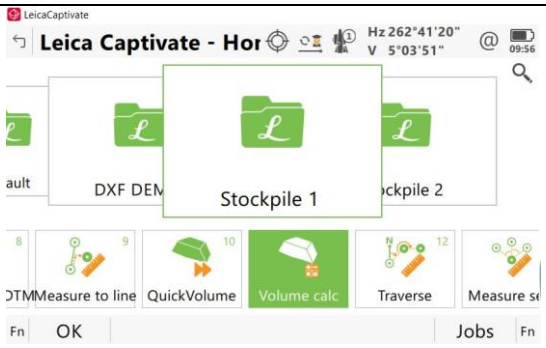
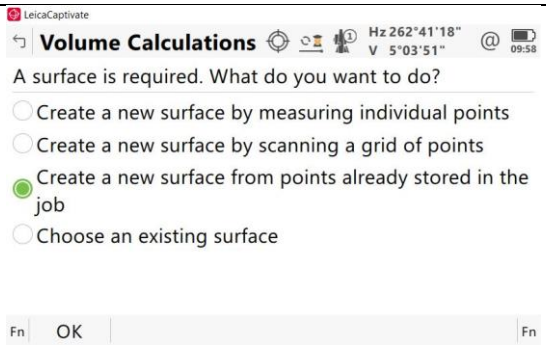
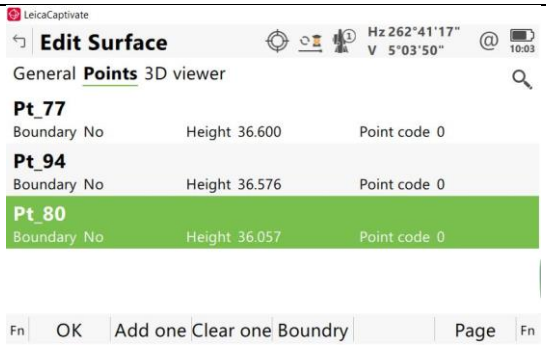
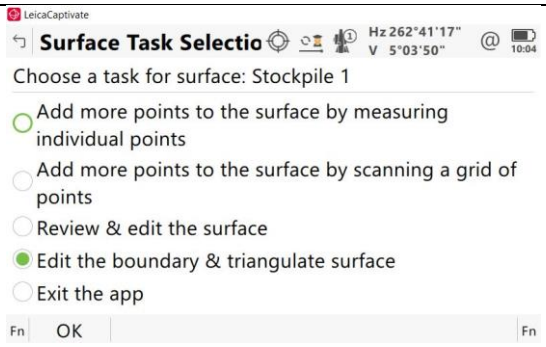
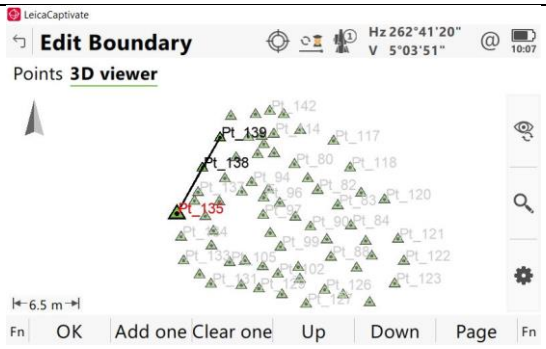
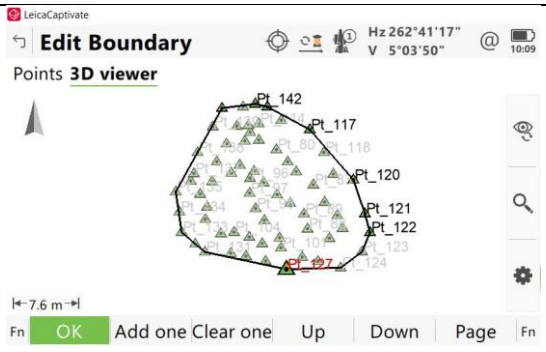
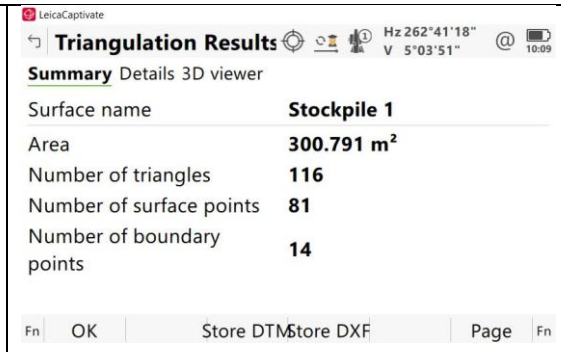
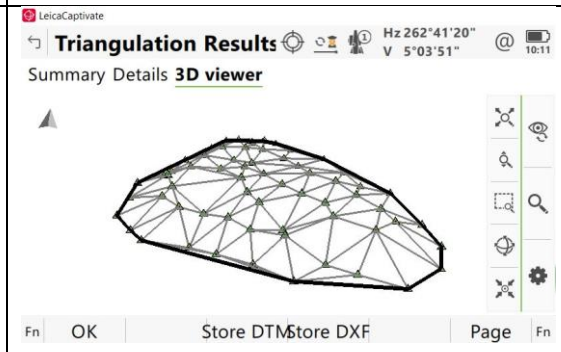
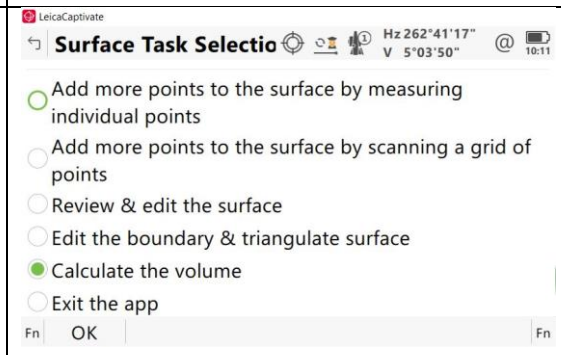
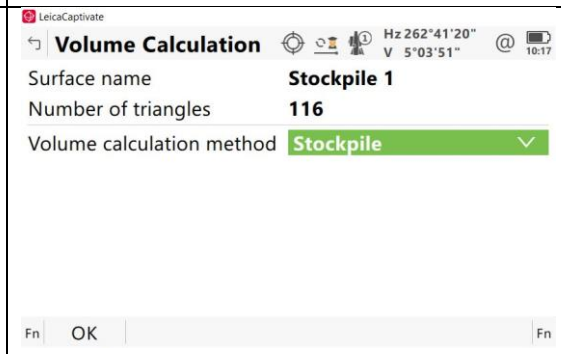
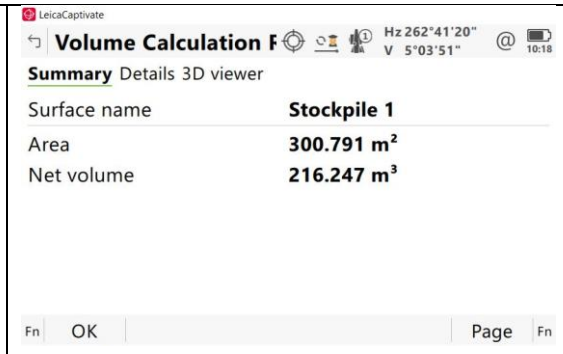
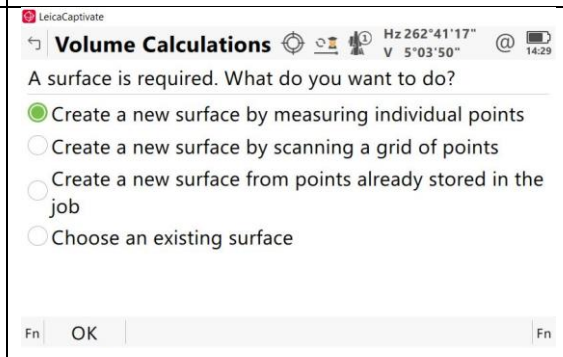
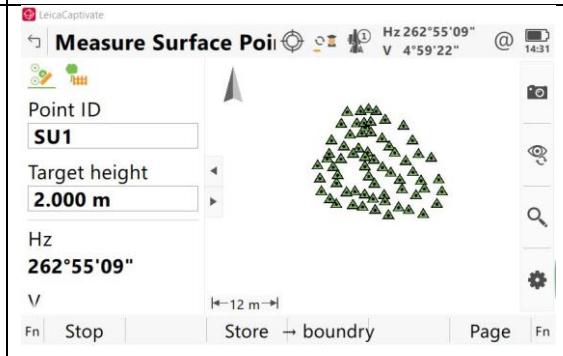
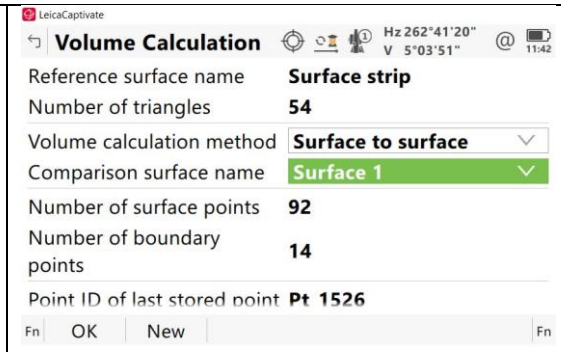
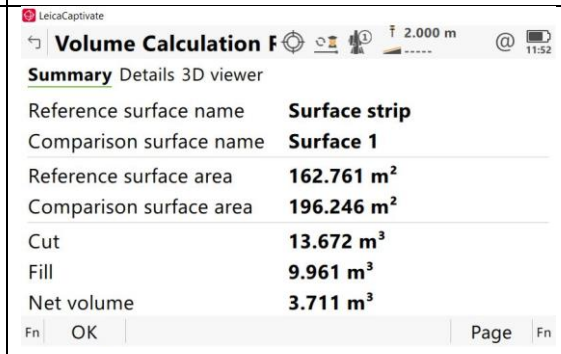
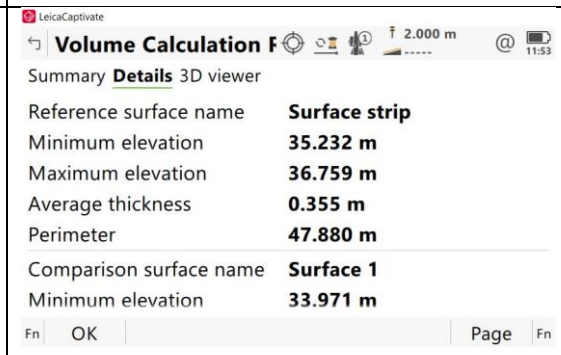
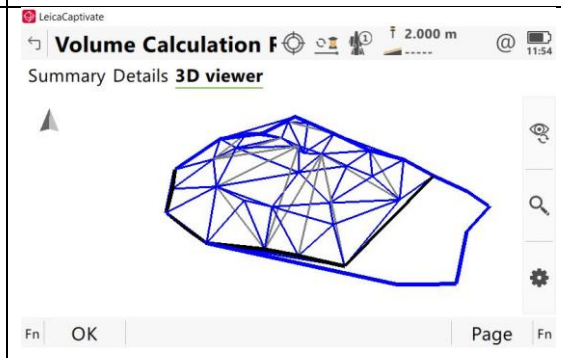
Leica Captivate: Volume calculation. Stockpile and Surface to Surface

