

5 WASTE MANAGEMENT ASSESSMENT

5.1 Introduction

5.1.1 This section presents the approach to and the findings of the waste management assessment. The aim of this assessment is to analyse the type of activities associated with the construction of the helipad and the likely types of waste to be generated in order to outline measures to minimize impacts to the surrounding environment and where possible to minimize generation in the first place.

5.2 Legislation & Standards

5.2.1 In carrying out the assessment, reference has been made to Hong Kong legislation governing waste management and disposal. Directly relevant legislation include:

- The *Waste Disposal Ordinance* (Cap. 354) and subsidiary legislation such as the *Waste Disposal (Chemical Waste) (General) Regulation* sets out requirements for the storage, handling and transportation of all types of wastes.
- The *Dumping at Sea Ordinance* (Cap. 466) provides for the control on marine dumping, extends control on marine pollution, and gives legal effect to the Marine Dumping Action Plan.
- Land (Miscellaneous Provisions) Ordinance (Cap 28).
- Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisance Regulation – control of disposal of general refuse.
- EIAO and EIA-TM (Annexes 7 and 15).

5.2.2 Other relevant documents and guidelines are also applicable to waste management and disposal in Hong Kong:

- Environmental, Transport and Works Bureau Technical Circular (Works) No. 22/2003, Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites;
- Environmental, Transport and Works Bureau Technical Circular (Works) No. 15/2003, Waste Management on Construction Sites;
- Buildings Department, Practice Note for Authorised Person and Registered Structured Engineers 252, Management Framework for Disposal of Dredged/Excavated Sediments;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002, Management of Construction and Demolition Material Including Rock;
- Works Bureau Technical Circular No. 34/2002, Management of Dredged/Excavated Sediment;
- Environmental, Transport and Works Bureau Technical Circular (Works) No. 31/2004 Trip-ticket System for Disposal of Construction and Demolition Materials;
- Works Bureau Technical Circular No. 6/2002, Enhanced Specification for Site Cleanliness and Tidiness;
- Environment, Transport and Works Bureau Technical Circular (Works) No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness;
- Works Bureau Technical Circular No. 12/2000, Fill Management;
- Environmental Guidelines for Planning in Hong Kong (1990), Hong Kong Planning and Standards Guidelines, Hong Kong Government;

- New Disposal Arrangements for Construction Waste (1992), Environmental Protection Department and Civil Engineering Department;
- Waste Disposal Plan for Hong Kong (December 1989), Planning Environment and Lands Branch, Hong Kong Government Secretariat.

5.3 Baseline Conditions & Sensitive Receivers

- 5.3.1 The only development in the immediate vicinity of the Project site is the existing Tai Lei road / bridge that was constructed around 1983 and the more recent development of a low-rise residential complex, Sea Crest Villa [Section 4, Figure 4.2 refers].
- 5.3.2 There is an existing footpath across the hill behind (south) of the site that is presently being upgraded by Home Affairs Department (HAD) (“Construction of a footpath along Pak Wan, Peng Chau” under HAD’s Rural Planning and Implementation Strategy).

Site Conditions

- 5.3.3 Review of previous literature revealed that the surface of the seabed around the proposed helipad site is predominantly sandy (51-75% cover) with scattered rocks and boulders (<30% cover) (Oceanway Corporation Limited, 2001).
- 5.3.4 More detailed sediment quality data was collected in November 1996 under the *EIA Study for the Peng Chau Sewage Treatment Plant Development* in 1996 by CES (Asia) Limited (1997). In the study, two of the five surface sediment samples were collected approximately 1 km west of the helipad Project site boundary. Based on the chemical analyses of the samples and assessment in accordance with the sediment quality evaluation criteria Environmental, Transport and Works Bureau Technical Circular (Works) (ETWB TCW) No. 34/2002, it was determined that the sediments are Category L type and thus are not contaminated.
- 5.3.5 *Appendix 5.1* presents a plan indicating the historical sediment sampling locations and the sediment quality results of the two surface sediment samples taken compared against the sediment quality criteria as set out in ETWB TCW No. 34/2002, Management of Dredged/Excavated Sediments. A flow chart illustrating the categorization of sediments in accordance with ETWB TCW No. 34/2002 is presented in *Appendix 5.2*.
- 5.3.6 A Sediment Testing Proposal was prepared under this study and approved by the relevant Authority, including EPD, to carry out additional sediment sampling and analysis to reconfirm the findings of previous literature and studies. However, given the nature of the sediments within the helipad footprint (weak decomposed granite with coral and shell fragments), the number of samples taken was necessarily limited and complete sample cores could not be taken. As such, sampling was abandoned upon agreement with CEDD subsequent to the collection of two samples.
- 5.3.7 Based on the borehole logs, the geological description from the two cores are similar, with the upper 3-6 meters comprised of unconsolidated Hang Hau Formation sediments overlying a bedrock of highly / completely decomposed granite (Bachy, 2003). No evidence of silt or mud was recorded.
- 5.3.8 Given the characteristics of the sediments, undisturbed nature of the site area, lack of streams discharging into the area (therefore no sources of particulate matter) and presence of live coral communities nearby, there is little likelihood for marine contamination to be present. The analytical results further support the categorization of the sediment as Category L type. This information was presented to in a Tier 1 sediment quality proposal that was accepted by EPD under ETWB 34/2002. Allocation of dumping of 14,000m³ of marine sediment from the Project has also been obtained from EPD.

