

Permanent Aviation Fuel Facility (EP-139/2002/A)

Second Quarterly Environmental Monitoring and Audit Report – June 2006

7th June 2006

Environmental Resources Management

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For and on behalf of Environmental Resources Management	
Approved by:	Freeman Cheung
Signed:	
Position:	Environmental Team Leader
Date:	7 th June 2006

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EXECUTIVE SUMMARY

This second quarterly Environmental Monitoring and Audit (EM&A) report presents the EM&A works carried out during the period from 15th February 2005 to 14th May 2006 in accordance with the EM&A Manual.

Dolphin Visual Monitoring was conducted during the piling activities until the 29th March 2006 when the piling activities were completed. No dolphins were found entering the 500m exclusion zone during piling activities over the reporting period.

Weekly site inspections were conducted during the reporting period and no non-compliance was found. Recommendations have been made to the contractor for observations on the environmental deficiencies on site.

No breaches of action/limit levels was occurred and no environmental summon or prosecution was received in this reporting period.

Air and noise monitoring are not required for the Project. No water quality monitoring was conducted as no dredging work was implemented.

1 PROJECT INFORMATION

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.

1.1 PROJECT AREA

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

1.2 ENVIRONMENTAL SENSITIVE RECEIVERS

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

1.3 PROJECT ORGANISATION

The project organization chart and contact details are shown in *Annex C*.

1.4 CONSTRUCTION PROGRAMME

The work programme for the Project is presented in *Annex D*. A summary of the major construction activities undertaken in this reporting period is shown in *Table 2.1*.

Table 2.1 Summary of Works Undertaken from 15 February 2006 and 14 May 2006

Area	Works Undertaken
Tuen Mun Area 38	Marine Piling Works (ended on 29 Mar 06) Piles Internal Works Site Preparation Works Surcharges & Fuel Tanks Construction Workshop and Operational Building Construction Trees Transplantation, Landscaping Bund and Hydroseeding Site & Permanent Drainage Construction

1.5

STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS AND REPORTS SUBMISSION

A summary of the relevant permits, licences, notifications and reports submitted for this Project as of 14th May 2006 is presented in *Annex E*.

2 SUMMARY OF EM&A REQUIREMENTS

2.1 AIR QUALITY AND NOISE

Air and noise monitoring are not required for this Project.

2.2 WASTE MANAGEMENT

Auditing the contractor's Waste Management Plan (WMP) is part of the EM&A requirements. The revised WMP (Rev 2) was submitted to EPD on the 13th May 2006. The WMP provided details on the waste management issues associated with the construction phase of the project, and included recommendations on the procedures for handling of C&D materials, excavated materials, chemical waste and general refuse.

2.2.1 *Solid and Liquid Waste Management Status*

Solid Waste

Major solid wastes generated on site during the reporting period were C&D materials (mainly sand for surcharges) and general refuses. The Contractor indicated that the C&D materials would be reused on site. Bins and recycling facilities were provided on site for general refuse and the C&D wastes were disposed at WENT. Trip tickets were available for inspection.

During site inspections in March and April 2006, some rubbish e.g. empty lunch boxes was found near the pier on site. The Contractor was advised to remove the rubbish regularly and to inform the staff that rubbish should be placed in the refuse bins provided. Extra bins should be provided on site if considered necessary. No rubbish was found during May's site inspections.

Liquid Waste

The main type of liquid waste was wasted oil (lubricant oil). Two chemical waste stores were provided on site. The stores were enclosed with 3 sides and a roof top, and labelled. Curtains were provided to cover up the front side of the stores to avoid direct sunlight and rain getting inside the stores. Drip trays were provided for the chemical waste containers and overall, the containers were labelled properly.

During site inspections, some chemical waste containers were found without labels. Water was found accumulated in the drip trays of the chemical stores during and after rainy days. The Contractor was reminded to label all chemical waste containers properly, and to remove all water in the drip trays. If the water in the drip tray appeared contaminated, such should be treated as chemical waste.

Chemical waste was produced during the reporting period, the chemical waste drums were collected in April 2006. Trip ticket was inspected.

2.3 *WATER QUALITY*

Water quality monitoring will be evaluated against Action and Limit Levels which are presented in *Annex F*. Water quality monitoring is only required during the dredging phase of the project and the monitoring locations are presented in *Annex A*. Since no dredging activity has been conducted during the reporting period, water quality monitoring was not required.

The Contractor applied for a wastewater discharge licence (industrial trade effluent) on 23 January 06 and the licence was issued on 15 March 2006. The licence required the Contractor to conduct grab sampling at the discharge point(s) quarterly on suspended solids (SS). The discharge limit for SS is 30 mg/L. The licence also set out the limitations for Flow rate (maximum 30 m³/day) pH (between 6 and 9) and Chemical Oxygen Demand (80 mg/L).

The capacity of the sedimentation tank and site drainage system was found inadequate for treating the wastewater (mainly SS) generated on site after heavy rainstorm, during the site inspection on the 27th April 2006. The Contractor was reminded not to discharge any wastewater with high content of SS, and recommended the Contractor to re-construct the site drainage and wastewater treatment system with larger capacity.

A new site drainage and wastewater treatment system was built at the beginning of May 2006, with a much higher capacity than the previous system.

2.4 *ECOLOGY*

Visual dolphin monitoring for the 500m exclusion zone was conducted during the piling works. The action plan for dolphin pre/post-construction phase monitoring is presented in *Annex F*. Bubble jackets were used surrounding the pile and barge to reduce the noise impact generated from the marine piling activities.

Visual dolphin monitoring was completed on the 29 March 2006 as the piling activities were completed. No dolphin entered the exclusion zone during piling activities.

2.5 *CULTURAL HERITAGE*

The watching brief (dive investigation) for marine archaeology is only required during the dredging phase of the pipe trench. Since no dredging activity has been conducted during the reporting period, dive investigation was not required.

2.6 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 Contractor submitted the final version of Landscaping Plan dated 12th May 2006, the Plan will be reviewed by the ET and IEC.

During the reporting period, tree transplantations were conducted at the site boundary areas and landscaping bunds were also conducted. Hydroseeding was also applied to the landscaping bunds and the large stockpile during the reporting period. Our weekly inspection included audits on landscape and visual issues to ensure that the site was in orderly acceptable manner. The action plans for design and operational phases are presented in *Annex F*.

2.7 LAND CONTAMINATION, HAZARD TO LIFE AND FUEL SPILL RISK

According to the EIA report and EM&A Manual, mitigation measures and design phase audit are required to minimise the risk of fuel spill and hazards. The Contractor submitted the Environmental Design Audit for Tank Farm and Fuel Pipelines dated 24th April 2006, the design audits will be reviewed by the ET and IEC. In addition, weekly site inspection also covered the waste management aspects which included measures to prevent land contamination by chemical wastes.

2.8 ENVIRONMENTAL SITE AUDITING

Weekly site inspections were conducted during the construction phase of the project covering the aspects of air and noise, water quality, waste management and landscape & visual. Overall the site was in good orderly manner and no non-compliance was found. *Table 2.2* summarised the environmental deficiencies found on site during the reporting period.

Table 2.2 Environmental Deficiencies (Observations) from the Site Inspections during the Reporting Period

Reporting Month	Observation	Follow-up Action
March 2006	Some exposed earth was not covered.	The exposed earth was removed.
March 2006	Water was accumulated near the site hoarding and fence boundary.	Water was removed.
March 2006	Rubbish (empty lunch boxes) was found scattered in the site.	Rubbish was disposed in the bins provided.
April 2006	Two large stockpiles were not covered.	Covers were provided for the large stockpiles.
April 2006	Water was accumulated near the site hoarding and fence boundary.	Water was removed.

Reporting Month	Observation	Follow-up Action
April 2006	A hole filled with stagnant water was found next to the installed sedimentation tank near the site entrance.	The Contractor indicated that the hole was originally for the sedimentation purpose. Mosquito oil was spread to the stagnant water.
April 2006	Rubbish (empty lunch boxes, bottles and cans) was found scattered in the areas near seawall and pier.	The site workers were reminded to dispose rubbish properly and rubbish was removed.
April 2006	A small emptied engine oil container was found dumping on the site near the site boundary.	The container was removed.
April 2006	Chemical waste drums were found without labels.	Labels were provided for the drums.
April 2006	Water was found accumulated in the drip tray in the chemical waste stores.	Water was removed. Contaminated mixture was treated as chemical waste.
May 2006	Dust emission was observed during loading activities and vehicle movement within the site.	Dust emission activities were sprayed with water and water tanker was used more regularly on site. Hydroseeding was also applied to the large stockpiles.
May 2006	The capacity of the original site drainage and wastewater treatment system was found inadequate after a heavy rainstorm.	A new wastewater treatment system was constructed/installed.
May 2006	Water was accumulated throughout the sites after rainstorm.	Water was removed.
May 2006	Chemical waste drums were found without labels.	Labels were provided for the drums.
May 2006	Water was found accumulated in the drip tray in the chemical waste stores.	Water was removed. Contaminated mixture was treated as chemical waste.
May 2006	Chemical waste was found in a non-sealed container on top of a chemical waste drum in the chemical waste store next to the site office.	The chemical waste was removed and stored in the chemical waste drum.

2.9

IMPACT PREDICTION REVIEW

The construction impacts predicted in the EIA and the monthly reports were similar with the actual impacts occurred in the reporting period. The results from the underwater noise monitoring complied with the EP conditions. As water quality monitoring was not conducted during the reporting period due to no dredging work, it is unable to conduct prediction review on the water quality.

Future Key Issues in the Next Quarter

- Noise from operating machinery and equipment;
- Dust release and suppression;
- Wastewater discharge within construction site.

IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

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 G*.

4 ENVIRONMENTAL NON-CONFORMANCE

4.1 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE AND EXCEEDANCE

No environmental non-compliance or exceedance was found during the reporting period.

4.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No environmental complaint was received during the reporting period.

4.3 SUMMARY OF ENVIRONMENTAL SUMMONS

No summons was received in this reporting period.

The EM&A works were conducted throughout the construction period and the relevant monitoring were conducted in accordance with the EP's requirements. Mitigation measures were used to minimise the environmental impacts on site including those on the piling barge. Some environmental deficiencies were observed during site inspections and the Contractor provided mitigation measures to solve the issues. Overall, the site was in an orderly manner.






Recommendations to the environmental deficiencies found on site during site inspections included:

- To cover up dusty stockpiles and locate them away from the windy locations as possible
- To label all chemical waste containers and store them in enclosed cabin with good ventilation
- To clear the stagnant water on site or fill the ponds with sand
- To provide more effective site drainage and wastewater treatment systems to treat the wastewater on site before discharge

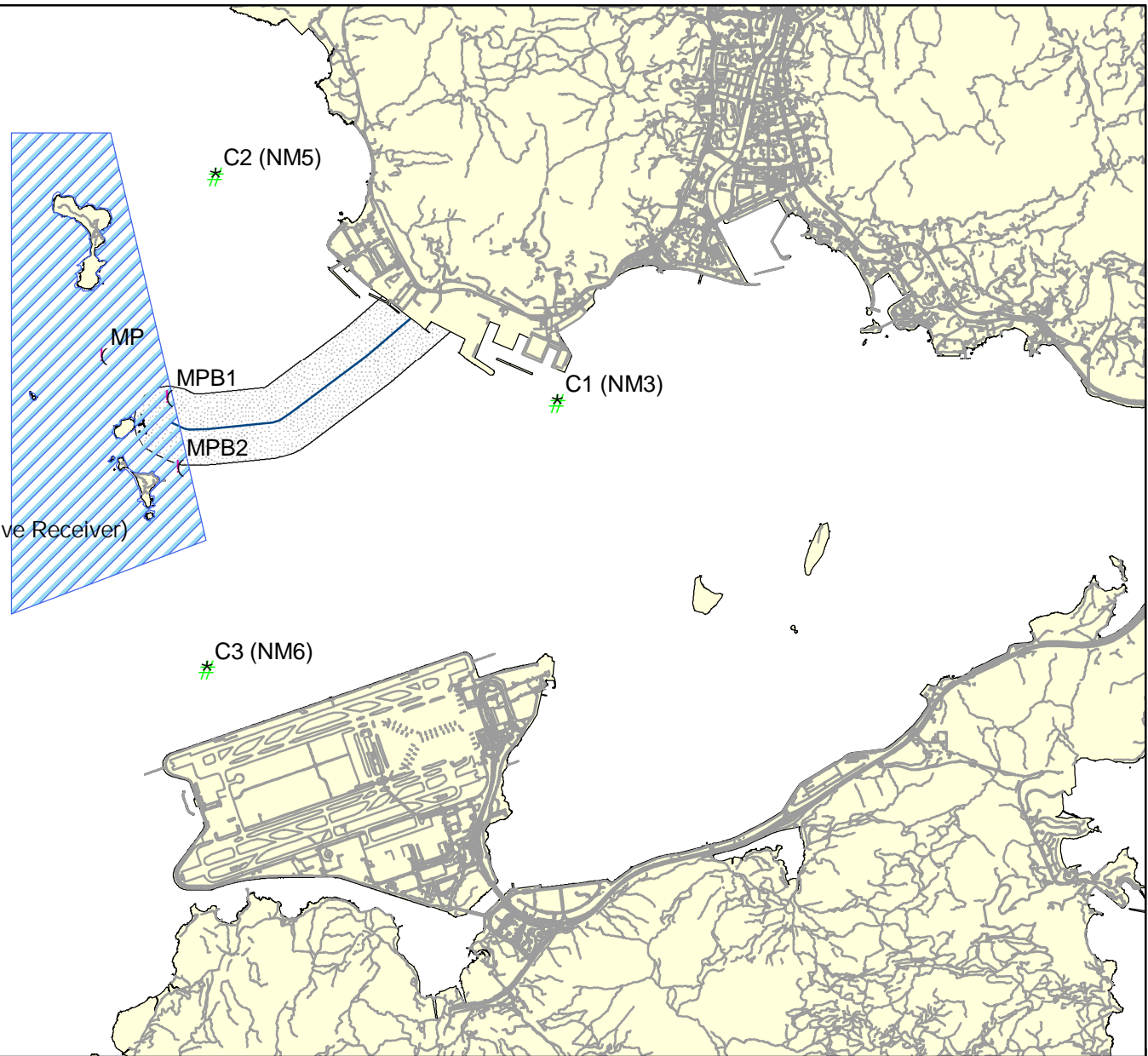
Annex A

**Water Quality Monitoring
Locations, Water Quality
and Ecological Sensitive
Receivers**

KEY

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

Marine Park
(Water Sensitive Receiver)



