40/F, Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong
香港灣仔告士打道 5 號稅務大樓 40 樓

ACE Paper 1/2008
For advice

Report on the 100th Environmental Impact Assessment Subcommittee Meeting

INTRODUCTION

On 17 December 2007, the Environmental Impact Assessment (EIA) Subcommittee considered the EIA report on "Development of a bathing beach at Lung Mei, Tai Po" (ACE-EIA Paper 10/2007 at **Annex A**).

ADVICE SOUGHT

2. Members are requested to note the views of the Subcommittee and advise whether the EIA report should be endorsed.

VIEWS OF THE SUBCOMMITTEE

3. Members noted that the public inspection period of the EIA report was from 23 November to 22 December 2007. Up to the date of the meeting, the Environmental Protection Department (EPD) received ten sets of public comments. Three sets were circulated to Members before the meeting and seven sets were tabled at the meeting for Members' reference. Separately, two sets of comments directly addressed to the Council were tabled at the meeting for Members' information. After the Subcommittee meeting, 83 sets of public comments received by EPD were referred to all Council Members for reference prior to the full Council meeting (one batch of 39 sets are identical in content while another batch of 18 sets are identical in content). Separately, three sets of public comments directly addressed to the Council after the Subcommittee meeting were also circulated to all Council Members for information prior to the full Council meeting.

4. A summary of the issues discussed by the Subcommittee is at **Annex B**.

ADDITIONAL INFORMATION FROM PROJECT PROPONENT

5. The Subcommittee considered that the project proponent should be required to provide supplementary information on the following aspects before making a decision –

(a) confirmation that the new sewerage system under "Tolo Harbour Sewerage of Unsewered Areas Stage I Phase IIC" in the Lung Mei area would be completed prior to the operation of the proposed beach development at Lung Mei;

(b) justifications on the scale of the project; and

(c) assessments on the long-term effects on the natural coastline in Ting Kok area arising from the change in hydrodynamics due to the project.

6. The supplementary information provided by the project proponent (at **Annex C**) was circulated to the Subcommittee Members. In response to some further queries, additional information was provided by the project proponent (at **Annex D**) which was also circulated to the Subcommittee Members.

RECOMMENDATION OF THE SUBCOMMITTEE

7. Having considered the above additional information provided by the project proponent, the Subcommittee agreed to recommend to the Council that the following outstanding issues and concerns be further discussed –

(a) justifications for the extent of reclamation and possibility of reducing the size of reclamation;

(b) time frame in achieving the 60% sewerage connection rate for village houses in Lung Mei area to connect the private sewers to the public sewer, and implications (particularly on public expenditure) if the anticipated sewerage connection rate could not be achieved; and

(c) difference of information about intertidal fauna between those presented in the EIA report and recent findings of members of the public, and implications on the assessment of the ecological value of the project site.

8. The Subcommittee agreed that should the Council decide to endorse the EIA report, the following conditions were proposed –

(a) the proposed beach development at Lung Mei should be opened only after the new sewerage system under "Tolo Harbour Sewerage of Unsewered Areas Stage I Phase IIC" in Lung Mei area was completed;

(b) the project proponent should conduct regular monitoring on the water quality of the bathing beach in the first two years after the opening of the beach to assess the effectiveness of the water quality mitigation measures. The information should be provided to EPD for information and appropriate follow-up actions, if necessary; and

(c) the project proponent should provide downward street lighting without flare to minimize impacts on star-watching activities.

9. The Subcommittee also suggested the project proponent to incorporate environmental education elements in the project to promote conservation and environmental protection, such as exhibition boards to promote mangrove and natural areas in Tai Po.

EIA Subcommittee Secretariat
January 2008

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Annex A

ACE-EIA Paper 10/2007
For Advice

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report
Development of a Bathing Beach at Lung Mei, Tai Po

Purpose

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the Development of a Bathing Beach at Lung Mei, Tai Po (hereafter known as the Project), submitted under section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) with the application no. EIA-140/2007. The Civil Engineering and Development Department (the applicant) and their consultants will make a presentation. Comments from the public and the Advisory Council on the Environment will be taken into account by the Director of Environmental Protection when she makes the decision 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. In response to the increasing local demand and requests of Tai Po District Council raised over the past 10 years for the provision of a bathing beach within Tai Po District, the applicant with the support of the Home Affairs Bureau proposed to develop a bathing beach at Lung Mei in Tai Po.

Description of the Project

4. The Project is to develop a bathing beach at Lung Mei. Its location and layout are shown in the attached **Figure 1** and **Figure 2** respectively. The site is at present a non-gazetted beach. Upon completion of the Project, it will be managed by the Leisure and Cultural Services Department as a gazetted beach. The Project comprises the following key features :

(i) A 200 m long beach with a groyne at each side of the beach;

(ii) A beach building with associated beach facilities, including public changing rooms and toilets; shower rooms; equipment/machinery stores; dangerous goods stores; and ancillary facilities including management office, lookout/surveillance post, first aid room, staff changing room/toilets, staff room/pantry, fast food kiosk, open seating out area, store rooms, etc.;

(iii) Retaining structures;

(iv) Refuse collection point;

(v) Outdoor shower facilities;

(vi) Lookout towers;

(vii) Shark prevention net;

(viii) A public car park including 113 fee-paying packing spaces for 100 private cars, 10 motorcycles and 3 coaches, 2 coach loading/unloading bays and 2 passenger car/taxi unloading bays;

(ix) Landscaped areas;

(x) Drainage diversion of an existing box culvert and the lower course of the adjacent Lo Tsz River;

(xi) Sewerage construction works; and

(xii) Sand replenishment during the operation phase for maintenance of the beach, when necessary, such as after extreme storm conditions.

5. The Project involves reclamation of 1.02 ha and dredging operation. The site is about 420 m from the Ting Kok site of special scientific interest (SSSI). It is classified as a designated project under Item C.2(a) *"reclamation works more than 1 ha in size and a boundary of which is less than 500 m from the nearest boundary of an existing SSSI"* and C.12(a) *"a dredging operation which is less than 500 m from the nearest boundary of an existing SSSI"* of Part I, Schedule 2 of the EIAO.

Consideration of Alternative Locations and Layout Design for Avoidance of Environmental Impacts

6. The EIA has considered three potential sites for the Project within Tai Po District, including Lung Mei, Shuen Wan and Sha Lan. The key environmental factors for site selection process are the extent of reclamation and dredging which will give rise to potential water quality, ecology and fisheries impacts, and the buffer distance between ecological sensitive areas in the vicinity.

7. In view of the aforementioned environmental factors, among other factors, and the comments received during the Continuous Public Involvement process, the Lung Mei site was considered as the preferred location for the Project. Careful considerations were given to the beach layout, design and orientation of groynes to further minimize potential environmental impacts during construction and operation of the Project. The wave and sediment modeling results show that the net sand drift would be contained within the two groynes and that no sand loss from the Project site is anticipated during operation.

Specific Environmental Aspects to Highlight

Water Quality Impact

8. The Project involves dredging works for groyne foundation, profiling of the beach and sandfilling. With the implementation of mitigation measures such as using closed grab dredger, controlling dredging rate and sandfilling rate, installing silt curtains, and implementing good site practices to minimize site runoff, no adverse water quality impact is anticipated during the construction phase of the Project.

