



# OREGON WATER RESOURCE DEPARTMENT WATER CONSERVATION, REUSE AND STORAGE FEASIBILITY STUDY GRANT PROGRAM

## I. Grant Information

Study Name: Little Rock Creek Reservoir Project

Type of Feasibility Study:  Water Conservation  Reuse  Above-Ground Storage  
 Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]

Program Funding Dollars Requested: \$ \$7,700  
Note: Request may not exceed \$500,000

Total Cost of Feasibility Study: \$ \$16,650

## II. Applicant Information

<b>Applicant Name:</b> <i>Harney County Watershed Council</i>	<b>Co-Applicant Name:</b> <i>Ty Temple</i>
Address: <i>450 N Buena Vista Ave #4 Burns, OR 97720</i>	Address: <i>72820 Crane Buchanan Rd Burns, OR 97720</i>
Phone: <i>541-573-8199</i>	Phone: <i>541-589-1606</i>
Fax: <i>541-573-8199</i>	Fax:
Email: <i>karen.moon@oregonstate.edu</i>	Email: <i>ty5temple@gmail.com</i>

<b>Principle Contact:</b> <i>Karen Moon</i>
Address: <i>450 N Buena Vista Ave #4 Burns, OR 97720</i>
Phone: <i>541-573-8199</i>
Fax: <i>541-573-8370</i>
Email: <i>karen.moon@oregonstate.edu</i>

### Certification:

I certify that this application is a true and accurate representation of the proposed work for a project feasibility study and that I am authorized to sign as the Applicant or Co-Applicant. By the following signature, the Applicant certifies that they are aware of the requirements of an Oregon Water Resources Department grant, have read and agree to all conditions within the sample grant agreement and are prepared to conduct the feasibility study if awarded.

Applicant Signature: *Karen Moon* Date: 1/29/2016

Print Name: Karen Moon

Title: Coordinator

## III. Feasibility Study Summary

Please give a brief summary of the feasibility study using no more than 150 words.

*The Landowner and Watershed Council would like to hire a consultant to determine the feasibility of building a dam across Little Rock Creek. The proposed water storage project could provide up to 120 acre feet storage for the landowner. We would like to determine if the dam could be approximately 50 feet high and 300 feet long. The study will help to determine if there is enough fill material at the site, a hydrology estimate, preliminary designs and determine the amount of water loss through the break in the hillside where the creek currently runs.*

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## IV. Grant Specifics

### Section A. Common Criteria

**Instructions:** Please answer all questions contained in this section. It is anticipated that completed applications will result in additional pages.

1. Describe your goal and how this study helps to achieve the goal.

*The goal of this project would be to create water storage to better utilize the landowners irrigation rights, to be able to store water on low water years, and to manage runoff from high water years from the uplands above the irrigated grounds. This study will help to determine whether the ground at the project site is suitable for holding water, or if other measures are needed to reduce seepage. The project will help determine if enough water is available to make the project cost effective. Tasks to be completed include soil analysis, drilling of test pits for soil samples and and evaluation of rock consistency. Placement of a weir in the stream will help determine streamflow and water availability.*

2. Describe the water supply need(s) that the proposed project addresses. Identify any critical local, regional, or statewide water supply needs that implementation of the project associated with the feasibility study will address. **Responses should rely upon solid water availability and needs data/analysis.** For examples of water supply needs see “Criteria and Evaluation Guidance Document.”

*Streams flowing from the eastern portion of the Harney Basin either go underground or disappear around mid-June. Minimal to no flow through the growing season limits hay and pasture production on the landowners lower portion of the Little Rock Creek drainage. Inflow is from precipitation and outflow is affected by evapotranspiration. The landowner has a problem managing water runoff on both high and low water years. Water does not last long enough to produce a viable hay crop. Water availability determined by Malheur Slough, shows that water should be available for storage for the months of November, December, January, February, March and April. The Harney Basin is currently being placed under an "area of concern" by Oregon Water Resources department. Monitoring to be done within this project will help determine water availability.*

3. Explain how the proposed project will meet the water supply need(s), and indicate what percentage of that need will be met. (For example: If your water supply need is 20,000 acre-feet of additional water and the project will supply 10,000 additional acre-feet, 50 percent of your need will be met).

