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Appendices

Appendix 15.1 Key Assessment Assumptions and Limitation of Assessment Methodologies

Appendix 15.2 Summary of Environmental Impacts Associated with the Project

15 Conclusion

15.1 General

15.1.1.1 This Environmental Impact Assessment (EIA) Report has been prepared for Tung Chung Line Extension (the Project) in accordance with the requirements given in the EIA Study Brief (SB) (No.: ESB-329/2020) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). Environmental assessment of the potential environmental impacts associated with the construction and operation of the Project has been conducted. Environmental issues covered in this EIA include:

- Air quality impact;
- Noise impact;
- Water quality impact;
- Waste management implications;
- Land contamination;
- Ecological impact (Terrestrial and Marine);
- Fisheries impact;
- Landscape and visual impact;
- Impact on cultural heritage; and
- Hazard to Life.

15.1.1.2 This section summarises the assessment results of each technical aspect and concludes the acceptability of the overall environmental performance of the Project.

15.1.1.3 The key assessment assumptions, limitation of assessment methodologies and all related approach on assessment of different environmental aspects requiring agreements with Environmental Protection Department (EPD) are given in **Appendix 15.1**.

15.1.1.4 A summary of environmental impacts identified in this EIA is provided in **Appendix 15.2** and the conclusions of each technical aspect are described in the following sections.

15.2 Air Quality

15.2.1 Construction Phase

15.2.1.1 The air quality assessment studies the potential air quality impacts on Air Sensitive Receivers (ASRs) due to the construction of the Project.

15.2.1.2 Potential construction dust impact would be generated from site clearance, soil excavation, backfilling, etc. during the construction phase of the Project. Quantitative construction dust impact assessment has been conducted which has taken into account the cumulative impacts from major dust sources and the concurrent construction projects in the vicinity. With the implementation of the mitigation measures such as regular watering, implementation of vehicle washing facilities at the construction site exits, vehicle washing at the exit of the barging facility with the provision of vehicle washing facilities, blasting in a fully enclosed environment, provision of 3-side screen with top cover and good site practices, no adverse residual air quality impact during the construction phase is anticipated. In addition, the potential drill-and-blast activities at Emergency Access Point/ Emergency Egress Point (EAP/ EEP) and Tung Chung West (TCW) Station should be conducted in an enclosed environment. Hence, adverse dust impacts due to blasting are not anticipated.

15.2.2 Operational Phase

15.2.2.1 No adverse air quality impact during operational phase would be anticipated.

15.3 Noise

15.3.1.1 The noise assessment studies the potential noise impacts on Noise Sensitive Receivers (NSRs) due to the construction and operation of the Project.

15.3.2 Airborne Construction Noise

15.3.2.1 Airborne construction noise associated with the construction activities has been conducted. With the implementation of mitigation measures including good site practices, quieter plant, silencer, movable noise barrier, noise enclosure / barrier (e.g. noise enclosure for the mucking out location at the TBM launching shaft / retrieval shaft near Tung Chung Crescent, 3-side temporary movable enclosure during the construction of diaphragm wall near Yat Tung Estate, installation of noise barrier along the site boundary at Ma Wan Chung, screen cover for the mucking out location at the EAP/EEP near Shun Tung Road), construction noise impacts at all the NSRs would be controlled to acceptable levels. In addition, adverse noise impacts of drill-&-blast during the construction of EAP / EEP and TCW Station is not anticipated due to the short and infrequent operation time.

15.3.3 Groundborne Construction Noise

15.3.3.1 Groundborne construction noise impact arising from the construction of tunnel alignment between TCW Station and Tung Chung Station (TUC) has been investigated. Results indicate that adverse groundborne construction noise impacts are not anticipated.

15.3.4 Airborne Rail Noise

15.3.4.1 Airborne rail noise impact has been investigated. Assessment results indicate that, with the implementation of mitigation measures including noise barrier and speed reduction during both construction and operational phases, adverse airborne noise impacts are not anticipated.

15.3.5 Groundborne Rail Noise

15.3.5.1 Groundborne rail noise impact arising from the underground rail operation has been examined. Assessment results indicate that adverse noise impacts to the nearby NSRs such as Ma Wan Chung Village and Yat Tung Estate are not anticipated.

