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# The California Surveyor

SPRING 1997

The Voice of the Land Surveyors of California

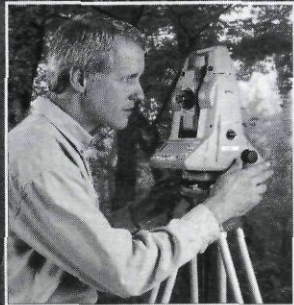
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**Poetic Surveyor**  
Nov. 18, 1876

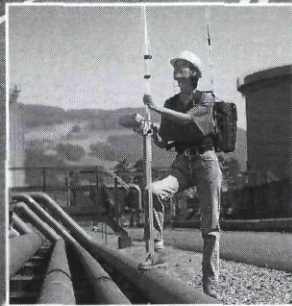
Immediately at the East and South of the last corner set, the surface breaks off almost perpendicularly to a depth of several hundred feet -- seems, indeed, as though the bottom had dropped out and left the rocks standing in all shapes and forms as line Sentinels over the grotesque and picturesque scene. There are thousands of red, white, purple and vermillion colored rocks, of all sizes resembling Sentinels in the Walls of Castles, monks and priests with their robes, attendants, cathedrals, and congregations. There are deep caverns and rooms resembling ruins of prisons, castles, churches, with their guarded walls, battlements, spires and steeples, niches and recesses, presenting the wildest and most wonderful scene that the eye of man ever beheld, in fact it is one of the wonders of the world.

T. C. Bailey  
U. S. Deputy Surveyors

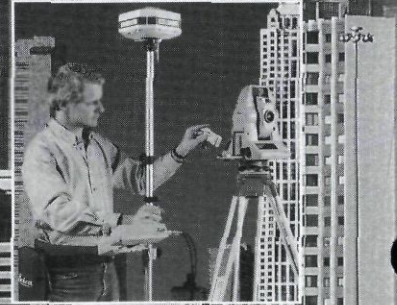
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# The California Surveyor

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."

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## EDITORIAL MATERIAL

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## DEADLINE DATES

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*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.*

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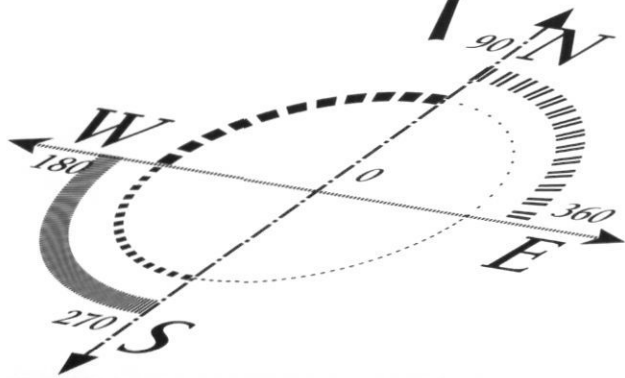
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## On The Cover: "Poetic Surveyor"

Legal description of Bryce Canyon survey.

Submitted by: David A. Goodman, PLS

# Don't Lose Your Way



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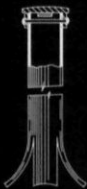
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*From the Editor*

# Let's Get Right to it (in a small automatic)

*By: Tom Mastin, PLS*

The California Surveyor is a magazine about surveying, for surveyors, by the California Land Surveyors Association (CLSA). Most people that receive this magazine realize the first two criteria of the magazine without question. However, for those of you that are not members of CLSA, you may forget that this is published and paid for by a volunteer organization that works toward the improvement of the profession. The Officers of CLSA have been hounding me over the years to let them get more columns into the magazine written by them so they can remind our readers about this fact. Therefore this issue is devoted to the Officers of CLSA. We wanted to let them all write an article or two, but because of space limitations we could only get three columns in by them. This obviously is good news for me and you as it limits how much I am allowed to write. Besides writing columns for this magazine, these Officers, all of them, volunteer weeks of their time each year to run this Association. As Officers of this Association they are constantly attacked for not doing enough for the members or the profession or the Association and when they are not being attacked for that, they are being attacked for doing too much for the members or the profession or the Association. Yet, they still keep standing up to represent us and working hard for the betterment of the profession. What is truly amazing is that they were also able

to write informative and/or entertaining columns for this magazine. So put those tomatoes down and pick the magazine up.

I did want to mention one thing before I turn the magazine over to the Officers of CLSA. I had the privilege and honor to attend the last annual Fresno State Surveying Conference. I am sorry to see it go. Sure they will continue to have conferences, but at the last surveying conference it was announced that the major would now be called "GEOMATICS" instead of engineering surveying. As we all know Geomatics comes from the Latin words Geo meaning small inexpensive car and Matics meaning without a stick shift. I have already vented my comments on the change in the CSUF publication Foresight, so there is no sense in repeating myself here. So next years conference will be the Fresno State Geomaniacs Conference or something like that. I'm sure it will still be as educational as always. Hopefully they will put us out of our misery and put to sleep those bulldogs though.

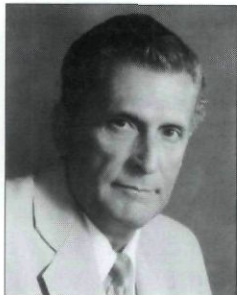
I know that this change will be discuss and debated and joked about for years to come. (How many Geomaticist does it take to change a lightbulb - We aren't changing the lightbulb we are just bringing it into the 21st Century). The one thing I think there should be no debate on however,

is the reason for the change. The school, and therefore the professors, are making this change because they believe that this will advance the major and the profession. This is what we all want and hopefully what we all strive for as a professional. Thankfully, the professors take this ideal much further than the rest of the profession. I know that their intentions are honorable and I hope their forecasting of the future is successful. We should all enjoy the ride, as movement in any direction is often more healthy than stagnation. We need to realize how lucky we are to have programs like CSUF's and Cal Poly Pomona's. We need to support all efforts in educating the profession.

Anyway, there was a reason to mention the Conference. At one of the talks, I was almost quoted. As in horse-shoes, almost is close enough. It's not important to know what the talk was on and probably not important to know that the speaker was an attorney. The gist of the quote was something down the line of, "You know that Mastin, his column always starts off explaining why he hasn't been able to get to writing the column and by the time he's done apologizing the column is done." Well that made me see the light, so this time I'm going to get right to it. Ohh, sorry out of space for this issue.



# Letters to the Editor



## ■ IN MEMORY OF DON NASLAND

Don Nasland, long-time CLSA member, founding member of the San Diego Chapter of CLSA and director of CELSOC for the last 20 years, whose civil engineering and surveying company was instrumental in the construction of such landmarks as Sea World and the San Diego Sports Arena, passed away February 18th. He was 65. Mr. Nasland died of complications from emphysema in his Crown Point home, where he founded Nasland Engineering in his garage 37 years ago.

