Appendix 18.1 – Key Assessment Assumptions and Limitations of Assessment Methodologies

Assessment Methodology	Key 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 Documentation	
Air Quality Impact					
Construction Phase					
The air quality impact assessment follows: • Annex 4 and Annex 12 of the TM-EIAO; and • Requirement from the EIA Study Brief (ESB-360/2023).		The construction programme is indicative and subject to contractors' actual operation.	N/A	N/A	N/A
Operation Phase					
The air quality impact assessment follows: • Annex 4 and Annex 12 of the TM-EIAO; and • Requirement from the EIA Study Brief (ESB-360/2023).	<u>Vehicular Emission and Start Emission from Proposed Primary Distributor and District Distributor Roads and Other Roads and Associated with Concerned Facilities</u> • Vehicular emissions from open road was based on modelling results of EMFAC-HK v4.3 and Smart Air Modelling Platform (SAMP v2.0 with ZEV scenario, and the air quality impact was predicted using AERMOD. • Start emission was assumed at all local roads irrelevant to the actual location of engine start. Also, all vehicle classes were assumed to have potential trip start on local road, including public transport which usually starts its engine at its termini throughout its service route.	-	N/A	N/A	N/A

Assessment Methodology	Key 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 Documentation	
	• Vehicular emission in the assessment: Emission factor of Year 2030 and traffic data of Year 2041. <u>Proposed Effluent Polishing Plant (EPP)</u> • The design of the proposed EPP was referenced to Hung Shui Kiu Effluent Polishing Plant (HSKEPP) and modified the plant design by engineers with the need of TKO 137. 1 CHP unit with reference to the design of HSKEPP and 1 boiler with adjusted biogas consumption were adopted in the calculation. <u>Major Point Source</u> • The information including valid emission strength, corresponding air pollutant control measures of emission sources and their emission duration extracted from the SP Licence Registry. <u>Dispersion Modelling and Modelling Approach for Proposed EPP, Major Point Source and Portal Emission</u> • PATHv3.0 applied to provide background pollutant concentrations in assessing the total impact in the study area. • Weather Research and Forecast (WRF) meteorological data were adopted for modelling. The wind speed and mixing heights in the WRF data were further adjusted before meteorological pre-processing by AERMET. • The predicted air quality impact was predicted using AERMOD model.				

Assessment Methodology	Key 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 Documentation	
	<u>Dispersion Modelling and Modelling Approach for Open Road</u> • The secondary contribution due to vehicular emission from road networks was assessed using AERMOD. <u>Cumulative impact of Criteria Air Pollutants</u> • Cumulative air pollutant concentration at ASR was derived by the sum of contributions by various sources, and background contribution from PATHv3.0 system on hour-by-hour basis. Averaging results, namely daily and annual, were derived from the cumulative hour-by-hour results in accordance with Title 40, Code of Federal Regulations, *US Environmental Protection Agency (USEPA 40 CFR) Part 51 "Revision to the Guideline on Air Quality Models, January 2017"*. If the total number of valid hours is less than 18 for 24-hour average, the total concentration should be divided by 18 for the 24-hour average. For annual average, the sum of all valid hourly concentrations was divided by the number of valid hours during the year. For daily average, cumulative results at each ASR amongst 365 days were ranked by highest concentration and compared with the maximum allowable concentration to determine the number of exceedance throughout a year. The air quality impact on ASRs was then evaluated by number of exceedance per annum against the criteria of EIAO-TM and AQOs.				

Assessment Methodology	Key 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 Documentation	
Operation Phase (Odour Impact)					
The air quality impact assessment follows: • Annex 4 and Annex 12 of the TM-EIAO; and • Requirement from the EIA Study Brief (ESB-360/2023).	• The specific odour emission rate for the proposed EPP is made reference to the emission rates of SWHEPP (AEIAR-175/2013) which is also adopted in the HSKEPP EIA Report (AEIAR-240/2022). • The respective odour emission strength and corresponding air pollutant control measures of proposed RTS are generally referenced to West Kowloon Transfer Station (WKTS). The monitored data was also contributed by the odour emission from the grease trap treatment facility at WKTS, however it is considered as a worst-case assumption for the proposed RTS. • The potential odour impact is predicted using AERMOD model.	The prediction are based on designs for planned facilities or facilities currently in operation.	N/A	N/A	N/A
Noise Impact					
Construction Phase					
The construction noise impact assessment for the project follows: • Annex 5 and Annex 13 of the EIAO-TM; • Requirement set out under Clause 3.4.5 of the EIA Study Brief (ESB-360/2023); and	• Based on the best-available information during the preparation of this EIA Report. • Tentative construction programme detailed in Appendix 4.3 • Tentative construction plant inventory detailed in Appendix 4.4	N/A	Clause 2.2.1 of Appendix C.	Methodology Paper on Noise Impact Assessment	N/A

