

## Environmental Mitigation Implementation Schedule (EMIS)

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
<b>Air Quality</b>							
D1	Dust suppression measures, including watering once per hour, will be incorporated in accordance with the requirements of the Air Pollution Control (Construction Dust) Regulation. Dust filter shall be installed at the ventilation system of the emission source at the tunnel portal chimney. The proposed dust control measures presented in Table 3.11 of the EIA report shall be followed.	Minimize dust impact at the nearby sensitive receivers	Contractor	Tunnel Portal	Construction Phase	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented
D2	<p>The following dust suppression measures should be incorporated into contract document. The standard dust suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation to control the dust nuisance shall be implemented throughout the construction phase:</p> <ul style="list-style-type: none"> <li>• The contractor shall observe and comply with Air Pollution Control (Construction Dust) Regulation and implement all the required mitigation measures.</li> <li>• The contractor shall undertake precautions at all times to prevent dust nuisance and smoke as a result of his activities.</li> <li>• The contractor shall ensure a highly efficient dust filter (at least 80% efficiency) to be installed at the ventilation exhaust to treat the exhausting air from cavern.</li> <li>• The contractor shall frequently clean and water the site to minimize fugitive dust emissions.</li> <li>• The contractor shall ensure that there will be adequate water supply/storage for dust suppression.</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented

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	<ul style="list-style-type: none"> <li>The working area of any pavement breaking, excavation or earth moving operation should be sprayed with water immediately before, during and after the operation to avoid dust generation.</li> <li>Any stockpile of dusty material should be properly covered by tarpaulin or other impervious sheeting.</li> <li>Vehicles leaving a site loaded with dusty materials should be covered by tarpaulin or other impervious sheeting.</li> <li>Wheel washing facilities shall be installed and used by all vehicles leaving the site. No earth, mud, debris, dust and the like shall be deposited on public roads. Water in the wheel cleaning facility shall be changed at frequent intervals and sediments shall be removed regularly. The contractor shall submit details of proposals for the wheel cleaning facility. Such wheel washing facilities shall be usable prior to any earthworks excavating activity on the site. The Contractor shall also provide a hard-surfaced road between any washing facility and the public road.</li> <li>Any materials dropped on paved roads shall be cleaned up immediately to prevent dust nuisance.</li> <li>The contractor shall devise, arrange methods of working and carrying out the works in such a manner so as to minimize dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.</li> </ul>						
D3	The contractor shall also implement specific dust mitigation measures for excavation, drilling and blasting activities during the construction of tunnel portal. These include the use of blast nets / canvas covers and ensure portal door is properly closed.	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet</li> </ul>	To be Implemented

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						HKAQO and EIAO-TM criteria	
D4	Before the commencement of any works, the Engineer may require the contractor to submit the methods of working, construction plant or equipment and air pollution control measures to be used on the site to be made available for inspection and approval.	Minimize dust impact at the nearby sensitive receivers	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented
D5	<p>The following precautionary measures shall be incorporated into contract document and implemented throughout the construction.</p> <ul style="list-style-type: none"> <li>The contractor shall ensure the use of electricity power equipment is connected to the main electricity supply for better emission estimation.</li> <li>The contractor shall avoid the use of diesel power machines and generators as far as practicable.</li> <li>The contractor shall avoid the use of non-road mobile machineries which exempt by the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, and seek the ones with proper label issued by EPD.</li> <li>The contractor shall observe the requirement of DEVB TC(W) No. 13/2020, to apply a temporary electricity and water supply with a target that the necessary cables/water mains laying works could be completed before the commencement of the works contract.</li> </ul>	Avoid burdening the surrounding NO <sub>2</sub> concentration	Contractor	All Construction sites	Construction Stage	<ul style="list-style-type: none"> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet HKAQO and EIAO-TM criteria</li> <li>DEVB TC(W) No. 13/2020</li> </ul>	Implemented

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<b>Construction Noise</b>							
N1	The contractor should limit the pipe section to be constructed by open cut method in a length of no more than 30 m at any one time when works are in close proximity to NSRs. Each work front along the proposed watermain laying should be separated by a clearance distance of at least 60 m.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	To be implemented
N2	Use of quiet PME is considered to be a practicable means to mitigate the construction noise impact. Quiet plant is defined as a PME having actual SWL lower than the value specified in the GW-TM.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM • A Practical Guide for the Reduction of Noise from construction works	Implemented
N3	The use of noise barrier for certain PME could generally provide a 5 dB(A) reduction for movable PME and 10 dB(A) for stationary PME. The barrier material shall have a superficial surface density of not less than 10 kg/m <sup>2</sup> and have no opening or gaps. Sound absorbent lining inside the enclosure should be at least 25 mm thick.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	Implemented
N4	Provision of movable noise barriers of 3m or above in height and with a short-cantilevered section on the top with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers.	Control construction noise impacts	Contractor	All construction area for watermain laying works	Construction stage	• EIAO-TM	To be implemented
N5	Noise enclosure lined with absorptive materials shall be provided at the tunnel portal to mitigate the noise from tunnel/cavern construction. The enclosure is a gap free enclosure with acoustic doors for vehicular access purpose. The acoustic doors shall remain closed throughout the construction period. The sheet material mass of the noise enclosure should be at least 10 kg/m <sup>2</sup> and sound-absorbent lining inside the enclosure should be at least 25 mm thick.	Control construction noise impacts	Contractor	Tunnel Portal	Construction stage	• EIAO-TM • A Practical Guide for the Reduction of Noise from construction works	To be implemented

