

News Letter

NRG Survey System for Windows Version 7

Well another year has passed here at the office and another version of the NRG Survey System for Windows is being released. Version 7 will be available from September 2003 onwards. We feel that the User will notice a remarkable improvement in this version. Anyone who was kind enough to join us at our yearly User Group Conference on the 11th September will already of had a taste of what is now available. They will also have had most of the new features explained to them. For the rest of you, this News Letter will highlight these features and give you a quick explanation to get you started.

DTM Mapping

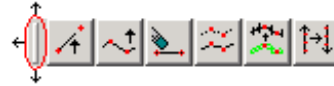
Addition of Customisable Toolbars

Incorporated into DTM Mapping is a user customisable toolbar interface. This allows the User to turn on or off



selected toolbars and position them anywhere on the screen to suit their personal preferences. To access the Toolbar Setup Menu, press F2 or select View → Toolbars. Tick on the appropriate function bar.

In order to move toolbar to a new location, grab the area highlighted below and drag and drop to the required place.



Note that the toolbars can be located on the top or the left side of the Editor Window.

Toolbars are available for the following :-

Edit Points Mode
Edit Lines Mode
Edit Triangles Mode
Edit Text Mode
Edit Boreholes
Edit Shading
Model Functions
Tools
Stations
Mode
Loaded Models
Show List
Bore Hole Materials
Zoom and Pan Controls
String
File
Raster Image
Cogo / Calc Functions

For further information please see page 11 of the DTM Mapping Manual.

Background Model

In response to a lot of users requests, our background model has been improved. This function allows the user to overlay an existing .gpf file as a coordinated background, without loading any information into the Editor Table. Select the file to be viewed from the Background model Toolbar.



Select Load from the File Menu. Select Background Model or turn on the Background Model Toolbar and press the folder icon. Choose the file to view.

Line colours can be set by selecting Display → Colours.

Point colours and styles in Display → Line and Point Styles.

Note a number of functions have also been added to the Setting Out Bar to allow Dips and Easting, Northing differences to the background file to be calculated.

Raster Image

This gives you the ability to display a bitmap image as a background. Select Load from the File Menu or use the Raster Image Toolbar. Select the file to




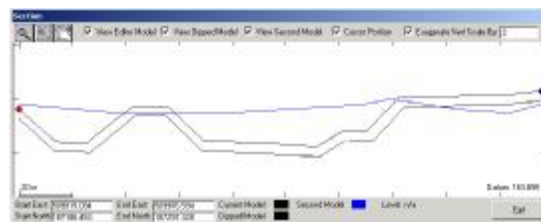
load and you will be prompted to justify the image. Select two points on the image and give them a coordinate. You can do this either by manually typing in the coordinate or by clicking to a point in the Editor Window. Press the Scale and Rotate button and press OK. The image will be loaded into the background of the Editor Window.

Swap Northing for Level

In order to correctly process Building Elevations, the ability to swap the Northing for the Level has been incorporated. Select, Survey → Swap Northing for Level. The Editor Table will then automatically change the Level for the Northing. Pressing Redraw will produce an elevation.

Live Cross Sections


To view a live cross section, select Model → View Section or press the  button. Click on the start point and drag a line over the area to be viewed. Click again for the end of the line. A Dipped Model and the Background Model can also be viewed along with the Editor Section. Vertical exaggeration can be specified.



Note the Coordinates for the Start and End of the section line are shown, along with the colours currently assigned to each element. The position of the cursor can also be displayed.

3D Render View and Drive Through

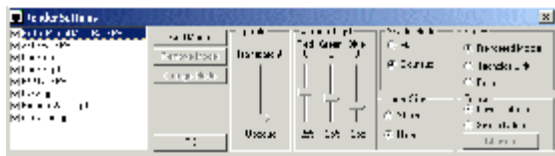
One of our biggest advancements over the past year has been the addition of the Render Engine; a fully Direct X8.0 compatible 3D model viewer at an introductory price of £199. Any existing .gpf file with a triangle model can be used in conjunction with the Render Engine. A maximum of 255 files can be loaded simultaneously.

With a triangulated model open in DTM Mapping, click the Render Button  in the main toolbar. This will start the Render Window.



