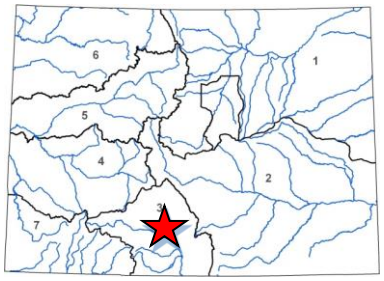
COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge
Alamosa County
January 2022 Board Meeting

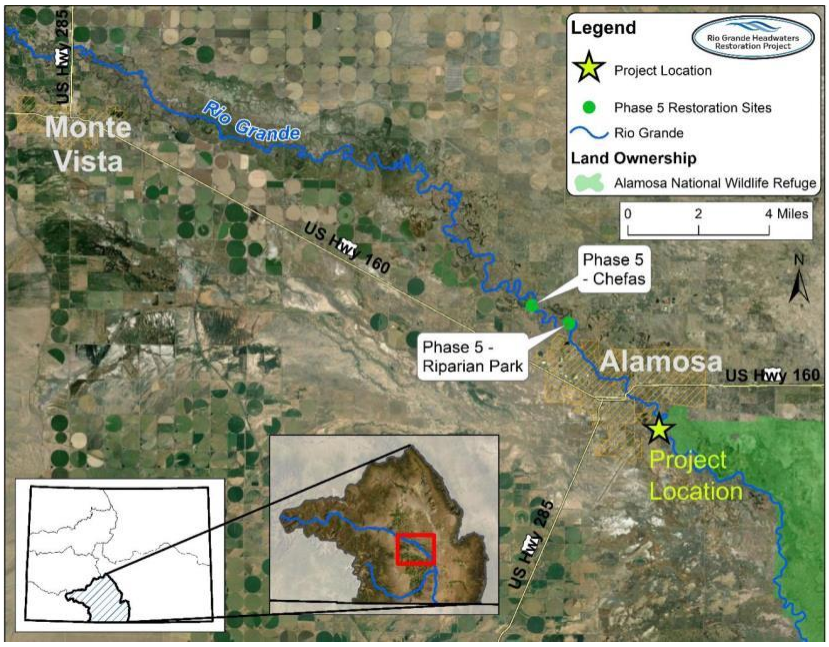
Colorado Watershed Restoration Program Application



LOCATION	
County/Counties:	Alamosa
Drainage Basin:	Rio Grande

DETAILS	
Total Project Cost:	$618,424
Colorado Watershed Restoration Program Request:	$288,000
Recommended amount:	$250,000
Other CWCB Funding:	$0
Other Funding Amount:	$311,000
Applicant Match:	$19,424
Project Type(s): Project	
Project Category(Categories): Stream Restoration	
Measurable Result: Streambank stabilization, enhanced riparian and aquatic habitat, improved public access	

The Rio Grande is experiencing a deterioration in river function throughout the Alamosa National Wildlife Refuge (Alamosa NWR) due to streambank erosion and degraded riparian and aquatic habitats. Streambank erosion increases sediment input into the river, degrades water quality, harms fisheries, and reduces habitat for riparian-dependent wildlife. Additionally, a lack of aquatic habitat complexity and refugee during periods of low streamflow puts a strain on aquatic species.



This project will work to achieve the following objectives:
1. Improve water quality, reduce sediment loading, and enhance sediment transport by stabilizing the stream channel on the Rio Grande;
2. Improve floodplain connectivity through channel shaping;
3. Restore riparian habitat by revegetating reshaped streambanks with native grasses, sedges and forbs, willow transplants, and cottonwood saplings;
4. Enhance aquatic habitat through the construction of a low-flow channel and installation of rock clusters and root wad structures;
5. Promote community participation and increase understanding of local watershed and stream health issues by reaching out to the community with presentations, tours, volunteer events;
6. Enhance public open spaces, river access, and fishing opportunities by stabilizing streambanks and restoring riparian habitat on the Alamosa NWR.

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

PROJECT PROPOSAL SUMMARY SHEET

Project Title: Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge

Project Location: Portions of the Rio Grande downstream of the Chicago Ditch diversion dam, at the upstream boundary of the Alamosa National Wildlife Refuge. See project maps in Attachment D.

Grant Type: Watershed/Stream Restoration

Grant Request/Amount: $288,000
Cash Match Funding: $311,000
In-kind Match Funding: $19,424

Project Sponsor: Colorado Rio Grande Restoration Foundation, fiscal agent for the Rio Grande Headwaters Restoration Project (RGHRP)

Primary Contact: Emma Reesor, Executive Director, emma@riograndeheadwaters.org, (719) 589-2230

Project Description:
The Rio Grande is experiencing a deterioration in river function throughout the Alamosa National Wildlife Refuge (Alamosa NWR) due to streambank erosion and degraded riparian and aquatic habitats. Streambank erosion increases sediment input into the river, degrades water quality, harms fisheries, and reduces habitat for riparian-dependent wildlife. Additionally, a lack of aquatic habitat complexity and refugia during periods of low streamflow puts a strain on aquatic species.

The Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge (Project) seeks to improve the health and resilience of the Rio Grande downstream of the Chicago Ditch diversion dam by stabilizing streambanks, restoring riparian areas, and enhancing aquatic habitats, thereby reducing sediment load to the river, improving riparian and aquatic habitat, reconnecting the river to its floodplain, and revitalizing riparian wetlands. These activities will improve water quality and storage during drought years, restore riparian habitat, enhance aquatic habitat, and provide new community recreation opportunities. These benefits will extend downstream throughout the entire Alamosa NWR.

The Project will engage private landowners, the U.S. Fish and Wildlife Service (USFWS), and local stakeholders in riparian and aquatic restoration along the Rio Grande downstream of the Chicago Ditch on the Alamosa NWR and adjacent private properties. Among the identified project sites are a stretch of riverfront property owned by the City of Alamosa (City) and USFWS where the Toivo Malm (Malm) Trail was recently constructed, and a public access fishing site situated downstream of the Chicago Ditch. Project activities will restore riparian and aquatic habitat to protect and enhance the recreational opportunities provided by both the Malm Trail and Chicago Ditch fishing area.

When complete, the Project will result in the following outcomes:

1. 7,300 linear feet of streambank stabilization and enhanced riparian and aquatic habitat through channel/bank shaping, revegetation, and installation of rock clusters and woody debris at one federal (Alamosa National Wildlife Refuge) and three private parcels along the Rio Grande;
2. Restoration of 2 acres of riparian habitat;
3. Improved public river access and fishing opportunities;
4. Engagement of at least 30 community members in revegetation efforts and education activities.

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

Qualifications Evaluation (Maximum of 20 points)

• Identify the lead project sponsor and describe the other stakeholders' level of participation and involvement. 10 points

The Project has brought together a diverse group of stakeholders to address community needs facing the Rio Grande in and adjacent to the Alamosa NWR. Partners involved in planning and implementation include the Rio Grande Headwaters Restoration Project (RGHRP), Southwest River Engineering Co., the USFWS Alamosa NWR staff, City of Alamosa (City), Rio Grande Watershed Conservation and Education Initiative (RGWCEI), private landowners, and San Luis Valley Great Outdoors (SLV GO!). Each partner represents different sectors of the community, ensuring project activities address multiple needs.

The lead sponsor for the Project is the RGHRP, who will coordinate contractors and partners, oversee and assist surveying and data collection, facilitate meetings between landowners and partners, secure project funding, and complete monitoring and reporting. The RGHRP will contract with Southwest River Engineering, a local environmental engineering firm, to complete project designs and permits.

A portion of this Project takes place on the Alamosa NWR, an 11,169-acre refuge owned by the USFWS. The USFWS has recently implemented riparian restoration activities, including revegetation, to enhance wildlife habitat and wildlife viewing opportunities for visitors and is interested in expanding these efforts with this project. As the primary project partner and land management agency, USFWS will provide significant input throughout the life of the project to ensure project objectives are achieved and align with the management goals. Additionally, the Alamosa NWR has partnered with City and SLV GO! to construct the Malm Trail, which begins on City property and crosses onto USWFS property near the Rio Grande.

The City took the initiative to plan and construct the Malm Trail and has spent considerable effort to increase both the quantity and quality of recreational opportunities. In addition, SLV GO! was heavily involved in the planning and construction of the Malm Trail and will continue to be a partner in its future use and maintenance. The City and SLV GO! are deeply invested in the project site and activities and will provide input and support throughout project planning and implementation.

Adjacent to the Alamosa NWR, the land surrounding the Rio Grande is privately owned. As such, partnerships with private landowners are critical to the project outcomes. The project involves three landowners who have expressed enthusiasm for completing restoration work on their properties.

RGWCEI works with K-12 teachers and students to raise awareness of natural resource stewardship and working landscapes. RGWCEI will help coordinate a youth volunteer event to assist with riparian revegetation efforts.

Finally, a Technical Advisory Team (TAT) has been formed to help oversee the planning process to ensure project methodologies and designs best address the ecological and hydrological needs for the project. The TAT includes representatives from the San Luis Valley Water Conservancy District (SLVWCD), USFWS, Colorado Parks and Wildlife (CPW), City of Alamosa, and SLV GO!.

