

## **ANNEX A**

### **MITIGATION MEASURES FOR WASTE MANAGEMENT**

**TABLE A.1 RECOMMENDED MITIGATION MEASURES FOR WASTE MANAGEMENT**

EIA Reference	EM&A Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Location/ duration of recommended measures & timing of completion of recommended measures	Implementation Agent	Implementation Stage <sup>1</sup>			Relevant Legislation & Guidelines
					D	C	O	
<b>Waste Management</b>								
S8.5	S6.2	The contractor(s) will nominate approved personnel to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site.	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	-
S8.5	S6.2	Good waste management practices should be implemented: <ul style="list-style-type: none"> <li>• Training of site personnel in proper waste management and chemical handling procedures;</li> <li>• Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre;</li> <li>• Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce;</li> <li>• Any unused chemicals, and those with remaining functional capacity, be recycled as far as possible;</li> <li>• Prior to disposal of C&amp;D materials, wood,</li> </ul>	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	-

<sup>(1)</sup> D = Design Phase, C = Construction Phase, O = Operational Phase

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		<p>steel and other metals will be separated, to the extent practical for re-use and/or recycling to reduce the quantity of waste to be disposed in a landfill;</p> <ul style="list-style-type: none"> <li>• Proper storage and site practices to reduce the potential for damage or contamination of construction materials; and</li> <li>• Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.</li> </ul>						
S8.5	Table 6.1	The contractor(s) must provide sufficient waste disposal points. Wastes will be collected and removed from site in a timely manner.	All areas/ During construction/ During operation	Contractor(s) / Project Proponent		✓	✓	-
S8.5	Table 6.1	The contractor(s) will have appropriate measures to reduce windblown/ floating litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All areas/ During construction/ During operation	Contractor(s) / Project Proponent		✓	✓	-
S8.5	Table 6.1	The contractor(s) will take and keep records of quantities of wastes generated, recycled and disposed of and the disposal sites.	All areas/ During construction/ During operation	Contractor(s) / Project Proponent		✓	✓	-

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S8.5	Table 6.1	The contractor(s) must segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse and recycling of material and proper disposal of waste.	All areas/ During construction/ During operation	Contractor(s) / Project Proponent		✓	✓	-
S8.5	S6.2	The contractor(s) will use reusable non-timber formwork to reduce the amount of C&D materials.	All areas/ During construction	Contractor(s)		✓		-
S8.5	Table 6.1	The contractor(s) must ensure that all the necessary waste disposal and marine dumping permits or licences are obtained prior to the commencement of the construction works.	During construction	Contractor(s)		✓		-
S8.5	S6.2	The contractor will open a billing account with EPD in accordance with the <i>Waste Disposal (Charges for Disposal of Construction Waste) Regulation</i> for the payment of disposal charges.	During construction	Contractor(s)		✓		<i>Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation</i>
S8.5	S6.2	A trip-ticket system will be established in accordance with <i>DEVB TC(W) No. 6/2010</i> to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	During construction	Contractor(s)		✓		<i>DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction &amp; Demolition Materials</i>

Waste Management Plan

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S8.5	S6.2	A WMP as stated in the <i>PNAP ADV-19</i> for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	All areas/ During construction	Contractor(s)		✓		<i>PNAP ADV-19</i>
S8.5	Table 6.1	The management of dredged marine sediment requirement from <i>PNAP ADV-21</i> will be incorporated in the Contract for the construction and maintenance dredging during the operation of the Project.	Marine works/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	<i>PNAP ADV-21 and Dumping at Sea Ordinance (DASO)</i>
S8.5/ S7.9	S6.2 / S5	Disposal vessels will be fitted with tight bottom seals in order to prevent leakage of material during transport.	Dredged areas/ During Construction	Contractor(s)/ Project Proponent		✓		<i>Dumping at Sea Ordinance (DASO)</i>
S8.5/ S7.9	S6.2 / S5	Barges will be filled to a level, which ensures that of marine sediment and marine sediment laden water does not spill over during loading or transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action.	Dredged areas/ During Construction	Contractor(s)/ Project Proponent		✓		<i>Dumping at Sea Ordinance (DASO)</i>
S8.5/ S7.9	S6.2 / S5	After dredging, any excess materials will be cleaned from decks and exposed fittings before the vessel is moved from the dredging area.	Dredged areas/ During Construction	Contractor(s)/ Project Proponent		✓		<i>Dumping at Sea Ordinance (DASO)</i>

