

Institutional Affiliate of American Congress on Surveying and Mapping

The California Surveyor

Summer 2000

The Voice of the Land Surveyors of California

NO. 127



CHANGE SERVICE REQUESTED
The California Surveyor
Post Office Box 9098
Santa Rosa, CA 95405-9990

30 40 50

On a pole. On a tripod. In a minipack.



All in a single box. Check out the advantages of Leica's GPS System 500.



Wherever the work takes you, Leica's GPS System 500 is ready to meet your needs. The unparalleled flexibility of System 500 lets you use it on a pole, on a tripod or in a minipack—with the same GPS unit. Its modular design allows for quick changes in configuration to meet your changing work requirements. Smaller. Lighter. Faster. More accurate. It's all backed by the experience, support and expertise of Leica, the most respected name in the business. To see for yourself how System 500 can benefit you in the field, **Call SERVCO today for a demonstration at 1-800-938-0606.**

Leica

MADE TO MEASURE



California

Corporate Offices
2942 Century Place
Costa Mesa, CA 92626
tele. 800-938-0606 • fax: 714-546-9724

Arizona

4317 North 16th Street
Phoenix, AZ 85016
tele. 800-938-0608
fax: 602-274-3740

New Mexico

405 Montano Road N.E. #2
Albuquerque, NM 87107
tele. 800-938-0609
fax: 505-345-3499

Surveyors Service Company: e-mail: geodesy@servco1.com • internet: www.servco1.com

NOTHING BEATS FIELD EXPERIENCE



With nine years of robotic total station experience, no other company can match the field experience of Spectra Precision's Geodimeter® systems. The Geodimeter™ 600 Pro, the fourth generation robotic total station from Spectra Precision, builds on the advantages of unmatched experience acquired since introducing the first fully robotic surveying system in 1990. The result is that more surveying professionals rely on Geodimeter robotic total stations to dramatically increase their productivity than all other robotic systems combined.

And the Geodimeter 600 is competitively priced compared to less-experienced competitive robotic systems. Which would you hire? A surveyor with one or nine years experience. It all adds up to a decisive advantage you can stake your reputation on. To go with the pros call your local dealer for more information.

Fred Murray

Geodimeter Southwest, Inc.
Phone 760-732-5820
Fax 760-941-0837

Les Hardy

Geodimeter Southwest, Inc.
Phone 805-388-0494
Fax 805-388-1920

Frank Frazer

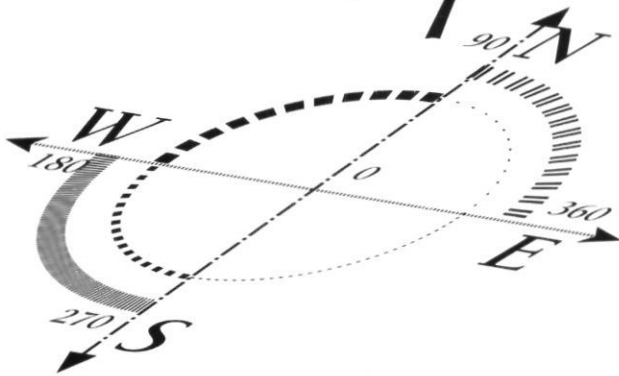
Spectra Precision
Mountain View
Phone 650-254-1400
Fax 650-254-1454



From Concept to Completion

www.spectraprecision.com

Don't Lose Your Way



SURVEY MARKERS

MONUMENTS

REBAR CAPS

PIPE CAPS

BENCH MARKS

& ACCESSORIES



FOR CATALOG CALL
(520) 882-7363 or 1-800-323-4578
OR WRITE:

MARK-IT®

SURVEY MARKERS & MONUMENTS

A Division of Desert Engineering Group, Inc.
3162 E. 46th Street, Tucson, Arizona, 85713

CLSA Officers 2000

Michael S. Butcher, P.L.S. • President
Patrick J. Tami, P.L.S. • President-Elect
Marc R. Van Zuuk, P.L.S. • Secretary
Raymond L. Mathe, P.L.S. • Treasurer
Gerald A. Stayner, P.L.S. • Immed. Past President
Dorothy C. Calegari • Executive Director

Board of Directors

Chapter Representatives

Bakersfield

Donald J. Britton, P.L.S.

Central Coast

James "Randy" Ellison, P.L.S. • Robert J. Reese, P.L.S.
S. Randy Woodjack, P.L.S.

Central Valley

Robert C. Hart, Jr., P.L.S.

Channel Islands

Frank Maxim, P.L.S. • James T. Piliarski, P.L.S.

Desert Chapter

Dean J. Palumbo, P.L.S.

East Bay

Harold B. Davis, P.L.S. • Richard P. Ray, P.L.S.
Alan Duback, P.L.S.

Gold Country

Tony Spillane, P.L.S.

Humboldt

David A. Crivelli, P.L.S.

Lake/Mendocino

Don McMath, P.L.S.

Los Angeles

Craig A. Stanton, P.L.S. • Jon Taylor, P.L.S.

Marin

Linda A. Carruthers, P.L.S.

Monterey Bay

Gordon B. Lewis, P.L.S. • Steven C. Wilson, P.L.S.
Michael K. Welch, P.L.S.

Mother Lode

Russell "Frank" Walter, P.L.S.

Northern Counties

James M. Herrick, P.L.S.

Orange County

Steve Shambeck, P.L.S. • William "Alan" Brooks, P.L.S.
Mike Simon, P.L.S. • David Woolley, P.L.S.

Riverside/San Bernardino

Richard T. Pretzinger, Jr., P.L.S. • Cliff A. Simental, P.L.S.

Sacramento

Michael Kindle, P.L.S. • Carl C. deBaca, P.L.S.

San Diego

James W. Arnold, P.L.S. • Lonie K. Cyr, P.L.S.
Armand A. Marois, P.L.S. • James D. Nowlan, P.L.S.
David P. Viera, P.L.S.

San Joaquin Valley

Fareed Nader, P.L.S.

Santa Clara/San Mateo

Stephen J. Hulick, P.L.S. • Paul W. Lamoreaux Jr., P.L.S.

Sonoma County

Richard Hogan, P.L.S. • Ralph Thomas, P.L.S.

The California Surveyor

is the quarterly publication of the California Land Surveyors Association, Inc. and is published as a service to the land surveying profession of California. It is mailed to all Licensed Land Surveyors in the State of California as well as to all members of California Land Surveyors Association, Inc. The California Surveyor is an open forum for all Surveyors, with an editorial policy predicated on the preamble to the Articles of Incorporation of the California Land Surveyors Association, Inc. and its stated aims and objectives, which read:

"Recognizing that the true merit of a profession is determined by the value of its services to society, the California Land Surveyors Association does hereby dedicate itself to the promotion and protection of the profession of land surveying as a social and economic influence vital to the welfare of society, community, and state."

"The purpose of this organization is to promote the common good and welfare of its members in their activities in the profession of land surveying, to promote and maintain the highest possible standards of professional ethics and practices, to promote professional uniformity, to promote public faith and dependence in the Land Surveyors and their work."

PERSONNEL

OWNER

California Land Surveyors Association, Inc.

CENTRAL OFFICE

P.O. Box 9098, Santa Rosa, CA 95405-9990

E-Mail address: clsa@ca-surveyors.org

CLSA Homepage: <http://www.ca-surveyors.org>

EDITOR

Phillip A. Danskin, P.L.S.

ASSISTANT EDITORS

Dave Ryan, P.L.S. R. Lee McComb, P.L.S.

ADVERTISING

Commercial advertising is accepted by The California Surveyor. Advertising rates and information can be obtained by contacting CLSA Central Office, P.O. Box 9098, Santa Rosa, CA 95405, (707) 578-6016, Fax (707) 578-4406. Circulation: 4,800.

SUSTAINING MEMBERSHIP

Membership in the California Land Surveyors Association, Inc. as a Sustaining Member is open to any individual, company, or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes and objectives of this Association. For information regarding Sustaining Membership, contact CLSA Central Office, P.O. Box 9098, Santa Rosa, CA 95405, (707) 578-6016, Fax (707) 578-4406.

EDITORIAL MATERIAL

All articles reports, letters, and contributions are accepted and will be considered for publication regardless of the author's affiliation with the California Land Surveyors Association, Inc. Contributions submitted on floppy diskette medium are encouraged. For compatibility, disks should be 5.25 or 3.5 inch, MSDOS (IBM compatible) format. We can accept ASCII text files or word processor files from the following programs: WordPerfect or Microsoft Word.

EDITOR'S ADDRESS

Phillip A. Danskin, P.L.S.

Phil Danskin & Associates

P.O. Box 1796, Sonoma, CA 95476-1796

E-Mail address: geometre@vom.com

DEADLINE DATES

Spring January 10, 2000 Summer April 10, 2000
Fall July 10, 2000 Winter October 10, 2000

Articles, reports, letters, etc., received after the above mentioned date will be considered for the next edition.

Opinions expressed by the editor or individual writers are not necessarily endorsed by the California Land Surveyors Association Officers or its Board of Directors. Original articles may be reprinted with due credit given to the source and written notification to the California Land Surveyors Association.

Table of Contents

FEATURES

Our Profession in the New Millennium

A Perspective by: Michael Butcher, George Shambeck, Brett Jefferson and Rita Lumos 10

Recent Supreme Court Ruling Supports Property Owners

by: Brigit S. Barnes, Esq. 16

NFIP Underwriting Bulletin Mandatory Use of the New FEMA

Elevation Certificate 18

DEPARTMENTS

From the Editor 6

Letters to the Editor 8

ACSM Membership Application 19

CLSA Membership Application Form 29

CLSA Publication Order Form 30

Index to Advertisers

Allen Instruments & Supplies 24

Aris Insurance 23

California Surveying & Drafting 11

Cartwright Aerial 22

CD Data 27

Crotalus Enterprises 16

Eastern Special Risk Insurance Agency 26

GeoLine Positioning Systems 21

Geo Plane Services 32

HJW & Associates 17

Lewis & Lewis 18

Mark-It (Desert Engineering) 4

Nikon 26

Rick Engineering 25

Spectra Precision 3

StarPlus Software 7

Surveyors Service Company (SERVCO) 2, 31

Surv-Kap 8

On The Cover

Mark Platt, party chief for Johnson-Frank & Assoc., Inc., of Anaheim, CA, mapping the eastern two-thirds of Maine. As with all aerial projects, the desired targets were at the extreme edge; accessible only by helicopter or boat.

From the Editor

Post Exam Premature Jitters?

By: Phil Danskin, PLS

If the Discussion page of our web site and that of Mark Deal's rpls.com are indicators - this year's PLS-exam may be a repeat of 1998, (although some think it was the '96 exam - whereby 103 examinees had passed). Diatribe after diatribe was posted.

