

Appendix 13.1 Summary of Environmental Impacts Associated with the Project

Air Quality Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Existing and planned ASRs within the 500m assessment area	No adverse air quality impact during construction	<ul style="list-style-type: none"> • Air Quality Objectives • EIAO-TM 	None	<ul style="list-style-type: none"> • Implement relevant dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i>, and good site practices. • Regular maintenance of construction equipment deployed on-site to prevent black smoke emission. • Connect construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable. • Proper storage, handling and timely disposal of odorous excavated materials. 	No residual impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Operation Phase					
Existing and planned ASRs within the 500m assessment area	No adverse air quality impact during operation	<ul style="list-style-type: none"> • Air Quality Objectives • EIAO-TM 	None	<ul style="list-style-type: none"> • Proper storage, handling and timely disposal of odorous screening materials. • Regular inspection at inlet chamber of existing pumping facilities to prevent accumulation of debris/materials at the inlet screens causing odour nuisance. 	No residual impact

Noise Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Existing and planned NSRs within the 300m assessment area	<ul style="list-style-type: none"> 71 to 103 dB(A) 	<ul style="list-style-type: none"> EIAO-TM Leq (30 min) 75dB(A) for residential dwellings Leq (30 min) 70dB(A) for schools during normal teaching hour Leq (30 min) 65dB(A) for schools during examination period 	<ul style="list-style-type: none"> Residential NSRs exceed the noise criteria by up to 28 dB(A) Educational institution NSRs exceed the noise criteria by up to 22 dB(A) and 27 dB(A) during normal teaching hour and examination period, respectively 	<ul style="list-style-type: none"> Good construction site practice; Use of quiet PME; Adoption of movable noise barriers; Use of noise insulation sheet; Adoption of fixed temporary noise barriers; and Scheduling of PME / construction activities 	No residual impact
Operation Phase					
Existing and planned NSRs within the 300m assessment area	<ul style="list-style-type: none"> 38 to 46 dB(A) 	<ul style="list-style-type: none"> EIAO-TM IND-TM Prevailing background noise measurement level for day and evening period and night period for existing NSRs 	<ul style="list-style-type: none"> No exceedance at NSRs 	<ul style="list-style-type: none"> Quieter plant should be chosen as far as practical; Include noise levels specification when ordering new plant items; All openings, including louvres for ventilation and machine room doors oriented away from the NSRs as far as practicable; Silencers, acoustic louvres or acoustic doors should be used where necessary; and 	No residual impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
				<ul style="list-style-type: none">• Develop and implement a regularly scheduled plant maintenance programme	

Water Quality Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Water Sensitive Receivers (WSRs) include Yuen Long Town Nullah, Shan Pui River, Kam Tin River, Old Kam Tin River, Deep Bay Wetland Buffer Area, Deep Bay Wetland Conservation Area, nearby mangroves and active & inactive fish ponds	Water quality at WSRs may be deteriorated by construction works with the following pollution sources: <ul style="list-style-type: none"> • Runoff and drainage from construction sites; • Sewage from construction workforce; • Accidental spillage of chemicals; • Construction runoff from works at or near watercourses; and • Runoff during excavation / diversion of watercourse including removal of sediment. 	<ul style="list-style-type: none"> • EIAO-TM Water Quality Objectives for Deep Bay Water Control Zone • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-ICW) • Practice Note for Professional Persons (ProPECC) PN 1/94 Construction Site Drainage 	N/A	<ul style="list-style-type: none"> • Adopt good site practices. • Implementing proper site management measures to control site runoff and drainage following the guidelines provided in ProPECC PN 1/94. • Use of containment structures and diversion channels to facilitate a dry or at least confined excavation within the nullah. • Proper treatment of wastewater before discharge in accordance with WPCO. • Proper storage, handling and disposal of chemicals. • Response procedures for accidental spillage or leakage of chemicals • Water quality monitoring during construction. 	No residual impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Operation Phase					
Water Sensitive Receivers (WSRs) include Yuen Long Town Nullah, Shan Pui River, Kam Tin River, Old Kam Tin River, Deep Bay Wetland Buffer Area, Deep Bay Wetland Conservation Area, Mangroves and active & inactive fish ponds	Water quality at WSRs may be deteriorated due to: <ul style="list-style-type: none"> • Increase in suspended solids during operation and maintenance of the revitalised YLN; • Changes in hydrodynamic conditions; and • Change in sediment deposition and erosion pattern. 	<ul style="list-style-type: none"> • EIAO-TM • Water Quality Objectives for Deep Bay Water Control Zone • Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) 	N/A	<ul style="list-style-type: none"> • Good site practice for removal of excessive silt, vegetation, debris and obstruction 	No residual impact

