



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

I. Project Information

Project Name: Desolation Creek Natural Water Storage Project

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

Funding Request Type: Loan Grant

Funding Amount Requested: \$ \$361,709 Total cost of project: \$ \$504,319

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

II. Applicant Information

Principal Contact: <i>Valeen Madden</i>	Fiscal Officer: <i>Elaine Eisenbraun</i>
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Involved Landowner 1: <i>Desolation Creek, LLC</i>	Involved Landowner 2: <i>n/a</i>
Address: <i>721 NW 9th Avenue, Suite 200 Portland, Or 97209</i>	Address:
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**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: *Elaine Eisenbraun* Date: *1/25/2016*

Print Name: *Elaine Eisenbraun* Title/Organization: *ED North Fork John Day WL*

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.

Purpose: To increase valuable contributions to the hydrologic systems in Desolation Creek. The currently degraded system is in need of ecosystem enhancements: including: re-establishing natural water storage systems, reducing water temperatures, increasing floodplain connectivity, decreasing stream velocity, amassing native riparian vegetation volume and bolstering riparian species composition.

Need: Current conditions are the result of a century of heavy resource utilization for timber harvest and livestock grazing. Research from the Starkey Experiment Station indicates that heavy grazing in the late 1800's and early 1900's exposed more mineral soil, allowing more trees and invasive plants to grow. Across Oregon, timber harvests on the vast federal lands amount to only 15% of the State's annual harvest creating a burden on private lands to produce 75% of the merchantable wood for milling. (State and tribal lands produce the remaining 10%). Properties like Desolation Creek have proven accessible and productive, resulting in heavy utilization for log production and grazing. Looking to the future, science predicts warming temperatures which will exacerbate the historic degradation by altering flows, warming water temperatures, favoring exotic species, and increasing the number and intensity of wild fires. The existing situation reveals unfavorable hydrologic conditions, including: desiccated riparian vegetation, increasing temperatures, high velocity flows, incised channel and excess sediment transport.

Nature: The project will implement a variety of restoration projects aimed at benefitting water storage and the quality and volume of water that upland streams and meadows contribute to the John Day basin hydrologic system.

Desolation Creek is located at the headwaters of the John Day River system. It drains 69,643 acres on its way to the 230-mile long John Day mainstem. The primary area of interest contains an exceptional capacity for water storage in a natural cluster of wet meadows, establishes it as a potential fount of hydrologic productivity and distribution, serving the John Day and Columbia River systems. Desolation Creek, LLC property encompasses an extraordinary abundance of ground water springs. To date, over 40 perennial, freshwater springs have been identified on the property. These springs deliver quality, cold water that contributes to the entire John Day system. One restoration goal is to extend the time that water remains on the landscape and delay the release of that water back into the aquatic systems. While relatively rare, wet meadows are of disproportionate value because of their water retention capacity, utilization by wildlife and for a wealth of other ecosystem services. Despite their discernable value, wet meadows are one of the most profoundly altered ecosystem types. (Allen, J. 2009).

A natural meadow is an ecosystem "workhorse." For most of the year, wet meadows lack visible standing water, though the high water table allows the soils to sustain saturation. A conglomeration of water-dependent grasses, sedges, rushes, and wetland wildflowers proliferate in the highly fertile soils of these wet meadows. During periods of high rainfall and/or snowmelt, wet meadows accumulate runoff, reducing the probability of seasonal flooding to downstream low-lying areas. In the process of collecting and storing runoff, the vegetation of wet meadows also removes excess nutrients accumulated by the water, acting as a natural filter. This nutrient rich environment provides vital food and habitat for many life forms. (EPA <http://water.epa.gov/type/wetlands/wmeadows.cfm>) Melting snows are commonly identified as the primary source of water flows in the upper John Day Basin, yet this property's rich, prolific springs provide abundant water and, are an advantageous starting point for restoration work designed to increase in-stream flows, restore wet meadows, diversify ecosystem structure, enhance grazing opportunities, and retain soil moisture. All of these springs have been altered, re-routed, or serve as concentration areas for livestock. The results have included: degraded wet meadows, reduced riparian vegetation diversity and biomass, incised channels, stagnating flows entrapped in trampled wetlands, and ecosystem degradation.

Channel incision has occurred as a result of increased system sediment transport, and declining erosion resistant vegetation. The end result is that the streambed is excised faster than it can replenish itself. Desolation Creek, LLC supports the economic stability and livelihood of 3 ranching families on the property. Inclusive of these 3 families, as many as 1,000 head of cattle are widely present across the entire landscape. The landowners are making successful strides toward improved management of cattle distribution and access, by fencing sensitive meadow areas and restricting livestock access to Desolation Creek. Many over utilized riparian areas and meadows still need protection from further degradation as the result of livestock over use.

Between July 15 and August 15, 2016, the North Fork John Day Watershed Council will contract the installation of:

- 1) 275 small woody debris dams*
 - Moonshine Creek I- 50 small woody debris dams*
 - MoonshineCreek II- 50 small woody debris dams*
 - Leke Creek- 100 small woody debris dams*
 - Wassen Meadow - 25 small woody debris dams*
 - Nophia Creek- 50 small woody debris dams*

2) Associate projects leading to the comprehensive Goals and outcomes and funded through Oregon Watershed Enhancement Board and other entities. Please see section IV #9 for details.

