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17. IMPLEMENTATION SCHEDULE OF RECOMMENDED MITIGATION MEASURES

17.1 Implementation Schedule of Recommended Mitigation Measures

17.1.1.1 This section presents the implementation schedule of mitigation measures for the Project. **Table 17.1** summarises the details of the recommended mitigation measures for all works areas. For each recommended mitigation measures, both the location and timing for the measure have clearly been identified as well as the parties responsible for implementing the measure and for maintenance (where applicable).

Table 17.1 Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
					Des	C	O	
Air Quality Impact								
Construction Phase								
3.8.1.1	All DPs and Non-DPs	Dust suppression measures stipulated in *Air Pollution Control (Construction Dust) Regulation* and good site practices listed below should be carried out to further minimize construction dust impact. • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • For the work sites close to the ASRs with a separation distance less than 10 m, provide hoardings of not less	Construction Sites / Construction Phase	Contractor		√		• Air Pollution Control Ordinance (APCO) • Air Quality Objectives (AQO) • Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM)

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		than 3 m high from ground level along the site boundary; for the other work sites in general, provide hoarding not less than 2.4m high from ground level along site boundary except for site entrance or exit. • Avoid position of material stockpiling areas, major haul roads and dusty works within the construction site close to concerned ASRs. • Avoid unnecessary exposed earth. • Locate all the dusty activities away from any nearby ASRs as far as practicable. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. • Imposition of speed controls for vehicles on site haul roads. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.						
3.8.1.2	All DPs and Non-DPs	Guidelines stipulated in EPD's Recommended Pollution Control Clauses for Construction Contracts should be	Construction Sites / Construction Phase	Contractor		√		• APCO

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		incorporated in the contract document to abate dust impacts. These clauses include: • The Contractor shall observe and comply with APCO and its subsidiary regulation, particularly the Air Pollution Control (Construction Dust) Regulation. • The Contractor shall undertake at all times to prevent dust nuisance as a result of the construction activities. • The Contractor shall ensure that there will be adequate water supply /storage for dust suppression. • The Contractor shall devise and arrange methods of working and carrying out the works in such a manner so as to minimize dust impact on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented properly. • Before the commencement of any work, the Contractor may be required to submit the methods of working, plant, equipment and air pollution control system to be used on the site for the Engineer inspection and approval.						• Air Pollution Control (Construction Dust) Regulation • AQO • EIAO-TM
3.8.1.3	All DPs and Non-DPs	In order to help reduce carbon emission and pollution, timely application of temporary electricity and water supply would be made and electric vehicles would be adopted in accordance with DEVB TC(W) No. 13/2020 – Timely Application of Temporary Electricity and Water Supply for Public Works Contracts and Wider Use of Electric Vehicles in Public Works Contracts in the Project.	Construction Sites / Construction Phase	Contractor		√		• DEVB TC(W) No. 13/2020

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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3.8.1.4	All DPs and Non-DPs	To minimise the exhaust emission from non-road mobile machinery (NRMMs) during the construction phase, the following measures should be applied as far as practicable: • Connect construction plant and equipment to main electricity supply and avoid use of diesel generators and diesel-powered equipment; • Avoid exempted NRMMs as far as practicable; and • Deploy electrified NRMMS as far as practicable.	Construction Sites / Construction Phase	Contractor		√		• Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation
Operation Phase								
3.5.2.6	DP3	The generated biogas will undergo treatment in sulphur absorption vessels to remove H_2S by the filter before passing to the CHP generator.	EPP / Operation Phase	DSD	√		√	• EIAO-TM
3.5.3.1, 3.6.4.2	DP3	Proposed Effluent Polishing Plant (EPP) is to be equipped with a deodorizing unit with overall 95% odour removal efficiency (achieving 99.5% H2S removal efficiency at the same time).	EPP / Operation Phase	DSD	√		√	• EIAO-TM
3.5.3.4	Non-DP	The proposed Interim Pumping Station is to be equipped with a deodorizing unit with overall 95% odour removal efficiency (achieving 99.5% H2S removal efficiency at the same time).	SPS / Operation Phase	Operator	√		√	• EIAO-TM
3.5.3.6	DP4	Proposed Refuse Transfer Station (RTS) should consider enclosing the odourous facilities, maintaining negative pressure to prevent foul air from escaping the building, and provision of odour removal system at the ventilation exhaust to control odour emission, as well as continuous monitoring of odour at the exhaust of the deodorizing unit.	RTS / Operation Phase	Relevant project proponent / operator	√		√	• EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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3.5.3.8	Non-DP	The proposed SPS is to be equipped with odour removal system with odour removal efficiency of at least 95% (achieving 99.5% H2S removal efficiency at the same time).	SPS / Operation Phase	DSD	√		√	• EIAO-TM
3.7.2.2 & 3.8.2.2	Non-DP	Specific site considerations are recommended to be implemented in order to avoid any potential air quality impact, which include: • Air sensitive use at Site G3 (P05) should locate at 5mAG or above • Avoid any long-term air sensitive use at Site O5 which is a proposed open space • Avoid any air sensitive use within the exceedance zones in the proposed RTS, PFTF and CWHF of TKO 132.	Site G3, O5 in TKO 137 Proposed RTS, PFTF and CWHF in TKO 132	Site Developers / Operators	√		√	• EIAO-TM
Noise Impact								
Construction Phase								
4.8.1.1	All DPs and Non-DPs	Adopting Quality Powered Mechanical Equipment (QPME) is recommended. The use of QPME associated with the construction works is prescribed in EPD's QPME database, which contains the sound power levels (SWLs) for quality/quiet PME of various types, brands and models.	Construction sites	Contractor		√		• EIAO-TM
4.8.1.2	All DPs and Non-DPs	Quieter construction method such as silent piling by press-in method is adopted as an alternative of traditional sheet piling. A sheet pile is clipped and pressed under the ground. Noise can be minimized by hydraulic press-in sheet piles with drilling simultaneously for piling works at harder ground. The noise impact can also be further reduced as the piling works can be completed within the shorter duration by using this method.	Construction sites	Contractor		√		• EIAO-TM

<table>
<tr><th rowspan="2">EIA Ref.</th><th rowspan="2">Relevance to Designated Project (DP)</th><th rowspan="2">Environmental Protection Measures</th><th rowspan="2">Location / Duration of Measures / Timing of Completion of Measures</th><th rowspan="2">Implementation Agent</th><th colspan="3">Implementation Stage*</th><th rowspan="2">Relevant Legislation & Guidelines</th></tr>
<tr><th>Des</th><th>C</th><th>O</th></tr>
<tr><td></td><td></td><td>Another quieter construction method for piling works is the large diameter bored piling method, which could be considered to replace percussive piling for piling works. Other quieter construction method includes the bursting system and quieter type blade saw will be adopted to replace traditional handheld percussive breakers and traditional blade saw for concrete breaking/removal activities</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>4.8.1.4</td><td>All DPs and Non-DPs</td><td>Use of quieter construction method:.
<table><tr><th>Involved Construction Process</th><th>Quieter Construction Method / Equipment</th></tr><tr><td>Sheet pile walls and precast structures construction</td><td>Hydraulic press-in method</td></tr><tr><td>Demolition / Removal of existing seawall and concrete structure</td><td>Use of hydraulic crusher / bursting system / quieter type blade saw (e.g. diamond saw) / use of chemical expansion agent</td></tr><tr><td>Material handling / barging</td><td>Fully enclosed conveyor</td></tr><tr><td>Site formation / Filling / slope cutting</td><td>Use of hydraulic splitter, hydraulic crusher / bursting system / quiet type saw / use of chemical expansion agent</td></tr></table></td><td>Construction sites</td><td>Contractor</td><td></td><td>√</td><td></td><td>• EIAO-TM</td></tr>
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EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures		Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
						Des	C	O	
		Various, including marine viaduct works, site clearance, site formation (such as small boulder removal), infrastructure works, building construction, etc.	Use of QPME[1]						
		Site Formation Works, such as small boulder removal	Mini-breaker						
		Hydraulic crusher for demolition of PTF	Hydraulic crusher						
		infrastructural works	Mini-breaker						
		Large diameter pipe laying	Pipe jacking using micro tunnel boring machine						
		Construction / site formation works, such as small boulder removal	Mini-breaker						
		Building works	Use of quiet type saw (e.g. diamond saw), Robot-type hydraulic crusher or handheld concrete crusher						
		Construction works	Mini-breaker						
		Piling works	Large diameter bored piling method						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
					Des	C	O	
		Building superstructure works: Use of pre-casting and prefabrication technology Road works (Concrete compacting): Self-compacting Concrete or Rubber Head Poker Vibrator						
4.8.1.5	All DPs and Non-DPs	Careful scheduling of construction activities and grouping of PMEs and liaison between contractors to avoid multiple noisy construction activities/equipment to be used at the same time within close proximity	Construction sites	Contractor		√		• EIAO-TM
4.8.1.6	All DPs and Non-DPs	Use of noise barriers and enclosures to provide screening from construction plants, such as Air blower; Air compressor; Aspalt Paver; Backhoe; Bar bender and cutter (electric) ; Breaker; Bulldozer; Cement slurry mixer ; Cherry-picker; Compactor, vibratory; Concrete lorry mixer; Concrete pump truck; Conveyor belt; Crane Lorry; Crane, mobile; Crawler crane; Drilling Rig; Drum Roller; Dump truck; Excavator; Generator; Group pump; Grout Mixer ; High pressure slurry pump; Hoist, petrol; Hopper barge; Hydraulic breaker; Hydraulic cutter, grab and chisel; Hydraulic Pump; Hyrdraulic Jack; Loader, wheeled; Lorry; Milling Machine; Mobile crane; Paint line marker; Piling Rig; Piling Rig/RCD; Piling, large diameter bored, grab and chisel; Piling, large diameter bored, oscillator; Piling, large diameter bored, reverse circulation drill; Pressure Guage; Pump truck; Rock Drill; Roller; Slurry Plant; Tower Crane; Trailers; Vibratory Hammer; Vibratory Poker, hand-held; Water pump; and Welder/Generator, portable.	Construction sites	Contractor		√		• EIAO-TM
4.8.1.7	All DPs and Non-DPs	Good site practice and noise management techniques should be practised during each phase of construction:	Construction sites	Contractor		√		• EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plants (such as trucks, cranes, etc.) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plants known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plants should be located as far away from NSRs as possible and practicable; and • Material stockpiles, site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.						
4.8.1.10 – 4.8.1.11	All DPs and Non-DPs	Construction Noise Mitigation Plan would be submitted to EPD before commencement of construction works, including the forms of pre-tender Construction Noise Management Plan (CNMP) before tender stage and pre-construction CNMP before commencement of construction works.	Construction sites	CEDD/ Contractor		√		• EIAO-TM • EIAO-GN 9/2023
Operation Phase Fixed Noise Sources Impact								
4.8.2.1, 4.8.2.9	All DPs and Non-DPs	Adopt appropriate mitigation measures to alleviate potential adverse fixed noise impact such as using quieter fixed plant, enclosing the fixed plant within reinforced concrete building or	Proposed fixed noise sources (EPP, PFTF, CBP and SPS)	Relevant government departments/	√	√	√	• EIAO-TM • NCO

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		acoustic enclosure with openings directed away from NSRs, locating fixed plant away from the nearby NSR as far as practicable, use of silencer, installation of acoustic louvre, installation of noise barrier, installation of high speed roller shutter doors at openings and installation of noise enclosure, etc.		future operators of the proposed EPP, PFTF, CBP and SPS				• Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.2	Non-DP	Installation of noise screening and acoustic mat close to the noisy equipment such as landfill gas compressors and cooling water pumps.	SNG Plant	Government with the support by CEDD (construction phase) /Town Gas (P-tech) (operation phase)	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.3	Non-DP	Quiet equipment and/or erecting noise barrier/enclosure, as well as provision of Designated equipment testing area for testing of hand-held equipment, such as saw and cutter, and mobile equipment such as pump truck and hydraulic platform.	Proposed Fire Station	CEDD (construction phase) / FSD (operation phase)	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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4.8.2.4	Non-DP	Potential fixed noise impact due to the advance sewage pumping station would be mostly contained within the reinforced concrete buildings with opening facing away from nearby noise sensitive uses. Quieter fixed plant, acoustic louvre and silencers should also be considered during preparation of the corresponding quantitative fixed noise impact assessment to ensure noise compliance.	Proposed Advance Sewage Pumping Station	CEDD / Future operator of the advance sewage pumping station	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.4	DP3	Potential fixed noise impact due to the EPP would be mostly contained within the reinforced concrete buildings with opening facing away from nearby noise sensitive uses. Quieter fixed plant, acoustic louvre and silencers should also be considered during preparation of the FNMP to ensure noise compliance.	Proposed Effluent Polishing Plant	Drainage Services Department	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.5	Non-DP	Noise barrier should be erected at the designated refilling area to provide screening next to the tanker for the nearby noise sensitive uses at Site PU6 and E5. The height and design of the barrier would be detailed in the corresponding quantitative fixed noise impact assessment.	Proposed GFS	Future operator of the GFS	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
					Des	C	O	
								Construction Sites (IND-TM)
4.8.2.6	Non-DP	Enclosing the PTI within reinforced concrete building and/or acoustic enclosure with openings directed away from NSRs, and use of quieter plant including ventilation fans, use of silencer, installation of acoustic louvre should be considered as far as practical to minimize the potential fixed noise impact to nearby noise sensitive uses	Proposed PTIs at Sites PR1 and PR3	Future operator of the PTI	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.7	Non-DP	Noise barriers should be erected along bus / minibus lanes to screen off the potential fixed noise from vehicular start-up	Proposed temporary PTFs	Future operator of the temporary PTF	√	√	√	• EIAO-TM • NCO • Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)
4.8.2.10	All DPs and Non-DPs	For various DPs within the assessment area, Fixed Noise Source Management Plan (FNMP) as detailed in EIAO Guidance Note No. 16/2023 "Preparation of Fixed Noise Sources Impact Assessment under the Environmental Impact Assessment Ordinance" should be submitted to EPD for	EFs, CWHF, RTS, PFTF, SPS, CBP, Fire Station, Government Complexes, Public Transport Facilities, Public	Contractor of the proponent of the proposed / planned fixed noise sources,	√	√		• EIAO-TM • EIAO-GN No. 16/2023

