

## **Construction and Demolition Waste**

### **Introduction**

The landfills used for disposal of solid waste are being filled up at an alarming rate. Of particular concern is the increasing amount of construction and demolition (C&D) materials being dumped at the landfills. More than one quarter of the total solid waste disposed of in landfills is generated from building construction. Careful consideration given to waste generation and management at the planning stage of a building development will lead to less waste later on for disposal at landfills.

### **Waste Minimization**

2. Waste prevention not only reduces the need for landfill space, but also conserves natural resources and reduces pollution. Opportunities to prevent waste can be identified during both the project planning and design stage as well as construction stage. Measures may include :

#### Planning and Design

- i) Precast and prefabrication including modular design, precast façade, precast staircase, precast slab, prefabricated external elements, precast bridge-decks or footbridges, precast blocks for pavement paving, prefabricated kitchen or bathroom accessories, proprietary doorset and partition wall;
- ii) Sprayed plaster;
- iii) Balancing cut and fill;
- iv) Use of pulverised fuel ash in concrete for substructure, superstructure and streetwork;
- v) Combine services trenches to reduce excavation;
- vi) Purchasers' choice for finishes and fittings;
- vii) Minimised use of timber from non-sustainable sources; and
- viii) System formwork.

#### Construction and Site Management

- i) Waste Management Plan;
- ii) Non-timber hoarding;
- iii) Metal formwork and metal falsework;
- iv) On-site sorting of C&D materials;
- v) On-site water conservation;
- vi) Recycling of concrete for use as fill or hardcore;

- vii) Recycling of aggregate for concrete for non-structural work;
- viii) Identification of available recycling facilities for waste materials generated; and
- ix) Installation of underground mechanical spray wheel wash.

### **Waste Management Plan**

3. As a Waste Management Plan (the Plan) is a useful tool in ensuring that measures are taken during the construction stage to reduce C&D materials, it is recommended that you advise your client to require the contractor to submit such a plan to you for agreement. The following are the areas that may be covered in the Plan :

- i) the types of waste and their estimated quantities;
- ii) the timing of waste arising;
- iii) measures for reducing waste generation;
- iv) on-site waste separation;
- v) on-site and off-site material reuse;
- vi) areas for waste storage;
- vii) quantities of waste requiring off-site disposal;
- viii) disposal outlets;
- ix) monitoring and auditing programme;
- x) organisation structure for waste management;
- xi) a list of materials to be reused or recycled with estimated quantities;
- xii) implementation of the trip ticket system (see paragraph 5 below for reference);
- xiii) method of processing, storing and disposal of hazardous waste; and
- xiv) method of dealing with packaging material.

4. For projects that produce more than 300,000 cu.m. of construction and demolition material, the Director of Environmental Protection has indicated that he is prepared to offer advice to you prior to your acceptance of the Plan. The Public Fill Committee of Civil Engineering Department is also prepared to offer advice to AP & RSE on the management and beneficial reuse of C&D material.

### **Trip Ticket System**

5. The problem of illegal dumping has attracted adverse publicity and most illegally dumped materials are generated from construction activities. For more effective control, the Works Bureau has established a Trip-ticket System in public works contracts for the proper disposal of construction and demolition (C&D) material at public filling facilities or landfills. This policy is promulgated under the Works Bureau Technical Circular (WBTC) No.5/99, which is effective on 1 July 1999. The policy is that all public fill (being the inert portion of C&D material) shall be disposed of at designated public filling facilities managed by Civil Engineering Department (CED), and all C&D waste (being the non-inert portion of C&D material) shall be disposed of at designated landfills managed by Environmental Protection Department (EPD). A brief description of the Trip-ticket System is described in Appendix A.

6. The system has been adopted by the Housing Authority and the Works Departments. The same system could be applied to the disposal of C&D material in private sector projects. The project administrators for private developments could apply, through CED and EPD, for designated public filling facilities and landfills for the disposal of the public fill and C&D waste respectively. The Building Authority strongly recommends that the system be implemented in private sites for better control of the C&D material disposal.