There are a couple of camps on this *freedom of speech* dialogue. A concern of some is "*we must have order!*" One respondent had such blind rage that he or she may have been "temporarily insane." Enraged he made unflattering remarks for all to read. Such a tirade does not aid in elevating our professional image, nor is that the character of a "professional." (Which is a little scary if he or she actually passed this year's examination). Such dialogue gives the appearance of a lack of professionalism. This is what a public visitor may recall of our profession? In my opinion, the webmaster did the right thing - pull the plug.

Another camp is "*let 'er rip... anything goes!*" OK, someone called someone an unflattering name. How would this person deal with an irate neighbor in a boundary line dispute? On the other hand, he or she should be allowed to "vent" their frustration. This person was not the only one to have taken the test multiple times. These examinees have spent how many dollars in exam and seminar

fees and time studying for the exam? Let 'em vent!

It is apparent that this one person not only had a problem with the exam, more important, he or she has Big-Time ethical problems. (A written diatribe using another person's name as its author!) In his/her defense a sincere apology was offered to all those involved.

Did the webmaster have to pull the plug? In my opinion, the discussion site should have remained open and let the "chips fall where they may." Freedom of speech, diatribe or not, is paramount to a free society, professional or otherwise. (But Phil, your thoughts are contradictory... *No, Editorial license. Multiple Personalities Disorder has its benefits - don't leave The Home without it.*)

Solutions, please!

Is there a problem with the exam? I and many others believe so. I will be the first to admit, that many of us would be unable to pass these recent exams, ('course you all know I'm no Lee McComb). It seems the playing field needs to be leveled. Many years ago, past tests were available for study. I don't see how one could "memorize" such a test. You either know it or you don't. Besides, BPELS could change factors within the problem, have a new problem/solution and the content being tested

would remain the same. It seems the "bank" of problems could be at least quadrupled without compromising the examination - just by rephrasing it or changing numeric values.

"Let the government take care of it!" Huh? . .

The state could do a statistical analysis and find that as of 1950 there were 2,658 surveyor licenses issued with a State population of approximately 10,586,000. Since 1950 there have been 4,887 new licenses with our State's population has increased by approximately 320 percent. The TOTAL NUMBER of licenses ISSUED since 1951 has increased by only 83 percent! While the population had more than tripled! The 83% does not factor those no longer practicing, retired or those who have gone to a better place with those asterisks over their eyes!

What is very interesting, is that in 1998, the year that only nine passed,

Year	New PLSs	California Population
1982	177	24,820,000
1983	146	25,360,000
1984	171	25,844,000
1985	45	26,441,000
1986	48	27,102,000
1987	185	27,777,000
1988	223	28,464,000
1989	80	29,218,000
1990	401	29,929,000
1991	127	30,413,000
1992	225	30,892,000
1993	125	31,183,000
1994	132	31,369,000
1995	71	31,558,000
1996	103	31,858,000
1997	127	32,268,000
1998	9	32,667,000
1999	91	33,334,000
2000	??	34,000,000

license numbers 7455 through 7503 were not issued! Why? Did they expect forty-nine more licenses? Since 1951 the CLSA roster indicates sequential licensing numbers have *never* been pulled and sent into oblivion. Is that fish I smell?

A concern of mine is losing what some fought so hard for: Land Surveyors perform boundary surveys. With the present roaring nineties, (like the twenties), it is common for the public to be unable to get the services of a competent surveyor for two months! Upon hearing such a wait, one surveyor told the potential client to . . . "contact BPELS and/or their State Representative." That surveyor may have been looking out for the consumer more than their own pecuniary interests! (Something BPELS should be doing is protecting the consumers, but let's not get into the Record of Survey checking fees . . . We'll not slay a dead horse.)

Which leads me to the another "hot" topic in our Association . . .

Proposed "Bye" Law Changes . . .

At the May Board of Directors meeting a motion was passed (narrowly) to draft language to "allow" Pre-82 civil engineers to become corporate members. When that language comes back for a vote to amend our Associations' Bylaws and passes, I personally think you can bend over and kiss our Association goodbye as we now know it!

In the small Chapter which I belong to, several large engineering/land surveying firms with pre'82 engineers and public entity pre'82 engineers could very easily become the controlling force in our chapter. And if they

wanted to - could take over! I understand the "why" of this amendment, but I wish it were in a class of it's own - "Honorary" Engineer membership with Corporate status. It is true there are *some* civil engineers that are more competent than *some* surveyors, but let's not forget our "roots" - David slays Goliath.

I wonder how many members proposing the bylaw change remember SB #2? (Some were probably not even born yet!) It was a triumphant time for "David." Surveyors were outnumbered at least ten to one in *that* legislative challenge - CLSA legislation! And righteousness prevailed. Now we want *them* to be recognized and on equal footing with us?!

And what about those Pre'82s that did the right thing - became a licensed land surveyor?

Short Story?

"Hi, I'm Ben A. Roundalongtime, MD. I having been a General Practice doctor for over twenty years . . . I can't understand why the American Orthopaedic Medical Association

won't let me become a fully accredited member. I have set a few bones in my time . . . and long before there were total joint replacements!"

Another hypothetical . . . the Roaring Nineties continue into the Roaring 2000 . . . with fewer entering the surveying profession, (with the reasons as vast as one's imagination) . . . poor pass rate for newly licensed surveyors, (with the reasons as vast as one's imagination) . . . surveyors back logged two months . . . consumer is not being served . . . "AH, LET'S TAKE SOME OF THE BURDEN OFF THE SHOULDERS OF THE SURVEYOR! The consumer needs to be served. Let's pass a law to allow engineers to survey!"

How would we fight legislation to allow engineers to fully practice surveying? *We* changed our bylaws to *recognize* some ENGINEERS as equal partners in our Association! I know many of our founding fathers are rolling in their graves or ashes. Those who remember the past must

continued on page 9

New Edition Combines GPS Vectors

Start Using Least Squares!

Minimize Changes to Your Good Survey Observations.
Simplify Adjustments. Get Better Answers!

STAR*NET Adjusts up to 1000 stations plus sideshots with reductions to NAD27/83, preanalysis & instrument library.

STAR*NET-GPS Handles both terrestrial observations and Trimble, Ashtech, Leica & Geodimeter vectors.

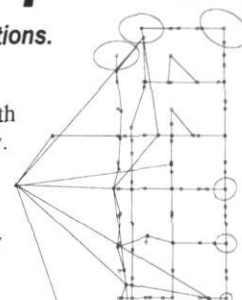
STAR*NET-LIGHT Full 2D/3D plane adjustments, survey networks up to 200 stations plus sideshots, low cost!

STAR*LEV Adjusts interconnected differential level nets.

 Call Today for Literature & Working Demos!

STARPLUS SOFTWARE 1-800-446-7848

460 Blvd. Way, Oakland, CA 94610, 510-653-4836, Fax 510-653-2727



Money
Back
Guarantee

VISA/MC

Letters to the Editor



■ MONUMENTS

Section 66495 of the Subdivision Map Act provides that durable monuments shall be set as part of the survey for any final map or parcel map. L.S. Act Section 8771 tells us that monuments set must be sufficient in number and durability and efficiently (strategically) placed to assure the perpetuation of any point or line of the survey.

It is our opinion that metal monuments such as steel pipes or steel rods with brass tags, stainless steel tags, copper tags or bronze monuments are durable monuments. We have recovered many such monuments, which were still intact and readable after 80 years.

Section 8772 of the Land Surveyors Act says that any monument set by a licensed land surveyor shall be permanently and visibly marked with the certificate number of the land surveyor. The emphasis in each of the above citations is on durability and permanence.

We have received complaints from some surveyors that plastic plugs do not meet the legal requirements. A surveyor working in Calaveras County reports finding plastic plugs which have been reduced to a yellow blob after a small grass fire. A surveyor in Humboldt County found plastic plugs with numbers that were partially or totally obliterated after 22 years even though they were 0.2 to 0.3 of a foot below the surface of a gravel path. Apparently the gravel transmitted the heat to the plastic. Two surveyors from Tuolumne County expressed opinions that 20 years of experience has conclusively proven that plastic plugs are not durable or permanent. Their speculation was that plastic plugs are not a legitimate response to Sections 8771 and 8772 of the Land Surveyor's Act.

It might be advantageous to investigate possible advantages of plastic plugs over brass or bronze. Plastic may be best for a temporary monument which is expected to be destroyed by construction. Plastic may be all right in a location where the monument can be expected to be in a cool, shady area forever. A surveyor who is uncertain about the accuracy of a corner position could use plastic and hope that heat or fire would clean up after him.

While we wait for someone to produce a heat resistant plastic plug, we might consider attaching a brass tag to the plastic with glue. When the plastic deteriorates, the brass tag could still be found nearby.

Submitted by,

R. F. Walter, RCE, PLS

SURV-KAP

THE LANDMARK NAME IN SURVEY PRODUCTS



Same Day Shipping Available!
Factory Direct Prices!
Small & Custom Orders Welcome!
Individual Attention!
Guaranteed Satisfaction!

- Markers
- Caps
- Stakes
- Monuments
- Accessories



- Aluminum
- Brass
- Stainless Steel
- CARSONITE
- PERMAMARK

1-800-445-5320 FAX: 520-792-2030

P.O. Box 27367 / Tucson, AZ 85726 / survkap@azstarnet.com

say to themselves, "what the hell are these kids thinking?!"

Think David, make Goliath an Honorary member with some chains on him?

In Closing . . .

For those unable to attend this year's CLSA/NALS conference, the insightful closing speeches of Rita Lumos, Brett Jefferson, Michael Butcher and George Shambeck are included in this issue of *The California Surveyor*.

It would be apropos to mention Mr. Shambeck's emotional speech that became contagious as his tears caused me some temporary myopia. If I understood George correctly, our profession of the future will not be as colorful as in the past. Also, he had grave concerns over our profession's inability to come to a consensus. We can't seem to agree

on anything. If one-hundred surveyors were assembled and told it were day, forty would say it was night. (I'm a fine example - the proposed bylaw change).

The reason we can't "agree" is that our profession is more closely aligned to art than science. The surveyor becomes more philosophical when, over time, he or she is able to conceive different solutions for the same boundary, given a slightly different set of circumstances. Rather, an engineer deals with the black and white of numbers and formulas. Where an extraordinary attorney is a great orator of philosophies, the extraordinary surveyor is similar - a graphic orator of diagrams and drawings. Our profession is plethora of differing opinions. Unfortunately, George, it is the nature of the beast - Goliath.

So . . . beast or not - send us your comments and opinions.



2001 ACSM-CLSA-NALS-WFPS Conference and Exposition

Conference Information

Riviera Hotel & Casino
Las Vegas, NV

Workshops: 3/17-3/21
Exhibits: 3/18-3/20
Sessions: 3/19-3/21

Sponsored by:

American Congress on Surveying and Mapping
California Land Surveyors Association
Nevada Association of Land Surveyors
Western Federation of Professional Surveyors

✓ WORKSHOPS

addressing surveying, cartography, geodesy, GIS/LIS, GPS and photogrammetry are certified by the ACSM Certification Board. Workshops are pre-approved by all states requiring continuing education.