9. There are villages in close proximity to the Project site. The discharge from the septic tank and soakaway system of the villages, the nearby surface drains and Lo Tsz River will have the potential to affect the water quality of the bathing beach. In this regard, the Project includes diversion of the Lo Tsz River and the surface drain to a distance of over 100 m from the beach boundary. Furthermore, the discharge from the nearby villages will be connected to the public village sewerage system which is scheduled for completion prior to operation of the Project in 2010. The EIA has predicted that the beach water quality will meet the criterion for bathing beach, i.e. *E. coli* of 180 cfu per 100 mL set out in the Water Quality Objective.

Ecological Impact

10. The ecological impacts due to the Project were avoided and minimized during the site selection process. The selected site at Lung Mei is located well away from Ting Kok SSSI (about 420 m) and the conservation area (about 250 m). Hence direct ecological impacts on these ecological sensitive areas due to habitat loss and construction runoff from the Project are not anticipated.

11. The Project site covers low ecological value habitats including village/modified area, 0.5 ha sandy shore with backshore vegetation proximately and soft bottom marine habitats covered by fine sediments and scattered rubbles. A short section of Lo Tsz River which is partially channelised and polluted and approximately 80 numbers of small mangrove seedlings/plants scattered along the sandy shore will also be affected. As confirmed by the dive surveys, no corals or species of conservation importance were identified within or adjacent to the Project site. There are about 10 individuals with less than 5% coverage of scattered colonies of 2 common hard coral species found in the artificial/disturbed shoreline at Tai Mei Tuk which is located at more than 300 m away from the dredging site. No adverse water quality impact to the coral colonies is anticipated during dredging and sandfilling based on the water quality modeling prediction.

12. Overall speaking, the potential ecological impacts due to the construction and operation of the Project are considered to be low. With the implementation of the proposed mitigation measures including active search and translocation of the Common Rat Snake, *Ptyas mucosus*, which was identified at the Project site during the baseline ecological survey (listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) but is common and widespread in Hong Kong), planting of approximately 380 mangrove seedlings and adoption of good construction practices, no adverse residual ecological impact is expected.

Other Environmental Impacts

13 The EIA report has also assessed the impacts of air quality, noise, waste management, fisheries, and recommended necessary landscape design to minimize the impacts of landscape and visual quality. The assessments concluded that, with appropriate mitigation measures in place, the anticipated environmental impacts are considered acceptable in meeting relevant requirements under the Technical Memorandum on Environmental Impact Assessment Process.

Environmental Monitoring and Audit

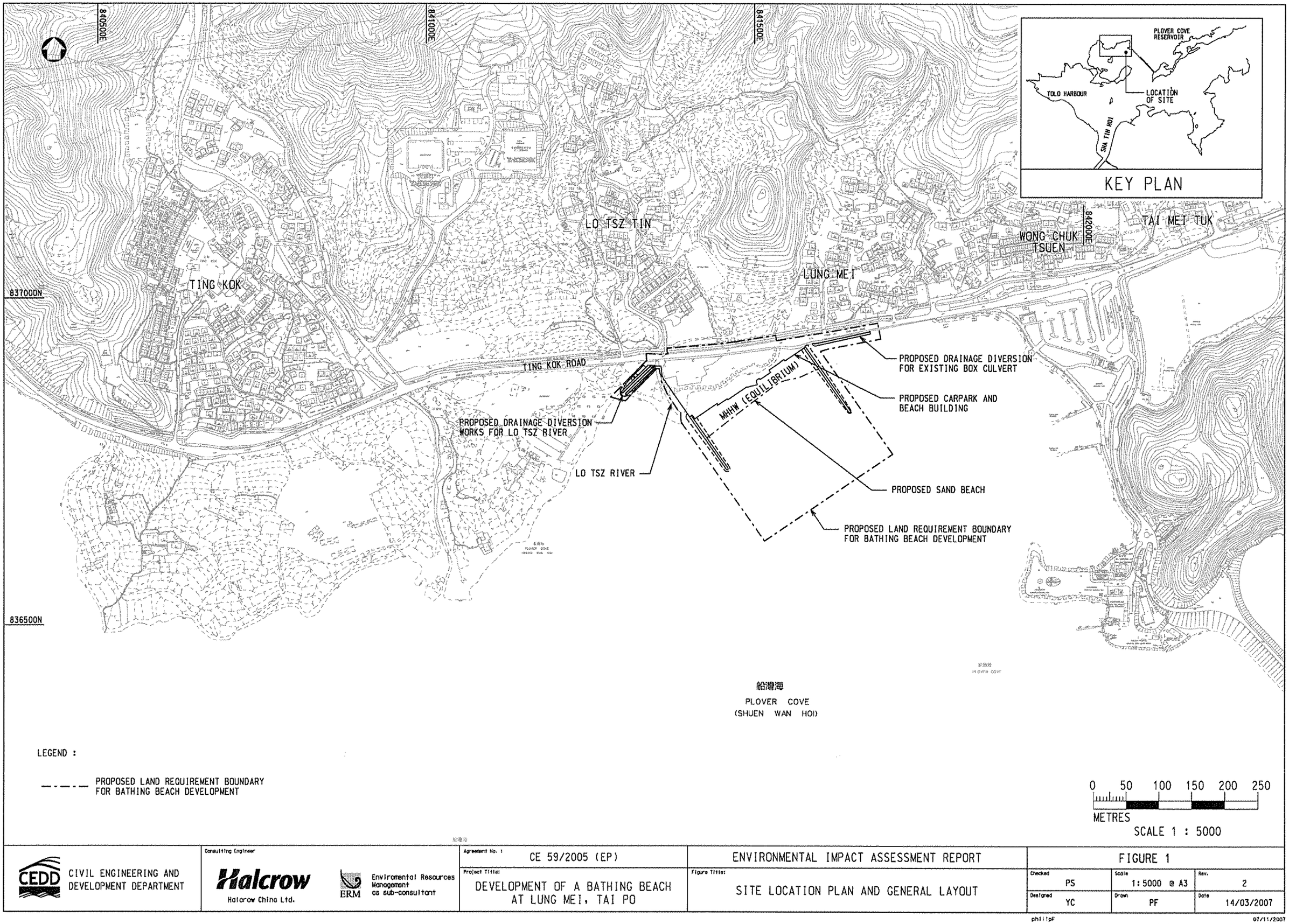
14. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual which recommends an EM&A programme during both the construction and operation phases of the Project.

Public Consultation

15. The applicant has applied the Continuous Public Involvement process and consulted some green groups, fisherman societies, Tai Po District Council and the general public through the Tai Po District Office to seek their comments on the Project during the preparation of the EIA report.

16. The applicant has also made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 23 November 2007 to 22 December 2007. Members will be briefed on any comments received from the public at the meeting.

