

**EXHIBITS**  
**FOR**  
**KLAMATH DRAINAGE DISTRICT**  
**WATER SUPPLY DEVELOPMENT FUND GRANT**

EXHIBIT A: CERTIFICATION AND SIGNATURE  
EXHIBIT B: VICINITY AND BOUNDARY MAPS  
EXHIBIT C: MAP OF KDD DIVERSION POINTS  
EXHIBIT D: AREA FROM WHICH DRAINAGE CAN BE RETRIEVED  
EXHIBIT E: AREA TO WHICH RECYCLED DRAINAGE CAN BE APPLIED  
EXHIBIT F: MAP SHOWING PROJECT LOCATION  
EXHIBIT G: LANDOWNER (LISKEY) APPROVAL  
EXHIBIT H: FEASIBILITY STUDY  
EXHIBIT I: LETTERS OF SUPPORT  
EXHIBIT J: LETTER SENT TO THE TRIBES  
EXHIBIT K: ECONOMIC ANALYSIS  
EXHIBIT L: ITEMIZED BUDGETS  
EXHIBIT M: COLLABORATION EFFORT DOCUMENTATION  
EXHIBIT N: PRELIMINARY ENGINEERING DESIGN DRAWING

**EXHIBIT A**

**CERTIFICATION AND SIGNATURE PAGE**



**OREGON WATER RESOURCES DEPARTMENT  
WATER SUPPLY DEVELOPMENT ACCOUNT  
LOAN AND GRANT APPLICATION**

**I. Project Information**

Project Name: East Side Water Recycling Project

Type of Project: Water Reuse Project  Check box if project type includes storage

Funding Request Type:  Loan  Grant

Funding Amount Requested: \$ \$268,673 Total cost of project: \$ \$358,231

*Note: Grant funding requests must demonstrate cost match of at least 25% of total project cost. This may include in-kind.*

**II. Applicant Information**

<b>Principal Contact: Tracey Liskey</b>	<b>Fiscal Officer: Mary Cheyne</b>
Address: <u>4650 Lower Klamath Lake Road</u> <u>Klamath Falls, OR 97603</u>	Address: <u>P.O. Box 1090</u> <u>Klamath Falls, OR 97601</u>
Phone: <u>541-891-1531</u> Fax: <u>N/A</u>	Phone: <u>541-891-0990</u> Fax: <u>541-884-1739</u>
Email: <u>traceywe@aol.com</u>	Email: <u>kdd280@yahoo.com</u>

<b>Involved Landowner 1: Tracey Liskey</b>	<b>Involved Landowner 2: Tim O'Connor</b>
Address: <u>4650 Lower Klamath Lake Road</u> <u>Klamath Falls, OR 97603</u>	Address: <u>5800 Lower Klamath Lake Road</u> <u>Klamath Falls, OR 97603</u>
Phone: <u>541-891-1531</u> Fax: <u>N/A</u>	Phone: <u>541-798-5091</u> Fax: <u>541-798-5091</u>
Email: <u>traceywe@aol.com</u>	Email: <u>tdko598@aol.com</u>

*\*Please include a supplementary document that lists all additional involved landowners if applicable.*

**Certification:**

I certify that this application is a true and accurate representation of the proposed project work 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 funding award and are prepared to implement the project if awarded.

Applicant Signature: Tim O'Connor Date: January 18, 2016

Print Name: Tim O'Connor Title/Organization: President

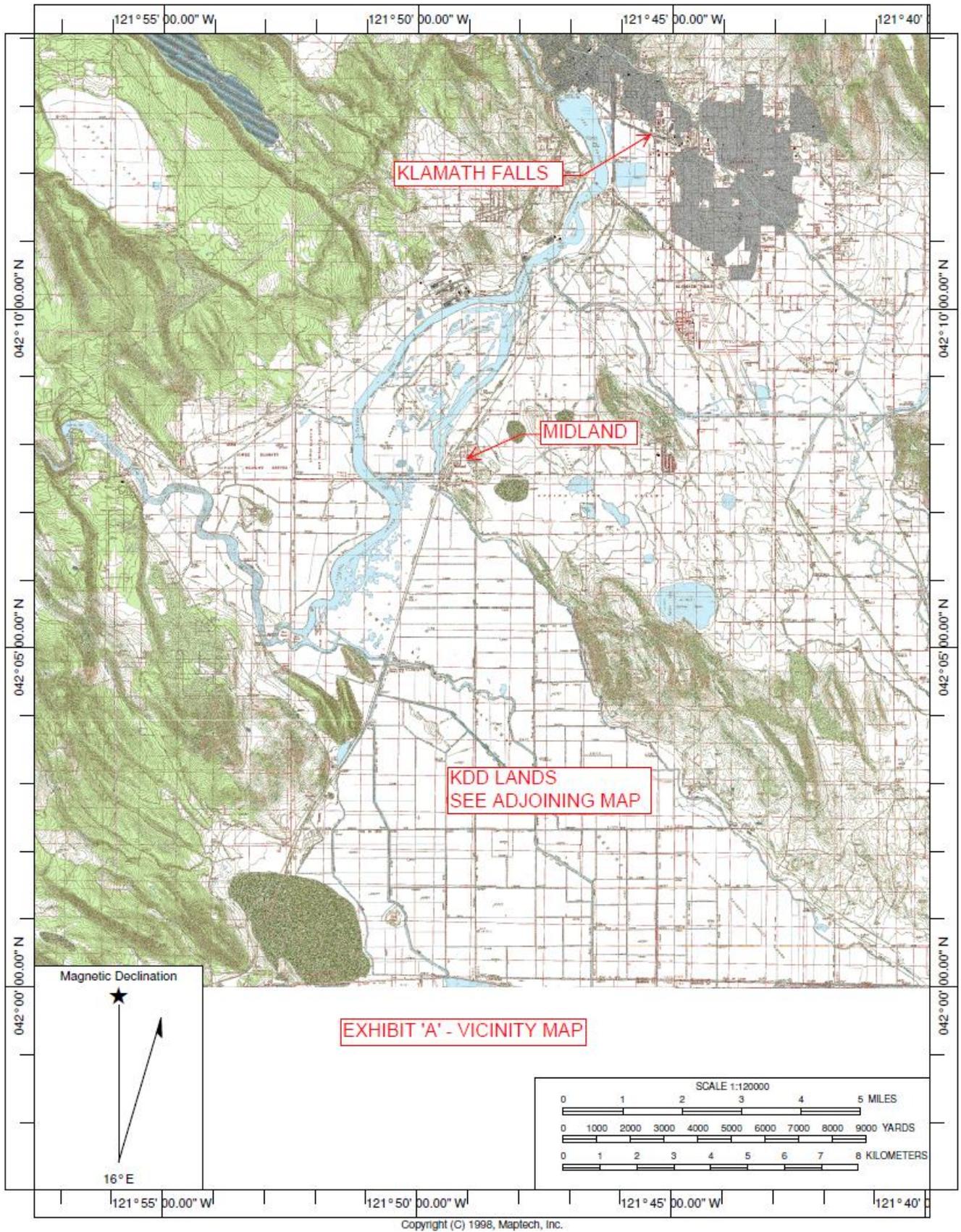
**III. Project Summary**

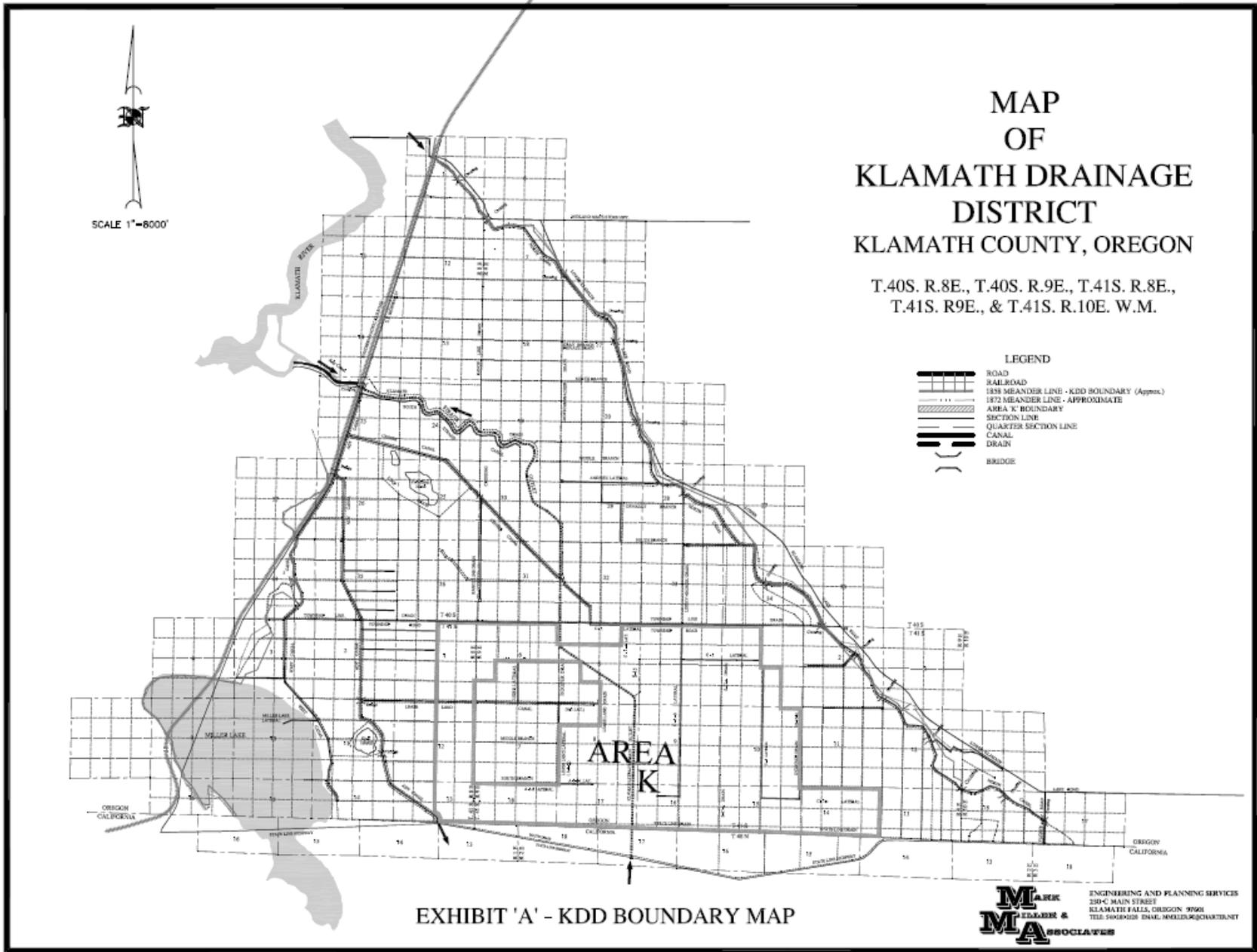
Please provide a description of the need, purpose and nature of the project. Include what the applicant intends to complete and how the applicant intends to proceed.

