

HOOSIER SURVEYOR



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

VOLUME 16
NUMBER 2



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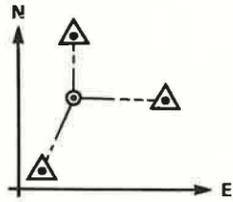
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HOOSIER SURVEYOR

VOLUME 16 NUMBER 2 FALL 1989

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Winter issue - January 31 Summer issue - July 31 Spring issue - April 30 Fall issue - October 31.
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Ken Curtis
Editor

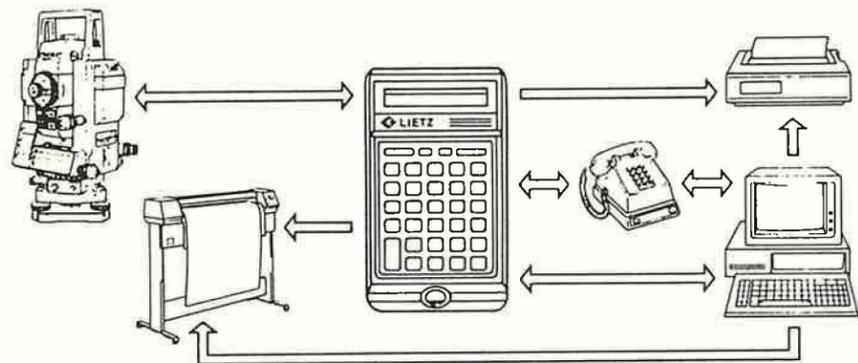
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President's Message
Gary R. Kent

We are encouraged by a recent order of the Board of Registration, more fully described elsewhere in this issue, indefinitely suspending the licenses of an Indiana Registered Land Surveyor and Professional Engineer. This should put all persons practicing outside the realm of the Registration Act and Board Rules that the State of Indiana will not tolerate the substandard practice of Land Surveying in Indiana.

Developments revolving around the revision of Rule 13 have also been encouraging. A large number of Land Surveyors and other interested parties have participated in discussions and working sessions aimed at improving Rule 13. Members of ISPLS have spent hundreds of hours developing proposed changes which address the shortcomings of the Rule. We look forward to the hearings and adoption of revised Rule 13.

Many years ago, Land Surveyors were held in high esteem as important members of society - in addition to at least four presidents of the United States, a number of signers of the Declaration of Independence were also Land Surveyors. Unfortunately, over time, this position of respect was lost due primarily to a lack of vigilance on the part of those in the profession.

This past year, we have been witness to the erosion that results from such a lack of vigilance, despite the best efforts of the Registration Board, the Attorney General and the state surveying society to improve the profession by better protecting the Indiana public.

It doesn't take a direct assault to endanger the profession. Mere complacency; characterized by not being educated and informed about developments in Surveying, by letting others carry the weight of improving the profession and by performing sub-standard work are even more dangerous to our professional health than are direct attacks.

The best way to build respect by your peers and by the general public in your business and in your profession is to demand maximum effort of yourself, your employees and your fellow colleagues; and to project a professional image by virtue of the quality of the services you provide.

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LAND SURVEYORS CONVENTION GENERAL INFORMATION

Registration

The registration fee of \$135 for the convention includes all handouts, refreshment breaks, two luncheons, one dinner, and the banquet. The registration fee for the spouse's program is \$60 and includes a like number of meals. The student registration fee of \$25 includes meetings and luncheons only. Daily registration includes lunch and meetings only. Lunch is assured on pre-registration only.

Please return the attached registration form by January 1, 1990. Registration will be open after 1:00 p.m. on January 18th at the registration booth near the exhibit hall at the Hilton Hotel.

Exhibits

Be sure to browse the Exhibit area. Make those exhibitors feel welcomed — they are providing a great opportunity for you to keep up-to-date with modern equipment and supplies that can be seen, touched and demonstrated — all under one roof.

Programs

Join us at the Fort for an exciting convention. There will be a wealth of knowledge exchanged in the seminars scheduled in the three day conference. Speakers will share information concerning erosion control, urban drainage (Illudas), wetlands, aerial observations, quality control in construction staking, and dealing with difficult people. There will also be a panel discussion on the new survey standards and a session on historical surveying instruments. The Board of Directors meeting and the annual general membership meeting will also be held.

Spouse's Program

The spouse's program will begin on Thursday with a tour of the Fort Wayne Embassy Theatre with its world famous Grand Pipe Organ. Friday will include a visit to the Lincoln Library known by scholars the world over. It will also include a chance to shop at the 380+ stores of Glenbrook Mall. Saturday will begin with a lecture on interior design. There will also be a visit to the Genealogy Department of the Allen County Public Library. This Genealogy Department is one of the largest in the United States. Saturday afternoon will be spent at a luncheon in the Botanical Conservatory which showcases plants from all regions of the U.S.

Lodging

The recommended hotel for this convention is the Downtown Hilton Hotel, 1020 South Calhoun, Fort Wayne, Indiana. We have negotiated a special room rate for the convention registrants of \$60 per night for a room. Be sure to mention you are attending the ISPLS Convention when making reservations in order to be given this special rate.

INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS INC.



38th ANNUAL LAND SURVEYORS CONVENTION

January 18 - 20, 1990

Hilton Hotel
and
Grand Wayne Convention Center
1020 S. Calhoun St. • Ft. Wayne, IN

SPOUSE / GUEST SCHEDULE

Thursday, January 18, 1990

We will begin on a short walking tour departing from the hotel lobby entrance enroute to the Embassy Theatre across from the Grand Wayne Center. The Embassy Theatre is an architectural delight built in 1928. A true landmark!

Friday, January 19, 1990

Juice, tea, coffee & donuts in Exhibit Hall.

Depart by bus from the hotel lobby entrance enroute to the Louis A. Warren Lincoln Library and Museum. The library is the largest private collection of organized information on Abraham Lincoln ever gathered. It is a major attraction to scholars from around the world.

The tour will then continue through downtown Fort Wayne to the Glenbrook Mall where a fun filled day is guaranteed of shopping and browsing. Glenbrook Mall is one of the largest malls in the Midwest! Luncheon will be enjoyed at the mall at noon. Ice skating can also be enjoyed at the mall where skate rental is available in the afternoon. Pick up at the Mall will be at 3:30 p.m. with an anticipated return to the Hilton by 4 p.m.

Cocktail hour and dinner banquet in the hotel with all convention registrants.

