

Your ref -
Our ref 214487/(HY/2011/09)/M45/630/B 04342

ARUP

By Hand



B04348

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The Environmental Impact Assessment
Ordinance Register Office
Environmental Protection Department
27/F., Southorn Centre
130 Hennessy Road
Wan Chai
Hong Kong

For the attention of Ms HO Yuen Han, Marlene

25 November 2013

Dear Madam

**HyD Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill
Submission under Environmental Permit (EP-352/2009/C - Condition 4.4)
Monthly EM&A Report – October 2013**

On behalf of HyD/HZMB Project Management Office (the Permit Holder) of the captioned Environmental Permit (EP), I submit herewith three hard copies and one electronic copy of Monthly EM&A Report for October 2013 as per Condition 4.4 of EP-352/2009/C.

I confirm that this submission package has been certified by Environmental Team Leader and verified by Independent Environmental Checker.

Yours faithfully


Colin Meadows
CRE / Supervising Officer's Representative

| | | | |
|----|---------------|------------------|---|
| cc | HyD/HZMBHKPMO | - Mr Y K Lam | w/e – CD only |
| | EPD | - Ms Connie Wong | w/e – one hard copy |
| | AFCD | - Mr C P Lam | w/e – one hard copy |
| | ENPO | - Mr Y H Hui | w/e – one hard copy and one electronic copy |
| | IEC | - Mr Antony Wong | w/o – By fax only |
| | Arup | - Mr Eric Chan | w/e – CD only |

Response required : No
Date required : -
Attachments : Yes

MC/DS/KY/et
#03544

Ref.: HYDHZMBEEM00_0_1484L.13

26 November 2013

ARUP
Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon

By Fax (3767 5922) and By Post

Attention: Mr. Colin Meadows / Mr. Michael Chan

Dear Sirs,

**Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities,
and Tuen Mun-Chek Lap Kok Link – Investigation**

**Contract No. HY/2011/09 HZMB Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill
Revised Monthly EM&A Report for October 2013 (EP-352/2009/C)**

Reference is made to the revised Monthly EM&A Report No. 9 (October 2013) Version 3.0 certified by the Environmental Team Leader (ETL) received by us on 26 November 2013.

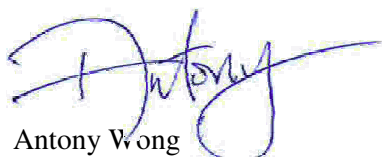
We are pleased to inform you that we have no adverse comments and hereby verify the captioned Revised Monthly EM&A Report No. 9 (October 2013) in accordance with Condition 4.4 of EP-352/2009/C.

We would also like to remind the ETL that he is responsible to ensure the EM&A works are properly carried out in accordance with the EP, EM&A Manual and all other documents relevant to EM&A for HY/2011/09 approved by, or with no comments from, the relevant authorities. The ETL is also responsible to ensure all environmental monitoring results shall be true, valid and correct. For monitoring works required to monitor the potential impacts of a particular type of work, it is ETL's responsibility to ensure the relevance of the reporting.

The ETL should be made aware that our verification to this report does not release the ETL any of his obligations to comply with the EM&A Manual and approved monitoring methodologies.

Thank you for your kind attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y H Hui should you have any queries.

Yours sincerely,



Antony Wong
Independent Environmental Checker
Hong Kong Link Road

c.c. HyD – Mr. Matthew Fung (By Fax: 3188 6614)
HyD – Mr. Y K Lam (By Fax: 3188 6614)

ARUP – Mr. Eric Chan (By Fax: 2268 3970)
Cinotech – Dr. H F Chan (By Fax: 3107 1388)
DCVJV – Mr. Chu Chung Sing (By Fax: 3121 6688)

Internal: DY, YH, ENPO Site

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Dragages -China Harbour-VSL JV

Contract HY/2011/09
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Link Road-Section between
HKSAR Boundary and Scenic Hill
Monthly EM&A Report
October 2013
(Version 3.0)

Certified By



Dr. H.F. Chan
Environmental Team Leader
(Date: 26 November 2013)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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EXECUTIVE SUMMARY**Introduction**

1. This is the 9th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the project “Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill” (hereinafter called the “Contract”). This report documents the findings of EM&A Works conducted in October 2013.

Environmental Monitoring and Audit Progress

2. A summary of the monitoring activities in this reporting month is listed in **Table I** below:

Table I Summary Table for Monitoring Activities in the Reporting Month

| Parameter(s) | Date(s) |
|---|---|
| 1-hr TSP Monitoring | 3 rd , 9 th , 15 th , 21 st , 25 th and 31 st October 2013 |
| 24-hr TSP Monitoring | 3 rd , 9 th , 15 th , 21 st , 25 th and 31 st October 2013 |
| Noise Monitoring | 10 th , 16 th , 22 nd and 28 th October 2013 |
| Water Quality Monitoring | 2 nd , 4 th , 7 th , 9 th , 11 th , 15 th , 17 th , 19 th , 21 st , 23 rd , 25 th , 28 th and 30 th October 2013 |
| Dolphin Monitoring (Line-transect Vessel Surveys) | 9 th and 18 th October 2013 |
| Additional Land-based Dolphin Behaviour and Movement Monitoring | ⁽¹⁾ N/A |
| Environmental Site Inspection | 2 nd , 7 th , 16 th , 22 nd and 29 th October 2013 |
| Archaeological Site Inspection | ⁽²⁾ N/A |

Remark: ⁽¹⁾ The additional land-based dolphin behavior and movement monitoring tentatively scheduled on 30 and 31 October 2013 were not conducted in the reporting month. In view of the construction activities have no significant change in the two months, the monitoring in October and November 2013 will be considered/reviewed in the monthly EM&A report for November 2013.

⁽²⁾ No archaeological site inspection was conducted in the reporting month.

Breaches of Action and Limit Levels

3. Summary of the environmental exceedances of the reporting month is tabulated in **Table II**.

Table II Summary Table for Events Recorded in the Reporting Month

| Environmental Monitoring | Parameter | No. of Exceedance | | No. of Exceedance related to the Construction Activities of this Contract | |
|--------------------------|--|-------------------|-------------|---|-------------|
| | | Action Level | Limit Level | Action Level | Limit Level |
| Air Quality | 1-hr TSP | 0 | 0 | 0 | 0 |
| | 24-hr TSP | 0 | 0 | 0 | 0 |
| Noise | L _{eq} (30min) | 0 | 0 | 0 | 0 |
| Water Quality | Dissolved Oxygen (DO) (Surface & Middle) | 0 | 0 | 0 | 0 |
| | Dissolved Oxygen (DO) (Bottom) | 0 | 0 | 0 | 0 |
| | Turbidity | 1 | 0 | 0 | 0 |
| | Suspended Solids (SS) | 5 | 3 | 0 | 0 |

1-hour TSP Monitoring

4. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

5. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

6. All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

7. All water quality monitoring was conducted as scheduled in the reporting month. There are five Action Level and three Limit Level exceedances for suspended solids were recorded. One Action Level exceedance for turbidity was recorded.
8. According to the investigation, no pollution discharge was observed from the site. In addition, no marine construction works were conducted in vicinity of monitoring station in which exceedances were recorded. Therefore, the exceedances are considered not due to the Contract.

Complaint Log

9. No environmental complaint was received in the reporting month.

Notification of Summons and Successful Prosecutions

10. No notification of summons and successful prosecution was received in the reporting month.

Reporting Changes

11. This report has been developed in compliance with the reporting requirements for the subsequent monthly EM&A Report as required by the EM&A Manual for Hong Kong Link Road (EM&A Manual).

Future Key Issues

12. Major site activities for the coming reporting month will include:

WA4

- Fabrication of rebar cages
- Fabrication of temporary piling platforms

WA7

- Fabrication of rebar cages
- Loading and Unloading

Marine Viaduct (P0 to P84)

- Piling works for the temporary jetty
- Beams and deck installation for jetty
- Installation of temporary casings
- Pile excavation by Reverse Circulation Drilling (RCD) method
- Pile excavation by Kelly method
- Sonic Test
- Installation of permanent casing
- Installation of temporary piles for piling platform
- Predrilling works

Land Viaduct (P85 to P114)

- Land piling and concreting works
- Formation of piling platform along seawall
- Kicker pour for column
- Formation of site access along the top of the existing seawall
- Marine landing access establishment work
- Drainage and water main diversion
- Predrilling works
- Concrete surrounding works for slewed telecommunication cables
- Trench excavation for slewing of AAHK's COM cable
- Tree felling/transplant work

- Pile head excavation / trimming
- Pile cap and column construction

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was appointed by Dragages -China Harbour-VSL JV (hereinafter called “the Contractor”) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Contract No. HY/2011/09 – Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill” (hereinafter called the “Contract”) in accordance with EP Conditions 2.1.

Purpose of the report

- 1.2 This is the 9th EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme in October 2013.

Structure of the report

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - purpose and structure of the report.

Section 2: **Contract Information** - summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

Section 3: **Air Quality Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Dolphin-Related Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and monitoring results.

Section 7: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 8: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 9: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 10: **Conclusions and Recommendation**

2 CONTRACT INFORMATION

Background

- 2.1 The proposed Hong Kong - Zhuhai - Macao Bridge Hong Kong Link Road (HKLR) is 12km long connecting the Hong Kong-Zhuhai-Macao Bridge (HZMB) at the HKSAR Boundary with the Hong Kong Boundary Crossing Facilities (HKBCF) situated at the north eastern waters of the Hong Kong International Airport, opening a new and direct connection route between Hong Kong, Macao and the Western Pearl River Delta.
- 2.2 The HKLR comprises a 9.4km long viaduct section from the HKSAR boundary to Scenic Hill on the Airport Island; a 1km tunnel section to the reclamation formed along the east coast of the Airport Island and a 1.6km long at-grade road section on the reclamation connecting to the HKBCF. The tunnel section of HKLR will pass under Scenic Hill, Airport Road and Airport Railway to minimize the environmental and visual impacts to Tung Chung residents.
- 2.3 An application (No ESB-110/2003) for an Environmental Impact Assessment (EIA) Study Brief under Section 5(1) of the Environmental Impact Assessment Ordinance (EIAO) was submitted by Highways Department (the Project Proponent) on 8 October 2003 with a Project Profile (No. No. PP-201/2003) for the Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection. The Hong Kong - Zhuhai - Macao Bridge Hong Kong Section and North Lantau Highway Connection has subsequently been renamed as HKLR. EPD issued an EIA Study Brief (No: ESB-110/2003) in November 2003 to the Project Proponent to carry out an EIA study.
- 2.4 An EIA Study (Reg. No. AEIAR-144/2009) has been undertaken to provide information on nature and extent of environmental impacts arising from the construction and operation of HKLR. The Environmental Permit was issued on 4 November 2009 (Permit No. EP-352/2009). Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-352/2009) based on the Application No. VEP-339/2011 and the environmental Permit (Permit No. EP-352/2009/A) was issued on 9 November 2011 for HKLR to the Highways Department as the Permit Holder. Subsequently, the Director of Environmental Protection amends the Environmental Permits (No. EP-352/2009/A and EP-352/2009/B) based on the Application No. VEP-409/2013 and VEP-411/2013 respectively. The environmental Permit (Permit No. EP-352/2009/C) was then issued on 5 September 2013.
- 2.5 **Figure 1a-d** shows the layout of the Contract and the scope of the Contract works comprises the following major items:
 - a dual 3-lane carriageway in the form of viaduct from the HKSAR boundary (connecting with the HZMB Main Bridge) to the Scenic Hill (connecting with the tunnel under separate Contract No. HY/2011/03), of approximately 9.4km in length with a hard shoulder for each bound of carriageway and a utilities trough on the outer edge of each bound of viaducts;
 - a grade-separated turnaround facility located near San Shek Wan, composed of sliproads in the form of viaduct with single-lane carriageway bifurcated from the HKLR mainline with an elevated junction above the mainline;
 - provision of ancillary facilities including, but not limited to, meteorological enhancement measures including the provisioning of anemometers and

modification of the wind profiler station at hillside of Sha Lo Wan, provisioning of a compensatory marine radar, and provisioning of security systems; and

- associated civil, structural, geotechnical, marine, environmental protection, landscaping, drainage and highways electrical and mechanical (E&M) works, street lightings, traffic aids and sign gantries, marine navigational aids, ship impact protection system, water mains and fire hydrants, lightning protection system, structural health monitoring and maintenance management system (SHM&MMS), supervisory control and data acquisition (SCADA) system, as well as operation and maintenance provisions of viaducts, provisioning of facilities for installation of traffic control and surveillance system (TCSS), provisioning of facilities for installation of telecommunication cables/equipments and reprovisioning works of affected existing facilities/utilities.

Contract Organisation

2.6 Different parties with different levels of involvement in the Contract organization include:

- Supervising Officer's Representative (SOR) – Ove Arup & Partners Hong Kong Limited (ARUP)
- Contractor – Dragages -China Harbour-VSL JV (DCVJV)
- Environmental Team (ET) – Cinotech Consultants Ltd. (Cinotech)

2.7 The proposed project organization and lines of communication with respect to the on-site environmental management structure are shown in **Figure 2**. The key personnel contact names and numbers are summarized in **Table 2.1**.

Table 2.1 Key Contacts of the Contract

| Party | Position | Position | Phone No. | Fax No. |
|-----------------------|-------------------------------------|--------------------|-----------|-----------|
| SOR (ARUP) | CRE | Mr. Michael Chan | 3767 5803 | 3767 5922 |
| | | Mr. Colin Meadows | 3767 5801 | |
| ENPO/IEC (Environ) | Environmental Project Office Leader | Mr. Y. H Hui | 3465 2888 | 3465 2899 |
| | Independent Environmental Checker | Mr. Antony Wong | 3465 2888 | 3465 2899 |
| Contractor (DCVJV) | Deputy Project Director | Mr. W.K Poon | 3121 6638 | 3121 6688 |
| | Environmental Officer | Mr. CHU Chung Sing | 3121 6672 | |
| | 24-hour Hotline | -- | 6898 6161 | -- |
| ET (Cinotech) | Environmental Team Leader | Dr. H.F Chan | 2151 2088 | 3107 1388 |

2.8 ENVIRON Hong Kong Ltd. (Environ) is employed by the Highways Department as the Independent Environmental Checker (IEC) and Environmental Project Office (ENPO) for the Project.

Construction Programme

2.9 A copy of Contractor's construction programme is provided in **Appendix A**.

Summary of Construction Works Undertaken During Reporting Month

2.10 The major site activities undertaken in the reporting month included:

Land Viaduct (P84 to Eastern Abutment at SHT) and Preparation Works

- (a) Land piling works are in progress with total 15 and 6 no. of pile concreted in Portion C and Portion A respectively. 4 piles were concreted in this reporting period. All land piling machines are now carrying out piling works at Portion A due to existing drainage/watermain diversion and the COM cable of AA inside Portion C still to be diverted;
- (b) Formation of piling platform along seawall continues in progress. 6 nos. of platform (in between P92 to P107) were completed in this reporting period. Four other platforms (in between P84 to P91) were being filled up to level of +3mPD;
- (c) Three kickers at column P108L, P110L & P110R were poured and two column stem sections (P109L & P109R) were poured in this reporting period;
- (d) Rebar threading for coupler started on site in Portion C;
- (e) Tree felling in Portion A & C and continues in progress;
- (f) Tracing of AA COM cables alignment and terminals was completed with report submitted. Cable terminals were also checked in the survey and now slewing works pending for AAHK's works permit. Revised method statement was submitted;
- (g) Marine landing access near P82 commenced operation on 10 October followed a joint inspection with AA on 3 October;
- (h) Drainage diversion work permit was received and excavation works and ELS installation started in this reporting period;
- (i) Construction of ingresses & egresses along Portion A are in progress;
- (j) Trial trenches for pile cap construction at P111 started but disrupted due to uncharted cable was found obstructing the pile cap.

Marine Viaduct (P0 to P84)

- (k) Beams and deck installation for jetty at P69-P70 in progress (100% of piling completed, 60% of beams & 45% of deck installed);
- (l) Installation of temporary casings, jackets and permanent casings carried out at P51L&R, P54L & P65 carried out in this reporting period;
- (m) Dismantling of jacket at P47 was finished;
- (n) Pile excavation by RCD method at P46, P51, P53, P54, P65 and P73 carried out in this reporting period with 17 piles concreted;

- (o) The remaining visas requested by Sambo were granted this month. A 5th working front will start in November 2013;
- (p) Installation of temporary piles, platforms and permanent casings for Kelly method carried out at P18, P38, P39, P40, P41, P42 and P44 in this reporting period;
- (q) Piling platform at P43 and P45 were removed in this reporting period;
- (r) Pile excavation by Kelly method at P19, P20, P40, P43, P44 and P45 carried out in this reporting period with 20 piles concreted;
- (s) Progress at P0 was affected by the interface concrete issues at exceptional depth;
- (t) Inter-face Coring Test and Sonic Testing were carried out to completed piles at P0, P43, P47 and P53 in this reporting period.

Status of Environmental Licences, Notification and Permits

2.11 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Contract is presented in **Table 2.2**.

Table 2.2 Status of Environmental Licences, Notification and Permits

| Permit / License No. | Valid Period | | Status |
|---|--------------------|--------------------|-------------------------------|
| | From | To | |
| Environmental Permit (EP) | | | |
| EP-352/2009/C | 05/09/2013 | N/A | Valid |
| Consruction Noise Permit (CNP) | | | |
| Pier 0: GW-RS0353-13 | 07/04/2013(07:00) | 06/10/2013(23:00) | Expired |
| P19-P20: GW-RS0370-13 | 17/04/2013(23:00) | 16/10/2013(23:00) | Expired |
| WA3B: GW-RS0499-13 | 15/05/2013 (00:00) | 14/11/2013 (24:00) | Valid |
| P71-P73: GW-RS0636-13 | 17/06/2013(19:00) | 16/12/2013(23:00) | Valid |
| WA7: GW-RW0484-13 | 15/07/2013(23:00) | 14/01/2014(07:00) | Valid |
| WA4: GW-RW0496-13 | 19/07/2013(19:00) | 18/01/2014(23:00) | Valid |
| P65-P66:GW-RS0865-13 | 02/08/2013(23:00) | 01/02/2014(07:00) | Valid |
| P76-P80:GW-RS0868-13 | 02/08/2013(23:00) | 01/02/2014(07:00) | Valid |
| P69-P70:GW-RS0869-13 | 02/08/2013(23:00) | 01/02/2014(07:00) | Valid |
| WA7:GW-RW0524-13 | 27/08/2013(19:00) | 27/02/2014(23:00) | Valid |
| WA4B:GW-RW0550-13 | 12/08/2013(23:00) | 11/02/2014(07:00) | Valid |
| Waters in works area Portion A: GW-RS0895-13 | 13/08/2013(07:00) | 21/10/2013(23:00) | Expired |
| P16-P18 and P21-P25: GW-RS0975-13 | 28/08/2013(19:00) | 26/02/2014(23:00) | Cancelled |
| P69-P70: GW-RS0976-13 | 16/09/2013(19:00) | 15/03/2014(23:00) | Valid |
| P76-P80: GW-RS0981-13 | 30/08/2013(19:00) | 28/02/2014(23:00) | Valid |
| P0-P21: GW-RS0940-13 | 23/08/2013(23:00) | 22/02/2014(07:00) | Superseded by GW-RS1108-13 |
| P83: GW-RS0956-13 | 24/08/2013(19:00) | 23/02/2014(24:00) | Valid |
| P46-P64: GW-RS0970-13 | 27/08/2013(23:00) | 26/02/2014(07:00) | Valid |
| P65-P66: GW-RS0967-13 | 27/08/2013(19:00) | 26/02/2014(23:00) | Valid |
| P38-P54: GW-RS0986-13 | 02/09/2013(19:00) | 01/03/2014(23:00) | Valid |

| Permit / License No. | Valid Period | | Status |
|--|--------------------|--------------------|--------------------------------|
| | From | To | |
| <u>P85-P87 and P103-P113:</u> GW-RS0994-13 | 02/09/2013(19:00) | 01/03/2014(23:00) | Valid |
| <u>P0 – P21:</u> GW-RS1108-13 | 07/10/2013 (23:00) | 06/04/2014 (07:00) | Valid |
| <u>P88 – P102:</u> GW-RS1116-13 | 08/10/2013 (19:00) | 06/04/2014 (23:00) | Valid |
| <u>P81 – P82:</u> GW-RS1143-13 | 11/10/2013 (19:00) | 10/04/2014 (24:00) | Valid |
| <u>Waters in Works Area Portion A:</u> GW-RS1164-13 | 22/10/2013 (19:00) | 23/12/2013 (23:00) | Valid |
| <u>P0 – P25:</u> GW-RS1166-13 | 17/10/2013 (19:00) | 16/04/2014 (23:00) | Valid |
| Notification pursuant to Air Pollution Control (Construction Dust) Regulation | | | |
| 345773 | 04/06/2012 | N/A | Receipt acknowledged by EPD |
| Billing Account for Construction Waste Disposal | | | |
| A/C# 7015341 (Construction Site) | 13/06/2012 | N/A | Valid |
| A/C# 7016948 (Vessel Disposal) | 01/09/2013 | 30/11/2013 | Valid |
| Registration of Chemical Waste Producer | | | |
| WPN 5213-951-D2499-01 | 18/07/2012 | N/A | Valid |
| Effluent Discharge License under Water Pollution Control Ordinance | | | |
| <u>WA6A(DCVJV site office):</u> WT00014053-2012 | 12/09/2012 | 30/09/2017 | Valid |
| <u>WA6B (SOR site office):</u> WT00014447-2012 | 30/10/2012 | 31/10/2017 | Valid |
| <u>WA3:</u> WT00015118-2013 | 30/01/2013 | 31/01/2018 | Valid |
| <u>Portion C:</u> WT00015356-2013 | 22/02/2013 | 28/02/2018 | Valid |
| <u>Portion A:</u> WT00016076-2013 | 21/05/2013 | 31/05/2018 | Valid |
| <u>WA4B:</u> WT00014750-2012 | 12/08/2013 | 31/08/2018 | Valid |
| Marine Dumping Permit | | | |
| <u>Dumping of Phase 1, 2a, 2b, 2c and 2d (Type 1-Open Sea Disposal) marine sediment</u> EP/MD/14-043 | 05/08/2013 | 04/02/2014 | Valid |
| <u>Dumping of Phase Phase 1, 2a, 2b, 2c and 2d (Type 1D and Type 2) marine sediment</u> EP/MD/14-054 | 07/09/2013 | 06/10/2013 | Expired |
| <u>Dumping of Phase Phase 1, 2a, 2b, 2c and 2d (Type 1D and Type 2) marine sediment</u> EP/MD/14-070 | 07/10/2013 | 06/11/2013 | Valid |

3 AIR QUALITY MONITORING

Monitoring Requirements

- 3.1 In accordance with the EM&A Manual, impact 1-hour TSP and 24-hour TSP monitoring were conducted to monitor the air quality for the Contract. **Appendix B** shows the established Action/Limit Levels for the air quality monitoring works.
- 3.2 Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was conducted for at least once every 6 days at 2 air quality monitoring stations.

Monitoring Location

- 3.3 Impact air quality monitoring was conducted at the 2 monitoring stations under the Contract, as shown in **Figure 3**. **Table 3.1** describes the locations of the air quality monitoring stations.

Table 3.1 Location for Air Quality Monitoring Locations

| Monitoring Stations | Location |
|---------------------|------------|
| AMS1 | Sha Lo Wan |
| AMS4 | San Tau |

Monitoring Equipment

- 3.4 **Table 3.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix C**.

Table 3.2 Air Quality Monitoring Equipment

| Equipment | Model and Make | Quantity |
|-----------------|-----------------------------------|----------|
| HVS Sampler | TISCH Model: TE-5170 | 2 |
| Calibrator | TISCH Model: TE-5025A | 2 |
| Wind Anemometer | DAVIS Model: Vantage PRO2 6152CUK | 1 |

Monitoring Parameters, Frequency and Duration

- 3.5 **Table 3.3** summarizes the monitoring parameters and frequencies of impact dust monitoring during the course of the Contract activities. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 3.3 Impact Dust Monitoring Parameters, Frequency and Duration

| Parameters | Frequency |
|------------|----------------------|
| 1-hr TSP | Three times / 6 days |
| 24-hr TSP | Once / 6 days |

Monitoring Methodology and QA/QC Procedure

1-hour and 24-hour TSP Air Quality Monitoring

Instrumentation

- 3.6 High Volume Samplers (HVS) completed with appropriate sampling inlets were employed for air quality monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

HVS Installation

- 3.7 The following guidelines were adopted during the installation of HVS:
- Sufficient support was provided to secure the sampler against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The samplers were more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
 - Permission must be obtained to set up the samples and to obtain access to the monitoring stations; and
 - A secured supply of electricity is needed to operate the samplers.

Filters Preparation

- 3.8 Filter paper of size 8" X 10" was used. A HOKLAS accredited laboratory, ETS – Testconsult Limited (ETS), was responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for Cinotech's monitoring team.
- 3.9 All filters, which were prepared by ETS, were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.
- 3.10 ETS has comprehensive quality assurance and quality control programmes.

Operating/Analytical Procedures

- 3.11 Operating/analytical procedures for the air quality monitoring were highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- After sampling, the filter was removed and sent to the ETS for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%. Weighing results were returned to Cinotech for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

3.12 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- All HVS were calibrated (five point calibration) using Calibration Kit prior to the commencement of the baseline monitoring and thereafter at bi-monthly intervals.

Results and Observations

3.13 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in **Table 3.4 and 3.5** respectively. Detailed monitoring results and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices E and F** respectively.

Table 3.4 Summary Table of 1-hour TSP Monitoring Results during the Reporting Month

| Monitoring Station | Concentration (µg/m ³) | | Action Level, µg/m ³ | Limit Level, µg/m ³ |
|--------------------|------------------------------------|----------|---------------------------------|--------------------------------|
| | Average | Range | | |
| AMS1 | 131 | 55 - 234 | 381 | 500 |
| AMS4 | 147 | 60 - 265 | 352 | |

Table 3.5 Summary Table of 24-hour TSP Monitoring Results during the Reporting Month

| Monitoring Station | Concentration (µg/m ³) | | Action Level, µg/m ³ | Limit Level, µg/m ³ |
|--------------------|------------------------------------|----------|---------------------------------|--------------------------------|
| | Average | Range | | |
| AMS1 | 96 | 40 – 156 | 170 | 260 |
| AMS4 | 91 | 20 - 130 | 171 | |

- 3.14 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3.15 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3.16 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are as follows:

Table 3.6 Observation at Dust Monitoring Stations

| Monitoring Station | Major Dust Source |
|--------------------|-----------------------------|
| AMS1 | Exhaust from marine traffic |
| AMS4 | N/A |

- 3.17 The wind speed and wind direction were recorded by the installed Wind Anemometer set at AMS4. The location is shown in **Figure 3**.
- 3.18 The wind data for the reporting month is summarized in **Appendix J**.

Event and Action Plan

- 3.19 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

4 NOISE MONITORING

Monitoring Requirements

- 4.1 In accordance with EM&A Manual, two noise monitoring stations, namely NMS1 and NMS4 were selected for impact monitoring for the Contract. Impact noise monitoring was conducted for at least once per week during the construction phase of the Contract. **Appendix B** shows the established Action and Limit Levels for the noise monitoring works.

Monitoring Location

- 4.2 Impact noise monitoring was conducted at the 2 monitoring stations under the Contract, as shown in **Figure 3**. **Table 4.1** describes the locations of the air quality monitoring stations.

Table 4.1 Location for Air Quality Monitoring Locations

| Monitoring Stations | Location |
|---------------------|------------|
| NMS1 | Sha Lo Wan |
| NMS4 | San Tau |

Monitoring Equipment

- 4.3 **Table 4.2** summarizes the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix C**.

Table 4.2 Noise Monitoring Equipment

| Equipment | Model and Make | Qty. |
|-------------------------------|----------------|------|
| Integrating Sound Level Meter | SVAN 957 | 2 |
| Calibrator | SV 30A | 2 |

Monitoring Parameters, Frequency and Duration

- 4.4 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

Table 4.3 Noise Monitoring Parameters, Frequency and Duration

| Monitoring Stations | Parameter | Period | Frequency |
|---------------------|---|----------------------------------|---------------|
| NMS1 NMS4 | L ₁₀ (30 min.) dB(A) L ₉₀ (30 min.) dB(A) L _{eq} (30 min.) dB(A) (as six consecutive L _{eq, 5min} readings) | 0700-1900 hrs on normal weekdays | Once per week |

Monitoring Methodology and QA/QC Procedures

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - time measurement : $L_{eq}(30 \text{ min.})$ dB(A) (as six consecutive $L_{eq, 5min}$ readings) during non-restricted hours (i.e. 0700-1900 hrs on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused temporarily during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Maintenance and Calibration

- 4.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- 4.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 4.7 Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 4.8 The noise monitoring results are summarized in **Table 4.4**. Detailed monitoring results and graphical presentations of noise monitoring are shown in **Appendices G**.

Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Month

| Monitoring Station | Noise Level, $L_{eq}(30min)$ dB(A) | | Limit Level |
|--------------------|------------------------------------|---------|-------------|
| | Average | Range | |
| NMS1 | 69 | 67 – 70 | 75 dB(A) |
| NMS4 | 55 | 52 – 58 | |

Remark: +3dB(A) Façade correction included

- 4.9 All noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

Table 4.5 Observation at Noise Monitoring Stations

| Monitoring Station | Major Noise Source |
|--------------------|------------------------------------|
| NMS1 | Air traffic & marine traffic noise |
| NMS4 | Air traffic & marine traffic noise |

Event and Action Plan

- 4.11 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

5 WATER QUALITY MONITORING

Monitoring Requirements

- 5.1 According to EM&A Manual, impact water quality monitoring shall be carried out three days per week during the construction period. The interval between two sets of monitoring will not be less than 36 hours.
- 5.2 Replicate in-situ measurements and samples collected from each independent sampling event shall be collected to ensure a robust statistically interpretable database.
- 5.3 Impact water quality monitoring was conducted two times per monitoring day during mid ebb (within ± 1.75 hours of the predicted time) and mid flood tides (within ± 1.75 hours of the predicted time) at three depths (i.e. 1m below surface, mid-depth and 1m above seabed, except where the water depth less than 6m, mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station was monitored) Dissolved oxygen, Suspended solids (SS), turbidity, pH, salinity and temperature were monitored in accordance with the requirements set out in the EM&A Manual.
- 5.4 The proposal for changing Action and Limit Levels for water quality monitoring was submitted to EPD on 15 March 2013. No objection was received from EPD according to the letter (ref. (10) in Ax(3) to EP2/G/A/129pt.4) dated 25 March 2013. Therefore, the updated Action and Limit Levels for water quality monitoring was used for comparison starting from 25 March 2013.
- 5.5 **Appendix B** shows the established Action/Limit Levels for the water quality monitoring works.

Monitoring Locations

- 5.6 Impact water quality monitoring was conducted at 14 monitoring stations under the Contract which are summarized in **Table 5.1**. The monitoring station is also shown in **Figure 4**.

Table 5.1 Location for Marine Water Quality Monitoring Locations

| Monitoring Stations | Coordinates | |
|---------------------|-------------|----------|
| | Easting | Northing |
| IS1 | 803474 | 815060 |
| IS2 | 804851 | 815715 |
| IS3 | 806502 | 815743 |
| IS4 | 807008 | 816986 |
| CS1 | 801784 | 812711 |
| CS2 | 805849 | 818780 |
| SR1 | 803126 | 812379 |
| SR2 | 807856 | 816953 |
| SR3 | 810525 | 816456 |
| SR6 | 805837 | 821818 |
| ST1 | 802677 | 816006 |
| ST2 | 804055 | 818840 |

| Monitoring Stations | Coordinates | |
|---------------------|-------------|----------|
| | Easting | Northing |
| ST3 | 800667 | 810126 |
| SRA | 809872 | 817152 |

Monitoring Equipment

Instrumentation

- 5.7 A multi-parameter meters (Model YSI 6820-C-M) were used to measure DO, turbidity, salinity, pH and temperature.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

- 5.8 The instrument for measuring dissolved oxygen and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:
- a dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
 - a temperature of 0-45 degree Celsius.
- 5.9 It has a membrane electrode with automatic temperature compensation complete with a cable.
- 5.10 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.
- 5.11 Salinity compensation was built-in in the DO equipment.

Turbidity

- 5.12 Turbidity was measured in situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not less than 25m in length. The meter was calibrated in order to establish the relationship between NTU units and the levels of suspended solids. The turbidity measurement was carried out on split water sample collected from the same depths of suspended solids samples.

Sampler

- 5.13 A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with cups at both ends was used. The water sampler has a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth.

Water Depth Detector

- 5.14 A portable, battery-operated echo sounder was used for the determination of water depth

at each designated monitoring station.

pH

- 5.15 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

Salinity

- 5.16 A portable salinometer capable of recording salinity within the range of 0-40 ppt was used for salinity measurements.

Monitoring Position Equipment

- 5.17 A hand held Differential Global Positioning System (DGPS) was used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

Sample Container and Storage

- 5.18 Following collection, water samples for laboratory analysis were stored in high density polythene bottles (250ml/1L) with no preservatives added, packed in ice (cooled to 4°C without being frozen) and kept in dark during both on-site temporary storage and shipment to the testing laboratory. The samples were delivered to the laboratory as soon as possible and the laboratory determination works were started within 24 hours after collection of the water samples. Sufficient volume of samples was collected to achieve the detection limit.

Calibration of In Situ Instruments

- 5.19 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before measurement at each monitoring event.
- 5.20 For the on site calibration of field equipment (Multi-parameter Water Quality System), the BS 1427:2009, "Guide to on-site test methods for the analysis of waters" was observed.
- 5.21 Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was also being made available so that monitoring can proceed uninterrupted even when some equipment was under maintenance, calibration, etc.
- 5.22 The equipment used for impact water quality monitoring is shown in **Table 5.2** and copies of the calibration certificates are shown in **Appendix C**. All the monitoring

equipment complied with the requirements set out in the EM&A Manual.

Table 5.2 Water Quality Monitoring Equipment

| Equipment | Model and Make | Qty |
|--------------------------------------|--|-----|
| Sonar Water Depth Detector | Garmin Fishfinder 140 | 2 |
| Monitoring Position Equipment | KODEN DGPS (KGP913MKIID, GA-08 & BA-03) | 2 |
| Multi-parameter Water Quality System | YSI 6820-C-M / YSI 6920-M | 2 |
| Water Sampler | Kahlsico Water-Bottle Model 135DW 150 | 2 |

Monitoring Parameters, Frequency

5.23 **Table 5.3** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring. The water quality monitoring schedule for the reporting month is shown in **Appendix D**.

Table 5.3 Water Quality Monitoring Parameters and Frequency

| Monitoring Stations | Parameters, unit | Depth | Frequency |
|---|--|---|---|
| IS1, IS2, IS3 IS4, CS1, CS2, SR1, SR2, SR3, SR6, ST1, ST2, ST3, SRA | <ul style="list-style-type: none"> Temperature(°C) pH(pH unit) turbidity (NTU) water depth (m) salinity (ppt) dissolved oxygen (DO) (mg/L and % of saturation) suspended solids (SS) (mg/L) | <ul style="list-style-type: none"> 3 water depths: 1m below sea surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If water depth less than 6m, mid-depth may be omitted. | <ul style="list-style-type: none"> Impact monitoring: 3 days per week, at mid-flood and mid-ebb tides during the construction period of the Contract |

5.24 Monitoring location/position, time, water depth, sampling depth, pH, salinity, DO saturation, water temperature, tidal stages, weather conditions and any special phenomena or work underway nearby were recorded.

Monitoring Methodology

Instrumentation

5.25 A multi-parameter meters (Model YSI 6820-C-M) were used to measure DO, turbidity, salinity, pH and temperature.

Operating/Analytical Procedures

5.26 The monitoring stations were accessed by the guide of a hand-held Differential Global Positioning System (DGPS) during water quality monitoring in accordance with the EM&A Manual. The depth of the monitoring location was measured using depth meter in order to determine the sampling depths. Afterwards, the probes of the in-situ

measurement equipment were lowered to the predetermined depths (1 m below water surface, mid-depth and 1 m above seabed) and the measurements were carried out accordingly.

- 5.27 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.
- 5.28 Water sampler was lowered into the water to the required depths of sampling. Upon reaching the pre-determined depth, a messenger to activate the sampler was then released to travel down the wire. The water sample was sealed within the sampler before retrieving. At each station, water samples at three depths (1 m below water surface, mid-depth and 1 m above seabed) were collected accordingly. Water samples were stored in a cool box and kept at less than 4°C but without frozen and sent to the laboratory as soon as possible. In addition, field information as described in Section 5.23 was also recorded.

Laboratory Analytical Methods

- 5.29 The testing of all parameters was conducted by CMA Testing and Certification Laboratories (HOKLAS Registration No.004) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results. The testing method, reporting limit and detection limit are provided in **Table 5.4**.

Table 5.4 Methods for Laboratory Analysis for Water Samples

| Determinant | Instrumentation | Analytical Method | Detection Limit |
|----------------------|------------------------|--------------------------|------------------------|
| Suspended Solid (SS) | Weighing | APHA 21e 2540D | 0.5 mg/L |

QA/QC Requirements

Decontamination Procedures

- 5.30 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

Sampling Management and Supervision

- 5.31 All sampling bottles were labelled with the sample I.D (including the indication of sampling station and tidal stage e.g. IS1_me_a), laboratory number and sampling date. Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.

- 5.32 The laboratory determination works were started within 24 hours after collection of the water samples.

Quality Control Measures for Sample Testing

- 5.33 The samples testing were performed by CMA Testing and Certification Laboratories.
- 5.34 The following quality control programme was performed by the CMA Testing and Certification Laboratories for every batch of 20 samples:
- ✧ One set of quality control (QC) samples.

Maintenance and Calibration

- 5.35 All in situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring programme.

Results and Observations

- 5.36 The monitoring results and graphical presentation of water quality at the monitoring stations is shown in **Appendix H**.
- 5.37 The summary of exceedance record in reporting month is shown in **Appendix L** and summarized in the **Table 5.5**.

Table 5.5 Summary of Water Quality Exceedances

| Station | Exceedance Level | DO (Surface & Middle) | | DO(Bottom) | | Turbidity | | SS | | Total Number of Exceedances | |
|---------|------------------|-----------------------|-----------|------------|-----------|-----------|------------|------------|------------|-----------------------------|-----------|
| | | Mid-Ebb | Mid-Flood | Mid-Ebb | Mid-Flood | Mid-Ebb | Mid-Flood | Mid-Ebb | Mid-Flood | Mid-Ebb | Mid-Flood |
| IS1 | Action Level | | | | | | | | 11/10/2013 | 0 | 1 |
| | Limit Level | | | | | | | | 09/10/2013 | 0 | 1 |
| IS2 | Action Level | | | | | | | 07/10/2013 | 11/10/2013 | 1 | 1 |
| | Limit Level | | | | | | | | | 0 | 0 |
| IS3 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| IS4 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| SR1 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| SR2 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| SR3 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| SR6 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | 04/10/2013 | 0 | 1 |
| ST1 | Action Level | | | | | | 23/10/2013 | | | 0 | 1 |
| | Limit Level | | | | | | | | 23/10/2013 | 0 | 1 |
| ST2 | Action Level | | | | | | | | 07/10/2013 | 0 | 1 |
| | Limit Level | | | | | | | | | 0 | 0 |
| ST3 | Action Level | | | | | | | | | 0 | 0 |
| | Limit Level | | | | | | | | | 0 | 0 |
| SRA | Action Level | | | | | | | | 02/10/2013 | 0 | 1 |
| | Limit Level | | | | | | | | | 0 | 0 |
| Total | Action Level | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | | |
| | Limit Level | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | | |

5.38 All water quality monitoring was conducted as scheduled in the reporting month. There are five Action Level and three Limit Level exceedances for suspended solids were recorded. One Action Level exceedance for turbidity was recorded.

5.39 According to the investigation, no pollution discharge was observed from the site. In addition, no marine construction works were conducted in vicinity of monitoring station in which exceedances were recorded. Therefore, the exceedances are considered not due to the Contract.

Event and Action Plan

5.40 Should non-compliance of the criteria occur, action in accordance with the Action Plan in **Appendix K** shall be carried out.

6 DOLPHIN-RELATED MONITORING

Monitoring Requirements

- 6.1 According to Section 10 of the EM&A Manual, four kinds of ecological monitoring works are required during the construction phase, namely dolphin monitoring, construction-phase underwater noise monitoring, dolphin behavior monitoring and land-based dolphin behavior and movement monitoring. The 30 days of construction-phase underwater noise monitoring, dolphin behavior monitoring and land-based dolphin behavior and movement monitoring were completed in July 2013.
- 6.2 The monitoring work shall be undertaken by suitably qualified specialist(s), (i.e. dolphin specialist and bio-acoustician), who shall have sufficient (at least 5-10 years) relevant post-graduate experience and publication in the respective aspects. They should be approved by Agriculture, Fisheries and Conservation Department (AFCD) and Environmental Protection Department (EPD).

Dolphin Monitoring (Line-transect Vessel Survey)

Monitoring Requirements

- 6.3 According to EM&A Manual Section 10.3.2, a dolphin monitoring programme should be set up to verify the predictions of impacts and to ensure that there are no unforeseen impacts on the dolphin population during construction phase.
- 6.4 Following the requirement in the EM&A Manual Section 10.4.1, the dolphin monitoring should adopt line-transect vessel survey method, and cover the following line-transect survey areas as in AFCD annual marine mammal monitoring programme.

Monitoring Location

- 6.5 For this contract, dolphin monitoring will be carried out in the West Lantau (WL) along the line transect as depicted in **Figure 1** of **Appendix I**. The co-ordinates of all transect lines are shown in **Table 6.1**.

Table 6.1 Co-ordinates of transect lines in WL survey area

| Line No. | | Easting | Northing | Line No. | | Easting | Northing |
|----------|-------------|---------|----------|----------|-------------|---------|----------|
| 1 | Start Point | 803750 | 818500 | 7 | Start Point | 800200 | 810450 |
| 1 | End Point | 803750 | 815500 | 7 | End Point | 801400 | 810450 |
| 2 | Start Point | 803750 | 815500 | 8 | Start Point | 801300 | 809450 |
| 2 | End Point | 802940 | 815500 | 8 | End Point | 799750 | 809450 |
| 3 | Start Point | 802550 | 814500 | 9 | Start Point | 799400 | 808450 |
| 3 | End Point | 803700 | 814500 | 9 | End Point | 801430 | 808450 |
| 4 | Start Point | 803120 | 813600 | 10 | Start Point | 801500 | 807450 |
| 4 | End Point | 801640 | 813600 | 10 | End Point | 799600 | 807450 |

| Line No. | | Easting | Northing | Line No. | | Easting | Northing |
|----------|-------------|---------|----------|----------|-------------|---------|----------|
| 5 | Start Point | 801100 | 812450 | 11 | Start Point | 800300 | 806500 |
| 5 | End Point | 802900 | 812450 | 11 | End Point | 801750 | 806500 |
| 6 | Start Point | 802400 | 811500 | 12 | Start Point | 801760 | 805450 |
| 6 | End Point | 800660 | 811500 | 12 | End Point | 800700 | 805450 |

Monitoring Frequency

- 6.6 Dolphin transect survey was carried out at least twice a month (i.e. complete all the transect lines of West Lantau survey area twice per month) throughout the construction period.

Monitoring Day

- 6.7 Dolphin monitoring was carried out on 9th and 18th October 2013. The dolphin monitoring schedule for the reporting period is shown in **Appendix D**.

Monitoring Results

- 6.8 From these surveys, a total of 64.94 km of survey effort was collected, with 98.0% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) Out of the 64.94 km of survey effort, the total survey effort conducted on primary lines (the vertical lines perpendicular to the coastlines) was 43.05 km.
- 6.9 7 groups of 21 Chinese White Dolphins were sighted from primary lines. These dolphin groups were mainly concentrated near Tai O Peninsula and Fan Lau, while no sighting was made in the middle portion of the survey area (i.e. between Tai O and Fan Lau). None of the sightings were made near the HKLR09 alignment.
- 6.10 Dolphin encounter rates deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) are shown in **Table 6.2**.

Table 6.2 **Dolphin encounter rates (sightings per 100 km of survey effort) in October's surveys**

| | | Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort) | Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort) |
|----|-----------------------------|--|--|
| | | Primary Lines Only | Primary Lines Only |
| WL | Set 1: Oct 9 th | 14.1 | 28.2 |
| | Set 2: Oct 18 th | 19.0 | 71.1 |

- 6.11 A total of 16 re-sightings of known individual Chinese White Dolphins were made during the October's surveys.
- 6.12 During this month of dolphin monitoring, marine construction activities have continued under this contract. However, no adverse impact on Chinese white dolphins was noticeable from general observations.

6.13 Evaluation of impacts on dolphins due to construction work will be conducted in the quarterly EM&A report.

6.14 Detailed monitoring methodology and results can be found in **Appendix I**.

7 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 7.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Contract site. The summaries of site audits are attached in **Appendix M**.
- 7.2 Site audits were conducted on 2nd, 7th, 16th, 22nd and 29th October 2013 by ET after the commencement of construction works for the Contract. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 29th October 2013. The details of observations during site audit can refer to **Table 7.1**.
- 7.3 According to EP condition 4.7 and EM&A Manual, periodic monitoring (every three months) of construction works shall be conducted to ensure the avoidance of any impacts on Sha Lo Wan (West) Archaeological Site. Access to Sha Lo Wan (West) Archaeological site for works areas and storage of construction equipment is not allowed. The 3rd inspection to the Sha Lo Wan (West) Archaeological Site was conducted on 10th September 2013 and next inspection will be conducted in December 2013.

Implementation Status of Environmental Mitigation Measures

- 7.4 According to the EIA Study Report, Environmental Permit and the EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the EMIS is provided in **Appendix N**.
- 7.5 Regular marine travel route for marine vessels were implemented properly in accordance with the submitted plan and relevant records were kept properly.
- 7.6 Acoustic decoupling measures for the stationary equipment (generators, winch generators and air compressors) mounted on boards were adopted according to the approved Acoustic Decoupling Measures Plan.
- 7.7 Dolphin exclusion zone was implemented by ET's trained dolphin observer in accordance with EP Condition 3.4. In addition, dolphin exclusion zone and dolphin watching plan according to EM&A Manual, Section 10.2.12 and EP Condition 3.5 was implemented by DCVJV's trained dolphin watcher.
- 7.8 Spill kits and booms are ready on site for the event of accidental spillage of oil or other hazardous chemicals from construction activities including vessels operating for the Contract.
- 7.9 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 7.1**.

Table 7.1 Observations and Recommendations of Site Audit

| Parameters | Date | Observations and Recommendations | Follow-up |
|--------------------------------------|--------------------|---|---|
| Water Quality | 02/10/2013 | Clear the water at wheel washing bay regularly at Portion C. | Rectification/improvement was observed during the follow-up audit session on 7 October 2013. |
| | 16/10/2013 | To repair the damage silt curtain at P20. | Rectification/improvement was observed during the follow-up audit session on 22 October 2013. |
| | 22/10/2013 | To remove the piles which contact to the sea at Portion A. (near P104) | Rectification/improvement was observed during the follow-up audit session on 29 October 2013. |
| | 29/10/2013 | To repair the damage silt curtain at P73. | Rectification/improvement was observed during the follow-up audit session on 5 November 2013. |
| Ecology | N/A ⁽¹⁾ | N/A ⁽¹⁾ | N/A ⁽¹⁾ |
| Air Quality | 07/10/2013 | Provide water spray for the dry exposed area at WA4. | Rectification/improvement was observed during the follow-up audit session on 16 October 2013. |
| | 29/10/2013 | To check and repair the air compressor at P73 to avoid emitting heavy smoke. | Rectification/improvement was observed during the follow-up audit session on 5 November 2013. |
| Noise | 16/10/2013 | Provide acoustic decoupling measures for the generator at P73. | Rectification/improvement was observed during the follow-up audit session on 22 October 2013. |
| Waste / Chemical Management | 02/10/2013 | To plug the drip tray for the generator at Portion C. | Rectification/improvement was observed during the follow-up audit session on 7 October 2013. |
| | 02/10/2013 | Clear the oil spillage as chemical waste at WA4. | Rectification/improvement was observed during the follow-up audit session on 7 October 2013. |
| | 16/10/2013 | Oil leakage was observed from the RCD at P73. The Contractor was reminded to check and repair the equipment, if necessary to avoid further leakage. | Rectification/improvement was observed during the follow-up audit session on 22 October 2013. |
| | 22/10/2013 | To remove the construction materials / wastes at near the trees at Portion C. | Rectification/improvement was observed during the follow-up audit session on 29 October 2013. |
| | 22/10/2013 | To clear the oil stains at near the threading machine. | Rectification/improvement was observed during the follow-up audit session on 29 October 2013. |
| | 22/10/2013 | To clear the packing wastes at near the threading machine. | Rectification/improvement was observed during the follow-up audit session on 29 October 2013. |
| Landscape & Visual Impact | N/A ⁽¹⁾ | N/A ⁽¹⁾ | N/A ⁽¹⁾ |
| Permits/Licences | 29/10/2013 | To update the environmental permit which displayed at P65. | Rectification/improvement was observed during the |

| Parameters | Date | Observations and Recommendations | Follow-up |
|--|--------------------|----------------------------------|---|
| | | | follow-up audit session on 5 November 2013. |
| <i>Cultural Heritage (Sha Lo Wan (West) Archaeological Site)</i> | N/A ⁽²⁾ | N/A ⁽²⁾ | N/A ⁽²⁾ |

Remark: N/A⁽¹⁾ No major environmental deficiency was identified during the site inspection in the reporting month.

N/A⁽²⁾ No archaeological site inspection was conducted in the reporting month.

Advice on the Solid and Liquid Waste Management Status

- 7.10 According to the Contractor, 15,068m³ inert C&D materials were generated during the reporting month.
- 7.11 The Contractor was advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in approved waste management plan shall be fully implemented.
- 7.12 The amount of wastes generated by the activities of the Contract during the reporting month is shown in **Appendix O**.

8 ENVIRONMENTAL NON-CONFORMANCE (EXCEEDANCES)

Summary of Exceedances

- 8.1 Summary of exceedance is provided in **Appendix L**.
- 8.2 No Action/Limit Level exceedance was recorded for air quality and construction noise.
- 8.3 All water quality monitoring was conducted as scheduled in the reporting month. There are five Action Level and three Limit Level exceedances for suspended solids were recorded. One Action Level exceedance for turbidity was recorded.
- 8.4 According to the investigation, no pollution discharge was observed from the site. In addition, no marine construction works were conducted in vicinity of monitoring station in which exceedances were recorded. Therefore, the exceedances are considered not due to the Contract.

Summary of Environmental Complaint

- 8.5 No environmental related complaint was received in the reporting month. The Complaint Log is attached in **Appendix P**.

Summary of Notification of Summons and Successful Prosecution

- 8.6 There was no prosecution or notification of summons received since the Contract commencement.

9 FUTURE KEY ISSUES

Key Issues in the Coming Month

9.1 Major site activities for the coming reporting month will include:

WA4

- Fabrication of rebar cages
- Fabrication of temporary piling platforms

WA7

- Fabrication of rebar cages
- Loading and Unloading

Marine Viaduct (P0 to P84)

- Piling works for the temporary jetty
- Beams and deck installation for jetty
- Installation of temporary casings
- Pile excavation by Reverse Circulation Drilling (RCD) method
- Pile excavation by Kelly method
- Sonic Test
- Installation of permanent casing
- Installation of temporary piles for piling platform
- Predrilling works

Land Viaduct (P85 to P114)

- Land piling and concreting works
- Formation of piling platform along seawall
- Kicker pour for column
- Formation of site access along the top of the existing seawall
- Marine landing access establishment work
- Drainage and water main diversion
- Predrilling works
- Concrete surrounding works for slewed telecommunication cables
- Trench excavation for slewing of AAHK's COM cable
- Tree felling/transplant work
- Pile head excavation / trimming
- Pile cap and column construction

Monitoring Schedule for the Next Month

9.2 The tentative environmental monitoring schedule for the next month is shown in **Appendix D**.

Construction Programme for the Next Month

9.3 A tentative construction programme is provided in **Appendix A**.

10 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 10.1 The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken in October 2013 in accordance with EM&A Manual.
- 10.2 No Action/Limit Level exceedance was recorded for air quality and construction noise.
- 10.3 For water quality monitoring, there are five Action Level and three Limit Level exceedances for suspended solids were recorded. One Action Level exceedance for turbidity was recorded.
- 10.4 According to the investigation, no pollution discharge was observed from the site. In addition, no marine construction works were conducted in vicinity of monitoring station in which exceedances were recorded. Therefore, the exceedances are considered not due to the Contract.
- 10.5 Dolphin transect survey was carried out on 9th and 18th October 2013. No adverse impact on Chinese White Dolphins was noticeable from general observations.
- 10.6 Environmental site inspection was conducted on 2nd, 7th, 16th, 22nd and 29th October 2013 by ET in the reporting month. All deficiencies identified during the site inspection have already rectified / improved during the follow-up audit session.
- 10.7 No inspection to the Sha Lo Wan (West) Archaeological Site was conducted in the reporting month.
- 10.8 There was no environmental complaint, no notification of summons and successful prosecution received.
- 10.9 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

- 10.10 According to the environmental audit performed in the reporting month, the following recommendations were made:

Air Quality Impact

- To regularly maintain the quality of machinery and vehicles on site.
- To implement dust suppression measures on all haul roads, stockpiles, dry surfaces and excavation works.
- To provide hoarding along the entire length of that portion of the site boundary.

Noise Impact

- To inspect the noise sources inside the site.
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers.
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers, if necessary.

Water Impact

- To prevent any surface runoff discharge into any stream course and sea.
- To review and implement temporary drainage system.
- To identify any wastewater discharges from site.
- To ensure properly maintenance for de-silting facilities.
- To clear the silt and sediment in the sedimentation tanks.
- To review the capacity of de-silting facilities for discharge.
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge.
- To avoid accumulation of stagnant and ponding water on site.

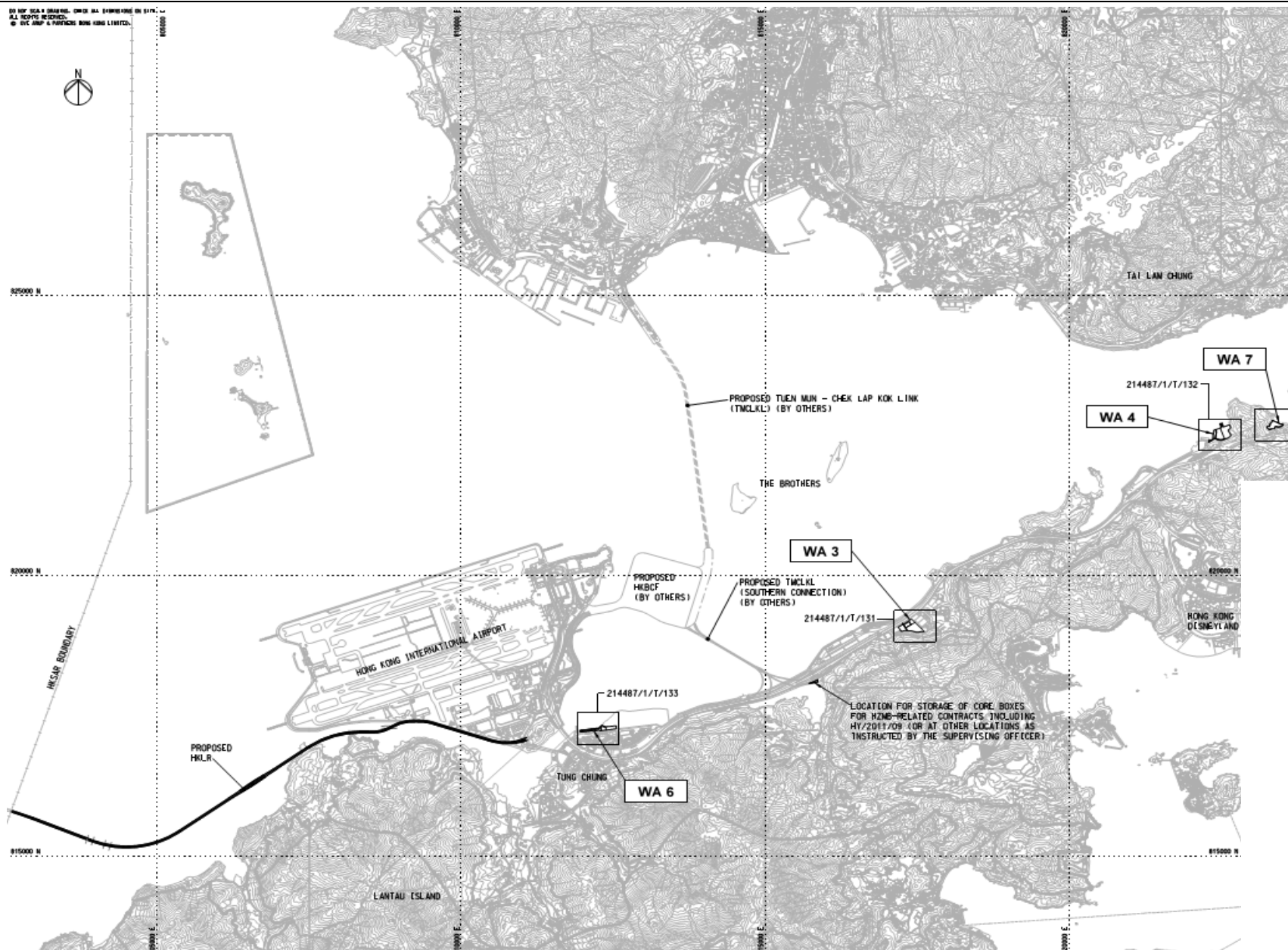
Ecology Impact

- To implement Spill Response Plan in the event of accidental spillage of or other hazardous chemicals.
- To implement Dolphin Exclusion Zone during the installation of bored pile casing located in the waters to the west of Airport.
- To implement Dolphin Watching Plan after the bored piling casing is installed.
- To ensure the acoustically-decoupled measures were implemented for air compressors and other noisy equipment mounted on construction vessels according to acoustic decoupling measures plan.

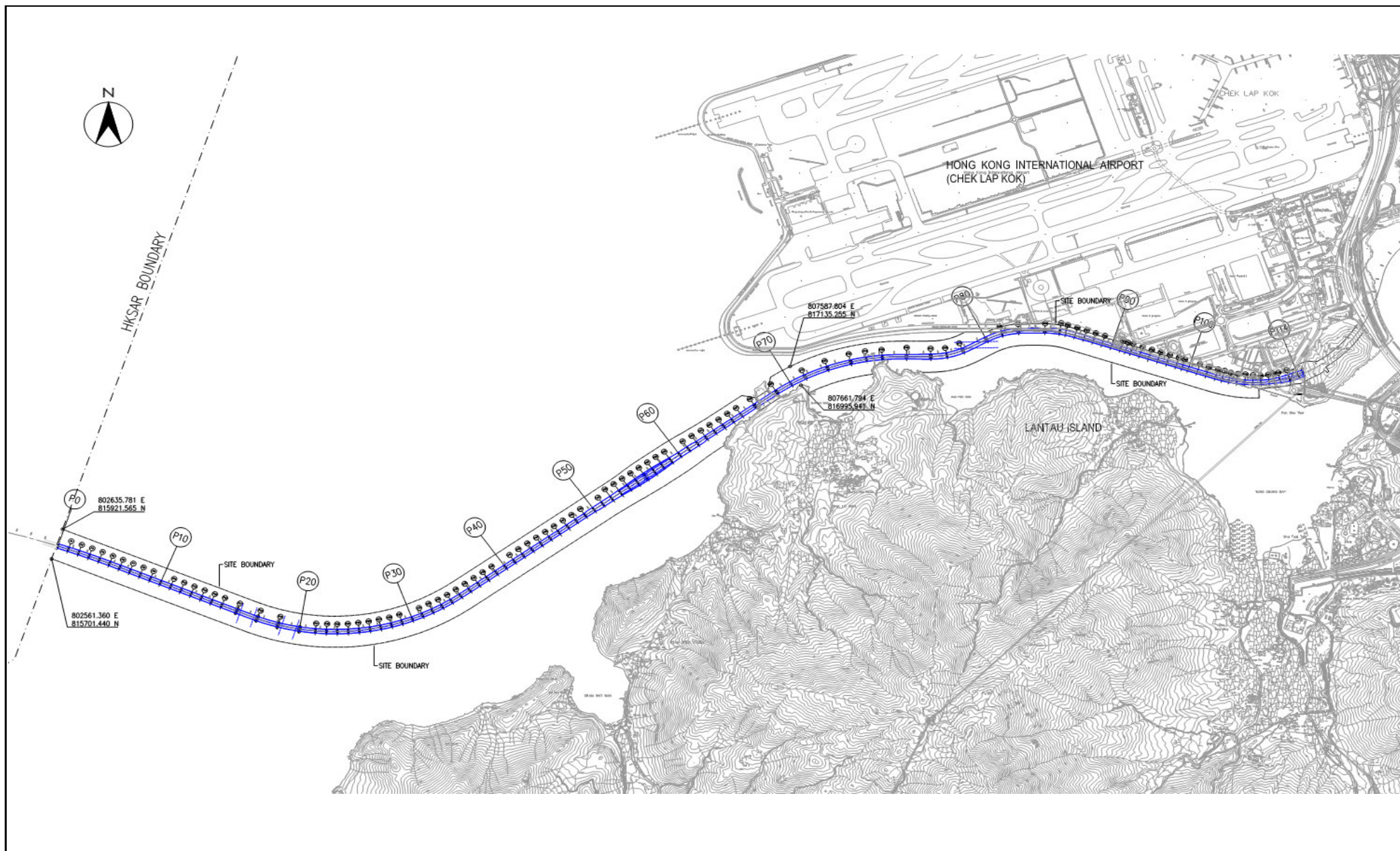
Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To ensure the performance of sorting of C&D materials at source (during generation);
- To carry out inspection of dump truck at site exit to ensure inert and non-inert C&D materials are properly segregated before removing off site.
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site.
- To avoid improper handling or storage of oil drum on site.

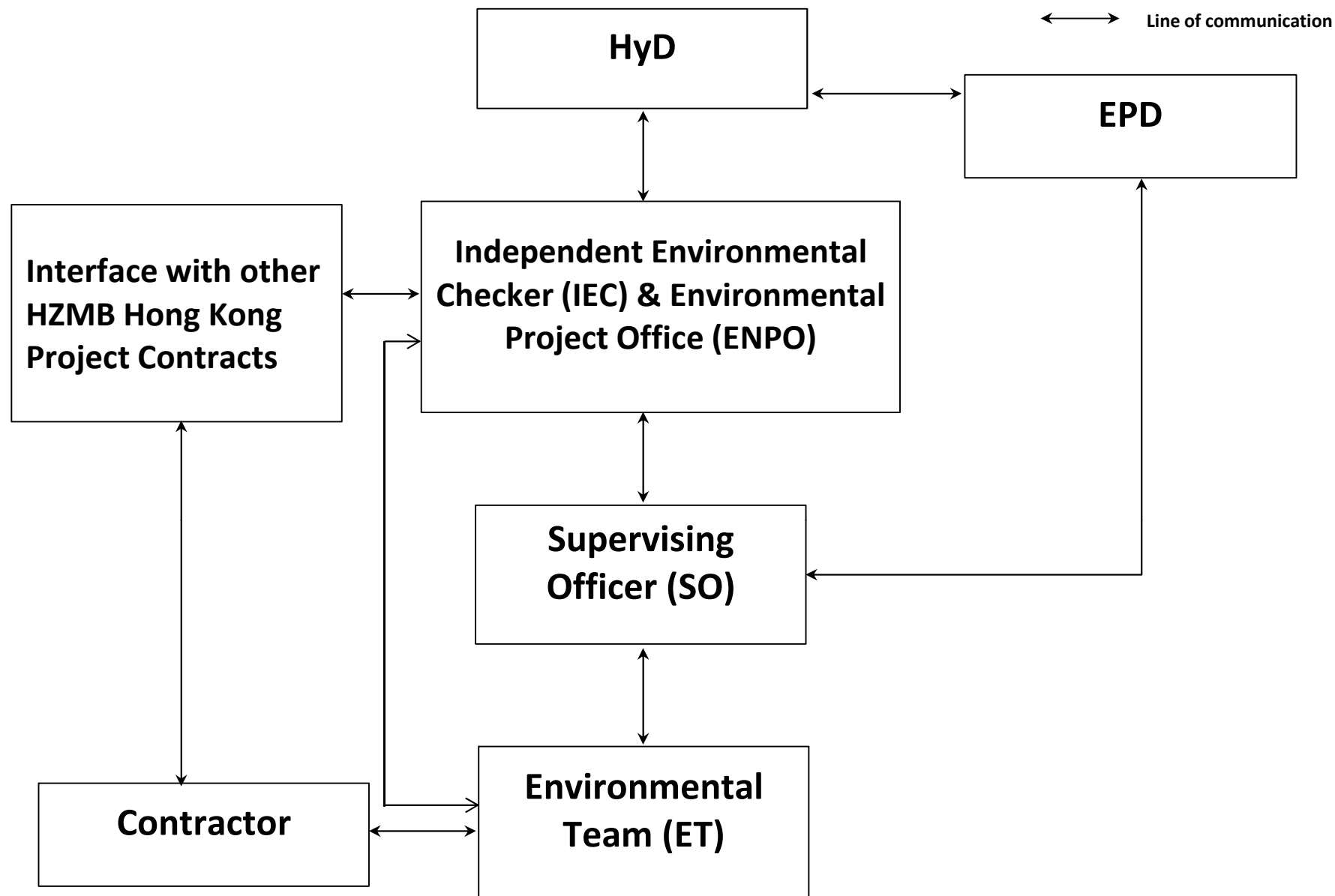
FIGURE(S)

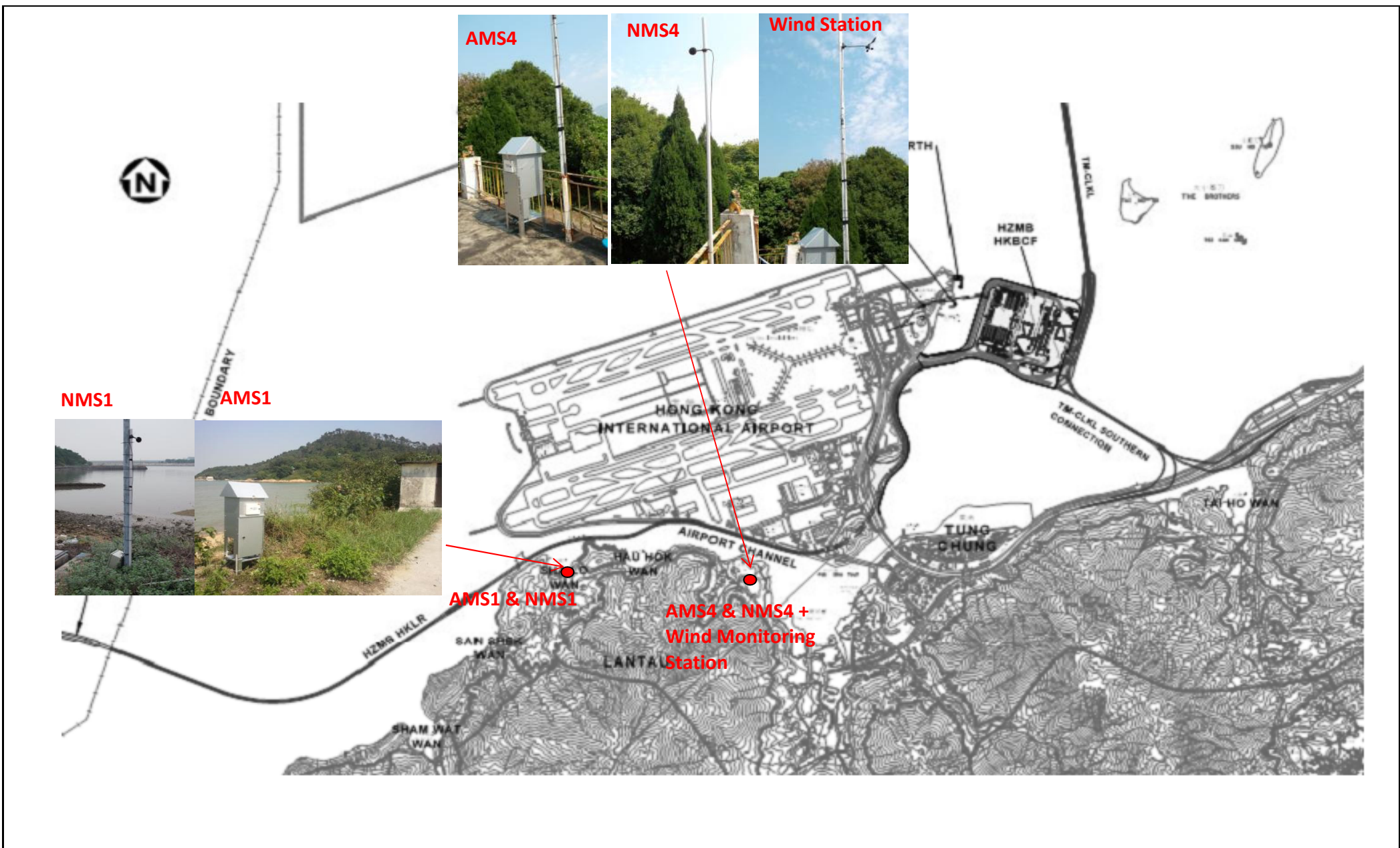


| | | | | | | | |
|-------|---|--|-------|--------|-------------|---------|----------|
| Title | Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Site Layout Plan (WA3, WA6 and WA7) | | Scale | N.T.S | Propose No. | MA12014 | CINOTECH |
| | | | Date | Feb-13 | Figure | 1a | |

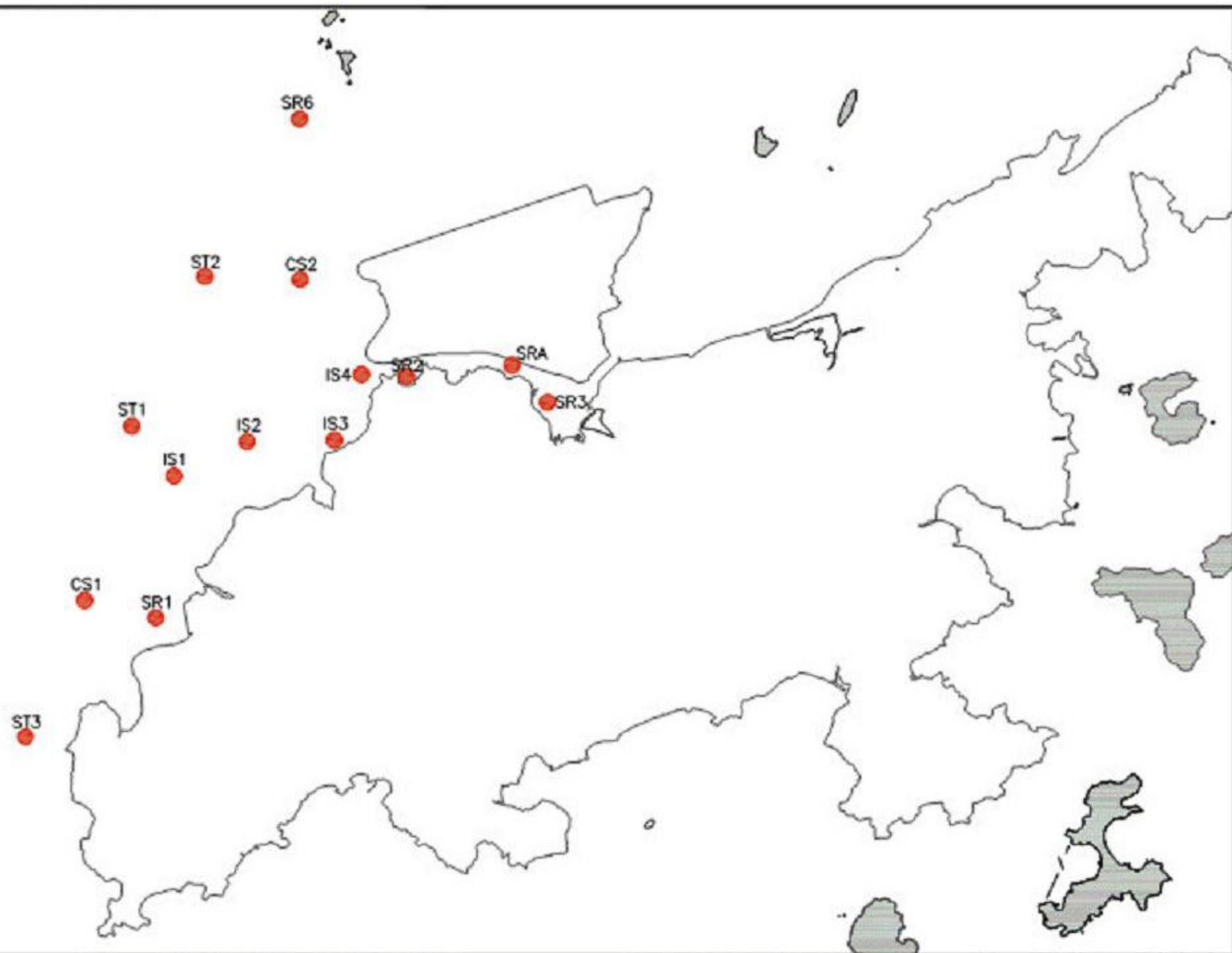


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| Title | Contract No. HY/2011/09 | | Scale | Propose | CINOTECH |
| | Hong Kong-Zhuhai-Macao Bridge | | N.T.S | No. MA12014 | |
| | Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill | | Date | Figure | |
| | Site Layout Plan (Pier(s) Site) | | Feb-13 | 1d | |

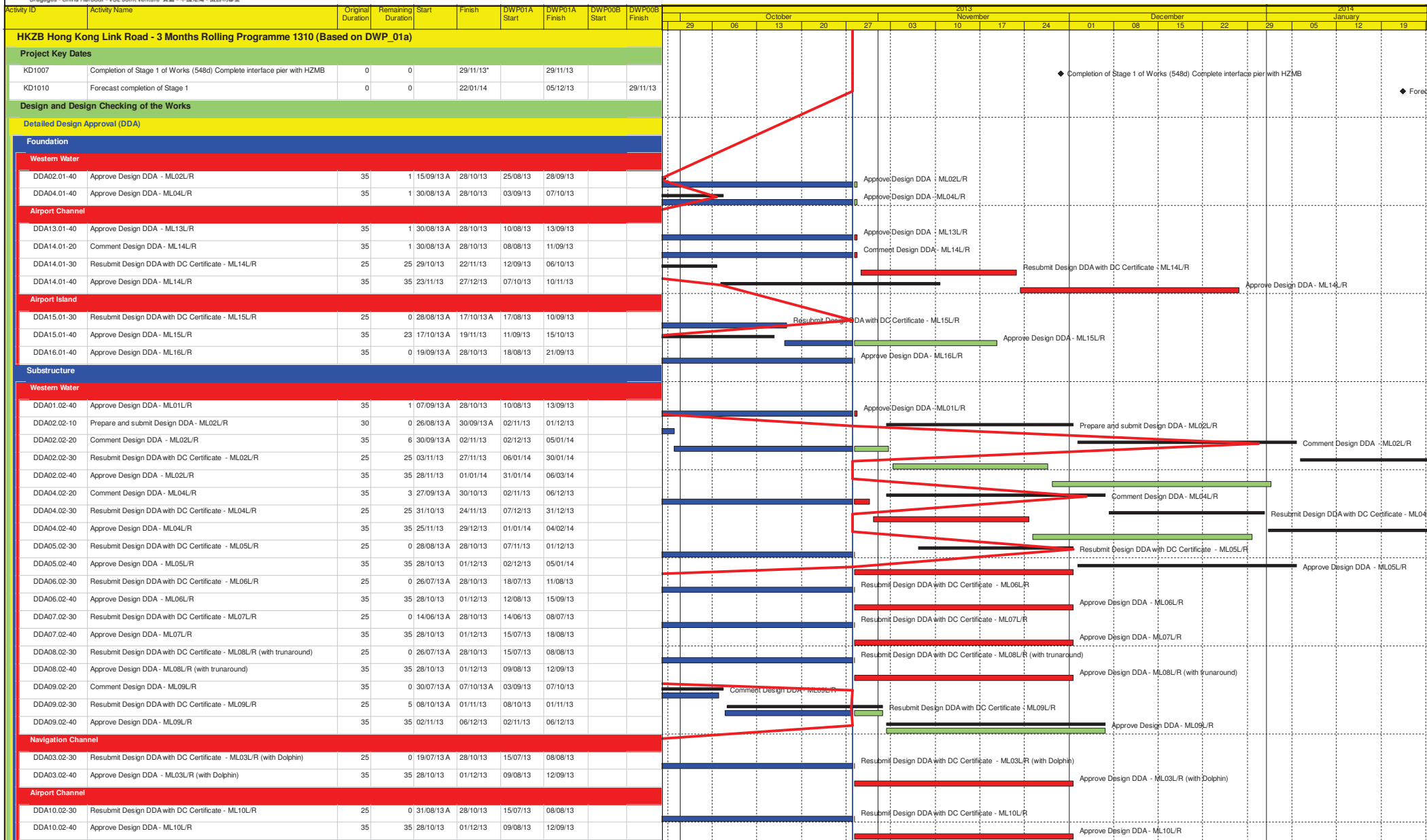




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| Title | Contract No. HY/2011/09 | Scale | Propose | CINOTECH |
| | Hong Kong-Zhuhai-Macao Bridge | N.T.S | No. MA12014 | |
| | Hong Kong Link Road – Section between | Date | Figure | |
| | HKSAR Boundary and Scenic Hill | Feb-13 | 3 | |
| Locations of Air Quality and Noise Monitoring Stations | | | | |



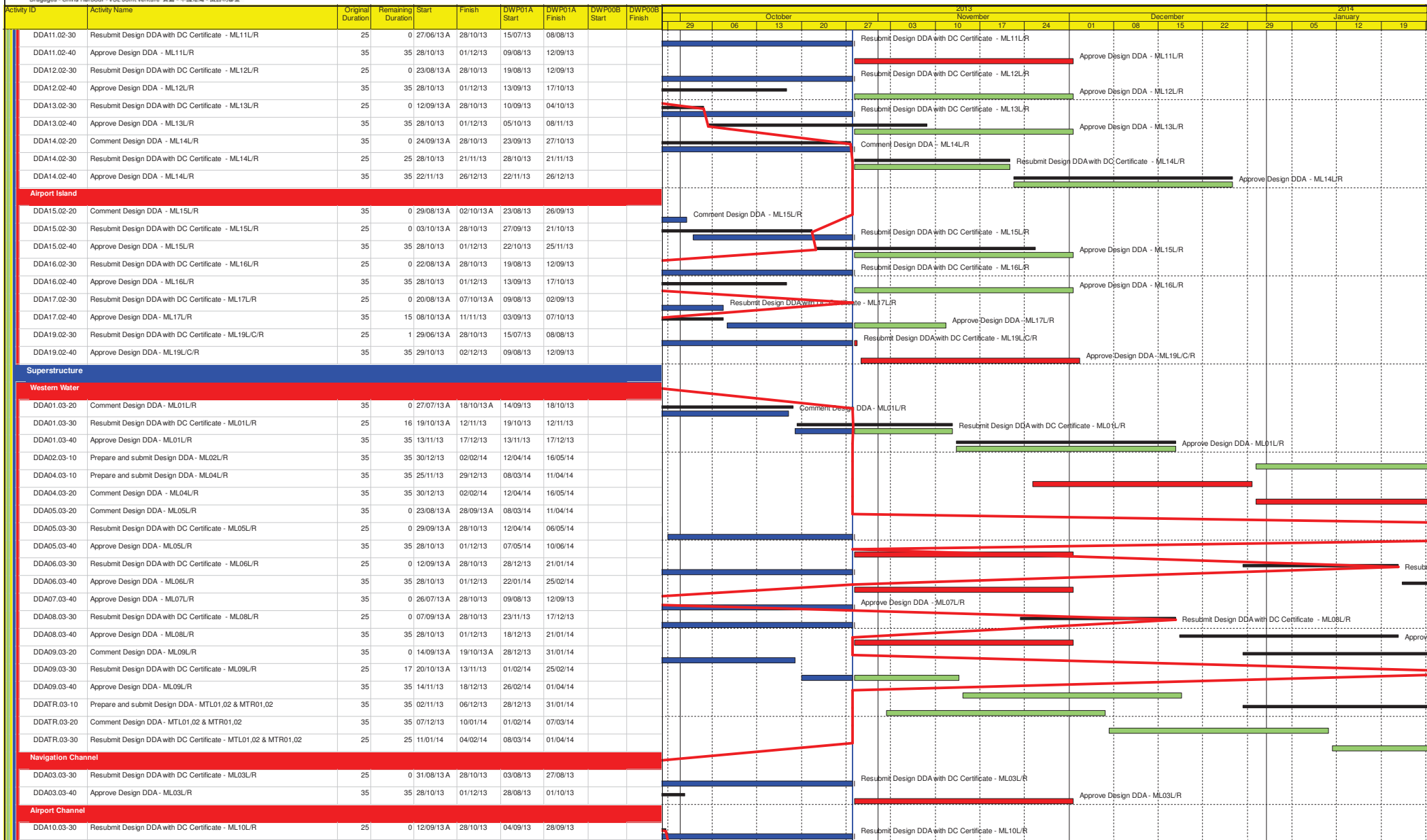
**APPENDIX A
CONSTRUCTION PROGRAMME**










DWP_01a Programme
 Critical Remaining Work
 Actual Work
 Remaining Work
 DWP_00B Programme
 Milestone

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1310 (Based on DWP_01a)

| Date | Revision | Checked | Approved |
|----------|--------------|---------|----------|
| 29/10/13 | 1310 rolling | Tim | |
| | | | |
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 DWP_01a Programme
  Critical Remaining Work
  Actual Work
  Remaining Work
  Milestone
  Milestone
  DWP_00B Programme

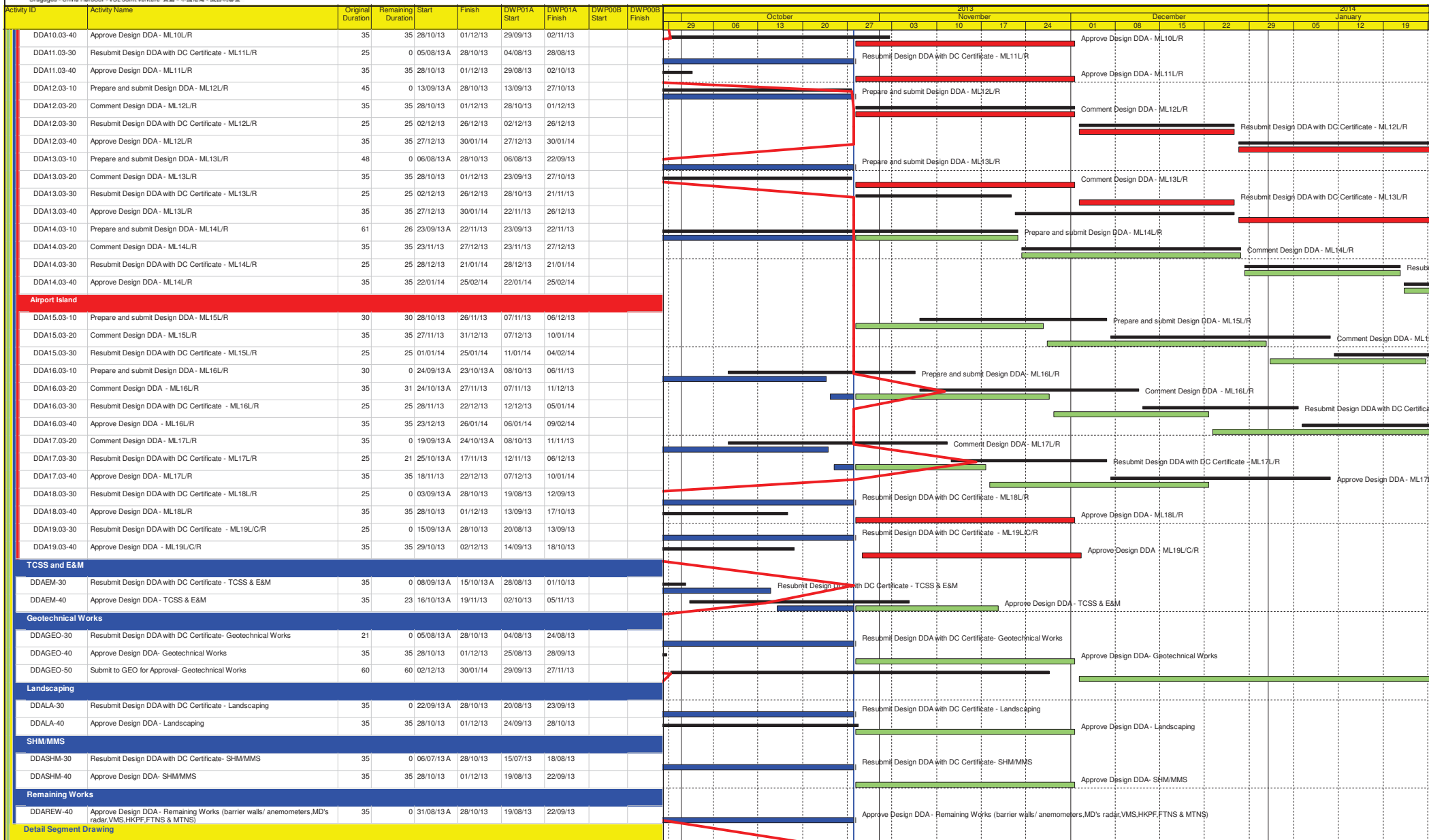
HKZB Hong Kong Link Road - 3 Months Rolling Programme 1310 (Based on DWP_01a)

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| Date | Revision | Checked | Approved |
|----------|--------------|---------|----------|
| 29/10/13 | 1310 rolling | Tim | |
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Dredging - China Harbour - VSL Joint Venture 疏濬 - 中國港海 - 威赫利聯業



Detail Segment Drawing

— DWP_01a Programme — Critical Remaining Work
— Actual Work — Milestone
— Remaining Work — DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling Programme 1310 (Based on DWP_01a)

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| Date | Revision | Checked | Approved |
|----------|--------------|---------|----------|
| 29/10/13 | 1310 rolling | Tim | |
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Dredging - China Harbour - VSL Joint Venture 疏浚 - 中國港務 - 威赫利聯業



■ DWP_01a Programme ■ Critical Remaining Work
■ Actual Work ◆ Milestone
■ Remaining Work ■ DWP_00B Programme

HKZB Hong Kong Link Road - 3 Months Rolling
Programme 1310 (Based on DWP_01a)

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| Date | Revision | Checked | Approved |
|----------|--------------|---------|----------|
| 29/10/13 | 1310 rolling | Tim | |
| | | | |
| | | | |

| Activity ID | Activity Name | Original Duration | Remaining Duration | Start | Finish | DWP01A Start | DWP01A Finish | DWP00B Start | DWP00B Finish | 2013 | | | | | | | | | | | | 2014 | | | | |
|--|---|-------------------|--------------------|------------|------------|--------------|---------------|--------------|---------------|---------|----|----|----|----------|----|----|----|----------|----|----|----|---------|----|----|----|----|
| | | | | | | | | | | October | | | | November | | | | December | | | | January | | | | |
| | | | | | | | | | | 29 | 06 | 13 | 20 | 27 | 03 | 10 | 17 | 24 | 01 | 08 | 15 | 22 | 29 | 05 | 12 | 19 |
| PGS2186 | Deliver LG1 & LG2 | 120 | 37 | 29/04/13 A | 03/12/13 | 31/05/13 | 27/09/13 | 06/08/13 | 03/12/13 | | | | | | | | | | | | | | | | | |
| PGS2485 | Fabrication & Deliver Lift Frames LFA | 150 | 105 | 13/09/13 A | 09/02/14 | 13/09/13 | 09/02/14 | | | | | | | | | | | | | | | | | | | |
| Segment Casting | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type A, C, D Segment (Total 12 set Moulds) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Western Water Typical Spans (P0 to P15 & P22 to P66) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC1390 | Segment casting -P45 | 58 | 58 | 21/12/13 | 23/02/14 | 01/11/13 | 28/12/13 | 20/10/13 | 16/12/13 | | | | | | | | | | | | | | | | | |
| SC1400 | Segment casting -P46 | 58 | 58 | 21/12/13 | 23/02/14 | 01/11/13 | 28/12/13 | 07/09/13 | 03/11/13 | | | | | | | | | | | | | | | | | |
| SC1410 | Segment casting -P47 (Learning) | 84 | 54 | 28/09/13 A | 20/12/13 | 09/08/13 | 31/10/13 | 23/08/13 | 19/10/13 | | | | | | | | | | | | | | | | | |
| SC1420 | Segment casting -P48 (Learning) | 84 | 77 | 21/10/13 A | 12/01/14 | 09/08/13 | 31/10/13 | 23/08/13 | 19/10/13 | | | | | | | | | | | | | | | | | |
| SC1430 | Segment casting -P49 | 58 | 58 | 13/01/14 | 18/03/14 | 01/11/13 | 28/12/13 | 23/08/13 | 19/10/13 | | | | | | | | | | | | | | | | | |
| SC1440 | Segment casting -P50 | 58 | 58 | 13/01/14 | 18/03/14 | 01/11/13 | 28/12/13 | 02/07/13 | 06/09/13 | | | | | | | | | | | | | | | | | |
| SC1460 | Segment casting -P52 | 58 | 0 | 05/08/13 A | 01/10/13 A | 29/12/13 | 03/03/14 | 29/09/13 | 25/11/13 | | | | | | | | | | | | | | | | | |
| Type E Segment (Total 5 set Moulds) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Land Viaduct (P85 to Easternmost Abutment) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC2080 | Segment casting -P110 (Learning) | 67 | 67 | 26/12/13 | 10/03/14 | 27/10/13 | 01/01/14 | 25/11/13 | 30/01/14 | | | | | | | | | | | | | | | | | |
| SC2090 | Segment casting -P111 (Learning) | 67 | 67 | 26/12/13 | 10/03/14 | 27/10/13 | 01/01/14 | 25/11/13 | 30/01/14 | | | | | | | | | | | | | | | | | |
| SC2120 | Segment casting -P114 (Learning) | 91 | 91 | 26/12/13 | 03/04/14 | 27/10/13 | 25/01/14 | 25/11/13 | 02/03/14 | | | | | | | | | | | | | | | | | |
| Type B Segment (Total 1 set Mould) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Turnaround | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC2140 | Segment casting -P52N/S | 60 | 60 | 05/08/14 A | 03/05/14 | 30/04/14 | 28/06/14 | 19/06/14 | 28/07/14 | | | | | | | | | | | | | | | | | |
| Type CH Segment (Total 12 set Moulds) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Long Spans (P16 to P21 & P67 to P84) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SC1650 | Segment casting -P20 (Learning) | 168 | 168 | 28/11/13 | 21/05/14 | 11/09/13 | 04/03/14 | 15/01/14 | 03/05/14 | | | | | | | | | | | | | | | | | |
| Viaduct between HKSAR Boundary and Landing Point on Airport Island | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ML01L/R 75mx8 - Stage 1 of Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier P0L/R | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temporary Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WW1020 | Remove the temporary working platform P0 (Learning) | 8 | 8 | 28/10/13 | 06/11/13 | 17/08/13 | 27/08/13 | 29/04/13 | 08/05/13 | | | | | | | | | | | | | | | | | |
| Foundation - Bored Pile | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WW1040 | Pile testing P0 | 28 | 0 | 17/09/13 A | 28/10/13 | 16/08/13 | 12/09/13 | 28/04/13 | 25/05/13 | | | | | | | | | | | | | | | | | |
| Pile Cap Construction | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WW1050 | Construct pile cap P0 - 2 nos. (Learning) | 45 | 45 | 06/11/13 | 31/12/13 | 14/09/13 | 14/11/13 | 30/07/13 | 09/09/13 | | | | | | | | | | | | | | | | | |
| Column Construction | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WW1060 | Construct column P0 - 2 nos. (in-situ) | 18 | 18 | 31/12/13 | 22/01/14 | 15/11/13 | 05/12/13 | 05/10/13 | 21/10/13 | | | | | | | | | | | | | | | | | |
| WW1065 | Bearing Installation - P0 | 5 | 5 | 22/01/14 | 28/01/14 | 06/12/13 | 11/12/13 | 22/10/13 | 01/11/13 | | | | | | | | | | | | | | | | | |
| ML02L/R 75mx8 - Stage 4 of Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier P15L/R | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Site Investigation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| WW2210 | Site investigation for bored pile P15 | 9 | 1 | 12/03/13 A | 28/10/13 | 14/01/14 | 23/01/14 | 05/09/13 | 16/09/13 | | | | | | | | | | | | | | | | | |
| ML03L/R 109.661m+150mx3+109.661m Navigation Channel - Stage 4 of Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pier P16L/R (M.J.) | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Temporary Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NC1000 | Install temporary working platform for bored pile P16 | 12 | 0 | 16/08/13 A | 30/09/13 A | 10/10/13 | 26/10/13 | 04/09/13 | 05/10/13 | | | | | | | | | | | | | | | | | |
| NC1030 | Remove the temporary working platform P16 | 4 | 4 | 18/01/14 | 23/01/14 | 02/12/13 | 05/12/13 | 06/01/14 | 16/01/14 | | | | | | | | | | | | | | | | | |
| Site Investigation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NC1010 | Site investigation for bored pile P16 | 10 | 8 | 03/10/13 A | 06/11/13 | 07/08/13 | 20/08/13 | 27/02/13 | 07/03/13 | | | | | | | | | | | | | | | | | |

