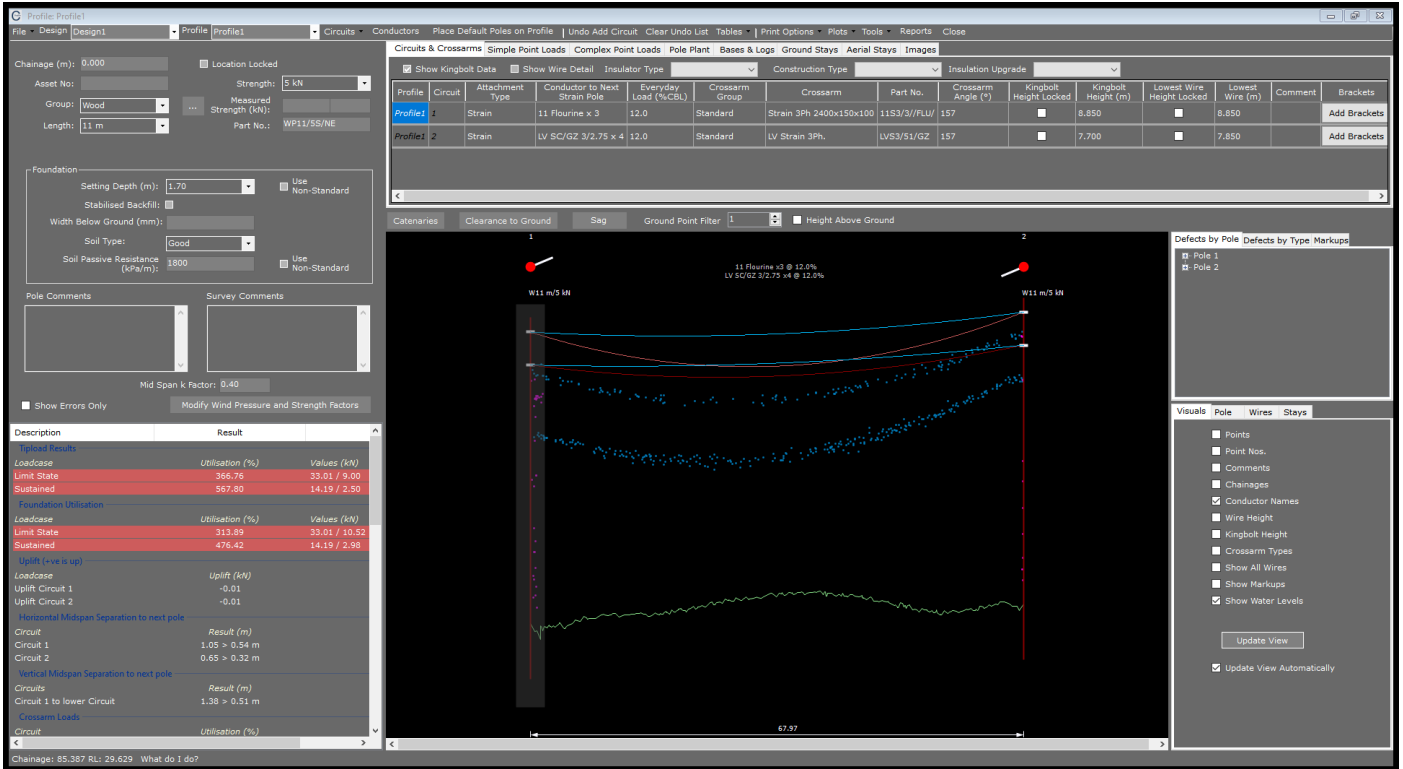


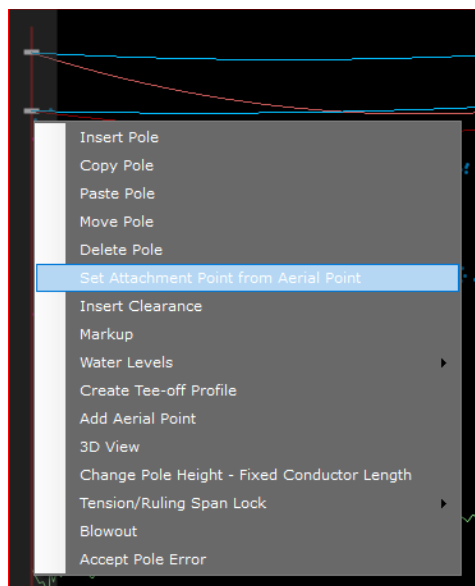
Fixing Attachment Points from LIDAR and Sagging Conductors

This walkthrough shows how to use the lidar data to set the wire heights at a pole. It is assumed that the lidar data has already been imported, and that default pole and circuits have been added to the job. This walkthrough used the file created in the walkthrough **Place Default Poles on a Lidar Based File**

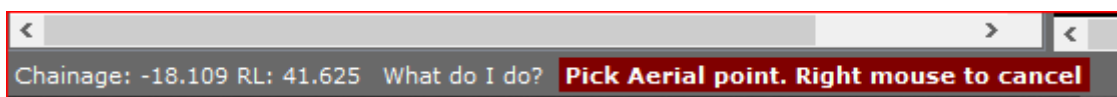
1. Open the file that you wish to use.
2. Go to the Profile view.



