Confirmed Minutes of the 134th Meeting of
the Environmental Impact Assessment Subcommittee
on 17 October 2016 at 2:00 pm

Present:

Prof Nora TAM, BBS, JP (Chairperson)
Dr HUNG Wing-tat, MH (Deputy Chairman)
Ir Cary CHAN
Prof CHAU Kwai-cheong, BBS, JP
Dr Michael LAU
Ir MA Lee-tak, SBS
Prof John NG
Miss Yolanda NG, MH
Dr Eric TSANG
Ms Becky LAM (Secretary)

Absent with Apologies:

Dr Billy HAU
Prof Albert LEE
Mr Luther WONG, JP

In Attendance:

Ir Prof Irene LO	Member, Advisory Council on the Environment (ACE)
Mrs Alice CHEUNG, JP	Deputy Director of Environmental Protection (3), Environmental Protection Department (EPD)
Mr K F TANG	Assistant Director (Environmental Assessment), EPD
Mr S K Wong	Principal Environmental Protection Officer (Metro Assessment), EPD
Mr Simon CHAN	Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD)
Miss Dora CHU	Executive Officer (CBD) 1, EPD
Mr Alan CHUNG	Executive Manager (CBD), EPD
Miss Apple LEUNG	Executive Officer (CBD) 2, EPD

In Attendance for Item 3:

Miss Queenie NG	Senior Environmental Protection Officer (Metro Assessment) 2, EPD
Ms Maureen CHANG	Assistant Environmental Protection Officer (Metro Assessment) 22, EPD

<u>Project Proponent Team</u>

Architectural Services	Mr Raymond LAU, Senior Project Manager/332

Department	Ms Vicky LAM, Project Manager/376
Home Affairs Bureau	Ms Linda LAW, Principal Assistant Secretary (Recreation & Sport)2 Mr James BLAKE, Project Reviewer Mr Michael MAK, Senior Architect (Recreation & Sport) Mr Keith MAN, Senior Engineer (Recreation & Sport)
Leigh & Orange Ltd	Mr Alan LI, Director
WSP/Parsons Brinckerhoff	Mr C K CHAN, Senior Consultant
Cinotech Consultants Ltd	Dr CHAN Hon-fai, Managing Director Mr K S LEE, Associate
Maurice Lee and Associates Ltd.	Ir Maurice LEE, Managing Director
Barry Wilson Project Initiatives	Mr Barry WILSON, Landscape Architect / Sub-consultant of Maurice Lee and Associates Ltd.

In Attendance for Item 4:

Mr Wang YUEN	Senior Environmental Protection Officer (Metro Assessment) 4, EPD
Mr Garry HUI	Environmental Protection Officer (Metro Assessment) 42, EPD
Ms Josephine WONG	Ag. Senior Environmental Protection Officer (Strategic Assessment) 4
Mr Matthew HUNG	Environmental Protection Officer (Strategic Assessment) 42
Mr Dennis MOK	Senior Nature Conservation Officer (Central), AFCD
Dr Rex SHIH	Nature Conservation Officer (Shatin), AFCD

<u>Project Proponent</u>

Drainage Services Department	Mr S K WONG, Chief Engineer Mr Walter LEUNG, Senior Engineer Mr William WONG, Engineer Mr Raymond TAI, Engineer
AECOM Asia Co. Ltd.	Mr Josh LAM, Executive Director Mr Robert CHAN, Executive Director Mr Guy BRIDGES, Executive Director Ms Cherry YAU, Technical Director Mr Marcus IP, Technical Director Ms Gigi LAM, Technical Director

Ms Anna CHUNG, Associate Director
Mr CHIU Ming-ho, Associate
Ms Tina XIE, Project Engineer

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Action

The Chairperson welcomed Members to the meeting and informed that apologies of absence had been received from Dr Billy Hau, Prof Albert Lee and Mr Luther Wong.

Item 1 : Confirmation of the draft minutes of the 133rd meeting held on 12 September 2016

2. The draft minutes were confirmed without amendments.

Item 2 : Matters arising from the minutes of the 133rd meeting

3. The Chairperson informed that the Environmental Impact Assessment Subcommittee (EIASC) last met on 12 September 2016 to discuss the EIA reports on "Police Facilities in Kong Nga Po" and "Elevated Pedestrian Corridor in Yuen Long Town Connecting with Long Ping Station". The draft minutes of the last meeting was circulated to Members on 3 October 2016.

4. There was no matter arising from the minutes of the last meeting.

Item 3 : EIA Report on "Kai Tak Multi-purpose Sports Complex"
(ACE-EIA Paper 5/2016)

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

Presentation Session (Open Session)

5. Ms Linda Law gave an overview of the background of the project and stated that the project would provide high-quality sports facilities to the public and the community. Public engagement exercises were conducted from May to July 2016, and amongst the 6,500 responses to the questionnaire survey received during the period, over 90% expressed support for the early implementation of the project.

6. Mr Raymond Lau briefed Members on the project's background and scope, environmental benefits, consideration of alternative options, key findings of the EIA in relation to the noise, air quality, landscape and visual enhancement, glare and water quality, as well as the project proponent's responses to the public comments received by EPD during the public inspection period, including air quality and noise impacts arising from the use of pyrotechnics in concerts, odour impact from nearby sources such as Kai Tak Nullah, construction dust impact and noise impact from percussive piling.

Action

Question-and-Answer Session (Open Session)

Air quality impact

7. A Member stressed the need to minimise air quality impact on the project. Despite the project site's natural constraint of being surrounded by major transport links and high background air pollution level, he considered that the project might be a future icon of the city fronting the Victoria Harbour, and therefore it was important to meet with the high expectations of the public in improving air quality and enhancing a healthy active sporting environment.

