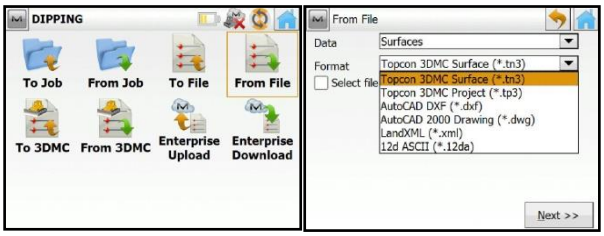
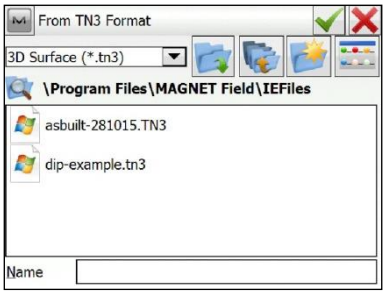
Stake Surface in Magnet Field – Paving Applications

This Procedure can be used for recording “dips” to a Surface that has recently been Paved. Several customizable reports can be exported together with the actual “asbuilt” surface itself for further analysis using desktop software such as Magnet Office.

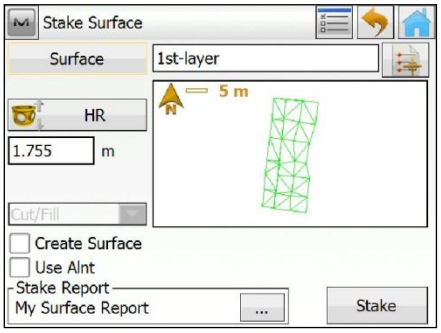
This procedure requires a design surface(s) to reference to. This can be in a variety of formats both Topcon (*.TN3 / *.TP3) and dxf/dwg/xml.

In Magnet Field, import the surface ; Exchange/From File.

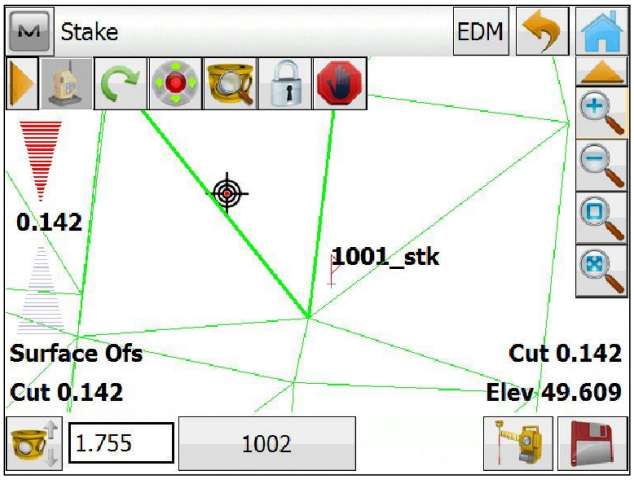




Once the surface is imported and the instrument is set up and co-ordinated, go “Stake”;



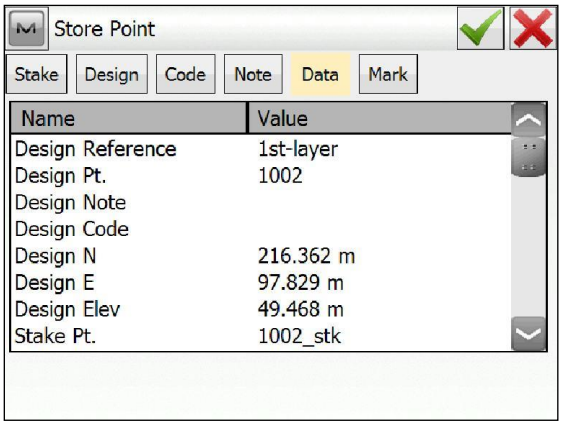
Chose the surface name from the *list* , confirm the pole height and if necessary configure the “stake report” which customizes the format of the QA/Asbuilt report exported. Next press “stake” and you will see the position of the pole and the relevant cut/fill values showing the relationship of the base of the pole to the design surface.