*Project Overview*

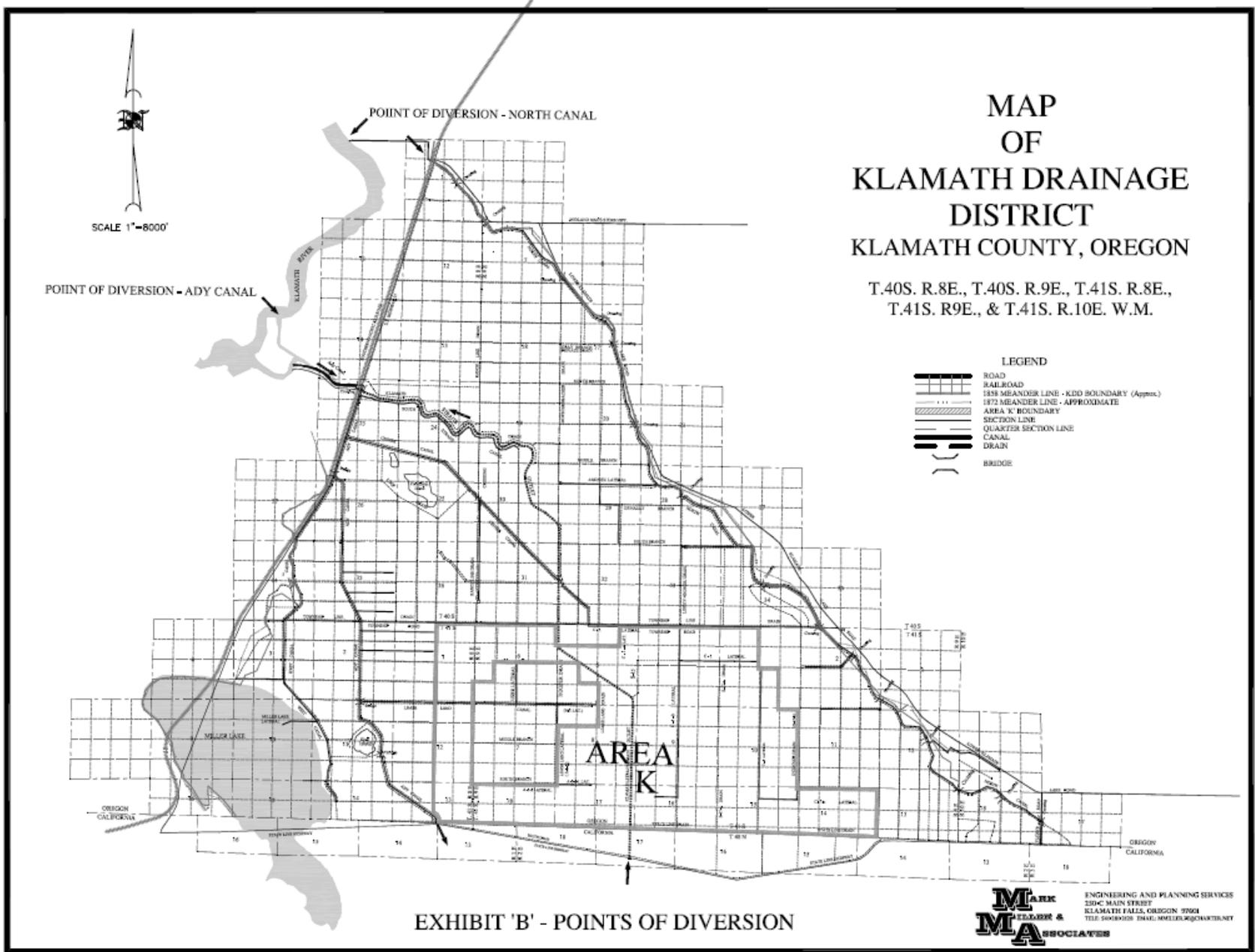
*The Klamath Drainage District (KDD) proposes to recycle drainage water in an effort to conserve water and augment water supplies on the east side of the District. The project will generally consist of collecting drainage water from 10,803 acres of agricultural land lying on the east side of the District (District size is 27,000 acres) and convey it to a proposed pumping station that will lift it back into the irrigation canal (North Canal) for reuse on 6,206 acres. It is estimated that a total of 16,204 AF of drainage water will be available for recycling per year.*

**EXHIBIT B**  
VICINITY MAP  
AND  
KDD BOUNDARY MAP





**EXHIBIT C**  
**MAP OF KDD**  
**WATER RIGHT DIVERSION POINTS**



**EXHIBIT D**  
MAP SHOWING LANDS FROM WHICH  
DRAINAGE CAN BE RETRIEVED  
FOR RECYCLING



**EXHIBIT E**

MAP SHOWING LANDS TO WHICH  
RECYCLED WATER CAN BE APPLIED

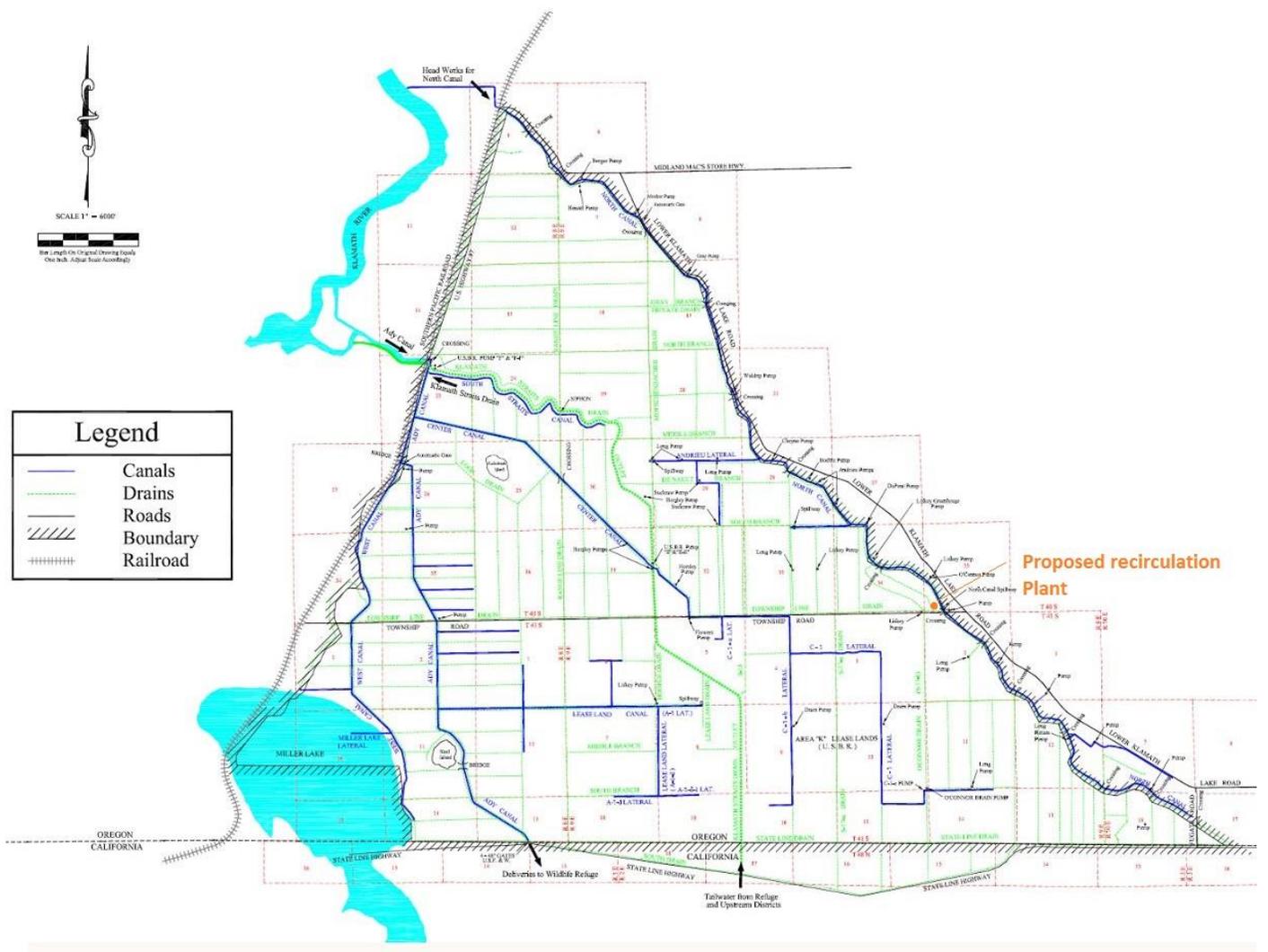


**EXHIBIT F**

MAP SHOWING THE LOCATION OF  
THE PROPOSED WATER RECIRCULATION PLANT



Legend	
	Canals
	Drains
	Roads
	Boundary
	Railroad



**EXHIBIT G**

LISKEY (LANDOWNER) ACKNOWLEDGEMENT LETTER

LISKEY INTENT TO GRANT EASEMENT

LISKEY PROPOSED EASEMENT TO KDD

To whom it may concern:

Liskey Farms is aware of the proposed east side pumping plant on our land by Klamath Drainage District. We believe this is a good and necessary project and give KDD permission to proceed with the project. Liskey Farms plans on giving the district a permanent easement for building, maintenance and all other operations that are related to the pumping plant. We are also aware of the public monitoring of the project.



President

1-6-16

**Liskey Farms, Inc.  
4650 Lower Klamath Lake Rd  
Klamath Falls, Or.**

To whom it may concern:

Liskey Farms has reviewed the draft easement from the Klamath Drainage District's legal counsel and intends to grant an easement to the District as needed for the construction, maintenance and operations of the East Side Pumping Plant upon the District securing the necessary funding. Liskey Farms feel this is a great project and looks forward to proceeding with this important project that will benefit the whole basin.

Tracey Liskey, President



**Recording Requested By:**

Klamath Drainage District  
P.O. Box 1090  
Klamath Falls, Oregon 97601

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Space above this line for Recorder’s use

**GRANT OF EASEMENT AND AGREEMENT**

**FOR AND IN CONSIDERATION** of One and 00/100 Dollars (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the undersigned, Liskey Farms Inc. 4650 Lower Klamath Lake Road Klamath Falls, Or 97603 (“GRANTOR”), does hereby bargain, sell, convey and grant to Klamath Drainage District, an Oregon drainage district, with a principle place of business at 270H Main Street, Klamath Falls, Oregon 97601 (“GRANTEE”), the following easements and rights-of-way (collectively, the “Easement”), to be used as hereinafter described in connection with the installation, construction, re-construction, operation, inspection, maintenance, repair and replacement of (i) a permanent water pump (the “Water Pump”), a trash rack, water pipes, flow meter and other related facilities (collectively the “Facilities”); and (ii) an permanent right-of-way (the “Right-of-Way”), over and across Grantor’s property for purpose of constructing, maintaining, repairing, re-constructing and accessing the Water Pump and Facilities, all as more particularly described herein:

1. **Grant of Easement:** GRANTOR HEREBY GRANTS AND CONVEYS to Grantee a perpetual Easement and Right-Of-Way for access to and across, and for the temporary or permanent installation, construction, re-construction, operation, inspection, maintenance, repair and replacement of the Water Pump and other related Facilities to be situated over, under, across and through a portion of Grantor’s land located in the SW1/4 SW1/4 of Section 35, Township 40 South, Range 9 East, E.W.M, the boundaries of the property burdened by said Easement, being more particularly described as follows (the “Easement Property”):

(insert legal description)

AS DEPICTED ON EXHIBIT “A” ATTACHED HERETO [this is where maps go].

