Annex A

EIA Report on
Lok Ma Chau Loop

Further information from project proponent in response to comments/queries raised by Members of ACE EIA Subcommittee at the meeting on 19 August 2013

1 Purpose

1.1 The purposes of this paper are to:

(a) submit further information to respond to/clarify Members' comments/queries on the following 3 major issues deliberated at the ACE EIA Subcommittee meeting on 19 August 2013:

i. Eastern Connection Road;
ii. Integrating some reed beds into the Amenity/Activity Corridor; and
iii. Urban design considerations; and

(b) invite Members to reconsider the captioned EIA report at the forthcoming ACE EIA Subcommittee meeting on 13 September 2013.

2 Eastern Connection Road (ECR)

Need for ECR

2.1 The proposed Lok Ma Chau (LMC) Loop development will provide 1.2 million m^2 gross floor area (GFA) spaces. Ultimately, it will accommodate 24,000 full-time students, as well as about 29,000 employment places comprising 6,000 employment spaces with higher education and 23,000 employment places with high-tech research & development (R&D) and cultural & creative (C&C) industries.

2.2 In essence, the need for ECR has been critically considered with regard to the following considerations: (a) reliable connectivity for a prominent community with mixed land uses (namely higher education, high-tech R&D and C&C industries), particularly for operational and emergency concerns; (b) comparison with other major higher education/R&D communities on availability of alternative external connection road (such as HKUST, HKCU and Science Park); (c) synergy with neighbouring community (such as Kwu Tung North New Development Area); and (d) traffic demand.

2.3 From the emergency/incident management angle, alternative access to a community with total of over 50,000 student/employee population when fully developed should be a valid justification. As one end of the Direct Link is only linking to the MTR LMC Station/LMC Spurline Boundary Control Point (BCP), the Direct Link is not

an external connection road. Should the Western Connection Road (WCR) fail, it will take longer travelling time and distance for emergency vehicles to reach the LMC Loop via the existing old and narrow Border Road (single lane two-way) and Ma Tso Lung Road (single lane two-way) from Fanling Highway. Even if the near- LMC- Loop section of the WCR is still functional, accessing the LMC Loop from the west of the WCR via the Border Road near the MTR LMC Station/LMC Spurline BCP will still be subject to similar constraints above. Figures 1 and 2 show the emergency routes without the proposed ECR.