✓ EDUCATIONAL SESSIONS

covering basic to advanced surveying, mapping, photogrammetry, land information systems, geodesy and remote sensing

✓ INFORMATIVE EXHIBITS

showcasing cutting-edge technology

✓ NETWORKING OPPORTUNITIES

at the Career Fair, Social Events and Exhibition

REGISTRATION/TRAVEL INFORMATION

Complete conference, registration, and housing information will be mailed to all ACSM-CLSA-NALS-WFPS members in November/December. Please call 301-984-9450, ext. 10 for further information.

www.acsm.net • www.ca-surveyors.org
www.nv-landsurveyors.org

Our Profession in the New Millennium

Perspectives by CLSA and NALS Presidents, and the Land Surveyor members of the California and Nevada Boards of Registration

By: Michael Butcher, PLS, CLSA President

In the next 10 years, we will be tested as professional land surveyors, and the outcome will inevitably change the definition of land surveying. All one need do is look at the exhibit hall and see the changing face of land surveying. The recently adopted NCEES model law, coupled with the Board of Registration's Sunset Review, will result in California land surveyors being closely scrutinized on the many facets of land surveying. There will be continual pressure to utilize the NCEES exam in lieu of our current land surveyor's exam unless we can improve the pass rate for our exam candidates. Registration by comity will also fuel this debate.

I pose a question; by merely attaching a geographical component to an informational database, does that make a Geographical Information System, land surveying? If the goal is locating the nearest restaurant or post office from my automobile's on-board GPS system, then the answer is NO. If it affects the response time of police, fire and rescue, then the health and welfare of the public is at stake, and Geographical Information Systems, at a minimum, need to be strictly regulated. When it affects property rights, including the plotting of multiple species conservation areas, flood zone limits, or coastal commission review relative to the land base mapping, then a professional land surveyor must be involved. The key underlying issue is that geographical positions are determined by measurements, no matter what tool is utilized. When these measurements affect property or development rights then they fall under the domain of the professional land surveyor.

Let's fast forward a few years and the California Spatial Reference Center is maintaining the control network and distributing the latest horizontal and vertical control values from the continuous operating reference system. Who

will be utilizing this information? The Coast Guard? The F.A.A.? The scientific community? Land surveyors? What about resource managers relying on an accurate geographical information system? Why would they need up-to-date geographical positions unless their decisions require that level of precision? Who determines geographical positions and their relative precision? I would say the scientific community or professional land surveyors.

"We need to become increasingly pro-active in legislation..."

I sometimes refer to Mount Rushmore as "the three surveyors and the other guy". The monument was constructed in recognition of their leadership. Now, I'm not suggesting we run for political office, but we need to become increasingly pro-active in legislation. We face many tough questions in the immediate future regarding our profession, which demand our leadership. The California Land Surveyors Association must continue to protect the integrity of the land surveying profession by resolving these, as well as many other issues affecting us today.

By: George M. Shambeck, LS Member of the Board

The new millennium will bring great changes to the practice of the profession we know as surveying. Some of those changes are already in evidence as we begin this 21st century. Whether these changes will be

helpful or harmful to us as a profession are yet to be seen.

Science and technology in the form of new computer driven hardware and software have had a major impact on the way we practice surveying. I believe that we 'ain't seen nothin' yet! The biggest impacts are still to come.

I believe that the direction of new hardware and software development and integration, will be to turn what surveyors and engineers do into a commodity instead of a profession. Look around you at this wonderful new equipment the vendors are displaying and realize that all of this equipment will become smaller and smaller, more easy to use, and more available to anyone who has a need or desire to make measurements, determine positions and create maps. Some of the manufacturers of this technology stress its ease of use and accuracy for the lay user, without stressing some of the pitfalls of its use.

All of this is having an impact on the scope of practice of land surveying. Already there are distinctions being drawn between surveying and mapping. The lines between these disciplines and the disciplines of photogrammetry, remote sensing, and GIS activities are blurring. With this blurring, the roles, responsibilities, and ownership throughout projects will increasingly overlap. These overlaps will create more conflicts and competition.

Testing and the requirements for experience and education for licensing, at least in the state of California, will undergo some drastic changes. As these disciplines exercise their desire for a "piece of the pie," one of two things has to happen. Either the disciplines of land surveying as we know it will expand to accommodate other disciplines, or the other disciplines will carve out of land surveying, their own scopes of practice, to the exclusion of what we call land surveying.

continued on page 12

CONVENTIONAL? . . . GPS? . . . and FIELD SUPPLIES?



Trimble
ADDING VALUE TO GPS

Nikon

ZEISS

Geodimeter

Factory Authorized Trimble Repair Now Available

California Surveying has it all!



Wherever your jobs might take you, dense forests, tunnels, parking garages, California Surveying can provide you with the equipment and supplies to complete your work quickly and economically.

Overseeing a project(s) places a lot of demands on your time. The last thing you need is to be running all over town buying your equipment and supplies from multiple vendors. California Surveying provides one source for all your needs, including a full-service rental and repair facility. And, you can be assured that you will always receive the lowest prices because it's **GUARANTEED**.

- Ask about our GPS Rental/Purchase Programs (100% Rental Credit Toward Purchase)
- Surveyors receive a 50% discount on daily total station rentals
- We buy, sell and trade used surveying equipment and supplies

CSDS offers a complete selection of drafting equipment, supplies and media . . . including HP plotters, engineering copiers and blueprinters.

Sacramento (916) 344-0232 or (800) 243-1414
4733 Auburn Blvd. Sacramento, CA 95841

Santa Clara (408) 330-9440 or (800) 988-0838
3036 Scott Blvd. Santa Clara, CA 95054

Another factor potentially affecting licensing as we know it is the movement toward creating national mobility for engineers in particular, and I suspect, surveyors, as a side issue. This will lead to a national license for surveyors, with examinations, education, and experience requirements determined, on a nationwide basis, by someone like NCEES, NSPS or some yet unheard of government agency. Canada is currently working on providing mobility between the various provinces.

These mobility efforts may even lead to an international license allowing you to go survey anywhere in the world, allowing anyone from anywhere in the world to come here to survey.

“If you as land surveyors do not support your Association ... you will not have much in the way of a profession left in twenty years...”

You are going into a competition with people who are well prepared. They can speak and think in English, their own language, and probably more.

They have a better education than the typical surveyor in California has, and they will have a degree in surveying or engineering. They will be able to compete in your world. Will you be able to compete in theirs?

In about twenty years, I believe the land surveyors' role, at least in California, will be to perform boundary analysis, field surveys and provide expert witness work relative to boundary location.

The laws will begin to change so that property corners will be defined by coordinates and, if monumented, the monuments will be located by signals sent out by computer chips imbedded within the monuments. The property owner will have some pocket device that will activate his monuments signals when his property corner is needed.

Construction staking will be performed by unlicensed GPS technicians. Most construction will be performed by computers driving GPS controlled equipment.

Most topographic surveying will be performed utilizing photogrammetry and remote sensing, with some sort of GPS technician providing fill in data on the ground.

All surveying data and all mapping will be integrated into a GIS defined format. All of the design and calculations for the subdivision of land will be performed in and integrated into the same GIS.

The future as I have just outlined it is based on what I see happening around me today. If the land surveyor of today maintains the status quo, of today, the role of the land surveyor will change to his/her detriment, and the aforementioned scenario is likely to come true.

If the land surveyors of today begin to get involved and participate in the formation of the future of the surveying profession, the role of the land surveyor will change to his/her betterment. I believe that the key to this better future is going to depend on well-educated, politically involved surveyors who believe in their profession and want to see it live and grow.

If you as land surveyors do not support your associations with your dollars and do not support your association by becoming politically involved with your local and state politicians, you will not have much in the way of a profession left in twenty years.

By: Brett K. Jefferson, PLS, NALS President

What will the profession look like in the new millennium? Maybe the question that is more appropriate is “How will we take care of the profession in the new millennium?” Could anyone have imagined 1000 years ago where the profession of surveying would be today? Likely not. When I look back at my beginnings in surveying a short quarter century ago, I could not have begun to imagine that the profession would grow into what it has become today. Despite the prosperity we are cur-

rently experiencing as a profession, largely thanks to a good economy, I have sincere concerns regarding our future as we enter this new millennium.

It is my belief that short-term trends usually develop into long-term realities and change is an inevitability we must foresee and prepare for. A mere twenty years ago the primary concern approaching every project was logistics, communication and the physical aspects, or effort, of performing the work. I remember the arduous task of cutting and running line in my younger days, and making sure that there was a vehicle within a half mile or so of where the day would end. I have not had to cut line, nor ask my crews to cut line, in a very long time. Today these issues are usually minor concerns when proposing on most projects.

“Will the profession of surveying be a winner? Or will we be the losers and watch other professions nibble away at what we call surveying, mapping and geomatics?”

They are minor concerns due to the technology now available to us. Not just the advances in measurement technology, but also due to the advancements in communications technology and transportation technology. I would have been very pleased if at the end of the day I could have pulled a cellular out of my pocket and merely made a phone call to be picked up. Technology hasn't just changed how we conduct our surveys and mapping the results; it has also changed how we run our businesses; integrating expenses, revenue and payables, not to mention marketing, e-information and e-business. Technology makes everything in life easier to do, including *surveying*. *But there is a price to pay with technology – there will always be winners and losers. There is no escape from technology or from the affect it will have on our profession and how we do things. The question that we must consider and ask ourselves is relatively simple. Will the profession of surveying be a winner? Or will we be the losers and watch other*

professions nibble away at what we call surveying, mapping and geomatics? At that point what we call it really won't matter.

I think that it is a safe bet that advancements in technology are not going to slow down. Look at technology on the stock market. Huge advances, yet very volatile, not a place for the weak hearted to tread. But, experts say that it is not going to slow down. If technology is not going to slow down on the market, it is probably not going to slow down in our profession either. In the future technology will continue to change the look and dynamics of our profession, just as it did in the last 1000 years, or even the last 100 years, say nothing about the last ten. And it will cause changes in ways that will be difficult for us to predict. In all likelihood it won't take that long.

We are faced with a great number of challenges today. Satellite meter level mapping, real time GIS, airborne GPS and perhaps the biggest challenge stakeless GPS construction. I do not know about the rest of you, but the corner stone of the business at our firm is construction staking. Sure we do mapping, design surveys and land divisions. But the bulk of our work is construction staking. Soon, contractors will have their own on-board GPS systems. Engineering plans will be loaded into construction equipment from a CD-ROM and excavation surfaces will be claimed to be located within a centimeter. I for one am not going to be happy just locating a site specific base station for the contractor. Will the public need construction surveyors in the future?

