



Plotting Tutorial

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Product

Surpac™ 6.6.2

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Introduction

Overview

In Surpac you can create plots using:

- autoplot
- file-based plotting

Autoplot is essentially What You See Is What You Get (WYSIWYG) plotting from the Surpac graphical viewport. It is simple and easy to use.

File-based plotting allows you to perform more complex plotting functions.

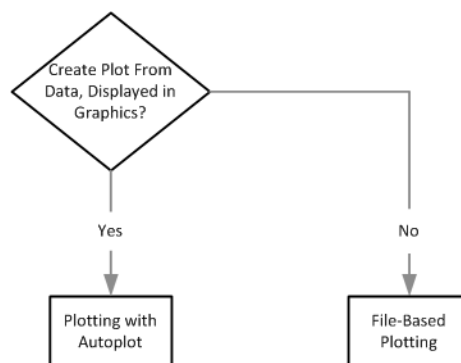
You can use the Surpac Plotting window or Dassault Systèmes DraftSight™ to view and edit the data before printing or plotting it. DraftSight is useful for adding mark-up and outputting to **.dwg** and other file formats.


Requirements

Before you begin this tutorial you must have:

- basic understanding of Surpac
It is recommended that you work through the **Introduction to Surpac** tutorial before attempting this tutorial.
- Surpac installed
- the data set accompanying this tutorial

Workflow



 **Note:** This workflow demonstrates the steps in this tutorial. There are other ways to achieve a result.

Setting up for this tutorial

Setting the work directory

A work directory is the default directory for saving Surpac files. Files used in this tutorial are stored in the folder `<shared_files>\demo_data\tutorials\plotting`.

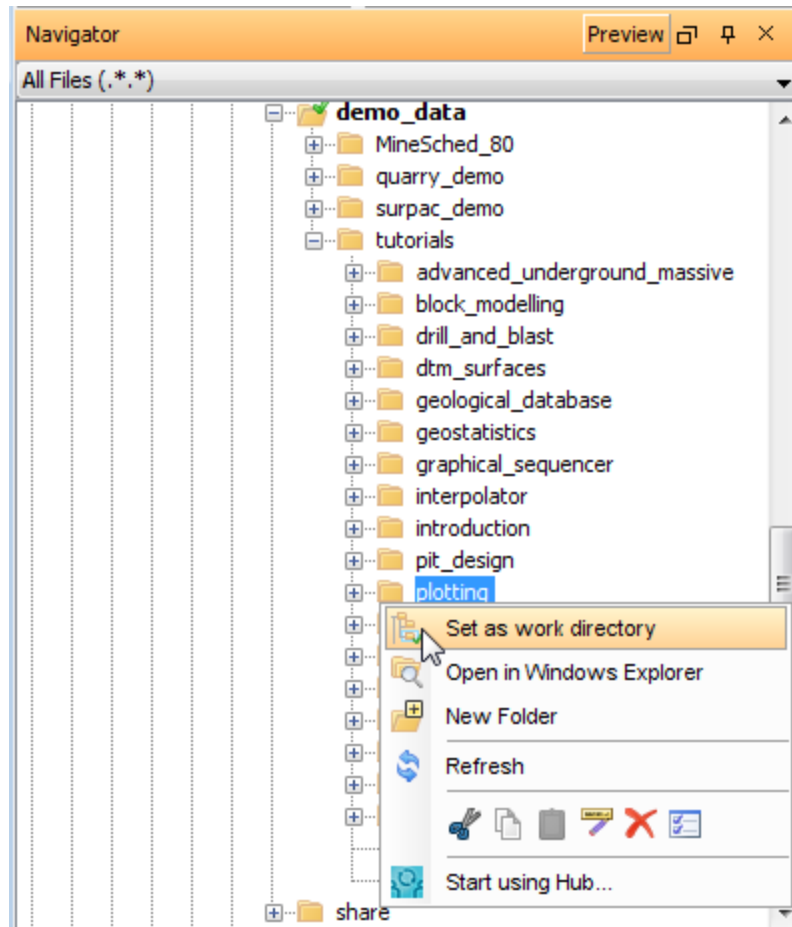
Where `<shared_files>` is the directory in which the Surpac shared files were installed.

In Windows 7, and Windows 8, the default path is

C: \Users\Public\GEOVIA\Surpac\66\demo_data\tutorials\plotting.

Task: Set the work directory

1. In the Surpac Navigator, right-click the **plotting** folder.
2. Select **Set as work directory**.




The name of the work directory is displayed in the title bar of the Surpac window.

Setting Plot Editor to Surpac

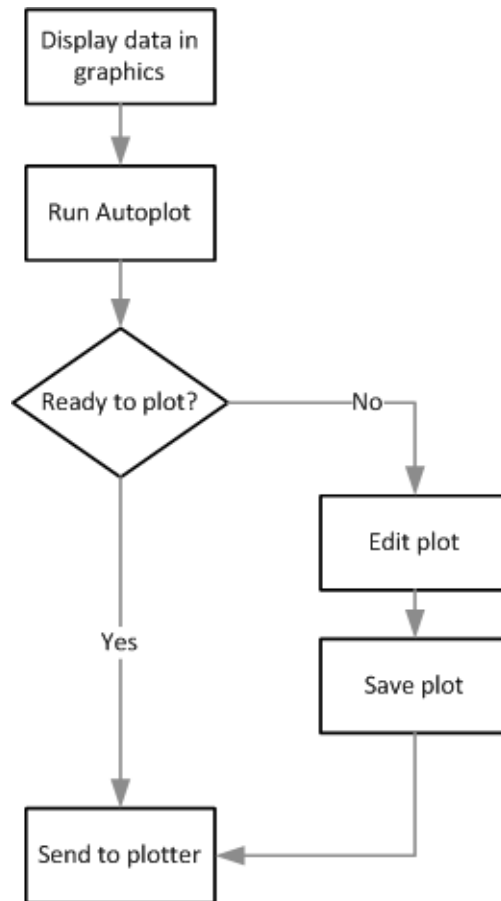
You can use the Surpac Plotting window to display and edit plots, or you can use Dassault Systèmes DraftSight™, assuming that it is installed and licensed. For the first part of this tutorial you will use the Surpac Plotting window.

Task: Set the plot editor to the Surpac Plotting window

1. In Surpac, choose **Customise > Default Preferences**.
2. In the list on the left of the *Settings* form, select **Plotting > Plot Window**.
3. If **Default plot editor** is set to **DraftSight**, set it to **Plotting window**, and click **Apply**.
 **Note:** You do not need to restart Surpac for any change of plot editor to take effect.

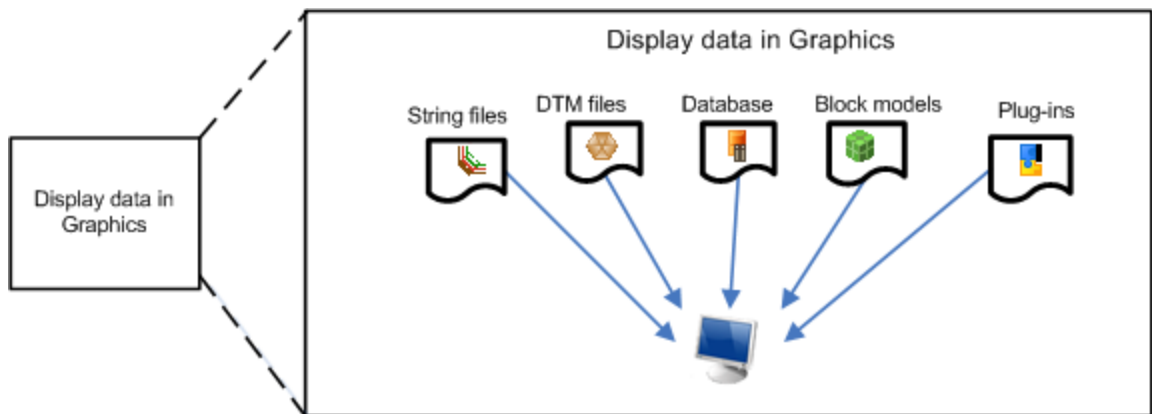
Plotting with Autoplot

Workflow



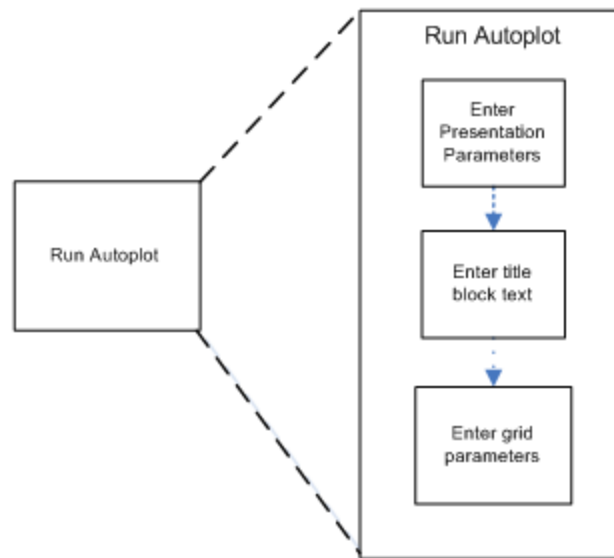
There are two mandatory steps to create a plot file with Autoplot:

1. Display the data you want to plot.



String styles, colour, marker styles and text are all plotted in the same way that they are displayed in **Graphics**.

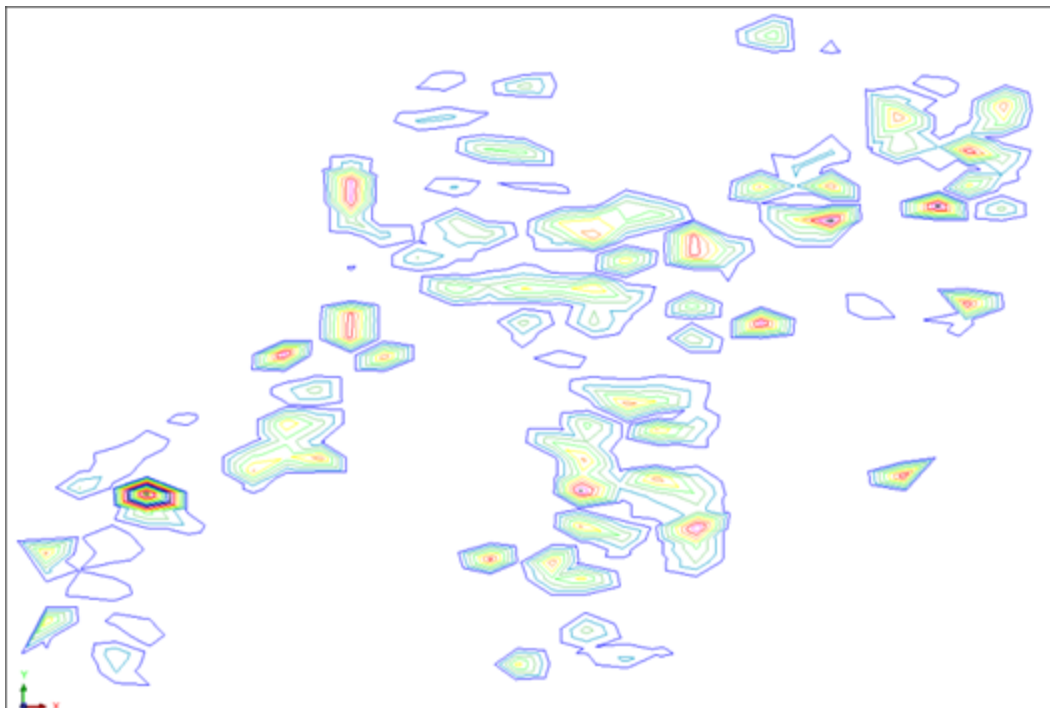
2. Run **Autoplot**, and specify parameters such as sheet size, and scale.



Plan view plotting

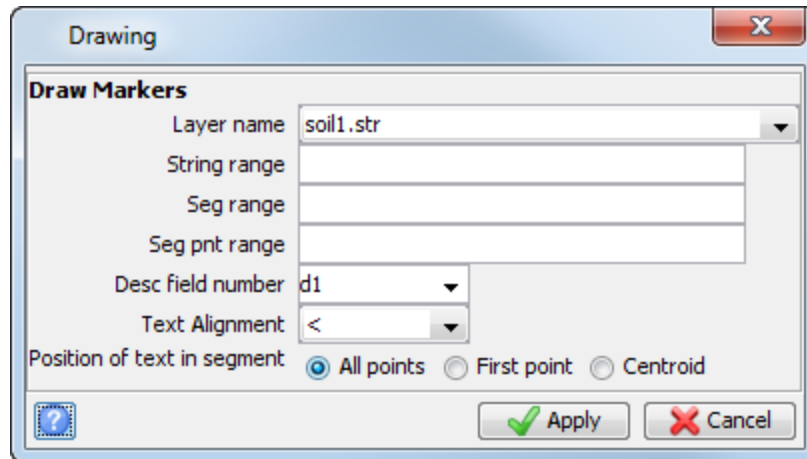
Task: Use Autoplot to plot data

1. Open **soil1.str** in **Graphics**.
2. Choose **Display > Hide strings > By selection**.
Click the strings that you do not want in the final plot. For example, string 1000 represents the soil sample locations and should not be plotted as a line.
3. Press **ESC**.
The contours are displayed.

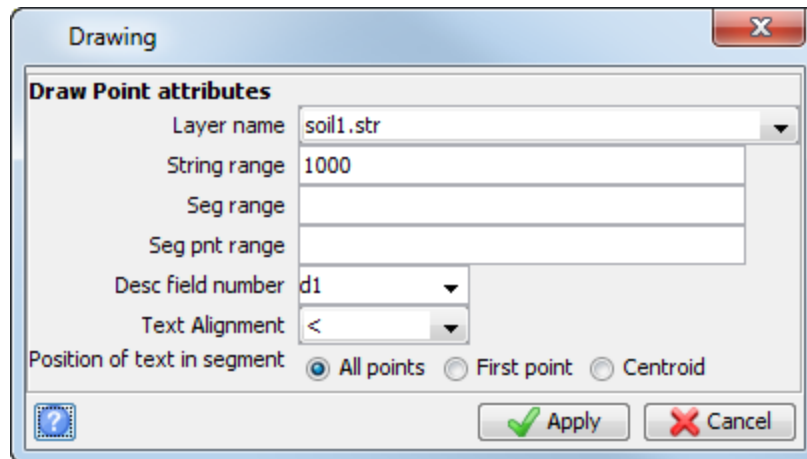


4. Choose **Display > Point > Markers**.

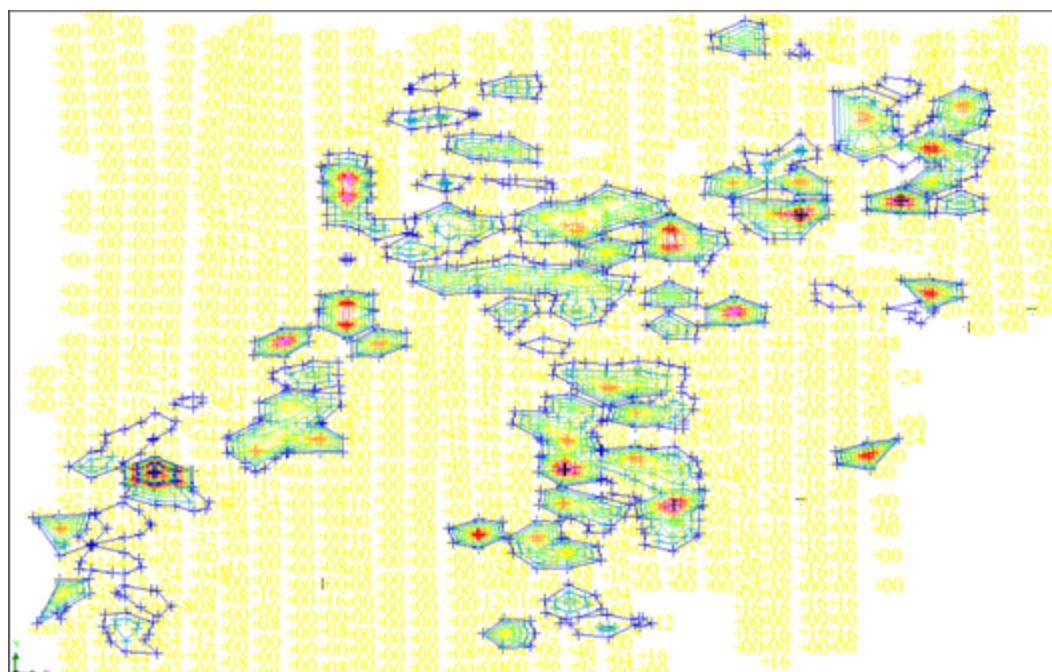
5. Enter the information as shown, and click **Apply**.




6. Choose **Display > Point > Attributes**.
7. Enter the information as shown, and click **Apply**.

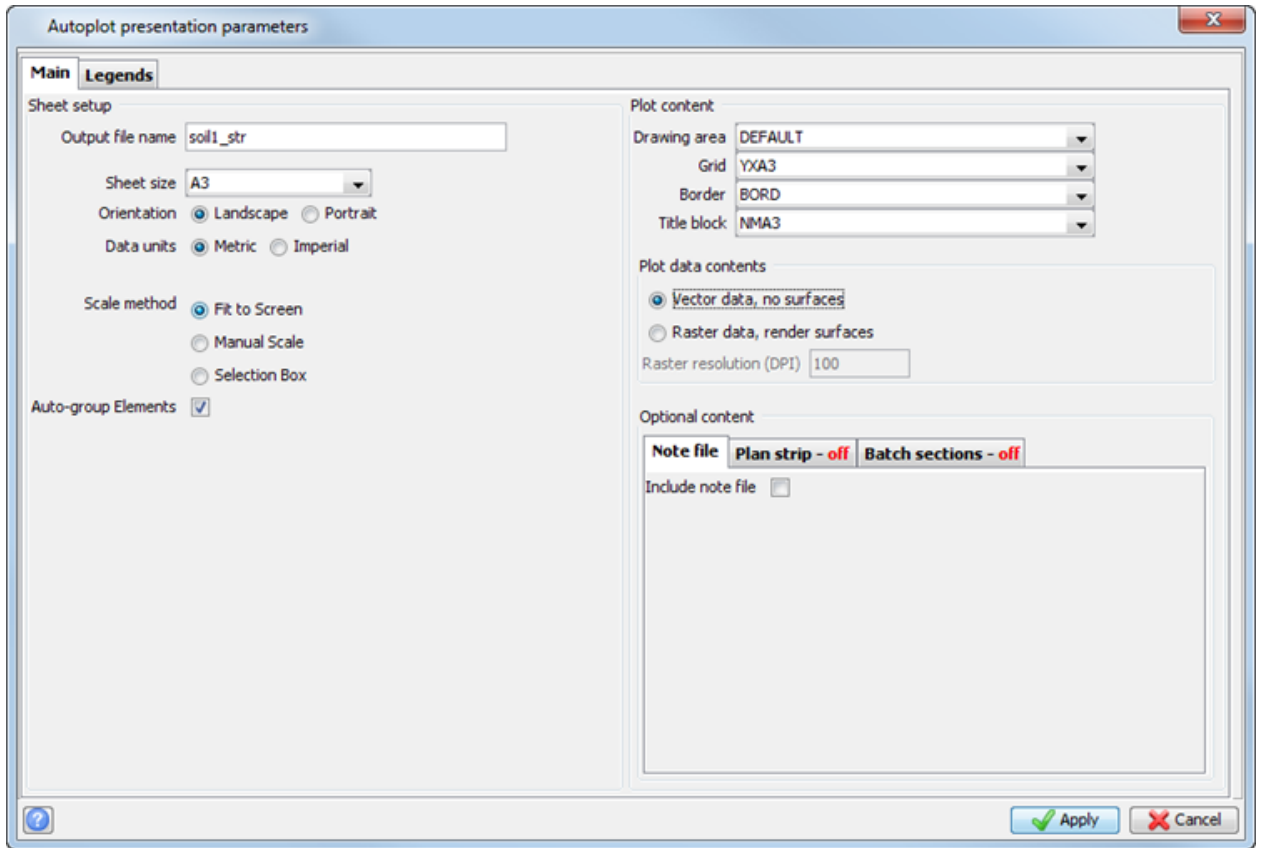


The display is updated with the soil sample locations and grades displayed.

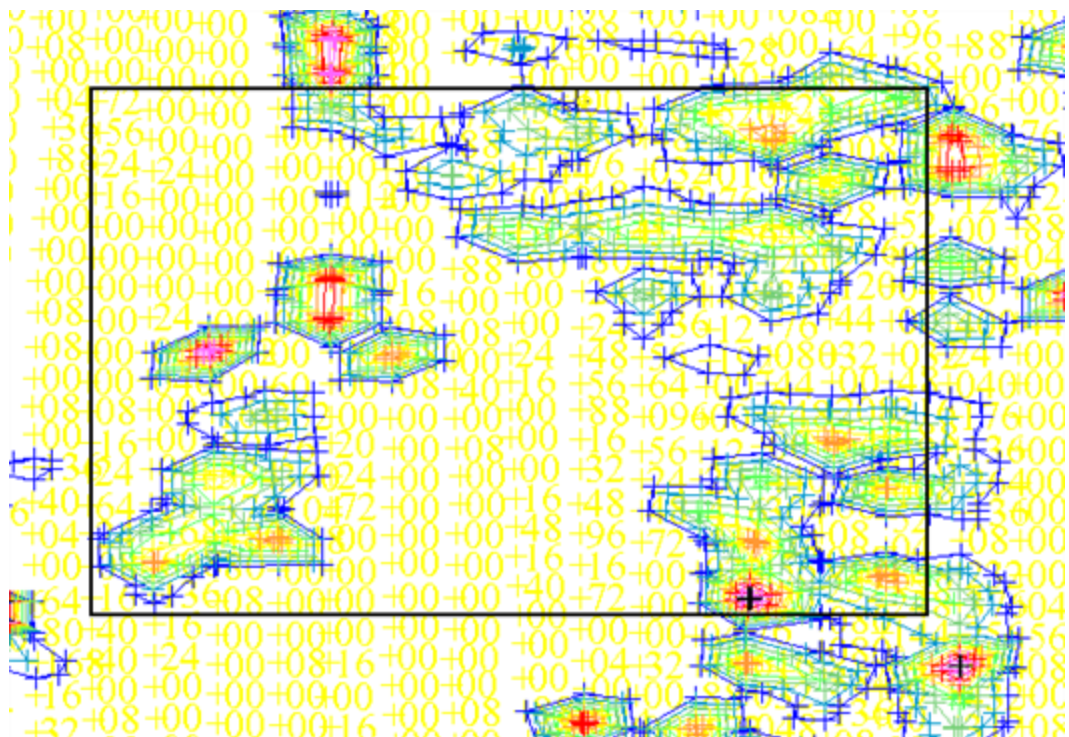


 **Note:** It is easier to see the grades with a black background.

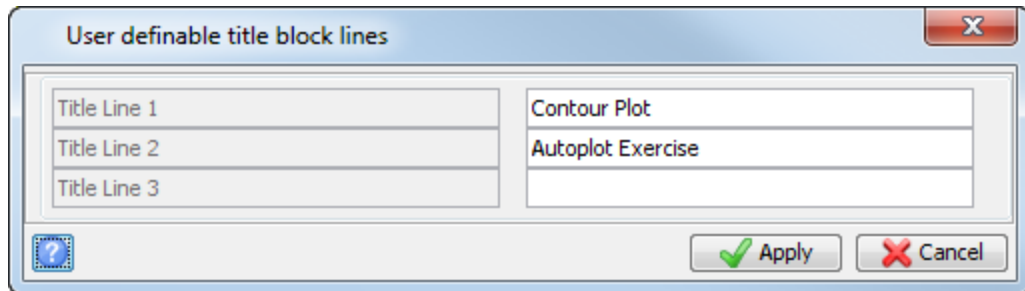
8. Choose **Plotting > Autoplot**.
9. Enter the information as shown, and click **Apply**.



10. Click and drag to select a small area of the screen to plot.
The scale is calculated to fit the A3 paper size.

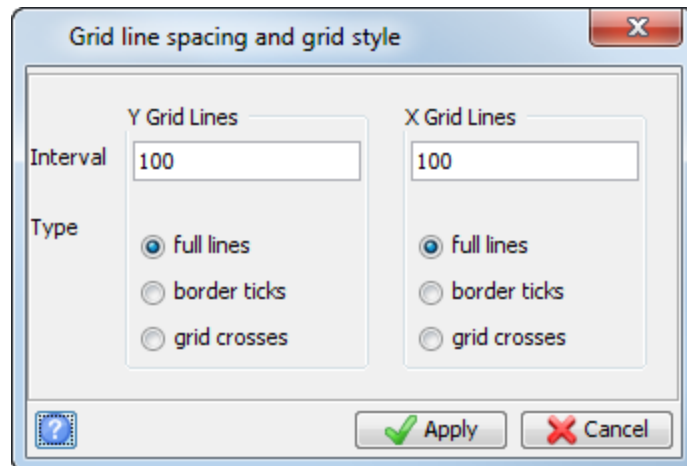


11. Enter the information as shown, and click **Apply**.



The dialog box titled "User definable title block lines" has a close button (X) in the top right corner. It contains two columns of text input fields. The left column has three fields labeled "Title Line 1", "Title Line 2", and "Title Line 3". The right column has two fields labeled "Contour Plot" and "Autoplot Exercise". At the bottom right, there are "Apply" and "Cancel" buttons with checkmark and X icons respectively. A help icon (?) is located at the bottom left.

12. Enter the information as shown, and click **Apply**.





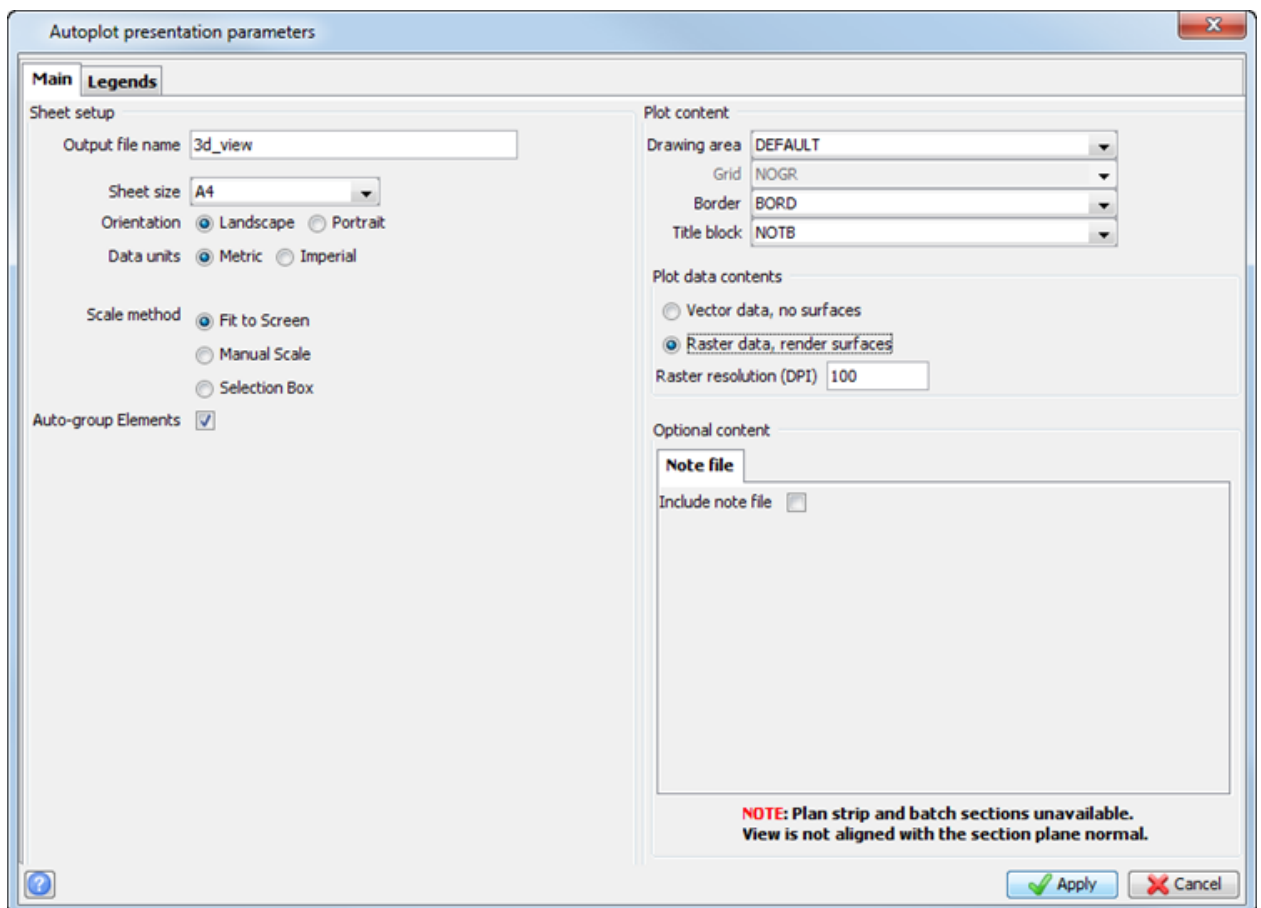
The dialog box titled "Grid line spacing and grid style" has a close button (X) in the top right corner. It is divided into two main sections: "Y Grid Lines" and "X Grid Lines". Each section has an "Interval" input field set to "100" and a "Type" section with three radio button options: "full lines", "border ticks", and "grid crosses". The "full lines" option is selected in both sections. At the bottom right, there are "Apply" and "Cancel" buttons with checkmark and X icons respectively. A help icon (?) is located at the bottom left.

The plot is processed and the Navigator is updated. The layer name is **soil1.str** so the plot file will be **soil1_str.dwf**.

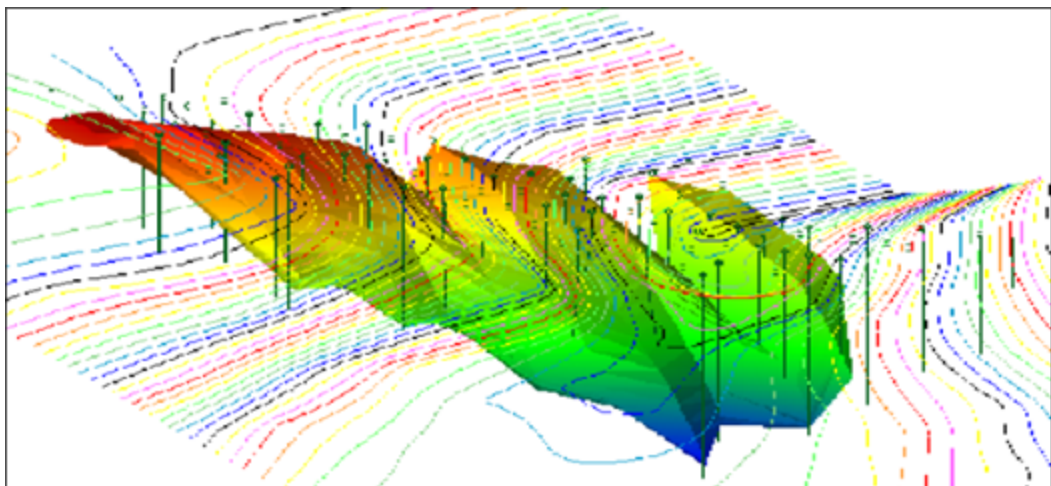
Three dimensional plotting


Task: Create a three dimensional plot

1. Click **Reset graphics** .
2. Open **three_dimensional_view.swa** in **Graphics**.
3. Click **Autoplot** .
4. Enter the information as shown, and click **Apply**.




The plot is displayed.



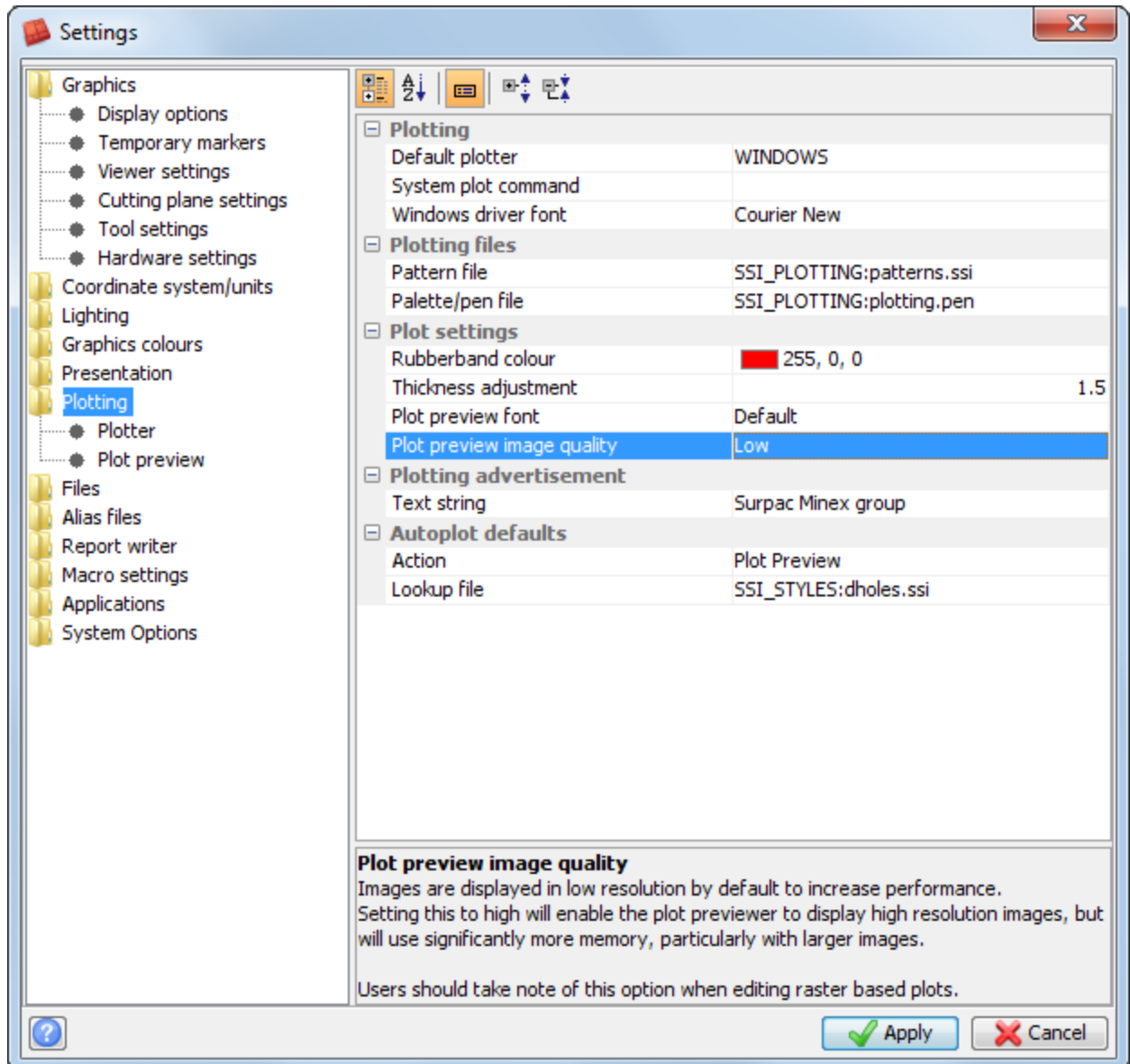
 **Note:** The image is of poor quality. This will be corrected in the next task.


5. Choose **File > Close** to exit the **Plot Preview** window.

 **Note:** To see all of the steps performed in this section, run **_01a_autoplot_3d.tcl**. You need to click **Apply** on any forms presented.

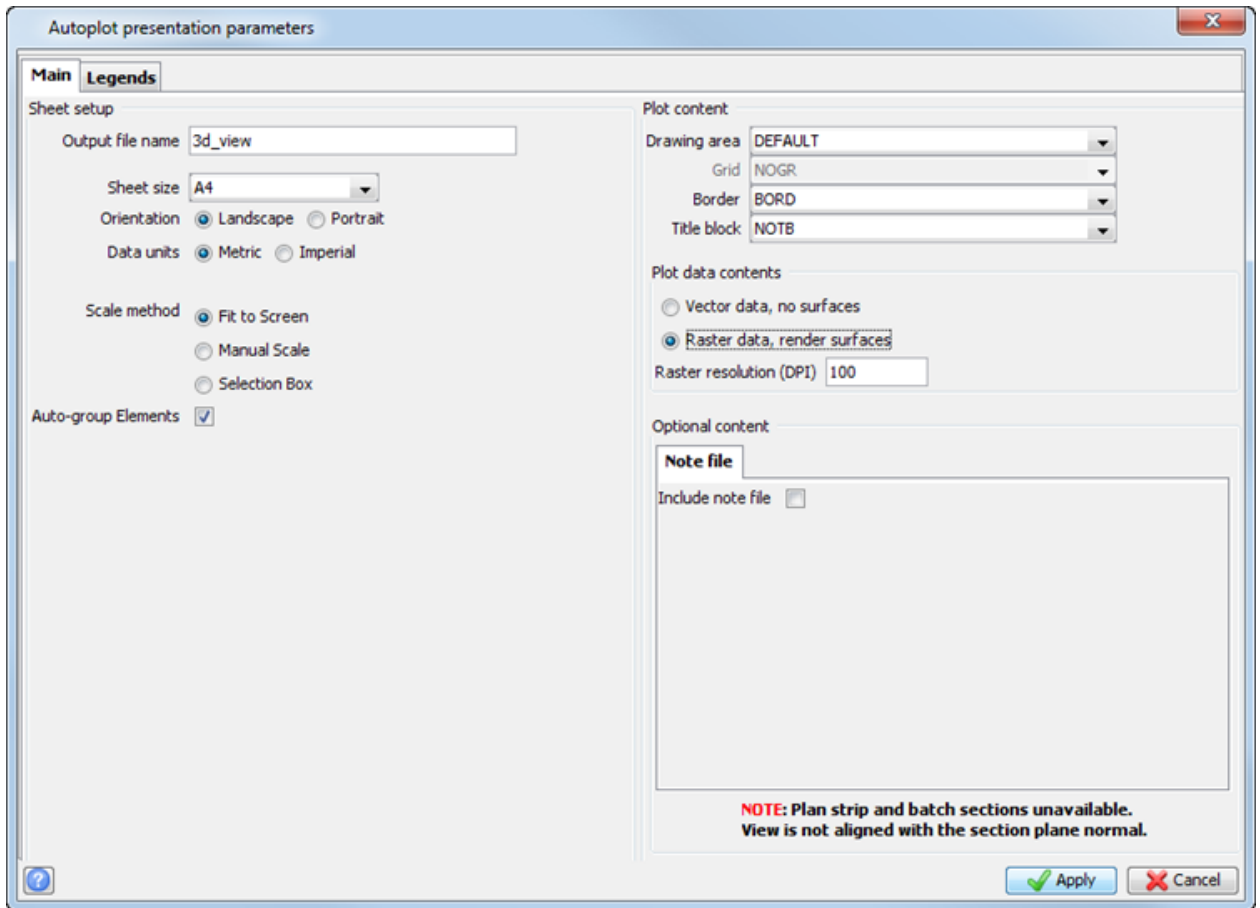
Task: Fix the quality of images in the Plot Preview window

1. Click **Reset Graphics** .
2. Choose **Customise > Default Preferences**.
The *Settings* form is displayed.

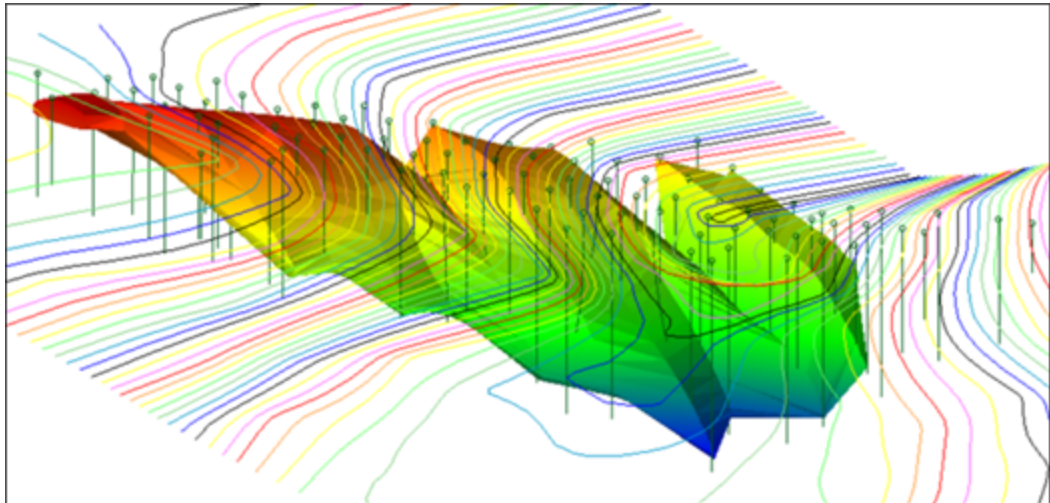


3. Click the **Plotting** folder.
4. Click the **Plot preview image quality** field.
5. Select **High**, and click **Apply**.
6. Open **three_dimensional_view.swa** in **Graphics**.
7. Click **Autoplot** .

8. Enter the information as shown, and click **Apply**.




The plot is displayed in the **Plot Preview** window. The image quality is improved because you set the quality to high.

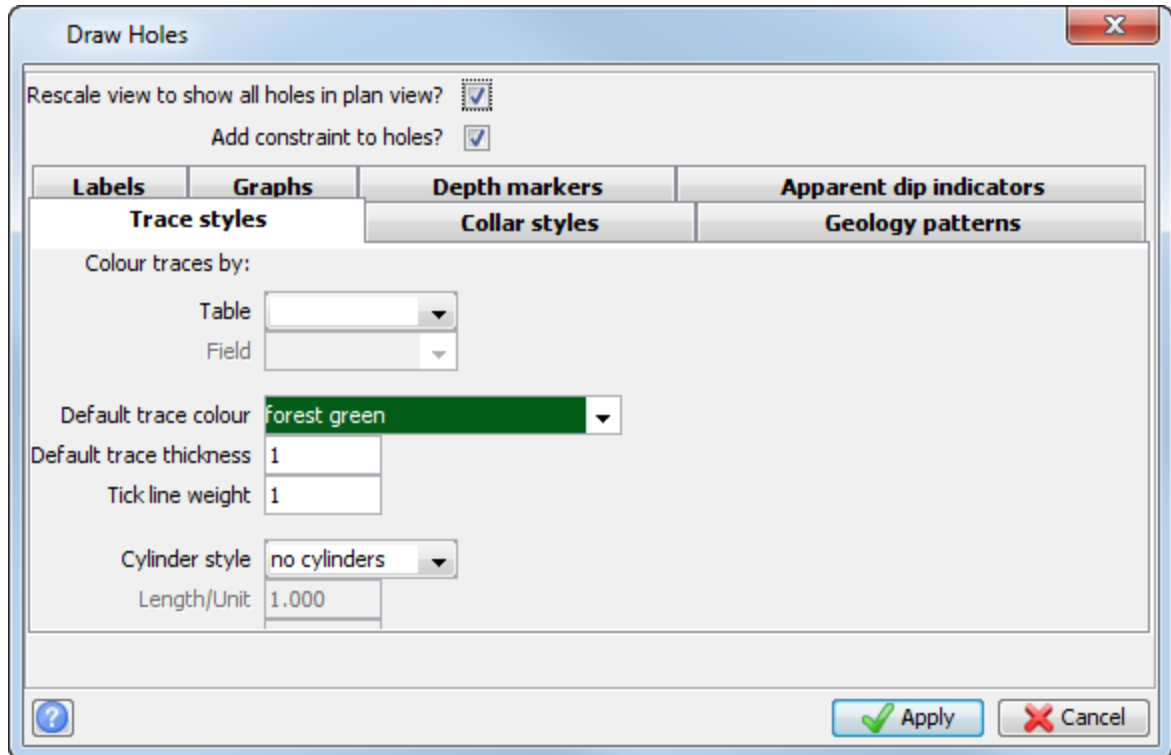


9. Choose **File > Close**.

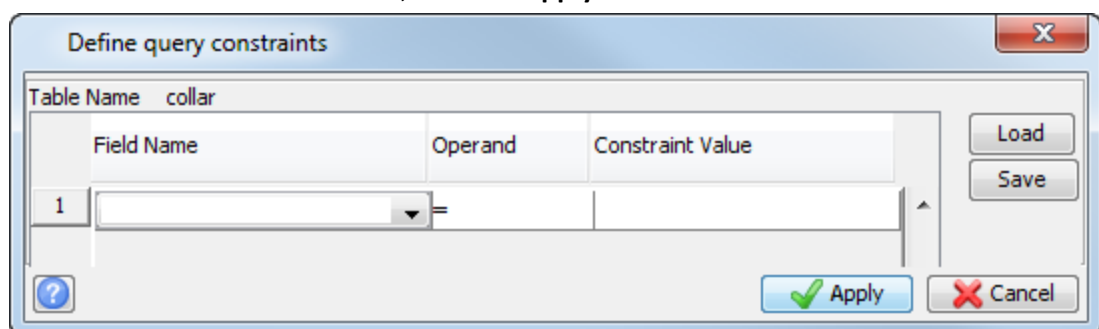
Section plotting

Task: Create a simple section plot

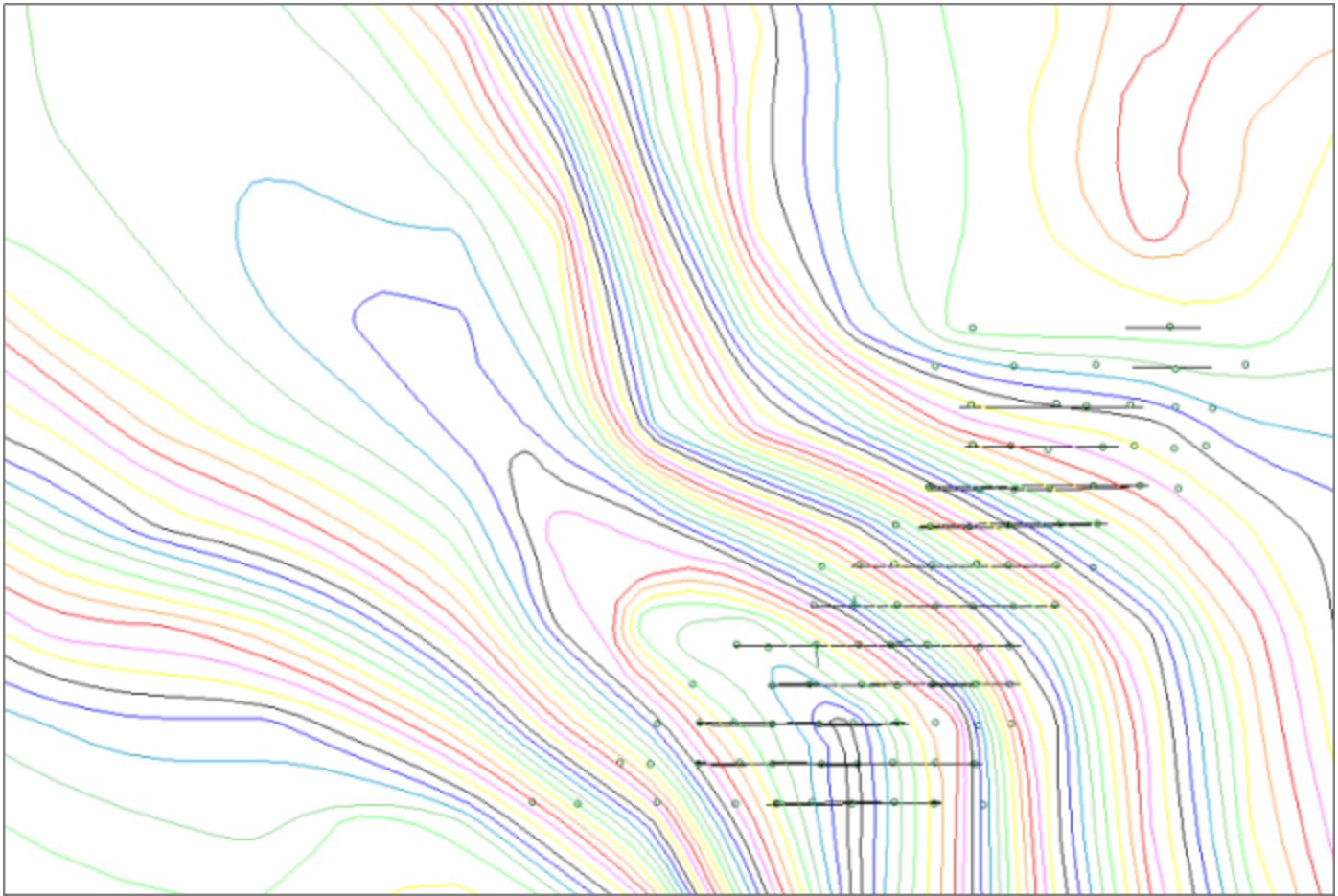
1. Click **Reset graphics** .
2. Open **topo1.str** in **Graphics**.
3. Open **ore_solid1.str** in **Graphics**.
4. Connect to **surpac.ddb**.
5. Choose **Database > Display > Drillholes**.
6. Enter the information as shown, and click **Apply**.



7. Enter the information as shown, and click **Apply**.



The data in the two string files and the drillhole traces is displayed.



8. Choose **Database > Sections > Define**.
9. Enter the information as shown, and click **Apply**.

Define slicing planes width X

Zoom to section plane to show all drillholes?

Show section planes?

Interactive Method?

Section Method **Off Section Holes**

Section definition method Northing

Distance forward of plane 20

Distance backward of plane 20

Section by Interval Range

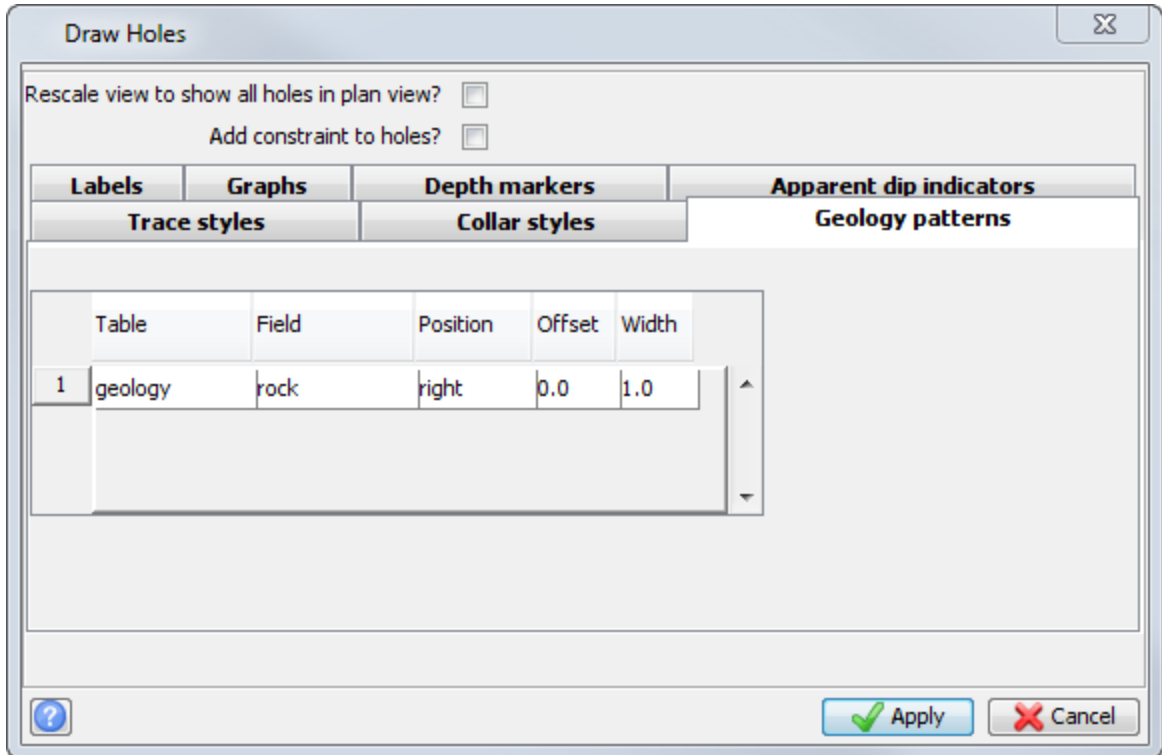
Step distance 20

Northing range 7120,7600,40

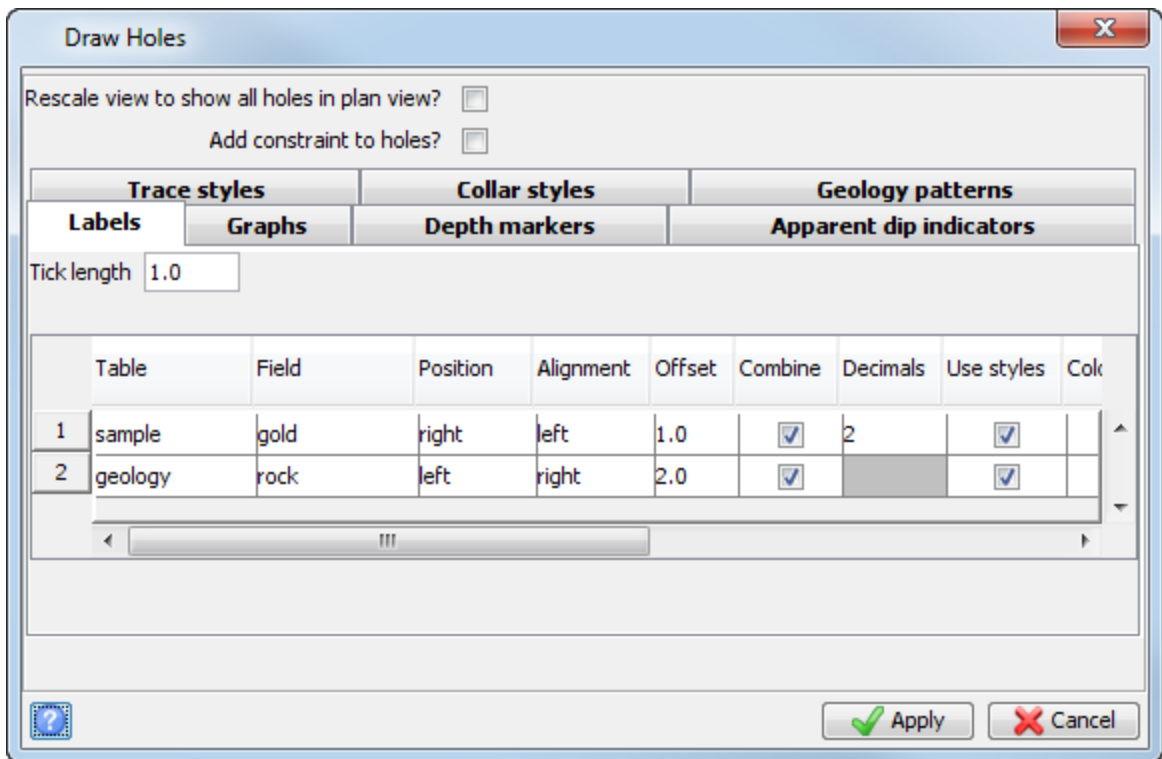
Confirm section details

10. Choose **Database > Display > Drillholes**.

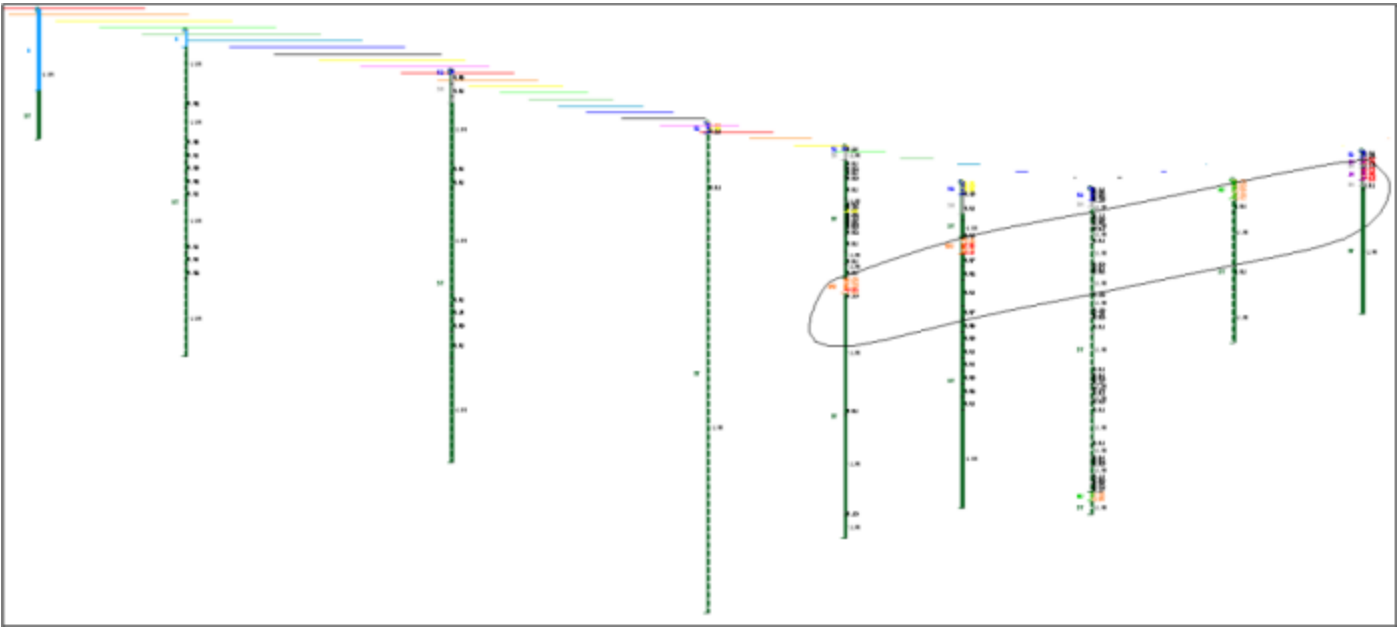
- Enter the information as shown on the **Geology patterns** tab.

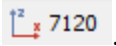


- Enter the information as shown on the **Labels** tab, and click **Apply**.
 ⚠ **Note:** Right-click in the empty space below the first row, and select **Add** to add a second row to the table.

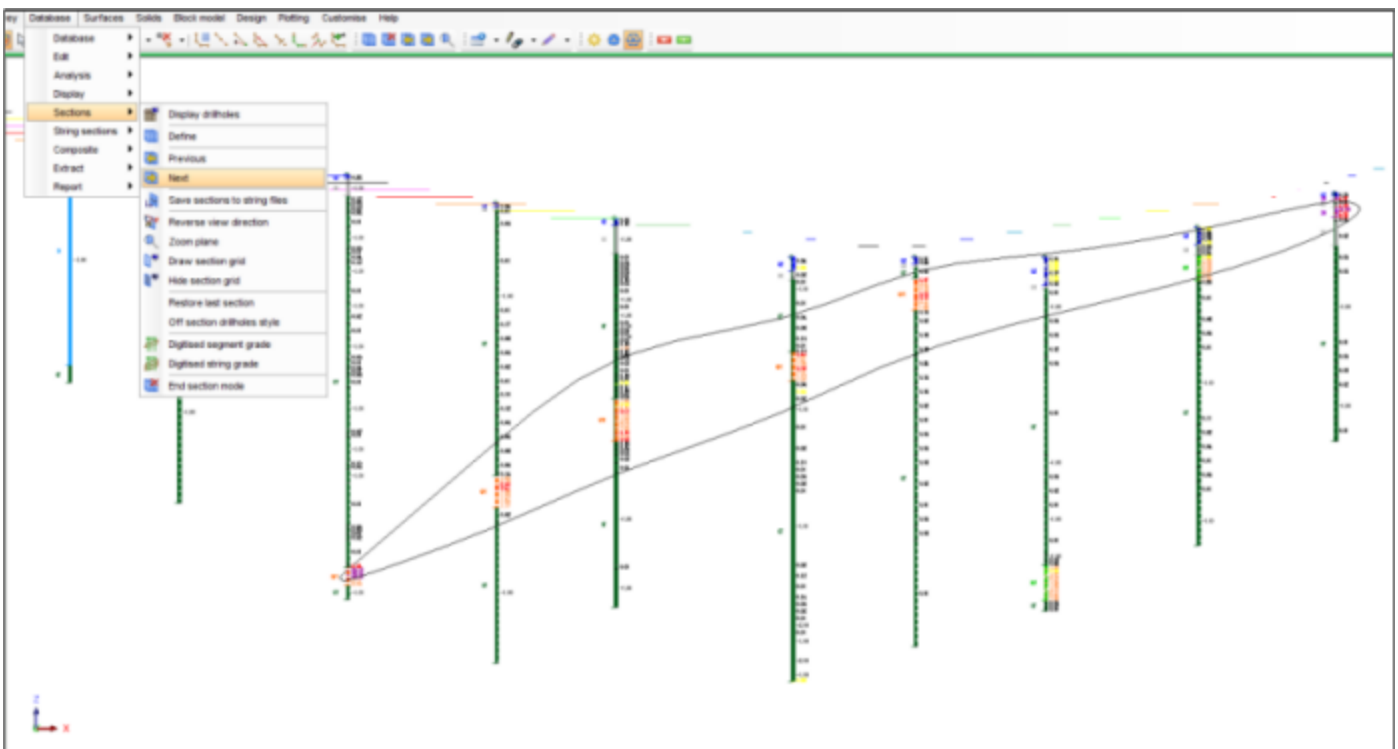



The data is displayed.

