

Paper 7 - Development of a Paperless Reporting System

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INTRODUCTION

Southern Water (SW) are undertaking a major drainage area planning exercise over the next three years. As a consequence of this programme, it is estimated that 6,000 reports will be produced. In order for the reports to be more accessible to both the Technology Group and Operations, SW wanted to develop a paperless reporting system for the DAP reports. SW have appointed Montgomery Watson (MW) to produce a software program that will produce a paperless DAP on CD-ROM from SW's consultants data.

The project was progressed in three distinct phases. The first phase of the project was to evaluate the software requirements for text browsing on the CD. It was agreed that the software review will limit itself to what is currently available, rather than reviewing what may be available in 6-12 months time. The second phase was to manually convert an existing report and to create the template. The third phase was to backward engineer the conversion software.

SOFTWARE REVIEW

The key element to this project is collating data from a number of sources (e.g. Word and Excel) into a single navigable document. The data will be in the form of text, tables, spreadsheets, databases and graphics. The software review has been broken down into three key areas:

1. Document reading,
2. Document creation, and
3. Document viewing.

Three possible options were considered:-

1. Development of a viewer in a visual programming environment - Delphi, VB, etc.
2. Use multimedia presentation software.
3. Use Web browser technology.

Option 1 was discounted because of the development time required and the potential difficulty integrating the different typew of data.

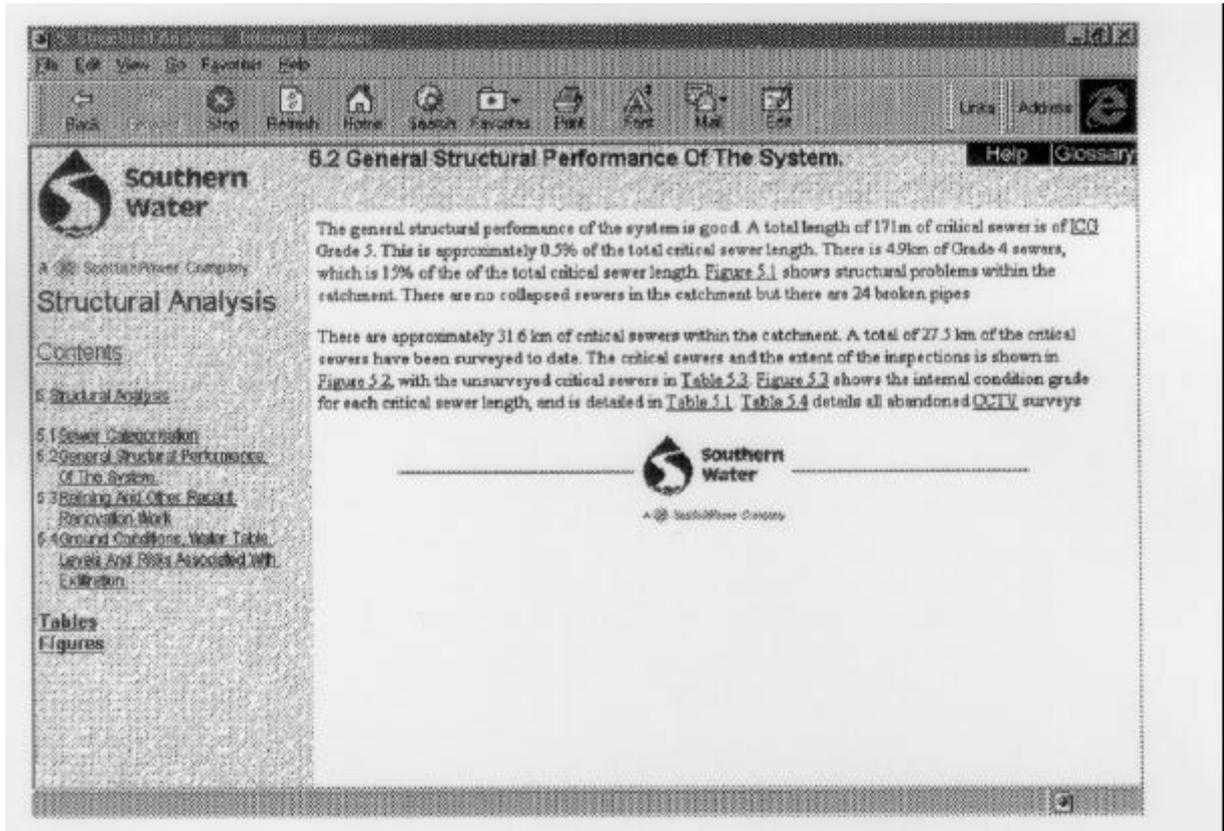
Option 2 would certainly have provided a good final product but we felt that it had some limiting factors. The lack of automation for report production and inflexibility to cover differences in the reports was considered restrictive.

