



R & E Grant Application 13 Biennium

Project #:
13-088

Taylor Lake Aeration System Upgrade

Project Information

R&E Project Request: \$17,489.00
Match Funding: \$4,700.00
Total Project: \$22,189.00
Start Date: 11/1/2014
End Date: 6/30/2015
Project Email: t.jason.seals@state.or.us
Project Biennium: 13 Biennium
Organization: ODFW - The Dalles Field Office

Applicant Information

Name: Jason Seals
Address: 3701 W. 13th St.
The Dalles, OR 97058
Telephone: 541-296-4628
Fax: 541-298-4993
Email: t.jason.seals@state.or.us

Past Recommended or Completed Projects

Number	Name	Status
05-152	The Dalles Fall Chinook Sampling Boat	Completed

Project Summary

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

Activity Type: Miscellaneous (Restoration)

Summary: In 1998, funding was provided by ODFW Restoration and Enhancement funds and others to purchase and install an aeration system at Taylor Lake to prevent eutrophication of this popular sport fishing lake and enhance angler opportunity. Since the installation of this system, the lake has successfully stayed algae free and does not stratify, which created year around fishing and one of the most popular lakes to fish in the region. Throughout this time, annual maintenance and power costs were paid for by the ODFW Mid Columbia Fish District. The existing infrastructure of the aeration system is in need of upgrades and replacements. The air compressors and lines are in need of replacement. The new components will be more efficient, durable, and require less maintenance.

Objectives: The objective of the project is to replace the existing aeration system in Taylor

Lake with a new air compressor, lines, and diffusers to continue good water quality and a good sport fishing opportunity.

Fishery Benefits:

Taylor Lake is likely the most popular sport fishing lake in The Dalles/Hood River region. The lake's proximity to The Dalles community provides year round fishing opportunity of both stocked rainbow trout and warm water fish such as largemouth bass and bluegill.

Prior to the installation of the existing aeration system, Taylor Lake was eutrophic with large mats of algae during the summer and fall months. Anglers were limited to fishing the winter and spring periods because of the algae in summer and fall. Once the existing aeration system was put in place in 1997, the lake did not stratify and eutrophication did not occur which then provided year round fishing opportunity and success. Currently, anglers can be found using Taylor Lake nearly every day of the year. Replacing the existing infrastructure of the aeration system will increase the effectiveness of pumping air throughout the lake and continue to provide good water quality, fish habitat, and angler use.

Watershed Benefits:

Taylor Lake is a 27 acre reservoir located next to the Columbia River and is filled by a small feeder stream called Gooseberry Creek. A surface overflow outlet goes directly to the Columbia River in years of high water. The aeration system provides a dramatic improvement of the surface water quality and temperature because the air does not allow the lake to stratify and surface temperature to be excessively warm and eutrophic. Therefore, any surface water spilled to the Columbia River during years of high water will likely have cooler and greater water quality.

Current Situation:

The existing aeration system consists of two compressors that pump air into three air diffusion lines (lineal tubing) that lay on the bottom of the lake. The electric compressors are housed in a small concrete shed. Each air line is weighted with a lead line and has holes that distribute air into the water column across three reaches of the lake. The existing lineal air tubing is thin and requires regular maintenance to pull the line up off the bottom and unplug existing holes or fix large holes created by beavers, muskrats and fishing hooks.

The aeration system at Taylor Lake is now 16 years old and is in need of rebuild and upgrade to a better system. The tubing has reached the end of its useful life and should be replaced by a stronger and thicker walled air line (self-sink tube). The new tube cannot be damaged by hooks or chewed through by muskrats or beavers and has a much longer lifespan. Instead of lineal tubing, the new air diffusers will be ADS Disk Modules. They are circular with the lineal tubing wound up like a "braided rug". They will be connected to the feeder tubing in the same manner as the lineal. The new diffusers will be much lower in maintenance and will release air more efficiently into the water column. The new tubing will originate from a new manifold in the compressor building. This will require some minor modification to the building where the tube presently exits.