The Graphic shows the current “rod” position and the “light bar” on the left hand side shows the “rod” to be 142mm above the design surface. Pressing the “floppy disc” icon saves the asbuilt position /height of the rod position. Note, the 4 display boxes near the bottom of the screen are customizable , by tapping them you can change the data they show.

Any asbuilt points that have been recorded are shown on the graphic with a “flag” and point number (with the suffix _stk) these are recorded in the Job database.

The asbuilt report recorded is shown below;



This can be exported from the home screen using Exchange/to file/stakeout reports – CSV format.

Since all the asbuilt points are listed with the suffix _stk we can export these as a “cut sheet”.

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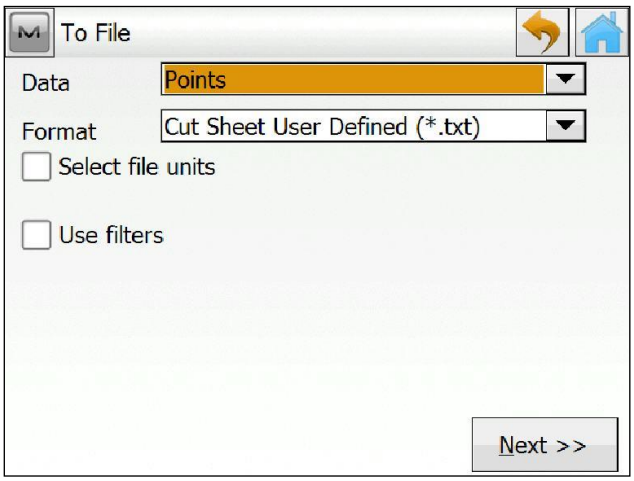
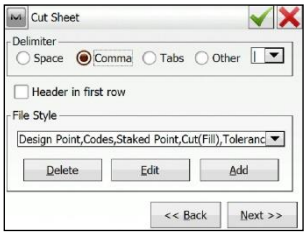
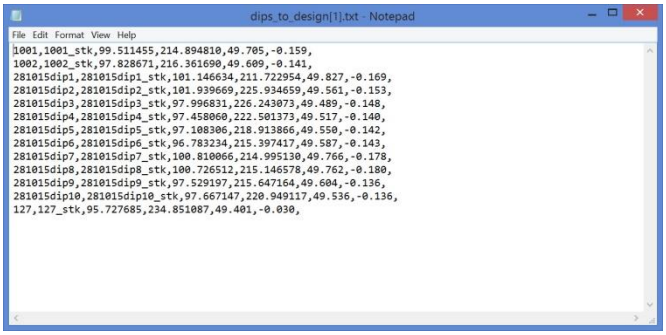
Exchange / to file and select data type; Points, Format; Cut Sheet User Defined.



This allows the user to determine what data is exported. Go “next”, then “edit”.



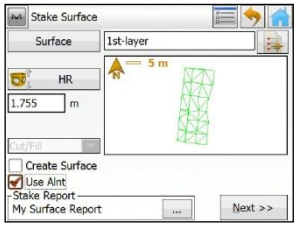
The resulting report will be saved as a CSV (comma delimited file).

