

Permanent Aviation Fuel Facility (EP-262/2007/B)

Ninth Quarterly Environmental Monitoring and Audit Report – January 2009 to March 2009

17 April 2009

Environmental Resources Management

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Permanent Aviation Fuel Facility for Hong Kong International Airport

Environmental Certification Sheet EP-262/2007/B

Reference Document/Plan

| | |
|--|--|
| Document/ Plan to be Certified/ Verified: | Ninth Quarterly EM&A Report - Jan 2009 to Mar 2009 |
| Date of Report: | 17 April 2009 |
| Date received by ET: | 17 April 2009 |
| Date received by IEC: | 17 April 2009 |

Reference EM&A Manual Recommendation

| | |
|-----------------------------|--------------------------|
| EM&A Manual Recommendation: | Sections 13.5 and 13.5.3 |
|-----------------------------|--------------------------|

Content: EM&A Reports

13.5 A maximum of 4 copies of each EM&A Report shall be submitted

13.5.3 The ET Leader will submit Quarterly EM&A Summary Reports for the construction phase EM&A works only.

ET Certification

I hereby certify that the above referenced document/~~plan~~ complies with the above referenced sections of the EM&A Manual recommendation

Craig A Reid, Environmental
Team Leader:



Date: 17 April 2009

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced sections of the EM&A Manual recommendation

Dr Guiyi Li, Independent
Environmental Checker:



Date: 21 April 2009


Notes: EP-262/2007/B has replaced the former EP-262/2007/A, EP-262/2007 and EP-139-2002/A for the PAFF project after the resubmission of revised EM&A Manual and revised EIA Report respectively.

**Permanent Aviation Fuel Facility (EP-262/2007/B)
Ninth Quarterly Environmental Monitoring and Audit Report
January 2009 to March 2009**

17 April 2009

Prepared by: Karen Lui/Craig A Reid

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| |
|---|
| For and on behalf of Environmental Resources Management |
| Approved by: Craig A Reid |
| Signed:  |
| Position: Environmental Team Leader |
| Date: 17 April 2009 |

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CONTENTS

| | | |
|-------------|--|-----------|
| | <i>EXECUTIVE SUMMARY</i> | <i>I</i> |
| <i>1</i> | <i>INTRODUCTION</i> | <i>1</i> |
| <i>1.1</i> | <i>PURPOSE OF THE REPORT</i> | <i>1</i> |
| <i>1.2</i> | <i>KEY CONTACT INFORMATION</i> | <i>2</i> |
| <i>2</i> | <i>ENVIRONMENTAL STATUS</i> | <i>3</i> |
| <i>2.1</i> | <i>PROJECT AREA</i> | <i>3</i> |
| <i>2.2</i> | <i>ENVIRONMENTAL SENSITIVE RECEIVERS</i> | <i>3</i> |
| <i>2.3</i> | <i>MAJOR CONSTRUCTION ACTIVITIES</i> | <i>3</i> |
| <i>2.4</i> | <i>MONITORING SCHEDULE OF THE REPORTING PERIOD</i> | <i>4</i> |
| <i>2.5</i> | <i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i> | <i>4</i> |
| <i>2.6</i> | <i>COMMUNITY LIAISON GROUP MEETING</i> | <i>6</i> |
| <i>2.7</i> | <i>SUMMARY OF NON-COMPLIANCE WITH THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS</i> | <i>7</i> |
| <i>2.8</i> | <i>SUMMARY OF ENVIRONMENTAL COMPLAINTS</i> | <i>7</i> |
| <i>2.9</i> | <i>SUMMARY OF ENVIRONMENTAL SUMMONS</i> | <i>7</i> |
| <i>3</i> | <i>ENVIRONMENTAL ISSUES AND ACTIONS</i> | <i>8</i> |
| <i>3.1</i> | <i>PREVIOUS ENVIRONMENTAL DEFICIENCIES AND FOLLOW-UP ACTIONS</i> | <i>8</i> |
| <i>3.2</i> | <i>IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS</i> | <i>10</i> |
| <i>4</i> | <i>ENVIRONMENTAL MONITORING</i> | <i>11</i> |
| <i>4.1</i> | <i>AIR AND NOISE</i> | <i>11</i> |
| <i>4.2</i> | <i>WATER QUALITY</i> | <i>11</i> |
| <i>4.3</i> | <i>POPs MONITORING</i> | <i>11</i> |
| <i>4.4</i> | <i>WASTE MANAGEMENT</i> | <i>11</i> |
| <i>4.5</i> | <i>CULTURAL HERITAGE</i> | <i>11</i> |
| <i>4.6</i> | <i>LANDSCAPE AND VISUAL</i> | <i>11</i> |
| <i>4.7</i> | <i>LAND CONTAMINATION, HAZARD TO LIFE AND FUEL SPILL RISK</i> | <i>12</i> |
| <i>4.8</i> | <i>ECOLOGY</i> | <i>12</i> |
| <i>4.9</i> | <i>EM&A MANUAL</i> | <i>12</i> |
| <i>4.10</i> | <i>BASELINE WATER QUALITY MONITORING</i> | <i>12</i> |
| <i>5</i> | <i>FUTURE KEY ISSUES AND CONCLUSION</i> | <i>13</i> |
| <i>5.1</i> | <i>KEY ISSUES FOR THE NEXT REPORTING PERIOD</i> | <i>13</i> |
| <i>5.2</i> | <i>IMPACT PREDICTION FOR THE NEXT REPORTING PERIOD</i> | <i>13</i> |
| <i>5.3</i> | <i>WORKS AND MONITORING SCHEDULE FOR THE NEXT REPORTING PERIOD</i> | <i>13</i> |
| <i>5.4</i> | <i>CONCLUSION</i> | <i>13</i> |

LIST OF TABLES

| | |
|------------------|--|
| <i>Table 1.1</i> | <i>Contact Information</i> |
| <i>Table 2.1</i> | <i>Summary of Works Undertaken During the Reporting Period</i> |
| <i>Table 2.2</i> | <i>Cumulative Quantity of Excavated Materials</i> |
| <i>Table 2.3</i> | <i>Summary of Environmental Licensing, Notification and Permit Status</i> |
| <i>Table 3.1</i> | <i>Environmental Deficiencies (Observations) from Site Inspections during Reporting Period</i> |

LIST OF ANNEXES

| | |
|----------------|---|
| <i>Annex A</i> | <i>Project Location</i> |
| <i>Annex B</i> | <i>Water Quality Monitoring Stations, Water Quality and Ecological Sensitive Receivers</i> |
| <i>Annex C</i> | <i>Monitoring Schedule for the Reporting Period</i> |
| <i>Annex D</i> | <i>Cumulative Complaints Statistics</i> |
| <i>Annex E</i> | <i>Implementation Programme of Mitigation Measures</i> |
| <i>Annex F</i> | <i>Graphical Presentation of Impact Water Quality Monitoring Results for the Reporting Period</i> |
| <i>Annex G</i> | <i>Dolphin Sighting Records</i> |

EXECUTIVE SUMMARY

The construction works for the Permanent Aviation Fuel Facility resumed on 9 July 2007. This **ninth** quarterly Environmental Monitoring and Audit (EM&A) report presents the EM&A work carried out during the period from **1 January to 31 March 2009** in accordance with the *EM&A Manual*.

Breaches of all Action and Limit Levels

No exceedances of any Action and Limit Levels applicable to the project were observed during the reporting period.

Complaint Log

No environmental complaint was received during the reporting period.

Notifications of any Summons and Successful Prosecutions

No environmental summons or prosecutions was received in this reporting period.

Reporting Changes

There was no reporting changes in the reporting period.

Future Key Issues

- Dust release and suppression; and,
- Installation of subsea pipelines.

Leighton Contractors (Asia) Limited (LCAL) has appointed ERM-Hong Kong, Limited (ERM) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Permanent Aviation Fuel Facility (the Project) during construction works.

The construction works for PAFF commenced in November 2005 based upon the previous EIA (EIAO Register Number AEIAR-062-2002) conducted and the Environmental Permit EP-139/2002 granted on the 28th August 2002. Due to minor changes to the detailed layout of the site and the site boundary, application for Variation to the Environmental Permit (VEP) (VEP-133/2004) was submitted to the Director of Environmental Protection (DEP) for approval. The variation to the EP (EP-139/2002/A) was granted by EPD in February 2004.

However, the decision by EPD to grant the above Environmental Permit was subject to a Judicial Review. The Judicial Review sided in the favour of the DEP, as did the subsequent Judgement from the Court of Appeal from the High Court for Judicial Review in March 2005. However, the DEP's decision to grant the EP was quashed by the Judgement of the Court of Final Appeal of July 2006.

The construction works were stopped following the Judgement of the Court of Final Appeal of July 2006. As such, in order to continue with the construction of the project, the project went through the statutory procedures under the EIAO again with a new design in order to obtain an environmental permit. The revised EIA was submitted in 2007 and the environmental permit (EP-262/2007) was granted in May 2007. EP-262/2007 has been amended to EP262/2007/A and issued by the EPD on 30 November 2007.

It should be noted that at the time of reporting, a further Variation to the Environmental Permit has been approved, primarily to allow for dredging works to continue during March 2008. As such, EP-262/2007/A has been amended to EP-262/2007/B and issued by the EPD on 27 February 2008.

The construction works and EM&A requirements resumed on 9 July 2007 following the latest requirements of the EP-262/2007 and EM&A Manual. Details regarding the EM&A requirements and changes should refer to the updated EM&A Manual. For the marine works, all piling activities were completed before the previous suspension of construction works in 2006.

1.1

PURPOSE OF THE REPORT

This is the **ninth** EM&A Report which summarizes the monitoring results and audit findings for the EM&A programme during the reporting period from **1 January to 31 March 2009**.

1.2

KEY CONTACT INFORMATION

Key contact information of the Project is presented in *Table 1.1*.

Table 1.1 *Contact Information*

| Name | Position | Telephone | Facsimile | E-mail |
|---|--------------------------------------|------------------|------------------|-----------------------------------|
| Airport Authority Hong Kong - Environmental Permit Holder | | | | |
| Amin | Assistant General | 2183 3108 | 2824 2786 | ebraa@hkairport.com |
| Ebrahim | Manager Aviation Logistics | | | |
| Contractor - Leighton (Asia) Construction Limited | | | | |
| Brian Gillon | Project Director | 2823 1111 | 2529 8784 | brian.gillon@leightonasia.com |
| Boyd Merrett | Project Manager | 2404 8900 | 2404 0081 | boyd.merrett@leightonasia.com |
| Franchisee's Site Representative - ECO Aviation Fuel Development Limited | | | | |
| Philip Siu | Franchisee's Site Representative | 2963 2820 | 2563 6311 | philip.siu@towngas.com |
| Environmental Team - ERM-Hong Kong Limited | | | | |
| Craig Reid | Environmental Team Leader | 2271 3000 | 2723 5660 | craig.reid@erm.com |
| Independent Environmental Checker - Hyder Consulting Limited | | | | |
| Dr Kwok- leung Pun | Independent Environmental Checker | 2911 2233 | 2805 5028 | KwokLeung.Pun@hyderconsulting.com |

2 ENVIRONMENTAL STATUS

2.1 PROJECT AREA

The project area is in Area 38 of Tuen Mun and the pipelines are located at Urmston Road between Tuen Mun Area 38 and Sha Chau. The site is illustrated in *Annex A*.

2.2 ENVIRONMENTAL SENSITIVE RECEIVERS

No air and noise sensitive receivers were identified close to the project area. However, water sensitive receivers and ecological sensitive receivers were identified in the EIA study, and are shown in *Annex B*.

2.3 MAJOR CONSTRUCTION ACTIVITIES

A summary of the major works undertaken in this reporting period is shown in *Table 2.1*. Marine dredging operations were completed on 23 January 2009. *Table 2.2* presents the cumulative quantity of excavated materials up to that date. Daily and cumulative dredging production rates are illustrated in *Figure 2.1*.

Table 2.1 Summary of Works Undertaken During the Reporting Period

| Area | Works undertaken |
|--------------------------|---|
| Tuen Mun Area 38 | Tank Farm and Bund Wall Construction Permanent Drainage Construction Operational & Fire Services Buildings Construction Jetty Works (Non-piling) |
| Submarine Pipeline Route | Dredging Operations (January 2009) Pipeline Installation Works from Jetty Area to Seawall at Tuen Mun Area 38 (March 2009) |

Table 2.2 Cumulative Quantity of Excavated Materials

| Type of Excavated Materials | Cumulative Bulk Volume (m ³) |
|---|--|
| <i>From 17 December 2007 to 31 March 2008</i> | |
| Contaminated Mud | 105,974 |
| Uncontaminated Mud | 97,815 |
| <i>From 1 September 2008 to 23 January 2009</i> | |
| Contaminated Mud | 0 |
| Uncontaminated Mud | 149,147 |

