**Confirmed Minutes of the 137th Meeting of**
**the Environmental Impact Assessment Subcommittee**
**on 21 November 2016 at 2:00 pm**

**Present:**

Prof Nora TAM, BBS, JP (Chairperson)
Dr HUNG Wing-tat, MH (Deputy Chairman)
Dr Billy HAU
Dr Michael LAU
Ir MA Lee-tak, SBS
Prof John NG
Dr Eric TSANG
Ms Becky LAM (Secretary)

**Absent with Apologies:**

Ir Cary CHAN
Prof CHAU Kwai-cheong, BBS, JP
Prof Albert LEE
Miss Yolanda NG, MH
Mr Luther WONG, JP

**In Attendance:**

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| Mr K F TANG | Assistant Director (Environmental Assessment), Environmental Protection Department (EPD) |
| Mr Simon CHAN | Assistant Director (Conservation), Agriculture, Fisheries and Conservation Department (AFCD) |
| Mr CHOW Wing-kuen | Senior Marine Conservation Officer, AFCD |
| Mr WO King-tai | Marine Conservation Officer, 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 2:**

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| Mr WONG Chuen-fai | Principal Environmental Protection Officer (Strategic Assessment), EPD |
| Mr Steve LI | Senior Environmental Protection Officer (Strategic Assessment) 6, EPD |
| Mr Keith LAM | Environmental Protection Officer (Metro Assessment) 13, EPD |
| Mr Matthew TANG | Assistant Environmental Protection Officer (Strategic Assessment) 62, EPD |

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| Project Proponent Team | |
| *Drainage Services Department* | Mr KWOK Ping-keung, Chief Engineer / Consultants Management<br>Mr Thomas WONG, Senior Engineer / Consultants Management 3<br>Mr Oliver AU-YEUNG, Engineer / Consultants Management 4 |
| *Black & Veatch HK Ltd.* | Mr Andy KWOK, Deputy Project Director<br>Mr Colin CHAN, Deputy Project Manager<br>Ms Amy CHEUNG, Technical Director<br>Mr William LEUNG, Project Engineer |
| *Environmental Resources Management.* | Dr Jasmine NG, Partner |

**In Attendance for Item 3:**

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| Mr Louis CHAN | Principal Environmental Protection Officer (Regional Assessment), EPD |
| Ms Clara YU | Senior Environmental Protection Officer (Regional Assessment) 3, EPD |
| Project Proponent Team | |
| *Drainage Services Department* | Mr KWOK Ping-keung, Chief Engineer / Consultants Management<br>Mr Tony YEUNG, Senior Engineer / Consultants Management 5<br>Mr Justin WAN, Engineer / Consultants Management 17 |
| *Cinotech Consultants Limited* | Dr CHAN Hon-fai, Managing Director<br>Dr Priscilla CHOY, Director<br>Mr K S LEE, Associate<br>Ms Betty CHOI, Senior Environmental Consultant<br>Mr K W LEUNG, Senior Environmental Consultant |
| *Black & Veatch Hong Kong Limited* | Mr Andy KWOK, Project Director<br>Mr Colin CHAN, Deputy Project Manager<br>Mr Ken WONG, Engineer |
| *Urbis Limited* | Mr Tim OSBORNE, Director |

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The Chairperson welcomed Members to the meeting and informed that apologies of absence had been received from Ir Cary Chan, Prof Chau Kwai-cheong, Prof Albert Lee, Miss Yolanda Ng and Mr Luther Wong.

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**Item 1 : Matters arising from the minutes of the 136th meeting**

2. The Chairperson informed that the Environmental Impact Assessment Subcommittee (EIASC) last met on 18 November 2016 to discuss the EIA report on "Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, New Territories". The list of conditions and recommendations as well as the draft minutes of meeting were under preparation and would be passed to Members for comments in due course. The Secretariat

**Item 2 : EIA report on "Expansion of Sha Tau Kok Sewage Treatment Works"**
***(ACE-EIA Paper 9/2016)***

3. The Chairperson advised that the meeting would discuss the EIA report on "Expansion of Sha Tau Kok Sewage Treatment Works". The public inspection period of the report was from 2 September to 1 October 2016 and no public comments were received by EPD.

4. 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.

5. The Chairperson invited declaration of interest from Members. A Member declared that he was commissioned to a research contract by the Drainage Services Department (DSD) to review the potential of all DSD facilities in promoting urban biodiversity. The research had no direct relationship with the two EIA reports to be discussed. The meeting agreed that the Member could stay on and continue participating in the discussion.

6. The Chairperson reminded Members to keep confidentiality of the discussion on the EIA reports.

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

**Presentation Session (Open Session)**

7. Mr Kwok Ping-keung gave an opening remark and with the aid of a powerpoint presentation, Mr Colin Chan followed to brief Members on the background, needs and benefits of the project, key findings of the environmental impact assessment (EIA) and public concerns raised during earlier non-EIA consultation forums.