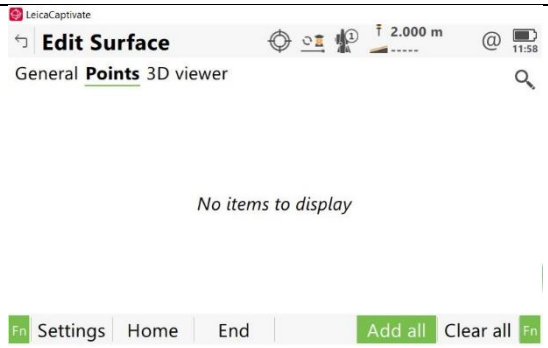
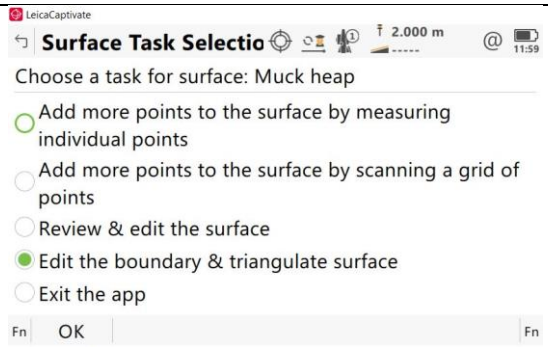
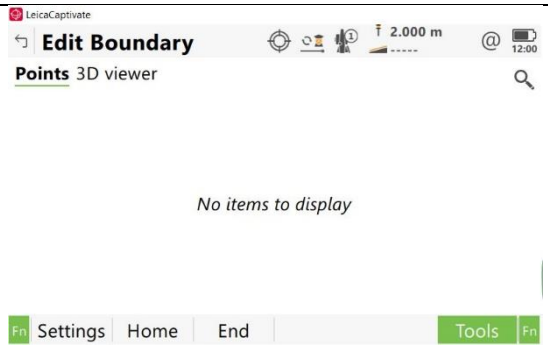
1		The two common ways to calculate a volume are to use points already stored in a working job or to create a volume by measuring points in real time when on site. **Look out for the quicker Rubber Band Theory further down this guide.** I am doing this calculation with data I have previously surveyed and stored in the job. Open the **Volume calc** app.
2		Choose the method that you want to use. If you choose the same method as me and you have a lot of data in your job that isn't associated with your volume calc then it can become quite a lengthy process identifying what points you want to use. If you want to have your volumes in the same job as the rest of your data, then you should give the points you're recording a unique PtID so you can create a filter of them later to make life easier. If it is possible use a new job for your calculation.
3		Once you have named your Volume calc you will be directed to the Edit Surface page. Click **Add one**. You should now see a list of all the points in the job. You need to press Add one for each individual point. You can page across to 3D viewer and add them from here too. If you have given your volume measurements specific PtIDs then you can press Add one, FN – Filter and filter a range of point IDs or wildcard match to speed up the process.

