OREGON WATER RESOURCE DEPARTMENT
WATER CONSERVATON, REUSE AND STORAGE
FEASIBILTY STUDY GRANT PROGRAM

I. Grant Information

Study Name: *Drift Creek Water Supply Development Project*

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

Program Funding Dollars Requested: $ $76,320 Total Cost of Feasibility Study: $ $152,640

Note: Request may not exceed $500,000

II. Applicant Information

Applicant Name: ***East Valley Water District***		**Co-Applicant Name:**
Address:	*P.O. Box 1046*	Address:
	Mt. Angel, OR 97362	
Phone:	*503-469-0812*	Phone:
Fax:	*503-469-0812*	Fax:
Email:	*lauren@integratedwatersolutions.net*	Email:

Principle Contact: ***Terry Buchholz, P.E., C.W.R.E***	
Address:	*845 SW 123rd Court*
	Portland, OR 97225
Phone:	*503-469-0812*
Fax:	*503-469-0812*
Email:	*terry@integratedwatersolutions.net*

Certification:

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

Applicant Signature: _____ Date: *7/31/2015*

Print Name: *David Bielenberg* Title: *Chair, Board of Directors*

III. Feasibility Study Summary

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

For over twenty years, East Valley Water District (District) has worked toward a long-term stable water supply for its membership. 18,560 of the District's service area lies within two Groundwater Limited Areas (GLAs); Mt. Angel and Gladtidings. The District is currently served through a combination of time limited permits, temporary transfers - both from strained surface and ground water sources. The Drift Creek Water Supply Development Project would store 12,000 acre-feet of water in a reservoir on Drift Creek near Silverton.

The District invested significant resources toward evaluation and study toward water supply development; and has made substantial progress on feasibility studies of the reservoir. In early 2015, the District performed investigations for hydrology, cultural

resources, wetlands, fisheries and elk. In the next phase of analysis, the District will (1) evaluate off-channel storage alternatives; (2) investigate water supply distribution alternatives; (3) further investigation of elk; (4) further cultural resources investigations.

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Also Enclosed for Supporting Information:

Attachment A: *1994 Reconnaissance Level Investigation*
Attachment B: *Oregon State University Drift Creek Dam Agriculture Economic Value Analysis*
Attachment C: *Drift Creek Hydrologic Report Update #4*
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Attachment E: *Project Map*
Attachment F: *Permitting Strategy Table*

III. Feasibility Study Summary

For over twenty years, East Valley Water District (District) has worked toward a long-term stable water supply for its membership. Approximately 18,560 acres of the District's service area lie within two Groundwater Limited Areas (GLAs); Mt. Angel and Gladtidings. The District is currently served through a combination of individual wells, time limited permits, temporary transfers; all from strained surface and ground water sources. The Drift Creek Water Supply Development Project would store 12,000 acre-feet of water in a reservoir on Drift Creek.

The District invested significant resources toward evaluation of an alternative water supply and has made substantial progress on feasibility studies of the reservoir. In early 2015, the District performed investigations for hydrology, cultural resources, wetlands, fisheries and elk. In the next phase of analysis, the District will (1) evaluate off-channel storage alternatives; (2) analyze storage required to provide ecological flows; (3) further investigation of elk; (4) further cultural resources investigations.

IV. Grant Specifics

Section A. Common Criteria

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

The overarching goal of the Drift Creek Water Supply Development Project is to secure a stable water supply for the District for the purpose of supporting local agricultural interests, small town economies, mitigate receding groundwater conditions, relieve over-appropriated surface water sources, benefit fish habitat, and reduce flooding risk. The goal of this phase of the project is to perform and complete the necessary feasibility studies and field investigations to determine if the Drift Creek site is the most suitable alternative available to the District for an alternate water supply.

Currently, the District is served through a patchwork of time-limited permits and temporary water right transfers. The limited surface water supply compounded by the District's service area lying within two Groundwater Limited Areas makes development of an alternate source of water imperative.

For over two decades, the District has worked toward development of an alternate water supply. After studying over 75 alternate sites and strategies, the District determined a surface water reservoir on Drift Creek could provide the most adequate, acceptable, reliable, affordable and permitable solution. As of July 2015, the District has initiated and/or completed the following studies to determine feasibility of the project:

- Detailed hydrologic analysis (90% complete);
- Reservoir modeling and yield analyses (90% complete);
- Land use analysis (90% complete);
- Agricultural economic value analysis to determine ability-to-pay (90% complete);
- Wetland delineation and analysis (90% complete);
- Water Right analyses and application (Preliminary Final Order issued 7/22/2014);
- Temperature and flow monitoring (60% complete);
- Fish and fish habitat assessments (60% complete);
- Geotechnical feasibility (60% complete)
- Elk and wildlife assessments (30% complete);
- Cultural resources analysis (30% complete); and
- Alternatives analysis for storage (60% complete).

As detailed above, the District has made substantial progress in its studies and analysis of the site. However, several major pieces of work still remain to ensure that the Drift Creek site is the most suitable alternative to provide the District a stable water supply. Principally, the District wishes to do further evaluation of off-channel storage alternatives and determine the feasibility of providing ecological flows as an additional purpose of the project. The District also would like to continue analyses on elk and cultural resources. These analyses would include:

- *Evaluation of Off-Channel Storage Alternatives:* The District has evaluated a wide range of water supply storage alternatives including both on-channel and below ground storage. The District wishes to revise the evaluation of alternative to include at least two off-channel water supply storage for Drift Creek. These alternatives will include both an off-

channel reservoir that requires pumping and an off-channel reservoir that would be gravity fed.

- *Analyze Storage Required to Provide By-pass, Optimum Peak, Flushing and Other Ecological Flows:* Drift Creek currently experiences extremely low flows in the summer that typically threatening fish species due to high temperatures. The District wishes to analyze the storage needed to provide by-pass, optimum peak, flushing and other ecological flows through the project. This would also include an evaluation of environmental benefits and impacts for conveying water supply within Drift Creek to the point of distribution downstream through instream flow augmentation and habitat enhancement.
- *Further Evaluation of Elk Presence and Potential Project Impacts:* The District wishes to perform further evaluation of the presence and use of habitat by elk in the project area. The analyses will include the impacts and/or benefits of the Project to their habitat and identify strategies to avoid, minimize and/or mitigate Project impacts to elk and their habitat.
- *Conduct Phase II Cultural Resources Investigations:* In 2015, the District performed cultural resource pedestrian surveys that identified several areas that shovel testing and further investigation is needed. The District wishes to perform shovel testing and additional evaluation and determine any potential project impacts to cultural resources sites. The studies would allow the District to complete Section 106 National Resource Preservation Act reporting and seek concurrence with the State Historic Preservation Office (SHPO).

These four areas of study are the remaining large pieces of work needed to move to the end of the feasibility phase of the Project into the environmental permitting phase; marking a major step forward for the District and its pursuit of a stable water supply source for its members.

