

Geomatics Engineering

BOUNDARY SURVEY AND THE REESTABLISHMENT OF OBLITERATED CORNERS

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Abstract

A property survey locates and establishes the dimensions and orientations of a parcel of real property. This is accomplished through a property resurvey, or the retracement of a previously established survey. This resurvey should be in compliance with the original survey and is intended to reestablish or restore land boundaries by running and remarking the lines that were represented in the field note records and on the plat of the previous official survey. This includes, as in the original survey, a field note record of the retracement data, observations, measurements and monuments descriptive of the work performed, and a plat that represents such resurvey. Property corners found to be obliterated, disturbed or not-yet existing should be established through collective assessment of all record data and measured directions and distances between found and recovered original corners.

The goal of this project is to utilize traditional Boundary Survey techniques to perform a retracement survey of the property, described as both parcel 6 and parcel 7 of Parcel Map No. 4197 – Bk. 33, Pgs. 38, 39, & 40 in the office of the County Recorder of Fresno County, to overcome a potential boundary dispute. Preliminary research of title and survey records will be incorporated as well. The use of Real Time Kinematic GPS allows the acquisition of the data collection that ultimately facilitates the reestablishment of both the boundary line and the corner in question.

Terrain



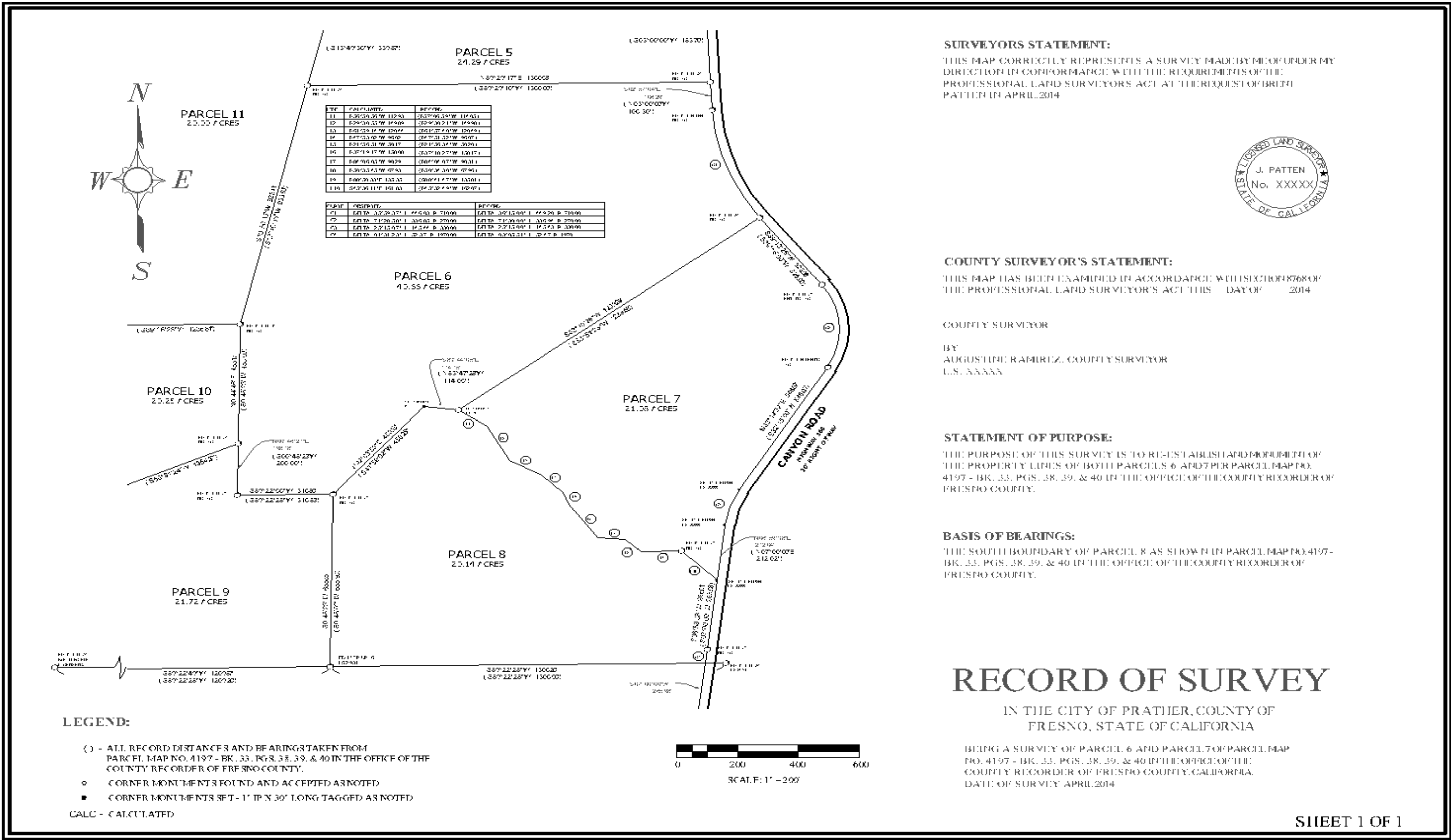
Image depicting the terrain of the project area

Practitioner Mentors



Hypothesis

Real Time Kinematic (RTK) GPS surveys overcome terrain obstructions and allow for more efficient use of field time when conducting land surveys. Here, an attempt is made, using this technology and written documentation, to facilitate resolution of an uncertain boundary line along the Southeast and Southwest portions of Parcel 7 of Parcel map No. 4197 – Bk. 33, Pgs. 38, 39, & 40 in the office of the County Recorder of Fresno County.



Conclusions

Technology Helps
The hilly terrain, and the presence of dense trees, would have made a conventional survey utilizing a total station would have possibly taken 2 to 3 times longer to complete.