5.4 Assessment Methodology

- 5.4.1 In addition to Annexes 7 and 15 of the EIA-TM, the waste management assessment has also been carried out in accordance with the requirements of Clause 3.4.4 of the EIA Study Brief that stipulates the assessment of waste management implications shall also cover an analyses of works activities and waste generation and propose options/measures for managing waste.
- 5.4.2 The waste management hierarchy has been adopted in carrying out the assessment and in developing mitigation measures for waste. The hierarchy is comprised of the following key elements in order of their priority:
- Avoidance;
 - Reduce;
 - Reuse/Recycle;
 - Bulk Waste Reduction; and
 - Dispose.
- 5.4.3 Opportunities for reducing waste generation have been evaluated in the process of the assessment and have been based on the following factors:
- Avoiding or minimizing the generation of waste where possible during the design stage (i.e. use of prefabricated elements);
 - Adopting better site management practices in material control and promoting on site sorting of Construction and Demolition (C&D) material;
 - Exploring the potential for reuse/recycling of materials (i.e. reuse of inert C&D material); and
 - Diverting C&D material to Public Fill Areas, Fill Banks or other construction sites (if it cannot be reused on site).
- 5.4.4 The types and quantities of waste have been estimated and disposal options for each category of waste identified in this assessment, having taken into account the existing or future spare capacities of the waste disposal facilities and the environmental implications of the handling, collection and disposal of waste material.

5.5 Waste Types

- 5.5.1 The key waste issues arising from the construction of the helipad will primarily be related to the handling and disposal of the uncontaminated dredged marine sediments and the import of fill materials.
- 5.5.2 In addition, the following types of waste are also anticipated to be generated during the construction activities although estimated to be in much smaller quantities:
- (i) General construction waste (e.g. wood, scrap metal, concrete);
 - (ii) Chemical wastes generated by general site practices (e.g. vehicle and plant maintenance/servicing); and
 - (iii) Municipal wastes generated by site workers.

5.6 Impact Assessment and Evaluation

Background

- 5.6.1 The generation of waste will primarily arise from the construction of the helipad whilst during its operation, waste generation is predicted to be minimal. The following sections present the assessment conducted to evaluate the source and potential volumes of waste to be generated during each of these two phases.
- 5.6.2 All waste materials shall be disposed of to designated waste disposal facilities (i.e. landfills, Public Fill Banks, Public Filling Areas, etc.) whose operations are covered under an approved EIA report or environmental permit (issued under the EIAO) except where the materials may be reused or recycled.

Construction Phase

Marine Sediments

- 5.6.3 The preliminary design requires dredging to be undertaken to enable the construction of the foundation for the proposed helipad and EVA. The dredging profile varies slightly at different sections along the EVA and the helipad [Figures 5.1 to 5.3 refer]. In total, it is estimated that 14,000m³ of sediment will be dredged.
- 5.6.4 As referred previously, the core samples collected and analysed under this study were found to have little likelihood for marine contamination to be present and as such were considered to be Category L type sediment.
- 5.6.5 The potential for retaining the dredged sediments in place has been considered by CEDD. However, based on the results of the sediment physical characterization tests that show the marine sediment in the works area to be too 'fine' and without the integrity to physically support reclamation / Project construction. As such, the options to leave the sediments in place or to reuse in the construction works have since been ruled out by CEDD and dredging of this material down to a suitable rock grade is necessary, and all dredged sediments will be required to be disposed of off-site.
- 5.6.6 Although the volume of dredged sediments is relatively small, the Contractor will still need to obtain approval from the Marine Fill Committee (MFC) for off-site disposal and allocation of disposal space. As at the issuing of this report, the Director of the Environmental Protection (DEP) has indicated that it is acceptable to dispose of the sediments at the South Cheung Chau Spoil Disposal Area. However, the Contractor is required to reconfirm this once the final dredging volumes are confirmed and apply for a dredging permit from Territory Control Group (TCG) of EPD.
- 5.6.7 It is estimated that the number of barge movements required for the disposal of the marine sediments (for off-site marine disposal) will be 3 barges every 2 days. Given the nature of the works and the duration at which it is conducted (07:00-19:00), this frequency is not considered to cause any significant increase in marine traffic or impacts to nearby sensitive receivers.

