

# Appendix B Environmental Mitigation Implementation Schedule



Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



Table B1: Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Ref.	Recommendation Mitigation Measures	Location	Implementation Agent	Implementation Stages	Relevant Legislation and Guidelines
<b>AIR QUALITY AND HEALTH IMPACT</b>						
3.3.5		<p><b>Control the active area</b></p> <p>No <b>more than</b> three individual works areas of 20 m by 20 m will be in operation at once in <b>each zone</b> group (i.e. <b>1200 m<sup>2</sup></b>). <b>No more</b> than <b>3200 m<sup>2</sup></b> active area (i.e. with paved material removed for excavation work) will be allowed at <b>any one time</b> over the entire Project site. Zones are grouped based on the excavation areas, which include Zone 1A and Zone 3; Zone 2; Zone 4, 5A and 5B, and; Zone 1B and Zone 1C (refer to Figure 3.2).</p>	Site area	Contractor	Construction Stage	EIA Recommendation
3.6.1		<p><b>Health and Safety Measures for On-site Personnel</b></p> <p>Project site activities may give rise to the health and safety risks to on-site personnel. Detailed mitigation measures can be found in Section 3. When all of the measures detailed in Section 3 of EIA report are properly implemented, the risks to human health (in terms of both carcinogenic and non-carcinogenic risks) would be considered to be acceptable.</p>	Site area	Contractor	Construction Stage	Occupation Safety and Health Ordinance (OSHO) (Chapter 509)
3.6.2	S.2.1	<p><b>General Dust Control Measures</b></p> <p>The following dust suppression measures should be implemented:</p> <ul style="list-style-type: none"> <li>Frequent water spraying for active construction areas (4 times per day or once every 2.5 hours), including Heavy construction activities include construction of buildings or roads, drilling, ground excavation, cut and fill operations (i.e., earth moving)</li> </ul>	Site area	Contractor	Construction Stage	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation
3.6.3	S.2.1	<p><b>Best Practice For Dust Control</b></p> <p>The relevant best practices for dust control as stipulated in the Air Pollution Control (construction Dust) Regulation should be adopted to further reduce the construction dust impacts from the Project. These best practices include:</p> <p><i>Good Site Management</i></p> <ul style="list-style-type: none"> <li>Good site management is important to help reduce potential air quality impacts to an acceptable level. As a general guide, the Contractor should maintain a high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw</li> </ul>	Site area	Contractor	Construction Stage	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>materials, wastes or by-products should be carried out in a manner so as to minimise the release of dust emissions. Accumulated materials on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant within the work areas should be carried out in a manner which minimises emissions of fugitive dust. Materials should be handled properly to prevent fugitive dust emission before cleaning.</p> <p><i>Disturbed Parts of the Roads</i></p> <ul style="list-style-type: none"> <li>• Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or</li> <li>• Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.</li> </ul> <p><i>Exposed Earth</i></p> <ul style="list-style-type: none"> <li>• Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last decontamination activity on the site or part of the site where the exposed earth lies.</li> </ul> <p><i>Loading, Unloading or Transfer of Dusty Materials</i></p> <ul style="list-style-type: none"> <li>• All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.</li> </ul> <p><i>Debris Handling</i></p> <ul style="list-style-type: none"> <li>• Debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides.</li> <li>• Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped.</li> </ul> <p><i>Transport of Dusty Materials</i></p> <ul style="list-style-type: none"> <li>• Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards.</li> <li>• Where a vehicle leaving the Project 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.</li> </ul> <p><i>Wheel Washing</i></p>				

