MapSight – SPIDACalc Integration Tool User's Guide

November 2015

MapSight Desktop v3.4.0
MapSight Tool v6.4.0

Table of Contents

1.Software Requirements....4

2.Prepare Data Collection Form....4

1 Start SPIDACalc....4

2 Set the Client File in MapSight Desktop Settings....4

3 Create the standard data collection form....5

3.Field Data Collection....6

4.Attachment Height Annotation....6

5.Generate Pole Models in SPIDACalc....10

Appendix A. MapSight - SPIDACalc Data Mapping....12

Pole....12

Wires....13

Equipment....17

....18

....18

Anchors/Guys....18

Others: Assumptions in SPIDACalc itegration....19

The end points on electrical cables are at the same height. Where they are not, the horizontal component from the Missing Line tool is used....19

Where an insulator is connected to two cables, or a cross arm to multiple spans, the insulator/cross arm will be mounted on the pole at the average of the cable azimuths. Practically, this means it will be mounted, and face the mid-point of the acute angle (<180*) between two azimuths. An insulator/cross arm with one cable attached is mounted facing the azimuth of that cable plus ninety degrees. Both angles may be adjusted manually in SPIDACalc....20

Cross arm offset and wire separation is based on a pre-defined model. End user should adjust these manually to fit their particular cross arm type and mounting standards....20

When not specified, tensions are automatically assigned "Full Tension".....20

MapSight embeds data from your selected SPIDACalc Client File into the generated form, and features generated with that form. You must ensure the correct Client File is generated before generating the form. After that point, any features collected will use the original Client File selected.....20

Dialogue boxes in the SPIDACalc application prevent API integration. If you don't see SPIDACalc options, clear any dialogue boxes in SPIDACalc and restart MapSight.....20

The first Span Bay is recorded as "Previous" and "Next" poles. Subsequent Span Bays are marked as "Other" pole, and service bays spans are marked as attached to "house".....20

Feature id uses the Pole ID if entered, otherwise defaults to ike timestamp based feature name.....20

Changes to item names should be performed in SPIDA prior to creating iwf. It cannot be altered in the form.....20

If an insulator is not entered, "Default Insulator" is used, which can be mapped to a specific insulator for the whole pole line in SPIDA on export.....20

Appendix B. SPIDACalc Data Collection Form.....20

Pole.....21

Anchors and Guys, True Size Photos.....21

Primary/Secondary/Communication Conductors.....23

Head or Span Guy.....25

Service Drops.....27

Equipment.....29

Software Requirements

The MapSight – SPIDACalc integration requires the following software:

MapSight Desktop v3.4.0
MapSight Tools 6.4.0
SPIDACalc 6.0.1

Prepare Data Collection Form

A standard data collection form will be used to collect data in order to integrate with SPIDACalc. During the form generation process, the SPIDACalc client file data will be populated to the MapSight data collection form.

Follow these steps to create such a standard data collection form from your SPIDACalc client file.

1 Start SPIDACalc

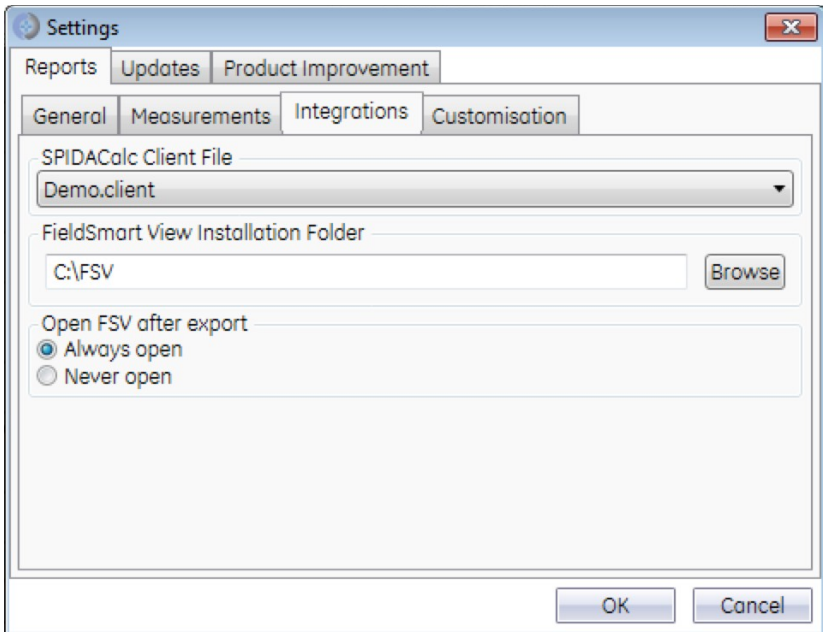
Start SPIDACalc, and leave it running on the desktop.

2 Set the Client File in MapSight Desktop Settings

Start MapSight Desktop software. Go to Tools, then Settings.

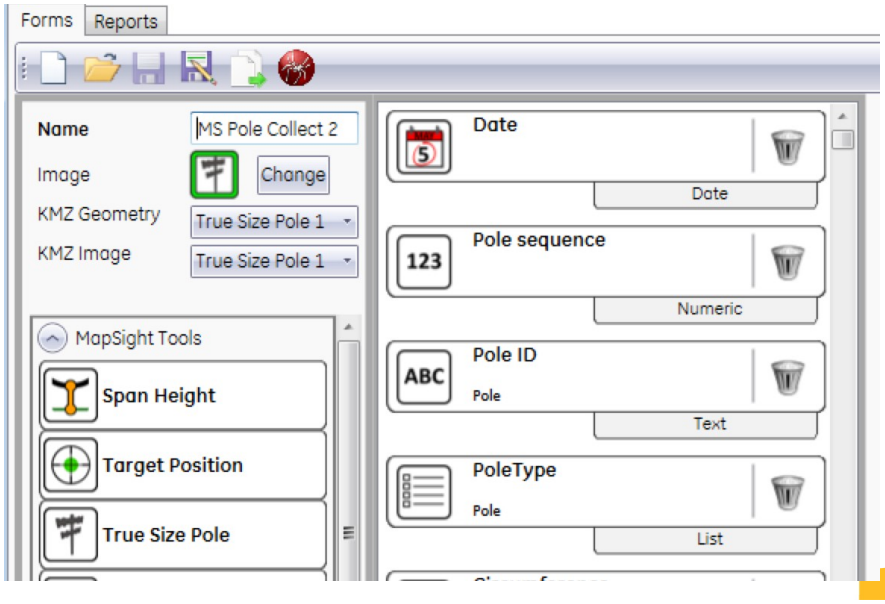
Under the SPIDACalc Client File pull-down menu, select the client file to be used in SPIDACalc for analysis.

Note that your client file is normally located on your local machine under c:\Users\<username>\AppData\Local\SPIDA\clients\ folder.