8. A Member further suggested the project proponent should adopt a more pro-active approach in pursuing the best practical means in improving air quality. He acknowledged the fact that the project itself was not an air pollution source; but it could be classified as an air sensitive receiver. As such, he suggested that the project proponent should explore the use of de-NO_X paints to reduce emission of NO_X as well as active planting of trees with screening effect which would benefit users of the sports facilities.

9. In reply to a Member's concern on air quality, Mr Alan Li said that in the vicinity of the proposed Sports Complex, there was extensive open space at the Station Square at the North, open space at the East, Metro Park at the South, and the Sung Wong Toi Park and the waterfront promenade at the West. The architectural design of the project had been made to match with the surrounding landscape and with an aim to maximizing air flow. He supplemented that in addition to encouraging the use of public mass transport, they were exploring the possibility of constructing a bicycle path to encourage the use of bicycles as an eco-friendly transport.

10. Mr Alan Li added that they would consider the extent being used by other relevant government departments on the pursuit of de-NO_X paint in the construction of the project. They would also make reference to the best practice used in large-scale projects which involved the use of de-NO_X paint and would advise the Home Affairs Bureau (HAB) on the standard to be adopted. Regarding tree planting, he stated that the landscape layout plan would indicate the plant species they would propose for planting and the justifications behind such selection.

11. Apart from promoting electric vehicles for private use, a Member suggested that electric coaches and buses should also be promoted as means of public transport. He opined that by 2021-22, the demand for electric coaches and buses would increase extensively. As such, HAB should be more active in promoting the use of electric coaches and buses in order to reduce vehicular emissions. Ms Linda Law clarified that it was HAB's intention to require all the transport services provided by the future operator, if any, to be electric vehicles, including coaches and buses under normal operation.

Action

Noise impact

12. A Member suggested avoiding the use of percussive piling as it would generate noise impact to the residential areas nearby the project site.

13. Mr James Blake explained that percussive piling was only proposed as one of the many options available for the construction of foundations, as the use of percussive piling would displace the minimum amount of material and the need to remove materials off site, which would add burden to existing landfills. He pointed out that the reclamation of the old Kai Tak Airport was carried out some time ago and was considered as relatively free of harmful materials. This could be further verified by on-going ground investigations.

14. Dr Chan Hon-fai noted that percussive piling might not be preferential to the contractor due to the restrictions on the permitted hours of operation.

Air ventilation assessment

15. A Member emphasised the importance of improving air quality. He suggested that the project proponent should conduct the Microclimate Studies because the knowledge of microclimatic parameters in particular wind direction in summer and winter could have an effect on pollutant dispersion. This would have implication on whether prevailing summer winds was allowed to enter and was enhanced which was important for developing better responsive building design. In addition, he expressed concern on the northern wind in winter that might reduce the usability of the MPSC given the extensive open space at the waterfront promenade and the south-north view corridor.

16. In response to a Member's concern, Mr Keith Man stated that one of HAB's consultants had conducted air ventilation assessment (AVA) for the project site and the results could be made available as supplementary information.

17. A Member expressed dissatisfaction with the approach adopted by the project proponent to merely observe the minimum threshold requirements of acceptable air quality standards. He emphasised the need to adopt the best practice in improving air quality for the interest of venue users and the surrounding sensitive receivers.

18. Mr K S Lee explained that a number of AVA studies were conducted for the planning of Kai Tak Development Area (KTDA). These AVA studies and the Schedule 3 of the EIA study for the whole of the "KTD" concluded that the Project site was suitable for the proposed development. The land use of the proposed development was approved and it was noted that the project site was a major wind corridor path with restrictions on the height and width to allow wind moving to the surrounding buildings and topography. District level AVA had been conducted and

there were calm wind conditions. The study found that there would not be any strong northerly wind to the project site in particular when the proposed residential buildings in the vicinity of the North Apron would be completed in 2022 to 2023.

Tree planting and landscape

19. A Member considered that the project would be a potential icon of Hong Kong and remarked on the importance of the landscape. Mr Alan Li replied to the query concerning the proposed specification for the landscape works that the project proponent would observe the government's general specification, supplemented by particular specifications. And he agreed to provide further information on this matter after the meeting.

20. A Member enquired about the soil specifications they would adopt and whether it would be the general specification in accordance with government standard or specific soil specifications. He opined that this would have implications on the plant species designed for the project and its effect on carbon sequestration and filtering dust which would be conducive to users' health.

21. The Chairperson considered that the project proponent should provide further information on the objectives of tree planting, and clarification on whether it was for the purpose of landscaping, carbon sequestration, dust removal, reduction of air pollution or as noise barriers.

22. A Member added that soil specification and tree planting would provide habitat for wildlife. He therefore suggested the project proponent to explore the use of tree planting as an enhancement measure to urban ecology in their landscape design.

23. In response to the concern on landscape design, Mr Barry Wilson said that the project involved a major landscape corridor running from north to south which would facilitate the wind ventilation and pollutant dispersal through the site.

24. Regarding the soil specification, Mr Barry Wilson said that the specification would have to take into account the need to use lightweight soil to reduce loading on the structural deck. As such, they had looked at the general specification in relation to the depths available for planting, and the shallow depth of soils led to their proposed use of palms rather than large broad leaves to beef up the greenery. Besides, the project site was surrounded by areas of designated open space, and the Metro Park would be the main area of carbon dump. Connectivity was considered as an important aspect for ecology, therefore open spaces were designed in the landscape master plan in a way such that green spaces were connected with no isolated planters, thereby forming a good ecological corridor.

