Ref.: HYDHZMBEEM00_0_2670L.15 26 January 2015

By Fax (3468 2076) and By Post

AECOM Asia Co. Ltd.
The PRE's Offices
5 Ying Hing Road,
Tung Chung, Lantau
Hong Kong

Attention: Mr. Darrel Paul Kingan

Dear Sir,

Re: Agreement No. CE 48/2011 (EP)
Environmental Project Office for the
HZMB Hong Kong Link Road, HZMB Hong Kong Boundary Crossing Facilities, and Tuen Mun-Chek Lap Kok Link – Investigation

Contract No. HY/2013/01 – HZMB HKBCF – Passenger Clearance Building
Waste Management Plan (EP Condition 2.10)

Reference is made to the Environmental Team's submission of Waste Management Plan certified by the ET Leader (ET's ref.: "5126871/19.10/OC033/SO" dated 23 January 2015) and provided to us via e-mail on 23 January 2015.

We are pleased to inform you that we have no adverse comments on the captioned Plan. We write to verify the captioned submission in accordance with Condition 2.10 of the Environmental Permit No. EP-353/2009/H.

Thank you for your kind attention. Please do not hesitate to contact the undersigned or the ENPO Leader Mr. Y. H. Hui should you have any queries.

Yours sincerely,

Raymond Dai
Independent Environmental Checker

c.c.	HyD	Mr. Matthew Fung	(By Fax: 3188 6614)
	HyD	Ms. Lowell Chiu	(By Fax: 3188 6614)
	Atkins	Ms. Sharifah Or	(By Fax: 2890 6343)
	LCWJV	Mr. Gary Wong	(By Fax: 3973 1188)

Internal: DY, YH, JM, ENPO Site

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Your ref.
Our ref. 5126871/19.10/OC033/SO

Date: 23 January 2015

By Post and e-mail (Donald.lp@lcwjv.com)

Leighton – Chun Wo Joint Venture
39/F Sun Hung Kai Centre
30 Harbour Road
Hong Kong

Attn: Mr. Donald Ip

Dear Mr. Ip,

Contract No. HY/2013/01
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building
Waste Management Plan

In accordance with the requirement specified in Condition 2.10 of the Environmental Permit No. EP-353/2009/H, we are pleased to submit the certified Waste Management Plan dated 21 January 2015 for your onward submission to ENPO/IEC for verification.

Yours faithfully
for and on behalf of
Atkins China Ltd

Sharifah OR
Environmental Team Leader

Encl.
1. Waste Management Plan dated 21 January 2015 (one hard copy)

cc.
1. AECOM – Mr. Darrel Kingan (By Fax.: 3468 2076)
2. ENPO/IEC – Mr. Raymond Dai & Mr. Y.H. Hui (By Fax.: 3465 2899)

Leighton - Chun Wo Joint Venture

Contract No. HY/2013/01

Hong Kong – Zhuhai – Macao Bridge

Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

Waste Management Plan

Reviewed by:

Donald Ip
Environmental Officer
21 January 2015

Approved by:

Iain Hubert
Project Director
21 January 2015

Certified by:

Sharifah Or
Environmental Team Leader
21 January 2015

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1 Introduction

1.1 Background

1.1.1 This Waste Management Plan is prepared for Contract HY/2013/01 Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facility – Passenger Clearance Building ("the Contract") for the Highways Department of HKSAR. The Contract is part of Hong Kong – Zhuhai – Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF), this project is considered to be "Designated Projects", under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap 499) and Environmental Impact Assessment (EIA) Reports (Register No. AEIAR-145/2009) was prepared for the Project. The current Environmental Permit (EP) EP-353/2009/H for HKBCF was issued on 19 January 2015. These documents are available through the EIA Ordinance Register.

1.1.2 According to condition 2.10 of EP-353/2009/H state: "The Permit Holder shall deposit with the Director, at least one month before the commencement of the construction of the project, three hard copies and one electronic copy of a waste management plan (WMP) for the construction stage of the Project. The WMP shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall include the recommended mitigation measures on waste management in the EIA Report. The WMP shall indicate the disposal location(s) of all surplus excavated spoil and other waste. A trip ticket system (TTS) shall be included in the WMP. Surplus excavated spoil and other wastes shall only be disposed of at designated disposal locations unless otherwise approved by the Director. All measures recommended in the WMP shall be fully and properly implemented by the Permit Holder and any person working on the Project throughout the construction period.

1.2 Scope of Work

1.2.1 This WMP applies to the works undertaken by Leighton – Chun Wo Joint Venture for the Contract. The works include:

- Construction of Passenger Clearance Building (PCB) including architectural and builders works, structural steel roof and reinforced concrete frames, basement, piled foundations, aluminium roof, curtain wall facades, building services and electrical and mechanical works;
- Installation of District Cooling System including seawater cooling intake pumping station, seawater intake and discharge water pipelines work; Installation of Chilled water cooling pipelines system, heat exchanger and chilled pumping system;
- Construction of transport and associated facilities connecting to the PCB entailing the Emergency Vehicular Access, an at-grade mainland side drop-off area, an Hong Kong side elevated drop-off deck and 8 nos. of footbridge links;
- Construction of a public toilet, 6 nos. of C&ED observation booths, a generator set building and a refuse storage & material recovery chamber;
- Construction of a section of 70m common utilities enclosure and staff subway and civil provisions for associated electrical and mechanical works;
- Construction of drainage, sewerage, fresh water & flushing water supply and utilities & service works;
- Construction of civil provisions, including draw pits & ducting for Traffic Control and Surveillance System (TCSS) and Extra Low Voltage System (ELV);
- Construction of box culvert A;
- Construction of 2 nos. of vehicular bridge abutments at mainland side pickup area earthmound;

- Construction of geotechnical works including top up the existing earth mound from +11.5mPD to the finished level as stated in the Contract, reinforced earth slope and fill slopes and special backdrop manhole at mainland side pick up area earthmound;
- Landscape hardworks and softworks; and
- Other works which are shown on the Drawings or specified in the Specification or which may be ordered in accordance with the Contract.

1.2.2 The site location plans are provided in **Appendix A**.

1.3 Purpose of the Plan

1.3.1 This WMP will describe the arrangements for avoidance, minimization, handling, reuse, recovery and recycling, storage, transportation, collection, treatment and disposal of the different categories of waste that are expected to be generated during the construction activities of the Contract. This WMP includes the recommended mitigation measures on waste management that are contained in the EIA report and EM&A manual.

1.3.2 The main objectives of this WMP are to:

- Provide reference to the applicable environmental legislation and guidelines pertaining to waste management.
- Clarify each party's responsibilities regarding waste management, and identify the personnel from each party that are assigned these responsibilities and their respective role on the Contract.
- Establish waste management practices and treatment procedures, for the avoidance, minimization, material reuse/recovery/recycling, collection, transportation, storage and disposal of wastes that are generated during the course of the Contract that are specified by the EP and the implementation of the mitigation measures that are outlined in the EIA report.

1.4 Environmental Policy

1.4.1 An Environmental Policy has been established by Leighton – Chun Wo Joint Venture to outline guidance, technical information, and instructions to designated personnel who will be responsible for the management of site environmental issues, and to ensure that all statutory and contractual environmental requirements and the Company Environmental Policy are followed. In addition, Leighton – Chun Wo Joint Venture will create an Environmental Management Team (EMT) for establishing and implementing effective and efficient environmental protection procedures for the Contractor.

1.4.2 The Environmental Policy Statement, together with the Environmental Objectives and Targets, are listed below in the Leighton – Chun Wo Joint Venture Environmental Policy:

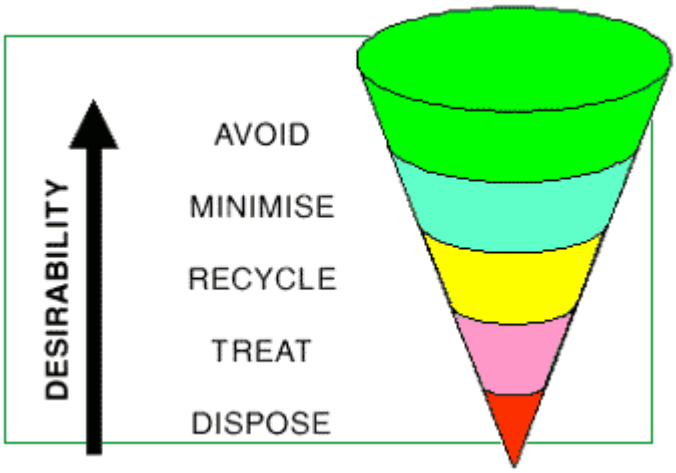
- Comply with all applicable environmental laws, regulations and contractual obligations;
- Taking all practicable steps to prevent adverse environmental events and provide rapid and appropriate response to address any events that occur;
- Managing resource usage to protect the environment and improve our business performance
- Creating project opportunities that utilize new environmental technologies;
- Maintaining an effective environmental management system that is aligned and implemented to international standard (ISO14001) to manage performance on project, set and review targets, allocate resources and continually improve our environmental

performance;

- Provide appropriate training for our employees, subcontractors and others working on our behalf to improve awareness and knowledge of our system and their roles and obligations

1.5 Waste Management Policy

1.5.1 Leighton – Chun Wo Joint Venture aims to recover, avoid and minimize the construction waste generated on site by utilizing the hierarchy illustrated below. This attempts to evaluate waste management practices and selects the best practical option since conceptually it makes sense to avoid producing a waste rather than developing extensive treatment schemes. Through good planning, and effective site management practices, Leighton – Chun Wo Joint Venture will minimise the amount of construction waste that is generated. The objective of Leighton – Chun Wo Joint Venture is to reduce and minimize the amount of wastes generated and hence minimise the costs associated with subsequent waste handling and disposal.



1.6 Regulations and Guidelines

1.6.1 During the course of the Contract, it is anticipated that various types of waste will be generated. Each distinct waste type will require a different approach for the effective management and disposal as stipulated in the applicable legislation and guidelines.

Statutory Requirements

1.6.2 The following legislation relates to the handling, treatment and disposal of waste in Hong Kong:

- The Waste Disposal (Amendment) Ordinance (WDO) (Cap 354).
- The Waste Disposal (Chemical Waste) (General) Regulation (Cap 354C).
- The Waste Disposal (Charges for Disposal of Construction Waste) Regulation. (Cap 354N).
- The Land (Miscellaneous Provisions) Ordinance (Cap 28).
- The Public Health and Municipal Services Ordinance (Cap 132) - Public Cleansing and Prevention of Nuisances (Urban Council) and (Regional Council) By-Laws.
- Summary Offences Ordinance (Cap 228).
- Other relevant regulations.

1.6.3 The WDO prohibits the unauthorized disposal of waste. Construction waste is not directly defined in the WDO, but is considered to fall within the category of "trade waste". Under the WDO, wastes can only be disposed of at sites licensed by the Environmental Protection Department (EPD).

