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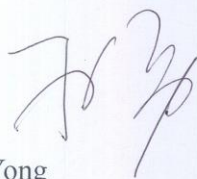
WASTE MANAGEMENT POLICY

WASTE MANAGEMENT POLICY

We are committed to reduce/minimize the generation of construction demolition (C&D) material and to undertake construction activities in an environmental friendly manner.

We are committed to:

- ✓ Ensure construction works complied with specified standards and statutory requirements.
- ✓ Achieve the objective we have established in this Waste Management Plan (WMP).
- ✓ Provide adequate resources and facilities to facilitate the implementation of this WMP.
- ✓ Ensure that all staff members in relevant departments perform their duties according to this WMP.
- ✓ Conduct regular review and audit to monitor the implementation of this WMP.



Mr. Sun Yong

Chairman of Board of Directors

May 2008

1.0 INTRODUCTION

1.1 The Tung Chung Road improvement works consist of widening and realignment of Tung Chung Road between Lung Tseng Tau and Pak Kung Au from a single-lane road to a single two-lane road with footpath and construction of a single-two lane road between Pak Kung Au and Cheung Sha with footpath and elevated highway structures. The site layout plan is shown in Appendix A.

1.2 The general scope of works are shown below:

- Widening and realignment of a 3.6 km section of Tung Chung Road between Lung Tseng Tau and Pak Kung Au from a single-lane road for two-way traffic to a single two-lane road for two-way traffic with a footpath having a minimum width of 1.6 m;
- Construction of a 2.6 km long single two-lane road between Pak Kung Au and Cheung Sha, including elevated highway structures of a total length of 750 m, with a footpath of a minimum width of 1.6 m;
- Provision of 21 passing bays/bus-bays along the road and a roundabout at Cheung Sha; and
- Associated works including road rehabilitation, drainage, utility, environmental mitigation measures, landscaping, slope stabilisation, traffic aids, road safety enhancement measures, lighting, traffic control and surveillance system, and electrical and mechanical works.

2.0 OBJECTIVES OF THE WASTE MANAGEMENT PLAN

2.1 In accordance with Appendix 30 of the Particular Specification (PS) and Specific Condition 3.19 of the Environmental Permit (EP) No. EP-170/2003/C, the permit holder requires to deposit with the EPD a Waste Management Plan (WMP) before the work commencement.

2.2 This Waste Management Plan (WMP) aims to describe the arrangement for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste that will be generated from the construction activities. The WMP estimates the waste generation of the whole construction period of the Project. The yearly summary Waste Flow Table (WFT) will be updated on a half-yearly basis and the monthly WFT will be submitted on a monthly basis. Key objectives of the WMP as stipulated in Appendix 30 of the PS are reproduced in the following points:

- Give a commitment from the top management to provide essence in order to establish a proper management of waste;
- Set out manpower resources for the implementation of waste management;
- Define the duties and responsibilities of individuals and/or different levels of staff involved in the waste management;
- Waste Flow Table (WFT) list out the estimates of all C&D materials to be generated annually;
- Analysis of the timing of generation, types and quantities of the Construction and Demolition (C&D) material during the construction work and to propose measures to reduce/minimize generation of C&D waste;
- Devise a system of work for on-site sorting of C&D materials and identify temporary storage areas;

- Address the Trip Ticket System being adopted in the project;
- Devise Event Action Plan in respect to the deficiencies identified from the waste management inspection or complaint regarding waste management issue;
- To work out the detailed arrangements on the temporary storage and transportation of waste materials arising from the Project to prevent the impacts to the environmentally sensitive areas such as country parks;
- To investigate the reuse of materials resulting from vegetation clearance in the Project in order to avoid or minimize the disposal and, if applicable, to describe the arrangement;
- Establish routine inspection programme to ensure satisfactory performance on compliance with the WMP;
- Establish channels for performance monitoring and
- Provision of training on WMP.