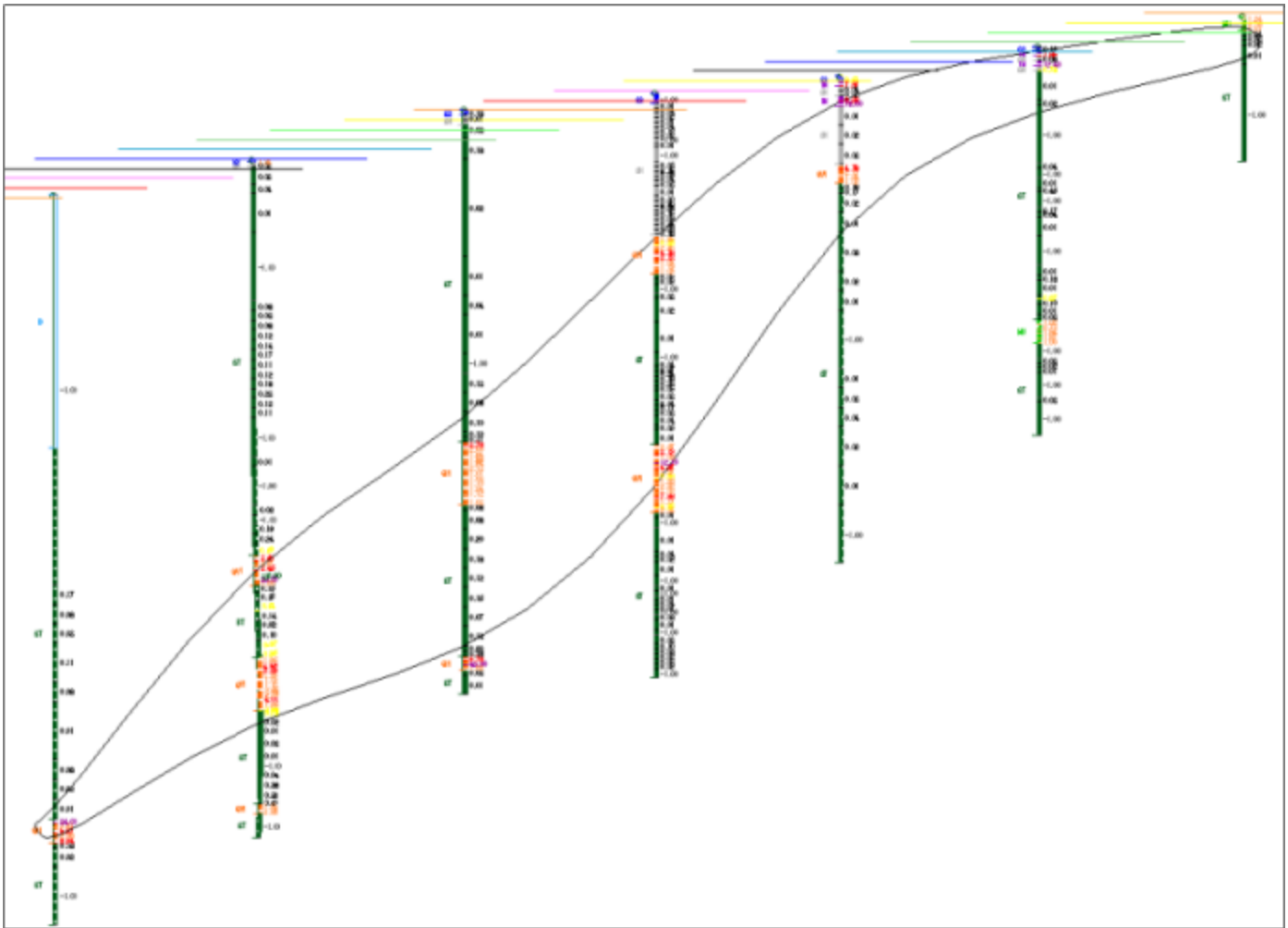




The section number is displayed in the Status bar  7120 .

13. Click **Next section**  .



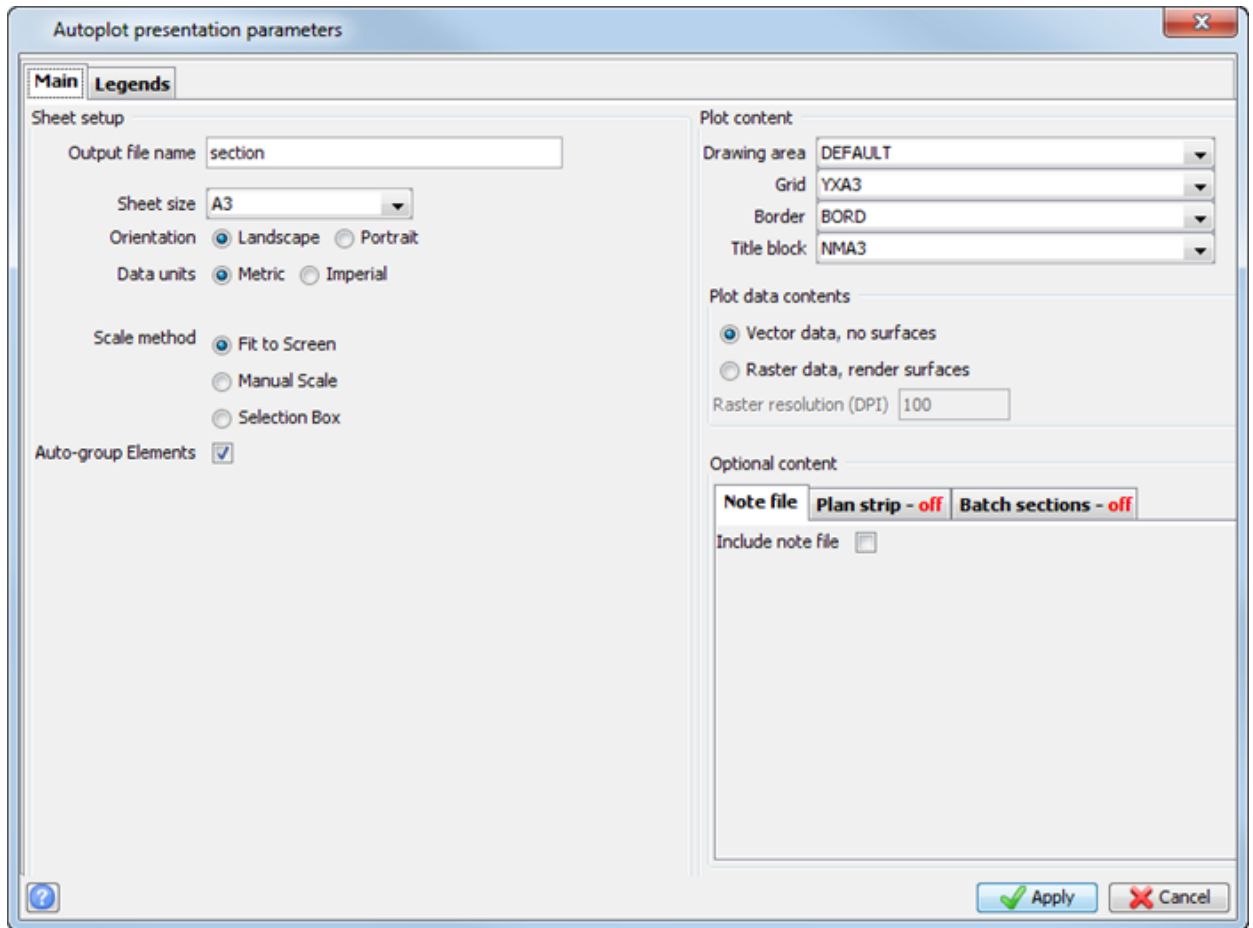
14. Click **Next section**  until section **7320** is displayed.



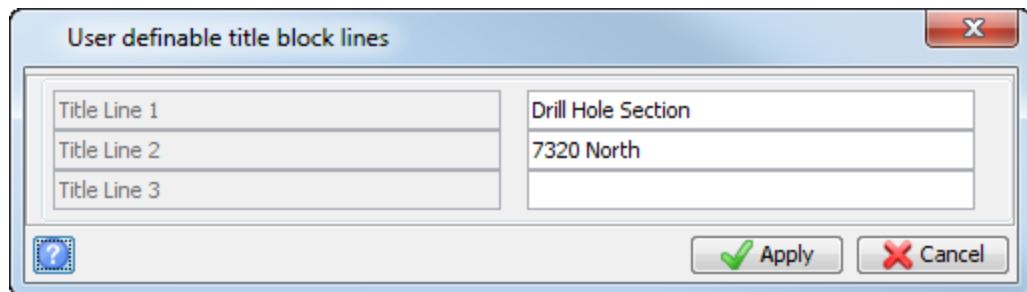
 **Note:** If you have difficulty performing these steps, click **Reset graphics** , and then open **section_7320_north.swa** in **Graphics**.

15. Click **Autoplot** .

16. Enter the information as shown, and click **Apply**.

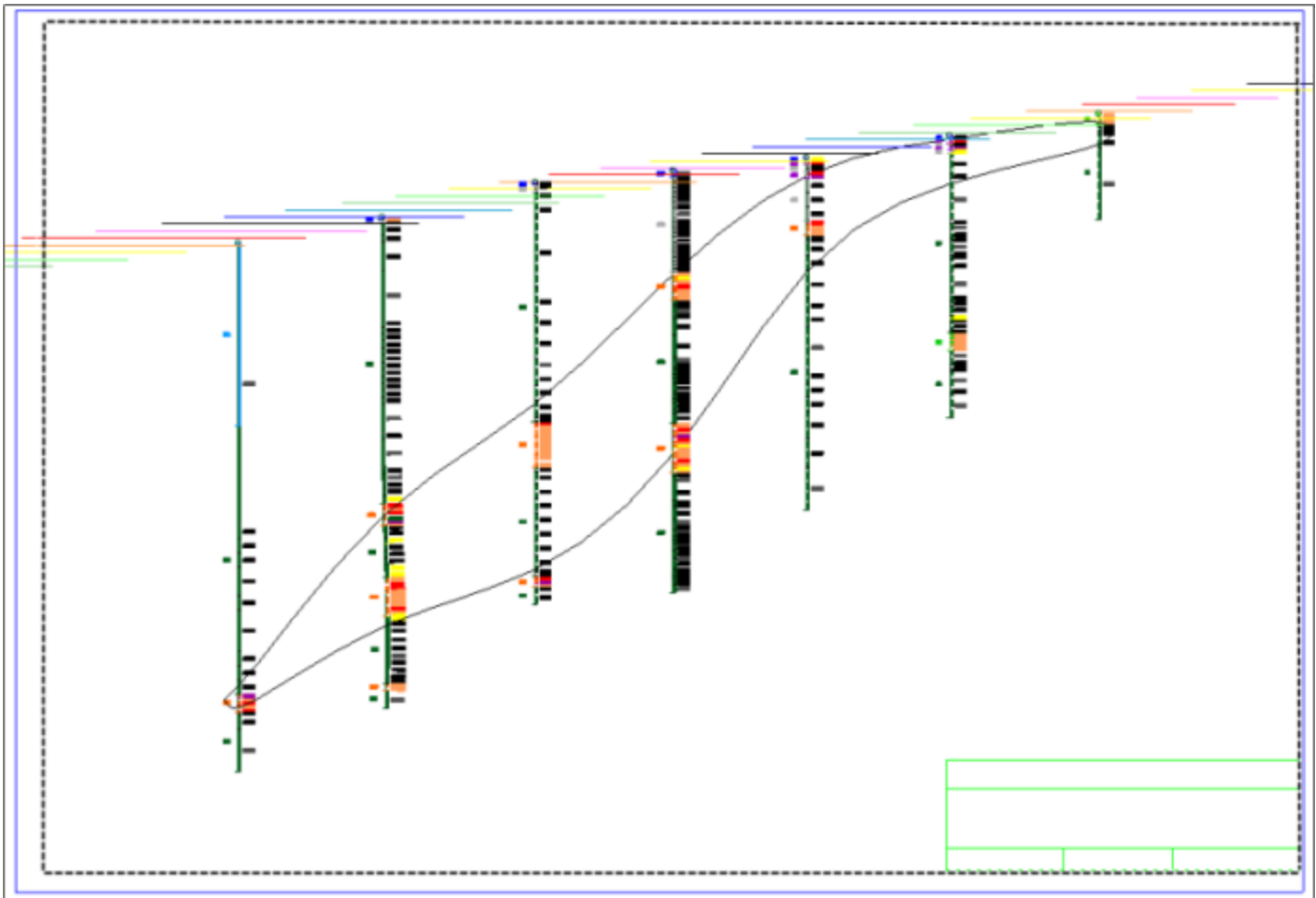


17. Enter the information as shown, and click **Apply**.



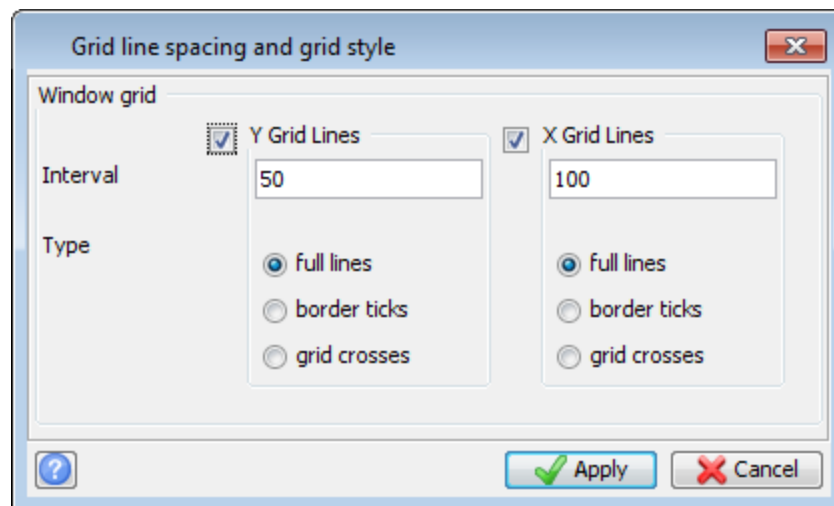
18. Press F1.

19. Click and drag in **Graphics** to move the box as shown.

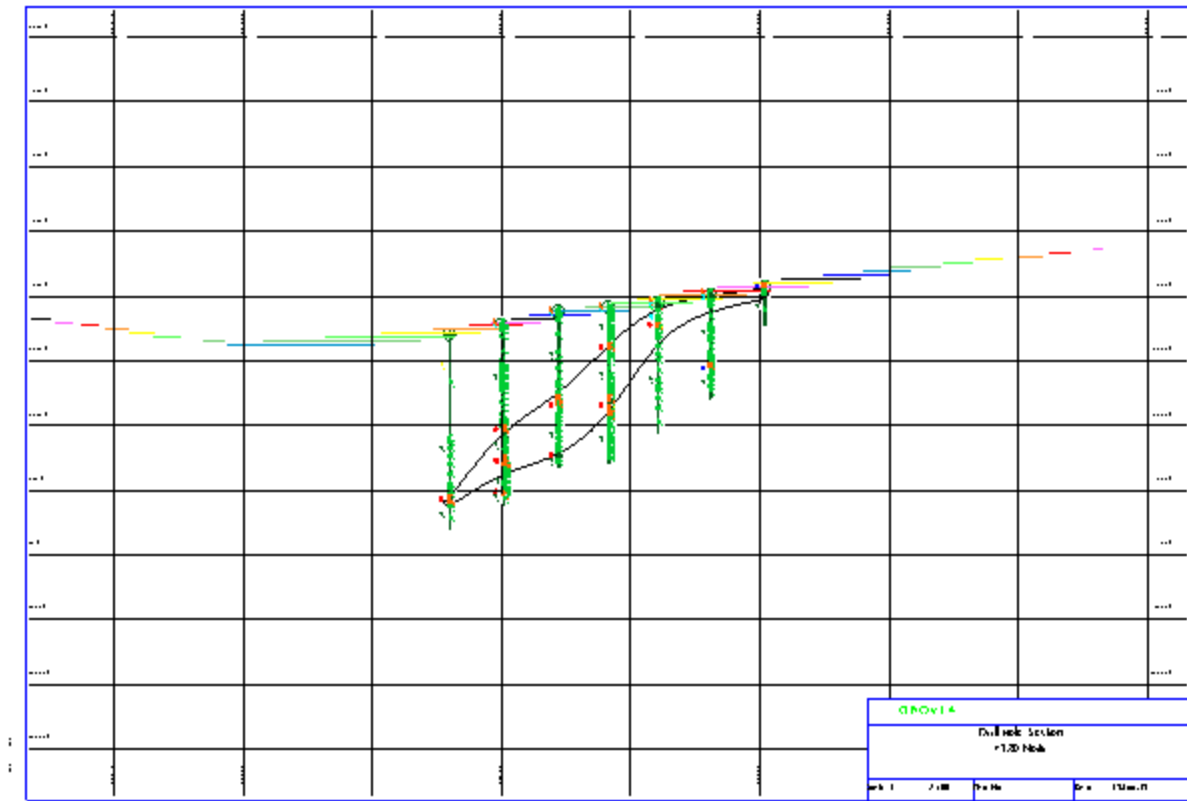


20. Press F2.


21. Enter the information as shown, and click **Apply**.





The file **section.dwf** is created and displayed in the **Plot Preview** window.

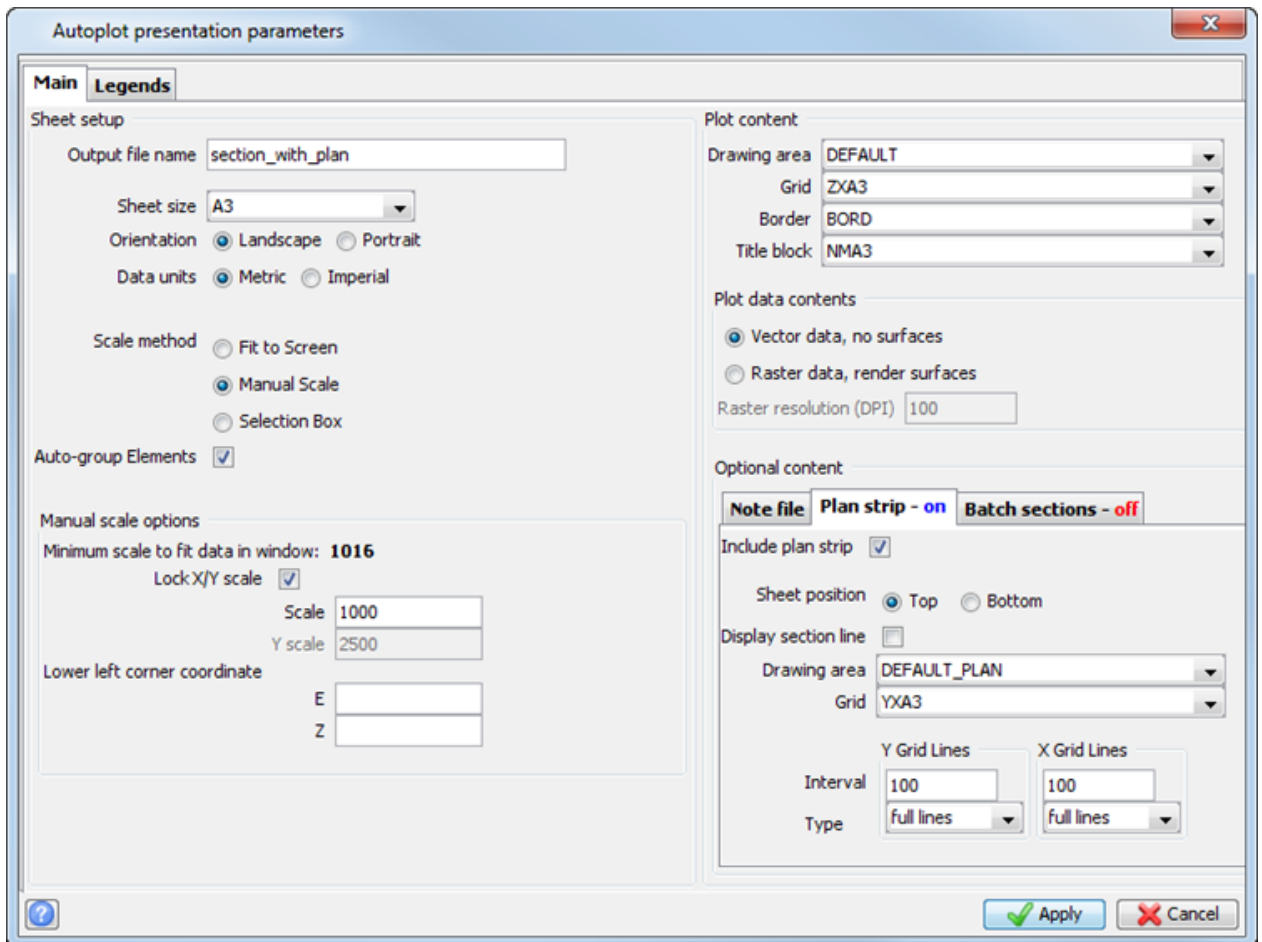


22. Choose **File > Close** to close the **Plot Preview** window.

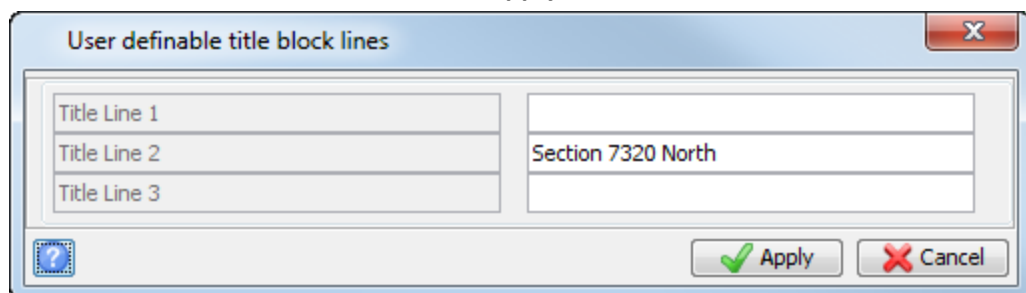
 **Note:** To see all of the steps performed in this task, run **_01b_autoplot_section.tcl**. You need to click **Apply** on any forms presented.

Task: Create a section plot with a plan strip

1. Click **Reset graphics** .
2. Open **section_7320_north.swa** in **Graphics**.
3. Click **Autoplot** .
4. Enter the information as shown, and click **Apply**.

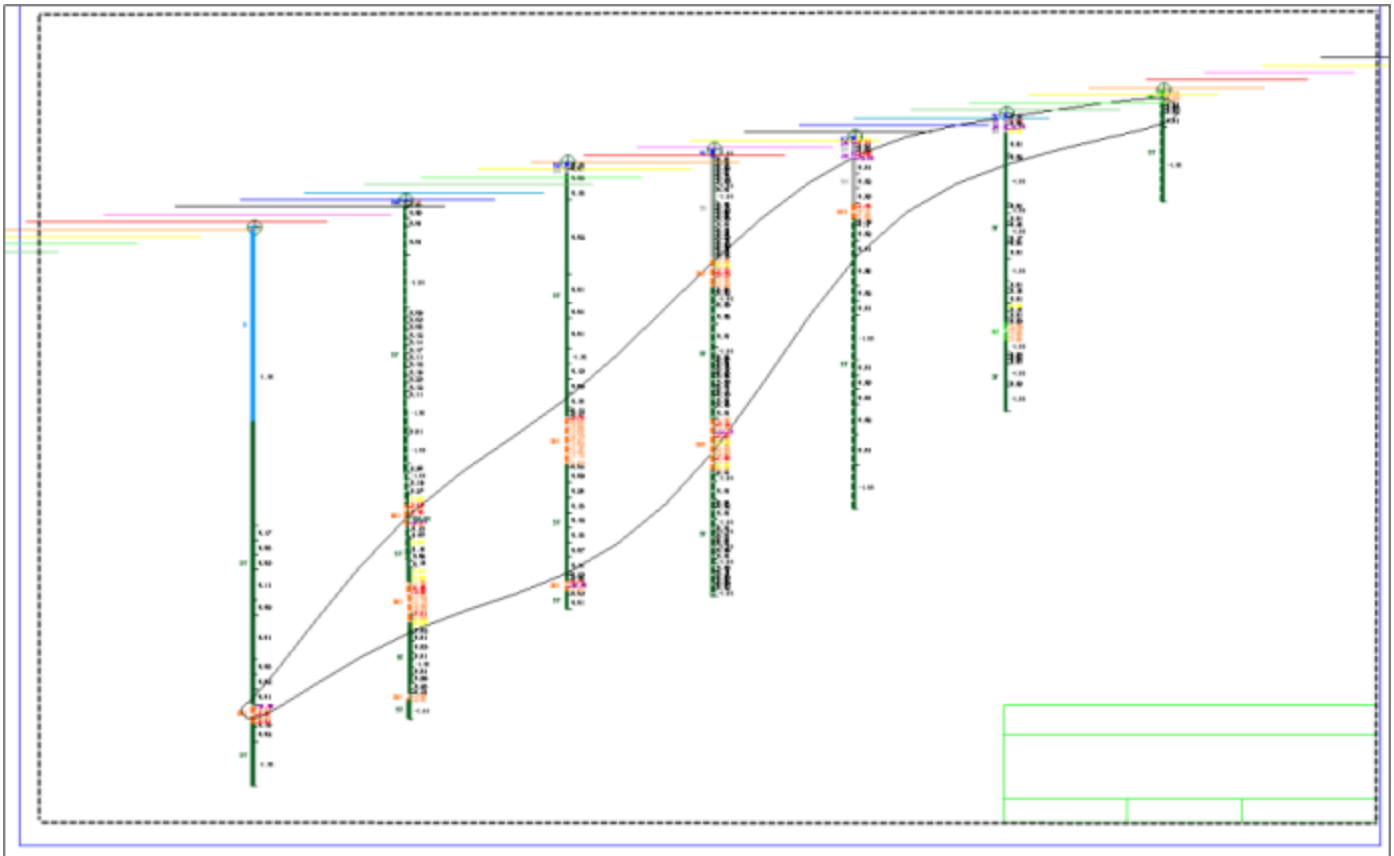


5. Enter the information as shown, and click **Apply**.



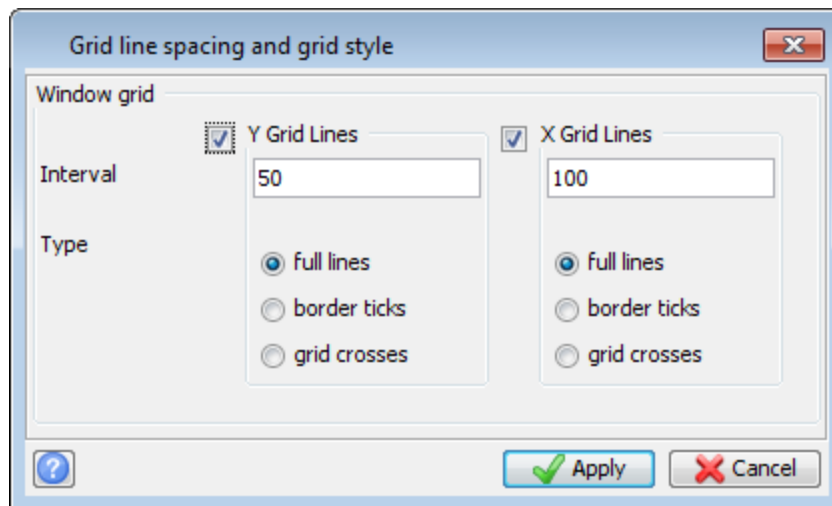
6. Press F1.

7. Click and drag in **Graphics** to move the box as shown.

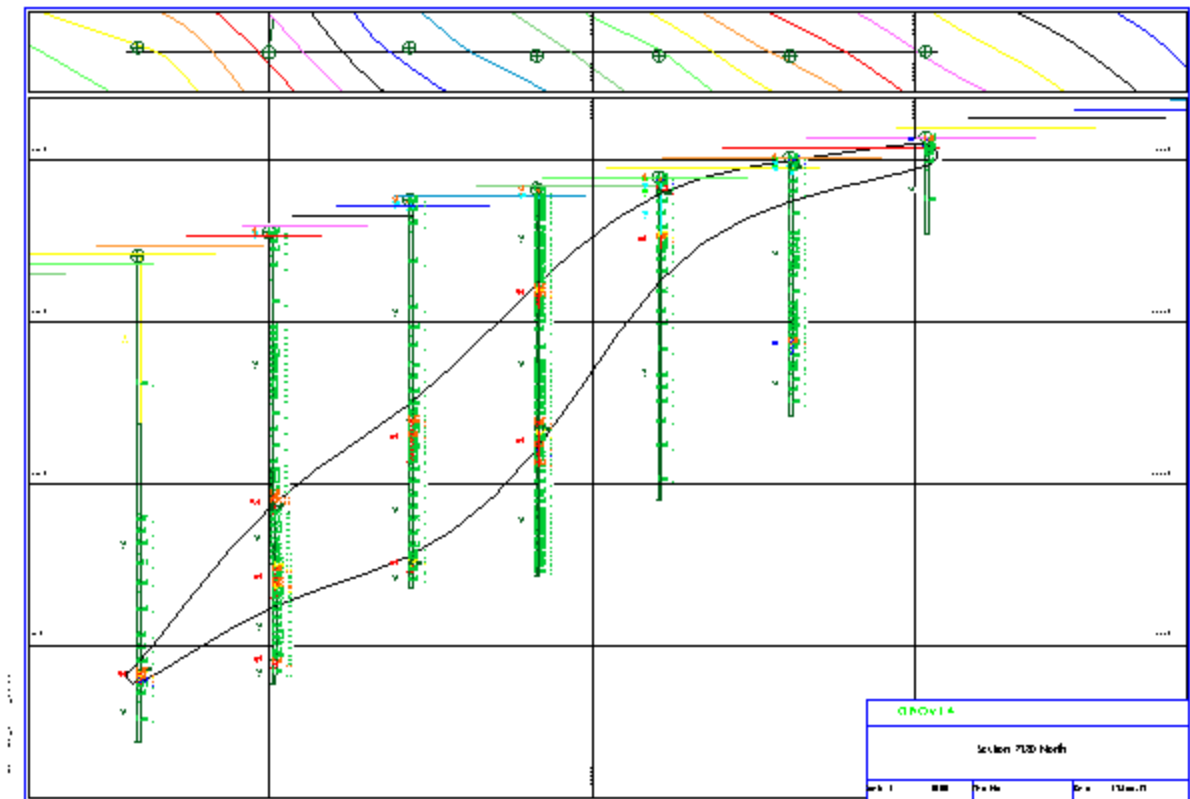


8. Press F2.

9. Enter the information as shown, and click **Apply**.





The file **section_with_plan.dwf** is created and displayed in the **Plot Preview** window.

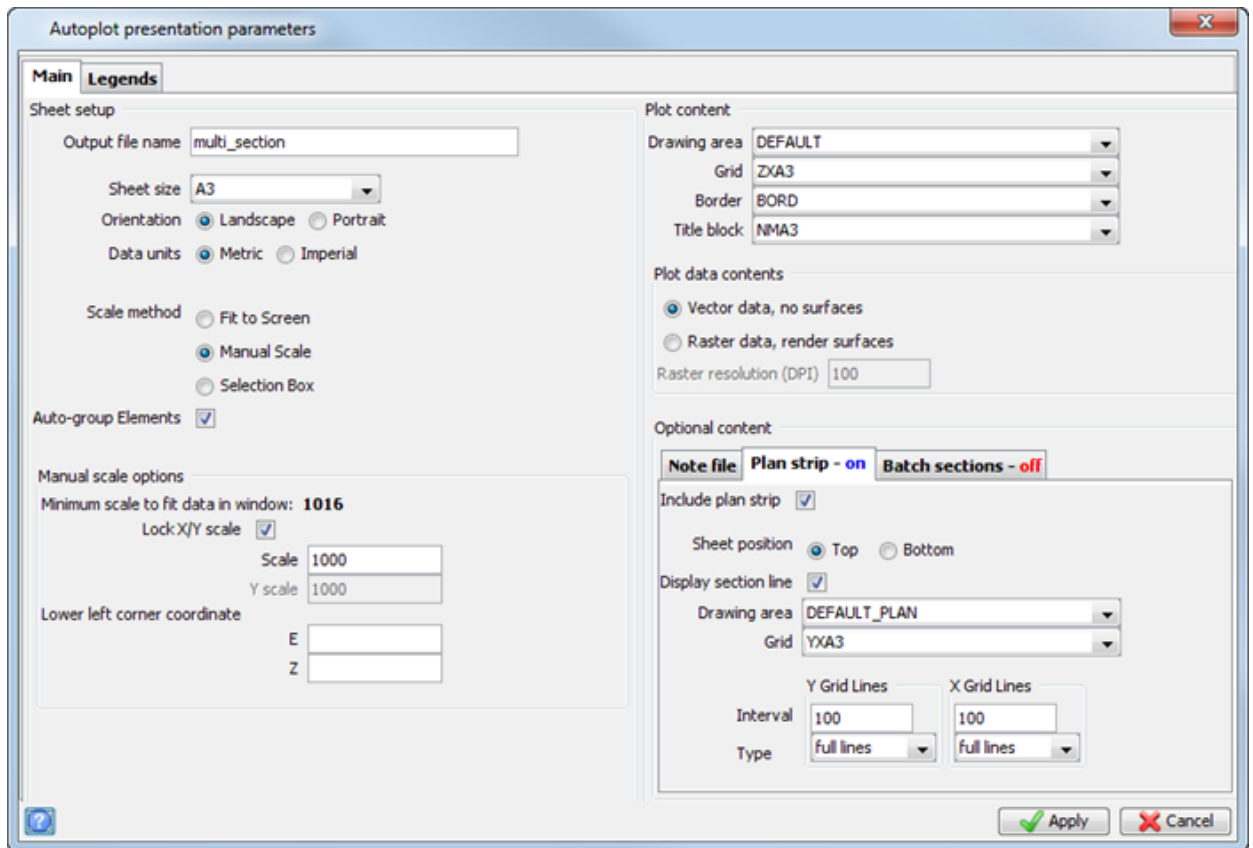


10. Choose **File > Close**.

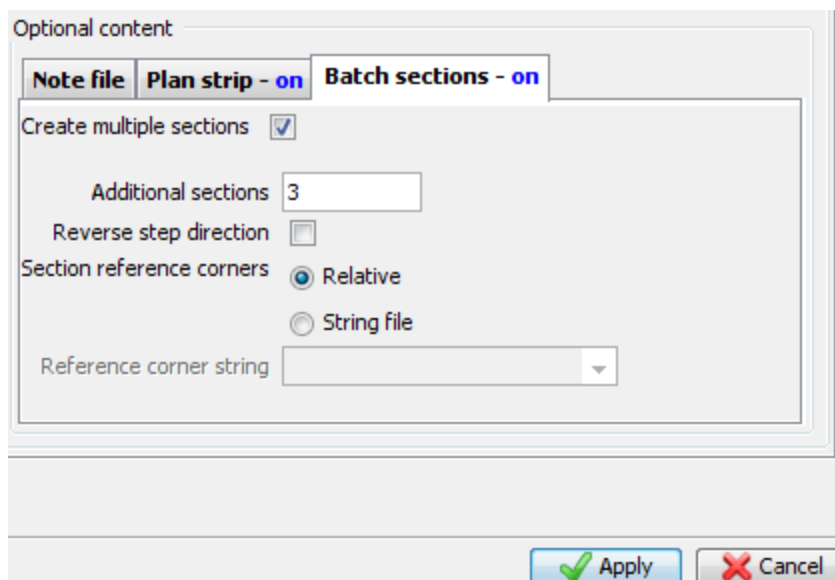
Note: To see all of the steps performed in this task, run `_01c_autoplot_section_plan_strip.tcl`. You need to click **Apply** on any forms presented.

Task: Create multiple section plots

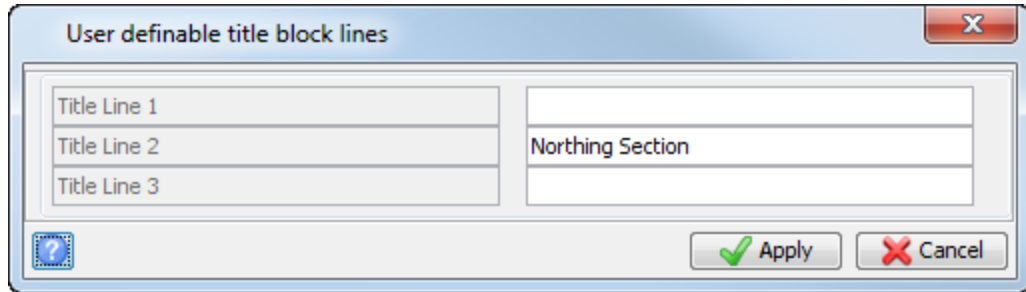
1. Click **Reset graphics** .
2. Open **section_7320_north.swa** in **Graphics**.
3. Click **Autoplot** .
4. Enter the information as shown.



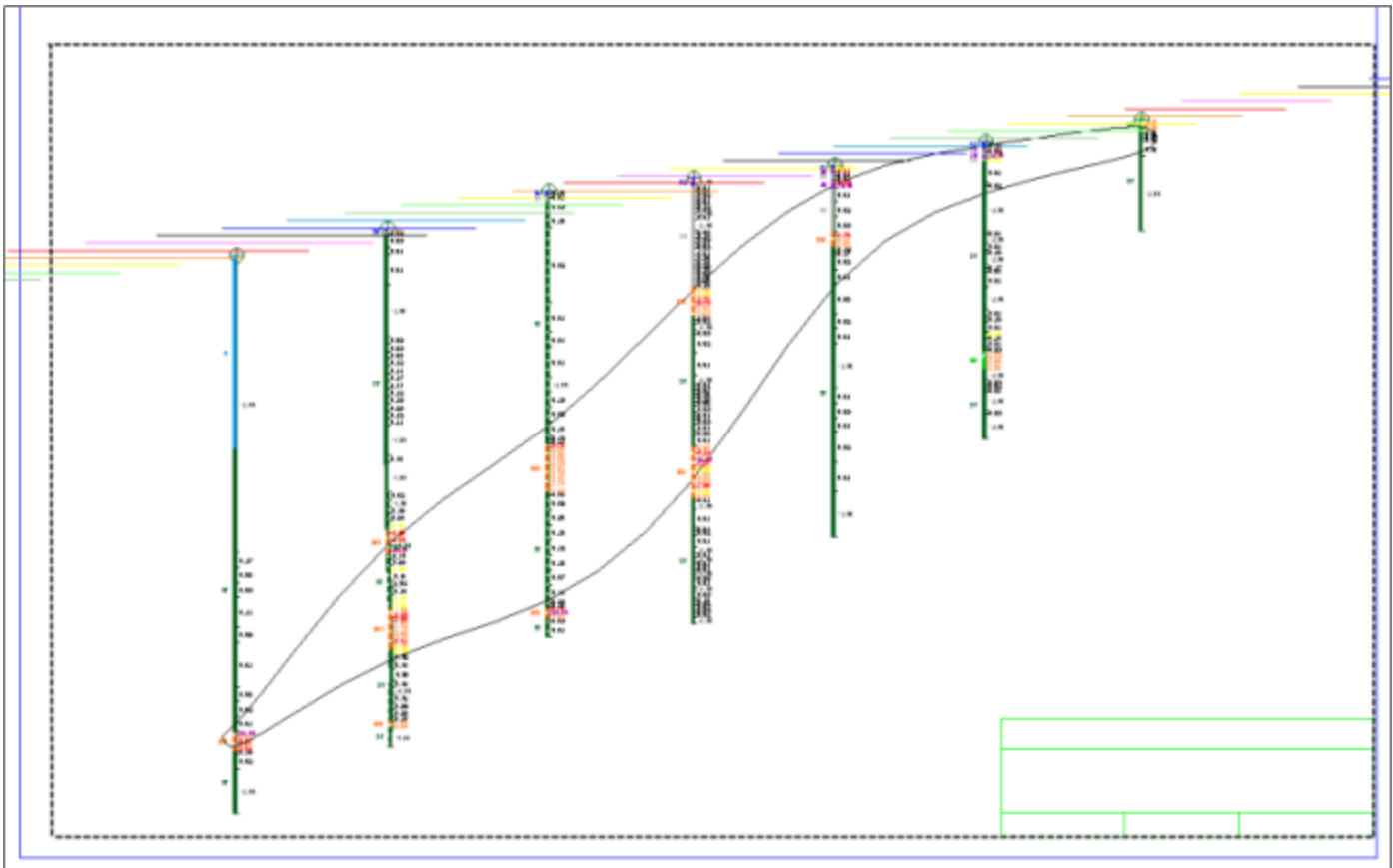
5. Click the **Batch sections** tab.
6. Enter the information as shown, and click **Apply**.



7. Enter the information as shown, and click **Apply**.

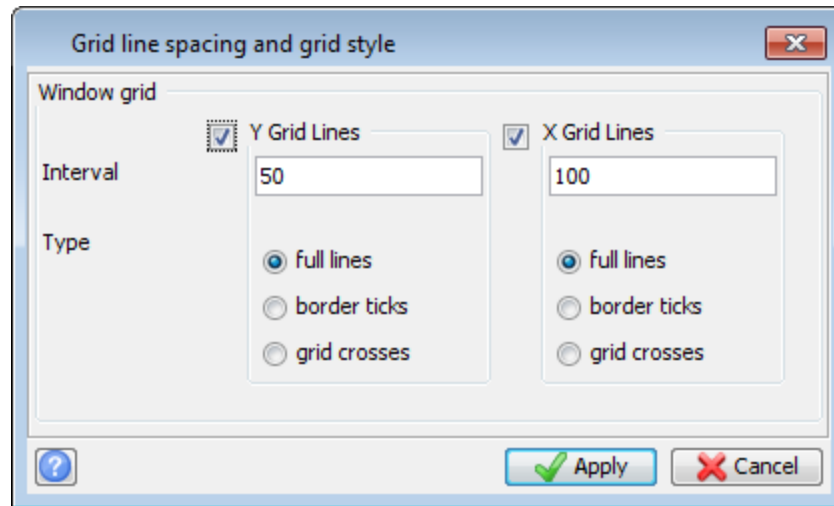


8. Press F1.
9. Click and drag in **Graphics** to move the box as shown.



10. Press F2.

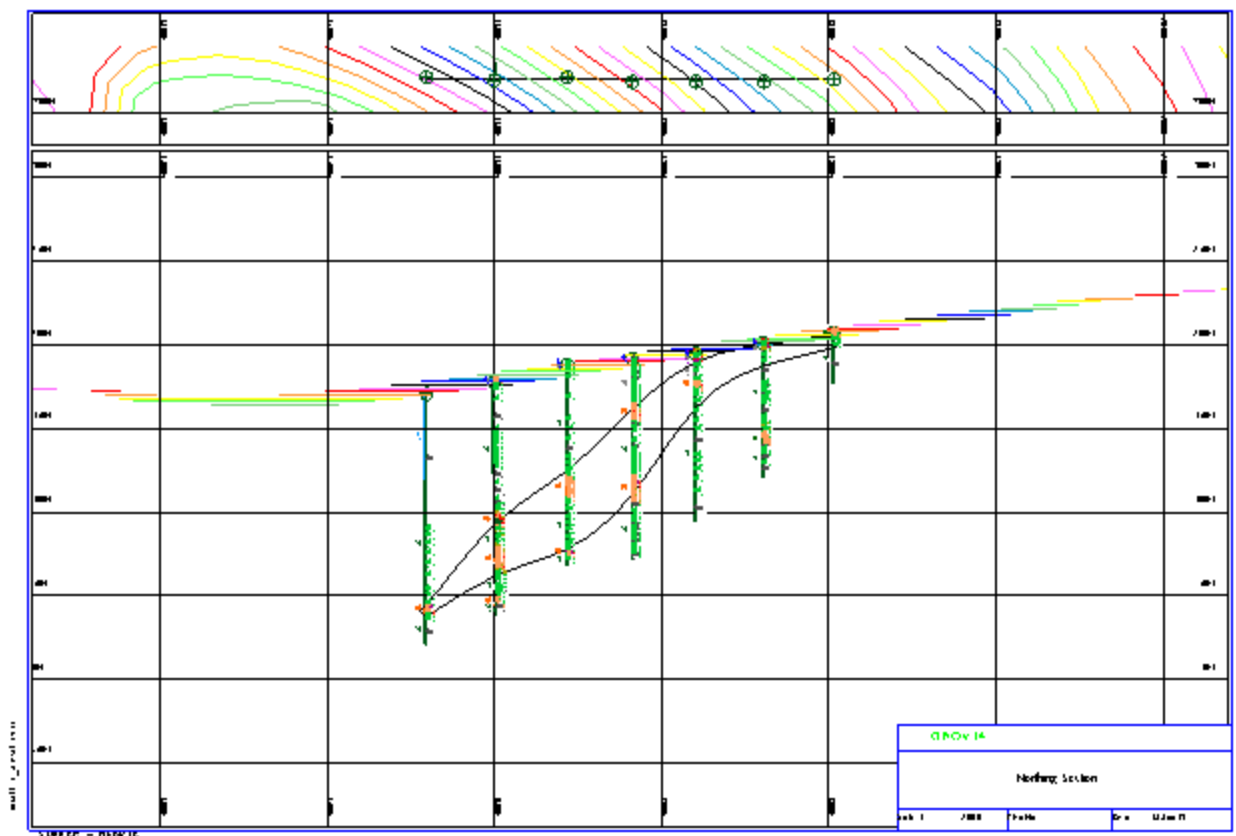
11. Enter the information as shown, and click **Apply**.



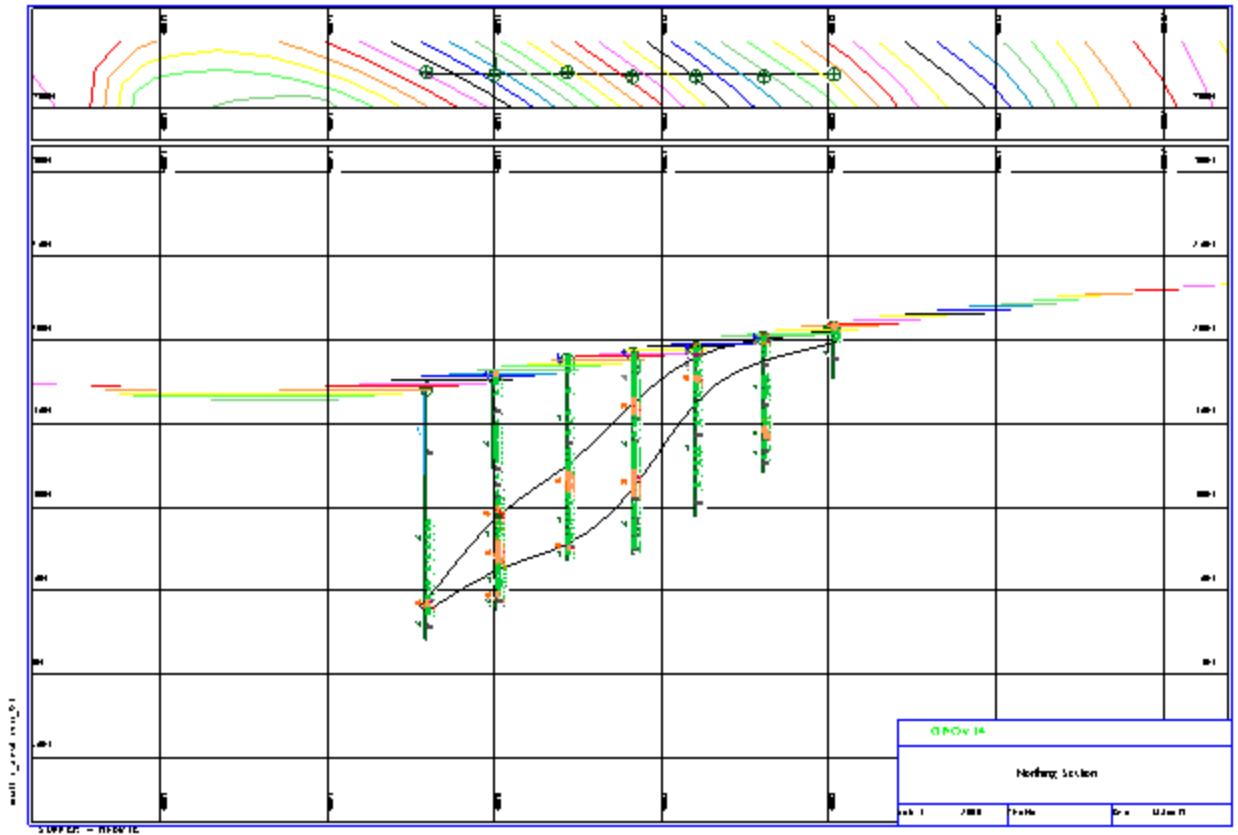
The following files are created:

Northing	Filename
7320	multi_section.dwf
7360	multi_section_01.dwf
7400	multi_section_02.dwf
7440	multi_section_03.dwf

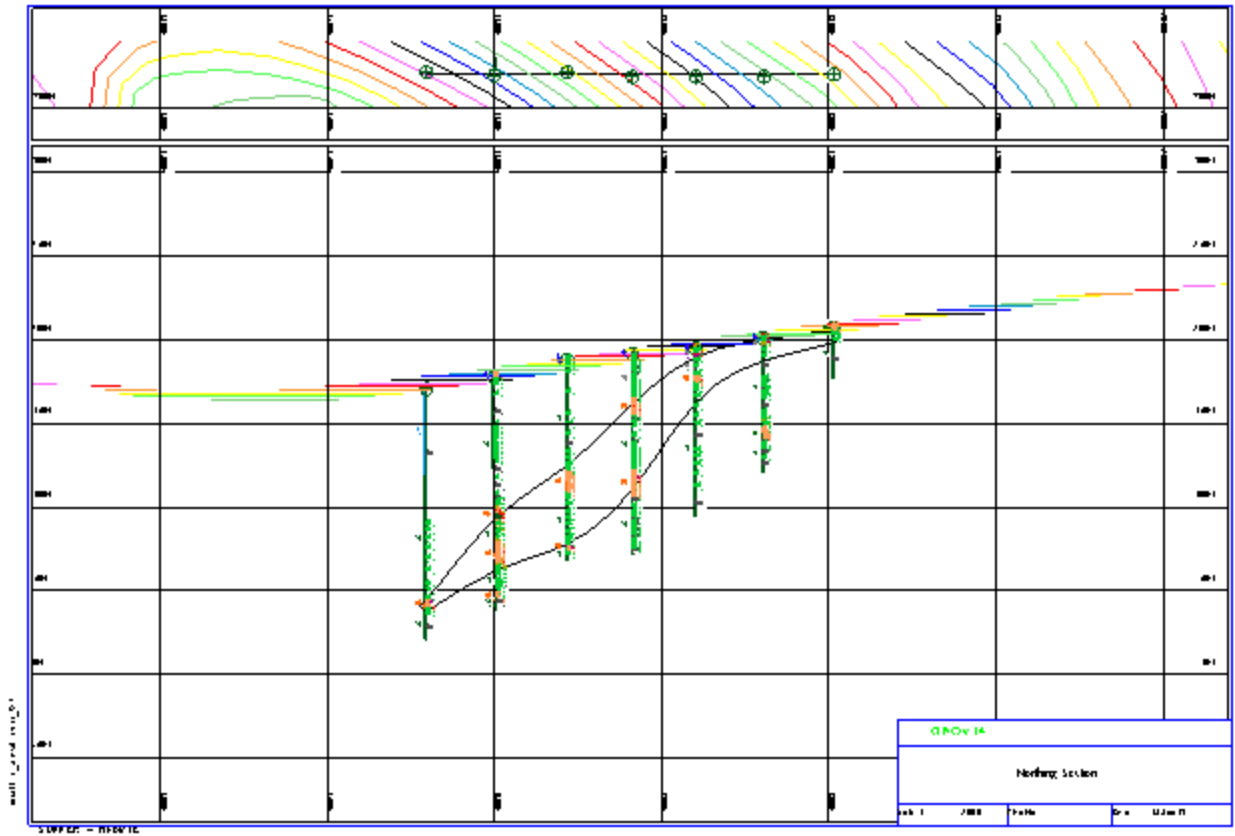
12. Open **multi_section.dwf** in **Graphics**.



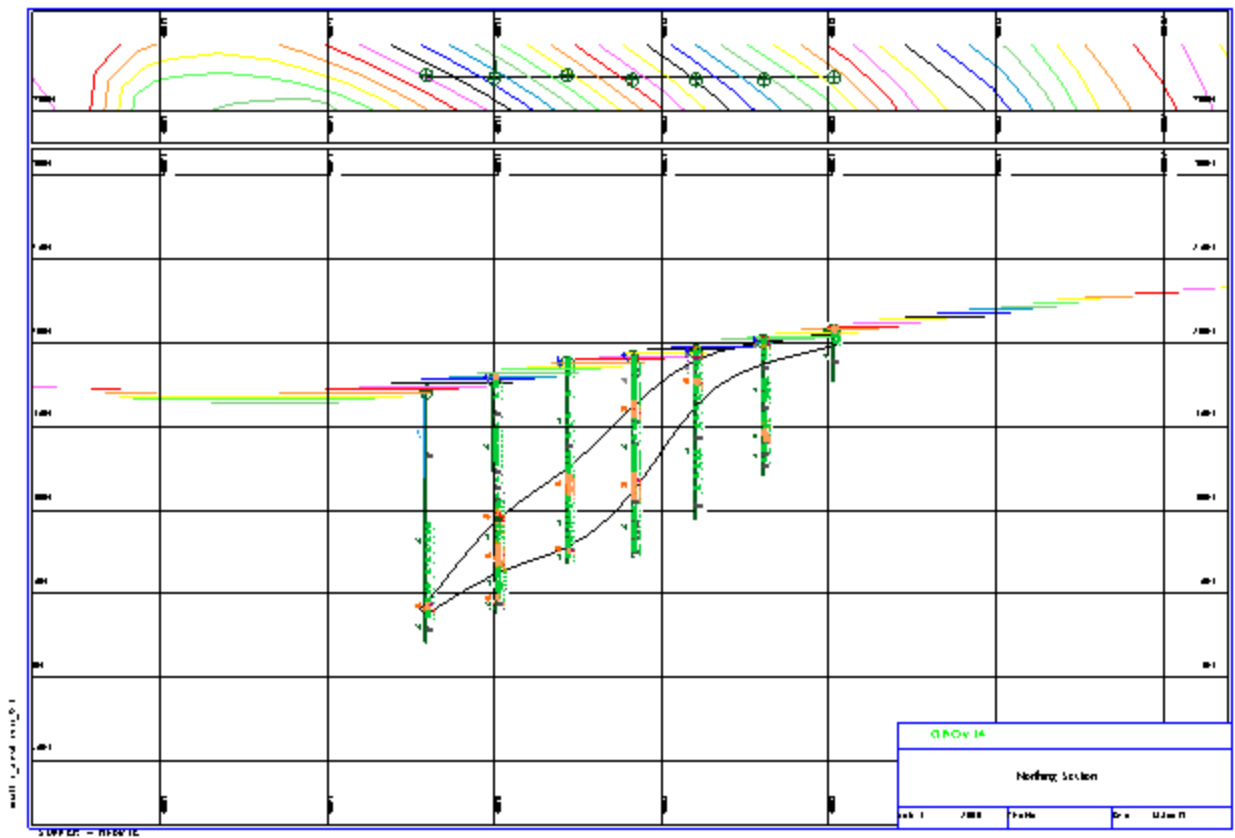
13. Open **multi_section_01.dwf** in **Graphics**.



14. Open **multi_section_02.dwf** in **Graphics**.



15. Open **multi_section_03.dwf** in **Graphics**.

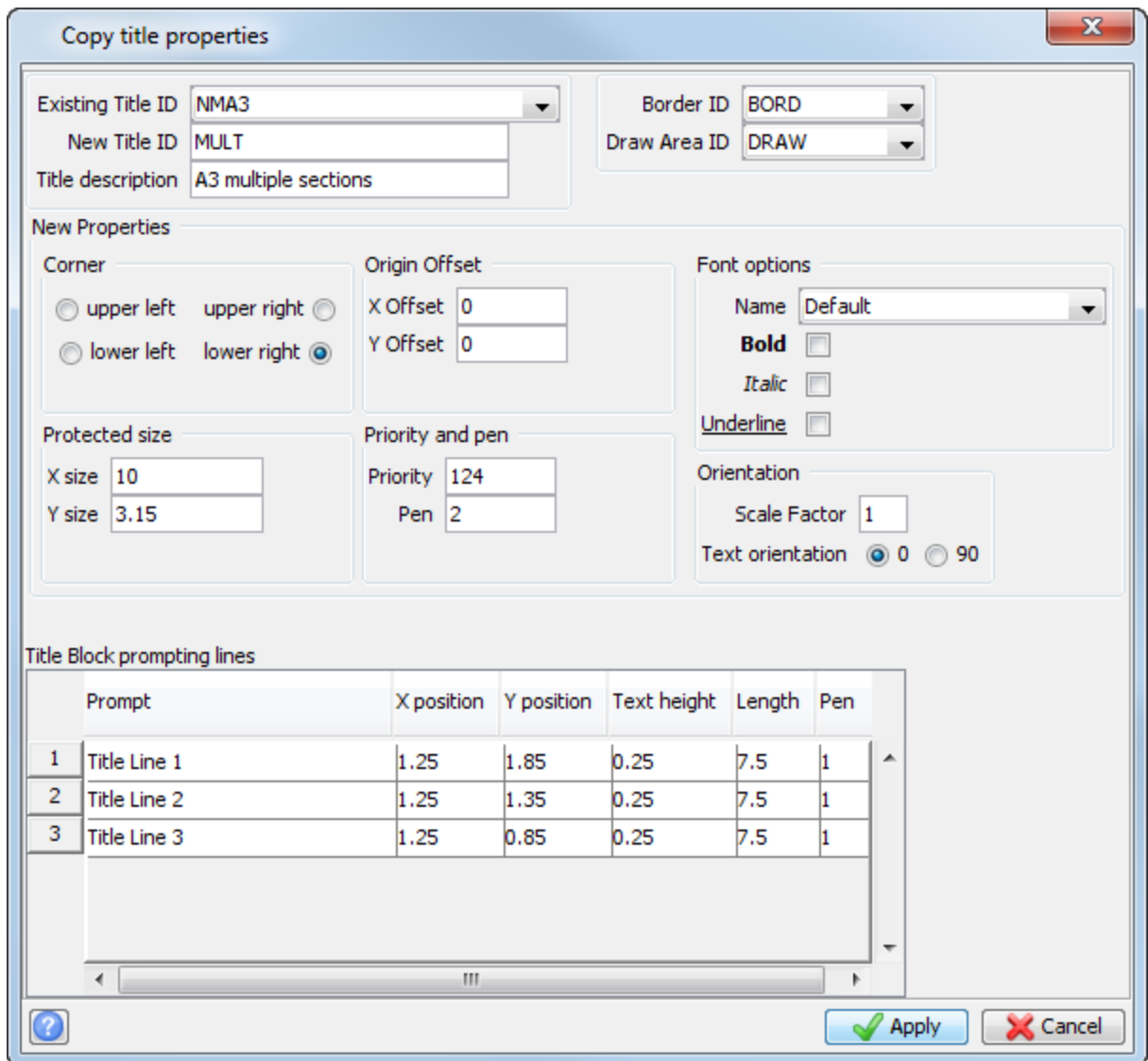


16. Choose **File > Close** to close the **Plot Preview** window.

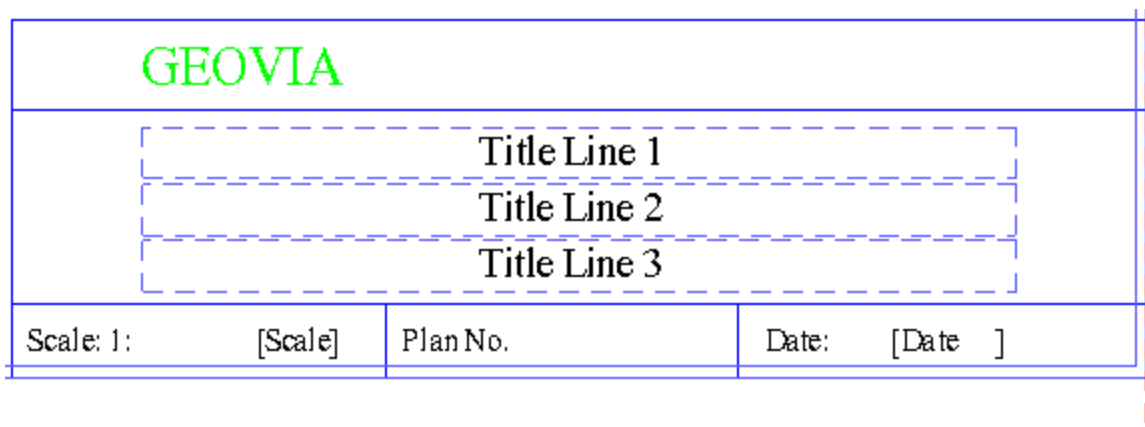
Note: To see all of the steps performed in this task, run **_01d_autoplot_multiple_sections.tcl**. You need to click **Apply** on any forms presented.

Task: Create a title block for multiple section plots

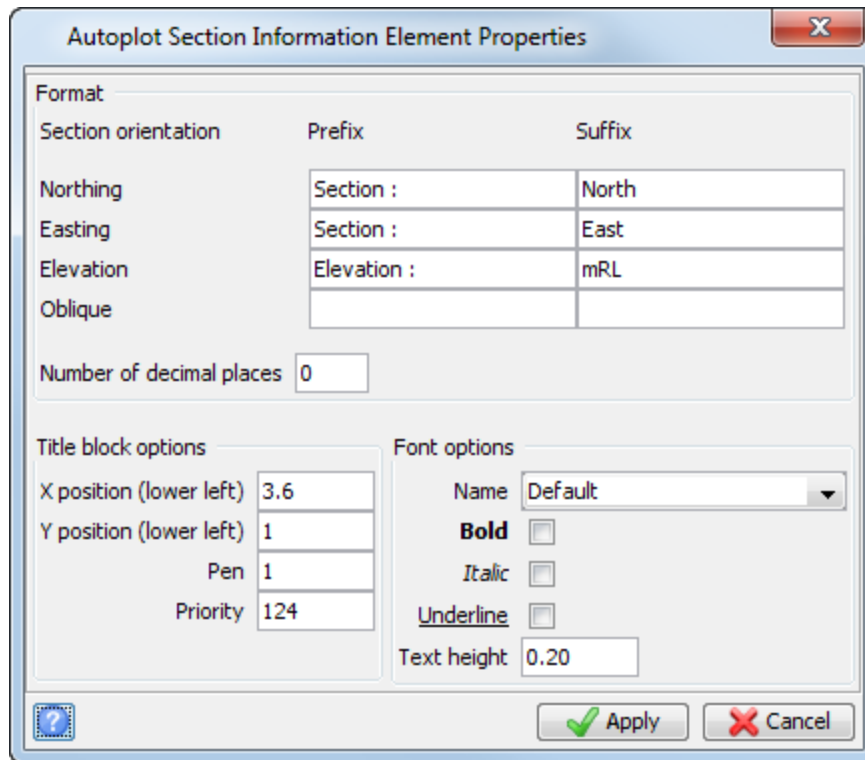
1. Choose **Plotting > Plotting Sheet setup window**.
2. Choose **Title Blocks > Copy**.
3. Enter the information as shown, and click **Apply**.



