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**Report of the Subcommittee on Legislative Amendments for
Imposing Conditions on Vessels Navigating in the Vicinity of
the Hong Kong-Zhuhai-Macao Bridge**

Purpose

This paper reports on the deliberations of the Subcommittee on Legislative Amendments for Imposing Conditions on Vessels Navigating in the Vicinity of the Hong Kong-Zhuhai-Macao Bridge ("the Subcommittee").

Background

2. L.N. 82 to L.N. 84 are subsidiary legislation relating to the control and regulation of marine traffic following the commissioning of the Hong Kong-Zhuhai-Macao Bridge ("HZMB").

L.N. 82 and L.N. 84

3. HZMB links Hong Kong, Zhuhai and Macao. It consists of a Main Bridge in the Mainland waters together with boundary crossing facilities and link roads in the three places. There are two link roads in Hong Kong waters, i.e. the Hong Kong Link Road ("HKLR") connecting the Hong Kong Boundary Crossing Facilities ("HKBCF") to the Main Bridge, and the Tuen Mun-Chek Lap Kok Link ("TM-CLKL") linking HKBCF with Northwest New Territories and North Lantau. Underneath these two link roads, there are a number of navigation channels for vessels to pass through. To ensure navigation safety, restrictions on the height, length and navigational direction of vessels sailing through these navigation channels are imposed under L.N. 82 and L.N. 84.

4. L.N. 82 is made by Chief Executive in Council under section 80 of the Shipping and Port Control Ordinance (Cap. 313) to amend the Shipping and Port Control Regulations (Cap. 313A) to (a) specify new restricted areas in the Fifth Schedule to Cap. 313A; and (b) impose restrictions on the height, length and

navigational direction of vessels¹ entering or passing through the navigation channels of HKLR and TM-CLKL. L.N. 82 also makes minor textual amendments to the Chinese text of Cap. 313A.

5. L.N. 84 is made by the Secretary for Transport and Housing under section 89 of the Merchant Shipping (Local Vessels) Ordinance (Cap. 548) to amend the Merchant Shipping (Local Vessels) (General) Regulation (Cap. 548F) to impose restrictions on the height, length and navigational direction of local vessels² passing through navigation channels of the two link roads of HZMB. L.N. 84 also makes minor textual amendments to the Chinese text of certain provisions of Cap. 548F.

6. L.N. 82 and L.N. 84 will come into operation on 1 December 2017.

L.N. 83

7. Currently, eight Hong Kong International Airport Approach Areas ("HKIAAAs") have been set up to regulate the vessels navigating in the vicinity of the Hong Kong International Airport ("HKIA"). Restrictions on the height of vessels in these areas that can pass through range from 15 metres to 30 metres. Due to the construction of HZMB, part of the waters near HKIA has been reclaimed for constructing HKLR and HKBCF. L.N. 83 is therefore proposed to make adjustments to the boundaries of HKIAAAs.

8. L.N. 83 is made by the Director of Marine under regulation 72(1) of Cap. 313A to amend the Fifth Schedule to Cap. 313A by making adjustments to the boundaries of HKIAAAs No. 2, No. 3, No. 5 and No. 7, and making minor textual amendments. The effect of L.N. 83 is that vessels navigating to or through the adjusted boundaries of the above HKIAAAs will be subject to certain restrictions (e.g. entry and height restrictions) under section 23 of Cap. 313A.

9. L.N. 83 will come into operation on 1 August 2017.

The Subcommittee

10. At the House Committee meeting held on 26 May 2017, Members agreed to form a subcommittee to study the three pieces of subsidiary legislation. The membership list of the Subcommittee is in the **Appendix**.

¹ By virtue of section 3 of Cap. 313, provisions in Part III of Cap. 313A (i.e. Navigation and Control of Vessels) apply to all vessels (except local vessels) in Hong Kong or in the waters of Hong Kong. Under section 2 of Cap. 313, *vessels* include any ship, junk, boat, dynamically supported craft, seaplane, or any other description of vessel used in navigation.

² According to section 2 of Cap. 548, *local vessels* include vessels used solely within the waters of Hong Kong (whether registered in or outside Hong Kong), vessels registered in Hong Kong, Macau or the Mainland China which are regularly employed in trading to or from Hong Kong, and vessels used for pleasure purposes in the waters of Hong Kong.

