



Lindsay Doherty
Senior Engineer, Arup Water Consulting Engineers
Adjunct Senior Lecturer, University of Adelaide
& University of South Australia

A question surely to be asked by many organisations sometime in the future. With techniques, especially in information technology changing so quickly, keeping track of project documentation and records is likely to become a significant challenge.

A good example is the construction industry. What happens in say 20 years time when a complex project is to be upgraded or repairs are required. Knowing the original details can make the difference between a practical and economic undertaking and one requiring either extensive investigations or a conservative solution.

To ensure a safe and clean water supply for the residents of Yorke Peninsula, the South Australian Water Corporation recently constructed two new membrane lined and covered reservoirs at Upper Paskeville. In addition to aspects such as buried pipework the project required significant intricate construction procedures which were deemed important to record in detail to aid the tracking of any problems which could possibly arise.

The traditional method for recording these details were 'as constructed drawings', docketing the many written records and since the late 1800's surprisingly good photographs. Many of the old drawings, especially from the 1800's were works of art, often drawn in colour. But as time went by the vaults grew larger, the tracking process became more difficult and the dust deeper. Microfiche came to the rescue but the quality of the records were lost. With the drive for greater efficiency, organisations could no longer afford to keep and maintain these valuable records.

But the need for these records was becoming ever more essential as the amount of infrastructure and other projects grew. Also, it was becoming more evident that good as they were, many of the old records often didn't have the information required.

To address this the consulting engineers for the Upper Paskeville Reservoir project, Arup Water, looked to the use of electronic records and computers. One major problem was the continuing development of computers and computer programs and the uncertainty this provided for reviewing the records in the future. A slim possibility seemed to be one of the computer aided drafting (CAD) packages used by Arup Water.

As it turned out, the CAD package QikDraw had long been used by Blackwood High School. With the challenge of a SASE moderation of a student project the idea of providing a link from drawing to drawing to enable the moderator to easily navigate around the work was born. Using this 'Hot Link' facility, the QikDraw package was used to record the construction of a new concrete framed building at the University of Adelaide by linking construction drawings with digital photographs and written descriptions. The intended purpose of this was to assist in the training of civil engineering students and it was very successful in demonstrating details that in the past could only be seen in time consuming site visits.

The company QikDraw Systems who had been (and still is) a prominent supporter of education then developed a system to run the 'construction record' directly from a CD without reliance on any package installed on the computer. All of the extensive project records were recorded on this CD-ROM which was now computer independent.



As a result, Arup Water decided to trial the QikDraw CAD system for the Upper Paskeville Reservoir project. The idea was supported by the contractor, Pacific Lining Co Australia and the principal, SA Water Corporation. To distinguish its developmental nature at the time the package was renamed as 'QikLink'.

Recording all the information as the project developed was found not to be onerous and in fact greatly helped in keeping track of everything. Minutes, project sketches, surveys, weather reports, drawings, photographs, company information including web pages for all the parties involved, Gantt charts and progress records ... etc were entered into the system as they were recorded. All this was linked so the information could be easily and quickly retrieved. An example would be the underground pipework where it just requires an 'Inquire' onto any point to determine its exact location or a 'click' to see a photograph and details at a particular point and stage of construction.

The Upper Paskeville Reservoir project received the AWASA Branch Award and the IEAust Engineering Excellence Commendation. Thus, the whole project that included much innovation, not the least being the innovative method of documenting the project, was highly successful and a credit to all involved.

This method of documentation has now been implemented for a number of other projects and is clearly becoming a leading technique for the future. Adelaide High School provides an example where, for a student project, this technique is being used to document the school. Clearly it has opportunities for any field where a clear and quickly accessible record is required. As demonstrated by projects documented by university students this can be in any field as wide as the law, sporting clubs, fun documentations, and hobbies – the list is endless.

Building on the documentation facility it was realised the package provided a highly flexible presentation medium. Lectures have now been developed and presented at both the University of South Australia and the University of Adelaide with significant success. These lectures become 'alive' as the lecturer can manipulate the presentation, move around the screen, readily zoom into points of interest, write on or over what is on the screen, move back and forward between screen pages in order to explain issues and so on.

Now when the question "Where is it?" is asked, we now have an explicit and detailed record permanently stored in a very compact manner. With the 'driver' program contained with the documentation (or that lecture), the question "Where is that program from 20 years ago?" have a ready-made answer.