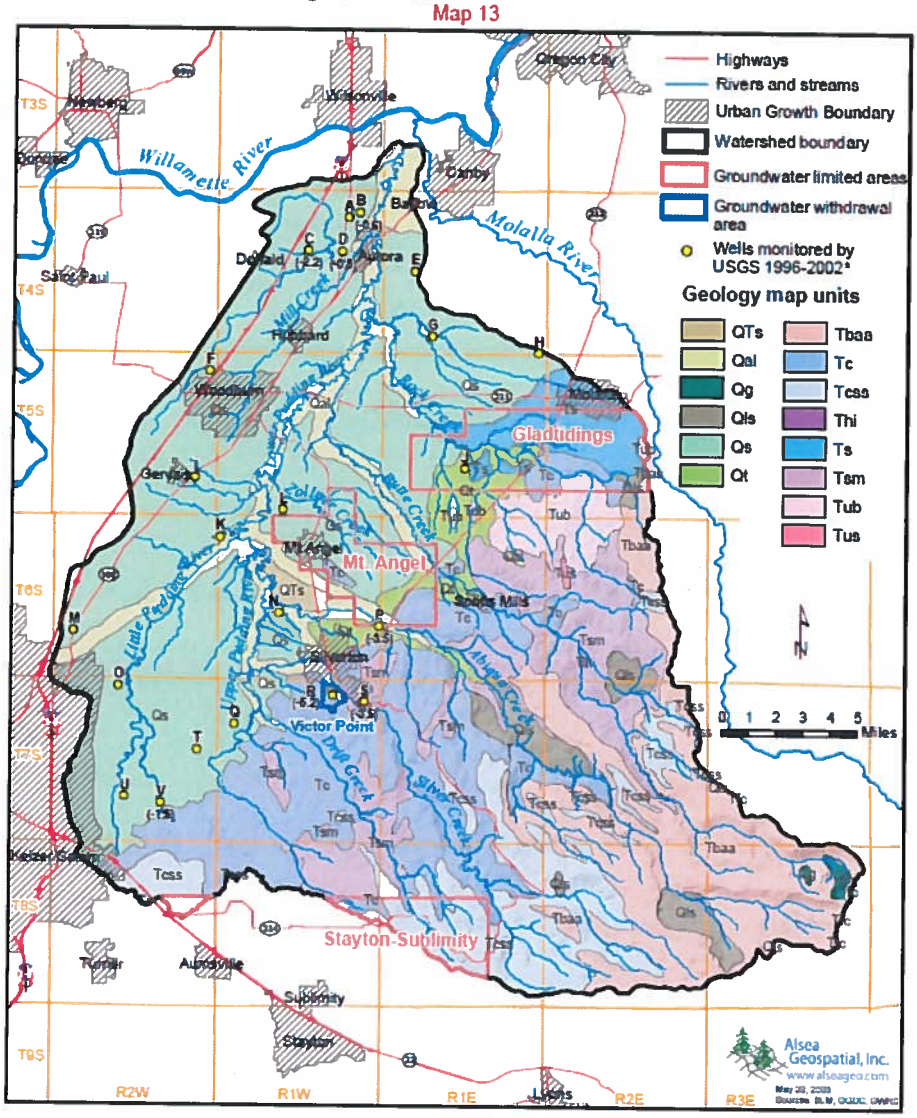
2. **Describe the water supply need(s) that the proposed project addresses. Identify any critical local, regional or statewide water supply needs that implementation of the project associated with the feasibility study will address. Responses should rely upon solid water availability and needs/data analysis.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

East Valley Water District's Service area extends northerly from Silverton to just south of Woodburn and Molalla, between the Pudding River and the west of the Cascade Mountain foothills. Over 18,000 acres of East Valley Water District's service area lies within a Groundwater Limited Area (Mt. Angel and Gladtidings GLAs) as designated by the Oregon Water Resources Department. The surface water supply within the District's area has also been fully appropriated and is regularly limited during the period of use for irrigation purposes. Some of the District's membership have conditional temporary permits for water use; however there is not a long-term stable water supply available within the District area. This section is divided in three parts (1) Critical Water Needs within the District (2) Purpose and Need for Water Supply Development (3) Proposed Water Supply Availability.

Critical Water Needs within the District

The Mt. Angel GLA includes about 10,640 acres in the vicinity of Mt. Angel and the Gladtidings GLA includes about 16,000 acres. Expanded use for all but domestic purposes is prohibited by the Oregon Water Resource Department. The following map shows the Pudding River drainage area that the District's service area is located with groundwater limited areas outlined:

Designated Groundwater Areas
Pudding River Watershed Assessment
Map 13



Prior to incorporating as East Valley Water District, the landowners within the district boundary were organized as the Pudding River Basin Water Resources Development Association in 1993. That organization performed an extensive *1994 Reconnaissance Level Investigation* to investigate the current conditions and evaluate future water needs (See Attachment A for complete study; referred to as 1994 Study hereafter.) The study found groundwater declines in this area are due to several factors including well installation and deepening in the 1960s and early 1970s. Some concentrations of new wells and deepening were inside the Mt. Angel and Gladtidings GLAs. Many wells were deepened to increase well yield in response to increasing markets for higher value food crops that were developing in the mid-1970s. The irrigation wells rely primarily on deeper basalt aquifers for their water supply; as is typical in the northern Willamette Valley. This condition confines the aquifer in the volcanic rock making refill and recharge difficult. These factors gave Oregon Water Resources Department sufficient evidence to declare these two zones groundwater limited areas.

In addition, surface water supply has been fully appropriated for the area and is regularly limited during the period of use for irrigation. Conditional time-limited permits and temporary transfers are now in place; but there is no long term solution for district members. Some of the time-limited permits have already been canceled, and water availability in most years is not stable nor reliable. The ability to store water will relieve the strained groundwater and surface water conditions in the Pudding River drainage area serviced by the District.

Purpose and Need for Water Supply Development

The primary purpose for the proposed project is to service agricultural and irrigation needs. Marion County is the largest agriculture producing county in the state in dollar value. Irrigated farms produce more than 80% of the total value of Oregon's harvested crops with 15% of all economic activity in Oregon tied to agriculture. Within the District boundary, the following crops are grown (reported to FSA, note – not all reported acreage are District members):

Crop	Acres	Percentage of EVWD (36160 acres)
Alfalfa	257.4	0.71%
Barley	21.3	0.06%
Beans	1,598.2	4.42%
Beets	108.1	0.30%
Blueberries	283.9	0.79%
Broccoli	243.4	0.67%
Buckwheat	55.7	0.15%
Cabbage	30.8	0.09%
Canary Seed	8.4	0.02%
Caneberries	1,195.4	3.31%
Cauliflower	390.2	1.08%
Cherries	2.8	0.01%
Chicory	104.9	0.29%
Christmas Trees	699.1	1.93%
Clover	721.0	1.99%
Corn	2,201.3	6.09%
CRP	38.7	0.11%
Cucumbers	30.2	0.08%
Fallow	568.4	1.57%
Flowers	852.7	2.36%
Garlic	91.4	0.25%
Grapes	671.1	1.86%
Grass	14,111.2	39.02%
Greens	36.9	0.10%
Hazelnuts	921.9	2.55%
Herbs	25.8	0.07%
Home Garden	1.7	0.00%
Hops	1,129.0	3.12%
Kiwi Fruit	6.6	0.02%
Kohlrabi	13.7	0.04%
Meadow Foam	37.7	0.10%
Mixed Hay / Forage	1,339.9	3.71%
Mustard	22.3	0.06%
Nursery	1,256.1	3.47%
Oats	297.9	0.82%
Olives	4.8	0.01%

Onions	509.4	1.41%
Parsnip	6.0	0.02%
Peas	695.3	1.92%
Peppers	77.3	0.21%
Potatoes	42.6	0.12%
Pumpkins	58.5	0.16%
Radishes	259.6	0.72%
Rhubarb	134.6	0.37%
Squash	174.4	0.48%
Strawberries	230.8	0.64%
Sugar Beets	225.3	0.62%
Trees	28.8	0.08%
Watercress	7.0	0.02%
Wheat	4,299.5	11.89%
Wildlife Food Plot	31.0	0.09%
TOTAL	36,160.0	100.00%

The 1994 Study coupled with the findings of the *Oregon State University Drift Creek Dam Agriculture Economic Value Analysis* (See Attachment B) identified 36,160 acres of net productive agriculture land in the District service area. Currently only 15,000 acres are irrigated in the service area due to several factors including water availability. Permits and certificates for surface water in the District equate to about 10,800 acres with current applications on file to OWRD totaling 940 acres. Some of these lands are currently irrigated under temporary permits that will expire in the very near future. All water rights are held in the names of individuals in the District.

