
SR1	02/08/2014	Mid-Ebb	0.9	SR3	02/08/2014	Mid-Ebb	1.4	SR5	02/08/2014	Mid-Ebb	2.4
SR1	05/08/2014	Mid-Ebb	1.5	SR3	05/08/2014	Mid-Ebb	1.1	SR5	05/08/2014	Mid-Ebb	2.1
SR1	07/08/2014	Mid-Ebb	0.4	SR3	07/08/2014	Mid-Ebb	0.2	SR5	07/08/2014	Mid-Ebb	0.3
SR1	09/08/2014	Mid-Ebb	5.1	SR3	09/08/2014	Mid-Ebb	5.4	SR5	09/08/2014	Mid-Ebb	5.8
SR1	12/08/2014	Mid-Ebb	5.5	SR3	12/08/2014	Mid-Ebb	4.1	SR5	12/08/2014	Mid-Ebb	5.9
SR1	14/08/2014	Mid-Ebb	7.0	SR3	14/08/2014	Mid-Ebb	3.6	SR5	14/08/2014	Mid-Ebb	6.4
SR1	16/8/2014	Mid-Ebb	4.6	SR3	16/8/2014	Mid-Ebb	3.4	SR5	16/8/2014	Mid-Ebb	3.5
SR1	19/08/2014	Mid-Ebb	3.0	SR3	19/08/2014	Mid-Ebb	1.3	SR5	19/08/2014	Mid-Ebb	1.5
SR1	21/8/2014	Mid-Ebb	3.0	SR3	21/8/2014	Mid-Ebb	2.0	SR5	21/8/2014	Mid-Ebb	1.4
SR1	23/08/2014	Mid-Ebb	2.4	SR3	23/08/2014	Mid-Ebb	2.5	SR5	23/08/2014	Mid-Ebb	1.7
SR1	26/08/2014	Mid-Ebb	2.1	SR3	26/08/2014	Mid-Ebb	2.0	SR5	26/08/2014	Mid-Ebb	3.0
SR1	28/8/2014	Mid-Ebb	3.3	SR3	28/8/2014	Mid-Ebb	5.1	SR5	28/8/2014	Mid-Ebb	5.8
SR1	30/8/2014	Mid-Ebb	6.1	SR3	30/8/2014	Mid-Ebb	4.0	SR5	30/8/2014	Mid-Ebb	3.3
SR1	02/09/2014	Mid-Ebb	0.7	SR3	02/09/2014	Mid-Ebb	1.8	SR5	02/09/2014	Mid-Ebb	2.3
SR1	04/09/2014	Mid-Ebb	3.2	SR3	04/09/2014	Mid-Ebb	3.4	SR5	04/09/2014	Mid-Ebb	1.8
SR1	06/09/2014	Mid-Ebb	2.7	SR3	06/09/2014	Mid-Ebb	2.6	SR5	06/09/2014	Mid-Ebb	2.7
SR1	09/09/2014	Mid-Ebb	9.6	SR3	09/09/2014	Mid-Ebb	6.8	SR5	09/09/2014	Mid-Ebb	4.8
SR1	11/09/2014	Mid-Ebb	8.2	SR3	11/09/2014	Mid-Ebb	2.9	SR5	11/09/2014	Mid-Ebb	11.9
SR1	13/9/2014	Mid-Ebb	6.9	SR3	13/9/2014	Mid-Ebb	6.2	SR5	13/9/2014	Mid-Ebb	7.3
SR1	16/9/2014	Mid-Ebb		SR3	16/9/2014	Mid-Ebb		SR5	16/9/2014	Mid-Ebb	
SR1	18/09/2014	Mid-Ebb	1.8	SR3	18/09/2014	Mid-Ebb	1.7	SR5	18/09/2014	Mid-Ebb	1.6
SR1	20/9/2014	Mid-Ebb	3	SR3	20/9/2014	Mid-Ebb	2.07	SR5	20/9/2014	Mid-Ebb	1.30
SR1	23/9/2014	Mid-Ebb	6.1	SR3	23/9/2014	Mid-Ebb	4.8	SR5	23/9/2014	Mid-Ebb	2.9
SR1	25/9/2014	Mid-Ebb	9.2	SR3	25/9/2014	Mid-Ebb	4.5	SR5	25/9/2014	Mid-Ebb	7.6
SR1	27/9/2014	Mid-Ebb	6.4	SR3	27/9/2014	Mid-Ebb	1.9	SR5	27/9/2014	Mid-Ebb	5.9
SR1	30/9/2014	Mid-Ebb	3.1	SR3	30/9/2014	Mid-Ebb	6.2	SR5	30/9/2014	Mid-Ebb	3.4
SR1	02/10/2014	Mid-Ebb	2.1	SR3	02/10/2014	Mid-Ebb	1.9	SR5	02/10/2014	Mid-Ebb	2.8
SR1	04/10/2014	Mid-Ebb	2.0	SR3	04/10/2014	Mid-Ebb	1.4	SR5	04/10/2014	Mid-Ebb	1.1
SR1	07/10/2014	Mid-Ebb	2.3	SR3	07/10/2014	Mid-Ebb	4.4	SR5	07/10/2014	Mid-Ebb	3.2
SR1	09/10/2014	Mid-Ebb	8.6	SR3	09/10/2014	Mid-Ebb	12.4	SR5	09/10/2014	Mid-Ebb	5.7
SR1	11/10/2014	Mid-Ebb	9.9	SR3	11/10/2014	Mid-Ebb	3.5	SR5	11/10/2014	Mid-Ebb	9.7
SR1	14/10/2014	Mid-Ebb	5.5	SR3	14/10/2014	Mid-Ebb	2.0	SR5	14/10/2014	Mid-Ebb	3.6
SR1	16/10/2014	Mid-Ebb	1.3	SR3	16/10/2014	Mid-Ebb	1.9	SR5	16/10/2014	Mid-Ebb	0.4
SR1	18/10/2014	Mid-Ebb	1.8	SR3	18/10/2014	Mid-Ebb	1.2	SR5	18/10/2014	Mid-Ebb	0.7
SR1	21/10/2014	Mid-Ebb	9.7	SR3	21/10/2014	Mid-Ebb	2.8	SR5	21/10/2014	Mid-Ebb	1.5
SR2	24/07/2014	Mid-Ebb	4.2	SR4	24/07/2014	Mid-Ebb	1.6	SR12	24/07/2014	Mid-Ebb	4.2
SR2	26/07/2014	Mid-Ebb	3.3	SR4	26/07/2014	Mid-Ebb	2.0	SR12	26/07/2014	Mid-Ebb	3.5
SR2	29/07/2014	Mid-Ebb	1.3	SR4	29/07/2014	Mid-Ebb	1.0	SR12	29/07/2014	Mid-Ebb	2.0
SR2	31/07/2014	Mid-Ebb	1.8	SR4	31/07/2014	Mid-Ebb	1.7	SR12	31/07/2014	Mid-Ebb	2.0
SR2	02/08/2014	Mid-Ebb	0.9	SR4	02/08/2014	Mid-Ebb	0.7	SR12	02/08/2014	Mid-Ebb	1.5
SR2	05/08/2014	Mid-Ebb	1.3	SR4	05/08/2014	Mid-Ebb	1.0	SR12	05/08/2014	Mid-Ebb	1.4
SR2	07/08/2014	Mid-Ebb	1.4	SR4	07/08/2014	Mid-Ebb	3.0	SR12	07/08/2014	Mid-Ebb	4.9
SR2	09/08/2014	Mid-Ebb	5.5	SR4	09/08/2014	Mid-Ebb	6.9	SR12	09/08/2014	Mid-Ebb	5.6
SR2	12/08/2014	Mid-Ebb	4.8	SR4	12/08/2014	Mid-Ebb	4.2	SR12	12/08/2014	Mid-Ebb	9.7
SR2	14/08/2014	Mid-Ebb	3.9	SR4	14/08/2014	Mid-Ebb	3.3	SR12	14/08/2014	Mid-Ebb	5.9
SR2	16/8/2014	Mid-Ebb	2.7	SR4	16/8/2014	Mid-Ebb	3.7	SR12	16/8/2014	Mid-Ebb	2.9
SR2	19/08/2014	Mid-Ebb	1.5	SR4	19/08/2014	Mid-Ebb	1.2	SR12	19/08/2014	Mid-Ebb	1.7
SR2	21/8/2014	Mid-Ebb	2.3	SR4	21/8/2014	Mid-Ebb	1.8	SR12	21/8/2014	Mid-Ebb	2.4
SR2	23/08/2014	Mid-Ebb	2.9	SR4	23/08/2014	Mid-Ebb	1.4	SR12	23/08/2014	Mid-Ebb	4.3
SR2	26/08/2014	Mid-Ebb	3.2	SR4	26/08/2014	Mid-Ebb	1.3	SR12	26/08/2014	Mid-Ebb	4.7
SR2	28/8/2014	Mid-Ebb	3.6	SR4	28/8/2014	Mid-Ebb	2.6	SR12	28/8/2014	Mid-Ebb	4.8
SR2	30/8/2014	Mid-Ebb	2.2	SR4	30/8/2014	Mid-Ebb	1.6	SR12	30/8/2014	Mid-Ebb	1.2
SR2	02/09/2014	Mid-Ebb	1.3	SR4	02/09/2014	Mid-Ebb	0.7	SR12	02/09/2014	Mid-Ebb	1.7
SR2	04/09/2014	Mid-Ebb	3.1	SR4	04/09/2014	Mid-Ebb	7.2	SR12	04/09/2014	Mid-Ebb	9.1
SR2	06/09/2014	Mid-Ebb	4.0	SR4	06/09/2014	Mid-Ebb	4.1	SR12	06/09/2014	Mid-Ebb	6.9
SR2	09/09/2014	Mid-Ebb	7.3	SR4	09/09/2014	Mid-Ebb	3.6	SR12	09/09/2014	Mid-Ebb	8.5
SR2	11/09/2014	Mid-Ebb	2.8	SR4	11/09/2014	Mid-Ebb	2.9	SR12	11/09/2014	Mid-Ebb	4.5
SR2	13/9/2014	Mid-Ebb	3.9	SR4	13/9/2014	Mid-Ebb	3.2	SR12	13/9/2014	Mid-Ebb	5.5
SR2	16/9/2014	Mid-Ebb		SR4	16/9/2014	Mid-Ebb		SR12	16/9/2014	Mid-Ebb	
SR2	18/09/2014	Mid-Ebb	1.3	SR4	18/09/2014	Mid-Ebb	1.1	SR12	18/09/2014	Mid-Ebb	5.4
SR2	20/9/2014	Mid-Ebb	1.53	SR4	20/9/2014	Mid-Ebb	1.40	SR12	20/9/2014	Mid-Ebb	5.70
SR2	23/9/2014	Mid-Ebb	2.2	SR4	23/9/2014	Mid-Ebb	3.0	SR12	23/9/2014	Mid-Ebb	1.9
SR2	25/9/2014	Mid-Ebb	3.8	SR4	25/9/2014	Mid-Ebb	1.8	SR12	25/9/2014	Mid-Ebb	5.3
SR2	27/9/2014	Mid-Ebb	1.6	SR4	27/9/2014	Mid-Ebb	1.8	SR12	27/9/2014	Mid-Ebb	3.5
SR2	30/9/2014	Mid-Ebb	2.6	SR4	30/9/2014	Mid-Ebb	1.7	SR12	30/9/2014	Mid-Ebb	3.8
SR2	02/10/2014	Mid-Ebb	3.5	SR4	02/10/2014	Mid-Ebb	2.7	SR12	02/10/2014	Mid-Ebb	4.4
SR2	04/10/2014	Mid-Ebb	3.8	SR4	04/10/2014	Mid-Ebb	7.2	SR12	04/10/2014	Mid-Ebb	6.4
SR2	07/10/2014	Mid-Ebb	3.5	SR4	07/10/2014	Mid-Ebb	4.1	SR12	07/10/2014	Mid-Ebb	4.7
SR2	09/10/2014	Mid-Ebb	11.1	SR4	09/10/2014	Mid-Ebb	4.1	SR12	09/10/2014	Mid-Ebb	9.7
SR2	11/10/2014	Mid-Ebb	2.8	SR4	11/10/2014	Mid-Ebb	2.8	SR12	11/10/2014	Mid-Ebb	4.6
SR2	14/10/2014	Mid-Ebb	2.6	SR4	14/10/2014	Mid-Ebb	3.3	SR12	14/10/2014	Mid-Ebb	5.1
SR2	16/10/2014	Mid-Ebb	2.1	SR4	16/10/2014	Mid-Ebb	5.3	SR12	16/10/2014	Mid-Ebb	3.9
SR2	18/10/2014	Mid-Ebb	1.9	SR4	18/10/2014	Mid-Ebb	1.8	SR12	18/10/2014	Mid-Ebb	3.3
SR2	21/10/2014	Mid-Ebb	4.0	SR4	21/10/2014	Mid-Ebb	3.1	SR12	21/10/2014	Mid-Ebb	4.2

Cluster 1 Turbidity
Control vs Impact

Impact		Control	
Raw Statistics		Raw Statistics	
Number of Valid Observations	456	Number of Valid Observations	228
Number of Missing Values	12	Number of Missing Values	6
Number of Distinct Observations	316	Number of Distinct Observations	193
Minimum	0.15	Minimum	0.333
Maximum	12.9	Maximum	20.33
Mean of Raw Data	3.695	Mean of Raw Data	4.309
Standard Deviation of Raw Data	2.445	Standard Deviation of Raw Data	3.155
Kstar	2.385	Kstar	2.024
Mean of Log Transformed Data	1.084	Mean of Log Transformed Data	1.197
Standard Deviation of Log Transformed Data	0.708	Standard Deviation of Log Transformed Data	0.774
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.947	Correlation Coefficient R	0.927
Approximate Shapiro Wilk Test Statistic	0.883	Approximate Shapiro Wilk Test Statistic	0.86
Approximate Shapiro Wilk P Value	0	Approximate Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.115	Lilliefors Test Statistic	0.15
Lilliefors Critical (0.95) Value	0.0415	Lilliefors Critical (0.95) Value	0.0587
Data not Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Greater Than or Equal to Background Mean/Median (Form 2)
Alternative Hypothesis	Site or AOC Mean/Median Less Than Background Mean/Median

Area of Concern Data: Impact
Background Data: Control

Raw Statistics

	Site	Background
Number of Valid Observations	456	228
Number of Missing Values	12	6
Number of Distinct Observations	316	193
Minimum	0.15	0.333
Maximum	12.9	20.33
Mean	3.695	4.309
Median	3.083	3.625
SD	2.445	3.155
SE of Mean	0.114	0.209

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC >= Mean/Median of Background

Site Rank Sum W-Stat	150650
WMW Test U-Stat	-2.27
WMW Critical Value (0.050)	-1.645
P-Value	0.0116

Conclusion with Alpha = 0.05
Reject H0, Conclude Site < Background
P-Value < alpha (0.05)

Cluster 2 Turbidity
1.3 x Baseline vs Impact

0.7 x Baseline Turbidity (NTU)			
SR6	04/01/2014	Mid-Flood	2.9
SR6	07/01/2014	Mid-Flood	3.4
SR6	09/01/2014	Mid-Flood	0.7
SR6	11/01/2014	Mid-Flood	0.3
SR6	14/01/2014	Mid-Flood	0.1
SR6	16/01/2014	Mid-Flood	1.6
SR6	18/01/2014	Mid-Flood	0.4
SR6	21/01/2014	Mid-Flood	0.1
SR6	23/01/2014	Mid-Flood	0.1
SR6	25/01/2014	Mid-Flood	0.4
SR6	27/01/2014	Mid-Flood	0.6
SR6	29/01/2014	Mid-Flood	1.0
SR7	04/01/2014	Mid-Flood	5.3
SR7	07/01/2014	Mid-Flood	2.3
SR7	09/01/2014	Mid-Flood	0.1
SR7	11/01/2014	Mid-Flood	0.1
SR7	14/01/2014	Mid-Flood	0.1
SR7	16/01/2014	Mid-Flood	0.1
SR7	18/01/2014	Mid-Flood	0.1
SR7	21/01/2014	Mid-Flood	0.1
SR7	23/01/2014	Mid-Flood	0.2
SR7	25/01/2014	Mid-Flood	0.2
SR7	27/01/2014	Mid-Flood	0.1
SR7	29/01/2014	Mid-Flood	0.5
SR8	04/01/2014	Mid-Flood	1.4
SR8	07/01/2014	Mid-Flood	1.2
SR8	09/01/2014	Mid-Flood	0.1
SR8	11/01/2014	Mid-Flood	0.1
SR8	14/01/2014	Mid-Flood	0.1
SR8	16/01/2014	Mid-Flood	0.4
SR8	18/01/2014	Mid-Flood	0.1
SR8	21/01/2014	Mid-Flood	0.1
SR8	23/01/2014	Mid-Flood	0.1
SR8	25/01/2014	Mid-Flood	0.7
SR8	27/01/2014	Mid-Flood	0.6
SR8	29/01/2014	Mid-Flood	0.7
SR9	04/01/2014	Mid-Flood	1.3
SR9	07/01/2014	Mid-Flood	1.9
SR9	09/01/2014	Mid-Flood	1.0
SR9	11/01/2014	Mid-Flood	1.0
SR9	14/01/2014	Mid-Flood	0.3
SR9	16/01/2014	Mid-Flood	1.3
SR9	18/01/2014	Mid-Flood	0.4
SR9	21/01/2014	Mid-Flood	0.5
SR9	23/01/2014	Mid-Flood	0.3
SR9	25/01/2014	Mid-Flood	0.7
SR9	27/01/2014	Mid-Flood	1.0
SR9	29/01/2014	Mid-Flood	0.9
SR10	04/01/2014	Mid-Flood	0.6
SR10	07/01/2014	Mid-Flood	0.6
SR10	09/01/2014	Mid-Flood	0.1
SR10	11/01/2014	Mid-Flood	0.1
SR10	14/01/2014	Mid-Flood	2.1
SR10	16/01/2014	Mid-Flood	1.2
SR10	18/01/2014	Mid-Flood	0.1
SR10	21/01/2014	Mid-Flood	0.1
SR10	23/01/2014	Mid-Flood	0.1
SR10	25/01/2014	Mid-Flood	0.5
SR10	27/01/2014	Mid-Flood	0.3
SR10	29/01/2014	Mid-Flood	0.6
SR11	04/01/2014	Mid-Flood	0.5
SR11	07/01/2014	Mid-Flood	0.1
SR11	09/01/2014	Mid-Flood	0.1
SR11	11/01/2014	Mid-Flood	0.1
SR11	14/01/2014	Mid-Flood	0.1
SR11	16/01/2014	Mid-Flood	0.1
SR11	18/01/2014	Mid-Flood	0.1
SR11	21/01/2014	Mid-Flood	0.1
SR11	23/01/2014	Mid-Flood	0.1
SR11	25/01/2014	Mid-Flood	0.2
SR11	27/01/2014	Mid-Flood	0.1
SR11	29/01/2014	Mid-Flood	0.9