A San Diego native, Don began working as a Land Surveyor as a Navy Seabee after his graduation from San Diego High School. After the Korean War, he studied engineering at San Diego State and the University of California Berkeley, where he earned a bachelor's degree in civil engineering with an emphasis on construction management in 1954. Don was licensed as a Land Surveyor in 1958 and a Civil Engineer in 1964.

Don was active in several community organizations and served as a Boy Scout leader and chairman of his parish council at Our Lady of Refuge Catholic Church in Pacific Beach. He is survived by his wife of 42 years, Sheila; a daughter Mara Nasland; six sons, Bob Hunt, Don Kirk "D.K." Nasland, Neal Nasland, Steve Nasland, Paul Nasland and Eric Nasland; 14 grandchildren and one great-grandson.

Private services were held on February 21st. Donations are suggested to a cancer fund for Don's granddaughter, the Caitlin Marie Nasland Fund, Mission Federal Credit Union, in care of Nasland Engineering, 4740 Ruffner St., San Diego, CA 92111.

## ■ AMUSING DEEDS AND/OR DESCRIPTIONS

I am sure that over the years all of us have come across unusual and amusing deeds and/or descriptions. I thought that "The California Surveyor" might be an interesting place to share these "gems" with others in the profession.

The following is one such easement for the good of the Order. Enjoy!

*Richard H.F. Wagner P.L.S.*

J. LE ROY WEHR  
ATTORNEY-AT-LAW  
100 MATHESON STREET  
HEALDSBURG, CALIFORNIA  
TELEPHONE 541

September 6, 1945

Mr. Hollis Black  
Cloverdale, California

Dear Hollis:

Earl and I are going in together on the Pocket Ranch Road and fix it up so that it can be traveled the year round. We haven't yet figured how this is to be accomplished, but we are entering into a little agreement to do so as soon as it can be done.

This is, of course, contingent upon your giving me a right-of-way across your property in a semi-circle from the gate on the Pocket Ranch Road to the gate on the fire trail as now traveled. If you have no objections to this, would you please sign the copy and return it to me.

Sincerely,

*J. LeRoy Wehr*

J. Le Roy Wehr

JLW:jt

We hereby grant to you and your successors a right-of-way in accordance with the foregoing request.

Hollis M. Black

STATE OF CALIFORNIA )  
SS.  
COUNTY OF SONOMA )

On this 1 day of October in the year one thousand nine hundred and forty- five, before me, E.E. Gibbins, a Notary Public, in and for said County and State, residing therein, duly commissioned and sworn, personally appeared Hollis M. Black, known to me to be the person described in, whose name is subscribed to and who executed the within instrument, and acknowledged that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at my office in said County, the day and year in this Certificate first above written.

(NOTARY SEAL)

E.E. Gibbins,  
Notary public in and for said County and State. My Commission Expires  
\_\_\_\_ Recorded at Request of Le Roy Wehr, Oct. 19, 1945, at 59 mins. past  
9 o'clock A. M. in Book 657 of Official Records, Page 321, Sonoma County  
Records.

# International Right of Way Association Surveying Committee

---

*Approved by Committee 18 June 1995*

---

*The International Right of Way Association is a 9,000 member organization serving right of way professionals of the United States and Canada. The members are engaged in the acquisition, improvement, management or disposition of real property for public agencies or investor owned companies. These professionals include land surveyors, engineers, appraisers, negotiators, attorneys, property managers, environmentalists, land title experts and others. They often work for local, state and federal government agencies; special authorities such as harbors, airports, and mass transit; utility companies, pipelines, railroads, contractors and private professional service companies.*

*IRWA provides a code of ethics and rules of professional conduct, a forum for the exchange and advancement of ideas, and stresses education of its members in these areas of expertise. IRWA offers an excellent series of education courses and seminars and a program of professional development for the members of the 78 chapters in the ten regions throughout Canada and the United States. The society certifies those members who have completed a stringent program of education and experience as an "SR/WA", a Senior Member of the International Right of Way Association, and honors those*

*that have gained that status. The SR/WA represents the professional level of development within the right of way industry. In addition to pursuing a stringent course of study, candidates must pass four examinations prior to SR/WA certification, specifically in the areas of law, negotiation, appraisal and engineering. The SR/WA must also qualify for recertification on a regular basis. In order to accommodate the needs of the members, an extremely impressive schedule of classes in these various disciplines is offered throughout the two countries.*

*Most of the 78 Chapters meet on a monthly basis, often at luncheon or dinner meetings featuring a speaker on some topic of interest to the members. Many chapters hold an annual seminar and sponsor presentation of the education courses in their locale throughout the year. In addition, each region sponsors a semi-annual seminar in conjunction with a meeting of the officers of the chapters within that region, and in late June of every year IRWA presents its Annual International Education Seminar, a week long event.*

*In addition to the usual operational committees normally associated with any national or international organization, IRWA depends on a number of special committees.*

These committees, each dedicated to a specific area of concern or expertise, keep the education courses current and provide seminar programs in their specific areas, and also coordinate the efforts of the members engaged in each particular specialty.

The Surveying Committee, a standing committee of the International Right of Way Association, is one of these. Two Canadian and four US representatives make up the six-member Surveying Committee. The mission of the surveying committee is to provide assistance to the association on all matters and interests in property for right of way purposes and to encourage professional development within the right of way and surveying communities. This committee is not concerned with survey regulation, problems or procedures, but is concerned with educating land-oriented non-surveyors as to the services available from the surveying community and at the same time point out the trouble one can get into by not utilizing these services when appropriate.

The committee provides six to eight hours worth of sessions at the Annual Education Seminar, the sessions running from one to two hours in duration. These sessions have to date been on such topics as metrication, the use of aerial photography in surveying, how to select a surveyor, an illustrated description of a right of way survey project, what map projections are, interpretation of property descriptions, and the like. The committee is also charged with providing survey oriented articles for publication in Right of Way, the IRWA bi-monthly magazine. The committee has volunteered to review and make recommendations for revision of education courses related to engineering and property descriptions.

*Continued on page 17*

# Meet CLSA's 1997 State Officers



**Gary T. Lippincott, PLS**  
**President**

I got a letter the other day, an E-mail letter actually. A simple line in my mailbox - "01/01 Tom Mastin Spring Issue of the California Surveyor." Thinking nothing of it, being the naive person that I am, I thought, "Gee, how nice of Tom to send me a new years greeting on New Years Day. Wow! What a neat guy." Just think of it, through the marvels of technology, someone 500 miles away pushing a series of keys, stimulating a few gazillion electrons, tripping thousands of switches and chips, passing through copper, aluminum, glass and air for thousands of miles, arrives in my E mailbox within a few minutes without being touched by human hands. All I have to do is click on that simple little line to receive the communication.

