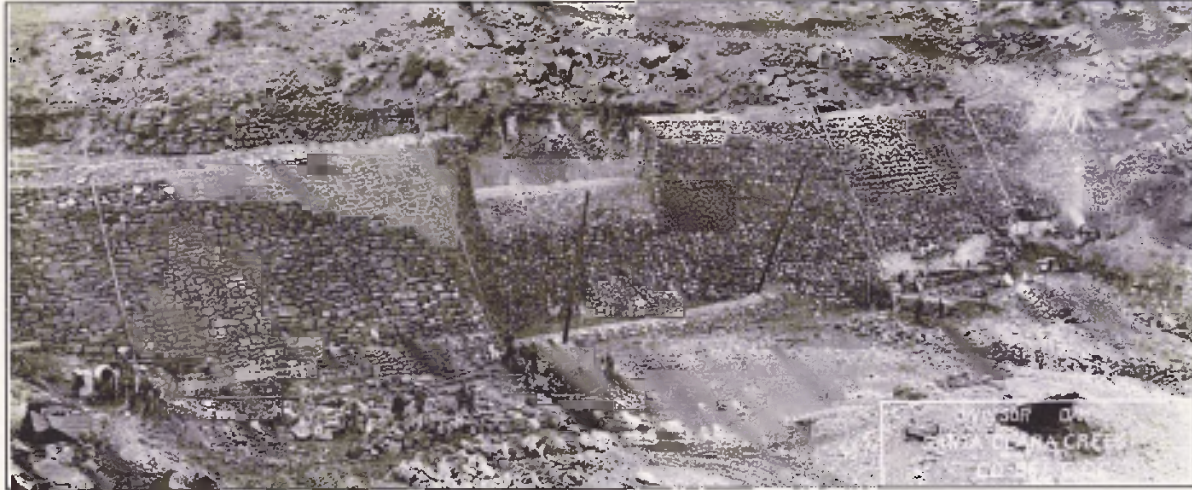


Shem Dam Rehabilitation Project Overview



December 1934 photo of Shem Dam as masonry veneer is applied.

The Construction of Shem Dam

Historically, water has played a critical role in the development of communities on the Santa Clara Bench. Without the presence of a diversion dam on the Santa Clara River, the towns of Ivins and Santa Clara would never have prospered. In the late 1800s, a brush and straw dam existed roughly 600 feet upstream from where we stand. Just over 80 years ago today, Luther M. Winsor and the Santa Clara Bench Water Irrigation Board brought in the Civilian Conservation Corps (CCC) to build the concrete and stone diversion dam that we see today. The dam was constructed with a basalt and concrete outer veneer and earthen core and represents one of the larger projects undertaken by the CCC in Utah.

Much of the dam's current structural issues can be attributed to the lack of a solid foundation. When the CCC built the dam in 1933, they did not have a water pump powerful enough to remove water from the channel to excavate the foundation. Therefore, most of the dam is sitting on top of sand and gravel. When water flows over the dam, it undercuts the crest and undermines the structural stability.

Current Condition

Shem Dam was repaired numerous times in its history, the last repairs taking place in 1958. Since then, flood events have caused additional structural damage and without repairs the dam will likely fail. This will damage communities and public infrastructure downstream and cause damages upstream to historic and prehistoric resources. The major concerns with the dam's condition include the center crest which is collapsing on the downstream side, and the eastern abutment which lacks any cement mortar. Water is also seeping through the crest. Most of the damage is to the 1958 repairs, and the original 1934 construction remains. Pieces of the dam that have fallen off are scattered downstream for hundreds of feet.

Goals of Rehabilitation Project

The main goal of the dam rehabilitation is to stabilize the structure so it does not fail. To accomplish this, the NRCS is proposing to build a masonry bench along the downstream side of the crest and abutments. A concrete chute or slide will protrude from the front of the crest to keep water away from the base, and avoid further undercutting. Trees and vegetation that are growing within and around the dam will also need to be removed as they are comprising its stability.

