## Project Information

<p>| | |</p>
<table>
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<tbody>
<tr>
<td><strong>R&amp;E Project Request:</strong></td>
<td>$18,905.00</td>
</tr>
<tr>
<td><strong>Match Funding:</strong></td>
<td>$19,146.00</td>
</tr>
<tr>
<td><strong>Total Project:</strong></td>
<td>$38,051.00</td>
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<tr>
<td><strong>Start Date:</strong></td>
<td>9/1/2014</td>
</tr>
<tr>
<td><strong>End Date:</strong></td>
<td>6/30/2015</td>
</tr>
<tr>
<td><strong>Project Email:</strong></td>
<td><a href="mailto:anjalina.johnston@or.nacdnet.net">anjalina.johnston@or.nacdnet.net</a></td>
</tr>
<tr>
<td><strong>Project Biennium:</strong></td>
<td>13 Biennium</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>Keating Soil and Water Conservation District</td>
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## Applicant Information

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Anjalina Johnston</td>
</tr>
</tbody>
</table>
| **Address:**                | 3990 Midway Dr.  
                                   | Baker City, OR 97814 |
| **Telephone:**              | 541-523-7121 x111 |
| **Email:**                  | anjalina.johnston@or.nacdnet.net |

## Past Recommended or Completed Projects

This applicant has no previous projects that match criteria.

## Project Summary

This project is **NOT** part of ODFW’s 25 Year Angling Plan.

### Activity Type: Access

**Summary:** Thief Valley Reservoir supports a fast growing population of stocked rainbow trout, and is a popular fishing location for anglers in Union and Baker Counties. Currently, Cusick Creek; a tributary to Thief Valley Reservoir is being restored to its historic channel through an Oregon Watershed Enhancement Board restoration grant. The historic channel will pass through a culvert that isn’t adequately sized for fish passage and high flows of Cusick Creek. The solution is to install a multi-
plate bottomless arch culvert (15’ x5’, 9”, 36’ long), remove the undersized culvert, and provide adequate passage for fish and high flow events.

**Objectives:**
To purchase and install one multi-plate bottomless arch culvert (15 feet x5 feet, 9 inch, 36 feet long) that will be located on Cusick Creek and will be placed in its historic channel. The culvert will rest on pre-cast concrete footers. The channel through the culvert will be constructed with a rock gradation to reduce the possibility of piping through the substrate. Additionally, fine sediment will be washed through after construction to further ensure no piping occurs. The slope of the channel will be 2.1%. The channel will contain embedded large rock to provide velocity breaks at higher flows as well as a low flow micro-channel that will provide fish passage at minimum flows. The culvert is designed to provide for flows above the 100 year (551 cfs) event. The new culvert will provide fish passage from Thief Valley Reservoir back to the historic Cusick Creek channel, and its tributaries. This project will open up 15.45 miles of stream and fish habitat for Rainbow Trout, as the existing culvert is a barrier to fish passage. This project will preserve access as it will allow Cusick Creek’s high flows to pass through the culvert and avoid washing out the road. This popular fishing destination will be available for anglers in the area, and create additional fishing opportunities in the Cusick Creek channel between the reservoir and the new culvert.

**Fishery Benefits:**
This project will protect angler access to the reservoir directly above the dam and to the river immediately below dam, as well as creating additional fishing opportunities in the historic Cusick Creek stream channel between the reservoir and the new culvert. The installation of the culvert will preserve access as Cusick Creek’s flows will be able to pass unrestricted through the culvert. The plantings that will be installed will reduce bank erosion, improving water quality, and eliminating the sediment that is entering into Cusick Creek and Thief Valley Reservoir. The new fish passable culvert will open up 15.45 miles of fish habitat.

**Watershed Benefits:**
This project will improve fish passage from Thief Valley Reservoir to the historic Cusick Creek. The new historic Cusick Creek stream channel will result in increased stream flows, which will greatly benefit habitat and fish passage as it will open 15.45 miles of stream and fish habitat for rainbow trout, blue gill, black crappie, bass, yellow perch, red side shiner, sculpin, and red band trout. Currently, Cusick Creek has severely cut stream banks, which are sloughing into the water, increasing the sediment and turbidity. The newly restored creek channel will increase water quality by eliminating these undercut banks and decreasing sediment entering the stream. Willow cuttings will be planted both upstream and downstream of the culvert. These plantings will be the primary rehabilitation method and will provide additional stability over time.

**Current Situation:**
Currently, at the project site, Cusick Creek is being restored. This restoration includes moving Cusick Creek back into its historic channel. However, this channel currently has an undersized culvert in place. This culvert is not fish passable and will not be able to handle Cusick Creek high flows.

**Alternatives:**
We considered installing a bridge in this location. However, the costs for the
bridge were more expensive than the multi-plate bottomless arch culvert.

**Designer:** The project has already been designed by Resource Specialists, Inc. engineering firm, through the Oregon Watershed Enhancement Board (OWEB) restoration grant and the Keating Soil and Water Conservation District (SWCD).