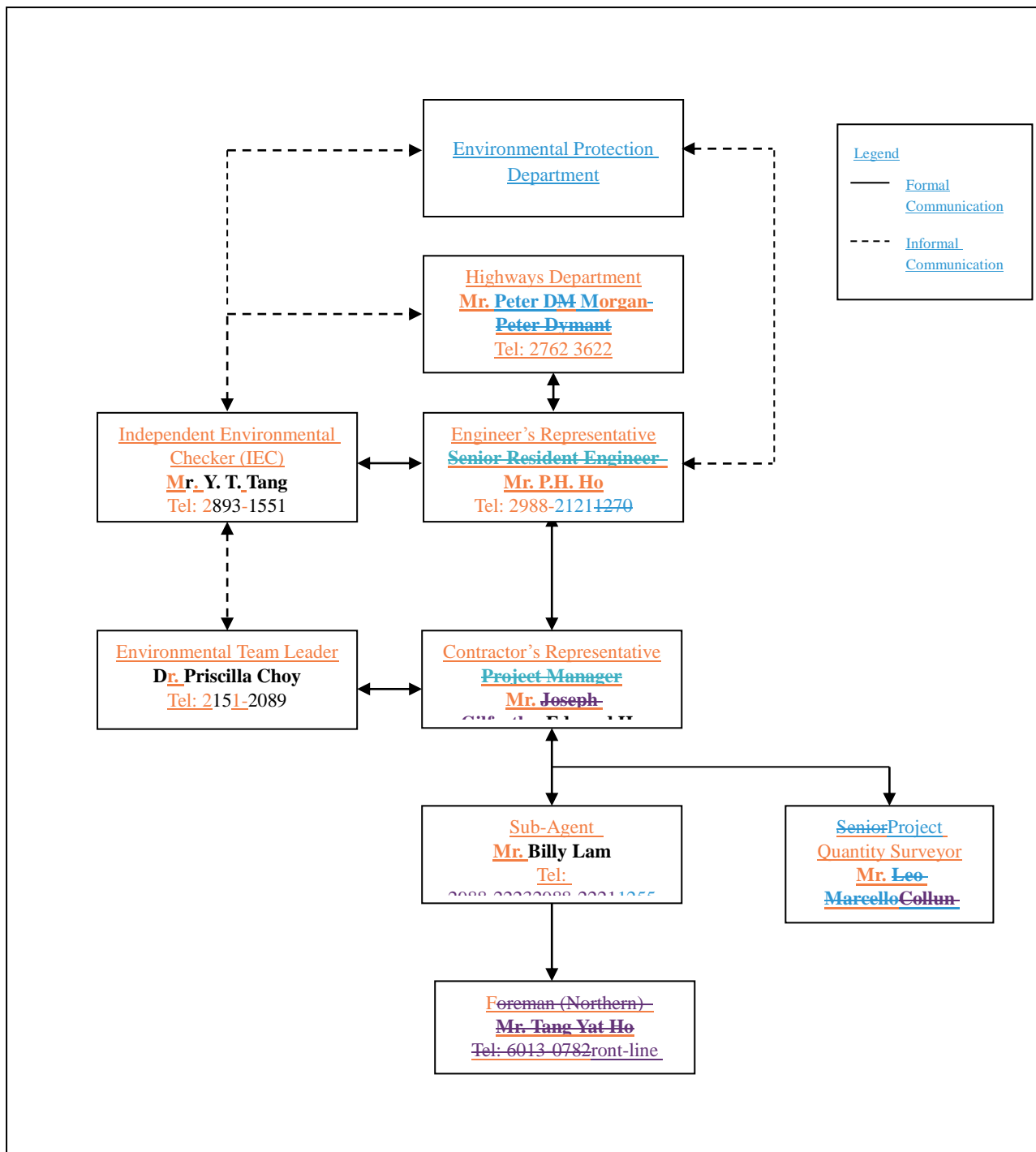
3.0 LEGAL REQUIREMENT AND GUIDELINE

- 3.1 *Registration as a Waste Producer* with the Environmental Protection Department (EPD) under the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance (Cap 354) is required for any premises producing chemical waste.
- 3.2 The Land (Miscellaneous Provisions) Ordinance (Cap 28) requires that the *Licence to Dump at Public Fills* are obtained by individuals or companies who deliver suitable construction wastes to public filling areas. The licence is issued by the Civil Engineering and Development Department (CEDD) under delegated powers from the Director of Lands. The Project Team (PT) as required will apply for these licences.
- 3.3 The following legislation covers, or has some bearing upon, the handling, treatment and disposal of wastes in Hong Kong:
- The Waste Disposal Ordinance (Cap.354)
 - The Waste Disposal (Chemical Waste) (General) Regulation (Cap.354C)
 - The Waste Disposal (Charge of Disposal of Construction Waste) Regulation (Cap.354K)
 - The Land (Miscellaneous Provisions) Ordinance (Cap.28)
 - The Public Health and Municipal Services Ordinance (Cap.132) – Public Cleansing and Prevention of Nuisances By-laws
 - Dumping at Sea Ordinance (Cap.466)
- 3.4 Other guiding documents that could provide useful information for PT to appropriately manage waste handling:
- Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (1992), EPD
 - “Environmental Guidelines for Planning in Hong Kong” (1990), Hong Kong Planning Standards and Guidelines, Hong Kong Special Administrative Region (HKSAR) Government
 - Environment, Transport and Works Bureau Technical Circular (Works) No. 34/2002, “Management of Dredged/Excavated Sediment”, Environment, Transport and Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
 - New Disposal Arrangements for Construction Waste (1992), EPD & CED
 - Waste Disposal Plan for Hong Kong (December 1989), Planning, Environment and Lands Branch (PELB) Secretariat
 - Works Bureau Technical Circular (Works) No. 2/93B: “Public Filling Facilities”, Works Branch, Hong Kong Special Administrative Region (HKSAR) Government
 - Works Branch Technical Circular (Works) No. 16/96: “Wet Soil in Public Dumps”,

- Works Branch, Hong Kong Special Administrative Region (HKSAR) Government
- Works Bureau Technical Circular (Works) No. 4/98: “Use of Public Fill in Reclamation and Earth Filling Projects”, Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Works Bureau Technical Circular (Works) No. 21/2002: “Trip-ticket System for Disposal of Construction and Demolition Material”, Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Works Bureau Technical Circular (Works) No. 12/2000: “Fill Management”, Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Works Bureau Technical Circular (Works) No. 15/2003: “Waste Management on Construction Sites”, Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Environment, Transport and Works Bureau Technical Circular (Works) No. 33/2002 “Management of Construction & Demolition Materials including Rock”, Environment, Transport and Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Works Bureau Technical Circular (Works) No. 12/2002: “Specifications Facilitating the Use of Recycled Aggregates”, Works Bureau, Hong Kong Special Administrative Region (HKSAR) Government
- Waste Reduction Framework Plan, 1998 to 2007, Planning, Environmental and Land Bureau
- Work Branch Technical Circular No. 2/93 Public Dumps
- Code Of Practice on the Handling, Transport and Disposal of Asbestos Wastes, EPD

4.0 PROJECT TEAM STRUCTURE

4.1 The Project Team organisation with responsibility for waste management is outlined in this section, with the organisation chart shown in Figure 4.1.



