Annex B

EIA report on "Shuen Wan Golf Course"

Relevant Extract of the draft minutes of the Environmental Impact Assessment Subcommittee meeting held on 20 May 2019

Present:

Professor TAM Fung-yee, Nora, BBS, JP (Chairperson)
Ir MA Lee-tak, SBS (Deputy Chairman)
Ir Samantha KONG
Miss LAM Chung-yan
Ms Julia LAU
Dr Winnie LAW
Professor Albert LEE
Professor Kenneth LEUNG, JP
Ir Professor Irene LO, JP
Dr SUNG Yik-hei
Mr Simon WONG, JP
Ms Becky LAM (Secretary)

Absent with Apologies:

Ir Cary CHAN, JP
Dr Michael LAU
Ms Christina TANG
Professor WONG Sze-chun, BBS, JP

In Attendance:

Mr Owin FUNG	Deputy Director of Environmental Protection (3), Environmental Protection Department (EPD)
Mr Terence TSANG	Assistant Director (Environmental Assessment), EPD
Mr TO King-ho	Principal Environmental Protection Officer (Strategic Assessment), EPD
Mr Steve LI	Senior Environmental Protection Officer (Strategic Assessment) 6, EPD
Mr Matthew TANG	Assistant Environmental Protection Officer (Strategic Assessment) 62, EPD
Mr Simon CHAN	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Mr Dennis MOK	Senior Nature Conservation Officer (Central), AFCD
Dr June LEUNG	Nature Conservation Officer (Tai Po), AFCD
Miss Dora CHU	Executive Officer (CBD) 1, EPD
Miss Carman LEUNG	Executive Officer (CBD) 2, EPD

In Attendance for Item 2:

Project Proponent Team	
Sha Lo Tung Development Company Limited	Mr Joe FONG, Director
ARVA Company Limited	Mr Stephen CHAN, Director
ESCM Company Limited	Dr MAN Chi-sum, Managing Director Ms YAU Mee-ling, Senior Manager, Conservation and Ecology
Chinese University of Hong Kong	Professor CHAU Kwai-cheong, Professor
ADI Limited	Ms Joann TAM, Landscape Architect
Ecosystems Limited	Mr Vincent LAI, Director
Ove Arup & Partners Hong Kong Limited (Arup)	Mr Franki CHIU, Director Dr Elvis LAU, Senior Consultant Mr Alex WANG, Senior Engineer Mr Sen YAN, Engineer
Iain Roberts Golf Limited	Mr Iain ROBERTS, Owner of Iain Roberts Golf School

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Item 2 : Discussion on EIA report on "Shuen Wan Golf Course"
(ACE-EIA Paper 1/2019)

Question-and-Answer Session (Open Session)

Utilisation of landfill gas

12. On behalf of a Member who was unable to attend the meeting, the Chairperson suggested that the project proponent should consider using landfill gas captured on site for electricity generation.

13. Dr Man Chi-sum advised that the landfill gas generated in the landfill site was being delivered to the Hong Kong and China Gas Company Limited for energy generation. The possibility of using the landfill gas for electricity generation in the project was constrained by the small amount of methane generated at this time and the need to construct on-site power generating units.

Water quality impacts

14. In response to a Member's enquiry on the possibility of constructing water storage tanks with larger capacities to further reduce the likelihood of bypassing

surface runoff into Tolo Harbour, Dr Man Chi-sum explained that the proposed water storage tanks with a total capacity of 30,000 m^3 had already been maximised with regard to the site constraints. Given that the project site was once a landfill site, he explained that all the area within or very close to the waste boundary could not accommodate excessive loading. Considering that the water storage tanks were relatively heavy structures especially when fully loaded with water, it could only be located at areas beyond the waste boundaries. Mr Franki Chiu supplemented that only during red/black rainstorm and prolonged rainfall events would the runoff bypass the water storage tanks to Tolo Harbour. During these events, runoff bypass was inevitable even if the water storage tanks had larger capacities.