1.6.4 Under the WDO and the Charging Regulation, wastes can only be disposed of at designated waste disposal facilities that are licensed by the EPD. For construction work with a value of more than HK$1M, the main contractor is required to establish a billing account at the EPD before transporting the construction waste to the designated waste disposal facilities (e.g. landfill, public fill etc.). The vessels for delivering construction waste to a public fill reception facility would need prior approval from EPD. Breach of these regulations can lead to a fine and/or imprisonment.

1.6.5 Under the Waste Disposal (Chemical Waste) (General) Regulation all producers of chemical wastes (including asbestos) must register with the EPD and treat their wastes either utilizing on-site plant licensed by the EPD, or arranging for a licensed collector transport the wastes to an appropriately licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labelling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages, or accidents arising from the storage of chemical wastes.

1.6.6 The current policy related to the dumping of construction and demolition (C&D) material is documented in the Works Branch Technical Circular No. 2/93, 'Public Dumps'. C&D materials that are wholly inert, namely public fill, should not be disposed of at landfill, but should be taken to public filling areas, which usually form part of reclamation schemes.

1.6.7 The Land (Miscellaneous Provisions) Ordinance requires that dumping licenses be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licenses under delegated powers from the Director of Lands.

1.6.8 The Public Cleansing and Prevention of Nuisances By-Laws provide further controls on the illegal tipping of wastes on unauthorized (unlicensed) sites.

1.6.9 The Contractor is required to obtain all necessary permits and licenses under these ordinances including, but not limited to:

- Chemical waste permits/licenses under the Waste Disposal Ordinance (Cap 354).
- Public Dumping License under the Land (Miscellaneous Provisions) Ordinance (Cap 28).

Non-statutory Regulations

1.6.10 The following guidelines related to waste management and disposal would be adhered to during construction:

- Waste Disposal Plan for Hong Kong (1989), Planning, Environmental and Lands Branch Government Secretariat.
- Environmental Guidelines for Planning in Hong Kong. Hong Kong planning Standards and Guidelines (1990).
- New disposal Arrangements for Construction Waste, EPD and CEDD (1992).
- Code of Practice on the Packaging, Labelling and storage of Chemical Wastes EPD (1992).
- Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste, EPD.
- Works Branch Technical Circular No. 12/2000, Fill Management, Works Bureau, HKSAR Government.
- Works Branch Technical Circular No. 19/2005, Environmental Management on Construction Site, Works Bureau, HKSAR Government.

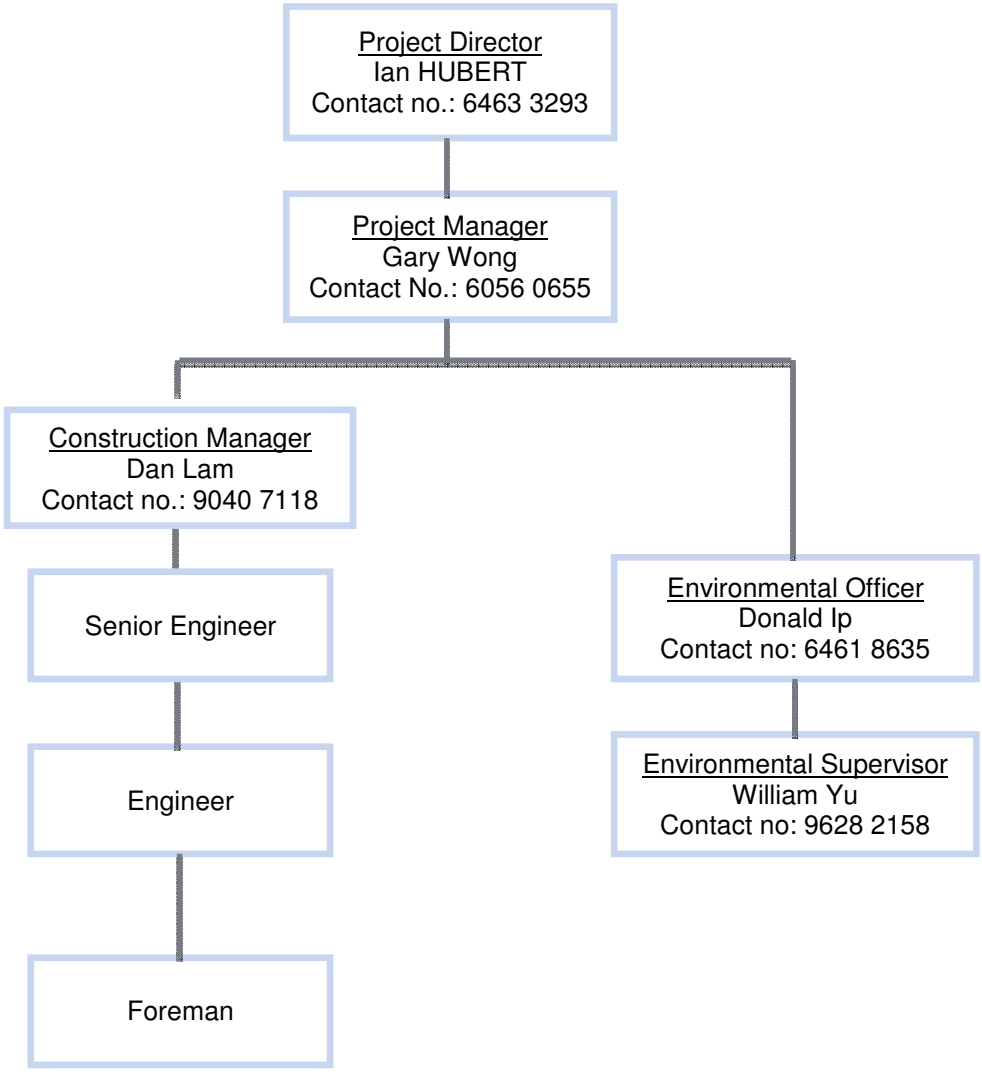
- Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002, Management of Dredged/Excavated Sediment, Environment, Transport and Works Bureau, HKSAR Government.
- Works Branch Technical Circular, 32/92, the Use of Tropical Hard Wood on Construction Site, Works Branch, HKSAR Government.
- Works Branch Technical Circular No. 2/93, Public Dumps, Works Branch, Hong Kong Government.
- Works Branch Technical Circular No. 16/96, Wet Soil in Public Dumps, Works Branch, Hong Kong Government.
- Works Bureau Technical Circular No. 4/98 and No.4/98A, Use of Public Fill in Reclamation and Earth Filling Projects, Works Bureau, HKSAR Government.
- Works Bureau Technical Circular No. 5/98, On-site sorting of Construction Waste on Demolition Site, Works Bureau, HKSAR Government.
- Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002, Management of Construction and Demolition Material including Rock, Environment, Transport and Works Bureau, HKSAR Government.
- Waste Reduction Framework Plan, 1998 to 2007, Planning, Environment and Lands Bureau, Government Secretariat, 5 November 1998.
- Works Bureau Technical Circular No. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness, Works Bureau, HKSAR Government.
- Works Bureau Technical Circular No. 25/99, 25/99A and 25/99C.Incorporation of Information on Construction and Demolition Material Management in Public Works Sub-committee Papers, Works Bureau, HKSAR Government.
- A Guide to the Registration of Chemical Waste Producers and Guide to the Chemical Waste Control Scheme.

2 Site Organization and Staff Duties

2.1 Organizational Structure

2.1.1 The organization structure for waste management onsite is outlined in **Figure 1**. This structure outlines the overall site management in relation to waste management and the associated environmental issues. Details on the roles and responsibilities of staff members responsible for the implementation of the WMP are outlined in the Leighton – Chun Wo Joint Venture organizational chart for waste management below:

Figure 1 Organization Structure



2.2 Roles and Responsibilities

Project Director

2.2.1 The Project Director (PD) is responsible for coordinating all environmental matters on site and reporting on these matters to the Leighton – Chun Wo Joint Venture. Approve (internally) the WMP and ensure adequate resources for the implementation of the WMP.

Project Manager

2.2.2 The Project Manager (PM) is responsible for ensuring commitment to the WMP and assigning the necessary resources for its effective implementation.

Construction Manager

2.2.3 Construction Manager (CM) reports to the PD, and has the responsibility to coordinate all environmental matters related to the WMP. The CM is also responsible for all site operations, management of environmental issues, staff supervision, control, coordination & planning, external liaison as well as implementing and monitoring corrective actions related to the WMP.

2.2.4 The CM, when necessary, will also carry out immediate corrective action to rectify any non-compliance of environmental requirements of the WMP, as well as handle any complaints that are received from the public regarding the WMP.

2.2.5 The CM will also assist the EO in overseeing the implementation and performance of the WMP. The CM would also assist with environmental duties onsite and ensure that works are executed in accordance with the WMP. The CM will arrange regular site inspections with the EO.

Environmental Officer

2.2.6 The EO will be appointed on site for the overall coordination, monitoring, oversight and implementation of the WMP for the duration of the contract. The EO directly reports to the PM. The responsibilities of the EO include, but are not limited to:

- Review of the Site Management Plan for Implementation of the TTS and ensure works are executed in accordance with the plan.
- Monitor onsite work to ensure compliance with the environmental requirements for the site.
- Assist the CM in handling any complaints that are received.
- Ensure that the required environmental monitoring is carried out, and that all environmental monitoring results are recorded.
- Carrying out waste management training.

Senior Engineer/ Engineer

2.2.7 The Senior Engineer/ Engineer shall:

- Coordinate with the EO regarding the implementation of all appropriate environmental mitigation measures.
- Coordinate with the EO to make sure that all the applicable environmental licenses and permits are identified and allowed for in the program of work.

Environmental Supervisor

2.2.8 The Environmental Supervisor (ES) is responsible for the implementation of the WMP with the assistance of the Foremen. The ES is also responsible for:

- Assisting the EO to rectify any non-conformances with the environmental requirements of this WMP that are identified onsite.
- Attend environmental meetings related to waste management when necessary.

- Carry out environmental site inspections with the EO when deficiencies in waste management are identified.
- Assist the EO with any environmental accidents, such as the release of chemicals.

Foremen

2.2.9 The foremen are responsible for onsite supervision, the coordination of the works as well as the implementation of any corrective actions as directed by the CM/EO. The Foremen are also responsible for:

- Assisting in the daily implementation of the WMP including the sorting and segregation of construction waste in to separate stockpiles/staging areas and where possible the recycling (via recycling containers) or reusing materials.
- Ensuring that the trip-ticket system is followed and that all paperwork (e.g. CHIT / Disposal Delivery Form (DDF)) is signed, completed and collected.
- Ensuring that, where possible, the generation of waste is avoided or minimized.