Assessment Methodology	Key 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 Documentation	
• EIAO-GN 9/2023 Preparation of Construction Noise Impact Assessment under the Environmental Impact Assessment Ordinance.					
Operation Phase (Road Traffic Noise)					
The road traffic noise impact assessment for the project follows: • Annex 5 and Annex 13 of the EIAO-TM; and • Requirement set out under Clause 3.4.5 and Appendix C of the EIA Study Brief (ESB-360/2023). • Quantitative assessment was carried out with NoiseMap Enterprise – RoadNoise model for road traffic noise impact during operational phase.	• Road traffic noise level was predicted based on the traffic flows, following strictly the procedures stipulated in the "Calculation of Road Traffic Noise (CRTN)" (1988) published by Department of Transport, UK. Road traffic noise was presented in terms of noise levels exceeded for 10% of the one-hour period having the peak traffic flow (i.e. $L_{10, 1hour}$, dB(A)). • The assessment year for prevailing scenario is 2024 which is the year before commencement of construction works. • The assessment year for road traffic noise was taken as Year 2041, which is the maximum traffic projection within 15 years after full operation of the proposed roadwork and population intake of the last residential development.	Assessment for planned NSRs is based on indicative building layouts of planned NSRs prepared from best available information at the time of preparation of this EIA report.	Clauses 3.1.1, 3.2.1 and 3.2.2 of Appendix C.	Methodology Paper on Noise Impact Assessment	N/A
Operation Phase (Fixed Noise Sources)					
The fixed noise impact assessment for the project follows:	• Based on the best-available information during the preparation of this EIA Report.	N/A	Clause 4.2.1 of Appendix C.	Methodology Paper on Noise Impact Assessment	N/A

Assessment Methodology	Key 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 Documentation	
• Annex 5 and Annex 13 of the EIAO-TM; and • Requirement set out under Clause 3.4.5 of the EIA Study Brief (ESB-360/2023); and • EIAO-GN 16/2023 Preparation of Fixed Noise Sources Impact Assessment Under the Environmental Impact Assessment Ordinance.					
Operation Phase (Rail Noise)					
The rail noise impact assessment for the project follows: • Annex 5 and Annex 13 of the EIAO-TM; and • Requirement set out under Clause 3.4.5 of the EIA Study Brief (ESB-360/2023).	• Based on the best-available information during the preparation of this EIA Report. • Planned alignment of Tseung Kwan O Line Southern Extension (TKLSE) would be underground within the railway reserve of TKO 137. • Ground-borne railway noise from TKLSE would follow the requirements and criteria set out in the EIAO-TM to determine the environmental acceptability in a separate EIA.	N/A	Clause 5.1 of Appendix C.	Methodology Paper on Noise Impact Assessment	N/A
Operation Phase (Marine Traffic Noise)					
The marine traffic noise impact assessment for the project follows: • Requirement set out under Clause 3.4.5 of the EIA	• Prevailing noise measurement conducted nearby the existing noise sensitive receivers and at location of similar nature to the proposed noise sensitive uses for determining the noise criteria.	There is no statutory requirement for marine traffic noise. Methodology was referenced to previous approved EIAs.	Clause 6.1 of Appendix C.	Methodology Paper on Noise Impact Assessment	N/A

Assessment Methodology	Key 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 Documentation	
Study Brief (ESB-360/2023). • Noise criteria as agreed with EPD to be the prevailing noise level during peak marine traffic hour • Marine traffic noise measurement method referenced to ISO2922:2020 (Acoustics – Measurement of airborne sound emitted by vessels on inland waterways and harbours) • Assessment methodology based on the one used on previous approved EIAs, such as Proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun (AEIAR-070/2003) and Tung Chung New Town Extension (AEIAR-196/2016)	• Sound exposure levels of existing marine vessels measured in the vicinity of the assessment area or Victoria Habour				
Water Quality Impact					
The assessment of potential water quality impacts for the Project follows Annexes 6 and Annex 14 of the EIAO-TM and EIA Study Brief No. ESB-360/2023.	Sediment releases during the construction phase were estimated according to the preliminary Project design information including the proposed construction methods, construction sequences and reclamation working rates. Contaminant releases during the	The pollution inventory and coastline configurations assumed during the construction and operation phases were derived using the best available	.4(xii) and 4(xv) of Appendix D; and 1(i), 3(ii), 4(ii), S.4(iv), 5(ii) and 5(iv) of Appendix D-1	Water Quality Impact Assessment Methodology (Final)	N/A

