# Trimble GFX350 and NAV500 guidance

Trimble GFX350 display and NAV500 antenna

We like to operate external tractor guidance software and feed the data into TerraTEM or AgTEM electronics as a secondary data feed. One solution is the Trimble GFX350 Android based display and NAV500 antenna/GNSS engine running with Viewpoint 30cm pass-to-pass accuracy (A$500/year) differential correction. By using external GNSS, we get to add differential corrections and get a topography dataset useful for cross-comparison with towed TEM data. Additionally, we get all the refinements of tractor navigation software for accurate easy parallel line surveying and even autonomous steering if ever required.
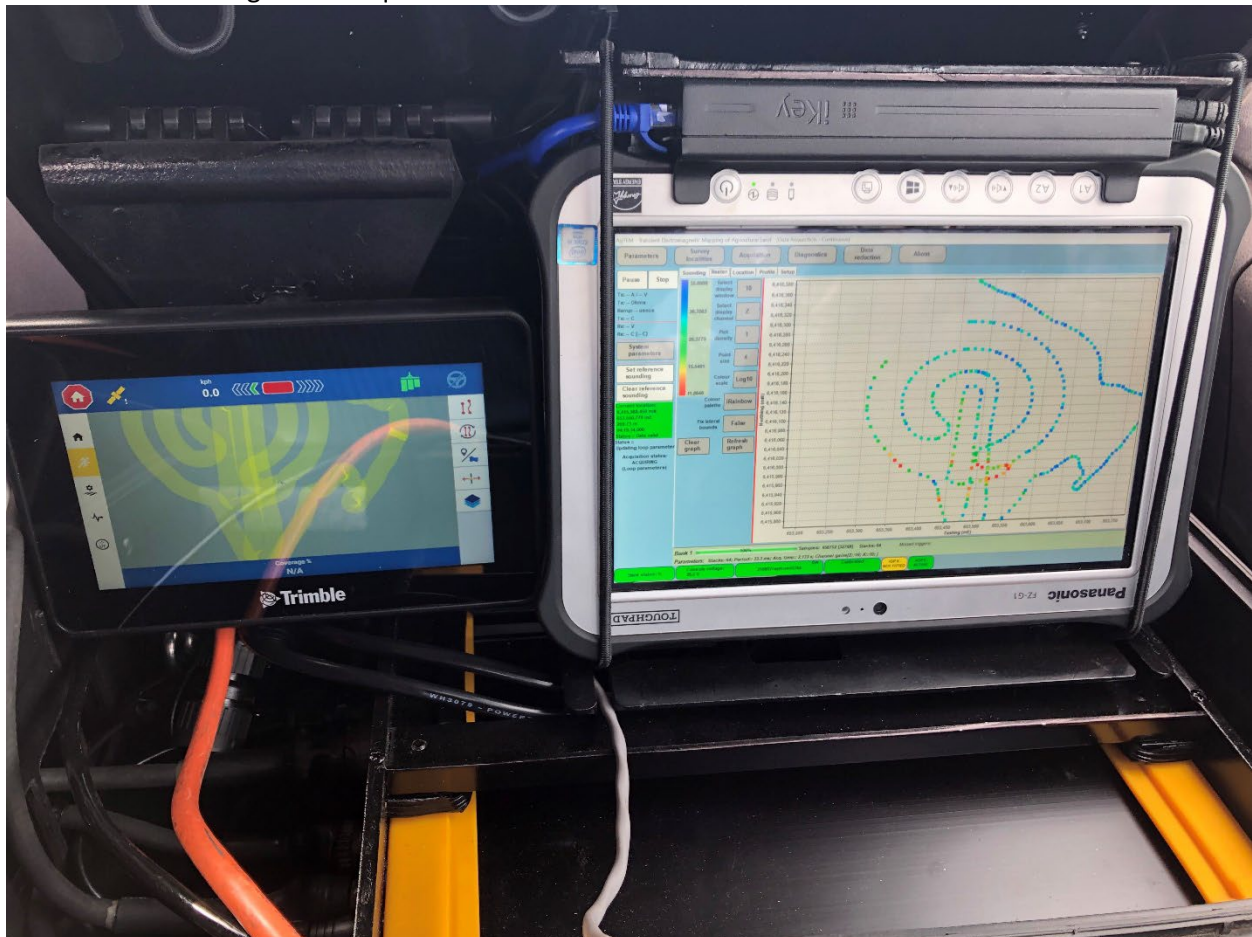

Trimble however offer up an information firewall such that it is next to impossible to work with their equipment for tasks they did not anticipate such as this. There are now alternatives from Field Bee and others and we are now using GNSS receivers internal to our computer but with external antennae. Trimble is just one option for new systems and potentially not the best. The biggest advantage is perhaps familiarity – many farmers know this system.