These small woody debris dams will be installed with two 4" or greater, tapered, untreated wood anchor posts, driven a minimum of 24" into the soil on either side of the channel to provide structural stability. One 5-8" diameter natural wood pole will be stationed horizontally across the channel at ground level, extending 1' or greater beyond the anchor posts. Two natural wood poles 5-8" in diameter, will be positioned on the channel floor edge, and run diagonally to the opposite bank and be stabilized against the anchor post and horizontal pole. Small limbs .5- 3" diameter, and various vegetation will be placed in the channel on the upstream edge of the structures, to create a start for catching flow debris.

3) 4 analog beaver structures
- Spring Creek

These structures will consist of 3- 4 (channel size will determine length and diameter), untreated tapered posts, driven in to the streambed at a depth of no less than 2'. Limb debris will then be woven in to the posts, spanning the entire width of the channel.

4) 2,000 aspen trees

Aspen will be planted and caged at Spring Creek. Their establishment will provide an essential future food source for prospective beaver families. Beavers are a critical component of wet meadow functionality. Their life history provides the maintenance, which allows for the superior water storage capacity of wet meadows. But, they have been removed from the system. A primary goal of this project is to provide conditions, which are conducive to perennial support of future beaver populations. Additionally, the aspen will aid in sustaining surface moisture for longer periods by drawing the water table to its root system and provide important riparian vegetation.

5) 25 cottonwood trees

Cotton wood will be planted at Tobacco Meadow. Their establishment will provide important riparian vegetation, and aid in sustaining a higher water table. Existing Cottonwood galleries represent a minimal % percentage of the quantity that was originally found in the Blue Mountains.

6) 57, 939' of riparian protection fence
- Nophia 14,160'
- Moonshine 13,586'
- Leke 9,850'
- Spring 9,758'
- Wassen Meadow 9,652'
- Tobacco Meadow 933'

Fence construction will be guided by NRCS specifications for 4- strand, wildlife friendly (barbed with a smooth top and bottom wire), at a buffer width of a minimum of 20'. This will provide protection from livestock use and potential damage to newly installed in-stream structures.

See Table 3: Restoration Actions

IV. Project Specifics

Instructions: Answer all questions in this section by typing the answer below the question, using additional space as needed.

- 1. Describe how the project will provide public benefits in each of the three public benefit categories.** Project applications will be scored and ranked based on the economic, environmental and social/cultural public benefits identified below. Describe the conditions prior to and after project implementation to demonstrate changes resulting from the project. Descriptions should be quantitative when possible. Information provided must be sufficient to allow evaluation of the public benefits of the project. **Please see the Public Benefit and Evaluation Guidance document for a description of how public benefits will be evaluated.** Applications that do not demonstrate public benefit in each of the three categories (economic, environmental, social/cultural) will be deemed incomplete. Leave blank any categories that are not applicable to project.

Economic Benefits ORS 541.673(2)

(a) Job creation or retention:

Activities on the property contribute to employment of 1 FTE land/resource manager overseeing activity on the property year round. During the past year, 20 summer youth and crew leader jobs were created; four fence/spring contractors employing 8 laborers were engaged and one herbicide treatment contractor employing 1 laborer. This projects will provide comparable employment opportunities in 2016/17. In Grant County where unemployment is the highest in the state, and wages are low, this is an enormously positive impact. Research indicates that each \$1,000,000 generates 5 jobs and in the county with the highest unemployment in the state, jobs are more valued than the gold mined in this watershed.

(b) Increases in economic activity:

The estimated total Economic Impacts of Columbia River Salmon and Steelhead catch was \$88,783,000 in 2005. (NW Council.org 2005). The John Day contributes significantly to this number as a result of its high quality, dam-free state. The Upper North Fork, in turn, with its high flow of cold water and extensive meadow, is contributing vastly to the entire system indicating a strong argument for concerted attention to restoration of its upper reaches. The natural resource restoration economy has become a new pathway for economic activity in areas like the Upper North Fork watersheds, where a history of boom and bust economies have transcended trapping, mining, and most recently, timber. Estimates by University of Oregon indicate that an average of \$0.80 of every \$1.00 spent on a restoration project stays in the county where the project is located, and \$0.90 stays in state (Nielson- Pincus & Mosely 2010). The upper reaches of the North and Middle Forks of the John Day River provide vital headwaters habitat, supporting the high value fisheries of the John Day River basin. It is in these basins where the greatest good can be generated across the entire length of the assiduous John Day and its beneficiary, the Columbia - with its many diverse uses, values, and demands. Given the headwaters' benefits to the hydrologic system, no other geography can provide as much benefit for an equivalent cost or effort expended. Investing in the headwaters, means investing wisely in the productive foundation and source of all John Day and Columbia River values. In 2015, two of the restoration contracts were fulfilled at a rate of \$38,537. Additional economic activity in the form of supplies purchased, contract supervision, youth employment and property management amounted to \$78,954 for a total of \$117,491. The subject project will provide a minimum of 4 contracts in the amount of \$275,214 in addition to \$27,000 of youth services

See Table 1: Local Communities

(c) Increases in efficiency or innovation:

Many high elevation water retention projects occur on federal land; by investing in private land, the hurdles of NEPA consultation, public input, and other public lands policies are eased, allowing for more rapid implementation with direct contact between landowner, grantee, Tribes, and funders. With a variety of partners, comes diverse ideas and access to assorted funds. The Desolation Working Group has proven its efficiency by

implementing impactful projects within the first year of engagement. Projects have included: 32 acres of wet meadow conifer thinning, 43 acres of invasive weed treatments, 4 off- source livestock developments with susequents source/ wetland protection fencing, 5 miles of riparian fencing along both sides of Desolation Creek, aspen enclosure fencing at 2 sites, public access camp site improvements and cleanup and the implementation and continuation of a hydrologic and geomorphologic assessment of Desolation Creek and a number of tributaries.

