



U-TECH ENGINEERING COMPANY LIMITED

Member of the Hong Kong and China Gas Group

Waste Management Plan for

Route 9 - Reprovisioning of Waterworks

Highways Department Contract No. HY/2002/06

Version No. 02

Date : 30 November, 2002.

Content

1	<i>Introduction</i>	<i>P.3</i>
1.1	<i>Waste management plan</i>	<i>P.3</i>
1.2	<i>Aims & objective</i>	<i>P.3</i>
1.3	<i>General</i>	<i>P.3</i>
1.4	<i>Implementing the Waste Management Plan</i>	<i>P.4</i>
1.5	<i>Control</i>	<i>P.4</i>
1.6	<i>Statutory Requirement</i>	<i>P.5</i>
1.7	<i>Contractual Obligation</i>	<i>P.5</i>
1.8	<i>Other Documents & Guidelines</i>	<i>P.5</i>
2	<i>Organizational Structure and Responsibilities</i>	<i>P.6</i>
2.1	<i>Organization Structures</i>	<i>P.6</i>
2.2	<i>Responsibilities</i>	<i>P.7</i>
3	<i>Waste Management Meeting</i>	<i>P.7</i>
4	<i>Analysis & classification of Construction material</i>	<i>P.8</i>
5	<i>Sorting Facilities</i>	<i>P.8</i>
6	<i>Recycling, Re-use and Return of C & D Material</i>	<i>P.8</i>
7	<i>Hazardous Waste</i>	<i>P.9</i>
8	<i>Reduction of Waste</i>	<i>P.10</i>
9	<i>Transportation</i>	<i>P.10</i>
10	<i>Monitoring Proposals</i>	<i>P.11</i>
11	<i>Measures on Prevention of Mosquitoes</i>	<i>P.13</i>
12	<i>Complaint Handling Procedures</i>	<i>P.13</i>
	<i>Annex A</i>	
	<i>Annex B</i>	

1. Introduction

1.1 Waste Management Plan

In this Waste Management Plan, the following area regarding the waste management will be covered.

- (a) Setting aims, objectives and measurable targets.*
- (b) Listing out all related statutory and non-statutory requirements.*
- (c) Establishing communication line (organization structure) and identification of responsibilities.*
- (d) Provision of training to staff and other parties involved.*
- (e) Assessment (type, amount, rate, time & impact etc.) of the construction waste produced in the project.*
- (f) Mitigation methods.*
- (g) Setting up a monitoring and auditing system / programmed.*

1.2 Aims & Objective

Aims: This Waste Management Plan aims at minimizing the environment impact caused by the waste arisen in the project and the objectives of the plan are:

- a. Waste reduction*
- b. Reuse & recycling*
- c. Proper storage, handling, treatment & disposal of waste.*

The priorities of the above three objectives in descending order are items a, b and c. In each stage of this contract, we shall take into account of whether waste reduction is possible, feasible and practicable. If waste reduction is not feasible, we shall try to reuse and recycle the waste if it is feasible and practicable. Finally, if both waste reduction and reuse are not feasible, the waste will be properly stored, handled and disposed of.

1.3 General

This Waste Management Plan is prepared to describe how to manage, control and co-ordinate the works in order to achieve the aims and objectives mentioned at Item 1.2.

It is to be understood that to implement the WMP effectively is to raise awareness of employees. Therefore, we have several procedures/measures to aim directly at raising awareness of all site staff.

First, control copies are provided to our staff including our Project Manager, Contracts Manager, Site Agent, Sub-Agent, Site Engineers, Foreman, Sub-contractor representatives, suppliers and waste collectors.

Second, penalties will be imposed to the Sub-contractor(s) if the Sub-contractor(s) has failed to comply with his obligation and duties under the WMP.

Third, the content of the WMP will be introduced to the workers in the induction training session in order to promote the sense of waste management.

Fourth, Tool Box Talk about WMP will be arranged periodically by our safety officer in order to remind workers about their responsibilities on implementation of WMP. Our supervisory level staff is encouraged and shall be arranged to attend the relevant training organized by relevant authorities and organization.

1.4 Implementing the Waste Management Plan

In order to minimize the environmental impact by waste, Site Agent of this project is assigned by the General Manager of the Company to implement this Waste Management Plan to satisfy both statutory requirements and non- statutory obligations. He is required to promote acceptable standards to waste control throughout the project.

The Site Agent is delegated to advise and monitor the implementation of the Waste Management Plan and report to Project Manager and Contracts Manager.