Assessment Methodology	Key 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 Documentation	
To assess the potential water quality impacts due to the Project, the sources and natures of water pollution to be generated have been identified and their impacts have been qualitatively evaluated or quantified using the HK-DFM Model version 202210. Appropriate mitigation measures have been recommended to minimize the water quality impacts.	construction / sediment removal are based on measured concentrations in elutriate samples collected at the Project sites. During operation phase, the effluent loading of the proposed Effluent Polishing Plant (EPP) is based on the design discharge standards and design flow capacity of the EPP. The pollution loading of non-point source surface runoff was compiled using the latest rainfall record from HKO and measured runoff concentrations from past relevant studies. Coastline configurations adopted for construction and operation phases are based on available information from existing and planned coastal development projects. The HK-DFM Model was fully calibrated and verified against field data.	information at the time of conducting this EIA study, which may be deviated from actual situations. Conservative assumptions were adopted, whenever possible, to address the uncertainty.			
Sewage and Sewerage Treatment Implication					
The following established guidelines and standards are adopted for sewage flow estimation, assessment and evaluation of sewerage and sewage treatment implications of the Project:	Sewage flow estimation are based upon EPD Report No. EPD/TP 1/05 Guidelines for Estimating Sewage Flows (GESF) and the design population data of the Project. The EPP Effluent Discharge Standard is determined with consideration of the requirements in Annex 6 of the EIAO-TM.	N/A	N/A	N/A	N/A

Assessment Methodology	Key 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 Documentation	
• DSD's Sewerage Manual, Drainage Record Plan and standard drawings; • EPD's Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF) Version 1.0; • Annex 14 of the EIAO-TM; and • Requirement set out in EIA Study Brief No. ESB-360/2023.					
Waste Management Implication					
The waste management assessment follows: • Annex 7 and Annex 15 of the EIAO-TM; and • Requirement set out under Clause 3.4.8 of the EIA Study Brief (ESB-360/2023).	• The waste quantities to be generated from the Project were estimated based on the engineering assessment.	N/A	Section 3.(i) of Appendix F	Sediment Sampling and Testing Plan (SSTP)	N/A
Land Contamination					
The land contamination assessment follows: • Section 3 (Potential Contaminated Land Issues) of Annex 19 "Guidelines for	• The assessment was undertaken based on historical land use review and site reconnaissance.	As the skips storage and skip lorries parking area (Site S1) within TKO 137 is still in operation, it would not be feasible to carry out the	N/A	N/A	N/A

Assessment Methodology	Key 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 Documentation	
Assessment of Impact On Sites of Cultural Heritage and Other Impacts" of the EIAO-TM, EPD, June 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; • Practice Guide for Investigation and Remediation of Contaminated Land, EPD, April 2023; and • Requirement set out under Clause 3.4.9 of the EIA Study Brief (ESB-360/2023). The methodology includes desktop study, site survey, formulation of soil and groundwater sampling and testing strategy and recommendation of further works.		proposed SI works under the EIA Study. For the future concrete batching plant and transformer room (Site S2) within TKO 137, the site was still under construction at the time of reporting. Moreover, based on the tentative construction programme, site clearance will not commence until 2029, there could be changes in the operation or changes in land use within these two sites which may cause further contamination issues. Further site appraisal should be carried out for these two sites when site operation has ceased / after site handover in order to assess the latest site conditions / to identify the presence of any potential land contamination sources, and to address any new contamination issues caused by any changes in site operation and/or land use within these two sites. Any necessary SI works and remediation action are			