4.2 Individual Responsibilities

4.2.1 *The Client*

4.2.1.1 The Client (Project Proponent) of this road improvement works is Highways Department of the HKSAR Government. The Client shall be responsible for providing support on the implementation of the approved WMP.

4.2.2 *Engineer's Representative*

4.2.2.1 The Engineer is Mott Connell Limited. The Engineer's Representative (ER) shall be responsible for:

- Ensuring that the WMP is fully implemented throughout the construction period.
- Reviewing the monthly summary Waste Flow Table (WFT) and yearly summary WFT.
- Reviewing the Environmental Monitoring and Audit (EM&A) Report submitted by the Environmental Team (ET).
- Following up and ensuring the closing out of corrective actions
- Investigating and auditing the equipment and work methodologies with respect to waste management.

4.2.3 *Contractor Representative*

4.2.3.1 The Contractor is China Civil Engineering Construction Corporation and China Railway Wuju Joint Venture (CCECC and CRWJ JV). The Contractor Representative (CR) is responsible to the Director of overall planning, site operations, appointment of committee members for waste management, staff supervision control co-ordination and external liaison. The environmental responsibilities of the CR include:

- Overseeing the waste management within the Project via implementation of this WMP.
- Ensuring that relevant staff will attend environmental training with regard to waste management.
- Ensuring all relevant legislation and the Contractor's duty of care is complied with throughout the duration of the Project.
- Initiating waste reduction and recycle scheme on site.
- Implementing environmental controls and mitigation as set out in this WMP as well as any additional measures necessary for compliance with environmental control measures.
- Providing leadership in the efficient management of the Project and in meeting Project's waste management objectives.
- Ensuring that recommendations and instruction from the ER, IEC and/or ET are implemented to improve the waste management practice and carry out immediate action to rectify the non-compliance waste management requirements.
- Forecasting waste generation impacts that may require mitigation prior to emergence of problems.
- Liaising with ER, ET and/or IEC in waste management issues.
- Arranging routine joint site environmental audit and reviewing environmental report submitted by ET
- Updating the WMP and WFT.

4.2.4 *Independent Environmental Checker*

4.2.4.1 Appointed by the Project Proponent, the Independent Environmental Checker (IEC) shall be responsible for the following duties in relation to the implementation of WMP.

- Conducting routine waste management audit to ensure the WMP is in place and recommending any changes as appropriate.
- Reviewing and auditing all waste management aspects.
- Assisting the ER on complaint investigation and recommending and / or instructing mitigation measures as appropriate.
- Liaising with the ER on the CR's performance of waste management.

4.2.5 *Environmental Team*

4.2.5.1 Cinotech Consultants Ltd. has been appointed by CCECC & CRWJ JV to take up the role of Environmental Team (ET). The overall responsibilities of ET Leader and the team are shown below:

- Conducting routine waste management site inspection.
- Auditing the compliance with waste management requirements and regulations.
- Monitoring the implementation of waste management mitigation measures.
- Monitoring the compliance with the waste management clauses/ specifications in the Contract.
- Reviewing construction programme and methodology and comment as necessary.
- Conducting complaint investigation, evaluation and identification of corrective measures.
- Auditing of the WMP and recommending and implementing any changes as appropriate.
- Liaising with the **Sub agent** on all waste management related matters.
- Advising to the Contractor on waste management issues.
- Submitting the designated EM&A reports timely to the ER, the IEC and EPD as appropriate.

4.2.6 *Project Quantity Surveyor*

4.2.6.1 The Project Quantity Surveyor (PQS) shall have the following duties in relation to waste management:

- Assisting CR in quantitative estimation of the production schedule of excavated material.
- Promote precise forecast of construction material quantity.
- Report quantity of excess construction material, if any.
- Monitor waste quantities against waste management targets, and alert CR on potential off-target trends.

4.2.7 *Sub Agents*

4.2.7.1 The Sub Agents shall have the following duties in relation to waste management:

- Assisting the CR in the implementation of WMP.
- Ensuring follow-up actions are properly undertaken in the event of non-compliance, compliant on waste management or exceedance when notified by ET, ER and/or IEC.
- Ensuring appropriate waste management mitigation measures are properly implemented.
- Ensuring that all the Contractor's employees and nominated subcontractors'

- employees are aware of their responsibilities regarding the contents of the WMP.
- Ensuring all containers and storage areas are properly labeled.
- Obtaining a list of potential buyers or collectors of materials to be re-used or recycled and forward to the WM.
- Keeping observation on the statutory requirements about waste management.
- Supervising and arranging the maintenance of waste management facilities.

