QUALITY ASSURANCE FOR MODELLING PROCESS
USE OF COMPUTER SOFTWARE

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AIMS

1. To provide a Quality Assurance system for development of computerised network models.

2. To create an Audit Trail which will record all changes made to a model along with supporting comments.

METHOD

May be divided into two parts:-

a) Collation and processing of sewer records.
b) Development of network model.

Computerised sewer records systems already exist which apart from storing general data, can be used to validate and further manipulate the data.

For example, software will show where data is missing, highlight any inconsistencies in the network and help identify where any further survey work is required. In addition, pipe criticalities can be determined and "confidence levels" for data obtained.

All such calculations are carried out quickly and to a high degree of accuracy. "Audit Trails" are readily available, i.e. validation reports and critical pipe reports.

Development of the network model is described in Phase 2(b) of SRM - Assessing Hydraulic Performance. The first step is to enter pipe data into the modelling software. This is a major area of error - again several existing software systems will automatically create network files from the "real" database thus eliminating transcription errors.

Following creation of a network, it is subject to testing, calibration and verification. At any of these stages (and later during simulation of alternative solutions) it may be necessary to make changes to the original model.

The intention of our proposals is to record steps taken in creating the original model from the "real" database and any subsequent alterations to the model.

PROPOSALS

1.   The QAMP system will be capable of comparing a network model with the original "real" database and highlight any changes made, e.g. simplification.

2.   QAMP will also be able to compare two model files and again highlight any changes. This will be used as follows:

The Engineer decides changes are necessary to an existing network model. Changes can be made directly to the network file (e.g. WALLRUS .SSD file). The old and new files are then compared by the QAMP software. Any changes will be highlighted and the Engineer will be required to supply supporting commentary. Such alterations and comments will be stored in an "Audit Trail File (ATF)".

AUDIT TRAIL

The Audit Trail is the core of the QA system. Maintenance of this trail allows the following:

a)   Original ("real") database can be compared with network models.
b)   Network models can be compared with each other.
c)   From the ATF it is possible to reconstruct any model file for a specified run.
d)   From the ATF it is possible to view a history of all changes to any specified pipe.

ANCILLARIES

Ancillary data will probably be input through the QAMP software. Thought is being given to the possibility of the software supplying "first estimates" for ancillary parameters. As in pipe data, as ancillary data is refined, changes and supporting comments will be recorded.

SUMMARY

Software already exists to support QA procedures from collection of sewer data through to creation of the first model. In addition, Critical Network drawings, Flooding and X-X diagrams and long-section plots can also be generated automatically. QAMP is intended to supply the same degree of consistency and "Auditability" to the modelling process.

We are currently at the development stage with QAMP and your comments would be welcome.

D Beale (Howard Humphries) : How much and when?

Ans : Probably Easter - price still to be resolved.