Most surveyors have heard about the concern that every person, in every public works maintenance department across the country is a potential GIS technician. Just strap a GPS pack on their backs and away they go. But they are not doing “surveying,” they are performing “field data acquisition” for GIS. Where the line is crossed can be very difficult to identify. But, in a GIS property corners are not collected to do boundary resolution, just to assist with georeferencing cadastral parcel layers. What does the future hold with respect to the interpretation and application of these data? It will not be long until every pin on every parcel in every GIS has a unique geo-

continued on page 14

detic address. At that point, the question is obvious. Will the public need boundary surveyors anymore?"

The story is similar for surveying applications for topographic and photogrammetric mapping. We can place a GPS receiver in a plane. Some practitioners argue that there is no need for a GPS receiver on the ground, or that there is no need for any ground control. With new technology we are able to do mathematical corrections for the lack of these traditional components. Will the public need topographic surveyors in the future? Will there be a need for control surveyors?

Software can now be purchased, or obtained free on the internet, to compute just about anything you want. Conversions to and from latitude, longitude, ellipsoid height, orthometric heights, state plane northings, eastings, ground northings, eastings, scale factors, elevation factors and combined factors. There is no need for knowledge in geodesy. Forget about whether or not the person pushing the buttons knows if there is any integrity in the results or not. Positional certainty becomes a moot point with thirty-two numbers after the decimal point. Will the public need geodetic surveyors in the future?

"What we think surveying is, is not nearly as important as what the public thinks surveying is..."

We still have a hard time getting young people to select our profession as a career. After being in the business for nearly twenty-five years, I do not think that we have improved the public perception of what a surveyor is, or does, much beyond what George Washington or Thomas Jefferson did. Will the profession of surveying gain an identity with the public in the future?

The federal government has not extended a lot of help to our profession either. Particularly with NAFTA. I know that there are positive aspects to NAFTA. But there are also concerns. We are now in competition for projects with companies across our north and south borders. Companies with significantly weaker economies than our own,

both with respect to labor and overhead. How will we compete in the future? Will we be forced to open offices outside of our borders to send work out of the country to be performed by lower cost labor in order to stay competitive? Who will that approach help the future of our profession in the United States?

All of these challenges, and perhaps more, face the profession of surveying. Some of these challenges we have faced over and over again. Others are new challenges that we must consider and address. What happens in the future, both short term and long term, is going to be dependent upon the direction that we take our profession right now.

Are we going to take a microscopic point of view, that we are only concerned with setting that pin at the correct location to represent a deed corner? Please don't misunderstand me, I think that this is important. Or are we going to broaden our perspective and our definition of what surveying is. Broaden it to embrace other applications relative to surveying that should be performed under the supervision of a professional surveyor. What many call the field of "geomatics."

One thing that I have learned through my work over the years with CLSA, NALS, WFPS, NSPS and ACSM is that there is strength in numbers. I used to think that the surveyors in the east had no idea what problems faced surveyors in the west. I have found that this is not true. Surveyors across the country are faced with nearly all the same problems and challenges. We have far more in common than we think. It is my firm belief that in order for the profession of surveying to survive into the next millennium, we must come together as a group with a national identity and broaden our idea of what surveying is and integrate that concept into society. What we think surveying is, is not nearly as important as what the public thinks surveying is.

We must turn these challenges into opportunities in order to take our profession to the next level. It is time that all surveyors started considering what is going on outside of their local community, and look at the state, regional and national levels. There is significant untapped strength in our profession nationally. If directed properly, will guide and protect the long-term interests of our profession. What those interests are is up to us to decide. But one thing that you can count on for sure, no one else is going to stand up

for our profession, except surveyors. With respect to the public we are not the AMA, the NRA, the American Bar Association or even the PTA, but we need to be. Let's take care of our profession. We are the only ones qualified to do so.

By: Rita M. Lumos, PLS

When considering the future of our profession it is important to contemplate its history. When our nation was founded, surveyors were respected men of science. Somewhere, over time, that professionalism – or the public's perception of it – eroded. For the past 30 or 40 years we have scratched, and fought, and clawed, to regain that respect. I think we have been successful.

Now we are again on the threshold. We can continue to grow or we can slip back to the role of subservient technicians.

Education is the answer. The path toward licensure in the future is not the one that the majority of us took.

I want you to stop, right now, encouraging your entry-level people into thinking they can become a professional through on the job training. There is a career path for technicians in place. NSPS has a technician certification program that is excellent. Encourage your entry-level technical people to take advantage of it. More importantly, encourage your bright young people to get an education. In ten U.S. states today one must have a four-year degree to qualify for the LS exam. Fully half of the states are on a path toward a year certain for a mandatory degree requirement like we are in Nevada. More states are working on that legislation.

Our counterparts around the world have had those requirements for years – or for centuries. I was privileged to visit a university in Moscow, Russia, this fall that was celebrating its 220th year of educating surveyors.

Even if the law doesn't require education, the process will. The Fundamentals of Land Surveying exam, the one we

know as the LSI or LSIT is now a curriculum based exam. The pass rates on the October, 1999, exam generally were very poor; however, graduates of four-year degree programs did very well.

Very few engineers are currently licensed without education, even in those jurisdictions that allow them to be. The process prohibits it. The technology demands a strong foundation. The same is true for us surveyors. Yesterday at lunch we heard from Major John Wesley Powell. Today, we are hearing *Ground Control to Major Tom*. If you think that your field crews are expensive, consider this: the space shuttle Endeavor is orbiting the earth on a mapping expedition. That is one expensive field crew! That is what it is – a very high-powered field crew, gathering data. The Endeavor crew will not do the mapping. They are the technicians. The mapping will be done by very well educated surveyors and mappers.

“Even if the law doesn't require education, the process will...”

Technicians will – more and more – take over the tasks we have traditionally performed. The laser imaging systems, the GPS receivers on earth moving equipment, the total stations in the hands of highway patrolmen will see to that. I believe surveyors will always be needed. Surveyors will always have an important place in society. That place will be on a different plane though.

The profession will be more diverse in the future, and there's room for that diversity. NCEES is beginning to consider the need for discipline exams for surveyors, just as there now are for engineers. That need is still several years out in the future, but it is definitely in our future.

Dr. McArthur from UNLV said in his session this morning that new technology brings new winners and new losers. Choose your path. The key to success is not in those who push the buttons. Success is in those who direct the work.



Recent Supreme Court Ruling Supports Property Owners

By: Brigit S. Barnes, Esq.

As the Supreme Court of Pennsylvania once put it, "The genius of our democracy springs from the bedrock foundation on which rests the proposition that offices are held by no one whose orders, commands or directives are not subject to review." *Winger v. Aires*, 89 A.2nd 521, 522 (Pa 1952).

In *City of Monterey v. Del Monte Dunes at Monterey, Ltd.* 119 Supreme Court 624 (1999), the United States Supreme Court upheld a jury verdict in favor of the property owner and against the City of Monterey, reaffirming the rights of property owners to obtain money judgments in Civil Rights actions against municipalities

and counties in cases involving takings and other violations of property rights.

But the US Supreme Court went further. In a unanimous statement of fact written by Justice Kennedy, the Supreme Court telegraphed its extreme displeasure with the City of Monterey's bad faith behavior in treating this property owner. The facts of the underlying case basically turned the Court's stomach, and they just aren't listening to the government anymore in a case like this.

In summary, this case is important because it further strengthened a line of regulatory taking decisions beginning in 1987 with the *First Lutheran*

FINALLY!

A SERIOUS STAKE BAG & PRODUCTION TOOL!
for only **\$119.95***

- 1-Custom "slide-in" lath backbone
- 2-Grommets release dirt & debris
- 3-Deep belly separates 2' & 4' lath
- 4-Quick hand access to 2' lath only
- 5-Universal hammer loop
- 6-Cascade stake pockets
- 7-Durable adjustable strap
- 8-Handy marker holder

CROTALUS ENTERPRISES
PO BOX 1308, GROVER BEACH, CA 93483
805-474-4224 • www.crotalusent.com

*plus \$7.00/ea. shipping & handling. CA residents add 7.25% sales tax.
To order, call us or visit our secure website. Visa/MC accepted.

case, upheld the right to damages for regulatory taking, and identified the limited patience of the present Court with government officials who manipulate facts to accomplish a preferred alternative.

Who can forget, for example, the Court's recognition that so called "legislative findings" are actually the product of back room staffers, rather than the officials doing the public voting, when it declared that such "findings" will always support what the regulators did unless they have "a stupid staff."

What happened is this. The site is 37.6 acres of previously zoned developable land in Monterey County

abutting the Pacific Ocean at the northern end of the City of Monterey. Prior to its purchase by its present owner, Del Monte Dunes at Monterey, Ltd. (the Developer), Phillip Petroleum also planted nonnative ice plant which was taking over and impacting a native plant species called buckwheat. This last fact is important, because it turns out that native buckwheat is the only known habitat for an endangered insect known as the Smith's Blue Butterfly (SBB). Absent human intervention, the ice plant would, over time, totally displace the buckwheat, destroying all SBB habitats on the site.

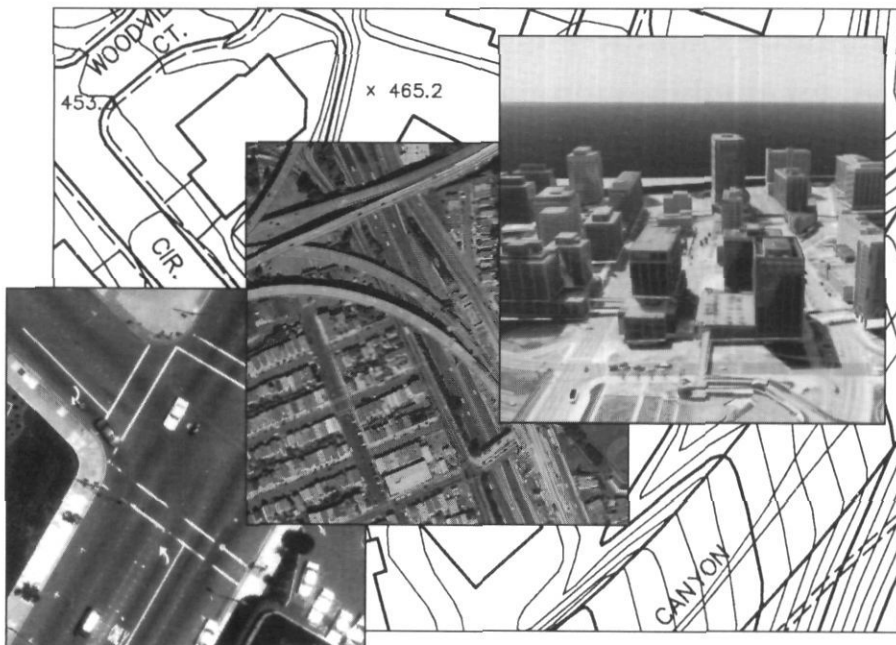
During extensive environmental reviews of the property, no eggs, lar-

vae or adults of the butterfly species were ever found until 1984; one larva was located in 1984, and none in 1985. Since the SBB only lives for one week, and can travel a maximum of 200 feet, and must land on a mature, flowering buckwheat plant in order to survive, the chances of the isolated habitat providing any permanent habitat for the species was slim.

