

Capco 青山發電有限公司
Castle Peak Power Co. Ltd.

Black Point Gas Supply Project

Twenty-fifth Monthly Environmental Monitoring & Audit (EM&A) Report – First Phase Project

12 April 2013

Environmental Resources Management

16/F, DCH Commercial Centre
25 Westlands Road
Quarry Bay, Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

www.erm.com






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16/F, DCH Commercial Centre
25 Westlands Road
Quarry Bay
Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

**Twenty-fifth Monthly Environmental Monitoring & Audit (EM&A)
Report – First Phase Project**

**ERM Document Code: 0124291_First Phase 25th Monthly
EM&A_Rev 0.doc**
CAPCO Document Code : BPGSP-ERML-PR-4-ENV-09-055

Client: CAPCO		Project No: 0124291			
Summary: This document presents the Twenty-fifth Monthly Environmental Monitoring and Audit (EM&A) Report for the First Phase Black Point Gas Supply Project.		Date: 12 April 2013			
		Approved by:  <i>Dr Robin Kennish</i> Director			
0	25 th Monthly EM&A Report – First Phase	Var	JNG	RK	12/04/13
Revision	Description	By	Checked	Approved	Date
<p>This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.</p> <p>We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.</p> <p>This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.</p>		<p>Distribution</p> <p><input checked="" type="checkbox"/> Government</p> <p><input checked="" type="checkbox"/> Public</p> <p><input type="checkbox"/> Confidential</p>  			

**Black Point Gas Supply Project (First Phase)
Environmental Certification Sheet
EP-391/2010/A**

Reference Document/Plan

Document/Plan to be Certified/ Verified:	Twenty-fifth Monthly Environmental Monitoring & Audit (EM&A) Report - March & April 2013
Date of Report:	12 April 2013
Date prepared by ET:	12 April 2013
Date received by IEC:	12 April 2013

Reference EM&A Manual/ EP Requirement

EP Condition:

Condition No. 5.3

Two hard copies and one electronic copy of monthly EM&A Reports shall be submitted to the Director within 2 weeks after the end of the reporting month. Additional copies of the submission shall be provided to the Director upon request from the Director.

ET Certification

I hereby certify that the above referenced document/plan complies with the above referenced condition of EP-391/2010/A.

Dr Helen Chiu, Environmental
Team Leader:



Date: 12 April 2013

IEC Verification

I hereby verify that the above referenced document/plan complies with the above referenced condition of EP-391/2010/A.

Dr Anne Kerr, Independent
Environmental Checker:



Date: 12 April 2013

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EXECUTIVE SUMMARY

The Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL) with CLP as operator, and its Contractor for Gas Receiving Station (GRS) construction, Leighton Contractors (Asia) Limited (Leighton), commenced the construction of the First Phase of the Black Point Gas Supply Project (BPGSP) at the Co-located GRS area on 15 March 2011. This is the twenty-fifth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 March to 12 April 2013 in accordance with the Updated EM&A Manual for the First Phase Project submitted under EP-391/2010/A, FEP-01/391/2010/A and FEP-02/391/2010/A.

Environmental Site Inspection & Audit

A monthly joint environmental site inspection/audit was carried out by the representatives of the Contractor, the Environmental Team (ET), CLP and the Independent Environmental Checker (IEC). Environmental performance complied with the environmental requirements and all necessary mitigation measures were properly implemented.

Water Quality

All marine works of submarine gas pipeline construction were completed. In accordance with the requirements stipulated in the Updated EM&A Manual, the post-construction marine water quality monitoring was commenced in this reporting period.

Waste Management

CAPCO and the Contractors have followed the Waste Management Plan (WMP) for handling of inert construction and demolition (C&D) materials (public fill), non-inert C&D materials (construction wastes) and sewage. Wastes generated during this reporting period were summarised.

Marine Ecology

Given that all marine construction works were completed, in accordance with the requirements of the Updated EM&A Manual, the first post-construction phase dolphin monitoring survey was conducted on 21 March 2013 to record information on dolphin distribution and abundance in the study area. One sighting of the Indo-Pacific humpback *Sousa chinensis* was observed during the survey.

Environmental Complaints, Non-compliance & Summons

No non-compliance with EIA recommendations, EP conditions and other requirements associated with the construction of the First Phase Project was recorded in this reporting period.

No environmental complaint was received in this reporting period.

No environmental summons was received in this reporting period.

Upcoming Works for the Next Reporting Period

Construction activities of this Project have been completed. There is no upcoming works for this Project.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) and Mott MacDonald Hong Kong Limited was appointed by the Castle Peak Power Company Limited (CAPCO) as the Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake Environmental Monitoring and Audit (EM&A) activities for the First Phase of the Black Point Gas Supply Project (BPGSP) (*the First Phase Project*).

1.1 PURPOSE OF THE REPORT

This is the twenty-fifth monthly EM&A report which summarises the impact monitoring results and inspection/ audit findings for the EM&A programme during the reporting period from **1 March** to **12 April 2013**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : **Introduction**

details the scope and structure of the report.

Section 2 : **Project Information**

summarises the background and scope of the First Phase Project, works locations, construction programme, the construction works undertaken and the status of Environmental Permits (EP)/licences over the construction phase of the First Phase Project.

Section 3 : **Implementation Status on Environmental Mitigation Measures**

summarises the implementation of environmental mitigation measures as recommended in the approved EIA report, EM&A Manual, EP and relevant environmental requirements stated in the Contract Specification.

Section 4 : **EM&A Results**

summarises the monitoring results, if any, obtained in the reporting period and the findings of the monthly site inspection undertaken within the reporting period.

Section 5 : **Environmental Non-conformance**

summarises any non-compliance of environmental performance standard, and environmental complaints and environmental summons received within the reporting period.

Section 6 : **Upcoming Works for the next Reporting Period**
summarises the impact forecast and monitoring schedule for the next reporting month.

Section 7 : **Conclusions**

2 PROJECT INFORMATION

2.1 PROJECT BACKGROUND

The Black Point Gas Supply Project (BPGSP) at the Black Point Power Station (BPPS), proposed by the Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL) with CLP as operator, will provide facilities to import replacement gas from Mainland China.

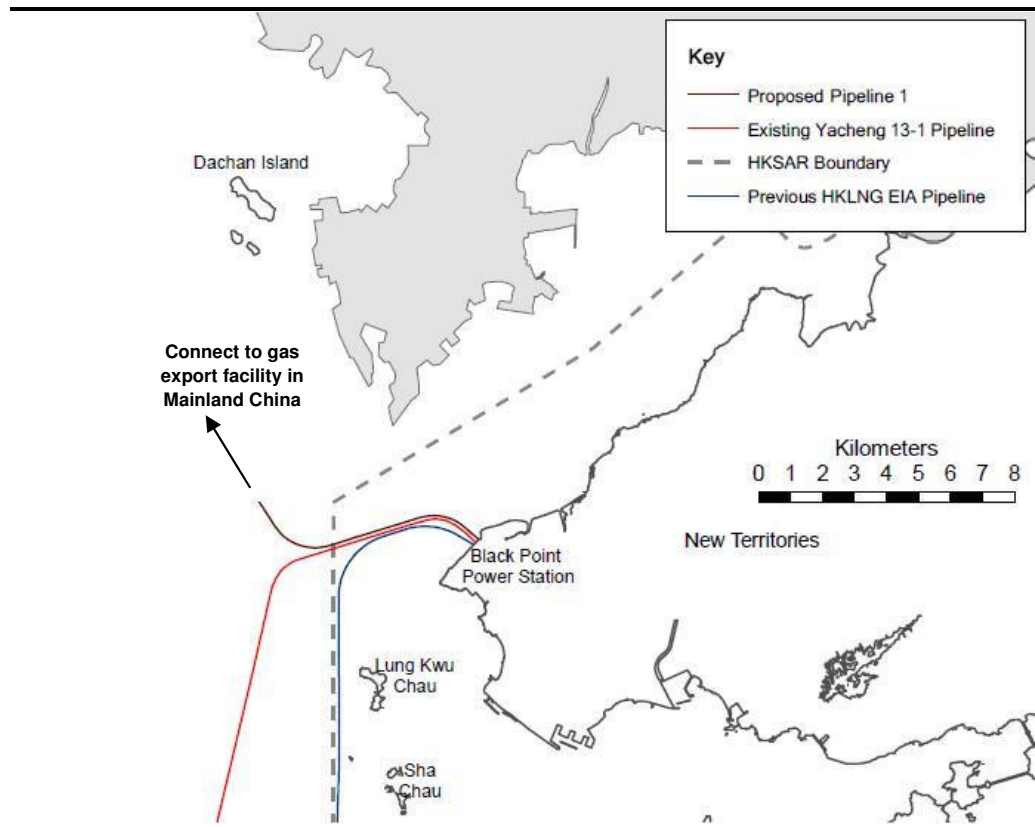
The First Phase of the BPGSP (hereafter referred to as the First Phase Project) will involve the construction and operation by PetroChina Company Limited (as the operator of the new CAPCO/PetroChina pipeline joint venture) of one submarine natural gas pipeline connecting BPPS with a gas export facility in Mainland China, while CAPCO is constructing and operating one gas receiving station (GRS) at BPPS.

An EIA of the BPGSP, including the First Phase Project, was prepared in accordance with the *EIA Study Brief* (No. ESB-208/2009) and the *Technical Memorandum of the Environmental Impact Assessment Process (EIAO-TM)* and submitted under the EIAO in February 2010. Subsequent to the approval of the EIA (*EIAO Register Number AEIAR-150/2010*) on 27 April 2010, an Environmental Permit (EP-391/2010) (EP) for the First Phase Project was granted by the Director of Environmental Protection (DEP) on 25 May 2010. A Further Environmental Permit (FEP) FEP-01/391/2010 was granted to the Contractor, Leighton Contractors (Asia) Limited, of the First Phase Project on 24 February 2011. Another FEP, FEP-02/391/2010/A, was issued to the Contractor, Wai Kee (Zens) Construction & Transportation Co., Ltd, on 23 March 2012. Applications for variation of the EP and FEP-01/391/2010 of the First Phase Project were submitted to the DEP and two EP variations, EP-391/2010/A and FEP-01/391/2010/A, were granted to CAPCO and Leighton Contractors (Asia) Limited respectively on 24 November 2011.