Imported Fill

- 5.6.8 The principle of avoidance in the waste management hierarchy has been adopted in the design of the helipad and EVA. As a means to reduce rock fill requirements, the helipad design has incorporated the use of rock armour around the perimeter of the helipad and the outer wall of the EVA. Furthermore, the elevation of the helipad and the EVA will be lowered as far as practicable in order to minimize the extent of the footprint and thereby reducing fill requirements. Nevertheless, even with these reductions in fill requirements, the delivery and handling of the imported fill materials will be a key issue given the

presence of coral nearby and the potential visual impacts on residents at Sea Crest Villa.

- 5.6.9 *Table 5.1* below presents the estimated volumes of rock fill, general fill, rock armour and concrete to be imported for the works. A total volume of 30,200m³ of imported material will be required over an estimated period of 7 months.

Table 5.1 Material Import Requirements

Imported Material Type	Quantity (m ³)		
	Recycled Material	Virgin Material	Total
Rock fill	-	11,700	11,700
Sand fill	-	-	-
Sandy foreshore	-	-	-
Hardcore	-	-	-
General fill	4,500	-	4,500
Rock armour	-	13,000	11,500
Concrete	-	1,000	1,000
Total	4,500	25,700	30,200

- 5.6.10 Although the Works Programme [*Appendix 2.2* refers] indicates a 2-week overlap in the dredging (final stage) and the reclamation (initial stage) works, there is considered to be no nuisance impacts arising during this period assuming that the works and material delivery do not coincide with the barge transport of dredged sediments.
- 5.6.11 It is envisaged that imported materials will not be stockpiled in any significant quantities at site at any one time. During the reclamation phase, it is envisaged that the imported fill material will be directly deposited from the barge and into place. While the frequency of material delivery will be dependent on the progress of the reclamation works, it is estimated that the material import rate will be on average 1 to 2 barges every day throughout the estimated 7-month reclamation/construction period (between February 2006 and September 2006). As a conservative estimate, this frequency is not considered to cause any significant increase in marine traffic or impacts to nearby sensitive receivers.
- 5.6.12 While in most cases the material will likely be used immediately upon delivery to site, where stockpiling of materials is necessary, the use of the site office area should be avoided as far as practicable to minimize any impacts to sensitive receivers from the stockpiling and removal activities. The reclaimed sections of the EVA and helipad can be made use of although stockpiling near the vegetated slopes should be avoided.

Construction Waste

- 5.6.13 Based on the engineering design of the helipad, the construction of the EVA extension and the landing pad itself will likely generate various types of construction waste including the following:
- Site clearance waste (vegetation, rocks);
 - Waste metal (off cuts) from *in-situ* concrete casting work;
 - Spent concrete (limited if pre-fabricated elements are largely used); and
 - Material and equipment wrappings.
- 5.6.14 The wave deflector blocks around the perimeter of the helipad will be constructed of pre-cast elements. Given the location and size of the proposed site office area (south of Sea Crest Villa) it is envisaged that these works, if conducted on-site, will take place on the works areas. Alternatively, the Contractor may consider off-site pre-casting. Provisions shall be made in the Contractor's Particular Specifications to ensure that the appropriate environmental legislation is adhered to if pre-casting works are carried out at an off-site location. Any storage of pre-cast elements is also assumed to be within the works area.

- 5.6.15 Overall, it is estimated that site clearance activities will result in the generation of 10m³ of C&D waste that should be disposed of to landfill while generation of another 40m³ of C&D materials is predicted during the remainder of the construction period. This will include any waste metal off-cuts and if in the event that pre-casting is carried out on site, excess spent concrete will also likely be generated although the volumes are considered to be small. All C&D materials generated on site should be sorted into inert (public fill) and non-inert (C&D wastes) material. Where possible, reuse of these materials on site should be identified and implemented as far as practicable to minimize the material volume for landfill disposal. Alternatively, outlets such as Public Fill Banks should be identified for the inert material if no on-site reuse opportunities exist.
- 5.6.16 Due to design restrictions (safety considerations) and the irregularity (in size) of the waste material, it is unlikely that these waste materials will be reused on site. However, the Contractor should identify recycling options for select materials (i.e. waste metal, plastic film wrap, etc.) prior to considering landfill disposal.

