

CONTENTS

18	CONCLUSIONS	1
18.1	INTRODUCTION	1
18.2	CONSIDERATION OF ALTERNATIVES	1
18.2.1	Consideration of Alternative Site Locations	1
18.2.2	Consideration of Different Layouts and Design Options	1
18.2.3	Consideration of Alternative Construction Methods	2
18.3	AIR QUALITY	2
18.4	NOISE	3
18.5	WATER QUALITY	4
18.6	WASTE MANAGEMENT	5
18.7	TERRESTRIAL ECOLOGY	6
18.8	MARINE ECOLOGY	7
18.9	FISHERIES	8
18.10	LANDSCAPE AND VISUAL IMPACT	9
18.11	CULTURAL HERITAGE	10
18.12	HAZARD TO LIFE	11
18.13	LAND CONTAMINATION	11
18.14	ENVIRONMENTAL MONITORING AND AUDIT (EM&A)	12
18.15	ENVIRONMENTAL OUTCOME	12
18.16	ENVIRONMENTALLY RESPONSIBLE DESIGNS	13
18.17	ENVIRONMENTAL BENEFITS OF THE PROJECT	13

18 CONCLUSIONS

18.1 INTRODUCTION

This *Section* presents a summary of the key conclusions of this EIA associated with the construction and operation of the proposed LNG terminal at Black Point. The purpose of the assessment was to thoroughly evaluate the Black Point LNG terminal and associated facilities in terms of predicted impacts to key environmental sensitive receivers and to determine whether this option can meet the requirements of the *EIAO-TM*.

18.2 CONSIDERATION OF ALTERNATIVES

This EIA Study has examined a series of Alternatives as follows:

- Consideration of Alternative Site Locations (*Part 1, Section 4*);
- Consideration of Different Layouts and Design Options (*Part 2, Section 2.1*);
- Consideration of Alternative Construction Methods (*Part 2, Section 2.2*);

18.2.1 Consideration of Alternative Site Locations

CAPCO conducted a preliminary evaluation of the options for a LNG receiving terminal in Hong Kong which included Gravity Based Structure, Floating Storage Regasification Unit, Artificial Island and a Coastal Location. The assessment concluded that a coastal location was the only viable option for a receiving terminal in Hong Kong that could reliably supply natural gas to the Black Point Power Station.

An alternative site location study was conducted to determine the most suitable coastal site(s) in Hong Kong for the LNG terminal. A phased approach to the screening and assessment of sites within Hong Kong was utilised. The results of this Hong Kong wide site location study indicated that two sites were worthy of further analysis based on their relative performance against a series of other shortlisted sites in relation to environmental, risk, planning, social, marine traffic and engineering criteria. The two preferred sites were South Soko Island, at the location of the former detention centre, and Black Point, on the headland adjacent to the existing power station (BPPS).

18.2.2 Consideration of Different Layouts and Design Options

An assessment of different layouts and design options was conducted to investigate not only the environmental considerations of each preliminary layout and design options, but to include an examination of the engineering

aspects for various layouts. Of the three selected layouts, both the engineering and environmental assessments have identified *layout Option 1 – Base Case* as the most preferable for the construction and operation of the Black Point terminal. This option achieves the best balance between reclamation and excavation quantities. The location of the two LNG tanks in the Black Point headland also reduces the potential for impacts to landscape and visual sensitive receivers. In addition, the engineering consequences and subsequent environmental impacts are considered to be lower for this layout option.

The Base Case Layout has thus been taken forward as the preferred layout for the Black Point terminal in the EIA.

18.2.3 **Consideration of Alternative Construction Methods**

- *Reclamation:* Two construction options have been considered, the Fully Dredged Option and the Partially Dredged Option. It is considered, that whilst there may be benefits from the Fully Dredged Option from a schedule perspective, the benefits associated with potentially less on site dredging and offsite disposal mean that the Partially Dredged Option should be taken forward as the preferred construction method for the reclamation.
- *Seawalls:* In addition to the conventional method of carrying out full dredging of the marine deposits before filling up for the seawall, two other alternatives have been considered: a ground improvement technique (i.e., Deep Cement Mixing to enhance the strength of the marine deposits before filling up for the seawall) and a long counter fill on the seaward side of the seawall (which would provide toe stability against slip failure during construction). The assessment concludes that neither of the alternative methods is preferred over the conventional method of dredging beneath the seawall.
- *Jetty:* For the construction of the LNG Jetty, two alternatives for the installation of marine piles have been assessed. These are bored or percussive piling methods. The assessment proposed that either method would be suitable for the construction of the LNG Jetty as part of the Black Point terminal.
- *Approach Channel and Turning Circle:* Two dredging plant have been assessed: grab dredgers and trailing suction hopper dredgers (TSHD). Both are commonly used in Hong Kong and as such have been considered as a viable option.