1.5 Control

This Waste Management Plan is a controlled document. All registered holders of controlled copies of this Waste Management Plan will be provided with all subsequent revisions, amendments and additions. They should update their copies of the Plan according to the latest amendment.

A systematic, efficient and effective monitoring and auditing system with clear line of authority will be set up in order to assess the effectiveness of the recommended mitigation measures and identify any remedial action to be taken.

1.6 Statutory Requirement

To fulfill the relevant statutory requirements regarding the waste management, a Site Waste Management Committee is established to manage and monitoring the waste management system which includes the implementation of this plan, waste assessment reports, regular & ad-hoc inspections, regular meetings, written handling & disposal procedures and communication systems.

The following legislation relates to the handling, treatment and disposal of waste in Hong Kong, and will be considered in assessing potential impacts and their avoidance or mitigation:

- a. The Waste Disposal Ordinance*
- b. The Waste Disposal (chemical waste)(general) Regulation*
- c. The Land (Miscellaneous Provisions) Ordinance*
- d. The Public Health and Municipal Service Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances (Urban Council and regional Council) By-laws; and*
- e. Dumping At Sea Ordinance*

1.7 Contractual Obligation

The Waste Management Plan is designed to describe how we can satisfy the contractual obligations and co-ordinate our operations with Client's representatives.

Every sub contractor is required to co-operate with the site management on all matters related to waste handling, storage and disposal in order to meet the contractual obligations.

1.8 Other Documents & Guidelines

The following documents and guidelines also relate to waste management and disposal in Hong Kong:

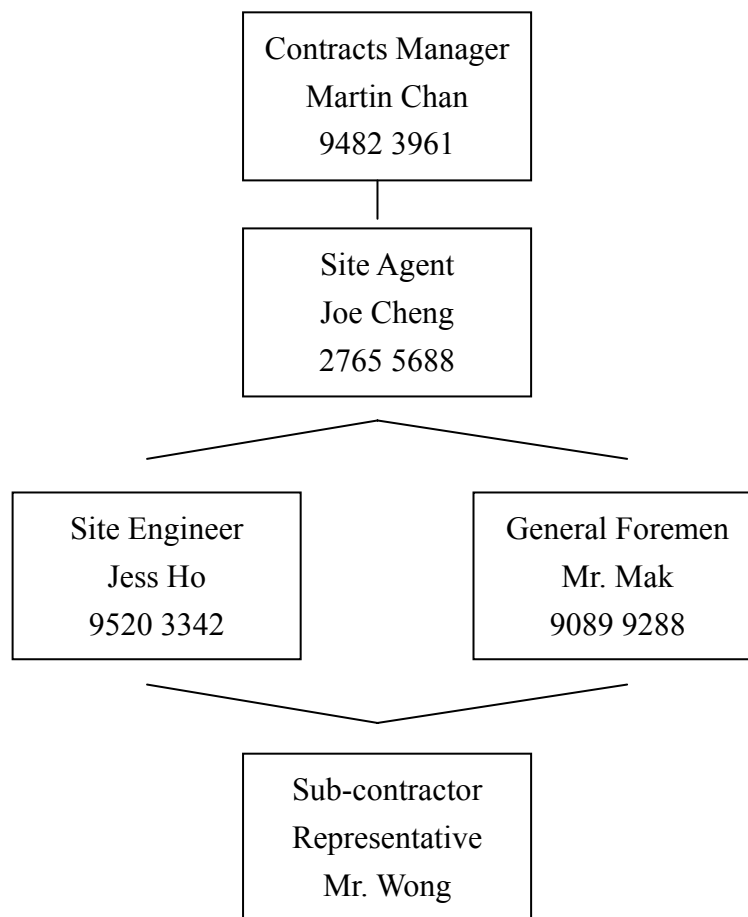
- (a) Waste Disposal Plan for Hong Kong (December 1989), Planning, Environmental and Lands Branch, Hong Kong Government Secretariat;*
- (b) Environmental Guidelines for Planning In Hong Kong (1990), Hong Kong Planning and Standards Guidelines, Hong Kong Government;*
- (c) New Disposal Arrangements for construction waste (1992), environmental protection department and civil engineering department;*

- (d) *Code of practice on the packaging, labeling and storage of chemical wastes (1992), environmental protection department;*
- (e) *Works branch technical circular No 2 / 93, Public Dumps;*
- (f) *Works branch technical No 16 / 96, wet soil in public dumps;*
- (g) *Works bureau technical circular No 5 / 98, on site sorting of construction waste on demolition sites;*
- (h) *Works bureau technical circular No 5 / 99, trip ticket system for disposal of construction and demolition material;*
- (i) *Environmental protection department technical circular No 1-1-92, classification of dredged sediments for marine disposal; and*
- (j) *Technical circular No 22 / 92, marine disposal of dredged mud, works branch.*