Irrigation water requirements have been estimated for the District in a number of past investigations and planning studies. The commonly developed per-acre estimates for irrigation requirements average 1.8 acre-feet of water per acre of irrigated land. The following calculation table can be found referenced in Page III-6 of the 1994 Study:

TABLE III-4

THEORETICAL UNIT IRRIGATION DEMAND ON STORAGE
(ACRE-FEET/ACRE)

	APR	MAY	JUN	JUL	AUG	SEP	TOTAL
DEMAND ON STORAGE	.02	.15	.44	.62	.37	.16	1.80

Using these calculations, the total estimated need of water for the District is calculated to be 23,357 acre-feet annually. The proposed Project is anticipated to store 12,000 acre-feet of water (~51% of total need). Depending on the project selection, a portion of the need would come from stored water and a portion from existing groundwater, surface water rights, and conservation improvements.

Proposed Project Water Supply Availability

The District has performed extensive hydrologic studies and monitoring of stream flows at the proposed project site on Drift Creek with the latest study update occurring in spring 2015 (See Attachment C, *Drift Creek Hydrologic Report Update #4*). Based on the streamflow data connected coupled with hydrologic analysis, the likelihood of seeing an October – April runoff

volume of 12,000 acre-feet available for storage at the project site looks reasonably good. The runoff volume is estimated at 17,700 acre-feet for the 90% exceedance frequency (EF); 26,400 acre-feet for the 50% EF (2-year exceedance interval); and 39,500 acre-feet for the 10% EF (10 year exceedance interval). These volumes can be stored in the reservoir when the project has met 100% of the required in-stream flows listed for Drift Creek at its confluence with the Pudding River. Challenges to meeting the storage objective occur in a limited number of real-time discharge datasets; for example in the driest water years observed (2008-2009) there may be difficulty in reaching a storage volume of 12,000 acre-feet. More detail on the hydrology analysis (including methods and extensive data analysis) can be found in Attachment C.

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

East Valley Water District's water supply need is 23,357 acre-feet annually. The proposed project will store 12,000 acre-feet for irrigation use fulfilling slightly over 51% of the District's annual water supply needs.

According to the *Conceptual Design Report* (Attachment D) the proposed project would construct an earthen embankment approximately 70-foot high, 850-foot long to impound the 12,000 acre-feet of water. The resulting inundation area would be approximately 380 acres.

As discussed in Question 2, extensive hydrologic study has shown that runoff can produce the desired storage capacity of 12,000 acre-feet is available at the proposed location in over 90% of water years. Water availability for a storage project is based on water being available at a 50% exceedance factor. In reviewing OWRD's water availability data, the District factored in existing current uses which have an earlier priority date than the water right requested by the District for storage purposes. The existing consumptive rights are for small amounts of irrigation and related pond storage for agriculture use and equate to 586 acre-feet annually. There is also existing instream water right with a priority date of October 18, 1990. The water availability quantification developed by the District includes the instream rights as measured at the lower end of the stream reach (as required by the certificate and confirmed by department staff) at the mouth of the creek.

The project is proposed to store water from October – April for release during the irrigation period of use. The District has applied for a surface water right for storage within the reservoir and right to withdraw the water seasonally from the reservoir for agriculture purposes.

In addition to storing water for irrigation and agricultural purposes, the District wishes to investigate the ability of the proposed project to benefit fish and habitat conditions downstream of the reservoir. Thus, the District wishes to analyze storage required to provide by-pass, optimum peak, flushing and ecological flows as an additional purpose of the project. Drift Creek has noted water quality and temperature issues through the summer due to low summer flows and high air temperatures. The current conceptual design of the reservoir will pass cool water from the bottom of the reservoir throughout the summer; providing opportunity for improved water temperature downstream of the project. However, the District wishes to further investigate other ecological flows that can be provided to improve conditions and habitat for native species downstream.

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

With support of East Valley Water District's membership and partners like the Oregon Water Resources Department, the District has made substantial progress in its studies and analysis of the site. However, several major pieces of work still remain to ensure that the Drift Creek site is the most suitable alternative to provide the District a stable water supply. Principally, the District wishes to do further evaluation of off-channel storage alternatives and determine the feasibility of providing ecological flows as an additional purpose of the project. Thus, the District wishes to initiate the following studies:

- *Evaluation of Off-Channel Storage Alternatives:* The District has evaluated a wide range of water supply storage alternatives including both on-channel and below ground storage. The District wishes to update the evaluation of alternatives to include at least two off-channel water supply storage for Drift Creek. These alternatives will include both an off-channel reservoir that requires pumping and an off-channel reservoir that would be gravity fed.
- *Analyze Storage Required to provide By-pass, Optimum Peak, Flushing and Other Ecological Flows:* Drift Creek currently experiences extremely low flows in the summer; typically threatening fish species due to high temperatures. The District wishes to analyze the storage needed to provide by-pass, optimum peak, flushing and other ecological flows through the project. This would also include an evaluation of environmental benefits and impacts for conveying water supply within Drift Creek to the point of distribution downstream through instream flow augmentation and habitat enhancement.

In addition to initiating the above efforts, there are certain studies the District would like to investigate in more detail; those studies include:

- *Further Evaluation of Elk Presence and Potential Project Impacts:* The District wishes to perform further evaluation of the presence and use of habitat by elk in the project area. The analyses will include the impacts and/or benefits of the Project to their habitat and identify strategies to avoid, minimize and/or mitigate Project impacts to elk and their habitat.
- *Conduct Phase II Cultural Resources Investigations:* In 2015, the District performed cultural resource pedestrian surveys that identified several areas that shovel testing and further investigation is needed. The District wishes to perform shovel testing and additional evaluation and determine any potential project impacts to cultural resources sites. The studies would allow the District to complete Section 106 National Resource Preservation Act reporting and seek concurrence with the State Historic Preservation Office (SHPO).

The following list is an overview of studies and evaluations the District believes are necessary to complete the pieces of work proposed in this phase of feasibility studies. Detailed information on scope and expertise are included in Question 5 and Question 10.

Evaluation of Off-Channel Storage Alternatives

The District has considered several water supply development strategies and over 75 project sites before determining Drift Creek as a site worthy of detailed feasibility studies. However, the District wishes to perform an additional evaluation to include at least two off-channel storage

alternatives. With encouragement from the community surrounding the proposed reservoir site as well as other interest groups, the District wishes to take a deeper look at potential storage possibilities that have not been included in previous alternative analyses. This analysis will include identifying potential sites and strategies for off-channel storage, assessing potential storage capacity, developing conceptual plans for the alternatives, evaluating engineering feasibility, evaluating environmental benefits and impacts, evaluating land-use impacts, and developing conceptual construction, operations and maintenance cost estimates.

