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VOLUME 8
NUMBER 3 & 4
SUMMER-FALL 1981



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HOOSIER SURVEYOR

VOLUME 8, NUMBER 3 & 4, SUMMER-FALL 1981

Committee Assignments (1981-82)

ACSM

James E. Dankert, Delegate
Orwic A. Johnson, Alternate

Chapters

Julian "Jud" Rouch — Chairman — Reporter
Ordell Gertsmeier — Northwest
John R. McNamara — St. Joe
Mark Gensic — Northeast
Tippecanoe
Purdue Student
C.I.C.
Vincennes Student

Constitution & By-Laws

Albert McConahay — Chairman
Robert Bigelow — Reporter
Julian "Jud" Rouch — Member

1982 Convention

Gary Kent — Albert McConahay — Co-Chairmen
John Whitlock — Reporter
Balance of Committee thru C.I.C.

Education

Jack Irwin — Chairman — Reporter
David Wahlstrom — Member
Art Haase — Member
Dallas Montgomery — Member
Steve Wood — Member

Ethics

C.A. Budnick — Chairman — Reporter
Orwic Johnson — Member
John Schneider — Member
Brian Dickerson — Member

Headquarters

John Schneider — Chairman
Jacob E. Hall — Reporter
John Whitlock — Member

Legislative

Jacob E. Hall — Chairman — Reporter
Jack Irwin — Member
John E. Fisher — Member
Tom Newport — Member
Bradley Rayl — Member
C.A. Budnick — Member
Luther Condre — Lobbyists

1983 Datum Adjustment

Kenneth S. Curtis — Chairman — Reporter
Ray Tappan — Member
Jose Julio LaFrossia — Member

Membership

Larry Manning — Chairman
William Andrews — Reporter
Larry Cramer — Member
Joe Blevins — Member

Public Relations

Haldon L. Ashton — Chairman
William Davis — Reporter
Ronald Wharry — Member
Gary McAllister — Member
David Smoll — Member
James E. Kovas — Member

L. S. Exam

John Schneider — Chairman — Reporter
Wesley Day — Member
James E. Dankert — Member

Nominations

Roger Woodfill — Chairman — (resigned)
James E. Dankert — Reporter
Byron Brady — Member
Brian Dickerson — Member
Edgar Humbarger — Member

A.C.S.M. Representation

Byron Brady — Chairman — Reporter
James E. Dankert — Member

Scholarship

Emil Beeg — Chairman
Julian "Jud" Rouch — Reporter
Donald Bengel — Member
Lee Bender — Member
Orwic Johnson — Member

Standards

Wesley L. Day — Chairman
L. Dean Hamilton — Reporter
John J. Madden — Reporter
Stanley Shartle — Member
John E. Fisher — Member
Michael Crawford — Member
Terry Dickmeyer — Member
Randolph Sexton — Member
Burton Retz — Member
Brenda Schlosser — Member
John McNamara — Member
James Morley — Member
Allan Stanley — Member
Donald Cochran — Member
Max Newkirk — Member
Charles Campbell — Member
Michael Arena — Member
Greg Eveslage — Member
Rollyn Blankenbeker — Member

Past President's Council

Rex Bowman — Chairman
C.A. Budnick — Reporter
+ All Past Presidents

Publications — Library

Kenneth S. Curtis — Chairman — Reporter
Gary Kent — Member
Daniel Pusey — Member
John McEntyre — Member
Mrs. Archer — Librarian

COVER: At the ISPLS Board of Directors meeting held Friday evening, October 16, at McCormick's Creek State Park, Roger Woodfill, left, was welcomed aboard as new ISPLS part-time acting executive secretary, starting November 1, by President David Wolf. This arrangement is for six-months, at which time a permanent executive secretary will be named. Board members attending the meeting were, seated, left to right, Bigelow, Rouch, Wolf, Whitlock. Standing, Budnick, Davis, Curtis, Andrews, Hamilton, and Irwin. Madden was absent. Roger Woodfill, from Lawrenceburg, is past-president of ISPLS and an active participant in national ACSM activities.

EDITOR'S NOTE: Deadlines for copy for various planned issues of the *Hoosier Surveyor* are as follows:

Winter issue — January 31
Spring issue — April 30
Summer issue — July 31
Fall issue — October 31

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Editorial/Advertising offices: 8714 E. 21st Street, Indianapolis, IN 46219 (Telephone 317/899-3685) Advertising rates, closing dates, circulation data on request. Contributed articles, photographs subject to space limitations.

Kenneth S. Curtis
Editor

Gary Kent
Associate Editor

THE PRESIDENT'S PAGE

PRESIDENT'S MESSAGE

by David Wolf

Thank you to the members of this Society for asking me to serve on the Board of Directors for this my fifth consecutive term. Thank you to my fellow Directors for asking me to serve this term through June 30, 1982 as your president. Thank you to my wife and family for the untold hours that will be required to be away in order to conduct the business of this our professional society.

In this my term of office as your president, I would envision the following listed goals for **US** to achieve:

1. Improvement of the image of the Surveyor throughout Indiana.
2. Adoption of minimum standards of performance for all types of surveys.
3. Legislation strengthening the profession of surveying in several areas:
 - A. Separate Board of Registration
 - B. Continuing competency requirements
 - C. Limitation of liability
 - D. Enforcement of Registration Act violations by knowledgeable professionals.
4. Increased membership in this Society.
5. Increased educational activity by this Society, and
6. A larger convention than the fine convention held last January at Merrillville.

The future of I.S.P.L.S. is in **OUR** hands because answers and actions always come from people at the local level. Make your point of view and desires known to the society board members. Lets all make this Society work by becoming personally involved. I invite you to join me now in a commitment to surveying through this Society.

Since our annual convention of last January your Board has adopted new By-Laws for the Society. These new By-Laws which became effective July 1, 1981 were in the last issue of this publication. These new By-Laws establish a twelve (12) person Board or one (1) person more than previously. At a Board meeting held August 1, 1981, Robert Bigelow of Merrillville was selected as the additional member. Also in accordance with the new By-Laws, the Board organized at the August 1st meeting and the officers chosen are as listed elsewhere in this issue.

Also at the Board meeting held August 1st, the Society budget for the period July 1, 1981 thru June 30, 1982 was adopted. This is the largest and perhaps the most aggressive budget ever adopted for this Society. The projected income has been increased some \$14,550 over last year, while the projected expenses has been increased some \$5,230. As each of us knows first hand, it is very easy or too easy to increase expenses. Increasing income is much more difficult. Some \$7,600 of the projected income increase is from member dues. Your Board has also projected an increase in member numbers in several categories. Your Board has also projected sizeable increases in both workshop and convention incomes. Further, this budget proposes an excess of income over expenses for the year. I would personally ask each of you as members of this society to do all within your power to recruit new members into the Society this year. I would also ask that you would support our workshops and convention in numbers heretofore not seen.

In the Board meeting of September 18, 1981, it was decided to "adopt the concept of paid leadership in the favor of an Executive Director to start November 1, 1981". In Board meetings held on



David K. Wolf
President

October 10, October 16, and November 7, the job description and details for the position of Executive Secretary were worked out and adopted. During the meeting of October 16 the Board interviewed, made an offer, and entered into verbal agreement with Roger Woodfill, a past society president from Lawrenceburg, to be acting Executive Secretary for a six month period beginning November 1. This position is to be filled three (3) days per week, two (2) of which Roger will be in Society headquarters. It is the feeling and belief of the Board and Officers that in order to adequately serve and supply the needs and desires of this growing Society, the Society membership, and the surveying profession in Indiana, the task has become too large for a part-time volunteer organization and that paid leadership is the answer.

Help make this year the biggest and best yet for this our professional Society.

IMPORTANT DATES TO REMEMBER

JANUARY 27-30, 1982

1982 Annual Meeting of Indiana Society of Professional Land Surveyors, The Atkinson Hotel, Illinois at Georgia Streets, Indianapolis, IN.

March 14-20, 1982

ACSM-ASP Annual Convention, Currigan Conference Center/Denver Hilton Hotel, Denver, CO.

May 7-8, 1982

Spring Seminar: Land Information Systems I, co-sponsored by ACSM and ISPLS in cooperation with Purdue University, Stewart Center, Purdue University, West Lafayette, IN.

September 19-24, 1982

ACSM-ASP Fall Convention, Diplomat Resort, Hollywood, FL.



The wives and families of the board members were also invited to the outing which included a covered-dish pitch-in lunch with the Wolfs providing delicious barbecued chicken.

I.S.P.L.S. EXECUTIVE SECRETARY'S REPORT TO MEMBERSHIP #1

by Roger Woodfill

It has been difficult in recent years for your elected I.S.P.L.S. directors to accomplish the goals of our society with only part-time clerical, secretarial staff. Administration, along with committee projects, have been left to volunteers. Just as you do not allow volunteers to run your surveying offices, the I.S.P.L.S. board felt a paid administrator would help run Indiana Society of Professional Land Surveyors. I had been aggravating I.S.P.L.S. presidents and boards to seek this type assistance since 1978. This year, my not so subtle nudge was in the form of an application for the position. Well, the 'ol boys said, "O.K., Smartie, show us how this will work. We will give you a try." So now I am working my buns off just to prove it will work.

In my first month I have attended two I.S.P.L.S. board meetings and worked a little with almost every committee, as follows:

1. Helped A.C.S.M. delegate with his reports.
2. Met with education committee about fall workshop and am organizing N.C.E.E. Workshop.
3. Initiated a bill in the Indiana General Assembly modifying our State Plane Coordinate Act to recognize the new 1983 Datum Adjustment.
4. Membership roles are being placed on computer
5. Ballots have been mailed
6. A report about Indiana Historical Landmarks has been compiled.
7. We have opened up liaison with the Indiana Construction Industry Council.
8. Established a firm publications schedule and mailed a "Compass"

I know very well that most of our members are experiencing tough times financially. I want to take this space to encourage you to support the society and uphold professional standards even in this depressing situation. Lets spend our spare moments toward a project that advances surveying.

Submitted,

Roger Woodfill, L.S.

Acting Executive Secretary

DELEGATE REPORT OF A.C.S.M. CONVENTION IN SAN FRANCISCO SEPTEMBER 1981

by John Whitlock

Everything got off to a roaring start when Suzanne & I were late (as usual) getting to the airport in Indianapolis. Fortunately, the plane was also late. As we flew north into Chicago, to make connections, the rectangular land survey system really stood out.

When our late flight arrived at O'Hare, we had 20 minutes to change flights, baggage, and terminal buildings. We flew the "Friendly Skies" out of Chicago. They really are. They helped pry my knuckles loose when we got to San Francisco.

My brother, who lives in Alameda, picked us up at the Airport and zipped us to the Downtown Hilton. The first person I saw was M. Neil Franklin with a full beard. Next I looked up Roger Woodfill who said he had found a close-by and less expensive hotel, The Mark Twain. So much for Roger's preference.

First official I.S.P.L.S. action was to attend the N.S.P.S.

membership meeting. Walt Robillard (of Georgia and who will be the next President of A.C.S.M.) told of his journey to the Switzerland F.I.G. Conference. One of the brochures passed out at the International Conference was "Land Surveying" by I.S.P.L.S. There was also a N.S.P.S. committee report on the formation of By-Laws, for a National Political Action Committee. During this meeting a vote of support was given to N.S.P.S. Board of Governors' Resolution that requires evidence of Professional Development before renewal of one's Survey License. (Later in the convention the N.S.P.S. Board also endorsed this resolution and A.C.S.M. has appointed a committee to study implementation of this resolution).

Other convention talk centered around the unification of A.C.S.M. and A.S.P. William A. (Rad) Radlinski is chairing the merger of the two societies, and John Uehlinger is now acting Executive Director of A.C.S.M.

There was a representative from the California Chapter of Royal Chartered Surveyors. The theme of his talk was the need to diversify in order to gain the esteem of a true profession. European surveyors do a lot of land evaluation for tax and investing purposes.

Surveyors have taken the initiative in national legislation. Senator Domenici, of New Mexico has introduced Bill S-706, entitled "Federal Land Survey Act of 1981." This Bill was largely written by N.S.P.S. representatives, and it will solve many of our problems trying to obtain federal survey contracts. It also requires federally employed surveyors to follow locally accepted procedures of monumentation and recordation.

I observed a trend walking through the many exhibits — automation even in our profession. New electronic theodolites measure and record. Large capacity computers take the information from the recorders and then the plotters. I also saw other Hoosiers and former Hoosiers. John McEntyre and Ken Curtis are serving their last year on the A.C.S.M. National Board. Gordon Ray was there representing Arizona, A.C.S.M.'s newest statewide affiliate organization.

Then it was off to Hawaii where another I.S.P.L.S. member, Dave Wahlstrom was giving a paper. After some leisurely beach time, it was back into the old 747. (Ken, you ought to try this trip by Amtrak). Nine hours non-stop and the loss of five hours. Get me off this plane! You are going next time, Jim Dankert!

CENTRAL INDIANA CHAPTER NEWS

The Central Indiana Chapter of ISPLS has elected it's officers for 1982. They are: President, Jerry Carter; Vice President, Frank Hahn; Secretary, Gary Kent; Treasurer, Jake Hall; Director, Jim Campbell, Jim Dalton, Jim Dankert.

The next meeting is scheduled for January 12th, 1982 and is to be held at Mac's Steakhouse at 91st and North Meridian in Indianapolis. The February meeting is scheduled for February 17th and the March meeting will be on March 18th.

Dues have been held to \$15 for members for 1982. We had 31 registered members in 1981 and about 20 junior members and we hope to increase these numbers in 1982.

A new program format has been established which emphasizes practical surveying problems and group discussion of possible solutions. This format seems to have been a factor in an increase in attendance in our monthly meetings.

Perhaps the greatest achievement of 1981 was the beginnings of an organized line of two-way communication between the surveying community and the Marion County Surveyors Office.



On Saturday, August 1, the ISPLS Board of Directors met for a board meeting at the country home of President David Wolf, northwest of Garrett in DeKalb County. Attending were, first row, left to right, Jacob Hall, Jack Irwin, John Madden; second row, David Wolf, William Davis, Jud Rouch; third row, Kenneth Curtis and William Andrews.

30th ANNUAL CONVENTION

INDIANA SOCIETY OF PROFESSIONAL LAND SURVEYORS

Wednesday, Thursday, Friday
January 27, 28, 29, 1982

THE ATKINSON HOTEL — INDIANAPOLIS, INDIANA

CONVENTION PROGRAM

(ALL TIMES ARE EASTERN STANDARD TIME — E.S.T.)

Wednesday, January 27, 1982

12:00 noon — 5:00 p.m.
Registration : Hotel Lobby
1:00 p.m.
Tour — White River Park Development Commission Headquarters...
W. Washington Street (Former Ind'pls Water Co. Pump House)
3:00 p.m. — 7:30 p.m.
Exhibits Open : Great Hall

5:00 p.m. — 7:30 p.m.
Cocktails : Exhibit area (Great Hall)

Thursday, January 28, 1982

8:00 a.m. — 12:00 noon
Late Registration : Hotel Lobby
8:00 a.m. — 2:45 p.m.
Exhibits Open : Great Hall
9:00 a.m. — 12:00 noon

TECHNICAL SESSIONS

- Update: Indiana-Kentucky Border Dispute
- Surveying Education in the 80's
- Standards of Practice for Land Surveying in Tennessee
- Exploring the European Cadastre
- Understanding and Applying the Principles and Properties of the Surveyors Level
- White River Park : Land Surveying and Engineering
- Error Elimination for Better Measurements
- Section Corner Perpetuation and the County Surveyor
- Applications of the Computer in a Small Business
- Revision of the USGS Quadrangle Maps in Indiana
- Land Surveyors, Title Companies, and Attorneys: A Perspective
- The Acts of 1981 : The Effect on Surveyors (Panel)

12:15 p.m. — 1:45 p.m.

Lunch : Grand Ballroom
— Opening of Convention
— Recognition of Exhibits

2:00 p.m. — 2:45 p.m.

Indiana Attorney General Linley Pierson : La Petit Palais Room
The Handling of Consumer Complaints Against Land Surveyors

3:00 p.m. — 5:00 p.m.

Annual Business Meeting : La Petit Palais Room

6:00 p.m. — 7:00 p.m.

Cocktails : Grand Ballroom

7:00 p.m. — ? ?

Banquet : Grand Ballroom

Friday, January 29, 1982

9:00 a.m. — 12:00 noon

CONCURRENT WORKSHOPS

- Analyzing Legal Descriptions in Preparation for Fieldwork
- Evidence and Methods of Recovery and Retracement
- The Land Surveyor & Professional Liability (presented through American Congress Surveying and Mapping and Victor O. Schinnerer & Co., Inc.)

12:15 p.m. — 1:45 p.m.

Lunch : Grand Ballroom

— President's Awards

— 30 Year Recognition Ceremonies

— ACSM Affiliation Ceremony

2:00 p.m. — 5:00 p.m.

REPEAT CONCURRENT WORKSHOPS

Saturday, January 30, 1982

NCEE — NSPS one-day workshop on Writing Land Surveyors Exam Questions

Registration and Housing information will be sent in separate mailing.