15. Prof Chau Kwai-cheong supplemented that turfgrass species and agrochemicals would be carefully selected with a view to minimising potential adverse impacts on water quality. In view that fairway and rough areas accounted for over 70% of the turf areas, suitable turfgrass species with high pest resistance and drought tolerance would be selected to minimise the use of agrochemicals. Furthermore, cultural practices would be included in the proposed Turfgrass Management Plan which would cover but not limited to aeration and drainage improvement, judicious fertilizer programme, and computerized irrigation strategy. These cultural practices could strengthen turf health, minimise the invasion of weeds and outbreak of diseases, and further reduce the need for use of agrochemicals. He assured Members that only agrochemicals approved by AFCD would be used and the application of controversial agrochemicals would be avoided as far as possible, and extra care would be given if such use was necessary. He added that the applied agrochemicals, including fungicides, herbicides and insecticides could be degraded by UV and soil microbes, and under extreme weather conditions, the actual concentrations of agrochemicals in any runoff bypass would be much diluted by the rainfall.

16. A Member suggested that apart from implementing the construction activities by phases, the project proponent should consider carrying out the site formation works during dry season and in low-lying areas first, and felling the trees along the edge of the site boundary at a later stage of the construction phase with a view to minimising soil erosion and its' potential adverse impact on the water quality. Considering the proximity of the project site to sensitive receivers and the long retention time of Tolo Harbour, he suggested the project proponent to conduct water quality modelling and worst-case assessments on the water quality impacts resulting from soil erosion and possible discharge of agrochemicals into Tolo Harbour before the commencement of the construction of the project.

17. Dr Man Chi-sum pointed out that the construction of water storage tanks would be implemented by phases. During the second and third construction phases, surface runoff could be temporarily stored in the water storage tanks constructed in the first phase to intercept surface runoff and avoid direct discharge of site runoff into Tolo Harbour. Mr Franki Chiu supplemented that a bund wall would be built along the seawall during construction stage to prevent any potential overflow of stormwater into Tolo Harbour. Mr Alex Wang added that apart from

receiving turf area runoff during operation phase, the water storage tanks also served as part of the temporary drainage system during the construction phase to receive construction runoff.

18. Given that the project site was once a landfill site, a Member enquired as to whether a background study on the impact of residual agrochemicals on the water quality of Tolo Harbour had been conducted. Given that concentrations of phosphorus at 0.02 milligrams per litre (mg/L) or above could lead to algal bloom / red tide, she sought for information on the carrying capacity of Tolo Harbour with respect to phosphorus loading. She further enquired about the treatment of wastewater collected in the water storage tanks where the accumulated levels of agrochemicals and other pollutants would increase to a situation that rendered it no longer suitable for on-site irrigation purposes.

19. With reference to the water monitoring data collected by EPD, Mr Franki Chiu advised that the impact of residual leachate on Tolo Harbour was insignificant, and he reported that the number of red tide incidents in Tolo Harbour had also dropped significantly in the past years. With reference to over 10 years of monitoring data of the water reservoirs in Kau Sai Chau Public Golf Course, he informed the meeting that the percentage of residual agrochemicals at the proposed water storage tanks had been calculated based on the worst-case scenario. Taking into account the size of the water storage tank and the use of agrochemicals, the level of nitrogen and phosphorus in the filled-up water storage tanks would be similar to the ambient level in Tolo Harbour. As such, even if any extra surface runoff bypassed the water storage tanks and entered Tolo Harbour, no significant increase in the nutrient concentrations of Tolo Harbour was anticipated. He emphasised that the bypass situation would only occur during heavy and/or prolonged rainfall, and under such circumstances, the actual concentrations of agrochemicals in the bypass flow would be much diluted by the rainfall. He added that the proposed construction activities in phases would allow tree groups to be removed gradually, thereby minimising the water quality impact by surface runoff and soil erosion.

20. In reply to a Member's question regarding the sampling locations for the bi-weekly water quality monitoring during the operational phases, Mr Franki Chiu advised that water quality monitoring stations would be set up at the bypass point at Tolo Harbour and at sensitive receivers including the Yim Tin Tsai Fish Culture Zone.

