



2025

SURVEYORS'
Conference

Art of Boundary Line Determination

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ART OF BOUNDARY LINE DETERMINATION

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DISCLAIMER / BACKGROUND

- I am not:
 - ❖ An Attorney
 - ❖ Professor / Educator / Teacher, etc.
 - ❖ Author
 - ❖ Expert
 - ❖ Knud Hermansen
- I am:
 - ❖ A PLS with an Associate Degree in Surveying Technology from PSU, Mont Alto in 1967 and registered in 1972.
 - ❖ Founded Carl Bert & Associates in 1973 with just myself growing to a staff of 25 with multiple PLS's and PE's doing Boundary, Subdivision and Land Development projects in the Shippensburg area.
 - ❖ Business is sold so no more meetings, deadlines, payroll, etc. Just me passing on what I have learned and hopefully providing footprints for others to follow.
 - ❖ Passing on my ideas and practices we've used over the years and learned from others that makes sense.
 - ❖ **One of only 1,614 who have an active PLS license in PA per the State Registration Board as of December 2024.**

BOUNDARY LINES ARE ON THE GROUND

- Let's be very clear here. **BOUNDARY LINES ARE ON THE GROUND, IN THE FIELD, AND NOT ON PAPER.**
- Deeds, plans, parole evidence and documents are important, but they only point and guide us to that Boundary Line on the ground.

The role of a Boundary Line Surveyor is to **DISCOVER / DETERMINE / DOCUMENT / DISCLOSE**

Discover

- Discover What's on Paper
- Discover What's on the Ground

Determine

- Make a Determination based on what you Discovered

Document

- Document what you Discovered and Determined
- Leave Footprint

Disclose

- Disclose what you Determined and Discovered so others know what you did.

