

By Tony Leonard

October 17

**O**ver the past few years, it's been down right hot in the Philadelphia area. It was not uncommon to see week-long stretches of highs in the mid 90's and lows in the 70's. Add in the high humidity levels that travel with this weather and heat indexes are well into the 100's.

When you introduce extreme heat to the cool season grasses for an extended period of time, the roots creep back up to the surface and the overall plant health deteriorates. The city is concrete and asphalt and very little green, thus creating higher temperatures; the field itself is surrounded by concrete and plastic. There is very little cool air throughout the summer months.

Hosting both Temple University and Philadelphia Eagles home games, Lincoln Financial Field's DD Grassmaster field has to be ready to endure a pounding every 7 to 14 days. The first 2 years, dur-

ing which the summers were a little bit more manageable, the field performed well. But the next 2 years saw record heat and although the field would appear to be healthy, the root system and health of the plant suffered. The footing was fine due to the Grassmaster system but the plant recovery through September was less than acceptable.

The center of the field would deteriorate quickly causing us to overseed with a blend of perennial and annual ryegrass much sooner, and heavier, than we normally would. The young grass would never have a chance to mature due to the high volume of traffic on the field. By the end of the season, the field was worn and very little was left to work with for the following year.

#### Looking around

Patriot bermudagrass was being used at Purdue University,



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Indianapolis Colts practice complex, the Baltimore Ravens practice facility, the University of Maryland, and Virginia Tech University, just to name a few. Given the location of these places, the grass is more cold tolerant compared to traditional bermudagrasses. We started to look into bringing Patriot to Philadelphia in August 2006, the beginning of 6 months of evaluation and research.

My assistant, Dan Shemesh, and I made site visits to some of these Patriot bermudagrass fields. Everyone that we spoke with was very pleased; the biggest complaint was that it grew too fast! For some of us, this is not a bad thing!

After evaluating our own field throughout the football season, I became more convinced that Patriot was the right way to go. I contacted Mike Sullenberger of Game Day, Inc. Sully has installed and maintains more than 100 Patriot bermudagrass fields in the DC, Virginia, and Maryland areas. He shared his experiences with us as well as his advice.

Following the football season, we had a decision to make. We knew we were going to grind off  $\frac{1}{4}$  inch of the existing field, which is a common practice with Grassmaster fields every other year. Do we reseed with blue and rye, or do we sprig our field with Patriot bermudagrass? Sprigging was the only way to install Patriot and maintain the DD Grassmaster system. It was risky, but Sully and I were both comfortable that we could have a field before summer if we sprigged in the spring. Having growth blankets and a subsurface heat

system would allow us to do this.

I recommended to our front office that we pursue the Patriot bermudagrass and why we should. I provided weather data, first hand accounts, pictures and grow-in plans as part of my report. They gave us the green light to do so in February.

We were not exactly sure when we were going to sprig the field. It was scheduled for April 15, but with the ability to heat the soil and keep it covered, sprigging sooner was still an option. We were given a few bushels of sprigs to experiment with in February. After the field was grinded off, we stripped it of all grass and just the fibers remained. Four 10 x 10-foot areas were made into test plots, two on a heated zone and two not. Of the two plots in both sections, sprigs were cut into the soil in

one, and the other, the sprigs were spread otop and topdressed.

It was surprising, but encouraging, that the plot that was cut into the heated soil, provided positive results within 2 weeks. Sully and I decided that the sooner we could get the field sprigged the better.

The field was sprigged on March 28. We used about 700 bushels per acre to cover the 2.3 acres.

The process took about 4 hours; sprigs were cut into the soil at a 1 to 2 inch depth. Immediately following sprigging, growth blankets were applied with cut outs for the irrigation heads to pop up over top the blankets. With non-stop watering for 3 weeks and temperatures consistently climbing into the mid-70's, we pulled the blankets for the first time to mow. In fact, the grass started to emerge from the growth blanket. The field was mowed and fertilized



First game on new sod, December 2



Two days after Kenny Chesney concert, June 25



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before the blanket went back down. This process went on through mid-May when we removed the growth blanket for good. The field was thin in areas but we knew when the weather would break it would fill in.

By mid-June the field was about 95% filled in, but we had a concert in 2 weeks that would create additional stress. The massive stage build began on a Monday for a Saturday concert and the last truck didn't get off the field until the following Monday afternoon. Terraplas was installed



Thirty-three days after concert, July 27

for the seating areas on Thursday night and taken off the field by Sunday 6 AM. The field under the Terraplas was fine and recovered within a few days. However, the areas under the stage, primarily the roadways, took about 3-4 weeks to fill back in. By late July though we were ready for the football season.

