

## FlexiSurv V1.11

### Release Notes

11<sup>th</sup> June 2011

#### **Version Highlights**

1. *FlexiSurv* is **Surpac Version 6.2** compatible
2. Level Solids now has the ability to create additional solids such as vertical rises from a centreline and profile, or from a centreline and closed segments.
3. Calculate over-break/under-break has been enhanced with a new 3D intersection algorithm to produce more robust results.
4. Create profile has had new circle and shanty back profiles added. It is now possible to position the origin of the profile at the base or at the centre to create vertical rise profiles.
5. New function included to create a true centreline from selected string segments (i.e. floor strings).
6. New function to subdivide a string segment based on uniform spacing's, a Surpac range, or a repeating pattern such as 2m, 3m, 2, 3m, etc
7. New function to process a drive segment based on points along a reference line that sits inside the drive. The function will:
  - a. Press strings onto the floor, backs, and the walls.
  - b. Calculate drive dimensions at each reference point on the line (to floor, to backs, total height, to left wall, to right wall, and total width).
  - c. Create a solid of the drive segment defined by the reference line which could be used to calculate EOM volumes.
8. Several other enhancements, defect fixes, and spelling corrections



## Recommendations

The following versions of *Surpac* have been tested with *FlexiSurv* and appear to be stable;

- Surpac 6.03
- Surpac 6.1.3
- Surpac 6.1.4
- Surpac 6.2

Please note that this version of *FlexiSurv V1.11* will be the last version to be supported on the *Surpac V5.0* frame work.

## Surpac V6.2 Compatibility

There were some minor issues with *FlexiSurv* and *Surpac V6.2* with regards to the installation procedure and plotting functions. Both issues are fixed in the [FlexiSurv\\_V1.11.exe](#) install kit.

## Enhancements & Bug Fixes to Existing Functions

### 1. [Flexi Offsets](#)

When producing offsets that contain a point on the centreline the RL value was incorrect. This has now been fixed.

### 2. [Flexi Memo](#)

When using a fresh install of *Surpac* with *Flexi Memos* the program would crash if plotting had not been used beforehand. The plotting system is now initialised to prevent this from happening in the future

Issues with the new oblique plotting grid introduced in *Surpac V6.2* have been rectified.

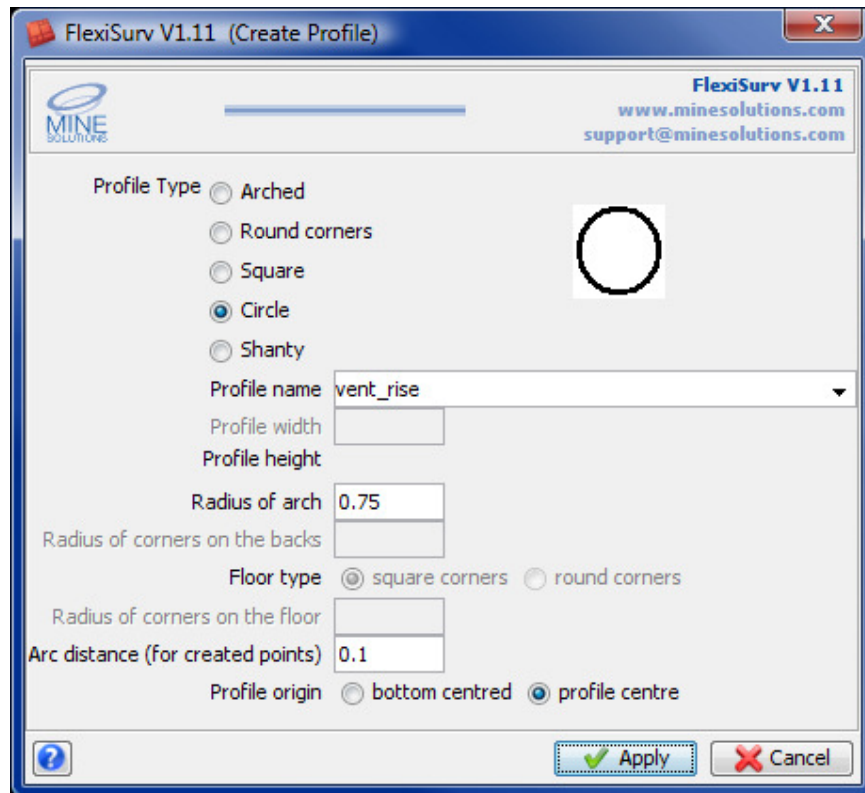
The company logo could sometimes be placed below the plot boundary. This has now been fixed.