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<ul style="list-style-type: none"> <li>Vehicle wheel washing facilities should be provided at each Project site exit. Immediately before leaving the Project site, every vehicle should be washed to remove any dusty materials from its body and wheels.</li> </ul> <p><i>Use of Vehicles</i></p> <ul style="list-style-type: none"> <li>The speed of vehicles within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site.</li> </ul> <p><i>Site Hoarding</i></p> <ul style="list-style-type: none"> <li>Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.</li> </ul>				
S3.6.4		<p><b>Solidification and Biopile Measures</b></p> <p>The mitigation measures to be implemented during cement solidification and biopiling are detailed as follows:</p> <p><i>Cement Solidification</i></p> <ul style="list-style-type: none"> <li>The handling of dusty materials including soil and cement shall follow the Air Pollution Control (Construction Dust) Regulation to limit dust emissions. The cement solidification process and associated storage bins or storage piles shall be covered as much as practicable.</li> </ul> <p><i>Biopiling</i></p> <ul style="list-style-type: none"> <li>During biopile formation, stockpiled soils shall be covered with tarpaulin or other impermeable material to minimise fugitive dust, HM and HC emissions.</li> <li>During biopile operation the biopile shall be fully covered to control the extraction of HC. An activated carbon filter shall be fitted to the outlet of the biopile and shall have an installed efficiency of at least 99% removal efficiency.</li> <li>The activated carbon filter system shall be regularly monitored to check the performance. Spent activated carbon filter shall be replaced regularly so that the Volatile Organic Carbon (VOC) emission rate from the system is acceptable (i.e. the measured Total VOC is below 20 ppm). The biopile operation shall be terminated when unacceptable air quality is monitored at the site boundary. Resumption of biopiling will only be allowed after confirmation and implementation of</li> </ul>	Site area	Contractor	Construction Stage	EIA Recommendation and Air Pollution Control (Construction Dust) Regulation

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		appropriate mitigation measured (e.g. replacement of the activated carbon filter).				
<b>NOISE</b>						
S.4.7	S.3.1.7	<b>Good Site Practice</b> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works.</li> </ul>	All plants on site	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Good Site Practice</b> <ul style="list-style-type: none"> <li>Machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum.</li> </ul>	All plants on site	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Good Site Practice</b> <ul style="list-style-type: none"> <li>Plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from nearby NSRs.</li> </ul>	All plants on site	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Good Site Practice</b> <ul style="list-style-type: none"> <li>Mobile plant should be sited as far away from NSRs as possible.</li> </ul>	All mobile plants on site	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Good Site Practice</b> <ul style="list-style-type: none"> <li>Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>	Active works areas	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Adoption of Quieter PME</b> <ul style="list-style-type: none"> <li>The recommended quieter PME adopted in the assessment were taken from the EPD's QPME Inventory and "Sound Power Levels of Other Commonly Used PME". It should be noted that the silenced PME selected for assessment can be found in Hong Kong.</li> </ul>	Active works areas	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Use of Movable Noise Barriers</b> <ul style="list-style-type: none"> <li>Movable noise barriers can be very effective in screening noise from particular items of plant when constructing the Project. Noise barriers located along the active works area close to the noise generating component of a PME could produce at least 10 dB(A) screening for stationary plant and 5 dB(A) for mobile plant provided the direct line of sight between the PME and the NSRs is blocked.</li> </ul>	Active works areas	Contractor	Construction Stage	EIAO-TM and NCO
S.4.7	S.3.1.7	<b>Use of Noise Insulating Fabric</b> <ul style="list-style-type: none"> <li>Noise insulating fabric can also be adopted for certain PME (e.g. drill rig, piling machine etc). The fabric should be lapped such that there</li> </ul>	Active works areas	Contractor	Construction Stage	EIAO-TM and NCO