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		agreement prior to issuance of tender and commencement of the construction of proposed fixed noise sources. FNMP(s) should contain quantitative fixed noise source impact assessment with reference to the updated plant inventories of the fixed noise source, recommended noise mitigation measures, commissioning test requirements and environmental monitoring and audit programme. To ensure full implementation of the recommended mitigation measures, the mitigation measures implementation schedule including implementation party, implementation location and timing should be included in the FNMP(s). For planned/proposed fixed noise sources of non-DPs within the Project area and existing noise sources within the assessment area affecting the proposed NSRs under this Project, quantitative fixed noise impact assessment should be carried out via various planning/funding/land lease mechanism in accordance with the requirements of the HKPSG and recommend commissioning test requirements.	Transport Interchange, Green Filling Station, Effluent Polishing Plant. Site PU1&2, PU3&4, PU5, PU6, E3, E4, E5	or Contractor of the developer of the planned NSR				
Operation Phase Road Traffic Noise Impact								
4.8.4.3 – 4.8.4.4	Non-DPs	Provide low noise road surfacing on the Project Roads	Roads L1 and L8. Prior to road opening.	CEDD (construction phase) / HyD (operation phase)		√	√	• EIAO-TM
4.8.4.6	Non-DPs	Provide at-receiver mitigation measures in form of blank wall / acoustic windows	Site PU1&2, PU3&4	Housing Department	√	√	√	• EIAO-TM
4.8.4.8	Non-DPs	Provide noise insulation with suitable windows type and air-conditioning	Site E1 to E5	Education Bureau	√	√	√	• EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
					Des	C	O	
Water Quality Impact								
Construction Phase								
5.11.1	DP2	**Deep Cement Mixing (DCM)** The following design and mitigation measures should be adopted for the DCM treatment. ▪ Place sand blanket of at least 1 m thick on top of the sediments prior to DCM treatment to avoid seabed sediment disturbance and release of fines. ▪ Carefully control the cement slurry injection pressure to prevent leaching out of cement slurry during the DCM operation. ▪ Single layer silt curtain shall be deployed during the DCM operation.	DCM Works Areas / Marine Construction Period	Contractor		√		• Water Pollution Control Ordinance (WPCO) • Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM)
5.11.2, Table 5.21, Figure 5.1	DP2	**Underwater Filling, Dredging and Sand Blanket Laying** The following design and mitigation measures should be adopted for the underwater filling, dredging and sand blanket laying works where appropriate. ▪ Underwater filling for the reclamation works should be carried out behind a leading seawall. The extent and location of underwater filling with respect to the extent of leading seawall shall be designed with reference to the construction sequence in Appendix 5.1 and Appendix 5.2 of the EIA report. If there are any proposed changes of the marine construction design / sequence, the associated water quality impact should be reviewed and where necessary additional mitigation measures should	Reclamation Works Areas / Marine Construction Period	Contractor	√	√		• WPCO • EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		be proposed prior to the implementation of the proposed changes. ▪ A "controlled bottom placement" method should be adopted for the sand blanket laying work as far as practicable by releasing the sand material at a point near the seabed and at a controlled sand filling rate to prevent localized overloading of the seabed and potential instability, and to minimize loss of fines when placing the sand blanket in marine water. ▪ The reclamation sequence and production rates for underwater filling, dredging and sand blanket laying should follow those presented in Table 5.21 of the EIA report. If there are any proposed changes of the reclamation sequence and production rates of the marine works, the associated water quality impact should be reviewed and where necessary additional mitigation measures should be proposed prior to the implementation of the proposed changes. ▪ Double silt curtain should be deployed to surround the marine underwater filling, dredging and sand blanket laying works of Tseung Kwan O Area 132 Development (TKO 132). A silt curtain deployment plan should be submitted to EPD prior to the commencement of the corresponding marine construction works. Detailed silt curtain deployment arrangement should be proposed under the silt curtain deployment plan. ▪ Single layer silt curtain should be deployed to surround the marine underwater filling, dredging and sand blanket laying works of Tseung Kwan O Area 137 Development						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		(TKO 137). A silt curtain deployment plan should be submitted to EPD prior to the commencement of the corresponding marine construction works. Detailed silt curtain deployment arrangement should be proposed under the silt curtain deployment plan.						
5.11.3	DP1	**Construction of Marine Viaducts** The following mitigation measures and good site practices are recommended to be implemented for construction of marine viaducts: ▪ Bored piling and any excavation for construction of the marine viaducts should be enclosed and carried out within steel casings or cofferdams or other equivalent systems that can effectively contain the material, debris and wastewater generated from the process. ▪ Single layer silt curtain should be set up to enclose the entire active work area before commencement of the marine works such as the installation of steel casing and any piling works for temporary marine facilities and marine viaduct to control sediment dispersion. A silt curtain deployment plan should be submitted to EPD prior to the commencement of the corresponding marine construction works. Detailed silt curtain deployment arrangement should be proposed under the silt curtain deployment plan. ▪ All wastewater generated from the process should be fully contained and collected by a derrick lighter or other equivalent collection system and be treated before controlled disposal.	Works Areas of Marine Viaducts / Construction Period	Contractor		√		• WPCO • EIAO-TM • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		▪ Any spoil generated from the construction process should be fully contained and collected by sealed hopper barges or other equivalent systems for proper disposal.						
5.11.4	Non-DPs	**Construction of Outfall** The proposed seawall outfall should be constructed using the following method or other equivalent methods to avoid disturbance of the seabed and prevent the release of construction or fill materials into the marine water. The pre-cast outfall structure to be installed at the seawall should be designed with both ends covered and sealed temporarily, and embedded in parallel with construction of seawall structure. The remaining pre-cast box culvert should be packed with air-inflated packer inside to prevent construction or fill materials being wash out through the box culvert during the reclamation works. Upon completion of the reclamation works and construction of the outfall and box culvert, the seals at the outmost outfall including the packers placed inside can be removed accordingly.	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM
5.11.5	All DPs and Non-DPs	**Good Site Practices for Construction Vessels** The following good site practices should be implemented to minimize water pollution from construction vessels and marine transportation of construction materials. ▪ All barging points to be operated during the construction phase should be equipped with conveyor belt, which should be fully enclosed to prevent marine spillage. ▪ Barges or hoppers shall not be filled to a level which will	Construction Sites, Marine Berthing Area and Marine Transportation Routes / Construction period	Contractor		√		• WPCO • EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		cause overflow of materials or pollution of water during loading or transportation. ▪ Excess materials shall be cleaned from the decks and exposed fittings of barges before the vessels are moved. ▪ Plants should not be operated with leaking pipes and any pipe leakages shall be repaired quickly. ▪ Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action. ▪ All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. ▪ The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site. ▪ Regular maintenance and checking of all construction vessels should be undertaken to maintain a good operation condition and prevent leakage and spillage. ▪ A Spill Response Plan (SRP) detailing the actions to be taken in the event of accidental spillage of oil or other hazardous chemicals during construction of the Project should be prepared by the Contractor and submitted to Water Supplies Department (WSD) for approval before the commencement of marine works of the Project. The content of the SRP should contain but not limited to chemical / material storage, transfer and transport						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		precautions, a notification system (including a contact list of relevant parties) in case of accidental spillage, spill response procedures including necessary actions to protect WSRs, spillage control equipment and material, health and safety equipment, roles and responsibilities of relevant parties and inventory of hazardous chemicals / compounds.						
5.12.1	All DPs and Non-DPs	**Construction Site Runoff and Dust Suppression Sprays** The site practices outlined in ProPECC PN 2/23 "Construction Site Drainage" should be followed where applicable to minimize surface runoff and the chance of erosion. Surface runoff including the spent effluent from dust suppression from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sandbag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm runoff from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of construction and earthworks. Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Before disposal at the public fill reception facilities, the deposited silt and grit should be solicited in such a way that it can be contained and delivered by dump truck instead of tanker truck. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS • The Professional Persons Environmental Consultative Committee Practice Note on Construction Site Drainage (ProPECC PN 2/23)

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		provide adequate hydraulic capacity of all drains. Minimum distance of 100m should be maintained between the discharge points of construction site runoff and any seawater intakes. All effluent discharges from the construction works should be sited away from any natural watercourses. Construction works should be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary. Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		Construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system or nearby water environment. The excavated materials should be backfilled as soon as possible, and stockpiles of the excavated materials shall be covered with tarpaulin or similar fabric during rainstorms. Construction site drainage should be designed and implemented to segregate general construction site runoff from the concrete casting areas and other pollutant generating activities to avoid contamination of site runoff. Surface runoff contaminated with bentonite slurry and concrete washing should be collected and should be regarded as wastewater and adequately treated to the respective effluent standards before disposal into the foul sewers or storm water systems or other receiving water as set out in the TM-DSS. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system.						
5.12.2	All DPs and Non-DPs	**Wastewater from General Land-based Construction Activities** The mitigation measures as outlined in ProPECC PN 2/23 "Construction Site Drainage" for control of groundwater, boring and drilling water, wastewater from concrete batching and / or precast concrete casting, wheel washing water, bentonite slurries, water for testing and /or sterilization of water retaining structure and water pipes, wastewater from building construction, acid cleaning, etching and picking wastewater	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS • ProPECC PN 2/23

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		and wastewater from toilets generated in the construction site should be observed and adopted where applicable.						
5.12.3	All DPs and Non-DPs	**General Refuse** It is recommended to clean the construction sites on a regular basis. Good site practices should be adopted to remove rubbish, debris and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. All general refuse generated on-site should be stored in enclosed bins or compaction units separately from Construction and Demolition (C&D) material. A reputable waste collector should be employed to remove general refuse from the site, separately from C&D material, on a regular basis to an approved landfill. An enclosed and covered area should be provided to reduce the occurrence of "windblown" light material.	Construction Sites / Construction Period	Contractor		√		• Waste Disposal Ordinance (WDO) • WPCO • EIAO-TM
5.12.4	All DPs and Non-DPs	**Licensing of Construction Site Discharge** There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO license.	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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5.12.5	All DPs and Non-DPs	**Accidental Chemical Spillage** Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: ▪ Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ▪ Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ▪ Storage area should be selected at a safe location on site and adequate space should be allocated to	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • Waste Disposal Ordinance (WDO) • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		the storage area.						
5.12.6	All DPs and Non-DPs	**Sewage Effluent from Construction Workforce** It is recommended to provide sufficient chemical toilets in the construction works areas. A licensed waste collector should be deployed to maintain the chemical toilets on a regular basis. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site should be undertaken to provide an effective control of any malpractices and to encourage continual improvement of environmental performance on site.	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM
5.12.7	All DPs and Non-DPs	**Contaminated Site Runoff** Any excavated contaminated material and exposed contaminated surface should be properly housed and covered to avoid generation of contaminated runoff. Open stockpiling of contaminated materials, if any, should not be allowed. Any contaminated run-off should be properly collected and treated to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as total petroleum hydrocarbon) to an undetectable range. All treated effluent from the wastewater treatment units shall meet the conditions of the discharge license and the requirements as stated in the TM-DSS.	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS
5.12.8	All DPs and Non-DPs	**Construction near Inland Watercourses or Seafront** The mitigation measures specified in the ProPECC PN 2/23 “Construction Site Drainage” shall be implemented properly to minimise the water quality impacts due to the construction	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		works in close proximity of inland watercourses. The practices outlined in ETWB TC(W) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" shall also be adopted where applicable to minimise the water quality impacts upon any natural streams and inland watercourses. Any discharge of effluent from the Project construction should be pre-treated to comply with the requirements of the WPCO and those specified in the discharge license. All effluent discharges from the construction works should be sited away from any natural watercourses. Specific mitigation measures recommended for construction near inland watercourses or seafront are listed below: ▪ The use of less or smaller construction plants may be specified in areas close to the water bodies to reduce the disturbance to the surface water. ▪ Temporary storage of materials (e.g. equipment, chemicals and fuel) and temporary stockpile of construction debris and spoil should be located well away from any watercourses or seafront. ▪ Stockpiling of construction materials and dusty materials should be covered and located away from any watercourses or seafront. ▪ Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water bodies. ▪ Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the watercourses or						• ProPECC PN 2/23 • ETWB TC(W) No. 5/2005

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		the sea. ▪ Construction works close to the inland watercourses should be carried out in dry season as far as practicable where the flow in the surface channel or stream is low.						
5.12.9	All DPs and Non-DPs	**Removal / Diversion of Inland Watercourses** The construction works for removal and diversion of watercourses should be undertaken within a dry zone. Flow diversion and dewatering should be carried out prior to the construction to avoid water inflow into the construction sites and avoid polluted runoff and impact on the downstream water quality. Dewatering of watercourse should be performed by diverting the water flow using temporary channels, piping, sandbags, steel arrays in concrete case or similar proven methods to suit the works condition. Construction of all the proposed permanent and temporary drainage should be undertaken in a dry zone prior to receiving any water flow. The flow diversion works should be conducted in dry season, where possible, when the flow in the watercourse is low. The wastewater and ingress water from the site should be properly treated to comply with the WPCO and the TM-DSS before discharge. The site practices outlined in the ProPECC PN 2/23 “Construction Site Drainage” and ETWB TC (Works) No. 5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works” should also be adopted where applicable.	Construction Sites / Construction Period	Contractor		√		• WPCO • EIAO-TM • TM-DSS • ProPECC PN 2/23 • ETWB TC(W) No. 5/2005