3 Site Specific Waste Management

3.1 Hierarchy of Waste Management

3.1.1 The key to successful waste management is undertaking proactive measures to reduce the amount of waste generated. Waste management options/programme will be exercised in accordance with the hierarchy outlined in **Table 1** below:

Table 1: Hierarchy/Programme of Waste Management

Waste Management Option/Programme	Required Actions
Avoidance / Reduction / Minimization	Avoid the generation of excessive waste by planning and scheduling material deliveries. Minimize the amount of waste generated through careful planning and design, before commencing the contract.
Re-use	Where appropriate and practicable, construction materials such as timber formwork, metal, etc, and any spoil generated during excavation work should be re-used onsite.
Recovery and Recycling	Recyclable construction materials such as plastics and metal will be recovered, sorted and stored onsite in containers. The containers will be transported off site for recycling at an approved facility. Regularly serviced, covered recycling containers will be provided for the use of the onsite workforce.
Treatment and Disposal	All waste removed from the site requiring treatment and/or disposal will be transported to an approved facility.

3.1.2 To achieve waste reduction, environmentally responsible purchasing would involve the introduction of practices that discourage unnecessary purchases and encourage the purchase of products or materials that can be found locally, that have reduced packaging or recyclable packaging, increased durability and materials with recycled content, such as, recycled paper, steel, concrete and other raw construction materials.

3.1.3 Waste minimization is best achieved through the use of careful planning, design and close supervision. It is expected that, following good waste management practices on site will result in a reduction of the amount waste being generated. To minimize the wastage of raw materials that are delivered to the site, good management, estimation and planning techniques will be required.

3.2 Waste Reduction Targets

3.2.1 In order to determine whether the waste management procedures used by Leighton – Chun Wo Joint Venture are effective, the following specific targets will be implemented onsite in an effort to reduce the generation of waste materials, and thus minimize the amount of waste requiring disposal at landfill:

- All excavated material will be sorted on site to recover the inert portion of construction and demolition debris materials, such as hard rock, soil and broken concrete, for subsequent re-use on site or disposal to designated outlets.

- Recover and store all metallic waste (e.g. scrap metal) for subsequent collection by a recycling contractor and recycling at an approved facility.
- Recover all cardboard and/or paper packaging (for plant, equipment and materials) will be stored in covered stockpiles (to keep dry and prevent contamination) for subsequent collection and recycling at an approved facility.
- All chemical waste that is generated on site (e.g. servicing of plant) will be stored for collection and disposal at an approved disposal facility.
- All demolition debris will be sorted on site to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other recyclable fittings for subsequent recycling at an approved facility.
- To minimize the use of timber during construction, recyclable metal formwork and hoarding will be used where practicable.

3.3 On Site Sorting of Materials

3.3.1 Leighton – Chun Wo Joint Venture will designate suitable areas onsite for the storage, sorting and segregation of construction waste. The areas that are designated by Leighton – Chun Wo Joint Venture will be clearly defined with appropriate signage and barriers (or similar) and allow for easy access by workers and vehicles. The layout plan of proposed temporary storage and sorting area for C&D materials is shown in **Appendix B**. As the project progresses, it is anticipated that the designated areas will be reviewed depending upon construction program requirements. The areas designated by Leighton – Chun Wo Joint Venture will be sufficient for the amounts of construction waste that are anticipated to be generated during the course of the contract. **Table 2** below shows the actions that will be taken for each type of construction waste generated onsite.

Table 2: Sorting of C&D Waste

Type of C&D Material	Required Action	Responsible Party
Rock	Re-use on site where possible or recycle off site	Leighton – Chun Wo Joint Venture
Excavated material	Re-use on site where possible or dispose of at approved landfill facility	Leighton – Chun Wo Joint Venture
Concrete	Sorted and segregated onsite, re-use on site where possible or recycle offsite	Leighton – Chun Wo Joint Venture / Subcontractors
Metal	Segregate and recycle offsite	Leighton – Chun Wo Joint Venture/ Subcontractors
Paper/Cardboard Materials	Segregate and recycle offsite	Leighton – Chun Wo Joint Venture / Subcontractors
Plastics	Use recycling containers and recycle offsite	Leighton – Chun Wo Joint Venture / Subcontractors
Aluminium Cans	Use recycling containers and recycle offsite	Leighton – Chun Wo Joint Venture / Subcontractors
Timber	Re-use on site if possible, other segregate and recycle off site	Leighton – Chun Wo Joint Venture/ Subcontractors
Chemical Waste	Store in approved containers and transport offsite for disposal at an approved facility	Leighton – Chun Wo Joint Venture/ Subcontractors

4 Waste Management Procedure

4.1 General

4.1.1 The waste that is generated during the construction process will be disposed of at designated disposal facilities. Monthly summaries of the amount of waste material disposed of offsite will be provided to the Engineer's Representative (ER) in the form of a Waste Flow Table (WFT). The summaries will indicate the estimated quantities of waste removed the types of materials removed and the corresponding disposal ground in the WFT.

4.1.2 The quantities of C&D material disposed of will be recorded under the barcode TTS by using the CHIT / DDF (for disposal of C&D Materials at Disposal Grounds (Other than Prescribed Facilities) as designated in the Contract or as Directed by the ER, or Alternative Disposal Grounds Proposed by the Contractor and Approved by the ER). In addition, a completed "CHIT" will also be presented to the receiving facility as part of the system for the disposal charging scheme which became officially effective in January 2006. Waste transaction records could be obtained either from the waste disposal facilities directly, or retrieved from the EPD bill statement each month.

4.2 Waste Acceptance Criteria for Government Disposal Facilities

4.2.1 Leighton – Chun Wo Joint Venture will comply with the acceptance criteria laid down by the operators of the corresponding fill bank(s) and landfill(s), as outlined below:

Acceptance Criteria for Fill Banks (Tuen Mun Area 38 Fill Bank)

4.2.2 The truck drivers should bear a duly signed CHIT / a duly completed, signed and stamped DDF (for approved alternative disposal grounds). The dump truck should also have a valid Dumping Licence issued by CEDD. Dump trucks without valid Dumping Licences will be rejected.

4.2.3 The inert C&D materials to be delivered to the fill bank(s) should be in accordance with the conditions stipulated in the Dumping Licence. Any over-sized inert C&D materials will be broken down to less than 250mm in size so as to facilitate its reuse by other reclamation or earth-filling projects. The C&D materials to be disposed should consist entirely of inert construction waste (i.e. 100% inert construction waste).

4.2.4 Recyclable materials such as metal, paper, plastics and milled bituminous materials etc., which have been sorted on the site for the purposes of recycling, shall not be considered as C&D materials and should be delivered to a proper recycling outlet for processing.

Acceptance Criteria for NENT Landfill

4.2.5 The truck drivers should bear a duly signed CHIT. The dump truck should also have a valid Dumping License issued by CEDD. Dump trucks without valid Dumping Licenses will be rejected.

4.2.6 The non-inert C&D waste to be delivered to the landfills should be in accordance with the conditions stipulated in the Dumping License.

4.2.7 Construction waste containing not more than 50% by weight of inert C&D waste (Gazette Notice G.N. 4274 published on 16 June 2008).

4.2.8 For a load of C&D waste not consisting entirely of bamboo, plywood or timber delivered by a vehicle, the weight of the waste divided by the permitted gross vehicle weight of the vehicle must not greater than 0.25 for goods vehicle with demountable skip and 0.2 for other types of vehicle (Gazette Notice G.N. 4274 published on 16 June 2008).

4.2.9 Mixed C&D materials should be sorted at source to reduce the inert content as far as practicable to meet the above criteria before they are delivered to landfills.

4.2.10 C&D waste delivered for landfill disposal should contain no free water and the liquid content will not exceed 70% by weight.

4.2.11 At least one (1) week's notice, including contractors name and contact details etc, will be submitted to the EPD before starting to deliver the C&D waste to the landfills. EPD will be informed of any subsequent change to the disposal programme.

4.3 Procedures of the Trip Ticket System

4.3.1 Leighton – Chun Wo Joint Venture will implement a TTS to track the disposal of C&D materials. Under the TTS, each truck carrying C&D materials leaving the Site for a disposal facility will be accompanied by a duly completed and stamped CHIT / DDF. The C&D materials must be disposed of at the disposal grounds as stipulated in the DDF. The TTS will be executed according to the following procedures:

4.3.2 The Foremen will arrange the C&D waste to be segregated on site and also check the total actual amount of cumulated C&D waste after the completion of the particular works in the working area.

4.3.3 The C&D waste will be sorted and stored separately into different storage areas.

4.3.4 Non-inert C&D waste will be stored in storage containers covered with tarpaulin sheeting in the temporary holding area. Inert C&D materials will be stored on the ground properly covered with tarpaulin sheeting in the temporary holding area. Larvicidal oil or larvicide will be applied to the stored C&D waste, if necessary, to control pests.

4.3.5 For each truckload of C&D material leaving the working area to the designated fill banks / landfills, the truck driver must bear a duly completed, signed and stamped CHIT. A Notification to Truck Driver (attached in **Appendix C**) will be given to truck drivers to remind them the proper disposal procedures.

4.3.6 The truck will proceed to the designated disposal facility as stipulated in the CHIT / DDF. The truck driver will present the CHIT / DDF to the reception facility operator. If the C&D waste accords with the acceptance criteria, disposal of the C&D waste will be permitted and the facility operator will give the truck driver a transaction receipt and stamp the CHIT / DDF.

4.3.7 The truck driver will present the CHIT at the weighbridge. If the vehicle load is accepted, the CHIT is deemed to be used and the weight would be recorded on the "Transaction Record Slip".

4.3.8 If the truck driver is instructed by the reception facility operator to go to the sorting facility, the driver will need return back to the site and report to the Foremen. No driver is allowed to go to sorting facility without Foremen permission or instruction.

4.3.9 The truck driver will then return the transaction receipt and the stamped CHIT / DDF to Leighton – Chun Wo Joint Venture as soon as possible. All CHIT / DDFs are to be return to the EO.

4.3.10 Leighton – Chun Wo Joint Venture will maintain a daily record summary (DRS) of disposal of C&D material from the Site including details of the C&D waste, the truck number, departure time, etc. This record will be checked against the ER records as soon as possible and the ER will be notified immediately in case any discrepancy is noted.

4.3.11 Part 1 of the DRS will be completed in duplicate and a copy should be kept by the ER.

4.3.12 For disposal at government disposal facilities, Leighton – Chun Wo Joint Venture will check the information recorded in the DRS against the disposal records on CEDD's or the EPD's website (see below).

- http:www.cedd.gov.hk/eng/services/tripticket/index.html.
- http://www.epd.gov.hk/epd/misc/cdm/trip.html

4.3.13 Part 2 of the DRS will be completed and submit to the ER within 1 working day after the records are posted at the EPD web-site.

