

# PROFESSIONAL SURVEYOR

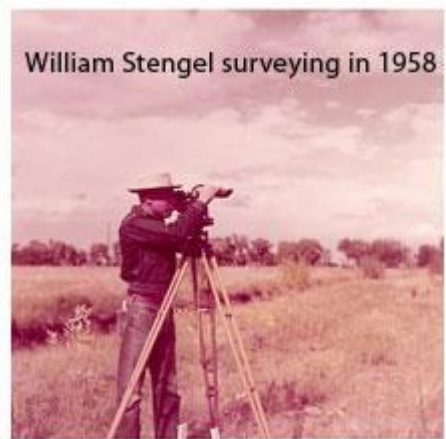
## History Corner: William J. Stengel, Surveyor

Earl F. Henderson, PLS

When the project engineer approached the concrete crew and asked who wanted to help with setting grade stakes on the drainage project, Bill Stengel saw him coming and made sure to raise his hand quicker than anyone else. He knew that just about anything would be better than what he was doing: pouring and finishing concrete.

At each stage of the staking operation the engineer would describe what was happening, why it was being done, and how it referenced the pipe laying. And at each of those same stages Bill would simply reply, "That makes sense," which impressed the engineer enough to suggest to Bill that he consider pursuing a career as a surveyor or engineer.

As it turned out, the City of Boulder was going to hire additional survey field crew shortly thereafter, so Bill applied and got the job, with a letter of reference from that same engineer. That was in the summer of 1951, and it set Bill upon a path to become one of the most well-known and well-respected land surveyors in the Boulder County, Colorado area.



Bill was born on August 27, 1927. He graduated from Boulder High School in the class of 1945, and he started his survey career on the field crew for Boulder in the fall of 1951 doing construction surveying. After a few years he began to work weekends for the legendary Frank Drexel, Sr. to learn boundary surveying.

After leaving his job with the Boulder, Bill decided to spend the winter of 1958 to 1959 in Florida "taking some time off." But being the person he is he wasn't able to sit on the beach for very long without taking up some sort of surveying work again. He got a job working for a group that was surveying a subdivision development to be created in what was then a snake- and alligator-infested swamp near Cape Canaveral.

At times they were hired to measure at night the trajectory of missiles as they were launched from the Cape. From multiple locations they would man survey instruments and mark the time and angles as often as they could, as the missiles would fly off until they were out of sight. This data could then be post processed into a trajectory path.

Upon returning to Boulder, Bill went to work for RJ Gallagher, a former city engineer then in private practice, where he worked from 1959 until January of 1963. He was remarried in 1962 to Jan, who later became his business partner. And in November of 1962 he became licensed to practice land surveying in the State of Colorado, PLS #4846. In January of 1963 Gallagher gave up his business, so Bill and Jan scraped together enough money to purchase the old GSA surplus Jeep wagon and what was salvageable of the survey equipment, including Bill's first calculator, a hand crank Ohdner, and they started on a 45-year odyssey in their own business.

As can be imagined, there are few subdivisions in Boulder County in which Bill has not worked and many that he helped establish, including Frasier Meadows, Keewaydin Meadows, Longmont Estates, Fox Hill Country Club, Southmoor Park, and many, many more. Like so many of us still, Bill preferred boundary work over the subdivision/construction work that paid the bills. He had a particular fondness for mountain work. Over the course of his career he has become the respected authority in the land survey profession in the mountain towns of Eldora, Eldorado Springs and Gold Hill.

In 2005 he deposited "Stengel's Map of Eldora" that publishes the results of his years of work in and around the town and the Happy Valley Placers, showing the locations of approximately 40 original stones and monuments around the town site. (Yes, the monument records are filed.) Incidentally, he was not paid for this plat, depositing it for the benefit of the future surveyors who will follow in his footsteps.

While working in Eldora he and his crew recovered several original section corner monuments and one quarter corner monument in very rugged terrain from the original government surveys in Sections 20 and 21. The GLO surveyors had been misled by their proportionate measurements in their 1941 dependent resurvey of the area and had not found these monuments at that time. Bill thoroughly enjoyed presenting his evidence to the BLM and, to their credit, the BLM acted most professionally in correcting their dependent resurveys of the area.



**The headgear of a serious surveyor  
(note the rattle)**



**Bill's first calculator, a hand crank Ohdner, from 1963**

In 1982 Bill was fortunate to meet with Jim Crain, the legendary director of the City of Boulder's Open Space program. Jim asked Bill to complete a survey in the Wonderland Lake area, which was slated for Open Space. Bill was able to determine, with a minimum of research, that a survey of the property had already been completed and that a new survey was not necessary. The monumentation had even been set. He presented these findings to Jim, knowing that he was giving up a substantial project/paycheck. Upon receiving Bill's report and a copy of the completed survey, Jim paid Bill for the time he had spent. But

as you can imagine, this made quite an impression on Jim Crain, and from that point on Bill was never short of work for the Open Space program.

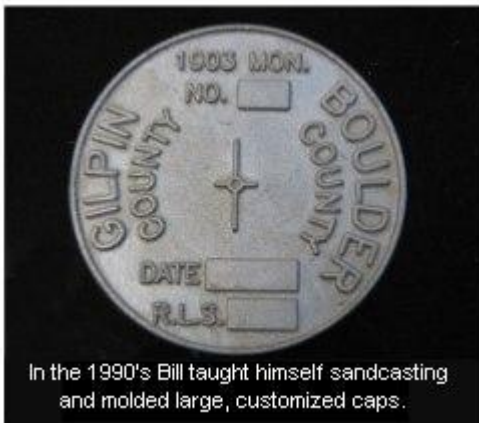
Bill is a charter member of the PLSC, having attended the very first meetings during its inception. He became Boulder County Surveyor in 1988, serving in that capacity until 2002. At that time, almost as it is now, the position was a non-paying position. He was instrumental in having the deposited plats backed up by scanning, which he then had expanded as the internet grew to having them available online.