4.2.8 *Site Engineers*

4.2.8.1 The Site Engineers shall have the following duties in relation to waste management:

- Assisting the Sub Agents in the implementation of WMP.
- Monitoring and controlling works including those of subcontractors to ensure compliance of WMP.
- Reporting to the Sub Agents regarding non-compliance of waste management issues.
- Ensuring remedial actions or mitigation measures are carried out as planned.
- Ensuring the re-use or recycling of material already on site before it is carted away or new materials are imported, whenever possible.
- Investigation potential re-use and recycling opportunities and report to the Sub Agent.
- Provide training on waste management aspects for site staffs.
- Monitoring records of all trained personnel in the site offices.
- Monitoring the following documents:
 - (a) any statutory required waste management permits / licences including construction dumping permits, chemical waste producer, admission ticket etc.;
 - (b) C&D material, general refuse and chemical waste disposal record;
 - (c) Waste reuse, recycle and disposal summary.

4.2.9 *Foremen*

4.2.9.1 Foremen shall be responsible for the following duties in relation to waste management issues:

- Assisting the Site Engineers in the implementation of WMP.
- Controlling works including those of subcontractors to fulfill the requirement of waste management issues.
- Reporting to the Site Engineer any non-compliance of waste management issues.
- Maintaining the on-site waste management facilities including sorting areas, temporary storage areas, general refuse bins and recycling bins, etc.
- Carrying out remedial actions or mitigation measures to rectify non-compliance.
- Carrying out routine maintenance of waste management facilities and keeping proper maintenance records shall be kept in site office.

5.0 **WASTE FLOW TABLE**

5.1 A yearly summary Waste Flow Table (WFT) shall be prepared to list out the estimates of all C&D materials (include the materials that are reused / recycled and disposed of) to be generally annual and updated on a half yearly basis and submitted to the Engineer's Representative by not later than 1st of June and December of each year. A monthly summary WFT shall be prepared to record the actual quantities of C&D materials generated each month by the Project and submitted to Engineer's Representative no later than 15th day of the subsequent month following the quarter ending February, May, August and November. The yearly and monthly WFT for various types of waste is shown in Appendix B respectively. The Appendix B also includes the estimate of volume of wastes. Individual measures for these wastes are described in the following sections.

6.0 TYPE AND SOURCE OF WASTES

- 6.1 Construction activities result in the generating various wastes, which can be divided into distinct categories based on their composition, Construction and Demolition (C&D) Material, Chemical Waste, General Refuse and materials from vegetation clearance. The chemical waste storage areas are shown in Appendix C.

Excavated Materials

- 6.2 Excavated material is defined as inert virgin or reclamation fill material removed from the ground and sub-surface. Such material will mainly be generated from site clearance and construction works.

Construction and Demolition (C&D) Materials

- 6.3 C&D materials include the non-inert portion (C&D waste) and inert portion (public fill), which comprise unwanted materials generated during road improvement works, including rejected materials, materials which have been over ordered or are surplus to requirements, and materials used and discarded. The C&D materials will arise from a number of activities during improvement works and typically may include:
- Site clearance;
 - Scrap metals from off-cuts, reinforced steel bar, steel pipes and packaging;
 - Plastic and paper from pre-formed products and packaging; and
 - Unusable/surplus concrete/grout.

Chemical Waste

- 6.4 The chemical wastes generated from the roadwork will primarily arise from the maintenance of plant and equipment. Common chemical wastes to be found on site include spent lubricant oil, surplus paint, spent diesel and spent batteries.
- 6.5 For chemical waste produced from a process, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, registration shall be made with EPD as a Chemical Waste Producer. The CCJV was registered as a chemical waste producer on 24 Sept 2004.

General Refuse

- 6.6 General refuse will be generated largely from office work and improvement works area. General refuse may include packaging material and waste paper, etc.
- 6.7 General refuse generated on work areas may include food wastes, such as lunch boxes and domestic wastes. These wastes are stored in enclosed bins or compaction units separated from other C&D wastes and chemical waste.

Materials from Vegetation Clearance

- 6.8 Fell trees, shrubs and glasses will be generated from the site clearance activity.

Asbestos Waste

- 6.9 The road work in the South Lantau Road included removal of a water pipeline section which was confirmed to be asbestos material. The pipeline was 250mm in diameter and 80m of length to be removed. The CCJV employed Cinotech Consultant Ltd as specialist consultant to undertake the investigation, reporting and supervision on the removal of the A/C pipe. Asbestos Investigation Report (AIR) and Asbestos Abatement Plan (AAP) were prepared and submitted to the ER and the EPD. The removal work was undertaken by another licenced subcontractor, Sublett and Associates (HK) Ltd, who would be responsible for the disposal.
- 6.10 After formally notifying the Labour Department and the EPD, the licenced subcontractor commenced the removal and disposal work in early October 2007 and completed within 2 weeks. The work was undertaken strictly in accordance with the COP on the Handling, Transport and Disposal of Asbestos Wastes issued by the EPD.

