

ISLANDS DISTRICT COUNCIL
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PROPOSED LIQUEFIED NATURAL GAS RECEIVING TERMINAL AT SOUTH SOKO ISLAND
GAZETTAL OF WORKS UNDER FORESHORE AND SEA-BED (RECLAMATIONS)
ORDINANCE (CHAPTER 127)

1. PURPOSE

The purpose of this paper is to seek members' views and support for the marine works that are required by the Liquefied Natural Gas (LNG) Receiving Terminal at South Soko Island proposed by Castle Peak Power Company Limited (CAPCO), and to provide background information for the purpose of gazetting under the Foreshore and Sea-bed (Reclamations) Ordinance (Chapter 127) (FSRO). Representatives from the Environment Bureau/Environmental Protection Department will address the policy issues and CAPCO will answer enquiries from members about the proposed works.

2. BACKGROUND

2.1 The Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL), is proposing the development of a Liquefied Natural Gas (LNG) Receiving Terminal at South Soko Island. The facility will provide natural gas mainly to fuel Black Point Power Station (BPPS) since extensive technical studies indicate that the existing gas supply is depleting and a reliable new source of natural gas is required to ensure the long-term supply of natural gas for BPPS by 2013.

2.2 The development of the project will require installation of new facilities and re-provisioning of some existing facilities (such as the public pier) on the South Soko Island. Some of these installations will require marine works on the foreshore and sea-bed areas.

3. DESCRIPTION OF WORKS

The foreshore and sea-bed works associated with the LNG receiving terminal and the public pier requiring the Gazettal under the Foreshore and Sea-bed (Reclamations) Ordinance (Chapter 127) (FSRO) include:

- 3.1 The LNG receiving terminal marine works comprising the construction of seawall and reclamation; a public pier; a jetty; seawater intake/outfall; a dredged approach channel and turning basin.
- 3.2 The gas pipeline which will run from the LNG receiving terminal at South Soko Island to BPPS crossing both Islands District and Tuen Mun District. The route generally follows the boundary of the Hong Kong Special Administrative Region then curves to the east and lands at BPPS.
- 3.3 The power supply (submarine cable circuits) and the diversion of existing water main (a submarine water pipe) which connect South Soko Island with Lantau Island, serving the LNG receiving terminal. The submarine cable circuits will cross the South Lantau Channel and will land at Shek Pik, South Lantau.
- 3.4 The public pier at the west of Pak Tso Wan, South Soko Island, providing public access to the relocated onshore Tin Hau Temple and other public facilities.
- 3.5 The total gazette area is approximately 419 ha which takes into consideration of various construction requirements (e.g. manoeuvring of barge to install the submarine cables) during marine works. The actual affected sea-bed area is approximately 256 ha.
- 3.6 A summary of marine works to be gazetted and their locations are shown in the Appendices.

4. ENVIRONMENTAL IMPACT ASSESSMENT AND MITIGATION

A detailed Environmental Impact Assessment (EIA) has been undertaken for the project in compliance with the Environmental Impact Assessment Ordinance (Cap. 499) under the Study Brief ESB-126/2005. The EIA has been approved, and the Environmental Permit (EP-257/2007) was granted on 3 April 2007. The following is a summary of the major measures:

4.1 Water Quality

- Water quality monitoring will be conducted during dredging, backfilling and submarine utility installation activities to ensure that deteriorating water quality is detected and timely action taken to rectify the situation.
- Silt curtains (stand type or cage type) at various locations and other mitigation measures as detailed in the Environmental Permit for relevant marine works will be deployed (e.g. Closed Grab Dredger will be used in Western Berth with

double-layer silt curtain at Pak Tso Wan & cage type silt curtain installed next to the dredger) during the dredging/jetting works to minimize impacts.

- Wastewater discharge from temporary on-site facilities will be carefully controlled to prevent direct discharges to marine waters. A sewage treatment plant will be constructed if the working population is over 500.
- Water quality monitoring for cooled seawater effluent discharge, in terms of temperature and residual chlorine, will be implemented during the operation phase to verify EIA modelling predictions.
- A packaged sewage treatment plant and a sanitary waste system consisting of a collection system will be provided for the operation of the LNG Terminal. The discharge from the package sewage treatment plant will comply with the provisions of the Water Pollution Control Ordinance (CAP 358).

4.2 Marine Ecology

- All vessel operators will be briefed and alerted of the possible presence of marine mammals in the area, and developing and implementing guidelines for safe vessel operations in the presence of marine mammals. Vessel speed will be limited to below 10 knots when passing through a high density dolphin area (west Lantau, Sha Chau and Lung Kwu Chau Marine Park, the waters around Soko Islands).
- During construction, prior to the commencement of piling and dredging works, qualified observer(s) will scan an exclusion zone. If marine mammals are observed in the zone, works will be suspended until marine mammals have left the zone.
- No Percussive pile driving will be conducted during the peak calving season between October and January of the *Neophocaena phocaenoides* and no dredging works along the entire pipeline route will be conducted during the peak calving season (i.e. from March and August) of the *Sousa chinensis*.
- Percussive pile driving and dredging activities will be restricted to a daily maximum of 12 hours with daylight operations avoiding generation of underwater sounds at night time¹.
- Only hydraulic hammers will be used. The 'ramping-up' of the piling hammer will be instigated gradually in order to control the increase of the level of underwater sound generation;
- Acoustic decoupling of noisy equipment on work barges will be undertaken. Bubble curtain/jacket will be installed as required.

¹ Except for the dredging works of pipeline section along Urmston Road

- Dive monitoring on corals will be conducted during dredging of turning circle and approach channel in accordance with the details specified in the approved EM&A Manual.