CONVENTION NOTES

Note that Union Station (Amtrak station) is directly across the street from the Atkinson. Those in the Northwest part of the State might consider the ease and convenience of "Training" down.

With regard to the convention itself, the committee tried very hard to make some positive changes in the program to suit suggestions and complaints that have been received in the past.

- The Annual Business Meeting has been allowed more time and has been placed in a more satisfactory time slot.
- The Banquet has been moved to Thursday night so those who want to get home at a reasonable time on Friday do not have to leave the Banquet early.
- The guest rooms are elegant with new color televisions, oil paintings, antique furnishings, and soundproof walls.

The Hotel is only a 3 block walk from the Circle and only 2 blocks from Merchants Plaza. Within easy walking distance are:

- Indianapolis Repertoire Theatre (the old Indiana Theatre)
- Indiana State Capitol
- Market Square Arena
- Indianapolis Convention Center

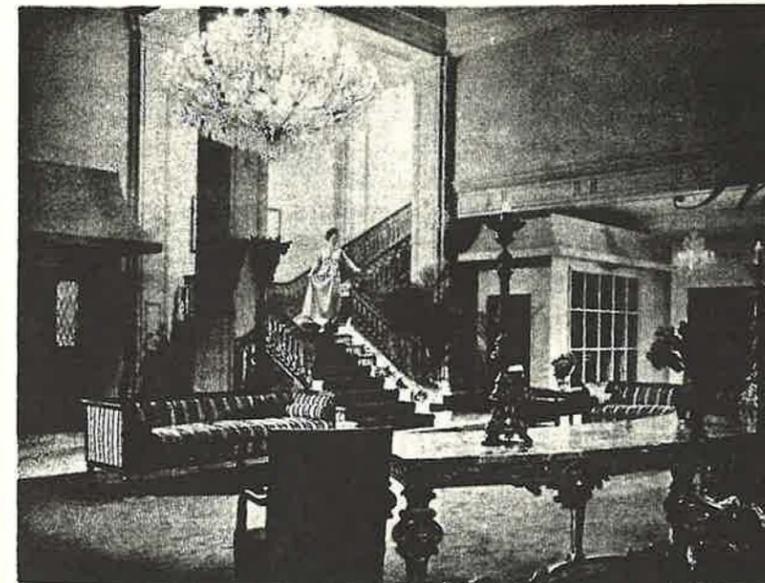
Restaurants within walking distance number in the dozens and include:

- J. Pierpont's (Market Street)
- La Tour (Indiana Nat'l Bank Tower)
- St. Elmo's Steakhouse
- La Scala (Italian)
- Brother Juniper's (Sandwich Specialties)
- Eagle's Nest (on top of Merchants Plaza)
- The Porch and Harrison Room (Hyatt Regency)
- Innumerable fast food restaurants

In addition, the Atkinson has a Buffet and full service dining room.

On Saturday a separate One-day workshop will be presented through NCEE and NSPS dealing with the Land Surveyors Exam as written, graded, and developed by NCEE. This workshop includes the opportunity to write some question and answers with the intention on the part of NCEE of using some in the Exam. This workshop will be offered at an irresistible cost that will include lunch on Saturday.

The cost of the convention as a whole has been held to last year's cost in every category. In addition, the guest rooms are as much as 50% less than in the past several years, and not at the expense of elegance, space, or cleanliness.



The Atkinson Hotel

ILLINOIS AT GEORGIA
INDIANAPOLIS, INDIANA 46225

TELEPHONE 317-639-5611



FROM THE MOMENT YOU ARRIVE,

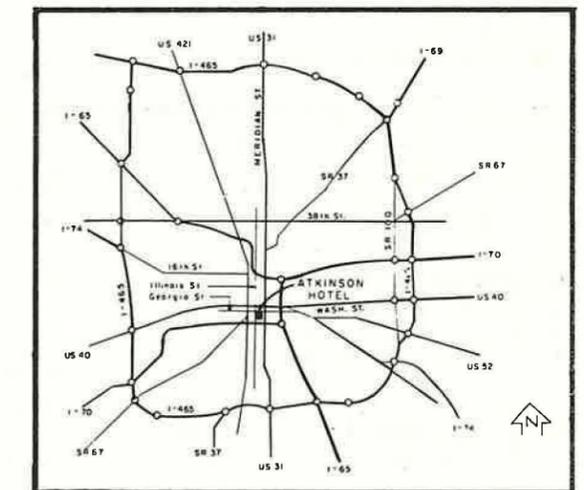
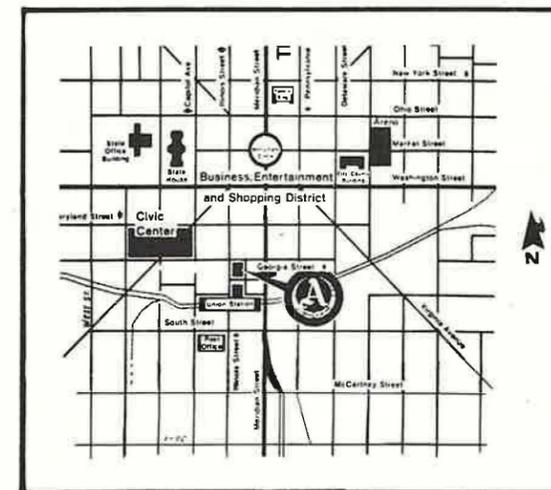
you'll enjoy living at The Atkinson. The stately elegance of this fine hotel is tempered with warm hospitality and special attention to your personal comfort. You'll sleep well in the thoroughly soundproofed rooms, which include many executive rooms with king-size beds. Select the temperature you like with the individual electric heating and air conditioning systems. Elegant furnishings, many antiques, oil paintings, all combine to make The Atkinson a hotel where a new world of luxury truly abides amid Old World Charm.

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COLLEGES AND UNIVERSITIES:

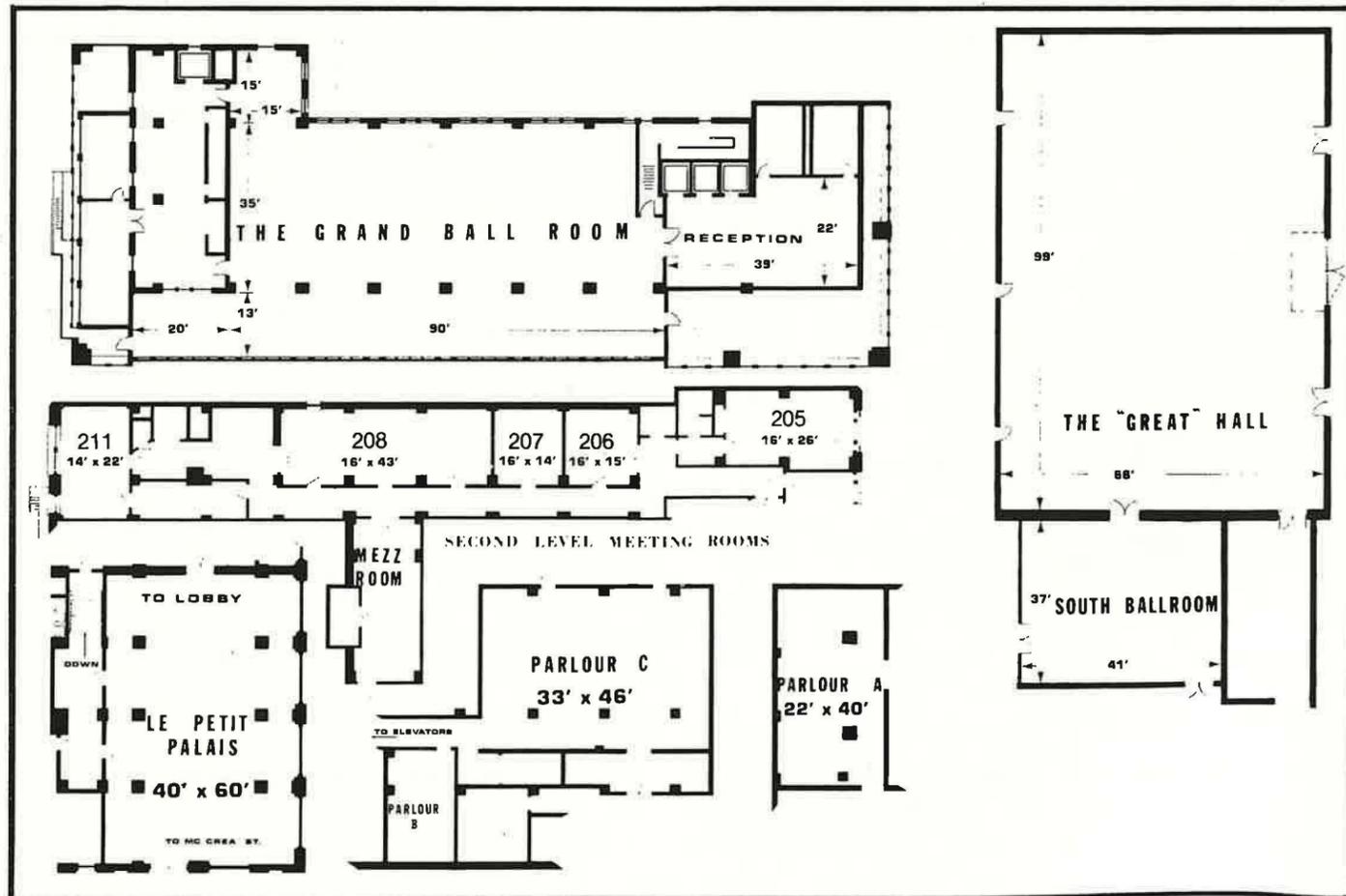
BUTLER UNIVERSITY, INDIANA CENTRAL, MARIAN COLLEGE, CHRISTIAN THEOLOGICAL SEMINARY, INDIANA UNIVERSITY-PURDUE UNIVERSITY OF INDIANAPOLIS

POINTS OF INTEREST:

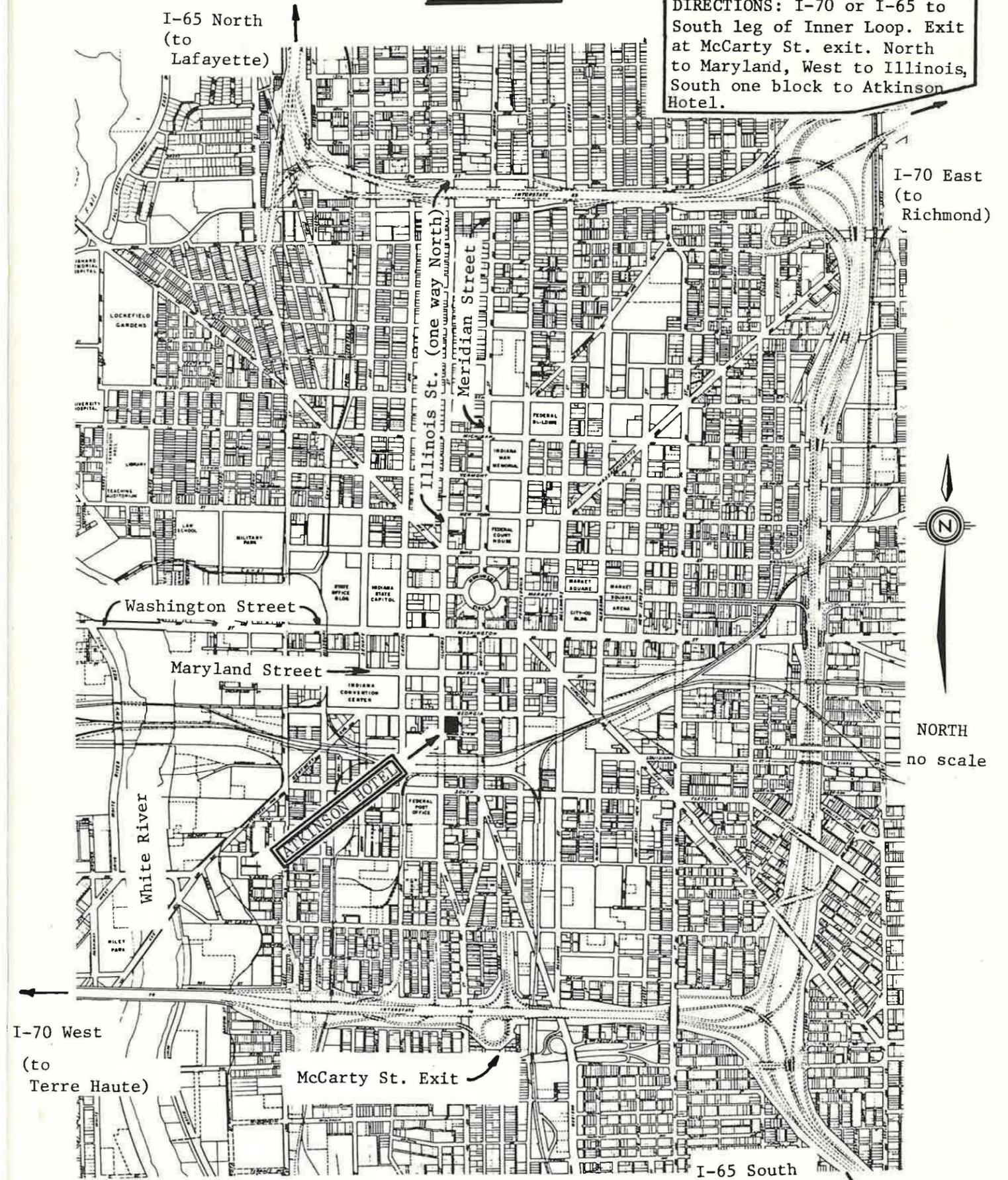
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- Extensive Meeting and Banquet Facilities.



VICINITY MAP



NOTE: Free parking North, South, and West of the Atkinson Hotel

New Titles Added to ISPLS Library

The last issue of the HOOSIER SURVEYOR (Vol. 8, No. 2, Spring 1981) contained a complete listing of the nearly 200 books and manuals which were in the ISPLS library and ready to be used. During the past couple of months, 34 new additions have been purchased and are also ready to use. Also, through the generosity of ACSM National, a complete set of the *Technical Papers and Proceedings* of each Annual and Fall Meetings since their publication beginning in 1968 have been secured. (The only one missing from this set is the *Proceedings* of the 1975 Fall Meeting in Phoenix, AZ. Anyone wishing to donate a copy is invited to do so!)

The following new books have been added. The number in parenthesis is the "accession number" and should, along with the author and title, be used in ordering books.