25. A Member considered that the depth of podium soil was irrelevant when deciding whether shrub or trees should be planted. He suggested that soil boring

and soil deck were relevant factors instead. The healthy growth of species relied on the provision of good quality and fertile soil, yet the current general specification failed to meet this standard. He further opined that palm trees would be the least preferred option for the project site.

26. Having consulted the Leisure and Cultural Services Department (LCSD), Mr Barry Wilson said that native species would be put in as much as possible to meet the current guidelines. Study over the actual final species would continue throughout the design and construction stage.

Construction and Demolition (C&D) Materials

27. A Member observed that no geotechnical investigation report was included in the EIA Report to ascertain whether there was marine mud at the subsurface, and asked the project proponent to provide information on the management and disposal of marine mud if excavation would be required. In addition, she suggested that the project proponent should implement measures with the view to minimizing the amount of C&D waste, including the use of Building Information Modeling (BIM) in the design and construction stages of the infrastructure.

28. Mr James Blake said that from the initial stage of the project, their approach to the well-compacted reclamation had been to minimize excavation. Consequently, most of the work except for piling would be on or above ground level with the aim to minimizing C&D waste. For the relatively small amount of excavated materials, there was an existing barging facility in the vicinity which would be used for the purpose of disposal of materials. The use of BIM to ensure maximum amount of construction work conducted off-site would be a contract requirement for the contractor.

29. Mr James Blake further clarified that reclamation on-site had been completed a long time ago and therefore any sea bottom mud would have been well-compacted and well below ground level. He reiterated that excavation would be minimized and would unlikely disturb any marine mud.

30. Mr Maurice Lee said that references had been made to the geotechnical investigation reports conducted for KTD, and no mud was encountered within the project area. All available information on site investigations of the KTD had been reviewed and analysed in the EIA Report.

31. Ms Linda Law advised that the ground investigation for the project was ongoing and HAB would take into account all available information to minimise C&D materials from the project site.

Action

Pre-cast concrete construction method

32. A Member questioned the reason for adopting conventional concrete structures as stated in paragraph 2.6.6 of the captioned EIA report for the construction of Public Sports Ground and Indoor Sports Centre Building, instead of using precasting elements to minimize the negative impact on the environment.

33. Mr James Blake concurred that opportunities for off-site fabrication by precast materials and use of steel work would be maximized, especially for repetitive elements like the spectator seating of the Public Sports Ground and the lightweight steel roof of the Indoor Sports Centre Building. Mr Blake explained that the assumption on the use of conventional concrete structures represented a probable worst-case scenario in the EIA, whilst the contractors might consider that precast method was a feasible option.

Promotion of sustainability

34. A Member suggested incorporating elements of sustainability in the project, such as renewable energy with the installation of solar panels on the roof.

35. Ms Linda Law explained that five major studies had been conducted by the technical services consultancy, amongst which were studies on sustainability strategy, stadium cooling, noise mitigation. As such, various measures to promote sustainability would be included in the contract requirements as appropriate.

36. A Member opined that preventative measures should be encouraged in the initial design and planning stage of the Project. He observed that the measures currently proposed focused on mitigation and compensation means which induced weak sustainability. Furthermore, he questioned if the traffic impact study had considered means to reduce greenhouse gas (GHG).

37. Dr Chan Hon-fai agreed that sustainability was an important aspect and he assured that their objective was to go in line with the Paris Climate Agreement which would be effective on 4th November, 2016. He said that there was a separate consultant team under HAB responsible for conducting studies on issues of sustainability, renewable energy, embedded energy and reduction of carbon footprint. Despite the fact that these were not explicitly stated in the study brief, they had been included in the proposed measures recommended to reduce air pollution and particulate, such as traffic management, use of electric vehicles, planting of trees etc.

Integrated Pest Management (IPM)

38. A Member considered that the project was not only significant in providing public sports facility, but also in the promotion of public understanding of species such as butterflies, birds, plants and biodiversity. As such, the plant

species that would be adopted for greening was important for the conservation of wildlife.

39. A Member asked the project proponent to confirm if pesticides would be used in the management of turf, as the possible escape of residual pesticide into the surface runoff may cause water quality impact. He suggested considering the adoption of Integrated Pest Management (IPM) for healthy plant growth with a view to minimising the use of pesticides.

Transportation and air quality

40. A Member questioned that if 20% of the venue users would travel by private vehicles, there would be a high possibility of causing congestion in the nearby road network, which exacerbated the air quality. He suggested limiting the number of parking spaces in order to encourage the use of public transport. He pointed out that with advance technology, pre-book parking service could be provided, so the public would know in advance if parking was available. As a result, chances of traffic congestion, noise impact and air quality impact could be minimized.

41. Ms Linda Law clarified that it was estimated that about 80% of the users would travel to the MPSC by MTR and 20% by all other transport modes including buses and ferries. The percentage of those travelling by private vehicles would be low.

42. A Member questioned why the EIA Report stated that the Transport Department (TD) advised not to further reduce the number of parking spaces. Mr Raymond Lau clarified that the number of car parking spaces in the EIA report as approved by TD was approximately 1,000 which included about 300 parking spaces for coaches, goods vehicles and working/services/emergency vehicles. He explained that TD's advice was based on the consideration that insufficient provision of car parking spaces within project site would exacerbate traffic congestion in areas of To Kwa Wan and Kowloon City.

Minimization of carbon footprint and carbon consumption

43. A Member suggested that there should be strategic planning with regard to the life cycle carbon footprint, and the project proponent should explore ways to minimize embodied carbon in relation to the structural and architectural design of the project and the use of materials. Although it was a lease requirement to connect the buildings to the district cooling system DCS for that region, the project proponent should carry out a study to evaluate the environmental benefits of doing so.