After the first exhibition game, the field appeared to be chewed up, which caused me a somewhat sick feeling; but after we swept the field and mowed it, the field was just about ready for play again. As the season went on, these feelings subsided

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after we knew that the footing was never compromised and the grass would recover. Overseeding was a weekly maintenance practice for us as well.

The difficult challenge with Patriot is the aggressiveness of the grass and its ability to "run over" any new seed that had germinated. Again, the newly seeded field had very little opportunity to establish itself with an aggressive football schedule in the fall.

As we went deeper into the season, the weather got cooler, the sunlight wasn't as intense, the field naturally started to decline. Our biggest stretch was in late November when we faced three games in just 8 days, with the last game being played in the rain. Two were Temple games, and the last one was an Eagles game. In early November, we made arrangements with Tuckahoe Sod Farm to install thick cut bluegrass sod over the existing field if needed after the Eagles game. With three games remaining in December, I felt it was the right decision for the players and fans. After the Eagles rain game, we cut a lip into the existing field around the perimeter for the sod to taper in to. With 10 days until our next game, we were able to aerify, topdress, and prepare the field as necessary for the remaining games. Following the season, the sod was removed and the bermudagrass, which was still green underneath, will have a chance to reestablish and become a much stronger field for 2008. Sully and I will evaluate the field in the spring

to determine which areas will need to be resprigged.

So even though last summer's work load was a little more for me and my crew, in the back of my mind I knew I was doing something that the grass would benefit from. The hotter it got, the happier the grass was and the happier I was! After talking with guys like Sullenberger, Al Capitos, Don Follett, Dr. Mike Goatley, and Dr. Cale Bigelow, just to name a few, I felt it could be done.

Questions still remain as to the relationship with the DD Grassmaster system, the overseeding window and rates for this area, and the relationship with the heat system and the grass with regards to soil temperatures. As for our decision to resod, I feel that it was not a failure to the system, but another step in our management practices of our field. This was the first time that I'm aware of that a DD Grassmaster field has been sodded otop. Now that we have done this successfully, it will become part of our normal maintenance. In fact, I believe that it will protect our bermudagrass late in the season from cold weather and from being torn out more with the wear and tear from the remaining games. I am excited for the recovery of the field and starting the process over knowing that it will be a stronger field next season. ■

*Tony Leonard is sports field manager for the Philadelphia Eagles.*

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## Renovating Hayward Field for 2008 USA Olympic Trials

By Matthew K. Scheibe, ASLA

Hayward Field before the renovation. University of Oregon

Hayward Field is commonly heralded as “the Carnegie Hall of track and field” and rightfully so. No other facility has such a rich history or is as highly regarded by both athletes and fans as the ultimate venue to compete at and experience the sport.

Located in Eugene, Oregon, it is the home field of the University of Oregon (UO) Ducks. It has hosted nine NCAA national championship meets, the 1999 and 2001 USA Outdoor Track & Field Championships, and three consecutive U.S. Olympic Trials between 1972 and 1980. In 2005, Hayward

Field was selected as the host site for the 2008 Olympic Trials.

Although Hayward Field hosted several U.S. Olympic Trials, 25 years had passed by since its last one. Standards for a meet of international significance have changed in that time, and the winning bid was contingent on a number of facility improvements. In particular, a major reconfiguration of the infield was necessary.

### Team building

Renovating the infield of this venerable facility was a complex task that required many specialized skills and exceptional teamwork.

The UO commissioned Cameron McCarthy Gilbert & Scheibe (CMGS) as the primary consultant for the field renovation work. TVA Architects was selected by UO to design architectural improvements and serve as the consultant of record. Paige Design Group of Bahama, NC was enlisted as the track and field specialist and Balzhiser Hubbard Engineers of Eugene joined the team to provide civil and electrical engineering.

Soon after the designers initiated their schematic work, McKenzie Commercial of Eugene was selected as the CM/GC (Construction Manager/General Contractor). This allowed UO to establish a maximum



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price and more comfortably implement the improvements within the given time constraints. Once these pieces were in place, specialty subcontractors were brought aboard. Of particular significance to the infield improvements is Rexius of Eugene, the landscape contractor in charge of drainage, irrigation, rooting material, and sod components. Having Rexius involved early in the process allowed CMGS to test various design strategies for constructability and get feedback on product options for feasibility and availability.

The client provided significant input throughout the design and construction processes through various stakeholders including their project manager, track and field coaches and athletic field managers.