ACSM, *Proceedings of National Land Use Symposium*, Little Rock, AK, April, 1974, 122 p., (252)

ACSM, *Proceedings of Symposium on Measurement, Mapping, and Management in the Coastal Zone from Virginia to Maine*, New York, N.Y., May 1979, 272 p., (256)

ACSM, *Proceedings of Symposium on Measurement, Mapping, and Management in the Gulf Coastal Zone*, New Orleans, LA, May 1978, 145 p., (255)

Also, *Complete Key to Gummere's Surveying*, Kimber/Sharpless, 1837, 84 p., (196)

Blachut/Chrzanowski/Saastamoinen, *Urban Surveying and Mapping*, Springer-Verlag, 1979, 420 p., (229)

Bowden, *Surveying the Texas and Pacific Land Grant West of the Pecos River*, Texas Western Press, 1975, 95 p., (242)

Breed/Bone, *Surveying*, 3rd edition, Wiley, 1971, 445 p., (230)

Brewer, *Up and Down California in 1860-1864*, Univ. of Calif. Press, 1930 (1966), 583 p., (233)

Brinker/Barry/Minnick, *Noteforms for Surveying Measurements*, 2nd Edition, Landmark Enterprises, 1981, 63 p., (246)

Canadian Institute of Surveying, *Proceedings of Conference on Concepts of Modern Cadastre*, Ottawa, Canada, October 1974, 136 p. (Spec. Issue, *Canadian Surveyor*, March 1975), (254)

Davis/Foote/Anderson/Mikhail, *Surveying-Theory and Practice*, 6th Edition, McGraw-Hill, 1981, 992 p., (226)

Fant/Freeman/Madson, *Metes and Bounds Descriptions*, Report Four, Minn. Land Surveyors, Revised 1980, 161 p., (249)

Fremont, *Report of the Exploring Expedition to Rocky Mountains*, Readex Microprint, 1845 (1966), 327 p., (232)

Jackson, *Sphere, Spheroid, and Projections for Surveyors*, Wiley, 1980, 138 p., (238)

Johnson, *Order Upon The Land*, Oxford, 1976, 268 p., (225)

Kissam, *Surveying For Civil Engineers*, 2nd Edition, McGraw-Hill, 1981, 799 p., (257)

Kuchler, *Vegetation Mapping*, Ronald Press, 1967, 472 p., (231)

Lillesand/Kiefer, *Remote Sensing and Image Interpretation*, Wiley, 1979, 640 p., (228)

Loxton, *Practical Map Production*, Wiley, 1980, 137 p., (245)

MacDougall, *Computer Programming for Spatial Problems*, Edward Arnold, 1978, 160 p., (244)

Madson/Beardslee, *Beyond the Traverse Point (or Guide For Managing a Business)*, Land Surveyors Seminar, 1980, 211 p., (248)

Madson/Seemann, *Fading Footsteps (or Retracement and The Land Surveyor)*, Land Surveyors Seminar, 1980, 347 p., (247)

Maine, Univ. of, *Proceedings of the Land Records Symposium*, Orono, Maine, August 1976, 241 p., (253)

Mikhail/Gracie, *Analysis and Adjustment of Survey Measurements*, Van Nostrand, 1981, 340 p., (237)

MOLDS, *Proceedings of the North American Conference on Modernization of Land Data Systems: A Multi-Purpose Approach*, Washington, D.C., April 1975, 461 p., (251)

Moyer, *Land Information Systems — An Annotated Bibliography*, MOLDS/USDA, 1978, 195 p., (250)

Pindar, *American Real Estate Law*, Harrison Co., 1976, 1471 p., (234)

Robinson, *Land in California*, Univ. of Calif. Press, 1948, 291 p., (241)

Schmitz, *Surveying Computations — Mastery or Mystery*, Landmark Enterprises, 1981, 184 p., (243)

Taylor, *Managerial and Engineering Economy-Economic Decision Making*, 3rd Edition, D. Van Nostrand, 1980, 538 p., (239)

Untermann, *Principles and Practices of Grading, Drainage, and Road Alignment*, Reston, 1978, 297 p., (227)

VanZandt, *Boundaries of the United States and the Several States*, U.S. Geological Survey Prof. Paper 909, 1976, 191 p., (240)

Watkins/Watson, *The Land No One Knows — America and the Public Domain*, Sierra Club Books, 1975, 256 p., (235)

Williams, *Frontier Surveyor, Frontier Lawyer (1877-1902)*, 2nd edition, Texas Western Press, 1966, 350 p., (236)

The set of ACSM *Technical Papers and Proceedings* are as follows:

1968 Annual Meeting, Washington, D.C., 615 p. (197)

1968 Fall Meeting, Minneapolis, MN, 226 p., (198)

1969 Annual Meeting, Washington, D.C., 500 p., (199)

1969 Fall Meeting, Portland, OR, 363 p., (200)

1970 Annual Meeting, Washington, D.C., 695 p., (201)

1970 Fall Meeting, Denver, CO, 542 p., (202)

1971 Annual Meeting, Washington, D.C., 791 p., (203)

1971 Fall Meeting, San Francisco, CA, 454 p., (204)

1972 Annual Meeting, Washington, D.C., 436 p., (205)

1972 Fall Meeting, Columbus, OH, 273 p., (206)

1973 Annual Meeting, Washington, D.C., 464 p., (207)

1973 Fall Meeting, Disneyworld, FL, 425 p., (208)

1974 Annual Meeting, St. Louis, MO, 628 p., (209)

1974 Fall Meeting, Washington, D.C., 385 p., (210)

1975 Annual Meeting, Washington, D.C., 276 p., (211)

1975 Fall Meeting, Phoenix, AZ, 394 p., (212) (No copy yet!)

1976 Annual Meeting, Washington, D.C., 505 p., (213)

1976 Fall Meeting, Seattle, WA, 463 p., (214)

1977 Annual Meeting, Washington, D.C., 777 p., (215)

1977 Fall Meeting, Little Rock, AR, 493 p., (216)

1978 Annual Meeting, Washington, D.C., 404 p., (217)

1978 Fall Meeting, Albuquerque, NM, 470 p., (218)

1979 Annual Meeting, Washington, D.C., 567 p., (219)

1979 Fall Meeting, Sioux Falls, SD, 285 p., (220)

1980 Annual Meeting, St. Louis, MO, 492 p., (221)

1980 Fall Meeting, Niagara Falls, NY, 400 p., (222)

1981 Annual Meeting, Washington, D.C., 571 p., (223)

There are three books which have disappeared from ISPLS headquarters sometime between their receipt and their cataloging. Anyone knowing of whereabouts are asked to contact headquarters.

1. Sipe, *Compass Land Surveying*.
2. Shepard, *Engineering Surveying: Problems and Solutions*.
3. Wattles, *Legal Descriptions and Survey Analysis*.

ISPLS Policy on Check-out of Library Books

1. Members are encouraged to use the library by visiting the ISPLS state office, in person, during regular office hours. (Mon., Wed., Fri., 8-4:30 p.m.)
2. Only ISPLS members in good standing are eligible to check-out library books for their own personal use.
3. Check-out time will be limited to four weeks, with only one extension of time and subject to requests from other members. No user shall have more than three books checked out at any one time.
4. Each check-out must be made in person or by letter request. Check-out in person requires no fee. Check-out by mail requires a *prepayment* of a standard fee of \$2.00 per book (which will pay for postage and handling). No phone orders will be accepted. When items are being returned by mail, they are to be sent by USPS or UPS and insured for \$50.00.
5. There shall be no defacing of loaned books, especially any marking or highlighting. Each item will be inspected on return for any damage and then a decision will be made on any assessment of the cost of a replacement copy.

NEW JOURNAL

Joe Bell, a Survey Engineer, has recently begun a Survey Calculations Journal. SCJournal is issued monthly and contains many very useful calculation routines to aid users of the HP-41. One of Joe's primary goals at this point is to assemble various surveying calculator programs into a custom survey ROM. If enough surveyors show interest, the ROM could be made available for as little as \$95. (Compare this with the ROM from North Carolina being marketed for \$350 and with the HP ROM which only utilizes a minute portion of the HP-41's capability.)

If you are an active user of the HP-41, why not drop Joe a note requesting information. He can be contacted at:

Joe Bell
P.O. Box 6674
San Bernardino, CA 92412

**HIGHWAY COUNTY
EXTENSION STORM DRAINAGE
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PROJECT FOR INDIANA COUNTIES**

**Christopher B. Burke
Research Engineer**

[May 1981]

- Chapter 1 — INTRODUCTION
- Chapter 2 — RAINFALL
- Chapter 3 — RUNOFF AND ITS ESTIMATION
- Chapter 4 — OPEN CHANNELS
- Chapter 5 — FLOW IN GUTTERS AND INLETS
- Chapter 6 — STORM WATER STORAGE
- Chapter 7 — STORM SEWER SYSTEM DESIGN
- Appendix A — STATISTICAL ANALYSIS
- Appendix B — FUNDAMENTALS OF HYDRAULICS
- Appendix C — REGULATORY AGENCIES FOR DRAINAGE PROJECTS

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**Photo Highlights of Storm Drainage Design Workshop
October 16-17, 1981 McCormick's Creek State Park
Spencer, Indiana**



This workshop was the second in a series of workshops in drainage and hydrology to be sponsored by ISPLS. Attendance at the first workshop was not a prerequisite, as a review of basic principles was presented. The two instructors were again Prof. Paul L. Douglass, of IUPUI, Indianapolis and Mr. Zafar S. Ansari of Ansari and Associates, Indianapolis. Education Committee member, Lowell Hamilton, right, was in charge of arrangements.



Forty participants attended the two-day short course which covered estimation of storm runoff and peak rates, development and application of hydrographs, hydraulics of spillways, and design of retention and detention facilities. A new *County Drainage Manual* by Christopher Burke, of HERPIC, Purdue University, was used as the basic reference source.



The excellent meals and lodging accommodations at Canyon Inn were included in the cost of the workshop. Good fellowship and a chance for a family weekend were added benefits.

Land Surveyors Registration Law Changes

The 102nd Indiana General Assembly enacted House Bill 2042 during the Spring of 1981 "concerning the reorganization of the regulation of occupations and professions." This legislation is the result of General Assembly studies regarding the so-called "Sunset Law" which required the State to determine the need to continue certain boards and agencies. A state board of registration for professional engineers and land surveyors will continue to function, but some changes have been made. These changes are outlined below. The current board will continue until July 1, 1982, which is the effective date for HB 2042.

The Act creates two bureaus, namely (1) Health Professions Service Bureau, and (2) Regulated Occupations and Professions Service Bureau, and (3) Special Advisory Committees for each bureau. The Bureaus will perform all administrative functions. Land surveyors will come under the "Regulated Occupations and Professions Service Bureau," along with engineers.

Section 1, Chapter 4, concerns Continuing Education. No board may require continuing education as a condition of registration unless so specifically authorized or mandated by statute. However, a board regulating a profession may cooperate with members of the profession to promote continuing education within the profession.

Section 4, Chapter 7, concerns the Investigation and Prosecution of Complaints Concerning Regulated Occupations. The office of the attorney general may receive, investigate, and prosecute complaints concerning regulated occupations. The division of consumer protection is responsible for the investigation of complaints concerning licensees.

Sections 229-235 amend the previous Registration Act. Major changes or additions include:

1. Retained the same definition of land surveying as previously used.
2. Creates "State Board of Registration for Professional Engineers and Land Surveyors" of six members, four of whom shall be registered professional engineers and at least two shall have the qualifications of a land surveyor. The Board shall also have a citizen or "consumer" member representing the general public. The other member shall be a registered land surveyor who is "actively engaged in the practice of land surveying."
3. The service bureau shall provide the board with a competent person to serve as secretary of the board and said person does not need to be a registered professional engineer as previously required.
4. The board is required to adopt rules establishing standards for the competent practice of engineering or land surveying.
5. A new section spells out in some detail the disciplinary sanctions which may be taken if a practitioner does not conduct his practice of engineering or land surveying in accordance with established standards.

Section 290 provides for the appointment of the land surveyor member. The governor shall appoint the practicing land surveyor member to succeed the first board member: (1) whose term is to expire after July 1, 1982 and (2) who is not a registered land surveyor.

Pertinent sections of HB 2042 are reproduced on the succeeding pages so that specific details can be studied.



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First Regular Session 102nd General Assembly

PRINTING CODE—The parts in this style type are additions to the text of the existing section of the law. The parts in this style type are deletions from the text of the existing section of the law. The absence of either of the above type styles in an amendatory SECTION indicates that an entirely new section or chapter is to be added to the existing law.

EXCERPTS FROM: HOUSE ENROLLED ACT No. 2042

AN ACT to amend IC 4-26, IC 15, IC 22, and IC 25 concerning reorganization of the regulation of occupations and professions.

Be it enacted by the General Assembly of the State of Indiana:

SECTION 1. IC 25-1 is amended by adding a NEW chapter 4 to read as follows:

Chapter 4. Continuing Education.

Sec. 1. No board or agency regulating a profession or occupation under this title or under IC 15, IC 16, or IC 22 may require continuing education as a condition of certification, registration, or licensure unless so specifically authorized or mandated by statute.

Sec. 2. A board or agency regulating a profession or occupation under this title or under IC 15, IC 16, or IC 22 may cooperate with members of the profession or occupation it regulates to promote continuing education within the profession or occupation.

SECTION 229. IC 25-31-1-2 is amended to read as follows:
Sec. 2. As used in this chapter:

(a) The term "Board," as used in this act, shall mean means the state board of registration for professional engineers and land surveyors.

(b) The term "Professional engineer," as used in this act, shall mean means any person who, by reason of his special knowledge of the mathematical and physical sciences and the principles and methods of engineering analysis and design

which are acquired by education and practical experience, is qualified to engage in the practice of engineering as attested by his registration as a professional engineer.

(c) The term "Engineer-in-training," as used in this act, shall mean means a person who is a graduate in an approved engineering curriculum of four (4) years or more, or who has acquired, through engineering education and experience in engineering work, knowledge and skill approximating that obtained by graduation in an approved engineering curriculum of four (4) years or more; and who, in addition, has successfully passed an examination as prescribed in subsection (c) of section 14 of this act chapter, and to whom there shall have been issued by the board, as hereinabove defined, an appropriate certificate of enrollment as an engineer-in-training.

(d) The term "Practice of engineering," as used in this act, shall mean means any professional service, or creative work, requiring engineering education, training, and experience, and requiring the application of special knowledge of the mathematical, physical, and engineering sciences to such professional services, or creative work, such as consultation, investigation, evaluation, planning, design, and supervision of construction for the purpose of assuring compliance with specifications and designs, in connection with any public or private utilities, structures, buildings, machines, equipment, processes, works, or projects. The term "practice of engineering" shall not include the work ordinarily performed by persons who operate or maintain machinery or equipment.

(e) The term "Land surveyor," as used in this act, shall mean means a person who, by reason of his special knowledge of mathematics and surveying principles and methods which are acquired by education and practical experience, is qualified to engage in the practice of land surveying, as herein defined, as attested by his registration as a land surveyor.

(f) The term "Land-surveyor-in-training," as used in this act, shall mean means a person who is a graduate in an approved surveying curriculum of four (4) years or more, or who has acquired, through surveying education and experience in surveying work, knowledge and skill approximating that obtained by graduation in an approved surveying curriculum of four (4) years or more; and who, in addition, has successfully passed an examination as prescribed in subsection (d) of section 14 of this act chapter, and to whom there shall have been issued by the board, as hereinabove defined, an appropriate certificate of enrollment as a land-surveyor-in-training.

(g) The term "Practice of land surveying," as used in this

act, shall mean means the establishment or reestablishment of corners, boundaries, and locations of lots, parcels, tracts or divisions of land, including distances, directions, and acreage, and including, but not limited to, the correct determination and description of the same for any of the following purposes:

- (1) to furnish a legal description of any land surveyed to be used in the preparation of deeds of conveyance;
- (2) to furnish a legal description of any land surveyed to be used in the platting or subdividing of said land;
- (3) to determine the amount of acreage contained in any land surveyed;
- (4) to furnish a topographic plat of a lot, parcel, tract or division of land; or
- (5) to prepare a legal description of any tract of land, to be used in the preparation of deeds of conveyance except:

(i) when the description is the same as the one in the deed of conveyance to the current owner; or

(ii) when bearings, distances, or measurements are not needed to properly describe the tract being conveyed.

(h) The term "Practice of land surveying," as used in this act, shall also include, includes for and within subdivisions being laid out or having been laid out by the land surveyor, the preparation and furnishing of plats, plans, and profiles for roads, storm drainage, sanitary sewer extensions, and the location of residences or dwellings where such work involves the use and application of standards prescribed by local, state or federal authorities, and shall also include the necessary staking and layout work to construct said roads, storm drainage, sanitary sewer extensions or location of residences or dwellings where the plans and profiles were prepared by or under the direction of a land surveyor as defined in this act chapter. It shall also include includes preliminary surveys for preparation of plans for engineering and building construction projects and the staking out of the same from plans prepared by a registered professional engineer or by a registered architect. It shall also include includes all work incidental to cleaning out, reconstruction or maintaining existing open and tile drains. This shall not be construed so as to permit the land surveyor to include the design and construction of sewage disposal stations, lift stations, commercial buildings, pumping stations, bridges or to prepare engineering plans for the construction of engineering projects. The term "practice of land surveying" shall not be construed as to prohibit a registered professional engineer from doing any work defined herein which does not involve the

appointed as a professional engineer member of the board unless he:

- (1) is a citizen of the United States;
- (2) shall have been a resident of this state for a period of at least five (5) years immediately prior to the time of his appointment;
- (3) shall have been registered as a professional engineer and shall have been engaged in the lawful practice of engineering for at least twelve (12) years; and
- (4) shall have been in responsible charge of engineering work or engineering teaching for at least five (5) years.

Every member of the board shall be appointed for a term of four (4) years and until his successor shall have been duly appointed and qualified: Provided, That any person who is a member of the board on the effective date of this amendatory act shall continue his tenure of office until his term has expired or until his successor has been duly appointed and qualified. Every member of the board shall receive a certificate of his appointment from the governor, and, before beginning his term of office, shall file with the secretary of the board his written oath or affirmation for the faithful discharge of his official duties. The governor may remove any member of the board at any time for incompetency, neglect of duty, or for unprofessional conduct. Any vacancy which may occur in the membership of the board, at any time, shall be filled by appointment by the governor for the unexpired term.

SECTION 231. IC 25-31-1-4, as amended by Acts 1976, P.L. 119, SECTION 23, is amended to read as follows: Sec. 4. (a) The members of the board shall receive a salary per diem for each and every day, or part of a day, while they are in actual attendance of any meeting of the board, or while they are engaged in the performance of the official business of the board, which salary per diem shall be in addition to any allowance, prescribed by the laws of the state, for subsistence and travel within the state of Indiana. However, in the event a county surveyor is appointed as a member of the board, the county surveyor shall not receive the salary per diem. The members of the board shall further be reimbursed for incidental and clerical expenses necessarily incurred in carrying out the provisions of this chapter.

(b) Any member of the board, or the secretary of the board, may be authorized by the board to attend any engineering conference, or meeting, held outside of the state of Indiana, the major purpose of such meeting being the consideration of problems directly associated with the registration of

location, description, establishment, or reestablishment of property corners or property lines.

(i) The term "Approved engineering curriculum" shall mean means an engineering curriculum of four (4) years or more that has been approved by the board. In approving such engineering curriculum the board may take into consideration the standards of accreditation adopted by the engineers' council for professional development accreditation board for engineering and technology.

