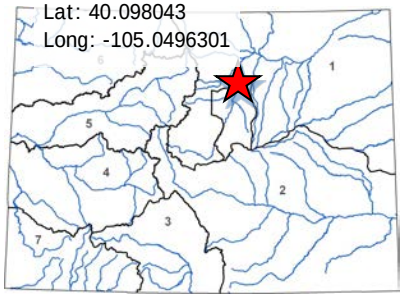
COLORADO
Colorado Water Conservation Board

Water Plan Grant Application

Horizontal Well Pilot Project
Town of Erie
November 2019 Board Meeting



LOCATION	
County/Counties:	Weld
Drainage Basin:	South Platte

DETAILS	
Total Project Cost:	$1,768,908
Water Plan Grant Request:	$200,000
Recommended Amount:	$200,000
Other CWCB Funding:	$0
Other Funding Amount:	$0
Applicant Match:	$1,568,908
Project Type(s): Construction	
Project Category(Categories): Storage & Supply	
Measurable Result: up to 2,000 acre-feet of annual new consumptive water supplies	

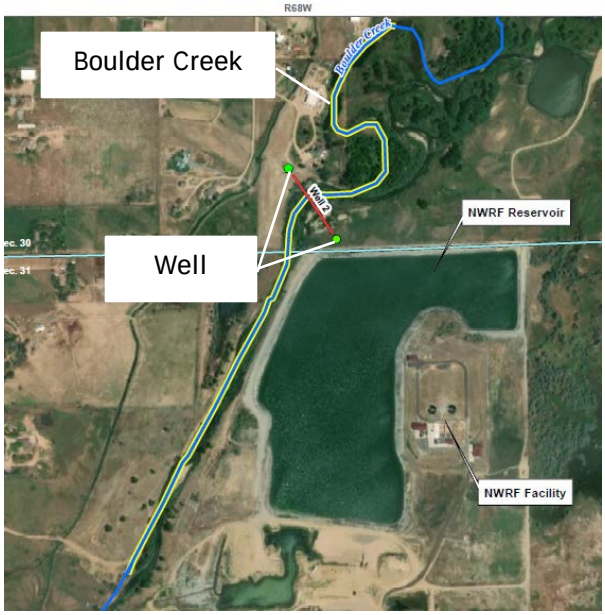
The Town of Erie is planning the construction and pilot testing of a horizontally directionally drilled (HDD) well to divert Boulder Creek water while gaining water quality improvements through riverbank filtration processes. Horizontally directionally drilled wells are innovative alternatives to vertical wells. They address operational and maintenance challenges associated with thin alluvial aquifers in areas impacted by upstream discharge of wastewater treatment plant effluent. Horizontal wells typically have much higher yields than vertical wells and provide water quality improvements to indirect potable reuse systems.

Erie will initially put the water to beneficial use by pumping raw water augmented with Windy Gap effluent into a non-potable water pipeline for municipal use. Water rights and augmentation plan applications have been submitted, and a Substitute Water Supply Plan will be obtained to initiate the project.

Erie is requesting grant funding for the study portion of this project that includes: pilot operations, reporting, and a community workshop. This task will serve as a demonstration project for other entities that may benefit from improved alluvial groundwater supply development.

This project aligns with the Water Plan measurable objective of reducing the municipal and industrial gap. It encourages reuse by increasing Erie's ability to leverage its existing use of Windy Gap effluent supplies for augmentation and to meet municipal demands. This will help maximize the use of existing transmountain supplies in the South Platte basin and will offset the need for obtaining other water rights, such as agricultural buy and dry. This project also aligns with the goal tied to engagement & innovation funding through the sharing of information through the reporting and community workshop.

Funding Recommendation: Staff is recommending a grant of $200,000 from the Storage and Supply category of funding.



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Colorado Water Conservation Board

Water Plan Grant Application

Instructions

To receive funding for a Water Plan Grant, applicant must demonstrate how the project, activity, or process (collectively referred to as "project") funded by the CWCB will help meet the measurable objectives and critical actions in the Water Plan. Grant guidelines are available on the CWCB website.