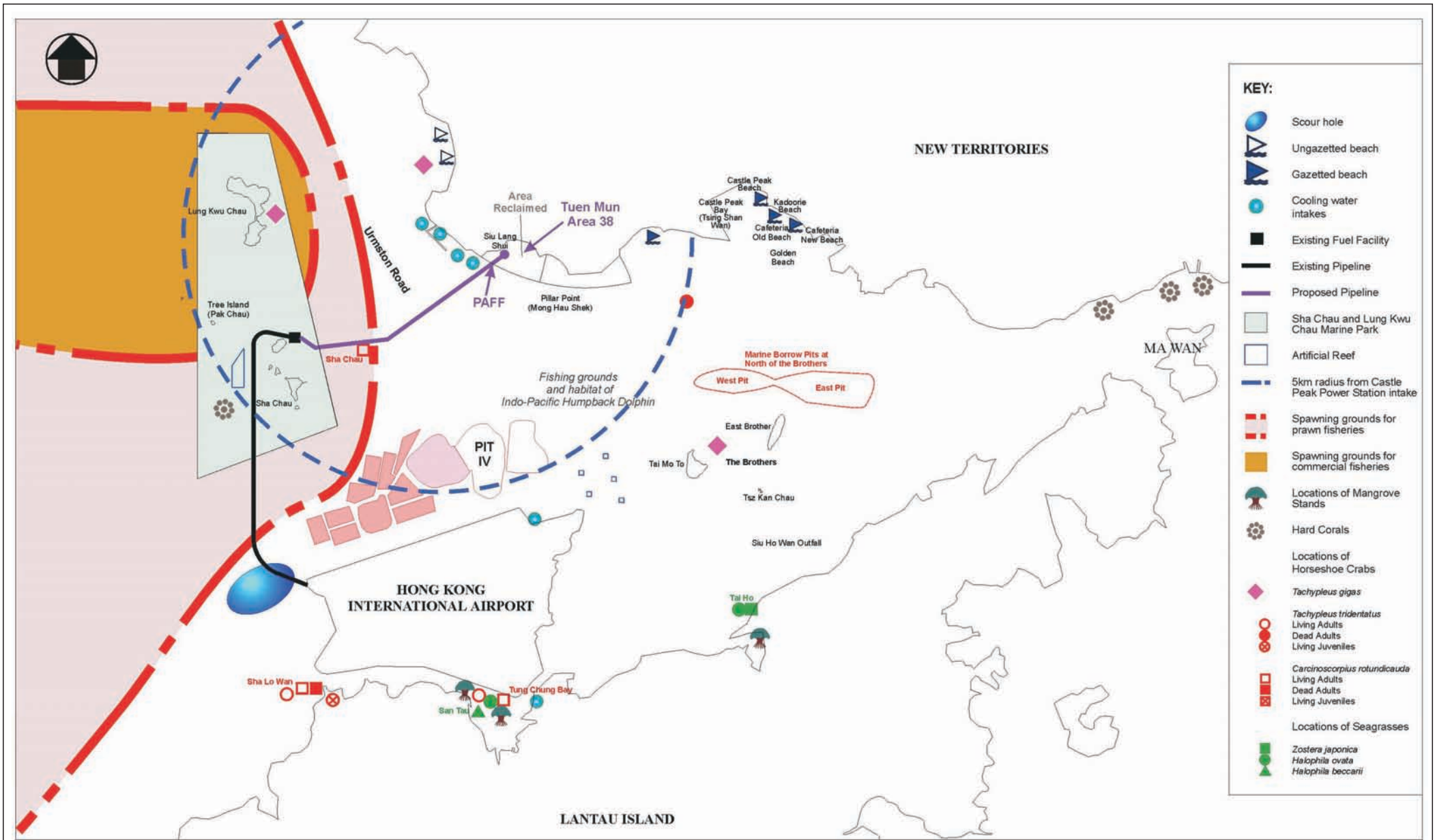
Annex A

Water Quality Monitoring Locations

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

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Annex A

Water Quality and Ecological Sensitive Receivers

FILE: C2475aa
DATE: 25/01/2006

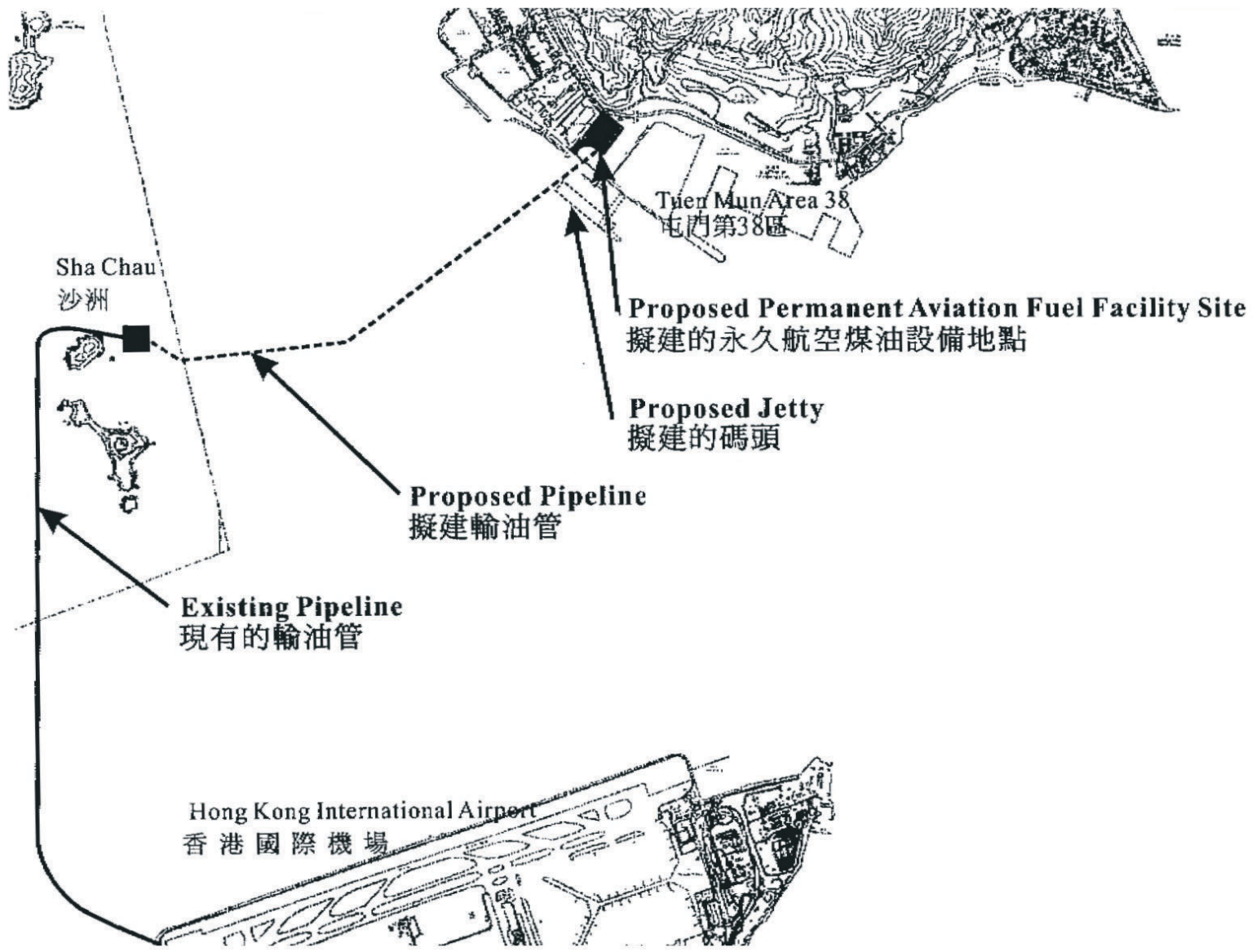
(Source : PAFF for Hong Kong International Airport EIA, Mouchel 2002)

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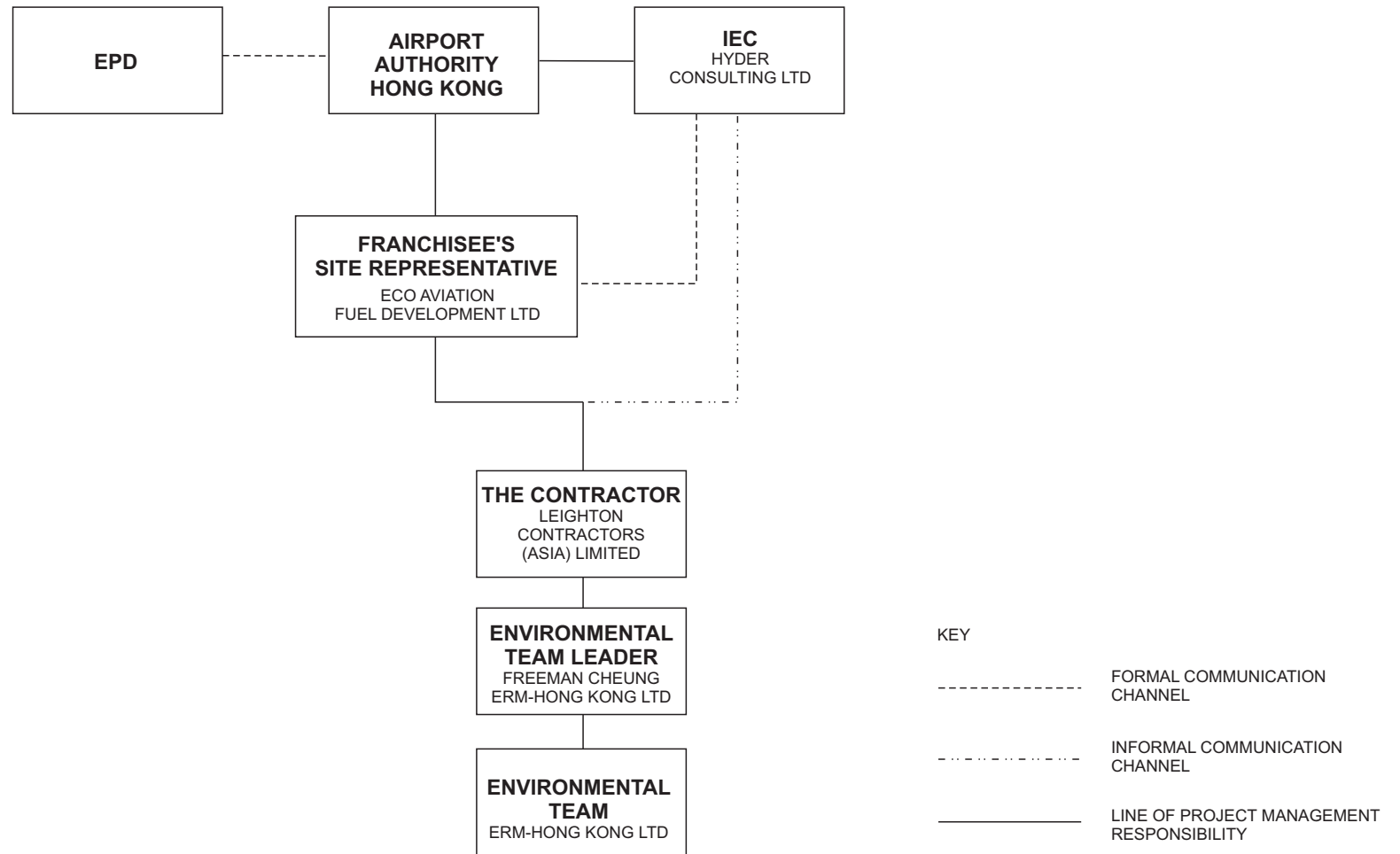
Annex B

Project Location



Annex C

Organisation Chart



PERMANENT AVIATION FUEL FACILITY

Project Organisation - Contact Details

Role	Contact Person	Organization	Telephone	Facsimile	E-mail
Contractor (Project Director)	Brian Gillon	Leighton Contractors (Asia) Limited	2403 0900	2404 0081	brian.gillon@leighton asia.com
Contractor (Project Environmental Coordinator)	David Holden	Leighton Contractors (Asia) Limited	2404 8900	2404 0081	david.holden@leight onasia.com
Contractor (Sub Agent – Environmental)	Eric Luk	Leighton Contractors (Asia) Limited	2403 0992	2404 0081	eric.luk@leightonasia .com
Environmental Team (Team Leader)	Freeman Cheung	ERM-HK Ltd	2271 3104	2723 5660	freeman.cheung@erm .com
Environmental Team (Project Manager)	Craig Reid	ERM-HK Ltd	2271 3179	2723 5660	craig.reid@erm.com
Environmental Team (Team Member)	Jor Fan	ERM-HK Ltd	2271 3186	2723 5660	jor.fan@erm.com
IEC	Gui-yi Li	Hyder Consulting Ltd	2911 2731	2805 5028	gui- yi.li@hyderconsulting .com
IEC	Sharifah Or	Hyder Consulting Ltd	2911 2730	2805 5028	sharifah.or@hydercon sulting.com
Franchisee's Site Representative	Philip Siu	ECO Aviation Fuel Development Ltd	2963 2820	2563 6311	Philip.siu@towngas.c om
Airport Authority	Martin Putnam	Airport Authority HK	2183 6645	2183 3186	PUTNAMM@hkairp ort.com
EPD	Matthew Chan	EPD	2835 2163	2591 0558	matthewchan@epd.go v.hk