44. Mr Raymond Lau confirmed that they had coordinated with the Electrical and Mechanical Services Department (EMSD) to use the DCS in this

project. Ms Linda Law supplemented that it was a statutory requirement to use DCS at Kai Tak for both government premises and commercial developments.

45. A Member concurred with another Member that strategies should be devised on decarbonisation. Given the scale of this project, it was essential to incorporate a low carbon if not carbon neutral strategy in the design and construction of the project.

46. Ms Linda Law said that the study on sustainability as mentioned had included the proposed measures to reduce carbon footprint. She acknowledged that there would be difficulties in implementing a carbon neutral strategy, nonetheless she assured that the reduction of carbon footprint had always been one of the primary concerns.

Grass planting

47. A Member questioned if there would be any presence of lawn in the open area and which species of grass would be planted. Ms Linda Law replied that there would be lawn in the public open space. As to which species would be planted for the pitch, the project proponent had yet to come to the conclusion, given modern technology in turf management was advancing nowadays and there could be variations of species used in Hong Kong such as Bermuda grass and Rye grass. However, she confirmed that natural grass would be used and trial tests would be conducted to investigate which species would be most suitable for both Public Sports Ground and Main Stadium.

48. A Member expressed his dissatisfaction over the uncertainty of species that would be planted at this stage. He questioned if shadow analysis had been conducted for the proposed retractable roof as the shadow effect and ventilation could impact grass growth. In addition, he sought clarification on a recent news report about a proposal to import natural turf grown off-site which would be laid out when large scale sports events were held, and how this would be operated, specifically in relation to the space needed for growing the turf off-site and its environmental impact.

49. In relation to the species of grass for the pitch, Ms Linda Law explained that different types of grass species catered for different seasons and playing characteristics of sports. Their objective was to go in line with international specifications.

Procurement process

50. A Member acknowledged that more information would be available at the detailed designed stage and that the project proponent had presented the worst-case scenarios in the EIA Report. He enquired about the procurement process for the design and construction for the Main Stadium.

51. Mr James Blake replied that the requirements set out in the EIA represented the minimum requirements for the tender evaluation to allow flexibility for the future design and build contractors to improve the detailed design of the Project. The future contractors would take into account the best practices in delivering the detailed design, building and operation of the Project.

[A Member left the meeting at this juncture.]

Landscape and visual impact

52. A Member questioned how the design of the project could respond to the existing urban context, given the mass and scale of the superstructures including the stadium and the indoor sports centre. Besides, he observed that proposed green roofs and vertical greening would be adopted, as stated in 3.9.4 of the Executive Summary, to enhance visual impact. However, he doubted the effectiveness of these measures after considering the scale and height of the superstructures. Furthermore, he considered it unacceptable that the residual visual impact in the operation phase would be merely "slightly beneficial" after 10 years of operation (Section 3.9.8 of the Executive Summary referred) and he urged the project proponent to explain further how the overall visual effect in the area could be enhanced.

53. Mr Barry Wilson explained that they had adopted a worst case scenario. Having obtained the views of Planning Department on the implementation of proposed mitigation measures, they had recommended landscape and visual mitigation measures based on the worst case scenario.

54. Mr Alan Li explained that the photomontages only showed the basic architectural design and higher marks would be given to those tenders in the future tender evaluation process that proposed a more attractive design in relation to the visual impact. In addition, they had considered other relevant issues in their reference design, including connectivity, vibrancy, perception and usability.

55. A Member emphasised the importance to promote a better overall visual quality of the project in order to enhance its iconic feature and meet public expectation, and having looked at the photomontage in the EIA Report, he suggested that the project proponent should propose better recommendations to enhance the visual quality.

56. Having considered all technical constraints of the project site, Ms Linda Law stated that the photomontage indicated the statement of intent. This would act as a baseline requirement for the tender evaluation with a view to allowing flexibility and creativity for the future designer.

57. A Member was of the view that total area of the project site and the space

between buildings were not extensive. Therefore, as suggested by the project proponent that the project design was a dynamic process, he recommended them to improve their proposed design and measures.

The need for sufficient information

58. A Member expressed dissatisfaction with the project proponent and consultants for failing to provide sufficient information at the meeting in seeking Members' endorsement of the project. She further queried if the project proponent had any plans on conducting public engagement exercises to engage stakeholders and the community.

59. Dr Chan Hon-fai explained that he understood the concerns of some of the members on sustainability and related issues. However, the EIA team had worked according to the Project Profile and the Study Brief which did not explicitly require studies on issues such as AVA, embedded energy, etc. as raised by some members and therefore the EIA team had not included any related materials for presentation at this meeting and had little information to answer related questions. The required information would be available at the details design stage and not at the EIA stage. He understood that a separate design consultant team under HAB was working on the design details and these should be available to members after the meeting.

60. The Chairperson was of the view that concerns raised by Members, which were related to the improvement of air quality, landscape, sustainability and reduction of carbon, were relevant to EIA. The objective of EIA was to enhance environmental performance of projects which were conducive to the interest of the public.

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

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

Internal Discussion Session

62. The Chairperson sought clarification from EPD on whether the issues and concerns raised at the meeting fell beyond the scope of the EIA study brief. Mr K F Tang advised that EPD would take into consideration comments and issues raised by the public and Members of the ACE in deciding whether to approve the EIA report or not. The project proponent should address issues/concerns raised by Members if they were related to environmental impacts.

63. Mr K F Tang further clarified that the project proponent was required to demonstrate that the EIA report met the requirements of the EIA study brief and

the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), but there was no explicit requirement stating the need to conduct AVA in the EIA study brief or the EIAO-TM. Nonetheless, the ACE could require the project proponent to provide further information if Members considered that findings of the AVA would have air pollution implications.