Analyze Storage Required to Provide By-pass, Optimum Peak, Flushing and Other Ecological Flows
The primary purpose of the proposed project is for agricultural use. However, the District recognizes the potential opportunity to improve fish conditions both in and downstream of the reservoir through providing ecological flow conditions. The District would like to perform studies to determine the timing, quantity and quality of flows needed to benefit native species.

The District has performed fish habitat surveys that have identified temperature issues and limited availability of pool habitat. Significant resources have been invested in expanding the District's knowledge of fish habitat and flow monitoring. The information previously gathered on the current habitat conditions will be vital to evaluating the flow needed to benefit species.

Once the flow relationship has been determined, hydrologists will determine the amount of storage and release needed to create by-pass, optimum peak, flushing or other ecological flow conditions that support healthy ecology. The ability for conveyance flows in the creek will also be evaluated for their benefit to support healthy ecology.

Further Evaluation of Elk Presence and Potential Project Impacts
The District has performed preliminary elk presence surveys and literature reviews. Through consultation with Oregon Department of Fish and Wildlife, the District would like to perform more detailed analysis and identify all potential impacts and benefits to the species due to the proposed reservoir. The studies will also identify any potential avoidance or mitigation strategies. This analysis will include literature reviews as well as field investigations to observe the presence and behavior of elk and their habitat. All findings will be documented and confirmed with Oregon Department of Fish and Wildlife.

Conduct Phase II Cultural Resources Investigations
The District has conducted pedestrian surveys in the reservoir footprint that have identified the need for more detailed analysis in several areas. Thus, the District proposes to perform shovel testing and additional evaluation to determine any potential project impacts to cultural resources sites. The studies would allow the District to complete Section 106 National Resource Preservation Act reporting and seek concurrence with the State Historic Preservation Office.

From the pedestrian surveys, it is anticipated that there are a few high probability areas that will be identified for exploratory shovel testing, and that up to 160 shovel tests will be excavated. According to Archaeological Investigations Northwest (AINW – the firm engaged to perform the studies) a permit would not be needed for the testing because the effort would determine resource boundaries and test high probability areas. However, this assumption will need to be tested prior to initiating any study. Any artifacts recovered in shovel tests not on public lands can

be evaluated and documented in the field and returned to the shovel tests as they are back filled [there are no high probability areas on public lands, thus artifacts cannot be removed for testing.] Once shovel testing is complete, findings will be documented for agency review by SHPO and potential listing with the National Registry of Historic Places. This work would allow the District to do the necessary documentation for the Section 106 Report and SHPO letter and all other necessary reporting needs.

5. Describe how the feasibility study will be performed.

This section describes the scope of work proposed to complete this phase of feasibility studies. All studies and analysis proposed can be done concurrently with the resources listed in Question 10.

The tasks outlined in this grant application will be initiated as soon as a funding agreement is approved and signed. Dates and timelines for completion in this scope of work assume funding agreement is reached in January 2016. All studies are planned to be performed by consultants or individuals already engaged in the project. Thus, work can begin as soon as a funding agreement is reached.

Task One: Evaluation of Off-channel Storage Alternatives

Timeline for completion: July 2016

The objective of this task is to evaluate two additional off-channel water supply storage alternatives for Drift Creek. It is anticipated that the alternatives will include both an off-channel reservoir that may be gravity fed, and one that may require pumping. The study will focus on basin alternatives, and Drift Creek alternative sites, if possible.

Description of Activities:

A. Identify potential Drift Creek off-channel alternatives
B. Develop conceptual plans for potentially viable off-channel alternatives
C. Evaluate the engineering feasibility of off-channel alternatives including conceptual earthwork and mass-balance considerations, existing well depth to water analysis and associated groundwater considerations, water availability assessment, constructability review, and pumping considerations
D. Evaluate environmental benefits and impacts of the off-channel alternatives
E. Evaluate land-use impacts of the off-channel alternatives
F. Develop construction, operations (i.e. pumping) and maintenance cost estimates for the off-channel alternatives.
G. Revise previously completed water supply alternative analysis to include evaluation and comparison of off-channel storage alternatives

Resources Required: Water Resources Engineer (Kevin Crew, 120 Hours); Environmental Specialist (Dave Dekrey, 40 hours); Planner (Terry Buchholz, 40 hours)

Task Two: Analyze Storage Required to Provide By-Pass, Optimum Peak, Flushing and Other Ecological Flows

Timeline for completion: December 2016

The District will evaluate the storage required to provide by-pass, optimum peak, flushing and other ecological flows that would benefit the ecology downstream of the reservoir. This study will also look at the potential benefits of conveying water instream during the irrigation season to ecological flows.

Description of Activities:

A. Determine and document flow conditions that could benefit ecologic health below the reservoir.
B. Perform hydrologic analysis of the amount of Drift Creek reservoir storage needed to provide by-pass, optimum peak, flushing and other ecological flows.
C. Evaluate the environmental benefits and impacts for conveying water supply within Drift Creek to the point of distribution.
D. Evaluate non-flow-related conditions (e.g. habitat enhancement) needed in order for downstream flow conditions to improve ecology downstream of the reservoir.

Resources Required: Water Resources Engineer (Crew, 100 hours); Hydrologist (Dr. Tanovan, 24 hours); Environmental Specialist (Dekrey, 160 hours); Planner (Buchholz, 40 hours)

Task Three: Evaluate Elk Presence and Potential Project Impacts

Timeline for Completion: April 2017

The District needs to further evaluate the presence and use of elk habitat within the Drift Creek Reservoir project area. Based on information gathered, the District will develop a strategy to avoid, minimize and/or mitigate Project impacts to elk and their habitats.

Description of Activities:

A. Conduct research and field investigations to determine the presence and use of habitat by elk in the project area.
B. Determine the impacts and/or benefits of Project on elk and their habitats.
C. Identify strategies to avoid, minimize and/or mitigate project impacts to elk and their habitat.

Resources Required: Senior Wildlife Biologist (Christine Champe, 32 hours); Wildlife Biologist (Stillwater Sciences, 136 hours)

Task Four: Conduct Phase II Cultural Resources Investigations

Timeline for Completion: December 2016

Description of Activities:

A. Acquire necessary clearances needed to perform shovel testing (if deemed necessary).
B. Establish the area of potential effect for the project and confer with the U.S. Army Corps of Engineers.
C. Use the completed survey information from March 2015 pedestrian surveys to determine high probability areas that require shovel testing.
D. Perform cultural resources shovel testing (up to 160 tests) in identified high probability areas.

E. Identified resources during the shovel testing will be delineated and recorded on SHPO resource forms.
F. Delineated sites will be tested and evaluated for National Register of Historic Places Eligibility (SHPO permits would be needed to evaluate each site, with separate permits for each individual landowner property identified).
G. Assess eligible cultural resources sites for project-related impacts.
H. If determined necessary through impact analysis, mitigation plans will be developed
I. Complete Section 106 National Resource Preservation Act reporting and concurrence with SHPO.