*The landowner would be able to better control the flow on high water years to prevent erosion, and would be able to store water on lower water years to supplement a better hay crop and provide more pasture for grazing. Water availability is variable, but is hard to control on higher precipitation years when snowpack melts and comes in a big flush of water. The dam would provide better management to release water as it is needed to help it last longer throughout the irrigation season, therefore producing a better hay crop and the possibility for pasture after the hay is removed. Likewise in lower precipitation years water can be stored over winter months to make more water available for a longer period of time through the season so a crop may be produced. At this point in time there is no way to measure flow to determine acre-feet. The water supply needs to irrigate 300 acres at 2.5 acre feet come to 750 acre feet. Storing water especially on low water years could help to meet these needs by as much as 90%.*

4. Describe the technical aspects of the feasibility study and why your approach is appropriate for accomplishing the specific study goals and objectives.

*The landowner would like to engage the services of an engineer (Doug Ferguson Surveying & Engineering) and, in the future (A project grant to be submitted) a geo-checknical provider (The Wallace Group) to determine if the site is suitable for a dam, and to determine the appropriate size. The study will also help to determine if materials at the site are adequate to help in construction of the dam and to provide a hydrologic assessment of*

*the stream. Ferguson Surveying and Engineering will help to determine drilling locations, conduct site topography surveys and produce a digital terrain model. Hydrology estimate of predicted seasonal and annual flow and also to prepare preliminary design and cost estimates. The landowner will help by providing services with his cat and backhoe to dig test pits and monitor stream flow by installing a weir in the stream and measuring flow on a regular schedule to be determined by Ferguson Surveying & Engineering.*

5. Describe how the feasibility study will be performed. Include:
- a. General summary statement that describes the study progression.
  - b. When the feasibility study will begin.
  - c. Listing of key tasks to be accomplished with each task having:
    - i. Title
    - ii. Timeline for completion
    - iii. Description of the activities to be performed in this key task
    - iv. Description of the resources necessary for accomplishing the key task

**Example:**

- (i) Streamflow measurement;
- (ii) September-April;
- (iii) Weekly streamflow measurements will be performed to gather hydrographic data for the hydrologic analysis to take place in May;
- (iv) A technician will be hired to perform the streamflow measurements.

(Key tasks listed here are to be placed in Section VI. Project Feasibility Study Schedule for a quick reference “graphical” representation of the schedule.)

*a. Ferguson Surveying and Engineering will conduct site visits to determine drilling locations and provide guidance in digging test pits for analysis. They will assist the landowner with placement and installation of a weir for monitoring stream flow.*

*b. The study is ready to begin as soon as a grant agreement is signed.*

*c. Site visit by Ferguson to determine test pit placing and weir installation.- Spring 2016*

*Purchase and installation of weir by landowner, June 2016 and to include weekly streamflow measurements to gather hydrographic data to for hydrologic analysis.*

*Test pits to be dug by landowner to begin soil analysis - July/August 2016*

*Site Topography survey in the form of a GPS produced Digital Terrain Model - August/Sept 2016*

*Hydrology estimates of predicted seasonal and annual flow - fall 2016. Monitoring will continue until completion of a project grant to be submitted the following cycle.*

*Preliminary design and cost estimates - Winter 2016*

*Preparation of report of findings of conclusions - Winter 2016*

6. Please provide the following data and information for the proposed project and the project’s sources of water supply:

- a. The location of the proposed project. Include the basin, county, township, range and section. Attach a **map** that identifies the project’s implementation area to this application.

*Harney Basin, Harney County, T 22 S R 33 E S23*

- b. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable.

*Little Rock Creek*

- c. Whether the project will be off-channel or on-channel (for above-ground storage only).

*On channel for above ground storage*

- d. Water availability to meet project storage. For above-ground storage the Department typically evaluates availability using a 50 percent exceedance water availability analysis.

*Water availability is not known at this time and will be determined by flow monitoring throughout the course of this study. This monitoring will help to determine the feasibility of building a dam, and what size to build.*

- e. Proposed purposes and/or uses of conserved or stored water.

*Irrigation for hay and pasture. While this is not a fish-bearing stream (see attached letter from ODF &W) the installation of a storage reservoir would provide a watering source for local wildlife, including mule deer, antelope, elk and migratory birds.*

- f. Environmental flow needs and water quality requirements of supply source water bodies.