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N6	Noise barrier/enclosure should be inspected and maintained regularly. The contractor should design and provide details of the temporary noise barriers and noise enclosure to the Engineer for approval.	Control construction noise impacts	Contractor	All Construction sites	Construction stage	• EIAO-TM	Implemented
N7	For NSR5, NSR14, NSR19 and NSR 22, the construction works of Fresh Water/Salt Water Mainlaying (Reinstatement Works) shall be arranged and carried out during School Holidays (i.e., the section of the mainlaying alignment is 20m measured from the school site boundary).	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N8	During examination period, no mainlaying works will be carried out within 30m (for NSR 14, NSR 19 and NSR 22) or 50m (for NSR 5) from the school site boundary.	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N9	For NSR13, NSR20 and P1, the concrete lorry mixer shall be located 10 m away from the residential site boundary during the construction works of Fresh Water/Salt Water Mainlaying (Reinstatement Works).	Control construction noise impacts	Contractor	All Construction area for watermain laying works	Construction stage	• EIAO-TM	To be Implemented
N10	<u>Good Site Management Practices</u> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site, and plant will be serviced regularly during the construction phase;</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction phase;</li> <li>Mobile plant, if any, should be sited away from NSRs;</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or will be throttled down to a minimum;</li> <li>Plant known to emit noise strongly in one direction should be orientated so that the noise is directed away from the nearby NSRs;</li> </ul>	Control construction noise impacts	Contractor	All Construction sites	Construction stage	• EIAO-TM	Implemented

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	<ul style="list-style-type: none"> <li>Material stockpiles and other structures should be effectively utilised in screening noise from on-site construction activities;</li> <li>The contractor should devise, arrange methods of working and carrying out the works in such manner as to minimise noise impacts on the surrounding environment, and should provide experience personnel with suitable training to ensure that all these measures are implemented properly; and;</li> <li>The contractor should minimise construction noise exposure to the school (especially during examination periods) as much as possible. The contractor should liaise with the school and Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract and to avoid noisy activities during these periods.</li> </ul>						
<b>Operation Noise</b>							
N11	<ul style="list-style-type: none"> <li>Choose quieter plant;</li> <li>Include noise levels specification when ordering new mechanical equipment such as pumps and ventilation systems;</li> <li>Locate fixed plant, louvres or openings away from NSRs;</li> <li>Locate fixed plant in walled plant rooms or in specially designed enclosures;</li> <li>Ensure pump room doors and tunnel portal doors are kept closed;</li> <li>Silencers, acoustic louvres or acoustic doors should be used where necessary; and</li> <li>Develop and implement a regularly scheduled plant maintenance programme so that equipment is properly</li> </ul>	Reduce the operation noise	Project Proponent	Tunnel Portal / Ancillary building / SRs in carven	Prior to operation of the Project for planned NSRs	<ul style="list-style-type: none"> <li>EIAO-TM</li> </ul>	To be implemented

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	operated and serviced in order to maintain controlled level of noise. The programme should be implemented by properly trained personnel.						
<b>Water Quality (Construction Phase)</b>							
W1	<b><u>General Construction Site Practice</u></b> The Contractor should observe and comply with the Water Pollution Control Ordinance and its subsidiary regulations and obtain a discharge license under the Ordinance for discharge of effluent from the construction site. The discharge quality must meet the requirements specified in the discharge licence. 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 Contractor should carry out the Project works in such a manner as to minimise adverse impacts on the water quality during execution of the works. In particular, the Contractor should arrange the working method to minimise the effects on the water quality within and outside the Project Site and on the transport routes. In addition, the management of construction site drainage from the Project will follow guidelines provided in ProPECC PN 1/94 – “Construction Site Drainage”. The mitigation measures described in ETWB TC(W) No. 5/2005 shall also be followed where necessary for construction activities in close vicinity to inland watercourses.	To minimise water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where applicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • ETWB TC(W) No. 5/2005 • EIAO-TM • TM-DSS	Implemented
W2	<b><u>Construction Site Runoff and General Construction Activities</u></b> Proper site management measures should be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from reaching	To minimize water quality impact from construction site runoff and general	Contractor	All construction sites where applicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN1/94 • ETWB TC(W) No. 5/2005 • EIAO-TM	Implemented

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	<p>downstream sections of the river/stream. The mitigation measures shall include the following practices:</p> <ul style="list-style-type: none"> <li>• Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of the construction works.</li> <li>• Temporary ditches such as channels, earth bunds or sandbag barriers should be included to facilitate runoff discharge into the stormwater drain, via a sand/silt basin/trap.</li> <li>• Works programme should be designed to minimise works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and site runoff.</li> <li>• Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand/silt particles from run-off where necessary. These facilities should be properly and regularly cleaned and maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>• Careful programming of the works to avoid excavation works during the rainy season (April to September).</li> <li>• Temporary access roads (if any) should be protected by crushed gravel and exposed slope surfaces shall be protected (e.g. by tarpaulin) when rainstorms are likely;</li> <li>• Open stockpiles of construction materials on-site should be covered with tarpaulin or similar fabric during rainstorms to prevent erosion. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system</li> </ul>	construction activities				<ul style="list-style-type: none"> <li>• TM-DSS</li> </ul>	

