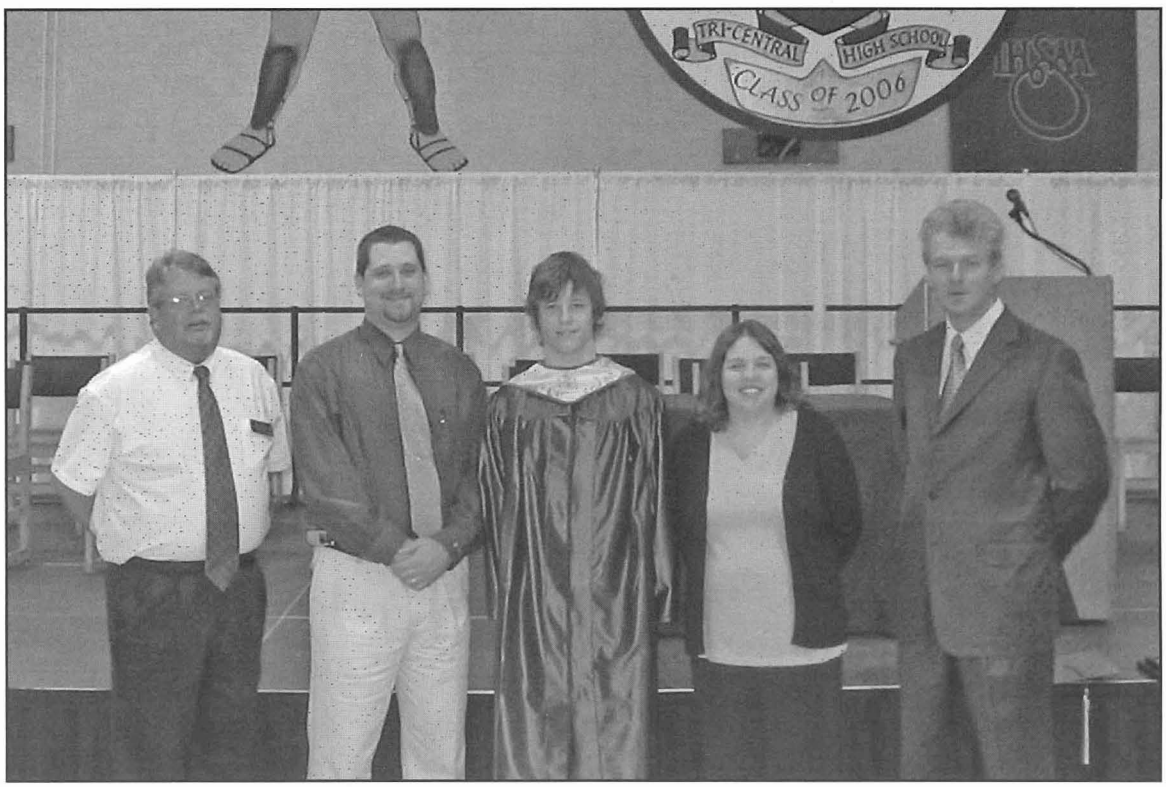
HOOSIER SURVEYOR

QUARTERLY PUBLICATION OF THE
INDIANA SOCIETY OF
PROFESSIONAL LAND SURVEYORS, INC.

VOLUME 33
NUMBER 1
SUMMER 2006

AFFILIATED WITH THE
AMERICAN CONGRESS ON
SURVEYING & MAPPING



INDIANA TRIG-STAR WINNER

David Driggs, Principal Tri-Central High School, Sharpsville, IN;
Jason Miller, ISPLS Wabash Valley President; Patrick Flick, contest winner;
Andrea Powell, teacher; and Frank Ballintyn, ISPLS President. (See Page 22 for more)

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EDITORS NOTE

Deadlines for copy for various planned issues of the Hoosier Surveyor are as follows: Winter - December 31; Spring - March 31; Summer - June 30; Fall - September 30.

The Hoosier Surveyor is published quarterly by the Indiana Society of Professional Land Surveyors, to inform land surveyors and related professions, government officials, educational institutions, libraries, contractors, suppliers and associated businesses and industries about land surveying affairs.

Articles and columns appearing in this publication do not necessarily reflect the viewpoints of ISPLS or the Hoosier Surveyor staff, but are published as a service to its members, the general public and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes or deletions as to its contents.

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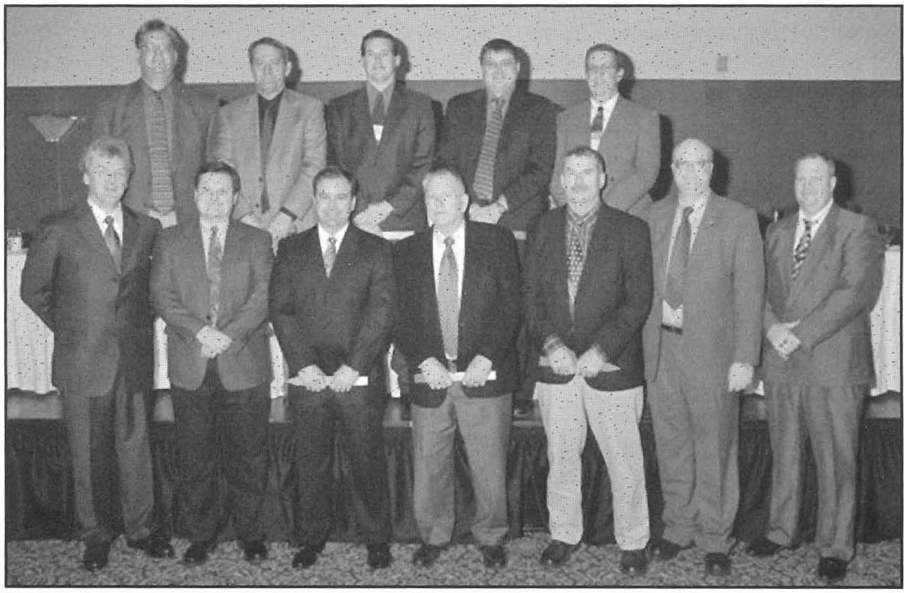

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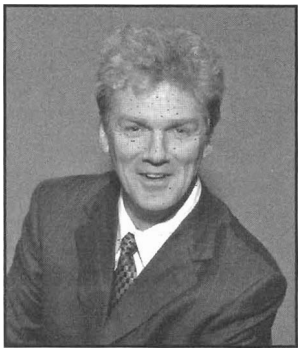
l to r, first row:Frank Ballintyn,Sellersburg; Perry Cloyd, Columbus; Harold Hart, Charlestown; Don Bengel, Valparaiso; Richard Hudson, Valparaiso; Ron Wharry, Frankfort; Jim Tibbett, Linton; Second row, l to r: Todd Bauer, New Haven; Steve Murray, Battle Ground; Mark Isaacs, Brownstown; Ed Sweetland, Greenfield; Dan Kovert, Fishers.

PRESIDENT'S THOUGHTS

by Frank F. Ballintyn, PLS, Sellersburg, Indiana



HHH!!! (Hazy-Hot-Humid) Don't you just love that acronym when it describes the summer work environment. I know I do, because my answer is AC-AC-AC. Then of course Bob Vollmer (90) my senior, just calls and needs help surveying in direct sunlight on blacktop roads. My macho response of course is if a 90 year old can do it I definitely can (sweat running off of me and flies buzzing around my face and ticks running up my pant legs, and praying for winter). Of course when I tell my family, I can't wait for winter, my wife reminds me that her teaching job will start then and she doesn't want the summer to end, and neither does my daughter, since her school will start. Fun-Fun-Fun. So much for my personal life, now interesting items concerning OUR society.

We (the BOD) just finished our 4th meeting on this years agenda, it was hosted by Bill Clark with Art Haase at Vincennes University for their yearly scholastic review. It was a successful meeting, with Bill Clark asking those attending for assistance obtaining instruments for the students to practice with. Jim Tibbett an alumni stepped up and the situation may be solved by the time your reading this article. Great work Jim. Thanks!!

We are holding our next BOD meeting in the Lafayette-West Lafayette area, to give everyone in the surrounding area an opportunity to sit in on a BOD meeting. It is to be held on the 23rd of September, which is Homecoming for Purdue. The meeting location will be announced, the time will be 9:00 am. We will attempt to beat the game time festivities.

On another note our Lobbyist, whom I wrote about in my last article, has given birth and is still on maternity leave. However Rick Miller informed us that she is already starting to work on our legislative issues. Every chapter and every surveyor in Indiana needs to inform ISPLS of legislative issues that we can work on.

Back in 1997, when Perry Cloyd was president, the Indiana HARN became a reality, now 9 years later we are requiring CORS stations around the State. This was one of the charges I asked the County Surveyors committee to work on. It is my understanding that the State Highway people are working on a plan to accomplish this goal and that they were notified that their project was fully funded. This would be a major boost for all surveyors. Please assist them where you can.

Our constitution hasn't be updated in quite some time. I have asked the By Laws committee to revisit our constitution and update us. If anyone would like to voice their professional opinion into this, please call Don Bengel our chairman at 219-462-0690. Thank you Don for heading this effort.

The fall LS review seminar is set for Sept. 9th at Ivy Tech in Sellersburg, just off Interstate 65. This is run by Harold Hart our Chairman and it is a very successful venue. These are our future surveyors, please help them. Thank you Harold and everyone that assists in putting these on.

On August 22 off of I-65 and SR 50 at the Seymour exit at the Ryans steak house situated in the northwest quad of this intersection, 3 local chapters (Hoosier Hills, Greenville Treaty and Initial Point) will have a joint meeting with the guest speaker talking about Prince Madoc, a leader from the British Isles who many feel brought a large number of his people to America in the 6th Century, way before Columbus. This is a very interesting topic, that I highly recommend. I have heard Mr. Jim Michael speak 3 times about this topic and each time he updates the material. This is also a good time for surveyors to get together, and discuss something other then their work, a social get-together, something we as a Society need to do more. Get our families involved.