3. Right click the mouse close to the pole and a popup menu will be displayed as shown below.



4. Select the option **Set Attachment Point from Aerial Point**. Note that at the bottom of the screen there is an instruction telling you what you need to do next as shown below.



Fixing Attachment Points from LIDAR and Sagging Conductors

5. In this example the blue points are wire shots and the purple points are shots to the structure. Structure shots could be pole, crossarm, stay wires or pole top plant such as transformers. You should zoom in to get clear separation between aerial points.
Select a point and a new screen will be displayed as shown below.

Set Attachment Height from Aerial Point

Cancel

Select Point

Select Point	Point No	Chainage (m)	Height above ground (m)	Distance from Pole (m)	Feature Code	Comment
<input checked="" type="checkbox"/>	5605	0.287	7.822	-0.287	Wire / Conductor	
<input type="checkbox"/>	5710	0.436	7.751	-0.436	Wire / Conductor	
<input type="checkbox"/>	5550	0.587	7.413	-0.587	Pole and Pole Stru...	
<input type="checkbox"/>	5563	0.050	7.382	-0.050	Pole and Pole Stru...	

Select Circuit

Select Circuit	Circuit No.	Conductor to Next Pole	Attachment Type
<input checked="" type="checkbox"/>	1	Flourine @ 12.0 x 3	S
<input type="checkbox"/>	2	SC/GZ 3/2.75 @ 12.0 x 4	S