7.0 CONTROL MEASURES

Excavated Materials

- 7.1 All excavated materials should be sorted properly to recover the inert portions for reuse on site or disposal to designated outlets. The excavated materials from the construction works of the Project are mainly sand/soil with a certain amount of rock. The estimated volumes of these excavated materials are given in Appendix B. In accordance with condition 3.18 of EP-170/2003/C, no waste, spoil, excavated materials or materials alike arising from the Project shall be dumped in the country park.
- 7.2 Sorting of inert and non-inert portions of excavated materials should be carried out at the source site to avoid double handling and loss of materials due to transportation. In case the site condition is inapplicable for sorting, it shall be carried out at the designated storage area. Reusable / recycling materials of both the inert and non-inert portion will be further recovered for on-site reuse or collection by the recycling contractors.
- 7.3 Excavated materials shall be segregated from other wastes to avoid contamination thereby ensuring acceptability at public filling areas and avoiding the need for disposal at landfill. The priority for off-site re-use of surplus excavated material shall be as follows:
- Transport to other construction sites for reuse (all alternative disposal scheme shall be approved by ER, ET and IEC. Sufficient information demonstrating the environmental acceptability of this arrangement should be submitted to EPD for approval).
 - Transport to designated public filling areas (Table 7.1) or dispose of at other public filling areas (disposal scheme at alternative landfill/ public fill shall be approved by ER, ET and IEC. Sufficient information demonstrating the environmental acceptability of this arrangement should be submitted to EPD for approval).
- 7.4 For each and every vehicular trip transporting surplus excavated material off-site, a Construction and Demolition Material Disposal Delivery Form shall be produced and completed in quadruplicate. Details are addressed in the Section of Trip Ticket System for C&D Materials in the latter context.
- 7.6 No waste, spoil, excavated materials or materials alike arising from the Project shall be dumped in the country park area.

Construction and Demolition (C&D) Materials

- 7.7 Careful design, planning and good site management shall be maintained to minimise over-ordering and waste materials such as ready mixed concrete, mortars and cement grouts. In accordance with condition 3.18 of EP-170/2003/C, no C&D material from the Project shall be dumped in the country park.
- 7.8 The formwork will be designed to maximize the use of standard wooden panels so that high reuse levels can be achieved. More durable alternatives such as steel formwork or plastic facing shall be considered for repetitive areas to increase the potential for reuse.
- 7.9 Sorting of inert and non-inert portions of C&D materials should be carried out at the source site to avoid double handling and loss of materials due to transportation. In case the site condition is inapplicable for sorting, it shall be carried out at designated storage area assigned by the PM. Reusable / recycling materials of both the inert and non-inert portion will be further recovered for on-site reuse or collection by the recycling contractors. Suitable top soil will be directly transferred to future landscaping area as far as practicable, or stockpile onsite for future use. No soil will be stockpiled within the country park.
- 7.10 All C&D materials arising from or in connection with the road improvement works shall be sorted on-site and be separated into different categories for disposal at landfills, public filling areas, or reused and recycling as appropriate.
- 7.11 Useful materials such as timber, rubble and steel/metal shall be segregated for reuse. For example, formwork and timber shall be cleaned for reused, off-cuts of reinforcement shall be sorted into usable lengths and short off cuts stacked for scrap metal. Where it is no longer reusable, steel and metal items will be sent as scrap for recycling.
- 7.12 Segregated materials shall be temporarily stored at designated areas for reuse on site. Steel will be stored at the reinforcement yards, timber at the formwork yard and rubble in a stockpile (either covered or sprayed for dust emission control).
- 7.13 The remaining non-reusable C&D materials shall be sorted on-site into inert portion (e.g. rock, brick, bituminous material, concrete and soil, etc.) as “public fill” and non-inert portion (e.g. timber, vegetation and paper, etc.) as “C&D waste”. The “public fill” shall be dumped into locations and timing as shown in Table 7.1. This table shall be updated progressively to indicate currently available public fill sites.

Table 7.1 Public Fill Operation Schedule

Location	Operation Schedule
Mui Wo Temporary Public Fill Reception Facility	Mondays to Saturdays (excluding General Holidays) 8:30 a.m. to 12:00 noon; and 1:00 p.m. to 6:00 p.m. (Closed on General Holidays, Chinese New Year Eve and Chinese New Year Holidays)
Outlying Islands Transfer Facilities at Mui Wo	7:30am to 6:30pm
Tuen Mun Area 38 Fill Bank	Mondays to Saturdays: 8:30 a.m. to 12:00 noon; and 1:00 p.m. to 7:00 p.m. General Holidays: 10:00 a.m. to 12:00 noon; and 1:00 p.m. to 7:00 p.m. (Closed on Chinese New Year Eve and Chinese New Year Holidays)

- 7.14 Whilst the C&D waste containing no more than 30% by volume of inert content shall be disposed of at the WENT landfill by licensed waste collectors.
- 7.15 Contractor is also required to arrange for an off-site reuse or disposal of public fill with a minimum of 30% of total surplus public fill arising from operations. Contractor is encouraged to make arrangements to minimise the quantities of public fill sent to public filling facilities before delivery. They should also propose arrangements for off-site reuse or disposal of public fill and shall identify the likely locations and capacities of projects or facilities, which could accommodate the proposed quantity of public fill in accordance with the Works programme.