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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Design and Operation Phases								
5.13.2	Non-DPs	**Creation of Embayed Water and Marine Refuse Entrapment at TKO 132** Collection and removal of floating refuse should be performed along the waterfront of Tseung Kwan O Area 132 Development (TKO 132) at regular intervals e.g. on a daily basis for proper disposal. The operators of the public facilities in TKO 132 should be responsible for keeping the water around their sites and in the neighbouring water free from rubbish.	TKO 132 / Operation Phase	Operators of public facilities in TKO 132			√	• WPCO • EIAO-TM
5.13.3	All DPs and Non-DPs	**Sewage / Wastewater Generation, Operation of EPP and Advance SPS at TKO 137** <u>General</u> Sewage and wastewater generated from the TKO 137 development should be diverted to the new public sewerage system at TKO 137 and then conveyed to the existing public sewerage system at Tseung Kwan O or to the proposed EPP for proper treatment and disposal.	TKO 137 / Design and Operation Phases	Project proponents of relevant facilities / developers	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.3.2 – 5.13.3.4	DP3	<u>Operation of EPP</u> To avoid the occurrence for emergency discharge, the design and operation of the EPP should incorporate the following provisions: ▪ Peaking factors should be applied for all major treatment units and electrical and mechanical equipment to avoid equipment failure. ▪ By-pass mechanism should be provided for both coarse	EPP at TKO 137 / Design and Operation Phases	DSD / EPP operators	√		√	• WPCO • EIAO-TM

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		screens and fine screens in the inlet to avoid/minimize failure in coarse/fine screens. ▪ Interim by-pass should be provided after the primary treatment and settlement of the sewage to avoid raw sewage by-pass as much as possible. ▪ Regular maintenance and checking of all plant equipment / facilities, treatment units, penstocks should be undertaken to maintain a good operation condition in the EPP and prevent equipment failure. ▪ Standby unit for all major equipment should be provided in case of unexpected breakdown of pumping and treatment facilities such that the standby pumps and treatment facilities could take over and function to replace the broken units. ▪ Dual power supply from CLP plus additional backup power supply should be provided in case of power failure to sustain the function of pumping and treatment facilities. To provide a mechanism to minimize the impact of emergency discharges of raw sewage or partially treated sewage and facilitate subsequent management of any emergency, an Emergency Contingency Plan (ECP) should be formulated prior to commissioning of the EPP. The ECP shall clearly state the emergency response procedures and actions to be followed in case of equipment or sewage treatment failure. The plant operators should carry out necessary follow-up actions according to the procedures of the ECP to minimize any water quality impact. Details of the ECP should be developed at the detailed design stage of the EPP.						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		The ECP shall be circulated to relevant parties including the operators of the Tseung Kwan O (TKO) desalination plant and Water Supplies Department (WSD) to solicit their comments prior to commissioning of the EPP. The plant operators of the EPP should closely communicate with the operators of TKO desalination plant in order to minimize any impact on the seawater intake due to emergency discharge. In the extremely remote event of emergency discharge, the operators of the desalination plant and WSD shall be informed for site inspection and agreement on the follow up and remedial action if required						
5.13.3. 5 – 5.13.3.8	Non-DPs	<u>Operation of Advance SPS</u> Prior to the EPP commissioning, an advance Sewage Pumping Station (SPS) should be provided to divert the sewage and wastewater generated from the TKO 137 development to the existing TKO PTW and HATS for proper treatment and disposal. Precautionary and design measures as listed below should be incorporated into the advance SPS design to prevent the emergency situation. ▪ A standby pump and screen should be provided to cater for breakdown and maintenance of the duty pump in order to avoid emergency discharge. ▪ Dual power supply should be provided to secure electricity supply. ▪ Temporary equalization tank(s) should be provided for the proposed advance SPS to cater for peak flow.	Advance SPS at TKO 137 / Design and Operation Phases	DSD / Advance SPS operators	√		√	• WPCO • EIAO-TM • Sewerage Manual (Part 2) • Environmental Guidance Note for Sewage Pumping Stations which is not a Designated Project

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		▪ An alarm should be installed to signal emergency high water level in the equalization tank / wet well. ▪ Regular maintenance and checking of plant equipment should be undertaken to prevent equipment failure. ▪ A telemetry system to the nearest regional control center should be provided so that swift action can be undertaken in case of malfunction of the unmanned facilities. ▪ Automatic screen (with clear spacing of no less than 25 mm) should be provided to prevent clogging of the downstream pumping system. The relevant conditions in DSD's "Sewerage Manual (Part 2) Pumping Stations and Rising Mains" should be adopted and followed during the design and operation of the advance SPS where applicable. In particular, an overflow or emergency bypass arrangement should be provided at or near the SPS as a good practice. The bypass arrangements should allow sewage to flow to the proposed EPP outfall when the sewage level inside the equalization tank / wet well rises to a predetermined level beyond which pollution may result from the occurrence of sewage overflow at manholes of the upstream sewers or flooding of the pumping station. The opening of the overflow should not be obstructed by any form of screens with bar spacing less than 25 mm as the screen will be easily blocked by screenings, thus resulting in flooding of the pumping station and the upstream catchment. An ECP to deal with the emergency raw sewage discharges						

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		should be developed in the detailed design stage.						
5.13.3.9	Non-DPs	<u>Operation of Refuse Collection Point(s)</u> Refuse collection facilities should be housed and covered to prevent generation of contaminated rainwater runoff. Refuse should be stored in covered containers, which should be securely placed within the refuse collection point. All surface runoff or washed water should be contained inside the refuse collection point for proper disposal and shall not be discharged to the storm system or to the marine water. Wastewater generated from the refuse collection point shall be connected to the public sewerage system of the new development area for disposal at the EPP. No wastewater discharge into the environment should be allowed.	TKO 137 / Design and Operation Phases	Food and Environmental Hygiene Department (FEHD)	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.3.10 – 5.13.3.11	Non-DPs	<u>Operation of Public Transport Facility, Green Fuel Station and Ambulance Depot</u> The public transport facility, green fuel station and ambulance depot should be covered to prevent generation of contaminated rainwater runoff. All contaminated surface runoff or washed water generated at these facilities should be collected and diverted to oil interceptor or other appropriate treatment facilities with sufficient design capacities for proper treatment before discharge to the foul sewers of the new development area. Fuel spillages should be collected and handled in compliance with the Waste Disposal (Chemical Waste) (General) Regulation and the Waste Disposal Ordinance. Site drainage should be well maintained and good management practices should be observed to ensure that oils and chemicals are	TKO 137 / Design and Operation Phases	Project proponents of relevant facilities	√		√	• WPCO • EIAO-TM • TM-DSS

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		managed, stored and handled properly and do not enter the nearby storm or marine water.						
5.13.3.12	Non-DPs	<u>Operation of Service Reservoirs at TKO 137</u> Treatment and disposal of cleansing water during annual cleaning and maintenance of the service reservoirs shall follow the WSD's current normal practice with reference to Sections 23.24 – 23.25 of the General Specification for Civil Engineering Works. Portable water incorporated with a mixture of sterilizing chemicals shall be used for washing water retaining structures. The cleansing effluent shall be settled out through the sedimentation tank and dechlorinated by a dechlorination unit before being discharged to drainage system. Discharge license from EPD shall be obtained before commencing any discharges during operation phase. Agreement with DSD shall also be sought before commencing any discharges into the drainage system.	TKO 137 / Design and Operation Phases	WSD	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.3.13	All DPs and Non-DPs	<u>Control of Operation Site Effluents</u> The practices outlined in ProPECC PN 1/23 "Drainage Plan subject to Comments by Environmental Protection Department" should be adopted where applicable for handling, treatment and disposal of operation stage effluent. In particular, drainage serving any covered PTF, covered green fuel station, covered ambulance depot and covered refuse collection point in TKO 137 should be connected to public sewers. Sedimentation facilities, petrol interceptors or other appropriate wastewater treatment system should be provided to treat the wastewater or surface run-off generated in these facilities as necessary to meet the discharge standards as stipulated in the TM-DSS prior to the discharge to the public sewers.	TKO 137 / Design and Operation Phases	Project proponents of relevant facilities / developers	√		√	• WPCO • EIAO-TM • TM-DSS • ProPECC PN 1/23

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5.13.3.14	Non-DPs	Aging or Damage of the Sewerage Network The following precautionary measures are recommended to minimise the risk of failure of the proposed sewerage system: ▪ Regular inspection, checking and maintenance of the sewerage system. ▪ Provisions of leakage collection systems linking to the nearest chamber at its downstream to the rising main for collection of sewage leakage from the damaged sewage pipeline. ▪ Use tankers to store emergency discharge and transport to the STW for disposal in case of both twin rising mains failure.	TKO 137 / Design and Operation Phases	DSD	√		√	• WPCO • EIAO-TM • Sewerage Manual (Part 2) • ProPECC PN 1/23
5.13.4	All DPs and Non-DPs	**Non-point Source Surface Run-off** Best Management Practices (BMP) for Storm Water Management The following Best Management Practices (BMPs) should be implemented in the new development areas of this Project to reduce stormwater pollution are as follows. *Design Measures to Control Erosion and Run-off Quantity* Exposed surface shall be avoided within the development site to minimise soil erosion. The development site shall be either hard paved or covered by landscaping area and plantation where appropriate. The drainage system should be designed to avoid flooding.	TKO 137 / Design and Operation Phases	Project proponents of relevant facilities / developers	√		√	• WPCO • EIAO-TM • TM-DSS • ProPECC PN 1/23 • Technical Specifications on Grey Water Reuse and Rainwater Harvesting

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		Green areas / tree / shrub planting etc. should be introduced within the development site as far as possible including open space and along roadside amenity strips and central dividers, which can help to reduce soil erosion. *Devices and Facilities to Control Sedimentation and Run-off Quality* Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system. Road gullies with standard design and silt traps and oil interceptors should be incorporated during the detailed design to remove particles present in stormwater run-off, where appropriate. Evergreen tree species, which in general generate relatively smaller amount of fallen leaves, should be selected where possible. *Administrative Measures to Control Sedimentation and Run-off Quality* Good management measures such as regular cleaning and sweeping of road surface / open areas are suggested. The road surface / open area cleaning should also be carried out prior to occurrence of rainstorm. Manholes, as well as stormwater gullies, ditches provided at the development sites should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing						

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		should be carried out before forecast heavy rainfall. *Blue-green Infrastructure to Control* Sedimentation *and Run-off Quantity* Blue-green infrastructure should be implemented under this Project where practicable to reduce the storm loading to the drainage system as follows. Provision of bioswales, where practicable at roadside, to convey stormwater and provide removal of coarse and medium sediments. As the water is transported along the bioswales, it is treated to remove pollutants and the cleaned water can then be discharged into the receiving water bodies or retained for non-potable reuse, e.g. irrigation. Rainwater harvesting should be implemented within the development site, where possible, to collect rainwater from uncontaminated areas such as building roofs, podiums, walkway canopies and other built structures for reuse as an alternative water source e.g. irrigation. The system should meet the prevailing WSD guidelines. Treatment of harvested rainwater should consist of pre-treatment, filtration and disinfection system. Treatment process shall be in compliance with the requirements in "Technical Specifications on Grey Water Reuse and Rainwater Harvesting" issued by WSD. Porous paving material should be used, where practicable, to increase stormwater infiltration and improve groundwater recharge and reducing flooding from surface run-off. *Locations of Storm Outfalls at TKO 137* The storm outfalls for the future development at TKO 137 shall be located away from the seawater intake location of TKO						

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		desalination plant as far as practicable to minimize any potential water quality impact upon the intake. The recommended location of the stormwater outfalls at TKO 137 are presented in Appendix 5.8 (subject to detailed design).						
5.13.5	All DPs and Non-DPs	**Sewage / Wastewater Generation and Operation of SPS at TKO 132** Sewage and wastewater generated from the TKO 132 should be diverted to the new public sewerage system at TKO 132 for proper disposal. The practices outlined in ProPECC PN 1/23 "Drainage Plan subject to Comments by Environmental Protection Department" should be adopted where applicable for handling, treatment and disposal of operation stage effluent.	TKO 132 / Design and Operation Phases	Project proponents of relevant facilities	√		√	• WPCO • EIAO-TM • TM-DSS • ProPECC PN 1/23
5.13.5	Non-DPs	Precautionary and design measures as listed below should be incorporated into the Sewage Pumping Station (SPS) design to prevent the emergency situation. ▪ A standby pump and screen should be provided to cater for breakdown and maintenance of the duty pump in order to avoid emergency discharge. ▪ Backup power supply should be provided. ▪ An alarm should be installed to signal emergency high water level in the wet well. ▪ An on-site emergency storage tank with capacity to store 2 hours of peak sewage flows should be provided for the proposed SPS to cater for breakdown and maintenance of duty pump. ▪ Regular maintenance and checking of plant equipment	TKO 132 / Design and Operation Phases	DSD	√		√	• WPCO • EIAO-TM • Sewerage Manual (Part 2) • Environmental Guidance Note for Sewage Pumping Stations which is not a Designated Project

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		should be undertaken to prevent equipment failure. ▪ Twin rising mains system should be provided to facilitate maintenance works and to avoid emergency discharge of sewage. ▪ A telemetry system to the nearest manned station / plant should be provided so that swift action can be undertaken in case of malfunction of the unmanned facilities. ▪ A bar screen (with clear spacing of approximately 25 mm) should be provided to cover the opening of any emergency sewage bypass which can prevent the discharge of floating solids into receiving waters as far as practicable while ensuring flooding at the facilities would not occur. The relevant conditions in DSD's "Sewerage Manual (Part 2) Pumping Stations and Rising Mains" should be adopted and followed during the design and operation of the SPS where applicable. In particular, an overflow or emergency bypass arrangement should be provided at or near the SPS as a good practice. The bypass arrangements should allow sewage to flow to the most suitable discharge points when the sewage level inside the wet well rises to a predetermined level beyond which pollution may result from the occurrence of sewage overflow at manholes of the upstream sewers or flooding of the pumping station. The acceptability and the location of discharge should be carefully assessed in the detailed design stage. The opening of the overflow should not be obstructed by any form of screens with bar spacing less than 25 mm as the screen will be easily blocked by screenings, thus resulting in flooding of the pumping station and the upstream						