Impact Turbidity (NTU)											
SR6	24/07/2014	Mid-Flood	1.2	SR8	24/07/2014	Mid-Flood	0.8	SR10	24/07/2014	Mid-Flood	1.0
SR6	26/07/2014	Mid-Flood	3.5	SR8	26/07/2014	Mid-Flood	0.6	SR10	26/07/2014	Mid-Flood	3.1
SR6	29/07/2014	Mid-Flood	2.3	SR8	29/07/2014	Mid-Flood	1.0	SR10	29/07/2014	Mid-Flood	1.7
SR6	31/07/2014	Mid-Flood	2.1	SR8	31/07/2014	Mid-Flood	1.2	SR10	31/07/2014	Mid-Flood	1.2
SR6	02/08/2014	Mid-Flood	1.1	SR8	02/08/2014	Mid-Flood	0.7	SR10	02/08/2014	Mid-Flood	0.4
SR6	05/08/2014	Mid-Flood	0.9	SR8	05/08/2014	Mid-Flood	2.8	SR10	05/08/2014	Mid-Flood	1.9
SR6	07/08/2014	Mid-Flood	1.4	SR8	07/08/2014	Mid-Flood	1.6	SR10	07/08/2014	Mid-Flood	1.7
SR6	09/08/2014	Mid-Flood	4.8	SR8	09/08/2014	Mid-Flood	2.3	SR10	09/08/2014	Mid-Flood	4.2
SR6	12/08/2014	Mid-Flood	4.3	SR8	12/08/2014	Mid-Flood	3.2	SR10	12/08/2014	Mid-Flood	3.6
SR6	14/08/2014	Mid-Flood	4.3	SR8	14/08/2014	Mid-Flood	4.7	SR10	14/08/2014	Mid-Flood	3.0
SR6	16/8/2014	Mid-Flood	4.2	SR8	16/8/2014	Mid-Flood	3.7	SR10	16/8/2014	Mid-Flood	2.1
SR6	19/08/2014	Mid-Flood	0.7	SR8	19/08/2014	Mid-Flood	0.6	SR10	19/08/2014	Mid-Flood	0.9
SR6	21/8/2014	Mid-Flood	1.4	SR8	21/8/2014	Mid-Flood	1.4	SR10	21/8/2014	Mid-Flood	1.2
SR6	23/08/2014	Mid-Flood	1.5	SR8	23/08/2014	Mid-Flood	1.2	SR10	23/08/2014	Mid-Flood	1.0
SR6	26/08/2014	Mid-Flood	3.5	SR8	26/08/2014	Mid-Flood	0.7	SR10	26/08/2014	Mid-Flood	1.3
SR6	28/8/2014	Mid-Flood	3.9	SR8	28/8/2014	Mid-Flood	1.4	SR10	28/8/2014	Mid-Flood	2.6
SR6	30/8/2014	Mid-Flood	4.0	SR8	30/8/2014	Mid-Flood	2.5	SR10	30/8/2014	Mid-Flood	3.7
SR6	02/09/2014	Mid-Flood	2.2	SR8	02/09/2014	Mid-Flood	2.1	SR10	02/09/2014	Mid-Flood	1.9
SR6	04/09/2014	Mid-Flood	1.7	SR8	04/09/2014	Mid-Flood	0.4	SR10	04/09/2014	Mid-Flood	0.7
SR6	06/09/2014	Mid-Flood	2.8	SR8	06/09/2014	Mid-Flood	2.6	SR10	06/09/2014	Mid-Flood	2.5
SR6	09/09/2014	Mid-Flood	3.2	SR8	09/09/2014	Mid-Flood	4.5	SR10	09/09/2014	Mid-Flood	3.6
SR6	11/09/2014	Mid-Flood	8.2	SR8	11/09/2014	Mid-Flood	4.2	SR10	11/09/2014	Mid-Flood	3.8
SR6	13/9/2014	Mid-Flood	1.2	SR8	13/9/2014	Mid-Flood	2.1	SR10	13/9/2014	Mid-Flood	1.7
SR6	16/9/2014	Mid-Flood		SR8	16/9/2014	Mid-Flood		SR10	16/9/2014	Mid-Flood	
SR6	18/09/2014	Mid-Flood	3.7	SR8	18/09/2014	Mid-Flood	4.1	SR10	18/09/2014	Mid-Flood	2.8
SR6	20/9/2014	Mid-Flood	1	SR8	20/9/2014	Mid-Flood	1.10	SR10	20/9/2014	Mid-Flood	0.52
SR6	23/9/2014	Mid-Flood	1.3	SR8	23/9/2014	Mid-Flood	1.8	SR10	23/9/2014	Mid-Flood	1.5
SR6	25/9/2014	Mid-Flood	1.1	SR8	25/9/2014	Mid-Flood	2.6	SR10	25/9/2014	Mid-Flood	1.7
SR6	27/9/2014	Mid-Flood	11.2	SR8	27/9/2014	Mid-Flood	6.5	SR10	27/9/2014	Mid-Flood	5.1
SR6	30/9/2014	Mid-Flood	6.3	SR8	30/9/2014	Mid-Flood	5.9	SR10	30/9/2014	Mid-Flood	5.6
SR6	02/10/2014	Mid-Flood	5.2	SR8	02/10/2014	Mid-Flood	4.2	SR10	02/10/2014	Mid-Flood	1.2
SR6	04/10/2014	Mid-Flood	5.0	SR8	04/10/2014	Mid-Flood	7.7	SR10	04/10/2014	Mid-Flood	4.3
SR6	07/10/2014	Mid-Flood	5.9	SR8	07/10/2014	Mid-Flood	3.6	SR10	07/10/2014	Mid-Flood	2.7
SR6	09/10/2014	Mid-Flood	8.1	SR8	09/10/2014	Mid-Flood	1.5	SR10	09/10/2014	Mid-Flood	2.5
SR6	11/10/2014	Mid-Flood	8.8	SR8	11/10/2014	Mid-Flood	10.5	SR10	11/10/2014	Mid-Flood	6.1
SR6	14/10/2014	Mid-Flood	4.7	SR8	14/10/2014	Mid-Flood	3.7	SR10	14/10/2014	Mid-Flood	4.7
SR6	16/10/2014	Mid-Flood	2.6	SR8	16/10/2014	Mid-Flood	4.2	SR10	16/10/2014	Mid-Flood	3.7
SR6	18/10/2014	Mid-Flood	3.2	SR8	18/10/2014	Mid-Flood	3.4	SR10	18/10/2014	Mid-Flood	2.6
SR6	21/10/2014	Mid-Flood	4.5	SR8	21/10/2014	Mid-Flood	3.5	SR10	21/10/2014	Mid-Flood	3.2
SR7	24/07/2014	Mid-Flood	1.9	SR9	24/07/2014	Mid-Flood	2.2	SR11	24/07/2014	Mid-Flood	0.7
SR7	26/07/2014	Mid-Flood	1.0	SR9	26/07/2014	Mid-Flood	1.5	SR11	26/07/2014	Mid-Flood	0.8
SR7	29/07/2014	Mid-Flood	0.8	SR9	29/07/2014	Mid-Flood	1.7	SR11	29/07/2014	Mid-Flood	2.3
SR7	31/07/2014	Mid-Flood	2.3	SR9	31/07/2014	Mid-Flood	1.9	SR11	31/07/2014	Mid-Flood	0.8
SR7	02/08/2014	Mid-Flood	1.0	SR9	02/08/2014	Mid-Flood	1.3	SR11	02/08/2014	Mid-Flood	0.6
SR7	05/08/2014	Mid-Flood	1.5	SR9	05/08/2014	Mid-Flood	2.1	SR11	05/08/2014	Mid-Flood	2.3
SR7	07/08/2014	Mid-Flood	1.1	SR9	07/08/2014	Mid-Flood	1.9	SR11	07/08/2014	Mid-Flood	2.3
SR7	09/08/2014	Mid-Flood	2.9	SR9	09/08/2014	Mid-Flood	2.0	SR11	09/08/2014	Mid-Flood	2.8
SR7	12/08/2014	Mid-Flood	3.6	SR9	12/08/2014	Mid-Flood	4.3	SR11	12/08/2014	Mid-Flood	1.7
SR7	14/08/2014	Mid-Flood	3.2	SR9	14/08/2014	Mid-Flood	4.4	SR11	14/08/2014	Mid-Flood	1.8
SR7	16/8/2014	Mid-Flood	3.5	SR9	16/8/2014	Mid-Flood	2.9	SR11	16/8/2014	Mid-Flood	1.8
SR7	19/08/2014	Mid-Flood	1.6	SR9	19/08/2014	Mid-Flood	1.4	SR11	19/08/2014	Mid-Flood	2.1
SR7	21/8/2014	Mid-Flood	3.2	SR9	21/8/2014	Mid-Flood	1.1	SR11	21/8/2014	Mid-Flood	1.7
SR7	23/08/2014	Mid-Flood	3.1	SR9	23/08/2014	Mid-Flood	1.6	SR11	23/08/2014	Mid-Flood	2.0
SR7	26/08/2014	Mid-Flood	1.6	SR9	26/08/2014	Mid-Flood	0.8	SR11	26/08/2014	Mid-Flood	1.9
SR7	28/8/2014	Mid-Flood	1.6	SR9	28/8/2014	Mid-Flood	1.3	SR11	28/8/2014	Mid-Flood	0.5
SR7	30/8/2014	Mid-Flood	0.4	SR9	30/8/2014	Mid-Flood	4.6	SR11	30/8/2014	Mid-Flood	1.4
SR7	02/09/2014	Mid-Flood	2.5	SR9	02/09/2014	Mid-Flood	4.4	SR11	02/09/2014	Mid-Flood	0.8
SR7	04/09/2014	Mid-Flood	1.7	SR9	04/09/2014	Mid-Flood	1.2	SR11	04/09/2014	Mid-Flood	1.1
SR7	06/09/2014	Mid-Flood	2.5	SR9	06/09/2014	Mid-Flood	2.4	SR11	06/09/2014	Mid-Flood	2.3
SR7	09/09/2014	Mid-Flood	4.2	SR9	09/09/2014	Mid-Flood	3.7	SR11	09/09/2014	Mid-Flood	1.5
SR7	11/09/2014	Mid-Flood	2.3	SR9	11/09/2014	Mid-Flood	4.8	SR11	11/09/2014	Mid-Flood	3.2
SR7	13/9/2014	Mid-Flood	2.9	SR9	13/9/2014	Mid-Flood	1.7	SR11	13/9/2014	Mid-Flood	1.2
SR7	16/9/2014	Mid-Flood		SR9	16/9/2014	Mid-Flood		SR11	16/9/2014	Mid-Flood	
SR7	18/09/2014	Mid-Flood	3.9	SR9	18/09/2014	Mid-Flood	3.3	SR11	18/09/2014	Mid-Flood	1.8
SR7	20/9/2014	Mid-Flood	1.87	SR9	20/9/2014	Mid-Flood	1.95	SR11	20/9/2014	Mid-Flood	0.77
SR7	23/9/2014	Mid-Flood	1.7	SR9	23/9/2014	Mid-Flood	2.7	SR11	23/9/2014	Mid-Flood	1.8
SR7	25/9/2014	Mid-Flood	6.2	SR9	25/9/2014	Mid-Flood	1.8	SR11	25/9/2014	Mid-Flood	3.1
SR7	27/9/2014	Mid-Flood	4.2	SR9	27/9/2014	Mid-Flood	5.1	SR11	27/9/2014	Mid-Flood	2.3
SR7	30/9/2014	Mid-Flood	6.9	SR9	30/9/2014	Mid-Flood	4.5	SR11	30/9/2014	Mid-Flood	6.4
SR7	02/10/2014	Mid-Flood	4.3	SR9	02/10/2014	Mid-Flood	1.5	SR11	02/10/2014	Mid-Flood	2.1
SR7	04/10/2014	Mid-Flood	3.5	SR9	04/10/2014	Mid-Flood	4.1	SR11	04/10/2014	Mid-Flood	5.4
SR7	07/10/2014	Mid-Flood	3.1	SR9	07/10/2014	Mid-Flood	5.2	SR11	07/10/2014	Mid-Flood	1.7
SR7	09/10/2014	Mid-Flood	2.9	SR9	09/10/2014	Mid-Flood	2.5	SR11	09/10/2014	Mid-Flood	3.6
SR7	11/10/2014	Mid-Flood	4.3	SR9	11/10/2014	Mid-Flood	12.8	SR11	11/10/2014	Mid-Flood	2.3
SR7	14/10/2014	Mid-Flood	2.5	SR9	14/10/2014	Mid-Flood	6.1	SR11	14/10/2014	Mid-Flood	2.2
SR7	16/10/2014	Mid-Flood	3.2	SR9	16/10/2014	Mid-Flood	4.3	SR11	16/10/2014	Mid-Flood	3.2
SR7	18/10/2014	Mid-Flood	1.9	SR9	18/10/2014	Mid-Flood	5.9	SR11	18/10/2014	Mid-Flood	3.3
SR7	21/10/2014	Mid-Flood	2.7	SR9	21/10/2014	Mid-Flood	4.8	SR11	21/10/2014	Mid-Flood	3.1

Cluster 2 Turbidity
1.3 x Baseline vs Impact

Baseline			
SR6	04/01/2014	Mid-Ebb	3.3
SR6	07/01/2014	Mid-Ebb	1.2
SR6	09/01/2014	Mid-Ebb	0.4
SR6	11/01/2014	Mid-Ebb	0.1
SR6	14/01/2014	Mid-Ebb	0.1
SR6	16/01/2014	Mid-Ebb	0.2
SR6	18/01/2014	Mid-Ebb	0.7
SR6	21/01/2014	Mid-Ebb	0.1
SR6	23/01/2014	Mid-Ebb	0.6
SR6	25/01/2014	Mid-Ebb	0.4
SR6	27/01/2014	Mid-Ebb	0.7
SR6	29/01/2014	Mid-Ebb	0.4
SR7	04/01/2014	Mid-Ebb	2.9
SR7	07/01/2014	Mid-Ebb	0.9
SR7	09/01/2014	Mid-Ebb	0.1
SR7	11/01/2014	Mid-Ebb	0.1
SR7	14/01/2014	Mid-Ebb	0.1
SR7	16/01/2014	Mid-Ebb	0.1
SR7	18/01/2014	Mid-Ebb	0.1
SR7	21/01/2014	Mid-Ebb	0.1
SR7	23/01/2014	Mid-Ebb	0.7
SR7	25/01/2014	Mid-Ebb	0.1
SR7	27/01/2014	Mid-Ebb	0.9
SR7	29/01/2014	Mid-Ebb	0.3
SR8	04/01/2014	Mid-Ebb	0.9
SR8	07/01/2014	Mid-Ebb	0.2
SR8	09/01/2014	Mid-Ebb	0.2
SR8	11/01/2014	Mid-Ebb	0.2
SR8	14/01/2014	Mid-Ebb	0.1
SR8	16/01/2014	Mid-Ebb	0.1
SR8	18/01/2014	Mid-Ebb	0.2
SR8	21/01/2014	Mid-Ebb	0.1
SR8	23/01/2014	Mid-Ebb	0.1
SR8	25/01/2014	Mid-Ebb	0.5
SR8	27/01/2014	Mid-Ebb	1.0
SR8	29/01/2014	Mid-Ebb	0.9
SR9	04/01/2014	Mid-Ebb	1.2
SR9	07/01/2014	Mid-Ebb	0.9
SR9	09/01/2014	Mid-Ebb	2.1
SR9	11/01/2014	Mid-Ebb	0.4
SR9	14/01/2014	Mid-Ebb	0.1
SR9	16/01/2014	Mid-Ebb	0.9
SR9	18/01/2014	Mid-Ebb	0.6
SR9	21/01/2014	Mid-Ebb	0.1
SR9	23/01/2014	Mid-Ebb	0.1
SR9	25/01/2014	Mid-Ebb	0.2
SR9	27/01/2014	Mid-Ebb	1.2
SR9	29/01/2014	Mid-Ebb	0.8
SR10	04/01/2014	Mid-Ebb	0.5
SR10	07/01/2014	Mid-Ebb	0.1
SR10	09/01/2014	Mid-Ebb	0.2
SR10	11/01/2014	Mid-Ebb	0.2
SR10	14/01/2014	Mid-Ebb	0.1
SR10	16/01/2014	Mid-Ebb	0.1
SR10	18/01/2014	Mid-Ebb	0.1
SR10	21/01/2014	Mid-Ebb	0.1
SR10	23/01/2014	Mid-Ebb	0.1
SR10	25/01/2014	Mid-Ebb	0.2
SR10	27/01/2014	Mid-Ebb	0.4
SR10	29/01/2014	Mid-Ebb	0.6
SR11	04/01/2014	Mid-Ebb	0.7
SR11	07/01/2014	Mid-Ebb	0.1
SR11	09/01/2014	Mid-Ebb	0.1
SR11	11/01/2014	Mid-Ebb	0.1
SR11	14/01/2014	Mid-Ebb	0.1
SR11	16/01/2014	Mid-Ebb	0.1
SR11	18/01/2014	Mid-Ebb	0.1
SR11	21/01/2014	Mid-Ebb	0.1
SR11	23/01/2014	Mid-Ebb	0.1
SR11	25/01/2014	Mid-Ebb	0.2
SR11	27/01/2014	Mid-Ebb	0.6
SR11	29/01/2014	Mid-Ebb	1.1

Impact											
SR6	24/07/2014	Mid-Ebb	1.2	SR8	24/07/2014	Mid-Ebb	1.0	SR10	24/07/2014	Mid-Ebb	1.4
SR6	26/07/2014	Mid-Ebb	4.1	SR8	26/07/2014	Mid-Ebb	0.7	SR10	26/07/2014	Mid-Ebb	1.2
SR6	29/07/2014	Mid-Ebb	2.4	SR8	29/07/2014	Mid-Ebb	1.1	SR10	29/07/2014	Mid-Ebb	1.7
SR6	31/07/2014	Mid-Ebb	1.5	SR8	31/07/2014	Mid-Ebb	0.5	SR10	31/07/2014	Mid-Ebb	1.1
SR6	02/08/2014	Mid-Ebb	0.5	SR8	02/08/2014	Mid-Ebb	0.7	SR10	02/08/2014	Mid-Ebb	0.6
SR6	05/08/2014	Mid-Ebb	2.8	SR8	05/08/2014	Mid-Ebb	1.1	SR10	05/08/2014	Mid-Ebb	1.5
SR6	07/08/2014	Mid-Ebb	1.4	SR8	07/08/2014	Mid-Ebb	0.7	SR10	07/08/2014	Mid-Ebb	1.5
SR6	09/08/2014	Mid-Ebb	2.9	SR8	09/08/2014	Mid-Ebb	2.3	SR10	09/08/2014	Mid-Ebb	2.7
SR6	12/08/2014	Mid-Ebb	4.3	SR8	12/08/2014	Mid-Ebb	5.0	SR10	12/08/2014	Mid-Ebb	3.7
SR6	14/08/2014	Mid-Ebb	4.2	SR8	14/08/2014	Mid-Ebb	4.8	SR10	14/08/2014	Mid-Ebb	3.7
SR6	16/8/2014	Mid-Ebb	3.8	SR8	16/8/2014	Mid-Ebb	1.9	SR10	16/8/2014	Mid-Ebb	2.7
SR6	19/08/2014	Mid-Ebb	0.7	SR8	19/08/2014	Mid-Ebb	0.6	SR10	19/08/2014	Mid-Ebb	0.9
SR6	21/8/2014	Mid-Ebb	1.3	SR8	21/8/2014	Mid-Ebb	0.8	SR10	21/8/2014	Mid-Ebb	0.8
SR6	23/08/2014	Mid-Ebb	1.3	SR8	23/08/2014	Mid-Ebb	1.1	SR10	23/08/2014	Mid-Ebb	1.1
SR6	26/08/2014	Mid-Ebb	4.2	SR8	26/08/2014	Mid-Ebb	0.1	SR10	26/08/2014	Mid-Ebb	1.0
SR6	28/8/2014	Mid-Ebb	3.4	SR8	28/8/2014	Mid-Ebb	1.2	SR10	28/8/2014	Mid-Ebb	2.1
SR6	30/8/2014	Mid-Ebb	3.7	SR8	30/8/2014	Mid-Ebb	3.6	SR10	30/8/2014	Mid-Ebb	4.2
SR6	02/09/2014	Mid-Ebb	4.3	SR8	02/09/2014	Mid-Ebb	1.9	SR10	02/09/2014	Mid-Ebb	1.7
SR6	04/09/2014	Mid-Ebb	1.3	SR8	04/09/2014	Mid-Ebb	1.1	SR10	04/09/2014	Mid-Ebb	0.8
SR6	06/09/2014	Mid-Ebb	2.6	SR8	06/09/2014	Mid-Ebb	2.5	SR10	06/09/2014	Mid-Ebb	2.5
SR6	09/09/2014	Mid-Ebb	3.8	SR8	09/09/2014	Mid-Ebb	2.1	SR10	09/09/2014	Mid-Ebb	3.1
SR6	11/09/2014	Mid-Ebb	7.9	SR8	11/09/2014	Mid-Ebb	4.0	SR10	11/09/2014	Mid-Ebb	3.7
SR6	13/9/2014	Mid-Ebb	1.4	SR8	13/9/2014	Mid-Ebb	2.5	SR10	13/9/2014	Mid-Ebb	1.4
SR6	16/9/2014	Mid-Ebb		SR8	16/9/2014	Mid-Ebb		SR10	16/9/2014	Mid-Ebb	
SR6	18/09/2014	Mid-Ebb	3.6	SR8	18/09/2014	Mid-Ebb	4.8	SR10	18/09/2014	Mid-Ebb	3.7
SR6	20/9/2014	Mid-Ebb	1	SR8	20/9/2014	Mid-Ebb	0.77	SR10	20/9/2014	Mid-Ebb	0.50
SR6	23/9/2014	Mid-Ebb	1.7	SR8	23/9/2014	Mid-Ebb	1.5	SR10	23/9/2014	Mid-Ebb	0.9
SR6	25/9/2014	Mid-Ebb	0.8	SR8	25/9/2014	Mid-Ebb	1.9	SR10	25/9/2014	Mid-Ebb	1.7
SR6	27/9/2014	Mid-Ebb	8.1	SR8	27/9/2014	Mid-Ebb	4.1	SR10	27/9/2014	Mid-Ebb	4.5
SR6	30/9/2014	Mid-Ebb	5.2	SR8	30/9/2014	Mid-Ebb	5.3	SR10	30/9/2014	Mid-Ebb	3.9
SR6	02/10/2014	Mid-Ebb	6.0	SR8	02/10/2014	Mid-Ebb	4.4	SR10	02/10/2014	Mid-Ebb	1.5
SR6	04/10/2014	Mid-Ebb	5.3	SR8	04/10/2014	Mid-Ebb	7.0	SR10	04/10/2014	Mid-Ebb	4.5
SR6	07/10/2014	Mid-Ebb	6.4	SR8	07/10/2014	Mid-Ebb	3.6	SR10	07/10/2014	Mid-Ebb	3.5
SR6	09/10/2014	Mid-Ebb	3.7	SR8	09/10/2014	Mid-Ebb	2.9	SR10	09/10/2014	Mid-Ebb	3.3
SR6	11/10/2014	Mid-Ebb	11.4	SR8	11/10/2014	Mid-Ebb	9.4	SR10	11/10/2014	Mid-Ebb	4.0
SR6	14/10/2014	Mid-Ebb	3.9	SR8	14/10/2014	Mid-Ebb	5.2	SR10	14/10/2014	Mid-Ebb	6.6
SR6	16/10/2014	Mid-Ebb	2.9	SR8	16/10/2014	Mid-Ebb	4.5	SR10	16/10/2014	Mid-Ebb	2.7
SR6	18/10/2014	Mid-Ebb	3.0	SR8	18/10/2014	Mid-Ebb	3.6	SR10	18/10/2014	Mid-Ebb	2.7
SR6	21/10/2014	Mid-Ebb	3.4	SR8	21/10/2014	Mid-Ebb	2.8	SR10	21/10/2014	Mid-Ebb	2.0
SR7	24/07/2014	Mid-Ebb	1.9	SR9	24/07/2014	Mid-Ebb	1.7	SR11	24/07/2014	Mid-Ebb	1.2
SR7	26/07/2014	Mid-Ebb	1.4	SR9	26/07/2014	Mid-Ebb	1.8	SR11	26/07/2014	Mid-Ebb	0.6
SR7	29/07/2014	Mid-Ebb	0.6	SR9	29/07/2014	Mid-Ebb	1.8	SR11	29/07/2014	Mid-Ebb	2.0
SR7	31/07/2014	Mid-Ebb	2.5	SR9	31/07/2014	Mid-Ebb	1.7	SR11	31/07/2014	Mid-Ebb	0.7
SR7	02/08/2014	Mid-Ebb	1.4	SR9	02/08/2014	Mid-Ebb	0.7	SR11	02/08/2014	Mid-Ebb	0.7
SR7	05/08/2014	Mid-Ebb	1.7	SR9	05/08/2014	Mid-Ebb	1.8	SR11	05/08/2014	Mid-Ebb	2.2
SR7	07/08/2014	Mid-Ebb	1.1	SR9	07/08/2014	Mid-Ebb	2.2	SR11	07/08/2014	Mid-Ebb	1.4
SR7	09/08/2014	Mid-Ebb	2.8	SR9	09/08/2014	Mid-Ebb	1.8	SR11	09/08/2014	Mid-Ebb	2.0
SR7	12/08/2014	Mid-Ebb	3.7	SR9	12/08/2014	Mid-Ebb	3.6	SR11	12/08/2014	Mid-Ebb	2.4
SR7	14/08/2014	Mid-Ebb	3.2	SR9	14/08/2014	Mid-Ebb	3.7	SR11	14/08/2014	Mid-Ebb	1.9
SR7	16/8/2014	Mid-Ebb	2.8	SR9	16/8/2014	Mid-Ebb	2.3	SR11	16/8/2014	Mid-Ebb	1.5
SR7	19/08/2014	Mid-Ebb	2.1	SR9	19/08/2014	Mid-Ebb	1.3	SR11	19/08/2014	Mid-Ebb	2.1
SR7	21/8/2014	Mid-Ebb	2.7	SR9	21/8/2014	Mid-Ebb	2.8	SR11	21/8/2014	Mid-Ebb	2.0
SR7	23/08/2014	Mid-Ebb	3.1	SR9	23/08/2014	Mid-Ebb	1.2	SR11	23/08/2014	Mid-Ebb	1.6
SR7	26/08/2014	Mid-Ebb	1.5	SR9	26/08/2014	Mid-Ebb	0.3	SR11	26/08/2014	Mid-Ebb	2.2
SR7	28/8/2014	Mid-Ebb	2.3	SR9	28/8/2014	Mid-Ebb	1.7	SR11	28/8/2014	Mid-Ebb	0.6
SR7	30/8/2014	Mid-Ebb	1.1	SR9	30/8/2014	Mid-Ebb	4.9	SR11	30/8/2014	Mid-Ebb	1.6
SR7	02/09/2014	Mid-Ebb	1.1	SR9	02/09/2014	Mid-Ebb	4.8	SR11	02/09/2014	Mid-Ebb	1.2
SR7	04/09/2014	Mid-Ebb	1.6	SR9	04/09/2014	Mid-Ebb	1.7	SR11	04/09/2014	Mid-Ebb	1.0
SR7	06/09/2014	Mid-Ebb	2.7	SR9	06/09/2014	Mid-Ebb	3.2	SR11	06/09/2014	Mid-Ebb	2.0
SR7	09/09/2014	Mid-Ebb	4.2	SR9	09/09/2014	Mid-Ebb	3.2	SR11	09/09/2014	Mid-Ebb	1.1
SR7	11/09/2014	Mid-Ebb	2.3	SR9	11/09/2014	Mid-Ebb	6.1	SR11	11/09/2014	Mid-Ebb	3.1
SR7	13/9/2014	Mid-Ebb	2.8	SR9	13/9/2014	Mid-Ebb	2.0	SR11	13/9/2014	Mid-Ebb	1.2
SR7	16/9/2014	Mid-Ebb		SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR7	18/09/2014	Mid-Ebb	3.9	SR9	18/09/2014	Mid-Ebb	3.3	SR11	18/09/2014	Mid-Ebb	2.2
SR7	20/9/2014	Mid-Ebb	3.93	SR9	20/9/2014	Mid-Ebb	1.82	SR11	20/9/2014	Mid-Ebb	1.13
SR7	23/9/2014	Mid-Ebb	1.7	SR9	23/9/2014	Mid-Ebb	1.4	SR11	23/9/2014	Mid-Ebb	1.7
SR7	25/9/2014	Mid-Ebb	5.3	SR9	25/9/2014	Mid-Ebb	2.5	SR11	25/9/2014	Mid-Ebb	1.8
SR7	27/9/2014	Mid-Ebb	3.4	SR9	27/9/2014	Mid-Ebb	5.5	SR11	27/9/2014	Mid-Ebb	3.3
SR7	30/9/2014	Mid-Ebb	7.0	SR9	30/9/2014	Mid-Ebb	4.5	SR11	30/9/2014	Mid-Ebb	4.6
SR7	02/10/2014	Mid-Ebb	4.4	SR9	02/10/2014	Mid-Ebb	1.8	SR11	02/10/2014	Mid-Ebb	3.0
SR7	04/10/2014	Mid-Ebb	3.7	SR9	04/10/2014	Mid-Ebb	5.1	SR11	04/10/2014	Mid-Ebb	4.9
SR7	07/10/2014	Mid-Ebb	2.7	SR9	07/10/2014	Mid-Ebb	5.8	SR11	07/10/2014	Mid-Ebb	1.2
SR7	09/10/2014	Mid-Ebb	4.3	SR9	09/10/2014	Mid-Ebb	4.0	SR11	09/10/2014	Mid-Ebb	2.3
SR7	11/10/2014	Mid-Ebb	4.1	SR9	11/10/2014	Mid-Ebb	9.7	SR11	11/10/2014	Mid-Ebb	2.1
SR7	14/10/2014	Mid-Ebb	2.3	SR9	14/10/2014	Mid-Ebb	5.9	SR11	14/10/2014	Mid-Ebb	2.3
SR7	16/10/2014	Mid-Ebb	3.3	SR9	16/10/2014	Mid-Ebb	5.4	SR11	16/10/2014	Mid-Ebb	3.0
SR7	18/10/2014	Mid-Ebb	2.2	SR9	18/10/2014	Mid-Ebb	6.1	SR11	18/10/2014	Mid-Ebb	2.8
SR7	21/10/2014	Mid-Ebb	2.0	SR9	21/10/2014	Mid-Ebb	5.1	SR11	21/10/2014	Mid-Ebb	3.5

