

**For information
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**LANTAU DEVELOPMENT ADVISORY COMMITTEE
SUSTAINABLE DEVELOPMENT SUBCOMMITTEE**

Conservation of Tung Chung Stream and Valley

PURPOSE

This paper serves to introduce the proposals for conservation works of Tung Chung Stream and Valley recommended under the Tung Chung New Town Extension (TCNTE) project for deliberation by the Sustainable Development Subcommittee (SD SC) of the Lantau Development Advisory Committee (LanDAC).

BACKGROUND

2. Tung Chung Stream is one of the few local rivers that still preserves its natural setting from its headwater to the estuary. Its headwater is the third highest in Hong Kong and the catchment extends up to Lantau Peak and Sunset Peak, etc. It is one of the streams with the most abundant native freshwater fish species in Hong Kong. Hence, parts of the Tung Chung Stream are designated as an Ecologically Important Stream (EIS). The Tung Chung Stream and its estuary are rich in biodiversity, species of conservation importance such as Beijiang Thick-lipped Bard and Philippine Neon Goby have been recorded in the stream. Downstream of the Tung Chung Stream is connected with the Tung Chung Bay area in which there are abundant mudflats along the coastline. These mudflats have supported mangroves and other special species including horseshoe crabs, pipefishes, seahorses, seagrasses, etc.

3. Tung Chung Stream and Valley are rich in natural and cultural heritage resources. There are several recognised traditional indigenous villages and graded historic buildings. In respect of its ecology, the endangered Romer's Tree Frog and rare Jhora Scrub Hopper have been recorded in Tung Chung Valley.

CONSERVATION PROPOSALS

4. Preserving the ecology and cultural heritage is one of the key considerations in planning the TCNTE, and the development at Tung Chung West strives to manifest its historical and natural characters. According to the TCNTE Study, we have following proposals:

Preservation of Natural Coastline and Conservation of Natural Section of Tung Chung Stream

5. Ecological surveys indicated that the conditions of mangroves and mudflats at the natural coastline to the west of Wong Lung Hang nullah are comparatively intact. Hence, we propose the area within about 30m of this coastline as Coastal Protection Area (CPA) to conserve the habitats such as mudflat, mangroves, etc. in Tung Chung Bay, reduce the loss of general marine waters habitat and protect the fishery spawning grounds in the vicinity.

6. Tung Chung Stream comprises two main branches. The western branch is generally natural and undisturbed. For the eastern branch, the upstream section is natural while there is an engineered channel of approximately 625m long at downstream. This channel was constructed decades ago as flood protection measures. In order to enhance the ecological integrity of the Stream, it is proposed to designate an area of about 20-30m wide along both sides of the western branch and the natural upstream section of the eastern branch as Conservation Area (CA) to serve as a buffer zone to the Tung Chung West development area.

7. According to the revised Recommended Outline Development Plan, the total length of the proposed CPA and CA (**Annex 1**) is about 4km with a total area of about 15 hectares. These CPA and CA land uses have been reflected in the gazetted Draft Tung Chung Valley Outline Zoning Plan.

Provision of River Park and Revitalisation of Engineered Channel of Tung Chung Stream

8. Water-friendly culture and activities are advocated in the 2015 Policy Address. One of the initiatives is to adopt the concept of revitalising water bodies in large-scale drainage improvement works and planning of drainage networks for new development areas so as to build a better

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environment for the public. Hence, we propose revitalising the existing channelised section of Tung Chung Stream for restoring its natural setting and enhancing the ecological connection between the upstream and downstream of the Stream. We also propose to develop a portion of the revitalised section of about 415m long together with the immediate upstream natural section of about 360m long into a River Park.

9. The proposed River Park, which will be the first of its kind to be implemented in Hong Kong, will occupy an area of about 4.1 hectares along a total length of about 780m. Its aim is to improve the environment, allow recreational uses, promote “water-friendly” culture and eco-education, and to allow the public to enjoy the local natural environment. Its concept is compatible with the “River-cum-Biodiversity Park” proposed by the LanDAC. We will consider suitable park facilities involving small scale works such as viewing deck, boardwalk and sitting-out area. In addition, field study / education / visitor information centre will be established in the River Park for eco-education purpose. The artistic impression of the proposed River Park is shown in **Annex 2**.