Annex D

Works Programme

Data Date 25OCT05
Run Date 15DEC05 12:31

H-2104 BASE LINE PROGRAM - REVISION "I" WP: CONSTRUCTION PROGRAM

Current Schedule: BLRI
Target 1: None
Target 2: None

Act. ID	Activity Description	Orig Dur	ES	EF	TF	2005												2006												2007												2008																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Act. ID	Activity Description	Orig Dur	ES	EF	TF	2005												2006												2007												2008														
						O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
1472	Construct 500mm Bund Walls - Between T2/4 & T5/6	36	18DEC07	01FEB08	1																																																			
1391	Construct 500mm Bund Walls - Between T5 & T6	36	07JAN08	20FEB08	6																																																			
1385	Construct 500mm Bund Walls - Between T2 & T4	24	19JAN08	19FEB08	7																																																			
1370	Construct 500mm Bund Walls - Between T1 & T3	24	21JAN08	20FEB08	6																																																			
1521	Security Dbl Fences Swall/OpBldg/PumpPltf Area	36	02FEB08	25MAR08	38																																																			
1187	Bund Wall Contain.Barrier - Finishing Works	48	28FEB08	24APR08	0																																																			
CC-B.90.10.25.20 Walkovers & Elevated Crossovers																																																								
1514	Install Tanks T-1/2/3/4 Elevated Crossovers	24	07NOV07	04DEC07	0																																																			
1516	Install Tanks T5/6;T2/5;T4/6 Elevated Crossovers	18	27NOV07	17DEC07	1																																																			
1368	Install Tanks T-1/2/3/4 Fuel Pipe Walkovers	36	21JAN08	05MAR08	0																																																			
1175	Install Bund Wall Walkovers	48	31JAN08	29MAR08	21																																																			
1486	Install Tanks T-5/6 Fuel Pipe Walkovers	24	02FEB08	04MAR08	1																																																			
CC-B.90.10.35 Seawall Works																																																								
4600	Wall K - Open Excavation Behind	9	05AUG06	15AUG06	26																																																			
4602	Wall K - Remove Existing Coping and Block	6	16AUG06	22AUG06	26																																																			
4604	Wall K - Install Precast Intake Pipe Inlet Block	3	23AUG06	25AUG06	26																																																			
4605	Wall K - Install 1st Layer PC Block	2	26AUG06	28AUG06	26																																																			
4606	Wall K - Bedding, Infill and Install Intake Pipe	18	29AUG06	18SEP06	26																																																			
4610	Wall K - Install Remaining PC Block	4	19SEP06	22SEP06	26																																																			
4612	Wall K - Construct Staircase, In-situ Concrete	15	23SEP06	13OCT06	26																																																			
4615	Wall K - Install PC Wave Reflecting Block	2	14OCT06	16OCT06	26																																																			
4617	Wall K - Backfill Behind Wall	14	17OCT06	02NOV06	26																																																			
4601	Wall C - Open Excavation Behind	5	06OCT06	12OCT06	68																																																			
4603	Wall C - Remove Coping, Blocks & Bermstones	12	13OCT06	26OCT06	68																																																			
4607	Wall C - Trench at Seawall Foundation	4	27OCT06	01NOV06	68																																																			
4609	Wall C - Bagged Concrete, Fill, Bermstones	4	02OCT07	05OCT07	38																																																			
4611	Wall C - Install PC Block	15	06OCT07	23OCT07	38																																																			
4613	Wall C - Infill Concrete to Cell	2	24OCT07	25OCT07	38																																																			
4614	Wall C - Fuel Pipe Tie-in	2	26OCT07	27OCT07	38																																																			
4616	Wall C - Insitu Concrete Coping	9	29OCT07	07NOV07	38																																																			
4618	Wall C - Install PC Wave Reflecting Block	2	08NOV07	09NOV07	42																																																			
4619	Wall C - Backfill Behind Wall	10	08NOV07	19NOV07	38																																																			
CC-B.90.10.45 Tanks Foundations																																																								
CC-B.90.10.45.10 Ground Treatment & Preloading																																																								
1377	Mobilise Band Drains S/C	12	07NOV05*	19NOV05	26																																																			
1386	Apply Surcharge - Tank T-1	15	11NOV05*	28NOV05	0																																																			
1376	Excavate & Install Band Drains Tank T-2	12	21NOV05	03DEC05	26																																																			
1396	Surcharge Consolidation Period - Tank T-1	84	29NOV05	20FEB06	0																																																			
1387	Apply Surcharge - Tank T-2	15	05DEC05	22DEC05	26																																																			

Act. ID	Activity Description	Orig Dur	ES	EF	TF	2005												2006												2007												2008																																			
						O			N			D			J			F			M			A			M			J			J			A			S			O			N			D			J			F			M			A			M			J			J			A			E		
4376	Bldg - OA Ceiling Grid	9	10FEB07	27FEB07	246																																																																								
4377	Bldg - OA Wall & Floor Tile	12	24FEB07	13MAR07	219																																																																								
4378	Bldg - Door Leaf and Louvre	4	14MAR07	17MAR07	263																																																																								
4379	Bldg - OA Sanitary Fitment	4	19MAR07	22MAR07	313																																																																								
4380	Bldg - Fixture	4	19MAR07	22MAR07	314																																																																								
4381	Bldg - Flooring to Dry Area	8	23MAR07	31MAR07	314																																																																								
4382	Bldg - Ceiling Panel	3	02APR07	04APR07	314																																																																								
CC-B.90.20.40.60 External Works																																																																													
4383	Bldg - External Wall Plastering	13	26JAN07	09FEB07	191																																																																								
4384	Bldg - Roofing	20	30JAN07	24FEB07	227																																																																								
4385	Bldg - External Wall Painting	17	10FEB07	05MAR07	191																																																																								
CC-B.90.20.50 Building Services																																																																													
CC-B.90.20.50.10 Transformer Room																																																																													
4386	Bldg - Tx Room Conduit	3	03NOV06	06NOV06	165																																																																								
4387	Bldg - Tx Room Wiring	3	25NOV06	28NOV06	200																																																																								
4389	Bldg - Tx Room Air Ducting & Fan	6	04DEC06	09DEC06	190																																																																								
4391	Bldg - Tx Room Electrical Fixtures & Termination	6	11DEC06	16DEC06	190																																																																								
4392	Bldg - Tx Room T&C Prior Handover to CLP	6	18DEC06	27DEC06	190																																																																								
4393	Bldg - Tx Room Handover to CLP	6	28DEC06	04JAN07	190																																																																								
4394	Bldg - Tx Room CLP Installation (Tx & HV SWGR)	60	05JAN07	19MAR07	190																																																																								
CC-B.90.20.50.20 Genset Room, Switch Room & Compressor Room																																																																													
4395	Bldg - Machine Rooms Conduit	12	08NOV06	21NOV06	332																																																																								
4396	Bldg - Machine Rooms Wiring Small Power & Lights	12	04DEC06	16DEC06	322																																																																								
4433	Bldg - Generator Set Installation	48	15DEC06	13FEB07	155																																																																								
4434	Bldg - Generator Set Control Panel & Wiring	6	14FEB07	23FEB07	210																																																																								
4448	Bldg - Install Piping to Diesel Tank (outdoor)	12	20APR07	04MAY07	91																																																																								
4398	Bldg - Machine Rooms Air Ducting & Fan	6	14MAY07	19MAY07	91																																																																								
4400	Bldg - LV Switch Board Installation	48	21MAY07	18JUL07	91																																																																								
4412	Bldg - UPS Installation & Wiring (ELV Room)	12	21MAY07	02JUN07	121																																																																								
4401	Bldg - Install ELV Panel (ELV Room)	6	04JUN07	09JUN07	121																																																																								
4410	Bldg - Switch Board Wiring, Connection	48	04JUN07	02AUG07	163																																																																								
4435	Bldg - Install MCB Boards (Switch Room)	12	04JUN07	16JUN07	175																																																																								
4397	Bldg - Install & Terminate Small Power & Light.	24	19JUL07	16AUG07	151																																																																								
4399	Bldg - Interconnect. Cabling All El. Rooms	36	19JUL07	30AUG07	91																																																																								
4436	Bldg - Interconnect. Terminations All El. Rooms	36	03AUG07	14SEP07	127																																																																								
CC-B.90.20.50.30 Laboratory and Workshop																																																																													
4402	Bldg - Lab & WS Conduit	2	13NOV06	14NOV06	368																																																																								
4403	Bldg - Lab & WS Wiring	3	06DEC06	08DEC06	350																																																																								
4404	Bldg - Lab & WS FS Main & Sub-main	6	14DEC06	20DEC06	328																																																																								

Act. ID	Activity Description	Orig Dur	ES	EF	TF	Gantt Chart																														
						2005					2006					2007					2008															
						O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
3102	T1 - Install sump	1	06JUL06	06JUL06	0																															
3103	T1 - Laydown and fit-up annular plates	6	07JUL06	14JUL06	0																															
3104	T1 - Weld annular to annular plates	1	15JUL06	15JUL06	0																															
3105	T1 - Radiograph test weld of annular plates	1	17JUL06	17JUL06	0																															
3107	T1 - Weld bottom plates to annular plates	18	18JUL06	07AUG06	0																															
3108	T1 - Vacuum test bottom plates; Repair works	12	08AUG06	21AUG06	59																															
CC-B.90.30.15.20 Shell Plates & Appurtenances																																				
3110	T1 - Install/Weld 1st course shell plates	15	01AUG06	17AUG06	0																															
3111	T1 - Install/Weld 2nd course shell plates	13	18AUG06	01SEP06	0																															
3112	T1 - Install/Weld 3rd course shell plates	12	02SEP06	15SEP06	0																															
3113	T1 - Install/Weld 4th course shell plates	12	16SEP06	29SEP06	0																															
3114	T1 - Install/Weld 5th course shell plates	11	03OCT06	16OCT06	0																															
3115	T1 - Install/Weld 6th course shell plates	11	17OCT06	28OCT06	0																															
3120	T1 - Install/Weld shell manholes & nozzles	10	17OCT06	27OCT06	52																															
3121	T1 - Erect/weld spiral staircase & wind girder	28	28OCT06	30NOV06	52																															
3116	T1 - Install/Weld 7th course shell plates	10	30OCT06	10NOV06	0																															
3117	T1 - Install/Weld 8th course shell plates	9	11NOV06	21NOV06	0																															
3350	T1 - Install/Weld 9th course shell plates	9	22NOV06	01DEC06	0																															
3118	T1 - Erect/weld top angle/girder	5	02DEC06	07DEC06	22																															
3119	T1 - Remove erection jigs & remedial work	12	04JAN07	17JAN07	39																															
CC-B.90.30.15.30 Roof Plates & Appurtenances; Internals																																				
3123	T1 - Erect temporary support column	4	02DEC06	06DEC06	23																															
3124	T1 - Erect /weld roof steelwork	18	08DEC06	02JAN07	22																															
3125	T1 - Install/weld roof plates	18	03JAN07	23JAN07	22																															
3126	T1 - Install/weld roof manholes & nozzles	6	24JAN07	30JAN07	22																															
3128	T1 - Install various tank's internals	18	24JAN07	13FEB07	28																															
3127	T1 - Install roof handrails/walkway/platform	18	31JAN07	23FEB07	22																															
3129	T1 - Pneumatic test roof plates & remedial works	6	24FEB07	02MAR07	22																															
CC-B.90.30.15.40 Tanks Hydrotest																																				
3130	T1 - Temp. piping & hydrotest preparation	18	18JAN07	07FEB07	39																															
3131	T1 - Water filling of tank	9	03MAR07	13MAR07	22																															
3132	T1 - Tank Settlement	90	14MAR07	11JUN07	27																															
3141	T1 - Pressure Test	6	14MAR07	20MAR07	77																															
3133	T1 - Drain Tank; Remove temp. pipework	6	12JUN07	18JUN07	20																															
CC-B.90.30.15.50 Tanks Painting																																				
3138	T1 - Erect scaff/canvass for external painting	6	14MAR07	20MAR07	77																															
3139	T1 - External painting of shell/roof plate	18	21MAR07	11APR07	77																															
3140	T1 - Dismantle external scaffold	3	12APR07	14APR07	77																															
3134	T1 - Internal scaffold for shell/roof plate	6	20JUN07	26JUN07	66																															

Act. ID	Activity Description	Orig Dur	ES	EF	TF	2005												2006												2007												2008											
						O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	E												
1108	Hydro Test U/G Pipe - S'wall - Rcpt Platf.	12	19JAN08	01FEB08	61																																																
1065	Process Mech/Pipe Test & Pre-Commissioning	48	21FEB08	02MAY08	0																																																
1114	E&I - Test/Precommiss. Power Distribution	24	21FEB08	19MAR08	0																																																
1111	E&I - Test Earthing & Lightning	6	13MAR08	19MAR08	0																																																
POWTF	Power to Tank Farm Areas	0		19MAR08	0																																																
1112	E&I - Directional Test of Motors	6	20MAR08	26MAR08	0																																																
1116	E&I - Loop checks; Instrumentation Checks; SCADA	30	20MAR08	24APR08	0																																																
1522	E&I - Test Lighting	12	20MAR08	02APR08	18																																																
1524	E&I - Telemetry Test/Precomm.	6	20MAR08	26MAR08	24																																																
1080	FireServ Test Deluge/Foam Test/Commiss - Field	24	27MAR08	24APR08	0																																																
1334	Fire Services Alarm & Detect Test/Comms - Field	18	27MAR08	17APR08	6																																																
1239	Fire Serv Hydrants & Monitors Test/Comms - Field	12	11APR08	24APR08	0																																																
1189	E&I - Security System Test/Precommission	12	19APR08	03MAY08	24																																																
1066	Process Lines Cleaning & N2 Purging	25	03MAY08	31MAY08	0																																																
COMMSS	INTEGRATED COMMISSIONING	61	03MAY08	14JUL08	0																																																
TRIAL	TRIAL OPERATION	62	01JUN08	01AUG08	0																																																
CC-B.99.20 Statutory Inspections & Approvals																																																					
4753	Submit WWO 046 Part 4	0	06OCT07		163																																																
4754	Submit Form H for Plumbing & Drainage	0	06OCT07		163																																																
4757	Submit Form 5 for Lift Hoist	0	09OCT07		137																																																
4759	WSD Inspection	18	16OCT07	05NOV07	163																																																
4763	EMSD Inspection Lift Hoist	14	16OCT07	31OCT07	137																																																
4764	EMSD Issue Form 6 Lift	0		07NOV07	137																																																
4760	WSD Issue WWO 046 Part 5	0		13NOV07	163																																																
4756	Submit FS 314 for FS Installation	0	27MAR08		0																																																
4755	Submit Form FX 172 for Ventilation	0	11APR08		0																																																
4765	Submit FS 501	0	11APR08		0																																																
4767	Prepare BA13 & associated documents	12	11APR08	24APR08	46																																																
FSDTF	FSD Inspection	24	25APR08	23MAY08	0																																																
4768	AP Submit BA13 & Associated Documents	0		23MAY08	22																																																
4769	FSD Issue Fire Certificate	0		31MAY08	0																																																
BDTF	BD Inspection	30	02JUN08	07JUL08	22																																																
4771	BD Issue Occupational Permt	0		07JUL08	22																																																
CC-C JETTY STRUCTURE & FACILITIES																																																					
CC-C.90 Construction Works																																																					
CC-C.90.05 Piling & Pile Testing Prior to Main Works																																																					
1418	Dolphin Monitoring	30	10OCT05A	23NOV05	0																																																
1428	Initial Mobilisation for Test Piles	14	08NOV05	23NOV05	0																																																