PROGRAM SCHEDULE

P.M. **Thursday, January 18, 1990**
1:00 - 5:00 Registration for Convention
2:00 - 5:00 Tour (to be announced)
6:30 - 7:30 ISPLS B.O.D. Dinner Meeting in Board of Directors Room

A.M. **Friday, January 19, 1990**
8:00 - Registration — Coffee, Donuts and Orange Juice (Exhibit Hall)
8:30 - 10:00 Annual Membership Meeting
10:15 - 11:45 Co-Sessions:
"Dealing With Difficult People"
J.T. Barone, I.U. Fort Wayne
"Erosion Control"
Brian R. Miller, Maumee Valley Conservancy District

P.M.
12:00 - 1:30 Luncheon — Mayor's Address
1:45 - 4:30 Urban Drainage Analysis "Illudas"
Dr. James Bradley (20 min. break)
1:45 - 3:00 "Erosion Control"
Brian R. Miller, Maumee Valley Conservancy District
3:15 - 4:30 "Dealing With Difficult People"
J.T. Barone, I.U. Fort Wayne
4:30 - 6:00 Cocktail Hour in Exhibit Hall
6:00 - 7:00 Dinner Banquet
7:00 - 9:30 Entertainment in Dining Hall

A.M. **Saturday, January 20, 1990**
7:30 - Registration — Coffee, Donuts and Orange Juice
8:15 - 9:30 "Influence of Wetland Legislation on Development"
Bill Evaston
9:00 - 11:45 "Celestial Observations"
Dr. Richard Elgin (20 min. break)
9:30 - 11:45 "Quality Control in Construction Staking"
C. Wayne Unsell,
Purdue University, Ft. Wayne

P.M.
12:00 - 1:30 Luncheon — Recognition Awards
1:30 - 4:00 Rule 13 — Survey Standards One Year Later (Panel Discussion)
"Antique Surveying Equipment"
Dr. Richard Elgin (Slide Presentation)
5:00 - 7:00 Open Dinner (on your own)

For Additional Information

About registration, write or call:
Tim Owens
T.F. Owens & Associates
1402 East State Blvd.
Fort Wayne, IN 46805
Phone: (219) 484-7500

About content, write or call:
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J.L. Russell Associates, Inc.
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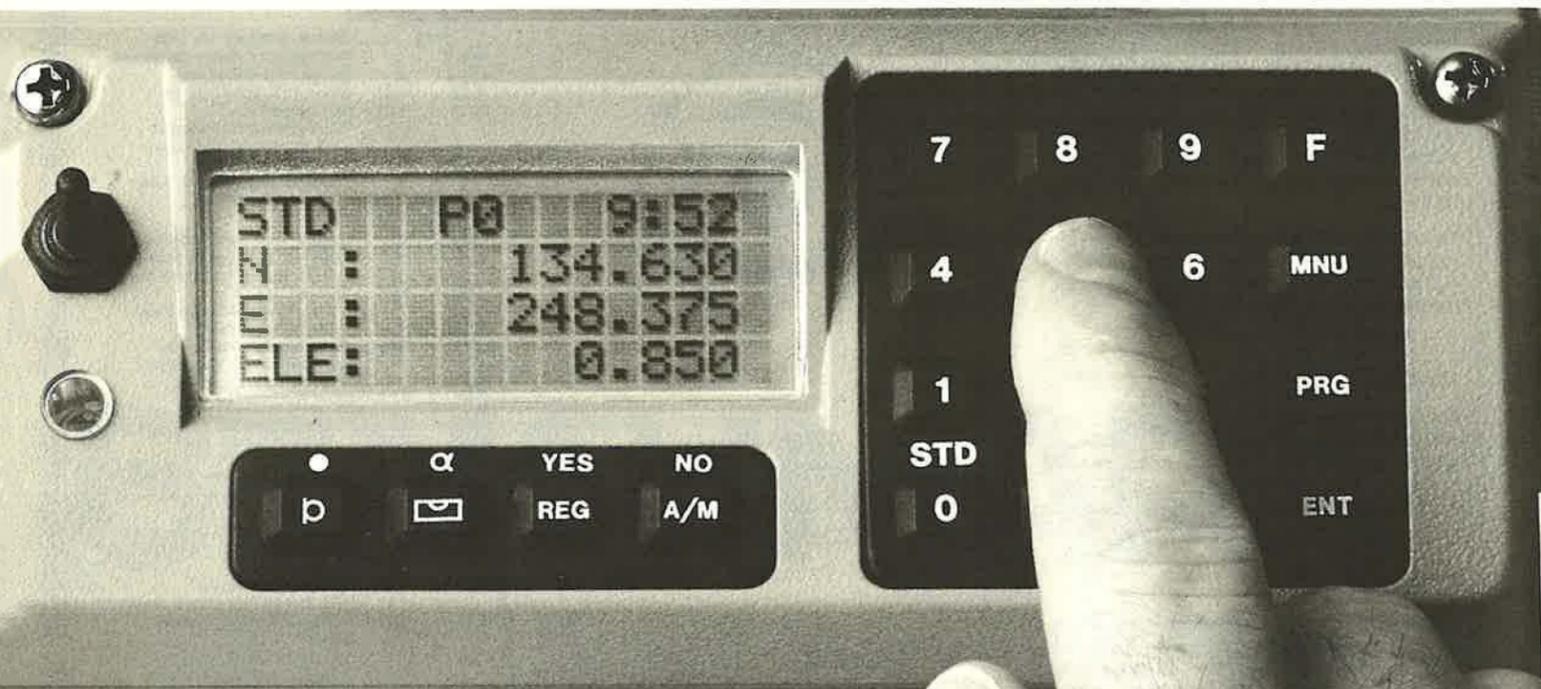
Saturday, January 20, 1990

Juice, tea, coffee & donuts in Exhibit Hall.

Depart the Hilton Hotel lobby and walk a short block to the Allen County Public Library where a tour will be given through the Genealogy Department. This will be an adventure to thrill the avid seeker of his or her past. The Genealogy Department is one of the largest in the United States.

Depart Allen County Library where you will be served a "luncheon under glass" at Fort Wayne's Botanical Conservatory. After lunch, a delightful tour of the Conservatory will be enjoyed.

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Board of Registration Suspends Two Licenses

The Indiana State Board of Registration for Professional Engineers and Land Surveyors has indefinitely suspended the licenses of an Indiana Registered Land Surveyor and a Professional Engineer as a result of a hearing held on a complaint filed by the Indiana Society of Professional Land Surveyors.

Registered Land Surveyor Ralph Wallem and Professional Engineer William Kimbley had their respective licenses indefinitely suspended by Final Order of the Board of Registration on September 11, 1989.