4.3.14 Where an irregularity is observed or where requested by the ER under special circumstances (e.g. a CHIT / DDF has been issued but there is no disposal record at the disposal ground), Leighton – Chun Wo Joint Venture will submit to the ER within 5 working days after the recorded date of disposal the supporting evidence such as duly stamped CHIT / DDF and/or the Transaction Record Slip (where relevant) to confirm proper completion of the delivery trips in question, or within 2 working days after the ER has requested for such evidence, whichever is later. A fax copy of the CHIT / DDF or Transaction Record Slip is acceptable, unless otherwise directed by the ER.

4.4 Measures to be implemented During Transportation of Wastes to Avoid Leakage of Wastes onto Public Areas

4.4.1 All trucks to transport waste from the site will be in good working condition and will be equipped with mechanical covers (or similar) to prevent leakage of waste onto public areas. In addition to the cover, to further minimize the leaking of waste from the trucks, trucks should not be filled higher than the trail board.

4.4.2 Wastes collected on all the wheels and bodies of trucks will be washed off by wheel washing facilities before leaving the construction site. Leighton – Chun Wo Joint Venture will provide wheel washing facilities on site at the site entrance.

4.5 Disposal of C&D Materials to Alternate Disposal Facilities

4.5.1 Where Leighton – Chun Wo Joint Venture has identified a project that can serve as an alternative disposal facility, Leighton – Chun Wo Joint Venture will provide a detailed description of the alternative disposal ground, including location, lot number (where appropriate) and location plan(s) to the ER to request for his written approval to dispose of waste at the proposed location.

4.5.2 Where the alternative disposal facility is a private construction project, Leighton – Chun Wo Joint Venture will submit a letter from the Authorized Person of the development (as defined under the Building Ordinance) to confirm that:

- The use of C&D materials in the development is acceptable.
- The use of land formed by C&D materials is in conformity with the statutory town plan / lease conditions.
- The ER is allowed to enter the alternative facility to conduct an inspection when necessary.
- The estimated quantity and type of C&D materials to be used in the construction works and the approximate delivery program, together with the name, post and specimen signature of the competent person to sign the DDF / internal trip ticket.

4.5.3 Where the alternative disposal facility is a private facility but not a construction site, Leighton – Chun Wo Joint Venture will submit a letter from the relevant authorities, such as the Lands Department and Planning Department, to confirm the suitability of the alternative disposal facility to receive the proposed amount of C&D materials for use, and a written consent from the landowner.

4.5.4 Where the alternative disposal facility is a government project, Leighton – Chun Wo Joint Venturewill submit written consent from the project office of the alternative disposal facility to use the C&D materials generated from the Site, and to confirm the estimated quantity and type of C&D materials required and the approximate delivery programme.

4.5.5 A system for transmitting disposal records from the alternative disposal ground will be submitted to the ER for approval before disposal to the alternative ground starts.

4.6 Chemical Wastes / Hazardous Waste Handling and Disposal

4.6.1 Leighton – Chun Wo Joint Venture has been registered as Chemical Waste Producer. Chemical waste that is generated, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, will be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes as follows:

Packaging

4.6.2 Chemical waste will be packed and held in containers of suitable design and construction so as to prevent leakage, spillage or escape of the contents under normal conditions of handling, storage and transport.

4.6.3 Containers used for the storage of chemical wastes will:

- Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.
- Have a capacity of less than 450 litres unless the specifications have been approved by the EPD.
- Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

Labelling

4.6.4 Every container of chemical waste will bear an appropriate label which with details of the chemical waste. The waste producer will ensure that the information contained on the label is accurate and sufficient so as to enable proper and safe handling, storage and transport of the chemical waste.

Storage

4.6.5 The storage area will be specially constructed and bunded, and located close to the source of waste generation. The storage area for chemical wastes will:

- Be clearly labelled and used solely for the storage of chemical waste.
- Be enclosed on at least three (3) sides.
- Have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest.
- Have adequate ventilation.
- Be covered to prevent rainfall entering (water collected with the bund must be tested and disposed of as chemical waste).
- Be arranged so that incompatible materials are adequately separated.
- Before reaching 80% capacity of the storage container, licensed waste collectors will be contracted to remove the chemical waste.

Transportation and Disposal

4.6.6 After the chemical wastes have been packed, labelled, and stored, the chemical wastes will be transported by licensed waste collectors and disposed of at Chemical Waste Treatment Facility in Tsing Yi or other approved facilities.

4.7 General Refuse

4.7.1 Measures to be implemented to encourage general waste avoidance / minimization include:

- Reducing the number of photocopies to a minimum and copying on both sides of paper for internal documents and external documents where appropriate.

- Preventing over-ordering of office equipment and consumables.
- Procuring energy efficient office equipment and consumables.
- Deploying and servicing recycling containers on site to facilitate collection of recyclables (e.g. aluminum cans, plastic bottles).
- Deploying containers with covers onsite to facilitate the collection of non-recyclables for disposal at landfills.
- General refuse generated from working vessels and barges will be collected into temporary waste collection points.
- Working vessels for import fill or delivery should be handled by themselves.
- There will be waste containers on the working vessels for the collection of waste. In the event that refuse is found on the water, Leighton – Chun Wo Joint Venture will collect the refuse on an as needed basis.

4.8 Sewage

4.8.1 Sewage waste will be generated from amenity facilities used by the construction workforce and site office's sanitary facilities. Night soil from chemical toilets will also be generated. The sludge needs to be properly managed to minimise odour and potential health risks to the workforce by attracting pests and other disease vectors.

4.8.2 The peak number of construction workers anticipated to on site by Leighton – Chun Wo Joint Venture is to be about 1700 staff. As the workers will be scattered within the construction site, the most cost-effective solution will be to provide adequate number of portable toilets within the site to ensure that sewage from site staff is properly collected. Leighton – Chun Wo Joint Venture will ensure adequate numbers of portable toilets for the workforce and ensure no adverse water impacts by contracting with licensed contractors to maintain the facilities.

4.9 Excavated Sediment

4.9.1 Excavated sediment will be treated using cement solidification/stabilization (Cement S/S) techniques and will be reused onsite for either backfilling or landscaping (e.g. berm material).

4.9.2 For handling of excavated sediment, the following measures will be implemented:

- Temporary stockpiling site of untreated marine mud will be lined with impermeable sheeting, bunded and with proper leachate control measures implemented;
- Watering for the temporary stockpiles of untreated marine mud will be avoided to minimise potential contaminated runoff ;
- Temporary stockpiles will be covered properly by impermeable sheeting;
- Vehicles containing any untreated marine mud will be suitable covered to limit potential dust emission or potential contaminated wastewater run-off;
- The mixing of marine mud with cement will be enclosed to minimize dust emission;
- Handling an mixing of cement will follow Air Pollution Control (Construction Dust) Regulation to avoid fugitive dust emissions;
- Impermeable materials (e.g. concrete paved ground) will be placed at the bottom of mixing unit/curing area for the duration of the Cement S/S treatment process;
- Concrete bund will be constructed as appropriate, along the perimeter of the Cement S/S treatment facilities to prevent leachate from escaping out of facilities.

4.9.3 The layout of the excavated sediment treatment area is shown in **Appendix H.**

4.10 Handling of Recyclables

4.10.1 Before starting the transportation of recyclable materials off site to recycling facilities, Leighton – Chun Wo Joint Venture will meet with recycling contractors to establish a suitable system for collecting recyclable materials with care.

4.11 Estimate Quantities of C&D Material/Waste

4.11.1 The following types of waste will be generated during the construction of the Contract.

- Excavated sediments.
- C&D materials / waste.
- Chemical waste.
- General refuse.
- Recyclable waste.

4.11.2 The estimated amount of waste to be generated from the Contract is listed in **Table 3** below:

Table 3: Estimated Amount of Waste to be Generated During the Contract

Material	Generated from Project (m^3)	Re-used onsite or on other Projects (m^3)	Disposal (m^3)	Proposed Disposal Outlet
General Waste	40,000	12,000	28,000	NENT Landfill
Inert C&D Soft Material (such as timber)	534,720	514,720	20,000	Tuen Mun Area 38 Fill Bank
C&D Waste	20,000	12,000	8,000	NENT Landfill
Excavated sediment	30,000	30,000	0	N/A

4.11.3 The estimated volume of excavated sediment to be generated from the contract is 30,000 m^3. The excavated sediment will be treated and reused onsite for either backfilling or landscaping (e.g. berm material). Hence, no excavated sediment would be disposal of off-site.

4.11.4 Control measures would be devised to ensure that the recyclable materials are delivered to a proper recycling outlet for processing, and to avoid such materials being considered as C&D materials for the purposes of the Contract.

4.11.5 All recyclable material that is generated during the course of the Contract will be collected by registered contractors and transported to an approved facility.

4.11.6 Details of these contractors were listed in the website of EPD as waste collectors and recyclers, the information can be search via the hyperlinks at:

- http://www.epd.gov.hk/epd/english/environmentinhk/waste/guide_ref/guide_ref_dwc.html

4.12 Timber Control System

4.12.1 Leighton – Chun Wo Joint Venture's aim is to minimize the use of timber during construction, where practicable, by using suitable alternatives, such as, recyclable metal formwork. Where the use of timber is unavoidable for temporary works construction processes or activities with an estimated quantity of greater than 5m^3, Leighton – Chun Wo Joint Venture will submit a

method statement to the ER for agreement prior to starting the relevant temporary works. The method statement will include the justification for the use and the measures taken to minimize the use of timber.

4.12.2 The summary table of timber usage will be submitted to the ER together with the monthly summary WFT for monitoring and review by not later than the fifteenth (15) day of each month or, if it is a general holiday, the day following the general holiday, or a day agreed upon with the ER.

5 Disposal Program

5.1.1 The applicable waste disposal requirements are listed in Section 1 of this WMP.

- It is anticipated that there will be inert C&D materials (comprising soil, broken rock and concrete, etc), non-inert C&D materials and excavated sediments generated under Contract No. HY/2013/01. With reference to the clause 25.25 of PS, the designated disposal grounds for inert and non-inert C&D materials are listed as follows:-

Inert C&D Materials

- Tuen Mun Area 38 Fill Bank or other disposal outlets as directed by the ER.

Non-inert C&D Materials

- North East New Territories (NENT) Landfill

5.1.2 Monthly summaries of the amount of C&D material disposed of off site will be provided to the ER. The summaries will indicate the estimated quantities of C&D material removed, the types of C&D materials removed and the corresponding disposal ground in the WFT.

5.1.3 Inert C&D materials will be disposed of at Tuen Mun Area 38. Non-inert C&D materials will be disposed of at NENT landfill.

5.1.4 Excavated sediment will be treated and reused onsite as either backfilling or landscaping. No excavated sediment would be disposal off-site.

6 Notification to Truck Drivers

6.1.1 Leighton – Chun Wo Joint Venture will contact all transportation companies who are contracted by Leighton – Chun Wo Joint Venture, or its subcontractors, for the removal of C&D materials from the Site and highlight the following parts of the WMP:

- Each truck transporting C&D materials from the Site to a disposal facility must carry a duly completed, signed and stamped DDF, irrespective of the location and nature of the disposal facility.
- The C&D materials must be disposed of at the disposal ground as stipulated in the CHIT / DDF.
- The improper disposal of C&D materials, as outlined by the Public Fill Committee, may result in the revoking of the transportation company Dumping License.
- Truck drivers must bear a valid Dumping License that has been issued by the CEDD.