4. Using the mouse, zoom to the title block, as shown.

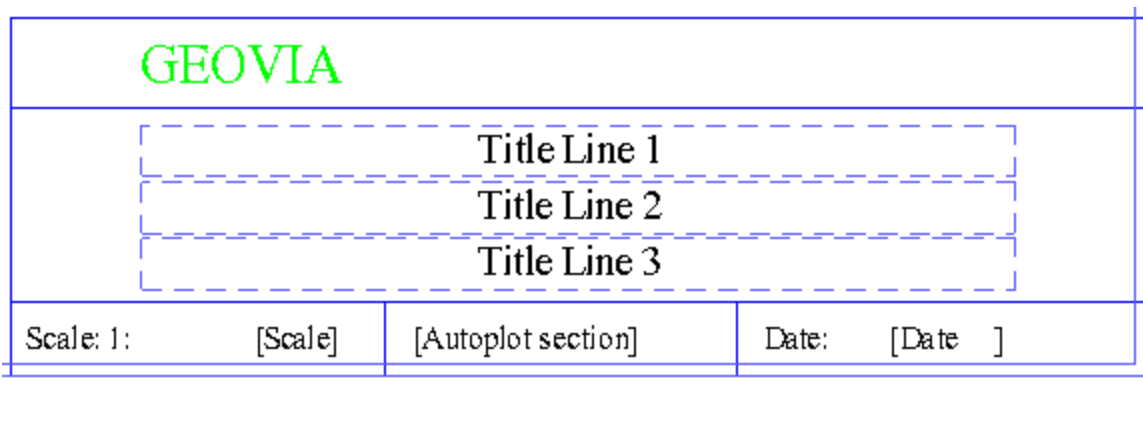


5. Choose **Title Blocks > Edit > Delete item.**
6. Click the text **Plan No.** to delete it.
7. Choose **Title Blocks > Create > Autoplot section details.**
8. Click near the previous location of **Plan No.**.
9. Enter the information as shown, and click **Apply.**




Note: Insert a space after the last character of the **Prefix**, and before the first character of the **Suffix**. For example, the **Northing Prefix** is "Section<space>:<space>".

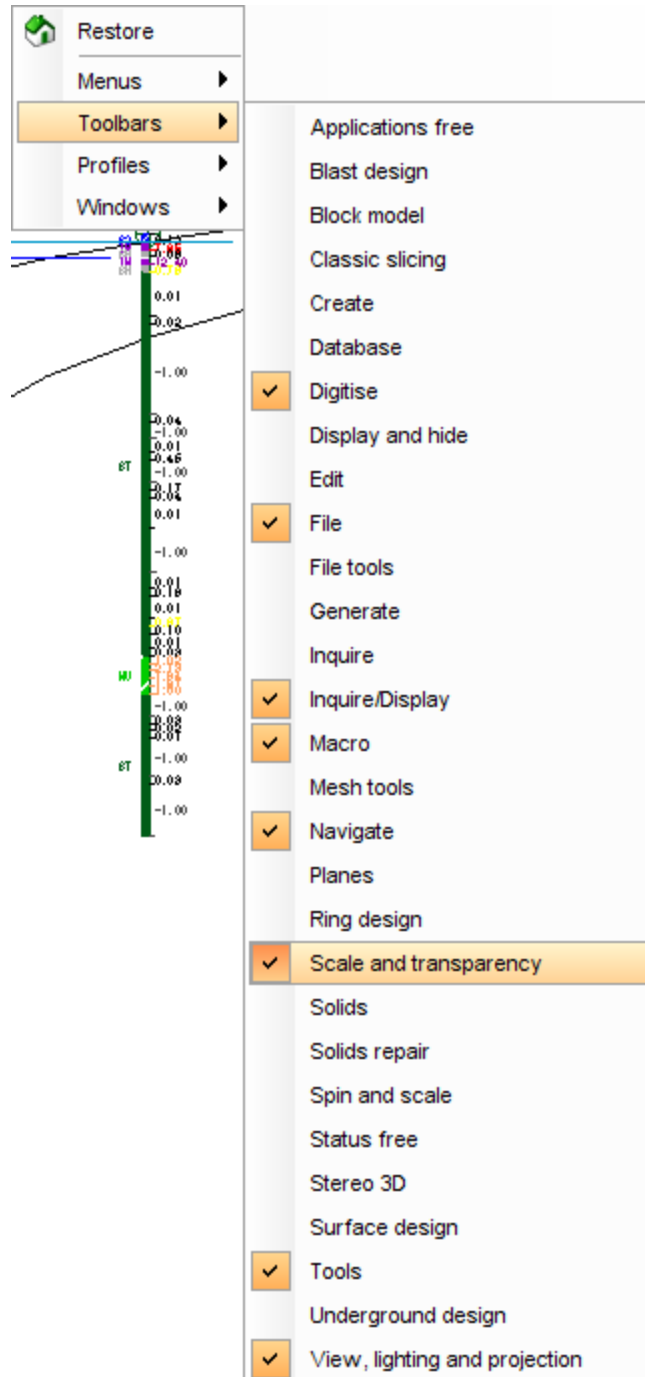
The field name [**Autoplot section**] is displayed in the title block.



10. If the section does not appear in the correct location, choose **Title blocks > Edit > Move** then drag the section to the correct location.
11. Choose **Title Blocks > Save.**
12. Choose **File > Close** to close the **Plot Preview** window.
The **MULT** title block is now ready for use in Autoplot when plotting sections.

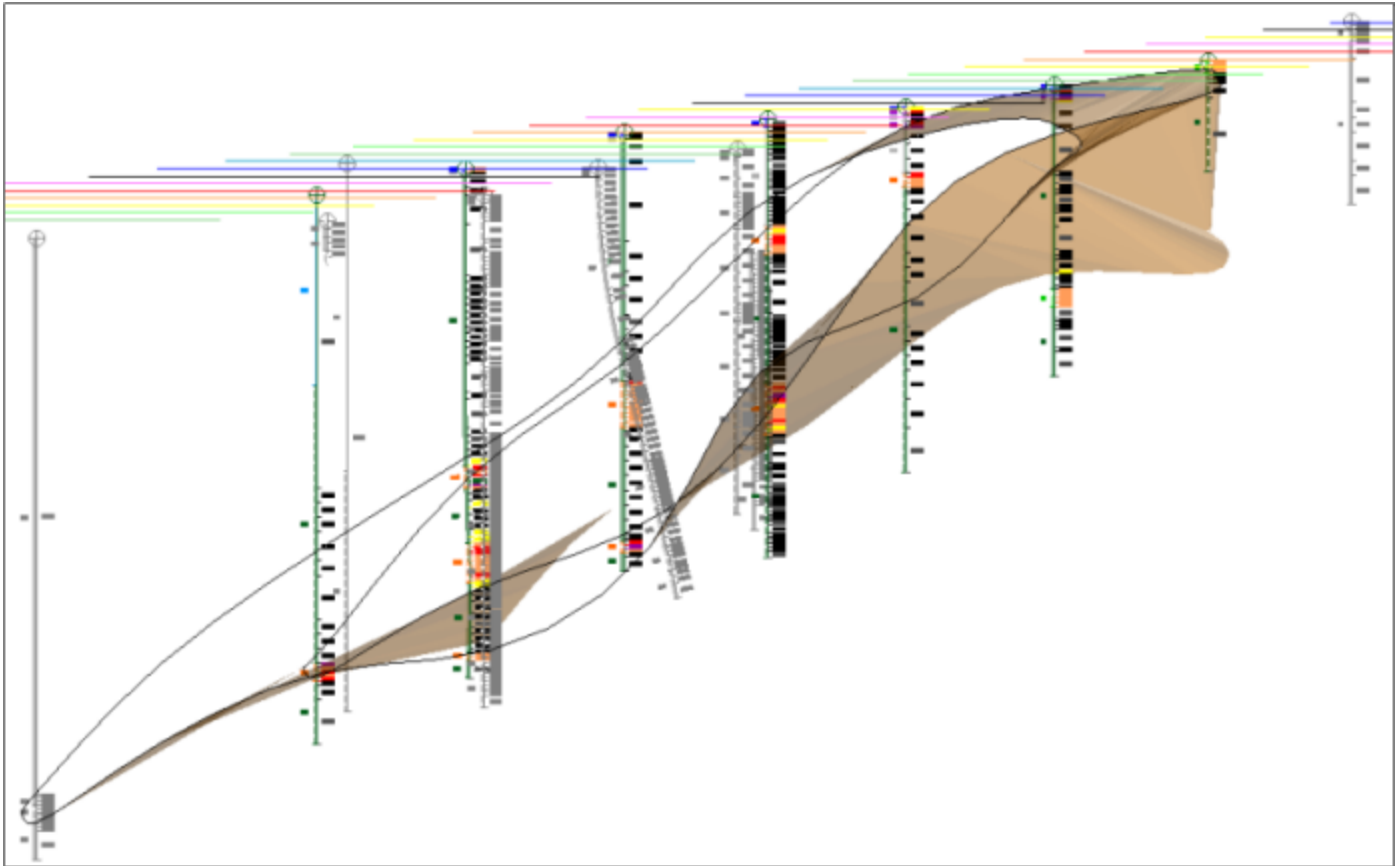
Task: Create multiple section plots with solids

1. Click **Reset graphics** .
2. Open **section_7320_north+solid.swa** in **Graphics**.
3. Right-click to the right of the menus, move the cursor to **Toolbars**, and click **Scale and transparency**.



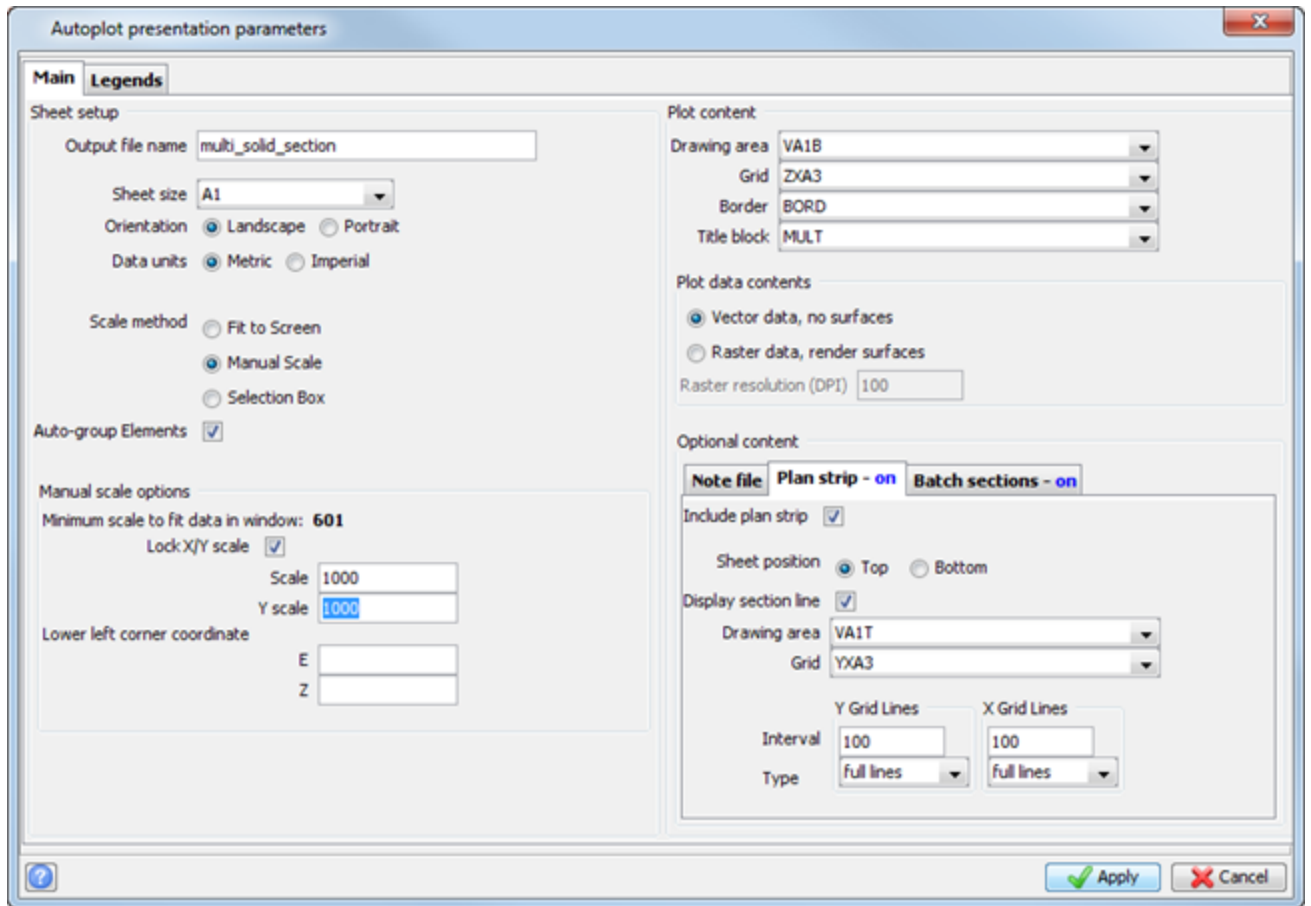
4. Drag the transparency slider to set the transparency of triangles to 50%.





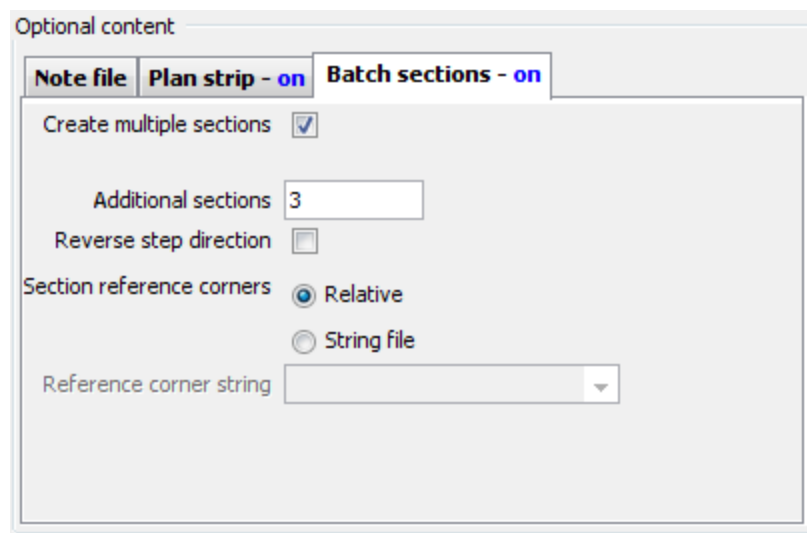
5. Click **Autoplot** .

6. Enter the information as shown.



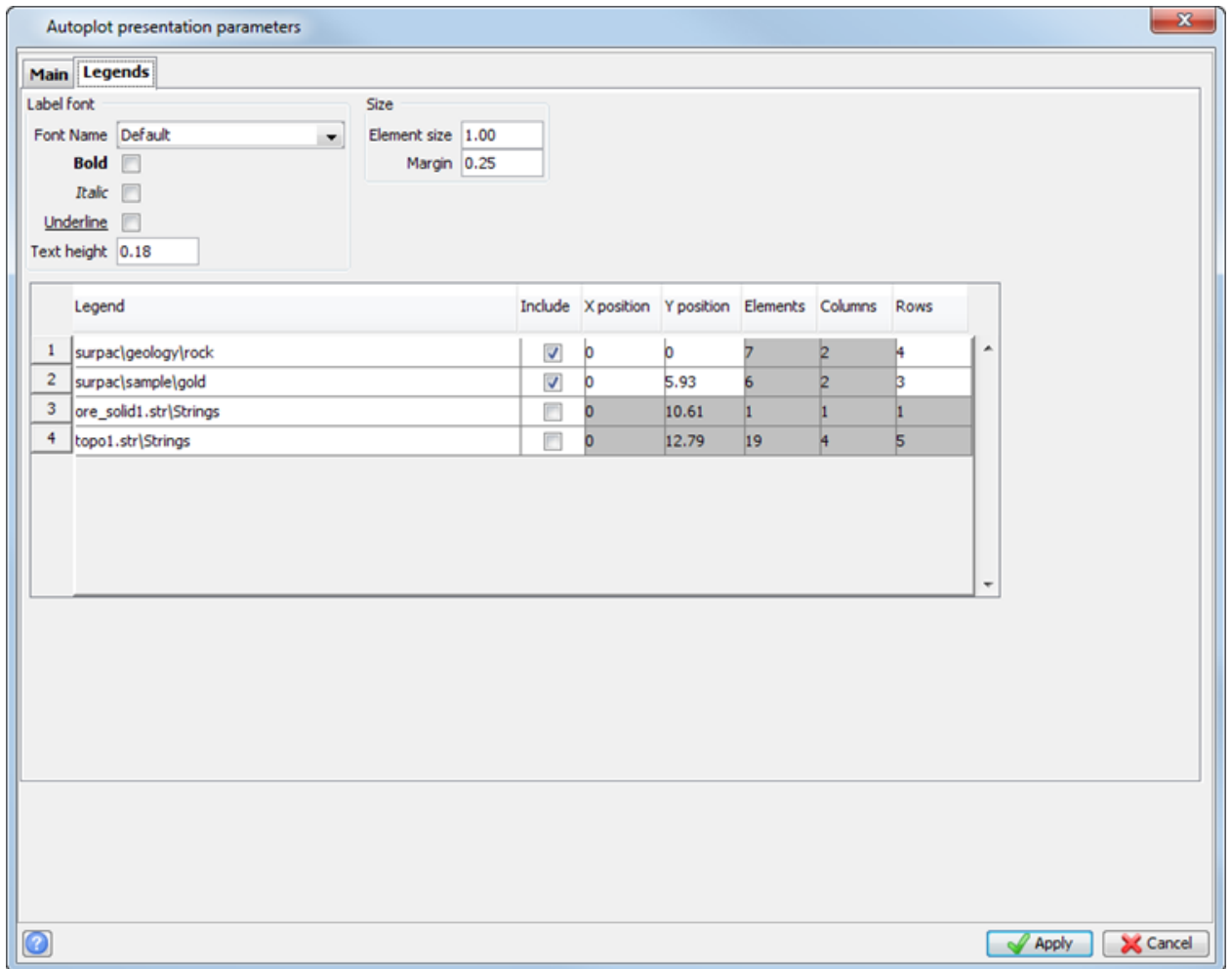
When you select the Drawing area of **VA1B** in **Plot content**, the only available option in the **Optional content Drawing area** is **VA1T**. Surpac displays only the drawing areas that are appropriate for the selected sheet size.

7. Click the **Batch sections** tab.
8. Enter the information as shown.

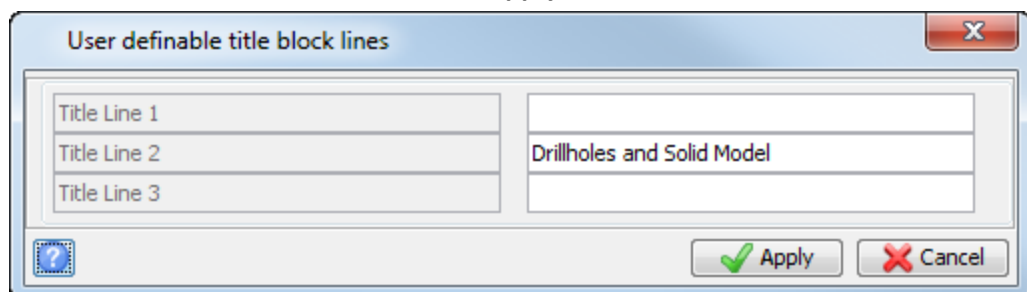


9. Click the **Legends** tab.

10. Enter the information as shown, and click **Apply**.

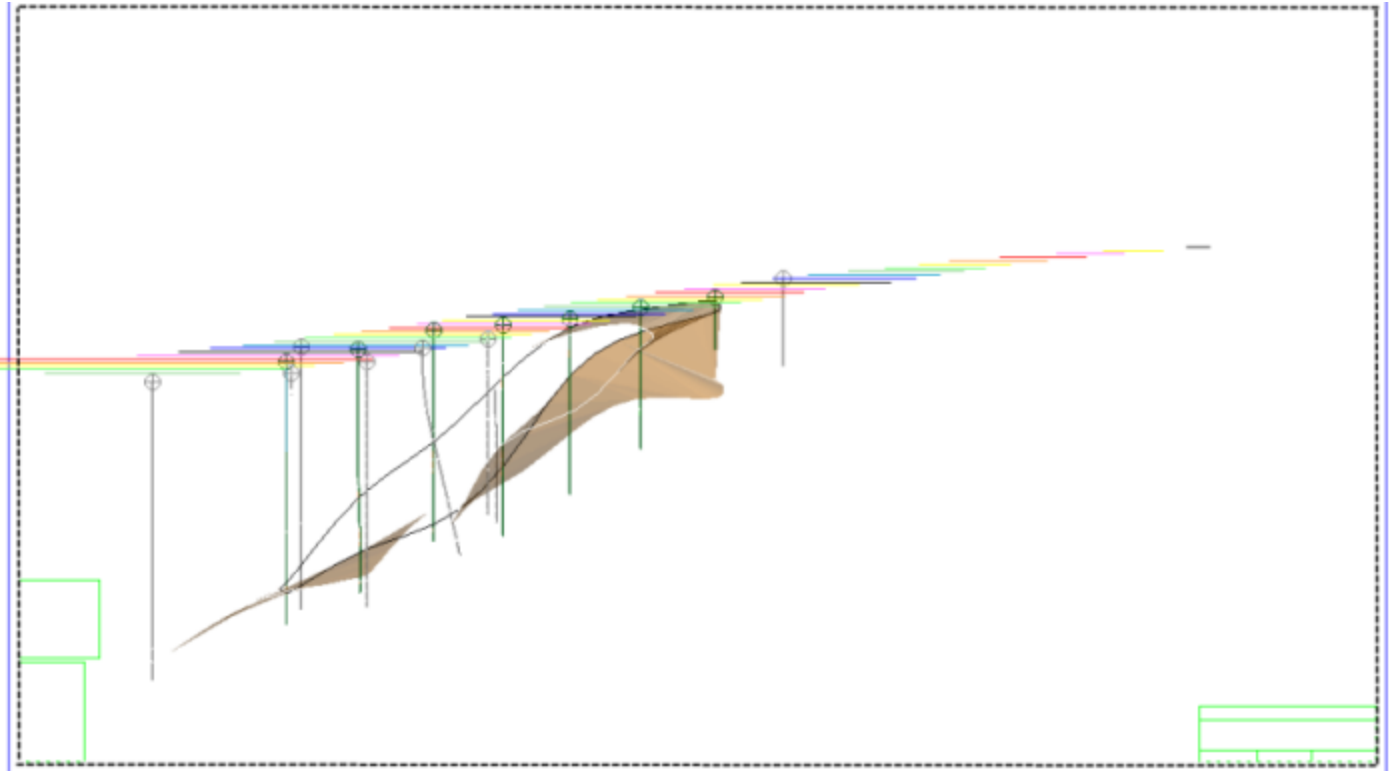


11. Enter the information as shown, and click **Apply**.



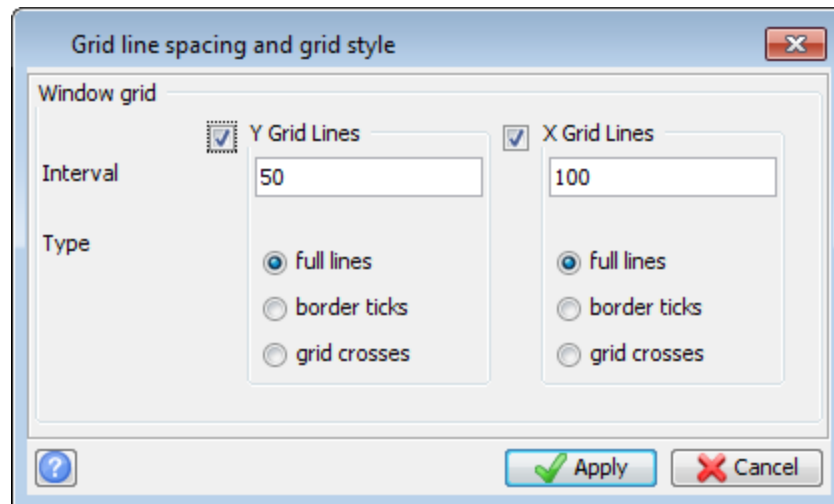
12. Press F1.

13. Click and drag to move the box as displayed.



14. Press F2.

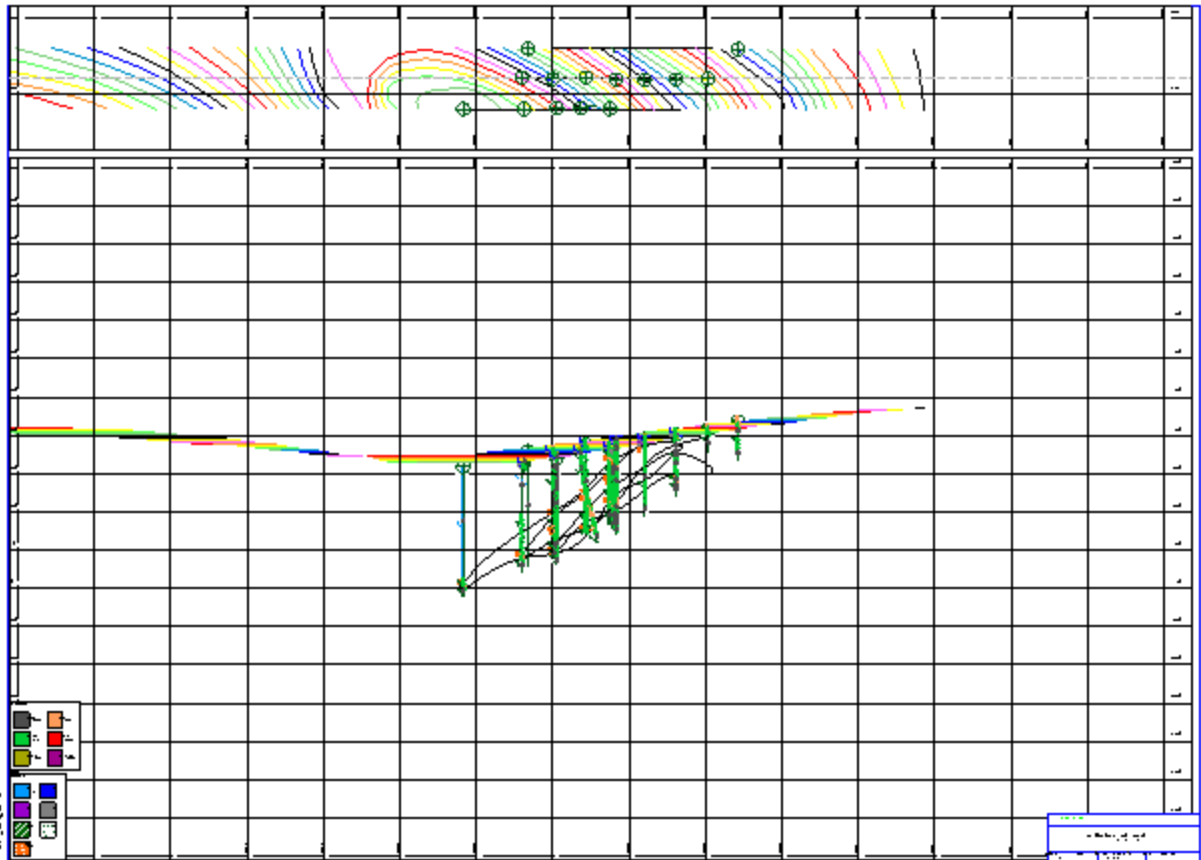
15. Enter the information as shown, and click **Apply**.



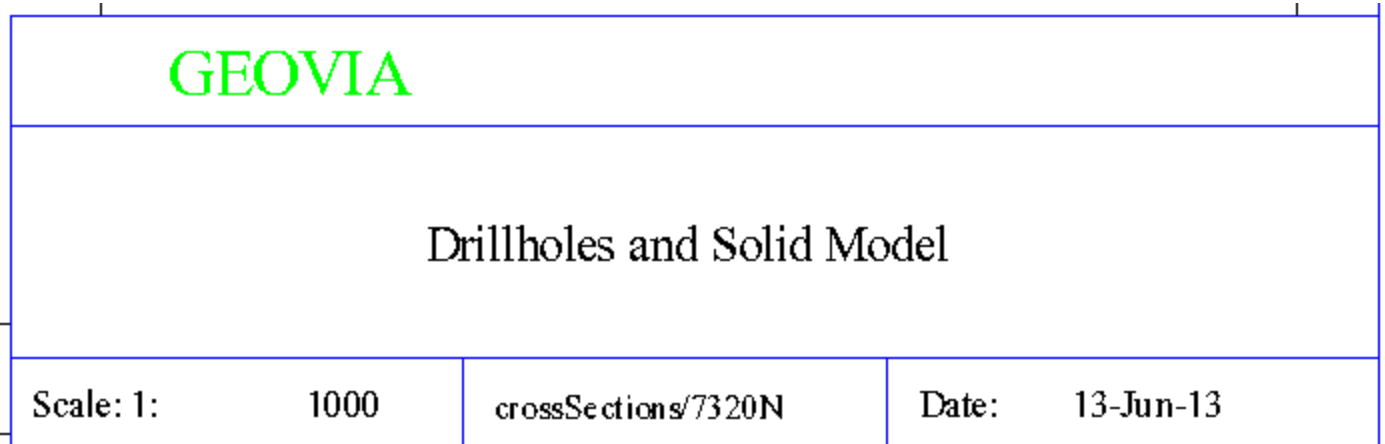
The following files are created:

Northing	Filename
7320	multi_solid_section.dwf
7360	multi_solid_section_01.dwf
7400	multi_solid_section_02.dwf
7440	multi_solid_section_03.dwf

16. Open **multi_solid_section.dwf** in **Graphics**.

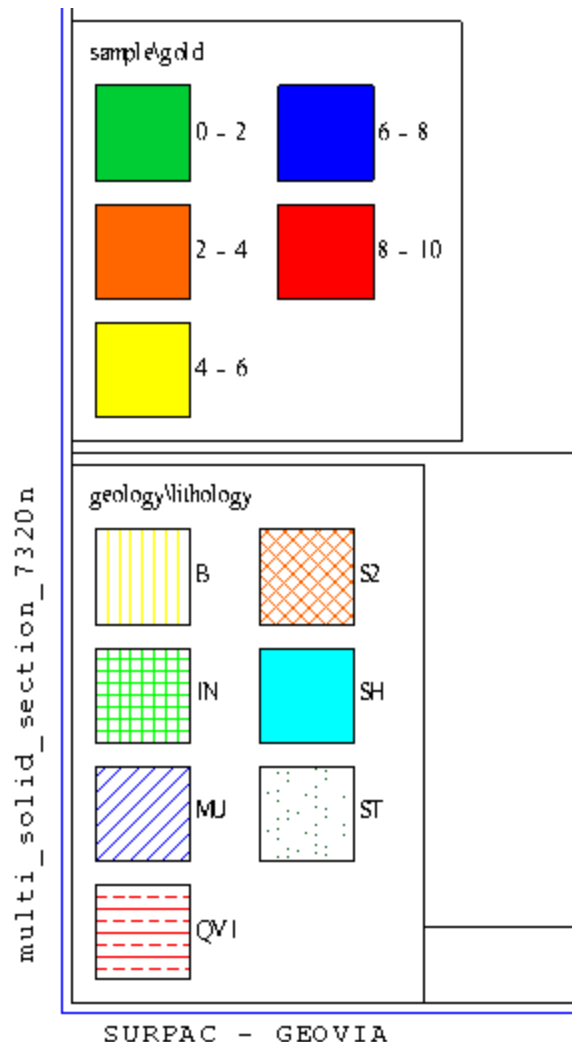


17. Zoom in on the title block.




The section number has been automatically appended to the title block.

18. Zoom in on the legend:



19. Open each of the files that were created:


- multi_solid_section_01.dwf
- multi_solid_section_02.dwf
- multi_solid_section_03.dwf

 **Note:** To see all of the steps performed in this task, run `_01e_autoplot_multiple_solid_sections.tcl`. You need to click **Apply** on any forms presented. This macro will only run correctly if the title block **MULT** has been created.

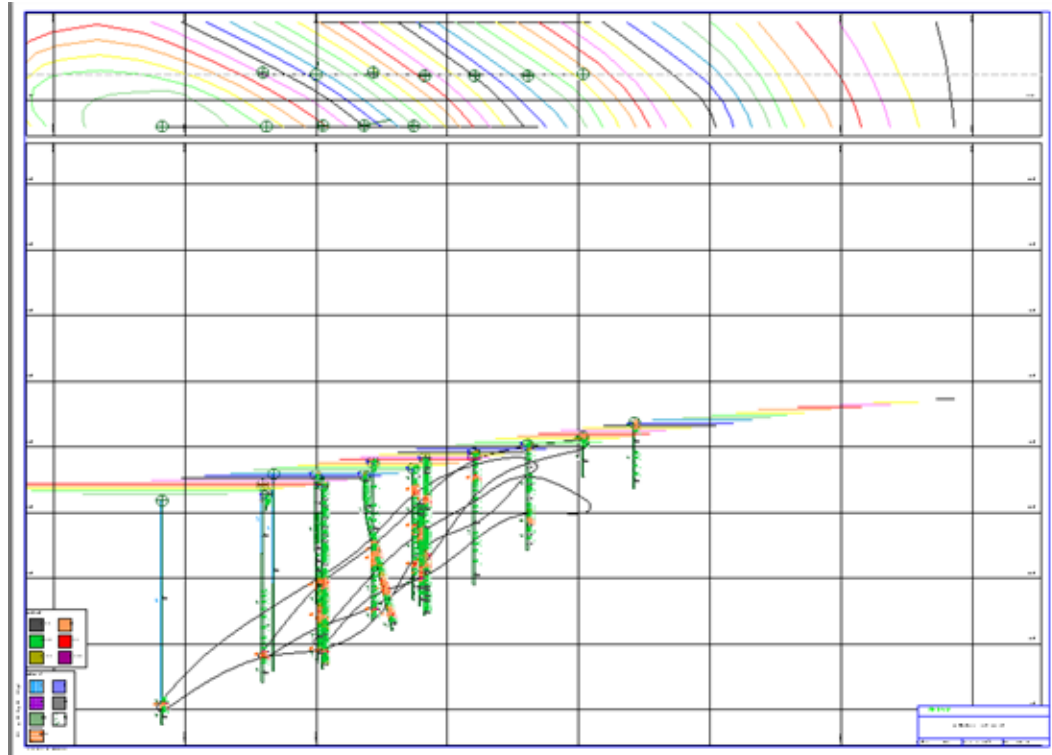
Other plotting tasks

Task: Copy cells from Excel to a plot

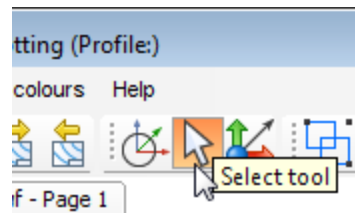
You can copy cells from Microsoft Excel™ into a plot that is displayed in the Surpac Plotting window. In the plot, the cells appear as a table that you can move, group, ungroup, display, or hide. Formatting, including font type, font size, bold, underline, italics, horizontal and vertical alignment, is copied, but not bullet symbols or text colour.

 **Tip:** You can also copy and paste from a text editor such as Notepad, or from Microsoft Word™, in which case formatting is not copied.

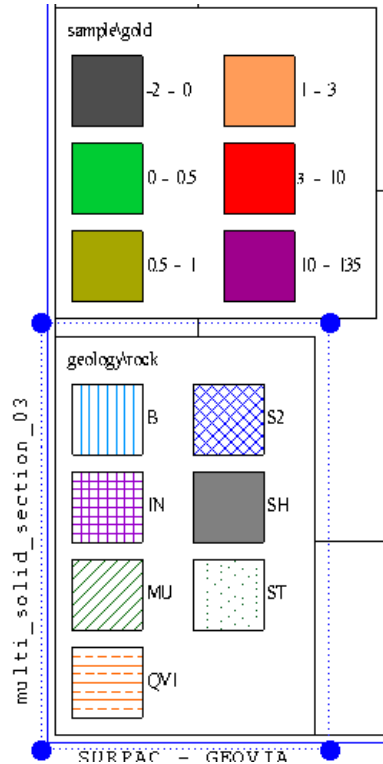
1. Drag **multi_solid_section_03.dwf** into **Graphics**.



2. On the **Plot Tools** toolbar, click the **Select tool**.



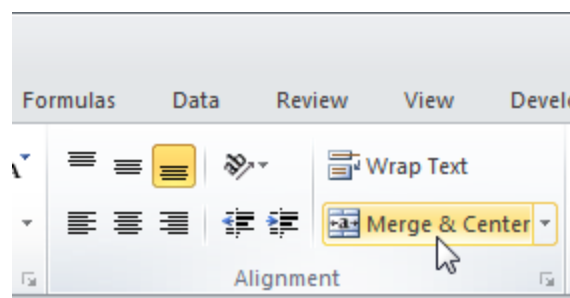
3. Select the legend of rock types in the lower left corner, and press DELETE.



4. Start Excel.
5. Type the following text into some cells.

	A	B
1	Lithology	
2	B	Basalt
3	IN	Intrusion
4	MU	Mudstone
5	QV1	Quartz Vein 1
6	ST	Sandstone Type 1
7	S2	Sandstone Type 2
8	SH	Shale

6. Select cells A1 and B1, and then merge them and centre them. The **Merge** command is not in the same place in all versions of Excel. In Excel 2010, the **Merge & Centre** command is on the **Alignment** tab.

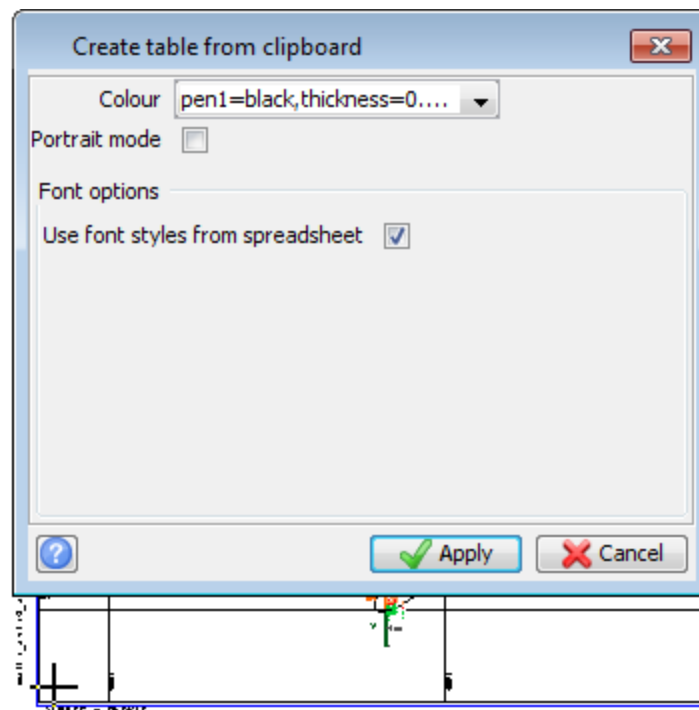


7. Apply bold formatting to the text **Lithology**.

8. Select cells A1 to B9, and press CTRL+C.

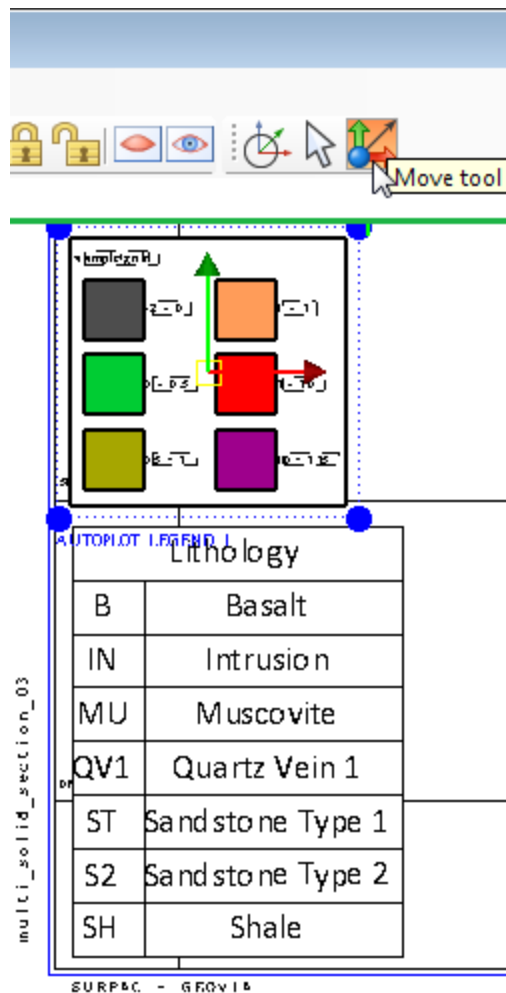
	A	B
1		Lithology
2	B	Basalt
3	IN	Intrusion
4	MU	Muscovite
5	QV1	Quartz Vein 1
6	ST	Sandstone Type 1
7	S2	Sandstone Type 2
8	SH	Shale

9. In the Surpac Plotting window, choose **Create > Table from Clipboard**.
 10. Click in the lower left corner of the plot.

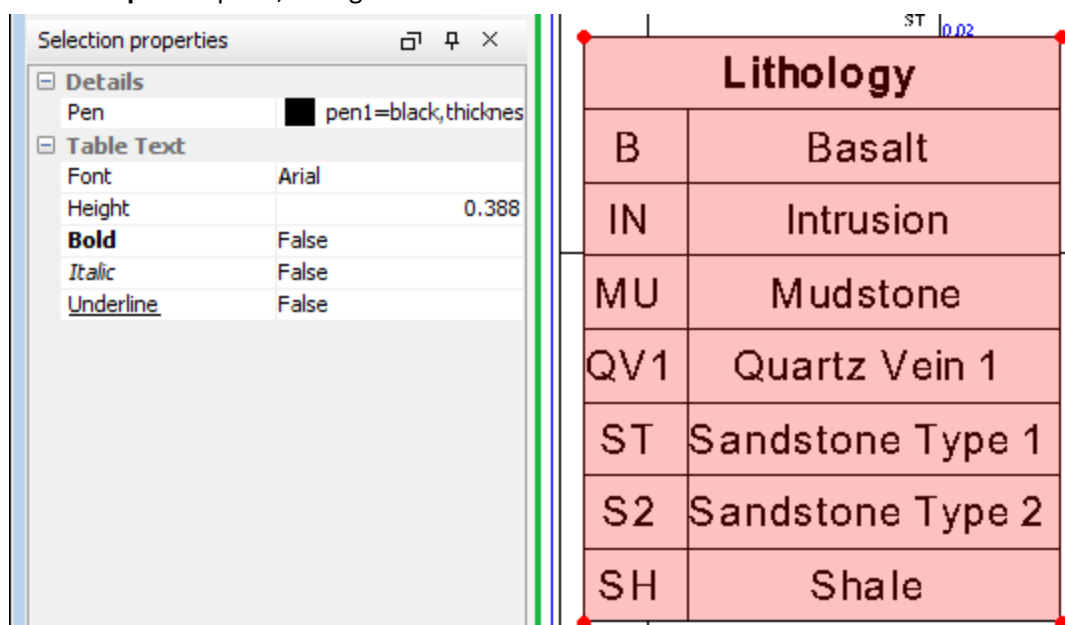


11. Click **Apply**.
 The Surpac **Status bar** displays a message to digitise the location for the second table.
 12. Press ESC because you want only a single copy of this table.

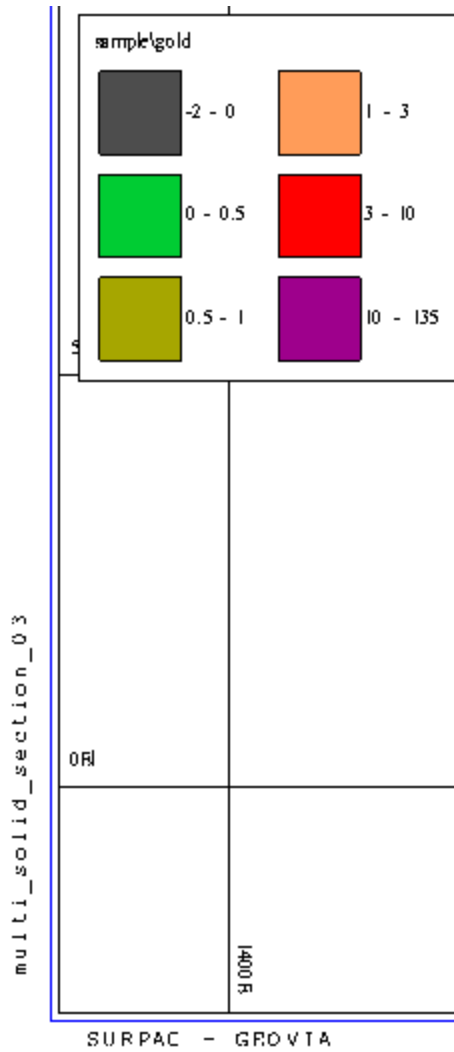
- Use the **Select** tool and the **Move** tool to move the grade and lithology legends so that they do not overlap.



- Select the new table in the lower left.
- In the **Properties** pane, change the font to Arial.



16. Choose **Display/Hide > Tables**.
The table is hidden.



17. Choose **Display/Hide > Tables** to show the table again.

File-based plotting

Overview

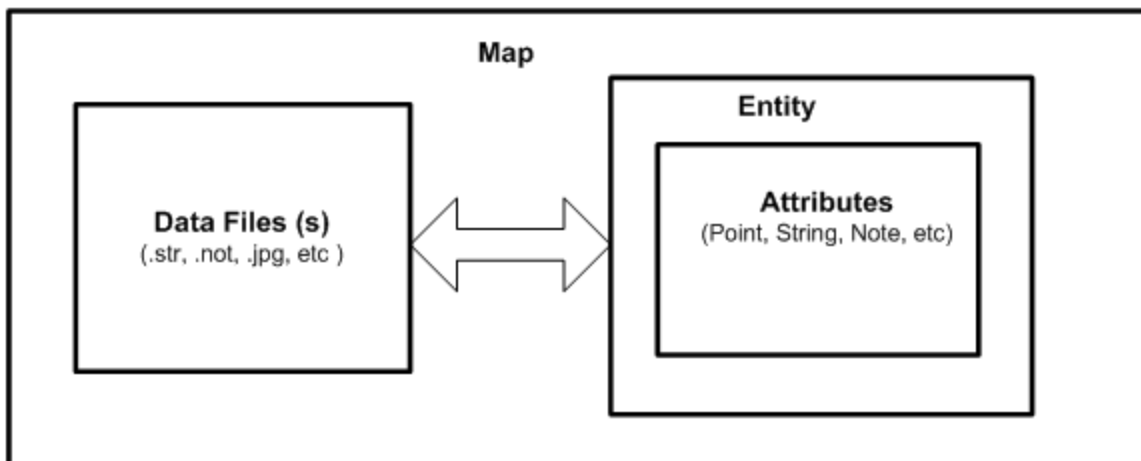
File-based plotting allows you to produce more complex plots.

For file-based plotting, you must specify where to find the data, what to plot, and also how to plot the data. Before you produce a plot in Surpac you must define a map. The map definition specifies what is to be plotted.

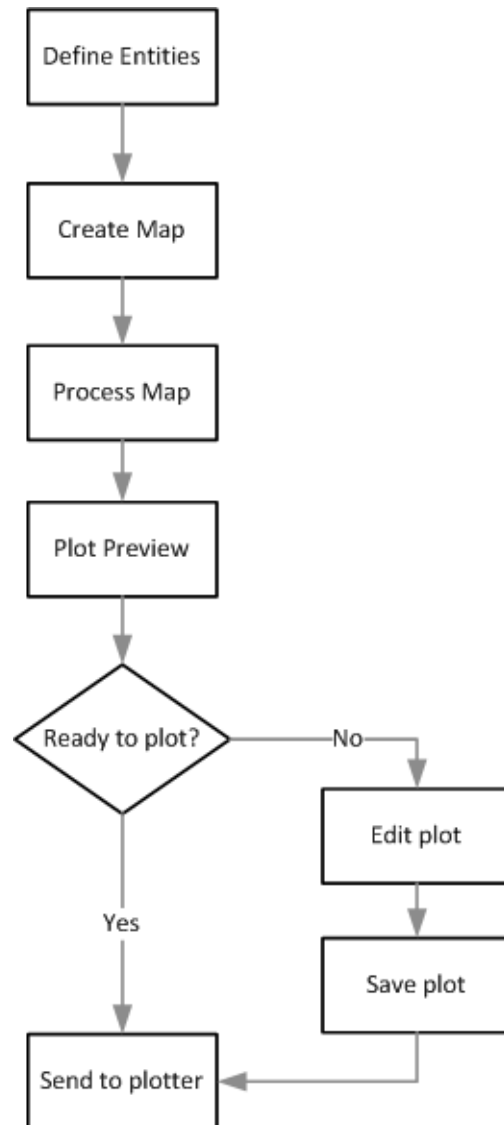
Maps consist of entities, which refer to the set of instructions that instructs Surpac on how to plot the data. Entity definitions consist of smaller groups of instructions called attributes.


An attribute provides information, such as:

- what is to be plotted (for example, a line, symbol, text, and point number)
- which fields of a string file to plot
- where to plot data
- how to plot text (for example, height and angle)
- which pen to use



Workflow

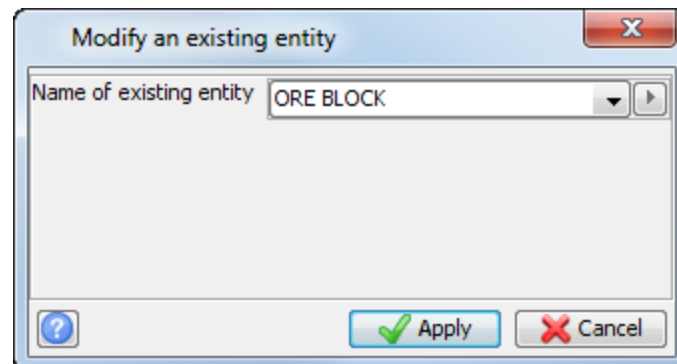


 **Note:** This workflow demonstrates the steps in this tutorial. There are other ways to achieve a result.

Creating plan view maps

Task: Create an ore block plan

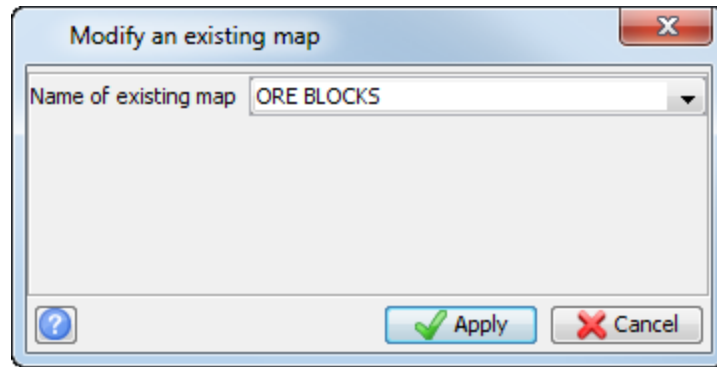
1. Choose **Plotting > Entity > Edit**.
2. Select **ORE BLOCK**, and click **Apply**.



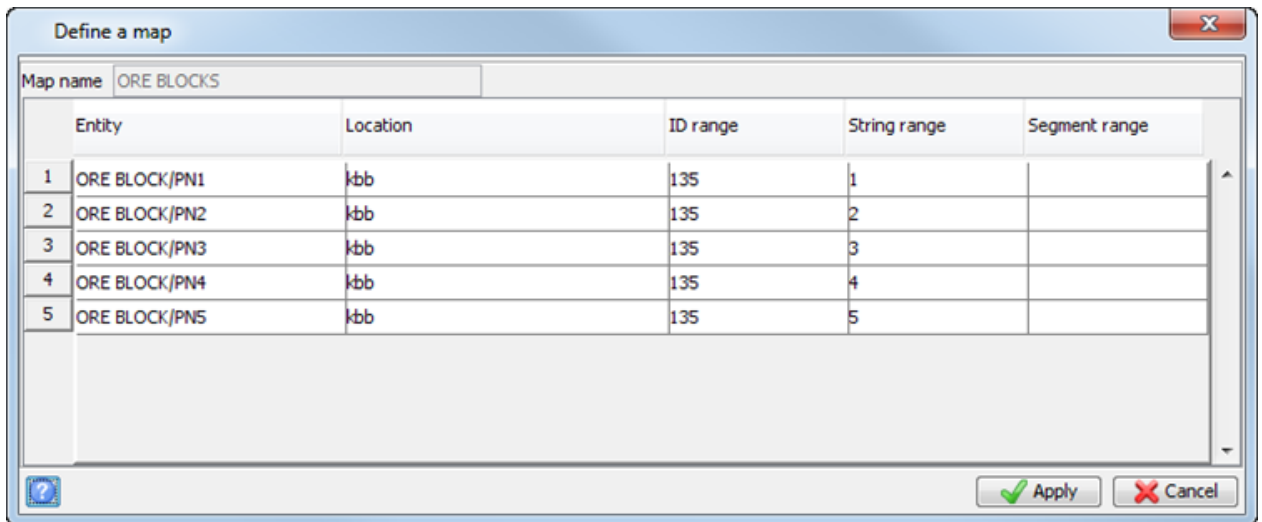
The **Define a string entity** form is displayed. This form defines the **ORE BLOCK** entity.

3. After viewing the **Define a string entity** form, click **Cancel**.
4. Choose **Plotting > Map > Edit**.

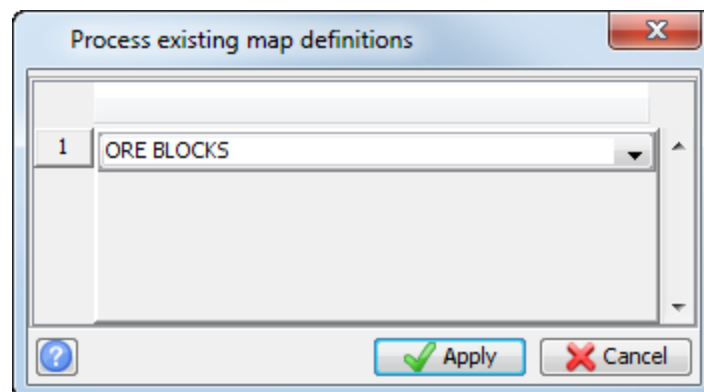
5. Select **ORE BLOCKS**, and click **Apply**.



The form displays the fields as shown.



6. Click **Cancel**.
7. Choose **Plotting > Process > Map**.
8. Select **ORE BLOCKS**, and click **Apply**.



9. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **ORE BLOCKS**
Output file name: ore_blocks

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **0.000**
Lock X/Y scale
Scale: 500

Data extents

	Y	X
Minimum	0.00	0.00
Maximum	0.00	0.00

Sheet setup and orientation characteristics

Sheet size: A3
Border: BORD
Drawing area: DRAW
Grid: YXA3
Title block: NMA3

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units: Metric Imperial

Miscellaneous options

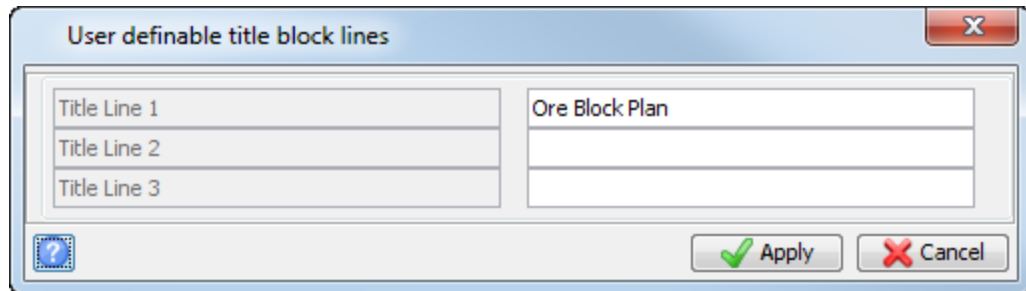
Overprint:
Text rotation:
Display plot after processing:

Save current settings as default

Apply Cancel

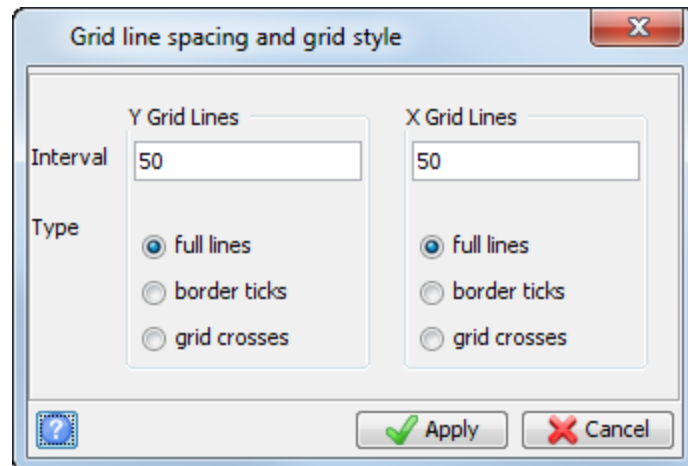
The **Display plot after processing** check box opens the map in the **Plot Preview** window. This allows you to view it before plotting.

10. Enter the information as shown, and click **Apply**.



The dialog box titled "User definable title block lines" has a close button (X) in the top right corner. It contains three input fields on the left labeled "Title Line 1", "Title Line 2", and "Title Line 3". The "Title Line 1" field contains the text "Ore Block Plan". On the right side, there are three empty input fields. At the bottom, there is a help icon (question mark in a blue square) on the left, and "Apply" and "Cancel" buttons on the right.


11. Enter the information as shown, and click **Apply**.

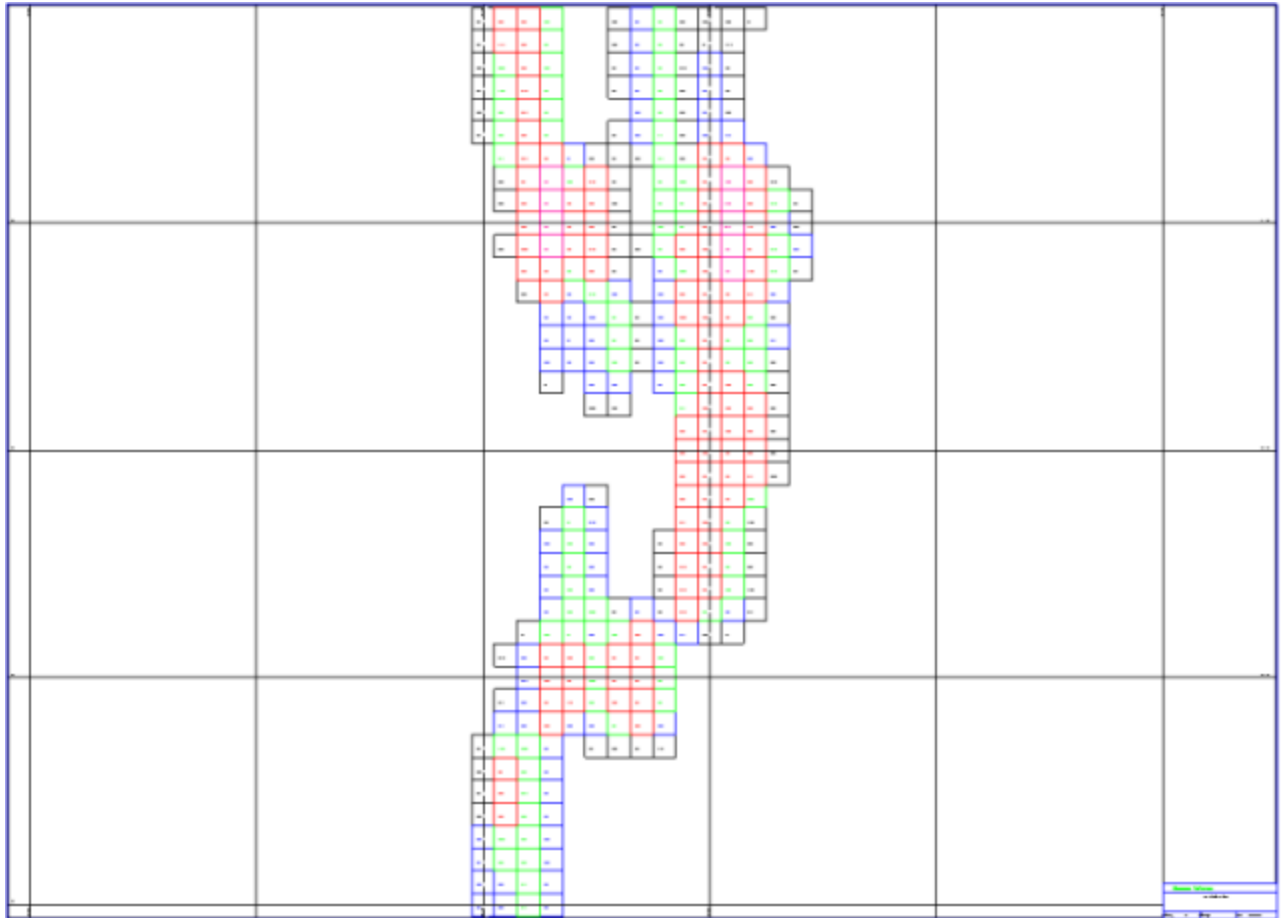


The dialog box titled "Grid line spacing and grid style" has a close button (X) in the top right corner. It is divided into two columns: "Y Grid Lines" and "X Grid Lines". Under "Y Grid Lines", the "Interval" is set to "50" and the "Type" is "full lines" (selected with a radio button). Under "X Grid Lines", the "Interval" is set to "50" and the "Type" is "full lines" (selected with a radio button). Other options include "border ticks" and "grid crosses". At the bottom, there is a help icon (question mark in a blue square) on the left, and "Apply" and "Cancel" buttons on the right.

