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For advice

**Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
Hong Kong-Zhuhai-Macao Bridge
Hong Kong Boundary Crossing Facilities**

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the development of the Hong Kong-Zhuhai-Macao Bridge (HZMB) Hong Kong Boundary Crossing Facilities (HKBCF) (hereafter known as the Project), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-173/2009). The Highways Department (the applicant) and their consultants will make a presentation at the EIA Subcommittee meeting if necessary. Comments from the public and the Advisory Council on the Environment will be taken into account by the Director of Environmental Protection in deciding on the approval of the EIA report under the EIAO.

ADVICE SOUGHT

2. Members' views are sought on the findings and recommendations of the EIA report.

NEED FOR THE PROJECT

3. The proposed HZMB straddles the waters of Lingdingyang of the Pearl River Estuary. It is a large sea-crossing linking the Hong Kong Special

Administrative Region (HKSAR), Zhuhai City of Guangdong Province and the Macao Special Administrative Region, as well as a transport construction project included in “National High Speed Road Network Planning” (國家高速公路網規劃). The scope of the large sea-crossing includes the HZMB Main Bridge, HKBCF, Zhuhai BCF, Macao BCF, and the link roads connection between the HZMB Main Bridge and the respective BCFs, in accordance with the agreement made by the three governments on the concept of “separate locations of BCF mode”.

4. The HKSAR Government is required to set up the HKBCF within the Hong Kong territory, which is proposed to be located at the northeast waters off the Airport Island.

DESCRIPTION OF THE PROJECT

5. The proposed HKBCF comprises the following –

- (i) Dredging and reclamation at the northeast waters off the Airport Island to provide a land platform (about 138 ha of area) for the development of the HKBCF;
- (ii) cargo processing facilities including kiosks for clearance of goods vehicles, customs inspection platform, X-ray buildings and related supporting facilities;
- (iii) passenger related facilities including processing kiosks and examination facilities for private cars and coaches, passengers clearance building and halls and related supporting facilities;
- (iv) accommodation for and facilities of the Government departments providing services in connection with the HKBCF;
- (v) provision of transport and miscellaneous facilities inside the HKBCF including public transport interchange, transport drop-off and pick-up areas, vehicle holding areas, passenger queuing areas, road networks, footbridges, fencing, sewage and drainage systems, water supply system, utilities, electronic system, traffic control and surveillance system and related supporting facilities;

- (vi) provision of road access for connection of the HKBCF to the HZMB Hong Kong Link Road (HKLR), the Tuen Mun-Chek Lap Kok Link (TMCLKL) and the Airport;
 - (vii) reprovisioning of the affected Airport's facilities such as the existing Fire Services Department's East Sea Rescue Berth; and
 - (viii) provision of other facilities for connection with the Airport such as an Automated People Mover system (i.e. a railway system) to connect the Airport Terminal with the HKBCF.
6. The Project constitutes a designated project under –
- (i) Item A.2, Part I, Schedule 2 of EIAO : “*A railway and its associated stations*”;
 - (ii) Item A.7, Part I, Schedule 2 of the EIAO: “*A railway tunnel more than 800 m in length between portals*”;
 - (iii) Item A.8, Part I, Schedule 2 of the EIAO: “*A road bridge more than 100 m in length between abutments*”;
 - (iv) Item C.1, Part 1, Schedule 2 of the EIAO: “*Reclamation works (including associated dredging works) more than 5 ha in size*”; and
 - (v) Item C.12, Part 1, Schedule 2 of the EIAO: “*A dredging operation exceeding 500,000 m³*”

CONSIDERATION OF ALTERNATIVE OPTIONS

7. A Site Selection Study was conducted to examine a number of possible locations and layouts of the Project and the North East Chek Lap Kok (NECLK) option was selected as the preferred option and studied in detailed in this EIA study as shown in the attached **figure**.

8. The selected option of NECLK has taken into account the need to minimize the environmental impacts in which the proposed reclamation can be combined with that for the proposed TMCLKL southern landfall, the total length of

seawalls and hence the dredging and filling volumes can be significantly reduced.

9. The proposed adoption of non-dredged method for reclamation (except for seawall construction) reduces the amount of dredged materials required for disposal and minimizes water quality impact associated with dredging activities.