### 3. Create Profile

Create profile has been enhanced to now include circle and shanty back profiles. The shanty back can slope from left to right or right to left.

A new option has been included that allows you to position the origin point of the profile at either the middle of the base, or in the centre of the profile. This will be useful when creating profiles for vertical rises.



### 4. Calculate Over-break / Under-break

When using a fresh install of *Surpac* with *Flexi Memos* the program would crash if plotting had not been used before hand. The plotting system is now initialised to prevent this from happening in the future.

Problems with the stacked sections not aligning correctly have been fixed.

The 3D intersection routine used in this function has been revamped such that it will provide more robust results in the polygonal interpretation of the sections.



## 5. Level Solids

Level solids has been enhanced to include a system whereby you can generate wireframes of features such as vertical rises, drill holes, or even future design. There are two new tabs on the function's form to setup processing of special features.

Two options for generating features have been provided.

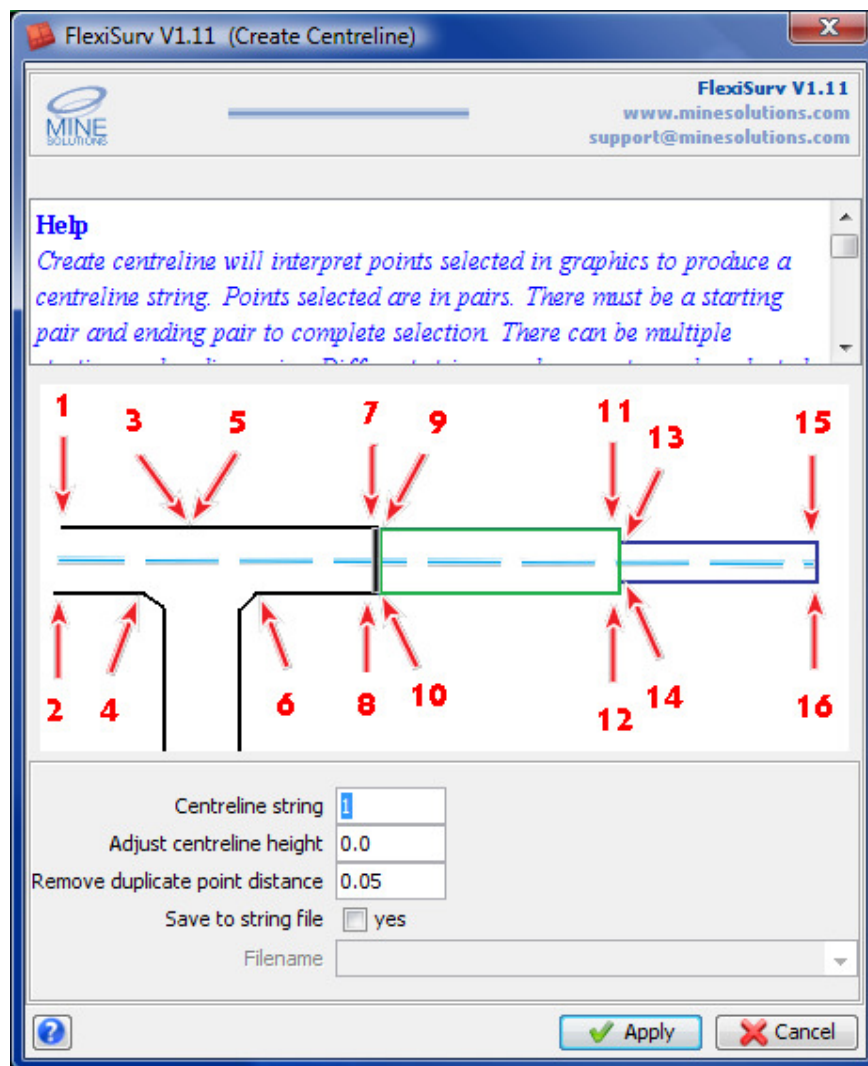
1. The wireframe can be created using a centreline string segment in the survey pickup file with a profile string. The profile string filename can either be entered directly on the level solids form or it can be stored in a description field on point 1 of the centreline segment.
2. The wire frame can be created from a centreline string segment in the survey pickup file which is surrounded by a series of closed segments that define the shape of the feature. There must at least be two closed segments to define the shape of the feature. The centreline string and its associated string segments must be on the same string number.