2.2 PROJECT SCOPE (FIRST PHASE)

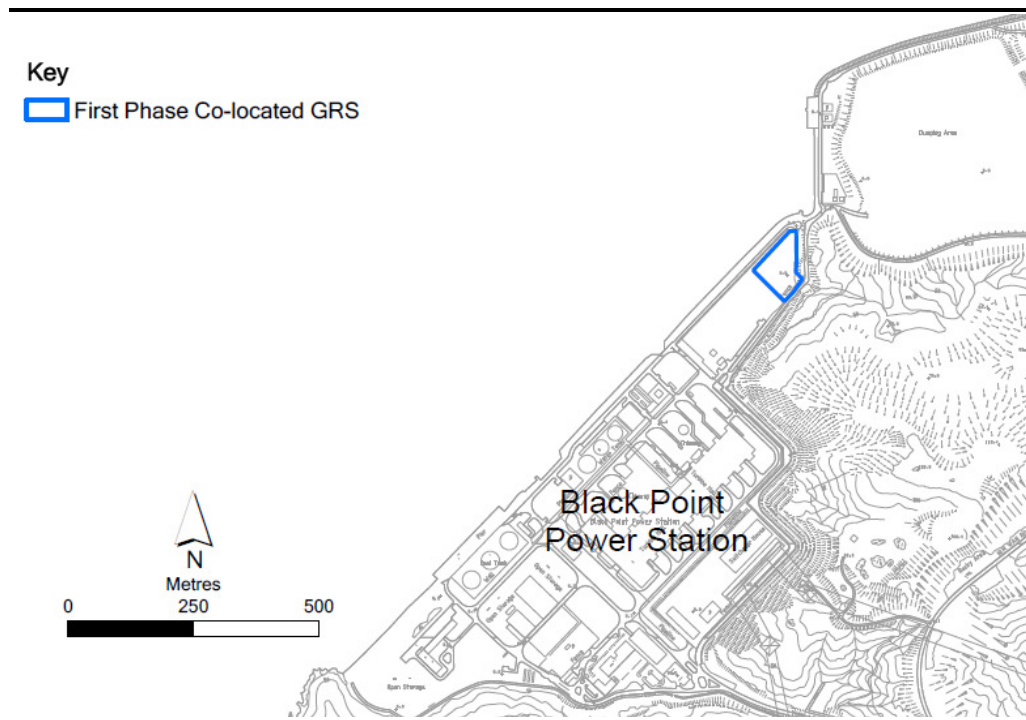
The proposed pipeline will traverse from the BPPS to a natural gas export facility in southern Guangdong Province, across the Urmston Road shipping channel and the Tonggu Waterway. It will be installed to the north of the existing Yacheng 13-1 Pipeline by approximately 100 m. Indicative routing of the proposed pipeline is depicted in *Figure 2.1*.

Figure 2.1 *Indicative Alignment of the Cross-Boundary Submarine Gas Pipeline Connecting the BPPS and the New Gas Export Facility in Mainland China*



The GRS is proposed to be located at the BPPS and will be constructed and operated within the site boundary of the BPPS, co-located with the existing GRS operated by the China National Offshore Oil Corporation (CNOOC) (hence referred to as the *Co-located GRS*). The proposed location of the Co-located GRS is presented on *Figure 2.2*.

Figure 2.2 Location of the First Phase Gas Receiving Station (GRS)



2.3 WORKS PROGRAMME & WORKS LOCATIONS

The construction works at the Co-located GRS area commenced on 15 March 2011. The preliminary construction programme is given in Figure 2.3. The locations of works are shown in Figure 2.4. The Sensitive Receivers in the vicinity of the proposed pipeline route are shown in Figure 2.5.

Figure 2.3 Construction Programme for the First Phase of the Black Point Gas Supply Project

First Phase Construction Co-located GRS & Pipeline 1	Month																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Construction of GRS																									
- Installation of GRS Facilities																									
Construction of Submarine Pipeline																									
- Dredging																									
- Installation																									
- Jetting																									
- Rock Dumping																									
- Testing																									



Figure 2.4 Locations of Works for the First Phase of the Black Point Gas Supply Project

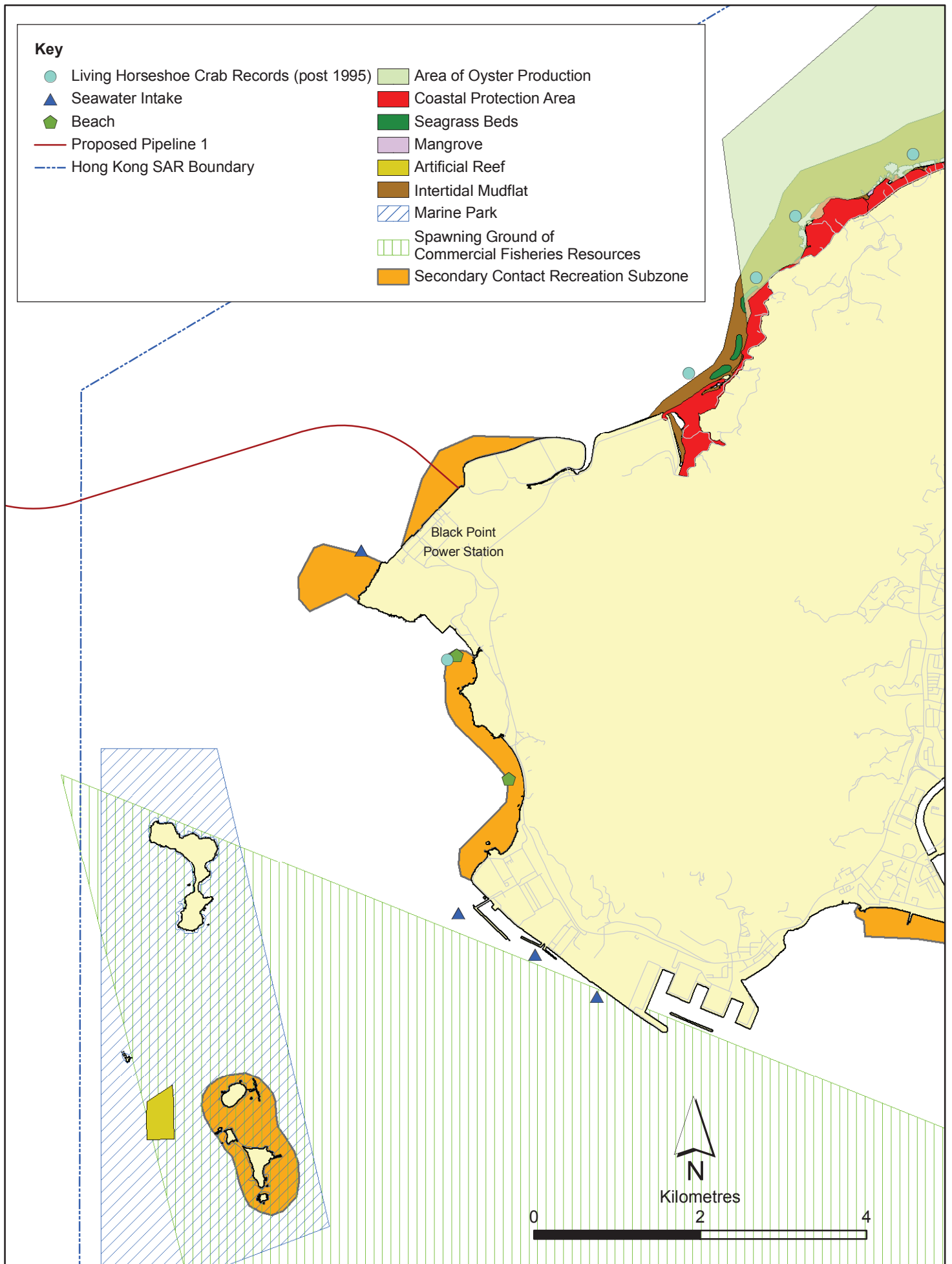


Figure 2.5

Surrounding Environment in the vicinity of Black Point

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Environmental
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Management