Hayward Field was constructed for football in 1919, with a 6-lane oval track oval added two years later. Before its use as a sports field, the site was a marshland, quite literally used for duck hunting. Only after building up the playing surface with fill with a crown in the center for surface drainage, was it marginally acceptable for sporting events. The field served dual purpose until 1967 when football relocated to a new stadium. Since that time Hayward Field has been an exclusive track and field complex. In 1983, more soil was added to the perimeter of the infield to establish a virtual plateau that provided a more acceptable landing surface for throwing events.

The existing plateau configuration was functional, but far from ideal. The roughly 2 foot differential of grade between the track oval edge and center of the field obstructed sight lines for coaches trying to observe footwork from one side to the other. It also meant there was an awkward transition (steep slope) of lawn from the edge of the landing areas to the edge of the track. A perforated pipe drainage system had been installed years earlier, but had silted up to the point where it provided little value during the Pacific Northwest's precipitous months.

The new layout needed to accommodate a number of modern logistical and practical considerations. Preferably, dual runway and throwing circles for each individual event are located directly adjacent to one another. The jumping events must have "flipping" capability to respond to unpredictable and varying wind conditions. The landing areas for throws must accommodate world record distances. In addition, the existing inside perimeter of the oval could not be altered due to budgetary and physical constraints.

Another direction given to CMGS was that each individual event

space needed to be clearly distinguished from the others. This is a historic and unique aspect of Hayward Field. A majority of other track and field complexes integrate synthetic runways and throwing areas into the sides and turns of the oval.

The design team developed nearly a dozen configuration and layout options for the field events. The final accepted configuration provided four pole vault runways, four long jump/triple jump runways and sand pits, two high jump areas, two shot put circles and landing areas, and one discus circle/cage and javelin runway that share a landing sector. The steeplechase water jump was maintained on the interior side of the oval in turn 3.

Parallel with the decision on a new layout was a commitment to replacing the soil field with one that is sand based and incorporates a new subgrade drainage system. Such an approach would solve the



An artist's illustration of Hayward Field as it will appear during the 2008 Olympic Trials. TVA Architects

myriad of problems and shortcomings of the existing field, including the elimination of the plateau. It also allowed for the layout of field events to be a bit "tighter" since the extent of grade transitions are greatly diminished on a virtually flat field. CMGS and Paige Design worked together to set the new elevations within the tight tolerances of international standards: 1:1000 slope in the running and throwing direction and 1:100 cross-slope for most events.

There was a great deal of comfort from the UO's perspective on switching to a sand-based field as they had implemented such fields for their football and soccer programs approximately 7 years prior. Since that time their management staff had fine-tuned strategies to very effectively maintain them.

Once a general layout had been selected and the commitment to



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a sand-based field made firm, the design team proceeded with the complex task of sorting out the various networks for irrigation, subgrade drainage and other utilities. A requirement set by UO for the irrigation was that all of the runway surfaces were to be kept as free from overspray as possible. This was in response to frustrations with the prior watering system that grossly sprayed all surfaces within the field. It not only made use of the event surfaces more challenging, it also shortened their lifespan.

The prior irrigation system was simplistic. It had 8 zones and approximately 40 large rotor heads. Due to UO's insistence regarding overspray and the tightness of field event layout—there were many narrow lawn strips 5-feet in width—the new irrigation was a much more intricate system. The new system has 23 zones and more than 700 individual irrigation heads. Rotor heads are only used in the large landing area lawn, and the remainder are spray type to control throw within tight areas. Valve boxes, for both irrigation and communications, were carefully located on the site plan to not detract from the aesthetics of the facility.

Four-inch perforated pipe was selected for subgrade drainage of the sand-based field. It is spaced 20 feet on center for the large landing area lawn and tailored to best suit the spaces in between field event facilities. Perf. pipe is placed at the edge of all runway and track surfaces to collect concentrated sheet runoff. Cleanouts for the drainage system are strategically placed to facilitate flushing out should silting become a problem in the future.

## Under construction

On June 10, 2007 the Nike Prefontaine Classic was held at Hayward as the last event on the old infield. At the close of the meet, a trackhoe ceremoniously broke ground in front of a sizable crowd who stuck around to experience the historic moment. Within days, the earthwork crew was in full force. They peeled away the layers of fill that had been placed during various improvement projects over the decades and then started to hit the subgrade that predated the original 1919 construction. They discovered that in many areas the conditions were far worse than anticipated. Significant amounts of

heavy clay and organic soils were frequent and deep. This material was certainly unsuitable as subgrade for the new sand-based field. Over-excavation, up to 4-feet deep in some places, was required. Bar run and crushed rock were imported to replace the poor soils.