November 2007
Environmental Assessment Division
Environmental Protection Department



LEGEND :

PROPOSED LAND REQUIREMENT BOUNDARY FOR BATHING BEACH DEVELOPMENT

0 50 100 150 200 250
METRES

SCALE 1 : 5000

CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	Consulting Engineer: Halcrow China Ltd. / ERM Environmental Resources Management as sub-consultant	Agreement No.: CE 59/2005 (EP)	ENVIRONMENTAL IMPACT ASSESSMENT REPORT	FIGURE 1
		Project Title: DEVELOPMENT OF A BATHING BEACH AT LUNG MEI, TAI PO	Figure Title: SITE LOCATION PLAN AND GENERAL LAYOUT	Checked: PS / Scale: 1:5000 @ A3 / Rev.: 2 / Designed: YC / Drawn: PF / Date: 14/03/2007

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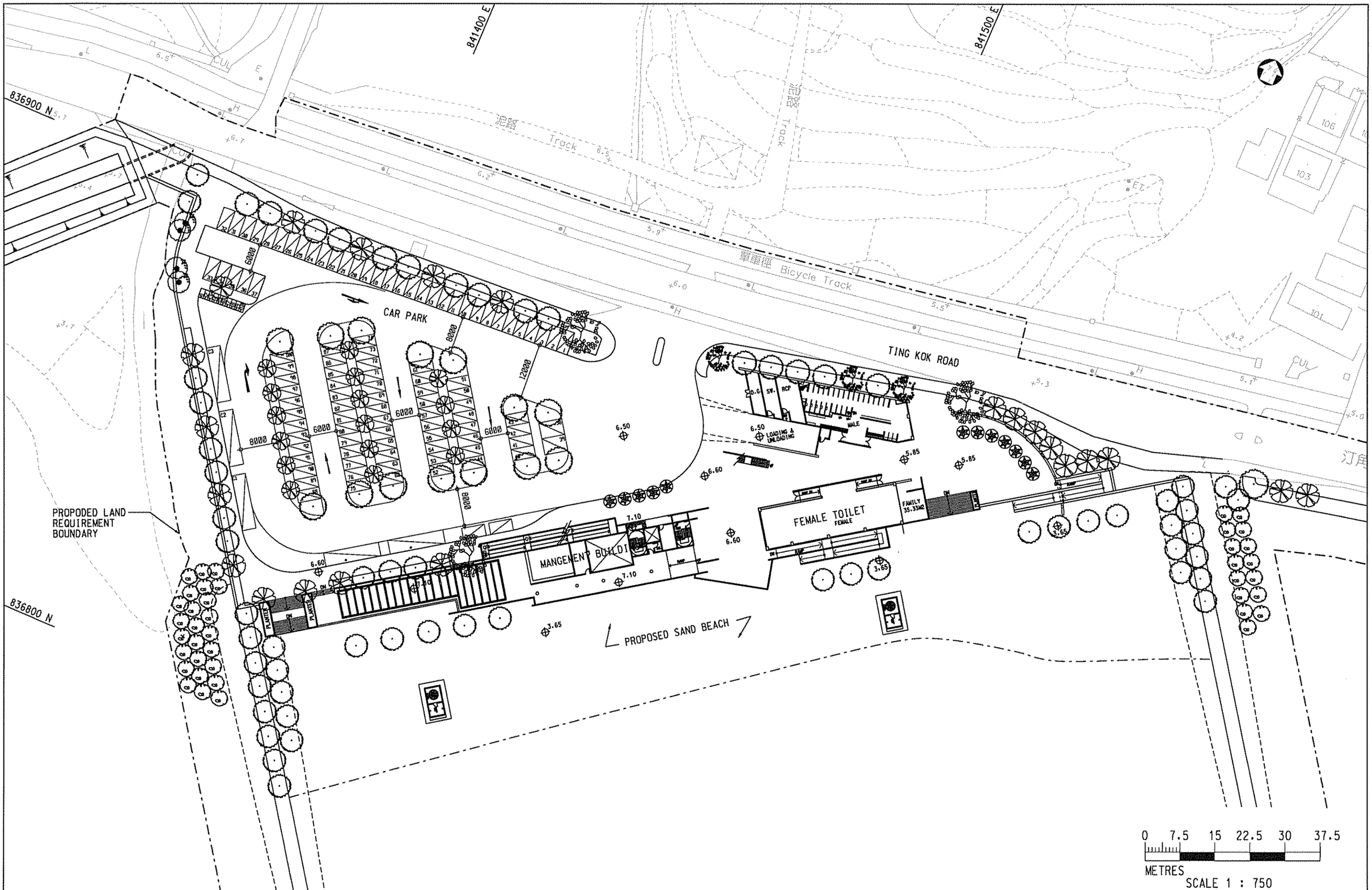

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		Project Title: DEVELOPMENT OF A BATHING BEACH AT LUNG MEI, TAI PO	Figure Title: PRELIMINARY CARPARK AND BEACH BUILDING LAYOUT	Checked: PS; Scale: 1:750 @ A3; Rev.: 2; Designed: YC; Drawn: PF; Date: 14/03/2007

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Annex B

A Summary of Issues Discussed by the EIA Subcommittee at the EIA Subcommittee Meeting on 17 December 2007

Justifications for the project

On the need for a gazetted beach in Tai Po, the project proponent team explained that the project proposed by the former Regional Council was to meet the public demand for a gazetted public beach in the east region of the New Territories. There was at present no gazetted beach in the east region of the New Territories, except those in the Sai Kung District which was relatively far away from the Tai Po District. The Tai Po District Council strongly requested the development of a bathing beach at Lung Mei. The Legislative Council Members also requested the Government to accord priority to the project. The proposal was to carry out improvement works at the existing Lung Mei Beach in order to improve the sand surface and enhance the beach area as a gazetted beach for public bathing and other recreational activities. The Lung Mei Beach was near Tai Mei Tuk which was a popular leisure and recreational area with established facilities for holiday makers. The proposed improvement of the existing beach with the provision of standardized facilities of a gazetted beach would complement the existing leisure and recreational facilities in Tai Mei Tuk area.

2. On the consideration of developing a bathing beach in areas outside Tai Po (such as Pak Shek Kok in Shatin), the project proponent team advised that the site selection was focused in the Tai Po area as no request was received from other District Councils. For Pak Shek Kok, there was a long promenade near the Science Park stretching from Tai Po to Shatin providing a leisure and recreational area with sea frontage.

3. Some Members were concerned that the project might set a precedent for other districts to request for an artificial beach. The project proponent team highlighted that the Lung Mei Beach was an existing sandy beach patronized by local residents and tourists. To meet the increasing community demand, the proposal was to enhance the existing beach area and provide facilities up to the standard of a gazetted beach for protection of beach users. The Leisure and Cultural Services Department (LCSD) was prepared to consider other similar

requests for enhancing beaches having regard to the existence of public demand and technical considerations.

4. Some Members considered that there was a lack of gazetted beach in the east region of the New Territories for the population of about 1 million, the proposed beach development with minimal environmental impacts would be beneficial to the community as a whole.