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**Question-and-Answer Session (Open Session)**

***Handling of construction and demolition (C&D) materials***

8. A Member asked the project proponent to provide a reply to his written comments which were passed to them via the Secretariat before the meeting. In reply to the Member's question concerning the generation of construction and demolition (C&D) materials, Mr Kwok Ping-keung advised that approximately 54,000 $m^3$ of inert C&D materials would be generated during the construction phase, and around 3,000 $m^3$ of marine sediment would arise from the excavation work for construction of the new submarine outfall diffuser. It was expected that approximately 11,000 $m^3$ of the inert C&D materials would be re-used in-situ and 43,000 $m^3$ would be sent to public fill reception facilities for beneficial reuses. The non-inert C&D materials and marine sediment would be disposed of at landfills and marine dumping ground respectively. The Member considered that the disposal route would be long given the remote location of the Sha Tau Kok Sewage Treatment Works (STKSTW), and suggested that the waste materials should be re-used in-situ or for concurrent projects as far as possible.

9. A Member asked whether special procedures such as asbestos removal or decontamination of marine sediment containing heavy metals would be carried out prior to conducting the demolition works. Mr Colin Chan advised that no contaminated sediment was found in the samples collected from the existing STKSTW site and therefore no special treatment was required.

10. In reply to a Member's question regarding the C&D materials generated from the temporary sewage treatment plant (TSTP), Mr Kwok Ping-keung advised that the TSTP structure could be removed for reuse at other location outside the project site.

***Impact on fisheries resources***

11. Regarding a Member's enquiry about the loss of fishing ground due to the installation of the diffuser on the seabed, Mr Kwok Ping-keung said that the proposed submarine outfall had taken into account the concerns expressed by the fishing industry during the consultation sessions such that the diffuser would be situated 1.7 km away from the coast and further away from the Sha Tau Kok Fish Culture Zone. The submarine outfall would be constructed using the horizontal directional drilling (HDD) method to avoid dredging and thereby minimize disturbance to the fisheries habitat and fishing ground, and the diffuser would be constructed within a cofferdam to be installed at Starling Inlet. The Member observed that the diffuser was proposed to be constructed at the waters with higher-valued fishing production as recorded in the Port Survey conducted by the Agriculture, Fisheries and Conservation Department (AFCD) in 2006. While acknowledging that the diffuser was shown to be located at an area with medium significance in the Port Survey with recorded species including *Siganus fuscescens*

and *anchovies*, Dr Jasmine Ng advised that the value of the fishing production should be viewed with caution given that an outright trawling ban was placed into effect in 2012. She added that the proposed location of the diffuser had taken into account different fishing operations, including capture and culture fisheries.

12. As there would be a permanent loss of fishing ground due to the construction of the diffuser, the Chairperson agreed with the Member that remedial or compensatory measures should be proposed. Dr Jasmine Ng explained that the permanent loss of fishing ground would be limited to the footprint of the diffuser erected above the seabed, which was of 0.042 hectares. Given the small size and low fisheries importance of the area being lost, unacceptable operational phase impacts to fisheries resources and fishing operations were not expected and compensatory measures were therefore considered to be unnecessary.

13. A Member enquired whether the submarine outfall could be further adjusted towards Starling Inlet to avoid discharging effluent into the waters with potentially higher fishing production and ecological value. With the shallow water condition of Starling Inlet, Dr Jasmine Ng explained that the water quality modelling results indicated that positioning the diffuser closer to Starling Inlet would have a greater impact on the fisheries resources, including that in the Sha Tau Kok Fish Culture Zone, as well as the ecological environment which housed sensitive receivers including mangroves and horseshoe crabs. While the fishing industry had requested for the diffuser to be located even further away from Starling Inlet, the proposed location had taken into account the high-valued fisheries resources and existence of other sensitive receivers in the outer waters. Mr Kwok Ping-keung supplemented that the submarine outfall had a curved design to avoid entrenching into the boundary of the Mainland. He further mentioned that there might be issues related to the technical feasibility in extending the submarine outfall beyond the proposed 1.7 km.

14. As the level of impact was defined on a relative scale, a Member enquired if there was a standard in determining whether the impacts were acceptable to the various sensitive receivers and whether mitigation measures were necessary. Dr Jasmine Ng explained that the assessments were conducted in accordance with the requirements set out in the Technical Memorandum, and the construction methods and any necessary mitigation measures were proposed to minimize the impacts as far as possible.

15. Considering that the submarine outfall would adopt a curved design, a Member asked whether there would be any technique to avoid any discrepancy when drilling along the intended alignment using the HDD method. Mr Colin Chan explained that HDD was a widely used technique and had been adopted in various projects of the Water Supplies Department (WSD) and DSD. He explained that HDD involved drilling a pilot hole with a small diameter along the alignment of the outfall. The drill was equipped with sensors and technological equipment such as the global positioning system (GPS) to detect its position and alignment, which

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could allow adjustments and limiting the extent of discrepancies to within 0.5 metres. As an example, Mr Andy Kwok supplemented that the HDD technique had been used in constructing a 1.4 km submarine water main at Cheung Chau under a WSD project and a 1.38 km sewer at Ap Lei Chau under a DSD project. Pipelines of 5.2 km were also under construction at the Hong Kong International Airport and marine vessels had been deployed to receive signals from the sensors to improve the accuracy. The Member was concerned that it would be difficult to control drilling along the curved alignment of the submarine outfall without the use of a micro tunnel boring machine, and suggested DSD to consider adjustments to the design or technique during the detailed design stage.

