

15 Conclusions

15.1 Introduction

15.1.1 This Environmental Impact Assessment (EIA) Report presents an assessment of the potential environmental impacts associated with the construction and operation of the Project.

15.1.2 The EIA has been conducted in accordance with the requirements of the Technical Memorandum of EIA Process (EIAO-TM) and the EIA Study Brief (No. ESB-321/2019) for the Project issued under the EIA Ordinance (EIAO), covering the following environmental aspects:

- Air Quality Impact
- Water Quality Impact
- Ecological Impact
- Fisheries Impact
- Landscape and Visual Impact
- Hazard to Life Impact
- Landfill Gas Hazard
- Waste Management Implications
- Land Contamination
- Noise Impact

15.1.3 The key assessment assumptions and limitations of methodologies of this EIA are presented in **Appendix 15.1**. A summary of environmental impacts assessed under the EIA is given in **Appendix 15.2**. The EIA conclusions are presented in the sections below.

15.2 Air Quality Impact

Construction Phase

15.2.1 The key air quality concern arising from the construction phase of the Project would be the dust emissions from construction activities, which have been quantitatively assessed in the EIA. With implementation of mitigation measures recommended in the EIA, no unacceptable impact on Air Sensitive Receivers (ASRs) during the construction phase is predicted. Notwithstanding the above, dust monitoring and regular site inspections should be carried out during the construction phase in order to confirm that the recommended mitigation and control measures are properly implemented and are working effectively.

Operational Phase

15.2.2 Potential odour impacts from the operation of the Project have been quantitatively assessed. With proper implementation of the proposed plant design, provision of adequate ventilation and appropriate deodorization systems, the predicted odour concentrations at all representative ASRs would comply with the odour criterion stipulated in the EIAO-TM.

15.2.3 Potential air quality impacts due to gaseous emissions from the combined heat and power generators in the Project site have been quantitatively assessed. Based on the proposed plant design, full air quality compliances are predicted at all representative ASRs.

- 15.2.4 No unacceptable air quality impact arising from the operational phase of the Project is anticipated. Commissioning test is recommended to be conducted prior to operation of the combined heat and power generators and the deodorization systems of the Project to ascertain the air quality impacts. Odour patrol is also proposed during the period of maintenance of the deodorization system for the upgraded TPSTW.

15.3 Water Quality Impact

Construction Phase

- 15.3.1 Only land-based construction works will be carried out under the Project. Water quality impacts may result from the general construction activities, construction site run-off, sewage from construction workforce, accidental chemical spillage, polluted runoff and wastewater from contaminated materials and demolition works. The impacts could be mitigated and controlled by implementing the recommended mitigation measures. No unacceptable water quality impacts is expected. Regular site inspections should be undertaken routinely to inspect the construction activities and works area to ensure the recommended mitigation measures are properly implemented.

Operational Phase

Project Effluent Discharge

- 15.3.2 Potential water quality impacts due to the Project effluent discharge have been quantitatively assessed by mathematical modelling.
- 15.3.3 Following the existing practice, the treated effluent from the Project will be discharged to the Victoria Harbour through the Tolo Harbour Effluent Export Scheme (THEES) under normal operation. The treated effluent would be discharged into the Kai Tak Approach Channel and Kwun Tong Typhoon Shelter and eventually into the open channel of Victoria Harbour. The model results showed that there would be no unacceptable water quality impacts arising from the Project at all representative Water Sensitive Receivers (WSRs) identified in the assessment area. No adverse water quality impact upon Victoria Harbour would arise from this Project.
- 15.3.4 Maintenance of the THEES is required to ensure proper functioning and integrity of the system. During the inspection or maintenance of the THEES tunnel, temporary suspension of the normal THEES operation with effluent bypass into the Tolo Harbour is unavoidable to provide a safe and dry zone within the tunnel. The model results indicated that the pollution level in certain WSRs in Tolo Harbour would be temporarily increased during the THEES maintenance period, but the pollution elevation associated with the maintenance discharge would be reversible. The THEES maintenance discharge would be scheduled outside the algae blooming season (December to April/May) to minimize the risk of red tide occurrence. The scheduling of the maintenance discharge would also take into account any ongoing blooming event in the area, which may occur outside the blooming season. An event and action plan and a marine water quality monitoring programme (as presented in the standalone EM&A Manual) are also proposed for the THEES maintenance event to minimize the water quality impact.
- 15.3.5 Emergency discharge from the Project would be the consequence of pump failure, interruption of the electrical power supply or failure of treatment units. Mitigation measures, including dual power supply or ring main supply from CLP, standby pumps, treatment units and equipment, would be provided to avoid the occurrence of any emergency discharge. In case of emergency situation, the procedures and follow up actions stipulated in the existing contingency plan formulated by DSD shall be implemented to minimize the impact of emergency discharge and facilitate subsequent management of the emergency situation. An event and action plan and a

marine water quality monitoring programme (as presented in the standalone EM&A Manual) are also proposed for the emergency discharge event to minimize the water quality impacts.