7. For details of the WBTC No.5/99, please go to the web site of Works Bureau @ <http://www.wb.gov.hk>. For details on the disposal of public fill, please refer to the web site of CED @ <http://www.info.gov.hk/ced> and the notes at Annex I of Appendix A.

(C M LEUNG)  
Building Authority

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### **Trip Ticket System**

- (i) At the planning stage of a contract, the project officer seeks confirmation from CED (Public Fill Committee) whether public filling facilities are available for disposal of the public fill, and from EPD (Facilities Management Group) whether landfills are available for disposal of the C&D waste.
- (ii) The project officer shall provide the following information to CED and EPD in the application for designated disposal outlets:
  - (a) Contract number and title;
  - (b) Site location;
  - (c) Anticipated quantities of disposal;
  - (d) Programme for disposal;
  - (e) Recommended disposal arrangement in Environmental Impact Assessment/Contamination Assessment Report, if any;
  - (f) Test results identifying the type and level of contaminants present, if any;
  - (g) Types of the public fill and/or C&D waste;
  - (h) Contact details of the project officer.
- (iii) CED and EPD will designate the public filling facilities and landfills respectively for the project and advise the project officer the acceptance criteria of the respective facilities. As a general policy to conserve the limited landfill void space, public fill (such as soil, rock, concrete, bricks, bituminous materials etc.) should be delivered to public filling facilities instead of to landfills (see Annex I regarding disposal of public fill).
- (iv) The project officer then specifies the names of the facilities and acceptance criteria in the tender documents.
- (v) A trip ticket (i.e. a Disposal Delivery Form) is required for each truckload delivered to the public filling facilities and landfills. (Sample of the Form is shown in Annex II and also available in the WBTC No.5/99).
- (vi) Upon commencement of construction, the Contractor shall carry the trip ticket (Disposal Delivery Form) issued by the project officer for every vehicular trip transporting the public fill and C&D waste to the designated public filling facilities and landfills respectively.
- (vii) For each vehicular trip on arrival at the disposal facility, the Contractor shall present the Form at the entrance gate, proceed with the disposal operation and then obtain a receipt from the operator of the public filling facility or landfill at the exit gate. The Contractor is required to submit the original receipt to the Engineer's/Architect's Representative of the project office. The project office then approaches CED or EPD for a monthly report of the relevant transaction records and carries out the reconciliation for compliance checking.

**Disposal of Public Fill**

- (a) For each truckload delivered to the public filling facilities a trip ticket (i.e. a Disposal Delivery Form) is required. Please see Annex II.
- (b) The dump trucks should also have valid Dumping Licences issued by CED. Dump trucks without Dumping Licences will be rejected.
- (c) Application form for Dumping Licence and the associated conditions as stipulated in the Dumping Licence can be collected from the Port Works Division, 5/F., Civil Engineering Building, 101 Princess Margaret Road, Homantin, Kowloon or downloaded from CED's web site at <http://www.info.gov.hk/ced/>. A sample is at Annex III.
- (d) The inert construction and demolition (C&D) materials to be delivered to the public filling facilities should be in accordance with the conditions as stipulated in the Dumping Licence (copy attached).
- (e) The normal opening hours of the public filling facilities will be from 8:30 a.m. to 12:00 noon and then from 1:00 p.m. to 6:00 p.m.
- (f) All public filling facilities are open to the public free of charge for land delivery of inert construction and demolition material by vehicles.

**Construction and Demolition Material  
Disposal Delivery Form**

Department : \_\_\_\_\_ Contract No. : \_\_\_\_\_

Contractor : \_\_\_\_\_

Contract Title : \_\_\_\_\_

Location of Site : \_\_\_\_\_

Location of Public Filling Facility/Landfill \* : \_\_\_\_\_

\_\_\_\_\_

Vehicle Registration No. : \_\_\_\_\_ Date : \_\_\_\_\_

\_\_\_\_\_

Approximate Load : Full / three quarter / half / one quarter \*

Remark : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Time of Departure : \_\_\_\_\_

Authorised Chop of  
Engineer's Representative/  
Architect's Representative \*

\* Delete whichever inappropriate

傾卸泥土執照申請表格(每輛運泥車須領一張執照)  
APPLICATION FOR DUMPING LICENCE (ONE LICENCE FOR EACH VEHICLE)

(申請人必須為車輛的登記車主。如果登記車主為公司名義，本表格則須由該公司所指定及授權的人士填寫及簽署，並須將全名寫在其簽署下面。)

(The applicant should be the registered owner of the vehicle. In the case of the registered owner being a Company, this form should be completed and signed by a person nominated and authorised by the Company. He should also put down his name in full under his signature.)