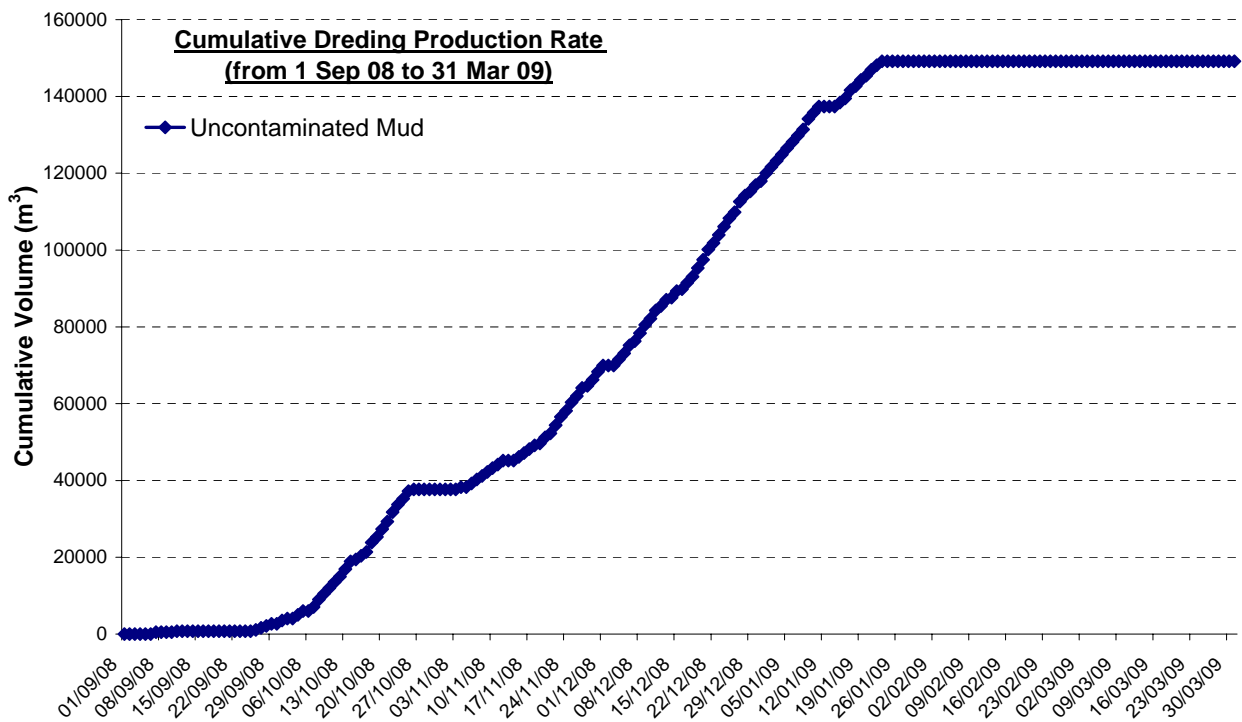
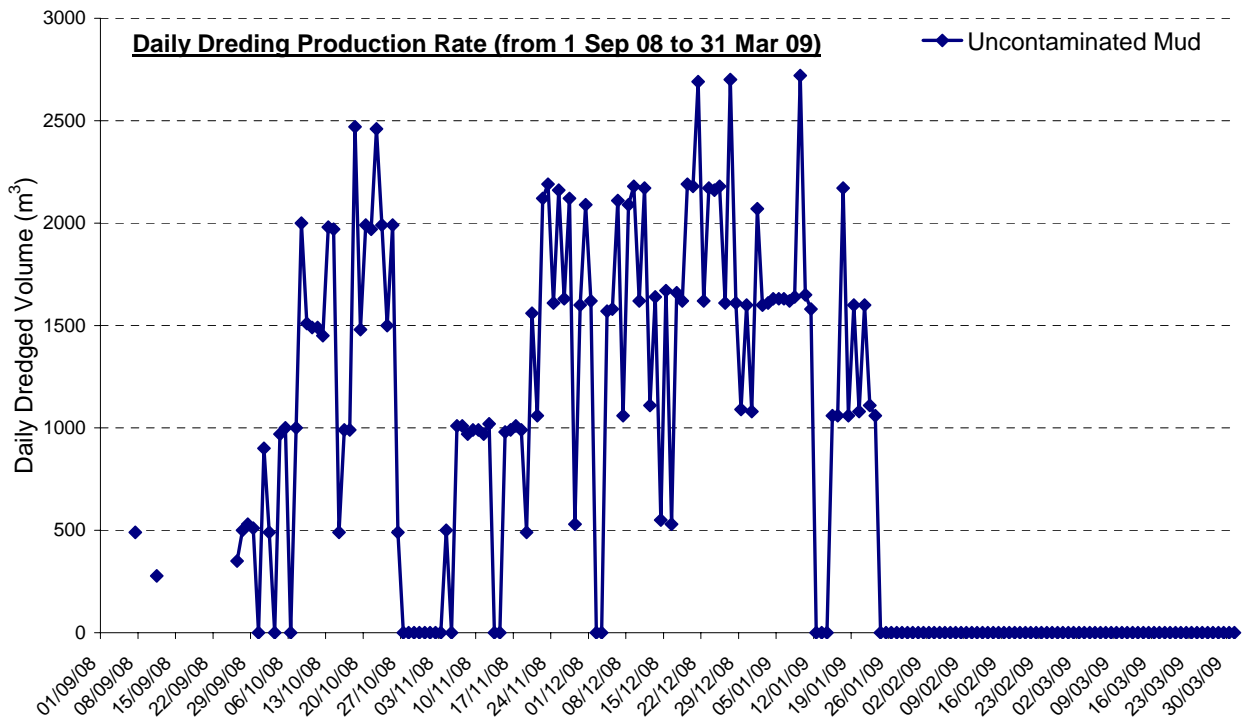


Figure 2.1 Daily and cumulative volumes (m³) of excavated materials from 1 September to 31 March 2009. Excavated materials contained uncontaminated mud only.



2.4 MONITORING SCHEDULE OF THE REPORTING PERIOD

Daily water quality monitoring during dredging activities was conducted from 1 January to 23 January 2009. The monitoring schedule conducted during the reporting month is presented in *Annex C*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since July 2007 is presented in *Table 2.3*.

Table 2.3 Summary of Environmental Licensing, Notification and Permit Status

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|---|-------------------------|--------------------------------------|--|
| Environmental Permit | EP-262/2007/B | Throughout Project | Issued on 27 February 2008 (EP-262/2007/A on 30 November 2007, EP-262/2007 issued on 31 May 2007, EP-139/2002 originally granted on 28 August 2002 and EP-139/2002/A granted on 24 February 2004 were superseded) |
| Chemical Waste Producer Registration | WPN 5111-421-L2174-25 | Throughout Project | Issued on 10 November 2005 |
| Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation | H2104/U1D/5542/DG/DH/PL | Throughout Project | Notification on 6 July 2007 |
| Construction Noise Permit | GW-RW0676-07 | 21 December 2007 to 19 June 2008 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans and generators |
| | GW-RW0677-07 | 21 December 2007 to 29 February 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|-----------------------------------|--------------|-------------------------------------|--|
| | GW-RW0678-07 | 21 December 2007 to 18 June 2008 | For marine jetty works including concrete pump derrick barges, hand-held grinders, generators, air compressors, boring machines, water pumps, tug boat, grout mixers and grout pumps |
| | GW-RW0094-08 | 1 March to 31 March 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |
| | GW-RW0312-08 | 04 July 2008 to 22 December 2008 | For marine jetty works including concrete pump derrick barges, hand-held grinders, generators, air compressors, boring machines, water pumps, tug boat, grout mixers and grout pumps |
| | GW-RW0313-08 | 04 July 2008 to 19 December 2008 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans and generators |
| | GW-RW0373-08 | 1 August 2008 to 20 January 2009 | For land-based works including air compressors, breakers, excavators, wheeled loaders, mobile cranes, concrete lorry mixers, hand-held pokers, bar benders/cutters, wood saws, grinders, submarine water pump, lorries with crane, dump trucks, rollers, ventilation fans, generators, stirrer, jet chisel, water jet machine and dehumidifier |
| | GW-RW0368-08 | 1 September to 30 November 2008 | For marine dredging operation including grab dredger, tug boat, split hopper barge and motor sampan |

| Permit/ Licenses/ Notification | Reference | Validity Period | Remarks |
|-----------------------------------|--------------------|---|--|
| | GW-RW0054-09 | 16 February 2009 to 5 August 2009 | For land-based and marine works including passenger launch, winch, welding machine, grinder, generator, power pack, tug boat, crane, air compressor, roller, hoist and derrick barge |
| Marine Dumping Permit | EP/MD/08-064 | 13 December 2007 to 29 February 2008 | For Type 1 - Open Sea Disposal |
| | EP/MD/08-065 | 13 December 2007 to 12 January 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-071 | 13 January 2008 to 12 February 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-090 | 3 March to 31 March 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/08-091 | 3 March to 31 March 2008 | For Type 1 - Open Sea Disposal |
| | EP/MD/09-018 | 1 September to 30 September 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/09-032 | 1 October to 31 October 2008 | For Type 1d & Type 2 marine disposal |
| | EP/MD/09-017 | 1 September to 30 November 2008 | For Type 1 - Open Sea Disposal |
| | EP/MD/09-039 | 1 December 2008 to 31 January 2009 | For Type 1 - Open Sea Disposal |
| Wastewater Discharge License | EP760/421/011399/1 | 15 March 2006 to 31 March 2011 | Issued on 15 March 2006 |

2.6

COMMUNITY LIAISON GROUP MEETING

According to the EP requirements, a Community Liaison Group (CLG) shall be established within three months after commencement of construction of the Project. The major duty of CLG is to advise on and monitor the proper design, construction and operation of the Project. The CLG comprises representatives from Airport Authority, members of Tuen Mun community and academics. During the reporting period, a meeting was organised by the CLG on 12 March 2009. Details of the CLG (including Membership and its Terms of Reference) and the meeting minutes can be found on the Project website (<http://www.paffhk.com>).

2.7 *SUMMARY OF NON-COMPLIANCE WITH THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS*

No environmental non-compliance was recorded during the reporting period.

2.8 *SUMMARY OF ENVIRONMENTAL COMPLAINTS*

No environmental complaint was received during the reporting period. A statistical summary of environmental complaints since project commencement is presented in *Annex D*.

2.9 *SUMMARY OF ENVIRONMENTAL SUMMONS*

No summons was received in this reporting period. A statistical summary of legal proceeding since project commencement is presented in *Annex D*.

3.1 PREVIOUS ENVIRONMENTAL DEFICIENCIES AND FOLLOW-UP ACTIONS

As no environmental complaint was received over the last reporting period, no follow-up action was required.

Weekly site inspections were carried out by the ET on 7, 15 and 20 January 2009, 3 and 13 February 2009, and 4, 9, 16 and 26 March 2009. No non-compliances were found. Environmental deficiencies and follow-up actions/mitigation measures were identified during the inspections and summarised in *Table 3.1*.

Table 3.1 *Environmental Deficiencies (Observations) from Site Inspections during Reporting Period*

| Reporting Month | Observation | Follow-up Action |
|-----------------|---|---|
| January 2009 | Stagnant water ponds were observed in the tank farm area | Contractor was reminded to arrange <i>ad hoc</i> water clearances as necessary. |
| | General wastes near the operation building were observed to be full. | The Contractor was recommended to arrange collection of general wastes by a licensed Contractor as soon as possible. |
| | Oil sheens were observed on the floor in the chemical storage area near the operational building. | The Contractor was recommended to clear spillages and to provide suitable spillage control measures as soon as possible. |
| | Some lubricant oil containers were stored outside workshop without proper receptacle and not sealed. | The Contractor was reminded to replace bins and lids for temporary storage as soon as possible. |
| | Construction waste and paper waste were piled up together without proper sorting and receptacle bins near the operation building. | The Contractor was reminded to replace bins for temporary storage as soon as possible. |
| February 2009 | Unpaved areas were not water regularly | The Contractor was reminded to water regularly on the unpaved areas as well as during sediment excavation to avoid dust generation. |
| | Stagnant water pools were observed outside site office and site entrance. | The Contractor was reminded to arrange <i>ad hoc</i> water clearance as necessary. |

| Reporting Month | Observation | Follow-up Action |
|-----------------|---|--|
| | Empty waste oil containers were found outside operational building without proper receptacle. | The Contractor was reminded to replace bins for temporary storage as soon as possible. |
| | General and construction wastes in the tank farm area were observed to be full. | The Contractor was recommended to arrange collection of general wastes by a licensed Contractor as soon as possible. |
| | Oil sheens were observed on the lids of containers in the chemical storage areas. | The Contractor was recommended to clear spillages and to provide suitable spillage control measures as soon as possible. |
| March 2009 | Unpaved areas were not water regularly | the Contractor was reminded to water regularly on the unpaved areas as well as during sediment excavation to avoid dust generation.. |
| | Stagnant water pools were observed inside chemical waste storage and around tank farm area. | The Contractor was reminded to arrange ad hoc water clearance as necessary. |
| | Sediment plumes were observed in the seawall area near the operation building. | The Contractor was reminded to clear sediment tanks and oil-water interceptor regularly to avoid runoff of turbid water. |
| | General and construction wastes such as wooden board were accumulated next to the temporary office without proper receptacle. | The Contractor was reminded to replace bins for temporary storage as soon as possible. |
| | Waste drum in the chemical waste storage was not labelled. | The Contractor was recommended to label the containers with proper stickers. |
| | Oil sheens were observed in the chemical storage areas. | The Contractor was recommended to clear spillages and to provide suitable spillage control measures as soon as possible. |
| | Waste paper bin in the tank farm area was observed to be full. | The Contractor was recommended to arrange collection of general wastes by a licensed Contractor as soon as possible. |
| | Chemical and waste oil drums were found near operation building without secondary containment. | The Contractor was reminded to replace drip trays as soon as possible. |

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.

The implementation status of environmental mitigation measures and requirements as stated in the *EIA Report, Environmental Permits* and *EM&A Manual* during the reporting period is summarized in *Annex E*.

4 ENVIRONMENTAL MONITORING

4.1 AIR AND NOISE

Air and Noise monitoring was not required for the project.

4.2 WATER QUALITY

In accordance to the EM&A Manual water quality monitoring from 1 January to 23 January 2009 alongside dredging activities. QA/QC reports for Suspended Solids testing and monitoring results have been presented in *27th Monthly EM&A Reports*. Graphical presentations of the monitored parameter over the past four months (the last month of the previous quarter and the present quarter) are included in *Annex F*.

Results of the reporting period demonstrated that all measured turbidity, DO and SS levels of all Impact Stations were compliant with the AL Levels specified in the *EM&A Manual*.

4.3 POPS MONITORING

Biweekly monitoring of POPs in water samples was conducted on 10 January 2009. All POPs parameters were below detection limits. Monitoring results and QA/QC reports for POPs testing have been presented in *27th Monthly EM&A Reports*.

4.4 WASTE MANAGEMENT

According to EP *Condition 3.3*, the Contractor's revised Waste Management Plan (Revision 5) (WMP), which has been certified by the ET and IEC, was submitted to the EPD on 5 November 2008.

4.5 CULTURAL HERITAGE

The *Watching Brief Report*, verified by the Independent Environmental Checker, was submitted to the EPD and AMO on 9 May 2008.

4.6 LANDSCAPE AND VISUAL

According to the EIA report and EM&A Manual, mitigation measures and site inspection are required during the landscaping/planting works. The berm/landscaping bund appeared to have vegetation grown during the project suspension period.

The weekly site inspections included general audits on landscape and visual issues to ensure that the site was in orderly acceptable manner.

4.7 *LAND CONTAMINATION, HAZARD TO LIFE AND FUEL SPILL RISK*

The ET and IEC verified updated design audit plan which was submitted to the EPD on 7 November 2007.

Weekly site inspection covered the waste management aspects which included measures to prevent land contamination by chemical wastes.

4.8 *ECOLOGY*

Dolphin Visual Monitoring

In accordance with *EM&A Manual*, dolphin monitoring has been undertaken during dredging activities since 1 September 2008. During the reporting period, a total of 3 dolphin sightings were recorded. Appropriate action was taken in accordance with the *EM&A Manual*. The sighting locations and field records are presented in *Annex G*.

4.9 *EM&A MANUAL*

The *EM&A Manual* for the Project has been updated by the ET to include the detailed arrangements of setting up a Community Liaison Group, carrying out design audit, and monitoring of Persistent Organic Pollutants (POPs) during construction of the Project. Further comments were received from the EPD on 16 January 2009 and the ET has revised the *Manual* which has been verified by the IEC on 27 March 2009.

4.10 *BASELINE WATER QUALITY MONITORING*

The *Final Baseline Monitoring Report* was submitted to the EPD on 20 February 2008 and placed under the EIAO register.

5 *FUTURE KEY ISSUES AND CONCLUSION*

5.1 *KEY ISSUES FOR THE NEXT REPORTING PERIOD*

Key issues to be considered in the next month will be:

- Dust release and suppression; and,
- Installation of subsea pipelines.