I started to read through the letter. The first paragraph was light-hearted humor and it caused me to

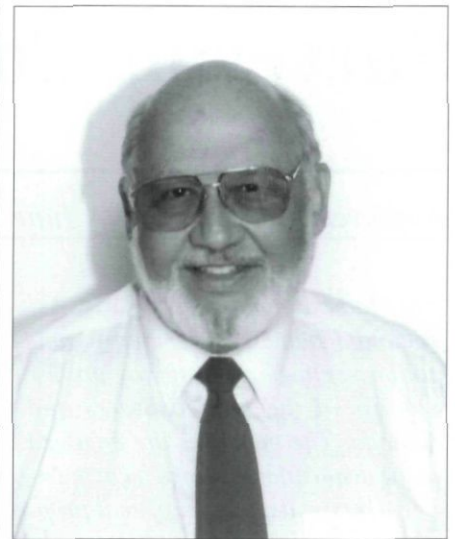
*Continued on page 9*



**Steven C. Wilson, PLS**  
**President-Elect**

Professional Land Surveyors, are usually called upon when a boundary dispute occurs. It is always best if the surveyor is called upon before whatever situation exists with a neighbor is allowed to deteriorate too far. The catalyst causing these disputes can be real, imaginary, or somewhere in between. Too often before a professional is consulted, your new client and his neighbor may be emotionally involved to the point where rational thinking is no longer possible. Many times, the Professional Land Surveyor has the opportunity to be the mediator in these cases. The surveyor, by being thoroughly informed about boundary law and by doing a thorough job with the necessary research and field surveying may save his client and the neighboring owner much anxiety and money. This opportunity to be a well-informed, meticulously thorough, highly professional, and hence most respected expert, should not be taken lightly.

*Continued on page 15*



**Gerald A. Stayner, PLS**  
**Secretary**

I received notification from Tom Mastin requesting that all the officers write an article and I immediately went into a coma. I fretted and thought of all the reasons why I couldn't write something, I even made a physical appraisal trying to find a reason. However, finding not one good reason I would first like to wish each and everyone of you a Happy and Prosperous New Year.

As you probably know I retired from my position as County Surveyor on December 30, 1996 after 38 years with the County of Riverside. One of the main reasons I wanted to be active in the California Land Surveyors Association (CLSA) was to help improve communications between the private and public sectors of the surveying community. Sooooo, as I began the memory evoking process of sorting through 38 years worth of cor-

*Continued on page 18*



*Lippincott Continued...*

chuckle a bit. That quickly changed when I read, "This is where you come in." Wait a minute, where did this "you" come in. "I intend to have an article by all officers in this issue. Each one of you needs to write a column about 500-1000 words (two to three single spaced typed pages). The deadline is January 20, 1997 period. It needs to come to me in a digital ASCII or ANSI format." He even had the nerve to include the fact that a duplicate real live letter was being sent by regular mail, just in case.

Well there it was! The old, you wanted it, you've got it situation. Time to pay the piper. If you're going to talk the talk, you gotta walk the walk. I can tell it's going to be a great year already! You know what's great about E-mail? No possibility for lame excuses such as, "What do you mean did I get your letter? I didn't get a letter. It must have gotten lost in the mail." Or how about, "I just got it in the mail this afternoon. What, you sent it more than three weeks ago? I can't possibly have a three-page article by tomorrow." All Tom has to do is check his E-mail status to find out if I got the letter. No chance, no quarter given. No paying the postman extra for a registered or return receipt letter. No lost in the mail.

When comprehension set in, sweat beads started to form in numerous and most curious places, my blood pressure medicine time release formula kicked in an extra measure just after my heart muscle tightened up and my breathing became restricted. My life was passing before my eyes as I contemplated the true meaning of the letter. I was going to have to write an article for the California Surveyor!!!

The only other time I even remotely felt this bad was when I took the LS exam or maybe when I had to play one of the monkeys in the Wizard of Oz in my high school sophomore drama class. Believe me, those were bad. Even being drafted into the Marine Corps and going to Viet Nam wasn't close.

All sorts of memories came flooding back of previous literary experiences. What warm fuzzies they are! You know, I write letters, reports and create documents all the time now for work without much thought to it, cause it's my work. That's what I get paid to do. So why is this so much different? Trying to be the positive, poised and confident person I like to have people think I am, I decided to make myself believe that this is just another report for work and charge ahead. What's the saying? "A job begun is a job half done." I've gotta tell ya, I got the letter on January 1, dove into it in earnest the next day and set up a file, but, here it is on the 14th and I've still got the whole article to do. I just couldn't think of what I could say; nothing jelled. Tom was kind enough to include several ideas for topics with the only caveat, write something positive and something to help boost membership. There's always a hitch in it somewhere.

Well, what I did finally decide to do is write an article using the sandwich approach. You know, especially those of you who evaluate others, you start off the evaluation with something positive or lighthearted to get the person at ease and off guard. Then you come in with the negative things, the areas which can be improved, the more serious issues. Just when you figure the



**Michael S. Butcher, PLS  
Treasurer**

I have been involved in land surveying for the past 16 years; I became a PLS in 1993. I have been active in CLSA from the beginning of my career. My involvement started as a Chapter Representative for the San Diego Chapter. At the State level I became involved in the Professional Practice Committee (PPC). I was interested in PPC because I wanted to increase the level of professionalism among all surveyors.

One of the responsibilities of the PPC is to review items brought to the committee, and show support by the association on the topics that affect all land surveyors. The underlying issue of the majority of recent PPC cases is responsible charge. Two items that are of particular concern to me are GIS, and out-of-state "survey brokers". Who is in responsible charge for the preparation and maintenance

*Continued on page 10*

*Continued on page 11*

of GIS? Who is in responsible charge of a survey performed by a California surveyor who is contractually administered by an out-of-state "survey broker"?

Another recurring topic is the disregard for filing records of survey. The common excuse is the rising cost of checking fees. I do not understand the logic of this argument, as the record of survey is for the benefit of the client, and all associated costs are borne by the client. The continuation of the argument is that a fellow surveyor will be awarded the project because he is willing to bypass the recordation. What would you do?

I look forward to addressing these issues, and other areas of concern, in the years to come. I appreciate the continued support of all those who are actively working to better our profession.

"Every man owes a part of his time and money to the business or industry in which he is engaged. No man has a moral right to withhold from an organization that is striving to improve conditions within his sphere."

