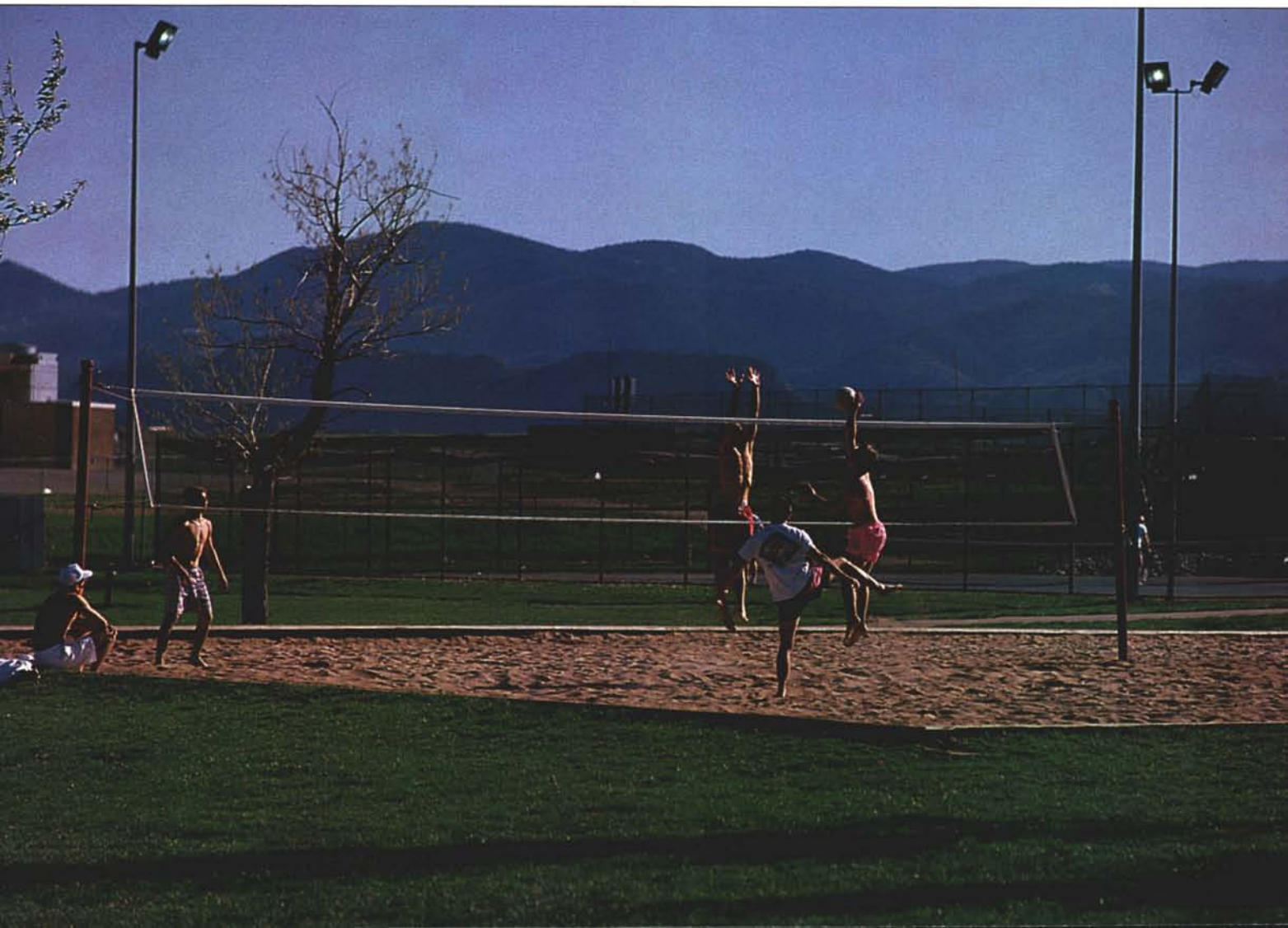
Keeping Facilities In Play:

Drainage and Surface Water Removal

The Achilles heel of outdoor sports facilities is their exposure to weather-related cancellations. Rainouts not only mean a loss of revenue, they cause complicated rescheduling of events. Anything the sports turf manager can do to lessen the chance of rainouts is bound to positively impact his reputation.

Keeping outdoor turf in play relates directly to drainage. It doesn't matter whether the surface is natural or synthetic, it will be limited as to the amount of water it can remove or hold before puddling occurs. When precipitation exceeds this threshold, play will be interrupted.

There will always be downpours that overload a field's drainage system. No amount of slope, porous rootzone, or subsurface drainage network has a perfect record when it comes to unusually heavy rainfall. They do, however, go a long way toward preventing unplayable conditions.



