

Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
September 21-22, 2016
Agenda Item 19(f)

Applicant & Fiscal Agent: Fort Lyon Canal Company

Water Activity Name: Adobe Creek Dam Seepage Evaluation

Water Activity Purpose: Implementation

County: Kiowa and Bent

Drainage Basin: Arkansas

Water Source: Arkansas River

Amount Requested/Source of Funds: \$5,000 Arkansas Basin Account
\$45,000 Statewide Account
\$50,000 Total Grant Request

Matching Funds: Basin Account Match (\$5,000) = 10% of total grant request;
Applicant Match (\$10,000) = 43% of Total Grant Request
(meets 5% min);
Basin & Applicant Match (\$15,000) = 30% of Total Grant
Request (meets 25% min).
(refer to *Funding Summary/Matching Funds* section)

Staff Recommendation:
Staff recommends approval of up to \$5,000 from the Arkansas Basin Account; and \$45,000 from the Statewide Account to help fund the project titled: Adobe Creek Dam Seepage Evaluation.

Water Activity Summary: WSRF Grant funds, if approved, will be expended to assist the Fort Lyons Canal Company to perform subsurface and engineering evaluations to determine the extent of dam and outlet work rehabilitation necessary for safe water storage impoundment behind the Adobe Creek Dam. Uncontrolled seepage and the potential for initial stages of piping failure were recently observed by the Division 2 Dam Safety Engineer in the area downstream of the dam toe. Numerous temporary repairs to the area have been made over the years, and additional temporary repairs were made to the dam in March 2016 with the goal of keeping the dam operational without storage restrictions through the 2016 water year.

Discussion: This project furthers multiple goals and objectives of the Arkansas Basin Implementation Plan. With respect to the Colorado Water Plan, this project supports Objective A. Supply-Demand Gap: "Protect and Develop Compact Entitlements and Manage Risks," Objective D. Agriculture: "Support Agricultural Conservation and Efficiency," Objective E. Storage: "Assess and promote opportunities for multipurpose and multi-partner storage projects that address strategic needs," and Objective F. Watershed Health, Environment and Recreation: "Protect healthy environments" (Section I 0.3). With respect to the last objective, Adobe Creek Reservoir is a nesting area for the Least Tern.

Issues/Additional Needs: No issues or additional needs have been identified.

Threshold and Evaluation Criteria:

The application meets all four Threshold Criteria.

Tier 1-3 Evaluation Criteria:

This activity has undergone review and evaluation and staff has determined that it satisfies the Evaluation Criteria. Please refer to WSRA Application for applicant's detailed response.

Funding Summary/Matching Funds:

<u>Funding Source</u>	<u>Cash</u>	<u>In-kind</u>	<u>Total</u>
Fort Lyon Canal Company	\$10,000	\$0	\$10,000
WSRA Arkansas Basin Account	\$5,000	n/a	\$5,000
WSRA Statewide Account	\$45,000	n/a	\$45,000
Total Project Costs	\$60,000	n/a	\$60,000

CWCB Project Manager: Craig Godbout

All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform. In accordance with the revised WSRA Criteria and Guidelines, staff would like to highlight additional reporting and final deliverable requirements. The specific requirements are provided below.

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the scope of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

Engineering: All engineering work (as defined in the Engineers Practice Act (§12-25-102(10) C.R.S.)) performed under this grant shall be performed by or under the responsible charge of professional engineer licensed by the State of Colorado to practice Engineering.

Arkansas Basin Roundtable

July 13, 2016

Via Electronic Mail: craig.godbout@state.co.us

Mr. Craig Godbout
Colorado Water Conservation Board
1313 Shennan Street, Room 721
Denver, CO 80203

Re: Water Supply Reserve Account Grant Application: Adobe Creek Dam Seepage Evaluation

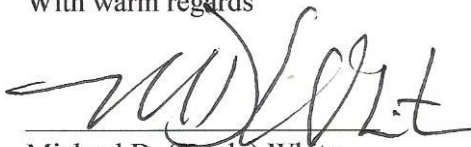
Dear Craig:

At its July 13, 2016 meeting, the Arkansas Roundtable approved the Adobe Creek Dam Seepage Evaluation for \$5,000 in Basin Funds, \$45,000 in Statewide Funds with \$60,000 (\$10,000?) in cash matching funds. There were no dissenting opinions expressed in the consensus decision.

This project furthers multiple goals and objectives of the Arkansas Basin Implementation Plan. With respect to the Colorado Water Plan, this project supports Objective A. Supply-Demand Gap: *"Protect and Develop Compact Entitlements and Manage Risks,"* Objective D. Agriculture: *"Support Agricultural Conservation and Efficiency,"* Objective E. Storage: *"Assess and promote opportunities for multipurpose and multi-partner storage projects that address strategic needs,"* and Objective F. Watershed Health, Environment and Recreation: *"Protect healthy environments"* (Section 10.3). With respect to the last objective, Adobe Creek Reservoir is a nesting area for the Least Tern.

Should you have any questions or concerns, please feel free to contact me either by telephone, 719-742-6164, or by email, sandv@white-jankowski.com.

With warm regards



Michael D. (Sandy) White
Chair

Copy via email:

Applicant
ABRT Executive Committee



COLORADO WATER CONSERVATION BOARD



WATER SUPPLY RESERVE ACCOUNT APPLICATION FORM

Today's Date: 7/05/2016

Adobe Creek Dam Seepage Evaluation

Name of Water Activity/Project

Fort Lyon Canal Company

Name of Applicant

Arkansas Basin Roundtable

Amount from Statewide Account:

\$45,000

Amount from Basin Account(s):

\$5,000

Total WSRA Funds Requested:

\$50,000

Approving Basin Roundtable(s)

(If multiple basins specify amounts in parentheses.)

FEIN: 84-0579583

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Required Exhibits

- A. Statement of Work, Budget, and Schedule
- B. Project Map
- C. As Needed (i.e. letters of support, photos, maps, etc.)