(d) Enhancement of infrastructure, farmland, public resource lands, industrial lands, commercial lands or lands having other key uses:

Native hardwoods, protective fences, and small woody debris dams outline the enhancement of infrastructure installed on commercial lands that provide public access within the scope of this project. The restoration of native systems produces a natural infrastructure that supports local and downstream industry, recreation and public use. Additionally, past land practices have had a heavy result on the resource concerns that existed in 2014, when Desolation Creek, LLC purchased the land. Restoration activities that have taken place to date and those anticipated moving forward, will have a significant, favorable impact on the value of the property; ecologically, industrially, asthetically and monetarily. Here, too, climate change reveals an element critical to forward thinking entrepreneurs. Water is the key to infrastructure development as a tenable asset that must be at the forefront of planning. As water flows diminish, it is projects such as this one that could provide adequate additional water to make a significant difference.

(e) Enhanced economic value associated with tourism or recreational or commercial fishing, with fisheries involving native fish of cultural significance to Indian tribes or with other economic values resulting from restoring or protecting water instream:

The Ecotrust Forest Management, Inc mission is fully committed to public access. On this landscape, that translates to fishing and hunting opportunities and provides opportunities for the public to have open and easy access to observe anadromous fish runs. This project will enhance the fishery, particularly in appreciation of the First Foods concept, by connecting floodplains, reducing water temperatures, enhancing native vegetation, and protecting sensitive sites.

The members of the Umatilla Tribe recognize that, the Creator promised to provide natural resources and humans have a reciprocal responsibility to properly manage those resources. To achieve their goals, the Tribes seek to, “maintain large intact landscapes of naturally functional terrestrial and aquatic communities, [and] sustain traditional land uses, ecological integrity and cultural history.” (James, p. 5) The Tribes’ “River Vision” is designed to evaluate which floodplain characteristics or processes are needed to support the aquatic First Foods. The River Vision touchstones include: hydrology, geomorphology, connectivity, riparian vegetation, and aquatic biota with a comprehensive goal of “Restored Floodplain and Increased First Foods for Tribal Use.” (James p.10) The Umatilla Tribes recognize that the current era is one of partnership and they work to, “Coordinate conservation actions and leverage capabilities and support of agencies, organizations and partnerships.” (James, p. 11)

Anadromous fish runs in the Columbia bring 1 million salmon and steelhead per year. Page I-7 of the Environmental Assessment for the North Fork of the John Day Wild and Scenic River Management Plan states, “The value of the only remaining genetically viable run of spring Chinook salmon in the entire Columbia River Basin is incalculable.”

*Bull Trout (*Salvelinus confluentus*) are rated as at moderate to high risk of extinction throughout the North Fork John Day River drainage (Ratliff and Howell, 1992). They are federally listed as “Threatened.” Resident forms complete their entire life cycle in the tributary streams in which they spawn and rear. Bull trout require especially clean, cold water temperatures above 59 °F are thought to limit the survival of juveniles. Headwater streams provide habitat for resident forms of bull trout in all their life stages and for connected, habitats with structural components that provide good hiding cover (boulders and large wood). The project will trend toward these habitat conditions. Both juvenile and adult bull trout tend to remain near stream bottoms or closely associated with the substrate, submerged wood, or undercut banks. Adults use large cobble and boulder substrates, larger pools, and areas with accumulations of large wood. A complex habitat, characterized by a variety of pools, riffles, and water depths and velocities, is important to meet the diverse needs of all life stages. Bull trout depend upon the coldest, high elevation waters found in the geography of concern.*

Steelhead (Oncorhynchus mykiss) are listed as threatened under the ESA. A recovery plan has been developed for the Oregon Steelhead Populations in the Middle Columbia River Steelhead Distinct Population Segment including a recovery plan for the North Fork John Day areas. Annual steelhead spawning index counts have been measured by the ODF&W since 1959 in the John Day River Basin. The management goal is 8.6 redds per mile. The 5-year average remains well below that goal. The Upper NFJD is critical to recovery of threatened Mid-Columbia steelhead providing source waters to the only 'Highly Viable' population in the John Day. Steelhead are capable of surviving in a wide range of temperature conditions. They do best where dissolved oxygen concentration is at least 7 parts per million. In streams, deep low velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt. This is a unique species; individual development is dependent on environment. While all O. mykiss hatch in gravel-bottomed, fast-flowing, well-oxygenated rivers and streams, some stay in fresh water all their lives. Adults migrate from a marine environment into the freshwater streams and rivers of their birth in order to mate (anadromy). Unlike other Pacific salmonids, they can spawn more than one time (iteroparity). Migrations can be hundreds of miles. Young individuals feed primarily on zooplankton. Adults feed on aquatic and terrestrial insects, mollusks, crustaceans, fish eggs, minnows, and other small fishes (including other trout).