DWP_01a Programme
 Critical Remaining Work
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 Remaining Work
 DWP_00B Programme

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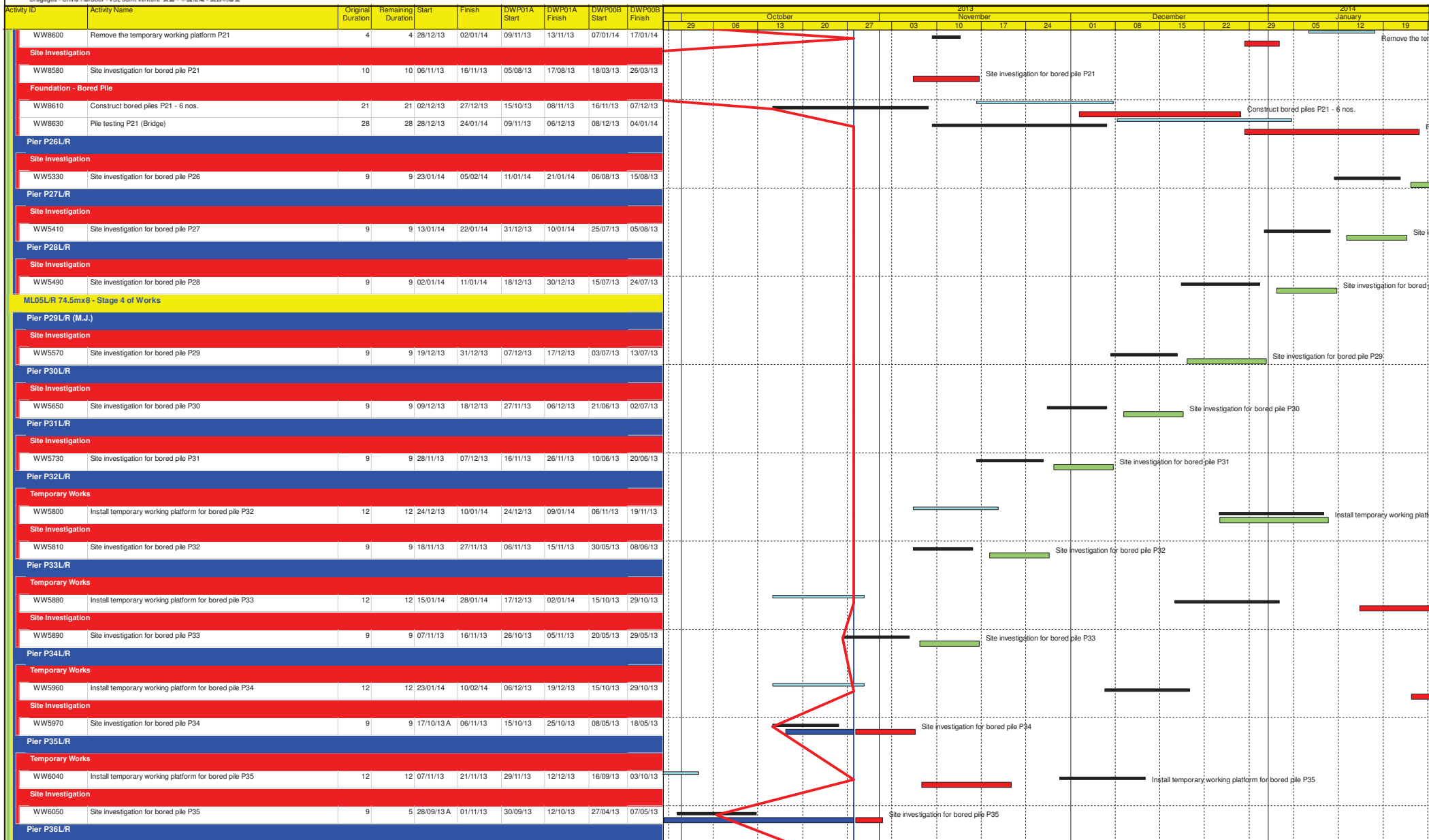
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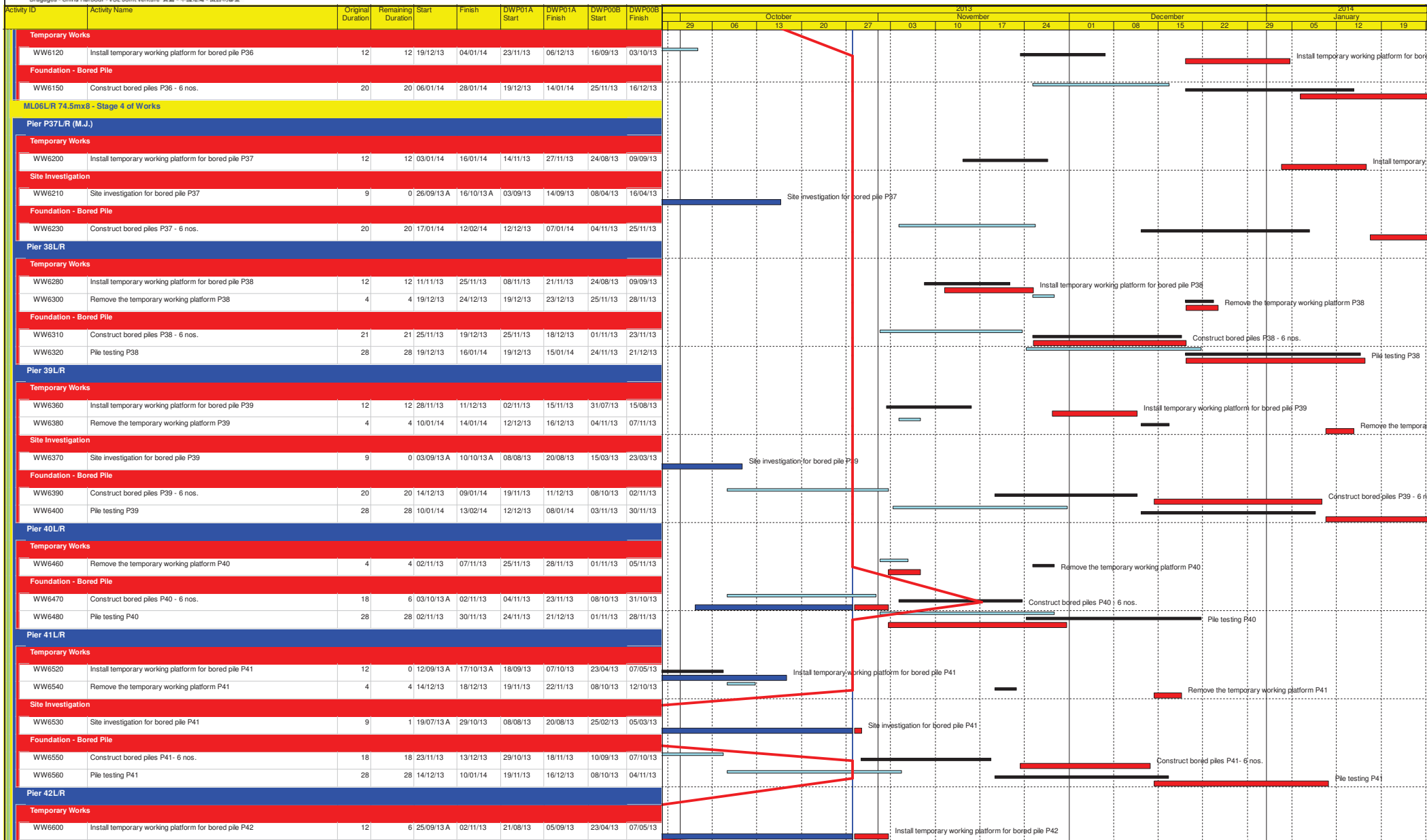
Dredgex - China Harbour - VSL Joint Venture 疏浚 - 中國港務 - 威赫利聯營



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DWP_01a Programme
 Critical Remaining Work
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 Milestone

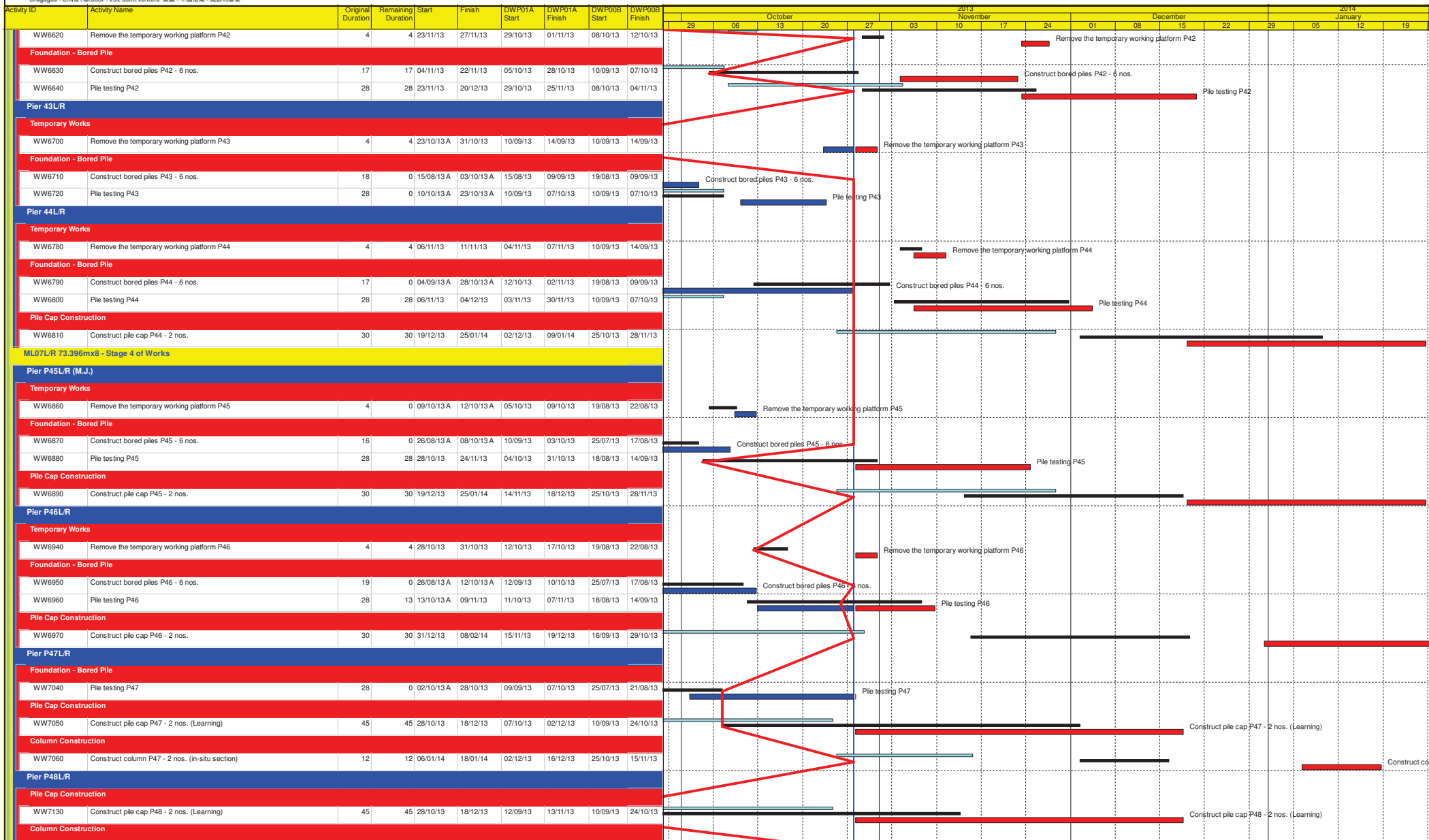
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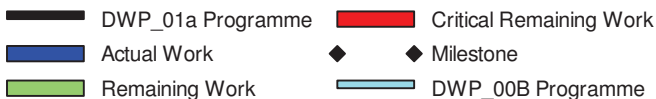
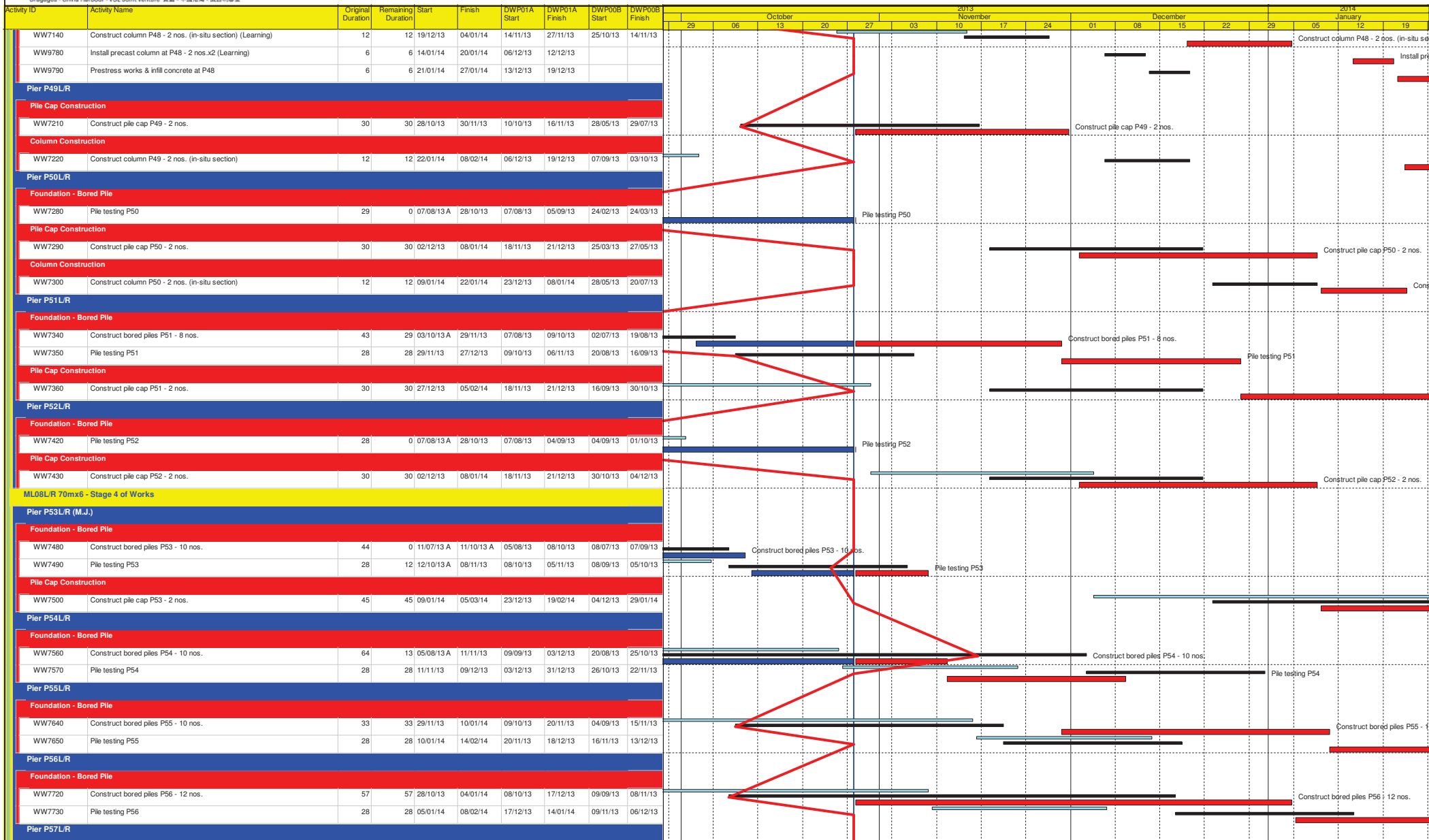
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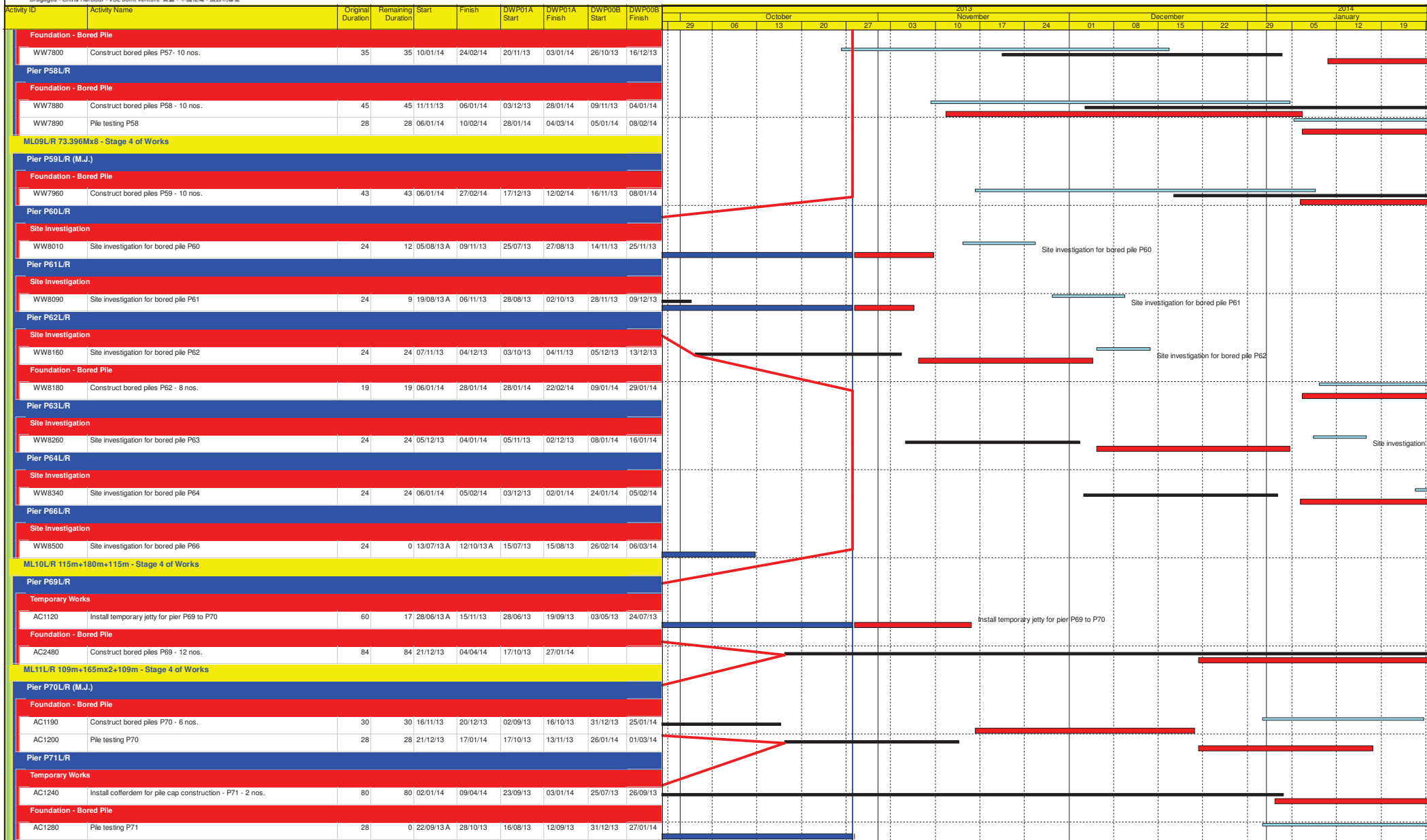
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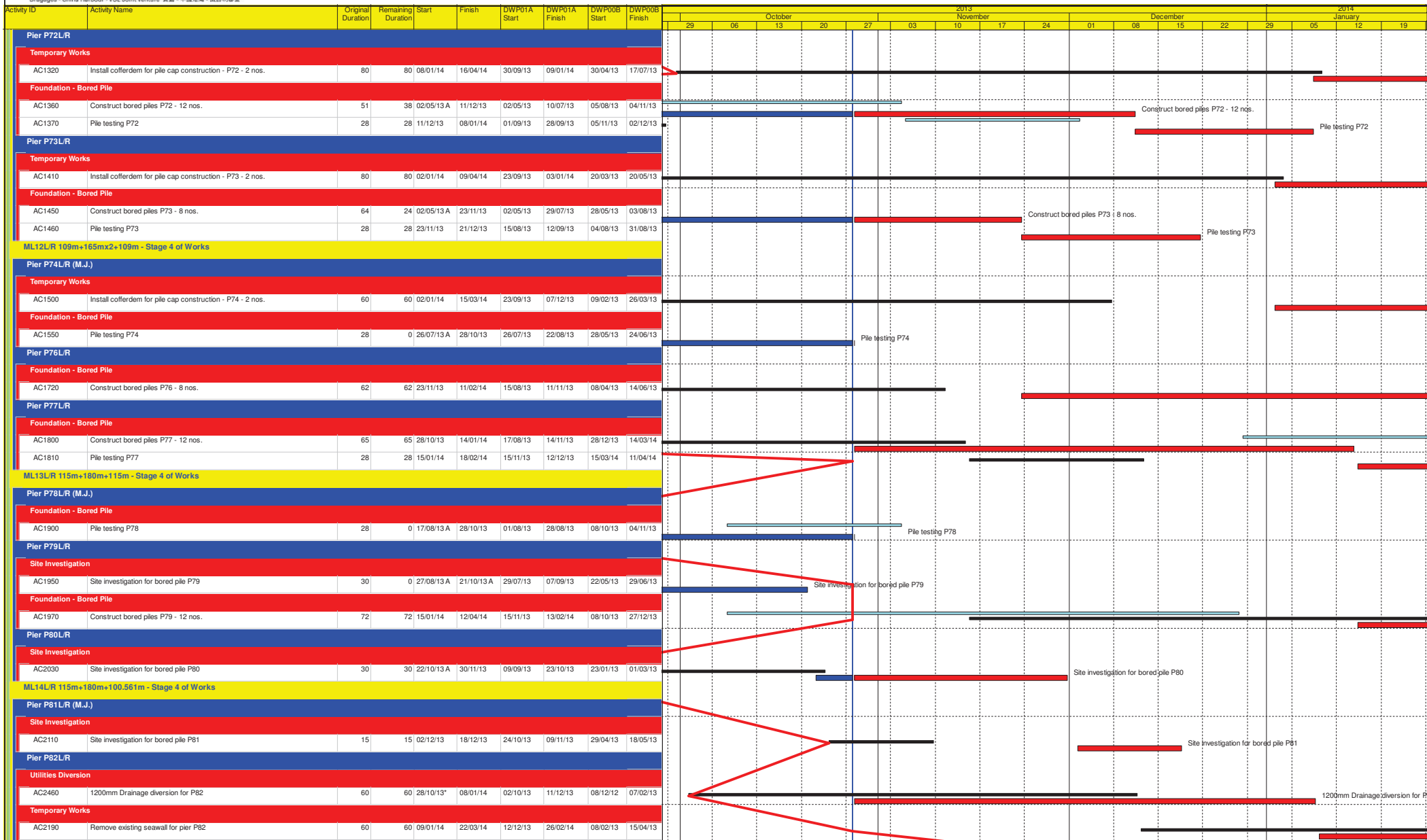
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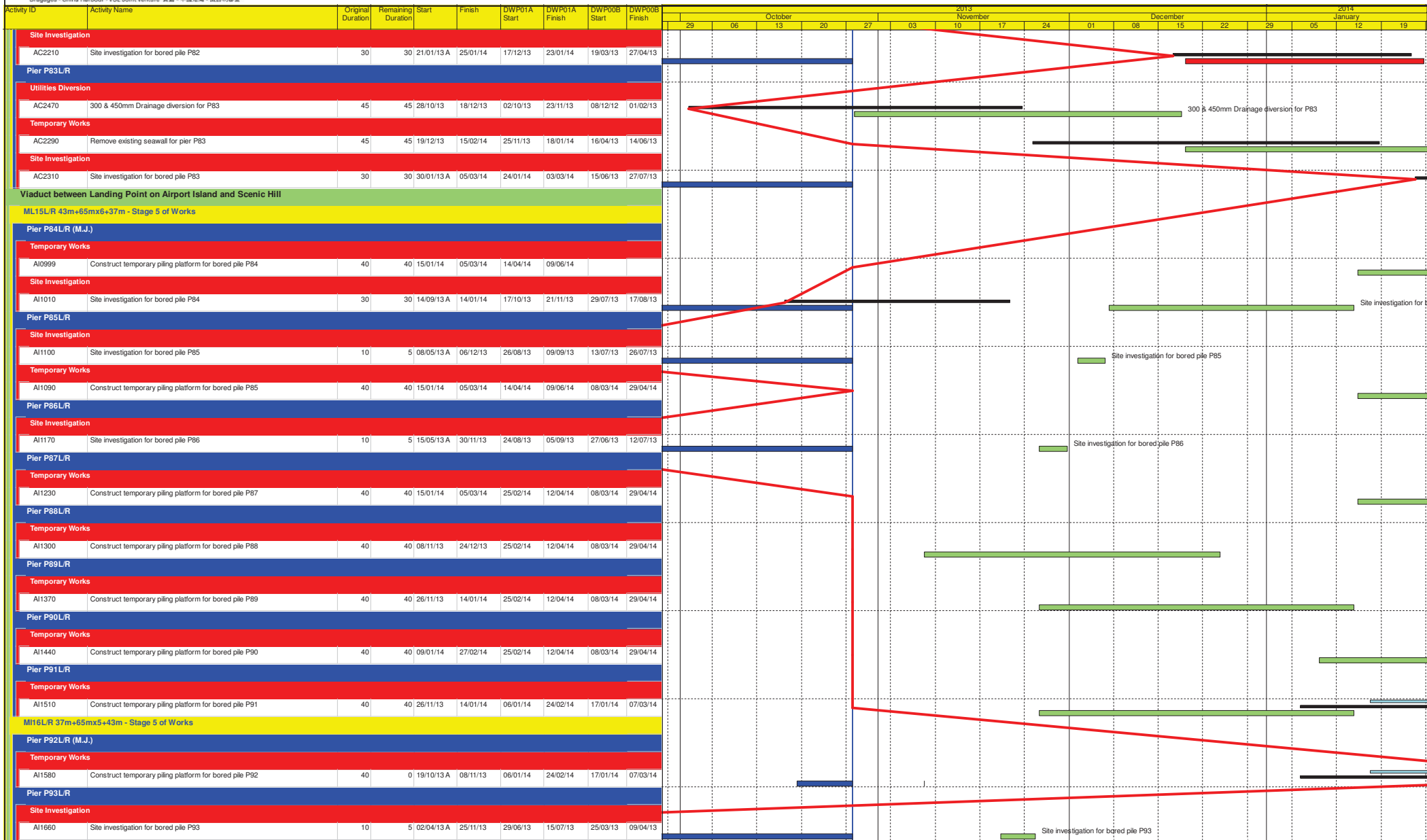


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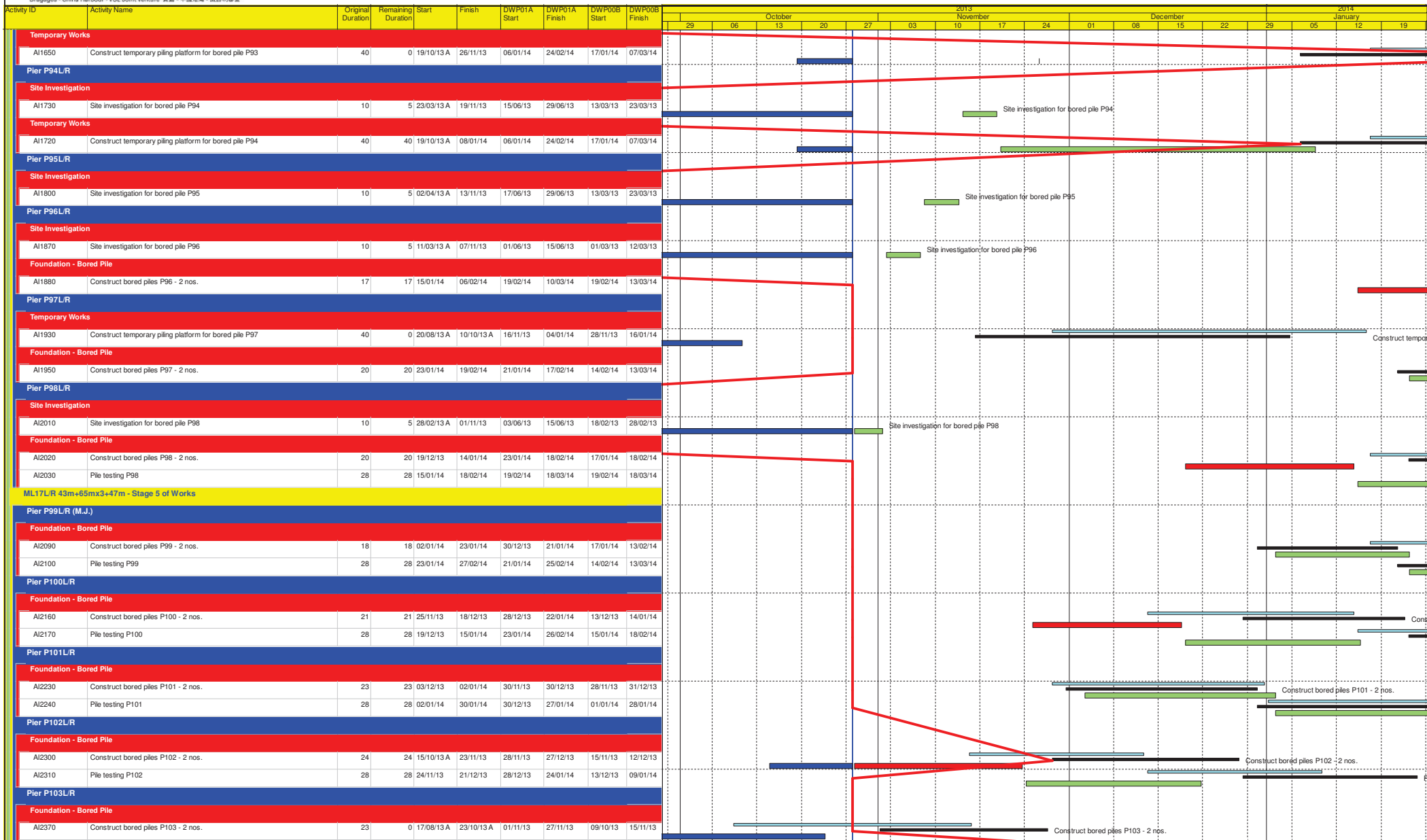


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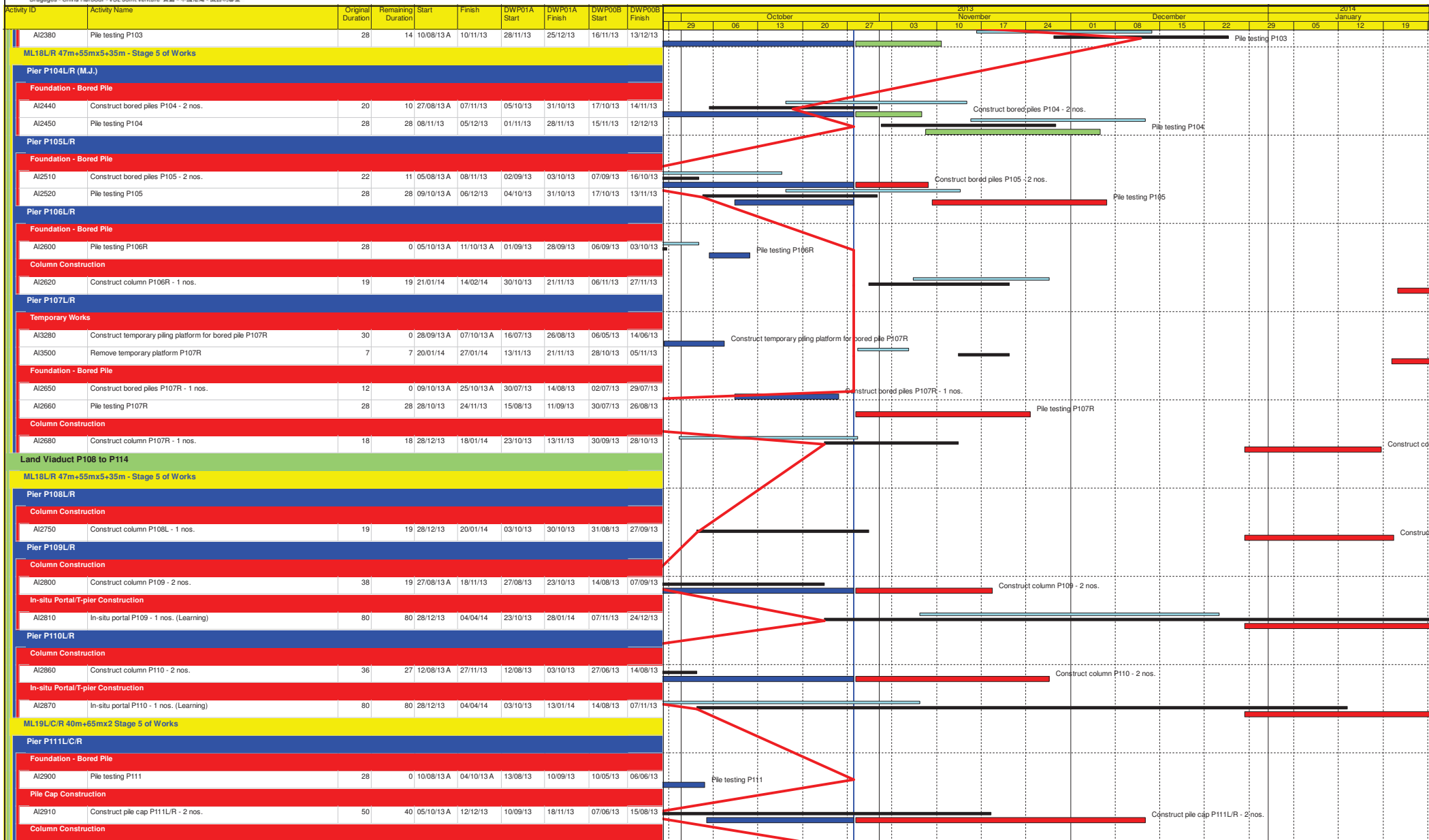


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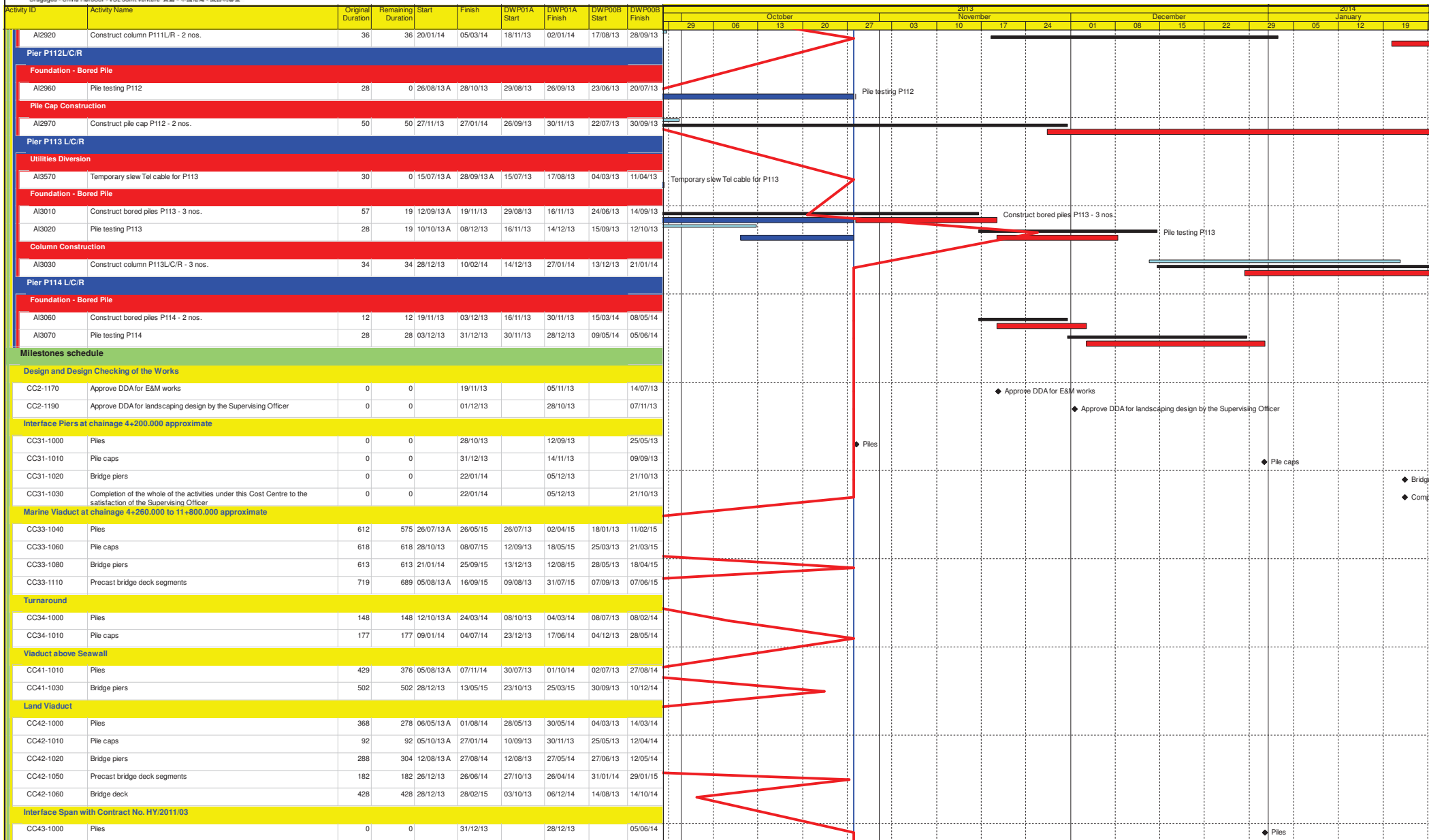



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Dredgates - China Harbour - VSL Joint Venture 寶通 - 中國港務 - 威赫利聯營

| Activity ID | Activity Name | Original Duration | Remaining Duration | Start | Finish | DWP01A Start | DWP01A Finish | DWP00B Start | DWP00B Finish | 2013 | | | | | | | | | | | | 2014 | | | | | | | |
|-------------|---------------|-------------------|--------------------|-------|----------|--------------|---------------|--------------|---------------|---------|----|----|----|----|----|----------|----|----|----|----|----|----------|----|----|----|---------|--|--|--|
| | | | | | | | | | | October | | | | | | November | | | | | | December | | | | January | | | |
| | | | | | | | | | | 29 | 06 | 13 | 20 | 27 | 03 | 10 | 17 | 24 | 01 | 08 | 15 | 22 | 29 | 05 | 12 | 19 | | | |
| CC43-1010 | Pile caps | 0 | 0 | | 28/10/13 | | 15/07/13 | | 14/08/14 | | | | | | | | | | | | | | | | | | | | |

Pile caps

- DWP_01a Programme
- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone
- DWP_00B Programme

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APPENDIX B
ACTION AND LIMIT LEVELS

Appendix B - Action and Limit Levels

Table B-1 Action and Limit Levels for 1-Hour TSP

| Location | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|----------|--|---------------------------------------|
| AMS1 | 381 | 500 |
| AMS4 | 352 | |

Table B-2 Action and Limit Levels for 24-Hour TSP

| Location | Action Level, $\mu\text{g}/\text{m}^3$ | Limit Level, $\mu\text{g}/\text{m}^3$ |
|----------|--|---------------------------------------|
| AMS1 | 170 | 260 |
| AMS4 | 171 | |

Table B-3 Action and Limit Levels for Construction Noise

| Time Period | Action Level | Limit Level |
|----------------------------------|---|-------------|
| 0700-1900 hrs on normal weekdays | When one documented complaint is received | 75 dB(A) * |

Noted: If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

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

Table B-4 Action and Limit Levels for Water Quality

| Parameter (unit) | Water Depth | Action Level | Limit Level |
|---|--------------------|---|---|
| Dissolved Oxygen (mg/L) (surface, middle, bottom) | Surface and Middle | <u>5.0</u> | 4.2 except 5 for FCZ |
| | Bottom | <u>4.7</u> | 3.6 |
| Turbidity (NTU) | Depth average | <u>27.5</u> and 120% of upstream control station's turbidity at the same tide of the same day | <u>47.0</u> and 130% of turbidity at the upstream control station at the same tide of same day |
| Suspended Solids (mg/L) | Depth average | <u>23.5</u> and 120% of upstream control station's SS at the same tide of the same day | <u>34.4</u> and 130% of SS at the upstream control station at the same tide of same day and 10mg/L for WSD Seawater Intakes |

Note:

- (1) Depth-averaged is calculated by taking the arithmetic means of reading of all three depths
- (2) For DO, non-compliance of the water quality limit occurs when monitoring result is lower than the limit.
- (3) For SS & turbidity non-compliance of the water quality limits occur when monitoring result is higher than the limits.
- (4) All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
- (5) The 1%-ile of baseline data for dissolved oxygen (surface and middle) and dissolved oxygen (bottom) are 4.2mg/L and 3.6mg/L respectively.

**APPENDIX C
COPIES OF CALIBRATION
CERTIFCATES**

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/67/0004

Project No. AMS 1 - Sha Lo Wan

Operator: Hei

Date: 16-Aug-13

Next Due Date: 15-Oct-13

Equipment No.: A-01-67

Serial No. 3218

| Ambient Condition | | | |
|---------------------|-------|---------------------|-------|
| Temperature, Ta (K) | 299.7 | Pressure, Pa (mmHg) | 753.1 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|--|--------|---------------|---------|
| Equipment No.: | A-04-05 | Slope, mc | 0.0592 | Intercept, bc | -0.0283 |
| Last Calibration Date: | 26-Dec-12 | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 25-Dec-13 | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|------------------------|------------------------------|--|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of oil | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | 11.9 | 3.42 | 58.32 | 6.9 | 2.61 |
| 2 | 9.5 | 3.06 | 52.16 | 5.5 | 2.33 |
| 3 | 7.2 | 2.66 | 45.47 | 4.3 | 2.06 |
| 4 | 4.6 | 2.13 | 36.44 | 2.9 | 1.69 |
| 5 | 2.8 | 1.66 | 28.54 | 1.8 | 1.33 |

By Linear Regression of Y on X

Slope, mw = 0.0423

Intercept, bw = 0.1323

Correlation coefficient* = 0.9998

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.87

Remarks: _____

Conducted by: Hei Signature: Hei
 Checked by: W.K. Lam Signature: W.K. Lam

Date: 16/8/2013
 Date: 16/8/2013

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/74/0004

Project No. AMS 4 - San Tau Operator: Hei
 Date: 16-Aug-13 Next Due Date: 15-Oct-13
 Equipment No.: A-01-74 Serial No. 2202

| Ambient Condition | | | |
|---------------------|-----|---------------------|-------|
| Temperature, Ta (K) | 300 | Pressure, Pa (mmHg) | 752.8 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|--|--------|---------------|---------|
| Equipment No.: | A-04-05 | Slope, mc | 0.0592 | Intercept, bc | -0.0283 |
| Last Calibration Date: | 26-Dec-12 | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 25-Dec-13 | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|---------------------|------------------------------|---|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of oil | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | 11.3 | 3.33 | 56.80 | 7.8 | 2.77 |
| 2 | 9.3 | 3.02 | 51.58 | 6.5 | 2.53 |
| 3 | 7.0 | 2.62 | 44.81 | 5.3 | 2.28 |
| 4 | 4.6 | 2.13 | 36.41 | 3.4 | 1.83 |
| 5 | 2.8 | 1.66 | 28.52 | 2.3 | 1.50 |

By Linear Regression of Y on X

Slope, mw = 0.0452 Intercept, bw = 0.2134
 Correlation coefficient* = 0.9985

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation | |
|---|--|
| From the TSP Field Calibration Curve, take Qstd = 43 CFM | |
| From the Regression Equation, the "Y" value according to | |
| $mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ | |
| Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>4.72</u> | |

Remarks: _____

Conducted by: Hei Signature: Hei Date: 16/8/2013
 Checked by: W.K. Tang Signature: W.K. Tang Date: 16/8/2013

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/67/0005

Project No. AMS 1 - Sha Lo Wan Operator: WK
 Date: 11-Oct-13 Next Due Date: 10-Dec-13
 Equipment No.: A-01-67 Serial No. 3218

| Ambient Condition | | | |
|---------------------|-------|---------------------|-------|
| Temperature, Ta (K) | 303.3 | Pressure, Pa (mmHg) | 759.6 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|--|--------|---------------|---------|
| Equipment No.: | A-04-05 | Slope, mc | 0.0592 | Intercept, bc | -0.0283 |
| Last Calibration Date: | 26-Dec-12 | $mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 25-Dec-13 | $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|---------------------|------------------------------|---|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of oil | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | 11.9 | 3.42 | 58.22 | 6.9 | 2.60 |
| 2 | 9.7 | 3.09 | 52.61 | 5.5 | 2.32 |
| 3 | 7.4 | 2.70 | 46.01 | 4.3 | 2.05 |
| 4 | 4.6 | 2.13 | 36.38 | 2.8 | 1.66 |
| 5 | 2.9 | 1.69 | 28.98 | 1.7 | 1.29 |

By Linear Regression of Y on X

Slope, mw = 0.0439 Intercept, bw = 0.0335
 Correlation coefficient* = 0.9993

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.77

Remarks: _____

Conducted by: wh Tang Signature: Kwan
 Checked by: Ar Signature: _____

Date: 11/10/13
 Date: 11 October 2013

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA12014/74/0005

Project No. AMS 4 - San Tau Operator: WK
 Date: 11-Oct-13 Next Due Date: 10-Dec-13
 Equipment No.: A-01-74 Serial No. 2202

| Ambient Condition | | | |
|---------------------|-------|---------------------|-------|
| Temperature, Ta (K) | 303.6 | Pressure, Pa (mmHg) | 759.2 |

| Orifice Transfer Standard Information | | | | | |
|---------------------------------------|-----------|---|--------|---------------|---------|
| Equipment No.: | A-04-05 | Slope, mc | 0.0592 | Intercept, bc | -0.0283 |
| Last Calibration Date: | 26-Dec-12 | $mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | | | |
| Next Calibration Date: | 25-Dec-13 | $Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$ | | | |

| Calibration of TSP Sampler | | | | | |
|----------------------------|------------------------------------|--|---------------------|------------------------------|---|
| Calibration Point | Orifice | | | HVS | |
| | ΔH (orifice), in. of water | $[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ | Qstd (CFM) X - axis | ΔW (HVS), in. of oil | $[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis |
| 1 | 11.1 | 3.30 | 56.21 | 7.7 | 2.75 |
| 2 | 9.1 | 2.99 | 50.94 | 6.4 | 2.51 |
| 3 | 7.0 | 2.62 | 44.73 | 5.2 | 2.26 |
| 4 | 4.5 | 2.10 | 35.96 | 3.2 | 1.77 |
| 5 | 2.9 | 1.69 | 28.96 | 2.1 | 1.43 |

By Linear Regression of Y on X

Slope, mw = 0.0486 Intercept, bw : 0.0382

Correlation coefficient* = 0.9987

*If Correlation Coefficient < 0.990, check and recalibrate.

| Set Point Calculation | |
|--|--|
| From the TSP Field Calibration Curve, take Qstd = 43 CFM | |
| From the Regression Equation, the "Y" value according to | |
| $mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ | |
| Therefore, Set Point; W = $(mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>4.61</u> | |

Remarks: _____

Conducted by: WK Tang Signature: [Signature]
 Checked by: [Signature] Signature: [Signature]

Date: 11/10/13
 Date: 11 October 2013



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

| PLATE OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORFICE DIFF H2O (in.) |
|----------------------|-------------------------|------------------------|------------------------|-----------------------|-----------------------------|--------------------------------|
| 1 | NA | NA | 1.00 | 1.4440 | 3.2 | 2.00 |
| 2 | NA | NA | 1.00 | 1.0240 | 6.4 | 4.00 |
| 3 | NA | NA | 1.00 | 0.9120 | 8.0 | 5.00 |
| 4 | NA | NA | 1.00 | 0.8720 | 8.8 | 5.50 |
| 5 | NA | NA | 1.00 | 0.7200 | 12.8 | 8.00 |

DATA TABULATION

| Vstd | (x axis) Qstd | (y axis) | Va | (x axis) Qa | (y axis) |
|-------------------------------------|------------------|----------|---------------------------|----------------|----------|
| 0.9967 | 0.6902 | 1.4149 | 0.9957 | 0.6896 | 0.8851 |
| 0.9925 | 0.9693 | 2.0010 | 0.9915 | 0.9683 | 1.2517 |
| 0.9903 | 1.0858 | 2.2372 | 0.9893 | 1.0847 | 1.3995 |
| 0.9893 | 1.1345 | 2.3464 | 0.9883 | 1.1334 | 1.4678 |
| 0.9840 | 1.3666 | 2.8299 | 0.9830 | 1.3652 | 1.7702 |
| Qstd slope (m) = 2.09107 | | | Qa slope (m) = 1.30939 | | |
| intercept (b) = -0.02838 | | | intercept (b) = -0.01775 | | |
| coefficient (r) = 0.99996 | | | coefficient (r) = 0.99996 | | |
| y axis = SQRT[H2O(Pa/760) (298/Ta)] | | | y axis = SQRT[H2O(Ta/Pa)] | | |

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



Calibration Certificate

Certificate No. **34537**

Page 1 of 2 Pages

Customer : Dragages - China Harbour - VSL Joint Venture

Address : 3/F., Island Place Tower, 510 King's Road, North Point, H. K.

Order No. : Q30108

Date of receipt : 4-Jul-13

Item Tested

Description : Vantage Pro2 Weather Stations

Manufacturer : Davis

Model : 6152 CUK

Serial No. : AK130520006

Test Conditions

Date of Test : 15-Jul-13

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure : Z04.

Test Results

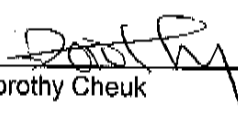
The results are shown in the attached page(s).

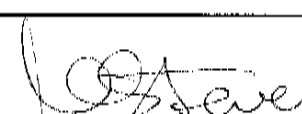
Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------|------------------|---------------------|
| S155 | Std. Anemometer | NSC201331006 | NIM-PRC |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 6-Aug-13

This Certificate is issued by:
Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ts Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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P1 13 2013 07 Aug 2013 12:13

FAX NO. :

FROM :



Calibration Certificate

Certificate No. 34537

Page 2 of 2 Pages

Results :

1. Wind Speed

| Applied Value (m/s) | UUT Reading (m/s) |
|---------------------|-------------------|
| 2.7 | 2.7 |
| 5.3 | 5.4 |
| 7.5 | 7.6 |
| 10.4 | 10.7 |
| 15.3 | 15.6 |
| 19.0 | 20.1 |

Uncertainty : $\pm (2 \% + 0.2 \text{ m/s})$

2. Wind Direction

| Reference Value | UUT Indication |
|-----------------|----------------|
| N (0°) | N (0°) |
| NE (45°) | NE (45°) |
| E (90°) | E (90°) |
| SE (135°) | SE (135°) |
| S (180°) | S (180°) |
| SW (225°) | SW (225°) |
| W (270°) | W (270°) |
| NW (315°) | NW (315°) |

Remark : 1. UUT: Unit-Under-Test

2. Atmospheric Pressure : 1 003 hPa

3. Before the calibration of the Wind Direction function, the Arrow Head was adjusted to the magnetic NORTH direction while the monitor indicated N. The customer is reminded to do the alignment again after installation.

----- END -----



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Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No. : C130600
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱 : Sound & Vibration Analyser
Manufacturer / 製造商 : Svantek
Model No. / 型號 : SVAN957
Serial No. / 編號 : 21460
Supplied By / 委託者 : Dragages - China Harbour - VSL Joint Venture
3/F, Island Place Tower, 510 King's Road,
North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

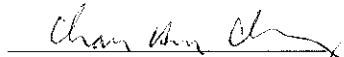
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).


The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
H C Chan

Certified By
核證

: 
K C Lee

Date of Issue : 28 January 2013
簽發日期

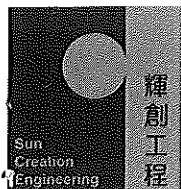
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Sun Creation Engineering Limited - Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130600

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the Svantek acoustic calibrator SV30A, S/N : 24791 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

| Equipment ID | Description | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280 | 40 MHz Arbitrary Waveform Generator | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

| UUT Setting | | | | Applied Value | | UUT Reading | IEC 61672 |
|-------------|------|---------------------|----------------|---------------|-------------|-------------|--------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | (dB) | Class 1 Spec. (dB) |
| HIGH | SPL | A | Fast | 114.00 | 1 | 114.2 | ± 1.1 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading |
|-------------|------|---------------------|----------------|---------------|-------------|--------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | (dB) |
| HIGH | SPL | A | Fast | 114.00 | 1 | 114.2 (Ref.) |
| | | | | 104.00 | | 104.2 |
| | | | | 94.00 | | 94.2 |

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

| UUT Setting | | | | Applied Value | | UUT Reading | IEC 61672 |
|-------------|------|---------------------|----------------|---------------|-------------|-------------|--------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | (dB) | Class 1 Spec. (dB) |
| HIGH | SPL | A | Fast | 114.00 | 1 | 114.2 | Ref. |
| | | | Slow | | | 114.2 | ± 0.3 |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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c/o 香港新界屯門興安里一號青山灣機樓四樓

tel/電話: 2927 2696

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C130600
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|----------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| HIGH | SPL | A | Fast | 114.00 | 63 Hz | 88.0 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 98.0 | -16.1 ± 1.5 |
| | | | | | 250 Hz | 105.5 | -8.6 ± 1.4 |
| | | | | | 500 Hz | 110.9 | -3.2 ± 1.4 |
| | | | | | 1 kHz | 114.2 | Ref. |
| | | | | | 2 kHz | 115.4 | +1.2 ± 1.6 |
| | | | | | 4 kHz | 115.2 | +1.0 ± 1.6 |
| | | | | | 8 kHz | 113.2 | -1.1 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 109.9 | -4.3 (+3.0 ; -6.0) |

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|----------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| HIGH | SPL | C | Fast | 114.00 | 63 Hz | 113.4 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 114.0 | -0.2 ± 1.5 |
| | | | | | 250 Hz | 114.2 | 0.0 ± 1.4 |
| | | | | | 500 Hz | 114.2 | 0.0 ± 1.4 |
| | | | | | 1 kHz | 114.2 | Ref. |
| | | | | | 2 kHz | 114.0 | -0.2 ± 1.6 |
| | | | | | 4 kHz | 113.5 | -0.8 ± 1.6 |
| | | | | | 8 kHz | 111.3 | -3.0 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 108.0 | -6.2 (+6.0 ; -∞) |

Remarks : - UUT Microphone Model No. : AC07052H & S/N : 43679

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.45 dB
 250 Hz - 500 Hz : ± 0.40 dB
 1 kHz : ± 0.30 dB
 2 kHz - 4 kHz : ± 0.45 dB
 8 kHz : ± 0.55 dB
 12.5 kHz : ± 0.80 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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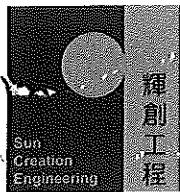
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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130601

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱 : Sound & Vibration Analyser
Manufacturer / 製造商 : Svantek
Model No. / 型號 : SVAN957
Serial No. / 編號 : 23851
Supplied By / 委託者 : Dragages - China Harbour - VSL Joint Venture
3/F, Island Place Tower, 510 King's Road,
North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
H C Chan

Certified By
核證

: 
K C Lee

Date of Issue :
簽發日期

28 January 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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E-mail/電郵: callab@suncreation.com

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Page 1 of 3



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Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130601

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the Svantek acoustic calibrator SV30A, S/N : 24780 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

| Equipment ID | Description | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280 | 40 MHz Arbitrary Waveform Generator | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|-------------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| HIGH | SPL | A | Fast | 114.00 | 1 | 113.8 | ± 1.1 |

- 6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|-------------|------|---------------------|----------------|---------------|-------------|------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| HIGH | SPL | A | Fast | 114.00 | 1 | 113.8 (Ref.) |
| | | | | 104.00 | | 103.8 |
| | | | | 94.00 | | 93.8 |

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

- 6.2 Time Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|-------------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| HIGH | SPL | A | Fast | 114.00 | 1 | 113.8 | Ref. |
| | | | Slow | | | 113.8 | ± 0.3 |

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: calllab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C130601
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|----------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| HIGH | SPL | A | Fast | 114.00 | 63 Hz | 87.6 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 97.6 | -16.1 ± 1.5 |
| | | | | | 250 Hz | 105.1 | -8.6 ± 1.4 |
| | | | | | 500 Hz | 110.5 | -3.2 ± 1.4 |
| | | | | | 1 kHz | 113.8 | Ref. |
| | | | | | 2 kHz | 115.0 | +1.2 ± 1.6 |
| | | | | | 4 kHz | 114.8 | +1.0 ± 1.6 |
| | | | | | 8 kHz | 112.8 | -1.1 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 109.6 | -4.3 (+3.0 ; -6.0) |

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|-------------|------|---------------------|----------------|---------------|----------|------------------|------------------------------|
| Range | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| HIGH | SPL | C | Fast | 114.00 | 63 Hz | 113.0 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 113.6 | -0.2 ± 1.5 |
| | | | | | 250 Hz | 113.8 | 0.0 ± 1.4 |
| | | | | | 500 Hz | 113.8 | 0.0 ± 1.4 |
| | | | | | 1 kHz | 113.8 | Ref. |
| | | | | | 2 kHz | 113.7 | -0.2 ± 1.6 |
| | | | | | 4 kHz | 113.1 | -0.8 ± 1.6 |
| | | | | | 8 kHz | 110.9 | -3.0 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 107.6 | -6.2 (+6.0 ; -∞) |

Remarks : - UUT Microphone Model No. : AC07502E & S/N : 48532

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.45 dB
 250 Hz - 500 Hz : ± 0.40 dB
 1 kHz : ± 0.30 dB
 2 kHz - 4 kHz : ± 0.45 dB
 8 kHz : ± 0.55 dB
 12.5 kHz : ± 0.80 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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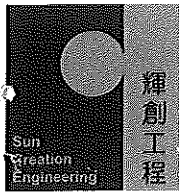
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輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130599

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱 : Acoustic Calibrator
Manufacturer / 製造商 : Svantek
Model No. / 型號 : SV30A
Serial No. / 編號 : 24780
Supplied By / 委託者 : Dragages - China Harbour - VSL Joint Venture
3/F, Island Place Tower, 510 King's Road,
North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

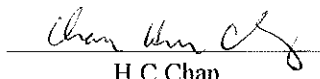
DATE OF TEST / 測試日期 : 25 January 2013


TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 H C Chan

Certified By : 
核證 K C Lee

Date of Issue : 28 January 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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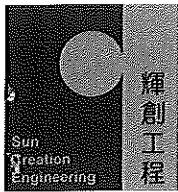
Sun Creation Engineering Limited - Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130599

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

| Equipment ID | Description | Certificate No. |
|--------------|-----------------------------------|-----------------|
| CL130 | Universal Counter | C123541 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |
| TST150A | Measuring Amplifier | C120886 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|----------------------|------------------------|---------------------|---------------------------------------|
| 94 dB, 1 kHz | 94.1 | ± 0.3 | ± 0.2 |
| 114 dB, 1 kHz | 114.0 | | |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|----------------------------|-------------------------|--------------------|---------------------------------------|
| 1 | 0.999 99 | 1 kHz ± 0.02 % | ± 0.01 |

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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c/o 4/F Tsing Shan Wan Exchange Building, 1 Bing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 校正及檢測實驗室

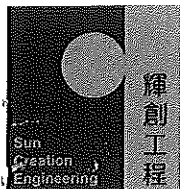
c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: calllab@suncreation.com

Website/網址: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130598

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0227)

Description / 儀器名稱 : Acoustic Calibrator

Manufacturer / 製造商 : Svantek

Model No. / 型號 : SV30A

Serial No. / 編號 : 24791

Supplied By / 委託者 : Dragages - China Harbour - VSL Joint Venture
3/F, Island Place Tower, 510 King's Road,
North Point, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 : $(55 \pm 20)\%$

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 25 January 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

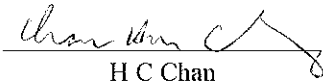
All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試

: 
H C Chan

Certified By
核證

: 
K C Lee

Date of Issue
簽發日期

28 January 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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輝創工程有限公司 - 校正及檢測實驗室

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Page 1 of 2



輝創工程有限公司

Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No. : C130598

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

| <u>Equipment ID</u> | <u>Description</u> | <u>Certificate No.</u> |
|---------------------|-----------------------------------|------------------------|
| CL130 | Universal Counter | C123541 |
| CL281 | Multifunction Acoustic Calibrator | DC110233 |
| TST150A | Measuring Amplifier | C120886 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|----------------------|------------------------|---------------------|---------------------------------------|
| 94 dB, 1 kHz | 93.9 | ± 0.3 | ± 0.2 |
| 114 dB, 1 kHz | 113.9 | | |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|----------------------------|-------------------------|----------------|---------------------------------------|
| 1 | 1.000 00 | 1 kHz ± 0.02 % | ± 0.01 |

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

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Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: calllab@suncreation.com

Website/網址: www.suncreation.com

TEST REPORT

Chemical Analysis of Water

Accuracy check of YSI Sondes Environmental Monitoring System

Date of issue: 20-08-2013

Page 1 of 1 pages

Castco LRN: EN0130816-1

Sample details as supplied by customer

Customer : Dragages-China Harbour-VSL Joint Venture

Customer Ref. No. : --

Address: Tung Chung Waterfront Road, adjacent to Tung Chung New Development Pier

Job Title : Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road - Section between HKSAR Boundary and Scenic Hill

Contract No.: HY/2011/09

Laboratory Test Result

Instrument Name: Sonde Environmental Monitoring System

Manufacturer : YSI

Model No. : YSI 6920

Serial No. : 02D0293AA

Instrument No. : W.03.02

Date of Calibration : 16-08-2013

Date of Next Calibration : 16-11-2013

pH Value Check (pH Probe : Model: 6589, L/N: 12C)

| Expected Reading (pH Unit) | Sonde Reading (pH Unit) | Tolerance (pH Unit) | Tolerance Limit (pH Unit) | Method Reference |
|----------------------------|-------------------------|---------------------|---------------------------|---------------------------------|
| 4.00 | 4.09 | +0.09 | ± 0.2 | APHA 21e, 4500-H ⁺ B |
| 7.02 | 7.12 | +0.10 | | |
| 10.06 | 10.09 | +0.03 | | |

Turbidity Check (Turbidity Sensor : Model: 6136, S/N: 11J100475)

| Expected Reading (NTU) | Sonde Reading (NTU) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|------------------------|---------------------|---------------|---------------------|------------------|
| 4.00 | 4.0 | 0.0 | ± 10 | APHA 21e, 2130B |
| 10.00 | 9.7 | -3.0 | | |
| 20.00 | 18.9 | -5.5 | | |
| 50.00 | 48.2 | -3.6 | | |
| 100.00 | 96.7 | -3.3 | | |

Conductivity Performance Check (Conductivity Sensor : Model: 6560, L/N: 12B100106)

| Expected Reading (µS/cm) | Sonde Reading (µS/cm) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|--------------------------|-----------------------|---------------|---------------------|------------------|
| 1412 at 25 °C | 1481 at 25 °C | +4.9 | ± 10 | APHA 21e, 2510B |

Salinity Performance Check (Salinity Sensor : Model: 6560, L/N: 12B100106)

| Expected Reading (ppt) | Sonde Reading (ppt) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|------------------------|---------------------|---------------|---------------------|------------------|
| 35 | 35.12 | +0.3 | ± 10 | APHA 19e, 2520B |

Dissolved Oxygen Check (Dissolved Oxygen Sensor : Model: 6562, L/N: 08C100810)

| DO from Winkler Titration (mg/L) | Sonde Reading (mg/L) | Tolerance (mg/L) | Tolerance Limit (mg/L) | Method Reference |
|----------------------------------|----------------------|------------------|------------------------|----------------------|
| 8.50 | 8.48 | -0.02 | ± 0.20 | APHA 21e, 4500-O C&G |
| 4.82 | 4.74 | -0.08 | | |

Water Level Meter Check

| Expected Reading (m) | Sonde Reading (m) | Tolerance (m) | Tolerance Limit (m) | Method Reference |
|----------------------|-------------------|---------------|---------------------|-----------------------------|
| 1.00 | 0.97 | -0.03 | ± 0.05 | YSI Sondes Procedure Manual |

Temperature Check

| Expected Reading (°C) | Sonde Reading (°C) | Tolerance (°C) | Tolerance Limit (°C) | Method Reference |
|-----------------------|--------------------|----------------|----------------------|----------------------------------|
| 25.0 | 24.3 | -0.7 | ± 2.0 | Telarc Technical Guide No.3 1986 |

Checked by: _____

LI YIU WAH
Senior Chemist

Certified by: _____

End of Report

LEE STEPHEN SHU HANG
Ph.D.
Technical Director

Form No. ENV SONDE_T1 dd 22/02/2013

TEST REPORT

Chemical Analysis of Water

Accuracy check of YSI Sondes Environmental Monitoring System

Date of issue: 27-08-2013

Page 1A of 1 pages

Castco LRN: EN0130816-2

Sample details as supplied by customer

Customer: Dragages-China Harbour-VSL Joint Venture

Customer Ref. No.: --

Address: Tung Chung Waterfront Road, adjacent to Tung Chung New Development Pier

Job Title: Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road - Section between HKSAR Boundary and Scenic Hill

Contract No.: HY/2011/09

Laboratory Test Result

Instrument Name: Sonde Environmental Monitoring System

Manufacturer: YSI

Model No.: YSI 6820

Serial No.: 12B100804

Instrument No.: W.03.13

Date of Calibration: 16-08-2013

Date of Next Calibration: 16-11-2013

pH Value Check (pH Probe: Model: 6589, L/N: 12C)

| Expected Reading (pH Unit) | Sonde Reading (pH Unit) | Tolerance (pH Unit) | Tolerance Limit (pH Unit) | Method Reference |
|----------------------------|-------------------------|---------------------|---------------------------|---------------------------------|
| 4.00 | 4.16 | +0.16 | ± 0.2 | APHA 21e, 4500-H ⁺ B |
| 7.02 | 7.05 | +0.03 | | |
| 10.06 | 9.98 | -0.08 | | |

Turbidity Check (Turbidity Sensor: Model: 6136, S/N: 12B100645)

| Expected Reading (NTU) | Sonde Reading (NTU) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|------------------------|---------------------|---------------|---------------------|------------------|
| 4.00 | 3.9 | -2.5 | ± 10 | APHA 21e, 2130B |
| 10.00 | 10.3 | -3.0 | | |
| 20.00 | 19.1 | -4.5 | | |
| 50.00 | 49.1 | -1.8 | | |
| 100.00 | 99.7 | -0.3 | | |

Conductivity Performance Check (Conductivity Sensor: Model: 6560, L/N: 12B100055)

| Expected Reading (µS/cm) | Sonde Reading (µS/cm) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|--------------------------|-----------------------|---------------|---------------------|------------------|
| 1412 at 25 °C | 1522 at 25 °C | +7.8 | ± 10 | APHA 21e, 2510B |

Salinity Performance Check (Salinity Sensor: Model: 6560, L/N: 12B100055)

| Expected Reading (ppt) | Sonde Reading (ppt) | Tolerance (%) | Tolerance Limit (%) | Method Reference |
|------------------------|---------------------|---------------|---------------------|------------------|
| 35 | 34.72 | -0.8 | ± 10 | APHA 19e, 2520B |

Dissolved Oxygen Check (Dissolved Oxygen Sensor: Model: 6562, L/N: 12A100930)

| DO from Winkler Titration (mg/L) | Sonde Reading (mg/L) | Tolerance (mg/L) | Tolerance Limit (mg/L) | Method Reference |
|----------------------------------|----------------------|------------------|------------------------|----------------------|
| 8.47 | 8.36 | -0.11 | ± 0.20 | APHA 21e, 4500-O C&G |
| 4.87 | 4.73 | -0.14 | | |

Water Level Meter Check

| Expected Reading (m) | Sonde Reading (m) | Tolerance (m) | Tolerance Limit (m) | Method Reference |
|----------------------|-------------------|---------------|---------------------|-----------------------------|
| 1.00 | 0.98 | -0.02 | ± 0.05 | YSI Sondes Procedure Manual |

Temperature Check

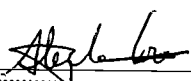
| Expected Reading (°C) | Sonde Reading (°C) | Tolerance (°C) | Tolerance Limit (°C) | Method Reference |
|-----------------------|--------------------|----------------|----------------------|----------------------------------|
| 25.0 | 24.9 | -0.1 | ± 2.0 | Telarc Technical Guide No.3 1986 |

Remark: 1. This test report supersedes previous test report of Castco LRN: EN0130816-2 issued on 20-08-2013.

Checked by:


LI YIU WAH
 Senior Chemist

Certified by:


LEE STEPHEN SHU HANG
 Ph.D.
 Technical Director

End of Report

Form No. ENV SONDE_T1 dd 22/02/2013

 香港粉嶺安居街33號 33, On Kui Street, F
 香港粉嶺安全街29A號 29A, On Chuen Street,
 E-mail: castco@netvigator.com Web

COPY

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

**Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Impact Air Quality and Noise Monitoring Schedule in October 2013**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------|
| | | 1-Oct | 2-Oct | 3-Oct | 4-Oct | 5-Oct |
| | | | | 24 hr TSP 1 hr TSP X 3 | | |
| 6-Oct | 7-Oct | 8-Oct | 9-Oct | 10-Oct | 11-Oct | 12-Oct |
| | | | 24 hr TSP 1 hr TSP X 3 | Noise | | |
| 13-Oct | 14-Oct | 15-Oct | 16-Oct | 17-Oct | 18-Oct | 19-Oct |
| | | 24 hr TSP 1 hr TSP X 3 | Noise | | | |
| 20-Oct | 21-Oct | 22-Oct | 23-Oct | 24-Oct | 25-Oct | 26-Oct |
| | 24 hr TSP 1 hr TSP X 3 | Noise | | | 24 hr TSP 1 hr TSP X 3 | |
| 27-Oct | 28-Oct | 29-Oct | 30-Oct | 31-Oct | | |
| | Noise | | | 24 hr TSP 1 hr TSP X 3 | | |

Air Quality Monitoring Stations

AMS1 - Sha Lo Wan
AMS4 - San Tau

Noise Monitoring Stations

NMS1 - Sha Lo Wan
NMS4 - San Tau

**Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Tentative Impact Air Quality and Noise Monitoring Schedule in November 2013**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|----------|
| | | | | | 1-Nov | 2-Nov |
| | | | | | | |
| 3-Nov | 4-Nov | 5-Nov | 6-Nov | 7-Nov | 8-Nov | 9-Nov |
| | | | 24 hr TSP 1 hr TSP X 3 | Noise | | |
| 10-Nov | 11-Nov | 12-Nov | 13-Nov | 14-Nov | 15-Nov | 16-Nov |
| | | 24 hr TSP 1 hr TSP X 3 | Noise | | | |
| 17-Nov | 18-Nov | 19-Nov | 20-Nov | 21-Nov | 22-Nov | 23-Nov |
| | 24 hr TSP 1 hr TSP X 3 | Noise | | | 24 hr TSP 1 hr TSP X 3 | |
| 24-Nov | 25-Nov | 26-Nov | 27-Nov | 28-Nov | 29-Nov | 30-Nov |
| | Noise | | | 24 hr TSP 1 hr TSP X 3 | | |

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Stations

AMS1 - Sha Lo Wan
AMS4 - San Tau

Noise Monitoring Stations

NMS1 - Sha Lo Wan
NMS4 - San Tau

Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Impact Water Quality Monitoring Schedule in October 2013

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|---|---|---|---|---|---|
| | | 1-Oct | 2-Oct | 3-Oct | 4-Oct | 5-Oct |
| | | | <u>Water Quality Monitoring</u> Mid-Ebb 11:05 Mid-Flood 17:33 | | <u>Water Quality Monitoring</u> Mid-Ebb 12:23 Mid-Flood 18:28 | |
| 6-Oct | 7-Oct | 8-Oct | 9-Oct | 10-Oct | 11-Oct | 12-Oct |
| | <u>Water Quality Monitoring</u> Mid-Flood 08:22 Mid-Ebb 14:20 | | <u>Water Quality Monitoring</u> Mid-Flood 10:01 Mid-Ebb 15:48 | | <u>Water Quality Monitoring</u> Mid-Flood 12:24 Mid-Ebb 18:02 | |
| 13-Oct | 14-Oct | 15-Oct | 16-Oct | 17-Oct | 18-Oct | 19-Oct |
| | | <u>Water Quality Monitoring</u> Mid-Ebb 09:43 Mid-Flood 16:40 | | <u>Water Quality Monitoring</u> Mid-Ebb 11:29 Mid-Flood 17:46 | | <u>Water Quality Monitoring</u> Mid-Ebb 12:55 Mid-Flood 18:46 |
| 20-Oct | 21-Oct | 22-Oct | 23-Oct | 24-Oct | 25-Oct | 26-Oct |
| | <u>Water Quality Monitoring</u> Mid-Ebb 14:06 Mid-Flood 19:40 | | <u>Water Quality Monitoring</u> Mid-Flood 09:43 Mid-Ebb 15:10 | | <u>Water Quality Monitoring</u> Mid-Flood 11:28 Mid-Ebb 16:27 | |
| 27-Oct | 28-Oct | 29-Oct | 30-Oct | 31-Oct | | |
| | <u>Water Quality Monitoring</u> Mid-Ebb 06:53 Mid-Flood 15:06 | | <u>Water Quality Monitoring</u> Mid-Ebb 09:28 Mid-Flood 16:10 | | | |

**Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Tentative Impact Water Quality Monitoring Schedule in November 2013**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|---|---|---|---|---|---|
| | | | | | 1-Nov | 2-Nov |
| | | | | | <u>Water Quality Monitoring</u> Mid-Ebb 11:10 Mid-Flood 17:13 | |
| 3-Nov | 4-Nov | 5-Nov | 6-Nov | 7-Nov | 8-Nov | 9-Nov |
| | <u>Water Quality Monitoring</u> Mid-Ebb 13:21 Mid-Flood 18:50 | | <u>Water Quality Monitoring</u> Mid-Flood 09:07 Mid-Ebb 14:51 | | <u>Water Quality Monitoring</u> Mid-Flood 11:03 Mid-Ebb 16:44 | |
| 10-Nov | 11-Nov | 12-Nov | 13-Nov | 14-Nov | 15-Nov | 16-Nov |
| | <u>Water Quality Monitoring</u> Mid-Flood 14:24 Mid-Ebb 20:37 | | <u>Water Quality Monitoring</u> Mid-Ebb 09:17 Mid-Flood 16:00 | | <u>Water Quality Monitoring</u> Mid-Ebb 11:09 Mid-Flood 17:07 | |
| 17-Nov | 18-Nov | 19-Nov | 20-Nov | 21-Nov | 22-Nov | 23-Nov |
| | <u>Water Quality Monitoring</u> Mid-Ebb 13:09 Mid-Flood 18:37 | | <u>Water Quality Monitoring</u> Mid-Flood 08:49 Mid-Ebb 14:13 | | <u>Water Quality Monitoring</u> Mid-Flood 10:07 Mid-Ebb 15:19 | |
| 24-Nov | 25-Nov | 26-Nov | 27-Nov | 28-Nov | 29-Nov | 30-Nov |
| | | <u>Water Quality Monitoring</u> Mid-Flood 13:41 Mid-Ebb 19:47 | | <u>Water Quality Monitoring</u> Mid-Ebb 08:21 Mid-Flood 15:08 | | <u>Water Quality Monitoring</u> Mid-Ebb 10:35 Mid-Flood 16:24 |

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

**Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Construction-Phase Dolphin Monitoring in West Lantau (Line Transect Vessel Survey) in October 2013**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------------------------|----------|-----------------------------|----------|
| | | 1-Oct | 2-Oct | 3-Oct | 4-Oct | 5-Oct |
| | | | | | | |
| 6-Oct | 7-Oct | 8-Oct | 9-Oct | 10-Oct | 11-Oct | 12-Oct |
| | | | Line Transect Vessel Survey | | | |
| 13-Oct | 14-Oct | 15-Oct | 16-Oct | 17-Oct | 18-Oct | 19-Oct |
| | | | | | Line Transect Vessel Survey | |
| 20-Oct | 21-Oct | 22-Oct | 23-Oct | 24-Oct | 25-Oct | 26-Oct |
| | | | | | | |
| 27-Oct | 28-Oct | 29-Oct | 30-Oct | 31-Oct | | |
| | | | | | | |

**Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
Tentative Construction-Phase Dolphin Monitoring in West Lantau (Line Transect Vessel Survey) in November 2013**

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|--------|--------|---------|-----------------------------|----------|--------|----------|
| | | | | | 1-Nov | 2-Nov |
| | | | | | | |
| 3-Nov | 4-Nov | 5-Nov | 6-Nov | 7-Nov | 8-Nov | 9-Nov |
| | | | Line Transect Vessel Survey | | | |
| 10-Nov | 11-Nov | 12-Nov | 13-Nov | 14-Nov | 15-Nov | 16-Nov |
| | | | Line Transect Vessel Survey | | | |
| 17-Nov | 18-Nov | 19-Nov | 20-Nov | 21-Nov | 22-Nov | 23-Nov |
| | | | | | | |
| 24-Nov | 25-Nov | 26-Nov | 27-Nov | 28-Nov | 29-Nov | 30-Nov |
| | | | | | | |

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX E
1-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION

Appendix E - 1-hour TSP Monitoring Results

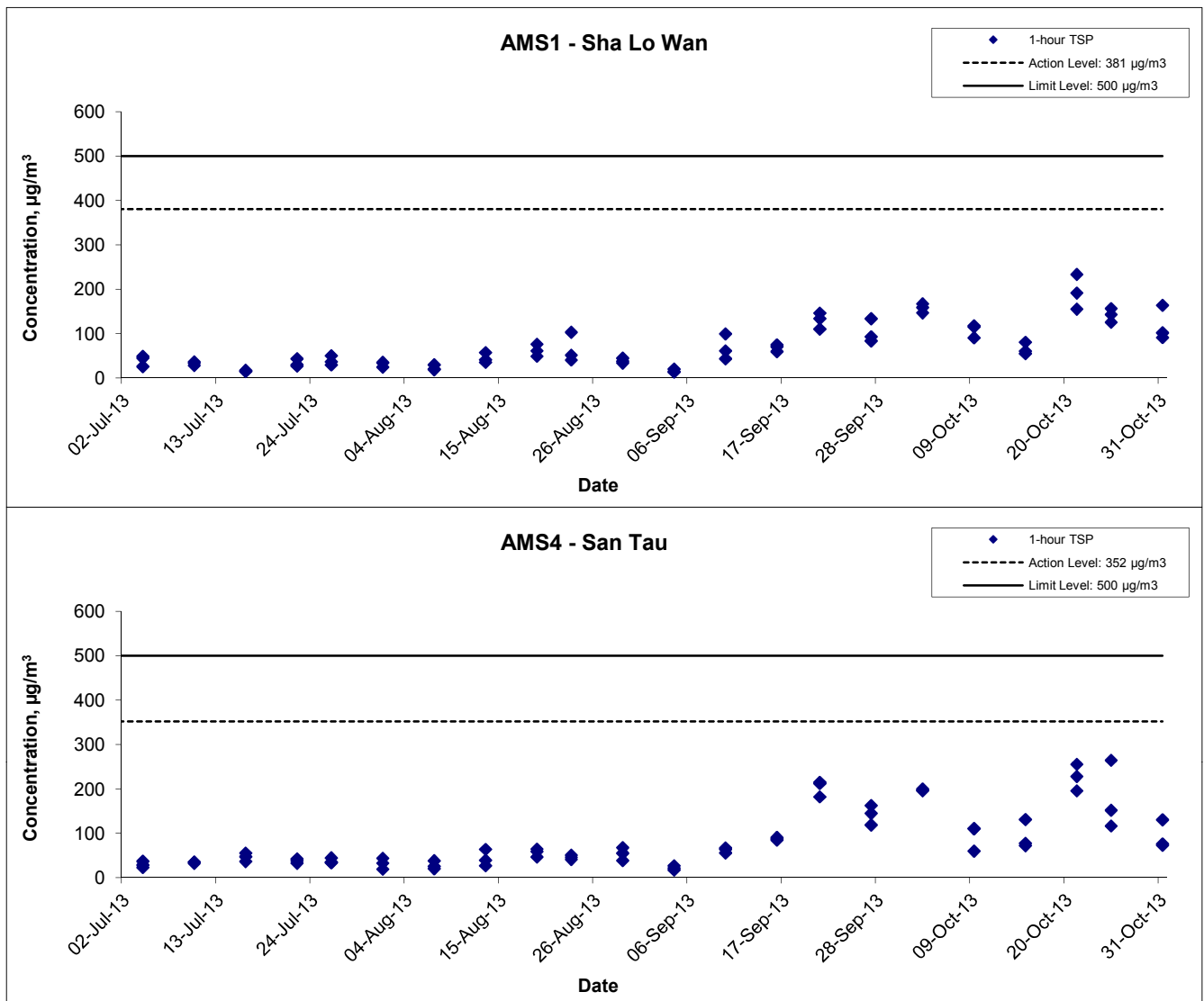
Location AMS1 - Sha Lo Wan

| Sampling Date | Start Time | Weather Condition | Air Temp. (K) | Atmospheric Pressure, Pa (mmHg) | Filter Weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time(hrs.) | Flow Rate (m³/min.) | | Av. flow (m³/min) | Total vol. (m³) | Conc. (µg/m³) |
|---------------|------------|-------------------|---------------|---------------------------------|-------------------|--------|------------------------|-------------|--------|---------------------|---------------------|-------|-------------------|-----------------|---------------|
| | | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 3-Oct-13 | 08:57 | Sunny | 298.4 | 763.2 | 2.7825 | 2.7934 | 0.0109 | 2320.9 | 2321.9 | 1.0 | 1.24 | 1.23 | 1.23 | 74.1 | 147 |
| 3-Oct-13 | 09:58 | Sunny | 298.6 | 763.0 | 2.7628 | 2.7746 | 0.0118 | 2321.9 | 2322.9 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 159 |
| 3-Oct-13 | 10:59 | Sunny | 298.8 | 762.8 | 2.7585 | 2.7709 | 0.0124 | 2322.9 | 2323.9 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 168 |
| 9-Oct-13 | 09:50 | Sunny | 300.1 | 759.7 | 2.7848 | 2.7935 | 0.0087 | 2347.9 | 2348.9 | 1.0 | 1.23 | 1.23 | 1.23 | 73.7 | 118 |
| 9-Oct-13 | 10:59 | Sunny | 300.3 | 759.5 | 2.7883 | 2.7968 | 0.0085 | 2348.9 | 2349.9 | 1.0 | 1.23 | 1.23 | 1.23 | 73.6 | 115 |
| 9-Oct-13 | 16:00 | Sunny | 300.4 | 759.0 | 2.7969 | 2.8036 | 0.0067 | 2349.9 | 2350.9 | 1.0 | 1.23 | 1.23 | 1.23 | 73.6 | 91 |
| 15-Oct-13 | 08:55 | Cloudy | 299.7 | 762.8 | 2.7608 | 2.7668 | 0.0060 | 2375.1 | 2376.1 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 81 |
| 15-Oct-13 | 09:57 | Cloudy | 299.9 | 762.7 | 2.7801 | 2.7842 | 0.0041 | 2376.1 | 2377.1 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 55 |
| 15-Oct-13 | 10:59 | Cloudy | 300.1 | 762.5 | 2.7738 | 2.7783 | 0.0045 | 2377.1 | 2378.1 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 61 |
| 21-Oct-13 | 09:00 | Sunny | 296.4 | 764.9 | 2.8019 | 2.8135 | 0.0116 | 2402.1 | 2403.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.5 | 156 |
| 21-Oct-13 | 10:01 | Sunny | 296.7 | 764.7 | 2.7950 | 2.8093 | 0.0143 | 2403.1 | 2404.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.5 | 192 |
| 21-Oct-13 | 14:06 | Sunny | 299.7 | 762.4 | 2.7921 | 2.8094 | 0.0173 | 2404.1 | 2405.1 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 234 |
| 25-Oct-13 | 09:50 | Sunny | 295.9 | 765.4 | 2.7714 | 2.7821 | 0.0107 | 2429.1 | 2430.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.6 | 143 |
| 25-Oct-13 | 10:51 | Sunny | 296.1 | 765.3 | 2.7816 | 2.7933 | 0.0117 | 2430.1 | 2431.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.6 | 157 |
| 25-Oct-13 | 13:00 | Sunny | 296.3 | 765.1 | 2.8031 | 2.8125 | 0.0094 | 2431.1 | 2432.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.6 | 126 |
| 31-Oct-13 | 08:57 | Sunny | 298.5 | 766.0 | 2.7972 | 2.8048 | 0.0076 | 2456.1 | 2457.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.3 | 102 |
| 31-Oct-13 | 09:58 | Sunny | 298.7 | 765.8 | 2.7985 | 2.8053 | 0.0068 | 2457.1 | 2458.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.3 | 92 |
| 31-Oct-13 | 10:59 | Sunny | 298.9 | 765.6 | 2.8024 | 2.8146 | 0.0122 | 2458.1 | 2459.1 | 1.0 | 1.24 | 1.24 | 1.24 | 74.3 | 164 |
| | | | | | | | | | | | | | | Min | 55 |
| | | | | | | | | | | | | | | Max | 234 |
| | | | | | | | | | | | | | | Average | 131 |

Location AMS4 - San Tau

| Sampling Date | Start Time | Weather Condition | Air Temp. (K) | Atmospheric Pressure, Pa (mmHg) | Filter Weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time(hrs.) | Flow Rate (m³/min.) | | Av. flow (m³/min) | Total vol. (m³) | Conc. (µg/m³) |
|---------------|------------|-------------------|---------------|---------------------------------|-------------------|--------|------------------------|-------------|--------|---------------------|---------------------|-------|-------------------|-----------------|---------------|
| | | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 3-Oct-13 | 13:01 | Sunny | 302.1 | 761.3 | 2.7897 | 2.8043 | 0.0146 | 1850.9 | 1851.9 | 1.0 | 1.22 | 1.22 | 1.22 | 72.9 | 200 |
| 3-Oct-13 | 14:03 | Sunny | 301.6 | 761.1 | 2.8117 | 2.8261 | 0.0144 | 1851.9 | 1852.9 | 1.0 | 1.22 | 1.22 | 1.22 | 73.0 | 197 |
| 3-Oct-13 | 15:05 | Sunny | 302.5 | 760.9 | 2.7981 | 2.8124 | 0.0143 | 1852.9 | 1853.9 | 1.0 | 1.21 | 1.21 | 1.21 | 72.9 | 196 |
| 9-Oct-13 | 10:20 | Sunny | 300.3 | 759.7 | 2.7787 | 2.7868 | 0.0081 | 1912.3 | 1913.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.1 | 111 |
| 9-Oct-13 | 13:00 | Sunny | 300.0 | 759.8 | 2.7548 | 2.7592 | 0.0044 | 1913.3 | 1914.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.1 | 60 |
| 9-Oct-13 | 14:01 | Sunny | 300.2 | 759.6 | 2.8063 | 2.8144 | 0.0081 | 1914.3 | 1915.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.1 | 111 |
| 15-Oct-13 | 13:05 | Cloudy | 301.9 | 761.2 | 2.7609 | 2.7666 | 0.0057 | 1939.3 | 1940.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.2 | 78 |
| 15-Oct-13 | 14:07 | Cloudy | 302.3 | 761.0 | 2.7536 | 2.7589 | 0.0053 | 1940.3 | 1941.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.1 | 72 |
| 15-Oct-13 | 15:09 | Cloudy | 302.5 | 760.8 | 2.7580 | 2.7676 | 0.0096 | 1941.3 | 1942.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.1 | 131 |
| 21-Oct-13 | 10:30 | Sunny | 296.6 | 764.7 | 2.7553 | 2.7722 | 0.0169 | 1966.3 | 1967.3 | 1.0 | 1.23 | 1.23 | 1.23 | 74.0 | 228 |
| 21-Oct-13 | 13:30 | Sunny | 299.5 | 762.5 | 2.7688 | 2.7876 | 0.0188 | 1967.3 | 1968.3 | 1.0 | 1.23 | 1.23 | 1.23 | 73.5 | 256 |
| 21-Oct-13 | 14:40 | Sunny | 299.7 | 762.3 | 2.7871 | 2.8015 | 0.0144 | 1968.3 | 1969.3 | 1.0 | 1.23 | 1.22 | 1.22 | 73.5 | 196 |
| 25-Oct-13 | 13:15 | Sunny | 298.9 | 763.0 | 2.7737 | 2.7932 | 0.0195 | 1993.3 | 1994.3 | 1.0 | 1.23 | 1.23 | 1.23 | 73.6 | 265 |
| 25-Oct-13 | 14:50 | Sunny | 299.1 | 762.8 | 2.7905 | 2.7991 | 0.0086 | 1994.3 | 1995.3 | 1.0 | 1.23 | 1.23 | 1.23 | 73.6 | 117 |
| 25-Oct-13 | 15:51 | Sunny | 299.2 | 762.6 | 2.7839 | 2.7951 | 0.0112 | 1995.3 | 1996.3 | 1.0 | 1.23 | 1.23 | 1.23 | 73.6 | 152 |
| 31-Oct-13 | 13:04 | Sunny | 300.4 | 763.3 | 2.7981 | 2.8077 | 0.0096 | 2020.3 | 2021.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.5 | 131 |
| 31-Oct-13 | 14:06 | Sunny | 300.6 | 763.0 | 2.7762 | 2.7816 | 0.0054 | 2021.3 | 2022.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.4 | 74 |
| 31-Oct-13 | 15:08 | Sunny | 300.8 | 762.8 | 2.7642 | 2.7698 | 0.0056 | 2022.3 | 2023.3 | 1.0 | 1.22 | 1.22 | 1.22 | 73.4 | 76 |
| | | | | | | | | | | | | | | Min | 60 |
| | | | | | | | | | | | | | | Max | 265 |
| | | | | | | | | | | | | | | Average | 147 |

1-hour TSP Concentration Levels



| | | | |
|---|-----------------------|-------------------------------|--|
| Title Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Graphical Presentation of 1-hour TSP Monitoring Results | Scale N.T.S | Project No. MA12014 | |
| | Date Oct 13 | Appendix E | |

APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATION

Appendix F - 24-hour TSP Monitoring Results

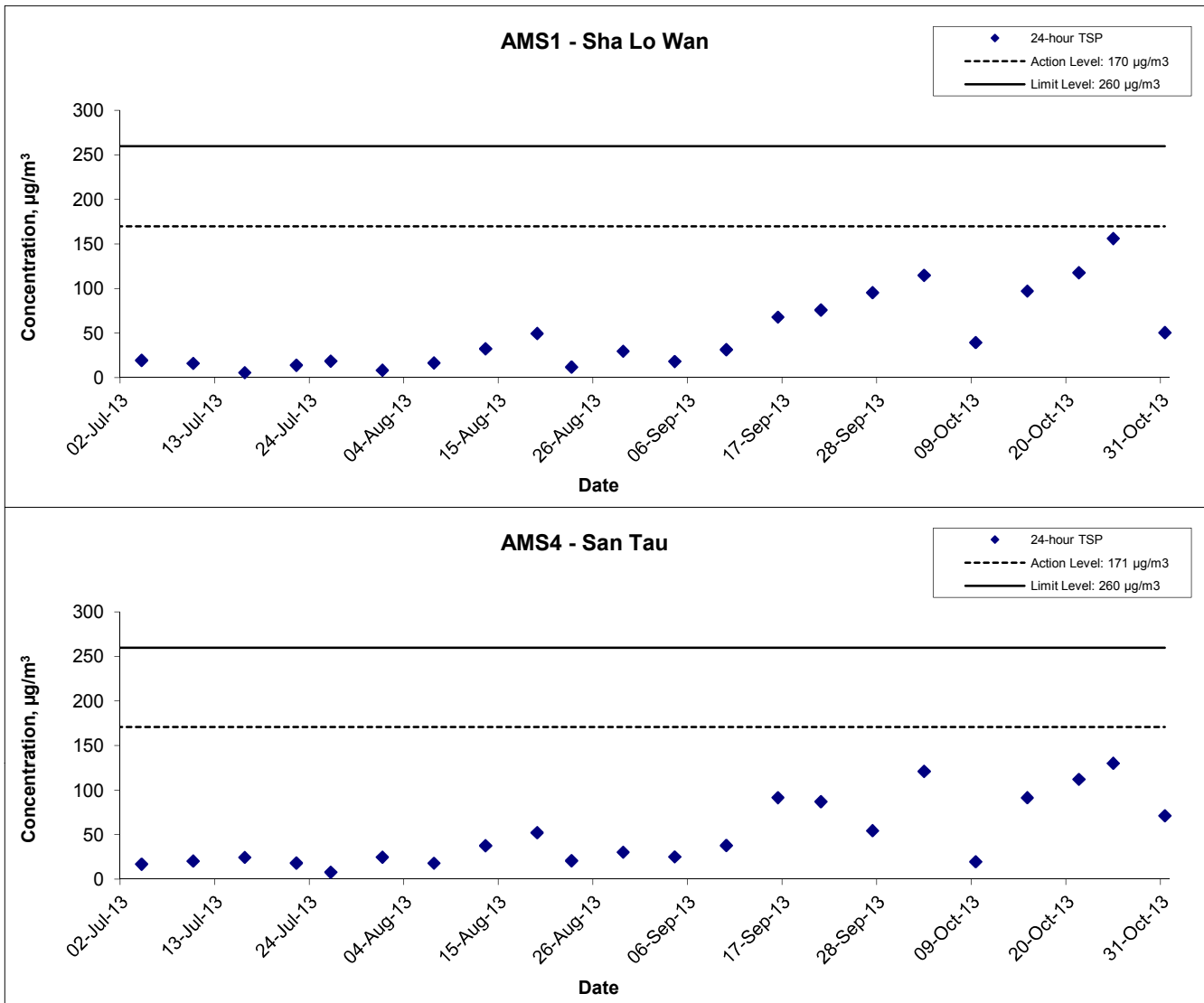
Location AMS1 - Sha Lo Wan


| Sampling Date | Start Time | Weather Condition | Air Temp. (K) | Atmospheric Pressure, Pa (mmHg) | Filter Weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time(hrs.) | Flow Rate (m ³ /min.) | | Av. flow (m ³ /min) | Total vol. (m ³) | Conc. (µg/m ³) |
|---------------|------------|-------------------|---------------|---------------------------------|-------------------|--------|------------------------|-------------|--------|---------------------|----------------------------------|-------|--------------------------------|------------------------------|----------------------------|
| | | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 3-Oct-13 | 12:50 | Cloudy | 301.7 | 761.8 | 2.7908 | 2.9939 | 0.2031 | 2323.9 | 2347.9 | 24.0 | 1.23 | 1.23 | 1.23 | 1765.6 | 115 |
| 9-Oct-13 | 17:06 | Sunny | 300.5 | 758.8 | 2.8103 | 2.8802 | 0.0699 | 2350.9 | 2374.9 | 24.0 | 1.23 | 1.23 | 1.23 | 1765.6 | 40 |
| 15-Oct-13 | 13:25 | Cloudy | 302.5 | 761.3 | 2.7607 | 2.9326 | 0.1719 | 2378.1 | 2402.1 | 24.0 | 1.23 | 1.23 | 1.23 | 1766.5 | 97 |
| 21-Oct-13 | 15:10 | Sunny | 299.9 | 762.2 | 2.7893 | 2.9988 | 0.2095 | 2405.1 | 2429.1 | 24.0 | 1.23 | 1.23 | 1.23 | 1775.3 | 118 |
| 25-Oct-13 | 14:01 | Sunny | 296.5 | 764.9 | 2.7876 | 3.0673 | 0.2797 | 2432.1 | 2456.1 | 24.0 | 1.24 | 1.24 | 1.24 | 1788.9 | 156 |
| 31-Oct-13 | 13:30 | Sunny | 300.7 | 762.7 | 2.8060 | 2.8959 | 0.0899 | 2459.1 | 2483.1 | 24.0 | 1.23 | 1.23 | 1.23 | 1773.5 | 51 |
| | | | | | | | | | | | | | | Min | 40 |
| | | | | | | | | | | | | | | Max | 156 |
| | | | | | | | | | | | | | | Average | 96 |

Location AMS4 - San Tau

| Sampling Date | Start Time | Weather Condition | Air Temp. (K) | Atmospheric Pressure, Pa (mmHg) | Filter Weight (g) | | Particulate weight (g) | Elapse Time | | Sampling Time(hrs.) | Flow Rate (m ³ /min.) | | Av. flow (m ³ /min) | Total vol. (m ³) | Conc. (µg/m ³) |
|---------------|------------|-------------------|---------------|---------------------------------|-------------------|--------|------------------------|-------------|--------|---------------------|----------------------------------|-------|--------------------------------|------------------------------|----------------------------|
| | | | | | Initial | Final | | Initial | Final | | Initial | Final | | | |
| 3-Oct-13 | 16:30 | Cloudy | 302.7 | 760.7 | 2.7834 | 2.9952 | 0.2118 | 1853.9 | 1877.9 | 24.0 | 1.21 | 1.21 | 1.21 | 1747.9 | 121 |
| 9-Oct-13 | 15:05 | Sunny | 300.4 | 759.4 | 2.8196 | 2.8543 | 0.0347 | 1915.3 | 1939.3 | 24.0 | 1.22 | 1.22 | 1.22 | 1753.6 | 20 |
| 15-Oct-13 | 16:35 | Cloudy | 302.7 | 760.6 | 2.7635 | 2.9241 | 0.1606 | 1942.3 | 1966.3 | 24.0 | 1.22 | 1.22 | 1.22 | 1753.1 | 92 |
| 21-Oct-13 | 15:41 | Sunny | 300.0 | 762.0 | 2.8085 | 3.0064 | 0.1979 | 1969.3 | 1993.3 | 24.0 | 1.22 | 1.22 | 1.22 | 1762.9 | 112 |
| 25-Oct-13 | 16:52 | Sunny | 299.4 | 762.4 | 2.8016 | 3.0315 | 0.2299 | 1996.3 | 2020.3 | 24.0 | 1.23 | 1.23 | 1.23 | 1765.2 | 130 |
| 31-Oct-13 | 16:15 | Sunny | 301.0 | 762.6 | 2.7916 | 2.9172 | 0.1256 | 2023.3 | 2047.3 | 24.0 | 1.22 | 1.22 | 1.22 | 1760.5 | 71 |
| | | | | | | | | | | | | | | Min | 20 |
| | | | | | | | | | | | | | | Max | 130 |
| | | | | | | | | | | | | | | Average | 91 |

24-hour TSP Concentration Levels



| | | | |
|--|-----------------------|-------------------------------|---|
| Title Contract No. HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road – Section between HKSAR Boundary and Scenic Hill Graphical Presentation of 24-hour TSP Monitoring Results | Scale N.T.S | Project No. MA12014 |  |
| | Date Oct 13 | Appendix F | |

APPENDIX G
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATION

Appendix G - Noise Monitoring Results

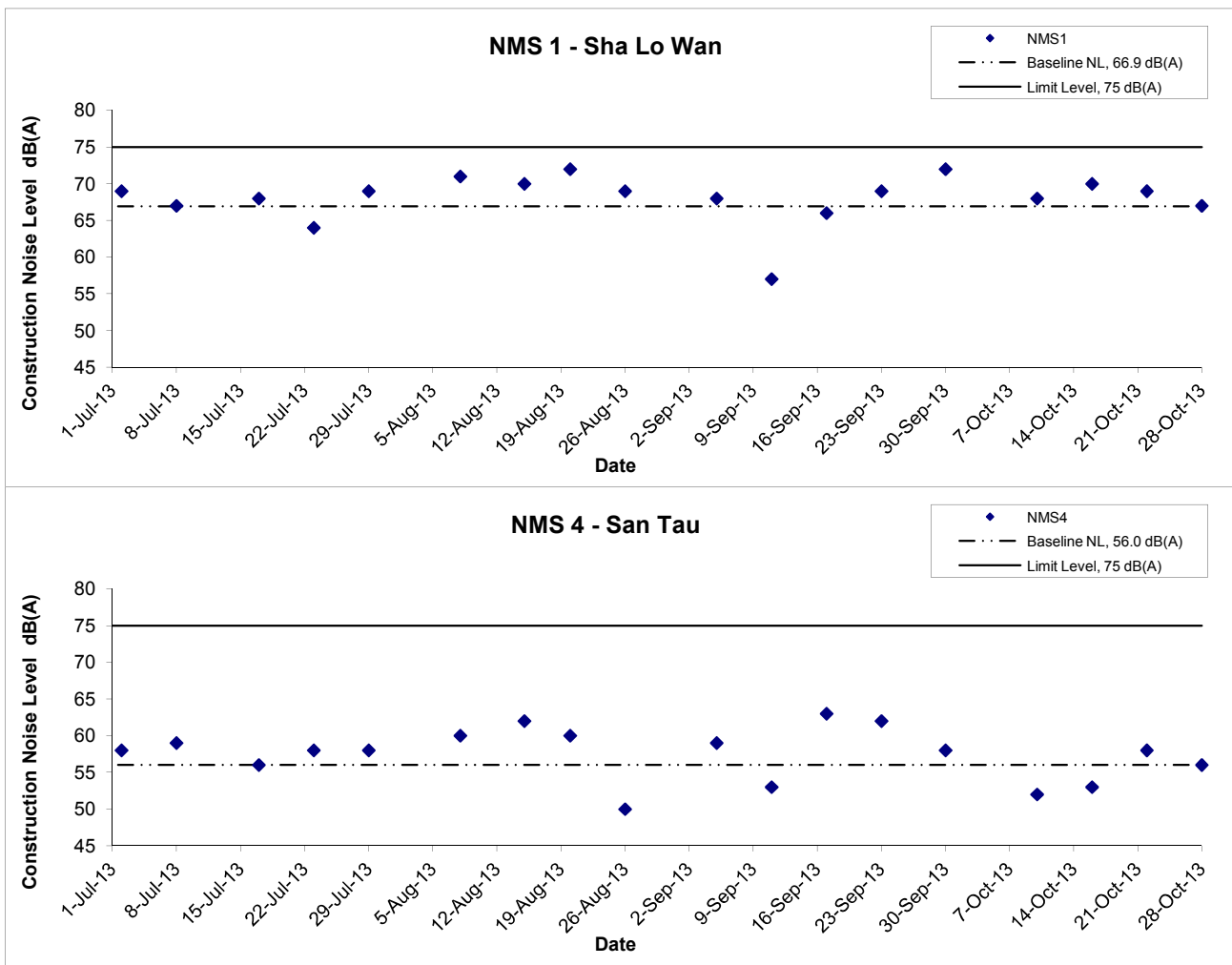
| Location NMS 1 - Sha Lo Wan | | | | | | | | |
|-----------------------------|---------|-------|----------------------|-----------------|-----------------|-----------------|-----------------|---------------------------|
| Date | Weather | Time | Unit: dB (A) (5-min) | | | Average | Baseline Level | Construction Noise Level |
| | | | L _{eq} | L ₁₀ | L ₉₀ | L _{eq} | L _{eq} | L _{eq} |
| 10-Oct-13 | Sunny | 15:49 | 68.9 | 74.8 | 46.8 | 68 | 66.9 | 68 Measured ≤ Limit Level |
| | | 15:54 | 66.2 | 71.4 | 46.4 | | | |
| | | 15:59 | 69.2 | 74.8 | 48.6 | | | |
| | | 16:04 | 69.0 | 75.5 | 49.8 | | | |
| | | 16:09 | 67.7 | 73.6 | 48.6 | | | |
| | | 16:14 | 67.8 | 73.9 | 48.3 | | | |
| 16-Oct-13 | Cloudy | 13:09 | 62.7 | 65.6 | 58.5 | 70 | | 70 Measured ≤ Limit Level |
| | | 13:14 | 72.0 | 77.6 | 60.6 | | | |
| | | 13:19 | 66.3 | 70.6 | 58.8 | | | |
| | | 13:24 | 60.8 | 62.6 | 58.5 | | | |
| | | 13:29 | 68.2 | 72.6 | 59.4 | | | |
| | | 13:34 | 73.8 | 77.4 | 59.3 | | | |
| 22-Oct-13 | Sunny | 11:24 | 69.7 | 73.7 | 63.2 | 69 | | 69 Measured ≤ Limit Level |
| | | 11:29 | 71.4 | 74.5 | 60.7 | | | |
| | | 11:34 | 64.4 | 68.5 | 58.0 | | | |
| | | 11:39 | 64.9 | 65.4 | 59.1 | | | |
| | | 11:44 | 69.0 | 71.5 | 59.5 | | | |
| | | 11:49 | 69.2 | 74.4 | 58.4 | | | |
| 28-Oct-13 | Sunny | 13:49 | 56.6 | 58.6 | 51.1 | 67 | | 67 Measured ≤ Limit Level |
| | | 13:54 | 58.6 | 61.4 | 51.0 | | | |
| | | 13:59 | 69.7 | 74.1 | 51.4 | | | |
| | | 14:04 | 69.0 | 72.6 | 52.4 | | | |
| | | 14:14 | 66.9 | 70.8 | 51.2 | | | |
| | | 14:19 | 66.1 | 70.0 | 51.7 | | | |

Remark: * +3dB(A) Faade correction included

| Location NMS 4 - San Tau | | | | | | | | |
|--------------------------|---------|-------|----------------------|-----------------|-----------------|-----------------|-----------------|---------------------------|
| Date | Weather | Time | Unit: dB (A) (5-min) | | | Average | Baseline Level | Construction Noise Level |
| | | | L _{eq} | L ₁₀ | L ₉₀ | L _{eq} | L _{eq} | L _{eq} |
| 10-Oct-13 | Sunny | 14:10 | 51.4 | 53.7 | 48.2 | 52 | 56.0 | 52 Measured ≤ Limit Level |
| | | 14:15 | 50.9 | 51.9 | 49.0 | | | |
| | | 14:20 | 49.6 | 52.0 | 46.5 | | | |
| | | 14:25 | 49.8 | 53.2 | 45.7 | | | |
| | | 14:30 | 54.0 | 57.3 | 49.6 | | | |
| | | 14:35 | 53.5 | 56.9 | 47.4 | | | |
| 16-Oct-13 | Cloudy | 15:07 | 52.2 | 53.9 | 49.4 | 53 | | 53 Measured ≤ Limit Level |
| | | 15:12 | 53.1 | 54.6 | 50.7 | | | |
| | | 15:17 | 52.8 | 54.2 | 49.9 | | | |
| | | 15:22 | 52.4 | 53.5 | 47.9 | | | |
| | | 15:27 | 53.5 | 54.9 | 51.2 | | | |
| | | 15:32 | 53.0 | 54.1 | 50.6 | | | |
| 22-Oct-13 | Sunny | 14:34 | 60.7 | 62.5 | 54.2 | 58 | | 58 Measured ≤ Limit Level |
| | | 14:39 | 57.1 | 59.7 | 56.6 | | | |
| | | 14:44 | 55.9 | 57.4 | 51.6 | | | |
| | | 14:49 | 58.2 | 60.5 | 51.3 | | | |
| | | 14:54 | 56.9 | 59.3 | 51.6 | | | |
| | | 14:59 | 54.9 | 57.3 | 51.5 | | | |
| 28-Oct-13 | Sunny | 11:07 | 55.7 | 58.0 | 47.0 | 56 | | 56 Measured ≤ Limit Level |
| | | 11:12 | 50.5 | 53.0 | 46.1 | | | |
| | | 11:17 | 55.3 | 59.0 | 47.3 | | | |
| | | 11:22 | 56.1 | 60.1 | 48.2 | | | |
| | | 11:27 | 53.6 | 57.2 | 46.5 | | | |
| | | 11:32 | 59.5 | 62.4 | 47.0 | | | |

Remark: * +3dB(A) Faade correction included

Noise Levels



| | | | | |
|-------|--|--------|----------------|----------|
| Title | Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Construction Noise Monitoring Results | Scale | Project No. | CINOTECH |
| | | N.T.S | MA12014 | |
| | | Date | Appendix | |
| | | Oct 13 | G | |