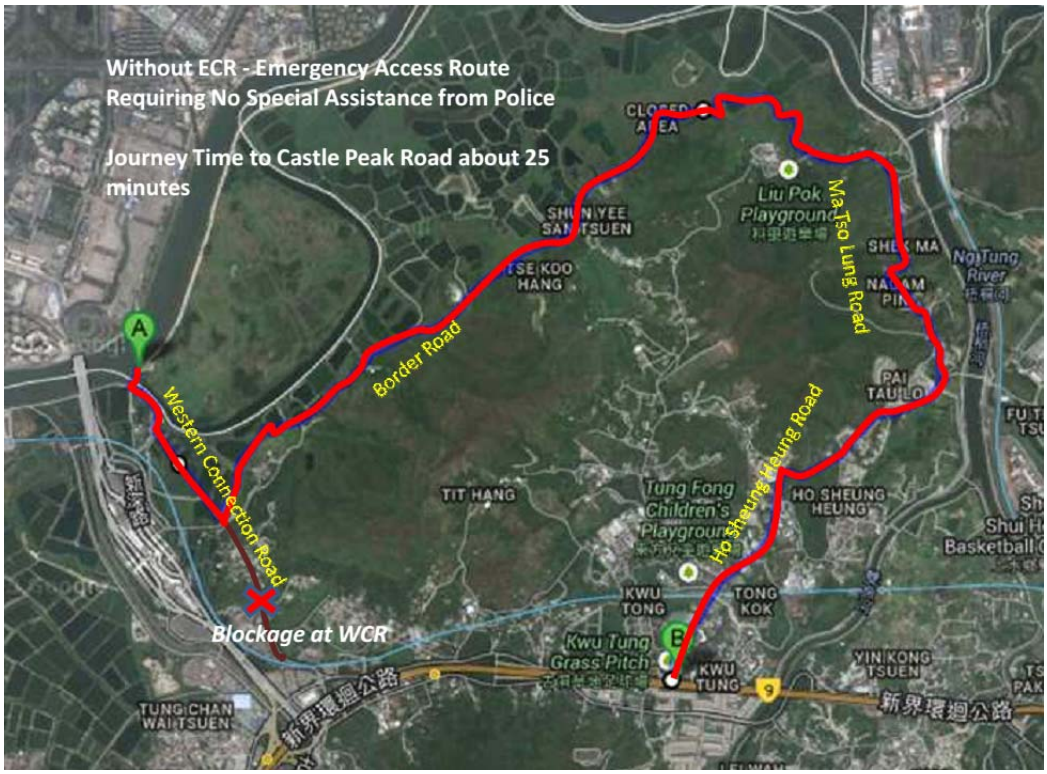

Figure 1 – Emergency exit route 1 without the ECR

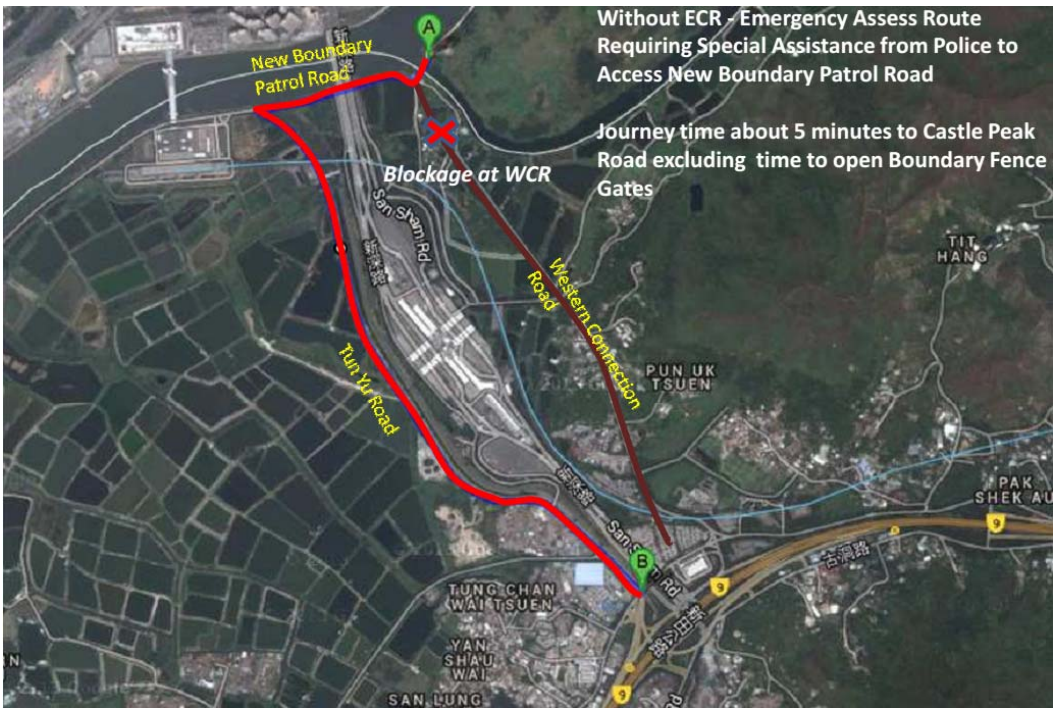

Figure 2 – Emergency exit route 2 without the ECR

2.4 From the traffic demand angle, the need for ECR is supported by a comprehensive Transport and Traffic Impact Assessment (TTIA) conducted for the project. Upon full development and operation of the LMC Loop in 2030/31, the projected traffic demand is about 134,000 person trips daily. The trip rate is 2.52 trips per person (= 134,000 / (24,000+29,000)). As shown in Table 1 below, it is comparable with the trip rate of 2.58 trips per person based on actual survey data from the Chinese University of Hong Kong (which is similar to the LMC Loop development in respect of transport linkage by rail and roads in the New Territories setting) and the Hong Kong Science Park (which is similar to the LMC Loop development in respect of high-tech R&D land use).