In order to view more than one model in the Render Window each individual file must be triangulated. Press the Configuration button. You can add up to 255 models by pressing the Add button and selecting the file.

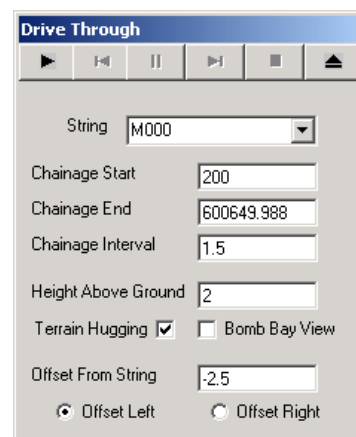
Each file can have its Render properties edited individually by highlighting the file and changing its setting in the Configuration Window.



Note that the Volume Surface Layers in the loaded file contain the information for colours or digital textures.

To create a Drive Through

Select the appropriate String from the drop down list, select the Start and End Chainages. You must specify how often the engine will render the drive through. Note that, the smaller the Setting the slower the movie. Tell the system the Offset from String Left or Right if required.



A height above ground should be specified; if set to 0 the drive through will follow the ground levels.

Toggle on or off the options for Terrain Hugging and Bomb Bay views.



Press the Play button when happy with all the settings.

Note that, if the Chainages are reversed the Drive Through runs in the opposite direction to the String.

As the Drive Through starts a Control Bar appears to allow you to stop, start the movie and control the View Direction.

The Boot button allows you to stop the Drive Through, get out of the car and walk about. Use the arrow keys to control movement when on foot.

Model Morpher

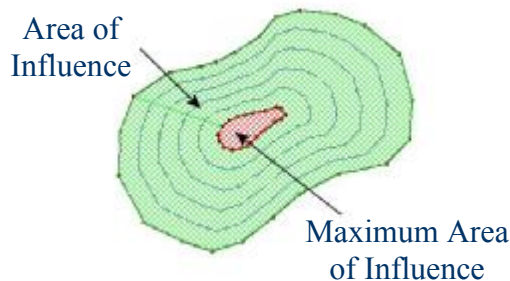
Model Morpher allows you to apply Deformation or Lift to a selected Zone of Influence.



Draw Limit of Influence – Will allow you to draw a Lasso Line around the points, which will act as the extents of any Deformation.

Draw Area of Maximum Influence – Allows

you to select the points which will have the maximum Deformation applied to.



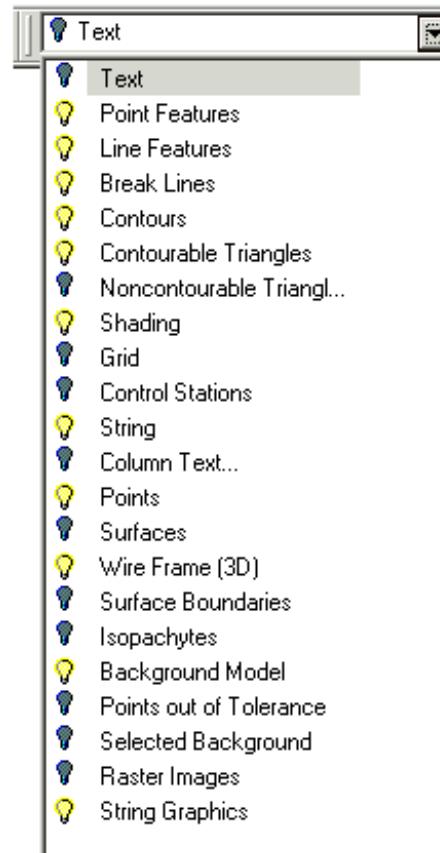
Maximum Adjustment – Specify the maximum Deformation or Lift amount

The Current Adjustment is displayed.

Volumes are displayed either based on a previous Volume Measurement or against a Datum Level. As the Area of Influence has Deformation or Lift applied the Volume will update. Therefore allowing you to Custom Design an area to store a given Volume of Material.

Show List

The Show List Toolbar offers an alternative to the right click menu and allows the user to turn on or off the elements of the Display. The added advantage over the right click menu is the ability to turn multiple layers on or off at the same time.