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		catchment. An Emergency Contingency Plan (ECP) to deal with the emergency raw sewage discharges should be developed in the detailed design stage.						
5.13.5.5 – 5.13.5.8	Non-DPs	<u>Operation of Public Fill Transfer Facility (PFTF)</u> Material stockpiles should be enclosed within building structure or properly covered with impermeable sheeting as soon as possible and surrounded by silt fence and runoff intercepting channels or protected by other methods approved by Civil Engineering and Development Department (CEDD) and EPD to prevent wind and water erosion. Final slope surfaces shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabiliser approved by CEDD to prevent the washing away of stockpiled material. Any material sorting activities shall be enclosed in building structure to avoid contaminated runoff. Appropriate drainage system shall be provided to intercept surface runoff generated in works areas of the facility from direct discharge to the sea. All surface runoff and wastewater (e.g. from wheel washing) generated from the facility should be diverted to silt removal / sedimentation facilities for recycling or reuse within the facility after proper settlement. The best management practice (BMP) to reduce stormwater and non-point source pollution recommended under ProPECC PN 1/23 on Drainage Plans subject to Comments by Environmental Protection Department should be properly followed. Sufficient buffer distance shall be given between the public fill	TKO 132 / Design and Operation Phases	Relevant project proponent / operator	√		√	• WPCO • EIAO-TM • TM-DSS • ProPECC PN 1/23

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		stockpiling area and the seafront. No fill material shall be stockpiled at or near the seafront / berthing area. Sewage generated at PFTF should be properly diverted and conveyed to the public sewerage system.						
5.13.5.9 – 5.13.5.10	Non-DPs	<u>Operation of Concrete Batching Plant (CBP)</u> All the works areas including wastewater generating processes and dusty operations of the concrete batching plants should be enclosed to avoid loss of dusty materials and generation of contaminated rainwater runoff. All wastewater generated from the concrete batching plants should be collected, treated, stored and recycled to reduce resource consumption. This includes water used in the concrete batching process, yard washing etc. All spent effluents from the works processes should be collected and diverted to the sedimentation basins with sufficient treatment capacity. The overlying water from the sedimentation basin should be recycled for reuse within the plants. All residual wastewater discharge, if any, should be conveyed to the public sewerage system. No wastewater should be discharged from the plant into the water environment.	TKO 132 / Design and Operation Phases	Relevant project proponent / operator	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.5.11	DP6	<u>Operation of Electricity Facilities (EFs)</u> All sewage generated from the EFs should be conveyed to the public sewerage system for proper disposal.	TKO 132 / Design and Operation Phases	Relevant project proponent / operator	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.5.12	DP5	<u>Operation of Construction Waste Handling Facility (CWHF)</u> Handling of construction waste materials in CWHF should be enclosed within building to avoid contaminated rainwater runoff. All sewage effluent, wastewater from machineries and washed water generated from the facility should be properly	TKO 132 / Design and Operation Phases	Relevant project proponent / operator	√		√	• WPCO • EIAO-TM • TM-DSS

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		collected and conveyed to the public sewerage system. Wastewater discharge into the environment from the facility should not be allowed.						
5.13.5.13	DP4	<u>Operation of Refuse Transfer Station (RTS)</u> All active works areas and facilities of the Refuse Transfer Station (RTS) should be enclosed within building structure to avoid contaminated runoff. Leachate generated from the station shall be collected and pre-treated to meet the requirements of the TM-DSS and the WPCO discharge license prior to the discharge into the public sewerage system. No wastewater discharge from the RTS into the environment should be allowed.	TKO 132 / Design and Operation Phases	Relevant project proponent / operator	√		√	• WPCO • EIAO-TM • TM-DSS
5.13.5.14	Non-DPs	<u>Aging or Damage of the Sewerage Network</u> The following precautionary measures are recommended to minimise the risk of failure of the proposed sewerage system: ▪ Regular inspection, checking and maintenance of the sewerage system. ▪ Provisions of leakage collection systems linking to the nearest chamber at its downstream to the rising main for collection of sewage leakage from the damaged sewage pipeline. ▪ Use tankers to store emergency discharge and transport to the STW for disposal in case of both twin rising mains failure.	TKO 132 / Design and Operation Phases	DSD	√		√	• WPCO • EIAO-TM • Sewerage Manual (Part 2) • ProPECC PN 1/23

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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5.13.6	All DPs and Non-DPs	**Accidental Marine Spillage from Marine Delivery, Unloading and Loading of Materials from Barges at TKO 132** The use of conveyor barge is proposed instead of derrick barge for storage and transfer of fill, aggregate, sand, construction materials and other materials with fines content. Transfer of these materials from barge to site should be through a conveyor system (with no lifting of material involved) and the conveyors should be fully enclosed to prevent any loss of material and refuse to sea. Municipal solid wastes and marine refuse shall be placed in containers that are sealed to prevent spillage of the contents during transportation and unloading operation. Regular inspection and maintenance on the conveyor systems and refuse containers should be carried out by the operators to ensure that they are in good condition and free from damage or any other defects. Should other alternative material transfer and containment methods to prevent marine spillage be proposed by the future operators, these methods shall be subject to approval of EPD. Besides, barges should not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents (e.g. muddy water) should be properly collected and treated prior to disposal.	TKO 132 / Design and Operation Phases	Relevant project proponents / operators	√		√	• WPCO • EIAO-TM
5.13.7	All DPs and Non-DPs	**Non-point Source Surface Runoff and Accidental Spillage in TKO 132** It is recommended that all active works areas in the industrial facilities at TKO 132 should be enclosed to contain accidental spillage of material or chemicals. The stormwater control	TKO 132 / Design and Operation Phases	Relevant project proponents / operators	√		√	• WPCO • EIAO-TM • TM-DSS

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		measures including best management practices (BMP) and blue-green infrastructure recommended for TKO 137 (Section 5.13.4 of the EIA report) should be implemented for the TKO 132 where appropriate. Perimeter drainage systems should be provided in the open areas of these industrial facilities to collect stormwater runoff. Under normal operation, rainwater runoff collected in the perimeter drainage system should be diverted to suitable pollutant removal devices (i.e. sedimentation basins and oil interceptors) for treatment. The treated effluent from the pollutant removal devices should be discharged into the public sewerage system. The pollutant removal devices of the perimeter drainage system should be designed with sufficient capacity for the "first flush" flow, which would carry most of the pollutants. The subsequent overland flow generated from rainstorms after the "first flush" flow should be bypassing the pollutant removal facilities for discharge to the stormwater system. Prevention of "first flush" pollution in stormwater runoff should be incorporated into the drainage design of the facilities to control pollution at source and to abate pollutants under normal situations. This first-flush diversion system would also divert any dry weather flow to the sewerage system and therefore can also act as a dry weather interception system. To address the potential water quality concerns under emergency situations, stop-logs should be considered and installed at suitable location(s) in the perimeter drainage system of the industrial facilities so that contaminants can be contained in the event of accidental spillage. In the emergency case, stop-logs should be closed to isolate the lot with accidental spillage to facilitate the cleaning up of the spill. Contaminated surface water, if any, generated in the lot should						• WDO • ProPECC PN 1/23

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		be contained by the stop-logs under the emergency situation. The collected contaminated surface water should be pre-treated as necessary to meet the requirements of the TM-DSS prior to the disposal at the public sewerage system. To ensure that there is no chance of contaminated runoff leaving the site untreated during rainfall, the perimeter drainage system should have sufficient capacity (within the channels or at a designated sump) to store any contaminated runoff (spillage plus collected rainwater) from the area isolated by the stop-logs. If there is any chemical waste collected, the handling and disposal should comply with the Waste Disposal (Chemical Waste) (General) Regulation and Waste Disposal Ordinance. An Emergency Response Plan (ERP) should be developed by the future operators of the industrial facilities where necessary to provide contingency procedures to ensure containment and safe disposal of any accidental spillage or contaminants leaking from the industrial processes. Suitable spill control materials and equipment shall be kept on site to deal with accidental spillages.						
5.13.8	All DPs and Non-DPs	**Environmental Management Plan** Prior to the commissioning of each industrial facility proposed at TKO 132, an Environmental Management Plan (EMP) shall be prepared for the facility to detail the site-specific measures and procedures (including the specific operation plan, wastewater recycling facilities, storm pollution control plan, emergency response plan, pollution and erosion control measures and devices, good site practices, housekeeping measures, implementation frequency, environmental monitoring and audit procedures, maintenance schedules, etc. where appropriate) to prevent environmental nuisance, marine spillage, accidental dropping of materials and water pollution.	TKO 132 / Design and Operation Phases	Relevant project proponents / operators	√		√	• WPCO • EIAO-TM

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		The EMP shall be prepared by the future operators of the relevant public facilities on a good management practice basis. The Stormwater Pollution Control Plan (SPCP) shall be prepared for potential polluting facilities in open areas (if any) and shall incorporate details such as locations, sizes and types of measures / installations and the BMP to control erosion, minimize runoff quantity and to prevent or minimise the potential of pollutants coming into contact with rainwater or runoff. The SPCP shall also provide details, locations and design of the site drainage systems including perimeter drainage systems, storm pollutant removal devices (e.g. sedimentation basins and oil interceptors) and stop-logs etc. where appropriate to prevent "first flush" pollution and release of accidental spillage. The EMP shall also include an Emergency Response Plan (ERP) where appropriate to deal with emergency situations of accidental spillage on-site or in marine water. The ERP should cover the following: ▪ Contact personnel and the means to contact. ▪ Procedures to contain contaminants, prevent their escape and/or dispersion and cleanup the spillage. ▪ Procedures to divert / transport the contaminated materials to a designated temporary storage area or appropriate treatment facility. ▪ Procedures to clear up the lot and/or perimeter drainage system prior to opening the stop-logs.						

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		Regular and independent environmental audits and inspections should be conducted to check the environmental performance of the operations in TKO 132. These audits and inspections shall aim to ensure proper installation, implementation and maintenance of measures and BMP specified in the EMP.						
5.13.9	All DPs and Non-DPs	**Maintenance Dredging for TKO 132 Development** The following mitigation measures are recommended for the maintenance dredging works. ▪ Maintenance dredging should be carried out by closed grab dredger. ▪ The production rates for maintenance dredging activities should be controlled and capped at or below 700 m^3 per day. ▪ Double silt curtains should be deployed around dredging works. Details of any future maintenance dredging would be subject to the actual siltation rate and operational need. The future party responsible for carrying out the maintenance dredging works should implement the recommended mitigation measures and propose details of the associated water quality monitoring programme prior to the commencement of the maintenance dredging work.	TKO 132 / Operation Phase	Relevant project proponents / operators			√	• WPCO • EIAO-TM
Sewerage and Sewage Treatment								
Operation Phase								

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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6	All DPs and Non-DPs	Adequate sewage treatment and sewerage facilities will be provided for the Project. Precautionary design measures and Emergency Continency Plan are recommended in the water quality impact assessment to prevent and deal with emergency discharge from the facilities. No further mitigation measure specific to sewerage and sewage treatment implications is proposed.	Project Sites / Design and Operation Phase	DSD	√		√	• DSD's Sewerage Manual • EPD's Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF) Version 1.0 • EIAO-TM
Waste Management Implication								
Construction Phase								
7.5.1.1— 7.5.1.2	All DPs and Non-DPs	<u>Waste Management Hierarchy</u> The waste management hierarchy should be applied including the following in descending preference: • Avoidance and minimisation of waste generation; • Reuse of materials as far as practicable; • Recovery and recycling of residual materials; and • Treatment and disposal of waste according to relevant laws, guidelines and good practices. To minimize C&D materials generation and encourage proper management of such materials, a C&DMMP should be prepared. An EMP and trip-ticket system are recommended for monitoring management of waste. Specific measures targeting the mitigation of impacts in works areas and the transportation of waste off-site should be provided to	Construction Sites	Contractor		√		• WDO • ETWB TCW No. 19/2005 • DEVB TCW No. 06/2010 • Project Administration Handbook (PAH) for Civil Engineering Works

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		minimise the potential impacts to the surrounding environment.						
7.5.1.3	All DPs and Non-DPs	<u>Good Site Practices</u> The following good site practices are recommended during the construction phase: • Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices; • Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; • Provision of sufficient waste disposal points and regular collection of waste for disposal; • Adoption of appropriate measures to minimise windblown litter and dust during handling, transportation and disposal of waste; and • Preparation of a WMP in accordance with the *ETWB TCW No. 19/2005 Environmental Management on Construction Sites* and submitted it to the Engineer for approval.	Construction Sites	Contractor		√		• WDO • Public Cleansing and Prevention of Nuisances Regulation (Cap. 132BK)
7.5.1.4 - 7.5.1.8	All DPs and Non-DPs	<u>Waste Reduction Measures</u> Recommendations to achieve waste reduction include: • Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;	Construction Sites	Contractor		√		• WDO

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		• Adopt proper storage and site practices to minimise the potential for damage to, and contamination of, construction materials; • Plan the delivery and stock of construction materials carefully to minimise the amount of waste generated; • Sort out demolition debris and excavated materials from demolition works to recover reusable / recyclable portions (i.e. soil, rock, broken concrete, etc.); • Maximise the use of reusable steel formwork to reduce the amount of C&D materials; • Minimise over ordering of concrete, mortars and cement grout by doing careful check before ordering; and • Adopt pre-cast construction method instead of cast-in-situ method for construction of concrete structures.						
7.5.1.9	All DPs and Non-DPs	<u>Storage, Collection and Transportation of Waste</u> Recommendations to minimise the impacts include: • Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimising the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area should be provided with covers and water spraying system to prevent materials from being wind-blown or washed away; and • Different locations should be designated to stockpile each material to enhance reuse.	Construction Sites	Contractor		√		• WDO

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7.5.1.10	All DPs and Non-DPs	Waste hauler with appropriate permits should be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following recommendation should be implemented to minimise the impacts: • Remove waste in timely manner; • Employ the trucks with cover or enclosed containers for waste transportation; • Obtain relevant waste disposal permits from the appropriate authorities; and • Dispose of waste at licensed waste disposal facilities.	Construction Sites	Contractor		√		• WDO
7.5.2.1	All DPs and Non-DPs	Construction and Demolition Materials Careful design, planning together with good site management can reduce over-ordering and generation of Construction and Demolition (C&D) materials such as concrete, mortar and cement grouts. Formwork should be designed to minimise the use of standard wooden panels, so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse.	Construction Sites	Contractor		√		• WDO
7.5.2.2	All DPs and Non-DPs	The inert C&D materials with suitable characteristics / size should be reused on-site as fill or recycled as aggregate for other projects as far as practicable. When disposing C&D material at a public filling reception facility for beneficial reuse, the material should only consist of soil, rock, concrete, brick, cement plaster / mortar, inert building debris, aggregates and asphalt. The material should be free from household refuse,	Construction Sites	Contractor		√		• WDO

