

BRIEFS



**ENVIROTECH HIRES CROWE**

ENID, Okla. — Envirotech Services, an engineering consulting firm, has hired M. Kevin Crowe as its representative in the Eastern United States. He will be handling the firm's golf course consulting in that area, helping golf courses come into compliance with environmental and safety and health regulations. Crowe, a resident of Augusta, Ga., was formerly the course superintendent at Bonita Bay Club East in Naples, Fla., as well as assistant superintendent in training at Augusta National Golf Club. He earned an associate degree in environmental horticulture from Abraham Baldwin Agricultural College. Crowe is a member of the Georgia and Everglades golf course superintendents associations.



M. Kevin Crowe

**IOWANS ELECT APPEL PRESIDENT**

DES MOINES, Iowa — Russ Appel of Briggs Woods Golf Course in Webster City has been elected president of the Iowa Golf Course Superintendents Association. He and a new slate of officers were elected at the 66th annual Iowa Turfgrass Conference and Trade Show held here, Jan. 24-26. Joining Appel are Vice President Troy Martinson of Sioux City Country Club; Northwest Director Stephen Roseberry of Sibley (Iowa) G&CC; Central Director Don Portwine of Ames (Iowa) Golf and Country Club; and Northeast Director David Roe of Garner Memorial G.C. in Cedar Rapids. Serving in the second year of a two-year term are Southwest Director Ron Stephan in Indianola; Director of Association Affairs John Ausen of Hyperion Field Club in Johnston; and Southeast Director Joyce Hamilton of Wahkonsa Country Club in Durant.

**EQUIPMENT, ENGINE COUNCIL MEETS**

CLEVELAND — The Equipment & Engine Training Council will hold its 4th annual meeting in Cleveland on April 9-11. The meeting's purpose is to address the critical shortage of technicians in the outdoor power equipment industry. For more information contact the EETC at 512-448-1788.

**WEB SITE GOES ON-LINE**

GREENTRAC.COM, a web site pertaining to turf installation and management, has debuted.

# Seven Lines of Defense

Canadian project uses set of conservation techniques

By CHERYL REGO

ONTARIO, Canada — Environmental concerns ride high at the site of any golf course development, and now a developer here is using what it calls the Seven Lines of Defense to combat environmental concerns. The Seven Lines of Defense are conservation techniques that address concerns such as water runoff, loss of nutrients and leaching of pesticides.

Some of the techniques featured in the Seven Lines of Defense have been already been incorporated into new golf courses, and many of the techniques are leading the industry. Two of them are particularly interesting.

- By lining the greens, tees and inlets to wetlands with klinker ash stone, a hydro-generation waste product, the developer hopes to remove additional phosphorous runoff.

- It also plans to plant a harvested species such as poplar trees in the constructed wetlands which will remove unwanted components by bio uptake.

The notion of using klinker ash on the course has an interesting start. Klinker ash is a byproduct from the coal-fired generating stations of Ontario Hydro. Hydro was looking for a way to get rid of the klinker ash, and with some research



Vito Cirone, one of Burnsides employees, is planting in the field.

found that it could be used as bulk fill and that it attenuates and binds phosphorus.

Phosphorus is a major concern for the Lake Rosseau Beach Resort. The resort is located in the Muskoka Lakes region of the province, a watershed area of great environmental interest. Phosphorus encourages algae blooms in lakes. The idea to incorporate klinker ash stone came from Michael Michalski, a biology consultant who had done research on the ash. Experiments are now being done to determine the life span of klinker ash's phosphorus-ab-

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# Niche and native grasses may be an answer for some

By PETER BLAIS

ROCKPORT, Maine — In the near term, superintendents cannot live without pesticides, fertilizers, irrigation, etc., according to Skip Lynch, director of Seed Research of Oregon's Golf & Sports Turf Division.

But in the long term, by going to low-maintenance/high-resistance niche and native grasses, superintendents can drastically reduce their use of these inputs.

"It's been working in England for 400 years," Lynch told those attending the recent Maine Golf Course Superintendents Association annual conference here. "They don't irrigate, fertilize or spray pesticides. Because of that, they have grasses that have adapted to those management extremes."

Why change?

Today's demands on courses are growing, Lynch said. Input costs — i.e. fertilizers, irrigation and pesticides — are going higher and higher. Demands for late- and early-season play as well as Augusta National-like conditions are escalating. And despite the "Brown Is Beautiful" campaign designed to lower golfer expectations, golfer demands mean living turf is being pushed to its limits.

