



The baseball strike offered a window of opportunity for the conversion of Kauffman Stadium from artificial to natural turf. Photo courtesy: Kansas City Royals.

Kauffman Stadium Goes Green

By Richard Yach

The baseball strike was both good and bad news for the Kansas City Royals. The premature end of the 1994 season was a difficult blow, but in the Royals' case, the strike presented a window of opportunity for the conversion of Kauffman Stadium from an artificial surface to natural turf.

When the average sports fan reads about a professional sports team changing from an artificial surface to natural turf, the last thing that comes to mind is how it was accomplished and what was involved in making the transition. Certainly, the fans at a ballgame don't know or perhaps even care why the grass got to be as green as it is or why, during a rain-soaked game, the field doesn't accumulate puddles in the outfield.

When the Kansas City Royals baseball club wanted to make the changeover, they wanted their players to have the best field in the league, free from imperfec-

tions. They wanted the new field to be perfect from the elevation of the subgrade to the tiniest blade of grass. S.W. Franks Company of Cleveland, OH — the company contracted for the project — has spent the past 12 years specializing in sports facility and general site development for commercial properties. Among many others, the company built Jacobs Field, home of the Cleveland Indians, from the subgrade up and installed the new natural turf field for the Kansas City Chiefs at Arrowhead Stadium. This specialization earned the company a national reputation gained by thorough planning and the surgical-like care given to the irrigation and drainage layouts and to the grass surface.

The Kauffman Stadium renovation job began the day after the baseball strike was announced, September 14, 1994. The next day at 7 a.m. Ken Natterer, project manager for S.W. Franks, had his crew on site to begin the work. "First, we

had to tear up and dispose of almost 120,000 square feet of the artificial surface and the asphalt base underneath it," he says. "Since we had done the same thing to Arrowhead Stadium next door during the summer, we had a good idea of what was in store for us."

The general scope of the job included the disposal of the old surface and installation of a drainage system consisting of lateral drains under the playing field that would tie into collection drains emptying into existing storm sewers. The job also required setting up an entire irrigation layout that would contain an automatic sprinkler head system, and installation of underground steel conduits that would carry communication, television and electrical wire from the dugouts to the bullpens. It also included new drains under the first row of seats that would collect and drain runoff water from the stands. Along with these steps, S.W. Franks regraded the entire

playing field, constructed a new warning track, put down pea gravel and a special rootzone base for the sod, set the sod and finally built the basepaths and the pitcher's mound with three different kinds of dirt.

Special Regrading

The ballclub and the players in particular requested a special regrading of the playing field. The old field rose to a crown located near second base. The slope dropped off toward the outfield with a drop of almost three feet at its farthest point in the outfield. The players not only felt as if they were throwing uphill when they threw into the infield, but if they were playing deep, they couldn't see the ball leave the bat. The new grading called for raising the entire level of the outfield 15 inches.

Most of this work had to be completed before the second week of December. Natterer explains the almost frantic pace of the construction project. "By the end of the first week in December, I have to have sod down, because the grass-root systems need some time to develop. If that doesn't happen, according to the specs, I can't sod until the third week of March, and that's too late to be ready for opening day April 7."

After the field was stripped of the artificial surface and asphalt, some of the S.W. Franks crew started cutting trenches for the collection drains. The drains started behind home plate at the edge of the backstop wall and jutted out into three directions. One drain went down the right field foul line, one down the left and one straight up the field toward the pitcher's mound. These slotted 12- and 18-inch-diameter polypropylene drains were set at a depth of three feet at their farthest point to five-and-a-half feet deep at the home plate storm sewer collection area.

The two-and-a-half miles of four- and six-inch-diameter lateral drain pipe were set in trenches cut with a Vermeer T-455. This 115-hp track trencher was set up with a ditcher boom to cut a trench up to five feet deep and 12 inches wide, a crumber with a crumber shoe, and outfitted with a laser system so the ditcher and crumber could maintain proper grade for the drainage. Natterer notes, "We knew we needed a unit like this that would allow us to efficiently get this much drain pipe in the ground and give us clean, smooth trenches."



Pea gravel was spread four inches thick over the entire playing field except for the basepaths, home plate and the pitcher's mound. Photo courtesy: Vermeer Manufacturing Co.

Half of the lateral drains from the middle of center field drained toward the right field foul line collection drain, and the other half drained to the left field foul line collection drain. Both sides of the infield drain toward the collection drain aligned underneath the pitcher's mound. Each of these lateral drains plus the laterals that run from the stands toward the foul line collection drains on both sides of the field had anywhere from a half percent to a full one-percent decline overrun.

The accuracy of this trench pitch is crucial to fast drainage of the ballfield, especially during a game if a cloud-burst happens to open up. Nobody — not the owners, players or the fans — likes washouts.

Laser Accuracy

The accuracy of the trench grades was accomplished by clamping a laser receiver to a mast mounted to the trencher's crumber. This receiver accepted a signal from a laser light stationed perpendicular to the trench, and the receiver sent a signal to a light on the operator's panel. If the laser was set for the proper one-percent grade, the light

on the panel would tell the operator when to raise or lower the crumber to maintain the predetermined grade.

The laterals were cut 24 inches down, and with the aid of the conveyor and dirt drags on the T-455, the soil was moved away from the trench to produce a cleaner cut. "We had to have clean trenches for perfect drainage," Natterer explains, "We don't want any dirt getting into the clean pea gravel that will cover the polypropylene drains. We spent a lot of time and effort keeping the pea gravel clean and didn't want any dirt compromising its drainage efficiency."

After the trenches were cut, felt cloth was placed under the drains, and four inches of pea gravel was placed over the entire field except for the basepaths, home plate and the pitcher's mound. Installation of the irrigation system followed. The irrigation laterals fed off the four-inch diameter water main that runs around the perimeter of the field. Placed inside the pea gravel, the irrigation laterals feed water to 53 pressure-activated sprinkler heads throughout the field.

With the irrigation system in place, the field was layered with a 14-inch base of a special rootzone mix for the sod. Consisting of 86-percent fine sand and 14-percent peat moss, 7,000 tons of this sterile mix was tested and retested for purity to avoid contamination prior to installation.

Natterer describes the care his crews went to when they put down the sod base. "We went through each machine and examined them for any leaks, because they couldn't leak any fluid, and we brushed off the machine tracks to avoid extraneous dirt or other grasses falling in the mix," he explains. "It's a very tight spec for cleanliness, but then again, the end result is what we're looking for. This grass field should be perfect."

All this behind-the-scenes planning and work were the key to having Kauffman Stadium ready for opening day. The players in Kansas City, returned from their long work stoppage to enjoy playing on the new, natural-turf surface, and the special regrading makes life a little easier in the Kansas City outfield. Now the Royals have a surface that truly fits their name. □

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