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	<ul style="list-style-type: none"> <li>Earthwork 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.</li> <li>Measures should be taken to minimise 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.</li> <li>Manholes should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.</li> <li>Water used in ground boring and drilling for site investigation or rock/soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.</li> <li>All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be</li> </ul>						

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	paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.						
W3	Reuse of treated site runoff shall be considered as far as practicable for onsite activities such as dust suppression, wheel washing and general cleaning, etc.	To minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	N/A
W4	<u>Sewage Generated by Construction Workforce</u> No discharge of sewage to the storm drains and inland watercourse will be allowed. Domestic sewage /wastewater generated by workforce on-site should be collected in a suitable storage facility such as portable chemical toilets. An adequate number of portable toilets will be provided during the construction phase, with a licensed collector employed to clean the chemical toilets on a regular basis and be responsible for collection and disposal of the sewage. According to the Reference Materials on Construction Site Welfare, Health and Safety Measures that issued by the Construction Industry Council, the number of toilet facilities provided on site shall be at a ratio of not less than one for every 25 workers. These toilets should be maintained in a state that will not deter the workers from using them.	To minimise water quality impact from sewage effluent in construction phase	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	Implemented
W5	<u>Accidental Spillage of Chemicals</u> The following mitigation measures should be implemented to avoid adverse impacts of chemical spillage:	To prevent water quality impact due to chemical spillage	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• ProPECC PN1/94</li> </ul>	Implemented

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	<ul style="list-style-type: none"> <li>Waste streams classifiable as chemical wastes should be properly stored, collected and treated for compliance with the requirements set out in the Waste Disposal Ordinance and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation.</li> <li>All fuel tanks and chemical storage areas should be provided with locks and be sited on paved areas.</li> <li>The storage areas should be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled oil, fuel and chemicals from reaching the receiving waters.</li> <li>Waste oil should be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.</li> <li>Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should, as far as possible, be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor.</li> </ul>					<ul style="list-style-type: none"> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	
W6	<p><u>Groundwater infiltration and Groundwater Drawdown</u></p> <p>To minimize the groundwater infiltration, the following groundwater control measures are recommended:</p> <ul style="list-style-type: none"> <li>The Contractor shall undertake rigorous probing of the ground ahead of excavation works to identify zones of significant water inflow that could occur as a result of discrete, permeable features. In such zones of significant water inflow, the overall inflow would be reduced by means of cut-off grouting executed ahead of the tunnel/cavern advance.</li> <li>Where water inflow quantities are excessive, pre-grouting will be required to reduce the water inflow into the tunnel/cavern.</li> </ul>	To minimise water quality impact from groundwater infiltration	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	To be Implemented

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	<ul style="list-style-type: none"> <li>In case of excessive infiltration being observed as a result of the tunnelling or excavation works even after pre-</li> <li>grouting measures, post-grouting should be applied as far as practicable.</li> <li>Waterproof lining will be installed after the formation of the tunnels and caverns.</li> <li>In the event of seepage of groundwater occurs, groundwater should be pumped out from works areas and discharged to the storm drains via silt removal facilities. The discharges during construction phase shall comply with WPCO requirements</li> </ul>						
W7	<p><u>Construction Works in Close Proximity of Inland Watercourses</u></p> <p>The mitigation measures proposed for “General Construction Site Practice” and “Construction Site Runoff and General Construction Activities” in Sections 5.8.2 and 5.8.3 of the EIA report shall be implemented properly to minimize the water quality impacts during to the construction works in close proximity of inland watercourse.</p>	To minimise water quality impact from construction site near watercourses	Contractor	All construction sites where applicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	To be Implemented
W8	<p>The practices outlined in ETWB TC(W) No. 5/2005 shall also be adopted where applicable to minimise the water quality impacts upon any natural streams or other inland watercourses. Relevant mitigation measures are listed below:</p> <ul style="list-style-type: none"> <li>The use of less or smaller construction plants may be specified in areas close to the inland watercourses to reduce the disturbance to the surface water.</li> <li>Temporary storage of materials (e.g. equipment, chemicals and fuel) and temporary stockpile of</li> </ul>	To minimise water quality impact from construction site near watercourses	Contractor	The relocated DHSRs	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN1/94</li> <li>ETWB TC(W) No. 5/2005</li> <li>EIAO-TM</li> <li>TM-DSS</li> </ul>	Implemented