If you have questions, please contact CWCB at (303) 866-3441 or email the following staff to assist you with applications in the following areas:

Water Storage Projects	Anna.Mauss@state.co.us
Conservation, Land Use Planning	Kevin.Reidy@state.co.us
Engagement & Innovation Activities	Ben.Wade@state.co.us
Agricultural Projects	Alexander.Funk@state.co.us
Environmental & Recreation Projects	Chris.Sturm@state.co.us

FINAL SUBMISSION: Submit all application materials in one email to *waterplan.grants@state.co.us* in the original file formats [Application (word); Statement of Work (word); Budget/Schedule (excel)]. Please do not combine documents. In the subject line, please include the funding category and name of the project.

Water Project Summary

Name of Applicant	Town of Erie
Name of Water Project	Horizontal Well Pilot Project
CWP Grant Request Amount	$200,000
Other Funding Sources DOLA Grant Application	$ Unknown (upcoming 2019 Application)
Other Funding Sources _____	$
Other Funding Sources _____	$
Applicant Funding Contribution	$1,568,908
Total Project Cost	$1,768,908

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Applicant & Grantee Information
Name of Grantee(s): Town of Erie
Mailing Address 645 Holbrook Street P.O. Box 750, Erie, CO 80516
FEIN # 84-0198350
Organization Contact: Todd Fessenden
Position/Title: Public Works Director
Email: tfessenden@erieco.gov
Phone: 303-926-2895
Grant Management Contact: (same as above)
Position/Title
Email
Phone
Name of Applicant (if different than grantee)
Mailing Address
Position/Title
Email
Phone

Description of Grantee/Applicant
Provide a brief description of the grantee's organization (100 words or less).
Erie is located in the heart of Colorado's major economic and population centers. Located in both Boulder and Weld Counties, Erie's planning area spans 48 square miles, extending from the north side of State Highway 52 south to State Highway 7, and between US 287 on the west and Interstate 25 to the east. Besides its thriving economy, Erie offers a progressive civic vision, and a sense of community which recognizes the importance of conserving and enhancing its historic small town character, and preserving the natural environment in which it resides.

Type of Eligible Entity (check one)	
X	**Public (Government):** Municipalities, enterprises, counties, and State of Colorado agencies. Federal agencies are encouraged to work with local entities. 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: Private parties may be eligible for funding.

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	Non-governmental organizations (NGO): Organization that is not part of the government and is non-profit in nature.
	Covered Entity: As defined in Section 37-60-126 Colorado Revised Statutes.

Type of Water Project (check all that apply)	
X	Study
X	Construction
	Identified Projects and Processes (IPP)
	Other

Category of Water Project (check the primary category that applies and include relevant tasks)		
	Water Storage - Projects that facilitate the development of additional storage, artificial aquifer recharge, and dredging existing reservoirs to restore the reservoirs' full decreed capacity and Multi-beneficial projects and those projects identified in basin implementation plans to address the water supply and demand gap.. *Applicable Exhibit A Task(s):*	
	Conservation and Land Use Planning - Activities and projects that implement long-term strategies for conservation, land use, and drought planning. *Applicable Exhibit A Task(s):*	
X	Engagement & Innovation - Activities and projects that support water education, outreach, and innovation efforts. Please fill out the Supplemental Application on the website. *Applicable Exhibit A Task(s):Task 3 Pilot Operations, Reporting and Community Workshop*	
	Agricultural - Projects that provide technical assistance and improve agricultural efficiency. *Applicable Exhibit A Task(s):*	
	Environmental & Recreation - Projects that promote watershed health, environmental health, and recreation. *Applicable Exhibit A Task(s):*	
X	Other	Explain: This is a water supply project encouraging the efficient use of existing South Platte basin water supplies that reduce the need for additional trans-mountain diversions and/or agricultural buy and dry.

Location of Water Project	
Please provide the general county and coordinates of the proposed project below in **decimal degrees**. The Applicant shall also provide, in Exhibit C, a site map if applicable.	
County/Counties	Weld
Latitude	40.098043
Longitude	-105.0496301