**APPENDIX H
WATER QUALITY MONITORING
RESULTS AND GRAPHICAL
PRESENTATION**

Water Quality Monitoring Results at CS1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:06 | Surface | 1 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 28.1 28.1 | 28.1 | 73.9 73.7 | 73.8 | 5.6 5.6 | 5.6 | 5.5 | 4.4 4.3 | 4.4 | 6.6 | 3.8 3.2 | 3.5 | 3.5 |
| | | | | Middle | 6.5 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 29.5 29.5 | 29.5 | 70.7 70.1 | 70.4 | 5.4 5.3 | 5.4 | | 7.1 7.4 | 7.3 | | 4.8 3.0 | 3.9 | |
| | | | | Bottom | 12 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 29.8 29.9 | 29.9 | 68.0 67.7 | 67.9 | 5.2 5.2 | 5.2 | | 7.9 8.4 | 8.2 | | 3.2 3.0 | 3.1 | |
| 4-Oct-13 | Cloudy | Moderate | 12:27 | Surface | 1 | 28.0 28.0 | 28.0 | 8.0 8.1 | 8.1 | 24.3 24.3 | 24.3 | 94.4 95.1 | 94.8 | 6.5 6.5 | 6.5 | 6.4 | 7.3 7.2 | 7.3 | 15.1 | 13.2 12.4 | 12.8 | 13.2 |
| | | | | Middle | 6.5 | 27.8 27.8 | 27.8 | 8.0 8.1 | 8.1 | 29.4 29.7 | 29.6 | 94.9 94.3 | 94.6 | 6.3 6.3 | 6.3 | | 13.6 16.0 | 14.8 | | 13.8 13.4 | 13.6 | |
| | | | | Bottom | 12 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 29.9 30.1 | 30.0 | 88.9 87.4 | 88.2 | 5.9 5.8 | 5.9 | | 22.8 23.3 | 23.1 | | 13.4 12.8 | 13.1 | |
| 7-Oct-13 | Sunny | Moderate | 14:57 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 93.2 85.4 | 89.3 | 6.3 5.8 | 6.1 | 6.2 | 14.2 12.9 | 13.6 | 14.6 | 11.7 11.0 | 11.4 | 13.4 |
| | | | | Middle | 6 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 87.9 95.4 | 91.7 | 5.9 6.4 | 6.2 | | 13.9 12.8 | 13.4 | | 15.3 12.3 | 13.8 | |
| | | | | Bottom | 11 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.5 | 27.5 | 84.8 83.8 | 84.3 | 5.7 5.7 | 5.7 | | 17.2 16.5 | 16.9 | | 15.0 14.7 | 14.9 | |
| 9-Oct-13 | Cloudy | Moderate | 15:30 | Surface | 1 | 27.4 27.4 | 27.4 | 8.1 8.2 | 8.2 | 28.9 29.0 | 29.0 | 98.1 96.9 | 97.5 | 7.2 7.1 | 7.2 | 7.1 | 4.2 4.4 | 4.3 | 5.6 | 7.6 4.7 | 6.2 | 5.5 |
| | | | | Middle | 6.5 | 27.2 27.3 | 27.3 | 8.1 8.2 | 8.2 | 28.7 29.3 | 29.0 | 95.1 92.4 | 93.8 | 6.9 6.8 | 6.9 | | 5.6 5.6 | 5.6 | | 4.9 5.9 | 5.4 | |
| | | | | Bottom | 12 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.8 29.9 | 29.9 | 93.9 91.9 | 92.9 | 6.9 6.7 | 6.8 | | 6.8 6.7 | 6.8 | | 5.2 4.3 | 4.8 | |
| 11-Oct-13 | Fine | Moderate | 17:10 | Surface | 1 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 26.2 26.2 | 26.2 | 106.7 106.7 | 106.7 | 7.2 7.2 | 7.2 | 7.1 | 3.3 3.3 | 3.3 | 6.3 | 3.4 2.0 | 2.7 | 3.0 |
| | | | | Middle | 3 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 27.1 27.1 | 27.1 | 102.0 101.9 | 102.0 | 6.9 6.9 | 6.9 | | 4.3 5.1 | 4.7 | | 3.6 2.5 | 3.1 | |
| | | | | Bottom | 5 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 29.5 29.5 | 29.5 | 99.2 98.9 | 99.1 | 6.7 6.7 | 6.7 | | 10.8 10.8 | 10.8 | | 3.3 3.2 | 3.3 | |
| 15-Oct-13 | Cloudy | Moderate | 10:02 | Surface | 1 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 29.5 29.7 | 29.6 | 93.9 90.3 | 92.1 | 6.3 6.1 | 6.2 | 6.1 | 9.2 9.0 | 9.1 | 10.4 | 3.9 3.9 | 3.9 | 4.8 |
| | | | | Middle | 6.5 | 27.3 27.3 | 27.3 | 8.3 8.3 | 8.3 | 30.2 30.1 | 30.2 | 89.8 89.8 | 89.8 | 6.0 6.0 | 6.0 | | 9.8 9.7 | 9.8 | | 4.6 5.2 | 4.9 | |
| | | | | Bottom | 12 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 30.4 30.4 | 30.4 | 89.5 89.0 | 89.3 | 6.0 5.9 | 6.0 | | 12.6 11.8 | 12.2 | | 5.0 6.1 | 5.6 | |
| 17-Oct-13 | Sunny | Calm | 12:09 | Surface | 1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 31.3 31.3 | 31.3 | 100.5 93.7 | 97.1 | 6.7 6.3 | 6.5 | 6.5 | 7.5 7.7 | 7.6 | 11.8 | 7.4 7.6 | 7.5 | 7.7 |
| | | | | Middle | 7 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 31.5 31.6 | 31.6 | 97.7 92.8 | 95.3 | 6.5 6.2 | 6.4 | | 10.2 12.5 | 11.4 | | 6.4 7.2 | 6.8 | |
| | | | | Bottom | 13 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 31.6 31.6 | 31.6 | 95.4 91.9 | 93.7 | 6.4 6.1 | 6.3 | | 16.4 16.2 | 16.3 | | 8.4 9.0 | 8.7 | |
| 19-Oct-13 | Sunny | Calm | 13:50 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 75.4 75.7 | 75.6 | 5.8 5.8 | 5.8 | 5.9 | 4.3 4.2 | 4.3 | 8.7 | 5.8 5.6 | 5.7 | 5.9 |
| | | | | Middle | 7 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 30.9 30.7 | 30.8 | 77.0 79.6 | 78.3 | 5.9 6.1 | 6.0 | | 10.1 10.0 | 10.1 | | 6.6 8.6 | 7.6 | |
| | | | | Bottom | 13 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 31.1 31.0 | 31.1 | 76.9 78.3 | 77.6 | 5.9 6.0 | 6.0 | | 11.6 11.9 | 11.8 | | 3.6 5.2 | 4.4 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:26 | Surface | 1 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.7 29.7 | 29.7 | 86.0 86.3 | 86.2 | 5.9 5.9 | 5.9 | 5.9 | 6.3 6.1 | 6.2 | 17.2 | 7.2 7.0 | 7.1 | 7.0 |
| | | | | Middle | 6.5 | 25.8 25.8 | 25.8 | 8.1 8.1 | 8.1 | 30.3 30.3 | 30.3 | 83.3 83.7 | 83.5 | 5.7 5.8 | 5.8 | | 19.4 18.1 | | | 7.2 7.0 | 7.1 | |
| | | | | Bottom | 12 | 25.8 25.8 | 25.8 | 8.1 8.1 | 8.1 | 30.6 30.6 | 30.6 | 80.4 80.3 | 80.4 | 5.5 5.5 | 5.5 | | 24.3 28.9 | 26.6 | | 7.7 5.7 | 6.7 | |
| 23-Oct-13 | Sunny | Calm | 14:24 | Surface | 1 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.5 30.3 | 30.4 | 88.5 88.1 | 88.3 | 6.1 6.1 | 6.1 | 6.0 | 4.6 4.5 | 4.6 | 6.9 | 8.4 9.2 | 8.8 | 7.0 |
| | | | | Middle | 6.5 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.8 30.8 | 30.8 | 86.5 86.6 | 86.6 | 5.9 5.9 | 5.9 | | 7.0 6.8 | | | 8.4 5.2 | 6.8 | |
| | | | | Bottom | 12 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 31.1 31.0 | 31.1 | 85.8 85.8 | 85.8 | 5.9 5.9 | 5.9 | | 9.8 8.8 | 9.3 | | 5.8 5.0 | 5.4 | |
| 25-Oct-13 | Sunny | Moderate | 16:08 | Surface | 1 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 99.8 101.6 | 100.7 | 6.9 7.0 | 7.0 | 6.9 | 8.2 8.0 | 8.1 | 9.0 | 5.6 6.6 | 6.1 | 6.4 |
| | | | | Middle | 6.5 | 25.5 25.5 | 25.5 | 8.1 8.1 | 8.1 | 30.7 30.6 | 30.7 | 98.0 97.5 | 97.8 | 6.7 6.7 | 6.7 | | 9.6 8.7 | | | 6.7 5.6 | 6.2 | |
| | | | | Bottom | 12 | 25.5 25.5 | 25.5 | 8.1 8.1 | 8.1 | 30.8 30.8 | 30.8 | 95.8 95.7 | 95.8 | 6.6 6.6 | 6.6 | | 9.7 9.8 | 9.8 | | 8.2 5.8 | 7.0 | |
| 28-Oct-13 | Cloudy | Moderate | 07:40 | Surface | 1 | 24.9 25.0 | 25.0 | 8.2 8.4 | 8.3 | 32.2 32.3 | 32.3 | 91.0 89.8 | 90.4 | 6.3 6.2 | 6.3 | 6.3 | 7.1 7.0 | 7.1 | 8.5 | 5.6 6.0 | 5.8 | 6.2 |
| | | | | Middle | 5.5 | 25.0 25.0 | 25.0 | 8.3 8.4 | 8.4 | 32.2 32.3 | 32.3 | 88.3 90.1 | 89.2 | 6.1 6.2 | 6.2 | | 5.7 6.6 | | | 7.0 5.0 | 6.0 | |
| | | | | Bottom | 10 | 25.0 25.0 | 25.0 | 8.4 8.4 | 8.4 | 32.3 32.3 | 32.3 | 88.6 88.7 | 88.7 | 6.1 6.1 | 6.1 | | 12.1 12.5 | 12.3 | | 6.8 6.6 | 6.7 | |
| 30-Oct-13 | Sunny | Calm | 09:40 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 101.4 102.7 | 102.1 | 7.1 7.2 | 7.2 | 7.2 | 3.0 3.2 | 3.1 | 11.0 | 3.7 1.0 | 2.4 | 3.5 |
| | | | | Middle | 6.5 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 102.5 101.1 | 101.8 | 7.2 7.1 | 7.2 | | 13.3 13.7 | | | 2.7 3.0 | 2.9 | |
| | | | | Bottom | 12 | 25.1 25.1 | 25.1 | 8.2 8.2 | 8.2 | 30.7 30.6 | 30.7 | 91.8 91.5 | 91.7 | 6.4 6.4 | 6.4 | | 16.3 16.7 | 16.5 | | 5.1 5.0 | 5.1 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:05 | Surface | 1 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 26.8 26.1 | 26.5 | 77.6 76.8 | 77.2 | 5.9 5.8 | 5.9 | 5.9 | 5.6 5.6 | 5.6 | 6.4 | 6.8 6.0 | 6.4 | 5.6 |
| | | | | Middle | 5 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 26.5 27.1 | 26.8 | 77.3 77.3 | 77.3 | 5.9 5.8 | 5.9 | | 6.2 6.4 | 6.3 | | 5.4 4.6 | 5.0 | |
| | | | | Bottom | 9 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 26.6 27.3 | 27.0 | 76.8 76.8 | 76.8 | 5.8 5.8 | 5.8 | | 7.4 7.0 | 7.2 | | 6.6 4.4 | 5.5 | |
| 4-Oct-13 | Cloudy | Moderate | 17:17 | Surface | 1 | 28.0 28.1 | 28.1 | 7.6 8.0 | 7.8 | 25.3 25.3 | 25.3 | 93.0 92.6 | 92.8 | 6.3 6.4 | 6.4 | 6.3 | 14.8 13.9 | 14.4 | 18.3 | 4.9 5.3 | 5.1 | 4.3 |
| | | | | Middle | 7 | 27.9 28.0 | 28.0 | 7.8 8.1 | 8.0 | 25.9 25.9 | 25.9 | 89.1 89.2 | 89.2 | 6.1 6.1 | 6.1 | | 15.4 16.8 | 16.1 | | 3.7 3.6 | 3.7 | |
| | | | | Bottom | 13 | 27.7 27.7 | 27.7 | 7.9 8.1 | 8.0 | 28.3 28.4 | 28.4 | 85.4 83.9 | 84.7 | 5.7 5.6 | 5.7 | | 23.9 24.9 | 24.4 | | 4.2 4.2 | 4.2 | |
| 7-Oct-13 | Sunny | Moderate | 09:08 | Surface | 1 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.7 27.4 | 27.6 | 95.4 95.1 | 95.3 | 6.4 6.4 | 6.4 | 6.5 | 8.8 8.7 | 8.8 | 14.1 | 22.7 25.3 | 24.0 | 34.9 |
| | | | | Middle | 6 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.7 27.8 | 27.8 | 95.7 94.8 | 95.3 | 6.5 6.4 | 6.5 | | 14.6 14.8 | 14.7 | | 31.0 28.3 | 29.7 | |
| | | | | Bottom | 11 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.8 27.8 | 27.8 | 95.1 94.8 | 95.0 | 6.4 6.4 | 6.4 | | 18.8 18.9 | 18.9 | | 50.0 51.7 | 50.9 | |
| 9-Oct-13 | Cloudy | Moderate | 09:39 | Surface | 1 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 29.4 29.6 | 29.5 | 86.5 86.2 | 86.4 | 6.4 6.4 | 6.4 | 6.4 | 13.9 13.4 | 13.7 | 17.3 | 9.2 8.8 | 9.0 | 9.3 |
| | | | | Middle | 6 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 86.2 87.4 | 86.8 | 6.4 6.4 | 6.4 | | 17.8 17.9 | 17.9 | | 9.4 8.8 | 9.1 | |
| | | | | Bottom | 11 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 87.3 86.8 | 87.1 | 6.4 6.4 | 6.4 | | 20.1 20.4 | 20.3 | | 10.0 9.4 | 9.7 | |
| 11-Oct-13 | Sunny | Moderate | 11:59 | Surface | 1 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 26.8 26.8 | 26.8 | 97.3 97.3 | 97.3 | 6.6 6.6 | 6.6 | 6.6 | 4.2 4.2 | 4.2 | 8.8 | 3.5 3.7 | 3.6 | 3.5 |
| | | | | Middle | 3 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 27.1 27.1 | 27.1 | 96.2 96.2 | 96.2 | 6.5 6.5 | 6.5 | | 7.6 7.8 | 7.7 | | 3.5 2.6 | 3.1 | |
| | | | | Bottom | 5 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.2 27.2 | 27.2 | 95.6 95.3 | 95.5 | 6.5 6.5 | 6.5 | | 13.8 15.3 | 14.6 | | 3.8 3.5 | 3.7 | |
| 15-Oct-13 | Cloudy | Moderate | 15:27 | Surface | 1 | 28.0 28.1 | 28.1 | 8.0 8.0 | 8.0 | 26.4 26.4 | 26.4 | 100.0 98.8 | 99.4 | 6.8 6.7 | 6.8 | 6.8 | 2.5 3.0 | 2.8 | 4.5 | 3.0 2.7 | 2.9 | 2.8 |
| | | | | Middle | 7.5 | 27.8 27.8 | 27.8 | 8.0 8.1 | 8.1 | 27.2 27.3 | 27.3 | 99.0 97.6 | 98.3 | 6.7 6.6 | 6.7 | | 3.1 3.4 | 3.3 | | 2.7 2.5 | 2.6 | |
| | | | | Bottom | 14 | 27.6 27.7 | 27.7 | 8.0 8.1 | 8.1 | 29.0 28.5 | 28.8 | 97.1 95.9 | 96.5 | 6.5 6.4 | 6.5 | | 7.2 7.3 | 7.3 | | 2.8 2.7 | 2.8 | |
| 17-Oct-13 | Sunny | Calm | 16:37 | Surface | 1 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 109.4 109.4 | 109.4 | 7.4 7.4 | 7.4 | 7.5 | 6.1 6.1 | 6.1 | 6.5 | 4.7 4.4 | 4.6 | 4.5 |
| | | | | Middle | 6.5 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 110.9 110.9 | 110.9 | 7.5 7.5 | 7.5 | | 6.4 6.4 | 6.4 | | 4.6 3.6 | 4.1 | |
| | | | | Bottom | 12 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 109.7 109.7 | 109.7 | 7.4 7.4 | 7.4 | | 7.0 7.0 | 7.0 | | 5.2 4.5 | 4.9 | |
| 19-Oct-13 | Fine | Calm | 17:52 | Surface | 1 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 88.1 81.5 | 84.8 | 6.8 6.3 | 6.6 | 6.1 | 4.4 4.5 | 4.5 | 12.3 | 5.2 4.6 | 4.9 | 6.1 |
| | | | | Middle | 6.5 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 29.4 29.4 | 29.4 | 67.8 70.0 | 68.9 | 5.4 5.5 | 5.5 | | 11.4 11.5 | 11.5 | | 4.8 14.6 | 9.7 | |
| | | | | Bottom | 12 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 29.4 29.4 | 29.4 | 69.1 68.8 | 69.0 | 5.5 5.5 | 5.5 | | 20.9 20.6 | 20.8 | | 3.6 4.0 | 3.8 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:01 | Surface | 1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 28.9 29.1 | 29.0 | 98.8 98.4 | 98.6 | 6.8 6.7 | 6.8 | 6.5 | 4.7 4.5 | 4.6 | 7.0 | 3.7 3.7 | 3.7 | 3.2 |
| | | | | Middle | 7 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.5 29.5 | 29.5 | 90.9 88.8 | 89.9 | 6.2 6.1 | 6.2 | | 6.4 6.4 | 6.4 | | 3.8 2.5 | 3.2 | |
| | | | | Bottom | 13 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.7 29.6 | 29.7 | 84.4 82.6 | 83.5 | 5.8 5.7 | 5.8 | | 10.0 10.0 | 10.0 | | 2.3 2.8 | 2.6 | |
| 23-Oct-13 | Sunny | Calm | 09:53 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 85.7 86.0 | 85.9 | 5.9 6.0 | 6.0 | 6.0 | 5.5 5.5 | 5.5 | 12.7 | 13.0 15.3 | 14.2 | 13.1 |
| | | | | Middle | 6.5 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 85.4 85.8 | 85.6 | 5.9 5.9 | 5.9 | | 13.2 13.0 | 13.1 | | 12.7 11.3 | 12.0 | |
| | | | | Bottom | 12 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 30.0 | 30.0 | 85.4 85.6 | 85.5 | 5.9 5.9 | 5.9 | | 19.6 19.4 | 19.5 | | 13.2 13.2 | 13.2 | |
| 25-Oct-13 | Sunny | Moderate | 11:43 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 93.6 93.7 | 93.7 | 6.5 6.5 | 6.5 | 6.4 | 5.6 5.9 | 5.8 | 7.9 | 5.3 6.2 | 5.8 | 6.3 |
| | | | | Middle | 7 | 25.4 25.4 | 25.4 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 89.5 89.3 | 89.4 | 6.2 6.2 | 6.2 | | 7.8 7.8 | 7.8 | | 6.3 7.0 | 6.7 | |
| | | | | Bottom | 13 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 89.0 89.2 | 89.1 | 6.2 6.2 | 6.2 | | 10.0 10.1 | 10.1 | | 6.3 6.7 | 6.5 | |
| 28-Oct-13 | Cloudy | Moderate | 15:42 | Surface | 1 | 25.1 25.0 | 25.1 | 8.2 8.2 | 8.2 | 32.0 28.9 | 30.5 | 99.7 100.3 | 100.0 | 6.9 7.0 | 7.0 | 7.1 | 10.0 8.4 | 9.2 | 9.9 | 4.8 6.6 | 5.7 | 5.7 |
| | | | | Middle | 5 | 24.9 25.0 | 25.0 | 8.2 8.2 | 8.2 | 32.0 32.0 | 32.0 | 100.7 102.5 | 101.6 | 7.0 7.1 | 7.1 | | 8.9 8.4 | 8.7 | | 7.0 7.0 | 7.0 | |
| | | | | Bottom | 9 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 32.0 32.0 | 32.0 | 100.4 101.1 | 100.8 | 6.9 7.0 | 7.0 | | 11.8 11.6 | 11.7 | | 4.0 5.0 | 4.5 | |
| 30-Oct-13 | Sunny | Calm | 15:20 | Surface | 1 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 26.1 26.4 | 26.3 | 103.0 104.9 | 104.0 | 7.2 7.4 | 7.3 | 7.3 | 2.8 2.4 | 2.6 | 5.8 | 1.8 3.2 | 2.5 | 2.6 |
| | | | | Middle | 6.5 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 27.1 27.1 | 27.1 | 103.0 103.6 | 103.3 | 7.2 7.3 | 7.3 | | 6.3 6.1 | 6.2 | | 1.6 2.7 | 2.2 | |
| | | | | Bottom | 12 | 25.7 25.8 | 25.8 | 8.2 8.2 | 8.2 | 27.1 27.1 | 27.1 | 102.2 102.1 | 102.2 | 7.1 7.1 | 7.1 | | 8.8 8.6 | 8.7 | | 2.8 3.4 | 3.1 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 10:46 | Surface | 1 | 29.5 29.2 | 29.4 | 8.1 8.0 | 8.1 | 26.4 26.8 | 26.6 | 84.7 83.0 | 83.9 | 6.3 6.1 | 6.2 | 6.2 | 4.5 4.5 | 4.5 | 10.4 | 3.2 3.0 | 3.1 | 6.7 |
| | | | | Middle | 3.5 | 28.5 28.5 | 28.5 | 7.9 7.9 | 7.9 | 29.6 29.6 | 29.6 | 82.6 83.3 | 83.0 | 6.1 6.1 | 6.1 | | 8.7 8.8 | | | 8.6 7.4 | 8.0 | |
| | | | | Bottom | 6 | 28.3 28.3 | 28.3 | 7.8 7.9 | 7.9 | 30.0 30.0 | 30.0 | 81.4 81.0 | 81.2 | 6.0 5.9 | 6.0 | | 17.7 18.0 | 17.9 | | 12.2 5.5 | 8.9 | |
| 4-Oct-13 | Cloudy | Moderate | 11:23 | Surface | 1 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 27.2 27.2 | 27.2 | 94.3 95.2 | 94.8 | 6.3 6.4 | 6.4 | 6.4 | 4.4 4.1 | 4.3 | 11.6 | 4.2 3.8 | 4.0 | 4.8 |
| | | | | Middle | 3.5 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 76.2 77.0 | 76.6 | 6.3 6.4 | 6.4 | | 13.9 14.5 | | | 4.1 6.3 | 5.2 | |
| | | | | Bottom | 6 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 74.0 75.5 | 74.8 | 6.1 6.2 | 6.2 | | 16.6 16.0 | 16.3 | | 4.6 5.5 | 5.1 | |
| 7-Oct-13 | Sunny | Moderate | 13:46 | Surface | 1 | 27.3 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.9 27.9 | 27.9 | 84.1 83.6 | 83.9 | 5.6 5.6 | 5.6 | 5.5 | 15.7 14.5 | 15.1 | 15.8 | 16.3 16.7 | 16.5 | 14.9 |
| | | | | Middle | 4 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 28.0 28.1 | 28.1 | 79.9 79.4 | 79.7 | 5.4 5.3 | 5.4 | | 16.8 16.5 | | | 19.3 11.7 | 15.5 | |
| | | | | Bottom | 7 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.1 28.1 | 28.1 | 78.8 79.0 | 78.9 | 5.3 5.3 | 5.3 | | 15.6 15.5 | 15.6 | | 19.7 5.5 | 12.6 | |
| 9-Oct-13 | Cloudy | Moderate | 14:25 | Surface | 1 | 26.7 26.7 | 26.7 | 8.0 8.1 | 8.1 | 29.2 29.2 | 29.2 | 102.2 102.1 | 102.2 | 7.3 7.3 | 7.3 | 7.3 | 8.0 6.4 | 7.2 | 9.8 | 6.4 5.2 | 5.8 | 7.5 |
| | | | | Middle | 4 | 26.4 26.5 | 26.5 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 99.4 97.7 | 98.6 | 7.2 7.1 | 7.2 | | 9.4 8.5 | | | 6.6 7.2 | 6.9 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.7 29.8 | 29.8 | 96.0 95.3 | 95.7 | 6.9 6.9 | 6.9 | | 11.9 14.4 | 13.2 | | 14.3 5.5 | 9.9 | |
| 11-Oct-13 | Fine | Moderate | 16:10 | Surface | 1 | 27.9 28.0 | 28.0 | 8.0 8.0 | 8.0 | 26.2 26.0 | 26.1 | 108.2 106.8 | 107.5 | 7.3 7.2 | 7.3 | 7.3 | 2.6 2.5 | 2.6 | 7.7 | 3.2 2.0 | 2.6 | 8.5 |
| | | | | Middle | 3.5 | 27.6 26.7 | 27.2 | 8.0 8.0 | 8.0 | 26.3 27.5 | 26.9 | 107.2 103.2 | 105.2 | 7.3 7.0 | 7.2 | | 5.8 5.9 | | | 13.6 13.4 | 13.5 | |
| | | | | Bottom | 6 | 26.7 26.7 | 26.7 | 8.0 8.0 | 8.0 | 27.6 27.6 | 27.6 | 102.1 101.3 | 101.7 | 7.0 6.9 | 7.0 | | 15.1 14.0 | 14.6 | | 13.2 5.5 | 9.4 | |
| 15-Oct-13 | Cloudy | Moderate | 09:28 | Surface | 1 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 26.5 26.5 | 26.5 | 108.5 108.6 | 108.6 | 7.5 7.5 | 7.5 | 7.5 | 2.0 2.0 | 2.0 | 5.6 | 3.3 3.6 | 3.5 | 4.3 |
| | | | | Middle | 3.5 | 27.3 27.3 | 27.3 | 8.3 8.3 | 8.3 | 28.4 28.5 | 28.5 | 108.2 107.9 | 108.1 | 7.4 7.4 | 7.4 | | 3.1 3.2 | | | 4.2 4.3 | 4.3 | |
| | | | | Bottom | 6 | 27.5 27.5 | 27.5 | 8.4 8.4 | 8.4 | 29.9 29.8 | 29.9 | 105.0 104.4 | 104.7 | 7.1 7.1 | 7.1 | | 11.4 11.5 | 11.5 | | 4.7 5.5 | 5.1 | |
| 17-Oct-13 | Sunny | Calm | 10:41 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 30.4 30.6 | 30.5 | 89.8 90.5 | 90.2 | 6.8 6.9 | 6.9 | 6.9 | 4.4 4.6 | 4.5 | 7.9 | 8.2 8.3 | 8.3 | 7.0 |
| | | | | Middle | 4 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 89.1 89.1 | 89.1 | 6.8 6.8 | 6.8 | | 9.0 8.9 | | | 5.5 8.2 | 6.9 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.8 30.8 | 30.8 | 87.8 87.8 | 87.8 | 6.7 6.7 | 6.7 | | 9.9 10.3 | 10.1 | | 6.0 5.5 | 5.8 | |
| 19-Oct-13 | Sunny | Calm | 12:11 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 88.6 88.4 | 88.5 | 6.7 6.7 | 6.7 | 6.8 | 5.3 4.9 | 5.1 | 9.2 | 4.8 5.6 | 5.2 | 5.5 |
| | | | | Middle | 3.5 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 30.1 30.1 | 30.1 | 89.2 89.0 | 89.1 | 6.8 6.8 | 6.8 | | 8.0 7.8 | | | 6.6 5.6 | 6.1 | |
| | | | | Bottom | 6 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 30.3 28.9 | 29.6 | 91.2 91.0 | 91.1 | 6.9 7.0 | 7.0 | | 14.6 14.4 | 14.5 | | 4.8 5.5 | 5.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 13:47 | Surface | 1 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 90.6 90.3 | 90.5 | 6.2 6.2 | 6.2 | 6.2 | 5.3 5.2 | 5.3 | 7.4 | 4.0 4.2 | 4.1 | 7.6 |
| | | | | Middle | 3 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 88.8 89.0 | 88.9 | 6.1 6.1 | 6.1 | | 5.9 5.9 | 5.9 | | 11.0 11.6 | 11.3 | |
| | | | | Bottom | 5 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 86.1 85.9 | 86.0 | 5.9 5.9 | 5.9 | | 11.0 10.8 | 10.9 | | 9.4 5.5 | 7.5 | |
| 23-Oct-13 | Sunny | Calm | 13:58 | Surface | 1 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 93.6 91.2 | 92.4 | 6.5 6.3 | 6.4 | 6.4 | 8.3 8.6 | 8.5 | 12.0 | 14.0 12.0 | 13.0 | 10.4 |
| | | | | Middle | 4.5 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 91.5 90.3 | 90.9 | 6.3 6.2 | 6.3 | | 11.7 11.0 | 11.4 | | 12.3 9.3 | 10.8 | |
| | | | | Bottom | 8 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 91.4 90.2 | 90.8 | 6.3 6.2 | 6.3 | | 16.0 16.1 | 16.1 | | 9.0 5.5 | 7.3 | |
| 25-Oct-13 | Sunny | Moderate | 15:06 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 96.5 97.0 | 96.8 | 6.7 6.8 | 6.8 | 6.8 | 13.2 10.9 | 12.1 | 14.5 | 5.3 6.0 | 5.7 | 8.3 |
| | | | | Middle | 3.5 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 96.4 96.6 | 96.5 | 6.7 6.8 | 6.8 | | 13.3 12.3 | 12.8 | | 6.3 7.0 | 6.7 | |
| | | | | Bottom | 6 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 94.6 93.5 | 94.1 | 6.6 6.5 | 6.6 | | 18.3 19.1 | 18.7 | | 19.3 5.5 | 12.4 | |
| 28-Oct-13 | Cloudy | Moderate | 06:23 | Surface | 1 | 24.9 24.9 | 24.9 | 8.1 8.1 | 8.1 | 30.8 30.9 | 30.9 | 98.7 97.9 | 98.3 | 6.9 6.8 | 6.9 | 6.9 | 4.2 4.5 | 4.4 | 4.6 | 6.8 5.0 | 5.9 | 6.5 |
| | | | | Middle | 3.5 | 24.9 24.9 | 24.9 | 8.1 8.1 | 8.1 | 30.9 31.0 | 31.0 | 98.5 97.7 | 98.1 | 6.9 6.8 | 6.9 | | 4.9 5.2 | 5.1 | | 12.9 6.4 | 9.7 | |
| | | | | Bottom | 6 | 24.8 24.9 | 24.9 | 8.1 8.1 | 8.1 | 30.9 31.0 | 31.0 | 98.2 97.2 | 97.7 | 6.8 6.8 | 6.8 | | 4.2 4.4 | 4.3 | | 2.4 5.5 | 4.0 | |
| 30-Oct-13 | Sunny | Calm | 09:39 | Surface | 1 | 23.9 23.9 | 23.9 | 8.0 8.0 | 8.0 | 28.8 28.9 | 28.9 | 107.6 106.6 | 107.1 | 7.7 7.6 | 7.7 | 7.8 | 2.1 1.9 | 2.0 | 3.3 | 5.2 4.0 | 4.6 | 7.2 |
| | | | | Middle | 3.5 | 23.8 23.9 | 23.9 | 8.0 8.1 | 8.1 | 29.4 29.6 | 29.5 | 108.8 108.7 | 108.8 | 7.8 7.7 | 7.8 | | 2.0 2.2 | 2.1 | | 17.4 6.0 | 11.7 | |
| | | | | Bottom | 6 | 24.1 24.2 | 24.2 | 8.0 8.0 | 8.0 | 30.5 30.9 | 30.7 | 99.8 97.6 | 98.7 | 7.0 6.9 | 7.0 | | 5.7 5.8 | 5.8 | | 5.0 5.5 | 5.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:00 | Surface | 1 | 28.6 28.6 | 28.6 | 8.2 8.2 | 8.2 | 25.5 25.6 | 25.6 | 78.2 79.4 | 78.8 | 5.8 5.9 | 5.9 | 5.8 | 7.7 7.6 | 7.7 | 10.4 | 10.8 9.4 | 10.1 | 9.3 |
| | | | | Middle | 3.5 | 28.5 28.5 | 28.5 | 8.0 8.1 | 8.1 | 26.7 26.7 | 26.7 | 77.1 77.1 | 77.1 | 5.7 5.7 | 5.7 | | 9.5 9.6 | 9.6 | | 9.2 9.6 | 9.4 | |
| | | | | Bottom | 6 | 28.3 28.3 | 28.3 | 8.0 8.0 | 8.0 | 28.6 28.6 | 28.6 | 78.0 79.1 | 78.6 | 5.7 5.8 | 5.8 | | 13.9 14.1 | 14.0 | | 8.2 8.8 | 8.5 | |
| 4-Oct-13 | Cloudy | Moderate | 17:03 | Surface | 1 | 28.1 28.2 | 28.2 | 8.1 8.1 | 8.1 | 27.1 27.1 | 27.1 | 98.0 97.1 | 97.6 | 6.8 6.7 | 6.8 | 6.6 | 10.0 10.1 | 10.1 | 12.7 | 5.2 5.0 | 5.1 | 6.5 |
| | | | | Middle | 3 | 28.1 28.1 | 28.1 | 8.1 8.2 | 8.2 | 27.3 27.4 | 27.4 | 93.2 93.6 | 93.4 | 6.4 6.4 | 6.4 | | 12.2 13.1 | 12.7 | | 7.4 5.1 | 6.3 | |
| | | | | Bottom | 5 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 27.4 27.5 | 27.5 | 94.3 94.2 | 94.3 | 6.5 6.4 | 6.5 | | 15.1 15.4 | 15.3 | | 6.9 9.0 | 8.0 | |
| 7-Oct-13 | Sunny | Moderate | 07:45 | Surface | 1 | 27.5 27.5 | 27.5 | 8.0 8.0 | 8.0 | 26.6 27.3 | 27.0 | 102.5 101.9 | 102.2 | 6.9 6.8 | 6.9 | 6.2 | 12.1 12.0 | 12.1 | 14.3 | 16.0 10.2 | 13.1 | 25.2 |
| | | | | Middle | 3.5 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 27.8 27.8 | 27.8 | 80.2 78.7 | 79.5 | 5.4 5.3 | 5.4 | | 16.1 15.9 | 16.0 | | 27.0 26.5 | 26.8 | |
| | | | | Bottom | 6 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 27.8 27.8 | 27.8 | 81.2 81.4 | 81.3 | 5.5 5.5 | 5.5 | | 14.9 14.7 | 14.8 | | 37.5 34.0 | 35.8 | |
| 9-Oct-13 | Cloudy | Moderate | 09:33 | Surface | 1 | 26.3 26.3 | 26.3 | 7.9 8.0 | 8.0 | 27.8 27.8 | 27.8 | 98.5 99.1 | 98.8 | 7.0 7.0 | 7.0 | 6.9 | 7.8 8.4 | 8.1 | 9.2 | 9.4 8.8 | 9.1 | 9.5 |
| | | | | Middle | 3.5 | 26.3 26.3 | 26.3 | 8.0 8.0 | 8.0 | 27.8 27.8 | 27.8 | 95.8 94.6 | 95.2 | 6.8 6.7 | 6.8 | | 8.0 7.8 | 7.9 | | 9.6 9.8 | 9.7 | |
| | | | | Bottom | 6 | 26.2 26.2 | 26.2 | 8.0 8.0 | 8.0 | 28.3 28.3 | 28.3 | 83.9 83.6 | 83.8 | 5.8 5.8 | 5.8 | | 12.5 10.4 | 11.5 | | 10.4 9.2 | 9.8 | |
| 11-Oct-13 | Sunny | Moderate | 11:51 | Surface | 1 | 26.9 27.1 | 27.0 | 7.9 7.9 | 7.9 | 25.5 25.4 | 25.5 | 104.7 102.6 | 103.7 | 7.2 7.0 | 7.1 | 7.1 | 4.3 4.3 | 4.3 | 8.3 | 5.5 5.9 | 5.7 | 10.8 |
| | | | | Middle | 3.5 | 26.8 26.8 | 26.8 | 7.9 7.9 | 7.9 | 26.2 26.1 | 26.2 | 104.0 101.9 | 103.0 | 7.1 7.0 | 7.1 | | 4.9 4.9 | 4.9 | | 6.4 4.6 | 5.5 | |
| | | | | Bottom | 6 | 26.6 26.6 | 26.6 | 7.9 7.9 | 7.9 | 27.8 27.8 | 27.8 | 103.2 101.6 | 102.4 | 7.0 6.9 | 7.0 | | 15.4 16.2 | 15.8 | | 21.3 21.0 | 21.2 | |
| 15-Oct-13 | Cloudy | Moderate | 15:20 | Surface | 1 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 24.2 24.2 | 24.2 | 119.1 118.9 | 119.0 | 8.3 8.2 | 8.3 | 8.1 | 3.3 3.2 | 3.3 | 4.5 | 3.5 4.1 | 3.8 | 3.7 |
| | | | | Middle | 3 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 26.1 26.0 | 26.1 | 115.0 115.0 | 115.0 | 7.9 7.9 | 7.9 | | 3.5 3.5 | 3.5 | | 3.8 3.4 | 3.6 | |
| | | | | Bottom | 5 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 27.1 27.1 | 27.1 | 110.1 109.8 | 110.0 | 7.5 7.5 | 7.5 | | 6.6 6.5 | 6.6 | | 3.9 3.4 | 3.7 | |
| 17-Oct-13 | Sunny | Calm | 16:30 | Surface | 1 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 27.3 27.3 | 27.3 | 80.3 80.3 | 80.3 | 6.1 6.1 | 6.1 | 6.1 | 6.0 5.8 | 5.9 | 7.6 | 7.0 6.7 | 6.9 | 6.5 |
| | | | | Middle | 3.5 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 27.4 27.4 | 27.4 | 79.6 79.6 | 79.6 | 6.1 6.1 | 6.1 | | 7.4 7.2 | 7.3 | | 5.8 5.7 | 5.8 | |
| | | | | Bottom | 6 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.9 28.9 | 28.9 | 76.9 76.9 | 76.9 | 5.9 5.9 | 5.9 | | 9.3 9.6 | 9.5 | | 6.8 7.0 | 6.9 | |
| 19-Oct-13 | Fine | Calm | 17:29 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 27.5 27.5 | 27.5 | 96.9 97.1 | 97.0 | 7.4 7.4 | 7.4 | 7.3 | 8.0 8.3 | 8.2 | 9.9 | 12.8 10.0 | 11.4 | 11.3 |
| | | | | Middle | 3.5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 26.5 27.5 | 27.0 | 94.5 94.7 | 94.6 | 7.2 7.2 | 7.2 | | 10.0 10.4 | 10.2 | | 11.0 13.2 | 12.1 | |
| | | | | Bottom | 6 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 27.7 27.7 | 27.7 | 94.2 94.1 | 94.2 | 7.2 7.2 | 7.2 | | 11.2 11.2 | 11.2 | | 12.4 8.6 | 10.5 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at CS2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 18:23 | Surface | 1 | 26.8 26.8 | 26.8 | 8.0 8.1 | 8.1 | 27.2 27.2 | 27.2 | 90.1 89.8 | 90.0 | 6.2 6.2 | 6.2 | 6.1 | 8.6 8.7 | 8.9 | 8.9 | 10.4 8.8 | 9.6 | 8.7 |
| | | | | Middle | 3.5 | 26.8 26.8 | 26.8 | 8.1 8.1 | 8.1 | 27.6 27.7 | 27.7 | 88.0 88.1 | 88.1 | 6.0 6.0 | 6.0 | | 8.8 9.3 | | | 7.2 11.2 | 9.2 | |
| | | | | Bottom | 6 | 26.8 26.8 | 26.8 | 8.1 8.1 | 8.1 | 28.2 28.2 | 28.2 | 86.4 86.4 | 86.4 | 5.9 5.9 | 5.9 | | 9.0 8.9 | | | 7.4 7.0 | 7.2 | |
| 23-Oct-13 | Sunny | Calm | 08:58 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.3 29.0 | 29.2 | 95.2 93.0 | 94.1 | 6.6 6.5 | 6.6 | 6.6 | 8.1 8.2 | 9.5 | 9.5 | 10.0 9.0 | 9.5 | 7.8 |
| | | | | Middle | 4 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 93.4 92.8 | 93.1 | 6.5 6.5 | 6.5 | | 10.0 10.3 | | | 7.6 6.0 | 6.8 | |
| | | | | Bottom | 7 | 26.2 26.2 | 26.2 | 8.1 8.2 | 8.2 | 29.5 29.5 | 29.5 | 92.5 92.6 | 92.6 | 6.4 6.4 | 6.4 | | 10.6 9.6 | | | 5.6 8.4 | 7.0 | |
| 25-Oct-13 | Sunny | Moderate | 11:01 | Surface | 1 | 25.7 25.7 | 25.7 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 98.4 98.1 | 98.3 | 6.9 6.9 | 6.9 | 6.8 | 7.3 7.3 | 8.6 | 8.6 | 5.0 4.7 | 4.9 | 8.6 |
| | | | | Middle | 3.5 | 25.7 25.6 | 25.7 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 95.9 96.0 | 96.0 | 6.7 6.7 | 6.7 | | 9.3 9.6 | | | 10.8 11.8 | 11.3 | |
| | | | | Bottom | 6 | 25.8 25.8 | 25.8 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 95.5 95.2 | 95.4 | 6.7 6.6 | 6.7 | | 9.0 8.8 | | | 9.4 10.0 | 9.7 | |
| 28-Oct-13 | Cloudy | Moderate | 13:46 | Surface | 1 | 25.3 25.3 | 25.3 | 8.1 8.2 | 8.2 | 29.0 29.1 | 29.1 | 106.7 106.5 | 106.6 | 7.4 7.4 | 7.4 | 7.3 | 3.7 3.8 | 4.4 | 4.4 | 4.4 4.8 | 4.6 | 5.3 |
| | | | | Middle | 3.5 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 102.5 102.5 | 102.5 | 7.2 7.1 | 7.2 | | 4.3 4.4 | | | 6.2 7.2 | 6.7 | |
| | | | | Bottom | 6 | 24.8 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 100.0 99.4 | 99.7 | 7.0 6.9 | 7.0 | | 4.9 5.0 | | | 4.4 4.7 | 4.6 | |
| 30-Oct-13 | Sunny | Calm | 14:43 | Surface | 1 | 24.9 24.8 | 24.9 | 8.1 8.2 | 8.2 | 26.1 26.3 | 26.2 | 105.5 104.5 | 105.0 | 7.5 7.5 | 7.5 | 7.5 | 2.3 2.5 | 4.3 | 4.3 | 2.6 3.2 | 2.9 | 3.6 |
| | | | | Middle | 3.5 | 24.3 24.3 | 24.3 | 8.1 8.1 | 8.1 | 29.2 29.3 | 29.3 | 106.0 106.2 | 106.1 | 7.5 7.5 | 7.5 | | 4.3 4.8 | | | 4.8 3.6 | 4.2 | |
| | | | | Bottom | 6 | 24.1 24.1 | 24.1 | 8.0 8.1 | 8.1 | 29.9 29.9 | 29.9 | 95.2 92.1 | 93.7 | 6.7 6.5 | 6.6 | | 6.0 5.9 | | | 4.1 3.2 | 3.7 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:48 | Surface | 1 | 28.8 28.9 | 28.9 | 8.3 8.3 | 8.3 | 27.1 27.0 | 27.1 | 81.5 81.3 | 81.4 | 6.0 6.0 | 6.0 | 5.9 | 4.3 4.3 | 4.3 | 9.1 | 4.0 4.0 | 4.0 | 10.9 |
| | | | | Middle | 4.5 | 28.1 28.0 | 28.1 | 8.3 8.3 | 8.3 | 29.7 29.7 | 29.7 | 76.9 76.5 | 76.7 | 5.7 5.6 | 5.7 | | 8.0 7.9 | 8.0 | | 6.8 7.4 | 7.1 | |
| | | | | Bottom | 8 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 30.4 30.4 | 30.4 | 75.4 75.2 | 75.3 | 5.5 5.5 | 5.5 | | 14.7 15.5 | 15.1 | | 20.3 22.7 | 21.5 | |
| 4-Oct-13 | Cloudy | Moderate | 12:10 | Surface | 1 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 28.0 28.0 | 28.0 | 95.7 95.5 | 95.6 | 6.6 6.6 | 6.6 | 6.5 | 4.0 4.0 | 4.0 | 6.4 | 6.1 4.5 | 5.3 | 4.7 |
| | | | | Middle | 4.5 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 29.4 29.5 | 29.5 | 93.1 93.7 | 93.4 | 6.4 6.4 | 6.4 | | 7.1 7.2 | 7.2 | | 3.2 4.9 | 4.1 | |
| | | | | Bottom | 8 | 27.7 27.8 | 27.8 | 8.3 8.3 | 8.3 | 30.6 30.6 | 30.6 | 91.9 91.5 | 91.7 | 6.3 6.2 | 6.3 | | 8.1 8.1 | 8.1 | | 4.9 4.4 | 4.7 | |
| 7-Oct-13 | Sunny | Moderate | 14:27 | Surface | 1 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 81.2 81.2 | 81.2 | 5.5 5.5 | 5.5 | 5.5 | 9.1 9.1 | 9.1 | 9.3 | 14.3 14.0 | 14.2 | 11.7 |
| | | | | Middle | 4.5 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.1 28.7 | 28.4 | 81.2 81.1 | 81.2 | 5.5 5.4 | 5.5 | | 9.2 9.4 | 9.3 | | 16.7 11.3 | 14.0 | |
| | | | | Bottom | 8 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 80.8 80.8 | 80.8 | 5.4 5.4 | 5.4 | | 9.4 9.5 | 9.5 | | 8.0 5.7 | 6.9 | |
| 9-Oct-13 | Cloudy | Moderate | 15:09 | Surface | 1 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 98.8 96.6 | 97.7 | 7.1 6.9 | 7.0 | 7.1 | 4.4 4.0 | 4.2 | 6.5 | 5.0 4.0 | 4.5 | 6.3 |
| | | | | Middle | 5 | 26.4 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.1 29.9 | 30.0 | 98.3 96.9 | 97.6 | 7.1 7.0 | 7.1 | | 5.5 5.5 | 5.5 | | 6.6 6.2 | 6.4 | |
| | | | | Bottom | 9 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.7 30.8 | 30.8 | 96.2 95.8 | 96.0 | 6.9 6.9 | 6.9 | | 8.9 10.5 | 9.7 | | 8.2 7.6 | 7.9 | |
| 11-Oct-13 | Fine | Moderate | 16:58 | Surface | 1 | 27.2 27.2 | 27.2 | 8.0 8.0 | 8.0 | 26.1 26.1 | 26.1 | 98.8 97.5 | 98.2 | 6.7 6.6 | 6.7 | 6.6 | 2.9 3.1 | 3.0 | 7.1 | 3.1 3.2 | 3.2 | 6.4 |
| | | | | Middle | 5 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 29.4 29.4 | 29.4 | 95.4 95.8 | 95.6 | 6.4 6.5 | 6.5 | | 6.7 6.3 | 6.5 | | 6.3 5.6 | 6.0 | |
| | | | | Bottom | 9 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 30.3 30.3 | 30.3 | 94.1 94.4 | 94.3 | 6.3 6.3 | 6.3 | | 11.7 11.8 | 11.8 | | 10.8 9.0 | 9.9 | |
| 15-Oct-13 | Cloudy | Moderate | 10:06 | Surface | 1 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 28.6 28.6 | 28.6 | 94.1 94.4 | 94.3 | 6.4 6.5 | 6.5 | 6.5 | 2.0 2.0 | 2.0 | 4.6 | 2.2 2.0 | 2.1 | 3.6 |
| | | | | Middle | 4.5 | 27.5 27.5 | 27.5 | 8.3 8.3 | 8.3 | 29.3 29.2 | 29.3 | 93.5 93.4 | 93.5 | 6.4 6.4 | 6.4 | | 4.6 4.6 | 4.6 | | 5.3 4.2 | 4.8 | |
| | | | | Bottom | 8 | 27.5 27.5 | 27.5 | 8.3 8.3 | 8.3 | 29.8 29.9 | 29.9 | 92.2 92.2 | 92.2 | 6.3 6.3 | 6.3 | | 7.0 7.2 | 7.1 | | 4.4 3.1 | 3.8 | |
| 17-Oct-13 | Sunny | Calm | 11:23 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 31.1 31.1 | 31.1 | 88.6 88.3 | 88.5 | 6.7 6.7 | 6.7 | 6.7 | 3.7 4.0 | 3.9 | 6.0 | 2.7 3.6 | 3.2 | 4.2 |
| | | | | Middle | 5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 31.2 31.2 | 31.2 | 87.1 87.3 | 87.2 | 6.6 6.6 | 6.6 | | 5.3 5.2 | 5.3 | | 5.1 4.5 | 4.8 | |
| | | | | Bottom | 9 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 31.3 31.3 | 31.3 | 85.2 85.0 | 85.1 | 6.5 6.5 | 6.5 | | 8.9 8.4 | 8.7 | | 4.9 4.3 | 4.6 | |
| 19-Oct-13 | Sunny | Calm | 12:54 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 90.7 90.1 | 90.4 | 6.9 6.9 | 6.9 | 6.8 | 3.2 3.1 | 3.2 | 3.3 | 5.2 2.7 | 4.0 | 3.7 |
| | | | | Middle | 4 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 88.4 88.3 | 88.4 | 6.7 6.7 | 6.7 | | 3.1 3.2 | 3.2 | | 2.4 5.1 | 3.8 | |
| | | | | Bottom | 7 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 88.0 88.0 | 88.0 | 6.7 6.7 | 6.7 | | 3.4 3.5 | 3.5 | | 3.2 3.4 | 3.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:36 | Surface | 1 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 88.5 88.4 | 88.5 | 6.1 6.0 | 6.1 | 6.1 | 6.5 6.3 | 6.4 | 6.1 | 5.2 5.0 | 5.1 | 5.0 |
| | | | | Middle | 4 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 88.4 88.2 | 88.3 | 6.0 6.0 | 6.0 | | 6.2 6.2 | 6.2 | | 4.7 3.8 | 4.3 | |
| | | | | Bottom | 7 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 88.0 87.8 | 87.9 | 6.0 6.0 | 6.0 | | 5.9 5.7 | 5.8 | | 5.2 6.0 | 5.6 | |
| 23-Oct-13 | Sunny | Calm | 14:42 | Surface | 1 | 26.4 26.4 | 26.4 | 8.3 8.3 | 8.3 | 30.7 30.7 | 30.7 | 86.6 82.7 | 84.7 | 6.0 5.7 | 5.9 | 5.9 | 7.7 6.5 | 7.1 | 8.8 | 5.5 5.7 | 5.6 | 5.6 |
| | | | | Middle | 5.5 | 26.3 26.3 | 26.3 | 8.3 8.3 | 8.3 | 31.1 31.1 | 31.1 | 82.5 83.0 | 82.8 | 5.7 5.8 | 5.8 | | 7.7 7.1 | 7.4 | | 6.0 6.0 | 6.0 | |
| | | | | Bottom | 10 | 26.3 26.3 | 26.3 | 8.3 8.3 | 8.3 | 31.3 31.3 | 31.3 | 81.7 81.2 | 81.5 | 5.7 5.6 | 5.7 | | 11.9 12.1 | 12.0 | | 5.6 5.0 | 5.3 | |
| 25-Oct-13 | Sunny | Moderate | 15:47 | Surface | 1 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 92.9 92.1 | 92.5 | 6.3 6.3 | 6.3 | 6.2 | 5.8 5.7 | 5.8 | 6.2 | 8.2 7.2 | 7.7 | 6.5 |
| | | | | Middle | 4 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 88.1 88.3 | 88.2 | 6.0 6.0 | 6.0 | | 5.9 5.9 | 5.9 | | 6.7 6.2 | 6.5 | |
| | | | | Bottom | 7 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 86.6 86.6 | 86.6 | 5.9 5.9 | 5.9 | | 6.9 6.8 | 6.9 | | 5.2 5.2 | 5.2 | |
| 28-Oct-13 | Cloudy | Moderate | 07:05 | Surface | 1 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 90.8 90.6 | 90.7 | 6.3 6.3 | 6.3 | 6.3 | 5.7 5.8 | 5.8 | 5.2 | 11.5 6.4 | 9.0 | 11.4 |
| | | | | Middle | 4.5 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 90.6 90.4 | 90.5 | 6.3 6.3 | 6.3 | | 5.3 5.1 | 5.2 | | 6.8 15.0 | 10.9 | |
| | | | | Bottom | 8 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 90.3 90.5 | 90.4 | 6.2 6.3 | 6.3 | | 4.5 4.6 | 4.6 | | 14.7 13.7 | 14.2 | |
| 30-Oct-13 | Sunny | Calm | 10:26 | Surface | 1 | 24.1 24.1 | 24.1 | 8.1 8.2 | 8.2 | 30.3 30.3 | 30.3 | 102.8 103.0 | 102.9 | 7.3 7.3 | 7.3 | 6.9 | 2.9 2.6 | 2.8 | 4.6 | 5.7 6.0 | 5.9 | 5.3 |
| | | | | Middle | 5 | 24.3 24.3 | 24.3 | 8.1 8.1 | 8.1 | 30.9 30.9 | 30.9 | 92.5 91.1 | 91.8 | 6.5 6.4 | 6.5 | | 4.8 4.7 | 4.8 | | 5.0 6.2 | 5.6 | |
| | | | | Bottom | 9 | 24.3 24.3 | 24.3 | 8.1 8.1 | 8.1 | 31.0 31.0 | 31.0 | 87.3 87.4 | 87.4 | 6.1 6.1 | 6.1 | | 6.3 5.9 | 6.1 | | 5.2 3.8 | 4.5 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:51 | Surface | 1 | 29.2 29.3 | 29.3 | 8.2 8.2 | 8.2 | 25.4 25.4 | 25.4 | 82.5 82.0 | 82.3 | 6.1 6.1 | 6.1 | 6.1 | 2.8 2.8 | 2.8 | 7.9 | 4.8 4.8 | 4.8 | 4.8 |
| | | | | Middle | 4.5 | 28.8 28.8 | 28.8 | 8.2 8.2 | 8.2 | 27.2 27.2 | 27.2 | 80.8 80.6 | 80.7 | 6.0 6.0 | 6.0 | | 8.4 8.1 | 8.3 | | 4.8 5.0 | 4.9 | |
| | | | | Bottom | 8 | 28.7 28.8 | 28.8 | 8.2 8.2 | 8.2 | 27.5 27.3 | 27.4 | 80.6 79.9 | 80.3 | 6.0 5.9 | 6.0 | | 13.2 12.1 | 12.7 | | 5.6 3.6 | 4.6 | |
| 4-Oct-13 | Cloudy | Moderate | 17:48 | Surface | 1 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 28.9 28.9 | 28.9 | 88.0 88.8 | 88.4 | 5.9 6.0 | 6.0 | 6.0 | 10.5 10.9 | 10.7 | 18.7 | 9.8 10.0 | 9.9 | 9.9 |
| | | | | Middle | 4 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 29.1 29.1 | 29.1 | 86.7 87.4 | 87.1 | 5.8 5.9 | 5.9 | | 13.5 13.0 | 13.3 | | 10.2 9.8 | 10.0 | |
| | | | | Bottom | 7 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 29.4 29.4 | 29.4 | 87.6 88.2 | 87.9 | 5.9 5.9 | 5.9 | | 31.9 32.2 | 32.1 | | 11.0 8.4 | 9.7 | |
| 7-Oct-13 | Sunny | Moderate | 09:07 | Surface | 1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.5 28.4 | 28.5 | 80.3 80.8 | 80.6 | 5.4 5.4 | 5.4 | 5.4 | 14.5 14.5 | 14.5 | 16.5 | 20.0 17.7 | 18.9 | 16.9 |
| | | | | Middle | 5 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 79.9 79.4 | 79.7 | 5.4 5.3 | 5.4 | | 17.5 17.5 | 17.5 | | 17.3 15.3 | 16.3 | |
| | | | | Bottom | 9 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 78.7 78.7 | 78.7 | 5.3 5.3 | 5.3 | | 17.5 17.5 | 17.5 | | 16.2 15.0 | 15.6 | |
| 9-Oct-13 | Cloudy | Moderate | 10:20 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.7 28.8 | 28.8 | 95.4 95.4 | 95.4 | 6.7 6.7 | 6.7 | 6.6 | 13.2 13.4 | 13.3 | 25.2 | 8.2 7.0 | 7.6 | 41.1 |
| | | | | Middle | 5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.4 29.5 | 29.0 | 92.9 92.2 | 92.6 | 6.5 6.5 | 6.5 | | 23.6 21.5 | 22.6 | | 19.3 20.0 | 19.7 | |
| | | | | Bottom | 9 | 26.3 26.2 | 26.3 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 85.9 86.7 | 86.3 | 6.0 5.9 | 6.0 | | 37.9 41.4 | 39.7 | | 92.7 99.3 | 96.0 | |
| 11-Oct-13 | Sunny | Moderate | 12:41 | Surface | 1 | 27.1 27.0 | 27.1 | 8.0 8.0 | 8.0 | 26.3 26.3 | 26.3 | 96.6 96.2 | 96.4 | 6.6 6.6 | 6.6 | 6.6 | 4.3 5.1 | 4.7 | 9.8 | 4.2 5.0 | 4.6 | 24.6 |
| | | | | Middle | 5 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.9 27.9 | 27.9 | 94.9 94.8 | 94.9 | 6.5 6.5 | 6.5 | | 11.8 11.1 | 11.5 | | 22.7 19.0 | 20.9 | |
| | | | | Bottom | 9 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.9 27.9 | 27.9 | 94.2 94.4 | 94.3 | 6.4 6.4 | 6.4 | | 13.4 13.1 | 13.3 | | 49.3 47.0 | 48.2 | |
| 15-Oct-13 | Cloudy | Moderate | 16:01 | Surface | 1 | 27.9 27.9 | 27.9 | 8.2 8.2 | 8.2 | 26.3 26.3 | 26.3 | 86.4 86.5 | 86.5 | 5.9 5.9 | 5.9 | 5.8 | 3.1 3.1 | 3.1 | 8.9 | 4.4 4.4 | 4.4 | 5.0 |
| | | | | Middle | 3.5 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 27.7 27.7 | 27.7 | 81.3 81.2 | 81.3 | 5.6 5.6 | 5.6 | | 5.9 5.9 | 5.9 | | 4.6 4.4 | 4.5 | |
| | | | | Bottom | 6 | 27.6 27.5 | 27.6 | 8.2 8.2 | 8.2 | 29.2 29.2 | 29.2 | 80.7 80.4 | 80.6 | 5.5 5.5 | 5.5 | | 17.4 18.2 | 17.8 | | 6.1 5.9 | 6.0 | |
| 17-Oct-13 | Sunny | Calm | 17:16 | Surface | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 83.1 82.8 | 83.0 | 6.3 6.3 | 6.3 | 6.1 | 4.4 5.0 | 4.7 | 9.2 | 3.8 3.8 | 3.8 | 4.0 |
| | | | | Middle | 4 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.9 29.9 | 29.9 | 77.7 77.9 | 77.8 | 5.9 5.9 | 5.9 | | 9.4 9.0 | 9.2 | | 4.3 3.8 | 4.1 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.6 30.6 | 30.6 | 77.7 77.5 | 77.6 | 5.9 5.9 | 5.9 | | 13.4 14.0 | 13.7 | | 4.7 3.2 | 4.0 | |
| 19-Oct-13 | Fine | Calm | 18:22 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 28.3 28.3 | 28.3 | 94.7 94.9 | 94.8 | 7.2 7.2 | 7.2 | 7.2 | 5.2 5.2 | 5.2 | 6.9 | 4.4 4.2 | 4.3 | 5.2 |
| | | | | Middle | 4.5 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 94.6 94.5 | 94.6 | 7.2 7.2 | 7.2 | | 6.9 6.7 | 6.8 | | 4.6 4.6 | 4.6 | |
| | | | | Bottom | 8 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.0 29.1 | 29.1 | 94.2 94.2 | 94.2 | 7.2 7.2 | 7.2 | | 8.5 8.6 | 8.6 | | 5.4 7.8 | 6.6 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:08 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 90.7 91.0 | 90.9 | 6.2 6.2 | 6.2 | 6.2 | 5.5 5.3 | 5.4 | 6.9 | 5.8 5.8 | 5.8 | 5.2 |
| | | | | Middle | 4.5 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 89.6 90.0 | 89.8 | 6.1 6.2 | 6.2 | | 7.3 7.3 | 7.3 | | 8.2 3.3 | 5.8 | |
| | | | | Bottom | 8 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 87.6 87.6 | 87.6 | 6.0 6.0 | 6.0 | | 8.0 8.2 | 8.1 | | 4.0 3.8 | 3.9 | |
| 23-Oct-13 | Sunny | Calm | 09:43 | Surface | 1 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.6 29.7 | 29.7 | 84.4 79.6 | 82.0 | 5.9 5.5 | 5.7 | 5.6 | 10.2 10.3 | 10.3 | 16.6 | 10.4 10.8 | 10.6 | 10.2 |
| | | | | Middle | 5 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 30.0 30.1 | 30.1 | 78.2 79.1 | 78.7 | 5.4 5.5 | 5.5 | | 15.3 13.2 | 14.3 | | 10.8 9.0 | 9.9 | |
| | | | | Bottom | 9 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 78.1 78.3 | 78.2 | 5.4 5.4 | 5.4 | | 25.0 25.2 | 25.1 | | 10.0 10.2 | 10.1 | |
| 25-Oct-13 | Sunny | Moderate | 11:47 | Surface | 1 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 99.5 98.6 | 99.1 | 6.8 6.8 | 6.8 | 6.6 | 5.1 5.5 | 5.3 | 9.0 | 6.0 7.2 | 6.6 | 9.0 |
| | | | | Middle | 5 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 92.4 93.5 | 93.0 | 6.3 6.4 | 6.4 | | 8.9 8.3 | 8.6 | | 5.7 6.7 | 6.2 | |
| | | | | Bottom | 9 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 91.0 90.4 | 90.7 | 6.2 6.2 | 6.2 | | 13.6 12.8 | 13.2 | | 14.4 13.8 | 14.1 | |
| 28-Oct-13 | Cloudy | Moderate | 14:38 | Surface | 1 | 25.2 25.3 | 25.3 | 8.2 8.3 | 8.3 | 31.4 31.4 | 31.4 | 91.1 91.4 | 91.3 | 6.3 6.3 | 6.3 | 6.2 | 7.2 7.5 | 7.4 | 10.6 | 5.2 5.0 | 5.1 | 6.0 |
| | | | | Middle | 4 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.4 31.4 | 31.4 | 87.7 87.6 | 87.7 | 6.1 6.1 | 6.1 | | 11.2 11.1 | 11.2 | | 6.1 7.0 | 6.6 | |
| | | | | Bottom | 7 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.4 31.4 | 31.4 | 86.7 86.6 | 86.7 | 6.0 6.0 | 6.0 | | 12.7 13.9 | 13.3 | | 6.2 6.4 | 6.3 | |
| 30-Oct-13 | Sunny | Calm | 15:29 | Surface | 1 | 24.9 24.7 | 24.8 | 8.3 8.3 | 8.3 | 26.0 26.6 | 26.3 | 98.5 95.4 | 97.0 | 6.9 6.8 | 6.9 | 6.9 | 3.1 2.9 | 3.0 | 5.1 | 4.3 5.3 | 4.8 | 7.1 |
| | | | | Middle | 5 | 24.3 24.2 | 24.3 | 8.2 8.2 | 8.2 | 30.3 30.2 | 30.3 | 97.6 97.0 | 97.3 | 6.9 6.8 | 6.9 | | 4.9 4.4 | 4.7 | | 5.3 8.7 | 7.0 | |
| | | | | Bottom | 9 | 24.2 24.2 | 24.2 | 8.2 8.2 | 8.2 | 30.7 30.7 | 30.7 | 94.8 95.7 | 95.3 | 6.7 6.7 | 6.7 | | 7.7 7.4 | 7.6 | | 10.0 8.7 | 9.4 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 12:00 | Surface | 1 | 29.1 28.9 | 29.0 | 8.2 8.2 | 8.2 | 26.8 27.1 | 27.0 | 79.2 78.3 | 78.8 | 5.8 5.8 | 5.8 | 5.8 | 5.7 5.4 | 5.6 | 9.8 | 4.2 4.2 | 4.2 | 12.2 |
| | | | | Middle | 3.5 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 77.4 77.0 | 77.2 | 5.7 5.7 | 5.7 | | 8.1 7.6 | 7.9 | | 13.7 13.7 | 13.7 | |
| | | | | Bottom | 6 | 28.1 28.1 | 28.1 | 8.1 8.1 | 8.1 | 30.0 30.0 | 30.0 | 75.6 75.4 | 75.5 | 5.6 5.5 | 5.6 | | 15.8 15.7 | 15.8 | | 17.7 19.7 | 18.7 | |
| 4-Oct-13 | Cloudy | Moderate | 12:23 | Surface | 1 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 28.9 29.0 | 29.0 | 94.3 94.7 | 94.5 | 6.5 6.5 | 6.5 | 6.4 | 8.3 8.5 | 8.4 | 21.7 | 5.6 6.6 | 6.1 | 6.8 |
| | | | | Middle | 3.5 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.3 30.3 | 30.3 | 91.2 91.4 | 91.3 | 6.2 6.2 | 6.2 | | 21.6 21.7 | 21.7 | | 5.0 9.4 | 7.2 | |
| | | | | Bottom | 6 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.4 30.3 | 30.4 | 91.3 91.2 | 91.3 | 6.2 6.2 | 6.2 | | 37.5 32.4 | 35.0 | | 7.6 6.7 | 7.2 | |
| 7-Oct-13 | Sunny | Moderate | 14:45 | Surface | 1 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.5 28.5 | 28.5 | 83.8 83.0 | 83.4 | 5.6 5.6 | 5.6 | 5.6 | 15.2 15.2 | 15.2 | 15.4 | 19.7 17.0 | 18.4 | 23.8 |
| | | | | Middle | 3.5 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.5 28.5 | 28.5 | 81.5 81.4 | 81.5 | 5.5 5.5 | 5.5 | | 13.3 13.6 | 13.5 | | 24.0 26.7 | 25.4 | |
| | | | | Bottom | 6 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.6 28.6 | 28.6 | 80.9 80.2 | 80.6 | 5.4 5.4 | 5.4 | | 17.4 17.4 | 17.4 | | 28.0 27.0 | 27.5 | |
| 9-Oct-13 | Cloudy | Moderate | 15:18 | Surface | 1 | 26.8 26.7 | 26.8 | 8.2 8.2 | 8.2 | 29.3 27.9 | 28.6 | 98.3 97.1 | 97.7 | 7.1 7.0 | 7.1 | 7.1 | 4.5 4.3 | 4.4 | 5.7 | 4.1 4.0 | 4.1 | 5.1 |
| | | | | Middle | 3.5 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 96.6 96.1 | 96.4 | 7.0 6.9 | 7.0 | | 4.9 5.3 | 5.1 | | 5.2 5.4 | 5.3 | |
| | | | | Bottom | 6 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 95.4 95.1 | 95.3 | 6.9 6.9 | 6.9 | | 7.8 7.4 | 7.6 | | 6.5 5.5 | 6.0 | |
| 11-Oct-13 | Fine | Moderate | 17:10 | Surface | 1 | 27.4 27.3 | 27.4 | 8.0 8.0 | 8.0 | 26.4 26.4 | 26.4 | 97.2 96.0 | 96.6 | 6.6 6.5 | 6.6 | 6.5 | 2.9 3.6 | 3.3 | 6.4 | 4.3 2.4 | 3.4 | 4.7 |
| | | | | Middle | 3.5 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 28.2 28.2 | 28.2 | 94.0 93.4 | 93.7 | 6.4 6.3 | 6.4 | | 5.8 6.2 | 6.0 | | 5.2 5.3 | 5.3 | |
| | | | | Bottom | 6 | 26.6 26.6 | 26.6 | 8.1 8.1 | 8.1 | 29.5 29.6 | 29.6 | 92.1 92.2 | 92.2 | 6.2 6.2 | 6.2 | | 10.3 9.3 | 9.8 | | 3.7 7.2 | 5.5 | |
| 15-Oct-13 | Cloudy | Moderate | 10:15 | Surface | 1 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 91.2 91.2 | 91.2 | 6.3 6.3 | 6.3 | 6.3 | 1.7 1.7 | 1.7 | 6.5 | 1.5 1.7 | 1.6 | 2.4 |
| | | | | Middle | 4 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 91.8 91.9 | 91.9 | 6.3 6.3 | 6.3 | | 2.2 2.2 | 2.2 | | 2.9 2.7 | 2.8 | |
| | | | | Bottom | 7 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 30.1 30.0 | 30.1 | 89.4 89.2 | 89.3 | 6.1 6.0 | 6.1 | | 15.6 15.8 | 15.7 | | 3.9 1.9 | 2.9 | |
| 17-Oct-13 | Sunny | Calm | 11:33 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.9 30.9 | 30.9 | 86.3 86.2 | 86.3 | 6.6 6.6 | 6.6 | 6.6 | 4.3 4.5 | 4.4 | 6.3 | 7.9 4.0 | 6.0 | 5.1 |
| | | | | Middle | 4 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 31.1 31.1 | 31.1 | 85.4 85.4 | 85.4 | 6.5 6.5 | 6.5 | | 4.5 4.3 | 4.4 | | 4.6 3.4 | 4.0 | |
| | | | | Bottom | 7 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 31.2 31.2 | 31.2 | 84.5 84.5 | 84.5 | 6.4 6.4 | 6.4 | | 10.3 9.9 | 10.1 | | 5.5 5.1 | 5.3 | |
| 19-Oct-13 | Sunny | Calm | 13:02 | Surface | 1 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.6 28.4 | 29.0 | 88.4 88.3 | 88.4 | 6.7 6.7 | 6.7 | 6.7 | 3.9 4.0 | 4.0 | 9.8 | 5.2 3.3 | 4.3 | 5.2 |
| | | | | Middle | 3 | 25.9 25.9 | 25.9 | 8.2 8.2 | 8.2 | 28.8 30.0 | 29.4 | 87.8 87.8 | 87.8 | 6.7 6.7 | 6.7 | | 6.7 6.8 | 6.8 | | 5.4 7.2 | 6.3 | |
| | | | | Bottom | 5 | 25.9 25.9 | 25.9 | 8.2 8.2 | 8.2 | 30.5 29.3 | 29.9 | 87.7 87.8 | 87.8 | 6.7 6.7 | 6.7 | | 18.6 18.6 | 18.6 | | 5.1 4.8 | 5.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:54 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 88.5 88.4 | 88.5 | 6.1 6.0 | 6.1 | 6.1 | 5.2 5.2 | 5.2 | 16.8 | 6.7 6.2 | 6.5 | 9.2 |
| | | | | Middle | 3 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 88.1 88.1 | 88.1 | 6.0 6.0 | 6.0 | | 11.9 13.4 | 12.7 | | 11.2 12.0 | 11.6 | |
| | | | | Bottom | 5 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 87.7 87.7 | 87.7 | 6.0 6.0 | 6.0 | | 31.7 33.4 | 32.6 | | 14.0 4.8 | 9.4 | |
| 23-Oct-13 | Sunny | Calm | 14:54 | Surface | 1 | 26.4 26.4 | 26.4 | 8.3 8.3 | 8.3 | 30.3 30.2 | 30.3 | 90.2 83.6 | 86.9 | 6.3 5.8 | 6.1 | 6.0 | 6.3 6.2 | 6.3 | 8.6 | 6.2 7.3 | 6.8 | 6.3 |
| | | | | Middle | 3 | 26.3 26.3 | 26.3 | 8.3 8.3 | 8.3 | 30.4 30.3 | 30.4 | 82.3 83.7 | 83.0 | 5.7 5.8 | 5.8 | | 8.7 8.5 | 8.6 | | 5.7 6.1 | 5.9 | |
| | | | | Bottom | 5 | 26.2 26.3 | 26.3 | 8.3 8.3 | 8.3 | 30.5 30.4 | 30.5 | 82.0 82.2 | 82.1 | 5.7 5.7 | 5.7 | | 10.7 10.8 | 10.8 | | 6.3 5.8 | 6.1 | |
| 25-Oct-13 | Sunny | Moderate | 15:57 | Surface | 1 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 94.3 93.6 | 94.0 | 6.4 6.4 | 6.4 | 6.2 | 9.7 10.6 | 10.2 | 12.2 | 7.4 11.4 | 9.4 | 12.4 |
| | | | | Middle | 3.5 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 87.7 88.8 | 88.3 | 6.0 6.0 | 6.0 | | 13.8 13.5 | 13.7 | | 16.2 17.8 | 17.0 | |
| | | | | Bottom | 6 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 86.1 85.6 | 85.9 | 5.9 5.8 | 5.9 | | 13.2 12.3 | 12.8 | | 10.7 10.8 | 10.8 | |
| 28-Oct-13 | Cloudy | Moderate | 07:16 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 87.4 87.3 | 87.4 | 6.1 6.0 | 6.1 | 6.1 | 5.1 4.9 | 5.0 | 4.8 | 7.3 7.7 | 7.5 | 10.9 |
| | | | | Middle | 3.5 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 87.1 87.5 | 87.3 | 6.0 6.1 | 6.1 | | 4.3 4.2 | 4.3 | | 17.7 14.0 | 15.9 | |
| | | | | Bottom | 6 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 87.2 87.3 | 87.3 | 6.0 6.0 | 6.0 | | 5.1 5.0 | 5.1 | | 9.7 8.7 | 9.2 | |
| 30-Oct-13 | Sunny | Calm | 10:36 | Surface | 1 | 24.1 24.1 | 24.1 | 8.2 8.2 | 8.2 | 30.1 30.2 | 30.2 | 110.2 106.9 | 108.6 | 7.8 7.6 | 7.7 | 7.4 | 3.3 3.1 | 3.2 | 4.7 | 4.7 5.3 | 5.0 | 5.8 |
| | | | | Middle | 3.5 | 24.2 24.2 | 24.2 | 8.1 8.1 | 8.1 | 30.7 30.6 | 30.7 | 101.2 99.7 | 100.5 | 7.1 7.0 | 7.1 | | 4.8 4.2 | 4.5 | | 7.0 5.0 | 6.0 | |
| | | | | Bottom | 6 | 24.3 24.3 | 24.3 | 8.1 8.1 | 8.1 | 30.9 30.9 | 30.9 | 92.6 93.7 | 93.2 | 6.5 6.6 | 6.6 | | 7.0 5.9 | 6.5 | | 7.3 5.3 | 6.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:01 | Surface | 1 | 29.6 29.5 | 29.6 | 8.2 8.2 | 8.2 | 25.2 25.2 | 25.2 | 80.9 79.2 | 80.1 | 6.0 5.9 | 6.0 | 6.0 | 3.1 3.3 | 3.2 | 7.2 | 13.7 12.3 | 13.0 | 10.9 |
| | | | | Middle | 3.5 | 28.9 28.9 | 28.9 | 8.2 8.2 | 8.2 | 27.0 27.0 | 27.0 | 79.7 79.2 | 79.5 | 5.9 5.9 | 5.9 | | 7.0 6.8 | 6.9 | | 10.0 10.4 | 10.2 | |
| | | | | Bottom | 6 | 28.9 28.9 | 28.9 | 8.2 8.2 | 8.2 | 27.2 27.3 | 27.3 | 77.5 77.3 | 77.4 | 5.7 5.7 | 5.7 | | 11.4 11.6 | 11.5 | | 9.4 9.6 | 9.5 | |
| 4-Oct-13 | Cloudy | Moderate | 17:57 | Surface | 1 | 27.9 27.9 | 27.9 | 8.2 8.3 | 8.3 | 28.6 28.5 | 28.6 | 86.6 87.2 | 86.9 | 5.8 5.9 | 5.9 | 5.9 | 10.8 10.7 | 10.8 | 17.7 | 9.6 10.6 | 10.1 | 10.8 |
| | | | | Middle | 3.5 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 29.0 29.0 | 29.0 | 87.8 88.2 | 88.0 | 5.9 5.9 | 5.9 | | 16.6 16.2 | 16.4 | | 5.6 16.4 | 11.0 | |
| | | | | Bottom | 6 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 29.1 29.2 | 29.2 | 86.7 86.7 | 86.7 | 5.8 5.8 | 5.8 | | 25.7 26.2 | 26.0 | | 11.2 11.6 | 11.4 | |
| 7-Oct-13 | Sunny | Moderate | 09:17 | Surface | 1 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 82.4 81.2 | 81.8 | 5.5 5.5 | 5.5 | 5.5 | 13.9 13.9 | 13.9 | 19.8 | 35.0 35.0 | 35.0 | 29.6 |
| | | | | Middle | 3.5 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 80.0 79.1 | 79.6 | 5.4 5.3 | 5.4 | | 18.1 18.4 | 18.3 | | 25.0 26.0 | 25.5 | |
| | | | | Bottom | 6 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.2 29.2 | 29.2 | 78.7 78.7 | 78.7 | 5.3 5.3 | 5.3 | | 27.3 27.2 | 27.3 | | 27.7 28.7 | 28.2 | |
| 9-Oct-13 | Cloudy | Moderate | 10:31 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 27.8 29.0 | 28.4 | 103.0 100.7 | 101.9 | 7.3 7.1 | 7.2 | 7.2 | 13.0 16.2 | 14.6 | 22.1 | 15.0 15.7 | 15.4 | 19.6 |
| | | | | Middle | 3.5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 29.0 27.8 | 28.4 | 100.8 99.5 | 100.2 | 7.1 7.0 | 7.1 | | 17.4 19.5 | 18.5 | | 21.0 25.0 | 23.0 | |
| | | | | Bottom | 6 | 26.2 26.3 | 26.3 | 8.1 8.1 | 8.1 | 29.0 27.9 | 28.5 | 99.2 98.1 | 98.7 | 7.0 6.9 | 7.0 | | 33.1 33.0 | 33.1 | | 22.0 19.0 | 20.5 | |
| 11-Oct-13 | Sunny | Moderate | 12:51 | Surface | 1 | 27.1 27.1 | 27.1 | 8.0 8.0 | 8.0 | 26.7 26.7 | 26.7 | 95.9 96.2 | 96.1 | 6.5 6.5 | 6.5 | 6.5 | 5.3 5.4 | 5.4 | 14.5 | 5.0 6.3 | 5.7 | 28.0 |
| | | | | Middle | 3.5 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.6 27.5 | 27.6 | 94.6 94.8 | 94.7 | 6.4 6.5 | 6.5 | | 16.1 14.9 | 15.5 | | 30.0 29.0 | 29.5 | |
| | | | | Bottom | 6 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.6 27.6 | 27.6 | 94.3 94.4 | 94.4 | 6.4 6.4 | 6.4 | | 22.7 22.6 | 22.7 | | 51.0 46.3 | 48.7 | |
| 15-Oct-13 | Cloudy | Moderate | 16:10 | Surface | 1 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 26.7 26.7 | 26.7 | 86.7 86.3 | 86.5 | 5.9 5.9 | 5.9 | 5.9 | 2.4 2.3 | 2.4 | 4.7 | 3.0 3.2 | 3.1 | 3.0 |
| | | | | Middle | 4 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 27.6 27.7 | 27.7 | 85.4 85.2 | 85.3 | 5.8 5.8 | 5.8 | | 3.4 3.4 | 3.4 | | 2.5 2.6 | 2.6 | |
| | | | | Bottom | 7 | 27.7 27.7 | 27.7 | 8.2 8.2 | 8.2 | 28.5 28.5 | 28.5 | 84.0 83.4 | 83.7 | 5.7 5.7 | 5.7 | | 8.2 8.6 | 8.4 | | 3.4 3.2 | 3.3 | |
| 17-Oct-13 | Sunny | Calm | 17:23 | Surface | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 80.0 79.9 | 80.0 | 6.1 6.1 | 6.1 | 6.1 | 5.1 5.1 | 5.1 | 7.1 | 4.2 3.2 | 3.7 | 4.1 |
| | | | | Middle | 3 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.7 29.7 | 29.7 | 78.3 78.3 | 78.3 | 6.0 6.0 | 6.0 | | 7.5 7.5 | 7.5 | | 4.8 3.7 | 4.3 | |
| | | | | Bottom | 5 | 26.4 26.5 | 26.5 | 8.1 8.1 | 8.1 | 30.3 30.5 | 30.4 | 77.4 77.4 | 77.4 | 5.9 5.9 | 5.9 | | 8.0 9.3 | 8.7 | | 4.3 4.0 | 4.2 | |
| 19-Oct-13 | Fine | Calm | 18:31 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 28.7 27.6 | 28.2 | 92.4 92.6 | 92.5 | 7.0 7.1 | 7.1 | 7.1 | 5.4 5.6 | 5.5 | 12.5 | 5.4 4.4 | 4.9 | 4.8 |
| | | | | Middle | 3.5 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 92.6 92.6 | 92.6 | 7.1 7.1 | 7.1 | | 10.1 10.1 | 10.1 | | 5.6 3.6 | 4.6 | |
| | | | | Bottom | 6 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 91.7 91.6 | 91.7 | 7.0 7.0 | 7.0 | | 20.5 23.1 | 21.8 | | 4.6 5.2 | 4.9 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:17 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 90.1 89.6 | 89.9 | 6.2 6.1 | 6.2 | 6.1 | 6.1 6.1 | 6.1 | 8.6 | 6.2 5.8 | 6.0 | 5.2 |
| | | | | Middle | 3.5 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 87.2 87.7 | 87.5 | 6.0 6.0 | 6.0 | | 6.3 6.3 | 6.3 | | 4.5 5.2 | 4.9 | |
| | | | | Bottom | 6 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 28.3 30.0 | 29.2 | 86.5 86.3 | 86.4 | 5.9 5.9 | 5.9 | | 13.8 13.0 | 13.4 | | 4.7 4.8 | 4.8 | |
| 23-Oct-13 | Sunny | Calm | 09:52 | Surface | 1 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 85.7 79.3 | 82.5 | 5.9 5.5 | 5.7 | 5.6 | 11.4 13.5 | 12.5 | 20.4 | 8.8 8.6 | 8.7 | 10.1 |
| | | | | Middle | 3.5 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 78.5 77.8 | 78.2 | 5.4 5.4 | 5.4 | | 19.7 21.3 | 20.5 | | 10.0 12.2 | 11.1 | |
| | | | | Bottom | 6 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 78.2 77.8 | 78.0 | 5.4 5.4 | 5.4 | | 28.3 28.2 | 28.3 | | 12.0 9.0 | 10.5 | |
| 25-Oct-13 | Sunny | Moderate | 11:57 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 95.6 94.7 | 95.2 | 6.6 6.5 | 6.6 | 6.5 | 5.0 5.1 | 5.1 | 5.9 | 5.3 5.8 | 5.6 | 5.4 |
| | | | | Middle | 3.5 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 91.6 92.1 | 91.9 | 6.3 6.3 | 6.3 | | 5.2 5.2 | 5.2 | | 4.0 5.5 | 4.8 | |
| | | | | Bottom | 6 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 29.4 29.3 | 29.4 | 89.7 89.4 | 89.6 | 6.2 6.1 | 6.2 | | 7.7 7.0 | 7.4 | | 5.8 5.8 | 5.8 | |
| 28-Oct-13 | Cloudy | Moderate | 14:48 | Surface | 1 | 25.4 25.3 | 25.4 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 86.7 86.7 | 86.7 | 6.0 6.0 | 6.0 | 6.0 | 5.7 5.4 | 5.6 | 11.8 | 2.4 3.4 | 2.9 | 6.3 |
| | | | | Middle | 3.5 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 85.9 85.4 | 85.7 | 5.9 5.9 | 5.9 | | 14.9 14.7 | 14.8 | | 5.4 8.2 | 6.8 | |
| | | | | Bottom | 6 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.5 31.5 | 31.5 | 84.5 84.3 | 84.4 | 5.9 5.8 | 5.9 | | 14.7 15.4 | 15.1 | | 7.0 11.2 | 9.1 | |
| 30-Oct-13 | Sunny | Calm | 15:39 | Surface | 1 | 24.9 25.0 | 25.0 | 8.2 8.3 | 8.3 | 27.5 27.4 | 27.5 | 97.8 100.4 | 99.1 | 6.9 7.1 | 7.0 | 6.9 | 3.3 3.2 | 3.3 | 5.8 | 6.4 3.0 | 4.7 | 7.1 |
| | | | | Middle | 3.5 | 24.3 24.3 | 24.3 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 95.5 96.9 | 96.2 | 6.7 6.8 | 6.8 | | 4.5 4.4 | 4.5 | | 5.7 11.0 | 8.4 | |
| | | | | Bottom | 6 | 24.3 24.3 | 24.3 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 86.9 88.2 | 87.6 | 6.1 6.2 | 6.2 | | 9.2 10.0 | 9.6 | | 7.3 9.3 | 8.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 10:45 | Surface | 1 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 27.5 27.5 | 27.5 | 76.5 76.6 | 76.6 | 5.8 5.8 | 5.8 | 5.8 | 2.7 2.9 | 2.8 | 7.0 | 2.6 2.2 | 2.4 | 2.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 28.5 28.5 | 28.5 | 74.5 73.9 | 74.2 | 5.7 5.6 | 5.7 | | 11.2 11.2 | 11.2 | | 3.4 3.4 | 3.4 | |
| 4-Oct-13 | Cloudy | Moderate | 12:04 | Surface | 1 | 27.8 27.8 | 27.8 | 7.9 8.0 | 8.0 | 27.6 27.6 | 27.6 | 92.8 94.0 | 93.4 | 6.3 6.3 | 6.3 | 6.3 | 6.6 7.2 | 6.9 | 12.4 | 8.7 10.7 | 9.7 | 9.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.5 | 27.6 27.6 | 27.6 | 8.0 8.0 | 8.0 | 28.4 28.4 | 28.4 | 90.9 92.1 | 91.5 | 6.1 6.2 | 6.2 | | 18.4 17.3 | 17.9 | | 10.2 10.0 | 10.1 | |
| 7-Oct-13 | Sunny | Moderate | 15:08 | Surface | 1 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 27.6 27.7 | 27.7 | 81.4 88.6 | 85.0 | 5.5 6.0 | 5.8 | 5.8 | 13.4 12.8 | 13.1 | 13.1 | 13.0 14.3 | 13.7 | 14.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.5 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 27.7 27.7 | 27.7 | 85.5 79.5 | 82.5 | 5.8 5.3 | 5.6 | | 13.3 12.8 | 13.1 | | 15.6 16.4 | 16.0 | |
| 9-Oct-13 | Cloudy | Moderate | 16:26 | Surface | 1 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 95.2 94.8 | 95.0 | 7.0 6.9 | 7.0 | 7.0 | 7.3 7.6 | 7.5 | 7.8 | 6.6 6.6 | 6.6 | 6.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.9 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 90.6 90.7 | 90.7 | 6.6 6.7 | 6.7 | | 8.1 8.1 | 8.1 | | 6.9 6.9 | 6.9 | |
| 11-Oct-13 | Fine | Moderate | 17:35 | Surface | 1 | 27.5 27.5 | 27.5 | 8.1 8.1 | 8.1 | 27.3 27.3 | 27.3 | 110.4 109.4 | 109.9 | 7.5 7.4 | 7.5 | 7.5 | 7.6 7.8 | 7.7 | 10.4 | 5.3 5.8 | 5.6 | 6.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.1 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.7 27.6 | 27.7 | 105.7 105.6 | 105.7 | 7.2 7.2 | 7.2 | | 13.5 12.5 | 13.0 | | 8.3 4.5 | 6.4 | |
| 15-Oct-13 | Cloudy | Moderate | 09:42 | Surface | 1 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 29.1 29.2 | 29.2 | 94.1 93.2 | 93.7 | 6.3 6.3 | 6.3 | 6.3 | 3.1 3.1 | 3.1 | 4.6 | 2.1 2.3 | 2.2 | 3.2 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.7 | 27.3 27.3 | 27.3 | 8.3 8.3 | 8.3 | 29.7 29.7 | 29.7 | 91.7 91.0 | 91.4 | 6.2 6.1 | 6.2 | | 5.8 6.1 | 6.0 | | 4.0 4.2 | 4.1 | |
| 17-Oct-13 | Sunny | Calm | 11:16 | Surface | 1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 84.0 82.4 | 83.2 | 5.6 5.5 | 5.6 | 5.6 | 5.9 6.9 | 6.4 | 8.3 | 6.6 7.8 | 7.2 | 6.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 30.8 31.0 | 30.9 | 83.2 82.2 | 82.7 | 5.6 5.5 | 5.6 | | 9.7 10.7 | 10.2 | | 5.8 7.2 | 6.5 | |
| 19-Oct-13 | Sunny | Calm | 12:54 | Surface | 1 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 83.4 87.2 | 85.3 | 6.3 6.6 | 6.5 | 6.5 | 6.2 6.2 | 6.2 | 7.3 | 4.6 3.8 | 4.2 | 4.1 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 26.8 26.7 | 26.8 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 86.0 87.4 | 86.7 | 6.5 6.6 | 6.6 | | 8.3 8.5 | 8.4 | | 5.0 2.8 | 3.9 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:08 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 29.4 29.4 | 29.4 | 91.1 90.7 | 90.9 | 6.2 6.2 | 6.2 | 6.2 | 6.1 6.4 | 6.3 | 7.1 | 9.0 6.4 | 7.7 | 7.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.7 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.5 29.5 | 29.5 | 89.4 88.9 | 89.2 | 6.1 6.1 | 6.1 | | 7.9 7.9 | 7.9 | | 8.3 7.8 | 8.1 | |
| 23-Oct-13 | Sunny | Calm | 14:54 | Surface | 1 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.0 29.7 | 29.9 | 89.9 89.0 | 89.5 | 6.2 6.1 | 6.2 | 6.2 | 8.8 10.6 | 9.7 | 16.1 | 8.3 8.7 | 8.5 | 19.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.6 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 30.0 29.9 | 30.0 | 85.7 85.5 | 85.6 | 5.9 5.9 | 5.9 | | 22.6 22.1 | 22.4 | | 28.7 31.7 | 30.2 | |
| 25-Oct-13 | Sunny | Moderate | 16:46 | Surface | 1 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 95.6 95.4 | 95.5 | 6.6 6.6 | 6.6 | 6.6 | 8.0 7.8 | 7.9 | 9.0 | 9.3 8.6 | 9.0 | 8.2 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.6 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 93.3 91.8 | 92.6 | 6.4 6.3 | 6.4 | | 10.1 10.0 | 10.1 | | 7.3 7.4 | 7.4 | |
| 28-Oct-13 | Cloudy | Moderate | 07:20 | Surface | 1 | 24.5 24.4 | 24.5 | 8.3 8.3 | 8.3 | 32.1 32.1 | 32.1 | 92.7 94.1 | 93.4 | 6.4 6.6 | 6.5 | 6.5 | 5.0 5.3 | 5.2 | 5.2 | 5.5 6.2 | 5.9 | 6.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.3 | 24.2 24.3 | 24.3 | 8.3 8.3 | 8.3 | 29.2 32.1 | 30.7 | 94.0 93.7 | 93.9 | 6.7 6.5 | 6.6 | | 5.1 5.3 | 5.2 | | 6.8 6.8 | 6.8 | |
| 30-Oct-13 | Sunny | Calm | 09:29 | Surface | 1 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 101.7 102.3 | 102.0 | 7.1 7.1 | 7.1 | 7.1 | 4.8 5.2 | 5.0 | 7.5 | 5.0 4.0 | 4.5 | 4.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.6 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 101.2 100.4 | 100.8 | 7.0 7.0 | 7.0 | | 9.6 10.1 | 9.9 | | 4.0 3.0 | 3.5 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:19 | Surface | 1 | 28.4 28.4 | 28.4 | 8.3 8.3 | 8.3 | 27.1 27.1 | 27.1 | 78.3 77.9 | 78.1 | 5.9 5.9 | 5.9 | 5.9 | 11.9 12.2 | 12.1 | 13.9 | 7.8 8.0 | 7.9 | 9.1 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.7 | 28.4 28.4 | 28.4 | 8.3 8.3 | 8.3 | 27.2 28.0 | 27.6 | 77.4 77.4 | 77.4 | 5.8 5.8 | 5.8 | | 15.7 15.5 | 15.6 | | 10.4 10.0 | 10.2 | |
| 4-Oct-13 | Cloudy | Moderate | 17:39 | Surface | 1 | 28.1 28.1 | 28.1 | 7.9 7.9 | 7.9 | 25.3 28.3 | 26.8 | 77.1 77.1 | 77.1 | 5.2 5.2 | 5.2 | 5.2 | 13.8 13.8 | 13.8 | 19.0 | 4.0 5.9 | 5.0 | 4.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.5 | 28.1 28.1 | 28.1 | 8.0 8.0 | 8.0 | 28.4 28.4 | 28.4 | 87.2 87.2 | 87.2 | 5.8 5.8 | 5.8 | | 23.9 24.5 | 24.2 | | 5.2 4.0 | 4.6 | |
| 7-Oct-13 | Sunny | Moderate | 08:57 | Surface | 1 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 27.4 27.5 | 27.5 | 97.6 97.9 | 97.8 | 6.6 6.6 | 6.6 | 6.6 | 17.6 18.3 | 18.0 | 19.1 | 20.7 18.7 | 19.7 | 21.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.4 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.5 27.5 | 27.5 | 97.9 98.4 | 98.2 | 6.6 6.7 | 6.7 | | 22.1 18.3 | 20.2 | | 22.3 23.7 | 23.0 | |
| 9-Oct-13 | Cloudy | Moderate | 09:26 | Surface | 1 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 27.7 28.4 | 28.1 | 87.0 86.4 | 86.7 | 6.4 6.4 | 6.4 | 6.4 | 13.7 14.9 | 14.3 | 15.9 | 8.4 7.4 | 7.9 | 8.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.8 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 86.1 87.3 | 86.7 | 6.3 6.4 | 6.4 | | 17.7 17.1 | 17.4 | | 9.4 10.4 | 9.9 | |
| 11-Oct-13 | Sunny | Moderate | 11:52 | Surface | 1 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 26.8 26.8 | 26.8 | 100.7 100.4 | 100.6 | 6.8 6.8 | 6.8 | 6.8 | 6.9 6.8 | 6.9 | 7.4 | 5.6 5.6 | 5.6 | 5.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 27.8 27.8 | 27.8 | 8.1 8.1 | 8.1 | 26.8 26.8 | 26.8 | 100.0 99.7 | 99.9 | 6.8 6.8 | 6.8 | | 7.8 7.8 | 7.8 | | 6.3 6.1 | 6.2 | |
| 15-Oct-13 | Cloudy | Moderate | 15:51 | Surface | 1 | 28.1 28.1 | 28.1 | 8.1 8.2 | 8.2 | 27.5 27.5 | 27.5 | 98.2 95.8 | 97.0 | 6.6 6.4 | 6.5 | 6.5 | 2.2 2.4 | 2.3 | 3.6 | 10.2 9.7 | 10.0 | 6.7 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.4 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 27.8 27.8 | 27.8 | 95.5 95.2 | 95.4 | 6.4 6.4 | 6.4 | | 4.8 4.8 | 4.8 | | 3.8 3.0 | 3.4 | |
| 17-Oct-13 | Sunny | Calm | 17:34 | Surface | 1 | 27.0 27.2 | 27.1 | 8.1 8.2 | 8.2 | 29.3 29.2 | 29.3 | 117.7 117.4 | 117.6 | 7.9 7.9 | 7.9 | 7.9 | 5.1 5.1 | 5.1 | 5.3 | 5.4 4.2 | 4.8 | 4.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 27.2 27.2 | 27.2 | 8.1 8.2 | 8.2 | 29.8 29.6 | 29.7 | 115.4 115.7 | 115.6 | 7.8 7.8 | 7.8 | | 5.3 5.4 | 5.4 | | 4.4 5.2 | 4.8 | |
| 19-Oct-13 | Fine | Calm | 18:49 | Surface | 1 | 26.9 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.9 28.8 | 28.9 | 73.5 81.0 | 77.3 | 5.7 6.2 | 6.0 | 6.0 | 8.3 8.3 | 8.3 | 9.0 | 9.2 7.4 | 8.3 | 7.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 79.4 82.2 | 80.8 | 6.1 6.3 | 6.2 | | 10.0 9.4 | 9.7 | | 6.6 7.8 | 7.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:17 | Surface | 1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.6 29.5 | 29.6 | 88.6 88.1 | 88.4 | 6.1 6.0 | 6.1 | 6.1 | 10.4 10.5 | 10.5 | 9.6 | 7.4 8.2 | 7.8 | 7.7 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.5 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 86.7 87.0 | 86.9 | 6.0 6.0 | 6.0 | | 9.0 8.1 | 8.6 | | 7.0 8.2 | 7.6 | |
| 23-Oct-13 | Sunny | Calm | 09:27 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 87.5 87.7 | 87.6 | 6.1 6.1 | 6.1 | 6.1 | 9.9 9.7 | 9.8 | 13.3 | 12.4 11.2 | 11.8 | 11.3 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 26.2 26.2 | 26.2 | 8.1 8.2 | 8.2 | 29.3 29.3 | 29.3 | 87.0 87.5 | 87.3 | 6.0 6.1 | 6.1 | | 15.7 17.8 | 16.8 | | 10.8 10.6 | 10.7 | |
| 25-Oct-13 | Sunny | Moderate | 11:33 | Surface | 1 | 25.6 25.6 | 25.6 | 8.1 8.2 | 8.2 | 29.9 29.9 | 29.9 | 93.5 93.5 | 93.5 | 6.5 6.5 | 6.5 | 6.5 | 6.0 5.9 | 6.0 | 7.3 | 6.7 7.0 | 6.9 | 7.1 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 94.4 94.3 | 94.4 | 6.5 6.5 | 6.5 | | 8.2 9.0 | 8.6 | | 8.2 6.2 | 7.2 | |
| 28-Oct-13 | Cloudy | Moderate | 16:06 | Surface | 1 | 25.3 25.2 | 25.3 | 8.3 8.2 | 8.3 | 32.2 32.1 | 32.2 | 101.1 106.6 | 103.9 | 6.9 7.3 | 7.1 | 7.1 | 6.2 7.2 | 6.7 | 7.0 | 9.6 7.8 | 8.7 | 7.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.3 | 25.1 25.2 | 25.2 | 8.2 8.2 | 8.2 | 29.3 32.2 | 30.8 | 106.1 107.2 | 106.7 | 7.4 7.4 | 7.4 | | 7.3 7.1 | 7.2 | | 5.6 6.6 | 6.1 | |
| 30-Oct-13 | Sunny | Calm | 15:51 | Surface | 1 | 25.5 25.5 | 25.5 | 8.3 8.3 | 8.3 | 29.0 29.0 | 29.0 | 110.0 110.7 | 110.4 | 7.6 7.7 | 7.7 | 7.7 | 5.1 5.9 | 5.5 | 7.2 | 7.8 8.0 | 7.9 | 7.3 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.7 | 25.5 25.5 | 25.5 | 8.3 8.3 | 8.3 | 29.1 29.1 | 29.1 | 112.3 111.9 | 112.1 | 7.8 7.8 | 7.8 | | 8.4 9.1 | 8.8 | | 6.7 6.4 | 6.6 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|--------------------------|---------|------|------------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 12:15 | Surface | 1 | 28.9 28.9 | 28.9 | 8.3 8.3 | 8.3 | 27.8 27.6 | 27.7 | 81.8 80.8 | 81.3 | 6.0 6.0 | 6.0 | 6.0 | 5.8 5.9 8.0 8.1 | 5.9 | 9.0 | 12.0 11.4 21.0 22.2 | 11.7 | 15.7 |
| | | | | Middle | 4 | 28.5 28.5 | 28.5 | 8.2 8.3 | 8.3 | 29.0 29.1 | 29.1 | 79.7 79.1 | 79.4 | 5.9 5.8 | 5.9 | | | 8.1 | | | 21.6 | |
| | | | | Bottom | 7 | 28.4 28.4 | 28.4 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 77.5 77.4 | 77.5 | 5.7 5.7 | 5.7 | | 13.4 12.7 | 13.1 | | 9.0 18.6 | 13.8 | |
| 4-Oct-13 | Cloudy | Moderate | 12:33 | Surface | 1 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 29.1 29.1 | 29.1 | 91.5 92.0 | 91.8 | 6.2 6.3 | 6.3 | 6.2 | 8.8 8.7 | 8.8 | 15.4 | 13.8 8.0 | 10.9 | 10.9 |
| | | | | Middle | 4 | 27.6 27.6 | 27.6 | 8.3 8.3 | 8.3 | 29.4 29.4 | 29.4 | 90.6 90.5 | 90.6 | 6.1 6.1 | 6.1 | | 15.5 16.4 | 16.0 | | 13.2 10.8 | 12.0 | |
| | | | | Bottom | 7 | 27.6 27.6 | 27.6 | 8.3 8.3 | 8.3 | 29.6 29.6 | 29.6 | 89.4 89.7 | 89.6 | 6.0 6.1 | 6.1 | | 21.3 21.4 | 21.4 | | 8.2 11.4 | 9.8 | |
| 7-Oct-13 | Sunny | Moderate | 14:58 | Surface | 1 | 27.5 27.6 | 27.6 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 90.2 90.0 | 90.1 | 6.1 6.0 | 6.1 | 6.0 | 13.7 13.7 | 13.7 | 14.3 | 16.7 16.3 | 16.5 | 15.6 |
| | | | | Middle | 3.5 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 86.3 85.5 | 85.9 | 5.8 5.7 | 5.8 | | 14.4 14.4 | 14.4 | | 13.3 13.7 | 13.5 | |
| | | | | Bottom | 6 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 86.3 86.6 | 86.5 | 5.8 5.8 | 5.8 | | 14.8 14.6 | 14.7 | | 15.3 18.3 | 16.8 | |
| 9-Oct-13 | Cloudy | Moderate | 15:28 | Surface | 1 | 26.6 26.6 | 26.6 | 8.1 8.1 | 8.1 | 28.7 28.9 | 28.8 | 93.0 93.6 | 93.3 | 6.8 6.8 | 6.8 | 6.9 | 7.4 9.0 | 8.2 | 11.1 | 22.0 19.3 | 20.7 | 22.6 |
| | | | | Middle | 3.5 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.0 27.9 | 28.5 | 97.1 97.3 | 97.2 | 7.0 7.0 | 7.0 | | 8.2 9.9 | 9.1 | | 28.3 21.3 | 24.8 | |
| | | | | Bottom | 6 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.7 29.6 | 29.7 | 96.4 96.2 | 96.3 | 6.9 6.9 | 6.9 | | 16.9 15.1 | 16.0 | | 24.0 20.7 | 22.4 | |
| 11-Oct-13 | Fine | Moderate | 17:27 | Surface | 1 | 27.7 27.7 | 27.7 | 8.0 8.0 | 8.0 | 26.6 26.5 | 26.6 | 96.5 96.5 | 96.5 | 6.5 6.5 | 6.5 | 6.5 | 3.4 3.6 | 3.5 | 7.7 | 5.2 4.4 | 4.8 | 5.2 |
| | | | | Middle | 3.5 | 26.9 27.1 | 27.0 | 8.0 8.0 | 8.0 | 26.9 26.9 | 26.9 | 95.1 93.4 | 94.3 | 6.5 6.3 | 6.4 | | 5.4 5.5 | 5.5 | | 4.0 3.4 | 3.7 | |
| | | | | Bottom | 6 | 26.7 26.7 | 26.7 | 8.0 8.0 | 8.0 | 27.4 27.4 | 27.4 | 90.7 91.2 | 91.0 | 6.2 6.2 | 6.2 | | 13.9 14.1 | 14.0 | | 7.3 7.0 | 7.2 | |
| 15-Oct-13 | Cloudy | Moderate | 10:25 | Surface | 1 | 27.6 27.6 | 27.6 | 8.3 8.2 | 8.3 | 29.1 29.1 | 29.1 | 88.2 87.9 | 88.1 | 6.0 6.0 | 6.0 | 6.0 | 3.6 3.5 | 3.6 | 6.5 | 4.1 3.9 | 4.0 | 4.4 |
| | | | | Middle | 4 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 29.6 29.7 | 29.7 | 87.9 87.9 | 87.9 | 6.0 6.0 | 6.0 | | 4.3 5.2 | 4.8 | | 7.5 3.0 | 5.3 | |
| | | | | Bottom | 7 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 87.0 86.9 | 87.0 | 5.9 5.9 | 5.9 | | 11.0 11.2 | 11.1 | | 3.9 4.1 | 4.0 | |
| 17-Oct-13 | Sunny | Calm | 11:42 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 82.8 82.7 | 82.8 | 6.3 6.3 | 6.3 | 6.3 | 6.8 6.5 | 6.7 | 10.0 | 6.2 8.2 | 7.2 | 7.0 |
| | | | | Middle | 5 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 82.3 82.3 | 82.3 | 6.3 6.3 | 6.3 | | 9.0 7.9 | 8.5 | | 6.6 6.4 | 6.5 | |
| | | | | Bottom | 9 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 30.8 30.9 | 30.9 | 81.7 81.5 | 81.6 | 6.2 6.2 | 6.2 | | 14.4 15.4 | 14.9 | | 7.0 7.8 | 7.4 | |
| 19-Oct-13 | Sunny | Calm | 13:13 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 88.7 88.3 | 88.5 | 6.8 6.7 | 6.8 | 6.7 | 3.8 3.8 | 3.8 | 7.5 | 3.8 4.0 | 3.9 | 5.2 |
| | | | | Middle | 4 | 26.0 26.0 | 26.0 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 87.0 87.0 | 87.0 | 6.6 6.6 | 6.6 | | 6.8 6.1 | 6.5 | | 5.4 5.8 | 5.6 | |
| | | | | Bottom | 7 | 25.9 26.0 | 26.0 | 8.2 8.2 | 8.2 | 29.6 28.4 | 29.0 | 86.6 86.5 | 86.6 | 6.6 6.6 | 6.6 | | 12.6 12.0 | 12.3 | | 6.0 6.4 | 6.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|-----|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 15:05 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 88.2 88.2 | 88.2 | 6.0 6.0 | 6.0 | 6.0 | 6.5 6.1 | 6.3 | 9.0 | 9.2 8.3 | 8.8 | 7.3 |
| | | | | Middle | 4.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 88.2 88.2 | 88.2 | 6.0 6.0 | 6.0 | | 8.6 9.0 | 8.8 | | 7.8 5.3 | 6.6 | |
| | | | | Bottom | 8 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 87.7 87.8 | 87.8 | 6.0 6.0 | 6.0 | | 12.0 12.0 | 12.0 | | 6.2 7.0 | 6.6 | |
| 23-Oct-13 | Sunny | Calm | 15:04 | Surface | 1 | 26.3 26.3 | 26.3 | 8.2 8.3 | 8.3 | 29.4 29.4 | 29.4 | 88.9 82.6 | 85.8 | 6.2 5.8 | 6.0 | 5.9 | 8.1 9.7 | 8.9 | 9.9 | 10.8 10.7 | 10.8 | 10.8 |
| | | | | Middle | 3.5 | 26.2 26.3 | 26.3 | 8.2 8.3 | 8.3 | 29.4 29.4 | 29.4 | 81.7 83.0 | 82.4 | 5.7 5.8 | 5.8 | | 10.9 9.4 | 10.2 | | 10.0 10.5 | 10.3 | |
| | | | | Bottom | 6 | 26.2 26.2 | 26.2 | 8.2 8.3 | 8.3 | 29.6 29.5 | 29.6 | 81.4 82.6 | 82.0 | 5.7 5.8 | 5.8 | | 10.9 10.4 | 10.7 | | 11.0 11.4 | 11.2 | |
| 25-Oct-13 | Sunny | Moderate | 16:08 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.2 29.2 | 29.2 | 93.1 92.4 | 92.8 | 6.4 6.3 | 6.4 | 6.3 | 5.3 5.7 | 5.5 | 7.2 | 7.5 8.0 | 7.8 | 8.7 |
| | | | | Middle | 4.5 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 89.1 89.5 | 89.3 | 6.1 6.1 | 6.1 | | 7.0 6.9 | 7.0 | | 14.2 7.4 | 10.8 | |
| | | | | Bottom | 8 | 25.6 25.7 | 25.7 | 8.2 8.2 | 8.2 | 30.0 30.1 | 30.1 | 87.1 86.8 | 87.0 | 5.9 5.9 | 5.9 | | 8.9 9.0 | 9.0 | | 8.4 6.8 | 7.6 | |
| 28-Oct-13 | Cloudy | Moderate | 07:25 | Surface | 1 | 24.7 24.7 | 24.7 | 8.2 8.2 | 8.2 | 31.6 31.6 | 31.6 | 85.2 85.0 | 85.1 | 5.9 5.9 | 5.9 | 5.9 | 4.7 4.9 | 4.8 | 5.0 | 11.4 10.0 | 10.7 | 10.0 |
| | | | | Middle | 4 | 24.7 24.7 | 24.7 | 8.2 8.2 | 8.2 | 31.6 31.6 | 31.6 | 84.9 85.0 | 85.0 | 5.9 5.9 | 5.9 | | 5.1 5.1 | 5.1 | | 10.2 9.0 | 9.6 | |
| | | | | Bottom | 7 | 24.7 24.7 | 24.7 | 8.2 8.2 | 8.2 | 31.6 31.6 | 31.6 | 84.9 84.8 | 84.9 | 5.9 5.9 | 5.9 | | 5.0 5.1 | 5.1 | | 9.3 10.3 | 9.8 | |
| 30-Oct-13 | Sunny | Calm | 10:46 | Surface | 1 | 24.0 24.0 | 24.0 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 110.5 109.1 | 109.8 | 7.8 7.7 | 7.8 | 7.6 | 2.3 2.6 | 2.5 | 4.0 | 7.0 4.7 | 5.9 | 5.5 |
| | | | | Middle | 4 | 24.2 24.2 | 24.2 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 104.8 101.2 | 103.0 | 7.4 7.1 | 7.3 | | 2.8 3.4 | 3.1 | | 6.3 5.1 | 5.7 | |
| | | | | Bottom | 7 | 24.2 24.2 | 24.2 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 97.1 94.3 | 95.7 | 6.8 6.6 | 6.7 | | 6.1 6.9 | 6.5 | | 4.7 5.3 | 5.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:13 | Surface | 1 | 28.7 28.7 | 28.7 | 8.2 8.2 | 8.2 | 27.7 27.7 | 27.7 | 76.7 74.4 | 75.6 | 5.7 5.5 | 5.6 | 5.6 | 7.7 7.6 | 7.7 | 10.9 | 25.3 22.3 | 23.8 | 21.5 |
| | | | | Middle | 4 | 28.6 28.7 | 28.7 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 74.4 73.1 | 73.8 | 5.5 5.4 | 5.5 | | 10.4 10.2 | 10.3 | | 21.3 21.0 | 21.2 | |
| | | | | Bottom | 7 | 28.6 28.7 | 28.7 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 73.3 73.1 | 73.2 | 5.4 5.4 | 5.4 | | 14.3 14.9 | 14.6 | | 21.0 18.0 | 19.5 | |
| 4-Oct-13 | Cloudy | Moderate | 18:03 | Surface | 1 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 86.0 86.1 | 86.1 | 5.8 5.8 | 5.8 | 5.8 | 14.2 14.3 | 14.3 | 21.2 | 11.4 14.4 | 12.9 | 13.3 |
| | | | | Middle | 4 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 28.7 28.8 | 28.8 | 85.7 86.3 | 86.0 | 5.7 5.8 | 5.8 | | 14.8 15.2 | 15.0 | | 13.2 15.6 | 14.4 | |
| | | | | Bottom | 7 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 29.0 29.1 | 29.1 | 85.4 86.0 | 85.7 | 5.7 5.8 | 5.8 | | 34.0 34.5 | 34.3 | | 10.0 15.0 | 12.5 | |
| 7-Oct-13 | Sunny | Moderate | 09:35 | Surface | 1 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 83.0 82.3 | 82.7 | 5.6 5.5 | 5.6 | 5.5 | 11.1 11.1 | 11.1 | 17.9 | 26.7 26.7 | 26.7 | 23.3 |
| | | | | Middle | 3.5 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 80.2 80.2 | 80.2 | 5.4 5.4 | 5.4 | | 19.1 18.9 | 19.0 | | 25.7 23.0 | 24.4 | |
| | | | | Bottom | 6 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 81.1 80.2 | 80.7 | 5.4 5.4 | 5.4 | | 23.6 23.8 | 23.7 | | 20.7 17.0 | 18.9 | |
| 9-Oct-13 | Cloudy | Moderate | 10:41 | Surface | 1 | 26.4 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.3 28.3 | 28.3 | 104.3 102.2 | 103.3 | 7.4 7.2 | 7.3 | 7.2 | 17.7 15.0 | 16.4 | 18.9 | 5.8 5.6 | 5.7 | 6.5 |
| | | | | Middle | 3.5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.4 28.4 | 28.4 | 100.8 98.3 | 99.6 | 7.1 6.9 | 7.0 | | 20.8 17.6 | 19.2 | | 6.4 5.6 | 6.0 | |
| | | | | Bottom | 6 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.4 28.4 | 28.4 | 79.8 78.2 | 79.0 | 5.4 5.3 | 5.4 | | 22.2 20.1 | 21.2 | | 7.2 8.2 | 7.7 | |
| 11-Oct-13 | Sunny | Moderate | 13:03 | Surface | 1 | 27.6 27.6 | 27.6 | 7.9 7.9 | 7.9 | 25.5 25.8 | 25.7 | 93.4 94.6 | 94.0 | 6.3 6.4 | 6.4 | 6.5 | 4.3 4.6 | 4.5 | 5.6 | 3.7 4.1 | 3.9 | 4.9 |
| | | | | Middle | 3.5 | 27.7 27.6 | 27.7 | 7.9 8.0 | 8.0 | 25.7 26.1 | 25.9 | 94.2 95.5 | 94.9 | 6.4 6.5 | 6.5 | | 4.2 4.9 | 4.6 | | 5.6 5.0 | 5.3 | |
| | | | | Bottom | 6 | 27.1 27.1 | 27.1 | 8.0 8.0 | 8.0 | 26.6 26.5 | 26.6 | 95.6 96.2 | 95.9 | 6.5 6.5 | 6.5 | | 7.7 7.5 | 7.6 | | 5.7 5.1 | 5.4 | |
| 15-Oct-13 | Cloudy | Moderate | 16:17 | Surface | 1 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 27.0 27.0 | 27.0 | 86.0 85.6 | 85.8 | 5.9 5.8 | 5.9 | 5.9 | 2.8 2.8 | 2.8 | 4.5 | 3.3 3.7 | 3.5 | 3.9 |
| | | | | Middle | 4 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 27.3 27.2 | 27.3 | 84.9 84.7 | 84.8 | 5.8 5.8 | 5.8 | | 3.1 2.9 | 3.0 | | 4.2 3.9 | 4.1 | |
| | | | | Bottom | 7 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 27.8 27.8 | 27.8 | 83.7 83.5 | 83.6 | 5.7 5.7 | 5.7 | | 7.5 7.8 | 7.7 | | 4.4 3.5 | 4.0 | |
| 17-Oct-13 | Sunny | Calm | 17:33 | Surface | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 80.4 80.3 | 80.4 | 6.1 6.1 | 6.1 | 6.1 | 4.9 5.1 | 5.0 | 5.6 | 5.2 4.8 | 5.0 | 4.5 |
| | | | | Middle | 4 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 29.4 29.5 | 29.5 | 79.5 79.5 | 79.5 | 6.1 6.1 | 6.1 | | 4.7 4.7 | 4.7 | | 4.2 3.5 | 3.9 | |
| | | | | Bottom | 7 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 78.8 78.8 | 78.8 | 6.0 6.0 | 6.0 | | 7.2 6.9 | 7.1 | | 4.5 4.8 | 4.7 | |
| 19-Oct-13 | Fine | Calm | 18:44 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 93.0 92.9 | 93.0 | 7.1 7.1 | 7.1 | 7.0 | 11.2 12.0 | 11.6 | 16.4 | 10.8 11.4 | 11.1 | 8.2 |
| | | | | Middle | 4.5 | 26.3 26.2 | 26.3 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 89.5 89.6 | 89.6 | 6.8 6.8 | 6.8 | | 17.2 16.2 | 16.7 | | 5.8 9.0 | 7.4 | |
| | | | | Bottom | 8 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 87.7 87.8 | 87.8 | 6.7 6.7 | 6.7 | | 20.5 21.2 | 20.9 | | 4.8 7.2 | 6.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at IS4 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:27 | Surface | 1 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 86.4 86.4 | 86.4 | 5.9 5.9 | 5.9 | 5.9 | 11.6 11.7 | 11.7 | 12.1 | 13.7 15.7 | 14.7 | 12.6 |
| | | | | Middle | 4.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 86.3 86.3 | 86.3 | 5.9 5.9 | 5.9 | | 11.1 11.0 | | | 11.3 12.0 | 11.7 | |
| | | | | Bottom | 8 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 86.1 86.0 | 86.1 | 5.9 5.9 | 5.9 | | 13.6 13.6 | | | 11.0 11.5 | 11.3 | |
| 23-Oct-13 | Sunny | Calm | 10:00 | Surface | 1 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.1 29.3 | 29.2 | 84.7 78.4 | 81.6 | 5.9 5.4 | 5.7 | 5.6 | 9.6 8.5 | 9.1 | 10.2 | 8.6 10.4 | 9.5 | 9.2 |
| | | | | Middle | 4 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 78.9 78.1 | 78.5 | 5.5 5.4 | 5.5 | | 9.3 10.2 | | | 9.2 9.8 | 9.5 | |
| | | | | Bottom | 7 | 26.2 26.1 | 26.2 | 8.2 8.2 | 8.2 | 29.3 29.4 | 29.4 | 78.5 77.2 | 77.9 | 5.5 5.4 | 5.5 | | 10.6 12.8 | | | 8.4 8.6 | 8.5 | |
| 25-Oct-13 | Sunny | Moderate | 12:08 | Surface | 1 | 25.7 25.7 | 25.7 | 8.2 8.1 | 8.2 | 28.5 28.5 | 28.5 | 96.0 96.3 | 96.2 | 6.6 6.6 | 6.6 | 6.5 | 5.4 5.6 | 5.5 | 6.1 | 7.0 6.5 | 6.8 | 6.7 |
| | | | | Middle | 4.5 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 28.6 28.7 | 28.7 | 92.3 93.0 | 92.7 | 6.3 6.4 | 6.4 | | 6.3 6.2 | | | 6.2 6.8 | 6.5 | |
| | | | | Bottom | 8 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.1 28.9 | 29.0 | 90.8 90.3 | 90.6 | 6.2 6.2 | 6.2 | | 6.7 6.5 | | | 7.3 6.0 | 6.7 | |
| 28-Oct-13 | Cloudy | Moderate | 14:59 | Surface | 1 | 24.9 24.9 | 24.9 | 8.3 8.3 | 8.3 | 31.5 31.5 | 31.5 | 87.0 86.9 | 87.0 | 6.0 6.0 | 6.0 | 6.0 | 7.9 7.9 | 7.9 | 8.3 | 5.2 5.4 | 5.3 | 5.5 |
| | | | | Middle | 4 | 24.9 24.9 | 24.9 | 8.3 8.3 | 8.3 | 31.5 31.5 | 31.5 | 86.5 86.0 | 86.3 | 6.0 6.0 | 6.0 | | 8.4 8.0 | | | 5.4 5.0 | 5.2 | |
| | | | | Bottom | 7 | 24.9 24.9 | 24.9 | 8.3 8.3 | 8.3 | 31.5 31.5 | 31.5 | 84.7 84.7 | 84.7 | 5.9 5.9 | 5.9 | | 8.8 8.6 | | | 5.9 6.0 | 6.0 | |
| 30-Oct-13 | Sunny | Calm | 15:51 | Surface | 1 | 24.7 24.8 | 24.8 | 8.3 8.3 | 8.3 | 29.5 29.4 | 29.5 | 101.1 99.8 | 100.5 | 7.1 7.0 | 7.1 | 7.2 | 4.7 4.0 | 4.4 | 7.1 | 8.2 7.2 | 7.7 | 10.2 |
| | | | | Middle | 3.5 | 24.6 24.6 | 24.6 | 8.3 8.3 | 8.3 | 29.8 29.8 | 29.8 | 103.9 102.9 | 103.4 | 7.3 7.2 | 7.3 | | 5.8 5.5 | | | 11.6 9.2 | 10.4 | |
| | | | | Bottom | 6 | 24.5 24.5 | 24.5 | 8.3 8.3 | 8.3 | 30.1 30.2 | 30.2 | 102.2 102.5 | 102.4 | 7.2 7.2 | 7.2 | | 11.7 10.6 | | | 11.2 13.6 | 12.4 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:54 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.5 | - | - | 5.0 | - | - | 3.8 |
| | | | | Middle | 1.2 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 28.2 28.3 | 28.3 | 71.9 72.1 | 72.0 | 5.5 5.5 | 5.5 | | 4.8 5.1 | 5.0 | | 4.0 3.6 | 3.8 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 13:11 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.2 | - | - | 6.2 | - | - | 13.7 |
| | | | | Middle | 1.2 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 27.5 27.5 | 27.5 | 93.4 91.3 | 92.4 | 6.3 6.1 | 6.2 | | 6.2 6.2 | 6.2 | | 13.3 14.0 | 13.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 14:12 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.0 | - | - | 12.7 | - | - | 14.4 |
| | | | | Middle | 1.3 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.1 27.5 | 27.3 | 90.2 86.0 | 88.1 | 6.1 5.8 | 6.0 | | 12.6 12.7 | 12.7 | | 12.7 16.0 | 14.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 15:07 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.2 | - | - | 4.1 | - | - | 4.3 |
| | | | | Middle | 0.9 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 28.8 28.1 | 28.5 | 99.3 97.3 | 98.3 | 7.2 7.1 | 7.2 | | 4.0 4.1 | 4.1 | | 4.2 4.3 | 4.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 11-Oct-13 | Fine | Moderate | 16:54 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.2 | - | - | 3.3 | - | - | 4.1 |
| | | | | Middle | 1.1 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 26.2 26.2 | 26.2 | 106.5 106.7 | 106.6 | 7.2 7.2 | 7.2 | | 3.2 3.3 | 3.3 | | 4.4 3.8 | 4.1 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 10:41 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 8.9 | - | - | 2.9 |
| | | | | Middle | 1.2 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 29.5 29.5 | 29.5 | 95.3 94.6 | 95.0 | 6.4 6.4 | 6.4 | | 8.3 9.4 | 8.9 | | 3.0 2.7 | 2.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 11:40 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.5 | - | - | 4.7 | - | - | 7.0 |
| | | | | Middle | 1.1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 116.2 107.1 | 111.7 | 7.8 7.2 | 7.5 | | 4.7 4.7 | 4.7 | | 7.4 6.6 | 7.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 19-Oct-13 | Sunny | Calm | 13:19 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.7 | - | - | 5.4 | - | - | 5.0 |
| | | | | Middle | 1 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 73.4 74.2 | 73.8 | 5.7 5.7 | 5.7 | | 5.3 5.4 | 5.4 | | 5.4 4.6 | 5.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|----------------|--------------|---------|-------------------------|--------------|---------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average |
| 21-Oct-13 | Sunny | Rough | 15:12 | Surface | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 6.4 | - | - | 6.7 |
| | | | | Middle | 1.3 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.8 29.8 | 29.8 | 85.2 85.6 | 85.4 | 5.8 5.9 | | 5.9 | 6.7 6.1 | | 6.4 | 6.8 6.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 23-Oct-13 | Sunny | Calm | 14:39 | Surface | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 18.3 | - | - | 16.2 |
| | | | | Middle | 1.4 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.9 30.9 | 30.9 | 86.2 86.0 | 86.1 | 5.9 5.9 | | 5.9 | 18.6 17.9 | | 18.3 | 18.7 13.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 25-Oct-13 | Sunny | Moderate | 15:57 | Surface | - | - | - | - | - | - | - | - | - | - | 7.0 | - | - | 8.3 | - | - | 6.3 |
| | | | | Middle | 1 | 25.6 25.5 | 25.6 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 101.2 100.4 | 100.8 | 7.0 6.9 | | 7.0 | 8.2 8.4 | | 8.3 | 5.9 6.6 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 28-Oct-13 | Cloudy | Moderate | 08:22 | Surface | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 6.1 | - | - | 5.8 |
| | | | | Middle | 1.4 | 24.9 24.9 | 24.9 | 8.3 8.3 | 8.3 | 32.3 32.3 | 32.3 | 90.1 90.7 | 90.4 | 6.2 6.3 | | 6.3 | 6.2 5.9 | | 6.1 | 6.6 5.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 30-Oct-13 | Sunny | Calm | 10:32 | Surface | - | - | - | - | - | - | - | - | - | - | 7.1 | - | - | 5.6 | - | - | 2.7 |
| | | | | Middle | 1.4 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 100.1 101.8 | 101.0 | 7.0 7.1 | | 7.1 | 5.4 5.8 | | 5.6 | 3.0 2.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:15 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.8 | - | - | 5.7 | - | - | 5.3 |
| | | | | Middle | 0.7 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 26.2 26.2 | 26.2 | 76.8 76.8 | 76.8 | 5.8 5.8 | 5.8 | | 5.5 5.9 | 5.7 | | 4.6 6.0 | 5.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 17:05 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 9.4 | - | - | 4.7 |
| | | | | Middle | 1.3 | 28.1 28.1 | 28.1 | 7.2 7.3 | 7.3 | 27.5 24.5 | 26.0 | 93.8 91.1 | 92.5 | 6.3 6.2 | 6.3 | | 9.3 9.4 | 9.4 | | 4.6 4.8 | 4.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 09:52 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 16.1 | - | - | 23.0 |
| | | | | Middle | 1.4 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.5 27.5 | 27.5 | 92.7 92.5 | 92.6 | 6.3 6.2 | 6.3 | | 16.8 15.4 | 16.1 | | 23.0 23.0 | 23.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 10:20 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 22.5 | - | - | 9.7 |
| | | | | Middle | 0.6 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 87.4 87.1 | 87.3 | 6.4 6.4 | 6.4 | | 23.1 21.8 | 22.5 | | 9.6 9.8 | 9.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 11-Oct-13 | Sunny | Moderate | 12:17 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.5 | - | - | 5.5 | - | - | 4.7 |
| | | | | Middle | 0.7 | 27.9 27.9 | 27.9 | 8.1 8.1 | 8.1 | 26.7 26.7 | 26.7 | 96.5 96.5 | 96.5 | 6.5 6.5 | 6.5 | | 5.7 5.3 | 5.5 | | 6.2 3.2 | 4.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 15:02 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.2 | - | - | 2.3 | - | - | 2.4 |
| | | | | Middle | 1.2 | 28.0 28.0 | 28.0 | 7.9 8.0 | 8.0 | 26.1 26.2 | 26.2 | 105.9 106.2 | 106.1 | 7.2 7.2 | 7.2 | | 2.4 2.1 | 2.3 | | 2.8 1.9 | 2.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 17:12 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.5 | - | - | 5.5 | - | - | 4.4 |
| | | | | Middle | 1.4 | 27.1 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 110.7 110.9 | 110.8 | 7.5 7.5 | 7.5 | | 5.4 5.5 | 5.5 | | 4.7 4.0 | 4.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 19-Oct-13 | Fine | Calm | 18:27 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.4 | - | - | 12.4 | - | - | 8.5 |
| | | | | Middle | 1.1 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 67.7 66.2 | 67.0 | 5.4 5.3 | 5.4 | | 12.9 11.9 | 12.4 | | 8.0 9.0 | 8.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 18:15 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.9 | - | - | 4.2 | - | - | 3.0 |
| | | | | Middle | 1.4 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 28.9 28.9 | 28.9 | 100.2 100.4 | 100.3 | 6.9 6.9 | 6.9 | | 4.3 4.1 | 4.2 | | 3.3 2.7 | 3.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 23-Oct-13 | Sunny | Calm | 10:48 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 14.3 | - | - | 16.5 |
| | | | | Middle | 0.7 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 30.0 30.0 | 30.0 | 85.9 85.9 | 85.9 | 5.9 5.9 | 5.9 | | 14.6 13.9 | 14.3 | | 16.7 16.3 | 16.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 25-Oct-13 | Sunny | Moderate | 12:15 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.1 | - | - | 8.1 | - | - | 6.3 |
| | | | | Middle | 0.9 | 25.5 25.5 | 25.5 | 8.1 8.2 | 8.2 | 30.1 30.1 | 30.1 | 88.3 88.5 | 88.4 | 6.1 6.1 | 6.1 | | 8.2 7.9 | 8.1 | | 5.8 6.7 | 6.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 28-Oct-13 | Cloudy | Moderate | 14:58 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.9 | - | - | 14.7 | - | - | 4.8 |
| | | | | Middle | 1.1 | 25.1 25.1 | 25.1 | 8.1 8.1 | 8.1 | 31.8 31.9 | 31.9 | 100.5 100.6 | 100.6 | 6.9 6.9 | 6.9 | | 14.8 14.6 | 14.7 | | 4.4 5.2 | 4.8 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 30-Oct-13 | Sunny | Calm | 15:36 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.4 | - | - | 12.6 | - | - | 4.2 |
| | | | | Middle | 0.7 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 26.1 26.2 | 26.2 | 104.1 104.8 | 104.5 | 7.3 7.4 | 7.4 | | 12.5 12.6 | 12.6 | | 5.8 2.6 | 4.2 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 10:29 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 4.6 | - | - | 5.0 |
| | | | | Middle | 0.8 | 28.2 28.2 | 28.2 | 8.2 8.2 | 8.2 | 27.7 27.7 | 27.7 | 77.7 77.4 | 77.6 | 5.9 5.8 | 5.9 | | 4.6 4.6 | 4.6 | | 5.0 5.0 | 5.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 11:59 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.0 | - | - | 13.8 | - | - | 8.3 |
| | | | | Middle | 0.8 | 27.9 27.9 | 27.9 | 8.2 8.2 | 8.2 | 28.2 28.3 | 28.3 | 102.2 102.3 | 102.3 | 7.0 6.9 | 7.0 | | 14.2 13.4 | 13.8 | | 9.0 7.6 | 8.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 15:27 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.6 | - | - | 19.0 | - | - | 10.4 |
| | | | | Middle | 1 | 28.0 28.1 | 28.1 | 8.2 8.2 | 8.2 | 28.0 28.0 | 28.0 | 86.3 82.1 | 84.2 | 5.7 5.5 | 5.6 | | 18.9 19.1 | 19.0 | | 10.0 10.7 | 10.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 16:40 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.6 | - | - | 11.5 | - | - | 10.2 |
| | | | | Middle | 0.7 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 89.2 88.6 | 88.9 | 6.6 6.5 | 6.6 | | 11.1 11.9 | 11.5 | | 10.8 9.6 | 10.2 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 11-Oct-13 | Fine | Moderate | 17:49 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.0 | - | - | 10.2 | - | - | 9.1 |
| | | | | Middle | 0.7 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 27.0 27.0 | 27.0 | 103.4 103.2 | 103.3 | 7.0 6.9 | 7.0 | | 10.5 9.9 | 10.2 | | 8.8 9.3 | 9.1 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 09:35 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.6 | - | - | 6.4 | - | - | 4.7 |
| | | | | Middle | 0.9 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 97.5 96.7 | 97.1 | 6.6 6.5 | 6.6 | | 6.7 6.0 | 6.4 | | 4.7 4.7 | 4.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 10:57 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.2 | - | - | 5.2 | - | - | 4.6 |
| | | | | Middle | 1.1 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 91.4 91.7 | 91.6 | 6.2 6.2 | 6.2 | | 5.2 5.2 | 5.2 | | 5.0 4.2 | 4.6 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 19-Oct-13 | Sunny | Calm | 12:34 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.0 | - | - | 13.3 | - | - | 7.9 |
| | | | | Middle | 1.1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 91.2 92.1 | 91.7 | 6.9 7.0 | 7.0 | | 13.7 12.8 | 13.3 | | 8.4 7.4 | 7.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 13:56 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.2 | - | - | 11.1 | - | - | 11.1 |
| | | | | Middle | 1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.1 29.1 | 29.1 | 90.7 90.5 | 90.6 | 6.2 6.2 | 6.2 | | 11.1 11.1 | 11.1 | | 11.6 10.6 | 11.1 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 23-Oct-13 | Sunny | Calm | 15:08 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.1 | - | - | 13.7 | - | - | 16.4 |
| | | | | Middle | 0.9 | 26.6 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.3 29.2 | 29.3 | 88.0 88.3 | 88.2 | 6.1 6.1 | 6.1 | | 13.8 13.5 | 13.7 | | 17.0 15.7 | 16.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 25-Oct-13 | Sunny | Moderate | 16:56 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.1 | - | - | 12.2 | - | - | 13.9 |
| | | | | Middle | 0.5 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 102.8 102.5 | 102.7 | 7.1 7.1 | 7.1 | | 12.4 11.9 | 12.2 | | 13.6 14.2 | 13.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 28-Oct-13 | Cloudy | Moderate | 07:14 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 9.5 | - | - | 2.9 |
| | | | | Middle | 1.1 | 24.3 24.3 | 24.3 | 8.3 8.3 | 8.3 | 29.2 32.0 | 30.6 | 91.7 90.7 | 91.2 | 6.5 6.3 | 6.4 | | 9.3 9.7 | 9.5 | | 4.2 1.5 | 2.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 30-Oct-13 | Sunny | Calm | 09:23 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.2 | - | - | 15.3 | - | - | 8.4 |
| | | | | Middle | 0.9 | 24.8 24.8 | 24.8 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 102.9 103.2 | 103.1 | 7.2 7.2 | 7.2 | | 15.1 15.4 | 15.3 | | 9.0 7.7 | 8.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|----------------|--------------|---------|-------------------------|--------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:32 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 22.1 | - | - | 21.3 |
| | | | | Middle | 0.6 | 28.9 28.9 | 28.9 | 8.3 8.3 | 8.3 | 27.2 27.9 | 27.6 | 86.2 86.2 | 86.2 | 6.4 6.4 | 6.4 | | 22.1 22.0 | 22.1 | | 23.3 19.3 | 21.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 18:04 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 19.2 | - | - | 4.7 |
| | | | | Middle | 0.9 | 28.2 28.2 | 28.2 | 8.1 8.2 | 8.2 | 24.8 27.8 | 26.3 | 82.4 91.8 | 87.1 | 5.6 6.1 | 5.9 | | 18.6 19.8 | 19.2 | | 4.6 4.8 | 4.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 08:49 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.6 | - | - | 17.1 | - | - | 21.2 |
| | | | | Middle | 0.7 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 27.5 27.5 | 27.5 | 97.3 96.3 | 96.8 | 6.6 6.5 | 6.6 | | 16.3 17.8 | 17.1 | | 21.0 21.3 | 21.2 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 09:19 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.7 | - | - | 21.4 | - | - | 13.5 |
| | | | | Middle | 0.7 | 26.9 26.9 | 26.9 | 8.1 8.1 | 8.1 | 28.3 27.6 | 28.0 | 89.5 91.5 | 90.5 | 6.6 6.7 | 6.7 | | 20.3 22.5 | 21.4 | | 13.7 13.3 | 13.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 11-Oct-13 | Sunny | Moderate | 11:46 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.6 | - | - | 16.3 | - | - | 5.8 |
| | | | | Middle | 0.5 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 28.3 28.3 | 28.3 | 98.1 98.2 | 98.2 | 6.6 6.6 | 6.6 | | 16.0 16.6 | 16.3 | | 5.1 6.4 | 5.8 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 16:10 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.8 | - | - | 13.8 | - | - | 2.9 |
| | | | | Middle | 0.9 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 86.2 86.1 | 86.2 | 5.8 5.8 | 5.8 | | 14.0 13.5 | 13.8 | | 3.2 2.5 | 2.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 17:56 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.4 | - | - | 14.1 | - | - | 10.2 |
| | | | | Middle | 0.8 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 109.9 109.7 | 109.8 | 7.4 7.4 | 7.4 | | 14.9 13.2 | 14.1 | | 10.4 10.0 | 10.2 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 19-Oct-13 | Fine | Calm | 19:11 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.6 | - | - | 11.3 | - | - | 11.7 |
| | | | | Middle | 0.7 | 26.9 27.0 | 27.0 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 70.3 72.7 | 71.5 | 5.5 5.6 | 5.6 | | 11.4 11.2 | 11.3 | | 17.3 6.0 | 11.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|----------------|--------------|---------|-------------------------|--------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:25 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.8 | - | - | 17.2 | - | - | 12.5 |
| | | | | Middle | 1 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.5 29.5 | 29.5 | 84.2 83.6 | 83.9 | 5.8 5.8 | 5.8 | | 17.8 16.5 | 17.2 | | 12.6 12.4 | 12.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 23-Oct-13 | Sunny | Calm | 09:19 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.2 | - | - | 16.0 | - | - | 14.4 |
| | | | | Middle | 0.7 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 89.1 89.1 | 89.1 | 6.2 6.2 | 6.2 | | 16.0 16.0 | 16.0 | | 13.7 15.0 | 14.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 25-Oct-13 | Sunny | Moderate | 11:26 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 15.4 | - | - | 16.5 |
| | | | | Middle | 0.7 | 25.4 25.4 | 25.4 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 92.6 92.7 | 92.7 | 6.4 6.4 | 6.4 | | 15.5 15.2 | 15.4 | | 17.2 15.8 | 16.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 28-Oct-13 | Cloudy | Moderate | 16:13 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.5 | - | - | 12.1 | - | - | 12.0 |
| | | | | Middle | 0.8 | 25.4 25.4 | 25.4 | 8.2 8.2 | 8.2 | 31.8 31.8 | 31.8 | 109.5 109.7 | 109.6 | 7.5 7.5 | 7.5 | | 11.4 12.7 | 12.1 | | 12.3 11.7 | 12.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 30-Oct-13 | Sunny | Calm | 16:06 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.2 | - | - | 13.2 | - | - | 7.5 |
| | | | | Middle | 0.7 | 25.5 25.6 | 25.6 | 8.3 8.3 | 8.3 | 30.1 30.0 | 30.1 | 103.1 104.8 | 104.0 | 7.1 7.2 | 7.2 | | 13.0 13.3 | 13.2 | | 7.3 7.7 | 7.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 10:15 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.8 | - | - | 9.1 | - | - | 4.2 |
| | | | | Middle | 1.3 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 27.3 27.3 | 27.3 | 91.3 91.6 | 91.5 | 6.8 6.8 | 6.8 | | 9.2 8.9 | 9.1 | | 4.7 3.7 | 4.2 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 11:43 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.4 | - | - | 9.4 | - | - | 9.9 |
| | | | | Middle | 1.2 | 28.2 28.2 | 28.2 | 8.2 8.3 | 8.3 | 27.3 27.3 | 27.3 | 110.6 109.8 | 110.2 | 7.4 7.4 | 7.4 | | 8.9 9.8 | 9.4 | | 10.7 9.0 | 9.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 15:44 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.5 | - | - | 12.0 | - | - | 14.7 |
| | | | | Middle | 1 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 27.4 26.5 | 27.0 | 82.4 80.9 | 81.7 | 5.5 5.5 | 5.5 | | 12.1 11.9 | 12.0 | | 15.3 14.0 | 14.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 17:03 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.5 | - | - | 12.3 | - | - | 9.7 |
| | | | | Middle | 0.7 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 28.2 28.2 | 28.2 | 88.8 88.3 | 88.6 | 6.5 6.5 | 6.5 | | 12.3 12.3 | 12.3 | | 9.8 9.6 | 9.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 11-Oct-13 | Fine | Moderate | 18:03 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.4 | - | - | 6.6 | - | - | 5.1 |
| | | | | Middle | 1.2 | 28.3 28.3 | 28.3 | 8.1 8.1 | 8.1 | 28.0 28.0 | 28.0 | 96.5 96.5 | 96.5 | 6.4 6.4 | 6.4 | | 6.6 6.6 | 6.6 | | 5.7 4.5 | 5.1 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 09:17 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.6 | - | - | 4.8 | - | - | 4.0 |
| | | | | Middle | 0.9 | 27.6 27.6 | 27.6 | 8.1 8.1 | 8.1 | 27.3 27.4 | 27.4 | 112.1 112.3 | 112.2 | 7.6 7.6 | 7.6 | | 4.8 4.7 | 4.8 | | 4.6 3.4 | 4.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 10:28 | Surface | - | - | - | - | - | - | - | - | - | - | - | 8.0 | - | - | 5.0 | - | - | 6.4 |
| | | | | Middle | 1.1 | 27.0 27.0 | 27.0 | 8.0 8.0 | 8.0 | 27.4 27.5 | 27.5 | 118.0 115.8 | 116.9 | 8.1 7.9 | 8.0 | | 5.0 4.9 | 5.0 | | 6.8 6.0 | 6.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 19-Oct-13 | Sunny | Calm | 12:05 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.7 | - | - | 6.9 | - | - | 7.7 |
| | | | | Middle | 1.1 | 27.0 26.9 | 27.0 | 8.1 8.1 | 8.1 | 28.0 28.1 | 28.1 | 88.0 85.4 | 86.7 | 6.8 6.6 | 6.7 | | 6.6 7.1 | 6.9 | | 7.8 7.6 | 7.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|----------------|--------------|---------|-------------------------|--------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 13:36 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 6.9 | - | - | 8.6 |
| | | | | Middle | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 91.1 92.4 | 91.8 | 6.2 6.3 | 6.3 | | 6.8 6.9 | 6.9 | | 9.8 7.4 | 8.6 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | |
| 23-Oct-13 | Sunny | Calm | 15:30 | Surface | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 13.6 | - | - | 19.7 | |
| | | | | Middle | 0.7 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 91.8 91.6 | 91.7 | 6.3 6.3 | | 6.3 | 13.7 13.5 | | 13.6 | 17.7 21.7 | | 19.7 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - |
| 25-Oct-13 | Sunny | Moderate | 17:15 | Surface | - | - | - | - | - | - | - | - | - | - | 6.3 | - | - | 9.1 | - | - | 7.9 | |
| | | | | Middle | 0.7 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 29.1 29.1 | 29.1 | 90.7 91.5 | 91.1 | 6.3 6.3 | | 6.3 | 8.9 9.3 | | 9.1 | 6.7 9.0 | | 7.9 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - |
| 28-Oct-13 | Cloudy | Moderate | 07:00 | Surface | - | - | - | - | - | - | - | - | - | - | 7.1 | - | - | 9.6 | - | - | 5.8 | |
| | | | | Middle | 0.9 | 24.1 24.1 | 24.1 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 100.7 99.7 | 100.2 | 7.1 7.0 | | 7.1 | 10.6 8.6 | | 9.6 | 5.5 6.0 | | 5.8 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - |
| 30-Oct-13 | Sunny | Calm | 09:04 | Surface | - | - | - | - | - | - | - | - | - | - | 7.4 | - | - | 13.7 | - | - | 5.2 | |
| | | | | Middle | 0.6 | 24.8 24.8 | 24.8 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 105.5 104.5 | 105.0 | 7.4 7.3 | | 7.4 | 13.8 13.6 | | 13.7 | 5.3 5.0 | | 5.2 |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:50 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.5 | - | - | 9.2 | - | - | 13.5 |
| | | | | Middle | 0.6 | 28.5 28.5 | 28.5 | 8.2 8.2 | 8.2 | 27.6 27.6 | 27.6 | 102.5 101.1 | 101.8 | 7.5 7.4 | 7.5 | | 9.1 9.2 | 9.2 | | 9.7 17.3 | 13.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 4-Oct-13 | Cloudy | Moderate | 18:26 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.0 | - | - | 11.8 | - | - | 7.4 |
| | | | | Middle | 0.8 | 28.3 28.3 | 28.3 | 8.4 8.4 | 8.4 | 27.4 27.4 | 27.4 | 89.1 86.3 | 87.7 | 6.0 5.9 | 6.0 | | 11.7 11.8 | 11.8 | | 5.5 9.3 | 7.4 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 7-Oct-13 | Sunny | Moderate | 08:32 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.6 | - | - | 12.7 | - | - | 15.0 |
| | | | | Middle | 1.3 | 27.3 27.3 | 27.3 | 8.0 8.0 | 8.0 | 27.0 27.0 | 27.0 | 97.1 96.9 | 97.0 | 6.6 6.6 | 6.6 | | 12.7 12.7 | 12.7 | | 15.7 14.3 | 15.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 9-Oct-13 | Cloudy | Moderate | 09:01 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.0 | - | - | 17.1 | - | - | 16.3 |
| | | | | Middle | 0.7 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 27.6 26.9 | 27.3 | 95.8 94.9 | 95.4 | 7.0 6.9 | 7.0 | | 17.4 16.7 | 17.1 | | 15.3 17.3 | 16.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 11-Oct-13 | Sunny | Moderate | 11:30 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.6 | - | - | 10.3 | - | - | 5.9 |
| | | | | Middle | 0.8 | 28.0 28.0 | 28.0 | 8.0 8.0 | 8.0 | 27.7 27.8 | 27.8 | 113.4 113.4 | 113.4 | 7.6 7.6 | 7.6 | | 10.2 10.3 | 10.3 | | 6.6 5.1 | 5.9 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 15-Oct-13 | Cloudy | Moderate | 16:27 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.3 | - | - | 5.8 | - | - | 6.1 |
| | | | | Middle | 0.7 | 28.1 28.1 | 28.1 | 8.3 8.3 | 8.3 | 27.8 27.8 | 27.8 | 77.4 79.0 | 78.2 | 5.2 5.3 | 5.3 | | 5.9 5.6 | 5.8 | | 6.2 6.0 | 6.1 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 17-Oct-13 | Sunny | Calm | 18:25 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.9 | - | - | 6.2 | - | - | 6.3 |
| | | | | Middle | 1.4 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 86.2 86.1 | 86.2 | 5.9 5.8 | 5.9 | | 6.6 5.7 | 6.2 | | 6.5 6.0 | 6.3 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 19-Oct-13 | Fine | Calm | 19:40 | Surface | - | - | - | - | - | - | - | - | - | - | - | 5.3 | - | - | 11.1 | - | - | 9.7 |
| | | | | Middle | 0.8 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 66.8 68.5 | 67.7 | 5.2 5.3 | 5.3 | | 11.2 11.0 | 11.1 | | 9.6 9.8 | 9.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | DA* | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:40 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.0 | - | - | 10.5 | - | - | 5.5 |
| | | | | Middle | 0.8 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 28.8 28.8 | 28.8 | 86.5 85.2 | 85.9 | 6.0 5.9 | 6.0 | | 10.2 10.7 | 10.5 | | 5.6 5.4 | 5.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 23-Oct-13 | Sunny | Calm | 09:03 | Surface | - | - | - | - | - | - | - | - | - | - | - | 6.0 | - | - | 15.8 | - | - | 18.5 |
| | | | | Middle | 0.8 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.3 28.3 | 28.3 | 86.1 86.1 | 86.1 | 6.0 6.0 | 6.0 | | 14.9 16.6 | 15.8 | | 19.0 18.0 | 18.5 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 25-Oct-13 | Sunny | Moderate | 11:09 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.5 | - | - | 12.7 | - | - | 8.7 |
| | | | | Middle | 0.8 | 25.5 25.5 | 25.5 | 8.0 8.0 | 8.0 | 28.8 28.7 | 28.8 | 108.5 108.4 | 108.5 | 7.5 7.5 | 7.5 | | 13.5 11.9 | 12.7 | | 8.2 9.2 | 8.7 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 28-Oct-13 | Cloudy | Moderate | 16:30 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.6 | - | - | 8.3 | - | - | 4.0 |
| | | | | Middle | 1.4 | 25.0 25.0 | 25.0 | 8.2 8.2 | 8.2 | 30.9 30.9 | 30.9 | 109.4 109.6 | 109.5 | 7.6 7.6 | 7.6 | | 8.7 7.9 | 8.3 | | 4.0 3.9 | 4.0 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| 30-Oct-13 | Sunny | Calm | 16:30 | Surface | - | - | - | - | - | - | - | - | - | - | - | 7.3 | - | - | 7.0 | - | - | 9.6 |
| | | | | Middle | 0.7 | 25.3 25.3 | 25.3 | 8.3 8.3 | 8.3 | 30.4 30.4 | 30.4 | 104.9 105.5 | 105.2 | 7.3 7.3 | 7.3 | | 7.1 6.8 | 7.0 | | 8.4 10.7 | 9.6 | |
| | | | | Bottom | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:06 | Surface | 1 | 29.1 29.2 | 29.2 | 8.1 8.1 | 8.1 | 26.4 26.3 | 26.4 | 81.4 80.7 | 81.1 | 6.0 6.0 | 6.0 | 6.0 | 4.8 4.6 | 4.7 | 7.7 | 3.2 1.7 | 2.5 | 8.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.6 | 28.4 28.4 | 28.4 | 8.0 8.0 | 8.0 | 29.3 29.3 | 29.3 | 77.3 77.7 | 77.5 | 5.7 5.7 | 5.7 | 5.7 | 10.7 10.7 | 10.7 | | 16.0 12.3 | 14.2 | |
| 4-Oct-13 | Cloudy | Moderate | 11:37 | Surface | 1 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 28.2 28.2 | 28.2 | 99.3 99.9 | 99.6 | 6.9 6.9 | 6.9 | 6.9 | 5.3 5.5 | 5.4 | 7.5 | 5.6 5.2 | 5.4 | 5.4 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.3 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 28.6 28.6 | 28.6 | 99.4 99.3 | 99.4 | 6.9 6.9 | 6.9 | 6.9 | 9.5 9.7 | 9.6 | | 4.5 6.3 | 5.4 | |
| 7-Oct-13 | Sunny | Moderate | 13:58 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 78.5 79.3 | 78.9 | 5.3 5.3 | 5.3 | 5.3 | 15.1 15.1 | 15.1 | 16.2 | 19.3 19.7 | 19.5 | 20.5 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 3.2 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 78.4 78.8 | 78.6 | 5.3 5.3 | 5.3 | 5.3 | 17.2 17.3 | 17.3 | | 22.7 20.3 | 21.5 | |
| 9-Oct-13 | Cloudy | Moderate | 14:38 | Surface | 1 | 26.4 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.5 28.5 | 28.5 | 83.6 83.8 | 83.7 | 5.8 5.8 | 5.8 | 5.8 | 14.2 14.1 | 14.2 | 15.4 | 12.8 11.0 | 11.9 | 15.2 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.4 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.8 28.9 | 28.9 | 96.8 96.4 | 96.6 | 6.8 6.8 | 6.8 | 6.8 | 18.0 15.2 | 16.6 | | 17.0 19.7 | 18.4 | |
| 11-Oct-13 | Fine | Moderate | 16:22 | Surface | 1 | 27.6 27.6 | 27.6 | 7.9 7.9 | 7.9 | 24.2 24.5 | 24.4 | 95.6 93.6 | 94.6 | 6.5 6.4 | 6.5 | 6.5 | 2.9 2.9 | 2.9 | 8.0 | 4.1 3.0 | 3.6 | 6.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4 | 26.8 26.8 | 26.8 | 8.0 8.0 | 8.0 | 27.0 27.0 | 27.0 | 93.3 91.3 | 92.3 | 6.4 6.2 | 6.3 | 6.3 | 12.9 13.0 | 13.0 | | 11.8 4.8 | 8.3 | |
| 15-Oct-13 | Cloudy | Moderate | 09:39 | Surface | 1 | 27.6 27.6 | 27.6 | 8.3 8.3 | 8.3 | 25.8 25.8 | 25.8 | 102.6 102.7 | 102.7 | 7.1 7.1 | 7.1 | 7.1 | 3.7 3.5 | 3.6 | 6.5 | 3.5 3.5 | 3.5 | 4.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.5 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 28.3 28.3 | 28.3 | 98.6 98.4 | 98.5 | 6.8 6.7 | 6.8 | 6.8 | 9.1 9.4 | 9.3 | | 4.5 4.5 | 4.5 | |
| 17-Oct-13 | Sunny | Calm | 10:55 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 89.1 89.2 | 89.2 | 6.8 6.8 | 6.8 | 6.8 | 6.4 5.8 | 6.1 | 6.6 | 6.3 5.5 | 5.9 | 6.7 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.9 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.8 30.8 | 30.8 | 87.4 87.7 | 87.6 | 6.7 6.7 | 6.7 | 6.7 | 7.1 6.8 | 7.0 | | 8.7 6.3 | 7.5 | |
| 19-Oct-13 | Sunny | Calm | 12:22 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 27.3 28.5 | 27.9 | 88.7 88.6 | 88.7 | 6.8 6.7 | 6.8 | 6.8 | 10.4 10.1 | 10.3 | 12.5 | 8.4 9.0 | 8.7 | 8.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | | |
| | | | | Bottom | 4.2 | 25.9 25.9 | 25.9 | 8.1 8.1 | 8.1 | 28.4 29.7 | 29.1 | 87.9 87.7 | 87.8 | 6.7 6.7 | 6.7 | 6.7 | 14.8 14.6 | 14.7 | | 7.4 7.0 | 7.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:02 | Surface | 1 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 28.2 28.2 | 28.2 | 87.1 87.1 | 87.1 | 5.9 5.9 | 5.9 | 5.9 | 12.0 12.3 | 12.2 | 14.9 | 5.0 4.8 | 4.9 | 5.2 |
| | | | | Middle | - | - - | - | - - | - | - - | - | - - | - | - - | - | | - - | - | | - - | - | |
| | | | | Bottom | 4.3 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 86.0 86.1 | 86.1 | 5.9 5.9 | 5.9 | | 17.4 17.7 | 17.6 | | 6.0 5.0 | 5.5 | |
| 23-Oct-13 | Sunny | Calm | 14:10 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.2 | 8.2 | 28.9 28.9 | 28.9 | 96.5 93.5 | 95.0 | 6.7 6.5 | 6.6 | 6.6 | 13.5 15.0 | 14.3 | 17.8 | 13.0 11.3 | 12.2 | 13.5 |
| | | | | Middle | - | - - | - | - - | - | - - | - | - - | - | - - | - | | - - | - | | - - | - | |
| | | | | Bottom | 4.3 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 28.9 28.8 | 28.9 | 93.1 93.4 | 93.3 | 6.5 6.5 | 6.5 | | 23.0 19.3 | 21.2 | | 11.0 18.3 | 14.7 | |
| 25-Oct-13 | Sunny | Moderate | 15:16 | Surface | 1 | 25.8 25.9 | 25.9 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 95.8 94.5 | 95.2 | 6.7 6.6 | 6.7 | 6.7 | 5.0 5.9 | 5.5 | 12.6 | 4.0 5.8 | 4.9 | 10.3 |
| | | | | Middle | - | - - | - | - - | - | - - | - | - - | - | - - | - | | - - | - | | - - | - | |
| | | | | Bottom | 4.4 | 25.7 25.7 | 25.7 | 8.1 8.1 | 8.1 | 28.9 28.9 | 28.9 | 88.8 87.9 | 88.4 | 6.2 6.2 | 6.2 | | 19.3 20.0 | 19.7 | | 15.7 15.7 | 15.7 | |
| 28-Oct-13 | Cloudy | Moderate | 06:37 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.1 31.1 | 31.1 | 96.9 96.7 | 96.8 | 6.7 6.7 | 6.7 | 6.7 | 4.4 4.5 | 4.5 | 4.8 | 2.3 3.5 | 2.9 | 3.3 |
| | | | | Middle | - | - - | - | - - | - | - - | - | - - | - | - - | - | | - - | - | | - - | - | |
| | | | | Bottom | 4.1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.1 31.1 | 31.1 | 96.6 96.6 | 96.6 | 6.7 6.7 | 6.7 | | 4.9 5.0 | 5.0 | | 4.0 3.3 | 3.7 | |
| 30-Oct-13 | Sunny | Calm | 09:53 | Surface | 1 | 24.0 24.0 | 24.0 | 8.0 8.0 | 8.0 | 27.5 27.6 | 27.6 | 100.0 99.4 | 99.7 | 7.2 7.2 | 7.2 | 7.2 | 2.7 2.8 | 2.8 | 4.7 | 10.6 6.4 | 8.5 | 11.8 |
| | | | | Middle | - | - - | - | - - | - | - - | - | - - | - | - - | - | | - - | - | | - - | - | |
| | | | | Bottom | 4.1 | 24.0 24.0 | 24.0 | 8.0 8.0 | 8.0 | 30.2 30.2 | 30.2 | 92.0 91.6 | 91.8 | 6.5 6.5 | 6.5 | | 6.6 6.6 | 6.6 | | 13.6 16.4 | 15.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:14 | Surface | 1 | 28.9 28.8 | 28.9 | 8.2 8.2 | 8.2 | 25.0 25.0 | 25.0 | 77.2 77.0 | 77.1 | 5.7 5.7 | 5.7 | 5.7 | 7.8 8.1 | 8.0 | 8.5 | 12.0 11.8 | 11.9 | 18.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.5 | 28.7 28.7 | 28.7 | 8.2 8.2 | 8.2 | 26.7 26.8 | 26.8 | 75.3 75.5 | 75.4 | 5.6 5.6 | 5.6 | | 8.8 9.0 | 8.9 | | 25.0 23.0 | 24.0 | |
| 4-Oct-13 | Cloudy | Moderate | 17:13 | Surface | 1 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 26.7 26.7 | 26.7 | 90.9 90.8 | 90.9 | 6.2 6.2 | 6.2 | 6.2 | 14.0 13.8 | 13.9 | 16.6 | 27.7 21.3 | 24.5 | 39.0 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 27.0 27.0 | 27.0 | 92.1 91.5 | 91.8 | 6.3 6.2 | 6.3 | | 19.4 19.2 | 19.3 | | 55.7 51.0 | 53.4 | |
| 7-Oct-13 | Sunny | Moderate | 08:11 | Surface | 1 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 26.9 26.9 | 26.9 | 85.5 83.6 | 84.6 | 5.7 5.6 | 5.7 | 5.7 | 8.2 9.9 | 9.1 | 10.9 | 8.2 9.3 | 8.8 | 9.6 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 2.8 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.1 27.0 | 27.1 | 80.9 80.6 | 80.8 | 5.4 5.4 | 5.4 | | 12.9 12.4 | 12.7 | | 10.0 10.7 | 10.4 | |
| 9-Oct-13 | Cloudy | Moderate | 09:45 | Surface | 1 | 26.6 26.6 | 26.6 | 7.9 7.9 | 7.9 | 26.0 26.1 | 26.1 | 97.4 97.1 | 97.3 | 7.0 7.0 | 7.0 | 7.0 | 11.7 11.1 | 11.4 | 15.7 | 10.8 11.8 | 11.3 | 11.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.9 | 26.6 26.6 | 26.6 | 7.9 7.9 | 7.9 | 26.3 26.2 | 26.3 | 94.9 94.5 | 94.7 | 6.9 6.9 | 6.9 | | 20.5 19.2 | 19.9 | | 12.8 11.6 | 12.2 | |
| 11-Oct-13 | Sunny | Moderate | 12:04 | Surface | 1 | 27.2 27.3 | 27.3 | 7.8 7.8 | 7.8 | 24.7 24.7 | 24.7 | 90.9 90.8 | 90.9 | 6.2 6.2 | 6.2 | 6.2 | 6.3 5.5 | 5.9 | 9.7 | 5.3 5.3 | 5.3 | 7.8 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 3.9 | 26.9 26.9 | 26.9 | 7.8 7.8 | 7.8 | 25.0 25.0 | 25.0 | 90.1 89.9 | 90.0 | 6.2 6.2 | 6.2 | | 13.6 13.2 | 13.4 | | 9.3 11.2 | 10.3 | |
| 15-Oct-13 | Cloudy | Moderate | 15:31 | Surface | 1 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 25.8 25.8 | 25.8 | 87.8 87.5 | 87.7 | 6.1 6.0 | 6.1 | 6.1 | 5.0 5.0 | 5.0 | 8.2 | 5.0 4.6 | 4.8 | 5.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.2 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 26.8 26.8 | 26.8 | 84.6 84.3 | 84.5 | 5.8 5.8 | 5.8 | | 11.2 11.4 | 11.3 | | 7.3 6.4 | 6.9 | |
| 17-Oct-13 | Sunny | Calm | 16:43 | Surface | 1 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 27.4 27.3 | 27.4 | 78.8 78.6 | 78.7 | 6.0 6.0 | 6.0 | 6.0 | 6.1 6.3 | 6.2 | 7.5 | 6.0 6.3 | 6.2 | 6.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.1 | 26.7 26.7 | 26.7 | 8.0 8.0 | 8.0 | 27.5 27.5 | 27.5 | 76.0 76.1 | 76.1 | 5.8 5.8 | 5.8 | | 8.7 8.9 | 8.8 | | 7.2 7.7 | 7.5 | |
| 19-Oct-13 | Fine | Calm | 17:45 | Surface | 1 | 26.4 26.4 | 26.4 | 8.0 8.0 | 8.0 | 27.6 27.7 | 27.7 | 96.9 96.9 | 96.9 | 7.4 7.4 | 7.4 | 7.4 | 9.2 9.7 | 9.5 | 11.8 | 9.0 6.8 | 7.9 | 8.6 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | - | - | |
| | | | | Bottom | 4.6 | 26.2 26.2 | 26.2 | 8.0 8.1 | 8.1 | 28.3 28.4 | 28.4 | 94.5 95.7 | 95.1 | 7.2 7.3 | 7.3 | | 13.4 14.6 | 14.0 | | 9.2 9.4 | 9.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SR6 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 18:35 | Surface | 1 | 26.8 26.8 | 26.8 | 8.1 8.1 | 8.1 | 27.4 27.4 | 27.4 | 90.1 90.2 | 90.2 | 6.2 6.2 | 6.2 | 6.2 | 14.4 14.4 | 14.4 | 13.9 | 9.7 10.7 | 10.2 | 9.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | | | |
| | | | | Bottom | 4.7 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 28.2 28.3 | 28.3 | 88.8 88.6 | 88.7 | 6.1 6.1 | 6.1 | 6.1 | 13.4 13.4 | 13.4 | | 8.7 10.3 | 9.5 | |
| 23-Oct-13 | Sunny | Calm | 09:09 | Surface | 1 | 26.2 26.2 | 26.2 | 8.0 8.1 | 8.1 | 27.0 27.0 | 27.0 | 79.9 78.4 | 79.2 | 5.6 5.5 | 5.6 | 5.6 | 17.9 20.1 | 19.0 | 22.1 | 24.7 22.7 | 23.7 | 22.1 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | | | |
| | | | | Bottom | 4.1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 27.3 27.3 | 27.3 | 78.3 78.5 | 78.4 | 5.5 5.5 | 5.5 | 5.5 | 24.6 25.5 | 25.1 | | 20.3 20.7 | 20.5 | |
| 25-Oct-13 | Sunny | Moderate | 11:14 | Surface | 1 | 25.9 25.9 | 25.9 | 8.0 8.0 | 8.0 | 27.0 27.0 | 27.0 | 101.8 101.4 | 101.6 | 7.0 7.0 | 7.0 | 7.0 | 12.7 12.5 | 12.6 | 18.0 | 14.2 13.0 | 13.6 | 14.7 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | | | |
| | | | | Bottom | 4.9 | 25.9 25.9 | 25.9 | 8.0 8.0 | 8.0 | 27.1 27.1 | 27.1 | 97.0 98.5 | 97.8 | 6.7 6.8 | 6.8 | 6.8 | 24.9 21.7 | 23.3 | | 12.4 19.2 | 15.8 | |
| 28-Oct-13 | Cloudy | Moderate | 14:00 | Surface | 1 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 29.2 29.2 | 29.2 | 104.2 104.4 | 104.3 | 7.3 7.3 | 7.3 | 7.3 | 3.7 3.5 | 3.6 | 4.3 | 4.7 5.1 | 4.9 | 4.9 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | | | |
| | | | | Bottom | 4.1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 99.3 99.4 | 99.4 | 6.9 6.9 | 6.9 | 6.9 | 5.0 4.9 | 5.0 | | 5.1 4.6 | 4.9 | |
| 30-Oct-13 | Sunny | Calm | 14:58 | Surface | 1 | 24.6 24.6 | 24.6 | 8.1 8.1 | 8.1 | 28.0 28.0 | 28.0 | 108.5 106.6 | 107.6 | 7.7 7.6 | 7.7 | 7.7 | 4.5 4.4 | 4.5 | 5.1 | 6.8 7.0 | 6.9 | 6.1 |
| | | | | Middle | - | - | - | - | - | - | - | - | - | - | - | | - | - | | | | |
| | | | | Bottom | 3.8 | 24.1 24.1 | 24.1 | 8.1 8.1 | 8.1 | 29.5 29.5 | 29.5 | 99.3 96.9 | 98.1 | 7.1 6.9 | 7.0 | 7.0 | 5.8 5.4 | 5.6 | | 5.4 5.0 | 5.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-------------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 10:19 | Surface | 1 | 27.9 27.9 | 27.9 | 8.2 8.2 | 8.2 | 27.7 27.7 | 27.7 | 82.3 82.7 | 82.5 | 6.2 6.2 | 6.2 | 6.2 | 6.7 6.7 8.6 | 6.7 | 8.1 | 9.2 7.3 8.7 | 8.3 | 7.5 |
| | | | | Middle | 3.5 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 27.8 27.8 | 27.8 | 81.9 81.5 | 81.7 | 6.2 6.1 | 6.2 | | 8.6 8.6 | 8.6 | | 4.7 | 6.7 | |
| | | | | Bottom | 6 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 27.9 27.9 | 27.9 | 80.3 80.4 | 80.4 | 6.1 6.1 | 6.1 | | 9.1 8.8 | 9.0 | | 8.0 6.8 | 7.4 | |
| 4-Oct-13 | Cloudy | Moderate | 11:46 | Surface | 1 | 27.7 27.7 | 27.7 | 8.1 8.5 | 8.3 | 26.1 26.1 | 26.1 | 92.9 87.6 | 90.3 | 6.3 6.0 | 6.2 | 6.2 | 13.4 14.6 | 14.0 | 17.2 | 12.7 15.0 | 13.9 | 13.6 |
| | | | | Middle | 4 | 27.7 27.7 | 27.7 | 8.4 8.3 | 8.4 | 28.2 28.3 | 28.3 | 89.7 90.3 | 90.0 | 6.0 6.1 | 6.1 | | 17.6 17.9 | 17.8 | | 12.3 12.7 | 12.5 | |
| | | | | Bottom | 7 | 27.6 27.6 | 27.6 | 8.4 8.2 | 8.3 | 28.3 28.3 | 28.3 | 89.4 88.2 | 88.8 | 6.0 5.9 | 6.0 | | 19.3 20.3 | 19.8 | | 15.3 13.3 | 14.3 | |
| 7-Oct-13 | Sunny | Moderate | 15:37 | Surface | 1 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 27.4 26.4 | 26.9 | 78.3 79.3 | 78.8 | 5.3 5.4 | 5.4 | 5.5 | 16.3 15.1 | 15.7 | 18.4 | 15.0 17.3 | 16.2 | 17.2 |
| | | | | Middle | 3 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 26.4 27.5 | 27.0 | 83.9 80.8 | 82.4 | 5.7 5.4 | 5.6 | | 16.5 16.8 | 16.7 | | 15.0 18.0 | 16.5 | |
| | | | | Bottom | 5 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 27.4 26.4 | 26.9 | 79.6 84.3 | 82.0 | 5.4 5.7 | 5.6 | | 23.0 22.5 | 22.8 | | 19.0 19.0 | 19.0 | |
| 9-Oct-13 | Cloudy | Moderate | 16:50 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.6 28.5 | 28.6 | 97.6 97.3 | 97.5 | 7.1 7.1 | 7.1 | 6.9 | 11.5 12.1 | 11.8 | 14.3 | 10.2 9.0 | 9.6 | 9.9 |
| | | | | Middle | 3.5 | 27.3 27.2 | 27.3 | 8.2 8.2 | 8.2 | 28.7 28.8 | 28.8 | 91.3 89.5 | 90.4 | 6.7 6.6 | 6.7 | | 15.6 14.5 | 15.1 | | 11.3 11.7 | 11.5 | |
| | | | | Bottom | 6 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 82.0 81.4 | 81.7 | 6.1 6.0 | 6.1 | | 16.4 15.5 | 16.0 | | 7.8 9.2 | 8.5 | |
| 11-Oct-13 | Fine | Moderate | 17:56 | Surface | 1 | 28.1 28.1 | 28.1 | 8.1 8.1 | 8.1 | 27.3 27.3 | 27.3 | 99.0 98.7 | 98.9 | 6.7 6.6 | 6.7 | 6.7 | 7.3 6.9 | 7.1 | 8.1 | 8.4 7.5 | 8.0 | 6.9 |
| | | | | Middle | 3 | 28.1 28.1 | 28.1 | 8.1 8.1 | 8.1 | 27.4 27.4 | 27.4 | 98.3 98.3 | 98.3 | 6.6 6.6 | 6.6 | | 7.6 7.7 | 7.7 | | 6.6 7.1 | 6.9 | |
| | | | | Bottom | 5 | 28.0 28.0 | 28.0 | 8.1 8.1 | 8.1 | 27.5 27.5 | 27.5 | 97.9 97.9 | 97.9 | 6.6 6.6 | 6.6 | | 9.7 9.3 | 9.5 | | 6.4 5.4 | 5.9 | |
| 15-Oct-13 | Cloudy | Moderate | 09:24 | Surface | 1 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.2 28.3 | 28.3 | 108.5 108.5 | 108.5 | 7.4 7.3 | 7.4 | 7.5 | 4.5 4.6 | 4.6 | 6.8 | 6.6 6.0 | 6.3 | 5.4 |
| | | | | Middle | 4 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.5 28.6 | 28.6 | 110.3 109.4 | 109.9 | 7.5 7.4 | 7.5 | | 6.0 6.1 | 6.1 | | 5.6 5.6 | 5.6 | |
| | | | | Bottom | 7 | 27.4 27.3 | 27.4 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 106.8 108.0 | 107.4 | 7.2 7.3 | 7.3 | | 9.5 9.8 | 9.7 | | 4.4 3.9 | 4.2 | |
| 17-Oct-13 | Sunny | Calm | 10:37 | Surface | 1 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 28.8 28.9 | 28.9 | 106.9 103.8 | 105.4 | 7.3 7.0 | 7.2 | 7.1 | 8.5 8.2 | 8.4 | 9.3 | 8.2 8.0 | 8.1 | 8.2 |
| | | | | Middle | 3.5 | 26.9 26.9 | 26.9 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 103.8 103.8 | 103.8 | 7.0 7.0 | 7.0 | | 6.7 6.7 | 6.7 | | 8.6 8.4 | 8.5 | |
| | | | | Bottom | 6 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 103.5 102.8 | 103.2 | 7.0 7.0 | 7.0 | | 14.0 11.4 | 12.7 | | 8.0 8.0 | 8.0 | |
| 19-Oct-13 | Sunny | Calm | 12:14 | Surface | 1 | 26.7 26.8 | 26.8 | 8.1 8.2 | 8.2 | 28.8 28.8 | 28.8 | 104.1 103.7 | 103.9 | 7.8 7.7 | 7.8 | 7.4 | 7.5 7.4 | 7.5 | 12.3 | 13.8 13.4 | 13.6 | 15.4 |
| | | | | Middle | 3.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 92.2 88.6 | 90.4 | 7.0 6.7 | 6.9 | | 12.1 14.9 | 13.5 | | 17.6 14.2 | 15.9 | |
| | | | | Bottom | 6 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 28.9 29.0 | 29.0 | 73.7 71.2 | 72.5 | 5.7 5.5 | 5.6 | | 14.2 17.5 | 15.9 | | 17.4 15.8 | 16.6 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 13:42 | Surface | 1 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 89.3 88.7 | 89.0 | 6.2 6.1 | 6.2 | 6.2 | 14.2 14.0 | 14.1 | 16.1 | 12.7 14.0 | 13.4 | 18.1 |
| | | | | Middle | 4 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 88.2 88.4 | 88.3 | 6.1 6.1 | 6.1 | | 15.3 15.4 | 15.4 | | 17.3 19.7 | 18.5 | |
| | | | | Bottom | 7 | 25.9 25.9 | 25.9 | 8.1 8.1 | 8.1 | 29.2 29.2 | 29.2 | 86.8 86.6 | 86.7 | 6.0 6.0 | 6.0 | | 18.4 18.9 | 18.7 | | 22.3 22.3 | 22.3 | |
| 23-Oct-13 | Sunny | Calm | 15:18 | Surface | 1 | 26.6 26.4 | 26.5 | 8.2 8.2 | 8.2 | 29.2 29.3 | 29.3 | 91.6 86.0 | 88.8 | 6.3 5.9 | 6.1 | 6.1 | 10.8 10.7 | 10.8 | 13.2 | 18.3 15.3 | 16.8 | 17.2 |
| | | | | Middle | 4 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 29.4 29.3 | 29.4 | 87.2 85.7 | 86.5 | 6.0 5.9 | 6.0 | | 13.6 14.0 | 13.8 | | 17.7 14.7 | 16.2 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 86.0 85.5 | 85.8 | 5.9 5.9 | 5.9 | | 15.1 14.8 | 15.0 | | 19.3 18.0 | 18.7 | |
| 25-Oct-13 | Sunny | Moderate | 17:07 | Surface | 1 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 88.0 88.4 | 88.2 | 6.1 6.1 | 6.1 | 6.2 | 11.6 11.7 | 11.7 | 13.3 | 15.0 12.2 | 13.6 | 12.7 |
| | | | | Middle | 3 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 91.0 91.4 | 91.2 | 6.3 6.3 | 6.3 | | 13.0 13.2 | 13.1 | | 12.0 11.2 | 11.6 | |
| | | | | Bottom | 5 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 29.3 29.4 | 29.4 | 92.1 92.2 | 92.2 | 6.4 6.4 | 6.4 | | 15.6 14.5 | 15.1 | | 12.6 12.9 | 12.8 | |
| 28-Oct-13 | Cloudy | Moderate | 07:04 | Surface | 1 | 23.9 24.2 | 24.1 | 8.3 8.3 | 8.3 | 28.2 31.3 | 29.8 | 97.9 101.5 | 99.7 | 7.0 7.1 | 7.1 | 7.1 | 5.6 5.9 | 5.8 | 5.9 | 3.4 3.3 | 3.4 | 3.7 |
| | | | | Middle | 3.5 | 24.4 24.4 | 24.4 | 8.3 8.3 | 8.3 | 31.6 31.7 | 31.7 | 101.9 97.8 | 99.9 | 7.1 6.8 | 7.0 | | 4.8 5.1 | 5.0 | | 3.3 3.3 | 3.3 | |
| | | | | Bottom | 6 | 24.6 24.6 | 24.6 | 8.3 8.3 | 8.3 | 31.9 32.0 | 32.0 | 103.0 95.4 | 99.2 | 7.2 6.6 | 6.9 | | 7.0 6.5 | 6.8 | | 4.0 4.8 | 4.4 | |
| 30-Oct-13 | Sunny | Calm | 09:13 | Surface | 1 | 25.0 25.0 | 25.0 | 8.1 8.1 | 8.1 | 29.9 30.0 | 30.0 | 98.4 100.7 | 99.6 | 6.9 7.0 | 7.0 | 7.0 | 15.4 15.8 | 15.6 | 16.3 | 8.6 9.0 | 8.8 | 9.0 |
| | | | | Middle | 4 | 24.9 24.9 | 24.9 | 8.1 8.1 | 8.1 | 30.0 30.0 | 30.0 | 101.0 100.8 | 100.9 | 7.0 7.0 | 7.0 | | 15.8 16.2 | 16.0 | | 8.3 9.0 | 8.7 | |
| | | | | Bottom | 7 | 25.0 25.0 | 25.0 | 8.1 8.1 | 8.1 | 30.1 30.1 | 30.1 | 100.2 100.0 | 100.1 | 7.0 7.0 | 7.0 | | 17.5 17.0 | 17.3 | | 9.7 9.0 | 9.4 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 17:40 | Surface | 1 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.8 27.7 | 27.8 | 87.6 87.0 | 87.3 | 6.5 6.5 | 6.5 | 6.4 | 16.4 17.0 | 16.7 | 17.2 | 19.0 35.7 | 27.4 | 25.8 |
| | | | | Middle | 3.5 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.9 27.3 | 27.6 | 85.0 84.3 | 84.7 | 6.3 6.3 | 6.3 | | 16.1 17.1 | 16.6 | | 23.3 23.0 | 23.2 | |
| | | | | Bottom | 6 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.9 27.9 | 27.9 | 85.0 85.2 | 85.1 | 6.3 6.4 | 6.4 | | 18.0 18.3 | 18.2 | | 22.7 31.0 | 26.9 | |
| 4-Oct-13 | Cloudy | Moderate | 18:15 | Surface | 1 | 28.3 28.3 | 28.3 | 8.2 8.3 | 8.3 | 27.4 27.4 | 27.4 | 80.7 81.7 | 81.2 | 5.4 5.6 | 5.5 | 6.0 | 16.2 19.2 | 17.7 | 19.4 | 16.0 17.2 | 16.6 | 14.7 |
| | | | | Middle | 3.5 | 28.3 28.3 | 28.3 | 8.3 8.4 | 8.4 | 27.5 27.5 | 27.5 | 93.5 97.0 | 95.3 | 6.3 6.5 | 6.4 | | 20.1 20.6 | 20.4 | | 16.8 14.4 | 15.6 | |
| | | | | Bottom | 6 | 28.3 28.3 | 28.3 | 8.3 8.4 | 8.4 | 27.5 27.5 | 27.5 | 91.8 93.2 | 92.5 | 6.1 6.2 | 6.2 | | 18.7 21.7 | 20.2 | | 13.0 10.6 | 11.8 | |
| 7-Oct-13 | Sunny | Moderate | 08:36 | Surface | 1 | 27.3 27.4 | 27.4 | 8.0 8.0 | 8.0 | 27.1 27.2 | 27.2 | 97.1 94.9 | 96.0 | 6.6 6.4 | 6.5 | 6.5 | 13.3 14.4 | 13.9 | 15.0 | 19.7 19.3 | 19.5 | 18.5 |
| | | | | Middle | 3.5 | 27.4 27.4 | 27.4 | 8.0 8.0 | 8.0 | 27.1 27.2 | 27.2 | 95.3 94.9 | 95.1 | 6.4 6.4 | 6.4 | | 14.9 14.5 | 14.7 | | 15.0 16.3 | 15.7 | |
| | | | | Bottom | 6 | 27.3 27.3 | 27.3 | 8.0 8.0 | 8.0 | 27.1 27.2 | 27.2 | 94.9 94.5 | 94.7 | 6.4 6.4 | 6.4 | | 15.2 17.5 | 16.4 | | 16.7 23.7 | 20.2 | |
| 9-Oct-13 | Cloudy | Moderate | 09:07 | Surface | 1 | 26.9 27.0 | 27.0 | 8.1 8.1 | 8.1 | 27.8 27.9 | 27.9 | 88.7 92.1 | 90.4 | 6.5 6.7 | 6.6 | 6.6 | 19.1 19.8 | 19.5 | 19.6 | 24.0 15.7 | 19.9 | 22.0 |
| | | | | Middle | 3.5 | 26.9 26.9 | 26.9 | 8.1 8.1 | 8.1 | 27.8 27.9 | 27.9 | 91.5 88.2 | 89.9 | 6.7 6.5 | 6.6 | | 19.6 19.8 | 19.7 | | 21.0 23.3 | 22.2 | |
| | | | | Bottom | 6 | 26.9 27.0 | 27.0 | 8.1 8.1 | 8.1 | 27.9 27.9 | 27.9 | 89.7 88.3 | 89.0 | 6.6 6.5 | 6.6 | | 20.1 19.3 | 19.7 | | 23.7 24.0 | 23.9 | |
| 11-Oct-13 | Sunny | Moderate | 11:36 | Surface | 1 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 28.0 28.0 | 28.0 | 100.5 100.4 | 100.5 | 6.8 6.8 | 6.8 | 6.8 | 13.2 14.0 | 13.6 | 13.4 | 12.8 13.2 | 13.0 | 12.7 |
| | | | | Middle | 6.5 | 27.9 27.9 | 27.9 | 8.0 8.0 | 8.0 | 28.0 28.0 | 28.0 | 99.9 99.9 | 99.9 | 6.7 6.7 | 6.7 | | 13.8 13.0 | 13.4 | | 13.2 12.4 | 12.8 | |
| | | | | Bottom | 12 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 28.0 28.0 | 28.0 | 99.8 99.7 | 99.8 | 6.7 6.7 | 6.7 | | 13.3 13.3 | 13.3 | | 12.4 12.4 | 12.4 | |
| 15-Oct-13 | Cloudy | Moderate | 16:18 | Surface | 1 | 28.0 27.9 | 28.0 | 8.2 8.2 | 8.2 | 27.8 27.9 | 27.9 | 85.2 83.4 | 84.3 | 5.7 5.6 | 5.7 | 5.7 | 7.2 8.6 | 7.9 | 9.1 | 8.2 9.5 | 8.9 | 8.2 |
| | | | | Middle | 4 | 27.9 27.8 | 27.9 | 8.2 8.2 | 8.2 | 27.8 27.9 | 27.9 | 84.2 82.8 | 83.5 | 5.7 5.6 | 5.7 | | 9.8 9.3 | 9.6 | | 7.2 7.5 | 7.4 | |
| | | | | Bottom | 7 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 27.9 28.0 | 28.0 | 83.0 81.1 | 82.1 | 5.6 5.5 | 5.6 | | 9.8 9.5 | 9.7 | | 8.2 8.3 | 8.3 | |
| 17-Oct-13 | Sunny | Calm | 18:12 | Surface | 1 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 96.8 95.1 | 96.0 | 6.6 6.5 | 6.6 | 6.6 | 11.1 10.2 | 10.7 | 10.6 | 13.0 10.0 | 11.5 | 10.1 |
| | | | | Middle | 3 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 96.1 94.5 | 95.3 | 6.5 6.4 | 6.5 | | 11.4 10.0 | 10.7 | | 11.6 7.6 | 9.6 | |
| | | | | Bottom | 5 | 27.1 27.1 | 27.1 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 95.4 93.6 | 94.5 | 6.5 6.4 | 6.5 | | 9.7 11.1 | 10.4 | | 9.0 9.2 | 9.1 | |
| 19-Oct-13 | Fine | Calm | 19:27 | Surface | 1 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 65.1 76.0 | 70.6 | 5.1 5.8 | 5.5 | 5.7 | 8.3 8.1 | 8.2 | 14.4 | 18.7 16.0 | 17.4 | 16.9 |
| | | | | Middle | 3.5 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.8 28.8 | 28.8 | 72.1 76.3 | 74.2 | 5.6 5.9 | 5.8 | | 15.8 16.7 | 16.3 | | 16.3 17.3 | 16.8 | |
| | | | | Bottom | 6 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.9 28.8 | 28.9 | 73.0 75.8 | 74.4 | 5.6 5.8 | 5.7 | | 18.3 18.9 | 18.6 | | 16.7 16.3 | 16.5 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at SRA - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:32 | Surface | 1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 87.5 86.9 | 87.2 | 6.0 6.0 | 6.0 | 6.0 | 9.4 9.4 | 9.4 | 10.6 | 16.8 12.2 | 14.5 | 12.1 |
| | | | | Middle | 4 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 85.0 85.2 | 85.1 | 5.8 5.9 | 5.9 | | 10.4 10.8 | 10.6 | | 15.8 10.0 | 12.9 | |
| | | | | Bottom | 7 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 28.9 28.9 | 28.9 | 84.6 84.5 | 84.6 | 5.8 5.8 | 5.8 | | 11.6 11.8 | 11.7 | | 9.0 9.0 | 9.0 | |
| 23-Oct-13 | Sunny | Calm | 09:08 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 28.4 28.5 | 28.5 | 83.0 86.3 | 84.7 | 5.8 6.0 | 5.9 | 6.0 | 16.9 16.6 | 16.8 | 17.3 | 15.3 16.7 | 16.0 | 16.0 |
| | | | | Middle | 3.5 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 28.4 28.6 | 28.5 | 86.6 87.1 | 86.9 | 6.0 6.1 | 6.1 | | 15.7 17.6 | 16.7 | | 15.7 15.0 | 15.4 | |
| | | | | Bottom | 6 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 88.4 88.5 | 88.5 | 6.2 6.2 | 6.2 | | 18.1 18.5 | 18.3 | | 17.3 16.0 | 16.7 | |
| 25-Oct-13 | Sunny | Moderate | 11:15 | Surface | 1 | 25.4 25.4 | 25.4 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 94.9 94.7 | 94.8 | 6.6 6.6 | 6.6 | 6.6 | 16.7 16.6 | 16.7 | 17.7 | 19.7 18.2 | 19.0 | 18.7 |
| | | | | Middle | 3.5 | 25.4 25.4 | 25.4 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 94.5 94.6 | 94.6 | 6.6 6.6 | 6.6 | | 17.2 17.8 | 17.5 | | 14.8 19.0 | 16.9 | |
| | | | | Bottom | 6 | 25.4 25.4 | 25.4 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 95.1 95.1 | 95.1 | 6.6 6.6 | 6.6 | | 19.0 18.5 | 18.8 | | 15.2 25.2 | 20.2 | |
| 28-Oct-13 | Cloudy | Moderate | 16:24 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.1 | 8.2 | 31.1 31.0 | 31.1 | 107.7 104.5 | 106.1 | 7.5 7.3 | 7.4 | 7.4 | 7.7 9.2 | 8.5 | 9.0 | 10.8 10.3 | 10.6 | 9.8 |
| | | | | Middle | 3 | 24.9 24.9 | 24.9 | 8.2 8.1 | 8.2 | 31.1 31.1 | 31.1 | 104.3 105.6 | 105.0 | 7.2 7.3 | 7.3 | | 9.6 9.1 | 9.4 | | 8.3 10.3 | 9.3 | |
| | | | | Bottom | 5 | 24.8 24.9 | 24.9 | 8.1 8.1 | 8.1 | 31.1 28.0 | 29.6 | 104.2 105.7 | 105.0 | 7.2 7.5 | 7.4 | | 9.2 9.1 | 9.2 | | 9.2 9.6 | 9.4 | |
| 30-Oct-13 | Sunny | Calm | 16:17 | Surface | 1 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 100.2 100.5 | 100.4 | 6.9 7.0 | 7.0 | 7.0 | 8.8 8.1 | 8.5 | 10.0 | 18.5 19.7 | 19.1 | 20.4 |
| | | | | Middle | 3.5 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 101.1 101.0 | 101.1 | 7.0 7.0 | 7.0 | | 9.4 10.1 | 9.8 | | 32.7 29.3 | 31.0 | |
| | | | | Bottom | 6 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 30.4 30.4 | 30.4 | 100.5 100.3 | 100.4 | 7.0 6.9 | 7.0 | | 11.2 12.2 | 11.7 | | 10.7 11.7 | 11.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|----------------|--------------|--------------|-------------------------|--------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:31 | Surface | 1 | 28.6 28.6 | 28.6 | 8.3 8.3 | 8.3 | 27.7 27.6 | 27.7 | 83.5 84.3 | 83.9 | 6.2 6.2 | 6.2 | 6.1 | 4.5 4.4 | 4.5 | 11.1 | 3.7 5.0 | 4.4 | 16.8 |
| | | | | Middle | 5 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 79.9 79.7 | 79.8 | 5.9 5.9 | 5.9 | | 9.6 9.6 | 9.6 | | 9.2 9.0 | 9.1 | |
| | | | | Bottom | 9 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 78.8 78.4 | 78.6 | 5.8 5.8 | 5.8 | 18.9 19.3 | 19.1 | 35.7 38.3 | | 37.0 | | |
| 4-Oct-13 | Cloudy | Moderate | 11:54 | Surface | 1 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 29.7 29.7 | 29.7 | 92.4 92.3 | 92.4 | 6.3 6.3 | 6.3 | 6.3 | 9.6 9.9 | 9.8 | 16.8 | 20.2 5.0 | 12.6 | 11.6 |
| | | | | Middle | 5 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.3 30.3 | 30.3 | 90.6 91.2 | 90.9 | 6.1 6.2 | 6.2 | | 18.6 18.6 | 18.6 | | 16.0 9.0 | 12.5 | |
| | | | | Bottom | 9 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.3 30.3 | 30.3 | 90.8 91.1 | 91.0 | 6.2 6.2 | 6.2 | 22.2 21.9 | 22.1 | 9.0 10.4 | | 9.7 | | |
| 7-Oct-13 | Sunny | Moderate | 14:18 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 80.6 81.4 | 81.0 | 5.4 5.5 | 5.5 | 5.5 | 16.3 16.5 | 16.4 | 14.5 | 15.7 5.0 | 10.4 | 16.3 |
| | | | | Middle | 5 | 27.4 27.3 | 27.4 | 8.2 8.2 | 8.2 | 29.0 29.1 | 29.1 | 79.9 79.6 | 79.8 | 5.4 5.3 | 5.4 | | 15.8 14.5 | 15.2 | | 21.0 18.3 | 19.7 | |
| | | | | Bottom | 9 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 28.2 28.7 | 28.5 | 79.7 81.4 | 80.6 | 5.4 5.5 | 5.5 | 11.8 11.8 | 11.8 | 20.0 17.7 | | 18.9 | | |
| 9-Oct-13 | Cloudy | Moderate | 15:01 | Surface | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 97.2 95.2 | 96.2 | 7.1 6.9 | 7.0 | 7.1 | 6.4 6.5 | 6.5 | 8.0 | 7.5 5.0 | 6.3 | 8.1 |
| | | | | Middle | 5 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.2 29.9 | 30.1 | 100.0 98.0 | 99.0 | 7.2 7.1 | 7.2 | | 7.3 8.9 | 8.1 | | 8.8 7.2 | 8.0 | |
| | | | | Bottom | 9 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.4 30.5 | 30.5 | 99.0 97.6 | 98.3 | 7.1 7.0 | 7.1 | 9.4 9.6 | 9.5 | 11.3 8.7 | | 10.0 | | |
| 11-Oct-13 | Fine | Moderate | 16:48 | Surface | 1 | 26.7 26.8 | 26.8 | 8.1 8.1 | 8.1 | 28.1 27.9 | 28.0 | 96.7 96.4 | 96.6 | 6.6 6.5 | 6.6 | 6.6 | 4.1 3.8 | 4.0 | 7.7 | 4.7 5.0 | 4.9 | 7.9 |
| | | | | Middle | 5 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 95.6 95.7 | 95.7 | 6.5 6.5 | 6.5 | | 6.0 5.9 | 6.0 | | 10.4 8.6 | 9.5 | |
| | | | | Bottom | 9 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 29.4 29.4 | 29.4 | 94.4 94.2 | 94.3 | 6.4 6.3 | 6.4 | 12.5 13.4 | 13.0 | 10.8 7.6 | | 9.2 | | |
| 15-Oct-13 | Cloudy | Moderate | 09:58 | Surface | 1 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 27.8 27.8 | 27.8 | 96.2 96.3 | 96.3 | 6.6 6.6 | 6.6 | 6.5 | 1.6 1.6 | 1.6 | 4.1 | 4.4 5.0 | 4.7 | 3.7 |
| | | | | Middle | 5.5 | 27.5 27.5 | 27.5 | 8.3 8.3 | 8.3 | 29.1 29.1 | 29.1 | 93.9 93.6 | 93.8 | 6.4 6.4 | 6.4 | | 4.4 4.3 | 4.4 | | 3.9 3.3 | 3.6 | |
| | | | | Bottom | 10 | 27.5 27.5 | 27.5 | 8.3 8.3 | 8.3 | 29.6 29.8 | 29.7 | 93.7 93.6 | 93.7 | 6.4 6.4 | 6.4 | 5.8 6.5 | 6.2 | 3.6 2.2 | | 2.9 | | |
| 17-Oct-13 | Sunny | Calm | 11:17 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 88.3 88.6 | 88.5 | 6.7 6.7 | 6.7 | 6.7 | 4.4 4.9 | 4.7 | 8.0 | 2.8 5.0 | 3.9 | 5.1 |
| | | | | Middle | 5 | 26.3 26.4 | 26.4 | 8.1 8.1 | 8.1 | 31.0 31.0 | 31.0 | 86.9 87.0 | 87.0 | 6.6 6.6 | 6.6 | | 10.3 10.2 | 10.3 | | 5.7 5.8 | 5.8 | |
| | | | | Bottom | 9 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 31.0 31.0 | 31.0 | 86.7 86.9 | 86.8 | 6.6 6.6 | 6.6 | 9.1 8.8 | 9.0 | 5.7 5.7 | | 5.7 | | |
| 19-Oct-13 | Sunny | Calm | 12:47 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 88.2 88.2 | 88.2 | 6.7 6.7 | 6.7 | 6.7 | 5.5 5.2 | 5.4 | 7.8 | 5.4 5.0 | 5.2 | 6.3 |
| | | | | Middle | 4.5 | 26.0 26.0 | 26.0 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 87.9 87.9 | 87.9 | 6.7 6.7 | 6.7 | | 8.6 8.7 | 8.7 | | 5.8 7.1 | 6.5 | |
| | | | | Bottom | 8 | 26.0 26.0 | 26.0 | 8.2 8.2 | 8.2 | 30.5 30.4 | 30.5 | 86.3 86.3 | 86.3 | 6.6 6.6 | 6.6 | 9.1 9.5 | 9.3 | 7.3 7.0 | | 7.2 | | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-------------------|---------|-----|-------------------------|------------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:30 | Surface | 1 | 26.9 26.9 | 26.9 | 8.3 8.3 | 8.3 | 30.1 30.2 | 30.2 | 88.8 88.8 | 88.8 | 6.1 6.1 | 6.1 | 6.1 | 6.1 6.0 6.6 | 6.1 | 9.0 | 6.3 5.0 4.3 | 5.7 4.2 | 4.2 |
| | | | | Middle | 4.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 88.4 88.4 | 88.4 | 6.0 6.0 | 6.0 | | 6.6 6.6 | 6.6 | | 4.0 2.7 | 4.2 | |
| | | | | Bottom | 8 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.7 30.8 | 30.8 | 87.6 87.6 | 87.6 | 6.0 6.0 | 6.0 | | 13.7 14.9 | 14.3 | | 2.5 | 2.6 | |
| 23-Oct-13 | Sunny | Calm | 14:34 | Surface | 1 | 26.3 26.4 | 26.4 | 8.2 8.3 | 8.3 | 30.0 30.5 | 30.3 | 86.9 83.4 | 85.2 | 6.1 5.8 | 6.0 | 5.9 | 8.5 8.6 9.1 | 8.6 | 9.9 | 4.4 5.0 5.5 | 4.7 | 5.5 |
| | | | | Middle | 5 | 26.3 26.3 | 26.3 | 8.3 8.3 | 8.3 | 30.8 31.0 | 30.9 | 83.1 82.4 | 82.8 | 5.8 5.7 | 5.8 | | 9.0 9.0 | 9.1 | | 5.6 5.6 | 5.6 | |
| | | | | Bottom | 9 | 26.3 26.3 | 26.3 | 8.3 8.3 | 8.3 | 30.9 31.0 | 31.0 | 82.8 82.0 | 82.4 | 5.8 5.7 | 5.8 | | 11.8 12.3 | 12.1 | | 6.8 5.5 | 6.2 | |
| 25-Oct-13 | Sunny | Moderate | 15:39 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.8 29.8 | 29.8 | 92.3 90.6 | 91.5 | 6.3 6.2 | 6.3 | 6.2 | 8.7 8.9 9.4 | 8.8 | 9.4 | 11.4 5.0 11.0 | 8.2 | 9.9 |
| | | | | Middle | 4.5 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 29.7 29.8 | 29.8 | 87.6 88.3 | 88.0 | 6.0 6.0 | 6.0 | | 9.4 9.4 | 9.4 | | 11.4 9.5 | 11.2 | |
| | | | | Bottom | 8 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 29.8 29.9 | 29.9 | 86.4 86.0 | 86.2 | 5.9 5.9 | 5.9 | | 10.1 10.0 | 10.1 | | 10.2 | 10.2 | |
| 28-Oct-13 | Cloudy | Moderate | 06:55 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.3 31.3 | 31.3 | 91.2 91.0 | 91.1 | 6.3 6.3 | 6.3 | 6.3 | 5.2 4.8 5.1 | 5.0 | 4.9 | 6.4 5.0 7.0 | 5.7 | 6.4 |
| | | | | Middle | 5 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.3 31.3 | 31.3 | 91.1 91.0 | 91.1 | 6.3 6.3 | 6.3 | | 5.1 5.1 | 5.1 | | 5.6 7.3 | 6.3 | |
| | | | | Bottom | 9 | 24.9 25.0 | 25.0 | 8.2 8.2 | 8.2 | 31.4 31.4 | 31.4 | 90.9 90.7 | 90.8 | 6.3 6.3 | 6.3 | | 4.5 4.7 | 4.6 | | 7.2 7.3 | 7.3 | |
| 30-Oct-13 | Sunny | Calm | 10:16 | Surface | 1 | 24.1 24.1 | 24.1 | 8.1 8.2 | 8.2 | 30.2 30.2 | 30.2 | 104.9 105.0 | 105.0 | 7.4 7.4 | 7.4 | 7.0 | 2.7 2.7 5.7 | 2.7 | 8.2 | 5.2 5.0 8.0 | 5.1 | 6.4 |
| | | | | Middle | 5 | 24.2 24.3 | 24.3 | 8.1 8.1 | 8.1 | 30.5 30.8 | 30.7 | 95.4 91.4 | 93.4 | 6.7 6.4 | 6.6 | | 5.7 5.7 | 5.7 | | 8.0 8.0 | 8.0 | |
| | | | | Bottom | 9 | 24.3 24.3 | 24.3 | 8.1 8.1 | 8.1 | 31.0 31.0 | 31.0 | 87.9 87.0 | 87.5 | 6.2 6.1 | 6.2 | | 16.9 15.2 | 16.1 | | 6.0 | 6.0 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-------------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:41 | Surface | 1 | 28.7 28.7 | 28.7 | 8.2 8.2 | 8.2 | 25.5 25.5 | 25.5 | 79.1 78.7 | 78.9 | 5.9 5.9 | 5.9 | 5.9 | 5.6 5.6 5.6 | 5.6 | 8.4 | 7.0 7.2 | 7.1 | 11.3 |
| | | | | Middle | 5 | 28.6 28.6 | 28.6 | 8.2 8.2 | 8.2 | 26.5 26.5 | 26.5 | 79.4 79.1 | 79.3 | 5.9 5.9 | 5.9 | | 5.6 6.5 | 6.1 | | 9.6 9.8 | 9.7 | |
| | | | | Bottom | 9 | 28.6 28.6 | 28.6 | 8.2 8.2 | 8.2 | 27.5 27.5 | 27.5 | 77.5 78.3 | 77.9 | 5.7 5.8 | 5.8 | | 13.9 13.1 | 13.5 | | 17.0 17.0 | 17.0 | |
| 4-Oct-13 | Cloudy | Moderate | 17:35 | Surface | 1 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 28.3 28.2 | 28.3 | 88.6 88.4 | 88.5 | 6.0 6.0 | 6.0 | 6.0 | 12.2 11.6 | 11.9 | 14.7 | 11.4 18.2 | 14.8 | 12.3 |
| | | | | Middle | 5 | 27.9 27.9 | 27.9 | 8.2 8.3 | 8.3 | 28.6 28.7 | 28.7 | 88.8 88.8 | 88.8 | 6.0 6.0 | 6.0 | | 14.8 15.6 | 15.2 | | 8.8 9.8 | 9.3 | |
| | | | | Bottom | 9 | 27.9 27.9 | 27.9 | 8.3 8.2 | 8.3 | 28.7 28.8 | 28.8 | 88.0 88.2 | 88.1 | 5.9 5.9 | 5.9 | | 16.8 17.0 | 16.9 | | 12.0 13.8 | 12.9 | |
| 7-Oct-13 | Sunny | Moderate | 08:55 | Surface | 1 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 77.2 77.6 | 77.4 | 5.2 5.2 | 5.2 | 5.3 | 14.5 14.6 | 14.6 | 21.1 | 40.7 38.3 | 39.5 | 33.3 |
| | | | | Middle | 6 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.0 29.0 | 29.0 | 79.1 78.7 | 78.9 | 5.3 5.3 | 5.3 | | 24.7 24.6 | 24.7 | | 23.7 22.0 | 22.9 | |
| | | | | Bottom | 11 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.9 28.9 | 28.9 | 79.1 79.9 | 79.5 | 5.3 5.4 | 5.4 | | 24.1 24.1 | 24.1 | | 39.0 36.0 | 37.5 | |
| 9-Oct-13 | Cloudy | Moderate | 10:09 | Surface | 1 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.4 28.4 | 28.4 | 98.0 96.3 | 97.2 | 6.9 6.8 | 6.9 | 6.9 | 16.9 17.2 | 17.1 | 26.3 | 25.0 9.3 | 17.2 | 23.0 |
| | | | | Middle | 5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.4 28.5 | 28.5 | 95.9 94.9 | 95.4 | 6.8 6.7 | 6.8 | | 19.4 21.5 | 20.5 | | 24.7 22.7 | 23.7 | |
| | | | | Bottom | 9 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 28.7 28.8 | 28.8 | 83.1 82.1 | 82.6 | 5.7 5.7 | 5.7 | | 39.6 42.9 | 41.3 | | 30.2 25.8 | 28.0 | |
| 11-Oct-13 | Sunny | Moderate | 12:31 | Surface | 1 | 27.1 27.0 | 27.1 | 8.0 8.0 | 8.0 | 26.5 26.5 | 26.5 | 97.3 97.2 | 97.3 | 6.6 6.6 | 6.6 | 6.6 | 5.4 6.7 | 6.1 | 12.1 | 4.4 6.5 | 5.5 | 22.8 |
| | | | | Middle | 5 | 26.7 26.7 | 26.7 | 8.0 8.0 | 8.0 | 27.6 27.6 | 27.6 | 94.9 95.0 | 95.0 | 6.5 6.5 | 6.5 | | 8.8 10.8 | 9.8 | | 20.7 22.0 | 21.4 | |
| | | | | Bottom | 9 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.9 28.1 | 28.0 | 94.6 94.5 | 94.6 | 6.4 6.4 | 6.4 | | 20.3 20.5 | 20.4 | | 43.0 40.0 | 41.5 | |
| 15-Oct-13 | Cloudy | Moderate | 15:53 | Surface | 1 | 27.6 27.6 | 27.6 | 8.2 8.2 | 8.2 | 27.9 28.1 | 28.0 | 83.9 83.7 | 83.8 | 5.7 5.7 | 5.7 | 5.7 | 6.3 6.8 | 6.6 | 12.5 | 6.3 7.1 | 6.7 | 7.0 |
| | | | | Middle | 5 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 28.4 28.4 | 28.4 | 82.0 81.7 | 81.9 | 5.6 5.6 | 5.6 | | 11.0 11.4 | 11.2 | | 6.8 6.5 | 6.7 | |
| | | | | Bottom | 9 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 28.8 28.9 | 28.9 | 80.4 80.1 | 80.3 | 5.5 5.5 | 5.5 | | 19.6 19.5 | 19.6 | | 7.9 7.5 | 7.7 | |
| 17-Oct-13 | Sunny | Calm | 17:04 | Surface | 1 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.2 28.2 | 28.2 | 83.3 83.3 | 83.3 | 6.3 6.3 | 6.3 | 6.4 | 6.3 6.5 | 6.4 | 7.8 | 6.8 7.7 | 7.3 | 8.0 |
| | | | | Middle | 4.5 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.5 28.5 | 28.5 | 83.3 83.4 | 83.4 | 6.3 6.4 | 6.4 | | 6.6 6.3 | 6.5 | | 8.7 8.0 | 8.4 | |
| | | | | Bottom | 8 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.7 29.8 | 29.8 | 79.6 79.5 | 79.6 | 6.1 6.1 | 6.1 | | 10.3 10.4 | 10.4 | | 7.8 8.5 | 8.2 | |
| 19-Oct-13 | Fine | Calm | 18:12 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 28.8 28.9 | 28.9 | 95.0 95.3 | 95.2 | 7.2 7.3 | 7.3 | 7.3 | 5.2 5.1 | 5.2 | 6.7 | 5.2 3.8 | 4.5 | 5.2 |
| | | | | Middle | 5 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.3 29.2 | 29.3 | 94.1 94.1 | 94.1 | 7.2 7.2 | 7.2 | | 5.9 5.7 | 5.8 | | 4.2 5.4 | 4.8 | |
| | | | | Bottom | 9 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 93.2 92.1 | 92.7 | 7.1 7.0 | 7.1 | | 9.0 9.4 | 9.2 | | 6.8 6.0 | 6.4 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST1 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|---|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-------------------|------------|------|-------------------------|------------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 19:00 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 28.3 28.3 | 28.3 | 90.1 89.8 | 90.0 | 6.2 6.2 | 6.2 | 6.1 | 6.0 5.8 5.4 | 5.9 5.3 | 5.8 | 9.7 9.0 9.0 | 9.4 9.7 | 8.2 |
| | | | | Middle | 5 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.0 27.6 | 28.3 | 88.0 88.2 | 88.1 | 6.0 6.0 | 6.0 | | 5.2 5.2 | 5.3 | | 10.3 | 9.7 | |
| | | | | Bottom | 9 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.1 29.1 | 29.1 | 86.5 86.3 | 86.4 | 5.9 5.9 | 5.9 | | 6.0 6.4 | 6.2 | | 5.4 5.8 | 5.6 | |
| 23-Oct-13 | Sunny | Calm | 09:33 | Surface | 1 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.4 29.3 | 29.4 | 85.7 80.6 | 83.2 | 6.0 5.6 | 5.8 | 5.7 | 23.5 23.1 | 23.3 | 44.1 | 57.3 49.3 | 53.3 | 49.2 |
| | | | | Middle | 5 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 80.1 80.1 | 80.1 | 5.6 5.6 | 5.6 | | 42.1 44.8 | 43.5 | | 38.0 34.0 | 36.0 | |
| | | | | Bottom | 9 | 26.1 26.1 | 26.1 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 79.9 79.7 | 79.8 | 5.6 5.5 | 5.6 | | 63.3 67.5 | 65.4 | | 58.0 58.3 | 58.2 | |
| 25-Oct-13 | Sunny | Moderate | 11:38 | Surface | 1 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.4 29.4 | 29.4 | 101.1 100.1 | 100.6 | 6.9 6.9 | 6.9 | 6.8 | 5.8 6.7 | 6.3 | 8.4 | 11.2 9.2 | 10.2 | 11.2 |
| | | | | Middle | 5 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 94.7 96.0 | 95.4 | 6.5 6.6 | 6.6 | | 8.2 8.2 | 8.2 | | 11.8 11.0 | 11.4 | |
| | | | | Bottom | 9 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 92.7 92.0 | 92.4 | 6.3 6.3 | 6.3 | | 10.7 10.8 | 10.8 | | 12.6 11.6 | 12.1 | |
| 28-Oct-13 | Cloudy | Moderate | 14:29 | Surface | 1 | 24.9 25.0 | 25.0 | 8.2 8.3 | 8.3 | 31.1 31.1 | 31.1 | 92.4 92.6 | 92.5 | 6.4 6.4 | 6.4 | 6.4 | 5.7 4.8 | 5.3 | 6.1 | 5.6 4.6 | 5.1 | 4.8 |
| | | | | Middle | 5 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 91.4 91.6 | 91.5 | 6.3 6.4 | 6.4 | | 5.2 5.2 | 5.2 | | 4.4 4.2 | 4.3 | |
| | | | | Bottom | 9 | 24.9 24.8 | 24.9 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 89.3 88.9 | 89.1 | 6.2 6.2 | 6.2 | | 7.8 7.7 | 7.8 | | 5.6 4.6 | 5.1 | |
| 30-Oct-13 | Sunny | Calm | 15:20 | Surface | 1 | 25.0 25.0 | 25.0 | 8.3 8.4 | 8.4 | 24.0 23.8 | 23.9 | 94.5 92.0 | 93.3 | 6.8 6.6 | 6.7 | 6.7 | 4.8 4.9 | 4.9 | 8.9 | 6.2 5.2 | 5.7 | 11.0 |
| | | | | Middle | 5 | 24.3 24.2 | 24.3 | 8.2 8.1 | 8.2 | 29.3 30.4 | 29.9 | 95.6 92.3 | 94.0 | 6.8 6.5 | 6.7 | | 8.4 8.9 | 8.7 | | 8.3 6.0 | 7.2 | |
| | | | | Bottom | 9 | 24.2 24.2 | 24.2 | 8.1 8.1 | 8.1 | 30.6 30.7 | 30.7 | 86.9 87.0 | 87.0 | 6.1 6.1 | 6.1 | | 13.5 12.7 | 13.1 | | 20.0 20.3 | 20.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|--------------------------|---------|------|--------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:21 | Surface | 1 | 29.0 29.1 | 29.1 | 8.2 8.2 | 8.2 | 27.2 27.2 | 27.2 | 84.9 84.0 | 84.5 | 6.3 6.2 | 6.3 | 6.2 | 5.2 5.2 8.8 9.1 | 5.2 | 11.6 | 2.6 2.2 9.6 8.4 | 2.4 | 9.4 |
| | | | | Middle | 4 | 28.4 28.4 | 28.4 | 8.2 8.2 | 8.2 | 29.7 29.7 | 29.7 | 82.9 82.7 | 82.8 | 6.1 6.1 | 6.1 | | 9.0 | 9.0 | | 14.7 19.0 | 16.9 | |
| | | | | Bottom | 7 | 28.2 28.1 | 28.2 | 8.3 8.3 | 8.3 | 30.1 30.2 | 30.2 | 82.1 82.0 | 82.1 | 6.0 6.0 | 6.0 | 6.0 | 20.5 20.4 | 20.5 | | | | |
| 4-Oct-13 | Cloudy | Moderate | 11:46 | Surface | 1 | 27.9 27.9 | 27.9 | 8.3 8.3 | 8.3 | 29.7 29.7 | 29.7 | 94.9 95.4 | 95.2 | 6.5 6.5 | 6.5 | 6.3 | 7.2 7.7 9.2 9.2 | 7.5 | 9.3 | 8.6 9.0 8.8 6.0 | 8.8 | 7.5 |
| | | | | Middle | 4.5 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.1 30.1 | 30.1 | 90.2 90.5 | 90.4 | 6.1 6.1 | 6.1 | | 9.2 | 9.2 | | 7.4 5.2 | 7.4 | |
| | | | | Bottom | 8 | 27.7 27.7 | 27.7 | 8.3 8.3 | 8.3 | 30.2 30.2 | 30.2 | 91.9 92.4 | 92.2 | 6.3 6.3 | 6.3 | 6.3 | 11.1 11.0 | 11.1 | | | | |
| 7-Oct-13 | Sunny | Moderate | 14:05 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 80.6 80.2 | 80.4 | 5.4 5.4 | 5.4 | 5.4 | 17.4 17.2 | 17.3 | 17.6 | 16.3 17.0 | 16.7 | 18.3 |
| | | | | Middle | 4 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 79.6 79.6 | 79.6 | 5.3 5.3 | 5.3 | | 17.3 17.5 | 17.4 | | 20.3 20.7 | 20.5 | |
| | | | | Bottom | 7 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 28.6 28.6 | 28.6 | 79.0 80.0 | 79.5 | 5.3 5.4 | 5.4 | 5.4 | 18.0 17.9 | 18.0 | | 17.3 18.0 | 17.7 | |
| 9-Oct-13 | Cloudy | Moderate | 14:49 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 28.9 28.9 | 28.9 | 102.5 101.6 | 102.1 | 7.3 7.3 | 7.3 | 7.2 | 18.2 17.9 | 18.1 | 16.4 | 18.7 17.0 | 17.9 | 16.5 |
| | | | | Middle | 4 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 29.8 29.7 | 29.8 | 98.2 97.4 | 97.8 | 7.2 7.0 | 7.1 | | 13.8 13.6 | 13.7 | | 16.7 14.7 | 15.7 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.2 28.9 | 29.6 | 95.1 94.8 | 95.0 | 6.9 6.8 | 6.9 | 6.9 | 17.9 16.9 | 17.4 | | 15.3 16.7 | 16.0 | |
| 11-Oct-13 | Fine | Moderate | 16:36 | Surface | 1 | 27.2 27.3 | 27.3 | 8.0 8.0 | 8.0 | 27.3 27.3 | 27.3 | 98.3 98.5 | 98.4 | 6.6 6.6 | 6.6 | 6.6 | 3.4 3.7 | 3.6 | 12.1 | 3.8 3.2 | 3.5 | 12.0 |
| | | | | Middle | 3.5 | 26.6 26.6 | 26.6 | 8.1 8.1 | 8.1 | 28.8 28.8 | 28.8 | 95.6 96.7 | 96.2 | 6.5 6.5 | 6.5 | | 10.5 10.8 | 10.7 | | 9.7 6.5 | 8.1 | |
| | | | | Bottom | 6 | 26.6 26.6 | 26.6 | 8.1 8.1 | 8.1 | 29.4 29.3 | 29.4 | 95.6 96.3 | 96.0 | 6.5 6.5 | 6.5 | 6.5 | 20.1 23.9 | 22.0 | | 25.3 23.7 | 24.5 | |
| 15-Oct-13 | Cloudy | Moderate | 09:48 | Surface | 1 | 27.5 27.5 | 27.5 | 8.2 8.2 | 8.2 | 26.0 26.0 | 26.0 | 98.2 98.3 | 98.3 | 6.8 6.8 | 6.8 | 6.7 | 2.1 2.0 | 2.1 | 6.5 | 2.8 2.3 | 2.6 | 3.9 |
| | | | | Middle | 5 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 28.4 28.4 | 28.4 | 97.0 96.7 | 96.9 | 6.6 6.6 | 6.6 | | 6.8 7.0 | 6.9 | | 3.5 4.4 | 4.0 | |
| | | | | Bottom | 9 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 29.4 29.3 | 29.4 | 95.5 95.2 | 95.4 | 6.5 6.5 | 6.5 | 6.5 | 10.8 10.3 | 10.6 | | 5.6 4.7 | 5.2 | |
| 17-Oct-13 | Sunny | Calm | 11:07 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.1 | 8.1 | 30.1 30.1 | 30.1 | 86.7 86.5 | 86.6 | 6.6 6.6 | 6.6 | 6.5 | 5.8 5.8 | 5.8 | 11.4 | 9.6 9.0 | 9.3 | 8.7 |
| | | | | Middle | 5 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 82.7 82.9 | 82.8 | 6.3 6.3 | 6.3 | | 10.9 10.5 | 10.7 | | 9.8 8.4 | 9.1 | |
| | | | | Bottom | 9 | 26.3 26.3 | 26.3 | 8.1 8.1 | 8.1 | 30.8 30.8 | 30.8 | 80.4 80.0 | 80.2 | 6.1 6.1 | 6.1 | 6.1 | 17.7 17.6 | 17.7 | | 8.4 7.2 | 7.8 | |
| 19-Oct-13 | Sunny | Calm | 12:36 | Surface | 1 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 29.3 29.3 | 29.3 | 89.1 89.1 | 89.1 | 6.8 6.8 | 6.8 | 6.8 | 6.1 6.0 | 6.1 | 12.8 | 4.8 4.2 | 4.5 | 8.0 |
| | | | | Middle | 4 | 25.9 25.9 | 25.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 88.6 88.6 | 88.6 | 6.7 6.7 | 6.7 | | 17.0 16.7 | 16.9 | | 9.4 10.8 | 10.1 | |
| | | | | Bottom | 7 | 26.0 26.0 | 26.0 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 87.5 87.8 | 87.7 | 6.7 6.7 | 6.7 | 6.7 | 15.6 15.2 | 15.4 | | 10.4 8.2 | 9.3 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:16 | Surface | 1 | 26.6 26.6 | 26.6 | 8.2 8.2 | 8.2 | 29.7 29.8 | 29.8 | 91.1 91.3 | 91.2 | 6.3 6.3 | 6.3 | 6.3 | 9.2 9.7 | 9.5 | 10.8 | 3.3 3.8 | 3.6 | 7.9 |
| | | | | Middle | 4 | 26.5 26.6 | 26.6 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 90.5 90.5 | 90.5 | 6.2 6.2 | 6.2 | | 11.4 11.3 | 11.4 | | 11.8 12.2 | 12.0 | |
| | | | | Bottom | 7 | 26.5 26.5 | 26.5 | 8.2 8.2 | 8.2 | 30.2 30.3 | 30.3 | 89.2 89.2 | 89.2 | 6.1 6.1 | 6.1 | | 11.9 11.3 | 11.6 | | 5.3 11.0 | 8.2 | |
| 23-Oct-13 | Sunny | Calm | 14:24 | Surface | 1 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 29.9 30.2 | 30.1 | 92.0 84.0 | 88.0 | 6.4 5.8 | 6.1 | 6.0 | 9.8 9.3 | 9.6 | 16.8 | 11.5 10.7 | 11.1 | 10.8 |
| | | | | Middle | 4.5 | 26.3 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.9 30.8 | 30.9 | 83.7 84.2 | 84.0 | 5.8 5.8 | 5.8 | | 16.6 16.5 | 16.6 | | 10.5 10.2 | 10.4 | |
| | | | | Bottom | 8 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 31.1 31.1 | 31.1 | 83.5 83.4 | 83.5 | 5.8 5.8 | 5.8 | | 24.4 24.1 | 24.3 | | 10.5 11.0 | 10.8 | |
| 25-Oct-13 | Sunny | Moderate | 15:29 | Surface | 1 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 93.9 93.2 | 93.6 | 6.4 6.3 | 6.4 | 6.3 | 12.0 12.0 | 12.0 | 13.3 | 16.4 14.4 | 15.4 | 13.7 |
| | | | | Middle | 4 | 25.8 25.8 | 25.8 | 8.2 8.2 | 8.2 | 30.3 30.3 | 30.3 | 90.8 91.2 | 91.0 | 6.2 6.2 | 6.2 | | 12.8 12.8 | 12.8 | | 13.2 12.2 | 12.7 | |
| | | | | Bottom | 7 | 25.9 25.9 | 25.9 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 91.0 90.9 | 91.0 | 6.2 6.2 | 6.2 | | 15.7 14.7 | 15.2 | | 13.2 12.6 | 12.9 | |
| 28-Oct-13 | Cloudy | Moderate | 06:45 | Surface | 1 | 24.8 24.8 | 24.8 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 97.1 96.9 | 97.0 | 6.8 6.7 | 6.8 | 6.9 | 5.3 4.9 | 5.1 | 4.8 | 6.0 5.4 | 5.7 | 6.0 |
| | | | | Middle | 4.5 | 24.8 24.8 | 24.8 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 99.2 99.4 | 99.3 | 6.9 6.9 | 6.9 | | 4.7 4.8 | 4.8 | | 4.8 5.4 | 5.1 | |
| | | | | Bottom | 8 | 24.8 24.8 | 24.8 | 8.2 8.2 | 8.2 | 31.2 31.2 | 31.2 | 95.3 95.2 | 95.3 | 6.6 6.6 | 6.6 | | 4.6 4.6 | 4.6 | | 8.2 6.2 | 7.2 | |
| 30-Oct-13 | Sunny | Calm | 10:05 | Surface | 1 | 24.0 24.0 | 24.0 | 8.1 8.1 | 8.1 | 28.7 28.7 | 28.7 | 104.2 103.4 | 103.8 | 7.4 7.4 | 7.4 | 7.2 | 2.5 2.6 | 2.6 | 4.7 | 3.0 3.4 | 3.2 | 4.2 |
| | | | | Middle | 4 | 24.2 24.1 | 24.2 | 8.1 8.1 | 8.1 | 30.2 30.1 | 30.2 | 97.4 97.5 | 97.5 | 6.9 6.9 | 6.9 | | 3.5 3.5 | 3.5 | | 4.4 4.2 | 4.3 | |
| | | | | Bottom | 7 | 24.1 24.1 | 24.1 | 8.0 8.0 | 8.0 | 30.9 30.9 | 30.9 | 89.3 88.8 | 89.1 | 6.3 6.3 | 6.3 | | 8.1 8.0 | 8.1 | | 6.8 3.6 | 5.2 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-------------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:27 | Surface | 1 | 28.4 28.5 | 28.5 | 8.2 8.2 | 8.2 | 25.8 25.7 | 25.8 | 77.4 76.7 | 77.1 | 5.8 5.7 | 5.8 | 5.8 | 5.6 5.6 5.9 | 5.6 | 8.1 | 8.2 8.6 9.2 | 8.4 | 9.7 |
| | | | | Middle | 4 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.0 27.1 | 27.1 | 77.0 76.5 | 76.8 | 5.7 5.7 | 5.7 | | 5.9 5.9 | 5.9 | | 7.6 7.6 | 8.4 | |
| | | | | Bottom | 7 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.9 27.9 | 27.9 | 76.3 75.4 | 75.9 | 5.6 5.6 | 5.6 | | 12.9 12.5 | 12.7 | | 13.4 11.4 | 12.4 | |
| 4-Oct-13 | Cloudy | Moderate | 17:25 | Surface | 1 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 27.8 27.8 | 27.8 | 90.9 91.3 | 91.1 | 6.2 6.2 | 6.2 | 6.1 | 14.9 15.3 | 15.1 | 18.3 | 16.0 14.2 | 15.1 | 14.1 |
| | | | | Middle | 4.5 | 28.1 28.0 | 28.1 | 8.2 8.2 | 8.2 | 28.0 28.0 | 28.0 | 88.6 88.3 | 88.5 | 6.0 6.0 | 6.0 | | 18.8 18.5 | 18.7 | | 15.0 18.2 | 16.6 | |
| | | | | Bottom | 8 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 28.3 28.3 | 28.3 | 88.6 88.5 | 88.6 | 6.0 6.0 | 6.0 | | 20.9 21.4 | 21.2 | | 12.8 8.4 | 10.6 | |
| 7-Oct-13 | Sunny | Moderate | 08:33 | Surface | 1 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 78.8 77.3 | 78.1 | 5.3 5.2 | 5.3 | 5.4 | 7.0 7.3 | 7.2 | 12.4 | 44.5 47.5 | 46.0 | 44.9 |
| | | | | Middle | 4 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.7 28.7 | 28.7 | 80.2 78.8 | 79.5 | 5.4 5.3 | 5.4 | | 13.1 13.8 | 13.5 | | 59.0 56.5 | 57.8 | |
| | | | | Bottom | 7 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 28.0 28.9 | 28.5 | 80.3 80.2 | 80.3 | 5.4 5.4 | 5.4 | | 16.8 15.9 | 16.4 | | 31.5 30.0 | 30.8 | |
| 9-Oct-13 | Cloudy | Moderate | 09:56 | Surface | 1 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 26.1 27.3 | 26.7 | 98.8 98.4 | 98.6 | 7.0 6.9 | 7.0 | 7.0 | 13.1 12.8 | 13.0 | 14.1 | 8.6 7.8 | 8.2 | 12.2 |
| | | | | Middle | 4 | 26.5 26.5 | 26.5 | 8.0 8.0 | 8.0 | 27.5 26.4 | 27.0 | 98.3 97.7 | 98.0 | 6.9 6.9 | 6.9 | | 10.9 9.9 | 10.4 | | 8.4 7.6 | 8.0 | |
| | | | | Bottom | 7 | 26.4 26.4 | 26.4 | 8.0 8.0 | 8.0 | 27.7 27.7 | 27.7 | 97.7 97.4 | 97.6 | 6.9 6.9 | 6.9 | | 17.5 20.0 | 18.8 | | 20.3 20.3 | 20.3 | |
| 11-Oct-13 | Sunny | Moderate | 12:18 | Surface | 1 | 27.3 27.3 | 27.3 | 7.9 7.9 | 7.9 | 24.5 24.7 | 24.6 | 92.7 92.4 | 92.6 | 6.3 6.3 | 6.3 | 6.4 | 3.8 4.6 | 4.2 | 10.6 | 4.4 4.7 | 4.6 | 6.4 |
| | | | | Middle | 3.5 | 26.8 26.9 | 26.9 | 7.9 7.9 | 7.9 | 26.8 26.5 | 26.7 | 93.2 93.3 | 93.3 | 6.4 6.4 | 6.4 | | 5.6 5.2 | 5.4 | | 6.6 7.5 | 7.1 | |
| | | | | Bottom | 6 | 26.7 26.7 | 26.7 | 8.0 8.0 | 8.0 | 27.3 27.3 | 27.3 | 93.9 93.7 | 93.8 | 6.4 6.4 | 6.4 | | 21.7 22.6 | 22.2 | | 7.7 7.0 | 7.4 | |
| 15-Oct-13 | Cloudy | Moderate | 15:41 | Surface | 1 | 28.1 28.1 | 28.1 | 8.2 8.2 | 8.2 | 24.7 24.7 | 24.7 | 95.1 95.2 | 95.2 | 6.6 6.6 | 6.6 | 6.6 | 3.1 3.0 | 3.1 | 8.4 | 3.8 4.1 | 4.0 | 4.1 |
| | | | | Middle | 4.5 | 28.0 28.0 | 28.0 | 8.2 8.2 | 8.2 | 25.0 25.0 | 25.0 | 94.2 94.1 | 94.2 | 6.5 6.5 | 6.5 | | 3.3 3.5 | 3.4 | | 3.9 3.5 | 3.7 | |
| | | | | Bottom | 8 | 27.8 27.8 | 27.8 | 8.2 8.2 | 8.2 | 26.2 26.1 | 26.2 | 88.7 88.4 | 88.6 | 6.1 6.1 | 6.1 | | 18.9 18.4 | 18.7 | | 4.5 4.5 | 4.5 | |
| 17-Oct-13 | Sunny | Calm | 16:55 | Surface | 1 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 27.7 27.7 | 27.7 | 83.6 83.4 | 83.5 | 6.4 6.4 | 6.4 | 6.4 | 6.3 6.3 | 6.3 | 9.6 | 6.7 6.5 | 6.6 | 7.1 |
| | | | | Middle | 4.5 | 26.6 26.6 | 26.6 | 8.0 8.0 | 8.0 | 28.0 28.1 | 28.1 | 83.8 82.9 | 83.4 | 6.4 6.3 | 6.4 | | 7.2 7.2 | 7.2 | | 9.0 7.8 | 8.4 | |
| | | | | Bottom | 8 | 26.5 26.5 | 26.5 | 8.1 8.1 | 8.1 | 28.4 28.4 | 28.4 | 82.0 81.7 | 81.9 | 6.2 6.2 | 6.2 | | 15.2 15.1 | 15.2 | | 6.2 6.5 | 6.4 | |
| 19-Oct-13 | Fine | Calm | 18:02 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 27.9 27.9 | 27.9 | 96.7 96.6 | 96.7 | 7.4 7.4 | 7.4 | 7.4 | 6.1 6.0 | 6.1 | 7.4 | 7.6 7.8 | 7.7 | 7.5 |
| | | | | Middle | 4.5 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 27.2 28.3 | 27.8 | 95.9 95.9 | 95.9 | 7.3 7.3 | 7.3 | | 6.6 6.8 | 6.7 | | 8.4 7.4 | 7.9 | |
| | | | | Bottom | 8 | 26.1 26.1 | 26.1 | 8.1 8.2 | 8.2 | 29.1 29.1 | 29.1 | 95.7 95.5 | 95.6 | 7.3 7.3 | 7.3 | | 9.3 9.3 | 9.3 | | 6.6 7.2 | 6.9 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST2 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 18:45 | Surface | 1 | 26.7 26.7 | 26.7 | 8.1 8.1 | 8.1 | 27.1 27.2 | 27.2 | 89.7 89.7 | 89.7 | 6.1 6.1 | 6.1 | 6.1 | 8.0 8.0 | 8.0 | 10.9 | 6.8 7.6 | 7.2 | 7.5 |
| | | | | Middle | 4.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 28.2 27.1 | 27.7 | 89.3 89.3 | 89.3 | 6.1 6.1 | 6.1 | | 10.5 10.4 | 10.5 | | 8.6 7.4 | 8.0 | |
| | | | | Bottom | 8 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 29.0 28.9 | 29.0 | 86.9 86.8 | 86.9 | 5.9 5.9 | 5.9 | | 14.0 14.3 | 14.2 | | 8.2 6.2 | 7.2 | |
| 23-Oct-13 | Sunny | Calm | 09:23 | Surface | 1 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 84.9 83.6 | 84.3 | 5.9 5.8 | 5.9 | 5.9 | 13.4 12.6 | 13.0 | 24.8 | 13.3 15.0 | 14.2 | 15.9 |
| | | | | Middle | 4 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.0 29.1 | 29.1 | 82.7 82.9 | 82.8 | 5.8 5.8 | 5.8 | | 26.2 23.8 | 25.0 | | 15.7 16.7 | 16.2 | |
| | | | | Bottom | 7 | 26.2 26.2 | 26.2 | 8.1 8.1 | 8.1 | 29.1 29.1 | 29.1 | 82.7 82.5 | 82.6 | 5.7 5.7 | 5.7 | | 36.4 36.5 | 36.5 | | 16.8 17.8 | 17.3 | |
| 25-Oct-13 | Sunny | Moderate | 11:27 | Surface | 1 | 25.7 25.7 | 25.7 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 101.2 99.9 | 100.6 | 7.0 6.9 | 7.0 | 6.9 | 6.2 6.2 | 6.2 | 8.0 | 7.7 8.2 | 8.0 | 7.6 |
| | | | | Middle | 4.5 | 25.7 25.7 | 25.7 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 96.5 96.8 | 96.7 | 6.6 6.7 | 6.7 | | 6.9 6.8 | 6.9 | | 7.2 8.0 | 7.6 | |
| | | | | Bottom | 8 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 28.6 28.6 | 28.6 | 94.7 94.3 | 94.5 | 6.5 6.5 | 6.5 | | 10.7 10.9 | 10.8 | | 7.7 6.5 | 7.1 | |
| 28-Oct-13 | Cloudy | Moderate | 14:09 | Surface | 1 | 25.2 25.2 | 25.2 | 8.2 8.2 | 8.2 | 29.4 29.5 | 29.5 | 103.1 103.3 | 103.2 | 7.2 7.2 | 7.2 | 7.2 | 4.2 4.1 | 4.2 | 5.0 | 10.8 4.0 | 7.4 | 4.9 |
| | | | | Middle | 4 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 101.6 101.5 | 101.6 | 7.1 7.1 | 7.1 | | 4.6 4.5 | 4.6 | | 3.8 3.4 | 3.6 | |
| | | | | Bottom | 7 | 24.7 24.7 | 24.7 | 8.2 8.2 | 8.2 | 30.8 30.8 | 30.8 | 98.1 97.5 | 97.8 | 6.8 6.8 | 6.8 | | 6.0 6.5 | 6.3 | | 3.4 4.0 | 3.7 | |
| 30-Oct-13 | Sunny | Calm | 15:09 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 25.7 25.7 | 25.7 | 103.6 102.5 | 103.1 | 7.4 7.3 | 7.4 | 7.1 | 3.5 3.6 | 3.6 | 5.6 | 5.0 4.2 | 4.6 | 5.1 |
| | | | | Middle | 4 | 24.2 24.2 | 24.2 | 8.2 8.2 | 8.2 | 28.1 28.2 | 28.2 | 94.8 95.3 | 95.1 | 6.8 6.8 | 6.8 | | 3.1 3.4 | 3.3 | | 5.2 5.0 | 5.1 | |
| | | | | Bottom | 7 | 24.1 24.1 | 24.1 | 8.1 8.1 | 8.1 | 30.6 30.6 | 30.6 | 78.6 76.0 | 77.3 | 5.6 5.4 | 5.5 | | 9.7 10.2 | 10.0 | | 3.6 7.8 | 5.7 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Sunny | Moderate | 11:29 | Surface | 1 | 28.0 28.0 | 28.0 | 8.3 8.3 | 8.3 | 27.9 27.9 | 27.9 | 72.2 71.4 | 71.8 | 5.5 5.5 | 5.5 | 5.4 | 4.4 4.3 | 4.4 | 7.3 | 5.2 4.2 | 4.7 | 5.3 |
| | | | | Middle | 7 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 29.5 29.5 | 29.5 | 70.1 69.9 | 70.0 | 5.3 5.3 | 5.3 | | 7.6 7.6 | | | 4.4 4.4 | 4.4 | |
| | | | | Bottom | 13 | 27.8 27.8 | 27.8 | 8.3 8.3 | 8.3 | 30.0 30.0 | 30.0 | 68.3 68.7 | 68.5 | 5.2 5.2 | 5.2 | | 10.5 9.5 | 10.0 | | 5.4 8.0 | 6.7 | |
| 4-Oct-13 | Cloudy | Moderate | 12:53 | Surface | 1 | 28.1 28.0 | 28.1 | 8.2 8.2 | 8.2 | 27.8 27.7 | 27.8 | 92.6 92.1 | 92.4 | 6.2 6.2 | 6.2 | 6.3 | 9.6 9.5 | 9.6 | 14.7 | 16.0 14.6 | 15.3 | 14.8 |
| | | | | Middle | 6 | 27.8 27.7 | 27.8 | 8.1 8.2 | 8.2 | 25.5 25.6 | 25.6 | 90.1 91.9 | 91.0 | 6.2 6.3 | 6.3 | | 9.3 8.6 | | | 14.4 15.6 | 15.0 | |
| | | | | Bottom | 11 | 27.8 27.8 | 27.8 | 8.1 8.2 | 8.2 | 29.9 29.9 | 29.9 | 86.5 88.5 | 87.5 | 5.8 5.9 | 5.9 | | 24.1 26.9 | 25.5 | | 14.0 14.0 | 14.0 | |
| 7-Oct-13 | Sunny | Moderate | 14:34 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 97.1 91.5 | 94.3 | 6.6 6.2 | 6.4 | 6.4 | 16.3 15.6 | 16.0 | 17.8 | 17.7 18.3 | 18.0 | 17.2 |
| | | | | Middle | 6 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 92.5 92.5 | 92.5 | 6.3 6.3 | 6.3 | | 17.3 17.1 | | | 16.3 17.3 | 16.8 | |
| | | | | Bottom | 11 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 81.0 89.9 | 85.5 | 5.5 6.1 | 5.8 | | 21.5 19.0 | 20.3 | | 18.7 15.0 | 16.9 | |
| 9-Oct-13 | Cloudy | Moderate | 15:58 | Surface | 1 | 27.4 27.4 | 27.4 | 8.2 8.2 | 8.2 | 29.0 29.1 | 29.1 | 96.9 96.3 | 96.6 | 7.1 7.0 | 7.1 | 6.9 | 4.3 4.2 | 4.3 | 5.3 | 5.2 4.6 | 4.9 | 5.0 |
| | | | | Middle | 6 | 27.3 27.3 | 27.3 | 8.2 8.2 | 8.2 | 29.4 29.3 | 29.4 | 91.9 91.8 | 91.9 | 6.7 6.7 | 6.7 | | 4.8 4.6 | | | 4.0 5.1 | 4.6 | |
| | | | | Bottom | 11 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.9 29.1 | 29.5 | 85.6 87.7 | 86.7 | 6.3 6.5 | 6.4 | | 6.9 7.0 | 7.0 | | 5.5 5.5 | 5.5 | |
| 11-Oct-13 | Fine | Moderate | 16:37 | Surface | 1 | 28.2 28.2 | 28.2 | 8.1 8.1 | 8.1 | 26.1 26.1 | 26.1 | 107.2 107.2 | 107.2 | 7.2 7.2 | 7.2 | 7.2 | 3.6 3.5 | 3.6 | 6.6 | 4.2 2.2 | 3.2 | 3.2 |
| | | | | Middle | 3 | 27.6 27.6 | 27.6 | 8.1 8.1 | 8.1 | 27.0 27.0 | 27.0 | 105.7 105.4 | 105.6 | 7.2 7.2 | 7.2 | | 5.4 5.5 | | | 2.6 3.5 | 3.1 | |
| | | | | Bottom | 5 | 27.3 27.3 | 27.3 | 8.1 8.1 | 8.1 | 29.3 29.3 | 29.3 | 100.5 100.5 | 100.5 | 6.8 6.8 | 6.8 | | 10.7 10.7 | 10.7 | | 2.6 3.7 | 3.2 | |
| 15-Oct-13 | Cloudy | Moderate | 10:25 | Surface | 1 | 27.4 27.5 | 27.5 | 8.3 8.3 | 8.3 | 29.6 29.6 | 29.6 | 90.1 88.7 | 89.4 | 6.0 5.9 | 6.0 | 6.0 | 8.3 8.0 | 8.2 | 11.6 | 7.8 5.3 | 6.6 | 5.9 |
| | | | | Middle | 6 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 30.2 30.3 | 30.3 | 89.2 88.2 | 88.7 | 6.0 5.9 | 6.0 | | 10.4 11.8 | | | 5.2 6.0 | 5.6 | |
| | | | | Bottom | 11 | 27.4 27.4 | 27.4 | 8.3 8.3 | 8.3 | 30.4 30.4 | 30.4 | 88.0 87.8 | 87.9 | 5.9 5.9 | 5.9 | | 15.9 15.3 | 15.6 | | 4.3 6.7 | 5.5 | |
| 17-Oct-13 | Sunny | Calm | 12:24 | Surface | 1 | 27.1 27.2 | 27.2 | 8.2 7.9 | 8.1 | 31.3 28.6 | 30.0 | 116.6 119.2 | 117.9 | 7.8 8.1 | 8.0 | 7.0 | 4.5 4.9 | 4.7 | 10.7 | 7.4 6.8 | 7.1 | 7.6 |
| | | | | Middle | 7.5 | 27.0 27.2 | 27.1 | 8.2 8.1 | 8.2 | 31.6 29.6 | 30.6 | 90.4 90.0 | 90.2 | 6.0 6.0 | 6.0 | | 10.2 10.3 | | | 8.2 7.6 | 7.9 | |
| | | | | Bottom | 14 | 27.0 27.2 | 27.1 | 8.2 8.1 | 8.2 | 31.6 29.8 | 30.7 | 87.5 88.1 | 87.8 | 5.8 5.9 | 5.9 | | 17.7 16.4 | 17.1 | | 7.6 8.0 | 7.8 | |
| 19-Oct-13 | Sunny | Calm | 14:16 | Surface | 1 | 26.8 26.8 | 26.8 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 79.8 80.7 | 80.3 | 6.1 6.2 | 6.2 | 6.2 | 9.5 8.5 | 9.0 | 10.0 | 4.4 5.0 | 4.7 | 4.7 |
| | | | | Middle | 7.5 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 30.6 30.2 | 30.4 | 80.4 82.6 | 81.5 | 6.1 6.3 | 6.2 | | 11.1 9.8 | 10.5 | | 5.0 4.6 | 4.8 | |
| | | | | Bottom | 14 | 26.7 26.7 | 26.7 | 8.2 8.2 | 8.2 | 30.6 30.2 | 30.4 | 80.5 80.8 | 80.7 | 6.1 6.2 | 6.2 | | 10.2 10.6 | 10.4 | | 3.8 5.2 | 4.5 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Ebb Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|-----|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Sunny | Rough | 14:50 | Surface | 1 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.8 29.8 | 29.8 | 86.2 86.0 | 86.1 | 5.9 5.9 | 5.9 | 5.8 | 5.4 5.4 | 5.4 | 17.4 | 6.7 6.3 | 6.5 | 6.7 |
| | | | | Middle | 6 | 25.8 25.8 | 25.8 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 82.6 83.3 | 83.0 | 5.7 5.7 | 5.7 | | 20.4 18.5 | 19.5 | | 6.8 5.5 | 6.2 | |
| | | | | Bottom | 11 | 25.8 25.8 | 25.8 | 8.1 8.1 | 8.1 | 30.6 30.6 | 30.6 | 80.4 80.1 | 80.3 | 5.5 5.5 | 5.5 | | 27.2 27.5 | 27.4 | | 7.8 6.7 | 7.3 | |
| 23-Oct-13 | Sunny | Calm | 14:05 | Surface | 1 | 26.4 26.4 | 26.4 | 8.1 8.2 | 8.2 | 29.6 29.9 | 29.8 | 92.3 89.8 | 91.1 | 6.4 6.2 | 6.3 | 6.2 | 3.9 4.4 | 4.2 | 6.1 | 5.3 5.4 | 5.4 | 6.3 |
| | | | | Middle | 7 | 26.4 26.4 | 26.4 | 8.2 8.2 | 8.2 | 30.2 30.3 | 30.3 | 89.2 88.6 | 88.9 | 6.1 6.1 | 6.1 | | 6.3 5.6 | 6.0 | | 4.5 5.6 | 5.1 | |
| | | | | Bottom | 13 | 26.3 26.3 | 26.3 | 8.2 8.2 | 8.2 | 30.4 30.6 | 30.5 | 88.4 87.6 | 88.0 | 6.1 6.0 | 6.1 | | 8.1 8.2 | 8.2 | | 7.0 9.7 | 8.4 | |
| 25-Oct-13 | Sunny | Moderate | 15:46 | Surface | 1 | 25.6 25.6 | 25.6 | 8.1 8.1 | 8.1 | 30.5 30.5 | 30.5 | 103.8 103.4 | 103.6 | 7.2 7.1 | 7.2 | 7.0 | 7.9 7.9 | 7.9 | 11.8 | 6.2 6.7 | 6.5 | 7.2 |
| | | | | Middle | 5.5 | 25.6 25.5 | 25.6 | 8.1 8.1 | 8.1 | 30.7 30.7 | 30.7 | 98.8 97.3 | 98.1 | 6.8 6.7 | 6.8 | | 9.3 9.2 | 9.3 | | 7.2 7.0 | 7.1 | |
| | | | | Bottom | 10 | 25.6 25.5 | 25.6 | 8.1 8.1 | 8.1 | 30.8 30.8 | 30.8 | 96.4 96.4 | 96.4 | 6.6 6.6 | 6.6 | | 18.0 18.2 | 18.1 | | 8.0 7.8 | 7.9 | |
| 28-Oct-13 | Cloudy | Moderate | 08:03 | Surface | 1 | 24.9 24.9 | 24.9 | 8.3 8.4 | 8.4 | 32.3 32.3 | 32.3 | 91.8 88.8 | 90.3 | 6.3 6.1 | 6.2 | 6.3 | 5.1 6.3 | 5.7 | 8.3 | 7.2 7.0 | 7.1 | 6.2 |
| | | | | Middle | 5.5 | 24.9 24.9 | 24.9 | 8.4 8.4 | 8.4 | 32.2 32.3 | 32.3 | 91.7 89.6 | 90.7 | 6.3 6.2 | 6.3 | | 5.7 5.9 | 5.8 | | 4.6 6.4 | 5.5 | |
| | | | | Bottom | 10 | 24.8 24.8 | 24.8 | 8.4 8.4 | 8.4 | 32.2 32.2 | 32.2 | 90.4 90.4 | 90.4 | 6.2 6.2 | 6.2 | | 13.6 13.0 | 13.3 | | 6.2 5.8 | 6.0 | |
| 30-Oct-13 | Sunny | Calm | 10:03 | Surface | 1 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 99.2 102.3 | 100.8 | 6.9 7.1 | 7.0 | 7.1 | 3.3 2.7 | 3.0 | 6.9 | 3.8 7.0 | 5.4 | 6.6 |
| | | | | Middle | 7 | 24.9 24.9 | 24.9 | 8.2 8.2 | 8.2 | 30.2 30.2 | 30.2 | 101.0 100.0 | 100.5 | 7.1 7.0 | 7.1 | | 7.0 6.9 | 7.0 | | 6.3 12.3 | 9.3 | |
| | | | | Bottom | 13 | 25.1 25.1 | 25.1 | 8.2 8.2 | 8.2 | 30.7 30.7 | 30.7 | 92.0 91.3 | 91.7 | 6.4 6.3 | 6.4 | | 10.9 10.4 | 10.7 | | 2.5 7.7 | 5.1 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Water Quality Monitoring Results at ST3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity (NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|-----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 2-Oct-13 | Fine | Moderate | 16:44 | Surface | 1 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 26.9 26.9 | 26.9 | 76.1 76.2 | 76.2 | 5.8 5.8 | 5.8 | 5.9 | 6.5 6.3 | 6.4 | 6.1 | 5.2 4.4 | 4.8 | 4.2 |
| | | | | Middle | 6.5 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.1 26.4 | 26.8 | 76.8 77.3 | 77.1 | 5.8 5.9 | 5.9 | | 6.1 5.6 | 5.9 | | 4.2 2.8 | 3.5 | |
| | | | | Bottom | 12 | 28.3 28.3 | 28.3 | 8.2 8.2 | 8.2 | 27.2 26.4 | 26.8 | 76.9 77.1 | 77.0 | 5.8 5.8 | 5.8 | | 6.1 6.1 | 6.1 | | 4.0 4.6 | 4.3 | |
| 4-Oct-13 | Cloudy | Moderate | 17:31 | Surface | 1 | 28.0 28.0 | 28.0 | 8.2 8.3 | 8.3 | 27.5 27.6 | 27.6 | 93.5 91.1 | 92.3 | 6.3 6.1 | 6.2 | 6.0 | 17.1 14.6 | 15.9 | 20.7 | 4.0 4.2 | 4.1 | 3.8 |
| | | | | Middle | 6.5 | 28.0 27.9 | 28.0 | 8.2 8.4 | 8.3 | 28.2 28.1 | 28.2 | 87.2 86.3 | 86.8 | 5.8 5.8 | 5.8 | | 19.2 21.3 | 20.3 | | 4.0 2.8 | 3.4 | |
| | | | | Bottom | 12 | 27.9 27.9 | 27.9 | 8.3 8.4 | 8.4 | 28.3 28.3 | 28.3 | 89.1 89.3 | 89.2 | 6.1 6.0 | 6.1 | | 26.0 26.0 | 26.0 | | 4.0 4.0 | 4.0 | |
| 7-Oct-13 | Sunny | Moderate | 09:30 | Surface | 1 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.3 27.4 | 27.4 | 94.1 93.2 | 93.7 | 6.4 6.3 | 6.4 | 6.4 | 10.7 11.1 | 10.9 | 16.6 | 25.7 24.0 | 24.9 | 27.7 |
| | | | | Middle | 5.5 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.7 27.6 | 27.7 | 93.8 93.2 | 93.5 | 6.3 6.3 | 6.3 | | 19.5 17.8 | 18.7 | | 24.0 25.0 | 24.5 | |
| | | | | Bottom | 10 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 27.8 27.6 | 27.7 | 93.7 93.1 | 93.4 | 6.3 6.3 | 6.3 | | 20.3 20.1 | 20.2 | | 33.7 33.7 | 33.7 | |
| 9-Oct-13 | Cloudy | Moderate | 10:02 | Surface | 1 | 27.0 27.0 | 27.0 | 8.2 8.2 | 8.2 | 29.5 29.5 | 29.5 | 87.4 86.8 | 87.1 | 6.4 6.4 | 6.4 | 6.4 | 17.0 16.4 | 16.7 | 20.8 | 10.0 9.0 | 9.5 | 11.9 |
| | | | | Middle | 6.5 | 26.9 27.0 | 27.0 | 8.2 8.2 | 8.2 | 28.9 29.6 | 29.3 | 87.0 87.3 | 87.2 | 6.4 6.4 | 6.4 | | 16.4 16.8 | 16.6 | | 15.0 10.3 | 12.7 | |
| | | | | Bottom | 12 | 26.9 26.9 | 26.9 | 8.2 8.2 | 8.2 | 29.6 29.6 | 29.6 | 86.8 86.7 | 86.8 | 6.4 6.4 | 6.4 | | 28.9 29.4 | 29.2 | | 15.6 11.6 | 13.6 | |
| 11-Oct-13 | Sunny | Moderate | 12:29 | Surface | 1 | 27.9 27.8 | 27.9 | 8.1 8.1 | 8.1 | 26.8 26.8 | 26.8 | 97.0 96.9 | 97.0 | 6.6 6.6 | 6.6 | 6.6 | 4.9 5.3 | 5.1 | 17.9 | 3.1 2.7 | 2.9 | 3.6 |
| | | | | Middle | 3.5 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.1 27.1 | 27.1 | 95.4 95.1 | 95.3 | 6.5 6.5 | 6.5 | | 18.7 21.3 | 20.0 | | 4.0 2.7 | 3.4 | |
| | | | | Bottom | 6 | 27.4 27.4 | 27.4 | 8.1 8.1 | 8.1 | 27.2 27.2 | 27.2 | 94.3 94.3 | 94.3 | 6.4 6.4 | 6.4 | | 28.2 29.0 | 28.6 | | 5.0 3.9 | 4.5 | |
| 15-Oct-13 | Cloudy | Moderate | 15:14 | Surface | 1 | 28.1 28.0 | 28.1 | 8.0 8.0 | 8.0 | 26.1 26.4 | 26.3 | 104.6 102.4 | 103.5 | 7.1 6.9 | 7.0 | 7.0 | 3.4 3.3 | 3.4 | 5.0 | 3.4 3.5 | 3.5 | 3.0 |
| | | | | Middle | 6.5 | 27.8 27.8 | 27.8 | 8.0 8.0 | 8.0 | 26.9 27.0 | 27.0 | 104.2 102.0 | 103.1 | 7.0 6.9 | 7.0 | | 3.0 3.1 | 3.1 | | 3.3 2.9 | 3.1 | |
| | | | | Bottom | 12 | 27.6 27.6 | 27.6 | 8.0 8.0 | 8.0 | 28.5 28.8 | 28.7 | 101.2 100.9 | 101.1 | 6.8 6.8 | 6.8 | | 8.1 8.8 | 8.5 | | 2.3 2.3 | 2.3 | |
| 17-Oct-13 | Sunny | Calm | 16:22 | Surface | 1 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 111.6 111.6 | 111.6 | 7.5 7.5 | 7.5 | 7.5 | 6.1 6.1 | 6.1 | 6.8 | 5.2 5.3 | 5.3 | 5.0 |
| | | | | Middle | 5 | 27.2 27.2 | 27.2 | 8.1 8.1 | 8.1 | 29.8 29.8 | 29.8 | 112.2 112.2 | 112.2 | 7.5 7.5 | 7.5 | | 6.9 6.9 | 6.9 | | 5.5 4.8 | 5.2 | |
| | | | | Bottom | 9 | 27.2 27.2 | 27.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 109.9 109.9 | 109.9 | 7.4 7.4 | 7.4 | | 7.3 7.3 | 7.3 | | 4.3 4.5 | 4.4 | |
| 19-Oct-13 | Fine | Calm | 17:36 | Surface | 1 | 27.1 27.1 | 27.1 | 8.0 8.1 | 8.1 | 28.0 28.5 | 28.3 | 99.5 100.0 | 99.8 | 7.5 7.6 | 7.6 | 7.2 | 6.5 6.6 | 6.6 | 10.3 | 11.0 10.8 | 10.9 | 11.9 |
| | | | | Middle | 5 | 27.1 27.0 | 27.1 | 8.1 8.1 | 8.1 | 28.5 29.0 | 28.8 | 87.4 88.3 | 87.9 | 6.7 6.8 | 6.8 | | 10.7 10.5 | 10.6 | | 14.2 11.8 | 13.0 | |
| | | | | Bottom | 9 | 27.0 27.0 | 27.0 | 8.1 8.1 | 8.1 | 28.9 29.2 | 29.1 | 75.8 74.3 | 75.1 | 5.9 5.8 | 5.9 | | 13.9 13.7 | 13.8 | | 12.2 11.6 | 11.9 | |