2 Organisation Structures and Responsibilities for Waste Management

2.1 Organization Structures

The personnel involved in waste management are as shown on the organization chart below:



2.2 Responsibilities

The Contracts Manager and the Site Agent will mainly focus on performance and implementation of the WMP and review the WMP frequently. The Site Engineer and the General Foremen will focus on the implementation of the WMP and control of the site activities including supervision of all subcontractors and workers to ensure the WMP is duly complied with.

3 Waste Management Meeting

3.1 *Waste Management Committee (WMC) shall be set up and meeting will be held at monthly interval. The Meeting shall be chaired by the Contracts Manager.*

3.2 *Member of the WMC is as follows:*

- *Project Manager*
- *Contracts Manager*
- *Site Agent*
- *Sub-Agent*
- *E&M Coordinator*
- *Site Engineer*
- *Foreman & General Foremen*
- *Safety Officer*
- *Safety Supervisor*
- *All Sub-contractor's representatives*
- *Observer – Engineer's representative*

3.3 Responsibilities

The Contracts Manager and the Site Agent will lead the meeting and solve the problems occurred on site.

The Sub-Agent, Site Engineer, General Foremen and Foremen shall report all matters occurred on site about waste management to the Waste Manager. The Safety Officer and Safety Supervisor will attend to this meeting and give advice and make arrangement on the waste management for the site staff. The Engineer's Representative is also welcome to attend the meeting.

4 **Analysis & classification of Construction material**

<i>a) Inert portion of C & D material (public fill)</i>	
<i>Categories</i>	<i>Quantities</i>
<i>Public fill that can be reused and/or recycled to enable it to be reused in the Contract</i>	<i>2915m³</i>
<i>Surplus public fill to be delivered to public filling facilities (Public Filling Barging Point at Kai Tak)</i>	<i>972m³</i>
<i>b) Non-inert portion of C & D material (C & D waste), including general refuse</i>	
<i>Categories</i>	<i>Quantities</i>
<i>Chemical waste</i>	<i>1.5 m³</i>
<i>C & D waste to be recycled</i>	<i>2 m³</i>
<i>C & D waste to be re-used</i>	<i>20 m³</i>
<i>C & D waste to be returned</i>	<i>10 m³</i>

5 **Sorting Facilities**

- *Specific area to facilities sorting of waste materials is at Annex A. This area is generally cut into five portions. Different types of the waste material will distribute to different portions for further handling. The waste materials are generally classified into five categories as described as follows:*

<i>Category</i>	<i>Example</i>
<i>Recycling</i>	<i>Paper/Cardboard/Timber</i>
<i>Re-use</i>	<i>Timber</i>
<i>Public filling barging point at Kai Tak</i>	<i>Concrete/Brick/Aggregates</i>
<i>Return</i>	<i>Metal</i>
<i>Remove</i>	<i>Diesel Oil/Lubricant Oil</i>

6 **Recycling, Re-use and Return of C & D Material**

6.1 *Waste materials on site will be divided into:*

- (a) Recycling*
- (b) Re-use*
- (c) Return*
- (d) C & D materials*

6.2 *The Site Agent shall arrange to provide different types of rubbish bin / tank for the above purposes and also clear marking will be displayed on them.*

- 6.3 *Through the site safety specific training and or toolbox talk training, the purpose will be introduced for all the staff, laborers and or the new employees.*
- 6.4 *Monitoring system such as environmental walk / checklist, waste management meeting will be conducted regularly to ensure that the environmental aspects are complied properly and / or to update this plan.*
- 6.5 *Foreseeable waste material for this project should be include the following items & the proposed methods for handling are:*

<i>Types / categories of waste material</i>	<i>Proposals for handling</i>
<i>a) Paper / Cardboard</i>	<i>Recycling</i>
<i>b) Timber</i>	<i>Re-use: recycling</i>
<i>c) Concrete / brick / aggregates</i>	<i>Public Filling Barging Point at Kai Tak</i>
<i>d) Metal</i>	<i>Return</i>
<i>e) Plastics</i>	<i>Recycling</i>

- 6.6 *All materials will be reused on site as far as possible to minimize the production of waste. Different waste materials will be temporarily stored on site at the location mentioned in Section 5. All the recyclable materials will be stored separately and to be collected by specialist collector periodically for recycling purpose. The estimated quantity of the recyclable materials is about 2m³.*