A *.dwf file is created. In this case, the first processed map is named **oreblocks.dwf** with subsequent maps named **oreblocks_01.dwf**, then **oreblocks_02.dwf**, **oreblocks_03**, with each subsequent map named one number higher in the suffix.

The map is displayed in the **Plot Preview** window.

 **Note:** If you do not see any data, make sure that the **Plotting** folder is set as the work directory in the **Plotting** window, and repeat this procedure.



12. From the **Plotting** window menu, choose **Create > Text**.

13. Click a point for the text to be displayed in the plot, fill in the form as shown, and click **Apply**.

Insert text symbol

Text: Ore Block Outlines 135 RL

Colour: pen1=black,thickness=0.250000

Font options

Name: Default

Bold

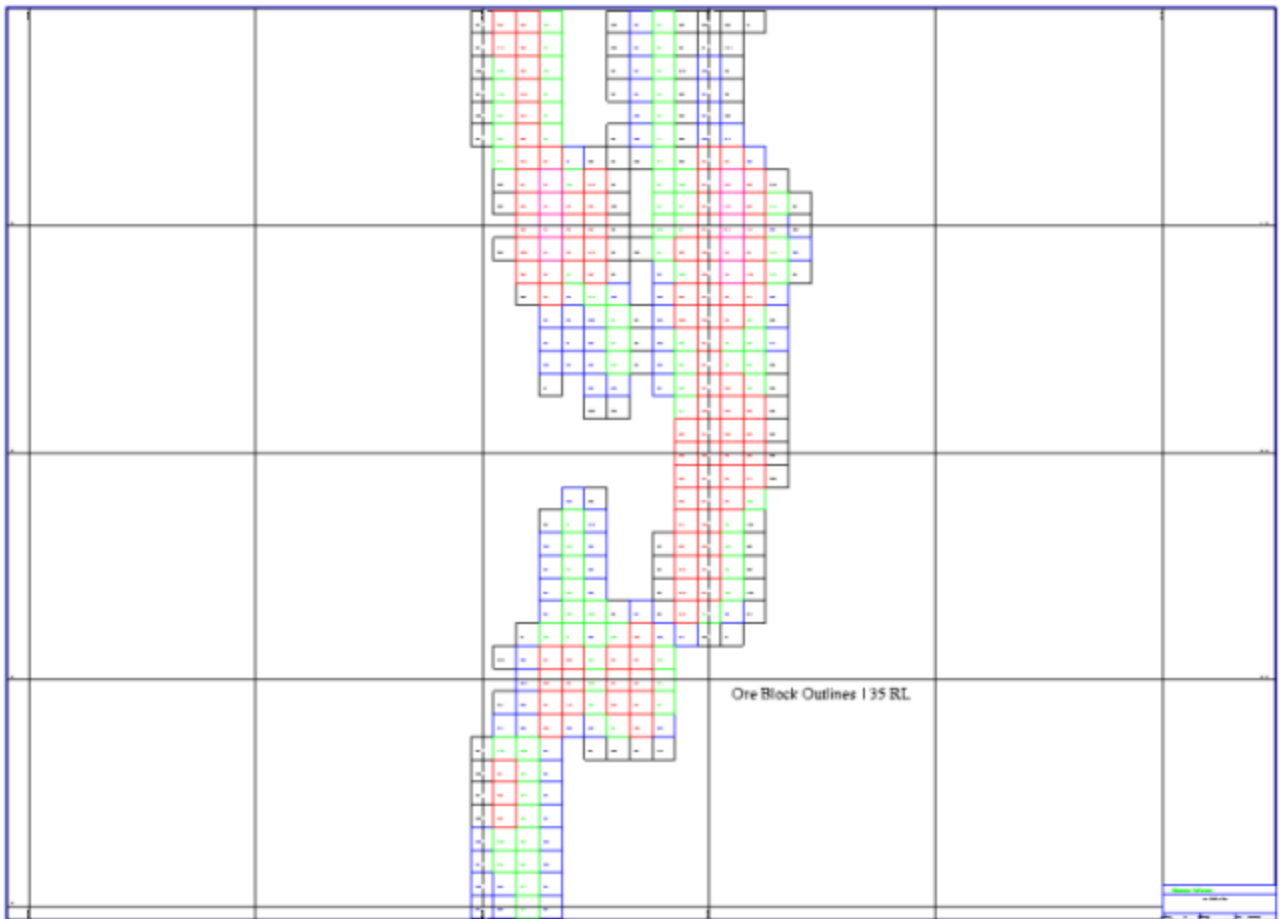
Italic

Underline

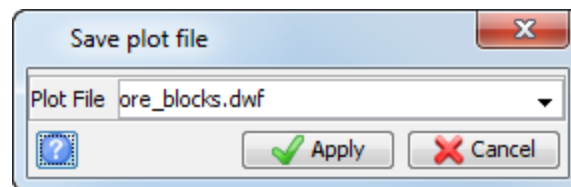
Height (cm): 0.1

Angle (degrees): 0

14. Press ESC.




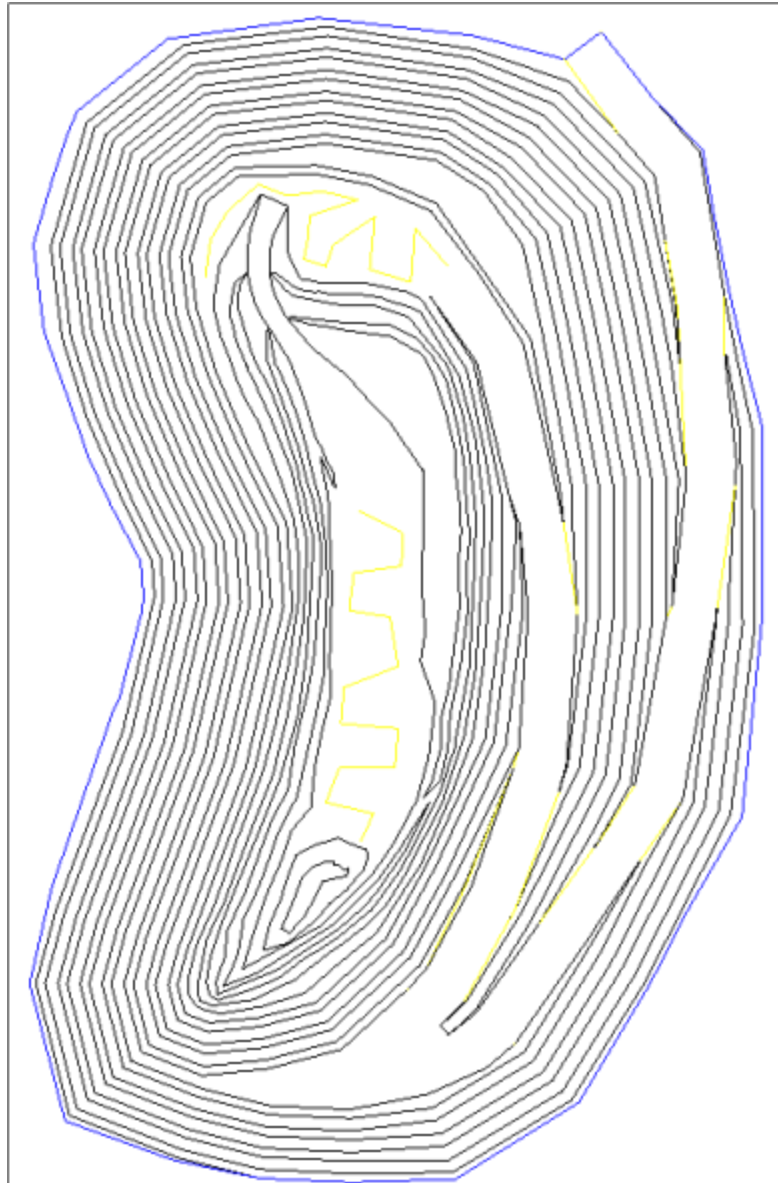
15. Choose **File > Save**, and click **Apply** to save the file.




 **Note:** You can edit *.dwf files with a CAD package such as Autocad or Microstation.

Task: View data for plotting

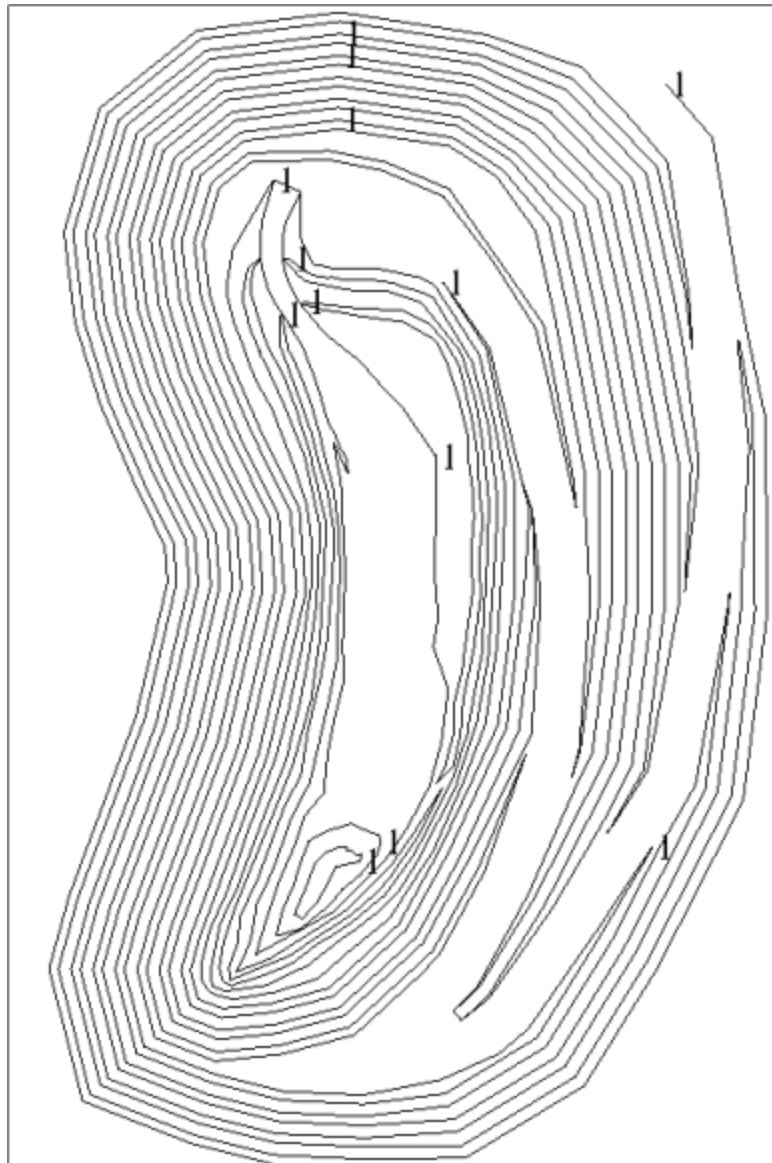
1. Click **Reset graphics** .
2. Open **pit1.str** in **Graphics**.



3. Choose **Display > Hide everything**.
 **Tip:** The alias for **Hide everything** is **CS**. In all further steps where you want to hide everything, you will be instructed to type **CS** into the Function Chooser, and press ENTER.
4. Choose **Display > Strings > With string numbers**.

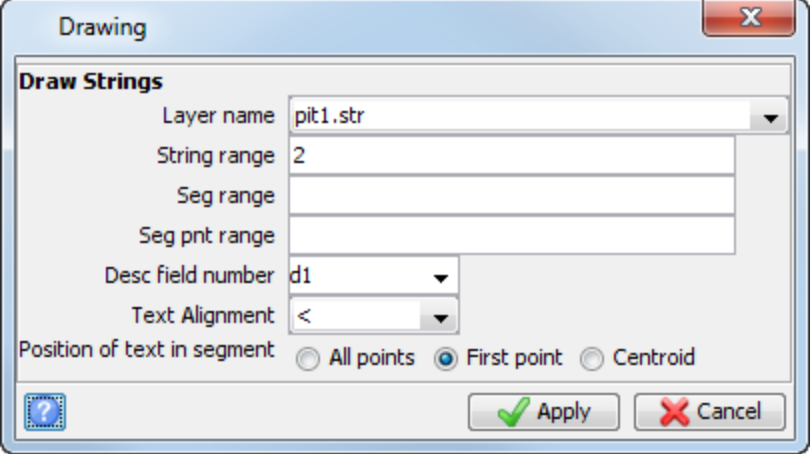
- Enter the information as shown, and click **Apply**.

String 1 contains the crest and toe strings for the pit.



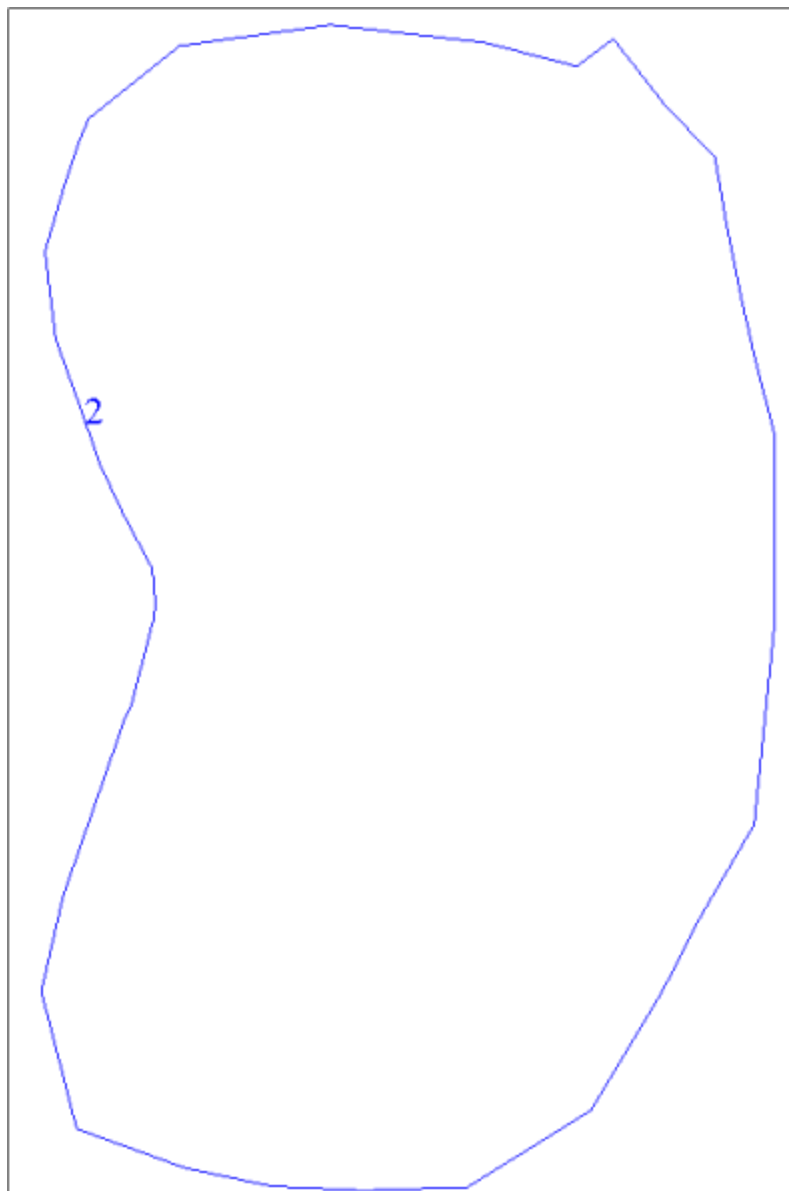
- Type **CS** into the Function Chooser, and press ENTER.
- Choose **Display > Strings > With string numbers**.

8. Enter the information as shown, and click **Apply**.



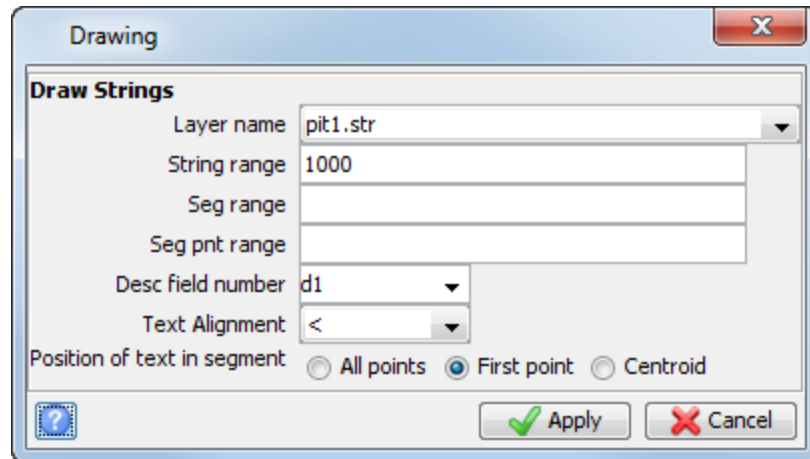
Layer name: pit1.str
String range: 2
Seg range:
Seg pnt range:
Desc field number: d1
Text Alignment: <
Position of text in segment: All points First point Centroid

String 2 contains the pit boundary.

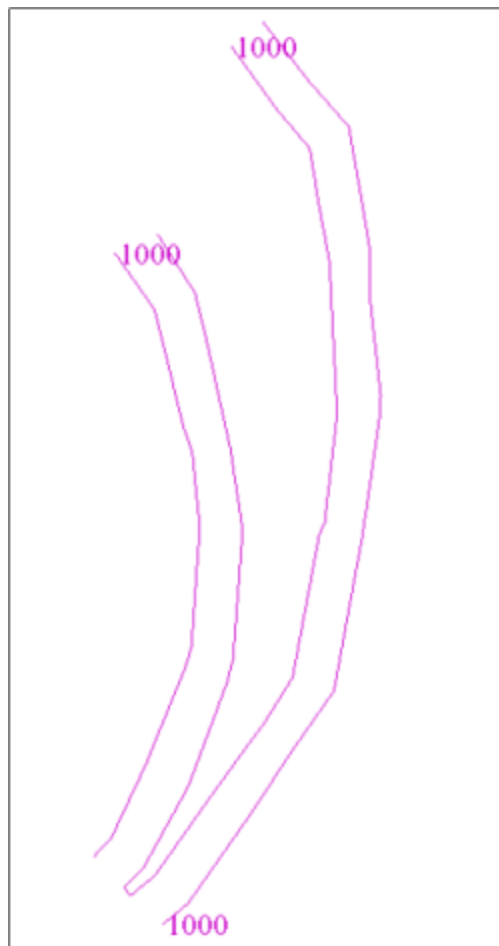


9. Type **CS** into the Function Chooser, and press ENTER.

10. Choose **Display > Strings > With string numbers**.
11. Enter the information as shown, and click **Apply**.



String 1000 contains the ramp.



12. Type **PS** (for **Plot Strings**) into the Function Chooser, and press ENTER.

13. Enter the information as shown, and click **Apply**.

Drawing

Draw Strings

Layer name: pit1.str

String range: [Empty]

Seg range: [Empty]

Seg pnt range: [Empty]

Desc field number: d1

Text Alignment: <

Position of text in segment: All points First point Centroid

[?] [Apply] [Cancel]

14. Click **Reset Graphics** .
15. Open **site1.str** in **Graphics**.



16. Choose **Display > Strings > With string numbers**.
17. Enter the information as shown, and click **Apply**.

Drawing

Draw Strings

Layer name: site1.str

String range: [Empty]

Seg range: [Empty]

Seg pnt range: [Empty]

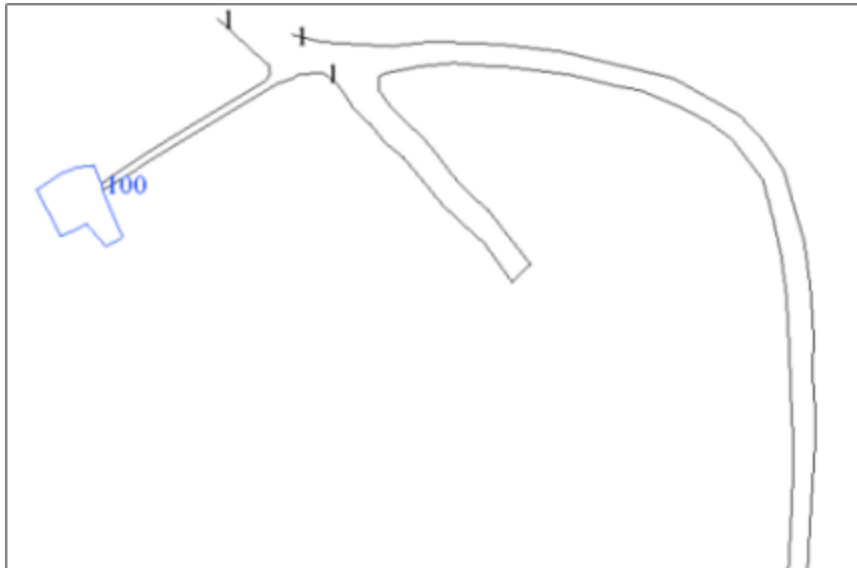
Desc field number: d1

Text Alignment: <

Position of text in segment: All points First point Centroid

[?] [Apply] [Cancel]

There are three segments for string 1 and a single segment for string 100.



18. Type **CS** into the Function Chooser, and press ENTER.
19. Choose **Display > Strings > As lines**.
20. Enter the information as shown, and click **Apply**.

Drawing

Draw Lines

Layer name: site1.str

String range: 100

Seg range:

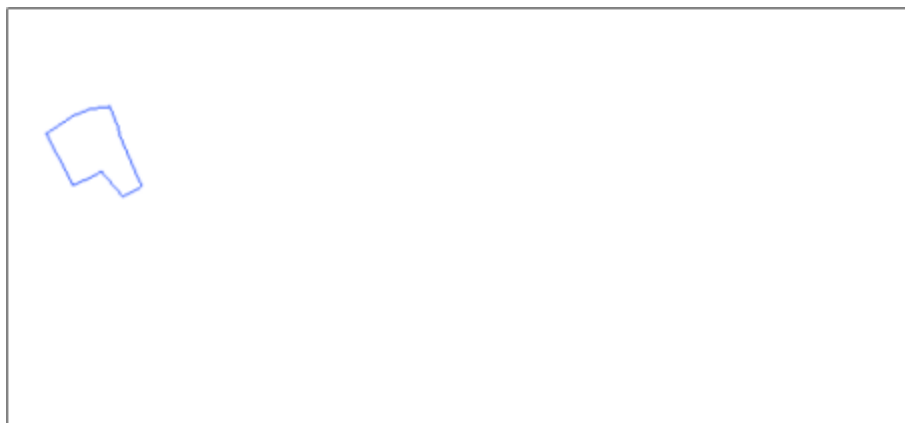
Seg pnt range:

Desc field number: d1

Text Alignment: <

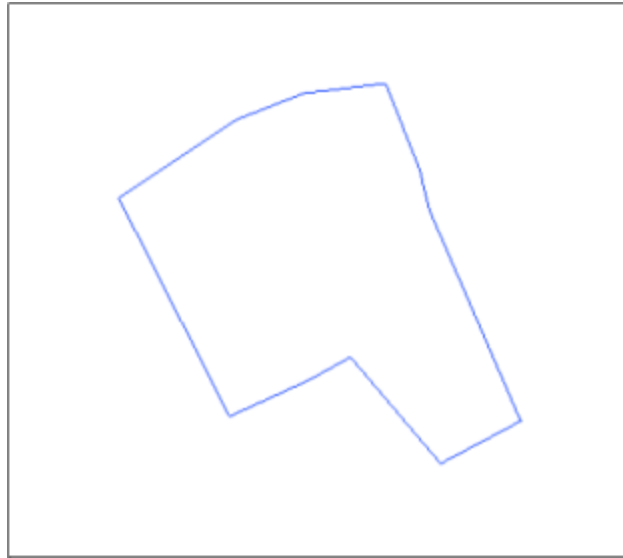
Position of text in segment:

Apply Cancel



21. Choose **View > Window > In**.
22. Click and drag a box around the shape in **Graphics** to window in.

23. Press ESC.



24. Choose **Display > Point > Attributes**.

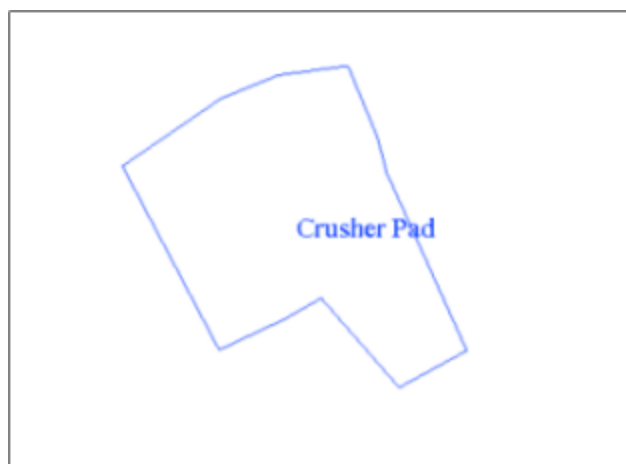
25. Enter the information as shown, and click **Apply**.

The 'Drawing' dialog box is open, showing the 'Draw Point attributes' section. The settings are as follows:

- Layer name: site1.str
- String range: 100
- Seg range: (empty)
- Seg pnt range: (empty)
- Desc field number: d1
- Text Alignment: <
- Position of text in segment: All points First point Centroid

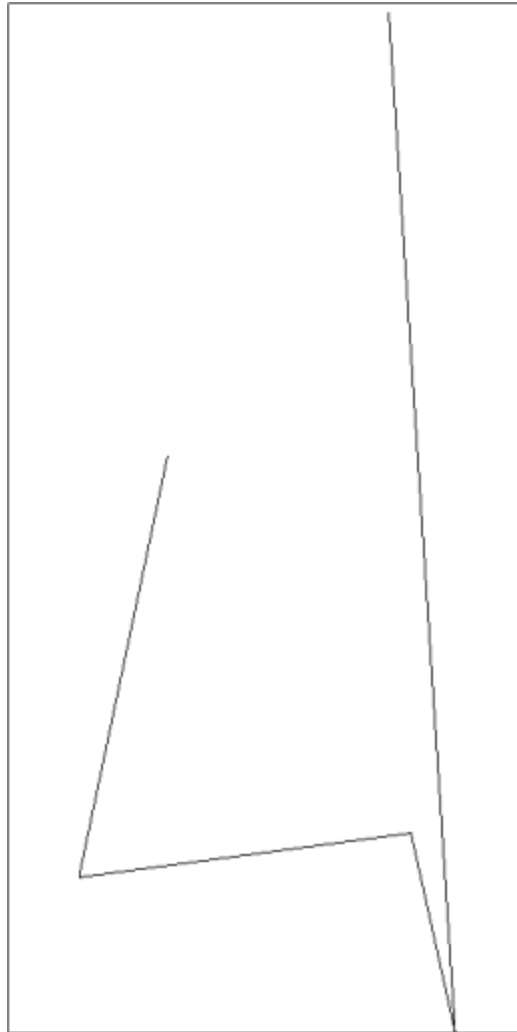
Buttons at the bottom: ? (Help), Apply (green checkmark), Cancel (red X).

The d1 attribute is displayed at the centroid of the shape.

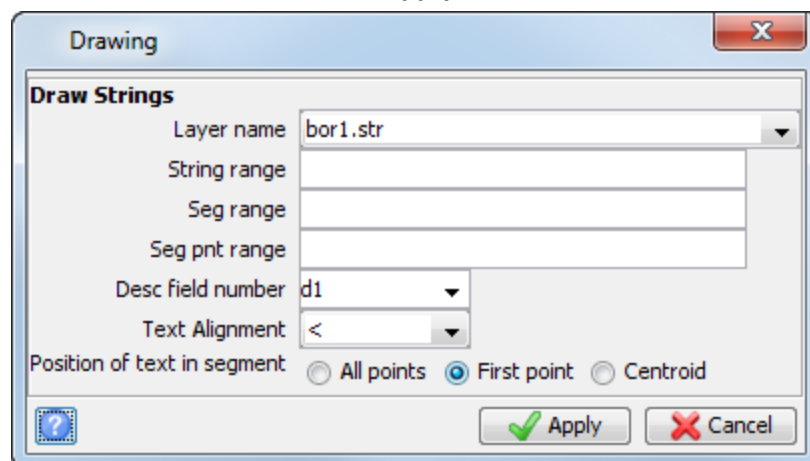


26. Click **Reset Graphics** .

27. Open **bor1.str** in **Graphics**.



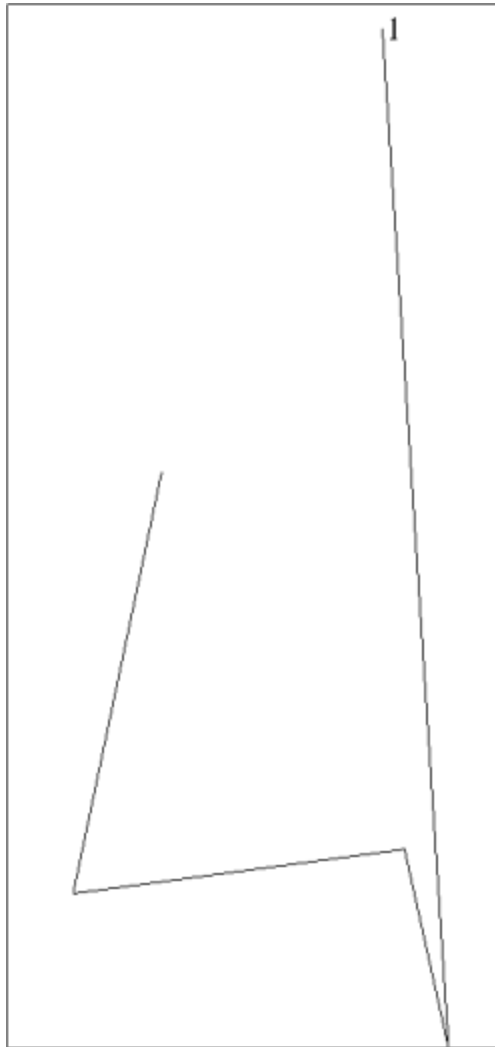
28. Choose **Display > Strings > With string numbers**.
29. Enter the information as shown, and click **Apply**.

A screenshot of the 'Drawing' dialog box, specifically the 'Draw Strings' section. The dialog box has a title bar with 'Drawing' and a close button. The 'Draw Strings' section contains the following fields and options:

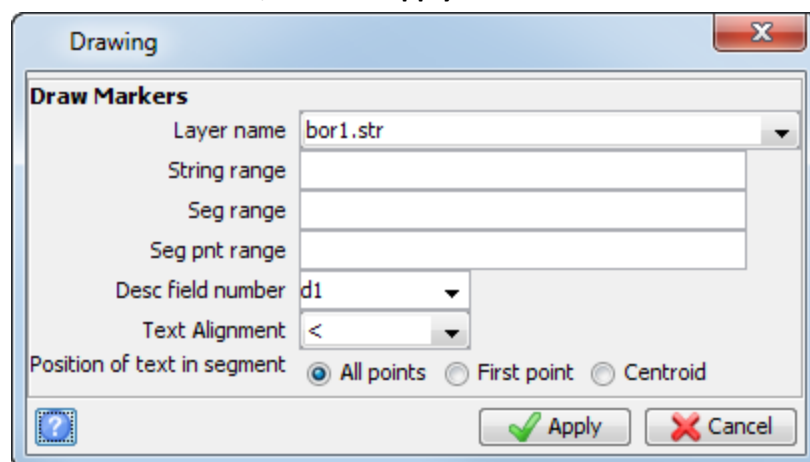
- Layer name: bor1.str (dropdown menu)
- String range: (empty text box)
- Seg range: (empty text box)
- Seg pnt range: (empty text box)
- Desc field number: d1 (dropdown menu)
- Text Alignment: < (dropdown menu)
- Position of text in segment: All points First point Centroid

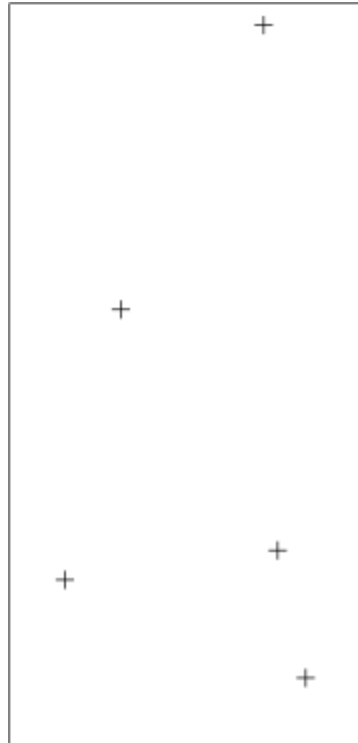
At the bottom of the dialog box, there is a help icon (question mark in a square), an 'Apply' button with a green checkmark, and a 'Cancel' button with a red X.

The points are all in string 1.



30. Type **CS** into the Function Chooser, and press **ENTER**.
31. Choose **Display > Point > Markers**.
32. Enter the information as shown, and click **Apply**.





33. Choose **Display > Point > Attributes**.
34. Enter the information as shown, and click **Apply**.

Drawing [X]

Draw Point attributes

Layer name: bor1.str

String range: []

Seg range: []

Seg pnt range: []

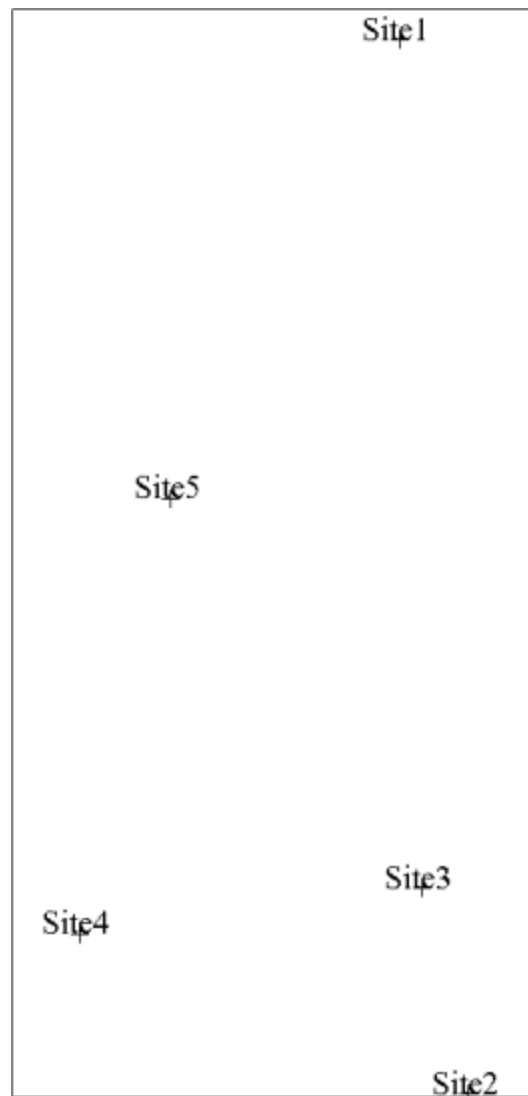
Desc field number: d1

Text Alignment: v

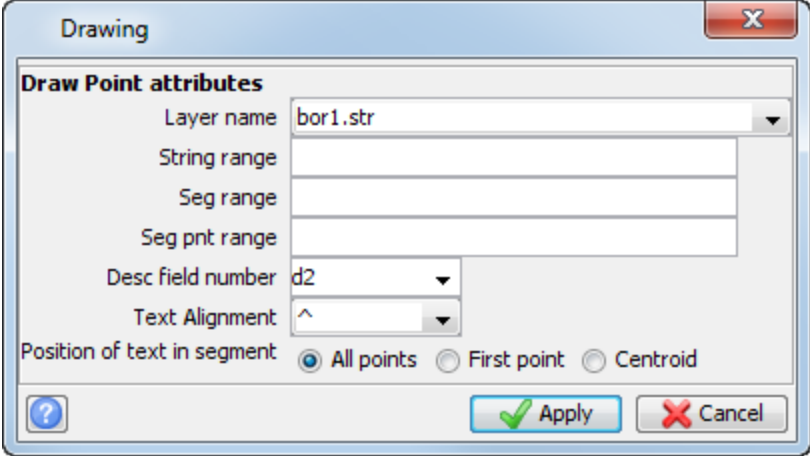
Position of text in segment: All points First point Centroid

[?] [Apply] [Cancel]

The d1 field is plotted above the markers.



35. Choose **Display > Point > Attributes**.
36. Enter the information as shown, and click **Apply**.



Drawing

Draw Point attributes

Layer name: bor1.str

String range: [empty]

Seg range: [empty]

Seg pnt range: [empty]

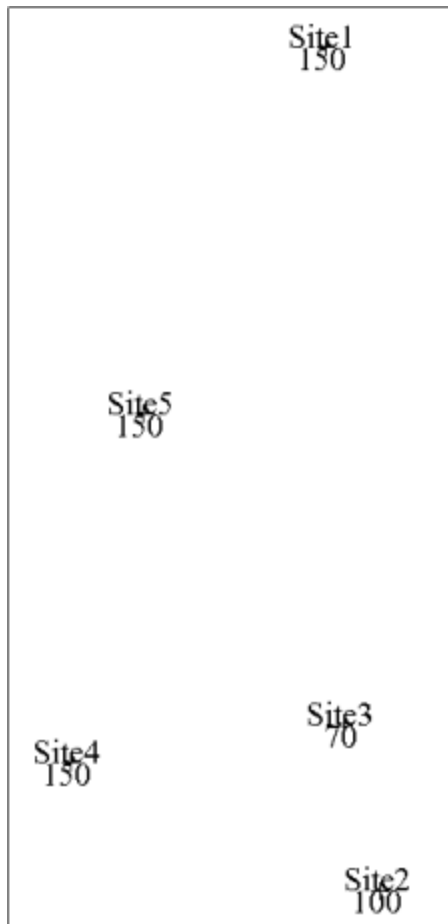
Desc field number: d2

Text Alignment: ^

Position of text in segment: All points First point Centroid

[?] [Apply] [Cancel]

The d2 attribute is plotted below the marker.

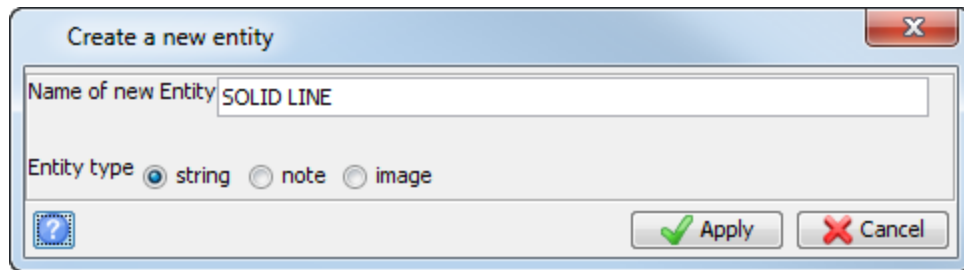


Task: Create a borehole location plan

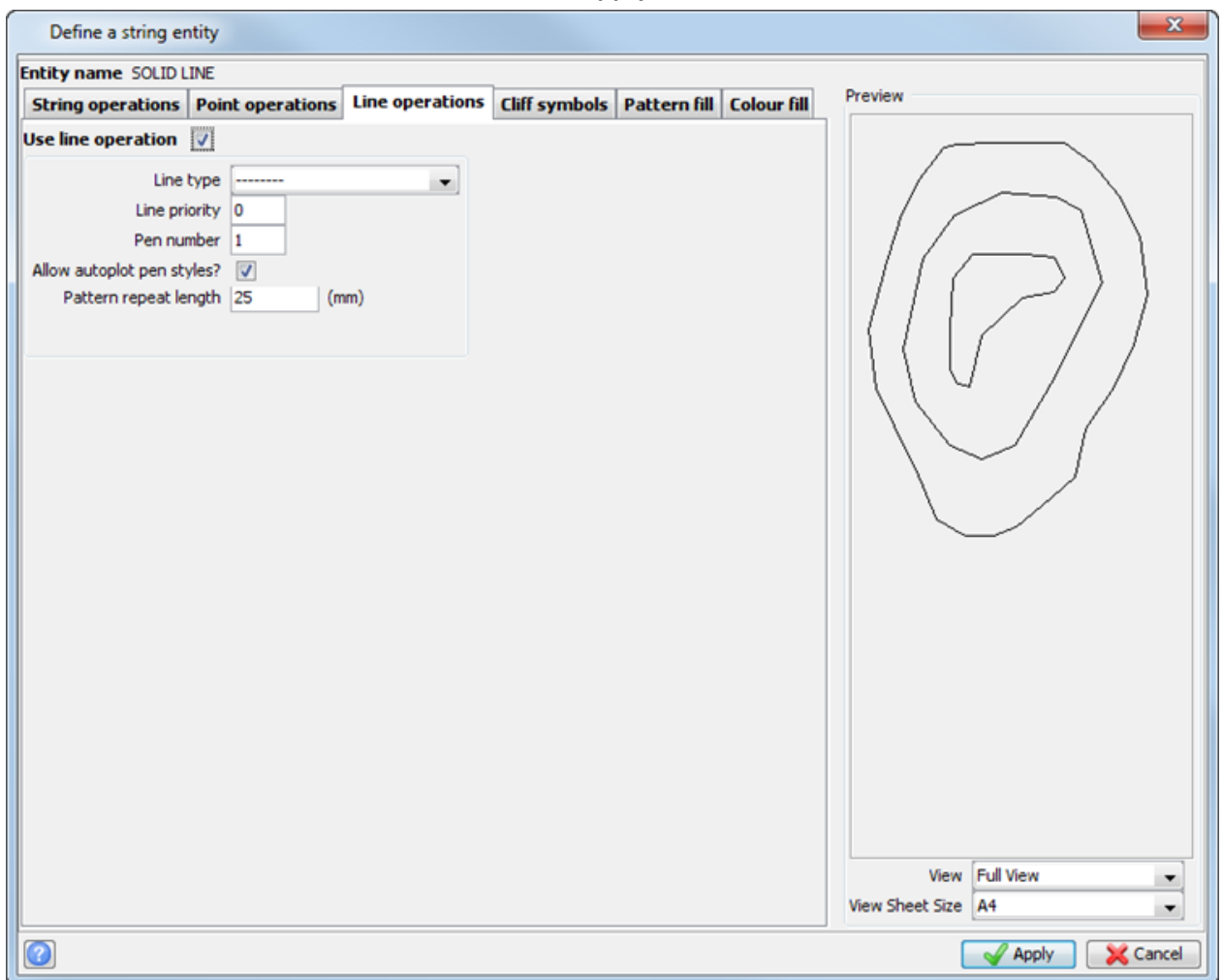
You will create a map from the information presented in the previous task. This map will contain:

File	String Number	Drawn as
pit1.str	1,2;1000	Black line
site1.str	1	Green line
site1.str	100	D1 at centroid
bor1.str	1	Marker, D1 above, D2 below
bor1.not		Text in top right corner

1. Choose **Plotting > Entity > New**.
2. Enter the information as shown, and click **Apply**.



3. Select the **Line operations** tab and select the **Use line operation** check box.
4. Enter the information as shown, and click **Apply**.



5. Choose **Plotting > Entity > New**.
6. Enter the information as shown, and click **Apply**.

Create a new entity

Name of new Entity CRUSHER

Entity type string note image

Apply Cancel

7. On **String operations tab (1)**, enter the information as shown, and click **Apply**.

Define a string entity

Entity name CRUSHER

String operations Point operations Line operations Cliff symbols Pattern fill Colour fill Preview

Use string operations

1 2 3 4 5 6 7 8 9

Use this operation

Data source

Attribute type field

String file field D1

of decimals 0

Notation

Symbol

Image

Position, direction and filling

Fill symbol

Position centre

Direction none

Angle from point 0.0

Dist. from point 5.0

Distance type actual

Text properties

Text angle 0.0

Text angle type absolute

Horiz. just. centre

Vert. just. centre

Font options

Name Default

Bold

Italic

Underline

Text height 3.0

Other properties

Priority 101

Pen number 1

Allow autoplot pen styles?

View Full View

View Sheet Size A4

Apply Cancel

8. Choose **Plotting > Entity > New**.
9. Enter the information as shown, and click **Apply**.

Create a new entity

Name of new Entity BORE

Entity type string note image

Apply Cancel

10. On the **Point operations tab (1)**, enter the information as shown.

Define a string entity

Entity name BORE

String operations Point operations Line operations Cliff symbols Pattern fill Colour fill

Use point operations

1 2 3 4 5 6 7 8 9

Use this operation

Data source

Attribute type symbol

String file field

of decimals 0

Notation

Symbol +

Image

Position, direction and filling

Fill symbol

Direction forward

Angle from point 0.0

Dist. from point 5.0

Distance type actual

Offset 0.0

Text properties

Text angle 0.0

Text angle type absolute

Horiz. just. centre

Vert. just. centre

Font options

Name Default

Bold

Italic

Underline

Text height 3.0

Other properties

Priority 101

Pen number 1

Allow autoplot pen styles?

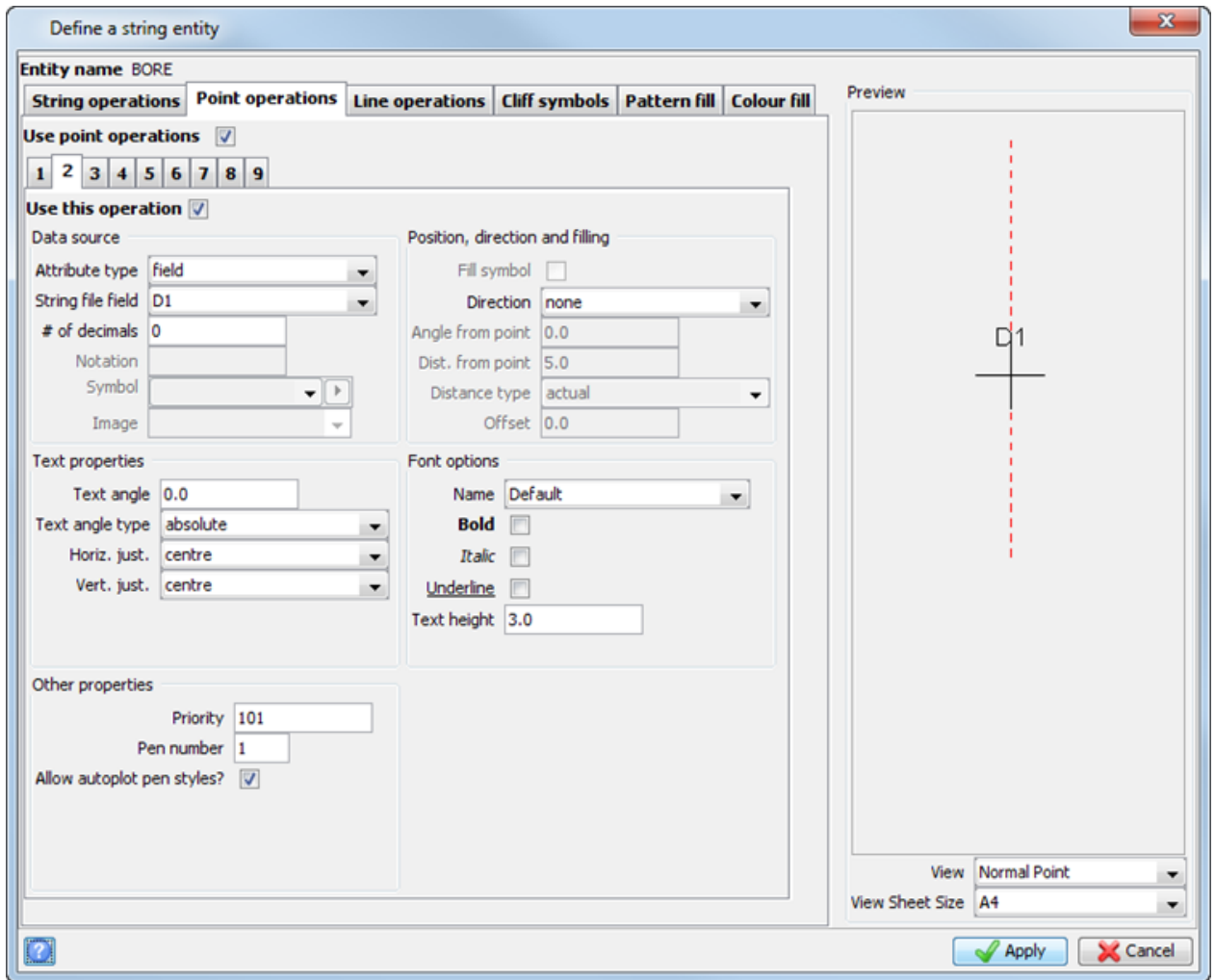
Preview

View Normal Point

View Sheet Size A4

Apply Cancel

11. Select **Point operations tab (2)**, and enter the information as shown.

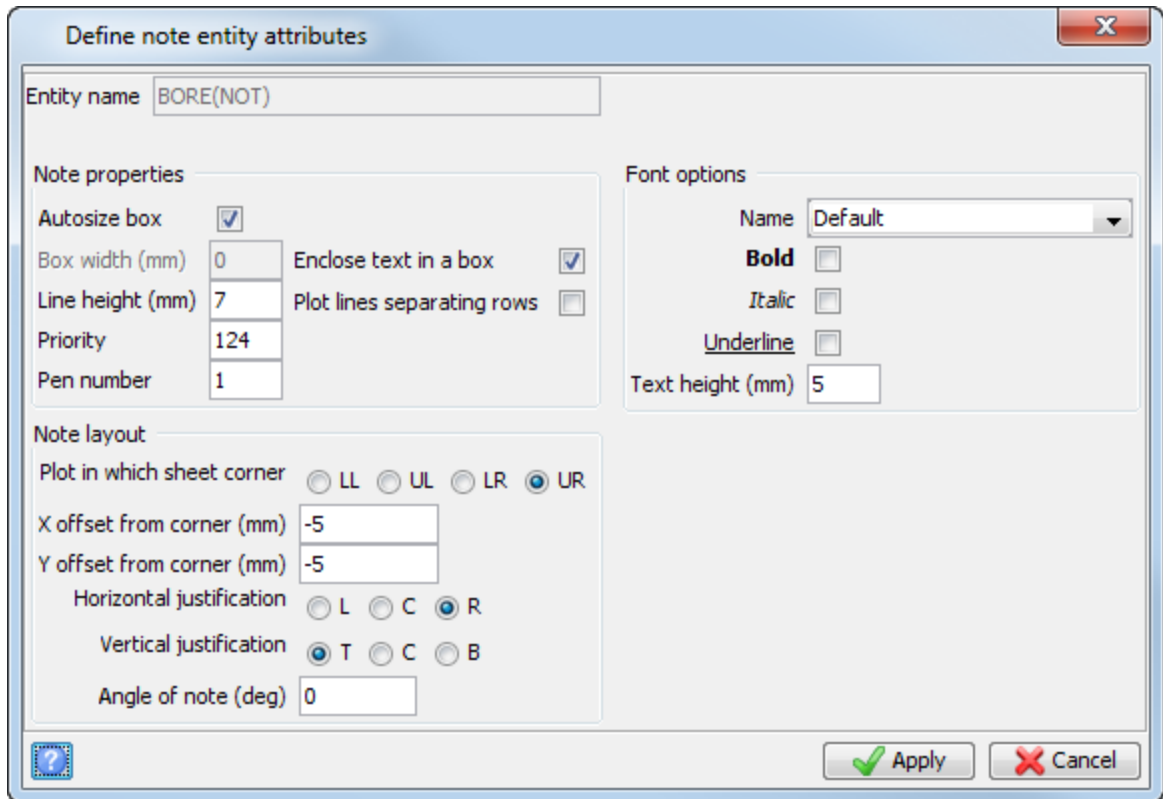


12. Select **Point operations tab (3)**.
13. Enter the information as shown, and click **Apply**.

The last entity that you need is a note entity. Note entities allow files of text data to be incorporated into a plot.

14. Choose **Plotting > Entity > New**.
15. Enter the information as shown, and click **Apply**.

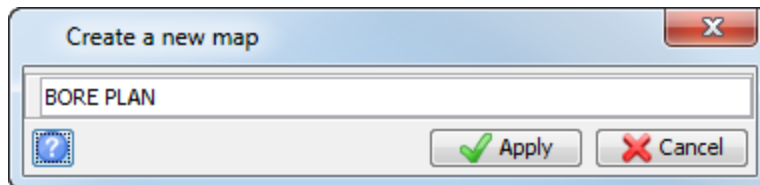
16. Enter the information as shown, and click **Apply**.



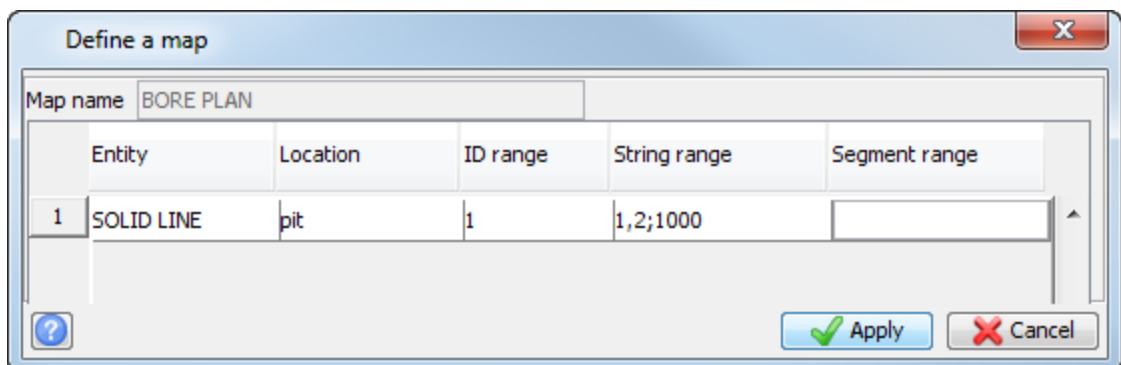
Note: You can position the note relative to any of the four corners of the plotting sheet. After you have specified the corner, you must then nominate the X and Y offsets and the horizontal and vertical justification.

17. Choose **Plotting > Map > New**.

18. Enter the information as shown, and click **Apply**.



19. Enter the information as shown.



20. Click in the **Segment range** column and press TAB to add a new row.

	Entity	Location	ID range	String range	Segment range
1	SOLID LINE	pit	1	1,2,1000	
2					

21. Add the remaining entities to complete your map definition, and click **Apply**.

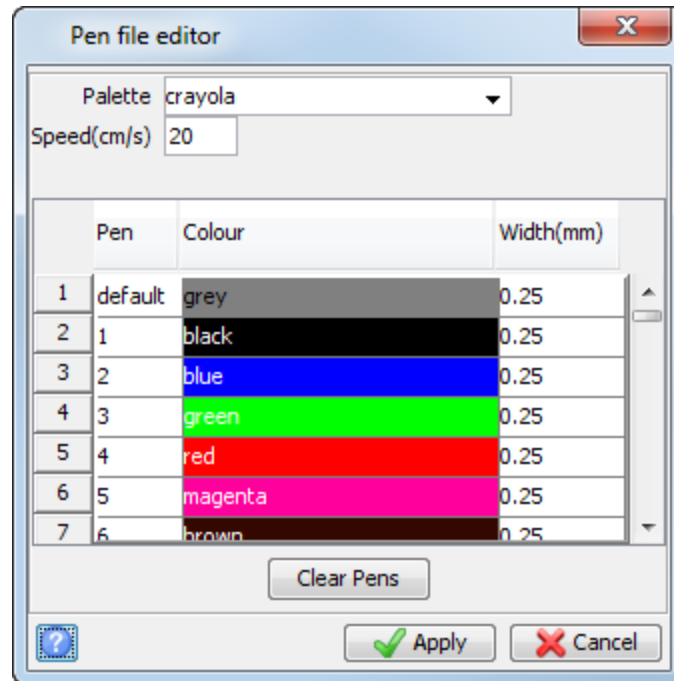
	Entity	Location	ID range	String range	Segment range
1	SOLID LINE	pit	1	1,2,1000	
2	SOLID LINE/PN3	site	1	1	
3	SOLID LINE/PN2	site	1	100	
4	CRUSHER	site	1	100	
5	BORE	bor	1	1	
6	BORE(NOT)	bor	1	1	

Note: The second entity has been specified as **SOLID LINE/PN3**. The /PN3 means to use pen 3, instead of pen1 as specified in the original entity definition.

Other modifiers are:

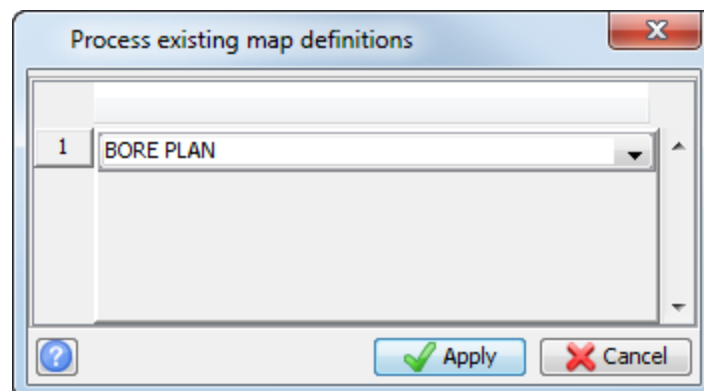
- text height /HTnn (nn = height in millimetres)
- text angle /ANnn (nn= angle in degrees)
- priority /PRnnn (nnn=priority 0 to 125)

22. Choose **Plotting > Plotting colours > Pen colour properties**.



Pen 1 has been assigned to black, Pen 2 to blue, and Pen 3 to green. This satisfies the criteria you set earlier about the use of different colours for different strings.

23. Click **Cancel**.
 24. Choose **Plotting > Process > Map**.
 25. Enter the map name as shown, and click **Apply**.



26. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **BORE PLAN**
Output file name: bore_plan

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **891**
Lock X/Y scale
Scale: 1000

Data extents

	Y	X
Minimum	6585.50	2155.51
Maximum	7301.01	2766.93

Sheet setup and orientation characteristics

Sheet size: A0
Border: BORD
Drawing area: DRAW
Grid: YXA0
Title block: NMA3

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units Metric Imperial

Miscellaneous options

Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

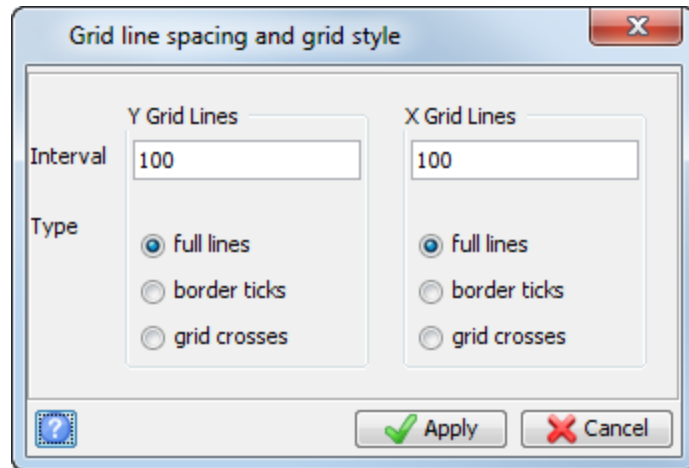
27. Enter the information as shown, and click **Apply**.

User definable title block lines

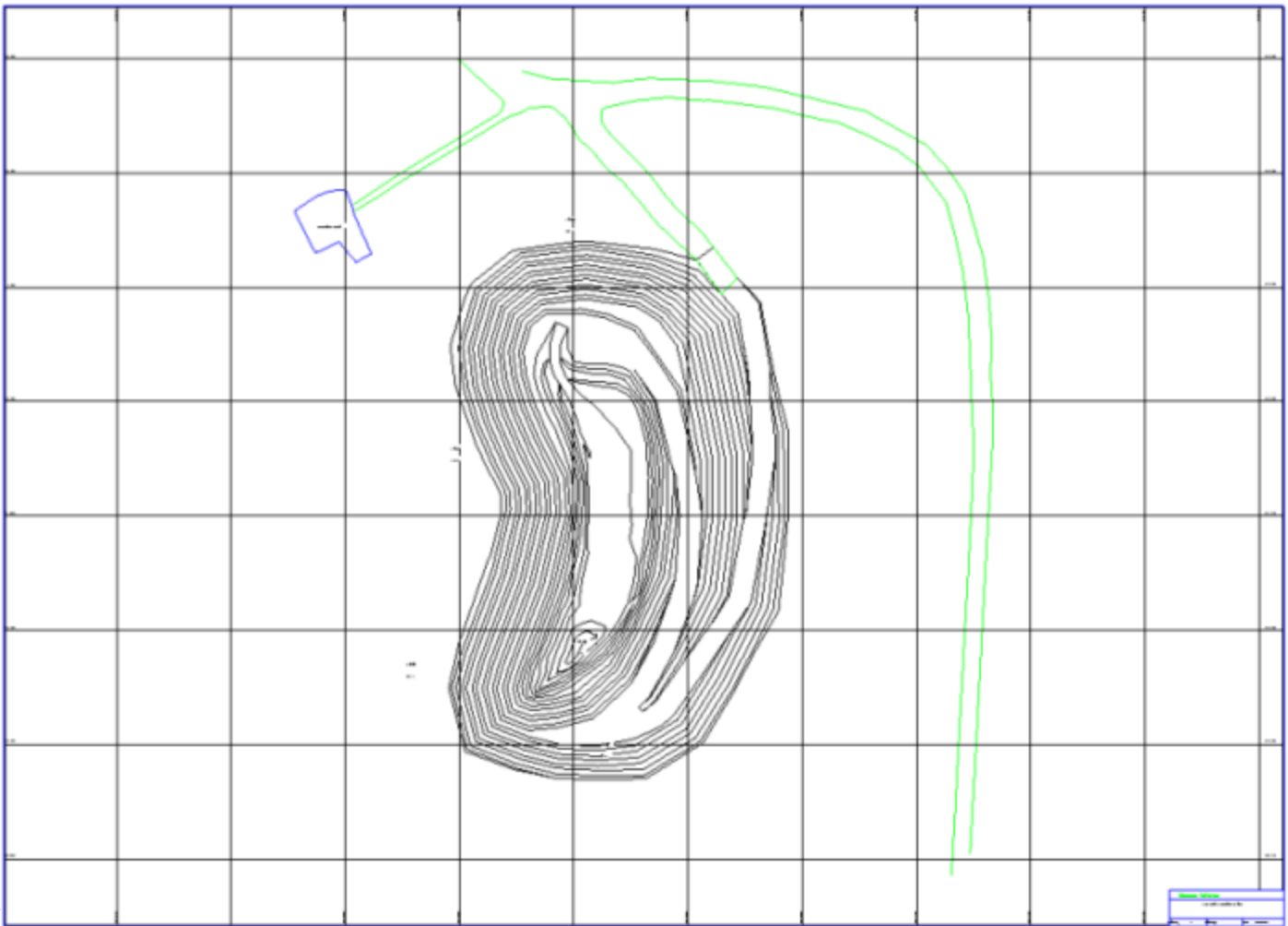
Title Line 1: Bore Hole Location Plan
Title Line 2:
Title Line 3:

Apply Cancel

28. Enter the information as shown, and click **Apply**.

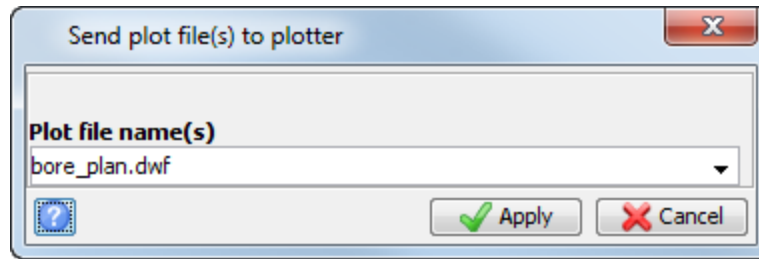


The file **bore_plan.dwf** is displayed.