Remarks: *DA: Depth-Averaged

**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

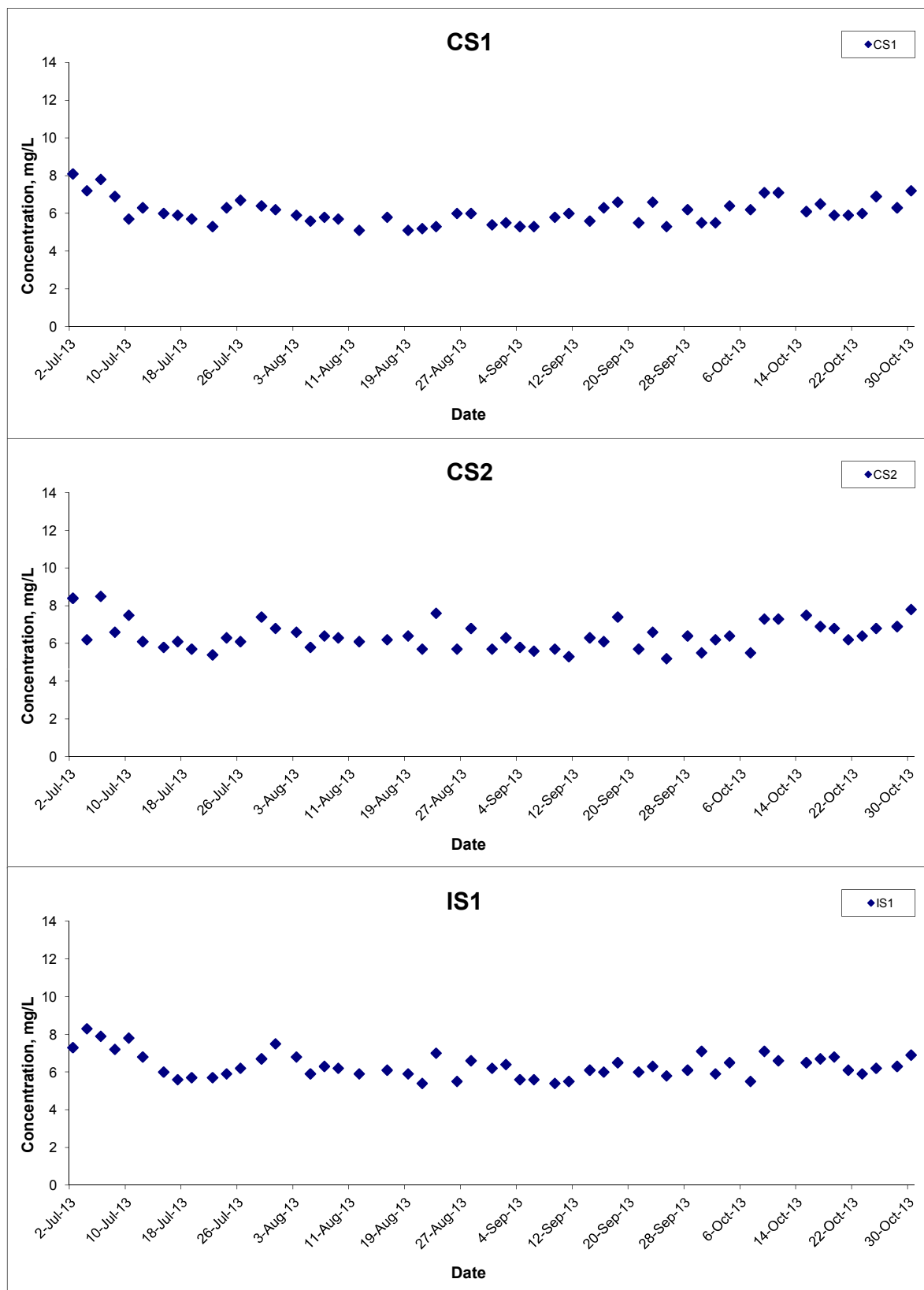
Water Quality Monitoring Results at ST3 - Mid-Flood Tide

| Date | Weather Condition | Sea Condition** | Sampling Time | Depth (m) | | Temperature (°C) | | pH | | Salinity ppt | | DO Saturation (%) | | Dissolved Oxygen (mg/L) | | | Turbidity(NTU) | | | Suspended Solids (mg/L) | | |
|-----------|-------------------|-----------------|---------------|-----------|-----|------------------|---------|------------|---------|--------------|---------|-------------------|---------|-------------------------|---------|-----|----------------|---------|------|-------------------------|---------|------|
| | | | | | | Value | Average | Value | Average | Value | Average | Value | Average | Value | Average | DA* | Value | Average | DA* | Value | Average | DA* |
| 21-Oct-13 | Fine | Rough | 18:35 | Surface | 1 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.0 29.0 | 29.0 | 99.6 99.0 | 99.3 | 6.8 6.8 | 6.8 | 6.7 | 4.6 4.6 | 4.6 | 7.6 | 4.0 4.2 | 4.1 | 4.1 |
| | | | | Middle | 6.5 | 26.1 26.1 | 26.1 | 8.1 8.1 | 8.1 | 29.6 29.6 | 29.6 | 96.1 96.8 | 96.5 | 6.6 6.6 | 6.6 | | 7.9 7.5 | 7.7 | | 3.3 3.5 | 3.4 | |
| | | | | Bottom | 12 | 26.0 26.0 | 26.0 | 8.1 8.1 | 8.1 | 29.7 29.7 | 29.7 | 92.3 92.0 | 92.2 | 6.3 6.3 | 6.3 | | 10.6 10.4 | 10.5 | | 6.1 3.6 | 4.9 | |
| 23-Oct-13 | Sunny | Calm | 10:18 | Surface | 1 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 86.4 86.3 | 86.4 | 6.0 6.0 | 6.0 | 6.0 | 10.3 10.0 | 10.2 | 13.3 | 21.0 22.3 | 21.7 | 18.8 |
| | | | | Middle | 7 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 85.7 85.5 | 85.6 | 5.9 5.9 | 5.9 | | 14.7 14.4 | 14.6 | | 22.7 16.0 | 19.4 | |
| | | | | Bottom | 13 | 26.2 26.2 | 26.2 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 85.7 85.5 | 85.6 | 5.9 5.9 | 5.9 | | 15.9 14.5 | 15.2 | | 15.6 15.2 | 15.4 | |
| 25-Oct-13 | Sunny | Moderate | 12:28 | Surface | 1 | 25.5 25.5 | 25.5 | 8.2 8.2 | 8.2 | 30.1 30.1 | 30.1 | 89.0 89.8 | 89.4 | 6.2 6.2 | 6.2 | 6.4 | 6.3 6.0 | 6.2 | 11.7 | 6.3 6.0 | 6.2 | 6.3 |
| | | | | Middle | 7.5 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 29.9 29.9 | 29.9 | 93.7 93.7 | 93.7 | 6.5 6.5 | 6.5 | | 10.0 10.0 | 10.0 | | 6.0 6.2 | 6.1 | |
| | | | | Bottom | 14 | 25.3 25.3 | 25.3 | 8.2 8.2 | 8.2 | 30.5 30.5 | 30.5 | 88.9 89.1 | 89.0 | 6.1 6.2 | 6.2 | | 18.8 19.0 | 18.9 | | 7.0 6.2 | 6.6 | |
| 28-Oct-13 | Cloudy | Moderate | 15:18 | Surface | 1 | 25.1 25.1 | 25.1 | 8.1 8.1 | 8.1 | 31.9 32.0 | 32.0 | 101.7 101.0 | 101.4 | 7.0 7.0 | 7.0 | 7.0 | 9.2 9.5 | 9.4 | 11.7 | 4.7 5.0 | 4.9 | 5.1 |
| | | | | Middle | 5.5 | 25.0 25.0 | 25.0 | 8.1 8.2 | 8.2 | 31.9 31.9 | 31.9 | 101.3 100.3 | 100.8 | 7.0 6.9 | 7.0 | | 12.0 10.4 | 11.2 | | 5.2 8.0 | 6.6 | |
| | | | | Bottom | 10 | 24.9 25.0 | 25.0 | 8.1 8.1 | 8.1 | 31.9 28.9 | 30.4 | 102.2 101.1 | 101.7 | 7.1 7.1 | 7.1 | | 14.7 14.4 | 14.6 | | 4.2 3.4 | 3.8 | |
| 30-Oct-13 | Sunny | Calm | 15:02 | Surface | 1 | 25.7 25.7 | 25.7 | 8.1 8.1 | 8.1 | 26.9 26.9 | 26.9 | 102.2 103.1 | 102.7 | 7.2 7.2 | 7.2 | 7.2 | 2.6 2.6 | 2.6 | 5.9 | 3.2 2.2 | 2.7 | 2.8 |
| | | | | Middle | 7 | 25.6 25.6 | 25.6 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 102.9 103.1 | 103.0 | 7.2 7.2 | 7.2 | | 6.7 6.7 | 6.7 | | 3.2 3.4 | 3.3 | |
| | | | | Bottom | 13 | 25.7 25.7 | 25.7 | 8.2 8.2 | 8.2 | 27.4 27.4 | 27.4 | 102.4 102.2 | 102.3 | 7.2 7.1 | 7.2 | | 8.4 8.5 | 8.5 | | 2.2 2.6 | 2.4 | |