64. A Member reiterated the significance of conducting AVA and using the findings in relation to the natural ventilation of the surrounding environment to assess that air pollution implications to the venue users.

65. A Member understood that the project proponent might allow flexibility for the future procurement process and room for improving the detailed design of the project. As such, he wondered if there would be difficulties in imposing conditions and recommendations at this stage.

66. Mr K F Tang advised that further information could be sought from the project proponent, or specific environmental permit (EP) conditions could be set to require the project proponent to submit detailed plans for ACE's comment before submission to DEP for approval before commencement of construction works.

67. A Member opined that despite that the EIAO-TM did not require the project proponent to propose any strategy in relation to embedded carbon emissions in the construction of the project, he suggested that a target should be set in accordance with the international standards.

68. The Chairperson advised that the EIA Subcommittee might make recommendations to ACE on the EIA report with the following approach:

(i) endorse the EIA report without condition; or
(ii) endorse the EIA report with conditions and details of the proposed conditions; or
(iii) defer the decision to the full Council for further consideration – highlight issues or reasons for not reaching a consensus or issues to be further considered by the full Council; or
(iv) reject the EIA report and inform the project proponent if the right to go to the full Council.

69. A Member expressed his concern as to endorsing the EIA report in the lack of sufficient information and clarification. He suggested that the project should be deferred for further consideration. Another Member concurred with Members' views that additional information would have to be provided before drawing up any conditions.

70. Mr K F Tang suggested that members might consider requesting the project proponent to provide additional information in another meeting to respond to the questions/issues raised at this meeting before making a decision.

Action

71. The Chairperson concluded that the project proponent would be requested to provide further information on the following aspects:

Landscape and tree planting

72. The Chairperson suggested that information on the objectives, whether it was for amenity planting, as an enhancement measure to urban ecology/biodiversity, or to maintain ecological connectivity; and methodology of compensatory tree planting should be provided. In addition, information relating to the grass planting in the public open space, the Main Stadium and the Public Sports Ground, including the proposed species that would be planted and the soil specifications to be adopted should be provided with justifications.

73. Mr Simon Chan advised that the Government recommended the incorporation of elements of urban ecology and urban biodiversity into the planning of infrastructure development in the city in the Biodiversity Strategy and Action Plan. As such, Members may wish to consider if measures on the enhancement of urban ecology and urban biodiversity through tree planting and landscaping should be included in the project.

74. With a view to minimizing environmental impact, the Chairperson requested the project proponent to confirm whether pesticides would be used and/or whether Integrated Pest Management would be adopted. Furthermore, the project proponent should clarify the source of soil used and the potential impact on soil moving operations involved in the project.

Air quality and ventilation

75. The Chairperson suggested and Members agreed that information on the air pollution implications to the venue users and the surrounding sensitive receivers should be provided based on the findings of the air ventilation assessment (AVA) carried out for the interior and exterior of the Main Stadium, Sports Complex and open space of the project site, including under both calm and strong wind conditions. Besides, measures to improve air quality and to actively pursue the best practicable means should be explored, including using de-NO_X paints to minimize air quality impact.

Sustainability

76. In relation to the promotion of sustainability, the Chairperson requested the project proponent to provide information on those studies conducted that have explored elements of sustainability in the design of the project, for example, renewable energy.

Action

Minimization of carbon footprint

77. The Chairperson suggested that the project proponent should provide information on measures to minimize carbon footprint, in particular, to clarify if there would be any strategies/measures for generating renewable energy, recovering and reusing waste heat, reducing peak energy or heat use, decarbonisation, etc.

Visual impact

78. As for the enhancement of visual impact, the Chairperson and Members agreed that the project proponent should provide information on any proposed measures to minimize visual impact and enhance visual quality of the project given its high visual sensitivity as well as to enhance its iconic feature in the district.

Geotechnical Investigation Report

79. Members agreed that geotechnical investigation reports should be provided to ascertain whether there was marine mud at the subsurface, and information on any proposed measures to minimize the amount of construction and demolition materials generated. Moreover, the use of Building Information Modeling (BIM) in the design and construction stages should be explored.

Cultural heritage

80. A Member said that despite the fact that the EIA Report stated that there was no built heritage in the project site, he questioned if the former Kai Tai airport site could be considered as a heritage itself and some elements of enhancing collective memories could be incorporated in the project.

81. The Chairperson concluded that the project proponent would be required to attend the next EIASC meeting on 24 October 2016 to provide supplementary information as requested by Members.

[Post meeting note: The list of supplementary information was passed to the project proponent for consideration on 18 October 2016.]

Item 4 : EIA Report on "Sha Tin Cavern Sewage Treatment Works"
(ACE-EIA Paper 6/2016)

82. The Chairperson advised that the meeting would discuss the EIA report on "Sha Tin Cavern Sewage Treatment Works" which covered designated projects under "Schedule 2" of the EIA Ordinance. The public inspection period of the report was from 5 August to 3 September 2016 and a total of 2 public comments were received by EPD. The public comments received and the gist of

major issues/concerns had been circulated to Members before the meeting.

83. The Chairperson informed that the discussion would be divided into the Presentation and Question-and-Answer Session which would be opened to the public while the Internal Discussion Session would remain closed. There was no declaration of interest from Members.

84. The Chairperson reminded Members to keep confidentiality of the discussion on the EIA report.

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

Presentation Session (Open Session)

85. With the aid of a powerpoint, Mr Walter Leung gave an overview of the background and the justifications and benefits of the project. Ms Cherry Yau followed to brief Members on the project layout, key public concerns as well as key findings of the environmental impact assessment (EIA).

