

Village Circle Basin Update November 9 2016

The Village Circle Basin manages stormwater from a residential neighborhood in Whitpain Township conveyed by a network of pipes and street inlets to an outdated detention basin. This detention basin discharges stormwater runoff to Willow Run West, a small tributary that flows into the Wissahickon Creek just above Ambler. The Village Circle neighborhood lies adjacent to WVWA's Armentrout Preserve, a 20-acre area of historic farm fields (now a native shrub-scrub habitat), riparian corridor, and forested groves.

The original detention basin was a mowed, dry-bottom basin that was ineffective at detaining stormwater flows. During storm events, water flowed straight across the basin in an eroded channel directly to the outflow structure. At the outflow structure, severe streambank erosion extended a few hundred feet down the Willow Run. This unstable stream segment displayed minimal riparian vegetation covering incised banks, many fallen trees toppled from exposure of their roots along the stream, and contributed sediment pollution to the stream during storm events.

As a close-working partner with Whitpain Township, WVWA was alerted that the Village Circle Basin was due to be retrofitted around 2015-2016. With permission from Whitpain and in coordination with the Temple Center for Sustainable Communities, WVWA installed data loggers in 2014 which track conductivity and turbidity at the inflow and outflow structures of the basin. WVWA downloads this data on a monthly basis and sends it to Temple for analysis. After 1.5 years of data collection, Whitpain began construction for the retrofit of the Village Circle Basin in April 2016.

Whitpain retrofitted the 35-year old detention basin this summer from a dry-bottom to a naturalized basin. The new basin has a sediment forebay, infiltration systems, grading/flowpath modifications, outlet controls and downstream drainage channel improvements. In the next few weeks, WVWA will reinstall data loggers on the new inflow and outflow structures and continue to collect data, demonstrating how the functionality of the basin has improved. Whitpain also plans to include an educational component, with signage about the naturalized basin for the public, and a potential trail connection.

WVWA hopes for this to be a keystone project in establishing the benefit, cost effectiveness, and opportunities basin retrofits can provide for other municipalities throughout the watershed. WVWA will have hard data to show the improved ability of naturalized basins to detain and infiltrate water and remove sediment and other pollutants, making basin retrofits an attractive project for municipalities to satisfy TMDL and MS4 requirements and educate the public.

Whitpain Village Circle Basin Design Plan



BEFORE RETROFIT

Inflow pipes



Outflow, incised channel with many fallen trees



AFTER RETROFIT

Construction of settling pool



Construction and planting of forebay



Restoration of streambank at outfall