Act. ID	Activity Description	Orig Dur	ES	EF	TF	Gantt Chart																													
						2005			2006												2007							2008							
						O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M
1358	Drive Test Prelim. Pile & Temp Support Piles	20	24NOV05	16DEC05	0	[Gantt bars for 1358]																													
1408	Acoustic Monitoring & Recording	3	24NOV05	26NOV05	42	[Gantt bars for 1408]																													
1364	Set up platform & post-prove drilling	7	02DEC05	09DEC05	0	[Gantt bars for 1364]																													
1365	Install Rock Anchor (pile no. 12A-N)	6	10DEC05	16DEC05	0	[Gantt bars for 1365]																													
1371	Set up test frame for compress. load test	16	14DEC05	06JAN06	0	[Gantt bars for 1371]																													
1372	Static compression load test	4	07JAN06	11JAN06	0	[Gantt bars for 1372]																													
1373	Test: Set up frame for tension load test	14	12JAN06	27JAN06	0	[Gantt bars for 1373]																													
1378	BD Approval of Pile Test No. 12-N at LP2	28	14JAN06	17FEB06	0	[Gantt bars for 1378]																													
1374	Test: Static tension load test	3	28JAN06	03FEB06	0	[Gantt bars for 1374]																													
1375	Test: Submission of Test Reports	2	04FEB06	06FEB06	10	[Gantt bars for 1375]																													
CC-C.90.10 Piling - Main Works																																			
CC-C.90.10.10 Drive Casings																																			
1308	Pitching & Final Set Piles OLP 2 (7 piles)	5	18FEB06	23FEB06	0	[Gantt bars for 1308]																													
1425	Pitching & Final Set Piles BD6 (7 piles)	4	24FEB06	28FEB06	0	[Gantt bars for 1425]																													
1400	Pitching & Final Set Piles BD5 (7 piles)	4	01MAR06	04MAR06	0	[Gantt bars for 1400]																													
1401	Pitching & Final Set Piles OLP 1 (12 piles)	7	06MAR06	13MAR06	0	[Gantt bars for 1401]																													
1405	Pitching & Final Set Piles BD4 (7 piles)	4	14MAR06	17MAR06	0	[Gantt bars for 1405]																													
1402	Pitching & Final Set Piles BD3 (7 piles)	4	18MAR06	22MAR06	0	[Gantt bars for 1402]																													
1424	Pitching & Final Set Piles BD2 (7 piles)	4	23MAR06	27MAR06	0	[Gantt bars for 1424]																													
1423	Pitching & Final Set Piles BD1 (7 piles)	4	28MAR06	31MAR06	0	[Gantt bars for 1423]																													
1481	Drive Piles - BA14 Submission	6	01APR06	08APR06	130	[Gantt bars for 1481]																													
1412	Drive Piles MD3 (3 piles)	3	03OCT06	05OCT06	119	[Gantt bars for 1412]																													
1413	Drive Piles MD4 (4 piles)	3	06OCT06	10OCT06	119	[Gantt bars for 1413]																													
1411	Drive Piles MD5 (3 piles)	3	11OCT06	13OCT06	119	[Gantt bars for 1411]																													
1427	Drive Piles MD2 (4 piles)	4	14OCT06	18OCT06	119	[Gantt bars for 1427]																													
1426	Drive Piles MD1 (3 piles)	3	19OCT06	21OCT06	119	[Gantt bars for 1426]																													
1432	Drive Piles EP1 (3 piles)	3	23OCT06	25OCT06	119	[Gantt bars for 1432]																													
1429	Drive Piles MD6 (4 piles)	4	26OCT06	30OCT06	119	[Gantt bars for 1429]																													
1430	Drive Piles MD7 (3 piles)	3	01NOV06	03NOV06	119	[Gantt bars for 1430]																													
1431	Drive Piles EP2 (3 piles)	3	04NOV06	07NOV06	165	[Gantt bars for 1431]																													
CC-C.90.10.20 Pile Cut Off & Bracing																																			
1382	Cut off/Bracing/Platform OPL2 (12 piles)	9	24FEB06	06MAR06	34	[Gantt bars for 1382]																													
1434	Cut off/Bracing/Platfor BD5 (7 piles; 2 anchors)	7	06MAR06	13MAR06	88	[Gantt bars for 1434]																													
1435	Cut off/Bracing/Platform OLP1 (12 piles)	9	14MAR06	23MAR06	25	[Gantt bars for 1435]																													
1433	Cut off/Bracing/Platfor BD6 (7 piles; 2 anchors)	7	31MAR06	08APR06	34	[Gantt bars for 1433]																													
1445	Cut off/Bracing/Platfor BD3 (7 piles; 2 anchors)	7	19APR06	26APR06	25	[Gantt bars for 1445]																													
1446	Cut off/Bracing/Platfor BD2 (7 piles; 2 anchors)	7	27MAY06	05JUN06	25	[Gantt bars for 1446]																													
1444	Cut off/Bracing/Platfor BD4 (7 piles; 2 anchors)	7	17JUN06	24JUN06	34	[Gantt bars for 1444]																													
1447	Cut off/Bracing/Platfor BD1 (7 piles; 2 anchors)	7	03JUL06	11JUL06	25	[Gantt bars for 1447]																													

Annex E

Summary of Environmental
Licensing, Notification,
Permit and Report
Submission Status

Annex E

**Summary of Environmental Licensing, Notification, Permit and Report
Submission Status**

Permit/ Licenses/ Notification/Reports	Reference	Validity Period	Remarks
Environmental Permit	EP-139/2002	Throughout Project	Issued on 2 August 2002
Variation of Environmental Permit	VEP-133/2004	Throughout Project	Issued on 28 January 2004
Amended Environmental Permit	EP-139/2002/A	Throughout Project	Issued on 24 February 2004
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	001004989	Throughout Project	Notification on 5 November 2005 (Tank Farm at TM Area 38, Jetty at Urmston Road and Fuel Pipeline)
Construction Noise Permit	PP-RW0024-05	12 Nov 05 to 31 Mar 06 (expired)	Issued on 7 November 2005, for Hydraulic Hammer (single acting) driving steel pile
Construction Noise Permit	GW-RW0785-05	7 Dec 05 to 31 Mar 06 (expired)	Issued on 7 December 2005, for General Works (Welding) at Jetty Area
Construction Noise Permit	GW-RW0032-06	1 Feb 06 to 31 Jul 06 (withdrawn)	Issued on 26 January 2006, , for general works during restricted hours at Tank Farm Area at Tuen Mun Area 38
Construction Noise Permit	GW-RW0159-06	1 Apr 06 to 30 Sept 06 (withdrawn)	Issued on 27 March 2006, for General Works (Welding) at Jetty Area
Construction Noise Permit	GW-RW0275-06	18 May 06 to 17 Nov 06	Issued on 12 May 2006, for General Works (Welding) at Jetty Area
Construction Noise Permit	GW-RW0297-06	29 May 06 to 28 Nov 06	Issued on 26 January 2006, for general works during restricted hours at Tank Farm Area at Tuen Mun Area 38
Wastewater Discharge License	EP760/421/011399/1	15 Mar 06 to 31 Mar 11	Issued on 15 Mar 2006

Permit/ Licenses/ Notification/Reports	Reference	Validity Period	Remarks
Waste Management Plan (Rev 1)	VEP-133/2004 (Condition 3.6)	Throughout Project	Submitted on 27 February 2006
Waste Management Plan (Rev 2)	VEP-133/2004 (Condition 3.6)	Throughout Project	Submitted on 13 May 2006
Revised EM&A Manual (updated version)	VEP-133/2004 (Condition 2.4)	Throughout Project	Submitted on 10 February 2006
Pre-Construction Phase Dolphin Monitoring Report (updated version)	VEP-133/2004 (Condition 3.3)	Throughout Project	Submitted on 6 February 2006
Dolphin Visual Monitoring during Piling	VEP-133/2004 (Condition 3.22)	Throughout Piling activities	Submitted in Monthly EM&A Reports
Spot Acoustic Monitoring	VEP-133/2004 (Condition 3.23)	Throughout Project	Submitted with 1 st Monthly EM&A Report
Underwater Noise Monitoring	VEP-133/2004 (Condition 3.24, 3.25)	Throughout Project	Submitted with 3 rd Monthly EM&A Report
Set up of a Web cam and web site	VEP-133/2004 (Condition 5.8, 6.2)	Throughout Project	Submitted on 8 February 2006
1 st Monthly EM&A Report (updated version)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 7 March 2006
2 nd Monthly EM&A Report (updated version)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 30 March 2006
3 rd Monthly EM&A Report (first submission)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 8 March 2006
4 th Monthly EM&A Report (updated version)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 19 April 2006
5 th Monthly EM&A Report (first submission)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 3 May 2006
6 th Monthly EM&A Report (first submission)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 30 May 2006
1 st Quarterly EM&A Report (updated version)	VEP-133/2004 (Condition 5)	Throughout Project	Submitted on 19 Apr 2006

Annex F

Action/Limit Levels and Action Plan for the EM&A

ANNEX F ACTION/LIMIT LEVELS AND ACTION PLANS FOR THE EM&A

Action and Limit Levels for Water Quality

Parameters	Action (mg/L)	Limit (mg/L)
DO in mg/L (Depth Average & Bottom)	<u>Depth Average</u> 4.5 mg/l and upstream control stations' mean DO (at the same tide of the same day)	<u>Depth Average</u> 4.0 mg/l and upstream control stations' mean DO (at the same tide of the same day)
DO in mg/L (Depth Average & Bottom)	<u>Bottom</u> 2.5 mg/l and upstream control stations' mean DO (at the same tide of the same day)	<u>Bottom</u> 2.0 mg/l and upstream control stations' mean DO (at the same tide of the same day)
Suspended Solids (Depth averaged)	30 mg/l and 130% of upstream control stations' mean SS (at the same tide of the same day)	39 mg/l and 130% of upstream control stations' mean SS (at the same tide of the same day)
Turbidity in NTU (Depth averaged)	130% of upstream control stations' mean Turbidity (at the same tide of the same day)	N/A

Notes:

- For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- For SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- All the figures given in the table are for reference only and these may be amended with the agreement of DEP.
- "Depth Averaged" is calculated by taking the arithmetic mean of the in-situ parameters readings at all three depths. For suspended solids "depth averaged" is calculated by combining all three samples into one mixed sample which is analysed to produce a physical arithmetic mean.

Event and Action Plan for Water Quality

EVENT	ACTION			
	ET	IEC	FSR	Contractor
Action Level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform the IEC and the Contractor and FSR; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss mitigation measures with the IEC and the Contractor; 	<ol style="list-style-type: none"> 1. Discuss with the ET and the Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the FSR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and the IEC and propose mitigation measures to the IEC and the FSR; 6. Implement the agreed mitigation measures.
Action Level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform the IEC and the Contractor and FSR; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with the IEC and the Contractor; 6. Ensure mitigation measures are implemented; 	<ol style="list-style-type: none"> 1. Discuss with the ET and the Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess effectiveness of the implemented mitigation measures; 	<ol style="list-style-type: none"> 1. Inform the FSR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and the IEC and propose mitigation measures to the IEC and FSR within 3 working days; 6. Implement the agreed mitigation measures.

EVENT	ACTION			
	ET	IEC	FSR	Contractor
Limit Level being exceeded by one consecutive sampling day	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform the IEC, the Contractor and the DEP; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss mitigation measures with the IEC, the FSR and the Contractor; 6. Ensure mitigation measures are implemented; 	<ol style="list-style-type: none"> 1. Discuss with the ET / Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the IEC, the ET and the Contractor on the proposed mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET, the IEC and the FSR and propose mitigation measures to the IEC and the FSR within 3 working days; 6. Implement the agreed mitigation measures.
Limit Level being exceeded by more than one consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform the IEC, the Contractor and DEP; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with the IEC, the FSR and the Contractor; 6. Ensure mitigation measures are implemented; 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the IEC, the ET and the Contractor on the proposed mitigation measures; 2. Request Contractor to critically review working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. 	<ol style="list-style-type: none"> 1. Inform the FSR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET, the IEC and the FSR and propose mitigation measures to the IEC and the FSR within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the FSR, slow down or stop all or part of the construction activities.