Chemical Waste

- 5.6.17 Plant and vehicle maintenance will likely be the primary source of chemical wastes during the construction period. The majority of chemical waste produced is therefore expected to consist of waste oils and solvents. Typical wastes may include the following:
- Solid wastes (empty fuel/lubricant drums, used oil/air filters, scrap batteries, brake clutch linings which may contain asbestos); and
 - Liquid wastes (waste oils/grease, spent solvents/detergents, which may be halogenated, and possibly spent acid/alkali from batteries maintenance).
- 5.6.18 The volume of chemical waste will depend upon the total number of plant / vehicles and how much maintenance is actually carried out on site. However based on the proposed plant list as provided by CEDD [*Section 4, Table 4.7* refers] it is unlikely that volumes of chemical waste will exceed 450 litres / month. These wastes may pose environmental and safety hazards if not properly handled, stored and disposed of. As small waste quantities are anticipated, no impacts are predicted to arise with proper handling, storage and disposal.

General Refuse

- 5.6.19 The construction workforce will generate general refuse such as waste paper (e.g., newspaper and office paper), plastic packaging and possibly food waste. Such refuse will generally be collected on site and brought to the nearby refuse transfer station for disposal to landfill.
- 5.6.20 It is expected that no canteen will be established for site workers given the close proximity of the site works area to the commercial areas of Peng Chau. However, as a worst case, it is estimated that a factor of 1.06kg/person/day of municipal solid waste (MSW) will be generated (EPD, 2000). The total quantity of waste generated will thus be dependent on the Contractor size of work force to be stationed on site. For estimation purposes, we have assumed that the size of the work force will be a maximum of 40 site workers. Based on these assumptions, the volume of MSW likely to be generated on site will be 254kg/week.
- 5.6.21 These wastes have the potential to cause adverse impacts (environmental, health and nuisance) if not properly handled, stored and disposed of. If the waste is not regularly removed (for disposal), odour issues may also arise. Given that the site is located along the shoreline, any windblown debris will cause water quality impacts if the debris lands in the water and result in visual impacts (if blown onto surrounding land areas as well). Moreover, if the storage area of these wastes are not regularly cleaned and maintained, there is potential to attract vermin and pests to the site. With proper on-site handling storage and disposal of wastes to designated off-site waste facilities, no adverse impacts are predicted.

Sewage

- 5.6.22 The construction work force will generate sewage on a daily basis and which will require proper disposal. It is anticipated that chemical toilets shall be provided by the Contractor for the workforce, in which case night-soil will need to be collected by an approved contractor for disposal on a regular basis to avoid odour issues. Alternatively, the use of a septic tank system may be acceptable provided that appropriate connection is made to sewerage or sewage is treated prior to disposal.

Operational Phase

- 5.6.23 Upon completion, the helipad will only be used for emergency purposes. No equipment will be placed on the landing pad or along the EVA. Helicopters will not be parked at the landing pad and all repair and maintenance works (on the helicopters) will be conducted off site. As such the only source of waste generation during the operation of the helipad is anticipated to be from the long-term maintenance of the pad.
- 5.6.24 During the operational phase of the helipad, storage of maintenance materials will not be permitted at any time either along the EVA or on the helipad itself. It is envisaged that little or no waste will be generated during regular maintenance of the helipads and thus is considered to have no adverse impact to the environment.

5.7 Summary of Waste Materials Generated

- 5.7.1 The generation of waste will primarily result from the construction phase of the helipad and EVA whilst negligible volumes will be generated once the helipad becomes operational.
- 5.7.2 Based on the assessment above, estimates for the amount of generated waste have been assigned for each waste type and are presented in *Table 5.2*. In general, the inert portion of C&D materials should be disposed of to Public Fill Banks or other Public Filling Areas while the non-inert portion should be sent to landfill for disposal. Any potential for reuse of materials on site should be explored prior to disposal.
- 5.7.3 As the sediments to be dredged are classified as Category L type (as per EWTB TCW No. 34/2002), the DEP has indicated that it is acceptable to dispose of the sediments at the South Cheung Chau Spoil Disposal Area.

Table 5.2 Summary of Construction Phase Waste Generation

Activity	Material Type	Likely time of arising	Estimated total volumes	Disposal / Treatment Site
Ground preparatory works	Site clearance C&D waste	Pre-construction	10 m ^{3*}	Landfill (via Outlying Islands Transfer Facility located on Pei Lei Island).
Dredge & Reclaim	Sediment	First 4 months of Construction	14,000 m ³	South Cheung Chau Spoil Disposal Area [^]
General works	Construction waste	Throughout construction	40 m ^{3**}	Public Fill Bank #
	Chemical waste	Throughout construction	450 litre/month**	Chemical Waste Treatment Centre
	General refuse (generated by site staff)	Throughout construction	254 kg/week (assumes max of 40 staff and a 6 day week)	Landfill (via Outlying Islands Transfer Facility located on Pei Lei Island).

Note: * Volume estimates will be based upon vegetation height and density of cover. ** Provisional estimate.