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		plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor. Prior to disposal of non-inert C&D materials, wood, steel and other metals should also be separated for reuse and / or recycling where practicable so as to minimise the quantity of waste to be disposed of at landfill.						
7.5.2.3	All DPs and Non-DPs	Suitable areas should be designated within the site boundaries for sorting and providing temporary stockpiling of C&D materials. Within stockpile areas, the following measures should be taken to control potential environmental impacts or nuisance: • Surface of stockpiled soil should be regularly wetted with water especially during dry season; • Disturbance of stockpile soil should be minimised; • Stockpiled soil should be properly covered with tarpaulin especially when heavy storms are predicted; and • Stockpiling areas should be enclosed where space is available.	Construction Sites	Contractor		√		• WDO • ETWB TCW No.19/2005
7.5.2.4	All DPs and Non-DPs	In order to monitor the delivery of C&D materials at the designated public fill reception facility and landfill and to control fly-tipping, a trip-ticket system should be included. A recording system for the amount of waste generated, recycled and disposed, including the disposal sites, should also be set up. Warning signs should be put up to remind the designated disposal sites. CCTV should also be installed at the vehicular entrance and exit of the site to monitor handling of C&D materials disposal. To prohibit illegal dumping and landfilling of C&D materials, as well as proper delivery to concurrent	Construction Sites	Contractor		√		• WDO • DEVB TC(W) No.06/2010 • Land (Miscellaneous Provisions) Ordinance (Cap. 28)

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		project sites for re-use, the dump trucks engaged on site should be equipped with GPS or equivalent automatic system for real time tracking and monitoring of their travel routings, parking locations and disposal activities.						
7.5.2.5 – 7.5.2.7	All DPs and Non-DPs	For non-inert biomass waste, arising from the construction activities, such as yard waste, they are required to be handled in accordance with the principles of reduce, reuse, and recycle (3Rs). Specifically, to minimize the generation of yard waste, the project proponent shall: (i) Avoid unnecessary removal or excessive pruning of trees. Preserve trees in their original locations and implement tree transplanting when on-site preservation is not feasible. (ii) Segregate various types of yard waste and shred wood into smaller pieces if necessary to facilitate reuse and recycling. (iii) Reuse yard waste (e.g. stumps, pure twigs, leaves and grass clipping, etc.) on-site for a variety of purposes (e.g., decomposition and composting, recreational and decorative uses, and mulching in planting areas, etc.). (iv) Identify recycling options (e.g. delivery to Y-park) for yard waste that cannot be directly reused on-site. Where yard waste generation is unavoidable, sorting of yard waste for recycling and reuse on site should always be the priority. Yard waste shall be separated from C&D material to facilitate recycling, such as delivering them to Y-park so as to minimize the quantity of waste to be disposed at landfill site. Under the construction stage of the Project, woodchippers should be provided on-site for processing of the tree/yard waste for reuse and recycling, e.g. use as wood chip mulch for	Construction Sites	Contractor		√		• WDO • Relevant guidelines on handling of yard waste on EPD's website and Y Park's website • DEVB Guidelines on Yard Waste Reduction and Treatment • DEVB TC(W) No. 4/2020

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		planting. With the experience under the Phase 1 development of the Kwu Tung North New Development Area, the contractors will be required to reuse the tree/yard waste and its derived products, e.g. upcycling of tree wastes and its derived products on-site in site office as construction materials, furniture, signage, etc. The remaining of yard wastes that are 6m long or below tree trunks and its attached tree branches, twigs and leaves will be transported to Y.Park, a yard waste recycling centre. Where appropriate, the Contractor should be responsible to cut and shred the yard waste on-site in order to meet the collection requirement of the recycling outlet for processing / disposal. Disposal of yard waste directly at landfills should only be regarded as the last resort, when no alternatives are available. In addition, the architect / engineer should prioritize materials with higher recycled content or those that are more easily recyclable, such as engineered wood products over solid lumber. Procuring materials in standardized sizes can also help reduce the need for on-site cutting and trimming, which often generates significant wood waste. Establishing take-back agreements with suppliers for unused or damaged goods is another effective way to prevent these materials from ending up in landfills. Dedicated bins or storage areas for different waste streams, including non-inert biomass, in construction sites enables efficient sorting and facilitates recycling and reuse. Ultimately, reducing non-inert biomass waste in construction requires a holistic approach that spans material selection, procurement, on-site management, and end-of-life processing.						

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7.5.2.8 – 7.5.2.9	All DPs and Non-DPs	<u>Chemical Waste</u> For those processes which generated chemical waste, it may be possible to find alternatives to eliminate the use of chemicals, to reduce the generation quantities or to select a chemical type of less impact on environment, health and safety. If chemical waste is produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility, while chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre (CWTC), or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.	Construction Sites	Contractor		√		• Waste Disposal (Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
7.5.2.10 – 7.5.2.11	All DPs and Non-DPs	<u>General refuse</u> General refuse should be stored in enclosed bins or compaction units separate from C&D materials and chemical wastes. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. The collected general refuse would be disposed of at designated landfill. Clearly labelled recycling bins should be provided on site in order to encourage segregation and recycling of aluminium and plastic wastes, wastepaper in order to reduce general refuse production.	Construction Sites	Contractor		√		• WDO

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		The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins should also be provided onsite as reminders. The recyclable waste materials should then be collected by reliable waste recycling agents on a daily basis.						
7.5.2.12 – 7.5.2.21	DP2 and DP3	<u>Sediment</u> The sediment should be excavated/dredged, handled, transported and disposed of in a manner that would minimise adverse environmental impacts. For TKO 137, excavated / removed Category L sediment is proposed to be treated using cement stabilization / solidification (S/S) technique and reused as backfilling materials within reclamation area or by other concurrent projects before considering the marine disposal option. Possibility of reusing the excavated / removed sediment will be subject to further review during the detailed design and construction stages. Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during excavation/removal, transportation and disposal of the sediment. In order to minimize the exposure to contaminated materials, workers shall, if necessary, wear appropriate personal protective equipment (PPE) when handling contaminated sediment. Adequate washing and cleaning facilities shall also be provided on site. For off-site disposal, the basic requirements and procedures specified under paragraph 4.2.1 of Chapter 4 of the *PAH* shall be followed. Marine Fill Committee (MFC) of CEDD is managing the disposal facilities in Hong Kong for the	Construction Sites confirmed with sediment	Contractor		√		• WPCO; • WDO; • DASO; • PAH; • Dumping at Sea Act; and • Air Pollution Control (Construction Dust) Regulation.

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		excavated/dredged sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance (DASO). For the purpose of site allocation and application of marine dumping permit and if considered necessary by EPD (Marine Dumping Control Section / Territorial Control Office), separate Sediment Sampling and Testing Plan(s) (SSTP) (including the possible additional sampling works for the EPP construction and within the sampling grid of MEB17) shall be submitted to EPD for agreement under DASO. Additional GI works, based on the SSTP, shall then be carried out in order to confirm the disposal arrangements of the excavated/dredged sediment. Sediment Quality Report(s) (SQR), reporting the chemical and biological screening results and the estimated quantities of sediment under different disposal options, shall then be submitted to EPD for agreement under DASO. To ensure disposal space is allocated for the Project, the Project Proponent should be responsible for obtaining agreement from MFC on the rationale for sediment excavation/removal and the allocation of the disposal site. The contractor(s), on the other hand, should be responsible for the application of the marine dumping permit under DASO from EPD for the sediment disposal. The excavated/removed sediments are expected to be loaded onto the barge and transported to the designated disposal sites allocated by MFC. The excavated/removed sediment would be disposed of according to its determined disposal options and paragraph 4.2.1 of Chapter 4 of the *PAH*. Stockpiling of contaminated sediments should be avoided. If temporary stockpiling of contaminated sediments is necessary, the excavated / removed sediment should be						

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		covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiles should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during excavation / removal and transportation of the sediment, the excavated / removed sediments shall be wetted during excavation / removal / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated / removed sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. To avoid illegal dumping, all dumping vessels have to be approved in a marine dumping permit issued under the DASO. Each of the vessels has to be installed with an automatic recording equipment, namely the Front End Mobile Unit (FEMU), which is a key component of the Real Time Tracking & Monitoring of Vessel (RTTMV) System of EPD. The FEMU transmits self-monitoring data direct from the barge at sea to the Control Centre at EPD through General Packet Radio Service (GPRS) mobile						

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		communication network. The transportation route avoiding the ecological sensitive areas should be proposed when applying the dumping permit.						
7.5.2.22	All DPs and Non-DPs	<u>Floating Refuse</u> In case of floating refuse is identified, the floating materials should be removed and eventually stored and disposed of together with the general refuse, after separating the recyclables for recycling. Any floating refuse trapped within the Project area will be collected by the Contractor and disposed together with other general refuse. Apart from collecting and storing waste with good waste management practice on site to avoid having waste transported to river channels or water bodies under extreme weather conditions, the contractor should be responsible for the collection of refuse, if any, within the works area. Contractor shall collect and remove floating refuse at regular intervals on a daily basis to keep river channels or water bodies within the Project area and the neighbouring water free from rubbish during the construction phase.	Construction Sites	Contractor		√		• WDO
Operation Phase								
7.5.3.1 – 7.5.3.2	All DPs and Non-DPs	<u>Municipal Solid Waste</u> Implementation of a waste prevention programme as well as materials recovery and recycling programme are recommended in order to minimise the production of waste. The programmes should consist of the following components: • Recycling bins such as paper, aluminium cans, plastic bottles, glass bottles, etc. should be placed at prominent locations to encourage recycling;	Operation Phase	FEHD/ relevant operators			√	• WDO

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		• Banner should be erected at the recycling bins area; • Operator should make arrangements with the recycler to collect and recycle used fluorescent lamps, toner cartridges as well as the scrap electronic equipment, such as computers to avoid disposal at landfills; • Staff awareness training should be provided on waste management procedures, including waste reduction and recycling; • Operator should set up waste reduction and recycled targets; and • Operator should participate in the Wastewi$e Label scheme to facilitate waste reduction. MSW generated from residential and industrial buildings should be collectedwith lidded bins, delivered to the refuse collection room and stored in enclosed containers installed in each building at the ground floor to prevent windblown, vermin, water pollution and visual impact. At least daily collection should be arranged by the waste collector to transport the waste to the refuse transfer station (RTS) at TKO 132. Odour removal installations are recommended to be installed at the RTS to treat the exhaust air. In addition, food waste collection in public rental housing estates such as adoption of smart bins would be implemented in order to collect food waste following by delivery to EPD's food waste recycling facilities for turning into energy or resources. Such arrangements will minimise potential environmental impacts. The above recommendations are proposed as technical guidelines for the operator's consideration and will be subject to detailed design.						

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7.5.3.3	All DPs and Non-DPs	Chemical Waste For those processes which generated chemical waste, alternatives could be found to eliminate the use of chemicals, to reduce the generation quantities or to select a chemical type of less impact on environment, health and safety. The proposed mitigation measures for operation phase are the same as that proposed for the construction phase. The operator should register with EPD as a chemical waste producer and follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Chemical waste should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical waste (e.g. spent lubricant oil) should be recycled at an appropriate facility, while chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Operation Phase	Relevant operators			√	• Waste Disposal (Chemical Waste) (General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
7.5.3.4	Non-DPs	Concrete Waste The general mitigation measures to minimise waste management implications should be implemented for concrete waste generated during the operation phase of the Project. Subject to detailed design of the concrete batching plant, a concrete recycling machine should be installed on-site to recycle concrete waste in order to reduce the material consumption and waste generation.	Operation Phase	Relevant operators			√	• WDO • ETWB TCW No. 19/2005 • DEVB TCW No. 06/2010 • Project Administration Handbook (PAH) for Civil Engineering Works

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7.5.3.5 - 7.5.3.6	DP3	Screenings, Grits and Sewage Sludge The new TKO 137 EPP is designed to handle the sewage generated from the new development areas under this Project. The major solid waste types produced from the EPP would be the screenings and grits collected from the inlet works and the dewatered sludge collected from the sewage treatment process. Screenings and grits generated from the EPP is suggested to be disposed of at the WENT or NENT Landfill whereas the dewatered sludge generated from the EPP is suggested to be treated at the STF. The screenings, grits and dewatered sludge will be delivered by road transport in water tight containers or skips to avoid odour emission during transportation. Unloading process will be operated in the designated room inside STF which should be enclosed and served by negative pressure by extracting odorous gas to deodorizing unit. The possible reduction of screened sewage in EPP includes improving the efficiency of the screening process to reduce the amount of sewage that bypasses the effluent screening system. Upgrading to more advanced screening technologies, such as rotary drum screens or band screens, can significantly enhance the capture of solids compared to traditional bar screens. Besides, implementing effective pretreatment and equalization process can further improve the screening system's efficiency. Incorporating grit removal and primary sedimentation steps upstream of the screening system can capture a large faction of suspended solids before they reach the treatment plant. Equalization basins, on the other hand, help dampen flow variations and prevent surges that can overwhelm the screening system, leading to increased solids bypass. By stabilizing the influent characteristics and flow	Operation Phase	DSD / relevant operators			√	• WDO