(Additionally, the chances of natural survival of this species, giving its limited life cycle, feeding patterns and transportation methods argues for natural selection.) The issue about the SBB comes up later because on all of the property, the area that would be the most likely area to replant

Continued on page 21

Your Digital Mapping Partner...



Imaging the Earth

Aerial Photography
Data Integration
Digital Orthophotography
Topographic Mapping/DTMs
Remote Sensing
GIS Base Mapping

Hammon, Jensen, Wallen & Associates, Inc.

Oakland and Irvine

www.hjw.com

1-800-383-2991

NFIP Underwriting Bulletin

Mandatory Use of the New FEMA Elevation Certificate

After more than a year of compiling comments and recommendations, the new FEMA Elevation Certificate form was published in the Federal Register on April 6, 1999, for comment. The paper form and electronic format were finalized in May 1999, and became available for distribution in August 1999. The mandatory use of the new certificate was originally scheduled on August 1, 1999 and was later revised to January 1, 2000, if the certification date is on or after that date.

Although the layout of new certificate has changed, the NFIP rules for determining the lowest floor for rating remain the same. The new Elevation Certificate has several new fea-

tures that make it easy for the agent and underwriter to determine the correct lowest floor elevation for rating flood insurance policies. The new format requires the surveyors or engineers to provide additional building elevations, which the agent and underwriter need to properly underwrite the risk. By providing these additional elevations, the surveyors or engineers can now certify the elevation information required on the form without being familiar with the rules and regulations of the NFIP.

In a recent meeting with the Flood Insurance Producers National Committee, several members have requested that the "phase-in" period of the new Elevation Certificate on a voluntary basis be extended to allow additional training. Several inquiries were also received from WYO companies and surveyors requesting that we reconsider the effective date of the new certificate.

Based on these concerns, the Federal Insurance Administration has reconsidered the date the new Elevation Certificate will become mandatory. The mandatory use of the new FEMA Elevation Certificate has been changed from January 1, 2000 to October 1, 2000, allowing more time for agents and others to be trained on how to complete and use the new certificate. The NFIP Direct Servicing Agent and WYO companies may accept an elevation certificate on the old FEMA form or surveyors' or engineers' letterhead, so long as the previously required information is provided, and the certification date is before October 1, 2000.

While the "phase-in" period has been extended, the agent and the writing company must continue to accept elevation certificates submitted on the new FEMA form to rate flood policies. This is important because there are many surveyors and engineers that are currently using the new certificate. In addition, FEMA discontinued the distribution of the old Elevation Certificate on July 31, 1999.

Because of the large number of requests to attend the new Elevation Certificate workshops, FIA will work closely with the NFIP Bureau and Statistical Agent to increase the number of training sessions for the surveyors, engineers, insurance agents, floodplain managers, and the participating WYO companies. We also encourage your training staff to assist in any way they can in providing the necessary training to your agents and staff. The NFIP Bureau training staff is also available to support your training needs.



Lewis & Lewis

1600 Callens Rd. Ventura, CA 93003
 (805) 644-7405 FAX (805) 642-3970
 Toll Free (800) 342-3607

SALES

RENTALS

SERVICE




Land Surveying Instruments, Accessories, and Supplies.... Plus a full line of HP Computers, Printers, Plotters, accessories and supplies.....




Authorized Reseller



Seco
CST
Lufkin
SCHNEIDER



FREE L&L Catalog
Quality Products, Service, and Support at Competitive Prices.....Rental - Purchase

Autodesk & Softdesk & Financing Available

LLCOGO  **MOTOROLA**

TDS TRIPOD DATA SYSTEMS, INC.



AMERICAN CONGRESS ON SURVEYING AND MAPPING

2000-2001 Membership Application • July 1, 2000-June 30, 2001

5410 Grosvenor Lane, Suite 100 • Bethesda, MD 20814 • Phone 301/493-0200 • Fax 301/493-8245
Internet: <http://www.survmap.org> E-mail (Membership): dcalvert@acsm.net
E-mail (General information): info@acsm.net

What is ACSM?

The American Congress on Surveying and Mapping (ACSM) is a nonprofit association dedicated to serving the public interest and advancing the profession of surveying and mapping. ACSM's more than 6,000 individual members are surveyors, cartographers, geodesists, GIS/LIS experts, and related professionals from private industry, government, and academia. The Association also has corporate members who provide high-quality products and services to the surveying and mapping profession.

Why should I join ACSM?

The answer is simple. ACSM offers members the opportunity to open doors to all the information needed to keep up-to-date on the latest and most crucial issues of the profession.

Member benefits

- A government affairs program that monitors state and federal laws and regulations that affect surveying and mapping professionals
- Continuing education programs and workshops
- Registration discounts for ACSM conventions
- Discounts on books
- Reduced rates for professional liability and group health insurance
- *ACSM Bulletin*, a bimonthly magazine about surveying and mapping
- Subscription to *Surveying and Land Information Systems* for NSPS & AAGS members
- Subscription to *Cartography and Geographic Information Science* for GLIS & CaGIS members
- Fellowship and scholarship funding
- Free publishing opportunities for career advancement
- Free VIP White House Passes (advance notice required)

How do I apply for ACSM membership?

Choose the appropriate Member Organization(s) to join in addition to ACSM, and read the criteria listed for each grade of membership. Then complete the reverse side of this form and send it to the address shown. Your application will be processed promptly.

- AAGS—American Association of Geodetic Surveying
- CaGIS—Cartography and Geographic Information Society
- GLIS—Geographic and Land Information Society
- NSPS—National Society of Professional Surveyors

AAGS requirements

Full Member—Bachelor's or higher degree in a discipline related to geodetic surveying or eight years experience. Up to four years of relevant education may be substituted for experience not consistent with other organization member requirements.

Associate Member—Any person with an interest in geodetic surveying/cartography who is not eligible to be a Full Member.

CaGIS requirements

Full Member—Bachelor's or higher degree in a field of study that would qualify the person for a professional position in cartography, geographic information systems (GIS) or related fields, or four years of active professional experience in cartography, GIS, or related fields.

Associate Member—Any person with an interest in cartography/GIS who is not eligible to be a Full Member.

GLIS requirements

Full Member—Any person who meets one of the following requirements: (1) They are licensed to practice the profession of surveying according to state or provincial statute. (2) They are practicing the profession of surveying and have attained the professional qualifications according to series GS 1373 (or equivalent) approved by the U.S. Office of Personnel Management. (3) They hold a Bachelor of Science in geographic information systems, surveying, engineering, cartography, computer science, geography, or other fields directly related to geographic information systems. (4) They are practicing the profession of surveying or teaching surveying, and have attained a minimum of six years experience in responsible charge of surveying activities, or a combination of four years education and sufficient experience in responsible charge totalling six years.

Associate Member—Any person professionally involved in the development, use, or teaching of geographic and land information systems or related disciplines.

NSPS requirements

Full Member—[a] Any person licensed to practice the profession of surveying, according to state or provincial statutes; or [b] a GS-1373 employee classified as a Land Surveyor or Supervisory Land Surveyor; or [c] an academician holding a Bachelor's or higher degree and the rank of assistant professor or higher and teaching in an ABET or CAB accredited or state land surveying registration board approved surveying program; or [d] a practicing surveyor or a surveying teacher who has attained (1) a minimum of six years experience in responsible charge of surveying activities or (2) four years of education and two years of experience may submit credentials for consideration.

Associate Member—Any person who by employment is actively engaged in a program leading to a career in the profession of surveying.

Student Membership requirements

Student Membership requirements in AAGS, CaGIS, GLIS or NSPS—Any person pursuing a course of study as a graduate or undergraduate student on a full-time basis (as defined by the academic institution) leading to a career in geodetic surveying, geographic or land information systems, cartography, or surveying is eligible for Student Membership.

Notice: Membership dues include subscriptions to: *Surveying and Land Information Systems* (\$45), *ACSM Bulletin* (\$36) and *Cartography and Geographic Information Systems* (\$45). This notice is required by U.S. Postal Service regulations. Contributions or gifts to ACSM are not tax deductible as charitable contributions.

APPLICATION TO JOIN ACSM, JULY 1, 2000-JUNE 30, 2001

Determine the highest grade of membership for which you are qualified. Choose the applicable Member Organization(s) you wish to belong to (in addition to ACSM), and list the appropriate dues in the space provided to calculate your total fee.

Name _____

Home Address _____

City _____ State _____ Zip _____ Country _____

Send Correspondence to: Home Office

Date of Birth _____ Sex Male Female

Home Telephone [] _____ FAX [] _____ Work Telephone [] _____

E-mail Address _____

If your membership is being sponsored by a current ACSM member for the "3 for 1 Member Program," please provide the information below. Please note that sponsorship is not required to join the Association, nor will it affect your member status.

Sponsor Name (please print) _____ Sponsor ID# _____ NSPS Governor _____

Business Address _____

City _____ State _____ Zip _____ Country _____

Occupation

Select one:

- Consultant
- County Employee
- Federal Employee
- State Employee
- University Faculty/Staff
- Utility Co. Employee
- Vendor
- Business Owner
- No. of employees _____

Discipline/Field

Check all that apply:

- Cadastral Surveying
- Cartographer
- Computers, Comp. Mapping, Software
- Control Surveying
- Education
- Engineering/Construction Surveying
- General Practice

- Geodetic Surveying
- Geographic Information Systems (GIS)
- Global Positioning Systems
- Hydrographic Surveying
- Land/Boundary Surveying
- Location Surveying
- Marine Surveying/Navigation/Boundary
- Mine Surveying
- Municipal Planning/Surveying
- Planning/Design
- Records Research
- Remote Sensing
- Route Surveying
- Subdivision Design
- Topographic Surveying
- Utility Surveying
- Other _____

Full Member Dues

Organizations: You must pick at least one in addition to ACSM.

- AAGS dues \$15.00 \$ _____
- CaGIS dues \$10.00 \$ _____
- GLIS dues \$20.00 \$ _____
- NSPS dues \$50.00 \$ _____

ACSM dues \$ _____ 123.00
 Processing fee (includes certificate) \$ _____ 15.00
 Total amount due \$ _____

Associate Member Dues

Organizations: You must pick at least one in addition to ACSM.