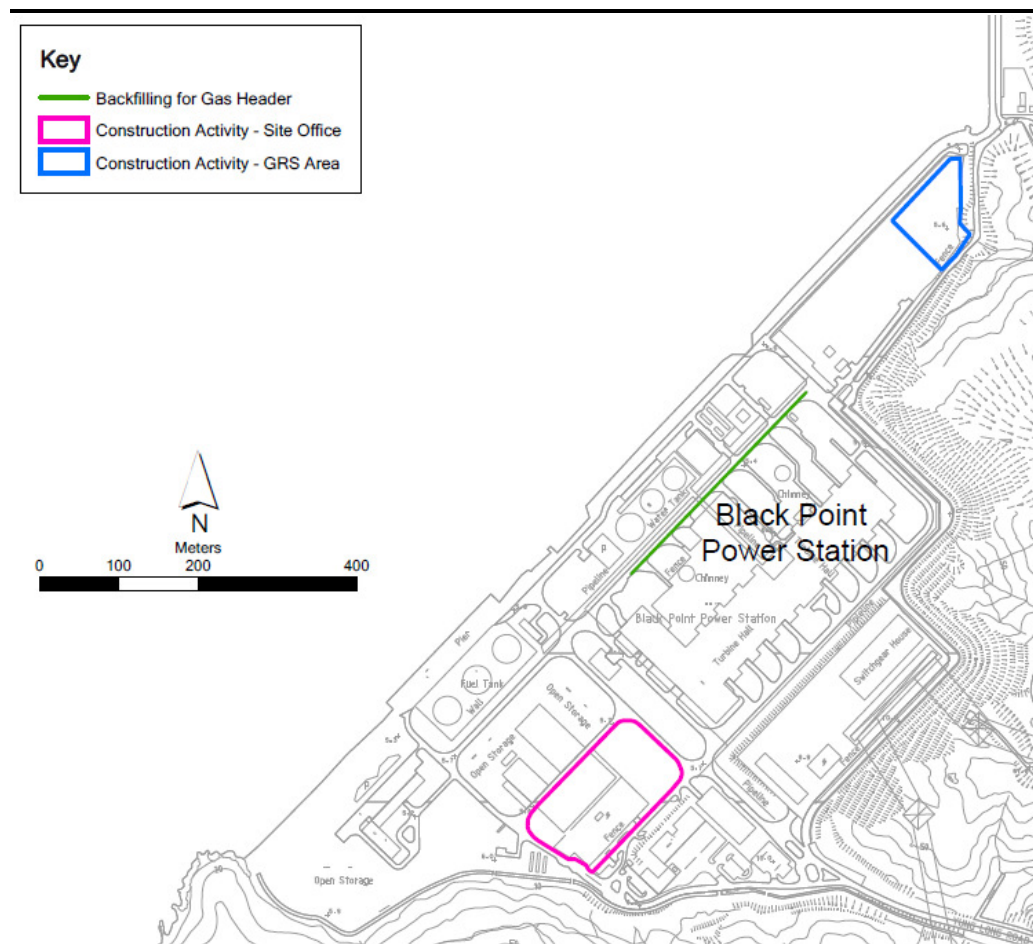
2.4 CONSTRUCTION ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in Table 2.1. The locations of the construction activities are shown in Figure 2.6.

Table 2.1 Summary of Construction Activities Undertaken during the Reporting Period

Construction Activities Undertaken
<ul style="list-style-type: none"> • Installation of road barriers at the co-located GRS area • Backfilling for Gas Header

Figure 2.6 Locations of the Construction Activities – March 2013



2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

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

Table 2.2 Summary of Environmental Licensing, Notification and Permit Status

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
<i>CAPCO</i>				
Environmental Permit	EP-391/2010	Throughout the Contract	Superseded by Environmental Permit No. EP-391/2010/A	Permit granted on 25 May 2010
Environmental Permit	EP-391/2010/A	Throughout the Contract	Valid	Permit granted on 24 Nov 2011
Allocation of Sediment Disposal Sites	(OHS3C-01) in FM4/IC/70A	up to 31 December 2012	Expired Sediment disposal activities completed	Allocation granted on 4 Oct 2010, extension applied on 23 Dec 2011 and 22 June 2012 and subsequently approved.
<i>Leighton Contractors (Asia) Limited</i>				
Further Environmental Permit	FEP-01/391/2010	Throughout the Contract	Superseded by Environmental Permit No. FEP-01/391/2010/A	Permit granted on 24 February 2011
Further Environmental Permit	FEP-01/391/2010/A	Throughout the Contract	Valid	Permit granted on 24 Nov 2011
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	--	--	Revised	Reference Number for Notification Pursuant to APC (Construction Dust) Regulation: 325647
Construction Noise Permit	GW-RW00286-11	1 May 2011 to 30 Oct 2011	Expired; new permit granted	Permit granted on 21 April 2011
Construction Noise Permit	GW-RW0423-11	3 July 2011 to 21 August 2011	Expired; new permit granted	Permit granted on 28 June 2011
Construction Noise Permit	GW-RW0461-11	31 July 2011 to 29 January 2012	Expired; new permit granted	Permit granted on 12 July 2011
Construction Noise Permit	GW-RW0491-11	21 August 2011 to 21 Feb 2012	Expired; new permit granted	Permit granted on 22 July 2011

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
Construction Noise Permit	GW-RW0526-11	11 September 2011 to 4 March 2012	Expired; new permit granted	Permit granted on 5 August 2011
Construction Noise Permit	GW-RW0033-12	30 January 2012 to 30 July 2012	Expired; new permit granted	Permit granted on 17 January 2012
Construction Noise Permit	GW-RW0121-12	11 March 2012 to 09 September 2012	Expired; new permit granted	Permit granted on 21 February 2012
Construction Noise Permit	GW-RW0483-12	30 July 2012 to 28 January 2013	Expired	Permit granted on 15 June 2012
Construction Noise Permit	GW-RW0809-12	16 November 2012 to 15 May 2013	Valid	Permit granted on 29 October 2012
Registration of Waste Producer under Waste Disposal (Chemical Waste)(General) Regulation	WPN 5213-432-L1048-05	Throughout the Contract	Valid	Granted on 19 April 2011 Renewed on 14 March 2012
Marine Dumping Permit	EP/MD/ 12-128	1 April 2012 to 31 July 2012	Expired	Permit granted on 23 March 2012; for dredged sediment requiring Type 1 – Open Sea Disposal. Dumping completed on 31 July 2012.
<i>Wai Kee (Zens) Construction & Transportation Co., Ltd</i>				
Further Environmental Permit	FEP-02/391/2010/A	Throughout the Contract	Valid	Permit granted on 23 March 2012
Construction Noise Permit	GW-RW0215-12	15 April 2012 to 14 October 2012	Expired; new permit granted	Permit granted on 26 March 2012
Construction Noise Permit	GW-RW0790-12	30 October 2012 to 29 April 2013	Valid	Permit granted on 18 October 2012
Marine Dumping Permit	EP/MD/12-142	20 April 2012 to 30 July 2012	Expired; new permit granted	Permit granted on 20 April 2012; for dredged sediment requiring Type 1 – Open Sea Disposal

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
Marine Dumping Permit	EP/MD/12-141	26 April 2012 to 25 May 2012	Expired; new permit granted	Permit granted on 26 April 2012; for dredged sediment requiring Type 1 – Open Sea Disposal (Dedicated Site) or Type 2 – Confined Marine Disposal
Marine Dumping Permit	EP/MD/13-014	26 May 2012 to 25 June 2012	Expired; new permit granted	Permit granted on 22 May 2012; for dredged sediment requiring Type 1 – Open Sea Disposal (Dedicated Site) or Type 2 – Confined Marine Disposal
Marine Dumping Permit	EP/MD/13-026	10 June 2012 to 31 July 2012	Expired; new permit granted	Permit granted on 7 June 2012; for dredged sediment requiring Type 1 – Open Sea Disposal
Marine Dumping Permit	EP/MD/13-032	26 June 2012 to 25 July 2012	Expired; new permit granted	Permit granted on 21 June 2012; for dredged sediment requiring Type 1 Open Sea Disposal (Dedicated Site) and Type 2 Confined Marine Disposal
Marine Dumping Permit	EP/MD/13-044	31 July 2012 to 31 December 2012	Expired	Permit granted on 20 July 2012; for dredged sediment requiring Type 1 Open Sea Disposal
Marine Dumping Permit	EP/MD/13-045	1 August 2012 to 30 September 2012	Expired	Permit granted on 20 July 2012; for dredged sediment requiring Type 1 Open Sea Disposal
Marine Dumping Permit	EP/MD/13-043	26 July 2012 to 25 August 2012	Expired	Permit granted on 24 July 2012; for dredged sediment requiring Type 1 Open Sea Disposal (Dedicated Site) and Type 2 Confined Marine Disposal

Permit/ Licenses/ Notification	Reference	Validity Period	Status	Remarks
Marine Dumping Permit	EP/MD/13-057	26 August 2012 to 25 September 2012	Expired	Permit granted on 15 August 2012; for dredged sediment requiring Type 1 Open Sea Disposal (Dedicated Site) and Type 2 Confined Marine Disposal
Chemical Waste Producer Registration	5213-432-W3140-02	Throughout the Contract	Valid	Registration granted on 15 June 2012

IMPLEMENTATION STATUS ON ENVIRONMENTAL MITIGATION MEASURES

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, EM&A Manual, EP and FEP. The implementation status of the measures during the reporting period is summarised in the Implementation Schedule of Mitigation Measures (*Annex A*).

Status of required submissions under the EP during the reporting period is presented in *Table 3.1*.

Table 3.1 *Status of Required Submission*

EP Condition	Submission	Date of Submission to EPD
Condition 1.11	Notification on commencement of construction of the Project	14 January 2011
Condition 2.3	Submission of Updated EM&A Manual	1 March 2011
Condition 2.4	Submission of Updated EM&A Programme	1 March 2011
Condition 3.1	Notification on Management Organization of the Main Construction Company	22 February 2011
Condition 3.4	Submission of Waste Disposal Plan (WDP)	1 March 2011
Condition 3.5	Submission of Waste Management Plan (WMP)	11 April 2011
Condition 3.6	Submission of Silt Curtain Deployment Plan for Jetting Operation	9 August 2012
Condition 3.6	Submission of intensive water quality monitoring results	19 October 2012
Condition 5.1	Submission of Baseline Marine Water Quality Monitoring Report (Final)	18 April 2011
	Submission of Updated Baseline Marine Water Quality Monitoring Report	26 July 2012
Condition 5.3	Submission of Quarterly EM&A Summary Report – December 2012 to February 2013	28 March 2013
Condition 5.3	Submission of Monthly EM&A Report – February 2013	14 March 2013

4 EM&A RESULTS

4.1 SITE INSPECTIONS & AUDITS

A monthly joint site inspection was conducted by representatives of the Contractor, the ET, CAPCO and the IEC on 10 April 2013. Locations inspected included the Co-located GRS area, the project site office compound, the gas header excavation area, the temporary stockpiling area and the project store. There was no non-compliance recorded during the site inspection.