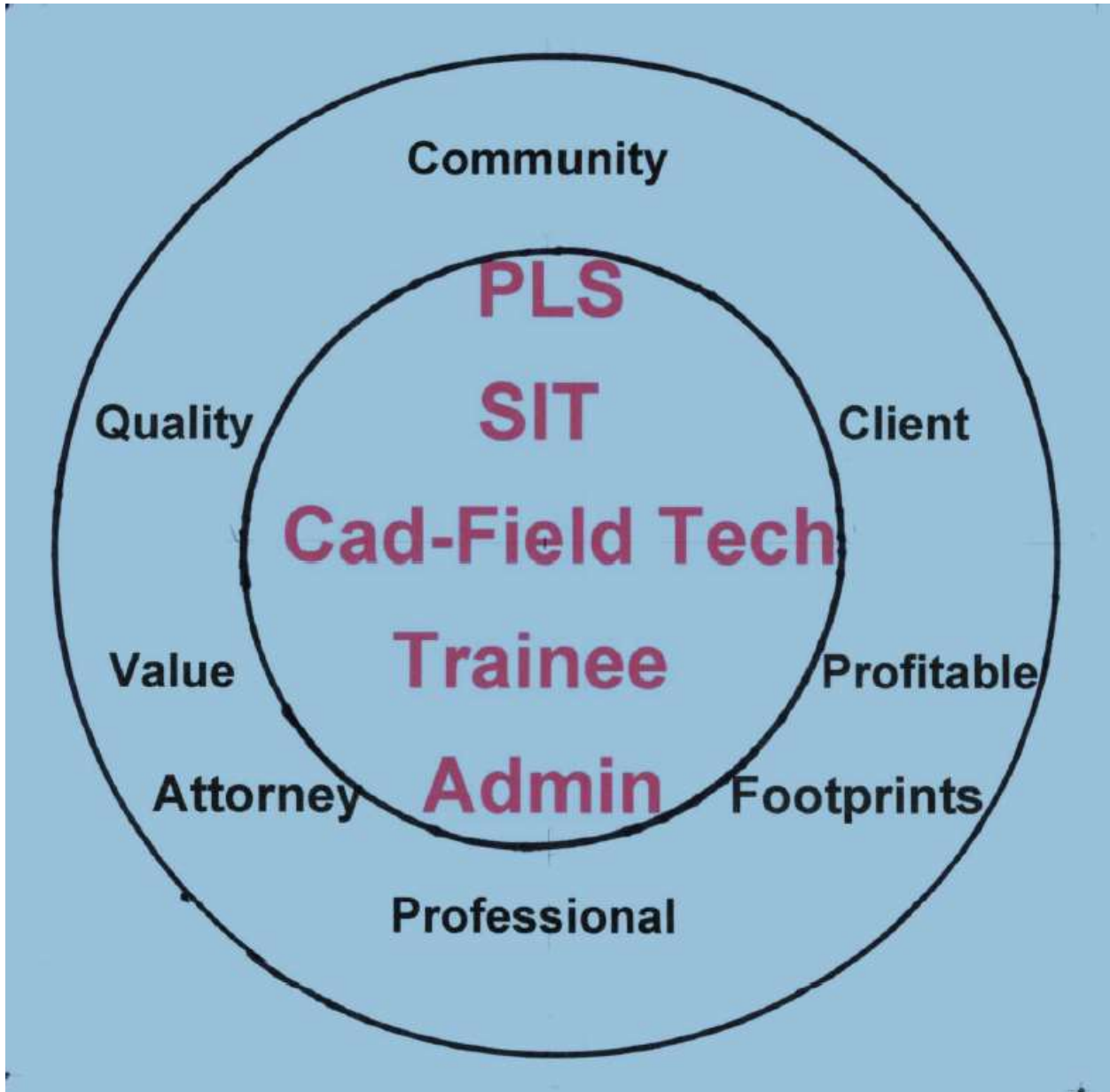
WE MUST LEAVE FOOTPRINTS

PARTICIPANTS

- I recognize we have many levels of participants in age and exposure to boundary surveying which makes this difficult.
 - ❖ Those who know little about Boundary Surveying.
 - ❖ Those in the middle with “some” Boundary Survey experience but feeling like they need more mentoring.
 - ❖ Experienced boundary line surveyors who ought to be leading this session and passing on what they know.
- The focus is on those in the middle to **help the next generation** understand & become boundary surveyors as many of us old guys are retiring, and someone needs to be taking our place.

GOAL OF SESSION

- Recognize who we are and that we are the only ones who can do what we do.
- Encourage current Boundary Surveyors to stay the course and the next generation to join us.
- Share a little bit how to provide value to our clients while being profitable for the next 20 + years.
- Understand we must match Scope to Budget but never sacrifice quality, thoroughness or extent of service to achieve budget. Eat it if you must. It's your reputation.



TEAM CIRCLE

COMPOSURE OF TEAM

- **PLS**
 - ❖ Owner / VP / Supervisor of Boundary Department
 - ❖ 10 + years' boundary survey experience
 - ❖ Active member / participant of PSLs conferences, webinars, etc.
 - ❖ Teacher / mentor
 - ❖ Provides professional oversight to all team functions.
 - ❖ Sets with SIT and team to determine boundary line locations.
 - ❖ Could perform the same function with 2 to 3 teams.
- **SIT**
 - ❖ Calling SIT for a lack of a better description. In the old days a party chief
 - ❖ 4 to 10 years boundary experience
 - ❖ Participates in, able to take place and perform PLS functions with professional oversight.
 - ❖ Teaches / Mentors Cad-Field Tech & trainee.
 - ❖ Works to replace him/her self.
 - ❖ Desires to be the PLS both in licensure and function.
 - ❖ Conducts / oversees field functions.
 - ❖ Stays within one team.
- **Cad-Field Tech**
 - ❖ 2 to 4 years boundary experience
 - ❖ Assists SIT in field functions.
 - ❖ Prepares & files plans / documents.
 - ❖ Stays within one team.
- **Trainee**
 - ❖ High School / Vo-tech looking for a career. Should move up after 2 years.
 - ❖ Assists everyone soaking in as much as possible.
 - ❖ Could move from team to team.
- **Admin**
 - ❖ Should have longevity with firm and within community.
 - ❖ Ideal for PLS's wife if attributes fit and they can get along without a murder or divorce.
 - ❖ Provides great, great value to entire team / teams.

