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9 September 2002

**Drainage Services Department**  
**Technical Circular No. 4/2002**

**Drainage Maintenance Works on**  
**Environmentally Sensitive Watercourses**

**Scope**

This Circular is to disseminate good practice guides for the planning and execution of desilting and maintenance works on environmentally sensitive watercourses

**Background**

2. The Environmental Impact Assessment Ordinance (Chapter 499) (EIAO) binds the Government. Projects listed in Schedules 2 and 3 of the EIAO are designated projects for which EIAO procedures have to be followed, such as applying for environmental permits and submitting environmental impact assessment reports. Designated projects include dredging operation exceeding 500,000 m<sup>3</sup> or a dredging operation which is less than 500 m from the nearest boundary of an existing or planned:

- (i) site of special scientific interest (SSSI)
- site of cultural heritage
- bathing beach
- marine park or marine reserve

- (v) fish culture zone
- (vi) wild animal protection area
- (vii) coastal protection area
- (viii) conservation area

or a dredging operation which is less than 100 m from a seawater intake point. Designated projects also include dredging works partly or wholly in an existing or gazetted proposed country park or special area, a conservation area, an existing or gazetted proposed marine park or marine reserve, a site of cultural heritage, and a site of special scientific interest. However, minor maintenance works to drainage systems are not classified as designated projects and EIAO procedures are not applicable.

3. In March 2001, a report entitled "Conservation Recommendations for Fish Communities of Lowland Streams in Hong Kong" (hereafter cited as "the HKU Report") was released by the Department of Ecology and Biodiversity of the University of Hong Kong. The HKU Report recommended, among other things, better protection either through SSSI listing or designation as country park, to a list of 17 lowland streams identified to have high ecological value. It was distributed to various Government departments/bureaux, calling for conservation efforts to be made to the listed streams.

4. It is the department's mission to carry out its work in an environmentally responsible manner. Therefore, the department must take appropriate precautionary measures in the execution of maintenance works to minimize any impact caused to streams of high ecological value, while at the

same time ensuring that the community is provided with a good level of flood protection. In line with this principle and to promote awareness among the department's staff of the need to take care of environmentally sensitive and/or ecologically important watercourse, guidance notes for executing maintenance works to such watercourses are set out in the following paragraphs. These will be reviewed in due course after experience are gained in such work.

### **List of Ecologically Important Watercourses**

5. Environmentally sensitive and/or ecologically important watercourses include the 17 watercourses identified in the HKU Report given at Appendix A. The current status of these watercourses in terms of designated or proposed means of conservation as advised by Agriculture, Fisheries and Conservation Department (AFCD) are also indicated at Appendix A. In addition to these 17 watercourses, attention should also be paid to other environmentally sensitive watercourses, including:

- a) watercourses with good landscape value and visual appeal;
- b) watercourses with environmental value which includes plant and animal life.

### **Planning of Desilting and Maintenance Works**

6. Before proceeding with any desilting or maintenance works, except for emergency works, the maintenance engineer should check to ascertain if any of

the proposed works will be located in or near any of the environmentally sensitive and/or ecologically important watercourses and, in particular, those shown at Appendix A. In case of doubt on the extent of the watercourses in the list at Appendix A, advice from AFCD should be sought.

7. If the proposed works will be located inside or near one of the environmentally sensitive and/or ecologically important watercourses, careful consideration should be given to the proposed method of implementation so as to minimize any adverse environmental impact. Depending on the extent of the proposed works, AFCD and EPD should be notified and/or consulted as appropriate on the proposed method and mitigation measures for executing the works. Their comments on necessary mitigation measures should be seriously considered and incorporated as far as practicable. Any difference in opinion on the right balance between flood protection and ecological conservation should be brought to the attention of the relevant Chief Engineer.

8. In planning for the works, the following considerations are relevant:

(a) Desilting or maintenance works should preferably be carried out within the dry season where flow in the watercourse is low. Rapid flow in a watercourse during the wet season together with the on-going maintenance works will have a higher potential of inducing collapse of the riverbanks and resulting in highly turbid water.

(b) Phasing of the works should be considered to better control and minimize any impact caused, and to provide refuges for aquatic

animals. Where possible, works should be carried out along half width of the watercourse section by section. A free passage along the watercourse is necessary to avoid forming stagnant water in any phase of the works and to maintain the integrity of aquatic communities.