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	<p>construction debris and spoil should be located well away from any watercourses.</p> <ul style="list-style-type: none"> <li>• Stockpiling of construction materials and dusty materials should be covered and located away from any watercourses.</li> <li>• Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby inland watercourses.</li> <li>• Adequate lateral support may need to be erected in order to prevent soil/mud from slipping into the watercourses.</li> <li>• 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.</li> </ul>						
W9	<p><u>Cleansing Effluent Generated from Washing of Interior of Structures</u></p> <p>The cleaning effluent containing SS and residual chlorine should be settled out through the sedimentation tank and dechlorinated by the de-chlorination plant. The discharge quality of the cleansing effluent generated from washing of interior of structures after the construction shall meet the requirements specified in the discharge licence and the cleaning effluent should be treated properly so that it satisfies all the standards listed in the TM-DSS</p>	To minimise water quality impact from construction site effluent	Contractor	The relocated DHSRs	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN1/94</li> <li>• ETWB TC(W) No. 5/2005</li> <li>• EIAO-TM</li> <li>• TM-DSS</li> </ul>	To be Implemented
<b>Water Quality (Operation Phase)</b>							
W10	The ProPECC PN 5/93 "Drainage Plans subject to Comments by Environmental Protection Department" provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of site drainage and disposal of various site effluents generated within the	To control operational site effluents	Further Operator	The relocated DHSRs	Operation stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN5/93</li> </ul>	To be Implemented

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	development area should follow the relevant guidelines and practices as given in the ProPECC PN 5/93.						
W11	<u>Effluents from Cleaning of Service Reservoir</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. Agreement of DSD and discharge license from EPD shall be obtained before commencing any of the discharges during operation phase	To control operational site effluents	Further Operator	The relocated DHSRs	Operation stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• Sections 23.23-23.24 of the General Specification for Civil Engineering Works</li> <li>• TM-DSS</li> </ul>	To be Implemented
W12	<u>Non-point Source Surface Runoff</u> Best Management Practices (BMPs) to reduce non-point source surface water pollution are proposed as follows: <ul style="list-style-type: none"> <li>• Exposed surface shall be avoided within access road and portal/ancillary building areas to minimise soil erosion. The access road and the portal/ancillary building areas shall be either hard paved or covered by landscaping area where appropriate.</li> <li>• Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system.</li> <li>• Road gullies with standard design and silt traps should be provided to remove particles present in stormwater runoff, where appropriate.</li> <li>• Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning</li> </ul>	To minimize water quality impact from non-point source surface run-off	Further Operator	The relocated DHSRs	Design and Operation stages	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN5/93</li> </ul>	To be Implemented

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	<p>should also be carried out prior to occurrence of rainstorm.</p> <ul style="list-style-type: none"> <li>Manholes, as well as storm water gullies, ditches provided at the Project site should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall.</li> </ul>						
<b>Waste Management (Construction Phase)</b>							
WM1	The waste management hierarchy shall apply to the construction waste management (i.e. in order of desirability: avoidance, minimization, recycling, treatment and safe disposal of waste).	Minimize waste generation during construction	Contractor	All construction sites	Design and Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> </ul>	Implemented
WM2	The contractor should develop and provide toolbox talk for on-site sorting of C&D materials to enhance workers' awareness in handling, sorting, reuse and recycling of C&D materials. Requirements for staff training should be included in the contractor's Environmental Management Plan (EMP). The EMP shall be submitted to the Architect/Engineer for approval before construction works in accordance with ETWB TC(W) No.19/2005.	Minimize waste generation during construction	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> <li>DEVB TC(W) No. 6/2010</li> </ul>	Implemented
WM3	Good planning and site management practice should be employed to eliminate over-ordering or mixing of construction materials to reduce wastage. Proper storage and site practices will minimise the damage or contamination of construction materials.	Ensure proper waste management system throughout the construction	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> <li>DEVB TC(W) No. 6/2010</li> </ul>	Implemented
WM4	Where waste generation is unavoidable, the potential for recycling or reuse should be rigorously explored. If waste cannot be recycled, disposal routes described in the EMP should be followed. A recording system for the amount of wastes generated, recycled and disposed (including the	Reduce waste generation	Contractor	All Construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>EIAO</li> <li>ETWB TC(W) No. 19/2005</li> </ul>	Implemented

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	disposal sites) should be implemented. In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to DEVB TC(W) No. 6/2010 for details.					<ul style="list-style-type: none"> <li>• DEVB TC(W) No. 6/2010</li> </ul>	
WM5	Regular cleaning and maintenance of the waste storage area should be provided.	Avoid odour, pest, and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• DEVB TC(W) No.8/2010</li> <li>• ETWB TC(W) No. 19/2005</li> </ul>	Implemented after observation
WM6	<p><u>Best Management Practice</u></p> <ul style="list-style-type: none"> <li>• An on-site environmental co-ordinator should be identified at the outset of the works. The co-ordinator shall prepare an Environmental Management Plan (EMP) incorporating waste management in accordance with the requirements set out in the ETWB TCW No. 19/2005, Environmental Management on Construction Sites. The EMP shall include monthly and yearly Waste Flow Tables (WFT) that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated. WFT will be provided in the WMP which will form part of the EMP in accordance with ETWB TCW No.19/2005;</li> <li>• The reuse/recycling of all materials on site shall be investigated prior to treatment/ disposal off- site;</li> <li>• Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation;</li> <li>• All waste materials shall be sorted onsite into inert and non-inert C&amp;D materials, and where the materials can be recycled or reused, they shall be further segregated.</li> </ul>	Ensure proper waste management system throughout the construction	Contractor	All construction sites	• Construction stage	<ul style="list-style-type: none"> <li>• EIAO</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No. 8/2010</li> <li>• WBTC No.12/2000</li> </ul>	Implemented after reminder