Assessment Methodology	Key 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 Documentation	
		recommended to be carried out after the site operation has ceased / decommissioning of the facility but prior to the commencement of construction works at the concerned sites / areas.			
Landfill Gas Hazard					
LFGHA follows: • Annexes 7 and 19 of the TM-EIAO; • Landfill Gas Hazard Assessment for Development Adjacent to Landfills (ProPECC PN 3/96); • Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97); (2022) and • Requirement set out under Clause 3.4.15 of the EIA Study Brief (ESB-360/2023).	• The assessment was undertaken with reference to findings of relevant EIA studies and using the recent landfill gas monitoring data (to March 2024). The assessment procedure is based on the "Source - Pathway - Target" model stated in Chapter 3 of EPD/TR8/97.	N/A	N/A	N/A	N/A
Ecological Impact					
The ecological impact assessment follows: • Annexes 8 and 16 of the EIAO-TM for the criteria, general approach and methodology for	• The assessment was undertaken based on the results of literature review and ecological field surveys	N/A	N/A	N/A	N/A

Assessment Methodology	Key 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 Documentation	
assessment of ecological impacts; • EIAO Guidance Note No. 3/2010, No. 6/2010, No. 7/2023, No. 10/2023 and No. 11/2023 for general guidelines for conducting ecological baseline surveys and environmental mitigation measure recommendations; and • Requirement set out under Clause 3.4.10 of the EIA Study Brief (ESB-360/2023).					
Fisheries Impact					
The fisheries impact assessment follows: • Annexes 9 and 17 of the TM-EIAO; and • EIAO Guidance Note No. 15/2023 • Requirement set out under Clause 3.4.11 of the EIA Study Brief (ESB-360/2023).	• Fisheries baseline condition was identified through literature review and fisheries survey was conducted to collect up-to-date baseline information and verify the information from literature review.	N/A	N/A	N/A	N/A
Impact on Cultural Heritage					
The cultural heritage impact assessment follows: • Annexes 10 and 19 of the TM-EIAO; and	The assessment was based on the Project design, RODP and best available information on the possible construction works to be carried out within the Development Area and the Project Boundary.	N/A	Appendix K	Methodology Paper on Cultural Heritage Impact Assessment,	N/A

Assessment Methodology	Key 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 Documentation	
• Requirement set out under Clause 3.4.13, Appendix K. Appendix K-1 of the EIA Study Brief (ESB-360/2023).				Proposal for Diver Survey	
Hazard to Life					
The Hazard to Life assessment follows: • Annex 4 of the TM-EIAO; • Hong Kong Risk Guidelines; and • Requirement set out under Clause 3.4.14 of the EIA Study Brief (ESB-360/2023).	• The operation of green fuel station (GFS) was considered with provision of liquefied petroleum gas for the purpose of assessment.	N/A	N/A	N/A	N/A
Landscape and Visual Impact					
• The landscape and visual impact assessment follow: • Annexes 10 and 18 of the EIAO-TM • EIAO Guidance Note No. 8/2023; and • Requirement set out under the EIA Study Brief (ESB – 360/2023)	• The assessment was based on the RODP, footprints and preliminary design scheme with the latest best available information. • As the development proposals may be further refined the assessment assumes the worst-case scenario in terms of the impacts. • Buildings, roads and pavement are not considered as landscape resources and have therefor not been included in the mapping of resources • Building heights are assumed to be the maximum permissible height in each site as stipulated in the RODP parameters	Assessment of sensitivity of the key public viewpoints and the magnitude of changes of Project works are inherently subjective. No detailed data exists other then described in the report Individual tree impact as a result of the proposed developments is subject to further review at detailed design phase of the project in accordance with Development Bureau Technical Circular (Works)	Section 3.(iii) of Appendix J	Viewpoints agreed by PlanD and EPD	N/A

Assessment Methodology	Key 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 Documentation	
		(DEVB TC(W)) No. 4/2020 – Tree Preservation			
Impact on Electric and Magnetic Fields					
The electric and magnetic fields assessment follows: • Chapter 7 of the Hong Kong Planning Standards and Guidelines; • Guidelines issued by the International Commission on Non-ionizing Radiation Protection; and • Requirement set out under Clause 3.4.15 of the EIA Study Brief (ESB-360/2023).	• The electric and magnetic field impact of both the ESS and EFs, as well as underground and submarine power cables are assessed based on previously approved EIAs, project profiles of approved direct application of environmental permits and literature, with similar voltage, design and structure of the EFs, ESS, and underground and submarine power cables.	N/A	N/A	N/A	N/A

Remarks:

- No environmental media assessment components was considered required.