Tunnelling

A number of Tunnelling options have been included in the Setting Out side bar. These are :-


Tunnel X Offset Difference
Tunnel Y Offset Difference
Tunnel Radial Offset Difference
Alignment Offset



Align Points

In order to make the surveying of features such as steps easier, we have incorporated a function which will Align Points to a specified line. Select Align Points from the Calc Menu or press the  button. Select the two points to act as the alignment. You can then click on any other points to shift them to the line.

Centre of Best Fit Circle

Select the points around the Circle in the usual way and select Centre of Best Fit Circle by pressing the  button. The system will calculate the centre of the circle, and add a point for you and prompt you for a level.

Chainage Markers

At long last after many requests, a Chainage Marker System has been implemented. Select the appropriate String from the drop down list and select Display → String Setup, then press Graphics Settings.



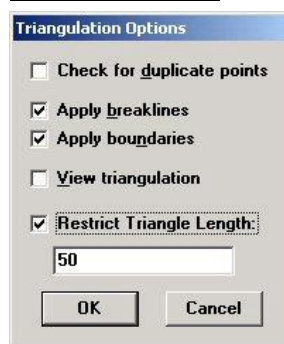
Tell the system the Start, Interval and End Chainage. Specify the Offset for text and section tick marks.

Specific Levels



Selected points can be shifted to a specific level, a null level or to levels from a second file. Select the points and choose Edit → shift points.

Long Triangles



On triangulating for the first time, you will notice a new feature to stop triangles forming over a specified length. Turn the option on and enter the maximum allowed Triangle Length.

Import General Coordinates

Found under the File Import Dialogue; the Import General Coordinates allows DTM Mapping to read a file of any given format. Simply select the appropriate fields, their order and any value separator like a comma.



Add Curve

It is now possible to Add a Curve through either 4 points, or two points with an intersection. Select Calc → Add Curve.



Pictorially, select the points and enter the Curve information. Note that, a new Line Style can be run through the

generated points. Press Add to import the Curve Data into the Editor.

DXF Output

Although offering the same expected functionality, the user interface for our DXF output is noticeably different. Line styles and Points Features are now fully supported. Two options are available; a DXF Output containing all the Editor Information, or a Triangle Export to export the triangle model as a renderable DXF.



The system then prompts for the parts of the model to be exported. The exported model can contain every element of the DTM Mapping Display. However this may not always be necessary, so each individual element can be toggled on or off independently. If Contours are to be exported, you should specify the intervals and limits to be used, as well as any smoothing that is to be applied. You also need to

tell the system how often to place points along the contours themselves.

A 2D DXF will contain all the Line and Point Features drawn correctly, but will have no levels attached.

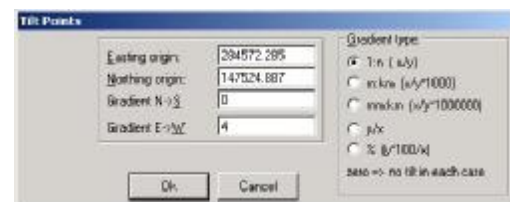
A 3D DXF with overlay will create a 3D DXF model (with levels) and a 2D model for the lines and features (with no levels).

You may choose to Output Continuous Line Styles or Line Styles with 2D Block Overlay. A Continuous Line will not show any features. Line Styles with 2D Block Overlay will Output the DTM Mapping Features as a 2D Overlay. The system prompts for the name of the Export File. Enter the required name and press OK.

Choose a Scale for your output file if you are using By Layer Line Widths. This information is then used to scale the line features in AutoCad.

Tilt Points

To tilt points about a Central Origin select the points and choose Edit → Tilt Points. Enter the coordinate which tilt will be applied and enter the slope parameters.

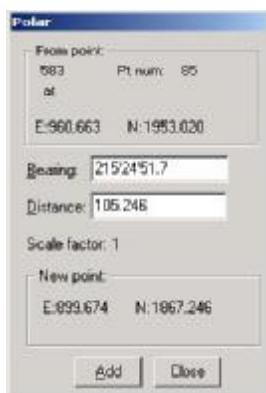



Wild Cards for Feature Codes

New Features Files are being dispatched with this Software Release. We would like to encourage the User to adopt these files as a number of changes have been made. Most noticeably the addition of Wild Card Features, i.e. a lines style B??? means the system recognises any code that starts with a B. Load the new features file and you will see the Wild Card Features.

