Confirmed Minutes of the 93rd Meeting of the Environmental Impact Assessment Subcommittee of the Advisory Council on the Environment held on 22 September 2005 at 4:00 pm

Present:

Dr NG Cho-nam, BBS (Chairman)
Prof HO Kin-chung, BBS (Deputy Chairman)
Mr Peter Y C LEE
Prof POON Chi-sun
Mr TSANG Kam-lam
Ms Josephine CHEUNG (Secretary)

Absent with Apology:

Prof Paul LAM
Mrs Mei NG, BBS

In Attendance:

Mr Elvis AU	Assistant Director (Environmental Assessment), Environmental Protection Department (EPD)
Mr C C LAY	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Miss Sarah NG	Executive Officer (CBD), EPD

In Attendance for Agenda Item 3:

Mr Kevin YUEN	General Manager, Hong Kong Jockey Club (HKJC)
Mr Cameron HALLIDAY	Golf Course Developments Manager, HKJC
Mr Philip CHEN	Manager, Property Planning and Design, HKJC
Mr Ben TSE	Project Manager, HKJC
Mr Johan WONG	Associate Director, Black & Veatch Hong Kong Limited
Ms Esther TONG	Environmental Scientist, Black & Veatch Hong Kong Limited
Mr Davis LEE	Associate Director, Ove Arup & Partners Hong Kong Limited
Mr Stephen BINGHAM	Senior Engineer, Ove Arup & Partners Hong Kong Limited
Mr Vincent LAI	Aquatic Ecologist, Ecosystems Limited
Mr Jesse YUEN	Principal Environmental Consultant, Cinotech

	Consultants Limited
Mr Johannes SPIES	Senior Project Manager, ACLA
Mr Simon HUI	Principal Environmental Protection Officer (Regional Assessment), EPD
Mr Stanley LAU	Senior Environmental Protection Officer (Regional Assessment)3, EPD
Mr Cary HO	Senior Nature Conservation Officer (S), AFCD
Mr CHAN Lai Koon	Senior Marine Conservation Officer (E), AFCD

****

Action

Agenda Item 1: Confirmation of Minutes of the 92nd Meeting held on 23 May 2005

The draft minutes were confirmed without amendment.

Agenda Item 2: Matters Arising

2. There were no matters arising from the minutes of the last meeting.

Agenda Item 3: EIA Report on Proposed Extension of Public Golf Course at Kau Sai Chau, Sai Kung
(ACE-EIA Paper 5/2005)

Internal discussion

3. The Chairman highlighted that the proposed project was an extension of the existing public golf course at Kau Sai Chau submitted by the Hong Kong Jockey Club. The first 18-hole golf course was opened to the public in late 1995 and followed by the second 18-hole golf course, a driving range and associated supporting facilities nine months later. The EIA report of the existing golf course had been discussed by the EIA Subcommittee and Advisory Council on the Environment in 1994.

4. Mr C C Lay said that an increase in biodiversity at the existing golf course site was recorded after its opening. The Chairman agreed that the development at the site had facilitated restoring the land degraded by its use as an artillery range. He noted the acceleration of natural succession of habitat and flora due to protection of habitats from fire.

Action

5. A Member was concerned about the project proponent's approach in handling the potential land contamination problem of the site. He noted that they had only conducted a preliminary site investigation in the EIA study and proposed the land contamination assessment to be conducted by the contractor during the construction phase. Mr Elvis Au explained that this approach had been adopted in other potential land contamination cases. Under the EIA process, the key was to consider whether there would be feasible solution to tackle potential contamination problem and whether there would be insurmountable problem. It was difficult for the project proponent to conduct a detailed land contamination assessment before taking over the site or commencing the construction work. The requirement of conducting a land contamination assessment would be included in the Environmental Permit.

6. Mr Elvis Au informed Members that EPD had received three returns of public comments up to the date of the meeting and all of them had no comments on the EIA report. Copies had been circulated to Members before the meeting. After discussion, the meeting agreed to focus the discussion mainly on land contamination, turf grass management, water quality impact, protection of streams, transplanting of corals and visual impact.

Presentation

7. Mr Kevin Yuen introduced the background and scope of the project. He highlighted that the proposed project would not only meet the increasing demand for golf course but also generate cash for establishing a new Kau Sai Chau Development Fund to finance new services for the benefit of the general public by increasing the economy of scale in using the existing supporting facilities. Mr Johan Wong briefed Members on the proposed items of works and findings of the EIA study.