Waste Management and Land Contamination

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
<p>C&D materials, sediment, general refuse, and chemical waste</p> <p>No land contamination implication envisaged</p>	<ul style="list-style-type: none"> Approximately 135,881 m³ of inert C&D material will be generated, of which 7,744 m³ will be reused on-site and 128,137 m³ will be disposed off-site Approximately 5,360 m³ of C&D waste Approximately 17,500 of Category H sediment Approximately 32.5 kg/day of general refuse About 50 litres per month of chemical waste 	<ul style="list-style-type: none"> EIAO-TM Waste Disposal Ordinance (Cap.354) Waste Disposal (Chemical Waste) (General) Regulation Waste Disposal (Charges for Disposal of Construction Waste) Regulation Works Branch Technical Circular No. 2/93, 'Public Dumps' DEVB TCW No. 6/2010 Trip Ticket System for Disposal of Construction and Demolition Materials ETWB TCW No. 34/2002 Management of Dredged / Excavated Sediment Dump at Sea Ordinance (Cap.466) 	N/A	<ul style="list-style-type: none"> Avoidance, minimization, recycling, treatment and safe disposal of waste. Good waste management and control practices to avoid generation of excessive amount of waste. Sediment should be excavated, transported and disposed of in a manner to minimize adverse environmental impacts. Proper storage, handling and disposal of chemicals. Proper storage, recycling and disposal of general refuse 	No residual impact
Operation Phase					

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
General refuse, silt, chemical waste and screenings during operation	<ul style="list-style-type: none"> • Small amount of screenings, silt materials and debris during operation • Very small amount of chemical waste from routine maintenance 	<ul style="list-style-type: none"> • EIAO-TM • Waste Disposal Ordinance (Cap.354) • Waste Disposal (Chemical Waste) (General) Regulation 	N/A	<ul style="list-style-type: none"> • The screenings, silt materials and debris collected during operation and maintenance should be properly packed and transported to the designated landfill for disposal as soon as possible. • All chemical waste should be properly stored, labelled and removed by licensed waste collectors in accordance with Waste Disposal (Chemical Waste) (General) Regulation. 	No residual impact

Ecological Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
<p>The works area within the Project site and 500m study area. Key ecological sensitive receivers include</p> <ul style="list-style-type: none"> Natural and man-made wetland habitats in particular roosting areas of Black-faced Spoonbill and Great Cormorant; Migratory and overwintering waterbirds; Tung Shing Lei egret; Intertidal/benthic communities; Mammals, in particular Eurasian Otter; Fireflies in particular Bent-winged Firefly; and Fish species of conservation importance <i>Gobiopetus macrolepis</i>. 	<p><u>Direct impact</u></p> <ul style="list-style-type: none"> Permanent loss of 0.29 ha of plantation, no net loss of channelized watercourse (although 0.26ha of channelized watercourse due to tidal barrier and pumping station will be lost permanently, the decommissioning of existing inflatable dam and the operation of tidal barrier will allow waters from Deep Bay flush in 50m beyond the existing inflatable dam) Temporary loss of plantation (0.29ha), channelized watercourse (1.02ha brackish water habitat) and developed area (6.94ha) Fragmentation (water connectivity and flight path of waterbirds) <p><u>Indirect impact</u></p> <ul style="list-style-type: none"> Change of water quality due to construction site runoff Sedimentation 	<ul style="list-style-type: none"> Annexes 8 and 16 of the EIAO-TM EIAO Guidance Note No. 6/2010, 7/2010 and 10/2010 PELB TC) No. 1/97; WBTC No. 4/97 Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation (sub. leg.), the Forestry Regulations Wild Animals Protection Ordinance (Cap. 170) Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) Town Planning Ordinance (Cap. 131) Rare and Precious Plants of Hong Kong China Red Data Book of Endangered Animals China Plant Red Data Book IUCN Red List 	No exceedance was identified.	<ul style="list-style-type: none"> Avoid impact to recognized sites of conservation importance. Consideration of alternative construction method to minimize ecological impact. Avoidance of percussive piling during winter (if percussive piling is considered unavoidable). Careful phasing of construction activities. Use of noise barriers / acoustic screens. Use of quality powered mechanical equipment. Operation of tidal barrier to allow brackish waters flushing in. Discharge design to minimize the scouring effect to tidal mudflat. Reducing glare/lighting. Translocation of fish species of conservation importance <i>Gobiopetus macrolepis</i> prior to 	No unacceptable residual impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none"> Construction noise and vibration disturbance Dust and increased human activities Artificial lighting / glare affecting nocturnal wildlife Construction disturbance to ardeid night roost 	Categories and Criteria		commencement of construction works	
Operation Phase					
Same as construction phase	<p><u>Direct impact</u></p> <ul style="list-style-type: none"> Permanent loss of 0.29 ha of plantation, no net loss of channelized watercourse (although 0.26ha of channelized watercourse due to tidal barrier and pumping station will be lost permanently, the decommissioning of existing inflatable dam and the operation of tidal barrier will allow waters from Deep Bay flush in 50m beyond the existing inflatable dam) Fragmentation (water connectivity and flight path of waterbirds) <p><u>Indirect impact</u></p>	<ul style="list-style-type: none"> Same as construction phase 	No exceedance was identified	<ul style="list-style-type: none"> Operation of tidal barrier to allow brackish waters flushing in. Discharge design to minimize scouring effect to tidal mudflat. Revitalization of YLN. Greening opportunity on building structure. Reducing glare / lighting of building structure. 	No unacceptable residual impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	<ul style="list-style-type: none">• Change of water quality• Change of hydrodynamics and sedimentation• Fragmentation (water connectivity and impact on bird flight lines) Artificial lighting /glare to nocturnal wildlife				