The Chinook salmon (Oncorhynchus tshawytscha) is the largest species in the Pacific salmon genus, Oncorhynchus. The common name refers to the Chinookan people. Chinook salmon (Oncorhynchus tshawytscha) feed on terrestrial and aquatic insects, amphipods, and other crustaceans while young, and primarily on other fishes when older. Adults migrate from a marine environment into the freshwater streams and rivers of their birth in order to mate (anadromy). They spawn only once and then die (semelparity). Juvenile Chinook may spend from 3 months to 2 years in freshwater before migrating to estuarine areas as smolts and then into the ocean to feed and mature. Chinook salmon remain at sea for 1 to 6 years (more commonly 2 to 4 years), with the exception of a small proportion of yearling males (called jack salmon) which mature in freshwater or return after 2 or 3 months in salt water.

The upper North Fork John Day is a major migration route for big game species. Approximately 2,500 Rocky Mountain elk migrate in and around the drainage from their summer range in the Elkhorn Mountains to their winter range in the Bridge Creek Wildlife Area. Approximately 1,000 mule deer also use that route. There are documented sightings of black bear, cougar, bobcat, wolf, and wolverine in the drainage. The wolverine is a sensitive species and is listed as threatened by the Oregon Department of Fish and Wildlife. Wildlife migration routes are high priority systems for restoration.

(f) Increases in irrigated land for agriculture:

This hydrologic system feeds into North Fork John Day River, contributor of 70% of John Day River Flows. The landscape spawning the headwaters of the John Day River irrigates 60,103 acres of farmland producing crops that help feed the world and sustain a region. By assuring that more water travels appropriately through the system, the available water for both instream and extractive uses will rise. The John Day River is unique in its lack of dams, native runs of fish, and contribution to Columbia River agricultural and industry. By offsetting the detrimental affects of climate change, also, the waters of Desolation Creek become a starting point for mitigation of the anticipated negative impacts.

Environmental Benefits ORS 541.673(3)

(a) A measurable improvement in protected streamflows that accomplishes one or more of the following:

- (A) Supports the natural hydrograph;
- (B) Improves floodplain function;
- (C) Supports state- or federally-listed sensitive, threatened or endangered fish species;
- (D) Supports native fish species of cultural importance to Indian tribes; or
- (E) Supports riparian habitat important for wildlife:

1. A measurable improvement in protected streamflows that accomplishes one or more of the following:

a. *Supports a natural hydrograph: A primary Goal (#2) (see attached “Specific goals & objectives”) of the project is to improve the hydrography. This will bring aggradation to incised channels, connect floodplains with inundation during spring floods, increase hyporheic flow and support native hardwood and herbaceous vegetation. All aspects of the project will be carefully monitored.*

b. *Improves floodplain function. The project is designed to influence bed load and suspended load transport by altering the slope, roughness, and channel width, thereby contributing to aggradation of incised channels and ultimate reconnection to the floodplain. The small woody debris dam structures will, early on, avail snowmelts and spring waters to the floodplain.*

c. *Supports state- or federally-listed sensitive, threatened or endangered fish species; The state or federally listed sensitive, threatened or endangered fish species include: Bull trout (listed as a threatened species at the federal level), Mid- Columbia steelhead (listed as a threatened species at the federal level).*

Additionally, chinook salmon are identified as “at risk species.” All three species are found in the Desolation Creek area, and all will benefit from the habitat improvements delivered by way of in-stream flow availability throughout the year, lower stream temperatures, decreased velocities and added habitat and cover protection from predators.

d. *Supports native fish species of cultural importance to Indian tribes: In addition to the CTUIR River Vision detailed in section A5 above, the Confederated Tribes of Warm Springs (CTWS) John Day River Water Restoration Strategy, lists Desolation Creek as Highest Priority for restoration work for federally listed bull trout and chinook salmon. This work is in direct alignment with the priorities of the CTWS document, which particularly calls out wet meadows for restoration investments.*

e. *Supports riparian habitat important for wildlife*
A Key component of the project is the development of habitat adequate to support beaver colonies in future years. Healthy stream ecosystems are heavily dependent upon actions of beavers and beavers are heavily dependent upon healthy ecosystems. The project develops appropriate habitat by installing small woody debris dams, planting and protecting native species, and fencing livestock out of sensitive areas. Additionally, this property is the center of a new wolf colonization being tracked by Oregon Department of Fish and Wildlife. Recent research indicates that wolves can play a critical role in functioning riparian ecosystems and benefit from actions which improve those resources. The planned actions will also benefit a variety of neo-tropical and migratory bird species, aquatic flora and fauna as well.

(b) *A measurable improvement in groundwater levels that enhances environmental conditions in groundwater restricted areas or other areas:*

The John Day Basin is arid, receiving less than 12 inches of rain per year in the lower reaches. Its groundwater stores are dependent upon recharge that can only be maintained if extractions are supplemented from the upstream wealth of water flowing out of Desolation and other high system tributaries. The project will monitor both: stream flow and temperature, soil moisture, graphing and mapping the change in the system over time. Abundance of available water will be shown to improve over time as a result of these efforts.