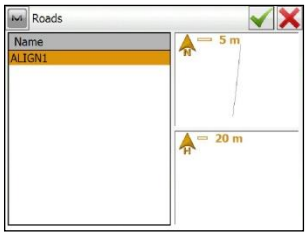


Stake Surface relative to an Alignment

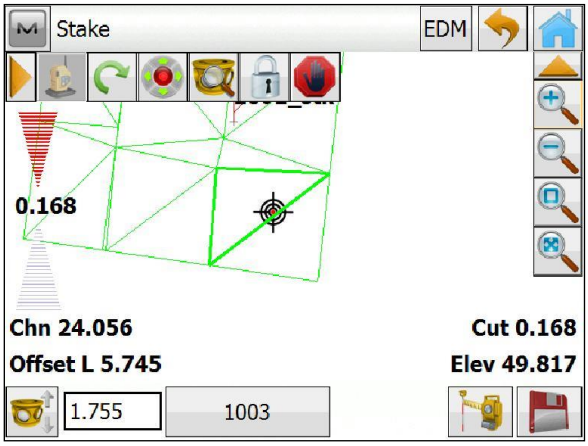
If a Road Alignment is available, the stake surface option can show chainage offset and height. In the Stake Surface screen, tick “use Align” and select the alignment from the list.

Note; the Alignment can be imported as part of the TP3 file or as an *.RD3 format

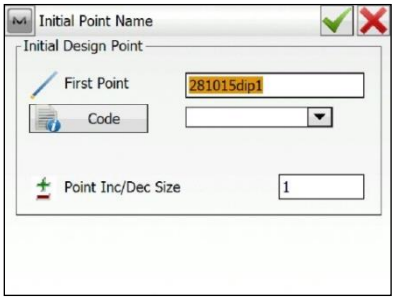




Stake Surface will now produce results showing the current chainage and offset (left or right) from the selected alignment;



If the user wants to change the numbering system for the Asbuilt points recorded, simply hit the “M” Magnet icon in the top left hand corner, and amend the “Initial Point Name”. Note also, the option in this dialog to “offset” the design surface allowing the user to reference the current rod position to a “virtual” design surface.



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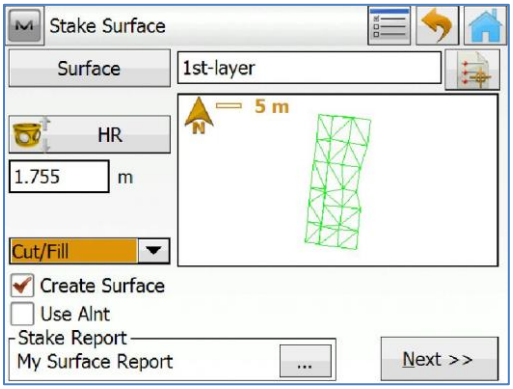
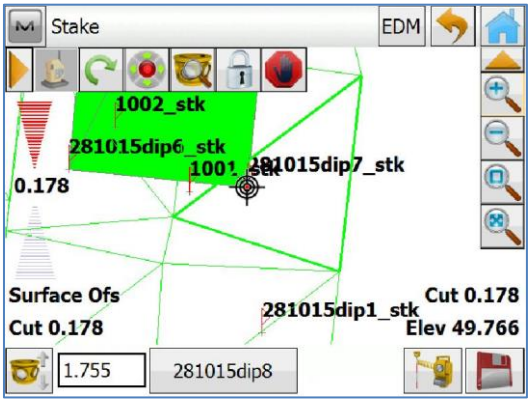
Creating a cut/fill surface



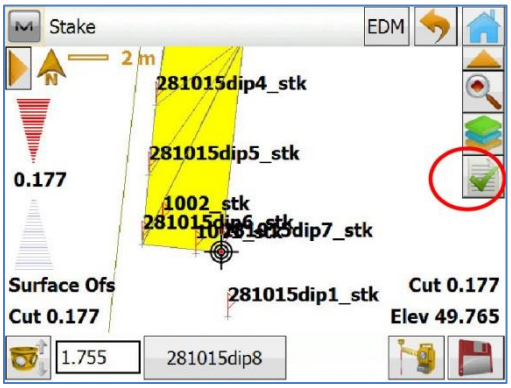
By selecting the “Create Surface” option, the user can create an asbuilt surface “on the fly” as the dip checks are being recorded.

Select the option and hit “next”.

