

# a RETURN to ROOTS

## Detailing the comeback of natural grass at M&T Bank Stadium, home of the Baltimore Ravens

By Rena Wish Cohen | SPECIAL CONTRIBUTOR

**ALMOST** from the day the Baltimore Ravens moved into their new home field in 1998, the original natural grass playing surface of what is now known as M&T Bank Stadium was a thorn in the team's side.

Why?

For starters, the grass was unable to withstand the rough-and-tumble conditions of professional football, ripping loose and leaving the field littered with chunks of sod. It also withered in areas that received limited sunlight late in the season, turning the east end zone into little more than packed dirt.

The problems prompted the team to switch to artificial turf in 2002 and to stick with synthetic when a replacement was needed in 2010. Then in December 2015, as the next date in the recommended five-

six-year turf replacement cycle approached, management announced a decision to revert to a natural playing field. A few months later, the Ravens became the first NFL team to sack their synthetic carpet and replace it with real grass.

### New game plan

The change was triggered both by player preference and by a series of technical advances that have made it easier to establish, maintain and resod turfgrass as well as grow it in shady areas.

On the player side, lobbying for a new natural grass surface by the Ravens' Players Leadership Council scored a touchdown with the front office.

"To a man, players said they would rather

play on natural grass than artificial turf," says Don Follett, M&T Bank Stadium's senior director of fields and rounds. "That's consistent with NFL surveys showing that 90 to 95 percent of the league's players prefer real grass. They say it feels better under their feet and provides a softer landing when they get knocked down.

"If your players feel better, they're more likely to play better for you, and that carries a lot of weight."

Ravens coach John Harbaugh was also a strong proponent of the plan.

"To me, it's Baltimore," Harbaugh told *The Baltimore Sun*. "It kind of epitomizes what Baltimore is all about, the history of football in Baltimore. To me, a Baltimore football team

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# M&T BANK STADIUM FACTS

SOURCE: BALTIMORE RAVENS



## 1 EVENTS

M&T Bank Stadium has hosted the NCAA men's lacrosse championship (2010, 2011, 2014); U2 concert (2011); NCAA men's lacrosse Face-Off Classic (2010, 2011, 2012); Monster Jam; Tottenham vs. Liverpool friendly soccer match (2012); CONCACAF soccer Gold Cup quarterfinals (2013, 2015); Jay-Z and Justin Timberlake concert (2013); Jay-Z and Beyoncé concert (2014); Billy Joel concert (2015).

2 The Baltimore Ravens, in partnership with the Maryland Stadium Authority, recently earned a LEED (Leadership in Energy and Environmental Design)-certified "Gold" designation for M&T Bank Stadium from the U.S. Green Building Council (USGBC), making it the first existing outdoor professional sports facility in the U.S. to receive USGBC's "Gold" rating.

3 All purchases for M&T Bank Stadium follow the Sustainable Purchasing Policy to include recycled, renewable and Energy Star-labeled products for the building.

4 The stadium's efficient irrigation system and adaptive vegetation reduces 30 percent of its potable water for outside irrigation.

5 Environmentally friendly operations and maintenance programs are used in all pest, landscape and hardscape management programs.

6 In 2014, four new displays featuring Daktronics SMD (Surface-Mount-Device) LED technology were added to the upper concourse.

## 7 HEIGHT

M&T Bank Stadium measures 185 feet high, which is 35 feet above nearby Oriole Park (home of the Baltimore Orioles)





should be playing on a grass field in Baltimore.”

On the technical side, one key factor supporting the conversion was the team’s success in growing healthy turfgrass on three practice fields with Profile Porous Ceramic (PPC) Greens Grade inorganic soil amendments incorporated into the rootzone. The unique mineral properties of the PPC particles have enhanced nutrient retention, promoted root growth, and reduced turf damage, compaction and drainage problems in those facilities for more than a decade, outperforming an alternative amendment used in the stadium’s original rootzone mix. That success generated confidence that the Ravens can achieve comparable results at M&T Bank Stadium.

Other factors convincing the team of the viability of natural grass included the recent development of artificial lighting capable of compensating for the stadium’s late-season sunlight challenges; the availability of sod cutting machines that reduce the resodding process from the 10 to 14 days required when the stadium opened to as little as 12 hours; the success of other East Coast NFL teams in managing natural grass playing surfaces; and Follett’s belief that most of the problems with the original grass stemmed from the design of the rootzone.

“The major shortcoming of the grass field we had from 1998 to 2002 was that the root layer was only 6 inches deep. Based on my

experience here and previously with the Washington Redskins, that’s too shallow to support the kind of turfgrass required to survive NFL play,” Follett says.

“For the new field, we doubled the depth to 12 inches to create an environment for better root development. That will help the grass take a beating, whether from blocking and tackling during games or from events like concerts that put multi-ton stages on the field.”