18.3 **AIR QUALITY**

The potential impacts to air quality caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 4* of

this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 4 and 12* respectively .

Air Sensitive Receivers (ASRs) have been identified and the potential impacts arising from the construction and operation phases (including cumulative operation impacts with BPPS and CPPS) of the LNG terminal to these ASRs have been evaluated. From the assessment it emerges that dust generated from the construction activities and gaseous emissions from construction plant are the potential concerns during the construction phase, whilst air emissions from LNG terminal equipment and LNG carrier are the principal concern during the operational phase.

Potential dust nuisance from dust generating activities and gaseous emission from construction plant during construction of the LNG terminal have been considered. With the implementation of standard mitigation measures, no adverse impact is anticipated. The gaseous emissions from the construction plant are also minimal and no adverse impact to the ASRs is anticipated.

During the operation of the LNG terminal, air emissions from submerged combustion vaporisers (SCVs), LNG carrier generators (during LNG unloading) and pipeline gas heaters are potential sources of air quality impacts. As a conservative assumption, it was assumed that the SCVs, the LNG carrier generators and pipeline gas heaters were operating continuously. Even with this set of assumptions, the modelling indicated that the air quality impacts are low and well within the respective criteria at the identified ASR.

18.4

NOISE

The potential impacts of noise caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 5* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 5 and 13* respectively .

Noise sensitive receivers (NSRs) have been identified and the potential impacts arising from the construction and operational phases have been evaluated. In both cases, the noise assessment was conducted using a conservative approach assuming each work activity operates simultaneously in the construction phase and without attenuations due to foliage of trees and shrubs, ground effects and buildings during the operation phase assessment.

The nearest NSR has been identified as the village house at Lung Kwu Sheung Tan (N1) which is located at approximately 1.6 km away from the site. No planned NSR is identified within 2 km from the site. The predicted construction noise levels at N1 are within the stipulated noise criterion of 75 dB(A). In view of the insignificant construction noise impact, mitigation measures are not required during the construction phase.

Based on the most conservative case, the noise levels generated from the equipment at the LNG terminal have been predicted. Due to the large separation distance between the NSR and the noise source, the predicted operational noise level is within the daytime and night-time noise criteria. Therefore mitigation measures are not anticipated to be required during the operational phase.

In view of the insignificant noise impact in both construction and operational phases, noise monitoring is not considered to be necessary.

18.5 WATER QUALITY

The potential impacts to water quality caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 6* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 6 and 14* respectively .

Sensitive receivers potentially affected by construction and operational activities of the LNG terminal have been identified and the potential impacts have been evaluated. The key sensitive receivers include the Indo-pacific Humpback Dolphin habitat of NW Lantau Island, the Sha Chau and Lung Kwu Chau Marine Park, commercial fisheries spawning habitat of Noorthern Lantau, fish culture zones, ecologically sensitive areas (mangroves, horseshoe crab habitat, seagrass beds and intertidal mudflats), beaches (gazetted and non – gazetted) and water intakes. The assessment has included the potential impacts caused by marine works (i.e. dredging and reclamation) on the water quality due to the increases of suspended sediments concentrations, potential decreases of dissolved oxygen and increases of nutrients concentration, as well as those caused by operational activities such as the alteration of the hydrodynamic regime, discharges of cooled water and antifoulants.

Water quality and hydrodynamic models have been used to simulate the variation in suspended sediments concentration during the construction phase and the impacts due to cooled water discharges during the operation phase.

Potential impacts arising from the proposed dredging works are predicted to be largely confined to the specific works areas. Modelling results indicate that the SS elevations as a result of dredging (grab dredging and TSHD) are expected to be compliant with the WQO and tolerance criterion at all sensitive receivers in both seasons. The predicted elevations of suspended sediment concentrations during the construction phase are transient in nature and not predicted to cause adverse impacts to water quality at the sensitive receivers.

During the operation phase, adverse impacts to water quality are not expected to occur as the area affected by the cooled water discharge is extremely small and in the direct vicinity of the discharge point.