***Odour and noise impacts***

16. Addressing a Member's enquiries concerning the odour and noise impacts, Mr Kwok Ping-keung advised that while the existing STKSTW had an open-air design, the major process equipment of the expanded STKSTW would be confined inside the structures to minimize odour nuisance and noise impact to the sensitive receivers in the vicinity, and it would be equipped with a deodorization system. As such, an improvement of the odour and noise condition was expected in the expanded STKSTW. He added that there had been hardly any complaints received in relation to odour or noise impacts caused by the operation of the existing STKSTW.

17. Considering that the expanded STKSTW had a much larger design capacity than the existing one, a Member asked the project proponent to provide data in relation to the changes in odour and noise levels after the proposed expansion. Mr Colin Chan advised that baseline noise measurements were taken at Tin Hau Temple right next to the project site. The operational noise criteria was measured to be 49 dB(A) at Tin Hau Temple and according to the modelling results, the predicted fixed plant noise level would be reduced to 41 dB(A). He said that no data on the changes to the odour level could be provided as no baseline measurements had been taken. The Member suggested and Mr Kwok Ping-keung agreed to take baseline measurements on the odour condition and provide data on the expected changes to Members after the meeting. DSD

18. In reply to the Chairperson's question regarding the design of the TSTP, Mr Kwok Ping-keung advised that it would also be equipped with a deodorization system, and the process equipment would be confined inside the TSTP. While the tanks would not be housed underground given that the TSTP would only operate for a short period of time, it was expected that the odour and noise condition of the TSTP would be better than the existing STKSTW.

19. With regard to a Member's question on whether low-noise demolition machines would be deployed, Mr Kwok Ping-keung replied in the affirmative and advised that the use of low-noise demolition methodology and equipment would be one of the project requirements.

***Adoption of BEAM Plus***

20. With reference to a Member's written question concerning the adoption of BEAM Plus, Mr Kwok Ping-keung said that DSD endeavoured to adopt the principles of BEAM Plus at the Gold rating in the design and construction of the project. Environmental enhancements had been incorporated in the design of the new treatment facilities, including the use of renewable energy and recycled water etc.

***Potential for promotion and education***

21. Addressing a Member's suggestion that the STKSTW could serve as a showcase for students and visitors, Mr Kwok Ping-keung said that the scale of the STKSTW was relatively small and might not be able to receive a large number of visitors. He added that the STKSTW was remote and not easily accessible, and there were a number of other sewage treatment plants elsewhere with the same design principles open for visitors. The Member opined that DSD should consider incorporating resources for visitors in the design so as to facilitate students and residents in the nearby schools and villages to visit the facilities.

***Landscape and visual impacts***

22. A Member enquired about the height difference between the existing and the expanded STKSTW. He was concerned that the planting area at the west and the south of the STKSTW might not be thick enough to provide sufficient screening effect for the STKSTW, which might pose a negative visual impact when viewing from Starling Inlet. Mr Colin Chan said that the existing STKSTW consisted only of tanks of 1 to 2 metres tall, whereas the height of the structures in the expanded STKSTW would range from 10 to 19 metres. Tree planting would be carried out at the area facing Starling Inlet to provide a screening effect and vertical greening would also be adopted on all four sides of STKSTW to soften the façades. He advised that the planting strip would be around 20 metres wide. In reply to the Chairperson's enquiry regarding the boundary fence, Mr Chan said that the fence would only be 1 to 2 metres tall, and the view from Starling Inlet would mainly consist of trees in front of the STKSTW.

23. As regards a Member's question on the design of the roof, Mr Colin Chan said that apart from the areas used for installing solar panels and skylight openings, rooftop greening would be carried out to create a roof garden on the remaining area. The Member opined that these installations should be shown in the photomontage such that Members could have a clearer picture of the design.

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***Effluent water quality improvements and reuse of treated effluent***

24. A Member expressed his appreciation towards the deployment of more advanced sewage treatment technology in the expanded STKSTW, and sought information regarding the anticipated improvements in the effluent water quality. In an effort to meet the Water Quality Objectives (WQOs), Mr Colin Chan advised that the major improvement would be a reduction in the concentration of nitrogen compounds in the effluent, while the level of biochemical oxygen demand (BOD) and suspended solids would remain unchanged.

25. With reference to the project proponent's proposal to reusing treated effluent for non-potable purposes within the expanded STKSTW, a Member suggested that treated effluent could also be considered for use outside the project site, such as for irrigation at green belts areas and open spaces. The Chairperson supported the Member's suggestion that the proposed reuse of 50 $m^3$ of the treated effluent, i.e. 0.5% of the ultimate design capacity of the STKSTW, was insignificant and ineffective in conserving water resources. Mr Kwok Ping-keung explained that extending the use of treated effluent outside the STKSTW would involve designing and constructing a water supply system and additional pipelines. Besides, the coordination of various Government departments would be required. Nonetheless, he agreed to explore the feasibility of the suggestion. A Member suggested DSD to make reference to the North East New Territories New Development Area regarding the reuse of treated effluent.

26. A Member further enquired whether there were any incentives to encourage the nearby villages to connect their septic tanks to the public sewerage network. Mr Kwok Ping-keung advised that the construction of public sewers extending to nine villages was nearly completed, and with positive feedback from the villagers in Sha Tau Kok, it was expected that the connection rate would be high.

