5 Waste Management

5.1 Introduction

5.1.1.1 This section analyses the possible types of waste to be generated during the construction and operation phases of the proposed Project. It aims to assess if there is any waste management implication arising from these waste.

5.2 Criteria and Guidelines

5.2.1.1 The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of wastes, with waste defined as any substance that is abandoned. All wastes should be properly stored and disposed in accordance with relevant waste management regulations and guidelines listed below:

- Land (Miscellaneous Provisions) Ordinance (Cap. 28);
- Public Health and Municipal Services Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation;
- Waste Disposal Ordinance (Cap. 354);
- Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);
- Waste Disposal (Charges for Disposal of Chemical Waste) Regulation (Cap. 354J);
- Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N);
- Annex 7 and Annex 15 of the Technical Memorandum on EIA Process (TM-EIAO);
- Environment, Transport and Works Bureau Technical Circular (Works) No. 22/2003, Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites;
- Development Bureau Technical Circular (Works) No. 6/2010 Trip-ticket System for Disposal of Construction and Demolition Materials; and
5.3 Description of the Environment

5.3.1.1 The Project is located at the north-eastern side of rooftop of QMH. There are residential uses at the opposite side of Pok Fu Lam Road. Lung Fu Shan Country Park and Pok Fu Lam Country Park are at the north and the east respectively of the proposed Project. There are no “sensitive receivers” in terms of waste management assessment.

5.4 Construction Stage

5.4.1 Assessment Methodology

5.4.1.1 The criteria and approach for assessing waste management implications are stipulated in Annex 7 and Annex 15 of the TM-EIAO, and Clause 3.4.5 of the EIA Study Brief.

5.4.2 Impact Prediction and Assessment

5.4.2.1 The Proposed Helipad will be built on the rooftop of the north-eastern side of the New Block at QMH, no site formation, dredging works and demolition of existing structure are required.

5.4.2.2 Waste arising from the construction activities of Proposed Helipad would be construction waste from construction activities, chemical waste from the maintenance of construction plant and general refuse from workforce. The potential environmental impacts associated with these waste arising are described in the following.

Construction and Demolition Materials

5.4.2.3 Construction and Demolition (C&D) materials would be generated from the construction activities during the course of the works involving concreting, structural steel and finishing works. As this Project solely involves the construction of helipad, it is anticipated that only limited amount of C&D materials would be generated from its construction activities. All these activities would not induce any inert C&D materials but a small amount of non-inert materials such as bamboo, timber, and packaging materials would be generated.

5.4.2.4 These non-inert C&D materials generated shall be sorted for reuse and recycle to minimise the waste production. Rest of the non-inert C&D materials that cannot be reused or recycled shall be disposed of to a designated landfill.

5.4.2.5 To effectively manage and avoid/reduce/minimise the generation of C&D materials during construction, a Waste Management System will be incorporated into the Waste Management Plan (WMP), which becomes part of the Environmental Management Plan (EMP) according to the requirements as stipulated in ETWB TCW No. 19/2005.
Chemical Waste

5.4.2.6 The maintenance and servicing of construction plant and equipment may generate a small amount of chemical wastes during construction works, such as cleaning fluids, solvents, lubrication oil and fuel.

5.4.2.7 The volume of chemical waste is difficult to quantify since it depends upon the maintenance requirements and total number of plant utilised on-site. As this Project only involves the construction of helipad at the rooftop of New Block at QMH, the potential volume of chemical waste would be limited and anticipated in less than a litre for the Project.

5.4.2.8 Chemical wastes arising during the construction phase may pose environmental, health and safety hazards if not stored and disposed of in an appropriate manner as stipulated in the Waste Disposal (Chemical Waste) (General) Regulations. The potential hazards include:

- Toxic effects to workers;
- Adverse impacts on water quality from spills; and
- Fire hazards.

5.4.2.9 Materials classified as chemical wastes will require special handling and storage arrangements before removal for appropriate treatment at the Chemical Waste Treatment Centre (CWTC) or other licensed facilities. Wherever possible opportunities should be taken to reuse and recycle materials.

5.4.2.10 Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by the EPD. Provided that this occurs, and the chemical waste is disposed of at a licensed chemical waste treatment and disposal facility, the potential environmental impacts arising from the storage, handling and disposal of a small amount of chemical waste generated from the construction activities will be negligible.

General Refuse

5.4.2.11 The workforce would generate refuse comprising food scraps, waste paper, empty containers, etc. Such refuse will be properly collected on-site and transferred to the nearby refuse collection point. Disposal of refuse at Site other than approved waste transfer or disposal facilities will be prohibited. Effective collection of site wastes will prevent waste materials being blown around by wind, or creating an odour nuisance or pest and vermin problem. Waste storage areas will be well maintained and cleaned regularly.

5.4.2.12 The daily arising of general refuse during the construction period would be a small volume and this waste can be effectively controlled by good site practices. With the implementation of good waste management practices at the site, adverse
environmental impacts are not expected to arise from the storage, handling and transportation of workforce wastes.

