



**PROJECT:**  
**The Ponds**

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**LOCATION**

**Oak Grove, Minnesota**

**PROJECT TYPE**

**Residential Wastewater**

**COMPLETION DATE**

**2003**

**DESIGN FLOW**

**86,300 gallons/day**

**TREATMENT**

**Vertical Flow Wetland**

**NEED**

Developers in Oak Grove identified a 410 acre parcel as a key residential development area along with recreational opportunities. The developer teamed with golf course personnel to build an 18-hole golf course that would be designed around a 223 unit residential development. Although the site was 410 acres in size, several wetlands made the layout difficult. The wastewater treatment and disposal system needed to be a compact and efficient design that minimized space needs.

**SOLUTION**

Jacques Whitford NAWE engineers proposed to utilize recirculating gravel filter technology, which minimizes land needs. A gravity flow sand filter and sodium hypochlorite disinfection track was designed for the 86,300 gpd facility. The entire facility infrastructure fits on less than 1.5 acres of land. A reclaim water pond was designed to store the treated water for use on the golf course. This allowed the golf course developers to build the 18-hole golf course, and met the needs of the residential developer by maintaining the required number of residential units that made the project economically viable.

**BENEFIT**

The wastewater system became an integral part of the golf course operations. The golf course was limited by the amount of water appropriation approved by the Department of Natural Resources. Therefore, a deficit of water occurred and the golf course developer had to secure additional water for optimal growing conditions. The reclaim water from the wastewater system met the remaining deficit for the turf grasses irrigation need. During the irrigation season, the golf course consumes more water on an average daily basis (556,000 gpd) than the development can generate at design flow (86,300 gpd). Thirty percent of the total water irrigated is reclaimed water, which is diluted at a 3:1 ration prior to irrigation. Reclaim water was used to supplement the irrigation demand of the golf course. This environmental project depicts how reclaimed water can be used as a resource for other needs.



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