Table 1 - Comparison on trip rates

Institution	Total No. of Student	No. of Resident Student (% of Total Students)	No. of Employment	Student Trips	Employment Trips	Total Trips	Average Trip Rate per capita
CUHK	14,817	6,135 (41%)	6,888	29,807	19,774	49,582	2.28
HKSP Phase 1&2	-	-	7,333	-	25,334	25,334	3.45
CUHK+HKSP	14,817	6,135	14,221	29,807	45,108	**74,916**	**2.58**
Loop Development (Education Land Use)	24,000	12,000 (50%)	6,000	52,963			
Loop Development (R&D+C&C uses)	-	-	23,000	-	80,737	134,000	**2.52**

2.5 Based on the agreed modelling methodology and assumptions with the relevant authorities together with the best available information, the TTIA findings reveal that the projected traffic demand in 2030/31 will result in a total peak hour traffic of about 2,000 PCUs[1] due to the LMC Loop development alone. Of the 2,000 PCUs, 300 PCUs will be assigned to the Direct Link and 1,700 PCUs will be assigned to the 2 external connection roads, viz. WCR and ECR. WCR and ECR will carry 350 PCUs (inbound to LMC Loop) / 250 PCUs (outbound from LMC Loop) and 800 PCUs (inbound to LMC Loop) / 300 PCUs (outbound from LMC Loop) respectively during morning peak. Adding the critical peak traffic (inbound traffic to the LMC Loop) to the background traffic[2] during morning peak in 2030/31, WCR and ECR will carry 1,100 PCUs and 800 PCUs respectively. Should ECR not exist, WCR would have to carry 1,900 PCUs (1,100 PCUs + 800 PCUs) instead, resulting in the V/C ratio[3] exceeding 1.4. Besides, the junction of LMC Road and Castle Peak Road where the WCR starts/ends will not be adequate to meet peak demand.

Ecological considerations in the design for the ECR

[1] PCU = Passenger Car Unit

[2] Background traffic without the LMC Loop development includes that of vehicular trips to/from local villages, roadside developments and MTR LMC Station Public Transport Interchange.

[3] V/C = Traffic volume/road link capacity; road link capacity = 1,320 PCUs each bound for a wide single 2 lane carriageway

2.6 In designing the ECR (Option E9 in the EIA report), due considerations have been given to avoiding, minimising and mitigating environmental impacts including impacts on the ecologically sensitive areas and features, notably Hoo Hok Wai. Apart from placing the road alignment well away from the core area of Hoo Hok Wai, the ECR features the following ecologically friendly design as illustrated in Figure 3 - (a) underpass to cross under the Meander; (b) depressed road sections with road side shrubs/trees through the fish ponds; (c) animal passages to maintain their free movements; and (d) road furniture such as barriers, planters, and rails, etc. to discourage fly tipping. During construction stage, at least half of the width of the Meander would be maintained at all times and construction works would only be carried out in day-time (9:00am – 5:00pm) to minimise the temporary ecological impact. The EIA findings reveal that the residual impacts would be acceptable.