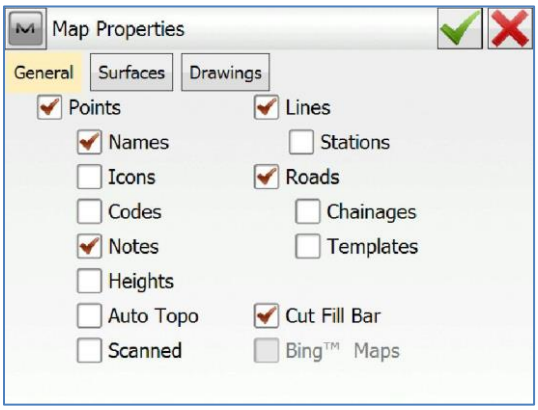


The graphic shows the “live” dip information as before but now, in addition, creates a new surface “on the fly”.

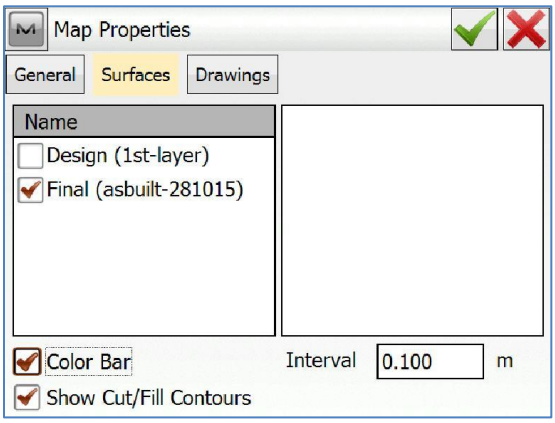
The display can be modified to aid interpretation . On the top right hand side of the display (below the home button), tap the triangle to see more menu options.



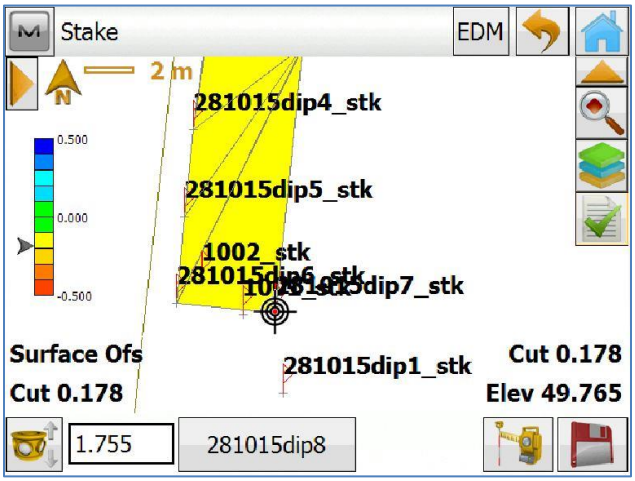
Tap the icon with the green “tick”. The “General” tab controls what is displayed on the “stakeout” screen.



The “Surface” tab relates to the surface display;



The user can decide which surface is displayed and how.



