Keith-Wiess Park Detention Basin

Site Description

Keith-Wiess Park Detention Basin (HCFCD Unit No. P518-02-00) is a 132-acre wet bottom detention basin with three pond areas linked by riparian corridors. It is located within the Halls Bayou watershed in unincorporated northeast Harris County. The basin is centered within a City of Houston park that is approximately 500 acres. The system consists of two storm inlets and an outlet, with a side weir for flood-stage overflow into the basin from Halls Bayou. The basin receives stormwater runoff from a 1,244-acre drainage area. Mainly of residential land use, the watershed has 30% impervious cover. Stormwater enters the facility from the northwest through a box culvert connected to drainage channel HCFCD Unit No. P118-37-00 and from the southeast through a 24-inch inflow pipe connected to drainage channel HCFCD Unit No. P118-19-00. The outlet discharges to Halls Bayou through a 48-inch culvert. The detention basin has capacity to store approximately 900 acre-feet of flood water. While the facility's primary design is to mitigate 10-year flood events from Halls Bayou, it also serves to enhance community and natural values with permanent pools, water quality enhancement wetlands, habitat islands, upland reforestation areas, educational features, fishing pier, boardwalk, and other public use facilities.

Water Quality Enhancement

The detention basin has been constructed with a forebay for sediment drop-out and wetland areas for water quality enhancement. Pond edges, islands and riparian corridors were planted with emergent vegetation in 2008 and provide cross-flow treatment of stormwater. Plant species used in the creation of the water quality enhancement wetlands include: Soft rush, olney and softstem bulrush, giant cutgrass, fire flag, maidencane, pickerelweed, delta arrowhead, spike rush and water lilies. In addition to the herbaceous vegetation, the islands and areas along the water's edge were planted with tree and shrub species such as bald cypress, sycamore, red maple, river birch, and buttonbush.

Water Quality Monitoring

Following HCFCD Storm Water Quality Pond Monitoring Protocol, sampling equipment has been permanently installed to monitor wet weather flow and water quality at the inlets (MS-1 and MS-3) and outlet (MS-4). Grab samples are taken during qualifying storms at each monitoring station for the analysis of bacteria and oil and grease. First flush composite samples are collected in ISCO 6712FR automatic samplers. ISCO 750 area velocity flow meters quantify inflow and outflow. Rainfall is recorded at MS-1 using an ISCO 674 rain gauge. The equipment at MS-1 and MS-4 is housed in steel-framed shelters mounted on concrete pads. Solar panels provide power and cellular modems allow these systems to be controlled remotely. MS-2 is submerged in one of the basin's permanent pools and provides continuous water quality monitoring using a YSI 6920-V2 multi-parameter sonde.

Multi-Objective Use of Basin

After many years of planning and partnering, the City of Houston Parks and Recreation Department (HPARD) and Harris County Flood Control District (HCFCD) entered an agreement to develop a joint use of Keith-Wiess Park, previously acquired by the City through property donation from the James and Margaret Elkins family. Early design of the detention basin included public use facilities such as trails, fishing pier, boardwalks, and interpretive signs. Following the award of a grant from the Texas Parks and Wildlife Department to create the Halls Bayou Greenway, additional recreational amenities and trails were included to link this site to other HCFCD detention basins within the watershed. This grant also allowed for native habitat plantings within the basin, such as riparian corridors, upland reforestation, and additional wetlands. Through continued cooperation HPARD and HCFCD jointly maintain the facility to function for the benefit of the community and natural values.


MS-1 Inlet
Keith-Wiess Park
Stormwater
Detention Basin
MS-2 Sonde
MS-4 Outlet
MS-3 Inlet
Harris County
Flood Control District
www.hcfcd.org
houston
PARKS
& recreation
department
www.houstonparks.org