Add Points by Polars

Points can be added from a Bearing and a Distance in DTM Mapping. To

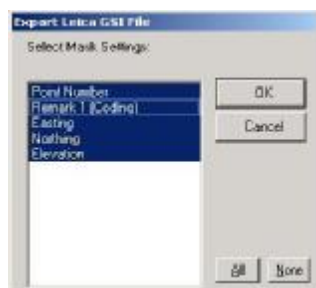


access this function press the  button on the Calc Toolbar. Select the point from which the bearings will be calculated by clicking in the display window. Enter your

Bearing and Distance and a new coordinate will be calculated and added.

GSI Files

For those of you with a Leica instrument; an export to Leica GSI File



Routine has been included. Open the correct file for conversion and select File → Export → Leica GSI. You will be prompted to select the elements of

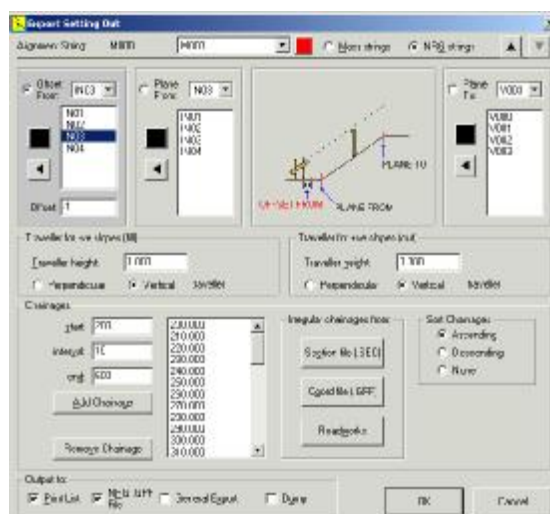
the file you wish to export. Also improvements have been made to the import routines

Moss Extractor

Although Moss Extractor already had Setting Out functions for Batter Rails and Profiles, the User interface has been massively revised for version 7.

Export Batter Rails

Press the Batter Rail Calculation Button 



Select the String which is closest to the point you wish to Offset in the Offset from Window. Specify the required offset.

Pick the strings to project the grade between Plane From and Plane To.

Specify the Traveller Heights and Chainage range for the calculations. Note that separate Travellers can be specified for Cut and for Fill.

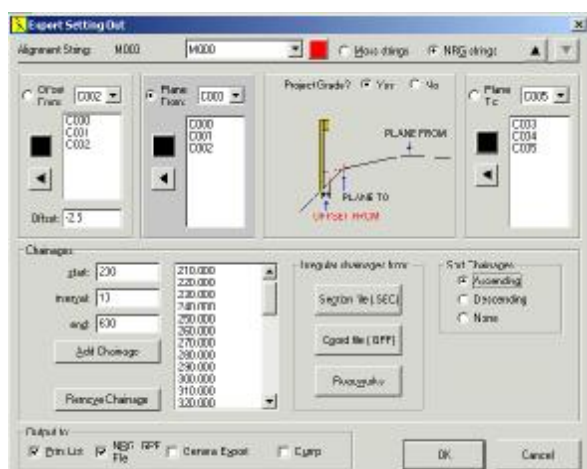
The following output formats can be selected for the produced file : Print List, .gpf file, General Export or Dump to a data logger.

Note that, strings can be selected pictorially. Ensure that you are in the correct box and simply click the cursor over the line required.

Export Profiles

Press the Profile Calculation Button Select the String that is closest to the offset point in offset from and specify the required offset.

Pick the strings to project the grade between Plane From and Plane To. Note that to successfully calculate Profiles for a Crown you will need to run the calculations twice; once for each Grade.



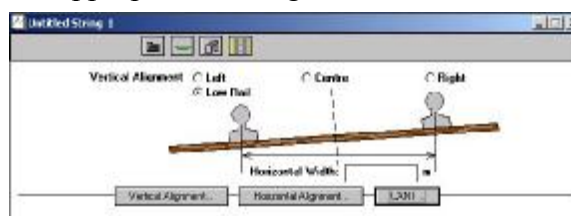
Specify the Traveller Heights and Chainage Range for the calculations.