Environmental performance complied with environmental requirements and all necessary mitigation measures were properly implemented. No specific observation was identified from the site inspection.

4.2 WATER QUALITY MONITORING

All marine construction works have been completed. The Post-Construction Phase Water Quality Monitoring was commenced in this reporting month as per the methodology described in the Updated EM&A Manual for the First Phase Project.

Per plan, the results of the Post-Construction Phase Water Quality Monitoring will be presented in the *Post-Construction Water Quality Report* within six weeks upon completion of monitoring.

4.3 WASTE MANAGEMENT

Wastes generated during this reporting period include mainly construction and demolition (C&D) materials (inert public fill and non-inert construction wastes) and sewage. Reference has been made to the Monthly Summary Waste Flow Table prepared by Leighton Contractors (Asia) Limited (*Annex B*). The quantities of different types of wastes are summarized in *Table 4.1* with reference to relevant handling records for this Project.

Table 4.1 Quantities of Different Wastes Generated during the Reporting Period

Month / Year	Quantity						Marine Sediment ^(g)	
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste ^(c)	Recyclable Materials ^(d)	C&D Materials (Inert) Re-used ^(e)	Sewage ^(f)	Type I ^(h)	Type II ⁽ⁱ⁾
March 2013	510 tonnes	35 tonnes	0 kg	6,215 kg	0 tonnes	190 m ³	0 m ³	0 m ³

Notes:

- Inert C&D materials include concrete, rubble, earth, boulder, sand, tile, masonry and used bentonite and were disposed of at the Tuen Mun Area 38 Public Fill.
- Non-inert C&D materials after segregation were sent to WENT Landfill.
- A licensed waste collector has been engaged for the collection of chemical wastes for disposal or recycling at licensed facilities.
- Recyclable materials include metals, paper, cardboard, plastics, timber and others.
- Inert C&D materials recycled include broken concrete, materials reused in the First Phase Project and materials reused in other Projects.
- Sewage generated by toilets with holding tanks was collected and disposed of off-site at Pillar Point Sewage Treatment Works.
- Marine sediment generated from dredging activities by the Contractor (Wai Kee and Leighton).
- Type I sediments are disposed of at the South Cheung Chau Sea and East Ninopin Sea Sediment Disposal Area
- Type II sediments are disposed of at the Mud Pit V of East of Sha Chau Confined Marine Sediment Disposal facility

4.4 MARINE ECOLOGY MONITORING

Since all marine works of submarine gas pipeline construction were completed, the post-construction phase marine ecology monitoring was commenced in this reporting month. Per plan, the post construction phase marine mammal monitoring for the First Phase Project was conducted once per month to record information on dolphin distribution and abundance in the Project areas. The survey was conducted as per the methodology described in the Updated EM&A Manual for the First Phase Project.

The first monthly post-construction phase marine mammal monitoring was conducted on 21 March 2013. A total of 28 km of survey effort was collected from the line-transect vessel survey. One sighting of the Indo-Pacific humpback dolphin *Sousa chinensis* was observed in the present survey.

As described in the Updated EM&A Manual, data from the post-construction phase monitoring, when completed, will be compiled and analysed together with analysis and discussion with regard to previous Pre-construction and Construction Phase monitoring data.

4.5 SEABED GEOPHYSICAL SURVEY

In accordance with the requirements under *Condition 3.10* of FEP-02/391/2010/A and EP-391/2010/A, the post construction phase geophysical

surveys were conducted on 20 and 25 February 2013 to record the seabed profile after the completion of the submarine pipeline installation works. Side scan sonar and echo sounding surveys were conducted within an area of 500 m on both side of the alignment of the pipeline.

Results of the post-construction phase geophysical surveys confirmed the restoration of seabed profile and configurations after the completion of pipeline works. The findings of the seabed geophysical survey are summarized in *Annex D*.

5 ENVIRONMENTAL NON-CONFORMANCE

5.1 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance of EIA/ EM&A/ EP/ legislative requirements was recorded during the reporting period.

5.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting period.

5.3 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summons/ prosecution was received during the reporting period.

6 **UPCOMING WORKS FOR THE NEXT REPORTING PERIOD**

6.1 **CONSTRUCTION ACTIVITIES FOR THE COMING MONTH**

Construction activities of this Project have been completed. There is no upcoming works for this Project

6.2 **MONITORING SCHEDULE FOR THE COMING MONTHS**

Since all marine works of submarine gas pipeline construction were completed, the post construction phase water quality and marine mammal monitoring are commenced from March to April 2013 and from March to May 2013, respectively (*Annex C*). The monitoring programme has been reviewed and was considered as adequate to cater for the nature of works in progress.

CONCLUSIONS

This Twenty-fifth Monthly EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 March to 12 April 2013, in accordance with EM&A Manual and the requirements of EP-391/2010/A, FEP-01/391/2010/A and FEP-02/391/2010/A.

All marine works of submarine gas pipeline construction have been completed. The post-construction phase water quality and marine mammal monitoring were conducted during the reporting period. No adverse observation was identified in the surveys.

A monthly joint environmental site inspection was conducted in the reporting period. It confirmed that the environmental mitigation measures recommended in the EIA Report were properly implemented by the Contractor.

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

No complaint and summons/prosecution was received during the reporting period.

Construction activities of this Project have been completed. This concludes the construction phase EM&A activities of the First Phase Project.

Annex A

Implementation Schedule of Mitigation & Precautionary Measures

Annex A-1 Implementation Schedule for Environmental Protection Measures for the Black Point Gas Supply Project (First Phase)

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
1. Air Quality Measures					
S4.8	Dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> will be implemented during the construction of the GRS to control the potential fugitive dust emissions.	Land Site / During Construction	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	✓
S4.8	Site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	Land Site / During Construction	Contractor(s)	-	✓
S4.10	EM&A in the form of site inspection and audit of dust generating activities.	Land Site / During Construction	Environmental Team (ET) & Independent Environmental Checker (IEC)	Environmental Impact Assessment Ordinance	✓
S4.10	A commissioning test for heaters will be conducted to ensure the stack design, heater operation and the emission information adopted in the assessment is maintained.	Land Site / During Construction/ commissioning	CAPCO	-	N/A. Test to be conducted prior to commissioning.
S4.6, EP4.1	The GRS shall be designed and operated in accordance with the following parameters: <ul style="list-style-type: none"> The maximum number of gas heaters shall not be more than seven, and no more than six gas heaters shall be operated simultaneously. The total amount of NO_x and CO emissions emitted from the heaters in operation shall not be more than 8.22kg and 5.14kg per hour respectively; The stack height shall not be less than 15m above ground; The exhaust gas velocity of the gas heaters shall not be less than 10ms⁻¹ under full load operation; and The exhaust gas temperature of the gas heaters shall not be less than 280 °C under full load operation. 	Land Site / During Design and Operation	CAPCO	-	N/A. To be checked during detailed engineering stage.

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
2. Noise					
S5.7	EM&A in the form of site inspection and audit of construction activities.	Land Site / During Construction	Environmental Team (ET) & Independent Environmental Checker (IEC)	Environmental Impact Assessment Ordinance	✓
3. Water Quality					
S6 Annex 6A	Dredging/ jetting plants will be required to comply with the rates modelled in the EIA (S6 Annex 6A and Annex 14A-2) for the various activities assessed.	Marine works areas / During Construction	Contractor(s) and ET	-	N/A. No dredging/jetting during the reporting period.
S6.9	Dredged marine mud will be disposed of in a gazetted marine disposal area in accordance with the <i>Dumping at Sea Ordinance (DASO)</i> permit conditions.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	N/A. No dredged marine mud during the reporting period.
S6.9	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	N/A. No dredging during the reporting period.
S6.9	Barges will be filled to a level, which ensures that material does not spill over during transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Dredged areas/ During Construction	Contractor(s)	-	N/A. No dredging during the reporting period.
S6.9	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	N/A. No dredging during the reporting period.
S6.9	The contractor(s) will confirm that the works cause no visible foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the dredging site.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	Monitoring and automation systems will be used to improve the crew's information regarding the various dredging parameters to improve dredging accuracy and efficiency.	Dredged areas/ During Construction	Contractor(s)	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	Control and monitoring systems will be used to alert the crew to leaks or any other potential risks such as chemicals and oils.	Dredged areas/ During Construction	Contractor(s)	-	✓
S6.9	When the dredged material has been unloaded at the disposal areas, any material that has accumulated on the deck or other exposed parts of the vessel will be removed and placed in the hold or a hopper. Under no circumstances will decks be washed clean in a way that permits material to be released overboard.	Dredged areas/ During Construction	Contractor(s)	Dumping at Sea Ordinance	N/A. No dredged material being disposed during the reporting period.
S6.9	Dredgers will maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operations speed to ensure that excessive turbidity is not generated by turbulence from vessel movement or propeller wash.	Dredged areas/ During Construction	Contractor(s)	-	N/A. No dredging during the reporting period.
S6.9	Mitigation measures to be implemented during submarine pipeline installation activities are presented in <i>Annex 14A-2</i> .	Marine works areas / During Construction	Contractor(s)	-	N/A. No marine works during the reporting period
S6.9	Channels, earth bunds or sand bag barriers will be provided on site to direct stormwater to silt removal facilities. The design of silt removal facilities (e.g. silt traps or sedimentation facilities) will make reference to the guidelines in <i>Appendix A1 of ProPECC PN 1/94</i> . All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land Site / During Construction	Contractor(s)	ProPECC PN 1/94 TM standard under the WPCO	✓
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land Site / During Construction	Contractor(s)	-	N/A
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land Site / During Construction	Contractor(s)	-	✓
S6.9	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in <i>Appendix A2 of ProPECC PN 1/94</i> .	Land Site / During Construction	Contractor(s)	ProPECC PN 1/94	N/A