Cluster 2 Turbidity
1.3 x Baseline vs Impact

1.3 x Baseline		Impact	
Raw Statistics		Raw Statistics	
Number of Valid Observations	144	Number of Valid Observations	228
Number of Distinct Observations	25	Number of Missing Values	6
Minimum	0.1	Number of Distinct Observations	171
Maximum	7.1	Minimum	0.367
Mean of Raw Data	0.622	Maximum	12.8
Standard Deviation of Raw Data	0.95	Mean of Raw Data	2.853
Kstar	0.826	Standard Deviation of Raw Data	1.914
Mean of Log Transformed Data	-1.178	Kstar	2.521
Standard Deviation of Log Transformed Data	1.139	Mean of Log Transformed Data	0.84
		Standard Deviation of Log Transformed Data	0.666
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.752		
Approximate Shapiro Wilk Test Statistic	0.592	Correlation Coefficient R	0.93
Approximate Shapiro Wilk P Value	0	Approximate Shapiro Wilk Test Statistic	0.867
Lilliefors Test Statistic	0.291	Approximate Shapiro Wilk P Value	0
Lilliefors Critical (0.95) Value	0.0738	Lilliefors Test Statistic	0.107
Data not Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.0587
		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact
Background Data: 1.3 x Baseline

Raw Statistics

	Site	Background
Number of Valid Observations	228	144
Number of Missing Values	6	0
Number of Distinct Observations	171	25
Minimum	0.367	0.1
Maximum	12.8	7.1
Mean	2.853	0.622
Median	2.383	0.2
SD	1.914	0.95
SE of Mean	0.127	0.0792

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	56493
WMW Test U-Stat	13.83
WMW Critical Value (0.050)	1.645
P-Value	0

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 Turbidity
Control vs Impact

Control Turbidity (NTU)							
C1	24/07/2014	Mid-Flood	8.1	C3	24/07/2014	Mid-Flood	1.3
C1	26/07/2014	Mid-Flood	6.4	C3	26/07/2014	Mid-Flood	3.4
C1	29/07/2014	Mid-Flood	3.2	C3	29/07/2014	Mid-Flood	4.1
C1	31/07/2014	Mid-Flood	3.3	C3	31/07/2014	Mid-Flood	2.2
C1	02/08/2014	Mid-Flood	1.1	C3	02/08/2014	Mid-Flood	6.7
C1	05/08/2014	Mid-Flood	1.3	C3	05/08/2014	Mid-Flood	3.8
C1	07/08/2014	Mid-Flood	3.7	C3	07/08/2014	Mid-Flood	3.8
C1	09/08/2014	Mid-Flood	8.6	C3	09/08/2014	Mid-Flood	3.6
C1	12/08/2014	Mid-Flood	6.9	C3	12/08/2014	Mid-Flood	2.1
C1	14/08/2014	Mid-Flood	7.8	C3	14/08/2014	Mid-Flood	4.7
C1	16/8/2014	Mid-Flood	5.3	C3	16/8/2014	Mid-Flood	3.3
C1	19/08/2014	Mid-Flood	2.4	C3	19/08/2014	Mid-Flood	1.4
C1	21/8/2014	Mid-Flood	4.8	C3	21/8/2014	Mid-Flood	3.9
C1	23/08/2014	Mid-Flood	6.5	C3	23/08/2014	Mid-Flood	3.6
C1	26/08/2014	Mid-Flood	5.2	C3	26/08/2014	Mid-Flood	7.5
C1	28/8/2014	Mid-Flood	6.4	C3	28/8/2014	Mid-Flood	3.4
C1	30/8/2014	Mid-Flood	6.4	C3	30/8/2014	Mid-Flood	2.3
C1	02/09/2014	Mid-Flood	2.2	C3	02/09/2014	Mid-Flood	0.6
C1	04/09/2014	Mid-Flood	2.9	C3	04/09/2014	Mid-Flood	0.4
C1	06/09/2014	Mid-Flood	5.5	C3	06/09/2014	Mid-Flood	4.7
C1	09/09/2014	Mid-Flood	20.3	C3	09/09/2014	Mid-Flood	6.7
C1	11/09/2014	Mid-Flood	9.6	C3	11/09/2014	Mid-Flood	8.4
C1	13/9/2014	Mid-Flood	10.9	C3	13/9/2014	Mid-Flood	3.0
C1	16/9/2014	Mid-Flood		C3	16/9/2014	Mid-Flood	
C1	18/09/2014	Mid-Flood	4.0	C3	18/09/2014	Mid-Flood	3.5
C1	20/9/2014	Mid-Flood	5.1	C3	20/9/2014	Mid-Flood	1.9
C1	23/9/2014	Mid-Flood	7.7	C3	23/9/2014	Mid-Flood	2.7
C1	25/9/2014	Mid-Flood	4.8	C3	25/9/2014	Mid-Flood	7.6
C1	27/9/2014	Mid-Flood	7.5	C3	27/9/2014	Mid-Flood	6.8
C1	30/9/2014	Mid-Flood	3.8	C3	30/9/2014	Mid-Flood	0.9
C1	02/10/2014	Mid-Flood	4.1	C3	02/10/2014	Mid-Flood	1.2
C1	04/10/2014	Mid-Flood	3.5	C3	04/10/2014	Mid-Flood	7.9
C1	07/10/2014	Mid-Flood	9.3	C3	07/10/2014	Mid-Flood	4.0
C1	09/10/2014	Mid-Flood	16.4	C3	09/10/2014	Mid-Flood	2.0
C1	11/10/2014	Mid-Flood	9.0	C3	11/10/2014	Mid-Flood	3.9
C1	14/10/2014	Mid-Flood	4.1	C3	14/10/2014	Mid-Flood	4.4
C1	16/10/2014	Mid-Flood	1.3	C3	16/10/2014	Mid-Flood	3.8
C1	18/10/2014	Mid-Flood	2.8	C3	18/10/2014	Mid-Flood	3.1
C1	21/10/2014	Mid-Flood	3.4	C3	21/10/2014	Mid-Flood	2.8
C2	24/07/2014	Mid-Flood	0.7				
C2	26/07/2014	Mid-Flood	4.2				
C2	29/07/2014	Mid-Flood	0.8				
C2	31/07/2014	Mid-Flood	5.0				
C2	02/08/2014	Mid-Flood	0.3				
C2	05/08/2014	Mid-Flood	2.8				
C2	07/08/2014	Mid-Flood	2.7				
C2	09/08/2014	Mid-Flood	8.1				
C2	12/08/2014	Mid-Flood	4.2				
C2	14/08/2014	Mid-Flood	5.2				
C2	16/8/2014	Mid-Flood	2.3				
C2	19/08/2014	Mid-Flood	0.7				
C2	21/8/2014	Mid-Flood	2.5				
C2	23/08/2014	Mid-Flood	2.1				
C2	26/08/2014	Mid-Flood	2.0				
C2	28/8/2014	Mid-Flood	2.6				
C2	30/8/2014	Mid-Flood	4.7				
C2	02/09/2014	Mid-Flood	4.0				
C2	04/09/2014	Mid-Flood	1.0				
C2	06/09/2014	Mid-Flood	1.2				
C2	09/09/2014	Mid-Flood	3.3				
C2	11/09/2014	Mid-Flood	2.7				
C2	13/9/2014	Mid-Flood	2.7				
C2	16/9/2014	Mid-Flood					
C2	18/09/2014	Mid-Flood	2.9				
C2	20/9/2014	Mid-Flood	1.3				
C2	23/9/2014	Mid-Flood	1.3				
C2	25/9/2014	Mid-Flood	7.0				
C2	27/9/2014	Mid-Flood	3.3				
C2	30/9/2014	Mid-Flood	6.8				
C2	02/10/2014	Mid-Flood	6.3				
C2	04/10/2014	Mid-Flood	3.9				
C2	07/10/2014	Mid-Flood	8.0				
C2	09/10/2014	Mid-Flood	3.3				
C2	11/10/2014	Mid-Flood	11.9				
C2	14/10/2014	Mid-Flood	5.4				
C2	16/10/2014	Mid-Flood	11.4				
C2	18/10/2014	Mid-Flood	3.4				
C2	21/10/2014	Mid-Flood	5.7				

Impact Turbidity (NTU)												
SR6	24/07/2014	Mid-Flood	1.2	SR8	24/07/2014	Mid-Flood	0.8	SR10	24/07/2014	Mid-Flood	1.0
SR6	26/07/2014	Mid-Flood	3.5	SR8	26/07/2014	Mid-Flood	0.6	SR10	26/07/2014	Mid-Flood	3.1
SR6	29/07/2014	Mid-Flood	2.3	SR8	29/07/2014	Mid-Flood	1.0	SR10	29/07/2014	Mid-Flood	1.7
SR6	31/07/2014	Mid-Flood	2.1	SR8	31/07/2014	Mid-Flood	1.2	SR10	31/07/2014	Mid-Flood	1.2
SR6	02/08/2014	Mid-Flood	1.1	SR8	02/08/2014	Mid-Flood	0.7	SR10	02/08/2014	Mid-Flood	0.4
SR6	05/08/2014	Mid-Flood	0.9	SR8	05/08/2014	Mid-Flood	2.8	SR10	05/08/2014	Mid-Flood	1.9
SR6	07/08/2014	Mid-Flood	1.4	SR8	07/08/2014	Mid-Flood	1.6	SR10	07/08/2014	Mid-Flood	1.7
SR6	09/08/2014	Mid-Flood	4.8	SR8	09/08/2014	Mid-Flood	2.3	SR10	09/08/2014	Mid-Flood	4.2
SR6	12/08/2014	Mid-Flood	4.3	SR8	12/08/2014	Mid-Flood	3.2	SR10	12/08/2014	Mid-Flood	3.6
SR6	14/08/2014	Mid-Flood	4.3	SR8	14/08/2014	Mid-Flood	4.7	SR10	14/08/2014	Mid-Flood	3.0
SR6	16/8/2014	Mid-Flood	4.2	SR8	16/8/2014	Mid-Flood	3.7	SR10	16/8/2014	Mid-Flood	2.1
SR6	19/08/2014	Mid-Flood	0.7	SR8	19/08/2014	Mid-Flood	0.6	SR10	19/08/2014	Mid-Flood	0.9
SR6	21/8/2014	Mid-Flood	1.4	SR8	21/8/2014	Mid-Flood	1.4	SR10	21/8/2014	Mid-Flood	1.2
SR6	23/08/2014	Mid-Flood	1.5	SR8	23/08/2014	Mid-Flood	1.2	SR10	23/08/2014	Mid-Flood	1.0
SR6	26/08/2014	Mid-Flood	3.5	SR8	26/08/2014	Mid-Flood	0.7	SR10	26/08/2014	Mid-Flood	1.3
SR6	28/8/2014	Mid-Flood	3.9	SR8	28/8/2014	Mid-Flood	1.4	SR10	28/8/2014	Mid-Flood	2.6
SR6	30/8/2014	Mid-Flood	4.0	SR8	30/8/2014	Mid-Flood	2.5	SR10	30/8/2014	Mid-Flood	3.7
SR6	02/09/2014	Mid-Flood	2.2	SR8	02/09/2014	Mid-Flood	2.1	SR10	02/09/2014	Mid-Flood	1.9
SR6	04/09/2014	Mid-Flood	1.7	SR8	04/09/2014	Mid-Flood	0.4	SR10	04/09/2014	Mid-Flood	0.7
SR6	06/09/2014	Mid-Flood	2.8	SR8	06/09/2014	Mid-Flood	2.6	SR10	06/09/2014	Mid-Flood	2.5
SR6	09/09/2014	Mid-Flood	3.2	SR8	09/09/2014	Mid-Flood	4.5	SR10	09/09/2014	Mid-Flood	3.6
SR6	11/09/2014	Mid-Flood	8.2	SR8	11/09/2014	Mid-Flood	4.2	SR10	11/09/2014	Mid-Flood	3.8
SR6	13/9/2014	Mid-Flood	1.2	SR8	13/9/2014	Mid-Flood	2.1	SR10	13/9/2014	Mid-Flood	1.7
SR6	16/9/2014	Mid-Flood		SR8	16/9/2014	Mid-Flood		SR10	16/9/2014	Mid-Flood	
SR6	18/09/2014	Mid-Flood	3.7	SR8	18/09/2014	Mid-Flood	4.1	SR10	18/09/2014	Mid-Flood	2.8
SR6	20/9/2014	Mid-Flood	1	SR8	20/9/2014	Mid-Flood	1.10	SR10	20/9/2014	Mid-Flood	0.52
SR6	23/9/2014	Mid-Flood	1.3	SR8	23/9/2014	Mid-Flood	1.8	SR10	23/9/2014	Mid-Flood	1.5
SR6	25/9/2014	Mid-Flood	1.1	SR8	25/9/2014	Mid-Flood	2.6	SR10	25/9/2014	Mid-Flood	1.7
SR6	27/9/2014	Mid-Flood	11.2	SR8	27/9/2014	Mid-Flood	6.5	SR10	27/9/2014	Mid-Flood	5.1
SR6	30/9/2014	Mid-Flood	6.3	SR8	30/9/2014	Mid-Flood	5.9	SR10	30/9/2014	Mid-Flood	5.6
SR6	02/10/2014	Mid-Flood	5.2	SR8	02/10/2014	Mid-Flood	4.2	SR10	02/10/2014	Mid-Flood	1.2
SR6	04/10/2014	Mid-Flood	5.0	SR8	04/10/2014	Mid-Flood	7.7	SR10	04/10/2014	Mid-Flood	4.3
SR6	07/10/2014	Mid-Flood	5.9	SR8	07/10/2014	Mid-Flood	3.6	SR10	07/10/2014	Mid-Flood	2.7
SR6	09/10/2014	Mid-Flood	8.1	SR8	09/10/2014	Mid-Flood	1.5	SR10	09/10/2014	Mid-Flood	2.5
SR6	11/10/2014	Mid-Flood	8.8	SR8	11/10/2014	Mid-Flood	10.5	SR10	11/10/2014	Mid-Flood	6.1
SR6	14/10/2014	Mid-Flood	4.7	SR8	14/10/2014	Mid-Flood	3.7	SR10	14/10/2014	Mid-Flood	4.7
SR6	16/10/2014	Mid-Flood	2.6	SR8	16/10/2014	Mid-Flood	4.2	SR10	16/10/2014	Mid-Flood	3.7
SR6	18/10/2014	Mid-Flood	3.2	SR8	18/10/2014	Mid-Flood	3.4	SR10	18/10/2014	Mid-Flood	2.6
SR6	21/10/2014	Mid-Flood	4.5	SR8	21/10/2014	Mid-Flood	3.5	SR10	21/10/2014	Mid-Flood	3.2
SR7	24/07/2014	Mid-Flood	1.9	SR9	24/07/2014	Mid-Flood	2.2	SR11	24/07/2014	Mid-Flood	0.7
SR7	26/07/2014	Mid-Flood	1.0	SR9	26/07/2014	Mid-Flood	1.5	SR11	26/07/2014	Mid-Flood	0.8
SR7	29/07/2014	Mid-Flood	0.8	SR9	29/07/2014	Mid-Flood	1.7	SR11	29/07/2014	Mid-Flood	2.3
SR7	31/07/2014	Mid-Flood	2.3	SR9	31/07/2014	Mid-Flood	1.9	SR11	31/07/2014	Mid-Flood	0.8
SR7	02/08/2014	Mid-Flood	1.0	SR9	02/08/2014	Mid-Flood	1.3	SR11	02/08/2014	Mid-Flood	0.6
SR7	05/08/2014	Mid-Flood	1.5	SR9	05/08/2014	Mid-Flood	2.1	SR11	05/08/2014	Mid-Flood	2.3
SR7	07/08/2014	Mid-Flood	1.1	SR9	07/08/2014	Mid-Flood	1.9	SR11	07/08/2014	Mid-Flood	2.3
SR7	09/08/2014	Mid-Flood	2.9	SR9	09/08/2014	Mid-Flood	2.0	SR11	09/08/2014	Mid-Flood	2.8
SR7	12/08/2014	Mid-Flood	3.6	SR9	12/08/2014	Mid-Flood	4.3	SR11	12/08/2014	Mid-Flood	1.7
SR7	14/08/2014	Mid-Flood	3.2	SR9	14/08/2014	Mid-Flood	4.4	SR11	14/08/2014	Mid-Flood	1.8
SR7	16/8/2014	Mid-Flood	3.5	SR9	16/8/2014	Mid-Flood	2.9	SR11	16/8/2014	Mid-Flood	1.8
SR7	19/08/2014	Mid-Flood	1.6	SR9	19/08/2014	Mid-Flood	1.4	SR11	19/08/2014	Mid-Flood	2.1
SR7	21/8/2014	Mid-Flood	3.2	SR9	21/8/2014	Mid-Flood	1.1	SR11	21/8/2014	Mid-Flood	1.7
SR7	23/08/2014	Mid-Flood	3.1	SR9	23/08/2014	Mid-Flood	1.6	SR11	23/08/2014	Mid-Flood	2.0
SR7	26/08/2014	Mid-Flood	1.6	SR9	26/08/2014	Mid-Flood	0.8	SR11	26/08/2014	Mid-Flood	1.9
SR7	28/8/2014	Mid-Flood	1.6	SR9	28/8/2014	Mid-Flood	1.3	SR11	28/8/2014	Mid-Flood	0.5
SR7	30/8/2014	Mid-Flood	0.4	SR9	30/8/2014	Mid-Flood	4.6	SR11	30/8/2014	Mid-Flood	1.4
SR7	02/09/2014	Mid-Flood	2.5	SR9	02/09/2014	Mid-Flood	4.4	SR11	02/09/2014	Mid-Flood	0.8
SR7	04/09/2014	Mid-Flood	1.7	SR9	04/09/2014	Mid-Flood	1.2	SR11	04/09/2014	Mid-Flood	1.1
SR7	06/09/2014	Mid-Flood	2.5	SR9	06/09/2014	Mid-Flood	2.4	SR11	06/09/2014	Mid-Flood	2.3
SR7	09/09/2014	Mid-Flood	4.2	SR9	09/09/2014	Mid-Flood	3.7	SR11	09/09/2014	Mid-Flood	1.5
SR7	11/09/2014	Mid-Flood	2.3	SR9	11/09/2014	Mid-Flood	4.8	SR11	11/09/2014	Mid-Flood	3.2
SR7	13/9/2014	Mid-Flood	2.9	SR9	13/9/2014	Mid-Flood	1.7	SR11	13/9/2014	Mid-Flood	1.2
SR7	16/9/2014	Mid-Flood		SR9	16/9/2014	Mid-Flood		SR11	16/9/2014	Mid-Flood	
SR7	18/09/2014	Mid-Flood	3.9	SR9	18/09/2014	Mid-Flood	3.3	SR11	18/09/2014	Mid-Flood	1.8
SR7	20/9/2014	Mid-Flood	1.87	SR9	20/9/2014	Mid-Flood	1.95	SR11	20/9/2014	Mid-Flood	0.77
SR7	23/9/2014	Mid-Flood	1.7	SR9	23/9/2014	Mid-Flood	2.7	SR11	23/9/2014	Mid-Flood	1.8
SR7	25/9/2014	Mid-Flood	6.2	SR9	25/9/2014	Mid-Flood	1.8	SR11	25/9/2014	Mid-Flood	3.1
SR7	27/9/2014	Mid-Flood	4.2	SR9	27/9/2014	Mid-Flood	5.1	SR11	27/9/2014	Mid-Flood	2.3
SR7	30/9/2014	Mid-Flood	6.9	SR9	30/9/2014	Mid-Flood	4.5	SR11	30/9/2014	Mid-Flood	6.4
SR7	02/10/2014	Mid-Flood	4.3	SR9	02/10/2014	Mid-Flood	1.5	SR11	02/10/2014	Mid-Flood	2.1
SR7	04/10/2014	Mid-Flood	3.5	SR9	04/10/2014	Mid-Flood	4.1	SR11	04/10/2014	Mid-Flood	5.4
SR7	07/10/2014	Mid-Flood	3.1	SR9	07/10/2014	Mid-Flood	5.2	SR11	07/10/2014	Mid-Flood	1.7
SR7	09/10/2014	Mid-Flood	2.9	SR9	09/10/2014	Mid-Flood	2.5	SR11	09/10/2014	Mid-Flood	3.6
SR7	11/10/2014	Mid-Flood	4.3	SR9	11/10/2014	Mid-Flood	12.8	SR11	11/10/2014	Mid-Flood	2.3
SR7	14/10/2014	Mid-Flood	2.5	SR9	14/10/2014	Mid-Flood	6.1	SR11	14/10/2014	Mid-Flood	2.2
SR7	16/10/2014	Mid-Flood	3.2	SR9	16/10/2014	Mid-Flood	4.3	SR11	16/10/2014	Mid-Flood	3.2
SR7	18/10/2014	Mid-Flood	1.9	SR9	18/10/2014	Mid-Flood	5.9	SR11	18/10/2014	Mid-Flood	3.3
SR7	21/10/2014	Mid-Flood	2.7	SR9	21/10/2014	Mid-Flood	4.8	SR11	21/10/2014	Mid-Flood	3.1