27. Considering that the treated effluent still retained a certain level of nutrients, a Member asked whether a red tide risk assessment had been conducted. Although there was no direct assessment conducted on the red tide risk, Dr Jasmine Ng said that the baseline nutrient level had been compared with the projected nutrient level in year 2030 under the water quality impact assessment. It was predicted that the concentrations of nutrients in the treated effluent would decrease. While expressing support for the project, the Member was concerned that deploying a secondary treatment might increase the risks of red tides and suggested DSD to conduct necessary surveys to ascertain the risks.

***Ecological impact assessment***

28. While acknowledging that the project might not have significant ecological impacts, a Member pointed out that the baseline ecological studies conducted under the ecological impact assessment required further rectifications

and clarifications as follows:-

(a) whether the transect surveys on mammals, birds, amphibians, reptiles, butterflies and dragonflies were conducted by the same person (or teams) simultaneously under the wildlife survey;
(b) the dragonfly species shown in Plate 29 of Annex 7A should be an *Orthetrum sabina* instead of *Anax nigrofasciatus*. Mistakes similar to this reflected the poor quality of the ecological impact assessment;
(c) "seagrass" which was regarded as a habitat in the Technical Memorandum was excluded from the habitat classification and evaluation;
(d) without making reference to any similar habitats in the area in Starling Inlet, the grading of "ecological values" under the Habitat Evaluation (Part 3) appears to be arbitrary. For example, the large mudflat in the study area of over 10 hectares was graded as "moderate-high" rather than "high", some references to the diversity of fauna recorded should be shown. Information on whether the mudflat was an important feeding ground for nesting egrets and herons should also be given; and
(e) whether there were focused efforts in finding and surveying *Nannophya pygmaea*, which was a species of conservation concern in Starling Inlet, in the baseline ecological survey.

In the absence of an ecological consultant at the meeting, Mr Kwok Ping-keung agreed to provide the relevant information after the meeting. DSD

29. Given that the expanded STKSTW would adopt the Membrane-bioreactor (MBR) process and the TSTP would adopt the Moving Bed Biofilm Reactor (MBBR) process, the Chairperson asked DSD to justify the use of different treatment methods and the possible impacts on the water quality. Mr Colin Chan explained that the construction, testing and commission of a MBR plant would take a longer time. For operational ease and considering the temporary nature of the TSTP, the MBBR process was proposed and the effluent water quality would be comparable to that of the existing STKSTW. He added that the TSTP utilized the existing outfall and had a much smaller treatment capacity than the expanded STKSTW. The Chairperson and a Member enquired and Mr Chan confirmed that there would be no improvement in the effluent water quality until the commission of the expanded STKSTW. Mr Kwok Ping-keung informed the meeting that the TSTP would only operate for around 2 years.

30. There being no further questions from Members, the Chairperson thanked the project proponent team for their presentation and clarification on the project. A list of supplementary information requested by Members in the meeting would be sent to the project proponent for preparation of a written response.

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

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**Internal Discussion Session**

31. The Chairperson invited the Secretariat to prepare the list of supplementary information requested by Members in the meeting to the project proponent for preparation of a written response. Nevertheless, she pointed out with the agreement of Members that the supplementary information would not influence EIASC's recommendations to ACE on the EIA report. The Secretariat

32. The Chairperson advised that the EIA Subcommittee could 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 of the right to go to the full Council.

33. The Chairperson proposed and Members agreed to endorse the EIA report with conditions and details of the proposed conditions.

***Ecological impacts***

34. As the project would not lead to significant ecological impacts, a Member was of the view that no conditions or recommendations were required on this aspect. He mentioned that the project proponent would be asked to provide supplementary information due to the concern that the substandard ecological impact assessment might set a bad example for the other projects.

***Minimizing noise impacts***

35. While acknowledging that the project proponent had complied with the requirement of the Technical Memorandum regarding the noise level, a Member suggested and other Members supported to impose a condition to require the project proponent to use low-noise technology and equipment in the demolition of the existing STKSTW and the Shau Tau Kok Sewage Pumping Station (STKSPS) to reduce the impact on nearby noise sensitive receivers.

36. In view that the current proposal had already complied with the requirement of the Technical Memorandum (TM), Mr K F Tang said that EPD would have to further liaise with the project proponent regarding the condition. Nonetheless, he agreed that low-noise technology and equipment was widely used in Government projects and the project proponent had responded positively during the meeting.

*[Post meeting notes: The project proponent reconfirmed that low-noise technology and equipment will be used in the demolition of the existing STKSTW and the Sha Tau Kok Sewage Pumping Station (STKSPS) to reduce the impact on nearby noise sensitive receivers.]*

***Remediation measures for the loss of fishing grounds***

37. A Member opined with the support of the Chairman that as there would be a permanent loss of fishing ground due to the construction of the diffuser, remediation or compensatory measures should be proposed even though the lost area was small. With reference to the general policy for mitigating impacts on important habitats and wildlife as set out in the TM, Mr Simon Chan advised that project proponents were only required to propose compensation measures for the loss of important species and habitats.

38. The Chairperson suggested and Members agreed that the inclusion of a recommendation would be appropriate. The project proponent would be recommended to devise remedial measures to address the fishing grounds and subtidal soft bottom habitats lost to the construction of the diffuser.