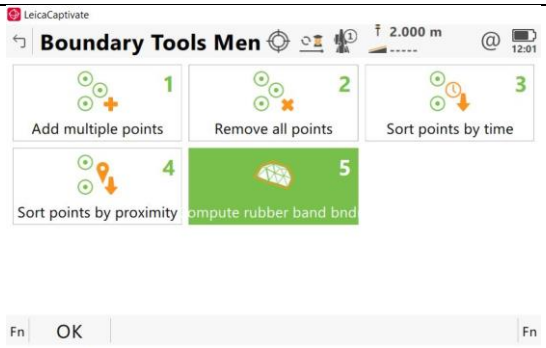
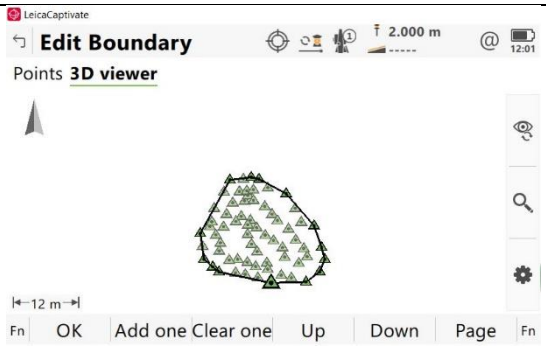
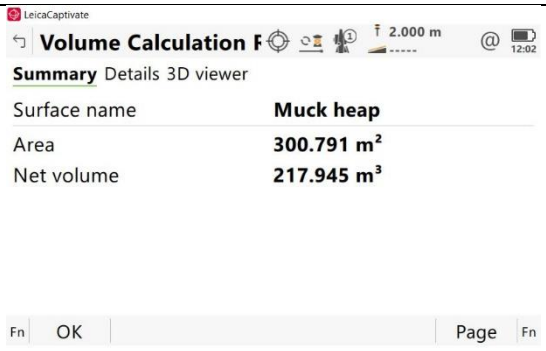
4		Once you have all the surface points added press **OK**.
5		Edit the boundary & triangulate surface should be highlighted. Press **OK**.
6		Now repeat the process, clicking **Add one** and choosing the boundary points. I prefer paging across to 3D viewer so I can be sure to select the correct points. You will get a nice visual of the boundary line as you add them.
7		Once you have added the boundary points press OK.