BENEFITS OF A TEAM

- Staff has an overview of the project so knows where & how each task fits in as opposed to performing tasks without understanding project. Everyone should always be knowledgeable of the project.
- It's difficult to be a lone wolf.
- Works in one office in one location and desks close together.
- Business continuity
- Services continue during vacations / illness.
- Sense of belonging / bonding
- Staff retention
- Upward mobility
- Training / Mentoring
- Improves quality & thoroughness of services.
- Business transitions / exit plan for owner.
- **HIRE FOR THE PLS THEN MENTOR / DON'T HIRE FOR A TASK**

COMMUNITY SURVEYOR

Know the Geographic Area in which you are working.

- I'm an advocate for the "Community Surveyor" as that is what most in my generation are. But we are retiring, business terminated or merging with larger, multi-office firms many times out of necessity and we are not being replaced, which is not good for our profession. There is a need and opportunity for the Next Generation to step up and us old guys need to be pro-active in mentoring and encouraging you. The bottom line is we are losing the community surveyor, which is not good, but I'm thankful & grateful to those of you in the Next Generation as you take our place and become Community Surveyors.
- The community surveyor is the one in his / her area who knows the standard practices as to how Boundary Surveys are conducted and the level of care as they do vary from area to area.
- **I personally would not conduct boundary surveys outside of an area I know and recommend you not either.**
- A Community Surveyor is one who:
 - ❖ Grew up and who lives in the local community.
 - ❖ Knows everything about the local community.
 - ❖ Knows the public & private sources of where and how to find information.
 - ❖ Knows people who can provide valuable knowledge.
 - ❖ **Is known by everyone.**

- ❖ Is an upstanding / professional person recognized as a valuable assist engaged with the community.
- ❖ Knows and actively interacts with fellow Surveyors, Attorneys, Realtors, and business persons.
- ❖ Understands the standards and quality of surveys typical and expected in their community.
- ❖ Knows the history and development of area.
- ❖ Knows good and bad surveyed areas.
- All these things can be learned by making a concerted effort:
 - ❖ Become involved with church, civic organizations, chamber of commerce, development organizations, coach, attend sporting & social events, volunteer, historical societies, attend municipal meetings, review local ordinances, go to courthouse to view old records, talk to people, etc. etc.
 - ❖ Drive around the area, view google, road maps, utility maps, railroad maps, public lands, and everything you can to build relationships.
- All these things and more provide a wealth of knowledge in making boundary line determinations.

CHARACTERISTICS / APTITUDES

- Part of a very select group certified / allowed by law to do what we do.
- There are very few of us and who are dwindling in number & abilities. Need more of us.
- Special
- Unique
- Leader of people & process
 - ❖ John Maxwell – 21 Irrefutable Laws of Leadership
- Understands it's not how much you know but how much you care
 - ❖ Convey to client that they and their project is important to you
 - ❖ Give client the “warm fuzzies” that you know what you are doing
- User Friendly / easy to talk with
- Loves people
- Listens / communicates well
- Visionary
 - ❖ Ability to see the entire project & how to do it
 - ❖ Ability to map out the process and explain it to others (vision casting)
 - ❖ Ability to explain to client
- Able to think & explain concepts while doing the same with individual tasks
- Forthcoming
- Sees the big picture
- Embraces Conflict
- Works well with the abstract, things that cannot be quantified or easily explained.
- Sees a solution in every opportunity / Not a problem behind every bush.

Although these may come naturally to some, many need to and can learn with effort. We all need to always keep growing in these attributes.

A GOOD BOUNDARY SURVEYOR IS MORE ABOUT THE PERSON THAN THE PROCESS.

BIG UMBRELLA

Things that every Boundary Surveyor needs to know about, consider, be able to do, etc. This list may seem to be for the Owner, but all staff should be aware of and growing in all of this.