Theodore Roosevelt



## California Land Surveyors are Professionals.

*They Deserve Professional Service.*

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person is ready to completely break down (or come over the desk at you), you end the discussion with something positive to get them feeling good about themselves again. I think sometimes the idea is to confuse the person enough to get them out the door so you can close it before they come to their senses.

As I've been traveling around the state, visiting several of the chapters desperate enough to need a cheap easy speaker, I've expounded on several concerns I have for the future of CLSA and our surveying profession. It's easy while speaking on these issues to maybe come off as a little on the negative side, especially when you start talking about the declining membership over the last few years, the low passing rates for the LS and LSIT exams, the general economy and such. I guess it's just easier to pick out the negative things instead of the positive. You get no sympathy for success. So in keeping with

Tom's request, let's look at a couple of these so-called negative issues in a positive light. Maybe I should phrase it in terms of "teaching an old dog new tricks."

What a fantastic time we live in!! I can hardly wait to read about all the new products or medical drugs that have been introduced anymore. Technology is changing so rapidly that whatever you buy one day is outmoded the next. Back in 1962, I remember going on a field trip with my Surveying 1B class to US Coast and Geodetic Survey office in Menlo Park. The pride of the office was their new analog computer. As I remember it, it was contained in one or two environmentally sealed rooms filled with banks of electronic components and vacuum tubes and cost a bundle. Because I was using a Curta and looking up 1 second trig functions in the surveying office in which I was working, I was definitely

impressed. Does anyone remember what a logarithm or a sliderule is? Then came the space program and computer chips and everything exploded. Today businesses give out credit card size calculators as a come-on with as much power as those we used back then.

The power we have available in our little desktop computers today along with their ability to network with other computers almost anywhere and anytime boggles the mind. That little plastic and metal box contains the computing capabilities of computers that a few years back would take up whole floors of office buildings. Just six years ago we were looking at computing speeds around 16 to 33 MHz, and now look, we're talking 200+. The same thing with memory, I just got use to megabytes. It's almost to the point that you have the answer before you've even

Continued on page 14

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# Geodetic Control For Metropolitan Water District's Eastside Reservoir

by: *Julio Castillo PLS*

## INTRODUCTION

The Metropolitan Water District of Southern California (Metropolitan) is building Southern California's largest water storage reservoir, provisionally named the Eastside Reservoir. Located near the city of Hemet in Riverside County, the reservoir consists of three dams, delivery pipeline, a pumping plant, recreational facilities and environmental reserves. With a storage capacity of 800,000 acre feet, or 269 billion gallons of water, it will almost double Southern California's surface storage capacity; it will secure six months of emergency storage in the event of a major earthquake and will provide additional water supplies for drought protection and peak summer needs. The reservoir has a surface area of 4,500 acres; it is 4.5 miles long and more than 2 miles wide. When full it will have a depth of 160-260 feet. A primary geodetic control survey was performed to maintain a common datum for extended control during the entitlement, construction and deformation stages of the project.

## PURPOSE OF THE SURVEY

The purpose of this geodetic control survey is to provide common horizontal and vertical construction control for Metropolitan's Eastside Reservoir, utilizing the California High Precision Geodetic Network, North American Datum of 1983 (NAD 83), Epoch 1991.35 and the North American Vertical Datum of 1988 (NAVD 88) vertical network. This control survey will also provide deformation reference monuments to be used for monitoring before, during, and after the construction of the three dams. Metropolitan's deformation monitoring provides the survey data required by the California Department of Water Resources Code for monitoring of dams and reservoirs. A Record of Survey showing the results of this control survey was filed with Riverside County on June 26, 1995 and was recorded in book 99, pages 31 through 43.

## MONUMENTATION

Metropolitan's Geometrics Section set fourteen primary control monuments. This number was based on the size of the project and the need for intervisibility between points. The project site consists of hills running the entire 4.5 mile length on the north and south sides of the 2-mile-wide valley. The monuments were set on the ridge of the hills, approximately 5000 feet apart and 350 feet above the valley floor.

Metropolitan's surveyors attempted to set stainless steel rods into the bedrock per NGS Geodetic Standards. After several attempts in various locations, however, we found it impossible to drive the rods into the extremely rocky soil with any consistency. To satisfy the requirement for stability and permanence of these control monu-



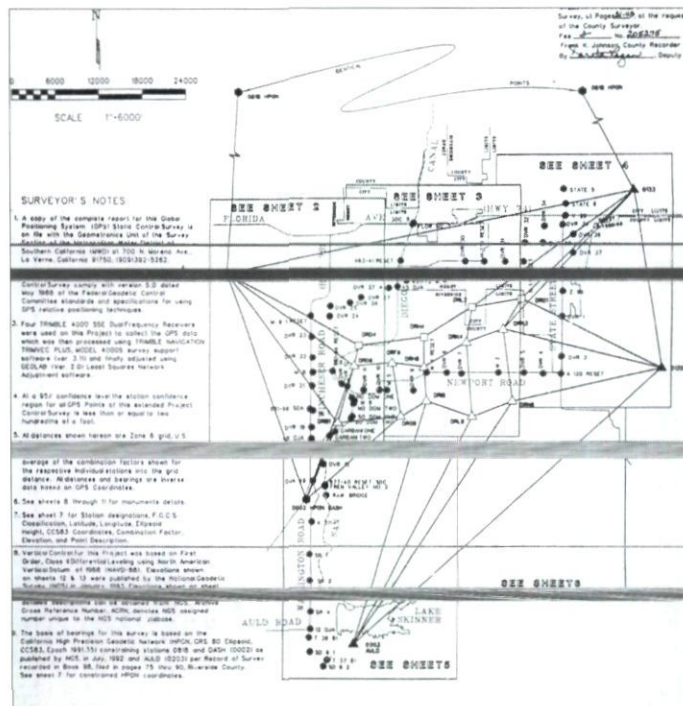
*Conceptual Rendering of Eastside Reservoir*

ments, we set a standard 3" MWD brass cap monument in a 48" deep by 18" wide steel-reinforced concrete post 9" below ground surface, the brass cap was covered with a 6" aluminum well which was set flush in a 2' by 2' concrete pad. In addition to the newly set monuments, we used four existing historical monuments in the vicinity of the project site to strengthen the network design. We prepared recovery notes, giving monument identification and "go to" descriptions for all monuments set and found.