A screenshot of the FlexiSurv V1.11 (Level Solids) dialog box. The window title is "FlexiSurv V1.11 (Level Solids)". The interface includes a sidebar with tabs: "Processing", "Solid 1", "Solid 2", "Solid 3", "Feature 1", "Feature 2", "Options", and "Custom". The "Processing" tab is active, showing a checkbox for "Do you have other features like vertical rises" which is checked. Below this, there are sections for "Feature 1" and "Feature 2" with descriptive text. The "Feature 1" section is currently selected and contains the following fields: "Feature is defined on string number" (text box with "50"), "Feature shape is defined by" (radio buttons for "centreline and profile" (selected), "centreline and closed segments"), "Profile name for feature is" (radio buttons for "described in a dfield on the centreline" (selected), "defined below"), "Profile name is in (d1, d2, etc)" (dropdown menu with "d5"), "Profile string file" (text box), and "Feature has closed ends" (checkbox checked). At the bottom right, there are "Apply" and "Cancel" buttons. The MINE SOLUTIONS logo and contact information are visible in the top right corner of the dialog.

## NEW FUNCTIONS

### Create a Centreline

Create a centreline will interpret line segments selected in graphics to produce a true centreline string. The algorithm interprets the geometry of the selected segments, usually your floor strings, to correctly produce a line at the centre of the selected segments.





The general rules for using the function are:

- Points selected are in pairs.
- There must be a starting pair and ending pair to complete selection
- There can be multiple starting and ending pairs
- Different strings and segments maybe selected but each start and end pair must be contained on the same segment
- When multiple pairs are selected, the pairs are joined by straight lines in the order of point selection

It does not matter if multiple start end selections are on the same string segment or if selections introduce a number of different segments that can also be on different strings

The diagram pictured on the previous page illustrates possible point selections.

1. Selections 1 and 3 must be on the same string segment
2. Selections 2 and 4 must be on the same string segment
3. Points 3 and 5 will be joined and points 4 and 6 will be joined

There are in total 4 start and end pairs selected in the example.

Create centreline works for both simple geometric design shapes as pictured and also for more complex actual survey pickups such as a decline.



## Insert Points between Points

The insert points between points function allows you to subdivide a line between two selected points in graphics. The distance between these points will then be sub divided according to your entered criteria. There are three options for the subdivision being:

1. Uniform spacing

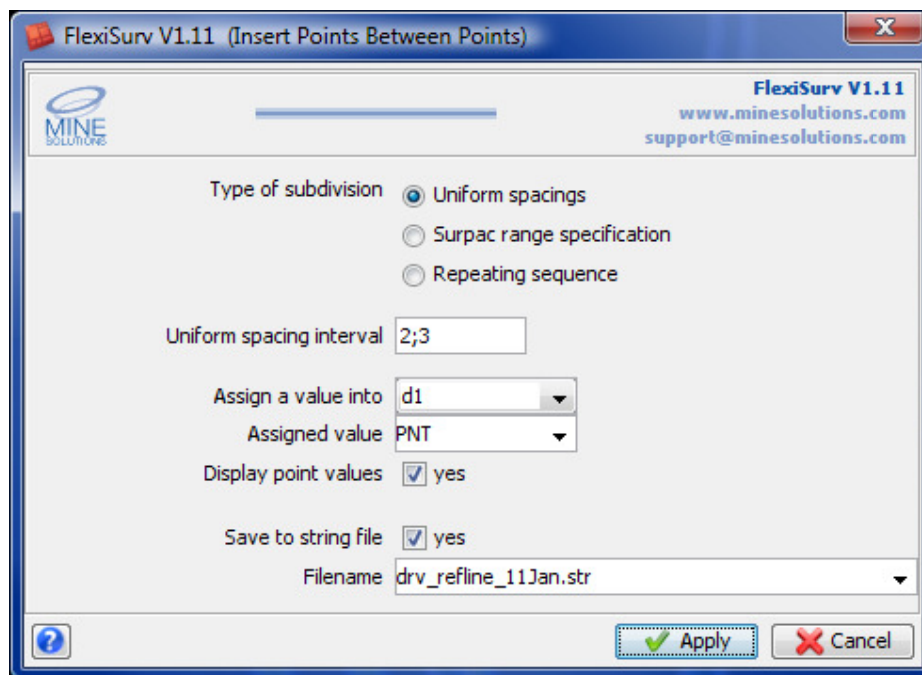
Divide the line segment up into equal portions according to the entered spacing interval.

2. Surpac range specification

Divide the line segment into uniform or non uniform spacing's according to an entered Surpac range specification.