• Specify in-kind services and cash contributions (match) amount for the proposed activities. See section B.2 of the grant program guidance to determine match funding requirements. Discuss whether other funding sources are secured or pending. 10 points

The total cost of the Project is $622,474. Cash contributions for this project are as follows:

- $275,000 cash match from the National Fish and Wildlife's RESTORE Colorado Grant Program *(pending approval of grant application to be submitted December 2, 2021)*
- $30,000 cash match from project landowners (secured)
- $6,000 cash match from the San Luis Valley Water Conservancy District (secured)

In-kind support for this project is as follows:

- $6,850 of in-kind support from stakeholder that make up the project's TAT (240 hrs. @ $28.54/hr)
- 13,200 of in-kind support from the Colorado Rio Grande Restoration Foundation
- $3,425 of in-kind support from community and youth volunteers for riparian revegetation efforts (120 hrs. @ $28.54/hr)

Organizational Capability (Maximum of 30 points)

• What is the applicant organization's history of accomplishments in the watershed? Provide several past project or planning examples. List partner organizations and agencies with whom applicant worked to implement past projects or planning efforts. 10 points

The mission of the RGHRP is to "restore and conserve the historical functions and vitality of the Rio Grande Basin in Colorado for improved water quality, agricultural water use, riparian health, wildlife and aquatic species habitat, recreation and community safety while meeting the Rio Grande Compact." Formed in 2001, the RGHRP has a proven track record of successfully managing projects to improve the condition of the Rio Grande through collaboration with local, state, and federal partners. The projects, which include a combination of riparian restoration, diversion and headgate rehabilitation, watershed stewardship, and outreach and education, have resulted in improved upland and in-stream habitat, streambank stability, floodplain function, water quality, diversion efficiency, recreation, and community engagement. The RGHRP has completed past riparian stabilization projects upstream of the proposed project area, including the Rio Grande Riparian Stabilization Project – Phase 3, 4 and 5. Through these three projects, streambank stabilization and riparian restoration efforts have resulted in in improvements to over 4.5 miles of river channel.

All projects are completed through collaboration with partners. Past and current partners include Natural Resources Conservation Service, SLVWCD, Rio Grande Water Conservation District (RGWCD), Conejos Water Conservancy District, USFWS, CPW, US Forest Service, Bureau of Land Management, Colorado Division of Water Resources, municipalities, local watershed groups and non-profits, ditch companies and waters user groups, and private landowners.

• What level of staffing will be directed toward the implementation of the proposed project/planning effort? Discuss the number of staff and amount of time dedicated for the project. Will volunteers be utilized, and if so, how? Include brief resumes for each member of the active project team. 10 points

The project will be implemented through a partnership between the RGHRP, USFWS, Southwest River Engineering, the City of Alamosa, private landowners, RGWCEI and the TAT. The following passages detail information about the individuals that be involved and ensure the project is completed as proposed, within the stated timelines and expected costs.

- RGHRP: Emma Reesor is the Executive Director of the RGHRP and has held this position since 2016. With a background in biology and restoration ecology, Emma has experience in project development, administration, monitoring, and working with landowners, partners, agencies, and

volunteers to complete project objectives. As the project lead, Emma will coordinate partners and contractors, facilitate meetings, raise funds for implementation, and complete project oversight, management, and reporting. In addition, the RGHRP's staff, Connor Born and Daniel Boyes, as well as its full-time volunteer, Erin McWilliams, will assist in project implementation and monitoring. The RGHRP has budgeted 1,360 hours in staff time to this project based on past projects of similar size and scope.

- USFWS: Suzanne Beauchaine is the Alamosa NWR Refuge Manager and oversees management of the refuge. Suzanne will be a key partner throughout the project and will assist in project planning, design review, and project oversight. Additional USFWS staff will assist with project design review and implementation.
- Southwest River Engineering Co: Southwest River Engineering is a water resources consulting engineering company based in Pagosa Springs, CO, specializing in geomorphically-based river restoration, habitat enhancement, and bank stabilization projects. Chris Pitcher, PE will be the lead consulting engineer and will work with partners to complete designs and surveys, develop project recommendations, secure permits, and provide construction management and oversight. Chris has wide-ranging expertise in hydraulic and ecologically sustainable river restoration engineering.
- City of Alamosa: Andy Rice is the Director of Parks and Recreation at the City of Alamosa and currently oversees the City's diverse parks, recreational facilities, cemetery, and library. Andy will serve as the City of Alamosa's main point of contact and will facilitate all activities on City property.
- RGWCEI and youth volunteers: Hannah Thill is the executive director of the RGWCEI and has a background in environmental science and K-12 environmental education. Hannah will help coordinate youth volunteer revegetation events and educational workshops as a part of this project.
- Technical Advisory Team: The TAT will provide guidance on project design and implementation. The TAT includes representatives from the SLVWCD, USFWS, CPW, City of Alamosa, and SLV GO!.

• Demonstrate that the project budget and schedule are realistic. Please use the budget/timeline spreadsheet attached to the application. Please note that the start date will take place after funding awards are announced and grants are contracted. 10 points

The budget and timeline for the Project was developed by referencing previously completed RGHRP projects and through consultation with Southwest River Engineering and USFWS. Stakeholder and landowner engagement occurred Spring and Summer 2021 and will continue throughout project design, implementation, and monitoring. A detailed site survey and preliminary design were completed Fall 2021. Final designs and permitting will be completed in Summer 2022, preparing partners for construction as early as Fall 2022. The streambank stabilization, riparian restoration, and aquatic habitat improvements will cost an estimated $477,000. This estimate was calculated based on quantities developed from the preliminary design and unit costs from recent project bids from local contractors. In addition, the project budget includes 8 weeks of construction management at $5,000 per week completed by the Southwest River Engineering to ensure the project is constructed as designed. Finally, the budget also includes funding to support RGHRP staff time completing project management, partner coordination, grant administration, monitoring, and outreach and education.

Proposal Effectiveness (50 points)

• What information is the project sponsor using to develop the proposed plan or project? Include any relevant information regarding existing watershed plans, stream management plans, geomorphic assessments, flood studies, fire protection plans, riparian conditions assessments, aquatic/terrestrial habitat conditions, wildlife studies, and/or river restoration reports. 10 points

The Project has been developed with the support of the following planning documents and efforts:

1. **Rio Grande Stream Management Plan (2020)** – Assessment results from the Rio Grande SMP identified the need for river and riparian restoration within the project area. Preliminary recommendations for Reach RG15 of the Rio Grande SMP (Chicago Ditch to Conejos River Confluence) include projects focused on floodplain reconnection, reduction of sediment sources through bank stabilization, and aquatic habitat enhancement. The SMP also emphasized the need for riparian restoration through native species plantings and nonnative species removal.
2. **The Rio Grande Headwaters Restoration Project 2001 Study** – The 2001 Study surveyed 91 miles of the Rio Grande through the Valley floor, summarized the condition of the river and riparian area, analyzing the causes of declining river health, and provided recommendations for restoration. The Study found a primary cause of degradation in the project reach to be sedimentation and highlighted the overall poor condition of the riparian area within the project reach as well as a low Stability Index, an indication that streambanks were experiencing heightened instability.
3. **City of Alamosa Comprehensive Plan (2017)** – A result of mass community input and surveying, the Alamosa Comprehensive Plan identified goals and priorities for the City and laid out strategies to accomplish them. Among these was a strong emphasis on increasing access to the river and improving trails, vegetation, and sustainability in public access areas.
4. **Hydrogeomorphic Evaluation of Ecosystem Restoration and Management Options for Alamosa National Wildlife Refuge (2013)** – This comprehensive study of hydrology, geomorphology, and vegetation attributes of the Alamosa NWR provides goals and strategies to improve conditions within the refuge. It notes that the "physical form, hydrology, and plant and animal communities at Alamosa NWR are highly modified from the historical condition." Based on the report's findings and the NWR's management objectives, multiple goals were set, including to "restore and manage the distribution, type, and extent of natural vegetation communities in relation to hydrogeomorphic attributes (topography, soils, etc) where possible." This Project helps meet this goal by revegetating riparian areas along the mainstem Rio Grande and reconnecting the river to its historic floodplain.

In addition to these studies and planning efforts, the methods for the Project have been guided by lessons learned by the RGHRP and project partners during past streambank stabilization and riparian restoration work completed in the area.

• Discuss the multiple objective aspects of the project and how they relate to each other. Describe similar activities in the watershed and how this project or plan complements but does not duplicate those activities. Multiple objectives may include (but are not limited to) channel stabilization, riparian re-vegetation, habitat improvement, recreation opportunity enhancement, natural hazard reduction, flood mitigation, water supply delivery improvement, fish migration improvement, ephemeral/intermittent channel stabilization, and upland erosion mitigation. 30 points

The Project will result in streambank stabilization, enhanced instream aquatic habitat, and riparian restoration at Alamosa NWR and three adjacent private parcels along the Rio Grande downstream of the Chicago Ditch diversion dam. These efforts will have a variety of benefits for the environment, as well as local water users and the downstream Alamosa NWR. The hydrologic regime in the project area has been significantly altered due to upstream water diversions. Specifically, peak streamflows during runoff and summer baseflows are substantially lower than historic levels. These alterations have led to bank erosion, downcutting, and reduced frequency of streambed mobilizing events, all of which hinder riparian species recruitment and maintain aquatic habitat. Channel shaping and other geomorphic modifications included in this project have been tailored and scaled to the current hydrologic regime.