The complaint alleged that Land Surveying was being performed out of the Indianapolis office of Kimbley & DeVoss, Inc. without the responsible direction and supervision of a Registered Land Surveyor.

The surveying work performed by Kimbley & DeVoss had been signed and sealed by Mr. Wallem, but the complaint stated that the ISPLS believed he was not in responsible charge of that surveying work and that his signature and seal were being affixed by someone other than himself or his regularly employed subordinates.

The complaint also alleged that since the Land Surveying work was not being properly supervised by a Registered Land Surveyor, Professional Engineer Kimbley was therefore practicing Land Surveying without a license; and that Mr. Kimbley may have

misrepresented facts regarding the degree of Mr. Wallem's responsibility in the company.

The Board of Registration concluded as a result of its hearing that Mr. Wallem had allowed his signature and seal to be applied to documents by individuals other than himself and that such documents were submitted to clients without final review by the Registrant.

The Board further justified the more stringent punishment of Mr. Wallem because "surveying work and document preparation was [sic] frequently done in his absence (when he was neither in the field nor in the office, but rather living and working in another city)."

The Final Order allowed for Mr. Wallem to petition for reinstatement of his registration after a six month period and for Mr. Kimbley to petition for reinstatement after 30 days.

Mr. Wallem has posted the required bond and petitioned for a review of the final order and a stay of the suspension. The DuBois Circuit Court has granted the stay on October 13th pending a review of the case by the Court.

Following the 30 day suspension, Mr. Kimbley petitioned the Board of Registration for reinstatement of his Professional Engineers license and such petition was approved by the Board during its November meeting.

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Deaths and Services

Alfred Forgey services Saturday; was long-time county surveyor

Alfred Lowell "Peck" Forgey, 60, of 804 S. Main St., Brownstown, died at 5:15 a.m. Wednesday at Mercy Medical Center in Philadelphia, Pa. He had been ill for two years.

He was a member of United Brethren Church, Freetown. He was a U.S. veteran of the Korean War. He had been Jackson County surveyor in 1955-1969.

He was a self-employed surveyor, a director of Jackson County planning and zoning department, a member of Brownstown Park Board, Jackson County Conservation Club, National Rifle Association, American Forestry Association, American Legion Post 112 of Brownstown and Seymour Elks Club.

Mr. Forgey was born on Oct. 13, 1928, in Jackson County, to Wil-

liam R. and Nellie A. Brand Forgey. He married Patricia J. Bultman on Aug. 11, 1956, in Brownstown. She survives.

Also surviving are a daughter, Angela Fimreite, Greenwood; a son, Randy Forgey, Indianapolis; and a sister, Virginia Stillwell, Medora R1.

He was preceded in death by a brother.

Services will be at 1 p.m. Saturday at Spurgeon Funeral Home, Brownstown. The Rev. Kathleen Kinser and the Rev. Duane Aelick will officiate. Burial will be at Fairview Cemetery, Brownstown.

Friends may call from 2 p.m. to 9 p.m. Friday and from 9 a.m. until time of service Saturday at the funeral home. Memorials can be made to Jackson County Cancer Society or to United Methodist Church, Brownstown.

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Denver, itself, appeals to those who enjoy beautiful scenery and a love of the outdoors. You can plan to come early or stay later and enjoy some spring skiing at nearby resorts. Other sites you will want to visit include the Denver Art Museum, Larimer Square, Coors Brewery, the United States Mint, and the Molly Brown House Museum.

Sponsored by : The American Congress on Surveying and Mapping & The American Society for Photogrammetry and Remote Sensing

Yes, I would like more information about the 1990 ACSM/ASPRS Annual Convention to be held in Denver.

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Governor's Report
ACSM-ASPRS Spring Convention
Fall 1989
Cleveland, Ohio

The following meetings were attended: NSPS Board of Governors (member); Joint Convention Advisory Committee (member); ACSM Forum for State Society Executives; NSPS Women's Forum (member); NSPS Nominations Committee; Women's Open Forum on Discrimination in the Workplace; NSPS Board of Directors; and ACSM Board of Directors. The following report is a summary of many of the important issues discussed and addressed over the course of the convention. Many of the issues brought up and voted on at the Board of Governors and/or at the NSPS Board were passed on to the ACSM Board. In some cases, the final results of the actions of the ACSM Board are not known at this time.

Board of Governors Attendance

The Board of Governors meeting saw approximately 38 affiliates societies represented.

NCEE

The NCEE approved a name change in response to a more visible presence on the part of the surveying community over the past several years. The new name of the organization is the *National Council of Examiners for Engineers and Surveyors*.

The Board of Governors voted to recommend that NSPS become a member organization of NCEES.

Bureau of Land Management

The Board of Governors voted to ask ACSM to schedule a meeting at each convention for a BLM liaison meeting. A number of persons from several states have had problems with BLM surveys and a dialogue over the past several conventions has helped alleviate some of these problems.

The Governors voted to ask NSPS to ask BLM to elevate its published survey standards.

NSPS Special Fund

The Board of Governors voted to establish an "Affiliate Assistance Fund". The fund will be used to provide financial assistance to affiliate organizations to support legal or legislative efforts of a broad concern. A committee will be established to review requests for funds and make recommendations to the NSPS Executive Committee.

NGS Mark Maintenance

22 states now have some sort of Geodetic Advisor at least partially funded by NGS.

Continuing Education

ACSM has followed the recommendation of the Board of Governors and the NSPS and established the CEU as the standard for measuring continuing education units. The CEU may or may not be the unit used in a continuing education program, but if it is not, a manner of converting any unit to CEU's must be provided.

County Surveyors Association

A Forum for County Surveyors will be held in March 1990 at the Denver Convention.

Forest Service

The study on contracting of surveying services previously reported on is currently on hold. The Forest Service would like to be able to use a qualification based/negotiated fee system which they say allows for more flexibility than the Brooks Bill procedure.

Boy Scout Surveying Merit Badge

The Board of Governors voted to study the Boy Scout Surveying Merit Badge booklet and make recommendations for revisions to the BSA.

New ACSM Building

ACSM and ASPRS have purchased a new building in the Washington, D.C. area. The move is planned for September 30th.

ACSM 50th Anniversary

NSPS has donated \$20,000 towards the planning and execution of the ACSM 50th Anniversary celebration. A public relations firm has been hired and a large hot air balloon replica of the earth will be constructed and a traveling museum organized to tour the country during the anniversary.

