**ACE Paper 7/2004)**
***For information***

# Concrete lining of a stream At Sha Kok Mei, Sai Kung

## Purpose

This paper presents for Members' information the background of an incident of concrete lining a stream at Sha Kok Mei, Sai Kung. The incident was reported by the media and has drawn criticisms from environmentalists.

## Background

2. The contractor acting for a group of villagers has placed concrete lining to 160 metres of a stream in Sha Kok Mei, Sai Kung in connection with the site formation for the villagers' houses. A location plan is attached at Appendix A for reference.

3. The Authorized Person (AP) acting for the villagers first submitted the site formation plans for the development of village houses in Sha Kok Mei to the Buildings Department (BD) for approval in June 1997. These plans were circulated to a number of government departments including Drainage Services Department (DSD) for comment in accordance with the established procedures.

4. The location of the small house development is within the flood plain area identified in the Territorial Land Drainage and Flood Control Strategy Study Phase I in 1990. The site for the small house development does not fall within a designated conservation area. In 1996, subsequent to the investigation of a flooding complaint lodged by the Sha Kok Mei village representative, the DSD found that the subject stream especially at the downstream end near Tai Mong Tsai Road was blocked by earth from the collapsed stream banks and heavy vegetation. Loose vegetation together with soil from the eroded stream banks and other debris were often washed from the upstream and easily trapped in streams with natural banks. These sediments together with the vegetation growing there had blocked the water flow and reduced the drainage capacity of

the stream. This resulted in serious flooding in the area adjacent to the stream including the main access to the Sha Kok Mei village during heavy rains. As the access road to the village was flooded during heavy rains, the villagers strongly urged for improvement works to solve the flooding problem. To increase the drainage capacity and to avoid collapse of the stream banks, excess earth and sediments were removed from the stream and concrete lining was applied to restore 300m of the river banks at the downstream adjacent to the main access to the village in early 1997.

5. In response to the site formation plans circulated in 1997, DSD advised that the site, which was a low-lying area along the bank of the stream, was subject to regular inundation and overland flows and suggested that lining should be provided to the adjacent stream course to ensure that the capacity of the stream would not be adversely affected by the development. Following DSD's advice, lining to the stream course was incorporated on the plans by the AP and the plans were approved by BD in July 1997.

6. In November 1999, the AP submitted amended plans for the site formation works for the subject site to BD. The amended plans were approved by BD after consulting DSD and the Geotechnical Engineering Office, Civil Engineering Department. The works included, inter alia, concrete lining of the existing stream course.

7. When the amended site formation plan was circulated in 1997 and 1999, DSD provided comments to BD on stormwater drainage and flooding prevention considerations. At the time, concrete lining was suggested because it was an effective method to maintain the serviceability of river courses. However, an advice like this would not be given today by DSD in view of the greater importance to environmental conservation.

**Public Works and Developments Proposals Affecting Natural Streamcourses**

8. The Government recognizes the importance of nature conservation as well as the development needs of Hong Kong and will continue to strike a balance between the two. In the implementation of flooding prevention projects in recent years, DSD has been giving more consideration to the protection of the environment and preservation of natural habitat. As a general

rule, particular environmentally friendly features, such as extensive vegetation, grass planting on the river embankments, will be incorporated into the projects. The bottom of a natural watercourse will be left intact if possible especially in environmentally sensitive areas and only bank stabilization work or bank widening will be carried out. If scouring is a concern, gabions or precast grasscrete panels on the embankment and random rubble or stone on the bottom will be used rather than concrete. Moreover, river meanders may be preserved and enhanced as wetland habitats where appropriate. A document entitled "Examples of environmentally friendly drainage channels designs arising from environmental impact assessments" has been compiled to summarize such examples for reference by project proponents.

9. In September 2002, DSD also issued an internal guideline (copy at Appendix B) to provide good practice guidance for planning and execution of drainage maintenance works in environmentally sensitive watercourses. If the proposed works are located inside or near the environmentally sensitive and/or ecologically important watercourses, careful consideration will be given to the proposed method of implementation so as to minimize any adverse environmental impact. Depending on the extent of the proposed works, the Agriculture, Fisheries and Conservation Department and the Environmental Protection Department will be notified and consulted as appropriate. The use of concrete lining or the like is to be avoided as far as possible. As an example, a recent improvement works project on an existing stream course within the East Rail Extension, DSD has advised Kowloon-Canton Railway Corporation (KCRC), to replace the original proposed concrete lining by grasscrete on the river embankment, a proposal which KCRC subsequently accepted. Random rubbles and stones have recently been proposed to be laid at the bottom of Upper Ma Wat River and at Ping Kong Channel in North District.

**Private Development in the New Territories**

10. Buildings in the New Territories are governed by the Buildings Ordinance (Application to the New Territories) Ordinance or by the Buildings Ordinance (BO) as the case may be. Applications for the construction of New Territories Exempted Houses (NTEHs) are considered by Lands Department (LandsD). In consultation with concerned departments, LandsD will decide if an NTEH should be allowed and, if so, whether a certificate of exemption in respect of site formation works and a certificate of exemption in respect of

drainage works should be issued. If certificates of exemption in respect of site formation works and drainage works cannot be issued, the site formation works and drainage proposal for the NTEH will be subject to control under the BO. The subject village house development at Sha Kok Mei is one such case.

11. Other private developments are submitted to BD who will process the submission plans in accordance with the provisions of the BO. The BO basically sets out statutory requirements for health and building safety.

12. BD operates a centralized plan processing system for plan submissions made by private developers. The purpose of the centralized processing system is to ensure that all interested government departments are consulted and that their comments are collated by BD within the statutory time limits. For all plan submissions, BD circulates the plans to relevant departments for comment in accordance with the established arrangement. Comments falling within the purview of the BO will be followed up by BD within the context of the BO.

**Way Forward**

13. DSD will review and update the internal guideline on processing building development applications with particular reference to the identification of ecological value of natural streams to be affected to ensure that the adverse impact on the environment is kept to the minimum. In this respect, more environmentally friendly measures would be suggested for consideration of project proponents when dealing with developments involving natural streams.

**Buildings Department**
**Drainage Services Department**
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