Question-and-Answer Session (Open Session)

Design of the ventilation buildings

86. A Member expressed his appreciation for the concept of developing sewage treatment works in caverns which he considered would be beneficial to the environment. While observing that a step down profile with green roof would be adopted for the administration and ventilation buildings, the Member considered that these buildings would be visually obtrusive against the natural backdrop. He suggested that the project proponent should further review the design of the buildings such that they could harmonize with the surrounding natural environment. The Chairperson followed that vertical greening could be considered as one of the methods to mitigate the visual impact. Mr S K Wong agreed to take Members' suggestions into consideration during the detailed design study and assured Members that DSD was committed to reducing the negative visual impacts of the buildings as far as possible.

Preservation of ardeids

87. A Member was concerned about potential obstruction to the flight path of ardeids from the Penfold Park Egretry to their foraging habitats at the Shing Mun River during the decommissioning and demolition of the Sha Tin Sewage Treatment Works (STSTW). He suggested that the project proponent should avoid demolition works during the ardeid breeding season, thereby minimizing the potential impact on Penfold Park Egretry and the ardeids flying over the STSTW.

88. Mr S K Wong explained that there was a physical separation of about

750 metres between STSTW and Penfold Park Egretry and a survey would be conducted before the commencement of the demolition works to ascertain the locations of the ardeid breeding sites, foraging habitats and flight paths. AFCD would be consulted on the necessary mitigation measures to minimize the impact on the ardeids arising from the decommissioning and demolition works. Mr Robert Chan supplemented that full avoidance of the breeding season might not be desirable as this would extend the duration of the demolition works and affect the relocation schedule. With no concrete relocation plan at this stage, he said that the actual schedule, methodology for conducting the demolition works and necessary mitigation measures would take into account the results of the egretry survey to be conducted nearer the time of demolition.

Future usage of the released land

89. Regarding the use of the vacated land, Mr S K Wong advised that it was yet to be determined and the Planning Department would conduct public consultation to invite suggestions and views from the public in due course. On top of releasing the existing STSTW site for development purpose, Mr Wong explained that it would be beneficial to relocate STSTW as the existing facilities which had been in operation for over 30 years would require upgrading works in near future, and its vicinity to residential areas in Ma On Shan and Sha Tin had created visual impacts and challenges in odour control.

New technology for the new facility

90. With the observation that the existing and new sewage treatment works had the same design treatment capacity, and that direct dewatering would be used instead of digestion for sludge treatment, a Member asked whether there was any advancement in the technology used for the new facility. Mr Robert Chan clarified that while the design treatment capacity for the relocated STSTW would be the same as that of the existing one, i.e. 340,000 m^3 per day, the actual average flow rate of sewage of the existing STSTW was around 240,000 m^3 per day. He informed Members that while a conventional activated sludge treatment technology was employed in the existing STSTW, alternative sewage treatment processes such as moving bed biofilm reactors (MBBR) and aerobic granular sludge (AGS) technology were under assessment and would be considered for adoption in the relocated STSTW. As regards sludge treatment, Mr Chan explained that the dewatering option without digestion was chosen as digestion might generate dangerous gases inside caverns, which would not be acceptable from the fire safety perspective. He however assured Members that DSD would make reference to overseas experiences and latest technology in dewatering and apply them to the relocated STSTW if practicable.

Compensatory planting

91. In reply to a Member's questions concerning compensatory planting, Ms Cherry Yau explained that according to a broad brush tree survey,

approximately 828 trees, primarily at the main and secondary portal areas as well as the outlet of the ventilation shaft, would be affected by the project. Mature trees would also be lost at road verges due to the construction of temporary site accesses. She explained that as irrigation was not feasible at uphill areas, including the area near to the outlet of the ventilation shaft, approximately 10,000 tree whips would be planted there and on the fill slopes, whereas heavy standard trees would be planted at areas with thicker soil layers. She stated with reference to available ground investigation results that Nui Po Shan had a hilly terrain with a generally high rockhead level and thin soil covering, hence only small trees would be proposed for planting. Ms Yau further explained that it was difficult for mature heavy standard trees to grow on slopes, while it was expected that the planting of tree whips could help establish and provide vegetation cover.

92. The Chairperson reminded that the project proponent should commit to increasing the ecological value of the proposed compensated or reinstated vegetation so as to compensate for the net permanent loss of vegetation. Ms Gigi Lam explained that the estimated loss of vegetation of 25,000 m^2 included plantation, shrubland and woodland areas, and the woodlands were composed of a diversity of native and exotic species such as *Acacia confusa*. Reinstatement or enhancement in the form of native tree and shrub planting would be provided, wherever practicable. She added that while only 0.6 hectare of woodland would be lost, 0.9 hectare of compensatory planting of woodland quality would be provided within the project site.

93. In reply to a Member's enquiry on whether the loss of trees could be further minimized, Ms Cherry Yau explained that the ventilation buildings had already adopted a stacked design and had avoided locations with woodlands of higher value. Mr Robert Chan supplemented that many alternative site locations had been explored, and the proposed administrative building was constructed on a man-made cut slope with a view to minimizing ecological as well as visual and landscape impacts.

The need for public engagement

94. Mr Robert Chan agreed with a Member that the odour impact during operational stage and safety issue in relation to the blasting works during construction of the project were the major concerns of the public. He shared that through a series of public engagement activities, public understanding had been enhanced which led to greater public support. The Member opined that the project proponent should consider setting up a platform to exchange views with the local community like the Community Liaison Groups (CLGs) during the construction and operation of the facility. Mr Chan advised that stakeholders and the public had been continuously engaged and would be kept informed on the actual construction schedule and mitigation measures prior to the commencement of the relocation works.