(c) *A measurable improvement in the quality of surface water or groundwater:*

Stream ecosystems become dynamic and will develop a high level of complexity as structures, live vegetation, and dead wood slow the flow of water and raise groundwater levels. Woody structures will increase roughness, reduce gradients, increase channel width, all of which reduce velocities to beget bed and suspended sediment loads leading to aggradation.

In addition to in-stream structure protection, the exclusion of cattle from wet meadow riparian areas will allow vegetation to inhabit floodplains, increasing roughness, reducing erosion and flood plain functionality.

(d) Water conservation:

The headwater region and perennial initiation point of any waterway is critical from a hydrologic perspective. In the case of Desolation Creek the benefit is particularly high, as it is a reliable source of cold water supplying the assiduous John Day River. Together with adjacent North Fork John Day tributaries, as much as 70% of the John Day flow is delivered. In healthy uplands, gifted with abundant wet meadows, the value afforded by water holding capacity is critical. This is where water can be, and naturally is retained over time to offset low base flows during dry summer seasons. Where historic management practices have degraded the functionality of those processes, there is ample room for water conservation by re-establishing the natural actions of flow, flooding, sedimentation, and temperature variation.

(e) Increased ecosystem resiliency to climate change impacts:

Early snow melts result in increased seasonal flow temperatures. Desolation Creek and other upstream waterways contribute cold water to climate impacted waters in arid regions such as the John Day. By extending the period and volume of cold water contributions, the system will produce a disproportionately beneficial mitigation to climate change.

(f) Improvements that address one or more limiting ecological factors in the project watershed:

Existing studies in the Desolation Creek Area include:

- Desolation Meadow Restoration Analysis (USFS)*
- North/Middle Fork John Day River Agricultural Water Management Plan (ODA)*
- North/Middle Fork John Day River Restoration Prioritization (NFJDWC)*
- Desolation Creek Watershed Action Plan (USFS)*

Specific Details are extracted from the three following plans:

-ODFW Mid-Columbia Steelhead Conservation & Recovery Plan- Limiting Factors: Impaired Fish Passage, Degraded channel structure and complexity, habitat diversity, altered sediment routing, water temperature, degraded riparian area, channel structure & complexity, floodplain degradation, altered hydrology, sediment, water quality, floodplain degradation, low flows, high temperatures.

-John Day Subbasin Plan- Restoration Priorities: Flow, Channel stability, Habitat diversity, Key habitat quantity, Sediment load, Oxygen, Temperature, Food, Competition with nonnatives,

-John Day River Watershed Restoration Strategy (CTWS)- Restoration Needs: Altered Hydrology 49%, Altered Sediment Routing 77%, Degraded Channel 77%, Degraded Floodplain 74%, Degraded Riparian 81%, Degraded Water Quality 64%, Impaired Fish Passage 38%. Percentages indicate the proportion of all stream reaches in Desolation Creek estimated to have the indicated restoration needs.

All of these references have been studied and detailed recommendations are included in the plans for the Desolation Creek Natural Water Storage project.

Social/Cultural Benefits ORS 541.673(4)

(a) The promotion of public health and safety and of local food systems:

Drought is at the forefront of public health and aggregate food systems management. It impacts crop/pasture success/failure, fodder production, farm asset values, field management capacity, labor outmigration, and distribution of wealth. The most immediate consequence of drought is reduced crop/pasture production due to inadequate rainfall and irrigation water volumes. Natural water 'reservoirs,' retained in high elevation wet meadows are the most readily available and affordable mitigation to this issue. By recreating the healthy, water modulating capacity of the wet meadows, irrigation water can be available downstream over a greater time period, and in higher volumes. While the impact of the water storage capacity at a handful of Desolation Creek springs seems superficially insignificant in the scope of the entire John Day Basin, it must be remembered that the North Fork contributes well over 2/3 of the John Day's water, and that Desolation Creek is one of the most prolific water sources in that system, thus revealing a contribution of significant value to the downstream public, and a strong initial first step in mitigating long-term water shortage in the future.

Using the figures from Oregon's Integrated Water Resources Strategy, 85% of all water diverted in Oregon is used for Agricultural purposes, while 6% is for municipal water, 6% for self-supplied industrial production, and 1% for non-municipal domestic purposes. The North Fork John Day produced between 50 cubic feet per second (CFS) during the summer months and 5,500 cfs during the winter months in 2015, a substantial contribution to local and downstream needs.

Restoration Consortium Film

An ongoing challenge for organizations and agencies seeking to impart change to traditional landscape utilization practices is the need for guaranteed public understanding of restoration projects. In today's modern world of media immersion, it is often wise to reach out to people in the medium that is most widely used and respected. Consequently, the Desolation Creek partners have partnered with a professional feature film company, Luck Films. Its owners, Willy Nelson (of music fame) and Kerry Wallum have agreed to coordinate their professional skills with film students to produce a high quality, low budget film of the HOW, WHERE, and WHY of the Desolation project. The film will visually explain the high value that water contributes to society and the critical situation that water users will face if water storage is not recouped. It will delineate the impact of Climate Change on the hydrologic cycle and what that means for Oregonians. The injection of a renowned feature film company, and one owned by an icon, recognizable to all, offers the project an advantage in "getting the message out." This is an extraordinary opportunity for the partners and funding agencies.