Innovative Sustainable Urban Drainage System (SUDS)

10. With a view to enhancing the protection for Tung Chung Stream, it is proposed to provide a series of stormwater attenuation and treatment ponds to treat surface runoff collected from development areas and adjacent roads before discharging to the Tung Chung Stream. The conceptual layout of the proposed stormwater attenuation and treatment ponds is shown in **Annex 3**.

11. Setting it apart from traditional drainage system, the collected runoff will be first discharged into a primary sedimentation zone to slow down the runoff for sedimentation of small particles to take place. The runoff will then enter the treatment zone cultivated with wetland plants for removal of floating debris and allowing nutrient uptake by plants and microorganisms in the wetland to achieve water purification. The treated flows will be discharged into attenuation / wet pond for sedimentation treatment. According to relevant overseas studies, the SUDS can effectively remove pollutants in the runoff, including nutrients, metals and bacteria, etc. The plants within the SUDS can provide habitats, promote biodiversity and beautify the surrounding areas.

Provision of Proper Sewerage System

12. Existing villages in Tung Chung West development area, namely Shek Mun Kap, Mok Ka, Nim Yuen, Lam Che, Ngau Au, Shek Lau Po, Ma Wan Chung and Wong Nai Uk, are currently not connected to the public sewerage system. We propose providing proper sewerage system to these villages to improve the sanitary condition and the water quality of neighbouring water bodies.

13. Sewage will be conveyed by the proposed sewerage system comprising sewage pumping stations (SPSs) and sewers to the Siu Ho Wan Sewage Treatment Works for treatment. The following resilience designs will be adopted to cater for possible emergency situations:

- (a) Twin rising mains;
- (b) Dual-feed power supply for proposed SPSs;
- (c) 100% standby pumping capacity with spare pump up to 50% pumping capacity stockpiled in the proposed SPSs;
- (d) Emergency storage facility with capacity up to 6-hour average dry weather flow; and
- (e) Emergency communication mechanism amongst relevant government departments to deal with emergency situations.

Conservation of Ecology

14. Endangered Romer's Tree Frog was recorded near the eastern branch of Tung Chung Stream. We will engage ecologists to conduct detailed study on the potential impacts of the developments to the amphibian species of conservation importance, and to submit a Habitat Enhancement and Translocation Plan for these species to the Environmental Protection Department for approval. The plan will include the methodology for capture, translocation and post-release monitoring, implementation programme, suitable receptor sites and recommended measures for enhancing the habitats at these receptor sites.

15. The rare butterfly species Jhora Scrub Hopper was also recorded along the stream course at the middle section of Fong Yuen. In order to preserve their habitat, the original plan to establish public housing development in this area was altered to shift the housing site to another location to avoid encroachment on this habitat.

Preservation of Built Heritages

16. Tung Chung is the area with early settlement on Lantau Island. Since Tung Chung is located at the Pearl River Estuary, the passing vessels could be monitored there in the past, making Tung Chung with strategic value in coastal defence. This unique history of Tung Chung is demonstrated by the Tung Chung Fort and the Tung Chung Battery, which also manifest the development history of Tung Chung.

17. Apart from Tung Chung Fort and Tung Chung Battery which were declared monuments, there are many built heritages in Tung Chung, including the Hau Wong Temple and Entrance Gate at Shek Mun Kap which are both graded historic buildings designated by the Antiquities and Monuments Office. The Hau Wong Temple at Tung Chung is the largest one among the same category of temples on Lantau Island. Many villagers and worshipers join the traditional Hau Wong Festival at this temple in the eighth lunar month every year. The historic Entrance Gate at Shek Mun Kap is attached with fung shui walls at both sides and there is a fung shui wood in front of the village to form a complete fung shui setting. The Entrance Gate is the landmark of Shek Mun Kap.

18. In order to preserve the integrity of the built heritages with historical value, the related areas have been zoned for appropriate land uses in the gazetted Draft Tung Chung Valley Outline Zoning Plan and Draft Tung Chung Town Centre Area Outline Zoning Plan. There will be no adverse impact on these built heritages arising from the TCNTE project.