21. In response to a Member's enquiry regarding the spot dive surveys conducted for corals, Mr Vincent Lai reported that scattered coral colonies of *Oulastrea crispate*, which was a commonly found hard coral species in Hong Kong, were recorded on the coastline of the project site with less than 5% coverage. One colony of hard coral *Leptastrea purpurea* of about 15 centimetres (cm) in diameter was also observed on the southern artificial seawall. Given that the project was land-based and there would not be any marine works, no significant impact on the coral communities was anticipated. He further advised that the

bi-weekly water quality monitoring would cover the sites of recorded coral colonies at the southern part of the project site.

Biodiversity enhancement

22. On top of the provision of three landscape ponds/lakes and deployment of a sponge design, a Member suggested that the project proponent should create more artificial wetlands in low-lying areas with a view to attracting aquatic insects and serving as a buffer to reduce runoff discharge from the project site into Tolo Harbour. Dr Man Chi-sum advised that the proposal would be further considered during the subsequent detailed design stage.

Traffic impact

23. In reply to a Member's concern about additional traffic imposed on the already congested Ting Kok Road due to the operation of the golf course, Dr Man Chi-sum advised that electric shuttle buses would be arranged for visitors and staff. Furthermore, charging facilities would be available within and in the vicinity of the car park of the facility to encourage visitors and staff to use electric cars. According to the traffic forecast, Mr Alex Wang reported that there would be an induced traffic of around 120 and 260 vehicles during morning and evening peak hours respectively due to the operation of the golf course. He considered that the capacity of roads in the vicinity of the golf course was sufficient to cater for the increased traffic.

Provision of ancillary facilities

24. A Member questioned the need for on-site Virtual Reality (VR) training rooms which were proposed to be housed in the ancillary facilities building. She suggested that these training rooms be accommodated off-site including in the Tai Po Industrial Estate which was located near to the golf course, and the space spared could instead be used for environmental education purposes, such as appreciation corners for nature or resource centres on species of conservation importance including the Collared Crow identified within the site concerned.

25. A Member echoed and shared that the VR training facilities for healthcare providers had been relocated away from hospitals to community centres and commercial buildings to enable better space utilisation in hospitals.

26. Mr Iain Roberts replied that the provision of indoor VR training rooms for recreational and training purposes had become a popular trend in modern golf. The indoor simulators were space-efficient and could serve as an alternative for outdoor golf practice during the hot weather. Apart from golf, the indoor simulators allowed children to participate in other types of sports and games such as football. As such, the golf course could serve as a one-stop destination for family enjoyment.

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27. In reply to two Members' enquiry on whether the ancillary facilities of the golf course could be repositioned to a further distance away from the habitats of birds of conservation importance, Mr Stephen Chan advised that the waste boundaries of the previous landfill were close to the site boundary which resulted in steep slopes around the waste boundaries and imposed significant constraints on the design of the golf course. Considering that conducting piling work on the slopes might adversely affect the landfill, the ancillary facilities could only be located at the south-eastern part of the project site which was outside the waste boundary. With reference to the scale of the layout plan, he assured Members that the ancillary facilities were located at a certain distance from the core roosting area at the southern part of the project site.

28. Dr Man Chi-sum explained that the proposed ancillary facilities were located at an existing plain without any trees outside the southern waste boundaries which was a steep slope. The construction of the ancillary facilities which extended from the slope would enable better space utilisation and help smooth out the gradient of the existing slope. He mentioned that 6.1 hectares (ha) of tree groups in the project site would be preserved, which consisted of over 300 trees suitable for the Collared Crow to roost, and additional tree groups would be reprovisioned at the early construction stage. Coupled with the fact that only a few trees were utilised by the Collared Crow for roosting each day, he considered that there would be adequate roosting areas to serve the purpose. He supplemented with the support of a Member that golfing activities were family activities and it would not be practicable to locate the ancillary facilities including the VR training rooms off-site.

29. In response to a Member's question on whether the construction of the water tank would require any treatment of the slopes at the waste boundaries, Mr Alex Wang replied in the negative and explained that the water tank would be constructed on solid grounds at the eastern edge of the project site which was beyond the waste boundaries.

