

Brier Hill Crossing Business Park and Residential Development

Hampshire, IL



Client

Van Vlissingen and Company

Scope of Services

Hydrologic/Hydraulic Analysis

Storm Drainage Design

Stormwater Management

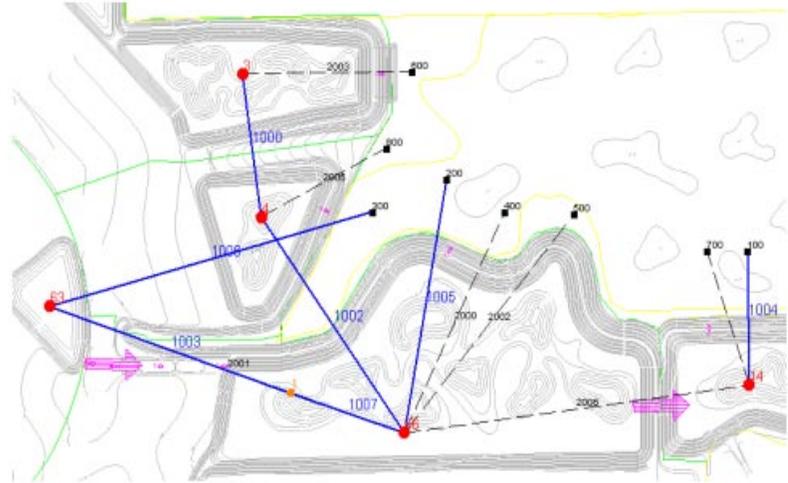
Roadway Design

Industrial Site Design

Dam Permitting

Project Duration

2005-Ongoing



Brier Hill Crossing is a business and industrial park development covering approximately 393 acres in Hampshire, Illinois. The site also includes a 409-lot residential subdivision, comprised of both multi-family and single-family homes. Manhard provided hydrologic and hydraulic modeling analyses, stormwater management, business park and residential design services, and dam permitting analysis for the series of large detention basins designed. The detention basins cover approximately 32 acres of the site and provide approximately 245 acre-feet of storage. This project provided a particular challenge in relocating a major waterway flowing through the site. Also, the site lacks natural positive drainage slope, and tailwater effects between the basins and within the pipes drove the pond and drainage system design.

Detailed hydrologic and hydraulic analyses were completed for both existing and proposed conditions. The proposed conditions modeling analyses included the design of five interconnected detention and retention structures, some of which required a Dam Safety permit from the state of Illinois. Three major drainage swales were also designed to convey offsite tributary flows through the development to the proposed detention structures, eventually discharging to an existing wetland. The basins were designed with wetland-planted bottoms to improve influent water quality before their release to the existing wetland. The 100-year critical storm event was used as the design parameter for the basins. A dynamic hydraulic model was used to account for tailwater interactions between the interconnected basins and design the outlet control structures for the detention basins. The outlet structures were designed to preserve the wetland hydrology to the existing wetland and meet local stormwater ordinance regulations for site development.