

Table A1 Implementation Schedule for Air Quality Control

EIA Report Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S3.8.1	<ul style="list-style-type: none"> Strictly limit the truck speed on site to below 10 km per hour. 	Haul road / during construction	All contractors		✓			EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation
S3.8.1	<ul style="list-style-type: none"> Water spraying to keep haul roads in wet condition. 	Haul road / during construction	All contractors		✓			
S3.8.1	<ul style="list-style-type: none"> Twice daily watering of the work site with active operations when the weather and the work site are dry. 	Work site / during construction	All contractors		✓			
S3.8.1	<ul style="list-style-type: none"> Water spraying during excavation and material handling. 	Work site / during construction	All contractors		✓			
S3.8.1	<ul style="list-style-type: none"> Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary. 	Haul road / during construction	All contractors		✓			
S3.8.1	<ul style="list-style-type: none"> Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. 	Haul road / during construction	All contractors		✓			

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

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Table A2 Implementation Schedule for Noise Control

EIA Report Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S4.8.3	Use of quiet powered mechanical equipment for following construction tasks during normal daytime working hours: a) Road P2 Flyover to Fenwick Pier Street near the HKAPA and the Art Centre; b) Road P2 near the HKAPA, the Art Centre and the HKCEC Extension; c) HKCEC roads; d) Local access roads near the HKAPA and the Art Centre; e) Wan Chai North Public Transport Interchange; f) Demolition of HKCEC East Bridge (WCR2E) and West Bridge (HKCEC2); g) Demolition of Ferry Pier Structure and Re-provision of New Pier; h) Hung Hing Road Flyover; i) Drainage culverts in CBR1E, CBR1W, CBR2E, WCR1, WCR2E and HKCEC2; j) Cross Harbour Water Mains – Land Section; and k) Cooling water intake pipelines in HKCEC1 near HKAPA, HKCEC2W near HKAPA and Art Centre, and CBR1 near Riviera Mansion.	Work site / during construction	Contractor		✓			EIAO-TM, NCO
S4.8.4	Use of movable noise barrier for HKCEC roads close to HKCEC Extension and Cross Harbour Watermains land section close to HKAPA	Work site close to HKAPA and HKCEC Extension / during construction	Contractor		✓			EIAO-TM, NCO
S4.9.2	Well maintained plant should be operated on-site and plant should be serviced regularly during the construction program	Work site / during construction	Contractor		✓			
	Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program	Work site / during construction	Contractor		✓			
	Mobile plant, if any, should be sited as far away from NSRs as possible	Work site / during construction	Contractor		✓			

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	Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum.	Work site / during construction	Contractor		✓			
S4.9.2	Plant known to emit noise strongly in one direction should, where possible, be orientated so that the noise is directed away from nearby NSRs.	Work site / during construction	Contractor		✓			
	Material stockpiles and other structures should be effectively utilised, where practicable, in screening noise from on-site construction activities.	Work site / during construction	Contractor		✓			

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

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Table A3 Implementation Schedule for Water Quality Control

EIA Ref [#]	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S5.8.1	<p><i>Measures to be implemented in Construction Design</i></p> <ul style="list-style-type: none"> a number of small and confined areas of land formation are planned; containment of fill within each of these areas by seawalls is proposed, with the seawall constructed first (above high water mark) and filling being carried out behind the completed seawalls. Any gaps that may need to be provided for marine access will be shielded by silt curtains to control sediment plume dispersion away from the site. Filling should be carried out behind the silt curtain; and a partially dredged reclamation that is dictated by the minimum extent of dredging required for foundations of seawalls, roads and drainage culverts is proposed. 	Construction Design	Contractor	✓				-
S5.8.2 - S5.8.6	<p><i>Site Specific Mitigation Measures during Dredging and Filling</i></p> <p><u>Scenario 2A</u></p> <ul style="list-style-type: none"> deployment of silt curtains around the closed grab dredgers to contain SS within the construction site during dredging and seawall trench sand filling; deployment of silt screens at the cooling water intakes and WSD salt water intakes to further minimise the intake of SS within the sea water. <p>Silt curtains should be deployed at the construction sites where dredging and seawall trench sand filling are undertaken, including CBR1, WCR1, WCR3E, Wan Chai PCWA, Breakwater of Kellett Island Marina and FRAE of CRIII.</p> <p>Silt screens should be deployed at WSD salt water intakes at Wan Chai, Central Water Front, Sheung Wan, Quarry Bay, Sai Wan Ho and Siu Sai Wan and cooling water intakes for for Windsor House, Excelsior Hotel and World Trade Centre, Sun Hung Kai Centre, Great Eagle Centre /</p>	Work site / During the construction period	Contractor		✓			EIAO-TM, WPCO