Land contamination

8. A Member was concerned that the preliminary site investigation results showed that the site area contained hotspots of contamination of lead and sulphur. He asked about the land contamination assessment procedures and remedial measures to be taken if the site was confirmed to be contaminated. Mr Jesse Yuen said that most part of Kau Sai Chau was used as an artillery range between 1930's to 1970's. To assess the potential land contamination problem, samples from seven locations were taken by means of random sampling focusing on scarred and exploded area. The contamination levels of these hotspots would be further assessed during

Action

the construction stage. A preliminary contamination assessment plan (CAP) had been drawn up to provide guidelines for the land contamination assessment during the construction stage. The contractor would be required to carry out further investigation and submit a CAP to EPD for endorsement prior to the commencement of site investigation work. The contractor would be required, for example, to sweep the area of intended excavation with a metal detector to check any ordnance underneath the ground prior to any excavation. Based on the CAP, the contractor would conduct a contamination assessment and compile a contamination assessment report (CAR) to document the findings and extent of contamination for approval by EPD. If the findings confirmed that the site was contaminated, a remediation action plan (RAP) would be required. These would have to be completed before any development could take place.

9. Upon the Chairman's enquiry on the boundary of the historical artillery range, Mr Kevin Yuen said that based on information gathered and those provided by the Police Force, the core artillery range mainly located in the existing golf course area but the exact boundary could not be identified. Mr Cameron Halliday said that the site of the existing golf course was found heavily eroded and a detailed investigation was conducted 10 years ago. Nevertheless, no unexpected ordnances were found during the construction process which involved the overturning of over 1.5 million m^3 of soil and rock. Mr Yuen said that only one abandoned ordnance was found in the existing site during a survey conducted in early 2001 after the issue of EIA study brief for the current project. On the whole, no evidence of soil contamination was detected in the existing golf course. With the experience of about a decade, no major or insurmountable problems were found in relation to land contamination.

10. A Member asked why the parameters used in the preliminary site investigation were mainly heavy metal and sulphur. Mr Johan Wong explained that the area was used as an artillery range about 30 years ago. Heavy metal and sulphur were identified as potential sources of contaminants, such as bullets, gun powder, residues of exploded or buried ordnance, at that time. The Chairman agreed that historical review was important in determining the parameters. Nevertheless, a Member considered that it was necessary to widen the scope of parameters such as toxic organics in future land contamination assessment. Another Member suggested the project proponent conduct more research on similar cases in overseas countries.

11. Upon the Chairman's enquiry, Mr Elvis Au said that as in other potential land contamination cases, the Environmental Permit would

require any identified contaminated land to be remediated to the acceptable standards prior to site clearance or excavation works. A Member and the Chairman suggested and the project proponent team agreed to conduct a detailed land contamination assessment and study and put in place a RAP for potential contaminated problems. Moreover, the authority should take necessary actions to ensure the remedial and mitigation measures, if any, would be properly implemented.

Turf grass management

12. The Chairman said that it was pleased to note the efforts made by the project proponent to maintain a turf grass management plan. He hoped that there would be continuous improvement on the plan with a view to reducing the application of chemicals. Mr Cameron Halliday said that it was part of their commitments to improve the turf grass management techniques over the past decade. The proposal of using Seashore Paspalum, which had a much lower fertilizer and water requirement, in the new golf course was an example. Another example was the significant reduction in the use of nitrogen for fertilization in the existing golf course. The level of nitrogen used had been reduced from 4.6 kg/100m^2 in 1997/98 to 3.3 kg/100m^2 during last year which was expected to be further reduced to 2.6 kg/100m^2 per year in the new golf course after the use of Seashore Paspalum.

13. Mr Kevin Yuen added that the Kau Sai Chau Public Golf Course maintained updated information on turf grass management techniques through their regular contacts with international associations such as the Certified Audubon Cooperative Sanctuary for Golf Courses and the Golf Course Superintendent Association of America. Mr Yuen and Mr Cameron Halliday assured Members that the turf grass management plan would be updated and applied with a certain degree of flexibility by taking into account the availability of better, more safe and environmental-friendly products in the market. The Chairman suggested and the project proponent team agreed to minimize and review the application of chemicals on the turf grass having regard to the technology available in the market. The Chairman also suggested progress reports on the continuous improvement plan of the turf grass management be submitted to the Subcommittee every three years.

14. The Chairman suggested the project proponent extend the proposals of turf grass management in the new site, such as the use of Seashore Paspalum, to the existing golf course. Mr Kevin Yuen explained that it would be their long-term plan to improve the quality of turf grass in

the existing golf course. However, the existing course would be due for large-scale renovation after being used for about 15 to 20 years. They would take advantage of the new technology available at the time of renovation. To meet the heavy demand of the public, it was necessary for the new golf course to be completed before the renovation work at the existing golf course could start.