6.1.2 A sample of notification to truck drivers is attached in **Appendix C**. The Flow Chart of the TTS is attached in **Appendix D**.

7 Waste Management Records

7.1 General

7.1.1 The CHIT will be used for each and every vehicle that transports C&D material off site to a disposal facility.

7.1.2 Prior to the vehicle leaving the site, the ER will input the serial number, date, time of departure, vehicle licence plate number, designated public filling facility / landfill, and any other information as required onto the DDF, then stamp the DDF. The ER will retain the first strip of the form and pass the rest of the DDF to Leighton – Chun Wo Joint Venture's representative. The DDF will be carried on board the vehicle by the driver at all times, for the duration of the trip.

7.1.3 A register of the DDF's issued will be maintained by Leighton – Chun Wo Joint Venture in the project environmental filing system, and will be made available for inspection by the ER upon request. The following records will be kept to enable monitoring of the DDF's that have been issued:-

- DRS and the WFT will be completed and submitted to the ER for their records. A sample of the DRS and the WFT is provided in **Appendices E and F** of this WMP.

7.2 Waste Flow Table – Monthly

7.2.1 Leighton – Chun Wo Joint Venture will maintain a record of the quantities of C&D materials that are generated each month using the monthly summary WFT. The Leighton – Chun Wo Joint Venture EO will complete and submit the monthly summary WFT to the ER by no later than the fifteenth (15th) day of the following month, or if this day is a general holiday, the day following the General Holiday, or a later date as agreed to by the ER.

7.3 Waste Flow Table - Yearly

7.3.1 The estimated quantities of C&D materials that are generated each year from the site will be summarised using the yearly summary WFT. The yearly summary WFT will be updated on a half-yearly basis and will be submitted to the ER by not later than 1st of June and 1st of December of each calendar year, or if these days are general holidays, the day following the general holiday, or a later date as agreed to by the ER.

7.3.2 These summaries shall also be made available to the ETL and the IEC/ENPO.

7.3.3 Specific trip tickets and records for the internal transfer of C&D materials will also be kept for monitoring and shall be made available to the ER upon request.

7.3.4 For recyclable materials, Leighton – Chun Wo Joint Venture's Representative will record the quantities of recyclable materials before removal off the Site via recycling contractors, and also include the details in the WFT for submission to the ER.

7.4 Waste Flow Verification

7.4.1 In order to ensure the proper disposal of C&D materials that are generated during the course of the contract, the following enhancement measure to improve the TTS recording system will be utilised:

- A video recording system as stipulated 25.25 (6) (g) will be installed onsite by Leighton – Chun Wo Joint Venture and disposal records shall be checked against the survey record. The video recording system shall also be used to monitor the vehicular exit / entrance of the site.

8 Waste Monitoring and Audit Procedures

8.1.1 The aims and objectives of the waste management audit program are:

- To ensure that waste generated by the works is handled, stored, collected, transported and disposed of in accordance with the applicable environmental guidelines and regulations.
- To ensure that the handling, storage, collection and disposal of waste arising from the demolition works complies with the relevant requirements under the WDO and its regulations, and this WMP.
- To encourage the reuse and recycling of materials.

8.1.2 The Environmental Team (i.e. Atkins China Limited), with assistance from the PM or DPM, will conduct audits of the waste management practices during the weekly environmental site inspection to evaluate the overall implementation of the WMP, and to ensure that the appropriate control measures are properly implemented. The results of the waste management audits will be reported in the monthly EM&A reports. The Environmental Mitigation Implementation Schedule (EMIS) is given in **Appendix G**.

8.1.3 In the event of any non-compliance observations or complaints against the provisions of this WMP, appropriate actions will be taken according to the particular event. An Action Plan for non-compliance and complaints is shown in the following tables:

Table 4: Event Action Plan for Non-compliance

Step	Day	Action	Leighton – Chun Wo Joint Venture/ET	ER	IEC/ ENPO
1	1	A non-compliance record will be created within one (1) working day of making the observation during a site audit. The ET will send a Notice of Non-Compliance (NC) to Leighton – Chun Wo Joint Venture, ER and IEC/ENPO. The NC would include details of the observation/s, the time and location of the observation/s and the reason/s for the non-compliance.	X	-	-
2	2	Leighton – Chun Wo Joint Venture will propose suitable corrective action/s to mitigate the non-compliance observed within one (1) working day of receipt of the NC from the ET.	X	-	-
3	3	The ER and IEC/ENPO will review Leighton – Chun Wo Joint Venture's proposed corrective action/s and make additional recommendations as necessary.	-	X	X
4	-	Leighton – Chun Wo Joint Venture will implement the proposed corrective action/s once they have been agreed to by all parties.	X	-	-
5	-	The implementation of the corrective action/s will be checked at the next site audit. Close the NC if the implementation of the corrective action/s is satisfactory.	X	X	X
6	-	Leighton – Chun Wo Joint Venture will propose preventive action/s within three (3) working days of the closure of the NC.	X	-	-

Note: "x" denotes action party comments on the NC where applicable.

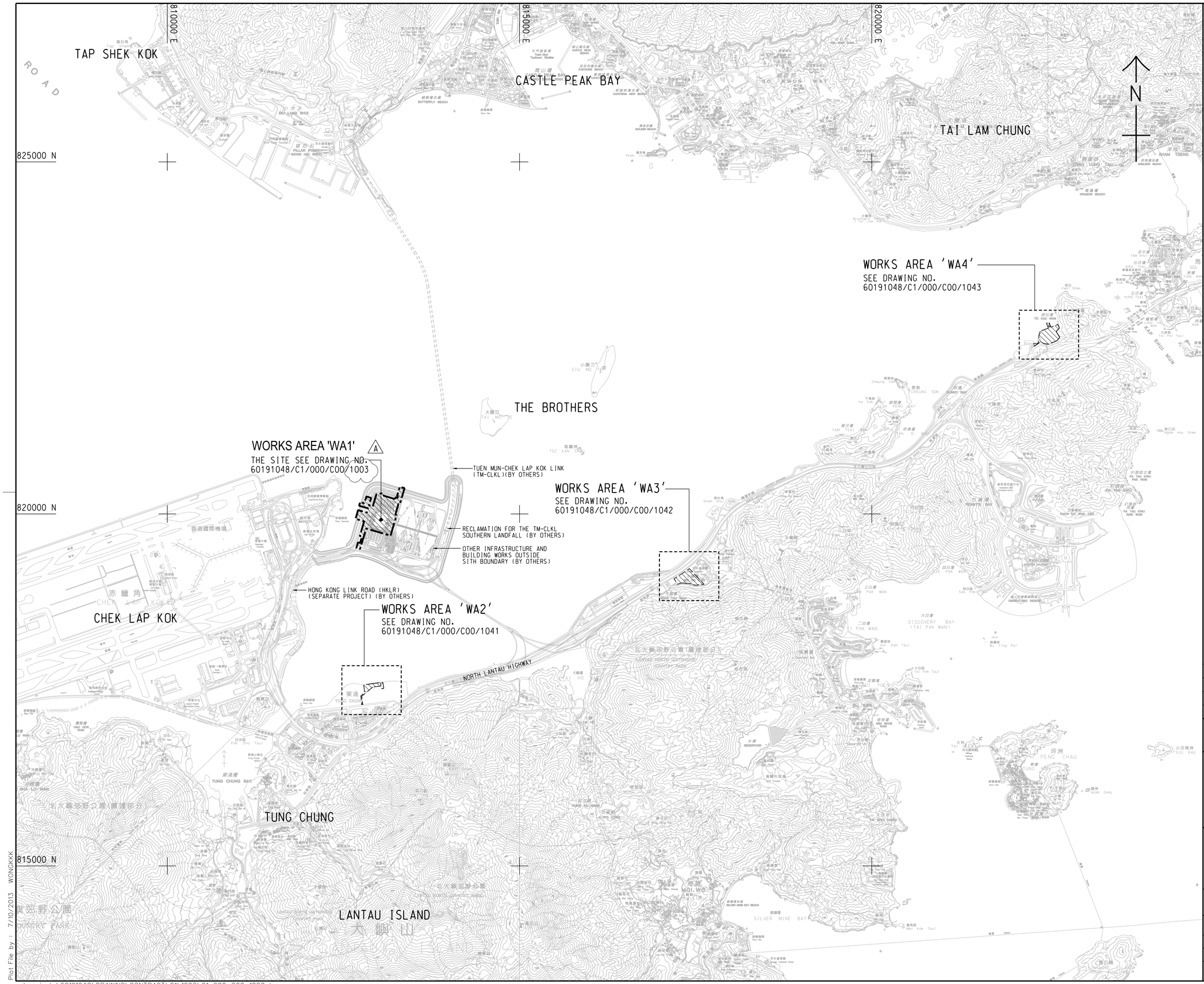
Table 5: Event Action Plan for Complaint

Step	Day	Action	Leighton – Chun Wo Joint Venture/ET	ER	IEC/ENPO
1	1	The ET will investigate validity of complaint, and assess whether the complaint is due to an onsite activity. If the complaint is valid and due to site activity, the ET will log details of the complaint into a Complaint Record Form (CR).	X	-	-
2	2	Leighton – Chun Wo Joint Venture will assess the CR and propose suitable mitigation measures.	X	-	-
3	3	The ER and IEC/ENPO will review the mitigation measures and agree or propose further mitigation measures if required.	-	X	X
4	-	Leighton – Chun Wo Joint Venture will implement the proposed mitigation measures once they have been agreed to by all parties.	X	-	-
5	-	The ETL will check the implementation of the mitigation measures during the next site audit. The ET will close out the CR, if the implementation of the mitigation measures is satisfactory.	X	X	X
6	-	Leighton – Chun Wo Joint Venture will propose suitable prevention measures within three (3) working days after closure of the CR.	X	-	-

Note: "x" denotes action party comments on the NC where applicable.

APPENDIX A

SITE LOCATION PLAN



NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.
3. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60191048/C1/000/C00/1041 TO 1043.