Option 3 was considered to be the most promising route to follow. The file format used by a browser is a simple ASCII format which can easily be created. A variety of viewers already exist which can be embedded in to the browser to view the different document types. The web technology is well supported and is growing very rapidly. The browser would even allow MW to develop applications/viewers that could be embedded into the web page. A further benefit of the web based report is that it can be placed on an Intranet and made available to many users.

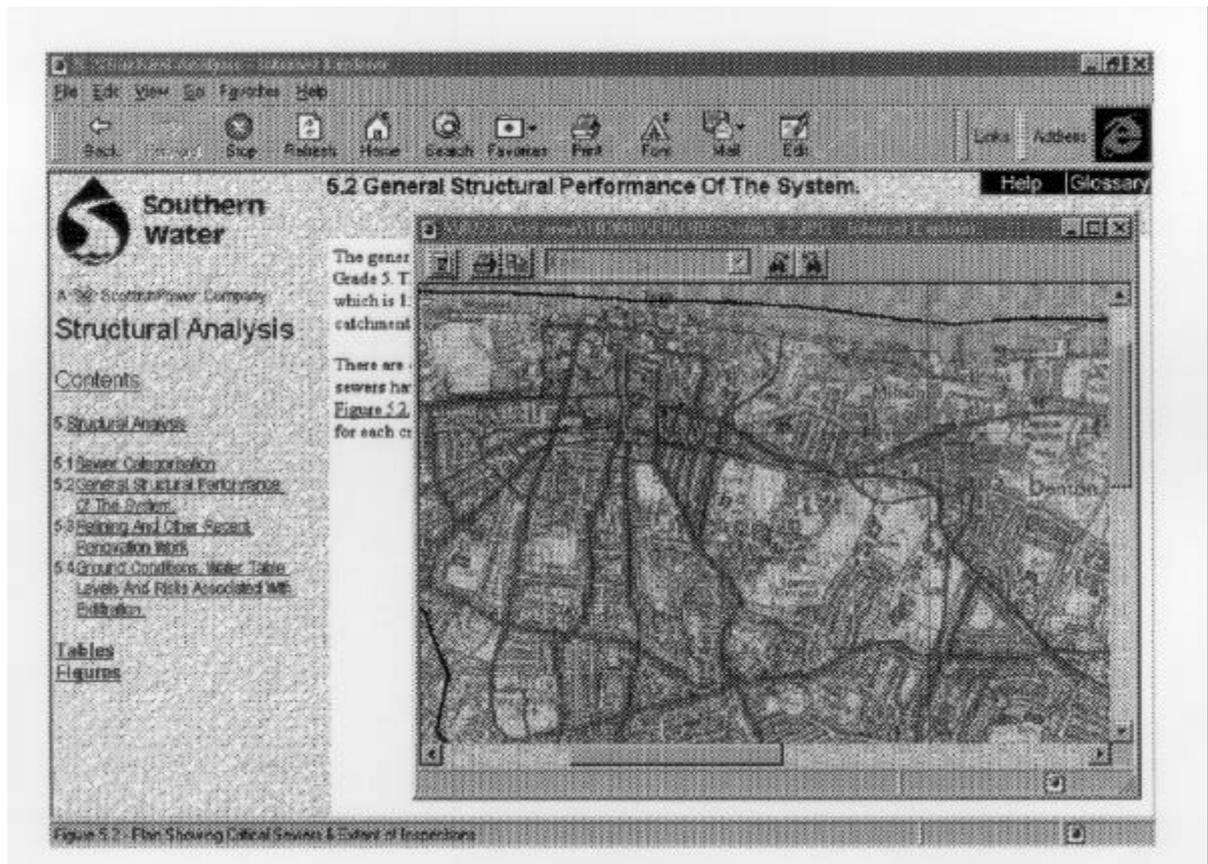
DEVELOPMENT OF REPORT TEMPLATE

A prototype of the final report format was developed using web based technology. The prototype was created in Microsoft FrontPage and included all the elements, report text,

figures, tables, photos and videos. All of the report is navigable with links between the text, figures, tables, etc. An example is shown below.



To view the different formats, a plug-in viewer was utilised which could be embedded into the pages and view all the file formats. The viewer appeared as part of a page and was completely seamless to the end users. After approval of the prototype, the software to create the report automatically was developed.



SOFTWARE COMPILER

The Report Compiler pulls all the elements of a report together. These include Figures (from MapInfo and AutoCAD), Excel tables, photos and videos. These are linked into the text of the report. The compiler uses a series of look-up tables for the figures, tables, etc. to list what should be present in the report along with its full title. A glossary of terms can be included in the compiler to provide an explanation of commonly used abbreviations or terms.

The compiler reads through the word document using the contents section of the report as an index. It divides the report into its sections and sub-sections and, in the process, creates a navigable index. Any reference to sections within the text will automatically create a link to that section.

When a link is clicked the appropriate file appears in its own window. The viewer allows the user to zoom, pan or print the file.