ACSM Conventions

The 1990 Fall Convention will be held in conjunction with GIS/LIS '90 in November 1990 in Anaheim, California. It is probable that all future Fall conventions will be held in such manner for several reasons - not the least of which is to capitalize on the large number of attendees and exhibitors.

The 1992 convention will be held as a part of the ISPRS International Convention in August.

The technical program for the Denver Convention is set to be an excellent one. 8 NSPS Workshops are planned.

NSPS Ethics

An unnecessary flap over ACSM editorial procedures was carried further when the Board of Governors voted to endorse an editorial position of publishing a regular NSPS ethics column in each issue of the ACSM Bulletin. ACSM had turned down a request to

publish a regular column because of worries of getting timely material over the long term.

NSPS/ACSM Organizational Structure

The President of NSPS has asked for a legal opinion on the possibility of NSPS incorporating under the ACSM umbrella. Due to a feeling of a lack of control over the destiny of the surveying profession within ACSM, a number of the Governors support drastic action to strengthen the NSPS hand in ACSM one way or another. Many NSPS members are very vocal on this subject. Many of the members of NSPS are upset because they say that the surveyors do not control a large enough percentage of the seats on the ACSM Board of Directors.

The President of ACSM has a legal opinion stating that under the current ACSM structure, NSPS does not exist as a separate legal entity.

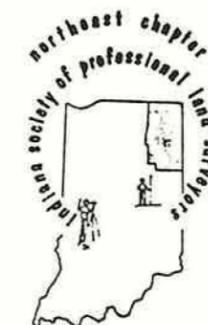
It is my opinion that the creation of a national surveying organization outside of ACSM will spell the end of ACSM - at least as we have known it for the past 50 years. I do not believe that the surveyors have the ability to effect positive changes in the profession without ACSM.

Submitted by Gary R. Kent
October 10, 1989

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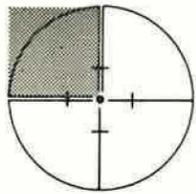
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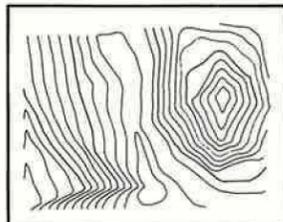


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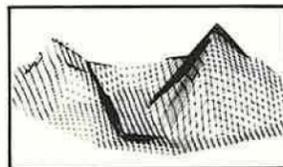
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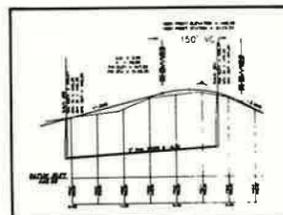


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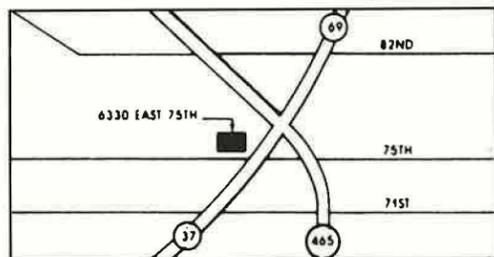
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THE SURVEYOR AND BURIED UTILITIES

Robert W. Foster, PE, PLS, Framingham, Massachusetts

Buried utilities are like land mines to the surveyor. Pipelines and cables are located beneath highways and roads, on public lands and across private property. In making surveys for retracement purposes, or for title insurance companies, or for design professionals the surveyor has the responsibility of showing encumbrances that might affect title or may inhibit construction.

A surveyor can't really locate a buried pipeline or cable (unless he digs it up); he can only locate evidence of the utility, like a shutoff valve at the surface of the ground or a marker at a dogleg or where the pipe crosses a road. Lacking such physical, observable evidence the surveyor must rely on maps showing the purported location of the utility. In dealing with these maps the surveyor is faced with three types of problems: (1) Maps insufficient to demonstrate the location of the utility to the accuracy satisfactory to the surveyor's needs. (2) Maps that are design documents showing where the utility was supposed to have been built, not necessarily where it was built. (3) There is no map showing the utility, either as it was designed or as built.

The prudent surveyor will deal with his own liability risk in such situations by employing exculpatory language on the face of his plan citing the source of information upon which he has shown the location of the utility and declining responsibility for the actual location. The surveyor's disclaimer will have to be broad enough to account for underground utilities that may exist, but for the existence of which the surveyor has no evidence or indication.

By such devices the surveyor can protect himself from charges of negligence or failure to fulfill his contract for a data collection survey. But the conscientious surveyor will be bothered by the fact that his survey is incomplete, and frustrated by his inability to serve the needs of the title transfer industry or the design professionals who rely upon his plan.

The fact that the American landscape is laced with buried and inaccessible features is well known to the surveyor in private practice. Attorneys, bankers, title insurers, and others seem not to be aware of the problem however, and still ask the surveyor to certify to the existence or non-existence of

such features. It often takes careful explaining by the surveyor to convince a lawyer that it is impossible to certify to the nonexistence of something that is not observable.

For civil engineers, architects, and backhoe operators the problem is less abstract and more immediate. A last minute design change in an engineer's site plan, because of an unreported pipeline, can result in unfortunate delays and unwelcome fee over-runs. But for the backhoe operator an unreported pipeline or cable can be (and has been) a life or death matter.

In an attempt to avoid these close encounters of the worst kind the utilities industry has developed the Dig Safe system (or systems like it) by which a contractor can call a single telephone number to coordinate with all utilities before opening the ground. Unfortunately, in order to initiate the Dig Safe system the contractor has to know, or at least suspect, that there is something in the ground to be avoided. When plans prepared by the surveyor and the site designer give no hint of buried danger, contractors are not apt to delay their work by calling Dig Safe. At least that is one explanation for the construction accidents that occur with depressing regularity involving buried utilities, either unreported or reported in the wrong place.

An obvious solution to this problem, from the point of view of the surveying profession, is to require accurate, as built drawings for all buried utilities.

The American Congress on Surveying and Mapping (ACSM), through its government affairs program, was able to have inserted into the Pipeline Safety Reauthorization Act of 1988 requirements for both gas and hazardous liquid pipeline operators to provide accurate mapping to show the location of pipeline facilities. It is up to the office of Pipeline Safety to promulgate regulations required "accurate mapping". ACSM has recommended that the standard for mapping of new pipelines be the National Map Accuracy Standards as published by the U. S. Geological Survey.

These standards require that for horizontal accuracy of maps at a scale larger than 1:20,000 "not more than ten percent of points tested shall be in error more than

1/30 inch". One thirtieth of an inch on a 1:20,000 scale map is about 55 feet on the ground. This seems to be, if anything, a very liberal requirement for maps that may be relied upon for the location of high pressure gas lines or pipelines carrying hazardous materials.