See the page on how we configure this system for use with AgTEM electronics >>>LINK<<<<

Setting up the Trimble GFX350 and NAV500 for use with AgTEM electronics and Viewpoint corrections

The following sequence of images present the way we set up the Trimble GFX350 and NAV500 for use with AgTEM electronics and Viewpoint corrections.

1. Turn on using the button on the rear and once the display boots press the Precision-IQ button
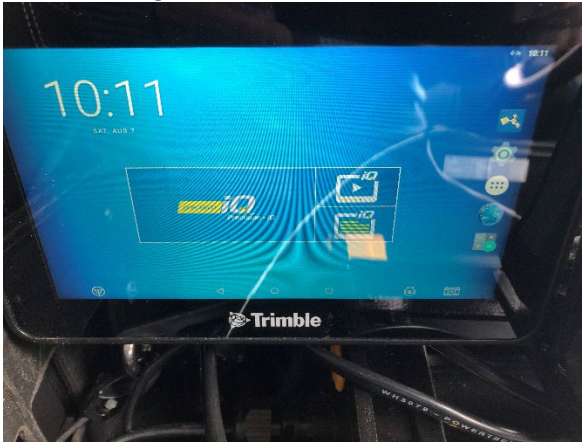
2. After a while the home screen appears and you get this error message if Viewpoint is selected but not set up.
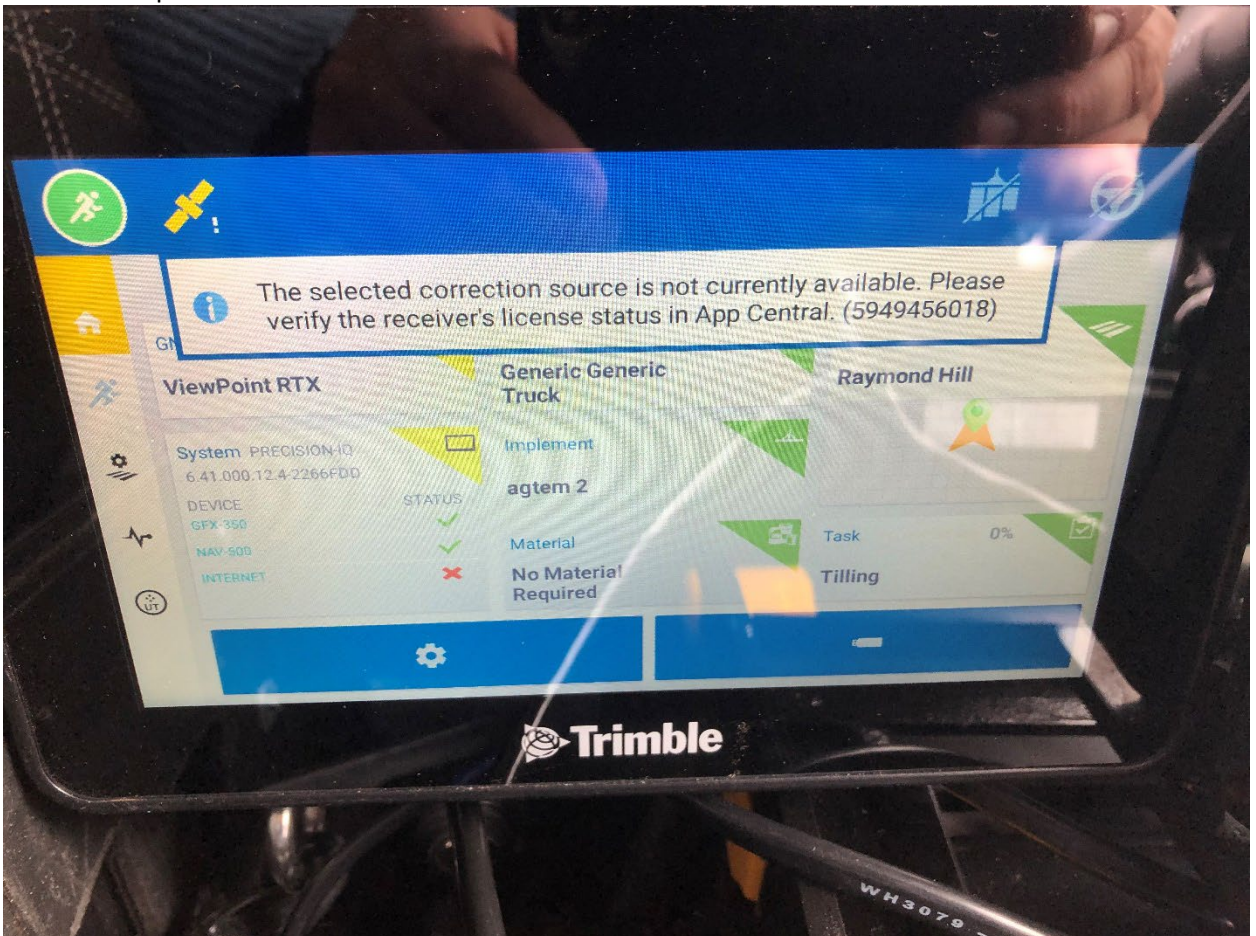
3. If you press the running-man icon you get to the navigation screen. To