National Surveyors Week is now in STONE! US Senate resolution 361 passed by a voice vote on January 31st and can be viewed at http://thomas.loc.gov. The 3rd week in March.

The work by the CIC chapter for the 2007 convention is progressing nicely!! The chapter has a ***tentative*** schedule in this copy of the Hoosier Surveyor, you can all get familiar with it. They are proposing having national speakers like Jim Reilly and Joe Poiva and a presentation by Microsoft on Powerpoint and excel. This all sounds very interesting to me. Best of luck to the CIC. Hope to see you all there!!!

We have sent a letter to Mr. Jon Vanator, Office of the Governor, supporting the reappointment of Randy Miller and Ross Holloway to the Board of Registration. If any of you can assist these two hard working individuals in this goal please do. Both men have spent considerable personal time and money protecting the public's interest and serving OUR profession. Please let them know you appreciate their hard work.

I received 3 phone calls recently, all from non-surveyors about my picture and a brief article on me as president, in the local newspaper. I thought this was a good way to promote OUR surveying profession. This is one of the charges that Tony Gregory, chairman of the Public Information and Marketing committee has accomplished. This will be on-going. Great Job Tony. This committee needs to hear from all of you about open houses at schools or scout events or special events that entails surveying. We need to promote OUR profession!!!! About 3-4 weeks ago I gave a one hour talk to about 45 cub scouts, explaining the basics of surveying. This is a great experience, for both sides.

Perry Cloyd through a lot of hard work has set up the Past Presidents Council. The BOD voted to make this a permanent council, serving OUR profession. One of their charges is to assist Land Surveyors with ethical situations.

There are many different topics that OUR society is working on, I ask that each and every one get ACTIVLY involved, be it locally or State wide. This is OUR profession and we all need to make it better!!!! Call me, e-mail me or write me. Be Good, have a great Life!!!

Frank

ISPLS BOARD OF DIRECTORS MEETING HIGHLIGHTS

by Dianne Bennett, Executive Director

May 20, 2006

The ISPLS Board of Directors held a meeting on Saturday, May 20, 2006 at ISPLS headquarters. President Ballintyn called the meeting to order at 8:57 a.m.. The minutes and treasurers reports were reviewed and approved.

Adjustments to the Agenda:

Dr. Steven Johnson, Purdue University, presented information regarding the John G. McEntyre Scholarship agreement. The scholarship has been awarded to Clint Roos.

Purdue's LS 400 course is currently ongoing and will be complete early June 2006. The final survey presentation will be made June 8th, 2006 and the followed by golf outing on June 9th, 2006.

Purdue is interested in hosting an ISPLS BOD meeting. This would provide an opportunity to review the program and coordinate with the current staff and faculty. With the recent changes and modifications to the Purdue process there will be more opportunities for the university and ISPLS to work together to increase participation in the surveying profession. A link to the Purdue's Student Chapter is listed on the ISPLS website. The typical chapter meeting is on the first Tuesday evening of the month with a guest speaker, usually a local surveyor that presents information on the surveying profession.

Staff Activity Report - A written report was submitted for board review. The report is stated under individual topics listed below.

Communications - Hoosier Surveyor - The Hoosier Surveyor has been mailed and should be received soon.

Membership - The following membership applications were reviewed and approved: Affiliate: David Kuethe

Membership applications (individual and firm) were reviewed with respect to the Lobbyist Allocation and taxable consideration.

The membership committee has completed call to members to support the roster by having their business cards published in the roster and on the website.

Past President's Council - A committee meeting is scheduled for June 2, 2006.

Publications - The committee is currently working on the update of Manual #3 (Law and Surveying) and Manual #2 (Indiana Coordinate Systems). The law manual is tentatively scheduled to be ready for the conference in January 2007.

Web Page - The web page has been updated to include additional chapters. Chapters are invited to email information to either Ed Sweetland or Dianne Bennett.

Professional Development - Education - There is interest in ISPLS providing a Positional Tolerance seminar. Also there is discussion about putting together a least squares adjustment session.

Licensing Review Exam - An upcoming review seminar is being planned.

Scholarships - Vincennes University expressed their gratitude for the continued support from ISPLS for the next generation of surveyors.

Steve Johnson reported on Purdue University Scholarship agreement. A motion was made and passed to approve and execute the revised Purdue University John McEntyre Scholarship agreement.

Trig-Star - The Indiana Trig-Star winner was Patrick Flick from Tri-Central High School, Sharpsville, Indiana. Patrick scored a perfect score. Patrick's math teacher was Mrs. Andrea Powell of Cicero, Indiana. The test was sponsored by Richard Ward, PLS of the Wabash Valley Chapter. Dick organized a formal award presentation for Patrick and Ms. Powell on Friday, May 19th.

There was only one other perfect score throughout the state - Kyle Redden of Providence High School in Clarksville, Indiana. If the state winner, is unable to participate in the national exam then Kyle will be able to participate in the national exam in Patrick's place as runner up.

The overall state participation in 2005-2006 included 37 schools - 21 from the Wabash Valley chapter, 8 from the Northwest Chapter, 7 from the Southwest Chapter and 1 from the Initial Point Chapter. A total of 737 students took the exam. Also, a total cash value of $2,200 was awarded by ISPLS chapters. The state awards total cash value of $1,000.

After discussion there was a motion made and passed to offer an award for second and third place winner ($500 for second and $250 for third with half matching to the teacher) of the Trig Star event.

Government Affairs - Board of Registration - The May presentation was canceled along with the certificate presentation to new registrant. Discussion followed regarding the certificate presentation ceremony and the efforts ISPLS can make to perform the presentation functions.

ISPLS provided a letter of recommendation in support of Ross Holloway for reappointment to the BOR.

Lobbyist - Amber Van Til will start lobbyist efforts for ISPLS August 1st, 2006.

County Surveyors - The annual meeting of county surveyors at Road School will be in March of this year.

GPS-GIS Monumentation - There was an organization meeting April 27th, the next meeting is June 15th.

Standards - The committee met May 19th. The committee discussed and reviewed data concerning historic accuracy standards affecting Indiana. Also discussed were samples of surveyor's reports for posting on the web site.

Internal Affairs - Chapters - There was discussion about formation of a new Southeast Chapter.

Finance - The 2006-2007 budget still needs to be established and will be discussed later. It was suggested that the annual budget be tied to an economic indicator (cost of living/inflation) to control budgetary spending and be good stewards of the society's funds. Similarly, membership dues should be tied to an economic indicator and there should be an annual review of the need for a membership dues increase.

A meeting is planned for the future 2007 Convention. Future convention locations were discussed and sponsoring chapters were reviewed.

New Business - NAFTA proposed mutual recognition document - This proposal is an effort to allow reciprocity with Mexico and Canada as a result of NAFTA. During the NSPS Governor's meeting the motion was tabled because there is opposition to the meeting.

Deceased Surveyors Registry - The intent of this interest is to have the records of prior/deceased surveyors and where their records can be found. It has been suggested that each chapter takes responsibility for this activity and forward information to ISPLS for posting on the web.

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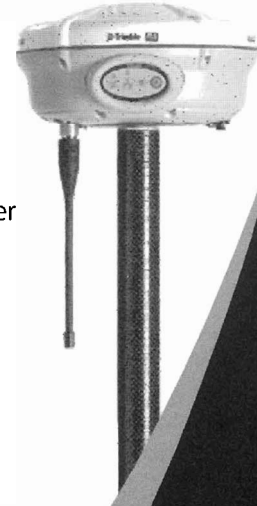

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Getting paid when you should

By Mark Zweig

It never ceases to amaze me when I see civil engineering firms with extended accounts receivable. It's just ridiculous that, as a group of companies, we tolerate average accounts receivable of 80 days, 90 days, or even more. I have seen individual companies with average accounts receivable as high as 260 days.

Firms can operate at 120 percent of productive capacity, sell new jobs like mad, and still go broke because clients don't pay when they are supposed to. That's why I developed the following "12-step program" for companies that want to improve their cash flow dramatically:

Step 1 – Admit you have a problem. Seventy days is too long to finance your slow-pay clients. Ninety days is ridiculous; 110 days is really crazy. Whey should lawyers, accountants, and management consultants get paid 40 days before you do? You must acknowledge the problem.

Step 2 – Get mad. If you aren't mad about the situation, you won't do anything about it. This is unacceptable. You did a good job – better than a good job, right? Then you deserve to be paid.

Step 3 – Acknowledge that you are a big part of the problem. If you didn't willingly keep selling jobs to clients who have proven themselves as slow payers, you would be better off. If you didn't let other principals stop collection process for their clients, you'd be better off. If you didn't get sloppy with your own billing and collection efforts, then maybe you'd be able to get others to do what they are supposed to. If you have a problem, look in the mirror.

Step 4 – Draw strength from your higher power. You are not powerless over this problem. You are in control of yourself and can decide to do things differently. Be willing to make a poor-paying client mad. You are going to be OK, no matter how painful it gets demanding payment per mutually agreed-upon contract terms.

Step 5 – Get motivated to do something about it. You need to take the lead. Stop gripping and whining, lay out the plan, and then implement it. Without implementation, nothing good is going to happen. No one can stop you.

Step 6 – Make sure no job number is opened without complete billing information. This is a principle of Billing and Collection 101. There cannot be any exceptions to proper project initiation.

Step 7 – Turn around draft invoices in less than 24 hours. This is an internal requirement. Convert invoices to electronic files and send them to project managers for review. Insist that managers get them back with any changes in 24 hours. No excuses.

Step 8 – Bill continuously throughout the month. Thirty percent or more of firms still don't do this. If a project billing phase is completed on the second of the month, send a bill out on the second, not the 30th when they normally go out.

