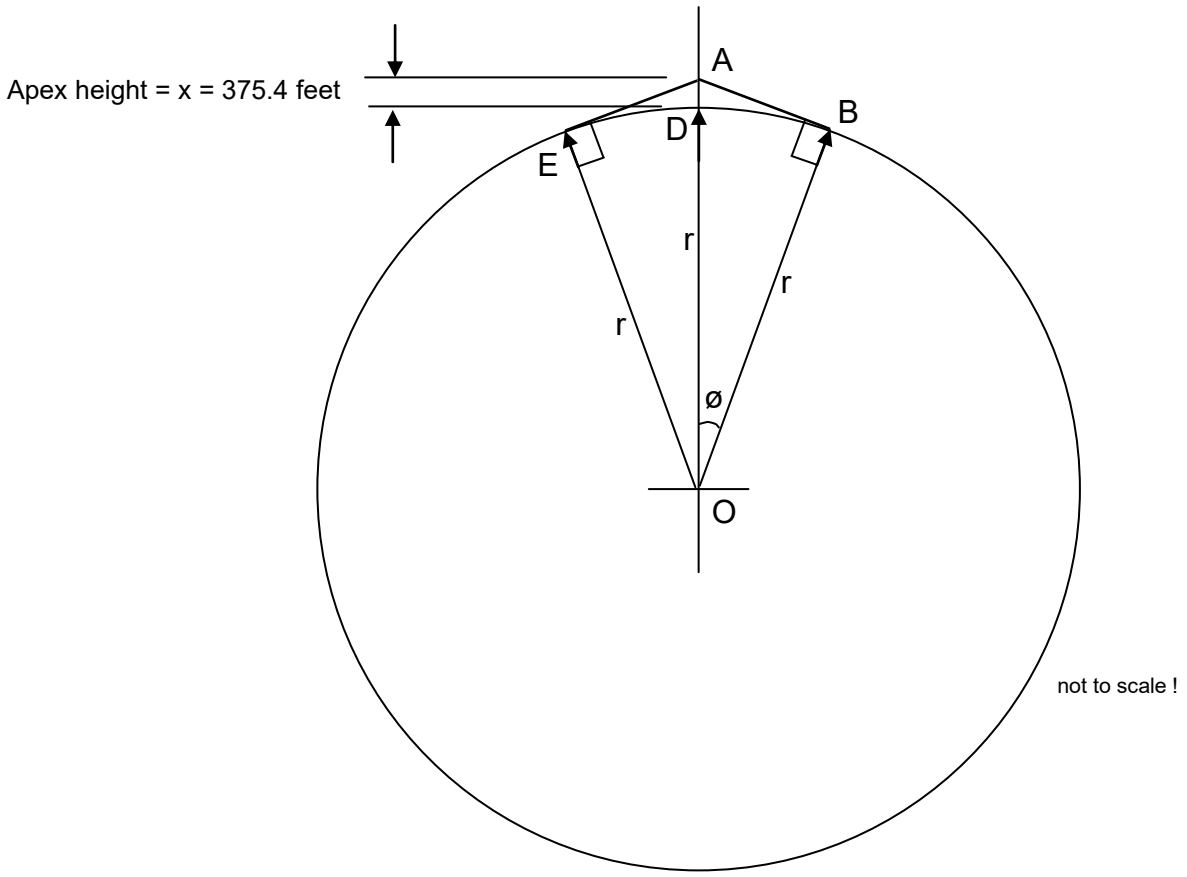
APEX OF A WIRE HAVING HAD 3 FEET OF LENGTH ADDED AFTER IT FITTED AROUND THE EARTH



Mean radius of earth = 6,371 km = 20,902,231 feet = r

Apex height = 375.4 feet (this apex height having been found by trial and error to give the extra 3 feet of wire length. The trial and error process was based on the following method of calculating the extra wire length from a given apex height)

$$\cos ø = \frac{r}{(x + r)} = 0.999982 \text{ with x as } 375.4$$

angle ø in radians = 0.005993396

Distance AB = r tan ø = 125,276.8472 feet

Distance BD along surface of the earth = r times ø in radians = 125,275.3472 feet

AB is 1.5 feet greater than BD along the surface of the earth, so the total of lengths EA and AB added together is 3 feet more than the distance E to B along the earth