

Tools & Equipment

Renovation at Iowa's Kinnick Stadium

Editor's note: Eric Morse, a writer with Two Rivers Marketing, Des Moines, IA wrote this article.

Have you ever seen a football field fit through a door 7 feet high and 15 feet wide?

That's happening this off-season at the University of Iowa, where a renovation to the field at Kinnick Stadium, the home of the Hawkeyes, is taking place.

Of course, the synthetic field isn't coming through the door all at once. Instead, the old and new fields are coming and going through an opening just a little larger than a



Why Iowa is going artificial

Normally, athletic fields have only two layers of sub-base. An additional two layers are being installed at Kinnick Stadium because the field is being converted from natural to artificial turf. The new artificial turf has a warranty of 7 years. At that time, if the university wants to go back to a natural surface, the top two layers of the subbase can be removed and the field can quickly be switched back.

Ted Thorn, director of grounds for the University of Iowa, says the purpose of this project is to fix the drainage, and switching to artificial turf is secondary. There are a number of reasons Kinnick Stadium is going to artificial turf. While Thorn and the administration had input on what type of surface the field should have, the switch to artificial turf has been driven by the football coaching staff.

"One of the reasons we're going to artificial turf is these things are cyclical," says Thorn. "Many high schools now have artificial surfaces, so it's a big thing from a recruiting standpoint. The football program also did a lot of research and one of the biggest factors into the decision is that this field will be safe for our players." -Eric Morse

Tools & Equipment

garage door, bucket by bucket, on skid-steer loaders.

Why is the field renovation taking place like this? It's the only way to do it.

Kinnick Stadium first opened in 1929 and is named for Nile Kinnick, the 1939 Heisman Trophy winner and the only Heisman winner in university history, who died in service during World War II. It's also one of the best places for football fans to watch a game. The stands are right on top of the field, less than 20 feet from the sidelines. Through several renovation projects over the years, the character of the stadium has been carefully maintained, including keeping the stands as close to the action as possible. Doing so has meant the tallest opening to the field is the 7-foot-tall door, which is actually located in the concourse under the west grandstand.

The 2006 renovation added a new press and sky box structure, additional bathrooms and concessions throughout the stadium, and a new, permanent seating structure in the south end zone. This renovation did not include the playing field, even though university officials knew the surface was reaching the end of its lifespan. But heavy showers that overwhelmed the drainage system for last year's rivalry game with Iowa State resulted in speeding up the plans.

The university hired Glenn Rehbein Companies, a Minnesota-based contractor that designs and build athletic fields nationwide, and left it up to them on how to complete the renovation.

None of the previous fields the contractor worked for presented the type of challenge faced at Kinnick Stadium.

"This is a unique job," says Tom Dimke, director of operations at Glenn Rehbein. "Typically, you'd be able to drive a dump truck and large equipment down onto the field, but we can't do that here."

Dimke says many options were considered, including trying to get single-axle dump trucks through the door or craning equipment onto the field. None of these other solutions made sense. Realizing that equipment would have to be able to fit through the door, Dimke says they turned to skid-steer and compact track loaders.

Eight loaders are at the site, four Bobcat

T250 compact track loaders and four S300 skid-steer loaders. The compact track loaders work on the field, the skid-steer loaders move material on the ramp between the field and doorway.

"The most important part of this job is getting the material off the site and the new material back into the site as fast as we can," says Dimke.

The first step in the job is excavating and removing 13 inches of the existing field, a top layer of soil and a lower level of sand. The material is moved to the corner of the field nearest the tunnel. A small holding area featuring steel plates over concrete is used to protect the floor from damage from the buckets.

The dump trucks must enter the concourse through a large archway on the south end of the grandstand and back up

are crowned, and have a slope of 0.65 percent from the center of the field to the drainage pipes along the sidelines. The top two layers of rock bring the slope to level, so the entire field is flat. Grading is done by laser-guided attachment to compact loaders.

The laser system consists of a transmitter set on a tripod, one or two laser receivers placed on masts on the attachment, and a hand-held receiver and remote used to set up the system. Easy to set up, the laser system performs single-slope or dual-slope grading. Single slope is used for the level playing field and the dual-slope is used for the 0.65 percent grade. The only requirements are a loader with a 7- or 14-pin attachment control kit, auxiliary hydraulics and a box blade or grader attachment.

"We took 150 loads of the top mix from the stadium . . . we're going to compost it and use for topdressing."

through to the door. Some of the material being removed from the stadium is being recycled by the university. "We took 150 loads of the top mix from the stadium to the university golf course," says Ted Thorn, director of grounds for the University of Iowa. "We're going to compost it and use it for topdressing. We are also thinking about building a small practice range for the golf team and we'll probably use that for the greens."

In total, 4,600 yards of soil and sand are being taken from the field and replaced with 5,200 yards of rock, sand and other materials.

The new field will have a four-layer subbase. Below the new turf are two layers of rock, then a layer of sand and another layer of rock. Under the first two layers of rock, 12-inch by 2-inch drainage tile is placed in specific locations to help direct the water to collector pipes on both sides of the field. The subbase layers under the drainage tile

"The laser-guided grader attachment paid for itself overnight," says Dimke, who adds that the company invested in the equipment 2 years ago and also uses the system to grade the base for concrete floors for buildings, such as retail stores.

"We have used a laser system on a dozer for other projects, but the grading requires a lot of backing up, which creates a lot of track wear," says Dimke. "The compact loader can also turn much more quickly than a dozer."

Dimke says his crew has also used grapples, pallet forks and sweepers. The grapples removed a plastic membrane that was under the turf of the old field and the pipes of the old drainage system, the pallet forks move bundled materials, and the sweepers clean up around the site, particularly in the concourse. Dimke estimates the loader fleet switches attachments as many as 20 times a day. ■