- Understands & accepts that we are completely different from other survey disciplines.
- Sees, understands, and embraces the **BIG UMBRELLA** of Boundary Surveying
- **HANDLES CONFLICT WELL**
- Accepts the Team concept.
- Knows and implements the “Determination Circle” and “Process of Determination”.
- Knows and implements the Art of Listening.
- Constantly mentoring others.
- Deals with Abstract concepts.
- Can multi-task.
- Knows the extend and limitations of Computers / Software / Field & Office Equipment
- Understands the curse of GPS / electronic field equipment.
- Understands the curse of Cad and software.
- Knows the impact of strategic figures.
- Knows dangers of search ties
- Uses common sense.
- Knows and applies legal aspects / rules of evidence appropriately.
- Considers chain of title
- Considers history of lines
- Knows when there is enough deed & plan research.
- Documents surveys and boundary line determinations
- Communicates verbally and written well.
- Good at Public Relations
- **Can match Scope with Budget**
- Knows & applies the difference between Precision & Accuracy
- Knows about Positional Accuracy and the Elliptical Circle
- Is Forthcoming & Explains things well.
- Thorough is Search for Field Evidence



DETERMINATION CIRCLE

PROCESS OF DETERMINATION

- Reputation
- Initial Request to whomever answers phone.
- Call back from PLS.
- Initial Research
- Client Interview / Build Bridges
- Describing Scope to Client
- Verbal Proposal
- Written Work Order Agreement
- Authorization
- Task Assignments
- Deed & Plan Research
- Field Recon
 - ❖ PLS or very experienced SIT
- Field Data Collection
 - ❖ GPS, Robotic, whatever method most appropriate
- Download data.
- Raw data worksheet
- Features worksheet
- Complete Worksheet (everything exception determination)
- BOUNDARY DETERMINATION
- Add all determined info to Boundary Worksheet
- Step back and review boundary determination to see if it all makes sense.
- Prepare / Check Plan Notes
- Creation of Lot Files
- Descriptions of Easements
- Ties to adjoining features / monuments
- Document determination in the field. Recommending doing this before completing the plan in the event something needs to change. Pay particular attention to how everything “looks” in the field.
- Complete with Plan Notes.
- SIT reviews / checks everything on plan including content, presentation, etc.
- PLS makes a review trusting staff as appropriate and gives blessing.
- Prepare Legal / Metes & Bounds Description.
- Submit documents in a short memo / email explaining work performed, findings, issues, next steps for client and any recommendations the client should be aware of. Invoice at same time.
- Explain same in office or walk the lines if perceived needed so that there is no misunderstanding of locations.
- Invoice
- File documents in the office per standard procedure.
- Move on to the next project.

WATCH OUT FOR / RECOMMENDATION

- Have a set of field codes and Cad standards specifically for boundary and small projects as opposed to using ones from large engineering projects as this saves time and money. KISS
- Curse of GPS / Robotics
 - ❖ You can drive from corner to corner and never walk the line which is a no-no.
 - ❖ If it is one man, no one is being mentored.
- Curse of Cad / Software
 - ❖ Files get downloaded & moved so fast and no one looks at the relationships of the points. In the old days, you saw locations in relation to each other when you plotted by hand and realized when things did not look right.
 - ❖ Important features get turned off without anyone being realized.
 - ❖ Things are computed by “hitting a button” without understanding what is being done. If you can’t do it on paper, you should not be doing it.
- Use of Search ties
 - ❖ You may not know the source
 - ❖ Tends to limit the search area.
- One Man Survey Crew / Recommend always having 2 men.
- Never do anything with just yourself
- Mentor / Mentor / Mentor
- Teachable Moments

Don't make a problem where there is none!!!!!!!!!!!!!!

ALWAYS

Trust But Verify

Follow the Procedure

Specific procedures help to ensure accuracy, precision and eliminate mistakes. They have a purpose even though you may not understand or realize it.

Do it Right

It is always better & faster to do it right the first time than need to come back and change it.

Do It Thoroughly

There is NEVER any place for halfway work.

Check Yourself

Do NOT allow others to find your oversights or mistakes as that creates uncertainty in everything you do.

Document It

Do this in a way of others 20 years later know the why, what, when, whom and the results.