2. **Restoration:** Grantee agrees that following construction, installation and repair of the Water Pump and any related Facilities associated with the Easement, Grantee, at its sole expense, shall repair and restore the Easement Property or any other property of Grantor disturbed by Grantee in connection with the installation and construction of the Water Pump and related Facilities, to the reasonable satisfaction of Grantor, with the exception that the area occupied by the Water Pump, related Facilities and the Right-of-Way providing access thereto, shall be permanently encumbered as described herein and shown on the attached Exhibit A.

3. **Compliance with Codes, Ordinances and Laws:** Grantee shall, at Grantee’s sole expense, install, construct and maintain the Water Pump and all related Facilities in conformance with all relevant ordinances, codes and laws.

4. **Grantee’s Maintenance of Easement Property:** Grantee shall have the right, without compensation to the Grantor, to cut and to keep clear all trees, brush, native growth or foliage

and any and all other obstructions within the Easement that may, in the Grantee's opinion, endanger, hinder or conflict with its rights under the Easement granted herein.

5. **Fencing:** Grantee, or agents under the direction of the Grantee, shall if deemed necessary acquire, install and construct, at Grantee's sole cost and expense, adequate fencing around the Water Pump and related Facilities as is necessary to protect or restrict access to those fixtures.
  
6. **Use and Enjoyment of Easement Property:** Grantor reserves the right to use and enjoy the Easement Property subject to terms of this Grant of Easement and Grantee's rights hereunder, provided that Grantor shall not construct any permanent buildings or other structures or improvements within the Easement Property, or plant any trees or shrubs whose roots would contact Grantee's water lines and related facilities, or otherwise do anything or take any action which would unreasonably obstruct or interfere in any way with the Grantee's rights to the use of the Easement and Right-of-Way.
  
7. **No Warranties as to Suitability:** Grantee takes the Easement as is, where is, with all faults and defects, and GRANTOR MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ALL WARRANTIES OF SUITABILITY FOR A PARTICULAR PURPOSE OR OTHERWISE, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED. Grantor makes no representations or warranties regarding the environmental condition of the Easement Property or the Easement.
  
8. **Amendment or Termination of Easement:** The Easement, and related covenants or restrictions contained in this instrument may not be terminated, extended, modified, or amended without the consent of Grantor and Grantee, and any such termination, extension, modification or amendment shall be effective only on recordation in the official records of Klamath County, Oregon, of a written document effecting the same, executed and acknowledged by Grantor and Grantee.
  
9. **Warranty of Authority:** Grantor represents that it owns the Easement Property and has the right and authority to execute this instrument and grant the Easement as provided herein.
  
10. **Binding Affect:** The Easement and related covenants and restrictions contained herein (whether affirmative or negative in nature) shall: (a) create an equitable servitude on the Easement Property in favor of Grantee, (b) constitute a covenant running with the land of Grantor burdened by the Easement, and (c) be binding upon and inure to the benefit of the parties hereto and their respective successors-in-interest and assigns.

(Signature page to follow)

WITNESS, the hand of Grantor this \_\_\_\_ day of \_\_\_\_\_, 2016.

**GRANTORS:**

\_\_\_\_\_  
**Liskey Farms, Inc.**  
By: \_\_\_\_\_  
Its: \_\_\_\_\_

**GRANTEE:**  
**Klamath Drainage District**

\_\_\_\_\_  
By: Tim O’Conner  
Its: President

STATE OF OREGON            )  
  :SS  
COUNTY OF KLAMATH    )

On this \_\_\_\_ day of \_\_\_\_\_ 2016, personally appeared before me \_\_\_\_\_, who by me being duly sworn, did say that he is the \_\_\_\_\_ of Liskey Farms, Inc. and that he did execute this Grant of Easement with authority of and on behalf of Liskey Farms, Inc.

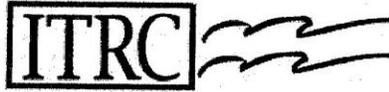
\_\_\_\_\_  
Notary Public

STATE OF OREGON            )  
  :SS  
COUNTY OF KLAMATH    )

On this \_\_\_\_ day of \_\_\_\_\_, 2016, personally appeared before me Tim O’Conner, who by me being duly sworn, did say that he is the President of Klamath Drainage District and that he did execute this Grant of Easement with authority of and on behalf of Klamath Drainage District.

\_\_\_\_\_  
Notary Public

EXHIBIT H  
FEASIBILITY STUDY



IRRIGATION TRAINING AND RESEARCH CENTER  
California Polytechnic State University  
San Luis Obispo, CA 93407

Phone: (805) 756-2434  
FAX: (805) 756-2433

7 June 2001

To: Gerald Townsend (541) 883-6935  
USBR - Klamath Region

cc: Joe Frost (541) 798-5370  
Klamath Drainage District

Fr: Stuart Styles  
ITRC Director

Re: Site Visit Report and Recommendations  
Klamath Drainage District

A site visit was performed in February 2001 to evaluate the proposed improvements for the Klamath Drainage District (KDD). Cal Poly ITRC was asked to come to KDD by Jerry Townsend of the USBR. The proposed modifications evaluated in this site trip include the following additions:

- 1) Proposed Eastside Pumping Plant
- 2) Modifications to the existing O'Conner Pumping Plant
- 3) Addition of a pipe (or canal) from O'Conner Pumping Plant to the East
- 4) Deepening of Township Drain (about 1-1/4 miles)
- 5) Deepening of O'Conner Drain (about 1 mile)
- 6) Re-activation of key check structures to automated downstream control
- 7) Additional flow measurement sites.

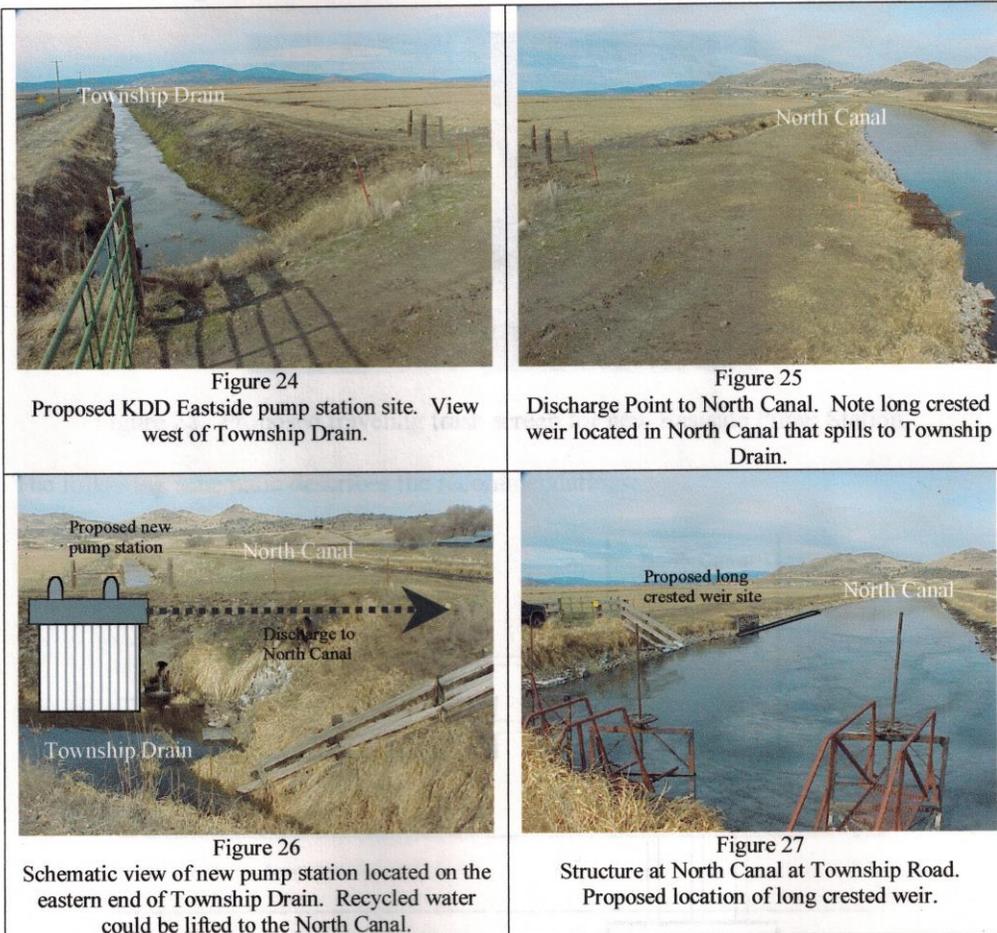
This document is intended to outline the proposed project and evaluate the feasibility of this project. The project will help KDD to internally re-circulate the drainage waters within the boundaries. This will help KDD farmers in drought year conditions by capturing water that was being returned to the Klamath River. It should be noted that there would be an increasing concern for the water quality of the water delivered to the lands in KDD using the recycled water. Please call me at (805) 756-2429 if you have any questions about this document.

KDD Site Visit Report

*Irrigation Training and Research Center*

## **Proposed Eastside Pump Station**

This is a preliminary evaluation of the feasibility of the concept. A more detailed evaluation would need to be done to determine ideal flow rate capacities and pump sizes.



### **Recommendations:**

The proposed site for the Eastside Pump Station would provide excellent benefits of being able to recycle the district's eastside flows. It also is a key site for control of the water from the main canal system. The impact of the pump station would be similar to adding a re-regulating reservoir at this point. Water could be spilled from the North Canal during periods of excess supply in the North Canal by a long-crested weir structure. If the demand was excessive in the North Canal, the flows could be pumped from the drain. The pumping capacity of the Westside Pump Station is 66 cfs. Data from the pumping records for the existing site along with anticipated flows for the east end of Township Drain would need to be evaluated to determine the ideal size of the pump units.

The district may want to consider a new type of screen, which allows removal of trash. The screen has been successfully used in other irrigation districts and is shown in the next photo. FPI Traveling Water Screens was contacted for a cost estimate. FPI, (661) 589-6901, gave a rough estimate of \$50,000 for a mild steel screen.



Figure 28. Proposed traveling trash screen for new Eastside Pump Station.