*Please see attached letter from Oregon Department of Fish & Wildlife, stating that this is not a fish-bearing stream and is not considered historic fish habitat. With that being said, this project will help to provide additional watering sources for wildlife and migratory birds. This area sits within the Pacific Flyway and is an important resting area for migratory birds on annual migration. A call was made to Oregon Department of Agriculture regarding Water Quality, and they stated they did not appear to have any concerns.*

7. What local, state or federal project permitting requirements/issues/approvals do you anticipate in order for the feasibility study to be conducted? If approvals are required, indicate whether you have obtained them. If you have not obtained the necessary permits/governmental approval, describe the steps you have taken to obtain them. If no permits are needed, please provide explanation.

*None are anticipated for this proposal. The County planning department stated that is is an agricultural use on agricultural lands. There are no wetlands within this proposed site in the uplands, but we will continue to research with Department of State Lands as to whether or not a removal/fill permit will be required. We are waiting to pursue a water storage permit until the feasibility of proceeding with this project is determined. The landowner already owns irrigation rights from the stream for 320 acres.*

8. Describe the level of involvement, interest and/or commitment of local entities associated with the feasibility study. Describe how the feasibility study and/or proposed project will benefit/impact these entities. Attach letters of support if available.

*The Harney County Watershed Council is interested in helping landowners to increase water storage where available for the benefit of both the landowner and the environment of Harney County. The environment here will benefit by providing more water for wildlife, and to prevent waste and erosion on high water years, while helping the landowner to save water for use for irrigation on low water years.*

9. Identify when matching funds will be secured, from whom, and the dates of matching funds availability.

*Matching funds will be available as soon as determination of funding is announced.*

10. Provide a description of the relevant professional qualifications and/or experience of the person(s) that will play key roles in performing the feasibility study. If the personnel have not been decided upon, include a description of the professional qualifications and/or experience of the person(s) you anticipate will play key roles in performing the feasibility study.

*Ferguson Surveying and Engineering was established in 1989, in Mount Vernon - OR - Grant County and is a business with Civil Engineers and Surveyors on staff and specializes in Surveyed Land. They are also the official surveyors of Harney County.*

11. If the project concept is ultimately deemed feasible, describe how the project will be implemented. Response should include a tentative funding plan for project implementation (e.g. other state or federally sponsored grant or loan programs) and the project proponent's track record in implementing similar projects.

*An implementation application will be submitted to OWRD under their project grant/loan application. The landowner, working together with the Harney County Watershed Council will work to seek match funding for building of the dam, and to include restoration/conservation practices to enhance wildlife habitat, including sage grouse, mule deer and migratory bird habitat. The landowners is also working with NRCS on juniper management for sage grouse in an adjacent parcel to this project area.*

## Section B. Unique Criteria

**Instructions:** Address the set of items below that applies to the type of feasibility study that this grant will fund.

### Water Conservation or Reuse

1. Water Conservation or Reuse projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department's Grant Specialist to include your project on the inventory.  
**It is not known if this project has been identified by the Department in any statewide water assessment.**
2. Explain how the associated project will either: (a) mitigate the need to develop new water supplies and/or (b) use water more efficiently. Reference documentation and/or examples of the success of similar or comparable water conservation/reuse projects that would be available upon request.  
*a. The associated project will mitigate the need for the landowner to consider submitting groundwater applications in a recently listed Area of Concern. b. The implementation of this project will help the landowner to have better control and use of water on his property for haying and grazing management, as well as provide a source of water for wildlife.*
3. Provide a description of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area. If permitting or other approvals are not needed please indicate and provide an explanation.  
*a. Anticipated permits include a water storage permit and a possible removal/fill permit by department of State Lands if they consider any portion a wetlands issue. b. The project area is owned by the landowner.*

**Above-Ground Storage**

Please answer the following three questions **BEFORE** proceeding:

- Will the project divert more than 500 acre-feet of surface water annually?  Yes  No
- Will the project impound surface water on a perennial stream?  Yes  No
- Will the project divert water from a stream that supports sensitive, threatened or endangered species?  Yes  No

*If you answered "Yes" to any of these questions, by signature on this application, you are committing to include the following required elements in your feasibility study.*

Describe how you intend to address the required elements in your feasibility study:

- a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.
  
- b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.
  
- c) Analyses of environmental harm or impacts from the proposed storage project.
  