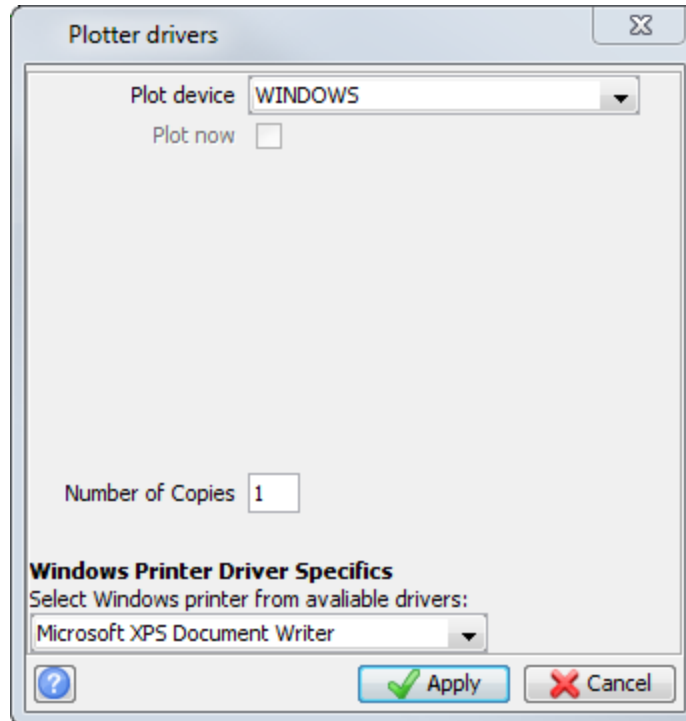


29. Choose **File > Print plot file**.

30. Click **Apply**.



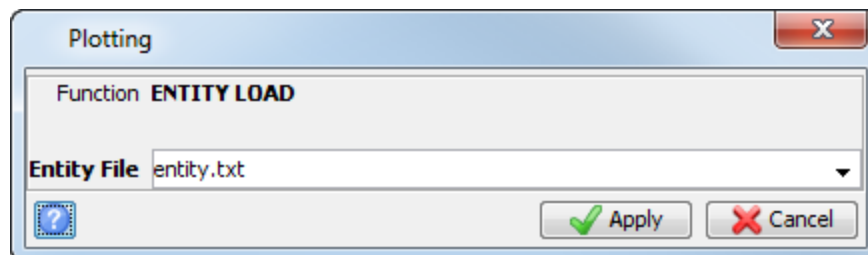
31. Click **Apply**.



Importing and exporting maps and entities

Task: Import map and entity definitions

1. Choose **Plotting > Entity > Import**.
2. Enter the information as shown, and click **Apply**.

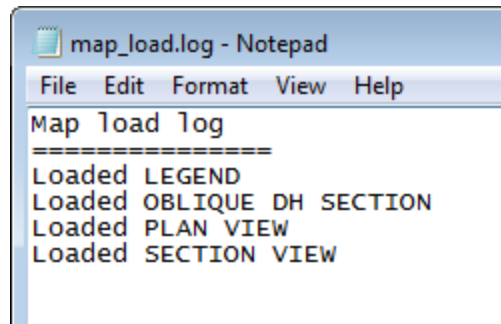
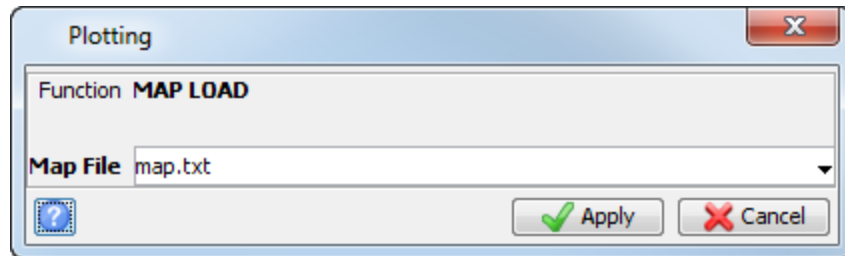


Most of the entities you need are already loaded.

If you try to add an entity that already exists in the library, Surpac beeps. A log file is generated to list the entities loaded.

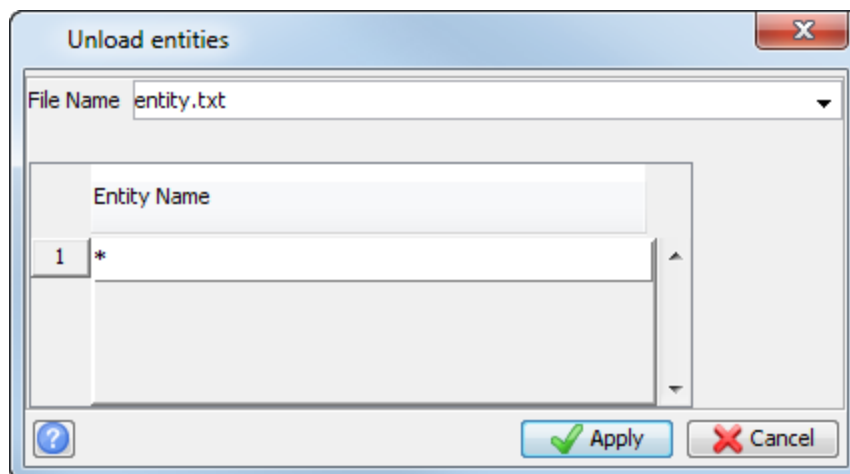
3. Choose **Plotting > Map > Import**.


4. Enter the information as shown, and click **Apply**.



Task: Export map and entity definitions

1. Choose **Plotting > Entity > Export**.
2. Enter the information as shown, and click **Apply**.

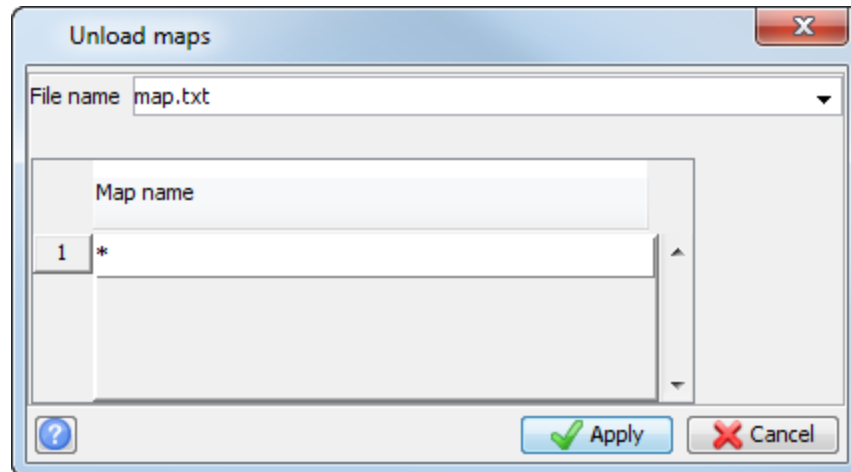


 **Note:** You can either choose which entities to unload by filling in the list, or unload all entities by using an asterisk (*).

The entities are downloaded to a file which you can load onto another computer.

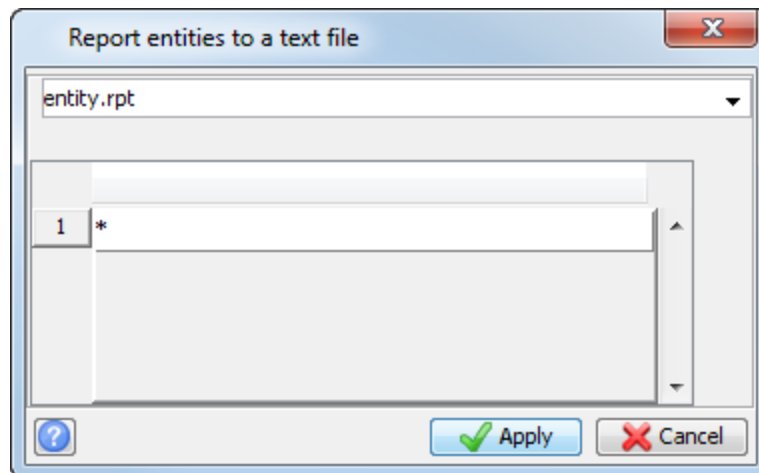
3. Choose **Plotting > Map > Export**.


4. Enter the information as shown, and click **Apply**.



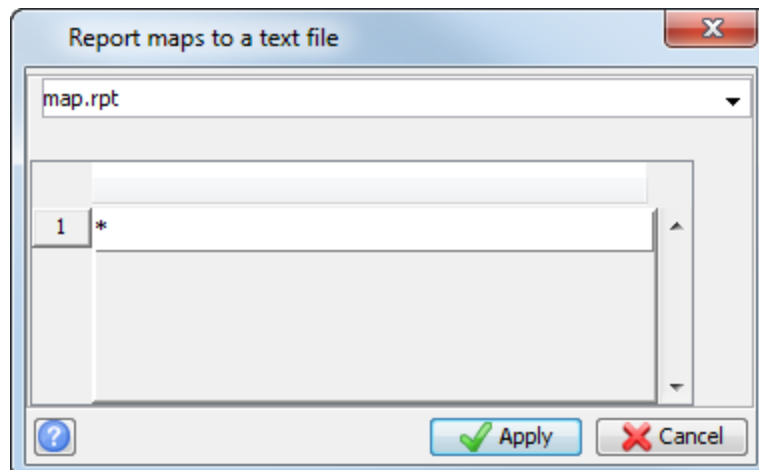
Task: Create a list of map and entity definitions

1. Choose **Plotting > Entity > Report**.
2. Enter the information as shown, and click **Apply**.



 **Note:** You can either choose which entities to report by filling in the list, or report all entities using an asterisk (*).

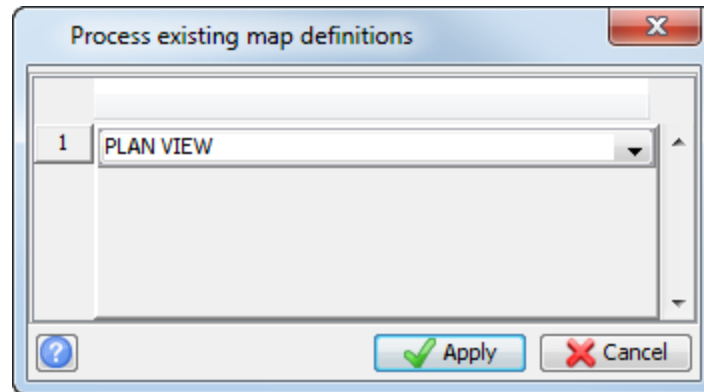
3. Choose **Plotting > Map > Report**.
4. Enter the information as shown, and click **Apply**.



Plan view map of drillhole traces

Task: Create a plan view map of drill hole data

1. Choose **Plotting > Process > Map**.
2. Select **PLAN VIEW**, and click **Apply**.



3. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **PLAN VIEW**
 Output file name:

Plot Parameters **Oblique Section Grid**

Scale options
 Minimum scale to fit data: **1579**
 Lock X/Y scale
 Scale:

Data extents

	Y	X
Minimum	6444.97	2210.79
Maximum	7325.80	2754.71

Sheet setup and orientation characteristics

Sheet size:
 Border:
 Drawing area:
 Grid:
 Title block:

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

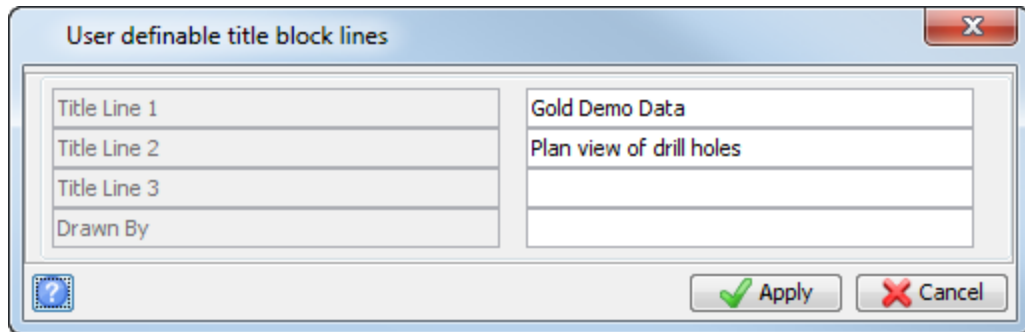
North-West North-East
 South-West South-East

Data units: Metric Imperial

Miscellaneous options

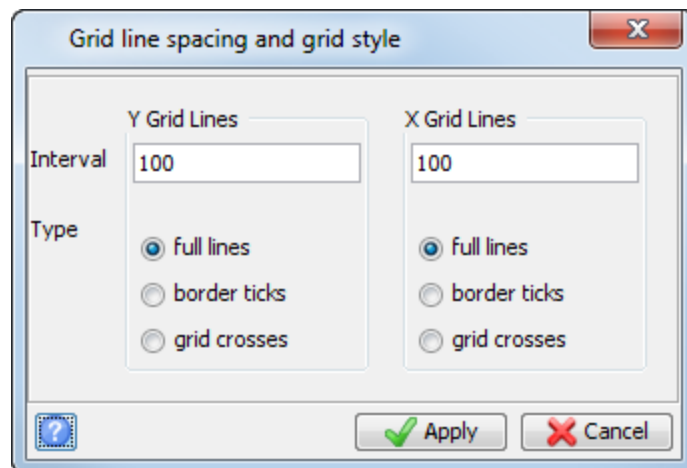
Overprint:
 Text rotation:
 Display plot after processing:

4. Enter the information as shown, and click **Apply**.



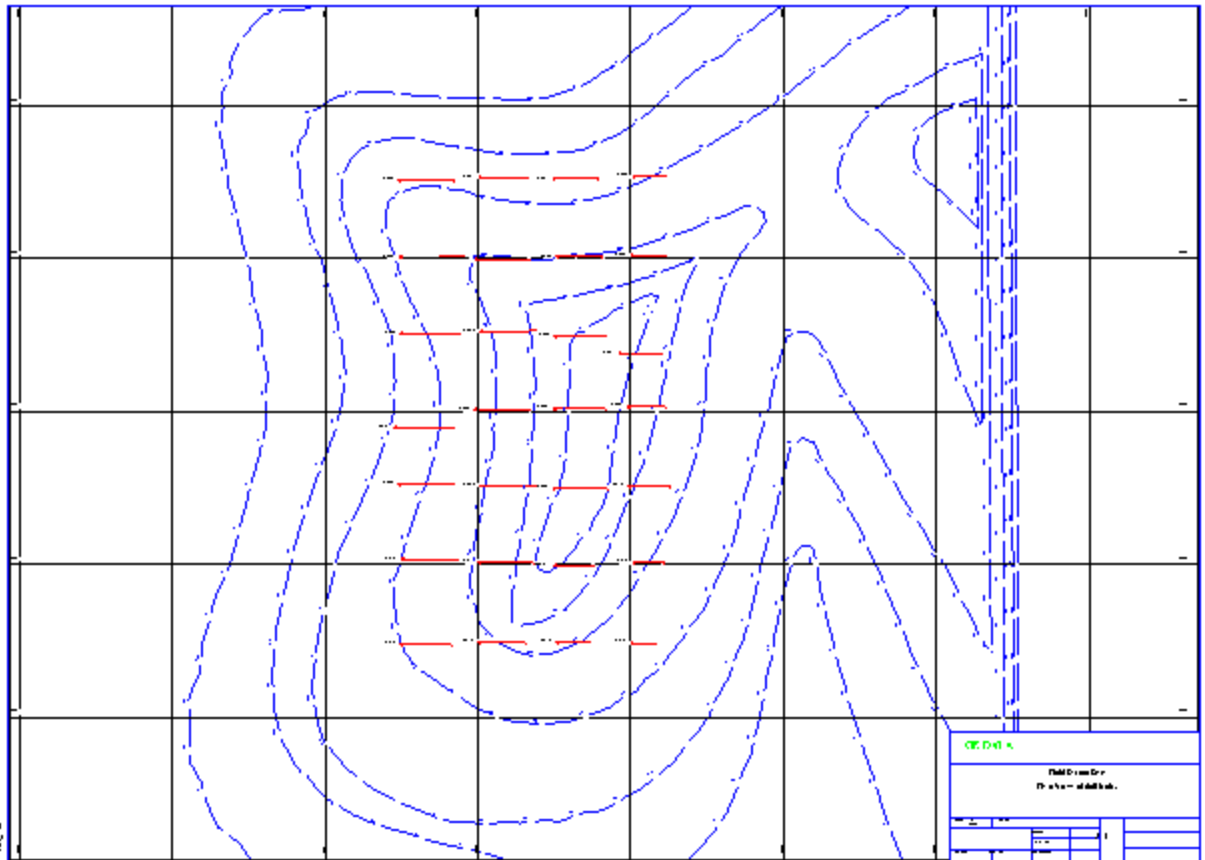
The dialog box is titled "User definable title block lines" and has a close button (X) in the top right corner. It contains two columns of text input fields. The left column has four fields labeled "Title Line 1", "Title Line 2", "Title Line 3", and "Drawn By". The right column has three fields, with the first two containing the text "Gold Demo Data" and "Plan view of drill holes". At the bottom left is a help icon (question mark in a square). At the bottom right are two buttons: "Apply" with a green checkmark and "Cancel" with a red X.

5. Enter the information as shown, and click **Apply**.



The dialog box is titled "Grid line spacing and grid style" and has a close button (X) in the top right corner. It is divided into two main sections: "Y Grid Lines" and "X Grid Lines". Each section has an "Interval" field set to "100" and a "Type" section with three radio button options: "full lines", "border ticks", and "grid crosses". The "full lines" option is selected in both sections. At the bottom left is a help icon (question mark in a square). At the bottom right are two buttons: "Apply" with a green checkmark and "Cancel" with a red X.

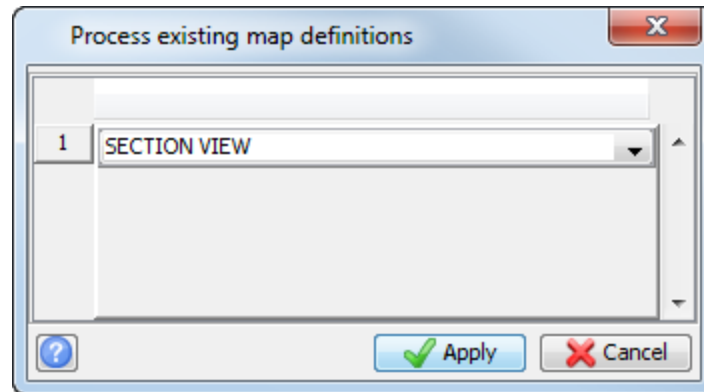
The plot file will appear in the **Plotting** window as displayed.



Section view map of drillhole data

Task: Create a section view map of drillhole data

1. Choose **Plotting > Process > Map**.
2. Select **SECTION VIEW**, and click **Apply**.



3. Enter the information as shown, and click **Apply**.

Map name: **SECTION VIEW**
Output file name: section_view

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **691**
Lock X/Y scale
Scale: 1000

	Y	X
Minimum	91.05	2215.55
Maximum	157.00	2753.12

Sheet setup and orientation characteristics

Sheet size: A1
Border: BORD
Drawing area: DRAW
Grid: YXA0
Title block: NMA0

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units Metric Imperial

Miscellaneous options

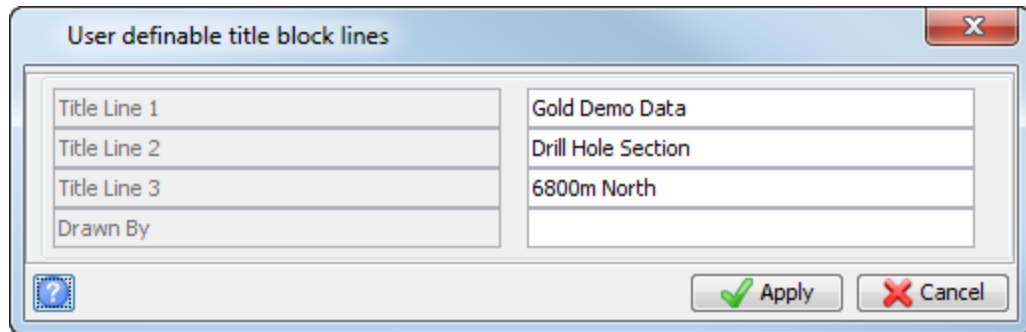
Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

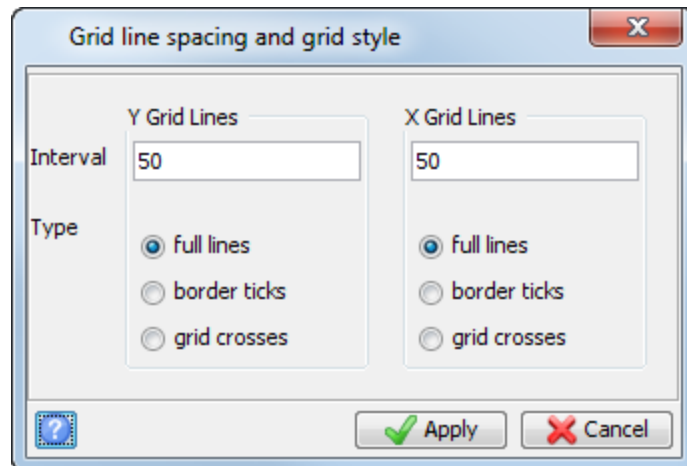
Note: The ZXA0 grid is used for a section view, because it plots the label **mRL** on the grids ascending the page, and it plots Eastings on the grids going to the left of the page.

4. Enter the information as shown, and click **Apply**.



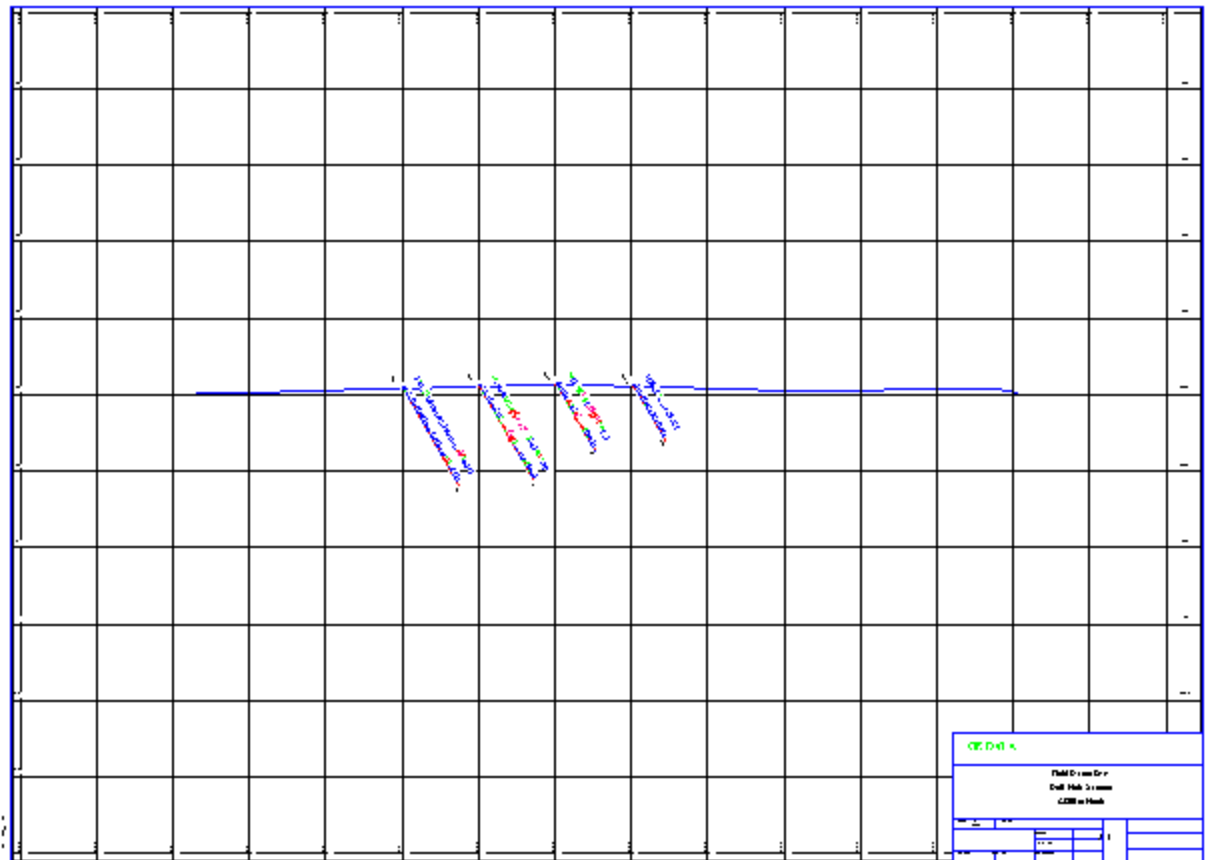
The dialog box titled "User definable title block lines" contains two columns of text input fields. The left column has four fields: "Title Line 1", "Title Line 2", "Title Line 3", and "Drawn By". The right column has three fields: "Gold Demo Data", "Drill Hole Section", and "6800m North". At the bottom right, there are "Apply" and "Cancel" buttons. A help icon is located at the bottom left.

5. Enter the information as shown, and click **Apply**.



The dialog box titled "Grid line spacing and grid style" has two main sections: "Y Grid Lines" and "X Grid Lines". Each section has an "Interval" input field set to "50" and a "Type" section with three radio button options: "full lines", "border ticks", and "grid crosses". The "full lines" option is selected in both sections. At the bottom right, there are "Apply" and "Cancel" buttons. A help icon is located at the bottom left.

The plot is displayed.



6. Close the **Plotting** window.
7. Choose **Plotting > Process > Last map**.

8. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **SECTION VIEW**
Output file name: section_view

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **N/A**
Lock X/Y scale
Scale: 500

Data extents

	Y	X
Minimum	91.05	2215.55
Maximum	157.00	2753.12

Sheet setup and orientation characteristics

Sheet size: A1
Border: BORD
Drawing area: VA1B
Grid: YXA0
Title block: NMA0

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units Metric Imperial

Miscellaneous options

Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

Note: The **VA1B** drawing area is a view used with an A1 sheet that plots at the bottom of the page. It encompasses about three quarters of the bottom area, but leaves a space at the top for a narrow plan view strip.

The **Landscape Fixed** orientation locks down the lower left-hand corner of the map. As you saw, when using the **Landscape Centred** orientation, the centre of the data is placed at the centre of the map. For plotting a series of section maps, this would work if all the data for all the sections had the exact same minimum and maximum data extents in elevation and easting (or northing). However, this is rarely the case, and it is also necessary to align the upper (plan view) drawing area with the lower (section view) data.

Therefore you must establish a common easting value for the left edge of the drawing. The **Landscape Fixed** orientation usually used when plotting a section view with a plan view strip at the top.

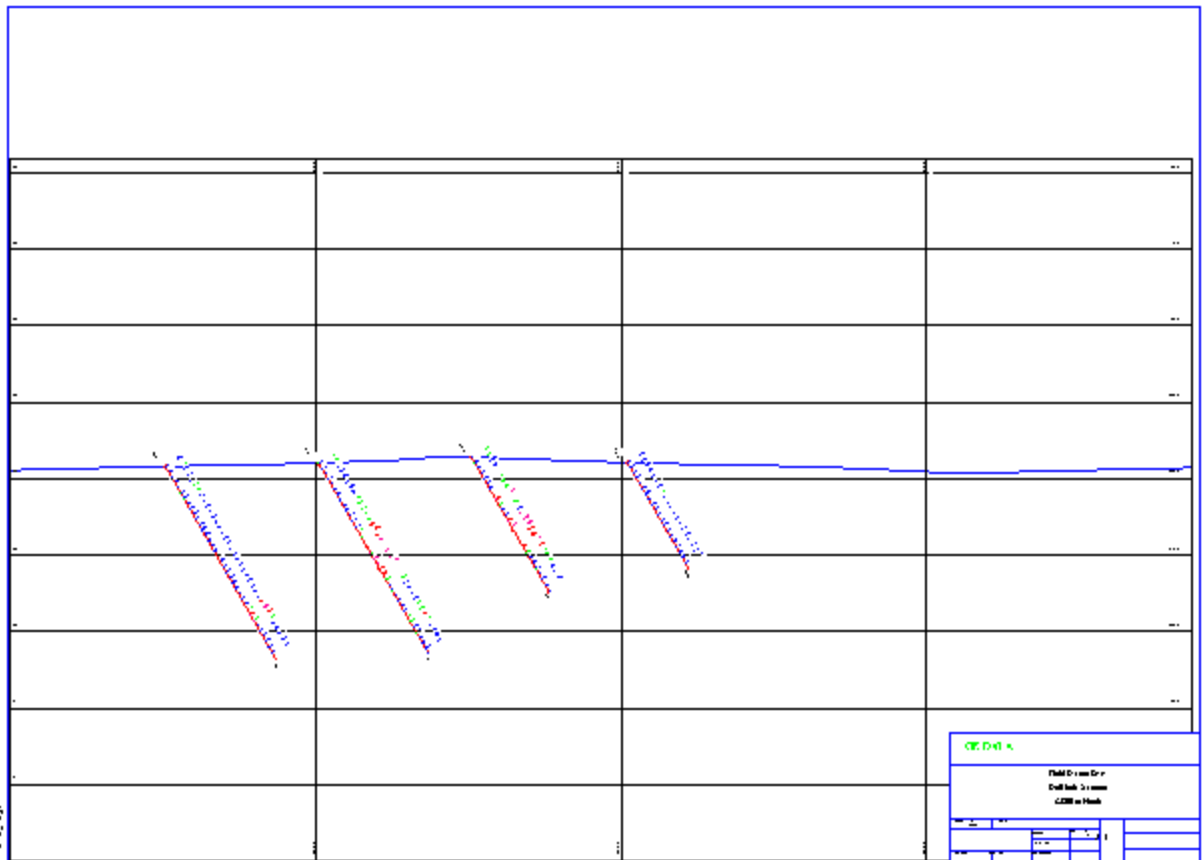
9. Enter the information as shown, and click **Apply**.

10. Enter the information as shown, and click **Apply**.

Note: The orientation is listed as NF. This is equivalent to **Landscape Fixed**. Because you are processing a section view map, "Y" on this form refers to elevation.


11. Enter the information as shown, and click **Apply**.

The plot is displayed.






12. Zoom in to see the details in the drillhole data.
13. Close the **Plotting** window.

Task: Create and plot an oblique section of drillhole data

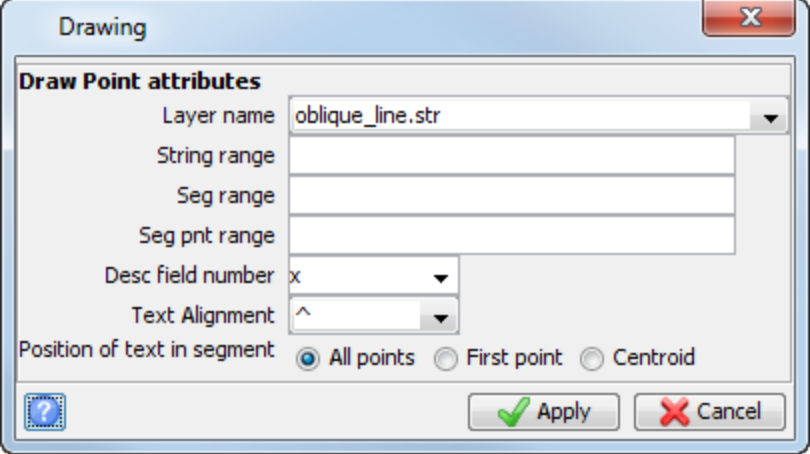
1. Click **Reset Graphics** .
2. Open **oblique_section_line.swa** in **Graphics**.
3. Choose **Display > Point > Attributes**.
4. Enter the information as shown, and click **Apply**.

The screenshot shows the 'Drawing' dialog box with the following settings:

- Draw Point attributes**
- Layer name: oblique_line.str
- String range: (empty)
- Seg range: (empty)
- Seg pnt range: (empty)
- Desc field number: yl
- Text Alignment: v
- Position of text in segment: All points First point Centroid
- Buttons:   

5. Choose **Display > Point > Attributes**.

6. Enter the information as shown, and click **Apply**.

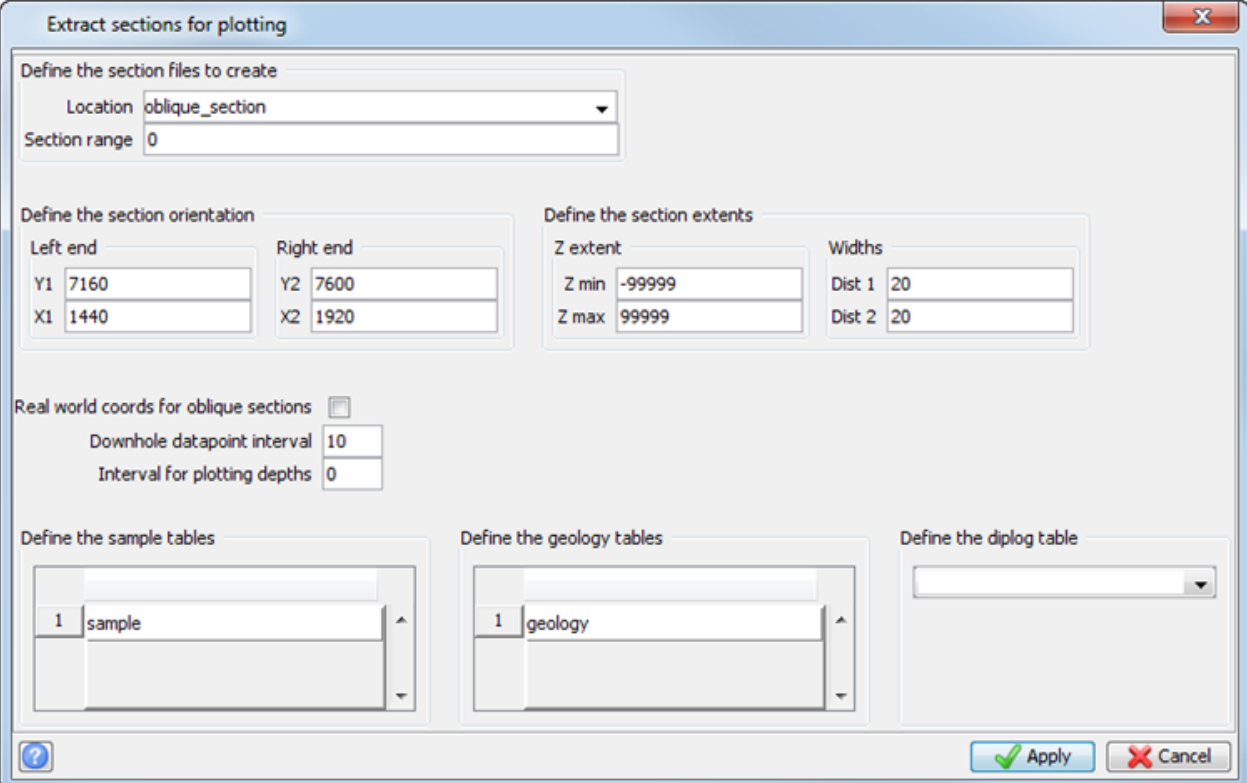


The 'Drawing' dialog box is shown with the following settings:

- Layer name: oblique_line.str
- String range: (empty)
- Seg range: (empty)
- Seg pnt range: (empty)
- Desc field number: x
- Text Alignment: ^
- Position of text in segment: All points First point Centroid

Buttons: Apply, Cancel

7. Choose **Database > Extract > Sections for plotting**.
 8. Enter the information as shown, and click **Apply**.



The 'Extract sections for plotting' dialog box is shown with the following settings:

- Define the section files to create:
 - Location: oblique_section
 - Section range: 0
- Define the section orientation:

Left end		Right end	
Y1	7160	Y2	7600
X1	1440	X2	1920
- Define the section extents:

Z extent		Widths	
Z min	-99999	Dist 1	20
Z max	99999	Dist 2	20
- Real world coords for oblique sections:
 - Downhole datapoint interval: 10
 - Interval for plotting depths: 0
- Define the sample tables:

Table ID	Table Name
1	sample
- Define the geology tables:

Table ID	Table Name
1	geology
- Define the diplog table: (empty)

Buttons: Apply, Cancel

9. Enter the information as shown, and click **Apply**.

Define sample fields for plotting

Table sample

Process each element separately

Combine adjacent samples

Define the sample fields and their plotting characteristics

	Field Name	Class Range	Treat negatives	Bulking Threshold	Decimals	Graphs	Graph Location	Length per Unit	Maximum Value
1	gold	0,10,2;999	as nulls	0	2	none			

Apply Cancel

10. Enter the information as shown, and click **Apply**.

Define geology fields

Table geology

Combine adjacent samples

Define the geology fields and their plotting characteristics

	Field Name	Geology Location	Box Size
1	rock	left	5

Apply Cancel

11. Enter the information as shown, and click **Apply**.

Define query constraints


Table Name collar

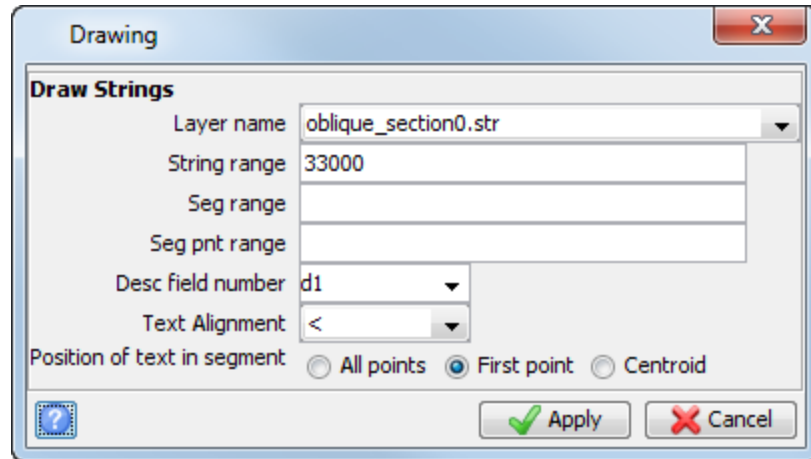
	Field Name	Operand	Constraint Value
1		=	

Load Save

Apply Cancel


The file **oblique_section0.str** is created in the working directory.

12. Click **Reset Graphics** .
13. Open **oblique_section0.str** in **Graphics**.
14. Choose **Display > Strings > With string numbers**.
15. Enter the information as shown, and click **Apply**.

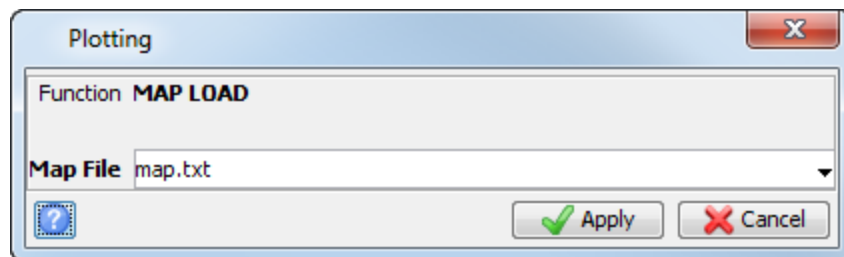


String 33 000 is displayed.

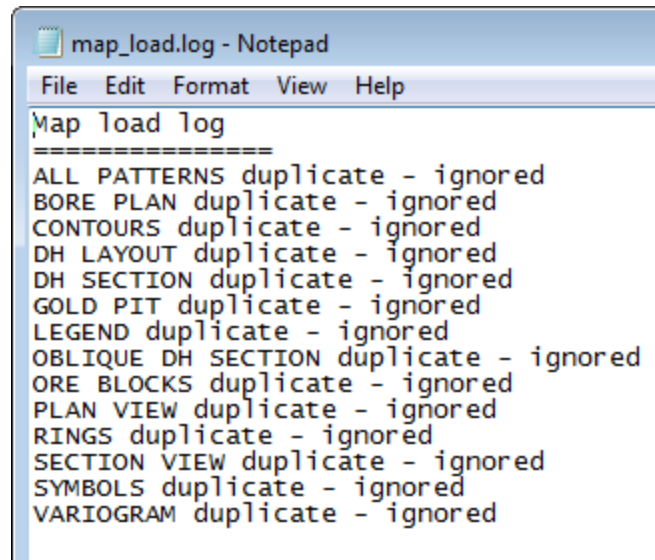
16. Choose **Inquire > Point properties**.
17. Select string 33 000.
The point properties of string 33000 are displayed in the **message window**.

 **Note:** String 33000 is only created when an oblique section is defined. It consists of a single point which contains the start and end coordinates of the oblique section in the description fields of this point.

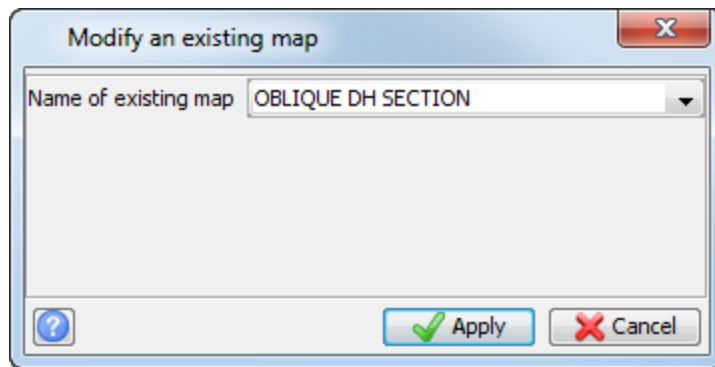
18. Press ESC.
19. Choose **Plotting > Map > Import**.
20. Enter the information as shown, and click **Apply**.



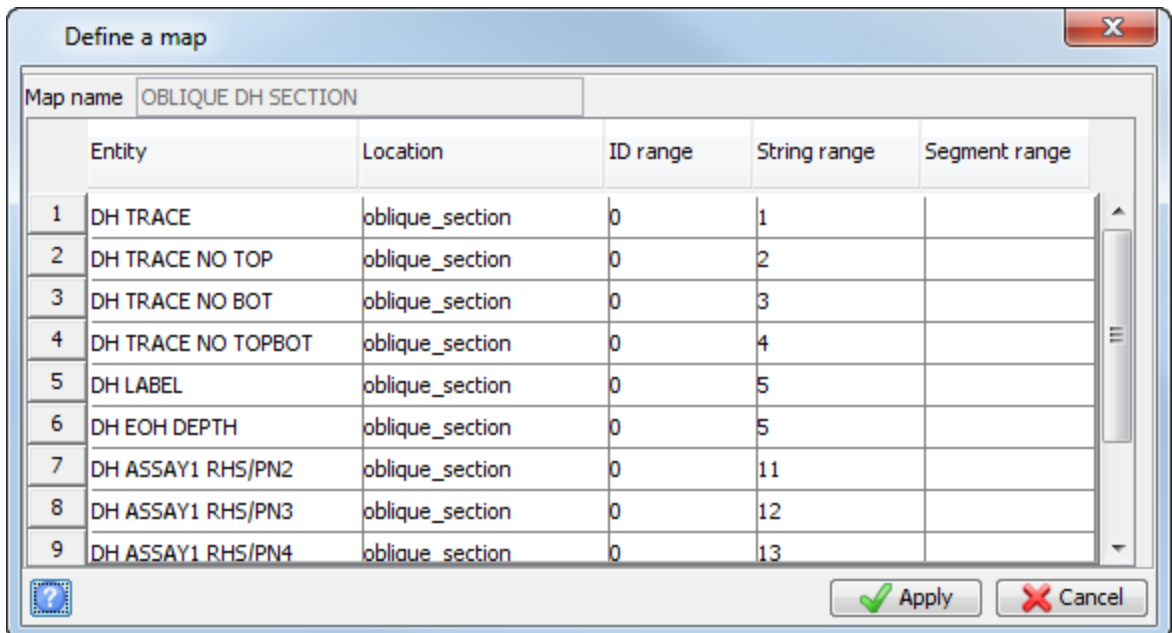
The **map_load.log** file is displayed.



21. Choose **Plotting > Map > Edit**.
22. Enter the information as shown, and click **Apply**.

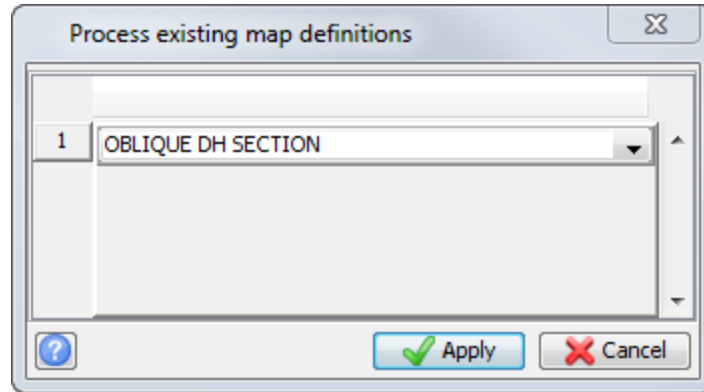


23. Click **Apply**.



24. Choose **Plotting > Process > Map**.

25. Select the **OBLIQUE_DH_SECTION** map definition, and click **Apply**.



26. On the **Plot Parameters** tab, enter the information as shown, and then select the **Oblique Section Grid** tab.

Plot presentation parameters

Map name: **OBLIQUE DH SECTION**
 Output file name: oblique_dh_section

Plot Parameters **Oblique Section Grid**

Scale options
 Minimum scale to fit data: **1489**
 Lock X/Y scale
 Scale: 2000

Data extents

	Y	X
Minimum	5.00	2.66
Maximum	237.03	535.88

Sheet setup and orientation characteristics

Sheet size: A3
 Border: BORD
 Drawing area: DRAW
 Grid: OBA3
 Title block: NMA3

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant North-West North-East
 South-West South-East

Data units Metric Imperial

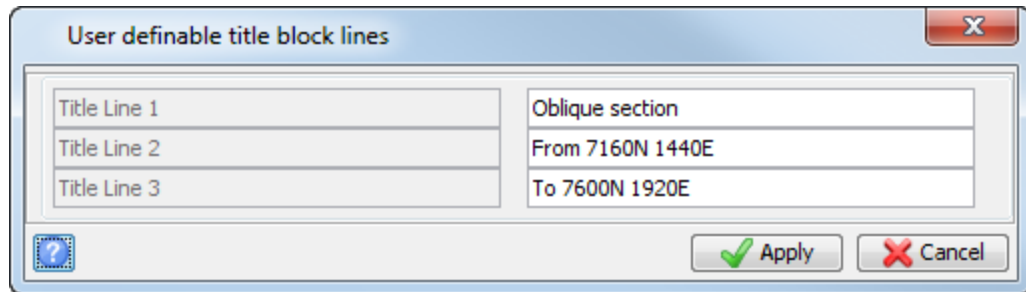
Miscellaneous options

Overprint
 Text rotation
 Display plot after processing

27. On the **Oblique Section Grid** tab, enter the information as shown, and click **Apply**.
📌 **Note:** The fields of this tab only become active if the **Grid** selected on the **Plot Parameters** tab is blank, NOGR, or one of the oblique grids.

The screenshot shows a dialog box titled "Plot presentation parameters" with a close button (X) in the top right corner. The "Map name" is "OBLIQUE DH SECTION" and the "Output file name" is "oblique_dh_section". There are two tabs: "Plot Parameters" and "Oblique Section Grid", with the latter being active. Under the "Oblique Section Grid" tab, the "Plot Northing and Easting grid lines" checkbox is checked. The "Section file" dropdown is set to "oblique_section0.str", the "Section line string number" is "33000", and the "Grid" dropdown is set to "OBLIQUE SECTION TWO LABELS". Below these are two columns of settings for "Northing Grid Lines" and "Easting Grid Lines". Each column has a "Type" section with three radio button options: "full lines", "border ticks" (which is selected), and "no lines". Below the "Type" section is an "Interval" field set to "100". At the bottom of the dialog, there is a help icon (question mark), an "Apply" button with a green checkmark, and a "Cancel" button with a red X.

28. Enter the information as shown, and click **Apply**.

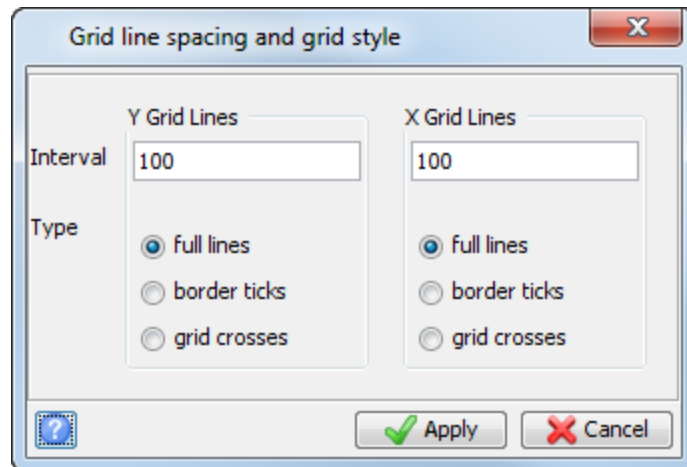


The dialog box titled "User definable title block lines" contains the following fields:

Title Line 1	Oblique section
Title Line 2	From 7160N 1440E
Title Line 3	To 7600N 1920E

Buttons: Help, Apply, Cancel

29. Enter the information as shown, and click **Apply**.

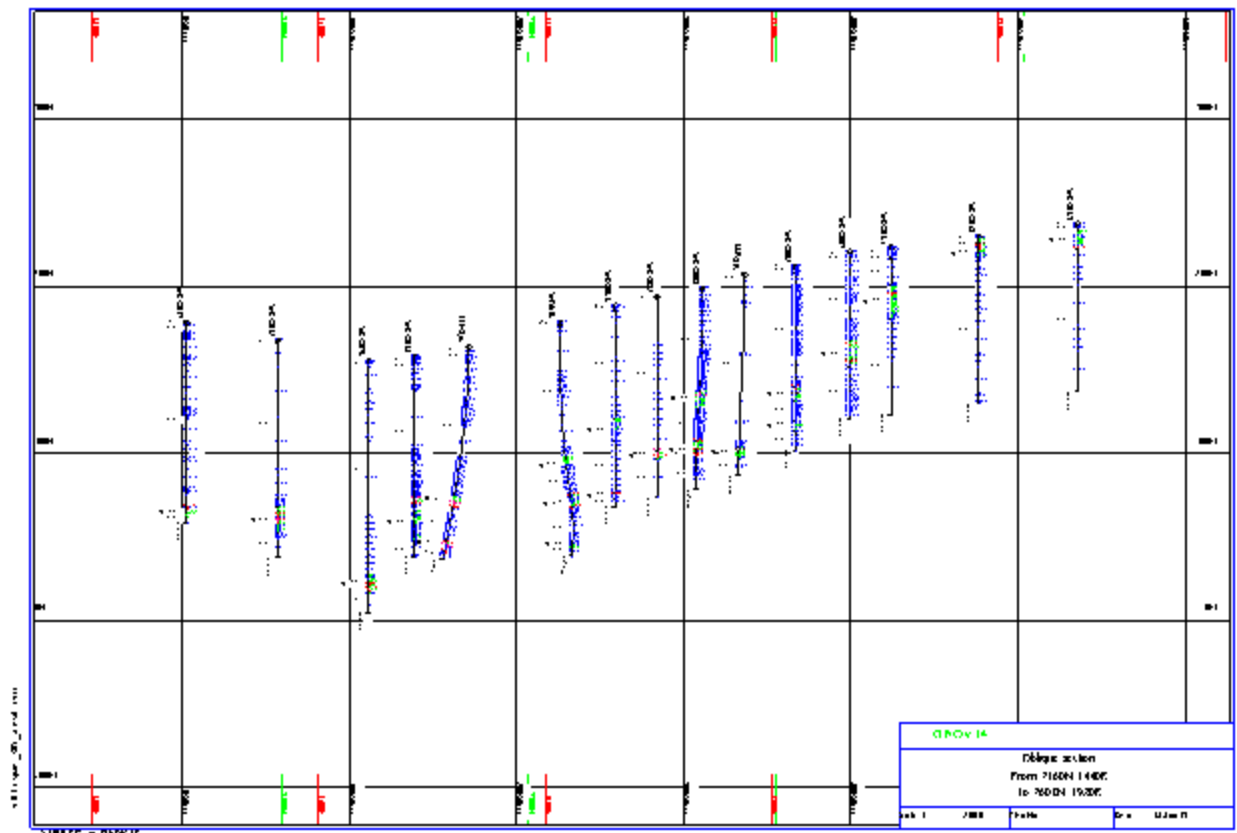


The dialog box titled "Grid line spacing and grid style" contains the following settings:

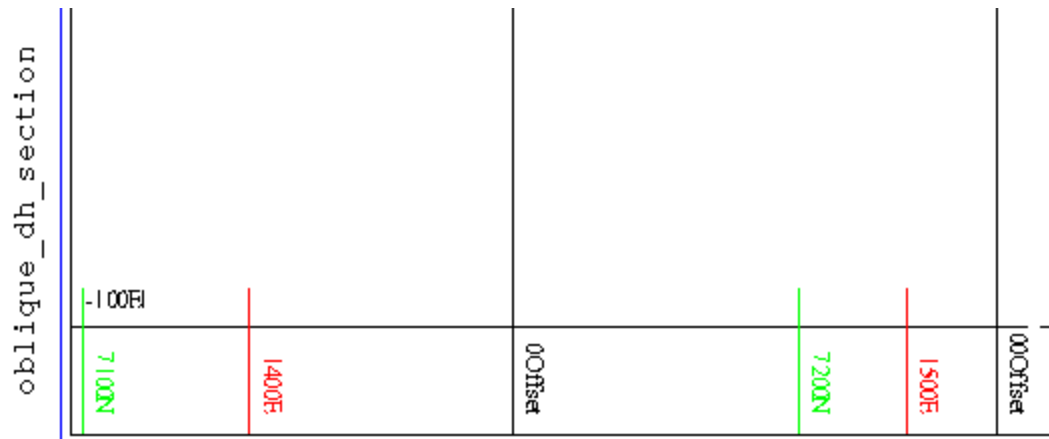
Y Grid Lines	X Grid Lines
Interval: 100	Interval: 100
Type: <input checked="" type="radio"/> full lines, <input type="radio"/> border ticks, <input type="radio"/> grid crosses	Type: <input checked="" type="radio"/> full lines, <input type="radio"/> border ticks, <input type="radio"/> grid crosses

Buttons: Help, Apply, Cancel

The **Plotting** window opens, and the **.dwf** file is displayed.



30. Select **View > Window in**, or use the mouse scroll wheel to zoom in on one edge of the map as shown below.



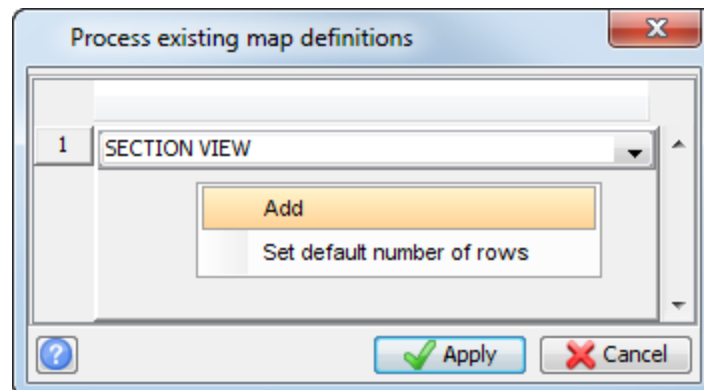
The real world Northings and Eastings are displayed.

31. Close the **Plotting** window.

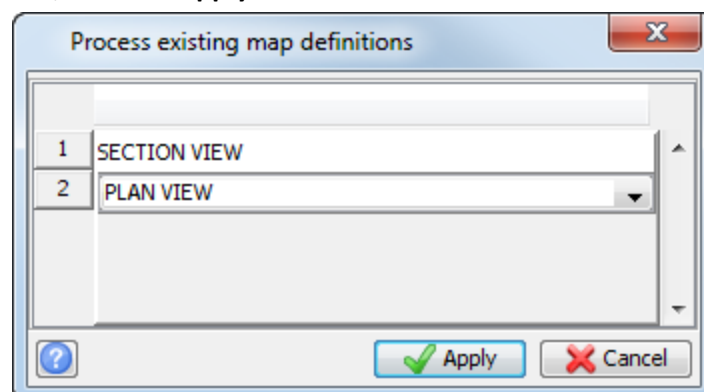
Creating multi-viewport maps

Task: Create a plot with two drawing areas

1. Choose **Plotting > Process > Map**.
2. Select **SECTION VIEW**.
3. Right-click in the blank space below the **Section View** entry and select **Add** to add another row to the table.



4. Select **PLAN VIEW**, and click **Apply**.



5. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **SECTION VIEW**
 Output file name: section_view

Plot Parameters **Oblique Section Grid**

Scale options
 Minimum scale to fit data: **N/A**
 Lock X/Y scale:
 Scale: 500

Data extents

	Y	X
Minimum	91.05	2215.55
Maximum	157.00	2753.12

Sheet setup and orientation characteristics

Sheet size: A1
 Border: BORD
 Drawing area: VA1B
 Grid: YXA0
 Title block: NMA0

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid


Quadrant North-West North-East
 South-West South-East

Data units Metric Imperial

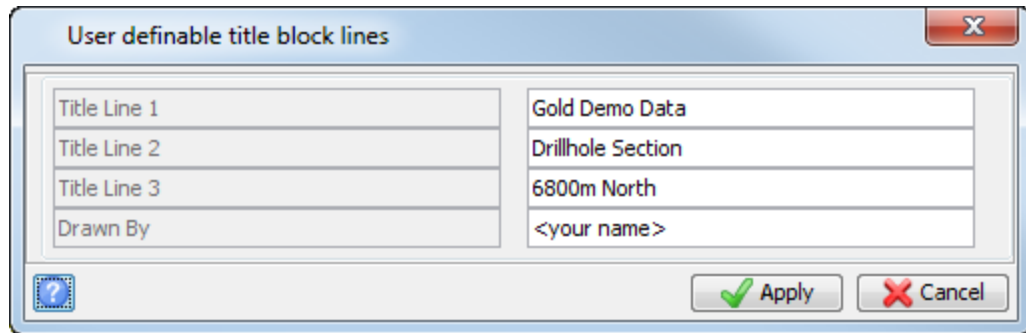
Miscellaneous options

Overprint:
 Text rotation:
 Display plot after processing:

Save current settings as default



6. Enter the information as shown, and click **Apply**.

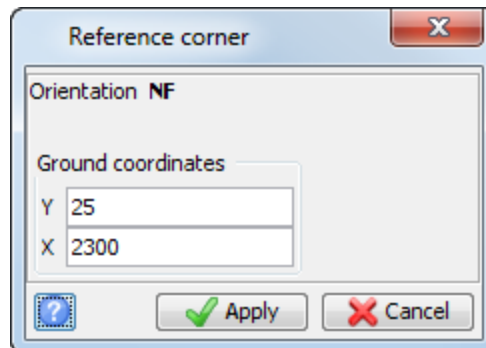


The dialog box titled "User definable title block lines" contains the following fields:

Title Line 1	Gold Demo Data
Title Line 2	Drillhole Section
Title Line 3	6800m North
Drawn By	<your name>

Buttons:

7. Enter the information as shown, and click **Apply**.



The dialog box titled "Reference corner" contains the following fields:

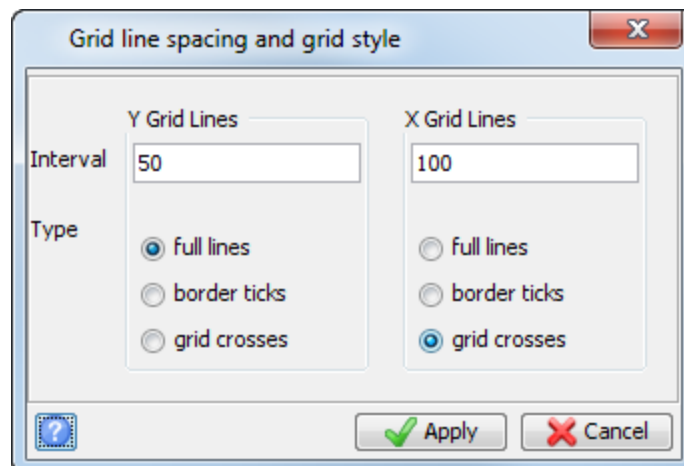
Orientation **NF**

Ground coordinates

Y	25
X	2300

Buttons:

8. Enter the information as shown, and click **Apply**.



The dialog box titled "Grid line spacing and grid style" contains the following fields:

Interval	Y Grid Lines: 50	X Grid Lines: 100
----------	------------------	-------------------

Type

<input checked="" type="radio"/> full lines	<input type="radio"/> full lines
<input type="radio"/> border ticks	<input type="radio"/> border ticks
<input type="radio"/> grid crosses	<input checked="" type="radio"/> grid crosses

Buttons:

9. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **PLAN VIEW**
Output file name: plan_view

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **N/A**
Lock X/Y scale
Scale: 500

Data extents

	Y	X
Minimum	6444.97	2210.79
Maximum	7325.80	2754.71

Sheet setup and orientation characteristics

Sheet size: A1
Border: BORD
Drawing area: VA1T
Grid: YXA3
Title block:

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units Metric Imperial

Miscellaneous options

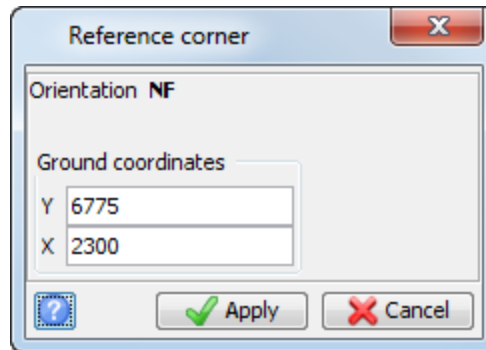
Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

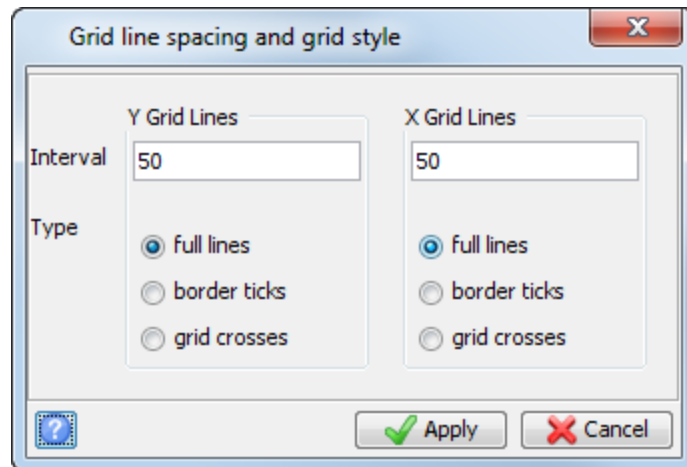
Note: You usually want to show the entire area of influence for the section. These sections were created using data 25m south and 25m north of the section line. When you enter the reference corner for the plan view map for the 6800m N section, you should lock the lower left corner of the map at 25m south of the section line, or $6800\text{m} - 25\text{m} = 6775\text{m}$.

