JAMES CREEK RIPARIAN RESTORATION PROJECT

Final Report

Prepared for:

Colorado Healthy Rivers Fund Grants

Attn: Chris Sturm

November 18, 2017

James Creek Watershed Initiative

Grant Amount: $10,000

Prepared by: Colleen Williams

ACKNOWLEDGMENTS

We would like to thank the following for their generous support of this project.

Restoration Planning Team

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Linda Bell, James Creek Watershed Initiative Board
Denise Straus, James Creek Watershed Initiative Board
Sterling Bennink, James Creek Watershed Initiative Board
Tim Stokes, James Creek Watershed Initiative Board
Buddy Kihm, James Creek Watershed Initiative Board
Rick Rudy, James Creek Watershed Initiative Board
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Michelle Durant, Boulder County Parks and Open Space
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Jen Lucas, Jamestown's Long Term Recovery Plan
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Restoration Volunteers

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Project Funders

Colorado Water Conservation Board
James Creek Watershed Initiative
Boulder County
XCEL Energy

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INTRODUCTION

The James Creek Riparian Restoration Project focusses on the restoration of riparian corridor land within the town of Jamestown that was ravaged from the historic Flood of 2013. This traumatic flood event began on September 11, 2013 and lasted for three days resulting in loss or damage to 20% of homes, 50% of the roads, bridges, water system, firehall and 24 acres of James Creek Stream Corridor damage mostly on private land. Much has been done by multiple agencies to reconstruct the stream morphology and stabilize the streambanks to mitigate flood risks. The streambanks along the riparian corridor are denuded of vegetation and topsoil that would support a healthy riparian function.

The James Creek Watershed Initiative (JCWI) has extensive experience with implementing restoration projects in the James and Left Hand Creek watersheds for 13 years prior to the flood, through funding from the Colorado Department of Health and Environment's Non-Point Source Grant Program and Colorado Water Conservation Board (CWCB). In 2015, JCWI was able to identify segments along the James Creek corridor within Jamestown that still needed further restoration work and applied for the CWCB Healthy Rivers Fund grant, which was awarded in 2016.

BACKGROUND

Post-flood restoration in Jamestown was conducted by various agencies with coordination from the Town of Jamestown. Restoration work began immediately with debris removed in the stream corridor in winter 2013. In 2014 the Town of Jamestown worked with AMEC to create a Stream Corridor Master Plan to identify the new floodplain. James Creek was realigned and armored by Colt & Steel with Emergency Watershed Restoration funding from NRCS in 2014 as an emergency measure to prevent flooding from spring runoff. The EPA repaired damage to the stream corridor alongside Elysian Park. Eight properties in Jamestown were acquired by the Town in 2016, two through the Community Development Block Grant – Disaster Recovery (CDBG-DR) and six through FEMA's Hazard Mitigation Grant Program (HMGP). By 2017 buy-out properties under the Town ownership were reclaimed and seed planted.

Long-Term Goals

The James Creek Riparian Restoration Project's goal was to improve the riparian function and flood mitigation; near-shore improvement in wildlife habitat; and an aquatic environment that will better sustain a viable fishery. This goal was achieved with the addition of vegetation in the riparian corridor (trees, shrubs, grasses) which will help improve the riparian function by stabilizing streambanks, preventing erosion and sediment transport into the stream. Vegetation in the riparian corridor will provide habitat for wildlife. Decreasing the amount of sediment entering the stream will help restore the aquatic habitat.

METHODS

Objective 1. Provide effective planning, coordination and outreach

Task 1 – Form a restoration planning team and design restoration plan
In February 2016, JCWI formed a Restoration Team to begin the process of identifying potential project areas within the James Creek riparian corridor that needed work. The Team participated in project planning meetings and field trips to the project site, developed a restoration plan, a time-line for construction work, identified resources need, and budget for spending.