5.2 *IMPACT PREDICTION FOR THE NEXT REPORTING PERIOD*

Provided that environmental mitigation measures including good on-site practises are properly implemented, no unacceptable adverse environmental impacts are expected.

5.3 *WORKS AND MONITORING SCHEDULE FOR THE NEXT REPORTING PERIOD*

Work programme for the next reporting period includes:

- pipeline installation works;
- jetty platform works (non-piling); and,
- site works (construction works for tank farm, operational and fire services buildings, pump platform, drainages, bund wall, security wall etc).

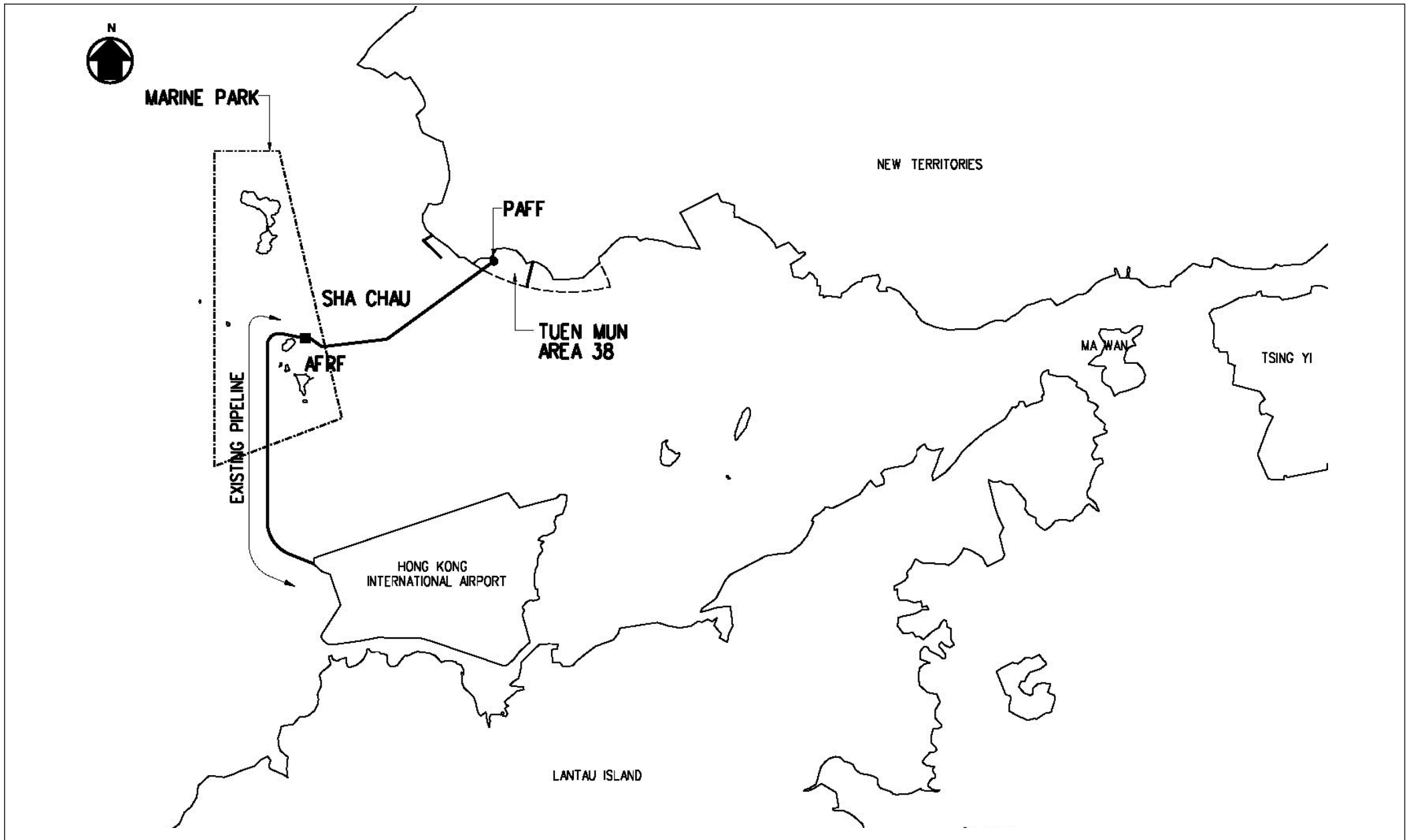
Weekly site inspections will be undertaken in accordance with the *EM&A Manual*.

5.4 *CONCLUSION*

The EM&A works were conducted throughout the construction period and the relevant monitoring was conducted in accordance with the EP's requirements. Mitigation measures were used to minimise the environmental impacts, where appropriate. Some environmental deficiencies were observed during the site inspections and the Contractor implemented corrective action to mitigate the issues. Overall, the site was in an orderly manner.

Annex A

Project Location



Annex A

Location of PAFF

FILE: 0018105bb1
DATE: 12/11/2007






Environmental
Resources
Management



Annex B

Water Quality Monitoring
Stations, Water Quality and
Ecological Sensitive
Receivers

KEY

-  Control Stations
-  Impact Stations
-  Marine Park
-  Proposed Pipeline
-  Potential IMO1 & IMO2 Monitoring Zone

Marine Park
(Water Sensitive Receiver)

C2 (NM5)

C1 (NM3)

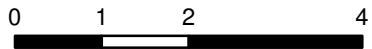
MPB1

MPB2

C3 (NM6)



Kilometers



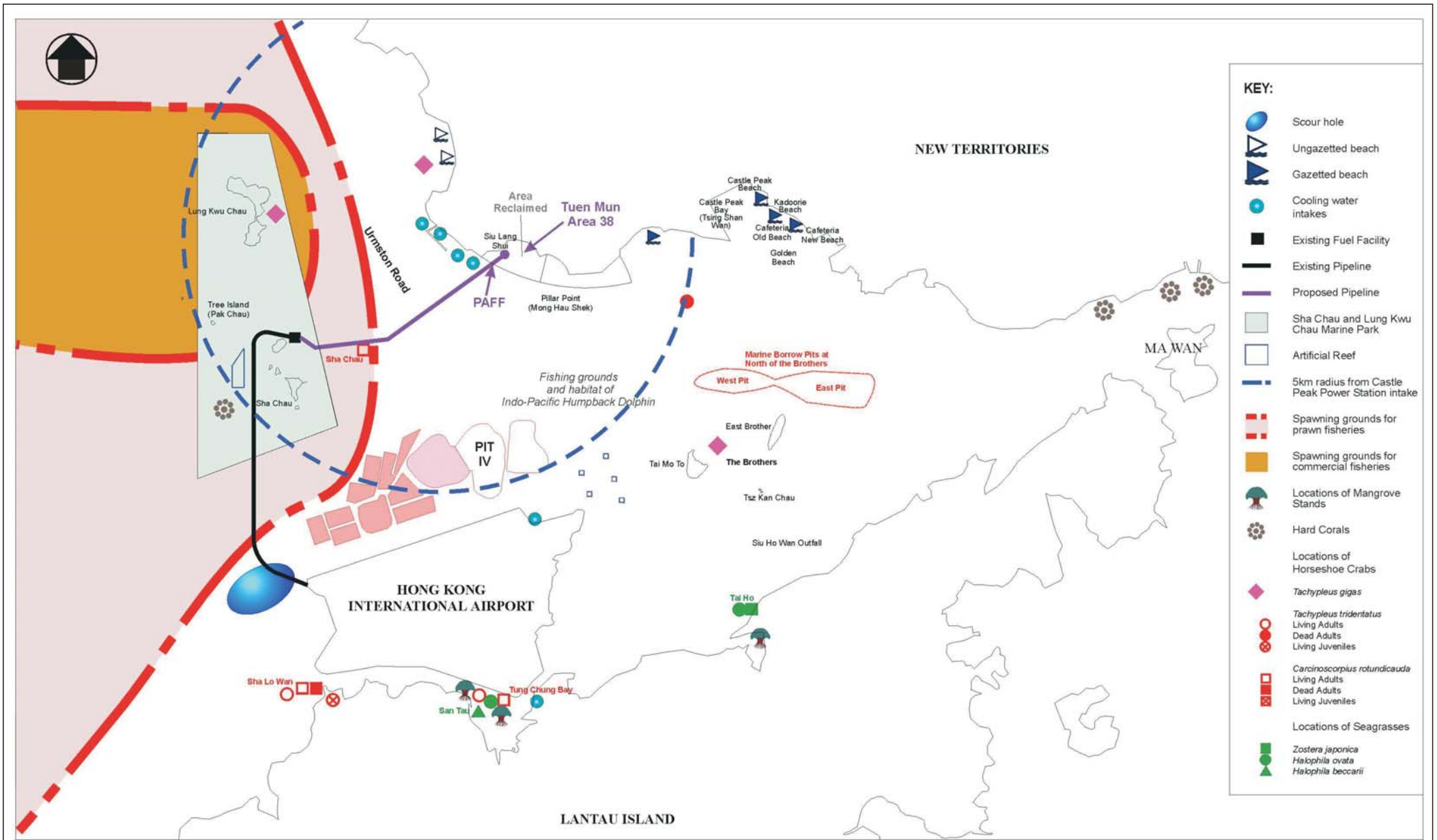
Annex B

Water Sensitive Receiver and Water Quality Monitoring Locations

File: 0018105_4.mxd
Date: 23/01/2006

**Environmental
Resources
Management**





Annex B

Water Quality and Ecological Sensitive Receivers

FILE: C2475aa
DATE: 12/11/2007

(Source : PAFF for Hong Kong International Airport EIA, Mouchel 2002)

Environmental
Resources
Management



Annex C

Monitoring Schedule for the Reporting Period and Next Month

PAFF
Impact Water Quality Monitoring Schedule for January 2009

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| | | | | 01-Jan | 02-Jan | 03-Jan |
| | | | | Mid-Flood 10:38 Mid-Ebb 16:00 | Mid-Flood 11:08 Mid-Ebb 16:44 | Mid-Flood 11:41 Mid-Ebb 17:37 |
| 04-Jan | 05-Jan | 06-Jan | 07-Jan | 08-Jan | 09-Jan | 10-Jan |
| Mid-Flood 12:15 Mid-Ebb 18:47 | Mid-Flood 12:52 Mid-Ebb 19:54 | Mid-Ebb 07:18 Mid-Flood 13:33 | Mid-Ebb 08:45 Mid-Flood 14:19 | Mid-Ebb 10:14 Mid-Flood 15:14 | Mid-Ebb 11:21 Mid-Flood 16:14 | (POP sampling) Mid-Ebb 12:17 Mid-Flood 17:15 |
| 11-Jan | 12-Jan | 13-Jan | 14-Jan | 15-Jan | 16-Jan | 17-Jan |
| Mid-Ebb 13:08 Mid-Flood 18:13 | Mid-Ebb 13:55 Mid-Flood 19:07 | Mid-Ebb 14:39 Mid-Flood 19:58 | Mid-Flood 10:00 Mid-Ebb 15:22 | Mid-Flood 10:35 Mid-Ebb 16:06 | Mid-Flood 11:07 Mid-Ebb 16:52 | Mid-Flood 11:38 Mid-Ebb 17:49 |
| 18-Jan | 19-Jan | 20-Jan | 21-Jan | 22-Jan | 23-Jan | 24-Jan |
| Mid-Flood 12:06 Mid-Ebb 19:01 | Mid-Ebb 06:12 Mid-Flood 12:36 | Mid-Flood 09:06 Mid-Ebb 21:48 | Mid-Flood 10:15 Mid-Ebb 22:34 | Mid-Flood 10:58 Mid-Ebb 23:14 | Mid-Ebb 11:25 Mid-Flood 15:55 | No WQ Monitoring* |
| 25-Jan | 26-Jan | 27-Jan | 28-Jan | 29-Jan | 30-Jan | 31-Jan |
| No WQ Monitoring* | | | | | | |

* Water quality monitoring will not be conducted since no dredging operation will be undertaken

Annex D

Cumulative Complaints Statistics

Summary of Environmental Complaints

| Reporting Period | Complaint Statistics | | |
|--|----------------------|------------|------------------|
| | Frequency | Cumulative | Complaint Nature |
| Before construction works | 1 | 1 | Dust |
| 18/11/05 - 15/12/05 | 1 | 2 | Dust |
| 15/12/05 - 14/01/06 | 0 | 2 | Nil |
| 15/01/06 - 14/02/06 | 0 | 2 | Nil |
| 15/02/06 - 14/03/06 | 0 | 2 | Nil |
| 15/03/06 - 14/04/06 | 0 | 2 | Nil |
| 15/04/06 - 14/05/06 | 0 | 2 | Nil |
| 15/05/06 - 14/06/06 | 0 | 2 | Nil |
| 15/06/06 - 14/07/06 | 0 | 2 | Nil |
| Re-commencement of construction works on 9 th July 2007 | | | |
| 09/07/07 - 31/07/07 | 0 | 2 | Nil |
| 01/08/07 - 31/08/07 | 0 | 2 | Nil |
| 01/09/07 - 30/09/07 | 0 | 2 | Nil |
| 01/10/07 - 31/10/07 | 0 | 2 | Nil |
| 01/11/07 - 30/11/07 | 0 | 2 | Nil |
| 01/12/07 - 31/12/07 | 0 | 2 | Nil |
| 01/01/08 - 31/01/08 | 0 | 2 | Nil |
| 01/02/08 - 29/02/08 | 0 | 2 | Nil |
| 01/03/08 - 31/03/08 | 0 | 2 | Nil |
| 01/04/08 - 30/04/08 | 0 | 2 | Nil |
| 01/05/08 - 31/05/08 | 0 | 2 | Nil |
| 01/06/08 - 30/06/08 | 0 | 2 | Nil |
| 01/07/08 - 31/07/08 | 0 | 2 | Nil |
| 01/08/08 - 31/08/08 | 0 | 2 | Nil |
| 01/09/08 - 30/09/08 | 0 | 2 | Nil |
| 01/10/08 - 31/10/08 | 0 | 2 | Nil |
| 01/11/08 - 30/11/08 | 0 | 2 | Nil |
| 01/12/08 - 31/12/08 | 0 | 2 | Nil |
| 01/01/09 - 31/01/09 | 0 | 2 | Nil |
| 01/02/09 - 28/02/09 | 0 | 2 | Nil |
| 01/03/09 - 31/03/09 | 0 | 2 | Nil |

Summary of Environmental Summons

| Reporting Period | Environmental Summons | | |
|---------------------|-----------------------|------------|---------------|
| | Frequency | Cumulative | Summon Nature |
| 18/11/05 - 15/12/05 | 0 | 0 | Nil |
| 16/12/05 - 14/01/06 | 0 | 0 | Nil |
| 15/01/06 - 14/02/06 | 0 | 0 | Nil |
| 15/02/06 - 14/03/06 | 0 | 0 | Nil |
| 15/03/06 - 14/04/06 | 0 | 0 | Nil |
| 15/04/06 - 14/05/06 | 0 | 0 | Nil |
| 15/05/06 - 14/06/06 | 0 | 0 | Nil |
| 15/06/06 - 14/07/06 | 0 | 0 | Nil |