In reply to ACSM's appeal for adoption of this standard the Director of the Office of Pipeline Safety has written that "we do not believe that such a high level of precision is required". Final rule-making by OPS is expected this Fall. In the meantime ACSM will continue to argue for acceptable standards for these maps. The current concentration on construction site safety (see Findings and Recommendations from the Civil Engineering Summit Conference, June 5, 1989, Washington, D. C.), the frustration of surveyors, and the concerns of the whole land development industry make the effort worthwhile. Letters from concerned civil engineers might help. Write to Richard L. Beam, Director, Office of Pipeline Safety, U. S. Department of Transportation.

Robert W. Foster, PE, PLS is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also chairman of the joint Government Affairs Committee of ACSM and ASPRS (American Society of Photogrammetry and Remote Sensing).

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ACSM AVERTS CONGRESSIONAL LIMITATION OF GPS SIGNAL

Bethesda, MD, November 8--A potentially damaging provision in the Department of Defense (DOD) Appropriations measure (HR3072) that would limit access to the Global Positioning System (GPS) signal to an accuracy of no greater than 10 meters was purged due to aggressive action taken by the American Congress on Surveying and Mapping (ACSM) and the grassroots efforts of its membership. Together with aroused industry and user groups, ACSM's message to congressional members to strike the GPS provision hit home. Urgent calls, letters, and telegrams persuaded Congressional Defense Appropriations Subcommittee members and the provision's sponsor to eliminate that provision in Conference Committee this week.

Concerns focused on a special interest provision added in the Senate-passed version of HR3072. The provision (Section 9093), intended to limit civilian access to GPS signals solely in the marine environment, could have been used to limit GPS activities in a relative positioning mode. This would have directly affected land surveying activities. The special interest provision also would have given a single company a monopoly on non-GPS navigation services in the precise positioning business, to the detriment of other commercial users.

SURVEYING, MAPPING AND REMOTE SENSING SOCIETIES TO LOCATE AT RNRFC CENTER

The American Congress on Surveying and Mapping (ACSM) and the American Society for Photogrammetry and Remote Sensing (ASPRS) have announced that both societies will move their headquarters to the Renewable Natural Resources Center in Bethesda, Maryland, early this fall.

This 35-acre site is on the former estate of Dr. Gilbert H. Grosvenor, founder of the National Geographic Society. The center is being developed by the Renewable Natural Resources Foundation (RNRFC) as an office complex and association center for scientific and professional societies involved with natural resources. The wooded, campus-like setting provides a unique office environment that is convenient to Washington, D.C. Planned facilities for the Center include additional office space, a conference center and an amphitheater.

ACSM and ASPRS have worked together for many years and have shared a headquarter building in Falls Church, Virginia, since 1982. They jointly produce two national conventions each year that offer the world's largest exhibition of mapping and surveying technology. They also cooperate with several other societies to sponsor the world's largest annual meeting and exhibition on geographic and land information systems. Both societies publish journals, books, videos and other career and educational materials, and participate in a joint government affairs program.

ACSM is a national professional society representing 11,000 individual members including surveyors, geodesists, cartographers and land information specialists. ACSM is dedicated to serving the public interest and advancing the profession of surveying, mapping and land information.

ASPRS is an international scientific association serving the professional needs of over 8,000 engineers and scientists around the world. ASPRS members are involved in various applications of photogrammetry, remote sensing and geographic information systems.

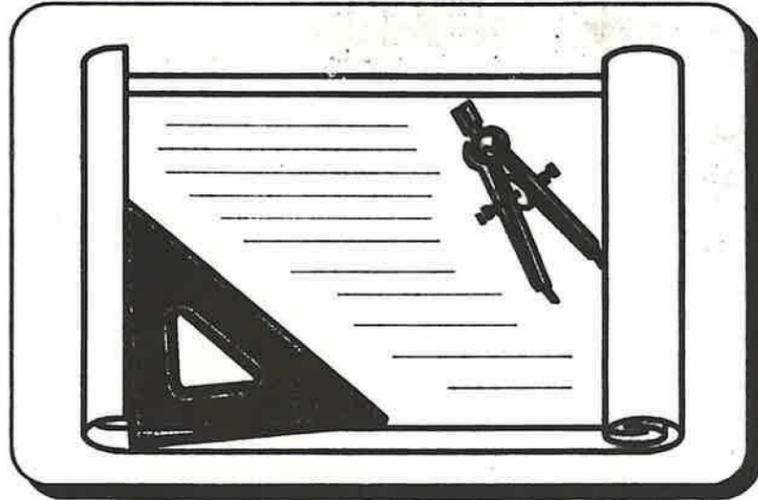
ACSM strongly urged congressional lawmakers to strike the GPS provision, arguing that the proposed GPS limitation would adversely affect civil GPS applications for land surveying. ACSM also noted adverse effects the provision would have on civil GPS applications for aircraft navigation, seismic surveying, tracking hazardous cargoes, mapping fire trails in forests, and many more.

Alerted by Government Affairs Director Nancy Parke, ACSM's affiliated organizations and members played a pivotal role in turning the tide on this issue by voicing their concerns to key congressional players. In addition, numerous telegrams, letters, and faxes poured into congressional offices. A resolution was signed by the presidents of the following seven professional surveying societies urging the deletion of Section 9093 in Conference: Virginia, South Carolina, Kentucky, Pennsylvania, West Virginia, Maryland and North Carolina.

Robert Foster, who chairs the society's Government Affairs Committee, commented: "There is no doubt that the vigilance and quick response of our organization's government affairs program and our members' grassroots response were the potent ingredients that led to the elimination of Section 9093."

SPECIFYING SURVEYING SERVICES

Robert W. Foster, PE, PLS, Framingham, Massachusetts



A surprising number of design professionals do not know how to specify surveying and mapping services.

This would not be a problem if design professionals would consult with their surveyors before entering into a fee agreement with their own clients. Unfortunately it is more common for the designer to ballpark the cost of the data collection survey, negotiate a fee with his client, then invite proposals from several surveyors on a competitive bid basis. At this point the standards set forth for the intended survey had better be complete and comprehensive, but they seldom are. Too often the designer does not know how to specify the technical operation of professional surveying.

Standards that normally cross the desk of the surveyor with an invitation for a proposal are apt to appear in one of three forms: precision standards, accuracy standards, and content standards.

Precision refers to the degree of refinement in the performance of an operation. A typical example of this type of standard sets forth the precision standards for measuring angles and distances for various classifications of surveys: number of direct readings, minimum lengths of measurements, and so on.