WAY FORWARD

19. The detailed design and site investigation consultancy agreement for Tung Chung West development is under procurement and scheduled to commence in September or October 2016. Successful local and overseas examples will be made reference to in the detailed design to further improve the above conservation proposals. During the detailed design, we will take into account the concept of tour for urban-rural integration in Tung Chung under Northwest Lantau Cultural and Nature Trail suggested by the LanDAC, which includes establishment of Tung Chung Nature and Historical Walk and River-cum-Biodiversity Park. It will connect the ecological, historical and cultural resources and suitably enhance the tourist facilities, and serve the functions of conservation, public enjoyment, education and tourism. The

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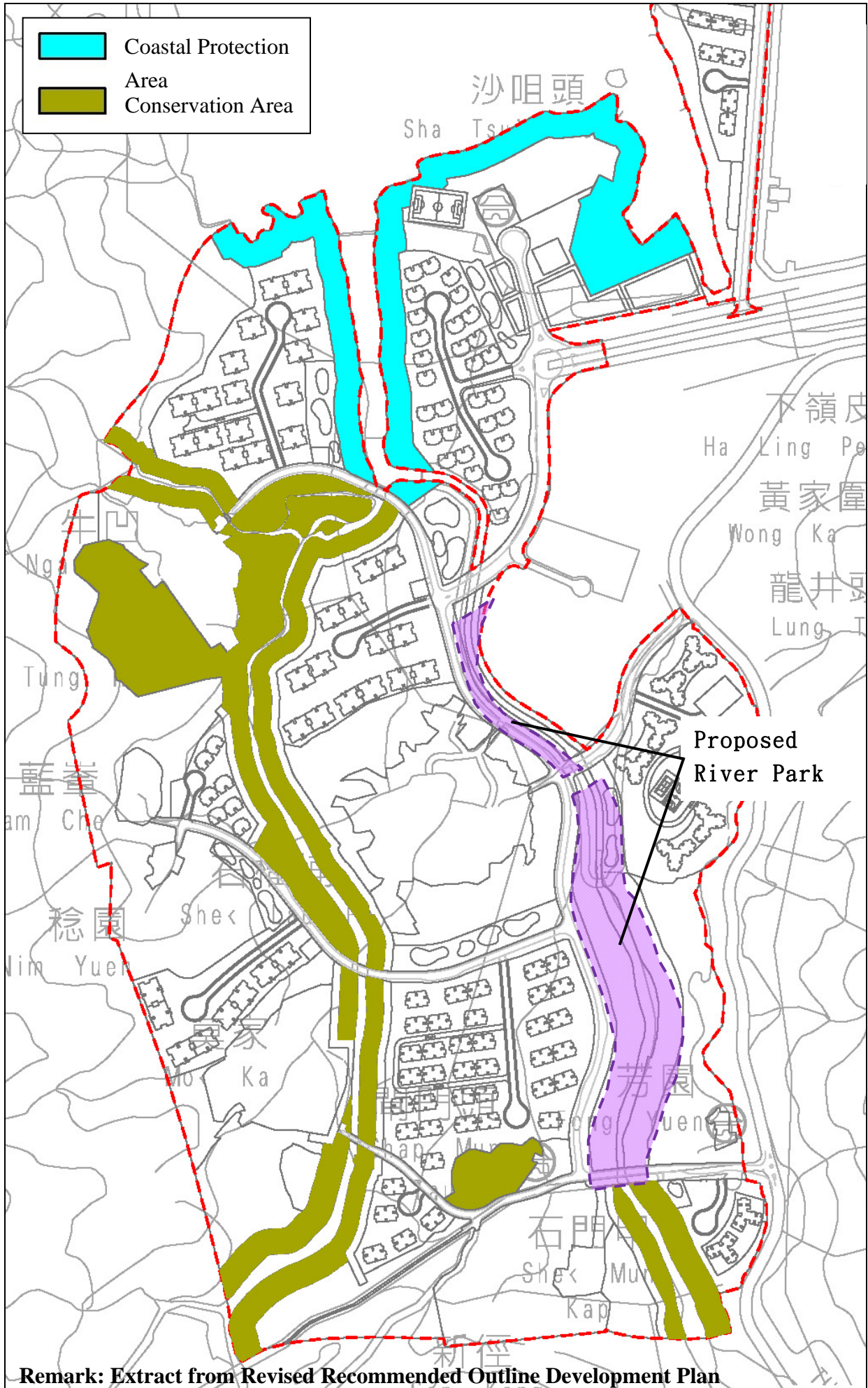
visitors can enjoy the cultural and natural atmosphere of northwest Lantau.

CONCLUSION

20. Members are invited to note and express their views on the proposals recommended under the TCNTE project for the conservation of Tung Chung Stream and Valley.

**Civil Engineering and Development Department
July 2016**

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Proposed Coastal Protection Area & Conservation Area



Remark: Extract from Revised Recommended Outline Development Plan

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Artistic Impression of Proposed River Park

