

of the field had been packed down by years of play, the old drain lines were plugged with silt, and all the rain falling on the new concrete bleachers was draining down onto the playing field. Using school district equipment, Genito and his crew stripped off the old sod, regraded the field to a one percent slope from the center to the sidelines, and installed a 30-foot-wide network of wrapped perforated tubing on both sides of the field. The drainage trenches were backfilled with sand. Finally, Deco Drain was installed between the base of the bleachers and the field.

The entire field was treated with Vapam fumigant to kill weeds, insects and fungi in the soil. Santa Ana hybrid bermudagrass sod was the largest expense of the project. It was washed to reduce the chance of soil incompatibility between the sod and the new root zone. Once installed, the sod was topdressed with a heavy layer of sand. Genito planned to follow up with a program of regular aeration and sand topdressing. The final cost of the project was under the \$20,000 estimate.

Every two weeks during the season the stadium field is fertilized with one half pound of nitrogen in the form of ammonium sulfate in addition to bimonthly applications of slow-release IB-DU. "I use ammonium sulfate and flowable sulfur to counteract the effect of the irrigation water which has a pH of 8.0," he explains. One month before the first football game, Genito applies iron in the form of Ferramec.

Ironically, when the season is only weeks old, the Santa Ana is overseeded with 30 pounds per 1,000 square feet of perennial ryegrass. Every following week during the season another ten pounds per 1,000 square feet of ryegrass is broadcast over the field. Instead of using a germination cover, Genito sprays the field with green paint (Instant Green) to help warm the surface, encourage germination of the ryegrass and conceal the bermudagrass as it becomes dormant and turns brown.

After working so hard to establish the perennial ryegrass, Genito ends the season by killing the cool-season coverup with Diquat. The herbicide does not harm the dormant Santa Ana, but kills all the actively growing weeds and the ryegrass. Many sports turf managers have reported problems bringing overseeded bermudagrass out of dormancy in the spring when ryegrass is still present.

Clovis has made a sizeable commitment to turf care. Genito has a crew of 35 to maintain 400 acres. He has two full-time mowing crews, one irrigation crew and one spray crew. He would like to centralize the school district's many irrigation systems with a computerized controller. "The important thing is to get control over what we have now because the school has three more schools and two stadiums planned for the near future," Genito states. Both of Clovis' high schools have been using Lamonica Stadium. A third high school with a 15,000-seat football stadium and a 5,000-seat baseball stadium is being designed. An elementary school and a junior high school are also planned.

While some school systems are expanding, others are consolidating facilities to stretch budgets as far as possible. In either case, pushing recreational facilities to the maximum requires higher maintenance levels. Those schools that either can't afford to hire a full-time turf expert or face labor union restrictions, can still obtain important advice and service from sports turf contractors.

Sports turf contractors usually enter the picture by providing services not handled by existing grounds crews. These services may include reconstruction, renovation with specialized equipment, or application of pesticides requiring a licensed applicator.

Roy Zehren, president of Natural Athletic Turf Co., Mequon, WI, has served a large number of schools in the Milwaukee area for more than 15 years. His primary work is reconstruction and renovation. "There is no quick cure for a bad field," advises Zehren. "You have to start with a well-built field and maintain it consistently. Even a rebuilt football field will fall apart if you wait until May to start getting it ready. You may save a few dollars in maintenance in the spring, but you risk the cost of repeated reconstruction. Once a commitment is made to proper construction, an equal commitment needs to be made to maintenance."

continued on page 22

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Football Field Preparation

continued from page 21

Zehren contends that a properly constructed football field can withstand between 30 to 75 games during the season if maintained by someone knowledgeable.

Maintenance of a football field should start in March and go through November stresses Zehren. Never let the turf go into drought stress or dormancy in the late spring or early summer. Aerate at least three to four times every year, including once at the end of the season. Fertilize at least four times each year to provide four to six pounds of nitrogen per 1,000 square feet in addition to potassium, phosphorus and micronutrients as indicated by soil testing.

Overseed either at the end of the season or in the spring with a mixture of 75 percent improved Kentucky bluegrasses and 25 percent perennial ryegrass. Mow at least once a week throughout the growing season at between 2 and 2 1/2 inches. One month before the season starts, begin lowering the height of cut gradually to 1 1/2 inch. Once the turf is dense, weeds will be less of a problem. "On good fields you can generally get by with an application of Trimec every other summer," he states.