***Mitigating landscape and visual impacts***

39. A Member pointed out that while the project proponent had agreed to conduct rooftop and vertical greening as well as planting to achieve a screening effect, the measures had not been fully reflected in the EIA report as well as the photomontages.

40. The Chairperson proposed with the support of Members that a recommendation could be made so as to ensure the project proponent would carry out the landscaping measures as agreed in the meeting. The project proponent should pay attention to visual and landscape impacts especially when viewing from the Starling Inlet, and native tree species should be selected for planting at the project site. A Member added that the selection of tree species should take into account the compatibility with the STKSTW structures and whether a good screening effect could be provided. The height of the buildings should be indicated in the plans and photomontages.

41. Mr K F Tang suggested and the meeting agreed that the project proponent should be required to update the landscape and planting plan for submission to the Director of Environmental Protection (DEP) for approval before commencement of the construction works.

***Re-use of treated effluent***

42. The Chairperson suggested and Members agreed to include a

recommendation to request the project proponent to liaise with relevant departments to examine the feasibility of increasing the re-use of treated effluent by extending its use outside the project site. A Member remarked that there might be technical and financial issues in extending the use of treated effluent outside the STKSTW. Nevertheless, he agreed that the project proponent should actively explore the feasibility of the suggestion.

***Handling of C&D materials***

43. Given the remote location of the STKSTW and foreseeing that there would be a number of developments in the vicinity, a Member opined that the project proponent should re-use the generated C&D materials in-situ or in concurrent projects as far as possible. Another Member opined that the C&D materials could be used for landscaping purposes, such as building screen walls and earth bunds.

44. The Chairperson suggested and Members supported that the project proponent should be recommended to re-use surplus C&D materials generated from the project in-situ as far as practicable.

***Alleviating odour impacts***

45. While there was no data regarding the baseline odour condition, a Member suggested and Members agreed that a recommendation should be included to request the project proponent to minimize the odour impact such that the existing odour condition would not be worsened.

46. The meeting agreed that the project proponent team would not be required to attend the full Council meeting scheduled on 12 December for the report.

*[Post meeting note: The list of proposed conditions and recommendations were circulated to Members for comments on 24 November 2016.]*

**Item 3 : EIA Report on "Port Shelter Sewerage Stage 3 - Sewerage Works at Po Toi O"**
***(ACE-EIA Paper 10/2016)***

47. The Chairperson advised that the meeting would discuss the EIA report on "Port Shelter Sewerage Stage 3 - Sewerage Works at Po Toi O". The EIA report was made available for public inspection from 15 September to 14 October 2016. A total of 4 public comments were received by EPD and the gist of major issues/concerns had been circulated to Members before the meeting.

48. A Member declared that he was the Chairperson of BEAM Society Limited as well as the Director of the Hong Kong Green Building Council (HKGBC). He mentioned that both the BEAM Society Limited and HKGBC had

become non-profit making public bodies in Hong Kong this year. The meeting agreed that the Member could stay on and continue participating in the discussion.

49. A Member, being a member of WWF, advised that WWF had submitted comments to EPD on the EIA report.

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

**Presentation Session (Open Session)**

50. Mr Kwok Ping-keung briefed Members on the background of the project. With the aid of a powerpoint presentation, Ms Betty Choi followed to brief Members on the needs of the project, scope of works, findings of the environmental impact assessment (EIA) and key public concerns raised during the public consultation.

**Question-and-Answer Session (Open Session)**

***Landscape and visual impacts***

51. With reference to the photomontages showing the condition of the project site on day 1 and year 10 with landscape mitigation measures deployed, a Member questioned whether the measures would require 10 years to take effect. Mr Tim Osborne explained that it would take around 1 to 2 years for the compensatory planting to establish. He added that the colour scheme of the building and retaining wall could be reviewed to soften the design and harmonize the structures with the surrounding natural environment.

52. Mr Kwok Ping-keung assured Members that the landscape mitigation measures would be deployed as soon as practicable, and due consideration would be given in the selection of the appropriate trees and plants species with a view of enhancing the screening effect for the sewage treatment plant within a reasonable timeframe.

53. Given that there was a need to provide an emergency vehicle access (EVA) inside the perimeter fence, Mr Tim Osborne advised in reply to a Member's question that the width of the planting strip would be limited to 1.5 metres. The Member opined that the planting strip was not wide enough to provide sufficient screening effect for the sewage treatment plant.

54. While expressing appreciation towards the design of concealing the sewage treatment plant within the cut slope, a Member sought for detailed information concerning the façade treatment of the sewage treatment plant. Mr Tim Osborne said that non-reflective finishes for the building including textured render and recessive colours, i.e. earthy tones that blend in with the natural tones of the surrounding landscape would be adopted. The major portion of the building

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would be screened by the perimeter fence covered by climbers. Mr K S Lee added that vertical greening would be carried out on the building. The Member requested and Dr Chan Hon-fai agreed to provide a photomontage showing the facade treatment of the sewage treatment plant to Members for reference after the meeting. DSD

55. A Member further requested DSD to provide information regarding the white structure in front of the perimeter fence. Mr K S Lee explained that the white structure was an existing refuse collection point (RCP) which was outside the scope of the project. He agreed to liaise with relevant departments to explore if the aesthetics of the RCP could be improved.