The stabilization and aquatic habitat enhancement along 7,300 linear feet of stream will address sedimentation and erosion issues, as well as protect existing habitat and infrastructure. Decreasing sediment input into the river will decrease water temperature and improve water quality, thereby improving aquatic habitat. Reshaping the channel will create a low-flow subchannel, which will further decrease and buffer water temperatures during low-flow conditions. The rock deflectors, root wads, and mid-channel rock clusters used will also create habitat features for aquatic species. Additionally, removal of existing waste from streambanks and the river channel (see Attachment C) will enhance riparian habitat and ensure the long-term success of riparian restoration activities.

Restoring 2 acres of riparian wetlands will directly improve resilience during drought and create improved riparian habitat. The wetlands act as a sponge year-round, holding water and releasing it slowly when the surrounding area is dry. This creates stable flows during drought years, maintaining and improving aquatic and riparian habitats that would otherwise dry up. The wetlands also provide a critical habitat for birds and fish, including the endangered southwestern willow flycatcher and threatened yellow-billed cuckoo, and are an important source of biodiversity.

Finally, project activities will improve the quality of river access to the community of Alamosa, protecting trails, enhancing habitat, and creating new river access. Engaging youth and community members in restoration activities will connect the public to the project and increase awareness of the benefits of river restoration.

The Project is complemented by the work of state and federal agencies such as USFWS, CPW, Bureau of Land Management, and the USFS. These agencies work to manage public lands in a way that protects our local rivers, wetlands, and watersheds. The Project furthers their work by improving river condition on private lands and by providing a precedent for future projects of a similar nature. Additionally, these efforts are complemented by non-profit organizations working across the SLV including Rio Grande Headwaters Land Trust (RiGHT), Colorado Open Lands (COL), RGWCEI, Trout Unlimited, and the Headwaters Alliance. Each organization fills an important role in the basin-wide effort to protect our natural resources.

• *Describe the proposed monitoring or implementation plan. How will the project or plan measure success of its objectives? 10 points*

The RGHRP will oversee project implementation and monitoring in partnership with the USFWS. Progress towards project objectives will be measured by the completion of discrete steps. Identified project locations have been surveyed and assessed by the project engineer and preliminary designs have been created (see Attachment E). Upon receiving grant funding, the engineer will then create site-specific designs, which will be reviewed by the project's TAT. The engineer will work with the RGHRP and landowners to acquire all required permits for the proposed restoration. Once permits and final designs are in place, construction of the stabilizing and fish habitat structures, channel and bank reshaping, and revegetation will occur with the help of a local contractor and volunteers.

After the restoration is complete, the RGHRP will monitor the project sites annually for five years, using photo points, cross sections, and riparian habitat assessments, ensuring the successful establishment of riparian vegetation and continued stability of streambanks. Throughout construction, metrics will be tracked and quantified. These metrics include linear feet of stream restored, acres of riparian habitat restored, number of willows and cottonwoods planted, and number of volunteers engaged.

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

SCOPE OF WORK

GRANTEE: Rio Grande Headwaters Restoration Project

FISCAL AGENT: Colorado Rio Grande Restoration Foundation

PRIMARY CONTACT: Emma Reesor; emma@riograndeheadwaters.org

ADDRESS: 623 Fourth Street, Alamosa, CO 81101

PHONE: (719) 589-2230

PROJECT NAME: Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge

GRANT AMOUNT: $288,000

INTRODUCTION AND BACKGROUND:
The Rio Grande downstream of the Chicago Ditch diversion dam (in Alamosa County) is experiencing a deterioration in river function due to unstable and eroding streambanks and degraded riparian areas. Loss of streambanks further reduces riparian habitat, negatively affecting birds and wildlife. Unstable streambanks also increase sediment inputs into the river, decreasing water conveyance, reducing water quality, and harming fishery health.

Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge (Project) seeks to improve the health and resilience of the Rio Grande downstream of the Chicago Ditch diversion dam by stabilizing streambanks and restoring riparian areas, thereby reducing sediment load to the river, improving riparian and aquatic habitat, reconnecting the river to its floodplain, and revitalizing riparian wetlands. These benefits will improve water quality and storage during drought years, restore riparian habitat, and allow flexibility during floods, reducing risk to the downstream City of Alamosa.

The Project will engage private landowners, the U.S. Fish and Wildlife Service (USFWS), local stakeholders, and engineers in streambank stabilization and riparian restoration along the Rio Grande downstream of the Chicago Ditch diversion dam on the Alamosa NWR and adjacent private properties. Among the identified project sites are a stretch of riverfront property owned by the City of Alamosa (City) and USFWS where the Toivo Malm Trail (Malm Trail) was recently constructed and a public access fishing site just downstream of the Chicago Ditch. Project activities will restore riparian and aquatic habitat, which will protect and enhance the recreational opportunities provided by both the Malm Trail the Chicago Ditch fishing area.

OBJECTIVES:

1. Improve water quality, reduce sediment loading, enhance sediment transport by stabilizing the stream channel on the Rio Grande;
2. Improve floodplain connectivity through channel shaping;
3. Restore riparian habitat by revegetating reshaped streambanks with native grasses, sedges and forbs, willow transplants, and cottonwood saplings;
4. Enhance aquatic habitat through the construction of a low-flow channel and installation of rock clusters and rootwad structures;
5. Promote community participation and increase understanding of local watershed and stream health issues by reaching out to the community with presentations, tours, volunteer events;
6. Enhance public open spaces, river access, and fishing opportunities by stabilizing streambanks and restoring riparian habitat on the Alamosa NWR.

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

TASKS

TASK 1: Project Design and Engineering
Description of Task: Complete designs and permitting for the project elements

Method/Procedure: Southwest River Engineering Co. will be hired to complete survey, site assessments, and designs. This will include meetings with landowners and project partners to review preliminary designs and ensure the goals of the project are addressed in the final design. The final designs will include accurate material quantities required for the channel shaping and construction of the new bank stabilization, aquatic habitat structures, and riparian revegetation. The final designs will also include profile view, typical sections, and structure details. Southwest River Engineering Co. will work with RGHRP to prepare and submit documents needed to obtain a Section 404 Permit for the work in the river from the USACE.

Deliverable: Final designs and required permits for streambank stabilization and riparian restoration work on the Rio Grande at Alamosa NWR and adjacent private parcels.

TASK 2: Streambank Stabilization, Riparian Restoration, and Aquatic Habitat Enhancement
Description of Task: Implement channel shaping, streambank stabilization, aquatic habitat enhancements, and riparian revegetation on 7,300 linear feet of stream. Coordinate community and youth volunteer revegetation events to improve riparian habitat in the project area.

Method/Procedure: The RGHRP will hire contractors to remove and dispose of large trash along streambank, reshape river channel and streambanks, install rock barbs, root wads and rock habitat clusters, and transplant willow clumps and other riparian vegetation. Southwest River Engineering will provide construction oversight, ensuring that all elements are constructed as designed and in accordance with permit requirements. The RGHRP, City of Alamosa, SLV GO! and RGWCEI will coordinate a series of community and youth events to engage volunteers for the riparian revegetation efforts. Volunteers will plant cottonwood saplings and willow transplants Alamosa NWR.

Deliverable: 7,300 linear feet of reshaped and stabilized streambanks, which will result in reconnected floodplains, enhanced aquatic habitat, and reduced erosion. Two acres of restored riparian vegetation through reseeding of native riparian grasses and forbs and planting willow and cottonwood transplants.

TASK 3: Monitoring
Description of Task: Monitor project sites for five years using RGHRP Sampling and Analysis Plan (SAP)

Method/Procedure: Monitoring will consist of several assessments that include documenting streambank locations with cross sections, photographic documentation, and visual stream assessments. Pre-construction, post-construction, and long-term surveys will map locations of the streambanks over time. Photographic documentation will be used to track conditions of the riparian plant communities, bank stabilization, and overall visual condition of the project area. The United States Department of Agriculture's Stream Visual Assessment Protocol II (SVAP II) will be used to assess the sites. This monitoring strategy is used in other RGHRP projects. The RGHRP will be responsible for monitoring.

Deliverable: Annual Reports which summarize monitoring date, condition of the sites, and long-term trends comparing current data to prior data to demonstrate the relative stability of the streambanks and to evaluate the degree of improvement in the aquatic and riparian habitat condition.

TASK 4: Outreach and Education
Description of Task: Conduct public outreach and education to raise awareness of project activities and RGHRP efforts and encourage other landowners to participate in future projects.

Method/Procedure: Develop visual aids and written materials showing the specific sites and proposed work. Make presentations at the SLV Wetlands Area Focus Committee, Rio Grande Basin Roundtable, quarterly Board Meetings of the Rio Grande Water Conservation District, Board Meetings of the San Luis Valley Water Conservancy District, SLV GO! Revitalize the Rio community meetings, and specific public meetings. RGHRP staff and volunteers will complete this task with assistance from the TAT. Partner with the Rio Grande Watershed Conservation and Education Initiative to organize youth education and revegetation events at the project.