The following schematic describes the recommendations:

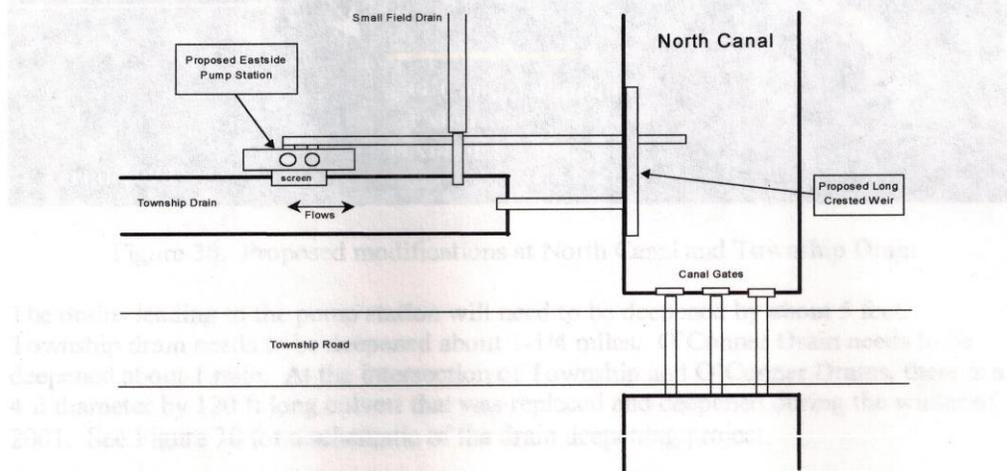


Figure 29. Proposed modifications at North Canal and Township Drain

Floway Pumps was contacted for an estimate on the two 30 cfs pumps for the Eastside Pumping Station. Floway Pumps, (559) 442-3098, gave a rough estimate of \$60,000 for the two pumps including motors. A long crested weir will be located on the North Canal. The capacity of the North Canal is about 300 cfs. Assuming the long-crested weir would handle about 10% of the flow rate (30 cfs) in the canal, controlling the water level within +/- 2 inches, and a set point located near the top of the crest, then the length of the long-

crested weir would need to be about 70 feet long. The pipeline from the long-crested weir sized for 30 cfs and about 4 feet of available head drop would be 24 inches in diameter and made of Corrugated Metal Pipe (CMP).

ITRC could provide the services to finalize the design of the pump.

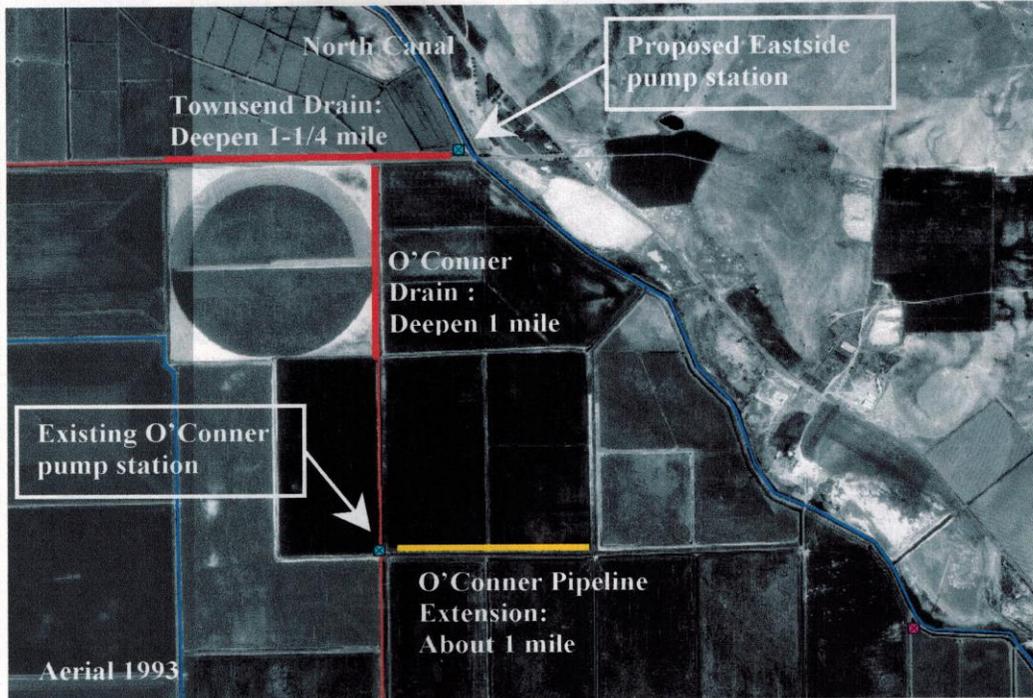


Figure 30. Proposed modifications at North Canal and Township Drain

The drains leading to the pump station will need to be deepened by about 5 feet. Township drain needs to be deepened about 1-1/4 miles. O'Conner Drain needs to be deepened about 1 mile. At the intersection of Township and O'Conner Drains, there is a 4 ft diameter by 120 ft long culvert that was replaced and deepened during the winter of 2001. See Figure 30 for a schematic of the drain deepening project.

*Sub-Total Roughly Estimated Costs for Eastside Pump Station:*

Pumps (2)	\$60,000
Concrete	\$20,000
Screen	\$50,000
Discharge Pipe	\$3,000
Drain Deepening and Culvert Crossing (by KDD)	\$0
<b>Sub-Total</b>	<b>\$133,000</b>

**EXHIBIT I**  
**LETTERS OF SUPPORT**



735 Commercial Street, Suite 4000 | Klamath Falls, OR 97601 | 541.850.2503 | 541.883.9020 fax | [www.kwapa.org](http://www.kwapa.org)

January 15, 2016

Subject: Klamath Drainage District grant application

To whom it may concern

It is my understanding that Klamath Drainage District (KDD) has applied for grant funds to install a water recycle pump station. The pump station will have the capability to recycle drainage from approximately 6,000 acres.

As Executive Director of Klamath Water and Power Agency (KWAPA) I had the responsibility to write the On Project Plan (OPP) for implementing the water limitations under the Klamath Basin Restoration Agreement (KBRA). The number one source of water for balancing the water supply and water demand under the OPP was conservation. Our findings were that water recycling projects were the only significant way to reduce diversions from Upper Klamath Lake and the Klamath River.

The KDD recycling proposal is the most cost effective of all the conservation ideas we considered. Installing this pumping station will accomplish the following

- 1) Reduce diversions from the Klamath River
- 2) Reduced diversions will improve the water temperature of the Klamath River
- 3) Create the potential to provide water to the Lower Klamath Lake National Wildlife Refuge (Refuge)

Item #3 needs a little explanation. Currently the Refuge is last in water priority in the Klamath Project. Most of the water provided to the Refuge in the past seven years has been due to the Water User Mitigation Program (WUMP). The purpose of the WUMP was to "mitigate" the impact on the Refuge of the ESA requirements for river flows and Upper Klamath Lake levels. The WUMP expired in 2015 and will not be replaced. If the Refuge is going to receive water in the future, it will be through such projects as this and being able use a pumps station as is anticipated by KDD to pump water to the Refuge in the early spring when the KDD land does not need the water from the drainage system.

Klamath Basin agriculture is facing tremendous challenges. It is my belief that it will take many years of hard work and implementing project such as KDD proposes to make solve the Klamath water issues. I have spent five years developing the OPP and can say without reservation, the KDD proposal is a highly desirable project on many levels.

A handwritten signature in black ink, appearing to read "Hollie Cannon", is written over a light blue horizontal line.

Hollie Cannon, Manager



## United States Department of the Interior

FISH AND WILDLIFE SERVICE

KLAMATH BASIN NATIONAL WILDLIFE REFUGES

4009 Hill Road

Tulelake, California 96134

Phone: (530) 667-2231 Fax: (530) 667-8337



January 15, 2016

Mr. Tracey Liskey  
Project Manager  
Klamath Drainage District  
P.O. Box 1090  
Klamath Falls, OR. 97601

Dear Mr. Liskey,

I am writing to express support of the Klamath Drainage Districts (KDD) East Side Water Recycling Project proposal. The water recirculation project you propose will further water conservation efforts within the District. The construction of a water recirculation facility would help augment water supply in the District and provide some relief from shortages in Project water supply, in addition the project may provide water availability for Lower Klamath National Wildlife Refuge.

There is a long history of cooperation between KDD and the Refuge regarding deliveries of Klamath Project water to the Lower Klamath National Wildlife Refuge dating back to a 1940 agreement that allowed the refuge to enlarge and use KDD's South (Ady) Canal.

I support the efforts of KDD as they seek funding for a water recirculation project. Water recycling projects that augment water supply are desirable for Klamath Project irrigators, the Refuge and the community.

Sincerely,

Greg Austin  
Refuge Manager

**TAKE PRIDE<sup>®</sup>**  
**IN AMERICA**



Klamath Basin Research and Extension Center  
Oregon State University  
6941 Washburn Way, Klamath Falls, OR 97603-9365  
T 541-883-7131 | F 541-883-4582 | <http://oregonstate.edu/dept/kbrec>

January 8, 2016

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

Dear OWRD,

Please consider this a letter of support for the Klamath Drainage District East Side Water Recycling Project (Eastside Pumping Plant). KDD and its members have been cooperators with OSU Klamath Basin Research and Extension Center over time on multiple “off station” research and demonstration plots.

KDD sits in a unique growing area in Klamath County. It has an array of commodities that are produced under different soil and irrigation opportunities. The location and cooperation of the farmers and ranchers in the District allow for our partnerships to develop and adjust science to meet changing demands on our global food production system. As the West continues to struggle with water quantity and quality issues, it is important that we, as the research and extension arm of the Oregon State University Land Grant, continue to partner with and support projects that help solve problems.

This project offers yet another opportunity to make successful changes. If I can provide further assistance or information in regards to this project please contact me.

Respectfully,

William W. Riggs, Associate Professor  
Center Director

**Liskey Farms, Inc.  
4650 Lower Klamath Lake Rd  
Klamath Falls, Or**

Liskey Farms thinks that the Eastside Pumping Plant that Klamath Drainage District is planning on building is a necessary project. This project will enable landowners to use their water more efficiently and in drought years this could make the difference in producing a crop or not. With the ability of using water more efficiently it will mean that there will be more water left in the system for the fisheries which will help other industries.

We hope that this project will qualify for this grant and move to completion as soon as possible.

Liskey Farms Inc.

A handwritten signature in cursive script, appearing to read "Tracey Liskey".

Tracey Liskey: President

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**Subject:** North Canal Recovery Pumping Plant

**From:** Luther Horsley (luther@horsleyfarms.com)

**To:** kdd280@yahoo.com;

**Date:** Friday, January 15, 2016 11:05 AM

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To whom it may concern:

From my experience as a supervisor of Klamath Drainage District since 1985, the proposed pumping plant from the Township Drain to the North canal would have many advantages from an operational aspect for KDD.

This pump would allow KDD to micro manage flows into the North Canal at critical times. This would result in water savings and less diversions from the Klamath River. The operational level of the canal could be managed more precisely and would be accomplished using recovered drainage water.

The downstream level of the canal could be maintained at higher levels which would make more head available in the canal which would result in more efficient irrigation timing for irrigators which would mean less water diversions from the Klamath River.