Cluster 2 Turbidity
Control vs Impact

Control Turbidity (NTU)							
C1	24/07/2014	Mid-Ebb	8.3	C3	24/07/2014	Mid-Ebb	1.1
C1	26/07/2014	Mid-Ebb	5.9	C3	26/07/2014	Mid-Ebb	3.5
C1	29/07/2014	Mid-Ebb	3.6	C3	29/07/2014	Mid-Ebb	3.7
C1	31/07/2014	Mid-Ebb	3.5	C3	31/07/2014	Mid-Ebb	2.6
C1	02/08/2014	Mid-Ebb	0.8	C3	02/08/2014	Mid-Ebb	0.6
C1	05/08/2014	Mid-Ebb	1.4	C3	05/08/2014	Mid-Ebb	2.3
C1	07/08/2014	Mid-Ebb	4.9	C3	07/08/2014	Mid-Ebb	2.1
C1	09/08/2014	Mid-Ebb	8.6	C3	09/08/2014	Mid-Ebb	3.4
C1	12/08/2014	Mid-Ebb	8.3	C3	12/08/2014	Mid-Ebb	1.9
C1	14/08/2014	Mid-Ebb	8.9	C3	14/08/2014	Mid-Ebb	3.0
C1	16/8/2014	Mid-Ebb	5.1	C3	16/8/2014	Mid-Ebb	1.0
C1	19/08/2014	Mid-Ebb	1.9	C3	19/08/2014	Mid-Ebb	1.6
C1	21/8/2014	Mid-Ebb	4.4	C3	21/8/2014	Mid-Ebb	2.4
C1	23/08/2014	Mid-Ebb	6.5	C3	23/08/2014	Mid-Ebb	4.9
C1	26/08/2014	Mid-Ebb	5.0	C3	26/08/2014	Mid-Ebb	6.9
C1	28/8/2014	Mid-Ebb	5.9	C3	28/8/2014	Mid-Ebb	1.5
C1	30/8/2014	Mid-Ebb	7.4	C3	30/8/2014	Mid-Ebb	2.0
C1	02/09/2014	Mid-Ebb	2.0	C3	02/09/2014	Mid-Ebb	0.9
C1	04/09/2014	Mid-Ebb	6.5	C3	04/09/2014	Mid-Ebb	0.3
C1	06/09/2014	Mid-Ebb	4.7	C3	06/09/2014	Mid-Ebb	4.0
C1	09/09/2014	Mid-Ebb	19.5	C3	09/09/2014	Mid-Ebb	3.4
C1	11/09/2014	Mid-Ebb	10.6	C3	11/09/2014	Mid-Ebb	3.7
C1	13/9/2014	Mid-Ebb	9.6	C3	13/9/2014	Mid-Ebb	3.1
C1	16/9/2014	Mid-Ebb		C3	16/9/2014	Mid-Ebb	
C1	18/09/2014	Mid-Ebb	3.3	C3	18/09/2014	Mid-Ebb	3.7
C1	20/9/2014	Mid-Ebb	6.4	C3	20/9/2014	Mid-Ebb	2.1
C1	23/09/2014	Mid-Ebb	7.1	C3	23/9/2014	Mid-Ebb	2.4
C1	25/9/2014	Mid-Ebb	7.6	C3	25/9/2014	Mid-Ebb	2.5
C1	27/9/2014	Mid-Ebb	7.3	C3	27/9/2014	Mid-Ebb	6.4
C1	30/9/2014	Mid-Ebb	4.0	C3	30/9/2014	Mid-Ebb	0.8
C1	02/10/2014	Mid-Ebb	4.1	C3	02/10/2014	Mid-Ebb	0.9
C1	04/10/2014	Mid-Ebb	3.4	C3	04/10/2014	Mid-Ebb	7.3
C1	07/10/2014	Mid-Ebb	9.9	C3	07/10/2014	Mid-Ebb	3.5
C1	09/10/2014	Mid-Ebb	13.9	C3	09/10/2014	Mid-Ebb	5.0
C1	11/10/2014	Mid-Ebb	9.3	C3	11/10/2014	Mid-Ebb	4.0
C1	14/10/2014	Mid-Ebb	3.5	C3	14/10/2014	Mid-Ebb	3.8
C1	16/10/2014	Mid-Ebb	1.5	C3	16/10/2014	Mid-Ebb	2.2
C1	18/10/2014	Mid-Ebb	3.0	C3	18/10/2014	Mid-Ebb	3.7
C1	21/10/2014	Mid-Ebb	3.9	C3	21/10/2014	Mid-Ebb	1.7
C2	24/07/2014	Mid-Ebb	0.6				
C2	26/07/2014	Mid-Ebb	4.3				
C2	29/07/2014	Mid-Ebb	1.0				
C2	31/07/2014	Mid-Ebb	1.1				
C2	02/08/2014	Mid-Ebb	1.0				
C2	05/08/2014	Mid-Ebb	1.1				
C2	07/08/2014	Mid-Ebb	1.0				
C2	09/08/2014	Mid-Ebb	4.0				
C2	12/08/2014	Mid-Ebb	5.0				
C2	14/08/2014	Mid-Ebb	2.9				
C2	16/8/2014	Mid-Ebb	1.9				
C2	19/08/2014	Mid-Ebb	0.5				
C2	21/8/2014	Mid-Ebb	2.9				
C2	23/08/2014	Mid-Ebb	1.5				
C2	26/08/2014	Mid-Ebb	1.4				
C2	28/8/2014	Mid-Ebb	2.8				
C2	30/8/2014	Mid-Ebb	5.1				
C2	02/09/2014	Mid-Ebb	4.1				
C2	04/09/2014	Mid-Ebb	0.9				
C2	06/09/2014	Mid-Ebb	2.0				
C2	09/09/2014	Mid-Ebb	2.9				
C2	11/09/2014	Mid-Ebb	2.2				
C2	13/9/2014	Mid-Ebb	2.1				
C2	16/9/2014	Mid-Ebb					
C2	18/09/2014	Mid-Ebb	2.7				
C2	20/9/2014	Mid-Ebb	0.8				
C2	23/9/2014	Mid-Ebb	1.7				
C2	25/9/2014	Mid-Ebb	1.9				
C2	27/9/2014	Mid-Ebb	3.7				
C2	30/9/2014	Mid-Ebb	3.7				
C2	02/10/2014	Mid-Ebb	6.6				
C2	04/09/2014	Mid-Ebb	0.9				
C2	07/10/2014	Mid-Ebb	9.6				
C2	09/10/2014	Mid-Ebb	4.5				
C2	11/10/2014	Mid-Ebb	13.4				
C2	14/10/2014	Mid-Ebb	6.2				
C2	16/10/2014	Mid-Ebb	10.3				
C2	18/10/2014	Mid-Ebb	3.6				
C2	21/10/2014	Mid-Ebb	5.9				

Impact											
SR6	24/07/2014	Mid-Ebb	1.2	SR8	24/07/2014	Mid-Ebb	1.0	SR10	24/07/2014	Mid-Ebb	1.4
SR6	26/07/2014	Mid-Ebb	4.1	SR8	26/07/2014	Mid-Ebb	0.7	SR10	26/07/2014	Mid-Ebb	1.2
SR6	29/07/2014	Mid-Ebb	2.4	SR8	29/07/2014	Mid-Ebb	1.1	SR10	29/07/2014	Mid-Ebb	1.7
SR6	31/07/2014	Mid-Ebb	1.5	SR8	31/07/2014	Mid-Ebb	0.5	SR10	31/07/2014	Mid-Ebb	1.1
SR6	02/08/2014	Mid-Ebb	0.5	SR8	02/08/2014	Mid-Ebb	0.7	SR10	02/08/2014	Mid-Ebb	0.6
SR6	05/08/2014	Mid-Ebb	2.8	SR8	05/08/2014	Mid-Ebb	1.1	SR10	05/08/2014	Mid-Ebb	1.5
SR6	07/08/2014	Mid-Ebb	1.4	SR8	07/08/2014	Mid-Ebb	0.7	SR10	07/08/2014	Mid-Ebb	1.5
SR6	09/08/2014	Mid-Ebb	2.9	SR8	09/08/2014	Mid-Ebb	2.3	SR10	09/08/2014	Mid-Ebb	2.7
SR6	12/08/2014	Mid-Ebb	4.3	SR8	12/08/2014	Mid-Ebb	5.0	SR10	12/08/2014	Mid-Ebb	3.7
SR6	14/08/2014	Mid-Ebb	4.2	SR8	14/08/2014	Mid-Ebb	4.8	SR10	14/08/2014	Mid-Ebb	3.7
SR6	16/8/2014	Mid-Ebb	3.8	SR8	16/8/2014	Mid-Ebb	1.9	SR10	16/8/2014	Mid-Ebb	2.7
SR6	19/08/2014	Mid-Ebb	0.7	SR8	19/08/2014	Mid-Ebb	0.6	SR10	19/08/2014	Mid-Ebb	0.9
SR6	21/8/2014	Mid-Ebb	1.3	SR8	21/8/2014	Mid-Ebb	0.8	SR10	21/8/2014	Mid-Ebb	0.8
SR6	23/08/2014	Mid-Ebb	1.3	SR8	23/08/2014	Mid-Ebb	1.1	SR10	23/08/2014	Mid-Ebb	1.1
SR6	26/08/2014	Mid-Ebb	4.2	SR8	26/08/2014	Mid-Ebb	0.1	SR10	26/08/2014	Mid-Ebb	1.0
SR6	28/8/2014	Mid-Ebb	3.4	SR8	28/8/2014	Mid-Ebb	1.2	SR10	28/8/2014	Mid-Ebb	2.1
SR6	30/8/2014	Mid-Ebb	3.7	SR8	30/8/2014	Mid-Ebb	3.6	SR10	30/8/2014	Mid-Ebb	4.2
SR6	02/09/2014	Mid-Ebb	4.3	SR8	02/09/2014	Mid-Ebb	1.9	SR10	02/09/2014	Mid-Ebb	1.7
SR6	04/09/2014	Mid-Ebb	1.3	SR8	04/09/2014	Mid-Ebb	1.1	SR10	04/09/2014	Mid-Ebb	0.8
SR6	06/09/2014	Mid-Ebb	2.6	SR8	06/09/2014	Mid-Ebb	2.5	SR10	06/09/2014	Mid-Ebb	2.5
SR6	09/09/2014	Mid-Ebb	3.8	SR8	09/09/2014	Mid-Ebb	2.1	SR10	09/09/2014	Mid-Ebb	3.1
SR6	11/09/2014	Mid-Ebb	7.9	SR8	11/09/2014	Mid-Ebb	4.0	SR10	11/09/2014	Mid-Ebb	3.7
SR6	13/9/2014	Mid-Ebb	1.4	SR8	13/9/2014	Mid-Ebb	2.5	SR10	13/9/2014	Mid-Ebb	1.4
SR6	16/9/2014	Mid-Ebb		SR8	16/9/2014	Mid-Ebb		SR10	16/9/2014	Mid-Ebb	
SR6	18/09/2014	Mid-Ebb	3.6	SR8	18/09/2014	Mid-Ebb	4.8	SR10	18/09/2014	Mid-Ebb	3.7
SR6	20/9/2014	Mid-Ebb	1	SR8	20/9/2014	Mid-Ebb	0.77	SR10	20/9/2014	Mid-Ebb	0.50
SR6	23/9/2014	Mid-Ebb	1.7	SR8	23/9/2014	Mid-Ebb	1.5	SR10	23/9/2014	Mid-Ebb	0.9
SR6	25/9/2014	Mid-Ebb	0.8	SR8	25/9/2014	Mid-Ebb	1.9	SR10	25/9/2014	Mid-Ebb	1.7
SR6	27/9/2014	Mid-Ebb	8.1	SR8	27/9/2014	Mid-Ebb	4.1	SR10	27/9/2014	Mid-Ebb	4.5
SR6	30/9/2014	Mid-Ebb	5.2	SR8	30/9/2014	Mid-Ebb	5.3	SR10	30/9/2014	Mid-Ebb	3.9
SR6	02/10/2014	Mid-Ebb	6.0	SR8	02/10/2014	Mid-Ebb	4.4	SR10	02/10/2014	Mid-Ebb	1.5
SR6	04/10/2014	Mid-Ebb	5.3	SR8	04/10/2014	Mid-Ebb	7.0	SR10	04/10/2014	Mid-Ebb	4.5
SR6	07/10/2014	Mid-Ebb	6.4	SR8	07/10/2014	Mid-Ebb	3.6	SR10	07/10/2014	Mid-Ebb	3.5
SR6	09/10/2014	Mid-Ebb	3.7	SR8	09/10/2014	Mid-Ebb	2.9	SR10	09/10/2014	Mid-Ebb	3.3
SR6	11/10/2014	Mid-Ebb	11.4	SR8	11/10/2014	Mid-Ebb	9.4	SR10	11/10/2014	Mid-Ebb	4.0
SR6	14/10/2014	Mid-Ebb	3.9	SR8	14/10/2014	Mid-Ebb	5.2	SR10	14/10/2014	Mid-Ebb	6.6
SR6	16/10/2014	Mid-Ebb	2.9	SR8	16/10/2014	Mid-Ebb	4.5	SR10	16/10/2014	Mid-Ebb	2.7
SR6	18/10/2014	Mid-Ebb	3.0	SR8	18/10/2014	Mid-Ebb	3.6	SR10	18/10/2014	Mid-Ebb	2.7
SR6	21/10/2014	Mid-Ebb	3.4	SR8	21/10/2014	Mid-Ebb	2.8	SR10	21/10/2014	Mid-Ebb	2.0
SR7	24/07/2014	Mid-Ebb	1.9	SR9	24/07/2014	Mid-Ebb	1.7	SR11	24/07/2014	Mid-Ebb	1.2
SR7	26/07/2014	Mid-Ebb	1.4	SR9	26/07/2014	Mid-Ebb	1.8	SR11	26/07/2014	Mid-Ebb	0.6
SR7	29/07/2014	Mid-Ebb	0.6	SR9	29/07/2014	Mid-Ebb	1.8	SR11	29/07/2014	Mid-Ebb	2.0
SR7	31/07/2014	Mid-Ebb	2.5	SR9	31/07/2014	Mid-Ebb	1.7	SR11	31/07/2014	Mid-Ebb	0.7
SR7	02/08/2014	Mid-Ebb	1.4	SR9	02/08/2014	Mid-Ebb	0.7	SR11	02/08/2014	Mid-Ebb	0.7
SR7	05/08/2014	Mid-Ebb	1.7	SR9	05/08/2014	Mid-Ebb	1.8	SR11	05/08/2014	Mid-Ebb	2.2
SR7	07/08/2014	Mid-Ebb	1.1	SR9	07/08/2014	Mid-Ebb	2.2	SR11	07/08/2014	Mid-Ebb	1.4
SR7	09/08/2014	Mid-Ebb	2.8	SR9	09/08/2014	Mid-Ebb	1.8	SR11	09/08/2014	Mid-Ebb	2.0
SR7	12/08/2014	Mid-Ebb	3.7	SR9	12/08/2014	Mid-Ebb	3.6	SR11	12/08/2014	Mid-Ebb	2.4
SR7	14/08/2014	Mid-Ebb	3.2	SR9	14/08/2014	Mid-Ebb	3.7	SR11	14/08/2014	Mid-Ebb	1.9
SR7	16/8/2014	Mid-Ebb	2.8	SR9	16/8/2014	Mid-Ebb	2.3	SR11	16/8/2014	Mid-Ebb	1.5
SR7	19/08/2014	Mid-Ebb	2.1	SR9	19/08/2014	Mid-Ebb	1.3	SR11	19/08/2014	Mid-Ebb	2.1
SR7	21/8/2014	Mid-Ebb	2.7	SR9	21/8/2014	Mid-Ebb	2.8	SR11	21/8/2014	Mid-Ebb	2.0
SR7	23/08/2014	Mid-Ebb	3.1	SR9	23/08/2014	Mid-Ebb	1.2	SR11	23/08/2014	Mid-Ebb	1.6
SR7	26/08/2014	Mid-Ebb	1.5	SR9	26/08/2014	Mid-Ebb	0.3	SR11	26/08/2014	Mid-Ebb	2.2
SR7	28/8/2014	Mid-Ebb	2.3	SR9	28/8/2014	Mid-Ebb	1.7	SR11	28/8/2014	Mid-Ebb	0.6
SR7	30/8/2014	Mid-Ebb	1.1	SR9	30/8/2014	Mid-Ebb	4.9	SR11	30/8/2014	Mid-Ebb	1.6
SR7	02/09/2014	Mid-Ebb	1.1	SR9	02/09/2014	Mid-Ebb	4.8	SR11	02/09/2014	Mid-Ebb	1.2
SR7	04/09/2014	Mid-Ebb	1.6	SR9	04/09/2014	Mid-Ebb	1.7	SR11	04/09/2014	Mid-Ebb	1.0
SR7	06/09/2014	Mid-Ebb	2.7	SR9	06/09/2014	Mid-Ebb	3.2	SR11	06/09/2014	Mid-Ebb	2.0
SR7	09/09/2014	Mid-Ebb	4.2	SR9	09/09/2014	Mid-Ebb	3.2	SR11	09/09/2014	Mid-Ebb	1.1
SR7	11/09/2014	Mid-Ebb	2.3	SR9	11/09/2014	Mid-Ebb	6.1	SR11	11/09/2014	Mid-Ebb	3.1
SR7	13/9/2014	Mid-Ebb	2.8	SR9	13/9/2014	Mid-Ebb	2.0	SR11	13/9/2014	Mid-Ebb	1.2
SR7	16/9/2014	Mid-Ebb		SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR7	18/09/2014	Mid-Ebb	3.9	SR9	18/09/2014	Mid-Ebb	3.3	SR11	18/09/2014	Mid-Ebb	2.2
SR7	20/9/2014	Mid-Ebb	3.93	SR9	20/9/2014	Mid-Ebb	1.82	SR11	20/9/2014	Mid-Ebb	1.13
SR7	23/9/2014	Mid-Ebb	1.7	SR9	23/9/2014	Mid-Ebb	1.4	SR11	23/9/2014	Mid-Ebb	1.7
SR7	25/9/2014	Mid-Ebb	5.3	SR9	25/9/2014	Mid-Ebb	2.5	SR11	25/9/2014	Mid-Ebb	1.8
SR7	27/9/2014	Mid-Ebb	3.4	SR9	27/9/2014	Mid-Ebb	5.5	SR11	27/9/2014	Mid-Ebb	3.3
SR7	30/9/2014	Mid-Ebb	7.0	SR9	30/9/2014	Mid-Ebb	4.5	SR11	30/9/2014	Mid-Ebb	4.6
SR7	02/10/2014	Mid-Ebb	4.4	SR9	02/10/2014	Mid-Ebb	1.8	SR11	02/10/2014	Mid-Ebb	3.0
SR7	04/10/2014	Mid-Ebb	3.7	SR9	04/10/2014	Mid-Ebb	5.1	SR11	04/10/2014	Mid-Ebb	4.9
SR7	07/10/2014	Mid-Ebb	2.7	SR9	07/10/2014	Mid-Ebb	5.8	SR11	07/10/2014	Mid-Ebb	1.2
SR7	09/10/2014	Mid-Ebb	4.3	SR9	09/10/2014	Mid-Ebb	4.0	SR11	09/10/2014	Mid-Ebb	2.3
SR7	11/10/2014	Mid-Ebb	4.1	SR9	11/10/2014	Mid-Ebb	9.7	SR11	11/10/2014	Mid-Ebb	2.1
SR7	14/10/2014	Mid-Ebb	2.3	SR9	14/10/2014	Mid-Ebb	5.9	SR11	14/10/2014	Mid-Ebb	2.3
SR7	16/10/2014	Mid-Ebb	3.3	SR9	16/10/2014	Mid-Ebb	5.4	SR11	16/10/2014	Mid-Ebb	3.0
SR7	18/10/2014	Mid-Ebb	2.2	SR9	18/10/2014	Mid-Ebb	6.1	SR11	18/10/2014	Mid-Ebb	2.8
SR7	21/10/2014	Mid-Ebb	2.0	SR9	21/10/2014	Mid-Ebb	5.1	SR11	21/10/2014	Mid-Ebb	3.5

Cluster 2 Turbidity
Control vs Impact

Impact		Control	
Raw Statistics		Raw Statistics	
Number of Valid Observations	456	Number of Valid Observations	228
Number of Missing Values	12	Number of Missing Values	6
Number of Distinct Observations	275	Number of Distinct Observations	193
Minimum	0.1	Minimum	0.333
Maximum	12.8	Maximum	20.33
Mean of Raw Data	2.807	Mean of Raw Data	4.309
Standard Deviation of Raw Data	1.853	Standard Deviation of Raw Data	3.155
Kstar	2.506	Kstar	2.024
Mean of Log Transformed Data	0.821	Mean of Log Transformed Data	1.197
Standard Deviation of Log Transformed Data	0.68	Standard Deviation of Log Transformed Data	0.774
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.939	Correlation Coefficient R	0.927
Approximate Shapiro Wilk Test Statistic	0.879	Approximate Shapiro Wilk Test Statistic	0.86
Approximate Shapiro Wilk P Value	0	Approximate Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.105	Lilliefors Test Statistic	0.15
Lilliefors Critical (0.95) Value	0.0415	Lilliefors Critical (0.95) Value	0.0587
Data not Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Greater Than or Equal to Background Mean/Median (Form 2)
Alternative Hypothesis	Site or AOC Mean/Median Less Than Background Mean/Median

Area of Concern Data: Impact
Background Data: Control

Raw Statistics

	Site	Background
Number of Valid Observations	456	228
Number of Missing Values	12	6
Number of Distinct Observations	275	193
Minimum	0.1	0.333
Maximum	12.8	20.33
Mean	2.807	4.309
Median	2.333	3.625
SD	1.853	3.155
SE of Mean	0.0868	0.209

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC >= Mean/Median of Background

Site Rank Sum W-Stat	140335
WMW Test U-Stat	-6.504
WMW Critical Value (0.050)	-1.645
P-Value	3.91E-11

Conclusion with Alpha = 0.05
Reject H0, Conclude Site < Background
P-Value < alpha (0.05)

Cluster 1 TIN(Insitu)
1.3 x Baseline vs Impact

1.3 x Baseline TIN (Insitu) (mg/L) data			
SR5	04/01/2014	Mid-Flood	0.38
SR5	07/01/2014	Mid-Flood	0.48
SR5	09/01/2014	Mid-Flood	0.51
SR5	11/01/2014	Mid-Flood	0.66
SR5	14/01/2014	Mid-Flood	0.54
SR5	16/01/2014	Mid-Flood	0.43
SR5	18/01/2014	Mid-Flood	0.44
SR5	21/01/2014	Mid-Flood	0.40
SR5	23/01/2014	Mid-Flood	0.49
SR5	25/01/2014	Mid-Flood	0.70
SR5	27/01/2014	Mid-Flood	0.61
SR5	29/01/2014	Mid-Flood	0.49

Impact TIN (Insitu) (mg/L) data			
SR5	24/07/2014	Mid-Flood	1.52
SR5	26/07/2014	Mid-Flood	0.95
SR5	29/07/2014	Mid-Flood	0.93
SR5	31/07/2014	Mid-Flood	0.94
SR5	02/08/2014	Mid-Flood	0.44
SR5	05/08/2014	Mid-Flood	0.35
SR5	07/08/2014	Mid-Flood	0.91
SR5	09/08/2014	Mid-Flood	0.75
SR5	12/08/2014	Mid-Flood	0.77
SR5	14/08/2014	Mid-Flood	0.83
SR5	16/8/2014	Mid-Flood	0.95
SR5	19/08/2014	Mid-Flood	0.81
SR5	21/8/2014	Mid-Flood	2.02
SR5	23/08/2014	Mid-Flood	1.99
SR5	26/08/2014	Mid-Flood	1.03
SR5	28/8/2014	Mid-Flood	0.96
SR5	30/8/2014	Mid-Flood	1.00
SR5	02/09/2014	Mid-Flood	1.11
SR5	04/09/2014	Mid-Flood	1.49
SR5	06/09/2014	Mid-Flood	1.36
SR5	09/09/2014	Mid-Flood	1.37
SR5	11/09/2014	Mid-Flood	1.05
SR5	13/9/2014	Mid-Flood	1.26
SR5	16/9/2014	Mid-Flood	
SR5	18/09/2014	Mid-Flood	1.05
SR5	20/9/2014	Mid-Flood	2
SR5	23/9/2014	Mid-Flood	1.20
SR5	25/9/2014	Mid-Flood	0.83
SR5	27/9/2014	Mid-Flood	0.93
SR5	30/9/2014	Mid-Flood	1.38
SR5	02/10/2014	Mid-Flood	1.60
SR5	04/10/2014	Mid-Flood	1.17
SR5	07/10/2014	Mid-Flood	0.90
SR5	09/10/2014	Mid-Flood	0.91
SR5	11/10/2014	Mid-Flood	0.57
SR5	14/10/2014	Mid-Flood	0.53
SR5	16/10/2014	Mid-Flood	0.89
SR5	18/10/2014	Mid-Flood	0.88
SR5	21/10/2014	Mid-Flood	0.92

Cluster 1 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline (Insitu) x 1.3		Impact (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	12	Number of Valid Observations	38
Number of Distinct Observations	11	Number of Missing Values	1
Minimum	0.38	Number of Distinct Observations	37
Maximum	0.7	Minimum	0.348
Mean of Raw Data	0.511	Maximum	2.227
Standard Deviation of Raw Data	0.101	Mean of Raw Data	1.073
Kstar	22.13	Standard Deviation of Raw Data	0.41
Mean of Log Transformed Data	-0.689	Kstar	6.804
Standard Deviation of Log Transformed Data	0.191	Mean of Log Transformed Data	0.00127
		Standard Deviation of Log Transformed Data	0.384
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.971		
Shapiro Wilk Test Statistic	0.933	Correlation Coefficient R	0.953
Shapiro Wilk Critical (0.95) Value	0.859	Shapiro Wilk Test Statistic	0.912
Approximate Shapiro Wilk P Value	0.453	Shapiro Wilk Critical (0.95) Value	0.938
Lilliefors Test Statistic	0.17	Approximate Shapiro Wilk P Value	0.00586
Lilliefors Critical (0.95) Value	0.256	Lilliefors Test Statistic	0.182
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.144
		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Baseline (Insitu) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	38	12
Number of Missing Values	1	0
Number of Distinct Observations	37	11
Minimum	0.348	0.38
Maximum	2.227	0.7
Mean	1.073	0.511
Median	0.948	0.49
SD	0.41	0.101
SE of Mean	0.0664	0.0291