Action Plan for Dolphin Monitoring

EVENT	ACTION				
	ET	IEC	FSR	Contractor	
Dolphin numbers recorded in the post-construction monitoring are significantly lower than those recorded in the pre-construction monitoring	<ol style="list-style-type: none"> 1. Repeat statistical data analysis to confirm findings; 2. Review historical data to ensure differences are as a result of natural variation or previously observed seasonal differences; 3. Identify source(s) of impact; 4. Inform the IEC, FSR and Contractor; 5. Check monitoring data, all plant, equipment and Contractor's working methods; 6. Discuss mitigation measures, such as additional dolphin monitoring, with the IEC and Contractor. 	<ol style="list-style-type: none"> 1. Discuss with the ET and the Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by the Contractor and advise the FSR accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with the IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented. 	<ol style="list-style-type: none"> 1. Inform the FSR and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with the ET and the IEC and propose mitigation measures to the IEC and the FSR; 6. Implement the agreed mitigation measures. 	

Event / Action Plan for Landscape and Visual Design Phase

Action Level	Landscape and Visual Auditor	Project Engineer (PE)	Project Landscape Architect (PLA)
Non Conformity (with Design Standards and Specification)	<ul style="list-style-type: none">• Identify Source• Inform PE and PLA• Discuss remedial actions with PE, PLA• Verify remedial actions when complete	<ul style="list-style-type: none">• Notify PLA• Discuss remedial actions with PLA• Ensure remedial designs are fully incorporated	<ul style="list-style-type: none">• Amend designs• Discuss remedial actions with PE

Event / Action Plan for Landscape and Visual Construction Phase

Action Level	ET⁽¹⁾	IEC⁽¹⁾	FSR⁽¹⁾	Contractor⁽¹⁾
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, IEC and the FSR 3. Discuss remedial actions with the IEC, the FSR and the Contractor 4. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check report 2. Check the Contractor's working method 3. Discuss with the ES and the Contractor on possible remedial measures 4. Advise the FSR on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source 2. Inform the Contractor, IEC and the FSR 3. Increase monitoring frequency 4. Discuss remedial actions with the IEC, the FSR and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring report 2. Check the Contractor's working method 3. Discuss with the ES and the Contractor on possible remedial measures 4. Advise the FSR on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Amend working methods 2. Rectify damage and undertake any necessary replacement

Note: (1) ET – Environmental Team, IEC – Independent Environmental Checker, FSR – Franchisee’s Site Representative

Annex G

Required Submissions
Specified in Environmental
Permit (Implementation
Status of Mitigation
Measures)

Annex G Required Submissions Specified in Environmental Permit (Implementation Programme of Mitigation Measures)

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
1A General Submission Requirements					
1.9	During Submissions	All submissions, as required under this Permit, shall be rectified in accordance with the comments, if any, made by the Director within one month of the receipt of the Director's comments or otherwise as specified by the Director.	All parties, as appropriate.		Ongoing
1.10	During Submissions	All submissions approved by the Director, all submissions deposited without comments by the Director, or all submissions rectified in accordance with comments by the Director under this Permit shall be construed as part of the permit conditions described in Part C of this Permit. Any variation of the submissions shall be approved by the Director in writing or as prescribed in the relevant permit conditions. All submissions or any variation of the submissions shall be certified by the Environmental Team (ET) Leader and verified by the Independent Environmental Checker (IEC) referred to in Conditions 2.1 and 2.2 below, before submitting to the Director under this Permit.	All parties, as appropriate.		Ongoing
1.11	During Submissions	The Permit Holder shall release all finalized submissions as required under this Permit to the public by depositing copies in the Environmental Impact Assessment Ordinance Register Office, or in any other places, or any internet websites as specified by the Director, or by any other means as specified by the Director for public inspection. For this purpose, the Permit Holder shall provide sufficient copies of the submissions.	All parties, as appropriate.		Ongoing
1.12	During Submissions	All submissions to the Director required under this Permit shall be delivered either in person or by registered mail to the Environmental Impact Assessment Ordinance Register Office (currently at 27/F, Southorn Centre, 130 Hennessy Road, Wanchai, Hong Kong). Electronic copies of all finalized submissions required under this Permit shall be prepared in Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director, and shall be submitted at the same time as the hard copies.	All parties as appropriate.		Ongoing

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
1.14	Timing consideration for interpreting submissions.	For the purpose of this Permit, "commencement of construction" does not include works related to site clearance and preparations, or other works as agreed by the Director.	None.		
1.13	At least 1 month prior to construction	<p>Notification of Commencement Date:</p> <p>The Permit Holder shall notify the Director in writing the commencement date of construction of the Project no later than one month prior to the commencement of construction of the Project. The Permit Holder shall notify the Director in writing immediately if there is any change of the commencement date of the construction.</p>	<ul style="list-style-type: none"> AA to inform EPD of commencement date (cc to ERM/LCAL). 		Completed
2.1 (PART – see EM&A Section)	At least 1 month prior to construction (BC)	<p>Environmental Team:</p> <p>An ET shall be established by the Permit Holder no later than one month before commencement of construction of the Project. The ET shall not be in any way an associated body of the Contractor or the IEC for the Project. The ET shall be headed by an ET Leader. The ET leader shall be a person who has at least 7 years' of experience in environmental monitoring and auditing (EM&A) or environmental management. The ET and the ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the requirements as contained in the EM&A Manual.</p>	<ul style="list-style-type: none"> AA to inform EPD that ERM have been appointed as the ET (cc to ERM/LCAL). 		Completed
2.2 (PART – see EM&A Section)	At least 1 month prior to construction (BC)	<p>Independent Environmental Consultant:</p> <p>An IEC shall be employed by the Permit Holder no later than one month before commencement of construction of the Project. The IEC shall not be in any way an associated body of the Contractor or the ET for the Project. The IEC shall be a person who has at least 7 years' of experience in EM&A or environmental management.</p>	<ul style="list-style-type: none"> AA to inform EPD that Hyder have been appointed as the IEC (cc to ERM/LCAL/Hyder) 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
2.3	At least 1 month prior to construction (BC)	<p>Qualified Person:</p> <p>A qualified person with degree in biology shall be employed to carry out monitoring and visual inspection of dolphin under Conditions 3.3, 3.20 and 3.22 of this Permit. The qualification and experience of the qualified person shall be certified by ET Leader and verified by the IEC. The qualified person shall form part of the ET.</p>	<ul style="list-style-type: none"> ERM to provide the qualified person and submit his/her qualification and experience with the certification to LCAL/IEC Hyder to forward Verification Form to AA (cc to LCAL/ERM) 		Completed
2.4	At least 1 month prior to construction (BC)	<p>Updating of EM&A Manual:</p> <p>The Permit Holder shall, no later than one month before the commencement of the Project, submit to the Director for approval four hard copies and one electronic copy of an updated EM&A Manual for the Project. The updated EM&A Manual shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the EIA Report. The updated EM&A Manual shall include the setting up of additional water quality monitoring stations for all marine construction activities.</p>	<ul style="list-style-type: none"> ET to prepare and certify updated EM&A manual to IEC/AA (cc to LCAL) IEC to forward verification Form to AA (cc to ERM/LCAL) AA to forward updated EM&A manual, certification & verification Forms to EPD (cc to ERM/ Hyder/LCAL) 		Completed
3.1	Within 1 month after start of construction (C)	<p>Management Organization:</p> <p>The Permit Holder shall, within one month after commencement of construction of the Project, inform the Director in writing the management organization of the main construction companies and/or any form of joint ventures associated with the construction of the Project. The submitted information shall include at least an organization chart, names of responsible persons and their contact details.</p>	<ul style="list-style-type: none"> LCAL to provide their management organization to AA (cc to ERM) AA to forward this information to EPD (cc to ERM/ LCAL/Hyder) 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.2	At least 2 months prior to commencement of the works (BC)	<p>Testing Results of the Bubble Jacket Trial</p> <p>Trial of bubble jacket shall be carried out to demonstrate noise attenuation effect of 3 dB or more as recommended in the approved EIA Report (Register No. AEIAR-062/2002). The Permit Holder shall, at least 2 months before commencement of piling works, submit the testing results of the bubble jacket trial to the Director for approval and shall deposit 15 copies of the testing results of the bubble jacket trial to the Secretary of the EIA Sub-committee of the Advisory Council on the Environment (ACE) at 10/F., Citibank Tower, 3 Garden Road, Central, Hong Kong. The Director may require the Permit Holder to make a presentation to the ACE on the bubble jacket trial to seek approval prior to commencement of construction. The submission shall be certified by ET Leader and verified by the IEC before submission to the Director.</p>	<ul style="list-style-type: none"> • LCAL to provide testing result of the Bubble Jacket Trail to ET and IEC. • ET to forward certification Form to AA/IEC (cc to LCAL) • IEC to forward verification form to AA (cc to ERM/LCAL) • AA to forward testing result, certificate & verification Forms to EPD (cc to ERM/Hyder/LCAL) 		Completed
3.3	At least 1 month prior to marine construction (BC)	<p>Dolphin Monitoring Programme and Action Plan</p> <p>Dolphin monitoring for pre- and post-construction activities shall be carried out. The Permit Holder shall submit the dolphin monitoring programme and the action plan to the Director for approval at least 1 month before commencement of marine construction works of the Project. The action plan shall include recommendations for further monitoring should dolphin numbers be significantly different to the pre-construction activity. The submission shall be certified by ET Leader and verified by the IEC before submission to the Director. The monitoring shall be undertaken by a qualified person (minimum requirement of graduate qualification in marine biology of equivalent biological science with 5 yrs experience).</p>	<ul style="list-style-type: none"> • ET to prepare the monitoring programme and the action plan and submit to IEC/AA (cc to LCAL) • IEC to forward verification Form to AA (cc to ERM/LCAL) • AA to forward the monitoring programme and action; and verification Forms to EPD (cc to ERM/Hyder/LCAL) 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.4	At least 2 months before the commence of the survey	<p>Marine Archaeology Investigation:</p> <p>A qualified marine archaeologist shall be engaged to carry out a marine archaeological investigation of the pipeline route. The Permit Holder shall submit the methodology for the survey and the curriculum vitae of the qualified marine archaeologist to the Director for approval at least one month before commencement of any field work of the marine archaeological investigation.</p>	<ul style="list-style-type: none"> ET to provide the qualified person and methodology of the survey. ET to provide the marine archaeological investigation result to LCAL/IEC. ET to forward certification Form to AA/IEC (cc to LCAL) 		Completed
	Within 2 months after completion of the survey	<p>The Permit Holder shall, within 2 months after completion of the marine archaeological investigation, submit the results of the survey and the recommendations to avoid, minimize and mitigate any archaeological impact to the Director for approval. The submissions shall be certified by ET Leader and verified by the IEC before submission to the Director.</p>	<ul style="list-style-type: none"> IEC to forward verification Form to AA (cc to ERM/LCAL) AA to forward the result, certificate & verification Forms to EPD (cc to ERM/IEC/LCAL) 		

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.6	Within 1 month after the commencement of construction (C)	<p>Waste Management Plan (WMP)</p> <p>The Permit Holder shall, within one month after the commencement of construction of the Project, deposit with the Director three hard copies and one electronic copy of a Waste Management Plan (WMP) for the construction stage of the Project. The WMP shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report (Register No. AEIAR-062/2002). The WMP shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall include the recommended mitigation measures on waste management in Section 14.7 of the approved EIA Report (Register No. AEIAR-062/2002). The WMP shall indicate the disposal location(s) of all surplus excavated spoil and other waste. A trip ticket system shall be included in the WMP. Surplus excavated spoil and other wastes shall only be disposed of at designated disposal locations unless otherwise approved by the Director. All measures recommended in the approved WMP shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the construction period.</p>	<ul style="list-style-type: none"> • LCAL to provide the WMP to ET and IEC. • ET to forward certification Form to AA/IEC (cc to LCAL) • IEC to forward verification Form to AA (cc to ERM/LCAL) • AA to forward the WMP, certificate & verification Forms to EPD (cc to ERM/IEC/LCAL) 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.8	At least 1 month before construction in these areas (BC)	<p>Landscape Plan</p> <p>At least one month before commencement of the landscape works, the Permit Holder shall deposit with the Director 3 sets of the landscape plan prepared for the Project. The landscape plan shall include the locations, design details, implementation schedules, and drawings in the scale of 1:1000 or other appropriate scale showing the landscape and visual mitigation measures. The measures shall include 1.5m high perimeter landscaped bund, 4m high landscape mound and landscape works for the area of the site which is not initially required for fuel tanks. The landscape plan shall be certified by the ET Leader and verified by the IEC as conforming to the requirements set out in Section 8.10 of the approved EIA Report (Register No. AEIAR-062/2002) before deposit.</p>	<ul style="list-style-type: none"> • LCAL to provide the landscape plan to ET and IEC. • ET to forward certification Form to AA/IEC (cc to LCAL) • IEC to forward verification Form to AA (cc to ERM/LCAL) • AA to forward the landscape plan, certificate & verification Forms to EPD (cc to ERM/ IEC/LCAL) 		Ongoing, first submission was made on 23 December 2006
3.9 (PART - see Table 2)	At least 1 month before commencement of the implementation (BO).	<p>Measures to Prevent Fuel Spill, Land Contamination and Water Quality Impact during Operation:</p> <p>The Permit Holder shall, at least one month before commencement of implementation of the measures to prevent fuel spill, land contamination and water quality impact during operation of relevant parts of the Project, deposit with the Director 3 sets of design drawings with explanatory statements showing details of measures to be used in relevant parts of the Project. Before submission to the Director, the drawings shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA Report (Register No. AEIAR-062/2002).</p>	<ul style="list-style-type: none"> • LCAL to provide the design drawing to ET and IEC. • ET to forward certification Form to AA/IEC (cc to LCAL) • IEC to forward verification Form to AA (cc to ERM/LCAL) • AA to forward the design drawing, certificate & verification Forms to EPD (cc to ERM/ IEC/LCAL) 		Ongoing