Appendices – Reference Material

- 1. Program Information
- 2. Insurance Requirements
- 3. WSRA Standard Contract Information (Required for Projects Over \$100,000)
- 4. W-9 Form (Required for All Projects Prior to Contracting)

Water Supply Reserve Account – Application Form

Revised October 2013

Instructions

To receive funding from the Water Supply Reserve Account (WSRA), a proposed water activity must be approved by the local Basin Roundtable **AND** the Colorado Water Conservation Board (CWCBC). The process for Basin Roundtable consideration and approval is outlined in materials in Appendix 1.

Once approved by the local Basin Roundtable, the applicant should submit this application **with a detailed statement of work including budget and schedule as Exhibit A** to CWCBC staff by the application deadline.

WSRA applications are due with the roundtable letter of support 60 calendar days prior to the bi-monthly Board meeting at which it will be considered. Board meetings are held in January, March, May, July, September, and November. Meeting details, including scheduled dates, agendas, etc. are posted on the CWCBC website at: <http://cwcb.state.co.us> Applications to the WSRA Basin Account are considered at every board meeting, while applications to the WSRA Statewide Account are only considered at the March and September board meetings.

When completing this application, the applicant should refer to the WSRA Criteria and Guidelines available at: <http://cwcb.state.co.us/LoansGrants/water-supply-reserve-account-grants/Documents/WSRACriteriaGuidelines.pdf>. In addition, the applicant should also refer to the [Supplemental Scoring Matrix](#) applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests.

The application, statement of work, budget, and schedule **must be submitted in electronic format** (Microsoft Word or text-enabled PDF are preferred) and can be emailed or mailed on a disk to:

Craig Godbout - WSRA Application
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203
Craig.godbout@state.co.us

If you have questions or need additional assistance, please contact Craig Godbout at: 303-866-3441 x3210 or craig.godbout@state.co.us.

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Part I. - Description of the Applicant (Project Sponsor or Owner);

1.	Applicant Name(s):	Fort Lyon Canal Company			
	Mailing address:	750 Bent Avenue Las Animas, Colorado 81054			
	FEIN #:	84-0579583			
	Primary Contact:	Amy Van Horn	Position/Title:	Water Master	
	Email:	flccinfo@flcc.net			
	Phone Numbers:	Cell:	N/A	Office:	719-456-0720
	Alternate Contact:	Jerred Hoffman	Position/Title:	Superintendent	
	Email:	jerred@flcc.net			
	Phone Numbers:	Cell:	719-469-1160	Office:	719-456-0720

2. Eligible entities for WSRA funds include the following. What type of entity is the Applicant?

- ☐ Public (Government) – municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities and the local entity should be the grant recipient. Federal agencies are eligible, but only if they can make a compelling case for why a local partner cannot be the grant recipient.
- ☐ Public (Districts) – authorities, Title 32/special districts, (conservancy, conservation, and irrigation districts), and water activity enterprises.
- ☒ Private Incorporated – mutual ditch companies, homeowners associations, corporations.
- ☐ Private individuals, partnerships, and sole proprietors are eligible for funding from the Basin Accounts but not for funding from the Statewide Account.
- ☐ Non-governmental organizations – broadly defined as any organization that is not part of the government.

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3. Provide a brief description of your organization

The Fort Lyon Canal Company is a Colorado Mutual Ditch Company and a non-profit Corporation organized under the laws of the State of Colorado. The Fort Lyon Canal Company was incorporated in 1897, and is governed by five Directors that meet monthly. The offices of the company are located in Las Animas. The canal is 113 miles long, and lies in three counties: Otero, Bent, and Prowers. Approximately 93,000 acres are irrigated each year.

4. If the Contracting Entity is different then the Applicant (Project Sponsor or Owner) please describe the Contracting Entity here.

Not Applicable

5. Successful applicants will have to execute a contract with the CWCB prior to beginning work on the portion of the project funded by the WSRA grant. In order to expedite the contracting process the CWCB has established a standard contract with provisions the applicant must adhere to. A link to this standard contract is included in Appendix 3. Please review this contract and check the appropriate box.

☒

The Applicant will be able to contract with the CWCB using the Standard Contract

☐

The Applicant has reviewed the standard contract and has some questions/issues/concerns. Please be aware that any deviation from the standard contract could result in a significant delay between grant approval and the funds being available.

6. The Tax Payer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect the applicant.

Not Applicable

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Part II. - Description of the Water Activity/Project

1. What is the primary purpose of this grant application? (Please check only one)

<input checked="" type="checkbox"/>	Nonconsumptive (Environmental or Recreational)		
<input checked="" type="checkbox"/>	Agricultural		
<input type="checkbox"/>	Municipal/Industrial		
<input type="checkbox"/>	Needs Assessment		
<input type="checkbox"/>	Education		
<input checked="" type="checkbox"/>	Other	Explain:	Arkansas Basin Compact Maintenance

2. If you feel this project addresses multiple purposes please explain.

Maintaining water storage in Adobe Creek Reservoir (Blue Lake) is important to the State of Colorado because it is truly multi-purpose storage. The reservoir provides nearly 71,000 acre-feet of critical drought protection for agriculture in southeast Colorado, which is important to up to 1,000 people in Bent, Otero, and Prowers Counties. Water storage in the reservoir also has an important nonconsumptive use that enhances 5,174 acres of wildlife and waterfowl habitat in the Adobe Creek Reservoir State Wildlife Area, which is one of the highest used recreation areas in southeast Colorado. When there is water in the reservoir it provides excellent opportunities for hunting, fishing, camping, hiking, and boating within this State Wildlife Area. There is an island in the middle of the reservoir that provides excellent protected, habitat for the Least Tern, which is a federally listed endangered species. This endangered species habitat would be lost if storage is lost in the reservoir. Water storage in the reservoir is also important to help the State of Colorado maintain its Arkansas Basin Compact requirements. Water that had been saved in recent years by more efficient use of sprinklers by water users in the Fort Lyon Canal Company system can be stored in Adobe Creek Reservoir to help the State of Colorado maintain its compact obligations.

3. Is this project primarily a study or implementation of a water activity/project? (Please check only one)

<input type="checkbox"/>	Study	<input checked="" type="checkbox"/>	Implementation (Initial Stages)
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4. To catalog measurable results achieved with WSRA funds can you provide any of the following numbers?