- (c) Temporary access to the works site should be carefully planned and located to minimize disturbance caused to the watercourse and adjacent vegetation by construction plants.
- (d) The use of lesser or smaller construction plants may be specified to reduce disturbance to the riverbed where fish habitats are located.
- (e) The use of concrete or the like should be avoided or minimized. More environmental friendly measures for riverbank stabilization such as using gabions with planting surface, turfing on riverbanks and crib-walling units with parasitic planting should be considered.
- (f) Proper location for the disposal of construction debris and spoil should be identified before commencement of the works.

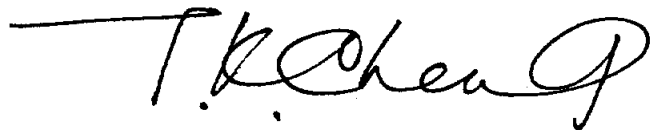
#### **Precautionary Measures During The Construction Stage**

9. Depending on the extent of the proposed maintenance works and particulars of relevant watercourses, different precautionary measures may have to be devised and implemented. Based on past discussions with AFCD,

EPD and local ecologists, some of the measures generally recommended for adoption are listed below:

- (a) Before commencement of works, AFCD can be consulted for the presence of rare species within the work site. Precautionary measures such as relocation of the rare species outside the site should be discussed with AFCD.
- (b) Before commencement of works, an inspection of works site should be made to check if there exist any ponds of considerable size which should be preserved with care as far as possible. Stream ponds of considerable sizes are usually favourite habitats of fish communities and removal of them can be detrimental to fish communities.
- (c) The proposed works site should be enclosed to prevent impacts on the water qualities outside the works site, such as by placing of sandbags or silt curtains with lead edge at bottom with properly supported props.
- (d) The natural bottom of the river should be preserved as much as possible to avoid damage to the river habitats. If temporary access tracks on riverbed is unavoidable, they should be kept to the minimum width.
- (e) Construction debris and spoil should be properly disposed of.

- (f) Removal of vegetation alongside the riverbanks should be minimized. When disturbance to vegetation is unavoidable, all disturbed areas should be hydroseeded or planted with suitable vegetation to blend in with the natural environment after completion of works.
- (g) Proper shoring may need to be erected in order to prevent soil / mud from slipping into the watercourse.
- (h) Supervisory staff should be assigned to station on site to closely supervise and monitor the works.



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## List of Ecologically Important Watercourses

Location of Watercourses *	Current Status <sup>+</sup> (Means of Conservation as advised by AFCD)
1. Deep Water Bay, Hong Kong Island	Better protection under zoning plan to be considered
2. Ham Tin, Sai Kung	Designated CA
3. Hoi Ha, Sai Kung	Better protection under zoning plan to be considered
4. Upper Lam Tsuen River, Tai Po	Ecological conditions under monitoring by AFCD
5. Kau Lung Hang Tai Wo, Tai Po	Ecological conditions under monitoring by AFCD
6. So Lo Pun, Plover Cove	Remote site not subject to development threat
7. Lin Ma Hang, North	Proposed as SSSI
8. Sandy Ridge Cemetery, Man Kam To	Located within FCA unlikely to be subject to development threat
9. Tan Shan River, North	Ecological conditions under monitoring by AFCD
10. Loi Tung, Sha Tau Kok	Existing land use zoning (AGR, V) is considered appropriate
11. Sheung Wo Hang, Sha Tau Kok	Designated CA
12. Cheung Po, Kam Tin	Better protection under zoning plan to be considered
13. Tong Fuk, Lantau	Designated CPA
14. Sham Wat, Lantau	Ecological conditions under monitoring by AFCD
15. Mok Ka Tsuen, Tung Chung	Proposed CA in draft OZP
16. Tai Ho, Lantau	Designated SSSI
17. Sha Lo Tung Lei Uk, Tai Po	Designated SSSI

<sup>+</sup> Remarks : AGR – agriculture; CA - Conservation Area; CPA - Coastal Protection Area; OZP – Outline Zoning Plan

SSSI - Site of Specific Scientific Interest; V – Village Type Development; FCA – Frontier Closed Area

\* Reference: “Conservation Recommendations for Fish Communities of Lowland Streams in Hong Kong” prepared by Department of the Ecology & Biodiversity, the University of Hong Kong, 19 March 2001.