That is why professional stadiums, many university facilities, and a growing number of park districts make the investment in tarps, water removal devices, supplemental drainage structures, and drying agents. These are not meant to be a substitute for adequate subsurface drainage, they are tools which restore good playing conditions quickly.

Keeping Park Tournament Ready

"On more than 12 occasions last year, we saved weekend baseball tournaments," boasts Mike Roybal, maintenance specialist for Foothills Park and Recreation in Lakewood, CO. The district maintains the 56-acre Robert F. Clement Park in nearby Littleton for Jefferson County Open Space. Under its care, the park has twice won the Gold Medal Award from the National Recreation and Park Association and the National Sports Foundation.

When Roybal moved over to the park from one of Foothill Districts' golf courses, he first attempted to solve post-storm problems on the park's four baseball fields by using squeegees to push water into temporary trenches. "The skinned areas turned into a soupy mess that took a lot of time to clean up," he remarks. "It's embarrassing to think about now, especially considering that all we needed was a hand-operated water pump. Since we bought the first pump last spring, we have the fields back in shape before the first game in the morning. Now, we have two and plan to buy a third."

The pumps Roybal is talking about are Kuranda Diamond pumps. They operate the opposite of a bicycle pump. As the handle is pulled up, water is pumped into a discharge chute on top. Roybal connects two-inch PVC pipe to the outlet with duct tape to dump the water into catch basins on the side of the fields. In this way, one of the district's three field crew members can pump a puddle three inches deep and 15 feet in diameter out of the skinned infield and rake the area smooth in less than 15 minutes.

Last fall, evening rainshowers threatened the Colorado Girls Fastpitch Softball Championships. Roybal and his crew starting working on the wet diamonds at 5 a.m. By 8 a.m., the skinned infields were groomed and ready for play. "The coaches were pretty impressed that we pulled it off," says Roybal. "Now, league officials are confident that we can get their tournaments in despite most weather conditions. It's also why so many tournaments are held at the park."

Sand volleyball pits at Clement Park must be pumped dry following rains.

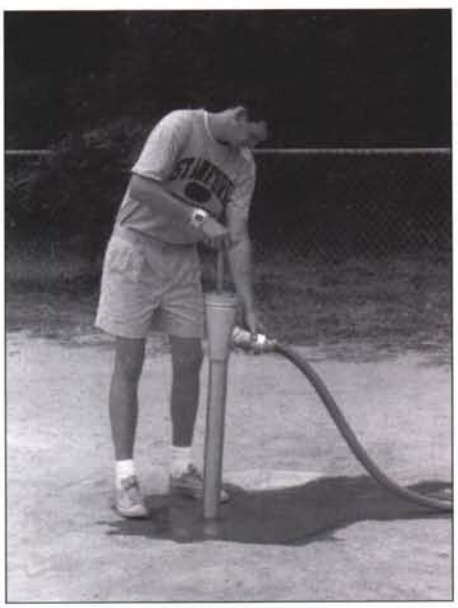
Perimeter catch basin at the University of Florida. Photo courtesy: NDS.

Protecting Revenue

The Foothill crew also helped protect an important source of income for the district. Sand-pit volleyball is popular in the Denver suburbs. Groups can rent any of six shelters surrounding the courts. "By February, all the shelters are reserved from April through September," explains Roybal. "But, they don't pay if their event gets rained out. With the pumps, we can get the courts back in play quickly and save the shelter revenue."

Revenue is the life blood of the Albany Colonie Yankees. The New York Yankee farm club depends upon ticket and concession sales. Rainouts are dreaded for good reason.

John Liburdi, head groundskeeper at Heritage Park, inherited a number of drainage flaws when he took over in 1983. The park is jointly owned by Albany County and Colonie Township.



Diamond pump connected to hose is a simple solution to infield puddles.

The Double A Yankee farm club leases the stadium for its 70 home games. The team averaged ten rainouts per season during Liburdi's first two years.

Liburdi, vice president of the New York State Turfgrass Association (NYSTA), is very receptive to helpful ideas from

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Pull-behind water removal device by Kuranda comes in handy at Buffalo's Rich Stadium.

Drainage And Water Removal

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other groundskeepers, golf course superintendents and suppliers. By delivering a better field each successive year, he has earned the support of Jim Zamberdino, head of the Colonie Department of Parks and Recreation.

"The field was constructed from heavy clay without enough slope or drainage," he comments. "Like many older minor league parks, water drains off the stands onto the field. During the '80s, standards for minor league parks started to improve. Municipalities started doing more to keep professional baseball teams at their stadiums."