The existing compressors are worn out. Rebuilding them has become extremely difficult and expensive as non-replaceable parts inside them wear out and are causing complete failure.

We propose to replace the existing compressors with a rotary screw compressor. It should provide years of trouble free performance and require very little maintenance. The existing electrical panel will need to be re-configured to accommodate the new compressor's 220 voltage requirement.

Alternatives: The alternative would be to continue with the current system, which currently takes considerable time and money annually to maintain and fix. Given the current state of the existing compressors, rebuilding them may not be an option in the near future.

An additional alternative would be to remove the existing aeration system and allow the lake to return to its previously eutrophic state.

Designer: ODFW and a Lake Aeration System Consultant

Methods:

- The air compressor will be driven by truck to the existing compressor shed on Taylor Lake and manually moved by hand into the shed.
- The existing electrical panel will have to be re-wired by a certified electrician to convert 110 v to 220 v, which new compressor requires.
- The old compressors will be moved out and discarded
- All of the existing tubing will be pulled out and discarded.
- The new manifold will be installed in the compressor shed and connected to the new air lines.
- The two new airlines with diffusers will be installed by rolling out the tubing with a boat with the diffusers attached as the tubing is rolled out into the 3 reaches of the lake

Inspector: ODFW Mid-Columbia District Fish Biologist

Funding Elements: R and E Funds will be used to purchase the necessary equipment which includes the compressor, manifold, air lines, and air diffusers.

R and E Funds will also be used to fund some labor for a consultant with expertise in these types of aeration systems.

Partners: No

Existing Plan: No

Affected Contacted: Yes

Affected Supportive: No

Project Schedule/Participants/Funding

Activity	Date	Participants
Equipment Purchase	11/16/2015	ODFW
Compressor Installation	3/16/2015	ODFW and Consultant
Manifold Installation	3/16/2015	ODFW and Consultant
Air Tubing Installation	3/16/2015	ODFW and Consultant

Regular monitoring and maintenance	3/16/2015	ODFW District
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Affected

Species: Rainbow Trout
Warmwater

Project Permits

This project has no permits.

Project Monitoring

Organization	Address	Activity	Frequency
ODFW Mid Columbia Fish District	3701 W 13th St The Dalles, OR 97058	Check compressor pump	Once per month
ODFW Mid Columbia Fish District	3701 W 13th St The Dalles, OR 97058	Check air distribution	Once per month

Project Maintenance

Organization	Address	Activity	Frequency
ODFW Mid Columbia Fish District	3701 W 13th St The Dalles, OR 97058	Rebuild compressor	Every 7-8 years

Project Match Funding

Funding Source	Cash	In-Kind	Other	Description	Total	Secured?	Conditions?	Comments
R&E Request	\$17,489.00	\$0.00	\$0.00		\$17,489.00	No	No	
ODFW District	\$0.00	\$1,200.00	\$0.00		\$1,200.00	No	No	
ODFW Wildlife Habitat	\$3,500.00	\$0.00	\$0.00		\$3,500.00	Yes	No	
				Total Match Funding:	\$22,189.00			

Project Budget

Item	Item Type	Units	Unit Cost	R&E Funds	Match Funds	Total
Aeration System Consultant/Builder	Contracted Services	5	\$750.00	\$3,750.00	\$0.00	\$3,750.00
Air Diffusion System Disk Modules and Tubing	Equipment	1	\$3,500.00	\$0.00	\$3,500.00	\$3,500.00
Air Diffusion System Modules, Tubing, Gauges, etc.	Equipment	1	\$5,170.00	\$5,170.00	\$0.00	\$5,170.00
Manifold	Equipment	1	\$750.00	\$750.00	\$0.00	\$750.00
Rotary Screw Compressor and Delivery	Equipment	1	\$7,319.00	\$7,319.00	\$0.00	\$7,319.00
Electrician	Personnel	4	\$125.00	\$500.00	\$0.00	\$500.00
ODFW District Staff	Personnel	6	\$200.00	\$0.00	\$1,200.00	\$1,200.00
					Total Budget:	\$22,189.00

Project Map



Additional Files

Click a link to view that particular file.