Boundary Principles
Brown's book, Boundary Control and Legal Principles, helped facilitate the use of compass rule adjustment, proportioning, and scaling to find the south and southeast boundary of Parcel 7, as well as the southeast boundary of Parcel 6, even when the set monuments had not been found or had not been set.

Innovative Problem Solving
Each survey that is completed is never like any other. Surveying is more than utilizing highly technical equipment. It requires insight into the intention of the original surveyor and the perception to hold your observations or not. The uncertain Boundary was resolved Through the use of all of these resources, I was able to ascertain the most probable location of the boundary.

Observed Monuments

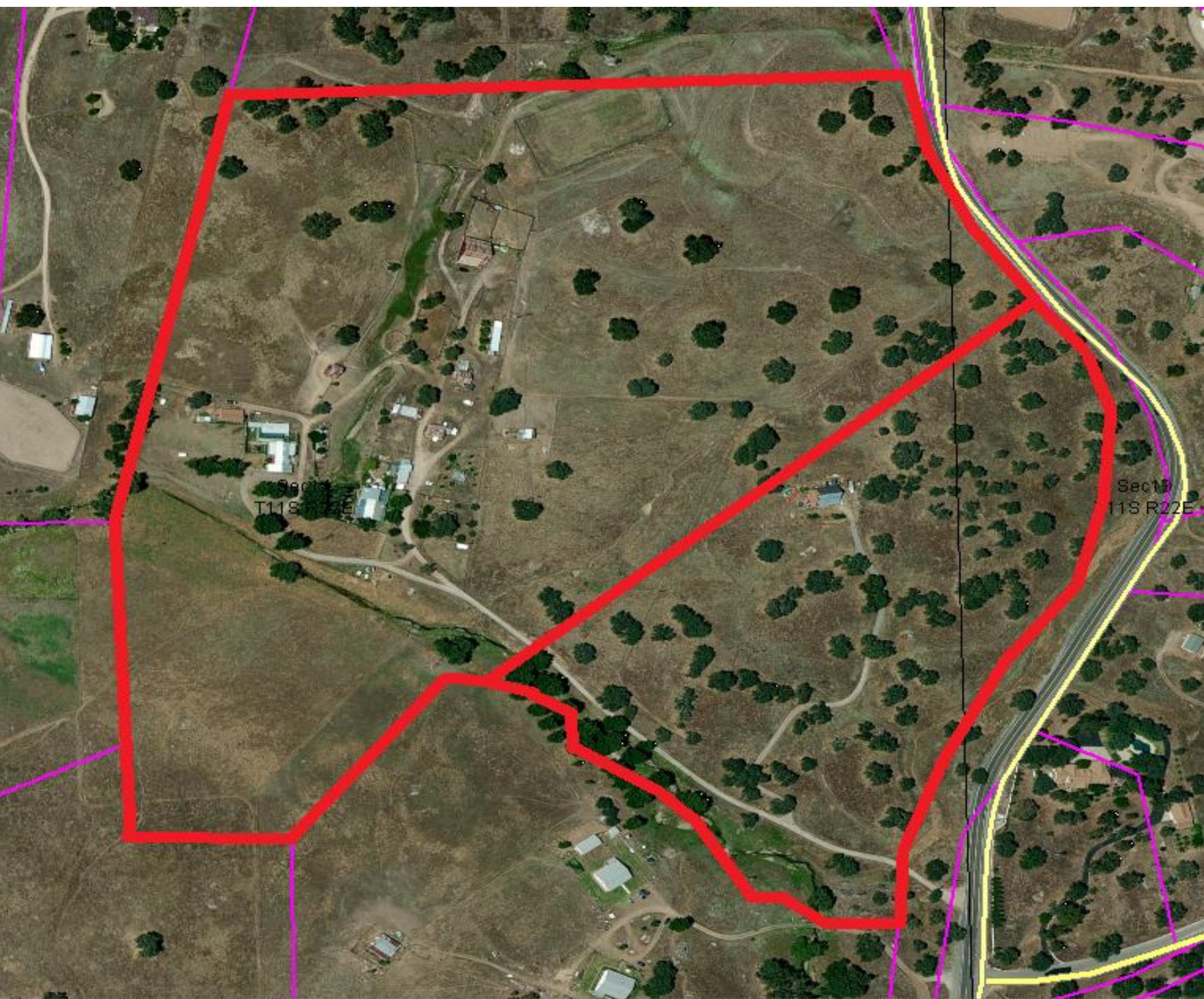


The east quarter corner for section 14.



Found original 1" Iron Pipe, still bearing the original cap set by Rabe in 1978

Areal View



GIS areal image taken from PG&E data base. This image shows the improvements to the property.

Summary

Preliminary research in the form of a Title Search supported that Brent Patten owns both Parcel 6 and Parcel 7 of Parcel Map No. 4197 – Bk. 33, Pgs. 38, 39, & 40 in the office of the County Recorder of Fresno County.

All but two monuments were ascertained in the field. The south boundary line of Parcel 7 was established utilizing compass rule adjustment since no monuments had been set in the centerline of Little Dry Creek.

The Southeastern boundary of Parcel 7 was reestablished utilizing a scaling factor found between my observed data and the original record data. Once this was completed, a rotation factor was applied to the data to more accurately fit the observed locations of the known monuments.

Post-processing the RTK GPS data revealed that most distances were within tolerance; however, two distances on the west boundary of Parcel 6 where found to not match record by two extra feet and two feet respectively. This was attributed to data being incorrectly transcribed from field book to map.

Creating a new Record of Survey was straightforward. The survey resolved the boundary dispute by correctly reestablishing the probable location of the south boundary of Parcel 7.