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
4.1	At least 3 months before operation of the Project (BO)	<p>Measures to Prevent Fuel Spill, Land Contamination and Water Quality Impacts during Operation</p> <p>The Permit Holder shall be fully responsible for monitoring and audit the effectiveness of the measures and systems specified in Condition 3.9 of this Permit to prevent fuel spill, land contamination and water quality impact during operation of the Project. The Permit Holder shall, at least three month before operation of the Project, deposit with the Director 3 sets of audit report showing the incorporation of the measures and systems in the Project and the effectiveness of the measures and systems.</p>	<ul style="list-style-type: none"> • ECO to implement 		Pending
4.2	Annually	<p>The effectiveness of the measures and systems specified in Condition 3.9 of this Permit shall be tested and audited at least once a year. Annual audit report of the performance of the measures and systems shall be deposited with the Director.</p>	<ul style="list-style-type: none"> • AA to implement 		Pending
4.3	At least 2 months before operation of relevant parts (BO)	<p>Contingency Plan</p> <p>The Permit Holder shall formulate a comprehensive contingency plan to handle the event of fire, fuel spillage and fuel leakage. The contingency plan shall at least detail the remedial actions, the emergency response planning and procedures, the logistic arrangements and coordination and the notification arrangements for the event of fire, fuel spillage and fuel leakage. Oil dispersant shall not be used. The Permit Holder shall carry out regular rehearsal of the contingency plan to ensure the effectiveness of the plan. The Permit Holder shall, at least two month before operation of relevant parts of the Project, deposit with the Director 5 sets of the contingency plan.</p>	<ul style="list-style-type: none"> • AA to provide the contingency plan for the event of fire, fuel spillage and fuel leakage to EPD. 		Pending

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
4.4	Prior operation (BO)	<p>Environmental Management System</p> <p>The Permit Holder shall, before the operation of the Project or otherwise agreed by the Director, develop and implement an Environmental Management System (EMS) for the operation of the Project. The EMS is to ensure that the operation of the Project is in environmentally friendly manner and in accordance with all relevant environmental legislations. The EMS shall include at least regular audit of the Project to ensure that it is properly operated and maintained to avoid or minimize any environmental impact. The Permit Holder shall engage an Environmental Manager to oversee and implement the EMS. The Environmental Manager shall be a person who has at least 7 years' of experience in Environmental Monitoring and Audit (EM&A) or environmental management. The EMS shall be certified under ISO 14000 within 1 year after the operation of the Project or otherwise agreed by the Director.</p>	<ul style="list-style-type: none"> • LCAL to implement the EMS. 		Pending
5.2 (PART – see Table 2	At least 2 weeks before construction (BC)	<p>Baseline Monitoring Report</p> <p>The Permit Holder shall submit two hard copies and one electronic copy of the Baseline Monitoring Report to the Director at least 2 weeks before commencement of construction of the Project. The submissions shall be certified by the ET Leader and verified by the IEC before submission to the Director. Additional copies of the submission shall be provided upon request by the Director.</p>	<ul style="list-style-type: none"> • ET to prepare baseline monitoring report and forward to AA/IEC (cc to LCAL) • IEC to forward verification Form to AA (cc to LCAL/ERM) • AA to forward baseline monitoring report, certification & verification Form to EPD (cc to ERM/IEC/LCAL) 		Dolphin Baseline Report was completed.

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
5.3	Within 2 weeks after the end of the reporting month. (C/AC)	<p>Monthly EM&A Report</p> <p>The Permit Holder shall submit two hard copies and one electronic copy of the monthly EM&A Report to the Director within 2 weeks after the end of the reporting month. The submissions shall be certified by the ET Leader and verified by the IEC before submission to the Director. Additional copies of the submission shall be provided upon request by the Director.</p>	<ul style="list-style-type: none"> • ET to prepare EM&A report and forward to AA/IEC (cc to LCAL) • IEC to forward verification Form to AA (cc to LCAL/ERM) • AA to forward monthly EM&A report, certification & verification Form to EPD (cc to ERM/ Hyder/LCAL) 		Ongoing
5.8	Within 1 month after the commencement of the Project	<p>Web Cameras Plan</p> <p>Within three months of the commencement of construction of the Project, the Permit Holder shall install and thereafter maintain a system of web cameras covering the works areas at Tuen Mun site. The system shall provide real time visual monitoring of the site condition accessible by public through the dedicated web site set up by the Permit Holder under Condition 6.2 below. Within one month of the commencement of the Project, the Permit Holder shall propose a plan and a system of web cameras for the Director's agreement.</p>	<ul style="list-style-type: none"> • LCAL to prepare the web camera plan to AA (cc to ERM) • AA to forward the web camera plan to EPD (cc to ERM/ LCAL/IEC) 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
6.1	At the same time as hard copies as described in Conditions 5.2 and 5.3.	<p>Electronic Reporting of EM&A Information</p> <p>To facilitate public inspection of the EM&A Reports via the EIAO Internet Website and at the EIAO Register Office, electronic copies of these Reports shall be prepared in the Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hard copies as described in Conditions 5.2 and 5.3 of this Permit. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of these Reports shall be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in these Reports shall be provided in the main text from where the respective references are made. All graphics in these Reports shall be in interlaced GIF format unless otherwise agreed by the Director. The content of the electronic copies of these Reports must be the same as the hard copies.</p>	<ul style="list-style-type: none"> ET to prepare the EM&A report in the HTML and PDF format. 		Ongoing
6.2	Within 6 weeks after the start of Construction (C)	<p>The Permit Holder shall, set up a dedicated web site and notify the Director in writing the internet address where the environmental monitoring and project data is to be placed, within six weeks after the commencement of the Project. All environmental monitoring results described in Condition 6.1 above shall be made available to the public via a dedicated web site to be set up by the Permit Holder in the shortest possible time and in no event later than 2 weeks after the relevant environmental monitoring data are collected or become available, unless otherwise agreed with the Director.</p>	<ul style="list-style-type: none"> LCAL to prepare the web site and submit the internet address to AA (cc to ERM) AA to forward the address to EPD (cc to ERM/ IEC/LCAL) 		Completed

Table 2 General Conditions of the Environmental Permit

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
1A General Environmental Permit Conditions					
1.1	At all times (BC/C/AC)	The Permit Holder and any person working on the Project shall comply with all conditions set out in this Permit. Any non-compliance by any person may constitute a contravention of the Environmental Impact Assessment Ordinance (Cap. 499) and may become the subject of appropriate action being taken under the Ordinance.	<ul style="list-style-type: none"> AA to write to LCAL to remind them of their obligation to comply with EP condition (cc to ERM). 		Ongoing
1.2	At all times (BC/C/AC)	The Permit Holder shall ensure full compliance with all legislation from time to time in force including, without limitation to, the Noise Control Ordinance (Cap. 400), Air Pollution Control Ordinance (Cap. 311), Water Pollution Control Ordinance (Cap. 358), Dumping at Sea Ordinance (Cap. 466), Waste Disposal Ordinance (Cap. 354), Dangerous Goods Ordinance (Cap. 295), Shipping and Port Control Ordinance (Cap. 313), Marine Parks Ordinance (Cap. 476), Occupational Safety and Health Ordinance (Cap.509) and Factories and Industrial Undertakings Ordinance (Cap.59). This Permit does not of itself constitute any ground of defence against any proceedings instituted under any legislation or imply any approval under any legislation.	<ul style="list-style-type: none"> AA to write to LCAL to remind them of their obligation to comply with all environmental legislation in force (cc to ERM). 		Ongoing
1.3	At all times (BC/C/AC)	The Permit Holder shall ensure full compliance with all fire safety requirements formulated by the Fire Services Department to address the potential fire risks of all possible areas within the Project site including the jetty. Implementation of measures under this Permit does not of itself constitute any ground of defense against any fire safety requirements instituted by the Fire Services Department.	<ul style="list-style-type: none"> AA to write to LCAL to remind them of their obligation to comply with all fire safety requirement (cc to ERM). 		Ongoing
1B Posting and Notification of EP Requirements					

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
1.4	At all times (BC/C/AC)	The Permit Holder shall make copies of this Permit together with all documents referred to in this Permit and the documents referred to in Part A of the Permit readily available at all times for inspection by the Director or his authorised officers at all sites/offices covered by this Permit. Any reference to the Permit shall include all documents referred to in the Permit and also the relevant documents in the Register.	<ul style="list-style-type: none"> • LCAL to advise AA whether they have all necessary document (cc to ERM) • AA to provide document to LCAL, as required (cc to ERM) • LCAL to keep document at all sites/offices covered by this EP. 		Completed
1.5	At start of construction works and during introduction of new site staff (C)	The Permit Holder shall give a copy of this Permit to the person(s) in charge of the site(s) and ensure that such person(s) fully understands all conditions and all requirements incorporated by the Permit. The site(s) refers to site(s) of construction and operation of the Project and shall mean the same hereafter.	<ul style="list-style-type: none"> • LCAL to advise AA of "Person in charge" for the site (cc to ERM) • AA to write to LCAL provide copy of EP to person in charge (cc to ERM) 		Completed
1.6	Immediately prior to and during construction (BC/C)	The Permit Holder shall display conspicuously a copy of this Permit on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public information at all times. The Permit Holder shall ensure that the most updated information about the Permit, including any amended permit, is displayed at such locations. If the Permit Holder surrenders a part or the whole of the Permit, the notice he sends to the Director shall also be displayed at the same locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s).	<ul style="list-style-type: none"> • LCAL to display copy of full permit at all vehicular site entrances/exits or at a convenient location for public information at all times. 		Completed
1C Design and Construction in Accordance with EIA/EP/EM&A					
1.7	During Construction and Operation (C/O)	The Permit Holder shall construct and operate the Project in accordance with the project description in Part B of this Permit.	<ul style="list-style-type: none"> • AA to write to LCAL to remind them of their obligation to comply with EP condition (cc to ERM) 		Ongoing

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
1.8	At all times (BC/C/AC)	The Permit Holder shall ensure that the Project is designed, constructed and operated in accordance with the information and all recommendations described in the approved EIA Report (Register No. AEIAR-062/2002), other relevant documents in the Register, the information and mitigation measures described in this Permit, mitigation measures to be recommended in submissions that shall be deposited with or approved by the Director as a result of permit conditions contained in this Permit, and mitigation measures to be recommended under on-going surveillance and monitoring activities during all stages of the Project. Where recommendations referred to in the documents of the Register are not expressly referred to in this Permit, such recommendations are nevertheless to be implemented unless expressly excluded or impliedly amended in this Permit.	<ul style="list-style-type: none"> AA to write to LCAL to remind them of their obligation to comply with all recommendations described in the approved EIA report, other relevant documents in the Register and the EP condition (c to ERM) 		Completed
5.1	At all times	The EM&A programme shall be implemented in accordance with the procedures and requirements in the updated EM&A Manual approved under Condition 2.4 of this Permit. Any changes to the EM&A programme shall be justified by the ET Leader and verified by the IEC as conforming to the requirements set out in the EM&A Manual and shall seek the prior approval from the Director before their implementation.	<ul style="list-style-type: none"> ERM to implement the EM&A programme 		Ongoing
5.4	At all times	The actions described in the Event / Action Plans of the EM&A Manual shall be fully and properly carried out in accordance with the time frame as set out in the Event/ Action Plans, or as agreed by the Director.	<ul style="list-style-type: none"> LCAL/ERM to implement Event/ Action plans 		Ongoing
5.5	At all times	All environmental monitoring and audit data submitted under this Permit shall be true, valid and correct.	<ul style="list-style-type: none"> ERM to submit the valid EM&A data 		Ongoing
5.6	At all times	To ensure a high degree of transparency regarding the monitoring data and results in view of the public concern about the Project, all environmental monitoring and audit data and results and all submissions and all performance test data and results required by this Permit shall be made available by the Permit Holder to the public through a dedicated web site to be set up by the Permit Holder under Condition 6.2 below, in the shortest possible time and in no event later than 2 weeks after such information is available.	<ul style="list-style-type: none"> ERM to upload the EM&A data, result and all submissions and all performance test data and results required by this Permit to the web site. 		Ongoing

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
6.1	At all times	To facilitate public inspection of the EM&A Reports via the EIAO Internet Website and at the EIAO Register Office, electronic copies of these Reports shall be prepared in the Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director and shall be submitted at the same time as the hard copies as described in Conditions 5.2 and 5.3 of this Permit. For the HTML version, a content page capable of providing hyperlink to each section and sub-section of these Reports shall be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in these Reports shall be provided in the main text from where the respective references are made. All graphics in these Reports shall be in interlaced GIF format unless otherwise agreed by the Director. The content of the electronic copies of these Reports must be the same as the hard copies.	<ul style="list-style-type: none"> ERM to prepare the electronic copies of the EM&A reports in the HTML and PDF format 		Ongoing
<i>1D Measures to Prevent Fuel Spill, Land Contamination and Water Quality Impact During Operation</i>					
3.9	During Operation	<p>The measures shall include, but not limited to, the following requirements:</p> <p>a) <u>Bundling system of tank farm for storage of aviation fuel</u></p> <p>All fuel tanks shall be located in bunded compounds with capacity of at least 110% of the largest individual tank in each compound. A security wall of breeze-block type shall be provided outside the bund wall to act as secondary containment in the event of overtopping of the bund. The security gate at the security wall shall be provided with a ramp and leak tight seal at the bottom of the gate up to the first hinge to contain any spill within the site. A drainage ditch with sloping catchment shall be provided outside the security wall to trap any liquid splash over the security wall and the security gate.</p> <p>b) <u>Drainage isolation and containment system of tank farm for storage of aviation fuel</u></p> <p>Impermeable layer under fuel tanks shall be used to prevent seepage of aviation fuel to ground. Storm drainage system shall be equipped with valve, collection sump and oil separator to retain spilled fuel.</p>	<ul style="list-style-type: none"> LCAL to implement ER to enforce 		Pending
					Pending