Step 9 – Send all bills electronically as PDF's. Follow up with snail mail This will get your bills processed that much sooner. And, if there's a problem or question, make it easy for your client to ask you via e-mail so you can resolve it.

Step 10 – Follow up on every bill a week after it is sent. This will help you find out whether it's being processed for payment.

Step 11 – Always follow established collection procedures. This means no exceptions. For example, just because someone is busy with an accounting software conversion does not mean you can stop following all of your established collections procedures. Or, just because a recent acquisition is taking up accounting resources does not mean it's OK to back off collections. These things do not excuse anyone at any time from doing their part in collecting the money.

Step 12 – Realize you are not alone. Encourage peers to do as you do. The more we join together and stop allowing unethical clients and undisciplined partners, and co-workers to run over us, the better off we all will be.

Following this 12-step program can put you on the road to recovery as it relates to your collections. There is nothing to stop you from getting accounts receivable down to 40 or 45 days!

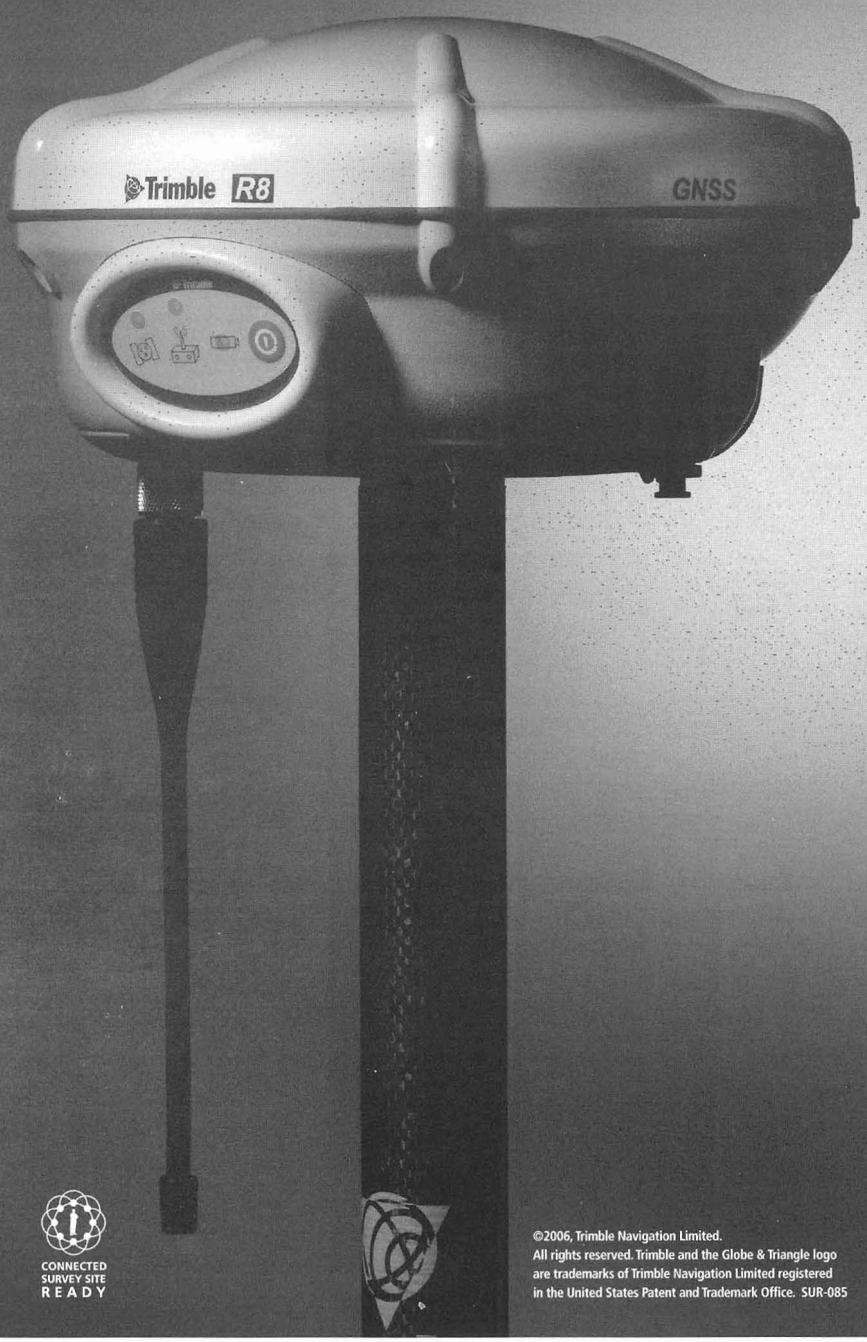
Reprinted, with permission, from July 2005 issue of CE News.

A better invoice

The format of invoices and the information contained in them can impact how quickly clients pay. The following terms can encourage prompt payment:

* Include an invoice or project number to distinguish one invoice or project from another;
* State the billing time period to reconcile hours being billed with the work accomplished;
* Show previously billed but unpaid amounts to remind clients about outstanding balances;
* Indicate terms of payment, such as 30 days or upon receipt;
* Provide instructions for remitting payment, including to whom.
* The check should be made payable and the address to which it should be sent; and
* Include the project manager's or principal's signature to assure clients that the invoice was reviewed personally.

One small bump in technology, one giant leap for surveyors.



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Relative Positional Accuracy and Indiana Rule 12 Surveys

By Gary R. Kent, P.L.S., Noblesville, Indiana

(NOTE - The following are the personal thoughts and comments of Gary Kent and should NOT be construed as the opinion of the Registration Board)

Rule 12, Surveyor Reports and Relative Positional Accuracy

The revised Rule 12 (effective June 3, 2006) introduces the concept of Relative Positional Accuracy (RPA) in section 1 with this definition:

> *"Relative positional accuracy" means the value expressed in feet or meters that represents the uncertainty due to random errors in measurements in the location of any point on a survey relative to any other point on the same survey at the ninety-five percent (95%) confidence level.*

New section 7 on measurements, states the following:

Sec. 7. (a) The purpose of this section is to prescribe precision and accuracy standards to be used by a land surveyor in conducting original and retracement surveys and route surveys.

(b) The land surveyor shall select the appropriate equipment and methods and use trained personnel to assure that the acceptable relative positional accuracy specified in this section is not exceeded.

(c) The degree of precision and accuracy necessary for a survey shall be based upon the intended use of the real estate. If the client does not provide information regarding the intended use, the classification of the survey shall be based on the current use of the real estate.

(d) Classifications of surveys are as follows:

*(1) **Urban surveys.** Urban surveys are performed on land lying within or contiguous with a city or town, except for single family residential lots. Urban surveys also include:*

(A) commercial and industrial properties;

(B) condominiums;

(C) townhouses;

(D) apartments; and

(E) other multi-unit developments;

regardless of geographic location.

(2) Suburban surveys. Suburban surveys are performed on residential subdivisions lots. Surveys of single family residential lots shall be suburban surveys even if the lot is located in an urban or a rural area.

(3) Rural Surveys - Rural surveys are performed on real estate lying in rural areas that does not otherwise meet the definition of an urban or suburban survey.

(e) The acceptable relative positional accuracies for each classification of survey are as follows:

(1) Urban surveys: 0.07 feet (21 millimeters) plus 50 parts per million.

(2) Suburban surveys: 0.13 feet (40 millimeters) plus 100 parts per million.

(3) Rural surveys: 0.26 feet (79 millimeters) plus 200 parts per million.

(f) Relative positional accuracy may be tested by:

(1) comparing the relative location of points in a survey as measured by an independent survey of higher accuracy; or

(2) the results of a minimally constrained, correctly weighted least square adjustment of the survey.

With regard to the documentation of Relative Positional Accuracy on a Rule 12 survey, section 12 says this (highlights added):

Sec. 12. (a) When conducting a retracement survey or an original survey, a registered land survey or shall do the following:

(1) Furnish the client with a written surveyor's report that, in addition to other pertinent data, identifies the type of survey, explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel, and gives the registered land surveyor's professional opinion of the cause and the amount of uncertainty in those lines and corners because of the following:

(A) Availability and condition of reference monuments.

(B) Occupation or possession lines.

(C) Clarity or ambiguity of the record description used and of adjoiners' descriptions and the relationship of the lines of the subject tract with adjoiners' lines.

(D) The relative positional accuracy of the measurements.

Under the previous version of Rule 12, many Indiana surveyors have merely been reporting in their Surveyor Reports that the Theoretical Uncertainty did not exceed that which was allowable, which seems to have been sufficient under the rule. The wording some had used is similar to the following (this example is for a Class B survey):

> *"The Theoretical Uncertainty (due to random errors in measurement) of the corners of the subject tract established this survey is within the specifications for a Class B Survey (0.5 feet) as defined in IAC 865."*

Following that thinking, Surveyor Report wording to accommodate Relative Positional Accuracy in the new Rule might be something like this (for an Urban survey):

...continued Page 8

> *"The Relative Positional Accuracy (due to random errors in measurement) of this survey is within that allowable for an Urban Survey (0.07 feet plus 50 ppm) as defined in IAC 865."*

Unfortunately, for those non-surveyors who read the Surveyors Report, virtually none of them will understand what "0.07 feet plus 50 ppm" means. Given that, it seems that perhaps an actual, definitive number should be provided. To do that, of course, the RPA would need to be calculated on every survey. Doing that, however, may often be unnecessary for another reason, because once the surveying community does some work on RPA, it may well find that typically there will not be a problem meeting the allowable 0.07 feet plus 50 ppm for an Urban class survey. And it would be *very* unusual to have a problem meeting the Suburban and Rural class numbers. For example, 0.26 feet plus 200 ppm (the Rural survey allowance) on a 1000 foot line is 0.46 feet; using the Suburban allowance, it is still 0.23 feet).