Unacceptable impacts to water quality sensitive receivers have been avoided through the adoption of mitigation measures including the siting of the LNG terminal and the associated facilities away from water quality sensitive receivers, the selection of acceptable working rates for the marine works, construction operational mitigations (i.e. dredging operational measures) and appropriate on-site land based construction activities. No mitigation measures are required during the operational phase.

No projects are planned to be constructed in sufficient proximity to the Project to cause cumulative effects and hence, cumulative impacts are not expected to occur.

Water quality monitoring and auditing is recommended for the construction phase and the specific monitoring requirements are detailed in the *Environmental Monitoring and Audit Manual (EM&A Manual)* associated with this EIA Report. As no unacceptable impacts have been predicted to occur during the operation of the LNG terminal at Black Point, monitoring of impacts to marine water quality during the operational phase is not considered necessary. It is noted that discharges from the site will require a license under the WPCO which stipulates regular effluent monitoring as part of the license conditions.

18.6 WASTE MANAGEMENT

The potential impacts to waste management caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 7* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 7 and 15* respectively.

The key potential impacts during the construction phase are related to wastes generated from site clearance, site formation, blasting, dredging, reclamation, seawall construction, filling and concreting. The storage, handling, collection, transport, disposal and/or re-utilisation of these materials and their associated environmental impacts have been the primary focus of the assessment.

During the construction phase it is estimated that a total of approximately 3.15 Mm³ of marine sediment will be dredged. It is estimated that about 87 % of the sediments are uncontaminated and could be disposed of at open sea disposal sites. A considerable amount of excavated rock (approximately 0.77 Mm³) and soil (approximately 0.22 Mm³) will be generated from the site formation works, which will be used, as far as practical, as fill material for the reclamation and seawall construction. The excavated rock and soil will be stored temporarily off-site.

Other wastes produced during the construction phase are of small quantity and will be disposed of accordingly to their nature, avoiding any potential

adverse impact. The potential environmental impacts associated with the storage, handling, collection, transport and disposal of waste produced during operational activities have been estimated to be not significant and will therefore meet the criteria specified in the *EIAO-TM*.

Unacceptable impacts as a result of the waste produced during the construction phase have been avoided through the adoption of specific mitigation measures and in particular through the establishment and implementation of a Waste Management Plan (WMP).

In order to ensure that the construction Contractor(s) has implemented the recommendations of the EIA Report, regular site audits will be conducted of the waste streams, to determine if wastes are being managed in accordance with the approved procedures and the site WMP. An appropriate audit programme will be undertaken with the first audit conducted at the commencement of the construction works. Routine weekly site inspections will also include waste management issues.

18.7 TERRESTRIAL ECOLOGY

The potential impacts to terrestrial ecology caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 8* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 8* and *16* respectively. The potential direct and indirect impacts to terrestrial ecology assessed include loss of habitats, disturbance to wildlife, disturbance to ecologically sensitive areas and pollution.

Ecologically sensitive terrestrial species and habitats have been identified and the potential impacts arising from the construction and operation phases of the LNG terminal have been evaluated. The terrestrial ecological resources recorded within the Study Area include plantation, shrubland, shrubby grassland, stream/channel, orchard and developed areas, with their associated wildlife. Of these habitats, shrubland located at the western part of the headland is of moderate ecological importance, shrubland located at the southern part of the headland and the stream are low to moderate in ecological importance, while the remaining habitats are of low or negligible ecological importance.

The impact on natural habitats is considered to be low to moderate, and no adverse residual impact is expected after the implementation of the proposed mitigation measures, comprising appropriate construction practices, reinstatement of affected areas of shrubland (temporary haul road), transplantation of Pitcher Plants and Bamboo Orchids and compensatory and enhancement planting of shrubland (approximately 0.7 and 6 ha respectively). Environmental monitoring and audit measures in the form of regular checks will be undertaken.

During the operation phase of the LNG terminal at Black Point adverse impacts to terrestrial ecological resources are not expected to occur.

18.8 MARINE ECOLOGY

The potential impacts to marine ecology caused by construction and operational activities of the LNG terminal at Black Point have been assessed in Section 9 of this EIA Report. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the EIAO – TM Annexes 8 and 16 respectively. The potential direct and indirect impacts to marine ecology assessed include loss of habitats, disturbance to wildlife, disturbance to ecologically sensitive areas and pollution.