Accuracy relates to the quality of a result and is distinguished from precision which relates to the quality of the operation by

which the result is obtained. An example of an accuracy standard is the United States National Map Accuracy Standards which sets forth standards by which a map may be qualified, i.e. "not more than ten percent of the points tested shall be in error by more than one thirtieth inch..."

One of the commonest specifications forms presented to surveyors is what I have referred to as content standards, which are not really standards for performance as much as laundry lists of items to be shown on the plan, i.e. buildings, fire hydrants, trees, contours at two foot intervals, and so on. The laundry list states what the design professional wants on the final plan but does not specify the precision of measurement nor the accuracy of the finished plan.

This arrangement works well when the design professional has selected a surveyor who will work to acceptable standards of precision and accuracy appropriate to the site and the intended use of the data.

The problem comes when the surveyor is presented with less than comprehensive specifications and asked to submit a competitive bid for the work. A poorly specified bid request is an encouragement to apply a liberal interpretation to the specifications. One competent surveyor will choose not to submit a proposal for the work while another surveyor may submit a fee proposal he knows is too low, with the intention of making up the difference with extras.

The most unscrupulous character is the "map-zapper" who will violate both precision and accuracy requirements while producing a map which satisfies the laundry list of site features to be displayed. A favorite technique of the map-zapper is an aerial photogrammetric map accomplished without benefit of suitable ground control, compiled on a scale smaller than that required for the finished map. The final step is a photo-enlargement of the manuscript and drafting of the map for delivery. Because the design professional has neither the time nor the funds to test the finished map (or assumes carelessly that he has bought a professionally-prepared product) he accepts the map-zapper's data as gospel. Because it looks good, it must be good. By so doing the designer has saved on the survey on which he is to base his design effort with a fee level on a magnitude of ten to one.

From the design there will be a construction project with a cost ratio of one thousand to one, compared to the cost of the survey. The liability risk for the design professional in this procedure is enormous.

The lesson is for the designer to select a surveyor on the basis of competence, brief the surveyor on the scope of the project and the site location, then let the surveyor scope the survey as to the standards of precision and accuracy appropriate for the job.

Finally, negotiate a fee for the survey. In other words, follow the qualifications based selection process preferred by designers themselves. When a designer is forced by his client to seek competitive proposals for the surveying portion of a project, the RFP (request for proposals) must include exhaustive standards covering precision, accuracy, and contents of the survey as well as a thoroughly written scope. Even then, if the project goes to the low bidder the designer is well advised to hire a competent professional surveyor to review and qualify the finished product.

Robert W. Foster, PE, PLS is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also chairman of the joint Government Affairs Committee of ACSM and ASPRS (American Society of Photogrammetry and Remote Sensing).

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ACSM ANNOUNCES PLANS FOR 50TH ANNIVERSARY CELEBRATION

To celebrate its 50th anniversary in 1991, the American Congress on Surveying and Mapping (ACSM) announced plans to build a customized 80-foot tall hot air balloon that will duplicate a detailed globe of Earth and a 1500 square-foot traveling museum exhibit about the surveying and mapping professions.

ACSM President James P. Weidener invited ACSM's sustaining members, meeting exhibitors, and other interested organizations to sponsor the golden anniversary activities, entitled "Project Where on Earth?"

Weidener said the eight-story hot air balloon and traveling museum exhibit "will be attention-getting, newsworthy and educational projects that will attract the interest and fascination of millions of people in the United States and around the world. Each activity is an important opportunity for publicity and increased public exposure for sponsors."

According to Guinness Book of World Records, the manned ACSM balloon globe — complete with 4000 place names and latitude and longitude lines — will be the largest flying globe ever built. The eight-story tall hot air balloon will appear to rotate atop a black pedestal. It will be viewed by hundreds of thousands of people, and will be seen by millions more through television and newspaper coverage as it visits dozens of major state and county fairs and other public events across the country.

The 1500 square-foot museum exhibit will feature approximately a dozen hands-on displays on surveying and mapping, tour 12 science and technology museums, and be visited by more than two million people.

To underwrite the cost of the hot air balloon, five advertising panels, each measuring about 15 feet high and 6 feet wide, will be built onto the sides of the pedestal that supports the sphere.

The panels can be rented by advertisers for \$1000 per panel each time the balloon makes a public appearance. The panels can be reserved on a space-available basis by corporations, trade associations and other organizations.

Weidener said that for every \$50,000 in balloon advertising commitments, a sponsoring organization will be able to use the hot air balloon at an event of their choosing in the mainland United States.

In addition to appearance at state and county fairs, the hot air balloon will be scheduled to appear at major ACSM meetings across the country. At each appearance, the balloon will be inflated, tethered to the ground for two hours, and then launched for an aerial tour of the area.

ACSM's other major project to commemorate its 50th anniversary is the traveling museum exhibit, featuring hands-on displays on the elements of surveying and mapping. Topics will include measuring the Earth, surveying land and oceans, aerial photography, map projections, and practical applications of surveying and mapping in everyday life.

The exhibition will be developed in consultation with an advisory committee composed of a surveyor, cartographer, geography education specialist, and museum evaluation specialist. Key components will be prototyped and tested in a science museum setting.

WHY NOT BID SURVEYING SERVICES?

Robert W. Foster, PE, PLS, Framingham, Massachusetts

When a design professional needs a plan showing all natural and cultural features of a site, why not select the surveyor/mapper on the basis of lowest bid? The designer knows what is needed and should be able to write specifications and scope for the work. Any interested surveyor ought to be able to look at the site and know how much work is required. Why not let the marketplace determine the cost of the survey on a competitive basis?

It is an attractive argument, and in the public arena a compelling one. Design professionals, however, ought to be able to see the inherent fallacies in reasoning. Surveying, like civil engineering and architecture, is a largely quality-based rather than quantity-based activity. The major justification for not bidding professional services is that quality-based activities cannot easily be measured and qualified. Medical, legal, engineering, architectural, and surveying/mapping services cannot easily be tested. Services are not tangible materials that can be weighed and measured.

The quality of a site survey is usually not discovered until after the design process has begun and often not until after the construction process is under way. The cost of redesign or worse yet, the replacement of a constructed feature because of faulty data collection will be many times more expensive than the amount that might have been saved through selecting the low-bid surveyor. To test a survey before its use by the designer implies a remeasurement process that nearly duplicates the survey being tested. This approach offers an absurdity for a solution.