Fisheries Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Fisheries resources within 500m assessment area	No adverse impact anticipated.	Annexes 9 and 17 of EIAO-TM	N/A	Implement water quality mitigation measures.	No residual impact
Operation Phase					
Fisheries resources within 500m assessment area	No adverse impact anticipated.	Annexes 9 and 17 of EIAO-TM	N/A	No mitigation is required.	No residual impact

Cultural Heritage Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Built heritage resources within 100m study area	No direct impact to built heritage resources. Indirect impacts such as vibration, contact with equipment, access issues may arise.	<ul style="list-style-type: none"> • Annexes 10 and 19 of the EIAO-TM • Antiquities and Monuments Ordinance (A&MO) (Cap.53) • Hong Kong Planning Standards and Guidelines (HKPSG) 	N/A	Implement mitigation measures such as condition survey, vibration monitoring, provision of buffer zones and provision of safe public access.	No residual impact
Operation Phase					
Built heritage resources within 100m study area	No impact during operational stage.	• Same as those for construction phase	N/A	No mitigation is required.	No residual impact

Landscape and Visual Impact

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
Construction Phase					
Existing Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs) within the assessment area	<p>Key Affected LRs: <u>Moderately Adverse:</u> LR1A Yuen Long Town Nullah (upper reaches) LR20 Shan Pui River Peninsula</p> <p><u>Substantially Adverse:</u> LR19 Vegetation Adjacent to Nullah Edge</p> <p>Key Affected LCAs: <u>Moderately Adverse:</u> LCA1B Yuen Long Drainage Channel Landscape (north of fibre dam) LCA9 River Corridor Landscape</p> <p><u>Substantially Adverse:</u> None</p> <p>Key Affected VSRs: <u>Moderately Adverse:</u> RES-4, RES-5, RES-8, RES-9, RES-11, RES-12, RES-13, RES-18, RES-22</p> <p><u>Substantially Adverse:</u></p>	<ul style="list-style-type: none"> • EIAO TM Annexes 10 and 18 • EIAO Guidance Note No. 8/2010 on Preparation of Landscape and Visual Impact Assessment under the EIAO • DEVB (GLTM) – Guidelines on Tree Preservation during Development • DEVB (GLTM) – Guidelines on Tree Transplanting • ETWB TCW No. 5/2005 Protection of streams/ivers from adverse impacts arising from construction works • HyD Guidelines HQ/GN/13 – Interim Guidelines for Tree Transplanting Works under Highways Department's Vegetation Maintenance Ambit • DEVB TC(W) No. 4/2020 – Tree 	N/A	<ul style="list-style-type: none"> • CM1 - Works areas treatment • CM2 - Reduction of construction period • CM3 - Construction stage phasing • CM4 - Construction traffic treatment • CM5 - Hoardings treatment • CM6 – Building height/bulk treatment • CM7 - Night-time lighting treatment. • CM8 - Tree protection and preservation treatment • CM9 – Tree transplantation treatment 	<p>Landscape Impact <u>Moderately Adverse:</u> LR20 Shan Pui River Peninsula LCA1B Yuen Long Drainage Channel Landscape (north of fibre dam)</p> <p><u>Substantially Adverse:</u> LR1A Yuen Long Town Nullah (upper reaches), LR1B Yuen Long Town Nullah (lower reaches), LR19 Vegetation Adjacent to Nullah Edge LCA1A Yuen Long Drainage Channel Landscape (south of fibre dam)</p> <p>Visual Impact <u>Moderately Adverse:</u> RES-4, RES-5, RES-8, RES-9, RES-11, RES-12, RES-13, RES-18, REC-5, REC-6</p>