[ADS Quote](#)

[Kaeser Compressor Quote](#)

[Picture 1](#)

[Picture 2](#)

[Picture 3](#)

[Project Topo](#)

[Signature Authorization Form](#)

[Taylor Lake Schematic](#)

Air Diffusion Systems
 3964 Grove Avenue
 Gurnee, IL 60031
 847-782-0044 - FAX: 847-782-0055

LINDA

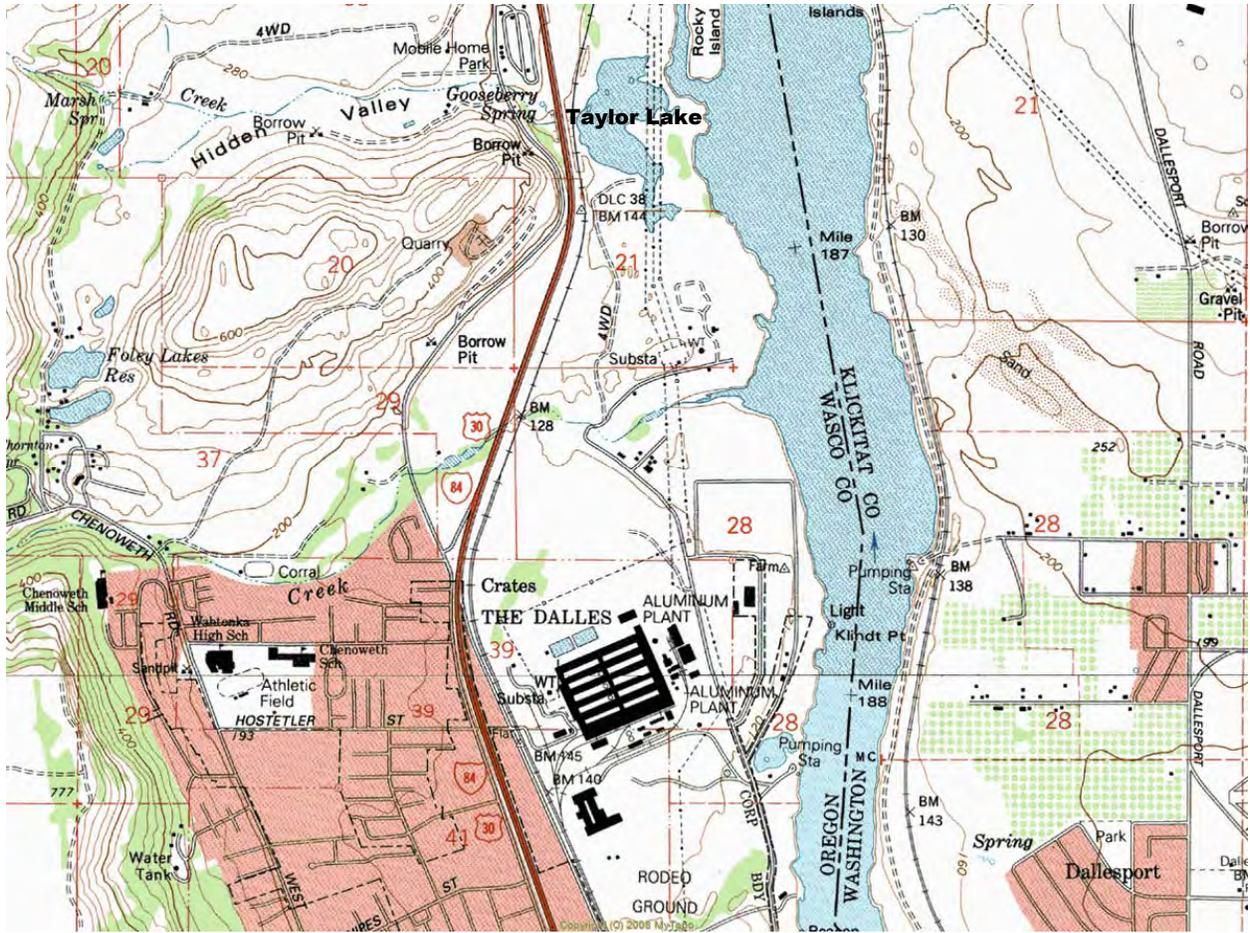
QUOTATION TO: Dennis Williams - Paradise Northwest	May 2, 2014
PROJECT: Taylor Lake	ADS System NO: 97058
	FROM: Linda Hinde

