WALLINGFORD PROCEDURE USERS GROUP (WaPUG)

24th APRIL 1986, BRISTOL

A. Eadon welcomed delegates to the first of the 1986 spring meetings at Ashton Court Mansions, Bristol. He briefly described the progress of WaPUG over the past year and outlined the day's programme.

SESSION ONE: PRESENTATION OF PAPERS AND DISCUSSION PERIODS
CHAIRMAN DR. D. J. BALMFORTH, SHEFFIELD CITY POLYTECHNIC.

1. Simplification of sub-catchment sewerage networks.
B. Nussey, Sheffield City Polytechnic.

Synopsis:-

The number of pipes in six sewerage networks, which drain catchments with total areas in the range 2.8 to 61.4 ha, has been reduced by using the three simplification methods outlined in the first edition of the Sewerage Rehabilitation Manual. WASSP SIM computer runs for the simplified systems have been compared with those from the complete systems for a low return period which produces free surface flow and for a high value which causes surcharging and flooding. These results were discussed in relation to the input data and the pipeflow equations used in the Wallingford Procedure.

The results show that networks which have the number of pipes significantly reduced can still produce reliable hydrographs for the analysis of the hydraulic behaviour of the core sewers. A mean time of flow which takes into account the distribution of paved area in the catchment has been found to provide a useful guide to time lag of the hydrographs.

Discussion:-

J. Packman, Institute of Hydrology.
The sewered sub-area model in WASSP was originally intended for greenfield sites or to reduce design time for trunk sewers where little data is available for peripheral areas. The sewered sub-area model does not allow for surcharging effect. If the time and data are available simplification will generally give better results.

D. Williams, WRc Engineering.
WRc would not recommend the use of the sewered sub-area model for the analysis of networks particularly where surcharging may occur. Requested details of the number of pipes used by Mr. Nussey in simplification excersises?

B. Nussey.
Details of the degree of simplification applied to networks are included in the paper presented to delegates.

J. Bartlett, Binnie and Partners.
How much effort was involved in simplifying networks?

B. Nussey.
In the examples presented to the meeting simplification was achieved in approximately one hour.

Session Chairman.
Engineers should attempt to simplify networks wherever possible allowing more time for the examination of the performance of existing systems and alternative schemes.

WALLINGFORD PROCEDURE USERS GROUP (WaPUG)

6th MAY 1986, MANCHESTER

A. Eadon welcomed delegates to the second of the 1986 spring meetings at Manchester Town Hall. He briefly described the progress and activities of WaPUG over the past year and outlined the days programme. WaPUG now has 220 member organisations. The Deputy City Engineer of Manchester, Mr. J. Selleck was introduced.

SESSION ONE: PRESENTATION OF PAPERS AND DISCUSSION PERIODS.
CHAIRMAN DR. D. J. BALMFORTH, SHEFFIELD CITY POLYTECHNIC.

1. Simplification of sub-catchment sewer networks.
B. Nussey, Sheffield City Polytechnic.

Synopsis:-

See Bristol meeting notes.

Discussion:-

J. Packman, Institute of Hydrology.
The sewered sub-area model was originally intended for use in simpler situations than those currently under consideration and where very little pipe data is available. For further information delegates should refer to IH Report 62. A number of slides were shown comparing sewered sub-area model predicitions with detailed models. The comparisons were generally good except in surcharge conditions.

One of the sub-area model problems referred to in the presentation was the production of additional fictitious pipes which limit the size of network which can be simulated. This was not considered to be a serious problem with main-frame versions of WASSP but is obviously more serious when using Micro-WASSP.

R. M. Ashley, Dundee College of Technology.
Simplification requires more work than using the sub-area model. Does the method still apply with limited pipe data and have real events been used to confirm Mr. Nussey's work.

B. Nussey.
Generally the first attempt at simplification produces good results even when complete pipe data is unavailable. The work has been based on synthetic events but there is no reason to expect real events to give different conclusions.

R. G. Amster, Binnie and Partners.
Expressed concern at the maximum pipe length of 500m recommended by Mr. Nussey and would prefer to work to shorter lengths. Agreed with Mr. Ashley that a real data check would be preferred. It is generally agreed that simplification requires a higher level of data collection than the sub-area model but the sub-area model must not be used when surcharging can occur.

B. Nussey.
The maximum pipe length which should be used is dependent on gradients and the way in which areas contribute. If for example all the area contributes to the head manhole longer lengths than 500m can be used. WASSP subdivides pipe lengths at simulation time increments anyway.

R. Brown, Nuneaton and Bedworth B.C.
Is a detailed sewer survey necessary for a good model?

B. Nussey.
Use of simplification techniques on the sub-area model reduces the amount of data collection required. Note that for flat catchments the sub-area model could generate as many pipes as a complete model.

P. Shelton, Severn-Trent Water Authority.
Can simplification techniques be extended to core sewer areas in large models?

B. Nussey.
The same techniques apply but the increased probability of surcharging means that the degree of simplification is likely to be reduced.

J. Packman.
Agreed with Mr. Nussey but emphasised need to check value of PLAG referred to in the presentation.

A. Taylor, WRc Engineering.
WRc have carried out some comparisons of the behaviour of simplified networks and sub-area models with measured storms. The sewered sub-area model is less accurate.

G. Catterson, North West Water Authority.
Bolton MBC have used simplification techniques on a model for a 1000ha catchment with 62Km of category A sewers. The model has 430 pipes and 40 ancillaries and has now been satisfactorily verified from flow survey data.