Remarks: *DA: Depth-Averaged

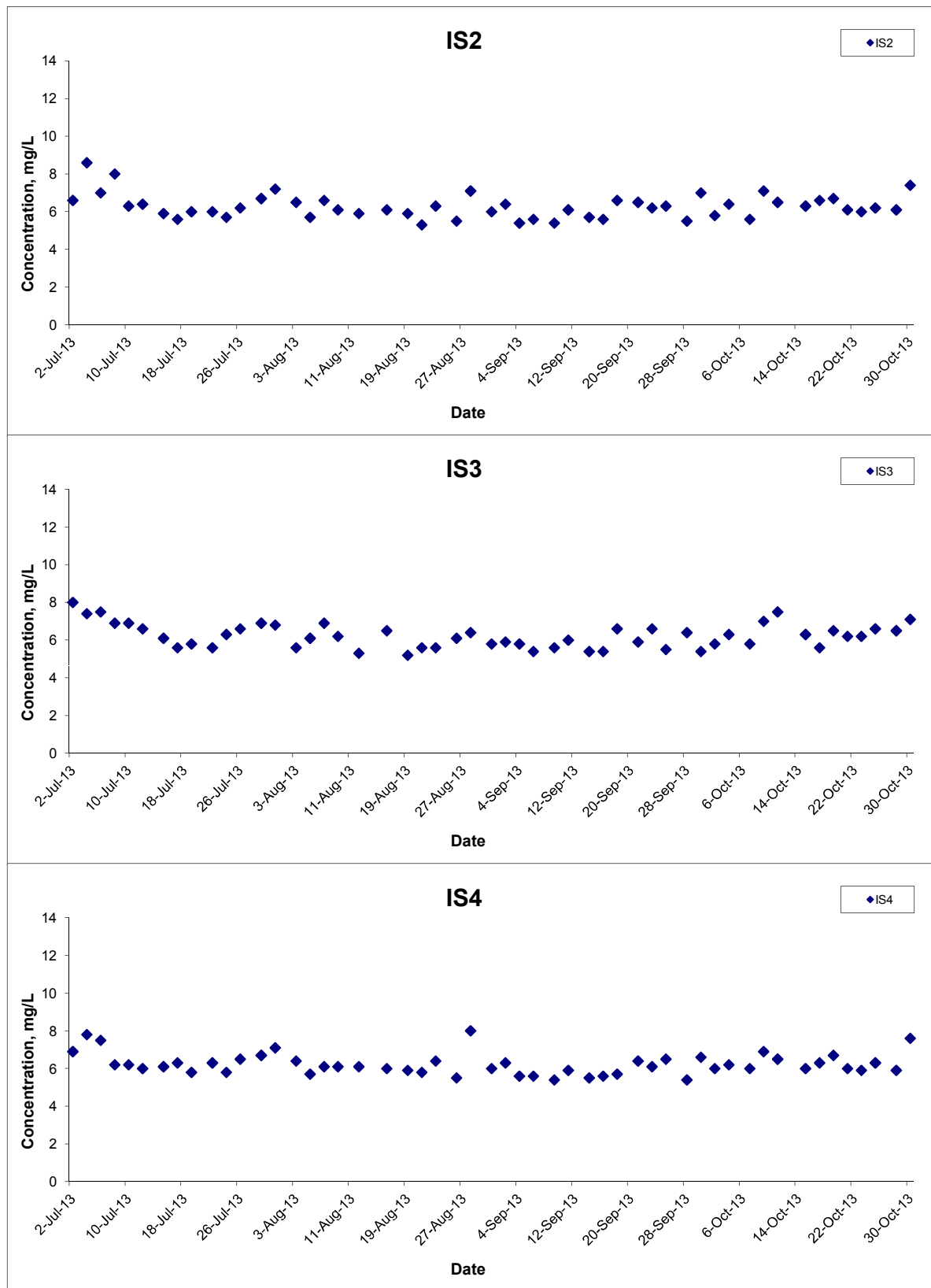
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

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



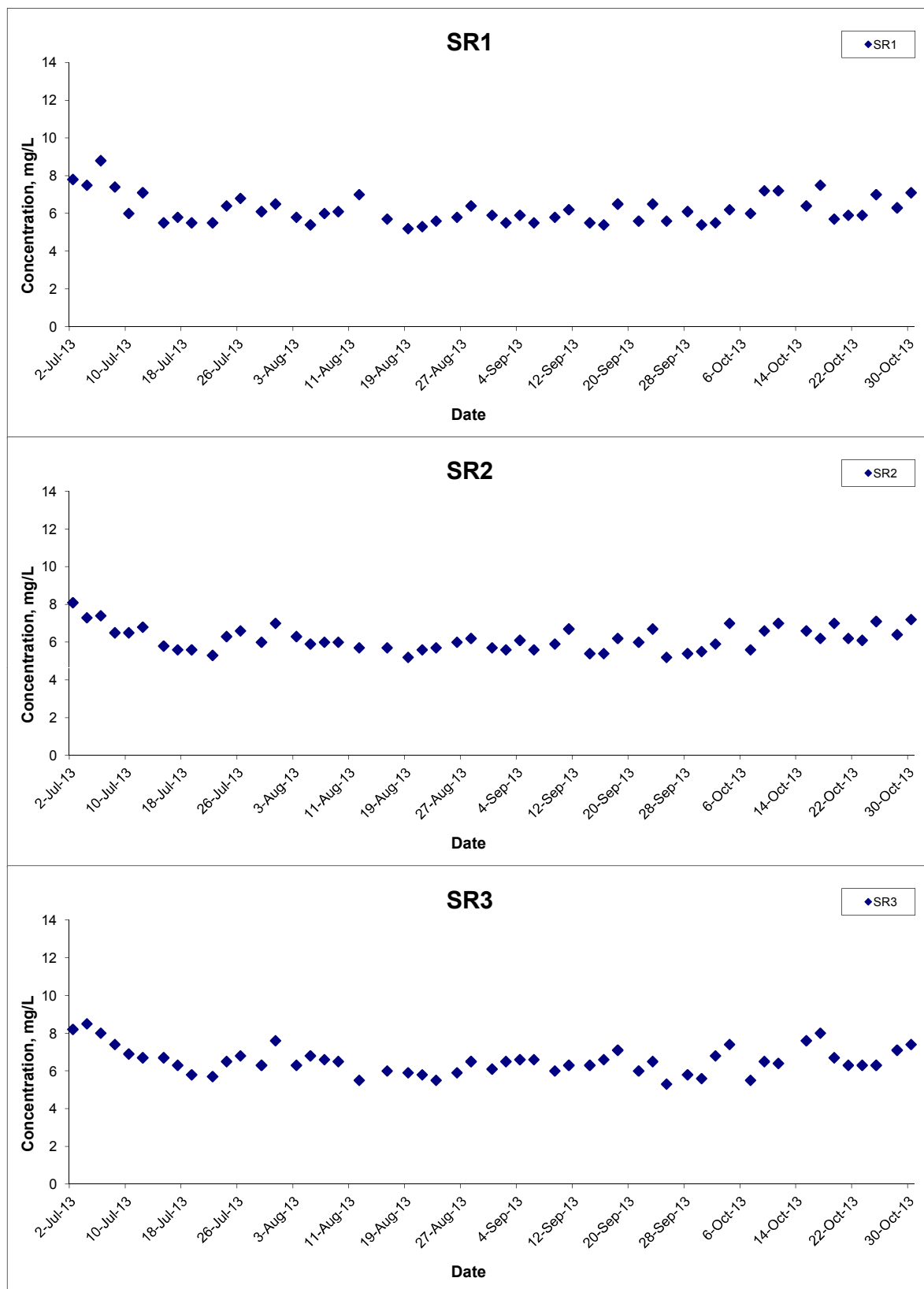
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| Title | Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill Graphical Presentation of Water Quality Monitoring Results | Scale | N.T.S | Project No. MA12014 | CINOTECH |
| | | Date | Oct 13 | Appendix H | |

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



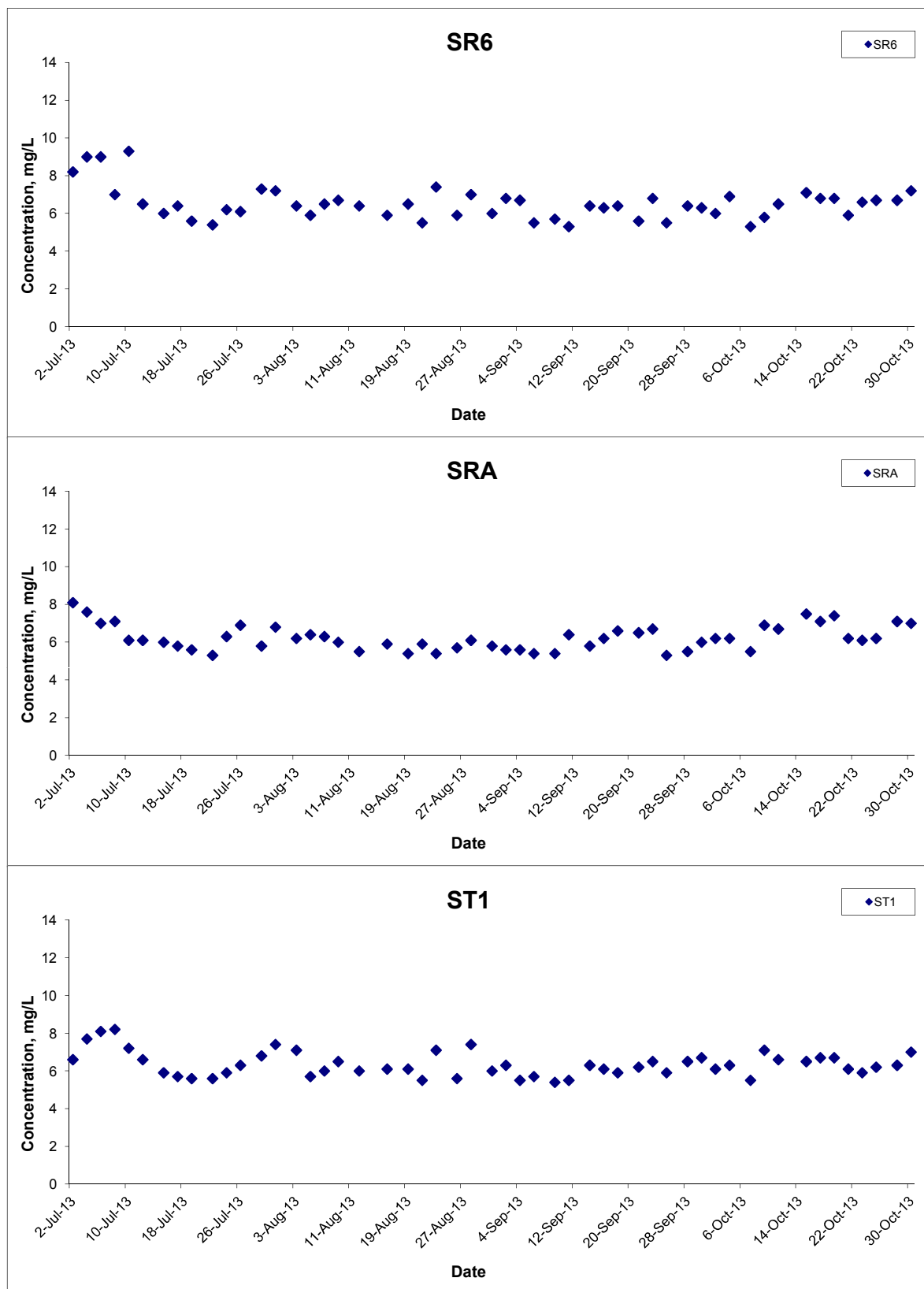
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| | | N.T.S | No. MA12014 | |
| | | Date | Appendix | |
| | | Oct 13 | H | |

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



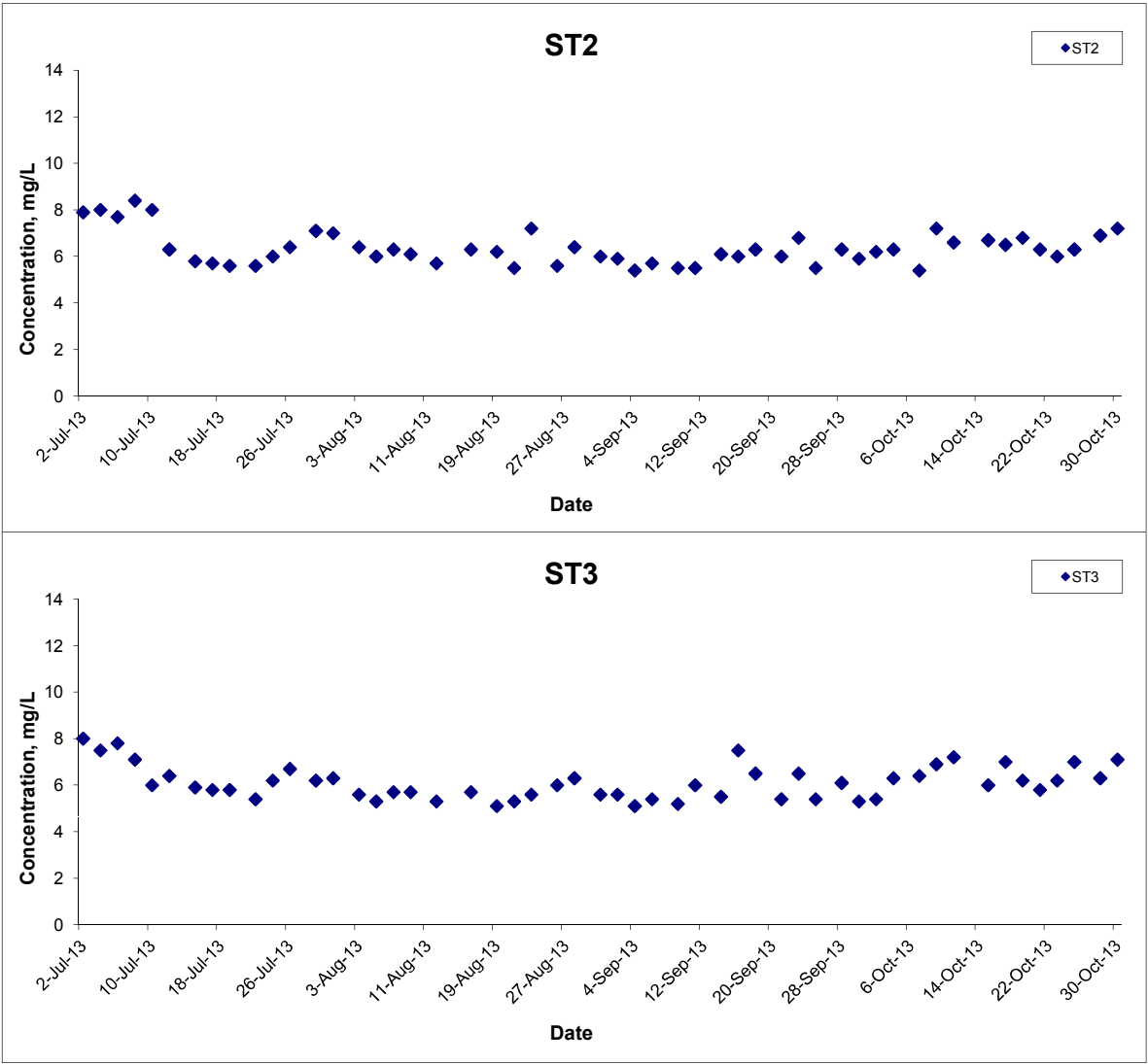
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| | Graphical Presentation of Water Quality Monitoring Results | | Date | Oct 13 | Appendix H | |

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



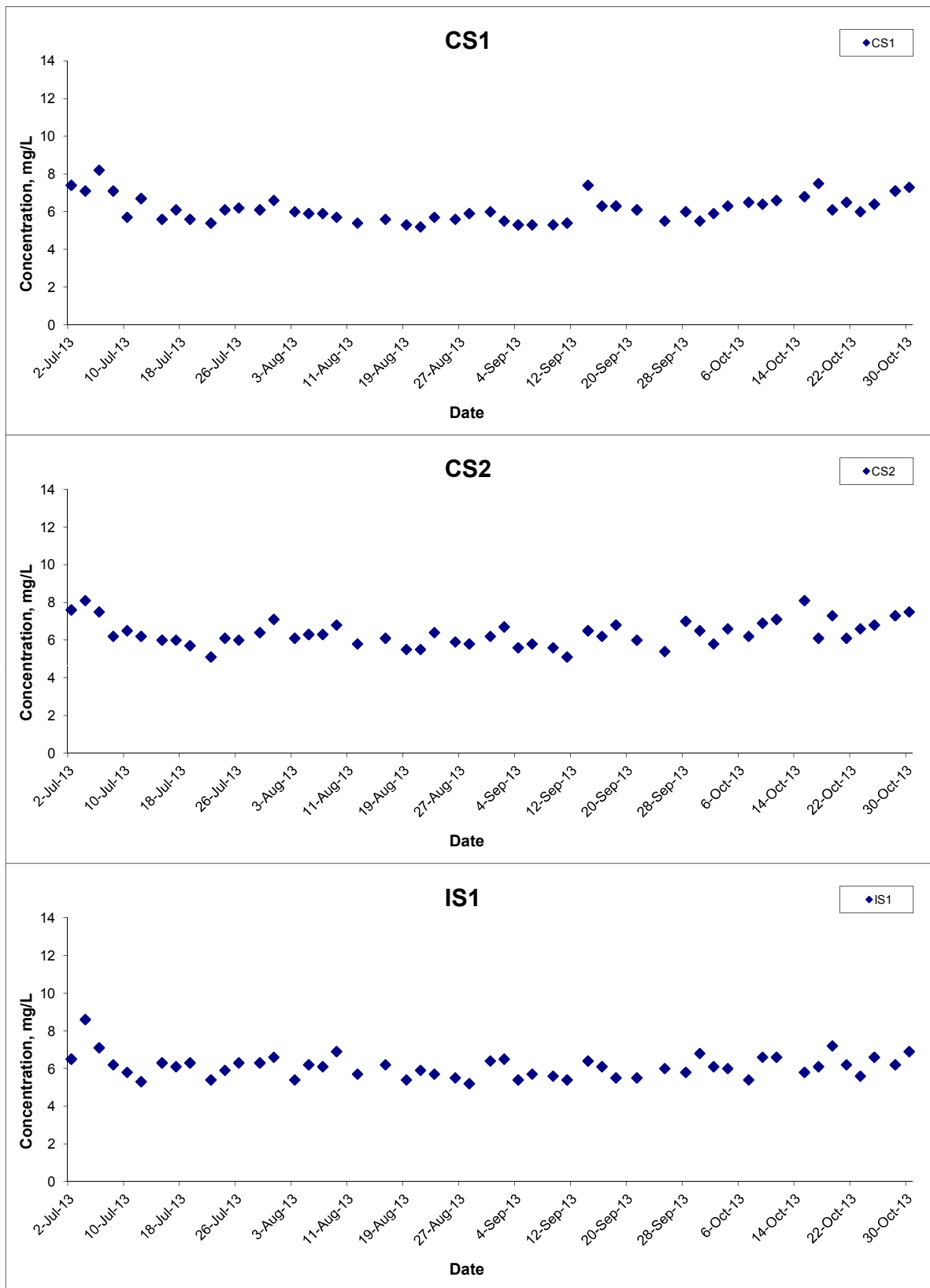
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| | Graphical Presentation of Water Quality Monitoring Results | | Date | Oct 13 | Appendix H | |

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



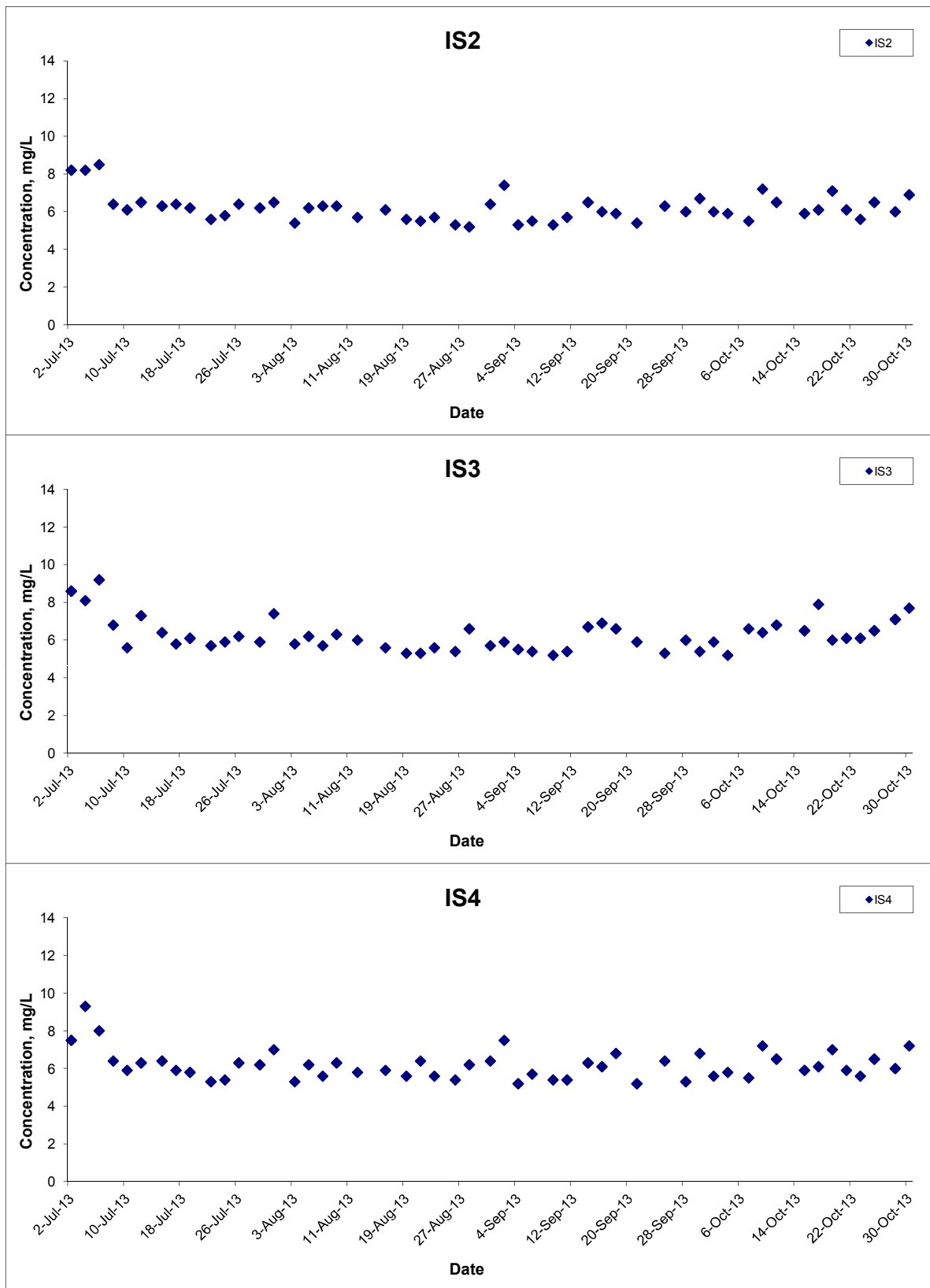
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| | | N.T.S | No. MA12014 | |
| | | Date | Appendix | |
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Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



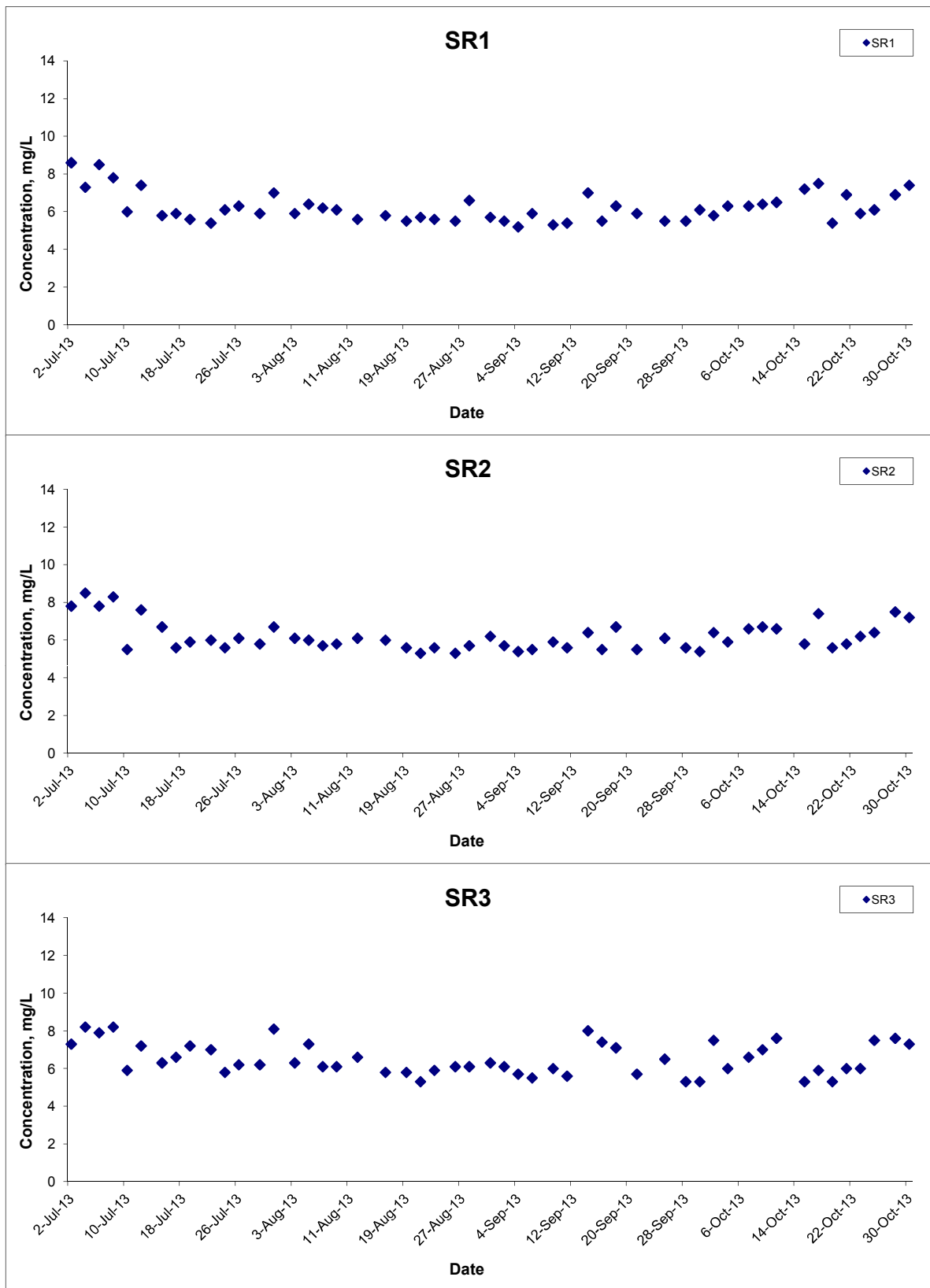
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| | | Date | Oct 13 | Appendix H | |

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



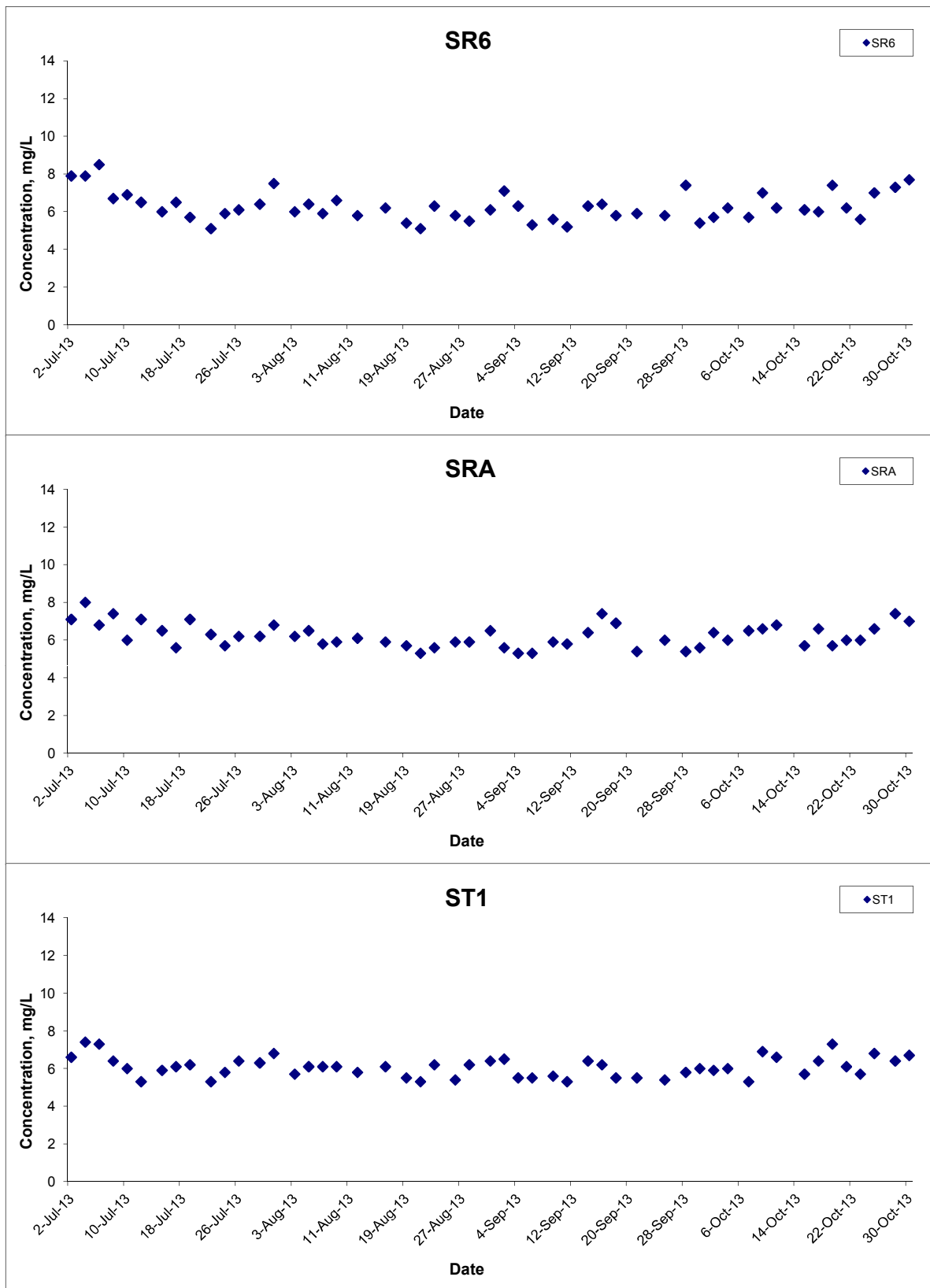
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| Title | Contract HY/2011/09 Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill | Scale | N.T.S | Project No. MA12014 | CINOTECH |
| | Graphical Presentation of Water Quality Monitoring Results | Date | Oct 13 | Appendix H | |

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



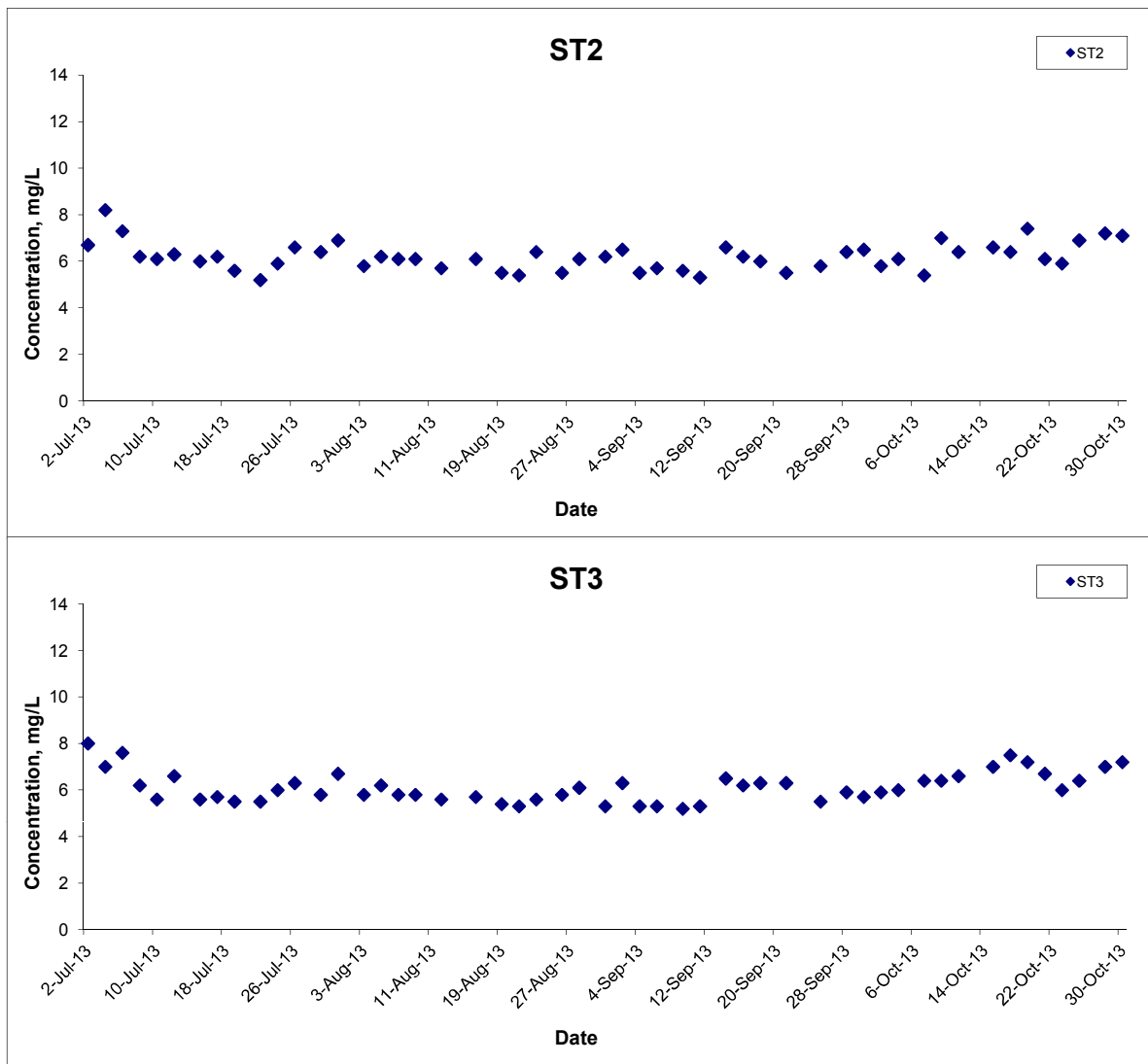
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| | | Date | Oct 13 | Appendix H | |

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



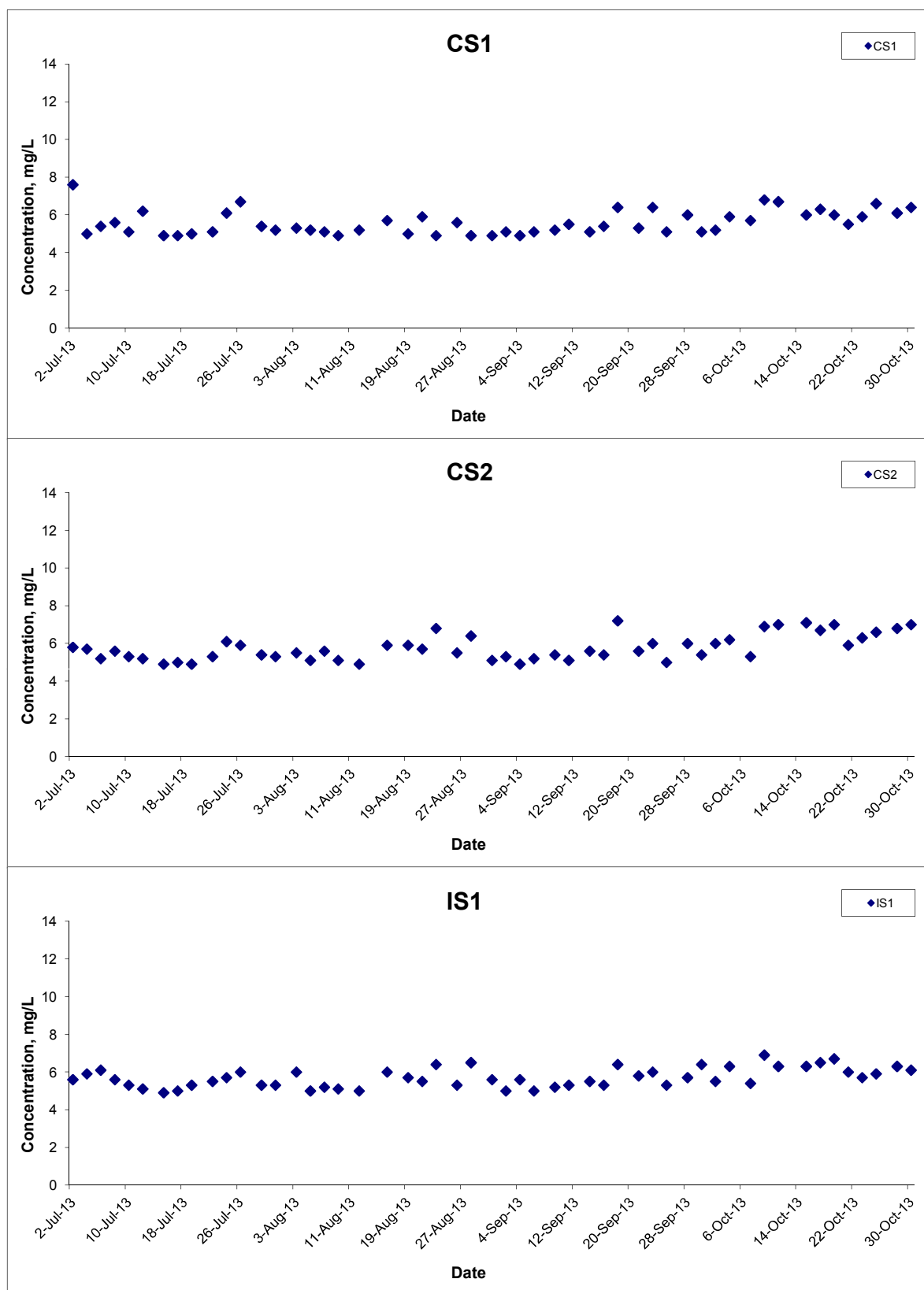
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Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



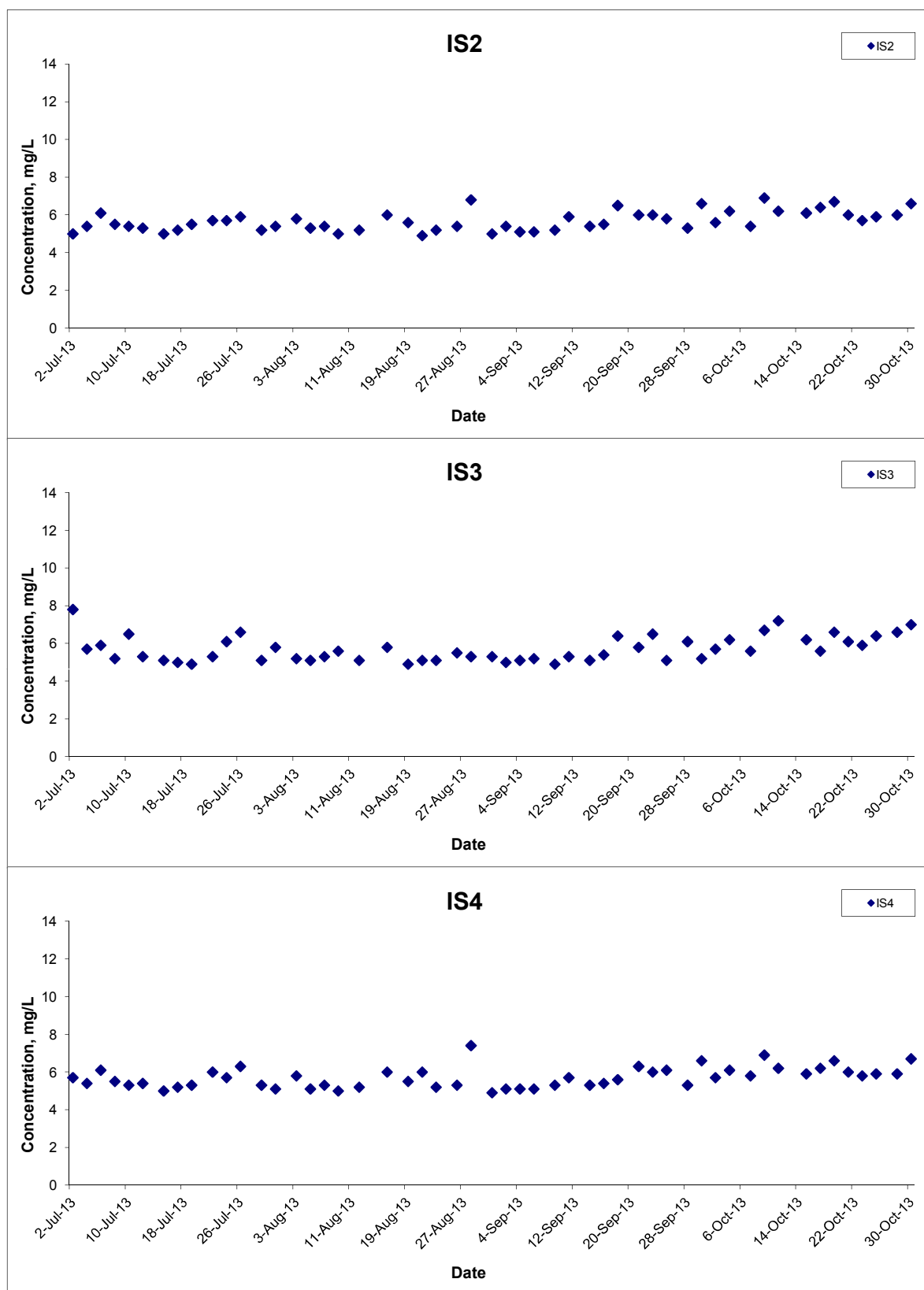
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| | | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



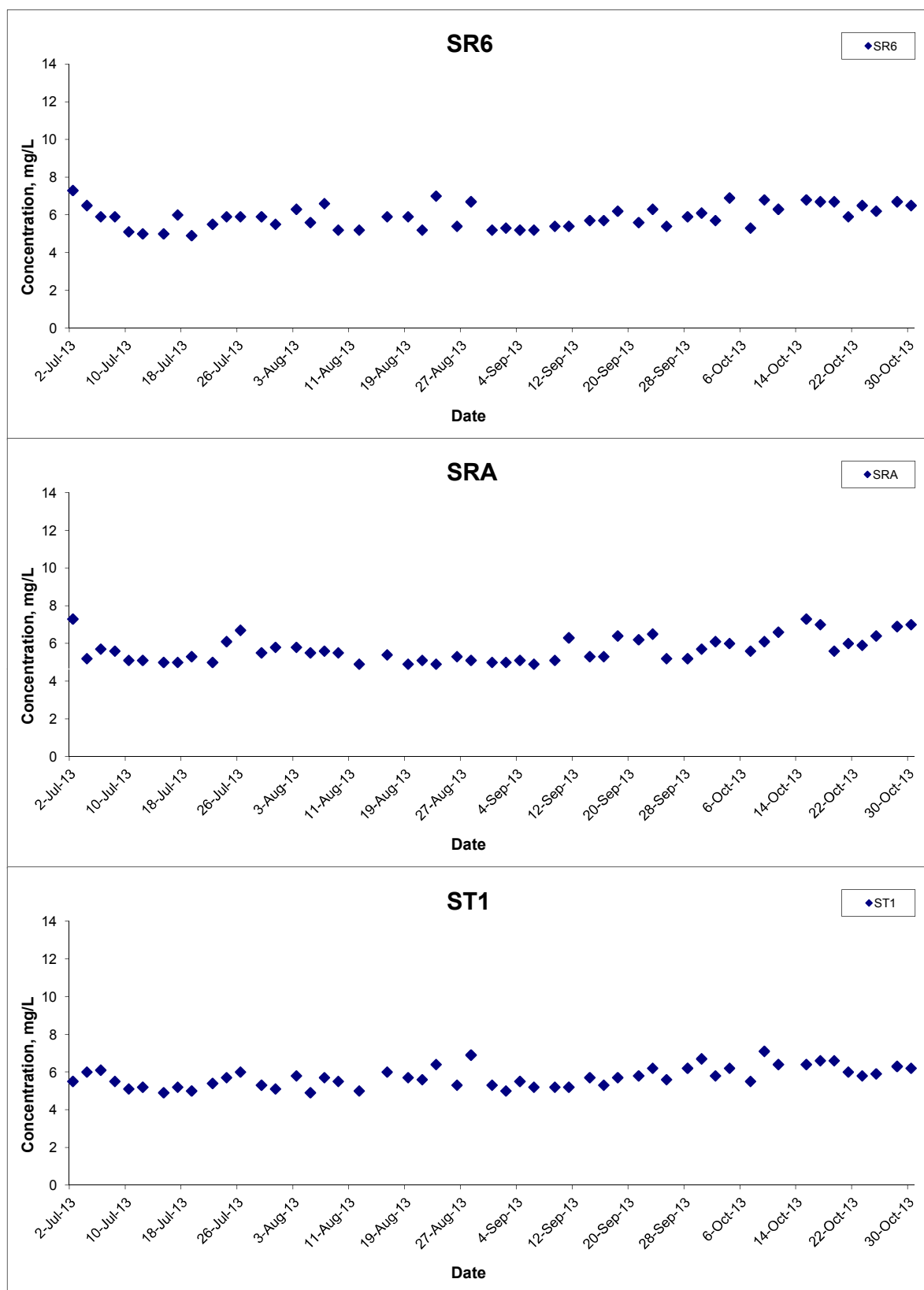
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| | | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



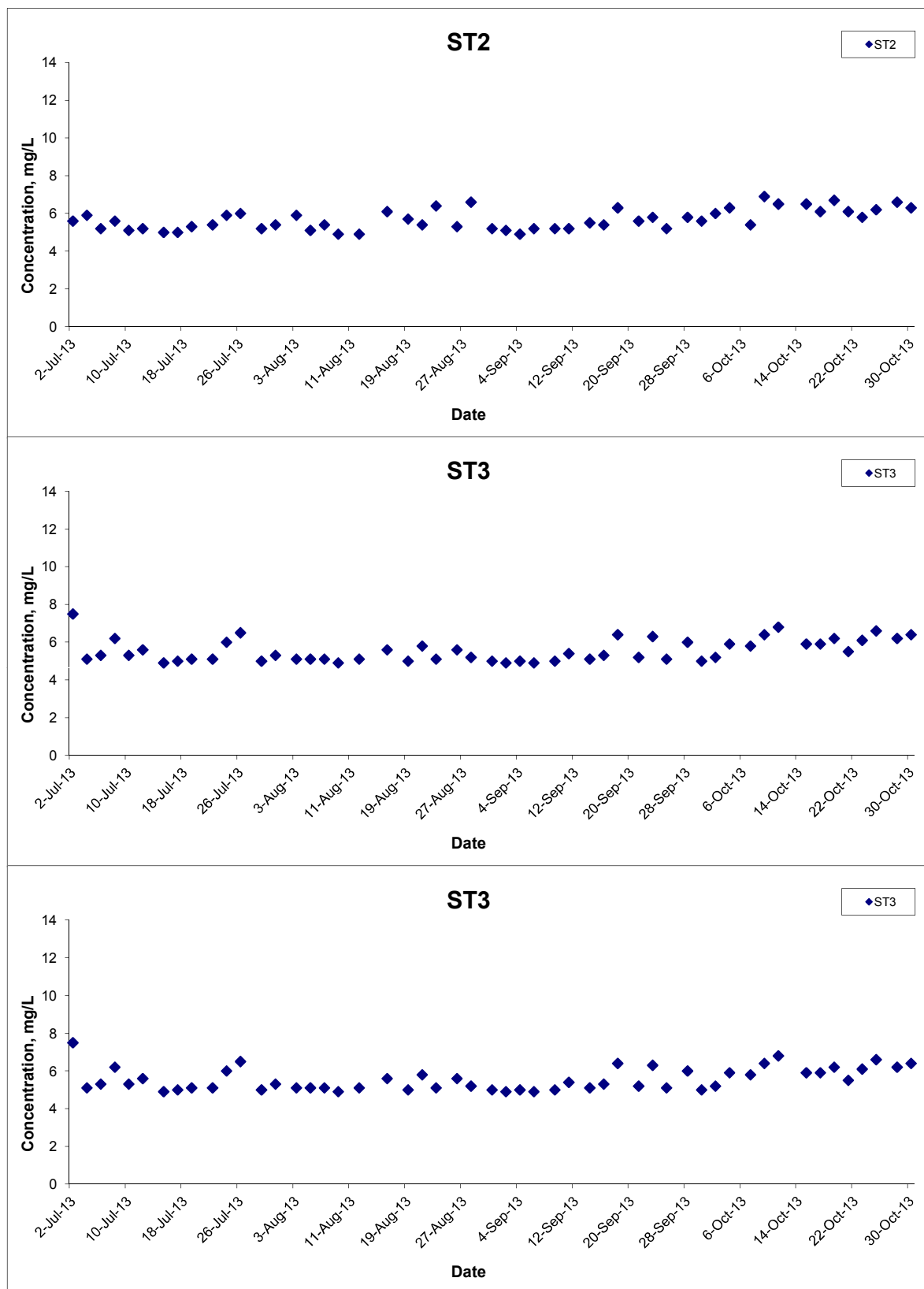
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| | | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



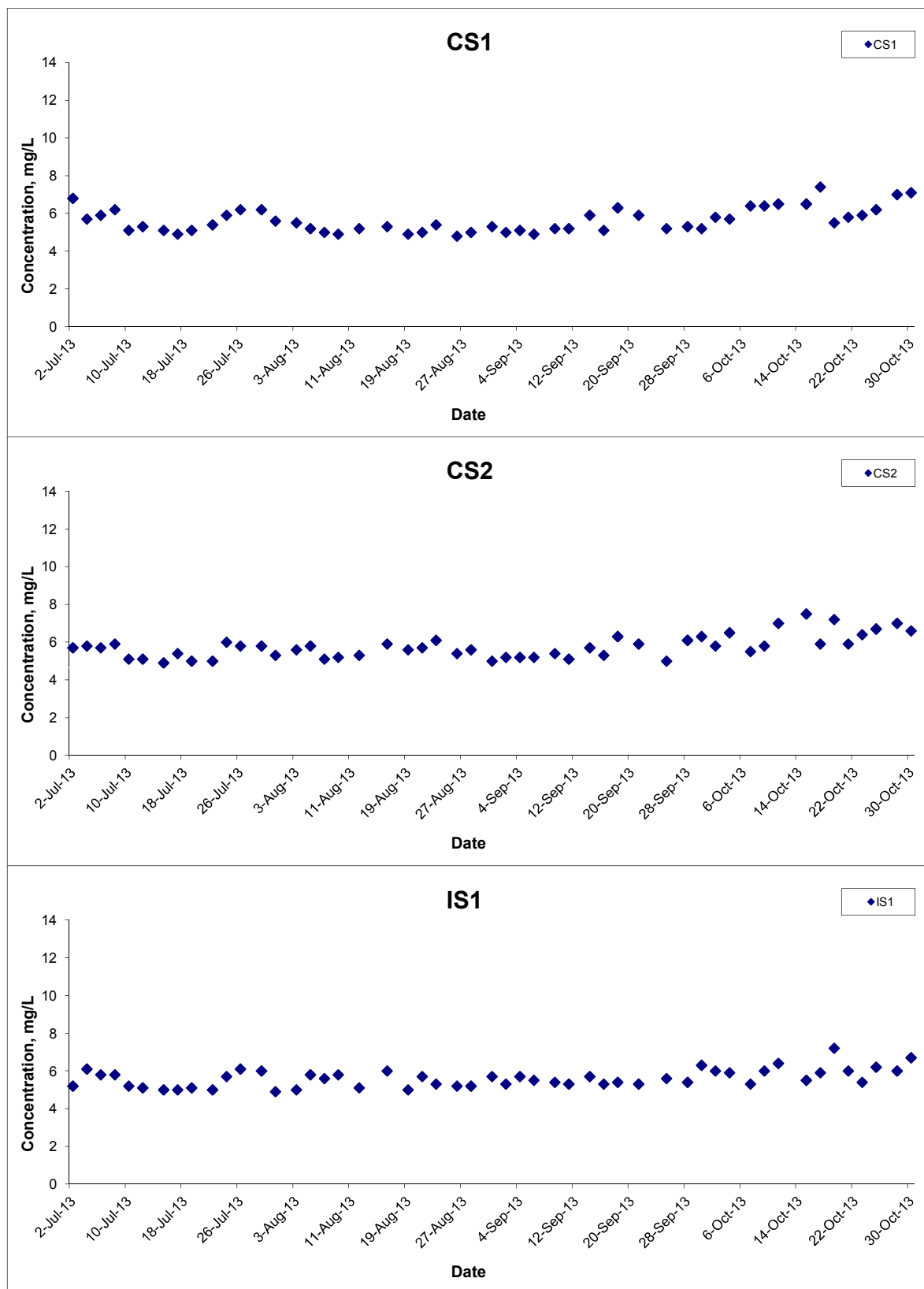
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| | | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



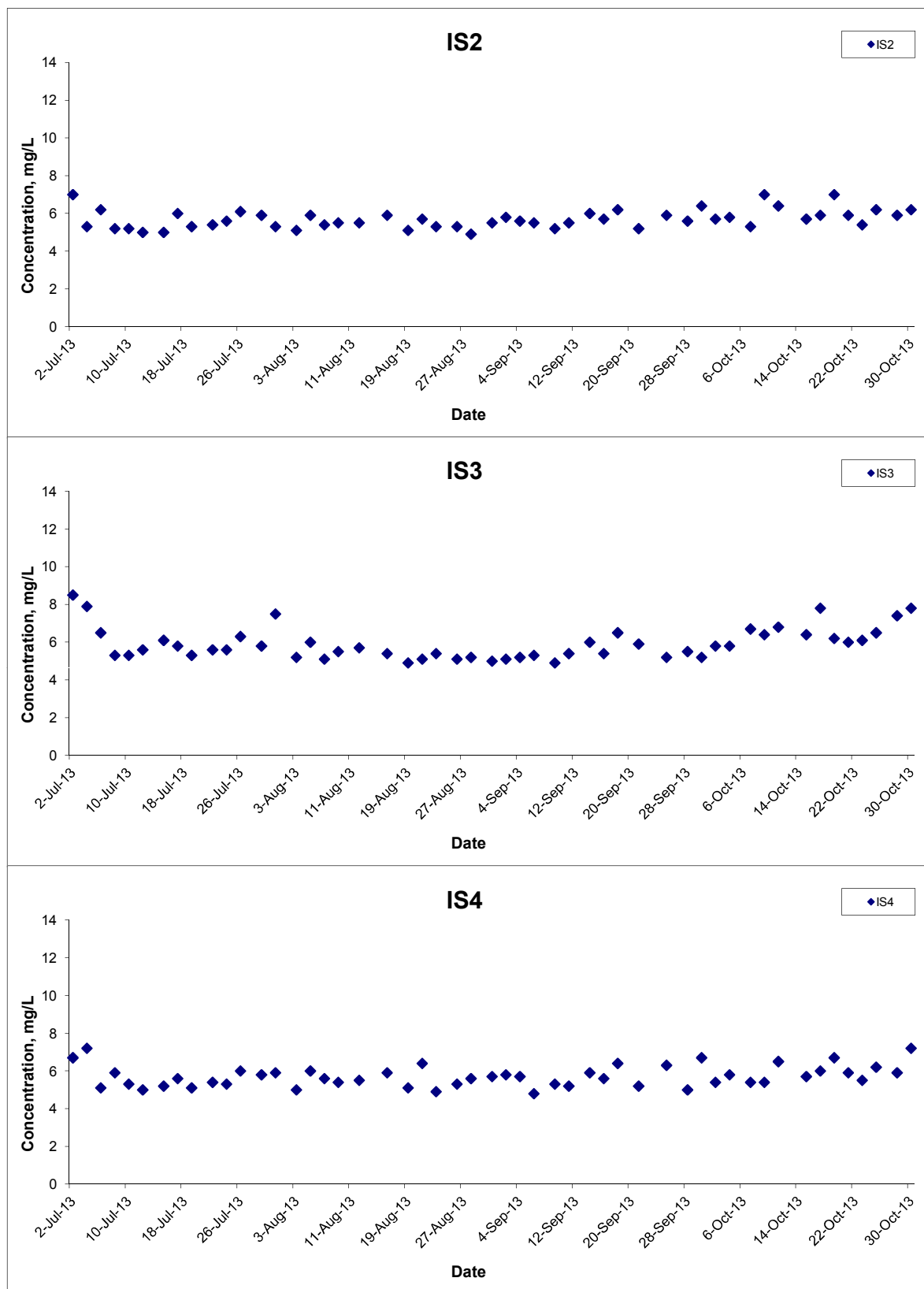
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| | Graphical Presentation of Water Quality Monitoring Results | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Flood Tide



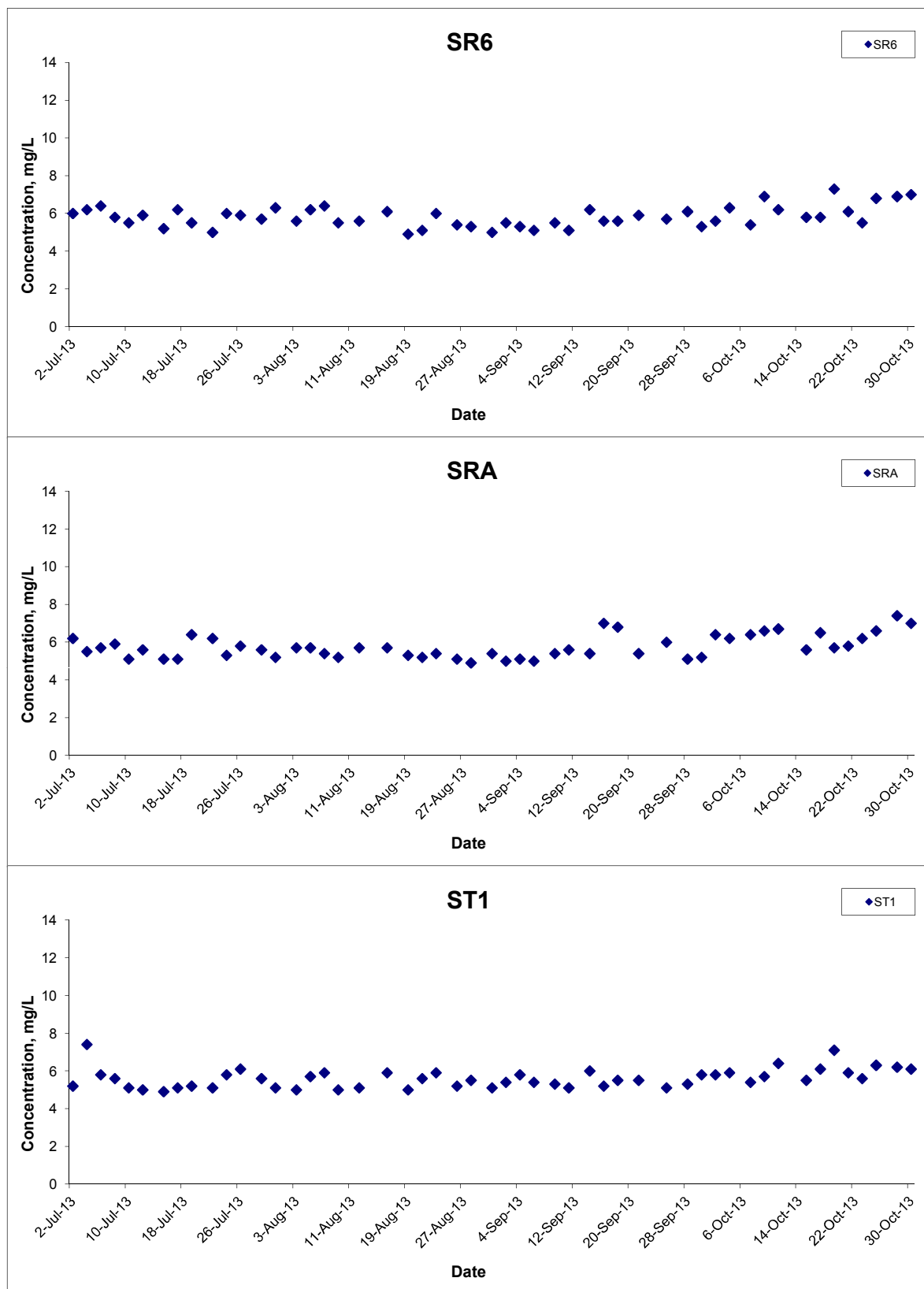
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| | | Date | Oct 13 | Appendix H | |

Dissolved Oxygen (Bottom) at Mid-Flood Tide



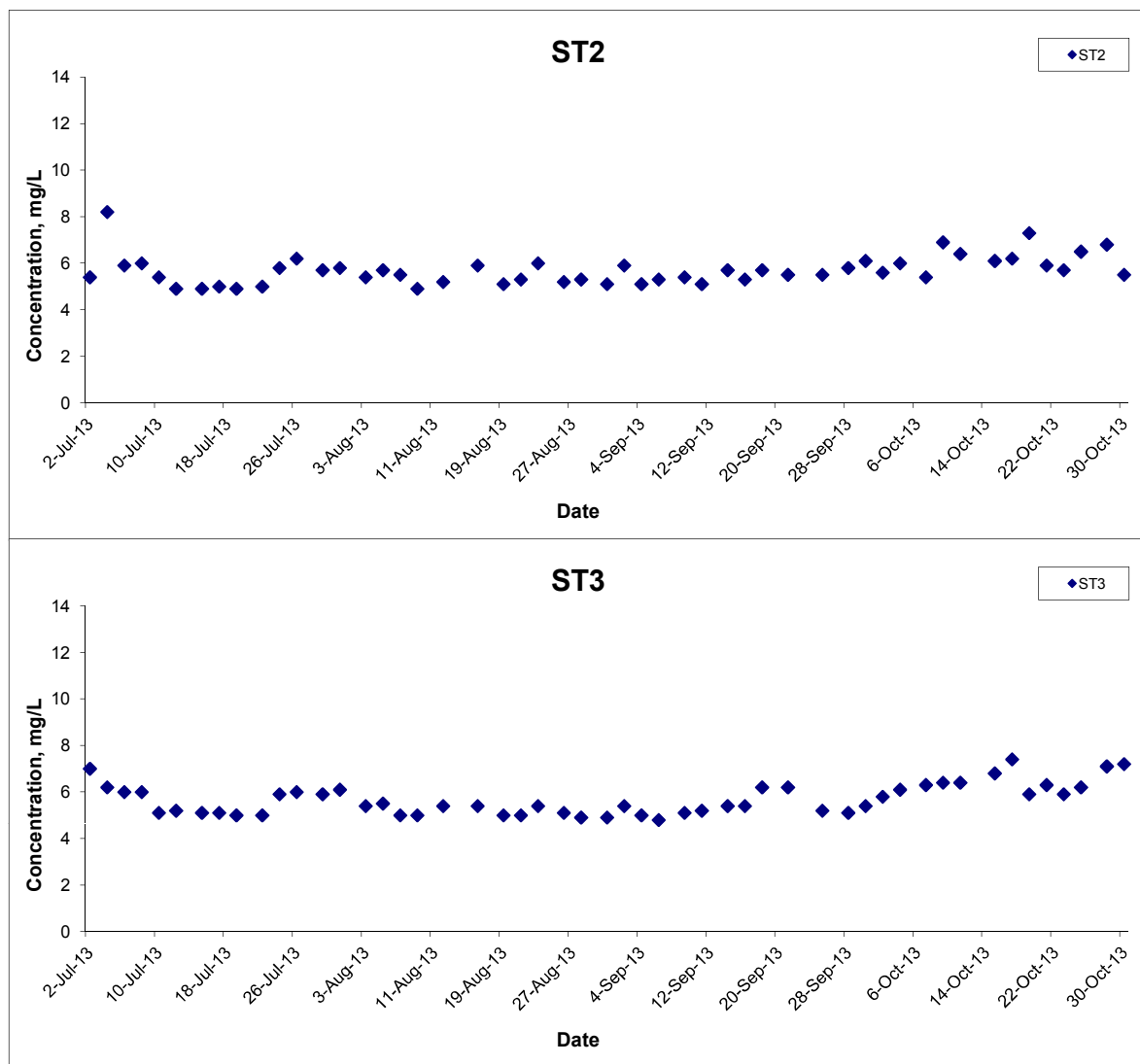
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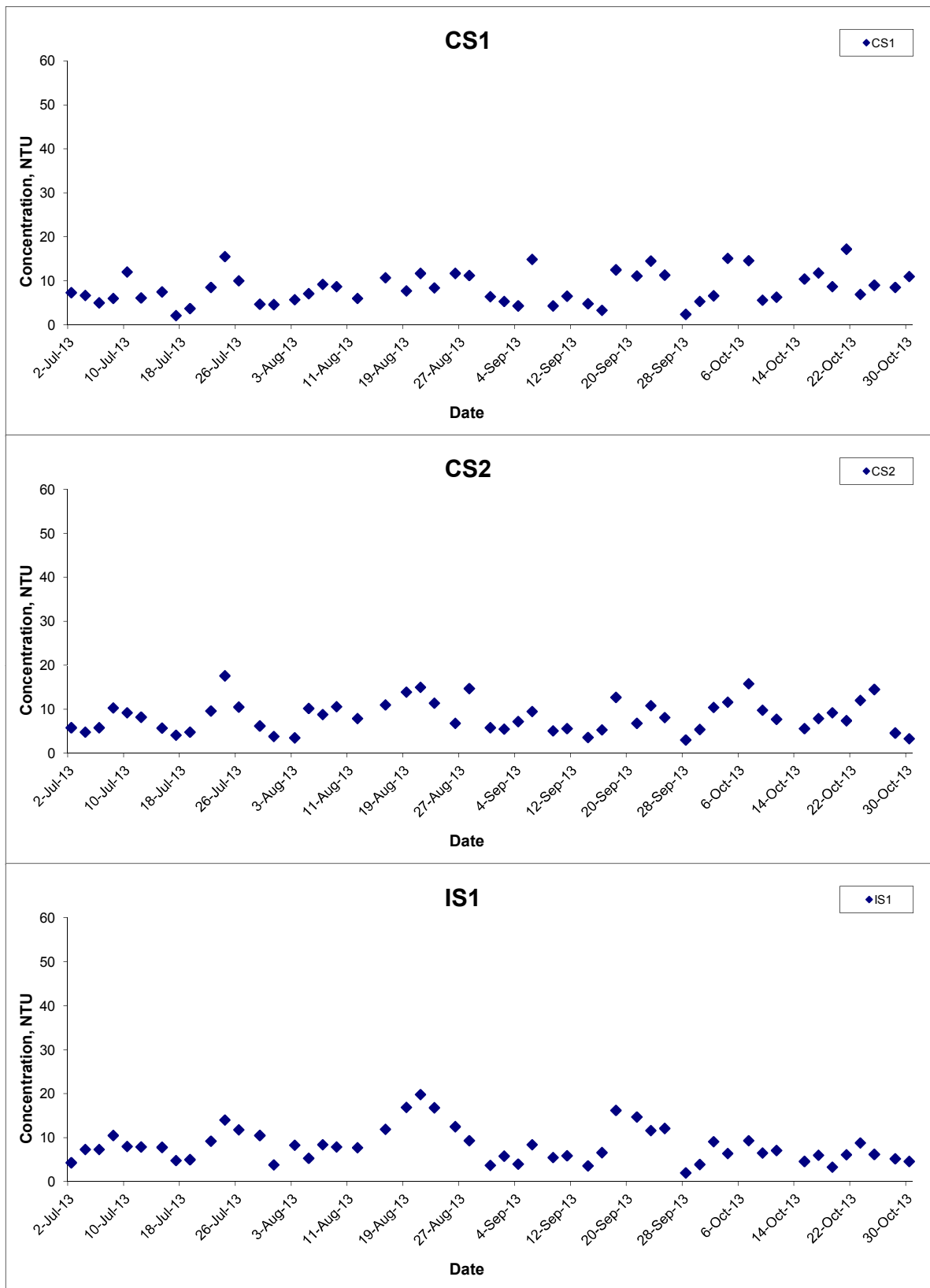
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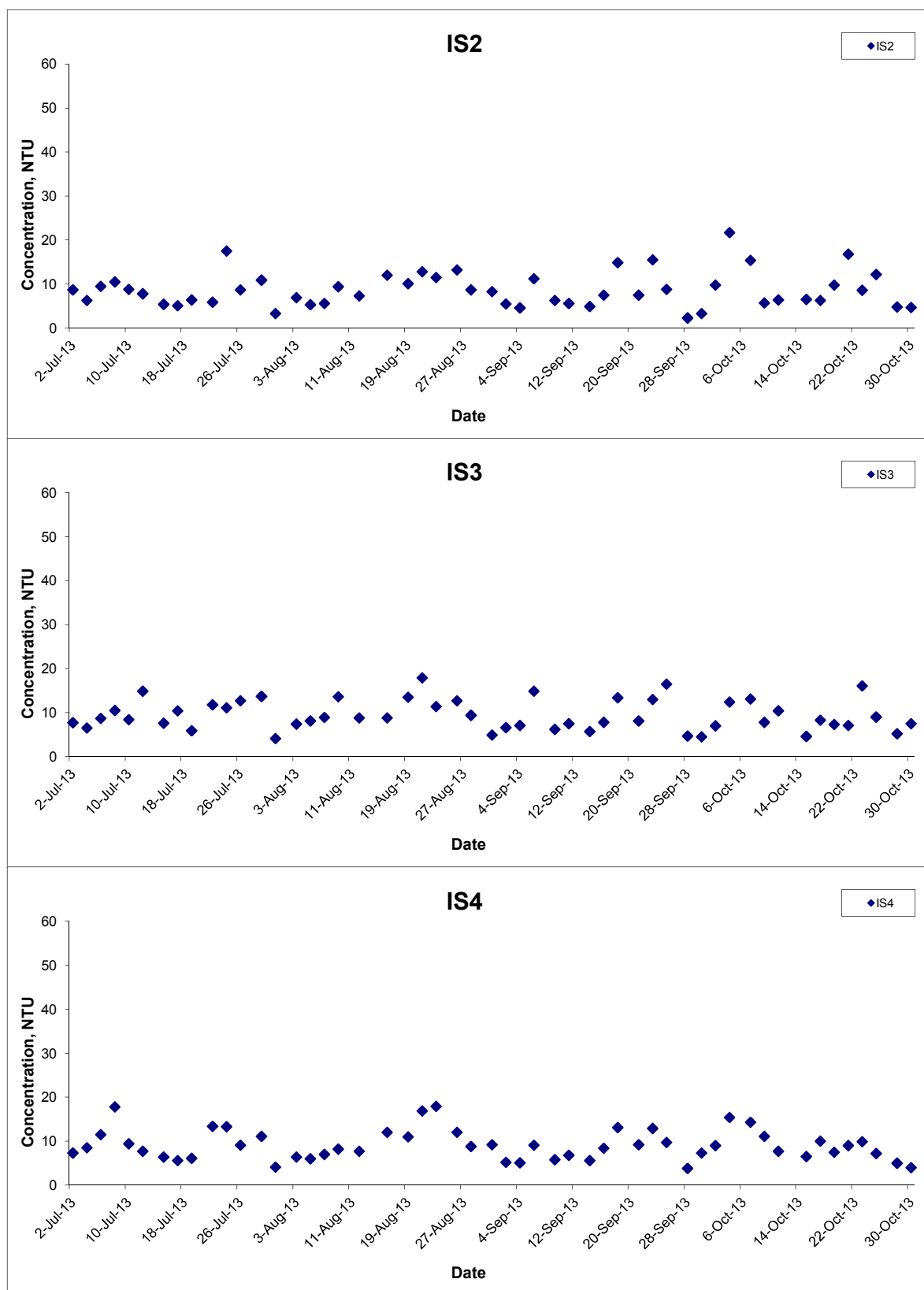
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Turbidity (Depth-averaged) at Mid-Ebb Tide



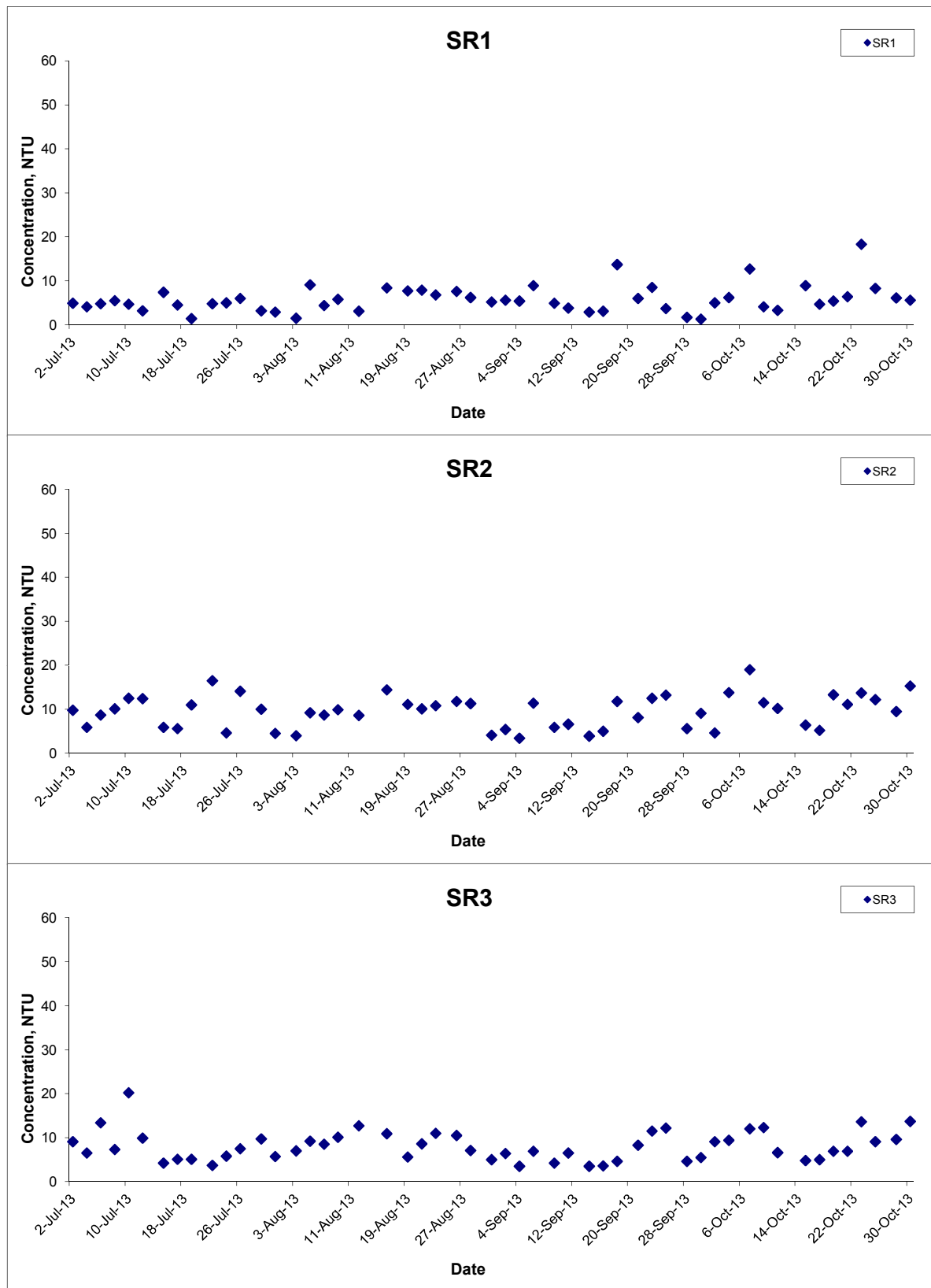
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Turbidity (Depth-averaged) at Mid-Ebb Tide



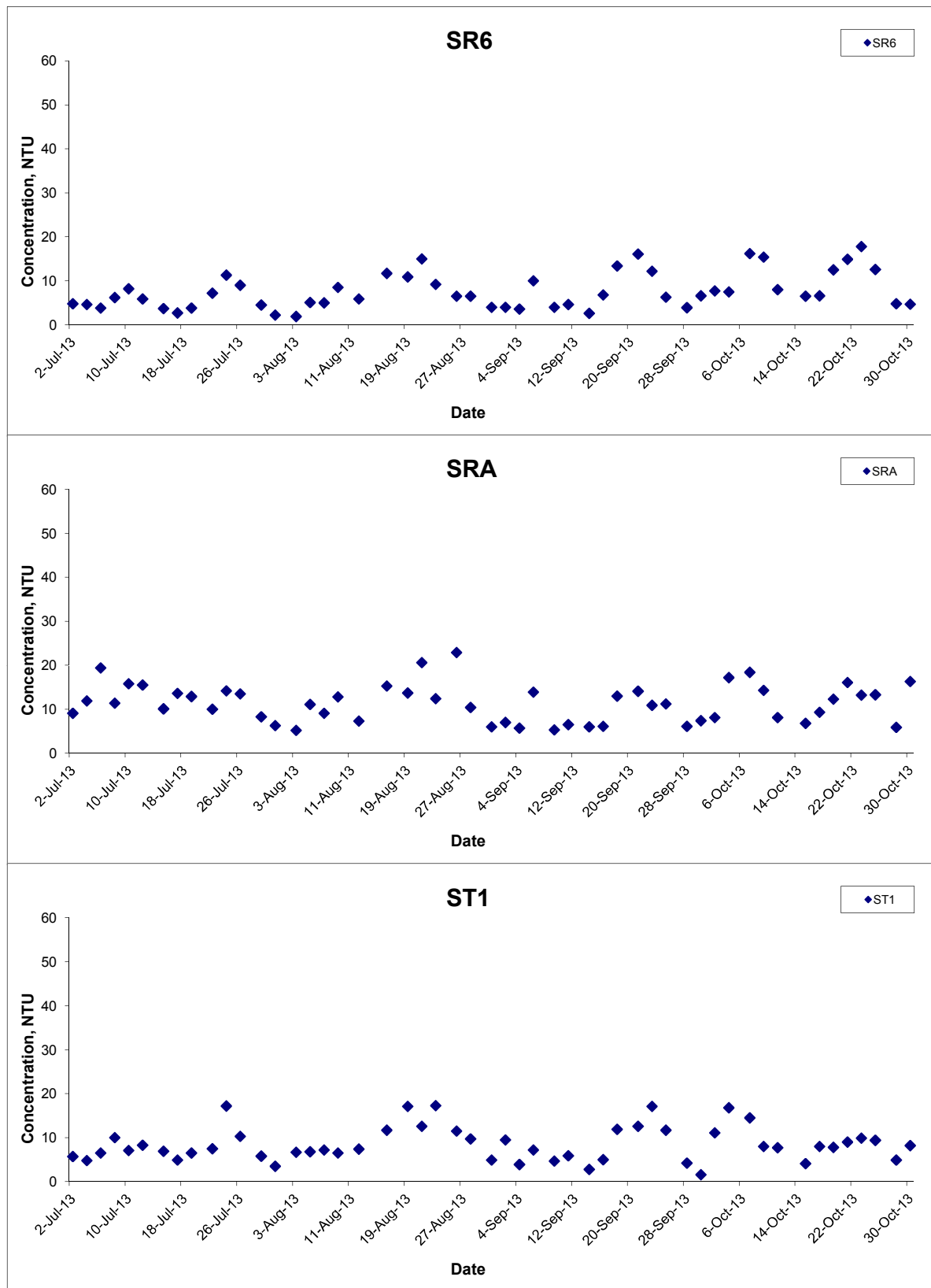
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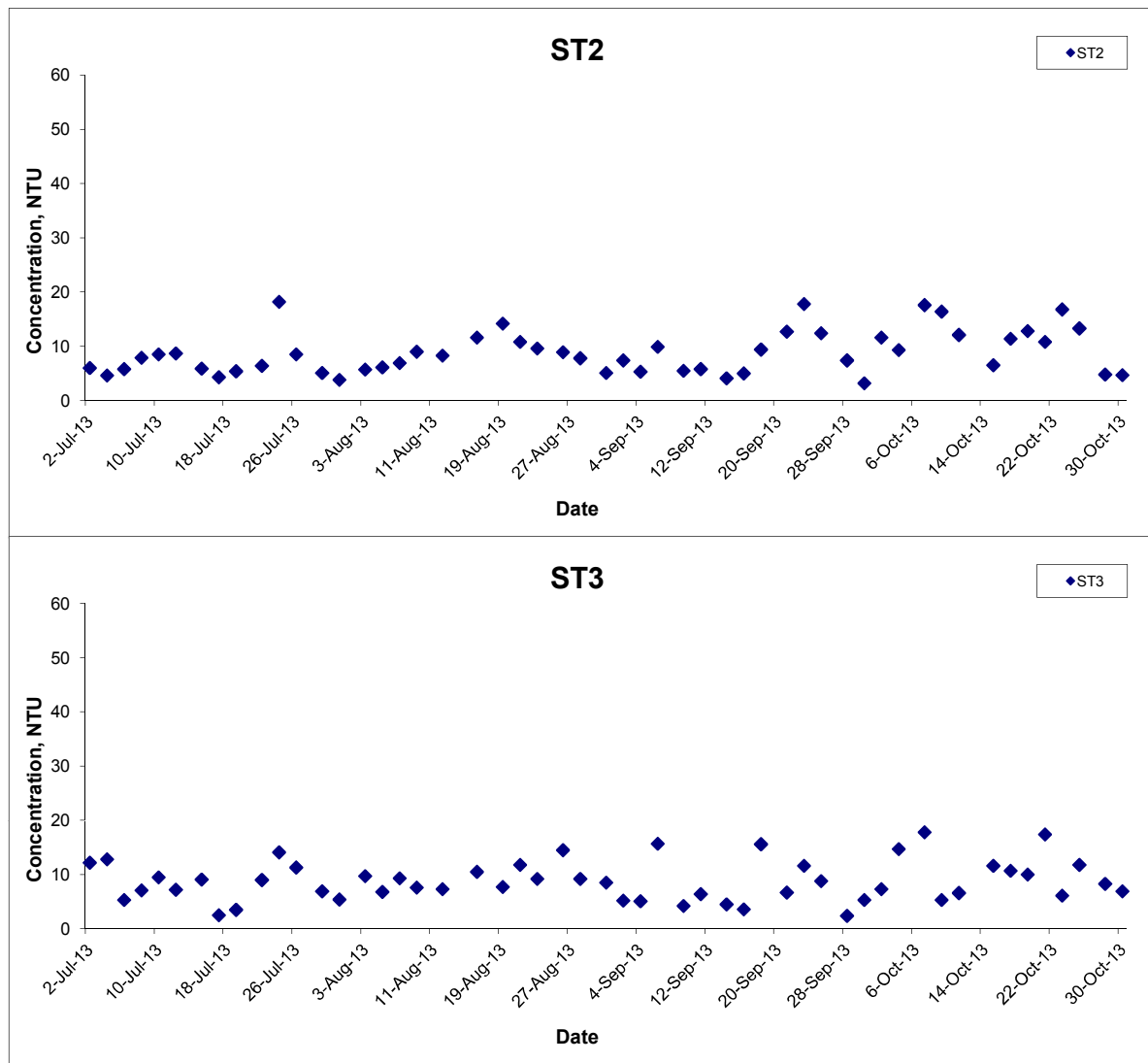
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Turbidity (Depth-averaged) at Mid-Ebb Tide



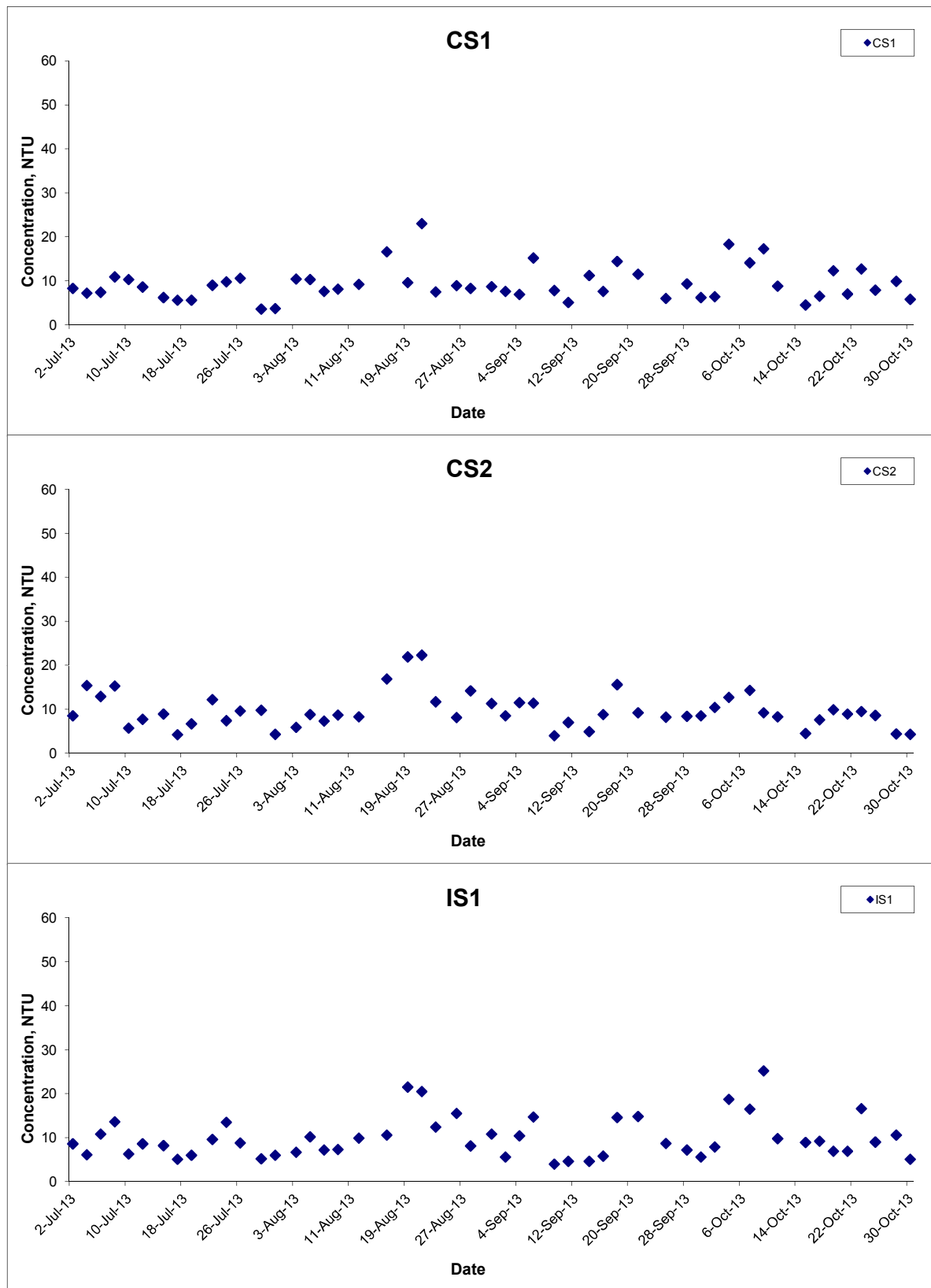
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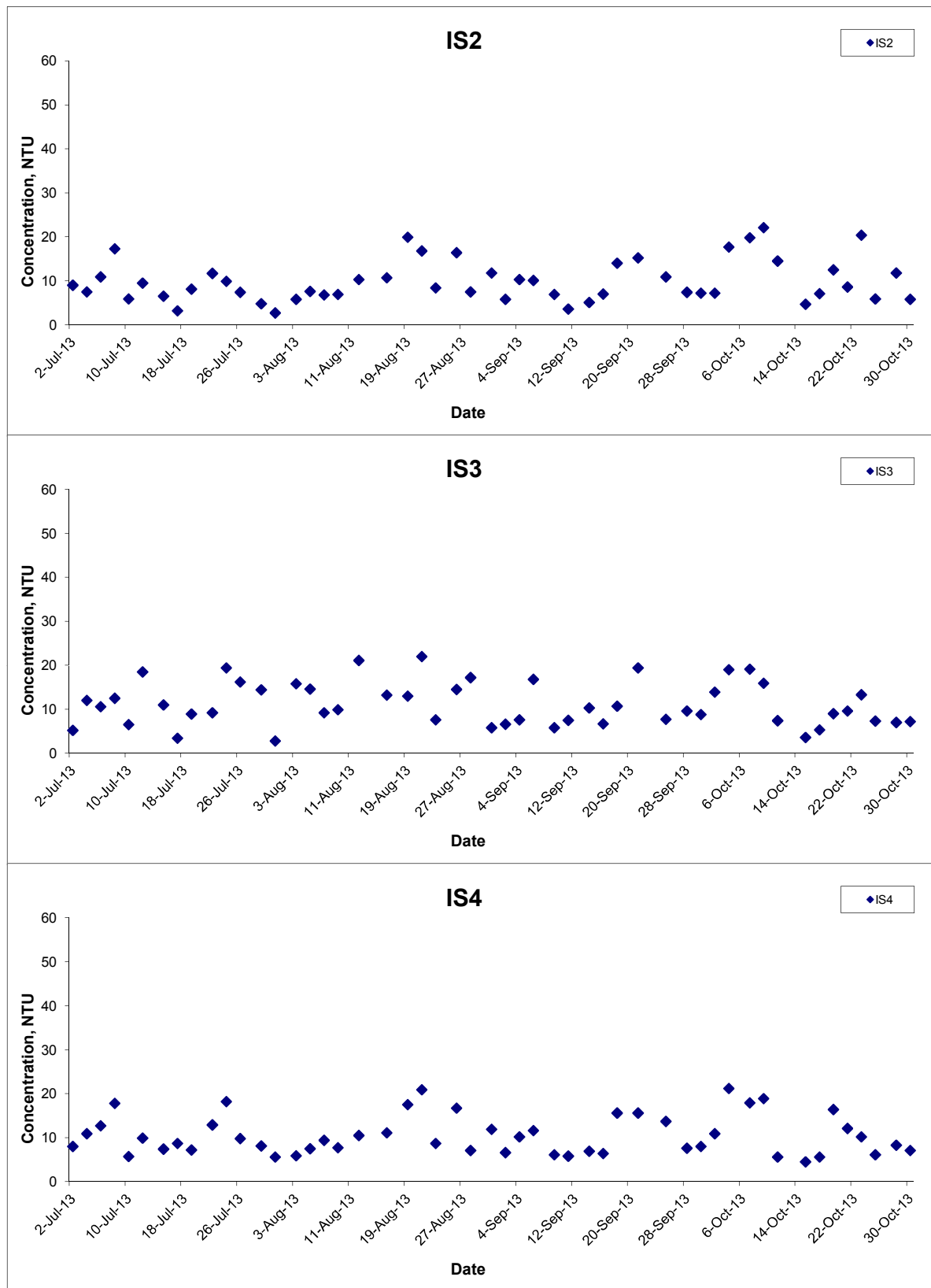
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Turbidity (Depth-averaged) at Mid-Flood Tide