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S8.5/ S7.9	S6.2 / S5	When the dredged material has been unloaded at the disposal areas, any material that has accumulated on the deck or other exposed parts of the vessel will be removed and placed in the hold or a hopper. Under no circumstances will decks be washed clean in a way that permits material to be released overboard.	Dredged areas/ During Construction	Contractor(s)/ Project Proponent		✓		
S8.5	S6.2	Dredgers will maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operations speed to ensure that excessive turbidity is not generated by turbulence from vessel movement or propeller wash.	Dredged areas/ During Construction	Contractor(s)/ Project Proponent		✓		
S8.5	Table 6.1	C&D materials will be segregated on-site into public fill and non-inert C&D materials and stored in different containers or skips to facilitate reuse of the public fill and proper disposal of the construction waste. Specific areas of the land and marine-based construction sites will be designated for such segregation and storage if immediate use is not practicable. Prefabrication will be adopted as far as practicable to reduce the construction waste arising.	During construction	Contractor(s)		✓		-

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S8.5	Table 6.1	The contractor(s) will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i> .	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>
S8.5	Table 6.1	Containers used for storage of chemical wastes will: <ul style="list-style-type: none"> <li>• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>• Have a capacity of less than 450 L unless the specifications have been approved by the EPD; and</li> <li>• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.</li> </ul>	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>

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S8.5	Table 6.1	<p>The storage area for chemical wastes will:</p> <ul style="list-style-type: none"> <li>• Be clearly labelled and used solely for the storage of chemical waste;</li> <li>• Be enclosed on at least 3 sides;</li> <li>• Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;</li> <li>• Have adequate ventilation;</li> <li>• Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and</li> <li>• Be arranged so that incompatible materials are appropriately separated.</li> </ul>	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>
S8.5	Table 6.1	<p>Chemical waste will be disposed of:</p> <ul style="list-style-type: none"> <li>• Via a licensed waste collector; and</li> <li>• To a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers.</li> </ul>	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	<i>Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical Wastes</i>

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S8.5	Table 6.1	General refuse (including the floating refuse collected) will be stored in enclosed bins separately from C&D materials and chemical wastes. Floating refuse will be collected on an 'as needed' basis for disposal as general refuse. Workers will be prohibited from throwing rubbish into the sea and adequate bins will be provided on both land and marine-based sites and marine vessels. General refuse will be delivered separately from C&D materials and chemical wastes for offsite disposal on a regular basis to reduce odour, pest and litter impacts. General refuse from the marine vessels will be collected and disposed on shore.	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	-
S8.5	Table 6.1	Recycling bins will be provided at strategic locations within the land and marine-based construction site and marine vessels to facilitate recovery of recyclable materials (including aluminium can, waste paper, glass bottles and plastic bottles) from the Project Site. Materials recovered will be sold for recycling.	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	-
S8.5	S6.2	To avoid any odour and litter impact, appropriate number of portable toilets will be provided for workers on-site.	All areas/ During construction	Contractor(s)		✓		-

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S8.5	S6.2	At the commencement of the construction works and operations, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling. In particular, the training will emphasize no dumping of waste into the sea is allowed, particularly at marine-based work sites and on marine vessels.	All areas/ During construction/ During operation	Contractor(s)/ Project Proponent		✓	✓	-
S8.5	S6.2	Industrial waste arising from maintenance activities will be segregated. Scrap metals and recyclables will be sent for recycling to reduce the overall quantity of waste disposed from these activities.	All areas / During operation	Project Proponent			✓	-
S8.7	S6.1	It is recommended that monthly audits of the waste management practices be carried out during the construction phase land-based work sites (at the GRSs at the BPPS and the LPS), and at marine-based work sites (on marine vessels and Jetty) to determine if wastes are being managed in accordance with the recommended good site practices and WMP. The audits will include all aspects of waste management including waste generation, storage, handling, recycling, transportation and disposal, to prevent any dumping of waste into the sea or malpractice of waste disposal.	All areas/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		-