5.4.3 Summary of Waste Materials

5.4.3.1 Since the use of Hospital Road in QMH is restricted, the D&C contractor would form a temporary site access fronting the New Block site at Pokfulam Road level for transportation of materials for construction of the New Block. The construction of helipad will use the same temporary site access road. There will not be any inert C&D materials generated and part of the non-inert C&D materials will be reused or recycled. The rest of those non-inert C&D materials that cannot be reused/recycled will be disposed to a designated landfill. The designated landfill will be one of the three strategic landfills at Tseung Kwan O, Nim Wan or Ta Kwu Ling which will subject to confirmation with EPD before tendering of the works contract for the helipad. C&D materials at the rooftop will be transported to ground level by using material hoist, tower crane or similar plants that will be used as part of the construction of the New Block. Then, there will be about 1 truck per week for transportation of the C&D materials. Owing to the small volume of non-inert C&D materials expected, it is unlikely to have any conveyor system or large stockpile area for the C&D materials within the site.

5.4.3.2 The chemical waste would be sent to Chemical Waste Treatment Centre or other licensed facility for proper treatment, and the general refuse would be sent to landfill for disposal.

5.4.3.3 All waste disposal to landfill is considered as a last resort. Any potential for reuse of materials on-site should be explored prior to disposal. The construction of the Proposed Helipad will be less than a year between 2022 and 2024 but the actual duration and time of waste arising is not known at this stage. It will depend on the D&C contractor in the later stage of the project. The estimated quantity of each type of waste generation during the whole construction stage has been presented in Table 5.1.
Table 5.1 Summary of Waste Generation

<table>
<thead>
<tr>
<th>Material Type</th>
<th>Source(s)</th>
<th>Handling</th>
<th>Disposal / Treatment</th>
<th>Estimated Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>C&amp;D Materials</td>
<td>Construction of Helipad</td>
<td>Non-inert C&amp;D waste</td>
<td>Non-inert C&amp;D waste (comprising timber, paper, plastics, etc.) to be recycled / disposed of at landfill</td>
<td>340.8 m³</td>
</tr>
<tr>
<td>Chemical Waste</td>
<td>Cleansing fluids, solvent, lubrication oil and fuel from construction plant and equipment</td>
<td>Recycle on-site or by licensed companies and stored on-site in the designed containers</td>
<td>To Chemical Waste Treatment Centre or other licensed facility for treatment</td>
<td>&lt; 1 litre</td>
</tr>
<tr>
<td>General Refuse</td>
<td>Waste paper, discarded containers, etc. generated from staff</td>
<td>Provide on-site refuse collection points</td>
<td>Disposal to landfill</td>
<td>0.3 m³</td>
</tr>
</tbody>
</table>

5.4.4 Recommended Mitigation Measures

To minimise the potential waste management related impacts, good site practices are recommended to implement during the construction phase. The practice of avoiding and minimising waste generation and waste recycling should be adopted as far as practicable. Recommended mitigation measures to be implemented are listed as follow:

- An on-site environmental officer should be appointed at the beginning of the works;
- The environmental officer shall prepare an Environmental Management Plan (EMP) incorporating waste management in accordance with the requirements set out in the ETWB TCW No. 19/2005, Environmental Management on Construction Sites;
- The reuse/ recycling of all materials on-site shall be investigated prior to treatment/ disposal off-site;
- Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation;
- All non-inert C&D materials that can be recycled or reused, shall be further segregated;
- The Contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or off-site;
- The Contractor shall make arrangements for the collection of the recyclable materials;
- Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on-site. Only licensed chemical waste collectors shall be employed to collect any chemical waste...
generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and a Guide to the Chemical Waste Control Scheme both published by EPD;

- A sufficient number of covered bins shall be provided on-site for the containment of general refuse to prevent visual impacts and nuisance to the sensitive surroundings. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the issue of DevB TCW No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness, the Contractor is required to maintain a clean and hygienic site throughout the project works;

- Site specific induction training and tool-box talks should be provided to workers about the concepts of site cleanliness, environmental nuisance abatement and appropriate waste management procedures, including waste reduction, reuse and recycling; and

- The Contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of construction.

5.4.4.2 As there is a land-based construction works with no site formation, dredging works and demolition of existing structure are required, only limited quantity of waste would be generated during the construction stage of the Project.

5.5 Operation Stage

5.5.1 Assessment Methodology

5.5.1.1 The criteria and approach for assessing waste management implications are stipulated in Annex 7 and Annex 15 of the TM-EIAO, and Clause 3.4.5 of the EIA Study Brief.

5.5.2 Impact Prediction and Assessment

5.5.2.1 During the operation phase, the Proposed Helipad would only be used in emergency situation for transferring patients with life-threatening condition to QMH, transporting organs to QMH, and conveying medical teams from QMH to scene of distress. There will be no fuelling facilities, storage of fuel, any kinds of dangerous goods store in this Project. In addition, all maintenance works on the helicopters would be carried out off-site. Hence, it is anticipated that no waste would be generated during the operation stage of the Project.
5.6 Conclusion

5.6.1.1 Provided that the handling and disposal of the above wastes would be followed the relevant requirements, no adverse waste management related impact arising from the Project during the construction stage is anticipated.

5.6.1.2 Given that no waste or by-products would be generated during the operation stage, waste management impacts arising from the operation of helipad would not be anticipated.