(j) The term "Approved land surveying curriculum" shall mean means a land surveying curriculum of four (4) years or more that has been approved by the board.

(k) The term "Practice or offer to practice engineering or land surveying" within the meaning and intent of this act, shall apply to means the act of any person who by verbal claim, sign, advertisement, letterhead, card, telephone listing, or in any other way represents himself to be a professional engineer or land surveyor; or who performs, or offers to perform, any acts or work involving the practice of engineering or land surveying.

(l) "Service bureau" means the regulated occupations and professions service bureau under IC 25-1-6.

SECTION 230. IC 25-31-1-3 is amended to read as follows: Sec. 3. A board is hereby established and created which shall be known as The "State Board of Registration for Professional Engineers and Land Surveyors." is created. The board shall consist of five six (6) members all four (4) of whom shall be registered professional engineers, and at least two (2) of them the professional engineer members shall have the qualifications of a land surveyor as defined in this act. One (1) member shall be appointed to represent the general public who shall be: (i) a resident of this state, and (ii) in no way associated with professional engineering or land surveying other than as a consumer. One (1) member must be a resident of this state who is a land surveyor registered under this chapter and who is actively engaged in the practice of land surveying. The All members of the board shall be appointed by the governor. On and after January 1, 1960, Professional engineer members to be appointed to the board by the governor as terms expire or vacancies occur shall be appointed so that as soon as possible thereafter the board will at all times consist of one (1) member from industry, one (1) member from government, one (1) member from education and two (2) members one (1) member from the private practice. No person shall be

professional engineers or land surveyors. Any member of the board, in addition to any subsistence and travel allowance as prescribed by the laws of the state for travel outside of the state, shall receive a salary per diem for each and every day, or part of a day, while he is in actual attendance of any engineering conference, or meeting, held outside of the state, or while enroute to and from such conference or meeting. However any member of the board who is a county surveyor shall not receive such salary per diem.

SECTION 232. IC 25-31-1-6 is amended to read as follows: Sec. 6. The board shall, subject to the approval of the governor, employ a competent secretary who (a) The service bureau shall provide the board with a competent person to serve as secretary of the board. Such person shall be a registered professional engineer and who shall may not be a member of the board. The secretary of the board through the service bureau shall keep a true and complete record of all proceedings of the board, and shall perform such other duties, prescribed in this act chapter, as may be assigned to him by the board. The secretary of the board shall give a surety bond to the state of Indiana, in the sum of five thousand dollars (\$5,000), conditioned upon the faithful performance of his duties and the accurate accounting of all money which may at any time come into his possession. The premium on such bond shall be paid out of the professional engineer's fund. The secretary of the board shall receive such compensation as the board may determine, subject to the approval of the budget committee and the governor, and, in addition thereto, all expenses certified by the board as properly and necessarily incurred in the discharge of his duties.

(b) The board may employ such shall be provided by the service bureau whatever clerical or other assistants, including investigators, as may be necessary for the proper performance of its duties: Provided, That the amount of compensation to be paid such employees shall be fixed by the board, subject to the approval of the budget committee and the governor.

SECTION 233. IC 25-31-1-7 is amended to read as follows: Sec. 7. (a) The board shall enforce and administer the provisions of this act chapter, and make such rules, not inconsistent with the constitution and laws of this state, as may be reasonably necessary for the proper performance of its duties and the regulations of the proceedings before it. The board shall adopt rules establishing standards for the competent practice of engineering or land surveying.

Any rulemaking by the board shall be in accordance with IC 4-22-2.

(b) The board shall adopt and have an official seal.

SECTION 234. IC 25-31-1-12 is amended to read as follows:

Sec. 12. The following shall be considered as minimum evidence that the applicant is qualified for registration as a professional engineer, or land surveyor, or for certification as an engineer-in-training, or land-surveyor-in-training, respectively:

(a) As a professional engineer:

(1) graduation in an approved engineering curriculum of four (4) years or more; a specific record of four (4) years or more of experience in engineering work acquired subsequent to graduation, which experience indicates that the applicant is qualified to be placed in responsible charge of engineering work requiring the exercise of judgment in the application of engineering sciences to the sound solution of engineering problems; and the successful passing of an examination as provided for in section 14 of this ~~act~~ **chapter**; or

(2) a specific record of eight (8) years or more of engineering education and experience in engineering work, which indicates that the applicant has acquired knowledge and skill and practical experience in engineering work approximating that required for registration as a professional engineer under the provisions of subsection (a)(1) of this section; and the successful passing of an examination as provided for in section 14 of this ~~act~~ **chapter**.

(b) As a land surveyor:

(1) graduation in an approved land surveying curriculum of four (4) years or more which includes the fundamentals of land surveying, and a specific record of four (4) years or more of experience in land surveying work acquired subsequent to graduation, which experience indicates that the applicant is qualified to be placed in responsible charge of land surveying work requiring the exercise of judgment in the application of surveying sciences to the sound solution of land surveying problems, and the successful passing of an examination as provided for in section 14 of this ~~act~~ **chapter**; or

(2) a specific record of eight (8) years or more of land surveying education and experience in land surveying work, which indicates that the applicant has acquired knowledge and skill and practical experience in land surveying work approximating that required for registration as a professional land surveyor under the provisions of

addition to the credit of four (4) years of education. An applicant who holds a degree of doctor of philosophy, or the equivalent thereof from a curriculum in engineering approved by the board, may be given a maximum of credit of two (2) years of experience in addition to a credit of four (4) years of education. Graduation in a course other than engineering or land surveying from a college or university acceptable to the board may be considered as equivalent to two (2) years' engineering or land surveying experience and education. The mere execution, as a contractor of work designed by a professional engineer, or the supervision of the construction of such work as a fireman or superintendent shall not be deemed to be engineering experience.

(h) Any person having the necessary qualifications prescribed in this ~~act~~ **chapter** to entitle him to registration shall be eligible for such registration although he may not be engaged in engineering work or land surveying work at the time of making his application.

SECTION 235. IC 25-31-1 is amended by adding a NEW section 22.1 to read as follows: Sec. 22.1. (a) As used in this section, "practitioner" means an individual who is registered under this chapter.

(b) A practitioner shall conduct his practice of engineering or land surveying in accordance with the standards established by the board under section 7(a) of this chapter and is subject to the exercise of the disciplinary sanctions under subsection (e), if, after a hearing, the board finds:

(1) the practitioner has employed or knowingly cooperated in fraud or material deception in order to obtain registration to practice engineering or land surveying, or has engaged in fraud or material deception in the course of professional services or activities, or has advertised services in a false or misleading manner;

(2) the practitioner has been convicted of a crime which has a direct bearing on the practitioner's ability to continue to practice competently;

(3) a practitioner has knowingly violated section 27 of this chapter or any rule adopted by the board under section 7(a) under this chapter;

(4) a practitioner has continued to practice although he has become unfit to practice engineering or land surveying due to:

(A) professional incompetence;

(B) failure to keep abreast of current professional theory or practice;

subsection (b)(1) of this section; and the successful passing of an examination as provided for in section 14 of this ~~act~~ **chapter**.

(c) As an engineer-in-training;

(1) graduation in an approved engineering curriculum of four (4) years or more, and the successful passing of an engineer-in-training examination as provided in section 14 of this ~~act~~ **chapter**; or

(2) a specific record of four (4) years or more of engineering education and experience in engineering work, indicating that the applicant has acquired knowledge and skill approximating that acquired through graduation in an approved engineering curriculum of four (4) years or more, and the successful passing of an engineer-in-training examination as provided in section 14 of this ~~act~~ **chapter**.

(d) As a land-surveyor-in-training:

(1) graduation in an approved land surveying curriculum of four (4) years or more, and the successful passing of land-surveyor-in-training examination as provided in section 14 of this ~~act~~ **chapter**; or

(2) a specific record of four (4) years or more of surveying education and experience in surveying work, indicating that the applicant has acquired knowledge and skill approximating that acquired through graduation in an approved surveying curriculum of four (4) years or more, and the successful passing of a land-surveyor-in-training examination as provided in section 14 ~~of this act~~ **of this chapter**.

(e) The board may ~~in its discretion~~ waive the examination in granting a certificate of registration as a professional engineer or land surveyor to any applicant who has held a like certificate of registration under the laws of the state of Indiana.

(f) No person shall be eligible for registration as a professional engineer or land surveyor or certification as an engineer-in-training or land-surveyor-in-training, who is ~~not of good character and reputation~~ **has been convicted of an act which would constitute grounds for disciplinary sanction under section 22.1 of this chapter**.

(g) In considering the qualifications of applicants, as responsible charge of engineering teaching shall be construed as responsible charge of engineering work, and responsible charge of surveying teaching shall be construed as responsible charge of surveying work. An applicant who holds a degree of master of science of engineering, or the equivalent thereof from a curriculum in engineering approved by the board, may be given a maximum credit of one (1) year of experience in

(C) physical or mental disability; or

(D) addiction or severe dependency upon alcohol or other drugs which endangers the public by impairing a practitioner's ability to practice safely;

(5) a practitioner has engaged in a course of lewd or immoral conduct in connection with the delivery of services to clients;

(6) a practitioner has aided and abetted, in the practice of engineering or land surveying, any person who is not duly authorized to practice engineering or land surveying under this chapter; or

(7) a practitioner has permitted his seal to be affixed to any plans, specifications or drawings which were not prepared by him, or under his personal supervision by his regularly employed subordinates.

(c) The board may order a practitioner to submit to a reasonable physical or mental examination if his physical or mental capacity to practice safely is at issue in a disciplinary proceeding.

(d) Failure to comply with a board order to submit to a physical or mental examination shall render a practitioner liable to the summary revocation procedures under subsection (f).

(e) The board may impose any of the following sanctions, singly or in combination, when it finds that a practitioner is guilty of any offense under subsection (b):

(1) permanently revoke a practitioner's registration;

(2) suspend a practitioner's registration;

(3) censure a practitioner;

(4) issue a letter of reprimand; or

(5) place a practitioner on probation status and require the practitioner to:

(A) report regularly to the board upon the matters which are the basis of probation;

(B) limit practice to those areas prescribed by the board; or

(C) continue or renew professional education under a practitioner approved by the board until satisfactory degree of skill has been attained in those areas which are the basis of the probation.

The board may withdraw the probation if it finds that the deficiency which required disciplinary action has been remedied.

(f) The board may summarily suspend a practitioner's registration for a period of ninety (90) days in advance of a final adjudication or during the appeals process if the board finds

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that a practitioner represents a clear and immediate danger to the public if he is allowed to continue to practice. The summary suspension may be renewed upon a hearing before the board, and each renewal may be for a period of ninety (90) days or less.

(g) The board may reinstate registration which has been suspended under this chapter if, after a hearing, the board is satisfied that the applicant is able to practice engineering or land surveying with reasonable skill and safety to clients. As a condition of reinstatement, the board may impose disciplinary or corrective measures authorized under this chapter.

(h) The board shall seek to achieve consistency in the application of the sanctions authorized in this section, and significant departures from prior decisions involving similar conduct shall be explained in the board's findings or orders.

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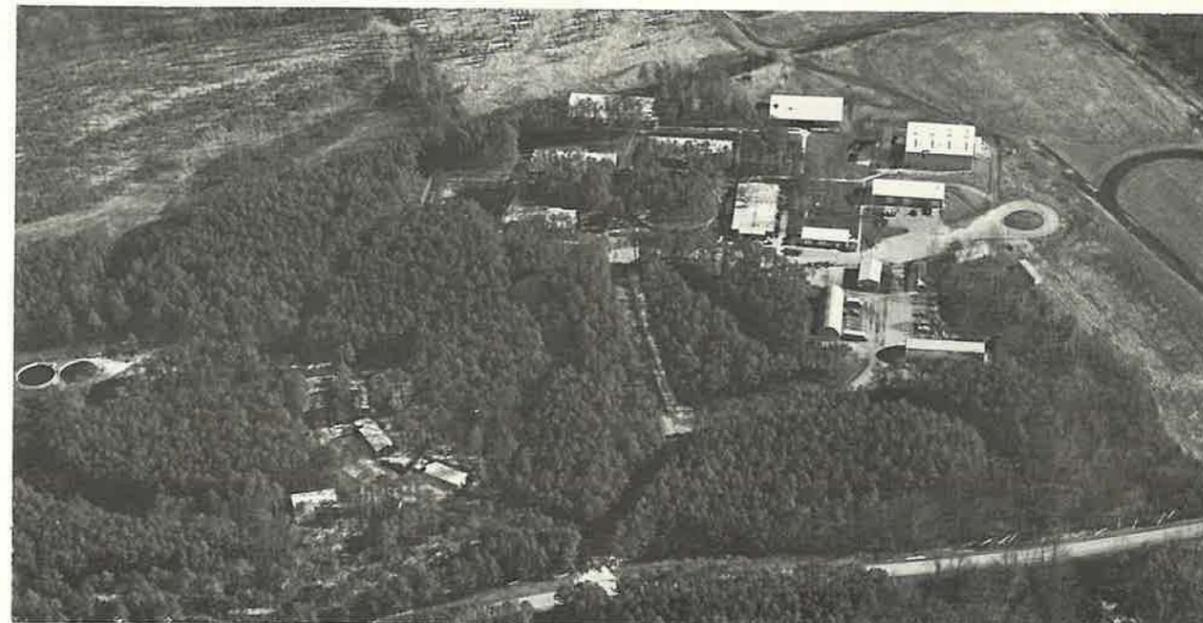


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- To speak on the national level as the collective voice of the professions embodied within ACSM.
- To contribute to public education in the use of surveys and maps, and to encourage the further development of surveying, mapping, and charting programs.
- To encourage improvement of college curricula for the teaching of all branches of surveying and cartography both in the technological sciences and the professional philosophies.
- To honor the leaders in the sciences of surveying and mapping.
- To support a program of publications that will represent the professional and technical interests of surveying and mapping.

1981 PURDUE SUMMER SURVEYING FIELD PROJECT IN PERRY COUNTY, INDIANA



For five consecutive years, the four-week summer surveying field project course, required of land surveying students between their junior and senior years, has been conducted at the Purdue University Forestry Center near Branchville, Indiana, in Perry County. The School of Forestry also conducts a summer practicum for five weeks which overlaps the surveying camp period. The site, a former government Jobs Corps Center is leased by Purdue as a forestry center and there is a forestry staff member who lives on the site and directs its activities. The Center is in the Hoosier National Forest.



Seventeen senior land surveying students attended the course last summer. The staff was composed of teachers Curtis, McEntyre, Dean, Durham, and Rouch. Pictured in foreground are, left to right, William Sorfleet, Chicago IL and Prof. Ken Curtis; First row, Jud Rouch, Plymouth; Prof. John McEntyre; Kevin Barkdull, Fairmount; John Kurtz, Columbus; Scott Douglass, Kewanna; Henry Platts, LaGrange; Tim O'Neal, Anderson; Carl Stoakes, Michigan City; Second row, Rodger Durham, NC; Prof. Darrell Dean, WV; Wilbur Peak, New Albany; Bob Griffin, Mooresville; Paul Colchin, Decatur; Martin Burke, Olympia Fields, IL; Third row, Paul Maurer, Lacona, NY; Larry Gillen, Valeene; Jeff Fansler, Lizton; William Oren, Kokomo; Kenneth Buzbee, Mentor, OH; Brian Wood, Zionsville. These students will generally graduate in December 1981 or May 1982.

PHOTO HIGHLIGHTS OF PURDUE SUMMER SURVEYING CAMP



The surveying practicum began with a visit with the "assumed client," the U.S. Forest Service, with district headquarters in Bedford, IN. Ken Anderson, U.S.F.S., surveyor, briefs students and staff on activities and needs in the Hoosier National Forest.



Perry County auditor and recorder offices in Cannelton were visited to obtain records needed to study area prior to field reconnaissance and measurements. The Ranger headquarters in Tell City also has a great deal of valuable information.



Prof. Harold Michael, head of civil engineering at Purdue, paid a visit and lectured on the importance of safety for survey crews working along highways.



The facilities at the Center are more than adequate in conducting the comprehensive and integrated surveying project of considerable practical value. Students have eight required surveying courses before attending camp.



Deep in the woods, a student uses a Wild T-1 theodolite and DI-3S distomat in measuring a traverse to bring state plane coordinates to new stations from existing horizontal control in the area.



Corner searching and perpetuation are important phases of the project. When marking land-line locations, U.S. Forest Service standards are utilized. Berntsen Cast Products of Madison, WI provided some permanent aluminum monuments.



Occupying a part of the section surveyed this summer was Tipsaw Lake, a USFS man-made lake. Extensive horizontal and vertical control was accomplished around the lake. Some plane table mapping was done at the bathing beach site.



A hydrographic survey was completed of a part of Tipsaw Lake with the aid of a USFS 16-ft. boat and a Purdue Geosciences Department fathometer. The Schneider Engineering Co. of Indianapolis also loaned a second fathometer and boat. Thanks to Luther Condre and the Schneiders.