Ecologically sensitive receivers have been identified and the potential impacts arising from the construction and operation phases of the LNG terminal to these have been evaluated. The sensitive receivers include the Indo-pacific Humpback Dolphin (*Sousa chinensis*) habitat of NW Lantau, the Sha Chau and Lung Kwu Chau Marine Park and ecologically sensitive areas (mangroves, horseshoe crab habitat, seagrass beds and intertidal mudflats). Potential construction phase impacts to marine ecological resources of the Study Area, including impacts to marine mammals (especially *Sousa chinensis*), may arise from the permanent loss of habitat due to reclamation, disturbances to benthic habitats in the turning circle and approach channel, or through changes to key water quality parameters, as a result of the dredging and reclamation.

The results of the *Water Quality* modelling activities completed in Section 6 indicate that the impacts arising from the marine works will be transient and confined to the works area and compliant with the assessment criteria. It is therefore estimated that there will be no unacceptable impacts to the marine ecology (including marine mammals) of the Study Area as a result of the LNG terminal's construction activities.

Potential operational phase adverse impacts to marine ecological resources are not expected to occur. Unacceptable impacts from discharges of cooled water and antifoulants are not anticipated to occur as the effects from these discharges will be localised to the direct vicinity of the outfall.

Unacceptable impacts to marine ecology sensitive receivers have been avoided through the adoption of mitigation measures including the provision of rubble mound/armour rock seawalls on the edges of the reclamations to facilitate colonisation by intertidal and subtidal organisms, restrictions on vessel speed and the use of exclusion zones during marine percussive piling work for the construction of the jetty. The mitigation measures designed to mitigate impacts to water quality to acceptable levels (compliance with assessment criteria) are also expected to mitigate impacts to marine ecological resources.

Monitoring and audit activities designed to detect and mitigate any unacceptable impacts to water quality will serve to protect against

unacceptable impacts to marine ecological resources. The water quality monitoring programme will provide management actions and supplemental mitigation measures to be employed should impacts arise, thereby ensuring the environmental acceptability of the project.

Despite these measures a marine mammal EM&A programme has been developed. The EM&A Manual provides details of the marine mammals monitoring to be undertaken to ensure that the mitigation measures recommended in the EIA for the protection of marine mammals are carried out as specified and are effective.

Operational phase impacts are not expected to occur to marine ecological resources, thus no marine ecology specific operational phase monitoring is considered necessary.

18.9 FISHERIES

The potential impacts to commercial fisheries caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 10* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 9 and 17* respectively. The potential direct and indirect impacts to commercial fisheries assessed include the potential loss of fishing grounds and impact to oyster farming.

Fisheries sensitive receivers have been identified and the potential impacts arising from the construction and operation phases of the LNG terminal have been evaluated. Potential impacts to fisheries resources and fishing operations, as well as impacts to fish fry, may arise from the permanent loss of habitat due to reclamation, disturbances to benthic habitats on which the fisheries resources depend for food, or through changes to key water quality parameters, as a result of the marine works. The *Water Quality* modelling activities completed in *Section 6* indicate that the impacts arising from the proposed marine works are predicted to be largely confined to the specific works areas and the predicted elevations in suspended sediment concentrations are not predicted to cause exceedances of the assessment criterion over a large area. Adverse impacts to water quality are thus not predicted and neither are consequential impacts to any fishing grounds or species of importance to the fisheries.

Significant operational phase impacts to fisheries resources and fishing operations are not expected to occur. Entrainment of fisheries resources will be reduced through the appropriate design of the intake screens. Unacceptable impacts from discharges of cooled water are not anticipated to occur as the effects from these discharges will be localised to the lower layers of the water column in direct vicinity of the outfall. Compliance with the relevant discharge standards to control water quality impacts to within

acceptable levels (*Section 6*) is also expected to control impacts to fisheries resources.

No fisheries-specific mitigation measures are required during the LNG terminal's construction or operation activities. The construction of rubble mound seawalls on the edges of the LNG terminal's reclaimed land will however provide habitat and shelter for juveniles or adult fisheries resources as ecological assemblages colonise and grow on the boulders.

The water quality monitoring programme will provide management actions and supplemental mitigation measures to be employed should impacts arise, thereby ensuring the environmental acceptability of the Project. As impacts to the fisheries resources and fishing operations are small and of short duration, the development and implementation of a monitoring and audit programme specifically designed to assess the effects on commercial fisheries resources is not deemed necessary.