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	1170
WMW Test U-Stat	4.554
WMW Critical Value (0.050)	1.645
P-Value	2.63E-06

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 1 TIN (Insitu)
Impact vs Gradient

Gradient TIN (Insitu) (mg/L) data							
G2	24/07/2014	Mid-Flood	1.32	G4	24/07/2014	Mid-Flood	0.87
G2	26/07/2014	Mid-Flood	1.30	G4	26/07/2014	Mid-Flood	0.72
G2	29/07/2014	Mid-Flood	1.06	G4	29/07/2014	Mid-Flood	0.72
G2	31/07/2014	Mid-Flood	0.94	G4	31/07/2014	Mid-Flood	0.75
G2	02/08/2014	Mid-Flood	0.42	G4	02/08/2014	Mid-Flood	1.05
G2	05/08/2014	Mid-Flood	0.29	G4	05/08/2014	Mid-Flood	0.43
G2	07/08/2014	Mid-Flood	0.76	G4	07/08/2014	Mid-Flood	0.63
G2	09/08/2014	Mid-Flood	0.38	G4	09/08/2014	Mid-Flood	0.44
G2	12/08/2014	Mid-Flood	0.73	G4	12/08/2014	Mid-Flood	0.53
G2	14/08/2014	Mid-Flood	1.02	G4	14/08/2014	Mid-Flood	0.88
G2	16/8/2014	Mid-Flood	0.52	G4	16/8/2014	Mid-Flood	0.51
G2	19/08/2014	Mid-Flood	0.83	G4	19/08/2014	Mid-Flood	0.76
G2	21/8/2014	Mid-Flood	1.18	G4	21/8/2014	Mid-Flood	0.97
G2	23/08/2014	Mid-Flood	1.88	G4	23/08/2014	Mid-Flood	0.95
G2	26/08/2014	Mid-Flood	0.70	G4	26/08/2014	Mid-Flood	0.75
G2	28/8/2014	Mid-Flood	1.01	G4	28/8/2014	Mid-Flood	0.73
G2	30/8/2014	Mid-Flood	1.15	G4	30/8/2014	Mid-Flood	0.68
G2	02/09/2014	Mid-Flood	1.07	G4	02/09/2014	Mid-Flood	1.31
G2	04/09/2014	Mid-Flood	1.14	G4	04/09/2014	Mid-Flood	0.66
G2	06/09/2014	Mid-Flood	1.06	G4	06/09/2014	Mid-Flood	0.85
G2	09/09/2014	Mid-Flood	1.20	G4	09/09/2014	Mid-Flood	0.61
G2	11/09/2014	Mid-Flood	1.43	G4	11/09/2014	Mid-Flood	0.81
G2	13/9/2014	Mid-Flood	1.23	G4	13/9/2014	Mid-Flood	0.83
G2	16/9/2014	Mid-Flood		G4	16/9/2014	Mid-Flood	
G2	18/09/2014	Mid-Flood	1.43	G4	18/09/2014	Mid-Flood	0.81
G2	20/9/2014	Mid-Flood	1.96	G4	20/9/2014	Mid-Flood	0.80
G2	23/9/2014	Mid-Flood	1.05	G4	23/9/2014	Mid-Flood	1.08
G2	25/9/2014	Mid-Flood	0.79	G4	25/9/2014	Mid-Flood	0.62
G2	27/9/2014	Mid-Flood	1.33	G4	27/9/2014	Mid-Flood	0.81
G2	30/9/2014	Mid-Flood	1.03	G4	30/9/2014	Mid-Flood	1.05
G2	02/10/2014	Mid-Flood	1.34	G4	02/10/2014	Mid-Flood	0.66
G2	04/10/2014	Mid-Flood	1.09	G4	04/10/2014	Mid-Flood	0.61
G2	07/10/2014	Mid-Flood	0.66	G4	07/10/2014	Mid-Flood	0.55
G2	09/10/2014	Mid-Flood	0.92	G4	09/10/2014	Mid-Flood	0.54
G2	11/10/2014	Mid-Flood	0.47	G4	11/10/2014	Mid-Flood	0.42
G2	14/10/2014	Mid-Flood	0.55	G4	14/10/2014	Mid-Flood	0.38
G2	16/10/2014	Mid-Flood	0.88	G4	16/10/2014	Mid-Flood	0.65
G2	18/10/2014	Mid-Flood	0.80	G4	18/10/2014	Mid-Flood	0.72
G2	21/10/2014	Mid-Flood	0.72	G4	21/10/2014	Mid-Flood	0.64
G3	24/07/2014	Mid-Flood	1.12				
G3	26/07/2014	Mid-Flood	0.87				
G3	29/07/2014	Mid-Flood	0.75				
G3	31/07/2014	Mid-Flood	0.69				
G3	02/08/2014	Mid-Flood	0.38				
G3	05/08/2014	Mid-Flood	0.38				
G3	07/08/2014	Mid-Flood	1.00				
G3	09/08/2014	Mid-Flood	0.84				
G3	12/08/2014	Mid-Flood	0.52				
G3	14/08/2014	Mid-Flood	0.97				
G3	16/8/2014	Mid-Flood	0.46				
G3	19/08/2014	Mid-Flood	0.82				
G3	21/8/2014	Mid-Flood	0.94				
G3	23/08/2014	Mid-Flood	0.82				
G3	26/08/2014	Mid-Flood	0.87				
G3	28/8/2014	Mid-Flood	0.96				
G3	30/8/2014	Mid-Flood	0.89				
G3	02/09/2014	Mid-Flood	1.14				
G3	04/09/2014	Mid-Flood	0.46				
G3	06/09/2014	Mid-Flood	0.74				
G3	09/09/2014	Mid-Flood	0.65				
G3	11/09/2014	Mid-Flood	1.09				
G3	13/9/2014	Mid-Flood	0.84				
G3	16/9/2014	Mid-Flood					
G3	18/09/2014	Mid-Flood	1.09				
G3	20/9/2014	Mid-Flood	0.77				
G3	23/9/2014	Mid-Flood	0.77				
G3	25/9/2014	Mid-Flood	0.61				
G3	27/9/2014	Mid-Flood	1.08				
G3	30/9/2014	Mid-Flood	1.07				
G3	02/10/2014	Mid-Flood	1.17				
G3	04/10/2014	Mid-Flood	0.70				
G3	07/10/2014	Mid-Flood	0.53				
G3	09/10/2014	Mid-Flood	0.64				
G3	11/10/2014	Mid-Flood	0.45				
G3	14/10/2014	Mid-Flood	0.48				
G3	16/10/2014	Mid-Flood	0.75				
G3	18/10/2014	Mid-Flood	0.79				
G3	21/10/2014	Mid-Flood	0.61				

Impact TIN (Insitu) (mg/L) data			
SR5	24/07/2014	Mid-Flood	1.52
SR5	26/07/2014	Mid-Flood	0.95
SR5	29/07/2014	Mid-Flood	0.93
SR5	31/07/2014	Mid-Flood	0.94
SR5	02/08/2014	Mid-Flood	0.44
SR5	05/08/2014	Mid-Flood	0.35
SR5	07/08/2014	Mid-Flood	0.91
SR5	09/08/2014	Mid-Flood	0.75
SR5	12/08/2014	Mid-Flood	0.77
SR5	14/08/2014	Mid-Flood	0.83
SR5	16/8/2014	Mid-Flood	0.95
SR5	19/08/2014	Mid-Flood	0.81
SR5	21/8/2014	Mid-Flood	2.02
SR5	23/08/2014	Mid-Flood	1.99
SR5	26/08/2014	Mid-Flood	1.03
SR5	28/8/2014	Mid-Flood	0.96
SR5	30/8/2014	Mid-Flood	1.00
SR5	02/09/2014	Mid-Flood	1.11
SR5	04/09/2014	Mid-Flood	1.49
SR5	06/09/2014	Mid-Flood	1.36
SR5	09/09/2014	Mid-Flood	1.37
SR5	11/09/2014	Mid-Flood	1.05
SR5	13/9/2014	Mid-Flood	1.26
SR5	16/9/2014	Mid-Flood	
SR5	18/09/2014	Mid-Flood	1.05
SR5	20/9/2014	Mid-Flood	2
SR5	23/9/2014	Mid-Flood	1.20
SR5	25/9/2014	Mid-Flood	0.83
SR5	27/9/2014	Mid-Flood	0.93
SR5	30/9/2014	Mid-Flood	1.38
SR5	02/10/2014	Mid-Flood	1.60
SR5	04/10/2014	Mid-Flood	1.17
SR5	07/10/2014	Mid-Flood	0.90
SR5	09/10/2014	Mid-Flood	0.91
SR5	11/10/2014	Mid-Flood	0.57
SR5	14/10/2014	Mid-Flood	0.53
SR5	16/10/2014	Mid-Flood	0.889
SR5	18/10/2014	Mid-Flood	0.88
SR5	21/10/2014	Mid-Flood	0.92

Cluster 1 TIN (Insitu)
Impact vs Gradient

Impact (Insitu)		Gradient (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	38	Number of Valid Observations	114
Number of Missing Values	1	Number of Missing Values	3
Number of Distinct Observations	37	Number of Distinct Observations	110
Minimum	0.348	Minimum	0.29
Maximum	2.227	Maximum	1.961
Mean of Raw Data	1.073	Mean of Raw Data	0.834
Standard Deviation of Raw Data	0.41	Standard Deviation of Raw Data	0.297
Kstar	6.804	Kstar	7.96
Mean of Log Transformed Data	0.00127	Mean of Log Transformed Data	-0.243
Standard Deviation of Log Transformed Data	0.384	Standard Deviation of Log Transformed Data	0.36
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.953	Correlation Coefficient R	0.975
Shapiro Wilk Test Statistic	0.912	Approximate Shapiro Wilk Test Statistic	0.95
Shapiro Wilk Critical (0.95) Value	0.938	Approximate Shapiro Wilk P Value	0.000987
Approximate Shapiro Wilk P Value	0.00586	Lilliefors Test Statistic	0.0803
Lilliefors Test Statistic	0.182	Lilliefors Critical (0.95) Value	0.083
Lilliefors Critical (0.95) Value	0.144	Data appear Normal at (0.05) Significance Level	
Data not Normal at (0.05) Significance Level			

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	0.95
Substantial Difference	0%
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Gradient (Insitu)

Raw Statistics

	Site	Background
Number of Valid Observations	38	114
Number of Missing Values	1	3
Number of Distinct Observations	37	110
Minimum	0.348	0.29
Maximum	2.227	1.961
Mean	1.073	0.834
Median	0.948	0.8
SD	0.41	0.297
SE of Mean	0.0664	0.0279

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	3735
WMW Test U-Stat	3.521
WMW Critical Value (0.050)	1.645
P-Value	0.000215

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 1 TIN(lab)
1.3 x Baseline vs Impact

1.3 x Baseline TIN (lab) (mg/L) data			
SR5	04/01/2014	Mid-Flood	0.29
SR5	07/01/2014	Mid-Flood	0.32
SR5	09/01/2014	Mid-Flood	0.29
SR5	11/01/2014	Mid-Flood	0.32
SR5	14/01/2014	Mid-Flood	0.21
SR5	16/01/2014	Mid-Flood	0.26
SR5	18/01/2014	Mid-Flood	0.36
SR5	21/01/2014	Mid-Flood	0.20
SR5	23/01/2014	Mid-Flood	0.34
SR5	25/01/2014	Mid-Flood	0.29
SR5	27/01/2014	Mid-Flood	0.25
SR5	29/01/2014	Mid-Flood	0.40

Impact TIN (lab) (mg/L) data			
SR5	24/07/2014	Mid-Flood	1.05
SR5	26/07/2014	Mid-Flood	1.04
SR5	29/07/2014	Mid-Flood	0.66
SR5	31/07/2014	Mid-Flood	0.77
SR5	02/08/2014	Mid-Flood	0.76
SR5	05/08/2014	Mid-Flood	0.94
SR5	07/08/2014	Mid-Flood	1.02
SR5	09/08/2014	Mid-Flood	1.04
SR5	12/08/2014	Mid-Flood	0.48
SR5	14/08/2014	Mid-Flood	0.64
SR5	16/8/2014	Mid-Flood	0.87
SR5	19/08/2014	Mid-Flood	1.45
SR5	21/8/2014	Mid-Flood	1.16
SR5	23/08/2014	Mid-Flood	1.43
SR5	26/08/2014	Mid-Flood	0.97
SR5	28/8/2014	Mid-Flood	0.58
SR5	30/8/2014	Mid-Flood	0.63
SR5	02/09/2014	Mid-Flood	0.65
SR5	04/09/2014	Mid-Flood	1.11
SR5	06/09/2014	Mid-Flood	0.69
SR5	09/09/2014	Mid-Flood	0.76
SR5	11/09/2014	Mid-Flood	0.59
SR5	13/9/2014	Mid-Flood	0.68
SR5	16/9/2014	Mid-Flood	
SR5	18/09/2014	Mid-Flood	1.10
SR5	20/9/2014	Mid-Flood	1
SR5	23/9/2014	Mid-Flood	0.31
SR5	25/9/2014	Mid-Flood	0.40
SR5	27/9/2014	Mid-Flood	0.47
SR5	30/9/2014	Mid-Flood	0.59
SR5	02/10/2014	Mid-Flood	0.71
SR5	04/10/2014	Mid-Flood	0.64
SR5	07/10/2014	Mid-Flood	0.42
SR5	09/10/2014	Mid-Flood	0.42
SR5	11/10/2014	Mid-Flood	0.41
SR5	14/10/2014	Mid-Flood	0.26
SR5	16/10/2014	Mid-Flood	0.37
SR5	18/10/2014	Mid-Flood	0.33
SR5	21/10/2014	Mid-Flood	0.36

Cluster 1 TIN(lab)
1.3 x Baseline vs Impact

Baseline (lab) x 1.3		Impact (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	12	Number of Valid Observations	38
Number of Distinct Observations	11	Number of Missing Values	1
Minimum	0.26	Number of Distinct Observations	38
Maximum	0.52	Minimum	0.262
Mean of Raw Data	0.383	Maximum	1.452
Standard Deviation of Raw Data	0.0759	Mean of Raw Data	0.73
Kstar	20.23	Standard Deviation of Raw Data	0.307
Mean of Log Transformed Data	-0.98	Kstar	5.246
Standard Deviation of Log Transformed Data	0.204	Mean of Log Transformed Data	-0.406
		Standard Deviation of Log Transformed Data	0.441
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.995		
Shapiro Wilk Test Statistic	0.986	Correlation Coefficient R	0.978
Shapiro Wilk Critical (0.95) Value	0.859	Shapiro Wilk Test Statistic	0.945
Approximate Shapiro Wilk P Value	0.995	Shapiro Wilk Critical (0.95) Value	0.938
Lilliefors Test Statistic	0.101	Approximate Shapiro Wilk P Value	0.0821
Lilliefors Critical (0.95) Value	0.256	Lilliefors Test Statistic	0.109
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.144
		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0
Selected Null Hypothesis	Site or AOC Mean Less Than or Equal to Background Mean (Form 1)
Alternative Hypothesis	Site or AOC Mean Greater Than the Background Mean

Area of Concern Data: Impact (Lab)
Background Data: Baseline (lab) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	38	12
Number of Missing Values	1	0
Number of Distinct Observations	38	11
Minimum	0.262	0.26
Maximum	1.452	0.52
Mean	0.73	0.383
Median	0.672	0.38
SD	0.307	0.0759
SE of Mean	0.0499	0.0219

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	48	3.853	1.677	0
Satterthwaite (Unequal Variance)	46.8	6.38E+00	1.678	0

Pooled SD 0.272
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Reject H0, Conclude Site > Background
* Satterthwaite Test: Reject H0, Conclude Site > Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
37	11	16.385	0

Conclusion with Alpha = 0.05
* Two variances are not equal

Cluster 1 TIN (Lab)
Impact vs Gradient

Gradient TIN (lab) (mg/L) data							
G2	24/07/2014	Mid-Flood	0.95	G4	24/07/2014	Mid-Flood	0.71
G2	26/07/2014	Mid-Flood	0.92	G4	26/07/2014	Mid-Flood	0.52
G2	29/07/2014	Mid-Flood	0.67	G4	29/07/2014	Mid-Flood	0.55
G2	31/07/2014	Mid-Flood	0.69	G4	31/07/2014	Mid-Flood	0.55
G2	02/08/2014	Mid-Flood	0.58	G4	02/08/2014	Mid-Flood	0.61
G2	05/08/2014	Mid-Flood	0.78	G4	05/08/2014	Mid-Flood	0.32
G2	07/08/2014	Mid-Flood	0.68	G4	07/08/2014	Mid-Flood	0.19
G2	09/08/2014	Mid-Flood	0.94	G4	09/08/2014	Mid-Flood	0.46
G2	12/08/2014	Mid-Flood	0.62	G4	12/08/2014	Mid-Flood	0.48
G2	14/08/2014	Mid-Flood	0.88	G4	14/08/2014	Mid-Flood	0.54
G2	16/8/2014	Mid-Flood	0.88	G4	16/8/2014	Mid-Flood	0.59
G2	19/08/2014	Mid-Flood	1.21	G4	19/08/2014	Mid-Flood	0.61
G2	21/8/2014	Mid-Flood	0.78	G4	21/8/2014	Mid-Flood	0.44
G2	23/08/2014	Mid-Flood	1.18	G4	23/08/2014	Mid-Flood	0.52
G2	26/08/2014	Mid-Flood	0.91	G4	26/08/2014	Mid-Flood	0.57
G2	28/8/2014	Mid-Flood	0.60	G4	28/8/2014	Mid-Flood	0.50
G2	30/8/2014	Mid-Flood	0.70	G4	30/8/2014	Mid-Flood	0.48
G2	02/09/2014	Mid-Flood	0.66	G4	02/09/2014	Mid-Flood	0.88
G2	04/09/2014	Mid-Flood	0.86	G4	04/09/2014	Mid-Flood	0.58
G2	06/09/2014	Mid-Flood	0.54	G4	06/09/2014	Mid-Flood	0.41
G2	09/09/2014	Mid-Flood	0.67	G4	09/09/2014	Mid-Flood	0.43
G2	11/09/2014	Mid-Flood	0.73	G4	11/09/2014	Mid-Flood	0.51
G2	13/9/2014	Mid-Flood	1.42	G4	13/9/2014	Mid-Flood	0.94
G2	16/9/2014	Mid-Flood		G4	16/9/2014	Mid-Flood	
G2	18/09/2014	Mid-Flood	0.88	G4	18/09/2014	Mid-Flood	0.44
G2	20/9/2014	Mid-Flood	0.62	G4	20/9/2014	Mid-Flood	0.45
G2	23/9/2014	Mid-Flood	0.26	G4	23/9/2014	Mid-Flood	0.32
G2	25/9/2014	Mid-Flood	0.46	G4	25/9/2014	Mid-Flood	0.44
G2	27/9/2014	Mid-Flood	0.60	G4	27/9/2014	Mid-Flood	0.41
G2	30/9/2014	Mid-Flood	0.62	G4	30/9/2014	Mid-Flood	0.54
G2	02/10/2014	Mid-Flood	0.68	G4	02/10/2014	Mid-Flood	0.41
G2	04/10/2014	Mid-Flood	0.61	G4	04/10/2014	Mid-Flood	0.42
G2	07/10/2014	Mid-Flood	0.30	G4	07/10/2014	Mid-Flood	0.37
G2	09/10/2014	Mid-Flood	0.43	G4	09/10/2014	Mid-Flood	0.30
G2	11/10/2014	Mid-Flood	0.43	G4	11/10/2014	Mid-Flood	0.41
G2	14/10/2014	Mid-Flood	0.26	G4	14/10/2014	Mid-Flood	0.57
G2	16/10/2014	Mid-Flood	0.32	G4	16/10/2014	Mid-Flood	0.25
G2	18/10/2014	Mid-Flood	0.28	G4	18/10/2014	Mid-Flood	0.33
G2	21/10/2014	Mid-Flood	0.32	G4	21/10/2014	Mid-Flood	0.47
G3	24/07/2014	Mid-Flood	0.77				
G3	26/07/2014	Mid-Flood	0.55				
G3	29/07/2014	Mid-Flood	0.41				
G3	31/07/2014	Mid-Flood	0.55				
G3	02/08/2014	Mid-Flood	0.49				
G3	05/08/2014	Mid-Flood	0.32				
G3	07/08/2014	Mid-Flood	0.30				
G3	09/08/2014	Mid-Flood	0.37				
G3	12/08/2014	Mid-Flood	0.61				
G3	14/08/2014	Mid-Flood	0.61				
G3	16/8/2014	Mid-Flood	0.84				
G3	19/08/2014	Mid-Flood	0.74				
G3	21/8/2014	Mid-Flood	0.48				
G3	23/08/2014	Mid-Flood	0.52				
G3	26/08/2014	Mid-Flood	0.44				
G3	28/8/2014	Mid-Flood	0.54				
G3	30/8/2014	Mid-Flood	0.55				
G3	02/09/2014	Mid-Flood	0.55				
G3	04/09/2014	Mid-Flood	0.44				
G3	06/09/2014	Mid-Flood	0.34				
G3	09/09/2014	Mid-Flood	0.43				
G3	11/09/2014	Mid-Flood	0.60				
G3	13/9/2014	Mid-Flood	0.98				
G3	16/9/2014	Mid-Flood					
G3	18/09/2014	Mid-Flood	0.50				
G3	20/9/2014	Mid-Flood	0.49				
G3	23/9/2014	Mid-Flood	0.21				
G3	25/9/2014	Mid-Flood	0.35				
G3	27/9/2014	Mid-Flood	0.49				
G3	30/9/2014	Mid-Flood	0.56				
G3	02/10/2014	Mid-Flood	0.51				
G3	04/10/2014	Mid-Flood	0.39				
G3	07/10/2014	Mid-Flood	0.22				
G3	09/10/2014	Mid-Flood	0.26				
G3	11/10/2014	Mid-Flood	0.33				
G3	14/10/2014	Mid-Flood	0.21				
G3	16/10/2014	Mid-Flood	0.26				
G3	18/10/2014	Mid-Flood	0.35				
G3	21/10/2014	Mid-Flood	0.22				

Impact TIN (lab) (mg/L) data			
SR5	24/04/2014	Mid-Flood	0.36
SR5	26/04/2014	Mid-Flood	0.55
SR5	29/04/2014	Mid-Flood	0.74
SR5	01/05/2014	Mid-Flood	0.63
SR5	03/05/2014	Mid-Flood	0.44
SR5	06/05/2014	Mid-Flood	0.40
SR5	08/05/2014	Mid-Flood	0.41
SR5	10/05/2014	Mid-Flood	0.68
SR5	13/05/2014	Mid-Flood	0.00
SR5	15/05/2014	Mid-Flood	1.39
SR5	17/05/2014	Mid-Flood	1.60
SR5	20/05/2014	Mid-Flood	0.91
SR5	22/05/2014	Mid-Flood	1.92
SR5	24/05/2014	Mid-Flood	1.10
SR5	27/05/2014	Mid-Flood	1.35
SR5	29/05/2014	Mid-Flood	1.10
SR5	31/05/2014	Mid-Flood	0.98
SR5	03/06/2014	Mid-Flood	0.99
SR5	05/06/2014	Mid-Flood	1.00
SR5	07/06/2014	Mid-Flood	0.96
SR5	10/06/2014	Mid-Flood	0.65
SR5	12/06/2014	Mid-Flood	0.73
SR5	14/06/2014	Mid-Flood	0.78
SR5	17/6/2014	Mid-Flood	0.81
SR5	19/06/2014	Mid-Flood	0.98
SR5	21/06/2014	Mid-Flood	
SR5	24/06/2014	Mid-Flood	1.25
SR5	26/06/2014	Mid-Flood	1.28
SR5	28/06/2014	Mid-Flood	1.06
SR5	01/07/2014	Mid-Flood	1.01
SR5	03/07/2014	Mid-Flood	1.23
SR5	05/07/2014	Mid-Flood	1.38
SR5	08/07/2014	Mid-Flood	0.98
SR5	10/07/2014	Mid-Flood	0.96
SR5	12/07/2014	Mid-Flood	1.07
SR5	15/07/2014	Mid-Flood	0.80
SR5	17/07/2014	Mid-Flood	0.88
SR5	19/07/2014	Mid-Flood	0.71
SR5	22/07/2014	Mid-Flood	1.05