Others

- 15.3.6 Potential water quality impacts may also arise from the handling and transportation of pre-treated food waste, wastewater generated from the sludge / pre-treated food waste related processes, non-point source surface runoff from paved areas and accidental chemical spillage during the operational phase. The potential water quality impacts can be prevented by implementation of the recommended mitigation measures. No unacceptable water quality impacts is expected.

15.4 Ecological Impact

Terrestrial Ecology

- 15.4.1 Literature review and ecological surveys covering August 2020 to January 2021 have been conducted. A total of six habitat types, including developed area, plantation, grassland, sea, artificial seawall and semi-natural watercourse, were recorded in the 500m assessment area, with developed area being the only habitat recorded within the Project site. The ecological value of developed area within the Project site is Low to Moderate, with 12 bird species of conservation importance recorded. Within the 500m assessment area, the ecological values of the plantation and grassland within the Shuen Wan Restored Landfill (SWRL) are evaluated as Moderate whereas the ecological value of the artificial seawall is evaluated as Low to Moderate. The other plantations and the semi-natural watercourse are considered of Low ecological value. Developed area outside the Project site, including the Tai Po Industrial Estate (TPIE), is evaluated as having Very Low ecological value.
- 15.4.2 The Project site and the SWRL supported a significant number of Collared Crows in Hong Kong. Pre-roosting and roosting sites were identified within the SWRL but the locations are likely to change irregularly as observed across the survey period. No direct impact to roosting/pre-roosting sites of Collared Crows is expected. The Project works will cause a temporary loss of foraging habitat. It is expected that birds foraging in the TPSTW will become quickly habituated to the upgraded facilities of the Project. For the duration of demolition/construction, the eastern portion of the TPSTW and other surrounding areas will be available as foraging/loafing habitats to all bird species currently utilizing this highly disturbed habitat. The ecological impact of this temporary habitat loss (developed area) is anticipated to be Minor.
- 15.4.3 No potential direct impact on natural habitats within the assessment area is identified as the assessment area consists largely of man-made habitats.
- 15.4.4 An occasional ardeid night roost was identified within the TPSTW. During the survey period, ardeids were only recorded three times roosting at the southwestern tree group to the immediately north of the proposed expansion site. The tree group will be compensated by transplanting or replanting of suitable trees, to provide a potential roosting habitat within the upgraded TPSTW in long term. Felling/removal/transplantation of the concerned tree group as well as noisy construction works within 100m from the existing / transplanted / compensated tree group shall be ceased at least 1 hour before the sunset to avoid disturbance to the night roosting activities. No residual impact is expected in term of loss of ardeid roosting habitat.
- 15.4.5 With implementation of recommended mitigation measures (e.g. use of quieter piling method, adoption of good site practices, deployment of temporary noise barriers, careful phasing of construction activities, use of quality powered mechanical equipment and clear delineation of

construction works boundary, etc.), no unacceptable disturbance impacts would be expected.

- 15.4.6 Ecological monitoring should be conducted during construction phase to monitor the effectiveness of proposed mitigation measures and detect any unpredicted indirect ecological impacts arising from the proposed Project. Regular site inspections should be undertaken routinely to inspect the construction activities and works area to ensure the recommended mitigation measures are properly implemented. Ecological monitoring should also be conducted during operational phase to monitor any changes in foraging habitats caused by the proposed Project.

Marine Ecology

- 15.4.7 There would be no direct disturbance to seabed or riverbed sediments under the Project. No loss of marine habitat will be resulted from this Project. Indirect marine ecological impact may arise from water quality changes under the THEES maintenance event and emergency situation (see Section 15.3). The water quality changes are however predicted to be short-term and reversible. The frequency of such occurrence would be remote. Mitigation measures and monitoring programme recommended under the water quality impact assessment would also serve to protect the marine ecology. No unacceptable marine ecological impacts are predicted for the Project.

15.5 Fisheries Impact

- 15.5.1 A study on commercial fisheries resources and fishing operations within the waters of the assessment areas of the Project. Sites of fisheries importance have been identified.
- 15.5.2 The Project will only involve land-based construction works in TPIE. There will be no disturbance to marine bed or riverbed sediments. No loss of fishing ground would arise.
- 15.5.3 Indirect fisheries impacts due to water quality changes under the THEES maintenance event and emergency situation (see Section 15.3) are predicted to be short term and reversible. The frequency of such occurrence would be remote. Mitigation measures and monitoring programme recommended under water quality impact assessment would also serve to protect the fisheries. In particular, the THEES maintenance discharge would be scheduled outside the algae blooming season (December to April/May) to minimize the risk of red tide occurrence. The scheduling of the maintenance discharge would also take into account any ongoing blooming event in the area, which may occur outside the blooming season. No unacceptable fisheries impacts are predicted for the Project.