Select Point is

Lowest Wire

King Bolt

Select Cross Arm

Strain 3Ph 2400x150x100

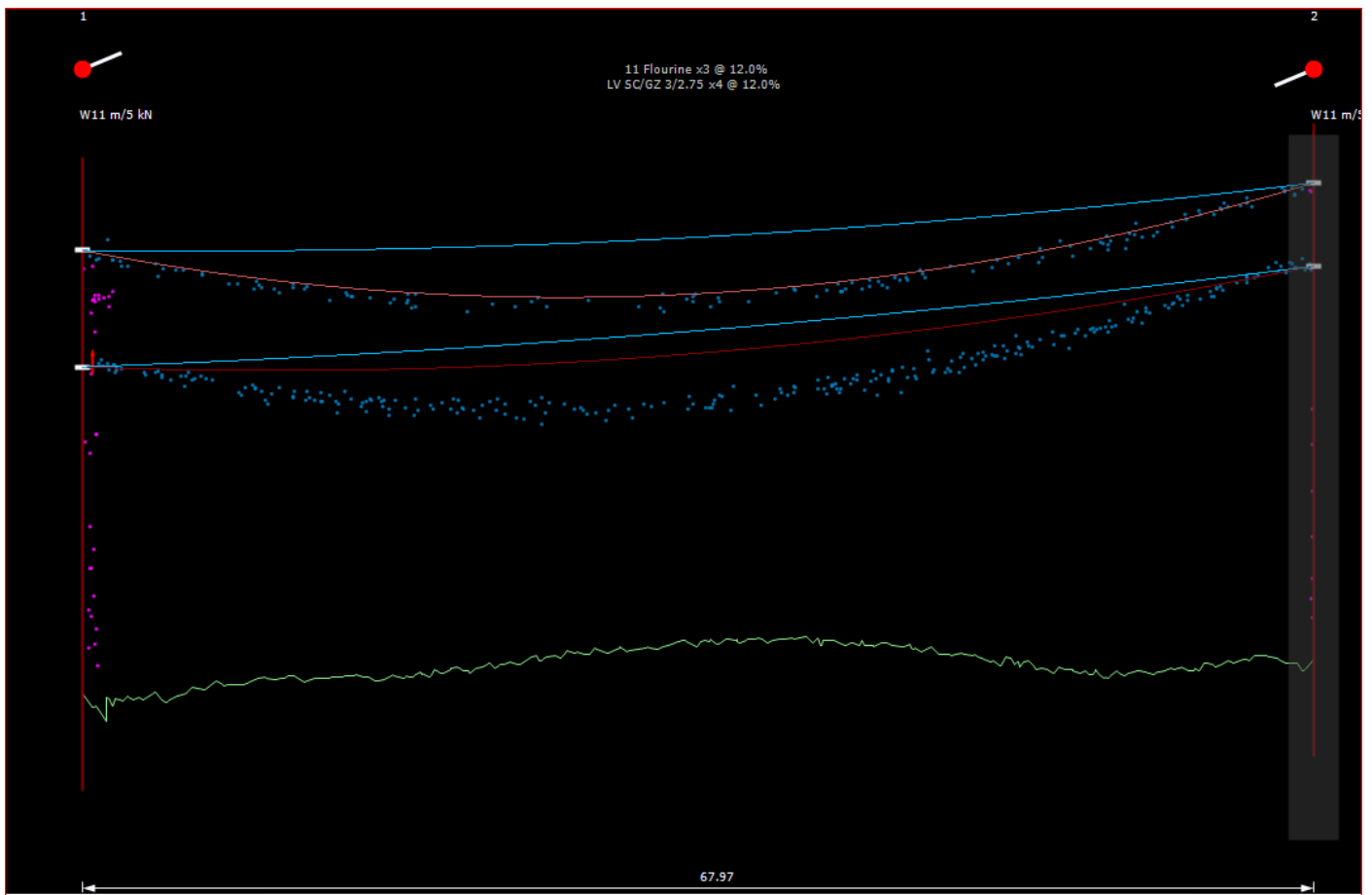
Set Height

You must

- Select a point that is to be the attachment point. You can sort the points by any of the columns in the **Select Point** grid.
 - Select which circuit you are modelling.
 - Select whether the point is a wire shot or kingbolt height. For lidar data this would normally be the wire.
 - Select the Crossarm, if there is more than one crossarm for that circuit.
6. Press **Set Height**
7. Do the same for the top circuit at the end pole of the span, and for the lower circuit. When modelling the lower circuit, don't forget to select Circuit 2 in the Select Circuit Grid.

Fixing Attachment Points from LIDAR and Sagging Conductors

8. If all done correctly, the Profile view should look similar to the image below.



9. The next step is to model the conductors correctly. Select **Sag** as shown below.

Profile: Profile1

File Design Design1 Profile Profile1 Circuits Conductors Place Default Poles on Profile Undo Set Attachment Height Pole 2 Clear Undo List Tables Print Options Plots Tools Reports Close

Chainage (m): 67.974 Location Locked

Asset No: Strength: 5 kN

Group: Wood Measured Strength (kN):

Length: 11 m Part No.: WP11/SS/NE

Foundation

Setting Depth (m): 1.70 Use Non-Standard

Stabilised Backfill:

Width Below Ground (mm):

Soil Type: Good

Soil Passive Resistance (kPa/m): 1800 Use Non-Standard

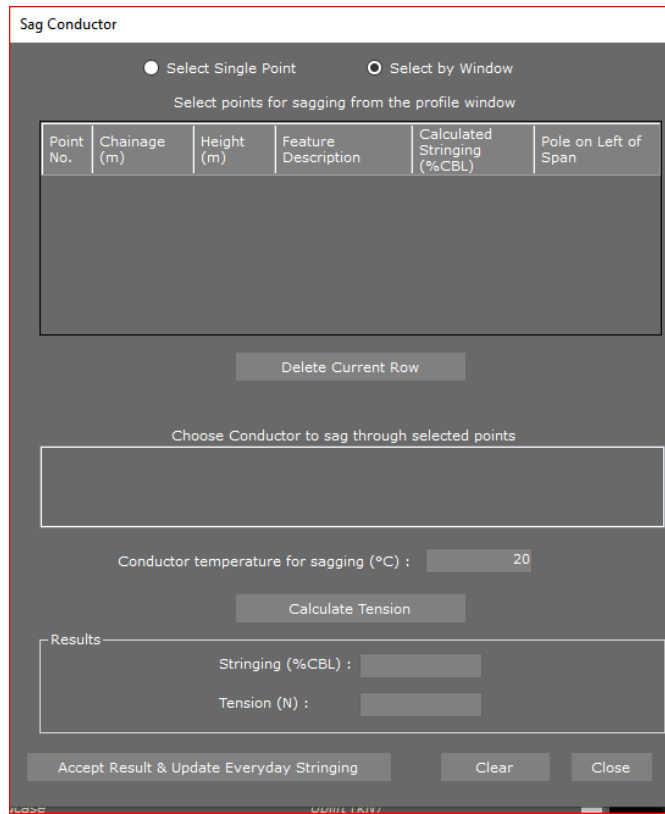
Profile	Circuit	Attachment Type	Conductor to Next Strain Pole	Everyday Load (%CBL)	Crossarm Group	Crossarm	Part No.	Crossarm Angle (°)	Kingbolt Height Locked
Profile1	1	Strain	11 Flourine x 3	12.0	Standard	Strain 3Ph 2400x150x100	11S3/3//FLU/	157	<input type="checkbox"/>
Profile1	2	Strain	LV SC/GZ 3/2.75 x 4	12.0	Standard	LV Strain 3Ph.	LVS3/51/GZ	157	<input type="checkbox"/>