Table 1. Project Timeline

Objectives and Tasks	2016 Quarters				2017 Quarters			
Obj. 1 - Planning, Coordination, Outreach	1	2	3	4	1	2	3	4
Task 1 – Form Restoration Team and design plan								
Task 2 – Facilitate involvement and information sharing								
Obj. 2 – Conduct Stream Bank Restoration								
Task 3 – Site preparation of streambanks								
Task 4 – Revegetation of streambank								
Obj. 3 - Conduct Monitoring								
Task 5 - Implement monitoring plan of restoration activities								
Obj. 4 – Project Management, Evaluation and Reporting								
Task 6 – Evaluating project goals, objective and tasks								
Task 7 – Project management and reporting								

During the development of the restoration plan the Team divided the James and Little James Creek stream corridor into nine project Reaches. The Restoration Team then identified other efforts underway or to be completed in the future along these Reaches that would make it challenging to do projects in that area including:

- Boulder County Roads and Stream Projects – EWP, CDBG-DR, and Boulder County funded projects within James Creek and Little James Creek
- Jamestown Elementary School Park Project – Constructed in 2015 with ongoing maintenance by the school
- Future Lower Main Street Bridge replacement
- Community Garden
- Town Square – GOCO grant funded project completed in 2016
- Ditch Head gate – Town irrigation ditch head gate replacement proposed for 2017
- HMGP “buy-out” properties – Still needed to be obtained by the Town, demolition and debris removed and final grading.

Since the Town of Jamestown was in the process of obtaining the “buy-out” properties, JCWI put the Project on hold until this was completed. In 2017 we were then able to move forward with a decision to complete riparian restoration work on Reach 5 from the Anderson Street bridge to the Sharp property along Main Street in Jamestown. The project sites include land owned by the Jamestown Post Office and Town of Jamestown’s “buy-out” properties.

Reach 5 was further divided into three project sites: (1) 167 Main Street site, (2) 153 & 145 Main Street site, and (3) Jamestown Post Office and town land along the creek (Fig. 1 and 2). Although these sites had been previously planted with native seed by a contractor under the HMGP, the Main Street sites were overgrown with the invasive Cheat Grass and Canada Thistle and had hard-packed soil. The stream bank along the 167 Main Street site consisted of a rock retaining wall.

A riparian corridor design-to-build plan was completed with assistance from Morgan Crowley, Grounded LLC in summer 2017 for a fall project. The design plan included the type and location of deciduous trees and shrubs to plant, topsoil placement, soil amendment, and seed placement. A proposed timeline was developed for site preparation and backhoe work, obtaining soil, vegetation and supplies, and volunteer recruitment. A temporary easement was obtained from the owners of the Post Office land on August 3, 2017 to implement restoration activities on this land, as well as approval from the Town Board of Jamestown to work on the newly obtained “buy-out” properties.