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land Site / During Construction	Contractor(s)	-	N/A
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge will be adequately designed for the controlled release of storm flows.	Land Site / During Construction	Contractor(s)	-	✓
S6.9	The temporary diverted drainage will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land Site / During Construction	Contractor(s)	-	N/A
S6.9	During the early stages of work, portable chemical toilets will be used and the effluent will either be shipped offsite or be disposed of at sewage treatment work (STW) at BPPS.	All facilities / During Construction	Contractor(s)	-	✓. Toilets with holding tanks have been provided. Portable chemical toilets will be provided.
S6.9	Debris and refuse generated on-site will be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials will be kept covered when not being used.	All facilities / During Construction	Contractor(s)	-	✓
S6.9	Oil leakage or spillage will be contained and clean up immediately. Waste oil will be collected and stored for recycling or disposal, in accordance with the <i>Waste Disposal Ordinance</i> .	All facilities / During Construction	Contractor(s)	Waste Disposal Ordinance	✓
S6.10	Water quality monitoring shall be undertaken for suspended solids, salinity, turbidity, and dissolved oxygen. If exceedances occur due to dredging/ jetting activities, event and action plan shall be adopted.	Designated monitoring stations as defined in EM&A Manual / Construction period for dredging/ jetting works	ET	Environmental Impact Assessment Ordinance	N/A. No dredging/jetting during the reporting period.
S6.9	The surface runoff from the GRS should be connected to a storm water channel via a grit and oil interceptor. These grit and oil interceptors will be regularly cleaned and maintained in good working condition. Trapped oil and grease should be disposed of periodically by waste collection contractor using a suitable liquid waste collection vehicle	GRS/ During Operation	CAPCO	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S6.9	Any oil leakage or spillage will be contained and cleaned up immediately.	GRS/ During Operation	CAPCO	-	✓
S6.9	Waste oil will be collected and stored for recycling or disposal in accordance with the <i>Waste Disposal Ordinance</i> .	GRS/ During Operation	CAPCO	Waste Disposal Ordinance	✓
4. Waste Management					
S7.5	The Contractor shall identify a coordinator/ approved personnel for implementing standard site practices and managing wastes. The waste coordinator shall implement the Waste Management Plan which specifies procedures such as a recording system to facilitate tracking of loads and protocols for the maintenance of records of the quantities of wastes generated, recycled and disposed. Responsibilities also include arrangements for collection and effective disposal of wastes to appropriate facilities.	Contract mobilisation / During construction	Contractor(s)	-	✓
S7.5	The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges. A trip ticket system (TTS) for the removal of C&D materials from the site to the designated disposal facility will be implemented.	Contract mobilisation / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes DEVB TC(W) No. 6/2010, Trip-ticket System for Disposal of Construction and Demolition Material Water Pollution Control Ordinance	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	A 'chit' ticket system (TTS) for the disposal of C&D materials will be implemented.	Contract mobilisation / During construction	Contractor(s)	Waste Disposal (Charges for Disposal of Construction Waste) Regulation	✓
S7.5	No waste shall be burnt on site. Wastes shall be collected by licensed waste haulier and be disposed of at licence sites.	Land site / During construction	Contractor(s)	Air Pollution Control Ordinance	✓
S7.5	Rock and soil may be excavated from site formation works and that will be reused as fill material for the Project as far as practicable.	Land site / During construction	Contractor(s)	WBTC No. 2/93, Public Dumps	✓
S7.5	Material shall be reused on site as far as practicable, including formwork plywood, topsoil and excavated material.	Land site / During construction	Contractor(s)	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site	✓
S7.5	C&D materials will be sorted on site into inert waste (public fill) and non-inert waste (construction waste). Public fill will be disposed of at public fill reception facilities (e.g. Tuen Mun Area 38 or other locations as agreed with CEDD). Construction waste, such as timber, paper, plastics and general refuse, cannot be reused and need to be disposed of at the West New Territories (WENT) Landfill.	Land site / During construction	Contractor(s)	-	✓
S7.5	The site and surroundings shall be kept tidy and litter free. Waste storage area shall be properly cleaned and shall not cause windblown litter and dust nuisance.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness. Works Bureau, Hong Kong SAR Government	✓
S7.5	Stockpiled material shall avoid vegetated areas.	Land site / During construction	Contractor(s)		✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Stockpiles shall be covered by tarpaulins and/or watered as needed.	Land site / During construction, particularly dry season	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	✓
S7.5	Storage of material on site shall be kept to a minimum. Construction materials shall be planned and stocked carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas / During construction	Contractor(s)	-	✓
S7.5	Use of reusable non-timber formwork to reduce the amount of C&D materials	All areas / During construction	Contractor(s)	Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site	✓
S7.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill	All areas / During construction	Contractor(s)	-	✓
S7.5	Wheel washing facilities shall be used by all trucks leaving the site to prevent the transfer of mud onto public roads.	Site entrances and exits / During construction	Contractor(s)	Air Pollution Control (Construction Dust) Regulation	✓
S7.5	Any unused chemicals and those with remaining functional capacity shall be recycled to the extent practical.	Land site / During construction	Contractor(s)	-	✓
S7.5	Temporary storage areas for general refuse shall be enclosed or contained to avoid environmental impacts.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Sufficient dustbins shall be provided for storage of waste. Wastes shall be timely cleared and shall be disposed of to the nearest licensed facility.	All areas / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓
S7.5	Waste oils, chemicals or solvents shall not be disposed of to drain. Drainage systems, sumps and oil interceptors shall be cleaned and maintained regularly.	All facilities / During construction	Contractor(s)	-	✓
S7.5	Standard site practice shall be implemented to avoid waste generation and promote waste minimisation.	All facilities / During construction	Contractor(s)	-	✓
S7.5	Waste materials such as paper, metal, timber and waste oil shall be recycled as far as practicable. Different types of waste shall be segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the site.	Land Site / During construction	Contractor(s)	ETWBTC No. 33/2002, Management of Construction and Demolition Material Including Rock	✓
S7.5	C&D materials will be wetted as quickly as possible to the extent practice after filling to reduce the potential dust and water quality impacts of site formation works	All facilities / During construction	Contractor(s)	-	✓
S7.5	Dredged marine mud shall be disposed of in marine disposal sites designated by the Marine Fill Committee (MFC) and under the requirements of the <i>Dumping at Seas Ordinance</i> .	Dredging / During construction	Contractor(s)	Dumping at Sea Ordinance	N/A. No disposal of dredged marine mud during the reporting period.
S7.5	Waste containers shall be in good condition and fitted with lids or covers to prevent waste from escaping or the ingress of water. Waste containers shall be in a secure area on hardstanding.	All facilities / During construction	Contractor(s)	WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Proper storage and site practices shall be adopted to reduce the potential for damage or contamination of construction materials.	All facilities / During construction	Contractor(s)	-	✓
S7.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste	All facilities / During construction	Contractor(s)	-	✓
S7.5	Emergency equipment to deal with any spillage or fire shall be kept on site.	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Suitable chemical waste storage areas shall be formed at the works site for temporary storage pending collection. Chemical wastes shall be separated for special handling and shall be disposed of via a licensed waste collector at appropriate licensed treatment facility, e.g. the Chemical Waste Treatment Centre at Tsing Yi.	Land site/ Chemical Waste Treatment Centre at Tsing Yi/ During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Containers used for storage of chemical waste shall be: <ul style="list-style-type: none"> • Maintained in good condition and clearly labelled in both English and Chinese; • Suitable for the substance they are holding, resistant to corrosion, and securely closed; and • Capacity of less than 450 L unless the specifications have been approved by the EPD. 	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Storage areas for chemical waste shall: <ul style="list-style-type: none"> • Be clearly labelled and used solely for the storage of chemical waste; • Be enclosed on at least 3 sides; • Have adequate ventilation; • Be arranged so that incompatible materials are appropriately separated • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; and • Be covered to prevent rainfall from entering 	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Leaking containers shall be contained and removed from site as soon as is reasonably practicable.	All facilities / During construction	Contractor(s)	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓
S7.5	Training shall be provided to site personnel in proper waste management and chemical handling procedures, the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	All facilities / During construction	Contractor(s)	-	✓
S7.5	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site inspection and audit programme shall be undertaken. Waste flow tables (WFT) will be used as a recording system to document the amount of waste generated, recycled and disposed of (including the disposal sites).	All facilities / During construction	ET and IEC	-	✓

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S7.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All facilities / During construction	Contractor(s)	-	✓
5. Marine Ecology (Marine Mammals)					
S8.8	The vessel operators will be required to control and manage all effluent from vessels	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	A policy of no dumping of rubbish, food, oil, or chemicals will be strictly enforced. This will also be covered in the contractor briefings	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	All vessel operators working on the Project construction phase will be given a briefing, alerting them to the possible presence of dolphins in the area, and the guidelines for safe vessel operation in the presence of cetaceans. If high speed vessels are used by the contractors, they will be required to slow to 10 knots when passing through a high density dolphin area (Sha Chau and Lung Kwu Chau)	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	The vessel operators engaged during the construction phase will be required to use predefined and regular routes, as these will become known to dolphins using these waters	Marine works area / During construction	Contractor(s) and ET	-	✓
S8.8	A marine mammal exclusion zone within a radius of 250 m from dredgers/ jetting machine will be implemented during the construction phase. Qualified observer(s) will scan the 250 m-exclusion zone for at least 30 minutes prior to the start of dredging. If cetaceans are observed in the exclusion zone, dredging/ jetting will be delayed until they have left the area. As per previous practice in Hong Kong, should cetaceans move into the works area during dredging/ jetting, it is considered that cetaceans will have acclimatised themselves to the works therefore cessation of dredging is not required	Works areas along the pipeline route / During Dredging/ Jetting for the Gas Pipeline Installation	Contractor(s) and ET	-	N/A. No dredging/jetting during the reporting period.