More challenges loom on the hori-

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# The future is now in maintenance building complexes

By MARK LESLIE

HARROGATE, England — Maintenance "barns" of the past are shedding that identity as modern technology, forward-thinking space planning and environmentally conscious superintendents transform their work areas into "turf-care centers," or "natural resource management centers."

That was the word from Master Greenkeeper Terry Buchen, an American who told an audience at BIGGA Turf Management Exhibition (BTME) about "Maintenance Facilities of the Future."

Indeed, parts of these facilities of the future already exist at some high-end private and public facilities in the United States. The highly traveled Buchen took bits and pieces of a number of maintenance complexes to present a composite from which greenkeepers could draw and to which they could aspire.

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# British & Int'l Show Review



**OF PRESIDENTS PAST AND PRESENT**

New British & International Golf Greenkeepers Association Chairman Elliott Small of Tulliallan in Scotland, center, visits with Golf Course Superintendents Association of America President Dave Fearis, left, and GCSAA past President George Renault III.

# Watschke: Expect breakthroughs in turf

By MARK LESLIE

HARROGATE, England — Fantastic advances in turfgrass breeding and genetics loom in the immediate future, but with this progress will come unheard-of challenges for greenkeepers, said Dr. Thomas Watschke of Pennsylvania State University.

"Innovations are only limited by the imagination, and believe me when I say that geneticists know how to dream," Watschke said in a talk at the BIGGA Turf Management Exhi-

bition (BTME) here.

"Technology offers very seductive solutions. But what are the ramifications of the results?"

He was referring to one of the latest of a phenomenal string of new high-tech grasses that have included one Round-up resistant bentgrass and another possible Prograss-resistant bent.

Dr. David Huff, Watschke said, has produced a semidwarf-type annual bluegrass that is superb but without seed

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# 7 Lines of Defense tackle environmental questions

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sorbing properties.

Jim Firth, manager at Burnside Golf Services, the developer, said the ash might need to be replaced in 20 or 30 years.

The use of poplar trees to remove available nutrients off-site is linked with klinker-ash functions. Research in land-fill

cleanup has shown that phyto-remediation — techniques using plants to clean up groundwater — is very effective. Rapid-growing plants like poplar trees suck up a lot of water and heavy metals when they grow.

Phyto-remediation has been applied a bit beyond an experimental level for the past five

years. In fact, it is now possible to calculate how many gallons of water per year a poplar tree can “drink.”

Firth and his team have modeled a unique method to maximize the use of klinker ash and poplar trees. They have quantified how much water will move throughout the golf course us-

ing HELP (Hydrologic Evaluation of Landfill Parameters), a landfill technology.

All areas where water passes throughout the course will be lined with klinker ash. The water will be stored in ponds bordered by poplar trees. Using phyto-remediation research, the team will determine how many

poplar trees are needed around the ponds. Firth said poplar trees were chosen because they grow very quickly and absorb great quantities of water. Once the trees have matured, they can be cut up for firewood or just be moved to a safer area outside the watershed.

This method demands a lot of klinker ash. But since the ash is free from Ontario Hydro, the developer only pays for trucking costs.

Nevertheless, using klinker ash may not be the cost benefit it appears.

“We haven’t quantified what we need, but if we need big volumes,” Firth said. “The trucking costs might be 20 percent of the golf course. If the source of the ash were close to the site, the cost would drop.”

Research from the University of West Virginia shows that using coal ash is cheaper and as effective as conventional methods.

Firth said the development of the Lake Rosseau Beach Resort presents the first time that all seven Lines of Defense have been incorporated into one project. They include:

- proper use and application of fertilizers, which prevents misuse or possibilities of accidents;
- a reduction in fertilizer use by using slow-release fertilizers and natural vegetation;
- possible annual contribution of nutrients is less than the permitted assimilative capacity of the natural environment because research shows that, in most cases, 5 percent of applied fertilizer is lost and frequently less than 1 percent is lost;
- composting of grass clippings further removes up to one-third of the free nutrients normally lost to the surrounding environment; and
- by directing under drains and surface flows to constructed wetlands, greater treatment of runoff from the golf course can be achieved.

Scott Martin, the national coordinator for the Audubon Cooperative Sanctuary System of Canada, said that using klinker ash in combination with fast-growing trees is important for the area.

“Muskoka soils are typically shallow because it is on the Canadian Shield and runoff happens even more easily than in other areas,” said Martin. “The Seven Lines of Defense look very good to me. It looks like a great way to start.”

“Two really good things here are the construction of artificial wetlands. Naturally, wetland plants take up a lot of heavy metals and different contaminating chemicals and at the same time the planting of poplar trees, phyto-remediation, is good. That is a great combination of practices.”



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