Water quality impact

15. A Member asked about the current monitoring mechanism on water quality impact. Mr Cameron Halliday said that they had been conducting water quality monitoring on a quarterly basis in four fresh water stations within the golf course and five marine stations. The results all satisfied the water quality objectives. There would be continuous water quality monitoring during the construction and operation phases of the extension project. The monitoring reports would be submitted to EPD for endorsement.

16. Four Members were concerned about the potential runoff during rainstorm events. Mr Stephen Bingham explained that the proposed closed low-flow drainage system was a closed drainage system designed for storm events up to a 1 in 2-year storm event. Under the proposed system, the sub-surface drainage system would drain and divert surface run-off from the golf course to a system of underground storage tanks and irrigation lakes. The storage facilities would hold the surface run-off from the golf course temporarily. Runoff collected in the underground storage facilities would be pumped to a proposed irrigation buffer from where overflow would be directed into the existing reservoir for irrigation purpose. The drainage system would be a conservative and preventive approach to collect, recycle and reuse the golf course runoff.

17. For storm events larger than a 1 in 2-year event, Mr Davis Lee explained that the storm drainage system including pipes and catchpits connecting to the underground storage tanks and lakes were designed to cater runoff for a 1 in 50- year storm event. Thus, there would not be direct overflow from the golf course when there was severe rainstorm. The controlled overflow points would be at the underground storage tanks, lakes and reservoir by which overflow would be discharged direct to the sea with no overflow to any natural stream course.

18. Regarding two Members' concern about the level of chemical concentration in the cumulated overflow to the marine water, Mr Stephen Bingham explained that the storage tanks and lakes of the drainage system

was designed to contain events up to a 1 in 2-year return period and would capture the first flush on all events. As residual chemicals on the turf grass would be washed away during the first flush, the chemical concentration of runoff during more severe rainstorms would be much lower due to larger flows and the fact that the first flush would have been retained. Thus, no water quality impact on marine water was expected for storm events even larger than a 1 in 2-year event. Based on the monitoring results and predictions conducted, the water quality, even for storm events larger than a 1 in 2-year event, would satisfy the water quality objectives.

19. Upon a Member's enquiry about the pesticides concentration of cumulative runoff, Mr Kevin Yuen said that the monitoring data collected since the opening of the golf course showed that all the pesticides concentrations were below the level of detectable limit for all existing freshwater and marine monitoring locations. With the use of Seashore Paspalum in the new golf course, the requirement of fertilizers and pesticides would be much lower. The Member suggested the project proponent closely monitor the overall discharge of surface runoff of the site during the construction and operation phases, especially after heavy rainfall.

20. A Member asked about the provision of sewage treatment facility for domestic discharge of about 500 workers during the peak period of construction phase as he was concerned about the impact of the discharge on the four marine fish culture zones near the site. Mr Stephen Bingham said that the exact type of treatment facility had not been fixed at this stage. The options included the provision of onsite treatment facilities and discharging of sewage to public sewage plants. He agreed to ensure that the contractor would take account of the possible impact of domestic discharge on the fish culture zones when designing any sewage treatment facility.

21. Upon a Member's enquiry about the sludge produced by the expanded sewage treatment plant, Mr Stephen Bingham explained that the existing mechanism in handling the sludge in licensed disposal places would continue to be adopted for the expanded facility which would be able to cope with the increased demand.

Protection of streams

22. The Chairman was concerned about the impact of sediment loads on the streams during the construction phase as the streams were rather small and damages caused would be irreversible. Mr Vincent Lai explained that there were three streams inside the proposed site. One stream was of a lower ecological value as it had been affected by siltation from the

nearby area and the other two streams were more natural with shrimp species (Caridina trifasciata) recorded in the middle courses. To protect the shrimp species, the design of the golf course had been changed to avoid the streams where these shrimp species were found and to prevent all golf course runoff from entering any stream.

23. On the impact of construction works, Mr Vincent Lai explained that buffer zones would be provided for all sensitive streams to reduce disturbance during both the construction phase as well as the operation phase. It would be one of the major tasks for the environmental team to frequently check the intactness of the buffer zones. No construction activities would take place except for laying of underground pipe culverts at stream sections of lower ecological value. Based on the construction programme, the southern part of the new golf course near the streams would be constructed first within the dry season and would be covered by newly planted turf grass to prevent the problem of sedimentation during the later stage of construction works. Mr Kevin Yuen added that pre-cast concrete bridges would be used for permanent stream crossings to minimize works required near the streams. The Chairman suggested and the project proponent agreed that they would exercise care when building any structure on or across the streams during the construction phase to minimize potential impact on the ecology of the streams. Moreover, construction works near the stream courses would be scheduled to avoid wet season as far as possible.