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		conditions, the screening process can operate more effectively and consistently.						
7.5.3.7	All DPs and Non-DPs	<u>Floating Refuse</u> Regular inspection and monitoring of floating refuse will be conducted by MD's appointed contractor. The operation frequency is suggested to be at least monthly interval in accordance with MD's agreement. For any floating refuse trapped within the Project Area, waste collection and disposal by the future contractor will be arranged as required subject to agreement with MD. In case there are any recyclable components in the floating refuse, they should be separated from the collected floating refuse. The contractor shall conduct on-site sorting of the recyclable component and be responsible for arranging respective recycling companies to collect these components.	Operation Phase	MD / Future contractor			√	• WDO
Land Contamination								
Construction Phase								
8.8.1.1 - 8.8.1.5	All DPs and Non-DPs	<u>Recommended Further Works</u> Further site appraisal and, if necessary, intrusive site investigation (SI) and remediation works should be carried out in accordance with EPD's Guidance Manual, Guidance Note and Practice Guide. For the skips storage and skip lorries parking area (Site S1) within TKO 137, further site appraisal should be carried out when site operation has ceased / after site handover in order to assess the latest site conditions and to address any new contamination issues caused by any changes in site operation and/or land use within the site. The associated SI works and	Areas with potential land contamination concerns / When site operation has ceased / after the land is handed over to the Project Proponent and prior to commencement of construction works.	Project Proponent / Contractor		√		• Annex 19 of the EIAO-TM • Guidance Note for Contaminated Land Assessment and Remediation (EPD, Revised in April 2023) • Practice Guide for Investigation and Remediation of

		any necessary remediation action are recommended to be carried out after the site operation has ceased but prior to the commencement of construction works at the site. For the future concrete batching plant and transformer room (Site S2) within TKO 137, further site appraisal should be carried out when site operation has ceased / after site handover but prior to construction works of the Project to identify the presence of any potential contamination sources and the need for SI works. Any necessary SI works and remediation action are recommended to be carried out after decommissioning of the facility but prior to commencement of construction works at the site. The further site appraisal and submission of Contamination Assessment Plan(s) (CAP(s)) should be carried out prior to the commencement of the SI works. CAP(s), presenting findings of the further site appraisal, the latest site conditions and updated sampling strategy and testing protocol, should be submitted to EPD for endorsement. The SI works should be carried out according to EPD's agreed CAP(s). Following the completion of SI works and receipt of laboratory test results, Contamination Assessment Report(s) (CAR(s)) would be submitted to EPD for approval to present the findings of the SI works and to discuss the presence, nature and extent of contamination. If contamination is identified, Remediation Action Plan (RAP(s)) which provides details of the remedial actions for the identified contaminated soil and / or groundwater should also be submitted to EPD for approval. Remediation works (if necessary) would need be carried out according to the approved RAP. Upon completion of remediation work, Remediation Report (RR) should be prepared and submitted to EPD to demonstrate that the decontamination work is adequate and is carried out in accordance with the approved CAR and RAP. No construction						Contaminated Land (EPD, Revised in April 2023) Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (EPD, Revised in April 2023)

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		works, other than decontamination work, should be carried out before the approval of RR by EPD.						
8.8.3.1	All DPs and Non-DPs	<u>Mitigation Measures for Remediation Works</u> Mitigation measures for the remediation works would depend on the nature / extent of contamination and the method of treatment. The mitigation measures will be recommended in the RAP and would typically include the following: • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season to minimise contaminated runoff from contaminated soils; • Suitable clean backfill material (or treated soil) shall be supplied after excavation; • Stockpiling site(s) shall be lined with impermeable sheeting and bunded. Stockpiles shall be fully covered by impermeable sheeting to reduce dust emission. If this is not practicable due to frequent usage, regular watering shall be applied. However, watering shall be avoided on stockpiles of contaminated soil to minimise contaminated runoff; • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced;	Contaminated area(s) / During remediation works and prior to construction / development works	Contractor		√		• Annex 19 of the EIAO-TM • Guidance Note for Contaminated Land Assessment and Remediation (EPD, Revised in April 2023) • Practice Guide for Investigation and Remediation of Contaminated Land (EPD, Revised in April 2023) Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management (EPD, Revised in April 2023)

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		• Vehicle wheel and body washing facilities at the site's exist points shall be established and used; and • Pollution control measures for air emissions (e.g. from biopile blower and handling of cement), noise emissions (e.g. from blower or earthmoving equipment), and water discharges (e.g. runoff control from treatment facility) shall be implemented and complied with relevant regulations and guidelines.						
Ecological Impact (Terrestrial and Marine)								
Construction and Operation Phase								
9.10.2.1	Q1 and Non-DPs	Avoidance of Adverse Impacts to Recognized Sites of Conservation Importance and Associated Floral Species of Conservation Importance The development of the TKO 137 and associated works such as the NTHMM shall avoid encroaching on the CWBCP.	Construction Phase	Project Proponent / Design stage consultant / Contractor	√	√		• EIAO-TM
9.10.2.2	C1, C2 and Non-DPs	Avoidance of Adverse Impacts to Coral Recipient Sites Two coral recipient sites within the marine assessment area of the Project, namely the Fat Tong Chau and western Junk Bay coral recipient sites would be avoided from encroachment of the reclamation and associated works of TKO 137 and 132.	Construction Phase	Project Proponent / Design stage consultant / Contractor	√	√		EIAO-TM
9.10.2.3	Non-DPs	Avoidance of direct impact on Black Kite and other breeding avifauna A nest of the Black Kite, a was identified in the mixed woodland to the west of Chiu Keng Wan in the assessment area of TKO 132. To prevent any direct impact on Black Kite, especially during their breeding period, construction activities involving vegetation clearance should be avoided in habitat where the	Construction Phase	Project Proponent / Design stage consultant / Contractor	√	√		EIAO-TM

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		nest was recorded. Prior to any vegetation clearance work in TKO 132, thorough pre-construction survey is recommended to ensure that no nests of the Black Kite or other avifauna species are affected.						
9.10.2.4	C1, C2 and Non-DPs	<u>Avoidance of blockage on downstream of S2 in Chiu Keng Wan</u> The latest alignment option avoided fragmentation (a direct impact on the connectivity) between the coastal area Chiu Keng Wan and natural watercourse S2, where a diadromous fish of conservation importance, Philippine Neon Goby, was previously recorded. Although this species has not been recorded in recent surveys, its potential passage between the stream habitat and coastal water has been preserved to allow potential migration. Works including NTHMMs and construction of marine viaduct would be conducted at least 20 m away from S2 and located at the downstream area as to avoid any potential ecological impacts.	Construction Phase	Project Proponent / Design stage consultant	√	√		EIAO-TM
9.10.3.2 – 9.10.3.4	All DPs and Non-DPs	<u>Minimization of Adverse Impacts to Recognized Sites of Conservation Importance and Natural Habitats</u> Through careful design consideration, the loss of natural habitats and associated vegetation was minimized and largely avoided habitat with higher ecological value such as mixed woodland and shrubby grassland / grassland. Provision of screening (e.g. by erection of hoarding) during construction phase is recommended to confine the proposed Project footprint to avoid any unnecessary encroachment of construction works and unintended access by workers into the adjacent sensitive natural habitats, including those within CWBCP.	Construction Phase	Project Proponent / Design stage consultant / Contractor	√	√		• EIAO-TM • Guidelines on Tree Preservation during Development • TC(W) No. 4/2020 Tree Preservation

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		Potential NTHMMs may be undertaken at natural habitats such as mixed woodland and shrubland adjacent to the Project site of TKO 137 and 132, the extent of NTHMMs have been carefully reviewed to minimize the potential direct ecological impact (i.e. habitat and vegetation loss) to the maximum practicable extent under the current design. To minimize unnecessary impacts on trees in mixed woodland and other natural habitats, appropriate protection measures shall be implemented. Reference should be made to relevant guidelines and technical circulars, such as *Guidelines on Tree Preservation during Development* and *TC(W) No. 4/2020 Tree Preservation*, etc. Upon the completion of temporary works, natural habitats will be reinstated (e.g. by reintroduction of vegetation at disturbed wooded habitats) as far as possible to minimize the impact arising from the temporary habitat loss.						
9.10.3.5 – 9.10.3.12	All DPs and Non-DPs	<u>Minimisation of Direct Impact of Terrestrial and Marine Natural Habitats and Associated Wildlife</u> To minimise the extent of terrestrial and marine habitat loss and its ecological impact, the proportion and extent of land-based (e.g. site formation, NTHMMs) and marine works (e.g. reclamation) were minimised and strategically positioned along existing developed area or along habitat edges where the habitat quality was considerably lower, to avoid and/or minimise the loss of habitats with higher ecological value(e.g. mixed woodland and subtidal hard bottom habitats and coral communities) as far as practicable. Direct impact to area with higher coral diversity and coverage including the natural shoreline of Fat Tong Chau and Tim Cham Chau have also been avoided.	Construction and Operation Phase	Project Proponent / Design stage consultant / Contractor/	√	√	√	• EIAO-TM

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		To minimise encroachment into marine habitats including intertidal and subtidal habitats and direct impact on associated marine organisms including corals, the reclamation in TKO 132 have been significantly reduced by around 24% comparing to the original scheme with 25 ha reclamation. With consideration to engineering and other constraints posed by the site conditions and the inherent requirement of the proposed public facilities (e.g. site layout, connection with existing facilities, etc.), the current layout has been minimised as best as possible. Thus, the potential direct impact to the marine habitats and associated marine organisms in western Junk Bay from reclamation has been minimised. In addition, sediment removal for CBP berthing operation would be confined to area with water depth more than 8m, to minimise direct impact on the subtidal hard substrata in shallow water (4-8m) where most hard coral colonies were recorded. The direct impact on coral colonies due to the reclamation in TKO 132 would be minimized by coral translocation as a mitigation measure. While coral translocation fin TKO 137 would be a precautionary measure for coral colonies that maybe affected. A pre-construction detailed coral mapping shall be conducted to identify the location, condition number, and translocation feasibility of coral colonies within the affected subtidal habitats. Identified coral colonies would be sized, mapped and tagged. The survey shall be conducted by qualified coral ecologist(s) prior to the commencement of marine works. All translocatable coral colonies (i.e. attached on moveable substrate with diameter <50 cm) should be translocated. Attention would be given to coral species that are habitat sensitive, uncommon, and/or threatened (e.g. listed Vulnerable or above in IUCN Red List), which shall be translocated as far as possible. Innovative / non-standard						

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		translocation method including detachment of coral colonies from unmovable boulders or bed rock would also be explored for these concerned species, subject to detailed formulation in the Coral Mitigation Plan. For example, detachment of non-encrusting coral species shall be considered. The coral translocation is recommended to be undertaken during the winter season (November-March) in order to avoid disturbance to the spawning period (i.e. July to October) of the affected coral colonies. A detailed Coral Mitigation Plan, including description of methodology including translocation (e.g. pre-translocation survey, identification / proposal of coral recipient site(s)) and/or other best practicable mitigation measures, and post-mitigation and/or post-translocation monitoring programme would be prepared with reference to recently approved EIA and subject to comment by the AFCD before commencement of the coral mitigation. All the coral mitigation exercises should be conducted by experienced marine ecologist(s) with at least 5 years relevant experience prior to commencement of coral mitigation. The recipient site of coral mitigation should have the following characteristics: - In the vicinity of Junk Bay where the marine conditions e.g. water depth, flow rate and temperature etc. are similar to the donor site. - Presence of healthy coral communities of the same species or similar species in the same family. - Sufficient space available for the newly translocated coral - Not to be impacted by construction works of this Project and other planned/committed projects.						

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		In addition, land requirement for temporary works was also optimised and minimised to avoid additional clearing of land beyond the works area. Majority of the temporary works area would be a 10 m setback from the works area, which would be the minimum that would be necessary for supporting the construction of TKO 137 and TKO 132. Temporary works area shall be reinstated to its original condition as far as possible. Hydroseeding and planting of plant species found in the original habitat should be prioritised to maximise and achieve a reinstated condition that resembles the original habitat condition as close as possible.						
9.10.3.13-9.10.3.14	Non-DPs	<u>Minimisation of Impact on Floral Species of Conservation Importance</u> For floral species of conservation importance identified within / adjacent to the project works footprint, including low abundance of Small Persimmon within the footprint of site formation in TKO 137, proper mitigation measure including in-situ preservation and transplantation shall be implemented. Detailed vegetation survey shall be conducted by persons with at least 5 years relevant experience to identify, tag and demarcate any floral species of conservation importance located within / adjacent to the footprint of proposed works prior to site clearance. All the identified floral species of conservation importance shall be preserved on site as far as possible with provision of plant protection zones with sturdy fencing. Plant protection zones of at least 1.5 m setback from the floral species of conservation importance shall be set up as far as possible during the construction phase. No trimming of the flora species of conservation importance shall be allowed. No access and construction activities shall be allowed within the plant protection zones. In case in-situ preservation	Construction and Operation Phase	Project Proponent / Design stage consultant / Contractor/	√	√	√	• EIAO-TM

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		is found to be impractical during the later design phase, appropriate alternative mitigation measures (e.g. transplantation / compensatory planting) shall be considered. Transplantation proposal for the affected individuals (including details on the individuals to be transplanted, methodologies, and associated post-translocation monitoring) shall be prepared if necessary.						
9.10.3.15	All DPs and Non-DPs	<u>Minimisation of Direct Mortality of Wildlife</u> Additional design features shall be considered to further minimise any potential direct injury / mortality of wildlife in the detailed design stage. These design features such as wildlife underpasses, wider road shoulders, and vegetation buffers in planning design of the development could minimize the likelihood of wildlife mortality due to roadkill and other incidences. For instance, implementation of vegetation buffers along traffic roads with dense vegetation could prevent access and guide wildlife away from the roads. Depends on feasibility, other potential design features such as wildlife underpasses and wider road shoulders could also be explored in the planning design of the development. As these designs could minimise the likelihood of wildlife mortality due to roadkill and other incidences. In addition, precautionary measures such as using non-transparent or non-glazing materials in noise barrier, if any, and / or windows of other buildings could be implemented to minimize the potential of bird collisions.	Construction and Operation Phase	Project Proponent / Design stage consultant / Contractor/	√	√	√	-
9.10.3.16 – 9.10.3.21	All DPs and Non-DPs	<u>Minimisation of Disturbance Impacts during Construction and Operation Phase</u> Mitigation measures to be recommended in Section 3 - 5 for controlling air, noise and water quality impact during the construction and operation phases would serve also to	Construction and Operation Phase	Project Proponent / Contractor		√	√	• EIAO-TM; • Air Pollution Control (Construction Dust) Regulation (Cap. 311R);