Trip Ticket System for Disposal of C&D Materials

- 7.16 Trip Ticket System is established in accordance with Works Bureau Technical Circular No. 21/2002 Trip-ticket System for Disposal of Construction and Demolition Material. For each and every vehicular trip transporting public fill and C&D waste off site, a Construction and Demolition Material Disposal Delivery Form (DDF), as shown in Appendix D, shall be produced and completed in quadruplicate.
- 7.17 When completing disposal in public fill reception areas or landfills, the dump truck drivers shall retain counterfoils of the DDF and Transaction Records issued from the disposal site. The CCJV will collect them to submit to the ER.
- 7.18 Contractor of this Project has opened a billing exception account with the Environmental Protection Department for the Construction Waste Disposal Charging Scheme. Similar to the trip ticket system, a record form namely 'CHIT' shall be completed and retained by both the account-holder and the waste hauler. A copy of CHIT is included in Appendix D.
- 7.19 An arrangement of distribution of CHITS and DDF was established among the RSS and the CCJV staffs. The salient points were recorded in a memo shown also in Appendix D.
- 7.20 In order to avoid overloading of dump trucks, both the dump truck drivers and the Contractor's plant operators are required to take the responsibility for ensuring the total weight of the dump trucks have not exceeded the specified permitted Gross Vehicle Weight (GVW) prior to leave from Site.

Chemical Waste

- 7.21 Preventive measures shall be implemented for leakage and spillage of fuel and lubricating oil to avoid contamination of the construction site. All workshops shall be located on impermeable areas with provision of drainage channels and interceptors to allow separation of oils from water and release of treated water. Oils accumulated in interceptors shall be removed every 6 months to prevent oils and grease from overflowing into the surface water drainage system and drainage system and ground water tables. The interceptors shall also have a bypass to drain during heavy rains.
- 7.22 All plant and equipment shall require regular maintenance. Their maintenance records shall be kept in site office for future reference.
- 7.23 No oil, fuel or chemical waste shall be stored within country park and no workshop shall be erected within country park. Good housekeeping practices should be adopted to deal with chemical waste include:

- (i) Generating less chemical waste through:
 - Delivering appropriate quantity of chemicals to the construction site.
 - Avoiding unnecessary wastage of chemicals by using the chemicals more sensible and in accordance with the manufacturer's instructions.
 - Finishing one bottle/container of chemicals before opening the next one for use.
 - Collecting the remaining chemicals in suitable containers.
 - Removing the unused chemicals out of the construction site after completion of the project.
 - (ii) Preventing illegal discharge of chemicals or chemical wastes through staff of the project.
 - (iii) Minimising the volume of unused chemicals to be disposed of through:
 - Using the chemicals before the expiry date.
 - Ordering appropriate quantity of chemicals and avoiding unnecessary storage of excess chemicals.
- 7.24 Chemical waste shall be handled in accordance with the *Code of Practice on the Packaging, Handling and Storage of Chemical Waste*. The details are described as follows:
- (i) Containers used for the storage of chemical waste shall:
 - 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 specification have been approved by EPD; and
 - display a label in English and Chinese in accordance with instruction prescribed in Schedule 2 of the Regulations.
 - (ii) The storage area for chemical waste shall:
 - be clearly labelled and used solely for the storage of chemical waste;
 - be enclosed on at least three sides;
 - have an impermeable floor and bund, 110% capacity of the largest container or 20% of the storage capacity, whichever is the greatest;
 - have adequate ventilation;
 - be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and
 - be arranged so that incompatible materials are adequately separated.
 - (iii) Chemical waste shall be disposed of:
 - via licensed waste collectors; or
 - to a facility licensed to receive chemical waste, i.e. Chemical Waste Treatment Facility in Tsing Yi.
- 7.25 Site personnel (e.g. maintenance worker and machine operators) involved in chemical waste handling shall be instructed and familiar with the waste handling procedures and guidelines as stipulated in EPD's *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.
- 7.27 Records of maintenance, such as cleaning and repairing of chemical storage area, shall be completed for each designated area and kept in site office for future reference.
- 7.28 Chemical waste may be disposed of at landfill site. However, the WM shall inform EPD on the final disposal location of the chemical waste.

- 7.29 A Emergency Plan for Accidental Chemical Leakage and Spillage has been generated and incorporated in the Project Safety Plan for handling any accidental spillage of chemicals on site. The spill response plan should contain procedures for:
- Spill prevention and precaution
 - Response actions
 - Spill clean up and disposal

General Refuse

- 7.30 Office waste will be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme must be considered. In accordance with condition 3.15 of EP-170/2003/C, no canteen shall be erected within country park.
- 7.31 To encourage environmental awareness and try to reduce waste by reducing the number of photocopies to a minimum and by copying on both sides of paper for internal documents and external documents where appropriate.
- 7.32 Contractor removes general refuse from the site, separately from construction and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. No burning of refuse on site will be permitted. Records of disposal of general refuse shall be maintained by the **Sub agent** and kept on site for future reference. The general refuse (include non-inert C&D waste) from Northern Section and Southern Section shall be disposed of at WENT Landfill and Outlying Islands Transfer Facilities (OTIF) at Mui Wo respectively. The operation schedule of general refuse disposal locations is shown in Table 7.2 below.

Table 7.2 Operation Schedule of General Refuse Disposal Locations

Location	Operation Schedule
Outlying Islands Transfer Facilities (OTIF) at Mui Wo	7:30am to 6:30pm
West New Territories Landfill (WENT)	8:00am to 8:00pm

- 7.33 Foremen shall inspect and manage the site condition with respect to the general refuse on-site during the daily site walk.
- 7.34 No waste, spoil, excavated materials or materials alike arising from the Project shall be dumped in the country park area.