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Water Project Overview
Please provide a summary of the proposed water project (200 words or less). Include a description of the project and what the CWP Grant funding will be used for specifically (e.g., studies, permitting process, construction). Provide a description of the water supply source to be utilized or the water body affected by the project, where applicable. Include details such as acres under irrigation, types of crops irrigated, number of residential and commercial taps, length of ditch improvements, length of pipe installed, and area of habitat improvements, where applicable. If this project addresses multiple purposes or spans multiple basins, please explain. The Applicant shall also provide, in Exhibit A, a detailed Statement of Work, Budget, Other Funding Sources/Amounts and Schedule.
The Town of Erie is planning the construction and pilot testing of a Horizontally Directionally Drilled (HDD) well to divert Boulder Creek water while gaining water quality improvements through riverbank filtration (RBF) processes. HDD wells are innovative alternatives to vertical wells that address operational and maintenance challenges associated with thin alluvial aquifers in areas impacted by upstream discharge of wastewater treatment plant effluent. Horizontal wells typically have much higher yields than vertical wells in these conditions, which are common in the South Platte and Arkansas basins. Erie will initially put the water to beneficial use by pumping raw water augmented with Windy Gap effluent into a non-potable water pipeline for municipal use. Water rights and augmentation plan applications have been submitted, and a SWSP will be obtained to initiate the project. The CWP Grant funding would be used for partial funding of the study portion, Task 3: Pilot Operations, Reporting and Community Workshop. This task will serve as a demonstration project for other entities that may benefit from improved alluvial groundwater supply development. If approved, this grant application would partially fund an HDD pilot facility operation, development of a best practices public document, and a community workshop to share information.

Measurable Results	
To catalog measurable results achieved with the CWP Grant funds, please provide any of the following values as applicable:	
	New Storage Created (acre-feet)
Up to 2,000 acre-feet of annual new consumptive water supplies	New Annual Water Supplies Developed or Conserved (acre-feet), Consumptive or Nonconsumptive
	Existing Storage Preserved or Enhanced (acre-feet)
	Length of Stream Restored or Protected (linear feet)
	Efficiency Savings (indicate acre-feet/year OR dollars/year)
	Area of Restored or Preserved Habitat (acres)
	Quantity of Water Shared through Alternative Transfer Mechanisms
	Number of Coloradans Impacted by Incorporating Water-Saving Actions into Land Use Planning
28,000 Erie residents and possibly many more Colorado residents in communities that learn	Number of Coloradans Impacted by Engagement Activity

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from the Best Practices deliverable		
Multi-stakeholder water supply project efficiency	Other	Explain: This project will simultaneously expand Erie's water supply through efficient use of its Windy Gap water for augmentation purposes (minimizing need for agricultural buy and dry or transmountain diversions), while developing best practices for HDD wells. HDD wells provide increased yields and water quality improvements to indirect potable reuse systems. This Pilot project will demonstrate these benefits and provide Best Practices for other water users across the State.

Water Project Justification

Provide a description of how this water project supports the goals of Colorado's Water Plan, the most recent Statewide Water Supply Initiative, and the applicable Roundtable Basin Implementation Plan and Education Action Plan. The Applicant is required to reference specific needs, goals, themes, or Identified Projects and Processes (IPPs), including citations (e.g. document, chapters, sections, or page numbers).

The proposed water project shall be evaluated based upon how well the proposal conforms to Colorado's Water Plan Framework for State of Colorado Support for a Water Project (CWP, Section 9.4, pp. 9-43 to 9-44;)

The Erie HDD Well Pilot Project will support the following State and basin planning goals:

- Colorado Water Plan
  - Meet Colorado's Water Gaps – The development of this water supply to meet municipal demands will help to sustainably satisfy a portion of the State's supply gap.
  - Protect and Develop Conservation and Efficiency – This water supply project will increase Erie's yield efficiency of new water rights and Windy Gap water.
  - Integrate Land Use and Water Planning – Erie is integrating this new water supply project into Town wide planning for both non-potable and potable water uses.
  - Maintain Agricultural Viability – This water supply project will offset the need to obtain other water rights, such as those from agricultural "buy and dry".
  - Encourage Reuse – This HDD Pilot project will increase Erie's ability to leverage existing use of Windy Gap effluent supplies for augmentation to meet municipal demands. The Pilot project will also provide Best Practices information to other entities who would benefit from HDD wells within their reuse infrastructure.
- South Platte Basin Implementation Plan
  - Maintain Leadership in Conservation and Reuse – HDD wells provide increased yields and water quality improvements to indirect potable reuse systems. This Pilot project will demonstrate this and provide Best Practices for other water users across the Basin and the State.
  - Maximize Use and Effectiveness of Native South Platte Supplies – This water project will maximize the use of existing transmountain supplies and South Platte supplies and will offset needs for additional transmountain diversions.
  - Minimize Traditional Agricultural "Buy and Dry" – This water supply project will offset the need for obtaining other water rights, such as those from agricultural "buy and dry".
  - Research New Technologies and Strategies – This Pilot project will provide research into the optimal design and operation of HDD wells. HDD wells provide increased yields and water quality improvements to indirect potable reuse systems.