For roughly \$2,000 per field per year a school can hire a contractor to take over fertilization, overseeding and aeration. "Hire someone who does it for a living and stop taking the advice of self-appointed experts,"



Mike Griffiths unloads spreader for job.

Zehren pleads. "Remember the practice field(s) gets more abuse than the main field."

Roy Griffiths, owner of Sportsturf East, in Laurel Springs, NJ, handles everything but mowing for nine school districts in New Jersey and southeastern Pennsylvania. The former Scotts tech rep handles all fertilization, aeration, topdressing, overseeding and weed control. He also maintains three municipal golf courses and serves as the turf consultant for the Philadelphia Eagles and J.F.K. Stadium in Philadelphia.

"The whole thing with football fields comes down to a year-round maintenance program done by skilled people with the right equipment, seed and chemicals," states Griffiths. For less than \$2,000 per field per year a school can get professional help from April through November. "They don't have to buy equipment to use just three or four times a year. Instead, we encourage them to spend that money on irrigation. The drought two

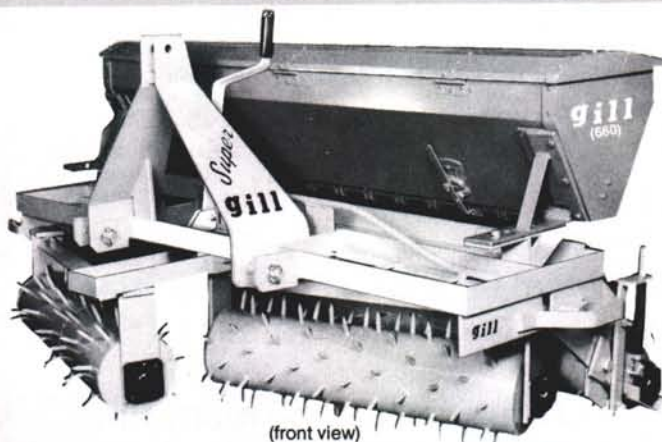
years ago made a lot of schools realize how important automatic irrigation is. These permanent systems deliver water to important turf with the least amount of waste."

"Landscape architects and landscape installation contractors often don't adequately consider maintenance," says Griffiths. "Schools spend thousands of dollars on reconstructing fields when they wear out and get very little advice from the architect or contractor on how to maintain them. That leaves the mower operator with the job of guarding this investment with very little information."

"I got into the business because as a salesman with a turf education I saw the dilemma schools faced maintaining their fields," Griffiths recalls. "They use products and do things without knowing why. It is also hard to find someone who is directly responsible for the condition of the fields. Many times the person who cares the most about the fields has no authority to make changes. Salesmen will tell you how hard it is to sell a product to a school. That hasn't changed."

Griffiths' 23-year-old son, Michael, joined the company after graduating from Rutgers University with a degree in turf management. "A turf education is more important than most people realize," says his father. "It gives you the reasons why things work the way they do. For example, everybody understands that aeration relieves compaction and improves drainage. What they may over-

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look is that once you put down a premergence herbicide, aeration will destroy the chemical barrier in the soil and allow crabgrass or annual bluegrass seed in the soil to germinate. As a result, we don't aerate until the fall."

Since the drought, Griffiths has incorporated wetting agents into his program. He had gotten results using them on golf tees and greens and saw their value for sports fields. "They improve drainage almost immediately and eliminate dry spots," he explains. "You can waste a lot of water trying to green up dry spots when most of the turf has all the water it needs."

Gene Howe, owner of Sportsturf Northwest in Redmond, WA, performs all maintenance for school athletic fields on a contract basis. "One of the reasons sports turf management has improved lately is the development of specialized equipment," says Howe. "Schools usually have equipment and personnel capable of maintaining the general school grounds, but they fall short when it comes to athletic fields. By contracting out the athletic fields, they are relieved of the cost of equipment, the salary of a knowledgeable turf manager, and the poor