LEGEND: A A

SITE BOUNDARY

WORKS AREA

REV. 修訂	DESCRIPTION 內容摘要	D.E. P.E. CHECKED 查核	DATE 日期
B	WORKING DRAWING	BWCW SCI	JUN.14
A	TENDER ADDENDUM NO. 1	BWCW SCI	OCT.13
-	TENDER DRAWING	BWCW SCI	SEP.13

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

SITE LOCATION PLAN

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C1/000/C00/1000B

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01
DRAWN BY 繪圖	WSY	P. Dir. APPROVED 負責人	TKH
SCALE 比例	A1 1 : 25000	STATUS 階段	WORKING DRAWING
DIMENSIONS ARE IN 尺寸單位	METRES	© COPYRIGHT RESERVED 版權所有	

Plot File by : 7/10/2013 WONGKKK

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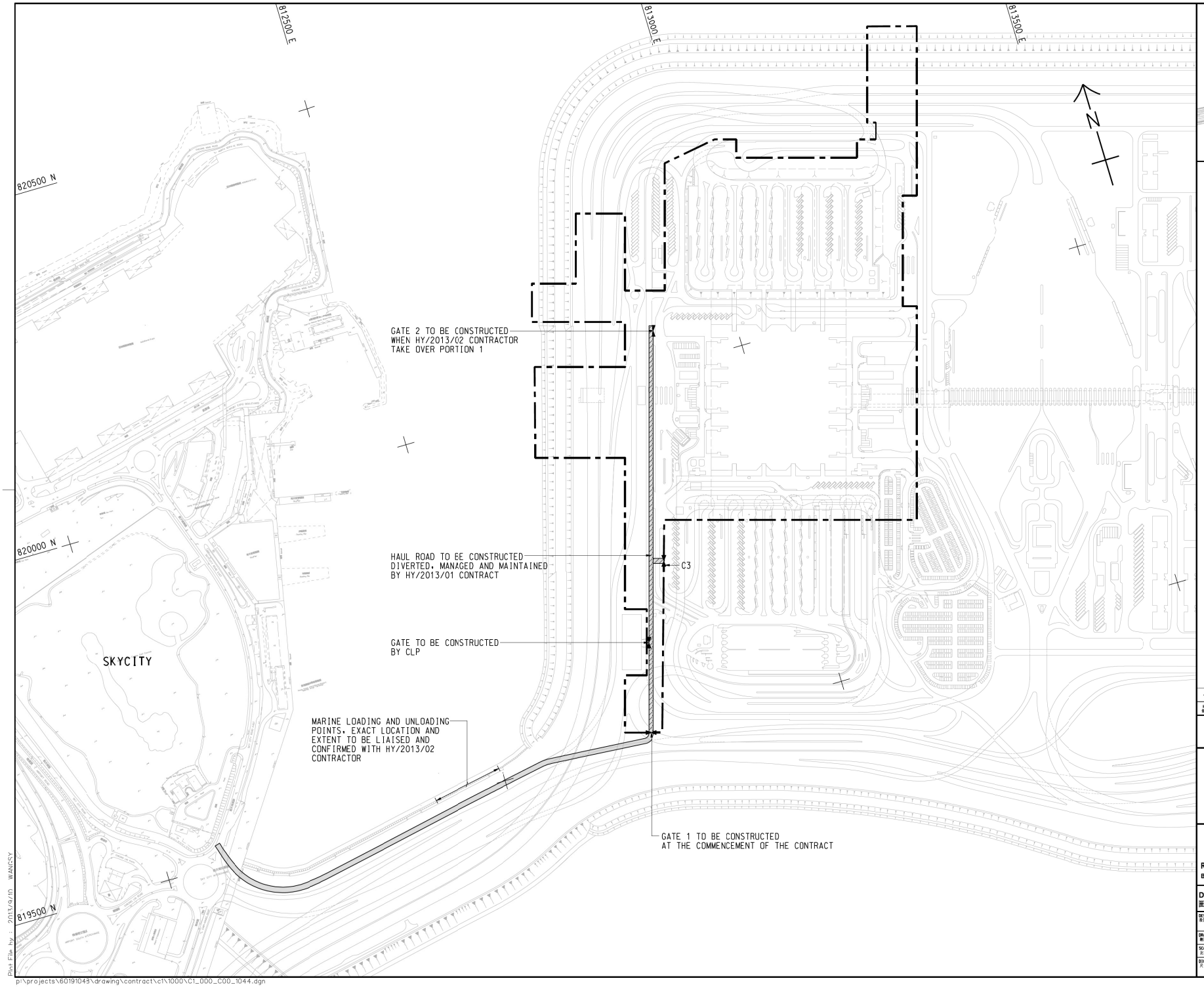

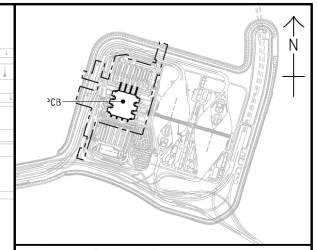

LOCATION PLAN
SCALE 1 : 20000

NOTES:

1. COORDINATES ARE BASED ON HONG KONG METRIC GRID (1980) UNLESS OTHERWISE NOTED.
2. LEVELS ARE IN METRES RELATIVE TO HONG KONG PRINCIPAL DATUM (mPD) UNLESS OTHERWISE NOTED.
3. DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
4. SETTING OUT, DIMENSIONS, LEVELS, COORDINATES ARE TO BE CALCULATED BY THE CONTRACTOR. NO INFORMATION SHOULD BE SCALED PHYSICALLY OR ELECTRONICALLY FROM THE DRAWINGS OR FILES.
5. SITE ACCESS SHALL BE HARD PAVED WITH PROPER DRAINAGE PROVIDED. IT SHALL BE KEPT UNOBSTRUCTED AND UNDISRUPTED AT ALL TIMES.

LEGEND:

- SITE BOUNDARY
- 7.3m CLEAR WIDTH CONSTRUCTION HAUL ROAD
- INDICATIVE 20m WIDE VEHICULAR ACCESS BY RECLAMATION CONTRACT HY/2010/02

REV. 修訂	DESCRIPTION 內容摘要	DES. / PLN. CHECKED 核對	DATE 日期
-	TENDER DRAWING	BWCW SCI	SEP.13

HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
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WORKS AREA WA1

AECOM
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DRG.NO. 圖紙編號 60191048/C1/000/C00/1044

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/01	P. Dir. APPROVED 負責人 EMSC
DRAWN BY 繪圖 WSY	STATUS 狀態	
SCALE 比例 A1 1 : 2500		
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Plot File by : 2013/9/10 WANGCY
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812600 E

812800 E

813000 E

817600 N

817400 N

N

WORKS AREA OCCUPIED BY
CONTRACT NO. HY/2010/02

COMMON ACCESS TO BE PROVIDED
AND MAINTAINED BY
CONTRACT NO. HY/2010/02

YING HEI ROAD

迎禧路

單車徑 Cycling Track

巴士 Bus

的士 Taxi

小巴 Minibus

HWM

Nullah

Podium (Car Park under)

Club House

Basketball Court

Playground

Ho Yu College (Sponsored by Sik Sik Yuen)

Ho Yu College and Primary School (Sponsored by Sik Sik Yuen)

Ho Yu Primary School (Sponsored by Sik Sik Yuen)

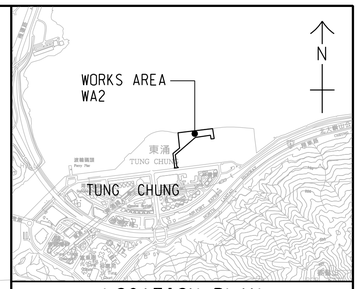
CARIBBEAN COAST

Monterey Cove Tower

Road

POINT	EASTING	NORTHING
201	813071.417	817531.755
202	813046.124	817528.520
203	813041.528	817559.119
204	812918.331	817540.618
205	812754.843	817398.454
206	812767.133	817302.381
207	812780.486	817294.062
208	812745.200	817289.613
209	812752.963	817300.569
210	812748.782	817300.034
211	812734.825	817409.146
212	812788.988	817454.350
213	812777.075	817578.404
214	813058.837	817612.753
215	812925.889	817596.485
216	812931.852	817542.648
217	812930.654	817552.515
218	812909.983	817549.657
219	812802.930	817457.358
220	812798.921	817461.656
221	812788.702	817458.876

SETTING OUT POINT



LOCATION PLAN
SCALE 1 : 25000

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 2.1
- PORTION 2.2
- PORTION 2.3

REV. 修訂	DESCRIPTION 內容摘要	BY CHECKED 複核	DATE 日期
B	WORKING DRAWING	BWCW SCI	JUN.14
A	TENDER ADDENDUM NO. 1	BWCW SCI	OCT.13
-	TENDER DRAWING	BWCW SCI	SEP.13

路政署
HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

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WORKS AREA WA2

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DRG.NO. 圖紙編號 60191048/C1/000/C00/1041B

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01
P. Dir. APPROVED 負責人	TKH		
DRAWN BY 繪圖	WSY	STATUS 階段	WORKING DRAWING
SCALE 比例	A1 1 : 1000		
DIMENSIONS ARE IN 尺寸單位	METRES		

Plot File by : 7/10/2013 WONGKKK

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SETTING OUT POINT

POINT	EASTING	NORTHING
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302	817314.741	819069.828
303	817327.338	819049.295
304	817440.865	819117.811
305	817340.825	819027.314
306	817387.350	819023.403
307	817387.861	819043.396
308	817466.133	819091.047
309	817469.783	819087.181
310	817513.449	819113.764
311	817347.717	819016.082
312	817526.774	819020.578
313	817531.659	819021.641
314	817531.154	819001.065
315	817533.345	818991.306
316	817620.269	819000.620

817200 E

817400 E

817600 E

819200 N

819000 N

NORTH LANTAU HIGHWAY

CHEUNG TUNG ROAD

小濠灣污水處理廠
Siu Ho Wan Sewage Treatment Works

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/03

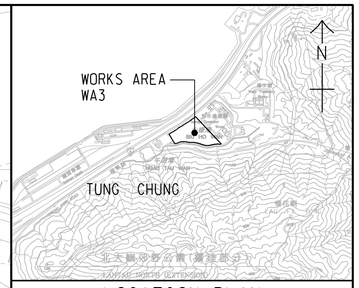
WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/09

10m WIDE COMMON ACCESS TO BE MAINTAINED BY CONTRACT NO. HY/2010/02

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2010/02

10m WIDE COMMON ACCESS TO BE CONSTRUCTED AND INITIALLY MAINTAINED BY CONTRACT NO. HY/2013/01. UPON COMMENCEMENT OF CONTRACT NO. HY/2013/03, THE MAINTENANCE RESPONSIBILITY SHALL BE TRANSFERRED FROM CONTRACT NO. HY/2013/01 TO CONTRACT NO. HY/2013/03.