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
		c) <u>Tank overfill monitoring system</u> Overfill monitoring system with automatic shutdown inlet valve shall be provided for fuel tanks.			Pending
		d) <u>Installations at the jetty</u> Installations at the jetty shall include the provision of defensive fenders to prevent possible collision from small craft and the provision of coupling points with slop collection utilities to prevent minor fuel spill during unloading. Slop collection utilities shall be connected to oil separator.			Pending
		e) <u>Fuel pipelines protective measures</u> Fuel pipelines shall be covered with a protective rock armour layer of minimum thickness of 1m to prevent the pipelines from damaging by anchors.			Pending
		f) <u>Leak detection system for fuel pipelines</u> Continuous leak detection system with automatic shut-off device shall be provided for fuel pipelines.			Pending
1E Measures to Mitigate Water Quality Impact During Construction					
3.10	During construction	No more than one dredger shall be in operation at any time during construction.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.11	During construction	No Lean Material Overboard (LMOB) system shall be used.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.12	During construction	No hopper dredger with leaking pipe shall be used during construction.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.13	During construction	Bottom openings of barges and hopper dredgers shall be tightly sealed to prevent leakage of dredged materials. Freeboard on barges shall be provided to ensure that decks are not washed by wave action.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.14	During construction	No dredged material shall be splashed to the surrounding water during loading of dredged material to barges and hopper dredgers.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.15	During construction	No dredged material shall be overflowed from barges and hopper dredgers during loading or transportation.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.16	During construction	To mitigate environmental impacts due to site runoff and other potential water pollution caused by construction activities, mitigation measures described in Appendix A shall be implemented throughout the construction period.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
Appendix A (a) (i)	During construction	Surface run-off from the construction site shall be directed into adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins before discharge into storm drains. Channels, earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
Appendix A (a) (ii)	During construction	Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
Appendix A (a) (iii)	During construction	Silt removal facilities, channels and manholes shall be maintained with the deposited silt and grit being removed at least once a week, and at the onset of and after each rainstorm to ensure that these facilities are functioning at all times.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
Appendix A (a) (iv)	During construction	Open stockpiles of construction materials (e.g. aggregates and sand) on site shall be covered with tarpaulin or similar fabric during rainstorms. Measures such as providing sand bag barriers shall be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
Appendix A (a) (v)	During construction	Manholes (including any newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharges of surface run-off into foul sewers shall always be prevented in order not to unduly overload the foul sewerage system.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
Appendix A (b)	During construction	At all parts of all works areas and construction sites, and throughout the full duration of the construction contract(s), debris and rubbish on site shall be handled and disposed of to avoid entering the water column and causing water quality impacts. Temporary on-site storage of excavated materials shall be covered with tarpaulin or similar fabric during rainstorms. Any washout of construction or excavated materials should be diverted to the drainage system via sediment traps. Stockpiling of the excavated material can be minimised by scheduling the construction programme in a way that one section of the alignment can be constructed and completed before the excavation works of the next section commence.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Ongoing
<i>1F Measures to Protect Marine Park (Sha Chau & Lung Kwu Chau) and Avoid or Mitigate Ecological Impact During Construction</i>					
3.17	During construction	No construction work shall be carried out from shore or land within the Marine Park.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.18	During construction	No hydraulic dredging shall be carried out within the Marine Park.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.19	During construction	Pipeline trench dredging within the Marine Park shall be scheduled to coincide with maintenance dredging for marine access channel for Sha Chau Aviation Fuel Receiving Facility.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Pending
3.20	During construction	A 250m dolphin exclusion zone during dredging within the Marine Park shall be implemented. Dredging work shall not be carried out until the area is certified by a qualified person to ensure continuously clear of dolphins within the 250m exclusion zone for 30 minutes.	<ul style="list-style-type: none"> • LCAL to implement the 250m dolphin exclusion zone • ER to enforce • ERM to provide the qualified person 		Pending

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.21	During construction	Piling works shall not be carried out during April to June of the year to avoid peak calving period of dolphin.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce • ET to monitor whether piling works is undertaken during April to June 		Completed
3.22	During construction	A 500m dolphin exclusion zone during piling activities for the jetty shall be implemented. Piling work shall not be carried out until the area is certified by a qualified person to ensure continuously clear of dolphins within the 500m exclusion zone for 30 minutes. Piling work shall cease if dolphins move into the 500m exclusion zone during piling. Piling work shall not be resumed until the area is certified by a qualified person to ensure continuously clear of dolphins for 30 minutes.	<ul style="list-style-type: none"> • LCAL to implement 500m dolphin exclusion zone • ER to enforce 		Completed
3.23	During construction	Spot acoustic monitoring of the 500m dolphin exclusion zone during piling activities shall be conducted for three days of the first week of piling to confirm that dolphins are not missed in the visual inspection carried out under Condition 3.22 of this Permit. The spot acoustic monitoring shall be conducted in accordance with the procedures and requirements in the updated EM&A Manual approved under Condition 2.4 of this Permit.	<ul style="list-style-type: none"> • LCAL to provide spot acoustic monitoring 		Completed
3.24	During construction	Bubble jacket shall be used for piling work to reduce underwater piling noise to achieve the following underwater mitigated noise levels: 162 dB at 250m, 152 dB at 500m and 145dB at 1000m.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Completed
3.25	During construction	Underwater noise monitoring shall be conducted during piling to ensure that the underwater mitigated noise levels as specified in Condition 3.24 of this Permit are achieved. Underwater mitigated noise levels shall be recorded over the initial three days of the first week of piling work. Underwater noise monitoring shall be conducted in accordance with the procedures and requirements in the updated EM&A Manual approved under Condition 2.4 of this Permit.	<ul style="list-style-type: none"> • LCAL to provide underwater noise monitoring 		Completed

EP PART C	Timing	Condition	Responsibility for Action	Latest Date for Completion of Action*	Status
3.26	During construction	Piling hammer at the beginning of each piling session shall be ramped up gradually. Piling activities shall be continuous without short-break and shall avoid sudden random loud noise emission. Piling activities shall occur on a regular basis, be scheduled to occur with similar activities and commence at the same time each day. No piling works shall be carried out during 11:00 p.m. to 7:00 a.m.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Completed
3.27	During construction	Piling and related equipment installed on the piling barge shall be acoustically decoupled from the hull of the barge.	<ul style="list-style-type: none"> • LCAL to implement • ER to enforce 		Completed

Table 3 Project Specific Mitigation Measures

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
1. Air Quality Measures				
	Land based areas / During construction	S 4.5.3	Twice daily watering of all exposed site areas shall be undertaken.	Contractor
	Land based areas / During construction	S 4.5.3	No debris or other materials shall be burnt on the works areas.	Contractor
	Land based areas / During construction	S 4.5.3	All exposed road surfaces and dust sources shall be maintained as wet.	Contractor
	Land based areas / During construction	S 4.5.3	Watering shall be undertaken during rock/concrete breaking.	Contractor
	Land based areas / During construction	S 4.5.3	Open dropping heights for excavated materials shall be controlled to a maximum height of 2m.	Contractor
	Land based areas / During construction	S 4.5.3	Stockpiles of imported material kept on site shall be contained within hoardings, dampened and/or covered during dry and windy weather.	Contractor
	Land based areas / During construction	S 4.5.3	Site hoarding not less than 2.4m at site boundary shall be provided.	Contractor
	Land based areas / During construction	S 4.5.3	Dust creating activities shall be reprogrammed in periods of high winds.	Contractor
	Land based areas / During construction	S 4.5.3	Areas of exposed soil shall be minimised to areas in which works have been completed shall be restored as soon as is practicable.	Contractor
	Land based areas / During construction	S4.5.3	Stockpiling of the excavated material can be minimised by scheduling the construction programme in a way that one section of the alignment can be constructed and completed before the excavation works of the next section commence.	Contractor
	Land based areas / During construction	S 4.5.3	Any vehicle used for moving materials which have the potential to create dust shall have properly fitting side and tail boards. Materials having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. The tarpaulin shall be properly secured and shall extend at least 300mm over the edges of the side and tail boards.	Contractor
	Site entrances and exits / During construction	S 4.5.3	No earth, mud, debris, dust and the like shall be deposited on public facility shall be usable prior to any earthworks roads. Wheel washing excavation activity on the Site.	Contractor
	Land based Site / During construction	S 4.9.1	EM&A in the form of site audit of dusty activities.	Contractor
	PAFF/Operational phase	S 4.7.1	Best practicable means as specified by the Air Pollution Control Ordinance for Part IV specified process shall be adhered to.	Franchisee

2. Noise

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Land based Site / During construction	S 5.7.1	Use quiet equipment with suitable noise levels and labels.	Franchisee
	Land based Site / During construction	S 5.7.1	Regular maintenance of equipment.	Contractor
	Land based Site / During construction	S 5.7.1	Ensure noise attenuation devices are fitted to plant and equipment.	Contractor
	Land based Site / During construction	S 5.7.1	Fitting more efficient exhaust sound reduction equipment and ensuring the Manufacturers' enclosure panels are kept closed on dump trucks, lorries, excavators and cranes.	Contractor
	Land based Site / During construction	S 5.7.1	Fitting suitably designed muffler or sound reduction equipment and using dampened bit to eliminate ringing on breakers.	Contractor
	Land based Site / During construction	S 5.7.1	Ensure all leaks in air lines are sealed on all pneumatic equipment.	Contractor
	Land based Site / During construction	S 5.7.1	Use temporary noise barriers where applicable.	Contractor
	Land based Site / During construction	S 5.7.1	Restrict or modify working hours to minimise high noise activities.	Contractor
	Land based Site / During construction	S 5.7.1	Provide awareness training in the need to minimise noise.	Contractor
	Land based Site / During construction	S 5.7.1	Proper planning of work area.	Contractor
	Land base Site/ During construction	S 5.7.1	Good site practice to limit noise emissions at source	Contractor
	Land based Site / During construction	S 5.9.1	EM&A in the form of site audit of noise activities	Contractor

3. Water Quality

	Dredged areas/Design Phase	S 6.7.1.4	Standard good dredging practice measures shall be written into the dredging contract.	Franchisee
	Marine Park / Pipeline Dredging	S 6.7.1.1	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.	Contractor
	Marine Park / Pipeline Dredging	S 6.7.1.2	No hydraulic dredging within Marine Park.	Contractor
	Sha Chau AFRF Marine access channel	S 6.7.1.3	Dredging for pipeline trench should be timed to coincide with maintenance dredging for Sha Chau AFRF marine access channel.	Airport Authority
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Use of Lean Material Overboard (LMOB) systems shall be prohibited. No mud overflow is to be permitted for dredging using trailer suction hopper dredgers.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Mechanical grabs shall be designed and maintained to avoid spillage and should seal tightly while being lifted.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Barges and hopper dredgers shall have tight fitting seals to their bottom openings to prevent leakage of material.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	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.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	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.	Contractor
	Dredged areas/ Pipeline Dredging	S 6.7.1.4	The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site.	Contractor
	Pipeline trench / Pipeline Dredging	S 6.7.1.5	Placement of pipeline trench backfill should be undertaken in a controlled manner to minimize 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.	Contractor
	Land Site / During Construction	S 6.7.1.6	Wastewater from temporary site facilities should be controlled to prevent direct discharge to surface or marine waters.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor
	Land Site / During Construction	S 6.7.1.6	Storm drainage shall be directed to storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels, earth bunds or 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.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor
	Land Site / During Construction	S 6.7.1.6	Temporary access roads should be surfaced with crushed stone or gravel.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Land Site / During Construction	S 6.7.1.6	Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Contractor
	Land Site / During Construction	S 6.7.1.6	Measures should be taken to prevent the washout of construction materials, soil, silt or debris into any drainage system.	Contractor
	Land Site / During Construction	S 6.7.1.6	Open stockpiles of construction materials (e.g. aggregates and sand) on site should be covered with tarpaulin or similar fabric during rainstorms.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor
	Land Site / During Construction	S 6.7.1.6	Discharges of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor
	Land Site / During Construction	S 6.7.1.6	Wheel wash overflow shall be directed to silt removal facilities before being discharged to the storm drain.	Contractor
	Land Site / During Construction	S 6.7.1.6	The section of construction road between the wheel washing bay and the public road should be surfaced with crushed stone or coarse gravel.	Contractor
	Land Site / During Construction	S 6.7.1.6	Wastewater generated from concreting, plastering, internal decoration, cleaning work and other similar activities, shall be screened to remove large objects.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor
	Land Site / During Construction	S 6.7.1.6	The contractors shall prepare an oil / chemical cleanup plan and ensure that leakages or spillages are contained and cleaned, up immediately.	Contractor
	Land Site / During Construction	S 6.7.1.6	Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	Contractor
	Land Site / During Construction	S 6.7.1.6	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.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Land Site / During Construction	S 6.7.1.6	Surface run-off from bunded areas should pass through oil/grease traps prior to discharge to the stormwater system.	Contractor
	All works / During construction	S 6.10.1	All construction works shall be subject to routine audit to ensure implementation of all EIA recommendations and good working practice.	Contractor
	Submarine Pipeline / During Design and construction	S 6.7.2.1	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.	Franchisee
	Jetty / During construction	S 6.7.2.2	Coupling points on the jetty will be protected with slop collection utilities.	Franchisee
	Tank farm / During construction	S 6.7.2.2	Oily drainage systems and slop collection systems will connect to an oil/ water separator.	Franchisee
	Tank farm / During construction	S 6.7.2.2	All tanks shall be bunded to a capacity of at least 110% of the largest individual tank in each compound. 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.	Franchisee
	Tank farm / During construction	S 6.7.2.2	Valves shall be installed within the storm drainage system to facilitate the retention of spillages.	Franchisee
	Impact monitoring stations located 500m north/northwest and south/south east of any dredger during dredging works at a distance greater than 1000m outside of the Marine Park	S 6.10.2	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen.	Contractor
	Designated monitoring stations as defined in EM&A Manual <i>Section 7</i> Construction period when dredging takes place within 1000m of Marine Park.	S 6.10.2	Water quality monitoring shall be undertaken for suspended solids, turbidity, and dissolved oxygen.	Contractor
	All facilities / Operational phase	S 6.7.2.2	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.	Franchisee
	Tank farm / Operational phase	S 6.7.2.2	Auxiliary tanks shall be permanently maintained at the tank farm for recovered fuel and slops.	Franchisee