15.3.6 Fixed Noise Sources Impact

15.3.6.1 Fixed noise impacts of the planned ventilation louvres of EAP / EEP, TUC, Tung Chung East (TCE) and TCW Stations of the Project have been assessed. Maximum allowable Sound Power Levels (SWL) of each planned fixed noise source have been predicted and other fixed noise sources in the vicinity have been included in the assessment. With the implementation of noise control treatment (e.g. the proper selection of plant and adoption of acoustic treatment), adverse noise impacts are not anticipated.

15.4 Water Quality

15.4.1 Construction Phase

15.4.1.1 As no dredging works for the Project is required under the latest construction method, the potential sources of water quality impact during the construction phase are mainly from operation of barging point and land-based construction activities including construction runoff, sewage from the workforce, and accidental spillage. With the mitigation measures such as Best Management Practices (BMPs), and enhancement measures including provision of barrier such as sheet piles or hoarding with concrete footing along the western boundary of the construction site/works areas for TCW Station for preventing uncontrolled discharge of untreated construction site runoff to the nearby Tung Chung Bay, adverse impacts are not anticipated during construction phase.

15.4.2 Operational Phase

15.4.2.1 The potential water quality impacts are mainly the stormwater runoff, discharge from the cooling system, and sewage generated from the station operation. With the mitigation measures in place, such as silt trap, standard oil/ grit interceptors/ chambers and the practices outlined in ProPECC PN 5/93, adverse water quality impacts are not anticipated during operation phase.

15.5 Waste Management

15.5.1 Construction Phase

15.5.1.1 Potential waste management implications from the generation of waste during the construction phase have been evaluated. Strategic mitigation measures, including the opportunity for on-site sorting, reusing Construction and Demolition (C&D) materials, etc., are devised to minimise the surplus materials to be disposed. Recommendations such as designated land-based transportation routes for different types of wastes before and after the commencement of barging facility have been made for implementation by the Contractor during the construction period to minimize waste generation and off-site disposal. With the proper implementation of the recommended migration measures, adverse environmental impacts from waste management during construction phase are not anticipated.

15.5.2 Operational Phase

15.5.2.1 Potential waste management implications from the generation of waste during the operational phase have been evaluated. The types of waste that would be generated would be municipal solid waste within the stations, and chemical waste. With the implementation of recommended mitigation measures for the handling, transportation and disposal of the identified waste, adverse environmental impacts from waste management during operational phase are not anticipated.

15.6 Land Contamination

15.6.1.1 Potential contaminative land uses within the assessment area and their potential impacts to future use have been examined. No potentially contaminated areas are identified within the assessment area based on the desktop review, site surveys and identification of potentially contaminated area. Land contamination of the underground work area has been excluded from the assessment area since tunnelling work would be conducted underneath the soil layer at TCW area. Land contamination issues are not anticipated and environmental Site Investigation (SI) works are not recommended.

15.6.1.2 Since major construction works for the Project are anticipated to commence in 2023, site re-appraisal would be recommended by the Project Proponent to assess the latest site situation prior to the commencement of the construction. The

objective of re-appraisal is to ensure any new changes in land use activities that might cause land contamination issue after the agreement of the Land Contamination Review (LCR) but before commencement of the construction could be addressed.

15.6.1.3 If environmental SI is deemed necessary upon site re-appraisal, a Contamination Assessment Plan (CAP) will be prepared. A Contamination Assessment Report (CAR) will be prepared following SI activities, if required. If contamination is identified in the CAR, a Remediation Action Plan (RAP) will be developed to deal with these areas prior to the construction works for the Project. A Remediation Report (RR) would be prepared to demonstrate adequate clean-up and submitted to EPD for endorsement prior to the commencement of development works within the Project Area.

15.7 Ecology

15.7.1.1 The ecological baseline was established by literature review and ecological survey covering the wet season of 2020 and 2021 including terrestrial ecological survey and supplementary marine ecological survey. As there would be no marine works for the Project, direct marine ecological impact is not anticipated. A total of 14 habitat types, including coastal waters, were identified within the Assessment Area. The TCE section is located on existing developed area and reclaimed land with limited ecological value. The ecological sensitive habitats and species around the TCW section have been avoided by the proposed underground tunnel and careful site selection for above ground works. Indirect ecological impacts including noise, vibration, dust and potential water quality deterioration would be either insignificant or would be mitigated by appropriate mitigation measures together with environmental monitoring and audit. No significant ecological impact would be arisen from the Project.