EIA Ref [#]	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	
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	China Resources Building, Wan Chai Tower / Revenue Tower / Immigration Tower, HKCEC Phase I, HKCEC Extension, Telecom House / Hong Kong Academy for Performing Arts / Shun On Centre, MTRC South Intake, Prince's Building Group at CRIII, Queensway Government Offices at CRIII, Admiralty Centre at CRIII, HSBC and Hotel Furama at CRIII.								
S5.8.2 - S5.8.6	The total dredging and filling rates in each of these zones should not be more than the maximum production rates stated below:	Work site / During the construction period	Contractor		✓			EIAO-TM, WPCO	
	Activity								Maximum Production Rate (m³ per week)
	Dredging								
	Causeway Bay Shoreline Zone								31,500
	Wan Chai Shoreline Zone								31,500
	Cross Harbour Water Mains								14,000
	Wan Chai East Submarine Sewage Pipeline								7,000
	Seawall Trench Sandfilling								
	Causeway Bay Shoreline Zone								13,125
Wan Chai Shoreline Zone	26,250								
S5.8.8 – S5.8.9	<p><u>Scenario 2B</u></p> <ul style="list-style-type: none"> seawall trench dredging at CBR2E and WCR2E, within 150 m radius from the adjacent operating seawater intakes on WCR1, shall not be more than 1,500 m³ per day; dredging within CBR2E and WCR2E shall only be undertaken behind the partially constructed seawall (above high water mark) extended at least 150 m length from the adjacent reprovisioned intakes on the newly completed seawall; any dredging in WCR3W and WCR2W, within 150 m radius from the adjacent operating seawater intakes on WCR1, shall not be more than 1,500 m³ per day; any dredging in HKCEC2E, within 150 m radius from the adjacent operating seawater intakes on the north side of 	Work site / During the construction period	Contractor		✓			EIAO-TM, WPCO	

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	<p>HKCEC Extension, shall not be more than 1,500 m³ per day;</p> <ul style="list-style-type: none"> • deployment of silt curtains around the grab dredgers to contain SS within the construction site during dredging and seawall trench sand filling; • deployment of a silt screen at the WSD Wan Chai and Quarry Bay salt water intake to further minimise the intake of SS within the sea water, as silt curtains are considered not sufficient. <p>Silt curtains should be deployed at the construction sites where dredging and seawall trench sand filling are undertaken, including CBR2E, CBR2W, WCR2E, WCR2W, WCR3W, HKCEC2E and HKCEC2W.</p> <p>Silt screens should be deployed at reprovioned WSD salt water intake at Wan Chai and WSD salt water intake at Quarry Bay, and at cooling water intakes for Windsor House, Excelsior Hotel and World Trade Centre, Sun Hung Kai Centre, Great Eagle Centre / China Resources Building, Wan Chai Tower / Revenue Tower / Immigration Tower, HKCEC Phase I, HKCEC Extension, Telecom House / Hong Kong Academy for Performing Arts / Shun On Centre, MTRC South Intake, Prince's Building Group at CRIII, Queensway Government Offices at CRIII, Admiralty Centre at CRIII, HSBC and Hotel Furama at CRIII.</p> <p>The total dredging and filling rates in each of these zones should not be more than the maximum production rates stated below:</p>							

