

Royal Gorge Wildfire Water Quality Impact and Protection Project – Emergency Mitigation,
Stabilization, and Reclamation
Final Report dated June 16, 2014

The City of Cañon City (COFCC) received the Notice to Proceed from the Colorado Water Conservation Board (CWCB) for the Royal Gorge Wildfire Water Quality Impact and Protection Project on October 22, 2013. As part of the grant agreement, the COFCC is required to provide the CWCB with final project/water activity documentation. A final project report must be submitted and approved before final project payment and release of retainage

This is the Final progress report dated as of June 16, 2014 and describes the completed tasks identified in the statement of work.

TASK 1 – Site stabilization and cleanup of debris resulting from the fire

The debris from the forty-eight structures at the Royal Gorge Bridge that were burned has been removed and the site cleaned. These cleanup efforts were of the highest priority to the City's Lessee, the Royal Gorge Bridge Company of Colorado (RGBCo) and COFCC. The work began immediately after the fire because of the risks posed to the Arkansas River directly below the rim of the gorge.

The RGBCo reacting swiftly in getting the rim of the canyon cleaned and made safe from the debris and ash so that the normal operations along the river/canyon corridor could resume. These operations included several companies operating in the Fremont County/Cañon City areas that were impacted. There were two railroad companies; the Royal Gorge Scenic Railway (Tourist Train) and the Rock & Rail Co. that (hauls aggregate from the Parkdale Quarry) had to cease operations. There were also several rafting companies impacted with the closing Arkansas River through the Royal Gorge Canyon. Without having full access to take out areas in Cañon City that left only river rafting access at Parkdale or points further west. A huge issue that was overcome was being able to get the river open so that the 5th Annual Cañon City Whitewater Festival Kayak competition could take place. This meant dealing with the 2.5" stranded cable from the Aerial Tramway that had fallen down the canyon walls and into the river.

The debris included burnt buildings, concrete, metal, the aerial tram, the aerial tram cables, tons of random debris and ash. While most of this work was done by Alpine Cable & Construction, the employees of the RGBCo also assisted. On October 3, 2013 Alpine Cable & Construction completed the debris removal when the cable for the aerial tram (that had fallen into the river) was hauled out by rail car.

The total cost to the RGBCo for the site stabilization and cleanup of debris resulting from the fire was \$387,500 at the time the grant application was made. Task 1 is 100% complete.

TASK 2 – Construction of 147 check structures

Check structures designed to stabilize channel gradient and store a small amount of sediment which carries surface flow only after storm events have been constructed in three watershed drainages which have ten sub-drainages within. These check structures were a high priority for the COFCC because of the threat of sediment migration into the watershed drainage channels that lead to the

Arkansas River. Approval by City Council was given and on August 20, 2013 construction work began.

The COFCC enlisted the services of B&G Construction to install the check structures. B&G had (at the time) a services agreement with the COFCC for maintenance on COFCC stormwater facilities for the 2013 Budget Year. B&G was chosen because of the emergency nature of the work, the fact that the COFCC had all of the required documentation (General Liability Insurance, Worker's Compensation, Vehicle Insurance, and Hourly rate schedules) and the COFCC also has had experience working with B&G; for the past three years they have been under contract with the COFCC maintaining drainage ways.

The check structures were constructed from materials available on site which included logs and rocks. After heavy rains in August/September had occurred and several check structures had to be rebuilt, a geotextile fabric was also used to bolster the effectiveness and integrity of the check structures. B&G Construction installed 172 check structures in the three watershed drainages with the work being completed November 22, 2013.

Getting the check structures installed in a timely fashion proved to be a huge benefit. Many of the 172 check structures installed have sediment built up behind them that will require removal. The City of Cañon City will be using the Youth Corp group in late July to assist in maintenance needs on the check structures.

The total cost to the COFCC & RGBCo for the construction of the check structures was \$26,511.00. However the COFCC anticipates future costs related to the maintenance of these structures over the next three years. The COFCC will cover these maintenance costs with "In Kind" funding. Task 2 is 100% complete.

TASK 3 – Seeding

Note: Between the time when the CWCW Water Supply Reserve Account (WSRA) grant application was made and the time when the specifications were completed to accomplish Task 3 more information had been gathered that generated data that was more accurate than originally proposed in the WSRA. As a result the Sealed Bid Specifications for the Custom Seed Mixture and the Aerial Seed Application let by the COFCC identified 650 acres to be aerial seeded instead of 700 acres.