Catenaries Clearance to Ground **Sag** Ground Point Filter: 1 Height Above Ground

11 Flourine x3 @ 12.0%

Fixing Attachment Points from LIDAR and Sagging Conductors

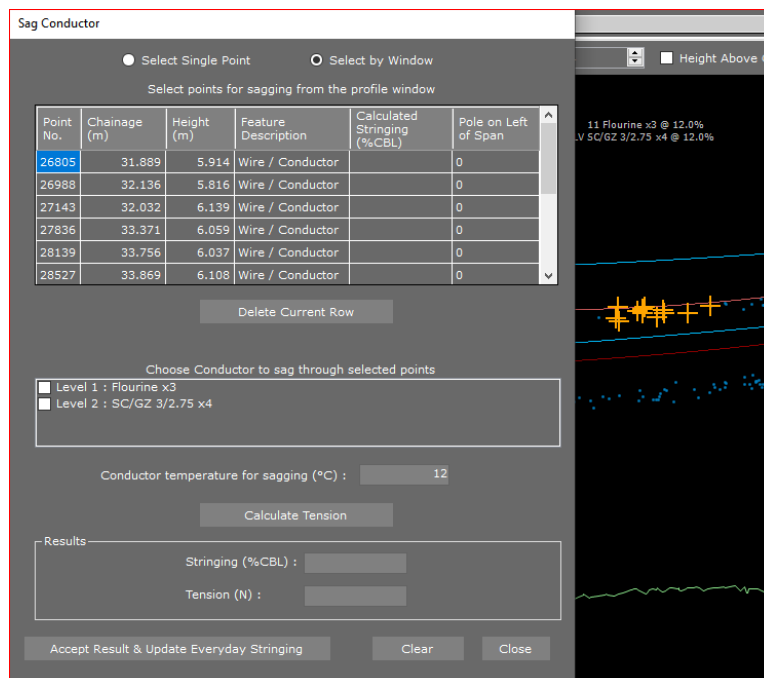
10. The sag form will be displayed. Click and hold the Title Bar on this form to move it to a better location if required. You can select points either singly or by window. Since in this case we have lidar data, we will select points by window.



The screenshot shows the 'Sag Conductor' form with the following elements:

- Radio buttons for 'Select Single Point' (selected) and 'Select by Window'.
- Text: 'Select points for sagging from the profile window'.
- Table with columns: Point No., Chainage (m), Height (m), Feature Description, Calculated Stringing (%CBL), Pole on Left of Span.
- Buttons: 'Delete Current Row', 'Calculate Tension'.
- Text: 'Choose Conductor to sag through selected points'.
- Text: 'Conductor temperature for sagging (°C) : 20'.
- Text: 'Results'.
- Text: 'Stringing (%CBL) :', 'Tension (N) :'.
- Buttons: 'Accept Result & Update Everyday Stringing', 'Clear', 'Close'.

11. Once you have chosen the selection mode, move the mouse to the Profile view and select the points



The screenshot shows the 'Sag Conductor' form with the following elements:

- Radio buttons for 'Select Single Point' (selected) and 'Select by Window'.
- Text: 'Select points for sagging from the profile window'.
- Table with columns: Point No., Chainage (m), Height (m), Feature Description, Calculated Stringing (%CBL), Pole on Left of Span.
- Buttons: 'Delete Current Row', 'Calculate Tension'.
- Text: 'Choose Conductor to sag through selected points'.
- Text: 'Conductor temperature for sagging (°C) : 12'.
- Text: 'Results'.
- Text: 'Stringing (%CBL) :', 'Tension (N) :'.
- Buttons: 'Accept Result & Update Everyday Stringing', 'Clear', 'Close'.

The table data is as follows:

Point No.	Chainage (m)	Height (m)	Feature Description	Calculated Stringing (%CBL)	Pole on Left of Span
26805	31.889	5.914	Wire / Conductor		0
26988	32.136	5.816	Wire / Conductor		0
27143	32.032	6.139	Wire / Conductor		0
27836	33.371	6.059	Wire / Conductor		0
28139	33.756	6.037	Wire / Conductor		0
28527	33.869	6.108	Wire / Conductor		0

The profile view on the right shows a graph with a blue line representing the conductor sag and a green line representing the ground profile. The text '11 Flourine x3 @ 12.0%' and 'V SC/GZ 3/2.75 x4 @ 12.0%' is visible on the graph.

The points will be highlighted in the Profile view and added to the table on the Sag form.

Fixing Attachment Points from LIDAR and Sagging Conductors

12. Select which conductor you are doing the calculation for. In this case it is the top circuit, Level 1.
13. You must enter a temperature that you want the calculation made at. In the absence of accurate data, we recommend ambient plus a few degrees. Press **Calculate Tension** when ready.

