



**PROJECT:**

# Lutsen Sea Villas Resort

Leading the way with sustainable solutions

**LOCATION**  
Lutsen, MN

**PROJECT TYPE**  
Resort

**WASTE TYPE**  
Residential

**COMPLETION DATE**  
2002

**TREATMENT**  
Subsurface Flow  
Wetlands



**NEED**

The Lutsen Sea Villas Resort, established in 1968, is situated on the North Shore of Lake Superior. The resort operates a total of 31 2-bedroom suites. The original septic system had reached the end of its life and did not meet current codes. Shallow bedrock, high water tables, and setback requirements from Lake Superior all complicated site planning efforts.

Resorts and developments on the North Shore will be in service for generations to come. This is far longer than the life of a standard septic system. Continued use of conventional onsite septic systems that consume more and more land as the need replacement was not a realistic option.

**SOLUTION**

Jacques Whitford NAWE designed a subsurface flow wetland constructed wetland for wastewater treatment. Extensive use of existing water use records was part of the design process, resulting a time-based flow equalization system to accommodate peak flows. After wetland treatment, effluent is disposed of in two pressure-dosed mounds.

With the limited space available, several innovative design approaches were needed. Lowboy septic tanks were used to avoid groundwater and minimize blasting. The wetland treatment cell was built on top of clay soils not suited to conventional septic use. Due to the proximity to US Highway 61, the system was vegetated with a variety of ornamental wetland plants.

**BENEFIT**

The Sea Villas owners finally have a long-term solution to their septic problem. The wetland treatment system protects the infiltration mounds and helps preserve the quality of Lake Superior. The wetland system is visually appealing and enhances the property value of the resort.

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