There were two components to the Seeding task; the first was the purchase of the bulk seed mix and the second was the hiring of a contractor to aerially apply the seed to the area. The Seeding task was coordinated and done prior to the hydro-axing treatment.

The seed mixture applied was a custom blend developed with the assistance of Mr. Rick Romano Natural Resources Conservation Services (NRCS) District Conservationist. The custom blend was a mixture of native grasses that included Western Wheatgrass, Side-oats Grama and Sand Dropseed. Triticale was added as a nursery cover crop. To provide a bit of variety and color a wildflower mix was added to the seed mixture. The custom seed mixture design called out for 19,025.5 pounds of pure live seed to be spread over the 650 acres for a calculated seed rate of 29.3 pounds of pure live seed (PLS) per acre.

By seeding prior to the hydro-axing treatment the mulch created by the hydro-axing operations provided more litter on the ground to cover the seed. In addition to this added litter on the ground the

rubber tires with chains on the hydro-ax units worked the soil surface. This resulted in creating a better seed/soil interface which will aid in seed germination. Robust seed germination will speed the replacement of vegetation, increase infiltration, reduce run off, and retain the soil on site resulting in less sediment movement to the drainage channels.

As required by the COFCC Purchasing Policy any purchase for goods and services over the \$5,000 level required the use of a Sealed Bid process. The specifications were sent out and a bid opening date was set. The formal Bid Opening for Bid # 93-13 CUSTOM SEED BLEND FOR ROYAL GORGE PARK RESTORATION took place at 11:00 a.m. on December 12, 2013. Bidding documents were sent out to four suppliers who specialize in supplying grass seeds. Of those four suppliers we received three sealed bid responses. The successful bidding supplier was Granite Seed Company located in Denver CO. Granite Seed Company's cost \$3.49/pound of PLS. The second lowest bid received was from Arkansas Valley Seed with a cost of \$3.74/pound of PLS. The third supplier quoted a No Bid. The COFCC Council formally awarded the bid to Granite Seed Company based upon the unit cost of \$3.49/pounds PLS at their December 16, 2013 City Council meeting.

To apply the seed to the burned areas it had been determined that the best method to apply this seed will be through aerial drop given the rugged terrain of the area and the amount of acres to be seeded.

As required by the COFCC Purchasing Policy any purchase for goods and services over the \$5,000 level required the use of a Sealed Bid process. The specifications were sent out and a bid opening date was set. The formal Bid Opening for Bid # 09-14 ROYAL GORGE PARK AERIAL SEEDING PROJECT took place at 11:00 a.m. on December 31, 2013. Bidding documents were sent out to four contractors who specialize in aerial seeding work. Of those four contractors, two attended the mandatory Pre-Bid meeting held on site in the Royal Gorge Park on Wednesday December 18, 2013. We received bid responses from the two contractors that attended the mandatory Pre-Bid meeting. The successful bidder was Mountain West Helicopters, LLC out of Alpine Utah. Their bid was \$42.31 per acre. The second bidding contractor was Rampart Helicopters from Castle Rock, CO. and their bid was \$45.00 per acre. The COFCC Council formally awarded the bid to Mountain West Helicopters based upon the unit cost of \$42.31 per acre at their January 6, 2014 City Council meeting.

Note: After the CWCB WSRA Grant award but prior to the purchase of the seed mixture and the award of the aerial seeding contract the COFCC was notified that a grant from the NRCS EWP grant was approved. This grant provided up to \$385,000 to be used to apply the same treatment methods to additional burned acres within the watershed drainage basins. With the approval of the EWP the COFCC identified additional acreage within the watershed drainages that could be treated by seeding and hydro-axing. This additional acreage totaled 203 acres and increased the area to be aerially seeded to 853 acres.

The additional amount of seed needed was placed with the seed order; on February 10, 2014 approximately 24,981 pounds PLS was delivered. An additional amount of (10) 1 acre sacks (293 pounds PLS) was set aside for any hand seeding areas that may be needed. On February 11, 2013 Mountain West Helicopters began aerial seeding operations from the staging area located on the south side of the Royal Gorge Bridge. With these additional acres to be aerial seeded the total acres seeded by Mountain West Helicopters was 853 acres. Beginning at 9:30 a.m. the contractor spread approximately 24,981 pounds of seed mix over 853 acres; the calculated seed rate was 29.3 pounds/PLS per acre. Aerial seeding operations were completed at 1:30 p.m.

In addition to the acres that had been aerially seeded, 70 acres of the Custom Seed Mixture product was applied by hand seeding methods. The COFCC used volunteer groups to perform the hand seeding work. Based upon information provided by the NRCS in 2013 the value of volunteer time is \$22.55/hr. Volunteers performed 127.5 hours of work for a total "In Kind" worth of \$2,875.13.