Site selection

5. On the site selection process, the project proponent team explained that a number of considerations had to be taken into account, including the size of the site for developing a beach of 200 m long; a sheltered bay with a gentle slope and soft bottom (preferably sand but not too muddy) and not subject to wave actions; a site away from industrial areas, existing navigation channel and environmental sensitive areas; and proximity to developed infrastructure. All potential sites located within Tai Po District, including Plover Cove, Tolo Channel, Long Harbour and Hoi Ha Wan, were considered. To avoid impacts on the environmental sensitive areas, any potential bathing beach sites located very close to the Country Park, Marine Park, Site of Special Scientific Interest (SSSI), Special Area, Coastal Protection Area and identified key mangrove habitat had been eliminated for further consideration. Plover Cove was considered the most suitable area. Three sites in Plover Cover, including Lung Mei, Shuen Wan and Sha Lan, were short-listed for further consideration. The key environmental concerns of the site comparisons were the extent of reclamation and dredging, which would unavoidably impact on the water quality, marine ecology and fisheries. Therefore, having considered the extent of dredging and reclamation, proximity of sensitive receivers such as Ting Kok SSSI and Yim Tin Tsai East Fish Culture Zone, provision of additional transport infrastructure and potential impacts (particularly water quality, waste management, marine and terrestrial ecology and fisheries) to the environment, Lung Mei was considered the most suitable site in Tai Po.

6. Some Members expressed concern about the suitability of developing Lung Mei Beach as a gazetted beach from the ecological point of view as the project site was a muddy beach providing favourable habitat for marine organisms. The project proponent team highlighted that the existing beach was a

sandy beach with coarse sand and not a muddy beach. The inter-tidal habitat was mainly a sandy shore with spread of finer sand and scattered rocks towards the lower inter-tidal or sub-tidal area. The EIA study concluded that the development of a gazetted beach at Lung Mei would be environmentally acceptable.

Scale of the project

7. On the scale of the project, the project proponent team advised that Section 3 of Appendix A in the EIA Report showed the considerations and constraints in the design of the layout plan. Having regard to the environmental considerations, every effort had been made in the design stage to optimize the size of the project and to avoid impinging on environmentally sensitive area. For example, the size of the car park was reduced from 200 to about 110 spaces and the area of reclamation was reduced to 1.02 ha. The scale of the development had to be in a certain size to make it viable and worth investing. The proposed development would not lead to any on-site or off-site adverse impacts.

8. Members noted that the project had been submitted to the Town Planning Board (TPB) and there had been changes in the scale of the project. The project proponent team advised that the proposed project size included a total area of about 1.84 ha, comprising about 0.82 ha of an existing land and a proposed reclamation area of about 1.02 ha. The proposal was first submitted to the TPB in 2006. Having regard to the findings of the traffic impact assessment, a revised proposal with reclamation area of about 1.9 ha (to cater for the proposed widening of the Ting Kok Road for entrance to the car park) was re-submitted to the TPB. In view of the concerns of the TPB on the expanded scale, they further reviewed the requirements and reframed the project to the original size. The beach area of about 6,000 m^2 was the minimum size for catering the demand of 4,000 beach users in peak seasons. It should be noted that other alternative sites, such as Sha Lan, would require greater extent of reclamation of about 2 ha.

9. Some Members considered that the project was not purely an enhancement project as the existing beach area would be made concrete for building facilities such as car parks and an artificial beach would be made by reclamation. The Agriculture, Fisheries and Conservation Department (AFCD) advised that the Habitat Map at Figure 8.1 of the EIA report showed that a large

part of the project site was already village/modified area (such as rural villages, car parks, recreational areas, wasteland and abandoned agricultural land) and part of it was sandy shore and backshore vegetation area with low ecological value.

10. Some Members learnt that Lung Mei Beach as well as Sha Lan beach were originally natural sandy beaches and the sandy shore was drawn underneath the sea level after the construction of the Plover Cove dam. It was considered that the proposed project was to restore the beach and the development was in line with the principle of sustainable development.

Water quality impacts

11. Some Members considered that the water quality impact caused by the project during the construction and operation phases was insignificant. Nonetheless, the water quality issue was important in considering the impacts on health of bathers. While the objective of the EIA process was to protect the environment, the concerns on health of human beings which was a sensitive receiver would also be considered by the EIA. The development of beach facilities would attract beach users and it was necessary to ensure that the bathers would not be subject to health impact due to unacceptable water quality. The project proponent team advised that while the existing Lung Mei Beach was not a gazetted beach, it was currently used by frequent bathers in a relatively unmanaged manner from the public health point of view. Enhancing the beach to a gazetted beach up to the required standards would protect the health of beach users.

12. On the suitability of water quality for public bathing purpose, the project proponent team advised that the proposed improvement works of the project involved the diversion of drains and provision of groynes. With the addition of the implementation of the new sewage system (under the Tolo Harbour Sewerage of Unsewered Areas Stage I Phase IIC carried out by the Drainage Services Department (DSD)), the modelling results predicted that these improvement works would significantly improve the water quality. Over 86% of the time during bathing seasons in the operation phase, the weekly beach gradings of the beach would be of Grade 2 or Grade 3 which was considered acceptable for public bathing purpose. The proposed site was considered to be suitable to operate as a bathing beach with regard to the compliance with the Water Quality

Objective (WQO) for *E. coli*.

13. On the operation downtime for other gazetted beaches, the project proponent team advised that Grade 4 weekly reading was recorded in three beaches, namely Ma Wan, Golden Beach and Silver Mine Bay, during the swimming season in 2007 and the downtime was about 3%. According to the Environmental Protection Department's (EPD) annual report on beach water quality in 2006, the downtime for Big Wave Bay, Ma Wan, Tung Wan and Cafeteria New Beach with Grade 4 weekly reading was about 3% to 6%.

14. Some Members expressed concern about the anticipated downtime of 14% for Lung Mei Beach. It was noted from the EIA report that the level of *E. coli* increased from 26.5 cfu/100mL in 2000 to 147.9 cfu/100 mL in 2006. The project proponent team explained that there were two ranking systems for assessing the water quality of beaches in Hong Kong. The annual ranking system was based on the maximum level of *E. coli* of 180 cfu/100 mL set out in the WQO. The weekly grading system was mainly provided to LCSD for considering the opening or closing of beaches for bathing purpose. The water quality modelling conducted for the project covered all the existing marine environment of Plover Cove and Tolo Harbour area, including coastline as well as current, tidal and seasonal influences. The provision of two groynes at the project site and diversion of drains from the beach boundary would help improve the water quality. There would be further improvement in water quality after the completion of the new sewerage system which allowed the residents in Lo Tsz Tin, Lung Mei and Wong Chuk Tsuen to connect their sewers to the public sewer. This public sewer would deliver the sewage to the Tai Po Sewage Treatment Plant for further treatment. It was anticipated that the sewerage system would be completed prior to the operation of the proposed beach development and approximately 60% of the private sewers would be connected to the public sewer.

15. The project proponent team further explained that Table 6.27 of the EIA report showed that the water quality could meet the criterion for bathing beach under the annual ranking system. Table 6.28 of the EIA report showed the predicted percentage of weekly gradings during the operation phase. The water quality under Grade 2 would be significantly increased from 19% in pre-development phase to 62% in operation phase.

16. On the modelling results shown in Table 6.21 of the EIA report, the project proponent team explained that the table showed a comparison of relative change in *E. coli* concentrations between pre-development phase and operation phase at different modelling assessment points. There were different levels of improvement at different assessment points. Based on the modelling results, it was predicted that the overall *E. coli* level (by taking the average) would meet the standard of 180 cfu/100 mL. It also showed that there was no exceedance in the *E. coli* level for individual sensitive receivers within the beach area.