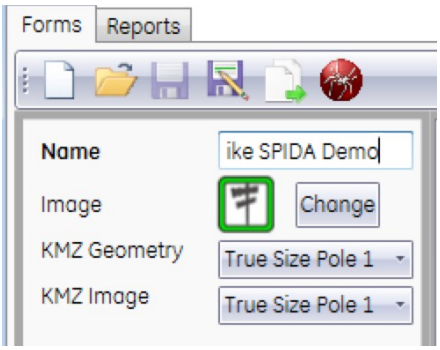


3 Create the standard data collection form

Click on the Load SPIDACalc modelling form button. A form named “MS Pole Collect 2” will be generated automatically. This form incorporate the values from the SPIDACalc Client file.



Save the form to a different name. Then deploy it to a MapSight device.



Note: the size of the generated form should be less than 1.8MB. Reduce the client file if necessary.

See Appendix A on data mapping rules between MapSight and SPIDACalc.

Field Data Collection

Use the standard form generated from the above steps to collect poles in the field.

See Appendix B on how to use the form in the field.

Attachment Height Annotation

Bring the field collected data back into MapSight desktop. Use the measurement tools to annotate attachment heights by following the annotation rules described below.

Attachment Height Annotation Convention:

Span Bay

For a wire in Span Bay 2, Span 5: **B2 Span 5**

Service Bay

For any occurrences of the electrical wire in Service Bay 3: **SB3 Elec**

For any occurrences of the CATV wire in Service Bay 2: **SB2 CATV**

For any occurrences of the telecom wire in Service Bay 1: **SB1 Tele**

Span Guy

For Span Guy 1: **Span Guy 1**

Equipment

For any occurrences of equipment 3: **Equip 3**

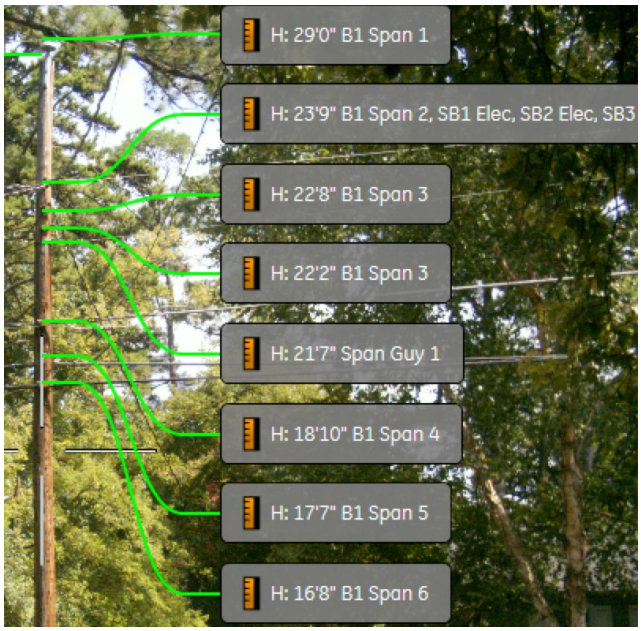
Anchors and Guys

For Anchor1 Guy: **Anch1 Guy 2**

Tips

Tip 1: You can save the list of annotation in a Joint.txt file and use it as a dropdown list

Tip 2: You can place multiple annotations on the same attachment height



Note that you must use the + button to get another text entry box, NOT just enter a comma separated list of annotations, as shown below:

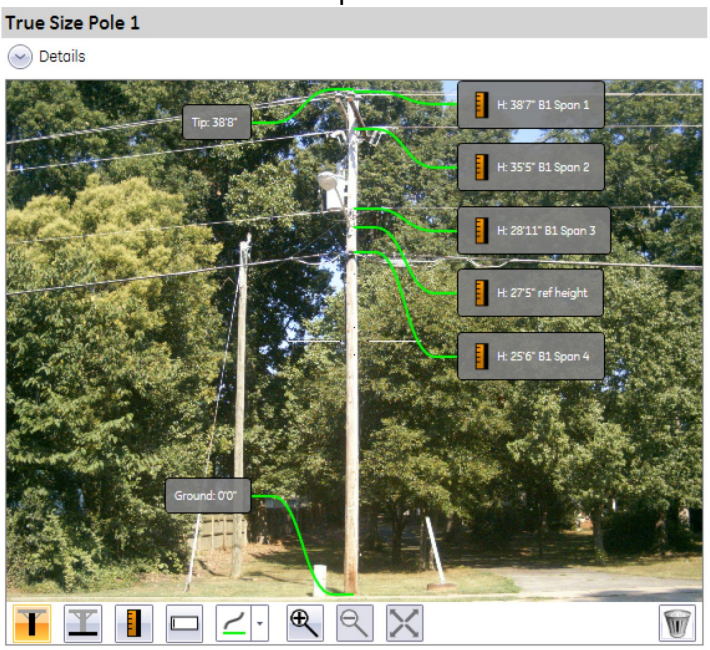
It's recommend you don't annotate multiple wires from the same span bay (or wires sharing the same azimuth) using this method, otherwise they are drawn on top of each other in SPIDACalc, making it hard to select in the 3D view.
Wires from perpendicular Span Bays, equipment mounted at the same height but around the pole, or multiple anchors' guys mounted on the pole at the same height, are good example

candidates to use this feature.

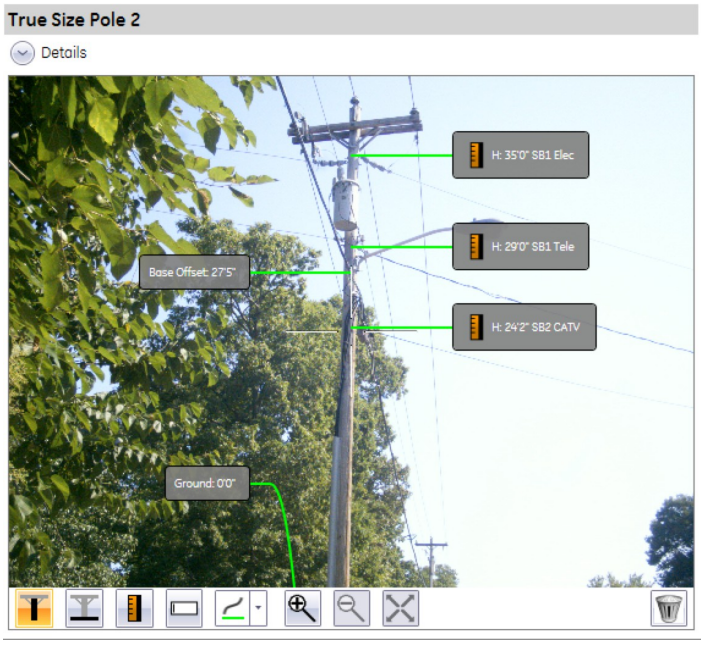
Tip 3: You can annotate attachment heights on multiple True Size photos.