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		minimize the ecological impact arising from disturbance on natural habitats adjacent to TKO 137 and 132, including those within the CWBCP. Proper implementation of the dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation (Cap. 311R) shall avoid and minimize impacts to the surrounding habitats and the associated wildlife arising from the construction activities. Good site practices should also be adopted to minimize windblown litter and dust during transportation of waste. The relevant noise control standards stipulated in the Annex 5 of the EIAO-TM should be implemented as recommended in Section 4.8. The provision of movable noise barriers or enclosures would be erected to provide screening from the construction plant. The implementation of noise control requirements stated in the "Recommended Pollution Control Clauses for Construction Contracts" is also recommended. The noise impact during construction phase should be avoided and minimized by the use of Quality Powered Mechanical Equipment (QPME) and orientating noisy machines / plant away from these habitats. To avoid any adverse water quality impacts to surrounding terrestrial and marine habitats, mitigation measures and good site practices for water quality impacts during construction and operation phases should be implemented. Channels or earth bunds or sandbag barriers should be provided on site during construction works to properly direct stormwater to such silt removal facilities. The glare from construction works should be controlled and minimized taking into account the presence of natural habitats, especially those within CWBCP. Proper implementation of						• Recommended Pollution Control Clauses for Construction Contracts; • ProPECC PN 1/94 Construction Site Drainage; • Noise Control Ordinance (NCO) • Air Pollution Ordinance (Construction Dust) Regulation)

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		mitigation measures, such as good site practices, restriction of construction hours from 07:00 to 19:00 (in particular, at construction activities near country park areas), night-time lighting control and lining hoarding at the Project boundary would further minimize potential ecological impacts. The intensity of artificial light from construction and operation activities should also be controlled to the lowest possible level. Unnecessary lighting should be turned off outside the working hours of the construction sites and developments in the operation phase. A balance between lighting for safety and avoiding excessive lighting can be achieved by using directional lighting. Good site practices should also be strictly followed to minimise the disturbance impacts arising from the construction activities. Recommendations for good site practices during the construction phase include: • Confining the works within the site boundary; • Erection of hoarding to avoid trespassing into nearby habitats; • Storage of equipment or stockpile in the existing urbanized area within the site boundary of the Project to minimize disturbance to vegetated areas; • Nomination of approved personnel, such as a site manager, to be responsible for implementation of good site practices, arrangements for waste collection and effective disposal to an appropriate facility; • Training of site personnel in site cleanliness, concepts of waste reduction, reuse and recycling, proper waste management and chemical waste handling procedures;						

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		• Provision of sufficient waste reception / disposal points, and regular collection of waste; • Adoption of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Provision of regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • Adoption of a recording system for the amount of waste generated, recycled and disposed (including the disposal sites); and • Preparation of Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP).						
9.10.3.22 – 9.10.3.25	C1, C2 and Non-DPs	<u>Minimisation of Marine Water Quality Impact during Construction and Operation Phase</u> The DCM method is capable to treat sediment in deep layer without excavation, dredging, shoring or dewatering, and thus there is less exposure of sediment and waste to the water environment. Deployment of silt curtain and placing a layer of sand blanket on top of the DCM works areas before the DCM treatment, release of fines and cement slurry from the DCM operation would be negligible. Furthermore, reclamation filling would only be carried out following the completion of blockwork seawall and coping, such that reclamation filling would be confined within seawall coping, minimising the loss/escape of reclamation filling into adjacent waters outside the seawall coping.	Construction and Operation Phase	Project Proponent / Contractor		√	√	• EIAO-TM • ProPECC PN 2/23 • WDO • Waste Disposal (Chemical Waste) (General) Regulation

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		Mitigation measures to be recommended in the water quality impact assessment for controlling water quality impact during the construction and operation phases would serve also to minimize the indirect water quality impacts on marine ecological resources, particularly coral communities and the coral recipient sites. Some of the relevant mitigation measures are listed below: - Water quality monitoring shall be implemented to ensure effective control of water pollution and recommend additional mitigation measures required; - Double silt curtain should be deployed to surround the underwater filling, removal of marine deposit / sediment and sand blanket laying works of TKO 132 development; - Single layer silt curtain should be deployed to surround the underwater filling, removal of marine deposit / sediment and sand blanket laying works of TKO 137 development; - Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation; - Bored piling and any excavation for construction of the marine viaducts should be enclosed and carried out within steel casings or cofferdams or other equivalent systems that can effectively contain the material, debris and wastewater generated from the process. Plants should not be operated with leaking pipes, and any pipe leakages shall be repaired quickly; - All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;						

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		- Perimeter drainage systems should be provided in the open areas to collect stormwater runoff; - Regular collection and removal of floating refuse should be performed along the waterfront of TKO 132 during operation phase; and - Maintenance removal of obstruction should be carried out by closed grab dredger. Effluent monitoring and marine water quality monitoring would make sure that the discharged effluent from construction sites meets the effluent discharge and marine water quality guidelines. Restrictions prohibiting dumping of rubbish, food, oil, or chemicals should be strictly enforced. There should also be a spill response plan if vessels operating in the works areas will be transporting oil or other hazardous chemicals. The oil spill response plan will have specific provisions for protecting marine ecological resources. With the proper implementation of these measures, the marine habitat and associated organisms in the area would be protected.						
9.10.5.2 – 9.10.5.4	C1, C2 and Non-DPs	<u>Enhancement Measures for Marine Habitat Loss</u> The new vertical seawall for along the TKO 132 PDA would provide additional hard substrata for the recolonization of intertidal fauna and corals. Ecological features (e.g. seawall enhanced with rough texture and irregular pattern) shall be incorporated into the design of vertical seawall as far as practicable. Such features could increase the surface complexity of the seawall to provide shades and refuge for organisms including intertidal organisms. Comparing with traditional smooth concrete seawall, rough texture such as holes and crevices can increase the heterogeneity / complexity of the habitat and improve the water retention	Construction and Operation Phase	Design stage consultant / Contractor / Operator	√	√	√	-

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		ability of the seawall surfaces. These features could reduce the chance of dehydration of the intertidal organisms during the low tide. A submission on the detailed design of the ecological features to be adopted will be prepared, subject to comment by the AFCD prior to the installation of the ecological features. Eco-shoreline would be implemented along the seawall of the TKO 137 PDA, which provides beneficial functions to the local ecosystems, whilst providing coastal protection. The design of the eco-shoreline would emphasise on providing subtidal hard substrate which would be suitable for coral colonization, and could also support other intertidal and subtidal epifauna and pelagic fauna (e.g. provide shelter for juveniles of marine fauna, and grazing / feeding opportunities), thereby effectively enhancing the ecological function of the new seawalls. It is therefore recommended that during the detailed design of the reclamation, a study should be conducted to investigate the proper form of eco-shoreline to be adopted for the artificial seawall along the reclamation for TKO 132 and 137, and to devise the implementation scheme for incorporation into the reclamation construction programme. An Eco-shoreline study report covering the recommendations of the proper form of eco-shoreline to be adopted, the detailed design of the eco-shoreline and the implementation programme will be submitted for the approval of AFCD before commencement of reclamation works. Artificial reef is tool that aim to provide a stable growing habitat for corals, fishes and other marine organisms. The feasibility of the artificial reef deployment shall be further studied in the later stage of the Project. If found to be feasible, the location of deployment shall be properly selected by marine ecologist with at least 5 years relevant experience. The detailed design						

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		of the artificial coral reef and the implementation programme will be submitted for the approval of AFCD before commencement of reclamation works. It is suggested that artificial reef with proper materials such as concrete, steel, clay, etc., which proven to be ideal material for coral and other marine organisms for colonization, should be selected. Innovative design / technology adopted in Hong Kong such as 3D printing technology to construct artificial coral reef shall be considered.						
9.10.5.6	All DPs and Non-DPs	<u>Greening Opportunity</u> Greening opportunities should be explored to promote the overall habitat quality and ecological connection. Native tree, shrub and herb species would be considered as far as possible, with consideration of market availability, for landscape planting and buffer planting in the Project area and Project boundary. Furthermore, native host plants and nectar plants should preferentially be considered in the planting plan to provide a butterfly-friendly environment. Native fruits trees with food sources (e.g. *Ficus microcarpa*, *F. subpisocarpa*, *F. variegata*, *Dimocarpus longan*, *Clausena lansium*) could also be planted to attract birds. Buffer planting together with nectar plants and host plants is highly recommended especially in area close to CWBCP, where a higher faunal diversity and abundance were recorded.	Design, Construction and Operation Phase	Design stage consultant / Contractor	√	√	√	-
Fisheries Impact								
10.7.3.2 – 10.7.3.4	All DPs and Non-DPs	<u>Minimization of Water Quality Impact</u> Marine construction methods such as underwater blasting and percussive piling that have significant impacts on fisheries resources, shall be avoided in this Project. Although dredging is considered less harmful as underwater blasting, it still has	Construction and Operation Phase	Project Proponent / Contractor / Operators		√	√	-

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		the potential to cause destruction and disturbance to fisheries resources. Therefore, non-dredged reclamation methods, including DCM and jet grouting for ground treatment, shall be adopted whenever practicable. Utilising non-dredge methods instead of conventional seabed dredging shall significantly decrease the release of suspended solids and contaminants into water bodies. Water quality mitigation measures shall be implemented during the construction phase. The mitigation measures cover the potential water quality impacts from marine and land-based construction activities. Implementation of the water quality mitigation measures shall also below those stated in WQIA. Besides the adoption of the water quality mitigation measures to minimise the impacts due to creation of embayed water and marine refuse entrapment, sewage / wastewater generation and operation of EPP and SPS, non-point surface runoff, and accidental marine spillage from barges, no fisheries-specific mitigation measure is required during the operational phase of the Project.						
Landscape and Visual Impact								
Construction Phase								
Table 11.9	All DPs and Non-DPs	CM1 – Tree Preservation and Transplantation Tree without impact from the proposed works should be retained and any existing trees unavoidably affected by the works should be transplanted following the prevailing mechanism (e.g. DEVB TC(W) – 4/2020). Any existing trees to be pruned by the Project should follow the Tree	Project Site / Design and Construction Phase	CEDD and DSD (for DP3) (via contractor)	√	√		• DEVB TC(W) – 4/2020 – Tree Preservation

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		Management Practice Note No. 3: Tree Pruning issued by GLTMS of DEVB.						
Table 11.9	All DPs and Non-DPs	CM2 - Preservation of Natural Coastline Natural Coastline without impact from the proposed works should be retained.	Project Site / Design and Construction Phase	CEDD (via contractor)	√	√		-
Table 11.9	All DPs and Non-DPs	CM3 - Erection of Decorative Screen Hoarding Erection of decorative screen hoarding or hoarding compatible with the surrounding setting	Project Site / Construction Phase	CEDD and DSD (for DP3) (via contractor)		√		EIAO
Table 11.9	All DPs and Non-DPs	CM4 - Management of Construction Activities and Facilities Construction facilities and activities on work sites and areas should be carefully managed and controlled \ to minimise any potential adverse landscape impacts	Project Site / Construction Phase	CEDD and DSD (for DP3) (via contractor)		√		EIAO-TM
Table 11.9	All DPs and Non-DPs	CM5 - Reinstatement of the affected landscaped area • Reinstatement of affected vegetated area within assessment area would be implemented to restore the existing natural environment.	Project Site / Design and Construction Phase	CEDD and DSD (for DP3) (via contractor)	√	√		-
Operation Phase								
Table 11.10	All DPs and Non-DPs	OM1 – Aesthetically pleasing design of Aboveground Structures Aesthetically pleasing design as regard to the form, material finishes and building façade should be incorporated to buildings and aboveground structures such as bridges, ancillary buildings and other associated engineering facilities so as to blend in the structures to the adjacent landscape and visual context.	Proposed Structure / Design and Operation Phase	For public works: ArchSD, CEDD, DSD, EDB, EPD, HyD and WSD For private works, by	√		√	• EIAO-TM • DSD TC No. 2/2022-Vetting Committee on Aesthetic Design of Drainage Services Buildings

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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				respective proponent				• APP-152: Sustainable Building Design Guidelines
Table 11.10	All DPs and Non-DPs	OM2 – Buffer Screen Planting Buffer screen planting, including shrub to provide screening.	Project Site / Design and Operation Phase	For public works: ArchSD, CEDD, DSD, EDB, EPD, HyD and WSD For private works, by respective proponent	√		√	EIAO-TM
Table 11.10	All DPs and Non-DPs	OM3 – Roof Greening Roof Greening should be proposed to the roof area of the propose structures as far as practical to enhance the landscape quality of the structures and mitigate any potential visual impact on adjacent public viewers.	Project Site / Design and Operation Phase	For public works: ArchSD, CEDD, DSD, EDB, EPD and WSD For private works, by respective proponent	√		√	DEVB TC(W) No. 3/2012
Table 11.10	All DPs and Non-DPs	OM4 – Roadside Greening Roadside soft landscape should be incorporated to the station buildings and associated engineering facilities. Shade tolerant plants with tall to medium height should be planted to under the viaduct to soften the hard building edges and provide screening.	Project Site / Design and Operation Phase	CEDD	√		√	EIAO-TM