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
S8.8	Except for the pipeline section along Urmston Road, dredging/jetting works shall be restricted to a daily maximum of 12 hours with daylight operations. Because of marine traffic constraints, dredgers/jetting machine may need to operate 24 hours on the pipeline section which crosses the Urmston Road channel off Black Point enabling completion in the shortest possible time	Works areas along the pipeline route / During Dredging/ Jetting for the Gas Pipeline Installation	Contractor(s) and ET	-	N/A. No dredging/jetting during the reporting period.
S8.8	Monitoring will be conducted for the distribution and abundance of dolphins during the construction and post-construction phase of the project. Three months of pre-construction dolphin monitoring will also be conducted. The protocols for this will be agreed with AFCD in advance.	Marine works areas / Pre-construction, during construction and post-construction	CAPCO	-	N/A. No dredging/jetting during the reporting period. Construction phase monitoring completed.
6. Fisheries					
S9.10	Geophysical survey will be conducted during the pre-construction and post-construction of pipeline works to confirm the seabed would be reinstated to its original level.	Pre-construction and Post-construction after pipeline works	ET	-	✓. Post-construction phase geophysical survey completed.
7. Landscape & Visual					
S10.5.11	Site hoardings to be compatible with surrounding landscape.	Land site / During Construction	Contractor(s)	-	✓
S10.5.11	The tree requiring removal is to be compensated in accordance with relevant government guidelines	Land site / During Construction	Contractor(s)	-	✓
S10.6.13	The colours of the proposed GRS should be selected to complement the existing industrial surroundings.	Land site / Pre-Construction (Detail Design)	Contractor(s)	-	N/A. To be checked.
8. Cultural Heritage					
No mitigation measures were specified in the EIA report as no sites of terrestrial or marine archaeological potential are located in the Project Area.					
9. Hazard to Life					

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Status
EP3.12	The first major piece of equipment in the GRS for connecting the offshore pipeline shall be an Emergency Shutdown (ESD) valve, which can be closed in order to isolate the GRS from the source of gas in the event of an emergency	Land site / Pre-Construction (Detail Design)	CAPCO	-	N/A. To be checked during detailed engineering design.

Remark:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Leighton Contractors (Asia) Limited
- △ Deficiency of Mitigation Measures but rectified by Leighton Contractors (Asia) Limited
- N/A Not Applicable in Reporting Period

Annex A-2 Summary of Mitigation Measures during the Dredging/ Jetting Activities for this Project

Marine Work Location (Zone)	Marine Work & Plant Type	No. of Plant	Specific Mitigation Measures	Status
Gas Pipeline – Shore Approach (KP 4.89 – KP 4.78)	Dredging by Closed Grab Dredger	1	Grab dredging speed shall be no more than 57 m per day or 4.75 m per hour, whichever is less. Silt curtain(s) will be installed during grab dredging operations along this pipeline section *.	N/A. No dredging during the reporting period.
Gas Pipeline – Black Point to Urmston Road (KP 4.78 – KP 2.52)	Trenching by Jetting Machine	1	Jetting speed shall be no more than 360 m per day or 30 m per hour, whichever is less. Silt curtain(s) will be installed along the marine works areas during jetting operations for the installation of this pipeline section *. The extent of silt curtain(s) installation will be determined based on site condition (e.g. bathymetry of the works area) and navigation safety considerations. Details of the design and implementation of the silt curtain(s) will be developed before construction and verified by the Independent Environmental Checker (IEC) and agreed with EPD. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO.	N/A. No jetting during the reporting period.
Gas Pipeline – across Urmston Road (KP 2.52 – KP 0.73)	Dredging by Closed Grab Dredger	1	Grab dredging speed shall be no more than 57 m per day or 2.5 m per hour, whichever is less. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures, such as cage-type silt curtain, will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO *.	N/A. No dredging during the reporting period
Gas Pipeline – from Urmston Road to HKSAR boundary (KP 0.73 – KP 0)	Trenching by Jetting Machine	1	Jetting speed shall be no more than 360 m per day or 30 m per hour, whichever is less. Should non-compliance occur at the respective impact station during water quality monitoring, the use of additional mitigation measures will be examined by the ET and the IEC, discussed with the Contractor, EPD and CAPCO *.	N/A. No jetting during the reporting period.

* Details of silt curtain installation shall be submitted to the IEC for verification prior to the commencement of dredging/jetting works.

Remark:

- ✓ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Contractor
- Δ Deficiency of Mitigation Measures but rectified by Contractor
- N/A Not Applicable in Reporting Period

Annex B

Waste Flow Table

Waste Flow Table Year: 2013

Month	Actual Quantities of Inert Construction Waste Reused/Recycled			Actual Quantities of Construction Waste Recycled						Actual Quantities of Disposed Material				
	Broken Concrete ¹ Recycled	Re-used in Project	Re-used in Other Projects ²	Metals Recycled	Paper Recycled	Cardboard Packaging Recycled	Plastic ³ Recycled	Timber	Others ⁴	Chemical Waste ⁵ to Licensed Facilities		Inert Construction Waste ⁶ to Public Fill	Type 1 Sea Mud to Open Sea Disposal Site	Construction Waste to Landfill
										Liquid	Solid			
(tonnes)	(tonnes)	(tonnes)	(kg)	(kg)	(kg)	(kg)	(kg)	(nos.)	(litres)	(kg)	(tonnes)	(cub. m)	(tonnes)	
Jan	0	0	0	0	523	1190	307	0	0	0	0	0.00	0	12.6
Feb	0	0	0	0	357	153	0	0	0	0	0	1414.81	0	11.06
Mar	0	0	0	5375	527	263	50	0	0	0	0	509.51	0	34.78
Q1 total	0	0	0	5375	1407	1606	357	0	0	0	0	1924	0	58.44
Apr														
May														
Jun														
Q2 total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul														
Aug														
Sep														
Q3 total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct														
Nov														
Dec														
Q4 total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand total	0	0	0	5375	1407	1606	357	0	0	0	0	1924.32	0.00	58.44

Note / Definition:

1. Broken concrete for recycling into aggregates (eg Tuen Mun Area 38).
2. Other projects include third-parties (eg quarries).
3. Plastic refers to plastic bottles/containers, plastic sheets/foam from packaging material.
4. Examples of other waste recycled may include tyres and computer equipment

5. Chemical waste is split into 2 components: liquid waste (eg spent lubricating oil) and solid waste (eg spent batteries).

6. Inert construction waste is also known as public fill. It includes, for example, concrete, rubble, earth, boulder, sand, tile, masonry and used bentonite.

Annex C

Schedules for Post
Construction Phase
Water Quality Monitoring
and Marine Mammal
Monitoring

**Black Point Gas Supply Project (First Phase)
Water Quality Monitoring Schedule (Post Construction Phase) - March 2013**

For monitoring stations please refer to Figure 1 & 2.

Reference Tidal Station: Lok On Pai (Source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Mar	02-Mar
03-Mar	04-Mar	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar
10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar
		Mid-Flood: 1925hrs Mid-Ebb: 1328hrs <i>Post Monitoring</i>		Mid-Flood: 0819hrs Mid-Ebb: 1432hrs <i>Post Monitoring</i>		Mid-Flood: 0906hrs Mid-Ebb: 1542hrs <i>Post Monitoring</i>
17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar
		Mid-Flood: 1013hrs Mid-Ebb: 1808hrs <i>Post Monitoring</i>		Mid-Flood: 0818hrs Mid-Ebb: 2049hrs <i>Post Monitoring</i>		Mid-Flood: 1556hrs Mid-Ebb: 1040hrs <i>Post Monitoring</i>
24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	Public Holiday	Public Holiday
		Mid-Flood: * Mid-Ebb: 1221hrs <i>Post Monitoring</i>		Mid-Flood: 1953hrs Mid-Ebb: 1330hrs <i>Post Monitoring</i>		
31-Mar						

Note: * Survey was cancelled due to adverse weather condition.

**Black Point Gas Supply Project (First Phase)
Water Quality Monitoring Schedule (Post Construction Phase) - April 2013**

For monitoring stations please refer to Figure 1 & 2.