供 \_\_\_\_\_ 年使用  
FOR YEAR \_\_\_\_\_

1. 車輛的登記車主現時的個人資料 PRESENT PARTICULARS OF REGISTERED OWNER OF THE VEHICLE

- (i) 中文姓名: \_\_\_\_\_ (ii) 英文姓名: \_\_\_\_\_  
Name in Chinese: \_\_\_\_\_ Name in English: \_\_\_\_\_
- (iii) 地址(中文): \_\_\_\_\_  
Address in Chinese: \_\_\_\_\_
- (iv) 地址(英文): \_\_\_\_\_  
Address in English: \_\_\_\_\_
- (v) 車輛登記(車牌)號碼: \_\_\_\_\_ (vi) 日間聯絡電話號碼: \_\_\_\_\_  
Vehicle Registration No.: \_\_\_\_\_ Daytime Telephone No.: \_\_\_\_\_

2. 申請 APPLICATION

- (i) \*  本人現為上述車輛申請一張上述年度的傾卸泥土執照。  
I hereby apply for a Dumping Licence for the above listed vehicle for the above-mentioned year.
- \*  本人現為上述車輛申請一張傾卸泥土執照複本，申請的理由是：  
I hereby apply for a Duplicate Dumping Licence for the above listed vehicle and the reason is.
- \*  本人的傾卸泥土執照已遺失。(請提交有關證明文件，例如向警方報失的紀錄。)  
My Dumping Licence was lost. (Please submit the relevant proof document, such as record of loss report to the police.)
- \*  本人的傾卸泥土執照已損毀，現在交還。  
My Dumping Licence was damaged and returned herewith.
- \*  其他，請說明：  
Other, please specify: \_\_\_\_\_

3. 聲明 DECLARATION

- (i) 本人現聲明，據本人所知，以上所填報的資料均屬真實及並無遺漏。  
I declare that to the best of my knowledge and belief the information given above is true, correct and complete.
- (ii) 本人證明附上的車輛登記文件副本，是原來文件的真本，該文件在本申請表格提交當日仍然有效。  
I certify that the enclosed copy of the Vehicle Registration Document is a true copy of the original document which is still valid on the date of this application.
- (iii) 本人願意遵守傾卸泥土執照所規定的各項條件(見背頁)。  
I will abide by all the conditions as stipulated in the Dumping Licence (see the back page).

申請人簽署(及公司蓋印如適用者):  
Signature of Applicant (and Company Chop if applicable): \_\_\_\_\_  
簽署人全名:  
Name of Signee in full: \_\_\_\_\_  
日期:  
Date: \_\_\_\_\_

\* 請在適當的格內加上「/」號  
\* Please tick the appropriate box

註：填妥的申請表格，須連同有申請人簽署的有效車輛登記文件影印本，交回九龍公主道一零一號土木工程署大樓五樓，土木工程署海港工程部。

Note: The completed application together with a copy of the valid Vehicle Registration Document of the vehicle (duly signed by the applicant) should be returned to Port Works Division, Civil Engineering Department at 5/F, Civil Engineering Building, 101 Princess Margaret Road, Kowloon.