Deliverable: A public that is better informed and more aware of river related issues, especially regarding the work of the RGHRP, the role of the Foundation, and the restoration program in general, including site-specific methodologies used to achieve Project objectives. Outreach and education efforts will impress upon private landowners, local youth, and the general public the importance of improving the condition of the Rio Grande and will raise awareness, gain support, and increase participation in future projects.

TASK 5: Project Management and Administration
Description of Task: Complete project oversight, management, and partner coordination. Complete all necessary contracts, status reports, and internal and external documents. Ensure tasks are completed within approved costs and timelines.

Method/Procedure: The RGHRP will manage and administer the Project. This includes completing contracts with CWCB, NFWF, project partners, landowners, and contractors; obtaining the necessary environmental permits; managing budgets and reimbursement requests and completing progress and final reports. Additionally, the RGHRP will perform project oversight, making certain project implementation is timely and accurate. The RGHRP will organize outreach and education efforts and complete site monitoring in accordance with the RGHRP monitoring protocol.

Deliverable: All appropriate contracts, external and internal reports, and on-site project activities completed within planned period and anticipated costs.

BUDGET & TIMELINE

Rio Grande Corridor Restoration Project at Alamosa NWR

Timeline and Budget by Task and Funding Source

Task	Description	Target Start Date	Target Completion Date	Cash Contributions				In-kind Contributions			TOTAL
				CWCB Funds	Colorado RESTORE (pending)	SLVWCD	Landowners	Technical Advisory Team	CRGRF	Community Volunteers	
1	Project Design and Engineering	3/1/2022	9/1/2022	$ 29,000	$ -	$ -	$ -	$ 2,854	$5,000.00	$ -	$ 36,854
2	Streambank Stabilization, Riparian Restoration, and Aquatic Habitat Enhancement	10/1/2022	4/1/2024	$ 207,000	$ 240,000	$ -	$ 30,000	$ -	$ -	$ 3,425	$ 480,425
3	Project Monitoring	9/1/2022	9/1/2027	$ 23,750	$ 23,000	$ -	$ -	$ 2,283	$4,050.00	$ -	$ 53,083
4	Outreach and Education	3/1/2022	12/1/2024	$ 3,400	$ -	$ -	$ -	$ 1,712	$2,000.00	$ -	$ 7,112
5	Project Management and Administration	3/1/2022	12/1/2025	$ 24,850	$ 12,000	$ 6,000	$ -	$ -	$2,150.00	$ -	$ 45,000
TOTAL				**$ 288,000**	**$ 275,000**	**$ 6,000**	**$ 30,000**	**$ 6,850**	**$ 13,200**	**$ 3,425**	**$ 622,474**
% of Project Budget				*46.3%*	*44.2%*	*1.0%*	*4.8%*	*1.1%*	*2.1%*	*0.6%*	

Rio Grande Corridor Restoration at Alamosa NWR

Detailed Budget

Project Task	Unit	Estimated Quantity	Estimated Cost per Unit	Total	CWCB Funds	Matching Funds
Task 1 - Project Design and Engineering						
Final design, permitting, and bid process completed by Southwest River Engineering	LS	1	$ 34,000	**$ 34,000**	$ 29,000	$ 5,000
Technical Advisory Team design review	HR	100	$ 28.54	**$ 2,854**	$ -	$ 2,854
TASK 1 TOTAL				**$ 36,854**	**$ 29,000**	**$ 7,854**
Task 2 - Streambank Stabilization, Riparian Restoration, and Aquatic Habitat Enhancement						
Mobilization	LS	1	$ 5,000	**$ 5,000**	$ 2,000	$ 3,000
3-5 ft boulders, furnish and deliver	EA	915	$ 200	**$ 183,000**	$ 83,000	$ 100,000
Large tree trunks with rootwad intact, 18"-24" dia., 20 ft length, gather and deliver	EA	69	$ 200	**$ 13,800**	$ 6,000	$ 7,800
Construct bankfull bench through channel & bank shaping & other misc. excavation/fill	CY	3800	$ 8	**$ 30,400**	$ 12,000	$ 18,400
Construct large rock and woody debris bank stabilization structure	EA	33	$ 3,000	**$ 99,000**	$ 40,000	$ 59,000
Install rip rap at each bank stabilization structure	CY	350	$ 90	**$ 31,500**	$ 12,000	$ 19,500
Remove and dispose of large trash along bank	CY	250	$ 150	**$ 37,500**	$ 15,000	$ 22,500
Other placement of boulders: sills, bank reinforcement, habitat clusters etc.	EA	81	$ 70	**$ 5,670**	$ 2,000	$ 3,670
Harvest and placement of live willow clumps	EA	675	$ 40	**$ 27,000**	$ 13,000	$ 14,000
Seed & mulch all disturbed soil areas with native grass seed mix	AC	0.9	$ 2,500	**$ 2,250**	$ 1,000	$ 1,250
Site cleanup, demobilization	LS	1	$ 2,000	**$ 2,000**	$ 1,000	$ 1,000
Construction contingency (~10%)	LS	1	$ 39,880	**$ 39,880**	$ 20,000	$ 19,880
Community volunteer revegetation efforts (120 hrs.)	HR	120	$ 28.54	**$ 3,425**	$ -	$ 3,425
TASK 2 TOTAL				**$ 480,425**	**$ 207,000**	**$ 273,425**
Task 3 - Project Monitoring						
Construction management by Southwest River Engineerir	Weeks	8	$ 5,000	**$ 40,000**	$ 20,000	$ 20,000
RGHRP staff time for project monitoring (240 hours)	HR	240	$ 45	**$ 10,800**	$ 3,750	$ 7,050
Technical Advisory Team project monitoring support	HR	80	$ 29	**$ 2,283**	$ -	$ 2,283
TASK 3 TOTAL				**$ 53,083**	**$ 23,750**	**$ 29,333**
Task 4 - Outreach and Education						
Technical Advisory Team volunteer events and engagement support	HR	60	$ 28.54	**$ 1,712**	$ -	$ 1,712
RGHRP staff time for volunteer engagement and outreach and education (120 hours)	HR	120	$ 45	**$ 5,400**	$ 3,400	$ 2,000
TASK 5 TOTAL				**$ 7,112**	**$ 3,400**	**$ 3,712**
Task 5 - Project Management and Administration						
RGHRP staff time for project management and administration staff time (1000 hours)	HR	1000	$ 45	**$ 45,000**	$ 24,850	$ 20,150
TASK 5 TOTAL				**$ 45,000**	**$ 24,850**	**$ 20,150**
PROJECT TOTAL				**$ 622,474**	**$ 288,000**	**$ 334,474**

ATTACHMENT A – Supporting Watershed Plan

The Project was developed with the support of the 2020 Rio Grande Stream Management Plan (SMP), which can be accessed through the following link: https://riograndeheadwaters.org/stream-management-plans. The selected excerpts below show river conditions by reach, a table of conditions in SMP Reach RG15, a discussion of RG15's geomorphic condition, and dry, average, and wet hydrographs with winter/summer aquatic habitat target flows overlaid.

Figure 3.2 shows reach condition by assessment as well as the overall reach condition. Overall reach condition was calculated as the mean assessment rating for each reach.

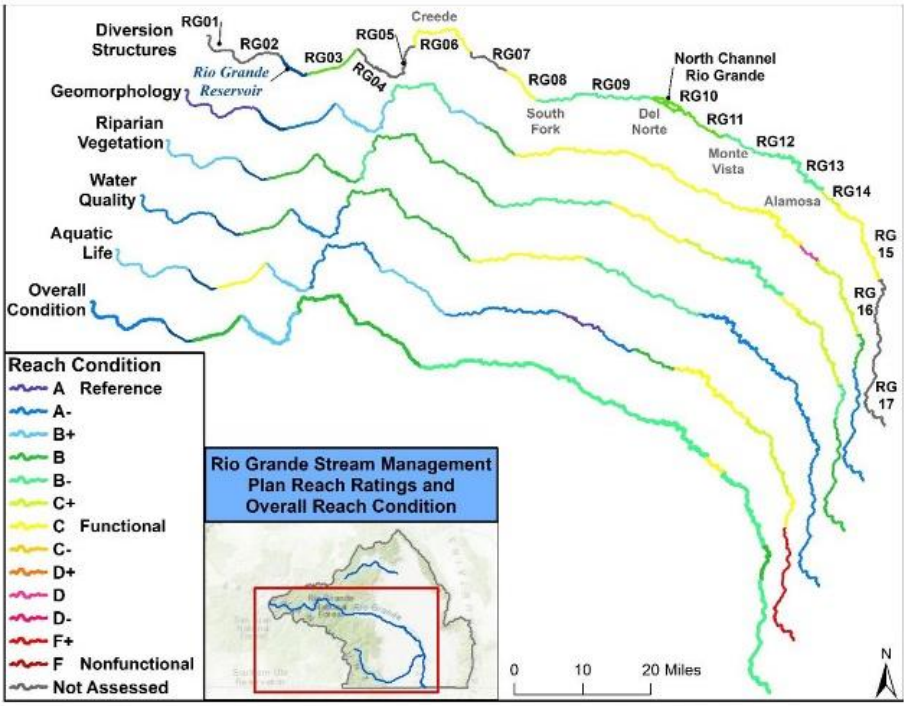


Figure 3.2: Conditions Assessment results presented by reach. Overall reach condition is also shown.