The cost for the Custom Seed Mixture for aerial application is \$88,610.97; the cost for the Custom Seed Mixture for the Hand Seeding applications is \$8,265.90. The total cost for the Custom Seed Mixture product is \$95,854.17. The total cost for Mountain West Helicopters to apply the seed was \$36,090.43. The total cost for seeding 877 acres is \$131,944.60. Task 2 is 100% complete.

TASK 4 – Slash Spreading – Hydro-axing/mastication of 715 acres

Between the time when the CWCB WSRA Grant application was made and the time when the specifications were completed to accomplish task 3 more information had been gathered from the field that generated data that was more accurate than originally proposed in the WSRA. As a result the Sealed Bid Specifications for the Hydro-Axing let by the COFCC identified 600 acres to be hydro-axed instead of 715 acres.

Throughout the burn area hydro-axing operations have taken place to provide mulch cover to the burn areas and the seed that had been spread. This in turn should reduce the hill slope erosion due to the increased cover available. The hydro-ax/mastication type machinery has mulched the standing, burnt trees onsite, generating surface roughness. With the hydro-ax equipment tracking over the soil they have helped break up any hydro phobic layers in the soil. Stable burnt trees were designated as anchor trees for Reserve Areas. These Reserve Areas were left to provide habitats for wildlife as well as to provide some visual relief so it doesn't appear that the entire landscape has been clear cut.

As required by the COFCC Purchasing Policy any purchase for goods and services over the \$5,000 level required the use of a Sealed Bid process. The specifications were sent out and a bid opening date was set. The formal Bid Opening for Bid # 08-14 Royal Gorge Park Hydro-Axing Project took place at 11:00 a.m. Bid documents had been sent out to four contractors who specialize in hydro-axing work. Of those four contractors, three attended the mandatory Pre-Bid meeting held on site in the Royal Gorge Park on Wednesday December 18, 2013. We received two bids from the three contractors that attended the mandatory Pre-Bid meeting. The successful bidder was West Range Reclamation from Hotchkiss, CO. with a cost of \$345.58 per acre. The second bidding contractor was Rue Logging from Southfork, CO; their cost was \$374.00 per acre. The COFCC Council formally awarded the bid to West Range Reclamation based upon the unit cost of \$345.58 per acre at their January 6, 2014 City Council meeting.

Note: After the CWCB WSRA Grant award but prior to the award of the hydro-axing contract the COFCC was notified that a grant from the Natural Resources Conservation Services (NRCS) Emergency Watershed Plan (EWP) Grant was approved. This grant provided up to \$385,000 to be used to apply the same treatment methods to additional burned acres within the watershed drainage basins. With the approval of the EWP the COFCC identified additional acreage within the watershed drainages that could be treated by seeding and hydro-axing. This additional acreage totaled 203 acres and increased the area to be hydro-axed to 853 acres. In addition to the additional acreage identified with the additional funding from the EWP, the contractor was directed to push the boundaries of the designated units to get to as much of the burnt trees as possible. As a result more acres have been able to receive the hydro-axing treatment only. On April 8, 2014 Steve Denney, an official from the

Colorado Office of Emergency Management (COEM), toured the area to see the work that was being done. We explained to him that we had additional land that would not be covered by the funds provided by the CWCB WSRA and the NRCS EWP grants that were in need of treatment. We showed him the areas that would become Units K & L if approval was given from his agency to hydro-ax these acres. The total acreage of the two units was 473.9 acres; it was estimated that 305 acres could be treated. On April 10, 2014 the COFCC received approval from the COEM to hydro-ax the additional acres using funds from the State Disaster Relief Fund (DRF).

On February 21, 2014 West Range Reclamation (WRR) began the hydro-axing operations. They began on the north side of the Royal Gorge Park closest to the Royal Gorge Bridge area. With the rebuilding of the structures that had been destroyed by the fire it was important for the COFCC to have WRR get that area done as soon as possible so that the operations would not be impacting the contractor working on the structures.

The specifications bid on by WRR identified land to be treated that was on slopes less than 30% in gradient and that the acreage calculations would be based upon horizontal plane measurements not slope acreage calculations. As directed the hydro-ax operators pushed beyond what had been the designated boundaries to get to as much of the burnt trees as possible. Because of the skill and expertise of the operators they were able to get into areas where the slope was greater than 30%. Given their abilities to work on these slopes it was decided to compensate WRR for these areas by adding a steep slope surcharge on lands greater than 30% and to calculate that specific acreage using the slope calculation. A steep slope surcharge of \$55/acre was agreed upon and applied to approximately 162 acres. This increased the cost per acre for hydro-axing those acres by 14% and increased the total amount paid to WRR by 2%.