## PRIMARY HORIZONTAL CONTROL

The Global Positioning System (GPS) static survey network design called for a total of 88 occupations (22

sessions using 4 GPS receivers). A four-man crew with 4x4 vehicles, backpacks, radios and the monument recovery



Record of Survey showing horizontal and vertical control

notes completed the field measurements in two weeks. (Because of safety concerns additional people were sometimes used on hikes.) The crews encountered no major problems, other than access to some of the historical monuments and some power failures to the GPS receivers. The GPS field measurements were downloaded and processed daily, and the data was analyzed to ensure that fixed solutions were obtained for the measured vectors. Loop closures were performed on the vectors used in the final least squares adjustment. The survey was constrained using the NAD 83, Epoch 1991.35 values for two stations on the California High Precision Geodetic Network, "CA STA 0818" and "DASH 1972," as published prior to the Landers earthquake.

The survey procedures used for this GPS station control survey comply with version 5.0 (dated May 1988) of the Federal Geodetic Control Committee standards and specifications for using GPS relative positioning techniques. Four Trimble 4000 SSE dual frequency receivers were used to collect the GPS data, which was then processed using Trimble Navigation Trimvec Plus, Model 4000S survey support software (version 3.11) and finally adjusted using Geolab (version 2.0) least squares network adjustment software. At a 95% confidence level the station confidence region for

all GPS points of this extended project control survey is less than or equal to two hundredths of a foot.

### PRIMARY VERTICAL CONTROL

The vertical control for this project was based on First Order, Class II differential leveling North American Vertical Datum of 1988 (NAVD 88). First Order Elevations were published by the National Geodetic Survey (NGS) on February 17, 1995 for eleven of the control monuments. Elevations were obtained by using Leica NA3000 electronic digital level with bar-code rods. A three-man crew took five weeks to complete the spur lines which were double run from previously published elevations on the valley floor to the monuments on the ridge line. Electronic data was downloaded and reviewed daily. Raw files were processed and "blue booking" procedures for NGS publishing were performed.

### CONSTRUCTION CONTROL

The main project features for the Eastside Reservoir are the three earth filled dams. More than 90 million cubic yards of clay, sand and rock will be required for this, the largest earth filled dam project in the United States. Metropolitan's surveyors at the reservoir are using Trimble GPS Total Station Real Time Kinematic (RTK) technology to calculate the earth volumes involved with this massive earthwork project, as well as establishing secondary



RTK Surveys to determine earth quantities

control for photogrammetric surveys and topographic surveys. To provide for continuous RTK GPS data collection, two permanent base stations were established at each

Continued on page 16

thought of the question. I have a nasty habit, which I am working on, of finishing other peoples sentences before they can. Just think of having a computer doing that too. You know the most fantastic thing about all this? Almost anyone can afford to own their own computer these days.

Because of todays computers, surveyors have more and better information and data available to them instantaneously than ever before to use in the performance of their projects. What use to take hours and hours to accomplish can now be completed in minutes. A one man field crew and office is truly a practical reality with autotracking total stations, data collectors, surveying and drafting software, word processing and accounting software, and let's not forget E-mail.

*The Internet has made it possible to contact and receive information we wouldn't have even considered before because of the time and effort it would have taken. Total stations and G.P.S. equipment have made it possible to gather an abundance of information in the field quicker and more accurately and less obtrusive to property owners. In the Sierra Nevada mountains of Northern California around Paradise, we used a 300-foot steel tape and a 20-second transit to perform surveys. The steep hillsides are covered with vegetation, such as poison oak, manzanita, poison oak, buck brush, poison oak, pine and oak trees, berry vines and then there was also poison oak. When we ran a line, we ran the line over, under, through, what ever. There is more than one tree around here with a hole through it or a big notch out of its side. I always got a kick out of salesmen saying, "This equipment will shoot 12,000 feet in one shot." We were lucky to shoot 100 feet someday much less 1,200. With EDM's you don't have to brush all the way down into those steep canyons and back out, you just shoot over the top. What a life! Now if only they can develop equipment to shoot though those hills.*

Drafting software and plotters can produce a map in a fraction of the time it would take to tediously produce it by hand. How I remember drafting all those ink on linen or plastic sheet maps using an ink pen and a LeRoy set. Oh what fun that was! I remember getting a map back from the County Surveyor's office in San Diego County with notes to the effect of moving the title block to the top center from my (and most other counties) usual lower right hand corner position along with some other similar changes. I was in the Marine Corps at the time and you can imagine some of my thoughts were not something you would want

to blurt out in mixed company back then. Today, however, now that I am a map checker, just when I figured I could get back just a little for all those injustices that past map checkers marked in red on my maps, what happens, everyone's got some type of drafting software and it's no big deal to redraw the map or turn it inside out if I want. There's no justice!

Although I have attempted to be jovial and light-hearted regarding this article, the rapid changes that are occurring in our profession today need to receive our most serious considerations. Individually we can make some changes, but collectively we can move mountains. What better organization in the state to represent the professional land surveyor than the California Land Surveyors Association? What better organization to provide you with *publications, workshops, seminars and conferences* to help you maintain optimum proficiency? What better organization to provide a forum to discuss current and pertinent issues. What better organization to represent you and to promote and accomplish necessary legislative changes? We need you to bring forth your experiences, your ideas and your visions. We need your agreement and we need your disagreement. (By the way, it is alright to remain friends and to respect one another even if you disagree with one another.) For those of you who have never been a member of CLSA or for those of you that have been members before but have decided not to continue as a member, we need your participation as well. We need your membership to increase our representation throughout the state and the country. We need to know how we can better provide those things you need or require. We need to know those areas where you think we can improve so that you would consider membership. Membership in CLSA is a means in which to give back to the profession that supports you.

To change the subject and to keep from ranting any further, cause I could get into some real negative areas pursuing some of the statements contained in the last paragraph, I will conclude this article with the following: For those of you who have been around a while and have grown mossy with me through these past 3 plus decades and have struggled to stay abreast with modern technology as I have, you will probably empathize with some of my ramblings. For those of you just starting on this fantastic and fun ride in the land surveying profession, just stay around for a few years (or less) and it will start to sink in.



If the situation between the client and the neighbor has deteriorated to the point where lawyers are involved, such disputes often take on a life of their own. The only winners are likely to be the attorneys, and sometimes the Professional Land Surveyor, (if one feels no sympathy for the client). In these cases, you can reasonably expect the opposing side will have another surveyor scrutinizing your work if the dispute continues. Surveys of this nature make work in the private sector especially challenging. We all expect that our boundary work will someday be retraced. Our future reputation will be based upon our work; so surveys under these circumstances should not be done to any different standard. Somehow, doing topographic surveys, construction staking, or routine boundary surveys are not as exciting as being involved in a boundary dispute, although in all cases, the work needs to be to an exacting standard.