Sag Conductor

Select Single Point Select by Window

Select points for sagging from the profile window

Point No.	Chainage (m)	Height (m)	Feature Description	Calculated Stringing (%CBL)	Pole on Left of Span
26805	31.889	5.914	Wire / Conductor		0
26988	32.136	5.816	Wire / Conductor		0
27143	32.032	6.139	Wire / Conductor		0
27836	33.371	6.059	Wire / Conductor		0
28139	33.756	6.037	Wire / Conductor		0
28527	33.869	6.108	Wire / Conductor		0

Delete Current Row

Choose Conductor to sag through selected points

Level 1 : Flourine x3
 Level 2 : SC/GZ 3/2.75 x4

Conductor temperature for sagging (°C) : 12

Calculate Tension

Results

Stringing (%CBL) :
Tension (N) :

Accept Result & Update Everyday Stringing Clear Close

14. The results will then be shown.

Sag Conductor

Select Single Point Select by Window

Select points for sagging from the profile window

Point No.	Chainage (m)	Height (m)	Feature Description	Calculated Stringing (%CBL)	Pole on Left of Span
26805	31.889	5.914	Wire / Conductor	3.7	0
26988	32.136	5.816	Wire / Conductor	3.6	0
27143	32.032	6.139	Wire / Conductor	4.3	0
27836	33.371	6.059	Wire / Conductor	4.0	0
28139	33.756	6.037	Wire / Conductor	4.1	0
28527	33.869	6.108	Wire / Conductor	4.2	0