You may select from Print List, .gpf file, General Export or Dump to a Data Logger for the output format of the produced file.

Design Track Design Interface

To make life easier for those who build railways, we have introduced a Track Design Interface. Open Design press to enter Track Design.

The system needs to know from where the cants should be interpreted. Options are Left Rail, Right Rail, Centre or Low Rail. Note that, if the Low Rail option is used the cant interpolation will be taken from the Lowest Rail, which may vary from side to side. Simply Toggle the appropriate Setting on.



A width between the rails must be specified which will be used for all calculations.

The need to have the cants in the Left and Right road have been done away with, now the entire cant is specified as one fall.

Horizontal and Vertical Alignments are entered as before.

Press the button to return to the Road design module.



Cross Sections Export Setting Out

Within the Cross Sections Module is the ability to export Setting Out information for many purposes.

Open Cross Sections.

Select Sections from the top drop down menu and click Export Setting Out, the following screen will greet you: -

Select the Layer that holds all the Design Information from the Layer control drop down menu in the top left of the window. The Left offset is the string from which the left hand side offset will be calculated, (LOC), the right, (the ROC). Specify any required Offsets from edge of carriageway in Offset By.

To project grades from the sectional information we must use the Plane "From" and "To" drop down dialogue for each side independently. Select the string closest to the offset line as your Plane From, and the string dictating the breaking point of the fall as your Plane To. (This may be the opposite edge in a co-planar situation, or could be the central string in a balanced crowned carriageway.) Repeat the exercise for the opposite side.

Any required Travellers can to the calculations at this stage. Specifying the Traveller Height and whether the Traveller is measured Perpendicularly or Vertically. Note that, two options are available, one for Fill slopes (those of a negative grade) and Cut Slopes (those of a positive grade). This option becomes necessary when calculating Batter Rails. As Cut and Fill rails usually have a different Traveller. However for Profiles they will both need to be the same.

Select the chainages either by All in the Section file or by specifying a range. The Output To allows you to choose what format to output the calculations in. The options being to print a list to the default windows printer, Export to an NRG .gpf file, create the points into a new layer, dump directly to an external data-logging device.

Global Change Project

The change project dialogue has been revised to include the option to sort all listed projects by the date they were created, or alphabetically. We have also included the option to search for a project name.



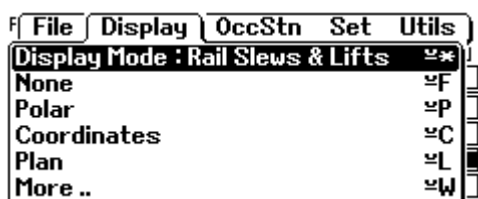
New Feature in Workabout to report Slews and lifts for railway maintenance.

The alignment can be entered on the workabout or downloaded through NRG Design module on a PC.

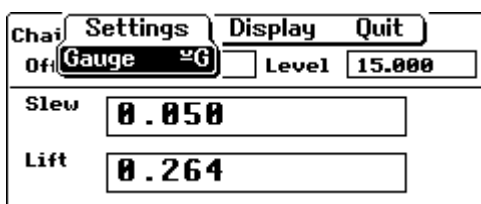
Horizontal & Vertical tangent points are stored as well as a list of cants where they change.

A setting is available to use a cubic or linear interpolation between cants.

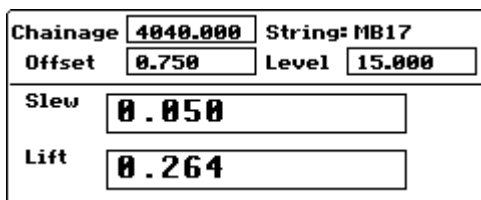
The user sets his OccStn details as normal, opens the relevant string if not already open, and sets the display mode to Rail Slews.



The gauge can be set in the main settings screen or from the display screen itself.