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	<ul style="list-style-type: none"> <li>The contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or offsite. In the event of the latter, the contractor shall make arrangements for the collection of the recyclable materials. Any remaining non-inert C&amp;D materials shall be collected and disposed of to the landfills whilst any inert C&amp;D materials shall be re-used on site as far as possible. Alternatively, if inert C&amp;D materials cannot be reused on-site, the materials would be delivered to public fill reception facilities for beneficial reuse after obtaining the appropriate licence;</li> <li>With reference to DEVB TCW No.6/2010, Trip-ticket System for Disposal of Construction and Demolition Material, a trip ticket system should be established at the outset of the construction to monitor the disposal of C&amp;D materials and solid wastes from the site to public filling facilities and landfills;</li> <li>Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on site. Only licensed chemical waste collectors shall be employed to collect any chemical waste generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme both published by EPD;</li> <li>A sufficient number of covered bins shall be provided on site for the containment of general refuse. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the</li> </ul>						

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	<p>issue of DEVB TCW No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness, the contractor is required to maintain a clean and hygienic site throughout the Project works;</p> <ul style="list-style-type: none"> <li>• Tool-box talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse, and recycling; and</li> <li>• The contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of Project construction.</li> </ul>						
WM7	<p><u>On-site Sorting, Reuse and Recycling</u> All waste materials should be segregated into categories covering:</p> <ul style="list-style-type: none"> <li>• Inert C&amp;D materials suitable for reuse on-site;</li> <li>• Inert C&amp;D materials suitable for public fill reception facilities;</li> <li>• Recyclable C&amp;D materials for recycling;</li> <li>• Remaining C&amp;D materials for landfill;</li> <li>• Chemical waste; and</li> <li>• General refuse for landfill.</li> </ul>	Reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented
WM8	Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert materials.	Reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented

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WM9	Specific area should be allocated for on-site sorting of C&D materials and to provide a temporary storage area for those sorted materials. If area is limited, all C&D materials should at least be sorted on-site into inert and non-inert components. Non-inert C&D materials such as bamboo, timber, vegetation, packaging waste and other organic materials should be reused and recycled to local recycler wherever possible and disposed to the designated landfill only as a last resort. Inert C&D materials such as concrete, stone, clay, brick, soil, asphalt and the like should be separated and reused in this or other projects (subject to approval by the relevant parties in accordance with the DEVB TC(W) No. 6/2010) before disposed of at a public filling facility operated by CEDD. Steel and other metals should be recovered from demolition waste stream and recycled	Ensure proper waste management system throughout the construction in order to reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>DEVB TCW No.6/2010</li> <li>DEVB TCW No.8/2010</li> </ul>	Implemented
WM10	The reuse of inert C&D materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials. With the use of a crusher, coarse materials can be crushed to make it suitable for use as fill materials where fill is required in the works. This minimises the use of imported materials and maximises the use of the C&D materials produced. Approval from CEDD and EPD shall be obtained for the use of site crusher in accordance with WBTC No. 11/2002.	Ensure proper waste management system throughout the construction in order to reduce waste generation	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>WBTC No. 11/2002</li> </ul>	Implemented
WM11	<u>Excavated Materials</u> Excavated materials should be temporarily stored on-site for use as backfill as far as possible. It should be properly covered with tarpaulin or similar impervious sheeting to prevent dust nuisance and site runoff. Surplus excavated materials should be disposed of to public fill reception facilities.	Minimize dust, site runoff and waste impacts from excavated and C&D materials	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>Air Pollution Control Ordinance</li> <li>To control the dust impact to meet HKAQO and EIAO-TM criteria</li> </ul>	Implemented

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WM12	Control measures for temporary stockpiles on-site should be taken, which include: <ul style="list-style-type: none"> <li>• Surface of stockpiled soil should be regularly wetted with water especially during dry season;</li> <li>• Disturbance of stockpiled soil should be minimized;</li> <li>• Stockpiled soil should be properly covered with tarpaulin especially when heavy rainstorms are predicted;</li> <li>• Stockpiling areas should be enclosed where space is available;</li> <li>• Stockpiling location should be away from the water bodies; and</li> <li>• An independent surface water drainage system equipped with silt traps should be installed at the stockpiling area.</li> </ul>	Minimize the noise, generation of dust, pollution of water and visual impact from excavated and C&D materials	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• Air Pollution Control Ordinance</li> <li>• To control the dust impact to meet HKAQO and EIAO-TM criteria.</li> <li>• ETWB TC(W) No.19/2005</li> </ul>	Implemented
WM13	The Public Fill Committee of CEDD should be consulted for disposal of inert C&D materials to public fill reception facilities while EPD should be consulted for disposal of non-inert C&D materials to landfill. Disposal of C&D waste to landfill must not have more than 50% (by weight) inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.	Minimise waste impacts from C&D materials	Contractor	All construction sites	Design and Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	Implemented
WM14	In order to avoid dust impacts, any vehicle leaving a works area carrying C&D waste or public fill should have their load covered up before leaving the construction site.	Minimize the dust impact from transferring C&D materials	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Air Pollution Control Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> </ul>	Implemented