4.3 Fisheries

- In order to ensure that the seabed affected by pipeline works has been restored to its original configuration to prevent impacts to fishing operations due to changes in seabed profile, two geophysical surveys will be conducted in the post-construction phase of the pipeline works, with the first one right before the operation of the project and the second one at three years after the operation of the project.
- To protect the fish fry at Pak Tso Wan, CAPCO will ensure that the works will not cause visible foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the Pak Tso Wan.

4.4 Waste Management

- Dredged marine mud will be disposed of in a gazetted marine disposal area in accordance with the *Dumping at Sea Ordinance (DASO)* permit conditions. The disposal site for the dredged marine sediment will be identified in discussion with the Marine Fill Committee and the Environmental Protection Department before the commencement of dredging works. It has been estimated that a total of approximately 3.89 Mm³ marine sediment will be dredged during the construction stage of the Project.

4.5 Landscape and Visual Assessments

- The visual impact will only be significant when viewed from closer than 1,260m, i.e. from ocean areas or other islands in the Soko chain. There are no landscape and visual sensitive receivers located in residential areas, on public roads, or in publicly accessible lookouts or country parks that will experience any significant adverse impact following mitigation. A compensatory planting proposal and a landscape master plan will need to be submitted to and approved by the Director of Environmental Protection before construction starts.

5. PROJECT TIMETABLE

5.1 The construction of the public pier is expected to take about 6 months. Other than that, marine works including reclamation, dredging for berth box, piling, and superstructure, are expected to be completed in about 36 months.

5.2 The installation work for the gas pipeline is anticipated to commence around the 3rd Quarter of 2010 and would take about 18 months to complete. The installation of submarine cable circuits is anticipated to start around the 4th Quarter of 2011 and would take about 12 months to complete.

6. PUBLIC ENQUIRIES

A 24-hour hotline will be established to answer enquiries from the public and will be managed by the installation contractor and project management team.

7. SUMMARY

The LNG receiving terminal is considered essential for the reliable production of electricity in view of the early depletion of the existing natural gas source in Yacheng and for both short and long term emissions reductions in Hong Kong and is therefore in Hong Kong's interest. Extensive site evaluation and environmental impact studies have concluded that South Soko Island is the best location. All environmental impacts have been comprehensively reviewed and dealt with in accordance with the Environmental Impact Assessment Ordinance procedures and the Permit. The design, disposition and landscaping of the site, as well as other protective measures, shall be dealt with in the later detailed design stage and appropriate care will be taken to mitigate any impacts on the location and its surroundings.

APPENDIX I : Summary of Marine Works to be Gazetted

Description of the works and the manner in which the foreshore and sea-bed will be affected	
1. Seawall and Reclamation	<p>Construction of permanent seawalls involving dredging at Tung Wan and Sai Wan of South Soko Island, and reclamation of about 0.48ha for a utility pier and berthing area at Sai Wan.</p> <p>An area of approximately 15 hectares of foreshore and sea-bed will be affected.</p>
2. LNG Jetty Construction	<p>Construction of a jetty comprising a trestle of approximately 250 metres in length with berth and unloading arms at the southeast of South Soko Island involving piling.</p> <p>An area of approximately 10 hectares of foreshore and sea-bed will be affected.</p>
3. Seawater Intake Construction	<p>Construction of an intake of approximately 115 metres in length from Tung Wan of South Soko Island to the offshore intake heads involving dredging and removal of marine deposits.</p> <p>An area of approximately 1 hectare of foreshore and sea-bed will be affected.</p>
4. Seawater Outfall Construction	<p>Construction of a submarine outfall pipe of 1.6 metres diameter and approximately 150 metres in length, buried below the existing sea-bed level with rock armour protection at the southeast of South Soko Island.</p> <p>An area of approximately 1 hectare of foreshore and sea-bed will be affected.</p>
5. Dredging for Approach Channel and Turning Basin	<p>Dredging of the area close to the south of South Soko Island down to a level of about -14 metres Principal Datum for the LNG carrier approaching to the LNG jetty.</p> <p>An area of approximately 83 hectares of foreshore and sea-bed will be affected.</p>
6. Installation of Gas Pipeline	<p>Installation of one gas pipeline of 762 millimetres diameter and approximately 38 kilometres in length. The pipeline requires a width of 49m for submarine pipeline construction on the seabed. The pipeline will be installed involving laybarge pipelaying and dredging. The pipeline will generally be buried to at least 1 metres below the existing sea-bed level to the top of the pipe and protected with 1 to 3 metres burial of natural fill or armour rock.</p> <p>An area of approximately 191 hectares of foreshore and sea-bed will be affected.</p>
7. Installation of Power Cable Circuits	<p>Installation of two 132 kV submarine power cable circuits of approximately 8 kilometres in length from Shek Pik of Lantau to the western coast of South Soko Island involving jetting. The working corridor includes an area of 50 metres either side from the top of the cable trenches. A pre-dredged trench of approximately 200 metres in length will be required at each landing point. The cables will be buried to a depth of up to approximately 5 metres.</p> <p>An area of approximately 113 hectares of foreshore and sea-bed will be affected.</p>
8. Diversion of Existing Water Main	<p>Diversion of the shore approach section of the existing water main, approximately 650 metres in length at Sai Wan of South Soko Island.</p> <p>An area of approximately 4 hectares of foreshore and sea-bed will be affected.</p>
9. Re-provision of Public Pier	<p>Provision of a public access pier of approximately 70 metres in length at the west of Pak Tso Wan.</p> <p>An area of approximately 1.2 hectares of foreshore and sea-bed will be affected.</p>