As a result, if their field staff is competent, their equipment is in adjustment and they are seeing good closures in their work, there is probably no reason to check the RPA on every single survey, unless a particular survey involved some odd geometry, or unbalanced or short sites. A surveyor should, however, probably check the RPA on a survey every now and then to assure themselves that they continue to be compliant. And, of course, if the issue was ever raised on a particular survey (in court, for example), the surveyor would need to be able to demonstrate the allowable RPA was not exceeded.

To summarize, documenting RPA in the Surveyors Report is something that Indiana surveyors need to think through. Continuing to use wording similar to what had been previously used by many – that the survey did not exceed that allowable – may suffice, but seems a bit problematic since "0.07 feet plus 50 ppm" will be of no practical value to the client.

The 2005 ALTA/ACSM Minimum Standards and Rule 12

A related issue is that the measurement standard required on an ALTA/ACSM Land Title survey is what amounts to the Urban class standard under Rule 12 (0.07 feet and 50 ppm). This means that when conducting an ALTA/ACSM Land Title Survey, *regardless of what classification the survey is under Rule 12*, the ALTA/ACSM requirement of 0.07 feet and 50 ppm will need to be met, except in extenuating circumstances (see the *2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys*).

Given this, it seems that there is only one logical approach when the Rule 12 boundary survey is also an ALTA/ACSM Land Title Survey; and that is to certify to meeting the ALTA/ACSM measurement requirement, as required in the ALTA/ACSM certification, and then report in the Surveyor's Report that the survey was made in accordance with the requirements for an Urban Survey per Rule 12.

Admittedly, under this approach one could perhaps argue that the surveyor is extending liability by certifying to a Rule 12 Urban survey when it is not necessary (if, for example, the property actually qualified under Rule 12 as a Suburban or Rural survey). On the other hand, however, if the ALTA/ACSM certification covers what amounts to an Urban survey anyway (0.07 feet and 50 ppm), to extend that Urban measurement standard to include the Rule 12 "portion" of the survey would seem to be a non-issue. To try to parse the Land Title Survey into two different levels of allowable RPA will be exceedingly confusing to anyone looking at the survey and trying to understand what the RPA was for the survey.

Assuring the Accuracy of Horizontal Control

Besides being required by Rule 12, and by personal and professional integrity, it is in the interests of a company to be able to prove that due care was taken to assure that the measurements upon which land boundary determinations are made are as accurate as possible - or at least as accurate as appropriate. There are widely accepted standards established by the industry by which the quality of our work may be checked.

The following are some excerpts from the **2005 Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys** as adopted by the American Land Title Association and National Society of Professional Surveyors (a member organization of the American Congress on Surveying and Mapping)

> *"These Accuracy Standards address Relative Positional Accuracies for measurements that control land boundaries on ALTA/ACSM Land Title Surveys. In order to meet these standards, the surveyor must assure and certify that the Relative Positional Accuracies resulting from the measurements made on the survey do not exceed that which is allowable. If the size or configuration of the property to be surveyed, or the relief, vegetation or improvements on the property will result in survey measurements for which the allowable Relative Positional Accuracies will be exceeded, the surveyor must alternatively certify as to the Relative Positional Accuracy that was otherwise achieved on the survey.*
>
> *Definition:*
> *"Relative Positional Accuracy" means the value expressed in feet or meters that represents the uncertainty due to random errors in measurements in the location of any point on a survey relative to any other point on the same survey at the 95 percent confidence level."*
>
> *"Relative Positional Accuracy may be tested by:*
> *(1) comparing the relative location of points in a*

survey as measured by an independent survey of higher accuracy or
(2) the results of a minimally constrained, correctly weighted least square adjustment of the survey.

Allowable Relative Positional Accuracy for Measurements Controlling Land Boundaries on ALTA/ACSM Land Title Surveys: ***0.07 feet (or 20 mm) + 50 ppm*** *"*

This "Relative Positional Accuracy" standard allows for the inclusion of all types of survey measurements into the survey and establishes a criterion for determining their accuracy.

The 2005 ALTA/ACSM standard quoted above that Relative Positional Accuracy may be computed using a "minimally constrained, correctly weighted least squares adjustment of the survey."

A minimally constrained least squares adjustment is an adjustment holding a single point fixed. This lets the observations give the control network its shape. If the Allowable Relative Positional Accuracy is exceeded using the minimally constrained adjustment, then there must be some problem with the accuracy of the measurements, or perhaps with the shape of the network. That is why it is a fair representation of the quality of the fieldwork. If a more constrained adjustment (holding more control points fixed) were used to compute the Relative Positional Accuracy, and Allowable Relative Positional Accuracy was exceeded, it could be that the survey measurements were in fact accurate, but there is some error in the control, or perhaps the control could be good and the measurements inaccurate. It would not be immediately evident which one was the case.

"Correctly weighted" means that you have assigned reliable error estimates to your measurements which are reasonably based on the type of equipment, competence of the field crew, site and weather conditions, or other factors which might affect the quality of the measurements. An example of NOT weighting your measurements correctly would be for instance assigning lower error estimates to measurements from a side shot run with a single angle and distance to a prism pole than to a traverse line run with multiple angles and distances to fixed targets, just because it makes your network work better when you do. You have to be honest with your error estimates, and if the network doesn't work well, you should go out and get more measurements.

While the ALTA/ACSM standards do not specify exactly what statistic generated by the least squares analysis constitutes Relative Positional Accuracy, it seems to be generally considered to be the error ellipse. With a number of available softwares, when the least squares adjustment is run, an error ellipse is computed for each point in the network at the 95% confidence level. This error ellipse is basically an area within which it is 95% certain that the point actually falls. It is usually defined by the length and orientation of its semi-major and semi-minor axes. In a minimally constrained adjustment, the size of the error ellipses grow as their distance from the single fixed point grows, due to the accumulation of errors in measurement.

The standards say that the relative positional accuracy is as between any two points on the survey. On a large survey network, making this comparison for all possible points would take a long time and be quite burdensome.

It is a reasonable interpretation of the standards to say that the maximum allowable semi-major axis of the error ellipse must be 0.07 feet plus 50 ppm of the distance of the point being checked from the point held fixed in the adjustment. If, for example, a point is 1000 feet from the point held fixed in the adjustment, the semi major axis of the error ellipse computed for that point must be less than 0.07 feet + (1000 x 50 ppm), or 0.12 feet. It would also be wise to check the results between a few sets of points at the far reaches of the survey – for example, a couple of the most physically distant points.

A report could be included in the records which are kept for each boundary survey showing that a minimally constrained least squares adjustment was performed on the survey measurements, that the Relative Positional Accuracy of all the traverse and boundary ties were computed, and that the Allowable Relative Positional Accuracy was met.

Author's note - Credit and thanks to contributions made to this article by Tom Manning of Rogers Consulting, Inc.

Cowboy Boots

Anyone who has ever dressed a child will love this one!

Did you hear about the Montana teacher who was helping one of her kindergarten students put on his cowboy boots? He asked for help and she could see why.

Even with her pulling and pushing, the little boots still didn't want to go on. Finally, when the 2nd boot was on, she had worked up a sweat.

She almost cried when the little boy said, "Teacher, they're on the wrong feet." She looked and sure enough, they were. It wasn't any easier pulling the boots off than it was putting them on. She managed to keep her cool as together they worked to get the boots back on, this time on the right feet.

He then announced, "These aren't my boots."

She bit her tongue rather than get right in his face and scream, "Why didn't you say so?" like she wanted to. And, once again she struggled to help him pull the ill-fitting boots off his little feet. No sooner they got the boots off and he said, "They're my brother's boots. My Mom made me wear 'em."

Now she didn't know if she should laugh or cry. But, she mustered up the grace and courage she had left to wrestle the boots on his feet again. Helping him into his coat, she asked, "Now, where are your mittens?"

He said, "I stuffed 'em in the toes of my boots."

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Purdue LS 400 Summer Geomatics Engineering Design Project 2006

LS 400 Summer Geomatics Engineering Design Project is a course taken by students in the BS in Land Surveying and Geomatics Engineering degree program at Purdue University. The 2006 project was conducted at the Franklin L. Cary Boy Scout Camp located at 6286 State Road 26 East, approximately two miles east of Interstate 65. The project site is about 128 acres in total area and consists of facilities for housing, swimming pool area, camping, healthcare, dining halls, amphitheater area, shelters, and hiking trails.

The objective of the 2006 course was to provide the Sagamore Council of the Boy Scouts of America at Cary Camp with topographic, boundary and control surveys. Cary Camp Park Ranger, George Nelson, in the role of client, assisted with determining the priority and scope for each project component.

(Back Row, L to R)
Professor S.D. Johnson, Mr. B.M. Hottel, Brad Perry (Nashville, TN), Matthew Thomas (Muncie, IN), Adam Bihary (Hambden, OH), Andrew Kincaid (Highland, IN), Steve Rust (Lowell, IN), Nathan Harris (Gary, IN), Thomas Henderson (Alexander City, AL), and Clint Roos (Dale, IN)

(Front Row, L to R)
Ashley Rose (Anderson, IN), Rob Will (Vernon Hills, IL), Andrew Behler (Allentown, PA), Chris Borzio (Middletown, NJ), Jeff Fox (South Bend, IN), Joe Cross (Morton Grove, IL), and Andrew Miller (New Albany, IN)

Control Survey

The primary objective of the horizontal and vertical survey control network was to connect existing National Geodetic Survey (NGS) control stations, existing Tippecanoe County Section Corners, and new on-site control stations in a common coordinate system. Federal Geodetic Control Committee (FGCC) standards and specifications were incorporated into the network design. The horizontal and vertical control was used to support both the topographic and boundary surveys on the project site.

The horizontal control network design was based on a static GPS survey to establish control stations at the project site and connect section corners to the project. The designed control network was adjusted by least squares. Conventional terrestrial traverse and network observations were integrated into the adjustment for topographic and boundary surveys. All control results were published in the Indiana Coordinate System West Zone, North American Datum 1983.

