



The Dirt Digger

Welcome...

To the May 1998 issue of Dirt Digger, 4D Solutions' newsletter for our customers, distributors and partners.

In this issue we look at two more 4D sites where customers are successfully using 4D Model in road design and major construction projects.

We will also take a look at our Victorian sales and support operation that has been so successfully managed by Steve Crossley for the last 15 months.

And we'll look at the new 4D module which will make your drainage problems disappear down the gurgler.

There are also the other usual features – technical tips, and welcome aboard.

Don't forget that Dirt Digger is your newsletter. Let us know what you would like to see in it, and send us your technical tips so that we can share them with other users. 4D Model is now making regular appearances in the Help Files in Multi-CAD magazine, so your tips could appear there as well.

We look forward to hearing from you.

Dr Lee Gregory
Managing Director

Mr Alan Gray
Technical Director

Our person in Victoria!

A civil engineering package that operates the way a person's mind operates, was how Victorian distributor Steve Crossley described 4D Model when recently asked by a civil engineer why he should use the software package.

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"4D Solutions has provided a modelling package for civil engineers that is not only a leader in its technical capabilities, but also understands an engineer's learning process," said Steve Crossley, Managing Director, SCS Software.

Steve had been a civil engineer for more than 20 years before he became the Victorian distributor for 4D Model in January 1996. In his role at SCS Software, he uses this extensive experience to provide support and advice for civil engineers using 4D Model throughout Victoria and Tasmania.

"I became a distributor for 4D Model because I firmly believe it has many advantages over other civil engineering packages," he said.

Steve spends a lot of time on the road visiting 4D customers.

"Visiting engineers using 4D Model is an important part of my job. It gives me a chance to better understand their different requirements and challenges, and help them make full use of the software, so improving productivity. I also run seminars which allow me to educate senior management about 4D Model's many wide applications.

"I was recently guest speaker at a meeting of the Association of Land Development Engineers. The 4D Model message is now clearly being accepted by Victorian engineers just as it is throughout the rest of Australia.

"4D Model is an Australian developed civil engineering product which is something to be proud of. It is also well supported by 4D Solutions which provides a wide range of back-up for the product."

The Tipster

Users sometimes read in data and then discover that the x and y co-ordinates are reversed. For example, the data was in Northing, Easting form rather than Easting, Northing.

The option Utilities=>H-Z=>Swap XY can be used to swap the x and y co-ordinates.

Olympic Arena Checks in with 4D Model

On-site quality assurance checking of all steps in the construction of Australia's largest indoor sports and entertainment centre is being carried out through 4D Model.

Architectural and engineering service models are being fed on-site into a 4D survey model to ensure that construction of the Multi-Use Arena at Sydney Olympic Park, Homebush, goes exactly according to plan.

The Multi-Use Arena is being designed and built by construction giant Abigroup Contractors. As well as being a key venue for the Sydney 2000 Olympic Games and Paralympic Games, it is expected to meet Sydney's sporting and entertainment needs well into the future. Abigroup will operate the facility for 30 years through its control of Millennium, the management company for the Arena.

The fully roofed Arena has a 48 x 75 metre event floor which is surrounded by five levels of seating which can accommodate up to 20,000 spectators. The performance space is free of columns, which provides an uninterrupted view from all seats. There is also a large rehearsal hall with retractable seating for 900.

The Arena is adjacent to a 3,500 space car park, also being built by Abigroup, which will be shared by other facilities at Homebush Bay.

Abigroup's Chief Surveyor, Graham Wirth, said the 4D Model software was rigorously tested in an on-site trial before the company committed to long-term purchase.

"The software is being used for survey file management, calculations and storage of as-constructed information," he said. "During the trial period we found 4D Model superior to other systems in terms of speed, file handling and ability to transfer data to and from other packages. It is now coping with a huge amount of data and performing admirably."

Drawings and 2D files are supplied to the on-site surveyors, who put the files into 4D Model and convert them to 3D. The data in these files is compared with on-site survey information models built in 4D Model so that there are no possible clashes in the siting of engineering services, such as storm water grease lines and telecom lines, and structure positions, such as piling.