LOCATION PLAN
SCALE 1 : 25000

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 3.1
- PORTION 3.2
- PORTION 3.3
- PORTION 3.4
- PORTION 3.5
- PORTION 3.6
- PORTION 3.7
- PORTION 3.8
- PORTION 3.9

REV. 修訂	DESCRIPTION 內容摘要	DRAWN 繪圖	CHECKED 查核	DATE 日期
A	WORKING DRAWING	BWCW	SCT	JUN.14
-	TENDER DRAWING	BWCW	SCT	SEP.13

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

WORKS AREA WA3

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C1/000/C00/1042A

DESIGNED BY 設計 BWCW	CONTRACT NO. 合約編號 HY/2013/01	P. Dir. APPROVED 負責人 TKH
DRAWN BY 繪圖 WSY	STATUS 階段 **WORKING DRAWING**	
SCALE 比例 A1 1 : 1000		
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

Plot File by : 2013/9/10 WANGSY

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SETTING OUT POINT

POINT	EASTING	NORTHING
401	822488.151	822632.315
402	822640.593	822689.415
403	822515.608	822559.848
404	822610.940	822599.642
405	822629.428	822607.359
406	822526.988	822529.813
407	822618.348	822567.950
408	822542.232	822489.581
409	822584.983	822507.426
410	822606.866	822516.561
411	822560.278	822441.956
412	822602.949	822460.010
413	822621.914	822467.959
414	822624.130	822470.998
415	822651.725	822508.856

822400 E

822600 E

822600 N

822400 N

TO KAU WAN

401 402 403 404 405 406 407 408 409 410 411 412 413 414 415

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/03

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2011/09

WORKS AREA OCCUPIED BY CONTRACT NO. HY/2013/05

9m WIDE COMMON ACCESS TO BE CONSTRUCTED AND MAINTAINED BY CONTRACT NO. HY/2013/01

9m WIDE COMMON ACCESS TO BE MAINTAINED BY CONTRACT NO.HY/2013/01

NORTH LANTAU HIGHWAY

大青洲 TAI TSING CHAU

船廠 Shipyard

海堤 Seawall

碎石 Rubble

隧道 Tunnel

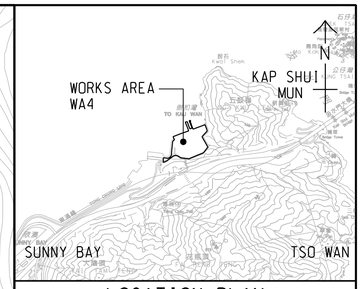
Road

HWM

Pier

Fish Pond

Sea Wall



LOCATION PLAN
SCALE 1 : 25000

NOTES:

1. COORDINATES ARE RELATED TO HONG KONG METRIC GRID (1980).
2. DIMENSIONS ARE IN MILLIMETER AND CHAINAGE ARE IN METRES UNLESS OTHERWISE SHOWN.

LEGEND:

- WORKS AREA BOUNDARY
- PORTION 4.1
- PORTION 4.2
- PORTION 4.3
- PORTION 4.4
- PORTION 4.5
- PORTION 4.6
- PORTION 4.7
- PORTION 4.8

REV. 修訂	DESCRIPTION 內容摘要	D.C.	P.C. CHECKED 審核	DATE 日期
-	TENDER DRAWING	BWCW	SCI	SEP.13

路政署 HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處 Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

WORKS AREA WA4

AECOM
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI
Aedas

DRG.NO. 圖紙編號 60191048/C1/000/C00/1043

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01	P. Dir. APPROVED 批准人	EMSC
DRAWN BY 繪圖	WSY	STATUS 階段			
SCALE 比例	A1 1 : 1000				
DIMENSIONS ARE IN 尺寸單位	METRES				

Plot File by : 2013/9/10 WANGSY

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APPENDIX B

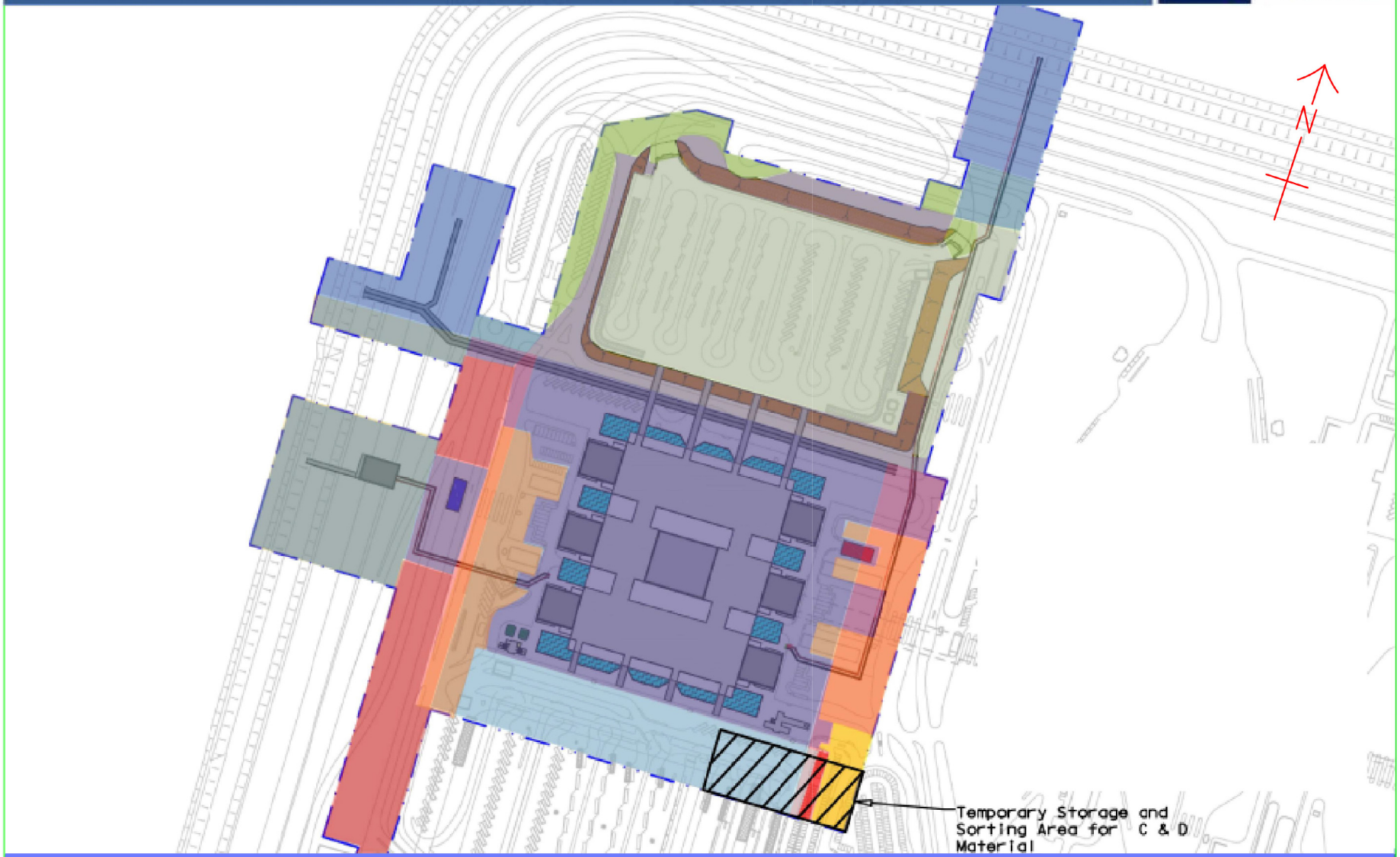
LAYOUT PLAN OF PROPOSED TEMPORARY STORAGE AND SORTING AREA FOR C&D MATERIALS

Contract No. HY/2013/01
Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities
Passenger Clearance Building

Layout Plan of Proposed Temporary Storage and Sorting Area for C & D Material

LEIGHTON

Leighton - Chun Wo Joint Venture



APPENDIX C

NOTIFICATION OF TRUCK DRIVERS

Contract No. HY/2013/01
Hong Kong – Zhuhai – Macao Bridge
Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

各位泥車司機請注意

1. 從本合約工地出發的泥頭和廢棄物, 只可運載本合約工地出發的泥頭和廢棄物, **不可運載不是本合約工地出發的泥頭和廢物**, 如本公司發現有任何違規, **必定以刑事追究**

2. 所有泥頭除有本公司指示外, 必須運載到**屯門第 38 區填料庫**

3. 在填土(料)區倒泥頭和廢棄物時, 必須同時出示**綠**(載運入帳票 CHIT)

4. 所有泥頭車**不可超載**

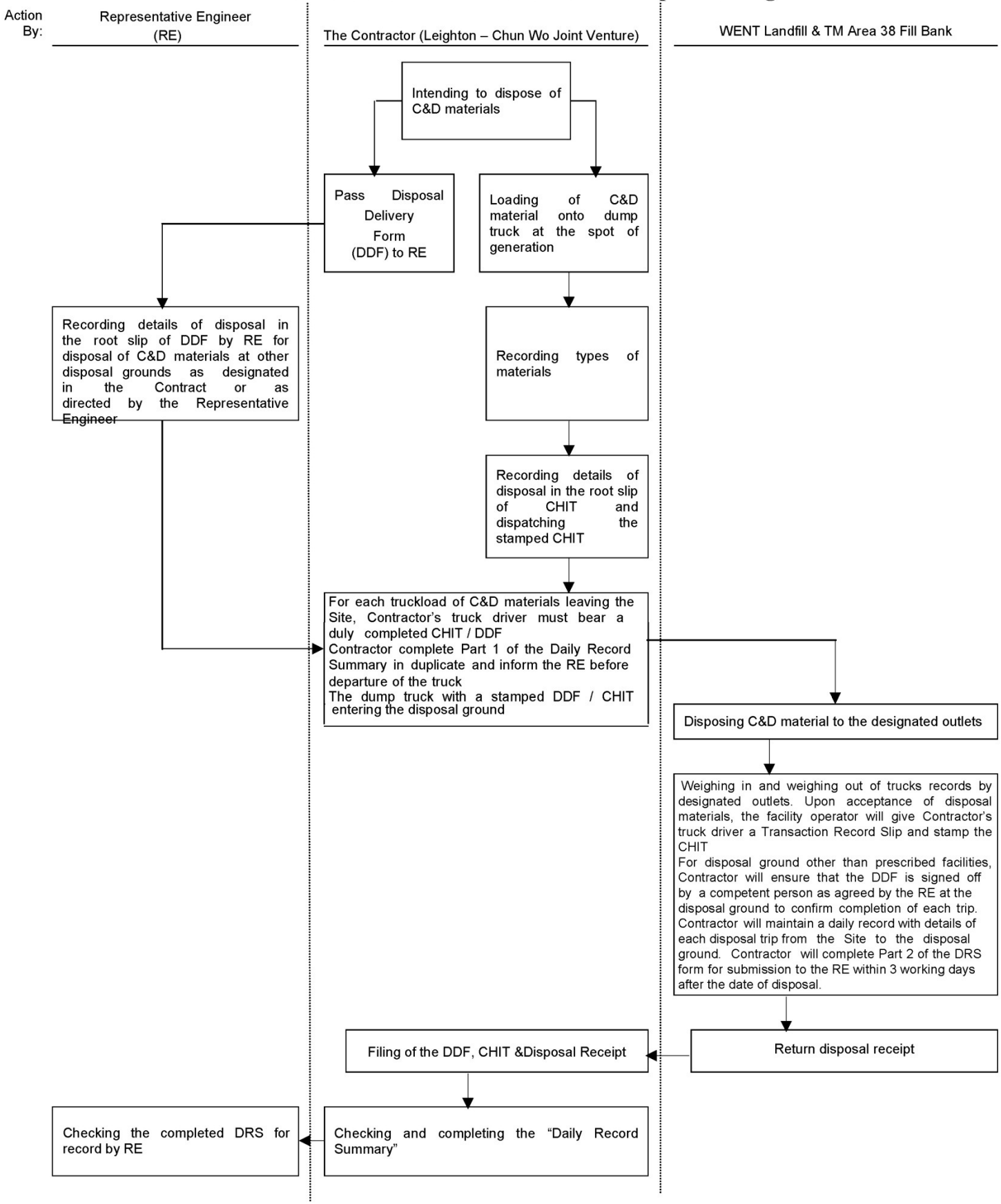
5. 倒泥頭和廢棄物後, 所有尾票和回條必須在**第二天或之前**, 還給科文

如有任何問題, 可和以下環保部同事查詢
Donald Ip 6461 8635

APPENDIX D

TRIP TICKET SYSTEM FLOW CHART

Procedures and Control Mechanisms for Implementing the TTS



APPENDIX E

DAILY RECORD SUMMARY

"Daily Record Summary" to record daily disposal of construction & demolition (C&D) materials from the Site (ER14 – Construction Specification Appendix 25.6)
"每日運載記錄撮要"記錄每日由地盤傾御的建築廢料 (ER14 - 工程規格 附錄 25.6)