Vertical control for the project site was established by using a combination of differential leveling, trigonometric leveling, and GPS. Second-order leveling from benchmark ISHC BM TIPP C 3 on a concrete bridge over Wildcat Creek on State Road 26 was used to establish vertical control on the project site. Vertical control was then carried to the on-site control stations through a combination of differential leveling and trigonometric leveling. In addition to the terrestrial leveling procedures, elevations were also obtained from the GPS network referenced to remote NGS control. Elevations from the leveling and the GPS networks were compared and agreed within +/- 0.09 feet.

Boundary Survey

At the preliminary project meeting, Mr. Nelson emphasized that the west side of the subject tract was the most uncertain. He also gave the course members a walking tour of the camp boundary. Time constraints of the course schedule made establishing the lines along the west side of the property the primary objective of the 2006 boundary work. Allowable positional accuracy for the boundary work was designed to meet ALTA/ ACSM Land Title Survey standards, and satisfy Indiana Administrative Code 865, Rule '12' standards.

A comprehensive boundary survey based on the horizontal control network was completed to locate all found corner monumentation and boundary evidence. A final boundary survey plat of the west side of the subject tract, along with a Surveyor's Report, and a metes and bounds description was completed for the project.

Topographic Survey

One of the primary deliverables to the Cary Boy Scout Camp was a topographic map of the camp proper and prospective construction sites. The 2006 project emphasized topographic mapping for the main facilities area plus areas along with the main driveway to the site and along the north right-of-way for State Road 26. Additionally, a planimetric sketch map of the entire camp property showing all hiking trails was produced for the camp rangers use.

The horizontal and vertical control network was used to tie all mapping work together. Control points were occupied and sideshots were taken to locate important structures and features using both conventional terrestrial and GPS RTK methods. These same methods were used to complete check surveys to show that the final map product met the required topographic mapping standards.

The four week experience of seeing a project from start to finish provided a firm foundation of surveying fundamentals for all of those involved. For the first time many of us were able to gain a better understanding of how and why to apply the knowledge we learned in class to real world situations. Through comradeship and the leadership from Professor S.D. Johnson and Mr. B.M. Hottel we were able to successfully complete the objectives that we outlined for the project.

Respectfully submitted by the 2006 LS 400 Team

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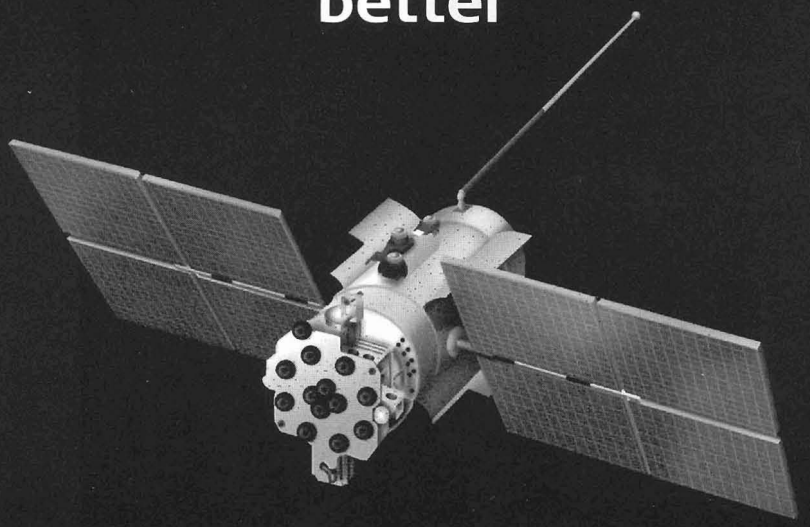

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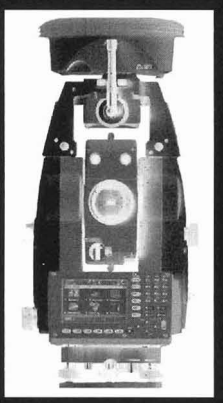

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Ashley Rose, Anderson, IN(left) receives the Margaret Cunningham Scholarship award from the Tecumseh Chapter President Pat Cunningham.

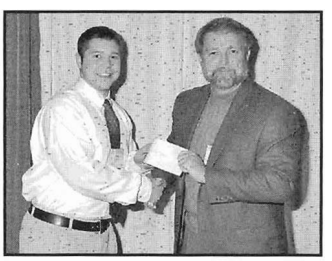
Clint Roos, Dale, IN (left) receives the ISPLS John McEntyre Scholarship award in the amount of $4500 from Mark Isaacs.

Todd Nordyke, Ellettsville, IN (left) receives the ISPLS Peggy Archer Memorial Scholarship award in the amount of $3000 from Mark Isaacs.

Jeffrey Fox, South Bend, IN (left) receives the Initial Point Purdue Chapter Scholarship award from Initial Point Chapter President Terry Kendall.

Ashley Rose, Anderson, IN (left) receives the Central Indiana Chaper's Purdue Scholarship award from Cindy Candler.

Shaun Rector, Bloomington, IN (left) receives the Central Indiana Chapter's Vincennes Scholarship award from Cindy Candler.



Jeffrey Fox, South Bend, IN (left) receives the Margaret Cunningham Scholarship award from the Tecumseh Chapter President Pat Cunningham.

Travis Shetler, Goshen, IN (left) receives the Initial Point Vincennes Chapter University Scholarship award from Initial Point Chapter President Terry Kendall.

Shaun Rector, Bloomington, IN (left) receives the Hoosier Hills Chapter's Scholarship award from Chapter President Mark Isaacs.

Jacob Beaman (left), Derek Capbell (right) recipients of the Southwest Chapters Scholarship award with Steve Sherwood, Southwest Chapter President.

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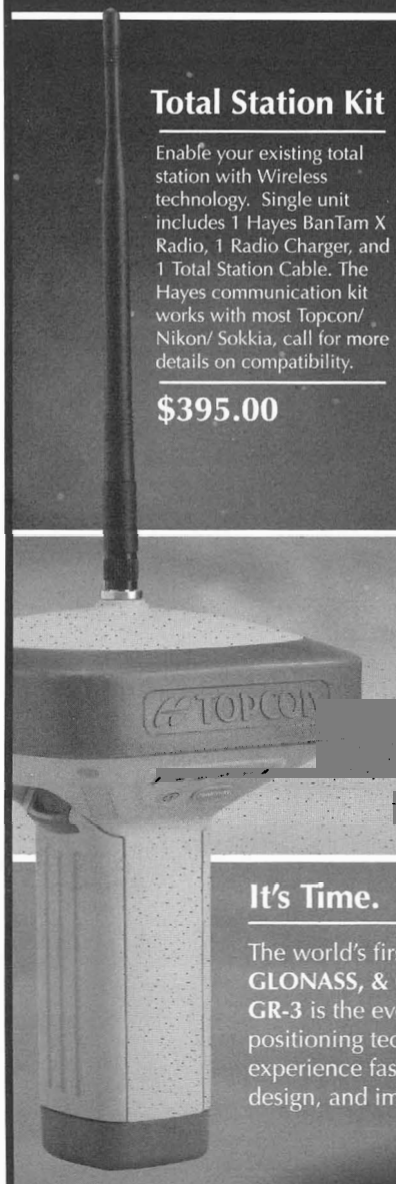

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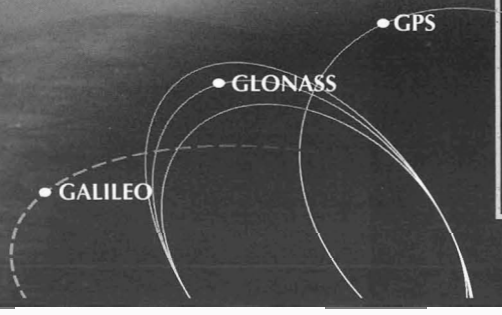

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2007 ISPLS ANNUAL CONVENTION AGENDA

Indianapolis, January 17-19 Tentative Agenda
Adams Mark Hotel at the Airport

Wednesday, January 17

9:00 – 12:00	ISPLS Board of Directors Meeting	
12:00 – 7:00	Registration Open	
1:00	Exhibit Hall Opens	
1:00 – 4:00	**Microsoft [Excel** & PowerPoint]	ExecuTrain of Indianapolis
	Accuracy in Motion	Bruce Strack & Craig Williams
	The Indiana Map	Jill Saligoe-Simmel
	Safety	Ron Koons
4:00 – 6:00	Exhibitors Reception	
7:00 – 10:00	**Las Vegas Casino Party**	

Thursday, January 18

7:00 – 5:00	Registration Open	
7:00 – 5:00	Exhibit Hall Open	
8:30 – 3:45	Railroad Surveying 101	AREMA C-1 - Farnsworth Group, Inc.
8:15 – 3:30	Higher Order of Surveying in Indiana	James Reilly
8:00 – 3:15	Writing and Interpreting Legal Descriptions	Anthony Gregory

Friday, January 19

7:00 – 12:00	Registration Open	
7:00 – 2:00	Exhibit Hall Open	
8:30 – 3:30	ALTA Standards	Gary Kent
8:00 – 3:30	State Plane Coordinates And Improving Field Procedures	James Reilly
8:15 – 3:30	Science of Surveying Measurements	Joe Paiva

Technician Program

Thursday, January 18

8:15 – 11:15	ALTA for Field Personal	Gary Kent
12:30 – 3:30	Section Corner Perpetuation	Kurt and Cindy Candler

Friday, January 19

8:15 – 11:30	Construction Surveying & Layout	Wes Crawford
12:30 – 3:30	Discussion Mistakes & Errors	Wes Crawford

Spouse Program

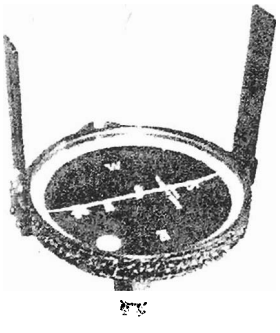
Thursday, January 18

Children's Museum

Friday, January 18

Conner Prairie

SURVEYORS HISTORICAL SOCIETY



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SCHEDULE OF EVENTS

(Subject to change)

THURSDAY, SEPTEMBER 14TH - 6 pdh's
Colonial Surveying Symposium

9:00 A.M.	Registration
10:00 A.M.	North Carolina/Virginia Line Surveys by Larry Sears
11:30 P.M.	North Carolina / South Carolina Border Stories with Gary Thompson
12:30 P.M.	Break with lunch served
1:00 P.M.	Bodie Island Baseline by Charles Brown of NCDOT
2:00 P.M.	Backcountry Connections with Wachovia by Ken Robinson
3:00 P.M.	Great Wagon Road by Kyle Stimson
4:00 P.M.	Break
4:15 P.M.	Settlement of Bethabra TBA
6:00 P.M.	Reception at Old Salem Visitors Center
	Wine and beer tasting, h'ors d'oeuvres, book signings, dinner on your own
7:30 P.M.	Surveyors' Historical Society Board of Directors' Meeting. Members welcome.