Cluster 1 TIN (Lab)
Impact vs Gradient

Impact (Lab)		Gradient (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	38	Number of Valid Observations	114
Number of Missing Values	1	Number of Missing Values	3
Number of Distinct Observations	38	Number of Distinct Observations	111
Minimum	0.262	Minimum	0.192
Maximum	1.452	Maximum	1.421
Mean of Raw Data	0.73	Mean of Raw Data	0.546
Standard Deviation of Raw Data	0.307	Standard Deviation of Raw Data	0.224
Kstar	5.246	Kstar	6.238
Mean of Log Transformed Data	-0.406	Mean of Log Transformed Data	-0.686
Standard Deviation of Log Transformed Data	0.441	Standard Deviation of Log Transformed Data	0.406
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.978	Correlation Coefficient R	0.966
Shapiro Wilk Test Statistic	0.945	Approximate Shapiro Wilk Test Statistic	0.93
Shapiro Wilk Critical (0.95) Value	0.938	Approximate Shapiro Wilk P Value	3.62E-06
Approximate Shapiro Wilk P Value	0.0821	Lilliefors Test Statistic	0.119
Lilliefors Test Statistic	0.109	Lilliefors Critical (0.95) Value	0.083
Lilliefors Critical (0.95) Value	0.144	Data not Normal at (0.05) Significance Level	
Data appear Normal at (0.05) Significance Level			

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Gradient (Lab)

Raw Statistics

	Site	Background
Number of Valid Observations	38	114
Number of Missing Values	1	3
Number of Distinct Observations	38	111
Minimum	0.262	0.192
Maximum	1.452	1.421
Mean	0.73	0.546
Median	0.672	0.518
SD	0.307	0.224
SE of Mean	0.0499	0.021

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	3696
WMW Test U-Stat	3.353
WMW Critical Value (0.050)	1.645
P-Value	4.00E-04

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline x 1.3 TIN (Insitu) (mg/L)			
SR9	04/01/2014	Mid-Ebb	0.09
SR9	07/01/2014	Mid-Ebb	0.46
SR9	09/01/2014	Mid-Ebb	0.35
SR9	11/01/2014	Mid-Ebb	0.40
SR9	14/01/2014	Mid-Ebb	0.34
SR9	16/01/2014	Mid-Ebb	0.40
SR9	18/01/2014	Mid-Ebb	0.24
SR9	21/01/2014	Mid-Ebb	0.28
SR9	23/01/2014	Mid-Ebb	0.17
SR9	25/01/2014	Mid-Ebb	0.20
SR9	27/01/2014	Mid-Ebb	0.11
SR9	29/01/2014	Mid-Ebb	0.14
SR10	04/01/2014	Mid-Ebb	0.26
SR10	07/01/2014	Mid-Ebb	0.49
SR10	09/01/2014	Mid-Ebb	0.30
SR10	11/01/2014	Mid-Ebb	0.32
SR10	14/01/2014	Mid-Ebb	0.29
SR10	16/01/2014	Mid-Ebb	0.30
SR10	18/01/2014	Mid-Ebb	0.29
SR10	21/01/2014	Mid-Ebb	0.29
SR10	23/01/2014	Mid-Ebb	0.20
SR10	25/01/2014	Mid-Ebb	0.29
SR10	27/01/2014	Mid-Ebb	0.15
SR10	29/01/2014	Mid-Ebb	0.20
SR11	04/01/2014	Mid-Ebb	0.23
SR11	07/01/2014	Mid-Ebb	0.51
SR11	09/01/2014	Mid-Ebb	0.26
SR11	11/01/2014	Mid-Ebb	0.33
SR11	14/01/2014	Mid-Ebb	0.26
SR11	16/01/2014	Mid-Ebb	0.26
SR11	18/01/2014	Mid-Ebb	0.26
SR11	21/01/2014	Mid-Ebb	0.23
SR11	23/01/2014	Mid-Ebb	0.17
SR11	25/01/2014	Mid-Ebb	0.23
SR11	27/01/2014	Mid-Ebb	0.14
SR11	29/01/2014	Mid-Ebb	0.20

Impact TIN (Insitu) (mg/L)							
SR9	24/07/2014	Mid-Ebb	0.46	SR11	24/07/2014	Mid-Ebb	0.45
SR9	26/07/2014	Mid-Ebb	0.32	SR11	26/07/2014	Mid-Ebb	0.17
SR9	29/07/2014	Mid-Ebb	0.23	SR11	29/07/2014	Mid-Ebb	0.16
SR9	31/07/2014	Mid-Ebb	0.24	SR11	31/07/2014	Mid-Ebb	0.22
SR9	02/08/2014	Mid-Ebb	0.27	SR11	02/08/2014	Mid-Ebb	0.22
SR9	05/08/2014	Mid-Ebb	0.28	SR11	05/08/2014	Mid-Ebb	0.15
SR9	07/08/2014	Mid-Ebb	0.15	SR11	07/08/2014	Mid-Ebb	0.29
SR9	09/08/2014	Mid-Ebb	0.37	SR11	09/08/2014	Mid-Ebb	0.39
SR9	12/08/2014	Mid-Ebb	0.35	SR11	12/08/2014	Mid-Ebb	0.44
SR9	14/08/2014	Mid-Ebb	0.53	SR11	14/08/2014	Mid-Ebb	0.90
SR9	16/8/2014	Mid-Ebb	0.51	SR11	16/8/2014	Mid-Ebb	0.48
SR9	19/08/2014	Mid-Ebb	0.54	SR11	19/08/2014	Mid-Ebb	0.46
SR9	21/8/2014	Mid-Ebb	0.82	SR11	21/8/2014	Mid-Ebb	0.65
SR9	23/08/2014	Mid-Ebb	0.59	SR11	23/08/2014	Mid-Ebb	0.48
SR9	26/08/2014	Mid-Ebb	0.45	SR11	26/08/2014	Mid-Ebb	0.34
SR9	28/8/2014	Mid-Ebb	0.68	SR11	28/8/2014	Mid-Ebb	0.43
SR9	30/8/2014	Mid-Ebb	0.33	SR11	30/8/2014	Mid-Ebb	0.64
SR9	02/09/2014	Mid-Ebb	0.62	SR11	02/09/2014	Mid-Ebb	0.61
SR9	04/09/2014	Mid-Ebb	0.28	SR11	04/09/2014	Mid-Ebb	0.35
SR9	06/09/2014	Mid-Ebb	0.37	SR11	06/09/2014	Mid-Ebb	0.23
SR9	09/09/2014	Mid-Ebb	0.62	SR11	09/09/2014	Mid-Ebb	0.30
SR9	11/09/2014	Mid-Ebb	0.70	SR11	11/09/2014	Mid-Ebb	0.62
SR9	13/9/2014	Mid-Ebb	0.91	SR11	13/9/2014	Mid-Ebb	0.65
SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR9	18/09/2014	Mid-Ebb	0.70	SR11	18/09/2014	Mid-Ebb	0.62
SR9	20/9/2014	Mid-Ebb	1.09	SR11	20/9/2014	Mid-Ebb	0.54
SR9	23/9/2014	Mid-Ebb	1.07	SR11	23/9/2014	Mid-Ebb	0.41
SR9	25/9/2014	Mid-Ebb	0.52	SR11	25/9/2014	Mid-Ebb	0.66
SR9	27/9/2014	Mid-Ebb	0.75	SR11	27/9/2014	Mid-Ebb	0.70
SR9	30/9/2014	Mid-Ebb	0.56	SR11	30/9/2014	Mid-Ebb	0.64
SR9	02/10/2014	Mid-Ebb	0.58	SR11	02/10/2014	Mid-Ebb	0.33
SR9	04/10/2014	Mid-Ebb	0.33	SR11	04/10/2014	Mid-Ebb	0.39
SR9	07/10/2014	Mid-Ebb	0.16	SR11	07/10/2014	Mid-Ebb	0.39
SR9	09/10/2014	Mid-Ebb	0.19	SR11	09/10/2014	Mid-Ebb	0.22
SR9	11/10/2014	Mid-Ebb	0.53	SR11	11/10/2014	Mid-Ebb	0.28
SR9	14/10/2014	Mid-Ebb	0.29	SR11	14/10/2014	Mid-Ebb	0.33
SR9	16/10/2014	Mid-Ebb	0.3	SR11	16/10/2014	Mid-Ebb	0.39
SR9	18/10/2014	Mid-Ebb	0.34	SR11	18/10/2014	Mid-Ebb	0.35
SR9	21/10/2014	Mid-Ebb	0.29	SR11	21/10/2014	Mid-Ebb	0.38
SR10	24/07/2014	Mid-Ebb	0.59				
SR10	26/07/2014	Mid-Ebb	0.53				
SR10	29/07/2014	Mid-Ebb	0.25				
SR10	31/07/2014	Mid-Ebb	0.41				
SR10	02/08/2014	Mid-Ebb	0.50				
SR10	05/08/2014	Mid-Ebb	0.28				
SR10	07/08/2014	Mid-Ebb	0.27				
SR10	09/08/2014	Mid-Ebb	0.38				
SR10	12/08/2014	Mid-Ebb	0.38				
SR10	14/08/2014	Mid-Ebb	0.83				
SR10	16/8/2014	Mid-Ebb	0.71				
SR10	19/08/2014	Mid-Ebb	0.57				
SR10	21/8/2014	Mid-Ebb	0.69				
SR10	23/08/2014	Mid-Ebb	0.66				
SR10	26/08/2014	Mid-Ebb	0.41				
SR10	28/8/2014	Mid-Ebb	0.53				
SR10	30/8/2014	Mid-Ebb	0.57				
SR10	02/09/2014	Mid-Ebb	0.65				
SR10	04/09/2014	Mid-Ebb	0.49				
SR10	06/09/2014	Mid-Ebb	0.21				
SR10	09/09/2014	Mid-Ebb	0.41				
SR10	11/09/2014	Mid-Ebb	0.79				
SR10	13/9/2014	Mid-Ebb	0.86				
SR10	16/9/2014	Mid-Ebb					
SR10	18/09/2014	Mid-Ebb	0.79				
SR10	20/9/2014	Mid-Ebb	0.59				
SR10	23/9/2014	Mid-Ebb	0.68				
SR10	25/9/2014	Mid-Ebb	0.54				
SR10	27/9/2014	Mid-Ebb	0.51				
SR10	30/9/2014	Mid-Ebb	0.71				
SR10	02/10/2014	Mid-Ebb	0.39				
SR10	04/10/2014	Mid-Ebb	0.27				
SR10	07/10/2014	Mid-Ebb	0.37				
SR10	09/10/2014	Mid-Ebb	0.18				
SR10	11/10/2014	Mid-Ebb	0.23				
SR10	14/10/2014	Mid-Ebb	0.35				
SR10	16/10/2014	Mid-Ebb	0.4				
SR10	18/10/2014	Mid-Ebb	0.39				
SR10	21/10/2014	Mid-Ebb	0.49				

Cluster 2 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline (Insitu) x 1.3		Impact (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	36	Number of Valid Observations	114
Number of Distinct Observations	20	Number of Missing Values	3
Minimum	0.09	Number of Distinct Observations	111
Maximum	0.51	Minimum	0.151
Mean of Raw Data	0.268	Maximum	1.086
Standard Deviation of Raw Data	0.0998	Mean of Raw Data	0.469
Kstar	6.59	Standard Deviation of Raw Data	0.201
Mean of Log Transformed Data	-1.389	Kstar	5.266
Standard Deviation of Log Transformed Data	0.395	Mean of Log Transformed Data	-0.853
		Standard Deviation of Log Transformed Data	0.451
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.981		
Shapiro Wilk Test Statistic	0.958	Correlation Coefficient R	0.982
Shapiro Wilk Critical (0.95) Value	0.935	Approximate Shapiro Wilk Test Statistic	0.95
Approximate Shapiro Wilk P Value	0.242	Approximate Shapiro Wilk P Value	0.000902
Lilliefors Test Statistic	0.123	Lilliefors Test Statistic	0.103
Lilliefors Critical (0.95) Value	0.148	Lilliefors Critical (0.95) Value	0.083
Data appear Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Baseline (Insitu) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	114	36
Number of Missing Values	3	0
Number of Distinct Observations	111	20
Minimum	0.151	0.09
Maximum	1.086	0.51
Mean	0.469	0.268
Median	0.438	0.26
SD	0.201	0.0998
SE of Mean	0.0188	0.0166

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	9890
WMW Test U-Stat	5.644
WMW Critical Value (0.050)	1.645
P-Value	8.33E-09

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Insitu)
Gradient vs Impact

Gradient TIN (insitu) (mg/L)			
G5	24/07/2014	Mid-Ebb	1.21
G5	26/07/2014	Mid-Ebb	0.43
G5	29/07/2014	Mid-Ebb	0.32
G5	31/07/2014	Mid-Ebb	0.32
G5	02/08/2014	Mid-Ebb	1.04
G5	05/08/2014	Mid-Ebb	0.36
G5	07/08/2014	Mid-Ebb	0.44
G5	09/08/2014	Mid-Ebb	0.32
G5	12/08/2014	Mid-Ebb	0.38
G5	14/08/2014	Mid-Ebb	0.56
G5	16/8/2014	Mid-Ebb	0.59
G5	19/08/2014	Mid-Ebb	0.47
G5	21/8/2014	Mid-Ebb	1.07
G5	23/08/2014	Mid-Ebb	0.76
G5	26/08/2014	Mid-Ebb	0.40
G5	28/8/2014	Mid-Ebb	0.50
G5	30/8/2014	Mid-Ebb	0.61
G5	02/09/2014	Mid-Ebb	0.72
G5	04/09/2014	Mid-Ebb	0.47
G5	06/09/2014	Mid-Ebb	0.56
G5	09/09/2014	Mid-Ebb	0.62
G5	11/09/2014	Mid-Ebb	0.97
G5	13/9/2014	Mid-Ebb	0.92
G5	16/9/2014	Mid-Ebb	
G5	18/09/2014	Mid-Ebb	0.97
G5	20/9/2014	Mid-Ebb	1.21
G5	23/9/2014	Mid-Ebb	0.64
G5	25/9/2014	Mid-Ebb	0.47
G5	27/9/2014	Mid-Ebb	0.49
G5	30/9/2014	Mid-Ebb	0.56
G5	04/10/2014	Mid-Ebb	0.30
G5	04/09/2014	Mid-Ebb	0.47
G5	07/10/2014	Mid-Ebb	0.36
G5	09/10/2014	Mid-Ebb	0.24
G5	11/10/2014	Mid-Ebb	0.54
G5	14/10/2014	Mid-Ebb	0.26
G5	16/10/2014	Mid-Ebb	0.24
G5	18/10/2014	Mid-Ebb	0.40
G5	21/10/2014	Mid-Ebb	0.32
G6	24/07/2014	Mid-Ebb	0.78
G6	26/07/2014	Mid-Ebb	0.21
G6	29/07/2014	Mid-Ebb	0.37
G6	31/07/2014	Mid-Ebb	0.48
G6	02/08/2014	Mid-Ebb	0.43
G6	05/08/2014	Mid-Ebb	0.30
G6	07/08/2014	Mid-Ebb	0.33
G6	09/08/2014	Mid-Ebb	0.36
G6	12/08/2014	Mid-Ebb	0.45
G6	14/08/2014	Mid-Ebb	0.95
G6	16/8/2014	Mid-Ebb	0.34
G6	19/08/2014	Mid-Ebb	0.48
G6	21/8/2014	Mid-Ebb	0.69
G6	23/08/2014	Mid-Ebb	0.87
G6	26/08/2014	Mid-Ebb	0.54
G6	28/8/2014	Mid-Ebb	0.46
G6	30/8/2014	Mid-Ebb	0.54
G6	02/09/2014	Mid-Ebb	0.67
G6	04/09/2014	Mid-Ebb	0.39
G6	06/09/2014	Mid-Ebb	0.51
G6	09/09/2014	Mid-Ebb	0.51
G6	11/09/2014	Mid-Ebb	0.43
G6	13/9/2014	Mid-Ebb	0.62
G6	16/9/2014	Mid-Ebb	
G6	18/09/2014	Mid-Ebb	0.43
G6	20/9/2014	Mid-Ebb	0.55
G6	23/9/2014	Mid-Ebb	0.65
G6	25/9/2014	Mid-Ebb	0.60
G6	27/9/2014	Mid-Ebb	0.48
G6	30/9/2014	Mid-Ebb	0.85
G6	02/10/2014	Mid-Ebb	0.34
G6	04/10/2014	Mid-Ebb	0.28
G6	07/10/2014	Mid-Ebb	0.18
G6	09/10/2014	Mid-Ebb	0.11
G6	11/10/2014	Mid-Ebb	0.37
G6	14/10/2014	Mid-Ebb	0.31
G6	16/10/2014	Mid-Ebb	0.45
G6	18/10/2014	Mid-Ebb	0.49
G6	21/10/2014	Mid-Ebb	0.45

Impact TIN (Insitu) (mg/L)							
SR9	24/07/2014	Mid-Ebb	0.46	SR11	24/07/2014	Mid-Ebb	0.45
SR9	26/07/2014	Mid-Ebb	0.32	SR11	26/07/2014	Mid-Ebb	0.17
SR9	29/07/2014	Mid-Ebb	0.23	SR11	29/07/2014	Mid-Ebb	0.16
SR9	31/07/2014	Mid-Ebb	0.24	SR11	31/07/2014	Mid-Ebb	0.22
SR9	02/08/2014	Mid-Ebb	0.27	SR11	02/08/2014	Mid-Ebb	0.22
SR9	05/08/2014	Mid-Ebb	0.28	SR11	05/08/2014	Mid-Ebb	0.15
SR9	07/08/2014	Mid-Ebb	0.15	SR11	07/08/2014	Mid-Ebb	0.29
SR9	09/08/2014	Mid-Ebb	0.37	SR11	09/08/2014	Mid-Ebb	0.39
SR9	12/08/2014	Mid-Ebb	0.35	SR11	12/08/2014	Mid-Ebb	0.44
SR9	14/08/2014	Mid-Ebb	0.53	SR11	14/08/2014	Mid-Ebb	0.90
SR9	16/8/2014	Mid-Ebb	0.51	SR11	16/8/2014	Mid-Ebb	0.48
SR9	19/08/2014	Mid-Ebb	0.54	SR11	19/08/2014	Mid-Ebb	0.46
SR9	21/8/2014	Mid-Ebb	0.82	SR11	21/8/2014	Mid-Ebb	0.65
SR9	23/08/2014	Mid-Ebb	0.59	SR11	23/08/2014	Mid-Ebb	0.48
SR9	26/08/2014	Mid-Ebb	0.45	SR11	26/08/2014	Mid-Ebb	0.34
SR9	28/8/2014	Mid-Ebb	0.68	SR11	28/8/2014	Mid-Ebb	0.43
SR9	30/8/2014	Mid-Ebb	0.33	SR11	30/8/2014	Mid-Ebb	0.64
SR9	02/09/2014	Mid-Ebb	0.62	SR11	02/09/2014	Mid-Ebb	0.61
SR9	04/09/2014	Mid-Ebb	0.28	SR11	04/09/2014	Mid-Ebb	0.35
SR9	06/09/2014	Mid-Ebb	0.37	SR11	06/09/2014	Mid-Ebb	0.23
SR9	09/09/2014	Mid-Ebb	0.62	SR11	09/09/2014	Mid-Ebb	0.30
SR9	11/09/2014	Mid-Ebb	0.70	SR11	11/09/2014	Mid-Ebb	0.62
SR9	13/9/2014	Mid-Ebb	0.91	SR11	13/9/2014	Mid-Ebb	0.65
SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR9	18/09/2014	Mid-Ebb	0.70	SR11	18/09/2014	Mid-Ebb	0.62
SR9	20/9/2014	Mid-Ebb	1.09	SR11	20/9/2014	Mid-Ebb	0.54
SR9	23/9/2014	Mid-Ebb	1.07	SR11	23/9/2014	Mid-Ebb	0.41
SR9	25/9/2014	Mid-Ebb	0.52	SR11	25/9/2014	Mid-Ebb	0.66
SR9	27/9/2014	Mid-Ebb	0.75	SR11	27/9/2014	Mid-Ebb	0.70
SR9	30/9/2014	Mid-Ebb	0.56	SR11	30/9/2014	Mid-Ebb	0.64
SR9	02/10/2014	Mid-Ebb	0.58	SR11	02/10/2014	Mid-Ebb	0.33
SR9	04/10/2014	Mid-Ebb	0.33	SR11	04/10/2014	Mid-Ebb	0.39
SR9	07/10/2014	Mid-Ebb	0.16	SR11	07/10/2014	Mid-Ebb	0.39
SR9	09/10/2014	Mid-Ebb	0.19	SR11	09/10/2014	Mid-Ebb	0.22
SR9	11/10/2014	Mid-Ebb	0.53	SR11	11/10/2014	Mid-Ebb	0.28
SR9	14/10/2014	Mid-Ebb	0.29	SR11	14/10/2014	Mid-Ebb	0.33
SR9	16/10/2014	Mid-Ebb	0.3	SR11	16/10/2014	Mid-Ebb	0.39
SR9	18/10/2014	Mid-Ebb	0.34	SR11	18/10/2014	Mid-Ebb	0.35
SR9	21/10/2014	Mid-Ebb	0.29	SR11	21/10/2014	Mid-Ebb	0.38
SR10	24/07/2014	Mid-Ebb	0.59				
SR10	26/07/2014	Mid-Ebb	0.53				
SR10	29/07/2014	Mid-Ebb	0.25				
SR10	31/07/2014	Mid-Ebb	0.41				
SR10	02/08/2014	Mid-Ebb	0.50				
SR10	05/08/2014	Mid-Ebb	0.28				
SR10	07/08/2014	Mid-Ebb	0.27				
SR10	09/08/2014	Mid-Ebb	0.38				
SR10	12/08/2014	Mid-Ebb	0.38				
SR10	14/08/2014	Mid-Ebb	0.83				
SR10	16/8/2014	Mid-Ebb	0.71				
SR10	19/08/2014	Mid-Ebb	0.57				
SR10	21/8/2014	Mid-Ebb	0.69				
SR10	23/08/2014	Mid-Ebb	0.66				
SR10	26/08/2014	Mid-Ebb	0.41				
SR10	28/8/2014	Mid-Ebb	0.53				
SR10	30/8/2014	Mid-Ebb	0.57				
SR10	02/09/2014	Mid-Ebb	0.65				
SR10	04/09/2014	Mid-Ebb	0.49				
SR10	06/09/2014	Mid-Ebb	0.21				
SR10	09/09/2014	Mid-Ebb	0.41				
SR10	11/09/2014	Mid-Ebb	0.79				
SR10	13/9/2014	Mid-Ebb	0.86				
SR10	16/9/2014	Mid-Ebb					
SR10	18/09/2014	Mid-Ebb	0.79				
SR10	20/9/2014	Mid-Ebb	0.59				
SR10	23/9/2014	Mid-Ebb	0.68				
SR10	25/9/2014	Mid-Ebb	0.54				
SR10	27/9/2014	Mid-Ebb	0.51				
SR10	30/9/2014	Mid-Ebb	0.71				
SR10	02/10/2014	Mid-Ebb	0.39				
SR10	04/10/2014	Mid-Ebb	0.27				
SR10	07/10/2014	Mid-Ebb	0.37				
SR10	09/10/2014	Mid-Ebb	0.18				
SR10	11/10/2014	Mid-Ebb	0.23				
SR10	14/10/2014	Mid-Ebb	0.35				
SR10	16/10/2014	Mid-Ebb	0.4				
SR10	18/10/2014	Mid-Ebb	0.39				
SR10	21/10/2014	Mid-Ebb	0.49				