<input type="text"/>	New Storage Created (acre-feet)	
<input type="text"/>	New Annual Water Supplies Developed, Consumptive or Nonconsumptive (acre-feet)	
70,878	Existing Storage Preserved or Enhanced (acre-feet)	
<input type="text"/>	Length of Stream Restored or Protected (linear feet)	
<input type="text"/>	Length of Pipe/Canal Built or Improved (linear feet)	
<input type="text"/>	Efficiency Savings (acre-feet/year OR dollars/year – circle one)	
5,147	Area of Restored or Preserved Habitat (acres)	
<input checked="" type="checkbox"/>	Other -- Explain:	Least Tern Habitat Protection

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4. To help us map WSRA projects please include a map (Exhibit B) and provide the general coordinates below:

Latitude: 38.234583

Longitude: 103.278692

5. Please provide an overview/summary of the proposed water activity (no more than one page). Include a description of the overall water activity and specifically what the WSRA funding will be used for. A full **Statement of Work** with a detailed budget and schedule is required as **Exhibit A** of this application.

The Fort Lyon Canal Company (FLCC) has an immediate and critical need to perform subsurface investigations and engineering evaluations to determine the extent of dam rehabilitation necessary for the Adobe Creek Dam to safely store water. Adobe Creek Dam was originally constructed in 1904 by the FLCC as an off channel storage facility for Arkansas River water for agricultural use. In 1969, the dam was repaired and raised to provide further storage. The reservoir has a total capacity of nearly 71,000 acre feet. During a March 2016 inspection by the Division 2 Dam Safety Engineer, uncontrolled seepage and the potential for the initial stages of a piping failure was observed in the area of the downstream dam toe immediately left of the outlet works. Temporary repairs were made to the dam in March of 2016 with the goal of keeping the dam operational without storage restrictions through the 2016 water year. A report of the inspection findings and resulting temporary seepage repairs with photographs is provided in Exhibit C.

Recent review of the dam history by the Division 2 Dam Safety Engineer and Professional Engineers at W.W. Wheeler and Associates, Inc. (Wheeler) indicates a history of seepage issues at the dam when the reservoir is sustained at a high level. Since the drought of 2002, the reservoir has not stored water at near full levels for more than a year. With the sufficient flow in the Arkansas River in 2015 and 2016, the reservoir has been filled at high levels for over a year and seepage issues have resurfaced. It is apparent that the seepage issues and concerns about initiating a piping failure at Adobe Creek Dam have occurred for many years and will likely continue to be an issue in the future. The FLCC has made several temporary seepage repairs in 1984, 1996, 2008, and 2016, but these temporary drainage pipe repairs are not considered to be effective nor consistent with modern dam safety practice. The Colorado Dam Safety Branch is also concerned about the condition of the 112-year-old, vitrified clay outlet works conduits in the dam. The FLCC sealed more than 50 leaking joints in the conduits in 1984 and had to seal another 27 leaking joints in 2011. Sealing these joints is also considered temporary repairs.

In order to avoid future reservoir restrictions and maintain safe water storage in Adobe Creek Reservoir, the Division 2 Dam Safety Engineer office recommends full replacement or rehabilitation of the seepage control system and the vitrified clay pipe conduit due to the seepage issues, the patchwork of temporary repairs, and the age of the dam components. Wheeler will be retained by the FLCC to perform the following evaluations as the initial stage of a dam rehabilitation project:

- 1) subsurface investigations and laboratory testing of samples including installation of additional piezometers,
- 2) a thorough outlet conduit inspection,
- 3) seepage analyses,
- 4) development of dam and outlet conduit rehabilitation or replacement alternatives, as appropriate,
- 5) cost opinions for the alternatives,
- 6) preparation of a feasibility report to initiate future repairs.

A detailed Statement of Work, Schedule, and Budget for the project are provided in Exhibit A.

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Part III. – Threshold and Evaluation Criteria

1. Describe how the water activity meets these **Threshold Criteria**. (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines.)

This is an investigation and evaluation of an existing dam's ability to store water safely with a rehabilitation feasibility study to maintain normal water storage levels based on the evaluation results. The applicant, Fort Lyon Canal Company, is an eligible entity.

- a) The water activity is consistent with Section 37-75-102 Colorado Revised Statutes.¹

The project will not supersede, abrogate, or otherwise impair the State's current system of allocating water within Colorado nor does it in any manner repeal or amend the existing water rights adjudication system. The project does not affect the State Constitution's recognition of water rights as a private usufructuary property right nor is it intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law.

- b) The water activity underwent an evaluation and approval process and was approved by the Basin Roundtable (BRT) and the application includes a description of the results of the BRT's evaluation and approval of the activity. At a minimum, the description must include the level of agreement reached by the roundtable, including any minority opinion(s) if there was not general agreement for the activity. The description must also include reasons why general agreement was not reached (if it was not), including who opposed the activity and why they opposed it. Note- If this information is included in the letter from the roundtable chair simply reference that letter.

Initial draft of WSRA Grant Application sent to Arkansas Basin Needs Committee on June 23, 2016.

¹ 37-75-102. Water rights - protections. (1) It is the policy of the General Assembly that the current system of allocating water within Colorado shall not be superseded, abrogated, or otherwise impaired by this article. Nothing in this article shall be interpreted to repeal or in any manner amend the existing water rights adjudication system. The General Assembly affirms the state constitution's recognition of water rights as a private usufructuary property right, and this article is not intended to restrict the ability of the holder of a water right to use or to dispose of that water right in any manner permitted under Colorado law. (2) The General Assembly affirms the protections for contractual and property rights recognized by the contract and takings protections under the state constitution and related statutes. This article shall not be implemented in any way that would diminish, impair, or cause injury to any property or contractual right created by intergovernmental agreements, contracts, stipulations among parties to water cases, terms and conditions in water decrees, or any other similar document related to the allocation or use of water. This article shall not be construed to supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights. The General Assembly affirms that this article does not impair, limit, or otherwise affect the rights of persons or entities to enter into agreements, contracts, or memoranda of understanding with other persons or entities relating to the appropriation, movement, or use of water under other provisions of law.