15.8 Fisheries

15.8.1.1 No marine works nor marine dredging would be required in the Project. The TCL realignment works at TCE would also be land-based. No direct impact on fisheries is anticipated. Potential fisheries impact would be indirect water quality impact which would be controlled by construction site best practices. Adverse fisheries impacts are not anticipated in both construction and operational phase.

15.9 Landscape and Visual

15.9.1.1 The Landscape Resources (LRs) and Landscape Character Areas (LCAs) as well as the Visually Sensitive Receivers (VSRs) within the Visual Envelop (VE) of the Project, were identified and assessed.

15.9.1.2 The Project may cause adverse impacts on some of the LRs and LCAs. With the implementation of mitigation measures during construction phase and operational phase, most of the residual landscape impacts on the concerning LRs such as planation, major transport corridor etc. and LCAs such as coastal upland and hillside landscape, transportation corridor landscape etc. are anticipated to be insignificant to slight by operation year 10. For other LRs such as secondary woodland, shrubland & grassland, mangrove etc. and LCAs such as inshore water landscape, strait landscape, inter-tidal coast landscape etc., no landscape impacts are anticipated without mitigation measures so that mitigation measures would not be necessary for these LRs and LCAs.

15.9.1.3 The visual impacts on VSRs are anticipated to be in the range of insignificant to moderate/substantial and insignificant to moderate without the provision of mitigation measures during construction phase and operational phase respectively. However, with the implementation of mitigation measures, the likely residual visual impacts and possibility would be insignificant to slight by operation day 1 and operation year 10 when the mitigation measures have matured and taken effect. Hence, the visual impacts are considered acceptable with mitigation measures.

15.10 Cultural Heritage

15.10.1.1 The sites of archaeological interest and an archaeological potential area are identified within or near the Project. No major archaeological impacts are expected within the whole project area during the construction and operational phases. At the extreme north end of the TCW Station area and above and adjacent to the tunnel alignment is an area of unexplored archaeological interest, in particular for in situ kiln structures and further archaeological survey including field scan, six auger tests and two test pit excavations are recommended to be conducted by a qualified archaeologist who obtains a licence under the Antiquities and Monuments Ordinance (Cap. 53) to verify presence of any archaeological remains. Locations and scope should be agreed with AMO prior to implementation. The exact locations of the auger tests and test pits would be subject to site circumstances and constraints. Subject to the findings of the further archaeological testing, options for mitigation measures such as in-situ preservation, relocation and preservation by record etc would be fully investigated and agreed with AMO.

15.10.1.2 AMO should be informed immediately in case of discovery of antiquities or supposed antiquities in the course of the project works in accordance with the Antiquities and Monuments Ordinance (Cap. 53), so that appropriate mitigation measures, if needed, can be timely formulated and implemented in agreement with AMO.

15.10.1.3 The graded historic building, Hau Wong Temple (Tung Chung) (Grade 2), Tin Hau Temple (Tung Chung) (Grade 2), the Fu Tei Wan Kiln (relocated to Tung Chung) Site of Archaeological Interest and declared monuments, Tung Chung Fort and

Tung Chung Battery as well as not-graded heritage items and other historic buildings are located within the assessment area and will not be affected by the Project.

15.11 Hazard to life

- 15.11.1.1** Drill-and-blast works may be required for the construction of the EAP/EEP and TCW Station. According to the latest design, overnight storage of explosives on site is not required. Therefore, quantitative risk assessment is not required.
- 15.11.1.2** Since the transport of explosives shall be carried out by Mines Division of Civil Engineering and Development Department (CEDD), potential risk relating transport of explosives is not anticipated. In addition, with the implementation of proposed mitigation measures, potential risk arising from the use of explosives for the construction of EAP/ EEP and TCW Station is not anticipated.
- 15.11.1.3** The Project does not fall into consultation zone of any Potentially Hazardous Installations (PHIs). Besides, the operation of the Project does not involve any use of explosives, hence, potential risk during operational phase is not envisaged.