On-site survey information is collected using the TP-SETOUT survey software package which links directly into 4D Model. TP-SETOUT records field data and compares the measurements to design parameters for setout and QA (quality assurance) purposes, then the data is compiled in 4D Model for quantity computations, data storage and transfer, and design modifications.

"The data is put together in 4D Model in layers, which is an excellent feature for visualisation," said Mr Wirth. "Another good feature is the ability to use very long file names to enhance file management."

"We are currently checking ground slabs in 4D model and are using around 30 layers at the moment for all our data," he said. "We expect that by the time construction is finished in August 1999 this will at least double."

"4D Model is proving an excellent tool for handling very large project models. Our models currently contain about 60,000 to 70,000 points and this should at least double," he said. "We're confident that 4D Model will successfully see us through to the end of the project."

Practise on 4D Model

4D Solutions customers can now get free Practise Versions of the software for use by staff who want to become familiar with the program but can't get access to full versions being used on production jobs.

"In many of our larger customer sites staff want to become familiar with the software but all the licensed copies are generally being fully utilised," said Lee Gregory, Managing Director 4D Solutions. "The employer can now get the free Practise Version and train their staff to use 4D Model at virtually no cost."

"Also, those customers who want to maintain their 4D skills while working on other projects can use the Practise Version to do so."

The Practise Version is a special 5,000 point version with no output options or plot outputs. However, users can still plot to a model to preview any plots.

The Practise Version is shipped on the 4D Model installation CD or is available from 4D Solutions. After loading the Practise Version the customer can simply fax or email the registration form to 4D Solutions who in turn will issue an authorisation code to enable the program.

Down the Drain!

The 4D drainage module has been enhanced to significantly reduce the amount of time required for drainage design and the production of the long section drainage profiles.

4D Drainage now talks to: ILSAX; the new Drains program - Drains; PC Drain; RAT-HGL; and your own spreadsheet/word processor files.

“We wanted to bring the drainage design process together for our clients enabling them to achieve major time savings,” said Rob Graham, a drainage engineer working with 4D Solutions.

“For example, customers using ILSAX will be amazed at how quickly 4D produces those pipe files complete with catchment areas, inlet capacities and bypass pit information. And yes, we have an ILSAX pipe and rainfall editor built into 4D, to review and adjust the parameters automatically set by 4D.”

Overland flow analysis has always been very time consuming. Now 4D takes the surface flows from the hydrology packages and performs normal depth calculations along the flow paths specified.

Flooded width indicators are drawn on the road model and the indicators even change colour when the width exceeds a specified maximum value. In addition to the flooded width, hydraulic data such as velocity, depth, slope, wetted perimeter, etc. can all be exported to a spreadsheet program for further analysis.

For those people with ILSAX there is now a new Windows version of the program called Drains. This new program performs hydrology calculations, like ILSAX, but also sizes, pipes and sets invert levels. 4D produces the input files for Drains and, of course, the network and hydrology data can be read back to 4D to update the model.

For PC Drain users, the service locations and surface profiles are also included in the data files produced by 4D.

The 4D drainage profiles can now be customised more than ever before. Prior to the new enhancements, 4D drainage profiles have included pipe sizes, invert levels, natural and design surface profiles, services, HGL data, flow data, pipe types and pit junction data (take a breath after reading that one).

Now customers can add their own data to the long section because 4D can read spreadsheet or word processor files (tab delimited format) and place this data onto the drainage profile. The customer can have

control over the “look” of the profile by specifying text sizes, text styles, colours, number of decimals, arrow types and the location of data (just to mention a few of the options).

Call 4D Solutions to find out more about the new 4D drainage module.

Road Design Made Easy with 4D Model

Leading engineering firm, Hyder Consulting, has found that the ease of use of 4D Model makes design work much simpler.

Hyder is using 4D Model in its Sydney office mainly for road and subdivision design.

An example is the major redevelopment at Sydney’s Warringah Mall shopping centre for which Hyder is using the software to model all the road works and stormwater drainage.

Other jobs for which 4D Model is being used include the design of new roadworks around Castle Towers Shopping Centre at Castle Hill in Sydney’s north-west.