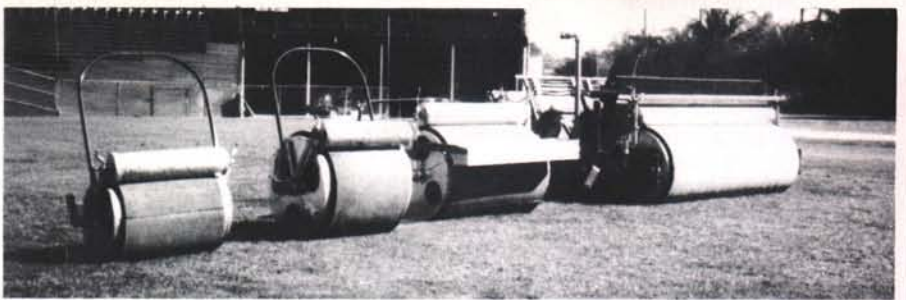
Roy Griffiths (right) with Bob Prickett, superintendent at Pennsauken County Club, one of Sportsturf East's accounts.

quality of fields maintained like the rest of the school grounds."

The former park director has the Seattle Seahawks practice facility as one of his accounts, puts his emphasis on renovation. "Reconstruction is an expensive process that many schools and parks can't afford," he points out. "The technology exists today to correct drainage problems and amend the field soil over a few years without reconstruction. But, the equipment required to do things like deep aeration, slit trenching, dethatching, spraying, topdressing and slice/seeding is expensive and takes skill to operate. By providing and operating the equipment, we can do a better job at a lower cost."

Howe prefers to do all maintenance, including mowing, on a schedule designed to keep the field healthy all year long. By controlling both renovation and maintenance, he knows the field will withstand heavy use year after year without the cost of major reconstruction.

Still, Howe sees a problem with school
continued on page 24



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August, 1987 23

Football Field Preparation

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funding of grounds expenses. "Schools appear to be able to obtain funds through levies or grants for one-time construction projects, but find it hard to obtain special funding for ongoing maintenance," he states. It may be possible for a contractor to help a school maintenance director obtain donations from booster groups or grant programs because he submits a bid similar to a construction company.

Howe's counterpart in the Northeast is Kevin McCarthy, president of the Greenway Company in Peabody, MA. The ten-year-old company provides many New En-

gland school districts with contract renovation and maintenance. McCarthy started out by doing contract chemical spraying for golf courses and a few sports fields. Many of the pest and nutrition problems he was hired to correct with chemicals were the result of poor drainage and compaction. To provide a solution to these problems he purchased a few pieces of specialized equipment and added an athletic field renovation service.

Today, McCarthy can take a compacted, worn-out field and complete all work to bring it back to life in two days. He can break up the soil to a depth of ten or more inches, install slit-drains, grade, fertilize and seed

in that short time with only two people because he has the specialized equipment. From there, he can take over all or part of the maintenance to keep the field in shape.

Servicemaster Industries Inc., of Downers Grove, IL, has been successful improving football and athletic fields at more than 160 public school districts throughout the country with its contract management service. By utilizing the existing school staff and equipment, an on-location Servicemaster manager can take over the management of custodial, maintenance and/or grounds services. A computerized management program developed through experience with hundreds of schools and corporations provides the school with proven methods of meeting their maintenance needs. The company then implements training programs and provides technical support through its main office in Downers Grove.

"We currently maintain more than 1,100 school athletic fields across the country," says William Bedrosian, corporate director of grounds. "Our job is to take a school's grounds budget and spend it in the most effective way. We do that by instituting an inspection program, have our turf specialists put together a maintenance program, and then train the existing staff to do the work. If a school needs special equipment, we may either recommend they purchase it, or we'll locate a sports turf contractor with the equipment to do it on subcontract. If the school turf manager has a problem, he can call our technical support staff for the answer. It's really a combination of proven management methods, technical support and supervision."

The company does things that help schools set priorities, use labor most effectively, adjust maintenance practices and keep track of progress. In addition to training, the company provides school grounds managers with a comprehensive grounds management manual. "The important point is that it's a waste of time and money for every school to reinvent the wheel in sports turf maintenance," says Bedrosian. "Our most important program is what we call preventative maintenance. Certainly one of the things we are trying to prevent with sports turf is injuries."