FRIDAY, SEPTEMBER 15TH– 5 pdh's

7:45 A.M.	Registration Pick-up
8:00 A.M.	Moravian Surveys by Michael Hartley
11:00 A.M.	Bus Tour of Bethania and transportation to Bethabra Historical Park
12:30 P.M.	Catered lunch at Bethabra Park
1:00 P.M.	Tours of Bethabra Park – (split into smaller groups)
	Special guides at Germainhaus and colonial gardens
	Colonial Surveyors Camp demonstrations by John Caramia & Willie Balderson
5:00 P.M.	Bus to hotel
7:00 P.M.	Banquet featuring with speaker TBA

SATURDAY, SEPTEMBER 16TH

8:00 A.M.	Optional field trip to search for corners of the Wachovia Tract
9:00 A.M.	Admission to Old Salem Museums and attractions
	Antique road show, swap meet and appraisals at MESDA pavilion
	Special display of original survey instruments and maps
	Archeological site display
	Colonial Surveyors Camp demonstrations
	Lunch on your own

REGISTRATION FORM

REGISTRATION DEADLINE IS SEPTEMBER 1, 2006

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Total: $_____

REGISTRATION WILL ALSO BE AVAILABLE ON THE NCSS WEBSITE AT WWW.NCSURVEYORS.COM

Thursday and Friday classes will be held at the Brookstown Inn. The Inn is a converted textile mill originally constructed in 1837. Mention "Surveyors Rendezvous '06" for discounted room rates at $89.00 per night.. Call 1-800-845-4262 for reservations. Rooms are also available at the Wingate Inn (near the Brookstown Inn w/ shuttle service available) for $79.00 per night. Call 336-714-2800 for reservations. Saturday sessions are at Old Salem and include admission pass for all Old Salem museums and buildings.

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Contract Clause - Supplemental Fee Clause

by Knud Hermansen

All surveyors in private practice have been in the situation where the client has sought services beyond the scope of the contract. For example, a survey crew will go to a construction site and be delayed several hours after they should have completed the contractual services because the client requested extra services ("While you're here..."). All too often when the surveyor attempts to bill for the extra services the client objects that the extra charge was never agreed upon.

It is neither good for practice nor good for the promotion of the business to refuse a client's request to perform extra services or delay performing additional services until a new or modified contract can be executed. Therefore, prudence requires the surveyor include in the initial contract what will more than likely be an eventuality after its execution.

To prepare for client requests beyond the scope of contractual services, the surveyor should include a supplemental fee clause in the contract. The supplemental fee clause is included in a contract to provide a basis for the fee charged for additional work performed outside the scope of the contract. The supplemental fee clause also provides notice to the client that they can and should expect to be charged for additional work outside the scope of the contract that they have requested the surveyor to perform.

Supplemental Fee: For any and all additional work outside of the scope of the contract that is requested by the Client or the Client's agent or representative, the Surveyor shall be paid $___ per hour plus costs.

The supplemental fee clause is often predicated on an hourly rate or cost plus basis. These two formulations of a supplement fee are the most flexible and easy to apply to unknown or unexpected situations.

The supplemental fee should be reasonable; yet it should be set higher than the fee that would be negotiated directly for the same services. a higher (but still reasonable) supplemental fee provides some leeway for the surveyor to compromise and still profit should the surveyor wish to compromise their fee for promotional purposes. A supplemental fee clause also helps coerce the client to plan ahead and negotiate additional services with the surveyor in order to save money. Perhaps most importantly, a higher supplemental fee compensates the surveyor for the aggravation brought about by the disruption of surveying services scheduled for other clients.

Often a notice provision is included with the supplemental fee clause. The client may have some concern about anticipated additional work and associated supplemental fees, especially when the surveyor may be dealing with the client's agent or representative rather than directly with the client.

Supplemental Fee: For any and all additional work outside the scope of the contract that is requested by the Client or the Client's agent, or representative, the Surveyor shall be paid $___ per hour plus costs. Provided; however, the Surveyor shall attempt to contact the client or leave a voice mail message using the client's cell phone (#___) if the additional services are being requested by the Client's agent or representative.

A clear declarative act should be required in the contract where the client is concerned that they may be charged a supplemental fee when they could believe the work is covered within the scope of the contract.

Supplemental Fee: For any and all additional work outside the scope of the contract that is requested by the Client or the Client's agent, or representative, the Surveyor shall be paid $___ per hour plus costs. Provided; however before commencing the additional services, written (handwritten, typed, or printed) confirmation of the services shall be prepared and initialed by the Client or Client's agent, or representative before commencing the additional work. Otherwise, all services performed on behalf of the client will be presumed to fall within the scope of the contract.

The scope of work section of the contract is related to the supplemental fee clause. A clearly defined scope of work does not allow confusion as to what is or is not additional work that is subject to a supplemental fee.

Despite including the supplemental fee clause, some clients will not be pleased to pay additional money. (Some Clients are not pleased to pay the contract amount.) Accordingly, it is always wise to clearly document the additional services and put the client on notice that the services about to be performed are additional services and subject to the supplemental fee.

Knud Hermansen is a professional land surveyor, professional engineer, and attorney at law licensed in several states. He teaches in the surveying program at the University of Maine and operates a consulting firm specializing in professional liability, boundary disputes, land development, and title issues.

Reprinted from the Maine Bearings, Fall 2005

COMPLETED CAREER

Albert L. McConahay PLS, 67

Past Officer of ISPLS

Deacon Albert L. McConahay, 67 of Lafayette died Monday, May 22, 2006, at his residence.

Born August 7, 1938, in Indianapolis, he was the son of the late Paul T. McConahay and Fern McRoberts. He earned a bachelor's degree from Purdue University in 1994 and from St. Joseph College in 2006.

He married Jeannie Peters in Indianapolis on September 26, 1964, and she preceded him in death on April 4, 2000.

Mr. McConahay taught construction surveying in the building construction management program at Purdue University, retiring after 21 years in 2004.

He was a member of St. Ann's Catholic Church and was ordained a deacon on September 17, 2005. He was a 4th Degree Knight of Columbus, a member of the Indiana Society of Professional Land Surveyors and served on the board of ISPLS as secretary, treasurer and vice president. He was also a member of the Sigma Lamda Chi construction honorary fraternity and was a former member of the John Purdue Club.

Surviving are two daughters, Michelle McConahay of South Bend and Colleen DeWeese (husband: Jason) of Evansville; and two brothers, Joseph McConahay (wife: Mary Jane) and Charles McConahay (husband: Pat), all of Indianapolis.

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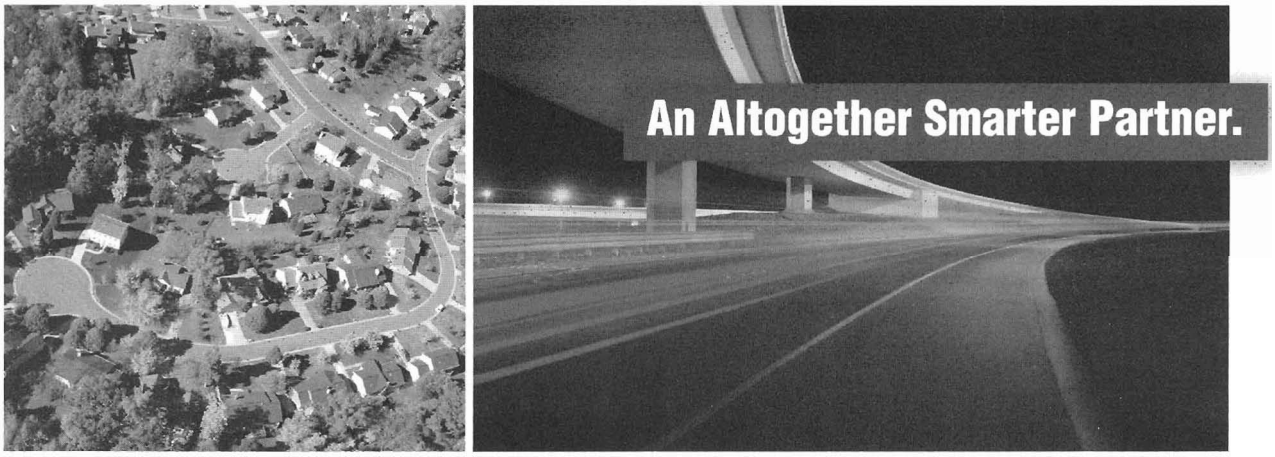

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Land Surveying versus Geomatics

By Joseph V.R.Paiva, Ph.D., P.S., P.E., and geomatics consultant

Reprinted, with permission, from the April 2004 issue of CE News

While presenting a seminar entitled "The surveying to geomatics transition," at a conference of the Land Surveyors Association of Washington, I heard the same comment from attendees that several CE News readers also have expressed: "You have the wrong impression of us."