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		are no openings or gaps on the joints. According to the approved Tsim Sha Tsui Station Northern Subway EIA report (AEIAR-127/2008), a noise reduction of 10 dB(A) can be achieved for the PME lapped with the noise insulating fabric.				
S.4.7	S.3.1.7	<p><b>Scheduling of Construction Works outside School Examination Periods</b></p> <ul style="list-style-type: none"> <li>The contractor should liaise with the educational institutions (including NSR KT-N7) to obtain the examination schedule and avoid the noisy construction activities during school examination periods; and</li> <li>A Construction Noise Mitigation Measures Plan for educational institution (i.e. NSR KT-N7) will be provided to address the potential noise exceedance during examination period.</li> </ul>	Active works areas	Contractor	Construction Stage	EIAO-TM and NCO
<b><u>WATER</u></b>						
S.5.7.1.1	S.4.2.1	<p><b>Site Runoff and Other Discharge Instances from the Project</b></p> <p>The site practices outlined in ProPECC Note PN 1/94 should be observed to control surface runoff and the chance of erosion. To prevent overflow of contaminants from the site, a detailed <b>Construction Site Drainage Management Plan (the Plan)</b> with detailed design of the site drainage system, which should be certified by a qualified civil engineer of the Engineer's Representative's team who has suitable drainage system design experience prior to submission to EPD, before commencement of the construction works of the Project. In general, <b>the Plan</b> shall incorporate the requirements shown in bullet points below:</p> <ul style="list-style-type: none"> <li>A detailed construction site drainage proposal with justifications for design rain storm frequency (e.g. 1 in 50 year rainstorm), taking into consideration relevant factors such as the downstream public storm drain capacity available, practicability of providing on-site storm water storage tank; etc.</li> <li>Perimeter cut-off drains to prevent inadvertent discharge should be constructed. In addition, cut-off channels, earth bunds or similar impervious water barriers should be provided on site to direct site runoff to silt removal facilities and other treatment as necessary if contaminants or contaminated water are encountered (schematic diagram at <b>Appendix 5.4</b> also refers);</li> <li>The site area should be made impervious (e.g. concrete top) except for</li> </ul>	Site area	Contractor	Design & Construction Stage	WPCO and ProPECC Note PN 1/94

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>the active excavation area. A daily inspection checklist of the impervious layers for confirming no leaks and cracks and other defects and attach to the site drainage audit checklist should also be submitted to the ER and deposit a copy with EPD;</p> <ul style="list-style-type: none"> <li>• The active excavation areas should be cut-off from the remaining site by impervious bunds;</li> <li>• The collected storm water from cut-off drains should be treated to meet the requirements of the TM standards under the WPCO or the WPCO licence requirement, whichever is more stringent, before discharge off site;</li> <li>• Runoff should be treated with wastewater treatment facilities and ensure that the requirements of the TM standards under the WPCO or the WPCO licence requirement, whichever is more stringent are met before discharge;</li> <li>• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC Note PN 1/94;</li> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly before and during rainstorms. Deposited silt and grit should be regularly removed at the onset of, and after each rainstorm event to ensure that these facilities are functioning properly at all times;</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from excavations should be treated through silt removal facilities before reused on site or treated in the cement solidification process;</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. Excess wastewater should go through silt removal facilities and used in the cement solidification process or disposed of as chemical waste;</li> <li>• All vehicles and plants should be cleaned before leaving a Project site to ensure no earth, mud, debris and the like is deposited by them on</li> </ul>				



Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>roads. An adequately designed and sited wheel washing facility should be provided at Project site exits where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;</p> <ul style="list-style-type: none"> <li>• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar impervious material during rainstorms. Measures should be taken to prevent construction materials, soil, silt or debris runoff into any drainage system;</li> <li>• Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and to avoid storm water runoff being directed into foul sewers;</li> <li>• Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes;</li> <li>• A site drainage audit checklist should also be designed by the ER to ensure the drainage design is properly constructed executed and maintained. The Contractor should submit the duly completed checklist to the ER daily for certification and the ER should deposit a certified copy with EPD; and</li> <li>• The Contractor shall obtain a valid license from EPD under the WPCO before the commencement of construction works.</li> </ul>				
S.5.7.1.2	S.4.2.1	<p><b>Sewage Effluent from Construction Workforce</b></p> <ul style="list-style-type: none"> <li>• Temporary sanitary facilities, such as portable chemical toilets, should be provided on-site to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	Site area	Contractor	Construction Stage	WDO and ProPECC Note PN 1/94
S.5.7.1.3	S.4.2.1	<p><b>General Site Activities from the Project</b></p> <ul style="list-style-type: none"> <li>• Construction solid waste, debris and refuse generated on-site should</li> </ul>	Site area	Contractor	Construction Stage	WPCO, WDO, and