(b) A measurable improvement in conditions for members of minority or low-income communities, economically distressed rural communities, tribal communities or other communities traditionally underrepresented in public processes:

On either side of Desolation Creek, lies a community in economic distress. Ukiah, to the north has median household income of only \$25,000, and Long Creek to the south has 100% of its students on free/reduced lunches. Grant County, as a whole, has the highest unemployment in the state of Oregon – 8.8% in October 2015 while the equivalent U.S. rate was 5.0%. The project includes the employment of Grant County youth, providing them with a rare opportunity to earn income and learn job skills while being introduced to the science and culture of water conservation and hydrology. Providing jobs in this environment is an enormous boon to the economy, and the project is designed to create 3 contracts (including the filming) and 20 weeks of youth crew jobs.

(c) The promotion of recreation and scenic values:

Desolation Creek, LLC, the landowner of the restoration sites is committed to providing public benefits on their lands. To that end, the property remains open to the public for recreational uses such as camping, hunting, biking, hiking and fishing. Last year, approximately 30 parties averaging 3-4 people took advantage of the private lands resource sharing.

(d) Contribution to the body of scientific data publicly available in this state:

The Confederated Tribes of Umatilla Indian Reservation and the North Fork John Day Watershed Council, both have extensive monitoring projects. The NFJDWC has been the temperature and macro-invertebrate monitors for the Middle Fork John Day Intensively Monitored Watershed for the past decade. Data from those studies are uploaded to a public repository. CTUIR provides monitoring in broad categories such as mussel tracking, hydrology, fish habitat, and wetland conditions. Both organizations do and can provide additional scientific data along with the ensuing reports to the public.

Data that this project will produce in its monitoring will provide a currently unknown baseline for restoration of this type in the Desolation Creek Watershed. Monitoring will be conducted for a minimum of 3 years, including: 1) seasonal pre- project and post- project temperature data collected above the first in-stream structure and below the last in-stream structure at each identified stream, 2) seasonal pre and post implementation flow monitoring above and below all in-stream restoration sites, 3) seasonal pre and post implementation soil moisture readings at widths of 1 through 10' and depths of 1 through 4', at reoccurring sites affected by restoration 5) pre-established photo point monitoring, both pre and post restoration, to demonstrate the visual progresses being made across the affected landscapes (vegetation, stream structure and flow impacts).

(e) The promotion of state or local priorities, including but not limited to the restoration and protection of native fish species of cultural significance to Indian tribes:

The Confederated Tribes of Umatilla Indian Reservation is the Conservation Principal on the property as established in a cooperative “Riparian Conservation Easement.” They work closely with the landowner, and the Watershed Council to assure that all actions undertaken in the basin are favorable to native species of cultural significance to the First Foods approach. The Umatilla Tribes’, River Vision particularly identifies the priorities and preferred natural resource restorations of the Tribes and all parties are cognizant of those preferences. These provisions have been taken into account in project planning.

(f) The promotion of collaborative basin planning efforts, including but not limited to efforts under Oregon’s Integrated Water Resources Strategy:

A Desolation Creek Working Group was formed upon the inception of private lands ownership by a Company focused on restorative resource management. That group is led by the Confederated Tribes of the Umatilla Indian Reservation and includes: North Fork John Day Watershed Council, Oregon Department of Fish & Wildlife, Desolation Creek, LLC, Umatilla National Forest, Confederated Tribes of Warm Springs, and has invited additional participation from Oregon Watershed Enhancement Board.

Oregon’s Integrated Water Resources Strategy of 2012, sought a ‘bottom-up’ approach to water strategies. It introduces the dependence of ground water on geologic conditions and climate. The Desolation Creek area is fortunate to be a ground-water mainstay with the ability, through restoration actions to offset water extractions downstream.

The Executive Summary of the State’s “Integrated Water Resources Strategy” outlines the disconnection between the timing of precipitation and the demand by agricultural users. It touts “natural storage” in snowpack and floodplains as the solution to replenishing and filtering water supplies. Desolation Creek, and the Working Group focused on restoring its water, are concentrated on that very priority. The summary also seeks to advance water quality, and temperature ranks as a vital measure of water quality. The work presented for implementation on Desolation Creek will lower water temperatures flowing into the mainstem during summer dry periods by releasing cool, soil-stored water over a lengthened season.

2. Identify Project Location.

(a) Attach map of project implementation area if appropriate. List map(s) in this space and attach to application.
Attachment 6

(b) Township Range Section Quarter-Quarter Section
7S 32E 700

(c) Tax Lot Number(s)
700

(d) Latitude/Longitude
44.97045/ -118.91345
44.96024/ -118.87516
44.96436/ -118.86405
44.96218/ -118.84400
44.92592/ -118.86012
44.91456/ -118.84029
44.91925/ -118.80772

(e) County
Grant

(f) Watershed

(g) River/Stream Mile (where applicable)

Nophia- RM .5- 1.8

Moonshine 1- RM .5- 1.2

Moonshine 2- RM 1.6- 2.6

Wassen- RM 1- 1.9

Leke- RM .5- 1.4

Spring- RM .3- 1.2

3. (a) Will the project result in a physical change on private land? Yes No

If yes, attach evidence that landowners are aware of and agree to the proposal. List attachments below.