RG15 Conditions Assessment Overview

Reach: RG15		Major Stream Condition Stressors												
Parameter	Condition Rating	Crossings and diversions	Roads and railways	Floodplain disconnection	Channelization and armoring	Fill and floodplain conversion	Flow alteration: impoundments	Flow alteration: diversions	Abandoned mine lands	Exotic/naturalized plant species	Exotic aquatic species	Lack of woody material	Hillslope/channel erosion	Unknown source
Geomorphology	C+	X		X				X				X	X	
Riparian Vegetation	C+			X		X				X				
Water Quality	A-												X	X
Aquatic Life	C+	X						X			X	X	X	X
Diversion Structures	C													

A	B	C	D	F	Not Assessed

*For an explanation of reach ratings, see Section 2.

RG15 Geomorphology

Reach	Location Description							
RG15	Chicago Ditch to Conejos River Confluence							
Confine-ment	D50 (mm)	Bed Comp.	Existing Stream Form	Reference Stream Form	SEM Stage Existing	SEM Stage Ref.	Existing Sediment Regime	Reference Sediment Regime
Unconfin ed	<2	Sand and Silts	Riffle-pool	Riffle-pool	1	0	Deposition	Deposition
Valley Slope	Stream Power Δ	Bed Mobility Threshold Flows	Bed Mobility Frequency	Overbank Flow Estimate		Overbank Flow Frequency		
0.05%	↓	Not Calculated	Not Calculated	Not Calculated		Not Calculated		

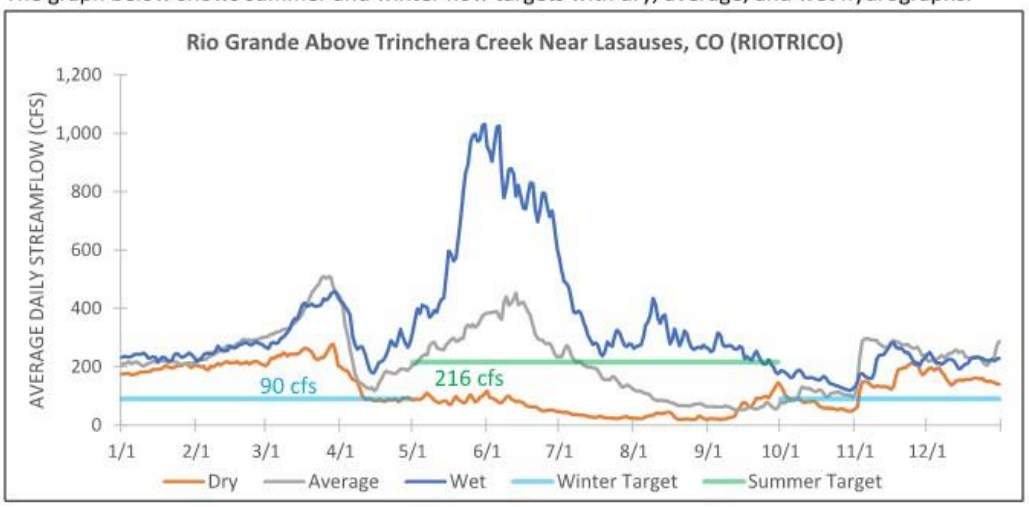
Watershed setting	River Style	Characteristics	Representative Photo
Accumulation	Meandering Fine Grain Bed	Unconfined channel with moderate to high sinuosity, well developed meandering and associated channel and floodplain geomorphic forms. Range of bar types, floodplain features and floodplain textures; substrate sizes tending toward sand; substrate variability depends on habitat-scale geomorphic features such as location in bend, pool, or riffle.	

Setting, Morphology, Channel Evolution, Trajectory, and Sensitivity
This reach runs through the Alamosa National Wildlife Refuge (NWR) and the Rio Grande Natural Area (RGNA). Sinuosity becomes very high and fluvial signatures of past channel migration abound across the valley floor. Alterations to the hydrology, biotic drivers, and sediment/floodplain activation are at work influencing the river corridor but its condition is improved merely as part of the location within the Alamosa NWR. Barring significant changes, the reach is likely to remain sensitive and mobile.

Stressors	Degree of Geomorphic Impairment
Stressors include alterations to the hydrologic regime and biotic drivers, limited large wood, bank erosion, and floodplain disconnection.	C+

RG15 Aquatic Habitat Flow Targets

The graph below shows summer and winter flow targets with dry, average, and wet hydrographs.



The table below shows percent of days the reach's summer and winter flow targets are met in each year type:

RG15	DRY	AVERAGE	WET
Winter	80%	96%	100%
Summer	0%	44%	96%

*See section 2.6 for detailed explanation of aquatic habitat methodology and caveats.

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

ATTACHMENT B – Letters of Support and Funding Commitment

623 Fourth Street
Alamosa, CO 81101
(719) 589-2230
Heather@slvwcd.org

San Luis Valley Water Conservancy District

Heather R. Dutton - Manager

November 2, 2021

Chris Sturm, Stream Restoration Coordinator
Colorado Water Conservation Board
1313 Sherman St., Rm. 721
Denver, CO 80203

Re: CWCB Colorado Watershed Restoration Program Grant
Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge

Dear Mr. Sturm,

I am writing to express the San Luis Valley Water Conservancy District's (SLVWCD) support for Rio Grande Headwaters Restoration Project's (RGHRP) grant application for the Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge (ANWR). The SLVWCD operates an augmentation program within five counties in the San Luis Valley. Through our operations, we replace injurious depletions to the Rio Grande caused by pumping of domestic, commercial, and municipal wells. Additionally, the SLVWCD is a leader in the local and state water communities, working with partners to address timely issues such as groundwater sustainability, compliance with the Rio Grande Compact, and water supply protection. The SLVWCD partnered with the Colorado Water Conservation Board (CWCB) over 20 years ago to complete the 2001 Study, a restoration master plan for 91 miles of the Rio Grande. Since that time, the District has remained committed to implementation of the 2001 Study and supported efforts by the RGHRP to improve river health in the Rio Grande Basin.

The RGHRP's proposed project builds on past restoration successes to develop riparian stabilization projects that will improve the function of the Rio Grande, furthering the recommendations of the 2001 Study and recently completed Rio Grande Stream Management Plan. The SLVWCD will support the proposed project by serving on the project's Technical Advisory Team. In addition, the SLVWCD will contribute $6,000 to the project and will continue to partner on implementation of the priorities recognized through the project.

I appreciate the opportunity to comment on the Foundation's application and I hope you will look fondly on their request for funding.

Sincerely,

Heather R. Dutton

Heather Dutton
Manager, San Luis Valley Water Conservancy District

United States Department of the Interior

FISH AND WILDLIFE SERVICE
San Luis Valley National Wildlife Refuge Complex
9383 El Rancho Lane
Alamosa, CO 81101

In Reply Refer to:
FWS/R6

October 26, 2021
Chris Sturm
Colorado Water Conservation Board (CWCB)
1313 Sherman St., Room 718
Denver, CO 80203

Mr. Sturm,

I am writing this letter in support of the Rio Grande Headwaters Restoration Project (RGHRP) application for CWCB's Colorado Watershed Restoration Grant Program. For many years, the San Luis Valley
National Wildlife Refuge Complex (Refuge) has collaborated with and utilized the expertise of RGHRP.

The projects that RGHRP have accomplished in the upper Rio Grande watershed support the Refuge's goals to, "Conserve, restore, and enhance the ecological diversity and function of the San Luis Valley ecosystems to support healthy populations of native fish and wildlife."

The proposed Rio Grande Bank Restoration and Habitat Enhancement Project also fits the grant program's goals to restore, enhance and expand riparian and wetland wildlife habitat. This project will create and enhance critical habitat of the Endangered Southwestern Willow Flycatcher across public and private lands.

The Refuge is a stakeholder in the *Rio Grande Basin Water and Stream Management Plan* and fully supports the collaborative efforts across the valley to restore the Rio Grande to provide a resilient environment that includes healthy watersheds, wildlife, and diverse recreation opportunities for our communities. The Refuge is currently working to secure funding to support several components of this large river restoration project.

Thank you for your consideration,

SHARON VAUGHN
Digitally signed by SHARON VAUGHN
Date: 2021.11.03 08:18:30 -06'00'

Sharon Vaughn, Project Leader

INTERIOR REGION 5
MISSOURI BASIN
KANSAS, MONTANA*, NEBRASKA, NORTH DAKOTA, SOUTH DAKOTA
*PARTIAL

INTERIOR REGION 7
UPPER COLORADO RIVER BASIN
COLORADO, NEW MEXICO, UTAH, WYOMING

THE CITY OF ALAMOSA

November 2nd, 2021

Chris Sturm, Stream Restoration Coordinator
Colorado Water Conservation Board
1313 Sherman St., Rm. 721
Denver, CO 80203

Re: Rio Grande Corridor Restoration at Alamosa NWR Grant Application

Dear Mr. Sturm,

The City of Alamosa is pleased to support the Rio Grande Headwaters Restoration Project's (RGHRP) Colorado Watershed Restoration Program grant application for the Rio Grande Corridor Restoration Project at Alamosa National Wildlife Refuge (Project).