Transplanting of corals

24. A Member was concerned about the feasibility of transplanting the corals and the potential impact on the water quality in the vicinity. Mr Vincent Lai explained that corals found near the site for the desalination plant would be transplanted to the bedrock at about 80 m south of the existing pier where coral communities were also recorded. The corals found were all common species, small in size and scattered on isolated boulders. Among the 79 coral colonies found, all of them were smaller than 30 cm and about 60% of them were smaller than 10 cm. The transplanting process would be conducted manually by putting the boulders into baskets with floating bags. The impacts from the transplantation process on the water quality in the vicinity would be minimal. Water quality assessment had been conducted which indicated that the bedrock would be suitable for coral transplanting. Similar transplanting exercises had been conducted successfully in Hong Kong. As the coral colonies were only moved by about 80 m, potential impact on the fish colonies feeding on the corals would be minimal.

Action

Visual impact

25. The Chairman was concerned about the visual impact from the sensitive receiver groups of the general public, in particular from the Sai Kung country parks and High Island Reservoir. Mr Johannes Spies explained that majority of the visual sensitive receiver groups were located at distances longer than 1 km away from the development and Sai Kung country parks were quite far away (about 1.2 to 1.5 km). The closest place from the public's point of view would be the fishing village in Tai Tau Chau and the impact would be minimal. He added that partial restoration of eroded scars or slopes would be carried out in the extension project which would have significant beneficial impacts on the landscape resources.

Other issues

26. A Member was concerned about the potential off-site environmental impact such as the Sai Kung market due to the increased number of patrons after the completion of the extension project. Mr Kevin Yuen said that the estimated maximum increase of golf players was about 220 per day for 18 holes. Taking into account some additional visitors, the maximum increase was estimated to be about 300 per day. The increase would be within the current capacity of ferry service which ran at about 20 minutes intervals from the Sai Kung pier. Thus, the disturbance to the Sai Kung market or nearby area would be minimal.

27. A Member suggested the project proponent consider promoting environmental education, such as by green procurement, publicity programmes and building of education centers in the site, with a view to establishing an environmental-friendly golf course as golfing was often associated with the use of pesticides and chemicals. Another Member agreed and suggested the project proponent launch programmes and activities which would benefit not only golf players but also the general public in view of the natural environment and scenery of the island.

28. In response, Mr Kevin Yuen said that they had been putting much effort to environmental education in the past years which had also help ease the misunderstanding that golf courses were not environmental-friendly. They had organized a series of educational and outreaching programmes for students and the public. The golf course had recently been certified by the Audubon International as a "Certified Audubon Cooperative Sanctuary" under the Golf Course programme, for being an environmental-friendly golf course. With the establishment of the

Kau Sai Chau Development Fund and further liaison work with relevant parties, more activities would be launched and more services would be provided on environmental education for the benefit of the general public.

Conclusion

29. The Chairman concluded that having regard to the findings and recommendations of the EIA report, the meeting agreed to recommend the report to the Council for endorsement without condition. The meeting also made the following recommendations and suggestions -

(a) the project proponent should conduct a detailed land contamination assessment and study and put in place a RAP for potential contaminated problems. The authority should take necessary actions to ensure the remedial and mitigation measures, if any, would be properly implemented;

(b) the project proponent should minimize and review the application of chemicals on the turf grass having regard to the technology available in the market. The Subcommittee would like to receive progress reports on the continuous improvement plan of the turf grass management every three years;

(c) the project proponent should closely monitor the overall discharge of surface runoff of the site during the construction and operation phases, especially after heavy rainfall;

(d) the project proponent should exercise care when building any structure on or across the streams in the construction stage to minimize potential impact on the ecology of the streams. Construction works near the stream courses should be scheduled to avoid wet season as far as possible; and

(e) the project proponent was encouraged to consider promoting environmental education, such as by green procurement, publicity programmes and building of education centers in the site, with a view to establishing an environmental-friendly golf course.

Agenda Item 4: Monthly Updates of Applications under Environmental Impact Assessment Ordinance

Action

30. Members noted the updates.

Agenda Item 5: Any Other Business

Tentative items for discussion at the 94th meeting

31. The Chairman informed Members that the Drainage Services Department intended to present the EIA report on Drainage Improvement in Southern Lantau at the next meeting. Moreover, the Transport Branch of the Environment, Transport and Works Bureau and Highways Department would like to conduct the second informal briefing to the Subcommittee on the latest development of the Hong Kong-Zhuhai-Macao Bridge (Hong Kong section) project. Non-EIA Subcommittee Members would also be invited to attend the briefing. The Secretariat would liaise with relevant parties and notify Members accordingly.

32. Mr Elvis Au informed Members that EPD would also like to consult Members on the Guidance Note on Road Traffic Noise Impact Assessment at the next meeting.

Agenda Item 6: Date of Next Meeting

33. The next meeting was scheduled for 24 October 2005.

EIA Subcommittee Secretariat
October 2005