17. EPD advised that, according to the Technical Memorandum on Environmental Impact Assessment Process, the assessment criterion with respect to human health for all bathing beaches in Hong Kong waters was the maximum level of *E. coli* which was 180 cfu/100 mL set out in the WQO. The EIA report showed that the criterion could be met, even under worst-case scenario in wet seasons, with the implementation of mitigation measures. At present, the WQO for Tolo Harbour and Channel Water Control Zone (Buffer Subzone) did not specify the criterion of the *E. coli* level for bathing beach because there was no bathing beach within the Water Control Zone but such criterion (i.e. *E. coli* level of 180 cfu/100 mL) would be considered for inclusion in the aforesaid WQO to tie in with the opening of the Lung Mei Beach. As regards the opening or closing of the beach for bathing purpose, the decision rested with LCSD. As an established practice, EPD had a water quality monitoring programme for all gazetted and non-gazetted beaches by conducting water sampling and testing for at least three times per month and at least twice per month respectively during the bathing seasons. The monitoring results in terms of gradings would be provided to LCSD on weekly basis for reference.

18. Some Members expressed concern about the lead time for DSD to complete the new sewerage system before operation of the beach. The project proponent team highlighted that the improvement of beach water quality did not depend solely on the new sewerage system but also the diversion of existing drains outside the beach boundary and provision of groynes. Table 6.28 in the EIA report showed that the predicted weekly grading of water quality was not sensitive to the rate of sewerage connection ranging from 20% to 60%. The new sewerage system project was independent of the development of the beach and would be proceeded regardless of the beach project. Moreover, the Civil Engineering and Development Department (CEDD) had closely liaised with DSD on the new

sewerage project and DSD had agreed to complete the works in Lung Mei area in parallel with the completion of the beach project. They had confidence that the 60% sewerage connection rate of village houses to the public sewer could be achieved.

19. On the contingency plan in the event that the new sewerage system could not be completed in time before the opening of the beach, the project proponent team advised that before the operation of the beach, CEDD would liaise with DSD on the progress of the new sewerage system. As an Environmental Monitoring and Audit requirement, CEDD would also conduct at least six weeks' water quality monitoring at the two drainage outfalls and EPD routine monitoring stations to check the *E. coli* concentrations. The result would be passed to LCSD for decision on the timing of the opening of the beach for bathing. Some beach facilities might be opened for recreational purposes and the public would be alerted that the beach water quality was not yet suitable for bathing.

20. Some Members considered that it was necessary to secure the commitment from the project proponent that DSD's new sewerage system for the Lung Mei area would be completed in time prior to the opening of the beach. Some Members considered that it was also important to ensure that the anticipated sewerage connection rate could be achieved, not only for new village houses but also for existing village houses. EPD advised that further to the installation of a public sewer along Ting Kok Road, DSD planned to establish a new sewerage system allowing the residents in Lung Mei area to connect their sewers to the public sewer and that the sewerage system would be completed prior to the operation of the proposed beach development. Under the Water Pollution Control (Sewerage) Regulation, the Government might send a notice to the owner of certain premises requiring that all the waste water produced from the premises be conveyed to a specific location, terminal and manhole for connection to the public sewer when one was available. This applied to both existing as well as new village premises. The maximum penalty for contravention of the provision was a fine of $100,000 and a daily fine of $5,000 if the offence was proved to be continued. Based on the experience of EPD and DSD regarding implementation of village sewerage projects, the sewerage connection rate of 60% could be achieved in Tai Po area. They had consulted DSD about the plan of the new sewerage system and DSD advised that they would reschedule the construction programme of the sewerage works in Lung Mei area to advance the completion of

the project to November 2010 in order to tie in with the opening of the proposed Lung Mei Beach.

21. Some Members considered that the crux of the matter was that whether the Lung Mei Beach was suitable for developing as a gazetted beach after completion of all the improvement works and whether there would be unacceptable environmental impacts arising from the development. The operation downtime based on water quality assessment of different beaches would vary among beaches. The project proponent team confirmed that the proposed beach development was considered suitable having regard to the result of the EIA study. The beach water quality of Grade 2 to 3 and the operation time of 86% were considered acceptable for public use. Besides bathing, the beach could also be a recreational area for public playing in the sand area, sunbathing and other beach activities.

22. Some Members expressed concern that the presence of the two beach groynes might potentially affect water circulation in the bay and thus water quality of the coastal area at the east and west of the project area. The project proponent team advised that the EIA study had examined the effect on flushing circulation due to the presence of the two groynes on water quality of the coastal area. The results showed that there would be negligible differences of dissolved oxygen levels between pre-development phase and operation phase and hence this also revealed that the water quality would not be deteriorated by the presence of project-related structures and no significant adverse effect on flushing circulation was expected.

23. Some Members considered that the sewer holding tank with a capacity of 10 m^3 might be insufficient for 4,000 beach users per day. The project proponent team explained that the sewer holding tank would be used to regulate the flow from beach facilities to the existing trunk sewer. To avoid overloading the public sewer during peak hours, the sewage from the beach facilities would be stored at the holding tank and gradually discharged to the public sewer at mid-night by means of a controlling system. Therefore, the peak sewage flows from the beach and the villages would not be concurrent. The capacity of the holding tank was sufficient for the design of sewerage and bathing area based on the requirements of the Architectural Services Department.

Impacts arising from changes in hydrodynamics due to the project

24. On the possibility of sand drifting, the project proponent team advised that the minimum grain size of the sand was 0.4 mm. Appendix B of the EIA report showed that the grain size used in the wave and sediment modelling was 0.2 mm, 0.25mm, 0.3 mm, 0.4 mm and 0.5 mm for comparison. The scope of modelling included cross-shore and long-shore drifts between the two beach groynes (one 100-metre long at the west and one 120-metre long at the east). The annual net drifting rate of the sand was predicted to be in the range of 10 m^3/year to 150 m^3/year from the east to the west. With the current configuration, the net sand drift would be contained within the two groynes and that no sand loss from the project site was anticipated during operation. The orientation of the beach was along the existing coastline and the groyne alignment was optimized at 145° to the north with regard to the hydrodynamic conditions in the area.

25. On the assessment of the worst-case scenario on sand drifting, the project proponent team advised that the EIA study had simulated the worst-case scenario on extreme weather conditions with extreme wave height by wave hind-casting method using wind data from the Tai Mei Tuk station. For extreme conditions, the prediction included extreme wind conditions of 1 in 100 years return period as shown on page 15 of Appendix B of the EIA report. The simulation results concluded that with the provision of gyrones, sand loss would not be anticipated as the beach was located in a relatively sheltered area.

26. On the impacts of human activities (such as water sports activities) as a driving force for sand drifting, the project proponent team explained that the major driving force for sediment transport was wind-driven. Human activities would have insignificant impact on sediment movement. It should be noted that the beach area was within the vessel speed restricted zone of Plover Cove with a maximum allowed speed of 5 knots.

27. Some Members expressed concern about the long-term effects on the natural coastline arising from changes in hydrodynamics due to the project, the project proponent team advised that as shown in the wave and sediment modelling report in Appendix B of the EIA report, there would be minimal impact due to the relatively mild wave condition in the Plover Cove region. As shown in the site

history and aerial photographs of the project site from 1945 to 2004 in Figure 7.5 of the EIA report, there was little change in the coastline of the bay. Even with the construction of the artificial Plover Cove dam after 1963, there was not much change in the coastline along the Plover Cove region. Moreover, no re-deposition of sand was expected as the wind direction was from the east to the west and there was no major sand or sediment source at the upwind area. The presence of the two groynes would have minimal impacts on the coastline.