[^] Disposal of slurry to South Cheung Chau Spoil Disposal Area has been approved by DEP (fax ref.: (19) in EP60/G1/12-397). However, this should be re-visited once generation volumes are confirmed.

Tseung Kwan O Area 137 or Tuen Mun Area 38.

5.8 Impact Mitigation & Residual Impact Assessment

- 5.8.1 Significant impacts due to the generation of waste on site are not predicted. However, given the potential for environmental impacts to arise (dust, noise, water quality and visual impacts) mitigation measures are required to ensure that proper handling, storage, transportation and disposal of materials is implemented at the outset and throughout the construction phase of the helipad. In line with Government's position on waste minimization, the practice of avoiding and minimizing waste generation and waste recycling should be adopted as far as practicable.
- 5.8.2 Recommended mitigation measures to be implemented through the course of the construction of the helipad include:
- i) An on-site environmental co-ordinator should be identified at the outset of the works. The co-ordinator shall prepare a Waste Management Plan (WMP) in accordance with the requirements as set out in the ETWB TCW No. 15/2003, Waste Management on Construction Sites. The WMP shall include monthly and yearly Waste Flow Tables (WFT) that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated;
 - ii) The reuse/recycling of all materials on site shall be investigated prior to treatment/disposal off site;
 - iii) Good site practices shall be adopted from the commencement of works to avoid the generation of waste and to promote waste minimization practices;
 - iv) All waste materials shall be sorted on site into inert and non-inert C&D materials, and where the materials will be recycled or reused, these shall be further segregated. Inert material, or public fill, is comprised of stone, rock, masonry, brick, concrete and soil which is suitable for land reclamation and site formation whilst non-inert material includes all other waste generated from the construction process including items such as plastic packaging and vegetation (from site clearance). The Contractor shall be responsible for identifying which materials can be recycled/reused, whether on site or off site. In the event of the latter, the Contractor shall make arrangements for the collection of the recyclable materials. Any remaining non-inert waste shall be collected and disposed of to the refuse transfer station whilst any inert C&D material shall be re-used on site as far as possible. Alternatively, if no use of the inert material can be found on site, the material can be delivered to a public filling area or public fill bank after obtaining the appropriate licence;
 - v) With reference to WBTC No. 21/2002, Trip-ticket System for Disposal of Construction and Demolition Material, a trip ticket system should be established at the outset of the construction of the helipad to monitor the disposal of C&D and solid wastes from the site to public filling facilities and landfills;
 - vi) Dredged sediments shall be handled in accordance with the ETWB TCW No. 34/2002 on Management of Dredged/Excavated Sediment and where the sediments cannot be reused onsite, arrangements shall be made with the MFC for allocation of dumping space;
 - vii) Stockpiling is not envisaged, however if it becomes unavoidable, stockpiling in any vegetated areas shall be avoided (as far as possible) and shall be covered with tarpaulin and/or watered to prevent windblown dust and/or surface runoff;
 - viii) Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register with EPD as a Chemical Waste Producer if there is any use of chemicals on site including lubricants, paints, diesel fuel, etc. 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;

- ix) A sufficient number of covered bins shall be provided on site for the containment of general refuse to prevent visual impacts and nuisance to sensitive receivers. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station on Tai Lei. Further to the issue of ETWBTC (Works) No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness, the Contractor is required to maintain a clean and hygienic site throughout the Project works;
- x) All chemical toilets shall be regularly cleaned and the night soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal;
- xi) Toolbox talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; and
- xii) A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed, and the ET leader shall include a summary of such information in each of the monthly EM&A Reports.

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

5.9 Environmental Monitoring and Audit Requirements

5.9.1 The assessment has concluded that under proper handling, storage, collection, transportation and disposal of waste materials generated during construction of the helipad will not give rise to any significant impacts to nearby sensitive receivers. While no specific EM&A requirements have been identified, it is recommended that during the construction phase, site inspections and supervision of waste management procedures and auditing of the effectiveness of implemented mitigation measures be undertaken on a regular basis (weekly as a minimum). These tasks shall be scheduled in the WMP to be prepared by the Contractor, and a summary of the site audits shall be presented in the EM&A reports as required by the EM&A Manual.