Schools across the U.S. spend million of dollars each year on uniforms, salaries, equipment and supplies for football and other turf sports. Every penny of this is at risk without year-round attention to the turf by a knowledgeable turf manager. School administrators, concerned about student population growth, increasing use of a limited number of fields, and their school's liability in the event of injuries, have a choice of ways to provide the attention needed to keep fields safe. They can hire an experienced and well-educated turf specialist, sign a contract with a qualified sports turf contractor, or assign the task of managing athletic turf to a company like Servicemaster. Regardless of the choice, it is clear that sports turf must be given a higher priority within the maintenance structure of school districts. ☺

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5. Total number of maintenance staff for field.
6. Does baseball field have lighting for night games?
7. Number of events on baseball diamond per year.
8. Types and number of events on diamond other than baseball?
9. How many months during the year is the field used?
10. Why do you think this field is one of the best?
11. Include an assortment of color slides or prints of diamond.

Deadline for entries

Entries must be postmarked no later than November 30, 1987. Mail your entry to *sportsTURF* magazine, P.O. Box 156, Encino, CA 91426. Selection of winners will be made by a committee of the Sports Turf Managers' Association.

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U.S. PARK SERVICE ENDORSES CERTIFIED IRRIGATION DESIGNERS

Officials of the U.S. National Park Service are planning to utilize more irrigation design specialists on their projects in the future instead of individuals with less specifically adapted engineering backgrounds. The Park Service is urging all its districts throughout the country to utilize certified irrigation designers (CIDs) listed in a directory published by the Irrigation Association (IA).

"The state-of-the-art is changing so much that it behooves us to hire someone who is a certified irrigation designer," said Darwina Neal, an official with the Nation's Capitol Region of the Park Service. There are currently 300 irrigation designers certified by the IA and another 1,000 preparing to become CIDs.

To become certified, an individual must have at least three years of irrigation design experience and pass a series of exams given by the IA. A person with two years of irrigation design experience and 12 quarters of irrigation schooling may also take the exams.

"There are six areas of specialization for CIDs," states Mark Williams, director of communications for the IA. "Quite a few are certified in more than one specialty by taking an exam in each category." The six categories include golf course, commercial landscape, residential landscape and three types of agricultural irrigation.

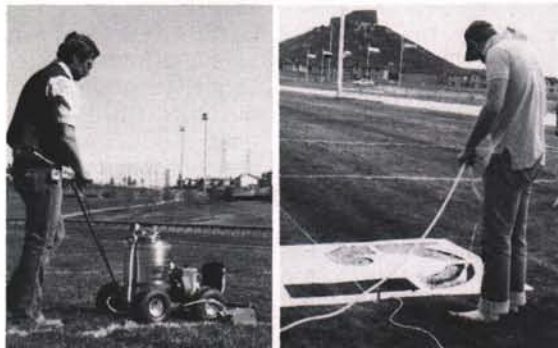
"The move by the Park Service is an indication of the added recognition of the quality of a CID dealing with specific irrigation problems of parks," said IA Executive Vice President Bob Sears. For a copy of the directory or information on certification contact the IA, 1911 North Fort Myer Drive, Suite 1009, Arlington, VA 22209, (703) 524-1200.

PARK SCHOOL FOCUSES ON MAINTENANCE MANAGEMENT

The National Recreation and Park Association and the California Park and Recreation Society are again cosponsoring a week-long school on maintenance for park superintendents, supervisors and managers. The Pacific Southwest Maintenance Management School will be held October 18-23, at Harbor Town Resort in Ventura, CA.

The faculty includes park and recreation professionals, consultants, educators and experts who collectively represent a wide range of expertise in both the public and private sectors. More than 60 students from last year's program are expected to return. There are about 100 openings for students in the first year class. For further information and registration details, contact NRPA Pacific Region Office, 1600 Sacramento Inn Way, Suite 217, Sacramento, CA 95815, (916) 646-9050.

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MISSOURI SITE PROPOSED FOR SPORTS TURF RESEARCH CENTER

Industry and government are currently working together in Missouri to establish a center for sports turf research and education near Kansas City. The project, launched two years ago by David Doherty, a Kansas City-based builder of recreational centers, has recently gained momentum with the donation of 240 acres in Lone Jack, MO, by the Powell Foundation and a cooperative agreement with the University of Missouri College of Agriculture in Columbia.