Delete Current Row

Choose Conductor to sag through selected points

Level 1 : Flourine x3
 Level 2 : SC/GZ 3/2.75 x4

Conductor temperature for sagging (°C) : 12

Calculate Tension

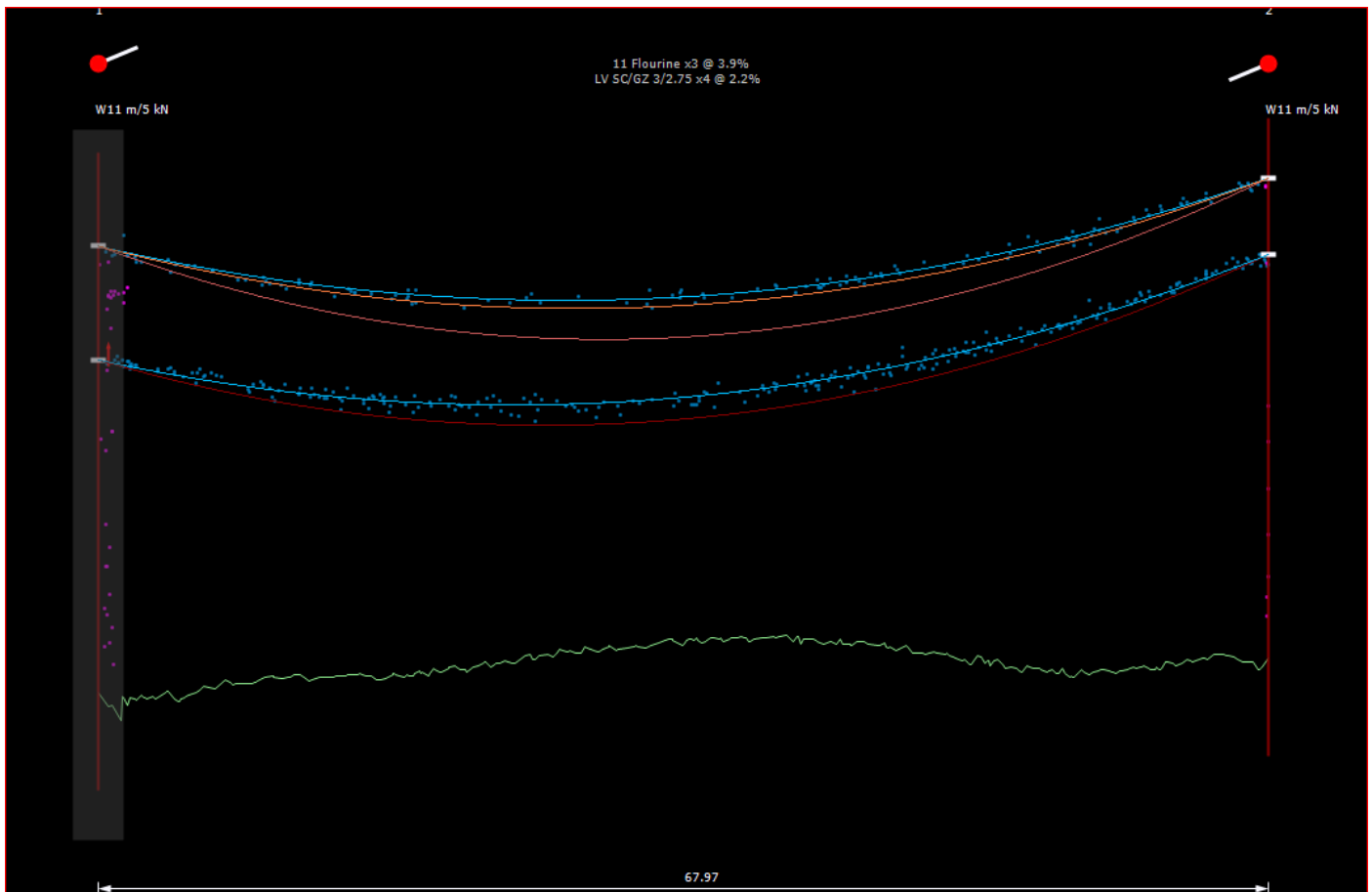
Results

Stringing (%CBL) : 3.9
Tension (N) : 465.9

Accept Result & Update Everyday Stringing Clear Close

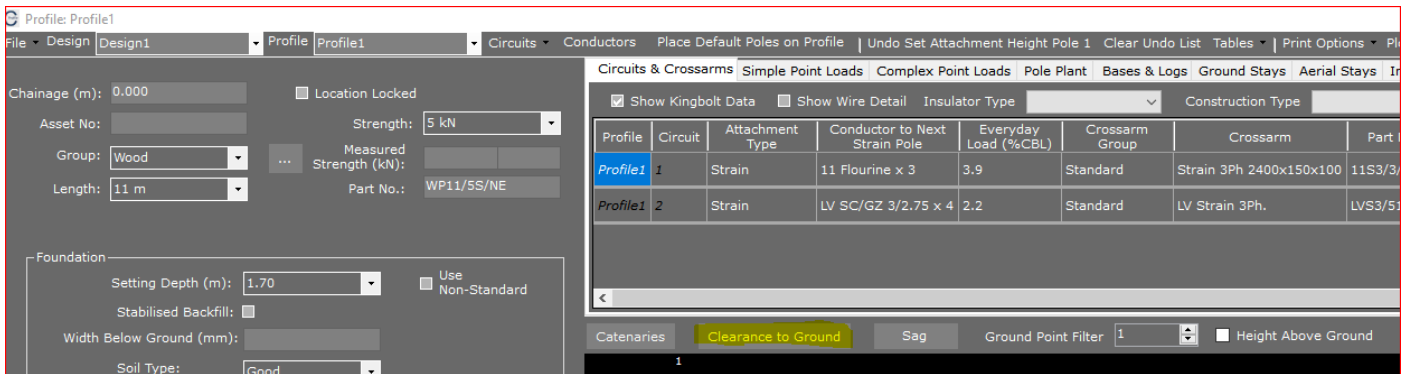
Fixing Attachment Points from LIDAR and Sagging Conductors

15. Press the button **Accept Result & Update Everyday Stringing**
16. Repeat the process for the lower circuit. The Profile view will now look similar to the image below.

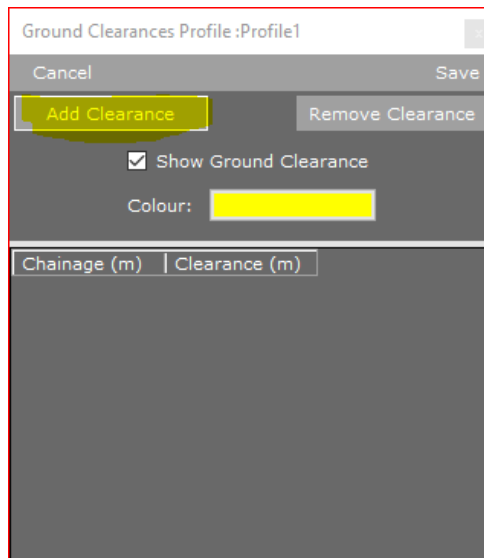


Fixing Attachment Points from LIDAR and Sagging Conductors

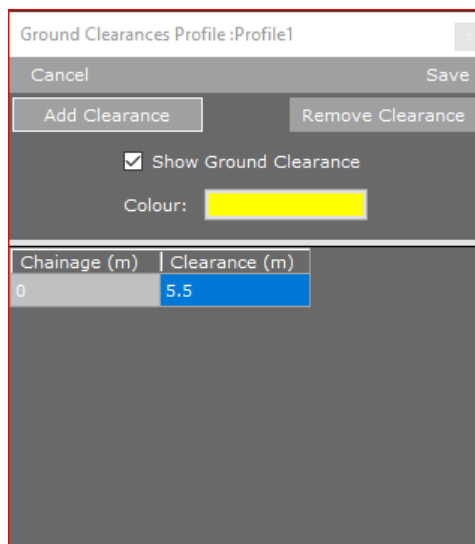
17. Show the Clearance line. Select **Clearance to Ground** as highlighted below.