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					Des	C	O	Dec	
	Activity								
	Maximum Production Rate (m³ per week)								
	Dredging								
	Causeway Bay Reclamation Zone ⁽¹⁾	31,500							
	Wan Chai Reclamation Zone ⁽¹⁾	31,500							
	HKCEC Reclamation Zone ⁽¹⁾	31,500							
	Seawall Trench Sand Filling								
	Causeway Bay Reclamation Zone	13,125							
	Wan Chai Reclamation Zone	13,125							
	HKCEC Reclamation Zone	13,125							
	Note: (1) Reduced dredging rates of 1,500 m ³ per day are applicable within 150 m of operating seawater intakes for seawall trench dredging at CBR2E and WCR2E, and at WCR2W, WCR3W and HKCEC2E								
S5.8.14	<p>Other mitigation measures include:</p> <ul style="list-style-type: none"> mechanical grabs, if used, should be designed and maintained to avoid spillage and sealed tightly while being lifted. For dredging of any contaminated mud, closed watertight grabs must be used; all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; all hopper barges and dredgers should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; loading of barges and hoppers should be controlled to prevent splashing of dredged material into the surrounding water. Barges or 		Work site / During the construction period Contractor		✓				ProPECC PN 1/94; WPCO (TM-DSS)

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	<p>hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; and</p> <ul style="list-style-type: none"> before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain. 							
S5.8.18 – S5.8.29	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow; Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94; a sediment tank constructed from pre-formed individual cells of approximately 6 - 8 m³ capacity can be used for settling ground water prior to disposal; oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain; and precautions and actions to be taken when a rainstorm is imminent or forecast, and during or after rainstorms. Particular attention should be paid to the control of any silty surface runoff during storm events. on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge. All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment 	Work site / During the construction period	Contractor		✓			ProPECC PN 1/94; WPCO (TM-DSS)

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	<p>control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.</p> <ul style="list-style-type: none"> All fuel tanks and store areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity. 							
S5.8.30	<p><i>Sewage from Construction Work Force</i></p> <p>Construction work force sewage discharges on site shall be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage shall be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.</p>	Work site / During the construction period	Contractor		✓			ProPECC PN 1/94; WPCO (TM-DSS)
S5.8.31	<p><i>Floating Debris and Refuse</i></p> <p>Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.</p>	Work site and adjacent water / During the construction period.	Contractor		✓			WPCO
S5.7.11	<p><i>Water Quality in Temporary Embayments</i></p> <p>An impermeable barrier, suspended from a floating boom on the water surface and extending down to the seabed, will be erected by the CRIII contractor on completion of the CRIII eastern seawall. The barrier will channel the stormwater discharge flows from Culvert L to the outside of the embayment. The CRIII contractor will maintain this barrier until the WDII contractor takes possession of this site, whereupon the WDII contractor will take over the maintenance of this barrier until the reclamation works in this area are carried out and the new Culvert L extension is constructed.</p>	Work site (next to the CRIII eastern seawall) and during the construction period of CRIII and WDII	Contractor (both CRIII and WDII)		✓			WPCO

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Table A4 Implementation Schedule for Waste Management

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				Des	C	O	Dec	
S6.7.1 – S6.7.7	<p>Marine Sediments</p> <p>In accordance with the WBTC No. 3/2000, the seriously contaminated material must be dredged and transported with great care. Mitigation measures, including the use of close-grab dredgers, shall be incorporated.</p> <p>The dredged contaminated sediment must be effectively isolated from the environment upon final disposal and shall be disposed of at the East Sha Chau Contaminated Mud Pits.</p> <p>During transportation and disposal of the dredged marine sediments, the following measures shall be taken to minimise potential impacts on water quality.</p> <ul style="list-style-type: none"> • Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the Director of Environmental Protection. <p>The results of the marine sediment quality analysis indicate that the reported contaminant level of total PCBs in the top 1 to 2 m of sediment in the Causeway Bay Typhoon Shelter exceeds the LCEL by 10 times. To determine the disposal requirements of the dredged sediment, Tier III biological screening (dilution test) is likely to be required for the sediment sampling and testing to be carried out in the further ground investigation works at the design phase of the Project. Biological screening will also be required for any identified Category M sediment</p>	Work site / During the construction period	Contractor		✓			WBTC No. 3/2000
		Work site / During the design phase	Project proponent/ Contractor	✓				WBTC No. 3/2000