30. With reference to Figure 10.7a of the EIA report, a Member observed that the south-eastern part of the project site had the second highest cumulative frequency of night roosting by the Collared Crow during the study period. He enquired whether it would be possible to preserve the tree groups within this area. Mr Vincent Lai replied that due to topographical constraints, it would not be possible to preserve the tree groups at the south-eastern part of the project site. As recommended in the EIA report, similar tree groups would be reprovided upon the completion of site formation to compensate for the loss of the roosting sites.

31. Dr Man Chi-sum added that due to the damage caused by the typhoon Mangkhut in September 2018, there might be difficulties in preserving the tree groups at the south-eastern part of the project site. An individual tree survey would be undertaken during the subsequent detailed design stage to assess the latest condition of the trees.

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Ecological field survey methodology

32. A Member pointed out that the survey location which was situated one kilometre (km) away from the project site might not be able to provide a clear view of the roosting behaviour and locations of the Collared Crows, especially when the presence of tall and dense trees could easily obscure the Collared Crows from view. With reference to the public comments received during the EIA report inspection period, some environmental groups had simultaneously conducted monthly surveys on the number of the Collared Crow within the existing driving range which was less than 400 metres (m) away from the project site, and the survey data showed distinct seasonal patterns.

33. Mr Vincent Lai explained that different vantage points had their own merits. The selected vantage point was at a higher level of Lo Fai Road which provided a wider view for the surveyors and facilitated simultaneous observations on areas both inside and outside the project site, including the major pre-roost site of the Collared Crow at the rooftops of the buildings in the Tai Po Sewage Treatment Works (TPSTW). Given that the conservation importance of Collared Crow was indisputable, it would be more meaningful to obtain information on the pre-roosting and final roosting locations of the Collared Crow within the project site than to make accurate counts. He mentioned that a survey on the status and roosting characteristics of the Collared Crow at the Mai Po Nature Reserve conducted between 2004 and 2013 had used a single observation point within 800 m radius of the final roosting location. Regarding the seasonal patterns, Mr Lai reported that the counts of the Collared Crow witnessed a slight decline during the period from January to March. With reference to paragraph 10.4.4.26 of the EIA report which stated that "Fluctuations in numbers of Collared Crow at final roosts were recorded throughout the study, without obvious patterns. These changes were thus not likely due to seasonal changes…", he clarified that this statement focused on the reasons for short-term fluctuations and did not negate the presence of seasonal patterns.

34. Dr Man Chi-sum supplemented that the project proponent had made observations from two other vantage points, including one on a vessel near the eastern boundary of the project site at Tolo Harbour, and another one at Tai Po Waterfront Park pier. The vantage point at a higher level of Lo Fai Road was eventually selected since it provided clearer view of the flight paths of the Collared Crows from the pre-roosting site at TPSTW to the final roosting area within the project site. The project proponent had invited environmental groups to make observations from the selected vantage point and the latter recognised that the location chosen was a valid vantage point.

35. The Chairperson enquired whether there would be any differences on the mitigation measures to be proposed if there were distinct seasonal patterns. Mr Vincent Lai replied in the negative and advised that the proposed mitigation measures would be provided year-round throughout the construction period or for the long term.

Phasing of construction activities

36. A Member acknowledged that the construction site would be divided into three areas, i.e. northern, middle and southern parts of the project site in Areas 1, 2 and 3 respectively, and the major earth works in each area would be conducted separately in three phases. He asked the project proponent to carefully review the phasing of the construction activities during the detailed design stage with a view to minimising the impacts on the Collared Crow to avoid any fragmentation of their roosting habitats.

37. In reply to a Member's question on whether the Collared Crow primarily roosted in Area 3, i.e. the southern part of the project site, Mr Vincent Lai confirmed that while there were records showing that the Collared Crow also roosted at the eastern edge of the project site within Area 2, Area 3 had the highest usage frequency by the Collared Crow for final night roosting. He advised that the cumulative frequency of the Collared Crow's night roosting during the survey period was set out as follows - six times near the eastern boundary of the project site; six times near the southeast boundary and 16 times near the southern boundary. In response to the Member's further enquiry regarding the site fidelity of the Collared Crow, Mr Lai advised that while only around three to five trees were utilised by the Collared Crow each day, the exact locations of night roosts might change from day to day.