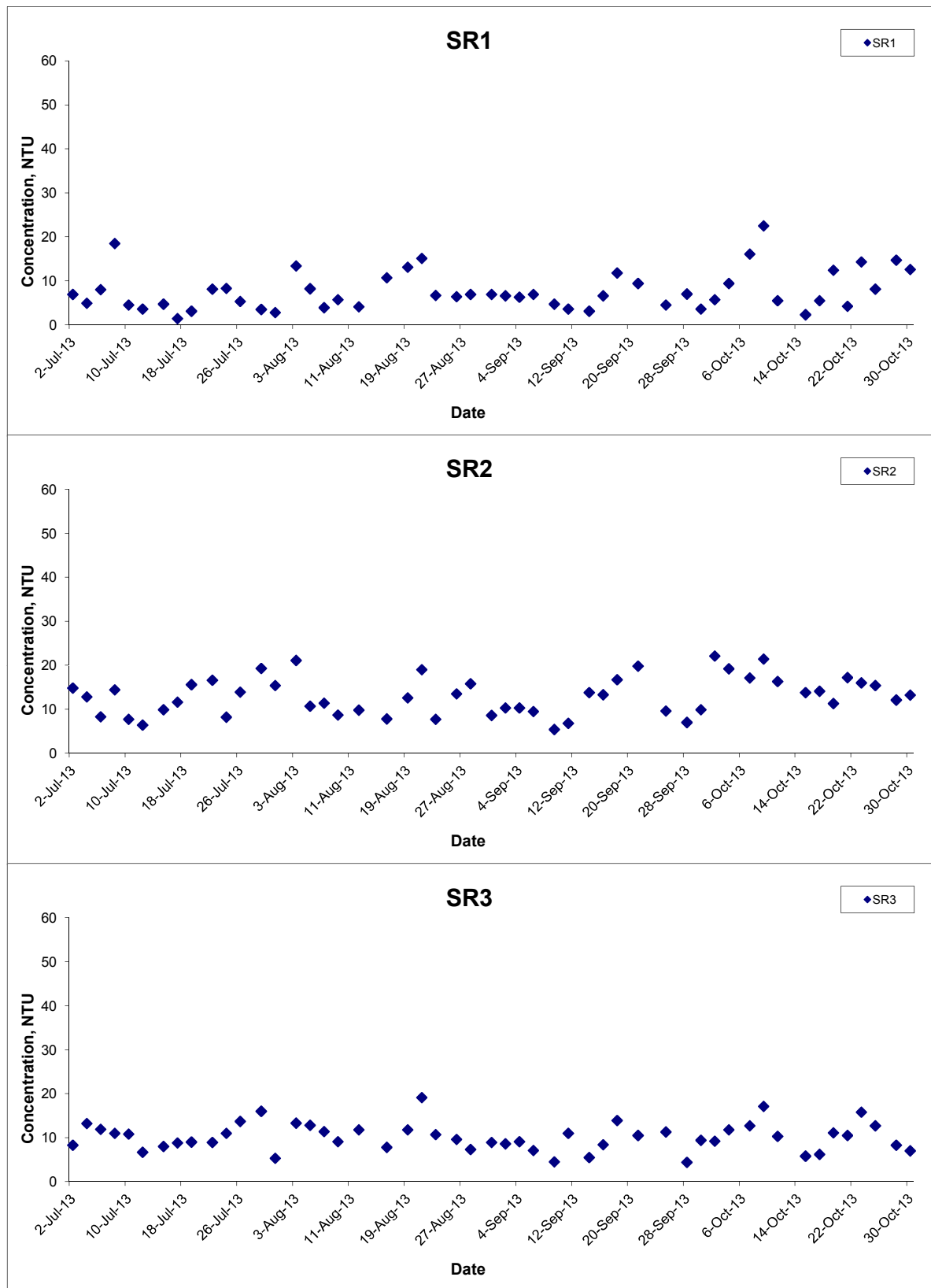
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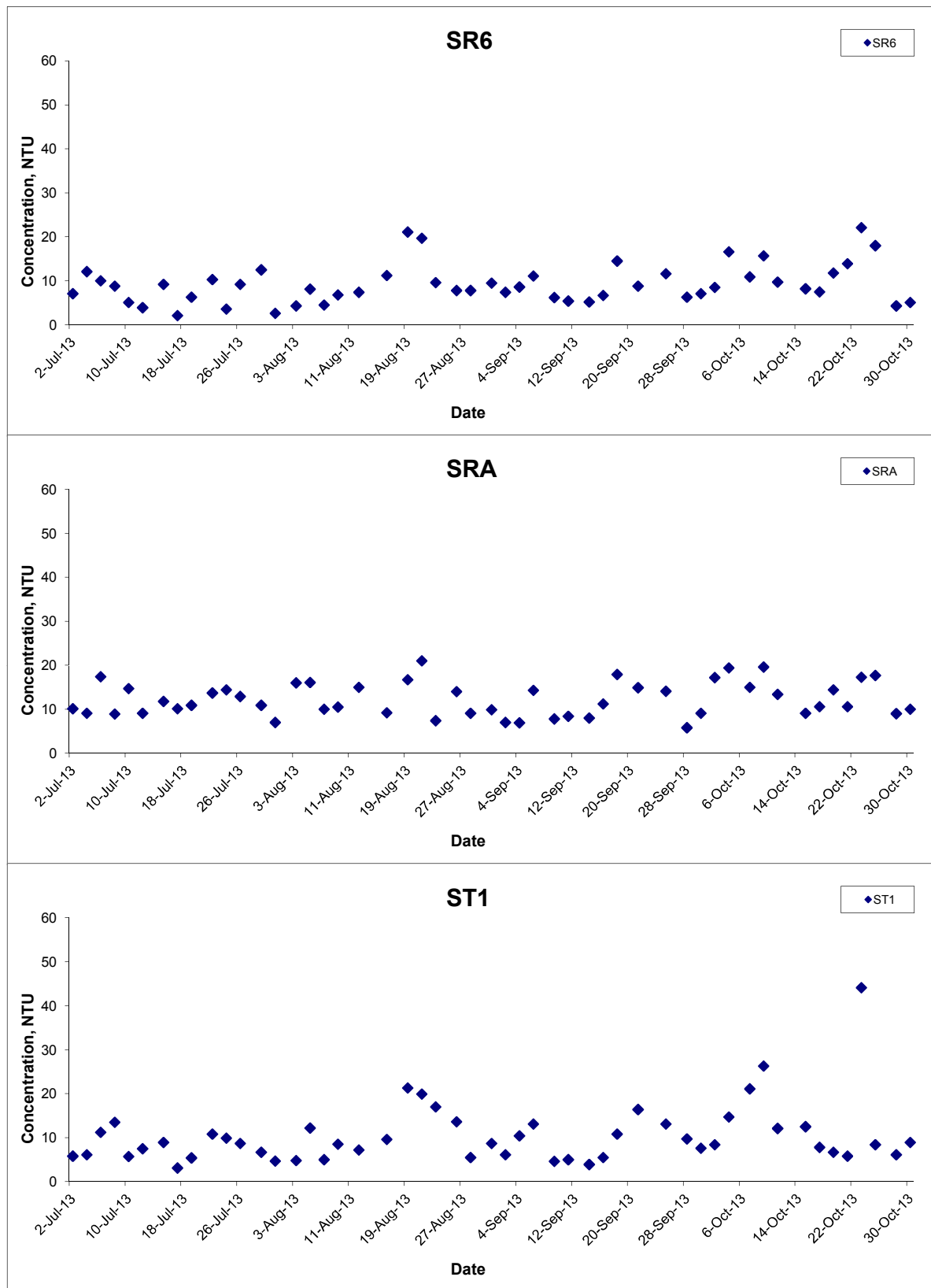
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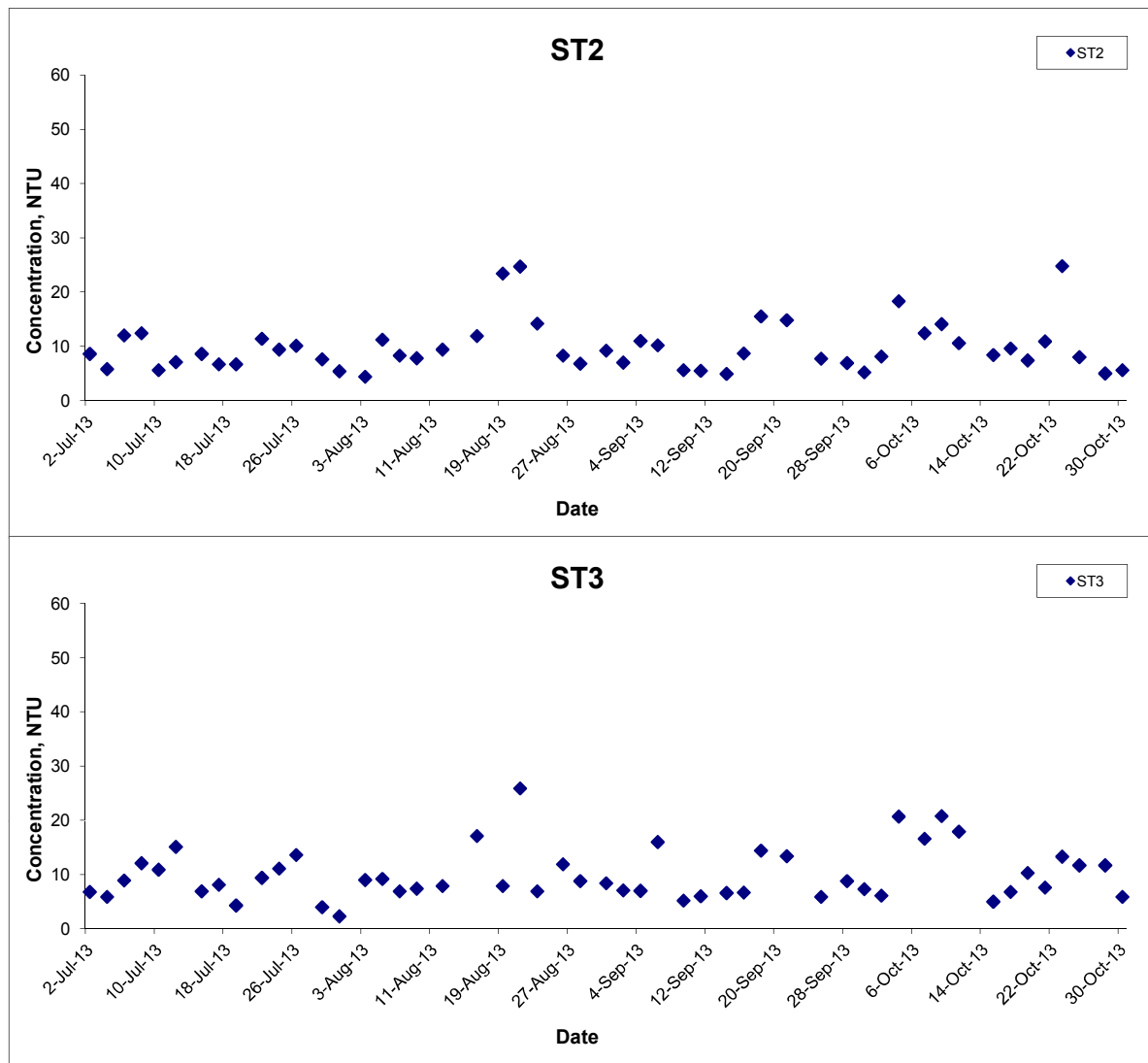
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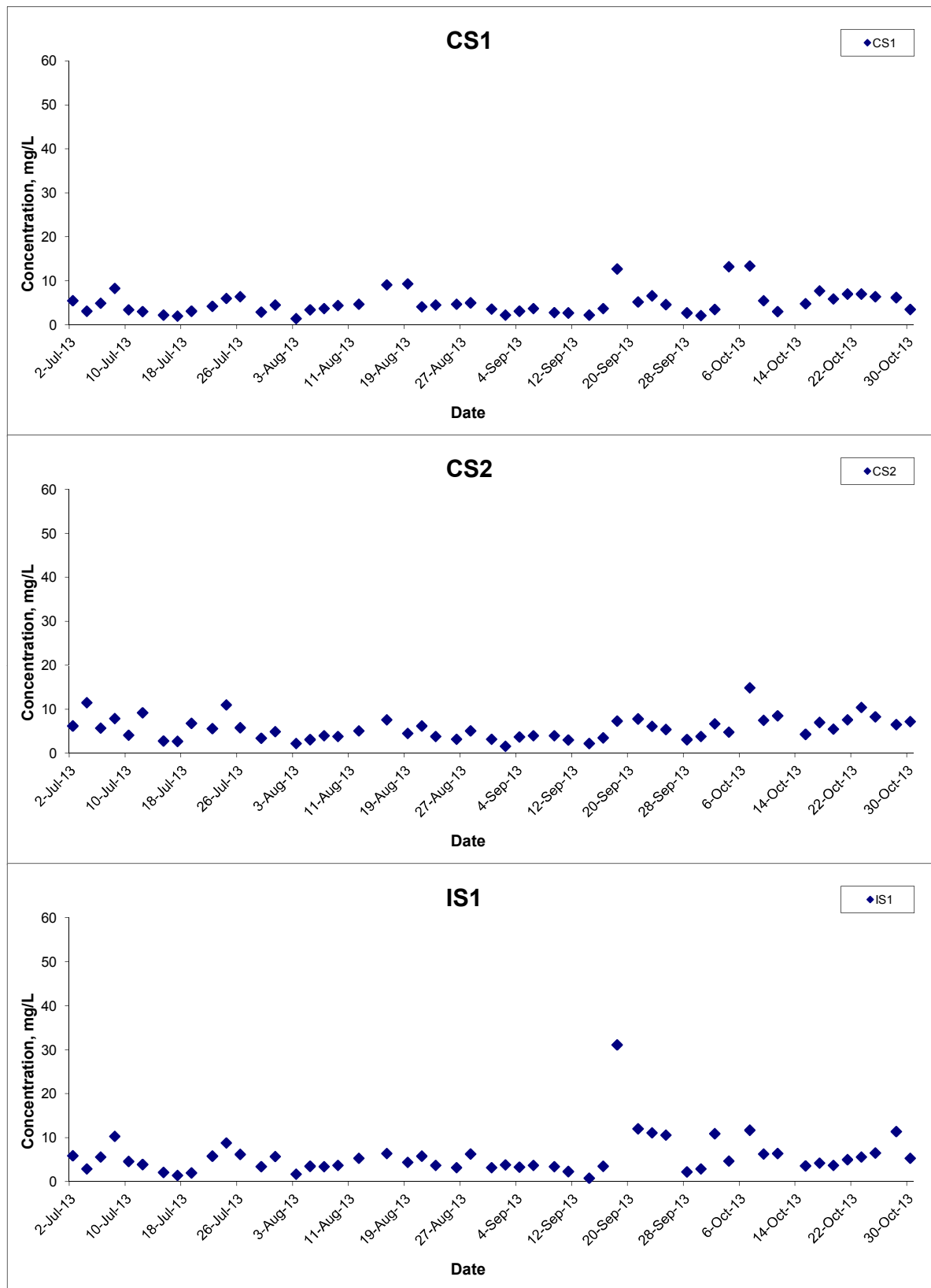
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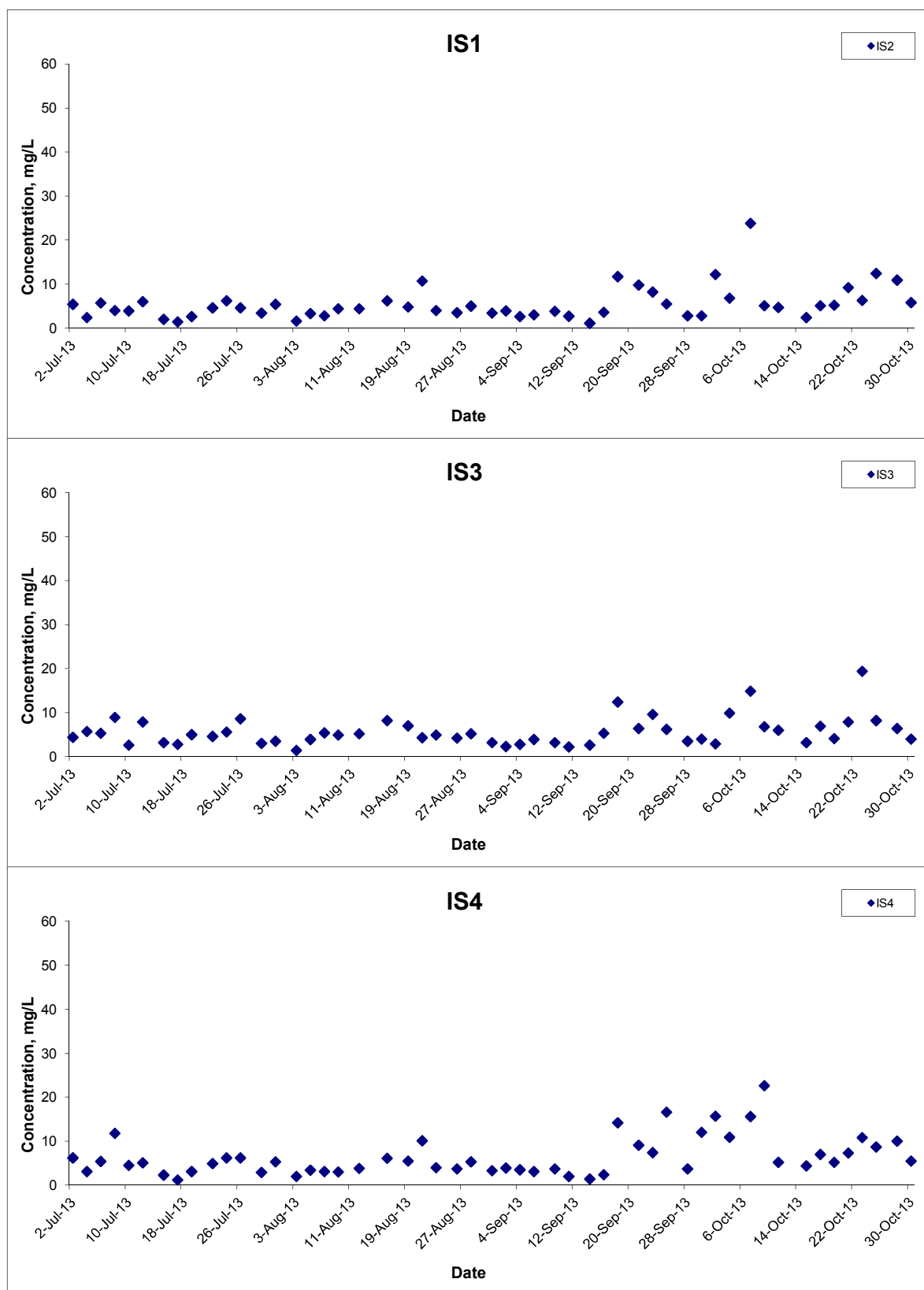
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



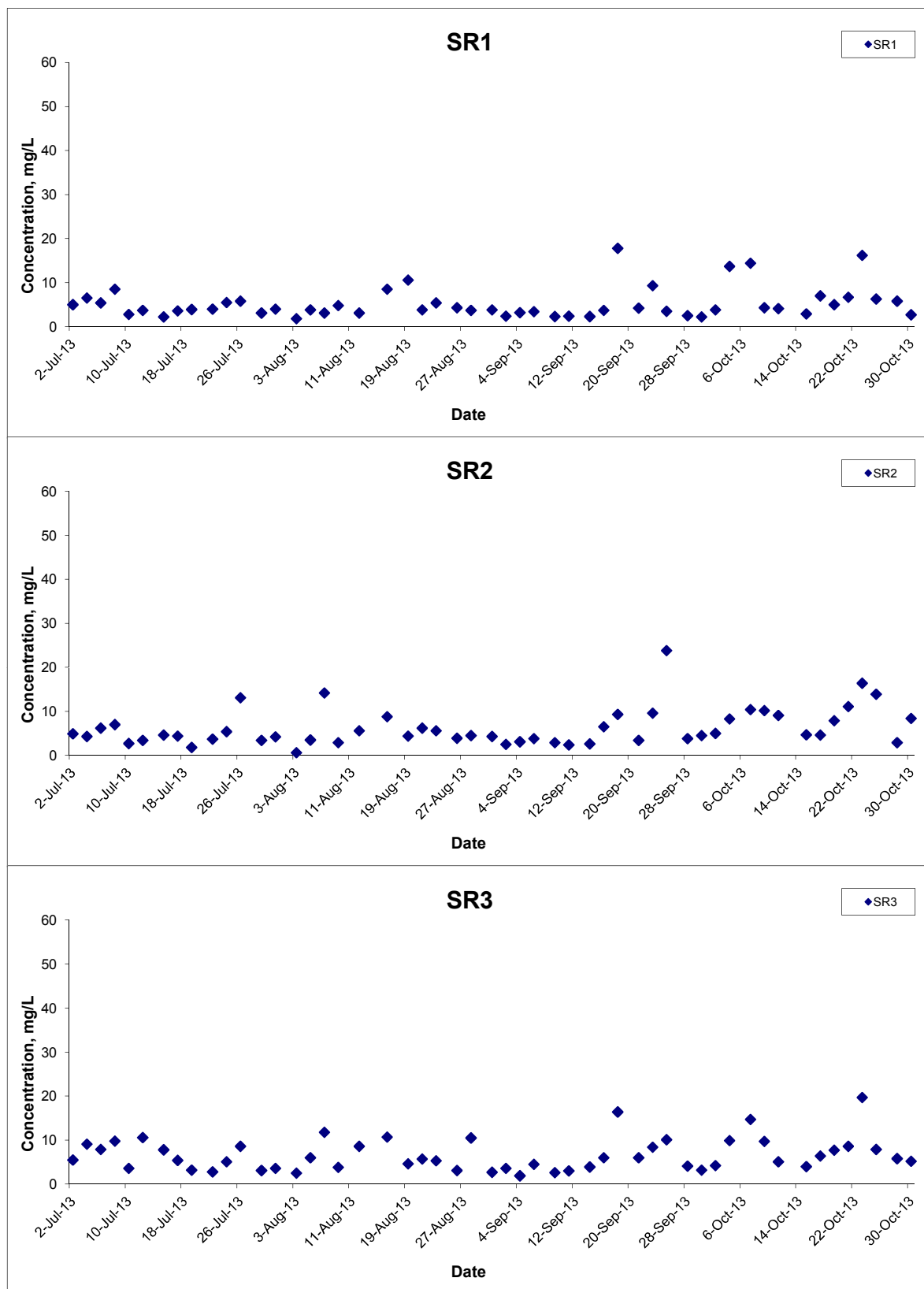
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| | | Date | Oct 13 | Appendix | H | |

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



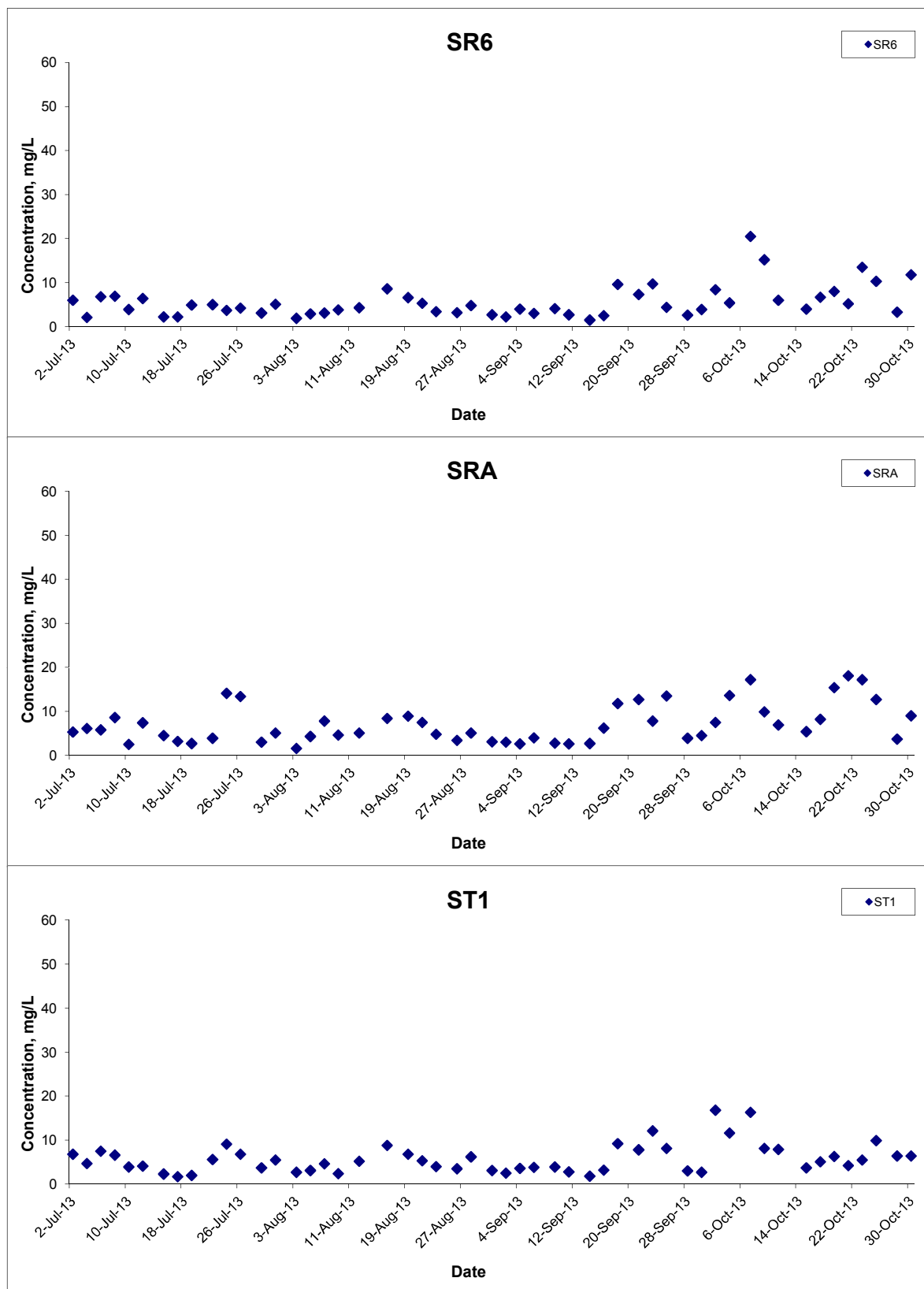
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



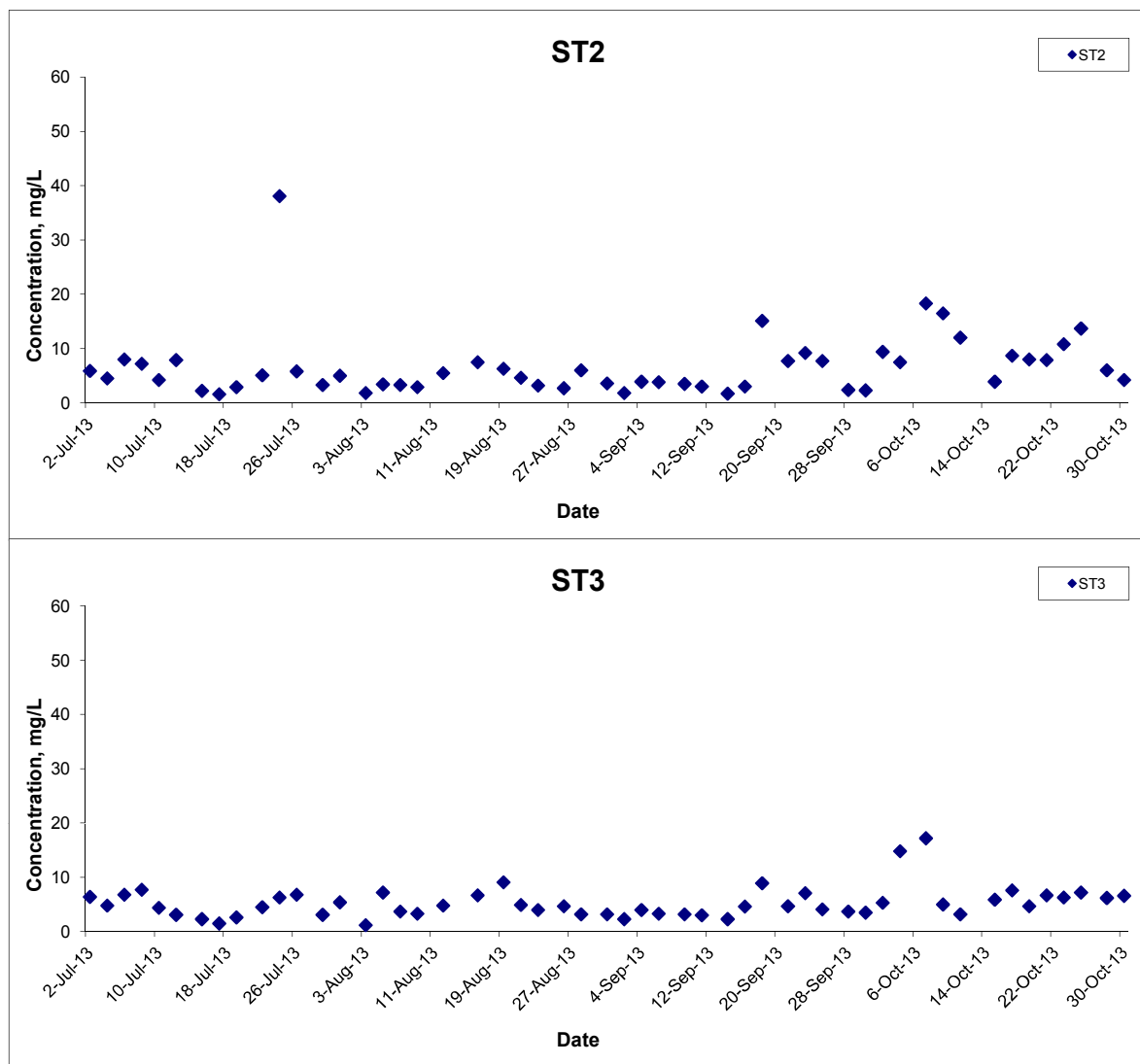
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Suspended Solids (Depth-averaged) at Mid-Ebb Tide



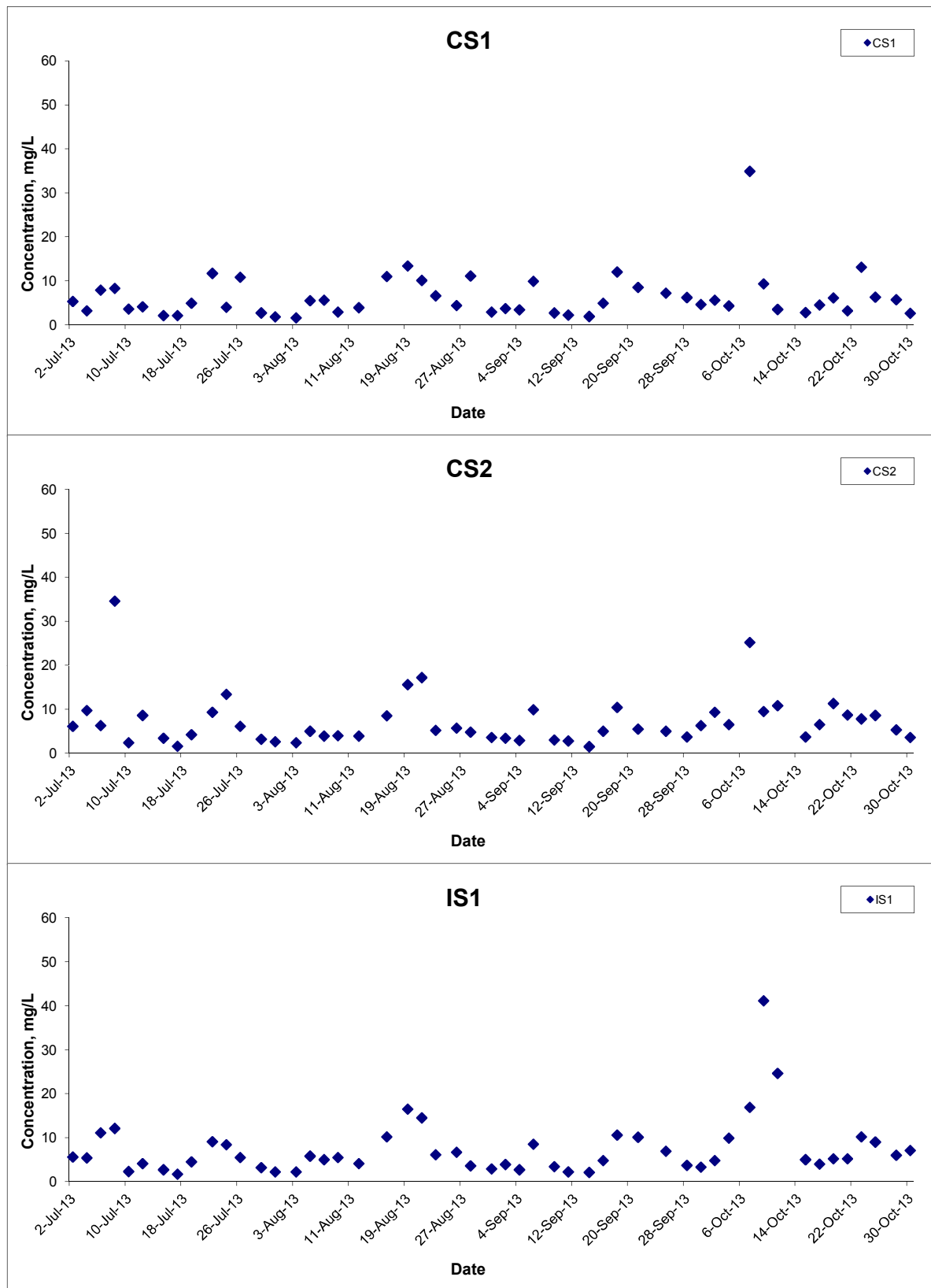
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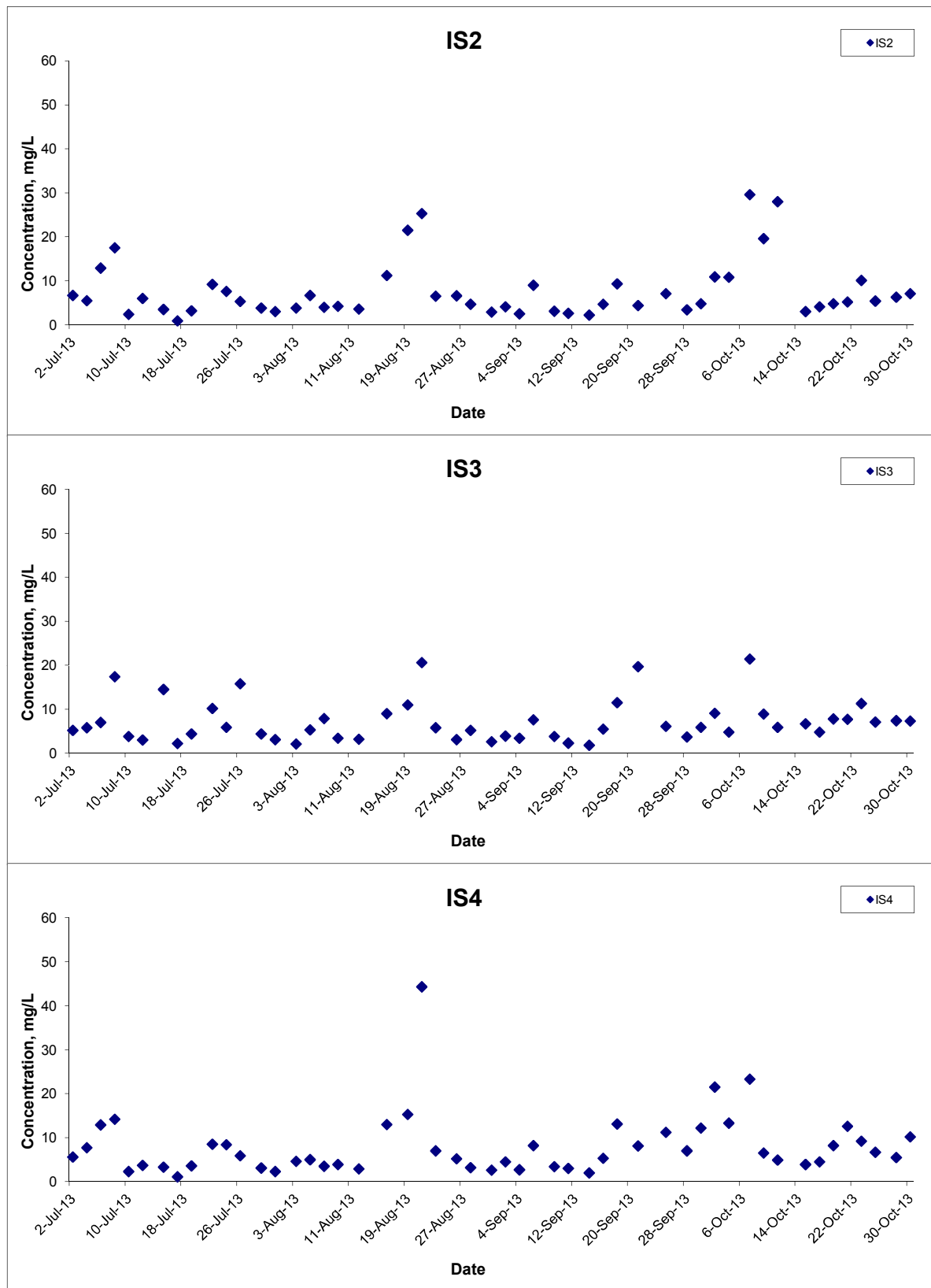
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



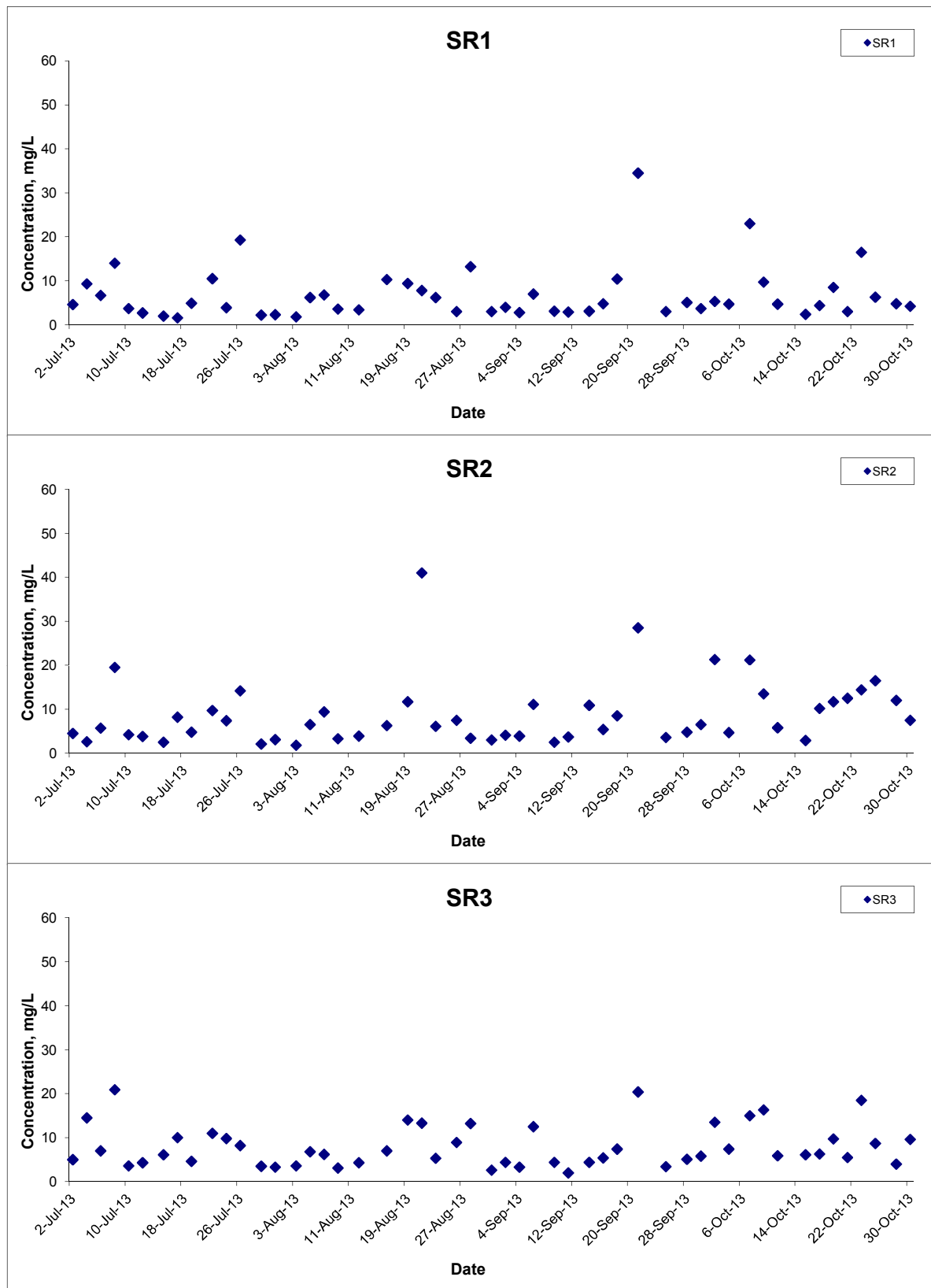
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Suspended Solids (Depth-averaged) at Mid-Flood Tide



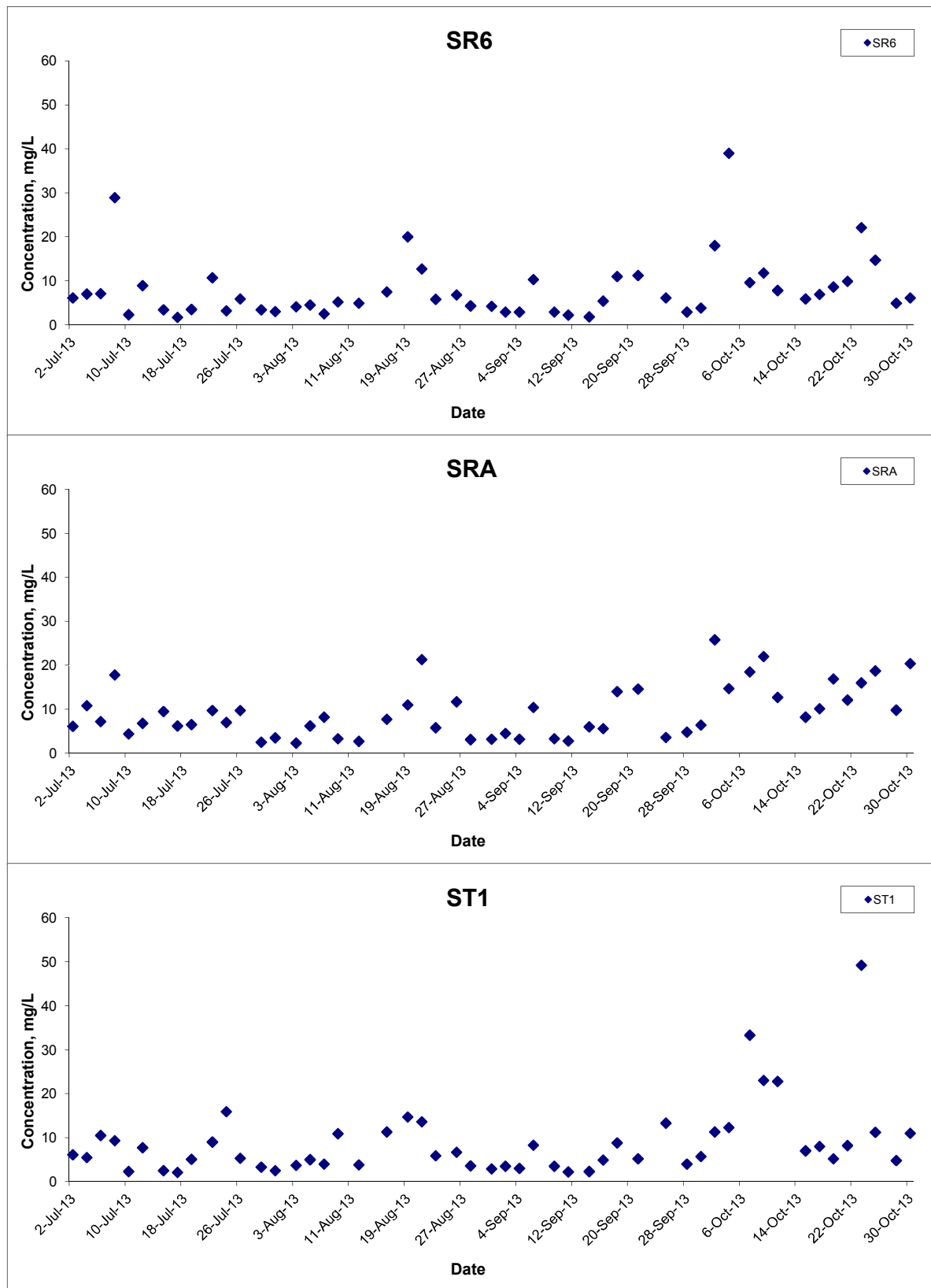
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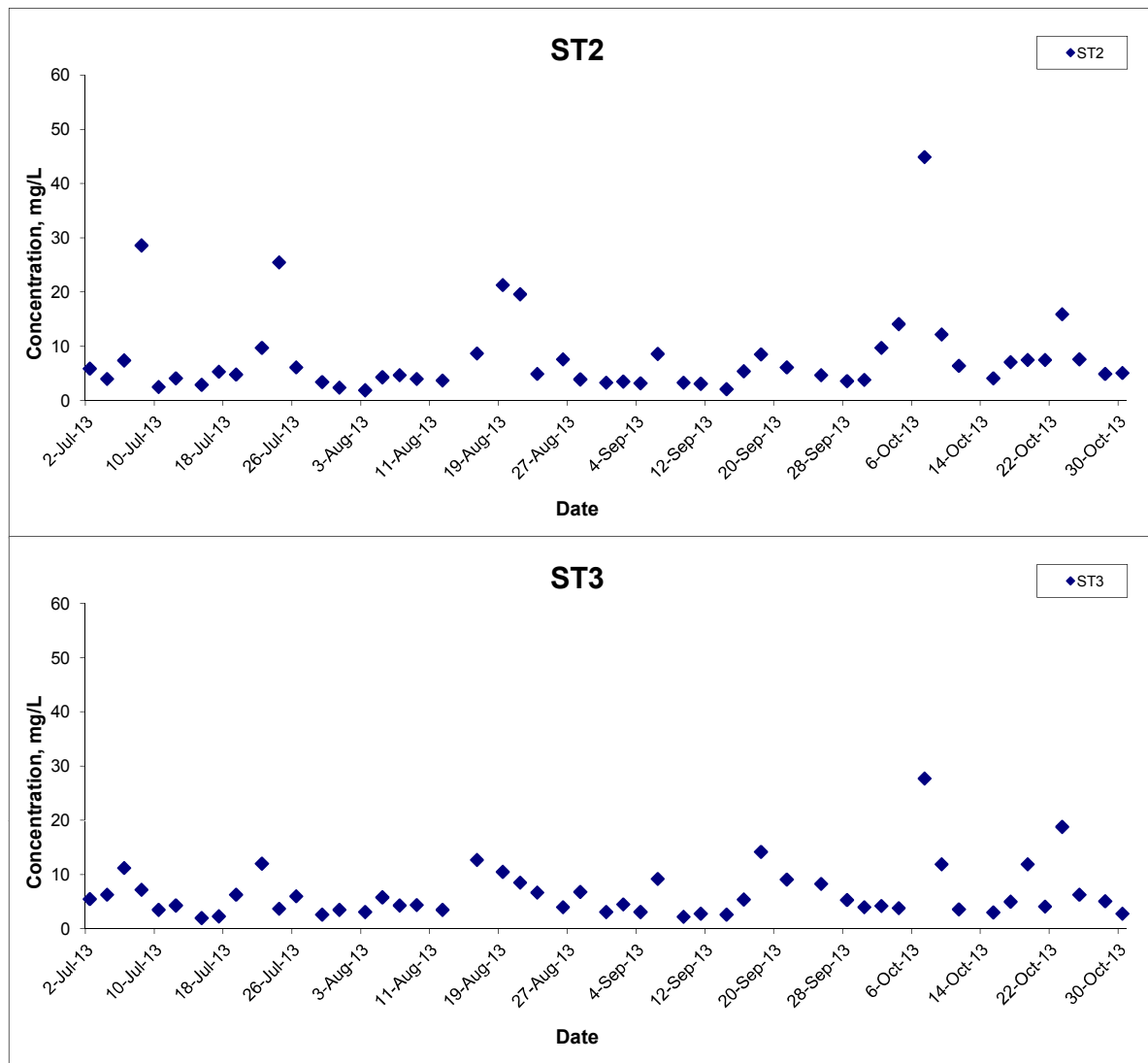
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**APPENDIX I
DOLPHIN MONITORING REPORT
(LINE TRANSECT)**

Contract No. HY/2011/09
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill Dolphin
Monthly Monitoring

Ninth Monthly Progress Report (October 2013)

Submitted by

Samuel K.Y. Hung, Ph.D., Hong Kong Cetacean Research Project

5 November 2013

1. Introduction

- 1.1. The Hong Kong Link Road (HKLR) serves to connect the Hong Kong-Zhuhai-Macao Bridge (HZMB) Main Bridge at the Hong Kong Special Administrative Region (HKSAR) Boundary and the HZMB Hong Kong Boundary Crossing Facilities (HKBCF) located at the northeastern waters of the Hong Kong International Airport.
- 1.2. According to the updated Environmental Monitoring and Audit (EM&A) Manual (for HKLR), monthly line-transect vessel surveys for Chinese White Dolphin should be conducted to cover the West Lantau survey area as in AFCD annual marine mammal monitoring programme.
- 1.3. Since November 2012, Hong Kong Cetacean Research Project (HKCRP) has been commissioned by Dragages – China Harbour – VSL JV to conduct this 34-month dolphin monitoring study in order to collect data on Chinese White Dolphins during the construction phase (i.e. impact period) of the HKLR09 project in West Lantau (WL) survey area, and to analyze the collected survey data to monitor distribution, encounter rate, abundance, activities and occurrence of dolphin calves. Photo-identification will also be collected from individual Chinese White Dolphins to examine their individual range patterns and core area use.
- 1.4. From the monitoring results, any changes in dolphin occurrence within the study area will be examined for possible causes, and appropriate actions and additional mitigation measures will be recommended as necessary.

1.5. This report is the ninth monthly progress report under the HKLR09 construction phase dolphin monitoring programme, summarizing the results of the survey findings during the month of October 2013.

2. Monitoring Methodology

2.1. Vessel-based Line-transect Survey

2.1.1. According to the requirement of the updated EM&A manual, dolphin monitoring programme should cover all transect lines in WL survey area (see Figure 1) twice per month throughout the entire construction period. The co-ordinates of all transect lines are shown in Table 1.

Table 1. Co-ordinates of transect lines in WL survey area

| Line No. | | Easting | Northing | | Line No. | | Easting | Northing |
|----------|-------------|---------|----------|--|----------|-------------|---------|----------|
| 1 | Start Point | 803750 | 818500 | | 7 | Start Point | 800200 | 810450 |
| 1 | End Point | 803750 | 815500 | | 7 | End Point | 801400 | 810450 |
| 2 | Start Point | 803750 | 815500 | | 8 | Start Point | 801300 | 809450 |
| 2 | End Point | 802940 | 815500 | | 8 | End Point | 799750 | 809450 |
| 3 | Start Point | 802550 | 814500 | | 9 | Start Point | 799400 | 808450 |
| 3 | End Point | 803700 | 814500 | | 9 | End Point | 801430 | 808450 |
| 4 | Start Point | 803120 | 813600 | | 10 | Start Point | 801500 | 807450 |
| 4 | End Point | 801640 | 813600 | | 10 | End Point | 799600 | 807450 |
| 5 | Start Point | 801100 | 812450 | | 11 | Start Point | 800300 | 806500 |
| 5 | End Point | 802900 | 812450 | | 11 | End Point | 801750 | 806500 |
| 6 | Start Point | 802400 | 811500 | | 12 | Start Point | 801760 | 805450 |
| 6 | End Point | 800660 | 811500 | | 12 | End Point | 800700 | 805450 |

2.1.2. The survey team used standard line-transect methods (Buckland et al. 2001) to conduct the systematic vessel surveys, and followed the same technique of data collection that has been adopted over the last 16 years of marine

mammal monitoring surveys in Hong Kong developed by HKCRP (see Hung 2012). For each monitoring vessel survey, a 15-m inboard vessel with an open upper deck (about 4.5 m above water surface) was used to make observations from the flying bridge area.

- 2.1.3. Two experienced observers (a data recorder and a primary observer) made up the on-effort survey team, and the survey vessel transited different transect lines at a constant speed of 13-15 km per hour. The data recorder searched with unaided eyes and filled out the datasheets, while the primary observer searched for dolphins and porpoises continuously through 7 x 50 *Steiner* marine binoculars. Both observers searched the sea ahead of the vessel, between 270° and 90° (in relation to the bow, which is defined as 0°). One to two additional experienced observers were available on the boat to work in shift (i.e. rotate every 30 minutes) in order to minimize fatigue of the survey team members. All observers were experienced in small cetacean survey techniques and identifying local cetacean species.
- 2.1.4. During on-effort survey periods, the survey team recorded effort data including time, position (latitude and longitude), weather conditions (Beaufort sea state and visibility), and distance traveled in each series (a continuous period of search effort) with the assistance of a handheld GPS.
- 2.1.5. Data including time, position and vessel speed were also automatically and continuously logged by handheld GPS throughout the entire survey for subsequent review.
- 2.1.6. When dolphins were sighted, the survey team would end the survey effort, and immediately record the initial sighting distance and angle of the dolphin group from the survey vessel, as well as the sighting time and position. Then the research vessel was diverted from its course to approach the animals for species identification, group size estimation, assessment of group composition, and behavioural observations. The perpendicular distance (PSD) of the dolphin group to the transect line was later calculated from the initial sighting distance and angle.
- 2.1.7. Survey effort being conducted along the parallel transect lines that were perpendicular to the coastlines (as indicated in Figure 1) was labeled as “primary” survey effort, while the survey effort being conducted along the

connecting lines between parallel lines was labeled as “secondary” survey effort. According to HKCRP long-term dolphin monitoring data, encounter rates of Chinese white dolphins deduced from effort and sighting data collected along primary and secondary lines were similar in survey areas around Lantau Island. Therefore, primary and secondary survey effort were both presented as on-effort survey effort in this report.

- 2.1.8. Encounter rates of Chinese white dolphins (number of on-effort sightings per 100 km of survey effort) were calculated in WL survey area in relation to the amount of survey effort conducted during each month of monitoring survey. Only data collected under Beaufort 3 or below condition would be used for encounter rate analysis. Dolphin encounter rates were calculated using primary survey effort alone, as well as the combined survey effort from both primary and secondary lines.

2.2. *Photo-identification Work*

- 2.2.1. When a group of Chinese White Dolphins were sighted during the line-transect survey, the survey team would end effort and approach the group slowly from the side and behind to take photographs of them. Every attempt was made to photograph every dolphin in the group, and even photograph both sides of the dolphins, since the colouration and markings on both sides may not be symmetrical.
- 2.2.2. A professional digital camera (*Canon* EOS 7D or 60D model) equipped with long telephoto lenses (100-400 mm zoom) were available on board for researchers to take sharp, close-up photographs of dolphins as they surfaced. The images were shot at the highest available resolution and stored on Compact Flash memory cards for downloading onto a computer.
- 2.2.3. All digital images taken in the field were first examined, and those containing potentially identifiable individuals were sorted out. These photographs would then be examined in greater detail, and were carefully compared to the existing Chinese White Dolphin photo-identification catalogue maintained by HKCRP since 1995.
- 2.2.4. Chinese White Dolphins can be identified by their natural markings, such as nicks, cuts, scars and deformities on their dorsal fin and body, and their unique spotting patterns were also used as secondary identifying features

(Jefferson 2000).

- 2.2.5. All photographs of each individual were then compiled and arranged in chronological order, with data including the date and location first identified (initial sighting), re-sightings, associated dolphins, distinctive features, and age classes entered into a computer database.

3. Monitoring Results

3.1. Vessel-based Line-transect Survey

- 3.1.1. During the monitoring month of October 2013, two complete sets of systematic line-transect vessel surveys were conducted on the 9th and 18th, to cover all transect lines in WL survey area twice. The survey routes of each survey day were presented in Figures 2-3.
- 3.1.2. From these surveys, a total of 64.94 km of survey effort was collected, with 98.0% of the total survey effort being conducted under favourable weather conditions (i.e. Beaufort Sea State 3 or below with good visibility) (Appendix I). Moreover, the total survey effort conducted on primary lines (the vertical lines perpendicular to the coastlines) was 43.05 km, while the effort on secondary lines (the lines connecting the primary lines) was 21.89 km.
- 3.1.3. During the monitoring surveys in October 2013, a total of 13 groups of 38 Chinese White Dolphins were sighted (Appendix II). Nine of these 13 sightings were made during on-effort search. Among the on-effort sightings, seven of them were made on primary lines, while the other two were made on secondary lines. One of the dolphin groups was associated with an operating purse-seiner.
- 3.1.4. Distribution of all dolphin sightings made during October's surveys was shown in Figure 4. These dolphin groups were mainly concentrated near Tai O Peninsula and Fan Lau, while no sighting was made in the middle portion of the survey area (i.e. between Tai O and Fan Lau) (Figure 4). None of the sightings were made near the HKLR09 alignment.
- 3.1.5. During October's surveys, encounter rates of Chinese White Dolphins deduced from the survey effort and on-effort sighting data made under favourable conditions (Beaufort 3 or below) are shown in Tables 2 & 3.

Table 2. Dolphin encounter rates (sightings per 100 km of survey effort) per set during October's surveys in West Lantau (WL)

| | | Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort) | Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort) |
|-----------|-----------------------------|--|--|
| | | Primary Lines Only | Primary Lines Only |
| WL | Set 1: Oct 9 th | 14.1 | 28.2 |
| | Set 2: Oct 18 th | 19.0 | 71.1 |

Table 3. Overall dolphin encounter rates (sightings per 100 km of survey effort) in October's surveys on primary lines only as well as both primary lines and secondary lines in West Lantau

| | Encounter rate (STG) (no. of on-effort dolphin sightings per 100 km of survey effort) | | Encounter rate (ANI) (no. of dolphins from all on-effort sightings per 100 km of survey effort) | |
|--------------------|--|---|--|---|
| | Primary Lines Only | Both Primary and Secondary Lines | Primary Lines Only | Both Primary and Secondary Lines |
| West Lantau | 16.5 | 14.1 | 49.6 | 37.7 |

- 3.1.6. The average group size of Chinese White Dolphins was 2.92 individuals per group during October's surveys, which was similar to previous months of monitoring surveys. Most groups comprised of only a few dolphins, while two medium-sized groups composed of 6-7 animals were also sighted near Fan Lau.

3.2. Photo-identification Work

- 3.2.1. A total of 16 re-sightings of 11 known individual Chinese White Dolphins were made during the October's surveys (Appendices III and IV).
- 3.2.2. Most individuals were sighted only once during the two sets of monitoring surveys, but CH108, WL193, WL199 and WL201 were sighted 2-3 times on the same day of monitoring survey.

3.3. Conclusion

- 3.3.1. During this month of dolphin monitoring, marine construction activities have

continued under this contract. However, no adverse impact on Chinese white dolphins was noticeable from general observations.

- 3.3.2. Due to the monthly variation in dolphin occurrence within the study area, it would be more appropriate to draw conclusion on whether any impacts on dolphins have been detected related to the construction activities of this project in the quarterly EM&A report, where comparison on distribution, group size and encounter rates of dolphins between the quarterly impact monitoring period (i.e. September-November 2013) and baseline monitoring period will be made.

4. References

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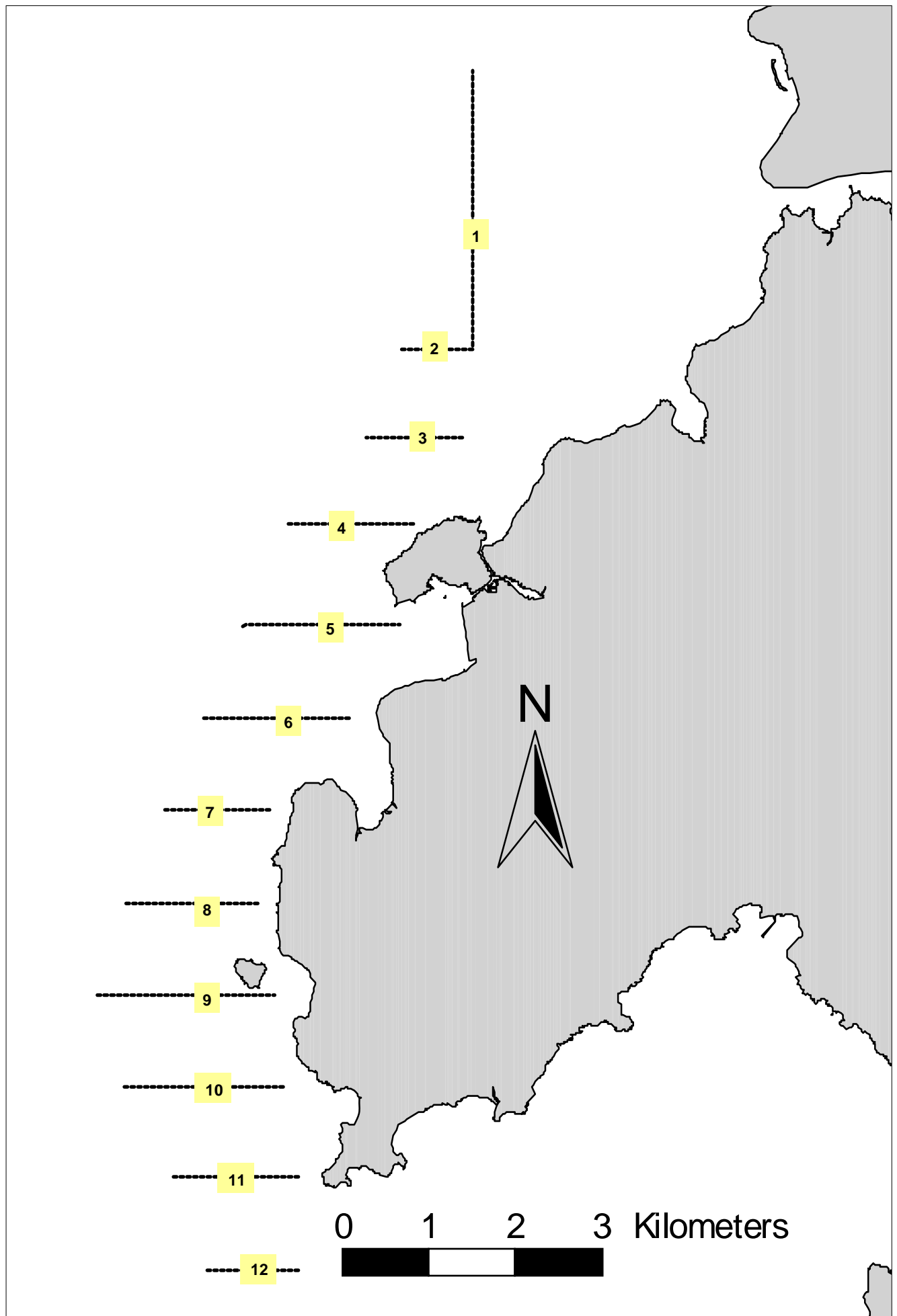


Figure 1. Transect Line Layout in West Lantau Survey Areas

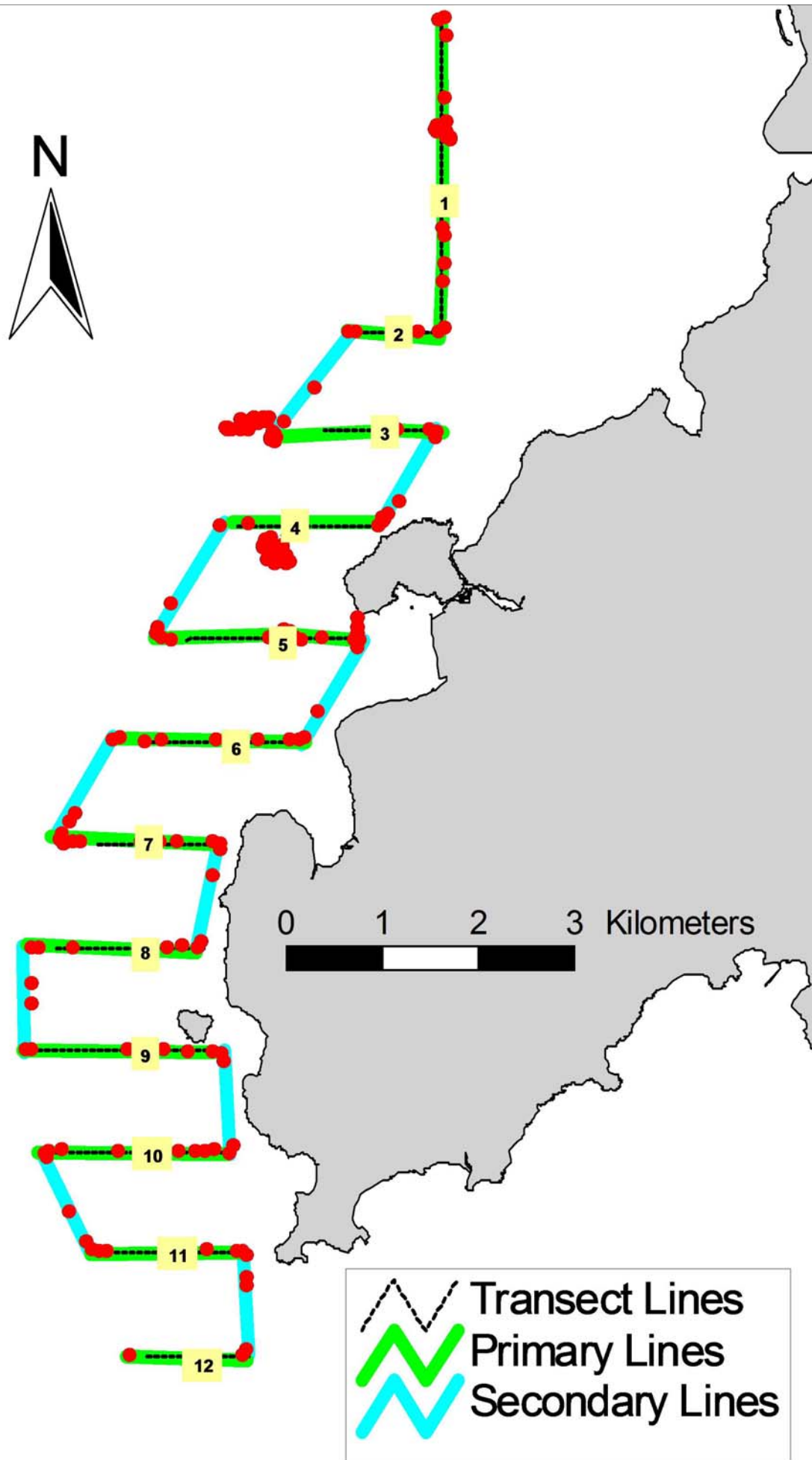


Figure 2. Survey Route on October 9th, 2013 (note: red dots represent the tracked positions of survey boat logged continuously by GPS throughout the course of the survey)

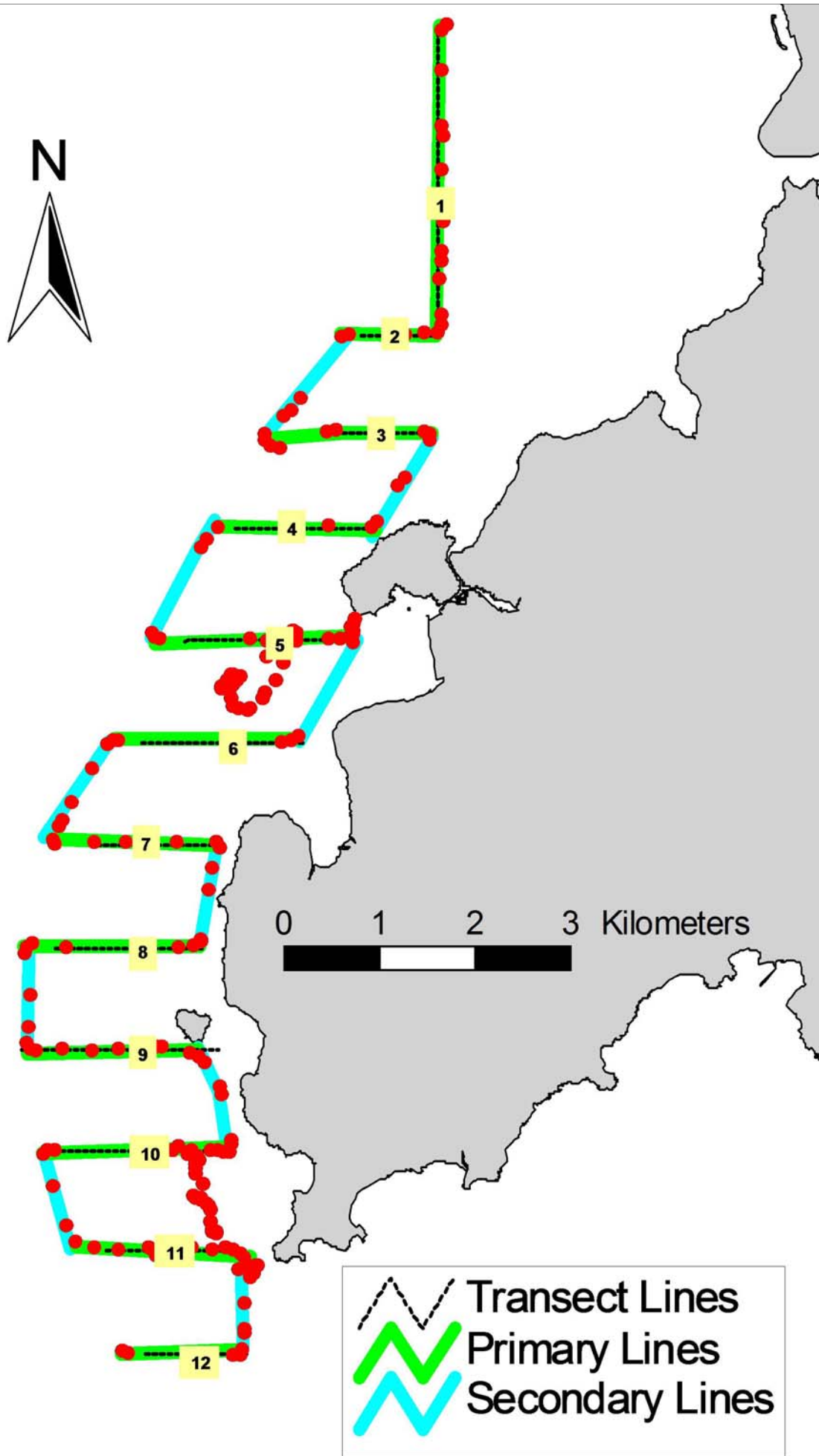


Figure 3. Survey Route on October 18th, 2013 (note: red dots represent the tracked positions of survey boat logged continuously by GPS throughout the course of the survey)

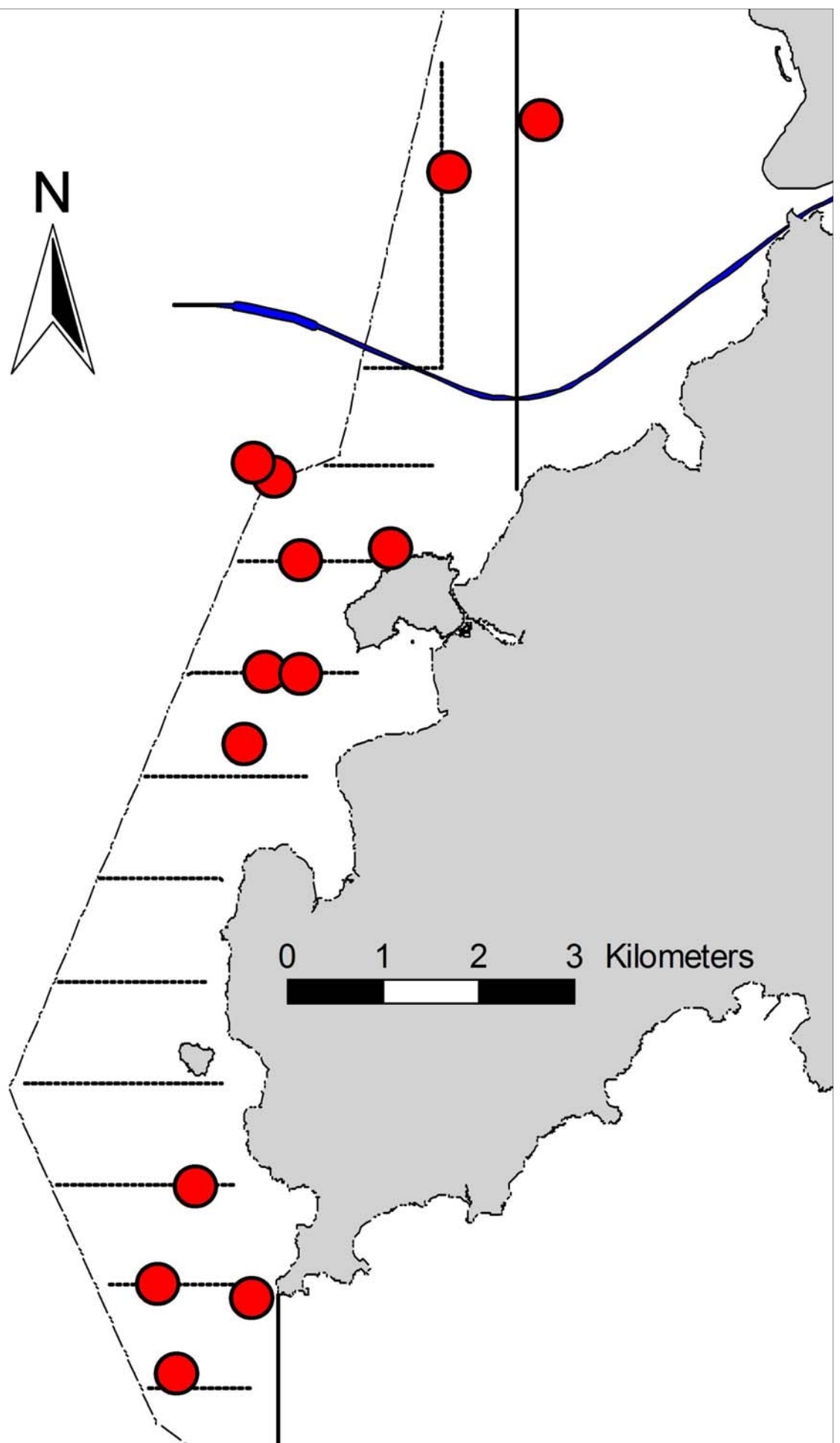


Figure 4. Distribution of Chinese White Dolphin Sighting during October 2013 HKLR09 Monitoring Surveys

Appendix I. HKLR09 Survey Effort Database (October 2013)

(Abbreviations: BEAU = Beaufort Sea State; P = Primary Line Effort; S = Secondary Line Effort)

| DATE | AREA | BEAU | EFFORT | SEASON | VESSEL | TYPE | P/S |
|-----------|----------|------|--------|--------|---------------|------|-----|
| 9-Oct-13 | W LANTAU | 2 | 17.58 | AUTUMN | STANDARD31516 | HKLR | P |
| 9-Oct-13 | W LANTAU | 3 | 3.68 | AUTUMN | STANDARD31516 | HKLR | P |
| 9-Oct-13 | W LANTAU | 4 | 0.70 | AUTUMN | STANDARD31516 | HKLR | P |
| 9-Oct-13 | W LANTAU | 2 | 9.84 | AUTUMN | STANDARD31516 | HKLR | S |
| 9-Oct-13 | W LANTAU | 3 | 0.40 | AUTUMN | STANDARD31516 | HKLR | S |
| 9-Oct-13 | W LANTAU | 4 | 0.60 | AUTUMN | STANDARD31516 | HKLR | S |
| 18-Oct-13 | W LANTAU | 2 | 11.07 | AUTUMN | STANDARD31516 | HKLR | P |
| 18-Oct-13 | W LANTAU | 3 | 10.02 | AUTUMN | STANDARD31516 | HKLR | P |
| 18-Oct-13 | W LANTAU | 2 | 6.48 | AUTUMN | STANDARD31516 | HKLR | S |
| 18-Oct-13 | W LANTAU | 3 | 4.57 | AUTUMN | STANDARD31516 | HKLR | S |

Appendix II. HKLR09 Chinese White Dolphin Sighting Database (October 2013)

(Abbreviations: STG# = Sighting Number; HRD SZ = Dolphin Herd Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance; ND = Not Determined;
BOAT ASSOC. = Fishing Boat Association; P/S: Sighting Made on Primary/Secondary Line\$

| DATE | STG # | TIME | HRD SZ | AREA | BEAU | PSD | EFFORT | TYPE | NORTHING | EASTING | SEASON | BOAT ASSOC. | P/S |
|-----------|-------|------|--------|----------|------|-----|--------|------|----------|---------|--------|-------------|-----|
| 09-Oct-13 | 1 | 1014 | 2 | W LANTAU | 2 | ND | OFF | HKLR | 817894 | 804759 | AUTUMN | NONE | |
| 09-Oct-13 | 2 | 1032 | 2 | W LANTAU | 3 | 37 | ON | HKLR | 817376 | 803800 | AUTUMN | NONE | P |
| 09-Oct-13 | 3 | 1101 | 2 | W LANTAU | 2 | 203 | ON | HKLR | 814390 | 802000 | AUTUMN | NONE | S |
| 09-Oct-13 | 4 | 1111 | 3 | W LANTAU | 2 | ND | OFF | HKLR | 814534 | 801784 | AUTUMN | NONE | |
| 09-Oct-13 | 5 | 1136 | 1 | W LANTAU | 2 | 22 | ON | HKLR | 813690 | 803204 | AUTUMN | NONE | S |
| 09-Oct-13 | 6 | 1148 | 3 | W LANTAU | 2 | 254 | ON | HKLR | 813559 | 802266 | AUTUMN | NONE | P |
| 09-Oct-13 | 7 | 1220 | 1 | W LANTAU | 2 | 285 | ON | HKLR | 812463 | 801903 | AUTUMN | NONE | P |
| 18-Oct-13 | 1 | 1142 | 4 | W LANTAU | 3 | 258 | ON | HKLR | 812451 | 802264 | AUTUMN | NONE | P |
| 18-Oct-13 | 2 | 1154 | 6 | W LANTAU | 3 | ND | OFF | HKLR | 811766 | 801674 | AUTUMN | PURSE SEINE | |
| 18-Oct-13 | 3 | 1314 | 7 | W LANTAU | 2 | 143 | ON | HKLR | 807426 | 801170 | AUTUMN | NONE | P |
| 18-Oct-13 | 4 | 1356 | 2 | W LANTAU | 3 | 169 | ON | HKLR | 806464 | 800776 | AUTUMN | NONE | P |
| 18-Oct-13 | 5 | 1406 | 2 | W LANTAU | 2 | 209 | ON | HKLR | 806340 | 801755 | AUTUMN | NONE | P |
| 18-Oct-13 | 6 | 1424 | 3 | W LANTAU | 3 | ND | OFF | HKLR | 805600 | 800970 | AUTUMN | NONE | |

Appendix III. Individual dolphins identified during HKLR09 monitoring surveys in October 2013

| ID# | DATE | STG# | AREA |
|------------|-------------|-------------|-------------|
| CH108 | 18/10/13 | 1 | W LANTAU |
| | 18/10/13 | 3 | W LANTAU |
| | 18/10/13 | 6 | W LANTAU |
| NL212 | 18/10/13 | 1 | W LANTAU |
| WL58 | 18/10/13 | 2 | W LANTAU |
| WL73 | 18/10/13 | 6 | W LANTAU |
| WL124 | 09/10/13 | 6 | W LANTAU |
| WL166 | 18/10/13 | 3 | W LANTAU |
| WL191 | 18/10/13 | 2 | W LANTAU |
| WL193 | 09/10/13 | 3 | W LANTAU |
| | 09/10/13 | 4 | W LANTAU |
| WL199 | 18/10/13 | 1 | W LANTAU |
| | 18/10/13 | 3 | W LANTAU |
| WL201 | 18/10/13 | 1 | W LANTAU |
| | 18/10/13 | 3 | W LANTAU |
| WL208 | 18/10/13 | 3 | W LANTAU |

WL193_20131009_3



WL193_20131009_4



WL124_20131009_6



CH108_20131018_1



NL212_20131018_1



WL199_20131018_1



WL201_20131018_1



WL58_20131018_2



WL191_20131018_2



CH108_20131018_3



WL199_20131018_3



WL166_20131018_3



WL201_20131018_3



WL208_20131018_3



CH108_20131018_6



WL73_20131018_6



Appendix IV. (cont'd)