**Methods:** One (15 feet x 5 feet, 9 inch, 36 feet long) multi-plate bottomless arch culvert will be purchased. The current undersized culvert will be removed and the new multi-plate bottomless arch culvert will be installed. The installation is estimated to take place in Sept/Oct of 2014. It is expected that the area will be dry during that time frame so no dewatering will be required. The existing culvert will be removed and the area will be graded using an excavator. Once final grade is established and inspected, the pre-cast footers will be installed. The stream channel through the culvert will be installed as shown on the design drawings. The multi-plate culvert will be assembled and backfilled as per the manufacture's specifications. The roadway will be constructed as shown on the design drawings. The impact area for such installation is typically very low so minimal rehabilitation work will be needed. Willow cuttings will be planted both upstream and downstream of the culvert. The plantings will be the primary rehabilitation method and will provide additional stability to the banks over time.

**Inspector:** The Keating SWCD, Resource Specialist, Inc. and ODFW.

**Funding Elements:** The R & E funds will be used for the purchase of the culvert, materials for installation, the installation, and the labor.

**Partners:** Yes

Keating SWCD - inspection, project oversite, monitoring
Resource Specialist, Inc. - inspection, project oversite
OWEB - engineering design and construction oversite
Adjacent Landowner (Bruce Hummel) - provide fill material, base aggregate, weed control, seeding

**Existing Plan:** No

**Affected Contacted:** Yes

**Affected Supportive:** Yes

**Affected Comments:** Keating SWCD helped the landowner acquire a grant through OWEB to restore Cusick Creek and return it to its historic channel.

**Project Schedule/Participants/Funding**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
<th>Participants</th>
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<tbody>
<tr>
<td>Project Stakeout</td>
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<td>Engineer</td>
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<tr>
<td>Instream Work Period/Construction Begins</td>
<td>7/1/2014</td>
<td>Contractor/ Engineer</td>
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Instream Work Period/ Construction Ends | 10/31/2014 | Contractor/ Engineer

**Affected Species:**
- Rainbow Trout
- Red Band Trout
- Red Side Shiner
- Sculpin

**Project Permits**

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<tr>
<th>Name</th>
<th>Issued By</th>
<th>Secured?</th>
<th>Date Secured</th>
<th>Date Expected</th>
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<td>5/1/2014</td>
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<td>Joint Permit Application</td>
<td>U.S. Army Corp of Engineers</td>
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**Project Monitoring**

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<td>Keating Soil and Water Conservation District</td>
<td>3990 Midway Drive Baker City, OR 97814</td>
<td>Photo Monitoring</td>
<td>Once per year for two years after project completion</td>
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**Project Maintenance**

This project has no maintenance plans.
### Project Match Funding

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<td>Time and labor of monitoring and travel</td>
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<td>10 Site Visits @ 60</td>
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<td>miles round trip @</td>
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<td>$0.56/ mile</td>
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Total Budget: $38,051.00


Project Map

![Project Map]

Additional Files

Click a link to view that particular file.

- Engineer Designs for Culvert
- Signature Authorization Page
- Thief Valley Culvert Photos
Kevin Herkamp

From: Johnston, Anjalina - NRCS-CD, Baker City, OR <Anjalina.Johnston@or.nacdnet.net>
Sent: Friday, April 11, 2014 10:00 AM
To: Kevin Herkamp
Subject: RE App 13-072 Thief Valley

From: Timothy Bailey [mailto:timothy.d.bailey@state.or.us]
Sent: Thursday, April 10, 2014 4:04 PM
To: Johnston, Anjalina - NRCS-CD, Baker City, OR
Subject: Cusick Creek Culvert

Jalina,

On February 10th, 2014, I met with you and Gabe Williams of Resource Specialists, Inc. to discuss the preliminary plans for habitat restoration and installation of a culvert on Cusick Creek in southern Union County. Cusick Creek is a tributary of the Powder River and is occupied by inland redband trout. Gabe provided an overview of the designs for habitat restoration and for the new culvert installation. From this overview and 50% design drawings provided to me, it appears the proposed culvert will meet ODFW criteria for fish passage. However, I have not at this point given the plans a thorough review. Once I receive 90% plans, I will review and either provide passage approval, or specify improvements needed to meet our criteria.

Tim Bailey
La Grande District Fish biologist
Oregon Department of Fish & Wildlife
107 20th Street
La Grande, OR 97850

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Signature Authorization Page

I hereby make an application for financial assistance under the terms and conditions of the R&E Program as described in my project application.

I understand that if my project is approved for funding, the following will apply:

- All project sponsors must sign a grant agreement containing the terms and conditions on which funding will be released.
- Project expenses which occur before the grant agreement is signed or after the expiration date will not be paid by the R&E Program.
- Copies of all necessary permits must be submitted to the R&E Program.
- Project sponsors must certify compliance with local, state, and federal regulations and laws.
- Landowner, monitoring and maintenance agreements must be submitted to the R&E Program.
- Regular progress reports may be required, and at the end of each project a Completion Report must be submitted.
- Educational products resulting from projects are public domain.
- All information submitted to either party under this application is subject to the federal Freedom of Information Act.

