




PROJECT
PROFILE

UPPER MAPLE RIVER DAM STEELE COUNTY, ND

CLIENT:

Maple-Steele Joint Water
Resource District

LOCATION:

Steele County, ND

KEY DATES:

Start Date: April 2015
Completion Date: November 2015

PROJECT COST:

Construction cost: \$5,670,000
Total cost: \$9,200,000

FUNDING PARTNERS:

North Dakota State Water Commission: \$4,370,000
Red River Joint Water Resource District: \$2,650,000
Cass County Flood Sales Tax: \$715,000
Local (assessments): \$860,000

FEATURES:

Reservoir capacity at the spillway: 5,325 acre-feet
Reservoir capacity at the top of the dam: 9,950 acre-feet
Pool area at the spillway: 600 acres
Pool area at the top of the dam: 925 acres
Watershed area: 58 square miles
Maximum height: 35 feet
Width at the top of the dam: 20 feet
Embankment side slopes (H:V): 3:1
Length of embankment: 4,400 feet
Embankment volume: 150,000 cubic yards
Concrete volume: 1,550 cubic yards

Challenge

The upper reach of the Maple River watershed, located in portions of the Steele, Barnes and Cass Counties, has been prone to flooding that has caused significant damage to roadways, cropland and structures. The floodplain topography is very flat and the river can widen to two miles in some locations during floods. An existing flood control dam was severely undersized to provide adequate protection and that dam was also in need of costly repairs. The Maple-Steele Joint Water Resource District sought to provide more robust and cost effective flood protection for landowners impacted by the river.

Solution

After several studies of the upper portions of the Maple River watershed, the Upper Maple River Dam was identified as the preferred site for construction of a new dam. Moore Engineering led the effort to study the best location for the new dam and then completed the engineering required to design and construct the dam, including the navigation through the regulatory and permitting process, conducting public outreach activities, assisting the district in securing funding and administering the right of way acquisition process. Moore also assisted the district during the construction phase of the project by providing contract administration services, construction staking and materials testing coordination.

Outcome

The Upper Maple River Dam culminates almost 20 years of planning and preparation. This dam will reduce flood damages over more than 20,000 acres in portions of Steele, Barnes and Cass counties where the river has damaged growing crops and public and private infrastructure for many years. The dam has a flood peak reduction of 86 percent in a 100-year, 24-hour rainfall and 58 percent in a 100-year snowmelt. The Upper Maple River Dam is a dry dam, meaning that it only holds water during floods, allowing farmers to continue using pasture and cropland behind the dam. The \$9.2 million facility was constructed on time and under budget.