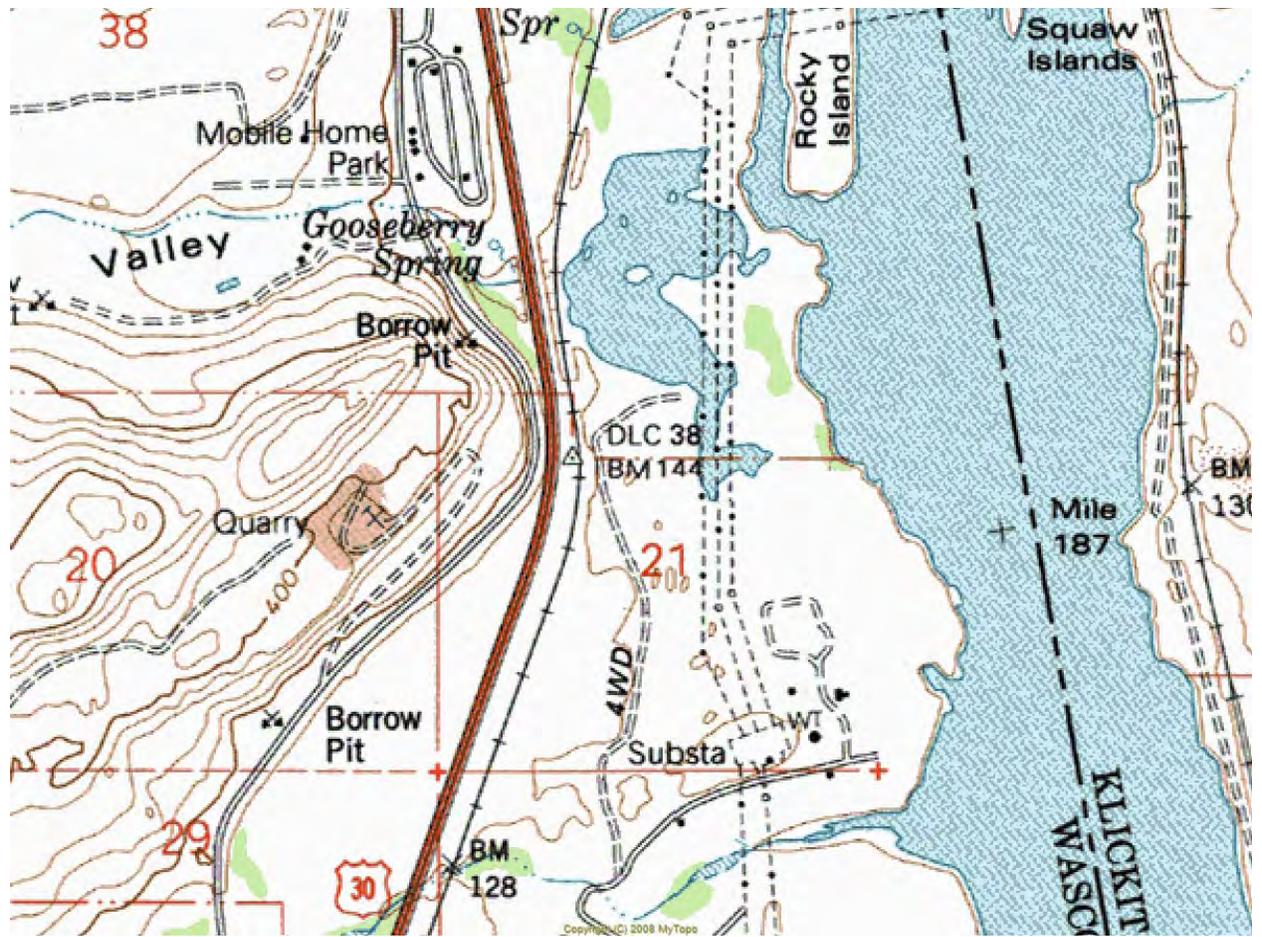
QUANTITY	DESCRIPTION	TOTAL
2	S.S. Disk Modules each with 100' of Triple Cut Aeration Tubing "LTC", with legs and float ropes	\$8,670.00
1	S.S. Disk Module with LWA1.5 Aeration Tubing, legs and float rope	
2,400'	3/4" Self Sink Feeder Tubing "SSFT-75" supplied in 300' spools	
3	0 - 30 PSI Gauges	
8	3/4" Brass Slip x Slip Nipples "SSN-Brass-75"	
3	3/4" Brass Thread x Slip Nipples "TSN-Brass-75"	
24	Stainless Steel Screw Clamps "SSSC-32"	
	Freight Estimated at \$600.00	