Related Studies

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Please provide a list of any related studies, including if the water project is complementary to or assists in the implementation of other CWCB programs.
There are other municipalities considering HDD wells, but we are not aware of any ongoing projects in design or construction phases.

Previous CWCB Grants, Loans or Other Funding
List all previous or current CWCB grants (including WSRF) awarded to both the Applicant and Grantee. Include: 1) Applicant name; 2) Water activity name; 3) Approving RT(s); 4) CWCB board meeting date; 5) Contract number or purchase order; 6) Percentage of other CWCB funding for your overall project.
The Town does not currently have any CWCB grants or funding.

Taxpayer Bill of Rights
The Taxpayer Bill of Rights (TABOR) may limit the amount of grant money an entity can receive. Please describe any relevant TABOR issues that may affect your application.
The Town does not currently have any TABOR issues that would affect this application.

Submittal Checklist	
X	I acknowledge the Grantee will be able to contract with CWCB using the Standard Contract.
Exhibit A	
X	Statement of Work(1)
X	Budget & Schedule(1)
X	Engineer's statement of probable cost (projects over $100,000)
	Letters of Matching and/or Pending 3rd Party Commitments(1)
Exhibit C	
X	Map (if applicable)(1)
	Photos/Drawings/Reports
	Letters of Support (Optional)
	Certificate of Insurance (General, Auto, & Workers' Comp.) (2)
	Certificate of Good Standing with Colorado Secretary of State(2)
	W-9(2)
	Independent Contractor Form(2) (If applicant is individual, not company/organization)
Engagement & Innovation Grant Applicants ONLY	
X	Engagement & Innovation Supplemental Application(1)

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(1) Required with application.

(2) Required for contracting. While optional at the time of this application, submission can expedite contracting upon CWCB Board approval.

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ENGAGEMENT & INNOVATION GRANT FUND SUPPLEMENTAL APPLICATION

Introduction & Purpose

Colorado's Water Plan calls for an outreach, education, public engagement, and innovation grant fund in Chapter 9.5.

The overall goal of the Engagement & Innovation Grant Fund is to enhance Colorado's water communication, outreach, education, and public engagement efforts; advance Colorado's water supply planning process; and support a statewide water innovation ecosystem.

The grant fund aims to engage the public to promote well-informed community discourse regarding balanced water solutions statewide. The grant fund aims to support water innovation in Colorado. The grant fund prioritizes measuring and evaluating the success of programs, projects, and initiatives. The grant fund prioritizes efforts designed using research, data, and best practices. The grant fund prioritizes a commitment to collaboration and community engagement. The grant fund will support local and statewide efforts.

The grant fund is divided into two tracks: engagement and innovation. The Engagement Track supports education, outreach, communication, and public participation efforts related to water. The Innovation Track supports efforts that advance the water innovation ecosystem in Colorado.

Application Questions

*The grant fund request is referred to as "project" in this application.

Overview (answer for both tracks)
In a few sentences, what is the overall goal of this project? How does it achieve the stated purpose of this grant fund (above)?
This project will simultaneously expand Erie's water supply through efficient use of its Windy Gap effluent for augmentation purposes (minimizing need for agricultural buy and dry or transmountain diversions), while developing best practices for innovative HDD wells. HDD wells provide increased yields and water quality improvements to indirect potable reuse systems. This Pilot project will demonstrate these benefits and provide Best Practices for other water users across the State.
Who is/are the target audience(s)? How will you reach them? How will you involve the community?
The target audience is other water entities struggling with thin alluvial groundwater development, particularly in waters impacted by wastewater effluent discharges. There are many such entities across the State, and there are several we are aware of that are considering HDD wells. We will reach this audience through the development of a best practices document and by holding a community workshop to present the results of the pilot study. We will directly contact communities we know are considering HDD wells and will use the Basin Roundtable venues to advertise the workshop.
Describe how the project is collaborative or engages a diverse group of stakeholders. Who are the partners in the project? Do you have other funding partners or sources?
We will engage other stakeholders through community outreach as described above. There are no other funding partners in this project. We are pursuing additional funding through the Colorado Department of Local Affairs Energy Impact Fund grant program.

