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Xu, Li-Chang|Lo, Weicheng; Hsu, Tai-Wen

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Vorgeschlagene Zitierweise/Suggested citation:

Xu, Li-Chang|Lo, Weicheng; Hsu, Tai-Wen (2016): The Study of Construction Methods on Groundsill Works □ Example of “Erren Intake”. In: Yu, Pao-Shan; Lo, Wie-Cheng (Hg.): ICHE 2016. Proceedings of the 12th International Conference on Hydroscience & Engineering, November 6-10, 2016, Tainan, Taiwan. Tainan: NCKU.

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The Study of Construction Methods on Groundsill Works—Example of “Erren intake”

li-chang Xu.¹, Weicheng Lo², Tai-Wen Hsu³

1. Fifth River Management Office, WRA
2. Dept. of Hydraulic and Ocean Engineering, NCKU
3. Dept. Harbor & River Engineering, NTOU

ABSTRACT

The rivers in Taiwan are steep and swift. Their water levels vary greatly in different seasons. In the dry season, rivers dry up and river beds are exposed; in the monsoon/typhoon season, the strong southwesterly flows bring in heavy rains, which result in dike bursts and even bridge collapses. Such occurrences do great damage to people's living and the economy.

Bridge protection is usually achieved by utilizing apron protection, permeable piles or gabions. However, either method will decrease the cross section of a river and increase the speed of the water flow. Due to the swiftness of the rivers in Taiwan, the most ideal riverbed construction method is to create stepped cascades for the dissipation of hydraulic energy, so that the river current can be reduced in speed and erosion and sediment in amount. Nevertheless, under the extreme hydraulic conditions, the composition of the riverbeds and river topographies often cause the construction failures.

In light of such situations, this study will utilize the example of the consolidation work and low-water revetment done on Gaomei bridge in 2004 to discuss the effects of different hydraulic and topographical conditions on the consolidation work, in hope that river constructions can be effectively lower the damages done by floods.