"I believe that we have the start of a National Sports Turf Research Center like those in England and the Netherlands," says the confident Doherty. "The difference in the U.S. is private enterprise has to take the first step before state and federal grant programs can chip in. If all goes as planned, private investment and government grants should generate nearly \$10 million for the development of a sports turf research center within the next two to three years."

Doherty's curiosity about the poor condition of football, soccer and baseball fields led him to contact George Toma, head groundskeeper for the Kansas City Chiefs, and Dr. James Watson, vice president of The Toro Company. They told him possible solutions to poor fields existed, but there wasn't a central research facility to test them.

Watson advised Doherty to contact Dr. David Minner at the University of Missouri to see how the university could help. "The

College of Agriculture had vegetables growing in all different kinds of crazy soils. One soil was made up of sand, clay and ground-up rubber. Couldn't you grow turf in the same type of soil on athletic fields?" he asked. Minner's answer was sure, but no one has ever tried it on an actual football or soccer field.

About this time, Doherty met Marjorie Powell Allen, heiress to the Yellow Transfer Freight fortune, and a director of the \$600-million Powell Foundation. Mrs. Allen was once a physical education teacher and loves kids. When she heard Doherty's concern over the condition of athletic fields, Mrs. Allen said she had been looking for new uses for the Powell Gardens in Lone Jack, a research arboretum run cooperatively between the Powell Foundation and the University of Missouri. Immediately, she took an extreme interest in the idea of an athletic facility for children which doubled as a research center for turf.

"I'll never forget meeting with Mrs. Allen and Dave in my office at Arrowhead Stadium," says Toma. "She really cares about kids and is real easy to talk to." During that meeting it was settled that 240 acres next to Powell Gardens would be set aside just for research into athletic fields.

DuraTurf, a private corporation, will build offices, a soils laboratory and dormitories on the grounds. The University of Missou-

ri hopes to offer a sports turf curriculum at the facility in addition to short courses. "The problem is turf graduates know a lot about growing turf, but hardly anything about setting goal posts, painting or preparing an infield," says Toma. "Most stadium groundskeepers know how to do all the field work, but they usually don't know enough about turf. A school is needed to teach turf graduates about field techniques and stadium groundskeepers about turf. There are jobs out there for guys who know how to do both."

Plans have been drawn for the research center, dormitories and the first football, soccer and baseball fields. Doherty hopes construction will be completed within the next two years. "We have to apply for matching fund grants from Missouri and the Federal government," he explains, "but we're very optimistic."

NFL APPROVES SWEDEN FOR 2ND EXHIBITION

The Minnesota Vikings and the Chicago Bears will be the first National Football League teams to play an exhibition game before sports fans in Gothenburg, Sweden, in August 1988. Gothenburg is only the second city outside the U.S. approved by the NFL to host a pre-season game. The League approved Wembley Stadium in London, England, for games in 1984, 1986 and this year.

The Vikings played the St. Louis Cardinals in the first international exhibition of American Football in 1984 at Wembley. Sam Monson, facilities supervisor for the Vikings in Eden Prairie, MN, was the U.S. advisor on field preparation for that first contest. He will also be the advisor to the stadium in Gothenburg. Monson is making an inspection tour of the stadium and practice facilities this month.

The NFL has received proposals from a number of other countries, says William Granholm, assistant to the president of the National Football Conference. "We could have sellouts in Germany, France and Italy tomorrow if we had the staff to do all the work," reports Granholm. The NFL also has invitations from Finland, Israel and Malaysia. "An international schedule of games is a possibility, but it is at least five to ten years away. Our first responsibility is to the continued success of professional football in the states."

Monson faces the prospect of helping both Gothenburg and Wembley prepare for exhibition games in 1988. "There's more involved than the game," says Monson. The teams practice in the cities a week before the event. That can mean preparing three sites in both locations before the teams arrive.

"We'll have to start from scratch in Sweden like we did at Wembley in 1984," Monson explains. "Volvo is sponsoring the event, so that should help a lot." See the story on Wembley in the July 1987 issue.



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DOLPHINS KICK OFF SEASON IN NEW STADIUM



Miami Dolphins owner Joe Robbe built Dolphin Stadium with private financing. The team kicks off the season this month in the new stadium.