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						<ul style="list-style-type: none"> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	
WM15	C&D materials should be disposed of at designated public fill reception facilities or landfills. Disposal of these materials for the use at other construction projects is subject to the approval of the Engineer and/or other relevant reception authorities. Furthermore, unauthorised disposal of C&D materials in particular on private agricultural land is prohibited and may be subject to relevant enforcement and regulating actions. The disposal of public fill and C&D materials will be controlled through trip-ticket system in accordance with DEVB TC(W) No. 6/2010.	Minimise waste impacts from C&D materials	Contractor	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>• DEVB TCW No.6/2010</li> <li>• DEVB TCW No.8/2010</li> </ul>	Implemented
WM16	<u>Chemical Waste</u> Where the construction processes produce chemical waste, the contractor must register with EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD. An updated list of licensed chemical waste collector can be obtained from EPD.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging Labelling and Storage of Chemical Waste</li> </ul>	Implemented
WM17	Storage, handling, transport, and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and collected by a licensed chemical waste collector.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging Labelling and</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
						Storage of Chemical Waste	
WM18	Suitable containers should be used for specific types of chemical wastes. The containers should be properly labelled (in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, stored safely and closely secured. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging Labelling and Storage of Chemical Waste</li> </ul>	Implemented
WM19	Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any oil interceptors should be collected and disposed of by a licensed collector.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005, Environmental Management on Construction Sites</li> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>EIAO-TM criteria</li> </ul>	Implemented
WM20	Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation</li> <li>Code of Practice on the Packaging</li> </ul>	Implemented

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	designated secure place. The chemical waste shall be collected by licensed chemical waste collectors.					Labelling and Storage of Chemical Waste	
WM21	The registered chemical waste producer (i.e. the contractor) has to arrange for the chemical waste to be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the CWTC in Tsing Yi). A trip ticket system operates to control the movement of chemical wastes.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	• Waste Disposal (Chemical Waste) (General) Regulation	Implemented
WM22	No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	Proper waste management for chemical waste	Contractor / Relevant Operators	All construction sites	Construction stages	• Waste Disposal (Chemical Waste) (General) Regulation	Implemented
WM23	<u>General Refuse</u> General refuse should be disposed of to landfill as designated by EPD only after recyclable materials (e.g. paper, metals, aluminium cans, etc.) have been sorted out.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance • Public Health and Municipal Services Ordinance (Cap.132)	Implemented
WM24	The contractor should nominate approved site personnel to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site. Training of site personnel about site cleanliness, proper waste management and chemical handling procedures should be provided. Recyclable materials such as papers and aluminium cans should be separated and delivered to the local recyclers. An adequate number of waste containers should be provided to avoid spillage of waste.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance • Public Health and Municipal Services Ordinance (Cap.132)	Implemented
WM25	General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at	Minimise production of the general refuse and	Contractors	All construction sites	Construction stage	• Waste Disposal Ordinance	Implemented

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	designated landfills by reputable waste collectors. The removal of waste from the site should be arranged on a daily basis or at least on every second day by the contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	avoid odour, pest and litter impacts				• Public Health and Municipal Services Ordinance (Cap.132)	
<b>Waste Management (Operation Phase)</b>							
WM26	The general refuse and chemical waste generated during the operation phase would follow the same handling procedures and disposal method presented in Sections 6.6.16 to 6.6.25 of the EIA report. It is expected that there would be limited quantities of general refuse and chemical waste to be generated from the operation of the Project and will be properly handled by licensed chemical waste collectors and reputable waste collector. Waste monitoring and audit programme for the operation phase of the Project would not be required.	Minimise production of the general refuse and avoid odour, pest and litter impacts	Relevant Operators	All construction sites	Operation Stage	<ul style="list-style-type: none"> <li>• Waste Disposal Ordinance</li> <li>• Waste Disposal (Chemical Waste) (General) Regulation</li> <li>• Code of Practice on the Packaging Labelling and Storage of Chemical Waste</li> <li>• Public Health and Municipal Services Ordinance (Cap.132)</li> </ul>	To be implemented
<b>Ecology</b>							
E1	Direct impact to the recognised site of conservation importance (Lion Rock Country Park)/habitats with high ecological values (e.g. watercourse, woodland, species of conservation interest shall be avoided.	Avoid any direct impacts to these sites of conservation importance /habitats with high ecological value	Detailed Design Consultant	Sites of conservation importance/ habitats with high ecological value	Design Stage	TM-EIAO	To be implemented