With these repairs, an important consideration is the potential to adversely affect the existing dam, which is eligible for the National Register of Historic Places and possesses a rich history closely tied to the surrounding area. To avoid unnecessary visual impacts to the dam, the NRCS is recommending that all exposed surfaces have a masonry veneer of basalt, similar to the original 1933 construction. All concrete will also be dyed to match the original as closely as possible. With input from all consulting and interested parties, the NRCS hopes that this project will be a success and merely add another layer to the living history of this historic dam.

Shem Dam

A Photographic Timeline of Construction and Repairs

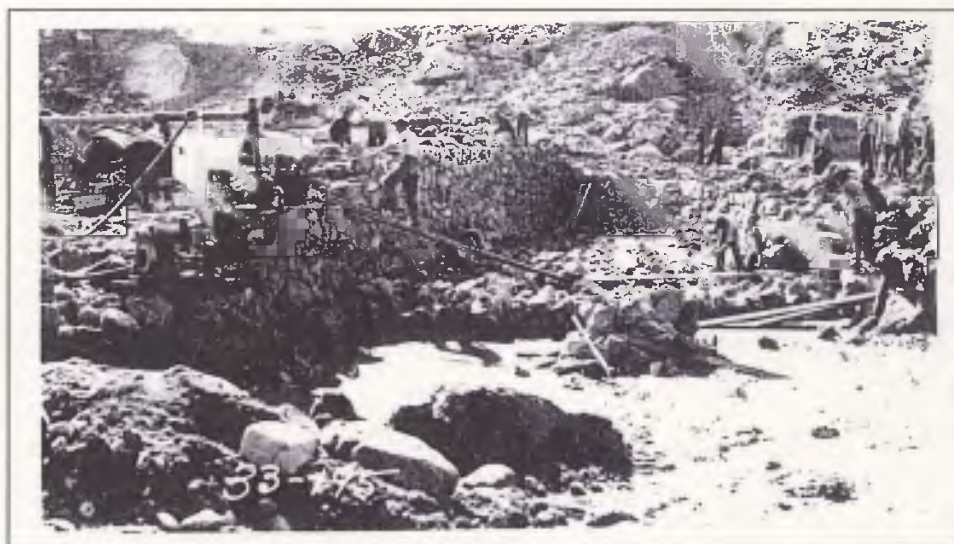
1932:

The original diversion at Shem, constructed in 1909, consisted of a brush and concrete structure that continually failed. After the dam washed out in the spring of 1932, the Santa Clara Bench Irrigation Water Board partnered with Luther M. Winsor, a prominent irrigation engineer, to construct a new diversion dam at Shem.



1933 to 1934:

The Santa Clara CCC Camp SE-213, Company 961 constructed a concrete and basalt boulder dam. It was completed to height of 42 feet and more than 300 feet long and christened "Winsor Dam" at a dedication ceremony held at Santa Clara on March 4, 1934. Photo on left shows construction of churning bowl and beginning work on main crest.



1935:

Masonry veneer applied by CCC workers beginning in December of 1935. Photo below taken on January 1, 1935.



1938:

March 2, 1938 flood damaged the dam and the CCC repaired the crest, abutment and wingwalls.



Damages from March 1938 flood showing western wingwall. The names of two CCC workers are etched into the concrete.



Damages from March 1938 flood showing eastern wingwall.

1941:

Large amount of silt deposited upstream from dam during high water event. Photo below taken during 1937 high water.



1955:

Flood destroyed downstream side of crest, leaving a hollow shell. The eastern abutment was also damaged.



Courtesy of US Forest Service. On loan to Sherratt Library, Southern Utah University.



Courtesy of US Forest Service. On loan to Sherratt Library, Southern Utah University.

1958:

Flood damage from 1955 was repaired. Luther M. Winsor supervised the design of the repair work. The large basalt boulders visible on the crest and eastern abutment were applied at this time.



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Without a solid foundation, the downstream side of the crest is collapsing from underneath. There is virtually no mortar left in between the basalt boulders on the eastern abutment repaired in 1958. Water is also seeping through the eastern side of the crest. Without repair, the dam will likely fail.

**Additional features:**

Located downstream from the dam, there is a series of four pillars that were completed on March 3, 1938, following the flood of March 2, 1938 that damaged Shem Dam. These pillars likely held a flume that carried water across the river from the canal. Additional pillars are located south of the Gunlock-Shivwitz Bridge.