WORLD CUP SOCCER IS LOOKING FOR TWELVE GOOD STADIUMS

World Cup Soccer USA staff has been travelling the country the past few weeks trying to select twelve stadiums for its proposal to the Federated International Football Association (FIFA) to host the World Cup Soccer matches in 1994. "The process is very similar to the Olympics," said James Trecker, press agent for World Cup Soccer USA. The international competition is held every four years and nations compete for the 52-match tournament.

The group must evaluate cities across the country not only for their playing facilities, but for considerations such as security, hotel accommodations and even the availability of international foods. Since FIFA requires that all matches be played on natural turf, World Cup Soccer must figure in the cost of building natural fields over artificial surfaces in some stadiums. The tournament would begin in June 1994 and end in the month of July.

The group is looking for stadiums with seating capacity of between 30-40,000 for the preliminary matches and 60-80,000 for the semi-finals and finals. "Certain stadiums stand out right away," explains Trecker. They include the Rose Bowl in Pasadena, CA, the Orange Bowl and Dolphin Stadium in Miami, FL, the Coliseum in Los Angeles, CA, and Tampa Stadium in Tampa, FL. "We also have to consider stadiums that will be built between now and 1994," he pointed out.

World Cup Soccer USA must present its proposal to FIFA by the end of September. "We will probably present a list of 18 stadiums to FIFA to have the necessary 12 plus 6 back-ups," Trecker said. Italy hosted the event in 1986. Brazil is a leading contender for the 1994 games.

PELE SOCCER PROGRAM LAUNCHED IN ATLANTA

Ford Motor Co. in cooperation with the Georgia State Soccer Association has launched a Pele Youth Soccer Program in Atlanta, GA. The program is similar to one currently underway in Los Angeles County, CA, featuring \$1,000 college scholarships for ten high school soccer players and a state-wide soccer tournament. More than 200 teams will participate in the invitational tournament on Labor Day.

Sites in three Atlanta-area counties are being considered for a Pele International Soccer Center. Ford hopes to select a multi-field location for dedication by the international soccer star in October or November, says Bob Larsen, manager of the program. DeKalb County Park officials have proposed a 26-field complex to be built in Decatur.

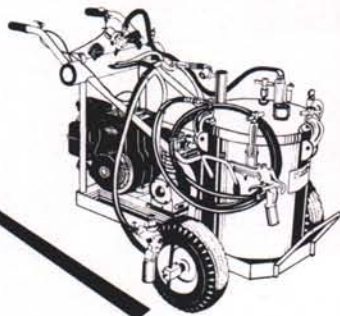
Six other major metropolitan areas are being evaluated by Ford for Pele Soccer Centers, says Larsen. The company provides all scholarship funds, covers Pele's expenses to visit the soccer centers and some miscellaneous field maintenance expenses.

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Spoon-Feeding Sand Creek

The USGA greens at Sand Creek become mottled without regular treatment with wetting agents and soluble fertilizer.

Despite the growing threat of imported steel and rising interest rates, a decade ago the mammoth Bethlehem Steel Corporation showed the confidence to build the Sand Creek Country Club in Chesterton, IN, as a private golf course for the hard-working salaried employees of its Burns Harbor plant.

A short, 15-minute drive from the noise and fumes of the huge furnaces, Bethlehem bought 517 acres of corn fields and swamp on the southern edge of Indiana Dunes State Park. Then they hired Ken Killian and Richard Nugent to design an 18-hole private course where its executives could get away for a few placid hours of golf. Killian and Nugent also designed the championship Kemper Lakes Golf Course for Kemper Insurance in Hawthorn Woods, a northwest suburb of Chicago. Both spent their first years as golf course architects under Chicago-based Robert Bruce Harris, one of the founders of the American Society of Golf Course Architects.

On 225 of the acres Killian and Nugent wrapped a 6,400-yard course around Sand Creek and two large natural lakes. They added three manmade lakes and strategically located 59 bunkers and hundreds of dogwood, spruce and beech trees along fairways and greens to challenge the golfer. All greens were constructed to USGA specifications. Instead of limiting bentgrass to the greens, they also called for it on the tees



Kevin Smith

and fairways. The roughs, driving range and clubhouse grounds were seeded with Kentucky bluegrass. The architects went so far as to include four practice holes around the driving range, in addition to a practice putting green and a practice chipping area. A Toro hydraulic irrigation system was designed to meet the needs of the bentgrass and to combat the frequent winds off Lake Michigan just two miles away.