7 Hazardous Waste

- 7.1 *In general, the hazardous wastes which will be generated from the project are the following items, they will be sorted by their nature, stored properly (location shown at Annex A) and removed away from the site via EPD approved Licensed Chemical Waste Collector.*

<i>Hazardous Wastes</i>
<i>1. Empty tank from surface retarded.</i>
<i>2. Empty tank from Diesel Oil</i>
<i>3. Lubricant Oil from Plant / Machine.</i>
<i>4. Empty tank from painting works.</i>

- 7.2 *The storage of chemical substance will depend on the manufacturer's material safety data sheet (MSDS) and the requirement issued by Fire Services Department (FSD).*

- 7.3 *The EPD approved Licensed Chemical Waste Collector shall conduct disposal of hazardous waste and chemical wastes producer license shall be applied for the site.*
- 7.4 *Other chemical wastes not described above such as sewage will be collected at chemical toilets by licensed waste collector periodically. The frequency will depend on the rate of production of the wastes.*

8 Reduction of Waste

- 8.1 *To achieve waste reduction purpose, management staff agree to follow the measures as far as practicable to:*
- (a) Divert waste to other construction sites for beneficial use.*
 - (b) Use water based ingredients finishes wherever practicable.*
 - (c) Use of steel formwork instead of wood if necessary.*
 - (d) Reuse of hard standing / old bricks.*
 - (e) Reuse of wood packing in formwork.*
 - (f) Recycling of plastic scaffolding ties.*
 - (g) Use recyclable containers for fixtures & fittings etc.*

9 Transportation

- 9.1 *All the C&D wastes will be removed away from the site by trucks via appointed sub contractor.*
- 9.2 *For re-use, recycling, return waste will be collected away by specialist buyers and transported away by their trucks.*
- 9.3 *Hazardous wastes will be cleared off site by EPD approved Licensed Chemical Waste Collector and transported with their ways to design location for dumping.*
- 9.4 *The Licensed Chemical Waste Collector will be requested to submitted the information about the collecting procedures, type of plants to be used, treatment of the wastes and the dumping location if the wastes are designed to be dumped. All the information will be submitted to the Engineer for information.*

10 Monitoring Proposals

10.1 *Monitoring system will be implemented on site to ensure that the environment aspects are complied with legislation requirements and the relevant issues. In addition to update this plan.*

10.2 *The monitoring system including:*

- (a) Monthly environmental walks with comprehensive checklist.*
- (b) Conduction of waste management meeting monthly.*
- (c) Implementing of Trip – ticket system as stable as particular specification “PS Clause 6.74”.*