Re-commencement of construction works on 9th July 2007

| | | | |
|---------------------|---|---|-----|
| 09/07/07 - 31/07/07 | 0 | 0 | Nil |
| 01/08/07 - 31/08/07 | 0 | 0 | Nil |
| 01/09/07 - 30/09/07 | 0 | 0 | Nil |
| 01/10/07 - 31/10/07 | 0 | 0 | Nil |
| 01/11/07 - 30/11/07 | 0 | 0 | Nil |
| 01/12/07 - 31/12/07 | 0 | 0 | Nil |
| 01/01/08 - 31/01/08 | 0 | 0 | Nil |
| 01/02/08 - 29/02/08 | 0 | 0 | Nil |
| 01/03/08 - 31/03/08 | 0 | 0 | Nil |
| 01/04/08 - 30/04/08 | 0 | 0 | Nil |
| 01/05/08 - 31/05/08 | 0 | 0 | Nil |
| 01/06/08 - 30/06/08 | 0 | 0 | Nil |
| 01/07/08 - 31/07/08 | 0 | 0 | Nil |
| 01/08/08 - 31/08/08 | 0 | 0 | Nil |
| 01/09/08 - 30/09/08 | 0 | 0 | Nil |
| 01/10/08 - 31/10/08 | 0 | 0 | Nil |
| 01/11/08 - 30/11/08 | 0 | 0 | Nil |
| 01/12/08 - 31/12/08 | 0 | 0 | Nil |
| 01/01/09 - 31/01/09 | 0 | 0 | Nil |
| 01/02/09 - 28/02/09 | 0 | 0 | Nil |
| 01/03/09 - 31/03/09 | 0 | 0 | Nil |

Annex E

Implementation
Programme of Mitigation
Measures

ANNEX E IMPLEMENTATION SCHEDULE

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|----------------------|-----------------------|---|-------------------------------------|----------------------|--|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| Water Quality | | | | | | | | | | |
| 6.7 | 6.8.1 | There should be no access to the shore or working from land within the Marine Park. No marine anchors shall be used within the Marine Park. | Marine Park / Pipeline Dredging | Contractor | TMEIA | | Y | | N/A | On going |
| 6.7 | 6.8.1 | No hydraulic dredging within Marine Park. | Marine Park / Pipeline Dredging | Contractor | TMEIA | | Y | | N/A | Completed |
| 6.7 | 6.8.1 | Dredging for pipeline trench should be timed to coincide with maintenance dredging for Sha Chau AFRF marine access channel if relevant. | Sha Chau ARFR Marine access channel | Airport Authority | TMEIA | | Y | | N/A | Completed |
| 6.4 | | The work rate for dredging should not exceed 4,000 m ³ /hr for the TSHD and 7,000 m ³ /day for the grab dredger. | Marine Park / Pipeline Dredging | Contractor | TMEIA | | Y | | N/A | Completed |
| 6.7 | 6.8.1 | Standard good dredging practice measures shall be written in the dredging contract. | Marine Park / Pipeline Dredging | Franchisee | TMEIA | | Y | | N/A | Completed |
| 6.7 | 6.8.1 | Use of Lean Material Overboard (LMOB) systems shall be prohibited. No mud overflow is to be permitted for dredging using TSHD. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | | Y | | N/A | Not applicable |
| 6.7 | 6.8.1 | Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | | Y | | N/A | Completed |
| 6.7 | 6.8.1 | Barges and hopper dredgers shall have tight fittings seals to their bottom openings to prevent leakage of material. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | | Y | | N/A | Completed |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|--|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | 6.8.1 | Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Not applicable |
| 6.7 | 6.8.1 | 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. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Completed |
| 6.7 | 6.8.1 | Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Completed |
| 6.7 | 6.8.1 | Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Completed |
| 6.7 | 6.8.1 | 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. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Completed |
| 6.7 | 6.8.1 | The works shall not cause foam, oil, grease, letter or other objectionable matter to be present in the water within and adjacent to the works site. | Dredged areas/ Pipeline Dredging | Contractor | TMEIA Marine Fill Committee Guidelines. DASO permit conditions | Y | | | N/A | Completed |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | 6.8.1 | Placement of pipeline trench backfill should be undertaken in a controlled manner to minimise impacts. Backfilling with rock should be undertaken either down pipe or by a reverse grab operation or other controlled technique to ensure that this material does not mound on the seabed | Pipeline trench/ Pipeline Dredging | Contractor | TMEIA Minimise disturbance | | Y | | N/A | Pending |
| 6.7 | 6.8.1 | Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Storm drainage should 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 sandbag 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Silt removal facilities, channels and manholes shall be maintained and any deposited silt and grit shall be removed regularly, including specifically at the onset of and after each rainstorm. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | 6.8.1 | Temporary access roads should be surfaced with crushed stone or gravel. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | 6.8.1 | 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | The section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | The contractors shall prepare oil/chemical cleanup plan and ensure that leakages or spillages are contained and cleaned up immediately. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | 6.8.1 | Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | 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. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system. | Land site/ Throughout construction period | Contractor | TMEIA ProPECC Note 1/94. WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | 6.8.1 | Wastewater from pipe commissioning dewatering exercises shall be stored on site and for chemical analysis and safe disposal in accordance with the WPCO. | Tank Farm/Tank farm commissioning | Franchisee | TMEIA WPCO TM on Effluent Standards | | Y | | N/A | Ongoing |
| 6.7 | Section 6 | All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice. | Land site/ Throughout construction period | Contractor | EM&A Manual | | Y | | N/A | Ongoing |
| 6.7 | Section 6 | Submarine section of aviation fuel pipeline shall be covered with rock armour protection which shall not protrude above the level of the adjacent natural seabed. | Submarine pipeline | Franchisee | TMEIA Rock armour to minimum thickness of 1m | Y | Y | | Franchisee | Pending |
| 6.7 | Section 6 | Detailed emergency response procedures shall be drawn up. These will include requirements to maintain floating oil booms, absorbent materials and skimmers on site at all times. | All facilities | Franchisee | TMEIA Industry Standards e.g. Oil Companies International Marine Forum | | | Y | Franchisee | Pending |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|-------------------|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.7 | Section 6 | Coupling points on the jetty will be protected with slop collection utilities. | Jetty | Franchisee | TMEIA Rock armour to minimum thickness of 1m | Y | | | Franchisee | On going |
| 6.7 | Section 6 | Auxiliary tanks shall be permanently maintained at the tank farm for recovered fuel and slops. | Tank farm | Franchisee | TMEIA | | | Y | Franchisee | Pending |
| 6.7 | Section 6 | Oily drainage systems and slop collection systems will connect to an oil/water separator. | Tank farm | Franchisee | TMEIA Industry Standards e.g. Oil Companies International Marine Forum | | Y | | Franchisee | On going |
| 6.7 | Section 6 | All tanks shall be bunded to a capacity of at least 150% of the largest individual tank in each compound by 2040. Tank pits shall be protected by an impermeable bed (e.g. geotextile sheeting) to prevent seepage of aviation fuel to ground. A leak detection system shall be installed beneath the containment membrane. | Tank farm | Franchisee | TMEIA Hong Kong Code of Practice for Oil Installations, 1992 | | Y | | Franchisee | On going |
| 6.7 | Section 6 | There shall be no direct outlet from the bund. A collection pump shall be included in the base. Removal of accumulated rainwater shall be activated manually and discharged to storm drain via an oil/water separator. | Tank farm | Franchisee | TMEIA | | Y | | Franchisee | On going |
| 6.7 | Section 6 | Contingency procedures shall be drawn up to ensure containment and safe disposal of any fuel lost from tanks or pipework. Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spillages. | Tank farm | Franchisee | TMEIA Hong Kong Code of Practice for Oil Installations, 1992 | | | Y | Franchisee | Pending |
| 6.7 | Section 6 | Valves shall be installed within the storm drainage system to facilitate the retention of spillages. | Tank farm | Franchisee | TMEIA | | Y | | Franchisee | On going |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|-----------------------|-----------------------|---|--|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 6.10 | Section 6 | Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen. | Design monitoring stations as defined in EM&A Manual, section 6. Construction period when dredging takes place within 1000m of Marine Park and along entire length of the pipeline | Contractor | EM&A Manual | | Y | | N/A | Completed |
| 6.10 | Section 6 | Routine water quality monitoring in the vicinity of the PAFF site to check the effectiveness of the proposed precautionary measures implemented for on-site spill control. The details of the monitoring to be undertaken will be prepared by the Franchisee as part of the PAFF Operations Manual and the details will be agreed with the relevant authorities prior to the commencement of operation of the PAFF. Monitoring should include but not be limited to the parameters of TPH and PAH and reference should be made to the existing monitoring programme undertaken for the fuel tank farm on the HKIA platform. | Operational phase. Location and frequency to be determined and agreed with relevant authorities | Franchisee | EM&A Manual | | | Y | N/A | Pending |
| Ecology 7.8 | 5.3 | Undertake post construction dolphin abundance monitoring. | Construction | Contractor | TMEIA | | Y | | N/A | Pending |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|-------------------------------|-----------------------|---|---|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 7.8 | 5.3 | A 500m dolphin exclusion zone shall be implemented and dredging shall not begin until the observer has confirmed that the area has been clear for 30 minutes. | 250m around dredger/throughout dredging in Marine Park and along the length of pipeline | Contractor | TMEIA | | Y | | N/A | Completed |
| 7.8 | 5.3 | Avoidance of dolphin main calving season between March and August. | Throughout dredging in Marine Park and along the length of the pipeline | Contractor | TMEIA | | Y | | N/A | Completed |
| Landscape & Visual | | | | | | | | | | |
| 8.10 | 7.2.1 | The construction programme for the PAFF should be reduced to the shortest possible period. | PAFF site / throughout construction period | Contractor | TMEIA | Y | Y | | N/A | Ongoing |
| 8.10 | 7.2.1 | The extent and periphery of the works areas should be managed so that they are as small as possible and do not appear cluttered, untidy and unattractive, particularly to road traffic along Lung Mun Road. | PAFF site / throughout construction period | Contractor | TMEIA | | Y | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | Temporary hoarding barriers should be of a recessive visual appearance in both colour and form. | PAFF site / throughout construction period | Contractor | TMEIA | Y | Y | | N/A | Ongoing |
| 8.10 | 7.2.1 | Materials should be stored in areas with the least obstruction to residents, pedestrians and traffic. | PAFF site / throughout construction period | Contractor | TMEIA | | Y | Y | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|---|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 8.10 | 7.2.1 | All material stockpiles should be covered with an impermeable material and sandbagging diversions should be placed around exposed soil. | PAFF site / throughout construction period | Contractor | TMEIA | | Y | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | Conservation of existing and imported soil resources. | PAFF site / throughout construction period of fuel tank expansion | Contractor | TMEIA | | | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | A landscape perimeter bund comprising containment bund-wall, access road and planting buffer shall be built and maintained around the tank farm. | PAFF site / throughout construction period | Project Proponent | TMEIA | Y | Y | Y | Franchisee | Ongoing |
| 8.10 | 7.2.1 | The design of the PAFF should incorporate materials, details and textures which are visually recessive. | PAFF site / design | Project Proponent | TMEIA | Y | Y | | N/A | Ongoing |
| 8.10 | 7.2.1 | Colours should be of low chromatic intensity to reduce the potential contrast between the structure and their background. | PAFF site tanks / design | Project Proponent | TMEIA | Y | Y | | N/A | Ongoing |
| 8.10 | 7.2.1 | Visually recessive security fencing should be used around the perimeter. | Site perimeter | Project Proponent | TMEIA | Y | Y | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | Minimum amount of lighting for the tanks shall be used, only applied for safety at the key access points and staircases. | Tanks / Operational phase | Project Proponent | TMEIA | Y | Y | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | Limited lighting intensity on the site. | PAFF site / Operational phase | Project Proponent | TMEIA | Y | Y | Y | N/A | Ongoing |
| 8.10 | 7.2.1 | Directional down lighting is suggested to minimise light spill to the surrounding area. | PAFF site / Operational phase | Project Proponent | TMEIA | Y | Y | Y | N/A | Ongoing |