10. Enter the information as shown, and click **Apply**.



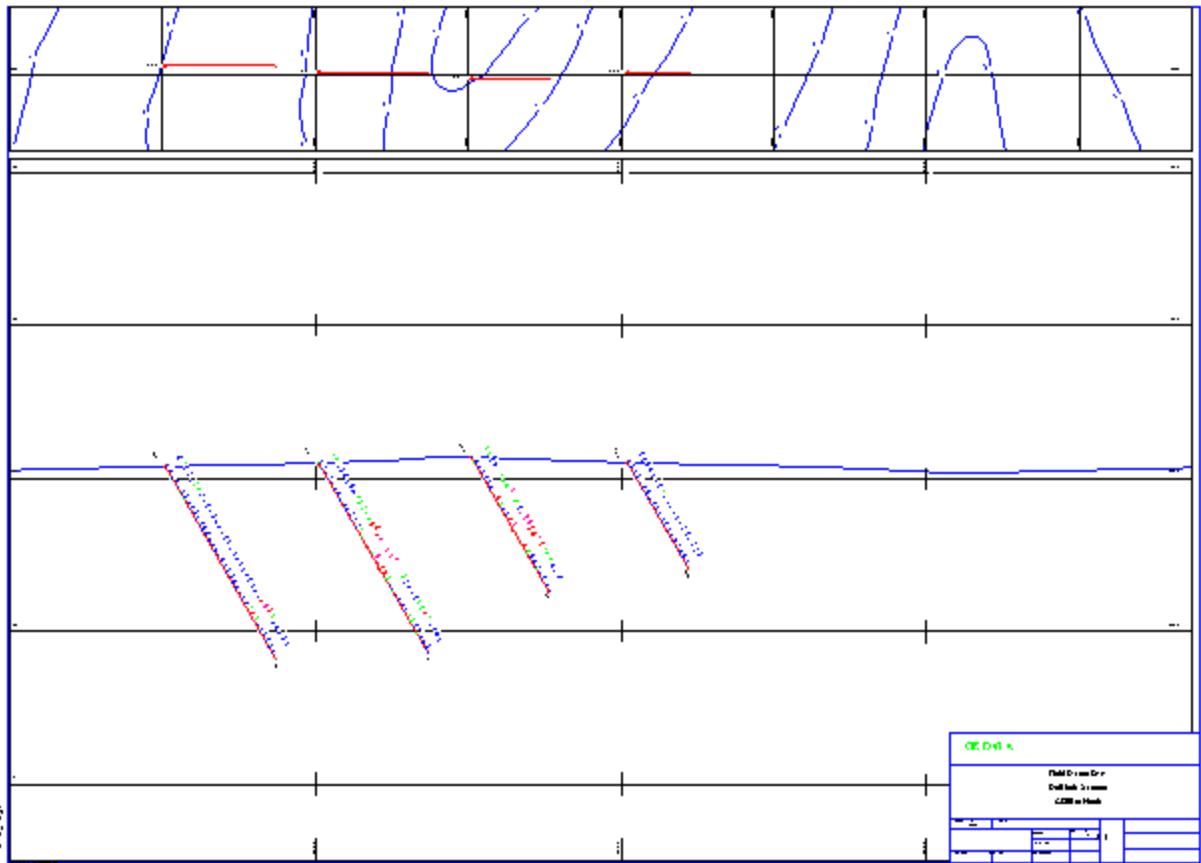
The 'Reference corner' dialog box is shown. It has a title bar with a close button (X). The 'Orientation' is set to 'NF'. Under 'Ground coordinates', the 'Y' coordinate is 6775 and the 'X' coordinate is 2300. At the bottom, there is a help icon (question mark in a square), an 'Apply' button with a green checkmark, and a 'Cancel' button with a red X.

11. Enter the information as shown, and click **Apply**.



The 'Grid line spacing and grid style' dialog box is shown. It has a title bar with a close button (X). It is divided into two columns: 'Y Grid Lines' and 'X Grid Lines'. Both columns have an 'Interval' of 50. Under 'Type', the 'full lines' radio button is selected in both columns. The other options are 'border ticks' and 'grid crosses'. At the bottom, there is a help icon (question mark in a square), an 'Apply' button with a green checkmark, and a 'Cancel' button with a red X.

The map is displayed as shown, with the Plan view at the top (in drawing Area VA1T) and the Section view at the bottom (in drawing area VA1B). Both maps are locked at 2300m E so that they align properly.

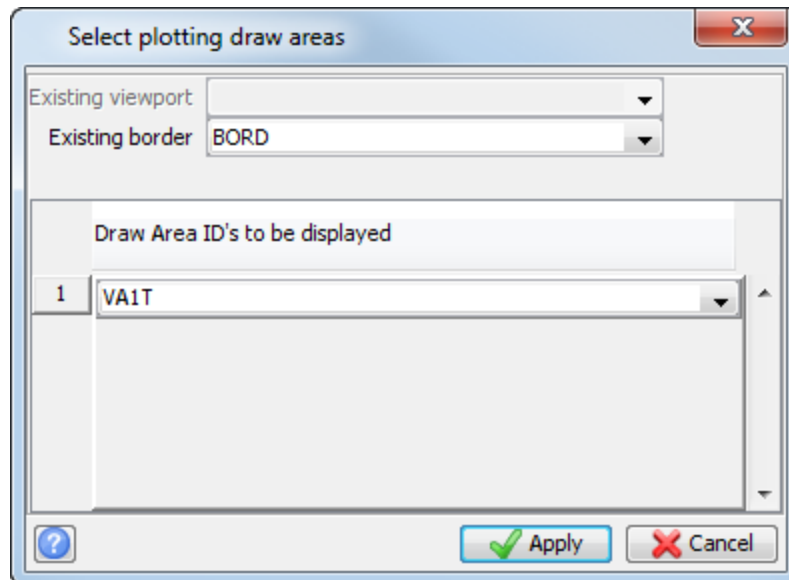


Task: Modify an existing drawing area

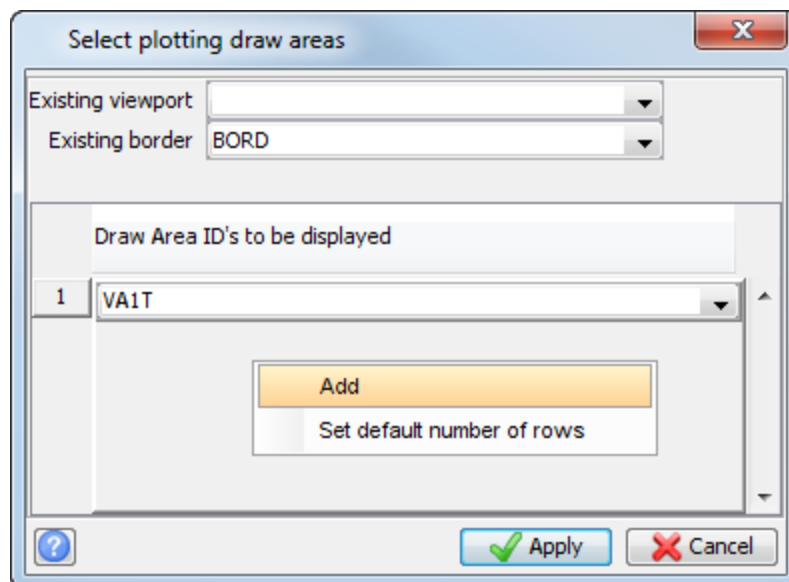
1. Choose **Plotting > Plotting sheet setup window**.



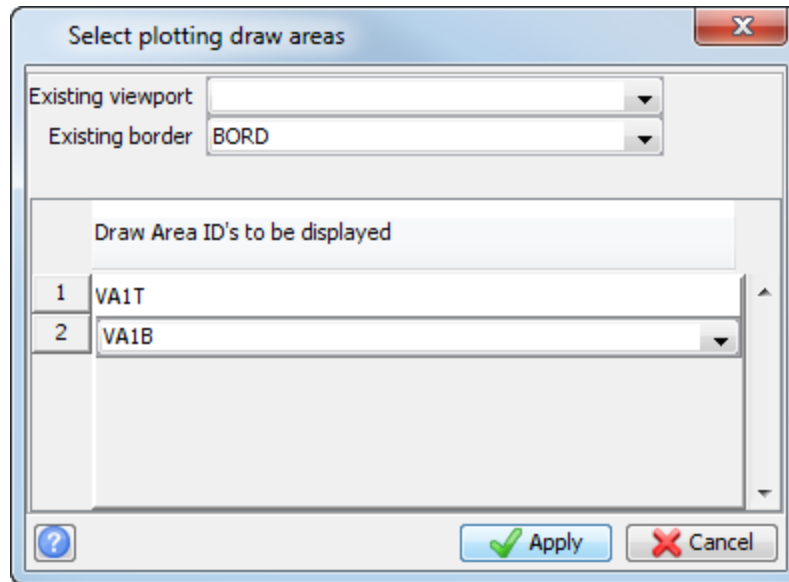
2. Choose **Drawing areas > Select**.
3. Select **VA1T**.



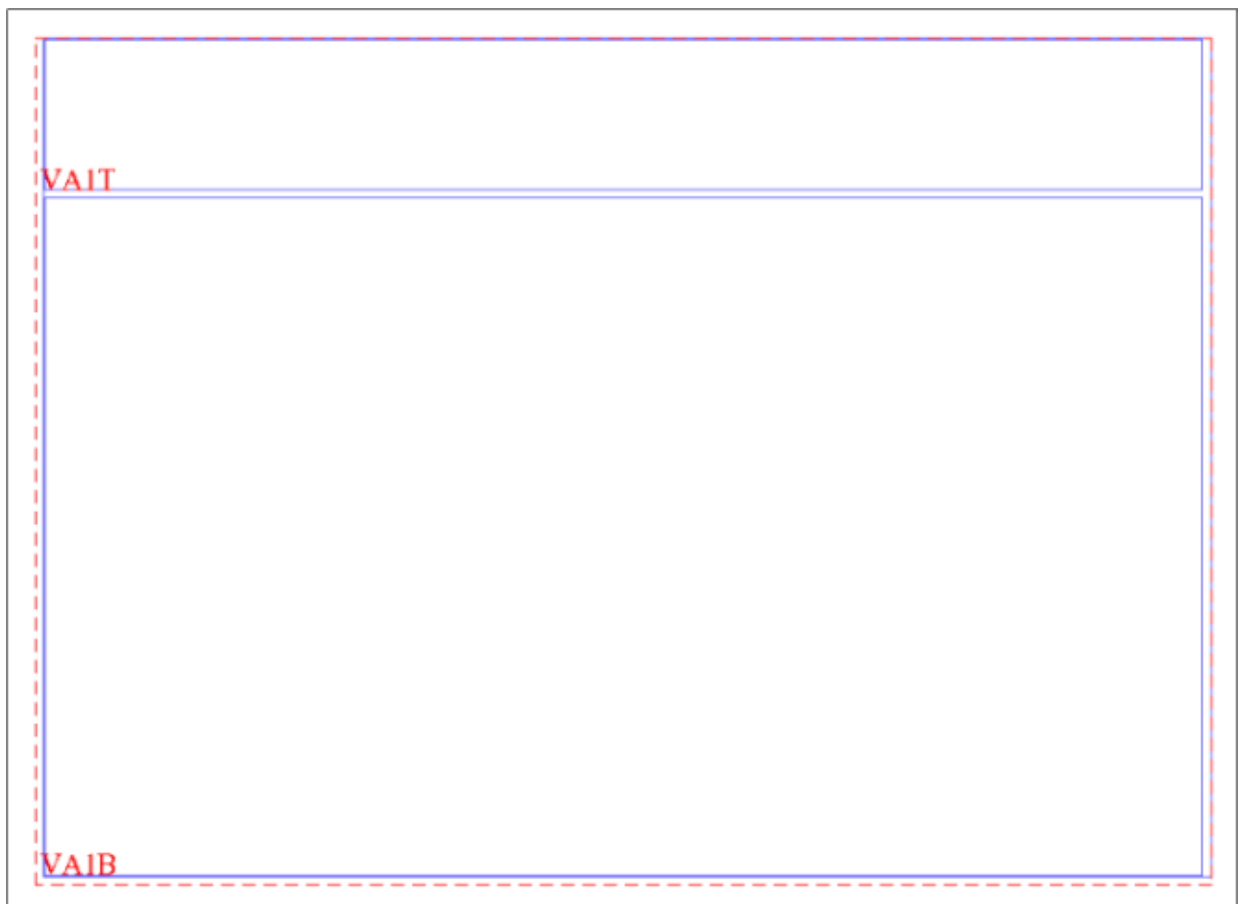
4. Right-click in the blank space below the **VA1T** entry and select **Add** to add another row to the table.



5. Select **VA1B**, and click **Apply**.



Notice that both drawing areas have been selected, and so both drawing areas are displayed on the screen.



6. Choose **Drawing areas > Properties**.

The dimensions of the drawing areas are displayed

ID	Description	Sheet	Left	Right	Bottom	Top	Draw lines	Pen	Priority	
1	VA1B	A drawing area which occupies the bottom 3/4 of an A0 map sheet.	A1	0.6	0.6	0.6	10	<input checked="" type="checkbox"/>	1	122
2	VA1T	A drawing area which occupies the top 1/4 of an A0 map sheet.	A1	0.6	0.6	47	0.1	<input checked="" type="checkbox"/>	1	122

Refer to the above diagram to understand the construction of the drawing areas.

VA1B

Left = 0.6 The distance in from the left edge of the plotting sheet to extent of the drawing area.

Right = 0.6 The distance in from the right edge of the plotting sheet to extent of the drawing area.

Bottom = 0.6 The distance in from the bottom edge of the plotting sheet to extent of the drawing area.

Top = 10 The distance in from the top edge of the plotting sheet to extent of the drawing area.

VA1T

Left = 0.6 The distance in from the left edge of the plotting sheet to extent of the drawing area.

Right = 0.6 The distance in from the right edge of the plotting sheet to extent of the drawing area.

Bottom = 47 The distance in from the bottom edge of the plotting sheet to extent of the drawing area.

Top = 0.1 The distance in from the top edge of the plotting sheet to extent of the drawing area.

- Enter a value of 10.6 for **VA1B Top**, and a value of 46.4 for **VA1T Bottom**, and click **Apply**.

ID	Description	Sheet	Left	Right	Bottom	Top	Draw lines	Pen	Priority	
1	VA1B	A drawing area which occupies the bottom 3/4 of an A0 map sheet.	A1	0.6	0.6	0.6	10.6	<input checked="" type="checkbox"/>	1	122
2	VA1T	A drawing area which occupies the top 1/4 of an A0 map sheet.	A1	0.6	0.6	46.4	0.1	<input checked="" type="checkbox"/>	1	122

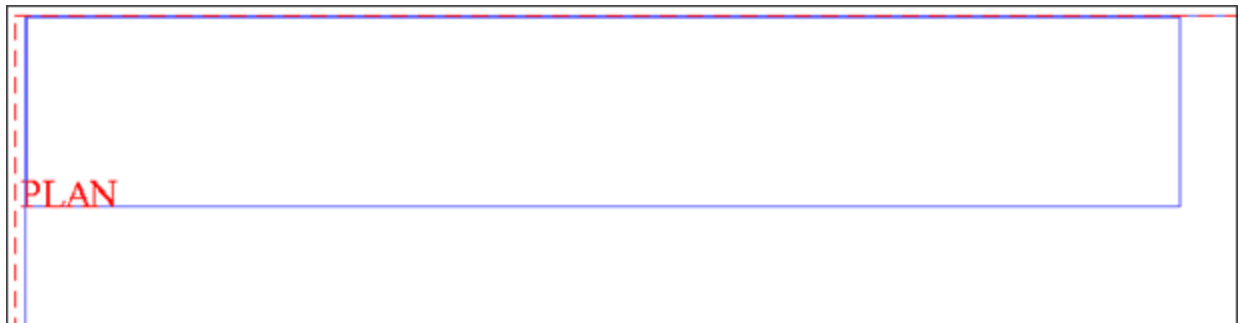
Note: To rescale the drawing areas, you can either choose the properties function as shown above, or you can move the boxes manually using the cursor.

- Choose **Drawing areas > Save**, to save the modifications.
- Close the **Plot Sheet Setup** window.
- Choose **Plotting > Process > Last map**.
- Fill in the *Plot Presentation Parameters* form to display the VA1B drawing area, and display it using the same settings as you used previously.
- Fill in the *Plot Presentation Parameters* form to display the VA1T drawing area, and display it using the same settings as you used previously.

3. Enter the information as shown, and click **Apply**.

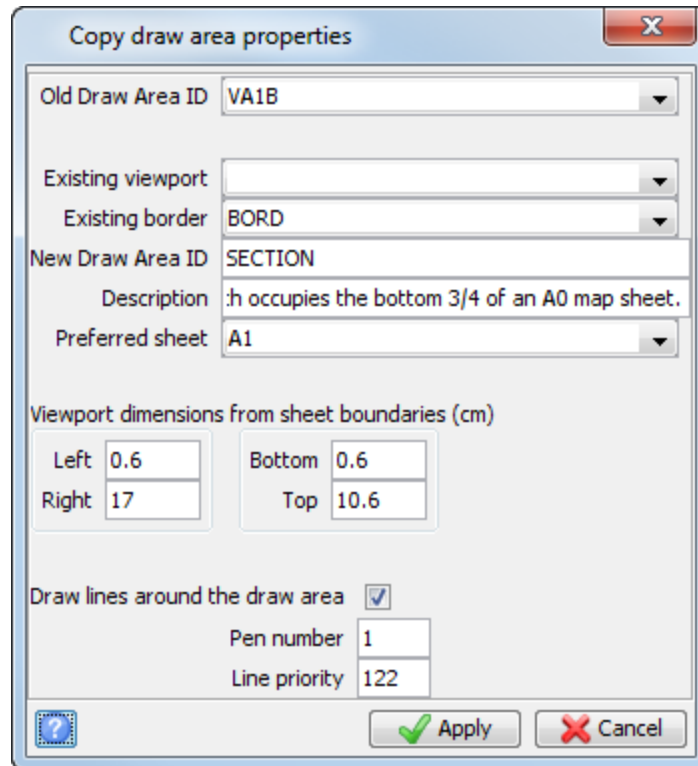
The **Right** dimension for the sheet boundary has been changed to 17 cm to create room for the **LEGN** drawing area.

The new **PLAN** drawing area is displayed.



4. Choose **Drawing areas > Save**.
5. Choose **Drawing areas > Copy**, to copy the **VA1B** drawing area to a new drawing area called **SECTION**

6. Enter the information as shown, and click **Apply**.



Copy draw area properties

Old Draw Area ID: VA1B

Existing viewport: [Empty]

Existing border: BORD

New Draw Area ID: SECTION

Description: h occupies the bottom 3/4 of an A0 map sheet.

Preferred sheet: A1

Viewport dimensions from sheet boundaries (cm)

Left	0.6	Bottom	0.6
Right	17	Top	10.6

Draw lines around the draw area

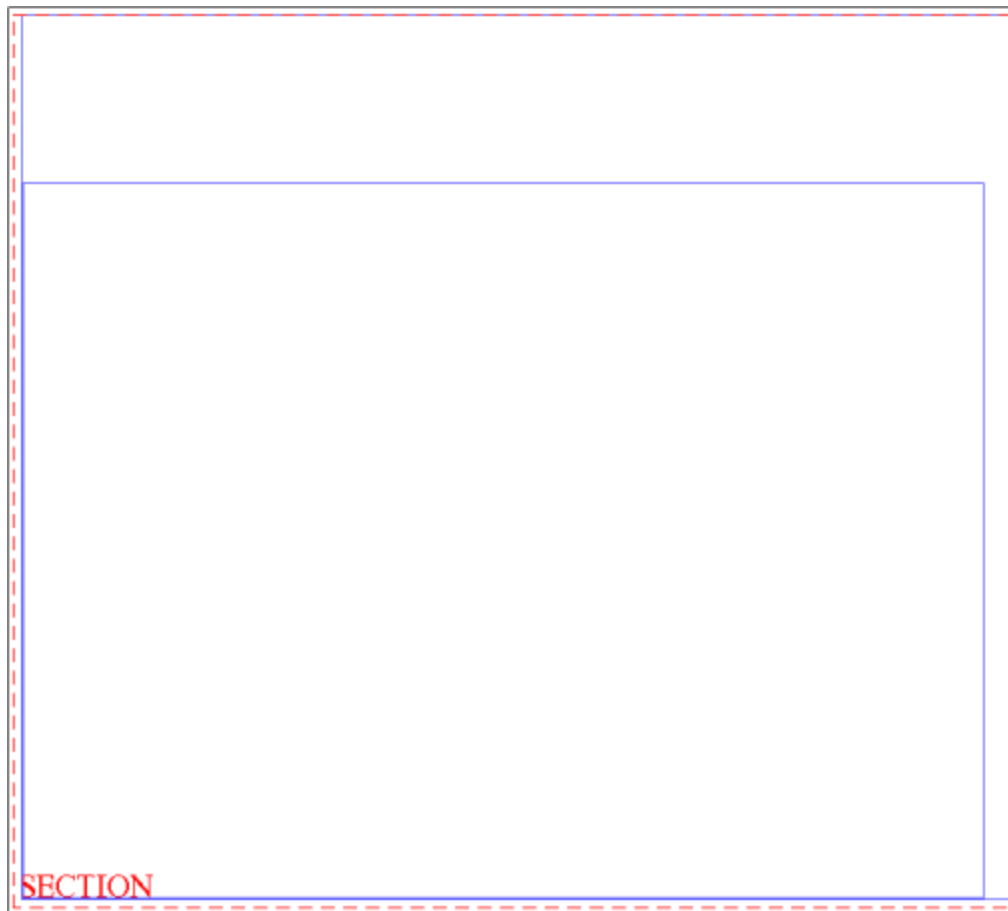
Pen number: 1

Line priority: 122

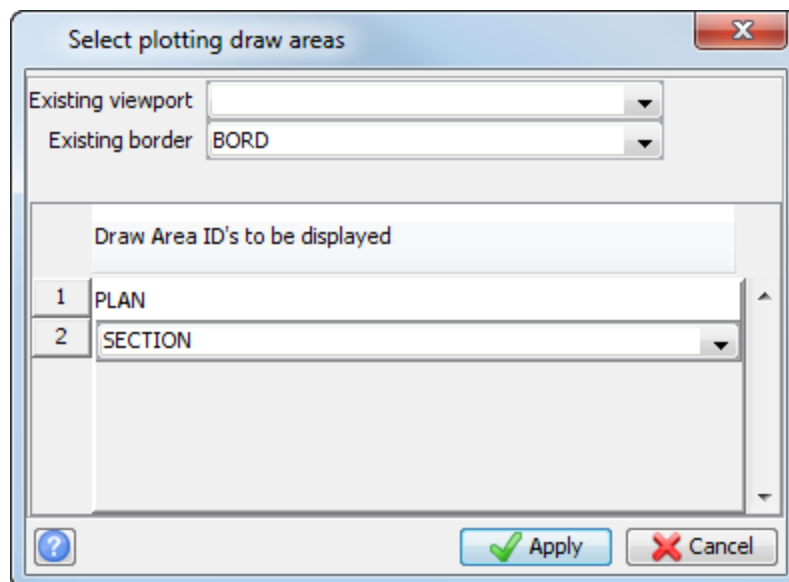
Buttons: [Help], [Apply], [Cancel]

The **Right** dimension from the sheet boundary has been changed to 17cm to create room for the **LEGN** drawing area.

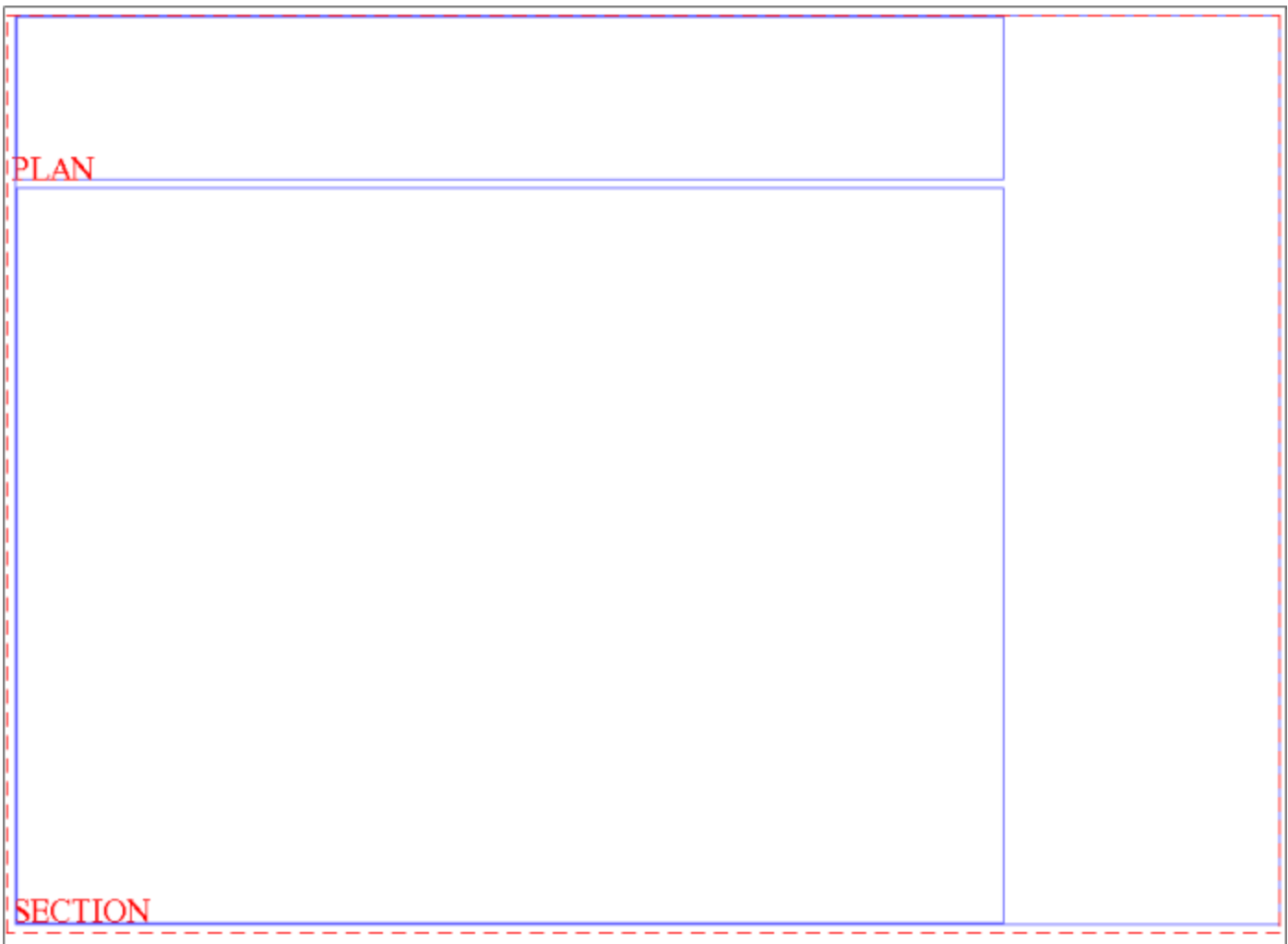
The **Section** drawing area is displayed.



7. Choose **Drawing areas > Save**.
8. Choose **Drawing areas > Select**.
9. Enter the information as shown, and click **Apply**.



The drawing areas are displayed.

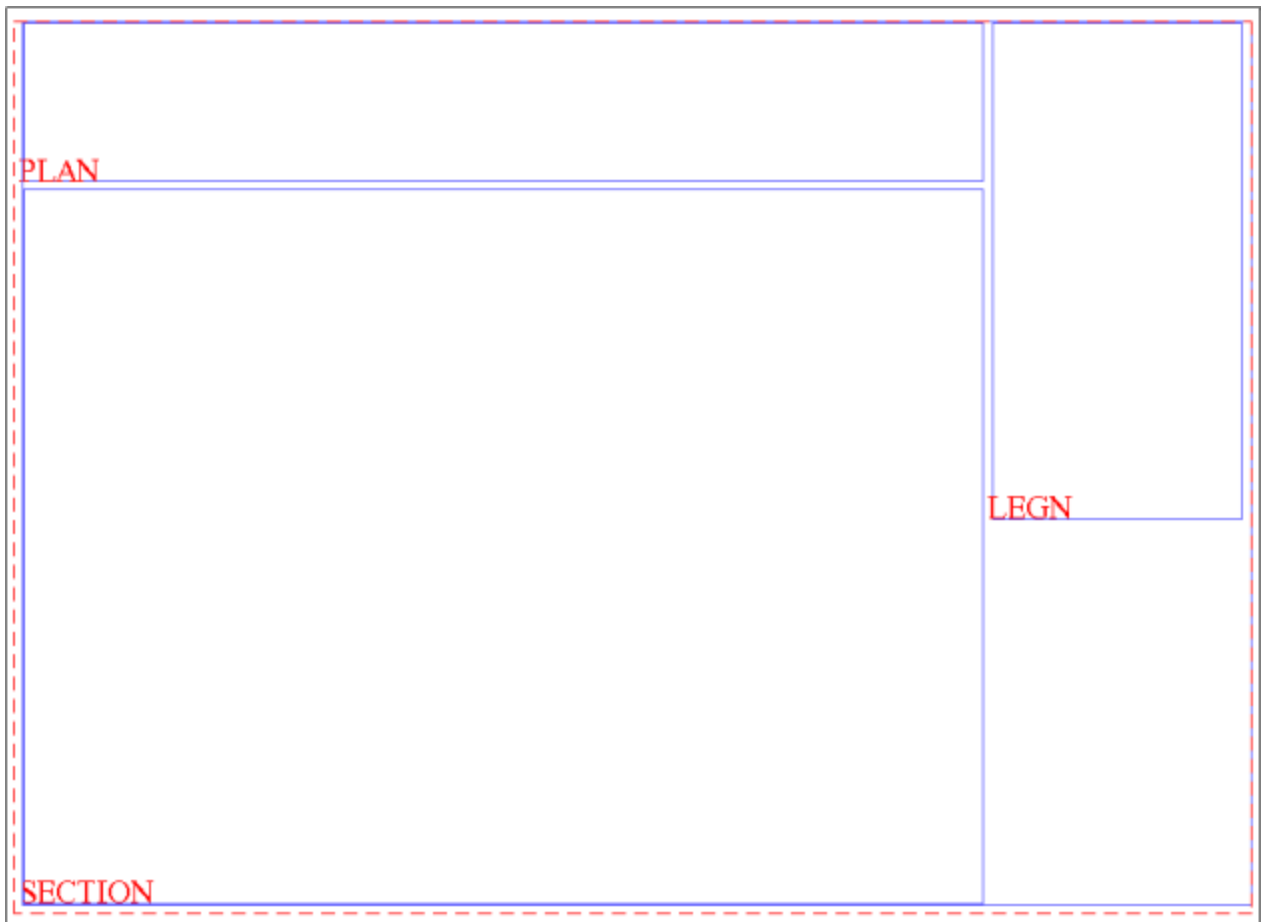


10. Choose **Drawing areas > New**.

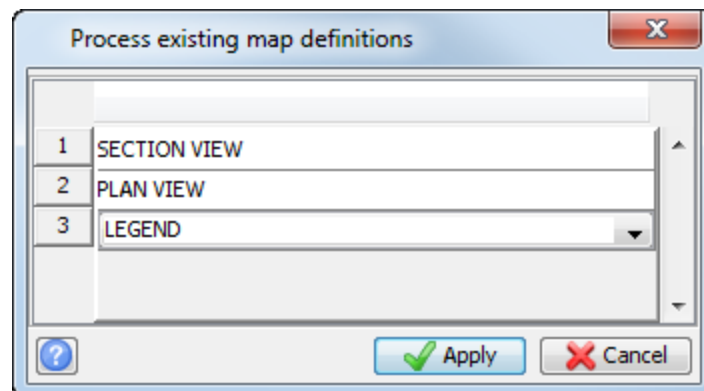
11. Enter the information as shown, and click **Apply**.

12. Choose **Drawing areas > Save**.
 13. Choose **Drawing areas > Select**.
 14. Enter the information as shown, and click **Apply**.

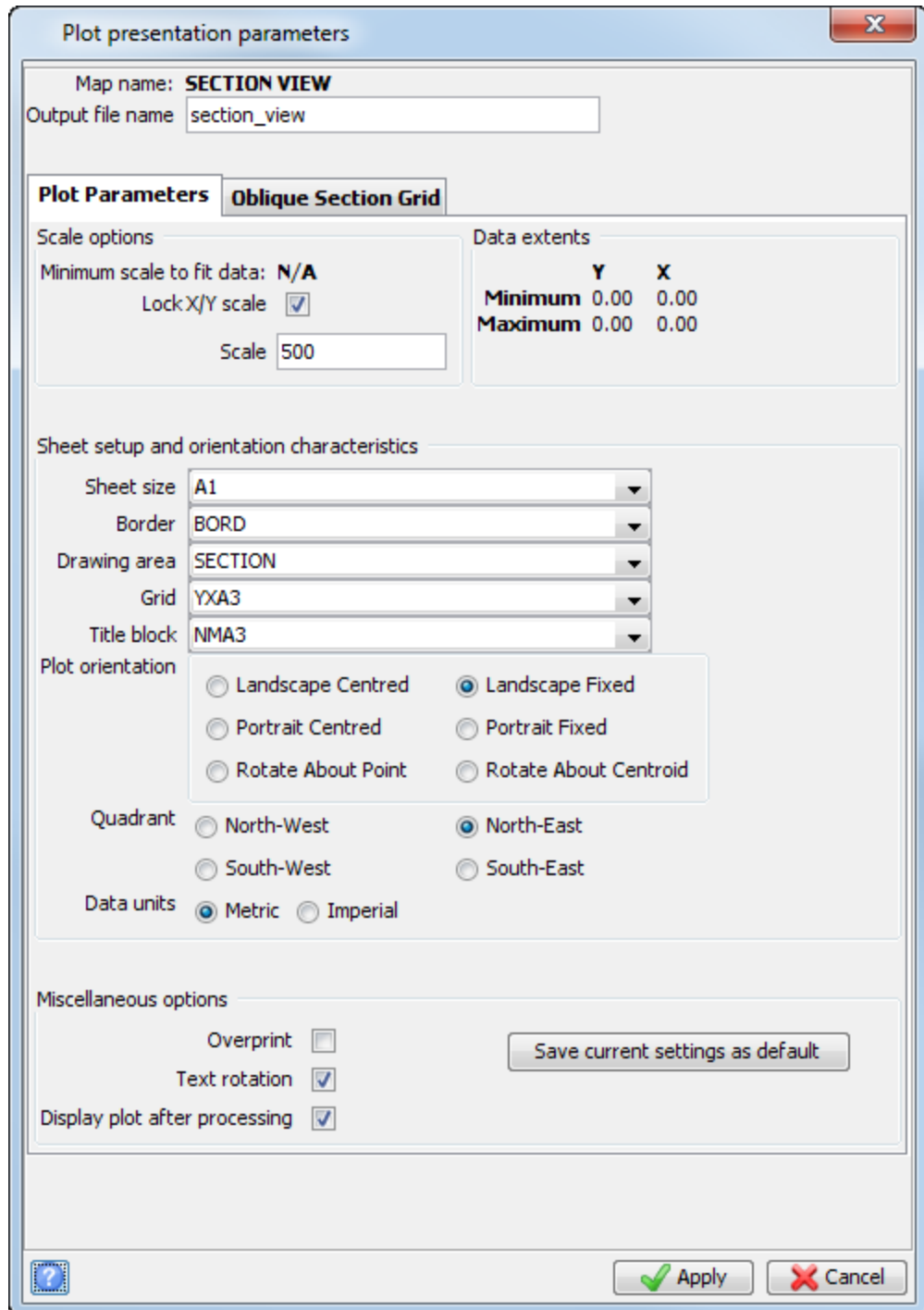
The drawing areas are displayed.



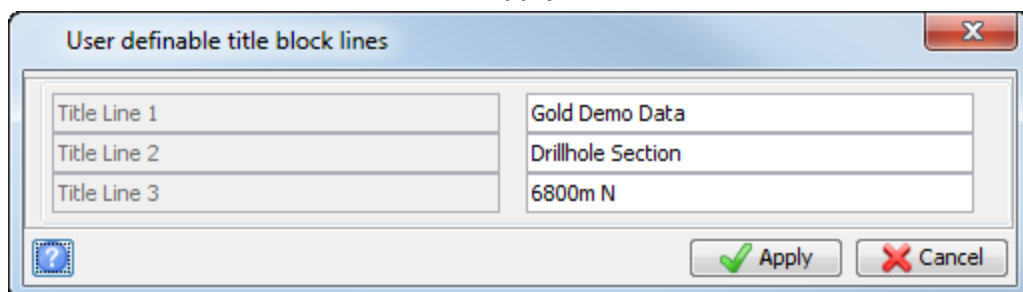
15. Close the **Plot Sheet Setup** window.
16. Choose **Plotting > Process > Map**.
17. Enter the information as shown, and click **Apply**.



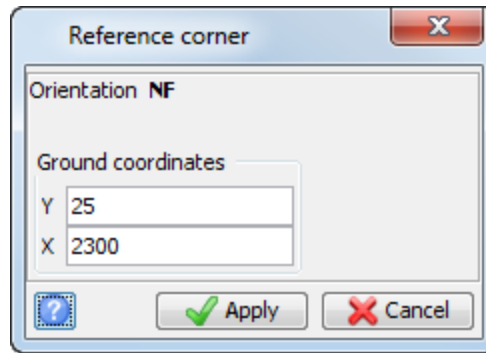
18. Enter the information as shown, and click **Apply**.



19. Enter the information as shown, and click **Apply**.



20. Enter the following information.

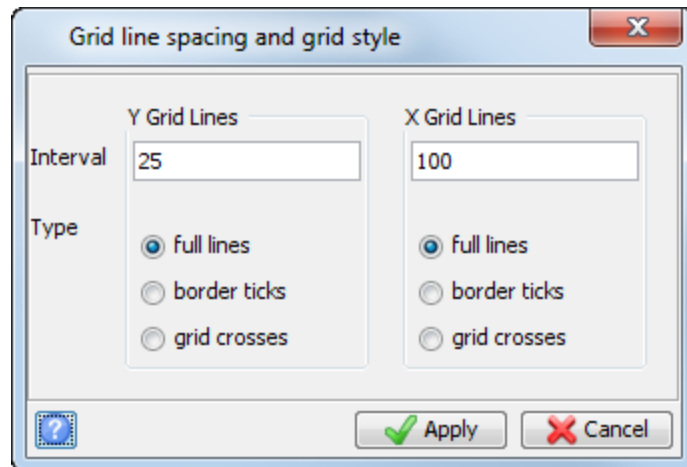


The 'Reference corner' dialog box has a title bar with a close button (X). The main area contains the following fields:

- Orientation: **NF**
- Ground coordinates section with two input fields:
 - Y: 25
 - X: 2300

At the bottom, there is a help icon (question mark in a blue square), an 'Apply' button with a green checkmark, and a 'Cancel' button with a red X.

21. Enter the information as shown, and click **Apply**.



The 'Grid line spacing and grid style' dialog box has a title bar with a close button (X). The main area is divided into two columns: 'Y Grid Lines' and 'X Grid Lines'. The 'Interval' field is shared between both columns.

	Y Grid Lines	X Grid Lines
Interval	25	100
Type	<input checked="" type="radio"/> full lines <input type="radio"/> border ticks <input type="radio"/> grid crosses	<input checked="" type="radio"/> full lines <input type="radio"/> border ticks <input type="radio"/> grid crosses

At the bottom, there is a help icon (question mark in a blue square), an 'Apply' button with a green checkmark, and a 'Cancel' button with a red X.

22. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **PLAN VIEW**
Output file name: plan_view

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **N/A**
Lock X/Y scale
Scale: 500

Data extents

	Y	X
Minimum	0.00	0.00
Maximum	0.00	0.00

Sheet setup and orientation characteristics

Sheet size: A1
Border: BORD
Drawing area: PLAN
Grid: YXA0
Title block:

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units Metric Imperial

Miscellaneous options

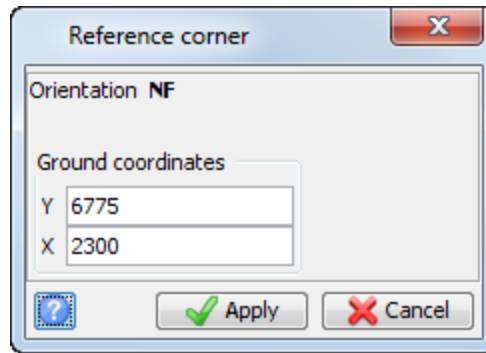
Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

Note: Make sure that you change the drawing area to **PLAN** (a drawing area for the top of an A1 sheet) and the Title block to "blank" for No title block.

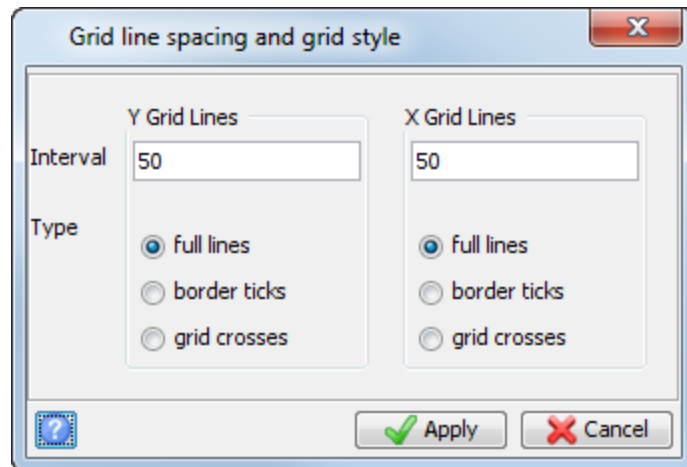
23. Enter the information as shown, and click **Apply**.



The 'Reference corner' dialog box is shown. It has a title bar with a close button (X). The main area contains the following fields and options:

- Orientation: **NF**
- Ground coordinates section with two input fields:
 - Y: **6775**
 - X: **2300**
- Buttons at the bottom: a help icon (question mark in a square), an **Apply** button with a green checkmark, and a **Cancel** button with a red X.

24. Enter the information as shown, and click **Apply**.



The 'Grid line spacing and grid style' dialog box is shown. It has a title bar with a close button (X). The main area contains the following fields and options:

- Y Grid Lines section:
 - Interval: **50**
 - Type: full lines, border ticks, grid crosses
- X Grid Lines section:
 - Interval: **50**
 - Type: full lines, border ticks, grid crosses
- Buttons at the bottom: a help icon (question mark in a square), an **Apply** button with a green checkmark, and a **Cancel** button with a red X.

25. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **LEGEND**
Output file name: legend

Plot Parameters **Oblique Section Grid**

Scale options
Minimum scale to fit data: **0.000**
Lock X/Y scale
X scale: 500
Y scale: 500

Data extents

	Y	X
Minimum	0.00	0.00
Maximum	0.00	0.00

Sheet setup and orientation characteristics

Sheet size: A1
Border: BORD
Drawing area: LEGN
Grid: NOGR
Title block:

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant North-West North-East
 South-West South-East

Data units Metric Imperial

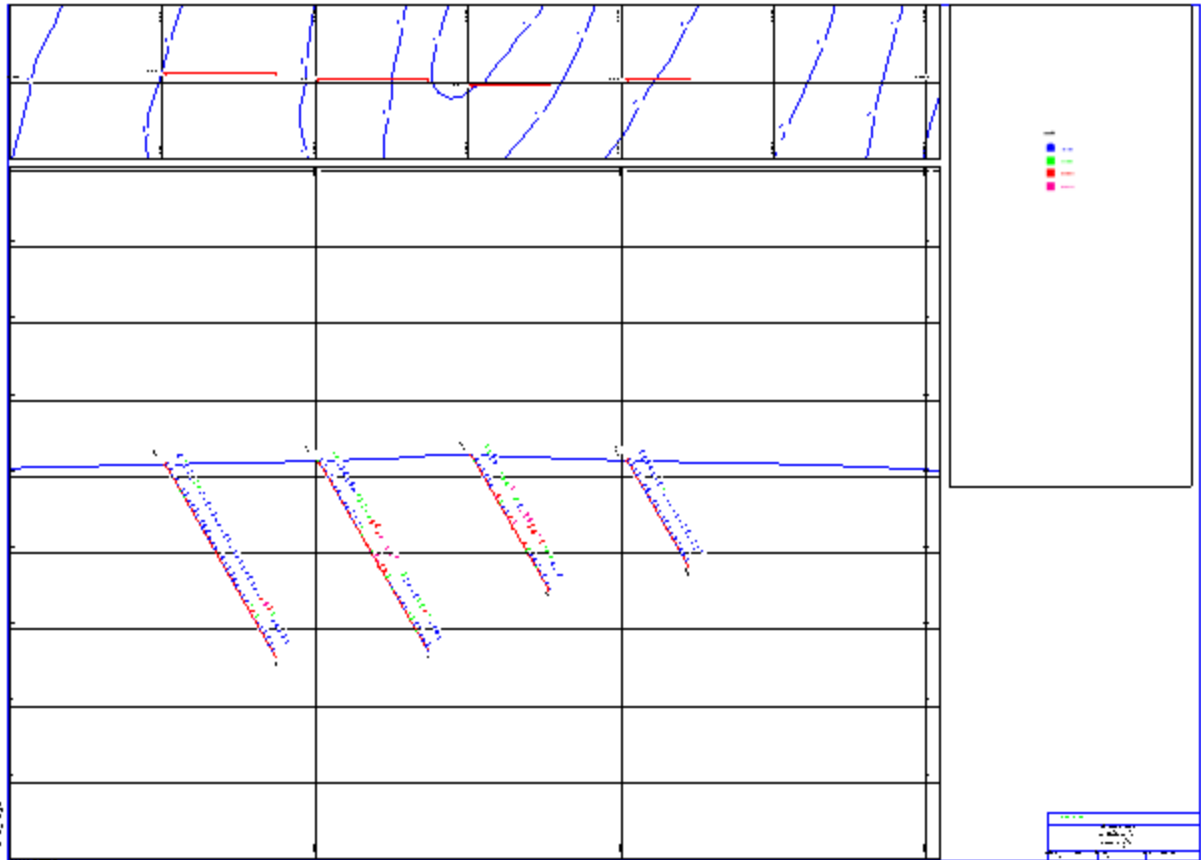
Miscellaneous options

Overprint
Text rotation
Display plot after processing

Save current settings as default

Apply Cancel

After the map has finished processing, it is displayed in the **Plot preview** window, showing drawing areas **PLAN, SECTION, and LEGN**.



Title Block Definitions

Task: Create a new title block

1. Choose **Plotting > Plotting sheet setup window**.
2. Choose **Title Blocks > Copy**.
 - ✍ **Note:** You will make a copy of an existing title block as it will save setting up new elements for items such as lines and prompt items.
3. Enter the information as shown, and click **Apply**.

Copy title properties

Existing Title ID: NMA0
 New Title ID: BLUE SKY
 Title description: Bluesky A0 Title Block

Border ID: BORD
 Draw Area ID: DRAW

New Properties

Corner:
 upper left upper right
 lower left lower right

Origin Offset:
 X Offset: 0
 Y Offset: 0

Font options:
 Name: Default
Bold
Italic
Underline

Protected size:
 X size: 16.4
 Y size: 8.5

Priority and pen:
 Priority: 124
 Pen: 2

Orientation:
 Scale Factor: 1
 Text orientation: 0 90

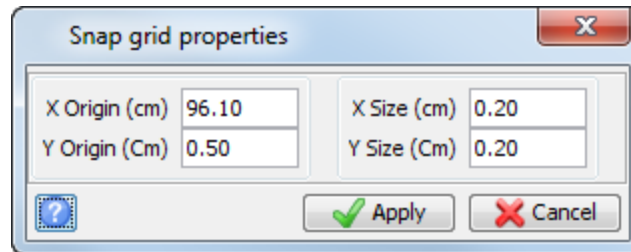
Title Block prompting lines

	Prompt	X position	Y position	Text height	Length	Pen
1	Title Line 1	2.5	5.4	0.4	12.8	1
2	Title Line 2	2.5	4.5	0.4	12.8	1
3	Title Line 3	2.5	3.6	0.4	12.8	1
4	Drawn By	8.12	1.7	0.25	1.5	1

Apply Cancel

- ✍ **Note:** The only items you will need to type in are the new title ID and title description.
4. Click **Apply**.
 5. Choose **Title blocks > Snap grid > Properties**.
 You will use this to help align items on the title block.

6. Enter the information as shown, and click **Apply**.

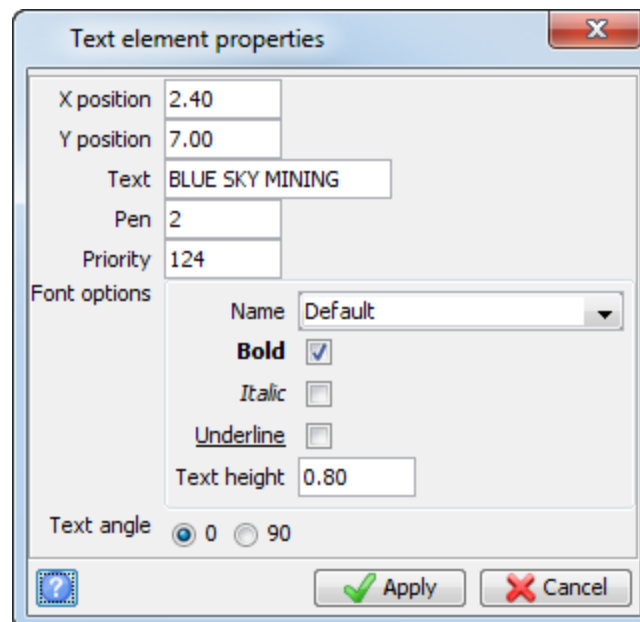


The 'Snap grid properties' dialog box contains the following fields:

X Origin (cm)	96.10	X Size (cm)	0.20
Y Origin (Cm)	0.50	Y Size (Cm)	0.20

Buttons: ? (Help), Apply (green checkmark), Cancel (red X).

7. Zoom in to the title block.
 8. Choose **Title Blocks > Edit > Delete item**.
 9. Click on the text **GEOVIA**, to delete it.
 10. Choose **Title Blocks > Create > Text**.
 11. Click in the top section of the title block where you want the text to appear.
 ✎ **Note:** Leave some space on the left for the logo.
 12. Enter the information as shown, and click **Apply**.



The 'Text element properties' dialog box contains the following fields:

X position	2.40
Y position	7.00
Text	BLUE SKY MINING
Pen	2
Priority	124

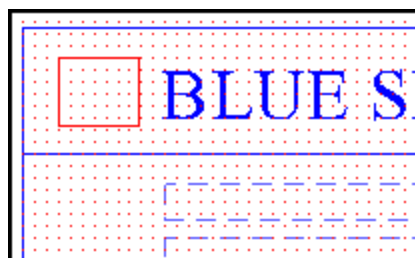
Font options:

Name	Default
Bold	<input checked="" type="checkbox"/>
<i>Italic</i>	<input type="checkbox"/>
<u>Underline</u>	<input type="checkbox"/>
Text height	0.80

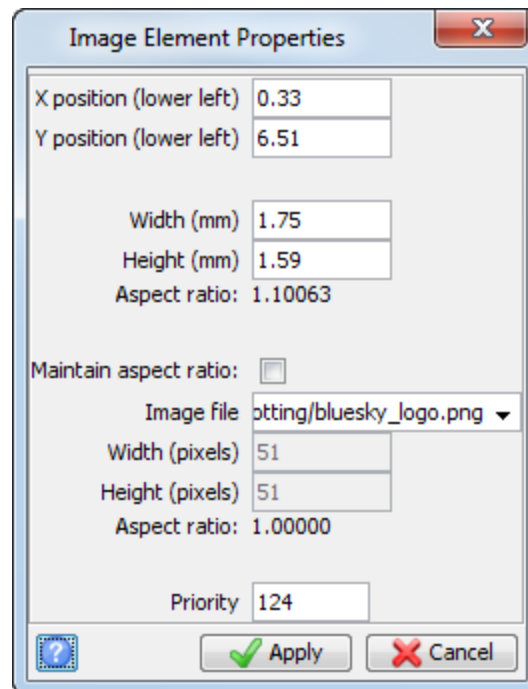
Text angle: 0 90

Buttons: ? (Help), Apply (green checkmark), Cancel (red X).

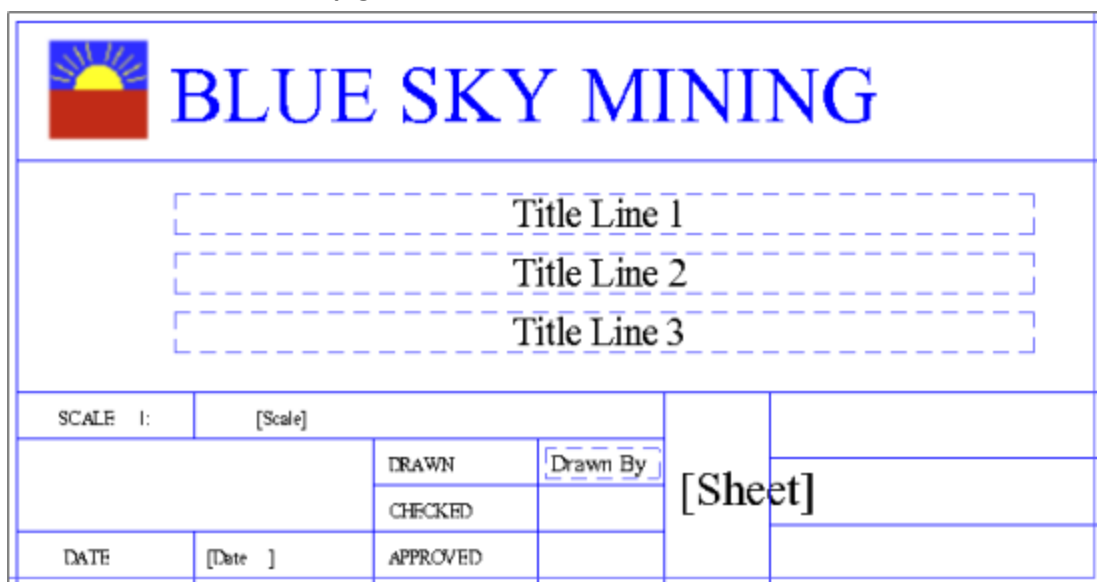
13. Choose **Title Blocks > Create > Image**.
 14. Click and drag a roughly square-shaped area to the left of the text "BLUE SKY MINING".



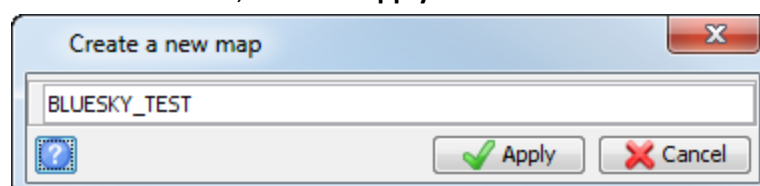
15. Enter the information as shown, and click **Apply**.



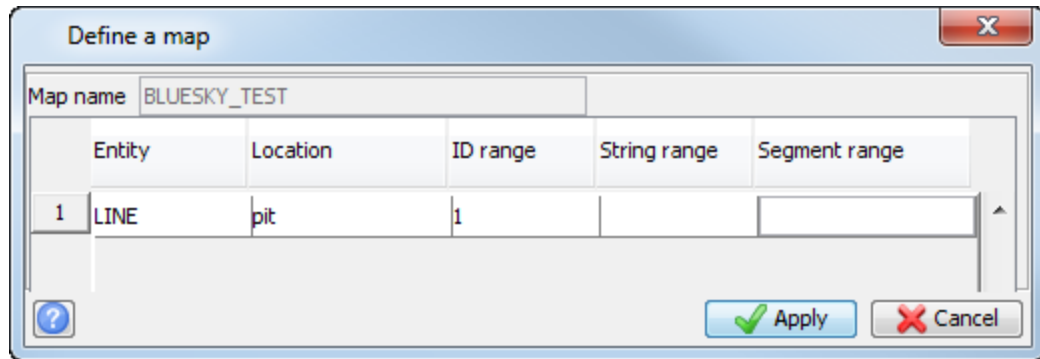
16. Choose **Title Blocks > Snap grid > Hide**.



17. Choose **Title Blocks > Save**.
 18. Choose **File > Close**.
 19. Choose **Plotting > Map > New**.
 20. Enter the information as shown, and click **Apply**.

