



## **Design and Construction for the Loughberry Lake Dam Rehabilitation**

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The City of Saratoga Springs, NY is completing construction on the rehabilitation of Loughberry Lake Dam, which is an earthen embankment dam 1,000 feet long and 40 feet high that impounds the primary water source for the city. Raw water is drawn from Loughberry Lake, conveyed beneath Route 50 and treated at the Saratoga Springs Water Plant located south of the dam. Spillway flows are conveyed separately and discharged beyond the toe of the dam. The rehabilitation, projected for completion in December 2025, included slip-lining the existing principal spillway tunnel and relocating the principal spillway weir downstream. The new spillway location allows the slip-lined principal spillway tunnel to serve as a secondary water supply for the water treatment facility, thus allowing for inspection and repair of the existing 90-year-old intake piping. The rehabilitation also involved constructing an upstream stability berm, replacing the principal spillway conduits to alleviate hydraulic constrictions, centrifugally casting the auxiliary spillway conduits with concrete, and placing an energy dissipation structure for combined spillway conduit discharges. Key design constraints included the maintenance of Loughberry Lake during construction and coordination with adjacent projects and regulatory entities. The water treatment plant was required to remain operational throughout construction, resulting in specific project phasing and strict limitations on the lake drawdown and allowable turbidity. Siphons and bypass piping were installed through the primary and auxiliary spillway systems during different construction phases to prevent overtopping the upstream cofferdam. Turbidity levels were measured hourly by City staff, and the City held the authority to temporarily cease construction activities at any point should turbidity surpass specified limits. Intake and overflow pipes were incorporated to connect the new principal spillway chamber and the recently constructed water intake structure (designed and constructed by others), matching existing grades and elevations. Portions of the project were constructed within an easement on the adjacent property which is concurrently undergoing independent development, requiring coordination on manhole grades, construction traffic, staging areas, and restoration responsibilities. Since Route 50 spans the dam crest, construction required receipt of a NYS DOT Highway Work Permit to coordinate work within the NYS DOT right of way. To mitigate impacts to traffic during the Saratoga Race Course Season, no lane adjustments on Route 50 were allowed between May 30th, 2025 and September 2nd, 2025.