8		You will see a summary of your work.
9		Page across to details to see more information and page across to 3D viewer for a visual. You can store surface as a DTM or save as a DXF using F3 and F4. Press **OK**.
10		Calculate the volume should be selected. Press **OK**.
11		Choose what method you want to use. There are different options in the drop down that you can explore. At this stage the surface is saved in the volume calc app, so you are safe to go in and out of the calculations as you please. I am calculating how much material is in the stockpile.

12		Page across to see further detail. As mentioned, you can go into the Volume Calc app and choose existing surfaces and look at this data any time or edit it if you need or wish to.
13		The site has been reducing the size of the Muck heap and I have been asked how much we have taken off site. I can do a simple Surface to Surface calculation however the surface MUST be created in the same job as the last one.
14		This time I am going to measure individual points.
15		You can see at the top it says Measure Surface Points. If you want to do the boundary first press F4 (boundary) and you will see Measure Boundary Points at the top. Record the points and select Done. You can see the points used for the original Volume in the viewer.

16		Follow the same steps as before to get to the calculation method. This time I am going to choose Surface to Surface. There won't be a massive difference between my stockpiles due to skills using my simulator. Press **OK**.
17		Here are the results. Again, this data is saved in the Volume calc app for future reference or to compare other surfaces.
18		Details page.
19		Looking at the 3D viewer page you can clearly see where the reduction has come from. Press **OK** to exit.

20		**Let's look at a quicker way to calculate a simple stockpile.** Open the Volume Calc app and choose Create volume from points already stored in the job. On the first Edit Surface page press **Fn – Add all**.
21		All the points are added to the surface list. Press **OK**.
22		Select Edit the boundary & triangulate surface. Press **OK.**
23		Press **Fn – Tools**.

24		Select **Compute rubber band boundary**.
25		Captivate has created a boundary for us as if a rubber band was placed around the stockpile. You may or may not need to edit one or two points depending on the shape of your area. Press **OK**.
26		Quick and accurate results.