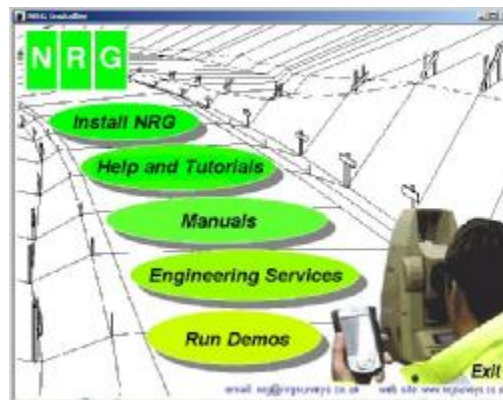


When a point is surveyed or hand entered the lifts and slews are reported thus;



The New CD

Our CD has changed. Don't be scared of the new look of the CD, we have changed the front end and improved the robustness of the installation program.



Select Install NRG to install the programs to your Hard Drive. **Remember that installing the latest version will not destroy any of your existing data.**

Also included on the CD are a number of sample jobs. Information for these can be found on the installation screen.

Technical Support Line

We have recently had a dedicated Support Line installed, in the hope that we can deal more efficiently with any technical queries.

The number for this Support Line is

09065 221109

Note all Support Calls are charged at £1.50 a minute.

Or send us an email at :-

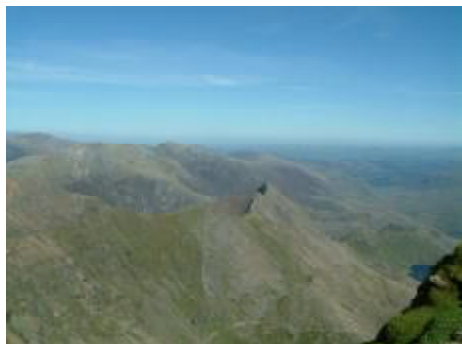
support@nrgsurveys.co.uk

What do you have to say

We would like to hear your comments over the technical support line and the conference / user group. Please tell us what you think and give us any comment on how we can improve the service.

The Snowdon Experience

As those of you who joined us at the User group / Conference were aware, an intrepid bunch of us walked to the summit of Snowdon. Thanks to all those involved and here's a picture of the wind swept wanderers at the top of North Wales.



The Conference / User Group

Held on the 11th and 12th of September our yearly conference has past. Hopefully everybody that came along had an enjoyable couple of days and most importantly benefited for the whole experience, leaving having learnt something new. We are currently sending out a questionnaire to all those involved in the conference to improve the service for next year. Please ask if you would like a questionnaire and have not received one.

Laminated Code Lists

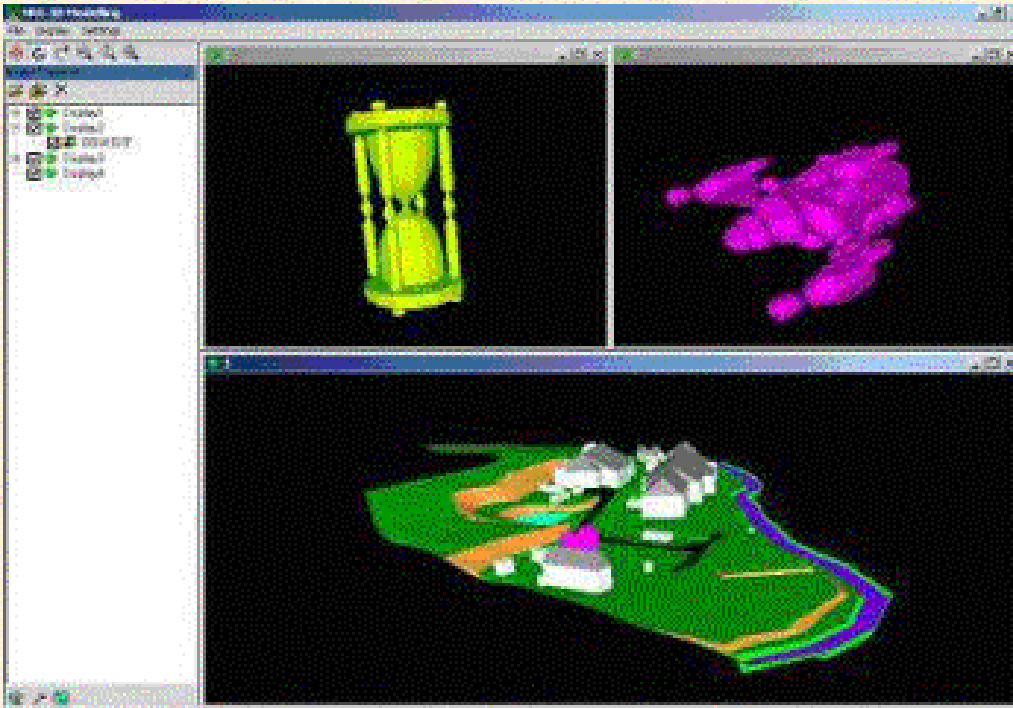
We have a number of laminated field code lists containing all the default DTM Mapping Feature Codes. The ideal solution for those who forget their codes, or have a number of surveyors all using different coding systems. Please inform us if you require one.