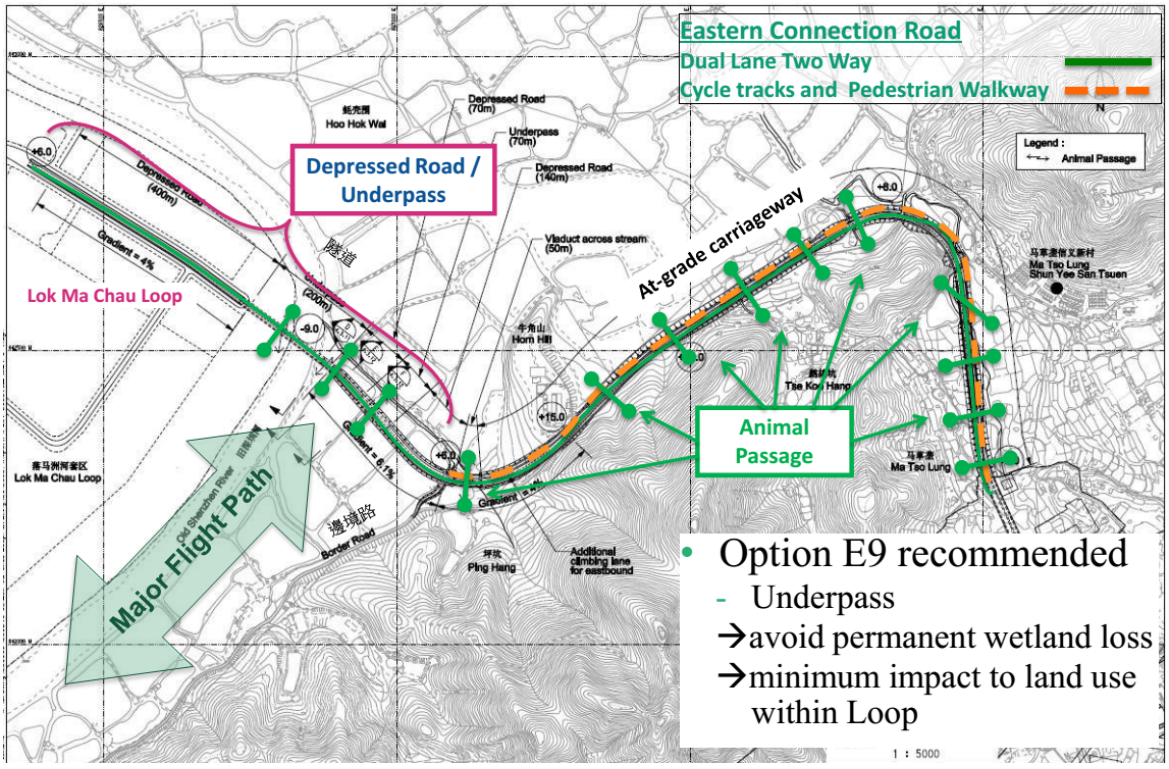

Figure 3 – Ecologically friendly designs for the ECR (Plan)

Proposal to 'carve out' the ECR from the EIA report

2.7 The LMC Loop will be developed in 2 phases. As far as the external connection roads are concerned, the ECR is not required in the Phase 1 commissioning of the Loop development currently planned for 2020/21. It will only be required in the Phase 2 commissioning of the Loop development planned for 2027. The project proponent acknowledges that although the need for the ECR to serve the full LMC Loop development is justified as explained above, the planning circumstances and wider strategic infrastructure picture around the LMC Loop development will expectedly be varying with time. As such, the inclusion of the controversial ECR in the present EIA as an identified Schedule 2 designated project (DP) for seeking endorsement by the Members may not be the best arrangement.

2.8 Having regard to the uncertainties potentially having bearing on the traffic demand on the ECR, notably the Northern Link now still under public consultation and the provision of the pedestrian link with Shenzhen involving new boundary control facilities, the project proponent submits the following voluntary suggestions for consideration by the Members:

- The present EIA report for the whole Loop development shall be considered by the EIA Subcommittee as Schedule 3 DP together with other identified Schedule 2 DPs but excluding the ECR; and
- A new Schedule 2 EIA report for the DP for the ECR will be submitted under EIA Ordinance for consideration by the EIA Subcommittee again in due course.