EIA Report Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>in the further ground investigation works for the Project.</p> <p>The need for any special disposal procedures for dredged contaminated sediments from the Causeway Bay Typhoon Shelter shall be examined in detail at the design stage of the Project, as necessary, based on the results of biological screening. The recommended special disposal methodology is the sealing of dredged contaminated sediments in geosynthetic containers in the hopper barge and to drop the geosynthetic containers with the contaminated sediment into the designated contaminated mud pit at East Sha Chau, where it would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal.</p> <p>In the event that the biological test results show that special disposal arrangements are necessary, field trials are recommended to be undertaken during the detailed design site investigation stage (using uncontaminated mud) to establish the optimum container capacity and handling method, and to demonstrate the effectiveness of the recommended disposal method.</p>							
S6.7.8	<p><i>Good Site Practices and Waste Reduction Measures</i></p> <p>Good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • nomination of an approved personnel, such as a site manager, 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 in proper waste management and chemical waste handling procedures; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimise windblown litter and dust during 	Work site / During the construction period	Contractor		✓			Waste Disposal Ordinance (Cap.54)

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	<p>transportation of waste by either covering trucks or by transporting wastes in enclosed containers;</p> <ul style="list-style-type: none"> • separation of chemical wastes for special handling and appropriate treatment at the CWTF; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites). 							
S6.7.9	<p>In order to monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by the Environmental Team. An Independent Checker (Environment) should be responsible for auditing the results of the system.</p>	Work site / During the construction period	Contractor and Independent Checker (Environment)		✓			Waste Disposal Ordinance; WBTC No. 4/98, 5/98, 5/99, 25/99, 12/2000.
S6.7.10	<p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • to encourage collection of aluminium cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force; • any unused chemicals or those with remaining functional capacity shall be recycled; • use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&D material. • prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; • proper storage and site practices to minimise the potential for 	Work site / During planning and design stage, and construction stage	Contractor	✓	✓			WBTC No. 4/98, 5/98

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	<p>damage or contamination of construction materials; and</p> <ul style="list-style-type: none"> plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 							
S6.7.12	<p><i>Construction Waste and General Refuse</i></p> <p>A collection area should be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blow' light material. If an open area is unavoidable for the storage or loading / unloading of wastes, then the area should be bunded and all the polluted surface run-off collected within this area should be diverted into sewers.</p> <p>The requirements for the handling and disposal of bentonite slurries shall follow ProPECC PN 1/94.</p>	Work site / During the construction period	Contractor		✓			<p>Public Health and Municipal Services Ordinance (Cap. 132)</p> <p>ProPECC PN 1/94</p>
S6.7.13 – S6.7.14	<p><i>Chemical Wastes</i></p> <p>After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be stored and collected by an approved operator for disposal at the CWTF or other licensed facility in accordance with the Chemical Waste (General) Regulation.</p> <p>Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within areas appropriately equipped to control these discharges.</p>	Work site / During the construction period	Contractor		✓			<p>Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p>
S6.7.15	<p><i>Construction and Demolition Material</i></p> <p>C&D material shall be sorted on-site into inert C&D material (that is, public fill) and C&D waste. All the inert C&D material should be broken down to 250 mm in size for reuse as public fill in the</p>	Work site / During the construction period	Contractor		✓			<p>WBTC No. 4/98, 5/98, 5/99, 25/99, 12/2000.</p>