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		be collected, handled and disposed of properly by a licensed contractor to avoid entering any nearby storm water drains. Stockpiles of cement and other construction materials should be kept covered when not being used.				ProPECC Note PN 1/94
S.5.7.1.4	S.4.2.1	<p><b>Excavation Works</b></p> <ul style="list-style-type: none"> <li>All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm.</li> </ul>	Site area	Contractor	Construction Stage	ProPECC Note PN 1/94
S.5.7.1.5	S.4.2.1	<p><b>Pipe Piles</b></p> <ul style="list-style-type: none"> <li>Any excess wastewater shall be treated to ensure that the requirements of the TM standards under the WPCO are met before discharge. The silt removed in the process will be reused on site in the cement solidification process.</li> </ul>	Site area	Contractor	Construction Stage	ProPECC Note PN 1/94
S.5.7.1.6	S.4.2.1	<p><b>Accidental Chemical Spillage</b></p> <p>The Contractor should register as a chemical waste producer if chemical wastes would be produced from decommissioning/reprovisioning or other activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p> <p>Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within designated areas which are appropriately equipped to control discharges.</p> <p>Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rainfall event.</p> <p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste</p>	Site area	Contractor	Construction Stage	WPCO, WDO, Waste Disposal (Chemical Waste) (General) Regulation and ProPECC Note PN 1/94

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> <li>• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> <li>• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.</li> </ul>				
<b>WASTE MANGEMENT</b>						
S.6.6	S.5.2.1	<p><b>Good Site Practices</b></p> <p>Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> <li>• Nomination of an approved person, 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;</li> <li>• Training of site personnel in proper waste management and chemical handling procedures;</li> <li>• Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>• Dust suppression measures as required under the Air Pollution Control (Construction Dust) Regulation should be followed as far as practicable. Appropriate measures to minimise windblown litter and dust / odour during transportation of waste by covering trucks or in enclosed containers;</li> <li>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> <li>• Separation of chemical wastes for special handling and appropriate treatment;</li> <li>• A recording system for amount of wastes generated, recycled and disposed of (including the disposal sites);</li> <li>• General refuse shall be removed as soon as possible. As such, odour is not anticipated to be an issue to distant sensitive receivers;</li> <li>• Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction from public road;</li> <li>• Covers and water spraying system should be provided for the</li> </ul>	Site area	Contractor	Construction Stage	Waste Disposal Ordinance; Waste Disposal (Chemical Wastes) (General) Regulation; and Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>stockpiled C&amp;D material to prevent dust impact;</p> <ul style="list-style-type: none"> <li>• Provision of cover for the stockpile material, sand bag or earth bund as barrier to prevent material from washing away and entering the drains;</li> <li>• Designate different locations for storage of C&amp;D material to enhance reuse;</li> <li>• A well-planned programme for transportation of C&amp;D material should be implemented to lessen the off-site traffic impact; and</li> <li>• A well-planned delivery programme for offsite disposal and imported filling material such that adverse noise impact from transporting of C&amp;D material is not anticipated.</li> </ul>				
S.6.6	S.5.2.1	<p><b>Waste Reduction Measures</b></p> <p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>• Sorting of debris from site clearance to recover reusable/ recyclable portions (i.e. soil, broken concrete, metals etc.);</li> <li>• 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;</li> <li>• Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce;</li> <li>• Any unused chemicals or those with remaining functional capacity shall be recycled;</li> <li>• Proper storage and site practices to minimise the potential for damage or contamination of materials;</li> <li>• Plan and stock materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste; and</li> <li>• Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.</li> </ul>	Site area	Contractor	Construction Stage	Waste Disposal Ordinance
S.6.6	S.5.2.1	<p><b>C&amp;D Materials</b></p> <p>The C&amp;D material should be sorted on-site into inert C&amp;D material (that is, public fill) and C&amp;D waste. The surplus inert C&amp;D material would require disposal at the Government Public Fill Reception Facilities (PFRFs) in Tseung Kwan O Area 137. The C&amp;D waste, such as steel and other metals should be reused or recycled and, as a last resort, disposed of to landfill. It is recommended that a suitable area be designated on-site to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials.</p>	Site area	Contractor	Construction Stage	Waste Disposal Ordinance ; Technical Circular (Works) No.6/2010 for Trip Ticket System for Disposal of Construction & Demolition