38. A Member raised his concern that the construction activities of Phase 2 might disrupt the connectivity of the habitats of birds of conservation importance between the northern and southern parts of the project site. Mr Vincent Lai advised that the two existing plantation strips of around 0.9 ha at the eastern edge of the project site within Area 2 would be preserved. Furthermore, the use of Powered Mechanical Equipment (PME) would be halted one hour before sunset at the eastern edge of Area 2 and the entire Area 3 when the Collared Crows and Black Kites might be in search of a roosting site.

39. On top of the preservation of 6.1 ha of existing tree groups, Dr Man Chi-sum supplemented that the proposed construction in phases would allow new tree groups, with the function of providing roosting sites, to be planted at an early stage, i.e. immediately upon the completion of site formation of each phase. The new tree groups would cover about 10 ha of the project site. He assured that under such arrangement, over 10 ha of existing and new tree groups would be available for roosting in each of the three phases.

40. In response to a Member's question with regard to the species of the new plantations, Mr Vincent Lai advised that priority would be given to heavy standard trees of native species with taller growth form. Having said that, he mentioned that the planting tree species would intentionally include Horsetail Trees and *Eucalyptus*, which were introduced species but were of the same species to the existing trees on which the Collared Crow roosted.

41. In reply to a Member's question regarding the flight path of the Collared Crow and possible disruptions to the flight path due to construction activities, Mr Vincent Lai advised that Collared Crows usually congregate before sunset at pre-roosting sites, with the major one at the rooftops of buildings in the TPSTW outside the project site, and would fly directly to the final roosting spots within the project site about sunset. While there were day to day differences in the locations of the final roosting spots, there was no fixed flight path for the Collared Crow and shifting from one final roosting place to another within any single day was not observed during the study period.

Educational, recreational and community needs

42. In reply to a Member's enquiry on whether the golf course could serve the community needs of Tai Po, Dr Man Chi-sum advised that a certain percentage of the total tee-time of the proposed golf course would be open for use by the general public in compliant with the lease conditions under the non-in-situ land exchange arrangement. He added that the project was supported by the Tai Po District Council and the Rural Committee.

43. A Member opined that the environmental education and recreational elements should be incorporated in the waterfront area, e.g. providing information kiosks on species of conservation interests and facilities including jogging paths and cycling tracks, with a view to enhancing public engagement and enjoyment of the waterfront and demonstrating the golf course as a world class facility.

44. While the use of the waterfront area would be subject to safety consideration, Dr Man Chi-sum said that the project proponent would take Members' comments/suggestions into consideration during the detailed design stage.

45. A Member suggested that the project proponent should make reference to the golf courses in the United Stated that had obtained accreditation under the Audubon International certification programme by showing, through its planning and design, commitment to environmental management and education. She mentioned that the Kau Sai Chau Public Golf Course had been recognized for its efforts in environmental management through certification as a 'Certified Audubon Co-operative Sanctuary for Wildlife'. Dr Man Chi-sum advised that the project proponent would look into the programme during the detailed design stage.

Conclusion

46. There being no further questions from Members, the Chairperson thanked the project proponent team for their presentation and detailed clarification on the project.

[The project proponent team left the meeting at this juncture.]

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Internal Discussion Session (Closed-door session)

47. The Chairperson advised that the EIA Subcommittee could make recommendations to ACE on the EIA report with the following consideration:

(i) endorse the EIA report without condition; or
(ii) endorse the EIA report with conditions and / or recommendations; or
(iii) defer the decision to the full Council for further consideration, where issues or reasons for not reaching a consensus or issues to be further considered by the full Council would need to be highlighted; or
(iv) reject the EIA report and inform the project proponent of the right to go to the full Council.

48. The Chairperson proposed and Members agreed to endorse the EIA report with conditions and recommendations which were detailed below.