5.9.2 Given the nature of use of the helipad, there are no EM&A requirements for the project operational phase.

5.10 Conclusions and Recommendations

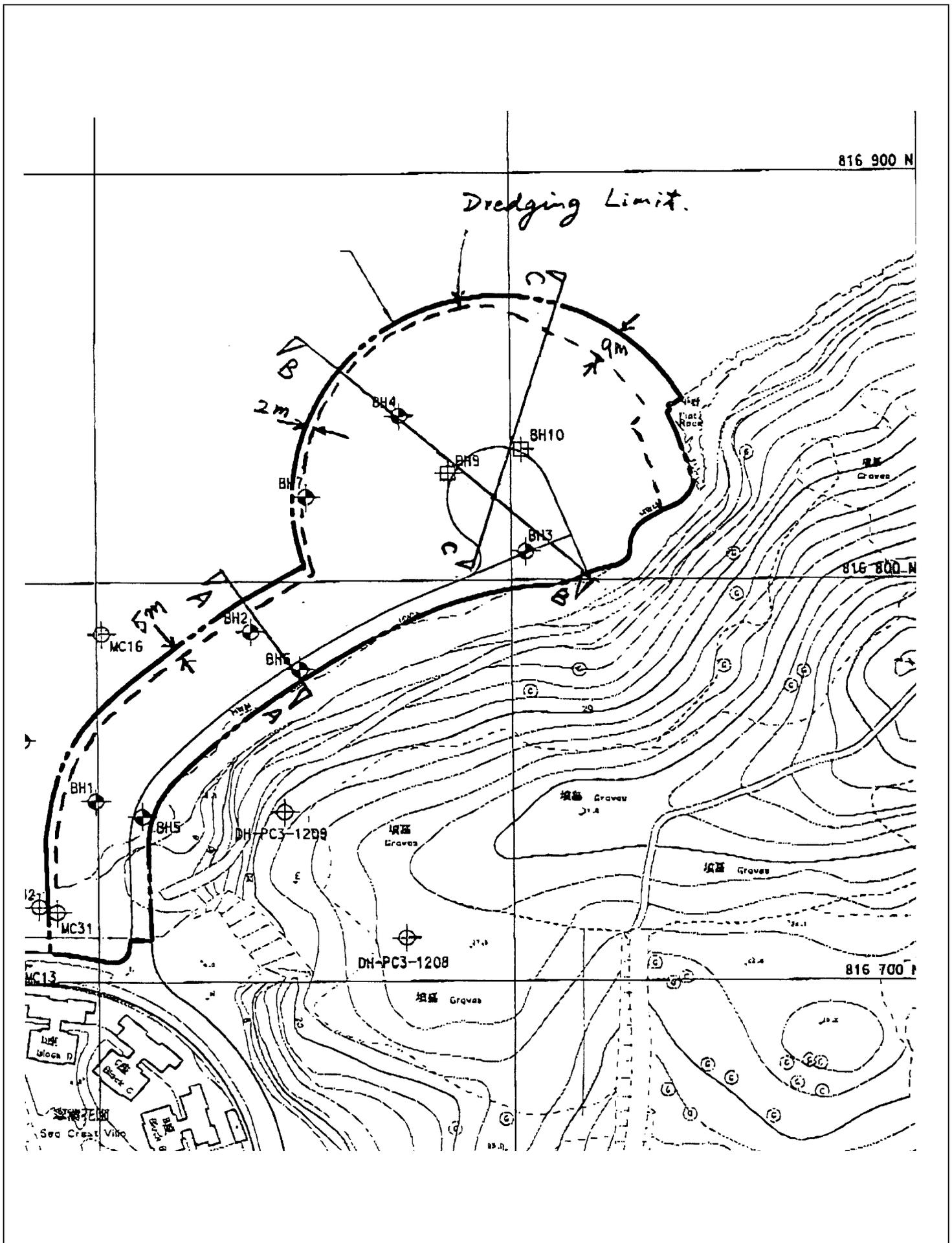
5.10.1 The proposed construction activities associated with the proposed works will generate a number of waste materials. These include:

- Vegetation and demolition wastes from site clearance;
- Excavated materials;
- Construction waste;
- Chemical waste;
- Marine sediments; and
- Municipal waste.

- 5.10.2 Organic (vegetation) waste is anticipated to be the only form of waste generated due to the operation of the helipad (from intermittent maintenance works). However, given that volume of such waste is expected to be negligible, no adverse environmental impacts are anticipated during the operational phase of the helipad.
- 5.10.3 In view of the HKSAR policy towards the promotion recycling schemes and due to the clear environmental benefits this will provide, recycling and waste reduction by site staff/contractors (construction phase) and operators (operational phase) alike should be encouraged.
- 5.10.4 While an estimate has been made on the likely volumes and types of waste to be generated from the construction of the helipad, the Contractor should regularly update and submit the details of their WMP, including monthly and yearly WFT, to the Project Proponent. These WFT tables should provide a more accurate estimate on volumes of waste generation on site.
- 5.10.5 The potential impacts of wastes arising from the construction and operational phases of the Project have been assessed. Provided that the mitigation measures outlined above [Section 5.8 refers] are put in place and incorporated into the site specific EM&A Manual, potential impacts to the environment associated with waste generated by the construction and operational phases of the Project will be controlled.
- 5.10.6 With the recommended procedures/measures in place, the construction and operational wastes generated / disposed as part of this Project, will not lead to any significant adverse environmental impacts.