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Tank farm/Operational phase	S 6.7.2.2	There shall be no direct outlet from the bund. A collection sump shall be included in the base. Removal of accumulated rainwater shall be activated manually and discharged to storm drain via an oil / water separator.	Franchisee
	Tank farm/Operational phase	S 6.7.2.2	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.	Franchisee
	Tank Farm / Tank farm Commissioning	S 6.7.1.7	Wastewater from pipe commissioning de-watering exercises shall be stored on site and for chemical analysis and safe disposal in accordance with the WPCO.	Franchisee

4. Ecology

	Detailed Design Phase (D)	S 7.8.2.7	Specification for 500m dolphin exclusion zone during piling shall be prepared.	Consultant
	Detailed Design Phase (D)	S 7.8.2.8	Specification for 250m dolphin exclusion zone during dredging in the Marine Park shall be prepared.	Consultant
	Detailed Design Phase (D)	S 7.8.2.18	Specification for pre and post construction dolphin abundance monitoring.	Consultant
	Detailed Design Phase (D)	S 7.8.2.10	Specification for underwater noise monitoring during piling shall be prepared.	Consultant
	Detailed Design Phase (D)	S 7.8.2.9	Specification for acoustic monitoring shall be prepared.	Consultant
	Detailed Design Phase (D)	S 7.8.2.5	Design of bubble jacket for pile shall be prepared.	Consultant
	Detailed Design Phase (D)	S 7.8.2.13	Design of acoustic decoupling methods.	Consultant
	Prior to piling. (C)	S 7.8.2.17	Data review shall be undertaken using available long term data set prior to the works to check that dolphin distribution patterns are consistent with those assumed in the EIA.	Contractor
	Around each jetty pile / During piling activities. (C)	S 7.8.2.5	Implementation of bubble jacket to achieve a 3-5 dB reduction. Specific underwater noise targets are as follows: 162 dB at 250m, 152 dB at 500m and 145dB at 1000m.	Contractor
	500m around piling barge/ During piling activities. (C)	S 7.8.2.7	A 500m dolphin exclusion zone shall be implemented and piling shall not begin until the observer has confirmed that the area has been clear for 30 minutes.	Contractor
	250m around dredger in Marine Park / During dredging in Marine Park (C)	S 7.8.2.8	A 250m 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.	Contractor
	Within dolphin exclusion zone/ 3 days in first week of piling (C)	S 7.8.2.9	Spot acoustic monitoring shall be undertaken for 3 days in the first week of piling.	Contractor
	250m, 500m and 1000m from piling barge/during piling. (C)	S 7.8.2.10	Underwater noise monitoring during percussive piling activities.	Contractor
	April to June	S 7.8.2.12	Piling shall be scheduled outside the period April to June.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Piling barge/ During piling. (C)	S 7.8.2.13	Implement acoustic decoupling measures in accordance with specifications prepared during the design phase.	Contractor
	Piling barge/ During piling. (C)	S 7.8.2.14	Ramping up of the piling hammer shall be implemented at the start of each piling session.	Contractor
	Piling barge/ During piling. (C)	S 7.8.2.15	Piling activities shall be continuous and short breaks and random sudden noises avoided.	Contractor
	During piling. (C)	S 7.8.2.15	Piling events shall be scheduled to occur on a regular basis and commence at the same time each day.	Contractor
	Jetty / During piling. (C)	S 7.8.2.15	The piling shall be scheduled to allow a rest period of 7 hours during the night-time.	Contractor
	Jetty / During piling. (C)	S 7.8.2	All mitigation measures shall be audited to ensure effectiveness.	Contractor
	Jetty / During piling. (C)	S 7.11	Design and construction phase EM&A to prepared specifications and undertaken monitoring and audit during piling.	Contractor

5. Landscape and Visual

	PAFF site/ During construction (D/C)	S8.10.2.1	Screen mounding including hydroseeded and part tree planted would be constructed and planted early on in the construction programme prior to the building of the Phase 1 tanks	Contractor
	PAFF site/ During construction (D/C)	S 8.10.2.3	The construction programme for the PAFF should be reduced to the shortest possible period and should be executed in phases with future phases of tanks built in sets of 2-4.	Contractor
	PAFF site/ During construction (C/O)	S 8.10.2.3	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.	Contractor
	PAFF site/ During construction (D/C)	S 8.10.2.3	Temporary hoarding barriers should be of a recessive visual appearance in both colour and form.	Contractor
	PAFF site/ During construction (C/O)	S 8.10.2.3	Materials should be stored in areas with the least obstruction to residents, pedestrians and traffic.	Contractor
	PAFF site/ During construction (C/O)	S 8.10.2.3	All material stockpiles should be covered with an impermeable material and sandbagging diversions should be placed around exposed soil.	Contractor
	PAFF site/ Construction period of fuel tank expansion (O)	S 8.10.2.2	Conservation of existing and imported soil resources. Existing soil resources on site will be conserved in stockpiles with a maximum height of 2m, and re-used in the formation of the proposed screen bund	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	PAFF site/ On commencement of construction (D/C)	S 8.10.3.1	Transplantation of existing road side whips affected by the proposed works and new compensatory planting works should be carried as early as possible in the construction period.	Project Proponent
	PAFF site/ On commencement of construction (D/C)	S 8.10.3	Temporary earth mounding, tree planting and hydroseeding should be implemented on the area of site not initially required for tanks.	Project Proponent
	PAFF site/ During construction (D/C/O)	S 8.10.3.1	A raised bund/ earth mound comprising containment bund-wall, access road and planting buffer shall be built and maintained around the tank farm.	Project Proponent
	PAFF site/ During construction (D/C)	S8.10.3.1	The existing whips in the amenity areas and along the access road are proposed to be transplanted to form a planting buffer around the site at phase 2005. The planting buffer will comprise a mix of native species and species that have a tall habit and are fast growing.	Project Proponent
	PAFF site/ During construction (C)	S.8.10.3.2	A 24-month maintenance period will be needed to ensure transplantation/ plant establishment is successful	Project Proponent
	PAFF site / Design (D/C)	S 8.10.4.3	The design of the PAFF should incorporate materials, details and textures which are visually recessive.	Project Proponent
	PAFF site tanks /Design (D/C)	S 8.10.4.2	Colours should be of low chromatic intensity to reduce the potential contrast between the structures and their background.	Project Proponent
	Site perimeter (D/C/O))	S 8.10	Visually permeable security fencing should be used around the perimeter.	Project Proponent
	Tanks / Operational phase (D/C/O)	S 8.10.5.1	Minimum amount of lighting for the tanks shall be used, only applied for safety at the key access points and staircases.	Project Proponent
	PAFF site/Operational phase (D/C/O)	S 8.10.5.1	Limited lighting intensity on the site.	Project Proponent
	PAFF site/ Operational phase	S 8.10.5.1	Directional down lighting is suggested to minimise light spill to the surrounding area	Project Proponent
	PAFF site/Operational phase (D/C/O)	S 8.13.10	Construction and operational stage EM&A to prepared and undertaken monitoring and audit of the compensatory planting/transplantation and planting establishment.	Contractor

6. Cultural Heritage

Along pipeline alignment / Prior to dredging works	S 9.7.7	A complete marine archaeological investigation shall be carried by a qualified marine archaeologist of the pipeline route before any construction works start.	Franchisee
Along pipeline alignment / Prior to dredging works	S 9.7.7	The marine archaeological investigation shall comprise a geophysical survey followed by a diver survey, if required, to confirm the results of the geophysical survey.	Franchisee

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	Along pipeline alignment / Prior to dredging works	S 9.7.7	The methodology for the survey shall be submitted to the Director of Environmental Protection for approval no less than one month before any field work commences and the results of the survey and any mitigation measures shall be to the approval of the Director of Environmental Protection.	Franchisee
	Along pipeline alignment / Prior to dredging works	S 9.7.7	The CV of the marine archaeologist shall be submitted to the EPD for approval prior to the start of the investigation at the time of submission of the methodology.	Franchisee
	Along pipeline alignment / Prior to dredging works	S 9.7.7	The MAI shall be carried out by a qualified marine archaeologist who shall apply for a license under the Antiquities and Monuments Ordinance, Cap 53.	Franchisee
	Along pipeline alignment/Prior to dredging works	S9.7.7	The Project Proponent shall comply with the recommendations of the MAI	Franchisee
	During dredging (c)		During the dredging of the pipe trench, a watching brief will be implemented where the trench intersects sub-surface targets SS1 and SS2.	Contractor
	During dredging (c)		Dredge operators to be made aware of the likely presence of a shipwreck near the coordinates given for SS1 and SS2 and are to report any unusual resistance or slowing down of the dredging in these areas.	Contractor
	During dredging (c)		Dredging to cease in the nominated areas, SS1 and SS2, after a few 3 and 2 m of sediment has been removed respectively. Divers, under the supervision of a licensed maritime archaeologist, are then to examine the trench for possible cultural remains of significance.	Contractor

7. Waste Management

	Contract mobilisation / During construction (C)	S 14.7.2	The Contractor shall identify a coordinator for the management of waste.	Contractor
	Contract mobilisation / During construction (C)	S 14.7.2	The waste coordinator shall prepare and implement a Waste Management Plan which specifies procedures such as a ticketing system, to facilitate tracking of loads and to ensure that illegal disposal of wastes does not occur, and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed.	Contractor
	Contract mobilisation / During construction (C)	S 14.7.2	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges.	Contractor
	PAFF Site / During construction	S 14.7.2	No waste shall be burnt on site.	Contractor
	All sites / During construction (C)	S 14.7.2	Excavated material shall be used on site for purposes of landscaping or formation of bund walls.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	All areas / During construction (C)	S 14.7.2	All material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	Contractor
	Contract preparation stage (D)	S 14.7.2	Suitable provisions shall be included in the construction contract to ensure that the Contractor sorts and recycles waste.	HyD
	All areas / During construction (C)	S 14.7.2	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.	Contractor
	All areas / During construction (C)	S 14.7.2	The site and surroundings shall be kept tidy and litter free.	Contractor
	CED public fill stockpile in Mui Wo, North Lantau or Mui Wo refuse transfer stations/ During construction (C)	S 14.7.2	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.	Contractor
	Along alignment of haulage road and road link / Site Clearance activities (C)	S 14.7.2	Vegetation shall be stripped prior to site clearance, chopped and compacted using a mobile compactor to reduce the volume of material to be transported and disposed of.	Contractor
	All areas / During construction (C)	S 14.7.2	Stockpiled material shall avoid vegetated areas.	Contractor
	All areas / During construction, particularly dry season (C)	S 14.7.2	Stockpiles shall be covered by tarpaulins and/or watered as required.	Contractor
	All areas / During construction (C)	S 14.7.2	Storage of material on site should be kept to a minimum.	Contractor
	All areas, particularly at site exits / During construction (C)	S 14.7.2	Excavated material in trucks shall be covered by tarpaulins.	Contractor
	Site entrances and exits / During construction (C)	S 14.7.2	Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads.	Contractor
	Works site / During construction (C)	S 14.7.2	Suitable chemical waste storage areas should be formed at the works site for temporary storage pending collection	Contractor
	Chemical waste treatment facility at Tsing Yi/ During construction (C)	S 14.7.2	A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility.	Contractor
	All areas / During construction (C)	S 14.7.2	Temporary storage areas for general refuse should be enclosed to avoid environmental impacts.	Contractor
	All areas / During construction (C)	S 14.7.2	Sufficient dustbins should be provided for storage of waste.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	All areas, WENT Landfill or NWNT refuse transfer stations/ During construction (C)	S 14.7.2	General refuse should be cleared daily and should be disposed of to the nearest licensed facility.	Contractor
	Site offices, along alignments / During construction (C)	S 14.7.2	Nightsoil arising from chemical toilets and chemical treatment facilities should be transported by a licensed contractor to government Sewage Treatment Works for disposal.	Contractor
	PAFF site / During construction (C)	S 14.7.2	Waste oils, chemicals or solvents shall not be disposed of to drain.	Contractor
	PAFF site / During construction (C)	S 14.7.2	Good site practice shall be implemented to avoid waste generation and promote waste minimisation.	Contractor
	PAFF site / During construction (C)	S 14.7.2	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable.	Contractor
	PAFF site / During construction (C)	S 14.7.2	Temporary structures used during construction shall be provided in the form of proprietary Portakabin type units sited on areas of permanent hard paving units as far as practicable.	Contractor
		S 14.7.2	Dredged marine mud shall be disposed of in a gazetted marine disposal ground under the requirements of the Dumping at Seas Ordinance.	Contractor
	PAFF site / During construction (C)	S 14.7.2	All waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water.	Contractor
	PAFF site / During construction (C)	S 14.7.2	All waste containers shall be in a secure area on hardstanding.	Contractor
	PAFF site / During construction (C)	S 14.7.2	Emergency equipment to deal with any spillage or fire shall be kept on site.	Contractor
	PAFF site / During construction (C)	S 14.7.2	All containers used for storage of chemical waste shall be maintained in good condition and clearly labelled in both English and Chinese.	Contractor
	PAFF site / During construction (C)	S 14.7.2	All storage areas for chemical waste shall be: <ol style="list-style-type: none"> 1. clearly labelled; 2. enclosed on at least 3 sides; 3. have impermeable floor and bunding sufficient to fully retain any spillage or leakages;ventilated; and 4. covered to prevent rainfall from entering. 	Contractor
	PAFF site / During construction (C)	S 14.7.2	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.	Contractor
	PAFF site / During construction (C)	S 14.7.2	All leaking containers shall be contained and removed from site as soon as is reasonably practicable.	Contractor

Item No.	Location/Timing	EIA Reference	Mitigation Measures	Implementation Agent
	PAFF site / During construction (C)	S 14.7.2	Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	Contractor
	All areas / During construction (C)	S 14.10.1	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site audit programme shall be undertaken.	Contractor

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