Materials from Vegetation Clearance

- 7.35 As stipulated in the Condition 3.20 of EP-170/2003/C, reuse of materials resulting from vegetation clearance in the Project shall be investigated in order to avoid or minimize the disposal. In refer to the Tree Survey Report for this Project, site investigation for reuse of vegetation clearance has been conducted by the Environmental Officer of CCJV and the Landscaping Architect of the Engineer's Representative on 13th December 2004. Further to information for species with reuse interest provided by AFCD Tai Tong Management Centre, 9 nos. of *Lopostemon confertus* were identified with reuse potential. For further evaluation, joint visit between AFCD, CCJV and MCL was conducted on 28th December 2004. Finally, 3 out of 9 were selected and had been transported to the AFCD Tai Tong Management Centre on 17th March 2005.

7.36 For non-reusable materials, it will be handled as general refuse and disposed of in accordance with s7.32.

7.37 No waste, spoil, excavated materials or materials alike arising from the Project shall be dumped in the country park area.

8.0 WASTE MONITORING AND AUDITING

8.1 The Contractor shall keep adequate and proper records such as dumping records and measurement records relating to the implementation of the WMP to generate WFTs. The overall performance of the implementation of the WMP shall also be inspected by the ET during the weekly environmental audit and reported in the monthly EM&A Report.

8.2 The IEC shall be responsible for the auditing of the waste management practice during the site environmental audit in order to evaluate the overall performance of the implementation of WMP and ensure that appropriate control measures are properly implemented. A sample of the Site Environmental Checklist is enclosed in Appendix E. The result of the waste management audit shall be reported in the monthly EM&A Report.

8.3 Should deficiency of the waste control measures be identified during the site inspection, the ET shall discuss with the Contractor for formulation of remedial measures and the Contractor shall implement the remedial measures promptly to rectify the situation. If deficiency persists, alternative and/or additional control measures shall be proposed. An Event Action Plan is contained in Table 8.1. Sample of Non-Compliance Proforma are enclosed in Appendix F.

8.4 As the site is oriented within publicly accessible areas, cleanliness and tidiness should be well assured and monitored. A method statement of maintaining proper housekeeping is enclosed in Appendix G.

9.0 TRAINING

9.1 Training regarding waste management conducted by Contractor's Representative shall be held on site monthly review relevant statutory regulations and waste management practice to all levels of staff as well as subcontractors except workers. Relevant contract requirements shall also be discussed in the training.

9.2 Toolbox talks shall be given to all workers by Foremen and subcontractor's representatives at regular intervals as a means to promote environmental awareness and provide updated issues regarding waste management practices. All Foremen and subcontractor's representatives shall be trained for conducting the presentation of the toolbox talks by the Contractor's Representative. The guidelines of waste management as training material was attached in Appendix H.

Table 8.1 Event Action Plan for Waste Management

EVENT	ACTIONS OF VARIOUS PARTIES				
	ET	Project Manager	Engineer / Foreman	Engineer's Representative	IEC
Non-compliance	<ol style="list-style-type: none"> 1. Log Non-compliance into NC Proforma. 2. Discuss with Project Manager and formulate mitigation measures. 3. Conduct follow-up inspection 3. Propose further mitigation measures if necessary. 4. Report the status of action taken to the ER and IEC within one week. 5. Close out NC and report to Project Manager. 6. Keep record of NC Proforma. 7. Report NC in monthly EM&A Report. 	<ol style="list-style-type: none"> 1. Discuss with Sub Agent / ET and formulate mitigation measures. 2. Delegate Foreman to undertake mitigation measures. 3. Propose further mitigation measures if necessary. 	<ol style="list-style-type: none"> 1. Undertake mitigation measures. 2. Report to Sub Agent ET on completion of mitigation measures. 3. Undertake further mitigation measures if necessary. 	<ol style="list-style-type: none"> 1. Being informed about the non-compliance 2. Comment on NC Proforma 3. Review and agree with proposed corrective actions 4. Comment on proposed preventive measures 	<ol style="list-style-type: none"> 1. Discuss with Project Manager/ER/ET on mitigation measures. 2. Recommend and verify mitigation measures proposed by CR.
Complaint	<ol style="list-style-type: none"> 1. Inform Project Manager upon receipt of complaint. 2. Investigate validity of complaint and to assess whether the source of problem is due to site activity. 3. If complaint is valid and due to site activity, the ET logs the complaint. 4. Discuss with Project Manager and formulate mitigation measures. 5. Conduct follow-up inspection. 6. Propose further mitigation measures if necessary. 7. Close our complaint and report to Project Manager. 8. Keep record of complaints. 9. Report complaint in monthly EM&A Report. 	<ol style="list-style-type: none"> 1. Discuss with Sub-Agent / ET and formulate mitigation measures. 2. Delegate Foreman to undertake mitigation measures. 3. Propose further mitigation measures if necessary. 	<ol style="list-style-type: none"> 1. Undertake mitigation measures. 2. Report to Sub Agent /ET on completion of mitigation measures. 3. Undertake further mitigation measures if necessary. 	<ol style="list-style-type: none"> 1. Being informed about the complaint 2. Comment on complaint log 3. Review and agree with proposed corrective actions 4. Comment on proposed preventive measures 5. Communicate with complainant if necessary. 	<ol style="list-style-type: none"> 1. Assist ER on complaint investigation. 2. Carry out addition site audit, if necessary. 3. Recommend and verify mitigation measures proposed by CR.