Figure 1. Project sites 1 and 2

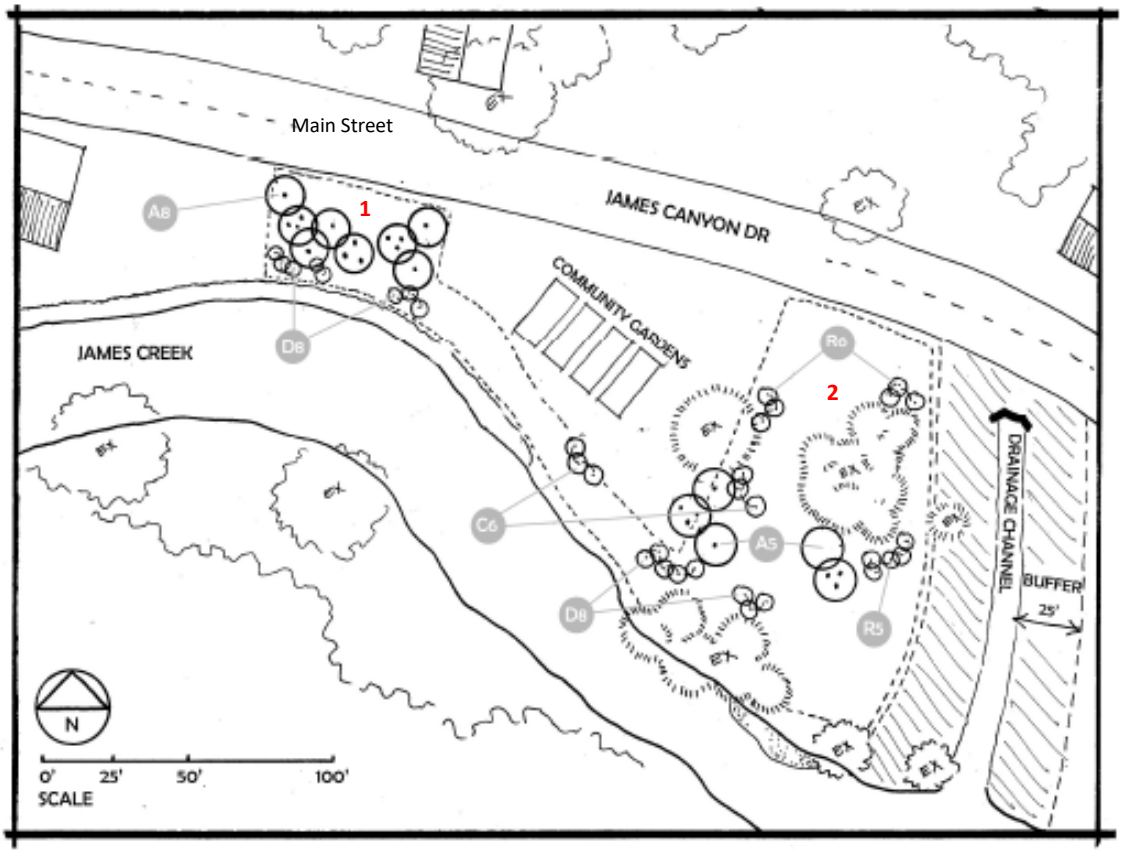
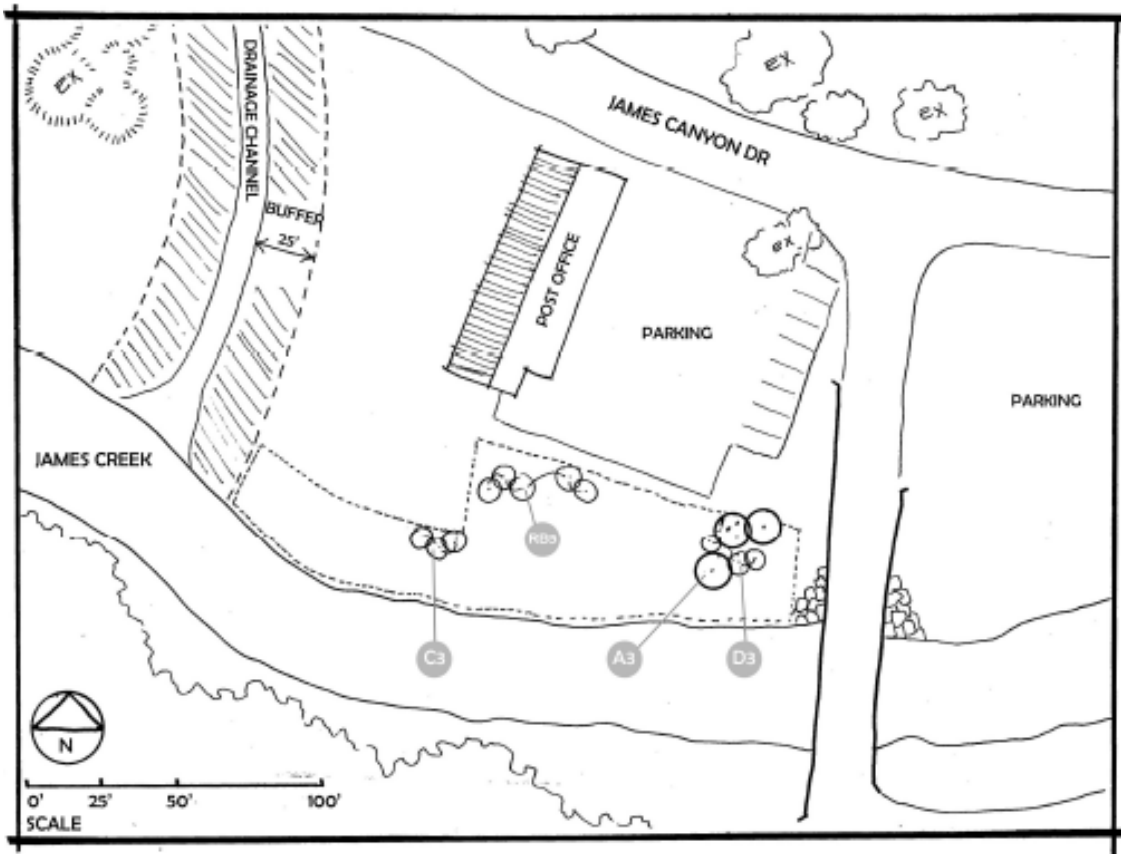


Figure 2. Project site 3



Task 2 – Facilitate involvement and information sharing
The JCWI informed the community of the restoration project with reports to the Town Board of Jamestown, posting project information on the Jimtown QT electronic bulletin board and signs posted at the Town Hall. Twenty-eight volunteers were recruited via electronic bulletin board and personal email invitations. A list of volunteers is included in the Acknowledgement at the beginning of this report. Volunteers contributed 62 hours toward project planning activities with an in-kind match of $1,860 toward the project.