The first two years, Liburdi concentrated on the basics, such as mowing equipment, a balanced fertility program, improving the infield, and prepping the field to Major League standards.

The personable groundskeeper also spent hours getting to know the Park Department and Yankee staff. He was laying the groundwork for improvements he wanted to make in the next five years. His first step was to obtain a tarp for the infield.

A Long-Range Drainage Plan

"Too many teams are concerned only about the infield," adds Liburdi. "The outfielders are left standing in water after the tarp is pulled. That's not the way I wanted it to be for the Yankees." So, he worked out a long-range plan for improving the field with Zamberdino.

The plan started with the installation of TerraFlow, a flat, fabric-wrapped drain line that fits in narrow trenches which are then backfilled with sand. A network of drain lines was installed in the outfield. In the warning track which surrounds the field, he installed new catch basins and channel drains to intercept water coming down from the stands. Brick dust was trucked in to resurface the warning track. Liburdi also instituted a program of aeration and topdressing to improve water infiltration and relieve compaction.

The outfielders began to benefit from better playing conditions the first year. The number of rainouts dropped to five. Still, Liburdi wasn't completely satisfied. "We only have five guys on the crew during the season," he states. "When we removed the tarp after a rain, we had to call down people from other stadium departments to help out. I thought the crew could handle the tarp if we were able to remove the water on top of it first."

He put in a budget request for a water removal machine for the next season. "We ordered a Marlin [Kuranda] tractor-pulled, six-foot-wide unit with two storage tanks instead of one," says Liburdi. "Each tank holds 500 gallons. We pull it over the tarp after it stops raining. That way the tarp is light enough for the grounds crew to remove without help. It's not unusual to empty the tanks twice before the tarp is dry. That's 2,000 gallons of water sitting on top of the tarp! Before, all that water was getting dumped into the outfield." He has also discovered that he is using less calcined clay to touch up the basepaths after rains than before.

Liburdi runs the machine over the outfield if necessary after heavy rainstorms. Last year, the Yankees only called off two games, and in both cases, the reason was snow.

Fields Fit For NCAA Champs

The Clemson Tigers have also enjoyed better playing conditions since the South Carolina university took a closer look at drainage problems. The NCAA Division I school has strong football, soccer, and baseball programs which depend upon the campus facilities for games and practices.

Lane Miller, assistant superintendent of buildings and grounds, juggles threatening weather with the needs of the Athletic Department. Maintenance is subcontracted to Environmental Landscaping of Greenwood, SC, so Miller can concentrate on scheduling and preparing the athletic facilities.

The university has the 80,000-seat Clemson Memorial Stadium for football, the 4,000-seat Riggs Field for its soccer team, and the 3,000-seat Tiger Field for baseball. All three teams are ranked near the top every year. Baseball Coach Bill Wilhelm has led his Tigers to more than 1,000 victories during his tenure at Clemson. The soccer team won the national NCAA championship in 1984 and 1987. Last year, the football Tigers ranked in the Top 20 and played in the Citrus Bowl.

Teams like these can't play or practice on muddy fields. It's Miller's job to make sure they don't.

"The best thing we have done in the past few years is get a better handle on drainage," says Miller. "We had to add catch basins in the football stadium. But, most of our work has centered around the soccer and baseball stadiums and the six practice fields. We've found that by adding slit drains and getting water off the fields quickly, you can control field wear better."

Water was building up in the corners of the soccer fields resulting in

severe wear. Corner kicks are a major part of soccer. These areas would not hold up under wet conditions. Miller installed flat drainage structures in trenches crisscrossing the corners. Now, he can concentrate on typical wear areas such as the goal boxes.

The baseball stadium has an infield tarp which is dumped toward right field. This presented a problem for the right fielder and slowed down clean up after rains.

Marlin in action on golf course.

Since his mission is more game preparation than maintenance, Miller was looking for a quick solution to drainage problems. One day, Ronnie Oliver, president of Environmental Landscape, brought Miller an ad for a riding water removal device called the Whale. "He said that's what you need, why don't you try one," recalls Miller.

Today, Clemson has five water soppers which are used on all its fields. "We've saved many games with our units," adds Miller. "Now, when we dump the infield tarp, we go over right field with the machine. "Fifteen minutes after we pull the tarp, we can get the players back on the field. We don't run the machines on the skinned areas, just the grass."

With so much riding on sporting events today, turf managers may not want to rely totally on subsurface drainage. By having the option of removing water from the surface before subsurface systems have time to do their job, playing surfaces can be returned to use more quickly. This margin may be the difference between a rainout and another game on the books. ❑