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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		<p>The ground decontamination methods to be adopted will be proposed in the Contamination Assessment Report / Remediation Action Plan in Section 7 of EIA report. It is proposed that all treated soil be backfilled or re-used on-site.</p> <p>In order to monitor the disposal of public fill and C&amp;D waste at PFRFs and landfills, respectively, and to control fly tipping, a trip-ticket system as promulgated under DEVB TC(W) No. 6/2010 should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.</p>				<p>Materials; and Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site</p>
S.6.6	S.5.2.1	<p><b>Chemical Waste</b></p> <p>If chemical wastes are produced at the site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to the licensed Chemical Waste Treatment Centre, or other licensed facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p>	Site area	Contractor	Construction Stage	Code of Practice on the Packaging Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste) (General) Regulation
S.6.6	S.5.2.1	<p><b>General Refuse</b></p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site separately. Effective collection and storage methods (including enclosed and covered area) of site wastes should be provided to reduce the occurrence of wind-blown light material.</p>	Site area	Contractor	Design & Construction Stage	Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



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<b>LAND CONTAMINATION</b>						
S.7.8.1	S.6.2.1	<p><b>Identification of Risks and Migration Pathways</b></p> <p>Project site activities may give rise to the following health and safety risks to on-site personnel:</p> <ul style="list-style-type: none"> <li>• Skin contact with contaminated soil, groundwater and wastewater;</li> <li>• Exposure to or inhalation of potentially hazardous gases (such as VOCs) during excavation or formation/operation of biopile; and,</li> <li>• Dust emissions from dry exposed stockpiles or cement solidification activities.</li> </ul> <p>Contamination migration mechanisms and pathways include but are not limited to transport between groundwater, free product (if any), subsurface soil, surface soil, soil gas and indoor/outdoor air. Exposure pathways by receptors include ingestion, inhalation and dermal (skin) absorption.</p> <p>Ingestion included intake of the Chemicals of Concern (COCs) via soil / groundwater ingestion. Inhalation refers to breathing of release COCs (essentially as vapour or respirable suspended particulates from soil / groundwater to indoor/outdoor air. Dermal absorption means COC intake through skin contact with COC-containing media. However, it should be noted that dermal contact and soil ingestion would not be valid pathways for off-site sensitive receivers.</p>	Site area	Contractor	Construction Stage	Occupation Safety and Health Ordinance (OSHO) (Chapter 509)
S.7.8.1	S.6.2.1	<p><b>Identification of Sensitive Receivers</b></p> <p>Within the Project site area, construction workers are the most likely to be exposed to any potential contaminated materials in the areas identified as containing contaminated materials. The principal exposure pathways for workers include:</p> <ul style="list-style-type: none"> <li>• Direct ingestion of contaminated soils through eating, drinking or smoking on site; and</li> <li>• Dermal (skin) contact with contaminated soils.</li> </ul> <p>Through proper implementation of occupational health and safety guidelines and correct usage of personal protective equipment (see discussion below), these potential pathways can be successfully</p>	Site area	Contractor	Construction Stage	Occupation Safety and Health Ordinance (OSHO) (Chapter 509)