5.11 References

- Bachy Soletanch (2003). Construction of Helipad at Peng Chau: Marine Ground Investigation and Reference Sediment Sampling. Ground Investigation Factual Fieldwork Report. Final report submitted to Civil Engineering Department, HKSAR Government.
- CES (Asia) Ltd. (1997). Outlying Islands Sewerage Stage 1, Phase 1. *EIA Study – Final Assessment Report*. Drainage Services Department, HKSAR Government.
- EPD (2000). *Monitoring of Municipal Solid Waste 1999*. Environmental Protection Department, Hong Kong Government.
- Oceanway Corporation Ltd. (2001). *Underwater Survey at Peng Chau and Neighbouring Islands*. Unpublished final report submitted to the Agriculture and Fisheries Department, HKSAR Government.

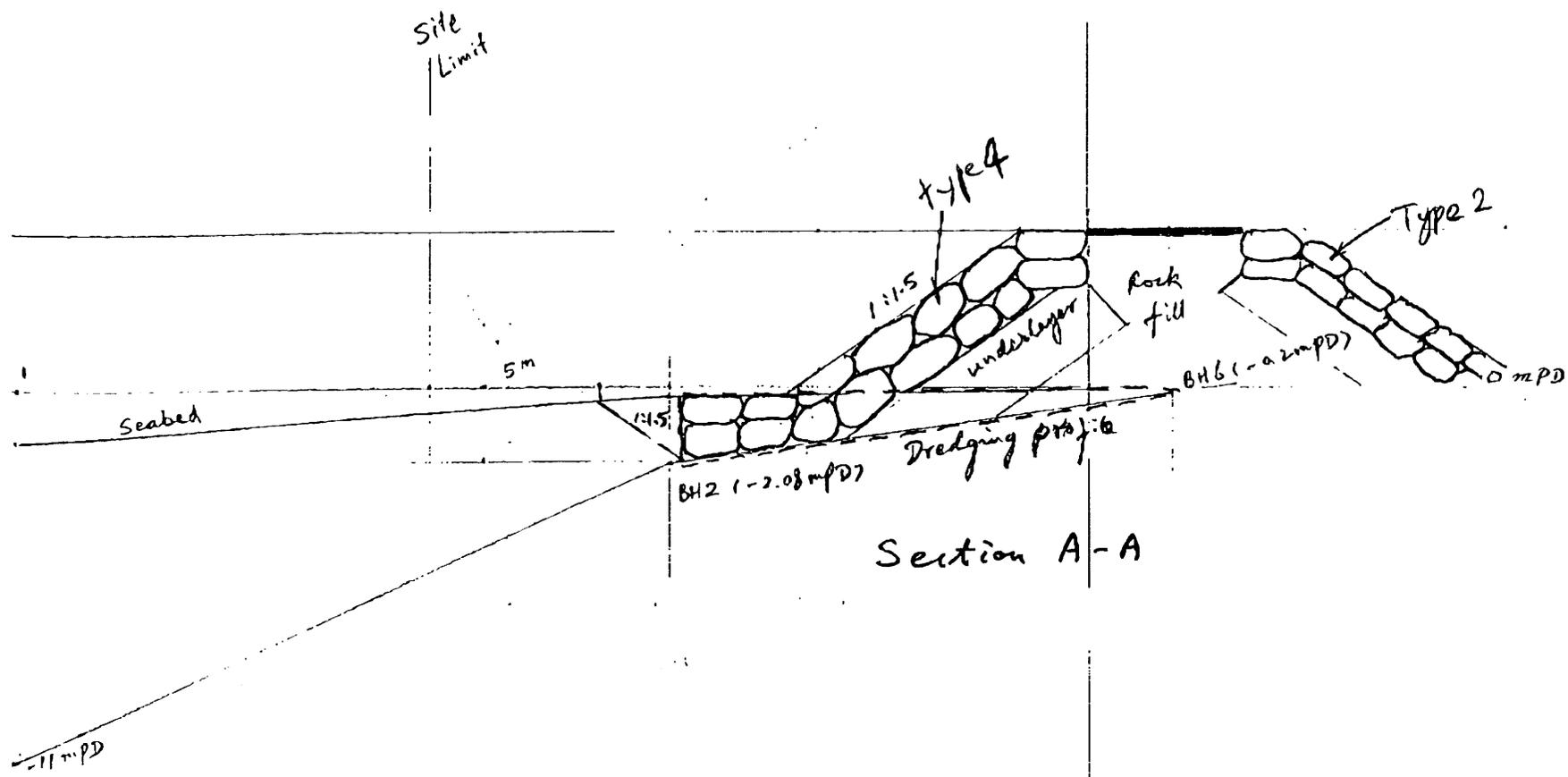


EIA Study for Peng Chau Helipad

CROSS SECTION OF HELIPAD FOOTPRINT

Figure 5.1

Drawn	MAT	Checked	LYI
Scale	NTS	Date	June 2005

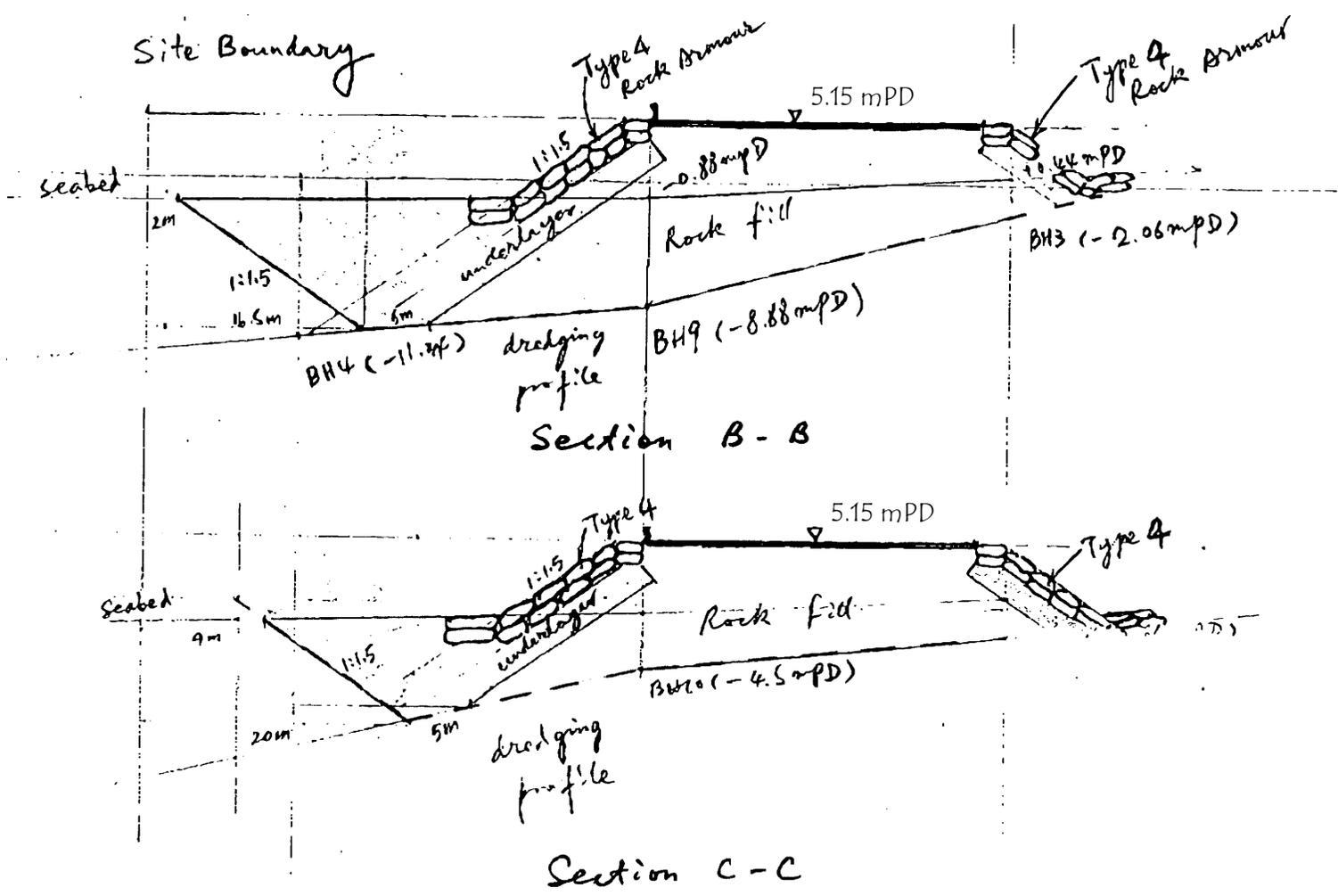


Note: Cross Section A can be viewed with reference to Figure 5.1 as based on a preliminary design.



Figure 5.2

Drawn	MAT	Checked	LYI
Scale	NTS	Date	June 2005



Note: Cross Section B and C can be viewed with reference to Figure 5.1 as based on a preliminary design.



EIA Study for Peng Chau Helipad
HELIPAD FOOTPRINT - CROSS SECTION B AND C

Figure 5.3

Drawn	MAT	Checked	LYI
Scale	NTS	Date	June 2005