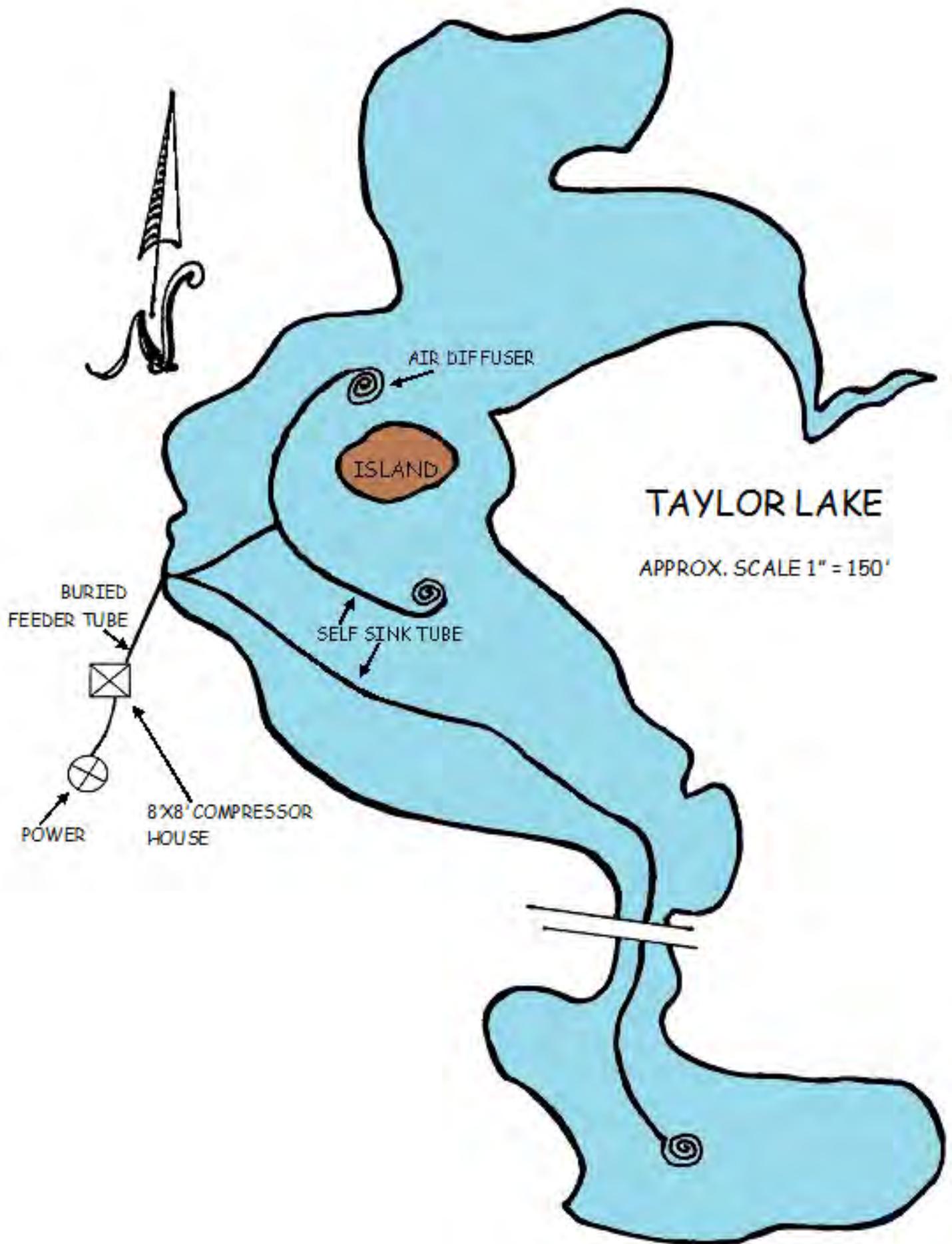
This quotation does not include any sales taxes if applicable. If tax-exempt, we must have a certificate on file prior to shipping.