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	None	Preservation <ul style="list-style-type: none"> DEVB TC(W) No. 6/2015 Maintenance of Vegetation and Hard Landscape Features 			<u>Substantially Adverse:</u> None
Operation Phase					
Existing Landscape Resources (LRs) and Landscape Character Areas (LCAs) and Visually Sensitive Receivers (VSRs) within the assessment area	<p>Key Affected LRs: <u>Moderately Adverse:</u> LR1B Yuen Long Town Nullah (lower reaches) LR20 Shan Pui River Peninsula</p> <p><u>Substantially Adverse:</u> LR19 Vegetation Adjacent to Nullah Edge</p> <p>Key Affected LCAs: <u>Moderately Adverse:</u> None</p> <p><u>Substantially Adverse:</u> None</p> <p>Key Affected VSRs: <u>Moderately Adverse:</u> RES-4, RES-5, RES-8, RES-9, RES-11, RES-12, RES-13, RES-18, RES-22</p> <p><u>Substantially Adverse:</u></p>	<ul style="list-style-type: none"> EIAO TM Annexes 10 and 18 EIAO Guidance Note No. 8/2010 on Preparation of Landscape and Visual Impact Assessment under the EIAO DEVB (GLTM) – Guidelines on Tree Preservation during Development DEVB (GLTM) – Guidelines on Tree Transplanting ETWB TCW No. 5/2005 Protection of streams/rivers from adverse impacts arising from construction works HyD Guidelines HQ/GN/13 – Interim Guidelines for Tree Transplanting Works under Highways Department's 	N/A	<ul style="list-style-type: none"> OM1 – Nullah bed treatment OM2 – Nullah sides treatment OM3 – Adjacent streetscape treatment OM5 – Nullah crossing treatment OM6 – Barrage height/bulk treatment OM7 – Building materials treatment OM8 – Night-time lighting treatment OM9 – Compensatory tree treatment OM10 – Roof and vertical greening treatment 	<p>Landscape Impact <u>Operation Day 1 and Year 10</u></p> <p><u>Moderately Beneficial:</u> LR1B Yuen Long Town Nullah (lower reaches), LCA1B Yuen Long Drainage Channel Landscape (north of fibre dam)</p> <p><u>Substantially Beneficial:</u> LR1A Yuen Long Town Nullah (upper reaches), LCA1A Yuen Long Drainage Channel Landscape (south of fibre dam)</p> <p>Visual Impact <u>Operation Day 1 and Year 10</u></p>

Sensitive Receivers / Assessment Points	Impact Prediction Results (Without Mitigation)	Key Relevant Standards/Criteria	Extents of Exceedance (Without Mitigation)	Impact Avoidance Measures / Mitigation Measures	Residual Impacts (After Implementation of Mitigation Measures)
	None	Vegetation Maintenance Ambit • DEVB TC(W) No. 4/2020 – Tree Preservation • DEVB TC(W) No. 6/2015 Maintenance of Vegetation and Hard Landscape Features			<u>Moderately Beneficial:</u> RES-8, RES-12, RES-14, RES-15, RES-17, RES-19, RES-25, T-1, T-3, T-9, T-10, T-11, T-13 <u>Substantially Beneficial:</u> RES-1, RES-2, RES-3, RES-4, RES-5, RES-6, RES-9, RES-10, RES-11, RES-13, RES-16, RES-18, RES-20, RES-22, REC-4, T-2, T-4, T-5, T-6, T-7, T-8, T-12, O-1, O-2 <u>Moderately Adverse:</u> REC-5, REC-6 <u>Substantially Adverse:</u> none