Reference Tidal Station: Lok On Pai (Source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Public Holiday	01-Apr	02-Apr	03-Apr	Public Holiday	04-Apr
		Mid-Flood: 1017hrs Mid-Ebb: 1731hrs <i>Post Monitoring</i>				Mid-Flood: 1556hrs Mid-Ebb: 1037hrs <i>Post Monitoring</i>
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
		Mid-Flood: 1836hrs Mid-Ebb: 1230hrs <i>Post Monitoring</i>		Mid-Flood: 2002hrs Mid-Ebb: 1336hrs <i>Post Monitoring</i>		Mid-Flood: 0800hrs Mid-Ebb: 1442hrs <i>Post Monitoring</i>
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
28-Apr	29-Apr	30-Apr				

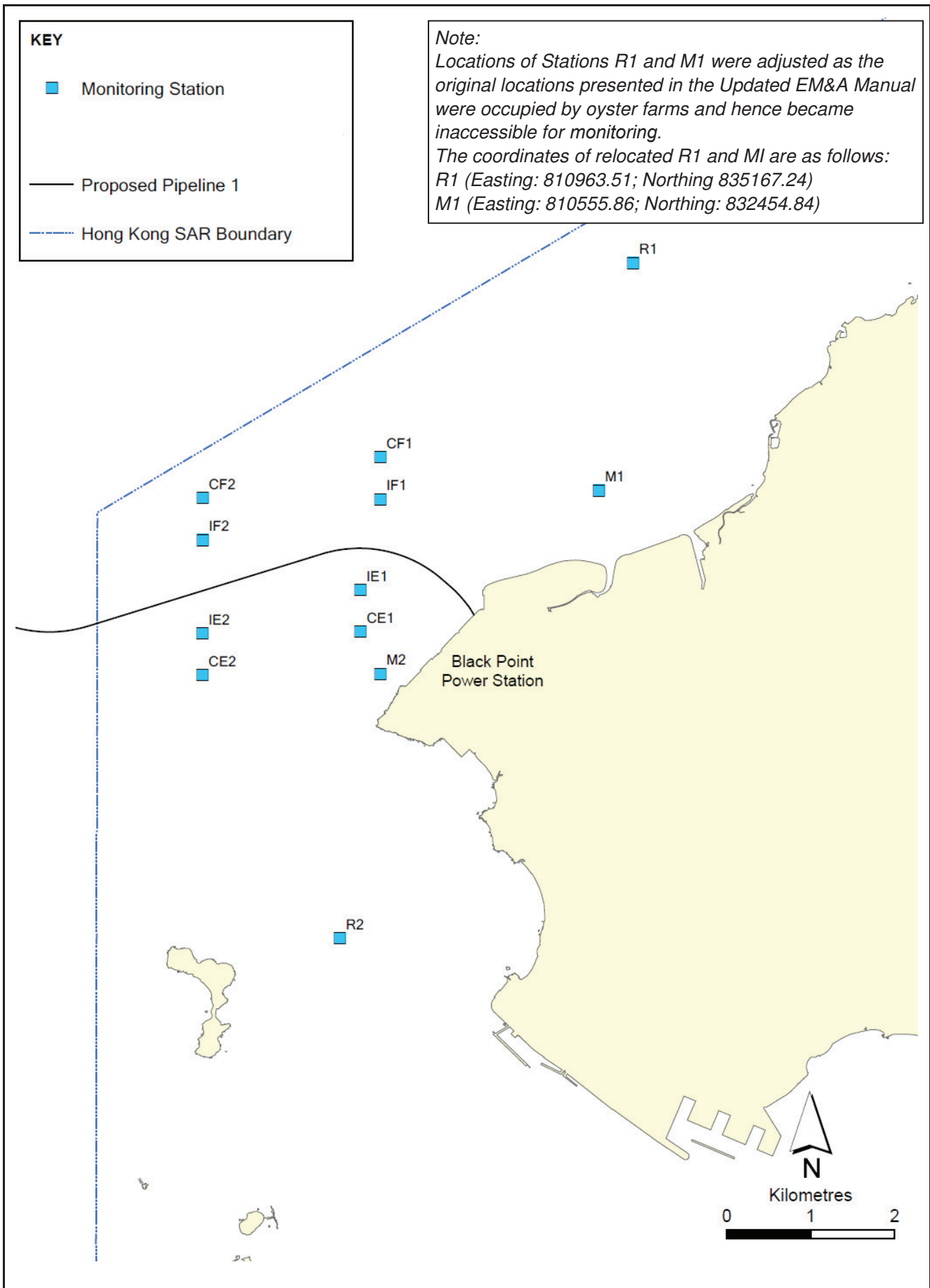


Figure 1 Post-Project Water Quality Monitoring Stations (for Dredging and Jetting Activities in Hong Kong Waters)

Environmental
 Resources
 Management



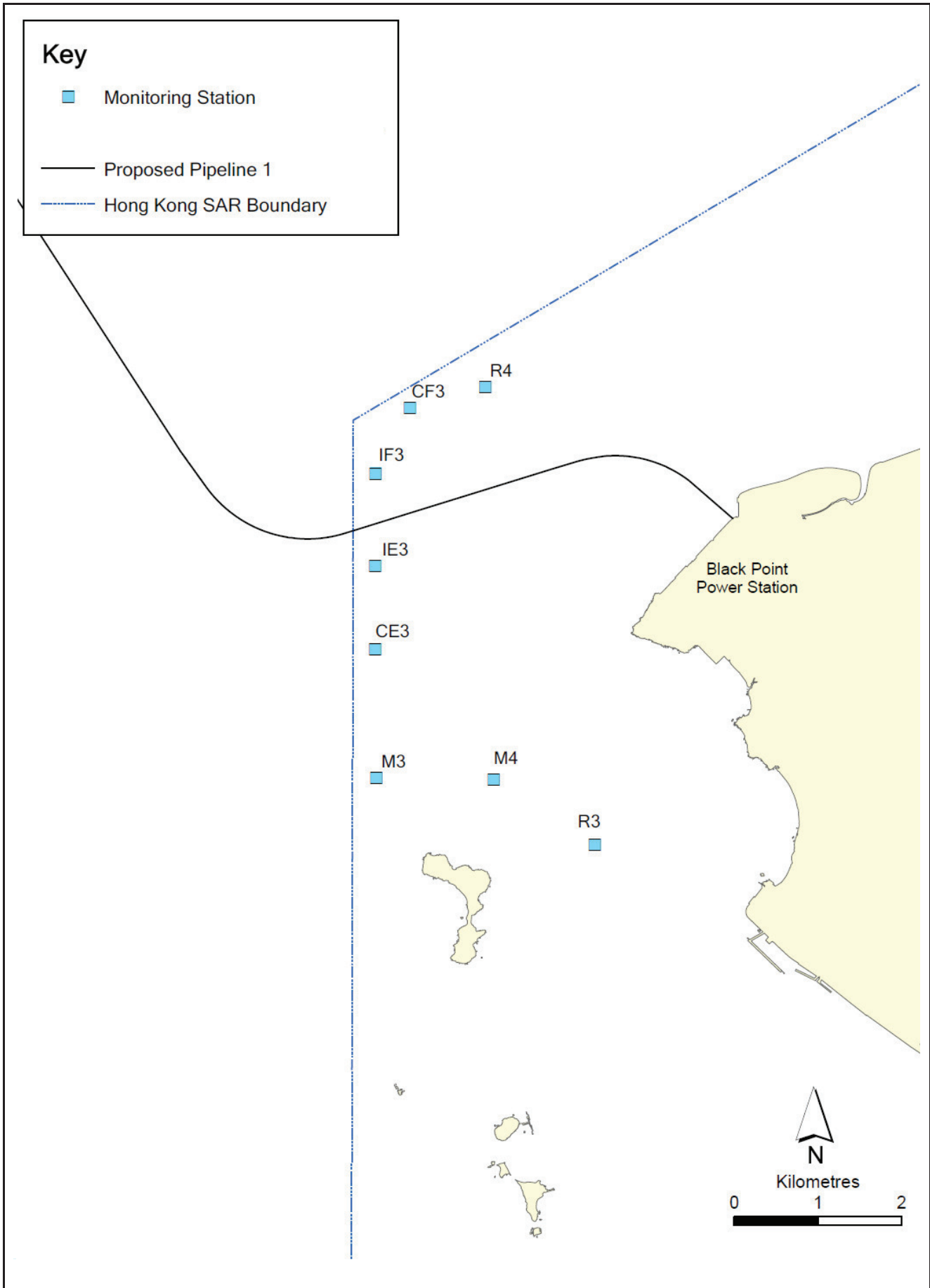


Figure 2 Post-Project Water Quality Monitoring Stations (for Dredging Activities in PRC Waters)

Environmental
Resources
Management



**Black Point Gas Supply Project (First Phase)
Schedule for Additional Marine Mammal Monitoring (Post Construction Phase) - March 2013**

For line transects of marine mammal monitoring please refer to Figure 3.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Mar	02-Mar
03-Mar	04-Mar	05-Mar	06-Mar	07-Mar	08-Mar	09-Mar
10-Mar	11-Mar	12-Mar	13-Mar	14-Mar	15-Mar	16-Mar
17-Mar	18-Mar	19-Mar	20-Mar	21-Mar	22-Mar	23-Mar
				Additional Marine Mammal Monitoring (Post Construction Phase)		
24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	29-Mar	30-Mar
31-Mar						

**Black Point Gas Supply Project (First Phase)
Tentative Schedule for Additional Marine Mammal Monitoring (Post Construction Phase) - April 2013**

For line transects of marine mammal monitoring please refer to Figure 3.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	01-Apr	02-Apr	03-Apr	04-Apr	05-Apr	06-Apr
07-Apr	08-Apr	09-Apr	10-Apr	11-Apr	12-Apr	13-Apr
14-Apr	15-Apr	16-Apr	17-Apr	18-Apr	19-Apr	20-Apr
		Additional Marine Mammal Monitoring (Post Construction Phase)				
21-Apr	22-Apr	23-Apr	24-Apr	25-Apr	26-Apr	27-Apr
28-Apr	29-Apr	30-Apr				

**Black Point Gas Supply Project (First Phase)
Tentative Schedule for Additional Marine Mammal Monitoring (Post Construction Phase) - May 2013**

For line transects of marine mammal monitoring please refer to Figure 3.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			01-May	02-May	03-May	04-May
05-May	06-May	07-May	08-May	09-May	10-May	11-May
12-May	13-May	14-May	15-May	16-May	17-May	18-May
			Additional Marine Mammal Monitoring (Post Construction Phase)			
19-May	20-May	21-May	22-May	23-May	24-May	25-May
26-May	27-May	28-May	29-May	30-May	31-May	