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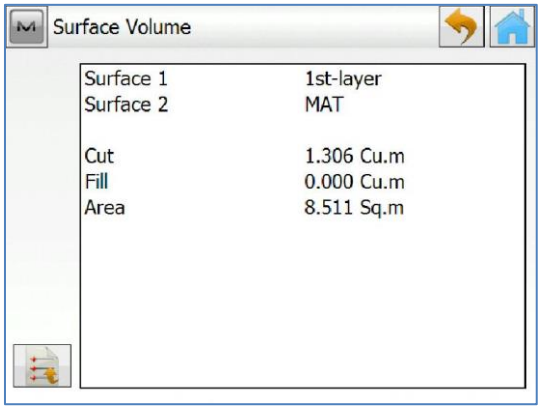
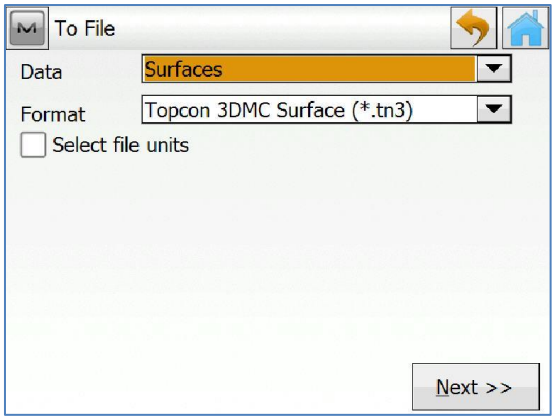
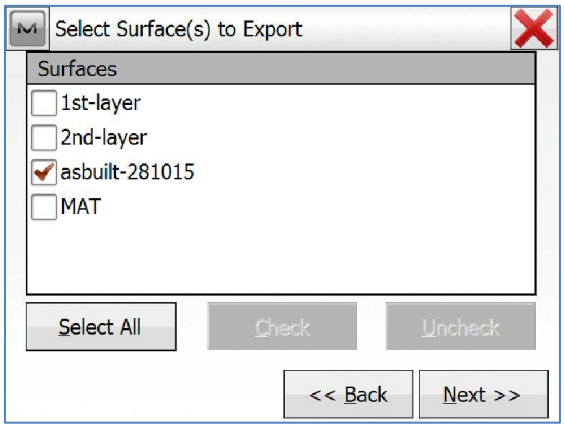
On quitting the option (back arrow or home), Magnet Field computes the volume of the materiel contained between the (new) asbuilt surface and the design surface.



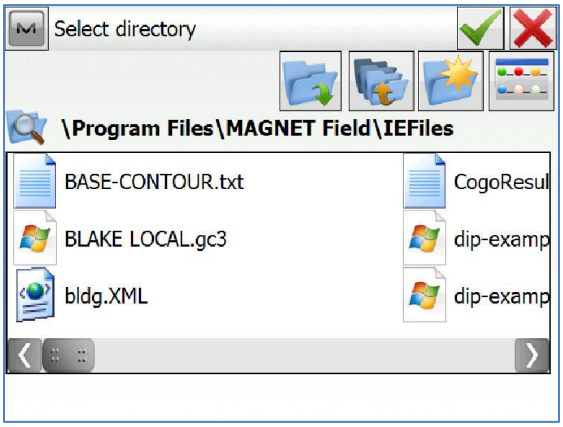
If the user wanted to export the “asbuilt” surface then ,from the Home Screen, Exchange / to File / and select “surface” as the data type.



Select the relevant surface from the “next” screen.



Browse to a location to store the file;



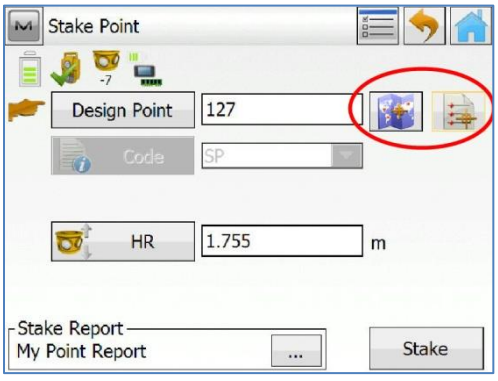
Green tick , and the surface will be exported as a *.TN3 file.

<u>Staking Points to determine the thickness of the materiel laid</u>.

If a Base Layer /Surface has been surveyed prior to laying materiel, it’s possible to stake out and measure to the exact same points on the new layer . This enables the user to determine the exact thickness of the layer at specific points.

