



**AMERICAN
CONSERVATION
EXPERIENCE**

Salt Lake City: BST West City Creek Trail Tread & Slope Maintenance

Title of Project: Salt Lake City: BST West City

Creek Trail Tread & Slope Maintenance

Partner: Department of Public Lands

Location: Salt Lake City, Utah

Dates: 11/01/2023-11/21/2023

Days Worked: 16

Total Hours Invoiced: 1350

Crew Supervisor: Casey Bainbridge

Technical Advisor: Jake Groth



Project Overview:

The American Conservation Experience (ACE) sent two crews to Salt Lake City to partner with the Salt Lake City Department of Public Lands to work at the City Creek Canyon Trailhead. The goal of the project was to install a brand new stone stairwell at the trailhead to improve drainage and reduce erosion. This project had the secondary goal of improving the optics of trail construction and maintenance in Salt Lake City proper.





Project Objectives & Summary

Salt Lake City is known for being a city who enjoys the outdoors. The city has beautiful parks that allow its residents quick access to the outdoors. One of these parks is City Creek Canyon, which is right next to the State Capitol. City Creek is the perfect place for residents to walk their dogs, go for a quick run, or get on their mountain bikes. The outdoor recreation in the park is managed by the Salt Lake City Department of Public Lands, a relatively new department in the city offices. The Public Lands Department has a big job when it comes to managing the trails within the city. Not only do they seek to improve the sustainability, but also increase the optics of trail workers making changes to the trails.

With the help of American Conservation Experience (ACE) Trail Solutions staff, the SLC Department of Public Lands (DPL) identified the City Creek Canyon Trailhead as the ideal location to help improve the sustainability of the trail while also allowing the public to see trail workers making positive changes to the trails they care about. ACE sent two eight-person crews in November of 2023 to install a rock staircase at the trailhead. The area is home to many natural springs which creates a very wet, almost riparian, environment at the trailhead. This has led to a temporary river forming at the trailhead and eroding away the tread leading to extreme trenching and social trails forming on the side of the official trail as a result of trail users trying to avoid the muddy conditions.

ACE's regional trails skills trainer, Jake Groth, visited the site with DPL staff and formulated a stair design to meet the requirements, improving the hydrology, tread durability, and visual aesthetics of the staircase. Jake took measurements to ensure the crew would be able to work on multiple sections of the trail installing steps while maintaining a standard step size. This improved the crews efficiency and helped create a uniform staircase. DPL staff then organized a nearby quarry to transport large boulders to a staging area near the worksite. When the crew arrived, Jake led them through his design and trained them on rock shaping and rock installation methods and standards.

The boulders were shaped using traditional rock shaping methods. The crew used a rock hammer drill to drill holes in a line along which they wanted the rock to break. They then inserted feathers and wedges into the drilled holes in the rock and hammered the wedges in until the rock broke. They used this method to create steps and gargoyles. Each step was framed by two gargoyles delineating the path for hikers. The crew then used a power carrier (motorized wheelbarrow) to transport the rocks to the worksite. From there the crew dug holes for the steps and gargoyles keying them off one another and making sure to get strong contact between adjacent rocks. Using survey stakes placed by Jake and line levels the crew measured their step height to keep them uniform with the surrounding rocks. The crew then placed rocks into holes they dug, and crushed them into place using smaller rocks and hammers. This process was repeated for each step until the staircase was finished.

Results and Measurables

Rock Steps Installed	25 steps
Rock Gargoyles Installed	50 Gargoyles
Length of Tread Improved	93.78 feet
Cubic Feet of Rock Installed (Steps and Gargoyles)	162 cubic feet



Top Left: Two sets of steps partially installed. The crew would still need to crush around the larger rocks. The crew was able to work on multiple steps at a time due to Jake Groth's preplanning of the spacing and step height.

Bottom Left: A crew member digging in preparation for the installation of a gargoyle.

Bottom Right: A finished step with two gargoyles keyed off the step.





Before and After Set One: These pictures show the upper section of the staircase. In the before photo the trail trench can be seen along with the social trail being created to the left of the official trail. In the after photo the staircase can be seen filling up the trenched section. The stairs were spaced evenly and were each planned to be a 10 inch step.



Before and After Set Two: This set focuses on one of the bottom portions of the trail. The crew started installing close to the road, which led to problems with digging. The soil had road infrastructure, but the crew used shaping tools to hammer through this tough layer.





Before and After Set: This last set displays the middle section of the staircase. Again, the trenching can be seen in the before photo, which is caused by a combination of use and water erosion. The before photo also shows a survey stake on the right side of the picture. These stakes had string tied to them, which the members used with a line level to keep their step heights standardized at 10 inches.



Top Left: Assistant Team Leader Brandi Marlett using shaping hammers to shape a step rock to better fit its hole.

Bottom Left: Jake Groth demonstrating shaping techniques using feather and wedges to crew members and crew leader Casey Bainbridge.

Top Right: Crew Leader Casey Bainbridge using a rock drill to prepare a boulder for shaping into steps and gargoyles.





Top Left: Two crew members operating a power carrier. Members got specialized training and had to wear high visability vests and have a spotter.

Bottom Left: Two crew members using survey stakes, line levels, and measuring tapes to assess the height of their step in relation to the rest of the staircase. This method ensured a standard step size and a uniform staircase.

Top Right: A crew member uses a rock bar to position a gargoyle making sure to get good contact on the adjacent step.





Thank you Salt Lake City of Department Public Lands!!!

Crew Leader: Casey Bainbridge

Assistant Team Leaders: Brandi Marlett and Allyson
Pohren

Crew Members: Gram Chambers, Phineas Fawer, Abbey
Kramer, Henry Punhagen, Carl Braun, Andrew Thomas,
Eliza Seigel, Alexander Pyatt, and Aline Johnson

Technical Advisor: Jake Groth

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