95. A Member expressed appreciation for the various types of public

engagement activities to enhance public understanding. In order to keep up the momentum, he suggested that the project proponent should continuously engage stakeholders prior to the setting up of CLGs before the construction of the project. He also suggested that more justifications regarding the choice of the construction method should be given in respect of the vibration impacts to the residents nearby and safety of workers.

Considerations on carbon footprint and energy consumption

96. The Chairperson was concerned about the energy consumption and balance after the relocation of STSTW. Mr Marcus Ip explained that while carbon audit would be conducted for the project, the carbon emissions could only be estimated and assessed when more details on the design were available. He assured Members that the project proponent would endeavour to explore alternative methods and technologies with a view to minimizing the carbon footprint. As regards energy consumption, Mr Robert Chan said that alternative sewage treatment processes were under assessment and subject to the detailed design, it was possible to achieve improved energy efficiency for sewage treatment. However, as the facilities would be relocated into caverns, it was expected that energy consumption for ventilation and lighting needs would increase. The project proponent would explore other measures to reduce energy consumption during the detailed design stage.

97. A Member opined that on top of providing secondary treatment, the design of the facilities should also include mechanisms for the recovery of resources such as phosphorus and the generation of energy to support ventilation and illumination. She also suggested that DSD should promote research and development (R&D) works with the aim of developing new technology to removing pharmaceutical agents such as antibiotics from the effluent. Mr S K Wong considered that the relocation of STSTW provided an opportunity for exploring the replacement of the aging facilities with more advanced technologies and processes via R&D.

[A Member left the meeting and another Member joined the meeting at this juncture.]

Use of bulk emulsion explosives

98. Addressing the Chairperson's concern on the security and safety risks associated with the transportation of explosives, Ms Cherry Yau explained that apart from observing the requirements imposed by the Mines Division of the Civil Engineering and Development Department (CEDD), the project proponent would set a limit on the explosive quantities to be transported per trip, and required detonators to be transported separately from explosives. The hazard to life assessment conducted under EIA had shown that the risks associated with the transportation of explosives were "as low as reasonably practicable" (ALARP). Ms Yau added that the security of the explosive magazines would be

strengthened by fences, security guards and video surveillance etc., and blasting competent supervisors would monitor the use of explosives on site.

99. A Member observed that the project proponent did not follow the advice of the Mines Division which recommended against the use of bulk emulsion when the Maximum Instantaneous Charge (MIC) envisaged for a particular blast was below 2 kg. He asked the project proponent to clarify on the explosive load to be used on site and enquired whether there were any alternative methods for site formation other than using explosives. Mr Guy Bridges explained that bulk emulsion was used as it was a non-explosive raw material that could be transported to the project site in large quantities, thereby helped to minimize the risk associated with storage and transportation of dangerous goods. The bulk emulsion would not become explosive until after a manufacturing process to be conducted immediately before the blasting activities. He mentioned that Mines Division recommended a minimum 2 kg MIC to avoid overloading the blast holes due to the lack of accurate equipment for measuring the quantity of explosives. However, such a limitation was no longer existed with the advancement of technology, and the equipment had to be calibrated and licensed by the Mines Division before use. Mr Bridges confirmed that they had sought advice on the blasting methodology from the Mines Division of CEDD, and references were drawn from similar projects, including the Harbour Area Treatment Scheme and the Liantang / Heung Yuen Wai Boundary Control Point project. The Member requested the project proponent to provide the written confirmation from the Mines Division on the proposed use of explosives after the meeting. DSD

[Post meeting notes: The project proponent provided a memo from the Mines Division on 20 October 2016 confirming that they have no objection towards the use of bulk emulsion explosive where the MIC was less than 2kg in individual blast holes. The memo was circulated to Members on the same day.]

100. As regards the explosive load to be used on site, Mr Guy Bridges advised that the contractor would be required to submit a blast design to the Mines Division and the qualified blasting specialists on site for review and approval before carrying out any blasting activities. Mr Robert Chan supplemented that the ranges of explosive load shown in Table 7.1 of the EIA report summarized the explosive load to be used at various locations according to the depth of the blast. As an illustration, he explained that for the works area at Mui Tsz Lam Road for excavating the top heading of the single access tunnel, the explosive load to be used per blast would range from 76.1 kg for the initial blast at the surface to 433.5 kg at a depth of 100 metres. He assured Members that in accordance with the established procedures, prior approval from the Mines Division would be obtained for conducting blasting activities.

101. With the concern that the heavy use of explosives could lead to vibrations at the ground level, a Member was concerned about the locations for

conducting vibration blast monitoring. Mr Robert Chan advised that the proposed explosive load had taken into account the vibration limits of those buildings in the vicinity. Blast vibrations would be monitored at sensitive receivers including the Chevalier Garden, Tai Shui Hang Village and A Kung Kok Fishermen Village, subject to the agreement of the Mines Division. The Member expressed his doubt towards the claim in the EIA report that the vibrations would not cause significant disturbance to the terrestrial habitats and fauna, and he suggested that the project proponent should increase the number of monitoring sites and reduce the explosive loads as far as possible. Mr Guy Bridges explained that the total explosive load for each blast would be distributed in a series of blast holes, and there would not be more than 10 kg of explosive in each blast hole, which would minimise the extent of vibrations.

102. While alternative construction options had been explored, Mr Guy Bridges explained that the size of the cavern was beyond that could be formed by a tunnel boring machine, the granite rocks at the project site were found to be too hard for excavating by road headers and the manual drill and split approach would be extremely time-consuming even with the use of chemicals as suggested by a Member. The Member suggested the project proponent to consider carrying out blasting and chemical breaking simultaneously to reduce the extent of blasting works and thereby minimize ground vibrations. Mr Robert Chan advised that the relocated STSTW would consist of two tunnels and five caverns with widths of 32 metres, and it would take a considerable time to excavate the caverns even by using the blasting method.