From the Home screen, Stake/Points;

Select the desired point on the “design” surface via the Map or List buttons;



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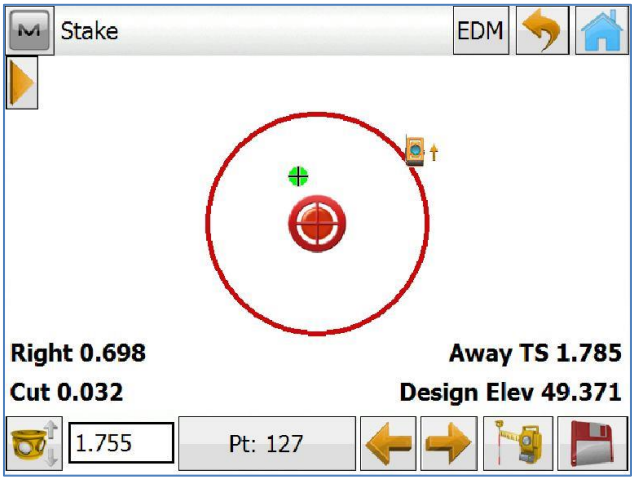
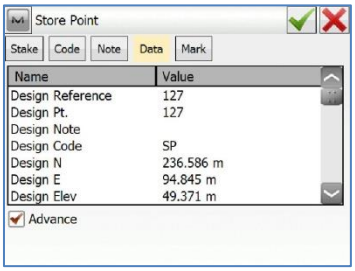
Go to the “stake” screen.

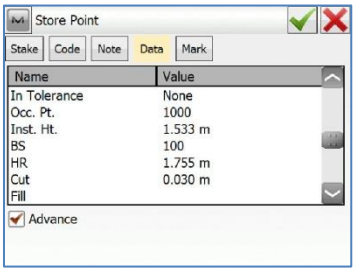


With the user facing the Robotic, the graphic guides the “rod” (green cross) toward the design point (red cross).

Note the “cut/fill” value in one of the customizable display locations.

Once the user is happy that the setting out tolerance has been met he can record the asbuilt position /layer thickness by hitting the floppy disc icon.

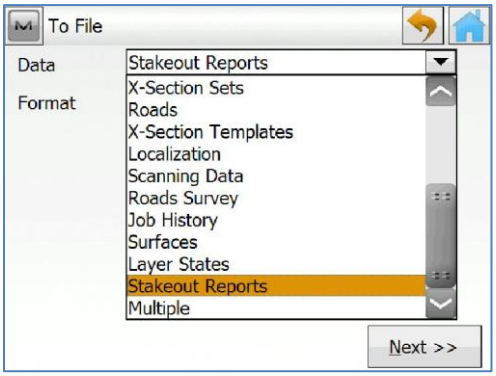




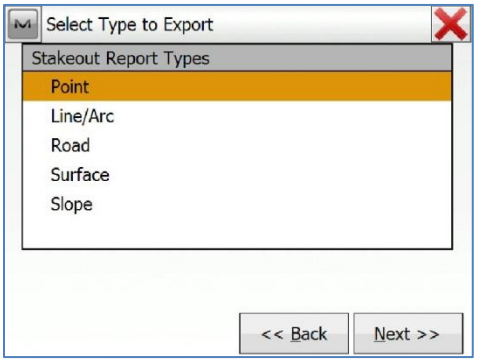
-Screen shots showing the variety of data recorded.

To provide a digital record of the work undertaken the asbuilt data can be exported as a “Stakeout report” .

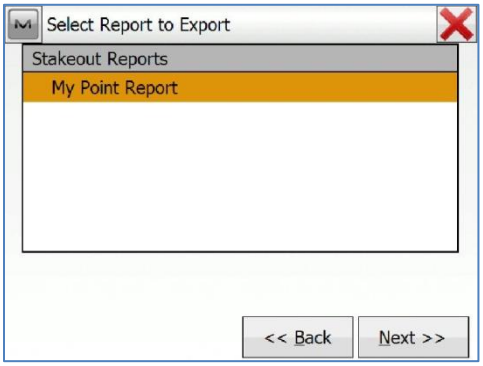
From the home screen, Exchange/ To File then select Stakeout reports (csv format).



Select Point report;



The individual report name;



This file will then be exported with the relevant design/asbuilt information.

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