Shipping will be within 2 weeks after receipt of purchase order.

TERMS: Net 30 days by Oregon Dept Fish & Wildlife







TAYLOR LAKE

APPROX. SCALE 1" = 150'

AIR DIFFUSER

ISLAND

SELF SINK TUBE

BURIED FEEDER TUBE

8'X8' COMPRESSOR HOUSE

POWER







Handwritten text on a dark metal band wrapped around the wooden post, possibly a name or date.

Small plaque or marker on the stone wall, containing illegible text.

Applicant Signature Page
Fish Restoration and Enhancement Program
(Oregon Department of Fish and Wildlife Applicants)

I hereby make an application for financial assistance under the terms and conditions of the Fish Restoration and Enhancement Program as described in my project application. I acknowledge that:

- This proposal is an identified priority at the district, region, and/or state level and has been identified as such in the application (**check box** for appropriate level).
- This proposal is consistent with any applicable goals, policies, rules, species or basin management plans adopted by the F&W Commission and this has been explained in the application.
- This proposal will not be used to cover, back fill, or fund shift elements that have been cut or defunded as part of agency budget reductions. Approved deferred maintenance or projects with division approval are exceptions.

I understand that if my project proposal is approved for Restoration and Enhancement (R&E) Program funding, the following will apply:

- Applicants must sign an agreement containing the terms and conditions for the project implementation, release of funds, and documentation of completion. Non-compliance may impact future funding opportunities.
- The R&E Program will not pay for expenses which occur before the approved start date or after the end date.
- Funding is available one biennium only without prior authorization by the R&E Board.
- Applicant agrees to notify the R&E Program of all funds not needed for the project upon determination.
- Any inappropriate expenses using R&E funds will be corrected by the applicant immediately. By the close of the biennium any expenses exceeding, or not identified in, the grant approval will be reverted to a local cost code.
- Copies of all landowner, monitoring and maintenance agreements must be submitted to the R&E Program.
- Educational products resulting from projects are public domain.
- Information collected is subject to Oregon Public Records Law.
- As applicable, the project will be consistent with all federal, state, and local regulations, including the State Land Use Planning Goals & Local Land Use Plans, prior to any on the ground work.

By signing this application, I certify to the best of my knowledge that the information contained in the application are true, complete and accurate. If awarded funding the applicant agrees to follow all terms and conditions outlined in the agreement.

Project Title: Taylor Lake Aeration System Upgrade

Applicant Name: Jason Seals Title: Asst. District Fish Biologist

Applicant Signature: [Redacted] Date: 07/01/2014

Manager Certification:

To be completed by Watershed Manger, Hatchery Coordinator, Program Manager, or higher level manager.

- I concur with the statements above and the applicant has permission to request these funds.

Manger Name: Bob Hooton Title: Deschutes Watershed District Manager

Manager Signature: [Redacted] Date: 7-1-14