draw your swath you have to press the swathing button in the upper right. This will not activate potentially for two reasons: You will get a warning if you are on a new site and cannot be in the paddock you were last surveying because you are too far away (go back and setup your new paddock), or, you do not have the selected correction service active subscription and reception (beware that correction service reception can take a while to get at first and comes from an equatorial fixed orbit satellite – park next to the wrong tree and you will block it).


4. You can zoom in and out to help navigate complex paddocks full of trees and other obstacles.

5. Goto GNSS settings to set up correction service. Select to edit the settings from the overview screen
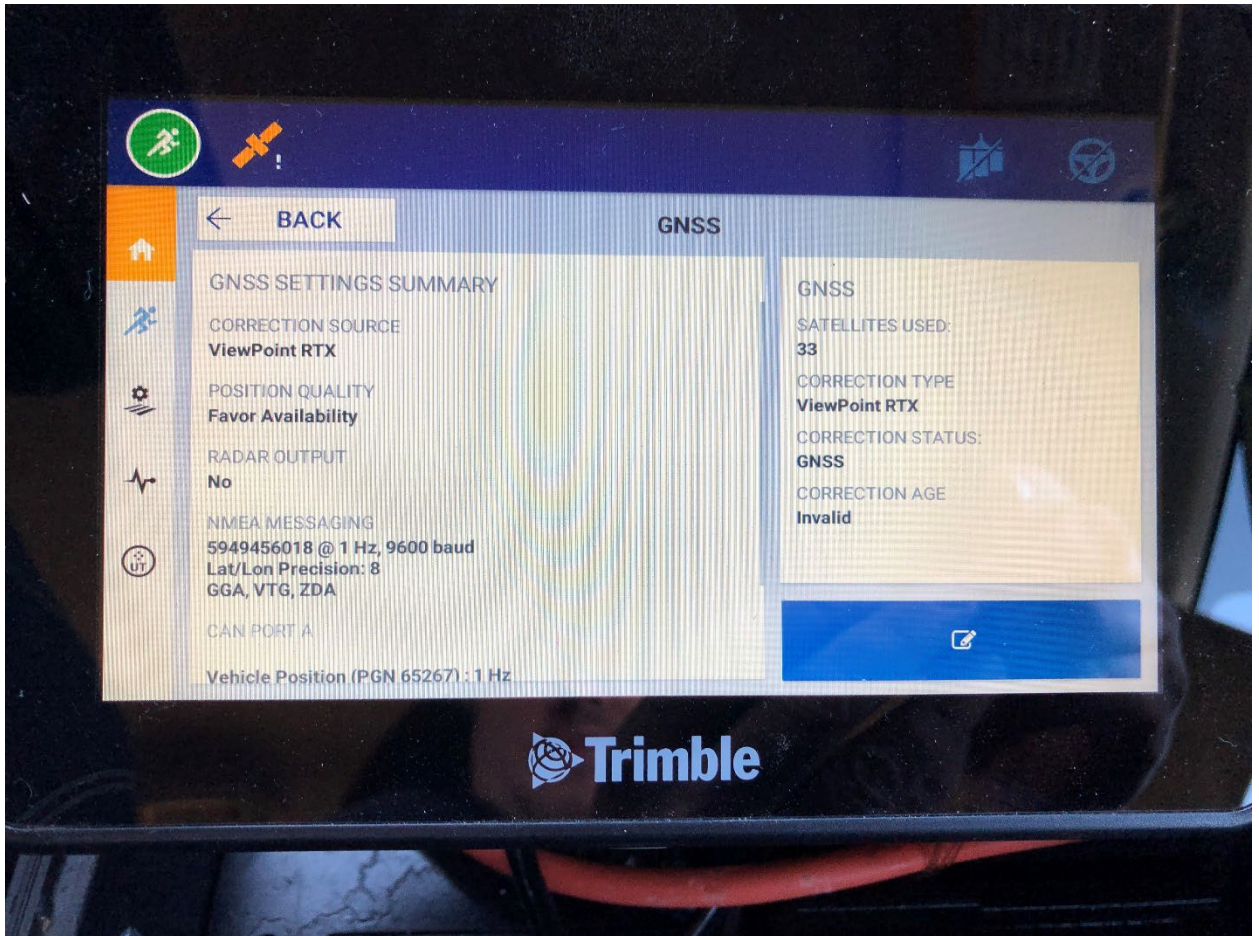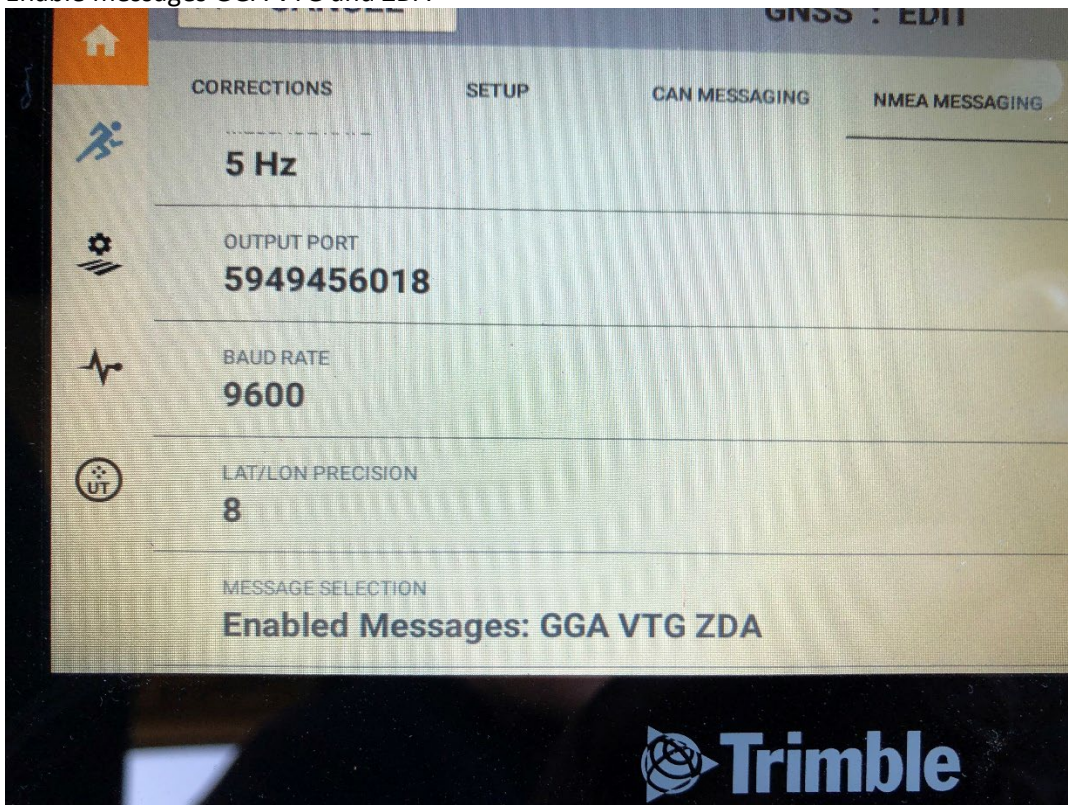

6. Select NMEA messaging to output to the AgTEM electronics and make baud rate suitable. 5Hz is shown but the faster this is, the slower it makes the TEM acquisition, and too slow and it will slow the TEM acquisition due to waiting time. 2Hz is reasonable.