It is important you don't annotate the same thing twice, or you will get multiple wires. You must annotate the ground on each image you use for additional measurements, but the tip should only be annotated once.

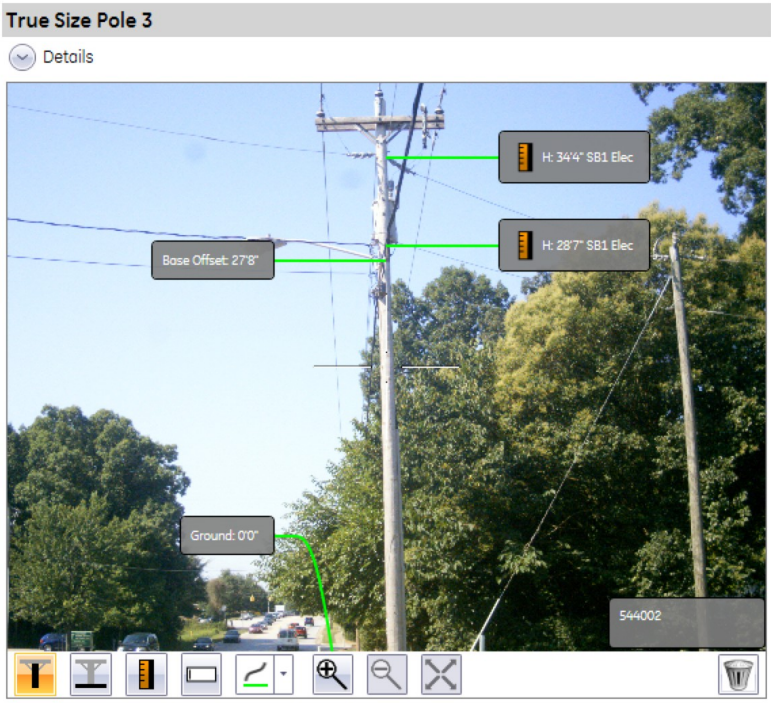
Example: Use the first True Size photo to annotate the main Span Bay.



Example: Use the second True Size photo to annotate the first Service Bay.



Example: Use the third True Size photo to annotate the second Service Bay.



Tip4: When there are multiple span bays, how do I know which one is bay 1, which is bay 2, etc.?

The Fore Span and Back Span missing line photos might give you a clue of which span bay the field engineer measured in the field. You can combine with some standard procedure about how to collect the elements - maybe spiralling clockwise, starting with the closest Span Bay pointing North etc.

Another tip is that with each missing line you get an azimuth reading (click the details arrow), and with the True Size photos you get a bearing that the photo was taken from. With a bit of thought you could estimate from the True Size what angle the wire comes off, and match it up with the appropriate azimuth and hence Span Bay.

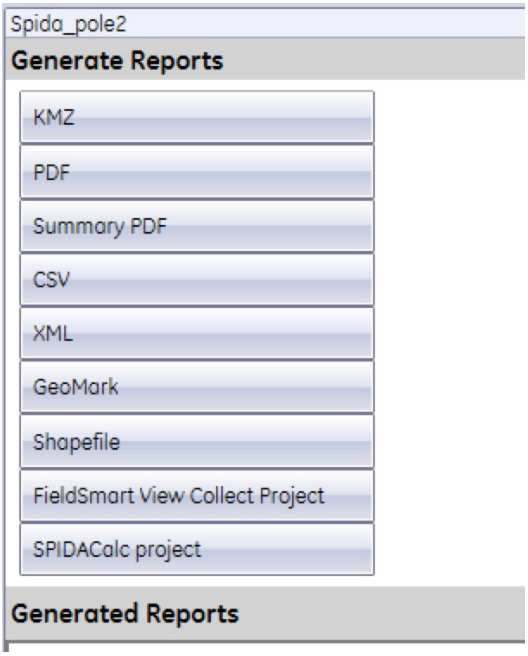
In addition, attention to what Spans a Span Bay has, and how many wires have been recorded in that Span could also help. For example, one bay has a neutral and the other doesn't. By matching what you see on the photo and what have been collected from the field, you may be able to tell which bay is which.

Tip5: You can use the wire IDs in SPIDACalc to validate correct data input into MapSight

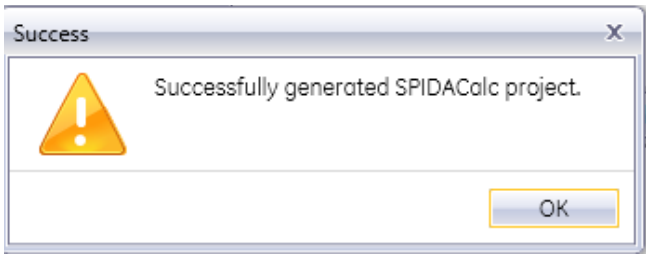
ID	Size
Span Bay 1/1 Wire#3	1/0 Al. Triplex
Span Bay 1/1 Wire#2	1/0 Al. Triplex
Span Bay 1/1 Wire#1	1/0 Al. Triplex
Service Bay 1/CATV Wire#7	.625" CATV Service
Service Bay 1/Elec Wire#6	2 Al. Triplex Service
Service Bay 1/Tele Wire#5	.25" TELCO Service
Span Bay 1/2 Wire#4	2/0 Copper

Generate Pole Models in SPIDACalc

With SPIDACalc running in the background on the desktop, select a job form and click on the "SPIDACalc Project" button.