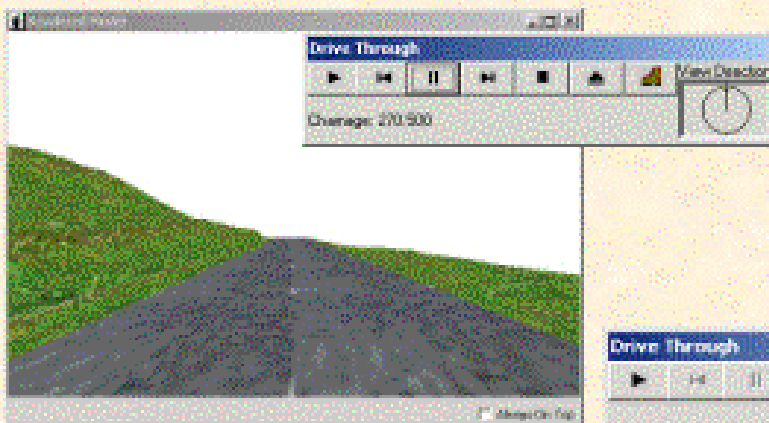
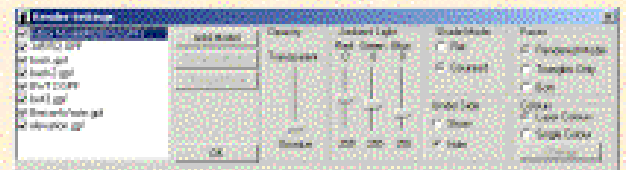
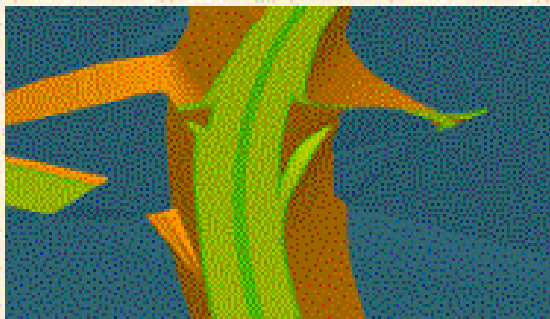
Render Engine

Software for 3D Visualizations and Drive Throughs



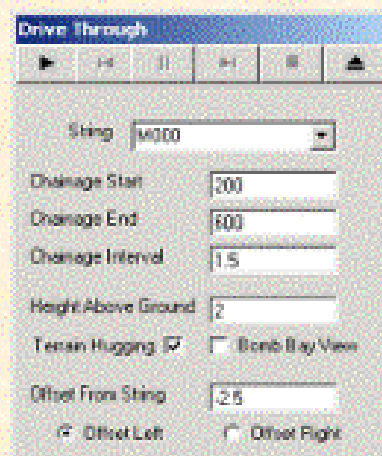
Create eye catching 3D Visualizations with ease. Use any existing Files. Load Multiple Models. Adjust Lighting and Transparency. Rotate using 3D Orbit Vertical Exaggeration adjustment. View Underside of Models Import Scanner Point Clouds, AutoCad Dxf's and 3D Studio Max Raw files.

Overlay Designs and Ogl's. Highlight potential design errors. Visualize your job.



Save View as image files. Set individually Colours and Transparencies for each Model. Even use digital textures based on the triangle surface layers.

Drive throughs created along existing strings at specified chainages and offsets. User defined Eye Height. Terrain Hugging and Bomb Bay Views. User Controlled View Direction. Even walk about the Model at will.



The only limit is your imagination.



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