Objective 2. Conduct stream bank restoration

Task 3 – Site preparation of streambanks
Site preparation during September 2017 included tree trimming for proposed site prescribed burn (which did not happen due to high winds), weed pulling, and site clean-up of debris and trash. Top soil (76.73 tons) was delivered on September 15, 2017 and staged at three of the project sites. Back-hoe operation was completed on September 16, 2017 which included digging under cheat grass, scarifying the soil, digging holes for trees and shrubs, and spreading topsoil. Trees, shrubs, compost and seed was delivered on September 27, 2017. On September 29, 2017 tools were gathered and seed was divided into 12 packets each to be spread over

approximately 0.5 acre of land. CWBC funds were used specifically for project materials and labor.

Figure 3. Topsoil delivered and staged.

Figure 4. Backhoe operator at Site 1.

Task 4 – Revegetation of streambanks

Jamestown area volunteers participated in manual restoration activities at the project site on September 30, 2017. Seventeen aspen trees/clumps were planted with an application of mulch and soil in the holes. Forty-four shrubs (11 Wild Rose, 19 Dogwood, 5 Rabbitbrush, 9 Currant) were planted. Topsoil was manually spread out over the 0.5 acre project site. Biosol fertilizer (100 lbs.) and native seed (16.60 lbs.) was applied to the soil and raked in.

On October 21, 2017 volunteers assisted with spreading mulch over the entire project site for erosion control and to hold in the moisture. The mulch (60 cubic yards) consisted of shredded trees and limbs from local flood debris removal that was hauled to the project site. The trees and shrubs were then watered via 400 feet of hose from the Community Garden's spigot to the three project sites. Watering continues on a weekly basis until the ground freezes in December. A liquid fertilizer was applied to the trees in November to stimulate root growth. Volunteers contributed 77 hours toward restoration activities with an in-kind match of $2,310 toward the project.

Figure 5. Volunteers planting aspen trees.

Figure 6. Volunteers spreading wood mulch.

Objective 3. Conduct Monitoring

Task 5 – Implement monitoring plan of restoration sites

We have monitored the project site with a photolog of each site taken before, during, and after restoration (See Appendix).

Objective 4. Project Management, Evaluation, and Reporting

Task 6 - Evaluating project goals, objective and tasks
The James Creek Riparian Restoration Project's goal was to improve the riparian function and flood mitigation; near-shore improvement in wildlife habitat; and an aquatic environment that will better sustain a viable fishery. This goal was achieved with the addition of vegetation in the riparian corridor (trees, shrubs, grasses) which will help improve the riparian function by stabilizing streambanks, preventing erosion and sediment transport into the stream. Vegetation in the riparian corridor will provide habitat for wildlife. Decreasing the amount of sediment entering the stream will help restore the aquatic habitat. All of the project tasks were accomplished.

We used implementation monitoring to evaluate whether our restoration measures were done correctly and if they achieved the desired results. Overall, all of the restoration measures we constructed were according to specifications of the design plan. The use of mulching, native seed and vegetation were the most effective BMP we used to decrease soil loss and erosion. The photo-log of the restoration sites included in this report documents the effectiveness of the treatments.

Task 7 – Project management and reporting
The project was effectively managed by James Creek Watershed Initiative's Executive Director who ensured that the tasks were completed in a timely manner, volunteers were recruited by the volunteer coordinator, supplies were ordered and delivered on time, backhoe operation was done by specification in the design plan, restoration and monitoring activities were completed, grant match was obtained, and funds spent within the budget. The final report was completed and provided to the Colorado Water Conservation Board prior to the end of the grant period.

RESULTS

This project documents the ecological value of stream restoration to the James Creek watershed. It provided on opportunity for the local community to become involved and work together to restore their hometown. Volunteers contributed 143 hours toward project planning and restoration activities with a total in-kind match of $4,170 toward the project.