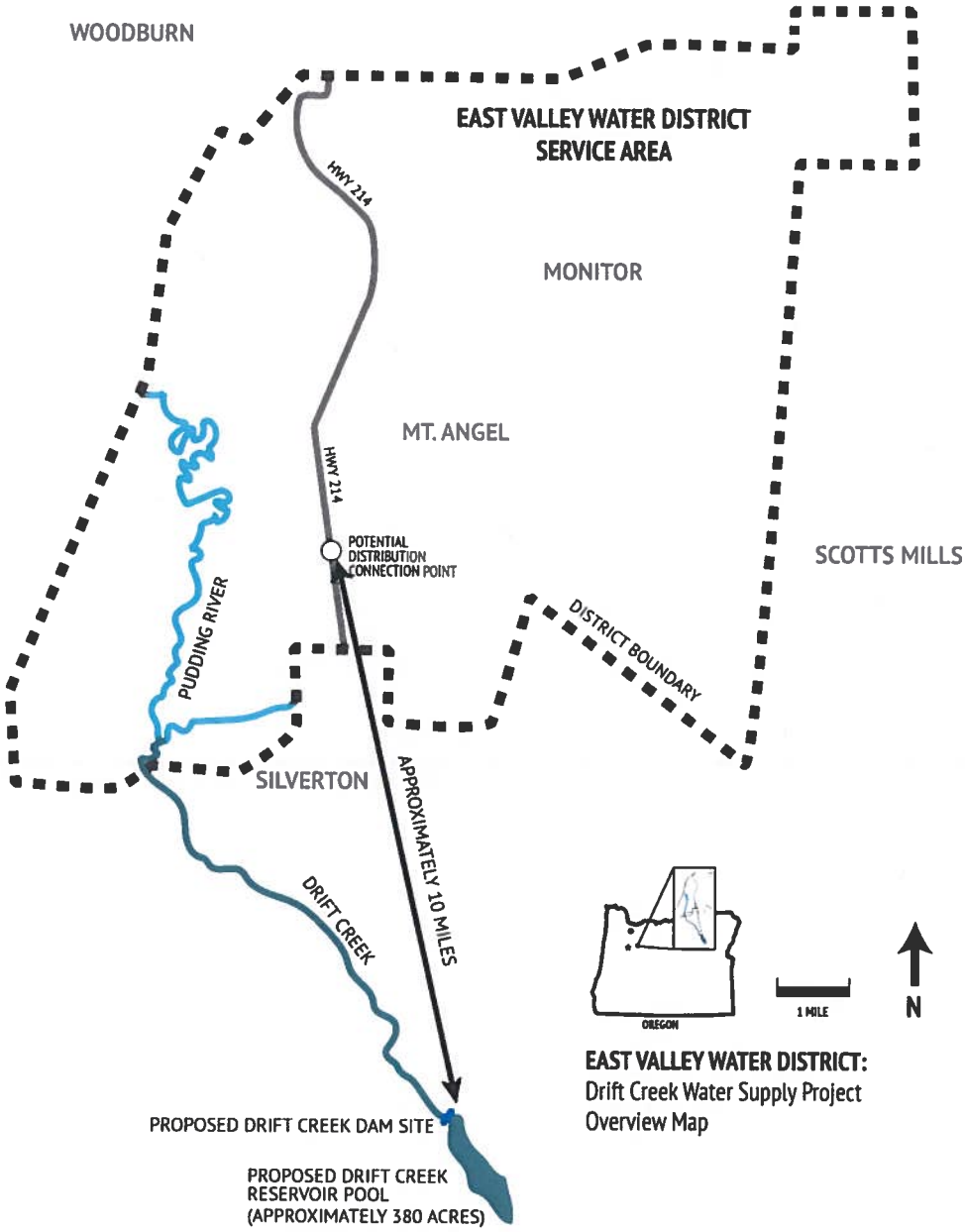
Resources Required: Senior Archaeologists (John Fagan, 120 hours); Archaeologists (Bajdek, 380 hours)

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

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

The proposed project is located on Drift Creek in the Victor Point area near Silverton. This is located in the Middle Willamette Basin in Marion County.

The proposed dam is located 3,990 feet north and 355 feet east from the S1/4 corner of Section 36, Township 7 South, Range 1 West (W.M.) The Area of Proposed use is Marion County within Section 31, Township 7, Range 1 East, W.M.; Section 6, Township 8 South, Range 1 East, W.M.; Section 1, Township 8 South, Range 1 west, W.M. See Attachment E for Project Map.



B. The name(s) and river mile(s) of the source water and what they are tributary to, if applicable. The Drift Creek subbasin (6th field HUC) comprises an area of approximately 25.15 square miles (4.3% of total basin area) in the upper left portion of the Pudding River watershed. The site controls this drainage area and could store runoff through April annually. Drift Creek is a small portion of the Pudding River watershed (5th field HUC), comprising approximately 531 square miles of land in Marion and Clackamas Counties. Eight major sub-basins drain into the Pudding River: Silver Creek, Zollner Creek, Abiqua Creek, Butte Creek, Drift Creek, Little Pudding River, Rock Creek and the Senecal/Mill Creek drainage area. Elevations within the watershed range from 4,280' at the summit to 66' at the confluence of the Molalla River. Drift Creek drains from the Pudding River, which drains from the Molalla River, a Willamette River tributary. The attached hydrology report (Attachment C) contains extensive flow data and information on gauging stations in the area.

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

At this time, the project is proposed to be on-channel surface storage on Drift Creek.

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

The following section is an excerpt from Attachment C, more detail can be found in the full report:

OWRD defines water availability as *"the amount of water that can be appropriated from a given point on a given stream for new out-of-stream consumptive uses. It is obtained from the natural stream flow by subtracting existing in-stream water rights and out-of-stream consumptive uses"*. . Current standards for new appropriation of water are: *(1) consumptive use from allocations for out-of-stream uses can total no more than the 80-percent exceedance natural stream flow, and (2) allocations for in-stream flows can be no more than the 50-percent exceedance natural stream flow".*

OWRD provides up-to-date water availability data for Drift Creek at its confluence with the Pudding River for the 50% and 80% exceedance levels at the following address: http://apps.wrd.state.or.us/apps/wars/wars_display_wa_tables/display_wa_details.aspx?ws_id=70781&exlevel=80&scenario_id=1

Originally, the drainage area used for that site was shown as being 17.91 sq. mi., which is different from the 25.1 sq. mi. area calculated by Harvest Geographics, Inc. for the same location and lower than the 24.8 sq. mi. area used by Marion Water and Conservation Service District for a Drift Creek stream gauging site near Silverton and upstream from the mouth of Drift Creek. Following contacts by members of the project team, OWRD recognized that Drift Creek watershed was incorrectly delineated and subsequently changed the drainage area to 25.25 sq. mi. in early April 2010. The revised OWRD also reports a mean annual precipitation over Drift Creek watershed of 61.61 inches.

The water availability data as of 5/5/2015 shown on OWRD's website are listed in Table 11.1 for the 50% and 80% exceedance levels. Compared to the previous data postings, in-stream flow requirements remain the same but updates were made by OWRD for Consumptive Uses and Storages, as confirmed during a conference call on June 9, 2015. As a result, data shown for the Expected Stream Flows (third column from the right hand side) and Net Water Available (last column to the right) have been changed. The new numbers include the older flows and the additional flows requested by EVWD in its water use permit application, which was submitted in February 2013 and recommended for approval with conditions by OWRD in July 2014.