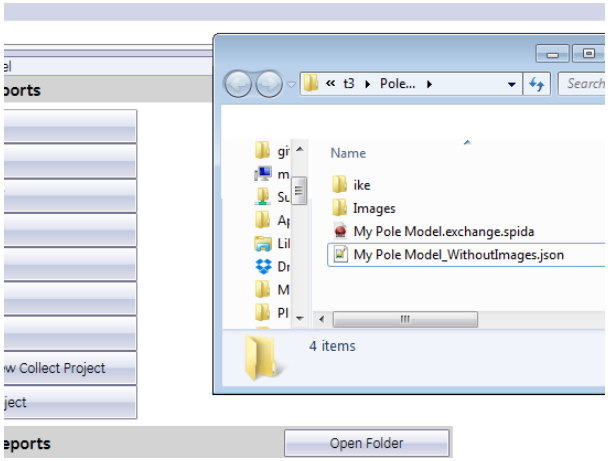


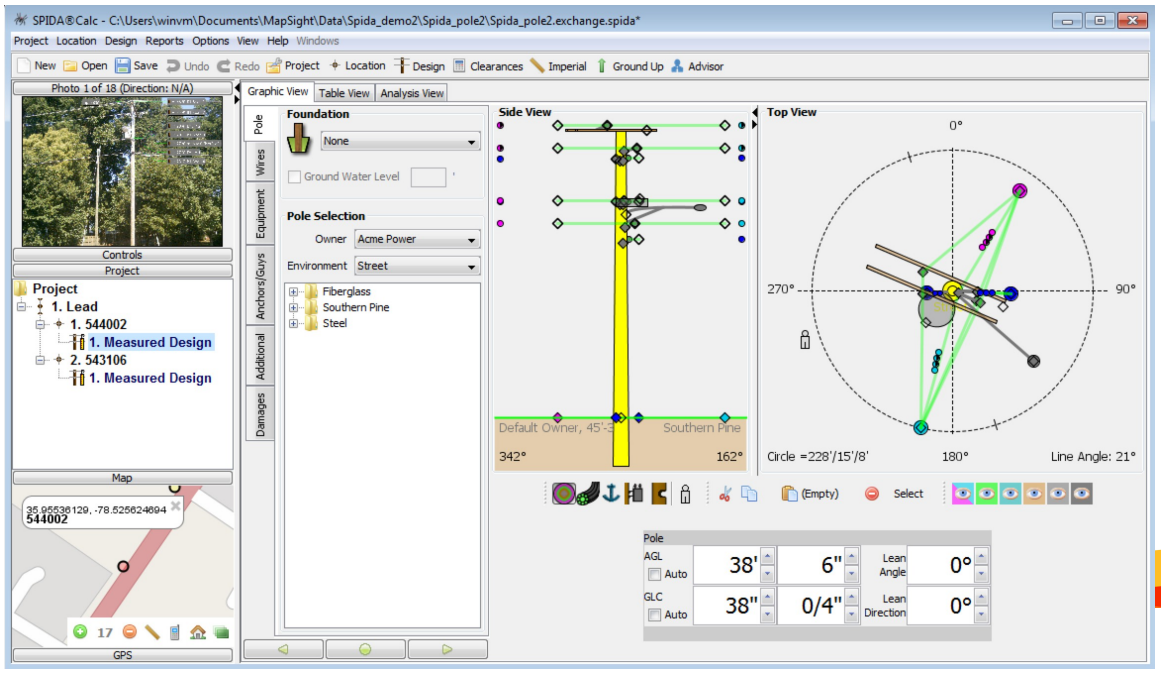
You should see the following message if the pole models are generated successfully:



All the poles in the current MapSight job form will be imported into a new project in SPIDACalc. All the MapSight photos are also imported.

In addition, an email friendly JSON file is produced without photos. This can be accessed by pressing the "open folder" and attaching using your normal email client.



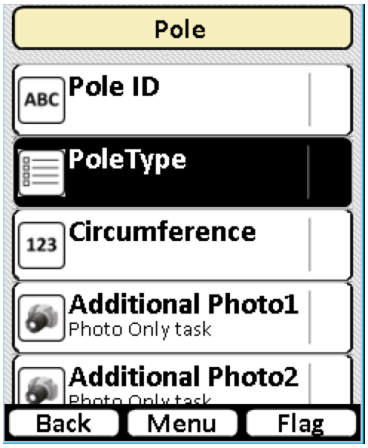


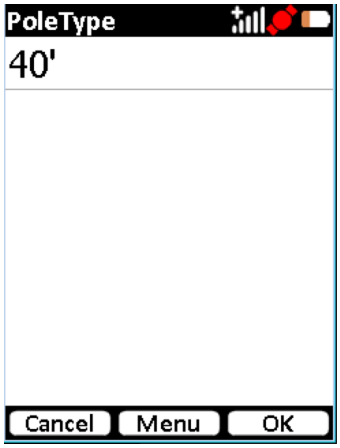
Note: The export will open a completely new project in SPIDACalc. Therefore if you already have active project, save it before doing an export.

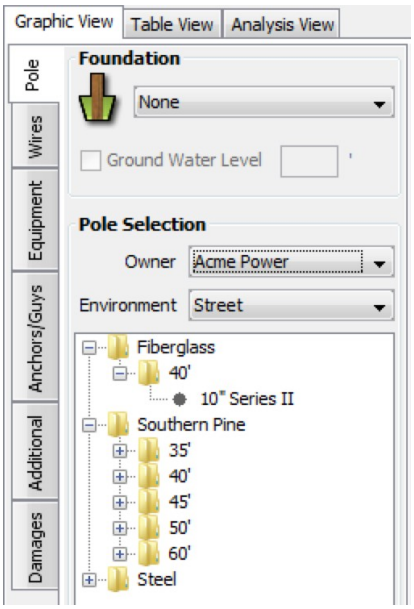
Appendix A. MapSight - SPIDACalc Data Mapping

Pole

PoleType on MapSight form is a nested list. It is populated from the Pole data in SPIDACalc client file



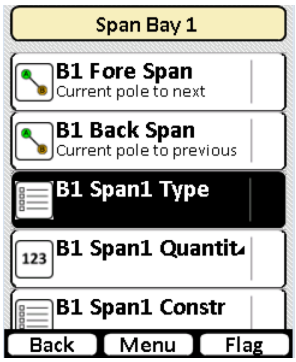


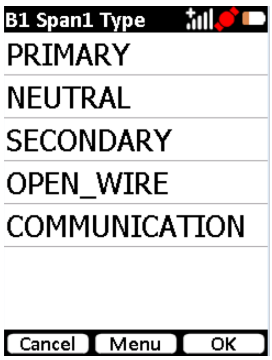


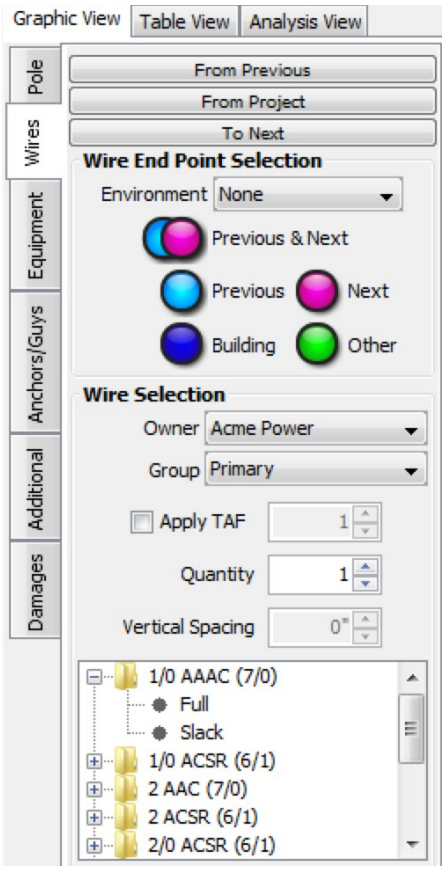
Wires

Power Conductors

Span Type is a nested list in MapSight form. It is populated from the Wires catalog in SPIDACalc client file.

