Key Assessment Assumptions and Limitation of Assessment Methodologies

Assessment Methodologies	Assessment Assumptions	Limitations of Assessment Methodologies / Assumptions	Prior Agreements with EPD / Other Authorities		Proposed Alternative Assessment Tools/ Assumptions (if applicable)
			EIA Study Brief Clause Reference	Relevant Document	
Air Quality Impact					
Construction Phase					
The air quality impact assessment for the Project follows Annex 4 and Annex 12 of the EIAO-TM. Dust emission will be the major air pollutant. Qualitative assessment was conducted to review the potential dust impacts. Good site practices and dust control measures were proposed.	Assumptions made in the assessment are based on the latest design.	The construction programme is tentative and subject to contractor's design and site circumstances.	Section 3.4.4, and Sections 3, 5 and 6 of Appendix B	-	-
Operational Phase					
The air quality impact assessment for the Project follows Annex 4 and Annex 12 of the EIAO-TM. Vehicular emission impact was due to moving vehicles along the Project, other concurrent road projects (e.g. TMB, TYLL, Road P1, HKIW-NEL Link Road, etc.) and other connecting roads; and vehicles from PTI and HGV carpark.	**Emission from Open Road Traffic** • Traffic flow and vehicle compositions in 24-hour profile reported in the Traffic Impact Assessment endorsed by Transport Department was adopted. • Vehicular emissions from open road was based on modelling results of EMFAC-HK v4.3 and the air quality impact was predicted using CALINE4 model. • Start emissions from parking sites have been assessed on open roads based on the estimated trips from default trip and default VKT of the whole territory of Hong Kong in the EMFAC-HK model, in accordance with EPD's guideline "Calculation of Start Emissions in Air Quality Impact Assessment". **Emission from Tunnel Portals and Ventilation Buildings** • The split ratio of vehicular exhaust between portal to ventilation building is referred to the latest engineering design. **Emission from Public Transport Interchange and Major Heavy Good Vehicle and Coach Parking** • Trip data and assumption on sitting time at the parking sites are derived based on traffic survey and provided by the Project Traffic Consultant. • Cold idling emission factors have been made reference to EPD's Note on Calculation of Start Emissions in Air Quality Impact Assessment. • Warm idling emission are estimated based on the emission factors for different Euro engine types in accordance with PIARC Road Tunnels: Vehicle Emissions and Air Demand for Ventilation, 2019. **Emission from Chimneys and Other Industrial Operation** • Emission rates, source parameters including stack height, exit temperature, exit velocity, internal diameter of the stacks, as well as operation hours (i.e. 24 hours) are made reference to best available information (e.g. respective SP register, Air Pollution Control Plan, approved EIA reports, etc). • Air quality impact was predicted using AERMOD model. **Marine Emission from Fairway and Gold Coast Marina** • Marine traffic projection provided by Marine Traffic Consultant and agreed by Marine Department was adopted. • Emission factor in "Study on Marine Vessels Emission Inventory" and "Regulatory Impact Analysis: Control of Emissions of Air Pollution from Locomotive Engines and Marine Compression Ignition Engines Less than 30 Litres Per Cylinder" from USEPA for respective vessels was adopted. **Background Concentration** • PATH background concentration at Year 2030 was adopted.	• A 24-hour profile of traffic data was assumed for the whole year. No daily variation was considered. • Start emission modelled in open road would be overestimated on local roads, given the conservative assumption on sitting time. • Background air pollutant concentration at Year 2030 may overestimate air quality in the future Year 2033.	Section 3.4.4, and Sections 4, 5 and 6 of Appendix B	-	-