I am also sure there are other advantages which we will discover from operating the pump that I have not considered.

Thank You for allowing my input, Luther Horsley

**Klamath Hills District Improvement Company, Inc.**  
**1900 Lower Klamath Lake Road**  
**Klamath Falls, Oregon 97603**

January 11, 2016

Re: KDD application/Eastside Water Recirculation Plant

Oregon Water Resource Department  
To Whom This May Concern:

The Klamath Hills District Improvement Company (KHDIC) holds permit #48435 from the Oregon Water Resources Department (OWRD) to apply three acre feet per acre per irrigation season. KHDIC contracts with the Klamath Drainage District (KDD) to secure water from the North Canal along Lower Klamath Lake Road in Klamath County to serve 20 KHDIC members irrigating 955.74 acres.

It has come to our attention that KDD is applying to OWRD to support a project known as the Eastside Water Recirculation Plant. Please be advised that the Klamath Hills District Improvement Company Board of Directors is officially in support of the KDD plan to establish the Eastside Water Recirculation Plant. We hope that OWRD will help.

KDD's proposed Eastside Water Recirculation Plant will benefit the landholders in KHDIC by recycling drainage water back up into the North Canal for secondary use by KHDIC irrigators. This will be especially valuable to supplement inflows from the Klamath River during irrigation season. Instead of having to rely only on new inflows from the Klamath River, KHDIC will be able to reuse recycled drainage water to satisfy its permit requirements.

During the recent drought, access to Klamath River water was severely limited. The Eastside Water Recirculation Plant will extend beneficial use of our water supplies by recycling every precious drop. For the reasons above, KHDIC supports the KDD proposal. Please give the KDD application for the Eastside Water Recirculation Plant every consideration of support.

Thank you,  
/Signed/  
Dan Golden, Secretary/Treasurer  
Klamath Hills District Improvement Company, Inc.

Lee R. Subraus  
1881 Lower Klamath Lake Rd.  
Klamath Falls, Or 97603

KDD.

I am a land owner in KDD  
and have recirculated drainage water  
from other land owners in KDD to  
irrigate my property, And recirculated  
drainage from to other acreage on  
my property at my expense.

I believe This recirculation pump  
station at The North Canal & Tower-  
ship drainage ditch will benefit me  
and KDD land owners on a  
permanent basis.

Thank You



Lee R. Subraus

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**Subject:** Re: Letters of Support for the Eastside Pumping Plant

**From:** captmcgill@aol.com (captmcgill@aol.com)

**To:** kdd280@yahoo.com;

**Date:** Tuesday, January 12, 2016 12:00 PM

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KDD Board of Supervisors,

I am in favor of the "East Side Pumping Plant" construction. It will be a means of recycling drainage waters for multiple usage in our district. This would be beneficial in all years, but especially in drought years.

Respectfully,  
Ron McGill

**EXHIBIT J**

REPRESENTATIVE LETTER SENT TO THE CHAIRMEN OF  
HOOPA, KLAMATH, YUROK AND KARUK TRIBES

**Water Recirculation Project to Conserve Klamath River Water**

Wednesday, January 6, 2016 1:26 PM

**From:** "Klamath Drainage District" <kdd280@yahoo.com>

**To:** jdunlap@yuroktribe.nsn.us

1 Files | 121 KB | Download All

PDF 121KB  
Project  
Concept.p  
of

Save

James Dunlap, Chairman  
Yurok Tribe

Dear Mr. Dunlap,

The purpose of this letter is to let you know that the Klamath Drainage District (KDD) in Klamath County, OR is proposing to construct a water recirculation facility on the east side of the District which will allow it to recirculate approximately 15,860 AF of drainage water annually. Because KDD's two points of diversion are along the Klamath River, every drop of water that KDD can recirculate means more water stays in-stream for downstream use. Recycling drainage water also means that at times KDD may not need to call on storage in Upper Klamath Lake.

We believe this project will benefit tribes, fisheries, recreationist and others who depend upon adequate Klamath Lake levels and Klamath River flows for their livelihood.

I have attached a Project Concept document that will describe to you what we are proposing. Please feel free to comment, give input or inquire further about the project.

Sincerely,

Mary Cheyne  
Secretary/Treasurer  
Klamath Drainage District  
P.O. Box 1090  
Klamath Falls, OR 97601  
FAX: 541-884-1739  
Cell Phone: 541-891-0990  
Webpage: <http://www.klamathdrainagedistrict.org>

<https://us-mg5.mail.yahoo.com/neo/b/message?sMid=1&fid=GRANT%2520INFO&sort=da...> 1/6/2016

Note: The potential drainage calculated by the District Manager was 15,860 AF. Upon review, this was later revised by KDD's engineer to 16,204 AF.

**EXHIBIT K**  
**ECONOMIC ANALYSIS**  
**MODEL OUTPUTS**

## ECONOMIC ANALYSIS

### Klamath County Data Set

#### Census of Ag 2012

Total Land in Farms in Klamath County	650,416.00 ac
Crop Land in Klamath County	204,881.04 ac
Acres to which recycled water can be applied	6,206.00 ac

#### OSU Ag Sales Data 2012

All Crops	\$145,674,000
All Livestock	\$144,635,000
<b>Total</b>	<b>\$290,309,000</b>

#### Calculations

	\$711 Gross return per acre for crops	(\$145,674,000/204,881.04)
\$4,412,466	Gross Farm Gate Value For 6088.31 ac	(6206 * \$711)

#### Explanation of Multiplier

SAM: includes income effects of households, Gov. spending, investment, transfer payments

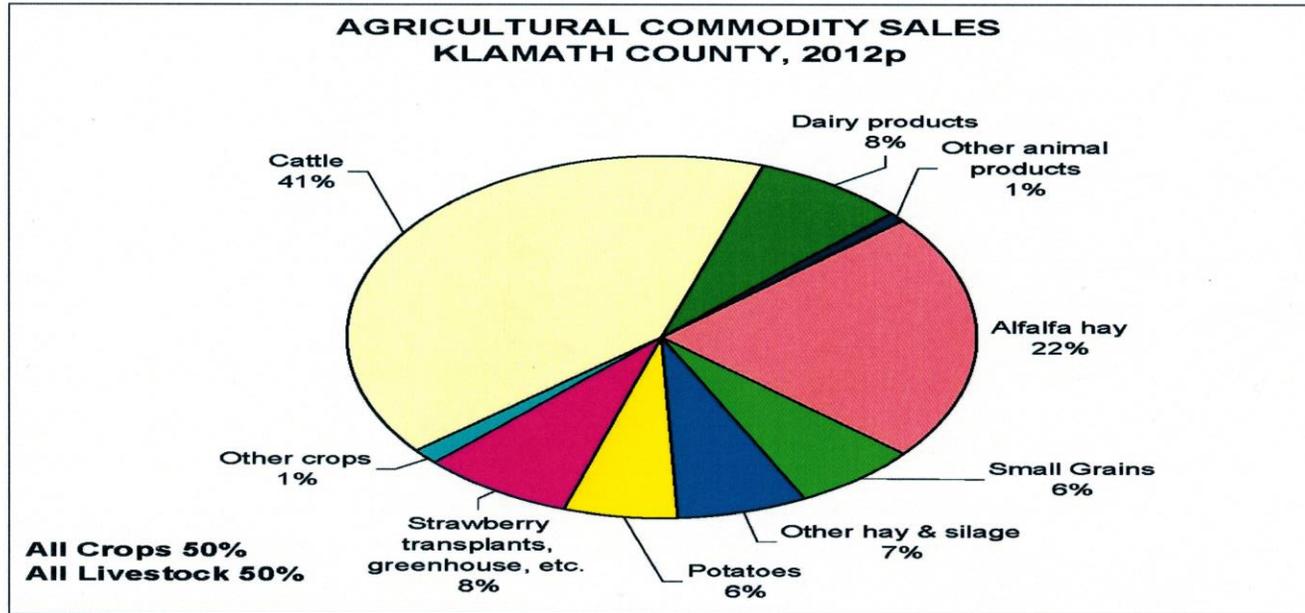
SAM multiplier for Agriculture using Klamath 2007 Aggregate Model 091409.iap = 1.907687  
(Multiplier is a composite of direct [1.0] and indirect/induced [.907687])

#### Analysis

		Multiplier
Direct Gross Farm Gate Value	\$4,412,466	1
Indirect and Induced Effects Across Other Business Sectors	\$3,971,219	0.9
<b>Total direct, indirect, and induced economic effects of 6088.31 ac. fully productive farm ground</b>	<b>\$8,383,685 (8.38 Million)</b>	

#### Jobs

Direct jobs per million = 9	Direct Jobs	39.7
Indirect/Induced jobs per million = 6	Indirect/Induced Jobs	23.8
	<b>Total full and part time jobs</b>	<b>63.5</b>



Alfalfa hay	64,351
Small Grains	18,451
Other hay & silage	19,807
Potatoes	16,374
Strawberry transplants, greenhouse, etc	22,932
Other crops	3,759
<b>ALL CROPS</b>	<b>145,674</b>
Cattle	120,000
Dairy products	22,080
Other animal products	2,555
<b>ALL LIVESTOCK</b>	<b>144,635</b>
<b>ALL CROPS &amp; LIVESTOCK</b>	<b>290,309</b>

Year	Crops	Livestock	Total
2010r	88,709	139,281	227,990
2011r	141,795	141,938	283,733
2012p	145,674	144,635	290,309

*r - revised, p - preliminary*  
 Source: Extension Economic Information Office  
 Oregon State University  
 March 7, 2013

14-Sep-09  
 Total Value Added Multipliers  
 Klamath 2007 Aggregated Model 091409.iap  
 Copyright MIG

	Direct Effects	Indirect Effects	Induced Effects		Type I Multiplier*	Type SAM Multiplier**
1 Agriculture	0.34191	0.206563	0.103784	0.652258	1.604144	1.907687
15 Logging & Forest Products	0.574303	0.20947	0.104927	0.8887	1.364737	1.547441
30 Mining	0.753807	0.072464	0.294267	1.120538	1.09613	1.486504
31 Utilities	0.656212	0.067534	0.139734	0.86348	1.102914	1.315854
33 Construction	0.370096	0.189498	0.170265	0.72986	1.512025	1.97208
46 Manufacturing Food	0.083059	0.302429	0.100914	0.486401	4.641137	5.856106
95 Manufacturing Wood Products	0.371982	0.266104	0.146982	0.785068	1.715366	2.110497
113 Manufacturing All Other	0.297761	0.142241	0.122239	0.562241	1.477701	1.888226
132 Manufacturing High Tech	0.193935	0.202228	0.108337	0.5045	2.042758	2.601385
319 Wholesale Trade	0.625915	0.152562	0.239662	1.018139	1.243742	1.626641
320 Retail trade	0.688154	0.131076	0.264523	1.083754	1.190475	1.57487
335 Transportation & Warehousing	0.456818	0.183746	0.166769	0.807333	1.402231	1.767297
341 Information	0.434171	0.183044	0.152844	0.770059	1.421594	1.773631
360 Real estate & rental	0.691818	0.114985	0.095038	0.901841	1.166207	1.303581
366 Finance & insurance	0.421823	0.16735	0.173653	0.762826	1.396731	1.808403
367 Other services	0.500627	0.186209	0.207865	0.894702	1.371952	1.787161
369 Professional- scientific & tech svcs	0.564629	0.165803	0.256154	0.986586	1.293649	1.747316
381 Management of companies	0.492507	0.19019	0.198161	0.880858	1.386168	1.788521
390 Administrative & waste services	0.423079	0.211465	0.178275	0.812819	1.499824	1.9212
391 Educational svcs private	0.480405	0.20399	0.203254	0.887649	1.424622	1.847711
394 Health & social services	0.562426	0.162565	0.226004	0.950995	1.289043	1.690881
402 Arts- entertainment & recreation	0.562582	0.188358	0.232591	0.983532	1.33481	1.748246
411 Accommodation & food services	0.482301	0.19114	0.190332	0.863773	1.396308	1.790942
427 Government	0.90627	0.032149	0.292272	1.230691	1.035474	1.357974
428 Non- NAICS	0.316697	0.144661	0.21136	0.672719	1.456781	2.124169