18. The following form will be displayed and press **Add Clearance**.

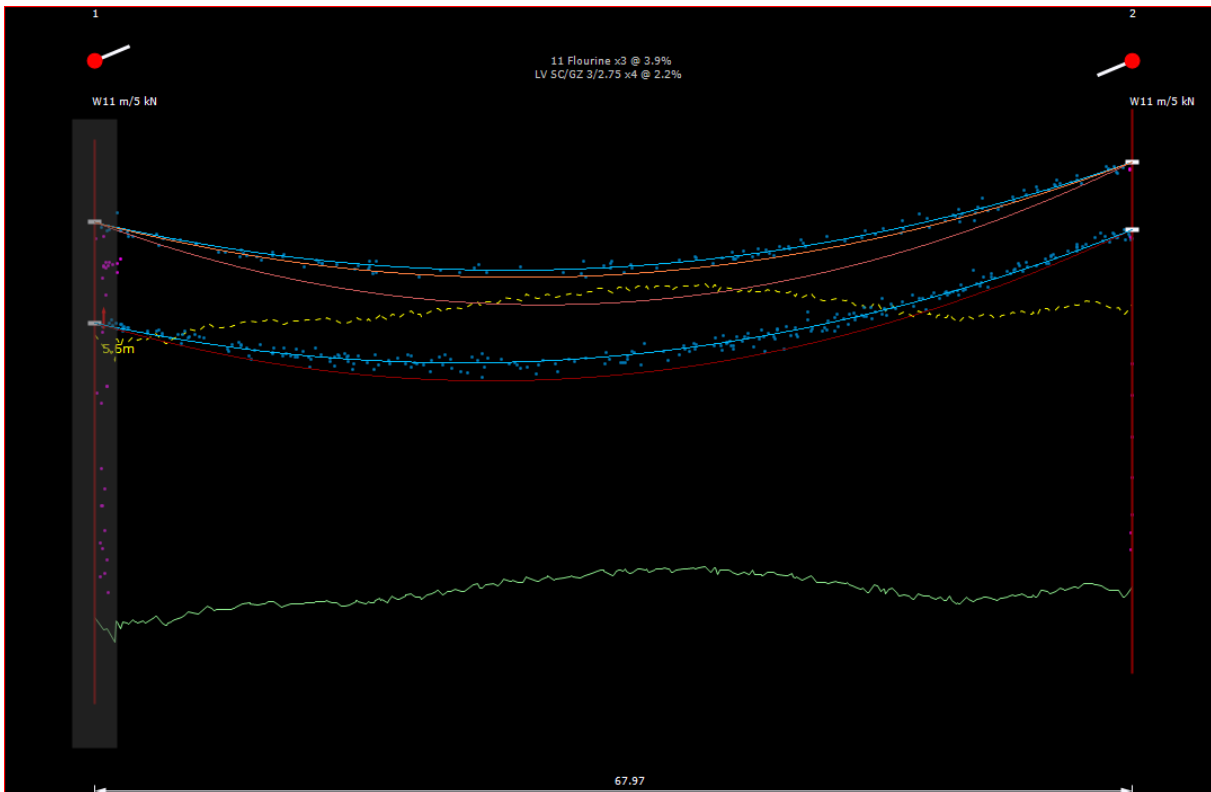


19. Add the data shown below.



Fixing Attachment Points from LIDAR and Sagging Conductors

20. Press **Save** and you will be returned to the Profile view which should now look similar to the one below.



21. You can show the minimum clearance in the span by selecting **Catenaries**.

Profile: Profile1

File Design Design1 Profile Profile1 Circuits Conductors Place Default Poles on Profile Undo Set Attachment Height Pole 1 Clear Undo List Tables Print Options

Chainage (m): 0.000 Location Locked

Asset No: Strength: 5 kN

Group: Wood Measured Strength (kN):

Length: 11 m Part No.: WP11/5S/NE

Foundation

Setting Depth (m): 1.70 Use Non-Standard

Stabilised Backfill:

Width Below Ground (mm):

Soil Type:

Circuits & Crossarms Simple Point Loads Complex Point Loads Pole Plant Bases & Logs Ground Stays Aerial Stays

Show Kingbolt Data Show Wire Detail Insulator Type Construction Type

Profile	Circuit	Attachment Type	Conductor to Next Strain Pole	Everyday Load (%CBL)	Crossarm Group	Crossarm	Part
Profile1	1	Strain	11 Flourine x 3	3.9	Standard	Strain 3Ph 2400x150x100	11S3/3
Profile1	2	Strain	LV SC/GZ 3/2.75 x 4	2.2	Standard	LV Strain 3Ph.	LVS3/5

Catenaries Clearance to Ground Sag Ground Point Filter 1 Height Above Ground

Fixing Attachment Points from LIDAR and Sagging Conductors

22. The form below will be displayed. Select the **Circuit 2** tab and then check the box **Show Minimum Clearance in Span** as shown below.