15.6 Landscape and Visual Impact

- 15.6.1 During construction phase, potential landscape impacts would arise from removal of existing trees and construction activities including demolition of existing structures, excavation works, construction of new buildings/facilities. With the implementation of mitigation measures including preservation of existing trees, transplanting of affected trees, compensatory tree planting, erection of decorative screen hoarding and good construction site management and practices, no unacceptable landscape and visual impacts from construction of the Project would be anticipated.
- 15.6.2 During operational phase, responsive building design will be taken into account in the design of the Project, such as aesthetically pleasing design for the new buildings / structures so as to blend in the buildings and structures to the adjacent landscape and visual context. Landscaping works, including tree planting along the site boundary, infill planting of trees, vertical greening and green roof would be undertaken to enhance the general outlook of the proposed Project. No unacceptable landscape and visual impact would be anticipated with mitigation.

15.7 Hazard to Life Impact

- 15.7.1 Quantitative Risk Assessment (QRA) has been carried out to assess the potential hazard to life impact due to the implementation of biogas related facilities within the Project site and due to neighbouring hazardous facilities including the Tai Po Gas Production Plant, the liquified petroleum gas storage facility at Apex Print Limited and Zama Industries Limited, and the dangerous goods storage at Linde HKO Limited.
- 15.7.2 Overall, the QRA has confirmed that the construction and operation of the proposed Project would not cause any significant increase to the existing risk levels of TPSTW and neighbouring hazardous facilities. Risk mitigation measures have been recommended to further reduce the risk.

15.8 Landfill Gas Hazard

- 15.8.1 Qualitative risk assessment has been conducted for the Project to evaluate the landfill gas hazard posed by the Shuen Wan Restored Landfill. Based on the assessment results, the overall landfill gas hazard of the proposed Project would be Low to Medium for both construction and operational phase. Safety measures and landfill gas monitoring are recommended during the construction phase. Building protection design and safety measures for entry to confined spaces are recommended for the Project operation. With proper implementation of the recommended precautionary and protection measures, the safety of all personnel presence at the Project site would be safeguarded during the construction and operational phases. Thus, there would be no unacceptable landfill gas hazard arising from the Project.

15.9 Waste Management Implications

- 15.9.1 Wastes generated by the Project construction activities would include Construction and Demolition (C&D) materials, excavated sediments, general refuse and chemical waste. Inert C&D materials generated from the Project would be reused on-site as far as possible and the surplus inert C&D materials would be disposed of at designated public fill reception facility. Non-inert C&D materials would be recycled as far as possible and the surplus non-inert C&D materials would be disposed of at designated landfill. Excavated sediments generated during construction phase would be managed and disposed of in accordance with the requirements of ETWB TC(W) No. 34/2002 "Management of Dredged / Excavated Sediment". Chemical waste would be collected by licensed chemical waste collector for disposal at licensed treatment facilities. General refuse would be collected by waste collector for disposal of at waste transfer/disposal facilities and then to landfill.
- 15.9.2 During operational phase, screenings and grits would be generated at the inlet works while dewatered sludge would be generated from sewage treatment and co-digestion. The collected screenings and grits would be disposed of at landfill by waste collector while the dewatered sludge/digestate would be disposed of at T· Park in Tuen Mun.
- 15.9.3 With the implementation of the recommended waste management measures and good site practices, no unacceptable waste management implications are anticipated. Regular site inspections are recommended during construction phase to ensure the measures are implemented properly.

15.10 Land Contamination

- 15.10.1 Site appraisal including site walkovers was carried out under this EIA. Based on the site appraisal results, there are areas within the proposed construction site with potential contamination concerns as documented in the Contamination Assessment Plan (CAP) prepared

under this EIA. The potential contaminative areas identified in the CAP were in operation at the time of conducting this EIA. Site Investigation (SI) at these areas was not possible at the EIA stage. After decommissioning of the relevant existing facilities and before the commencement of the construction work at these areas, site re-appraisal and preparation of a supplementary CAP covering the whole construction works area of the Project should be undertaken for EPD endorsement. Land contamination SI should be conducted in accordance with the endorsed supplementary CAP. A Contamination Assessment Report (CAR) shall be prepared to summarize the results of the SI and confirm the extent of land contamination. If land contamination is identified, Remediation Action Plan(s) (RAP(s)) shall be prepared to provide details of the proposed remediation methods. Remediation action, if necessary, should be carried out according to EPD endorsed RAP(s) and Remediation Report(s) (RR(s)) should be submitted after completion of the remediation action. The RR(s) should be endorsed by EPD prior to the commencement of construction works at the respective identified contaminated areas (if any).

15.10.2 With the implementation of the recommended further works for the Project, any soil/groundwater contamination would be identified and properly treated prior to the construction works. No insurmountable land contamination impacts to the Project are therefore anticipated.

15.11 Noise Impact

15.11.1 No existing, committed or planned noise sensitive receiver is identified within the noise impact assessment area of this Project. Good site practices have been recommended in this EIA to minimize the construction noise impact to the surroundings. During operational phase, the noise emitting plants (pumps, air blowers, etc.) would be enclosed within building structures. No unacceptable noise impact would be generated from the construction and operation of the Project.