56. With the concern of light pollution, a Member asked whether there would be any protective lighting during the night time. Mr Kwok Ping-keung advised that as the sewage treatment plant was unmanned, there would be no lighting at night unless there were operational or maintenance needs.

57. In reply to a Member's question regarding the cut slope for which the PTOSTP would be constructed, Mr Ken Wong advised that a retaining wall would be constructed with recessive colours and vertical greening to harmonize its structure with the surrounding natural environment. For vertical greening, climbers would be planted with irrigation at the base of the wall. The Member pointed out that there was no guarantee for the climbers to provide good visual effects and the result could vary greatly. Responding to another Member's follow-up question, Mr Ken Wong said that sufficient soil and a 1 metre-wide planting strip would be provided for the planting of the climbers. As the facilities of the sewage treatment plant would be accommodated underground, planters would be used for growing the climbers at the retaining wall. Addressing a Member's concern regarding the constant irrigation needs associated with the use of planters, Mr Tim Osborne explained that sustainable planting could be achieved by deploying an automatic drip irrigation system. The Member was of the view that it was undesirable to create a manned/artificial system, and asked whether the climbers could grow on natural means. Mr Osborne responded that the climbers would be naturally irrigated by rainfall flowing to the base of the wall, and the drip irrigation system only served as a supplement in case of dry weather.

58. A Member pointed out that it would be challenging to plant climbers behind a 5-metre tall building which would impose a shading effect on the 1-metre wide planting strip. For the climbers to provide a good screening effect for the retaining wall, he suggested that the project proponent should consider planting climbers from the top rather than from the bottom of the retaining wall. Dr Chan Hon-fai said that two Member's concerns and suggestions would be taken into account during the detailed design stage.

59. In reply to a Member's question concerning the structure of the retaining wall, Mr Ken Wong advised that with drilling ground investigation conducted on the opposite side of the road, it was expected that the retaining wall consisted of

mainly a rock slope and rock anchors would be used to stabilize the wall. If the wall was found to consist largely of soil, a bored pile retaining wall would be constructed instead. Geotechnical investigation would be conducted during the detailed design stage. The Member said that the planting method and species would rely heavily on the structure of the retaining wall. A Member also expressed his concern that the use of rock anchors or a bored pile retaining wall would disturb the harmony between the structure and the surrounding environment. While the structure of the retaining wall could not be ascertained until the detailed design stage, Mr Tim Osborne assured Members that there were many ways to conduct vertical greening or to build green soil pockets with a view to softening the design of the wall. The Member stressed the importance of reserving sufficient space for carrying out planting and greening measures.

***Marine ecological impact***

60. A Member sought information regarding the tidal flows throughout the year and the associated impact on the coral communities and fish culture zone. Dr Chan Hon-fai advised that water would flow in and out of Po Toi O during flood and ebb tides respectively. Taking tidal data at the nearby Joss House Bay provided by the Hong Kong Observatory as reference, the flow rate would be a few centimetres cube per second. He said that with the adoption of the MBR technology, the concentration of various parameters, including *E. coli*, ammonia and total inorganic nitrogen (TIN), of the treated effluent would be similar to that of the baseline water quality, and the concentrations of suspended solids would be within 5 mg/L in both wet and dry seasons. Based on the modelling results, Dr Chan said that the dilution factor of the treated effluent was 1,700 at the coral habitat. He mentioned that the baseline TIN concentration was high due to the contributions by the nearby fish culture zone. Having said that, the project only dealt with the sewage collected and could not help mitigate the baseline conditions.

61. In reply to a Member's enquiry on whether there was any contingency plan for storage of sewage in case of power or equipment failure at the Po Toi O Sewage Treatment Plant (PTOSTP), Mr Ken Wong advised that an emergency storage of 4-hour average dry weather flow (ADWF) would be provided to PTOSTP, and tankers would be deployed for continuous transporting of the sewage away to other sewage treatment plants for treatment to ensure a sufficient buffer for emergency storage. Dr Chan Hoi-fai supplemented that the supervisory control and data acquisition (SCADA) system in the PTOSTP would generate signal to the operation and maintenance personnel for emergency attendance, and dual power and a standby pump and screen were provided at PTOSTP.

62. The Chairperson enquired and Mr Kwok Ping-keung confirmed that no anti-fouling agent would be applied on the diffuser.

63. Addressing a Member's query regarding the methodology for conducting fish surveys, Ms Betty Choi said that intertidal and subtidal transect surveys were

conducted in accordance with the guidelines stipulated under the Environmental Impact Assessment Ordinance (EIAO). Recording the fish counts in marine water by direct sighting from Po Toi O Bay was one of the methods adopted to obtain additional data for marine ecology. The Member pointed out that obtaining fish counts by direct sighting was not one of the standard methods for conducting fish surveys, and as the intertidal surveys were usually conducted in low tide, it would be less probable to obtain fish counts in shallow water conditions. He remarked that the fish recorded in the EIA report included bottom-dwellers like gobies. The Member asked and Ms Choi replied that there were no fish sightings when conducting the coral surveys by diving. The Chairperson followed that it was counterintuitive that no fish were recorded in the dive surveys while 11 species of fish were identified by direct sighting. Ms Choi responded that it was possible for the divers to scare away the fish. She mentioned that clear sightings of fish were possible under good weather, and most fishes recorded in shallow waters near the shore were immature in nature.