Table 11.1 Revised Water Availability Data for Drift Creek at Its Mouth, in cfs
(as of 5/5/2015)

a) 50% Exceedance DRIFT CR > PUDDING R - AT MOUTH
Water Availability as of 5/5/2105

Col. 1	Col. 2	Col.3	Col. 4	Col. 5	Col. 6	Col. 7
Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	149.00	54.40	94.60	0.00	40.00	54.60
FEB	133.00	46.40	86.60	0.00	40.00	46.60
MAR	108.00	33.20	74.80	0.00	40.00	34.80
APR	68.10	13.70	54.40	0.00	40.00	14.40
MAY	32.70	0.22	32.50	0.00	30.10	2.38
JUN	41.90	0.44	41.50	0.00	13.60	27.90
JUL	18.30	0.77	17.50	0.00	3.00	14.50
AUG	8.40	0.61	7.79	0.00	2.00	5.79
SEP	4.65	0.30	4.35	0.00	2.00	2.35
OCT	7.56	0.02	7.54	0.00	5.26	2.28
NOV	61.10	10.80	50.30	0.00	40.00	10.30
DEC	138.00	48.80	89.20	0.00	40.00	49.20
ANN	46,300.00	12,600.00	33,700.00	0.00	17,800.00	15,900.00

Average annual stream flow discharge at 50% Exceedance level = 63.88 cfs

b) 80% Exceedance DRIFT CR > PUDDING R - AT MOUTH
Water Availability as of 5/22/2012

Month	Natural Stream Flow	Consumptive Uses and Storages	Expected Stream Flow	Reserved Stream Flow	Instream Flow Requirement	Net Water Available
JAN	67.30	54.40	12.90	0.00	40.00	-27.10
FEB	74.90	46.40	28.50	0.00	40.00	-11.50
MAR	66.80	33.20	33.60	0.00	40.00	-6.36
APR	48.80	13.70	35.10	0.00	40.00	-4.93
MAY	24.20	0.22	24.00	0.00	30.10	-6.12
JUN	11.50	0.44	11.10	0.00	13.60	-2.54
JUL	5.51	0.77	4.74	0.00	3.00	1.74
AUG	3.34	0.61	2.73	0.00	2.00	0.73
SEP	3.09	0.30	2.79	0.00	2.00	0.79
OCT	4.27	0.02	4.25	0.00	5.26	-1.01
NOV	23.70	10.80	12.90	0.00	40.00	-27.10
DEC	65.80	48.80	17.00	0.00	40.00	-23.00
ANN	46,300.00	12,600.00	33,700.00	0.00	17,800.00	15,900.00

Average annual stream flow discharge at 80% Exceedance level = 33.05 cfs

OWRD exceedance stream flows *"are determined directly from gage records, or for ungaged streams, by estimation through modeling"*. Since the natural stream flow numbers listed above were listed long before October 2008, when actual stream flow monitoring started at the Upper Drift Creek station, those numbers must have been based on modeling results. The following paragraphs document the extent to which the listed 50% and 80% annual runoff volume compare with actually monitored stream flow volumes.

For the 50% exceedance, the OWRD-calculated natural stream flow volume is 39,817 AF for the October-April runoff volume of Drift Creek at its mouth -- a 25.25 sq. mi. drainage area. The actually observed runoff volume for Drift Creek at the lower gauging station (24.8 sq. mi. drainage area) for October 2009-April 2011 (a slightly below average water year) was 35,699 AF. After drainage area adjustment, the observed runoff volume for Drift Creek at its mouth would be 35,699*(25.25/24.8) = 36,347 AF. As calculated, the two numbers are off by less than 9%, part of which could be attributed to higher rainfall distribution over the lower part of the watershed.

For the 80% exceedance flows, the OWRD-calculated natural stream flow volume for Drift Creek at its mouth is only 18,100 AF. This is considerably lower than the 27,847 AF runoff volume observed at Hibbard Road during the October 2008- April 2009 period, a water year that can classified as a low flow year at the 80% or even a lower exceedance level. This could either indicate that the OWRD data for the 80% exceedance level is underestimated or that the 2008-09 flow year should have been ranked higher compared to other historical years. Obviously, this cannot be reliably determined yet with just six years of actual stream flow data.

As briefly discussed with OWRD staff at the June 9, 2015 conference call, updating of the natural stream flows currently shown in Column 2 of the OWRD water availability 50% and 80% exceedance tables is not being contemplated by the Department any time in the near future. Therefore, absent changes in numbers shown in columns 3, 5 and 6, numbers in columns 4 and 7 will not change.

E. Proposed purposes and/or uses of conserved or stored water.

The purpose of use of the stored water is storage for agricultural irrigation use and flow augmentation.

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

Certificate 72591 with a priority date of October 18, 1990 is an instream water right held by the OWRD for the purpose of providing required streamflows for cutthroat trout for migration, spawning, egg incubation, fry emergence and juvenile rearing, to be maintained in Drift Creek. The stored water may have a secondary impact of improving water quality. Analysis of water quality data on Drift Creek and the Pudding River identifies that releasing water from the middle and lower depths of the reservoir will improve downstream water quality. The proposed reservoir will stratify storage withdrawals during the summer months for this to occur. Stored water releases will allow for better scheduling of flows for fishery migration and related benefits. The District also wishes to perform more detailed studies analyzing the storage needed to be able to provide ecological flows.

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

For this phase of feasibility study, it is anticipated that the only state or federal project permitting requirements would be for the Phase II Cultural Resources Investigations for shovel testing activities. The District currently does not have the necessary permits. The District has engaged Archaeological Investigations Northwest on the Phase I Cultural Resources Investigations and they have extensive experience in obtaining the necessary permits and coordination with SHPO required for permitting the cultural resources investigation activities.

For the other pieces of work proposed in this phase, other clearances are not expected. The District already operates a gage on Drift Creek that will be used to collect real-time stream data for the other analyses. Field investigations are expected for each study proposed, and the District will coordinate access agreements to fulfil those studies.

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

East Valley Water District continues to work with our partners who submitted earlier letters to us and to the Water Resources Department for past grant applications and awards. The Soil and Water Conservation Districts continue to support the conservation measures and environmental aspects of the project and the ability for the eventual project to serve their constituents as well as the District's constituents.

The District continues to work with Marion County, both with the land use department as well as the economic development division as it moves forward with the project.

Other partners in the basin continue to support the District's work on behalf of their constituents from the development of the reservoir and delivery system, including NORPAC Foods and Oregon Water Resources Congress that have provided letters of support for our efforts.

The District is also grateful for the support of our elected officials that have provided their written support in the past and currently. Attached is a letter of support from Representative Vic Gilliam.

In addition to the support received from the agriculture industry, water and environmental groups, and elected officials, this project is extremely important to the over 75 members of the District that need a stable and reliable source of water. Our membership is dependent on this project for the future of their families and farms. East Valley Water District is proud to represent the farmers in our District in securing this stable source of water.

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

The District can fully match this grant award with existing resources and future district assessments. District assessments for 2015 are currently being collected ($29,733.75) and 2016 assessments will be due in early 2016 ($30,000). Current funds of the District ($16,586.25) can make up the balance of the grant match requirement.

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

East Valley Water District is proud to have a team of consultants engaged in the project to perform the proposed work. The team includes:

Kevin Crew P.E., Principal of Black Rock Consulting: Kevin will coordinate the team of consultants on the project planning studies for this grant. Kevin has been involved in earlier work on this project and is a water resource engineer with expertise in agricultural, energy and municipal projects. Kevin will be managing the Off Channel Storage Alternatives Analysis as well as the Ecological Flows Investigations.

Terry Buchholz P.E., C.W.R.E., D.WRE., Principal of Integrated Water Solutions: Terry serves as the environmental permitting lead for the project. Terry was formerly with the U.S. Army Corps of Engineers for 15 years as well as 25 years of private consulting practice in water resources engineering and management as well as environmental studies. Terry will be managing the Elk Studies and Phase II Cultural Resources Analysis as well as serving as a technical advisor on the Off Channel Storage Alternatives Analysis and Ecological Flows Investigations.