14-Sep-09

**Employment Multipliers**

Klamath 2007 Aggregated Model 091409.iap

Copyright MIG

2009

	Direct Effects^	Indirect Effects^	Induced Effects^		Type I Multiplier*	Type SAM Multiplier**
1 Agriculture	9.061581	3.798558	2.017422	14.877561	1.419194	1.641829
15 Logging & Forest Products	2.51826	1.913745	2.062341	6.494346	1.759947	2.578902
30 Mining	15.480717	1.255898	5.887414	22.624028	1.081127	1.461433
31 Utilities	1.310994	1.249441	2.680877	5.241312	1.953048	3.997967
33 Construction	8.079634	3.647581	3.393846	15.121061	1.451454	1.871503
46 Manufacturing Food	2.291882	5.635086	1.995019	9.921987	3.458715	4.329187
95 Manufacturing Wood Products	4.03454	3.230101	2.919964	10.184605	1.800612	2.524353
113 Manufacturing All Other	5.350669	2.33588	2.439245	10.125793	1.436558	1.892435
132 Manufacturing High Tech	2.147838	3.360592	2.157195	7.665625	2.56464	3.568997
319 Wholesale Trade	8.280354	2.847053	4.645826	15.773233	1.343832	1.904898
320 Retail trade	17.808958	2.24725	5.127894	25.184102	1.126186	1.414125
335 Transportation & Warehousing	5.636661	3.409576	3.315692	12.361929	1.604893	2.19313
341 Information	5.893812	3.732205	3.011991	12.638009	1.633241	2.144284
360 Real estate & rental	2.2757	1.840946	1.769346	5.885992	1.808958	2.586453
366 Finance & insurance	8.202561	3.434649	3.466988	15.104199	1.418729	1.8414
367 Other services	16.745033	3.759279	4.126589	24.630901	1.224501	1.470938
369 Professional- scientific & tech svcs	8.749516	3.462755	5.128298	17.340569	1.395765	1.981889
381 Management of companies	5.640171	4.346509	3.95655	13.94323	1.770634	2.472129
390 Administrative & waste services	6.079555	4.113577	3.509653	13.702785	1.676625	2.253913
391 Educational svcs private	28.966209	2.924154	4.050527	35.94089	1.10095	1.240787
394 Health & social services	14.270333	2.848453	4.515705	21.634491	1.199607	1.516047
402 Arts- entertainment & recreation	26.717197	4.136223	4.595998	35.449418	1.154815	1.326839
411 Accomodation & food services	18.481771	3.30567	3.740595	25.528036	1.178861	1.381255
427 Government	15.049562	0.571169	5.871294	21.492024	1.037953	1.428083
428 Non- NAICS	7.574628	2.459176	4.234834	14.268638	1.32466	1.883741

**EXHIBIT L**  
**ITEMIZED BUDGETS**

DESCRIPTION (Project Key Task) (Current costs are adjusted for inflation at a rate of 6%)	Current Costs	In-Kind Match (Adj. to 2017)	Cash Match Funds (Adj. to 2017)	OWRD Funds (Adj. to 2017)	Total
<b>1. MISCELLANEOUS COSTS</b>					
- PP&L SERVICE COSTS	\$ -				
- SOLAR POWER & INSTALLATION	\$ 45,000			\$ 47,700	\$ 47,700
- ELECTRICAL WORK (INSTALLATION)	\$ 2,000			\$ 2,120	\$ 2,120
<b>2. KDD (EQUIPMENT AND LABOR COSTS)</b>	\$ 37,760	\$ 40,026			\$ 40,026
- EXCAVATION					
- BACKFILL					
- INSTALLATION OF:					
POWER VAULT					
POWER TRENCH/CONDUIT					
PS BASE					
PS PIPING					
PS DISCHARGE PIPING/VALVES/ETC.					
TRASH RACK STRUCTURE					
TRASH RACK					
PUMP/MOTOR/APPURTENANCES					
<b>3. EQUIPMENT AND MATERIAL COSTS</b>					
- CONCRETE	\$ 1,500			\$ 1,590	\$ 1,590
- ROCK	\$ 29,000		\$ 27,324	\$ 3,416	\$ 30,740
- GRATING	\$ 4,200			\$ 4,452	\$ 4,452
- DISCHARGE PIPING (24" PVC DR51)	\$ 3,750			\$ 3,975	\$ 3,975
- INTAKE PIPING (36" CMP COATED)	\$ 2,000			\$ 2,120	\$ 2,120
- SUMP PIPE (108" = 9' DIA. CMP COATED)	\$ 6,500			\$ 6,890	\$ 6,890
- PUMP (6000 GPM MIX FLOW)	\$ 26,000			\$ 27,560	\$ 27,560
- MOTOR (40 HP SOFTSTART)	\$ 6,500			\$ 6,890	\$ 6,890
- CT/SWITCHGEAR CABINET	\$ 5,500			\$ 5,830	\$ 5,830
- TRASH RACK (APPROX 37' LENGTH)	\$ 75,000			\$ 79,500	\$ 79,500
- TRASH RACK STRUCTURE (CONCRETE)	\$ 18,000			\$ 19,080	\$ 19,080
- FLOW METER	\$ 2,700			\$ 2,862	\$ 2,862
- HEADGATE (36" W/ GEARHEAD)	\$ 4,000			\$ 4,240	\$ 4,240
- STEEL TOP PLATE AND APPURTENANCES	\$ 1,750			\$ 1,855	\$ 1,855
- FLAP GATE VALVE (24")	\$ 1,500			\$ 1,590	\$ 1,590
- AIR RELEASE VALVE (BASED ON 10,000 GPM)	\$ 1,500			\$ 1,590	\$ 1,590
<b>SUBTOTAL</b>	\$ 274,160	\$ 40,026	\$ 27,324	\$ 223,260	\$ 290,610
<b>15% CONTINGENCIES</b>	\$ 41,124	\$ 5,449	\$ 5,449	\$ 32,693	\$ 43,591
<b>STAFF: GRANT ADMINISTRATION</b>	\$ 2,000	\$ 2,120			\$ 2,120
<b>FINAL ENGINEERING DESIGN SERVICES</b>	\$ 12,000			\$ 12,720	\$ 12,720
<b>PERMITS</b>	\$ 4,000		\$ 4,240		\$ 4,240
<b>SUBTOTAL</b>	\$ 333,284	\$ 47,595	\$ 37,013	\$ 268,673	\$ 353,281
<b>ADJUSTMENT FOR INFLATION (6%)</b>	\$ 19,997				
<b>SUBTOTAL OF COSTS ADJUSTED FOR INFLATION</b>	\$ 353,281	\$ 47,595	\$ 37,013	\$ 268,673	\$ 353,281
<b>COSTS EXPENDED TO DATE</b>					
<b>PRELIMINARY ENGINEERING SERVICES (COMPLETED)</b>	\$ 4,950		\$ 4,950		\$ 4,950
<b>TOTAL PROJECT COST</b>	\$ 358,231	\$ 47,595	\$ 41,963	\$ 268,673	\$ 358,231
<b>OTHER WORK COMPLETED TO DATE</b>					
<b>PHASE 1 DONATED SERVICES</b>		<b>DONATED</b>			
PHASE 2 CLEAN DRAINS, UPSIZE CULVERTS, REBUILD SPILLWAY	\$ 49,168				
PHASE 3 DEEPEN TOWNSHIP DRAIN	\$ 5,721				

**BUDGET DETAILS (EQUIP & LABOR)**

CURRENT COST    ADJ. FOR 2017

**KDD EQUIPMENT EXPENSE**

	<b>HOURS</b>		<b>COST/HR</b>		
LONG REACH EXCAVATOR	185	\$	110	\$	20,350
JD 330 EXCAVATOR	30	\$	125	\$	3,750
JD 790 EXCAVATOR	10	\$	100	\$	1,000
D-5 DOZER	10	\$	65	\$	650
JD 4955 TRACTOR W/ SCRAPER	10	\$	60	\$	600
DUMP TRUCK	40	\$	50	\$	2,000
CHEVY PICKUPS (3 @ 30 HR)	90	\$	35	\$	3,105

**RENTAL EQUIPMENT EXPENSE**

	<b>DAYS</b>		<b>COST/DAY</b>		
JUMPING JACK (RENT PER DAY)	2	\$	75	\$	150
<b>TOTAL EQUIPMENT EXPENSE</b>				\$	<b>31,605</b> \$ <b>33,502</b>

**KDD LABOR EXPENSE**

	<b>HOURS</b>		<b>WAGE &amp; FRINGE/HR</b>		
DISTRICT MANAGER	100	\$	27	\$	2,702
LABORER #1	80	\$	22	\$	1,785
LABORER #2	80	\$	21	\$	1,668
<b>TOTAL LABOR EXPENSE</b>				\$	<b>6,155</b> \$ <b>6,524</b>

**TOTAL    \$    37,760**

Current costs are adjusted for inflation at a rate of 6%

**\$    37,760    \$    40,026**

**EXHIBIT M**

LETTER: WILLINGNESS OF KARUK TRIBE TO COLLABORATE IN FUTURE

MEETING MINUTES: LANDOWNER APPROVAL AND COLLABORATION WITH USBR

---

**Subject:** RE: Proposed water recirculation plant to conserve Klamath River water

---

**From:** Buster Attebery (battebery@karuk.us)

---

**To:** kdd280@yahoo.com;

---

**Date:** Thursday, January 7, 2016 4:14 PM

---

Thank you for the notice. If you have meeting where we may consult please let me know and we will send a representative.  
Chairman Attebery

-----Original Message-----

**From:** Klamath Drainage District [mailto:kdd280@yahoo.com]  
**Sent:** Wednesday, January 06, 2016 11:47 AM  
**To:** Buster Attebery  
**Subject:** Proposed water recirculation plant to conserve Klamath River water

Russell Attebery, Chairman  
Karuk Tribe

Dear Mr. Attebery,

The purpose of this email is to let you know that the Klamath Drainage District (KDD), located in Klamath County Oregon, is proposing to construct a water recirculation plant on the east side of the District which will potentially recycle 15,860 AF of drainage water annually. Since KDD's diverts water directly from the Klamath River, this same amount of river water could potentially remain in-stream for downstream use by tribes and fisheries. KDD recognizes that every drop of water it can recirculate means more water for downstream stakeholders.