Cluster 2 TIN(Insitu)
Gradient vs Impact

Impact (Insitu)		Gradient (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	114	Number of Valid Observations	76
Number of Missing Values	3	Number of Missing Values	2
Number of Distinct Observations	111	Number of Distinct Observations	73
Minimum	0.151	Minimum	0.108
Maximum	1.086	Maximum	1.211
Mean of Raw Data	0.469	Mean of Raw Data	0.523
Standard Deviation of Raw Data	0.201	Standard Deviation of Raw Data	0.235
Kstar	5.266	Kstar	5.24
Mean of Log Transformed Data	-0.853	Mean of Log Transformed Data	-0.743
Standard Deviation of Log Transformed Data	0.451	Standard Deviation of Log Transformed Data	0.444
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.982	Correlation Coefficient R	0.955
Approximate Shapiro Wilk Test Statistic	0.95	Approximate Shapiro Wilk Test Statistic	0.906
Approximate Shapiro Wilk P Value	0.0009022	Approximate Shapiro Wilk P Value	4.47E-06
Lilliefors Test Statistic	0.103	Lilliefors Test Statistic	0.143
Lilliefors Critical (0.95) Value	0.083	Lilliefors Critical (0.95) Value	0.102
Data not Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Gradient (Insitu)

Raw Statistics

	Site	Background
Number of Valid Observations	114	76
Number of Missing Values	3	2
Number of Distinct Observations	111	73
Minimum	0.151	0.108
Maximum	1.086	1.211
Mean	0.469	0.523
Median	0.438	0.473
SD	0.201	0.235
SE of Mean	0.0188	0.0269

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Backgroun

Site Rank Sum W-Stat	10397
WMW Test U-Stat	-1.321
WMW Critical Value (0.050)	1.645
P-Value	9.33E-02

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Cluster 2 TIN(Insitu)
G1 vs Impact

G1 TIN (insitu) (mg/L)			
G1	24/07/2014	Mid-Ebb	1.48
G1	26/07/2014	Mid-Ebb	1.47
G1	29/07/2014	Mid-Ebb	1.12
G1	31/07/2014	Mid-Ebb	0.84
G1	02/08/2014	Mid-Ebb	0.77
G1	05/08/2014	Mid-Ebb	0.28
G1	07/08/2014	Mid-Ebb	1.41
G1	09/08/2014	Mid-Ebb	0.58
G1	12/08/2014	Mid-Ebb	0.91
G1	14/08/2014	Mid-Ebb	1.00
G1	16/8/2014	Mid-Ebb	0.85
G1	19/08/2014	Mid-Ebb	1.00
G1	21/8/2014	Mid-Ebb	2.09
G1	23/08/2014	Mid-Ebb	2.17
G1	26/08/2014	Mid-Ebb	1.00
G1	28/8/2014	Mid-Ebb	0.98
G1	30/8/2014	Mid-Ebb	1.11
G1	02/09/2014	Mid-Ebb	0.57
G1	04/09/2014	Mid-Ebb	1.85
G1	06/09/2014	Mid-Ebb	1.42
G1	09/09/2014	Mid-Ebb	1.58
G1	11/09/2014	Mid-Ebb	0.96
G1	13/9/2014	Mid-Ebb	1.27
G1	16/9/2014	Mid-Ebb	
G1	18/09/2014	Mid-Ebb	0.96
G1	20/9/2014	Mid-Ebb	1.91
G1	23/9/2014	Mid-Ebb	1.08
G1	25/9/2014	Mid-Ebb	1.13
G1	27/9/2014	Mid-Ebb	1.28
G1	30/9/2014	Mid-Ebb	1.20
G1	02/10/2014	Mid-Ebb	1.34
G1	04/10/2014	Mid-Ebb	1.52
G1	07/10/2014	Mid-Ebb	1.12
G1	09/10/2014	Mid-Ebb	0.98
G1	11/10/2014	Mid-Ebb	0.56
G1	14/10/2014	Mid-Ebb	0.42
G1	16/10/2014	Mid-Ebb	0.75
G1	18/10/2014	Mid-Ebb	0.83
G1	21/10/2014	Mid-Ebb	0.93

Impact TIN (Insitu) (mg/L)							
SR9	24/07/2014	Mid-Ebb	0.46	SR11	24/07/2014	Mid-Ebb	0.45
SR9	26/07/2014	Mid-Ebb	0.32	SR11	26/07/2014	Mid-Ebb	0.17
SR9	29/07/2014	Mid-Ebb	0.23	SR11	29/07/2014	Mid-Ebb	0.16
SR9	31/07/2014	Mid-Ebb	0.24	SR11	31/07/2014	Mid-Ebb	0.22
SR9	02/08/2014	Mid-Ebb	0.27	SR11	02/08/2014	Mid-Ebb	0.22
SR9	05/08/2014	Mid-Ebb	0.28	SR11	05/08/2014	Mid-Ebb	0.15
SR9	07/08/2014	Mid-Ebb	0.15	SR11	07/08/2014	Mid-Ebb	0.29
SR9	09/08/2014	Mid-Ebb	0.37	SR11	09/08/2014	Mid-Ebb	0.39
SR9	12/08/2014	Mid-Ebb	0.35	SR11	12/08/2014	Mid-Ebb	0.44
SR9	14/08/2014	Mid-Ebb	0.53	SR11	14/08/2014	Mid-Ebb	0.90
SR9	16/8/2014	Mid-Ebb	0.51	SR11	16/8/2014	Mid-Ebb	0.48
SR9	19/08/2014	Mid-Ebb	0.54	SR11	19/08/2014	Mid-Ebb	0.46
SR9	21/8/2014	Mid-Ebb	0.82	SR11	21/8/2014	Mid-Ebb	0.65
SR9	23/08/2014	Mid-Ebb	0.59	SR11	23/08/2014	Mid-Ebb	0.48
SR9	26/08/2014	Mid-Ebb	0.45	SR11	26/08/2014	Mid-Ebb	0.34
SR9	28/8/2014	Mid-Ebb	0.68	SR11	28/8/2014	Mid-Ebb	0.43
SR9	30/8/2014	Mid-Ebb	0.33	SR11	30/8/2014	Mid-Ebb	0.64
SR9	02/09/2014	Mid-Ebb	0.62	SR11	02/09/2014	Mid-Ebb	0.61
SR9	04/09/2014	Mid-Ebb	0.28	SR11	04/09/2014	Mid-Ebb	0.35
SR9	06/09/2014	Mid-Ebb	0.37	SR11	06/09/2014	Mid-Ebb	0.23
SR9	09/09/2014	Mid-Ebb	0.62	SR11	09/09/2014	Mid-Ebb	0.30
SR9	11/09/2014	Mid-Ebb	0.70	SR11	11/09/2014	Mid-Ebb	0.62
SR9	13/9/2014	Mid-Ebb	0.91	SR11	13/9/2014	Mid-Ebb	0.65
SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR9	18/09/2014	Mid-Ebb	0.70	SR11	18/09/2014	Mid-Ebb	0.62
SR9	20/9/2014	Mid-Ebb	1.09	SR11	20/9/2014	Mid-Ebb	0.54
SR9	23/9/2014	Mid-Ebb	1.07	SR11	23/9/2014	Mid-Ebb	0.41
SR9	25/9/2014	Mid-Ebb	0.52	SR11	25/9/2014	Mid-Ebb	0.66
SR9	27/9/2014	Mid-Ebb	0.75	SR11	27/9/2014	Mid-Ebb	0.70
SR9	30/9/2014	Mid-Ebb	0.56	SR11	30/9/2014	Mid-Ebb	0.64
SR9	02/10/2014	Mid-Ebb	0.58	SR11	02/10/2014	Mid-Ebb	0.33
SR9	04/10/2014	Mid-Ebb	0.33	SR11	04/10/2014	Mid-Ebb	0.39
SR9	07/10/2014	Mid-Ebb	0.16	SR11	07/10/2014	Mid-Ebb	0.39
SR9	09/10/2014	Mid-Ebb	0.19	SR11	09/10/2014	Mid-Ebb	0.22
SR9	11/10/2014	Mid-Ebb	0.53	SR11	11/10/2014	Mid-Ebb	0.28
SR9	14/10/2014	Mid-Ebb	0.29	SR11	14/10/2014	Mid-Ebb	0.33
SR9	16/10/2014	Mid-Ebb	0.3	SR11	16/10/2014	Mid-Ebb	0.39
SR9	18/10/2014	Mid-Ebb	0.34	SR11	18/10/2014	Mid-Ebb	0.35
SR9	21/10/2014	Mid-Ebb	0.29	SR11	21/10/2014	Mid-Ebb	0.38
SR10	24/07/2014	Mid-Ebb	0.59				
SR10	26/07/2014	Mid-Ebb	0.53				
SR10	29/07/2014	Mid-Ebb	0.25				
SR10	31/07/2014	Mid-Ebb	0.41				
SR10	02/08/2014	Mid-Ebb	0.50				
SR10	05/08/2014	Mid-Ebb	0.28				
SR10	07/08/2014	Mid-Ebb	0.27				
SR10	09/08/2014	Mid-Ebb	0.38				
SR10	12/08/2014	Mid-Ebb	0.38				
SR10	14/08/2014	Mid-Ebb	0.83				
SR10	16/8/2014	Mid-Ebb	0.71				
SR10	19/08/2014	Mid-Ebb	0.57				
SR10	21/8/2014	Mid-Ebb	0.69				
SR10	23/08/2014	Mid-Ebb	0.66				
SR10	26/08/2014	Mid-Ebb	0.41				
SR10	28/8/2014	Mid-Ebb	0.53				
SR10	30/8/2014	Mid-Ebb	0.57				
SR10	02/09/2014	Mid-Ebb	0.65				
SR10	04/09/2014	Mid-Ebb	0.49				
SR10	06/09/2014	Mid-Ebb	0.21				
SR10	09/09/2014	Mid-Ebb	0.41				
SR10	11/09/2014	Mid-Ebb	0.79				
SR10	13/9/2014	Mid-Ebb	0.86				
SR10	16/9/2014	Mid-Ebb					
SR10	18/09/2014	Mid-Ebb	0.79				
SR10	20/9/2014	Mid-Ebb	0.59				
SR10	23/9/2014	Mid-Ebb	0.68				
SR10	25/9/2014	Mid-Ebb	0.54				
SR10	27/9/2014	Mid-Ebb	0.51				
SR10	30/9/2014	Mid-Ebb	0.71				
SR10	02/10/2014	Mid-Ebb	0.39				
SR10	04/10/2014	Mid-Ebb	0.27				
SR10	07/10/2014	Mid-Ebb	0.37				
SR10	09/10/2014	Mid-Ebb	0.18				
SR10	11/10/2014	Mid-Ebb	0.23				
SR10	14/10/2014	Mid-Ebb	0.35				
SR10	16/10/2014	Mid-Ebb	0.4				
SR10	18/10/2014	Mid-Ebb	0.39				
SR10	21/10/2014	Mid-Ebb	0.49				

Cluster 2 TIN(Insitu)
G1 vs Impact

Impact (Insitu)		G1 (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	114	Number of Valid Observations	38
Number of Missing Values	3	Number of Missing Values	1
Number of Distinct Observations	111	Number of Distinct Observations	37
Minimum	0.151	Minimum	0.279
Maximum	1.086	Maximum	2.17
Mean of Raw Data	0.469	Mean of Raw Data	1.123
Standard Deviation of Raw Data	0.201	Standard Deviation of Raw Data	0.432
Kstar	5.266	Kstar	5.939
Mean of Log Transformed Data	-0.853	Mean of Log Transformed Data	0.0366
Standard Deviation of Log Transformed Data	0.451	Standard Deviation of Log Transformed Data	0.426
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.982	Correlation Coefficient R	0.983
Approximate Shapiro Wilk Test Statistic	0.95	Shapiro Wilk Test Statistic	0.964
Approximate Shapiro Wilk P Value	0.0009022	Shapiro Wilk Critical (0.95) Value	0.938
Lilliefors Test Statistic	0.103	Approximate Shapiro Wilk P Value	0.321
Lilliefors Critical (0.95) Value	0.083	Lilliefors Test Statistic	0.121
Data not Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.144
		Data appear Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Greater Than or Equal to Background Mean/Median (Form 2)
Alternative Hypothesis	Site or AOC Mean/Median Less Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: G1 (Insitu)

Raw Statistics

	Site	Background
Number of Valid Observations	114	38
Number of Missing Values	3	1
Number of Distinct Observations	111	37
Minimum	0.151	0.279
Maximum	1.086	2.17
Mean	0.469	1.123
Median	0.438	1.041
SD	0.201	0.432
SE of Mean	0.0188	0.0701

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC >= Mean/Median of Backgrounc

Site Rank Sum W-Stat	6864
WMW Test U-Stat	-7.899
WMW Critical Value (0.050)	-1.645
P-Value	1.40E-15

Conclusion with Alpha = 0.05
Reject H0, Conclude Site < Background
P-Value < alpha (0.05)

Cluster 2 TIN(Lab)
1.3 x Baseline vs Impact

Baseline x 1.3 TIN (lab) (mg/L)			
SR9	04/01/2014	Mid-Ebb	0.10
SR9	07/01/2014	Mid-Ebb	0.16
SR9	09/01/2014	Mid-Ebb	0.38
SR9	11/01/2014	Mid-Ebb	0.40
SR9	14/01/2014	Mid-Ebb	0.23
SR9	16/01/2014	Mid-Ebb	0.22
SR9	18/01/2014	Mid-Ebb	0.13
SR9	21/01/2014	Mid-Ebb	0.04
SR9	23/01/2014	Mid-Ebb	0.03
SR9	25/01/2014	Mid-Ebb	0.03
SR9	27/01/2014	Mid-Ebb	0.03
SR9	29/01/2014	Mid-Ebb	0.03
SR10	04/01/2014	Mid-Ebb	0.19
SR10	07/01/2014	Mid-Ebb	0.20
SR10	09/01/2014	Mid-Ebb	0.20
SR10	11/01/2014	Mid-Ebb	0.21
SR10	14/01/2014	Mid-Ebb	0.14
SR10	16/01/2014	Mid-Ebb	0.13
SR10	18/01/2014	Mid-Ebb	0.13
SR10	21/01/2014	Mid-Ebb	0.12
SR10	23/01/2014	Mid-Ebb	0.15
SR10	25/01/2014	Mid-Ebb	0.08
SR10	27/01/2014	Mid-Ebb	0.09
SR10	29/01/2014	Mid-Ebb	0.12
SR11	04/01/2014	Mid-Ebb	0.18
SR11	07/01/2014	Mid-Ebb	0.17
SR11	09/01/2014	Mid-Ebb	0.19
SR11	11/01/2014	Mid-Ebb	0.21
SR11	14/01/2014	Mid-Ebb	0.14
SR11	16/01/2014	Mid-Ebb	0.12
SR11	18/01/2014	Mid-Ebb	0.10
SR11	21/01/2014	Mid-Ebb	0.12
SR11	23/01/2014	Mid-Ebb	0.18
SR11	25/01/2014	Mid-Ebb	0.12
SR11	27/01/2014	Mid-Ebb	0.07
SR11	29/01/2014	Mid-Ebb	0.09

Impact TIN (lab) (mg/L)							
SR9	24/07/2014	Mid-Ebb	0.41	SR11	24/07/2014	Mid-Ebb	0.34
SR9	26/07/2014	Mid-Ebb	0.30	SR11	26/07/2014	Mid-Ebb	0.24
SR9	29/07/2014	Mid-Ebb	0.34	SR11	29/07/2014	Mid-Ebb	0.14
SR9	31/07/2014	Mid-Ebb	0.12	SR11	31/07/2014	Mid-Ebb	0.16
SR9	02/08/2014	Mid-Ebb	0.27	SR11	02/08/2014	Mid-Ebb	0.26
SR9	05/08/2014	Mid-Ebb	0.15	SR11	05/08/2014	Mid-Ebb	0.11
SR9	07/08/2014	Mid-Ebb	0.14	SR11	07/08/2014	Mid-Ebb	0.22
SR9	09/08/2014	Mid-Ebb	0.18	SR11	09/08/2014	Mid-Ebb	0.16
SR9	12/08/2014	Mid-Ebb	0.31	SR11	12/08/2014	Mid-Ebb	0.31
SR9	14/08/2014	Mid-Ebb	0.41	SR11	14/08/2014	Mid-Ebb	0.30
SR9	16/8/2014	Mid-Ebb	0.23	SR11	16/8/2014	Mid-Ebb	0.35
SR9	19/08/2014	Mid-Ebb	0.30	SR11	19/08/2014	Mid-Ebb	0.25
SR9	21/8/2014	Mid-Ebb	0.43	SR11	21/8/2014	Mid-Ebb	0.35
SR9	23/08/2014	Mid-Ebb	0.27	SR11	23/08/2014	Mid-Ebb	0.22
SR9	26/08/2014	Mid-Ebb	0.27	SR11	26/08/2014	Mid-Ebb	0.21
SR9	28/8/2014	Mid-Ebb	0.34	SR11	28/8/2014	Mid-Ebb	0.23
SR9	30/8/2014	Mid-Ebb	0.18	SR11	30/8/2014	Mid-Ebb	0.24
SR9	02/09/2014	Mid-Ebb	0.25	SR11	02/09/2014	Mid-Ebb	0.21
SR9	04/09/2014	Mid-Ebb	0.12	SR11	04/09/2014	Mid-Ebb	0.24
SR9	06/09/2014	Mid-Ebb	0.26	SR11	06/09/2014	Mid-Ebb	0.10
SR9	09/09/2014	Mid-Ebb	0.30	SR11	09/09/2014	Mid-Ebb	0.16
SR9	11/09/2014	Mid-Ebb	0.38	SR11	11/09/2014	Mid-Ebb	0.32
SR9	13/9/2014	Mid-Ebb	0.49	SR11	13/9/2014	Mid-Ebb	0.39
SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR9	18/09/2014	Mid-Ebb	0.36	SR11	18/09/2014	Mid-Ebb	0.36
SR9	20/9/2014	Mid-Ebb	0.45	SR11	20/9/2014	Mid-Ebb	0.25
SR9	23/9/2014	Mid-Ebb	0.13	SR11	23/9/2014	Mid-Ebb	0.05
SR9	25/9/2014	Mid-Ebb	0.11	SR11	25/9/2014	Mid-Ebb	0.17
SR9	27/9/2014	Mid-Ebb	0.12	SR11	27/9/2014	Mid-Ebb	0.24
SR9	30/9/2014	Mid-Ebb	0.18	SR11	30/9/2014	Mid-Ebb	0.28
SR9	02/10/2014	Mid-Ebb	0.27	SR11	02/10/2014	Mid-Ebb	0.21
SR9	04/10/2014	Mid-Ebb	0.17	SR11	04/10/2014	Mid-Ebb	0.21
SR9	07/10/2014	Mid-Ebb	0.11	SR11	07/10/2014	Mid-Ebb	0.09
SR9	09/10/2014	Mid-Ebb	0.21	SR11	09/10/2014	Mid-Ebb	0.12
SR9	11/10/2014	Mid-Ebb	0.24	SR11	11/10/2014	Mid-Ebb	0.16
SR9	14/10/2014	Mid-Ebb	0.25	SR11	14/10/2014	Mid-Ebb	0.07
SR9	16/10/2014	Mid-Ebb	0.2	SR11	16/10/2014	Mid-Ebb	0.12
SR9	18/10/2014	Mid-Ebb	0.28	SR11	18/10/2014	Mid-Ebb	0.15
SR9	21/10/2014	Mid-Ebb	0.16	SR11	21/10/2014	Mid-Ebb	0.13
SR10	24/07/2014	Mid-Ebb	0.38				
SR10	26/07/2014	Mid-Ebb	0.39				
SR10	29/07/2014	Mid-Ebb	0.26				
SR10	31/07/2014	Mid-Ebb	0.19				
SR10	02/08/2014	Mid-Ebb	0.34				
SR10	05/08/2014	Mid-Ebb	0.23				
SR10	07/08/2014	Mid-Ebb	0.22				
SR10	09/08/2014	Mid-Ebb	0.21				
SR10	12/08/2014	Mid-Ebb	0.27				
SR10	14/08/2014	Mid-Ebb	0.31				
SR10	16/8/2014	Mid-Ebb	0.35				
SR10	19/08/2014	Mid-Ebb	0.34				
SR10	21/8/2014	Mid-Ebb	0.43				
SR10	23/08/2014	Mid-Ebb	0.28				
SR10	26/08/2014	Mid-Ebb	0.27				
SR10	28/8/2014	Mid-Ebb	0.21				
SR10	30/8/2014	Mid-Ebb	0.29				
SR10	02/09/2014	Mid-Ebb	0.24				
SR10	04/09/2014	Mid-Ebb	0.36				
SR10	06/09/2014	Mid-Ebb	0.13				
SR10	09/09/2014	Mid-Ebb	0.22				
SR10	11/09/2014	Mid-Ebb	0.38				
SR10	13/9/2014	Mid-Ebb	0.42				
SR10	16/9/2014	Mid-Ebb					
SR10	18/09/2014	Mid-Ebb	0.39				
SR10	20/9/2014	Mid-Ebb	0.23				
SR10	23/9/2014	Mid-Ebb	0.16				
SR10	25/9/2014	Mid-Ebb	0.22				
SR10	27/9/2014	Mid-Ebb	0.24				
SR10	30/9/2014	Mid-Ebb	0.26				
SR10	02/10/2014	Mid-Ebb	0.30				
SR10	04/10/2014	Mid-Ebb	0.12				
SR10	07/10/2014	Mid-Ebb	0.10				
SR10	09/10/2014	Mid-Ebb	0.14				
SR10	11/10/2014	Mid-Ebb	0.18				
SR10	14/10/2014	Mid-Ebb	0.08				
SR10	16/10/2014	Mid-Ebb	0.1				
SR10	18/10/2014	Mid-Ebb	0.08				
SR10	21/10/2014	Mid-Ebb	0.13				

Cluster 2 TIN(Lab)
1.3 x Baseline vs Impact

Baseline (lab) x 1.3		Impact (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	36	Number of Valid Observations	114
Number of Distinct Observations	20	Number of Missing Values	3
Minimum	0.03	Number of Distinct Observations	103
Maximum	0.4	Minimum	0.0533
Mean of Raw Data	0.145	Maximum	0.494
Standard Deviation of Raw Data	0.0833	Mean of Raw Data	0.24
Kstar	2.693	Standard Deviation of Raw Data	0.0974
Mean of Log Transformed Data	-2.11	Kstar	5.372
Standard Deviation of Log Transformed Data	0.663	Mean of Log Transformed Data	-1.522
		Standard Deviation of Log Transformed Data	0.456
Normal Distribution Test Results			
		Normal Distribution Test Results	
Correlation Coefficient R	0.944		
Shapiro Wilk Test Statistic	0.894	Correlation Coefficient R	0.991
Shapiro Wilk Critical (0.95) Value	0.935	Approximate Shapiro Wilk Test Statistic	0.965
Approximate Shapiro Wilk P Value	0.00213	Approximate Shapiro Wilk P Value	0.0405
Lilliefors Test Statistic	0.109	Lilliefors Test Statistic	0.0672
Lilliefors Critical (0.95) Value	0.148	Lilliefors Critical (0.95) Value	0.083
Data not Normal at (0.05) Significance Level		Data appear Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Baseline (lab) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	114	36
Number of Missing Values	3	0
Number of Distinct Observations	103	20
Minimum	0.0533	0.03
Maximum	0.494	0.4
Mean	0.24	0.145
Median	0.239	0.13
SD	0.0974	0.0833
SE of Mean	0.00912	0.0139

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Backgrounc

Site Rank Sum W-Stat	9763
WMW Test U-Stat	5.083
WMW Critical Value (0.050)	1.645
P-Value	1.86E-07