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E2	To minimise habitat loss to the nearby habitats and associated wildlife, the following mitigation measures should be implemented: <ul style="list-style-type: none"> <li>• Confining the works within the Project Boundary;</li> <li>• Controlling access of site staff to avoid damage to the vegetation in surrounding areas; and</li> <li>• Placement of equipment or stockpile in the existing disturbed / urbanised area within the Project Boundary of the Project to minimise disturbance to vegetated area.</li> </ul>	Minimise habitat loss to the nearby habitats and associated wildlife	Contractor	All construction sites	Construction Stage	TM-EIAO	Implemented
E3	<u>Reinstatement and enhancement of temporarily affected habitats.</u> Minor ecological impacts may arise from the temporary loss of plantation and developed area during construction phase. In general, replanting would be implemented upon the completion of the construction works to reinstate the temporarily affected areas to condition similar to original status.	Enhance the temporarily affected habitats	Contractor	All construction sites	Construction stage	TM-EIAO	To be implemented
E4	<u>Minimizing Disturbance from Construction Activities</u> Mitigation measures including, but not limited to, erection of site hoarding, use of Quality Powered Mechanical Equipment (QPME), noise and dust reduction tarpaulin sheeting and good site practices throughout construction phase are shown as followings: <ul style="list-style-type: none"> <li>• Site hoarding would be established around the proposed tunnel portal and E&amp;M building prior to the commencement of construction works to prevent construction activities from encroaching adjacent habitats as well as prevent unnecessary human activities in the surrounding habitats;</li> <li>• QPME, noise and dust reduction tarpaulin sheeting could be used during construction phase to reduce noise disturbance and dust emission. Temporary</li> </ul>	To minimise disturbance from construction activities	Contractor	All construction sites	Construction stage	TM-EIAO	Implemented

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	<p>barriers such as movable noise barrier, temporary noise screening structures and site hoardings could further reduce the noise impact;</p> <ul style="list-style-type: none"> <li>• Good site practices such as regular water spraying at dusty operation, provision of waste skips and timely collection of general refuse and construction waste are also recommended.</li> </ul>						
E5	Reduction of lighting can be achieved using directional lighting to prevent excessive light spill into adjacent natural habitat and disturbance to nocturnal fauna. .	To minimize disturbance from construction activities	Contractor	All construction sites	Construction stage	TM-EIAO	Implemented
E6	<p><u>Control of Site Runoff</u></p> <p>Best management practices should be implemented on site in accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94) as far as practicable to control site runoff and drainage at all work sites during construction phase, so that the treated runoff will be discharged to public drainage system in compliance with the WPCO. Construction effluent, site run-off and sewage should be properly collected and/or treated.</p> <p>Wastewater from a construction site should be managed. Proper locations for discharge outlets of wastewater treatment facilities well away from the natural watercourses should be identified. Effluent monitoring should be incorporated to make sure that the discharged effluent from construction sites meets the effluent discharge guidelines. The practices outlined in ETWB TC (Works) No. 5/2005 “Protection of natural streams/rivers from adverse impacts arising from construction works” should also be adopted where applicable to minimise the water quality impacts upon the channalised/semi-natural</p>	To control site runoff and drainage at all work sites, thus, the aquatic ecosystem is protected.	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN. 1/94</li> </ul>	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	watercourses, in order to better protect the aquatic ecosystem.						
E7	<u>Control of Groundwater Infiltration</u> In order to minimise groundwater infiltration or avoid potential impacts on watercourses, water table and groundwater drawdown, minimization approach was adopted during design stage and would be adopted during construction and operation phase.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E8	The proposed cavern would be constructed under the measured groundwater table. Water inflow would be controlled to an acceptable level by implementing pre-grouting and post-grouting measures, thus the impact of the proposed cavern on the groundwater table is considered to be limited.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E9	The permanent tunnel structure of the proposed access tunnel would be designed as drained type at the locations with adequate rock cover and designed as undrained type at locations with mix ground conditions. The water inflow would also be controlled to an acceptable level with pre-grouting and postgrouting measures.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E10	During operation phase, waterproof lining would be installed to prevent water seepage and water droplets (if any) would be discharged into the sewage system	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented
E11	All the mitigation measures regarding potential groundwater infiltration concern that has been proposed in Section 5.8.7 shall be followed.	To minimize groundwater infiltration / avoid potential impacts on watercourses	Contractor	Works area at Cavern and tunnel portal	Design stage / Construction stage / Operation Stage	EIAO-TM	To be implemented