The City of Alamosa has been working alongside partner organizations in recent years to improve recreational access to the Rio Grande and the surrounding open spaces through the city limits. The City has been actively acquiring open space, placing land under conservation easements, adding trail mileage, improving boater and angler access, and completing ecological restoration; as we work towards enhancing and protecting the Rio Grande Corridor for wildlife and future generations of Alamosa residents.

A significant piece to the Rio Grande corridor in our community is the Alamosa National Wildlife Refuge (ANWF) and the City-owned Malm Trail Network that together, these adjacent properties anchor the Southern end of the City "green-belt". The Malm Trail Network was constructed in 2020 and helps connect the South Alamosa community to the Rio Grande and the ANWF. The opening of the Malm Trail Network is significant to South Alamosa as it created formal access for residents to the Rio Grande and the Wildlife Refuge for the first time. This was an important advancement for health equity in South Alamosa.

The City of Alamosa recently completed a master plan for our adjacent 1,300+ acre City Ranch open space, which includes several miles of river frontage on the Rio Grande. With a backing of public support as identified in this master plan, the City is exploring the protection of certain areas along the Rio Grande containing riparian habitat. Furthermore the City is currently conducting a trails master plan that will guide future trail development to include the Alamosa Wildlife Refuge and Malm Trail Network.

The proposed project builds on this momentum to improve the health of the river system for the benefit of all. By restoring the streambanks on the ANWR and adjacent City owned lands, this project will improve habitat and recreation opportunities for the Alamosa community and increase public awareness of the benefits of restoration.

The City of Alamosa is excited to partner with the RGHRP and USFWS complete this project to benefit the Rio Grande and surrounding community

Thank you for your consideration this proposal.

Sincerely,

Andrew Rice
Director of Parks, Recreation and Library
719-587-2529

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

October 29, 2021

Chris Sturm, Stream Restoration Coordinator
Colorado Water Conservation Board
1313 Sherman St., Rm. 721
Denver, CO 80203

Re: Rio Grande Corridor Restoration at Alamosa NWR Grant Application

Dear Mr. Sturm,

On behalf of the SLV GO! Coalition, I am happy to provide a letter of support for the Rio Grande Headwaters Restoration Project's (RGHRP) Watershed Restoration grant application for the Rio Grande Corridor Restoration Project at the Alamosa National Wildlife Refuge (NWR). SLV GO! has partnered with the RGHRP on several projects that focus on the nexus of conservation and recreation, and this project continues on these efforts.

SLV GO!'s mission is to provide residents and visitors throughout the San Luis Valley with accessible and inclusive outdoor recreation opportunities that connect communities, improve wellness, encourage stewardship, and contribute to the economic vitality of the region. We have 45 partners spanning from local nonprofits to federal agencies, all of which are focused on our common goal of sustaining recreation and conservation within the San Luis Valley.

Restoring the proposed stretch of the Rio Grande will improve water quality, river protection, and will protect riparian aquatic habitat. Plus, this project will utilize volunteers from SLV GO!'s Revitalize the Rio initiative, and improve fishing access and opportunity for anglers in the new Toivo Malm Trail Network. The environmental benefits of this project are undeniable, and with rising concerns of pollution and water scarcity in the area, SLV GO! believes that this project is necessary to ensure the longevity and protection of the environmentally sensitive areas along the Rio Grande.

Sincerely,

Mick Daniel
Executive Director
slvgreatoutdoors@gmail.com

San Luis Valley Great Outdoors Coalition
PO Box 300
Alamosa CO 81101
www.slvgo.com

COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

ATTACHMENT C – Project Photos

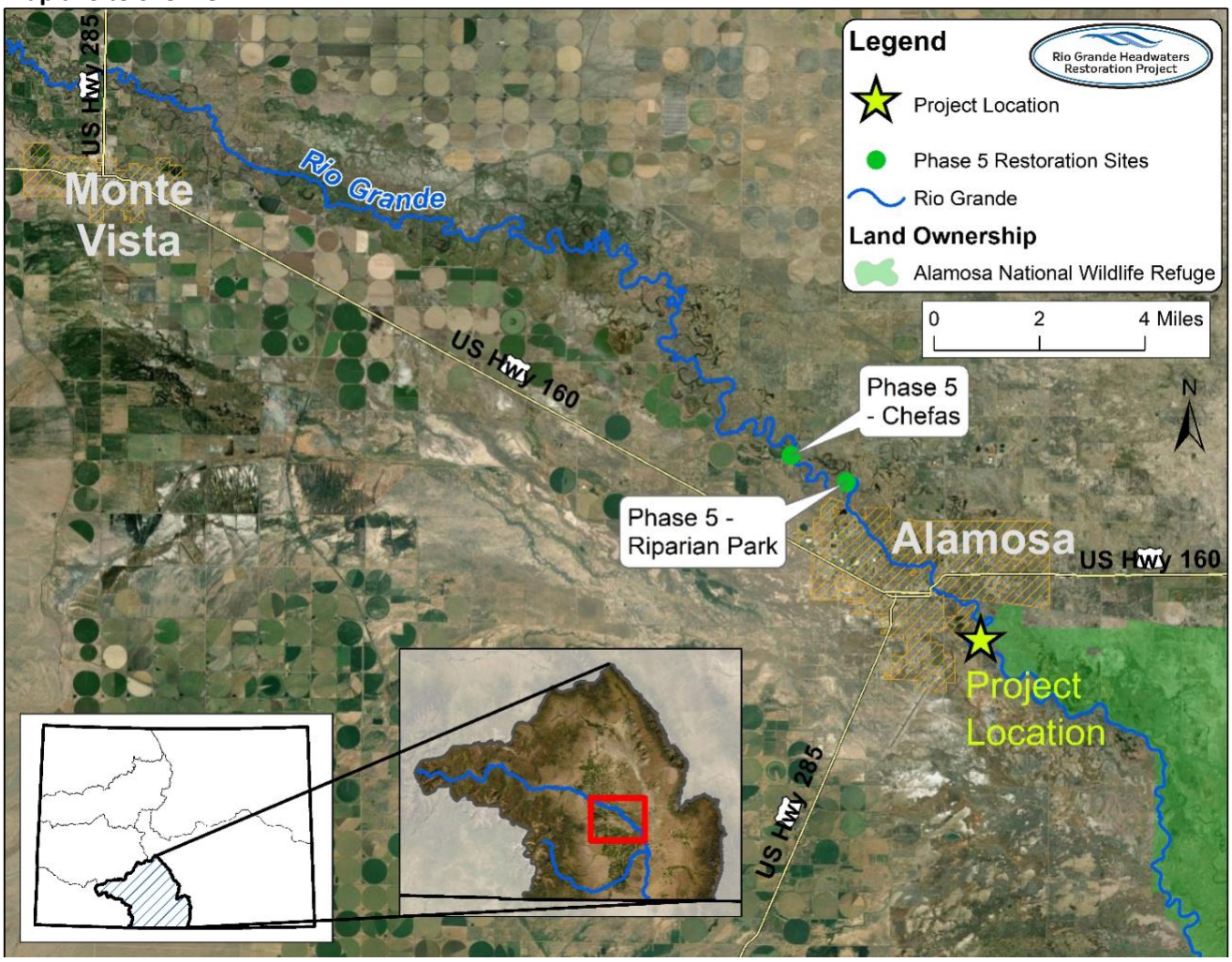
Photos 1a and 1b. Site visit to the Alamosa NWR with project partners, including USFWS, Southwest River Engineering, City of Alamosa, and SLV GO!. Photos are facing downstream and illustrate trash to be removed, including tires and household waste such as washing machines.

Photo 2. Erosion and riparian degradation at the Osborn property during site visit with USFWS staff.