APPENDIX A

Site Location Plan

APPENDIX B

**Yearly / Monthly Waste Flow Tables,
Estimate of Waste Volumes**

APPENDIX C

Chemical Waste Storage Area

APPENDIX D

**Arrangement for Trip Ticket System Implementation, CHITS,
Construction and Demolition Material Disposal Delivery Form**

APPENDIX E

Site Environmental Checklist

APPENDIX F

Non-compliance Proforma

NON-COMPLIANCE PROFORMA

Division / Department:		Date:	Ref:
Project:		Job No.:	
RECEIVER			
Name:		Contact:	
Post:			
Company:			
NON-COMPLIANCE CASE INVESTIGATION			
Item	Description (cause of event, type of impact and location, etc.)		
CORRECTIVE & PREVENTIVE ACTION(S)			
Action No.	Proposed Action to be Taken	To be completed by/on	
Prepared by:			
Name:		Signature:	Date:
Post:			
FOLLOW UP ACTIONS(S)			
Confirmed by (Sub Agent):			
Name:		Signature:	Date:
ATTACHMENTS:			

APPENDIX G

Method Statement for Maintaining Proper Housekeeping

Method Statement for Maintaining Proper Housekeeping

Good housekeeping means maintaining a good standard of domestic cleanliness and tidiness to make sites green and healthy places. Poor housekeeping is the major obstruction of waste management.

- A. All materials shall be properly labelled and with clear access.
- B. All timber shall be detailed as soon as possible.
- C. Scrap, rubbish and debris shall be frequently and regularly removed from the site. Adequate bins / skips shall be provided for disposal of waste from day to day.
- D. All work areas shall be kept tidy and free from litter. Any perishable waste must be removed regularly from the areas to prevent sanitary problems.
- E. Welding plants, compressors, generators or similar plant shall as far as possible be parked so as not to cause obstructions of access roads.
- F. All places of work, passageways and stairways shall be adequately and kept clear at all times.
- G. Spillage of oil and other substances, which would cause a hazard, shall be cleaned up and made safe.
- H. Accumulation of water should be avoided to prevent incubation of mosquitoes and other disease carrying media.
- I. Access to all waste sorting and storage areas must be kept clear at all times.
- J. All waste timber, packing cases, etc. will be kept stored in designated waste storage areas.
- K. Pipes or cylindrical shape items shall be properly stacked and be checked to ensure proper labelling.
- L. Regular workplace inspection for housekeeping is conducted by the Environmental Team weekly.

APPENDIX H

Training Material – Guidelines for Waste Management

Waste Management – Employee’s Guideline (廢物管理 - 員工須知)

1. All staffs shall fully understand the Waste Management Policy (see attachment).
所有員工必須完全清楚廢物管理政策。
2. Careful design and good site management shall be maintained to minimise over-ordering and waste materials.
透過小心的設計及完善的工地管理以減低物料過剩及工地廢物的問題。
3. All C&D materials shall be sorted on-site and be separated into different categories.
所有建築/拆卸物料應在工地進行分類。
4. C&D materials should be reuse as far as practicable.
建築/拆卸物料應盡可能回收再用。
5. C&D waste containing no more than 30% by volume of inert content shall be disposed of at the designated landfill by licensed waste collectors.
含少於百份之三十(體積)惰性成份的建築/拆卸物料，須由持牌廢物收集商運往指定的堆填區棄置。
6. For each and every vehicular trip transporting public fill and C&D waste off site, a Construction and Demolition Material Disposal Delivery Form shall be produced and completed in quadruplicate.
所有及每次由地盤運走公眾傾倒物料及建築/拆卸廢物，須填寫建築/拆卸物料棄置運送表格(一式四份)。
7. The original of the Construction and Demolition Material Delivery Form and the trip ticket from the disposal site shall be submitted to the ER. A copy of the Form and trip ticket shall be maintained by the Environmental Officer for future references.
建築/拆卸物料棄置運送表格及由棄置場地所發出的運載紀錄的正本，須提交駐地盤工程司代表。而承建商的環保主任亦須保留一份副本供日後查閱。
8. Both the dump truck drivers and the contractor’s staffs are required to take the responsibility for ensuring the total weight of the dump trucks have not exceeded the specified permitted Gross Vehicle Weight (GVW) prior to leave from Site.
在負載斗車離開地盤前，泥頭車司機及承建商人員有責任確保泥頭車沒超過其認可車輛總重。
9. Chemical wastes shall be handled, stored, labeled, packaged and disposed of properly.
化學廢物須妥善處理、儲存、標識、包裝及棄置。
10. General refuse including food wastes shall be stored in enclosed bins separated from construction and chemical wastes.
一般垃圾包括食物殘渣應棄置在有蓋的垃圾筒，並與建築廢物及化學廢物分開。

Printed Name:

姓名: _____

Company Name:

公司名稱:_____

Employee’s signature:

工人簽名 :_____

Date:

日期 :_____