

NITTAYA TUBTIM : A STUDY ON REHABILITATION OF THE INNER BANGKOK DRAINAGE SYSTEM BY THE WALLINGFORD PROCEDURE. THESIS ADVISOR : ASSO. PROF.SURAVUTH PRATISHTHANANDA, Ph.D. 146 PP.

Due to rapid urbanization of Bangkok Metropolitan area without proper land use control, the existing drainage system seems to work ineffectively. Bangkok Metropolitan therefore always faces with the problem of flood during heavy rainfall. In order to solve this problem, the evaluation of the existing drainage system was conducted followed by a suitable rehabilitation.

In this study, the Wallingford Procedure was applied to evaluate and plan for the rehabilitation of the drainage system in a selected area covering approximately 2.8 sq.km. around Victory Monument in Phaya Thai district, Bangkok. The design storm pattern of 2 and 5 years return period with rainfall duration of 2 hours were used. The project area is divided by Phaya Thai Road into two sections according to the existing drainage route. The first one covers an area of 0.85 sq.km. east of Phaya Thai Road and the second one covers 1.95 sq.km. in the west. The improvement of drainage system was designed to drain flood water into Samsen Canal, Railroad ditch and Bung Makkasan reservoir by gravity flow. In case that the downstream level could not be controlled at specified level such that gravity flow is not possible, pumping stations should be installed.

The selection of rainfall return period used in rehabilitation plan for the study area should be considered together with the capacity of the drainage system as well as impacts that tend to happen in case that a low return period is used but the actual rainfall exceed the selected one. The recommended plan for the rehabilitation should also include cost of flood fighting measures and damage that might be occurred together with initial investment cost.