In most states, licensed surveyors (often designated as land surveyor, professional land surveyor, or registered land surveyor), are the only people entitled by the state to do the following:

* Perform surveys that demarcate boundaries, title lines, and other land lines (such as section lines): and
* Offer opinions about the condition of those lines and all the related documents, actions taken, and physical evidence, including monumentation pertaining to those boundaries and lines.

In many of my columns and presentations, I have discussed the term *geomatics* being a more inclusive word to cover the activities performed by people engaged in such related disciplines as surveying, mapping, and spatial data analysis. The term offers a much more modern view of how various professionals can interact, be cross-trained, and most importantly, relate with each other in particular and society in general.

Of course, affixing the appellation *geomatics* to us is not the way to achieve this. It begins by studying, integrating, and – as individuals, businesses, and state and national societies – living what it means. But it has never been my intention to denigrate or dilute the powerful and important professional activity that is done by a sub-group (an important one, at that) that works with property and title lines – marking, writing land descriptions, opining, fact-finding, subdividing, locating, inspecting, and the like.

There are some readers who are disturbed by the fact that I write about the change facing the entire group of people engaged in geomatics. This, of course, includes the group of people involved in property boundary surveying activities. When I remind surveyors that it is important, as professionals, to know more about their instrumentation, error sources, measurement analysis techniques, and spatial data analysis, or when I urge them to understand more about the "whats," "hows," and "whys" of GIS, it appears that I give to some a variety of incorrect impressions.

One incorrect impression is that diligently searching for boundary evidence, locating it, and applying sound analysis and judgment in re-establishing boundary lines is no longer important – or at least that there need not be much attention paid to those activities.

The second incorrect impression is that understanding instrumentation, error sources, measurement analysis techniques, or GIS is much more important that the work done to establish or reestablish land boundaries and other landlines. Neither of these impressions is my intention, and I apologize it I have failed to communicate this effectively.

The truth of the matter (regarding my opinion that is) is that both are equally important. And the emphasis required depends upon one's professional needs. To put it another way, a cardiologist is to medicine as a property boundary expert – a land surveyor – is to geomatics. As geomatics professionals, we possess (or should possess; that's another column) a common body of core knowledge. There are several layers of sub-groups, and each sub-group, sub-sub group, and so forth, has its own commonalities, including knowledge, experience, culture, traditions, and training.

There is no intention, by calling land surveyors (that is those people who have expertise in land boundaries) "surveyors," to make them inferior. It simply is a reflection that while the boundary experts have their own body of knowledge, there is an expectation that they, including the larger sub-group of surveyors, all share the obligation to be expert in such things as measurements of the land, analysis of measurements, and even to be good cartographers.

There is a tendency for boundary experts to put themselves about the fray. To say that the other things within the surveying body of knowledge that are not boundary matter-related – such as knowing how to manage your instrumentation and data analysis capabilities to design and execute a traverse properly – are not part of the professional body of knowledge, and thus not part of professional responsibility to know, is to sell oneself short. More importantly it sells the profession short.

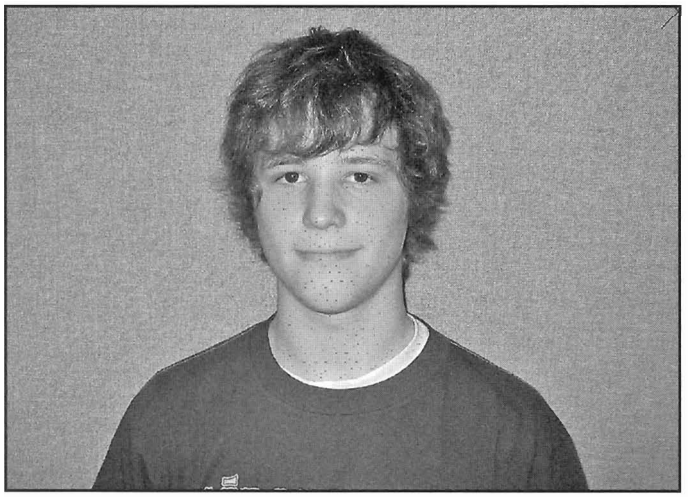
While it is true that we have technicians or paraprofessionals, as medicine does, it does not take away from the professional's responsibility to understand deeply the theory and import of the work. Relegating responsibility for instrument understanding and operation, surveying computations, measurement analysis, and adjustment – or even geodesy, geophysics or other science – to some other group does us the disservice of diluting who we are as surveyors.

My entreaties to cause professionals to think about their larger profession as geomatics is to help all professionals within the sweep of that term see the bigger picture; to realize that they have a huge mix of professional expertise that can't be within the total grasp of any one member; to be proud of the expertise they possess within the geomatics continuum; and to convey the ideas of integrated thinking and solution development to the public they serve.

Whether or not particular parts of the work are done by paraprofessionals, we are obliged with the responsibility to learn, understand, and practice the knowledge we possess in our own specialties.

Joseph V.R. Paiva, Ph.D., P.S., P.E., is a geomatics consultant. He can be reached at paiva@cenews.com

Indiana Trig-Star winner Patrick Flick



Patrick is a foreign exchange student from Hueckeswagen, Germany. He graduated with the senior class from Tri-Central High School in Sharpsville, Indiana. In Germany he has two more years of schooling. He is the Wabash Chapter of the Indiana Society of Professional Land Surveyor's entry for the Trig-Star examination given in Indiana. His parents are Birgitt and Joachim Flick from Germany and his United States sponsors are Steve and Elaine Bowne from Sharpsville, Indiana. His mathematics teacher in Indiana is Mrs. Andrea Powell.

He was born and lives in Hueckeswagen, Germany. While in the United States at Tri-Central High School he attended classes on computer programming, physics and other mathematic classes. He really enjoys math. He plans to go to college but does not know where. He will continue his studies in mathematics. His parents and especially his dad helped him a lot with math and physics. Patrick really enjoyed the TRIG-STAR challenge and he said he would recommend other students that are good in math and like solving problems to take the exam. Patrick, because his schooling in Germany is different that what we have in the United States, hopes to still be in college in 5 years and working in 10 years for some one. Because his father is an engineer in the automotive field he said he would probably head in that direction. Patrick enjoyed his experiences while in the United States and he likes soccer, both to watch and play. His parting remarks were "To have a nice day."

TEST COMPLETE
ISPLS member Jon Pyke sits with Patrick Flick at Tipton County Library after Patrick finished the Level II Trig-Star, the National Contest examination.

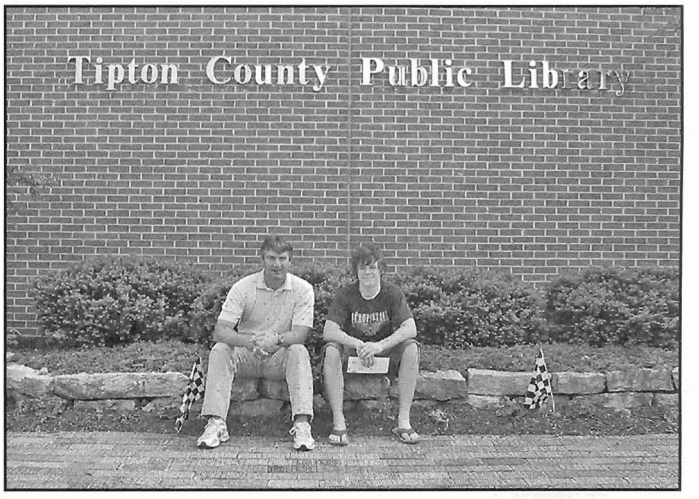
ISPLS—Wabash Valley Chapter Trig-Star Level I and II Examination Report

The Wabash Valley Chapter of the Indiana Society of Professional Land Surveyors presents the 2005-2006 Trig Star Examination Report.

We started the process in December of 2005 by contacting all 44 high schools in our chapter area. Out of the 44 schools 21 schools participated in the contest with 550 students taking the examination. Most all of the surveyors and several technicians from the Wabash Valley Chapter helped in administering the examination as the following pictures will show.

Our chapter awarded 21 one hundred dollar savings bonds to each winning student of each school participating in this years exam. Out of our chapter we also had the honor of the winning student for the State of Indiana, Patrick Flick, a foreign exchange student from Germany who attended Tri-Central High School in Sharpsville, Indiana. Jon Pyke, a surveyor in Tipton County, gave the Level II Trig-Star examination at the City of Tipton Library to Patrick before he returned to Germany. We are now waiting to find out how he did on this national examination. ***Late Breaking News: Patrick has placed third in the national exam.***

In summary, we would like to thank all the schools that allowed us to give the examination and hope they will do it again next year. Miller Huggins Office Supply Company, 1212 Meridian Street, Anderson, Indiana, for the four month loan of a time clock for the timer on all the examinations given. And a special thanks for Sandra Dougherty , administrative assistant for Richard E. Ward & Associates, who designed and constructed the award placards for the Wabash Valley Chapter and ISPLS and taking care of schedules for testing dates with various schools. Richard Miller, surveyors associate, who made this information document possible and Anthony "Tony" Gregory, the chairman of Trig-Star, Indiana, who had the right answers and knew the persons to call at the right time which made our Chapters Trig-Star event a positive one!



Trig Star Winner from Southwest Chapter ISPLS

by Steve Sherwood, PLS

Ashley Wood from Vincennes- Lincoln was the 2006 Trig Star winner from the Southwest Chapter of the ISPLS. Ashley received a plaque and a check for $500.00 from the Southwest Chapter. Ashley placed the highest score in the six area schools participating in the Southwest Chapter's Trig Star event."