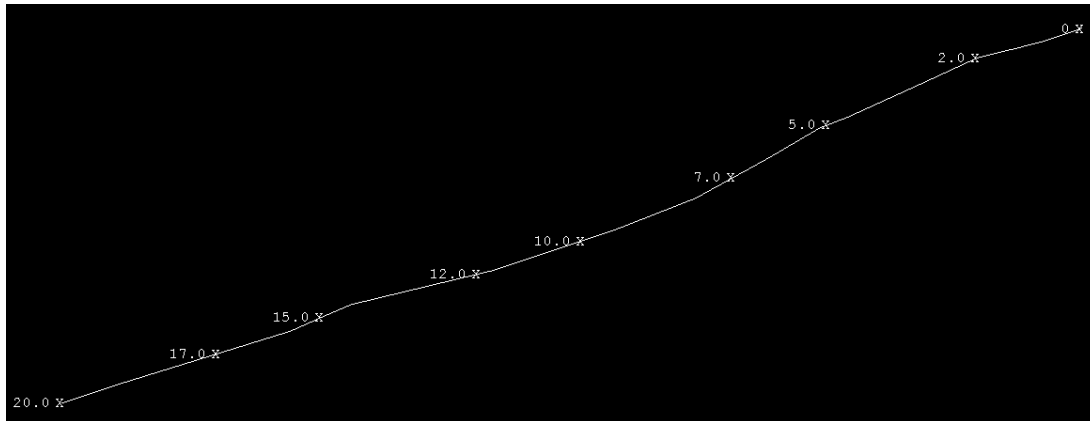
3. Repeating sequence

Divide the line by repeating a sequence pattern that is described by a Surpac range specification. The pattern defined by the range will repeat for the distance of the line. Note that the first section point is on the first point you select in graphics.





An example line that has been created using an entered repeating sequence of 2;3 (ie 2m, 3m, 2m, 3m, 2m, 3m, ...) is shown below



Note that the section chainages are shown on the section points in the diagram above.

The line that is subdivided may contain other points depending upon its geometry. You can assign a special value into one of the description fields to denote which points are the actual sub division points. The sub divide algorithm will use existing points if they lie at the correct distance otherwise new points will be inserted were required.



## Process Drive Segment

A new function that will process a segment or portion of your drive solid has been introduced. To use the function you must define a reference line that sits inside the drive. The reference line contains points where you want to determine information about the drive.

The reference line maybe straight or could follow the geometry of the drive or decline. You could use the new *Create a Centreline* function to generate your reference line. Typically you would also use the new *Insert Points between Points* function to insert your reference points into the line.



The function can perform a number of tasks that include:

1. Press strings onto the floor, backs, and the walls.

At each reference point location a projection onto the floor, backs, and walls is made. These positions can become points of new strings in the output file. This is a similar concept to pressing a string onto a DTM except in this case a wireframe model of your drive can be used.

You have the option of copying the original reference line string into the output file as well.

A drive outline string describing the shape of the drive at each reference point can also be included in the output string file.

2. Calculate drive dimensions.

At each point on the reference line a calculation of the distance to:

- i. the floor
- ii. the backs
- iii. the left wall
- iv. the right wall

is made. The total height and width of the drive at this position is also determined.

A note file of this information can be produced (shown below) and all this information will be recorded into the string file description fields in the output file as follows:

- D1 → Chainage
- D2 → Distance to the floor
- D3 → Distance to the backs
- D4 → Total drive height
- D5 → Distance to the left wall
- D6 → Distance to the right wall
- D7 → Total drive width



Drive Dimension - Reference File refline\_11june.str as at 10 Jun 2011

Point No	Chainage	To Floor	To Backs	Height	To Left	To Right	width
1.	0.000	1.000	4.408	5.408	2.873	2.891	5.764
2.	2.000	0.988	4.741	5.729	2.767	2.708	5.475
3.	4.000	0.993	4.684	5.677	2.906	2.579	5.485
4.	6.000	0.979	4.682	5.661	2.936	2.593	5.529
5.	8.000	0.992	4.499	5.491	2.883	2.552	5.435
6.	10.000	0.993	4.391	5.384	2.850	2.432	5.282
7.	12.001	0.998	4.240	5.238	2.813	2.414	5.227
8.	14.000	1.010	4.117	5.127	2.575	2.498	5.073
9.	16.001	1.015	4.251	5.266	2.518	2.587	5.105
10.	18.001	1.009	4.308	5.317	2.558	2.730	5.288

### 3. Create a solid of the drive segment

A solid of the drive segment defined by the reference line start and end points can be generated. The drive outline strings created at each reference point are used to determine the shape of the solid.

The resulting solid from this function could be used to calculate EOM volumes for example. If you define a reference line starting at the end of the last period ending at the end current period then the solid would encompass this volume.