18.10 LANDSCAPE AND VISUAL IMPACT

The potential impacts to the landscape caused by the presence of the LNG terminal at Black Point have been assessed in *Section 11* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 9 and 17* respectively.

The assessment has covered a wide range of potential landscape impacts including the alteration of the landscape caused by the reclamation, the introduction of the LNG terminal (including storage tanks, infrastructures and LNG carriers) in Black Point headland's natural landscape and the impacts on existing and planned sensitive receivers during construction and operation of the LNG terminal (including the glare impacts).

Compensatory planting of indigenous species will mitigate the effects of the development on many of the Landscape Resources. The effects on the rocky shoreline can be partially mitigated by the use of natural rock in the reclamation areas. The overall residual impacts on the Landscape Resources are assessed as *slight-moderate*.

There will be very limited views of the terminal from most land based viewing locations and these impacts will range from *negligible* to *slight-moderate*. The visual impacts will be larger for the ocean based VSR's with *moderate* impacts from the Ferry Lane and *moderate-significant* impacts from Lung Kwu Chau. However following consideration of the lower user numbers in these areas and the analysis of the residual impacts, the overall visual impact is assessed as *slight-moderate*.

Potential night time glow and visibility of maritime and aviation lighting may be visible on clear nights from Lung Kwu Chau and the Ferry Lane viewing locations. However given that significant lighting already exists at Black Point

Power Station and other nearby industrial facilities the additional night lighting from the proposed LNG terminal is considered acceptable.

The Landscape Character Impacts range from *negligible* to *moderate*. After consideration of the residual impacts, the overall Landscape Character impacts are assessed as *slight*.

According to the *Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM)* the Landscape and Visual Impacts are considered *acceptable with mitigation*.

18.11 CULTURAL HERITAGE

The potential impacts to cultural heritage caused by construction and operational activities of the LNG terminal at Black Point have been assessed in *Section 12* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the criteria and guidelines stated in the *EIAO – TM Annexes 10* and *19* respectively. The assessment has included a terrestrial and marine archaeological investigation as well as a built heritage investigation

Terrestrial and marine cultural heritage resources have been identified and the potential impacts arising from the construction and operation phases of the LNG terminal have been evaluated. The assessment identified three terrestrial sites of low cultural resource value: two building structures at Terrace 1, a WWII cave at Terrace 2 and a stone structure at Terrace 3. Construction activities will impact these structures, however their loss is considered acceptable due to their low cultural resource value and provided that a recording is undertaken for the sites following AMO's requirements. Appropriate mitigation measures comprising the preparation of photographic and cartographic records prior to their removal will therefore be undertaken to preserve these structures by record.

No marine archaeological sites have been identified, thus, the proposed development imposes no marine archaeological impact and no mitigation measures are considered necessary.

18.12**HAZARD TO LIFE**

The assessment has evaluated the hazards to life associated with the LNG terminal as well as the marine transit of LNG.

The results of the Marine Quantitative Risk Assessment of the transit of the LNG carrier to Black Point indicated that individual risk is acceptable and the societal risk is as low as reasonably practicable (ALARP) ⁽¹⁾ as set out in HKSARG risk guidelines presented in *Annex 4* of the *EIAO-TM*.

The results of the Terminal Quantitative Risk Assessments of the LNG terminal at Black Point indicated that individual and societal risk levels are acceptable within the HKSARG risk guidelines presented in *Annex 4* of the *EIAO-TM*.

Access to the Black Point site today requires marine transit through busy harbour traffic, and along densely populated areas, of:

- Western Hong Kong Island: Ap Lei Chau, Cyberport;
- Ma Wan Island and Tsing Ma Bridge;
- New Territories: Sham Tseng, Tsing Lung Tau, Gold Coast, Tuen Mun.

LNG shipping has an outstanding safety record, with over 60,000 LNG carrier voyages, covering more than 90 million miles, and over 40 years of operation without a failure or breach of containment system. This excellent safety record can be attributed to the high technical standards employed in the design, construction and operation of LNG facilities and carriers and also the physical properties of LNG. In part, the safety record is a result of the adoption worldwide of a series of standards, codes, regulations, and operating procedures and practices. For example, these extra measures that will be applied in Hong Kong include daylight only transit, use of two local pilots in addition to the Ship's Master while transiting in Hong Kong, two escort tugs at all times, and four tugs for escort including the tethering astern of the carrier to one tug during turn navigation at Ma Wan.