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	WDII reclamation. C&D waste, such as wood, glass, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials.							
S6.7.15	<p>The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 “Construction Site Drainage” and listed as follows:</p> <ul style="list-style-type: none"> • If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the Technical Memorandum of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. 	Work site / During the construction period	Contractor		✓			ProPecc PN 1/94

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Table A5 Implementation Schedule for Landscape and Visual

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<i>Construction Phase</i>								
S10.9	<ul style="list-style-type: none"> Hydroseeding of unoccupied reclaimed land to provide immediate greening effect until such time as the land is developed (CM1). Minimisation of works areas (CM2). Erection of decorative hoardings (CM3). Control night-time lighting (CM4); Minimisation of disruption to public by effective programming of the works (CM5). Temporary re-provision of pedestrian access, where appropriate (CM6). Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical (CM7). Preservation and protection of existing trees, where possible, and transplanting, if practical, when preservation and protection is not possible (CM8). 	Entire Works Area – During Entire Construction period	Contractor		✓			WBTC 24/94 – Preservation of Trees
<i>Operation Phase</i>								
S10.9	<ul style="list-style-type: none"> Regional Open Space (OM1 to OM4) 	As shown on Master Landscape Plan and implemented during construction	To be determined by Government	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> District Open Space (OM5 and OM6) 	As shown on Master Landscape Plan and implemented during construction	To be determined by Government	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> Local Open Space (OM7 and OM8) 	As shown on Master Landscape Plan and implemented during construction	To be determined by Government	✓	✓	✓		WBTC 18/94

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	<ul style="list-style-type: none"> Sensitive aesthetic design of road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers. (OM9) 	CWB and IECL / Designed by TDD's consultants and implemented during construction	TDD	✓	✓	✓		ACABAS; HyDTC 15/97
	<ul style="list-style-type: none"> Attractive streetscape design of hard landscape elements, dwarf walls, paving, furniture, lighting etc. (OM10) 	As shown on Master Landscape Plan / Designed by TDD's consultants and implemented during construction	TDD	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> Attractive soft landscape in amenity areas adjoining roads to screen traffic and roads from adjacent land uses and as re-provision for felled trees. (OM11) 	As shown on Master Landscape Plan / Designed by TDD's consultants and implemented during construction	TDD	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> Temporary landscape treatment of planned open space areas along waterfront until they are designed and developed. (OM12) 	Designed by TDD's consultants and implemented during construction	TDD	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> The Interim Landscape Master Plan shown on figure 10.22 shall be implemented until such time as the North-South Link Roads are implemented. (OM13) 	Designed by TDD's consultants and implemented during construction.	TDD	✓	✓	✓		WBTC 18/94
	<ul style="list-style-type: none"> Structural design of Pedestrian Deck linking Victoria Park with the waterfront through the proposed leisure and entertainment facility to allow tree and shrub planting with a topsoil depth of 1.5 m. 	As shown on Master Landscape Plan and implemented during design and construction	To be determined by Government	✓	✓	✓		WBTC 18/94

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Table A6 Implementation Schedule for Biogas