此欄僅供部門人員填寫 For Official Use only

收件日期 \_\_\_\_\_ 執照號碼 \_\_\_\_\_ 寄出日期 \_\_\_\_\_  
Date received \_\_\_\_\_ Licence No. \_\_\_\_\_ Date Dispatched \_\_\_\_\_

## 傾卸泥土執照所規定的各項條件

### The conditions as stipulated in the Dumping Licence

1. 此執照不得轉讓別人持用。  
This licence is not transferable.
2. 執照須由執照持有人/泥頭車司機攜帶，並須應填土督導員要求時出示執照。  
The licence must be carried by the licensee/lorry driver and produced on demand to the Filling Supervisor.
3. 執照會連同標貼一起發出，標貼必須黏貼在車輛前風玻璃的基座處。  
The licence is issued together with a windscreen label which must be prominently displayed on the vehicle.
4. 香港特別行政區政府對執照持有人或其僱員或車輛在公眾填土設備處有任何意外，不論性質，在公眾填土設備內進行傾卸泥土時，執照持有人應確保採取所有安全預防措施。  
The licence is issued on the express understanding that the Government of the Hong Kong Special Administrative Region accepts no responsibility for any accident which may befall the licensee or the staff or vehicles employed by the licensee at public filling facilities. The licensee shall ensure that every safety precaution is taken when operating at public filling facilities.
5. 執照持有人須對在本執照規定下，因進行傾卸泥土而引致的損壞負責，並須支付有關的任何修理費用。  
The licensee will be responsible for the cost of any repairs necessary as a result of damage caused by public filling under this licence.
6. 執照持有人可根據報章刊登及各公眾填土設備顯示的開放日期及時間，進入公眾填土設備傾卸泥土。  
Public filling may be carried out on the days and between the hours as advertised in the press and posted at individual public filling facility.
7. 本執照准許傾卸下列物料於公眾填土設備內：  
The following materials may be disposed of at public filling facilities under this licence:  
(A) 泥土；  
earth;  
(B) 建築碎料；及  
building debris; and  
(C) 碎石和混凝土。  
broken rock and concrete.  
上述物料不得含有泥巴、軍用垃圾、膠料、金屬、工業及化學廢料、動物物以及填土督導員認為不宜棄置於公眾填土設備的其他物料。而其包過當物料夾雜少量木料亦可獲准傾卸。  
The materials shall be free from marine silt, household refuse, plastic, metal, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the Filling Supervisor. Small quantities of timber mixed with otherwise suitable material will be permitted.
8. 物料傾卸時，須按填土督導員所指示的地點及方法進行。  
The materials shall be unloaded at the location and in the manner instructed by the Filling Supervisor.
9. 執照持有人/泥頭車司機須應填土督導員的要求，報告有關物料的来源。  
The licensee/lorry driver shall report the source of material when required by the Filling Supervisor.
10. 執照持有人/泥頭車司機須確保泥頭車在駛離公眾填土設備前，車輛已於設施內所提供的車輛清洗設施清洗淨。  
The licensee/lorry driver shall ensure that his/her lorry is cleaned at the wheel washing facilities provided at the public filling facility before leaving the public filling facility.
11. 執照持有人/泥頭車司機應預防泥頭車上的物料跌落公路路面上。  
Care shall be taken to prevent any material being dropped from lorries onto public roads.
12. 如違反上述條件，當局即會將執照撤銷而毋須另行通知，並可能會採取法律行動。  
Non-compliance with these conditions will entail withdrawal of the licence without notice and may result in legal action being taken.
13. 當局保留權利，可隨時將執照在有效期屆滿前予以取消及/或關閉任何公眾填土設備而毋須事先通知，亦毋須另撥土地替代關閉的公眾填土設備。  
The right is reserved to cancel this licence at any time before the date of expiry and/or to close any public filling facility without prior notice and without provision of an alternative public filling facility.
14. 任何執照持有人/泥頭車司機在法庭上被裁定違法傾卸物料，當局會將其執照撤銷。  
Any licensee/lorry driver who is convicted in court for illegal dumping will entail withdrawal of the licence.
15. 執照持有人/泥頭車司機須確保由泥頭車上運載的物料，以合適的防水布(如帆布)妥善覆蓋。  
The licensee/lorry driver shall ensure that the material being carried by his/her lorry is well covered with suitable impervious sheeting such as tarpaulin.
16. 執照持有人/泥頭車司機不得運載物料重量超過認可車輛總量。  
The licensee/lorry driver shall not load his/her lorry exceeding the permitted gross vehicle weight.