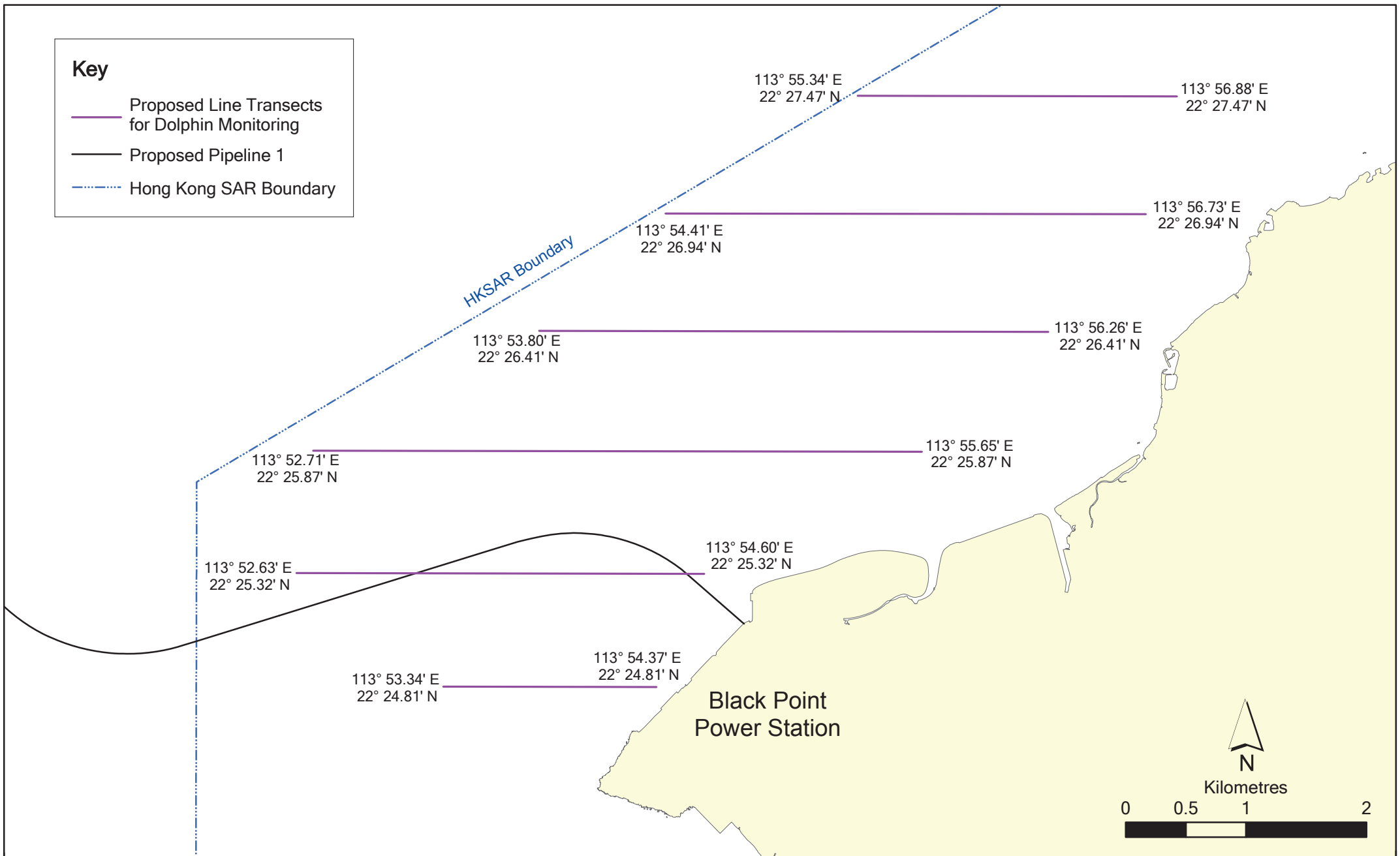


Figure 3

Line Transects for Post-Project Marine Mammal Monitoring

Annex D

Results of Seabed Geophysical Surveys

1 RESULTS OF SEABED GEOPHYSICAL SURVEY

1.1 INTRODUCTION

In accordance with the requirements under *Condition 3.10* of FEP-02/391/2010/A and EP-391/2010/A of the First Phase of the Black Point Power Gas Supply Project (BPGSP) (“the First Phase Project”), seabed geophysical surveys are required to record the seabed profile in the pre-construction and post-construction phases of the submarine gas pipeline works.

The geophysical seabed surveys were conducted by CAPCO’s geophysical contractor EGS (Asia) Limited (EGS) between 12 and 28 December 2011 for the pre-construction phase survey, and between 20 and 25 February 2013 for the post-construction phase survey. The seabed profile collected from the post-construction phase survey is compared with the profile of the pre-construction phase in an attempt to confirm the restoration of seabed profile and configurations after the completion of pipeline works.

1.2 SITE CONDITION

The water depths along the pipeline route range from 3m to 21m and the pipeline was laid at about 1.5 to 3 m and 3 to 6 m below the existing seabed in the dredged and non-dredged trenches, respectively.

The weather condition during the geophysical surveys was fine. The sea condition was calm in general with occasionally wavy condition due to marine vessels passed by during the surveys.

1.3 METHODOLOGY AND EQUIPMENT

The geophysical survey using Side Scan Sonar (SSS) and Echo Sounding (Single Beam and Multi-Beam) were conducted within an area of 500 m on both side of the alignment of the pipeline. These surveys allowed for a comprehensive investigation of the seabed, and below the seabed. The equipment for the geophysical survey is listed in *Table 1.1*.

Table 1.1 *Equipment List for Geophysical Seabed Surveys*

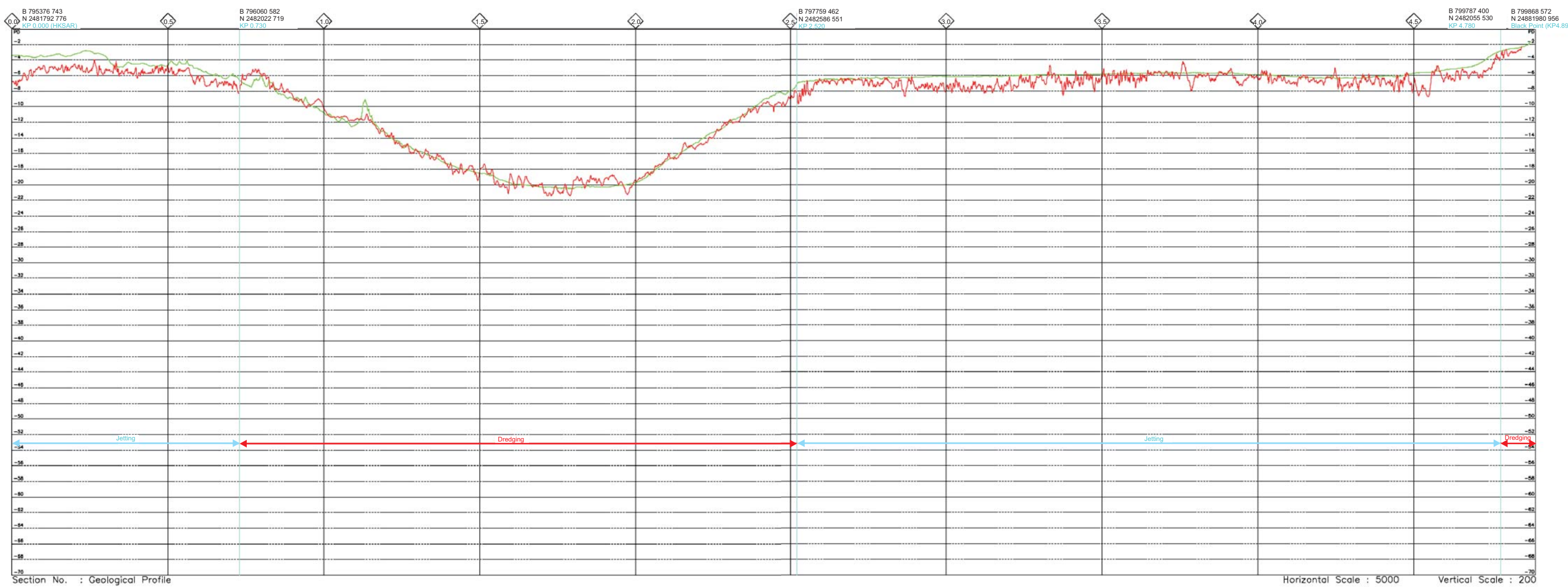
Type of Equipment	Model Used
Positioning and navigation	<ul style="list-style-type: none">• C-Nav Globally corrected GPS (GcGPS) system• C-View Nav computerized navigation system• QPS QINSy navigation system software
Multi-Beam Echo Sounding (MBES)	<ul style="list-style-type: none">• R2SONIC Sonic 2014 multibeam echo sounder• TSS Orion integrated motion sensor and gyrocompass

Type of Equipment	Model Used
Single Beam Echo Sounding (SBES)	<ul style="list-style-type: none"> • Knudsen 320M dual frequency echo sounder • TSS 320B dynamic motion sensor
Speed of Sound Measurement	Valeport soundbar profiler
Side Scan Sonar (SSS)	KLEIN 2000 digital side scan sonar system
Tide Gauge	Valeport digital recording pressure tide gauge with GSM data link
Survey software	<ul style="list-style-type: none"> • C-View Bathy processing and charting software • QPS QINSy multibeam module • C-View logging and Interpretation systems for SSS

1.4

SUMMARY OF FINDINGS

The cross-section seabed profiles of pre-construction phase and post-construction phase are showed on *Figure 1*. Whilst slight fluctuations in the vertical seabed profile were identified, the overall seabed profile of post-construction phase agrees with that in the pre-construction phase of the pipeline works. The survey data confirmed that the seabed affected by the installation of submarine gas pipeline is restored to its original profile and configuration.



Legend :

- Seabed Profile (Dec 2011) - Pre-Construction Phase
- Seabed Profile (Feb 2013) - Post-Construction Phase

Figure 1

Cross-section Seabed Profile of Pre-Construction and Post-Construction Phases of the Submarine Gas Pipeline Installation at the Black Point Gas Supply Station(First Phase)

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DATE: 10/04/2013