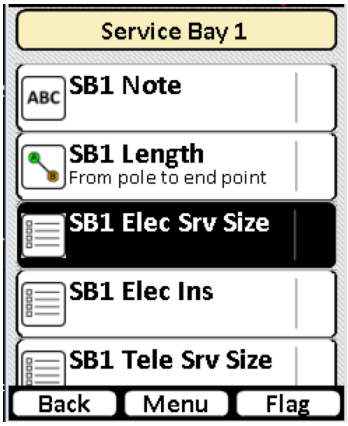


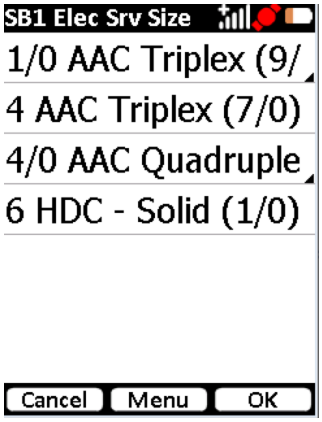


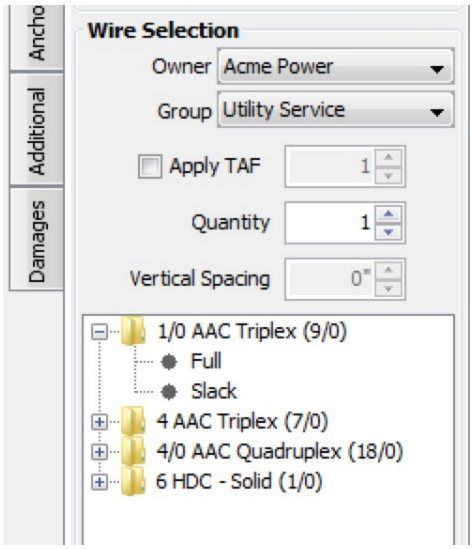


Service Conductors

Srv Size is a nested list in MapSight form. It is populated from the Wires catalog in SPIDACalc client file under the "Utility Service" group.

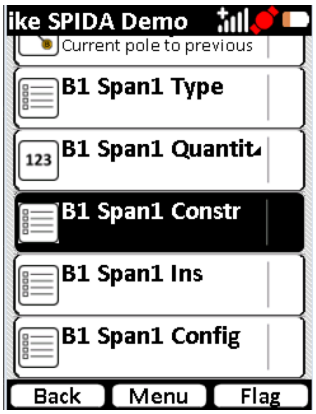


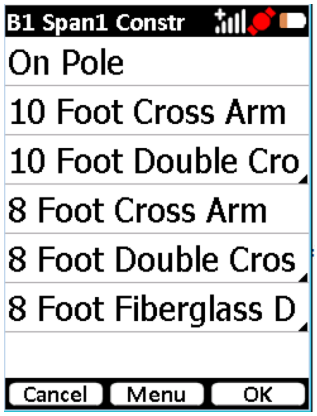


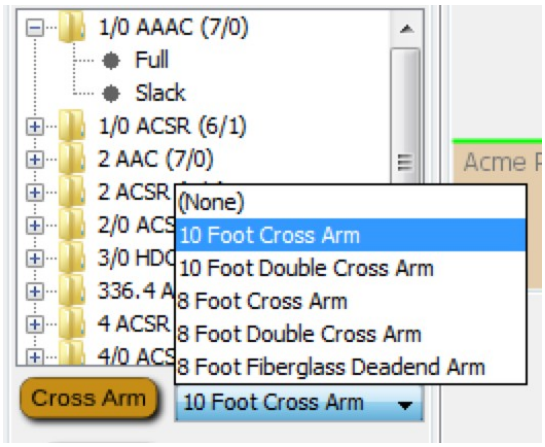


Cross Arms

Span Constr is a nested list in MapSight form. It is populated from the cross arms list in SPIDACalc client file.

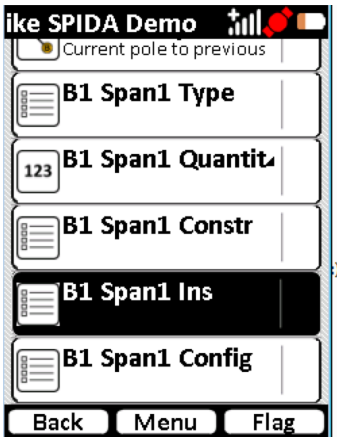


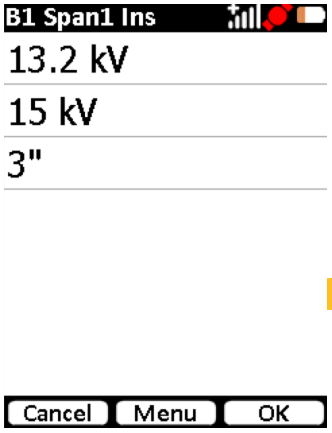


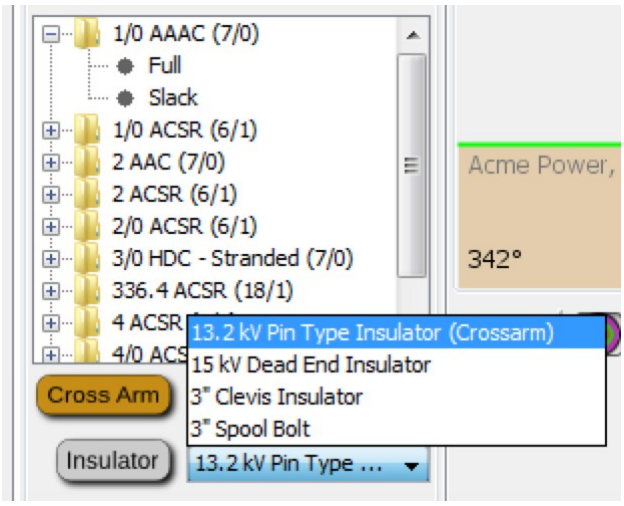


Insulators

Span Ins is a nested list in MapSight form. It is populated from the insulators list in SPIDACalc client file.