This project required collaboration, coordination and cooperation with stakeholders involved in restoration throughout the James Creek canyon.

This project improved the viewscape throughout this area of the Town which has a psychological value of community healing after the flood. It has been a long journey for the community of Jamestown in rebuilding after the flood, and this is a small part of this process.

CONCLUSION AND DISCUSSION

The James Creek Watershed Initiative successfully completed the project. The project goals, objectives, and tasks have been met as documented in the METHODS section of this report. Restoration measures were constructed according to the specifications of the design plan.

Continuous monitoring of the sites will be conducted weekly over the next few years to determine the effectiveness of tree and shrub growth, nonpoint source controls, invasive weeds, and watering needs. The James Creek Watershed Initiative will continue to monitor James Creek with the River Watch program at 3 sites along James Creek including above and below the project site.

The James Creek Watershed Initiative is committed to long-term restoration monitoring and vegetative management at these three sites in collaboration with the town of Jamestown. Local area volunteers demonstrated a continued interest in stewardship toward the watershed that we have observed over the years.

This project was challenging due to all of the other restoration activities underway by multiple agencies in the stream corridor. We had to wait until all of the HMGP properties were acquired to begin work at these sites. We decided to use trees and shrubs instead of only willow plantings because there were many areas along the streambank that had willows growing from 2015 plantings. JCWI is considering this as Phase 1 of these project sites. Phase 2 will be started in 2018 and consist of planting more shrubs, native wildfire plants, willows, and trees within the floodplain areas of the project sites.

ACTUAL EXPENSE BUDGET

Task/Description	Target Start Date	Target Completion Date	CWCB Funds	Other Funding Cash (JCWI)	Other Funding In-Kind (JCWI)	Total
1. Form restoration planning team/design restoration plan	3/15/16	8/15/17			$1,860.00	$1,860.00
2. Facilitate involvement and information sharing	3/15/16	11/17/17		$1,120.00		$1,120.00
3. Site preparation of streambanks	9/5/17	9/30/17	$4,279.89			$4,279.89
4. Revegetation of streambanks	9/30/17	10/21/07	$3,047.61	$514.66	$2,310.00	$5,872.27
5. Implement monitoring plan of restoration activities	7/15/17	11/17/17	$300.00			$300.00
6. Evaluate project goals, objectives, and tasks	10/21/17	11/17/17	$200.00			$200.00
7. Project management and reporting	3/15/17	11/17/17	$2,172.50			$2,172.50
TOTALS			**$10,000.00**	**$1,634.66**	**$4,170.00**	**$15,804.66**

Explanation of Task Spending

Task 1 – Documentation of InKind match for volunteer restoration planning team included on the InKind match sheet in the appendix ($1,860.00)

Task 2 – JCWI cash paid to Millissa Berry, outreach and volunteer coordinator ($1,120)

Task 3 – Site preparation included Town of Jamestown's backhoe work ($2,400) and Colorado Materials Inc. topsoil delivery ($1,879.89) totaling $4,279.89.

Task 4 – Revegetation of streambank included:

- Little Valley Wholesale Nursery trees and bushes ($2,366.00)
- Grounded LLC native seed ($212.98) and biosol ($151.37)
- McGuckins compost ($81.47)
- Arne Metzger compost mulch ($292.50)
- The Flower Bin root stimulator ($30.29)
- McGuckins garden hose ($43.53) and ($72.92)
- McGuckins supplies: tools, wildflower seed, hose, yard waste bags ($311.21)
- Total for revegetation: $3562.27
- InKind match for volunteer restoration work ($2,310.00)

Task 5 and 6 – Completed by Colleen Williams, JCWI director ($300) and ($200)

Task 7 – Includes Colleen Williams ($1,000), Morgan Crowley ($1,000), and Mark Wischmeyer ($172.50) Totaling $2,172.50

APPENDIX

A. Photolog

B. Design Plans

C. Native Seed Mix

James Creek Riparian Restoration Project: Photolog

Figure 1. Project Site 1 before restoration with invasive weeds: cheat grass and thistle.

Figure 2. Project Site 1 backhoe operation to dig under invasive weeds, spread topsoil, and dig holes for planting trees and shrubs

Figure 3. Project Site 1 ready for planting.

Figure 4. Topsoil delivered to project sites.

