

**Client Contact:**

**Mr. Tom Roberts, P.E.**  
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**Services Provided:**

- **Recommendations  
on Reducing Impact  
of Future Debris  
Flow Events**

**Project Summary:**

Cesare, Inc. (Cesare) provided recommendations to the U.S. Forest Service on reducing the impact of future debris flow events. Hanging Lake is a travertine located within Dead Horse Creek Canyon 1.2 miles north of the Colorado River in the Glenwood Canyon complex. The site is accessible only by a foot trail that rises about 1,000 feet above the Colorado River. In 2002 a debris flow occurred along the eastern flanks of Hanging Lake. The debris flow covered an earthen walkway and retaining wall and entered the lake. This created a potential safety hazard and concerns over impact to water quality. Due to the inaccessibility of the site, construction of the system

could only use handheld equipment and the ability to maintain the system was difficult. Cesare recommended the construction of two debris flow barriers to provide catchment of multiple events. When the barriers are filled, they will act as check dams to reduce the velocity and downstream impacts of future events. A diversion berm was constructed downstream of the barriers to divert the high sediment laden water from reaching the lake.