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



EIA Ref.	EM&A Ref.	Recommendation Mitigation Measures	Location	Implementation Agent	Implementation Stages	Relevant Legislation and Guidelines
		managed.				
S.7.8.1	S.6.2.1	<p><b>Identification of Preventive Measures</b></p> <p>In order to minimise the potentially adverse effects on health and safety of site workers during the course of this Project, the Occupational Safety and Health Ordinance (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures should be implemented as far as possible:</p> <ul style="list-style-type: none"> <li>• Maintain a hygienic working environment, including the provision of personal cleaning facilities;</li> <li>• No food or drink is allowed in active excavation or ground decontamination works areas;</li> <li>• Set up a list of safety measures for on-site personnel;</li> <li>• Provide written information and training on safety for on-site personnel;</li> <li>• Provide first aid training and materials to site workers;</li> <li>• Keep a log-book and plan showing the contaminated zones and clean zones;</li> <li>• Avoid dust generation;</li> <li>• Direct skin contact with excavated soil, groundwater and wastewater should be avoided;</li> <li>• Provide all necessary Personal Protective Equipment (PPE) to on-site personnel (e.g. chemical resistant jackboot, liquid tight gloves, face and respiratory protection gear);</li> <li>• Washing facilities should be provided for on-site personnel, with site runoff produced directed to proper on-site treatment facilities; and</li> <li>• Bulk earth moving equipment shall be utilised as much as possible to minimise manual handling and contact of contaminated soil.</li> </ul>	Site area	Contractor	Construction Stage	Occupation Safety and Health Ordinance (OSHO) (Chapter 509)
S.7.8.2	S.6.2.1	<p>During excavation, the Contractor shall take note of the following measures:</p> <ul style="list-style-type: none"> <li>• Properly design and execute excavation profile;</li> <li>• Fence off the contaminated area throughout the period of ground decontamination works;</li> <li>• Take precautions when controlling ground settlement, groundwater and</li> </ul>	Site area	Contractor	Construction Stage	Practice Guide of Investigation and Remediation of Contaminated Land; Guidance Manual

Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



EIA Ref.	EM&A Ref.	Recommendation Mitigation Measures	Location	Implementation Agent	Implementation Stages	Relevant Legislation and Guidelines
		<p>wastewater;</p> <ul style="list-style-type: none"> <li>• Avoid temporary stockpiling as far as practical. In case temporary storage is needed, contaminated soil should be placed in designated area paved with either concrete or lined with impermeable sheeting, bunded and covered properly with tarpaulins;</li> <li>• Supply of suitable backfill materials after excavation;</li> <li>• Implement speed control for vehicles travelling on site;</li> <li>• Properly decontaminate machineries and vehicles before excavating or taking different contaminated soil and leaving the excavation zone; and</li> <li>• Employ all necessary measures to prevent cross-contamination of different types of contaminated soil.</li> </ul>				<p>for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management;</p> <p>Guidance Note for Contaminated Land Assessment &amp; Remediation</p>
S.7.8.2	S.6.2.1	<p>The following mitigation measures shall be followed during decontamination works:</p> <ul style="list-style-type: none"> <li>• The loading, unloading, handling and storage of cement should be carried out in an enclosed environment;</li> <li>• The loading, unloading, handling, transfer or storage of materials that may generate airborne dust emissions such as untreated soil and oversize materials sorted out from screening plant and stabilised soil stockpiled in designated area should be carried out in such a manner to prevent or minimise dust emissions.</li> <li>• All practical measures, including but not limited to speed control for vehicles, should be taken to minimise dust emissions;</li> <li>• Simultaneous operation of mixing facilities and other equipment shall be avoided as far as possible to minimise unnecessary generation of noise nuisance;</li> <li>• Stockpile of untreated soil shall be covered as far as practicable;</li> <li>• Treated oversize materials can be used as backfilling material for on-site backfilling. Sorted materials of size smaller than 5cm will be collected and transferred to the mixing plant for further decontamination;</li> <li>• Treated soils can be broken down into suitable size for on-site backfilling purpose;</li> <li>• Water used in installation of pipe piles should as far as practicable be recirculated after sedimentation. Excess wastewater should go through silt removal facilities before discharge. The Contractor would be</li> </ul>	Site area	Contractor	Construction Stage	<p>Practice Guide of Investigation and Remediation of Contaminated Land;</p> <p>Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management;</p> <p>Guidance Note for Contaminated Land Assessment &amp; Remediation</p>