- d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.

Is the proposed storage project for municipal use?

- Yes  No

If "Yes," then please describe how you intend to address the following required element in your feasibility study:

- e) For a proposed storage project that is for municipal use, analysis of local and regional water demand and

the proposed storage project's relationship to existing and planned water supply projects.

**Proceed in addressing the following items:**

1. Describe to what extent the project associated with the feasibility study includes provisions for using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life or other ecological values. Projects that include the above provisions receive preference in the scoring process.

*The implementation of this project would help to augment the instream flow of this stream by storing water during the off season to be used longer throughout the irrigation season, while at the present time with no storage, the water comes off in the spring with the snowmelt in one big flush and then is minimal to no flow during the summer months. High precipitation years with a flush during the spring are causing erosion to the stream banks below the point where the dam will be put in. Management of the flow on high water years will help to reduce erosion by controlling the flow.*

2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.
  - a. There should be no permits required, a check with the Harney County Planning Department stated that this is an agricultural project on agricultural lands. The Oregon Department of Fish & Wildlife has stated this stream is not fish bearing and is not historical fish habitat. There are no wetlands involved in the project area.
  - b. All property in the project area is owned by the landowner.

**Storage Other Than Above-Ground [Including Aquifer Storage and Recovery (ASR)]**

Please answer the following three questions **BEFORE** proceeding:

- |  |                              |                             |
|--|------------------------------|-----------------------------|
| Will the project divert more than 500 acre-feet of surface water annually?                             | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Will the project impound surface water on a perennial stream?  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Will the project divert water from a stream that supports sensitive, threatened or endangered species? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

*If you answered "Yes" to any of these questions, by signature on this application, you are committing to include the following required elements in your feasibility study.*

Describe how you intend to address the required elements in your feasibility study:

- a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.
- b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.
- c) Analyses of environmental harm or impacts from the proposed storage project.
- d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve,

maintain and enhance aquatic life, fish life and any other ecological values.

Is the proposed storage project for municipal use?

Yes     No

If “Yes,” then please describe how you intend to address the following required element in your feasibility study:

- e) For a proposed storage project that is for municipal use, analysis of local and regional water demand and the proposed storage project’s relationship to existing and planned water supply projects.

**Proceed in addressing the following items:**

1. Underground storage projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department’s Grant Specialist to include your project on the inventory.
  
2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.

## V. Match Funding Information

Applicants must demonstrate a minimum dollar-for-dollar match based on the total funding request. The match may include a) secured funding commitment from other sources, b) pending funding commitment from other sources, and/or c) the value of in-kind labor, equipment rental, and materials essential to the feasibility study. For secured funding, you must attach a letter of support from the match funding source that specifically mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application.

In the "type" column below matching funds may include:	In the "status" column below matching funds may have the following status:
<ul style="list-style-type: none"> <li>• <b>Cash</b> - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Secured</b> - Secured funding commitments from other sources.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>In-Kind</b> - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Pending</b> - Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.</li> </ul>

\*"Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed project planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	Type (✓ One)	Status (✓ One)	Amount/ Dollar Value	Date Match Funds Available (Month/Year)
Harney County Watershed Council	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$2,000	Karen May 1-31-2016
Landowner	<input checked="" type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$2,700	Ty Temple 1-31-2016
Ferguson Surveying & Engineering	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$5,000	
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		

## V. Match Funding Information

Applicants must demonstrate a minimum dollar-for-dollar match based on the total funding request. The match may include a) secured funding commitment from other sources, b) pending funding commitment from other sources, and/or c) the value of in-kind labor, equipment rental, and materials essential to the feasibility study. For secured funding, you must attach a letter of support from the match funding source that specifically mentions the dollar amount shown in the "Amount/Dollar Value" column. For pending resources, documentation showing a request for the matching funds must accompany the application.