Project Title: Thief Valley Reservoir Culvert

Applicant: Keating Soil and Water Conservation District

Date: 3/31/2014

Fiscal Officer: [Redacted]

Date: 3/31/2014
SCALE: 1" = 20'

STA 12+25.00
END CHANNEL GRADING
PER CROSS SECTION,
THIS SHEET

STA 10+95.32
BEGIN CHANNEL GRADING
PER CROSS SECTION, THIS SHEET

7.0' SPAN, 5'9" HEIGHT, 36' LENGTH,
ON PRE-CAST FOOTERS

PLANT WILLOWS
SEE DETAIL
SHEET CC3.1

COMPACTED SUBGRADE
ARCH PLATE CROSSING
NTS

CHANNEL SECTION
STA 11+40 - STA 12+25
NTS

MULTI-PLATE ARCH CULVERT SECTION
STA 10+95 - STA 11+40

NEW THUMES
THALWEG PROFILE
HOR: 1"=20'
VER: 1"=2'
END ROCK GRADATION 10' (MIN.)
PAST END OF FOOTERS (BOTH ENDS)

ROAD CROSSING
MULTI-PLATE ARCH CULVERT
EX CULVERT TO BE REMOVED
EX-GROUND AT THALWEG
FINISH GRADE AT THALWEG

GRADE BREAK STA = 11+96.00
ELEV = 3150.300

GRADE BREAK STA = 11+96.00
ELEV = 3148.300

GRADE BREAK STA = 11+96.00
ELEV = 3146.300

GRADE BREAK STA = 11+96.00
ELEV = 3144.300

GRADE BREAK STA = 11+96.00
ELEV = 3142.300

GRADE BREAK STA = 11+96.00
ELEV = 3140.300

GRADE BREAK STA = 11+96.00
ELEV = 3138.300

GRADE BREAK STA = 11+96.00
ELEV = 3136.300

GRADE BREAK STA = 11+96.00
ELEV = 3134.300

PRE-CAST FOOTERS: (2)
1/2" WIDE, 10" TALL, 39" LONG
ON 6" AGGREGATE BASE

ROAD CROSSING
MULTI-PLATE ARCH CULVERT
PRE-CAST FOOTERS:
OVER 6" AGG. BASE.

LARGE ROCK
(2' DEPTH, MIN.)

3132
11+00

3134
11+50

3136
12+00

3138
12+50

3140
13+00

3142
13+50

3144
14+00

3146
14+50

3148
15+00

3150
15+50

3152
16+00

HWP: 8' 8" 0.00'
EL = 3145.94
44' VC

PV: 8148.81
PM STA = 3145.00
K = 2.73

FG' AT CE
OF ROAD CROSSING

4.3'

2.7'

6.0'

100' YR: 3141.35

CHW: 3138.95

CC3.2
ALL ROCK SHALL BE DURABLE, SOUND, DENSE (SG=2.65 MIN), FREE FROM CRACKS, SEAMS, AND OTHER DEFECTS THAT WOULD TEND TO INCREASE DETERIORATION FROM WEATHERING. ROCK FRAGMENTS SHALL BE ANGULAR TO SUBANGULAR IN SHAPE WITH THE LEAST DIMENSION OF AN INDIVIDUAL ROCK FRAGMENT NOT LESS THAN ONE-THIRD THE GREATEST DIMENSION.

BLEND LOWER END OF STREAM SIMULATION INTO NATURAL CHANNEL. USE MATERIAL SIZES SPECIFIED IN ROCK GRADATION TABLE. MINIMIZE DISTURBANCE TO AREA UPSTREAM OF THE CULVERT. ALLOW NATURAL FINE MATERIALS AND NATURAL COBBLES TO WASH THROUGH THE STREAM SIMULATION WORK ONCE CONSTRUCTION IS COMPLETE TO FURTHER MINIMIZE THE CHANCE OF PIPING THROUGH THE CONSTRUCTED CHANNEL.
MEANDER 1 SECTION
STA 12+25 - STA 16+36
NTS

100-YR FLOW DEPTHS
12+25 - 3.09'
12+68 - 3.09'
13+12 - 3.07'
13+60 - 2.88'
14+00 - 2.86'
14+50 - 2.87'
14+75 - 2.87'
15+00 - 3.09'
15+25 - 4.72'
15+75 - 3.67'
Thief Valley Reservoir Culvert

Left: The existing undersized culvert on the reservoir side.

Right: This is the existing culvert as it drains on the reservoir side.
Thief Valley Reservoir Culvert

Left: The existing undersized culvert on the pasture side.

Right: The existing undersized culvert on the pasture side.

Left: The existing road that crosses Cusick Creek and the undersized culvert.