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<b><i>Landscape and Visual (Construction Phase)</i></b>							
CM1	<u>Careful Site Planning and Management</u> <ul style="list-style-type: none"> <li>The site layout and works area including temporary access road(s), stockpiling area(s), temporary construction storage shall be carefully planned to preserve existing landscape resources and trees as far as practicable.</li> <li>Good site practices shall be enforced to eliminate eyesores from unappealing stockpiling/ storage areas and/or construction activities.</li> </ul>	To minimize site clearance, tree removal and disturbance to existing Landscape Resources, and visual obstruction to VSRs	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented
CM2	<u>Careful Design of Slope Works</u> <ul style="list-style-type: none"> <li>Slope stabilization methods (i.e., insertion of soil nails and establishment of grillage, etc.) shall be carefully formulated to minimise the loss of tree and landscape cover as far as practicable.</li> </ul>	To minimize tree removal and to create a slope surface better blending with the surrounding environment	Project Proponent (via Contractor)	Works area at Cavern and tunnel portal	Construction stage	N/A	Implemented
CM3	<u>Tree Preservation</u> <ul style="list-style-type: none"> <li>In accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version, existing vegetation shall be retained on site as far as practicable.</li> <li>Adequate tree protection measures shall be provided for the Trees to be retained on site. Relevant guidelines on tree care and protection promulgated by Greening, Landscape and Tree Management Section of Development Bureau shall be observed and followed.</li> </ul>	To minimize tree removal	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented after observation
CM4	<u>Tree Transplanting/ Compensatory Tree Planting</u> <ul style="list-style-type: none"> <li>Trees unavoidably affected by the project shall be transplanted as far as practicable in accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version and the latest guidelines promulgated by</li> </ul>	To minimize the loss of trees To compensate for the loss of tree	Project Proponent (via Contractor)	All construction areas	Construction stage	DEVB TC(W) No. 4/2020- Tree Reservation	Implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
	<p>Greening, Landscape and Tree Management Section of Development Bureau.</p> <ul style="list-style-type: none"> <li>Affected trees that are not suitable for transplantation and to be felled shall be compensated in not less than 1:1 in quantity and in accordance with DEVB TC (W) No.4/2020 – Tree Preservation or its latest version.</li> <li>Onsite compensation has been prioritized. However, due to land status issues, area of onsite compensatory planting locations are insufficient to compensate for the loss of trees and near site compensatory locations managed by WSD are adopted, as shown in Figure 9.9, Figure 9.10A, Figure 9.10B and Figure 9.11 of the EIA report.</li> <li>Tree species selected shall be compatible with surrounding existing vegetation.</li> </ul>	To provide quality and sustainable landscape that is compatible with the site context					
CM5	<p><u>Inspection of Tree Works</u></p> <ul style="list-style-type: none"> <li>Regular site inspection shall be conducted by tree specialist.</li> </ul>	To closely monitor the site activities in order to avoid or minimize any possible adverse impact to the retained trees	Project Proponent (via Contractor)	All construction areas	Construction stage	N/A	Implemented
CM6	<p><u>Minimization of Light Impact</u></p> <ul style="list-style-type: none"> <li>Lighting at construction sites shall be carefully controlled at night</li> </ul>	To avoid disturbance to nearby VSRs	Project Proponent (via Contractor)	All construction areas and temporary works areas	Construction stage	N/A	Implemented
CM7	<p><u>Erection of Decorative Site Hoarding</u></p> <ul style="list-style-type: none"> <li>Decorative hoarding that is compatible with the surrounding environment shall be erected during construction.</li> </ul>	To enhance the visual amenity of construction hoarding	Project Proponent (via Contractor)	All construction areas and temporary work areas	Construction stage	N/A	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
CM8	<u>Reinstatement of Temporarily Disturbed Areas</u> <ul style="list-style-type: none"> <li>Temporarily disturbed landscape areas shall be reinstated.</li> </ul>	To reinstate the disturbed landscape	Project Proponent (via Contractor)	All construction areas and temporary work areas	Construction stage	N/A	To be implemented
<b>Landscape and Visual (Operation Phase)</b>							
OM1	<u>Landscape Planting</u> <ul style="list-style-type: none"> <li>Landscape planting shall be provided in accordance with DEVB TCW No.3/2012 – Site Coverage of Greenery for Government Building Projects or its latest version.</li> <li>Planting species shall be compatible with the nearby existing vegetation cover as far as practicable.</li> <li>Not less than 12-month establishment after completion shall be provided for the landscape planting.</li> </ul>	To soften the hard edges of the structure and make it more compatible with the surrounding environment	Project Proponent (via Contractor)	Ancillary building	Operation stage	DEVB TCW No.3/2012	To be implemented
OM2	<u>Rooftop Greening</u> Rooftop greening shall be implemented with reference to the references on skyrise greenery provided by the Greening, Landscape & Tree Management Section, Development Bureau.	To make the ancillary facilities more compatible with the surrounding woodland landscape and to mitigate the potential adverse visual impact on adjacent residential VSRs viewing from an elevated vantage point	Project Proponent (via Contractor)	Ancillary building	Operation stage	N/A	To be implemented
OM3	<u>Vertical Greening</u> Vertical greening shall be provided.	To enhance the visual amenity of the ancillary	Project Proponent	Ancillary building	Operation stage	N/A	To be implemented

EM&A Log Ref.	Recommended Mitigation Measures	Objective of the recommended measure & main concerns to address	Implement Agent	Location / Timing	Implementation Timing	Requirements and / or Standards to be Achieved	Implementation status
		facilities and to blend in with the surrounding landscape	(via Contractor)				
OM4	<u>Careful Design of Ancillary Facilities</u> <ul style="list-style-type: none"> <li>The orientation and location of the ancillary facilities shall be carefully designed. Its finish shall be non-reflective and dull in colour.</li> <li>The ancillary facilities are unmanned structures that merely require minimal security services during daytime. There shall be nobody and no lighting illuminating from the buildings at night, except essential street lighting for the portal access road.</li> </ul>	To avoid glare impact to surrounding VSRs	Project Proponent (via Contractor)	Ancillary building	Operation stage	N/A	To be implemented