In the "type" column below matching funds may include:	In the "status" column below matching funds may have the following status:
<ul style="list-style-type: none"> <li>• <b>Cash</b> - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Secured</b> - Secured funding commitments from other sources.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>In-Kind</b> - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Pending</b> - Pending commitments of funding from other sources. In such instances, Department funding will not be released prior to securing a commitment of the funds from other sources. Pending commitments of the funding must be secured within 12 months from the date of the award.</li> </ul>

\*"Partner" means a non-governmental or governmental person or entity that has committed funding, expertise, materials, labor, or other assistance to a proposed project planning study. OAR 690-600-0010.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	Type (✓ One)	Status (✓ One)	Amount/ Dollar Value	Date Match Funds Available (Month/Year)
Harney County Watershed Council	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$2,000	
Landowner	<input checked="" type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$2,700	
Ferguson Surveying & Engineering	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$5,000	
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		
	<input type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input type="checkbox"/> pending		

*Werner Arntz*

Werner Arntz, P.E.

Feb. 1, 2016

## VI. Feasibility Study Schedule

**Estimated Study Duration: June 1, 2016 to December 30, 2016**

Place an "X" in the appropriate column to indicate when each Key Task of the project will take place.

Feasibility Study Key Tasks	2016			2017				2018 & Beyond
	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	1 <sup>st</sup> Qtr	2 <sup>nd</sup> Qtr	3 <sup>rd</sup> Qtr	4 <sup>th</sup> Qtr	
<i>Ferguson - Site visits to determine test pit location &amp; Wier installation.</i>	X							
<i>Ferguson - Site Topography Survey GPS produced Digital Terrain Model</i>	X							
<i>Hydrology estimates of predicted seasonal and annual water flow</i>		X						
<i>Preliminary design and cost estimates</i>		X						
<i>Preparation of report of findings of conclusions</i>			X					

- **Please Note:** Successful grantees must include all invoices and identify which key tasks are associated with each invoice when requesting financial reimbursement.

## VII. Feasibility Study Budget

### Section A

Please provide an estimated line item budget for the proposed feasibility study. Examples would include: labor, materials, equipment, contractual services and administrative costs.

Line Items	Number of Units* (e.g. # of Hours)	Unit Cost (e.g. hourly rate)	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Staff Salary/Benefits	100	\$20.00	\$2,000			\$2,000
Contractual/Consulting	variable		\$5,000		\$7,000	\$12,000
Equipment (must be approved)						
Supplies						
Other: Landowner to dig test pits	7.5 hrs	\$100.00	\$750			
Landowner weir & installation			\$750	\$800		
Landowner monitoring			\$400			
Administrative Costs**					\$700	
<b>Total for Section A</b>			<b>\$8,150</b>	<b>\$800</b>	<b>\$7700</b>	<b>\$16,650</b>
<b>Percentage for Section A</b>			<b>49</b>	<b>4%</b>	<b>47</b>	<b>100%</b>

\* Note: The "Unit" should be per "hour" or "day" – not per "project" or "contract."  $Units \times Unit\ Costs = Total\ Cost$

\*\* Administrative Costs may not exceed 10 percent of the total funding requested from the Department

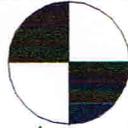
### Section B

If grant amount requested is \$50,000 or greater, you **MUST** complete Section B. Key Tasks in Section B should be the same as the Key Tasks in Section VI (Feasibility Study Schedule).

Feasibility Study Key Tasks	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Ferguson - site visit to assist in determining drilling location	\$500		\$500	\$1,000
Ferguson - site topography survey (GPS produced digital terrain model)	\$2,000		\$2,000	\$4,000
Hydrology estimates of predicted seasonal and annual flow	\$1,000		\$1,000	\$2,000
Preliminary design and cost estimates	\$1,500		\$1,500	\$3,000
Preparation of report of findings of conclusions			\$2,000	\$2,000
Landowner purchase of weir and installation	\$800			\$800
Landowner - monitoring of water flow	\$400			\$400
Landowner - equipment & labor to dig test pits	\$750			\$750
Watershed Council - grant funding/fiscal administration	\$2,000		\$700	\$3,000
<b>Total for Section B</b>	<b>\$8,950</b>		<b>\$7,700</b>	<b>\$16,650</b>

Totals in Section B must match the totals in Section A

Ferguson Surveying



Engineering

P.O. Box 519, 210 E. Main  
MT. VERNON, OR 97865  
PHONE (541)932-4520  
FAX (541)932-4430  
EMAIL dfse@ortelco.net

Karen Moon  
Harney County Watershed Council

**Subject: Estimated Engineering Cost**  
**Preliminary Engineering and Feasibility Study**  
**Proposed Irrigation Storage Reservoir and Dam**  
**Near Buchanan Oregon, in Harney County**

Ferguson Surveying and Engineering will provide the oversight to the project. We will Coordinate with the Wallace Group, who will provide the geotechnical services required as one of the elements needed to determine the feasibility of this proposed dam. Ferguson Surveying and Engineering will also provide the general civil engineering needed in order to determine the feasibility of constructing this proposed project.