Alternative Ground Decontamination Works at the Proposed  
Kennedy Town Comprehensive Development Area Site  
Environmental Monitoring and Audit Manual



EIA Ref.	EM&A Ref.	Recommendation Mitigation Measures	Location	Implementation Agent	Implementation Stages	Relevant Legislation and Guidelines
		<p>required to obtain a license from EPD under the WPCO for discharge to the public drainage system.</p> <ul style="list-style-type: none"> <li>Housekeeping should be maintained at all times at the mixing plant as well as among other decontamination facilities;</li> <li>Visual inspection and rinsing (if needed) of any contaminated soil adhered on the broken concrete slab surface are recommended; and</li> <li>A clear separation between treated and untreated materials is recommended.</li> </ul>				
<b><u>ECOLOGY</u></b>						
S.8.5	S.7.2	<ul style="list-style-type: none"> <li>Before conducting site clearance works, the Project site should be inspected to confirm no active bird nest is present. If any active bird nest is observed, suitably sized buffer area should be established around the tree to minimise human or machinery disturbance until the nest is abandoned.</li> </ul>	Site area	Contractor	During carrying out of the Project	EIAO-TM; Wild Animals Protection Ordinance (Cap. 170)
S.8.5	S.7.2	<ul style="list-style-type: none"> <li>Before conducting site clearance works, daytime inspection should be carried out to confirm no Short-nosed Fruit Bat is present on the fronds of Chinese Fan-palms within the Project site. If any Short-nosed Fruit Bat is observed roosting on tree, suitably sized buffer area should be established around the tree to minimise human or machinery disturbance until the bat has left.</li> </ul>	Site area	Contractor	During carrying out of the Project	EIAO-TM; Wild Animals Protection Ordinance (Cap. 170)
<b><u>LANDSCAPE</u></b>						
Table 10-6 CP1	Table 9-1 CP1	<ul style="list-style-type: none"> <li>Landscape planting should be considered to be placed along the screen hoarding where space is available and feasible, and properly maintained during the carrying out of the Project in order to partially screen and soften the hard structure of the screen hoarding. Species with high tolerance to wind, sun and salt, such as <i>Ipomoea pes-caprae</i>, <i>Lantana montevidensis</i>, <i>Melastoma dodecandrum</i>, <i>Rusellia equisetiformis</i> and <i>Wedelia trilobata</i>, should be used for such planting.</li> </ul>	Site area	Contractor	During carrying out of the Project	EIAO-TM
Table 10-7 OP1	Table 9-2 OP1	<ul style="list-style-type: none"> <li>Compensatory tree planting in the proposed future waterfront promenade will be implemented for all three Re-provisioning Options, so that the felled trees will be compensated with a minimum ratio of 1:1 in terms of quantity by tree planting in accordance with DevB TC(Works) No. 10/2013. Since a total of 196 nos. of trees are proposed to be felled for the implementation of the proposed decontamination works, at least 196 nos. of trees will be required to fully compensate for the lost trees in terms of quantity. An</li> </ul>	The proposed future waterfront promenade	Maintenance agent of the future waterfront promenade	Before construction of the future waterfront promenade	DevB TC(Works) No. 10/2013

Alternative Ground Decontamination Works at the Proposed  
 Kennedy Town Comprehensive Development Area Site  
 Environmental Monitoring and Audit Manual



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		<p>Environmental Permit condition requiring the submission of a landscape plan showing the design of the waterfront promenade and details of the tree compensatory proposal to EPD will be included to ensure the implementation of this mitigation measure.</p>				