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- c) The water activity meets the provisions of Section 37-75-104(2), Colorado Revised Statutes.² The Basin Roundtable Chairs shall include in their approval letters for particular WSRA grant applications a description of how the water activity will assist in meeting the water supply needs identified in the basin roundtable's consumptive and/or non-consumptive needs assessments.
- From the Arkansas Basin Implementation Plan's (ArkBIP) Master Needs List: Replace aging infrastructure.
 - From the ArkBIP Master Needs List: Dams in the state have been neglected for many years and maintenance has been deferred. These dams are in need of repair.
 - ArkBIP Policy Statement: "The preservation of irrigated agriculture in the Arkansas Basin shall be given a high priority in the state water plan. It is too important to tourism, the preservation of food production, recreation, the environment and the health and well-being of our citizens as well as the economy of the State of Colorado."
 - The potential for dam failure or future reservoir storage restrictions could be a catastrophic loss to farmers and the agricultural economy of the State of Colorado making this project critical and time-sensitive. The loss of water storage would also dramatically affect wildlife and waterfowl habitat and recreation use in the Adobe Creek State Wildlife Area.
- d) Matching Requirement: For requests from the **Statewide Fund**, the applicants will be required to demonstrate a **25 percent** (or greater) match of the total grant request from the other sources, including by not limited to Basin Funds. A minimum match of 5% of the total grant amount shall be from Basin funds. A minimum match of 5% of the total grant amount must come from the applicant or 3rd party sources. Sources of matching funds include but are not limited to Basin Funds, in-kind services, funding from other sources, and/or direct cash match. Past expenditures directly related to the project may be considered as matching funds if the expenditures occurred within 9 months of the date the contract or purchase order between the applicant and the State of Colorado is executed. Please describe the source(s) of matching funds. (NOTE: These matching funds should also be reflected in your Detailed Budget in **Exhibit A** of this application)

FUNDING SUMMARY

Fort Lyon Canal Company (22% of total state grant request - at least 5% required)	\$ 10,000
Arkansas Basin Grant WSRA Funds (11% of total grant request - at least 5% required)	\$ 5,000
Statewide Grant Funds (33% of total grant request is met by Ft Lyon & Basin funds)	\$ 45,000
TOTAL COST	\$ 60,000

² 37-75-104 (2)(c). Using data and information from the Statewide Water Supply Initiative and other appropriate sources and in cooperation with the on-going Statewide Water Supply Initiative, develop a basin-wide consumptive and nonconsumptive water supply needs assessment, conduct an analysis of available unappropriated waters within the basin, and propose projects or methods, both structural and nonstructural, for meeting those needs and utilizing those unappropriated waters where appropriate. Basin Roundtables shall actively seek the input and advice of affected local governments, water providers, and other interested stakeholders and persons in establishing its needs assessment, and shall propose projects or methods for meeting those needs. Recommendations from this assessment shall be forwarded to the Interbasin Compact Committee and other basin roundtables for analysis and consideration after the General Assembly has approved the Interbasin Compact Charter.

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2. For Applications that include a request for funds from the **Statewide Account**, describe how the water activity/project meets all applicable **Evaluation Criteria**. (Detailed in Part 3 of the Water Supply Reserve Account Criteria and Guidelines and repeated below.) Projects will be assessed on how well they meet the Evaluation Criteria. **Please attach additional pages as necessary.**

Evaluation Criteria – the following criteria will be utilized to further evaluate the merits of the water activity proposed for funding from the Statewide Account. In evaluation of proposed water activities, preference will be given to projects that meet one or more criteria from each of the three “tiers” or categories. Each “tier” is grouped in level of importance. For instance, projects that meet Tier 1 criteria will outweigh projects that only meet Tier 3 criteria. The applicant should also refer to the Supplemental Scoring Matrix applied to Evaluation Criteria Tiers 1-3 for Statewide Account requests. WSRA grant requests for projects that may qualify for loans through the CWCB loan program will receive preference in the Statewide Evaluation Criteria if the grant request is part of a CWCB loan/WSRA grant package. For these CWCB loan/WSRA grant packages, the applicant must have a CWCB loan/WSRA grant ratio of 1:1 or higher. Preference will be given to those with a higher loan/grant ratio.

Tier 1: Promoting Collaboration/Cooperation and Meeting Water Management Goals and Identified Water Needs

- a. The water activity addresses multiple needs or issues, including consumptive and/or non-consumptive needs, or the needs and issues of multiple interests or multiple basins. This can be demonstrated by obtaining letters of support from other basin roundtables (in addition to an approval letter from the sponsoring basin).
 - This project addresses the needs of multiple interests – hundreds of shareholders of the Fort Lyon Canal Company and the Amity Mutual Irrigation Company.
 - It also addresses multiple needs. The nonconsumptive use of water stored in Adobe Creek Reservoir (Blue Lakes) provides water for endangered species habitat protection and for wildlife and waterfowl as well as providing recreation such as hunting, fishing, camping, hiking, and boating within the Adobe Creek Reservoir State Wildlife Area.
- b. The number and types of entities represented in the application and the degree to which the activity will promote cooperation and collaboration among traditional consumptive water interests and/or non-consumptive interests, and if applicable, the degree to which the water activity is effective in addressing intrabasin or interbasin needs or issues.
 - Types of entities include agricultural users, Colorado Parks and Wildlife, and the users of the Adobe Creek State Wildlife Area.
 - The number of individuals directly represented in the application is 500 – 1,000. The very nature of a Canal Company is collaborative, and this activity protects 93,000 acres of farmland in three intrabasin counties: Bent, Otero and Prowers. This activity also protects and maintains approximately 71,000 acre feet of water storage in the Arkansas Basin.

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- c. The water activity helps implement projects and processes identified as helping meet Colorado’s future water needs, and/or addresses the gap areas between available water supply and future need as identified in SWSI or a roundtable’s basin-wide water needs assessment.
- From the Arkansas Basin Implementation Plan’s (ArkBIP) Master Needs List: Replace aging infrastructure.
- From the ArkBIP Master Needs List: Dams in the state have been neglected for many years and maintenance has been deferred. These dams are in need of repair.
- ArkBIP Policy Statement: “The preservation of irrigated agriculture in the Arkansas Basin shall be given a high priority in the state water plan. It is too important to tourism, the preservation of food production, recreation, the environment and the health and well-being of our citizens as well as the economy of the State of Colorado.”
- Adobe Creek reservoir is the 7th largest reservoir in the Arkansas River Valley with potential ability to store waters from the Arkansas River for other users beyond the FLCC’s agricultural purposes.