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				Des	C	O	Dec	
S11.5.4 – S11.5.5	<p><i>Monitoring of methane gas levels:</i></p> <ul style="list-style-type: none"> Monitoring should be undertaken via purposely installed wells within boreholes drilled into the fill material. Concentrations of methane gas should be measured by portable gas monitoring instruments. Gas flow rates and fluxes should also be measured if emission velocities are not too low. 	Reclaimed area at western and eastern corners of typhoon shelter / Immediate post-reclamation period and prior to development	Contractor and Environmental Team		✓			Landfill Gas Hazard Assessment Guidance Note, EPD (1997)
S11.5.6 – S11.5.15	<p><i>Precautionary Gas Protection Measures & General Guidelines:</i></p> <p>At this stage it is difficult to formulate specific guidelines on what protection measures would be required for the measured rates of gas emission as this would depend on the detailed design of the individual buildings to be constructed. The following criteria may be used as general guidelines.</p> <p><u>Scenario 1</u></p> <p>If rates of methane emission are consistently much less than the trigger value (10 L m⁻² per day), including monitoring occasions when atmospheric pressure is falling rapidly, it is considered that the buildings will not require gas protection measures.</p> <p>To be conservative, it is proposed to adopt an area of influence of 20 m² (radius of 2.5m), which would give:</p> <ul style="list-style-type: none"> Trigger value of 10 L m⁻² per day x 20 m² = 200 L per day emitted from the borehole <p>The criterion for “safe” flow rate from a free venting borehole becomes:</p> <ul style="list-style-type: none"> Flow rate of methane (in terms of litre per day) < 200 L per day; or (Gas flow rate in terms of litre per day) x (concentration of methane in gas (in % gas)) < 200 L per day 	Reclaimed area at western and eastern corners of typhoon shelter / Immediate post-reclamation period and prior to development	Contractor and Environmental Team					Waste Management Paper No. 26A on Landfill Completion, UK Department of the Environment (1993)

EIA Report Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p><u>Scenario 2</u> If the rate of methane emission frequently exceeds the trigger value or shows a rising trend such that future emission rates are likely to exceed the trigger value, then any buildings to be constructed on that part of the site will require some form of gas protection measures, that is,</p> <ul style="list-style-type: none"> • (Gas flow rate in terms of litre per day) x (concentration of methane in gas (in % gas)) > 200 L per day. <p>The type of gas protection measures would be dependent on the design and use of the particular building. A possible measure is the incorporation of a low gas permeability membrane in the floor slab of the building. Further investigation may be required to determine the area of land that is affected by gas emissions. The analysis and assessment of the results and design of any gas protection measures should be undertaken by suitably qualified and experienced professionals who are familiar with the properties of biogas and building protection design measures.</p> <p><u>Scenario 3</u> If there are occasional exceedences of the trigger value for methane emission rate from a borehole or if there is significant fluctuation of the monitoring results with some readings coming close to the trigger value, then any trends in the results will need to be assessed to determine their significance and the need for any building protection measures. It may be necessary to undertake further monitoring by extending the monitoring period, for example, if a spuriously high reading is noted towards the end of the monitoring period or if it seems likely that future emission rates may exceed the trigger value. The analysis and assessment of the monitoring results and design of any gas protection measures should be undertaken by suitably qualified and experienced professionals who are familiar with the properties of biogas and building protection design measures.</p>							

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	<p><u>Scenario 4</u> If the rate of methane emission from any borehole frequently exceeds the upper UK guidance value of 432 L m⁻² per day (that is, Carpenter’s guidance level at which it is recommended that development should not take place), or shows a rising trend such that future emission rates are likely to exceed this value, then no buildings should be constructed on that part of the site. That is when:</p> <ul style="list-style-type: none"> • Upper UK guidance value of 432 L m⁻² per day x 20 m² = 8,640 L per day emitted from the borehole; or • (Gas flow rate in terms of litre per day) x (concentration of methane in gas (in % gas)) > 8,640 L per day. <p>Depending on the monitoring results, it may be necessary to incorporate a number of gas protection measures into the design of the proposed development. Specific details cannot be provided until the results of the monitoring are available, and the proposed landuse and building design are known and confirmed. A combination of different measures may be used for protecting both the ground level and underground structures at the development against possible risks due to biogas emissions. Discussions would need to be held with the developer and architects to determine the protection measures which are the most appropriate and feasible. Typical gas protection measures that may be adopted are described below.</p>							
S11.5.16 – S11.5.21	<p>Typical gas protection measures that may be adopted are described below:</p> <ul style="list-style-type: none"> • For identified ‘at risk’ rooms, a low gas permeability membrane may be incorporated in the design of the floor and any below ground walls. In addition, measures shall be taken to avoid or seal any openings in the floor (for example, at service entry points). • Mechanical ventilation should be provided in specific ‘at risk’ rooms. For particularly sensitive rooms, such as below ground confined spaces which contain sources of ignition, forced 	Proposed development; within reclaimed area at the western and eastern corners of the Typhoon Shelter / During design,	Project proponent / Contractor / Utility companies	✓	✓	✓		ProPECC PN 2/96 Control of Air Pollution in Car Parks