“4D Model is very flexible, reliable and easy to use, and does everything we want it to do,” said John McDermott, Associate, Hyder Consulting. “We find it better than most both for design and for producing ‘what-if’ scenarios for proposals.”

Hyder Consulting, formerly Acer Wargon Chapman, is a large UK-based multi-disciplinary engineering firm whose services include civil, structural, mechanical, electrical, environmental and transport engineering.

The firm operates in 31 countries throughout South-East Asia, the Middle East and Europe.

In Australia, Hyder Consulting employs 350 people in offices in Sydney, Melbourne, Brisbane, Adelaide and Darwin.

The company had been using other engineering design software for many years when it was introduced to 4D Model by one of its drafting contractors.

“We thought it much better and more user-friendly than our existing software,” said Mr McDermott. “We are still using one of our previous packages, but 4D Model killed the other one.

“Our design draftspeople found 4D Model very easy to learn,” he said. “They were given formal training

sessions by 4D Solutions and picked the software up very quickly.”

Design drafts person, Sas Clark, said that of all the packages she has used, 4D Model was the easiest to learn and use.

“It is much more friendly and versatile, particularly the Windows 95 version,” said Ms Clark. “It processes and transports information very quickly, and its menus and walk-through methodology makes it very easy to search and track things, compared to other packages which use line modes and require lots of keyboarding.

“We use AutoCAD as our basic drawing package,” she said. “We draw a layout in 2D in AutoCAD, then step the information into 4D Model and work up the 3D design from there. It is very easy to import the information from AutoCAD into 4D Model.

“We also get survey information from outside contractors and put this into 4D Model for processing. Again, importing and exporting is no problem.

“4D Model interpolates between points and produces contours then we can work up a road design using 4D Model’s templates - another feature which makes for ease of use.

“The 4D training manual is very good,” said Ms Clark. “It helps you to understand steps and procedures and shows you in detail how to design. I used it to show me how to design a road, and this wasn’t at all difficult.

“If, for example, you want to design a road with an extra feature such as an added lane or parking area, and you use AutoCAD, as we do, for producing the 2D plan, you then put this plan into 4D, run a template and match up the strings. The training manual takes you through all this.

“I also like the way that, if you are working in 4D, you can send plots direct from 4D to a specified plotter,” she said. “I haven’t used anything else that does this.”

Ms Clark was also impressed with 4D’s support.

“You only have to make a phone call and they answer all your questions and fix your problem immediately,” she said.

The Tipster

To read DXF data into an existing drawing in AutoCAD 14, the DXF file must be in AutoCAD 12 format.

In 4D Model V3.2, the new output option Data output=>DXF 12-14 and plotter type “dxf_12 2d” will write out DXF in the correct V12 format.

Welcome Aboard

New and/or additional licenses at

Abigroup Contractors- Brisbane

Ausenco Limited - Brisbane

Bateman Kinhill - Perth

Brisbane City Council – Survey Section

Connell Wagner - Darwin, Brisbane, Sydney

Engineering Setout - Sydney

Flanagan Consulting Group - Cairns

Gutteridge Haskins & Davey – Geraldton

Hamilton MacLeod – Geelong

HDS Australia - Balwyn

Hyder - Melbourne

Ian Edmiston - Brisbane

Kamunting Construction Sdn Bhd - Malaysia

Kinhill - Brisbane - Water Engineering, Process and Industrial

Kinhill - Rockhampton

Lawson & Treloar – Brisbane and Melbourne

Leederville TAFE - Perth

Leighton Contractors – Sydney, Eastern Distributor

Main Roads Queensland - Engineering Design,

Infrastructure Planning, M(TP) Metro,

Barcaldine, Roma, Design Systems, Gympie,

Engineering Design, Land Survey, RTCS - SE

PPK Environment & Infrastructure - Brisbane

Shedden Uhde - Melbourne

Sinclair Knight Merz – Cairns, Sydney, Bookham

WBCM Group - Melbourne

Top service & support

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D Solutions is committed to providing not only the best civil engineering software on the market, but also the best service and support.

Expert pre- and post-sales support is available from:

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