Several primary and secondary control traverses were run throughout the area. Solar observations for azimuth checks were made to verify results.



Computation is normally accomplished with Purdue's Wang 720 computer and Hewlett-Packard HP 9815. Along with these, this year, Keuffel and Esser provided, on loan, an 803 desk-top computer system.



Students also had the good fortune to use the Wild gyrotheodolite (shown above) and the K & E Vectron electronic theodolite and data collector, due to generosity of Wild (Mike Kaminski) and K & E (Dennis Middleton).



On one week-end, the forestry and land surveying students joined in a pig roast. Besides sharing the facilities, the students enjoy rivalries in basketball, volleyball, and softball.

Report on Indiana Historical Landmarks, Inc. by Roger Woodfill

Indiana Historical Landmarks (I.H.L.) was formed in 1965 by the following three non-profit organizations:

- 1.) Orange County Pivot Club
- 2.) Indiana County Surveyors Association
- 3.) Indiana Society of Professional Land Surveyors

The purpose of the organization is expressed in the Preamble — "In order to educate the public on survey points and historical lore of Indiana; to create a park at the point of intersection of the 2nd principal meridian and the base line in the State of Indiana, which initial point is the point of beginning of most land descriptions in Indiana; and to perpetuate other historical landmarks in the State of Indiana, Indiana Historical Landmarks Inc. is hereby organized under the following Constitution."

By May 1971 I.H.L. had purchased approximately twenty acres six miles south of Paoli on Indiana State Road #37 lying adjacent to and northeasterly of the initial point of the Second Principal Meridian. This area was dedicated to public use May 23, 1971 during a ceremony featuring Congressman Roger Zion. At that time a gravel roadway and parking lot had been constructed on the property with help from the Branchville Civilian Conservation Center and Operation Mainstream crews. The Indiana Green Thumb organization from Orange County had constructed a small picnic area and a connecting trail to the Initial Point.

July 22, 1968 a co-operative agreement was entered into with the U.S. Forest Service to assist in the continuation of the improvements — construct a miniature state of Indiana around the initial point and to provide proper maintenance and supervision of the memorial project. Shortly thereafter title to the site was conveyed to the U.S. Forest Service.

Indiana Historical Landmarks, Inc. remained active, and by October 14, 1973 they were able to erect a memorial marker near the picnic area. This is a quite large sandstone marker with bronze plaque stating a brief history of I.H.L. and a brief history of the Initial Point. On the face of the monument was another bronze plaque honoring Indian tribes, early public land surveyors, contributors to the monument, and other historic, prominent surveyors. Congressman Earl Wilson was the speaker.

In 1977 the commemorative plaque was vandalized, and in 1978 a second sandstone memorial monument was constructed approximately six miles north in the southwest quadrant of the Orange County Courthouse yard in Paoli. Individual members of I.S.P.L.S. contributed \$1100.00 to this monument. Local interest, Charles Condra and Paul Farlow, contributed the remaining \$2000.00.

The "Orange County Pivot Club" no longer exists and in April 1981, the constitution of Indiana Historical Landmarks, Inc. was revised. There are currently three types of membership. Sustaining members are I.S.P.L.S. and the Indiana County Surveyors Association with annual dues of \$100, payable January 1 of each year. There are provisions for individual \$10 and \$5 annual memberships, but none exist.

The two sustaining members each have five directors on the I.H.L. board. Currently I.S.P.L.S. is represented by the following:

1. Nelson Prall, Bedford, President
2. Walter Strahl, New Albany
3. Phillip Thornburg, Richmond
4. Garner Willey, Charlestown, Secretary
5. Roger Woodfull, Lawrenceburg (resigned)

and the County Surveyors Association of Indiana are represented as follows:

1. Bruce Atkinson, Paoli, Vice-President
2. Rollyn Blankenbeker, Jeffersonville
3. Gene Darnall, Columbus, Treasurer
4. Gary McAllister, Rising Sun
5. Lawrence Trueblood, Salem, (deceased)

The above reflects the recent November election of I.H.L. Each November the board elects officers, and each February the board holds a meeting to fill out various reports.

During the past year a modification to the co-operative agreement with the Forest Service was made. Because of minimal use of the picnic facilities at the site the Forest Service could no longer justify maintenance of the picnic facilities. The three picnic tables and the vault toilet were removed. The site is now operated as a historic site rather than a picnic ground.

Secondly, at the November 1981 meeting of the I.H.L. board, the decision was made to construct guard rail in the shape of an equilateral triangle around the initial point. Permission and cost are currently being sought.

According to Nelson Prall, IHL president, the constitution calls for three classes of membership, as follows:

- A. Sustaining or contributing members — \$100 per year
- B. Associations or organizations — \$10 or more per year
- C. Individual — \$5 or more per year

Associations, organizations, and individuals are encouraged to become members by applying to:
Indiana Historical Landmarks, Inc.
410 Citizens National Bank Building
Bedford, Indiana 47421

NEWS NOTES . . .

. . . The ISPLS Board of Directors have voted in favor of accepting a proposal from Charles Danner of East Central Chapter of the Illinois Registered Land Surveyors Association to jointly sponsor the 1983 Illinois/Indiana Conference in Urbana, Illinois, in February 1983.

. . . Any registered Indiana land surveyor who is personally interested in being named to the State Registration Board is asked to contact the executive secretary at ISPLS headquarters.

Surveying Offers Great Outdoors to Students

To many students, summer school seems fraught with dreary hours in the classroom while lovely summer weather beckons from the great outdoors.

For between 20 to 25 Purdue surveying students, summertime stands for something quite different. For them, it means an opportunity to study outdoors for four weeks, both in woodlands and beside cool lakes.

While the students' summer environment is vacation-like, their hours are spent in a concentrated effort to gain field experience in land surveying.

Basically, land surveying is that science which enables surveyors to determine the form and position of a tract of land or subdivision by taking linear and angular measurements of the property.

Land surveying is a time-honored profession (George Washington was a surveyor), but as our society became increasingly complex, it continued to grow. Surveyors are much in demand—particularly graduates of Purdue. The program, administered by the School of Civil Engineering, was the first of its kind in the nation to offer a degree in land surveying.

While there is a broad range of opportunities for surveyors in both industry and government, many are self-employed.

Land surveyors are needed to plan and design street and property boundaries for the nation's burgeoning urban subdivisions and shopping centers.

The land surveyor works closely with attorneys (in describing specific land parcels), architects and landscape specialists, as well as with constructors of housing developments and individual homes.

Since the surveyor has a variety of affiliations with engineers, he or she must have a broad background in math and science, as well as civil engineering principles and photogrammetry (the science of making reliable measurements by the use of aerial photographs).

During the regular academic year, students in the program specialize in the classroom aspects of land survey systems, property surveys and descriptions, subdivision planning and design, and the legal aspects of surveying.

They put it all together during the sum-

At right, students in surveying work with broad range of instruments, including (top to bottom): sighting target; angle measuring instrument; reflectors for electronic distance measuring device; and gyrotheodolite.



mer of their junior year in the field project, a required course. At this time they gain experience in the following types of surveys: engineering, land, control, electronic and design-data.

The project camp is located on a 36-acre U. S. Forest Service tract in Southern Indiana. There, the students work in the field and also attend classes six days a week from early morning into the evening during the week. The camp buildings, in which the students reside, feature three dormitories, an education building, an administration building, a mess hall, and a gymnasium. There are also basketball courts, a softball diamond and a track on the property, all of which get a good deal of usage during the students' free time—mostly on Saturday afternoon and Sunday. Attendees also take advantage of the lake and stream areas for fishing, swimming and canoeing.

"The area around camp abounds in interesting plant and animal life; so students are encouraged to bring field guides and cameras," John McEntyre one of the camp's directors, says.

During the work sessions, students are provided with the latest in survey equipment, including electronic distance measuring devices, optical reading theodolites, (a surveyor's instrument for measuring horizontal and vertical angles), walkie talkies, rota-beam lasers and electronic calculators. Traditional equipment, including tapes and transits (a sort of telescope masted on a tripod) are also used.

Will Oren, a student who attended camp last summer, not only found the project a worthwhile educational experience, but was intrigued by what he called its "mystery element."

The mystery, he explained, called for searching for old surveyor's landmarks that time and land changes had obliterated. Some of the stones and posts had been marked by early 19th century surveyors.

"You'd probe around until you hit something. When you dug up the object it could be a surveyor's point, or maybe you just had a buried rock," he recalled. The uncertainty, he said had something of the quality of being on a treasure hunt.

Will, a 22-year-old rising senior, said that he had originally become interested in land surveying because of its emphasis on outdoor work. "I knew that I didn't want to spend my career sitting in a factory," he said firmly.

Also, he concluded, land surveying and a number of fields affiliated with it "pay well—if you are good at any one of them."

Editor's note: The following short article was a part of POCKETOPICS NO. 12, October 1981, a leaflet sent high

school career counselors by Purdue's Schools of Engineering.

Indiana settles boundary dispute

INDIANAPOLIS (AP) — Almost two centuries of feuding between Indiana and Kentucky over who owns what part of the Ohio River has come to an end with an amicable settlement of the boundary dispute, Indiana Attorney General Linley Pearson said Tuesday.

By all accounts, Indiana is the winner in the battle. The Hoosier state's territory will extend a minimum of 100 feet from the present shore. At some points, more than half of the river will be in Indiana.

The state treasury will reap millions of dollars in taxes from riverfront operations now being paid Kentucky. And Indiana sportsmen will be able to boat and fish on the north side of the Ohio with only an Indiana license.

William Daily, Pearson's chief counsel who handled the case, said he hoped the deal would usher in a new era of co-operation between the two states.

"Instead of throwing rocks at each other across the river, we can join together to develop the river," he said.

Last year, the U.S. Supreme Court ruled the boundary between the two states was the low-water mark on the north side of the river as it existed in 1792. But the high court didn't determine the location of that line, which has shifted because installation of dams on the river raised the water level.

In the year since then, Indiana and Kentucky have been amassing evidence over what the line should be. Pearson said Kentucky agreed to a line set out by

the U.S. Geological Survey, which is based on the 1911 survey by the U.S. Army Corps of Engineers. Indiana had planned to use the Corps of Engineers evidence in its case.

"We feel this agreement ends 200 years of fighting over the common border between Kentucky and Indiana," he said.

The settlement also settled a dispute the state of Ohio has had with Kentucky over its boundary.

"There is not now, nor will there ever be in the future, an Evansville, Ky.," Pearson told reporters at a Statehouse news conference.

In addition to preserving portions of Evansville and Clarksville, which Kentucky had claimed as being in its territory, Pearson said the agreement means that port development at Jeffersonville and Mount Vernon is clearly within Indiana's borders.

The Marble Hill nuclear project near Madison came out well in the boundary settlement, he said.

"There is no problem as far as Marble Hill is concerned because in that area we got 100 feet," he said. "We really gained at Marble Hill."



Ray D. Pharis

Pharis, at home; one grand-child; three half-brothers, Bobby Pharis, Watertown, Tenn., Kenneth Joe Pharis, Nashville, Tenn., and Jimmy Pharis, Indianapolis, and Mrs. Patricia Pharis, Lafayette, Tenn.

Services will be at 1 p.m. Friday at Stemm-Lawson-Peterson Funeral Home, where friends may call from 3 to 5 and 7 to 9 p.m. Thursday. The Rev. James Dance, pastor of Church of the Good Shepherd United Methodist, will officiate. Burial will be in Rice Cemetery.

Memorials may be directed to the American Cancer Society.

Goshen News, Sept. 9, 1981

Former County Surveyor Ray D. Pharis, 57, Dies

Ray D. Pharis, 57, 26184 Hilly Lane, Elkhart, former Elkhart County surveyor, died at 7:55 p.m. Tuesday in Elkhart General Hospital. He had been in failing health the past several months and death was caused by cancer.

Mr. Pharis was president of Brads-Ko Engineering and Surveying Inc., past president and member of the Noon Optimist Club, past president and member of the Indiana Society of Professional Engineers, and a member of the Indiana Society of Professional Surveyors, the American Society of Congress and Mapping and the Elkhart Moose Lodge.

From 1976 to 1980, while he held the county surveyor's post, he also served on the drainage board and plan commission. A Navy veteran of World War II, he was active in Cub Scouting while overseas. He also was a Boy Scout leader in South Bend, where he was past president of the Little League.

He was born Sept. 19, 1923, in Macon County, Tenn. On June 3, 1943, in Nashville, Tenn., he married Dorothy Cartwright, who survives.

Additional survivors include three sons, Barry Pharis, Portland, Ore., Kenneth Pharis, Sparta, Wis., and Rick Pharis, Elkhart; two daughters, Theresa Pharis, Houston, Texas, and Donna

PU civil engineers help two states settle dispute

By DIANE STEPHEN
Staff Writer

Purdue civil engineering personnel were instrumental in the recent settlement of a 200-year-old Indiana-Kentucky dispute over ground bordering the Ohio River.

The settlement means Indiana gains at least 100 feet from the present shore and more along other parts of the river for boating, fishing and taxing purposes.

Indiana's Attorney General Linley E. Pearson says the agreement should bring in millions of dollars of tax revenue for the Indiana treasury. Now both the Clark Maritime Center near Jeffersonville and the Marble Hill nuclear power plant near Madison can be built completely within the state's borders.

The disputed area is only a few hundred feet, but the potential tax revenue from a port the state wants to build is considerable.

Counsel for Indiana contracted a team of Purdue civil engineering faculty and graduate students to construct a working model to aid collection of evidence for its case, says Aldo Giorgini, civil engineering professor and head of the hydraulics phase of the research. This team was contracted by the state of Indiana as professionals and did not represent the University in its work.

The task of three civil engineering professors and several graduate students was to simulate, on computers, various water level possibilities and estimate the effects of each on the amount of land or water that should belong to Indiana. When this information was presented to the counsel for the state of Kentucky, the state decided to discontinue the case and settle out of court.

The major land in dispute, Six Mile Island, is a small island near which Indiana would like to build a port, he says. Kentucky claims rights to that land and it was up to this team to find the real border.

"The traditional boundary of the Ohio River was accepted when Kentucky joined the union in 1792. This boundary is not based on the water level at that time and no one can determine exactly how much land was, indeed, present at that time," Giorgini says.

When Kentucky joined the union in 1792, there was no precise on-record description of its Ohio River border. Since then, natural and man-made

obstacles have changed the water levels, which can change the availability of the shore and its use, Giorgini says.

He says the earliest recorded water level was 404.7 feet in 1906. Since then, man-made and natural elements have caused a water level rise to 420 feet. At the lower water level, more land was available for use; the rise has meant that some of Indiana's land is now under water and is being claimed by Kentucky as part of the river which would be considered its own.

Giorgini says the solution was based on historical facts and evidence. The computer simulations of the river-land ratios at different water levels were based on estimated water levels described in correspondence in 1792 between then Major General Anthony Wayne and Secretary of War Major General Henry Knox.

In a letter dated Aug. 24, 1792, that described the navigation from Pittsburg, Penn., to Marietta, Ohio, Wayne wrote that the water of the Ohio River was too low for navigation. In correspondence dated one week later, he wrote that by the time they got to Marietta, no water was left at all.

From this description of a nearly dry river, the engineers ran a simulation of what the river would look like if only a trickle of water were flowing. This simulation showed how the river and its underlying land would appear with hardly any water at all.

Graduate students Dean Randall and Chris Burke said the results of their hydraulic study showed that the water level, under virgin conditions, would have been 403.6 — less than the water level claimed by Kentucky. In other words, if no man-made interference had taken place, the water level of the Ohio River may have been even lower.

"There is incredibly strong evidence that the water level would have been less than the recorded level of 404.7," Giorgini says. "There is a good possibility that in 1792, Six Mile Island was a peninsula of Indiana."

Another simulation was run based on the change after the McAlpine dam was built in the 1930s for navigation and flood control, he says. Since then the water level has risen to 420 feet. In effect, land that belonged to Indiana was being covered by water from the Ohio River and Kentucky claimed that river and all land underneath it as its own.

Giorgini says originally the team sought to prove that only a few hundred feet of land belonged to Indiana and ended up with strong evidence that the entire Six Mile Island once was a peninsula of Indiana.

Quoted from the "Purdue Exponent", Monday, November 16, 1981.

NEW LAND SURVEYOR (LS) REGISTRANTS (Since November 1980)

- S0424 Roger A. Fine
3213 Eden Way Circle
Carmel, IN 46032
- S0425 John W. Hawes
1370 Idlewild Road
Burlington, KY 41005
- S0426 William T. Kraus
Rt. #5
Brookville, IN 47012
- S0427 Stephen L. Smith
Smith Quillman Associates
1319 N. Walnut St.
Bloomington, IN 47401
- S0428 John H. Stephens
1312 Willard Drive
Wabash, IN 46992
- S0429 Jack C. Bohannon
1919 Depauw Avenue
New Albany, IN 47150
- S0430 Arthur C. Balph
1145 California Road
Okeana, OH 45053
- S0431 Henry E. Bryan, Jr.
208 Burkett
Benton, IL 62812
- S0432 Richard E. Ward
4608 Summer Drive
Anderson, IN 46011
- S0433 Ellis R. Veatch, II
186 Colonial Avenue
Worthington, OH 43805
- S0434 Larry E. Manship
Amoco Production Co.
P.O. Box 50879
New Orleans, LA 70150
- S0435 Joseph B. Mylor
East River Road
Warsaw, KY 41095
- S0436 Kenneth P. Herceg
1727 Hass Drive
South Bend, IN 46635
- S0437 David A. Bortner
Brady Land Surveying
55308 Jay Dee Street
Elkhart, IN 46514
- S0438 James C. Bennett
ADI
117 W. Tanner Street
Brownstown, IN 47220

NEW LAND SURVEYORS IN TRAINING (S.I.T.)