The second method designated to be used is what is known as slash spreading. This method involves the utilization of hand crews to break down and drop burned trees with chain saws. This method would be used in areas where the hydro-ax units cannot get due to the steepness of the slope and/or rocky conditions that are prevalent in the area. Because of the total area completed by the hydro-axing units it is estimated that there is less than 15 acres to need the slash spreading operations. This work will be done by the Youth Corp once they arrive on site. A dollar figure of \$21,000 dollars was identified in the Budget Table to be paid by funds from the WSRA. However, this cost is being covered by a grant from GOCO and will not be charged to the WSRA. The Youth Corp will not arrive until the end of July after the project deadline has based upon the WSRA agreement.

A total of 1,368.8 acres received the hydro-axing treatment. A breakdown of the total acreage by the agency's grant funding is as follows:

CWCB WSRA Funded	808.1
NRCS EWP Funded	279.0
COEM DR Funded	281.7
Total	1,368.8

WRR completed all hydro-axing treatment operations on lands on May 6, 2014. WRR submitted their final invoice for the work on May 20, 2014 bringing the total paid to WRR \$491,939.90. Task 4 is completed 100%.

TASK 5 – Seedling Planting

Pinion pine seedlings were planted in select locations throughout the burn area to accelerate the return of trees to the site, provide for soil stabilization, provide a seed source for coming years and add vegetative structure for wildlife. It was the recommendation of the NRCS that the seedlings planted should be those with native seeds from Colorado trees. It had been originally identified that 10,000 seedlings would be planted as part of the project. However after review of that work by Mr. John Grieve, Colorado State Forest Service (CSFS) District Forester it was determined that due to the logistics of trying to plant that many seedlings and the cost of those seedlings it would be better to reduce the amount of seedlings to 5,000. Also, at the recommendation of the Mr. Grieve, the seedlings will be planted in areas where there are good soils instead of the original plan to plant 100 seedlings/acre.

As required by the COFCC Purchasing Policy any purchase for goods and services over the \$5,000 level required the use of a Sealed Bid process. However, due to the recommendation that the seedlings be those grown from Colorado native trees the decision was made to use a “Sole Source” bid and purchase the seedlings from the CSFS. The cost of the seedlings were \$2.17 each, 30 per box. Therefore the bid presented to COFCC Council was for the purchase of 167 boxes (total of 5,010 seedlings) at a cost of \$65.00 per box. The COFCC Council formally awarded the bid #40-14 Pinion Pine Seedlings to the Colorado State Forest Service based upon the unit cost of \$65.00 per box at their April 7, 2014 City Council meeting. The cost for the pinion pine seedlings is \$10,855.00.

The COFCC used volunteer groups to plant the seedlings with assistance from the NRCS and the CSFS to direct the volunteer operations. There were a total of 7 Seedling Planting Events. A total of 362 volunteers (including 138 students and teachers from the Cañon City High School) participated in the planting of the pinion pine seedlings in 13 selected areas encompassing 140 acres. The first planting event was May 8, 2014 and the final planting event was June 13, 2014. A total of 1,473.5 volunteer hours were contributed to the project. Information provided by the NRCS estimated the value of volunteer time for 2013 is \$22.55 per hour. The “In Kind” value cost added to the project for the seedling planting is \$33,227.43. An additional direct expense besides the purchase of the seedlings was the lunch that was provided by the COFCC on our last planting event on June 13, 2014. The total cost for the Seedling Planting is \$11,210.91. Task 5 is 100% complete.

The Royal Gorge Wildfire Water Quality Impact and Protection Project – Emergency Mitigation, Stabilization, and Reclamation project is 100% complete.

In summary the project was completed on time and under budget. With the additional funds made available from the Natural Resources Conservation Service’s Emergency Watershed Protection program and the Colorado Office of Emergency Management’s Disaster Relief Fund units were added that increased the acres of land treated. This in turn has helped in the recovery and restoration of the land affected by the fire and most importantly aid in the return of the watershed health. The COFCC also received funding in the amount of \$500 from the Arkansas River Outfitters Association and \$5,000 from the Board of Waterworks Pueblo to aide in the recovery and restoration efforts in the Royal Gorge Park. The budget table in Exhibit A shows the actual costs and funding.