The compiler also carries out extensive error checking during the compiling process. This will inform the user if figures or tables referred to in the text do not exist on disk. It also checks whether figures specified in the look-up tables exist on disk or have not been referred to in the text.

CONCLUSIONS

In order to maintain User accessibility of the numerous DAP reports being produced, a software programme to convert existing electronic report data has been developed. The program automatically compiles the data into a navigable report using WEB technology. The process is repeatable at minimal cost to Southern Water.

DISCUSSION

Question

Peter Heweston

Hydsys

Are the viewers freely available from the internet and how long do they take to download ?

Answer

Plug in viewer reads a very wide variety of files and costs about \$90

Question

Joanna McKay

Binnie Black Vietch

I know that DAPs are time consuming and expensive to produce , what are the cost savings.

Answer

With 800 to 1000 reports and multiple copies gives around, 5,000 reports produced a CD costs around £3 and a paper report £40 to £50 this gives a saving in excess of £200,000. Software development costs were around 10% of that.

Question

Dave Walters

Virtual Worlds

NASA have recently report that a large proportion of their data is unreadable. CDs have a life-span of 5 to 10 years . With the proliferation of software are you confident that Word 99 in 10 years will be able to read Word 6.

Answer

We are definitely no worse of , paper reports are taken apart and do not have a long life. We will review CDs within five years this is the distribution medium not the storage medium so backup is not a problem.

Question

Simon Spooner

Mott MacDonald Ltd

I accept that paper reports are very bulky (I sometimes need to hire a van to deliver them to Southern Water) , will this system save paper. Will people not just print off the manual, will you have a problem with uncontrolled copies of bits of drawings. It is difficult to view CAD drawings without printing them off.

Answer

I do not believe people will print off widely. It is easy to pan and zoom rather than glue multiple A3 prints together. People can copy bits of drawings as it stands.