(Since November 1980)

- S80032 John W. Lyons
- S80033 Thomas G. Bernardin
- S80034 Gregory A. Head
- S80035 Neil A. Darling
- S80036 Jeffrey A. Meyerrose
- S80037 Gerald J. Miller
- S80038 Jeffrey S. Myerson
- S80039 Todd G. Beers
- S80040 Clyde J. Biewenga

ISPLS BOARD OF DIRECTOR'S POSITION PAPER ON EDUCATION AND EXPERIENCE REQUIREMENTS FOR REGISTRATION AND S.I.T. EXAMINATION

The following is the ISPLS Board of Director's position in regard to experience time requirements to be completed before an applicant could be admitted for the examination for Land Surveyor registration and for Surveyor in Training.

- (1) For Land Surveyor Registration — A record of twelve years of practical experience in land surveying of a character and grade acceptable to the Board of Registration (hereafter called the board) of which at least three years are of a nature to indicate that the applicant has been in responsible charge of such work. Up to four years of board approved college level land surveying education, in a ratio not to exceed two years of experience credit for each year of approved education, could be substituted into the experience requirement except that there be a minimum of three years experience in responsible charge of the work. Experience gained prior to attaining the education could be counted. Any applicant failing to gain registration by examination on the third try would not be eligible to re-take the exam until additional preparation of a nature acceptable to the board would be completed.
- (2) For Surveyor in Training — A record of eight years of practical experience in land surveying of a character and grade acceptable to the board. Up to four years of board approved college level land surveying education

in a ratio not to exceed two years of experience credit for each year of approved education, could be substituted into the experience requirement. Any applicant failing to pass the S.I.T. exam on the second try would not be eligible to retake the S.I.T. exam, but would not be precluded from making application to be examined for registration as a Land Surveyor upon completion of the required experience and/or education requirements.

- (3) The minimum position that could be considered to be in responsible charge of the work would be a party chief. It would be expected that a major portion of said time in responsible charge would be in a role requiring deed research and description writing, as well as design computations.
- (4) While it is recognized that the American Congress on Surveying and Mapping and several of our neighboring states are moving toward a Bachelor of Science Degree in Land Surveying as the minimum education level for registration, the apprenticeship option should be left open until Dec. 31, 1994. The registration examination should be comprehensive enough to filter out those that do not possess the equivalent knowledge of a person who has acquired a Bachelor of Science Degree in Land Surveying.



If I'd had **HARRISON's**
200 years ago, my corners
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George Washington, along with the other surveyors of his day, scrounged around and used whatever was available to mark corners—a rock, a glass bottle, a wooden post, a cannon ball.

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Box 588, Anoka, MN 55303, or call
Dave Johnson at (612) 421-1445.

Annual Business Meeting

ISPLS, Inc.
Holiday Inn
Merrillville, Indiana
January 30, 1981

The Annual Business Meeting of the ISPLS, Inc. was called to order at 4:00 P.M. by Charles Budnick, President, 70 members were present.

The Minutes of the 1980 Annual Business Meeting of ISPLS, Inc. were presented by Emil Beeg, Sec.-Treas.

MOTION by William Tanke, 2nd. by John McNamara to accept the 1980 Annual Business Meeting Minutes as presented.

Carried

MOTION by Dave Wolf, 2nd. by Wes Day to reimburse Officers, Board Members, & Committee Members up to a maximum of \$15.00 per meeting for mileage (17¢ per mile) and meals. The reimbursement is to be made on meetings held outside of the individuals local area.

Carried

MOTION by Dave Wolf, 2nd. by John McNamara to establish a half year transition to start on Jan. 1, 1981 and run to June 30, 1981. Dues to be based on half the existing rate.

Carried

MOTION by Dave Wolf, 2nd. by Dave Pilz to extend the term of the present Officers and Board Members to March 31, 1981.

Carried

MOTION by Dave Wolf, 2nd. by E. Donald Bengel to start the term of the New Board on April 1, 1981 and to carry on until June 30, 1982.

Carried

MOTION by Dave Wolf, 2nd. by Daniel Pusey to grant a one year free ISPLS, Inc. Membership to all newly Indiana Registered Land Surveyors upon receipt and acceptance of a Society Membership Application.

Carried

MOTION by Dave Wolf, 2nd. by Robert Bigelow that the Office of the Secretary-Treasurer be abolished and the Offices of Secretary and Treasurer be separately established beginning with the New Board Organizational Meeting and to start as of April 1, 1981.

Carried

A report was given by Roger Woodfill on the current activities of ACSM.

MOTION by E. Donald Bengel, 2nd. by Orwic Johnson to send a support letter from ISPLS, Inc. for Walt Robillard.

Carried

Wes Day gave a report on the "Surveyor Inspection Report" and an outline of the standards to be used with the report.

MOTION by Orwic Johnson, 2nd. by Gene Darnall to accept the action of the Board for ratification of the

"Surveyor Inspection Report" for use by ISPLS, Inc. as of Jan. 26, 1981.

Carried

(Roll call vote of membership as requested)
(66 yes votes 4 no votes)

Jake Hall gave a report on the Sunset Legislation Bill. Information only, no action required at this time.

Old Business: None

New Business:

Jim Dankert reported on the upcoming ACSM National Meeting on Feb. 22 to Feb. 27, in Washington D.C.

MOTION by Jim Dankert, 2nd. by Roger Woodfill to have the ISPLS Board respond to the letter from Jim Dankert, dated July 3, 1980.

Carried

MOTION by Dave Wolf, 2nd. by E. Donald Bengel for the ISPLS Board to Work with the Legislative Committee for the establishment of Solar Easements.

Carried

Charles Budnick requested that the ISPLS Board look into the establishment of a fund of \$5,000 for "Image Building" of the Land Surveyor Profession.

The ISPLS Board and the Society Membership extend their thanks to Wes Day for an outstanding job on the "Surveyor Inspection Report" Project.

Meeting Closed at 5:45 P.M.

Emil P. Beeg, Jr.
Sec.-Treas., ISPLS

SUSTAINING MEMBERS

The following are sustaining members of the Indiana Society of Professional Land Surveyors. The Society appreciates their continued participation and encourages your support of these firms.

AIR: MAPS, INC.
55316 Jay Dee St.
Elkart, IN 46514

HARRISON MARKER &
INSTRUMENT CO.
P.O. Box 588
Anoka, Minnesota 55303

ACCU-AIR
SURVEYS, INC.
P.O. Box 63
1220 "A" Ave. —
Freeman Field
Seymour, IN 47274

HICKERSON
INSTRUMENT CO., INC.
6009 - 11 E. 34th St.
Indianapolis, IN 46226

DICKERSON AERIAL
SURVEYS
107 N. Tenth Street
Lafayette, IN 47901

G. LENGEMANN CO.
2314 N. Fifth St.
Niles, Michigan 49120

ELLERBUSCH INSTRUMENT CO.
4509 Vine St.
Cincinnati, Ohio 45217

EDUCATION COMMITTEE CHAIRMAN ROLFE EXPLAINS PROPOSED LEGISLATION

For several years, the Professional Land Surveyors of Ohio, Inc. (PLSO) has believed that it would be desirable for the public and the profession to have a formal education requirement for persons to be eligible to become registered as a surveyor. Following are the major elements of legislation proposed by PLSO to accomplish this goal.

SEC. 4733.01 DEFINITIONS

(c) "Surveyor" means a person who has been registered as provided in such sections.

(d) "Practice of Surveying" means the application of special knowledge of the principles of mathematics, the related physical and applied sciences and the relevant requirements of law for the adequate evidence of the act of surveying and measuring the area of any portion of the earth's surface, the lengths and directions of the bounding lines, and the contour of the surface, for their correct determination and description and for conveyancing the recording or for the establishment or reestablishment of land and operations involved in the surveying of mines commonly known as "mine surveying."

SEC. 4733.11

(b) As a surveyor, either by:

(1) Graduation from an approved course in surveying of four years or more in a recognized school or college of surveying and a specific record of additional four years or more of practical experience in surveying, of which, at least two years are of a nature to indicate that the applicant has been in responsible charge of such work and passing the written, or written and oral examination.

(2) Graduation from an approved course in engineering or a related science curriculum of four years or more in a recognized school or college offering such degrees and a specific record of an additional six years or more of practical experience in engineering and surveying, of which at least three years are of a nature to indicate that the applicant has been in responsible charge of such work and passing the written, or written and oral examination;

(3) A record of twelve years or more of practical experience of a character and grade acceptable to the board, of which at least six years are of a nature to indicate that the applicant has been in responsible charge of such work and passing the written, or written and oral examination. Up to two years of surveying education can be substituted for a maximum of four years experience.

Applications filed after December 31, 1990, under paragraphs (2) and (3) of this subdivision shall not be considered as meeting the minimum requirements for registration as a Surveyor. The provisions of this paragraph do not effect persons who are already registered, or persons who have their applications on file to become registered by December 31, 1990, as Surveyors.

As used in this section, "and approved course in surveying" is one which has been accredited by a recognized group charged with accrediting professional surveying curricula or one which has been approved by the board. Approved surveying curricula are four year programs having not less than 55 quarter hours, or the equivalent, of required courses

directly in the surveying and mapping arts and sciences with at least 8 quarter hours, or the equivalent, being in property surveying and at least half of these required courses being advanced of professional level courses.

The scope of the surveyor's examination and the methods of procedure shall test the applicant's ability to design and supervise surveying projects which shall include safety of life, health and property and except as otherwise provided in Division (B) (3) of Section 4733.11 of the Revised Code, and shall include subjects related to the following: Mathematics, measurement theory, photogrammetric surveys, geodetic surveys, astronomic surveys, pertinent land laws, and other subject as embodied in approved curriculum of the recognized surveying programs in Ohio.

Over the years, we have seen considerable movement in the minds of men that are important to the success or failure of this proposal. We perceive the recognition of the need of this legislation by some that were initially strongly opposed. There is recognition of the fallacy of single thought logic that has prevailed in the past. For instance, it has been finally recognized that the intellectuals, that have been proposing education for many years, were not trying to create an empire for themselves. They were, in fact, doing exactly what intellectuals are supposed to be doing; namely pushing the profession into progress.

Another popular argument has been one that suggests that there is not a sufficient body of knowledge to create a Bachelor of Science Degree. This, of course, has been disproven by the successful experience of the several universities offering such a degree including the numerous success stories of our own Ohio State University.

A third popular argument is that of the practicing surveyors who are not college graduates but are rightfully proud of offering a professional service. In the past, many of these men believe that the apprenticeship system was satisfactory. The apprenticeship system, at best, can only maintain its current level and will become degenerative at anything other than ideal conditions.

Through the medium of time, many of our practicing surveyors have recognized this proposed legislation as not a personal attack on their ability, but as a necessary step that must be achieved for the state to recognize and utilize the benefits of a continuing viable surveying profession.

We have all long recognized the fact that it isn't practical to spend increasing amounts of money for single purpose surveys. These surveys are highly accurate and precise within themselves but relate to absolutely nothing outside the project area. Our ability, through the advancement of technology, has made these precision surveys rather common but not inexpensive. The general public deserves to derive the potential value that is now discarded and abandoned. An educated professional familiar with multifaceted systems is needed to correct this matter.

Public records are archaic. While it is recognized there are proposed methods to make them computer modern, again it is going to take persons educated in systems to bring these benefits into everyday use.

When we look over our shoulder to observe other countries who are normally following the lead of this country, we find no one there. Most every country that you care to think about has educational requirements for their professionals, who are responsible for their land boundaries and measuring requirements, far in excess of our current requirements.

Education Committee (Continued)

These even include countries that we normally consider backward. Our adjoining neighbor, the state of Michigan, has come to grips with this problem and has past legislation requiring a Bachelor of Science Degree for all persons to be registered in the future. We believe it is time for Ohio to take this necessary action.

Recognition of these few items and others than may have come to your mind is rapidly building the consensus that will demand passage of this legislation.

ECONOMIC RECOVERY TAX ACT of 1981

The following information may be of interest to principals and/or potential purchasers of business related equipment. The Economic Recovery Tax Act of 1981 provides fast write-offs — referred to as the Accelerated Cost Recovery System (ACRS) — for business equipment and depreciable business and investment realty placed in service anytime after 1980. Almost all business equipment, furniture, and machinery can now be written off over a five year period, using either an accelerated or straight-line method, without any reduction for salvage value. Also, the investment credit has been modified to conform to the ACRS system and provides a 6% credit for all three year property and a 10% credit for all five or more year property.(1)

WHAT TO DO: If you are considering the purchase of business equipment, buy it before Jan. 1st, 1982. First of all, you will get the benefit of a full half-year's depreciation write-off even though you have owned the property for less than a half-year. Secondly, and more importantly, you will get the benefit of your ACRS write-off plus the investment credit this year rather than waiting an additional 12 months.(2)

SOURCES:

1. _____, Prentice-Hall's *Handbook on the Economic Recovery Tax Act of 1981* (1981) at 1.
2. *Id.* at 23.

CAVEAT: This information is presented with the understanding that the contributor is not engaged in rendering legal, accounting, and/or any other professional service.

THE SERVICES OF A COMPETENT PROFESSIONAL (TAX ATTORNEY OR TAX ACCOUNTANT) SHOULD BE SOUGHT BY THOSE INDIVIDUALS CONTEMPLATING THE PURCHASE OF ANY BUSINESS EQUIPMENT THOUGHT TO QUALIFY FOR ACCELERATED COST RECOVERY MENTIONED SUPRA.

Contributed by David A. Wahlstrom

FROM THE APPRAISER, NOVEMBER 1981

National land inventory proposed to Congress

If the recently proposed Federal Land Survey Act is approved by Congress, a multipurpose national cadastre (a listing of legal boundaries and ownership) may be developed to inventory and register all property in the United States. Appraisers would probably be involved in studying the feasibility of the national cadastre and would be able to use the data supplied by this type of land inventory, said Bob Myers, land surveyor for the state of Missouri and member of the American Congress on Surveying and Mapping.

"The cadastre would provide a systematic way to identify the land parcel with the physical site," said Myers. He added that the aim of the cadastre would be to create a uniform mapping system across all the states and eliminate the "tremendous amount of duplication" that currently exists in land inventorying and mapping.

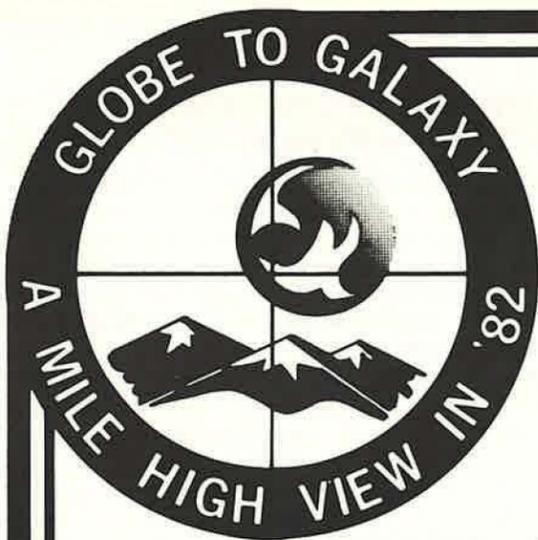
This type of national land inventory would have many practical applications. Among some of the possible uses Myers offered were zoning, taxation, resources planning, crop inventory, land use planning, flood protection, political appropriation, and census data.

According to Kate Boyce, legal counsel for the American Congress on Surveying and Mapping, the bill calls for surveying and resurveying public lands, especially federal timberlands. The bill was instigated by discrepancies between public and private surveys of federal timberland, said Boyce. Another provision of the bill would call for cadastral surveys to determine boundaries adjacent to railroad and utility rights of way.

The Federal Land Survey Act of 1982 (HR 4399 and S706) was introduced to Congress by Rep. Manuel Lujan (R-NM), Rep. John Breux (D-LA) and Sen. Pete Domenici (R-NM). Boyce said that hearings are expected during October, but no action is likely until 1982.