Cultural Heritage

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location/ Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--------------------------------|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 9.8.1 | 9.2.1 | Undertake a watching brief during dredging of the pipeline within 25m either side of anomalies SS1 and SS2. This should comprise: <ul style="list-style-type: none"> Dredge operators to be made aware of the potential presence of cultural heritage material. The operators would be required to report to the AMO any unusual resistance and/or recovery of timbers, anchors or other wreck related material. Any obstacles encountered during the dredging that are of timber should be reported to the marine archaeologist. The obstacle should be avoided and not removed until it has been assessed by the marine archaeologist as to whether the obstacle is of cultural heritage importance; A marine archaeologist shall be on board the dredging barge during dredging within 25m either side of SS1 and SS2 in the event of any unusual resistance occurring or blockages which requires the dredge head to be brought on deck for cleaning and examination; and, | Within vicinity of SS1 and SS2 | Franchisee | TMEIA | | Y | | N/A | Completed |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|------------------------|-----------------------|--|------------------------------|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| | | <ul style="list-style-type: none"> Dredging to cease in the nominated area SS1 after 3 meters of sediment removal and after 1 metre for SS2. A dive survey will then be undertaken to examine the trench for possible cultural remains. | | | | | | | | |
| 9.8.2 | 9.2.1 | During the course of the watching brief, if the targets are identified as being potentially archaeologically important, then an immediate marine archaeological impact assessment in accordance with EIAO TM Annex 19 will be required to be undertaken by a qualified marine archaeologist. | With vicinity of SS1 and SS2 | Franchisee | TMEIA | | Y | | N/A | Not applicable |
| 9.8.4 | 9.2.1 | Any changes, additions or alterations to the dredging method and alignment should be further assessed by marine archaeologist to determine if any further assessment is required. | Pipeline alignment | Franchisee | TMEIA | | Y | | N/A | Not applicable |
| Fuel Spill Risk | | | | | | | | | | |
| 11.4.1 | 10.2 | Tank farms will be constructed in a bunded area surrounding the tanks which will have collection capacity of 150% of the maximum content of the largest tank. | Tank farm / Design Phase | Franchisee | TMEIA | | Y | | N/A | On going |
| 11.4.1 | 10.2 | Emergency shut down valves shall be installed within the wider site storm drainage system. | Tank farm / Design Phase | Franchisee | TMEIA | | Y | | N/A | On going |
| 11.4.1 | 10.2 | An impermeable membrane shall be installed in the tank foundation beneath the tank bottom. | Tank farm / Design Phase | Franchisee | TMEIA | | Y | | N/A | On going |
| 11.4.1 | 10.2 | Pipeline to be covered with a protective rock armour layer. | Pipelines/ Design Phase | Franchisee | TMEIA | | Y | | Franchisee | On going |
| 11.4.1 | 10.2 | An integrated leak detection system shall be installed to all pipelines to provide early detection of any leak. | Pipelines/ Design Phase | Franchisee | TMEIA | | Y | | N/A | On going |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 11.4.1 | 10.2 | An automatic shut-off system shall be implemented for pipelines. | Pipelines/ Design Phase | Franchisee | TMEIA | Y | | | N/A | On going |
| 11.4.1 | 10.2 | A workboat shall be on standby at the jetty during tanker berthing. | Jetty/ During Tanker Berth | Franchisee | TMEIA | Y | Y | | N/A | Pending |
| 11.4.1 | 10.2 | Skimmers shall be available for quick deployment in case of a spill. | Jetty/ During Tanker Berth | Franchisee | TMEIA | Y | Y | | N/A | Pending |
| 11.4.1 | 10.2 | An emergency response plan shall be prepared prior to the operation of the PAFF. | Jetty/ During Tanker Berth | Franchisee | TMEIA | Y | Y | | N/A | Pending |
| 11.4.1 | 10.2 | Operator-training programme shall be implemented. | Jetty/ During Tanker Berth | Franchisee | TMEIA | Y | Y | | N/A | Pending |
| 11.6 | 10.4 | During the planning of the later phase of the tank farm development, in order to ensure that the required mitigation measures are undertaken at that time, review the EIA report only if the latest technology, industrial standards and statutory requirements have changed by that time. | During planning stage for future tank construction | Franchisee | TMEIA | | Y | | N/A | Pending |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------------------|-----------------------|--|---|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 11.6 | 10.4 | Regular inspections and audits will be undertaken by the Franchisee during the operational phase of the facility: <ul style="list-style-type: none"> Two inspections every year of the tank farm, jetty and pipelines including one undertaken pursuant to the Joint Inspection Group (JIG) explained above; Inspection of the whole sub sea pipelines every 5 to 10 years; Health, Safety and Environmental audit of the facility once every 3 years; and, Inspection of the structural integrity of the tanks once per year. | Operation | Franchisee | TMEIA | | | Y | N/A | Pending |
| 11.6 | 10.4 | Prepare an Environmental Management Plan to ensure the on-going adequacy of the fuel spill contingency plan and that it is being implemented as required and that the above mitigation measures have been incorporated and are effective. | Prior to the start of operation of the PAFF with audits every 12 months | Franchisee | TMEIA | | | Y | N/A | Pending |
| Land Contamination | | | | | | | | | | |
| 13.5.1 | 10.2 | Bunding shall be provided by all fuel storage areas to at least 150% of largest individual tank in each compound. | Tank farm / Design | Franchisee | TMEIA | Y | | | N/A | On going |
| 13.5.1 | 10.2 | Relevant design standards for storage tanks, pipework, containment and drainage shall be adhered to. | Tank farm / Design | Franchisee | TMEIA | Y | | | N/A | On going |
| 13.5.1 | 10.2 | Plant inspections and maintenance shall be undertaken once per month. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.1 | 10.2 | Impermeable lining shall be provided for all tank pits. | Tank farm / Design | Franchisee | TMEIA | Y | | | N/A | On going |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|--------------------|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 13.5.1 | 10.2 | Leak detection systems shall be provided to all valves. | Tank farm / Design | Franchisee | TMEIA | Y | | | N/A | On going |
| 13.5.1 | 10.2 | Surface drainage shall be contained and treated prior to discharge. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.1 | 10.2 | Emergency spill response plans shall be prepared. | Tank farm / Design | Franchisee | TMEIA | Y | | Y | N/A | Pending |
| 13.5.1 | 10.2 | Spill control materials and equipment shall be provided on site. | Tank farm / Design | Franchisee | TMEIA | Y | | Y | N/A | Pending |
| 13.5.1 | 10.2 | Runoff from the roof of site buildings and landscaped areas shall be conveyed in closed drains to the nearest storm water drain to prevent the generation of excessive quantities of surface water which may be polluted. | Tank farm / Design | Franchisee | TMEIA | Y | | Y | N/A | On going |
| 13.5.5 | 10.2 | Suitable absorbent materials (e.g. sand or earth) shall be kept on site to deal with spills. Chemical dispersants shall not be employed. | Tank farm / Design | Franchisee | TMEIA | Y | | | N/A | Pending |
| 13.5.5 | 10.2 | The facility shall be designed, constructed, operated and maintained in full accordance with the Code of Practice for Oil Installations, 1992. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.5 | 10.2 | Tank pressure testing shall be carried out routinely to check for possible tank leaks. Product inventory monitoring shall be integrated into site management procedures to check for any abnormal or unexpected product loss. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.5 | 10.2 | Tank overflow monitoring systems shall be installed and regularly tested. Inlet valves shall be designed to automatically shutdown on exceedance of "high-high level" to prevent over-filling. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.5 | 10.2 | Pipe leakages shall be routinely checked for by means of a pressure sensitive leak detection system and routine inventory control. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|-------------------------|-----------------------|--|-----------------------|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 13.5.5 | 10.2 | Drainage from areas of hardstanding shall be treated by means of oil/water separators prior to discharge to storm drain. All surface drainage shall be fitted with closure valves to provided additional containment and facilitate clean up of any leaks. | Tank farm / Design | Franchisee | TMEIA | Y | Y | Y | N/A | On going |
| 13.5.5 | 10.2 | The delivery pipeline from the jetty and the supply line to the airport shall be fitted with pressure sensitive leak detectors. | Tank farm / Design | Franchisee | TMEIA | Y | Y | | N/A | On going |
| Waste Management | | | | | | | | | | |
| 14.7.2 | 8.3.1 | The Contractor shall identify a coordinator for the management of waste. | Contract mobilisation | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | The waste coordinator shall prepare and implement a Waste Management Plan which specifies procedures such as ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of waste does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposal. | Contract mobilisation | Contractor | TMEIA, Works Branch Technical Circular No. 5/99 for the Trip-ticket System for Disposal of Construction and Demolition Material | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|---|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges. | Contract mobilisation | Contractor | TMEIA, Land (Miscellaneous Provisions) Ordinance (Cap 28); Waste Disposal Ordinance (Cap 354); Dumping at Sea Ordinance (Cap 466); Water Pollution Control Ordinance. | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | No waste shall be burnt on site. | PAFF Site throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Excavated material shall be used on site for purposes of landscaping or formation of bund walls as far as possible. | All site / throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material. | All site / throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Suitable provisions shall be included in the construction contract to ensure that the Contractor sorts and recycles waste. | Contract preparation stage | HyD | TMEIA | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | Re-use and recycling of waste must always be considered first. Waste disposal shall only be undertaken in the last resort. Any surplus material generated shall be sorted on site into construction and demolition (C&D) waste and the public fill fraction. A sorting facility shall be set up on the site. | All areas / throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | The site and surroundings shall be kept tidy and litter free. | All areas / throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | The C&D waste shall be disposed of at a licensed landfill or deposited at an authorised waste transfer facility and the material suitable for public fill delivered to a public filling area, public filling barging point or public fill stockpile area after obtaining the appropriate licence. | CEDD public fill stockpile in Mui Wo, North Lantau or Mui Wo refuse transfer stations / Throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Stockpile material shall avoid vegetated areas. | All areas / throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Stockpiles shall be covered by tarpaulin and/or watered as required. | All areas / throughout construction period, particularly during dry season | Contractor | TMEIA, Public Health and Municipal Services Ordinance (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|--|----------------------|---|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | Storage of material on site should be kept to a minimum. | All areas / throughout construction period | Contractor | TMEIA, Public Cleansing and Prevention of Nuisances (Regional Council) By-laws | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Excavated material in trucks shall be covered by tarpaulins. | All areas, particularly at site exits / throughout construction period | Contractor | TMEIA, Reduce the potential for spillage and dust. Public Health and Municipal Services Ordinance (Cap 132) and the Public Cleansing and Prevention of Nuisances (Regional Council) By-laws | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads. | Site entrances and exits / throughout construction period | Contractor | TMEIA, Public Cleansing and Prevention of Nuisances (Regional Council) By-laws | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|--|----------------------|--|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | Suitable chemical waste storage areas should be formed at the works site for temporary storage pending collection. | Works site/ throughout construction period | Contractor | TMEIA, Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A Guide to the Chemical Waste Control Scheme | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility. | Chemical waste treatment facility at Tsing Yi / throughout construction period | Contractor | TMEIA, Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A Guide to the Chemical Waste Control Scheme | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Temporary storage areas for general refuse should be enclosed to avoid environmental impacts. | All areas/ throughout construction period | Contractor | TMEIA, Public Health and Municipal Services Ordinance | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Sufficient dustbins should be provided for storage of waste. | All areas/ throughout construction period | Contractor | TMEIA, Public Cleansing and Prevention of Nuisances Ordinance (Regional Council) By-laws, Public Health and Municipal Services Ordinance | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|---|---|----------------------|--|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | General refuse should be cleared daily and should be disposed of to the nearest licensed facility. | All areas, WENT landfill or NWNT refuse transfer stations/ throughout construction period | Contractor | TMEIA, Sanitation and Conservancy (Regional Council) By-laws | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Waste oils, chemicals or solvents shall not be disposed of to drain. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Good site practice shall be implemented to avoid waste generation and promote waste minimisation. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | | Ongoing |
| 14.7.2 | 8.3.1 | Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Temporary structures used during construction shall be provided in the form of proprietary Protakabin type units sited on areas of permanent hard paving units as far as practicable. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Sea Ordinance. | PAFF site/ throughout construction period | | | | Y | | N/A | Completed |
| 14.7.2 | 8.3.1 | All waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All waste containers shall be in a secure area on hardstanding. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|---------------|-----------------------|--|---|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 | 8.3.1 | Emergency equipment to deal with any spillage or fire shall be kept on site. | PAFF site/ throughout construction period | | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All containers used for storage of chemical waste shall be maintained in good condition and clearly labelled in both English and Chinese. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All storage areas for chemical waste shall be: <ul style="list-style-type: none"> Clearly labelled; Enclosed on at least 3 sides; Have impermeable floor and bunding sufficient to fully retain any spillage or leakages; Ventilated; and, Covered to prevent rainfall from entering. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All types of asbestos including sources (such as clutch linings) shall be treated as chemical waste. Asbestos containing wastes shall be kept separate from other wastes. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | All leaking containers shall be contained and removed from site as soon as is reasonably practicable. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |
| 14.7.2 | 8.3.1 | Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling. | PAFF site/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |

| EIA Reference | EM&A Manual Reference | Environmental Protection Measures | Location / Timing | Implementation Agent | Relevant Standard or Requirement | Implementation Schedule | | | Maintenance Agency | Implementation Status |
|------------------|-----------------------|--|---|----------------------|----------------------------------|-------------------------|---|---|--------------------|-----------------------|
| | | | | | | D | C | O | | |
| 14.7.2 Section 5 | 8.3.1 | EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken. | All areas/ throughout construction period | Contractor | TMEIA | | Y | | N/A | Ongoing |

Annex F

Graphical Presentation of
Impact Water Quality
Monitoring Results for the
Reporting Period

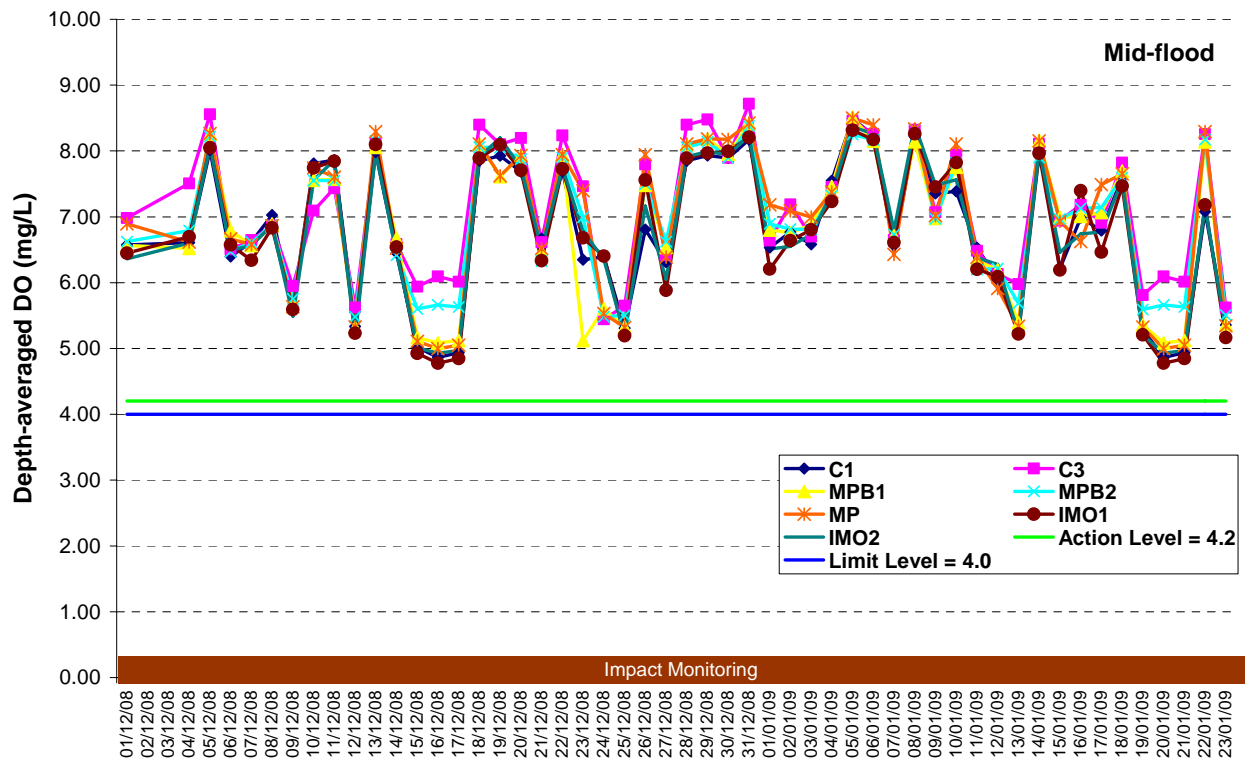
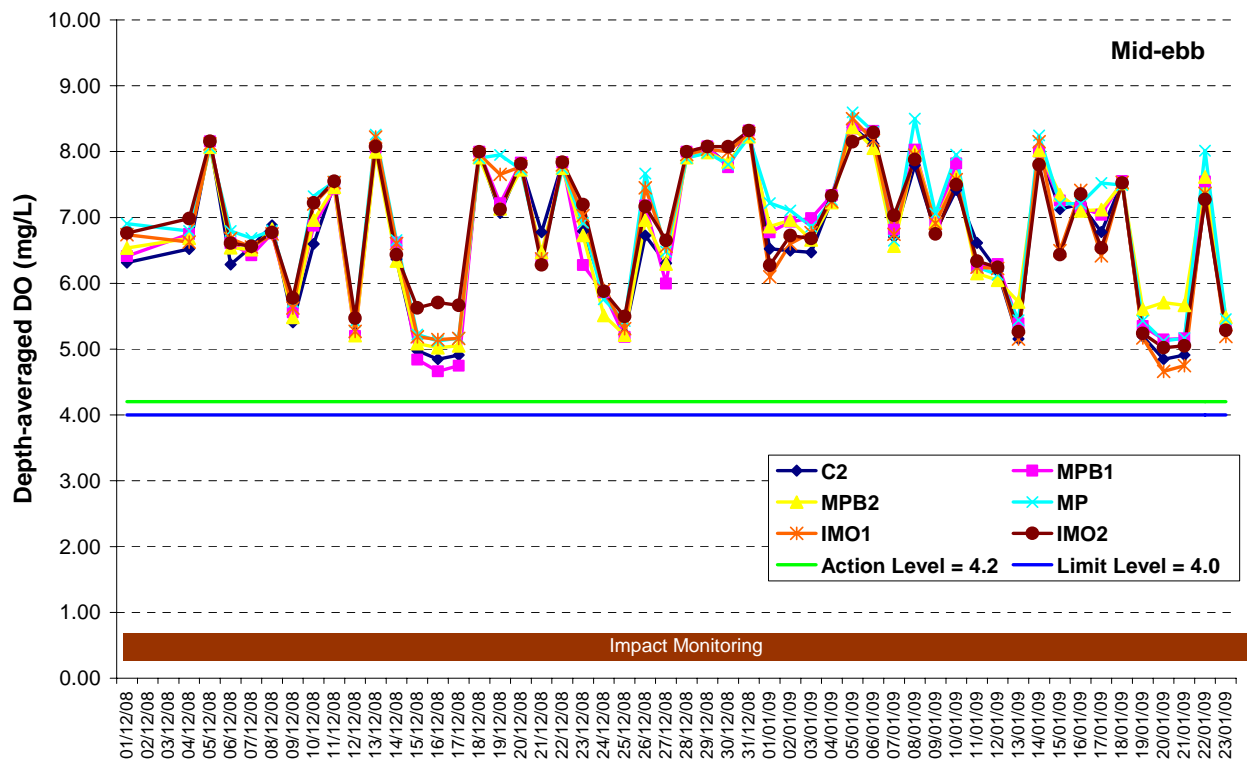