Sustainability of the artificial beach

28. On the stability of the sand profile, the project proponent team explained that a hydrodynamic analysis of the beach development had been conducted to predict the sand drift and seasonal changes in sand profile. It was concluded that the proposed beach would be aligned at an equilibrium angle of 145° to the north which was an optimal scenario to achieve zero net sediment transport and minimize sand loss. With the provision of groynes, seasonal movement of the sand would be contained within the two groynes to prevent sand loss to the nearby areas. No adverse environmental impact due to sand drifting was therefore anticipated.

29. On the source of sand for sandfilling, the project proponent team advised that the source of sand would be mainly from Zhu Jiang in the Mainland. CEDD had experience in conducting sand replenishment works for other beaches with sand from the same source.

30. On the need for sand replenishment, the project proponent team advised that the chance for requiring sand replenishment was very remote except after very extreme storm attack. Examples in the USA and Europe showed that after severe storm attacks, the sand was driven off shore forming a sand bar outside the beach area and the sand could be recycled for the beach replenishment without importing new sand. Alternatively, the sand could be gradually moved to the original beach area by the gentle wave after a long period of time.

Ecological study

31. Members noted that there were doubts about the thoroughness of the ecological survey conducted. The project proponent team clarified that the

ecological study included a literature review and ecological baseline surveys. Ecological baseline surveys for the major floral and faunal groups were carried out for six months duration covering wet season (July to October) and dry season (November to January) to verify the information collected and fill the information gaps. The surveys were conducted by a team of qualified ecologists with reference to guidance notes of the EIA Ordinance on ecological assessment. There were adequate sampling points covering the whole study area for all major floral and faunal groups for terrestrial ecological resources including vegetation, terrestrial mammals, birds, herpetofauna, invertebrates and freshwater fish. Surveys for marine ecological resources included inter-tidal survey, sandy shore and mangrove, artificial/disturbed shoreline, benthic survey and dive survey. The survey period covered all active and conspicuous period of different wildlife groups and nighttime surveys were conducted to counter-check the findings. Survey days were separated at appropriate intervals. Regarding the record of birds, a large variety of birds were recorded in the study area during the quantitative and qualitative surveys, including shore birds such as Common Sandpiper and Little Egret, as shown in Table 1 of Appendix G of the EIA report. The ecological survey was conducted in accordance with the study brief and the survey was considered sufficient for EIA study.

32. AFCD advised that the frequency and duration of the ecological surveys conducted were considered adequate for the purpose of ecological impact assessment.

33. Members noted that there were concerns about the dive survey which seemed to be conducted on a cloudy day in April with poor visibility under water. The project proponent team explained that the main purpose of the dive survey was to record coral information. It was a common phenomenon in Hong Kong that the visibility under water was limited to about 1 to 3 m. The ecologists were experienced in conducting dive surveys in such weather conditions and they had no difficulty in locating coral species in the artificial shoreline and sandy rock shoreline. Sufficient information in the study area and adjacent water areas up to Yeung Chau and Ma Shi Chau was obtained by the survey team.

34. AFCD advised that the dive survey was conducted in accordance with the guidance notes. There were photo records showing the seabed environment in the study area and adjacent areas. The visibility of the Tolo

Harbour was generally not good.

35. Some Members expressed concern about the loss of habitats for the birds, such as White-bellied Sea Eagles, after clearance of the backshore vegetation. The project proponent team confirmed that no White-bellied Sea Eagle was found nested in the study area. The nearest spot reported to have such bird species was in Yeung Chau which was about 800 m from the boundary site. The affected area was mainly village/modified habitats with some vegetations dominated by exotic plant species which was not a favourable habitat for White-bellied Sea Eagle.

Traffic impact assessment

36. On the traffic impact assessment arising from anticipated increase in traffic flow after completion of the project, the project proponent team advised that a traffic impact assessment (TIA) study was conducted in parallel with the EIA study. The TIA also included prediction of the potential traffic growth along Ting Kok Road, taking into account all the planned developments in the vicinity, such as Tsz Shan Monastery development. The predicted maximum traffic demand on road usage up to 2016 was 2,010 passenger car unit per hour which was within the estimated maximum capacity of 2,300 passenger car unit per hour at Ting Kok Road (two way).

Annex C

EIA report on Development of a Bathing Beach at Lung Mei, Tai Po

First Batch of Response from the Project Proponent on Questions raised by ACE EIA Subcommittee after the Subcommittee meeting on 17 December 2007

Q(a) Confirmation that the new sewerage system under "Tolo Harbour Sewerage of Unsewered Areas Stage I Phase IIC" in the Lung Mei area would be completed prior to the operation of the proposed beach development at Lung Mei.

A(a) CEDD has been working closely with the Drainage Services Department (DSD) to take forward both the Lung Mei Beach project and the Tolo Harbour Sewerage of Unsewered Areas Stage 1 Phase IIC project. Measures have been taken by DSD to complete the sewerage improvement at Lo Tsz Tin, Lung Mei and Wong Chuk Tsuen, whose catchments are likely to discharge sewage into the Lung Mei Beach, by 2010.

DSD has confirmed that the said new sewerage system would be completed by 2010, which would be prior to the opening of the beach.

Q(b) Justifications on the scale of the project.

A(b) The project site is located on part of an existing sandy shore along Ting Kok Road. The proposed Lung Mei Beach has a total area of about 1.84 ha, comprising about 0.82 ha of an existing land and a proposed reclamation area of about 1.02 ha. In order to minimize the area of reclamation, the existing land will be used for road widening, construction of the car park and part of the beach buildings while the reclamation area is mainly used for constructing the beach sandy area and the groins at two ends.

Taking into account the relevant environmental factors, the proposed facilities have been reduced to cope with the demand and minimum requirements of the Schedule of Accommodation. It is proposed that improvement work at Lung Mei Beach should include construction of sand retaining structures, seawalls, laying of imported sand on seashore to provide the beach area, life-guard look-out towers, car parking spaces, and a beach building with toilets and changing facilities, etc. In order to

minimize the area that is required for reclamation and having regard to the technical feasibility of the improvement work, the beach sandy area will be confined to 6,000 m^2 above high water mark and 200 m in length. Although the project is required to cater for various functions and different end users, the size of the car park and building mass including changing rooms have been minimized in a reasonable way (for example, making reference to the standard planning and guideline) to meet the accommodation and statutory requirements. The beach building has been designed with the landscaping enhancement works to minimize the visual impact. The EIA study concludes that no unacceptable environmental impacts are envisaged due to the construction and operation of the proposed beach development.

There is at present no gazetted beach in the east region of the New Territories, except in the Sai Kung District which is relatively far away from the Tai Po District. The former Regional Council has proposed to carry out improvement work at the existing Lung Mei Beach in order to improve the sand surface and enhance the beach area as a gazetted beach for public swimming and other recreational activities. Over the years, the Tai Po District Council has repeatedly requested the Government to develop early the existing sandy beach at Lung Mei to a gazetted beach with proper supporting facilities for the enjoyment of the public. The relevant Members of the Legislative Council have expressed concerns on the request of the Tai Po District Council, and urged for the early development of a beach at Lung Mei to meet the aspiration of the local communities and the public demand. In response, the project "Development of a bathing beach at Lung Mei, Tai Po" was included as one of the 25 municipal projects identified for implementation with priority in the Chief Executive's Policy Address in January 2005.