11. Under the chairmanship of Hon Steven HO Chun-yin, the Subcommittee held one meeting on 14 June 2017 with the Administration to examine the three pieces of subsidiary legislation. To allow sufficient time for the Administration to provide supplementary information pursuant to members' request made at the meeting on 14 June 2017 and for the Subcommittee to compile a report to the House Committee, the Subcommittee agreed to move a proposed resolution at the Council meeting of 21 June 2017 to extend the period of scrutiny to 12 July 2017. As the proposed resolution was not dealt with at the Council meeting of 21 June 2017, the scrutiny period of the three pieces of subsidiary legislation expired after the said Council meeting.

12. The Subcommittee has posted a general notice on the website of LegCo and written to the 18 District Councils ("DCs") to invite the public and DCs for written views on the subsidiary legislation. The Subcommittee has received a submission from the Hong Kong Fishermen Consortium. The Administration's response to the submission was circulated to members via LC Paper No. CB(4)1323/16-17 on 28 June 2017.

Deliberations of the Subcommittee

13. Members in general support the subsidiary legislation for imposing conditions on vessels navigating underneath the navigation channels of HKLR and TM-CLKL to ensure navigation safety. However, the Subcommittee has expressed concern on the anti-collision measures and monitoring systems adopted to prevent ship-bridge collisions at HZMB including the navigation signs to be erected on the bridge piers, and the publicity programmes for vessel operators to enhance their awareness of the new restrictions. The major deliberations of the Subcommittee are set out in the ensuing paragraphs.

Anti-collision measures and monitoring systems

14. In light of the ship collision incident at the Kap Shui Mun ("KSM") Bridge on the evening of 23 October 2015, members have enquired about the anti-collision measures and monitoring systems to be implemented to prevent ship-bridge collisions at HZMB. Given that different height restrictions will be imposed along HKLR (41, 12, 10 and 5 metres respectively) and TM-CLKL (21, 12 and 6 metres respectively), members consider that suitable warning device should be installed at appropriate locations to alert vessel operators of the height restrictions of the navigation channels in advance. In this respect, members also urge the Administration to explore the feasibility of installing video-recording and alarm systems in the concerned navigation channels.

15. The Administration has advised that the bridge structures of HKLR and TM-CLKL are designed and built in accordance with international standards set out by the International Association for Bridge and Structural Engineering. At the design stage, factors including navigation patterns and sizes of vessels that might sail through the navigation channels of HKLR and TM-CLKL have been taken into account. The bridge structures are also designed to withstand collision impact load to minimize damage to the structure. In navigation channels with the busiest marine traffic (i.e. navigation channels under the tallest arches of the two link roads), a row of protection fenders and dolphin structures have been built to minimize the impact of accidental collision. In addition, a "Structural Monitoring System" will be put in place in the aforementioned navigation channels with sensors to monitor the condition of the bridge structures. When collision is detected, the sensors will pick up possible bridge structure movements and send alert signal to the control centre. The Highways Department will explore the feasibility of installing video-recording systems within the aforementioned navigation channels of HKLR and TM-CLKL.

16. The Administration has also advised that the marine traffic in the concerned navigation channels is not busy, with only some 200 and 100 vessels passing through TM-CLKL and HKLR each day respectively. Vessels navigating in this water area are mostly small local vessels and river trade vessels less than 41 metres in height. Large vessels voyaging international routes will not navigate through the navigation channels concerned. As it is anticipated that marine traffic will be busiest along the two one-way navigation channels with height restriction of 41 metres, Radar Transponder Beacon facility will be installed at the centre of the bridge span so that vessels sailing through the two channels can send and receive radar signals from this facility. With the aid of radar, vessels can ensure that they are navigating along the correct channel even when visibility is low or during night time.

17. Noting that the height restriction of KSM Bridge is also 41 metres, members urge the Administration to consider installing similar radar signal system at KSM Bridge so as to enhance navigation safety in that water area.

18. In view of the fact that vessels from the Mainland will also navigate in this water area, members have enquired whether Mainland vessels entering Hong Kong waters are equipped with Automatic Identification System ("AIS")³ for

³ AIS provides navigational information of a vessel (e.g. the vessel's position, name, course, speed, etc.) automatically to other vessels and shore stations (e.g. Marine Department's Vessel Traffic Centre). Installation of AIS allows detection of navigational status of a vessel by other vessels fitted with AIS so that appropriate navigational decisions or collision avoidance actions can be taken promptly when necessary. In addition, vessels equipped with AIS can be more easily located and identified in emergency situations, facilitating the effective deployment of rescue teams and relevant arrangements for a more expeditious search and rescue operation.

collision avoidance and identification of the relevant vessel(s) when collision occurs. The Administration has advised that Mainland vessels of 100 gross tonnage and above and engaged in river trade are required by the Maritime Safety Administration of the People's Republic of China to install AIS. These vessels can be identified when they navigate in Hong Kong waters.

