

APPENDIX 12A:

**Implementation Schedule of
Recommended Mitigation
Measures**

Appendix 12A Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Who to implement the measure?	Location of the measure	When to implement the measure?	What requirements or standards for the measure to achieve?
Air Quality Mitigation Measures (Construction Phase)							
S3.9.1	S2.4	Relevant dust control requirements set out in the <i>Air Pollution Control (Construction Dust) Regulation</i> should be met during the construction phase of the Project. The Contractor is required to adopt dust reduction measures while carrying out construction works. Specific measures recommended for this Project include dust suppression by twice daily watering with complete coverage of all active construction areas and limit the construction vehicle travel speed on unpaved site areas to not more than 10 km per hour.	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
S3.9.1	S2.4	<u>Site clearance and demolition of existing structures</u> <ul style="list-style-type: none"> The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet; All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition; 	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Part III, Clause 26, Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
S3.9.1	S2.4	<u>Site boundary and entrance</u> <ul style="list-style-type: none"> Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point; The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit; 	Dust control	Contractor	All construction sites	Construction stage (Jun 04 to Dec 07)	Part III, Clause 13, Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
S3.9.1	S2.4	<u>Access road</u> <ul style="list-style-type: none"> Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire 	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Part III, Clause 14 (1), Air Pollution Control (Construction Dust) Regulation (Cap. 311R)

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		road surface wet; <ul style="list-style-type: none"> The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials; 					
S3.9.1	S2.4	<u>Use of vehicle</u> <ul style="list-style-type: none"> Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels; Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; 	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Part III, Clause 21, Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
S3.9.1	S2.4	<u>Excavation and earth moving</u> <ul style="list-style-type: none"> The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet; Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies; and 	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Part III, Clauses 16 and 24, Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
S3.9.1	S2.4	<u>Stockpiling of dusty materials</u> <ul style="list-style-type: none"> Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet. 	Dust control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	Part III, Clause 18, Air Pollution Control (Construction Dust) Regulation (Cap. 311R)
Air Quality Mitigation Measures (Operational Phase)							
S3.9.2.1	S2.7.1	All the major odour sources within the expanded and upgraded San Wai STW namely the fine screen, the detritors, the sludge holding tanks, the solid handling house, the sludge dewatering house, the rapid mix and flocculation tank, and the primary sedimentation tanks should all be contained within either building structures or enclosure to minimise direct emission of odour to the atmosphere.	Odour control	Operator of San Wai STW	San Wai STW	Operational stage	Annex 4, EIAO-TM
S3.9.2.2	S2.7.2	All odour emissions from the odour sources should be ventilated to a deodourisation unit. Testing / monitoring records proving an H ₂ S removal efficiency of 96% or better and an exhaust exit velocity of not less than 10m/s should be documented for auditing purpose.	Odour control	Operator of San Wai STW	San Wai STW	Operational stage	Annex 4, EIAO-TM

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S3.9.2.3	S2.7.3	The air ventilated from the existing and the new wet wells of the expanded Ha Tsuen Pumping Station should be treated by deodourisers. Testing / monitoring records proving an H ₂ S removal efficiency of 97% or better and an exhaust exit velocity of not less than 8m/s should be documented for auditing purpose.	Odour control	Operator of Ha Tsuen Pumping Station	Ha Tsuen PS	Operational stage	Annex 4, EIAO-TM
Noise Mitigation Measures (Construction Phase)							
S4.9.1	S3.8	<p>During construction of San Wai STW expansion and emergency bypass culvert, mitigation in the form of quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs. The list of recommended quiet plant should refer to Appendix 4A of the EIA Report. For NSR N40, which is a village house in close proximity to the emergency bypass culvert, additional mitigation measures in the form of temporary noise barriers are required besides using of quiet plants. The locations of temporary noise barriers are shown in Figure A4.3 in Appendix 4A of the EIA Report.</p> <p>During construction of Ha Tsuen Pumping Station expansion, mitigation in the form of quiet plants and temporary noise barriers should be used in order to reduce the noise impacts emanating from the construction sites on nearby NSRs. The list of the recommended quiet plant should refer to Appendix 4A of the EIA Report. The locations of temporary noise barriers are shown in Figure A4.4 in Appendix 4A of the EIA Report. The construction work should also be well programmed such that the noisier construction activities would not be coincided with the examination periods of the school at NSR N1.</p>	Noise control	Contractor	All construction sites	Construction stage (Jun 04 to Dec 07)	<ul style="list-style-type: none"> Annex 5, EIAO-TM
Noise Mitigation Measures (Operational Phase)							
S4.9.2	S3.9	All the noisy equipment should be housed underground or within building structures made of suitable materials (e.g. concrete). It should be a complete enclosure with minimal openings for which these openings should not be facing any NSRs. A silenced ventilation system incorporating silencers with a noise reduction of 10 dB(A) at the air intakes and discharge openings should be employed. Testing certificate and/or manufacturer's specifications of the silencers should be made available at the facilities for inspections. The Guidelines <i>Good Practices on Ventilation System Noise Control</i> and <i>Good Practices on Pumping System Noise Control</i> should be followed.	Noise control	Operator of San Wai STW and Ha Tsuen Pumping Station	Expanded and upgraded San Wai STW and expanded Ha Tsuen PS	Operational stage	<ul style="list-style-type: none"> Annex 5, EIAO-TM Noise Control Ordinance (Cap.400) Good Practices on Ventilation Systems Noise Control Good Practices on Pumping Systems Noise Control
Water Quality Mitigation Measures (Operational Phase)							