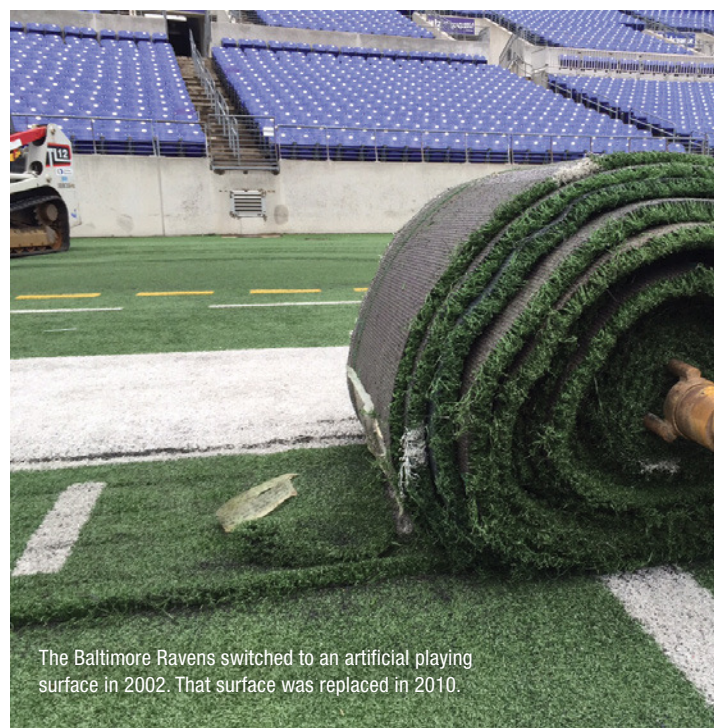
### Installation playbook

The conversion began this past February with the removal of the artificial turf (Shaw Industries’ Momentum 51). The lion’s share was recycled for uses in repurposed products. The balance was cut into small squares and packaged in commemorative cases for resale to benefit the Ravens Foundation, a not-for-profit organization that sponsors projects to encourage healthy development of local youth.

Then The Motz Group, the contractor for the project, took over. Workers dug out 6 to 8 inches of crushed rock — as well as the old rootzone — to reach the gravel layer, including the drain tiles and underground heating system that keep the field playable even in wet and freezing weather. The new 12-inch root zone, consisting of 90 percent sand, 5 percent native soil and 5 percent peat, was built on top of the existing gravel blanket, which was reused along with the drain and heating pipes.



On the technical side, one key factor supporting the conversion from synthetic turf to natural grass at Baltimore’s M&T Bank Stadium was the team’s success in growing healthy turfgrass on three practice fields with Profile Porous Ceramic (PPC) Greens Grade inorganic soil amendments incorporated into the rootzone.



The Baltimore Ravens switched to an artificial playing surface in 2002. That surface was replaced in 2010.

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M&T Bank Stadium’s senior director  
of fields and grounds

Next, 63 tons of Profile Greens Grade was tilled into the top 6 inches of the rootzone. The finished mix is a ratio of 90 percent sand/soil/peat with 10 percent PPC added to provide better infiltration, and a consistent balance of air and water that can otherwise be compromised in pure sand/peat mixes as peat breaks down and clogs the mix.

“The Motz Group has seen the



high-performance turf industry significantly progress over the last 40 years,” says Zach Burns, president of The Motz Group. “Our team of turf professionals have been instrumental in some of these changes in the past and are poised to continue to impact the future. As a result, executing the Baltimore Ravens’ M&T Bank Stadium synthetic to natural turf conversion was not only the perfect fit for The Motz Group’s expertise, but a wonderful opportunity to take us back to our roots.”

By May, crews were installing the irrigation system and sodding with Tifway 419 bermudagrass, a more robust variety than the turfgrass used in 1998 and the gold standard for football fields where bermudagrass is the turf of choice.

Homerun ryegrass is scheduled to be added this fall, along with supplemental light units from Stadium Grow Lighting designed to sustain healthy grass growth in portions of the field with insufficient light caused by shorter days and a lower sun angle late in the year. The lighting system deployment will make M&T Bank Stadium the eighth sports arena in the U.S. to take advantage of artificial lighting technology.

### Tough new turf

With all of these pieces in place, plus optimal maintenance practices ranging from fertilization to aerification, the Ravens expect their new grass field to stand up to every scrimmage, kickoff, goal line stand and concert.

“With a high performance mix, I fully expect the grass to perform at 100 percent all the time, regardless of the weather or the pounding the field takes the week before. That includes concerts that bring in 100,000 tons of steel and 100,000 people,” Follett says. “The strength and depth of the [new] rootzone will not only help the turf hold together and resist compaction, but also make it easy to get the field back into shape after a big event.”

Beginning this season, it will also give Ravens players the natural grass experience they asked for and make the team the 19th of the NFL’s 32 franchises to play their home games on natural grass. After 13 years with an artificial surface, Baltimore may well be setting a trend for other teams in the league to return to their grass roots. **SFM**

**RENA WISH COHEN** is a public relations and marketing communications writer based in the Greater Chicago area.



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BALTIMORE RAVENS



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