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Overview (answer for both tracks)
Describe how you plan to measure and evaluate the success and impact of the project?
We will consider this project successful if we can communicate Pilot project lessons learned and design considerations to other entities planning HDD wells.
What research, evidence, and data support your project?
There are relatively few HDD water resource projects across the US. The existing projects (including Castle Rock) have all shown great promise for increasing well yields in otherwise limited alluvial aquifer systems. The innovation of using these HDD wells for riverbank filtration water quality improvements is not well studied and would benefit greatly from pilot test data to guide future designs.
Describe potential short- and long-term challenges with this project.
This HDD project needs to overcome challenges such as water rights approval, Board of Examiners well construction variance approval, and difficult drilling conditions (cobbles and boulders). All of these are being addressed and are not expected to be problematic.

Please fill out the applicable questions for either the Engagement Track or Innovation Track, unless your project contains elements in both tracks. If a question does not relate to your project, just leave it blank. Please answer each question that relates to your project. Please reference the relevant documents and use chapters and page numbers (Colorado's Water Plan, Basin Implementation Plan, PEPO Education Action Plan, etc.).

Engagement Track
Describe how the project achieves the education, outreach, and public engagement measurable objective set forth in Colorado's Water Plan to "significantly improve the level of public awareness and engagement regarding water issues statewide by 2020, as determined by water awareness surveys."
Describe how the project achieves the other measurable objectives and critical goals and actions laid out in Colorado's Water Plan around the supply and demand gap; conservation; land use; agriculture; storage; watershed health, environment, and recreation; funding; and additional.
Describe how the project achieves the education, outreach, and public engagement goals set forth in the applicable Basin Implementation Plan(s).
Describe how the project achieves the basin roundtable's PEPO Education Action Plans.

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Innovation Track
Describe how the project enhances water innovation efforts and supports a water innovation ecosystem in Colorado.
HDD wells are rare in Colorado water resources, and yet show great potential for increasing the yields and water quality available to water entities who develop shallow alluvial groundwater sources. An HDD pilot project will demonstrate the potential benefits while developing best practices for the design, construction and operations of HDD wells.
Describe how the project engages/leverages Colorado's innovation community to help solve our state's water challenges.
Allowing entities to more confidently plan HDD wells will allow for development of indirect potable reuse systems, ultimately encouraging expanded use of existing native South Platte Basin supplies.
Describe how the project helps advance or develop a solution to a water need identified through TAP-IN and other water innovation challenges. What is the problem/need/challenge?
The problem is decreased yield and difficult O&M for conventional vertical well systems in shallow alluvial aquifers, particularly those downstream of wastewater effluent discharges. HDD wells help to address these issues.
Describe how this project impacts current or emerging trends; technologies; clusters, sectors, or groups in water innovation.
There are many entities planning or considering new or expanded well systems in thin alluvial aquifers, many downgradient of wastewater effluent. While most development is happening in the South Platte and Arkansas basins, these conditions exist all over the State.

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Colorado Water Conservation Board
Water Plan Grant - Exhibit A

Statement Of Work	
Date:	**August 1, 2019**
Name of Grantee:	**Town of Erie**
Name of Water Project:	**Horizontal Well Pilot Project**
Funding Source:	**Self Funded, CWCB CWP Grant (application pending), Division of Local Affairs Energy Mineral Impact Assistance Fund Grant (application pending)**

Water Project Overview:

Many water wells in Colorado are in shallow alluvial aquifers, some downstream of wastewater effluent discharges. These conditions present yield and water quality issues that are challenging for conventional vertical wells. Horizontal wells have been used extensively in other fields (oil and gas, dewatering, environmental), but have yet to be used extensively in water resources.
This project involves the design, construction, and operation of a horizontal directionally drilled (HDD) well near the Town of Erie's North Water Reclamation Facility (NWRF). The Town is developing an indirect potable (and non-potable) system capable of maximizing the efficient use of their new and existing Boulder Creek water rights through reuse of its Windy Gap water for augmentation purposes. The HDD well will be designed to maximize yield while also providing riverbank filtration (RBF) water quality improvements that will act as water pre-treatment, reducing water treatment plant upgrades. The Town will use the HDD Well Pilot results to improve designs for the rest of the system, which may ultimately include five (5) more HDD wells. The HDD Well Pilot results will also be distributed to other entities considering water supply development in shallow alluvial aquifers.