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Noise Impact					
Construction Phase					
The construction noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM and GW-TM under NCO. Qualitative assessment was carried out to demonstrate no adverse construction noise impact by committing to adopt appropriate noise mitigation measures during construction phase.	Assumptions made in the assessment are based on the latest design.	The construction programme is tentative and subject to contractor's design and site circumstances.	Section 3.4.5 and Section 2 of Appendix C	-	-
Operational Phase					
The noise impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM. Traffic noise was predicted using the methodology provided in the UK Department of Transport Calculation of Road Traffic Noise (CRTN) 1988. The assessment was based on projected peak hour flows for the worst year within 15 years after commissioning of proposed road networks.	Since the commissioning year of operation of the Project will be in Year 2033, the assessment year for road traffic noise is taken as Year 2048 (which is the maximum traffic projection within 15 years after full operation for the proposed development). During the realignment of Tuen Mun Road, there would be an interim phase when sections of existing noise barriers would be demolished, and some of the proposed noise barriers are still under construction. As the exact year of this stage is not available at the EIA stage, traffic data of Year 2033 is adopted for the assessment for this interim, as growth of traffic is anticipated between commencement and completion of construction. The existing noise screening structures, existing mitigation measures and mitigation measures by other concurrent projects in the vicinity were taken into account in the assessment.	Traffic noise levels were predicted based on free flow condition. Traffic congestion and hence reduced traffic speed were not taken into account in the noise model. Quantitative uncertainties in the assessment of impacts should be considered when drawing conclusion from the assessment. In carrying out the assessment, realistic worst case assumptions have been made in order to provide a conservative assessment of noise impacts. For the assessment of road traffic noise impact, peak hourly traffic flows from the worst case traffic impact assessment were adopted.	Section 3.4.5 and Section 3 of the Appendix C	-	-
The fixed noise source impact assessment for the Project follows Annex 5 and Annex 13 of the EIAO-TM and IND-TM under NCO. Qualitative assessment was carried out to demonstrate no adverse fixed noise sources impact by committing to adopt appropriate noise mitigation measures during operational phase.	Assumptions made in the assessment are based on the latest design.	-	Section 3.4.5 and Section 4 of the Appendix C	-	-
Water Quality Impact					
Construction Phase					
Assessment of water quality impact in construction phase refers to the methodology in Annex 6 and Annex 14 of the EIAO-TM. The water quality impacts during the construction phase were identified. Mitigation measures are recommended for the identified source of water pollution to minimise the potential water quality impacts.	A conservative assumption on dredging rate of 5,000m^3 per day was adopted. The filling will only be conducted within the completed seawall (i.e. when the seawall reaches above the sea level). The sediment loss rate using a grab dredger of 20kg/m^3 is assumed, and a silt curtain with SS reduction rate of 45% is assumed.	The hydrodynamic model for the Project has adopted and reviewed that of the previously approved Tung Chung New Town Extension EIA Report. The grid of the hydrodynamic model was adopted and modified at the regional vicinity of the reclamation area (e.g. Tsing Lung Tau, Sham Tseng, Ma Wan and Tsing Yi). As the hydrodynamic model was adopted and modified from the TCNTE Model, the extents of both models are the same (i.e. the entirety of Western Waters, Central Waters and Southern Waters of Hong Kong, and the adjacent waters of Pearl River Delta).	Section 3.4.6 and Appendix D	Working Paper on Hydrodynamic Model	-

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Operational Phase					
Assessment of water quality impact in operational phase refers the methodology in Annex 6 and Annex 14 of the EIAO-TM. The water quality impacts during the operational phase were identified. Mitigation measures are recommended for the identified source of water pollution to minimise the potential water quality impacts.	Assumptions made in the assessment are based on the latest design.	-	Section 3.4.6 and Appendix D	-	-
Waste Management Implication					
The assessment of waste management implications from handling, storage, collection, transportation and disposal of solid waste materials generated by the Project follows: • EIAO-TM Annex 7 and Annex 15; • WDO (Cap 354) and subsidiary regulations; • Land (Miscellaneous Provisions) Ordinance (Cap. 28); • Public Health and Municipal Services Ordinance (Cap. 132) – Public Cleansing and Prevention of Nuisances Regulation; • DASO (Cap. 466); • ETWB No. 34/2002 Management of Dredged/Excavated Sediment; and • WBTC No. 12/2000 Fill Management. Site investigation has been conducted for the estimation of sediment quality and quantity.	Waste generated in the construction phase are determined based on the latest construction methodology.	-	Section 3.4.7 and Appendix E	Sediment Sampling and Testing Plan	-
Land Contamination Impact					
The land contamination assessment for the Project follows: • EIAO-TM Annex 19, Guidelines for Assessment of Impact On Sites of Cultural Heritage and Other Impacts (Section 3: Potential Contaminated Land Issues), EPD, 2023; • Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management, EPD, April 2023; • Guidance Notes for Contaminated Land Assessment and Remediation, EPD, April 2023; and • Practice Guide for Investigation and Remediation of Contaminated Land, EPD, April 2023. Site re-appraisal would be required to assess the latest site situation prior to the commencement of the construction including excavation works, if any.	Assumptions made in the assessment are based on latest boundary of the Project and the works of the Project, as well as current and historical land uses.	-	Section 3.4.8 and Appendix F	Contamination Action Plan	-

