

## **Fountain Creek Debris Removal**

### **Project Overview**

Lower Arkansas Valley Water Conservancy District (Lower Ark); Pueblo County; and Fountain Creek Watershed, Flood Control, and Greenway District came together for a debris removal project in the Fountain Creek Watershed (HUC #11020003). The region of interest has debris deposits that have impacted aquatic habitat and created public safety hazards. By working on the debris removal, the area of impact has been restored to working order and created a viable habitat environment.

### **Background**

Fountain Creek Watershed (HUC #11020003) collects water in the form of runoff, throughout the year, and carries the water to the Arkansas River just downstream of Pueblo Reservoir. Contained in the water, is debris that is collected in the runoff and deposited into the Fountain Creek Channel. Over the years, this build-up of debris has limited flows, created aquatic habitat barriers, and even public safety hazards.

The debris deposition can be attributed to recent fires in the upper reaches of the watershed along with large water runoff during storms in the 2013 to 2015 time period. Deposits over this period have created sediment dams, buildup of debris on transportation pathways, and localized flooding.

Fountain Creek Watershed Flood Control and Greenway District (District) was formed by the Colorado General Assembly in 2009 to mitigate the impacts of changes to hydrology along Fountain Creek in between Colorado Springs and Pueblo. The District is working on long term resolutions to help mediate sedimentation and debris deposits, but in the mean-time, must act on build up. For the current issue the District partnered with Lower Arkansas Valley Water Conservancy District (Lower Ark) and Pueblo County for a \$255,000 debris removal project. The project covers three major objectives and three tasks to complete, and was overseen by the three entities.

### **Objectives**

The objectives of the project were:

- Objective 1 – Coordinate the debris removal/habitat restoration activity with interested agencies, including procurement of a U.S. Army Corps of Engineers (“COE”) Nationwide Permit #27
- Objective 2 – Removal of flood-placed debris, trash and other foreign matter currently residing in the stream channel and banks of Fountain Creek between HWY 47 bridge (north) downstream to approximately 8<sup>th</sup> Street (south) in Pueblo, Colorado, resulting in restored aquatic habitat and increased public safety.
- Objective 3 – Manage the project from construction to completion, with a final report submitted to funding and permitting agencies.

### **Tasks**

The three objectives were achieved through the following tasks:

#### *Task 1 – Coordination with Permitting & Interested Agencies*

Before the project could begin, a United States Core of Engineer's 404 Nationwide Permit #27 was obtained. This permit, along with county and city coordination, took place to brief all interested parties. Task 1 and Task 3 are integrated to ensure all legal measures were taken before work began.

#### *Task 2 – Removal of Debris in the Channel and Stream Banks*

Task 2 is the most integral part of the project as it pertains to the work completed in debris removal. Within Task 2, four subtasks were required to complete all work including debris removal from stream banks and channels, material disposition evaluation, disposition expenses, and sediment control. All four subtasks combined to create a streamlined deposition project that could be completed by removing debris from the stream channel and transporting the sediment off site.

#### *Task 3 – Project Management*

Overview of the entire project and coordination with all interested parties was required to meet the project requirements. Included in the management was following the budget, permitting, and reporting.

### **Summary of Construction and Project Management Activities**

The project was officially under contract with the Colorado Water Conservancy Board ("CWCB") on September 28, 2016 with an expected project completion date of July 31, 2017. Pueblo County, Lower-Ark, and the District were all aligned for progress in May 2016. After approval of the contract, the permitting process began and took approximately two months to complete. While the permitting process was underway, the management of phone calls and civilian awareness was conducted to ensure all interested parties were notified. No Floodplain permit was required by the city or county of Pueblo as it was deemed to be unaltering of the channel. Upon the approval of work, Muth Dragline Service began dredging the debris out of the streambed and placing the material on the side of Fountain Creek. The process of dredging took approximately four months to complete (from December to March). Once the material was removed from the stream, off-site debris removal began; moving the material to a location in which proper disposal could occur. After all the debris removal was completed the management team completed all inspections and followed up with interested parties and the project was complete. A timeline of the work can be found in Appendix D.

The project was completed before the July 31, 2017 deadline and near the budgeted \$255,000 amount. Some of the concerns that were encountered through the project included off-site debris movement, civilization interference, and weather. To start the process, the debris was going to be destroyed inside an Air-Curtain Incinerator where all material would be turned to ash and then transported to a local landfill. In theory, this would have worked well, but the permitting and cost of equipment quickly changed this approach. The permit for an Air-Curtain Incinerator takes

approximately 6 to 12 months to achieve and was not considered in the original project outline. Along with the permit, the actual Air-Curtain Incinerator cost \$100,000 outside of the project's budget. After scrapping the idea of the incinerator, the debris was then contracted to be moved to an off-site landfill in the entirety. The approach of the landfill eliminated additional permitting and reduced cost of material transport from \$150,000 to \$11,000. Civilization concerns were addressed as the project progressed, due to the findings that people were camping along the banks of the stream. Pueblo County addressed this issue asking the people to not camp along the banks so progress could continue. No one was injured in the process. Finally, weather caused some small delays in progress as the saturation of the stream banks created problems for the heavy equipment. This is a typical problem with construction projects as the weather cannot be controlled. The project moved along and was completed in a timely matter, even with the three concerns.

The project was successful and will help in cleaning up Fountain Creek and enhance the aquatic habitat. The debris removal will aid with flows down Fountain Creek and into the confluence of the Arkansas River.



Appendix A: Initial Project Photos





## Appendix B: Progress Photos



Appendix C: Completion Photos



## Appendix D: Progress Schedule

Item	Start Date	End Date
Project Began	October 2016	
Permitting	October 2016	December 2016
In-Stream Debris Removal	December 2016	March 2017
Debris Transport of Site	April 2017	May 2017
Project Completed	May 2017	