David Dekrey M.S., Fisheries Biologist at Stillwater Sciences: Dave serves as the lead fisheries biologist for the project. Dave was formerly with Ellis Ecological working with Robert Ellis to perform several of the fish habitat analysis performed for the project. Dave has completed over 20 biological assessments for wide ranging water resources projects. Dave will serve as the technical lead for the Ecological Flows Investigation.

Christine Champe, M.S., President and Wildlife Biologist at Stillwater sciences: Christine is the senior wildlife biologist for the project. She has managed several complex hydroelectric permitting projects in Oregon; including several studies investigating elk impacts. Christine has also managed two studies focusing on the effect of water developments and water conveyance systems on elk and deer in Oregon and northern California.

Steve Cramer, Fish Scientist and Principal, Cramer Fish Sciences: Steve will continue to work with Dave Dekrey and his team on fish habitat analysis and modeling for the project. Steve worked with Oregon Department of Fish and Wildlife before starting his own firm and has over 35 years' experience in the field. Steve will work on the Ecological Flows Investigation.

Dr. Bolyvong Tanovan, hydrologic engineer/consultant: Dr. Tanovan serves as the hydrology lead for the project. He has over 45 years of experience in his field and was formerly with the U.S. Army Corps of Engineers and other major engineering firms. He has performed four

updated hydrology reports for the project. Dr. Tanovan will serve as a technical advisor to the Ecological Flows Investigation as well as the Off-channel Storage Alternatives Analysis.

John L. Fagan, Ph.D., RPA, President/Senior Archaeologist at Archaeological Investigations Northwest: John is the lead for all cultural resources investigation. AINW and John will complete the Phase II Cultural Resources Analysis. AINW has over 23 years of cultural resources experience and employs 19 archaeologists and historians to support this effort.

Lauren Reese, Communication Specialist with Integrated Water Solutions: Lauren serves as the Executive Secretary of East Valley Water District as well as supporting public outreach, project management efforts, and environmental permitting. Lauren will continue to support and coordinate communication and administrative portions of the project.

Section B. Unique Criteria

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

☐ Water Conservation or ☐ Reuse

1. Water Conservation or Reuse projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department's Grant Specialist to include your project on the inventory.

2. Explain how the associated project will either: (a) mitigate the need to develop new water supplies and/or (b) use water more efficiently. Reference documentation and/or examples of the success of similar or comparable water conservation/reuse projects that would be available upon request.

3. Provide a description of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area. If permitting or other approvals are not needed please indicate and provide an explanation.

☒ Above-Ground Storage

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

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

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

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

a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.

East Valley Water District provided a preliminary analysis of ecological flows in 2011 (submitted to OWRD.) However, the District wishes to do a more detailed analysis on the ability of the project to improve ecology below the reservoir. Thus, this feasibility study proposes a more detailed analysis on the flow and habitat conditions needed to improve fish habitat and the additional storage required to be able to provide suitable conditions for downstream ecology.

b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.

East Valley Water District has performed several alternatives analysis and submitted findings to OWRD in 2011 and 2013. With encouragement from surrounding landowners and community, the District wishes to open alternative investigations for off-channel storage. Details of this investigation are listed in Section A.

c) Analyses of environmental harm or impacts from the proposed storage project.

East Valley Water District has made significant progress toward analyses of environmental harm or impacts, details have been submitted to reports to OWRD in 2011 and 2013. It is anticipated that a biological assessment will be able to be drafted in 2016 with the completion of the fisheries and elk studies. The District has also completed a wetland delineation report.

d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.

The feasibility studies proposed in this grant application will do a further analysis of the ability for stored water to augment instream flows to enhance aquatic life, fish life and other ecological values. The District will also look at the potential for additional storage and habitat restoration needed to further improve ecology downstream from the project.

Is the proposed storage project for municipal use?

☐ Yes ☒ No

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

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

Proceed in addressing the following items:

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

East Valley Water District recognizes the opportunity to provide benefits and enhance aquatic life, fish life and other ecological values through providing flow augmentation from the stored water. Thus, this

grant proposal includes tasks to do a more detailed analysis of the quantity and timing of flows that would provide the most benefit cross walked with the detailed habitat assessments performed by the District. The studies included in this grant application will give the District the ability to plan and design project features that provide ecological benefit within and downstream of the reservoir. More detail on this study and process can be found in Section A, questions 4 and 5.

2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.
   East Valley Water District has produced a detailed permitting table identifying the local, state, and/or federal clearances associated with planning and implementing the project. This detailed table is included as Attachment F.

   The District does not currently own the land needed to implement the project. However, the District plans to work with all landowners in a fair and equitable manner. The District has had preliminary conversations with several of the landowners in the project area regarding this manner.

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

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

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

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

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

a) Analyses of by-pass, optimum peak, flushing and other ecological flows of the affected stream and the impact of the storage project on those flows.

b) Comparative analyses of alternative means of supplying water, including but not limited to the costs and benefits of water conservation and efficiency alternatives and the extent to which long-term water supply needs may be met using those alternatives.

c) Analyses of environmental harm or impacts from the proposed storage project.

d) Evaluation of the need for and feasibility of using stored water to augment instream flows to conserve, maintain and enhance aquatic life, fish life and any other ecological values.

Is the proposed storage project for municipal use?

☐ Yes ☐ No

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

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

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

Proceed in addressing the following items:

1. Underground storage projects that are identified by the Department in a statewide water assessment and inventory receive a preference in the scoring process. Contact the Department's Grant Specialist to include your project on the inventory.

2. Provide a review of: (a) Local, state and/or federal permitting requirements and issues posed by the **implementation** of the project associated with the feasibility study and (b) property ownership status within the project implementation area.

V. Match Funding Information

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

In the "type" column below matching funds may include:	**In the "status" column below matching funds may have the following status:**
• **Cash** - Cash is direct expenditures made in support of the feasibility study by the applicant or partner*.	• **Secured** - Secured funding commitments from other sources.
• **In-Kind** - The value of in-kind labor, equipment rental and materials essential to the feasibility study provided by the applicant or partner.	• **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.

Match Funding Source (if in-kind, briefly describe the nature of the contribution)	**Type** (✓ One)	**Status** (✓ One)	**Amount/ Dollar Value**	**Date Match Funds Available** *(Month/Year)*
2015 District Development Assessments	☒ cash ☐ in-kind	☐ secured ☒ pending	*$29,734*	*September 15*
2016 District Development Assessments	☒ cash ☐ in-kind	☐ secured ☒ pending	*$30,000*	*March 15*
District Development Account Funds	☒ cash ☐ in-kind	☒ secured ☐ pending	*$16,586*	*July 15*
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		
	☐ cash ☐ in-kind	☐ secured ☐ pending		

VI. Feasibility Study Schedule

Estimated Study Duration: January 1, 2015 to 2017

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

	2015			2016				2017 & Beyond
Feasibility Study Key Tasks	2nd Qtr	3rd Qtr	4th Qtr	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr	
Evaluation of Off-Channel Storage Alternative				X	X			
Analyze Storage Requirements to Provide By-Pass, Optimum Peak , Flushing and Other Ecological Flows				X	X	X	X	
Evaluate Elk Presence and Potential Project Impacts				X	X	X	X	X
Conduct Phase II Cultural Resources Investigation				X	X	X	X	