Tier 2: Facilitating Water Activity Implementation

- d. Funding from this Account will reduce the uncertainty that the water activity will be implemented. For this criterion the applicant should discuss how receiving funding from the Account will make a significant difference in the implementation of the water activity (i.e., how will receiving funding enable the water activity to move forward or the inability obtaining funding elsewhere).
- If not funded from this Account, the FLCC could not afford to begin the feasibility evaluations to address the dam safety concerns which could force future reservoir restrictions and the potential loss of about 71,000 acre feet of water storage.
- e. The amount of matching funds provided by the applicant via direct contributions, demonstrable in-kind contributions, and/or other sources demonstrates a significant & appropriate commitment to the project.
- Fort Lyon Canal Company is making a direct contribution of 22% of the total state grant request, an appropriate commitment to the project.

FUNDING SUMMARY

Fort Lyon Canal Company (22% of total state grant request - at least 5% required)	\$ 10,000
Arkansas Basin Grant WSRA Funds (11% of total grant request - at least 5% required)	\$ 5,000
Statewide Grant Funds (33% of total grant request is met by Ft Lyon & Basin funds)	\$ 45,000
TOTAL COST	\$ 60,000

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Tier 3: The Water Activity Addresses Other Issues of Statewide Value and Maximizes Benefits

- f. The water activity helps sustain agriculture & open space, or meets environmental or recreational needs.
 - This project helps sustain agriculture, open space, environmental needs by maintaining the ability to store up to nearly 71,000 acre feet of normal storage of the Adobe Creek Reservoir. Rehabilitation of the dam can maintain agricultural water storage and prevent loss of recreation and wildlife and waterfowl habitat within the Adobe Creek Reservoir State Wildlife Area.
- g. The water activity assists in the administration of compact-entitled waters or addresses problems related to compact entitled waters and compact compliance and the degree to which the activity promotes maximum utilization of state waters.
 - The water activity protects the maximum utilization of state waters, by preventing loss of storage in Adobe Creek Reservoir or potential failure of the Adobe Creek Dam.
- h. The water activity assists in the recovery of threatened and endangered wildlife species or Colorado State species of concern.
 - Tern Island, located in the center of the reservoir, is important habitat for the Least Tern, which is a federally listed endangered species.
- i. The water activity provides a high level of benefit to Colorado in relationship to the amount of funds requested.
 - The cost of this study is the initial phase of protecting nearly 71,000 acre-feet of water storage in the Arkansas River Basin at a cost of about \$0.70 per acre-foot for this phase of the project.
- j. The water activity is complimentary to or assists in the implementation of other CWCB programs.
 - This is the initial stage of project development that could result in the future request for a CWCB construction fund loan.

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Part IV. – Required Supporting Material

1. **Water Rights, Availability, and Sustainability** – This information is needed to assess the viability of the water project or activity. Please provide a description of the water supply source to be utilized, or the water body to be affected by, the water activity. This should include a description of applicable water rights, and water rights issues, and the name/location of water bodies affected by the water activity.

The Fort Lyon Storage Canal diverts water from the Arkansas River at its diversion dam that is located approximately 3 miles northeast of Manzanola, Colorado as shown on the Location and Vicinity Map provided in Exhibit B. The decreed water rights for the Fort Lyon Storage Canal are listed below in Table No. 1.

Table 1 - Fort Lyon Storage Canal Water Rights

Water Right	Appropriation Date	Flow in cfs
Fort Lyon Storage Canal	1/25/1906	840
Fort Lyon Storage Canal	6/12/1908	840
Fort Lyon Storage Canal	12/29/1908	840
Fort Lyon Storage Canal	3/1/1910	1466

The Adobe Creek Reservoir is located approximately 11 miles north of Las Animas, Colorado. The reservoir is supplied by the Fort Lyon Storage Canal and Adobe Creek for winter storage. The decreed water rights for the approximately 71,000 acre-foot total capacity reservoir are listed below in Table No. 2.

Table 2 - Adobe Creek Reservoir Water Rights

Water Right	Appropriation Date	Volume in acre-feet	Source
Adobe Creek Reservoir	1/25/1906	61,575	Arkansas River
Adobe Creek Reservoir	12/29/1908	25,424	Arkansas River
Adobe Creek Reservoir	1/25/1906	61,575	Adobe Creek
Adobe Creek Reservoir	12/29/1908	21,490	Adobe Creek

2. Please provide a brief narrative of any related studies or permitting issues.

Exhibit C, a letter report titled Adobe Creek Dam March 2016 Uncontrolled Seepage Repair, details the inspection and resulting temporary repairs of the seepage area to the left of the Adobe Creek Dam outlet works. It includes photos of the area of concern, and recommends subsurface investigations with engineering evaluations and subsequent repair designs.

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Revised October 2013

3. Statement of Work, Detailed Budget, and Project Schedule

The statement of work will form the basis for the contract between the Applicant and the State of Colorado. In short, the Applicant is agreeing to undertake the work for the compensation outlined in the statement of work and budget, and in return, the State of Colorado is receiving the deliverables/products specified. **Please note that costs incurred prior to execution of a contract or purchase order are not subject to reimbursement.** All WSRA funds are disbursed on a reimbursement basis after review invoices and appropriate backup material.

Please provide a detailed statement of work using the template in Exhibit A. Additional sections or modifications may be included as necessary. Please define all acronyms and include page numbers.

REPORTING AND FINAL DELIVERABLE

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 10 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and help promote the development of a common technical platform.