The project will include three tasks:

1. Design Hydrogeology and Engineering
2. HDD Well Construction and Development
3. Pilot Operations, Reporting and Community Workshop

Task 3 is the only task that Erie is requesting CWCB-SWP grant funds for. The facility will be constructed regardless of funding, but the grant funding would allow for enhanced Pilot facility operations, the development of an HDD Well Best Practices document, and facilitation of the community workshop.

Project Objectives:

The project objectives include:

1. Design and construct an HDD well near the NWRF.
2. Operate a pilot facility that diverts Boulder Creek water through the alluvial aquifer.
3. Install and operate advanced monitoring and sampling systems that can quantify the yield and water quality improvements from the HDD well.
4. Summarize the Pilot results in a public HDD Wells Best Practices document.
5. Coordinate a community workshop to disseminate the Pilot study results to entities interested in developing alluvial aquifer water supplies.

Tasks
Task 1 – Design Hydrogeology and Engineering
Description of Task:
This task will collect new and existing site data for design of an HDD well and pilot facility. Field investigation will include site survey and monitoring well drilling. Additional planning will include Division of Water Resources permitting and well construction variance applications. The HDD Well Pilot facility design will include: • An HDD well, approximately 850 feet long, with a 600 foot screen, crossing under Boulder Creek • Pipelines allowing for discharge water to be pumped back to Boulder Creek (approximately 300 foot pipeline) or to an existing water reuse pipeline south of the NWRF treatment plant (approximately 3,400 foot pipeline) • Four (4) new monitoring wells near the HDD well • Hydrologic and water quality monitoring/ sampling equipment • A building for well controls, electrical, and communications equipment • A Boulder Creek stream gage installed upstream of the NWRF Facility
Method/Procedure:
Task 1 methods and procedures will include: • Sonic drilling for monitoring well installation and lithologic logging of the subsurface • Land survey of the pilot facility and surrounding area • Hydrogeologic, civil, and geotechnical design
Deliverable:
Task 1 will result in a bid package (designs and specifications) suitable for procurement of contractors for construction of the HDD Well Pilot facility.

Tasks
Task 2 – HDD Well Construction and Development
Description of Task:
Task 2 will include the construction of the HDD Well Pilot facility, contractor management, and project coordination.
Method/Procedure:

Tasks
Task 2 will include construction (underground and above ground), construction oversight, and project management.
Deliverable:
Task 2 will result in HDD Well Pilot facility as-built drawings and system operations manuals.

Tasks
Task 3 – Pilot Operations, Reporting and Community Workshop (Study)
Description of Task:
Task 3 will include the following sub-tasks: • Development of a pilot operations/testing plan • HDD well start-up, testing, and operations for 6-12 months • Hydrologic system monitoring (surface water flow, groundwater levels, well pumping, etc.) • Water quality monitoring (surface water and groundwater: temperature, specific conductivity, other parameters) • Water quality sampling (surface water and groundwater) • Pilot test data analysis
Method/Procedure:
Task 3 will begin with the development of a Pilot operations and testing plan. The goal will be to observe system performance under seasonally varying creek flow and water quality. The HDD well will be operated at different flow rates to determine maximum yields and water quality improvements under different creek conditions. Field data collection will include use of data logging pressure transducers/meters to monitor hydrologic system and water quality parameters. Flow meters will monitor well yield, with discharge samples collected through an automated water sampling device. Water quality samples will be collected from Boulder Creek and monitoring wells. Samples will sent to an analytical laboratory for full drinking water parameter analysis or a subset of indicator analytes that can characterize RBF water quality improvements.
Deliverable:
An HDD Well Best Practices report will be prepared that summarizes initial field investigation, HDD well design, pilot facility infrastructure, Task 3 monitoring observations, and the results of well yield and water quality optimization. Conclusions and recommendations will be made to help aid future HDD well planning and design. A community workshop will be prepared and advertised for water supply entities interested in developing alluvial aquifer water supplies. The workshop will be publicized through the South Platte, Metro, and Arkansas Basin Roundtables. Other entities known to be working in alluvial aquifers will also be contacted directly. The workshop will present the results of the HDD Well Pilot and the best practices report. The workshop will facilitate sharing of information between alluvial aquifer groundwater users.