Figure F1 Dissolved oxygen concentration (depth-averaged) (mg/L) of water samples from the eight sampling locations at mid-ebb and mid-flood between 1 Dec 08 and 23 Jan 09.

Ref: 0018105_Annex F_WQ Results Graphs.doc



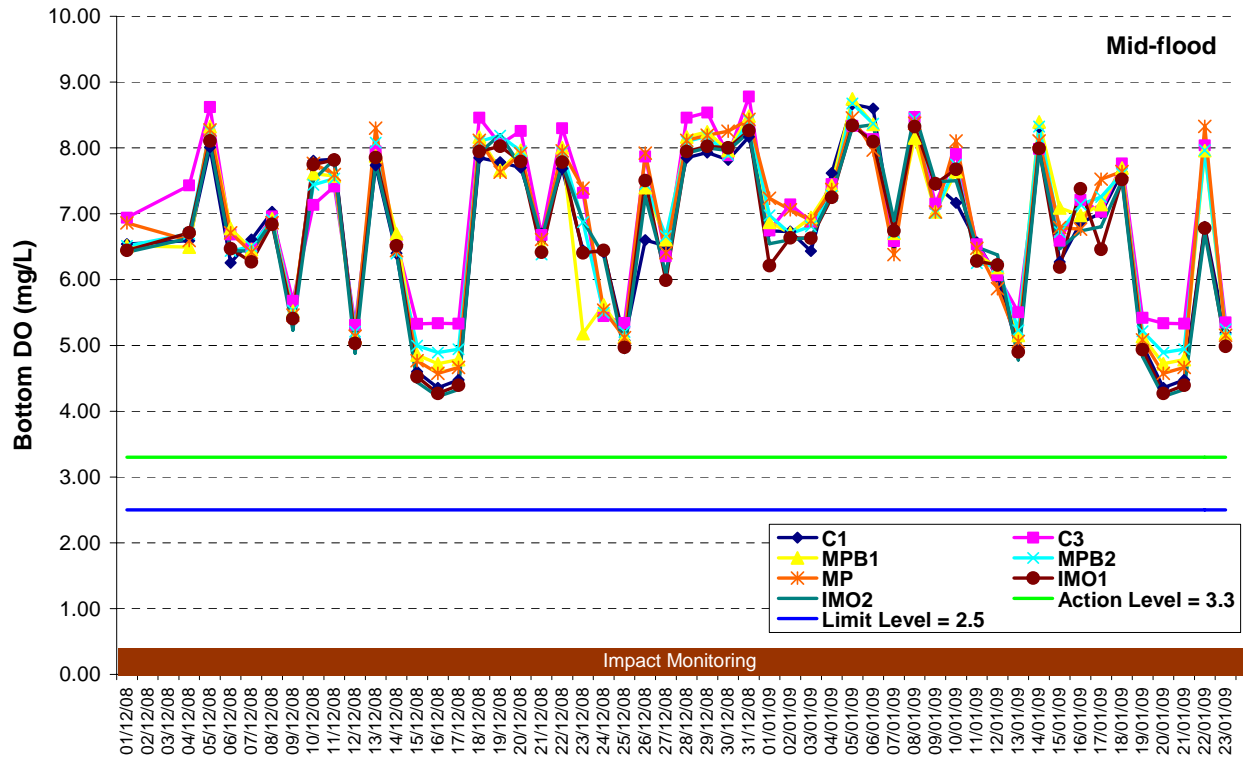
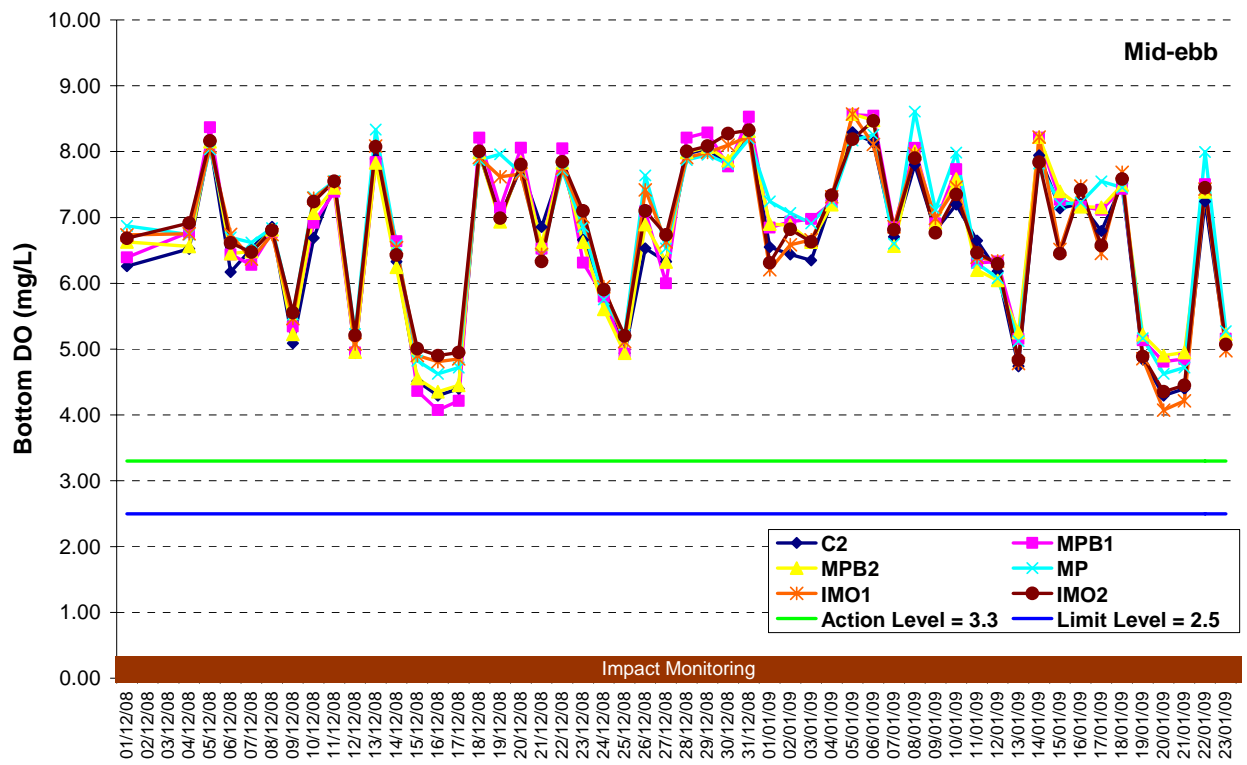


Figure F2 Dissolved oxygen concentration (bottom) (mg/L) of water samples from the eight sampling locations at mid-ebb and mid-flood between 1 Dec 08 and 23 Jan 09.



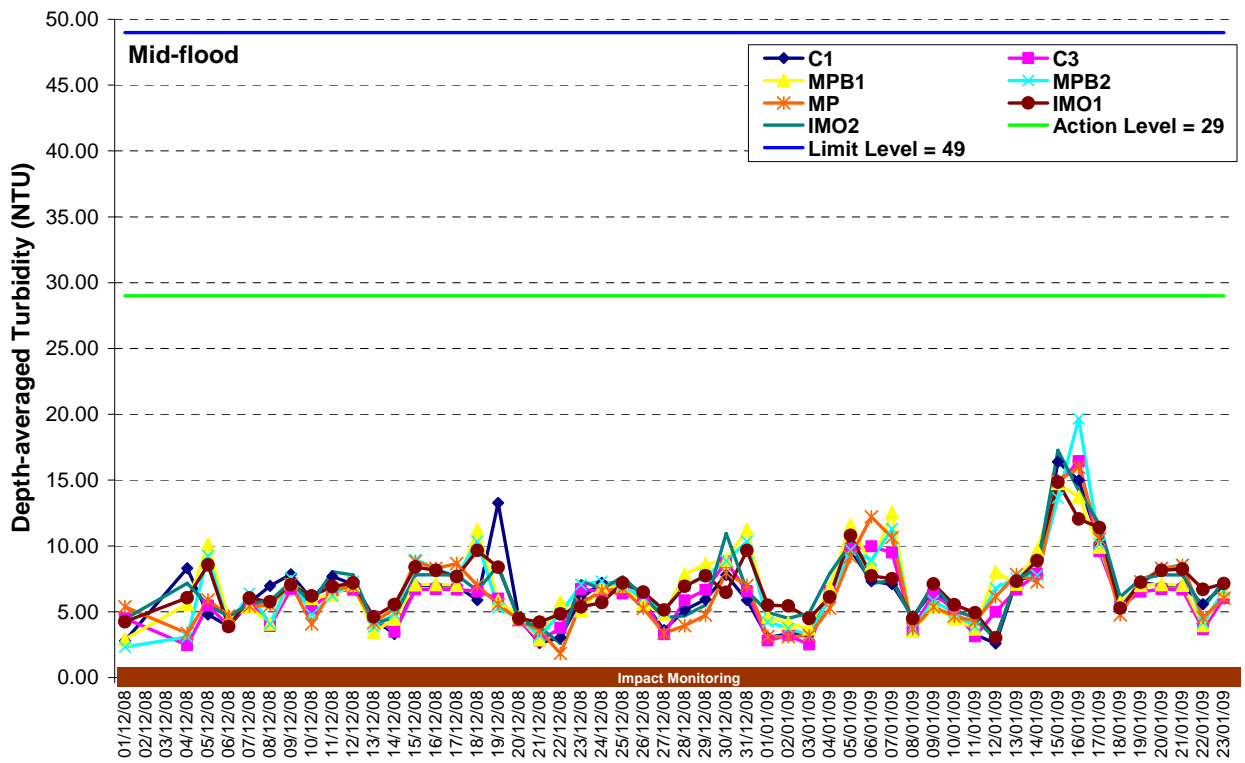
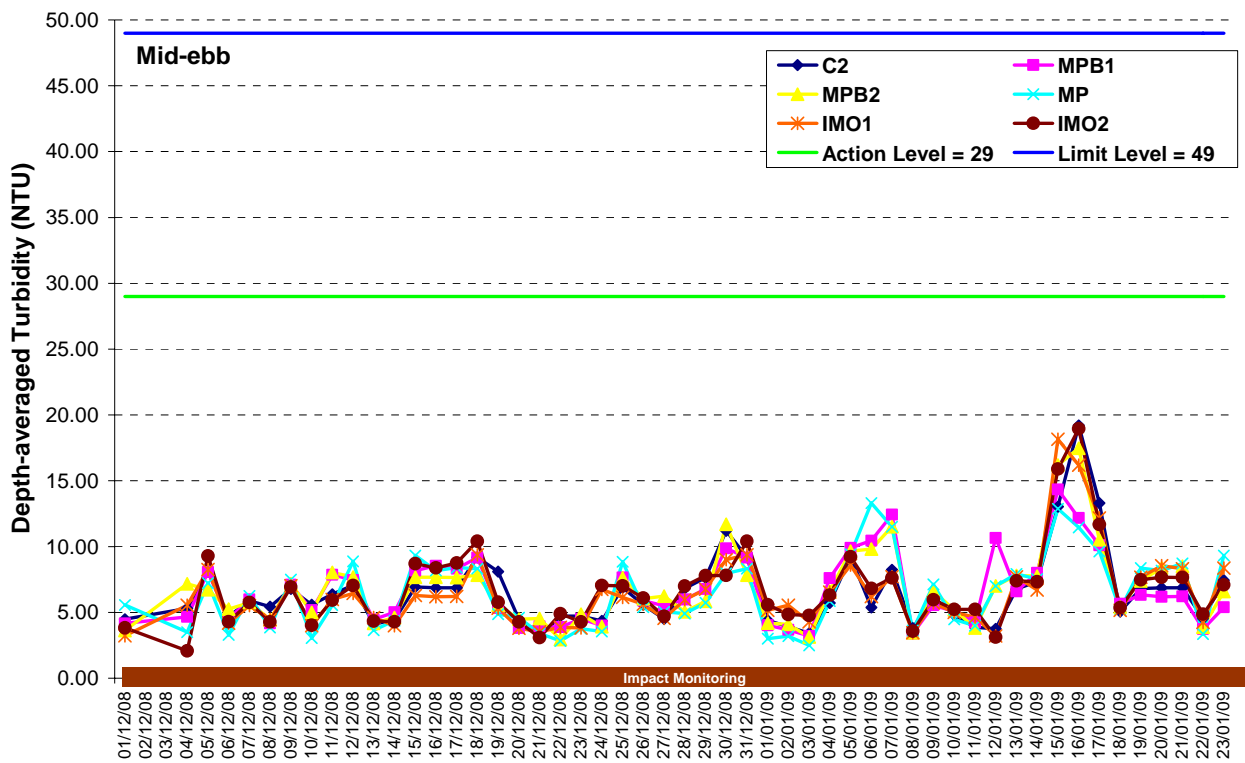


Figure F3 Depth-averaged turbidity (NTU) of water samples from the eight sampling locations at mid-ebb and mid-flood between 1 Dec 08 and 23 Jan 09.