APPENDIX J

WIND DATA

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|------------|-------|----------------|-----------|
| 1-Oct-2013 | 00:00 | 1.1 | W |
| 1-Oct-2013 | 01:00 | 0.8 | NNE |
| 1-Oct-2013 | 02:00 | 0.6 | E |
| 1-Oct-2013 | 03:00 | 0.8 | W |
| 1-Oct-2013 | 04:00 | 0.9 | WNW |
| 1-Oct-2013 | 05:00 | 0.7 | ENE |
| 1-Oct-2013 | 06:00 | 0.6 | ENE |
| 1-Oct-2013 | 07:00 | 0.7 | N |
| 1-Oct-2013 | 08:00 | 0.9 | NNE |
| 1-Oct-2013 | 09:00 | 1.2 | NE |
| 1-Oct-2013 | 10:00 | 1.5 | SSW |
| 1-Oct-2013 | 11:00 | 1.8 | SSW |
| 1-Oct-2013 | 12:00 | 2.3 | NE |
| 1-Oct-2013 | 13:00 | 2.5 | WSW |
| 1-Oct-2013 | 14:00 | 2.3 | WNW |
| 1-Oct-2013 | 15:00 | 2.1 | SW |
| 1-Oct-2013 | 16:00 | 2.2 | NNE |
| 1-Oct-2013 | 17:00 | 2 | SSW |
| 1-Oct-2013 | 18:00 | 1.6 | N |
| 1-Oct-2013 | 19:00 | 1.4 | ENE |
| 1-Oct-2013 | 20:00 | 1.2 | NE |
| 1-Oct-2013 | 21:00 | 1.2 | ESE |
| 1-Oct-2013 | 22:00 | 1.1 | ESE |
| 1-Oct-2013 | 23:00 | 1.2 | NE |
| 2-Oct-2013 | 00:00 | 1 | NNE |
| 2-Oct-2013 | 01:00 | 1 | WNW |
| 2-Oct-2013 | 02:00 | 1.2 | N |
| 2-Oct-2013 | 03:00 | 0.9 | SE |
| 2-Oct-2013 | 04:00 | 1.1 | W |
| 2-Oct-2013 | 05:00 | 0.9 | SSW |
| 2-Oct-2013 | 06:00 | 1.1 | SW |
| 2-Oct-2013 | 07:00 | 0.9 | SW |
| 2-Oct-2013 | 08:00 | 0.8 | S |
| 2-Oct-2013 | 09:00 | 1.3 | W |
| 2-Oct-2013 | 10:00 | 1.6 | SW |
| 2-Oct-2013 | 11:00 | 2.3 | S |
| 2-Oct-2013 | 12:00 | 2.8 | SSE |
| 2-Oct-2013 | 13:00 | 2.5 | SW |
| 2-Oct-2013 | 14:00 | 2.2 | W |
| 2-Oct-2013 | 15:00 | 2.2 | ENE |
| 2-Oct-2013 | 16:00 | 2 | W |
| 2-Oct-2013 | 17:00 | 1.9 | WSW |
| 2-Oct-2013 | 18:00 | 1.6 | ENE |
| 2-Oct-2013 | 19:00 | 1.2 | ESE |
| 2-Oct-2013 | 20:00 | 1 | SSE |
| 2-Oct-2013 | 21:00 | 1 | ENE |
| 2-Oct-2013 | 22:00 | 1 | ENE |
| 2-Oct-2013 | 23:00 | 0.9 | ENE |
| 3-Oct-2013 | 00:00 | 0.9 | SSE |
| 3-Oct-2013 | 01:00 | 1.2 | NNE |
| 3-Oct-2013 | 02:00 | 1.1 | ENE |
| 3-Oct-2013 | 03:00 | 1 | SSW |
| 3-Oct-2013 | 04:00 | 1.2 | W |
| 3-Oct-2013 | 05:00 | 1.1 | SW |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|------------|-------|----------------|-----------|
| 3-Oct-2013 | 06:00 | 0.9 | N |
| 3-Oct-2013 | 07:00 | 1.1 | N |
| 3-Oct-2013 | 08:00 | 1.3 | ENE |
| 3-Oct-2013 | 09:00 | 1.7 | N |
| 3-Oct-2013 | 10:00 | 1.9 | N |
| 3-Oct-2013 | 11:00 | 1.7 | N |
| 3-Oct-2013 | 12:00 | 2 | W |
| 3-Oct-2013 | 13:00 | 2.2 | WSW |
| 3-Oct-2013 | 14:00 | 2.2 | N |
| 3-Oct-2013 | 15:00 | 2.1 | SSW |
| 3-Oct-2013 | 16:00 | 2.1 | SSW |
| 3-Oct-2013 | 17:00 | 2.3 | N |
| 3-Oct-2013 | 18:00 | 1.8 | ENE |
| 3-Oct-2013 | 19:00 | 1.7 | NNE |
| 3-Oct-2013 | 20:00 | 1.6 | NNE |
| 3-Oct-2013 | 21:00 | 1.6 | NNE |
| 3-Oct-2013 | 22:00 | 1.6 | W |
| 3-Oct-2013 | 23:00 | 1.6 | W |
| 4-Oct-2013 | 00:00 | 1.8 | WSW |
| 4-Oct-2013 | 01:00 | 1.7 | SW |
| 4-Oct-2013 | 02:00 | 1.4 | SSW |
| 4-Oct-2013 | 03:00 | 1.4 | ENE |
| 4-Oct-2013 | 04:00 | 1.3 | NE |
| 4-Oct-2013 | 05:00 | 1.2 | N |
| 4-Oct-2013 | 06:00 | 1.2 | SSE |
| 4-Oct-2013 | 07:00 | 1.1 | SSE |
| 4-Oct-2013 | 08:00 | 1.7 | WSW |
| 4-Oct-2013 | 09:00 | 2 | WSW |
| 4-Oct-2013 | 10:00 | 2.4 | SSW |
| 4-Oct-2013 | 11:00 | 2.5 | SSW |
| 4-Oct-2013 | 12:00 | 2.7 | SSE |
| 4-Oct-2013 | 13:00 | 2.7 | WNW |
| 4-Oct-2013 | 14:00 | 2.6 | NE |
| 4-Oct-2013 | 15:00 | 2.6 | NE |
| 4-Oct-2013 | 16:00 | 2.3 | NNE |
| 4-Oct-2013 | 17:00 | 1.9 | S |
| 4-Oct-2013 | 18:00 | 1.4 | SSW |
| 4-Oct-2013 | 19:00 | 1.3 | SE |
| 4-Oct-2013 | 20:00 | 1.2 | ENE |
| 4-Oct-2013 | 21:00 | 1.4 | NE |
| 4-Oct-2013 | 22:00 | 1.7 | SE |
| 4-Oct-2013 | 23:00 | 1.5 | SE |
| 5-Oct-2013 | 00:00 | 1.7 | NE |
| 5-Oct-2013 | 01:00 | 1.7 | ENE |
| 5-Oct-2013 | 02:00 | 1.5 | W |
| 5-Oct-2013 | 03:00 | 1.7 | W |
| 5-Oct-2013 | 04:00 | 1.8 | ENE |
| 5-Oct-2013 | 05:00 | 1.7 | NNE |
| 5-Oct-2013 | 06:00 | 1.4 | NE |
| 5-Oct-2013 | 07:00 | 1.4 | E |
| 5-Oct-2013 | 08:00 | 2 | NNE |
| 5-Oct-2013 | 09:00 | 2.6 | ENE |
| 5-Oct-2013 | 10:00 | 3 | NE |
| 5-Oct-2013 | 11:00 | 3.1 | NE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|------------|-------|----------------|-----------|
| 5-Oct-2013 | 12:00 | 3.3 | NE |
| 5-Oct-2013 | 13:00 | 3.6 | N |
| 5-Oct-2013 | 14:00 | 2.9 | NE |
| 5-Oct-2013 | 15:00 | 2.6 | ENE |
| 5-Oct-2013 | 16:00 | 2.5 | NE |
| 5-Oct-2013 | 17:00 | 2.4 | NNE |
| 5-Oct-2013 | 18:00 | 2.1 | N |
| 5-Oct-2013 | 19:00 | 1.8 | ENE |
| 5-Oct-2013 | 20:00 | 1.7 | NE |
| 5-Oct-2013 | 21:00 | 1.5 | NE |
| 5-Oct-2013 | 22:00 | 1.5 | NNE |
| 5-Oct-2013 | 23:00 | 1.5 | ESE |
| 6-Oct-2013 | 00:00 | 1.7 | E |
| 6-Oct-2013 | 01:00 | 1.7 | ENE |
| 6-Oct-2013 | 02:00 | 1.6 | ENE |
| 6-Oct-2013 | 03:00 | 1.7 | NE |
| 6-Oct-2013 | 04:00 | 2 | NE |
| 6-Oct-2013 | 05:00 | 2.2 | NNE |
| 6-Oct-2013 | 06:00 | 2.2 | ESE |
| 6-Oct-2013 | 07:00 | 1.9 | NW |
| 6-Oct-2013 | 08:00 | 2.2 | NNE |
| 6-Oct-2013 | 09:00 | 2.4 | NNE |
| 6-Oct-2013 | 10:00 | 2.3 | NNE |
| 6-Oct-2013 | 11:00 | 2.3 | NE |
| 6-Oct-2013 | 12:00 | 2.3 | NE |
| 6-Oct-2013 | 13:00 | 2.5 | W |
| 6-Oct-2013 | 14:00 | 2.4 | NE |
| 6-Oct-2013 | 15:00 | 2.4 | NNE |
| 6-Oct-2013 | 16:00 | 2.1 | SSW |
| 6-Oct-2013 | 17:00 | 2.3 | WNW |
| 6-Oct-2013 | 18:00 | 1.9 | W |
| 6-Oct-2013 | 19:00 | 1.7 | N |
| 6-Oct-2013 | 20:00 | 1.8 | NNE |
| 6-Oct-2013 | 21:00 | 1.8 | WNW |
| 6-Oct-2013 | 22:00 | 1.9 | SE |
| 6-Oct-2013 | 23:00 | 1.9 | ESE |
| 7-Oct-2013 | 00:00 | 1.7 | ESE |
| 7-Oct-2013 | 01:00 | 1.8 | ESE |
| 7-Oct-2013 | 02:00 | 1.6 | W |
| 7-Oct-2013 | 03:00 | 1.6 | SSW |
| 7-Oct-2013 | 04:00 | 1.7 | WSW |
| 7-Oct-2013 | 05:00 | 1.9 | SW |
| 7-Oct-2013 | 06:00 | 1.6 | SW |
| 7-Oct-2013 | 07:00 | 1.3 | SW |
| 7-Oct-2013 | 08:00 | 1.7 | W |
| 7-Oct-2013 | 09:00 | 1.9 | SW |
| 7-Oct-2013 | 10:00 | 2 | SW |
| 7-Oct-2013 | 11:00 | 1.9 | S |
| 7-Oct-2013 | 12:00 | 2.2 | NNE |
| 7-Oct-2013 | 13:00 | 2.1 | NNE |
| 7-Oct-2013 | 14:00 | 2 | ESE |
| 7-Oct-2013 | 15:00 | 1.9 | NE |
| 7-Oct-2013 | 16:00 | 2.1 | SE |
| 7-Oct-2013 | 17:00 | 2.1 | SE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|------------|-------|----------------|-----------|
| 7-Oct-2013 | 18:00 | 2 | N |
| 7-Oct-2013 | 19:00 | 1.9 | NE |
| 7-Oct-2013 | 20:00 | 1.6 | N |
| 7-Oct-2013 | 21:00 | 1.5 | N |
| 7-Oct-2013 | 22:00 | 1.7 | NNE |
| 7-Oct-2013 | 23:00 | 1.8 | W |
| 8-Oct-2013 | 00:00 | 1.7 | W |
| 8-Oct-2013 | 01:00 | 1.8 | SSW |
| 8-Oct-2013 | 02:00 | 1.6 | S |
| 8-Oct-2013 | 03:00 | 1.6 | NW |
| 8-Oct-2013 | 04:00 | 1.3 | NW |
| 8-Oct-2013 | 05:00 | 1.7 | NE |
| 8-Oct-2013 | 06:00 | 1.6 | WNW |
| 8-Oct-2013 | 07:00 | 1.6 | E |
| 8-Oct-2013 | 08:00 | 1.9 | W |
| 8-Oct-2013 | 09:00 | 2 | WNW |
| 8-Oct-2013 | 10:00 | 2.2 | WNW |
| 8-Oct-2013 | 11:00 | 2.5 | SW |
| 8-Oct-2013 | 12:00 | 2.3 | SW |
| 8-Oct-2013 | 13:00 | 2.3 | SE |
| 8-Oct-2013 | 14:00 | 2.3 | SE |
| 8-Oct-2013 | 15:00 | 2.2 | SE |
| 8-Oct-2013 | 16:00 | 2 | N |
| 8-Oct-2013 | 17:00 | 1.8 | E |
| 8-Oct-2013 | 18:00 | 1.7 | ESE |
| 8-Oct-2013 | 19:00 | 1.6 | ESE |
| 8-Oct-2013 | 20:00 | 1.5 | SE |
| 8-Oct-2013 | 21:00 | 1.5 | SE |
| 8-Oct-2013 | 22:00 | 1.2 | N |
| 8-Oct-2013 | 23:00 | 1.5 | NE |
| 9-Oct-2013 | 00:00 | 1.4 | E |
| 9-Oct-2013 | 01:00 | 1.4 | WNW |
| 9-Oct-2013 | 02:00 | 1.3 | WNW |
| 9-Oct-2013 | 03:00 | 1.2 | WNW |
| 9-Oct-2013 | 04:00 | 1.5 | NE |
| 9-Oct-2013 | 05:00 | 1.4 | N |
| 9-Oct-2013 | 06:00 | 1.4 | NE |
| 9-Oct-2013 | 07:00 | 1.6 | NE |
| 9-Oct-2013 | 08:00 | 1.7 | NE |
| 9-Oct-2013 | 09:00 | 2.1 | NE |
| 9-Oct-2013 | 10:00 | 2.4 | ENE |
| 9-Oct-2013 | 11:00 | 2.3 | N |
| 9-Oct-2013 | 12:00 | 2.3 | ENE |
| 9-Oct-2013 | 13:00 | 2.2 | N |
| 9-Oct-2013 | 14:00 | 1.9 | W |
| 9-Oct-2013 | 15:00 | 1.9 | NNE |
| 9-Oct-2013 | 16:00 | 2 | NNE |
| 9-Oct-2013 | 17:00 | 2.3 | NNE |
| 9-Oct-2013 | 18:00 | 2 | ESE |
| 9-Oct-2013 | 19:00 | 1.8 | ENE |
| 9-Oct-2013 | 20:00 | 1.6 | NE |
| 9-Oct-2013 | 21:00 | 1.7 | NNE |
| 9-Oct-2013 | 22:00 | 1.7 | NNE |
| 9-Oct-2013 | 23:00 | 1.8 | NNE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 10-Oct-2013 | 00:00 | 2.2 | N |
| 10-Oct-2013 | 01:00 | 2 | WNW |
| 10-Oct-2013 | 02:00 | 2 | W |
| 10-Oct-2013 | 03:00 | 2.3 | ENE |
| 10-Oct-2013 | 04:00 | 2.1 | NNE |
| 10-Oct-2013 | 05:00 | 1.7 | NE |
| 10-Oct-2013 | 06:00 | 2 | NE |
| 10-Oct-2013 | 07:00 | 1.8 | ESE |
| 10-Oct-2013 | 08:00 | 2.2 | ENE |
| 10-Oct-2013 | 09:00 | 2.4 | NW |
| 10-Oct-2013 | 10:00 | 2.6 | W |
| 10-Oct-2013 | 11:00 | 2.8 | W |
| 10-Oct-2013 | 12:00 | 2.8 | W |
| 10-Oct-2013 | 13:00 | 2.7 | NE |
| 10-Oct-2013 | 14:00 | 2.7 | ENE |
| 10-Oct-2013 | 15:00 | 2.8 | NE |
| 10-Oct-2013 | 16:00 | 2.8 | ESE |
| 10-Oct-2013 | 17:00 | 2.7 | E |
| 10-Oct-2013 | 18:00 | 2.3 | E |
| 10-Oct-2013 | 19:00 | 2.1 | SSW |
| 10-Oct-2013 | 20:00 | 2.1 | W |
| 10-Oct-2013 | 21:00 | 2.1 | SW |
| 10-Oct-2013 | 22:00 | 2.3 | S |
| 10-Oct-2013 | 23:00 | 2.1 | SW |
| 11-Oct-2013 | 00:00 | 2.4 | SW |
| 11-Oct-2013 | 01:00 | 2.2 | W |
| 11-Oct-2013 | 02:00 | 2.3 | SW |
| 11-Oct-2013 | 03:00 | 2.3 | SSW |
| 11-Oct-2013 | 04:00 | 2.1 | SSE |
| 11-Oct-2013 | 05:00 | 2.3 | W |
| 11-Oct-2013 | 06:00 | 2.2 | SSW |
| 11-Oct-2013 | 07:00 | 2.2 | SSW |
| 11-Oct-2013 | 08:00 | 2.4 | W |
| 11-Oct-2013 | 09:00 | 3 | SW |
| 11-Oct-2013 | 10:00 | 3 | W |
| 11-Oct-2013 | 11:00 | 3.1 | WNW |
| 11-Oct-2013 | 12:00 | 3.2 | NE |
| 11-Oct-2013 | 13:00 | 3.3 | NE |
| 11-Oct-2013 | 14:00 | 3 | NW |
| 11-Oct-2013 | 15:00 | 3 | WNW |
| 11-Oct-2013 | 16:00 | 3.1 | SSW |
| 11-Oct-2013 | 17:00 | 3.1 | WSW |
| 11-Oct-2013 | 18:00 | 2.5 | SW |
| 11-Oct-2013 | 19:00 | 2.7 | SW |
| 11-Oct-2013 | 20:00 | 2.6 | SSW |
| 11-Oct-2013 | 21:00 | 2.6 | WNW |
| 11-Oct-2013 | 22:00 | 2.1 | WNW |
| 11-Oct-2013 | 23:00 | 2.3 | WNW |
| 12-Oct-2013 | 00:00 | 2.3 | WSW |
| 12-Oct-2013 | 01:00 | 2.2 | W |
| 12-Oct-2013 | 02:00 | 2.4 | E |
| 12-Oct-2013 | 03:00 | 2.4 | WNW |
| 12-Oct-2013 | 04:00 | 2.5 | WNW |
| 12-Oct-2013 | 05:00 | 2.2 | SW |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 12-Oct-2013 | 06:00 | 2.1 | WNW |
| 12-Oct-2013 | 07:00 | 2.3 | WSW |
| 12-Oct-2013 | 08:00 | 2.4 | W |
| 12-Oct-2013 | 09:00 | 2.6 | SSW |
| 12-Oct-2013 | 10:00 | 3 | SSE |
| 12-Oct-2013 | 11:00 | 2.7 | SSE |
| 12-Oct-2013 | 12:00 | 2.7 | WSW |
| 12-Oct-2013 | 13:00 | 2.7 | ENE |
| 12-Oct-2013 | 14:00 | 2.7 | SE |
| 12-Oct-2013 | 15:00 | 2.8 | SE |
| 12-Oct-2013 | 16:00 | 2.5 | ENE |
| 12-Oct-2013 | 17:00 | 2.3 | N |
| 12-Oct-2013 | 18:00 | 2.1 | SSE |
| 12-Oct-2013 | 19:00 | 1.8 | SSE |
| 12-Oct-2013 | 20:00 | 1.6 | SSE |
| 12-Oct-2013 | 21:00 | 1.5 | NNE |
| 12-Oct-2013 | 22:00 | 1.7 | NNE |
| 12-Oct-2013 | 23:00 | 1.8 | NE |
| 13-Oct-2013 | 00:00 | 1.3 | NE |
| 13-Oct-2013 | 01:00 | 1.4 | NE |
| 13-Oct-2013 | 02:00 | 1.4 | NNE |
| 13-Oct-2013 | 03:00 | 1.4 | NE |
| 13-Oct-2013 | 04:00 | 1.4 | ENE |
| 13-Oct-2013 | 05:00 | 1.3 | ENE |
| 13-Oct-2013 | 06:00 | 1.4 | ENE |
| 13-Oct-2013 | 07:00 | 1.2 | NNE |
| 13-Oct-2013 | 08:00 | 1.6 | SE |
| 13-Oct-2013 | 09:00 | 2 | S |
| 13-Oct-2013 | 10:00 | 2 | SSE |
| 13-Oct-2013 | 11:00 | 2.3 | ESE |
| 13-Oct-2013 | 12:00 | 2.5 | ESE |
| 13-Oct-2013 | 13:00 | 2.6 | E |
| 13-Oct-2013 | 14:00 | 2.4 | ESE |
| 13-Oct-2013 | 15:00 | 2.4 | NE |
| 13-Oct-2013 | 16:00 | 2.1 | NE |
| 13-Oct-2013 | 17:00 | 2 | NE |
| 13-Oct-2013 | 18:00 | 1.9 | ESE |
| 13-Oct-2013 | 19:00 | 1.5 | NNE |
| 13-Oct-2013 | 20:00 | 1.2 | N |
| 13-Oct-2013 | 21:00 | 0.9 | NNE |
| 13-Oct-2013 | 22:00 | 1 | ENE |
| 13-Oct-2013 | 23:00 | 1.1 | E |
| 14-Oct-2013 | 00:00 | 1 | NE |
| 14-Oct-2013 | 01:00 | 0.8 | NNE |
| 14-Oct-2013 | 02:00 | 0.9 | NE |
| 14-Oct-2013 | 03:00 | 0.9 | ENE |
| 14-Oct-2013 | 04:00 | 0.9 | NE |
| 14-Oct-2013 | 05:00 | 0.9 | ESE |
| 14-Oct-2013 | 06:00 | 0.8 | SE |
| 14-Oct-2013 | 07:00 | 0.9 | NNE |
| 14-Oct-2013 | 08:00 | 1.2 | S |
| 14-Oct-2013 | 09:00 | 1.7 | NNE |
| 14-Oct-2013 | 10:00 | 2.1 | NNE |
| 14-Oct-2013 | 11:00 | 2.3 | NNE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 14-Oct-2013 | 12:00 | 2.3 | NNE |
| 14-Oct-2013 | 13:00 | 2.6 | NNE |
| 14-Oct-2013 | 14:00 | 2.6 | NNE |
| 14-Oct-2013 | 15:00 | 2.6 | NNE |
| 14-Oct-2013 | 16:00 | 2.4 | NNE |
| 14-Oct-2013 | 17:00 | 2.2 | NNE |
| 14-Oct-2013 | 18:00 | 1.9 | NNE |
| 14-Oct-2013 | 19:00 | 1.8 | N |
| 14-Oct-2013 | 20:00 | 1.4 | S |
| 14-Oct-2013 | 21:00 | 1.6 | W |
| 14-Oct-2013 | 22:00 | 1.5 | S |
| 14-Oct-2013 | 23:00 | 1.4 | SSW |
| 15-Oct-2013 | 00:00 | 1.2 | SSW |
| 15-Oct-2013 | 01:00 | 1.2 | WNW |
| 15-Oct-2013 | 02:00 | 1.3 | W |
| 15-Oct-2013 | 03:00 | 1.3 | W |
| 15-Oct-2013 | 04:00 | 1.3 | W |
| 15-Oct-2013 | 05:00 | 1.2 | W |
| 15-Oct-2013 | 06:00 | 1.2 | SSW |
| 15-Oct-2013 | 07:00 | 1.3 | WNW |
| 15-Oct-2013 | 08:00 | 1.6 | NE |
| 15-Oct-2013 | 09:00 | 2 | NE |
| 15-Oct-2013 | 10:00 | 2.2 | NE |
| 15-Oct-2013 | 11:00 | 2.4 | S |
| 15-Oct-2013 | 12:00 | 2.6 | S |
| 15-Oct-2013 | 13:00 | 2.7 | S |
| 15-Oct-2013 | 14:00 | 2.5 | SSW |
| 15-Oct-2013 | 15:00 | 2.6 | WNW |
| 15-Oct-2013 | 16:00 | 2.2 | SSW |
| 15-Oct-2013 | 17:00 | 2.1 | S |
| 15-Oct-2013 | 18:00 | 2 | WNW |
| 15-Oct-2013 | 19:00 | 1.7 | WNW |
| 15-Oct-2013 | 20:00 | 1.5 | WNW |
| 15-Oct-2013 | 21:00 | 1.6 | WNW |
| 15-Oct-2013 | 22:00 | 1.4 | SW |
| 15-Oct-2013 | 23:00 | 1.4 | W |
| 16-Oct-2013 | 00:00 | 2.1 | WSW |
| 16-Oct-2013 | 01:00 | 1.8 | WSW |
| 16-Oct-2013 | 02:00 | 2 | SW |
| 16-Oct-2013 | 03:00 | 1.9 | WSW |
| 16-Oct-2013 | 04:00 | 1.9 | WSW |
| 16-Oct-2013 | 05:00 | 1.9 | SW |
| 16-Oct-2013 | 06:00 | 1.7 | WNW |
| 16-Oct-2013 | 07:00 | 1.7 | WNW |
| 16-Oct-2013 | 08:00 | 1.6 | WNW |
| 16-Oct-2013 | 09:00 | 2.2 | WNW |
| 16-Oct-2013 | 10:00 | 2.2 | WSW |
| 16-Oct-2013 | 11:00 | 2.3 | W |
| 16-Oct-2013 | 12:00 | 2.3 | W |
| 16-Oct-2013 | 13:00 | 2.4 | WNW |
| 16-Oct-2013 | 14:00 | 2.5 | WNW |
| 16-Oct-2013 | 15:00 | 2.6 | W |
| 16-Oct-2013 | 16:00 | 2.7 | WNW |
| 16-Oct-2013 | 17:00 | 2.5 | SSW |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 16-Oct-2013 | 18:00 | 2.2 | WNW |
| 16-Oct-2013 | 19:00 | 2 | WSW |
| 16-Oct-2013 | 20:00 | 1.6 | N |
| 16-Oct-2013 | 21:00 | 1.7 | N |
| 16-Oct-2013 | 22:00 | 1.4 | N |
| 16-Oct-2013 | 23:00 | 1.2 | WNW |
| 17-Oct-2013 | 00:00 | 1.3 | WNW |
| 17-Oct-2013 | 01:00 | 1.3 | W |
| 17-Oct-2013 | 02:00 | 1.5 | WNW |
| 17-Oct-2013 | 03:00 | 1.6 | SW |
| 17-Oct-2013 | 04:00 | 1.4 | WNW |
| 17-Oct-2013 | 05:00 | 1.7 | WNW |
| 17-Oct-2013 | 06:00 | 2 | W |
| 17-Oct-2013 | 07:00 | 1.6 | W |
| 17-Oct-2013 | 08:00 | 1.7 | WSW |
| 17-Oct-2013 | 09:00 | 2 | WNW |
| 17-Oct-2013 | 10:00 | 2.4 | SW |
| 17-Oct-2013 | 11:00 | 2.9 | SSW |
| 17-Oct-2013 | 12:00 | 2.9 | WSW |
| 17-Oct-2013 | 13:00 | 2.6 | WSW |
| 17-Oct-2013 | 14:00 | 2.3 | WNW |
| 17-Oct-2013 | 15:00 | 2.6 | W |
| 17-Oct-2013 | 16:00 | 2.7 | WSW |
| 17-Oct-2013 | 17:00 | 2.2 | WSW |
| 17-Oct-2013 | 18:00 | 2.1 | SW |
| 17-Oct-2013 | 19:00 | 2 | SSE |
| 17-Oct-2013 | 20:00 | 1.6 | SW |
| 17-Oct-2013 | 21:00 | 1.6 | N |
| 17-Oct-2013 | 22:00 | 1.4 | NNE |
| 17-Oct-2013 | 23:00 | 1.5 | W |
| 18-Oct-2013 | 00:00 | 1.6 | W |
| 18-Oct-2013 | 01:00 | 1.6 | WNW |
| 18-Oct-2013 | 02:00 | 1.6 | WSW |
| 18-Oct-2013 | 03:00 | 1.6 | SW |
| 18-Oct-2013 | 04:00 | 1.8 | SW |
| 18-Oct-2013 | 05:00 | 1.9 | SSW |
| 18-Oct-2013 | 06:00 | 1.7 | SSW |
| 18-Oct-2013 | 07:00 | 1.8 | WSW |
| 18-Oct-2013 | 08:00 | 2 | W |
| 18-Oct-2013 | 09:00 | 2.3 | W |
| 18-Oct-2013 | 10:00 | 2.8 | WSW |
| 18-Oct-2013 | 11:00 | 2.9 | W |
| 18-Oct-2013 | 12:00 | 2.9 | SW |
| 18-Oct-2013 | 13:00 | 2.8 | W |
| 18-Oct-2013 | 14:00 | 2.8 | W |
| 18-Oct-2013 | 15:00 | 2.9 | W |
| 18-Oct-2013 | 16:00 | 2.6 | WSW |
| 18-Oct-2013 | 17:00 | 2.6 | W |
| 18-Oct-2013 | 18:00 | 2.5 | W |
| 18-Oct-2013 | 19:00 | 2 | NNE |
| 18-Oct-2013 | 20:00 | 2 | NNE |
| 18-Oct-2013 | 21:00 | 2.1 | NE |
| 18-Oct-2013 | 22:00 | 2.2 | NE |
| 18-Oct-2013 | 23:00 | 2.1 | W |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 19-Oct-2013 | 00:00 | 2.1 | W |
| 19-Oct-2013 | 01:00 | 2.3 | W |
| 19-Oct-2013 | 02:00 | 2.3 | W |
| 19-Oct-2013 | 03:00 | 2.2 | SSW |
| 19-Oct-2013 | 04:00 | 2.2 | WSW |
| 19-Oct-2013 | 05:00 | 2.6 | W |
| 19-Oct-2013 | 06:00 | 2.4 | SW |
| 19-Oct-2013 | 07:00 | 2.1 | WSW |
| 19-Oct-2013 | 08:00 | 2.7 | WNW |
| 19-Oct-2013 | 09:00 | 2.7 | SW |
| 19-Oct-2013 | 10:00 | 2.9 | WNW |
| 19-Oct-2013 | 11:00 | 3.1 | WNW |
| 19-Oct-2013 | 12:00 | 3.3 | WNW |
| 19-Oct-2013 | 13:00 | 3.2 | WNW |
| 19-Oct-2013 | 14:00 | 3.2 | W |
| 19-Oct-2013 | 15:00 | 3.4 | SW |
| 19-Oct-2013 | 16:00 | 3.1 | WSW |
| 19-Oct-2013 | 17:00 | 2.8 | WNW |
| 19-Oct-2013 | 18:00 | 2.1 | SW |
| 19-Oct-2013 | 19:00 | 2 | SW |
| 19-Oct-2013 | 20:00 | 2.1 | SW |
| 19-Oct-2013 | 21:00 | 1.6 | WNW |
| 19-Oct-2013 | 22:00 | 2 | NW |
| 19-Oct-2013 | 23:00 | 1.9 | WNW |
| 20-Oct-2013 | 00:00 | 1.9 | W |
| 20-Oct-2013 | 01:00 | 1.9 | W |
| 20-Oct-2013 | 02:00 | 2.2 | WSW |
| 20-Oct-2013 | 03:00 | 2.2 | W |
| 20-Oct-2013 | 04:00 | 2 | NNE |
| 20-Oct-2013 | 05:00 | 2.2 | SW |
| 20-Oct-2013 | 06:00 | 2.3 | SW |
| 20-Oct-2013 | 07:00 | 1.7 | SE |
| 20-Oct-2013 | 08:00 | 1.9 | SSW |
| 20-Oct-2013 | 09:00 | 2.6 | SSE |
| 20-Oct-2013 | 10:00 | 2.7 | SE |
| 20-Oct-2013 | 11:00 | 3.1 | NNW |
| 20-Oct-2013 | 12:00 | 2.8 | ENE |
| 20-Oct-2013 | 13:00 | 2.6 | SE |
| 20-Oct-2013 | 14:00 | 2.5 | E |
| 20-Oct-2013 | 15:00 | 2.9 | NE |
| 20-Oct-2013 | 16:00 | 2.6 | N |
| 20-Oct-2013 | 17:00 | 2.5 | NW |
| 20-Oct-2013 | 18:00 | 1.9 | NNE |
| 20-Oct-2013 | 19:00 | 1.8 | WNW |
| 20-Oct-2013 | 20:00 | 1.9 | WNW |
| 20-Oct-2013 | 21:00 | 2 | WNW |
| 20-Oct-2013 | 22:00 | 2.1 | N |
| 20-Oct-2013 | 23:00 | 2.4 | NNE |
| 21-Oct-2013 | 00:00 | 1.8 | W |
| 21-Oct-2013 | 01:00 | 1.8 | E |
| 21-Oct-2013 | 02:00 | 1.7 | WSW |
| 21-Oct-2013 | 03:00 | 1.9 | SW |
| 21-Oct-2013 | 04:00 | 1.7 | SW |
| 21-Oct-2013 | 05:00 | 1.9 | SSE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 21-Oct-2013 | 06:00 | 1.3 | SW |
| 21-Oct-2013 | 07:00 | 1.2 | SW |
| 21-Oct-2013 | 08:00 | 1.2 | SW |
| 21-Oct-2013 | 09:00 | 1.8 | NNE |
| 21-Oct-2013 | 10:00 | 2.3 | SSW |
| 21-Oct-2013 | 11:00 | 2.6 | W |
| 21-Oct-2013 | 12:00 | 2.7 | NNE |
| 21-Oct-2013 | 13:00 | 2.6 | W |
| 21-Oct-2013 | 14:00 | 2.6 | SSW |
| 21-Oct-2013 | 15:00 | 2.4 | SW |
| 21-Oct-2013 | 16:00 | 2.2 | SSW |
| 21-Oct-2013 | 17:00 | 2.2 | WNW |
| 21-Oct-2013 | 18:00 | 1.9 | S |
| 21-Oct-2013 | 19:00 | 2 | W |
| 21-Oct-2013 | 20:00 | 1.6 | W |
| 21-Oct-2013 | 21:00 | 1.8 | NNE |
| 21-Oct-2013 | 22:00 | 1.6 | SSW |
| 21-Oct-2013 | 23:00 | 2 | ESE |
| 22-Oct-2013 | 00:00 | 1.6 | NNE |
| 22-Oct-2013 | 01:00 | 1.3 | NNE |
| 22-Oct-2013 | 02:00 | 1.2 | W |
| 22-Oct-2013 | 03:00 | 1.6 | SW |
| 22-Oct-2013 | 04:00 | 1.7 | NE |
| 22-Oct-2013 | 05:00 | 1.5 | W |
| 22-Oct-2013 | 06:00 | 1.5 | WNW |
| 22-Oct-2013 | 07:00 | 1.6 | N |
| 22-Oct-2013 | 08:00 | 1.9 | SW |
| 22-Oct-2013 | 09:00 | 2 | W |
| 22-Oct-2013 | 10:00 | 2.3 | SSE |
| 22-Oct-2013 | 11:00 | 2.7 | WNW |
| 22-Oct-2013 | 12:00 | 2.7 | NE |
| 22-Oct-2013 | 13:00 | 2.6 | NNE |
| 22-Oct-2013 | 14:00 | 2.6 | ENE |
| 22-Oct-2013 | 15:00 | 2.5 | NE |
| 22-Oct-2013 | 16:00 | 2.3 | SE |
| 22-Oct-2013 | 17:00 | 2.3 | ESE |
| 22-Oct-2013 | 18:00 | 2.2 | ENE |
| 22-Oct-2013 | 19:00 | 2.1 | ESE |
| 22-Oct-2013 | 20:00 | 2.2 | SSW |
| 22-Oct-2013 | 21:00 | 2.3 | SE |
| 22-Oct-2013 | 22:00 | 1.9 | SSE |
| 22-Oct-2013 | 23:00 | 2 | SE |
| 23-Oct-2013 | 00:00 | 2.3 | SSE |
| 23-Oct-2013 | 01:00 | 2.2 | NE |
| 23-Oct-2013 | 02:00 | 2.3 | SE |
| 23-Oct-2013 | 03:00 | 2.3 | SSE |
| 23-Oct-2013 | 04:00 | 2.1 | NE |
| 23-Oct-2013 | 05:00 | 2.1 | E |
| 23-Oct-2013 | 06:00 | 1.9 | SW |
| 23-Oct-2013 | 07:00 | 2 | ENE |
| 23-Oct-2013 | 08:00 | 2.3 | E |
| 23-Oct-2013 | 09:00 | 2.6 | ENE |
| 23-Oct-2013 | 10:00 | 3 | SW |
| 23-Oct-2013 | 11:00 | 3.2 | N |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 23-Oct-2013 | 12:00 | 3 | NNE |
| 23-Oct-2013 | 13:00 | 2.9 | W |
| 23-Oct-2013 | 14:00 | 2.8 | SW |
| 23-Oct-2013 | 15:00 | 2.6 | SSW |
| 23-Oct-2013 | 16:00 | 3.1 | SSW |
| 23-Oct-2013 | 17:00 | 2.9 | SW |
| 23-Oct-2013 | 18:00 | 2.4 | W |
| 23-Oct-2013 | 19:00 | 2.4 | W |
| 23-Oct-2013 | 20:00 | 2.5 | WSW |
| 23-Oct-2013 | 21:00 | 2.4 | WSW |
| 23-Oct-2013 | 22:00 | 2.3 | NNE |
| 23-Oct-2013 | 23:00 | 2.1 | WNW |
| 24-Oct-2013 | 00:00 | 2.1 | WNW |
| 24-Oct-2013 | 01:00 | 2.2 | SSW |
| 24-Oct-2013 | 02:00 | 2.1 | WSW |
| 24-Oct-2013 | 03:00 | 2.2 | W |
| 24-Oct-2013 | 04:00 | 2.4 | NNE |
| 24-Oct-2013 | 05:00 | 2.1 | N |
| 24-Oct-2013 | 06:00 | 2 | NE |
| 24-Oct-2013 | 07:00 | 1.8 | NE |
| 24-Oct-2013 | 08:00 | 2 | N |
| 24-Oct-2013 | 09:00 | 2.2 | N |
| 24-Oct-2013 | 10:00 | 2.6 | NNW |
| 24-Oct-2013 | 11:00 | 2.5 | WNW |
| 24-Oct-2013 | 12:00 | 2.4 | WNW |
| 24-Oct-2013 | 13:00 | 2.9 | WNW |
| 24-Oct-2013 | 14:00 | 2.3 | NNE |
| 24-Oct-2013 | 15:00 | 2.5 | ENE |
| 24-Oct-2013 | 16:00 | 2.6 | W |
| 24-Oct-2013 | 17:00 | 2.6 | WNW |
| 24-Oct-2013 | 18:00 | 2.2 | ENE |
| 24-Oct-2013 | 19:00 | 1.9 | NNE |
| 24-Oct-2013 | 20:00 | 1.9 | E |
| 24-Oct-2013 | 21:00 | 2.1 | SSE |
| 24-Oct-2013 | 22:00 | 2.1 | ENE |
| 24-Oct-2013 | 23:00 | 2.1 | ENE |
| 25-Oct-2013 | 00:00 | 2 | ENE |
| 25-Oct-2013 | 01:00 | 1.9 | ENE |
| 25-Oct-2013 | 02:00 | 1.7 | ESE |
| 25-Oct-2013 | 03:00 | 1.7 | ENE |
| 25-Oct-2013 | 04:00 | 1.9 | E |
| 25-Oct-2013 | 05:00 | 1.6 | SSE |
| 25-Oct-2013 | 06:00 | 1.6 | ENE |
| 25-Oct-2013 | 07:00 | 1.7 | NNE |
| 25-Oct-2013 | 08:00 | 1.6 | ENE |
| 25-Oct-2013 | 09:00 | 2 | N |
| 25-Oct-2013 | 10:00 | 2.3 | N |
| 25-Oct-2013 | 11:00 | 2.3 | NNE |
| 25-Oct-2013 | 12:00 | 2.5 | S |
| 25-Oct-2013 | 13:00 | 2.6 | W |
| 25-Oct-2013 | 14:00 | 2.3 | WSW |
| 25-Oct-2013 | 15:00 | 2.4 | W |
| 25-Oct-2013 | 16:00 | 2.4 | WSW |
| 25-Oct-2013 | 17:00 | 2.3 | WSW |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 25-Oct-2013 | 18:00 | 2.1 | W |
| 25-Oct-2013 | 19:00 | 1.9 | WNW |
| 25-Oct-2013 | 20:00 | 1.8 | W |
| 25-Oct-2013 | 21:00 | 1.7 | SW |
| 25-Oct-2013 | 22:00 | 1.9 | W |
| 25-Oct-2013 | 23:00 | 2 | WNW |
| 26-Oct-2013 | 00:00 | 1.8 | WSW |
| 26-Oct-2013 | 01:00 | 1.6 | WSW |
| 26-Oct-2013 | 02:00 | 1.9 | WSW |
| 26-Oct-2013 | 03:00 | 1.6 | WSW |
| 26-Oct-2013 | 04:00 | 1.2 | WSW |
| 26-Oct-2013 | 05:00 | 1.4 | WSW |
| 26-Oct-2013 | 06:00 | 1.4 | WNW |
| 26-Oct-2013 | 07:00 | 1.6 | W |
| 26-Oct-2013 | 08:00 | 1.7 | WNW |
| 26-Oct-2013 | 09:00 | 2.1 | SE |
| 26-Oct-2013 | 10:00 | 2.3 | SE |
| 26-Oct-2013 | 11:00 | 2.6 | NE |
| 26-Oct-2013 | 12:00 | 2.8 | WSW |
| 26-Oct-2013 | 13:00 | 2.8 | SSE |
| 26-Oct-2013 | 14:00 | 2.8 | ENE |
| 26-Oct-2013 | 15:00 | 2.6 | SE |
| 26-Oct-2013 | 16:00 | 2.6 | SSE |
| 26-Oct-2013 | 17:00 | 2.2 | S |
| 26-Oct-2013 | 18:00 | 2.1 | SE |
| 26-Oct-2013 | 19:00 | 2 | SSE |
| 26-Oct-2013 | 20:00 | 1.9 | ESE |
| 26-Oct-2013 | 21:00 | 2.2 | ESE |
| 26-Oct-2013 | 22:00 | 2.1 | ESE |
| 26-Oct-2013 | 23:00 | 2.2 | W |
| 27-Oct-2013 | 00:00 | 2.1 | W |
| 27-Oct-2013 | 01:00 | 1.8 | WNW |
| 27-Oct-2013 | 02:00 | 2.1 | WNW |
| 27-Oct-2013 | 03:00 | 2 | NE |
| 27-Oct-2013 | 04:00 | 1.6 | E |
| 27-Oct-2013 | 05:00 | 1.6 | N |
| 27-Oct-2013 | 06:00 | 1.5 | NE |
| 27-Oct-2013 | 07:00 | 1.7 | ENE |
| 27-Oct-2013 | 08:00 | 1.9 | ESE |
| 27-Oct-2013 | 09:00 | 2.6 | E |
| 27-Oct-2013 | 10:00 | 2.7 | ESE |
| 27-Oct-2013 | 11:00 | 3 | SE |
| 27-Oct-2013 | 12:00 | 2.8 | E |
| 27-Oct-2013 | 13:00 | 2.6 | ESE |
| 27-Oct-2013 | 14:00 | 2.9 | SE |
| 27-Oct-2013 | 15:00 | 2.6 | S |
| 27-Oct-2013 | 16:00 | 2.5 | SE |
| 27-Oct-2013 | 17:00 | 2.6 | SE |
| 27-Oct-2013 | 18:00 | 2.2 | N |
| 27-Oct-2013 | 19:00 | 1.9 | N |
| 27-Oct-2013 | 20:00 | 1.8 | S |
| 27-Oct-2013 | 21:00 | 1.7 | SSE |
| 27-Oct-2013 | 22:00 | 1.6 | W |
| 27-Oct-2013 | 23:00 | 1.9 | WNW |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 28-Oct-2013 | 00:00 | 2 | WNW |
| 28-Oct-2013 | 01:00 | 2 | W |
| 28-Oct-2013 | 02:00 | 2.1 | SSW |
| 28-Oct-2013 | 03:00 | 2.3 | WNW |
| 28-Oct-2013 | 04:00 | 2 | ESE |
| 28-Oct-2013 | 05:00 | 1.9 | ESE |
| 28-Oct-2013 | 06:00 | 1.7 | WNW |
| 28-Oct-2013 | 07:00 | 1.9 | NE |
| 28-Oct-2013 | 08:00 | 2.3 | NE |
| 28-Oct-2013 | 09:00 | 2.3 | S |
| 28-Oct-2013 | 10:00 | 2 | NE |
| 28-Oct-2013 | 11:00 | 1.9 | ENE |
| 28-Oct-2013 | 12:00 | 2.8 | NNE |
| 28-Oct-2013 | 13:00 | 3.2 | NE |
| 28-Oct-2013 | 14:00 | 2.9 | NE |
| 28-Oct-2013 | 15:00 | 3.4 | NE |
| 28-Oct-2013 | 16:00 | 3.4 | NE |
| 28-Oct-2013 | 17:00 | 3 | NE |
| 28-Oct-2013 | 18:00 | 2.3 | NE |
| 28-Oct-2013 | 19:00 | 1.9 | NE |
| 28-Oct-2013 | 20:00 | 1.9 | W |
| 28-Oct-2013 | 21:00 | 2.5 | N |
| 28-Oct-2013 | 22:00 | 2.6 | NE |
| 28-Oct-2013 | 23:00 | 2.7 | N |
| 29-Oct-2013 | 00:00 | 2.2 | ENE |
| 29-Oct-2013 | 01:00 | 2.4 | ENE |
| 29-Oct-2013 | 02:00 | 2.4 | SSE |
| 29-Oct-2013 | 03:00 | 2.2 | ESE |
| 29-Oct-2013 | 04:00 | 2 | NNE |
| 29-Oct-2013 | 05:00 | 2.1 | ENE |
| 29-Oct-2013 | 06:00 | 1.7 | ENE |
| 29-Oct-2013 | 07:00 | 1.8 | E |
| 29-Oct-2013 | 08:00 | 2 | ESE |
| 29-Oct-2013 | 09:00 | 2.3 | ENE |
| 29-Oct-2013 | 10:00 | 2.6 | NNE |
| 29-Oct-2013 | 11:00 | 2.7 | ESE |
| 29-Oct-2013 | 12:00 | 2.6 | SE |
| 29-Oct-2013 | 13:00 | 2.5 | SW |
| 29-Oct-2013 | 14:00 | 2.5 | WNW |
| 29-Oct-2013 | 15:00 | 2.7 | ENE |
| 29-Oct-2013 | 16:00 | 3.3 | W |
| 29-Oct-2013 | 17:00 | 3.4 | WSW |
| 29-Oct-2013 | 18:00 | 3.1 | W |
| 29-Oct-2013 | 19:00 | 2.9 | W |
| 29-Oct-2013 | 20:00 | 3 | WSW |
| 29-Oct-2013 | 21:00 | 2.3 | NW |
| 29-Oct-2013 | 22:00 | 2.5 | SW |
| 29-Oct-2013 | 23:00 | 3.2 | SW |
| 30-Oct-2013 | 00:00 | 3.4 | S |
| 30-Oct-2013 | 01:00 | 3.4 | ENE |
| 30-Oct-2013 | 02:00 | 2.3 | ENE |
| 30-Oct-2013 | 03:00 | 3.5 | ENE |
| 30-Oct-2013 | 04:00 | 2.6 | SSE |
| 30-Oct-2013 | 05:00 | 3.3 | NNE |

Appendix J - Wind Data

| Date | Time | Wind Speed m/s | Direction |
|-------------|-------|----------------|-----------|
| 30-Oct-2013 | 06:00 | 2.6 | NE |
| 30-Oct-2013 | 07:00 | 3 | NNE |
| 30-Oct-2013 | 08:00 | 2.4 | W |
| 30-Oct-2013 | 09:00 | 3.1 | SW |
| 30-Oct-2013 | 10:00 | 3.6 | SW |
| 30-Oct-2013 | 11:00 | 2.6 | W |
| 30-Oct-2013 | 12:00 | 2.6 | NNE |
| 30-Oct-2013 | 13:00 | 2.6 | WNW |
| 30-Oct-2013 | 14:00 | 2.4 | WSW |
| 30-Oct-2013 | 15:00 | 2.3 | W |
| 30-Oct-2013 | 16:00 | 2.3 | SW |
| 30-Oct-2013 | 17:00 | 2 | SW |
| 30-Oct-2013 | 18:00 | 1.8 | SSW |
| 30-Oct-2013 | 19:00 | 1.9 | SW |
| 30-Oct-2013 | 20:00 | 2.3 | SW |
| 30-Oct-2013 | 21:00 | 2.2 | W |
| 30-Oct-2013 | 22:00 | 2.3 | W |
| 30-Oct-2013 | 23:00 | 2.5 | S |
| 31-Oct-2013 | 00:00 | 2.2 | WSW |
| 31-Oct-2013 | 01:00 | 2.2 | SW |
| 31-Oct-2013 | 02:00 | 2.5 | SW |
| 31-Oct-2013 | 03:00 | 2 | S |
| 31-Oct-2013 | 04:00 | 2.3 | W |
| 31-Oct-2013 | 05:00 | 2.5 | WNW |
| 31-Oct-2013 | 06:00 | 2.2 | SW |
| 31-Oct-2013 | 07:00 | 2.3 | SW |
| 31-Oct-2013 | 08:00 | 2.3 | W |
| 31-Oct-2013 | 09:00 | 2.2 | NNE |
| 31-Oct-2013 | 10:00 | 2.5 | NE |
| 31-Oct-2013 | 11:00 | 2.5 | NE |
| 31-Oct-2013 | 12:00 | 2.5 | NE |
| 31-Oct-2013 | 13:00 | 2.4 | NNE |
| 31-Oct-2013 | 14:00 | 2.3 | NNE |
| 31-Oct-2013 | 15:00 | 2.6 | NE |
| 31-Oct-2013 | 16:00 | 2.5 | NNE |
| 31-Oct-2013 | 17:00 | 2.2 | E |
| 31-Oct-2013 | 18:00 | 1.7 | NE |
| 31-Oct-2013 | 19:00 | 2.1 | NE |
| 31-Oct-2013 | 20:00 | 1.9 | NE |
| 31-Oct-2013 | 21:00 | 1.9 | NE |
| 31-Oct-2013 | 22:00 | 2 | NE |
| 31-Oct-2013 | 23:00 | 2.1 | E |

APPENDIX K
EVENT ACTION PLANS

Event / Action Plan for Air Quality

| EVENT | ACTION | | | |
|---|---|---|--|--|
| | ET | IEC | SO | CONTRACTOR |
| ACTION LEVEL | | | | |
| 1. Exceedance for one sample | 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and SO; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. | 1. Notify Contractor. | 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Identify source; 2. Inform IEC and SO; 3. Advise the SO on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and SO; 8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; | 1. Submit proposals for remedial to SO within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. |

LIMIT LEVEL

| | | | | |
|--|--|---|---|---|
| 1.Exceedance for one sample | <ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform SO, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the SO on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate. |
| 2.Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Notify IEC, SO, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and SO to discuss the remedial actions to | <ol style="list-style-type: none"> 1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of remedial | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the SO until the exceedance is |

| | | | | |
|--|--|-----------|--|---------|
| | <p>be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p> | measures. | <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p> | abated. |
|--|--|-----------|--|---------|

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, SO – Supervising Office

Event / Action Plan for Construction Noise

| EVENT | ACTION | | | |
|--------------|---|--|--|--|
| | ET | IEC | SO | CONTRACTOR |
| Action Level | <ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Notify IEC and Contractor; 3. Report the results of investigation to the IEC, SO and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the SO accordingly; 3. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented | <ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals. |
| Limit Level | <ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, SO, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, SO and EPD | <ol style="list-style-type: none"> 1. Discuss amongst SO, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the SO accordingly; 3. Supervise the implementation of | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; |

| EVENT | ACTION | | | |
|-------|--|--------------------|---|--|
| | ET | IEC | SO | CONTRACTOR |
| | <p>the causes and actions taken for the exceedances;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SO informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p> | remedial measures. | <p>problem;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p> | <p>5. Stop the relevant portion of works as determined by the SO until the exceedance is abated.</p> |

Event and Action Plan for Water Quality

| Event | ET Leader | IEC | SO | Contractor |
|--|---|---|--|---|
| Action level being exceeded by one sampling day | <p>Repeat <i>in situ</i> measurement on next day of exceedance to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform IEC, contractor and SO;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods.</p> | <p>Check monitoring data submitted by ET and Contractor's working methods.</p> | <p>Confirm receipt of notification of non-compliance in writing;</p> <p>Notify Contractor.</p> | <p>Inform the SO and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Amend working methods if appropriate.</p> |
| Action level being exceeded by two or more consecutive sampling days | <p>Repeat measurement on next day of exceedance to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform IEC, contractor, SO and EPD;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Ensure mitigation measures are implemented;</p> <p>Increase the monitoring frequency to daily until no exceedance of Action level;</p> | <p>Check monitoring data submitted by ET and Contractor's working method;</p> <p>Discuss with ET and Contractor on possible remedial actions;</p> <p>Review the proposed mitigation measures submitted by Contractor and advise the SO accordingly;</p> <p>Supervise the implementation of mitigation measures.</p> | <p>Discuss with IEC on the proposed mitigation measures;</p> <p>Ensure mitigation measures are properly implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p> | <p>Inform the Supervising Officer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment and consider changes of working methods;</p> <p>Submit proposal of additional mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO;</p> <p>Implement the agreed mitigation measures.</p> |
| Limit level being exceeded by one sampling day | <p>Repeat measurement on next day of exceedance to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform IEC, contractor, SO and EPD;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measures with IEC, SO and Contractor;</p> | <p>Check monitoring data submitted by ET and Contractor's working method;</p> <p>Discuss with ET and Contractor on possible remedial actions;</p> <p>Review the proposed mitigation measures submitted by Contractor and advise the SO accordingly.</p> | <p>Confirm receipt of notification of failure in writing;</p> <p>Discuss with IEC, ET and Contractor on the proposed mitigation measures;</p> <p>Request Contractor to review the working methods.</p> | <p>Inform the SO and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment and consider changes of working methods;</p> <p>Submit proposal of mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO.</p> |

| Event | ET Leader | IEC | SO | Contractor |
|---|--|--|---|--|
| Limit level being exceeded by two or more consecutive sampling days | <p>Repeat measurement on next day of exceedance to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform IEC, contractor, SO and EPD;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measures with IEC, SO and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> | <p>Check monitoring data submitted by ET and Contractor's working method;</p> <p>Discuss with ET and Contractor on possible remedial actions;</p> <p>Review the Contractor's mitigation measures whenever necessary to assure their effectiveness and advise the SO accordingly;</p> <p>Supervise the implementation of mitigation measures.</p> | <p>Discuss with IEC, ET and Contractor on the proposed mitigation measures;</p> <p>Request Contractor to critically review the working methods;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Ensure mitigation measures are properly implemented;</p> <p>Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</p> | <p>Take immediate action to avoid further exceedance;</p> <p>Submit proposal of mitigation measures to SO within 3 working days of notification and discuss with ET, IEC and SO;</p> <p>Implement the agreed mitigation measures;</p> <p>Resubmit proposals of mitigation measures if problem still not under control;</p> <p>As directed by the Supervising Officer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.</p> |

APPENDIX L
SUMMARY OF EXCEEDANCE

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road –
Section between HKSAR Boundary and Scenic Hill**

Exceedance Report

(A) Exceedance Report for Air Quality (1 hour TSP)

(NIL in the reporting period)

(B) Exceedance Report for Air Quality (24 hours TSP)

(NIL in the reporting period)

(C) Exceedance Report for Construction Noise

(NIL in the reporting period)

(D) Exceedance Report for Water Quality

| Environmental Monitoring | Parameter | No. of Exceedance | | No. of Exceedance related to the Construction Activities of this Contract | |
|-------------------------------------|---|--------------------------|------------------------|--|------------------------|
| | | Action Level | Limit Level | Action Level | Limit Level |
| Water Quality | Dissolved Oxygen (DO) (Surface & Middle) | 0 | 0 | 0 | 0 |
| | Dissolved Oxygen (DO) (Bottom) | 0 | 0 | 0 | 0 |
| | Turbidity | 1 | 0 | 0 | 0 |
| | Suspended Solids (SS) | 5 | 3 | 0 | 0 |

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 2 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|---------------------------------------|--------------------------------------|-----------------------|---|--|---|---|----------------|----------------------|
| SRA | Mid-flood | 23.5 | 34.4 | CS1 | 5.6 | 6.7 | 7.3 | 25.8 | (2) & (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results.
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – No marine construction works were conducted in vicinity of monitoring station SRA.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan



Title: Environmental Team Leader

Date: 18 October 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 4 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|------------------------------|-----------------------------|--------------------|--|---|--|-------------------------------------|----------------|-------------------|
| SR6 | Mid-flood | 23.5 | 34.4 | CS1 | 4.3 | 5.2 | 5.6 | <u>39.0</u> | (2) & (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks

- (1) – No major marine construction activity was conducted.
- (2) – No pollution discharge from construction activity was observed.
- (3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
- (4) – The exceeded results were similar or within the ranges baseline monitoring results.
- (5) – Monitoring station is situated at the upstream of the construction sites.
- (6) – Other(s): Please specify – No exceedances were recorded at the impact stations (i.e. IS1 to IS4) which are close to construction site and SR6 is far away from the construction sites.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 18 October 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 7 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|------------------------------|-----------------------------|--------------------|--|---|--|-------------------------------------|----------------|-------------------|
| IS2 | Mid-ebb | 23.5 | 34.4 | CS2 | 14.9 | 17.9 | 19.4 | 23.8 | (2) and (4) | No |
| ST2 | Mid-flood | | | CS1 | 34.9 | 41.9 | 45.4 | 44.9 | (2) and (3) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results. (Please refer to Table I)
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – _____

Table I – Summary of Baseline Water Quality Monitoring Results during Mid-Ebb Tide

| Station(s) | Suspended Solids (mg/L) | |
|------------|-------------------------|------|
| | Min | Max |
| IS2 | 5.3 | 20.1 |

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

A handwritten signature in black ink, appearing to be 'Chan', written over a horizontal line.

Title: Environmental Team Leader

Date: 28 October 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 9 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|---------------------------------------|--------------------------------------|-----------------------|---|--|---|---|----------------|----------------------|
| IS1 | Mid-flood | 23.5 | 34.4 | CS1 | 9.3 | 11.2 | 12.1 | <u>41.1</u> | (2) and (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks

- (1) – No major marine construction activity was conducted.
- (2) – No pollution discharge from construction activity was observed.
- (3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
- (4) – The exceeded results were similar or within the ranges baseline monitoring results.
- (5) – Monitoring station is situated at the upstream of the construction sites.
- (6) – Other(s): Please specify – No marine construction works were conducted in vicinity of monitoring station IS1.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 30 October 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 11 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|------------------------------|-----------------------------|--------------------|--|---|--|-------------------------------------|----------------|-------------------|
| IS1 | Mid-flood | 23.5 | 34.4 | CS1 | 3.5 | 4.2 | 4.6 | <i>24.6</i> | (2) and (6) | No |
| IS2 | | | | | | | | <i>28.0</i> | (2) and (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks

- (1) – No major marine construction activity was conducted.
- (2) – No pollution discharge from construction activity was observed.
- (3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
- (4) – The exceeded results were similar or within the ranges baseline monitoring results.
- (5) – Monitoring station is situated at the upstream of the construction sites.
- (6) – Other(s): Please specify – No marine construction works were conducted in vicinity of monitoring station IS1 and only splicing of temporary piles and no activity touching the sea was carried out at near IS2.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 30 October 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 23 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

| Station(s) | Tide | Baseline Action Level (mg/L) | Baseline Limit Level (mg/L) | Control Station(s) | Depth-average Value at Control Stations (mg/L) | 120% of Control Station Action Level (mg/L) | 130% of Control Station Limit Level (mg/L) | Depth-average Measured Value (mg/L) | Justification* | Validity (Yes/No) |
|------------|-----------|------------------------------|-----------------------------|--------------------|--|---|--|-------------------------------------|----------------|-------------------|
| ST1 | Mid-flood | 23.5 | 34.4 | CS1 | 13.1 | 15.7 | 17.0 | <u>49.2</u> | (2) and (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks (1) – No major marine construction activity was conducted.
(2) – No pollution discharge from construction activity was observed.
(3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
(4) – The exceeded results were similar or within the ranges baseline monitoring results.
(5) – Monitoring station is situated at the upstream of the construction sites.
(6) – Other(s): Please specify – Sediment plume due to the fishing vessels were observed during the monitoring.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

A handwritten signature in black ink, appearing to be 'Chan', written over a horizontal line.

Title: Environmental Team Leader

Date: 5 November 2013

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Date of Water Quality Monitoring: 23 October 2013

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

| Station(s) | Tide | Baseline Action Level (NTU) | Baseline Limit Level (NTU) | Control Station(s) | Depth-average Value at Control Stations (NTU) | 120% of Control Station Action Level (NTU) | 130% of Control Station Limit Level (NTU) | Depth-average Measured Value (NTU) | Justification* | Validity (Yes/No) |
|------------|-----------|-----------------------------|----------------------------|--------------------|---|--|---|------------------------------------|----------------|-------------------|
| ST1 | Mid-flood | 27.5 | 47.0 | CS1 | 12.7 | 15.2 | 16.5 | <i>44.1</i> | (2) and (6) | No |

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

*Remarks

- (1) – No major marine construction activity was conducted.
- (2) – No pollution discharge from construction activity was observed.
- (3) – Control Station value already exceeded either the Baseline Action or Limit Levels.
- (4) – The exceeded results were similar or within the ranges baseline monitoring results.
- (5) – Monitoring station is situated at the upstream of the construction sites.
- (6) – Other(s): Please specify – Sediment plume due to the fishing vessels were observed during the monitoring.

Part B – Conclusion: No direct evidence that the exceedances were due to the Contract, therefore the exceedances are considered due to the other external factors rather than the contract works.

Part C – Recommendation: As the exceedances were not related to the contract works, no further action to be required.

Contract No. HY/2011/09

**Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill
- Notification of Environmental Quality Limit Exceedances**

Location Plan:



Reviewed by: Dr. H.F. Chan

Title: Environmental Team Leader

Date: 5 November 2013

APPENDIX M
SITE AUDIT SUMMARY

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge



Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary




Inspection Information

| | |
|----------------------------|----------------------------|
| Checklist Reference Number | 131002 |
| Date | 2 October 2013 (Wednesday) |
| Time | 9:30-11:30 |



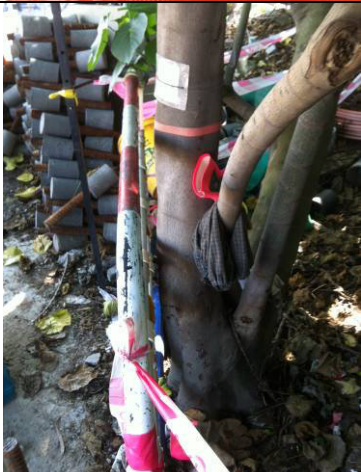
| Ref. No. | Non-Compliance | Related Item No. |
|------------|--|------------------|
| - | None identified | - |
| Ref. No. | Remarks/Observations | Related Item No. |
| | A. Water Quality | |
| 131002-R02 | • Clear the water at wheel washing bay regularly at Portion C. | B10iii. & iv. |
| | B. Ecology | |
| | • No environmental deficiency was identified during site inspection. | |
| | C. Air Quality | |
| | • No environmental deficiency was identified during site inspection. | |
| | D. Noise | |
| | • No environmental deficiency was identified during site inspection. | |
| | E. Waste / Chemical Management | |
| 131002-R01 | • To plug the drip tray for the generator at Portion C. | F9 |
| 131002-R03 | • Clear the oil spillage as chemical waste at WA4. | F8 |
| | F. Permits/Licences | |
| | • No environmental deficiency was identified during site inspection. | |
| | G. Others | |
| | • Follow-up on previous site audit session (Ref. No. 130930), all environmental deficiencies were improved/rectified by contractor during the site inspection. | |

| | Name | Signature | Date |
|-------------|--------------------|---|----------------|
| Recorded by | Ivy Tam |  | 2 October 2013 |
| Checked by | Dr. Priscilla Choy |  | 2 October 2013 |

Environmental Observations Identified during the Environmental Site Inspection
(2 October 2013)

| | |
|---|--|
|  | <p>Ref No: 131002-R01</p> <p>Impact: Waste / Chemical Management (F9)</p> <p>Details: To plug the drip tray for the generator at Portion C.</p> |
|  | <p>Ref No: 131002-R02</p> <p>Impact: Water Quality (B10iii. & iv.)</p> <p>Details: Clear the water at wheel washing bay regularly at Portion C.</p> |
|  | <p>Ref No: 131002-R03</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: Clear the oil spillage as chemical waste at WA4.</p> |

**Rectification Actions taken by the Contractor for Environmental Deficiencies
Identified during Previous Audit Session**

| | |
|---|---|
|  | <p>Ref No: 130927-R01</p> <p>Impact: Noise (D7)</p> <p>Details: Exposed stockpile should be properly covered by tarpaulin to avoid dust emission. (Portion C)</p> <p>Follow Up: The exposed stockpile was compacted and wetted to avoid dust generation.</p> |
|  | <p>Ref No: 130927-R02</p> <p>Impact: Waste / Chemical Management (F1iii)</p> <p>Details: General refuse should be properly disposed of and separated from C&D waste materials. (Portion C)</p> <p>Follow Up: General refuse was cleared and separated from C&D materials.</p> |
|  | <p>Ref No: 130927-R03</p> <p>Impact: Waste / Chemical Management (F4ii)</p> <p>Details: Fencing and other construction materials should be kept a distance from tree protection zone. (Portion C)</p> <p>Follow Up: All construction materials at near the tree were removed.</p> |

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge



Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

| | |
|----------------------------|-------------------------|
| Checklist Reference Number | 131007 |
| Date | 7 October 2013 (Monday) |
| Time | 9:30-11:15 |

| Ref. No. | Non-Compliance | Related Item No. |
|------------|--|------------------|
| - | None identified | - |
| Ref. No. | Remarks/Observations | Related Item No. |
| | A. Water Quality | |
| | • No environmental deficiency was identified during site inspection. | |
| | B. Ecology | |
| | • No environmental deficiency was identified during site inspection. | |
| | C. Air Quality | |
| 131007-R01 | • Provide water spray for the dry exposed area at WA4. | D6 & 14 |
| | D. Noise | |
| | • No environmental deficiency was identified during site inspection. | |
| | E. Waste / Chemical Management | |
| 131007-R02 | • To remove the empty chemical container as chemical waste at WA4. | F2ii. |
| | F. Permits/Licences | |
| | • No environmental deficiency was identified during site inspection. | |
| | G. Others | |
| | • Follow-up on previous site audit session (Ref. No. 131002), all environmental deficiencies were improved/rectified by contractor during the site inspection. | |

| | | | |
|-------------|--------------------|---|----------------|
| | Name | Signature | Date |
| Recorded by | Ivy Tam |  | 7 October 2013 |
| Checked by | Dr. Priscilla Choy |  | 7 October 2013 |

Environmental Observations Identified during the Environmental Site Inspection
(7 October 2013)

| | |
|---|--|
|  | <p>Ref No: 131007-R01</p> <p>Impact: Air Quality (D6 & 14)</p> <p>Details: Provide water spray for the dry exposed area at WA4.</p> |
|  | <p>Ref No: 131007-R02</p> <p>Impact: Waste / Chemical Management (F2ii.)</p> <p>Details: To remove the empty chemical container as chemical waste at WA4.</p> |

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

**Rectification Actions taken by the Contractor for Environmental Deficiencies
Identified during Previous Audit Session**

| | |
|---|---|
|  | <p>Ref No: 131002-R01</p> <p>Impact: Waste / Chemical Management (F9)</p> <p>Details: To plug the drip tray for the generator at Portion C.</p> <p>Follow Up: The drip tray for the generator was plugged.</p> |
|  | <p>Ref No: 131002-R02</p> <p>Impact: Water Quality (B10iii. & iv.)</p> <p>Details: Clear the water at wheel washing bay regularly at Portion C.</p> <p>Follow Up: The water at wheel washing bay was cleared.</p> |
|  | <p>Ref No: 131002-R03</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: Clear the oil spillage as chemical waste at WA4.</p> <p>Follow Up: Oil spillage was cleared.</p> |

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge



Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

| | |
|----------------------------|-----------------------------|
| Checklist Reference Number | 131016 |
| Date | 16 October 2013 (Wednesday) |
| Time | 9:00-12:00 |

| Ref. No. | Non-Compliance | Related Item No. |
|------------|--|------------------|
| - | None identified | - |
| Ref. No. | Remarks/Observations | Related Item No. |
| | A. Water Quality | |
| 131016-R02 | • To repair the damage silt curtain at P20. | B25 |
| | B. Ecology | |
| | • No environmental deficiency was identified during site inspection. | |
| | C. Air Quality | |
| | • No environmental deficiency was identified during site inspection. | |
| | D. Noise | |
| 131016-R03 | • Provide acoustic decoupling measures for the generator at P73. | E7 |
| | E. Waste / Chemical Management | |
| 131016-O01 | • Oil leakage was observed from the RCD at P73. The Contractor was reminded to check and repair the equipment, if necessary to avoid further leakage. | F8 |
| | F. Permits/Licences | |
| | • No environmental deficiency was identified during site inspection. | |
| | G. Others | |
| | • Follow-up on previous site audit session (Ref. No. 131007), all environmental deficiencies were improved/rectified by contractor during the site inspection. | |

| | | | |
|-------------|--------------------|---|-----------------|
| | Name | Signature | Date |
| Recorded by | Ivy Tam |  | 16 October 2013 |
| Checked by | Dr. Priscilla Choy |  | 16 October 2013 |

Environmental Observations Identified during the Environmental Site Inspection
(16 October 2013)

| | |
|---|--|
|  | <p>Ref No: 131016-O01</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: Oil leakage was observed from the RCD at P73. The Contractor was reminded to check and repair the equipment, if necessary to avoid further leakage.</p> |
|  | <p>Ref No: 131016-R02</p> <p>Impact: Water Quality (B25)</p> <p>Details: To repair the damage silt curtain at P20.</p> |
|  | <p>Ref No: 131016-R03</p> <p>Impact: Waste / Chemical Management (E7)</p> <p>Details: Provide acoustic decoupling measures for the generator at P73.</p> |

**Rectification Actions taken by the Contractor for Environmental Deficiencies
Identified during Previous Audit Session**



Ref No: 131007-R01

Impact:
Air Quality (D6 & 14)

Details:
Provide water spray for the dry exposed area at WA4.

Follow Up:
Water spray was provided for the dry exposed area.



Ref No: 131007-R02

Impact:
Waste / Chemical Management (F2ii.)

Details:
To remove the empty chemical container as chemical waste at WA4.

Follow Up:
Empty chemical container was removed.

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge



Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

| | |
|----------------------------|---------------------------|
| Checklist Reference Number | 131022 |
| Date | 22 October 2013 (Tuesday) |
| Time | 9:30-11:30 |

| Ref. No. | Non-Compliance | Related Item No. |
|------------|--|------------------|
| - | None identified | - |
| Ref. No. | Remarks/Observations | Related Item No. |
| | A. Water Quality | |
| 131022-R04 | • To remove the piles which contact to the sea at Portion A (near P104). | B21 |
| | B. Ecology | |
| | • No environmental deficiency was identified during site inspection. | |
| | C. Air Quality | |
| | • No environmental deficiency was identified during site inspection. | |
| | D. Noise | |
| | • No environmental deficiency was identified during site inspection. | |
| | E. Waste / Chemical Management | |
| 131022-R01 | • To remove the construction materials / wastes at near the trees at Portion C. | F4ii. |
| 131022-R02 | • To clear the oil stains at near the threading machine. | F8 |
| 131022-R03 | • To clear the packing wastes at near the threading machine. | F4ii. |
| | F. Permits/Licences | |
| | • No environmental deficiency was identified during site inspection. | |
| | G. Others | |
| | • Follow-up on previous site audit session (Ref. No. 131016), all environmental deficiencies were improved/rectified by contractor during the site inspection. | |

| | | | |
|-------------|--------------------|---|-----------------|
| | Name | Signature | Date |
| Recorded by | Ivy Tam |  | 22 October 2013 |
| Checked by | Dr. Priscilla Choy |  | 22 October 2013 |

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Environmental Observations Identified during the Environmental Site Inspection
(22 October 2013)

| | |
|---|---|
|  | <p>Ref No: 131022-R01</p> <p>Impact: Waste / Chemical Management (F4ii.)</p> <p>Details: To remove the construction materials / wastes at near the trees at Portion C.</p> |
|  | <p>Ref No: 131022-R02</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: To clear the oil stains at near the threading machine.</p> |
|  | <p>Ref No: 131022-R03</p> <p>Impact: Waste / Chemical Management (F4ii.)</p> <p>Details: To clear the packing wastes at near the threading machine.</p> |

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill



Ref No: 131022-R04




Impact:
Water Quality (B21)

Details:
To remove the piles which contact to the sea at Portion A. (near P104)

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

**Rectification Actions taken by the Contractor for Environmental Deficiencies
Identified during Previous Audit Session**

| | |
|---|---|
|  | <p>Ref No: 131016-O01</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: Oil leakage was observed from the RCD at P73. The Contractor was reminded to check and repair the equipment, if necessary to avoid further leakage.</p> <p>Follow Up: No further oil leakage from RCD was observed.</p> |
|  | <p>Ref No: 131016-R02</p> <p>Impact: Water Quality (B25)</p> <p>Details: To repair the damage silt curtain at P20.</p> <p>Follow Up: The damage silt curtain was repaired.</p> |
|  | <p>Ref No: 131016-R03</p> <p>Impact: Waste / Chemical Management (E7)</p> <p>Details: Provide acoustic decoupling measures for the generator at P73.</p> <p>Follow Up: The acoustic decoupling measure was implemented for the generator.</p> |

Contract HY/2011/09

Hong Kong-Zhuhai-Macao Bridge



Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Weekly Site Inspection Record Summary

Inspection Information

| | |
|----------------------------|---------------------------|
| Checklist Reference Number | 131029 |
| Date | 29 October 2013 (Tuesday) |
| Time | 13:30-15:30 |

| Ref. No. | Non-Compliance | Related Item No. |
|------------|--|------------------|
| - | None identified | - |
| Ref. No. | Remarks/Observations | Related Item No. |
| | A. Water Quality | |
| 131029-R03 | • To repair the damage silt curtain at P73 ASAP. | B25 |
| | B. Ecology | |
| | • No environmental deficiency was identified during site inspection. | |
| | C. Air Quality | |
| 131029-R02 | • To check and repair the air compressor at P73 to avoid emitting heavy smoke. | D19 |
| | D. Noise | |
| | • No environmental deficiency was identified during site inspection. | |
| | E. Waste / Chemical Management | |
| | • No environmental deficiency was identified during site inspection. | |
| | F. Permits/Licences | |
| 131029-R01 | • To update the environmental permit which displayed at P65. | G5 |
| | G. Others | |
| | • Follow-up on previous site audit session (Ref. No. 131022), all environmental deficiencies were improved/rectified by contractor during the site inspection. | |

| | | | |
|-------------|--------------------|---|-----------------|
| | Name | Signature | Date |
| Recorded by | Ivy Tam |  | 29 October 2013 |
| Checked by | Dr. Priscilla Choy |  | 29 October 2013 |

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

Environmental Observations Identified during the Environmental Site Inspection
(29 October 2013)

| | |
|---|--|
|  | <p>Ref No: 131029-R01</p> <p>Impact: Permits/Licences (G5)</p> <p>Details: To update the environmental permit which displayed at P65.</p> |
|  | <p>Ref No: 131029-R02</p> <p>Impact: Air Quality (D19)</p> <p>Details: To check and repair the air compressor at P73 to avoid emitting heavy smoke.</p> |
|  | <p>Ref No: 131029-R03</p> <p>Impact: Water Quality (B25)</p> <p>Details: To repair the damage silt curtain at P73 ASAP.</p> |

Hong Kong-Zhuhai-Macao Bridge


Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

**Rectification Actions taken by the Contractor for Environmental Deficiencies
Identified during Previous Audit Session**

| | |
|---|---|
|  | <p>Ref No: 131022-R01</p> <p>Impact: Waste / Chemical Management (F4ii.)</p> <p>Details: To remove the construction materials / wastes at near the trees at Portion C.</p> <p>Follow Up: The construction materials / wastes at near the trees have been removed.</p> |
|  | <p>Ref No: 131022-R02</p> <p>Impact: Waste / Chemical Management (F8)</p> <p>Details: To clear the oil stains at near the threading machine.</p> <p>Follow Up: The oil stains have been cleared.</p> |
|  | <p>Ref No: 131022-R03</p> <p>Impact: Waste / Chemical Management (F4ii.)</p> <p>Details: To clear the packing wastes at near the threading machine.</p> <p>Follow Up: The packing wastes were stored at waste skip temporarily.</p> |

Hong Kong-Zhuhai-Macao Bridge

Hong Kong Link Road-Section between HKSAR Boundary and Scenic Hill

| | |
|---|--|
|  | <p>Ref No: 131022-R04</p> <p>Impact: Water Quality (B21)</p> <p>Details: To remove the piles which contact to the sea at Portion A. (near P104)</p> <p>Follow Up: The piles have been removed.</p> |
|---|--|

**APPENDIX N
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE (EMIS)**

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|--------------------|--------------|---|--|--------------------------------|--------------------------|---------------------------------|---------------------------------------|
| Air Quality | | | | | | | |
| S5.5.6.1 | A1 | 1) The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation | Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria. | Contractor | All construction sites | Construction stage | ^ |
| S5.5.6.2 | A2 | 2) Proper watering of exposed spoil should be undertaken throughout the construction phase: <ul style="list-style-type: none"> • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not extend beyond the pedestrian barriers, fencing or traffic cones. • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; | Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria. | Contractor | All construction sites | Construction stage | ^ ^ ^ ^ ^ |
| S5.5.6.2 | A2 | <ul style="list-style-type: none"> • When there are open excavation and reinstatement works, hoarding | Good construction site | Contractor | All construction | Construction | ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|---|--|--------------------------------------|-----------------------------|---------------------------------------|---|
| | | <p>of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; | <p>practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.</p> | | sites | stage | <p>^</p> <p>^</p> <p>*</p> <p>N/A</p> <p>^</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|--------------|---|---|--------------------------------|---|---------------------------------|------------------------------|
| S5.5.6.2 | A2 | <ul style="list-style-type: none"> Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. | Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria. | Contractor | All construction sites | Construction stage | <p>N/A</p> <p>^</p> <p>^</p> |
| S5.5.6.3 | A3 | 3) The Contractor should undertake proper watering on all exposed spoil (with at least 8 times per day) throughout the construction phase. | Control construction dust | Contractor | All construction sites | Construction stage | * |
| S5.5.6.4 | A5 | 5) Implement regular dust monitoring under EM&A programme during the construction stage. | Monitor the 24 hr and 1hr TSP levels at the representative dust monitoring stations to ensure compliance with relevant criteria throughout the construction period. | Contractor | Selected representative dust monitoring station | Construction stage | ^ |
| S5.5.7.1 | A6 | <p>The following mitigation measures should be adopted to prevent fugitive dust emissions for concrete batching plant:</p> <ul style="list-style-type: none"> Loading, unloading, handling, transfer or storage of any dusty | Monitor the 24 hr and 1hr TSP levels at the representative dust | Contractor | Selected representative dust | Construction stage | N/A |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|---------------------------------------|-----------------|--|---|--------------------------------------|-----------------------------|---------------------------------------|---|
| | | <p>materials should be carried out in totally enclosed system;</p> <ul style="list-style-type: none"> All dust-laden air or waste gas generated by the process operations should be properly extracted and vented to fabric filtering system to meet the emission limits for TSP; Vents for all silos and cement/pulverised fuel ash (PFA) weighing scale should be fitted with fabric filtering system; The materials which may generate airborne dusty emissions should be wetted by water spray system; All receiving hoppers should be enclosed on three sides up to 3m above unloading point; All conveyor transfer points should be totally enclosed; All access and route roads within the premises should be paved and wetted; and Vehicle cleaning facilities should be provided and used by all concrete trucks before leaving the premises to wash off any dust on the wheels and/or body. | monitoring stations to ensure compliance with relevant criteria throughout the construction period. | | monitoring station | | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| S5.5.2.7 | A7 | <p>The following mitigation measures should be adopted to prevent fugitive dust emissions at barging point:</p> <ul style="list-style-type: none"> All road surface within the barging facilities will be paved; Dust enclosures will be provided for the loading ramp; Vehicles will be required to pass through designated wheels wash facilities; and Continuous water spray at the loading points. | Control construction dust | Contractor | All construction sites | Construction stage | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| Construction Noise (Air borne) | | | | | | | |
| S6.4.10 | N1 | 1) Use of good site practices to limit noise emissions by considering the | Control construction airborne | Contractor | All construction | Construction | |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|--|---|--------------------------------------|---|---------------------------------------|---|
| | | <p>following:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; mobile plant should be sited as far away from NSRs as possible and practicable; material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | noise by means of good site practices | | sites | stage | <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> |
| S6.4.11 | N2 | 2) Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period. | Reduce the construction noise levels at low-level zone of NSRs through partial screening. | Contractor | All construction sites | Construction stage | ^ |
| S6.4.12 | N3 | 3) Install movable noise barriers (typically density @14kg/m ²), acoustic mat or full enclosure close to noisy plants including air compressor, generators, saw. | Screen the noisy plant items to be used at all construction sites | Contractor | For plant items listed in Appendix 6D of the EIA report at all construction sites | Construction stage | * |
| S6.4.13 | N4 | 4) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM | Reduce the noise levels of | Contractor | For plant items | Construction | ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|--|--------------|---|---|--------------------------------|---|---------------------------------|---------------------------------------|
| | | standards. | plant items | | listed in Appendix 6D of the EIA report at all construction sites | stage | |
| S6.4.14 | N5 | 5) Sequencing operation of construction plants where practicable. | Operate sequentially within the same work site to reduce the construction airborne noise | Contractor | All construction sites where practicable | Construction stage | ^ |
| | N6 | 6) Implement a noise monitoring under EM&A programme. | Monitor the construction noise levels at the selected representative locations | Contractor | Selected representative noise monitoring station | Construction stage | ^ |
| Waste Management (Construction Waste) | | | | | | | |
| S8.3.8 | WM1 | <u>Construction and Demolition Material</u> The following mitigation measures should be implemented in handling the waste: <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; Implement a trip-ticket system for each works contract to ensure that | Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal | Contractor | All construction sites | Construction stage | ^ ^ ^ ^ ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|---------------------|-----------------|--|--|--------------------------------------|-----------------------------|---------------------------------------|--------------------------|
| | | <p>the disposal of C&D materials are properly documented and verified; and</p> <ul style="list-style-type: none"> Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation | | | | | <p>^</p> <p>^</p> |
| S8.3.9 - S8.3.11 | WM2 | <p><u>C&D Waste</u></p> <ul style="list-style-type: none"> Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different | <p>Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal</p> | Contractor | All construction sites | Construction stage | <p>^</p> <p>*</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|---------------------|-----------------|---|--|--------------------------------------|-----------------------------|---------------------------------------|-------------------------------------|
| | | areas of the sites should be considered for such segregation and storage. | | | | | |
| S8.2.12- S8.3.15 | WM3 | <p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical | Control the chemical waste and ensure proper storage, handling and disposal. | Contractor | All construction sites | Construction stage | <p>^</p> <p>^</p> <p>^</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|--|--|--------------------------------------|-----------------------------|---------------------------------------|------------------------------|
| | | waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD. | | | | | |
| S8.3.16 | WM4 | <u>Sewage</u> <ul style="list-style-type: none"> Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly. | Proper handling of sewage from worker to avoid odour, pest and litter impacts | Contractor | All construction sites | Construction stage | ^ |
| S8.3.17 | WM5 | <u>General Refuse</u> <ul style="list-style-type: none"> General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, | Minimize production of the general refuse and avoid odour, pest and litter impacts | Contractor | All construction sites | Construction stage | * ^ ^ ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|---|--------------|--|---|--------------------------------|-------------------------------------|---------------------------------|---|
| | | <p>plastic bottles etc., should be provided.</p> <ul style="list-style-type: none"> Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes. | | | | | ^ |
| Water Quality (Construction Phase) | | | | | | | |
| S9.11.1 – S9.11.1.2 | W1 | <ul style="list-style-type: none"> Mitigation during the marine works to reduce impacts to within acceptable levels have been recommended and will comprise a series of measures that restrict the method and sequencing of dredging/backfilling, as well as protection measures. Details of the measures are provided below and summarised in the Environmental Mitigation Implementation Schedule in EM&A Manual. Export for dredged spoils from NWWCZ avoiding exerting high demand on the disposal facilities in the NWWCZ and, hence, minimise potential cumulative impacts; For the marine viaducts of HKLR, the bored piling will be undertaken within a metal casing; where public fill is proposed for filling below -2.5mPD, the fine content in the public fill will be controlled to 25%; single layer silt curtains will be applied around all works; during the first two months of dredging work for HKLR, the silt-removal efficiency of the silt-curtains shall be verified by examining the results of water quality monitoring points. The water quality monitoring points to be selected for the above shall be those close to the locations of the initial period of dredging work. Details in this regard shall be determined by the ENPO to be established, | To control construction water quality | Contractor | During seawall dredging and filling | Construction stage | <p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>N/A</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|--|---|--------------------------------------|-----------------------------|---------------------------------------|--|
| | | <p>taking account of the Contractor's proposed actual locations of his initial period of dredging work.</p> <ul style="list-style-type: none"> silt curtain shall be fully maintained throughout the works. <p>In addition, dredging operations should be undertaken in such a manner as to minimise resuspension of sediments. Standard good dredging practice measures should, therefore, be implemented including the following requirements which should be written into the dredging contract.</p> <ul style="list-style-type: none"> trailer suction hopper dredgers shall not allow mud to overflow; use of Lean Material Overboard (LMOB) systems shall be prohibited; mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted; barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material; any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; loading of barges and hoppers shall be controlled to prevent splashing of dredged material to the surrounding water. Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved; adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; | | | | | <p>*</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|-----------|-----------------|---|---|--------------------------------------|-------------------------------------|---------------------------------------|---------------------------------------|
| | | <ul style="list-style-type: none"> all vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and the works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site. | | | | | <p>^</p> <p>^</p> |
| S9.11.1.3 | W2 | <p><u>Land Works</u></p> <p>General construction activities on land should also be governed by standard good working practice. Specific measures to be written into the works contracts should include:</p> <ul style="list-style-type: none"> wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters; sewage effluent and discharges from on-site kitchen facilities shall be directed to Government sewer in accordance with the requirements of the WPCO or collected for disposal offsite. The use of soakaways shall be avoided; storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks; silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including | To control construction water quality | Contractor | During seawall dredging and filling | Construction stage | <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|---|---|--------------------------------------|-----------------------------|---------------------------------------|---|
| | | <p>specifically at the onset of and after each rainstorm;</p> <ul style="list-style-type: none"> temporary access roads should be surfaced with crushed stone or gravel; rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system; open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms; manholes (including any newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers; discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system; all vehicles and plant should be cleaned before they leave the construction site to ensure that no earth, mud or debris is deposited by them on roads. A wheel washing bay should be provided at every site exit; wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain; the section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel; | | | | | <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>*</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|-------------------------------------|-----------------|---|---|--------------------------------------|---|---------------------------------------|--|
| | | <ul style="list-style-type: none"> wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects; vehicle and plant servicing areas, vehicle wash bays and lubrication facilities shall be located under roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor in accordance with the requirements of the WPCO or collected for off site disposal; the contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately; waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance; all fuel tanks and chemical storage areas should be provided with locks and be sited on sealed areas. The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank; and surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system. | | | | | <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> |
| S9.14 | W3 | Implement a water quality monitoring programme | Control water quality | Contractor | At identified monitoring location | During construction period | ^ |
| Ecology (Construction Phase) | | | | | | | |
| S10.7 | E1 | <ul style="list-style-type: none"> Good site practices to avoid runoff entering woodland habitats in Scenic Hill | Avoid potential disturbance on habitat of Romer's Tree | Designer; Contractor | Scenic Hill | During construction | ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|----------|-----------------|--|---|--------------------------------------|-----------------------------|---|---------------------------------|
| | | <ul style="list-style-type: none"> Reinstate works areas in Scenic Hill Avoid stream modification in Scenic Hill | Frog in Scenic Hill | | | | N/A ^ |
| S10.7 | E2 | <ul style="list-style-type: none"> Use closed grab in dredging works. Install silt curtain during the construction. Limit dredging and works fronts. Good site practices Strict enforcement of no marine dumping. Site runoff control Spill response plan | Minimise marine water quality impacts | Contractor | Seawall, | During construction | ^ ^ ^ ^ ^ ^ ^ |
| S10.7 | E3 | <ul style="list-style-type: none"> Reprovision of replacement Artificial Reefs (of the same volume as the existing ARs inside Marine Exclusion Zone) | Mitigate water quality impacts on the existing ARs | Project proponent | To be determined | Construction phase or operation phase | N/A |
| S10.7 | E4 | Watering to reduce dust generation; prevention of siltation of freshwater habitats; Site runoff should be desilted, to reduce the potential for suspended sediments, organics and other contaminants to enter streams and standing freshwater | Prevent Sedimentation from Land-based works areas | Contractor | Land-based works areas | During construction | ^ |
| S10.7 | E5 | Good site practices, including strictly following the permitted works hours, using quieter machines where practicable, and avoiding excessive lightings during night time | Prevent disturbance to terrestrial fauna and habitats | Contractor | Land-based works areas | During construction | ^ |
| S10.7 | E6 | <ul style="list-style-type: none"> Dolphin Exclusion Zone; Dolphin watching plan | Minimize temporary marine habitat loss impact to dolphins | Contractor | Marine works | During marine works | ^ ^ |
| S10.7 | E7 | <ul style="list-style-type: none"> Decouple compressors and other equipment on working vessels Avoidance of percussive piling Marine underwater noise monitoring | Minimise marine noise impacts on dolphins | Contractor | Marine works | During marine works | ^ ^ ^ |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|--|-----------------|--|---|--------------------------------------|------------------------------|--|--------------------------|
| | | <ul style="list-style-type: none"> Temporal suspension of drilling bored pile casing in rock during peak dolphin calving season in May and June | | | | | N/A |
| S10.7 | E8 | <ul style="list-style-type: none"> Control vessel speed Skipper training. Predefined and regular routes for working vessels; avoid Brothers Islands. | Minimise marine traffic disturbance on dolphins | Contractor | Marine traffic | During marine works | ^ ^ ^ |
| S10.10 | E9 | <ul style="list-style-type: none"> Dolphin vessel monitoring | Minimise marine traffic disturbance on dolphins | Contractor | North Lantau and West Lantau | Prior to construction, during construction, and 1 year after operation | ^ |
| Fisheries | | | | | | | |
| S11.7 | F1 | <ul style="list-style-type: none"> Reprovision of replacement Artificial Reefs(of the same volume as the existing ARs inside Marine Exclusion Zone) | Mitigate water quality impacts on the existing ARs | Project proponent | To be determined | Construction phase or operation phase | N/A |
| S11.7 | F2 | <ul style="list-style-type: none"> Reduce re-suspension of sediments Limit dredging and works fronts. Good site practices Strict enforcement of no marine dumping Spill response plan | Minimise marine water quality impacts | Contractor | Seawall, | During construction | ^ ^ ^ ^ ^ |
| Landscape & Visual (Construction Phase) | | | | | | | |
| S14.3.3.3 | LV2 | Mitigate both Landscape and Visual Impacts <ul style="list-style-type: none"> G1. Grass-hydroseed bare soil surface and stock pile areas. | Minimise visual & landscape impact | Contractor | HKLR | Construction stage | N/A |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|-----------|-----------------|--|---|--------------------------------------|-----------------------------|---------------------------------------|---|
| | | <ul style="list-style-type: none"> G2. Add planting strip and automatic irrigation system if appropriate at some portions of bridge or footbridge to screen bridge and traffic. G3. For HKLR, providing aesthetic design on the viaduct, tunnel portals, at-grade roads (e.g. subtle colour tone and slim form for viaduct, featured form of tunnel portals, roadside planting along at-grade roads and landscape berm on) to beautify the HKLR alignment. G5. Vegetation reinstatement and upgrading to disturbed areas. G6. Maximize new tree, shrub and other vegetation planting to compensate tree felled and vegetation removed. G7. Provide planting area around peripheral of and within HKLR for tree screening buffer effect. G8. Plant salt tolerant native tree and shrubs etc along the planter strip at affected seawall. G9. Reserve of loose natural granite rocks for re-use. Provide new coastline to adopt “natural-look” by means of using armour rocks in the form of natural rock materials and planting strip area accommodating screen buffer to enhance “natural-look” of the new coastline (see Figure 14.4.2 for example). | | | | | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| S14.3.3.3 | LV3 | <u>Mitigate Visual Impacts</u> <ul style="list-style-type: none"> V1.Minimize time for construction activities during construction period. V2.Provide screen hoarding at the portion of the project site / works areas / storage areas near VSRs who have close low-level views to the Project during HKLR construction. | | | | | <p>^</p> <p>^</p> |

| EIA Ref. | EM&A Log Ref | Recommended Mitigation Measures | Objectives of the recommended Measures & Main Concerns to address | Who to implement the measures? | Location of the measures | When to Implement the measures? | Implementation Status |
|------------------|-----------------|--|---|--------------------------------------|-----------------------------|---------------------------------------|--------------------------|
| EM&A | | | | | | | |
| S15.2.2 | EM1 | An Independent Environmental Checker needs to be employed as per the EM&A Manual. | Control EM&A Performance | Project Proponent | All construction sites | Construction stage | ^ |
| S15.5 - S15.6 | EM2 | 1) An Environmental Team needs to be employed as per the EM&A Manual. 2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures. 3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with. | Perform environmental monitoring & auditing | Contractor | All construction sites | Construction stage | ^ ^ ^ |

Remarks: ^ Compliance of mitigation measure

 * Recommendation was made during site audit but improved/rectified by the contractor

 N/A Not Applicable at this stage as no such site activities were conducted in the reporting month (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

APPENDIX O
WASTE GENERATION IN THE
REPORTING MONTH



Appendix: C6 Monthly Summary Waste Flow Table

Name of Department: HyD

Contract No.: HY/2011/09

Monthly Summary Waste Flow Table for 2013 (Year)

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|-----------|--|--|---------------------------------------|---|--------------------------------------|----------------------------------|---|----------------------------|-----------------------|----------------|--|
| | Total Quantity Generated ¹¹ | Hard Rock and Large Broken Concrete ⁶ | Reused in the Contract ^{8,9} | Reused in other Projects ^{5,8,9} | Disposed as Public Fill ⁷ | Imported Fill ^{6,7,8,9} | Metals | Paper/ cardboard packaging | Plastics ³ | Chemical Waste | Others, e.g. general refuse ^{8,9} |
| | (in '000 m ³) | (in '000 m ³) | (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 m ³) |
| Jan | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.150 |
| Feb | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.375 | 0.000 | 0.000 | 0.072 |
| Mar | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.091 |
| Apr | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.410 | 0.000 | 0.000 | 0.098 |
| May | 1.436 | 0.000 | 0.000 | 0.000 | 1.436 | 0.000 | 0.000 | 0.465 | 0.000 | 0.000 | 0.117 |
| Jun | 5.335 | 0.000 | 0.000 | 0.000 | 5.335 | 0.000 | 0.000 | 0.426 | 0.000 | 0.000 | 0.111 |
| Sub-Total | 6.771 | 0.000 | 0.000 | 0.000 | 6.771 | 0.000 | 0.000 | 1.676 | 0.000 | 0.000 | 0.637 |
| Jul | 12.438 | 0.000 | 0.280 | 0.000 | 5.896 | 6.262 | 0.000 | 0.447 | 0.000 | 0.000 | 0.117 |
| Aug | 12.107 | 0.000 | 0.000 | 0.000 | 4.646 | 7.461 | 0.000 | 0.552 | 0.000 | 1.784 | 0.124 |
| Sep | 8.412 | 0.000 | 0.070 | 0.000 | 7.276 | 1.066 | 0.000 | 0.666 | 0.000 | 0.000 | 0.137 |
| Oct | 15.068 | 0.000 | 0.479 | 0.000 | 10.108 | 4.481 | 0.000 | 0.856 | 0.000 | 0.595 | 0.156 |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 54.796 | 0.000 | 0.829 | 0.000 | 34.697 | 19.270 | 0.000 | 4.197 | 0.000 | 2.378 | 1.170 |



| Forecast of Total Quantities of C&D Materials to be Generated from the Contract ¹⁰ | | | | | | | | | | |
|---|--|---------------------------------------|---|--------------------------------------|----------------------------------|----------------------------|----------------------------|-----------------------|----------------|--|
| Total Quantity Generated ¹¹ | Hard Rock and Large Broken Concrete ⁶ | Reused in the Contract ^{8,9} | Reused in other Projects ^{5,8,9} | Disposed as Public Fill ⁷ | Imported Fill ^{6,7,8,9} | Metals | Paper/ cardboard packaging | Plastics ³ | Chemical Waste | Others, e.g. general refuse ^{8,9} |
| (in '000 m ³) | (in '000 m ³) | (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 m ³) |
| 24.000 | 121.054 | 0.000 | 121.054 | 2.000 | 22.000 | 0.000 | 9.681 | 0.000 | 64.224 | 2.940 |

Notes:

- (1) The performance targets are given in ER Appendix 8J Clause 14 and the EM&A Manual.
- (2) The waste flow table shall also include C&D materials to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³. (ER Part 8 Clause 8.8.5 (d) (ii) refers).
- (5) The materials reused in other Project shall not be treated as waste under the Waste Disposal Ordinance (CAP354).
- (6) According to the EIA Appendix 8B, the density of rock (bulked) is 2.0 tonnes/m³.
- (7) According to the EIA Appendix 8B, the density of soil (bulked) is 1.8 tonnes/m³.
- (8) Assuming the loading quantities of a 30-tonne truck is 8.0m³.
- (9) Assuming the loading quantities of a 24-tonne truck is 6.5m³.
- (10) The forecast of C&D materials to be generated from the Contract is sourced from the works program in September 2013.
- (11) The volume of Total Quantity Generated means the volume of Hard Rock and Large Broken Concrete+Disposed as Public Fill+Imported Fill-Reused in the Contract-Reused in other Projects

APPENDIX P
COMPLAINT LOG

Appendix P - Complaint Log

| Log Ref. | Location | Received Date | Details of Complaint | Investigation/ Mitigation Action | Status |
|-----------------|--------------------------------------|---------------|--|---|--------|
| Com-2013-04-001 | Near Tung Chung New Development Pier | 8 April 2013 | EPD received the complaint on 8 April 2013. The complainant complained about oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past few months. | 1) The vessels photos in the complainant's photo are not the working vessels under Contract No. HK/2011/09. 2) No oil dumped from Contract No. HK/2011/09's working vessels was observed according to ET's site inspection conducted on 9 April 2013 at near Tung Chung New Development Ferry Pier. 3) Joint site inspection (DCVJV and ARUP) was conducted on 10 April 2013 and confirmed that Contract No. HY/2011/09's vessels are not involved the complaint case. 4) DCVJV will keep remind their boat crews not discharging contaminated effluent directly into the sea. | Closed |
| Com-2013-05-001 | WA6 | 2 May 2013 | ARUP received the complaint on 2 May 2013. The complainant alleged the noise nuisance was generated from the Works Area | The site diary report was reviewed and confirmed that no works were carried out at WA6 on 1 May 2013. In addition, no noise was heard from | Closed |

| | | | | | |
|-----------------|-----|-------------|---|--|--------|
| | | | WA6 at around 13:00 on 1 May 2013 (Wednesday). | WA6 according to the security guard who on duty at WA6 on 1 May 2013. Based on the information provided, the complaint regarding the construction noise at WA6 is not considered justifiable. | |
| Com-2013-05-002 | WA6 | 18 May 2013 | ARUP received the complaint on 18 May 2013. The complainant advised that the noise nuisance due to loading of metal parts at barge near the seawall of Works Area WA6 early morning (around 8:45a.m) on 18 May 2013 (Saturday). | Based on the record of site activities at WA6 on 18 May 2013, 4 metal plates and 2 oxygen-acetylene set were lifted onto a derrick boat “Chiu Kee” by a crane near seawall at WA6 in the morning on that day. Such operation was commenced around 8:40a.m and completed in 10 minutes during the normal construction working hour (0700 – 1900 Monday to Saturday). However, the duration of aforesaid activities is very short and infrequent. Nevertheless, the Contractor was reminded to strengthen their site supervision and provide training for the workers regularly to increase awareness of their environmental responsibilities to minimize the noise impact to the nearby residents and the specific mitigation measures for the complaint including but not limited to:- <ul style="list-style-type: none"> • To place wooden planks or rubber | Closed |

| | | | | | |
|-----------------|--------------------------------------|-------------|--|--|--------|
| | | | | <p>mats on ground for loading and unloading heavy or metal objects; and</p> <ul style="list-style-type: none"> • To deploy professional personnel to supervise the works. | |
| Com-2013-05-003 | Near Tung Chung New Development Pier | 18 May 2013 | <p>EPD received the public complaint on 18 May 2013. This complaint was a follow-up of a previous complaint received by EPD on 8 April 2013 (Com-2013-04-001).</p> <p>The complainant complained again about the oil was dumped from various vessels operating for Hong Kong-Zhuhai-Macao Bridge Hong Kong (HZMB HK) Projects near Tung Chung New Development Pier over the past months.</p> | <p>After receiving the complaint, additional site inspection was conducted at near Tung Chung New Development Pier on 30 May 2013 to investigate whether oil dumped was due to Contract No. HY/2011/09's vessels. During the site inspection, three working vessels under Contract No. HY/2011/09 was anchored off near Tung Chung New Development Pier. No oil dumped from Contract No. HY/2011/09's vessels were observed and the water around the vessels was clear.</p> <p>The following mitigation measures have been implemented by DCVJV:</p> <ul style="list-style-type: none"> • DCVJV has sent the letter to the shipping agent to remind them to ensure the vessels under Contract No. HY/2011/09 are in good condition and any oil dumped to sea should be avoided to prevent water pollution. • Provide training to the vessel skippers for prevention of pollution | Closed |

| | | | | | |
|-----------------|---|--------------|--|---|--------|
| | | | | <p>from ships.</p> <ul style="list-style-type: none"> • DCVJV requested vessel skippers to provide engine oil disposal records <p>The vessel skippers assured to us that all waste lubricants were sent to waste collectors regularly and no oil discharge into seawater.</p> | |
| Com-2013-07-001 | Southeast Quay of Chek Lap Kok near the junction of Chek Lap Kok South Road and Scenic Road | 17 July 2013 | <p>The complaint was received by EPD on 17th July 2013. According to the EPD's letter, the complainant was concerned for the noise nuisance generated from the operation of concrete lorry mixers during evening and night-time period at Southeast Quay of Chek Lap Kok.</p> | <p>In response to the complaint, ET conducted two times site inspections at Southeast Quay at Chek Lap Kok between 18:45 and 20:30 hours on 23 July 2013 and 20:30 to 22:30 hours on 30 July 2013.</p> <p>During the inspections, the Ro-Ro barge was observed anchored off Southeast Quay at Chek Lap Kok but no concrete lorry mixer was observed throughout the inspection.</p> <p>On 23 July 2013, at about 19:35, one tug boat was observed travelling to Southeast Quay, Chek Lap Kok and left at about 19:40.</p> <p>On 30 July 2013, no tug boat and concrete lorry mixers were observed during the inspection.</p> | Closed |

| | | | | | |
|--|--|--|--|--|--|
| | | | | <p>According to the Contractor, there was no concreting works for the pier sites on 23 July 2013 and therefore no loading and unloading operation at Southeast Quay at Chek Lap Kok.</p> <p>Concreting works were performed at Pier 0 on 30 July 2013. As the Contractor anticipated the arrival time of tug boat and flap-top barge at Southeast Quay will exceed 23:00 hours after the concreting works, they decided to arrange the tug boat and flap-top barge with concrete lorry mixers anchored off around Pier 66 after 23:00 hours. So, no loading and unloading operation at Southeast Quay at Chek Lap Kok was observed.</p> <p>Further night time site inspection was conducted on 22 August 2013 during the loading and unloading operation at Southeast Quay of Chek Lap Kok, the construction works conducted under Contract No. HY/2011/09 complied with the conditions in the CNP No. GW-RS0895-13.</p> | |
|--|--|--|--|--|--|