Water Supply Reserve Account – Application Form
Revised October 2013

The above statements are true to the best of my knowledge:

Signature of Applicant: 

Print Applicant's Name: Amy Van Horn, Fort Lyon Canal Company

Project Title: Adobe Creek Dam Seepage Evaluation

Date: August 23, 2016

Return an electronic version (hardcopy may also be submitted) of this application to:

Craig Godbout – WSRA Application
Colorado Water Conservation Board
1313 Sherman St., Room 721
Denver, CO 80203
303-866-3441, ext. 3210 (office)
303-547-8061 (cell)
craig.godbout@state.co.us

Exhibit A
Statement of Work
Date: 7/05/16

**WATER ACTIVITY NAME - EVALUATION OF THE SEEPAGE AND OUTLET CONDUIT
ISSUES AT ADOBE CREEK DAM**

GRANT RECIPIENT – FORT LYON CANAL COMPANY

FUNDING SOURCE – WSRA BASIN AND STATEWIDE GRANT FUNDS

INTRODUCTION AND BACKGROUND

The Fort Lyon Canal Company (FLCC) has an immediate and critical need to perform subsurface investigations and engineering evaluations to determine the extent of dam and outlet works rehabilitation necessary for safe water storage impounded behind Adobe Creek Dam. Adobe Creek Dam is an approximately 32-foot-high and 7,400-foot- long embankment dam originally constructed in 1904 by the FLCC. Uncontrolled seepage and the potential for the initial stages of a piping failure were recently observed by the Division 2 Dam Safety Engineer in the area of the downstream dam toe, immediately left of the outlet works. Numerous temporary repairs to the area have been made over the years, and additional temporary repairs were made to the dam in March of 2016 with the goal of keeping the dam operational without storage restrictions through the 2016 water year.

The Division 2 Dam Safety Engineer recommends full replacement or rehabilitation of the of the seepage control system and outlet works due to the seepage issues, the patchwork of temporary repairs, and the age of the dam components.

OBJECTIVES

The objective of this water activity is to determine the condition of the dam outlet works and subsurface conditions to determine alternatives for feasible repair and rehabilitation of the Adobe Creek Dam, if required. The investigations and analysis are scheduled to occur in the fall of 2016, dependent on receipt of funds. Grant funds will be sought in order to accomplish this water activity.

TASK 1 – SUBSURFACE INVESTIGATIONS

Description of Task

This task includes drilling of two exploratory holes into the crest of the dam to a depth of about 45 feet each, drilling up to four exploratory drill holes into the downstream toe of the dam to an assumed depth of about 30 feet each, and installing piezometers in each drill hole for future monitoring off the piezometric surface within the dam. Laboratory soils testing of sample soils will be performed to determine the subsurface soil characteristics.

Method/Procedure

A truck mounted drill rig will be used to drill the holes safely within hollow stem augers. The drilling plan will be approved by the Colorado Dam Safety Branch prior to the drilling and the subsurface borings will be supervised by a geotechnical engineer or geologist under the direction of W.W. Wheeler and Associates, Inc. (Wheeler).

Deliverable

A geotechnical report will document the identified subsurface stratigraphy and laboratory testing results and the report will include detailed drilling logs and piezometer installation logs.

TASK 2 – OUTLET INSPECTION

Description of Task

This task includes performing a detailed inspection of the interior of the four vitrified clay pipe (VCP) outlet works conduits.

Method/Procedure

W.W. Wheeler and Associates, Inc. will perform this task with the aid of the FLCC.

Deliverable

A copy of the video inspection and a brief letter report summarizing the video inspection findings.

TASK 3 – SEEPAGE ANALYSIS

Description of Task

This task includes a two-dimensional, finite element seepage model of the dam based on the subsurface investigations and laboratory testing described in Task No. 1. The model will be calibrated based on the installed piezometer readings. The seepage exit gradients and estimated seepage flow rates will be compared to current accepted design standards to assess the effectiveness of the existing seepage control systems in the dam.

Method/Procedure

Kumar and Associates, Inc. will perform this work under the direction of Wheeler.

Deliverable

The results of the analysis will be summarized in the geotechnical report described in Task No. 1.

TASK 4 – REPAIR AND REHABILITATION CONCEPT DEVELOPMENT

Description of Task

Based on the results of Task Nos 1 through 3, Wheeler will develop conceptual level design alternatives for the rehabilitation and repair of the dam, outlet works, and the seepage collection systems.

Method/Procedure

Wheeler will perform this task using AutoCAD drawings and available site topography in and around the maximum dam section.

Deliverable

Conceptual level design drawings and calculations will be included in the feasibility report described in Task No. 6.

TASK 5 – COST OPINIONS AND ANALYSIS

Description of Task

Develop detailed itemized construction cost opinions for the conceptual dam rehabilitation and seepage collection system alternative designs developed in Task No. 4.

Method/Procedure

Wheeler and will perform this task and utilize their database of similar dam construction bid items and the R.S. Means Heavy Civil Estimating Guide.

Deliverable

A detailed, spreadsheet-based, cost opinion of each conceptual repair design alternative will be included in the feasibility report included in Task No. 6.

TASK 6 – REPAIR AND REHABILITATION FEASIBILITY ASSESSMENT REPORT

Description of Task

Prepare a feasibility report summarizing the work described in Task Nos. 1 through 5.

Method/Procedure

Wheeler will prepare the feasibility report.

Deliverable

A feasibility report as described above. The geotechnical report will be an appendix to the feasibility report.

REPORTING AND FINAL DELIVERABLE

Reporting: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of the executed contract. The progress report shall describe the completion or partial completion of the tasks identified in the statement of work including a description of any major issues that have occurred and any corrective action taken to address these issues.

Final Deliverable: At completion of the project, the applicant shall provide the CWCB a final report that summarizes the project and documents how the project was completed. This report may contain photographs, summaries of meetings and engineering reports/designs.

BUDGET

	Task Cost Match by FLCC	Task Cost Payment by WSRA	Total Task Cost
TASK 1 – Subsurface Investigations	\$4,167	\$20,833	\$25,000
TASK 2 – Outlet Inspection	\$833	\$4,167	\$5,000
TASK 3 – Seepage Analysis	\$667	\$3,333	\$4,000
TASK 4 – Repair And Rehabilitation Concept Development	\$833	\$4,167	\$5,000
TASK 5 – Cost Opinions And Analysis	\$2167	\$10,833	\$13,000
TASK 6 – Repair And Rehabilitation Feasibility Assessment Report	\$1,333	\$6,667	\$8,000
TOTAL WATER ACTIVITY COST	\$10,000	\$50,000	\$60,000

SCHEDULE

Provide a project schedule including key milestones for each task and the completion dates or time period from the Notice to Proceed (NTP). This dating method allows flexibility in the event of potential delays from the procurement process. Sample schedules are provided below. Please note that these schedules are examples and will need to be adapted to fit each individual application.

