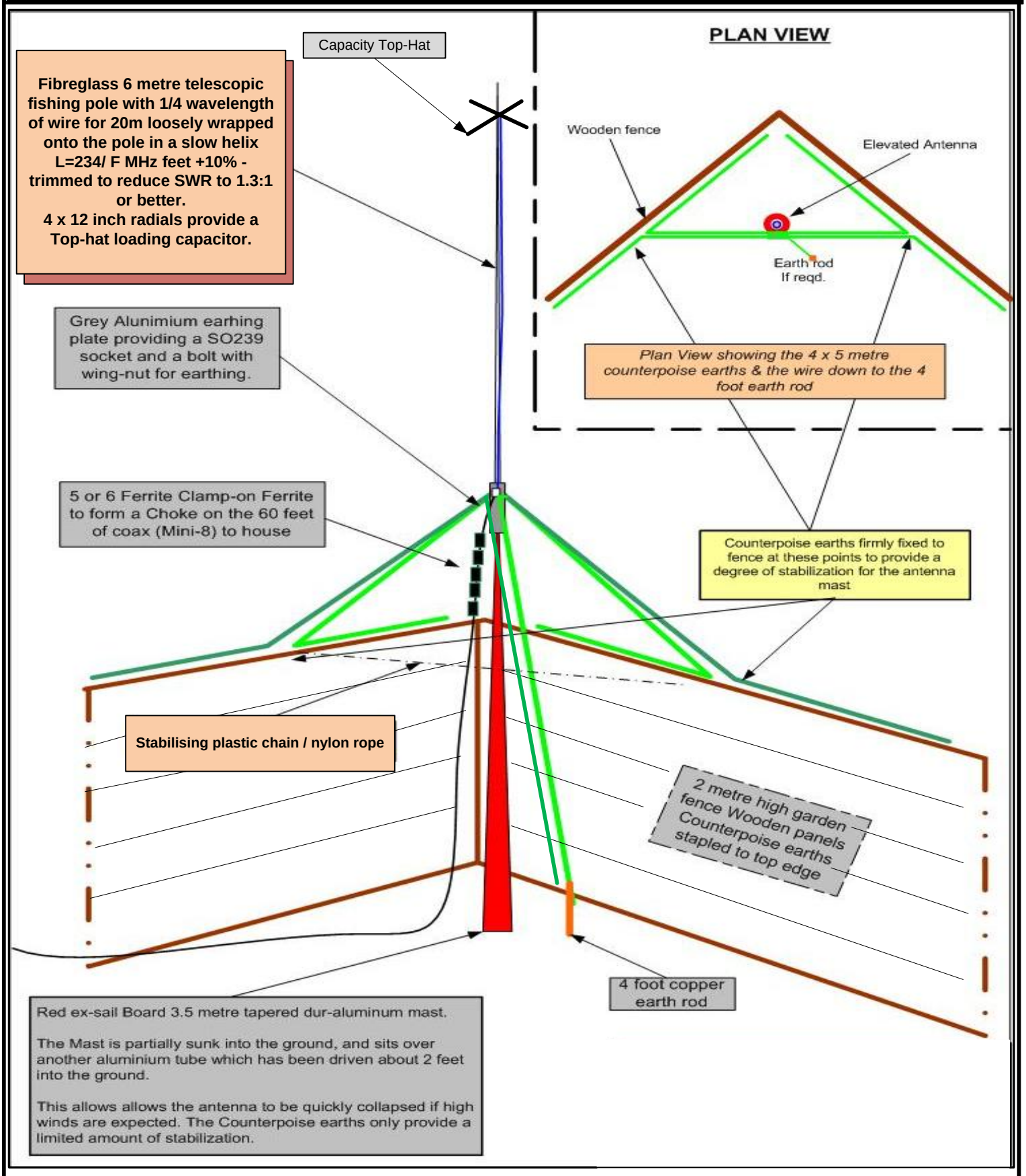
G8ODE Elevated 20m Fibreglass Vertical Antenna



NOTE:- The Counterpoise wires are normally 10% longer than the Vertical wire, but because they are slightly angled they also affect the antenna's impedance slightly. This is why the vertical element was made slightly longer than the "234-formula" produced. The antenna was tuned for the mid part of the 20m band.

Drawn By G8ODE DEC 2008 iss 1.1

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Tuning the Antenna

This is best done with an antenna analyser, but with care an transceiver on low power and a good quality SWR meter will suffice. If using and SWR meter then a Cross-Needle meter is recommended, other types need the Forward Power resetting to full scale every time the SWR reading changes as the transceiver power changes.

Using the Formula for a 1/ 4 wave = 234/ Frequency (MHz)

14.000 MHz = 16' 8" (5.1m approx)
14.350 MHz = 16' 4 " (5.0m approx)

Thus 4" (100mm) change in antenna length will shift the frequency by 350 KHz. As the tuning progresses it will also be necessary to adjust the spiralling of the wire on the fishing rod. Continue until an SWR of 1.3:1 or lower is obtained.

Picture show the 20m Elevated Vertical "fishing pole" antenna alongside the 40m Vertical that I use. The Top-hat loading capacitor is obscured by the branch of the nearby tree.

The 20m vertical has no additional guys other than securing the red duralumin ex-sailboard mast I used as the elevating bottom support. Whereas the longer 40m vertical requires additional guys halfway up the fibreglass fishing pole. The top hat capacitor is just visible against the grey sky.

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The End of this fishing rod had a nylon screw-on cap that held a rubber disc in place. The rubber disc was discarded and replaced with a thick brass washer. The washer's hole was enlarged to be very slightly larger than the diameter of the PL259 neck. The PL259 connector was then inserted and soldered into place. The solder flowed over the top of the washer, and down the slight gap between the washer and Connector's neck . This helps to positively secure the PL259 connector. After the residue flux was removed, the washer & PL259 connector were inserted into the end cap and put onto the end of the fishing rod and firmly tightened up .

Pictures taken by G8ODE