

Louisville MSD Walks the Green Talk – Building a Rain Garden without Getting Washed Away

The statisticians compare it to a theoretical 1,000-year storm. For those who were there, it was a scary flash flood event with water rising in areas that it had never been before. The drainage system was fully operational, but the runoff couldn't get into it fast enough to prevent flash flooding. Cars were floating in the streets, basements were filling with water and MSD staff members were rescuing people from cars and houses. Thankfully, there were no serious injuries.

The roof drainage from MSD's main office building was routed through interior drains to feed the rain garden's two cells. The garden used energy dissipaters to receive the runoff from the roof and spread it into the garden. Nonetheless, it wasn't enough to prevent the flow from dislodging approximately a couple dozen plants. While the University of Kentucky fans on staff may have enjoyed the moment, many of the Cardinal flowers (affectionately admired by the University of Louisville fans) did not appreciate being covered with the freshly placed and floating mulch dust. To the surprise of many, the vast majority of the remaining plants installed just the day before were intact and appeared undamaged. The project also includes installation an area of pervious pavers that will be used for staging education programs and garden tours.



MSD was assisted in the rain garden design by URS Corporation, Environs, Inc. and Drop Seed Native Plant Nursery, Inc. under the direction of Landscape Restoration Specialist Phyllis Croce. Further pervious paver assistance was provided by Reading Rock, Inc. The Rain Garden was designed to receive, manage and infiltrate substantial quantities of stormwater. However, in a downtown setting the garden was also designed to receive and bypass the larger events without flooding the building, sidewalk or street. The bypass was accomplished through three mechanisms. 1) Each cell has a slot under drain that allows primary infiltration while accepting high volume events. 2) Each cell has a 6-inch tall standpipe capped with a dome drain to limit clogging problems. 3) The garden cells were also allowed to overflow a broad weir to a yard drain that was then routed to the drainage system under the street. This first day on the job ... each of the three bypasses were put to the test and passed with flying colors.

The rain garden was constructed by Advance Paving with plants installed by Dropseed Nursery. Infiltration tests of the engineered soil and native soil were performed during planning and construction. However, there were many attentive onlookers the day of the big storm. They were watching and waiting to see if in fact the water would recede or start gushing through the windows. Fortunately, the water did recede over the next several hours. While monitoring equipment was not yet installed, the overflow points did provide access to visually determine where the water was going. Both cells filled and overflowed to bypasses, but it was clear that significant infiltration was occurring. It is expected that the garden's infiltration capacity will dramatically increase as the plants establish over the next few years. However, this event was undeniable proof that the rain gardens can work in a downtown environment even before vegetation is fully established.

The Louisville MSD has been promoting and encouraging green approaches to our living spaces for many years. MSD has added rain gardens to its repertoire of green infrastructure at the main building including pervious pavement retrofits in the adjacent street, native landscaping walkways and pervious pavement retrofits to the parking lot. While the term green infrastructure has only recently entered the stormwater management industry vernacular, MSD has made efforts over the years to show the community it believes the message and walks the talk. For more information contact Randy Stambaugh, MS4 Coordinator, Louisville/Jefferson County MSD, stambaug@msdlouky.org.