Attachment: 1

(b) Will the project result in monitoring on private land? Yes No

If yes, attach evidence that landowners agree to the proposal and are aware that monitoring information is public record. List attachments below.

Attachment: 1

4. Provide a project schedule, including beginning and completion dates. Use the following table as a guide. Attach a separate sheet to application if needed.

Estimated Project Duration: July 15, 2016 to October 31, 2018

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

Project Key Tasks	2016				2017				2018 & Beyond
	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr	
<i>Nophia- 50 small wood structures</i>			X						
<i>14,160' riparian fence</i>			X	X					
<i>Moonshine 1&2- 100 small wood structures</i>			X						
<i>13,586' riparian fence</i>			X	X					
<i>Spring- 4 artificial beaver dams</i>			X						
<i>9,758' riparian fence</i>			X	X					
<i>Plant 2,000 aspen trees</i>						X			
<i>895' aspen protection fence</i>						X			
<i>Leke- 100 small wood structures</i>			X						
<i>9,850' riparian fence</i>			X	X					
<i>Tobacco- 933' meadow protection fence</i>			X						
<i>Plant 25 cottonwood trees</i>						X			
<i>300' cottonwood protection fence</i>						X			
<i>Monitor- Riparian vegetation quality and quantity, wetland soil moistures, stream temeraptures, stream flows</i>		X	X	X		X	X	X	X
<i>Monitor & Outreach- Project success film</i>			X	X	X	X			

5. Describe any conditions that may affect the completion of the project.

Unable to secure funding.

6. Attach a completed feasibility analysis if one has been completed.

n/a

7. Provide suggestions for interim and long-term project performance benchmarks.

Structures and fencing

Interim benchmark: completion of 50% in year one.

Long-term benchmark: an increase in meadow storage capacity of 10% by year 10.

Plantings

Interim bench mark: 65% survival by year 2.

Long-term benchmark: cultivation of new trees with 65% survival sustained by year 5.

8. Provide letters of support for the proposed project (list in this space and attach to application).

Attach 2: Desolation Creek, LLC and Confederated Tribes of the Umatilla Indian Reservation.

9. Describe partnerships and collaborative efforts associated with the project.

The landowners acquired the Desolation Creek, LLC property in 2014, with their primary stewardship goals in restoration and community. Since that time, continuing progresses has been made on the ground, in management strategies and collaboration. This has strongly been due to several dynamics. One is, the critical importance that Desolation Creek has on our hydrological systems and the species it sustains. Also, the lands of Desolation Creek, LLC, sustain a thriving livestock grazing industry in the County. The landowners recognize the importance of this industry for economic stability and livelihood sustainability. They also understand the importance of strategically managing the interface between grazing and ecological processes, in a way that benefits both livestock and the landscape. Finally, this property boasts great public interest, due to its year-round public access for hunting, biking, hiking, camping and fishing. To date, collaborating participants have been, Confederated Tribes of the Umatilla, Oregon Department of Fish and Wildlife, US Forest Service and Confederated Tribes of the Warm Springs. Activities that have resulted from the collaborative efforts include, spring developments, wet meadow fencing, riparian fencing, in-stream small wood structures, noxious weed treatments, conifer thinning, aspen establishment and protection, campsite improvements and cleanups, removal and disposal of downed fence wire and an active geomorphic assessment and action plan for Desolation Creek, its tributaries and riparian zones; in which all stated partners are participating. The North Fork John Day Watershed Council currently has proposals submitted to the Oregon Watershed Enhancement Board, Rocky Mountain Elk Foundation, Blue Mountain Elk Initiative and USDA Title II. These projects include a degree of participation by all listed partners. Activities across these 4 proposals include: 46 acres of invasive weed treatments, 46 acres of meadow encroaching conifer removal, 5 acres of aspen plantings around wet meadows, 5.5 miles of property boundary fence for improved management of cattle, 7 wet meadow spring developments with meadow protection fencing and Lidar data covering all of Desolation Creek. Moving forward with the OWRD proposed project, Desolation Creek, LLC is collaborating with Oregon Department of Fish and Wildlife, U.S. Forest Service and Confederated Tribes of the Umatilla Indian Reservation.

10. Consultations/communications with affected Indian tribes and with the Legislative Commission on Indian Services regarding the project.

Has the Legislative Commission on Indian Services been contacted to identify tribes affected by the project?

Yes No

Please provide correspondence as an attachment to this application.

Attachment 3

Has there been consultation/communications with affected Indian tribes?

Yes No

Please provide a description of consultation/communication that occurred and attach documents to this application if applicable.

Attachment 5

The Confederated Tribes of the Umatilla Indian Reservation and Confederated Tribes of Warm Springs received copies of the proposal documents, submitted questions, and received answers to all of their questions. All have approved the project.

11. Provide a description of:

(a) Required local, state and/or federal [permits](#) and/or authorizations for project implementation that have been secured to date. Please attach secured permits/authorizations to the application.

n/a

(b) Required local, state and/or federal permits and/or authorizations that will be secured in the future to implement the project. Describe efforts to date in securing these permits and/or authorizations.