- AAGS dues \$15.00 \$ _____
- CaGIS dues \$ 5.00 \$ _____
- GLIS dues \$20.00 \$ _____
- NSPS \$25.00 \$ _____

ACSM dues \$ _____ 99.00
 Processing fee (includes certificate) \$ _____ 15.00
 Total amount due \$ _____

NOTE: Under new IRS regulations, only 96.6% of your dues are deductible on your tax return.

Student Member Dues

Student dues are \$27 and include membership in all of the Member Organizations (AAGS, CaGIS, GLIS, and NSPS). Students are not required to pay the processing fee.

Application for Student Membership must have the following certification completed.

Educational Institution _____

Faculty Member Signature _____

Date _____

Code: BUL

Payment Method

You may give your credit card information below or send a check along with your completed application to the address on the front of this form. Please note that all checks must be in U.S. funds and are to be drawn on a United States bank only.

Payment enclosed MasterCard Visa

Name as it appears on credit card _____

Account number _____

Expiration date _____

buckwheat and encourage the "unlikely but required" re-establishment of the butterfly is in a natural bowl located in the center of the property.

The property, at the time of Developer purchase, was zoned multifamily residential for 29 units to the acre, to permit 1,000 homes for the entire parcel. The Developer went through five successive applications with the City Council and the City Planning Commission, the first application requesting 344 condos.

The Planning Commission rejected the proposal but advised the owner on the record that they would accept a 264-unit application, which was redrawn, submitted and reviewed carefully with the City planners, and approved by the City planners.

That application was rejected by the Planning Commission, however, at which time the Commissioners said that

a 244-unit proposal "would be received favorably." Then the owner complied with that requirement, which was turned down. At that point, the owner appealed to the City Council, which remanded the matter to the City Planning Commission with instructions to consider a 190-unit development, which was an additional 15% reduction, both in the number of homes and in ground coverage.

The Developer redesigned the project, resubmitted, and the Planning Commission denied it again; and again it went up on the administrative appeal to the City Council, who overruled the Planning Commission and approved the 190-unit development, showing the size and shape of the buildings.

But this last approval, which was the fifth review, required all construction to be located on only 5.1 acres of the original 37.6 acres; required construction of 6.7 acres of public and private streets; and required the remainder of the prop-

continued on page 22

GeoLine Positioning Systems, Inc.



4 Locations in California to Serve You!

SAN FRANCISCO
415.553.6262

MODESTO
209.556.0886

MENLO PARK
650.330.0228

REDWOOD VALLEY
707.485.6634

Visit Us On The Web
www.geoline.com

*It's All You
Need To Know!*

SALES • SERVICE • LEASE • RENTAL • TRAINING • REPAIR

This Month Featuring:

Trimble Geomatics Office

A SINGLE SOFTWARE PACKAGE TO HANDLE ALL OF YOUR SURVEY DATA

With the Trimble Geomatics Office™ software, the collection, processing, and management of survey data has never been so easy. For surveyors and engineers who work with real-time and post processed data from GPS, optical total stations, laser instruments, road designs or GIS databases, Trimble Geomatics Office is *the* software solution for the 21st Century.

**Call your local GeoLine office or
800.523.6408 for more information!**



erty to be left open space. Especially keep in mind that the area located adjacent to the beach was to be dedicated as public beach, including public access and parking, the sand dunes at the top of the property (farthest from the beach) to hide the homes from motorists on the freeway.

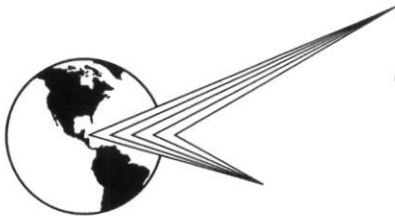
The problem was that the only way the remaining development could meet all of the criteria would be to locate the development in the bowl, which the Developer was willing to do. But that would mean that the buckwheat plants located in the bowl would be destroyed. The only place the City Council would permit construction would be the location of the buckwheat, thereby forcing the property owner into a position of not having any entitlements to build at all. The City Council specifically refused to allow the Developer to shift its development to any of the other parts of the property, because the City had already earmarked the rest for public use or nonuse or acquisition; which meant that there was no place on the entire 37.6 acres on which the Developer could build anything.

The wipeout was total. As the Ninth Circuit Court of Appeals would later summarize it, the City progressively denied use of the portions of the Dunes until no part remained available for use inconsistent the leaving the property in its natural state.

This case went to a jury on various claims, including Civil Rights violations and the jury awarded \$1.5 million in damages. The jury verdict was upheld by the Ninth Circuit Court, and the City of Monterey appealed. What is most important to remember about the Del Monte Dunes decision is that the US Supreme Court looked at these facts and wanted to throw up.

The one thing that was clear from the questions posed at oral argument was that the Justices were not pleased with the City's decision, and it didn't matter how they felt about the jury trial issue upon which various Justices wrote separate opinions.

continued on page 25



CARTWRIGHT AERIAL SURVEYS, INC. (SINCE 1946)

AERIAL PHOTOGRAPHY

Black & White, B&W Infrared
Color, Color Infrared
Historical Film Library

PHOTOGRAMMETRY

Topographic Mapping
Digital Orthophotos
Volume Calculations
Digital Terrain Modeling

PHOTO LABORATORY

Film Processing
Scaled Enlargements
Rectified Enlargements



5979 Freeport Boulevard
Sacramento, CA 95822-3506
Phone (916) 421-3465 • Fax (916) 422-9631
E-Mail: mapping@casmap.com • Web: casmap.com

Time is money. Pocket the difference.

THE PROFESSIONAL LIABILITY PROGRAM FOR LAND SURVEYORS

Now you can spend less time filling out insurance forms and more time on the important things in life.

The Professional Liability Program for Land Surveyors from CNA and Schinnerer locks in coverage for the next three

years. Buy a policy today and you won't have to renew coverage until the year 2003. Just think: no applications, no renewal notices and no insurance hassles for three years.

And you'll pay the same premium every year for three years. Guaranteed. Even if you have a claim or your annual billings increase. Your premiums stay the same for the entire three-year term.

There's more.

- 15% credit for ASCM members
- Broad coverage including pollution
- Optional first dollar defense coverage
- Retroactive coverage for eligible firms
- Incident reporting at your option
- Local claims services provided by CNA claims specialists
- Certification/contract reviews
- Loss prevention seminars

For more information, contact:

ARIS INSURANCE SERVICES

2101 Business Center Drive, Suite 230
Irvine, CA 92612
Phone 1-888/377-2107 ext. 213
Fax 1-888/377-2109

You'll find that it's time well spent.

Interested in one comprehensive insurance program for all your business needs? Ask us about DesignOne — property, casualty and professional liability coverage for design professionals.

CNA is a registered service mark and trade name of the CNA Financial Corporation. These programs are underwritten by Continental Casualty Company, one of the CNA companies and managed by Victor O. Schinnerer & Company, Inc. This advertisement is not a contract. Only the policy can give you actual descriptions of terms, coverages, amounts, conditions and exclusions.

Victor O.
Schinnerer
& Company, Inc.

CNA PRO

ALLEN

INSTRUMENTS & SUPPLIES

"On The Leading Edge of Measurement Technology"

Trimble Navigation
"1999 Survey Dealer of the Year"

Has Been There Every Step of the Way...

For the past fourteen years, Trimble has been at the forefront of applying GPS to a wide variety of practical problems. To date, Trimble has invested more than two million person-hours in R & D, perfecting the art and science of GPS. Trimble holds more U.S. patents on GPS and related technology than any other organization.

Trimble Geomatics Office

At Last — A Single Software Package To Handle All Of Your Survey Data.

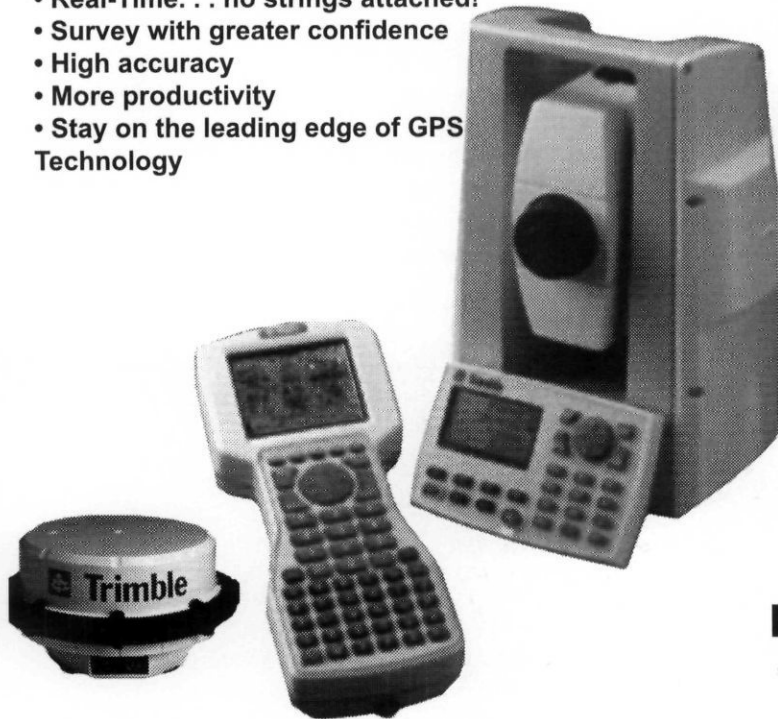
Available and shipping now! Please call for prices and training schedules.

Total Station TTS 500

Conventional optical total station, incorporating innovative "reflectorless" pulsed laser measurement technology. Interfaces with the same controller and software as GPS Total Stations for seamless system integration.

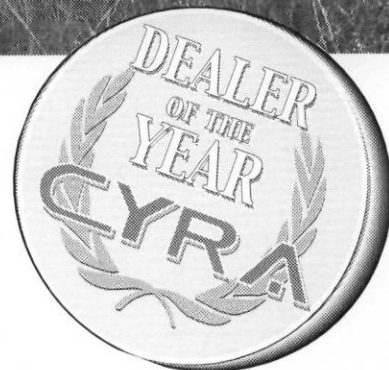
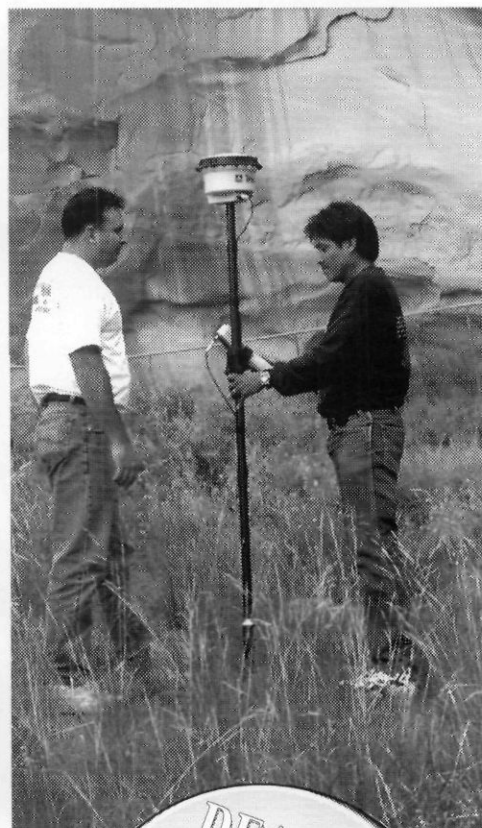
GPS Total Stations

- Real-Time... no strings attached!
- Survey with greater confidence
- High accuracy
- More productivity
- Stay on the leading edge of GPS Technology



Trimble

Chosen
CYRA's
Dealer of
the Year!