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S5.8.2	S4.11.1	<p>A contingency plan should be developed at the detailed design stage to deal with the emergency discharges that may occur during the operational stage of the project. It is recommended to include the following items in the contingency plan:</p> <ul style="list-style-type: none"> • Locations of the sensitive receivers in the vicinity of the emergency discharges at Deep Bay and Urmston Road; • A list of relevant government bodies to be informed and to provide assistance in the event of emergency discharges. Information on key contact persons and telephone numbers should be included; • Reporting procedures required in the event of emergency discharge; and • Procedures listing the most effective means in rectifying the breakdown of San Wai STW, Urmston Road Tunnel or Ha Tsuen Pumping Station in order to minimise the discharge duration.. 	Water quality control	Operator of San Wai STW and Ha Tsuen Pumping Station	Expanded and upgraded San Wai STW and expanded Ha Tsuen PS	Operational stage	<ul style="list-style-type: none"> • Water Pollution Control Ordinance (Cap. 358) • Technical Memorandum – Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters
Waste Management (Construction Phase)							
S6.6.1	S5.2.1	<p>A proper Waste Management Plan (WMP) for the construction of the project should be submitted to Engineer for approval and implemented. Where waste generation is unavoidable then the potential for recycling or reuse should be explored and opportunities taken. If wastes cannot be recycled, recommendations for appropriate disposal routes should be provided in the WMP. A method statement for stockpiling and transportation of the excavated material and other construction wastes should also be included in the WMP and approved before the commencement of construction. All mitigation measures arising from the approved WMP shall be fully implemented. The management measures stipulated in the C&DMMP (Appendix 6A of the EIA Report) should be incorporated into the WMP.</p>	Waste minimization and control – Waste Management Plan	Contractor	All construction sites	Construction stage (mid 04 to late 07)	<ul style="list-style-type: none"> • Waste Disposal Ordinance (Cap.354) • Public Health and Municipal Services Ordinance (Cap.152) • The Land (Miscellaneous Provisions) Ordinance (Cap. 28) • WBTC 29/2000
S6.6.5	S5.2.5	<p><u>Measures to Control Maintenance and Chemical Wastes</u></p> <ul style="list-style-type: none"> • The chemical waste generated should be labelled, stored and disposed of according to the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>. Registration as a chemical waste producer is required if chemical waste would be produced. Relevant regulations should be observed and complied with for control of chemical wastes. Proper storage area should be allocated on site for storage of chemical waste. The chemical waste should only be collected by a licensed collector. An updated list of licensed 	Maintenance and Chemical Waste minimization and control	Contractor	All construction sites	Construction stage (mid 04 to late 07)	<ul style="list-style-type: none"> • Waste Disposal (Chemical Waste) (General) Regulation (Cap.354) • Waste Disposal Ordinance (Cap.354)