The Lung Mei Beach is adjacent to Tai Mei Tuk, which is a prominent leisure and recreational area with well established facilities for holiday makers, and have attracted many visitors for water-based recreational activities (such as water sports) and land-based activities (such as cycling, barbecue and hiking). The proposed improvement of the existing Lung Mei Beach to a gazetted beach would complement the leisure and recreational facilities already provided in the Tai Mei Tuk area.

The Lung Mei Beach, upon completion of the improvement work, should become a popular venue at Tai Mei Tuk for bathing purpose, as well as for other than bathing purpose such as playing in the sand, sunbathing, and other beach activities. It is estimated that the average number of beach users would be some 2,000 per day, and the maximum number of beach users would be some 4,000 per day.

Q(c) Assessments on the long-term effects on the natural coastline in Ting Kok area arising from the change in hydrodynamics due to the project.

A(c) The hydrodynamic forces at the proposed project site that may be affected by the proposed development are littoral (longshore) processes caused by wind/wave action and tidal currents. The hydrodynamic study has shown that there is very limited potential for significant wave action at the proposed site – maximum normal wave heights are around 0.3 m with a period of around 2.15 seconds[1], 1 in 100 year extreme wave heights are around 1.15 m with a period of around 3.36 seconds[2]. This limited potential for littoral drift across the beach frontage is not sufficient to cause significant up-drift or down-drift effects on the adjacent coastline.

Hydrodynamic analysis of the beach development has been carried out during project feasibility stage. Site measurement of current velocities, and later verified by hydrodynamic modeling, indicated very light pre-construction currents in the areas of the proposed development of around 0.05m/s. Subsequent modelling to investigate changes in the current regime as a result of the beach development indicated that the development would cause no change to the existing flow patterns, with residual currents (i.e. change in current as a result of the development) being extremely low (0.005m/s). These results again demonstrate that the introduction of the proposed beach development will not result in sedimentation or erosion up-drift and down-drift of the beach. In addition, it is observed from the modelling results that the maximum bottom current velocities at Ting Kok SSSI would not be higher than 0.05m/s regardless of the presence of the beach development. This indicates that Ting Kok Site of Special Scientific Interest (SSSI) situates at a low hydraulic energy area and the beach layout has insignificant impact on the water currents. As such, it is not expected that the sedimentation pattern will be significantly changed due to the presence of the beach development.

In a coastal location subject to dynamic coastal processes changes to the shape of the coastline brought about by the construction of structures or reclamation encroaching seaward would be expected to have an effect on the adjacent coastline, particularly if the coastline is subject to significant littoral (longshore) processes. This would also be expected to be the case if the coastline is subject to significant hydrodynamic forces arising from tidal currents. However, at Lung Mei and Ting Kok areas, as explained above, modelling has shown that the littoral and hydrodynamic coastal regime at the site is not significant and the proposed beach development will have negligible long-term effect on the existing coastal hydrodynamic regime.

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[1] 1st bullet point of Section 5 "Conclusions" in Appendix B "Wave and Sediment Modelling Report (September 2007) in Volume II of the EIA report.

[2] 4th bullet point of Section 5 "Conclusions" in Appendix B "Wave and Sediment Modelling Report (September 2007) in Volume II of the EIA report.

Annex D

EIA report on Development of a Bathing Beach at Lung Mei, Tai Po

Second Batch of Response from the Project Proponent on Questions raised by ACE EIA Subcommittee after the Subcommittee meeting on 17 December 2007

Q(1) Further justifications on the scale of development and footprint of the project.

A(1) The estimated beach attendance for the Lung Mei Beach upon finalization of the scope of development in 2005 was based on the assumptions adopted in the Architectural Services Department Feasibility Study in 2001 of 2,000 (non-peak) and 4,000 (peak) per day and review of the attendances in 2005 for a beach of comparable scale and similar anticipated patronage, i.e. Cafeteria New Beach which is a popular beach in New Territories West with similar size of Lung Mei Bathing Beach. In the year of 2005, the daily average attendance of Cafeteria New Beach on Sundays in non-peak months was 1,800. For peak months, the daily average attendance was 3,800 on Sundays.

Given that the Lung Mei Beach after enhancement of the facilities would be the only beach in the east region of the New Territories (except Sai Kung District), and that Lung Mei Beach is part of the Tai Mei Tuk area which is a popular visiting area by holiday-makers and is well developed for recreational, sports, barbecue, cycling and hiking activities, etc., particularly during weekend, Sundays, public and summer holidays, Lung Mei Beach should be developed with adequate facilities to accommodate some 2,000 to 4,000 beach users per day.

Based on the estimated beach attendance, the proposed beach building is designed to meet the statutory requirements, e.g. Building Ordinance and Town Planning Ordinance, which govern various design parameters like the width of means of escape/means of access, the provision of Emergency Vehicular Access, the provision of the sanitary fitments, the size of the refuse collection point, development potential, fire services installation and equipment, etc. Besides, the building should also be designed to cater for different utilities, e.g. the provision of the transformer room, switch room, water tank, etc. All these

factors will directly affect the scale and the footprint of the building.

In order to minimize the area of reclamation, satisfy the minimum statutory requirements and minimize the damage to the landscape and natural coastline, the existing land at Lung Mei will be used for road widening, construction of the car park and part of the beach buildings. Only about 15% of proposed car park will be constructed on reclaimed land while the new sandy beach will be reclaimed with a new profile.

Q(2) The long-term effect of the diversion of the outfall from Lo Tsz River with regard to erosion and sedimentation, as well as the impact of the proposed artificial mangrove planting in the area on the landform in the long term.

A(2) As shown in Figure 6.1 of the EIA Report, the nearest distance between the site of special scientific interest (SSSI) and the proposed project site boundary is approximately 500 m.

The hydrodynamic analysis has considered the existing marine environment, including the coastline, bathymetry, current, tidal and season (wet and dry seasons) influence. The post-construction hydrodynamic analysis has also taken into account of all diversion works including diversion of Lo Tsz River and an existing box culvert. The analysis has shown that there is very limited potential for significant wave action, which is the prevailing driving force for littoral drift (i.e. of sand and mud), at the project site and its vicinity. In addition, the mangrove stands in the Plover Cove region can only form narrow belts of low growing shrub-like plants due to the relative hard substratum with the shallow soil layer and the typically oceanic waters[1]. This limited potential for littoral drift and change in hydrodynamic coastal regime due to the beach development including all drainage diversion works and mangrove planting is not significant and will have negligible long-term effect on the erosion and sedimentation.

Moreover, the flow within the existing Lo Tsz River depends very much on the natural rainfall and the flow is usually slow. However, in the proposed diversion works, the gradient of the diverted channel is designed in such manner

[1] Mangroves prefer more estuarine conditions

that it is compatible to maintaining a flow that will not create any issues with regard to insufficient capacity, erosion or sedimentation. It has been shown in the hydraulic analysis for the diverted channel that the relevant flow criteria are met, implying no long-term effect on capacity, erosion and sedimentation.