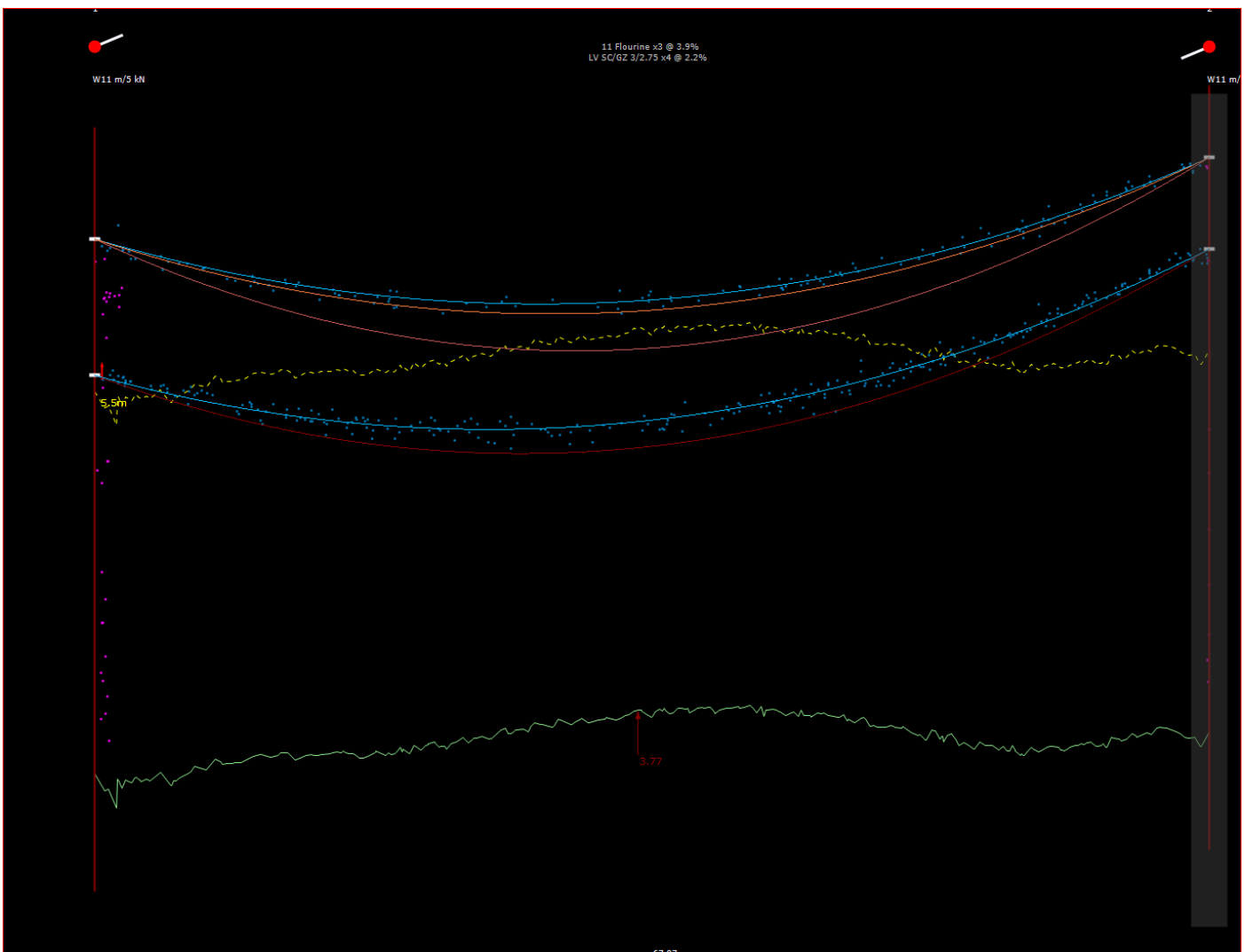
Modify Catenary Display Profile: Profile1

Add Curve Remove Curve Close

Circuit 1 **Circuit 2**

	Description	Colour	Clearance Colour	Show Minimum Clearance in Span	Show Curve	Show Clearance Curve	Clearance (m)	Temperature (°C)	Radial Thickness Ice/Snow (mm)	Density Ice/Snow (kg/m ³)
▶	Max. Temperature	Red	Yellow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				
	Min. Temperature	Blue	Yellow	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>				

23. Close the form and the Profile view will now display the minimum clearance in the span.



Now that the existing model has been built, you can now proceed to make changes to fix any defects.