3 Integrating some reed beds into the Amenity/Activity Corridor

3.1 In response to a Member's comment, the project proponent has reviewed and found that it is possible to retain about 3 hectares (ha) of existing reed beds within the proposed Ecological Area and the Amenity/Activity Corridor as clouded in Figure 4. The retained reed beds will be hydrologically linked to the Ecological Area which will have positive contribution towards enhancing the overall ecological/landscape values.

Figure 4 – Reed beds in the Amenity/Activity Corridor and Ecological Area to be retained

4 Urban design considerations

4.1 The urban design framework is based on the concept of delivering a flexible and

permeable urban layout, an accessible urban structure via a network of access routes interlinked with landscape routes and a varied and diversified mix of land uses. A low-rise building height profile descending towards the Shenzhen River and the Ecological Area / Old Shenzhen River Meander is proposed for better visual permeability and integration with the surrounding setting. Three main types of open space (namely the east-west running Pedestrian Boulevard, the north-south running Ribbon Park and Courtyard Spaces within development plots) and Riverside Promenade are proposed to cater for the diverse activities and provide its users with different green space experience. The Ribbon Park, together with two Green Connectors, also serves as visual corridors in the Loop as shown in Figure 5.

Figure 5 – Open Space Framework

Promotion of a people-oriented community

4.2 Extensive landscape features and planting are proposed in the open spaces to create a comfortable and pedestrian-friendly environment in the LMC Loop. In addition, the major activity corridor, i.e. Pedestrian Boulevard, will also serve as a major wind corridor and hence provides human comfort to its users. Amongst the three main types of proposed open space, the Pedestrian Boulevard with active building frontages and retail facilities such as cafes and bookstores alongside is a vibrant space serving as a platform for interaction and exchange of people. Courtyard spaces in development plots will provide an intimate outdoor and semi-outdoor green environment conducive to interaction of the users.

4.3 The proposed Ecological Area at the southern/southeastern boundary of the LMC Loop will help maintain connectivity of the surrounding wetlands. Low-rise and extensive greening in the LMC Loop development will ensure integration with the natural and rural setting of the surrounding areas. The above can allow the people

and nature to interface with each other.

Low carbon and green initiatives

4.4 Sufficient areas are designated as wind corridors (the Pedestrian Boulevard as the major one with some other smaller ones) to provide a comfortable wind environment in the LMC Loop, contributing to a low carbon and green development. Extensive greening to be provided in the open spaces and development plots (achieving at least 30% greening ratio) can help reduce heat island effect and the energy used for air conditioning. Roof-top and vertical greening and other green building design will be adopted to reduce greenhouse gas emission. Feasibility of adopting such green measures as District Cooling System, reuse of treated sewage effluent, etc. and building design for a more efficient use of energy will be explored in taking forward the development.

Heritage

4.5 The Old Shenzhen River Meander is a "natural heritage" featuring the relationship of the LMC Loop and the Shenzhen River Regulation Project which was a joint project between the Hong Kong and Shenzhen governments and has been integrated in the design of the LMC Loop. One of the key features of the LMC Loop development is the Riverside Promenade along the meander. In addition, consideration will be given to retaining part of the existing reed beds in the LMC Loop, which is one of the natural features in the LMC Loop, into the future design of the Amenity/Activity Corridor near and hydrologically linked to the Ecological Area. The ecologically friendly integrated design will also help highlight one unique characteristic of the LMC Loop in respect of affinity with waters around. In developing the detailed design of the Riverside Promenade and the Amenity/Activity Corridor, further consideration will be given to making best use of these natural resources to create a pleasant and attractive environment, as well as to reflecting the unique historical background of the LMC Loop.

5 Advice sought

5.1 Members are invited to note the project proponent's further information submitted with a view to reconsidering the captioned EIA report at the forthcoming EIA Subcommittee meeting on 13 September 2013.

Civil Engineering and Development Department
September 2013