Situations similar to illogical boundary disputes, over a wide variety of stimuli, occur with alarming regularity. Most surveyors soon learn how defensive and territorial people are about their real property. Similar behavior often occurs when spouses, children, jobs, and boats are the issue. There are some things that we just refuse to share with others to the point of being combative. It is my opinion that this behavioral characteristic has also spread onto the highways.

I remember reading some time ago, (probably during the gas "crisis" of the mid-'70s), that Americans will soon have to lose their love affair with vehicles. I did not believe it then, and it certainly is not true now. Most cars sold today are very highly evolved compared to the '60s muscle-cars, by having for example: computerized engine management systems, sticky tires, sport suspension, aggressive styling, and interiors with most all of the imaginable creature comforts. People are paying more for their cars than they used to pay for a house. It is little wonder that machines originally intended to provide us only a means of transportation have become our status symbols, and essentially an extension of ourselves in some cases. The potential for conflict is intensified by most people's opinion of their own driving skills, a very wide variety of driving habits, and an assortment of vehicles on the road. There are vehicles that can barely maintain the speed limit sharing the same road with those that just come into their element at about twice legal speeds. Perhaps a significant number of us turn into Mr. Hyde when operating a vehicle.

In order to minimize the probability of conflicts with

*Continued on page 20*

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end of the reservoir near the construction area of the dams. The RTK base stations are enclosed, powered and each houses a Trimble 4000 SSE receiver, L1/L2 geodetic antenna and a Pacific Crest 35 watt radio. Positions for these base stations were established by static GPS occupations measured from the primary control monuments. In the future these permanent base stations may become part of the Scripps Orbit and Permanent Array Center (SOPAC) Continuous Operating Reference Stations (CORS), and will aid in the establishment of an earthquake warning system.

Another key component of the Eastside Reservoir construction is the Inland Feeder, a 45 mile alignment of large-diameter tunnels and pipelines that will pass unseen under rivers and mountains and across broad valleys. The Inland Feeder is a \$920 million engineering and construction feat that will help bring into Metropolitan's six-county service area much of the Northern California water that it will require in the future. It will also be an important source of water for the Eastside Reservoir. Artist conception of Eastside Reservoir

The Inland Feeder project required a second geodetic control survey with 34 primary control monuments on NAD 83 horizontal datum and 104 benchmarks on NAVD 88 vertical datum. The survey covered portions of two counties before connecting with the control survey of the Eastside Reservoir. A Record of Survey showing the results of this survey was filed with Riverside County on August 23, 1994 recorded in book 96, pages 85 through 103 and with San Bernardino County on July 20, 1994 recorded in book 100, pages 46 through 64.

### CONCLUSION

The Eastside Reservoir will cost nearly two billion dollars and employ over two thousand people. After construction is completed in 1999, it will take up to four years to fill the reservoir with water imported from the Colorado River and from Northern California. When completed the reservoir will provide significant regional surface-water storage, a supply of water in case of emergency, and recreational opportunities for residents of Southern California. John Wodraska, Metropolitan's general manager, has called the Eastside Reservoir "our legacy for future Southern California generations." The geodetic control surveys described in this article are only a few of the many surveys that are being performed by Metropolitan's Survey Engineering Branch to ensure that the construction of the reservoir is successfully completed and reliably maintained so that we can continue to provide Southern California with reliable supplies of high-quality water for decades to come.





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The committee is encouraging the formation of Chapter Surveying Committees and has developed guidelines to assist in their formation and activity. It is at the personal level of Chapter activities that really useful things are accomplished. A Chapter committee would provide occasional programs for Chapter meetings and for the Chapter and Region seminars. It would provide information to the Chapter newsletter editor for the monthly publication. And of course, the members of that committee would participate in Chapter activities like any other member.

The committee is also encouraging interaction with surveying organizations through joint meetings, exchange of speakers, and the like at both the Chapter and International level. Several Chapters have held joint meetings with local survey organizations and both have found the experience enlightening. The International Committee has held all of its meetings except those at the Annual Education Seminars in conjunction with meetings of the National Society of Professional Surveyors, who have provided not only the meeting room for the committee, but also exhibit space for the IRWA membership booth. International President Donna Crosby attended the meeting of NSPS in February of 1995 as a guest of that society, and more of this type of exchange is coming soon.

Why would a surveyor who does not work exclusively in the right of way field want to join IRWA and participate in the Chapter Survey Committee? The activities just described offer the opportunity to educate an involved segment of the public as to who surveyors are and what they really do. It provides the opportunity to decrease the public impression of the surveyor as somebody who stands in the street looking through a telescope, shouting loudly and obstructing traffic. And don't forget that many of the members are prospective clients with substantial projects.

Did you ever consider the amount of time spent waiting at public information counters to obtain information about utilities that you need to show on your survey maps? Imagine how much easier and more efficient that becomes when you can call a friend that you met at a Chapter meeting and ask her or him to send a copy of the location data to you by mail or fax. And it really is nice developing friendships with folks who are not surveyors, but who are in professions closely enough related to make conversation easy. One can experience a great deal of personal pleasure and satisfaction in the enjoyment of dinner and a program with friendly people who are not surveyors.

And we haven't yet mentioned the expansion of personal horizons that comes with association with related professions. IRWA courses available to members include classes in management, communications and negotiations which we all use every day, as well as subjects closely related but not an integral part of surveying. These include appraisal, environmental awareness and environmental contamination, property management and leasing, real estate law, legal aspects of easements, and many more. These are the types of things that many surveyors believe real continuing education should include.

Visit a local Chapter meeting and experience it for yourself. Arrive early and chat with some of the members. You will find them an affable, interesting and friendly group. If you don't know any members in your locale, the staff at the IRWA office in Gardena, California will be delighted to put you in touch with an officer of your local Chapter. The office can be reached by telephone at (310) 538-0233, or you can reach them through the mail at:

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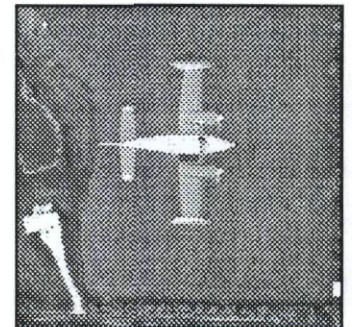
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respondence and paperwork it suddenly dawned on me that with few exceptions my interaction with the public and private sectors has been very positive and rewarding. I believe I reached my goal of improving communications at least in one small area of the state because of my participation in CLSA and my work for the Board of Registration.

All land surveyors burn their brains out studying first for the L.S.I.T. and secondly for the L.S. exams, they may try more than once, or like some of us, luck-out and pass on the first try. Then comes years of actual experience and continuing education. The point I'm trying to make is it's not us against them, we all work very hard achieving our goal of becoming a licensed land surveyor and should therefore strive for professionalism whether you practice in the public or private sector.

