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ACE-EIA Paper 3/2020
For advice on 16 November 2020

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report

Pier Improvement at Lai Chi Wo

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report on “Pier Improvement at Lai Chi Wo” (“the Project”) submitted under Section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-264/2020). The Civil Engineering and Development Department (CEDD) (“the Applicant”) and its consultants will present the report at the meeting of the EIA Subcommittee.

ADVICE SOUGHT

2. Members’ views are sought on the findings and recommendations of the EIA report. The Director of Environmental Protection (DEP) will take into account the comments from the public and the Advisory Council on the Environment (ACE) in deciding whether or not to approve the EIA report under Section 8(3) of the EIAO.

BACKGROUND

3. In 2017 Policy Address, the Government of the Hong Kong Special Administrative Region committed to improving a number of remote public piers to facilitate public access to outing destinations and natural heritage. A list of 10 proposed pier improvement items, including Lai Chi Wo Pier, is recommended under the first implementation phase of Pier Improvement Programme.

4. The Project involves construction of new pier structure extended from the existing pier structure to deeper water area. There is no planned increment in frequency of Kaito services after pier improvement.

5. The Applicant submitted the EIA report for the Project for approval under the EIAO. DEP, in consultation with relevant authorities, considered that the EIA report met the requirements in the EIA Study Brief and the Technical Memorandum on EIA Process (TM), for the purpose of its exhibition for public inspection under Section 7(4) of the EIAO.

NEED FOR THE PROJECT

6. Lai Chi Wo pier was constructed in the 1960s, which has been in service for more than 50 years and has reached the end of its design life. The pier is primitive and aging, where cracks are found on the side faces. There is also safety concern from the narrow (about 2.5m wide) and limited berthing space of the existing pier. The water depth at pier head at low tide (about 0.5m deep) is inadequate for larger vessels to berth.

7. With implementation of the Project, the current substandard conditions of the pier will be rectified and safety enhanced. The Project will also uplift the status of Lai Chi Wo for eco-tourism and the Hong Kong UNESCO Global Geopark status. The Project is supported by Sha Tau Kok District Rural Committee, North District Council and Lai Chi Wo Village Representatives.

ENVIRONMENTAL BENEFITS

8. Apart from enhancing pier safety, the Project will also bring about the following environmental benefits:

- (i) **Ecological enhancement:** The Project can benefit the coral communities in the long term by increasing the surface area of hard substratum for the attachment of coral. In addition, eco-tile/eco-concrete is recommended for the provision of hard surfaces to vitalize the ecological functions at sub-tidal pier structures. The uneven surfaces of eco-tile/eco-concrete would provide microhabitats for various marine organisms to colonize and grow that can promote habitat complexity and enhance biodiversity and ecosystem; and

- (ii) **Landscape and visual quality improvement:** The new pier structure will adopt colour and textural treatment, which is compatible to natural environment, to improve visual appearance of the existing pier.

DESCRIPTION OF THE PROJECT

9. The Project will extend the length of the existing Lai Chi Wo pier from 64m to 155m and increase the width from 2.5m to about 6 - 8m along walkway and 15m at pier head. As shown in **Figure 1**, the proposed pier is located within the Yan Chau Tong Marine Park and a small part of connecting walkway will encroach upon the Plover Cove Country Park. Therefore, the Project constitutes a Designated Project under Item Q.1, Part I, Schedule 2 of the EIAO.

10. The scope of the Project includes the following:

- (i) construction of new pier structure (pier head with floating pontoon) extending from existing pier structure (“New Pier”);
- (ii) provision of temporary berthing and mooring facilities (“Temporary Pier”), and subsequent removal of Temporary Pier after the New Pier is available for berthing;
- (iii) site investigation works for detailed design; and
- (iv) associated facilities (e.g. barrier-free access, canopy, seats) and landscaping works, etc.

CONSIDERATION OF ALTERNATIVE OPTIONS

11. The EIA report has considered alternative options for the development of the Project, including alignment, design, construction method and construction sequence to avoid and minimize environmental impacts. The key alternative considerations and outcomes in the EIA report are highlighted below:

Alignment and Design

- (i) The pier shape and alignment are carefully designed and optimized to minimize the footprint and pile numbers in order to minimize disturbance to seabed and environmental impacts to Yan Chau Tong Marine Park;

- (ii) The pier location is selected to be away from the nearest coral community in Kau Ma Shek (about 290m) as well as Lai Chi Wo Beach Site of Special Scientific Interest (SSSI) where seagrass bed and mangrove locate; and
- (iii) The pier design has avoided the demolition of existing pier in order to minimize waste generation and potential water quality impact from marine works;