One of his earliest and fondest projects was the survey of the Lefthand Creek flood plain, which was done in cross sections, some of which were a mile long, along a length of the creek that required 55 such cross sections. This survey was completed in the 1960s, and during the time that the work was progressing the creek actually flooded twice.

Another of his fondest surveys was in 1996 when he and Robert Sayre (PLS #11372), another native of Colorado and long time fellow surveyor of Bill's, set out to re-establish a part of the Gilpin County/Boulder County line from a point just west of Pinecliff to the Continental Divide. Many of the original monuments along the line were recovered and many were re-established, but the two did this work for the cost of materials, donating their time and effort over two summer seasons. The survey covered 13 miles and required that they set or recover 14 monuments, including a monument on the Continental Divide: a common corner to Gilpin, Boulder, and Grand counties. Bill taught himself sand casting during this time, molding large customized caps for each monument four inches in diameter and very thick.



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Bill has always had an interest in geology and has cultivated relationships with some of the faculty at the University of Colorado. While surveying near Nederland he noticed two anomalous depressions in the ground forming near perfect circles. He took his theory as to their formation to his friend in the geology department, who said they had been studying those depressions for years but hadn't been able to determine with reasonable certainty how they were formed that way. When Bill presented his theory his friend said, "We never thought of that!" They are now together trying to finalize their joint theory to have these two depressions declared the only known meteor impact craters in Colorado.

Bill Stengel has a kind and gentle nature. He has been, and continues to be, a mentor to many professional surveyors, including me. He has always been willing to share his time, knowledge, and expertise even with his supposed competition. He realizes that when he helps a fellow surveyor he is helping the entire profession, whether with simply the location of a particular monument or some legal tidbit of knowledge that will help someone become a better surveyor. He has had to testify against other surveyors in court only later to turn around and collaborate with those same surveyors in another situation. He has even talked fellow surveyors, on more than one occasion, into remaining in the profession when they were considering leaving it, because he felt they had more to contribute.

He has always been conscientious, although he would be the first to admit that he has made mistakes, sometimes even disagreeing with his own monuments set years previously because of new information or improper procedures. Bill is the kind of surveyor who would be most disappointed if any surveyor accepted his monuments simply because they were his without verification or question.

Bill has admitted that there were plenty of times, especially early in his career, that he was taught how to survey only to find later in his career that he was taught improperly. He has had to re-learn proper methodology and how to apply it to retracement surveying, which is what most of land surveying is these days. He recognizes that surveying is as much an art and a craft as it is a skill and a profession. He smiles from ear to ear when describing situations in which he was able to find original monumentation that other surveyors didn't find, mostly through hard work, research, and common sense. He has continued to educate himself and others throughout his career in order to become a better surveyor himself and to help our profession to become better as a whole.

Bill Stengel is a credit to his profession and embodies the idea that as a profession we are also a brotherhood. He would also be the first to admit that without the love, support, encouragement, and help from Jan he would not have been able to accomplish what he has, because they did it together.



With a fellow surveyor he re-established a part of the Gilpin County/Boulder County line in 1996.



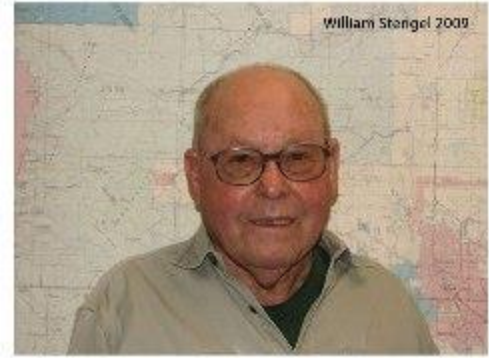
Bill retired from surveying professionally in 2008, 45 years to the day after he and Jan started the business. Although he no longer takes on projects of his own, he is still available for consultation to anyone with a desire to ask. I would highly recommend it. A couple of cold beers and a couple of hours later you will find yourself a much better surveyor for having spent the time. Although you can still catch a glimpse of his old 4WD van motoring around town, the simple words "William J. Stengel, Surveyor" and "Since 1963" which were emblazoned on the side have now been removed.

Bill wrote these words on his final plat, plat #1013, dated December 2008:

*Surveyor's Farewell: With this survey, and after 45 years in business, this surveyor bids the profession Adieu. Having started in surveying in 1951 with the City of Boulder, it is now 57 years later and this surveyor is 80 years old. Not to say he will never go surveying again, but it will be only to assist others following in my footsteps. I have made many measurements, turned many angles and run many lines with a number of instruments. I have set a lot of corners, some of them in the wrong place, some due to my own errors (all surveyors make mistakes, few admit it) and, not wanting to shoulder all the blame, some due to my Mentors who led me into a flawed methodology that had to be overcome. FINIS*

His work, his attitude, his integrity, and his love of surveying still provide inspiration to all of us in this wonderful profession.

Thank you William J. Stengel, Surveyor. We are a better profession and better people for having you here.



### About the Author



**Earl F. Henderson, PLS**

*Earl is owner of Zenith Land Surveying, Inc. in Boulder, Colorado. He has been surveying in various states since 1989.*