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Table 11.10	All DPs and Non-DPs	OM5 – Open Space Provision Provision of new open space for recreational use in TKO137. An integrated network of linked open spaces, in approx. 18.82ha, shall be created to connect the open spaces with the waterfront and other green networks in TKO in accordance with the principles adopted in the Report on Master Urban Design Plan and Landscape Master Plan. Landscape and visual features shall be carefully placed at suitable locations as landmarks or focal points to serve as iconic features and enhance the community identity.	Project Site / Design and Operation Phase	For public works: ArchSD and CEDD For private works, by respective proponent	√		√	EIAO-TM
Table 11.10	All DPs and Non-DPs	OM6 – Compensatory Tree Planting As far as practicable, compensatory tree planting for compensation of felled trees would be implemented following the prevailing mechanism (e.g. DEVB TC(W) 4/2020). Tree compensation strategy would be proposed along the proposed roadside planter, amenity area, greenery at open space, greenery at EPP and slope treatment in accordance with the latest design layout. Reference shall be made to Greening Master Plan issued by CEDD, Street Tree Selection Guide, and Guiding Principles on Use of Native Plant Species in Public Works Projects promulgated by DEVB to optimize the use of native species and/or species with ecological value to enhance biodiversity.	Project Site / Design and Operation Phase	For public works: CEDD/ArchSD, and DSD For private works, by respective proponent	√		√	DEVB TC(W) – 4/2020 – Tree Preservation
Table 11.10	All DPs and Non-DPs	OM7 – Landscape Treatments on Slope or Retaining Structure Landscape treatments on slope or retaining structure should be made reference to GEO Publication No. 1/2011 – Technical Guidelines on Landscape Treatment for Slopes and be adopted subject to detail design of the slope/retaining structure. Mix of native species will be proposed as far as	Project Site / Design and Operation Phase	CEDD and WSD	√		√	GEO Publication No. 1/2011 – Technical Guideline on Landscape Treatment for Slopes

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		practicable in reference to Guiding Principles on Use of Native Plant Species in Public Works Projects promulgated by DEVB.						
Table 11.10	All DPs and Non-DPs	OM8 – Shoreline Treatment Eco-shoreline design to be adopted on artificial seawall to enhance its ecological value.	Project Site / Design and Operation Phase	CEDD	√		√	-
Impact on Cultural Heritage								
12.6.5.1	Non-DPs	To ensure that no archaeological resources related to the Customs Station on Fat Tau Chau would be affected by the Project, an Archaeological Impact Assessment should be undertaken during the detailed design phase when the details of the proposed works on Fat Tau Chau are available. This Archaeological Impact Assessment at the detailed design phase shall assess the archaeological potential concerning the existence of remains or features in relation to the Customs Stations or other facilities within the Project boundary of TKO 137 on Fat Tau Chau, particularly in areas that would be affected by the proposed works. Based on the details and extent of proposed works to be carried out on Fat Tau Chau, the Archaeological Impact Assessment at the detailed design phase would propose appropriate measures, if any impact on archaeological heritage is identified, for consideration and agreement by AMO. The Archaeological Impact Assessment at the detailed design phase shall be conducted by an archaeologist. It shall incorporate desktop information, site inspection results and recommendation of appropriate mitigation measures, namely change of work design, preservation of archaeological heritage *in-situ*, preservation by relocation, archaeological survey cum excavation or rescue excavation, archaeological watching brief or preservation by	Construction sites / Construction Phase	Contractor / Project Proponent		√		• EIAO-TM • Antiquities and Monuments Ordinance

EIA Ref.	Relevance to Designated Project (DP)	Environmental Protection Measures	Location / Duration of Measures / Timing of Completion of Measures	Implementation Agent	Implementation Stage*			Relevant Legislation & Guidelines
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		record subject to the level of potential impacts to be confirmed in the Archaeological Impact Assessment at detailed design phase upon availability of the details and extent of the proposed works to be carried out on Fat Tau Chau, as necessary for consideration and agreement by AMO. This Archaeological Impact Assessment at the detailed design phase should be conducted by the project proponent. In the light of the above considerations, no adverse impact would be anticipated with mitigation measures agreed by AMO and implemented to the satisfaction of AMO to ensure preservation of the archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau.						
12.6.5.2	All DPs and Non-DPs	If antiquities or supposed antiquities under the Antiquities and Monuments Ordinance (Cap. 53) are discovered during the construction works within the Project boundary of TKO 137 and TKO 132, the project proponent is required to inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO.	Construction sites / Construction Phase	Project Proponent		√		• EIAO-TM • Antiquities and Monuments Ordinance
12.6.5.5-12.6.5.7	DP2, Non-DPs	Monitoring of ground-borne vibration, tilting and ground settlement • Site of Archaeological Interest A condition and structural survey, as well as a baseline vibration review shall be conducted for construction works located in close proximity to the Fat Tau Chau House Ruin SAI (SAI185) (Figure 12.12 refers), namely: 1) Reclamation of Phase 1B and Construction of Box Culvert and Seawall Outfall Works;	Proposed Structure or Site / Construction Phase	Contractor		√		• EIAO-TM

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		2) Reclamation of Phase 1C; 3) TKO 137 Infrastructure Works (O1) (should there be considerable piling works or works that would create strong ground-borne vibration occurred); 4) TKO 137 Infrastructure Works (O6); 5) Site Formation and Site Development of Service Reservoirs (OU5 and OU6); and 6) Site Development of PR1 including Permanent PTF/TIH (PR1). Condition and structural survey should be carried out for Fat Tau Chau House Ruin SAI (SAI185) both before and after all construction works to inspect its physical condition and structural integrity. The surveys shall be undertaken by registered structural engineers or heritage specialists. The methodology for the condition and structural surveys shall be proposed by the registered structural engineers or heritage specialist. The results of the pre-construction condition survey shall form a baseline and taken into consideration when formulating the monitoring strategy. The pre- and post-condition survey reports should be submitted for AMO's record. Based on the pre-construction condition and structural survey results and construction details, the baseline vibration review before the construction phase shall evaluate if monitoring of ground-borne vibration, tilting and ground settlement is required for Fat Tau Chau House Ruin SAI during the construction phase. The baseline vibration review should be submitted to AMO for comment and agreement before implementation. Any vibration and building movement induced from the construction works should be strictly						

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		monitored to ensure no disturbance and physical damages made to the heritage sites during the course of works. If monitoring of ground-borne vibration is required, a monitoring proposal, including vibration limit, type of monitoring, checkpoint locations, installation details and frequency of monitoring should be submitted by contractor to AMO for agreement before commencement of the works. Prior agreement and consent should be sought from the owner(s), stakeholder(s) and relevant Government department(s) for the installation of monitoring points on the archaeological heritage before commencement of the works. Should the monitoring data be approaching to the vibration limit, the contractor shall propose measures to mitigate movement situation at the heritage site for consideration by AMO and implement on site, with examples, not limited to, increasing monitoring frequency, additional condition surveys, amendment / review of design of the construction, etc., so that the concerned archaeological heritage would be protected and preserved. AMO should be informed immediately should irregularities be observed.						
12.6.5.8-12.6.5.9	DP2, Non-DPs	<u>Dust Suppression</u> Air Pollution Control (Construction Dust) Regulation shall be followed on Fat Tau Chau House Ruin SAI (SAI185). Dust suppression measures and good site practice should be observed by the project proponent during the construction phase in order to avoid dust accumulation on Fat Tau Chau House Ruin SAI (SAI185).	Construction sites / Construction Phase	Project Proponent		√		• EIAO-TM Air Pollution Control (Construction Dust) Regulation
12.6.5.10	Non-DPs	<u>Buffer Zone</u> Fat Tau Chau House Ruin SAI (SAI185) is located outside of the Project Boundary and Development Area of TKO 137. To ensure no construction workers or equipment will be in contact	Proposed Site/ Construction Phase	Contractor		√		• EIAO-TM

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		with the archaeological heritage directly, a buffer zone should be reserved during the construction phase of the Project to safeguard Fat Tau Chau House Ruin SAI (SAI185). The buffer zone should be established in the form of physical barrier to separate the works area from the concerned structures. No works shall be allowed within the buffer zone. No workers or any construction related equipment and materials should trespass the buffer zone to avoid direct contact with Fat Tau Chau House Ruin SAI (SAI185). It is suggested that the buffer zone should be of 10m from the concerned SAI or as practical as possible. Considering the challenging terrain of the environment nearby, implementation details shall be proposed by the contractor and agreed with AMO prior to commencement of the proposed works.						
12.7.2.2 & 12.7.3.1	DP2	As a precautionary measure, the areas with data gaps and the uninvestigated anomaly should be designated as archaeological exclusion zones (AEZs) during the marine works of the Project to ensure no impact on the seabed from anchoring of work vessels during the marine works of the Project in these locations.	Marine Construction Activities in TKO 137 and TKO 132 / Construction Phase (Marine Works)	Contractor		√		-
Hazard to Life								
13.10.1.8	N/A	To avoid the potential risk impact associated with the explosives delivery from the pier during construction phase of the Project, buffer distances of 90m and 35m from the explosives delivery route should be kept for indoor and outdoor population respectively during explosives delivery.	Explosives Off-loading Pier	Contractor		√		N/A
Landfill Gas Hazard								
Construction Phase								

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14.7.1-14.7.2	DP3, Non-DPs	During construction phase, the risk is classified as "Medium" or "Low". Safety requirements stated in Chapter 8 – Hazards Arising During Construction of the LFGHA Guidance Note should be implemented properly during construction phase.	Development within 250m Landfill Consultation Zone	Contractor		√		• LFGHA Guidance Note
Operation Phase								
14.7.10 – 14.7.11	DP3, Non-DPs	<u>Detailed Landfill Gas Hazard Assessment</u> Project proponents of future developments located within the 250m landfill gas consultant zone shall conduct a detailed landfill gas hazard assessment (LFGHA) following the LFGHA Guidance Note issued by EPD at detailed design stage to re-confirm the landfill gas hazard risk and undertake detailed design of the mitigation measures, as appropriate. Subject to the detailed design, monitoring during operation phase, if required, shall follow the criteria established in the EM&A manual for ensuring continued performance of the implemented precautionary/ protection measures. The detailed LFGHA covering the design of specific protection measures; and the operational phase monitoring programme should be prepared to the satisfaction of EPD following the prevailing mechanism at detailed design stage.	Development within 250m Landfill Consultation Zone	Project Proponent / Contractor	√			• LFGHA Guidance Note
14.7.3	DP3, Non-DPs	"Passive" and "Active" control measures should be considered for developments categorised as "Medium" or "High" Risk respectively.	Development within 250m Landfill Consultation Zone	Project Proponent / Contractor	√			• LFGHA Guidance Note
14.7.4 - 14.7.5	DP3, Non-DPs	<u>Passive Control Measures</u> In accordance with the LFGHA Guidance Note, "passive" control measures/systems to reduce the risk of gas ingress to	Development within 250m Landfill Consultation Zone	Project Proponent / Contractor	√			• LFGHA Guidance Note

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		proposed building structures with ground level or subsurface levels include: • Gas-resistant polymeric membranes which can be incorporated into floor or wall construction as a continuous sealed layer. Membranes should be able to demonstrate low gas permeability and resistance to possible chemical attack, and may incorporate aluminium wafers to improve performance; • Other building materials such as dense well-compacted concrete or steel shuttering which provide a measure of resistance to gas permeation; • Creation of a clear void under the structure which is ventilated by natural air movements such that any emissions of gas from the ground are mixed and diluted by air; • Synthetic composite geotextiles which provide a free-venting cellular structure and provide preferential pathways for release of gas. Passive control measures may be used in low and medium risk situations where gas emissions are expected to be at relatively low rates and concentrations and venting to atmosphere is unlikely to cause a hazard or nuisance due to the low concentration or high dilution which will occur. Passive control measures are generally preferable, if the rates of gas emission are not too high, because they do not require as much maintenance or monitoring as active control systems.						
14.7.6 - 14.7.7	DP3, Non-DPs	<u>Active Control Measures</u> "Active" control/systems can also be considered to be employed as a precautionary measure, in situations where	Development within 250m Landfill Consultation Zone	Project Proponent / Contractor	√			• LFGHA Guidance Note

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		there is a sensitive target to protect. "Active" control measures/systems include the following: • A void under the structure, which is continuously ventilated by mechanical fans, such that any emissions of gas from the ground are mixed and diluted in the air flow before discharge to atmosphere; • Construction of a granular layer incorporating perforated collector pipes which is continuously ventilated by mechanical fan, such that any emissions of gas from the ground are drawn towards the end of the pipes and diluted in the air flow before discharge to atmosphere; • Creation of a positive pressure zone below the building structure by injection of air from a blower into the granular layer; and • Creation of positive air pressure zones within building structures to counteract possible leakage of gas into the building from the ground. • For any newly built permanent building structures (e.g. basement plant rooms in buildings into which operators frequently enter) within the 250m Consultation Zone, forced ventilation should be installed in such rooms or buildings. Gas detection systems with audible alarm should also be installed in such area of the development in order to monitor internal spaces inside buildings. The gas detection systems should be calibrated and maintained at regular basis in according to the recommendation of manufacturer's instruction. The operators at the development should also make sure that the gas detection systems are always in functions during the operational phase of the development.						

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		"Active" control should always be applied in conjunction with passive barriers such as membranes in floors, in order that there is no leakage of air/gas flow through a floor or wall into a structure. Gas detection systems should also be used to monitor gas in extracted air flow, and to monitor internal spaces inside buildings. "Active" controls are usually required for sites where gas has been measured in the ground at or close to the sites and buildings are close to the source of gas.						
14.7.8 – 14.7.9	DP3, Non-DPs	<u>Guidance for Entry into Service Rooms / Voids, Manholes and Chambers</u> Any service voids, manholes or chambers which are large enough to permit access to personnel should be subject to entry safety procedures. Works in confined spaces are controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulation of the Factories and Industrial Undertakings Ordinance and the Safety Guide to Working in Confined Spaces should be followed to ensure compliance with the Regulation. In general, when work is being undertaken in confined spaces, sufficient approved resuscitation equipment, breathing apparatus and safety torches should be made available. Persons involved in or supervising such work should be trained and practiced in the use of such equipment. A permit-to-work system for entry into confined spaces should be developed by an appropriately qualified person and the system should be consistently employed. The safety measures recommended in Chapter 8 – Hazards Arising During Construction of the LFGHA Guidance Note should also be strictly followed.	Development within 250m Landfill Consultation Zone	Project Proponent / Contractor		√	√	• Factories and Industrial Undertakings (Confined Spaces) Regulation of the Factories and Industrial Undertakings Ordinance • Safety Guide to Working in Confined Spaces • LFGHA Guidance Note