All too often surveyors are presented with invitations to bid (IFBs) containing poorly drawn scope and inadequate standards requirements. The designer often doesn't know whether a property line determination will be required in order to complete a useful site data collection survey. It sometimes doesn't occur to the writer of the IFB to require that a monumented baseline be provided by the surveyor so that in construction there is a way to orient the design to the site. Architects are apt to be preoccupied with identifying trees on locus while ignoring precision and accuracy

standards in their IFBs.

In the face of such critical oversights in an IFB a bidder may propose to do work to the lowest standards. The bidder may also list a long string of assumptions in the bid document, hoping to come back later and claim extras.

There is a suspicion among surveyors that any price consideration in a request for proposal (RFP) makes price the only consideration. A public agency that has advertised for bids has difficulty awarding a contract to anyone but the low bidder, no matter how the qualifications compare. If an award goes to the second low bidder, the low offerer may protest. As well as being a legal problem, there is the political problem suggested by a selection of anything but the low bid. Try explaining to your constituents why you selected the more expensive snowplow - or site survey. Agencies are not apt to do it.

Some agencies (and some consultants) use the "two envelope" system. Envelope #1 contains the offerer's qualifications; the second contains the fee offer. The argument here is that the agency can prequalify its bidders before considering price. But this system does not allow for bid anomalies. When the low bid is ten thousand dollars below the next four that are all within several hundred dollars of each other, there is an obvious problem, either in scope definition or in assumptions. But just try throwing out the low bid in a two-envelope system.

There is another wrinkle to all of this which purchases of surveying services will say is not their problem. But it is a problem that affects both the quality and the ultimate cost of surveys. As a rule surveyors are good about sharing information. Location of monuments, accuracy of past work, and access to unrecorded data are examples of areas in which one surveyor is often willing to help another. Surveyors will loan equipment, even personnel in an emergency. But when a surveyor is doing a job won by low bid, a losing competitor in the bidding process is not likely to help the winner do the job. Bidding stifles cooperation. For the design

professional the answer to all of this is easy: in selecting a surveyor follow the qualifications-based selection process preferred by designers themselves. Quality in construction comes from quality design; quality design is based on quality site data. A low-bid survey rarely provides quality site data.

Robert W. Foster, PE, PLS is Executive Vice President of Schofield Brothers, Inc. of Framingham, MA. Foster is also chairman of the joint Government Affairs Committee of ACSM and ASPRS (American Society of Photogrammetry and Remote Sensing).

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N.C.E.E. Changes Name to Include Land Surveying Profession

CLEMSON, SC — The National Council of Engineering Examiners (NCEE) voted by an overwhelming majority to change its name to the National Council of Examiners for Engineering and Surveying (NCEES) during its annual meeting, August 3-5, in Point Clear, Alabama.

The council, which is comprised of state and territorial registration boards for engineering and surveying, voted 51 to 9 in favor of changing the organization's name. NCEES Executive Director Roger Stricklin said the council approved the new name in recognition of the importance of land surveying as a distinct profession.

"Land surveying and engineering are different professions with separate registration requirements," he said. "The council wanted to reflect those differences in its name."

The name change will not affect the daily operations of the council, which will continue to operate with the same employees in its current office in Clemson, South Carolina.

The last name modification for the council occurred in 1967, when members voted to change its name from the National Council of State Boards of Engineering Examiners to the NCEE.

A not-for-profit organization, the NCEES assists state boards in regulating the practices of engineering and land surveying as it relates to the welfare of the public in safeguarding life, health, and property. Its primary function is to develop examinations for use by state boards in determining the minimum competency of candidates registering to practice as professional engineers and land surveyors.

Successfully completing the NCEES exams is the major step toward becoming a Professional Engineer (P.E.) or Professional Land Surveyor (P.L.S.).

A Mortgage Survey — At What Cost?

By Knud E. Hermansen, P.L.S., P.E.

Surveyors that perform inexpensive (i.e. low quality) mortgage surveys should take warning from the case of Cook Consultants, Inc. v. Larson, 200 S.W. 2d 231 (Tex. App. 5 Dist. 1985) and rethink their policy. The facts of the case were fairly typical of most mortgage surveys. The builder of a home contracted with Cook Consultants, Inc. (Cook) to survey and locate all improvements on the lot in order to obtain a loan. The survey indicated that the house was on the lot in order to obtain a loan. The survey indicated that the house was on the lot and that there were no encroachments. Subsequently, a mortgage company approved a loan for Jean Larson to purchase the property. Approximately seven years later the neighbor requested a survey which found Cook's survey to be in error and Larson's house to be encroaching on the neighboring property. Jean Larson obtained a copy of Cook's "mortgage" survey from the title company and eventually sued the title company and Cook for damages.

The case was ultimately appealed twice (See Cook consultants, Inc. v. Larson, 677 S.W. 2d 718 (Tex. App. 5 Dist. 1984) reverse and remanded in part Larson v. Cook Consultants, Inc., 690 S.W.2d 567 (Tex. 1985). In the end Jean Larson was forced to tear down her house and Cook was found liable even though he performed his survey after the house was built. In the resulting decision the Appellate Court determined that Cook was responsible since the mortgage would not have been approved and Jean Larson would not have purchased the house if Cook's survey would have properly shown the encroachments. The Appellate Court had this to say in general:

"[P]ersons who justifiably rely on the advice and expertise of other[s] . . . possessing unique skills, are entitled to expect that one possessing skill will exercise it with due care in the course of his or her business relationships." (p. 234)

"Mortgage companies use [the survey] to be certain the money they are advancing is going for the improvements on this particular lot, that there are no encroachments or protrusions on it. The title company uses it to prepare the exceptions and so forth in their title policy and the owner uses it to be sure that his improvements are located on the property that he owns and has a deed for." (p. 235)

The lesson to be learned from this case is summed in the following excerpts from the case. "Cook testified that, to make a profit, he instructed his employees to spend no more than one hour surveying the property . . . Cook was paid \$50.00 and surveyed the property in thirty minutes . . . Cook's resurvey [to prepare for trail] too four days . . . We modify the trial court's judgment [of \$262,150.00 against Cook] and award Larson actual damages [for Cook's survey error] in the amount of \$30,500 . . ." (p. 239)

Take heed!

Reprinted From *The Pennsylvania Surveyor*, Vol. 3 No. 24, April 1989

*We all leave footprints in the sands of time
— either a great soul or a heel.*

MAPPS FILES APPEAL TO BROOKS ACT RULING

The Management Association for Private Photogrammetric Surveyors has filed an appeal with the Comptroller General of the United States requesting reconsideration of the General Accounting Office (GAS) July 14 decision on action brought by the U. S. Forest Service seeking to limit application to surveying and mapping contracts a Brooks Act amendment enacted by Congress in 1988.