Superintendent Peter Sinnott, who joined Sand Creek from Firestone Country Club, and his assistant, University of Wisconsin-trained agronomist Kevin Smith, pushed the bentgrass to get it established as quickly as possible. They were working with three

different soil conditions; the sandy USGA mix on the greens, sandy loam where the cornfields had been and a gumbo clay where the swamps had been turned into fairways or roughs. The granular quick-release fertilizers they used to push the turf and the variation in the soils began to present problems.

"The effects of lake winds were causing problems with even distribution of irrigation water when granulars were being washed in," recalls Smith. "This caused fertilizer tracking and burn." The greens also had a mottled appearance which had to do with hydrophobic (water repellent) patches of soil and a growing thatch layer.

To get away from the quick-release granular fertilizers, Sand Creek started applying slow-release, non-burning fertilizers on the greens and tees. But they still wanted to be able to get nitrogen and other nutrients to the bentgrass quickly when it was necessary. Their thinking was that they could augment their slow-release fertilizers with small doses of fertilizer to help the bent recover from diseases and insect damage. They also believed that potassium and other nutrient levels in the soil had to be maintained to help retard dollar spot, brown patch and pythium.

Instead of just changing the fertilizer program, Sinnott and Smith developed a total spray program that included wetting agents, soluble fertilizer and pesticides.

The wetting agent was necessary to cure the localized dry spots. "If we didn't spray the greens with wetting agent at least once a week, the spots would start to come back," says Smith. The drawback with wetting agents is they had to be watered in. The crew could spray only a few holes each morning because the wetting agent had to be watered in before the golfers were allowed on the course. It took the spray rig operator all week to treat every hole.

Preventative treatments of fungicides (Bayleton, Chipco 26019, Cleary 3336) were being applied every two to three weeks from May to October. Dursban was applied as necessary in July to control cutworms. Finally, postemergence herbicides were applied as needed through the late spring and summer.

"We thought that since we were spraying the greens, approaches and tees every week from May to October with either insecticides, fungicides or herbicides, that we could add a soluble fertilizer to the tank mix and spoon-feed them," explains Smith. The fertilizer, however had to be compatible with the wetting agent and pesticides. Furthermore it had to be sprayable, non-burning and contain minor elements and micronutrients.

Sinnott and Smith decided to apply 1/10th of a pound of soluble nitrogen per 1,000 square feet each week to the greens and tees with the tank mix in addition to a 1/2 pound rate of slow-release nitrogen (22-0-16) in April and a two pound rate of slow-release (6-2-0) in October. Most of the soluble fertilizer used is either Nutriculture Bent Special (28-8-18) or Potash Special (10-20-30). For more than ten years, Sand Creek has followed this program on its greens and tees.

"I think we have found a way to balance the rapid leaching characteristics of our greens and to correct the pockets of hydrophobic (water-repellent) sand," says Smith. "The tendency is to overfertilize to compensate for the leaching. This leads to spurts of lush growth that encourage diseases and insects. Spoon-feeding with solubles gives the turf a consistently green color and helps the bentgrass recover from diseases and insects. We are actually controlling the growth of the turf on a weekly basis making adjustments as needed."

There is no question that such an approach requires extra effort on the part of the crew. Smith didn't want heavy spray equipment on his greens so he had the crew use a small boom sprayer on the back of a truckster. It took about ten tank-fulls to spray all the greens and tees. "We try to protect the greens from compaction since we get about 24,000 rounds per year and aerate just once in the fall," he adds.

Smith stayed with granular fertilizers for the fairways. "We can put down 3/4 pound (nitrogen per 1,000 square feet) of granular fertilizer in one application to hold us on the fairways for three to four weeks," says Smith. "You can't really do that with a soluble product."

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There have been a lot of changes at Sand Creek in the past few years. Sinnott left Sand Creek to start a landscape maintenance company and Smith was promoted first to superintendent and then general manager. As the steel industry continued to feel the pressure from foreign competition, Bethlehem decided an employee-only club was no longer practical. It became Smith's job to make the course profitable. First it was decided to open up membership to local businesses and professional people. More than 300 jumped at the chance to belong to Sand Creek Club. To increase membership further, all initiation and equity fees were dropped. The total program netted an increase in membership by 50 percent, from 410 to 615.