Attached is a brief project concept report that will give you more details about the project. Please feel free to submit comments, give input or inquire further about the project.

Sincerely,

Mary Cheyne  
Secretary/Treasurer  
Klamath Drainage District  
P.O. Box 1090  
Klamath Falls, OR 97601  
FAX: 541-884-1739  
website: [www.klamathdrainagedistrict.org](http://www.klamathdrainagedistrict.org)

<https://us-mg5.mail.yahoo.com/neo/launch?.rand=f7qqtu9gefekn>

1/18/2016

Note: KDD has not held meetings regarding this project since receiving Mr. Attebery's letter. We look forward to meeting with the Karuk Tribe should additional meetings related to this project be required.

## Special Landowner's Meeting

August 4, 2015

A special meeting of the KDD landowners was held on August 4, 2015 at the office of the Board, 270H Main Street, Klamath Falls, Oregon at 1:30 p.m. to discuss the Eastside Recirculation Project (a.k.a. Eastside Pumping Plant). Present were Rocky Liskey, Luther Horsley, Tom Nonella, Mark Miller (Engineer), Sam Henzel, Francine Henzel, Alexis Henzel by phone, Lynn Long, Joe Frost, Lee Sukraw, John McPherson, Tracey Liskey, Therese O'Rourke Bradford (USBR), Mike Green (USBR), and Mary Cheyne.

There was a discussion regarding the proposed Eastside Pumping Plant. The proposal is to pump water through the Township Drain (lying east side of the Straits) 1/4 mile east into the North Canal. The plant will be located on the north side of the Township Drain on Liskey property.

Tracey was asked to find prices on materials and presented his research.

The proposal is to initially install ¼ mile of 18" pipe and temporarily set in place an irrigation pump. Then later on install one 2,000 gpm pump. In addition to the pipe and pump the District would incur expenses to build the structure to put the pump in, the screen structure and the meter.

Sam thought the design as presented (one 2,000 gpm pump) is not sufficient to handle additional water coming from the north. Rocky said the Board has already considered that. The Board proposes to size the pipe now with the goal to purchase a second 2,000 gal per minute pump if needed (4,000 gpm total).

Sam interjected at this point that KDD cannot bring water down through the Rangeline Drain every year because doing so is salting up his land. This is the supply drain for the recently built Westside Recirculation Improvement Project. Sam stated that KDD needs to look at another way of getting water through. Tracey said it is mostly for summer water.

Lynn Long thought it would be good to review some basic engineering numbers and size the pump appropriately. He advocated for a 4,500 gal per minute.

There was a discussion that the District needs to figure out the purpose of the Eastside Recirculation Plant: is it going recirculating summer water only or also accommodate other applications, and size the materials accordingly. Mark said sometime the water is not going to be very good and needs to be tested.

It was suggested that it could be used up to its capacity in the winter but primarily for summer water when there is a shortage.

Sam thought we should build oversize rather than undersize.

There was a discussion on pump sizes.

Sam said the landowners should vote on the project conceptually and then the Board can figure out the details.

Lynn felt that whatever the District builds the #1 priority is to have an automatic trash rack.

Sam made a motion that the landowners approve the construction of a water recirculation plant on the east side of the District with the actual design details to come at a later time, and permitting the Board to implement the design without further landowner's approval. Lynn seconded.

	Acres Represented	Yes Votes	No Votes	Abstained
Luther & Candace Horsley	858.49	858.49		
Henzel Brothers	4,811.57	4,811.57		
Liskey Farms	1,339.96	1,339.96		
Lynn Long	1,658.57			1,658.57
M & B Cattle Company	6,969.18		6,969.18	
John McPherson	201.05	201.05		
O'Connor Livestock	951.23	951.23		
Lee Sukraw	1,060.22	1,060.22		
USF&W/USBR	6,252.70			6,252.70
	24,102.97	9222.52	6969.18	7911.27

Motion passed by a majority vote of the Landowners.

Tom Nonella, representing M&B Cattle Co., left the meeting.

Tracey moved that the District install 18" pipe and a 2,000gpm pump with the option to add a second pump if needed. Sam seconded. There was some discussion regarding the size of the pump. Tracey said, at this meeting the pipe size should be decided because that part of the system is going to be permanent. The size of the pump could be determined later after they see how well the irrigation pump performs.

Tracey amended his motion to install 18" pipe and a temporary pump, and look for the best value for a pump this winter. Sam extended his seconded to the amended motion. A call was made for discussion but there was none.

	Acres Represented	Yes Votes	No Votes	Abstained
Luther & Candace Horsley	858.49	858.49		
Henzel Brothers	4,811.57	4,811.57		
Liskey Farms	1,339.96	1,339.96		
Lynn Long	1,658.57	1,658.57		
John McPherson	201.05	201.05		
O'Connor Livestock	951.23	951.23		
Lee Sukraw	1,060.22	1,060.22		
USF&W/USBR	6,252.70			6,252.70
	24,102.97	9222.52	6969.18	7911.27

The motion passed by a majority vote of the landowners. The BOR abstained.

Sam suggested looking into putting a pump in the Andrieu Drain between Liskey's and Long's and pump the water into the Motschenbacher Drain.

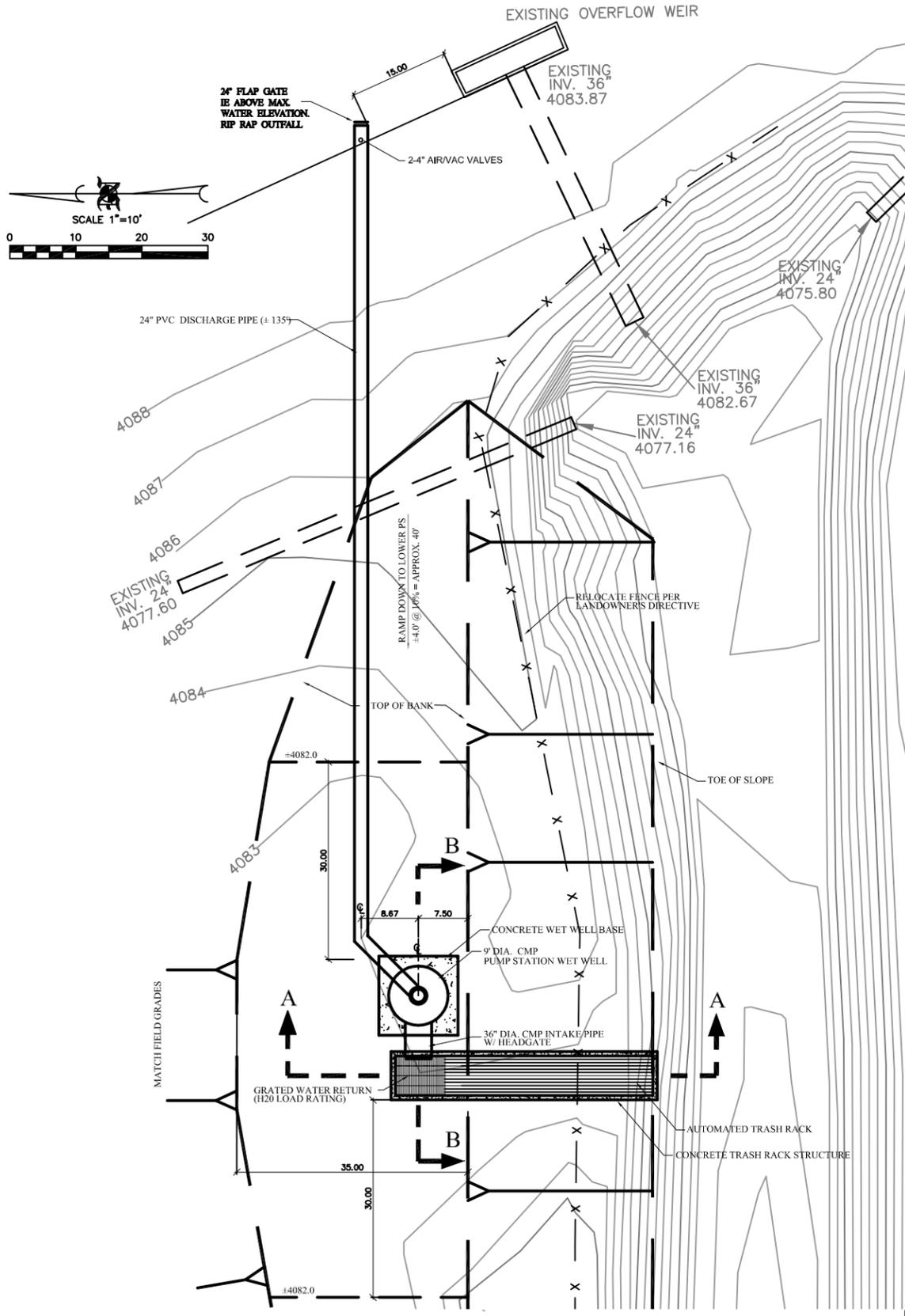
No further business was discussed and the meeting was adjourned.