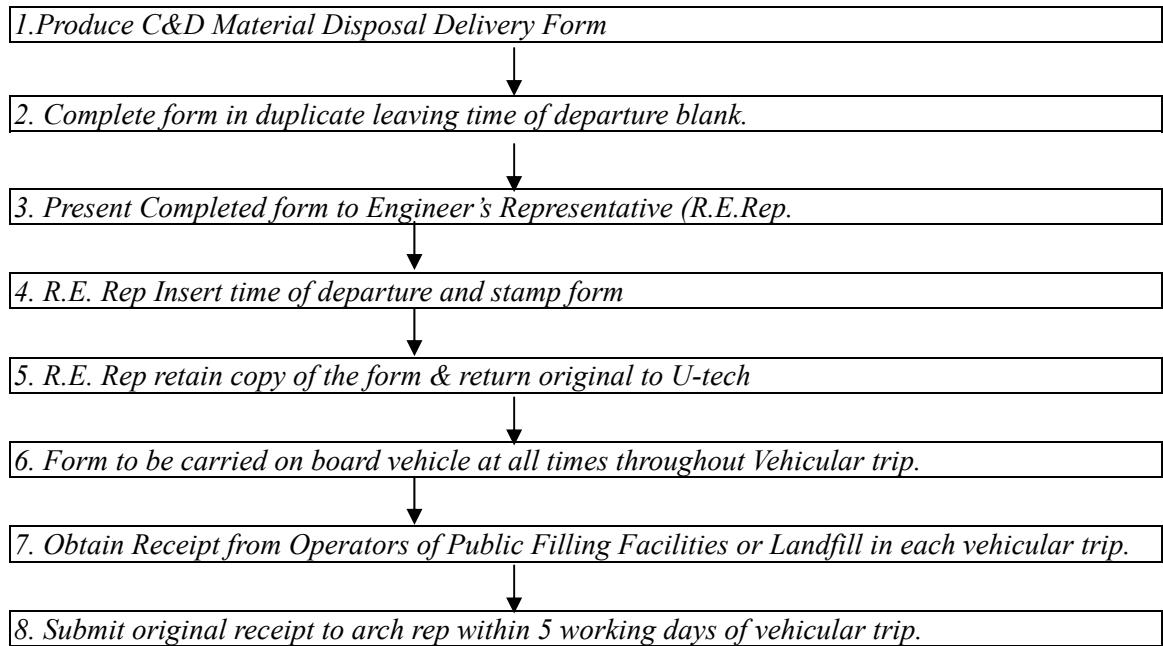
10.3 Trip Ticket System Monitoring

The waste monitoring will include trip ticket usage to ensure proper disposal and avoidance of fly tipping.

A construction & demolition material disposal delivery form (Form), will also be produced for recording each and every vehicular trip transporting C&D material off site, i.e. Public Fill or C&D waste. The form will be completed in duplicate leaving the time of departure blank.

Prior to the vehicle leaving the site, the completed form will be presented to the Engineer’s Representative for inserting the departure time and stamping. The Engineer’s Representative will keep a copy. The form shall be carried on board the vehicular trip.

For each vehicular trip, and original receipt from the operator of the public filling facility or the landfill will be submitted to the Engineer’s Representative within 5 working days of the vehicular trip.



10.4 Waste Management Checklist

Contractor's staff will monitor on the tidiness of the Site from time to time to maintain the Site in a clean condition. A Waste Management Checklist will also be provided to the Engineer's Representative for checking. If the condition of the Site tidiness is unsatisfied, Contractor will take action(s) according to the requested action(s) as shown on the checklist for the re-checking of the Engineer's representative. The format of the Waste Management Checklist is in Annex B.

10.5 Record

All the record of handling of waste materials, including their disposal, recycling, re-use and return shall be kept by the nominated waste manager with properly filing system and easily for inspection by relevant concerned parties.

11. Measures on Control of Mosquitoes Breeding

The checklist for Weekly Safety Walk under the Pay for Safety Scheme would include an item on “mosquitoes control and removal of stagnant water”. During inspections, particular attention would be given by our site supervisory staff to note down the potential stagnant water areas including, but not limited to, blocked drains, puddles, dumps of containers, tires, trenches, lift wells, roof tops, rubbish heaps etc. If some areas that are likely to collect or collecting rain or water, water shall be removed immediately. Areas on site collecting water would be filled up temporarily or permanently where feasible. Materials would be stacked up neatly and covered so that they will not collect water or collected water can be drained away easily. If any stagnant water is observed in site inspections or Weekly Safety Walks, immediate rectification action shall be taken.

A standard agenda item on “effective mosquitoes control and removal of stagnant water” would be included in all Waste Management Meetings. Our Safety Advisor should conduct checks of the sites on the effectiveness of mosquito control measures and identify potential stagnant water areas during the site inspections.

We would develop and provide toolbox talk kit to raise the awareness of mosquito control on construction sites. Spraying of pesticide or larvicidal oil to kill adult mosquitoes and to prevent breeding respectively would only be employed as the last resort where the removal of stagnant water would be impossible.

12 Complaints Handling Procedure

Any complaints in relation to the implementation of the WMP, the complainant shall contact our project personnel as per the contact lists enclosed herewith.

The complaints handling procedures:

- receipt of complaints from the complainant;
- carry out investigation by our Site Engineer or Site Agent;
- If possible and practicable, take remedial action and rectification for the complaints immediately;
- After the completion of the investigation works or remedial works, properly reply shall be given to the complainants by the Site Agent and the Contracts Manager;
- If there exists any disagreement or disputes between the complainants and contractor such as sources of waste or pollutant, the case shall be referred to the Engineer's Representative.

ANNEX B

CONTRACT NO: HY/2002/06 CONTRACT NAME: ROUTE 9 - REPROVISIONING OF WATERWORKS CONTRACTOR: U - TECH ENGINEERING COMPANY LIMITED	
WASTE MANAGEMENT CHECKLIST	No: _____
Location: _____	Date of issue: _____
Condition: <input type="checkbox"/> Satisfy <input type="checkbox"/> Unsatisfy	
Type of waste: _____	
Caused by: _____	
Action requested: _____ _____	
Take action on or before: _____	
Issue by: _____	
For the action taken by the Contractor:	
Responsible person: _____	
Signature: _____	
Date of receipt: _____	
The above requested action(s) was completed by the Contractor on : _____	
Checked by: _____	Date: _____