Peter Olmstead, regarding a US Army Corp of Engineers Department of the Army Permit- Phone consultation to determine this project will need the above identified permit.

Heidi Hartman, on Department of State Lands Removal/ Fill Permit- Phone consultation to determine this project will need the above identified permit.

12. Provide any additional supplemental materials to demonstrate ability to implement the project. Examples include project plans and specifications, engineering details and [water availability analysis](#). List documents in this space and attach to application.

Attachment 4: Design drawings for Small Woody Debris Dams.

V. Storage Project Requirements (if not a storage project continue to Section VI)

For any storage project please contact Water Resources Grant Administrator, Jon Unger, at (503) 986-0869 prior to completing the application.

13. Storage Project Type: Above Ground Below Ground

14. If above-ground storage, would the proposed storage project be located in-channel?

Yes No N/A

15. Identify the capacity in acre-feet of the proposed storage project.

12,000 acre-feet

16. Has a water right application been filed for the proposed storage project?

- Application not yet made.
- Water right application made; permit not yet issued Application #
- Permit issued. Application # Permit #

For Questions 17 & 18 answer the following:

(a) Does the proposed storage project impound surface water on a perennial stream?

- Yes No Uncertain

(b) Does the proposed storage project divert water from a stream that supports state- or federally-listed sensitive, threatened or endangered fish species?

- Yes No Uncertain

(c) Does the proposed storage project divert more than 500 acre-feet of water annually?

- Yes No

17. Water Dedicated Instream N/A

For above ground storage projects seeking grant funding: If you answered “yes” to any of the questions posed in a-c above a minimum volume of water equal to at least 25% of the stored water must be dedicated to instream use.

Identify percentage of stored water to be dedicated to instream use.

%

Note: Any storage project dedicating 25% of stored water to instream use will automatically receive a median score in the environmental public benefit category with the opportunity to demonstrate additional environmental benefit to increase the score.

18. Seasonally Varying Flow Prescription

For all storage projects: If you answered “yes” to any of the questions posed in a-c above the project will need a **Seasonally Varying Flow (SVF) Prescription**, determining the duration, timing, frequency and volume of flows (including ecological baseflow), necessary for protection and maintenance of biological, ecological, and physical functions outside of the official irrigation season. The initial step in defining the SVF for the project is to schedule an SVF meeting with OWRD. For assistance and more information please contact Water Resources Grant Administrator Jon Unger at (503) 986-0869.

Identify whether the storage project will need a Seasonally Varying Flow Prescription.

- Yes No Uncertain

VI. Environmental Public Benefit for Conservation Projects Dedicating Water Instream (if not a conservation project continue to Section VII)

19. Identify percentage of conserved water to be dedicated to instream use. N/A

%

Note: Any project that conserves water and dedicates at least 25% of the conserved water quantity to instream use will automatically receive a median score in the environmental public benefit category with the opportunity to demonstrate additional environmental benefit to increase the score. Water dedicated to instream use must be permanently placed instream and protected by the Oregon Water Resources Department.

VII. Financial Information

For Loan Applicants – Since loan applications do not require cost match, loan applicants who do not offer a cost match need not complete Section A and can disregard the match funding columns in Sections B and C. Budget and costs of key tasks must be identified in sections B & C. Loan applicants will be required to provide additional financial information related to their ability to repay the loan. This request for information will take place after the scoring and ranking process for those projects that are recommended for funding.

For Grant Applicants – Complete Sections A, B and C.

Section A – Cost Match Information

Applicants must demonstrate a minimum 25% funding match based on the total project cost. The match may include: a) applicant funds or 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 project. For secured funding, the applicant must attach a funding award letter 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. Funds expended prior to grant agreement are not reimbursable nor do they qualify for cost match without prior authorization by the Department.

<p>In the Type column below matching funds may include:</p>	<p>In the Status column below matching funds may have the following status:</p>
<ul style="list-style-type: none"> • Cash - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*. 	<ul style="list-style-type: none"> • Secured - Funding commitments already secured from other sources.
<ul style="list-style-type: none"> • In-Kind - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner. 	<ul style="list-style-type: none"> • Pending - 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.

* “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.

<p>Match Funding Source (if in-kind, briefly describe the nature of the contribution)</p>	<p>Type (✓ One)</p>	<p>Status (✓ One)</p>	<p>Amount/ Dollar Value</p>	<p>Date Match Funds Available (Month/Year)</p>
<i>Ecotrust FM</i>	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$55,370	<i>January 16</i>
<i>NFJDWC</i>	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$25,919	<i>January 16</i>
<i>OWEB</i>	<input checked="" type="checkbox"/> cash <input type="checkbox"/> in-kind	<input type="checkbox"/> secured <input checked="" type="checkbox"/> pending	\$61,185	<i>June 16</i>
<i>Confederated Tribes of the Umatilla</i>	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input checked="" type="checkbox"/> secured <input type="checkbox"/> pending	\$136	<i>January 16</i>
<i>Confederated Tribes of the Umatilla- \$ TBD</i>	<input type="checkbox"/> cash <input checked="" type="checkbox"/> in-kind	<input type="checkbox"/> secured <input checked="" 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		

