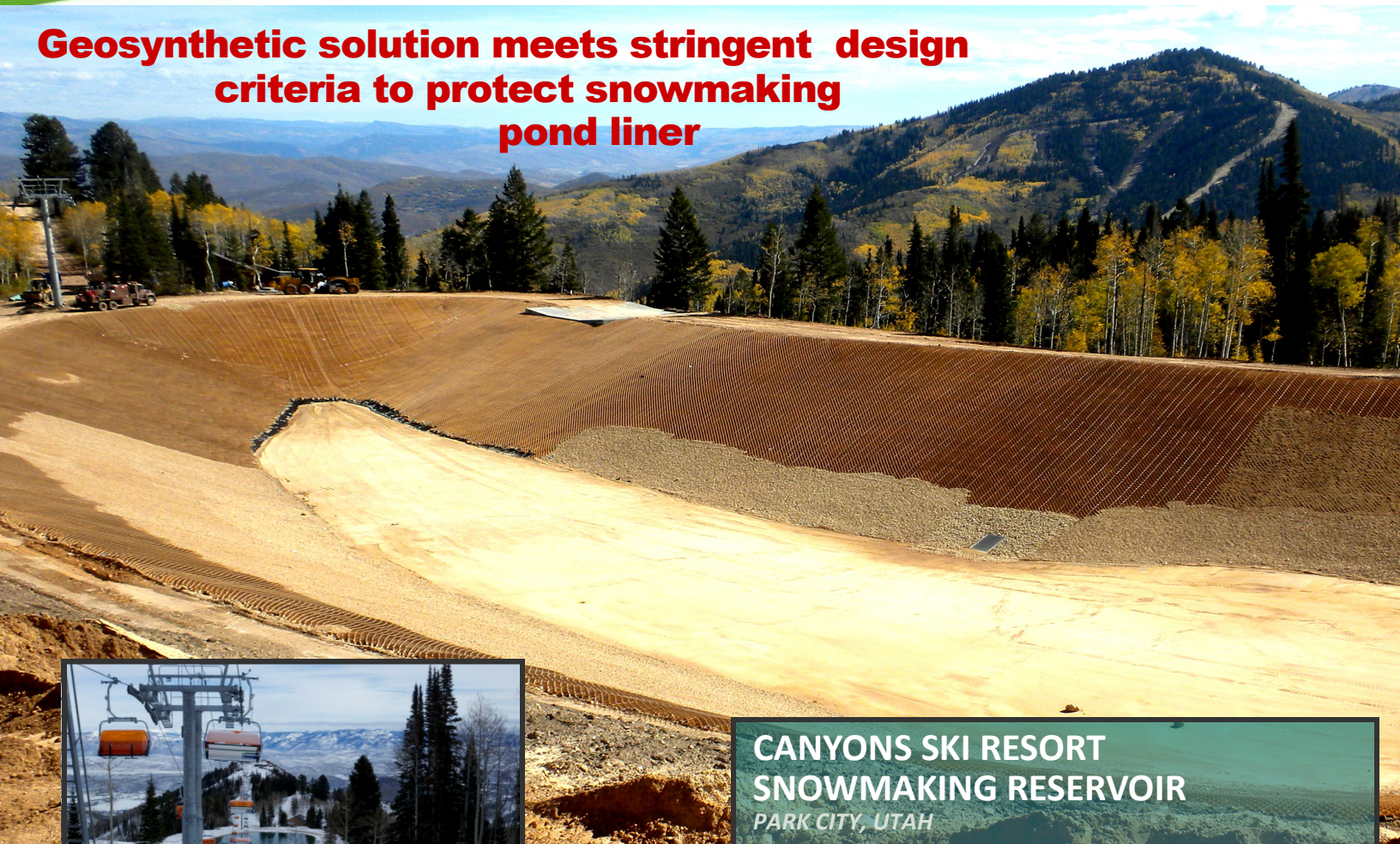


# GEOWEB®

## SLOPE PROTECTION SYSTEM

### Geosynthetic solution meets stringent design criteria to protect snowmaking pond liner



The completed snowmaking pond is protected by a geosynthetic solution including a Bentomat DN, 60 mil textured liner, a 16 oz NW geotextile and the Presto GEOWEB® slope protection system.



### CANYONS SKI RESORT SNOWMAKING RESERVOIR

PARK CITY, UTAH

When the resort planned to increase the capacity of their snowmaking system, they turned to NV5 to design a reservoir capable of storing 20 million gallons of water.

Aesthetics, site logistics, economics, seasonality and safety were considered in the design plan. After considering all options, a geosynthetic solution was chosen including an impermeable liner, a non-woven geotextile and the Presto GEOWEB® slope protection system.

#### THE CHALLENGE

The mid-mountain site of the reservoir was chosen based on its elevation and relatively flat location. The requirement of making the pond capacity as large as possible meant that the side slopes would need to be steep, making them prone to scour. The liner would also need to be covered to protect it from damage caused by the rise and fall of the ice cap as well as damage from wildlife and tourists who visit the popular scenic destination during the summer months to hike, fish and even paddle boat.



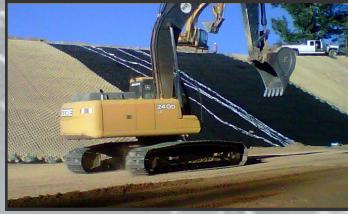
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*Infilling the Geoweb sections with crushed rock mined on-site.*



*The Geoweb system, typically black, was requested and provided in tan color for this project.*



## PROTECTING THE RESERVOIR

### DESIGN CONSIDERATIONS

#### Factors considered during the design phase:

- steepness of the side slopes and ability to protect them from scour, especially when the pond would be drawn down repeatedly during the winter months.
- susceptibility of the liner to damage caused from the rise and fall of the ice cap.
- susceptibility of the liner to potential puncture from large animals accessing the pond for the water source.
- potential hazard of an uncovered slick liner to animals and hiking tourists who frequent the scenic summer destination.
- aesthetic appeal of the solution and ability to naturally blend with the surrounding environment.
- Cost-effectiveness of the solution in meeting budget requirements.

### BENEFITS OF THE GEOSYNTHETIC SOLUTION

#### The geosynthetic solution offered a number of advantages over other options:

- ease of delivery to the site; less delivery trips
- the tendoned Geoweb system allowed placement over the liner without any penetrating anchors
- ability to use local crushed rock mined on-site
- minimal maintenance required

### PERFORMANCE & RESULTS

The final GEOWEB® geosynthetic solution made for a durable and attractive surface that protects the liner, doesn't slough off during the infilling and draining of the system and provides a safe surface for egress of the errant animal or hiker.

***GEOWEB materials and on-site installation assistance by Joe Kaul, Kaul Corporation.***

***Project summary by Project Engineer, Ryan Bradley, NV5, Murray, UT***

***Installation by Northwest Lining, Kent, WA***