One strain on the relationship between the public and private sectors is state laws that are interpreted 58 different ways. I believe all professional land surveyors would like to see standardization throughout the state. The way to accomplish this is for all professional land surveyors to be active members of CLSA and work together to eliminate areas of confusion which tend to drive a wedge between the public and private sectors. The more active members, the stronger the professional organization, providing greater ability to change state and local laws and influence governing bodies to promote better decisions in the interest of the surveying profession and the public's ultimate welfare.

The Executive Committee is continuing to develop new programs to benefit our current members and attract new members, but our Association could easily double in size if each current member would actively recruit one new member, remember there is strength in numbers. The Association has historically sponsored various workshops, seminars and conferences to help us hone our skills and fulfill any professional development credit, mandatory or voluntary. CLSA's goal is to attract new members and bring back former members who for whatever reason dropped out. CLSA has tried to eliminate those reasons and many changes have been achieved for the good of us all. If you are a member, actively support the Association at your local chapter meetings, this is where your wishes, desires, concerns and complaints can be aired at the Board of Director's meetings.

Finally, I hope everyone enjoyed the WFPS/CLSA/NALS Conference at the Luxor Hotel/Casino in Las Vegas.



## Deeds and Grants

*Extrinsic evidence of grantor's subsequent actions proves that ambiguous grant deed conveyed fee, not easement, to railroad.*

City of Manhattan Beach v Superior Court (1996) 13 C4th 232,CR2d

Over a century ago, Redondo Land Company (RLC) conveyed to Redondo Beach Railway Company property by deed that provided that the grantor "remit[d], release[d] and quit-claim[ed]" to the railway "the right of way for the construction, maintenance and operation of a steam railroad" over a strip of land running through what is now the City of Manhattan Beach. The railway's successor, Atchison, Topeka and Santa Fe Railway Company (Santa Fe), ceased railway operations on the property in 1982. Santa Fe then sold the property to the city, which now maintains it as a transportation corridor, with a median park and jogging path. RLC's successors (heirs) filed suit to quiet title and for inverse condemnation, claiming that RLC conveyed only an easement, with the result that the property reverted to them when the railway operations ceased in 1982. Both the trial court and the court of appeal agreed and held the city and Santa Fe liable to the heirs for inverse condemnation. The supreme court reversed.

The court noted the general rule that, if the intent of the parties is clearly reflected in a document, that intent controls. If the intent is unclear, however, extrinsic evidence may clarify the ambiguous intent. In this case, the use of the work "quitclaim" may have indicated an intent to convey a fee. In another portion of the deed, however, the use of the work "right of way" could mean that the grantor intended to convey an easement. Because the deed was ambiguous, the parties' conduct can be examined to clarify the ambiguity. Here, RLC's subsequent actions demonstrated that it intended to convey a fee. A few years after the conveyance, RLC, the grantee's successor, and a third party executed an unrecorded document that stated that the earlier deed should remain a "grant"; during RLC's judicial dissolution proceedings, all documents "excepted" the right of way "granted" to the railway, and RLC did not include the railway's property in a subsequent quiet title action when pursuing a partition action of its property. These

*Continued on page 21*

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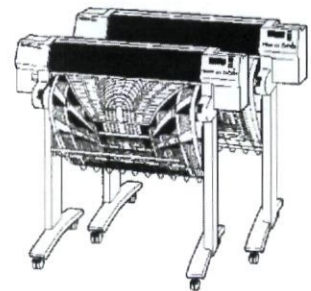
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whom we share the roads, there are some very simple rules to follow. Most of these are codified in law, seldom enforced, and it appears most drivers are completely oblivious to them.

- 1) Drive Right, Pass Left. It is not your responsibility to keep others from going faster. Let them go as bait for the police to catch.
- 2) Do not Tailgate. I have also been a motorcycle rider for 30 years. Drivers who invade your envelope of safety by making it impossible for them to avoid running you over are foolish and inconsiderate. Just because they can see past you does not

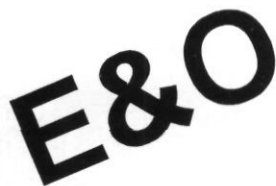
mean they will avoid hitting you.

- 3) Maintain your vehicle, especially the headlights. Completely blinding an oncoming driver does nothing for their safety, or for that matter, yours.
- 4) Pay attention to, and heed, traffic controls. Running red lights and stop signs is not cool.
- 5) Allow traffic to pass you by moving over. This is required by law. People can do some really crazy things after being in a single-file line for miles.

All of these items are really

common sense. Of course, I am not addressing you. Although driving seems innocuous enough, the aftermath of mistakes can be eternally permanent. Highway deaths are often a result of very temporary and insignificant problems. Thank you for allowing me to vent some of my personal views about traffic. If you have read this far, and agree with my opinions, please tell someone else. If you do not agree, please invite me to a local Chapter meeting, and I would be pleased to discuss them, (or other matters which more closely affect Land Surveying).

It is my desire to meet as many CLSA members as possible during this coming year as your President-Elect. May our journeys on the highways always be uneventful, and may we avoid irrational behavior wherever it occurs.



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Continued from page 18

subsequent actions unambiguously showed that RLC considered that it had earlier conveyed a fee interest to the railway.

## Easements and Licenses

*Extrinsic evidence of grantor's subsequent actions proves that ambiguous grant deed conveyed fee, not easement to railroad.*

This case is reported under Deeds and Grants above.

Doctrine of exclusive prescriptive easement not applicable where owner's backyard property has been fenced in by neighbor.

Silacci v Abramson (1996) 45 CA4th 558, CR2d

Plaintiff and defendant lived behind one another with adjoining backyards. Defendant's predecessor had fenced in a portion of plaintiff's property for his backyard. After plaintiff sued for a declaration of his rights to the fenced-in property, defendant claimed he had acquired title to an exclusive prescriptive easement in the disputed parcel. The trial ruled for defendant.