Move On

“Go Live the Call”

A Pastor friend said “Go Live the Call” at the end of each message. To us as Boundary Surveyors, we need to “Go Live the Call” to respond to requests for services that **ONLY WE AS LICENSED PROFESSIONALS CAN PROVIDE** and I sense there are becoming fewer and fewer of us qualified to do so. There are many types of surveyors with differing skills and talents but I’m talking specifically about those who “determine the proper location of boundary lines”.

It Is an Art

I call this the “***Art of Boundary Line Determination***”, and yes, it is an “Art” totally different from other types of surveys acquired through common sense, experience, practice, listening, asking questions, mentoring, continued learning, wisdom, discernment, relationships, etc. It is not learned in college, reading Knud’s books (sorry Knud), seminars, measurements, GPS, or passing a test.

So What Is It?

It is the ***skill*** to determine the ***proper*** location of a common line separating properties using the ***best*** available evidence within a ***reasonable*** budget which is a challenge but what our clients & communities deserve.

Special Person

This requires a special/unique person with the right character, personality, temperament, gifts, and relationship skills that not all surveyors possess. It needs to be someone who knows and is known by the community (Attorneys, peers, government, business associates), active in the community, knows local history & survey practices, good business person, looked up to and with a legal mind.

Two Buckets

When the Vet first opened, they had a gasoline truck bring in the opposing team's reliever and a firetruck the Phillies reliever. Boundary Surveyors carry two (2) buckets, one with gasoline and the other water. We can see a devil/problem behind each bush OR a solution behind each opportunity. We can cause problems/disputes OR resolution/agreement by our attitudes and things we say & do. We need to use the water bucket and recommend solutions. I'm of the mind set that there are few disputes, just misunderstandings.

Muddy Boots

Boundary lines are on the ground, not on paper. Our job is to translate what is on paper to the ground so it can be clearly observed and that requires us as professionals getting in the field. We should not be depending on AI or things obtained electronically. Remember, we're Boundary Surveyors and boundary lines are on the ground. We need to be proud of our determinations, charge for and not hide them.

When is Enough Enough?

That's the challenge. When have we conducted enough research, collected enough field evidence, talked to the right people, made the right determination, and disclosed the right things all within a reasonable charge for our services? That's why we need experienced/qualified professional Boundary Surveyors. I believe there are policies, procedures, & processes to help answer this question and to get it right for a reasonable fee but that is for another day or article.

Foot Prints

We as Boundary Surveyors are told to follow in the footsteps of the Surveyor before us. The question we need to ask ourselves is "What footprints are we leaving for the next generation?" "Can they trust our work?" "Have we been thorough?" "Is it documented?" "What do people think when they see our name on plans and documents?" Those footprints need to include not only our boundary line determinations & plans but also our legacy, character, reputation, and value added to our clients & community. We old guys are fading away and the young guys need to pull as much as they can out of us.

Passing the Baton

I think we are all aware that we need more skilled, equipped, qualified people coming into our profession and that is especially true with Boundary Surveyors. Many of us old guys, me included, are retiring and need to "live the call" to pass on our experience, wisdom and knowledge to the next generation. If we don't, who will? I believe this is best done face to face, one on one or in small groups.

Let's "Go Live the Call"

Remember, no one else can do what we do. Let's "Go Live the Call" / meet the challenge. I'd like to hear from you. Give me a call. Let's talk.

As Grampa Bert said: "Live as if You Will Die Tomorrow, Plan as if You Will Live Forever."

Be Good, Have Fun, Enjoy Life. It is a great profession.



The image is a promotional banner for a session evaluation. It features a dark blue background with a light blue topographic map pattern on the right side. The text "SESSION EVALUATION" is prominently displayed in the upper left. A large QR code is centered on the banner. At the bottom left, there is a logo for the "2025 PENNSYLVANIA SOCIETY OF LAND SURVEYORS SURVEYORS' Conference". At the bottom right, the URL "HTTPS://WWW.SURVEYMONKEY.COM/R/2025PSLSEVAL" is provided.

**SESSION
EVALUATION**



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