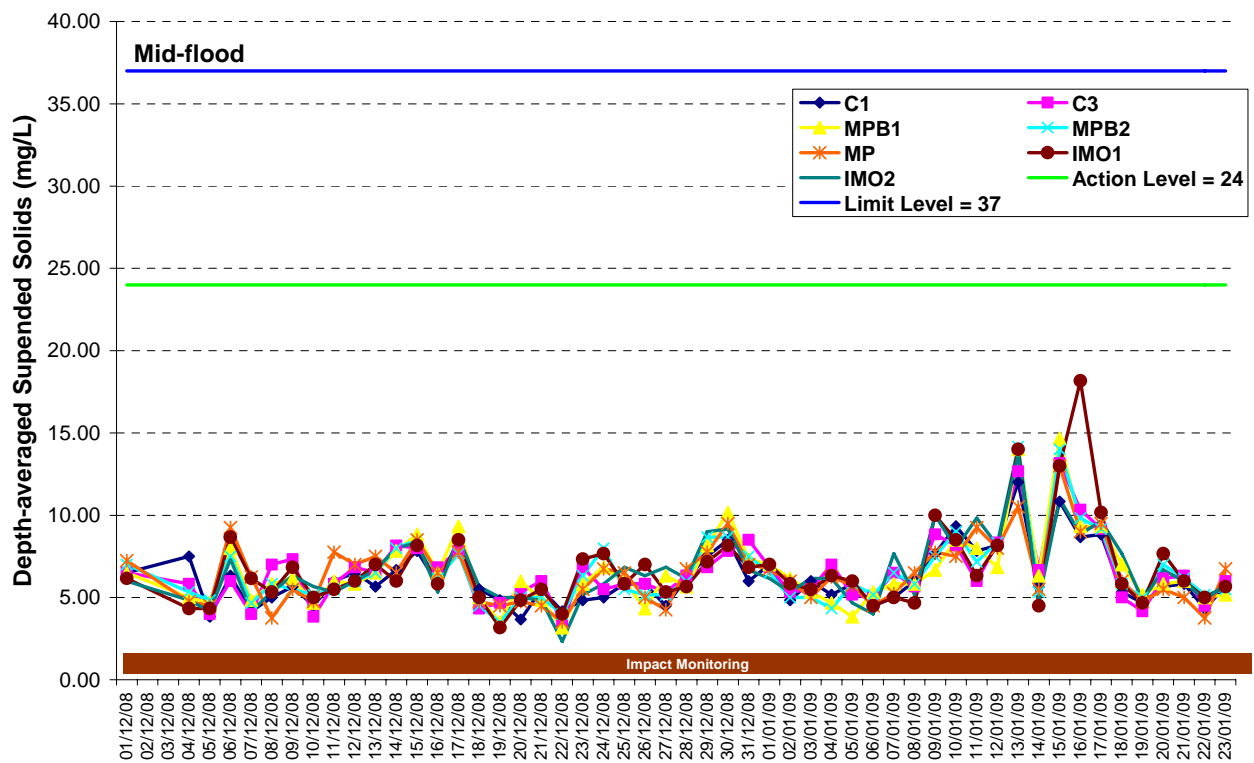
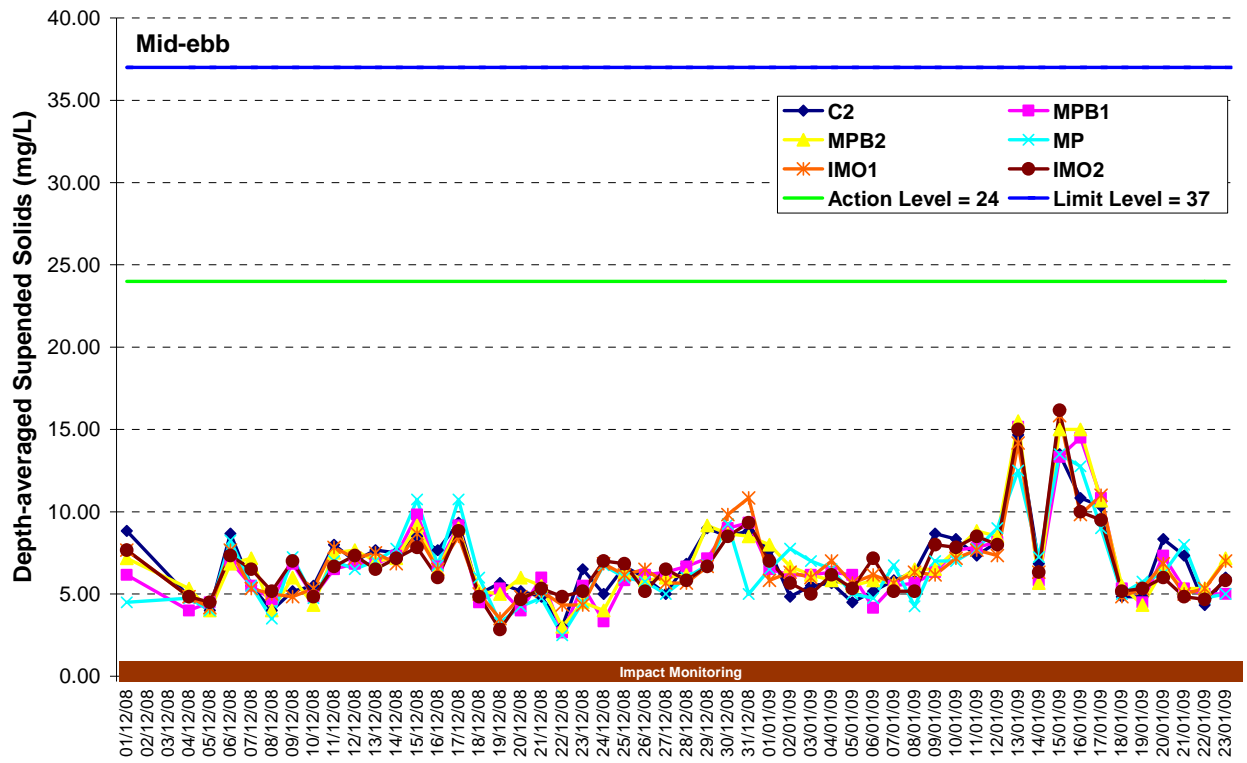


Figure F4 Depth-averaged suspended solids concentration (mg/L) of water samples from the eight sampling locations at mid-ebb and mid-flood between 1 Dec 08 and 23 Jan 09.



Annex G

Dolphin Sighting Records

Project name: EM&A for Permanent Aviation Fuel Facility (PAFF)

Activity: Dolphin Impact Monitoring - Field Log Sheet

*Remark: Record the number of dolphin occurrence within the 500m exclusion (A) prior to dredging and (B) during dredging

** Sighting recorded when there is no dredging

| Week | Date | | Dredger 1 | | Observers' Names | |
|------|------|--------|----------------------------|--------------|------------------|--|
| | | | No. of Dolphin Occurrence* | Sighting No. | | |
| 1 | Mon | 01-Sep | No Dredging | - | Richard Huang | |
| | Tue | 02-Sep | 15 | 1-7 | Anton Tsang | |
| | Wed | 03-Sep | 2 | 8 | Anton Tsang | |
| | Thu | 04-Sep | 2 | 9 | Richard Huang | |
| | Fri | 05-Sep | 1 | 10 | Anton Tsang | |
| | Sat | 06-Sep | No Dredging | | | |
| | Sun | 07-Sep | No Dredging | | | |
| 2 | Mon | 08-Sep | No Dredging | | Richard Huang | |
| | Tue | 09-Sep | 0 | - | Anton Tsang | |
| | Wed | 10-Sep | 0 | - | Anton Tsang | |
| | Thu | 11-Sep | 0 | - | Richard Huang | |
| | Fri | 12-Sep | 0 | - | Anton Tsang | |
| | Sat | 13-Sep | No Dredging | | | |
| | Sun | 14-Sep | No Dredging | | | |
| 3 | Mon | 15-Sep | No Dredging | | | |
| | Tue | 16-Sep | 0 | - | Richard Huang | |
| | Wed | 17-Sep | 0 | - | Anton Tsang | |
| | Thu | 18-Sep | 0 | - | Richard Huang | |
| | Fri | 19-Sep | 0 | - | Anton Tsang | |
| | Sat | 20-Sep | No Dredging | | | |
| | Sun | 21-Sep | No Dredging | | | |
| 4 | Mon | 22-Sep | No Dredging | - | Ivy So | |
| | Tue | 23-Sep | No Dredging | - | Anton Tsang | |
| | Wed | 24-Sep | Typhoon | | No Monitoring | |
| | Thu | 25-Sep | 0 | - | Richard Huang | |
| | Fri | 26-Sep | 0 | - | Ivy So | |
| | Sat | 27-Sep | No Dredging | | | |
| | Sun | 28-Sep | No Dredging | | | |

| | | | | | |
|---|-----|--------|-------------|-------|---------------|
| 5 | Mon | 29-Sep | 0 | - | Ivy So |
| | Tue | 30-Sep | 4 | 11 | Ivy So |
| | Wed | 01-Oct | 0 | - | Richard Huang |
| | Thu | 02-Oct | 0 | - | Ivy So |
| | Fri | 03-Oct | 0 | - | Ivy So |
| | Sat | 04-Oct | 0 | - | Ivy So |
| | Sun | 05-Oct | 0 | - | Richard Huang |
| 6 | Mon | 06-Oct | 0 | - | Ivy So |
| | Tue | 07-Oct | 0 | - | Richard Huang |
| | Wed | 08-Oct | 0 | - | Ivy So |
| | Thu | 09-Oct | 4 | 12-13 | Ivy So |
| | Fri | 10-Oct | 0 | - | Ivy So |
| | Sat | 11-Oct | 3 | 14 | Ivy So |
| | Sun | 12-Oct | 1 | 15 | Richard Huang |
| 7 | Mon | 13-Oct | 3 | 16 | Ivy So |
| | Tue | 14-Oct | 0 | - | Ivy So |
| | Wed | 15-Oct | No Dredging | - | Ivy So |
| | Thu | 16-Oct | 0 | - | Chung |
| | Fri | 17-Oct | 0 | - | Ivy So |
| | Sat | 18-Oct | 0 | - | Ivy So |
| | Sun | 19-Oct | 2 | 17 | Richard Huang |
| 8 | Mon | 20-Oct | 0 | - | Ivy So |
| | Tue | 21-Oct | 0 | - | Ivy So |
| | Wed | 22-Oct | 5 | 18-20 | Ivy So |
| | Thu | 23-Oct | 0 | - | Richard Huang |
| | Fri | 24-Oct | 0 | - | Ivy So |
| | Sat | 25-Oct | 0 | - | Ivy So |
| | Sun | 26-Oct | 0 | - | Richard Huang |

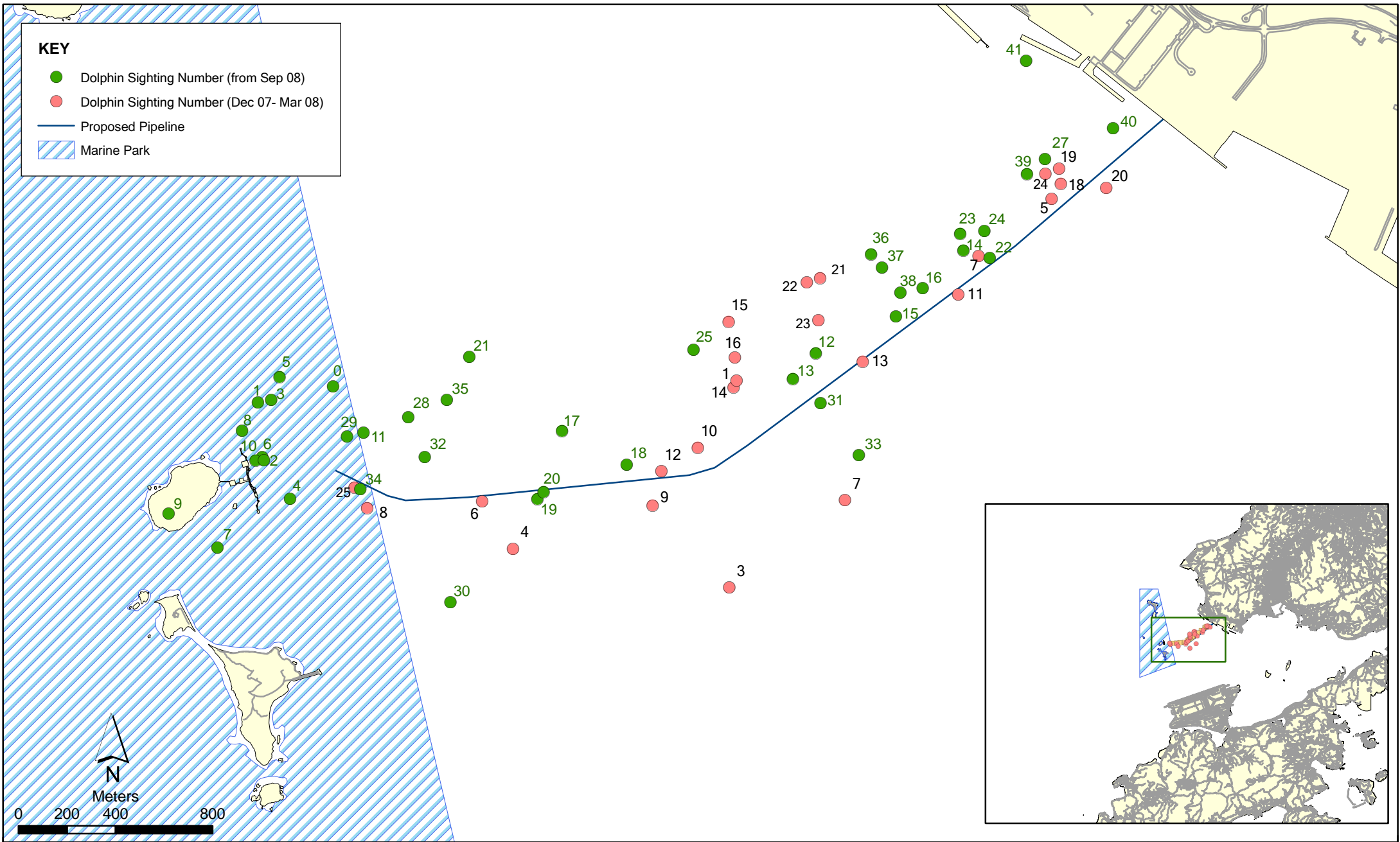
| | | | | | |
|----|-----|--------|-------------|-------|---------------|
| 9 | Mon | 27-Oct | No Dredging | - | No Monitoring |
| | Tue | 28-Oct | No Dredging | - | Ivy So |
| | Wed | 29-Oct | No Dredging | - | No Monitoring |
| | Thu | 30-Oct | No Dredging | - | No Monitoring |
| | Fri | 31-Oct | No Dredging | - | Ivy So |
| | Sat | 01-Nov | No Dredging | - | No Monitoring |
| | Sun | 02-Nov | No Dredging | - | No Monitoring |
| 10 | Mon | 03-Nov | No Dredging | - | No Monitoring |
| | Tue | 04-Nov | No Dredging | - | No Monitoring |
| | Wed | 05-Nov | No Dredging | - | Anton Tsang |
| | Thu | 06-Nov | 0 | - | Richard Huang |
| | Fri | 07-Nov | 1 | 21-22 | Anton Tsang |
| | Sat | 08-Nov | No Dredging | - | Ivy So |
| | Sun | 09-Nov | 0 | - | Richard Huang |
| 11 | Mon | 10-Nov | 1 | 23 | Anton Tsang |
| | Tue | 11-Nov | 1 | 24 | Anton Tsang |
| | Wed | 12-Nov | 0 | - | Anton Tsang |
| | Thu | 13-Nov | No Dredging | - | No Monitoring |
| | Fri | 14-Nov | No Dredging | - | No Monitoring |
| | Sat | 15-Nov | 0 | - | Ivy So |
| | Sun | 16-Nov | 1 | 25 | Richard Huang |
| 12 | Mon | 17-Nov | 0 | - | Anton Tsang |
| | Tue | 18-Nov | 0 | - | Anton Tsang |
| | Wed | 19-Nov | 0 | - | Anton Tsang |
| | Thu | 20-Nov | 0 | - | Richard Huang |
| | Fri | 21-Nov | 11 | 26 | Anton Tsang |
| | Sat | 22-Nov | 1 | 27 | Ivy So |
| | Sun | 23-Nov | 0 | - | Richard Huang |