Q(3) Long-term management and resources implications for upgrading the water quality of Lung Mei Beach, if necessary, after its opening.

A(3) Water Quality Objective (WQO) for bathing beaches in Hong Kong has been set under the Water Pollution Control Ordinance. This WQO applies to all bathing beaches in Hong Kong waters and will include Lung Mei Beach after it is gazetted. The assessment of water quality at Lung Mei Beach has complied with the requirements of WQO. The estimated down time for Lung Mei Beach is 14% with 60% sewerage connection rate[2].

The WQO states that the level of *E. coli* should not exceed 180 per 100mL, calculated as the geometric mean for all water samples collected from March to October inclusive. During bathing seasons, all gazetted beaches are monitored at least three times per month[3] at intervals of between 3 and 14 days. At present, water sampling and testing of bathing beaches under the management of LCSD are conducted by EPD. LCSD does not conduct separate water tests for beaches. No special arrangement on water sampling and testing will be done for Lung Mei Bathing Beach.

The sewerage improvement works undertaken by the Drainage Services Department under Tolo Harbour Sewerage of Unsewered Areas Stage I Phase IIC, which include Lo Tsz Tin, Lung Mei and Wong Chuk Tsuen and their catchments, are likely to discharge sewage into Lung Mei Beach, will be completed prior to opening of the beach. No government spending on additional water treatment is anticipated after the beach is opened.

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[2] Table 6.28 of EIA report

[3] 1st bullet point on page 125 of the EIA report

Q(4) Implications of the presence of some marine organisms, as shown on some websites related to the project, on the ecological value of project site and whether the adverse impacts of the project, if any, would be adequately compensated.

A(4) The intertidal habitat within the Project Site is a sandy shore, which is predominantly covered by coarse grains and rubble with increasing proportion of finer grains towards the lower intertidal zone. It is not a mudflat/muddy shore. The results of the intertidal surveys were presented in Section 8.7.3 of the EIA report. Faunal species recorded were typical species that could be found on sandy and rocky shores in Hong Kong, and it should be noted that Section 8.7.3 (page 182) presented only the dominant species recorded during the survey. EIA is a planning tool, which is not an academic or research study, and EIA study itself focuses on collecting data representative of the ecological conditions within a project site and is not to produce an exhaustive species list. The ecological baseline information in this EIA study covered information collected from a literature review and ecological baseline surveys. Ecological baseline surveys for the major floral and faunal groups were carried out for six months duration covering the wet season (July to October) and dry season (November to January) to verify the information collected and fill the information gaps. The baseline surveys were undertaken by a team of qualified ecologists with reference to *EIAO* Guidance Note Nos. 7/2002 "Ecological Baseline Survey For Ecological Assessment" and 11/2004 "Methodologies for Marine Ecological Baseline Surveys". Adequate survey transects and sampling points covering the Study Area were made (Figures 8.2 & 8.3 of the EIA report). Major floral and fauna groups for Terrestrial Ecological Resources include vegetation, terrestrial mammal, birds, herpetofauna (amphibians and reptiles), invertebrate (butterflies and dragonflies) and freshwater fish, while those for Marine Ecological Resources include intertidal survey, sandy shore and mangrove, artificial/disturbed shoreline, benthic survey and subtidal (dive) survey (please refer to Sections 8.6.2 and 8.6.3 [pages 169 to 173] for the survey efforts). The 6-month duration of the ecological baseline survey as required in the EIA Study Brief (No. ESB-138/2006) was fulfilled. Baseline ecological information was adequately collected to reveal the biological profile of the Study Area to facilitate the subsequent impact assessment. The entire duration of the 6-month survey specified in the EIA Study Brief was well covered with appropriate intervals. The ecological importance of the habitats and wildlife identified within the Study Area were evaluated in accordance with the criteria stipulated

in *Annex 8* of the *Technical Memorandum on Environmental Impact Assessment Process.*

The organisms presented on the website are, in general, common and widespread in Hong Kong waters and can be recorded in most coastal habitats of low wave exposure [4][5][6][7]. As stated in the newspaper article (http://www.mingpaonews.com/20071226/gga1h.htm) that commented on the contents of the website, the Northern Dragonet *Diplogrammus xenicus* was recorded. It should be noted that the photographs, as shown in the website and newspaper, were taken from the top of the fish body. Some features which are important for the identification of the fish are not shown clearly, such as dorsal fins, anal fins, caudal fins and lateral lines. For identification of the genus *Diplogrammus*, a distinctive characteristic of the genus is a ventro-lateral fold of skin below lateral line reaching from base of first anal fin ray to caudal fin base, which is impossible to observe from the photograph. In Hong Kong, there are over ten species of Callionymidae (Dragonets) can be recorded (Ref: http://www.hk-fish.net), including *Bathycallionymus kaianus, Callionymus altipinnis, Callionymus belcheri, Callionymus hindsii, Callionymus octostigmatus, Calliurichthys japonicus, Dactylopus dactylopus, Diplogrammus xenicus, Repomucenus curvicornis, Repomucenus richardsonii* and *Synchiropus grinnelli.* It should be noted that Dragonets are typically benthic, marine, fishes of tropical and temperate seas living on sand or mud bottoms, or around, rocks or corals and do not reveal anything unusual or atypical about the habitat at Lung Mei. It should also be noted that marine organisms, particularly fish, freely move in the sea, and there are large extent of their favorable habitats available in the close vicinity (the Project Site comprises approximately 200 m shoreline while the shoreline within Plover Cove is approximately 9.5 km).

As part of the site selection process for the proposed beach development, potential sites within Tai Po have been analyzed (see Section 2 of the EIA Report). Disturbance to ecological resources of acknowledged conservation significance was avoided by screening out the following areas from consideration:

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4 Morton B. & Morton J. (1983) The Sea Shore Ecology of Hong Kong. Hong Kong University Press.

5 Tam N. F.Y. & Wong Y.S. (1983) Hong Kong Mangroves. Agriculture, Fisheries and Conservation Department and City University of Hong Kong Press.

6 Fong T.C.W., Lai V.C.S. & Lui H.T.H. (2005) Estuarine Organisms – Mangrove, Mudflat and Seagrass Bed. Hong Kong Discovery.

7 Lai V.C.S., Lui H.T.H. & Fong T.C.W. (2006) Hard Shore Organisms – Rocky Shore and Boulder Shore. Hong Kong Discovery.

- Areas with significant ecological interests, such as Plover Cove Country Parks, Ting Kok SSSI, Coastal Protection Area and Conservation Area;

- Direct loss of mangrove habitat; and

- Impacts due to the dredging and sand filling to the Fish Culture Zone at Yim Tin Tsai (East).

The proposed beach development has avoided ecological sensitive areas and is not considered to contain important wildlife and floristic habitat. Furthermore, the proposed beach development will be mainly located in habitats which have already been disturbed (i.e. village/disturbed area) and size of reclamation has been minimized. Given the total small size of affected intertidal and subtidal soft bottom habitat (approximately 200 m shoreline) and that there is a large extent of similar intertidal and subtidal habitats in the vicinity, unacceptable impacts have not been predicted in this EIA.