Finally, the giant steel company told Smith it had to sell Sand Creek and instructed him to keep the course in top shape for potential buyers. North American Group, a real estate investment company in Chicago, took immediate interest in the golf course and

the 300 undeveloped acres surrounding it. It wouldn't be long before Chicagoans would realize that 45 minutes southeast of the Loop by car or commuter train and just two miles from the dunes of Lake Michigan, there was a community with a golf course rivaling those on the north and west side of town. North American believed it could break the boundary golfers had created between Illinois and Indiana.

Smith, who had served as superintendent since 1980 and general manager since 1984, was relieved when the sale was finalized and he was able to hire Rich Schroeder, a turf graduate from Purdue University, to take over maintenance of the golf course and the clubhouse.

The new superintendent quickly came up with another idea for the early morning, week-long spray program. "Now we inject the wetting agent into the irrigation system so we can spray fertilizer and pesticides without worrying about watering in,"

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A small truckster-mounted sprayer is used to treat the greens, tees and approaches weekly.

Spoon-Feeding

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Schroeder explains. Freed from the short, early morning treatments, two operators can spray all the greens and tees with soluble fertilizer and pesticide in a single day without interrupting play.

The new superintendent's main targets are a thatch layer that has built up on the fairways and patches of *Poa annua* invading the bentgrass. This past spring he verticut the fairways and continued a clipping removal program started by Smith years before. He is trying a turfgrass growth regulator from Scotts to regain control over the annual bluegrass. He is also reevaluating the fertilization, irrigation and preemergence herbicide programs for the fairways.

The fairways are cut with triplex greens mowers. Sand Creek's crews are able to cut nine holes a day, six days a week. "We like to keep the blade about 1/2 inch off the ground—you get a nice checkerboard effect that way," states Schroeder. The bluegrass roughs are mowed at two inches with reel gangs every other day. "A golfer who ventures too far off target either hits water, a trap or tall rough," says Schroeder. "There's a big difference between hitting off half-inch bentgrass and two-inch bluegrass."

The greens and tees are verticut once a month prior to sand topdressing. Schroeder recently purchased "Turf Groomers" for

the greensmowers so he can lightly verticut the greens and tees on a more frequent basis and possibly cut back on sand topdressing. "Golfers like the fast, smooth greens brought about by sand topdressing, but they don't like all that sand on the green right after you topdress," explains Schroeder. "You really have to go one way or the other since the sand can damage the groomer. We're going to try the groomer on a few greens and compare the difference."

If the Chesterton Planning Commission approves North American Group's proposal, the firm will add nine more holes to Sand Creek and build a planned community around the course. Smith lately has been busy meeting with local officials and the land planner to create a master plan. He seems comfortable with the business end of golf. "My job just evolved toward general management," he reveals. "The clubhouse, swimming pool, tennis courts and pro shop were built after the course was. We helped out during construction with the landscaping and chipped in on building and inside repairs as they were needed. If there was a problem with the kitchen or the air conditioning, we took care of it if we could."

When Smith hired Schroeder, he gave him the responsibility for both golf course and clubhouse maintenance. "Building maintenance is new to me, but it gives me experience most superintendents don't get during their careers," says Schroeder. "We are

able to get a better individual by putting him in charge of both buildings and grounds," explains Smith.

Both Smith and Schroeder find themselves in the middle of two significant changes in golf. The first is the conversion of a private, corporate course into a centerpiece for a new planned community. The real estate industry can justify the cost of a first-rate golf course while individual corporations are finding the luxury of a company course impractical.

The second is the development of an eastern frontier for Chicago's golfers. Beginning with the seven-hole Chicago Golf Club in the western suburb of Belmont in 1892, golf courses have spread with the city's population to the north, west and south—every direction but east. It seemed like the Indiana state line was an unofficial borderline for the development of fine golf courses to serve those who work in the windy city. Chicago golfers weren't even considered when the course was built. Now the course's future depends upon them.

Smith and Schroeder have adapted turf maintenance practices to fit their changing world and entered areas of management more and more superintendents are being asked to handle. They are excellent examples of the evolution of golf course management, a career that is changing to meet the needs of both golfers and developers. ●

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