Irrigation and drainage installed in one of the narrow lawn strips. Rexius



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"Subgrade was one of the biggest challenges of the whole field", said Don Delaplain of Rexius. Replacing that material had ripple effects; nearly the underground pipe would need to go through rock instead of soil. As a result, conventional trenching was not an option. According to Delaplain, "We had to backhoe or hand trench everything."

The specifications for the sand rooting medium of this high performance field were quite particular. The product was sourced from the Columbia River and supplied by Glacier Northwest. This type of sand is coin-

using an eight-person crew.

Aside from the complications caused by unforeseen subgrade conditions, the installation process went smoothly. Within a month of install, the roots of the turfgrass had progressed 4 inches into the rooting medium, an impressive feat in Oregon during November.

The UO will soon assume responsibility for upkeep of the field. Eric Fasbender, CSFM, UO athletic department grounds manager, notes that this field will be different than their other sand based facilities in that "it's much more based on aesthetics." It will

not be exposed to nearly the type of wear and tear that is inherent with other sports, such as football or soccer.

Asked if they will implement a new mowing pattern for the field, Fasbender chuckled and said, "Ron is too old-school and traditional" referring to Ron Perkins, Hayward Field's long-time field manager. He added, "Just like Wrigley Field, you always expect to see the checkerboard."

Hayward Field will reopen this spring for UO practice and meets. The Olympic trials will be held between June 27 and July 6. Due to exceptional teamwork between designers, contractors and UO, all parties involved are confident and excited about the days ahead when the new and improved Hayward Field is revealed to a global audience.

Although the team involved will know and value the improvements that were made, what will be most appreciated by athletes and fans is what has remained constant—the magical Hayward Field experience. ■

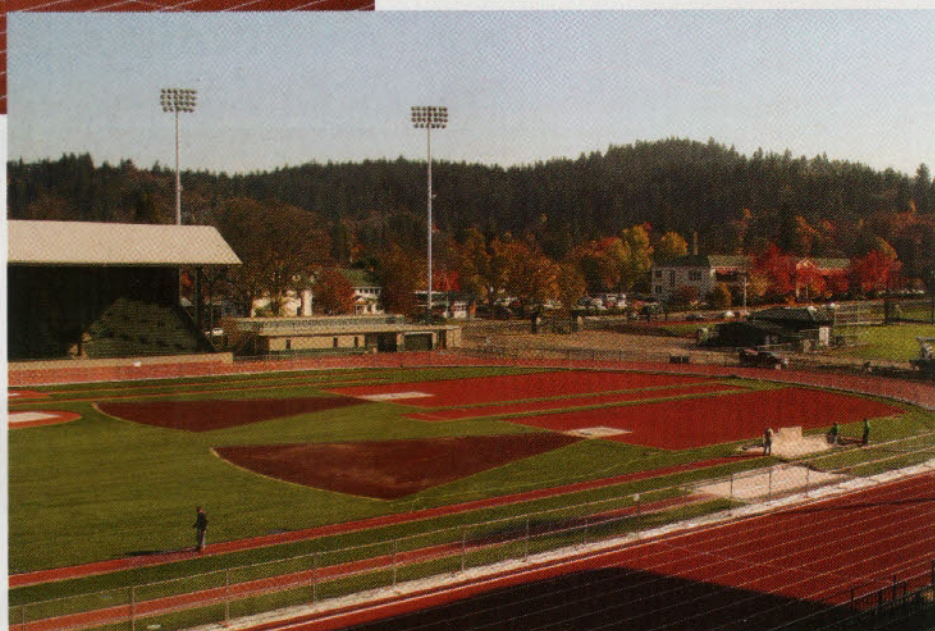
*Matthew K. Scheibe is a principal at CMGS Landscape Architects in Eugene. Data for this article was provided by Larry Gilbert, ASLA (principal), Colin McArthur, AICP (project designer), and Aaron Olsen (associate designer). Additional information at [cmgsla.com](http://cmgsla.com).*



**The sod installation. CMGS Landscape Architects**

cidentally used as a topdressing medium on golf courses, and is in high demand in the summer months. Anticipating a potential supply shortfall, Rexius made a strategic move to secure enough material for the job several months in advance of its placement and rented a vacant lot nearby to temporarily store it.

The sod, consisting of a specified perennial ryegrass mix, was contracted through Oregon Turf on a plot in the Yakima River valley in Washington. It was grown on a sand-based mix similar to the sand specified for the rooting medium to assure compatibility with the rooting medium placed below. Sod laying started in late October and finished in 7 days



**Substantial Completion of the south side: runways, throwing circles and landing pits. McKenzie Commercial**