**Specific Elements of Work**

Site visits to assist in determining drilling locations, site access and coordination -----	\$1,000
Site Topography Survey in the form of a GPS produced Digital Terrain Model-----	\$4,000
Hydrology estimates of predicted seasonal and annual water flow.-----	\$2,000
Preliminary Design and Cost Estimates-----	\$3,000
Preparation of Report of Findings of conclusions-----	<u>\$2,000</u>
TOTAL	\$12,000

By: Douglas M. Ferguson P.E. P.L.S.  
President: Ferguson Surveying & Engineeign

**Specific Elements of Work**

Site visits to assist in determining drilling locations, site access and coordination -----	\$500.00
Site Topography Survey in the form of a GPS produced Digital Terrain Model-----	\$2,000.00
Hydrology estimates of predicted seasonal and annual water flow.-----	\$400.00
Preliminary Design and Cost Estimates-----	\$1,500.00
Preparation of Report of Findings of conclusions-----	<u>\$2,000.00</u>
TOTAL	\$6,400.00

By: Douglas M. Ferguson P.E. P.L.S.

President

Revised By: Werner Arntz, PE, M. ASCE (Staff Engineer) 4/21/2015



# Oregon

Kate Brown, Governor

## Department of Fish and Wildlife

Hines District Office  
Malheur Watershed District  
237 S. Hines Blvd.  
PO Box 8  
Hines, Oregon 97738  
(541) 573-6582  
FAX (541) 573-5306

January 22, 2016



Ty Temple  
72820 Crane-Buchanan Rd.  
Burns, OR 97720

RE: Small reservoir construction

This letter is to inform you, Oregon Water Resources Department and any other interested party that Oregon Department of Fish and Wildlife (Department) has reviewed the proposed location for a small reservoir (approx. T 22S R 33E Sec 23) and determined that the stream is not a fish-bearing stream and is not considered historic fish habitat. The Department has no objection or conditions for the construction of a small reservoir in this location.

Respectfully,

  
Dave Banks  
District Fish Biologist  
Oregon Dept. of Fish and Wildlife  
Hines, OR 97738

## Harney County Watershed Council

450 N Buena Vista #4  
Burns, OR 97720

Hcwatershed.com

Phone: 541-573-8199  
Fax: 541-573-8370

Karen.Moon@oregonstate.edu



January 29, 2016

Oregon Water Resources Department  
725 Summer Street NE, Suite A  
Salem, OR 97301

Dear reviewers:

The Harney County Watershed Council (HCWC) would like to express our full support for a water storage feasibility study application for a water storage project for Ty Temple. The Watershed Council's mission states that:

Local economic and ecological prosperity depends on watershed health and the availability and quality of ground and surface water.

Therefore, the Harney County Watershed Council provides a framework of outreach, coordination and cooperation between private landowners and all interested parties to promote watershed conditions that benefit people and the environment. The Council works to improve watershed health through education, action plans based on scientific assessments and enhancement projects.

The Council has recently completed a strategic action planning process for our area and has identified surface and groundwater as a major focus for the next five to ten years. Goal 2 of our Action Plan directs the Council to help build and communicate understanding of Harney County Groundwater Resources, and to build a cooperative effort around managing water resources. One of these activities is to help landowners with water storage.

We will provide grant writing and fiscal services to this project to help move it forward to do our part to help improve the watersheds and improved resource management of this basin.

Sincerely,

A handwritten signature in cursive script that reads "Karen Moon".

Karen Moon,  
Coordinator

### Mission and Purpose of the Harney County Watershed Council:

The Council recognizes that local ecological and economic prosperity is dependent upon the current and future availability and quality of water, therefore the Harney County Watershed Council is committed to this three-part goal:

- A. Determine the health of individual watersheds or watershed segments
- B. Retain the health of high quality watersheds and,
- C. Restore and enhance those watersheds, or portions thereof that can be improved.

The Harney County Watershed Council is a 501 (C) (3) non-profit corporation.