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				Des	C	O	Dec	
	<p>ventilation may be used in addition to the use of a low gas permeability membrane.</p> <ul style="list-style-type: none"> For the proposed basement car park, the ventilation system should be designed to ensure that the car park air quality guidelines given in ProPECC PN 2/96 <i>Control of Air Pollution in Car Parks</i> are achieved. Several ventilation systems should be installed and evenly distributed within the basement carpark, and a back-up power supply should be provided for the ventilation system. Penetration of floor slabs by utilities or below ground services should be avoided, as far as possible. Any unavoidable penetrations should be carefully sealed using puddle flanges, low permeability sealant and / or membrane. 	construction and operation phases						
S11.5.22 – S11.5.23	<p><i>Precautions during construction works:</i></p> <ul style="list-style-type: none"> Smoking and naked flames in the vicinity of drilling activities and excavations of 1 m depth or more shall be prohibited. Temporary structures, such as site offices, should be raised slightly off the ground. A minimum clear separation distance of 500 mm, as measured from the highest point on the ground surface to underside of the lowest floor joist, is recommended. 	Reclaimed area at the western and eastern corners of Typhoon Shelter / During the construction period	Contractor		✓			Landfill Gas Hazard Assessment Guidance Note, EPD (1997)
S11.5.24 – S11.5.26	<p><i>Precautions prior to entry of below ground services:</i></p> <ul style="list-style-type: none"> Prior to entry, the atmosphere within the chamber should be checked for oxygen, methane and carbon dioxide concentrations. The chamber may then only be entered if oxygen is greater than 18% by volume, methane is less than 10% of the Lower Explosive Limit (LEL), which is equivalent to 0.5% by volume (approximately), and carbon dioxide is less than 0.5% by volume. The entry or access point of chamber, manhole or culvert which is large enough to permit access to personnel should be clearly marked with a warning notice (in English and Chinese) which states that there is the possibility of flammable and asphyxiating gases accumulated within. 	Reclaimed area at the western and eastern corners of the Typhoon Shelter / During construction and operation phases	Utility companies		✓	✓		Landfill Gas Hazard Assessment Guidance Note, EPD (1997)

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	<ul style="list-style-type: none"> The warning notice should also give the telephone number of an appropriate competent person who can advise on the safety precautions to be followed before entry and during occupation of the manhole. Personnel should be made aware of the dangers of entering confined spaces potentially containing hazardous gases and, where appropriate, should be trained in the use of gas detection equipment. If either carbon dioxide or methane is higher, or oxygen lower, than the values given above, then entry to the chamber should be prohibited and expert advice sought. Even if conditions are safe for entry, no worker should be permitted to enter the chamber without having another worker present at the surface. The worker who enters the chamber should wear an appropriate safety / recovery harness and, preferably, should carry a portable methane, carbon dioxide and oxygen meter. 							

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A7 Implementation Schedule for Other EIA Requirements

EIA Report Ref [#]	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
-	<p>Site Environmental Audit</p> <ul style="list-style-type: none"> Site inspections shall be carried out regularly by the Environmental Team to inspect construction activities to ensure that the recommended environmental protection and pollution control mitigation measures are properly implemented. Details of the requirements and procedures in conducting site inspections are given in Section 8 of the EM&A Manual. On the receipt of any complaints, the Environmental Team Leader (including co-operation as required from other parties) shall promptly undertake investigation work and the necessary actions carried out as based on the results of the investigation. Details of the recommended complaints handling procedures and actions are given in Section 8 of the EM&A Manual. 	Works site / During construction period	Contractor and Environmental Team		✓			-

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

* Des - Design, C - Construction, O - Operation and Dec - Decommissioning