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Budget and Schedule

This Statement of Work shall be accompanied by a combined Budget and Schedule that reflects the Tasks identified in the Statement of Work and shall be submitted to CWCB in excel format.

Reporting Requirements

Progress Reports: The applicant shall provide the CWCB a progress report every 6 months, beginning from the date of issuance of a purchase order, or the execution of a contract. The progress report shall describe the status 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 Report: At completion of the project, the applicant shall provide the CWCB a Final Report on the applicant's letterhead that:

- Summarizes the project and how the project was completed.
- Describes any obstacles encountered, and how these obstacles were overcome.
- Confirms that all matching commitments have been fulfilled.
- Includes photographs, summaries of meetings and engineering reports/designs.

The CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.

Payment

Payment will be made based on actual expenditures and must include invoices for all work completed. The request for payment must include a description of the work accomplished by task, an estimate of the percent completion for individual tasks and the entire Project in relation to the percentage of budget spent, identification of any major issues, and proposed or implemented corrective actions.

Costs incurred prior to the effective date of this contract are not reimbursable. The last 10% of the entire grant will be paid out when the final deliverable has been received. All products, data and information developed as a result of this contract must be provided to CWCB in hard copy and electronic format as part of the project documentation.

Performance Measures

Performance measures for this contract shall include the following:
(a) Performance standards and evaluation: Grantee will produce detailed deliverables for each task as specified. Grantee shall maintain receipts for all project expenses and documentation of the minimum in-kind contributions (if applicable) per the budget in Exhibit B. Per Water Plan Grant Guidelines, the CWCB will pay out the last 10% of the budget when the Final Report is completed to the satisfaction of CWCB staff. Once the Final Report has been accepted, and final payment has been issued, the purchase order or grant will be closed without any further payment.
(b) Accountability: Per Water Plan Grant Guidelines full documentation of project progress must be submitted with each invoice for reimbursement. Grantee must confirm that all grant conditions have been complied with on each invoice. In addition, per Water Plan Grant Guidelines, Progress Reports must be submitted at least once every 6 months. A Final Report must be submitted and approved before final project payment.
(c) Monitoring Requirements: Grantee is responsible for ongoing monitoring of project progress per Exhibit A. Progress shall be detailed in each invoice and in each Progress Report, as detailed above. Additional inspections or field consultations will be arranged as may be necessary.

