



Camp and Center Lakes Floodplain Mapping Summary

Background

When the Village of Salem Lakes entered the National Flood Insurance program as a new community in 2019, the Federal Emergency Management Agency (FEMA) would not approve the floodway and floodfringe zoning boundaries previously in effect around Camp and Center Lakes. The analysis methods used in the previous floodplain study were no longer acceptable to FEMA. Therefore, an updated floodplain study was necessary to establish up-to-date floodplain mapping along Camp Lake and Center Lake.

raSmith prepared a hydrologic and hydraulic study following the requirements of FEMA and the Wisconsin Department of Natural Resources (DNR). The study area included the Camp Lake Outlet from the Wisconsin-Illinois border to Camp Lake, Camp Lake, Center Lake, and the Tributary to Center Lake--Center Lake to a point approximately 600 feet north of CTH AH. The study consisted of hydrologic analysis to determine regulatory flows, hydraulic analysis to determine flood elevation profiles including regional flood elevations, and mapping of the floodplain and floodway boundaries. Stream crossing structures were surveyed to obtain elevations and dimensions. The mapping was based on the latest Kenosha County 2017 LiDAR topographic data.

The hydrologic and hydraulic study and resulting floodplain boundary maps have been reviewed by DNR and found to meet the State of Wisconsin requirements. The next step will be to submit the study to FEMA for additional review and approval.

Findings

Runoff volumes and peak flood flows for the 1% annual chance event were calculated at key locations within the watershed, based on drainage boundaries and hydrologic characteristics. Flood storage in Camp and Center Lakes was included in the analysis because the lake storage and outlet structures affect the lake outflows and the flood elevations on the lakes. The analysis assumed flood storage around the lakes based on the topographic mapping.

The resulting 1% annual chance flood elevations in comparison to the current regulatory elevations are:

Location	Current Regulatory	Revised
Center Lake	744.1 feet NAVD88	744.43 feet NAVD88
Camp Lake	742.2 feet NAVD88	742.62 feet NAVD88

With the revised elevations, future development within the flood storage areas would be allowed with offsetting compensatory storage excavation. For consistency with prior zoning administration by Kenosha County, the study evaluated the possibility of allowing within the flood storage areas without offsetting compensatory storage excavation. This option would cause the 1% flood elevations to rise an additional 4 inches to elevation 744.69 feet on Center Lake, and 1 inch to elevation 742.70 feet on Camp Lake.