(1) Contract no. & title合約編號及名稱 : HY/2013/01 Hong Kong - Zhuhai - Macao Bridge Hong Kong Boundary Crossing Facilities – Passenger Clearance Building

(2) Date of disposal: _____

(3) Disposal ground(s) designated in the Contract or directed by the RE 合約指定或工程師代表指示接收設施: (a) TM Area 38 Fill Bank 屯門38 區填料庫
(b) WENT 屯門稔灣堆填區
Others 其它

(4) Approved alternative disposal grounds 另可接受的接收設施 _____

CHIT/ DDF no. 載運入帳票/ 拆建物料運載記錄票編號	Vehicle registration mark 車輛登記號碼	Approx. vol (e.g. Full/Three Quarter/Half/One quarter) 大約承載量(例如全、3/4、半、1/4)	C&D material type (e.g. inert or non-inert) 建築廢料種類(例如惰性或非惰性)	Disposal Ground 接收設施	Signature & Name of the Contactor's Designated person before departure 於離開地盤前，承建商的指定人仕姓名及簽名	Departure time from *Site 離開地盤時間	Signature & name of the RE's supervisory staff before departure or other time as agreed between the RE's Representative and the Contractor[1] 於離開地盤前或其它經承建商與工程師代表同意的時間，工程師代表監管人員姓名及簽名	Actual disposal ground 真正接收設施	Arrival time at disposal ground 抵達接收設施時間	Remarks 備註

Part 1[2] 甲部 ——— Part 2[3] 乙部

Submitted by 呈交 : _____ [Name of Contractor's Designated Person 承辦商的指定人仕姓名

Signature 簽名 : _____
Date 日期 : _____
Received by 接收 : _____ [Name and signature of the RE' 工程師代表監管人員姓名及簽名
Post 職位 : _____
Date & Time 日期及時間 : _____

[1]For term contract, if there are no full time supervisory staff, the RE supervisory staff should spot check and then sign as appropriate in accordance with paragraph 25 of DEVB TC(W) 6/2010 定期合約，如沒有全職地盤監管人員，應根據 DEVB TC(W) 6/2010 的第 25 段進行定點檢查及簽署

[2]Part 1- The Contractor shall complete Part 1 in duplicate and a copy should be kept by the RE. 承建商填寫甲部兩份，副本由工程師代表持有

[3]Part 2- The Contractor shall complete Part 2 and submit the whole summary to the REwithin 1 working day after the records are posted at the EPD web-site 承建商填寫乙部及將整份運載記錄上載在環境保護署網頁後 1個工作天內呈交給工程師代表

Delete "Site" and substitute 'Sites" for term contracts. 定期合約將"Sites" 刪去及以"Sites"代替

APPENDIX F

WASTE FLOW TABLE

MONTHLY SUMMARY WASTE FLOW TABLE

Name of Department: HyD Contract No.: ____HY/2013/01_____

Monthly Summary Waste Flow Table for ____ (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July											
Aug											
Sept											
Oct											
Nov											
Dec											
Total											

APPENDIX G

ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

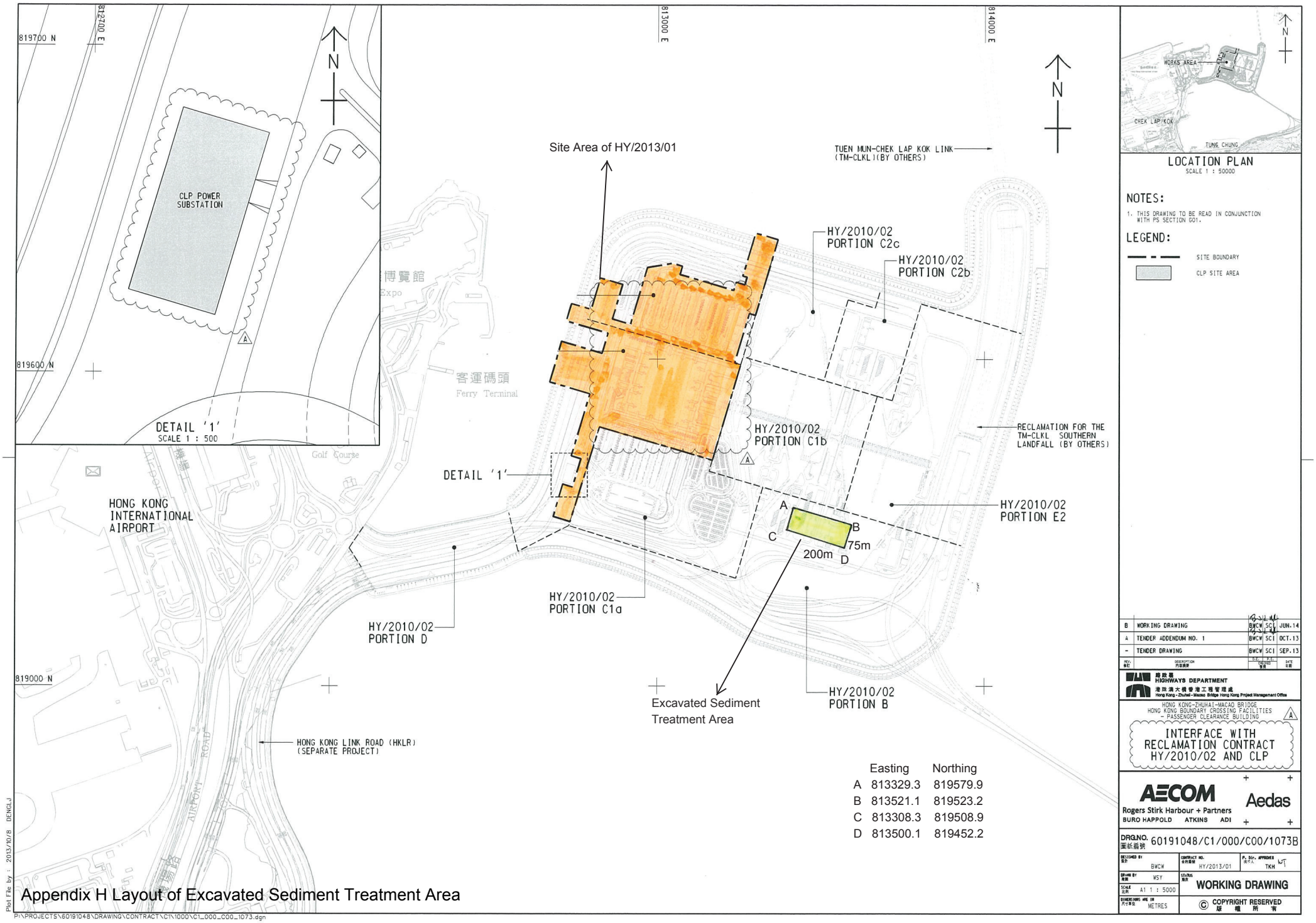
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Waste Management (Construction Waste)							
S8.3.8	WM1	*Construction and Demolition Material* The following mitigation measures should be implemented in handling the waste: • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TC 19/2005

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
S8.3.9-S8.3.11	WM2	*C&D Waste* • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TC 19/2005
S8.2.12-S8.3.15	WM3	*Chemical Waste* • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated.	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	Construction stage	• Waste Disposal (Chemical Waste) General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		• Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.					
S8.3.16	WM4	*Sewage* • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance
S8.3.17	WM5	*General Refuse* • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminum cans, plastic bottles etc., should be provided. • Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including reduction, reuse and recycling of wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	Waste Disposal Ordinance

APPENDIX H

LAYOUT OF EXCAVATED SEDIMENT TREATMENT AREA



	Easting	Northing
A	813329.3	819579.9
B	813521.1	819523.2
C	813308.3	819508.9
D	813500.1	819452.2

LOCATION PLAN
SCALE 1 : 50000

NOTES:

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH PS SECTION GO1.

LEGEND:

SITE BOUNDARY

CLP SITE AREA

REV. 修訂	DESCRIPTION 內容摘要	DESIGNED 設計	CHECKED 核對	DATE 日期
B	WORKING DRAWING	BWCW	SCI	JUN.14
A	TENDER ADDENDUM NO. 1	BWCW	SCI	OCT.13
-	TENDER DRAWING	BWCW	SCI	SEP.13

HIGHWAYS DEPARTMENT
港珠澳大橋香港工程管理處
Hong Kong - Zhuhai - Macao Bridge Hong Kong Project Management Office

HONG KONG-ZHUHAI-MACAO BRIDGE
HONG KONG BOUNDARY CROSSING FACILITIES
- PASSENGER CLEARANCE BUILDING

A

INTERFACE WITH RECLAMATION CONTRACT HY/2010/02 AND CLP

AECOM Aedas
Rogers Stirk Harbour + Partners
BURO HAPPOLD ATKINS ADI

DRG.NO. 圖紙編號 60191048/C1/000/C00/1073B

DESIGNED BY 設計	BWCW	CONTRACT NO. 合約編號	HY/2013/01
DRAWN BY 繪圖	WSY	P. Dir. APPROVED 法定人	TKH
SCALE 比例	A1 1 : 5000	STATUS 狀態	WORKING DRAWING
DIMENSIONS ARE IN 尺寸單位	METRES		

Appendix H Layout of Excavated Sediment Treatment Area

Plot File by : 2013/10/8 DENGLJ

P:\PROJECTS\60191048\DRAWING\CONTRACT\C1\1000\C1_000_C00_1073.dgn