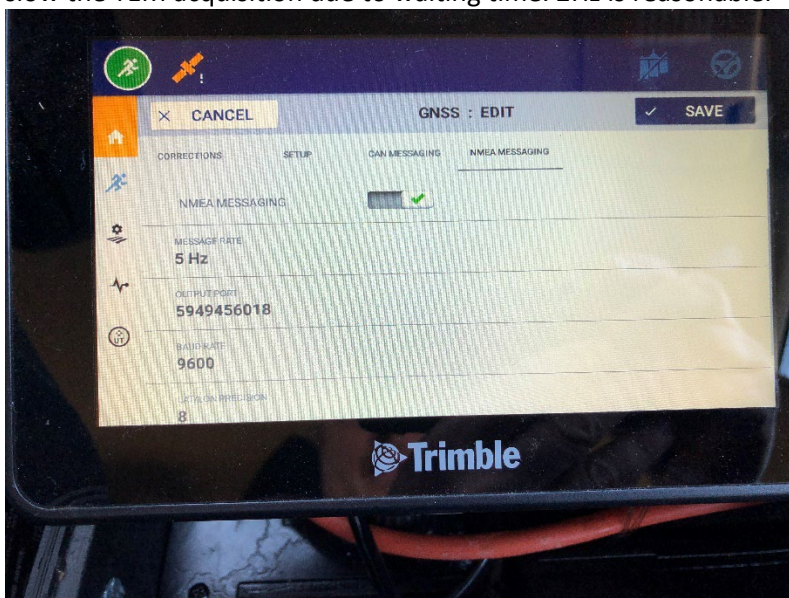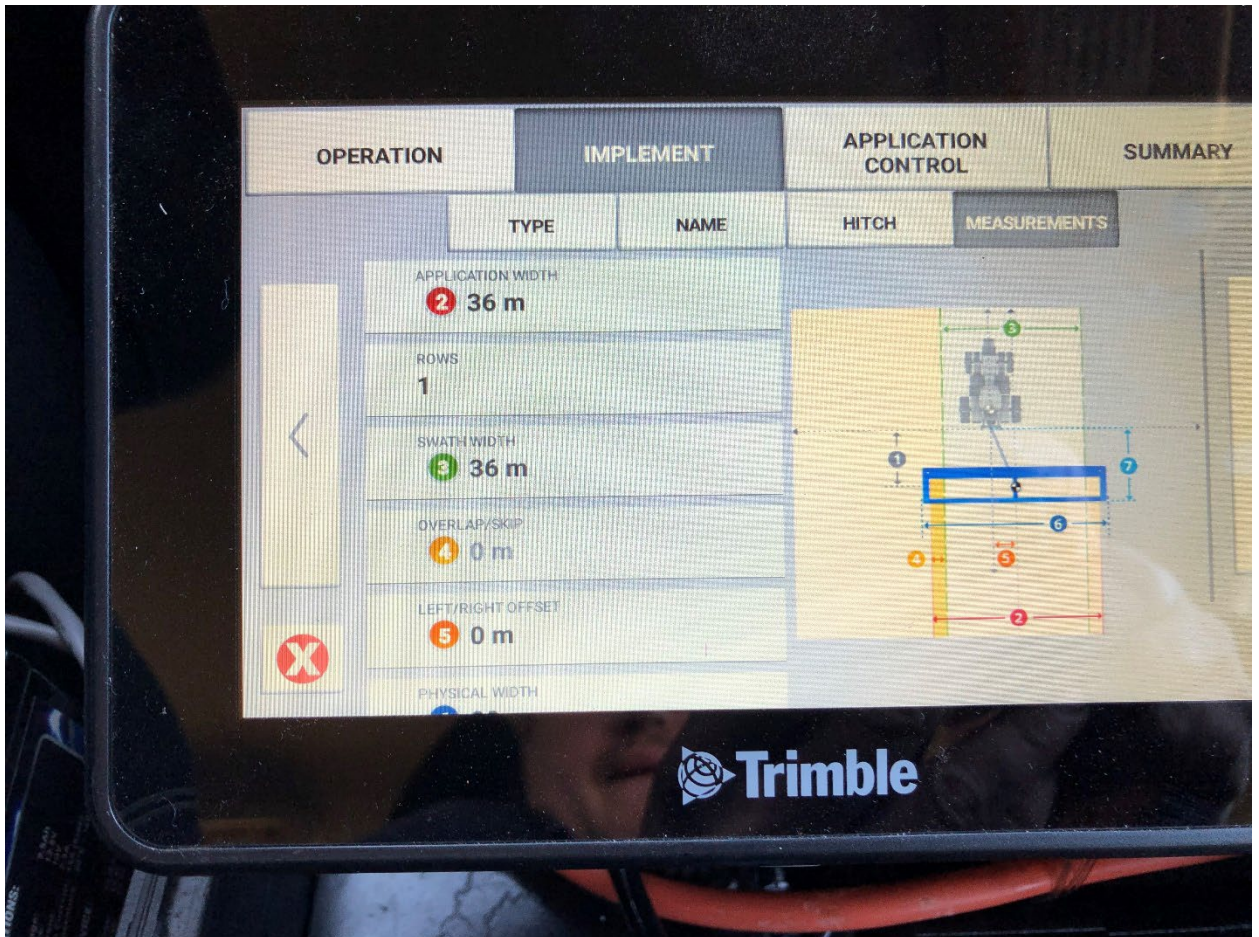
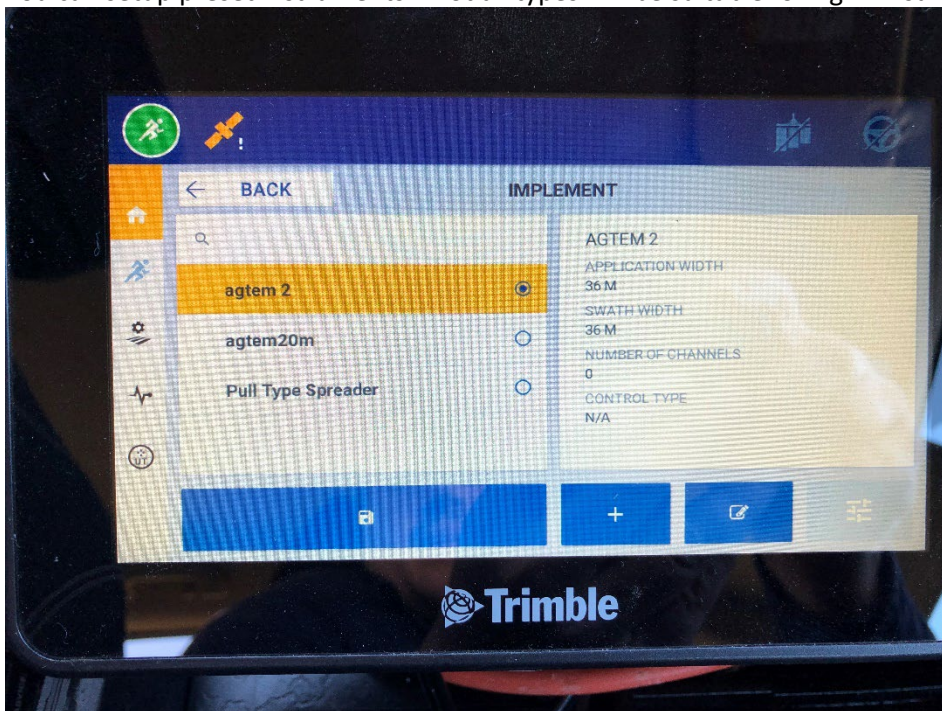7. The output port is the serial number of your NAV500 antenna.
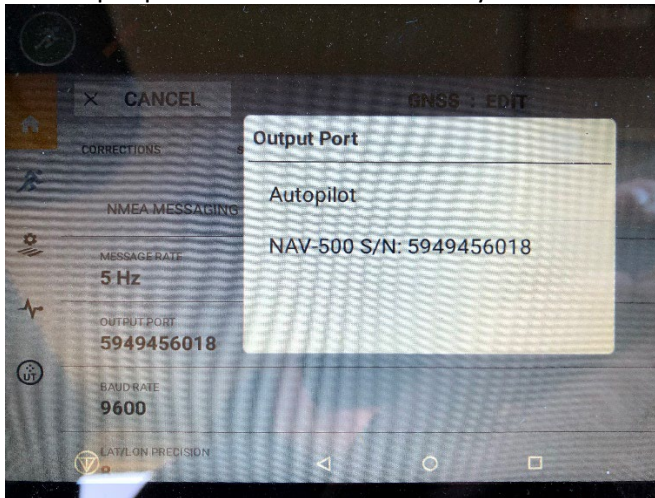
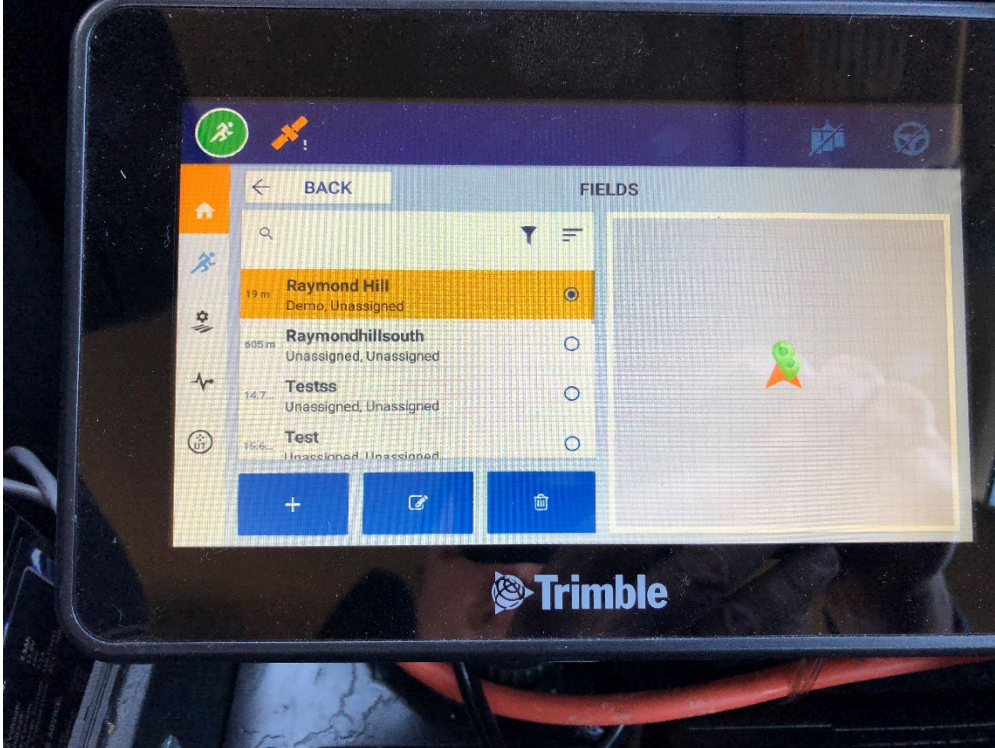8. Enable messages GGA VTG and ZDA