64. Addressing the limitations of the direct sighting method, a Member was concerned that the condition near to the diffuser which was at a deeper water region would not be known. Ms Betty Choi explained that dive surveys had covered deeper water areas and no corals were found near to the proposed location for constructing the diffuser. Mr K S Lee supplemented that the diffuser location had been reviewed several times to avoid the coral communities, and the current proposed location was preferred as it could allow better effluent dispersion and there were no corals in the vicinity. Dr Chan Hon-fai further clarified that the fisheries impact assessment was conducted mainly based on the AFCD Port Survey 2006. Obtaining fish counts by direct sighting was a method adopted for acquiring data for ecological impact assessment.

***Fisheries impact***

65. Replying to a Member's question regarding the fisheries impact assessment, Ms Betty Choi said that the assessments were conducted based on baseline data obtained from the AFCD Port Survey 2006. Dr Priscilla Choy supplemented that while AFCD periodically conducted Port Surveys to collect comprehensive information of fisheries production and fishing operation of the local fishing fleets in Hong Kong waters, a more updated Port Survey was not available yet. As the project area was small and the fisheries impact was expected to be insignificant, conducting a fisheries survey for the project was not required under the study brief. Dr Chan Hon-fai remarked that only 5 $m^2$ of benthic habitat would be permanently lost for the installation of the diffuser.

66. In response to the Chairperson's enquiry regarding the fisheries production, Ms Betty Choi advised that according to the AFCD Port Survey 2006, the catch of adult fish in the study area had a relatively low to medium production among Hong Kong waters.

Action

***Terrestrial ecological impact***

67. Replying to a Member's enquiry regarding the impact of the project on the White-bellied Sea Eagle (the Eagle), Ms Betty Choi advised that according to literature review, the forage area of the Eagle covered several hundred square kilometres. While the project area might fall within the forage area, the cofferdam and barge involved for the construction works would occupy only around 1,000 $m^2$ of sea area, and was expected to have an insignificant impact on the foraging activities of the Eagle. Regarding the Member's question on the time required for the construction of the submarine outfall affecting sea area, Mr Ken Wong said that it would take at most 6 months. With reference to the Member's remark that the construction should avoid the breeding season of the Eagle, Mr Wong assured Members that this would be taken into consideration during the detailed design stage.

68. In response to the Chairperson's enquiry on whether the removal of the climber *Gnetum luofuense* could be avoided during construction of the PTOSTP, Ms Betty Choi said that further adjustments to the layout plan during the detailed design stage would be explored to avoid removal of the climber which was located at the site boundary.

***Issues relating to environmental sustainability***

69. In reply to a Member's question concerning the measures adopted to enhance environmental sustainability, Mr Kwok Ping-keung advised that according to DSD's current adopted practice, principles of BEAM Plus (New Building) at the "Gold" or above ratings would be adopted for the design of buildings.

70. As regards the Chairperson's enquiry on whether the treated effluent would be re-used, Mr Kwok Ping-keung said that while the treatment capacity of the PTOSTP was small, the re-use of treated effluent could be explored for uses within the plant such as the automatic drip irrigation system.

71. 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**

72. The Chairperson advised that the EIA Subcommittee might 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 of the right to go to the full Council.

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

***Fisheries impact assessment***

74. A Member expressed his concern that allowing the conducting of fish survey by direct sighting would set a precedent for other projects. Mr K F Tang clarified that the study brief did not require the project proponent to conduct a survey on fisheries if no data gap was identified based on their review of existing information on fisheries. Mr Simon Chan supplemented that literature review had been conducted to fulfil the requirement of the fisheries impact assessment. He pointed out that obtaining fish counts by direct sighting might serve to provide additional information for the marine ecological impact assessment in this project.

75. While dive surveys had been conducted, the Chairperson pointed out that it was unusual that no fish were recorded near to the proposed location of the diffuser. Mr K F Tang suggested that the project proponent could be requested to conduct a baseline fisheries survey to reaffirm that there would be no unacceptable impact on fisheries resources at planned location of the outfall diffuser before the construction of the submarine outfall. Considering that the diffuser would only occupy a very small area of the seabed during the operational phase, Mr Simon Chan asked Members to consider whether there was a need to conduct a baseline fisheries survey. He further pointed out that as there were no corals in the vicinity of the planned location of the outfall diffuser, it might not be unusual that no fish were recorded in the dive surveys. The Chairperson said that Members had hesitation in accepting the dive survey results given that no fish were recorded even at areas with corals.

76. Due to the lack of information on the fisheries impact, the Chairperson proposed and Members supported that a condition should be included to require the project proponent to conduct a baseline fisheries survey to reaffirm that there would be no unacceptable impact on fisheries resources in the vicinity of the planned location of the outfall diffuser before the construction of the submarine outfall. Details of the baseline fisheries survey shall be submitted to DEP for approval before the commencement of the survey.

***Protection of the White-bellied Sea Eagle***

77. In reply to the Chairperson's enquiry regarding the need for the

construction of the submarine outfall to avoid the breeding season of the Eagle, Mr Louis Chan said that the construction area occupied less than 1% of its foraging habitat. Members agreed that no conditions or recommendations were required in this aspect.

