

## MAINTENANCE

# Mower storage rack a winner

By TERRY BUCHEN

**A**RCADIA, Mich. — Paul Emling, golf course superintendent at the Arcadia Bluffs Golf Club here, uses walk-behind greens mowers for his greens and tees and walk-behind rotary mowers and blowers for maintaining miscellaneous areas on the grounds. To ease their transport, Emling uses tow-behind trailers that can be entered and exited from the rear or side while towing them individually or in tandem.

Property manager John Fisk and equipment manager Patrick Sullivan solved Arcadia Bluffs' trailer storage situation by building a rack that holds six trailers of either type in a vertical position — all in a 4- by 5-foot space. The rack can be moved anywhere in the



maintenance building area, and a holder for extra hitch pins can be added easily, Emling said.

"The swinging arms hold each individual trailer upright and there are two separate tracts for each trailer model to use in an alternating storage fashion," he added.

The material and approximate costs for the rack follow:

- 2 by 2 by 3/16 square-48 feet \$ 71.10
- 2 by 1/4 flat -24 feet \$ 18.00
- 8 by 1/4 flat -1 foot \$ 2.50
- 2 by 3/16 flat \$ 2.40
- 1-1/2 by 1-1/2 by 3/16 square 11 feet \$ 15.50
- 1 by 3/16 angle - 5 feet \$ 1.75
- Total cost: \$111.25



The trailer storage rack fits in a 4- by 5-foot space.

# GIS, GPS saving time and money

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this case, and access stored data — its hole number or square footage, for example. The layered structure enables the user to view all features or only specific ones on the map display at a given time.

More powerful, however, is the GIS's ability to process data entered by the user or stored in the database to generate new information. GroundLinkx has leveraged this capability by programming numerous golf-specific functions into the system so that, with a few clicks of the mouse, superintendents can:

- measure precise distances between any points;
- calculate bunker volumes and acre-foot of lakes;
- compute precise square footage of fairways, tees and roughs;
- determine fertilizer, seed, or pesticide application totals;
- locate trees by name or other parameters;
- isolate sensitive habitat and wildlife areas;
- design new course features to scale;
- locate a specific sprinkler head valve or piping route; and
- plan precise layout of tents, bleachers

ers and other tournament facilities.

"The result of every computation is extremely precise because of the accuracy of digital mapping which lies at the heart of the system," said Mike Platt, president of IntraSearch, a mapping and aerial survey firm. "Features are located on the course basemap with an accuracy of less than 1 foot."

## GIS IS DYNAMIC

Superintendents point to the dynamic GIS functions as the reason they turn to the GroundLinkx program daily.

For example, the TurfCare routine prompts the superintendent to enter the N-P-K ratios of any fertilizer product and then select the desired application area on screen. The system determines the exact chemical amount and spreading rate required to treat the area properly.

"The long-term effect of the TurfCare function is that I keep less material in storage," said Doug Anderson, superintendent at The Vintage Club in Indian Wells, Calif. "It's so exact it takes the guess work out of management. There's no way you can't save money."

In addition to computing spray and spread rates, this routine also tracks when and where the chemicals are applied and

stores the information in the database.

Other databases can be built in GroundLinkx with direct input from the course staff. The tree database, for instance, prompts the superintendent to enter the tree name, pruning date and other maintenance data he chooses for every tree on the course. When completed, the database offers two ways to retrieve information from the system — either by clicking on a tree visible on the basemap to view a dialogue box, or by querying the database directly so that it highlights all trees of a given type or with a specific problem on screen.

"We had an infestation of ash saw flies last year and called in a sprayer," said Jim Wilkins at Westwoods Golf Club in Arvada, Colo. "GroundLinkx showed where every ash tree was so the sprayer knew how much chemical to mix and where to spray it."

## MAPPING CHANGES

Design routine is another GIS function that gets a lot of attention on courses where expansions are proposed. Meadow Springs Country Club in Richland, Wash., was considering building a new practice green. Superintendent Mark Dalton simply drew a green and bunkers on the GroundLinkx basemap with the mouse. He showed it to greens committeemen, drew in modifications and sent it to the

architect for final design.

"The advantage was being able to measure the exact size of the planned green on the screen and make sure it would fit in the space we had available next to the tennis courts," said Dalton.

When dealing with course architects and irrigation designers, Kevin West at Olympia Fields Country Club in Illinois simply exports the digital course basemap into AutoCAD format from GroundLinkx to the designer so construction plans can be drawn to scale from the outset. Once the work crews arrive, he hands them paper map printouts with greens, irrigation lines and other relevant features highlighted so they know exactly where to excavate.

The Vintage Club's Anderson uses the same procedure with his employees. "It keeps me from constantly having to go out in the field with them," he said.

## PLANNING TOURNAMENTS

Most of the newer GroundLinkx systems use highly precise aerial photographs acquired by IntraSearch as their GIS basemaps. Superintendents have found they get a better perspective on their course when viewing an air photo on screen rather than a colored line map. The rich information content of the photograph, coupled with the mapping and measuring capabilities, convinced the USGA to employ the system in tournament planning.

The program allows the tournament director to measure and lay out the locations of tents, portable toilets, bleachers, and other facilities right on the basemap. The USGA is using the program now at Pebble Beach to prepare for the 2000 U.S. Open.

"We are using the software in corporate sales to show sponsors where their tents will be located," said Frank Bussey, manager of U.S. Open Operations and head of field operations at Pebble Beach.

Bussey and superintendents familiar with GroundLinkx say GIS technology will be commonplace in course maintenance offices in the near future as more superintendents become computer-savvy.

## PIGMATO GROUP FORMS SITEDATA

WEST PALM BEACH, Fla. — The Pignato Group Inc., a golf irrigation consulting firm based here, has unveiled SiteData Inc., a firm specializing in GPS/GIS services for golf and commercial landscape projects. Pignato has provided construction as-builts as part of its services since 1995. The decision to start a separate firm for SiteData reflects the growing need for accurate digital information that provides superintendents with site-management tools. SiteData offers irrigation as-builts, drainage as-builts and digital mapping of any component that a superintendent may require.

# Breaking the ice

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spreader.

"By the end of the day, the ice is breaking up on its own," he said. "We've had luck on 8 to 9 inches of ice. In 15 minutes on a sunny day you can see it working through the ice, just enough to open pockets to get rid of the gas trapped under the ice, and get good oxygen exchange."

Newbauer related the problems with other methods of handling ice cover:

- Ice chippers were too dangerous. "When we had 3 or 4 inches of ice we used chippers to break it up, but the chipper would pierce the turf," he said
- Wooden snow scoops were too slow. "We went out with four or five guys and shoveled the greens by hand. But we could only do 1-1/2 to two greens a day. So we picked out the ones that would give us trouble," Newbauer said.
- Snowblowers came up short. "That worked well except we'd have a hard time getting down through the layers of snow and ice," he said.

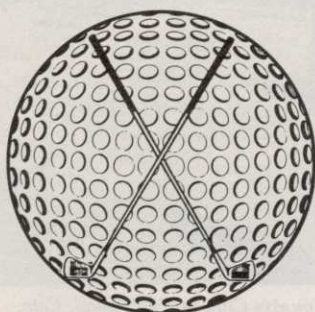
Meanwhile, at the beginning of winter Springbrook's crew continues mowing as long as the grass is growing, just raising the height of cut. "We want as much of the leaf blade as we can, but don't want grass so long that it will lay down and contribute to snow mold problems," Newbauer said.

"We mow until we close in November."

He also dormant fertilizes, generally the last week of October or the first of November before the ground freezes completely and after mowing has stopped.

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