The appeal states Federal agencies should be required to use the Brooks Act for all their surveying and mapping contracts, including those performed by surveying or mapping firms independent of architect-engineer or construction projects.

The amendment in Sec. 742 of Public Law 101-656 amends the 1972 Brooks Act to require Federal agencies to select surveying and mapping firms on the basis of demonstrated competence and qualifications and negotiation of a fee that is fair and reasonable to the government, instead of awarding contracts to the lowest bidder.

In its appeal, MAPPS argues "the GAO decision ignores the plain meaning" of the law, "embarks on a tortured journey to somehow rewrite the legislation and to resurrect the very Ninneman decision which Congress expressly intended the statute to overrule" and "makes no reference at all to the language of the FAR" (Federal Acquisition Regulations Part 36.601(b) which establishes clear policy on surveying and mapping contracts under the Brooks Act.

STATE OF INDIANA

Indiana Professional Licensing Agency

Room 1021 State Office Building, Indianapolis, IN 46204-2246

MEMORANDUM

TO: Land Surveyors and Appropriate Agencies

FROM: Board of Registration

DATE: September 14, 1989

SUBJECT: "Route Surveys" and Rule 13 (864 IAC 1.1-13)
Land Surveying; Competent Practice

The definition of, and criteria for treating, "route surveys" are not present in the current Rule 13. The Board considers "route surveys" to be:

"Surveys executed for engineering design and land acquisition studies, for construction or improvement of highways, railroads, waterways, pipelines, transmission lines, or any other transportation or transmission route."

The Board, through this document, states that "route surveys" as defined above are exempt from the implied requirements of Rule 13 until such time as the Rule is revised.

The Board is currently evaluating input from members of the profession and the public forum held on August 17, and would welcome additional input relative to the topic of route surveys. Please address comments and inquiries to:

William W. Hill, Chairman
Registration Board for Professional
Engineers and Land Surveyors
Tri-State University
Angola, IN 46703.

ADVANCED CADASTRAL SURVEY COURSE OFFERED IN 1990

Since 1980, the Bureau of Land Management has offered a special course called Advanced Cadastral Survey designed for senior field surveyors of its own cadastral survey staff and for comparable employees of other federal agencies.

In response to the interest expressed in the course by professional private surveyors, a limited number of training positions (10 only) will be allocated to the private sector for the 1990 class, scheduled for February 20 through March 16, 1990. The course is taught at the University of Arizona at Tucson.

Advanced Cadastral Survey is an INTENSIVE COURSE which covers the major aspects of cadastral surveys and several supporting specialties.

The majority of instructors will be federal surveyors, highly experienced in their area of instruction. Selected experts from other sources will be used when appropriate.

Instructional emphasis will be on individual and small-team participation in daily classroom lectures. Each student will be expected to accomplish assigned work for successful completion of the course. Because of the dissimilar and varied professional backgrounds of the student body, much learning will take place within the group. For those requiring it, after-hours tutorial assistance by instructors will be scheduled.

No formal prerequisites are imposed on students from the private sector. However certain background materials and a reading list will be sent to those whose applications are accepted in an effort to prepare those individuals for a more successful and satisfying learning experience.

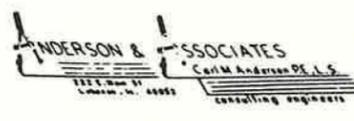
All students who satisfactorily complete the course will be awarded Continuing Education Units (CEUs) from the University of Arizona.

The course fee is \$600. This fee includes all instructional costs, textbooks and materials. Enrollment is limited and will be accepted on a first-come, first-served basis.

For more information call: Robert Mandzi, Course Manager, 303/236-8865 or FTS 776-8865. Or write to Robert Mandzi at Bureau of Land Management, Denver Federal Center, P.O. Box 25047, Denver, CO 80225-0047. ♦

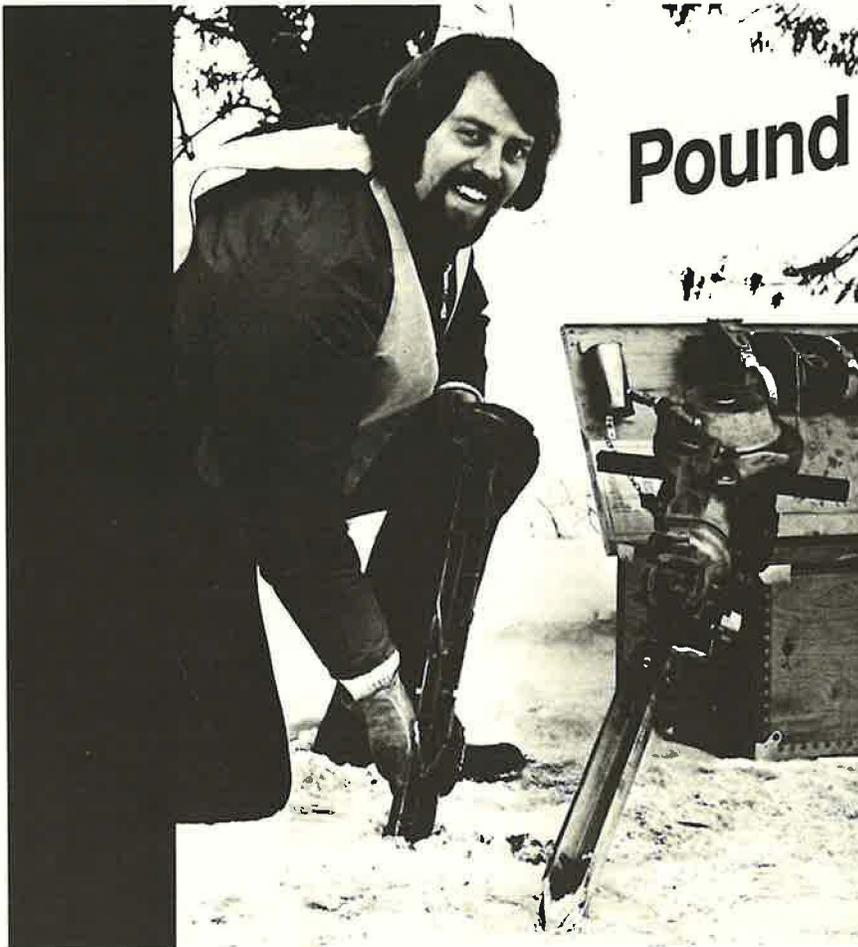


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