Construction Method and Sequence

- (iv) Prefabrication construction method for pier structure will be adopted to minimize on-site casting activities, and minimize on-site waste generation;
- (v) The Project will be carried out successively (i.e. without overlapping of works for Temporary Pier construction, New Pier construction and demolition of Temporary Pier) in order to minimize cumulative environmental impact for Yan Chau Tong Marine Park;
- (vi) During piling construction, there will be at most two piles constructed concurrently; and
- (vii) During demolition of Temporary Pier, all piles will be cut one by one to minimize any potential impact. The Project will adopt wire saw cutting to remove the piled foundation of Temporary Pier. Compared to the conventional demolition work by mechanical means (e.g. using chisel and grab), this method can minimize vibration impact and suspended solid elevations to water body.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

Water Quality

12. The EIA recommended the following protective measures to avoid direct/indirect impact to water quality of the Yan Chau Tong Marine Park:

- ◆ Only one grab excavator at any single time;
- ◆ Silt curtain around pile casing for piling construction; and

- ◆ All pier superstructures are prefabricated off-site.

13. In particular, all piling constructions will be carried out with the use of silt curtain and within a steel casing so that any accidental spillage of muddy water would be confined within the casing and further protected by silt curtain to avoid impact to the water bodies outside works area. Installation and removal of the steel casing would only be done after deployment of silt curtain to avoid dispersion of suspended solid from seabed. No open sea dredging will be carried out. Moreover, muddy water will not be discharged within the boundary of Yan Chau Tong Marine Park, Plover Cove Country Park, Lai Chi Wo Beach SSSI and the other identified water sensitive receivers. With implementation of the recommended mitigation measures and good site practice, adverse water quality impact is not anticipated during the construction stage.

14. The piled foundation would take up a small footprint (about 30 m²) of seabed in Yan Chau Tong Marine Park. The design of pile foundation has adopted typical configuration to other piers of similar water depth setting. Given the small scale of the pier and the proposed pile foundation with sufficient spacing, hydrodynamic changes in the flow regime are limited and adverse water quality is not anticipated during the operation stage.

Ecology

15. A 12-month ecological field survey was conducted to confirm that all identified habitats in the Project site are generally of low ecological value. No flora and fauna species of conservation importance were recorded within the Project site. No coral community was found at the seabed within or close to Project site. Only 3 common hard corals (mostly *Oulastrea crispata*) were found attached to the existing pier head. The attached common corals are of low coverage (<1%), mostly less than 5cm and non-movable. As these coral species are very common and widespread in Hong Kong, and tolerant to low light condition and adverse environment, the potential impacts to the corals are considered minor. The corals will be kept in place as it is not practicable for translocation. For prudence sake, preconstruction dive survey will be carried out to verify the size of colonies and any newly formed colonies of higher conservation value, and confirm any need for translocation. The New Pier surface area could provide additional hard substratum for coral attachment, and would be beneficial to the Yan Chau Tong Marine Park in the long term.

16. In addition to the measures to avoid and mitigate the water quality impact as mentioned in paras 12 and 13 above, no construction vessels are allowed to pass

through the high ecological sensitive areas (e.g., Lai Chi Wo Beach SSSI and coral communities near Kau Ma Shek). With adoption of the measures in confining suspended solid within the Project site, adverse marine ecological impact is not anticipated.

17. Most of the works are marine based. Only a small part of connecting walkway from the pier to existing footpath will be carried out as land-based work. No tree felling is necessary and adverse terrestrial ecological impact is not anticipated.

Fisheries

18. The proposed pier is located in waters of moderate fisheries production and is within the spawning ground and nursery area for commercial fisheries resources. The nearest Fish Culture Zone (FCZ) is Sai Lau Kong FCZ which is located more than 2km from the Project site. Given the small scale of the Project, water quality impact on the FCZ is not anticipated. Any suspended solid would be confined within silt curtain during construction. Marine footprint taken up by the New Pier and Temporary Pier have been minimized by adopting piled foundation. The permanent and temporary loss of fishing ground caused by the construction of the pier is considered insignificant. With the implementation of the mitigation measures for water quality, adverse fisheries impact is not anticipated.

Other Environmental Impacts

19. Other environmental impacts including air quality, noise, waste management, land contamination, landscape & visual are relatively minor and have also been addressed in the EIA report. With the implementation of the recommended mitigation measures, the Project will comply with the relevant requirements of the EIA Study Brief and TM.