| | | | | | |
|----|-----|--------|-------------|-------|---------------|
| 13 | Mon | 24-Nov | 4 | 28-29 | Anton Tsang |
| | Tue | 25-Nov | 0 | - | Anton Tsang |
| | Wed | 26-Nov | 0 | - | Anton Tsang |
| | Thu | 27-Nov | 0 | - | Richard Huang |
| | Fri | 28-Nov | 0 | - | Anton Tsang |
| | Sat | 29-Nov | 0 | - | Ivy So |
| | Sun | 30-Nov | 0 | - | Richard Huang |
| 14 | Mon | 01-Dec | 0 | - | Anton Tsang |
| | Tue | 02-Dec | No Dredging | - | No Monitoring |
| | Wed | 03-Dec | No Dredging | - | No Monitoring |
| | Thu | 04-Dec | 3 | 30 | Ivy So |
| | Fri | 05-Dec | 2 | 31 | Ivy So |
| | Sat | 06-Dec | 0 | - | Ivy So |
| | Sun | 07-Dec | 3 | 32 | Ivy So |
| 15 | Mon | 08-Dec | 2 | 33 | Anton Tsang |
| | Tue | 09-Dec | 0 | - | Anton Tsang |
| | Wed | 10-Dec | 0 | - | Richard Huang |
| | Thu | 11-Dec | 0 | - | Ivy So |
| | Fri | 12-Dec | 1 | 34 | Anton Tsang |
| | Sat | 13-Dec | 1 | 35 | Ivy So |
| | Sun | 14-Dec | 0 | - | Ivy So |
| 16 | Mon | 15-Dec | 2 | 36-37 | Ivy So |
| | Tue | 16-Dec | 0 | - | Anton Tsang |
| | Wed | 17-Dec | 1 | 38 | Richard Huang |
| | Thu | 18-Dec | 0 | - | Ivy So |
| | Fri | 19-Dec | 0 | - | Anton Tsang |
| | Sat | 20-Dec | 0 | - | Ivy So |
| | Sun | 21-Dec | 0 | - | Richard Huang |
| 17 | Mon | 22-Dec | 0 | - | Anton Tsang |
| | Tue | 23-Dec | 0 | - | Anton Tsang |
| | Wed | 24-Dec | 0 | - | Richard Huang |
| | Thu | 25-Dec | 0 | - | Ivy So |

| | | | | | |
|---|-----|--------|---|----|---------------|
| | Fri | 26-Dec | 0 | - | Ivy So |
| | Sat | 27-Dec | 0 | - | Ivy So |
| | Sun | 28-Dec | 0 | - | Richard Huang |
| 18 | Mon | 29-Dec | 0 | - | Anton Tsang |
| | Tue | 30-Dec | 0 | - | Anton Tsang |
| | Wed | 31-Dec | 0 | - | Richard Huang |
| | Thu | 01-Jan | 1 | 39 | Richard Huang |
| | Fri | 02-Jan | 0 | - | Anton Tsang |
| | Sat | 03-Jan | 0 | - | Richard Huang |
| | Sun | 04-Jan | 0 | - | Richard Huang |
| 19 | Mon | 05-Jan | 0 | - | Anton Tsang |
| | Tue | 06-Jan | 0 | - | Anton Tsang |
| | Wed | 07-Jan | 0 | - | Richard Huang |
| | Thu | 08-Jan | 0 | - | Ivy So |
| | Fri | 09-Jan | 0 | - | Ivy So |
| | Sat | 10-Jan | 0 | - | Richard Huang |
| | Sun | 11-Jan | 0 | - | Richard Huang |
| 20 | Mon | 12-Jan | 0 | - | Ivy So |
| | Tue | 13-Jan | 0 | - | Ivy So |
| | Wed | 14-Jan | 1 | 40 | Richard Huang |
| | Thu | 15-Jan | 2 | 41 | Anton Tsang |
| | Fri | 16-Jan | 0 | - | Anton Tsang |
| | Sat | 17-Jan | 0 | - | Richard Huang |
| | Sun | 18-Jan | 0 | - | Richard Huang |
| 21 | Mon | 19-Jan | 0 | - | Anton Tsang |
| | Tue | 20-Jan | 0 | - | Richard Huang |
| | Wed | 21-Jan | 0 | - | Richard Huang |
| | Thu | 22-Jan | 0 | - | Anton Tsang |
| | Fri | 23-Jan | 0 | - | Anton Tsang |
| * Dolphin monitoring was not conducted from 24 Jan to 31 Jan 09 since there was no dredging operation | | | | | |

KEY

- Dolphin Sighting Number (from Sep 08)
- Dolphin Sighting Number (Dec 07- Mar 08)
- Proposed Pipeline
- ▨ Marine Park



Dolphin Sighting Locations (as of 31 January 2009)

Permanent Aviation Fuel Facility (PAFF) - Dolphin Sighting Records

| Sighting No. | Date | Time | Chainage | Dredger Coordinates (N-Lat) | Dredger Coordinates (E-Long) | Sighting Distance (m) | #Sighting Angle from Dredging Machine (o) | Group size | Group Composition* | Beaufort | Boat Association | Behaviour | Other comments |
|---|------------|-------|----------|-----------------------------|------------------------------|-----------------------|---|------------|--------------------|----------|------------------|--|--------------------|
| 1 | 2/9/2008 | 1000 | 4315 | 823838.545 | 806678.150 | 275 | 320 | 4 | 2UA, 1 SA, 1 SJ | 1 | None | Feeding, Travelling | Before Dredging |
| | | | 4321 | 823840.556 | 806672.460 | | | | | | | | |
| 2 | 2/9/2008 | 1024 | 4315 | 823838.545 | 806678.150 | 80 | 5 | 2 | 2UA | 1 | None | Breaching, Spy-hopping | Before Dredging |
| | | | 4321 | 823840.556 | 806672.460 | | | | | | | | |
| 3 | 2/9/2008 | 1035 | 4315 | 823838.545 | 806678.150 | 300 | 330 | 2 | 1UA, 1SA | 1 | None | Travelling | Before Dredging |
| | | | 4321 | 823840.556 | 806672.460 | | | | | | | | |
| 4 | 2/9/2008 | 1045 | 4315 | 823838.545 | 806678.150 | 220 | 75 | 3 | 1UA, 1SA, 1UJ | 1 | None | Travelling | Before Dredging |
| | | | 4321 | 823840.556 | 806672.460 | | | | | | | | |
| 5 | 2/9/2008 | 1108 | 4315 | 823838.546 | 806678.151 | 400 | 330 | 1 | 1SA | 1 | None | Travelling | Before Dredging |
| | | | 4321 | 823840.557 | 806672.461 | | | | | | | | |
| 6 | 2/9/2008 | 1411 | 4315 | 823838.547 | 806678.152 | 50 | 0 | 1 | 1UA | 2 | None | Travelling | During Dredging |
| | | | 4321 | 823840.558 | 806672.462 | | | | | | | | |
| 7 | 2/9/2008 | 1530 | 4315 | 823838.548 | 806678.153 | 350 | 150 | 2 | 2UA | 2 | None | Travelling | During Dredging |
| | | | 4321 | 823840.559 | 806672.463 | | | | | | | | |
| 8 | 3/9/2008 | 1535 | 4306 | 823841.180 | 806687.338 | 155 | 300 | 2 | 2UA | 1 | None | Travelling | During Dredging |
| | | | 4300 | 823842.903 | 806693.345 | | | | | | | | |
| 9 | 4/9/2008 | 1336 | 4306 | 823841.181 | 806687.339 | 380 | 190 | 2 | 2UA | 2 | None | Travelling | During Dredging |
| | | | 4300 | 823842.904 | 806693.346 | | | | | | | | |
| 10 | 5/9/2008 | 1711 | 4315 | 823838.546 | 806678.151 | 80 | 15 | 1 | 1UA | 2 | None | Travelling | Dredging Stopped |
| | | | 4321 | 823840.557 | 806672.461 | | | | | | | | |
| 11 | 30/9/2008 | 1050 | 3925 | 823794.421 | 807000.841 | 250 | 350 | 4 | 4UA | 2 | None | Travelling | Before Dredging |
| | | | 4015 | 823867.660 | 806948.534 | | | | | | | | |
| 12 | 9/10/2008 | 1001 | 1900 | 824212.899 | 808853.818 | 200 | 10 | 3 | 3UA | 2 | None | Travelling | During Dredging |
| | | | 1925 | 824198.037 | 808833.716 | | | | | | | | |
| 13 | 9/10/2008 | 1427 | 1925 | 824198.037 | 808833.716 | 100 | 35 | 1 | 1UA | 3 | None | Travelling | Before Dredging |
| | | | 1970 | 824171.284 | 808797.532 | | | | | | | | |
| 14 | 11/10/2008 | 0839 | 1175 | 824643.917 | 809436.783 | 220 | 15 | 3 | 3 UA | 2 | None | Travelling | Before Dredging |
| | | | 1160 | 824652.835 | 809448.845 | | | | | | | | |
| 15 | 12/10/2008 | 0839 | 1125 | 824673.643 | 809476.988 | 240 | 160 | 1 | 1UA | 2 | None | Travelling | During Dredging |
| | | | 1170 | 824646.890 | 809440.804 | | | | | | | | |
| 16 | 13/10/2008 | 0818 | 1030 | 824730.121 | 809553.376 | 170 | 160 | 3 | 1SS, 1 SA, 1 UA | 2 | None | Breaching, Feeding | Before Dredging |
| | | | 1025 | 824733.094 | 809557.397 | | | | | | | | |
| 17 | 19/10/2008 | 11:04 | 2730 | 823785.196 | 808154.203 | 270 | 270 | 2 | 2UA | 2 | None | Travelling | Dredger was moving |
| | | | 2680 | 823792.332 | 808203.670 | | | | | | | | |
| 18 | 22/10/2008 | 1420 | 3180 | 823757.391 | 807705.065 | 550 | 30 | 3 | 3 UA | 2 | None | Travelling | During Dredging |
| | | | 3220 | 823754.942 | 807665.140 | | | | | | | | |
| 19 | 22/10/2008 | 1528 | 3180 | 823757.392 | 807705.066 | 180 | 55 | 2 | 2 UA | 2 | None | Travelling | During Dredging |
| | | | 3220 | 823754.943 | 807665.141 | | | | | | | | |
| 20 | 22/10/2008 | 1625 | 3180 | 823757.393 | 807705.067 | 200 | 45 | 3 | 3UA | 2 | Hang | Feeding | Dredging Stopped |
| | | | 3220 | 823754.944 | 807665.142 | | | | | | | | |
| 21 | 7/11/2008 | 1210 | 3690 | 82376.168 | 807196.022 | 700 | 345 | 5 | 3UA, 2SA | 2 | Hang | Travelling, Feeding | Dredging Stopped |
| | | | 3760 | 823721.882 | 807126.153 | | | | | | | | |
| 22 | 7/11/2008 | 1618 | 1040 | 824724.176 | 809545.335 | 200 | 45 | 1 | 1UA | 1 | None | Travelling | During Dredging |
| | | | 1015 | 824739.039 | 809565.468 | | | | | | | | |
| 23 | 10/11/2008 | 1249 | 930 | 824789.572 | 809633.785 | 20 | 275 | 1 | 1UA | 3 | None | Travelling | Dredging Stopped |
| | | | 905 | 824804.435 | 809653.888 | | | | | | | | |
| 24 | 11/11/2008 | 1605 | 840 | 824843.078 | 809706.153 | 30 | 97 | 1 | 1UA | 3 | None | Travelling | During Dredging |
| | | | 820 | 824854.968 | 809722.235 | | | | | | | | |
| 25 | 16/11/2008 | 0843 | 2080 | 824105.888 | 808709.082 | 290 | 270 | 1 | 1UA | 2 | None | Travelling | During Dredging |
| | | | | | | | | | | | | | |
| 26a* | 21/11/2008 | 1430 | 4074 | 823904.923 | 806909.628 | 50 | 70 | 5 | 2UA, 2SS, 1UJ | 2 | None | Travelling, Breaching, Porpoising, Feeding | During Dredging |
| | | | 4059 | 823904.280 | 806922.380 | | | | | | | | |
| 26b* | 21/11/2008 | 1430 | 4074 | 823904.923 | 806909.628 | 300 | 335 | 6 | 2UA, 2SA, 1SJ, 1UC | 2 | None | Travelling, Breaching, Feeding | During Dredging |
| | | | 4059 | 823904.280 | 806922.380 | | | | | | | | |
| * = Sighting no 26a & 26b the 2 groups very soon joined together to form one large group, thus a total of 11 dolphins | | | | | | | | | | | | | |
| 27 | 22/11/2008 | 1558 | 545 | 825018.457 | 809946.360 | 100 | 325 | 1 | 1UA | 3 | None | Travelling | During Dredging |
| | | | 490 | 825051.155 | 809987.585 | | | | | | | | |
| 28 | 24/11/2008 | 1220 | 3770 | 823721.270 | 807116.172 | 400 | 345 | 1 | 1UA | 4 | None | Travelling | Dredging Stopped |
| | | | 4030 | 823879.867 | 806939.816 | | | | | | | | |
| 29 | 24/11/2008 | 1233 | 3770 | 823721.270 | 807116.172 | 250 | 305 | 3 | 2UA, 1SS | 4 | None | ong the side of dredging machine and the nearest | Dredging Stopped |

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