10. To minimize the amount of off-site disposal of dredged contaminated marine sediment at existing mud pits in East Sha Chau, the EIA proposes to redeposit the dredged contaminated marine sediment within the HKBCF reclamation site.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

11. The main environmental issues of HKBCF are water quality impact, marine ecological impact, air quality and visual intrusion of the project.

Water quality

12. The main concerns are related to dispersion/contribution of suspended solid and leaching of heavy metal contaminants due to dredging and filling activities causing impacts to the marine water environment

13. The EIA has concluded that with the implementation of a series of mitigation measures (e.g. use of silt curtain, control of filling/dredging rate, filling behind seawalls), the water quality impacts of the Project on sensitive receivers including the Sha Chau and Lung Kwu Chau Marine Park, Tai Ho Site of Special Scientific Interest (SSSI), San Tau SSSI, Butterfly beach and Ma Wan Fish culture zone could be controlled to within the established criteria. An Environmental Monitoring and Audit (EM&A) Manual programme will be put in place to ensure compliance of relevant standards and criteria.

Marine Ecology

14. The construction and operation of the HKBCF would cause direct loss of about 138 ha of Chinese White Dolphin (CWD) habitat for which mitigation is required. To enhance the CWD habitat, the Administration has made a firm commitment to seek to designate the Brothers Islands as a marine park in accordance with the statutory process stipulated in the Marine Parks Ordinance.

15. A series of mitigation measures during construction stage are recommended such as implementation of dolphin exclusion zone to minimize disturbance to CWD, acoustic-decoupling of noisy equipment on construction vessels to reduce underwater noise, and imposing a speed limit for related vessels to lessen the risk of collision with CWD. Such measures would help ameliorate the overall ecological impacts during the construction stage.

16. With the above mitigation measures in place, including the committed measure to seek to designate the Brothers Islands as a marine park to mitigate the permanent loss of CWD habitat, the residual impacts of the Project on the CWD would be acceptable.

Air Quality

17. Cumulative impacts from the operation of existing and planned/committed projects in the vicinity of the Project have been taken into account. They include the HKLR, TMCLKL, Lantau Logistics Park, Tung Chung East and West Future Development as well as other major existing and planned/committed air pollutant emission sources within the North West New Territories and North West Lantau including the power plants, industrial uses, the proposed Sludge Treatment Facility and the Chek Lap Kok Airport emissions plus the regional wide emissions forming the background. The predicted cumulative pollution concentrations at all identified air sensitive receptors (ASRs), including the ASRs at Tung Chung New Town, would comply with the AQO standards. The modelling results have predicted the worst case 1-hr NO₂ levels by Year 2031 in Tung Chung New Town would range between 206 µg/m³ and 243 µg/m³; 246 µg/m³ at Sha Lo Wan and 271 µg/m³ at the Airport Island.

Landscape and Visual Impacts

18. The HKBCF is located more than 2 km from residential premises in Tung Chung. Mitigation measures (e.g. aesthetic engineering and architectural design on structural forms and building facade, optimum greening treatment – rooftop and at-grade level and so on, in connection with the aesthetics of HKBCF) would integrate, blend in with and take into account the appearance of the existing Airport facilities. The residual visual impacts of the HKBCF on sensitive receivers at Tung Chung caused by the reclamation and the associated road bridges of the Project are considered slight and negligible.

Other Environmental Impacts

19. Other impacts including noise, waste management, fisheries, sediment quality and cultural heritage have been addressed in the report and it is concluded that, with the implementation of recommended mitigation measures, the Project would comply with relevant requirements in the Technical Memorandum on EIA Process.

ENVIRONMENTAL MONITORING AND AUDIT

20. The EIA report includes an EM&A Manual which recommends an EM&A programme during the construction and operation phases of the Project.

21. Given that the HKBCF, HKLR, TMCLKL will be implemented concurrently, an Environmental Project Office will be established by the applicant during the construction of these projects to oversee the cumulative construction impacts in the North Lantau Area.

PULBIC CONSULTATION

22. The applicant has made the EIA report, EM&A Manual and Executive Summary available for the public to comment under the EIAO from 14 August 2009 to 12 September 2009. Members will be briefed on any public comments received at the meeting.

August 2009

Environmental Assessment Division

Environmental Protection Department