5375 Kearny Villa Road Suite 111 • San Diego, CA 92123 (800) 336-8860 Fax (858) 505-4707
11512 Cotner Ave. Suite #1 • Bakersfield, CA 93312 (661) 588-4422 Fax (661) 588-4822
1474 Theresa St. • Carpinteria, CA 93013 (805) 566-3833

Authorized Trimble Service Provider, Training Center and Sales Consultants. Monthly training classes, call for schedule and course outline. Rental Equipment Available.

It came as no surprise when Justice Scalia opened the questioning by hotly criticizing the fact that the City ran the Developer through five different plans, each successively smaller, before finally turning it down. He specifically referred to the City's conduct as "jerk[ing] the Developer around."

His comment that, after the third denial one might begin to "smell a rat", was vintage Scalia. Both Chief Justice Rehnquist and Justice Kennedy, who wrote the final decision, commented on the evident bad faith displayed by the City's actions. Even those justices generally supportive of local government made reference to the bad faith in this case.

Recognizing that the case before the Court was a federal civil rights action (42 USC Section 1983), and that such actions are akin to tort actions, the majority of the Court concluded that tort actions for damages were entitled to juries, since our common law rights extend from England,

and therefore we are entitled to a jury trial for damages in these types of cases as well. The Court also examined the jury determination and concluded that it properly applied the standards for regulatory takings that the Court had been laying down for the prior two decades.

The result of the Del Monte Dunes case is that courts and juries are free to examine the constitutionality of municipal land use regulation. This last point is the key, and it is the one that an honorable planning community should not fear. All the Court is requiring of planners and regulators is that they act fairly and honestly.

If development isn't wanted, then that should be said up front, not after considering and rejecting five different concepts and nineteen different site plans. If property is coveted for public use as a public park, as a butterfly preserve, or as open space, then it should be purchased, not regulated to death.



Marching into the New Millennium

2000

Marks Our 45th Anniversary

- Civil Engineering • Surveying • Litigation Support
- Planning • Specialized Computer Services
- Transportation Engineering • Water Resources
- Photogrammetry, and more.

WE DO A LOT MORE THAN MOST PEOPLE THINK.

San Diego, CA (619) 291-0707

www.rickeng.com



**RICK
ENGINEERING
COMPANY**





WHAT A PACK OF FEATURES!

Precision features run in the Nikon family of surveying instruments.

Whether you're hunting for dependable total stations, levels, theodolites or other surveying instruments, you can depend on Nikon for precision, support and service. For details about our family of surveying equipment and to request a demonstration, call **1-800-52-Nikon, ext. 358** or visit us at **www.nikonusa.com**



Nikon

E&O

"QUICK-QUOTE" PROFESSIONAL LIABILITY INSURANCE FOR LAND SURVEYORS

Our firm writes coverage in over 40 states with a well known "A++" carrier. Take a few moments to fill out our "QUICK QUOTE" application and we will provide you with a premium indication immediately.

Name _____ Title _____ Phone _____
 Firm _____ Home Office Mailing Address _____
 City/State _____ Zip _____ Fax _____
 Established _____ (YR) Business entity is: Individual, Partnership, Corporation, Other (Detail) _____
 Services: Are you engaged in any business other than land surveying? Yes No If so, a separate application must be submitted. Contact our office. Projects: Indicate % of receipts from each of the following: Condos _____ %
 Residential Developments/Tract Homes _____ % Oil or Gas Pipelines _____ % Dams _____ %
 Bridges _____ % Tunnels _____ % Other (describe) _____ (Total should equal 100%)
 Total billings for land surveying services: Past Year _____ Current Year _____
 No. of employed staff: Surveyors _____ Draftsmen _____ Chainmen _____ Clerical _____
 Are subcontractors used? Yes No If yes, are certificates of insurance obtained? Yes No What % of your work is done by subcontractors? _____ %
 Current Carrier _____ Past year's premium _____
 Policy expiration date _____ Retroactive date (original claims-made inception date) _____
 Professional Liability claims past 5 years Yes No If yes, send a sheet with claim details

MAIL OR FAX THIS FORM WITH A BRIEF RESUME OF THIS FIRM'S PRINCIPALS TO:
EASTERN SPECIAL RISK INSURANCE AGENCY, P.O. BOX 218, HARVARD, MA 01451
 PHONE (978) 772-1331, WATS (800) 341-1110, FAX (978) 772-1441
 CA License #0619313

LOW COST

Assessor Data

Access Any Property in Seconds!!

Give yourself instant CD-ROM access to information on every property in the county. Make your desktop or laptop computer a powerful property data tool. With CD-DATA you'll be able to find any property by it's Parcel Number, Owner's Name, Address, Use Category or any property characteristic in your Assessor's database which often includes, Sale Date, Year Built, Beds/Baths, Square Footage and more.

and maps!

NO!

- Setup charges!
- Contracts!
- Automatic renewals!
- Muddy, hard-to-read maps!
- Hidden fees!

YES!

- Free Technical Support!
- Everything's included in one low price--Data, Maps, Software, and Shipping!
- Crystal clear, up-to-date, easy-to-read Assessor parcel maps!

Crystal Clear Parcel Maps!!

Not only will you get an incredible wealth of property data, but you'll get the clearest, sharpest parcel maps on the market. Even tiny lot dimensions are easy to read!

Simply point, click, and instantly view the parcel map for any property! Then, zoom in for a close-up, and print the full map or any section blown up or reduced to fit any paper size.

Print Mailing Labels Fast And Easy!!

CD-DATA enables you to print mailing labels in standard Avery label formats. Use the program's powerful search engine to create mailing lists using any combination of available property characteristics. Forget the hassle of having someone else prepare your mailing lists, or the expense of getting labels printed.

\$199

per county, plus tax

 **CD-DATA** 619-265-2586 

WWW.CD-DATA.COM

Sustaining Members

Steve Dillon

ARROWHEAD MAPPING CO
673 S. Cooley Dr Suite 102
Colton, CA 92324
Phone: 909-887-5969
Fax: 909-887-4117



Aerial Photography
Topographic Mapping
Digital Orthophotos



Surveyors Service Company
2942 Century Place
Costa Mesa, CA 92626

Stanton Mahler
President



Office: 800-938-0606
714-546-0606

Fax: 714-546-9724



HANS I. HASELBACH (Jr.)
HASELBACH
SURVEYING
INSTRUMENTS

SURVEYING & GPS SYSTEMS
INSTRUMENT SERVICE & REPAIR



(800) 462-8181
(650) 348-7247
1447 Rollins Road
Burlingame, CA 94010



Steve Carlon

Branch Manager (800) 500-8575
3380 Industrial Blvd., Suite 105 (916) 374-8575
West Sacramento, CA 95691 FAX (916) 374-8329



PETER WILKIEWICZ
REGIONAL SALES MANAGER, SOUTHWESTERN REGION

MAGELLAN CORPORATION
471 El Camino Real, Santa Clara, CA 95050-4300
Tel: 408.615.5243 • Fax: 408.615.5200
petew@ashtech.com • www.ashtech.com



PAUL C. OGDEN
President/CEO

MANUFACTURING CO., INC.

4155 Oasis Road 1-800-824-4744
Redding, CA 96003 Fax (530) 225-8162
(530) 225-8155 seco@surveying.com

Visit our on line catalog @ www.surveying.com



Lewis & Lewis Enterprises

SALES - RENTALS - SERVICE

Call Toll Free (800) 342-3607

Quality

Products Service & Support 



TrimbleNavigation

P.O. BOX 1328 1600 CALLENS RD VENTURA, CA 93003
(805) 644-7405 FAX (805) 642-3970



TrimbleNavigation

Sacramento • Fresno • Marin • Redding
(916)344-0232 • (800)243-1414 • FAX (916)344-2998



Johan Larsson
Sales Engineer

GEODIMETER OF NORTHERN CALIFORNIA

340 E. Middlefield Rd., Mountain View, CA 94043
Phone: 650-254-1400 Fax: 650-254-1454
Mobile: 415-860-3416
E-mail: johanlarsson@msn.com
Internet: www.spectraprecision.com



475 Sansome Street, 19th Floor
San Francisco, California 94111

James E. Elwood
National Accounts Manager

Phone (415) 956-5174, Ext. 152
(800) 841-4433, Ext. 152
Fax (415) 956-5187
jelwood@trinitycapital.com

Chuck Madrid
Surveying Systems, Sales and Training

*Surveying Systems, Equipment & Supplies
Builders Instruments and Laser Systems*

Topcon Instruments
Sales Service Rentals Repairs



Engineering Supply Company

5700 Imhoff Dr., Suite C
Concord, Calif. 94520
Phone: 510/680-4701
Phone: 800/788-3307
Fax: 510/680-2504



MITCHEL E. BARTORELLI, C.P.
ASSOCIATE

PHOTOGRAMMETRY SERVICES

(775) 358-9491

Digital Mapping
Aerial Photography
GIS Services
Digital Orthophotography
Volume Services
Global Positioning Services

1925 E. PRATER WAY
SPARKS, NV 89434-8938
Email: Tri_State@worldnet.att.net

FAX (775) 358-3664
(800) 411-3752



Hammon, Jensen, Wallen & Associates, Inc.

- Aerial Photography
- Digital Orthophotos
- Digital Mapping
- Remote Sensing
- GIS Base Mapping



1-800-383-2991 www.hjw.com

SURV-KAP, INC.

RICHARD B. ROPER
President

P.O. Box 27367 3225 East 47th Street
Tucson, Arizona 85726 Tucson, Arizona 85713
(520) 622-6011 / 1 (800) 445-5320
FAX (520) 792-2030





Here's Some Important Information About CLSA

The goal of the California Land Surveyors Association is to promote and enhance the profession of surveying, to promote the common good and welfare of its members, to promote and maintain the highest possible standards of professional ethics and practice, and to elevate the public's understanding of our profession. CLSA represents all Land Surveyors, whether they are employees or proprietors, whether in public or the private sector.