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		<p>chemical waste collector can be obtained from EPD.</p> <ul style="list-style-type: none"> The construction contractors/facility operator should adopt the necessary mitigation measures to prevent the uncontrolled disposal of chemical and hazardous waste into air, soil, surface waters and ground waters. Spill adsorbent material and emulsifiers should be available on site in case of spillage. Any contaminated material such as absorbent or cleaning stuffs should be properly disposed of. 					
Waste Management (Operational Phase)							
S6.8	S5.3	<p><u>Sludge</u> Sludge generated in San Wai STW should be dewatered onsite to more than 30% dry solids content before transporting to the designated landfill site for disposal and should be stored in covered container along the transporting route to avoid the possible odour impact on nearby sensitive receivers. The record of sludge dewatering should be made available at the facilities for inspection.</p>	Waste minimization and control	Operator of San Wai STW	San Wai STW	Operational stage	<ul style="list-style-type: none"> Waste Disposal Ordinance (Cap.354) Water Pollution Control Ordinance (Cap. 358) Annex 4, EIAO-TM
S6.8	S5.3	<p><u>Spent UV disinfection lamps</u> The operator of future UV disinfection facility should work with the supplier/manufacturer on recycling and reuse of the defective UV lamps as far as possible. Should the disposal of UV lamps be unavoidable, the operators should identify the content of the UV lamp and confirm with EPD whether the UV lamps should be disposed of as chemical waste. If so, the handling and disposal should follow the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>. In handling the UV lamps, cautions should be exerted to avoid breakage of lamps and release of contaminants.</p>	Waste minimization and control	Operator of San Wai STW	San Wai STW	Operational stage	<ul style="list-style-type: none"> Waste Disposal (Chemical Waste) (General) Regulation (Cap.354)
S6.8	S5.3	<p><u>Deodourisation unit waste</u> The handling, storage and disposal of the spent scrubbing fluids should follow the requirements under the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>. Unless the spent fluids or the GAC are treated to meet discharge standards as stipulated in the <i>Technical Memorandum under Water Pollution Control Ordinance</i>, direct discharge into local sewerage systems should not be allowed.</p>	Waste minimization and control	Operator of San Wai STW	San Wai STW	Operational stage	<ul style="list-style-type: none"> Waste Disposal Ordinance (Cap.354) Part II to Part IV, Waste Disposal (Chemical Waste) (General) Regulation (Cap.354) Water Pollution Control Ordinance (Cap. 358)

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Landscape and Visual Mitigation Measures (Construction Phase)							
S11.4.3 and S11.5.3	S6.2	Detailed tree survey should be completed prior to construction work. Trees to be transplanted should be moved to their final positions. The transplants and existing trees to be retained should be properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect. The progress of such activities should be reported in the monthly EM&A report.	To mitigate landscape and visual impacts	Contractor	Expanded site of San Wai STW and Ha Tsuen Pumping Station	Minimum of 4 months prior to construction (early 04)	<ul style="list-style-type: none"> Annex 18, EIAO-TM WBTC No. 14/2002
S11.4.3 and S11.5.3	S6.2	Regular inspection of the retained and transplanted trees should be made to ensure the effectiveness of the hoarding. Excavated topsoil should be stored and protected on site for reuse for restoration of screen planting works. The progress of such activities should be reported in the monthly EM&A report.	To mitigate landscape and visual impacts	Contractor	Expanded site of San Wai STW and Ha Tsuen Pumping Station	Construction stage (mid 04 to late 07)	<ul style="list-style-type: none"> Annex 18, EIAO-TM WBTC No. 14/2002
Landscape and Visual Mitigation Measures (Operational Phase)							
S11.4.3	S6.2	As many as possible of the trees along the site boundary should be retained and supplementary trees should be planted to fill gaps between existing trees and provide a continuous screen belt. All transplants and new planting should be maintained for 12 months to ensure proper establishment.	To mitigate landscape and visual impacts	Operator of Ha Tsuen Pumping Station	Expanded Ha Tsuen Pumping Station	12 months period from commissioning of the expanded Ha Tsuen Pumping Station	<ul style="list-style-type: none"> Annex 18, EIAO-TM WBTC No. 14/2002
S11.5.3	S6.2	A planting reserve around the site perimeter of approximately 5m wide should be provided to allow a continuous belt of trees to be planted as a visual screen. This should complement the boundary planting to the existing San Wai STW. All new planting should be maintained for 12 months to ensure proper establishment.	To mitigate landscape and visual impacts	Operator of San Wai STW	Expanded and upgraded San Wai STW	12 months period from commissioning of the expanded and upgraded San Wai STW	<ul style="list-style-type: none"> Annex 18, EIAO-TM WBTC No. 14/2002