Conservation of Collared Crow

49. A Member suggested and other members agreed that the project proponent should be required to carefully review the phasing of the construction activities, including the removing of existing tree groups and reprovisioning of new tree groups, during the detailed design stage with a view to minimising the potential adverse impacts on the Collared Crow including fragmentation on the roosting habitats.

50. A Member added that the project proponent should provide details on the species and density of the new trees to be planted for roosting habitats upon completion of site formation at each phase.

51. To assess the damage caused by the typhoon Mangkhut, the Chairperson proposed with the support of Members that the project proponent should be required to conduct a comprehensive tree survey on the existing trees to assess the condition of the trees proposed to be retained.

Educational, recreational and community needs

52. In response to a Member's suggestion that the project proponent should be required to prepare a plan on environmental education and recreational elements to be included in the project, Mr Terence Tsang suggested with the agreement of Members that a recommendation might be more appropriate given the proposal was not directly related to environmental impacts posed by the project

53. To avoid any misunderstandings and ambiguity, a Member suggested including in the recommendation that access to these proposed educational and recreational facilities would not be counted towards the fulfilment of terms in the land deed relevant to the public use of the golf course.

54. The Chairperson agreed and proposed with the support of Members to strongly recommend the project proponent to consider the inclusion of environmental education and recreational facilities in the project, including but not limited to the provision of site history and environmental initiatives within the project site such as turf management, and recreational facilities such as cycling tracks and jogging paths for family enjoyment. Access to these educational and recreational facilities should not be counted towards the fulfilment of terms in the land deed relevant to the public use of the golf course.

55. A Member enquired and the Chairperson clarified that members of the public would not be required to join membership in order to use the golf course.

Water quality monitoring

56. A Member suggested that the project proponent should be required to submit a monitoring plan on the water quality of Tolo Harbour during the construction phase. The plan should include comprehensive information on measures to reduce soil erosion, deployment of temporary sedimentation tanks as well as other measures to intercept any surface runoff and water quality monitoring requirements during the construction phase.

57. Given the proximity of the project site to the Yim Tin Tsai Fish Culture Zone, a Member considered it necessary for the project proponent to conduct water quality modelling and worst-case assessments on the water quality impacts resulting from landfill leachate and the possible discharge from the project into Tolo Harbour.

58. Mr Terence Tsang recommended and the meeting agreed that the project proponent could be required to submit a Turfgrass Management Plan to the DEP. Apart from the turfgrass species, usage of agrochemicals and management methodology, the project proponent would be required to provide worst-case assessments on the water quality impacts resulting from landfill leachate and the possible discharge from the Project into Tolo Harbour.

59. In reply to the Chairperson's concern with regard to the impact of residual leachate on the water quality of Tolo Harbour, Mr Terence Tsang advised that the existing landfill was equipped with leachate extraction system and leachate would be collected for treatment at the Tai Po Sewage Treatment Works. Hence the impacts of residual leachate should be minimal. He added that the monitoring data collected by EPD showed significant improvements in the water quality at Tolo Harbour subsequent to the implementation of the Tolo Harbour Effluent Export Scheme and the Water Quality Objectives could generally be met.

Ecological enhancement measures

60. A Member proposed and other members supported that the EIA Subcommittee recommended the project proponent to consider the formation of

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more artificial wetlands within the project site with a view to enhancing its ecology.

Other general matters

61. The meeting agreed that the project proponent team would not be required to attend the full Council meeting scheduled on 10 June 2019 for the report.

[Post meeting note: The list of proposed conditions and recommendations was circulated to Members for comments on 27 May 2019.]

62. A Member considered that it was important to emphasize that the EIA Subcommittee had maintained its thorough assessment on the EIA report despite that the project was resulted from a non-situ land exchange which allowed active conservation of the Sha Lo Tung Valley.

63. The Chairperson concurred and said that regardless of the background of the proposed project, every EIA report would be assessed by the EIA Subcommittee based on the same set of standards, i.e. the environmental impacts of the proposed project must be within acceptable levels, and if necessary, mitigation measures should be proposed as appropriate.

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EIA Subcommittee Secretariat
June 2019