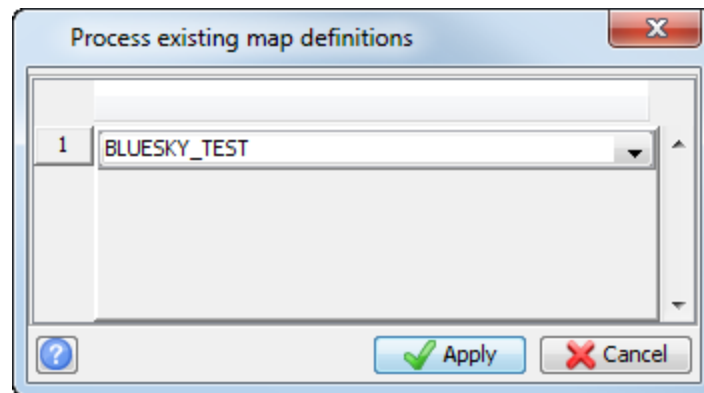


21. Enter the information as shown, and click **Apply**.



	Entity	Location	ID range	String range	Segment range
1	LINE	pit	1		

22. Choose **Plotting > Process > Map**.
23. Enter the information as shown, and click **Apply**.



1	BLUESKY_TEST
---	--------------

24. Enter the information as shown, and click **Apply**.

Plot presentation parameters

Map name: **BLUESKY_TEST**
 Output file name: bluesky_test

Plot Parameters | **Oblique Section Grid**

Scale options

Minimum scale to fit data: **0.000**
 Lock X/Y scale
 X scale: 3000
 Y scale: 3000

Data extents

	Y	X
Minimum	0.00	0.00
Maximum	0.00	0.00

Sheet setup and orientation characteristics

Sheet size: A4
 Border: BORD
 Drawing area: DRAW
 Grid: YXA3
 Title block: BLUE SKY

Plot orientation

Landscape Centred Landscape Fixed
 Portrait Centred Portrait Fixed
 Rotate About Point Rotate About Centroid

Quadrant

North-West North-East
 South-West South-East

Data units

Metric Imperial

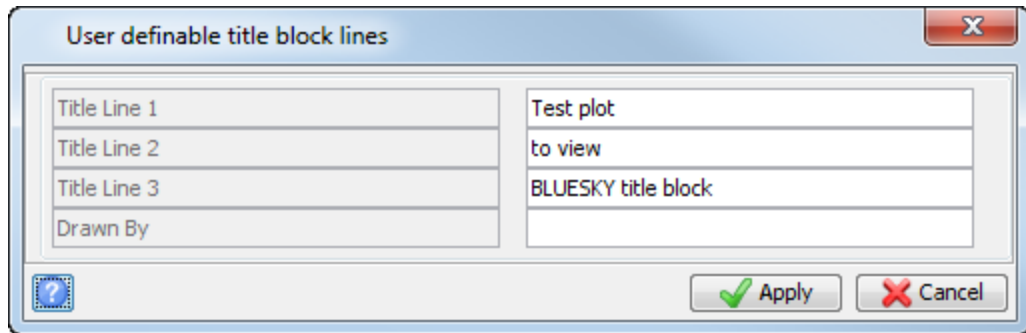
Miscellaneous options

Overprint
 Text rotation
 Display plot after processing

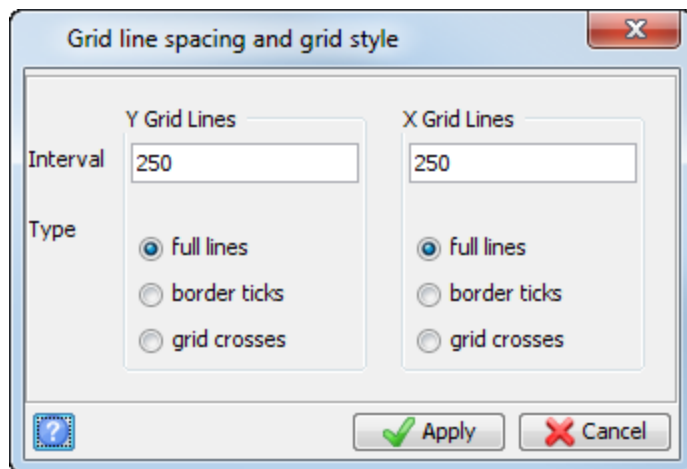
Save current settings as default

Apply Cancel

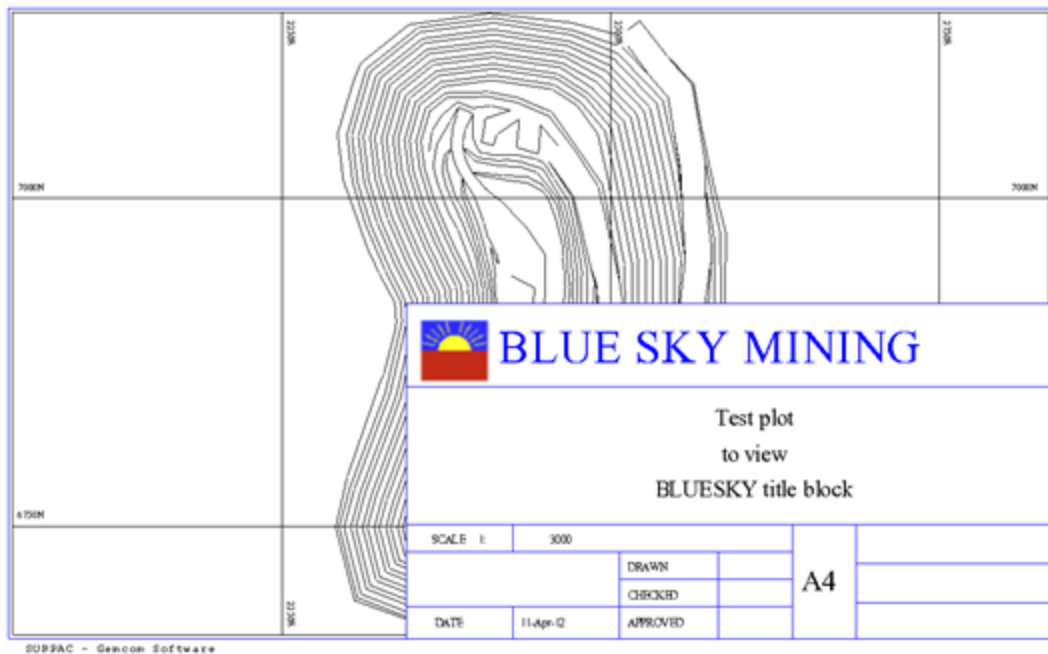
25. Enter the information as shown, and click **Apply**.



26. Enter the information as shown, and click **Apply**.



The plot and title block are displayed.



Creating a table showing a legend from a spreadsheet

Task: Creating a table showing a legend from a spreadsheet

You can create a 'table' entity that takes cells from a spreadsheet and adds them to a plot. You can use this feature to create a plot with a legend.

1. Choose **Plotting > Map > Copy**.
2. Fill in the *Copy an existing map* form as shown, and click **Apply**.

The OBLIQUE DH SECTION map is already set up to show some drillholes. In this task you will create a similar map that adds a legend to the plot.

3. Choose **Plotting > Entity > New**.
4. Fill in the *Create a new entity* form as shown, and click **Apply**.

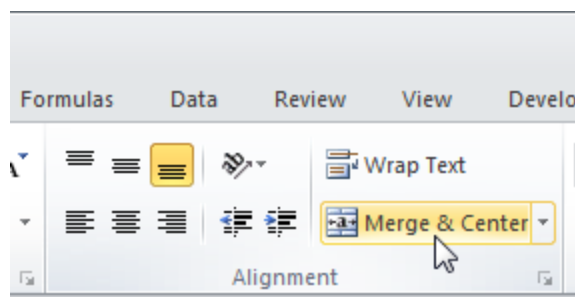
5. Fill in the *Define Table Entity Attributes* form as shown, and click **Apply**.

6. Start Excel.

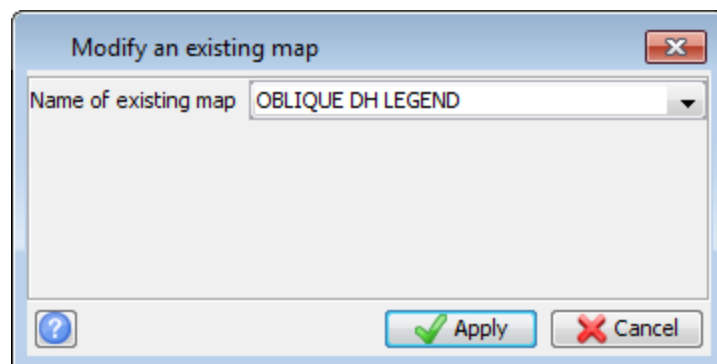
7. Type the text for the legend into cells A1 to B8.

	A	B
1	Lithology	
2	B	Basalt
3	IN	Intrusion
4	MU	Mudstone
5	QV1	Quartz Vein 1
6	ST	Sandstone Type 1
7	S2	Sandstone Type 2
8	SH	Shale

8. Select cells A1 and B1, and then merge them and centre them.
The **Merge** command is not in the same place in all versions of Excel. In Excel 2010, the **Merge & Centre** command is on the **Alignment** tab.



9. Apply bold formatting to the text **Lithology**.
10. Save the Excel file as **C:\Users\Public\GEOVIA\Surpac\<version>\demo_data\tutorials\plotting\legend.xlsx**.
11. Choose **Plotting > Map > Edit**.




12. Select **OBLIQUE DH LEGEND**, and click **Apply**.

13. In the *Define a map* form, right-click on the first column, and choose **Add**.

	Entity	Location	ID range	String range	Segment range
4	DH TRACE NO TOPBOI	oblique_section	0	4	
5	DH LABEL	oblique_section	0	5	
6	DH EOH DEPTH	oblique_section	0	5	
7	DH ASSAY1 RHS/PN2	oblique_section	0	11	
8	DH ASSAY1 RHS/PN3	oblique_section	0	12	
9	DH ASSAY1 RHS/PN4	oblique_section	0	13	
10	DH ASSAY1 RHS/PN5	oblique_section	0	14	
11	DH ASSAY1 RHS/PN6	oblique_section	0	15	
12	DH GEOLOGY LHS	oblique_section	0	70	

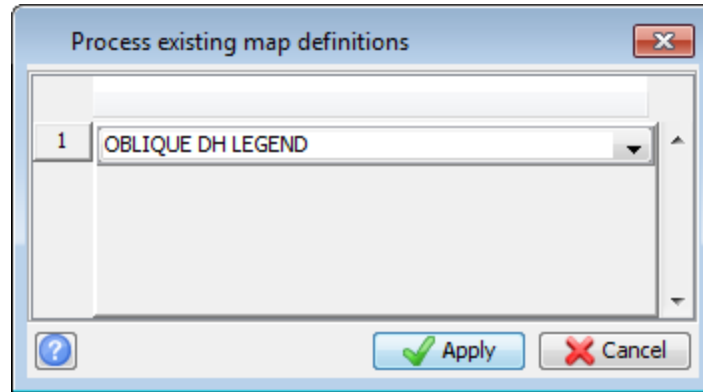
14. Add a row for the LEGEND entity as shown.

	Entity	Location	ID range	String range	Segment range
5	DH LABEL	oblique_section	0	5	
6	DH EOH DEPTH	oblique_section	0	5	
7	DH ASSAY1 RHS/PN2	oblique_section	0	11	
8	DH ASSAY1 RHS/PN3	oblique_section	0	12	
9	DH ASSAY1 RHS/PN4	oblique_section	0	13	
10	DH ASSAY1 RHS/PN5	oblique_section	0	14	
11	DH ASSAY1 RHS/PN6	oblique_section	0	15	
12	DH GEOLOGY LHS	oblique_section	0	70	
13	LEGEND	legend.xlsx	A1:B8		

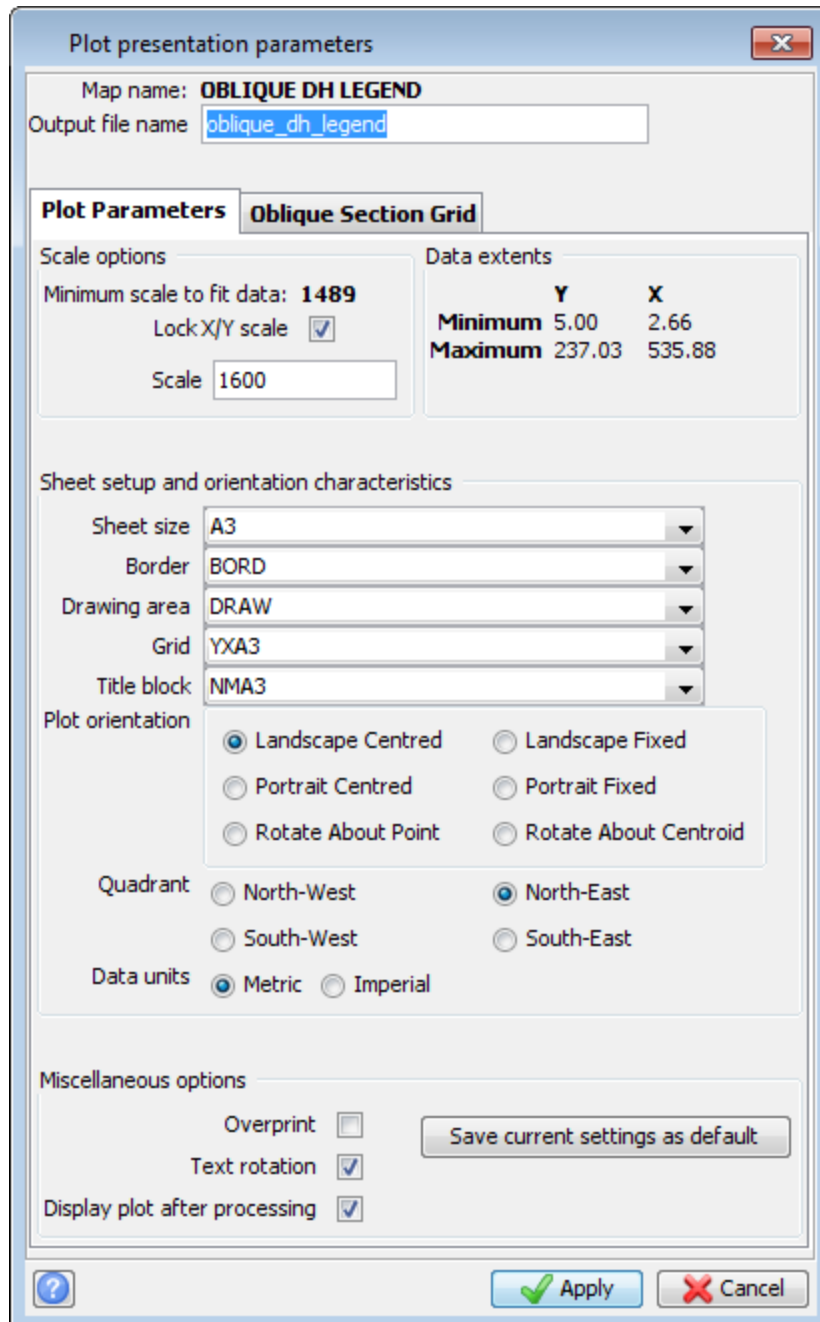
 **Tip:** If the cells are on a worksheet with a name other than Sheet1, you must enter **<sheetName>!A1:B8** in the **ID range** cell to successfully display the cells in the plot, for example **litho!A1:B8**.

15. Click **Apply**.

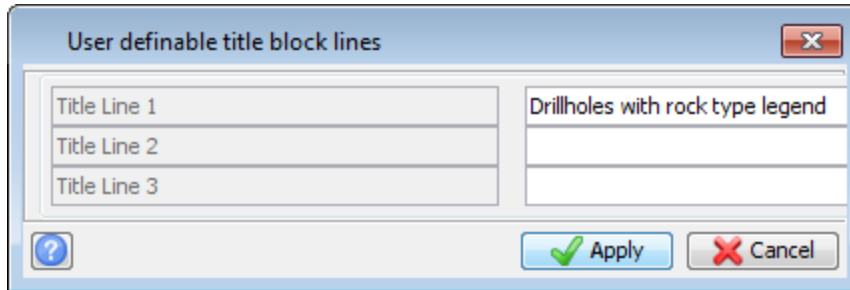
16. Choose **Plotting > Process > Map**, select **OBLIQUE DH LEGEND**, and click **Apply**.



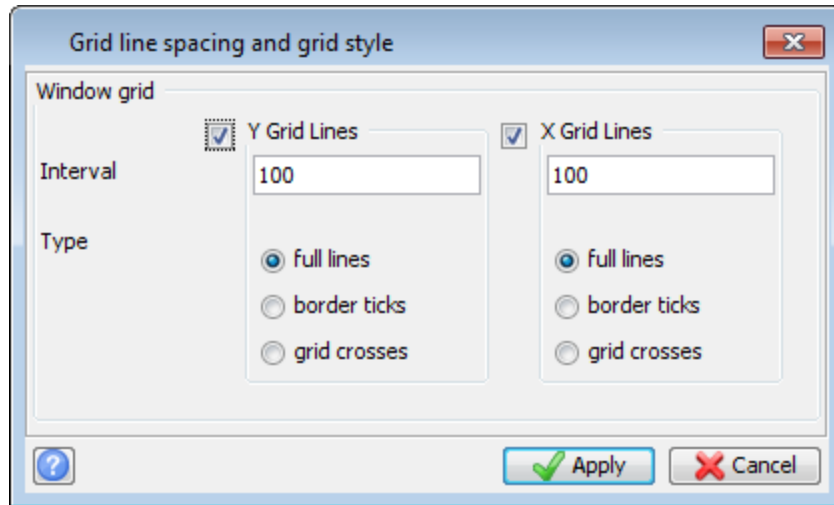
17. Fill in the *Plot presentation parameters* form as shown, and click **Apply**.



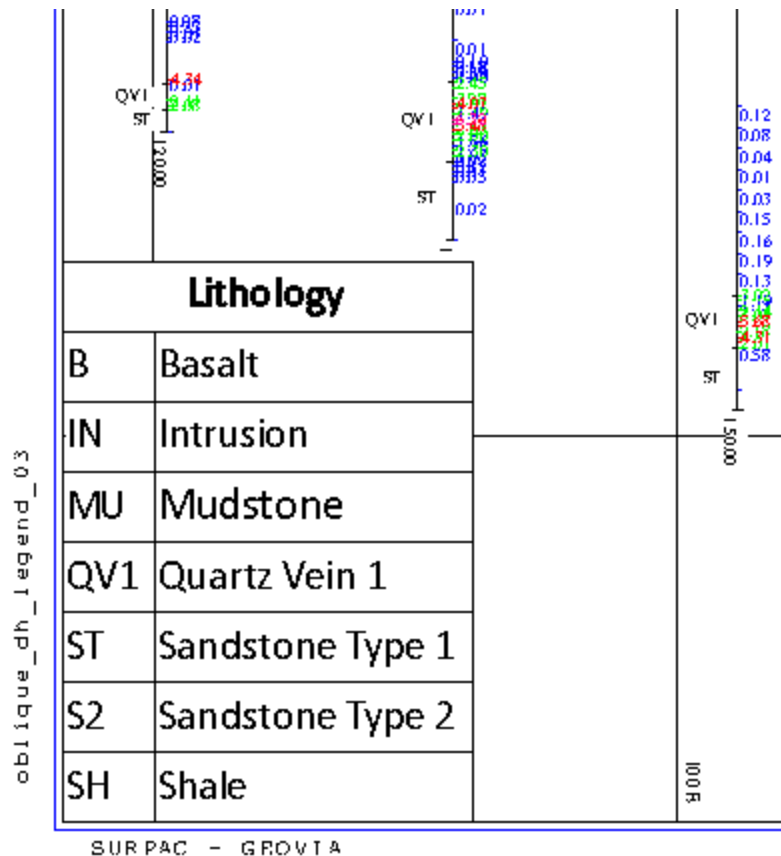
18. Fill in the *User definable title block lines* form as shown, and click **Apply**.



19. In the *Grid line spacing and grid style* form, click **Apply**.



A drillhole plot is created and displayed with a table showing a legend.



Creating a plot showing an image of a legend

In file-based plotting you can add image entities to a plot, either in the foreground so that the images appear on top of all the data except the title block, or in the background so that the images appear underneath all the data. The following task is an example of plotting with an image entity in the foreground.

Task: Creating a plot showing an image of a legend

Note: To do this task, you need the SECTION VIEW map and the associated entities. To install this map and these entities, import **entity.txt** and **map.txt** as described earlier in this tutorial.

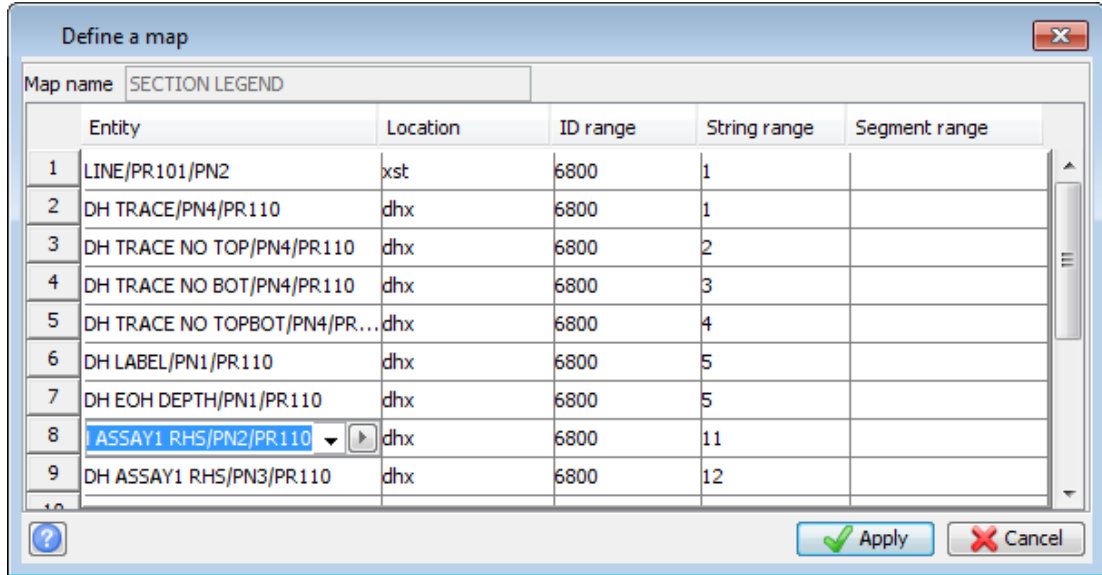
1. Choose **Plotting > Entity > New**.
2. Fill in the *Create a new entity* form as shown, and click **Apply**.

3. Fill in the *Define image entity attributes* form as shown, and click **Apply**.

4. Choose **Plotting > Map > Copy**.
5. Fill in the form as shown, and click **Apply**.

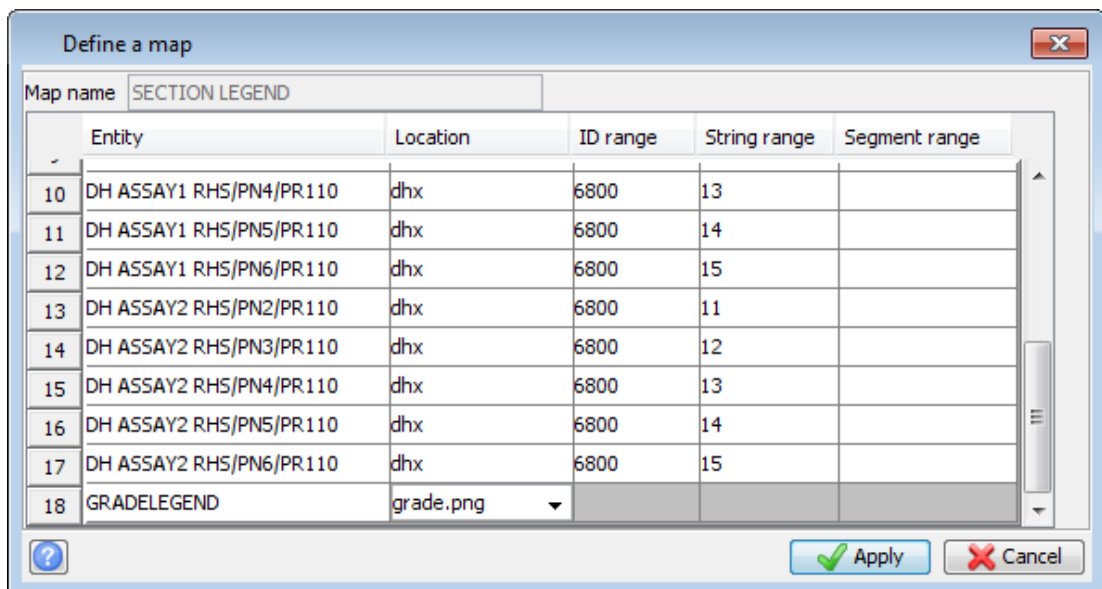
The SECTION VIEW map is already set up to show some drillholes. In this task, you will create a similar map that adds an image of a legend and modifies the display of the drillhole grades.

6. Choose **Plotting > Map > Edit**.
7. Select SECTION LEGEND from the drop-down list, and click **Apply**.



The *Define a map* form lists each entity in the map. This map contains several string entities, most of which are individual strings within the **dhx6800.str** string file. For example, line 8 of the map shows that string 11 within string file **dhx6800.str** will be plotted using entity DH ASSAY1 RHS to define how the string is formatted. The switch **/PN2** specifies that the string is displayed using pen number 2, overriding the settings of entity DH ASSAY1 RHS. The switch **/PR110** specifies that the priority of this string is 110.

8. Scroll to the end of the form, right-click in the left column, and choose **Add** to add a new row.
9. Add the GRADELEGEND entity, and set **Location** to **grade.png** — an image file of a legend that is part of the Plotting data set.



The map is set to display assay values in blue, green, red, or magenta (pen numbers 2, 3, 4, and 5 respectively) depending on the grade. Grades from 0-1 are blue, 1-5 are green, 5-10 are red, and grades above 10 are magenta. Next, you will change some of these colours, and also add a switch to reduce the text size of the assay values.



Tip: To see the colour for each pen number, run PLOT EDIT PEN FILE, which is the menu command **Plotting > Plotting colours > Pen colour properties**.

- For rows 8 to 11, and 13 to 16, in the **Entity** cell, type **/HT1** at the end of the cell.

	Entity	Location	ID range	String range	Segment range
9	DH ASSAY1 RHS/PN3/PR110/HT1	dhx	6800	12	
10	DH ASSAY1 RHS/PN4/PR110/HT1	dhx	6800	13	
11	DH ASSAY1 RHS/PN5/PR110/HT1	dhx	6800	14	
12	DH ASSAY1 RHS/PN6/PR110	dhx	6800	15	
13	DH ASSAY2 RHS/PN2/PR110/HT1	dhx	6800	11	
14	DH ASSAY2 RHS/PN3/PR11/HT1	dhx	6800	12	
15	DH ASSAY2 RHS/PN4/PR110/HT1	dhx	6800	13	
16	H ASSAY2 RHS/PN5/PR110/HT1	dhx	6800	14	
17	DH ASSAY2 RHS/PN6/PR110	dhx	6800	15	

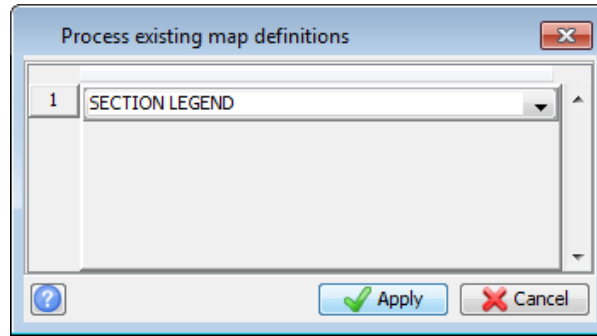
The smaller the HT number, the smaller the text. You can enter decimal numbers such as 0.8 if you want.

- For rows 10 and 15, in the **Entity** cell, change **/PN4** to **/PN31**. Pen number 31 is an orange colour.
- For rows 11 and 16, in the **Entity** cell, change **/PN5** to **/PN4**, which is red.

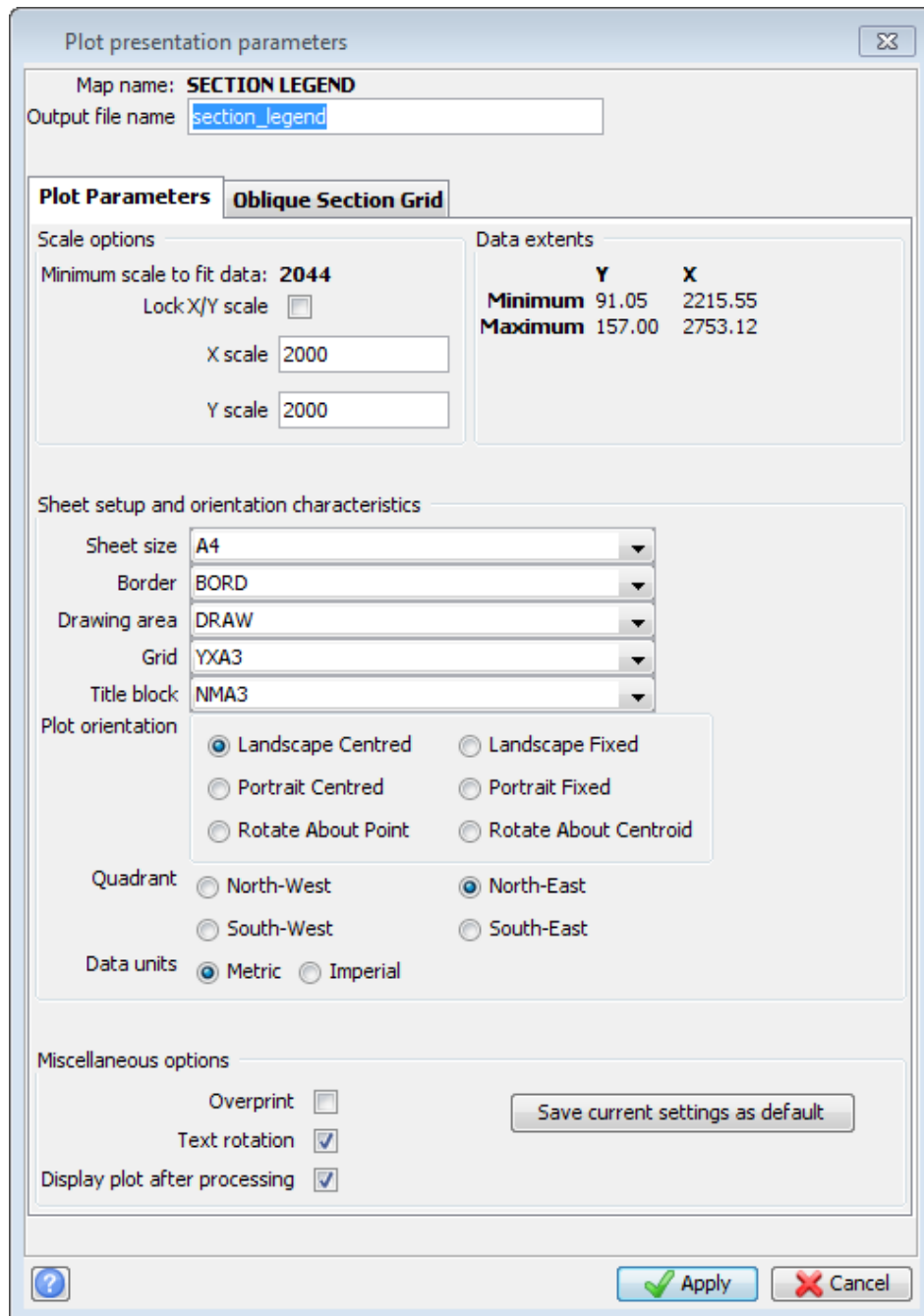
	Entity	Location	ID range	String range	Segment range
9	DH ASSAY1 RHS/PN3/PR110/HT1	dhx	6800	12	
10	DH ASSAY1 RHS/PN31/PR110/HT1	dhx	6800	13	
11	DH ASSAY1 RHS/PN4/PR110/HT1	dhx	6800	14	
12	DH ASSAY1 RHS/PN6/PR110	dhx	6800	15	
13	DH ASSAY2 RHS/PN2/PR110/HT1	dhx	6800	11	
14	DH ASSAY2 RHS/PN3/PR11/HT1	dhx	6800	12	
15	DH ASSAY2 RHS/PN31/PR110/HT1	dhx	6800	13	
16	DH ASSAY2 RHS/PN4/PR110/HT	dhx	6800	14	
17	DH ASSAY2 RHS/PN6/PR110	dhx	6800	15	

- Click **Apply**.
- Choose **Plotting > Process > Map**.

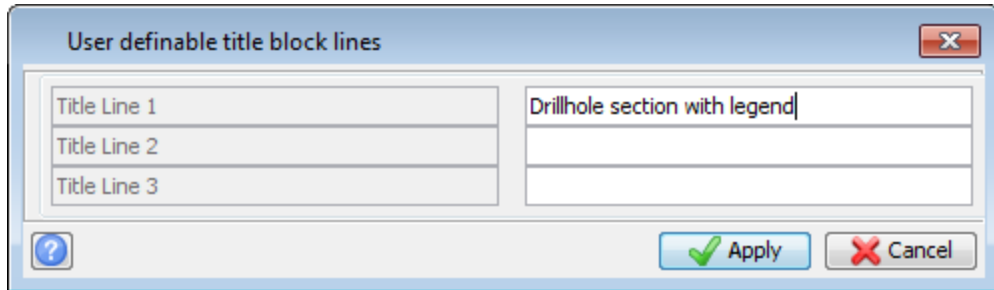
15. Select SECTION LEGEND, and click **Apply**.



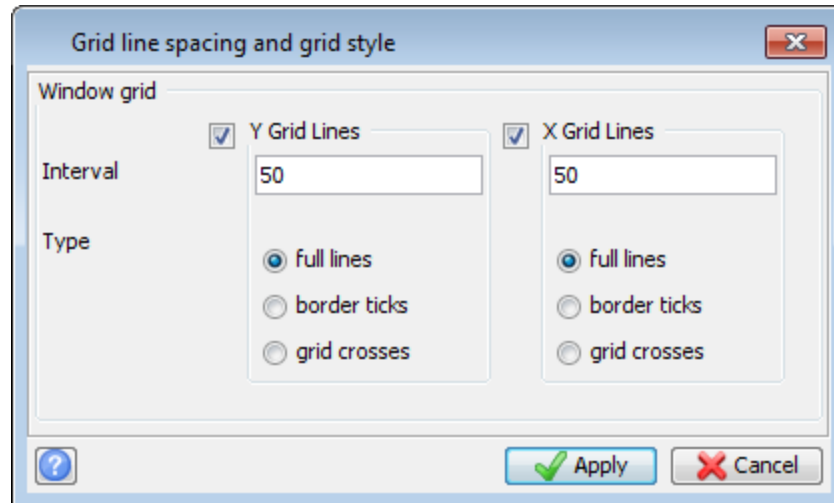
16. Fill in the **Plot presentation parameters** form as shown, and click **Apply**.



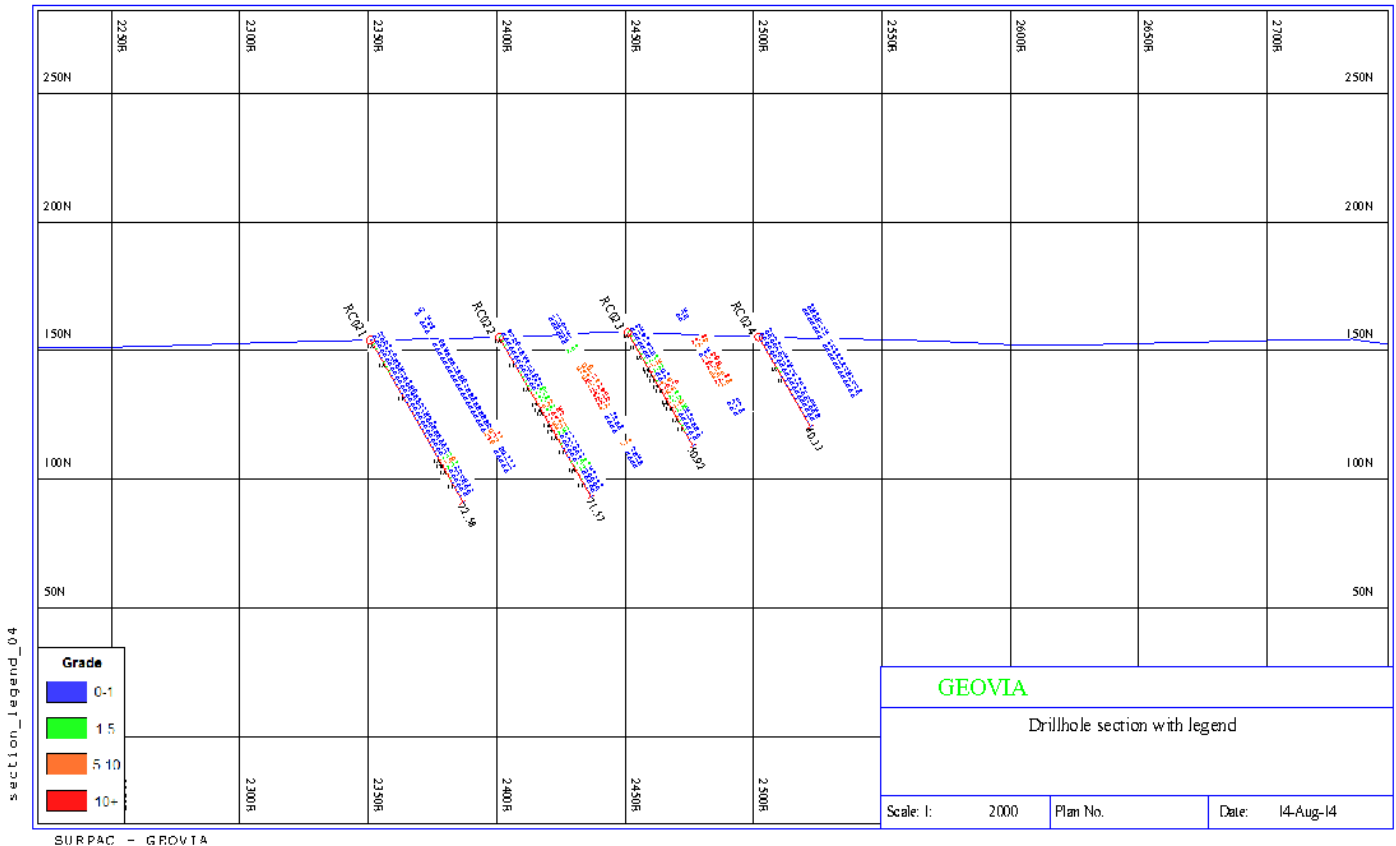
17. Type some text to appear in the title block, and click **Apply**.




18. Set the grid intervals to 50, and click **Apply**.



19. The drillhole section, with an image legend, is created and displayed in the **Plotting** window.

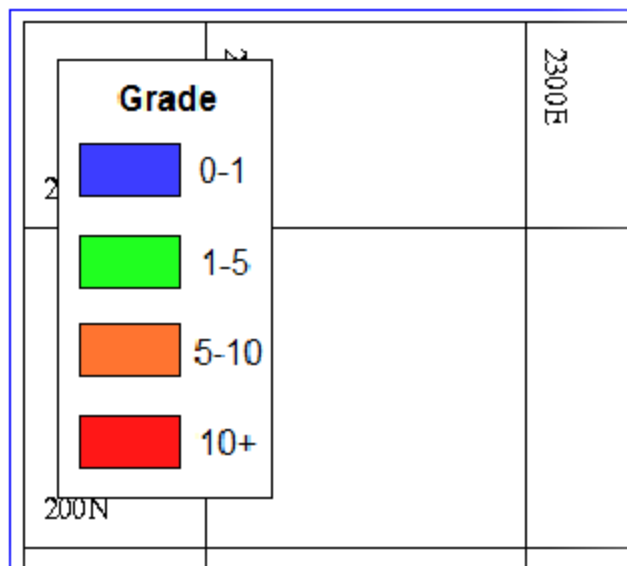


If you decide you want to adjust the location of the image after the plot is created, you can move it like any other plot item.

 **Tip:** You can place an image above a title block using **Move plot item**.

20. Choose **Edit > Move plot item**.

21. Drag the legend to a different area of the plot, such as the upper left corner.



DraftSight


Dassault Systèmes DraftSight™ is a 2D design package with a wide range of plotting mark-up tools, a layer manager, and the ability to send plots to **.dwg**, **.dxf**, and **.pdf** file formats. You can install DraftSight as an optional component from the Surpac DVD or the Surpac installation file.

DraftSight is particularly useful for adding annotations and other markup to plots.

The Surpac licensing module, DraftSight Connector, allows you to plot **.dwf** files directly from Surpac to DraftSight rather than to the Plotting window. You can then save the **.dwf** file as a **.dwg** file. If you have the DraftSight Connector module you can do the tasks in this section.

Setting up DraftSight

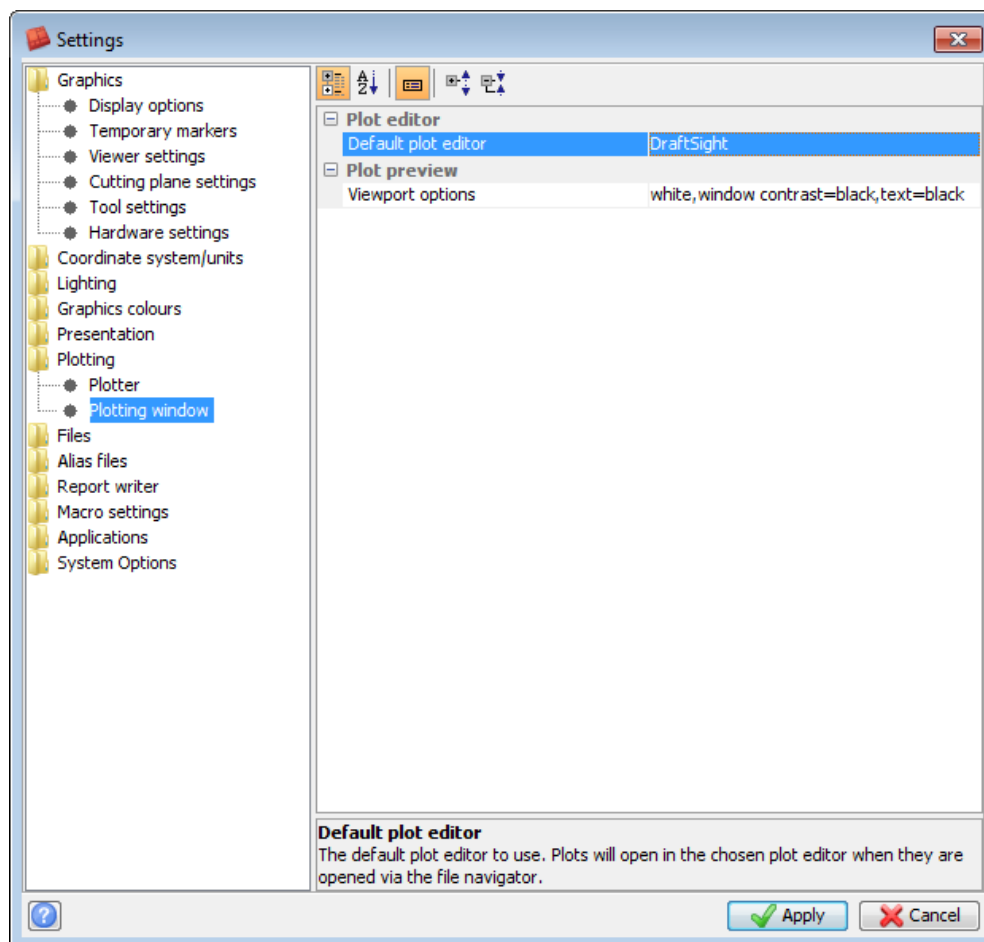
You installed DraftSight when you installed Surpac. If you need to uninstall DraftSight, you can do so using the Control Panel.


 **Note:** When you install DraftSight you are prompted to install a stand-alone licence or a network licence. Choose stand-alone licence.

Setting Surpac to use DraftSight as the default plotting editor

In Default Preferences you can set the plotting application that Surpac will use by default when you open a **.dwf** file or use Autoplot.


1. In Surpac, choose **Customise > Default Preferences**.
2. In the list on the left of the *Settings* form, select **Plotting > Plotting Window**.
3. If **Default plot editor** is set to **Plotting window**, set it to **DraftSight**, and click **Apply**.



 **Note:** You do not need to restart Surpac for the change of plot editor to take effect.

Plotting to DraftSight

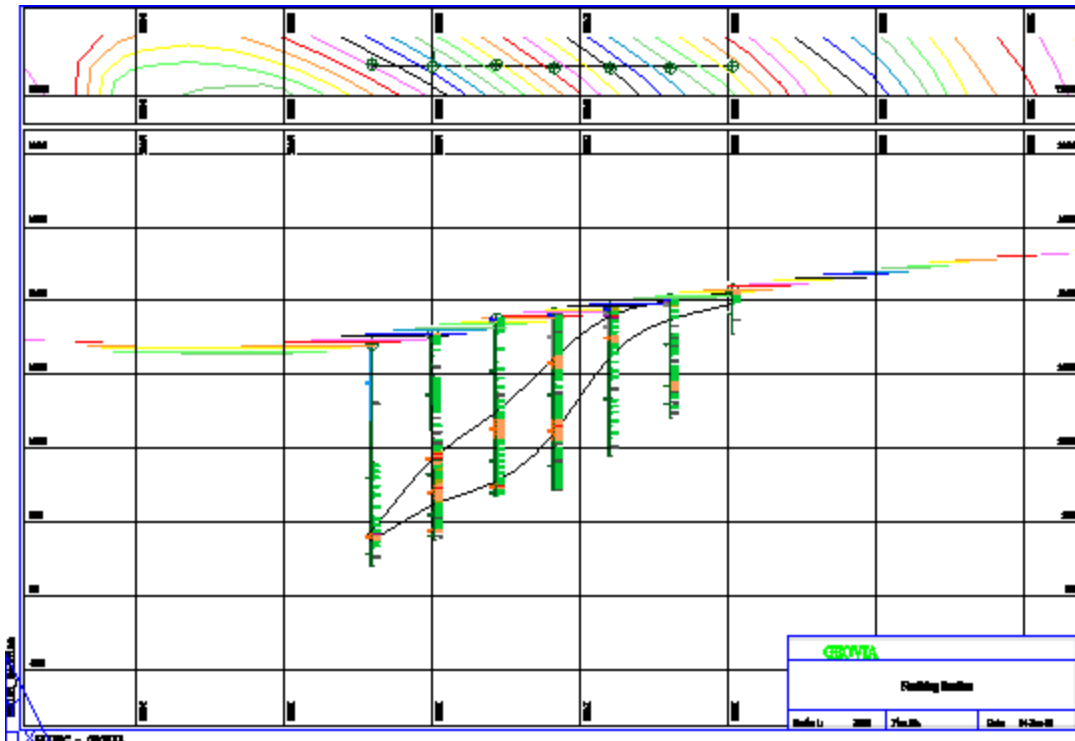
There are several ways to send data to DraftSight for printing or plotting.

 **Note:** DraftSight can load a **.dwf** plot only if Surpac is running. Otherwise licensing restrictions prevent DraftSight from displaying the **.dwf** plot.

Dragging in Graphics

1. In the Surpac **Navigator**, expand the **tutorials\plotting** folder.
2. Drag the file **multi_section.dwf** into **Graphics**.

DraftSight opens and displays the plot.



DraftSight displays data in 'Sheet tabs'. These sheet tabs are shown in the lower left of the window. The data is displayed by default on the **Layout1** tab.

Opening a .dwf with the shortcut menu

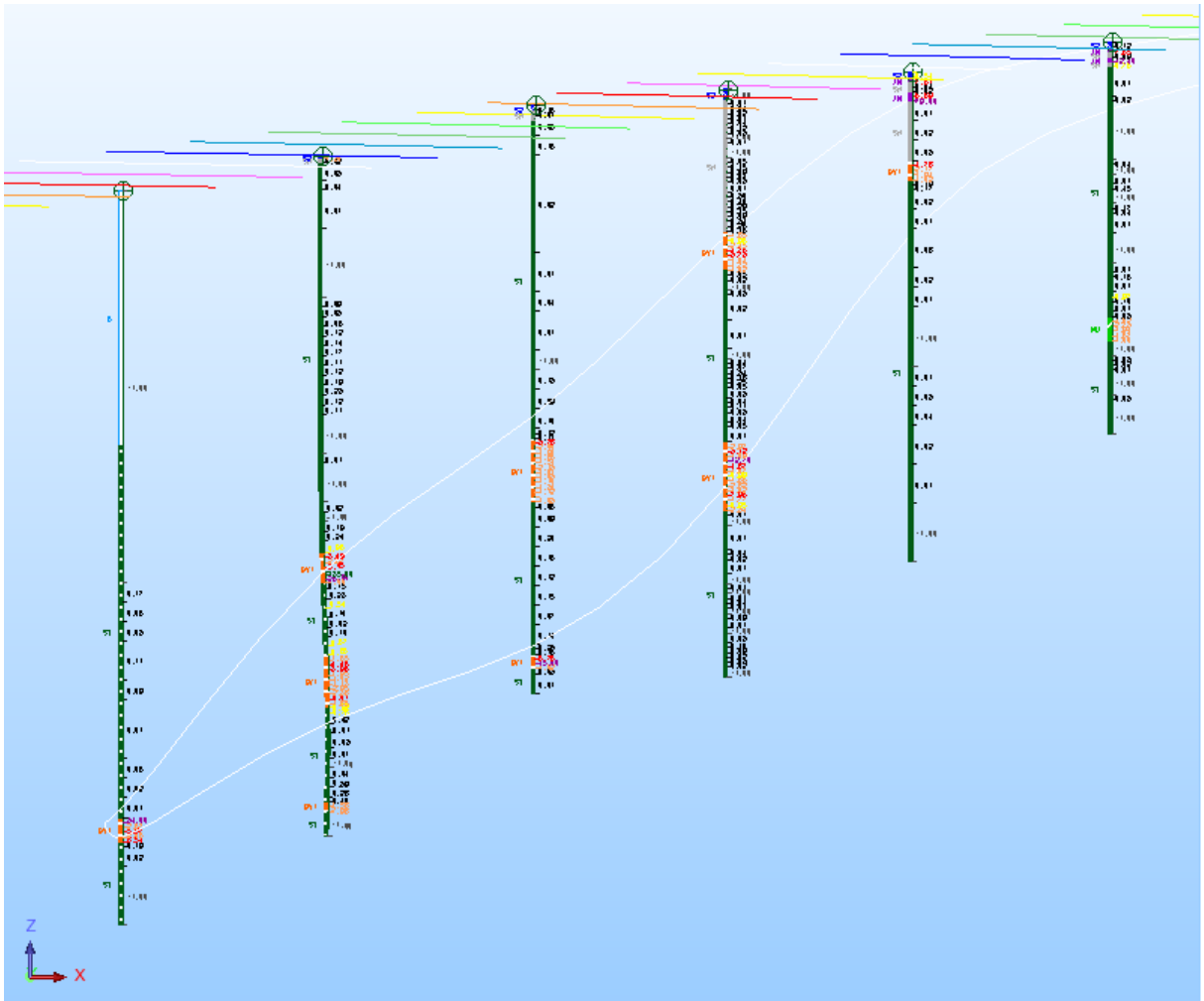
1. Right-click a **.dwf** in the Surpac Navigator.
The shortcut menu shows an **Open with DraftSight** command, and an **Open in Plotting Window** command.
2. Use both commands to see the effect of using each of them.

DraftSight tasks

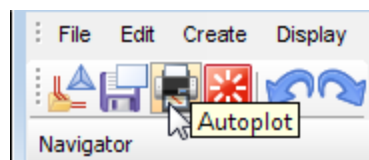
Task: Sending a drillhole section plot to DraftSight using Autoplot

When you use Autoplot, and the default plot editor is DraftSight, the plot is opened in DraftSight automatically.

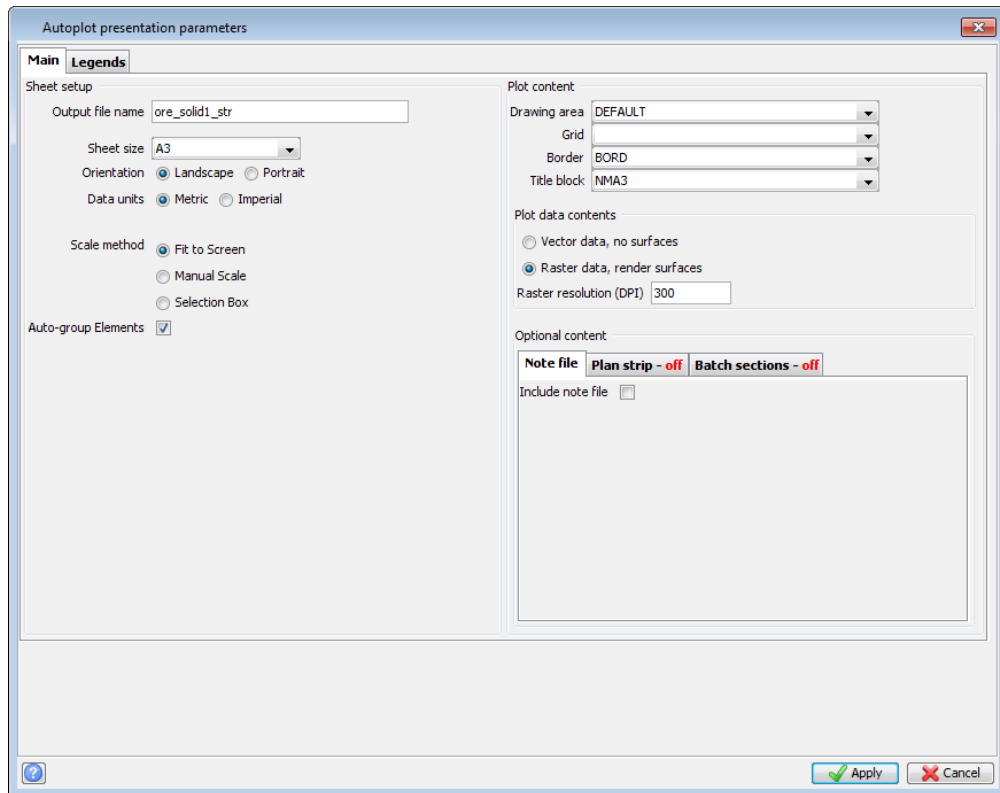
1. Drag **section_7320_north.swa** into **Graphics**.



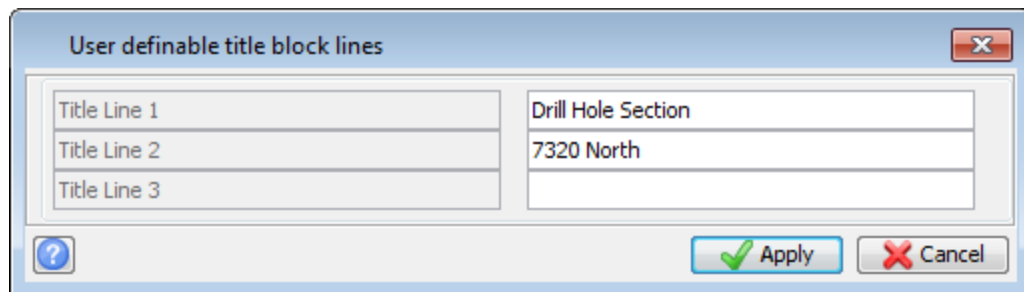
2. Click **Autoplot** on the toolbar in the top left of the Surpac window.



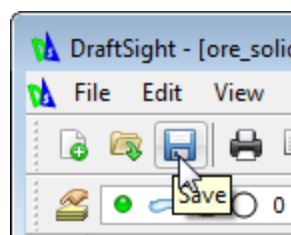
- In the *Autoplot presentation parameters* form, for **Scale method**, select **Fit to Screen**, and for **Raster resolution** type **300**, and then click **Apply**.



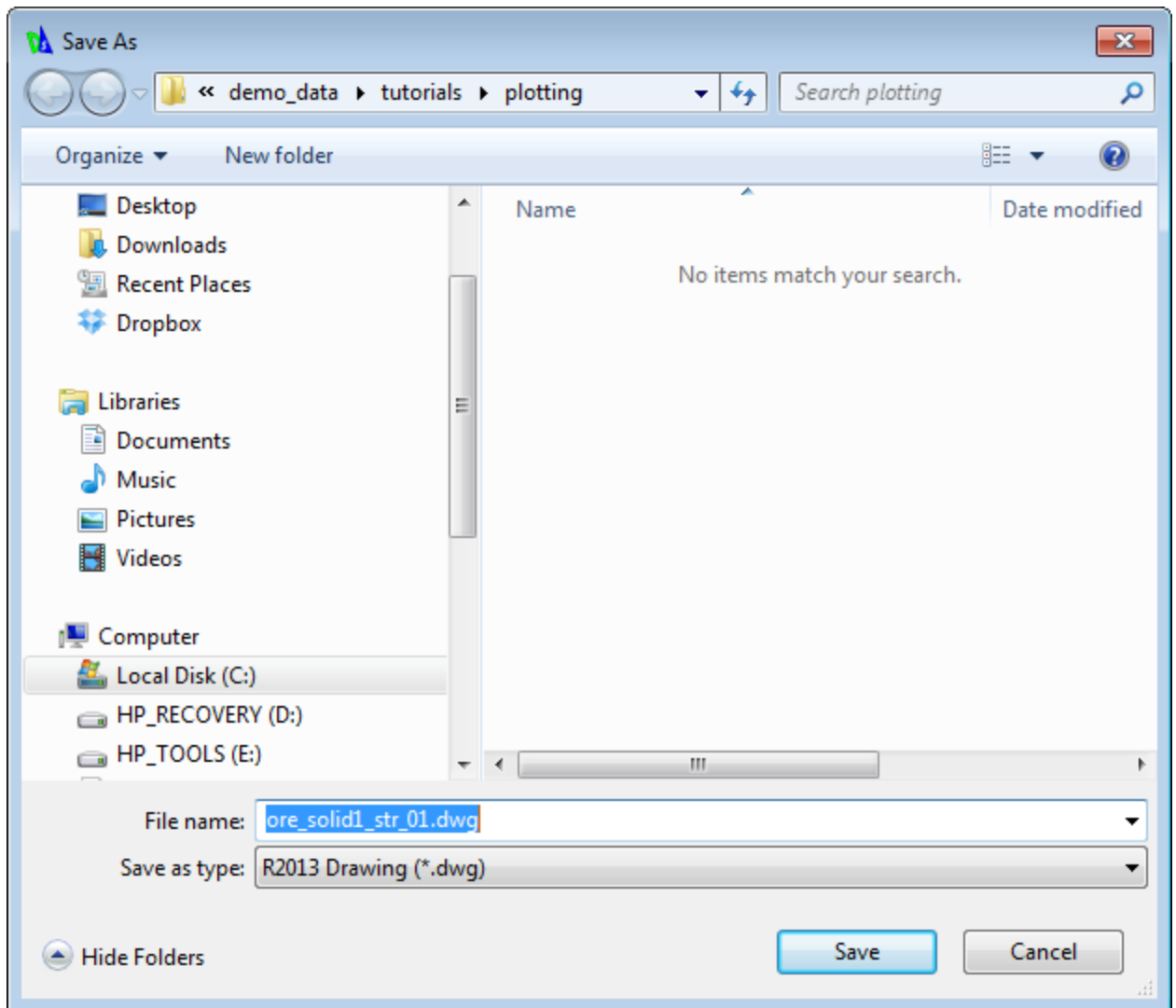
- In the *User definable title block lines* form, type some text to appear in the title block.




- Click **Apply**.
- A **.dwf** file that shows the section is created and opened in DraftSight.
- Click the **Save** icon.



By default, the file is saved as a **.dwg** file, which is a more flexible file format than **.dwf**.




8. In the *Save As* form, click the **Save** button .

 **Note:** If DraftSight was minimised or open behind another window, it is not automatically displayed on top of other windows. You might need to click the DraftSight object on the taskbar, or press ALT+TAB to display DraftSight in the foreground.

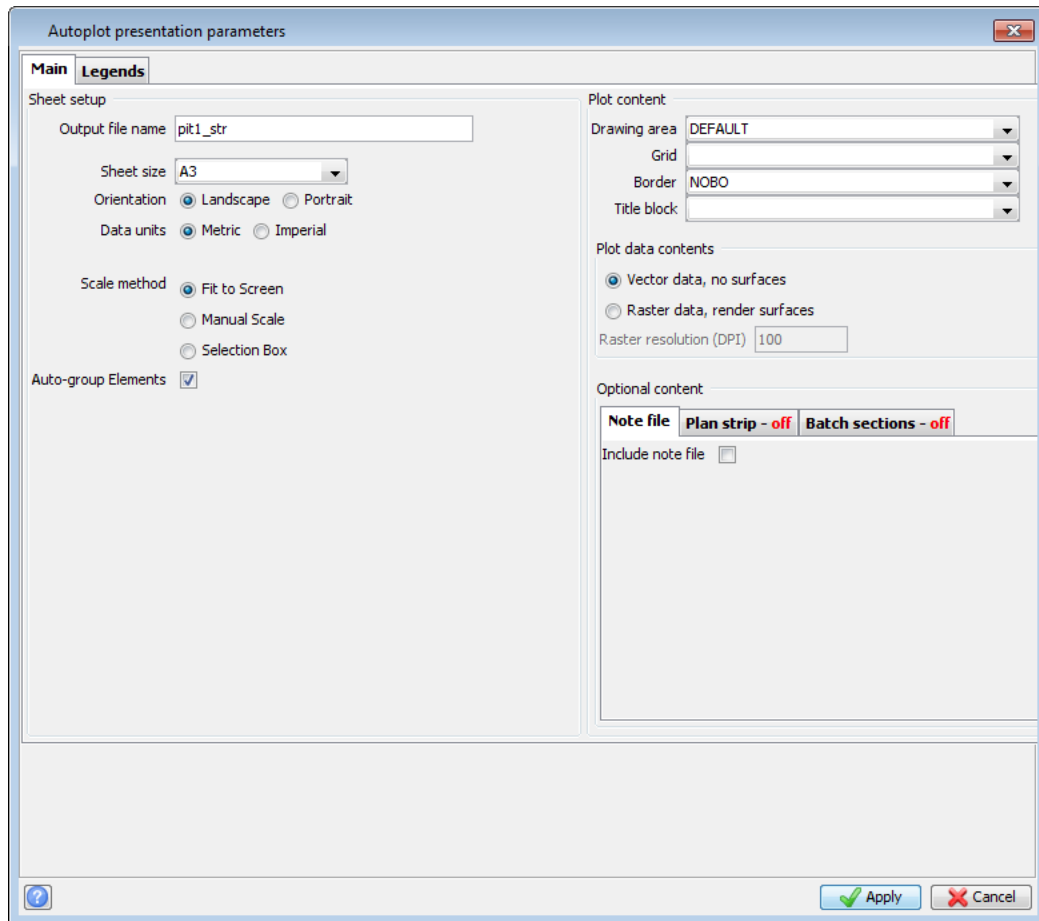
Task: Adding a building and text to a plan plot in DraftSight

There are many types of mark-up that you can add using the **Draw** menu, for example polylines and text annotations. In this example you will use this feature to draw a proposed new building.

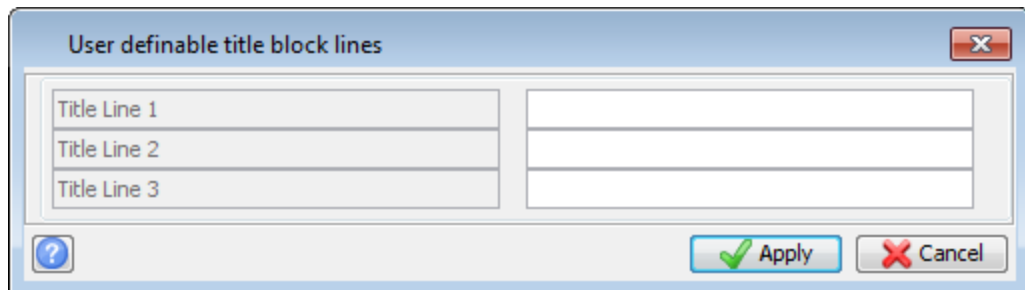
It is good practice to keep mark-up in a different layer (or layers) from the data you are showing.