/signed/

Mary Cheyne

**EXHIBIT N**

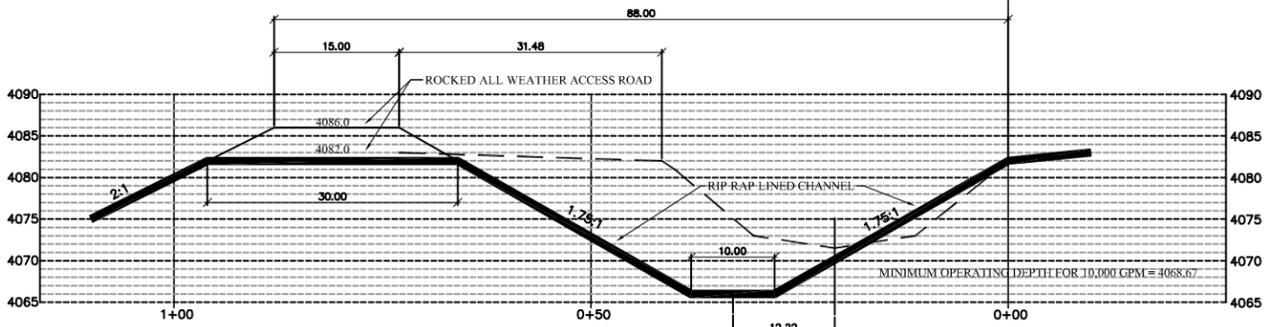
**PRELIMINARY PROJECT DESIGN DRAWING**



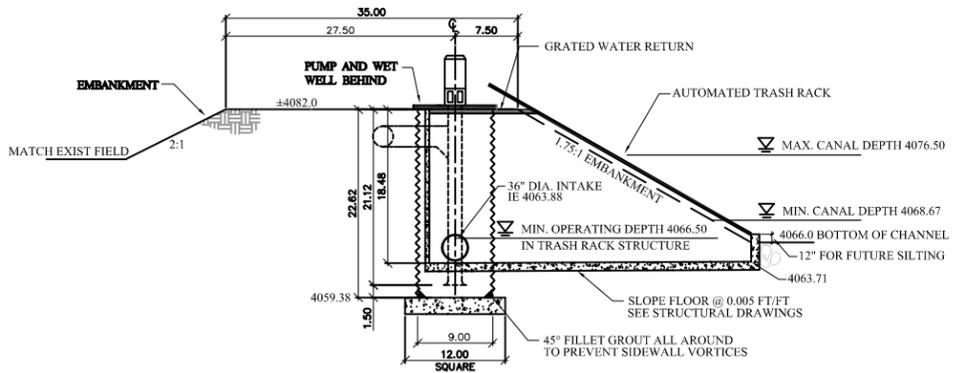
**GENERAL NOTES AND SPECIFICATIONS**

- GENERAL**
1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATIONS OF THE OREGON CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA), AND THE CURRENT EDITION OF THE UBC AND UEC, EXCEPT AS AMENDED HEREIN.
  2. OWNER SHALL BE RESPONSIBLE FOR SECURING ALL NECESSARY PERMITS AND PAY ALL NECESSARY FEES REQUIRED TO COMPLETE THE PROJECT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
  3. OWNER SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO DIGGING BY CONTACTING THE OREGON UTILITY NOTIFICATION CENTER (1-800-332-2344) NOT LESS THAN 48 HOURS PRIOR TO DIGGING.
  4. UTILITY LOCATIONS SHOWN ON THE PLANS WERE COMPILED FROM FIELD OBSERVATIONS AND THEREFORE ARE NOT REPRESENTED HEREIN TO BE COMPLETE OR EXACT. THE OWNER SHALL FIELD VERIFY ALL UTILITY LOCATIONS (HORIZONTAL AND VERTICAL) PRIOR TO CONSTRUCTION.
  5. OWNER SHALL COORDINATE THE INSTALLATION OF POWER SUPPLY WITH PP&L.
  6. OWNER SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL MATERIALS NOT INCORPORATED INTO THE PROJECT.
  7. OWNER SHALL FOLLOW ALL APPLICABLE STATE AND FEDERAL SAFETY REGULATIONS. ENGINEER SHALL NOT BE HELD RESPONSIBLE FOR ENFORCING SAFETY REGULATIONS.
  8. EXCAVATIONS SHALL BE MADE IN SUCH A MANNER THAT COLLAPSE OF ADJACENT SOILS DO NOT OCCUR. EXCAVATIONS SHALL BE SLOPED AND BENCHED FOR STABILITY.
- GRADING, EARTHWORK AND EROSION CONTROL**
1. GRADING AND EROSION CONTROL IS THE RESPONSIBILITY OF THE OWNER AND SHALL BE MAINTAINED OR UPGRADED AS NEEDED UNTIL ALL CONSTRUCTION IS COMPLETED AND PERMANENT COVER IS ESTABLISHED. MINIMUM GRADING AND EROSION CONTROL MEASURES SHALL INCLUDE:
    - A STABILIZED GRAVEL CONSTRUCTION ENTRANCE ONTO THE COUNTY ROAD CONSISTING OF CLEAN DRAIN ROCK NOT LESS THAN 8 INCHES DEEP, 20 FEET WIDE AND 30 FEET IN LENGTH.
    - CLEAN ALL PAVED ROADS OF MUD AND DEBRIS TRACKED OFF SITE.
    - PREVENT SEDIMENT LADEN MATERIALS FROM LEAVING SITE.
  2. AGGREGATE BASE SHALL BE PIT RUN MATERIAL FROM O'CONNOR PIT COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY PER AASHTO T-99. SIZE AS NECESSARY FOR STABILITY AND INTENDED PURPOSE.
  3. RIP RAP LIVING SHALL BE NOT LESS THAN CLASS 50 RIP RAP.
  4. EXISTING SOILS TO WHICH FILL MATERIALS WILL BE ADDED SHALL BE GRUBBED AND SCARIFIED PRIOR TO PLACING FILL MATERIALS IN ORDER TO PROVIDE AN INTERLOCK BETWEEN THE SOIL LAYERS.
  5. FILL MATERIALS SHALL BE NATIVE MATERIALS FREE OF ROOTS, VEGETATION AND OTHER DELETERIOUS MATERIALS.
  6. ALL FILL MATERIALS AND BACKFILL MATERIALS SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY PER AASHTO T-99.
  7. PORTLAND CEMENT CONCRETE SHALL BE AS SPECIFIED ON THE STRUCTURAL DRAWINGS.
- UTILITIES (GENERAL)**
1. ALL UTILITIES SHALL BE MARKED WITH AN APPROVED LOCATOR TAPE PLACED 12 INCHES BELOW GROUND SURFACE. NON-METALLIC OR NON-CONDUCTIVE MATERIALS SHALL ALSO HAVE AN APPROVED LOCATOR WIRE ATTACHED TO THE CONDUIT FOR LOCATING PURPOSES IN COMPLIANCE WITH THE UBC, UPC, UEC, AND OTHER APPLICABLE SPECIFICATIONS.
  2. NO SPLICES IN THE TRACER WIRE WILL BE PERMITTED - WIRE SHALL BE CONTINUOUS AND UNBROKEN.
  3. PIPE ZONE, BEDDING AND BACKFILL MATERIALS FOR ALL "ON-SITE" WORK SHALL BE AS NOTED ON THE STANDARD TRENCH DETAIL. 3/4" AGGREGATE SHALL CONFORM TO LOCAL COMMERCIAL GRADE MATERIALS WHEN GROUND WATER IS NOT PRESENT IN THE TRENCH. IF GROUND WATER IS PRESENT, USE STATE SPEC OR PEA GRAVEL.
  4. POWER UTILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE PLANS AND SPECIFICATIONS SUPPLIED BY THE UTILITY COMPANY.
- PIPING MATERIALS**
1. DISCHARGE PIPE AND FITTINGS SHALL BE DR 51 PIP PVC PIPE MEETING ASTM D2241, D1784, D3119 AND F477.
  2. 9" DIAMETER CORRUGATED METAL PIPE (CMP) SHALL BE 8 GA GALVANIZED STEEL PIPE HAVING ASPHALT COATING INSIDE AND OUT AND 3 x 1 CORRUGATIONS, AS MANUFACTURED BY CONTECH CONSTRUCTION PRODUCTS OR APPROVED EQUAL.
  3. 3" DIAMETER CORRUGATED METAL PIPE (CMP) SHALL BE 10 GA GALVANIZED STEEL PIPE HAVING ASPHALT COATING INSIDE AND OUT WITH 2 2/3 x 1/2 CORRUGATIONS, AS MANUFACTURED BY CONTECH CONSTRUCTION PRODUCTS OR APPROVED EQUAL.
- PUMP, MOTOR AND ELECTRICAL**
1. PUMP SHALL FAIRBANKS MORSE 20" x 31 1/2" x 24" MIXED FLOW PUMP OR EQUAL, CAPABLE OF PRODUCING NOT LESS THAN 5000 GPM AT A TOTAL DYNAMIC HEAD OF NOT LESS THAN 23 FEET. PUMP SHALL BE CAPABLE OF OPERATING WITHIN THE DESIGN PARAMETERS OF THE PROPOSED PUMP STATION (WET WELL) WITHOUT CAVITATION OR OTHER HYDRAULIC ISSUES.
  2. MOTOR SHALL BE 3 PHASE, 230-460V, SUPPLIED WITH A SOFT START CONTROL PANEL WITH NEMA 4X ENCLOSURE.
  3. LIQUID LEVEL FLOAT CONTROLS SHALL BE PROVIDED FOR PUMP ON AND PUMP OFF SETTINGS (HIGH WATER AND LOW WATER).
- TRASH RACK**
1. TRASH RACK SHALL BE AUTOMATED AND CAPABLE OF PASSING 10,000 GPM (22.3 CFS) AT A VELOCITY OF 2 FPS OR LESS. RACK SHALL BE CONSTRUCTED OF 304 STAINLESS STEEL BARS HAVING AN OPEN AREA OF NOT LESS THAN 80%. SCREEN FRAME SHALL ALSO BE CONSTRUCTED OF STAINLESS STEEL AND DESIGNED FOR WATER AND DEBRIS LOADS. CONTROL PANEL SHALL BE NEMA 4X ENCLOSURE AND INCLUDE CONTROLS FOR AUTO STOP/START AND DISCONNECT SWITCH. AS MANUFACTURED BY AQUA SYSTEMS 2000 INC. OR APPROVED EQUAL.
- VALVES AND MISCELLANEOUS**
1. AIR/VAC VALVES SHALL BE WATERMAN AV150 OR APPROVED EQUAL.
  2. FLAP GATE TO BE BY WATERMAN OR APPROVED EQUAL.
  3. FLOW METER SHALL BE A MCCROMETER FLOW METER WITH MARATHON BEARING DIAL TO READ IN GPM AND TOTALIZER TO READ IN ACRE FEET.

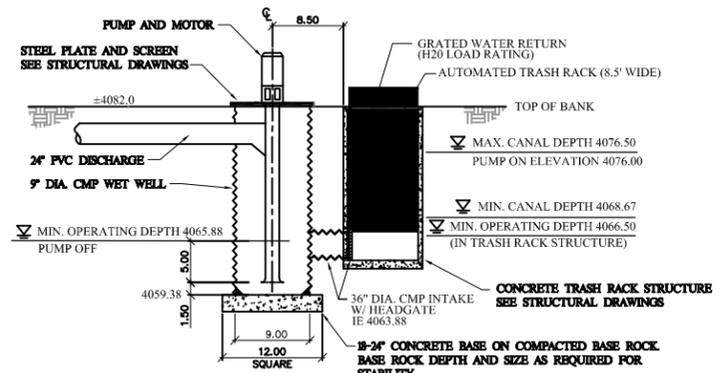
**PLAN VIEW**  
SCALE: HORZ 1"=10'



**TYPICAL CHANNEL SECTION**  
SCALE: HORZ 1"=10' VERT 1"=10'



**SECTION A-A**  
SCALE: HORZ 1"=10' VERT 1"=10'



**SECTION B-B**  
SCALE: HORZ 1"=10' VERT 1"=10'

PRELIMINARY DESIGN DRAWING  
 NOT FOR CONSTRUCTION  
 SHEET 1 of 1  
 C1

**MARK MILLER & ASSOCIATES**  
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**PRELIMINARY DESIGN DRAWING**  
 EAST SIDE PUMPING STATION  
 KLAMATH DRAINAGE DISTRICT  
 KLAMATH FALLS, OREGON

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