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Do your homework!

Editor's note: This column originally appeared in July 2003 but we thought it was so good we're running it again!

We are in the process of awarding a contract for reconstruction of our old football field. The work will include everything from regrading and recrowning to the installation of a new irrigation system. Because of budget constraints they are trying to eliminate a perimeter drain. I know drainage is very important. Can you give me some advice or suggest where I can find some ammunition for my cause?

Kevin Yeiser
Lebanon Valley College (PA)

Kevin and I have corresponded a few times since his original question and this is how he saved a lot of headache and some money by doing his homework.

Initially I agreed that the perimeter drain, on a typical high school football field that is surrounded by a track, is a very important part of the drainage system. It could consist of surface contours directing water to open drain grates or it could be a continuous narrow surface grate that encircles the entire field. French drains filled to the surface with gravel or coarse sand have also served as inexpensive perimeter drains. The perimeter drain relies on surface slope and is designed to get excessive rainwater quickly off of the field. It does not serve as a drain to regulate the water table nor does it remove water sequestered in the field's soil. A perimeter drain is important to prevent excessive water ponding on the sidelines, but it will not necessarily dewater the fields playing area. At a minimum, every field should have a perimeter drain or some means of removing surface runoff.

Just putting in a perimeter drain does not constitute a complete solution. At this point I asked Kevin for all of the additional background information that is necessary to make a plan for improving the field and spending money where it is most needed. A few days later Kevin came back with the rest of the story in his own words after doing his homework.

"Early in 2003 a decision was made by the administration of LVC to totally renovate the varsity football field. The field is predominately Kentucky bluegrass grown on natural clay/loam soil. Over the years the field has undergone annual renovation work consisting of topdressing with compost type of product, extensive aeration, slice seeding, and fertilizer applications.

"The field has a history of very good drainage characteristics but there are no records to indicate if any kind of drainage system was ever installed. In my tenure of 20 years as the grounds director I have been unable to locate existing plans, records, or past experiences with the "old-timers" of the area about the original football field installation.

"I have suspected there is some type of drainage system in the field due to the experiences I have had over the years with the field. Typically it is the first in our complex to show signs of drought stress. In fact, we use it as an indicator for our irrigation procedures. In addition, there is a large in-ground vault located at midfield behind the home bench area. The vault is approximately 6 feet square and about 6 feet deep with a stone bottom. Located close to the bottom of the vault there are three 6-inch pipe outlets. At no time

has water been seen in the vault even after days of rain. No one seemed to know why the vault is there.

"The project plans called for recrowning of the field, a new pop up irrigation system, installation of a complete drainage system, and installation of big roll Kentucky bluegrass sod. The directive was given to find ways to reduce the cost of the work and one of the first things to be questioned was the need for a drainage system, especially since the existing field drained so well previously. I lobbied very hard to not eliminate the drainage from the plan because I knew from past experience how important proper drainage is to an athletic field.

"This is where things became interesting. Our maintenance director suggested that we hire a local contractor to snake a camera into the vaulted drains to see where they go and what condition they were in. To our surprise we discovered a drainage system that is in excellent condition. The system is made up of two porous concrete pipelines that run the length of the field on either side. Connected at 20 feet intervals are terra-cotta pipes that run across the width of the field. The lines are at least 18-24 inches below the field surface and they discharge into the vault. The lines drain so well that the water being used for the drain opener wasn't showing up on the camera and nothing was flowing into the vault. This is coming from a high-pressure hose delivering 16 gallons per minute. The contractor remarked that the video indicates that all parts of the system are in excellent shape and that we probably could not install a drainage system that would work any better.

"The decision was made to leave the present system in place and work it into the new field project saving. Everyone is happy. The college is saving money and I'm sleeping better at night."

And that was the successful end of Kevin's underworld adventure. The message in the story is to do your homework. Most of the time old drainage systems, especially those with ceramic tile, are clogged and need to be replaced with plastic pipe. This probably saved \$30-50,000.

On other field rebuilding projects I have experienced that there is a real desire to "get rid of the old clay soil" since it has been blamed as the culprit of the muddy games and compaction. To my amazement the soil type is not even known, but they are determined to get that part of the problem off of the field. Sometimes the non-descript "black dirt" that is brought back onto the field is worse than what was removed.

Do your homework. Have the soil tested for sand, silt, and clay and then make a plan to either work with the existing soil or have it replaced with something better. If you have been topdressing for several years with sand there is a good chance that you have significantly improved the soil and there may be no reason to remove it. Additional compost and sand may be all that is needed to further improve the existing soil without the expense of removing and replacing the soil.

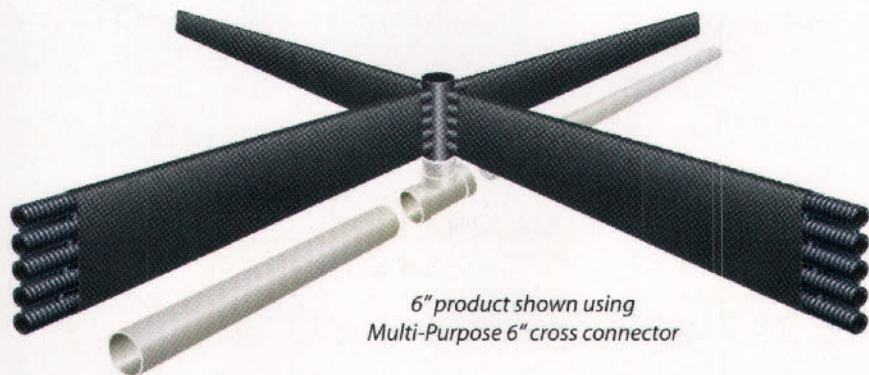
A tip of the hat to Kevin and his crew for doing their homework and saving the school some money that can now go toward a new topdresser or mower, or aerifier or . . . **ST**

QUESTIONS? Send them to Dave Minner at Iowa State University, 106 Horticulture Hall, Ames, IA 50011, or email dminner@iastate.edu. Or, send them to Grady Miller at the University of Florida, PO Box 110670, Gainesville, FL 32611, or email gmliller@mail.ifas.ufl.edu.

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