Representation

■ **LOCAL:** Your local chapter represents you in local issues. Through your chapter representative to the State Board of Directors, the individual member can direct the course CLSA will take. ■ **STATE:** The Surveyor is represented at the state level through an active legislative program, legislative advocate, and liaison with the State Board of Registration. ■ **REGIONAL:** CLSA is an active member of the Western Federation of Professional Surveyors. This Federation is composed of associations throughout the western United States and addresses regional issues. ■ **NATIONAL:** Through institutional affiliation with the National Society of Professional Surveyors and the American Congress on Surveying and Mapping, CLSA is represented at the national level.

Education Opportunities

CLSA presents annual conferences which provide technical and business programs, as well as exhibits of the latest in surveying and computing technology. Seminars and workshops are presented to assist in continuing education. CLSA publishes the California Surveyor magazine and the CLSA NEWS to keep the membership abreast of changing legislation, legal opinions, and other items which affect our profession.

Business and Professional Services

CLSA provides a fully staffed central office which is available to answer questions or to provide up-to-date referrals concerning legislation, educational opportunities, job opportunities, or other issues concerning our membership. Professional liability insurance programs are available to members.

Join CLSA Today!

- **CORPORATE MEMBER:** Shall have a valid CA Professional Land Surveyor or Photogrammetric license *\$159.00 + Entrance Fee
- **AFFILIATE MEMBER:** Any person who, in their profession or vocation, relies upon the fundamentals of land surveying \$79.50 + Entrance Fee
- **ASSOCIATE MEMBER:** Any person who holds a valid certificate as a Land Surveyor-in-Training *\$79.50 + Entrance Fee
- **OUT-OF-STATE:** Any person who resides in a state other than California, who is a member of their resident state Land Surveyor Association, and meets the requirements of Regular Corporate Member, Associate Member, or Affiliate Member *\$79.50 + Entrance Fee (Corporate); *\$39.75 (Associate or Affiliate) + Entrance Fee
- **STUDENT MEMBER:** A student in a college or university actively pursuing a surveying education *\$15.90
- **SUSTAINING MEMBER:** Any individual, company or corporation who, by their interest in the land surveying profession, is desirous of supporting the purposes of this corporation. *\$318.00 + Entrance Fee

Application for Membership in the California Land Surveyors Association

Mail your Completed Application to:

CLSA Central Office
P.O. Box 9098
Santa Rosa, CA 95405-9990

Questions?

Phone (707) 578-6016
FAX (707) 578-4406

*First year's annual dues are to be prorated from date of application

Name _____ Bus. Phone _____
 Firm or Agency _____ Res. Phone _____
 Mailing Address _____ Suite or Apartment No. _____
 City _____ County _____ State _____ Zip _____
 Mailing Address (Above): Home Business
 Employment: Private (principal) Private (employee) Public Retired
 Membership Category _____
 Recommended by _____
 Dues (*prorated from above) \$ _____ + Entrance Fee \$ _____ = Total Amount \$ _____
 Signature _____ PLS, PS, CE, or LSIT No. _____
 Check Enclosed I authorize charge to my MasterCard Visa Expiration Date _____
 Card Number _____ Signature _____

CLSA PUBLICATION ORDER FORM	CLSA Member Price	*Non-Member Price	Quantity	Total
2000 Complete Package including PLS Roster, Pre-'82 CE Numerical Listing, PE & PLS Act with Board Rules, Subdivision Map Act & Binder	\$28.00	\$42.00		
2000 Complete Package (as above) including PE & PLS Act with Board Rules and Subdivision Map Act on Disk	\$36.00	\$54.00		
2000 Refill Package including PLS Roster, PE & PLS Act with Board Rules, and Subdivision Map Act	\$20.00	\$30.00		
2000 Refill Package (as above) plus Disk	\$28.00	\$42.00		
PE Act & PLS Act with Board Rules - 2000 publication (51/2 x 8 1/2)	\$6.50	\$10.00		
Subdivision Map Act - 2000 publication (51/2 x 81/2)	\$6.50	\$10.00		
Audiotape - Subdivision Map Act - by Robert Merritt, Esq.	\$5.00	\$10.00		
2000 Celestial Observation Handbook and Ephemeris (Sokkia) - with HP-41, HP-42 and HP-48 Programs	\$5.00	\$7.50		
California Coordinate Projection Tables - NAD '83 by Ira Alexander, C.E. PLS and Robert J. Alexander, PE	\$8.00	\$12.00		
Right of Entry Cards (minimum order is two)	\$1.50	\$3.00		
Corner Record Forms - BORPELS 1297 (minimum order is 25)	\$10.00 (25)	\$15.00 (25)		
Land Surveying Brochure (minimum order is 50)	\$15.00 (50)	\$30.00 (50)		
Standard Contract Forms - Agreement for Professional Services	\$6.00 /pad of 25	\$12.00 / pad of 25		
Land Surveying for the Land Owner and Real Estate Professional by Daniel E. Beardslee, P.L.S.	\$8.00	\$12.00		
CLSA Coffee Mug - Cobalt Blue with CLSA Logo	\$8.00	\$12.00		
CLSA Decals	\$1.50	N/A		
CLSA Video "A Career Without Boundaries" (A 10 minute video)	\$8.00	\$12.00		

■ Member Prices are only available to State members of the California Land Surveyors Association

■ Fax orders accepted with Mastercard or Visa only at (707) 578-4406

■ Mail your order form and payment to:
CLSA Central Office
P.O. Box 9098
Santa Rosa, CA 95405
Phone: (707) 578-6016
Fax: (707) 578-4406

*The difference between member and non-member prices may be applied toward membership.

Subtotal of all items	
7.5% California sales tax on above	
Subtotal including sales tax	
Shipping & Handling	
Up to \$20.00 add \$3.75	
\$20.00 to \$40.00 add \$4.50	
\$40.01 to \$60.00 add \$6.00	
Over \$60.00 add 10% (over \$15.00 Call for Shipping)	
Next Day Air Shipping (if placed by 12.00 Noon)	
Add additional \$20.00	
TOTAL	

Name	Payment Enclosed <input type="checkbox"/> Check <input type="checkbox"/> M/Card <input type="checkbox"/> Visa
Company (if company is mailing address below)	Account Number
Street Address (we cannot ship to P.O. Box)	Expiration Date
City/State/Zip	Name on Card
Daytime Telephone	Authorized Signature

40 50
Don't look now, but you're being followed.



Grab a prism and the TPS1100 Professional Series will follow you anywhere.



Think a robotic or high-performance total station could increase your productivity? Then take a look at Leica's TPS1100 Professional Series Total Stations. Leica's coaxial Automatic Target Recognition system provides fast, accurate, and reliable performance. It locks on and follows you — even at long range and in tough conditions. There's no pointing or focusing, and your productivity will soar with Leica's fast measurement and high efficiency data collection. TPS1100 works hard and fast right from the start, with TDS onboard, high capacity PC-Card data storage, and easy operation. At the prism pole, Leica's exclusive

360-degree prism and fully integrated RCS1100 remote controller make life easy. The RCS1100 weighs just 2.2 pounds, including internal radio link and power supply. There are no cables and nothing to keep pointed at the instrument. Just grab it and go. One more point: TPS1100 is the smallest and lightest robotic system on the market. So when it's not following you, it's easy to carry.

Leica

MADE TO MEASURE

California

Corporate Offices
2942 Century Place
Costa Mesa, CA 92626
tele. 800-938-0606 • fax: 714-546-9724

Arizona

4317 North 16th Street
Phoenix, AZ 85016
tele. 800-938-0608
fax: 602-274-3740

New Mexico

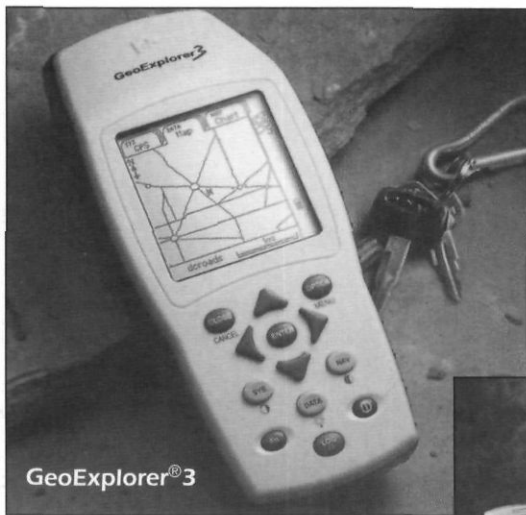
405 Montano Road N.E. #2
Albuquerque, NM 87107
tele. 800-938-0609
fax: 505-345-3499

Surveyors Service Company: e-mail: geodesy@servco1.com • internet: www.servco1.com



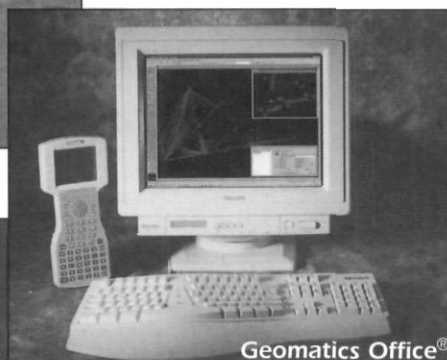
Geomatics Office® and GeoExplorer®3 Arriving Soon!

We Provide Answers.



GeoExplorer®3

GeoPlane Services offers much more than just the latest technology for your mapping and survey needs. We also provide application support, including network design and processing for Geodetic and RTS surveys, and we can tailor hardware and software to match your project needs. Call us today and ask how we can help you.



Geomatics Office®



GeoPlane Services
GPS Sales • Training • Equipment Rental

A Division of
UNIVERSAL ENSCO, INC.



Trimble Family of Products

Guaranteed Monthly Rates* on:

Geodetic Systems	RTK Total Systems
4000 - \$2,250/mo.	4000 TS - \$5,000/mo.
4700 - \$2,250/mo. (with DL \$2,500)	4700 TS - \$5,000/mo.
4800 - \$2,250/mo. (with DL \$2,500)	4800 TS - \$5,000/mo.
Mapping Systems	
Pro XR - \$1,300/mo.	
Pro XRS - \$1,500/mo.	

*Includes all necessary components for a turnkey solution.

GeoPlane Services offers:

- The largest inventory in the **NATION!**
- **FREE** weekend usage on rentals
- No rental charges while equipment is in transit
- Flexible downtime charges due to weather, job scheduling, etc.
- Advanced technical support
 - Geodesist
 - Licensed Surveyors
 - Professional Engineers on staff

Certified Trimble Repair Center

- Full system diagnostics
- Warranty & Non-warranty repairs
- Cable sales and repairs

 **Trimble**

OMNISTAR™
The National DGPS System



The Logical Choice for Your GPS Solution

1-800-229-3114

www.geoplane.com • Outside USA: 713-789-7296 • FAX: 713-977-9361

Se habla español



Accepted

Ask about our special Trimble dealer program.