18.13**LAND CONTAMINATION**

The potential impacts to land contamination caused by operational activities of the LNG terminal at Black Point have been assessed in *Section 14* of this *EIA Report*. The impacts have been identified and assessed to be in compliance with the guidelines stated in the *EIAO – TM Annexe 19*. The assessment has included the identification of the possible sources of contamination in the operational phase and it outlines the appropriate operational practices, waste

(1) Under Hong Kong *EIAO-TM* guidelines, there are three regions of risk categorisation: "Acceptable" requires no further action; risk within "ALARP" should be mitigated to as low as reasonably practicable; and, "Unacceptable" cannot be permitted.

management strategies and precautionary measures to be implemented on site for the prevention of contamination problems.

Potential sources of land contamination during the operation phase of the project were identified in the diesel fuel loading/unloading and storage facilities (i.e. vehicle tanking, emergency fire water pumps, power generation etc.) and the process water used in the SCV back up facility. Potential contaminants include total petroleum hydrocarbons (TPH), volatile and semi-volatile organic compound (VOCs/SVOCs).

A series of measures will be implemented to prevent, contain and clean-up spills and leaks during the operational phase of the LNG terminal, including: secondary containment for fuel/lubricating oil/chemical/chemical waste storage areas, individual drainage from lines/pumps/compressors etc. to the oil water separator, drain pans with drain system to the oil water separator where needed, spill containment/clean up equipment, and oil spill prevention training.

With the recommended mitigation measures in place no land contamination or environmental concern would be expected to arise and no adverse residual impacts are predicted. Appropriate measures to further reduce land contamination risks have however been recommended. These include a design phase audit which is recommended to ensure that the design of the Project includes the necessary elements to manage any material that could lead to land contamination. Full details are presented in the *EM&A Manual* attached to the EIA Report.

18.14 ENVIRONMENTAL MONITORING AND AUDIT (EM&A)

The construction and operation of the proposed Black Point LNG terminal has been demonstrated in this EIA Report to comply with the *EIAO-TM* requirements. Actual impacts during the works will be monitored through a detailed Environmental Monitoring and Audit (EM&A) programme. Full details of the EM&A programme are presented in the *EM&A Manual* attached to this EIA Report. This programme will provide management actions and supplemental mitigation measures to be employed should impacts arise, thereby ensuring the environmental acceptability of the construction and operation of the Black Point LNG terminal.

18.15 ENVIRONMENTAL OUTCOME

No unacceptable residual impacts have been predicted for the construction and operation of the Black Point LNG terminal or its associated facilities. It must be noted that for the majority of the components assessed in the *EIA Report*, the assessments and the residual impacts have been shown to be acceptable and in compliance with the relevant assessment standards/criteria of the *EIAO-TM* and its associated *Annexes*

The marine risk for the transit of LNG carriers to Black Point is in the As Low As reasonably Practicable (ALARP) region for some areas of the marine transit of the LNG carrier but for all other aspects of the Black Point EIA Report, the assessments and the residual impact have all been shown to be acceptable within the relevant standards/criteria of the *EIAO-TM* and the associated *Annexes*.

18.16 ENVIRONMENTALLY RESPONSIBLE DESIGNS

The EIA Study has facilitated the integration of environmental considerations into the design process for the Project. One of the key environmental outcomes has been the ability to plan, design and ultimately construct the Black Point LNG terminal so that direct impacts to sensitive receivers are avoided, as far as practically possible. A detailed assessment of alternative sites within the Study Area has been conducted as well as an assessment of the site layouts and construction methods (See *Section 18.2*).

18.17 ENVIRONMENTAL BENEFITS OF THE PROJECT

Implementation of the Project will make a significant contribution to managing emissions of air pollutants in Hong Kong and will secure sufficient and dependable supplies of clean fuel to meet future Black Point Power Station needs. Natural gas is acknowledged widely as a comparatively clean burning fuel (encouraged in the 2005 Policy Address) as it emits virtually no particulates and negligible SO₂, as well as less NO_x and CO₂ than other fossil fuels. Furthermore, locating the LNG terminal in Hong Kong will allow development of the project under one single jurisdiction with clear policy and regulations, thus enabling CAPCO to meet the Hong Kong SAR Government's emission targets earlier than alternative options outside Hong Kong.