1. Reset **Graphics**.
2. Open **pit1.str** in Surpac.
3. Click the Autoplot icon  on the **File** toolbar.

4. Fill in the form as shown, and click **Apply**.

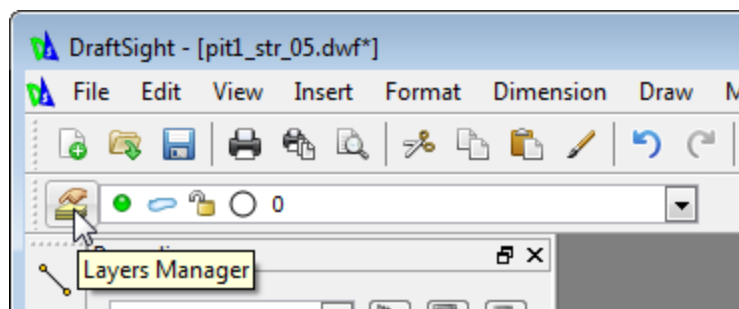


5. Click **Apply** in the *User definable title block lines* form.



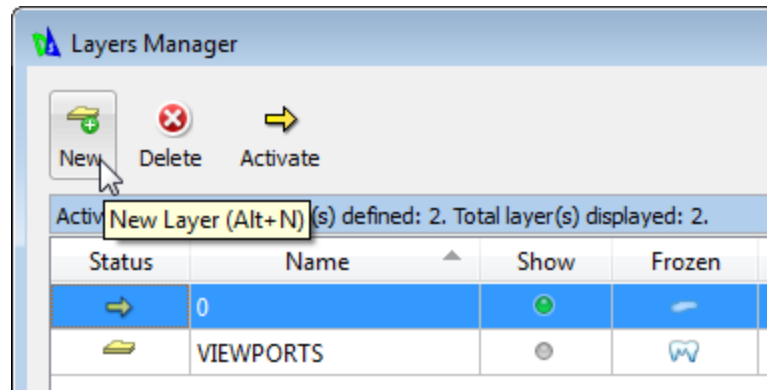
The pit is displayed in DraftSight.

6. In DraftSight, click the **Layers Manager** button.

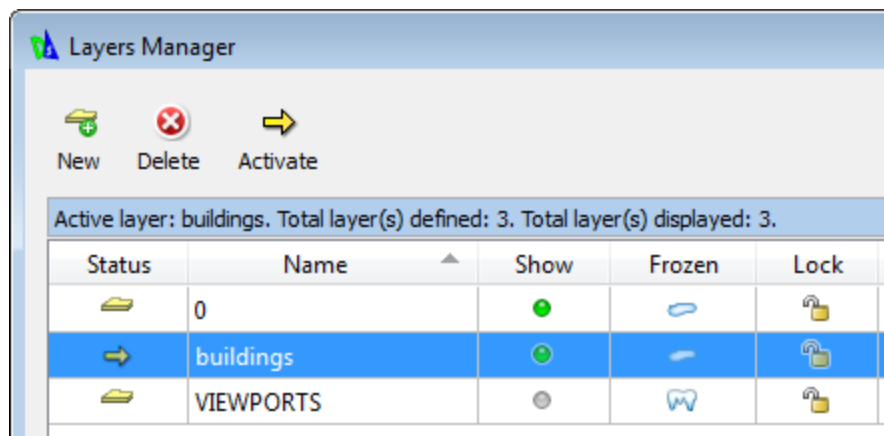


The DraftSight *Layers Manager* appears. All the lines of the plot are in layer 0. DraftSight also creates an empty layer called **VIEWPORTS** which you do need to use in this tutorial.

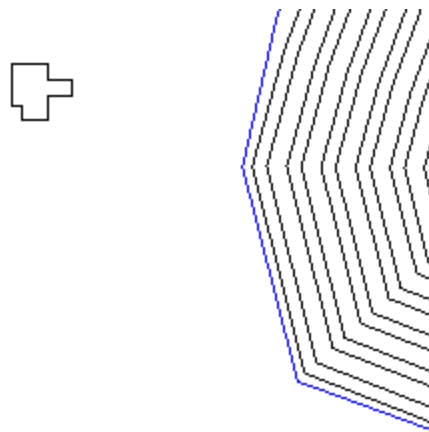
- Click **New** to create a new layer.



- Type **buildings** as the name of the new layer.
- Click **Activate** to make layer **buildings** the active layer, and then click **OK**.



- Click **Draw > Polyline**.
- Click several times beside the pit to create the irregular outline of a building.
- When you are ready to create the final wall of the building, right-click, and choose **Close**.



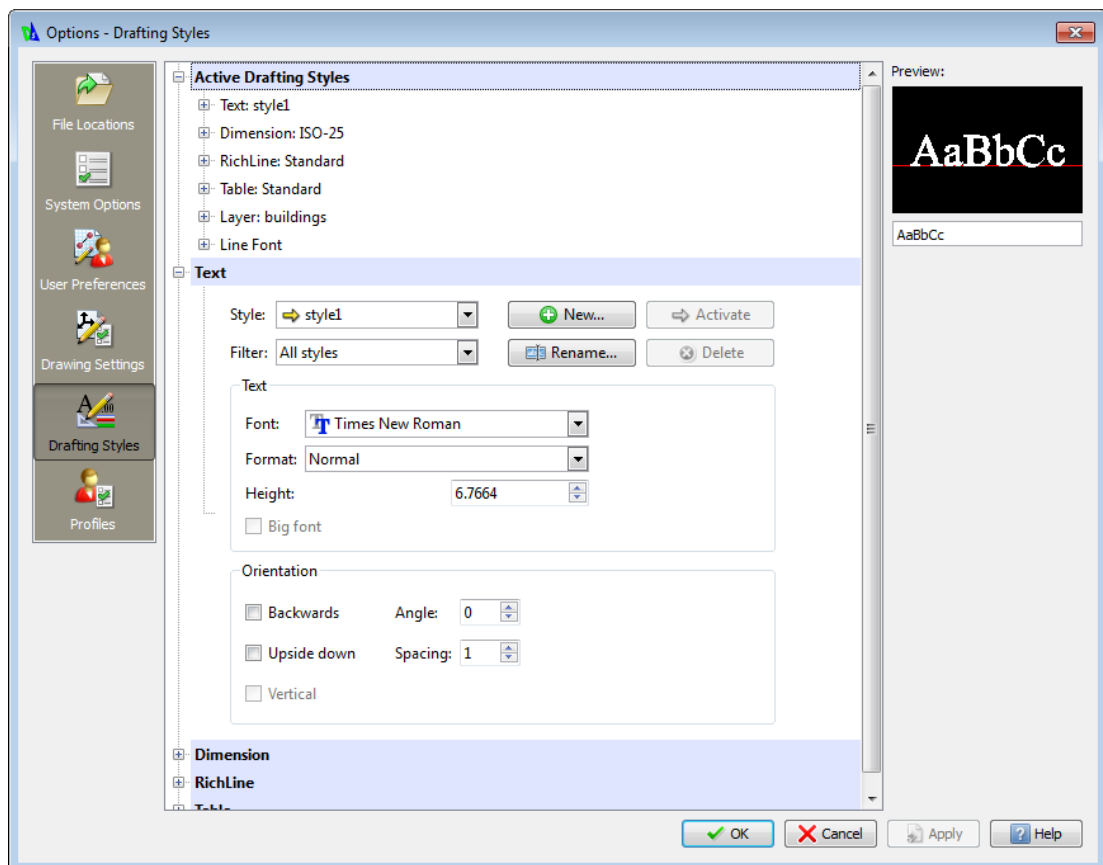
- If you make a mistake, press CTRL+Z to undo.
- Choose **Draw > Text > Note**.
- Drag with the mouse beside the pit to define the area where the note should appear.

16. In the note box, type *Store*.



You could change the font type or the font size of the text for this *individual* note. However, usually it will save time if you edit one or more text styles so that you can apply the same font type and font size to several notes.

17. Select **Tools > Options**.
 18. In the *Options - Drafting Styles* form, click **Drafting Styles**, and click the **Text** node to expand it.



The **Style** box shows that you are modifying the properties of **style1**, which is the text style of the note you added.

19. From the **Font** list, select **Arial**.
 20. Click **Apply**.
 The text "Store" on the plot changes font type from Times New Roman to Arial.

21. In the *Options - Drafting Styles* form, click **OK**.
22. Click the note, right-click, in the shortcut menu choose **Move**, and, following the prompts shown in DraftSight, click in two locations on the display to move the note closer to the building.



Tip: The shortcut menu has **Scale** and **Rotate** commands that work in a similar way to **Move**.

Task: Sending a grid and title block to DraftSight in separate layers

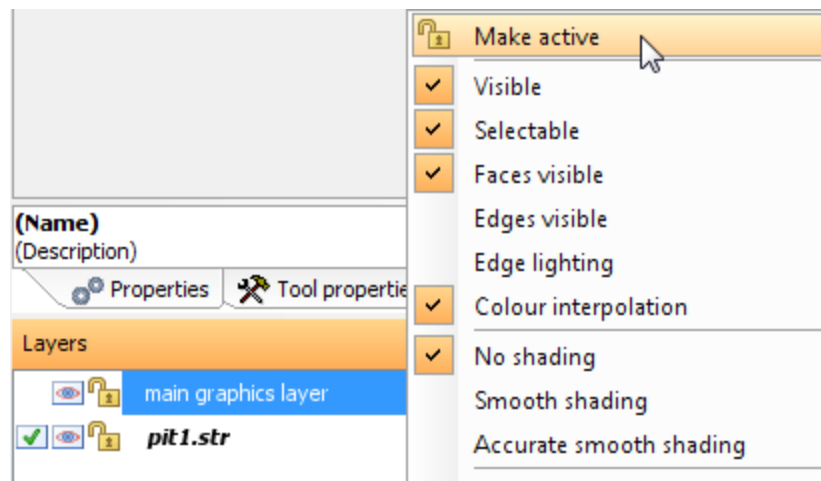
When you create a **.dwf** in Surpac, and then open it in DraftSight, the data is contained in a single layer. You can use the steps in the following task to create the grid and title block in separate layers from the geological or physical features you want to show.

This task uses the technique of creating a 'reference drawing'. A reference drawing is a drawing you can reuse in multiple plots.

1. Open **pit1.str** in **Graphics**.
2. Click **Autoplot**.
3. Fill in the *Autoplot presentation parameters* form as shown, and click **Apply**.



4. In Surpac, in the Layer Manager, right-click on **main graphics layer**, and choose **Make active**.



5. In the Surpac Layer Manager, right-click on **pit1.str** and choose **Delete Layer**.

- Click **Autoplot**.
- Fill in the form as shown, and then click **Apply**.

Autoplot presentation parameters

Main Legends

Sheet setup

Output file name: main_graphics_layer

Sheet size: A3

Orientation: Landscape Portrait

Data units: Metric Imperial

Scale method: Fit to Screen
 Manual Scale
 Selection Box

Auto-group Elements:

Plot content

Drawing area: DEFAULT

Grid: YXA3

Border: BORD

Title block:

Plot data contents

Vector data, no surfaces
 Raster data, render surfaces

Raster resolution (DPI): 100

Optional content

Note file Plan strip - off Batch sections - off

Include note file

Apply Cancel

- Fill in the *Grid Line Spacing and grid style* form as shown, and click **Apply**.

Grid line spacing and grid style

Y Grid Lines

Interval: 50

Type: full lines
 border ticks
 grid crosses

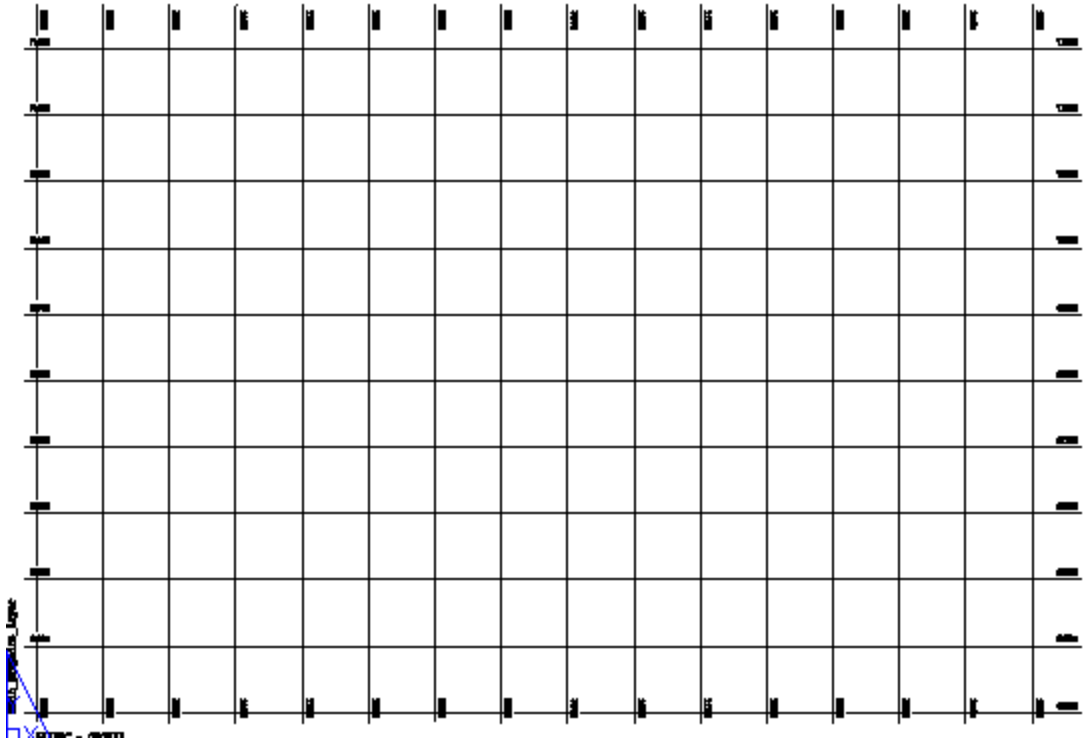
X Grid Lines

Interval: 50

Type: full lines
 border ticks
 grid crosses

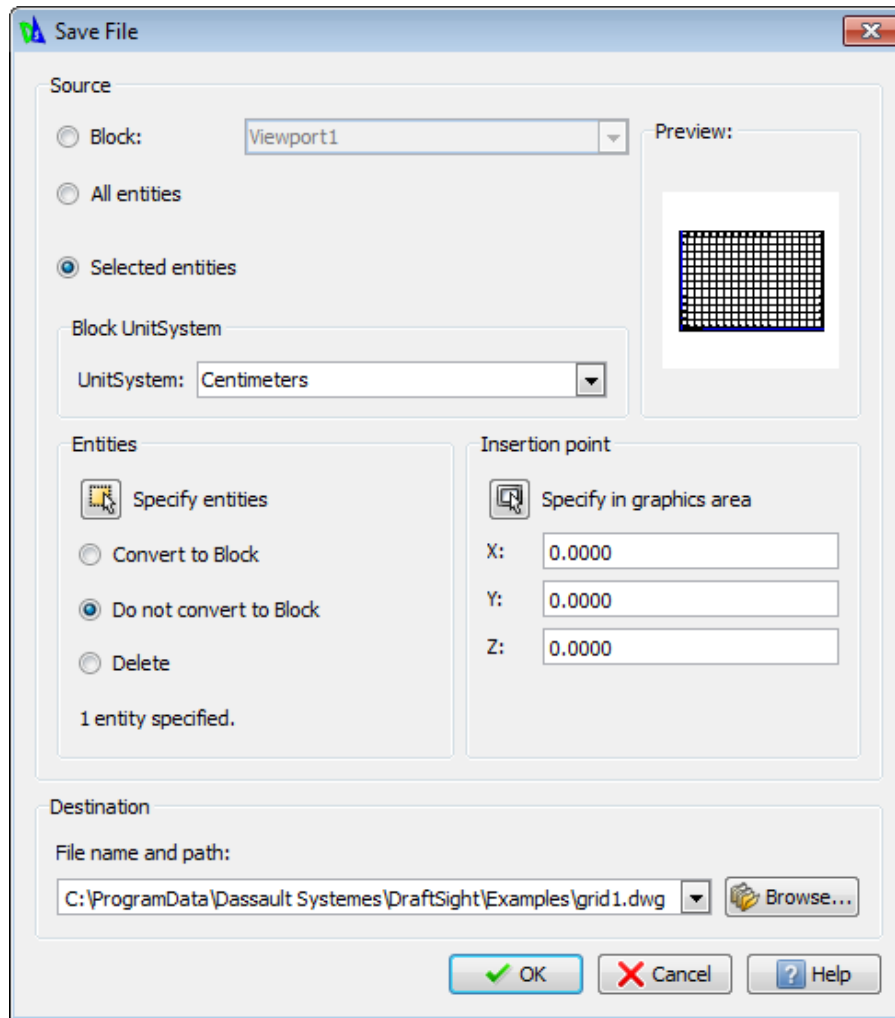
Apply Cancel


The grid and border are displayed in DraftSight in a new **.dwf** file.



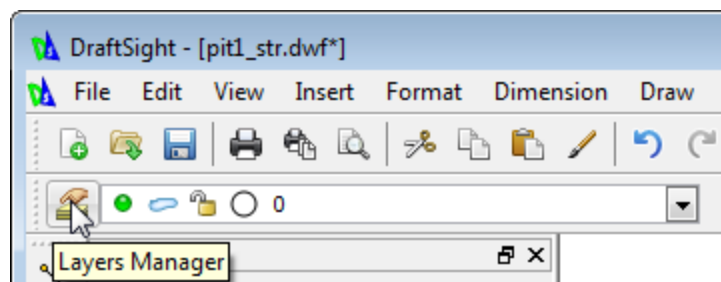
9. In DraftSight, click the **Model** tab.
 Note: The **Model** tab presents a slightly different view of the data you have displayed (in this example, the grid). On the **Model** tab you can select the grid.
10. Click a line of the grid to select the grid.
11. Choose **File > Export > Export Drawing**.

12. Fill in the *Save File* form as shown, and click **OK**.

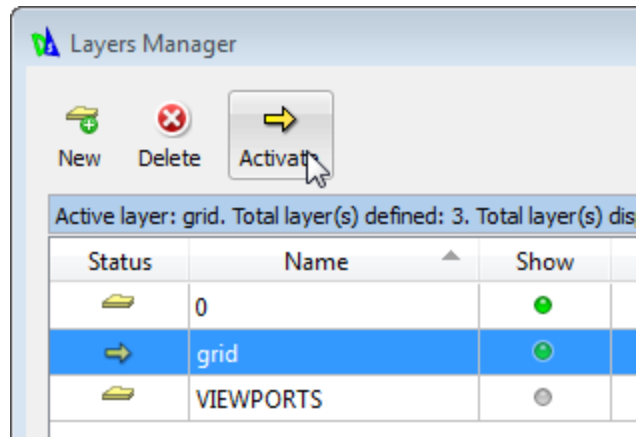


 **Tip:** It is important to remember the **File name and path** that you entered so you know where to find the reference drawing that you have just created.

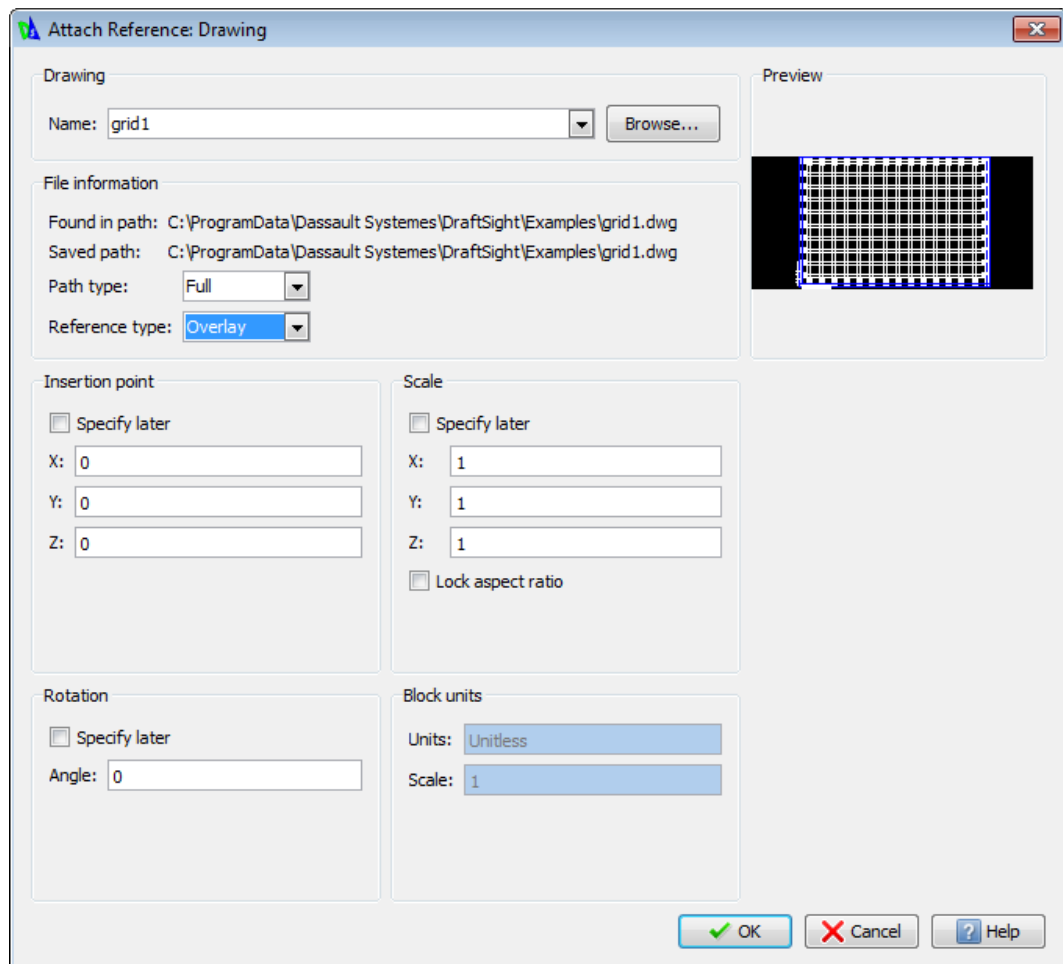
13. Choose **Window > pit1_str.dwf**.
14. Click **Layers Manager**.

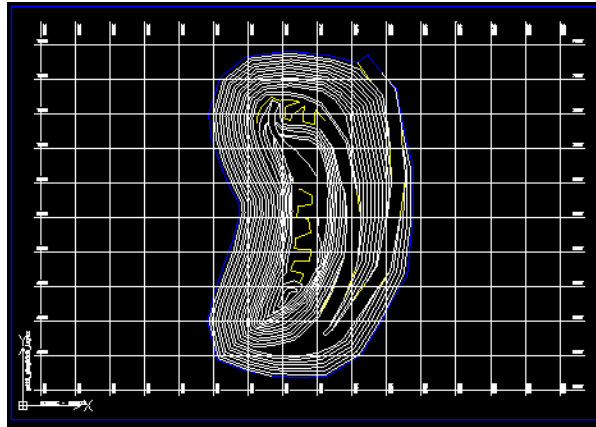


15. Click **New**, type `grid`, and click **Activate**.

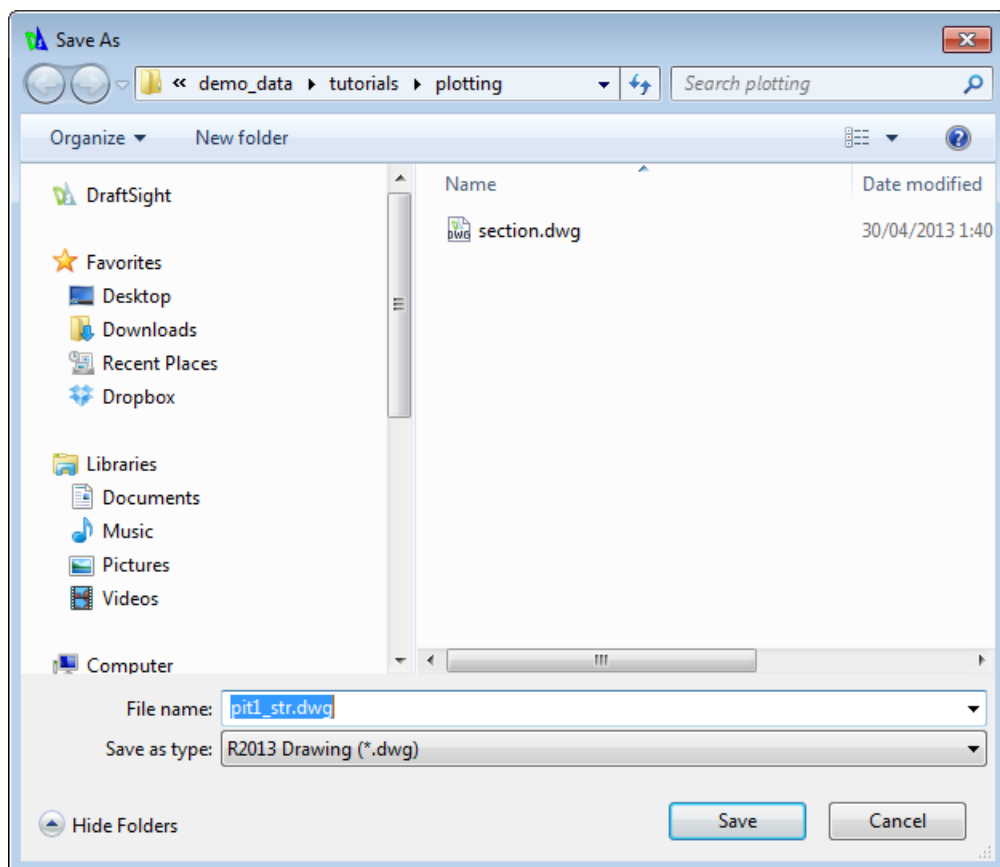


16. Click **OK**.
 17. Select the **Model** tab.
 18. Choose **Insert > Reference Drawing**.
 19. Browse to the reference drawing you created, for example `c:\ProgramData\Dassault Systems\DraftSight\Examples\grid1.dwg`, select it, and click **Open**.
 20. Fill in the *Attach Reference Drawing* form as shown, and click **OK**.





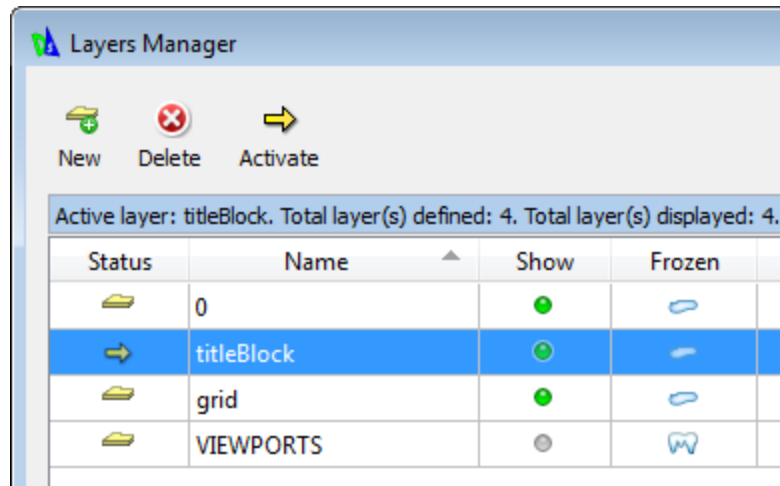
21. Select the **Layout1** tab to change the background colour to white again..
22. Click **Save**, and save the file.



The file is saved in **.dwg** format.

23. Click **Layers Manager**.
24. In the Layers Manager, select the **0** layer.

25. In the Layers Manager, click **New**, type `titleBlock`, click **Activate**, and click **OK**.

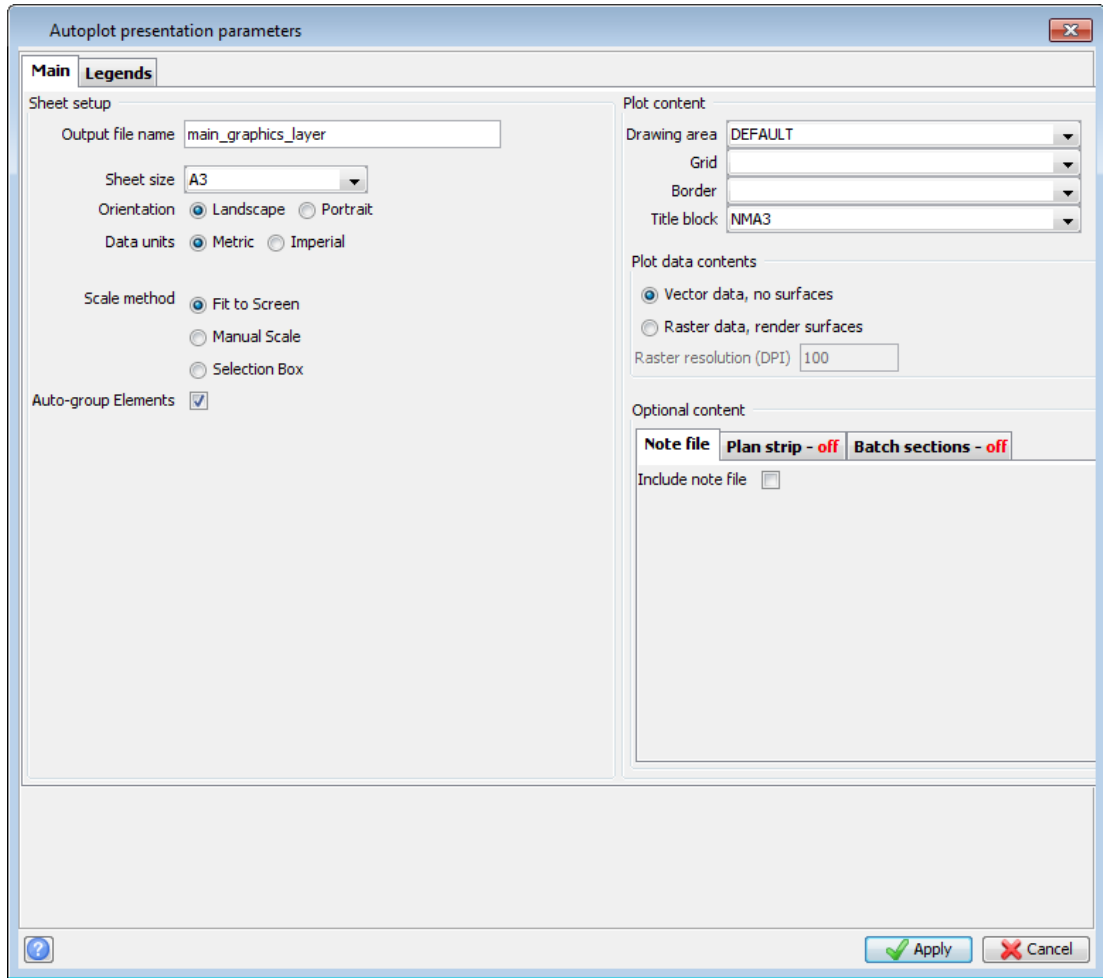


Note: You cannot activate a layer that is 'frozen'. The VIEWPORTS layer is frozen so if you want to create a new layer, create it above the VIEWPORTS layer.

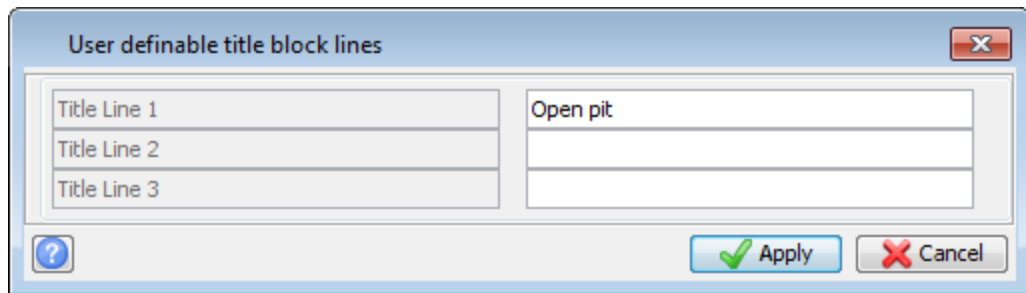
Next you will create a reference drawing of the title block. This allows you to have the title block in a separate layer from the grid and the pit. Conversely, if you did not need to show or hide the three elements independently, you would autoplot the three elements in a single operation.

26. In Surpac, click **Autoplot**.

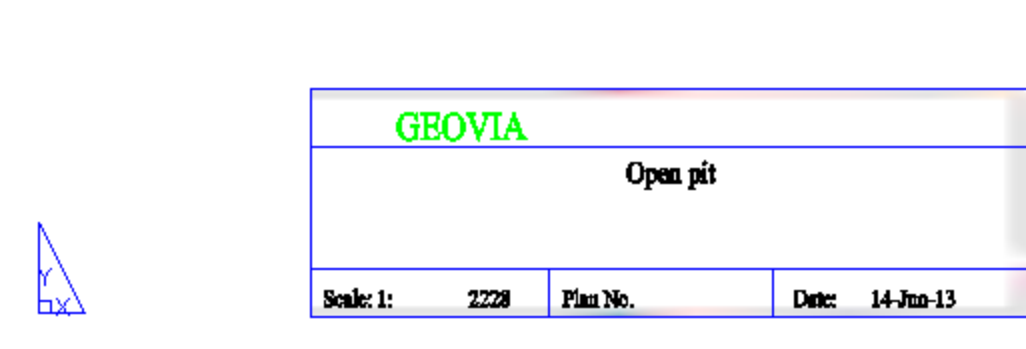
27. Fill in the *Autoplot presentation parameters* form as shown, and click **Apply**.



28. Type a title in the *User definable title block lines* form, and click **Apply**.

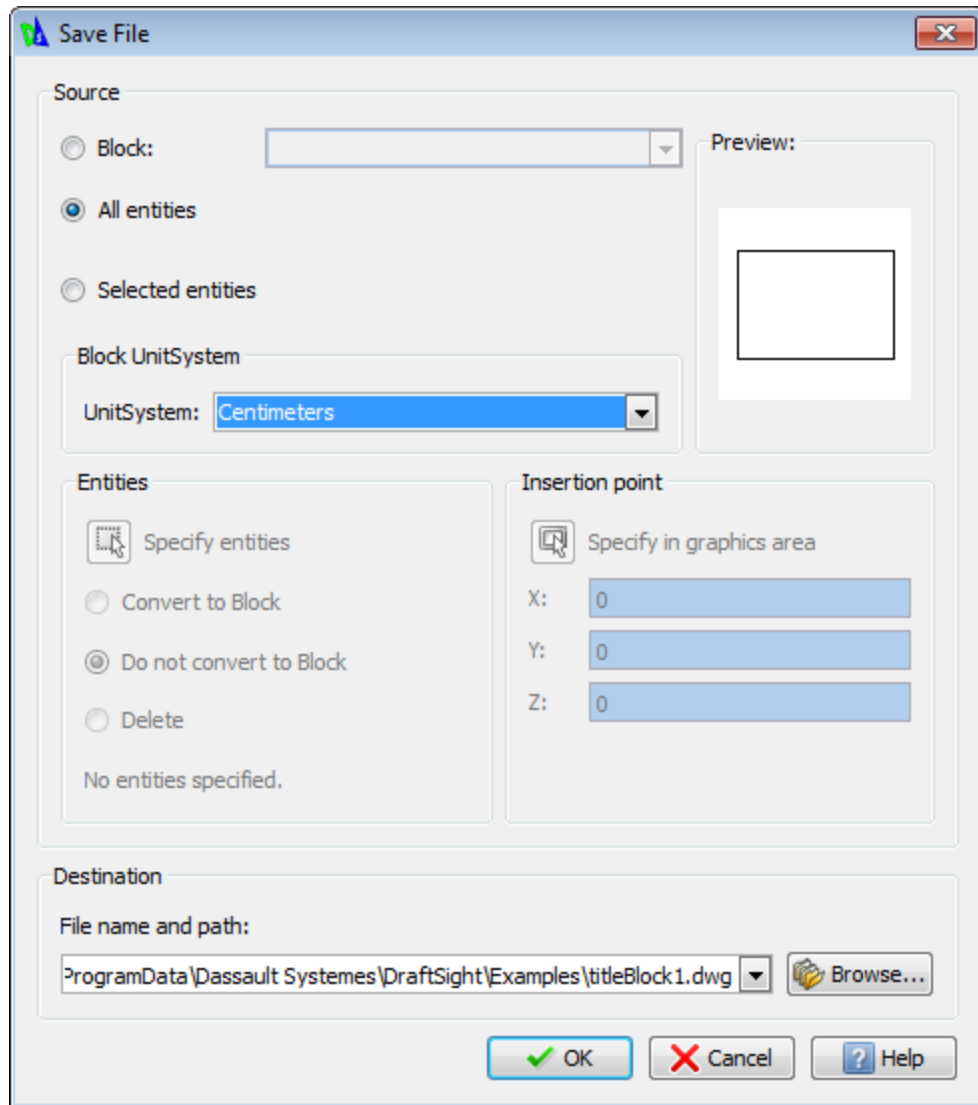


The title block is displayed in DraftSight.



29. In DraftSight, choose **File > Export > Export Drawing**.

30. Fill in the *Save File* form as shown, and click **OK**.



Save File

Source

Block:

All entities

Selected entities

Block UnitSystem

UnitSystem:

Preview:

Entities

Convert to Block

Do not convert to Block

Delete

No entities specified.

Insertion point

X:

Y:

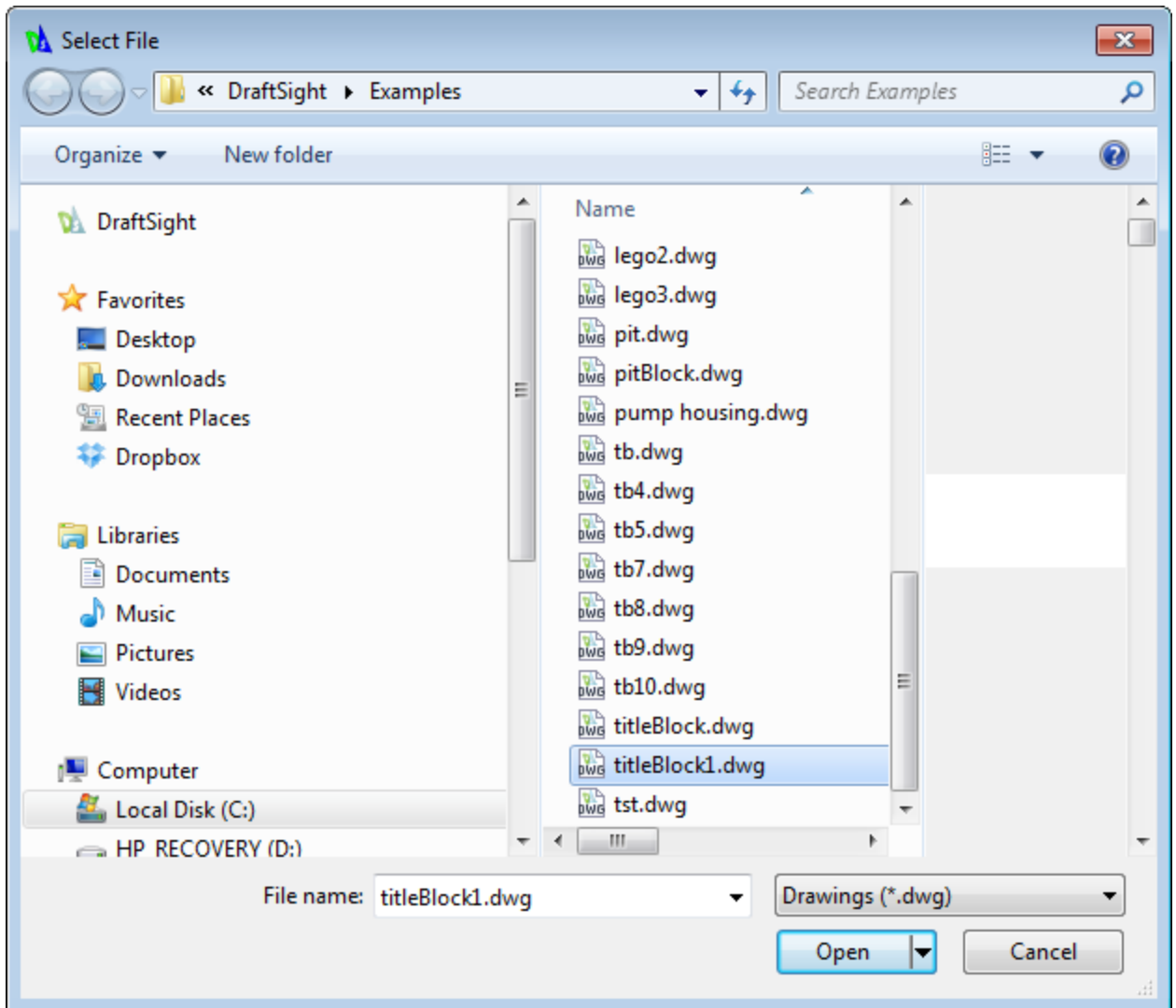
Z:

Destination

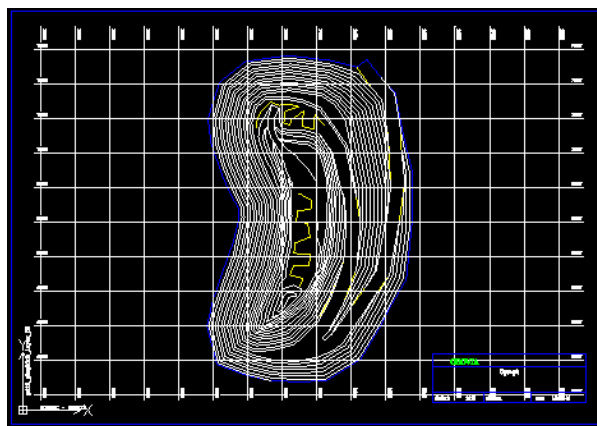
File name and path:

31. Select **Window > pit1_str.dwg**.
The pit and the grid are displayed, and the **titleBlock** layer is active.
32. Select the **Model** tab.
33. Choose **Insert > Reference Drawing**.

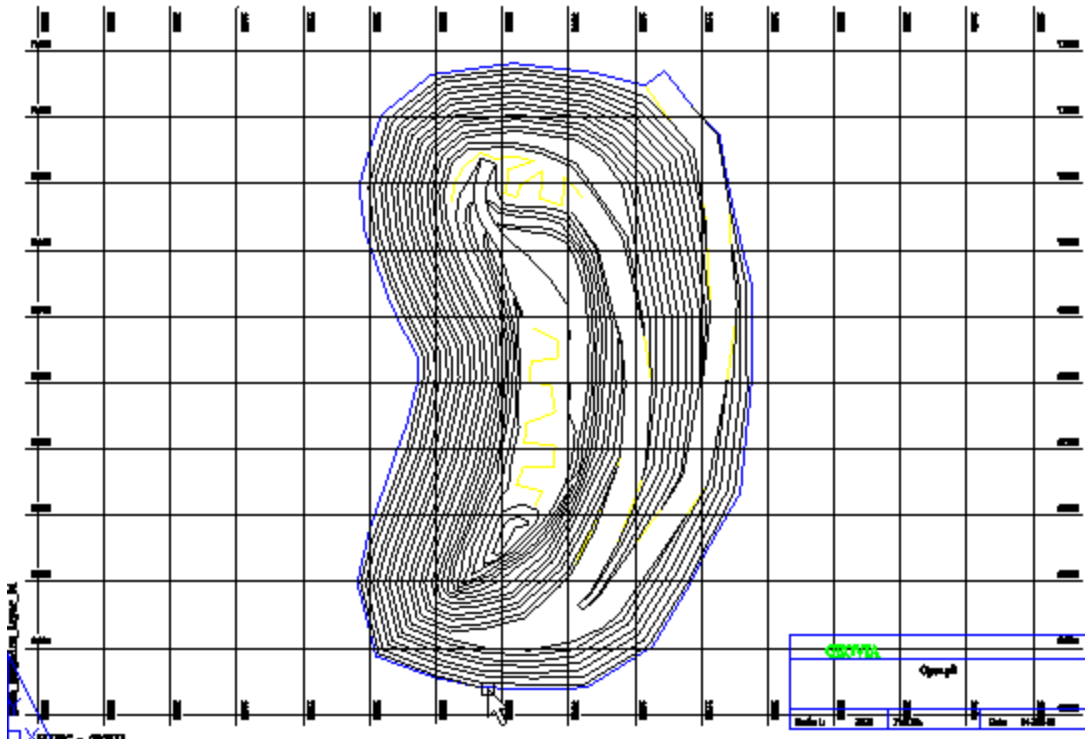
34. Select the **titleBlock1.dwg** reference drawing, and click **Open**.



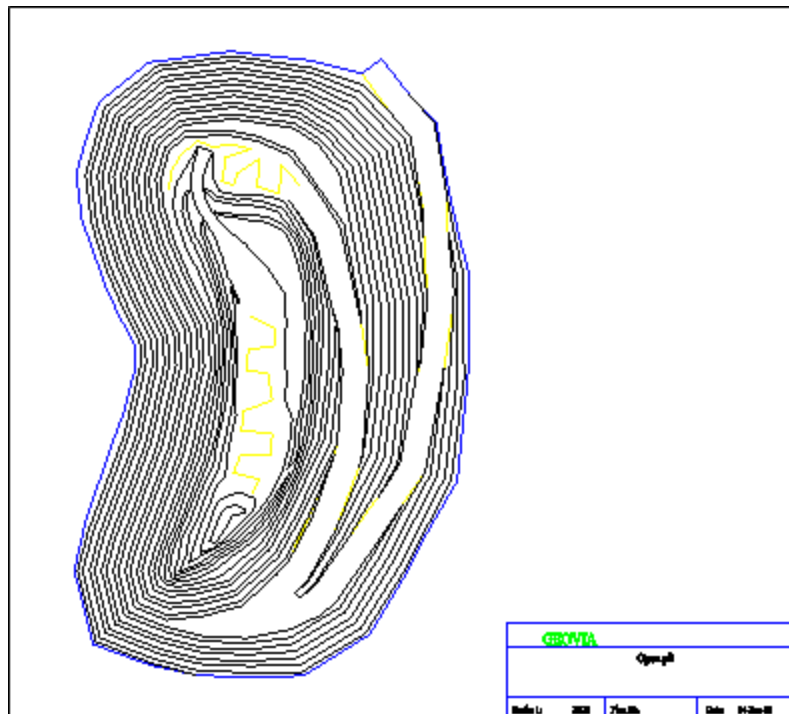
35. In the *Attach Reference Drawing* form, click **OK**.



36. Click the **Layout1** tab.



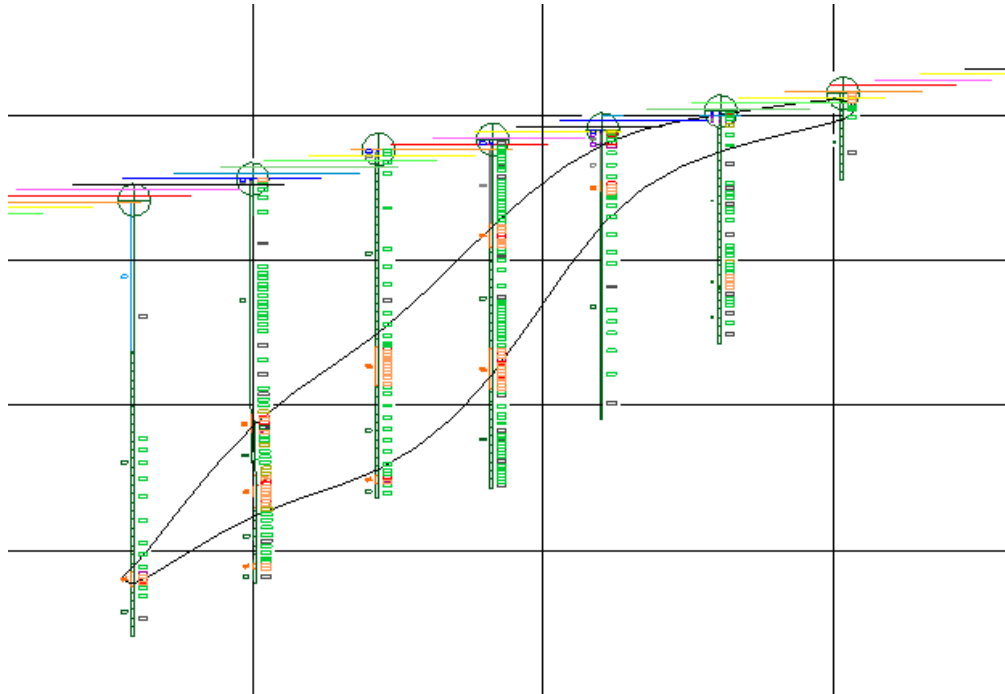
37. Click **Layers Manager**.
38. In the Layers Manager, click the green **Show** radio button for the **grid** layer to turn the **Show** setting off, and click **OK** in the Layers Manager.
The grid is hidden but the pit and the title block remain displayed.



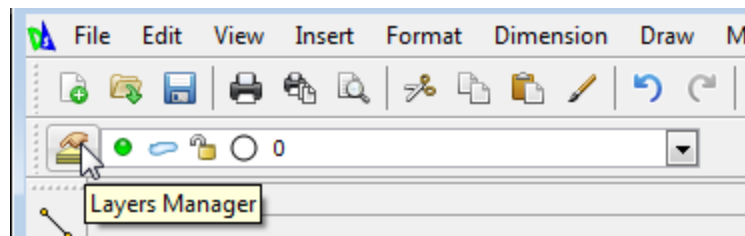
Task: Creating an arrow symbol in DraftSight

You can use DraftSight to create a symbol to use as mark-up on a plot.

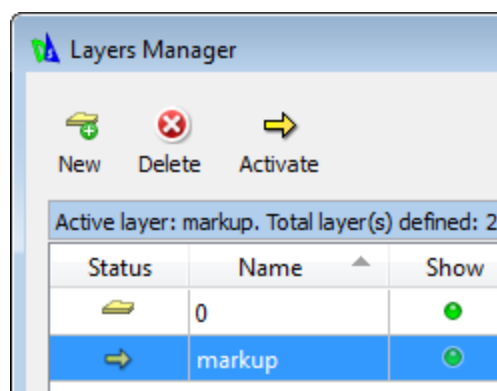
1. In Surpac, reset **Graphics**.
2. Drag **section_with_plan.dwf** into **Graphics**.
3. The section plot is displayed in DraftSight.



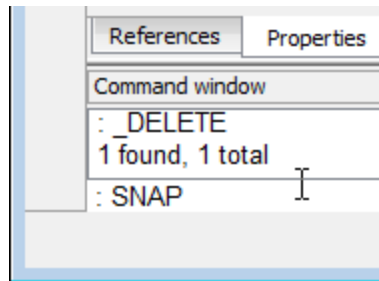
4. Click the Save icon on the toolbar and save the file as **section_with_plan.dwg**. The **.dwg** format is useful because it is readable by more applications than the **.dwt** format. The **.dwg** format is also more portable than **.dwt** because the **.dwg** stores references to external images rather than storing the images within the **.dwt** file.
5. Click **Layers Manager**.



6. Click **New**, type **markup**, and click **Activate** to create and activate a new layer called **markup**.

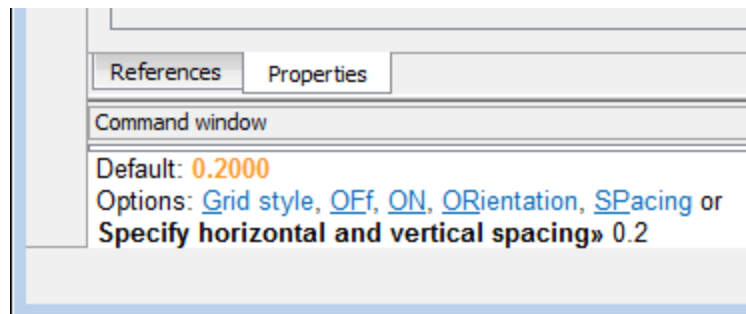


7. Click **OK**.
8. In the command window, type **SNAP**, and press **ENTER**.

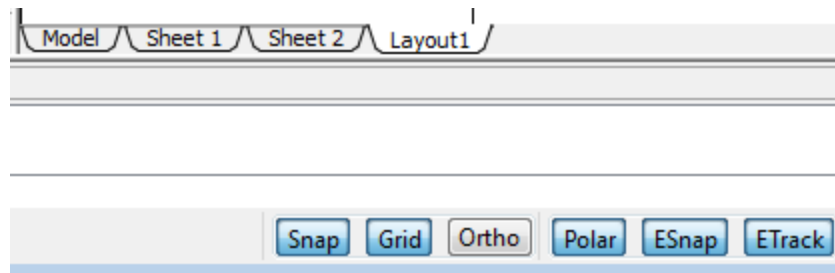


You can run most Draftsight commands from both the menu and the command window. When you run **SNAP** from the command window, you can set the spacing of a grid. You can use this grid to help you create the point of the arrow with precision.

9. Type **0.2**, and press **ENTER** to set the spacing of the snap grid.

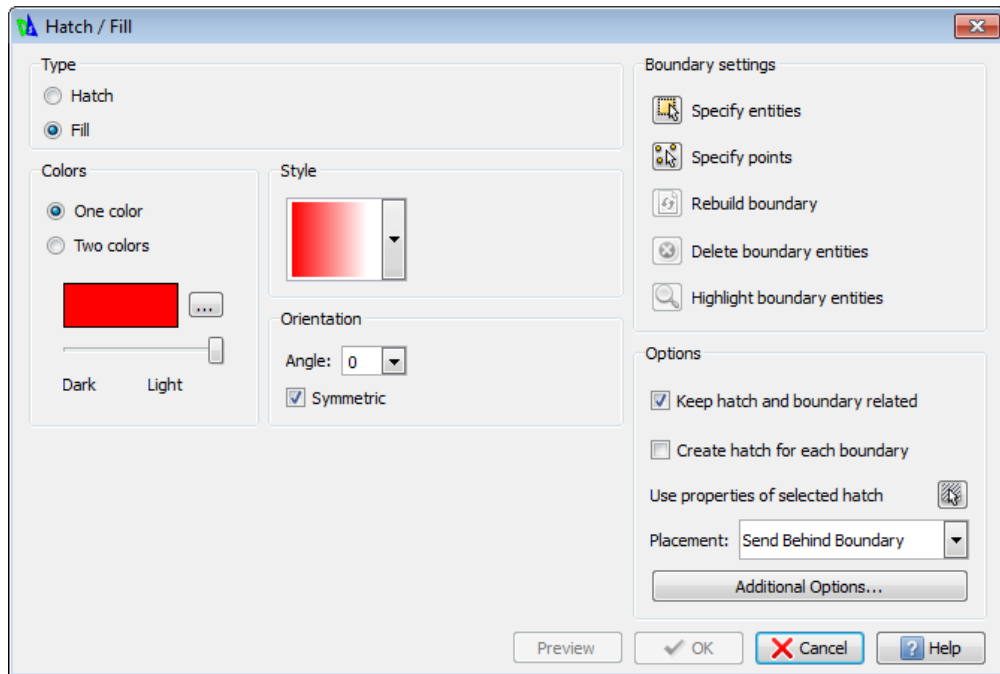


10. Click **Grid**, in the lower part of the DraftSight window, to select it.

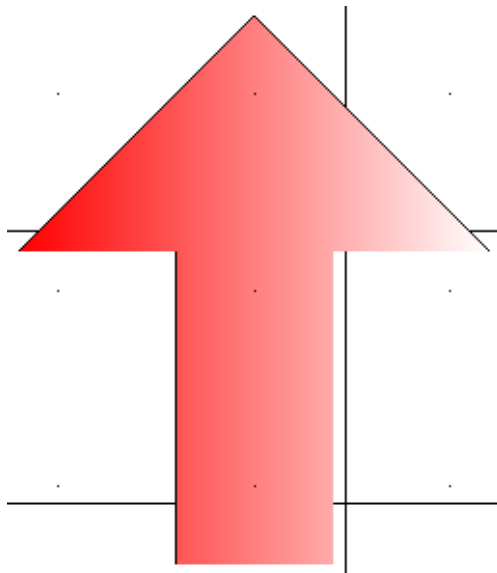


11. Choose **Draw > Polyline** to start creating the arrow.
It does not matter where on the plot you create the arrow. You can move it, rotate it, or scale it, later if necessary.
12. Click several times to create the shape of an arrow.

15. Fill in the *Hatch/Fill* form as shown.



16. Click **Specify entities**, and click **OK**.
The arrow is coloured red.



17. Select the red arrow, and choose **File > Export > Export Drawing**.

18. Fill in the *Save File* form as shown below, and click **OK**.

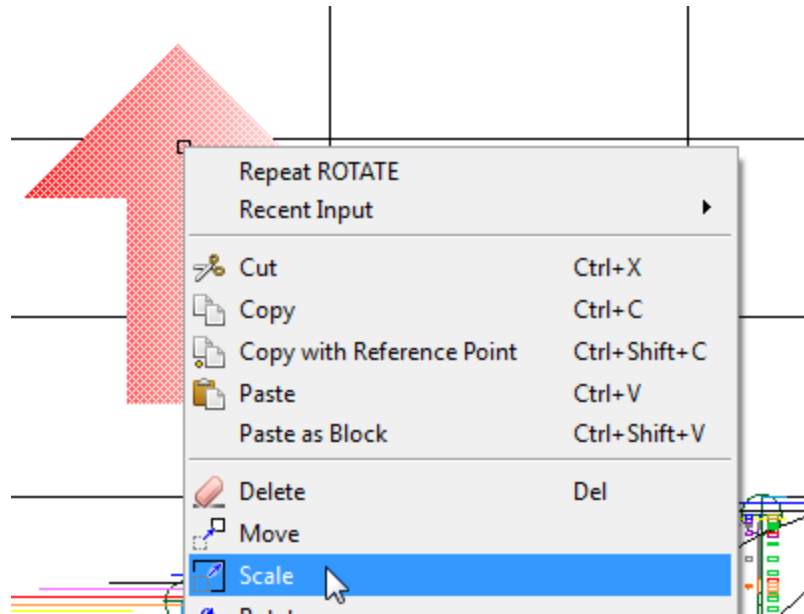
The screenshot shows the 'Save File' dialog box with the following settings:

- Source:** Block: arrow1, All entities, Selected entities
- Block UnitSystem:** UnitSystem: Inches
- Entities:** Specify entities, Convert to Block, Do not convert to Block, Delete. 1 entity specified.
- Insertion point:** Specify in graphics area, X: 0.0000, Y: 0.0000, Z: 0.0000
- Destination:** File name and path: C:\ProgramData\Dassault Systemes\DraftSight\Examples\arrow.dwg

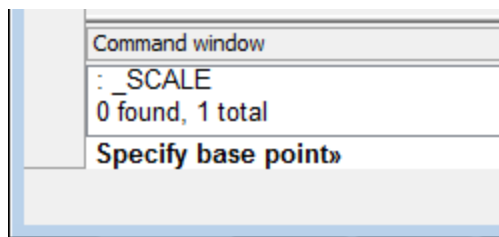
The arrow is now an object you can reuse in other plots.

19. Select the red hatch on the plot, and press DELETE.
20. Select the underlying arrow polyline on the plot, and press DELETE.
21. Choose **Insert > Reference Drawing** and insert **arrow.dwg**.
Because the arrow is too large for this plot, next you will reduce its size using the **Scale** command.

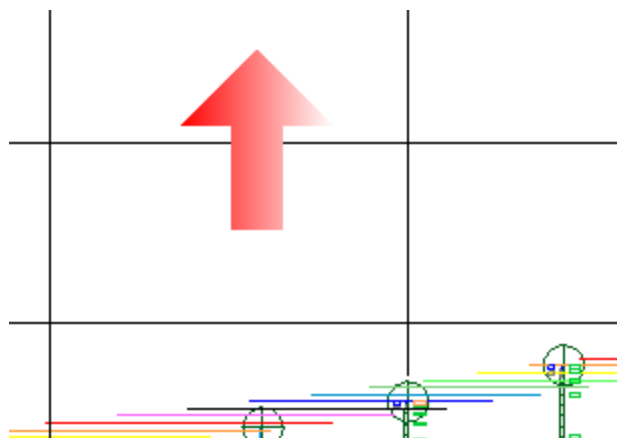
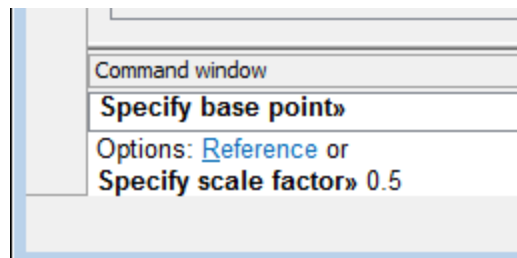
22. Select the arrow, right-click, and choose **Scale**.



23. At the prompt to specify a base point, click at the bottom of the arrow.

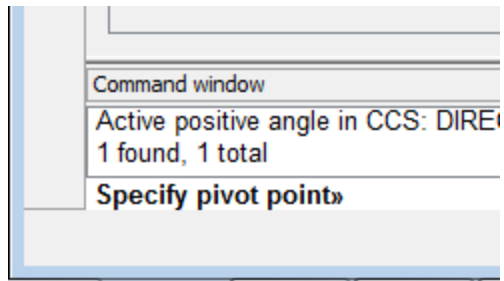


24. At the prompt to specify a scale factor, type 0.5, and press ENTER.

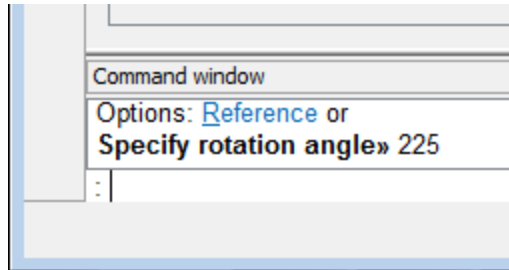


25. Select the red arrow, right-click, and choose **Rotate**.

26. At the prompt to select a pivot point, select the lower right corner of the arrow.



27. At the prompt to specify a rotation angle, type 225, and press ENTER.



The arrow is rotated 225 degrees in an anti-clockwise direction.

