

## Cardinal Stadium

Weil Pump solves a basement-flooding problem at the University of Louisville's Cardinal Station that was damaging the school's plan to develop a powerhouse Division One baseball program.

### Setting the Scene

Sitting on a piece of land near the CSX train yard, this four-story building was originally used as office space for American Air Filter. In 2009 the property was purchased by the University of Louisville Foundation. Today, the upper floors are occupied by a sports medicine facility, a rehab center, and various other university offices. The basement holds the University's baseball locker room and training facilities.



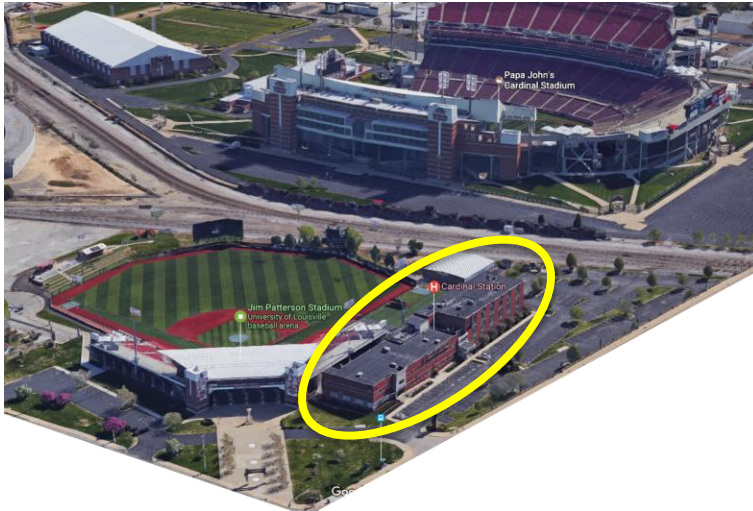
*Photo Courtesy of UofLCardinalStation.com*

### The Problem

The problem that needed a Weil solution was frequent basement flooding with the added difficulty that the ground water in the area had been saturated with diesel fuel from the locomotive engines. Any solution would have to meet explosion proof environments standards. In 2006, Weil pump was selected to provide ground water control and sewage ejectors for the basement level bathrooms. Vertical pumps were used for both the east and west sumps.

The east sump sits on a spring so water drains into it all year around. The west sump handles the perimeter foundation storm water drainage. Duplex sets of model 1200, with 1/2HP explosion proof motors, were installed for both the east and west sumps. Finally a duplex set of 2500 series submersible sewage pumps was installed for basement bathrooms and floor drains. Later, in 2009, both the east and west sump vertical pumps were outfitted with 2HP motors and the largest impeller available.

The original Weil pumps performed proper service for the building until the adjacent properties were developed changing the storm drainage pattern and overwhelming the building. Since the original installation, the area around the building has been completely redeveloped. Now, to the right is the home of Louisville football, Papa John Cardinal Stadium, and acres of parking lots. To the left



*Cardinal Station is anchored by the home of UofL Baseball, Jim Patterson Stadium, as well as Papa John's Cardinal Stadium (source: google maps)*

lies the Patterson baseball stadium, a state-of-the-art baseball field for which they raised the ground level some 15 feet.

Today, the building is located behind these two athletic facilities and the ground water the building receives has been vastly increased. Over the last several years Louisville has experienced 50 and 100-year rain incidents. The basement has been

flooded numerous times. With the University of Louisville trying to build a powerhouse NCAA Division 1 baseball program, closing the training facility and locker rooms due to flooding was not acceptable. A solution needed to be found.

**The Solution:**

The building manager contracted with several engineering firms but after evaluating the proposals chose Weil pumps from Weil's Kentucky representative, Shearer Company. The man behind the proposal was Shearers' owner Dan Vittioe. "Shearer Company has represented Weil Pump Company for over 50 years. Weil pump products are known in my territory as the premium pump line. When the application is critical Weil would be my only choice. Over my tenure with the company I have taken many calls for replacement pumps. When you see the life span of many of those pumps you have to be influenced. I have replaced pumps that were installed over 50 years ago and it is quite common for them to have been installed 20 or 30 year ago," he says.

In this case, the building manager did not feel the proposals he had received would solve his issues. "He told me he didn't care where the water went, he just didn't want it in his basement. I designed a storm pump system that satisfies manufacturers run time with lead lag operation into the storm sewer for the standard rains and a back up lead lag system for the catastrophic rain falls that pump the water to exterior manholes," says Vittioe.

The work included:

**West Sump:** Completely revamped in 2012 with (3) model 2520; 7.5 HP submersible pumps to take the place of (2) model 1200; 2 HP pumps. The primary duplex set sends the water to the storm sewer. The single back up pump sends the

water to an exterior storm drain. A fourth model 2520 was added in 2015 as an additional precaution in case the single back up would fail.

**East Sump:** One model 1601 2 HP submersible pump installed serving as back up to the (2) vertical model 1200 now with 2 HP motors. This discharge line was directed to a parking lot manhole.

**North Sump:** Outfitted with a submersible model 1601 with 1.5 HP motor. Its primary duty is to handle condensate from the HVAC equipment with secondary duty of foundation drainage.

**Control Panel:** In 2016 Weil's new model 8196 PLC quadplex control panel was installed with a transducer float switch and back up micro pressure switches to replace all of the existing controls in the west pump.



*Weil 8196 PLC  
Control Panel*

**The Result:**

Since installation the basement has remained completely dry despite receiving record downpours in the last three years. "Since installation Louisville has experience both 4 inch per hour and 5 inch per hour rainfalls which fall into the 100 year rain record. The system has been successful in keeping the basement dry. That would definitely not have been the case prior to installing Weil," says Vittitoe.

The new heavy-duty system has already proven it is more than capable of keeping up with the demand and has required minimal maintenance. The outstanding new control panel allows the building manager to view all history of operation, as well as tie all pumps together via smart phone or visual screen mode. Furthermore, Weil's solution has fully addressed the problem and has done so at cost that is less than 1/10 of the engineered designed package on the original bid. As it has been stated many times they are "Simply the Best!".

For the future, the building has a generator back up but it relies on two transfer switches to operate the two sides of the building. Weil has designed a more efficient system with a panel to reverse the power to the operating transfer switch if one of them does go down.

As for the Louisville Cardinal Baseball team? Since resolving the facilities flood issues in 2013, the Cardinals have been NCAA Regional champions each year, making two trips to the prestigious College World Series. It appears that being able to train, uninterrupted, all year long has its advantages.