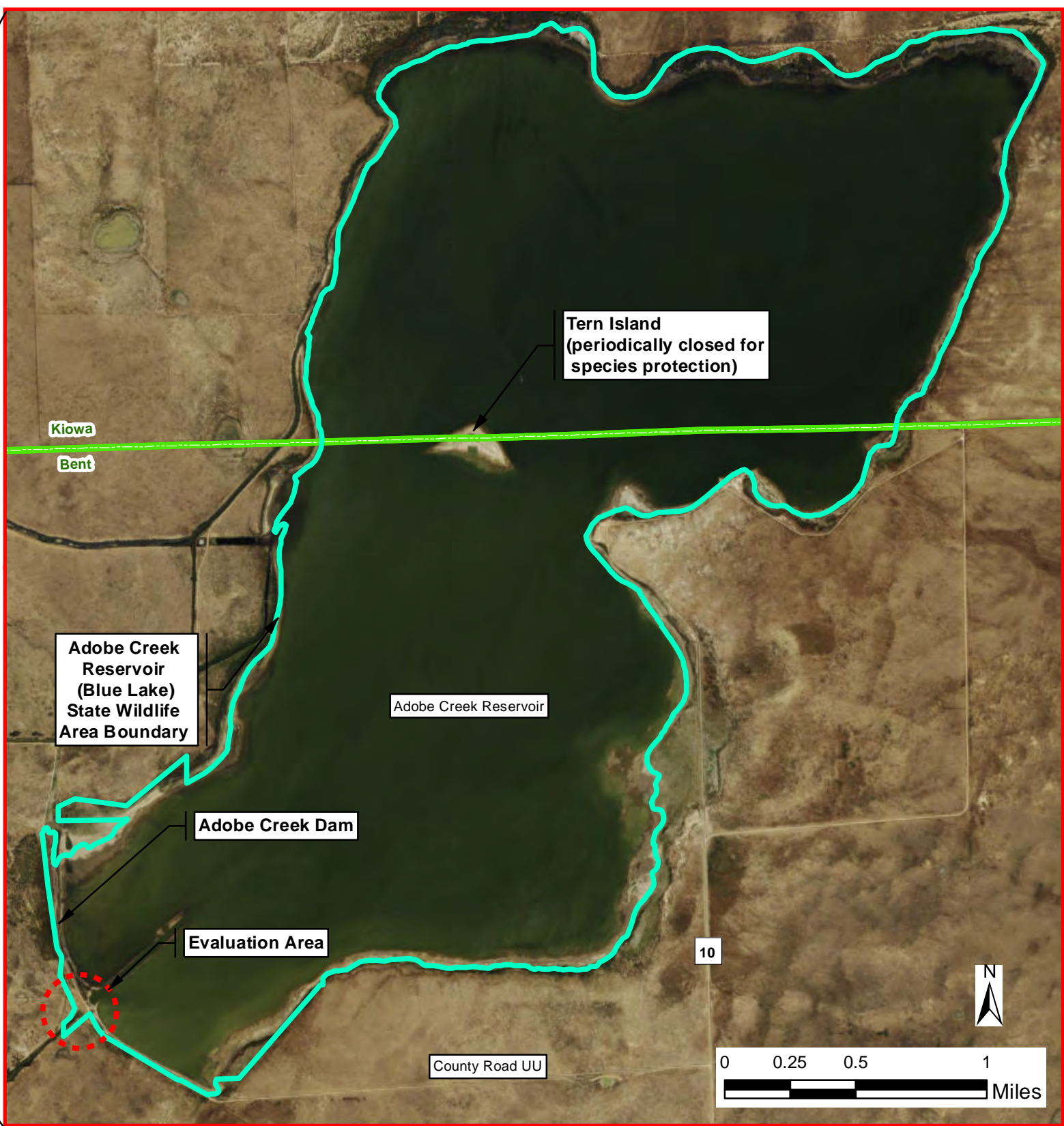
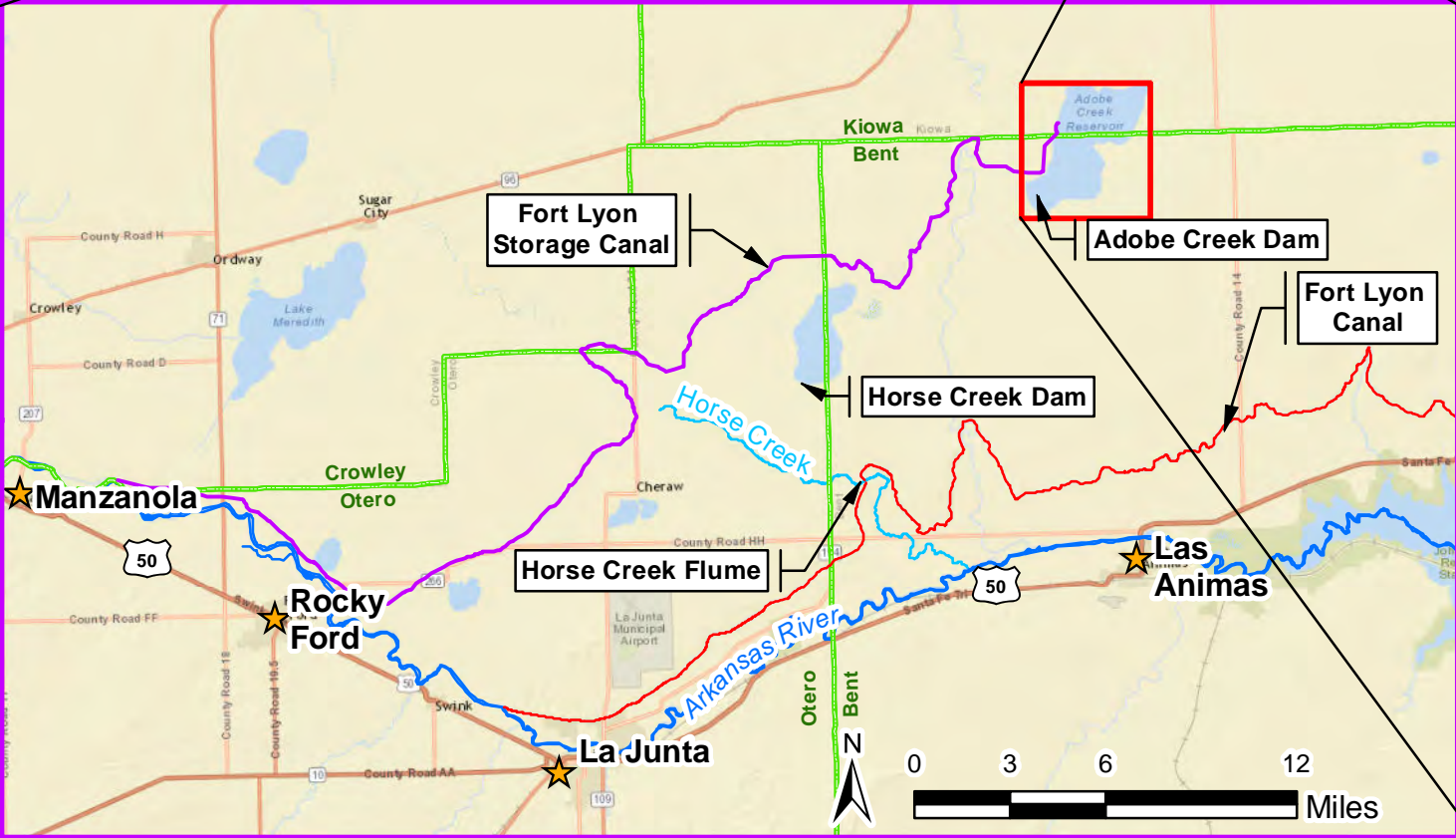
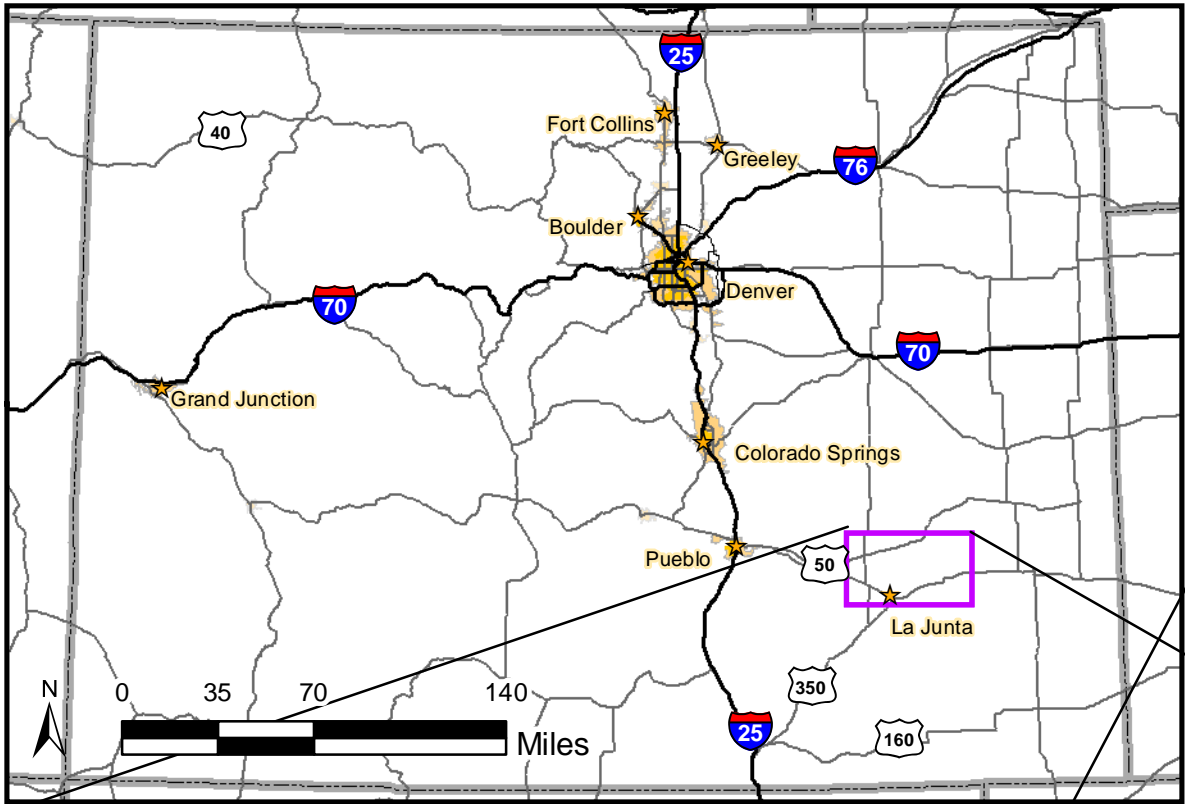
Task	Project Schedule	Start Date	Finish Date
1	Subsurface Investigations	Upon NTP	NTP + 20 days
2	Outlet Inspection	Upon NTP	NTP + 20 days
3	Seepage and Stability Analysis	Upon NTP + 20 days	NTP + 40 days
4	Repair and Rehabilitation Concept Development	NTP + 40 days	1/31/17
5	Cost Opinions and Analysis	NTP + 40 days	1/31/17
6	Repair and Rehabilitation Feasibility Assessment Report	NTP + 40 days	1/31/17

NTP = Notice to Proceed, assumed October 1, 2016. Delays in the NTP will delay the schedule accordingly.

PAYMENT

Payment will be made based on actual expenditures and invoicing by the applicant. Invoices from any other entity (i.e. subcontractors) cannot be processed by the State. The request for payment must include a description of the work accomplished by major task, and estimate of the percent completion for individual tasks and the entire water activity in relation to the percentage of budget spent, identification of any major issues and proposed or implemented corrective actions. The last 5 percent of the entire water activity budget will be withheld until final project/water activity documentation is completed. All products, data and information developed as a result of this grant must be provided to the CWCB in hard copy and electronic format as part of the project documentation. This information

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- Legend**
- ★ City
 - Counties
 - Fort Lyon Canal
 - State Wildlife Boundary
 - Arkansas River
 - Horse Creek
 - Fort Lyon Storage Canal

JUNE 2016



Fort Lyon Canal Company
Adobe Creek Dam
Location and Vicinity Map

Job Number:1830.02 Exhibit B