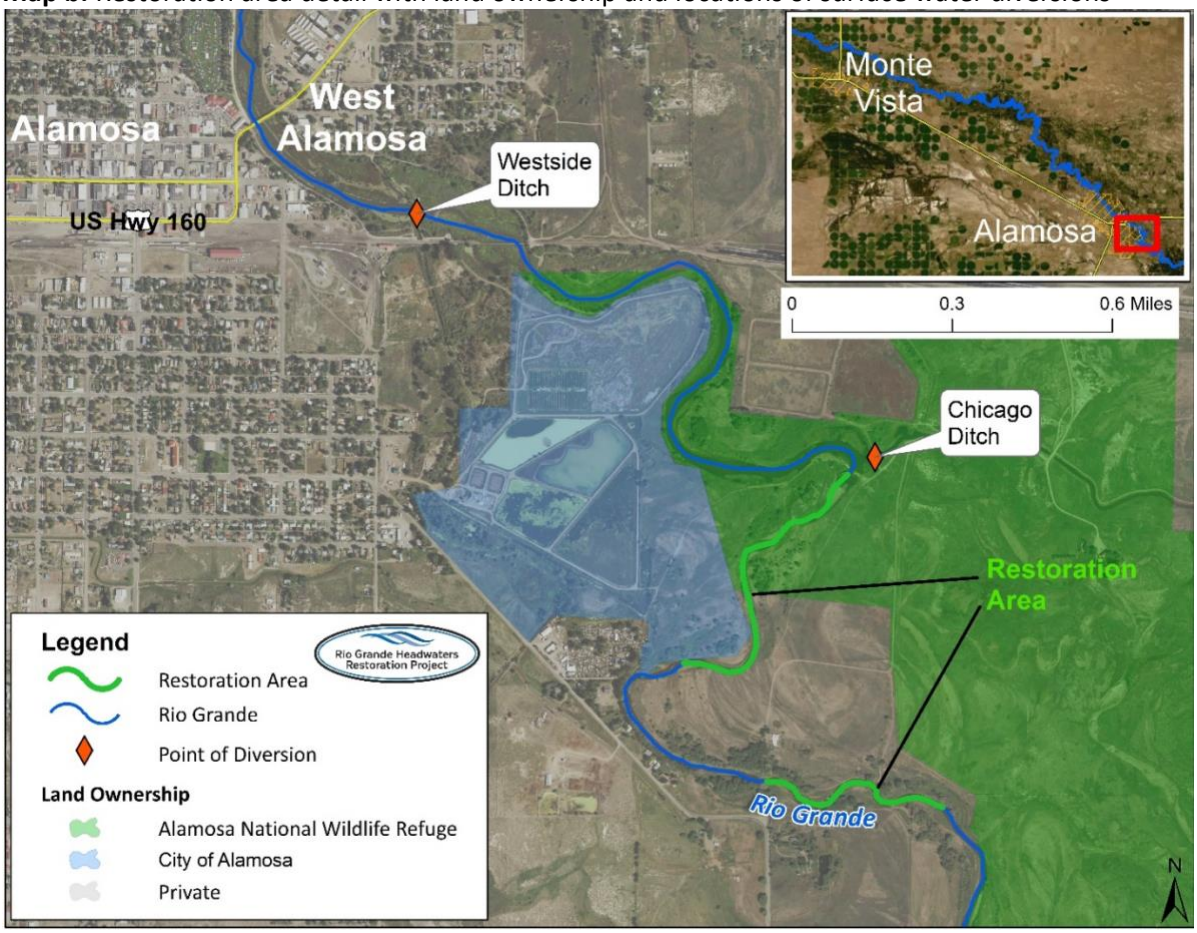
COLORADO WATERSHED RESTORATION PROGRAM GRANT APPLICATION

ATTACHMENT D – Project Maps and Coordinates

Map a. Site overview



Map b. Restoration area detail with land ownership and locations of surface water diversions

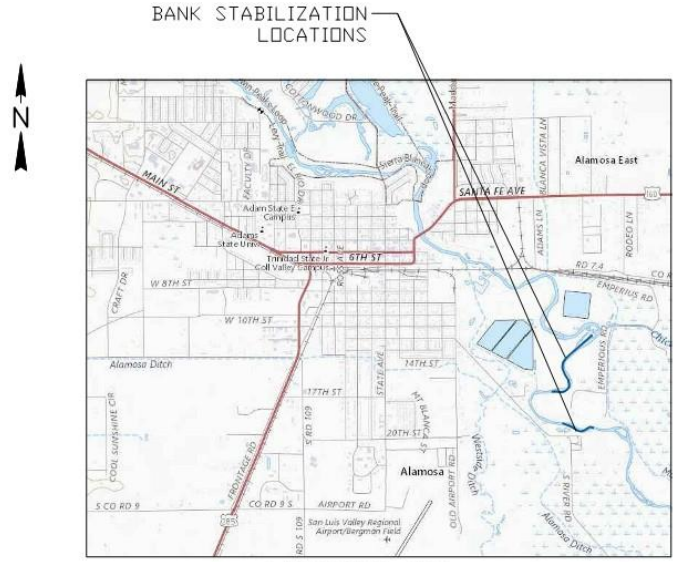


ATTACHMENT E – Preliminary Site Designs

ALAMOSA WILDLIFE REFUGE BANK STABILIZATION/HABITAT ENHANCEMENT PROJECT

Prepared for:

Rio Grande Restoration Foundation/ Alamosa Wildlife Refuge



LOCATION MAP

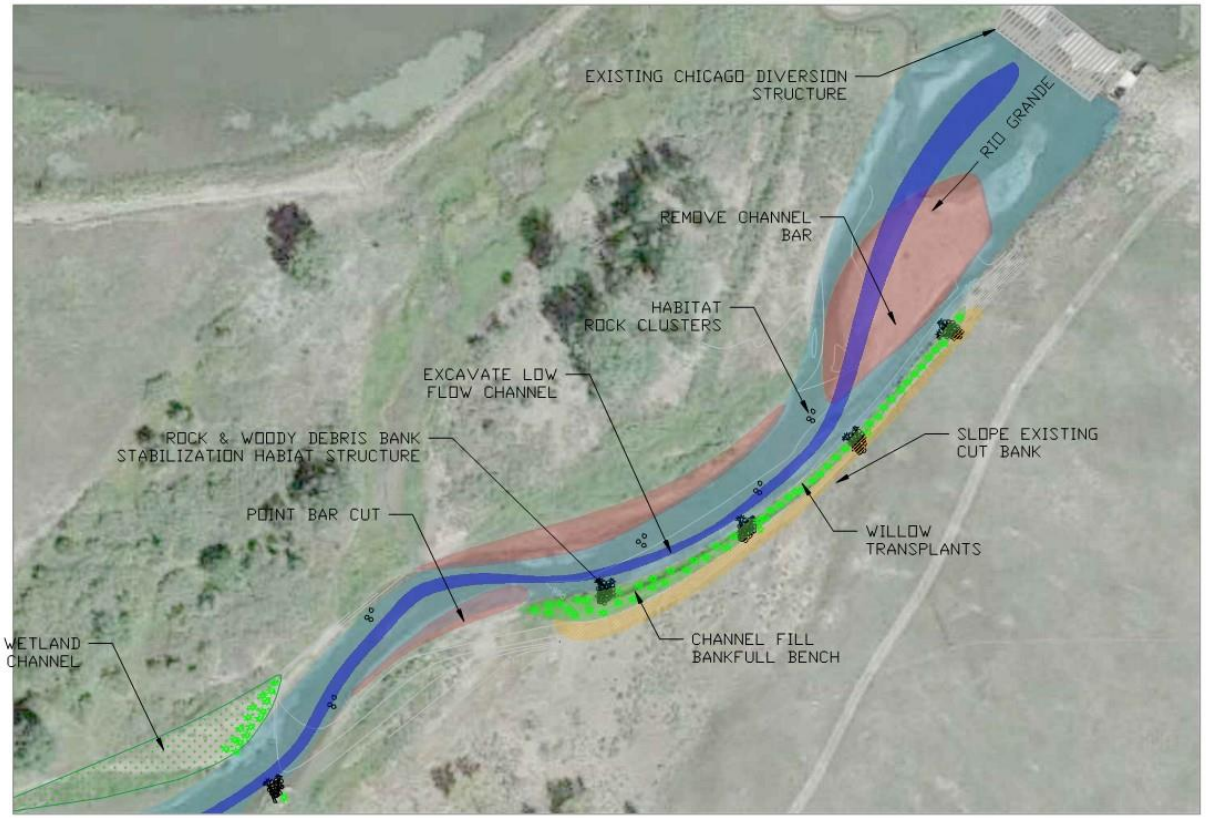
SHEET INDEX

1. COVER SHEET, LOCATION MAP, SHEET INDEX
2. CONCEPT PLAN UPPER AWR SECTION
3. CONCEPT PLAN LOWER AWR SECTION
4. CONCEPT PLAN OSBORNE SECTION
5. CONCEPT PLAN BUNCH/CROWDER

CONCEPT PLAN NOT FOR CONSTRUCTION

SOUTHWEST RIVER ENGINEERING
102 Third St., P.O. Box 5727, Pagosa Springs, CO 81147
Tel: 970.264.1195 cpitcher@swriver.com

AWF HABITAT/BANK STABILIZATION		Sheet
RIO GRANDE RESTORATION FOUNDATION		1
COVER SHEET LOCATION MAP/ SHEET INDEX		of 5
SCALE: NTS	10/21/2021	



CONCEPT PLAN NOT FOR CONSTRUCTION

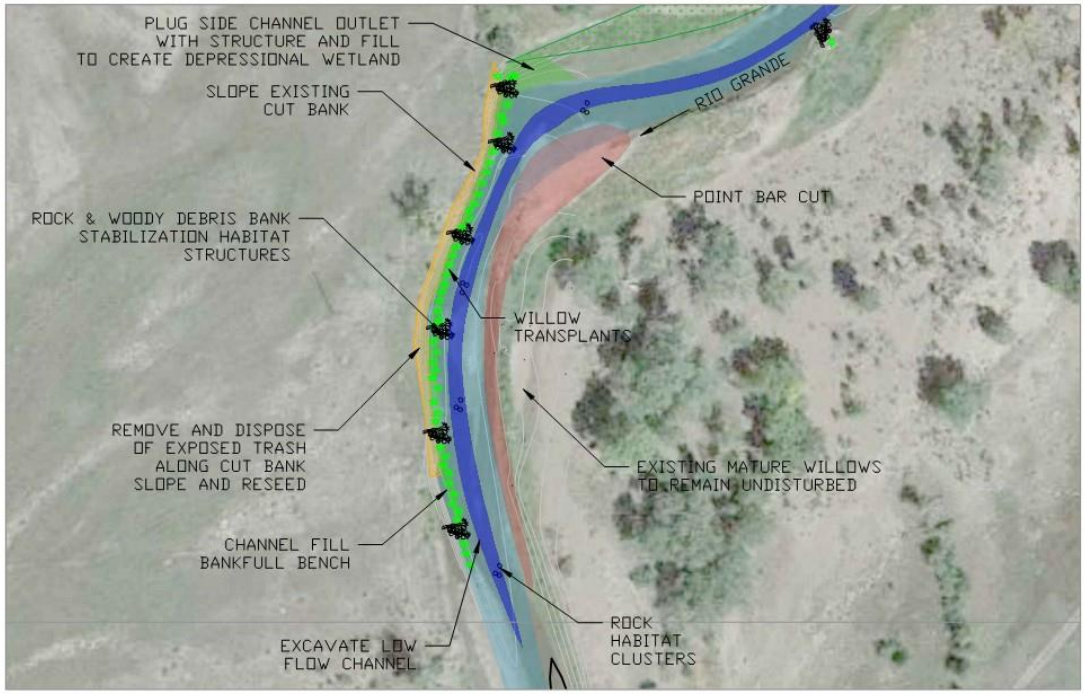
N

0 50 100 200 300

SCALE IS 1" = 100 FT ON 11x17 SIZE SHEET
ALL OTHER SIZE SHEETS USE SCALE BAR

SOUTHWEST RIVER ENGINEERING
102 Third St., P.O. Box 5727, Pagosa Springs, CO 81147
Tel: 970.264.1195 cpitcher@swriver.com