Figure 5. Project Site 1 volunteers planting trees.

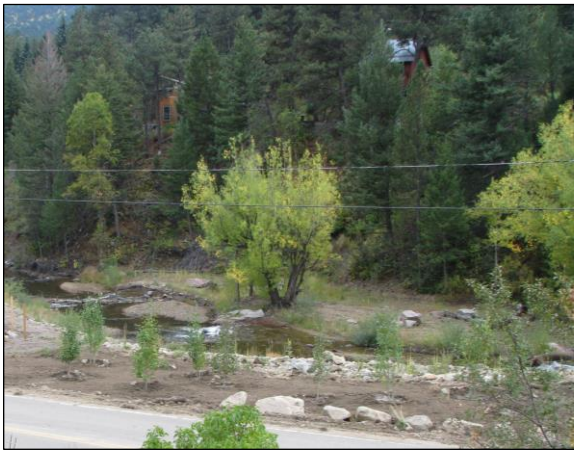


Figure 6. Project site 1 planting completed.

Figure 7. Project Site 2 before restoration.

Figure 8. Project Site 2 overgrown with weeds.

Figure 9. Project Site 2 spreading topsoil.

Figure 10. Project Site 2 planting trees and shrubs, scattered seed and biosol fertilizer.

Figure 11. Project site 2 volunteers hauling mulch.

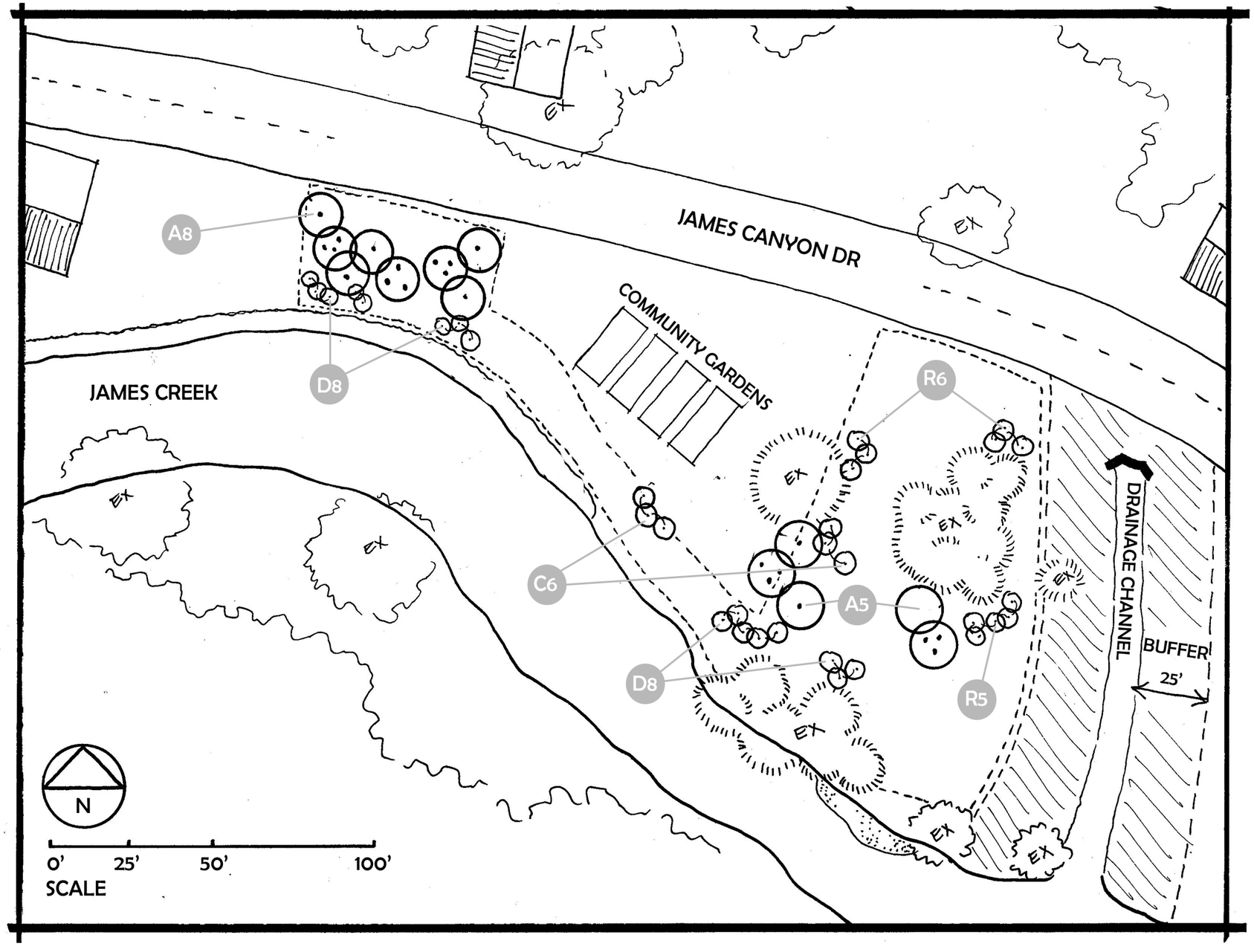
Figure 12. Project site 2 volunteers spreading mulch.