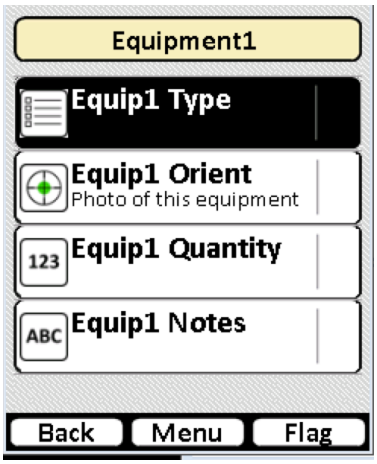


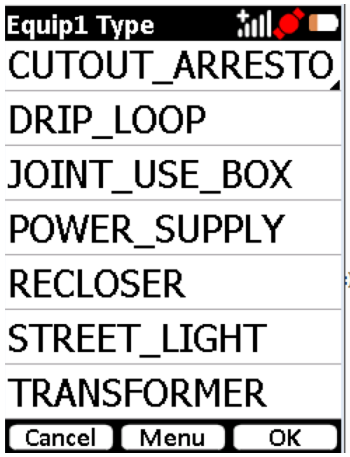


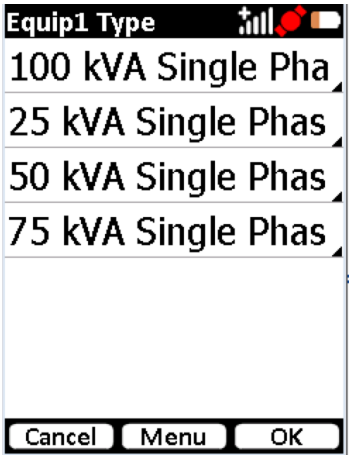


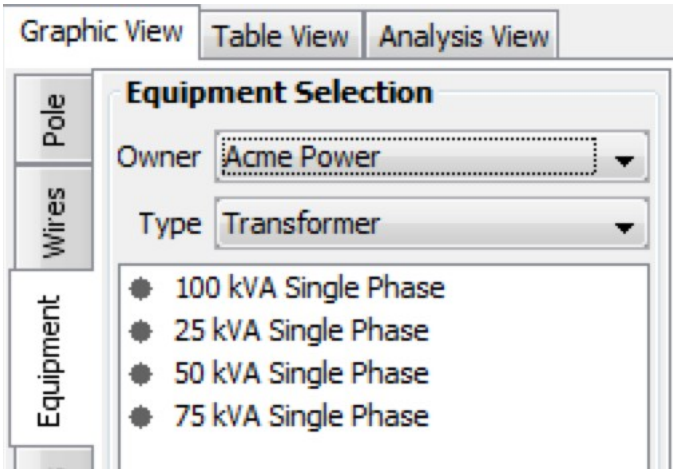
Equipment

Equip Type is a nested list in MapSight form. It is populated from the equipment types list in SPIDACalc client file.



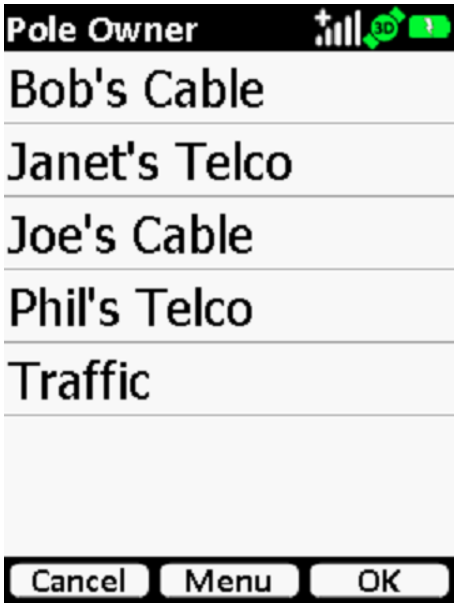


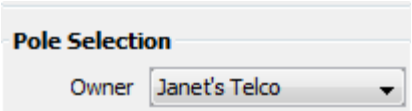




Owner

Owner is a nested list in MapSight form. It is populated from the owners listed in SPIDACalc client file.

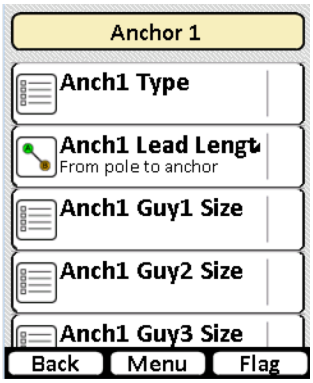


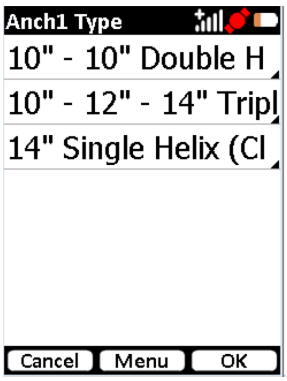


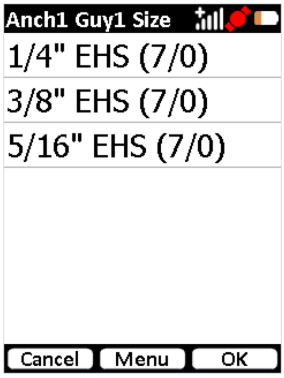
Anchors/Guys

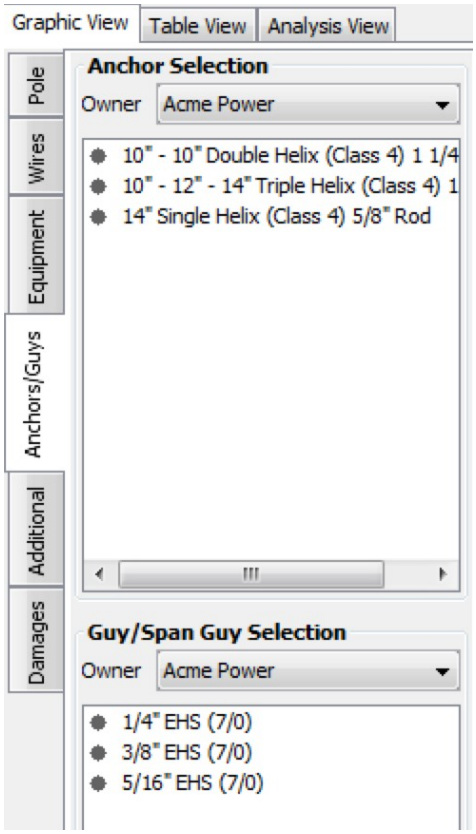
Anchor Type is a list in MapSight form. It is populated from the Anchors list in SPIDACalc client file.

Guy Size is a list in MapSight form. It is populated from the Guy/Span Guy Selection list in SPIDACalc client file.









Others: Assumptions in SPIDACalc integration

- The end points on electrical cables are at the same height. Where they are not, the horizontal component from the Missing Line tool is used.

- Where an insulator is connected to two cables, or a cross arm to multiple spans, the insulator/cross arm will be mounted on the pole at the average of the cable azimuths. Practically, this means it will be mounted, and face the mid-point of the acute angle (<180*) between two azimuths. An insulator/cross arm with one cable attached is mounted facing the azimuth of that cable plus ninety degrees. Both angles may be adjusted manually in SPIDACalc.