Elevation Certificate

New EC Available

FEMA's new Elevation Certificate (EC) was approved for use, effective February 13, 2006, through February 28, 2009. The new form has been revised and now requires the certifier to provide the square footage of the enclosed area below the elevated floor and at least two photographs of the building, if the EC is being used to obtain flood insurance.

The new EC will be phased in on a voluntary basis until December 31, 2006. An electronic version of the form and instructions is available on the FEMA website. Although the old version of the form is no longer available for distribution, existing copies may be used until the end of 2006. Elevations certified on or after January 1, 2007, must be submitted on the new form and must include photographs.

What's New?

- The format of the EC has been modified slightly to include all building description related items in Section A, dedicating Section C to building elevation information.
- The instructions of the new form have been modified to reflect the changes and to provide better guidance for completing the form.
- Two pages have been added for attaching two or more color photographs of the building. Photographs must be a minimum of 3" x 3" and may be digital or analog.

Elevation Certificate (includes 8 building type diagrams for determining reference levels) (PDF 229KB, TXT 41KB)

- Elevation Certificate MS Word Template (DOC 153KB)

The EC form and instruction packet are available from the FEMA Distribution Center at 800-480-2520 (ask for FEMA Form 81-31). It will aso be reproduced in the May 1, 2006 NFIP Flood Insurance Manual.

More information can be found at: http://www.fema.gov/business/nfip/elvinst.shtm

Firing Your Customer

"All Customers are not created equal."

Just as every employee does not always work out and must be fired, so too must some customers be cut loose in the best interest of your business. This concept may seem counterintuitive, considering all the time and effort businesses spend pursuing customers, but Larry Selden, business professor at Columbia University, advocates just such an approach. "this doesn't fit the way most managers run and measure-and thus think about-their businesses," he acknowledges. But Selden, who co-authored the book, angel Customers and Demon Customers, says that based on his research almost every company "consists of both profitable and unprofitable customers-angels and potential demons. Some customers are making your company more valuable while some are draining value from it."

But how do you identify the customers to lose? The most effective way to do this is through activity-based costing. Rather than use traditional accounting methods that tend to distort cost information by heavily weighing labor and materials over support operations, the ABC method traces all costs back to individual product lines. By looking more closely at all of the activities that consume resources like time and capital, businesses can see which ones are more profitable.

Once you've identified the true worth of your customers, many small businesses experts agree you should tier your services to match your profitability, focusing greater support to your top level of customers.

What the experts disagree upon, however, involves the bottom 10 or 20 percent of your customers. Some small business advisors advocate cutting those customers loose, while others, like Selden, believe you should at least attempt to "exorcise" those "demon" customers first, using tactics such as discouraging costly returns or upselling.

Still, the best opportunity to identify good versus potentially bad customers occurs before they become customers. By properly sizing up prospects, your business can expend less energy and make more money without having to "fire" anyone.

Reprinted from the Spring 2005 Nebraska Surveyor from the June/July 2005 issue of Priority magazine with permission of Pitney Bowes, Inc. and touch Point Media L.L. C.

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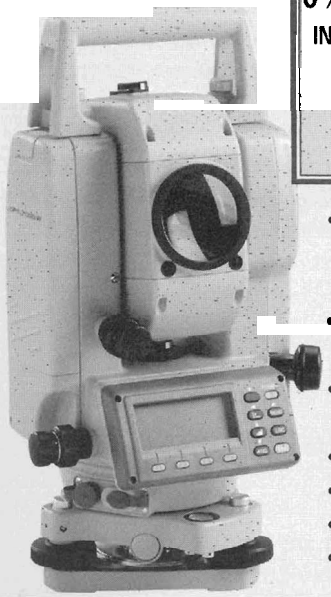

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Economics 101

By Ronald E. Koons, RoSaKo Safety

Let's try taking a different approach to safety this article. Imagine a boss who has absolutely no concern for human life or suffering. This boss couldn't care less if someone was in pain or a loved one never comes home again. In other words, let's take the *morality* out of safety. We are just going to look at the financial aspects. A recent study of financial departments at some of the fortune 500 companies found that for every $ 1.00 they invested in safety they found a direct return of over $ 3.00. Wait a minute...a buck in and three bucks out? Kind of amazing, but the bean counters say it is true! How did they achieve such an unbelievable return? We will break down some of the facts in the finances of safety.

Probably the first thing that comes to mind is worker's compensation. Every state requires a business to pay employees medical expenses if they are injured while working and in addition if the employee is off work they must be compensated at a state prescribed rate. This rate is generally based upon a percentage of their normal working wage. One of the items many don't understand about WC is that several smaller claims can be much worse on your rates than one large claim equal to the total of the smaller claims. States set the WC rates for each work category, but your insurance carrier can add a "modification rate" if your claims are higher in quantity or cost than what they consider to be acceptable. Everyone starts out at a basic rate of 1.0. Depending on your experience it could go under 1.0 or much above 1.0. Under is good...but over is bad! If your rate was 1.50 you would be paying 50% more than a business with a rate of 1.0. This isn't very good for being competitive either.

What are some of the other financial aspects? A study conducted for OSHA several years ago found that the average cost of minor injuries exceeded $2,600.00! How can this be? First of all, if someone gets injured and requires some type of professional treatment you will have to send another employee with the injured worker. Even if you instruct employees to get treatment at an Immediate Care type facility for minor injuries there is most likely going to be a wait. If there is no immediate care facility close or the injury is more severe then the medical costs can quickly soar. So not only do you have the cost of treatment, but you have two employees being paid while no billable hours are being produced. If the drive to the facility is only 15 or 20 minutes you can be certain the wait, treatment and drive back to the office is going to eat up two or three hours total at the minimum. On the way back to the office or the field they will definitely have to stop by for a "slurpy" and donut. Then someone has to fill out the injury report and file it with the WC carrier. Of course there will be the required "water cooler" talk about what an idiot the worker was for getting hurt. That takes up more productive time. Even if the employee is able to go directly back out into the field they will most likely not be producing at their normal volume. This reduction in production may be short lived or could go on for several days. It wouldn't be unusual to have a problem with the claim being paid so there will need to be more follow-up with the WC carrier that will take up office time as well as time for the injured worker. All of this non-productive time is if there is no time off for the worker. Imagine how both office time and worker time add up if there needs to be time off!

I have seen several cases over the past two years that exceeded $100,000 in medical costs for an initial injury that the person walked away from! Ergonomic cases tend to be particularly high in cost because pain can't be measured so a medical professional can only take the word of the injured. This is fine if the worker is dedicated to the company like most employees, but if the worker is marginal anyway they can take great advantage of the system. There are some people who would much rather set at home watching Andy Griffith reruns that earn an honest living.

Do you have employees just waiting around to take over someone's job if they can't work due to an injury? If not, then you may have a problem producing at the rate required by your clients. That is never good for anyone. In the most severe cases of a fatality or serious injury you may have to hire a new employee. How long does it take to replace an experienced worker? How many thousands of dollars do you spend just to bring a new worker up to a reasonable level of production? What if the injured worker is very experienced and has vast amounts of good common sense surveying knowledge?

We could go on for days talking about scenarios that aren't good for your company, but what can we do about this problem? Train...train...and retrain. Most of you probably started out in a small firm and may still work in a small firm today. Everyone knows one another. Their children may go to school together. Their wives may be friends. Remind your employees about safety at every turn. Instead of giving out job orders in the morning and saying "these have to get done today" why not say "let's all get going and have a safe day!" Constantly remind your workers that their safety if first and foremost for your company. Safety must be a core value in your company. I know you truly care about your employees and don't want to make a call to their loved ones saying they have been injured. Step up to the plate and invest that $1 and get your $3 return. Better yet...cough up a little more and do the job right for an even greater return! Keep it safe!

Have you paid your ISPLS dues?
If not this will be your last issue of the Hoosier Surveyor !

CALENDAR

August 15-18, 2006
Surveyors Review Course. Campus of University of Missouri-Rolla (UMR). Cosponsored by UMR and Missouri Society of Professional Surveyors. Topics: Exam Preparation, Legal Principles, USPLSS, Errors analysis, Route Surveys, Celestial Observations, Instrumentaion, Photogrammetry, GPS Surveys, State Plane Coordinates, Problems Session, Practice NCEES-like Exam. 3.6 CEU's 36 PDU's. Instructors: Dick Elgin, Joe Paiva, Norman Brown. $795.00. Contact: Engineering Continuing Education; UMR; Rolla, Missouri 65409; 573-341-4132.

September 9, 2006
Three different classes offered:
1. Survey Technicians class. This is to help survey techs understand proper procedures in operating equipment, data collection and other aspects relative to surveying.
2. LSIT review - national and not state specific.
3. Indiana Review on specific boundary law and history.
Location: IVY Tech, Sellersburg, Indiana
Contact: Harold Hart (812) 288-6646

September 14-17, 2006
Surveyors Historical Society 2006 Rendezvous, Surveying the Wachovia Tract & Old Salem, Winston-Salem, North Carolina
Contact: Roger Woodfill (812) 537-2000

September 26-29, 2006
URISA (Urban and Regional Information Systems Association) Annual Conference and Exposition. Vancouver, Canada. www.urisa.org

September 29, 2006
ISPLS Seminar, Clifty Inn Falls, Clifty Falls State Park, Madison, Indiana, Topic TBA

October 6, 2006
ISPLS Seminar, ALTA/ACSM Land Title Surveys, Speaker: Gary Kent, PLS, Essenhaus Inn & Conference Center, Middlebury, Indiana, 6 CEH Elective

October 27, 2006
ISPLS Seminar, ALTA/ACSM Land Title Surveys, Speaker: Gary Kent, PLS, Holiday Inn Airport, Indianapoolis, IN, 6 CEH Elective

January 17-19, 2007
55th ISPLS Annual Convention, Indianapolis Adam's Mark Hotel Airport, Indianapolis, Indiana, Hosted by Central Indiana Chapter (Note change of location)

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