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Hazard to Life					
The hazard to life assessment follows Section 3.4.9 in the EIA Study Brief.	No hazard to life assessment for the Tai Lam Chung No.2 Chlorination Station is required on the basis that the liquid chlorine store will no longer be required after Q2 of 2024 based on their latest programme, prior to the commencement of the Project (i.e. 2033). Hazard to life assessment was carried out to evaluate the risks associated with the transportation, storage and use of explosives during construction phase of the Project. Cumulative impacts with Tuen Mun Bypass have also been taken into considered. The latest arrangement and use of explosives were based on the latest design. A Hazard Management Plan would be formulated with a view to aligning the understanding of the risk of the three projects R11/TMB/LTUQ so that all the working populations at Lam Tei Quarry area could be considered as on-site populations in the QRA.	-	Section 3.4.9 and Appendix G	-	-
Ecological Impact					
The ecological impact assessment follows Annex 8 and Annex 16 of the EIAO-TM.	Assumptions made in the assessment are based on the latest design, in which the habitats beneath the proposed viaducts are anticipated to be permanently lost at this stage, except Fung Shui Woodland. The actual habitat loss will be subject to further refinement during the detailed design stage.	Ecological baseline is established based on literature review as well as habitat, flora and fauna surveys. Surveys were taken in representative locations, transect routes and sampling points within and in the vicinity of the Project footprint as well as the assessment area. Baseline descriptions are considered sufficiently representative to allow subsequent assessments to be made.	Section 3.4.10 and Appendix H	Working Paper on Ecological Survey	-
Fisheries Impact					
The fisheries impact assessment follows Annex 9 and Annex 17 of the EIAO-TM.	Assumptions made in the assessment are based on the latest layout.	Fisheries baseline is established based on field survey and literature review. Baseline descriptions are therefore unlikely to be entirely comprehensive, though they are considered sufficiently representative to allow subsequent assessments to be made.	Section 3.4.11 and Appendix I	Working Paper on Fisheries Survey	-

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Landscape and Visual Impact					
The landscape and visual impact assessment follows Annexes 10 and 18 of the EIAO-TM and the EIAO Guidance Note No.8/2010.	Assessment assumptions are listed in the methodology stated in **Section 11** Landscape and Visual Impact Assessment of this EIA report. Selected viewpoints for the preparation of photomontages to demonstrate the landscape and visual changes as a result of the Project are located at public accessible area and agreed with EPD and PlanD's Urban Design and Landscape Unit.	Assessment of landscape and visual baseline is based on literature review, government survey maps and aerial photographs and site visits. There is limitation on review of the baseline conditions in private properties and inaccessible areas. Photographic record of LRs, LCAs and VSRs are taken at the accessible location to the nearest and representative of the above. A board tree survey is undertaken for this EIA according to the Study Brief. It is sufficiently representing the potential tree impact as a result of the Project and impact on landscape resources. Detailed tree preservation and removal application is required for government approval. Assessment on VSRs of planned development and potential cumulative impact with concurrent project is based on information available through public channels. Impact significance will change following the development of these planned or on-going projects.	Section 3.4.12 and Appendix J	-	-
Cultural Heritage Impact					
The cultural heritage impact assessment follows Annex 10 and Annex 19 of the EIAO-TM.	Assumptions made in the assessment are based on the latest design.	Limitation to carry out terrestrial archaeological investigation works in Lam Tei before access is available. Limit to carry out marine diver survey in Tsing Lung Tau before fencing off the diving area.	Section 3.4.13 and Appendix K	Working Paper on Archaeological Impact Assessment, Marine Diver Survey Proposal	-