9. Now go and set up your instrument – where you add your swathing and vehicle dimensions.

10. You can setup preset instruments – not all types will be suitable for AgTEM surveying.

11. Setup a paddock on a farm for a client. Usually one paddock for an entire job suffices unless you are doing special navigation.

12. This is the edit field dialogue. You also have to setup guidance method – we usually use work-without-a-boundary and ignore the AB line stuff and just watch the display map to navigate. As we are usually not on open cropped paddocks we are mainly making our best route through obstacles and cannot navigate to decimetre accuracy nor have need to.
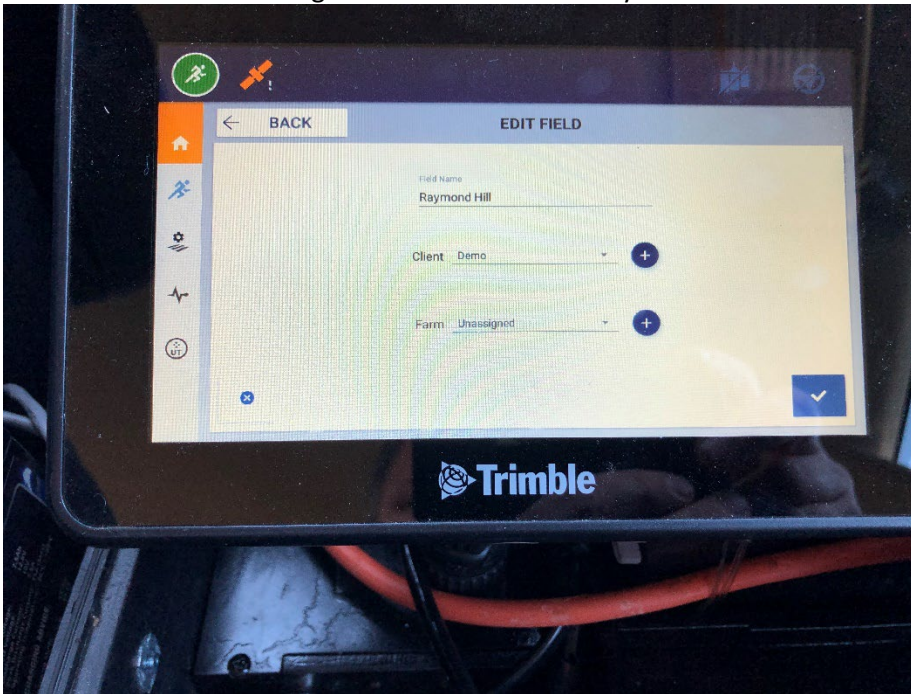
13. Finally, in comparison with using the AgTEM internal map display, both are useful but the Trimble has easier navigability while the AgTEM map reveals features in the ground that are likely to require additional coverage or avoidance. In this example red features are metal pump infrastructure and cables on a centre pivot irrigator and navigation had to be along ploughed direction around the pivot.