AWF HABITAT/BANK STABILIZATION	Sheet
RIO GRANDE RESTORATION FOUNDATION	2
CONCEPT PLAN VIEW UPPER SECTION	of 5
SCALE: 1" = 100FT	10/21/2021



CONCEPT PLAN NOT FOR CONSTRUCTION

N

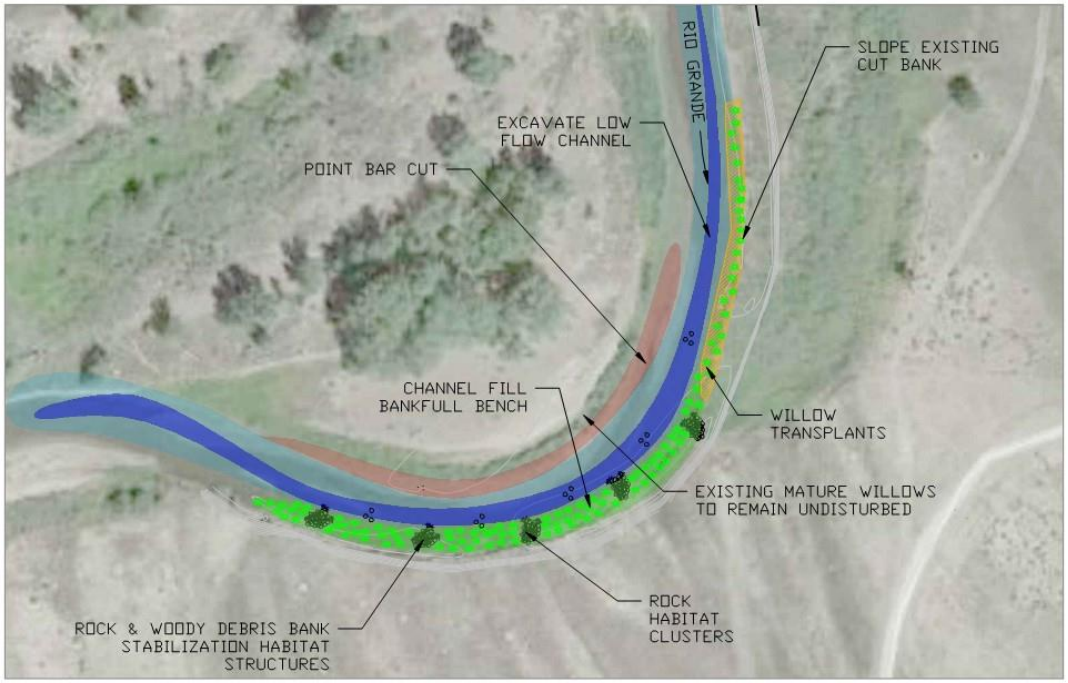
0 50 100 200 300

SCALE IS 1" = 100 FT ON 11x17 SIZE SHEET
ALL OTHER SIZE SHEETS USE SCALE BAR

SOUTHWEST RIVER ENGINEERING

102 Third St., P.O. Box 5727, Pagosa Springs, CO 81147
Tel: 970.264.1195 cpitcher@swriver.com

AWF HABITAT/BANK STABILIZATION	Sheet
RIO GRANDE RESTORATION FOUNDATION	3
CONCEPT PLAN VIEW LOWER SECTION	of 5
SCALE: 1" = 100FT	10/20/2021



CONCEPT PLAN NOT FOR CONSTRUCTION

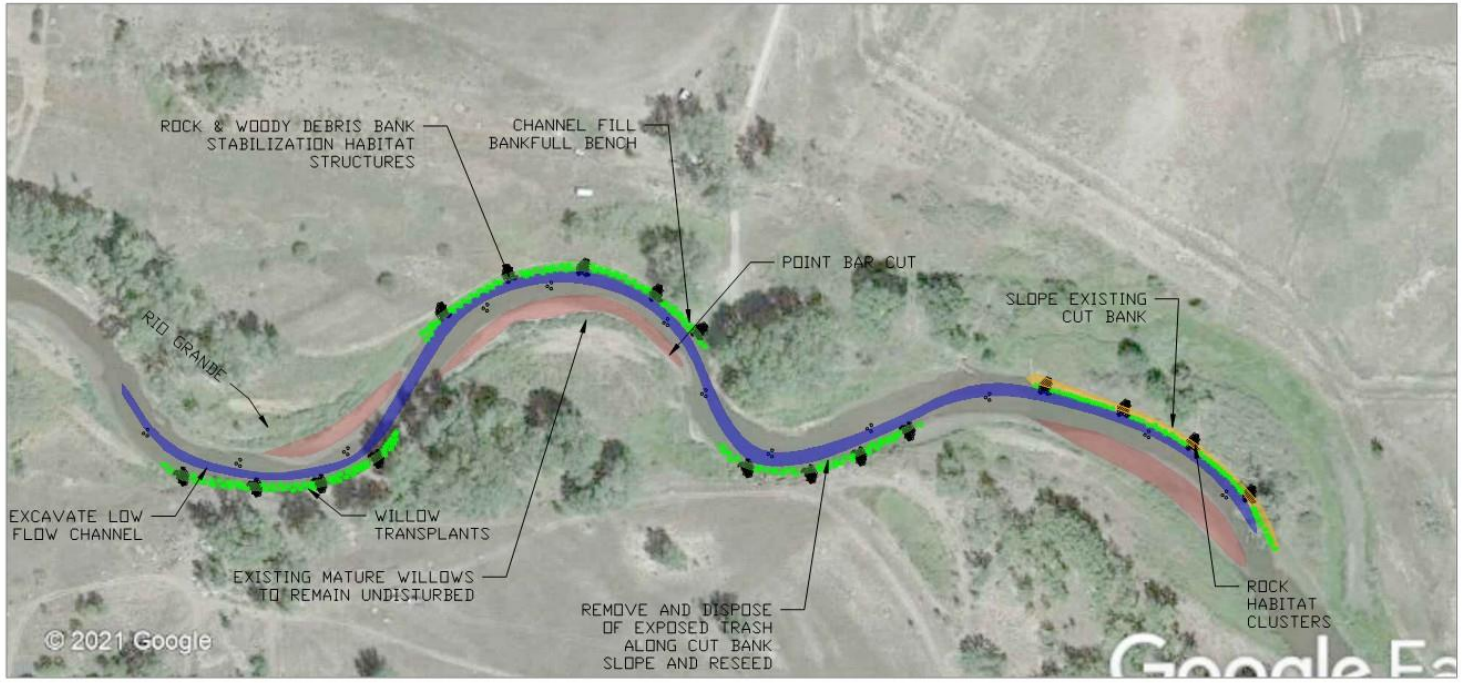
N

0 50 100 200 300

SCALE IS 1" = 100 FT ON 11x17 SIZE SHEET
ALL OTHER SIZE SHEETS USE SCALE BAR

SOUTHWEST RIVER ENGINEERING
102 Third St., P.O. Box 5727, Pagosa Springs, CO 81147
Tel: 970.264.1195 cpitcher@swriver.com

AWF HABITAT/BANK STABILIZATION	Sheet
RIO GRANDE RESTORATION FOUNDATION	4
CONCEPT PLAN VIEW OSBORNE	of 5
SCALE: 1" = 100FT	10/20/2021



CONCEPT PLAN NOT FOR CONSTRUCTION

N

0 75 150 300 450

SCALE IS 1" = 150 FT ON 11x17 SIZE SHEET
ALL OTHER SIZE SHEETS USE SCALE BAR

SOUTHWEST RIVER ENGINEERING
102 Third St., P.O. Box 5727, Pagosa Springs, CO 81147
Tel: 970.264.1195 cpitcher@swriver.com

AWF HABITAT/BANK STABILIZATION	Sheet
RIO GRANDE RESTORATION FOUNDATION	5
CONCEPT PLAN VIEW BUNCH/CROWDER	of 5
SCALE: 1" = 150FT	10/20/2021