Figure 13. Project Site 3 before restoration with some vegetation. Site scarified with backhoe and topsoil spread over bare areas.

Figure 14. Project Site 3 volunteers planting trees and shrubs, spreading and raking in seed and biosol fertilizer.

figure 15. Project Site 3 volunteers hauling and spreading topsoil.

Figure 16. Project Site 3 volunteers spreading mulch.

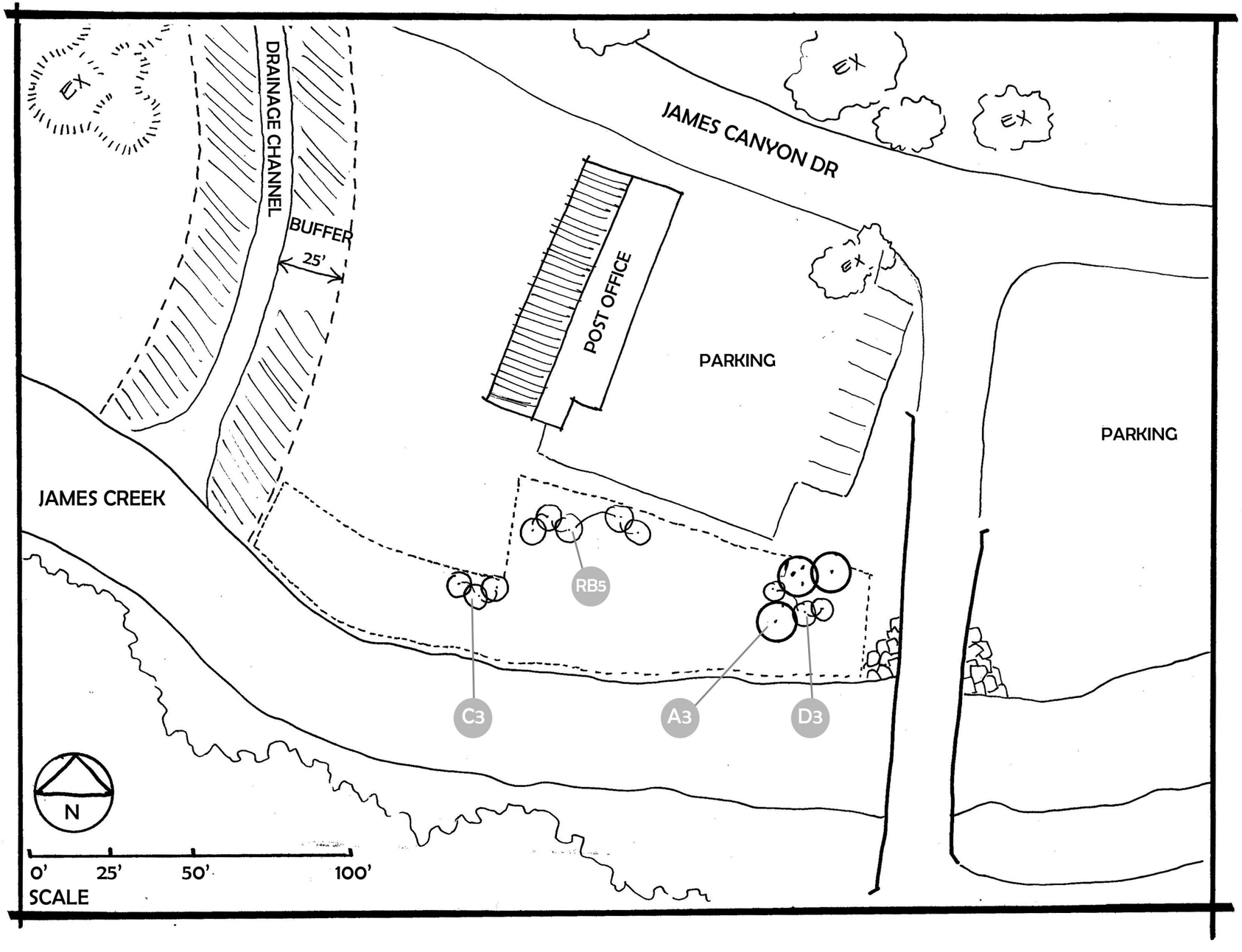


KEY

- EXISTING TREE
- PROPOSED ASPENS (SINGLE AND MULTI-STEM)
- PROPOSED SHRUB PLANTINGS
- AREA TO BE SEEDED
- A8 — ASPEN GROUPING (NUMBER TO BE PLANTED)
- D8 — RED-OSIER DOGWOOD GROUPING
- C6 — YELLOW FLOWERING CURRANT GROUP
- R5 — WOODS ROSE GROUPING
- N — NORTH

PLANTING AREA 1

DRAWINGS PREPARED BY:
MORGAN CROWLEY
GROUNDED LLC
PO BOX 288 LYONS, CO 80540



PLANTING AREA 2

KEY

EX — EXISTING TREE

PROPOSED ASPENS (SINGLE AND MULTI-STEM)

PROPOSED SHRUB PLANTINGS

AREA TO BE SEEDED

A3 — ASPEN GROUPING (NUMBER TO BE PLANTED)

D3 — RED-OSIER DOGWOOD GROUPING

C3 — YELLOW FLOWERING CURRANT GROUP

RB5 — RABBIT BRUSH GROUPING

N — NORTH

DRAWINGS PREPARED BY:
MORGAN CROWLEY
GROUNDED LLC
PO BOX 288 LYONS, CO 80540

Western Native Seed

P.O. Box 188 Coaldale CO 81222 - info@westernnativeseed.com - 719-94

Riparian Seed Mix

Lot # 18228 **14.24 PLS lb**

