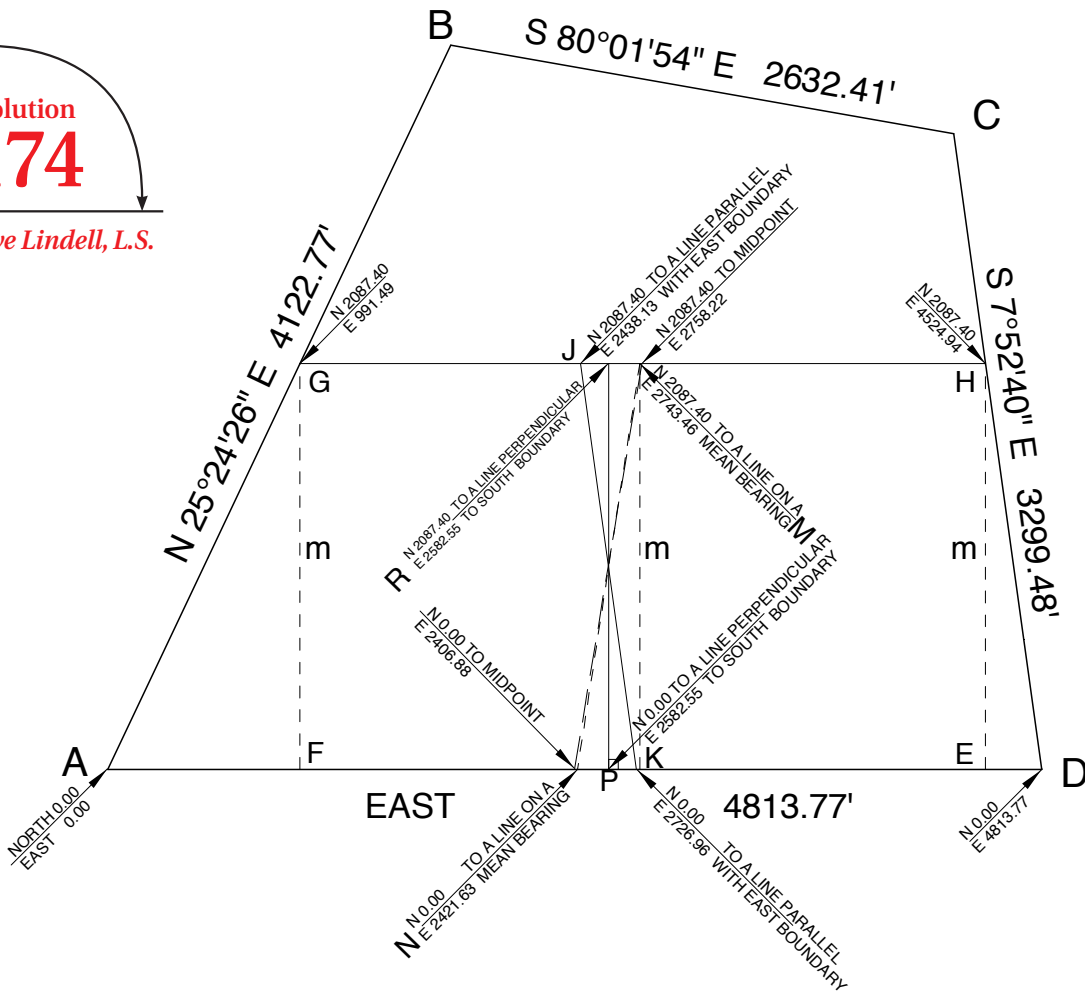


**Solution
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by Dave Lindell, L.S.



First, find the southerly 200 acres, trapezoid A-G-H-D. Let $GF = HE = m$

$$Area_{AGHD} = \frac{4813.77 + 4813.77 - m \tan 25^\circ 24' 26'' - m \tan 7^\circ 52' 40''}{2} \cdot m = 200 \text{ acres}$$

$$= \frac{9627.54 - 0.613355562m}{2} \cdot m = 200 \text{ acres} = 8,712,000 \text{ sq. ft.}$$

$0.613355562m^2 - 9627.54m + 17,424,000 = 0$, from which

$$m = \frac{9627.54 \pm \sqrt{9627.54^2 - (4)(0.613355562)(17424000)}}{2(0.613355562)} = 2,087.40$$

The east one-half determined by a line parallel with the easterly boundary is a parallelogram with height m and base KD (& JH):
 100 acres = 4,356,000 sq. ft. = $(2087.40) KD$, so KD (& JH) = 2,086.81

The midpoint of line AD is 2,406.88 from A or D .
 The midpoint of line GH is $\frac{1}{2}[4813.77 - (0.613355562)(2087.40)] = 1,766.72$ from G or H . The line joining the midpoints bears $N9^\circ 33' 15'' E$ 2,116.76'.

For the westerly boundary to be on a mean bearing it must be $N 8^\circ 45' 53'' E$.
 Trapezoid $D-N-M-H$ must be 100 acres. Letting $MH = q$,
 $\left(\frac{q + q + m \tan 7^\circ 52' 40'' + m \tan 8^\circ 45' 53''}{2} \right) \cdot m = 4356000$, but $m = 2,087.40$
 $q + 305.328 = 2,086.81$, so $q = 1,781.48$, making $ND = 2,392.14$

A line perpendicular to the south line bears North, making trapezoid $D-P-R-H$ of 100 acres. Letting HR be " r ", the base will be $r + 2087.40 \tan 7^\circ 52' 40''$
 $\left(\frac{r + r + 2087.40 \tan 7^\circ 52' 40''}{2} \right) \cdot 2087.40 = 4,356,000$
 $r = 1,942.39$ and $PD = 2,231.22$

Let point A be North 0.00, East 0.00. Point D will be North 0.00, East 4813.77
 Point G will be North 2087.40, East 991.49
 Point H will be North 2087.40, East 4524.94
 Point K is North 0.00, East 2726.96 and point J is North 2087.40, East 2438.14
 The midpoint of line GH is North 2087.40, East 2758.22
 The midpoint of line AD is North 0.00, East 2406.88
 Point N is North 0.00, East 2421.63 and point M is North 2087.40, East 2743.46
 Point P is North 0.00, East 2582.55 and point R is North 2087.40, East 2582.55

There is an east-west spread of 320.08' at the northwest corner and an east-west spread of 320.08' at the southwest corner.