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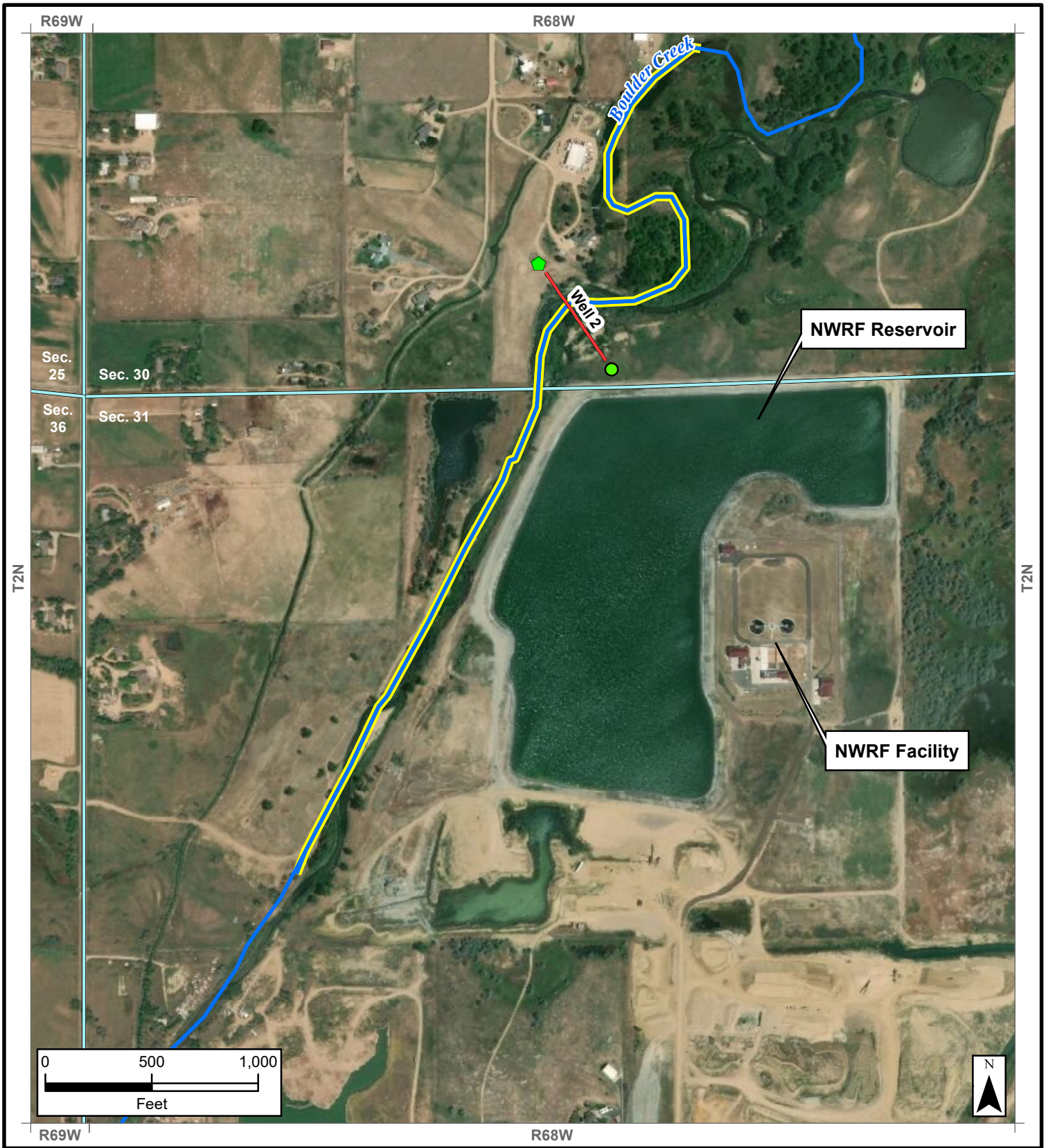
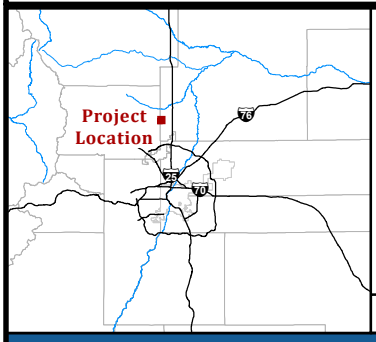
Performance Measures
(d) Noncompliance Resolution: Payment will be withheld if grantee is not current on all grant conditions. Flagrant disregard for grant conditions will result in a stop work order and cancellation of the Grant Agreement.





Legend

- Proposed HDD Wells Screened Interval
- HDD Well Head
- HDD Second Well Head
- Major Rivers
- NWRF Well Field Depletion Reach
- Section Lines

This product is for reference purposes only and is not to be construed as a legal document or survey instrument.

EXHIBIT C

PILOT PROJECT SITE FOR HORIZONTAL DIRECTIONALLY DRILLED (HDD) WELL

LeonardRice ENGINEERS, INC.

1545ERE06
July 2019

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan Grant - Exhibit B
Budget and Schedule

Prepared Date: August 1, 2019

Name of Applicant: Town of Erie

Name of Water Project: Horizontal Well Pilot Project

Project Start Date: 1/1/2020

Project End Date: 8/1/2021

Task No.	Task Description	Task Start Date	Task End Date	Grant Funding Request	Match Funding	Total
1	Design Hydrogeology and Engineering	1/1/2020	5/1/2020	$0	$173,452	$173,452
2	HDD Well Construction and Development	6/1/2020	8/1/2020	$0	$1,055,503	$1,055,503
3	Pilot Operations, Reporting and Community Workshop (Study)	8/1/2020	8/1/2021	$200,000	$45,135	$245,135
	PROJECT CONTINGENCY (20%)				*$294,818*	*$294,818*
			Total	$200,000	$1,568,908	$1,768,908