***Mitigating the landscape and visual impact***

78. Given that the proposed works would stretch for 50 metres along the Po Toi O Bay, a Member was concerned about the visual impacts especially when viewing from Po Toi O. He stressed that it was important to devise a suitable design such that the retaining wall could harmonize with the surrounding natural environment, and suggested that the project proponent could make reference to the Hong Kong Planning Standards and Guidelines (HKPSG). He further suggested that the project proponent should come up with measures to ensure the sustainable growth of climbing plants in respect of the species, planting area, soil depth and irrigation method.

79. A Member followed that the project proponent should ascertain the structure of the retaining wall and to devise the planting and greening measures accordingly. A detailed plan should be submitted to the DEP for approval before commencement of the planting and greening works. Another Member suggested that a condition should be imposed instead of a recommendation so as to strengthen EPD's role in monitoring the execution of the requirements. Mr K F Tang agreed and said that EPD would follow up to consult the Planning Department on the condition.

***Adoption of BEAM Plus principles***

80. A Member said that BEAM Plus assessment tool was usually used for normal buildings and was less applicable to sewage treatment plants. With the understanding that all Government buildings were required to achieve "Gold" or above ratings under BEAM Plus, he suggested that the use of BEAM Plus Bespoke could be considered, which allowed projects of special building types to apply for BEAM Plus assessment and achieve ratings under the respective assessment tools. This could help provide applicable assessment tools for all DSD sewage treatment plants and allow them to achieve "Gold" or above rating in future.

81. The Chairperson recalled that the project proponent intended to use the principles of BEAM Plus without obtaining the certifications. A Member advised that as the BEAM Plus assessment tools consisted of many building-specific standards rather than principles, BEAM Plus Bespoke was made available for special building types.

82. Mr K F Tang said that as the application of the BEAM Plus Bespoke would have implications to all future municipal sewage treatment plant to be developed and managed by DSD, the EIASC might wish to consult the full Council

if ACE could recommend DSD to devise a set of internal guidelines and standards for all sewage treatment plants to achieve the BEAM Plus "Gold" or above rating.

83. While the Chairperson and Members agreed to the suggestion of Mr K F Tang, a Member proposed to work along both lines by including a recommendation regarding the achieving of BEAM Plus rating. The Chairperson suggested with the support of Members that the project proponent would be recommended by achieving "Gold or above" rating under BEAM Plus (New Buildings) in the project design to ensure the sustainability of the development.

84. The meeting agreed that the project proponent team would not be required to attend the full Council meeting scheduled on 12 December for the report.

*[Post meeting note: The list of proposed conditions and recommendations were circulated to Members for comments on 24 November 2016.]*

**Item 4 : Any other business**

85. A Member raised that stricter requirements should be set regarding the conducting of field surveys under EIA so as to ensure the quality of the surveys. Another Member pointed out that the surveys were able to satisfy the requirements stipulated in the Technical Memorandum while Members often found the quality of the surveys to be unsatisfactory. He suggested that the Technical Memorandum should be reviewed, especially on the part relating to the conducting of the ecological survey. He further mentioned that the background and qualifications of personnel for conducting the EIA were diversified, and suggested that the required qualifications of the personnel should be specified in the Technical Memorandum.

86. As discussed in the previous EIASC meeting, the Chairperson recalled that Members had suggested and agreed that there was a need to review the requirements and guidelines set out in the Technical Memorandum in the long term.

87. Mr K F Tang pointed out that the requirements set out in the Technical Memorandum were based on standards such as the WQOs and the Air Quality Objectives (AQOs). The general approach and methodology of conducting EIA was in fact set out in the guidance notes and he agreed that the guidance notes could be reviewed to see if there was a need for revising, tightening or clarifying the requirements. As regards the qualifications of personnel for conducting the EIA, Mr Tang said that the concerned requirements could be specified in the study briefs or the guidance notes. Mr Simon Chan agreed and said that more details could be provided in the guidance notes. While acknowledging that there was an issue in relation to the diversified qualifications of personnel for conducting the EIA, he said that the survey methodology and results would be counterchecked by using the data and expertise of AFCD.

Action

88. Mr K F Tang agreed to provide the existing guidance notes to Members for reference and suggested that a separate session could be held for Members to go through the guidance notes.

89. Addressing a Member's observation that faulty information in the EIA report would be kept permanently on the EIA register, Mr K F Tang said that EPD would require the project proponent to provide amendments to the EIA report through the submission of further information, provided that the amendments would not affect the validity of the assessment and overall results and conclusions of the report. The Member asked whether a rectified EIA report could be published after the DEP approved the report so as to avoid misleading and creating a negative impression on the public. Mr Tang agreed and mentioned that EPD might approve the EIA report based on the submitted further information and the EIA report, which would be placed on the EIAO Register and the EIAO website. He said that EPD would investigate the feasibility and legal implication of making amendments to the EIA report after it was published on the EIAO website for public inspection.

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

**Item 5 : Date of next meeting**

91. The Chairperson advised Members that the next Subcommittee meeting was scheduled in January / February 2017 for the discussion of the EIA reports on "Outlying Islands Sewerage Stage 2 - Upgrading of Tai O Sewage Collection, Treatment and Disposal Facilities" and "Outlying Islands Sewerage Stage 2, South Lantau Sewerage Works". Members would be advised on the agenda in due course.

**EIA Subcommittee Secretariat**
**January 2017**