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(lab)
Gradient vs Impact

Gradient TIN (lab) (mg/L)			
G5	24/07/2014	Mid-Ebb	0.71
G5	26/07/2014	Mid-Ebb	0.39
G5	29/07/2014	Mid-Ebb	0.45
G5	31/07/2014	Mid-Ebb	0.17
G5	02/08/2014	Mid-Ebb	0.47
G5	05/08/2014	Mid-Ebb	0.27
G5	07/08/2014	Mid-Ebb	0.19
G5	09/08/2014	Mid-Ebb	0.17
G5	12/08/2014	Mid-Ebb	0.34
G5	14/08/2014	Mid-Ebb	0.47
G5	16/8/2014	Mid-Ebb	0.39
G5	19/08/2014	Mid-Ebb	0.34
G5	21/8/2014	Mid-Ebb	0.59
G5	23/08/2014	Mid-Ebb	0.39
G5	26/08/2014	Mid-Ebb	0.23
G5	28/8/2014	Mid-Ebb	0.31
G5	30/8/2014	Mid-Ebb	0.32
G5	02/09/2014	Mid-Ebb	0.24
G5	04/09/2014	Mid-Ebb	0.38
G5	06/09/2014	Mid-Ebb	0.33
G5	09/09/2014	Mid-Ebb	0.34
G5	11/09/2014	Mid-Ebb	0.45
G5	13/9/2014	Mid-Ebb	0.51
G5	16/9/2014	Mid-Ebb	
G5	18/09/2014	Mid-Ebb	0.43
G5	20/9/2014	Mid-Ebb	0.44
G5	23/9/2014	Mid-Ebb	0.20
G5	25/9/2014	Mid-Ebb	0.25
G5	27/9/2014	Mid-Ebb	0.30
G5	30/9/2014	Mid-Ebb	0.38
G5	04/10/2014	Mid-Ebb	0.29
G5	04/09/2014	Mid-Ebb	0.38
G5	07/10/2014	Mid-Ebb	0.15
G5	09/10/2014	Mid-Ebb	0.24
G5	11/10/2014	Mid-Ebb	0.28
G5	14/10/2014	Mid-Ebb	0.26
G5	16/10/2014	Mid-Ebb	0.25
G5	18/10/2014	Mid-Ebb	0.27
G5	21/10/2014	Mid-Ebb	0.23
G6	24/07/2014	Mid-Ebb	0.46
G6	26/07/2014	Mid-Ebb	0.46
G6	29/07/2014	Mid-Ebb	0.19
G6	31/07/2014	Mid-Ebb	0.20
G6	02/08/2014	Mid-Ebb	0.22
G6	05/08/2014	Mid-Ebb	0.22
G6	07/08/2014	Mid-Ebb	0.23
G6	09/08/2014	Mid-Ebb	0.27
G6	12/08/2014	Mid-Ebb	0.27
G6	14/08/2014	Mid-Ebb	0.29
G6	16/8/2014	Mid-Ebb	0.23
G6	19/08/2014	Mid-Ebb	0.30
G6	21/8/2014	Mid-Ebb	0.37
G6	23/08/2014	Mid-Ebb	0.29
G6	26/08/2014	Mid-Ebb	0.32
G6	28/8/2014	Mid-Ebb	0.18
G6	30/8/2014	Mid-Ebb	0.21
G6	02/09/2014	Mid-Ebb	0.17
G6	04/09/2014	Mid-Ebb	0.29
G6	06/09/2014	Mid-Ebb	0.24
G6	09/09/2014	Mid-Ebb	0.27
G6	11/09/2014	Mid-Ebb	0.22
G6	13/9/2014	Mid-Ebb	0.28
G6	16/9/2014	Mid-Ebb	
G6	18/09/2014	Mid-Ebb	0.36
G6	20/9/2014	Mid-Ebb	0.21
G6	23/9/2014	Mid-Ebb	0.16
G6	25/9/2014	Mid-Ebb	0.11
G6	27/9/2014	Mid-Ebb	0.11
G6	30/9/2014	Mid-Ebb	0.20
G6	02/10/2014	Mid-Ebb	0.26
G6	04/10/2014	Mid-Ebb	0.25
G6	07/10/2014	Mid-Ebb	0.18
G6	09/10/2014	Mid-Ebb	0.25
G6	11/10/2014	Mid-Ebb	0.08
G6	14/10/2014	Mid-Ebb	0.05
G6	16/10/2014	Mid-Ebb	0.19
G6	18/10/2014	Mid-Ebb	0.27
G6	21/10/2014	Mid-Ebb	0.26

Impact TIN (lab) (mg/L)							
SR9	24/07/2014	Mid-Ebb	0.41	SR11	24/07/2014	Mid-Ebb	0.34
SR9	26/07/2014	Mid-Ebb	0.30	SR11	26/07/2014	Mid-Ebb	0.24
SR9	29/07/2014	Mid-Ebb	0.34	SR11	29/07/2014	Mid-Ebb	0.14
SR9	31/07/2014	Mid-Ebb	0.12	SR11	31/07/2014	Mid-Ebb	0.16
SR9	02/08/2014	Mid-Ebb	0.27	SR11	02/08/2014	Mid-Ebb	0.26
SR9	05/08/2014	Mid-Ebb	0.15	SR11	05/08/2014	Mid-Ebb	0.11
SR9	07/08/2014	Mid-Ebb	0.14	SR11	07/08/2014	Mid-Ebb	0.22
SR9	09/08/2014	Mid-Ebb	0.18	SR11	09/08/2014	Mid-Ebb	0.16
SR9	12/08/2014	Mid-Ebb	0.31	SR11	12/08/2014	Mid-Ebb	0.31
SR9	14/08/2014	Mid-Ebb	0.41	SR11	14/08/2014	Mid-Ebb	0.30
SR9	16/8/2014	Mid-Ebb	0.23	SR11	16/8/2014	Mid-Ebb	0.35
SR9	19/08/2014	Mid-Ebb	0.30	SR11	19/08/2014	Mid-Ebb	0.25
SR9	21/8/2014	Mid-Ebb	0.43	SR11	21/8/2014	Mid-Ebb	0.35
SR9	23/08/2014	Mid-Ebb	0.27	SR11	23/08/2014	Mid-Ebb	0.22
SR9	26/08/2014	Mid-Ebb	0.27	SR11	26/08/2014	Mid-Ebb	0.21
SR9	28/8/2014	Mid-Ebb	0.34	SR11	28/8/2014	Mid-Ebb	0.23
SR9	30/8/2014	Mid-Ebb	0.18	SR11	30/8/2014	Mid-Ebb	0.24
SR9	02/09/2014	Mid-Ebb	0.25	SR11	02/09/2014	Mid-Ebb	0.21
SR9	04/09/2014	Mid-Ebb	0.12	SR11	04/09/2014	Mid-Ebb	0.24
SR9	06/09/2014	Mid-Ebb	0.26	SR11	06/09/2014	Mid-Ebb	0.10
SR9	09/09/2014	Mid-Ebb	0.30	SR11	09/09/2014	Mid-Ebb	0.16
SR9	11/09/2014	Mid-Ebb	0.38	SR11	11/09/2014	Mid-Ebb	0.32
SR9	13/9/2014	Mid-Ebb	0.49	SR11	13/9/2014	Mid-Ebb	0.39
SR9	16/9/2014	Mid-Ebb		SR11	16/9/2014	Mid-Ebb	
SR9	18/09/2014	Mid-Ebb	0.36	SR11	18/09/2014	Mid-Ebb	0.36
SR9	20/9/2014	Mid-Ebb	0.45	SR11	20/9/2014	Mid-Ebb	0.25
SR9	23/9/2014	Mid-Ebb	0.13	SR11	23/9/2014	Mid-Ebb	0.05
SR9	25/9/2014	Mid-Ebb	0.11	SR11	25/9/2014	Mid-Ebb	0.17
SR9	27/9/2014	Mid-Ebb	0.12	SR11	27/9/2014	Mid-Ebb	0.24
SR9	30/9/2014	Mid-Ebb	0.18	SR11	30/9/2014	Mid-Ebb	0.28
SR9	02/10/2014	Mid-Ebb	0.27	SR11	02/10/2014	Mid-Ebb	0.21
SR9	04/10/2014	Mid-Ebb	0.17	SR11	04/10/2014	Mid-Ebb	0.21
SR9	07/10/2014	Mid-Ebb	0.11	SR11	07/10/2014	Mid-Ebb	0.09
SR9	09/10/2014	Mid-Ebb	0.21	SR11	09/10/2014	Mid-Ebb	0.12
SR9	11/10/2014	Mid-Ebb	0.24	SR11	11/10/2014	Mid-Ebb	0.16
SR9	14/10/2014	Mid-Ebb	0.25	SR11	14/10/2014	Mid-Ebb	0.07
SR9	16/10/2014	Mid-Ebb	0.2	SR11	16/10/2014	Mid-Ebb	0.12
SR9	18/10/2014	Mid-Ebb	0.28	SR11	18/10/2014	Mid-Ebb	0.15
SR9	21/10/2014	Mid-Ebb	0.16	SR11	21/10/2014	Mid-Ebb	0.13
SR10	24/07/2014	Mid-Ebb	0.38				
SR10	26/07/2014	Mid-Ebb	0.39				
SR10	29/07/2014	Mid-Ebb	0.26				
SR10	31/07/2014	Mid-Ebb	0.19				
SR10	02/08/2014	Mid-Ebb	0.34				
SR10	05/08/2014	Mid-Ebb	0.23				
SR10	07/08/2014	Mid-Ebb	0.22				
SR10	09/08/2014	Mid-Ebb	0.21				
SR10	12/08/2014	Mid-Ebb	0.27				
SR10	14/08/2014	Mid-Ebb	0.31				
SR10	16/8/2014	Mid-Ebb	0.35				
SR10	19/08/2014	Mid-Ebb	0.34				
SR10	21/8/2014	Mid-Ebb	0.43				
SR10	23/08/2014	Mid-Ebb	0.28				
SR10	26/08/2014	Mid-Ebb	0.27				
SR10	28/8/2014	Mid-Ebb	0.21				
SR10	30/8/2014	Mid-Ebb	0.29				
SR10	02/09/2014	Mid-Ebb	0.24				
SR10	04/09/2014	Mid-Ebb	0.36				
SR10	06/09/2014	Mid-Ebb	0.13				
SR10	09/09/2014	Mid-Ebb	0.22				
SR10	11/09/2014	Mid-Ebb	0.38				
SR10	13/9/2014	Mid-Ebb	0.42				
SR10	16/9/2014	Mid-Ebb					
SR10	18/09/2014	Mid-Ebb	0.39				
SR10	20/9/2014	Mid-Ebb	0.23				
SR10	23/9/2014	Mid-Ebb	0.16				
SR10	25/9/2014	Mid-Ebb	0.22				
SR10	27/9/2014	Mid-Ebb	0.24				
SR10	30/9/2014	Mid-Ebb	0.26				
SR10	02/10/2014	Mid-Ebb	0.30				
SR10	04/10/2014	Mid-Ebb	0.12				
SR10	07/10/2014	Mid-Ebb	0.10				
SR10	09/10/2014	Mid-Ebb	0.14				
SR10	11/10/2014	Mid-Ebb	0.18				
SR10	14/10/2014	Mid-Ebb	0.08				
SR10	16/10/2014	Mid-Ebb	0.1				
SR10	18/10/2014	Mid-Ebb	0.08				
SR10	21/10/2014	Mid-Ebb	0.13				

Cluster 2 TIN(lab)
Gradient vs Impact

Impact (Lab)		Gradient (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	114	Number of Valid Observations	76
Number of Missing Values	3	Number of Missing Values	2
Number of Distinct Observations	103	Number of Distinct Observations	73
Minimum	0.0533	Minimum	0.0544
Maximum	0.494	Maximum	0.712
Mean of Raw Data	0.24	Mean of Raw Data	0.289
Standard Deviation of Raw Data	0.0974	Standard Deviation of Raw Data	0.115
Kstar	5.372	Kstar	6.003
Mean of Log Transformed Data	-1.522	Mean of Log Transformed Data	-1.324
Standard Deviation of Log Transformed Data	0.456	Standard Deviation of Log Transformed Data	0.427
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.991	Correlation Coefficient R	0.973
Approximate Shapiro Wilk Test Statistic	0.965	Approximate Shapiro Wilk Test Statistic	0.954
Approximate Shapiro Wilk P Value	0.0405	Approximate Shapiro Wilk P Value	0.0242
Lilliefors Test Statistic	0.0672	Lilliefors Test Statistic	0.116
Lilliefors Critical (0.95) Value	0.083	Lilliefors Critical (0.95) Value	0.102
Data appear Normal at (0.05) Significance Level		Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options

Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Gradient (Lab)

Raw Statistics

	Site	Background
Number of Valid Observations	114	76
Number of Missing Values	3	2
Number of Distinct Observations	103	73
Minimum	0.0533	0.0544
Maximum	0.494	0.712
Mean	0.24	0.289
Median	0.239	0.269
SD	0.0974	0.115
SE of Mean	0.00912	0.0132

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Backgroun

Site Rank Sum W-Stat	9865
WMW Test U-Stat	-2.755
WMW Critical Value (0.050)	1.645
P-Value	2.94E-03

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value < alpha (0.05)

Cluster 2 TIN(lab)
G1 vs Impact

G1 TIN (lab) (mg/L)		
G1	24/07/2014 Mid-Ebb	1.02
G1	26/07/2014 Mid-Ebb	1.11
G1	29/07/2014 Mid-Ebb	0.67
G1	31/07/2014 Mid-Ebb	0.68
G1	02/08/2014 Mid-Ebb	0.71
G1	05/08/2014 Mid-Ebb	1.00
G1	07/08/2014 Mid-Ebb	0.92
G1	09/08/2014 Mid-Ebb	1.09
G1	12/08/2014 Mid-Ebb	0.56
G1	14/08/2014 Mid-Ebb	0.76
G1	16/8/2014 Mid-Ebb	1.00
G1	19/08/2014 Mid-Ebb	1.49
G1	21/8/2014 Mid-Ebb	1.20
G1	23/08/2014 Mid-Ebb	1.35
G1	26/08/2014 Mid-Ebb	1.02
G1	28/8/2014 Mid-Ebb	0.66
G1	30/8/2014 Mid-Ebb	0.65
G1	02/09/2014 Mid-Ebb	0.90
G1	04/09/2014 Mid-Ebb	1.16
G1	06/09/2014 Mid-Ebb	0.73
G1	09/09/2014 Mid-Ebb	0.79
G1	11/09/2014 Mid-Ebb	0.65
G1	13/9/2014 Mid-Ebb	0.63
G1	16/9/2014 Mid-Ebb	
G1	18/09/2014 Mid-Ebb	1.09
G1	20/9/2014 Mid-Ebb	1.00
G1	23/9/2014 Mid-Ebb	0.43
G1	25/9/2014 Mid-Ebb	0.54
G1	27/9/2014 Mid-Ebb	0.57
G1	30/9/2014 Mid-Ebb	0.59
G1	02/10/2014 Mid-Ebb	0.73
G1	04/10/2014 Mid-Ebb	0.67
G1	07/10/2014 Mid-Ebb	0.48
G1	09/10/2014 Mid-Ebb	0.51
G1	11/10/2014 Mid-Ebb	0.37
G1	14/10/2014 Mid-Ebb	0.27
G1	16/10/2014 Mid-Ebb	0.38
G1	18/10/2014 Mid-Ebb	0.36
G1	21/10/2014 Mid-Ebb	0.39

Impact TIN (lab) (mg/L)					
SR9	24/07/2014 Mid-Ebb	0.41	SR11	24/07/2014 Mid-Ebb	0.34
SR9	26/07/2014 Mid-Ebb	0.30	SR11	26/07/2014 Mid-Ebb	0.24
SR9	29/07/2014 Mid-Ebb	0.34	SR11	29/07/2014 Mid-Ebb	0.14
SR9	31/07/2014 Mid-Ebb	0.12	SR11	31/07/2014 Mid-Ebb	0.16
SR9	02/08/2014 Mid-Ebb	0.27	SR11	02/08/2014 Mid-Ebb	0.26
SR9	05/08/2014 Mid-Ebb	0.15	SR11	05/08/2014 Mid-Ebb	0.11
SR9	07/08/2014 Mid-Ebb	0.14	SR11	07/08/2014 Mid-Ebb	0.22
SR9	09/08/2014 Mid-Ebb	0.18	SR11	09/08/2014 Mid-Ebb	0.16
SR9	12/08/2014 Mid-Ebb	0.31	SR11	12/08/2014 Mid-Ebb	0.31
SR9	14/08/2014 Mid-Ebb	0.41	SR11	14/08/2014 Mid-Ebb	0.30
SR9	16/8/2014 Mid-Ebb	0.23	SR11	16/8/2014 Mid-Ebb	0.35
SR9	19/08/2014 Mid-Ebb	0.30	SR11	19/08/2014 Mid-Ebb	0.25
SR9	21/8/2014 Mid-Ebb	0.43	SR11	21/8/2014 Mid-Ebb	0.35
SR9	23/08/2014 Mid-Ebb	0.27	SR11	23/08/2014 Mid-Ebb	0.22
SR9	26/08/2014 Mid-Ebb	0.27	SR11	26/08/2014 Mid-Ebb	0.21
SR9	28/8/2014 Mid-Ebb	0.34	SR11	28/8/2014 Mid-Ebb	0.23
SR9	30/8/2014 Mid-Ebb	0.18	SR11	30/8/2014 Mid-Ebb	0.24
SR9	02/09/2014 Mid-Ebb	0.25	SR11	02/09/2014 Mid-Ebb	0.21
SR9	04/09/2014 Mid-Ebb	0.12	SR11	04/09/2014 Mid-Ebb	0.24
SR9	06/09/2014 Mid-Ebb	0.26	SR11	06/09/2014 Mid-Ebb	0.10
SR9	09/09/2014 Mid-Ebb	0.30	SR11	09/09/2014 Mid-Ebb	0.16
SR9	11/09/2014 Mid-Ebb	0.38	SR11	11/09/2014 Mid-Ebb	0.32
SR9	13/9/2014 Mid-Ebb	0.49	SR11	13/9/2014 Mid-Ebb	0.39
SR9	16/9/2014 Mid-Ebb		SR11	16/9/2014 Mid-Ebb	
SR9	18/09/2014 Mid-Ebb	0.36	SR11	18/09/2014 Mid-Ebb	0.36
SR9	20/9/2014 Mid-Ebb	0.45	SR11	20/9/2014 Mid-Ebb	0.25
SR9	23/9/2014 Mid-Ebb	0.13	SR11	23/9/2014 Mid-Ebb	0.05
SR9	25/9/2014 Mid-Ebb	0.11	SR11	25/9/2014 Mid-Ebb	0.17
SR9	27/9/2014 Mid-Ebb	0.12	SR11	27/9/2014 Mid-Ebb	0.24
SR9	30/9/2014 Mid-Ebb	0.18	SR11	30/9/2014 Mid-Ebb	0.28
SR9	02/10/2014 Mid-Ebb	0.27	SR11	02/10/2014 Mid-Ebb	0.21
SR9	04/10/2014 Mid-Ebb	0.17	SR11	04/10/2014 Mid-Ebb	0.21
SR9	07/10/2014 Mid-Ebb	0.11	SR11	07/10/2014 Mid-Ebb	0.09
SR9	09/10/2014 Mid-Ebb	0.21	SR11	09/10/2014 Mid-Ebb	0.12
SR9	11/10/2014 Mid-Ebb	0.24	SR11	11/10/2014 Mid-Ebb	0.16
SR9	14/10/2014 Mid-Ebb	0.25	SR11	14/10/2014 Mid-Ebb	0.07
SR9	16/10/2014 Mid-Ebb	0.2	SR11	16/10/2014 Mid-Ebb	0.12
SR9	18/10/2014 Mid-Ebb	0.28	SR11	18/10/2014 Mid-Ebb	0.15
SR9	21/10/2014 Mid-Ebb	0.16	SR11	21/10/2014 Mid-Ebb	0.13
SR10	24/07/2014 Mid-Ebb	0.38			
SR10	26/07/2014 Mid-Ebb	0.39			
SR10	29/07/2014 Mid-Ebb	0.26			
SR10	31/07/2014 Mid-Ebb	0.19			
SR10	02/08/2014 Mid-Ebb	0.34			
SR10	05/08/2014 Mid-Ebb	0.23			
SR10	07/08/2014 Mid-Ebb	0.22			
SR10	09/08/2014 Mid-Ebb	0.21			
SR10	12/08/2014 Mid-Ebb	0.27			
SR10	14/08/2014 Mid-Ebb	0.31			
SR10	16/8/2014 Mid-Ebb	0.35			
SR10	19/08/2014 Mid-Ebb	0.34			
SR10	21/8/2014 Mid-Ebb	0.43			
SR10	23/08/2014 Mid-Ebb	0.28			
SR10	26/08/2014 Mid-Ebb	0.27			
SR10	28/8/2014 Mid-Ebb	0.21			
SR10	30/8/2014 Mid-Ebb	0.29			
SR10	02/09/2014 Mid-Ebb	0.24			
SR10	04/09/2014 Mid-Ebb	0.36			
SR10	06/09/2014 Mid-Ebb	0.13			
SR10	09/09/2014 Mid-Ebb	0.22			
SR10	11/09/2014 Mid-Ebb	0.38			
SR10	13/9/2014 Mid-Ebb	0.42			
SR10	16/9/2014 Mid-Ebb				
SR10	18/09/2014 Mid-Ebb	0.39			
SR10	20/9/2014 Mid-Ebb	0.23			
SR10	23/9/2014 Mid-Ebb	0.16			
SR10	25/9/2014 Mid-Ebb	0.22			
SR10	27/9/2014 Mid-Ebb	0.24			
SR10	30/9/2014 Mid-Ebb	0.26			
SR10	02/10/2014 Mid-Ebb	0.30			
SR10	04/10/2014 Mid-Ebb	0.12			
SR10	07/10/2014 Mid-Ebb	0.10			
SR10	09/10/2014 Mid-Ebb	0.14			
SR10	11/10/2014 Mid-Ebb	0.18			
SR10	14/10/2014 Mid-Ebb	0.08			
SR10	16/10/2014 Mid-Ebb	0.1			
SR10	18/10/2014 Mid-Ebb	0.08			
SR10	21/10/2014 Mid-Ebb	0.13			

Cluster 2 TIN(lab)
G1 vs Impact

Impact (Lab)		G1 (lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	114	Number of Valid Observations	38
Number of Missing Values	3	Number of Missing Values	1
Number of Distinct Observations	103	Number of Distinct Observations	37
Minimum	0.0533	Minimum	0.269
Maximum	0.494	Maximum	1.487
Mean of Raw Data	0.24	Mean of Raw Data	0.767
Standard Deviation of Raw Data	0.0974	Standard Deviation of Raw Data	0.295
Kstar	5.372	Kstar	6.182
Mean of Log Transformed Data	-1.522	Mean of Log Transformed Data	-0.342
Standard Deviation of Log Transformed Data	0.456	Standard Deviation of Log Transformed Data	0.407
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.991	Correlation Coefficient R	0.985
Approximate Shapiro Wilk Test Statistic	0.965	Shapiro Wilk Test Statistic	0.961
Approximate Shapiro Wilk P Value	0.0405	Shapiro Wilk Critical (0.95) Value	0.938
Lilliefors Test Statistic	0.0672	Approximate Shapiro Wilk P Value	0.277
Lilliefors Critical (0.95) Value	0.083	Lilliefors Test Statistic	0.123
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.144
		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0
Selected Null Hypothesis	Site or AOC Mean Greater Than or Equal to Background Mean (Form 2)
Alternative Hypothesis	Site or AOC Mean Less Than the Background Mean

Area of Concern Data: Impact (Lab)
Background Data: G1 (lab)

Raw Statistics

	Site	Background
Number of Valid Observations	114	38
Number of Missing Values	3	1
Number of Distinct Observations	103	37
Minimum	0.0533	0.269
Maximum	0.494	1.487
Mean	0.24	0.767
Median	0.239	0.696
SD	0.0974	0.295
SE of Mean	0.00912	0.0479

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background >= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	150	-16.626	-1.655	0
Satterthwaite (Unequal Variance)	39.7	-1.08E+01	-1.684	0

Pooled SD: 0.169
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Reject H0, Conclude Site < Background
* Satterthwaite Test: Reject H0, Conclude Site < Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
37	113	9.196	0

Conclusion with Alpha = 0.05
* Two variances are not equal