- In case of cross arms on Span Bay 1 this angle will automatically adjust when you adjust the respective wire end points. Cross arms in other Span Bays use a static calculation and need to be manually adjusted to suit adjustments in associated Wire End Points.

- Cross arm offset and wire separation is based on a pre-defined model. End user should adjust these manually to fit their particular cross arm type and mounting standards.

- When not specified, tensions are automatically assigned "Full Tension"

- MapSight embeds data from your selected SPIDACalc Client File into the generated form, and features generated with that form. You must ensure the correct Client File is generated before generating the form. After that point, any features collected will use the original Client File selected.

- Dialogue boxes in the SPIDACalc application prevent API integration. If you don't see SPIDACalc options, clear any dialogue boxes in SPIDACalc and restart MapSight.

- The first Span Bay is recorded as "Previous" and "Next" poles. Subsequent Span Bays are marked as "Other" pole, and service bays spans are marked as attached to "house".

    - Feature id uses the Pole ID if entered, otherwise defaults to ike timestamp based feature name

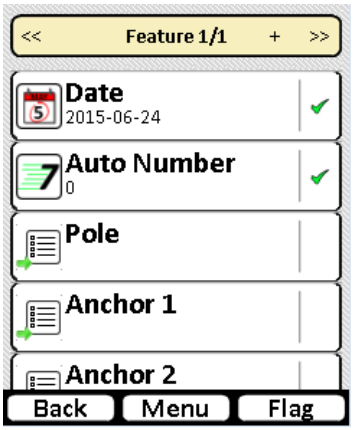
    - Changes to item names should be performed in SPIDA prior to creating iwf. It cannot be altered in the form.

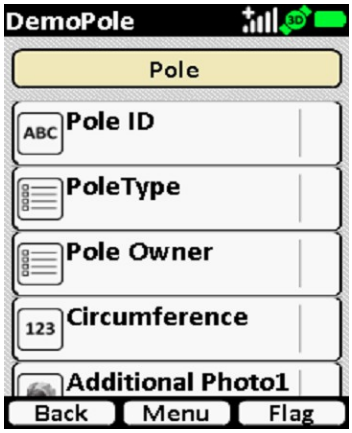
    - If an insulator is not entered, "Default Insulator" is used, which can be mapped to a specific insulator for the whole pole line in SPIDA on export.

Appendix B. SPIDACalc Data Collection Form

Pole

Form	Sub Form	TYPE	LIST VALUES
Date		date	
Auto Number		auto number	
Pole	**Pole ID**	text	
	PoleType	Nested list	(Populated from Client File)
	Pole Owner	Nested list	(Populated from Client File)
	Circumference	number	
	Additional Photo1		
	Additional Photo2		
	Additional Photo3		

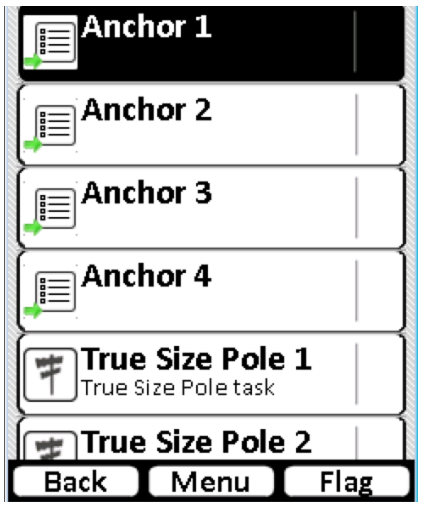




Note: Circumference can be collected either from the field or measured on the photos on MapSight Desktop software. The value collected from the field supersedes the measurement on the photo.

Anchors and Guys, True Size Photos

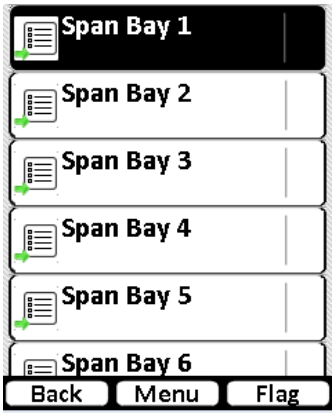
Form	Sub Form	TYPE	LIST VALUES
Anchor1	**Anch1 Type**	list	(Populated from Client File)
	Anch1 Owner	Nested list	(Populated from Client File)
	Anch1 Lead Length	missing line	
	Anch1 Guy 1 Size	list	(Populated from Client File)
	Anch1 Guy 2 Size	list	(Populated from Client File)
	Anch1 Guy3 Size	list	(Populated from Client File)
<Repeat Anchor 2 - 4 …>			
TrueSize Pole 1		true size pole	
TrueSize Pole 2		true size pole	
TrueSize Pole 3		true size pole	
3 Shot Height		three shot height	(Optional, not used in SPIDACalc)
Target Location		target location	(Optional, not used in SPIDACalc)

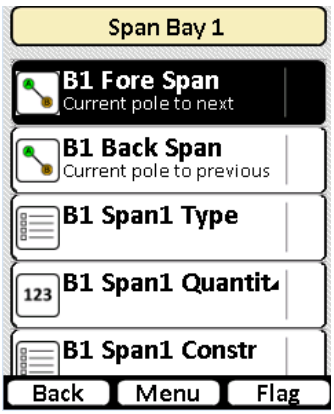


Note: Shared anchor is supported in this model.