The appellate court noted that an easement acquired by prescription in one acquired by open and notorious use. An easement, however, is merely a right to use land, and reserves the owner every incident of ownership not inconsistent with the enjoyment of the easement. The doctrine of Exclusive prescriptive easement, as a practical matter, completely prohibits the true owner from using his or her land. This doctrine, accordingly, is applicable only

Continued on page 22

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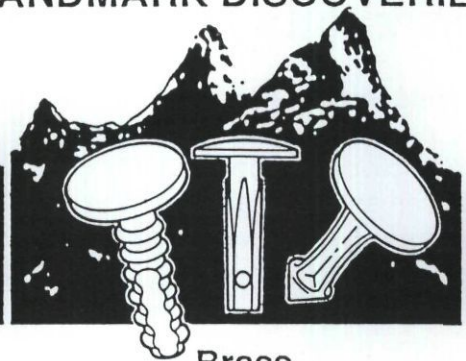
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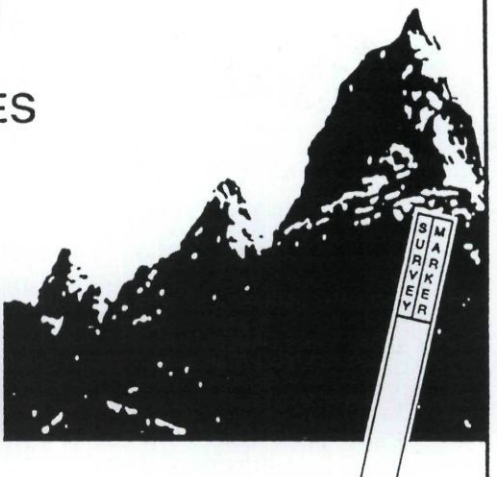


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Continued from page 21

in very rare instances (e.g., a water company was entitled to an exclusive prescriptive easement to protect the integrity of the public water supply in *Otay Water Dist. v Beckwith* (1991) 1 CA4th 1041, 3 CR2d 223). Simple backyard disputes are not subject to the doctrine of exclusive prescriptive easement. The trial court's order amounted to giving defendant a portion of plaintiff's land without reservation. This was inappropriate and the judgment was reversed.

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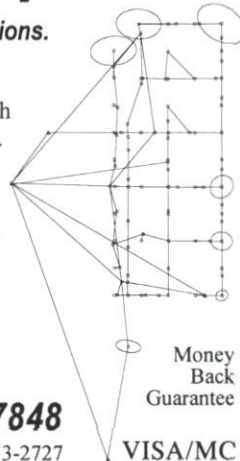
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# Product News

## **BLM Names Lead Cadastral Land Surveyor**

Donald A. Buhler of the Interior Department's Bureau of Land Management (BLM) has been selected as the Lead Land Surveyor for the BLM's Cadastral Survey Program. Buhler, who has been working in the BLM's Utah State Office, will serve as the national and international authority for Federal cadastral survey activities, including the Bureau's geographic coordinate data base, survey automation, and geodetic functions.

Buhler will head up the cadastral survey program, which oversees the maintenance and propagation of the Public Land Survey System (PLSS), a system that includes all Federal interest lands, Native lands, and 30 participating states. The rectangular grid system is used as a basis for legal and land descriptions that become part of the permanent land records of the United States. In addition, the cadastral survey program is the main architect for the building of the geographic coordinates of the PLSS, which is the foundation of geographic information systems in both the public and private arenas.

Buhler will work under the Land and Realty Group (202-452-7744) in Washington, D.C.

## **Topographic Maps on CD-ROM For Outdoor Enthusiasts and Professionals**

A brand-new product featuring USGS topographic maps on CD-ROM has just been introduced by Earthvisions of Greenland, New Hampshire. The product, called US Terrain Series, includes an ingenious software package that lets the user work with the maps in many different ways.

Each CD contains the complete USGS series of both 1:24,000 and 1:100,000 maps for each region. Connecticut, Massachusetts, New Hampshire and Vermont are now available and sell for \$99 each. Maine, with four CDs, sells for \$199. Rhode Island, California and Wisconsin will be out in early 1997. The rest of the United States will follow.

US Terrain Series operates on Windows 3.1 or Windows95, and requires a 486 CPU or better, 2x CD-ROM (4x is recommended), 8 MB of RAM (16 MB recommended), and a mouse or drawing equivalent.

For additional information, call 1-800-627-7236, or visit Earthvisions' web site at <http://www.earthvisions.com>.

## **Blue Marble Upgrades Website**

<http://www.bluemarblegeo.com>

Gardiner, Maine - Blue Marble Geographics - The Geographic Software Component Company - newest website offers a new graphical "look and feel" in a newspaper context informing visitors about late breaking events in the component software realm.

Recent component software articles, technical information, and links to relevant sites can be located at [www.bluemarblegeo.com](http://www.bluemarblegeo.com).

## **Trimble Introduces New Reference Station for High Accuracy GPS Measurements**

Trimble (NASDAQ:TRMB) introduced today a Continuously Operating Reference Station (CORS) system for permanent GPS base station installa-

tions. The CORS system is ideal for high accuracy land surveying/GIS mapping base station operations or scientific research applications.

The system includes the 4000SST CORS receiver combined with a Trimble Choke Ring Antenna and PC-based reference station software. The very high quality GPS measurements made possible with the Trimble CORS system are easily made available for private or public access via a computer bulletin board or the internet. Customized options also allow the user to add RTCM-output for real-time submeter or real-time centimeter positioning via suitable radio links to roving GPS receivers.

For an interactive look at company news and products, visit Trimble's site on the World Wide Web at <http://www.trimble.com>

## **Trimble Technology Increases Real-Time GPS Surveying Productivity**

Trimble (NASDAQ:TRMB) announced today its new Everest Multipath Rejection Technology for its 4000 Series GPS receivers. Everest (patents pending) is a breakthrough in multipath signal mitigation which increases survey productivity, especially in high multipath environments such as near buildings, mine walls, vehicles, trees, water, or other reflective surfaces. Everest extends the benefits of real-time GPS surveying to many sites that were not previously viable due to multipath interference.

For an interactive look at company news and products, visit Trimble's site on the World Wide Web at <http://www.trimble.com>.







# 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 the 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 Land 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. Health and professional liability insurance programs are available to members.

## Join CLSA Today!

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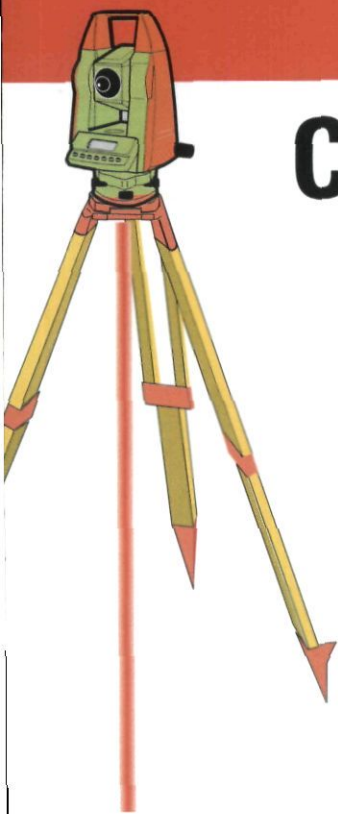
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