The following is a list of ISPLS member firms:

Allen & Associates Inc. 26 N. Monroe St. Williamsport, IN 47993 (Arthur A. Allen)	District 9 Land Survey Co. 202 West High St. Lawrenceburg, IN 47205 (Roger Woodfill)	John J. Madden & Assoc. Box 42 LaGrange, IN 46761
David L. Pilz Prof. Engr. & Land Svyr. 2004 Berkeley Valparaiso, IN 46383	Land Surveyor, Inc. 8 Washington St. Valparaiso, IN 46383 (Emil Beeg)	John R. Donovan 2030 Inwood Drive Fort Wayne, IN 46805 (John R. Donovan)
Melton, Kimbley, Packard & DeVoss 7202 N. Shadeland #221 Indianapolis, IN 46250	Plumb, Tuckett, Book Hewitson & Bigelow, Inc. 6481 Taft St. Merrillville, IN 46410 (Robert B. Bigelow)	H.R. Blankenbaker & Son P.O. Box 157 Jeffersonville, IN 47130 (Rollyn H. Blankenbaker)
Fink, Roberts & Petrie, Inc. 3307 W. 99th St. Indianapolis, IN 46268	Franklin C. Moses 7W. Clinton St. Frankfort, IN 46041	Paul Primavera & Assoc. 101 S. Capitol Ave. Corydon, IN 47112 (Paul E. Primavera)
Brady Land Surveying, Inc. 55308 Jay Dee St. Elkhart, IN 46514 (Byron M. Brady)	John E. Fisher 1526 Main St. Lafayette, IN 47905 (John E. Fisher)	M.W. Inc., Architects Engineers 700 N. High School Rd. Indianapolis, IN 46224 (Max P. Newkirk)
Schneider Engr. Corp. 3675 N. Post Rd. Indianapolis, IN 46226 (Vincent J. Schneider)	Columbus Surveying & Engr., Co. P.O. Box 1171 Columbus, IN 47201 (Orwic A. Johnson)	E.J. Hutson & Assoc. 601 Chestnut Blvd. Chesterton, IN 46304 (Edward J. Hutson)
O'Brien Engineering 448 Meadow Lane Madison, IN 47250 (Eugene O'Brien)	Alan Stanley & Assoc. 15 1/2 S. Indiana St. Greencastle, IN 46135 (Alan Stanley)	Paul I. Cripe, Inc. 7172 Graham Rd. Indianapolis, IN 46250 (James Dankert)
Keil & Assoc., Inc. 1107 Indiana Ave. LaPorte, IN 46350 (James H. Keil)	Petter-Tanck-Gertsmeier- Reinert, Inc. 158 Napoleon St. Valparaiso, IN 46383 (Ordell L. Gertsmeier)	William S. Tanke 14 Washington St. Valparaiso, IN 46383 (William S. Tanke)
J.W. Whitlock, Inc. 12220 Southeastern Ave. Indianapolis, IN 46259	Dickerson Aerial Surveys 107 N. Tenth St. Lafayette, IN 47901 (Brain M. Dickerson)	Kyle & Sons Surveying 416 South College Angola, IN 46703 (Edward Dennis Kyle)
H. Douglas Peirce, L.S. P.O. Box 127 523 N. Michigan St. Plymouth, IN 46563	David K. Wolf Assoc., Inc. 4423 C.R.5 Garrett, IN 46738	



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AMERICAN CONGRESS ON SURVEYING AND MAPPING
AMERICAN SOCIETY OF PHOTOGRAMMETRY



PROPOSAL FOR THE REGULATION

of

THE PRACTICE OF SURVEYING IN THE STATE OF INDIANA

submitted to
SUNSET EVALUATION COMMITTEE
INDIANA STATE LEGISLATURE

INDIANA SOCIETY OF PROFESSIONAL
LAND SURVEYORS, INC.

NOVEMBER, 1980

Editor's note: This "position paper" prepared by ISPLS and C. A. Budnick, president, represents considerable thought and discussion on the future status of the surveying profession. Even though the Sunset Evaluation Committee did not choose to utilize the proposals and suggestions cited herein, this report could serve as a basis for future legislative efforts.

PROPOSAL FOR THE REGULATION OF THE PRACTICE OF SURVEYING IN THE STATE OF INDIANA

Preamble

The Indiana Society of Professional Land Surveyors Inc. (I.S.P.L.S.) advocates continued state licensing of surveyors in order to protect the health, safety, and welfare of Indiana citizens. We further advocate a separate Licensing Board of Professional Surveyors, which Board shall be composed of three members, each a practicing licensed professional surveyor, and which Board shall be mandated to:

- (1) set licensing fees,
- (2) determine qualifications for licensing,

- (3) adopt and enforce minimum technical standards for various types of surveys,
- (4) adopt and enforce rules of ethical conduct,
- (5) adopt and enforce regulations for relicensing,
- (6) establish procedures for investigating complaints filed by citizens,
- (7) contract with private practitioners to provide technical expertise and assistance in complaint investigations,
- (8) determine penalties as warranted by investigation,
- (9) maintain a separate Investigation and Enforcement Fund.

We further advocate that Board members be appointed for a term of four years and that no member shall be appointed for more than two consecutive, or two non-consecutive terms.

By so assigning these duties and responsibilities to the Board and by vesting in the Board the authority to enforce the provisions of the Licensing Act, the public welfare would be served.

Licensing

In this age of rapidly advancing technology, the public is unable to keep abreast of the practices and changing requirements of the professions upon which it must rely for health, safety, and welfare. Consequently, government must recognize this duty and accept the responsibility by providing a means of protecting the citizenry from harm at the hands of incompetent, negligent, or unethical practitioners. In the case of professional surveyors, licensing is the most

effective method of protection. This conclusion is based on the fact that all 50 states regulate the practice of surveying through licensing laws.

Deficiencies in the Present Registration Act

Presently both the structure of the Board and the composition of the law is not sufficient to assure the public of protection over the next eight-year period. The present board, the *Indiana State Board of Registration for Professional Engineers and Land Surveyors*, finds itself in the untenable position of attempting to regulate two separate and distinct professions. Currently all five Board members must be licensed engineers, while only two members must be licensed surveyors. This provision prevents the person who holds only a surveyor's license from serving on the Board. Paradoxically, an engineer may be licensed as either a mechanical, electrical, aeronautical, chemical, or civil engineer. However, only one of these fields — civil engineering — is even remotely related to the practice of surveying.

In addition to the deficiencies in the present law, current practice is being affected by four factors that are bringing about the most abrupt changes that have ever occurred in the surveying profession.

The first factor, that of space age technology, is inspiring an equipment revolution that is without precedent. This revolution is resulting in the development of electronic distance meters, electronic theodolites, computers, digital plotters, and many other devices that are affecting the way surveys are being conducted. Consequently, procedures and standards must be established that will not only provide public benefits through increased accuracies but will, at the same time, assure the public that competent practices are being followed.

The second factor affecting surveying practice is the urgent need for natural resource management that has been caused by expanding environmental pressures. Before management can begin, however, the resources must be located and measured, and this has necessitated the development of totally new mapping techniques. A prime example of this development has been the recent birth of the science of remote sensing.

The third factor that is changing surveying practice is the need for new sources of energy. This need is resulting in the development of wave power, wind power, and solar collection devices that will require three dimensional easements in order to insure unobstructed rights to these energy sources.

The fourth factor affecting surveying practice is the rapid increase in land values. These values are prompting not only a need for closer surveying tolerances but also better land data systems, subdivision planning, and storm water management.

These combined factors will have a dramatic affect on surveying practice over the next eight years. As a result, it is extremely critical that both license candidates and license holders be evaluated and governed by a board composed of members who are both proficient and knowledgeable in the latest surveying practices and technologies.

Further, it is also critical that these changing practices and technologies be reflected in a new broadened definition of the practice of surveying in order to protect the public from incompetent practitioners who can now legally perform surveying services that are outside the narrow scope of "Land Surveying" as presently defined.

Recommendation for Separate Surveyors Board

Consequently, we recommend the creation of an *Indiana State Licensing Board of Professional Surveyors* separate from and independent of the existing Board, and that the new Board be composed of three members, all of whom are qualified licensed professional surveyors actively engaged in the practice of surveying. We further recommend that these members be appointed to a maximum of two consecutive, or two non-consecutive four year terms and that one member be from education, one member be from government or industry, and one member be from private practice. In addition, we recommend that this Board share a common executive secretary and support staff with the Engineers Board. As a result, no additional clerical or administrative staff is anticipated since the new Board would be dealing with issues presently handled by the existing Board. However, should there be additional

operating costs, we recommend that they be offset by an increase in licensing fees for professional surveyors.

Reasons for Separate Surveyors Board

(1) Indeed, the practice of surveying has become so sophisticated, complex, and specialized that it warrants scrupulous regulation by a State Licensing Board of its own — separate from that board which regulates the practice of engineering, a profession only tangentially related to surveying.

Consider for a moment the catalogue of Professional Requirements and Activities acknowledged by the National Council of Engineering Examiners as the specialized areas of the surveyor. A *partial* list includes mathematics (nine categories), physics (three categories), mechanics (three categories), economics, history of land survey systems and practices, equipment, graphics, cartography, photo interpretation, computer operation and programming, survey measure and computational techniques, state codes of conduct, applicable legal principles, field research techniques, reference material and sources, safety techniques, written and oral communication techniques, and the environmental impact of surveying and construction activities.

Further, in recognition of these and other specific requirements, several universities, including Purdue University, have now created a separate four year Bachelor of Science Degree Program in surveying.

(2) The state of the art of surveying is changing rapidly, only a board composed of active, practicing, licensed, surveyors is qualified to examine new candidates, and to evaluate licensed surveyors for continuing professional development. We see no reason, however, to exclude from the Board, any surveyor who holds a dual license in both surveying and engineering, as long as he is an active, practicing, surveyor.

(3) A recent opinion survey of Engineer-Surveyor joint-Registration Boards completed by Robert I. Reckert, the American Congress on Surveying and Mapping (A.C.S.M.) representative to the National Council of Engineering Examiners (N.C.E.E.) pointed out serious problems in the education and training of surveyors.

(a) More than 46% of the State Board respondents indicated that incompetence and/or professional misconduct were serious problems in the surveying profession.

(b) More than 63% felt that current practicing surveyors had received very inadequate formal education or training. Presently, all joint registration boards in the United States are heavily weighted with engineers. The above percentages indicate that new license candidates are apparently not being properly screened. Stricter licensing laws administered by separate Boards composed of surveyors would be the most effective way of correcting these deficiencies.

(4) Certain specialized fields are unique to the profession of surveying, and therefore, are in no way related to engineering. Among these fields are astronomy, geodesy, property law, remote sensing, and photogrammetry. A licensing board composed of engineers is totally unprepared to evaluate a candidate's proficiency in these areas. Consequently, there is a need for a Board composed of professional surveyors.

Need for Re-Licensing of Professional Surveyors

The State of Indiana must provide protection for the health, safety, and welfare of its citizens. Rapidly changing technology demands that the Licensed Professional Surveyor keep up with the dynamic advances in the profession.

It is evident that no lay citizen can be expected to judge for himself the competence level of an individual who professes to be a professional surveyor: the citizen both needs and deserves the protection which only a legally authorized government agency can provide.

With this advancing technology, the state can no longer avoid its responsibility by rationalizing that the marketplace weeds out incompetents. Indeed, the marketplace may eventually weed out a few incompetents, but not until after a great deal of damage has been done to a great number of citizens. Since most surveyors are hired by

individuals, accounts of unsatisfactory work are not widely disseminated. Therefore, the State must assume the responsibility of protecting the public from harm.

To this end it is necessary that the State, through its Licensing Board, insure that license holders are maintaining competence. Therefore, we recommend that the Board be mandated to adopt and enforce rules for periodic re-licensing.

We further propose that surveyors be re-licensed every six years and that license expirations be staggered over the six year period in order to avoid administrative problems.

The method of evaluation is not the paramount issue. The paramount issue is that the Board be mandated to review the competence of all license holders on a periodic basis in order to ensure the health, safety, and welfare of the citizens of Indiana. The future demands it.

Proof of Continuing Professional Development

Each applicant could be given a designed form to complete in which he would be asked to offer proof of attendance at educational programs and proof of membership in professional organizations. The point is to put the burden of proof of compliance on the applicant, not on the State Board.

The applicant, by choice, could make use of the American Congress of Surveying and Mapping (A.C.S.M.) which is presently planning a central registry to record all Continuing Education Units (C.E.U.'s) awarded by qualified organizations or institutions in a "credit bank" which allows surveyors to record all CEU's on one transcript. This service will be available in the fall of 1980. The burden of proof would again be on the applicant, not on the board.

One approach to maintaining records is to set up a cumulative system in which the applicant sends to the licensing body verification of participation at the conclusion of any qualifying activity. This information could then be checked against records provided by the sponsoring agency. A second approach is to require the applicant to maintain records of personal participation until time for relicensing. This latter approach is less costly and more convenient for the governing board. These records could then be checked at random by using an approach similar to that used by the I.R.S.

Investigation of Complaints

Under present law any citizen who believes he has just cause for complaint against a practicing surveyor may file a written charge with the licensing board. At present, there exist no effective procedures for investigating these complaints. We recommend that the Board be mandated to establish effective procedures for investigation of complaints and that the Board be empowered to determine penalties as warranted.

To evaluate competence, it is necessary to have a set of standards against which practitioners can be evaluated. Advancing technology and increasing land values demand that these standards not only be created but that they be updated on a periodic basis. To this end we recommend that the Board be mandated to adopt and enforce a set of minimum technical standards for various types of surveys.

All charges filed by citizens, unless dismissed as unfounded or trivial, should then be investigated by an objective party technically competent to gather evidence necessary for determining the gravity and validity of the complaint. The responsibility of the investigators should be only to gather evidence and submit a report of the facts and not to determine culpability of the person against whom the complaint was filed. The interpretation of the report would then be the responsibility of the Board.

The number of complaints documented in the past suggests that a full-time, fully-equipped investigative staff would not be necessary. The Board could be authorized to contract with a number of qualified surveyors to conduct these investigations. To insure objectivity and fairness, investigations of complaints in one area of the state would be made by surveyors from another. However, these surveyors should be close enough to the area that they are familiar with local practices. For the protection of those surveyors willing to serve on the investigative staff, a provision in the law should grant immunity from lawsuits in connection with the performance of these duties. To finance these activities, we recommend that a separate

investigation and enforcement fund be established that is free of Biennium Budget constraints. This could be accomplished by authorizing the board to set aside a portion of the license fees rather than sending those monies to the general fund.

Conclusion

We believe that for the protection of the health, safety, and welfare of the citizens of Indiana, it is mandatory that the State Legislature create a separate Licensing Board of Professional Surveyors independent of the present Board which regulates the practice of both surveying and engineering. Technological advances and increasing land values, in both the past and the present decade, suggest that no other means of regulation would be effective. This Board should be mandated to determine fees, minimum technical standards, qualifications for licensing and re-licensing, and standards of ethical conduct. The Board should also be mandated to establish an effective mechanism for investigating complaints, to contract with private practitioners to investigate those complaints, to determine penalties, and to maintain a separate Investigative and Enforcement Fund to defray the costs.

The complexity of the field of surveying demands that all states accept the responsibility of regulating the profession. In a message to the Twelfth International Congress of Surveyors held in London, in 1968, H.R.H. Prince Philip stated the challenge to be faced by surveyors:

To a very large extent it is Surveyors who will decide what the new face of the earth will look like; it is Surveyors who will exert a great influence on the quality of human existence in the future.

Historically, all countries that believe in the free enterprise system and the right to private ownership of real property have regulated the practice of surveying. When the United States changed from an agricultural to an industrialized nation, it soon became evident that the physical location of real property boundaries could not be established or maintained by laymen. However, it wasn't until the very land title system became endangered that the individual states enacted legislation requiring examination and regulation of surveyors.

Now, in our post-industrial society we are faced with the challenge — of rapid technological change. We must, therefore, take the initiative and adopt regulations that will guarantee the public that surveyors are keeping abreast of the changes in the profession. Philip Lapp in *Ring of Iron* makes a compelling argument for the need for continuing education:

Since accountability is the hallmark of any profession, surely there is reason for insisting that its members maintain and enhance their ability to account to society for their actions... In this way, assurance can be given to those served by the profession that it intends to fulfill its obligation to the society.

Only by the creation of a separate board responsible for the licensing, re-licensing, and regulation of the practice of surveying in the State of Indiana can we be assured that we will indeed protect the health, safety, and welfare of Indiana citizens — now and in the future.

APPENDIX "A" PROPOSED DEFINITION OF SURVEYING

The term "Practice of Surveying" as used in this Act shall mean assuming responsible charge for and/or performing services for compensation which involve the application of the Principles of Mathematics, Physical and Applied Sciences, and Law to the act of locating and measuring natural and man-made features in the air, on the surface of the earth, within underground workings, and on the beds of bodies of water including *but not limited to*:

1. The preparation of topographic maps.
2. The preparation of tax and land data maps.
3. The preparation of maps for surface and sub-surface mining works.