Primary/Secondary/Communication Conductors

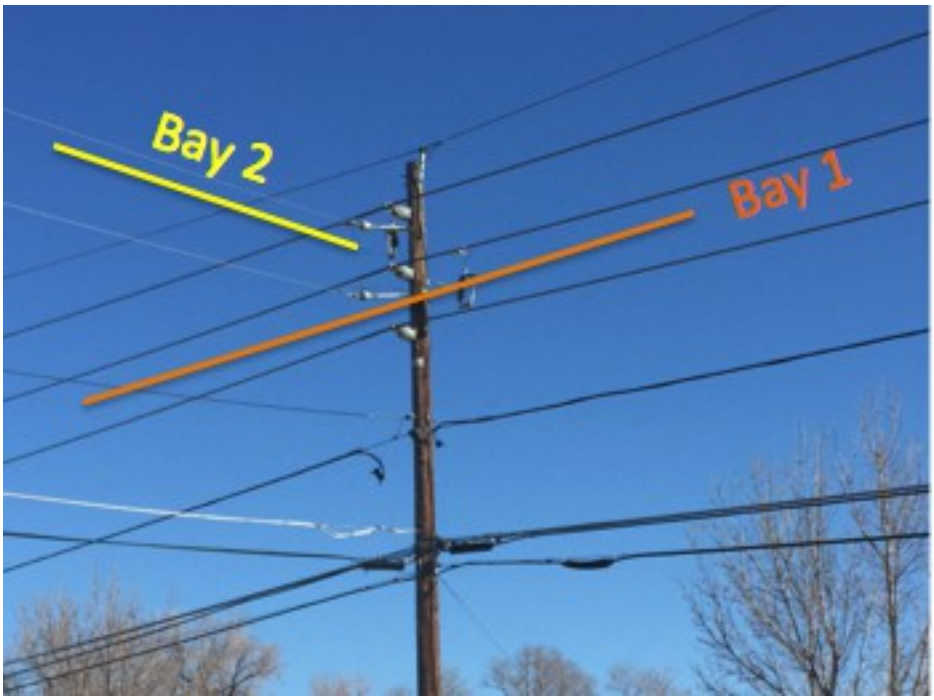
Form	Sub Form	TYPE	LIST VALUES
Span Bay 1	**B1 Fore Span**	missing line	
	B1 Back Span	missing line	
	B1 Span1 Type	nested list	(Populated from Client File)
	B1 Span1 Quantity	number	
	B1 Span1 Constr	list	(Populated from Client File)
	B1 Span1 Owner	Nested list	(Populated from Client File)
	B1 Span1 Config	List	Fore, Back, Both
	<Repeat Spab 2 - 8 …>		
<Repeat Span Bay 2 - 6 …>			





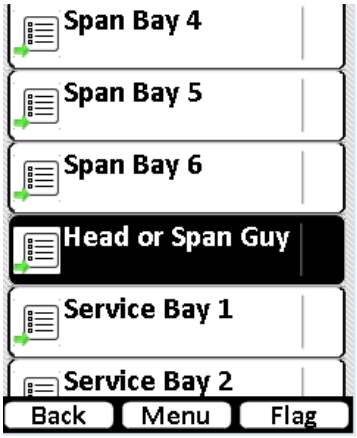
Span Bay

- A Span Bay represents a wire direction
- A Span Bay can have multiple spans
- **For each Span Bay, collect Foreword Span and Backword Span only once**



Head or Span Guy

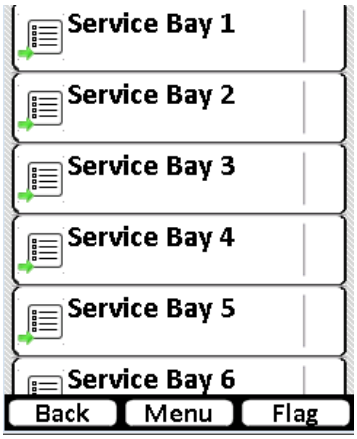
Form	Sub Form	TYPE	LIST VALUES
Head or Span Guy	Span Guy1 Size	list	(Populated from Client File)
	Span Guy1 Length	missing line	
	Span Guy1 Owner	Nested list	(Populated from Client File)
	<Repeat Span Guy 2 - 4 …>		

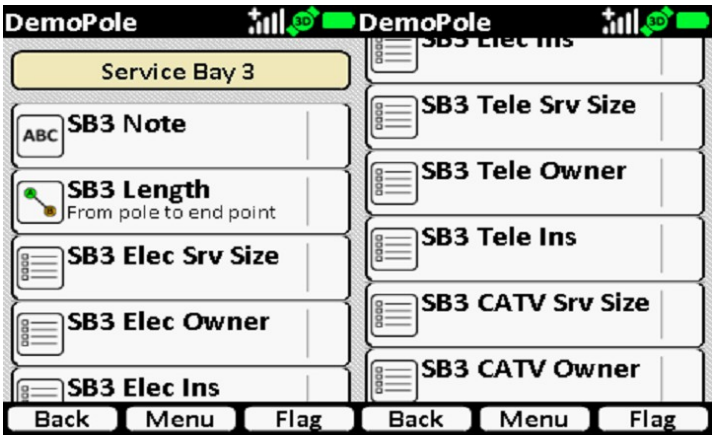

Span Bay 4
Span Bay 5
Span Bay 6
Head or Span Guy
Service Bay 1
Service Bay 2
Back
Menu
Flag


DemoPole
Head or Span Guy
Span Guy1 Size
Span Guy1 Length
Missing Line task
Span Guy1 Owner
Span Guy2 Size
Span Guy2 Length
Back
Menu
Flag

Service Drops

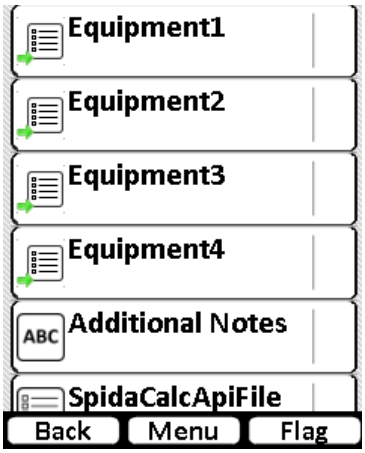
Form	Sub Form	TYPE	LIST VALUES
Service Bay 1	**SB1 Note**	text	
	SB1 Length	missing line	
	SB1 Elec Srv Size	list	(Populated from Client File)
	SB1 Elec Srv Owner	Nested list	(Populated from Client File)
	SB1 Elec Srv Ins	Nested list	(Populated from Client File)
	SB1 Tele Srv Size	list	(Populated from Client File)
	SB1 Tele Srv Owner	Nested list	(Populated from Client File)
	SB1 Tele Srv Ins	Nested list	(Populated from Client File)
	SB1 CATV Srv Size	list	(Populated from Client File)
	SB1 CATV Srv Owner	Nested list	(Populated from Client File)
	SB1 CATV Srv Ins	Nested list	(Populated from Client File)
<Repeat Service Bay 2 - 8 …>			


Service Bay 1
Service Bay 2
Service Bay 3
Service Bay 4
Service Bay 5
Service Bay 6
Back
Menu
Flag


DemoPole
Service Bay 3
SB3 Note
SB3 Length
From pole to end point
SB3 Elec Srv Size
SB3 Elec Owner
SB3 Elec Ins
Back
Menu
Flag
DemoPole
SB3 Tele Srv Size
SB3 Tele Owner
SB3 Tele Ins
SB3 CATV Srv Size
SB3 CATV Owner
Back
Menu
Flag

Equipment

Form	Sub Form	TYPE	LIST VALUES
Equipment1	Equip1	list	(Loaded from Client File)
	Equip1 Orient	Target Position photo	
	Equip1 Quantity	number	
	Equip1 Owner	Nested list	(Populated from Client File)
	Equip1 Notes	text	
<Repeat Equipment2 - 4 …>			



Note: Equipment Orient is a Target Position photo. You need to be directly facing the equipment when taking the photo in order to get the correct bearing of the equipment.