

## Bird's-eye view of course a major help in many ways

By TERRY BUCHEN

From golf course superintendents to architects, builders and irrigation system designers, color and infrared aerial photography is taking off in the 1990s.

"We are starting to get requests from superintendents to have their as-built irrigation blueprints blown up to 50 scale after initial construction, and even on existing courses," said Larry Rodgers, an irrigation system designer from

Lakewood, Colo.

"Architects are using infrared photos as an alternative type of feasibility study, especially on inaccessible sites," said Bruce Hepner of Renaissance Golf Design in Traverse City, Mich. "It sure beats trying to dig test pits to tell what soil types there are on heavily wooded potential building sites and areas with wetlands and swamps."

Aerial photography has myriad uses for superintendents. Here's

some advice on how to use this tool.

Before the photos are taken, mark all irrigation sprinkler heads, gate valves, isolation valves, air-relief valves, wire splices, controller locations, quick coupler valves, etc., with round white-colored cardboard pizza discs, or with rectangular white plastic kitchen trash bags held down with metal sod staples.

Have a large white letter "X" marked for your surveyor to use

to mark "ground zero," where a permanent benchmark ground elevation is kept eternally.

Ask the aerial photographer to take color pictures, at a scale one inch equals 50 feet. Most aerials are shot at one inch equals 100 feet, or one inch equals 200 feet. But 50 scale is the most useful and productive size. It is so large that a 10-by-10-foot wall is needed to display it properly. Cover it with clear, non-reflective glass. The glass protects the picture and a magic marker can be used to mark areas on the course.

While the aerial photographer is making a shoot, consider having them do a topographical mapping overlay, which is usually a transparent velum that can literally lay over the 50 scale photo, showing all of the contour drainage elevations measured in feet. It can be rolled up and stored when not in use.

Consider taking the as-built of the entire irrigation system with piping, heads, etc. with the measurements in feet, and putting that information on a transparent velum, blowing it up to 50 scale that can also be overlaid on the color as-built aerial photograph. An irrigation designer with a computer CADD system can change an existing 100 or 200 scale as-built by blowing it up to 50 scale; a blueprint shop can then create a transparent velum.

Underground drainage as-built blueprints of the entire course, including greens, can be put on another transparency, by an irrigation system designer, changing the 50 scale for yet another overlay. This velum can be laid over the color photograph together with the irrigation and topographical velums to pinpoint everything about irrigated and drainage high and low spots.

### THE GOVERNMENT

Another source for aerial photography, with budget limitations in mind, is to visit the local county Extension Service office and scrutinize its black-and-white aerial photographs — usually taken every three to five years. Reproductions, in a variety of scales and print sizes, can be ordered from the U.S. Department of Agriculture's office in Salt Lake City. They also have some color negative photography and color infrared positive photography.

Some counties routinely take color aerial 35mm slides, shot usually at an angle instead of overhead, that usually include golf courses. Making duplicates of the slides usually costs a dollar or two; then decorative blow-up prints can be made. This usually occurs in rural counties that take pictures of farms.

### INFRARED PHOTOGRAPHY

Another interesting tool in our arsenal is to have a company that specializes in infrared aerial

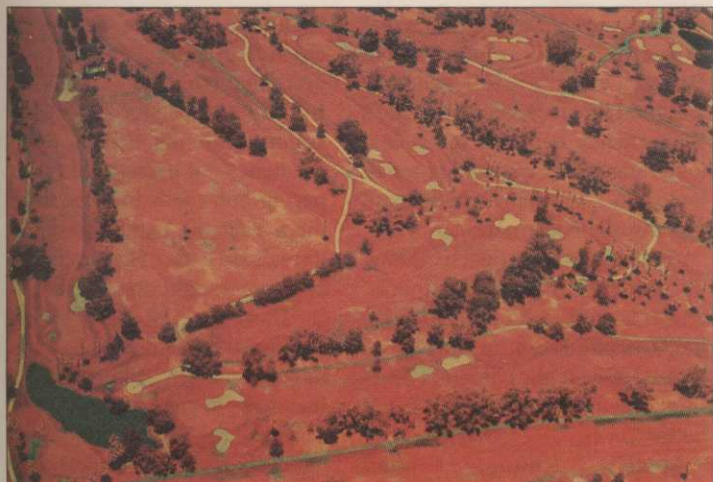
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\*Based on research conducted by the Center for Golf Course Management, a subsidiary of the Golf Course Superintendents Association of America.



Infrared photography captures the unseen.

## Savvy Super: Overlaid aerial photos tell whole story

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 photography shoot the golf course.

It is usually done on four 35mm slides after making as many flyovers at much lower altitudes than conventional aerial pictures. It is the only existing method of seeing the unseen and detecting the undetected. It can reveal:

- Irrigation system patterns, leaks and underground water-flow patterns.
- Drainage problems.
- Photosynthetic changes in

soils and all kinds of vegetation to help discover areas susceptible to stress, disease and insects.

- Rocky areas.

Infrared helps us see what is not visible to the naked eye. It can also measure the photosynthetic rate, not heat. All healthy plants reflect 88 to 92 percent of the infrared rays from the sun.

The cost is about \$1,800 for a 150-acre site. The hardest part of infrared photography is interpreting the film. The most renowned — and perhaps only

trained professional — who takes his own pictures and then interprets them is John Seid, formerly of Innova Corp.

Seid interprets his photos with the superintendent, who can help him with plant types, history, etc., on existing courses, and with architects on newly planned sites.

Further information is available from Jim Raden of J.W. Raden Enterprises in Akron, Ohio, at 216-773-2932.

## Supers share feelings on mortality study

David Gardner, Eagle's Landing Golf Club, Stockbridge, Ga.: I'm not concerned with it one bit. If I were a super 20 years ago, when they were using all those mercury compounds and arsenic compounds for insect control, it would be different. But these days, with integrated pest management, if you follow the rules and read the labels, you should have no problem.

Beside, I haven't personally applied a pesticide in five years. I have somebody else doing that.

Personally, I have changed my philosophy on pest management. I am a curative type of person now. I wait for a problem and then I try and address it. We have not sprayed a broad-spectrum or pythium product in five months. Five or six spots of brown patch is not a problem... I wait for a population that justifies putting an insecticide out.

That's my theory. Some other superintendents may say I'm an idiot, but my turf is healthy. And I would stack this golf course up against anyone's.

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Mark Esoda, Atlanta Country Club, Marietta, Ga.: Well without having read the report, I think there's a tremendous opportunity to move forward with the study and protect people in the industry. If there is a higher lung cancer rate, which is 30 percent higher than normal, they ought to look further and deeper into it. And I think they're doing that.

I think that, if they find a cause, it may be gasoline fumes or something surprising — who knows? They may be able help protect people in other industries, too.

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Larry Wood, Oak Cliff Golf Club, Dallas, Texas: I'm not worried about it. I'm very confident in my program.

I was born and raised on a farm and I've worked with chemicals all my life — long before EPA and all the regulatory agencies got involved. I was raised to use them in a safe way. Chemicals are a lot like automobiles. It all depends on how you use them. If you drive safely, go 55 miles per hour and mind your business, you've got nothing to worry about.

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