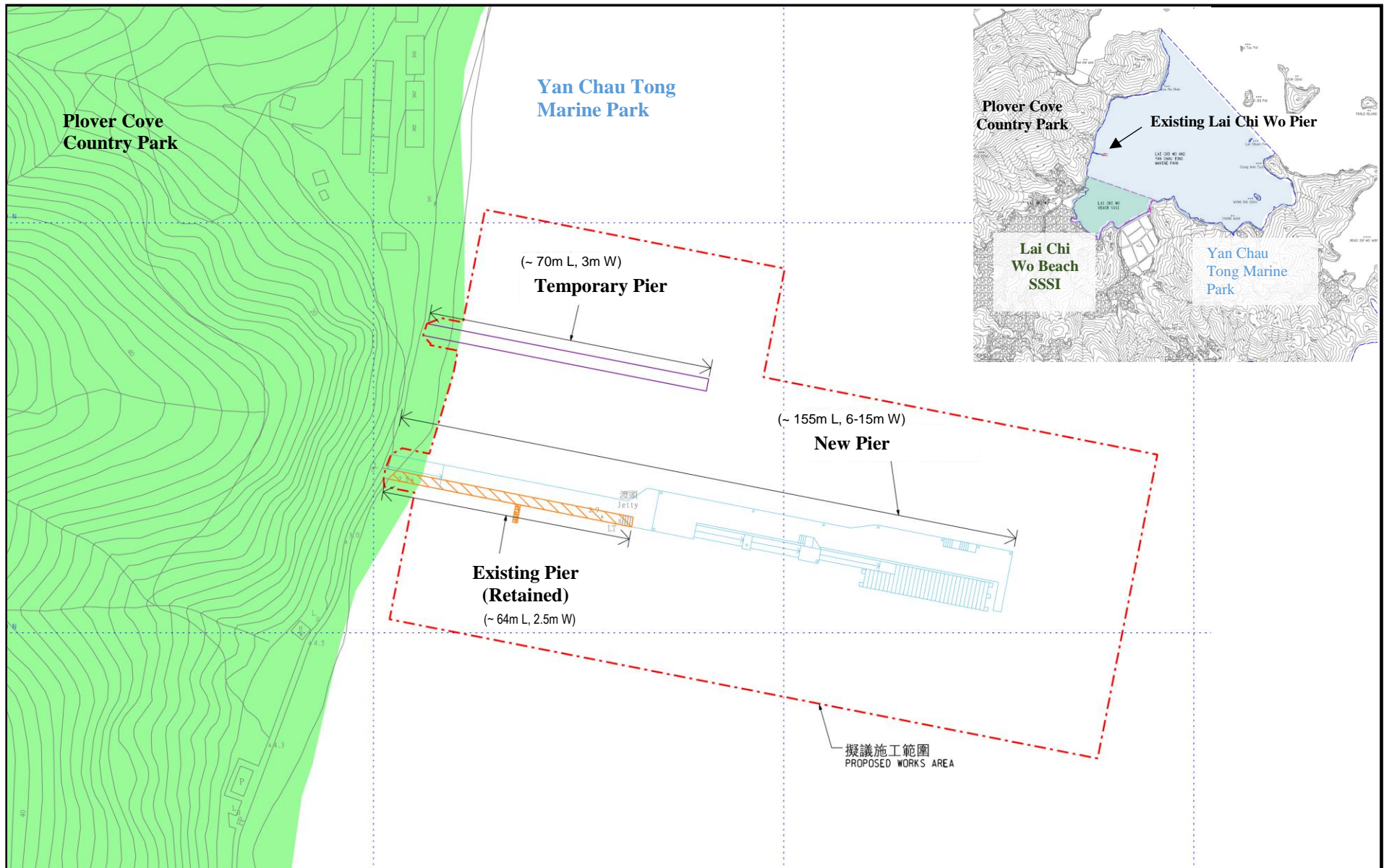
ENVIRONMENTAL MONITORING AND AUDIT


20. The EIA report has included an Environmental Monitoring and Audit (EM&A) Manual, which recommends an EM&A programme during the construction and operation phases of the Project. Key recommended EM&A requirements cover ecology and water quality issues.

PUBLIC CONSULTATION

21. The applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 8 October 2020 to 6 November 2020. A summary of all public comments received by the Environmental Protection Department during the public inspection period and a gist of the main concerns raised in the public comments will be provided separately.

November 2020
Environmental Assessment Division
Environmental Protection Department



Project Title:	Pier Improvement at Lai Chi Wo	EIA Application No.:	
Figure 1	General Layout of the Project	EIA – 264/2020	