% Pure	Species	Common Name	Lot #	%Germ	%Dorm	Orig	Date
17.95%	Achnatherum hymenoides	Indian Ricegrass NEZPAR	017-8281		93	WA	6/17
4.88%	Bouteloua curtipendula	Side-oats Grama	GST-9007	85		KS	2/17
4.50%	Bouteloua gracilis	Blue Grama	D1623	90	8	MN	6/17
6.20%	Elymus trachycaulus	Slender Wheatgrass	16-0014	94		Can	5/17
0.21%	Glyceria striata	Fowl Mannagrass	GLYSTR-16		98	UT	8/16
0.47%	Koeleria macrantha	Junegrass	BFI-15-10157671			WA	12/16
0.03%	Juncus balticus	Baltic Rush	JUBA		88	UT	3/17
0.03%	Juncus torreyi	Torrey's Rush	JUNTOR-15		97	UT	11/16
36.29%	Pascopyrum smithii	Western Wheatgrass ARRIBA	1530-1	91	4	WA	12/16
12.45%	Schizachyrium scoparium	Little Bluestem	G6-1395	91	6	NE	1/17
0.06%	Achillea millefolium	White Yarrow	BFI-16-10101596			WA	12/16
1.44%	Cleome serrulata	Rocky Mountain Bee Plant	CLSE-17		96	UT	9/16
2.89%	Gaillardia aristata	Perennial Blanketflower	GC08375-12	82			12/16
0.13%	Coreopsis tinctoria	Plains Coreopsis	JB09235-1	94		Unk	10/15
1.82%	Spartina pectinata	Prairie Cordgrass	E5535		94	MN	2/17
0.33%	Penstemon secundiflorus	Orchid Beardtongue	BFI-16-103227		92	WA	11/16
0.35%	Machaeranthera bigelovii	Bigelow's aster	17571	87		CO	7/17
1.04%	Linum lewisii var. lewisii	Blue Flax APPAR	NRS-BB5-APP		97	WA	9/16

16.60 Bulk lbs **Noxious None** Inert 0.85% Crop 0.05% Weed 0.00%