4. The preparation of hydrographic maps for lakes, rivers, and streams.
5. The preparation of property plats.
6. The preparation of legal descriptions
7. The establishment, or re-establishment of property boundary lines.
8. The determination of the location of improvements in relation to property boundary lines.
9. The subdivision of real property.
10. The subdivision of sections of the United States Public Land Survey and other survey systems.
11. The monumentation of property boundary lines.
12. The calculation of property boundaries including: areas, volumes, and coordinates.
13. The determination of horizontal and/or vertical direction or position through the use of either State Plane or Geodetic Coordinates.
14. The determination of horizontal and/or vertical direction or position from satellites, heavenly bodies, or inertial survey systems.
15. The performance of surveys for the preparation of Engineering and Architectural plans.
16. The performance of Percolation tests and/or soils borings for the purpose of determining the size and location of absorption fields in accordance with local, state, or federal standards.
17. The preparation of site development plans in accordance with local, state, or federal standards.
18. The performance of construction layout work to control the horizontal and/or vertical placement of a proposed improvement.

However, nothing in this act shall prevent a licensed professional civil engineer from also performing the services listed in items 15 through 18 inclusive.

The term "Practice of Surveying" as used in this act, shall also include (within subdivisions) the preparation of Plans, and Profiles for: streets, storm drainage, and sanitary sewer extensions, where such work involves the use and application of standards prescribed by local, state, or federal authorities. The practice of surveying shall also include the preparation of plans, profiles, and other work, incidental to the construction, reconstruction, or maintenance of legal county drains. However, these provisions shall not be construed to mean that the surveyor is permitted to design sewage disposal stations, lift stations, interceptor sewers, buildings, bridges, dams, highways, or other major engineering works.

The official reference to be used in defining the technical terms used herein shall be the latest edition of "Definitions of Surveying and Associated Terms" published by a joint committee of the American Congress on Surveying and Mapping and the American Society of Civil Engineers.

APPENDIX "B"

LICENSED SURVEYORS

PROFESSIONAL REQUIREMENTS (PR) STATEMENTS

The following are Professional Requirements (PR) Statements which were assembled by the Land Surveying Committee of NCEE in August 1977. This is a list of the knowledge a registered Professional Land Surveyor should have in order to accomplish his Professional Activities.

PR-1

A Surveyor should have knowledge of mathematics including algebra; plane and spherical trigonometry; plane, solid and analytical geometry; statistics (descriptive and inferential), and calculus.

PR-2

A Surveyor should have a knowledge of physics including heat, light,

(optics) and sound; mechanics; electricity and magnetism, electronic; and astronomy.

PR-3

A Surveyor should have a knowledge of engineering science including hydrology, geology, statics, hydraulics, strength of materials, soils, dendrology, construction materials and transportation.

PR-4

A Surveyor should have a knowledge of economics including cost factors, cost-effectiveness and cost of overtime.

PR-5

A Surveyor should have a knowledge of history of local land survey systems and practices.

PR-6

A Surveyor should have the knowledge necessary to operate and maintain equipment cited in professional activity statements.

PR-7

A Surveyor should have a knowledge of graphics, cartography, photo interpretation, drafting techniques, photogrammetry, remote sensing techniques and interpretation.

PR-8

A Surveyor should have a knowledge of computer programming including languages, COBOL, FORTRAN, and BASIC.

PR-9

A Surveyor should have a knowledge of computer operation.

PR-10

A Surveyor should have a knowledge of basic survey measures and computational techniques (e.g.) traverse and triangulation computations, leveling computations, angle and direction computations, state plane coordinate computations, correction and error computations, horizontal and vertical curve computations, earth work and grading computations, slope stakes, construction survey calculations, areas, volumes, mean sea and/or lake level computations.

PR-11

A Surveyor should have a knowledge of the professional standards and ethics of surveyors as contained in state codes of conduct, National Council of Engineering Examiners Code of Conduct, etc.

PR-12

A Surveyor should have a knowledge of legal principles and requirements applicable to surveying and real estate including contract, case law, and land descriptions.

PR-13

A Surveyor should have a knowledge of field research techniques, (e.g.) questioning residents of area, use of physical characteristics of area, and other means of locating markers or monuments.

PR-14

A Surveyor should have the knowledge necessary to recognize and assemble pertinent information and draw conclusions, set priorities and otherwise weigh relevant evidence combining the other knowledges and abilities cited.

PR-15

A Surveyor should have a knowledge of written communication techniques.

PR-16

A Surveyor should have a knowledge of oral communication techniques.

PR-17

A Surveyor should have a knowledge of sources of surveying records, including locations indexes, and local filing systems.

PR-18

A Surveyor should have a knowledge of the functions of related professions (e.g.) civil engineers, environment engineers, lawyers, builders, realtors, foresters, landscape architects, and sanitarians.

PR-19

A Surveyor should have a knowledge of safety techniques related to land surveying (includes OSHA).

PR-20

A Surveyor should have a knowledge of information retrieval techniques applicable to Profession Activity-9.

PR-21

A Surveyor should have a knowledge of the environmental impact of surveying and construction activities.

LICENSED SURVEYORS

PROFESSIONAL ACTIVITIES (PA) STATEMENTS

The following are professional activities statements (PA) which were assembled by the Land Surveying Committee of NCEE in August 1977. This is a list of the activities a registered Professional Land Surveyor uses in the performance of his professional services.

PA-1

A Surveyor measures units of space, water, land and structures thereon to determine (e.g.) boundaries, areas, shapes, volumes, elevations, directions, slopes, distances, angles, heights, locations, alignments, using (e.g.) chains, rules and tapes, electronic distance measuring equipment, stadia, subtense bars, transits, theodolites, compasses, photogrammetric equipment, remote sensing equipment, levels, pins, plumb bobs, barometers, pacing, odometers, sounding leads, fathometers, rods, optical range finders, tachymetric equipment, chronometers, gyroscopic positioning devices, and other automatic and semi-automatic positioning devices, vertical collimators, in accordance with (e.g.) standards of the N.G.S., state and local statutes and regulations, professional standards of the American Congress of Surveying and Mapping, the American Society of Civil Engineers, state and local surveying societies and associations, federal standards, title insurance standards, colloquial professional standards, client requirements and consumer standards, and company standards or policies.

PA-2

A Surveyor analyzes measurement data collected during Professional Activity-1 using (e.g.) calculators, preliminary maps and charts, drafting equipment, computer hardware and software, aerial photographs, United States Geological Survey and other source maps, supplementary field notes and records, automated plotting equipment, in accordance with (e.g.) federal, state and local standards, the common law of surveying, statistical and mathematical adjustment theory (theory of error), judgement of associates, professional literature, personal professional standards, archives, and other field research.

PA-3

A Surveyor converses with (questions, answers) clients to establish descriptions of survey services needed (e.g.) boundary, engineering, topographic, hydrographic, mortgage, highway, railroad, commercial, accident, photogrammetric, planning, drainage, title insurance, condominium, settlement, plat of subdivision, architectural site survey, cemetery plat and survey, retracement, submerged land, mine, quantity, location, astronomic, etc., in accordance with (e.g.) client requirements, applicable professional standards, (such as those described in PA-1 and PA-2) using (e.g.) maps, charts, plats, photographs, land descriptions, abstracts, records, affidavits, and other legal documents.

PA-4

A Surveyor negotiates and/or contracts with clients for delivery of the services described in PA-3, and for compensation, using (e.g.) letters of agreement, standard forms, fee schedules, in accordance with (e.g.) the degree of effort practical, required or ideal budgetary considerations, insurance and safety requirements, legal and accounting advice, and time requirements.

PA-5

A Surveyor searches for public and private land records (e.g.) registries of deeds and probate, department of natural resources, state, county and municipal highway and engineering departments, utility records, planning and zoning records, county survey files, city and town hall, title and abstract company, land courts, those of other surveyors, drainage, cadaster information, federal and state archives, regional planning, state survey depositories, N.G.S. and

United States Geological Survey, land grant, U.S. Department of Agriculture, Corps of Engineers, colonial ordinances, other federal and state regulatory agencies, in order to establish procedures and background information for the activities described in PA-1 and PA-2, in accordance with professional standards and the degree of effort need or required.

PA-6

A Surveyor evaluates the data described in PA-5 in order to develop criteria and procedures for the activities described in PA-1 in accordance with those standards described in PA-5.

PA-7

A Surveyor after performing PA-6, searches those sources described in PA-5 to reconcile any differences between those sources and the data described in PA-1 and PA-2, in accordance with the descriptions, contracts, and other tolerances developed as described in PA-3 and PA-4.

PA-8

A Surveyor composes final survey reports in order to comply with contract and/or other legal requirements. The reports include (e.g.) plats, maps, charts, profiles, plans, descriptions, surveyor reports, narratives of job, affidavits, photographs, quantity determinations, certifications, etc., in accordance with (e.g.) state, federal and local laws and regulations, and other standards as cited in the preceding professional activities statements.

PA-9

A Surveyor verifies and/or confirms and/or establishes locations of (e.g.) monuments and/or corners and/or lines and/or witness points in accordance with the data described in PA statements 1 through 7 in order to comply with contracts as described in PA statement 4 and to protect the public welfare.

PA-10

A Surveyor establishes permanent and/or perpetual files of survey records in order to satisfy governmental requirements and to provide personal and/or public protection against disputes, in accordance with applicable professional standards and codes of ethics (e.g.) state, American Congress of Surveying and Mapping, American Society of Civil Engineers, the Consulting Engineers Council, and the National Society of Professional Engineers.

PA-11

A Surveyor plans and designs (e.g.) (horizontal and vertical) and/or units of land and/or land developments and/or street and utility geometry, easements, cemeteries, survey measurement systems and specifications, in order to provide for efficient and safe land use and occupancy, in accordance with (e.g.) federal, state and local statutes and regulations, professional standards, design principles, environmental and ecological considerations using the tools and equipment described in PA-1, PA-2, PA-3 and PA-5.

PA-12

A Surveyor supervises field parties and/or office personnel in all those activities described in PA-1 through PA-11.

APPENDIX "C"

SUGGESTED REQUIREMENTS

FOR RE-LICENSING OF PROFESSIONAL SURVEYORS

1. RE-LICENSING every six years should be required for all licensed professional surveyors after (date based on requirements in state law).
2. RE-LICENSING to be based on an examination or upon a combination of three measures of continuing professional development.
 - a. Examination

An applicant may elect to take the two-day exam that is required for initial licensing in lieu of the continuing professional development requirements.

b. Continuing Professional Development

1) *Current Practice*. More than fifty percent of the following professional activities or any combination thereof, must be related to surveying.

- a) Current practice of a responsible professional nature.
- b) Teaching at the community college level or higher.
- c) Research and/or development that contributes to the advancement of surveying.

2) **Professional Activities**

- a) Contributing articles to professional journals.
- b) Serving as an officer, member of a major committee or task group in a surveying-related professional society, and service to the profession such as membership on a registration board.
- c) Attendance at local, regional, or national meetings of surveying-related professional societies.
- d) Membership in a professional surveying society.
- e) Special Service: conducting seminars, teaching college or continuing education courses, presentations at professional meetings, writing textbooks, training manuals, etc.

3) **Education**

- a) Successful completion of continuing education activities, regular college courses or correspondence courses (independent study).
- b) Attendance at workshops, seminars, and other continuing education activities sponsored by approved Professional Societies and/or Educational Institutions.

3. POINT REQUIREMENTS FOR RE-LICENSING

a. **Total minimum required for a six year period —**

- 1) *Active Professional* — 24 points (An active professional is a person doing surveying work that requires his certification at least once a year.)
- 2) *Inactive Professional* — 6 points (An inactive professional is a person that is doing no work that requires his certification.)

b. **Minimum required points by category for the six-year period**

	<u>Active</u>	<u>Inactive</u>
1) Current practice	6	
2) Professional Activities	6	
3) Education	6	
4) From any of the above areas	6	6
	24	6

4. PROFESSIONAL DEVELOPMENT

a. **Current Practice**

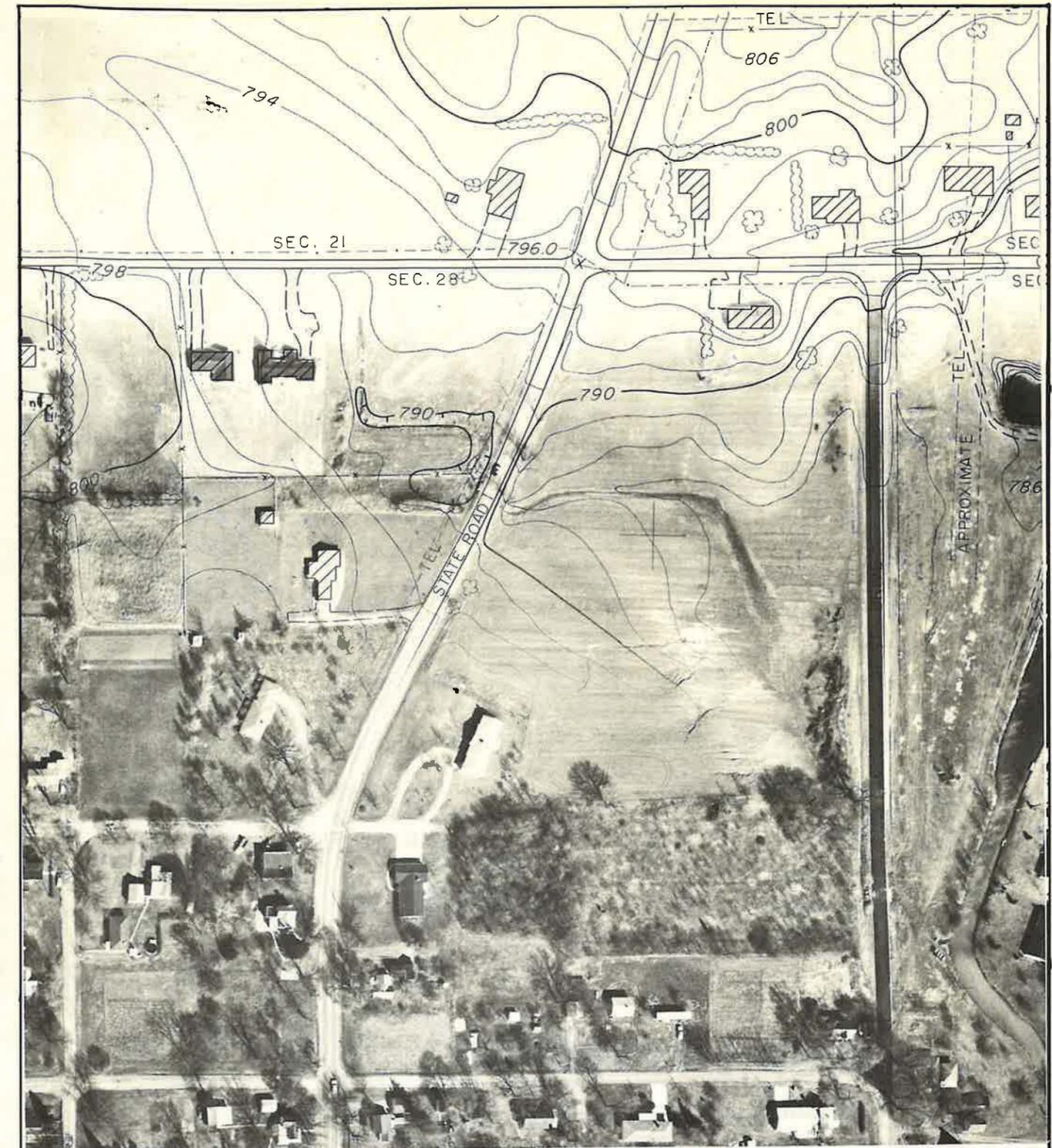
1) **One year of professional activities** 2 points

b. *Professional Activities* (maximum of 2 points per year in each item)

- 1) Publications 1 point
- 2) Officer or committee membership for one year 1 point
- 3) Attendance at professional meetings of at least 10 hours duration 1 point
- 4) Membership in a professional surveying society for one year 1 point
- 5) Special Service 1 point per each activity

c. **Education**

- 1) For each semester hour's credit in an undergraduate course 1 point
- 2) For each semester hour's credit in a graduate course 1-½ points
- 3) For each hr. of continuing education 1/10 point



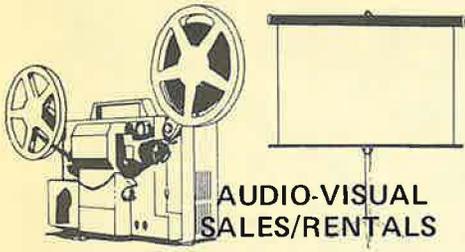
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8714 East 21st. Street
Indianapolis, Indiana 46219

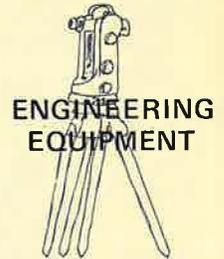
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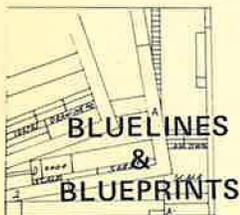
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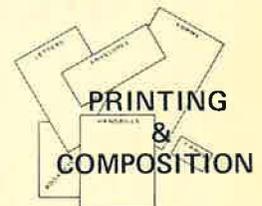
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REPRODUCTIONS



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