103. A Member suggested that vibration blast monitoring should also cover historical buildings at the western Tai Shui Hang Village which were sensitive receivers of vibrations. He further enquired the rationale behind the design of the relocated STSTW, and expressed concern about the health risks posed to the workers in the new facilities due to prolonged exposure to an environment of higher humidity. Mr Robert Chan replied that the tanks originally placed in a rectangular-shaped facility would have to be re-arranged into five caverns of 32 metres wide. He said that further increasing the width of the cavern would require extensive stabilization works and was considered to be less cost-effective. As regards the health impacts on workers, Mr S K Wong explained that as most of the facilities operated automatically, workers were expected to spend most time in the administrative building and would only be required to enter the caverns for performing maintenance or monitoring tasks on a needed basis.

104. In reply to a Member's question on measuring the vibration impact against the Richter scale, Mr Guy Bridges explained that while it was possible to make a comparison, however the nature of the vibrations of blasting would be very different from that of an earthquake. The vibrations of blasting would be of a much higher frequency but lower displacement.

Potential for promotion and educational purposes

105. A Member said that there was potential for the relocated STSTW to become a tourist attraction considering that it was a large-scaled sewage treatment works located in a cavern. He suggested that the project proponent should explore the feasibility of setting up an exhibition centre on site for promotion and educational purposes if the risks of radon exposure could be controlled. With reference to the EIA report and the monitoring conducted in the Stanley Sewage Treatment Works, Ms Cherry Yau said that the level of radon which was released from granite could be effectively diluted and dispersed into the atmosphere via the ventilation systems. The concentration of radon would be monitored regularly, in accordance with the existing practice of the Stanley Sewage Treatment Works, after the facilities were commissioned for use. The Chairperson invited the project proponent to consider making better use of the space at the main entrance and explore the setting up of an exhibition centre.

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

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

Internal Discussion Session

107. 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 details of the proposed conditions; or
(iii) defer the decision to the full Council for further consideration – highlight issues or reasons for not reaching a consensus or issues to be further considered by the full Council; or
(iv) reject the EIA report and inform the project proponent if the right to go to the full Council.

108. The Chairperson proposed and Members agreed to endorse the EIA report with conditions and recommendations.

Monitoring of blasting works

109. A Member proposed and Members agreed to include a condition to require the project proponent to adopt the best practicable means to minimize the vibrations generated by the blasting works on and below ground level so as to minimize disturbances to wildlife. He further suggested that drilling and splitting with chemicals could be conducted simultaneously with the blasting works to minimize ground vibrations. Another Member suggested to including

minimizing disturbances to heritage buildings into the condition.

Enhancing of energy efficiency

110. A Member suggested recommending the project proponent to adopt the most efficient design and equipment to enhance energy efficiency of the facility such that the efficiency of energy consumption should be higher than that of the existing facility. Mr K F Tang echoed the consultants' view that while the energy efficiency for sewage treatment would increase, it was expected that the energy consumption for ventilation and lighting within the cavern environment would increase. The Chairperson suggested recommending the project proponent to reduce carbon footprint and energy consumption as far as possible. A Member suggested that the design of the facilities should enable the recovery of resources, including but not limited to water, energy and phosphorus.

111. The Chairperson suggested recommending the project proponent to research and developing with the aim of developing new technology for minimizing existing and newly emerged pollutants, such as microplastics in pharmaceutical products.

Setting up an exhibition centre

112. A Member suggested and the other Members supported to recommend the project proponent to explore the feasibility of setting up an exhibition centre on site for promotion and educational purposes.

Engaging the public and stakeholders

113. With reference to a Member's earlier comment, the Chairperson suggested and Members agreed to require the project proponent to set up a platform to exchange views with the local community like the CLGs, and to recommend the project proponent to continuously engage stakeholders prior to the setting up of CLGs before construction of the project.

Conducting a baseline survey for egretry

114. A Member suggested and the other Members agreed to include a condition to require the project proponent to conduct a baseline survey for egretry before the demolition of the STSTW. A report on the survey results and appropriate measures to minimize the impacts on egretry, such as by avoiding the breeding season, and use of the best practicable demolition technology, should be provided to ACE for comments before submitting to AFCD for approval before the start of the demolition works.

Devising the compensation plans

115. Given that the trees affected by the project were insufficiently

compensated, the Chairperson suggested and Members agreed to require the project proponent to devise and submit the tree preservation and woodland compensation plans to AFCD for approval with the aim of enhancing the quality of vegetation and woodlands.

Reviewing the architectural design of the ventilation building

116. Taking into account the suggestion from Prof John Ng, the Chairperson proposed and Members agreed to include a condition to require the project proponent to review the architectural design of the ventilation building with a view to harmonizing with the surrounding natural environment. The final design of the building should be submitted to the Director of Environmental Protection (DEP) for approval before commencement of the construction works of the building.

117. The meeting agreed that no conditions or recommendations would be imposed on the odour issue.

118. A Member suggested and Members agreed to recommend the project proponent to ensure that the temporary structures within the works area should be visually and environmentally acceptable.

119. The meeting agreed that the project proponent team would not be required to attend the full Council meeting scheduled on 14 November for the report.

[Post meeting note: The list of proposed conditions and recommendations were circulated to Members for comments on 20 October 2016.]

Item 5 : Any other business

120. There was no other business for discussion at the meeting.

Item 6 : Date of next meeting

121. The Chairperson advised Members that the next Subcommittee meeting was scheduled on 24 October 2016 for the discussion of the EIA report on "Hung Shui Kiu New Development Area" and the further discussion of the EIA report on "Kai Tak Multi-purpose Sports Complex".

EIA Subcommittee Secretariat
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