Navigation signs

19. The Subcommittee has examined the design and positioning of navigation signs to enhance marine safety. Noting that the Administration will erect navigation signs on the bridge piers to alert vessel operators of the related high restrictions of the navigation channels, some members opine that such navigation signs should comply with international standards, and the sizes, colours and positions of these signs should be considered from the perspective of users. A member has pointed out that apart from the night time, visibility can also be low even in the day time during adverse weather conditions. Appropriate measures should therefore be put in place to enhance the visibility of these navigation signs in different situations.

20. The Administration has advised that navigation aids such as colour-coded signs to distinguish different height restrictions will be put up on the bridge piers. The colour coding seeks to enable vessel operators to observe the respective height restrictions more easily. In finalizing the use of colours for the navigation signs, the Administration will take into account members' suggestion regarding the visual impact of different colour schemes, as well as the presentation of different signage to enhance clarity for vessel operators.

21. Regarding the arrangement in adverse weather conditions, the Administration has advised that automatic energy saving lamps with light sensors will be installed on TM-CLKL and HKLR for illuminating the bridges and the navigation signs on the bridge piers. These lamps can be switched on manually in adverse weather conditions. In addition, navigation lights with different characteristics will also be installed at the navigation channels underneath TM-CLKL and HKLR to facilitate the passage of vessels. Final arrangements will be worked out.

22. The Administration has also informed the Subcommittee that the height limit of the navigation channels of HKLR and TM-CLKL will be marked on the nautical charts to assist vessel operators on navigation. Nautical charts are essential tools for marine navigation and the owner or the master of a vessel must ensure that the nautical charts carried on board the vessel are kept up to date.

Publicity programmes

23. The Subcommittee considers that suitable engagement with stakeholders to enhance their understanding on proposed legislation is important. To this end, the Administration should consider improving the existing consultation

mechanism and arranging more briefing sessions for the shipping and fishery sectors, particularly vessel operators to facilitate their understanding and compliance.

24. The Administration has advised that prior to the commencement of the legislative proposal on 1 December 2017, the Marine Department ("MD") will issue Marine Department Notice specifying details of navigation arrangements around the navigation channels of HZMB, including the navigation restrictions to be imposed and the navigation aids to be used to facilitate vessels sailing through the region. MD will identify frequent users (both local and Mainland vessel operators) of the navigation channels of HZMB and arrange seminars and briefings to familiarize them with the arrangements. MD will also distribute leaflets to enhance vessel operators' understanding of the different navigation aids and signage. The Administration will also look into areas that can further improve the consultation process.

Other issues considered by the Subcommittee

Tung Chung East development

25. On some members' concern about the impact of the subsidiary legislation on the reclamation works arising from the Tung Chung East ("TCE") development and the development of a marina at the waterfront of TCE, the Administration has explained that the legislative proposal seeks to ensure the safe passage of vessels through the navigation channels underneath the southern connection of TM-CLKL, even though the marine traffic around TM-CLKL is not busy. The proposal will not affect the TCE development project or cause significant impact on marine traffic as the navigation channel within the area of height restriction of 21 metres will be sufficient for existing vessels to pass through.

Impact on fishing activities

26. Regarding the concern expressed by a deputation about the impact of the subsidiary legislation on fishing activities, the Administration has advised that it had not proposed any restriction on navigation speed or fishing activities. The legislative proposal seeks to impose restrictions on the height, length and direction of vessels navigating under HKLR and TM-CLKL, with a view to preventing bridge-vessel collision and ensuring marine safety. While vessels exceeding 10 metres in length will be prohibited from passing through the navigation channel under one of the three highest arches of HKLR, they can still use the other two navigation channels that allow vessels up to 41 metres to pass through. As such, the impact on fishing vessels should be minimal.

Recommendation

27. The Subcommittee has completed the scrutiny of L.N. 82 to L.N. 84. The Subcommittee in general supports the three pieces of subsidiary legislation.

Advice sought

28. Members are invited to note the deliberations of the Subcommittee.

Council Business Division 4
Legislative Council Secretariat
5 July 2017

**Subcommittee on Legislative Amendments for
Imposing Conditions on Vessels Navigating in the Vicinity of
the Hong Kong-Zhuhai-Macao Bridge**

Membership list

Chairman Hon Steven HO Chun-yin, BBS

Members Hon Frankie YICK Chi-ming, SBS, JP
Hon WU Chi-wai, MH
Hon YIU Si-wing, BBS
Dr Hon KWOK Ka-ki
Hon Jeremy TAM Man-ho

(Total : 6 members)

Clerk Ms Shirley CHAN

Legal Adviser Mr YICK Wing-kin