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

VII. Feasibility Study Budget

Section A

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

Line Items	Number of Units* (e.g. # of Hours)	Unit Cost (e.g. hourly rate)	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Staff Salary/Benefits	0	$0.00	$0	$0	$0	$0
Contractual/Consulting	1192	$120.00		$71,520	$71,520	$143,040
Equipment (must be approved)						
Supplies						
Other:						
Administrative Costs**	80	$120.00		$4,800	$4,800	$9,600
Total for Section A				$76,320	$76,320	$152,640
Percentage for Section A				50	50%	100%

** Note: The "Unit" should be per "hour" or "day" – not per "project" or "contract."* Units x Unit Costs = Total Cost
*** Administrative Costs may not exceed 10 percent of the total funding requested from the Department*

Section B

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

Feasibility Study Key Tasks	In-Kind Match	Cash Match Funds	OWRD Grant Funds	Total Cost
Evaluation of Off-Channel Storage Alternatives	$0	$12,000	$12,000	$24,000
Analyze Storage Requirements to Provide By-Pass, Optimum Peak, Flushing and Other Ecological Flows	$0	$19,440	$19,440	$38,880
Evaluate Elk Presence and Potential Project Impacts	$0	$10,080	$10,080	$20,160
Conduct Phase II Cultural Resources Investigation	$0	$30,000	$30,000	$60,000
Administrative (Project and Grant Management)	$0	$4,800	$4,800	$9,600
Total for Section B	$0	$76,320	$76,320	$152,640

Totals in Section B must match the totals in Section A

APPLICATION CHECKLIST

Instructions: Use this checklist to ensure that your application is complete. An incomplete application will jeopardize your application's review. **This form does not need to be included in your application packet.**

General

If submitting electronically, the preferred format is either a Microsoft word or Adobe pdf

- ☐ Only one application is included with the packet (other applications must be sent separately).

Paper submissions only

- ☐ The application and attachments are on 8 ½" x 11" paper.
- ☐ The application and attachments are single-sided.
- ☐ The application and attachments are not stapled or bound.

Section I – Grant Information

- ☐ All questions in this section have been answered.
- ☐ The Grant Dollars Requested and the Total Project Cost mirror the totals shown in Section VII.

Section II – Applicant Information

- ☐ All contact information for the applicant(s) and fiscal officer is complete and current.
- ☐ The certification is signed by an authorized signer.

Section III – Feasibility Study Summary

- ☐ A brief summary, of no more than 150 words, is complete.

Section IV – Grant Specifics

- ☐ All questions in Section A have been answered.
- ☐ If the type of feasibility study is water conservation, reuse or storage other than above-ground, you have contacted the Department and requested project be added to the Oregon Water Resources Department's statewide water assessment and inventory.
- ☐ All applicable questions for the type of grant requested have been answered.

Section V – Match Funding Information

- ☐ Applicant has identified that at least 50 percent match has been sought, secured or expended.
- ☐ Letters of support are included for "secured" match funding sources.
- ☐ Documentation is included for "expended" match funds.
- ☐ Documentation is included for "pending" match funds.

Section VI – Feasibility Study Schedule

- ☐ Estimated project duration dates have been supplied.
- ☐ All Key Tasks of the project are listed.

Section VII – Feasibility Study Budget

- ☐ Section A is complete.
- ☐ Administration costs do not exceed 10 percent of the requested OWRD Grant Funds.
- ☐ If grant amount requested is $50,000 or greater, Section B has been completed.
- ☐ All Key Tasks listed in Section B mirror the Key Tasks listed in Section VI.

Oregon Water Resources Congress

795 Winter St. NE | Salem, OR 97301 | Phone: 503-363-0121 | Fax: 503-371-4926 | www.owrc.or

July 31, 2015

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

Dear Mr. Unger:

The Oregon Water Resources Congress (OWRC) is writing in support of the East Valley Water District's grant application for its Drift Creek Water Storage Project in Silverton, Oregon. OWRC urges the Oregon Water Resources Department (WRD) to provide matching funds for this project from the Water Conservation, Reuse, and Storage grant program established under SB 1069.

OWRC is a nonprofit association representing irrigation districts, water control districts, improvement districts, drainage districts, and other agricultural water suppliers. These local government entities operate complex water management systems, including water supply reservoirs, canals, pipelines, and hydropower production, and deliver water to roughly 1/3 of all irrigated land in Oregon. OWRC has been promoting the protection and use of water rights and the wise stewardship of water resources on behalf of agricultural water suppliers for over 100 years. As such, we are highly supportive of long-term water supply planning and development efforts like the one being undertaken by the East Valley Water District.

In the 2008 Legislative Session, OWRC was part of the original coalition of agricultural groups that successfully advocated for the passage and funding of SB 1069 resulting in the Water Conservation, Reuse, and Storage grant program. Since its inception, this grant program has funded many worthwhile feasibility projects, including previous work by the East Valley Water District. The East Valley Water District's Drift Creek Water Storage Project is exactly the type of planning effort OWRC and its partners imagined when we advocated for the passage of SB 1069, and we believe it meets the fundamental intent behind that bill.

The Drift Creek Water Storage Project is an ongoing endeavor started by the district to develop a new water supply in Silverton, Mt. Angel and Molalla in Marion County. The project seeks to develop an alternative water supply for existing farmers and alleviate usage pressure on already strained groundwater systems. Due to limited water availability in the area, local farmers have little recourse and are increasingly challenged with finding adequate water supplies to irrigate crops in one of the most fertile areas of the Willamette Valley. Additionally, providing funding for this project has the potential to

benefit not only the farmers and other agricultural water users within the district, but also provide environmental benefits to fish and wildlife through cooler surface water temperatures.

The East Valley Water District's Drift Creek Water Storage Project is a highly worthwhile project that will provide economic, social, and environmental benefits to the local watershed and the users that rely upon it as well as accrue to the broader population of Oregon. This type of project is also an essential element to implementing with the Oregon's Integrated Water Resources Strategy (IWRS) and WRD's ongoing efforts to meet Oregon's long-term water needs. Continuing support of the East Valley Water District's Drift Creek Water Storage Project aligns well with the IWRS and its recommended action to improve access to built storage.

Specifically, the requested funding will go towards the following key study components: (1) further alternatives analysis on potential off-stream storage opportunities; (2) further evaluation of the project's ability to provide "ecological flows" downstream to promote healthier stream ecology; (3) elk studies; (4) phase II cultural resources analysis. Each of these areas are important aspects in determining the feasibility of the project, including addressing questions from project opposition. OWRC wholeheartedly recommends continued support and full funding of the East Valley Water District's Drift Creek Water Storage Project from the Water Conservation, Reuse, and Storage grant program.

Sincerely,
April Snell
Executive Director

NORPAC

NORPAC FOODS INC.

3225 25th St. SE
Salem, OR 97302-1133
PO Box 14444
Salem, OR 97309-5012
503-480-2100

July 30, 2015

Jon Unger, Grant Specialist
Oregon Water Resources Department
725 Summer Street NE, Suite A
Salem, OR 97301

Dear Mr. Unger,

In the recent past, NORPAC Foods, Inc. has submitted letters in support of the East Valley Water District's grant request under the SB 1069 Program. That grant was awarded and tremendous work followed however, more remains to be done. Meanwhile, very real water shortages persist.

NORPAC continues to support this critical community water supply effort, and urges the Oregon Department of Water Resources and its Commission to again partner with the East Valley Water District through this grant program.

NORPAC has grown from a small group of Oregon farmers to a nationally recognized farmer-owned cooperative processing and marketing premium quality vegetable and fruit products. Our 240 farmer-members farm 45,000 acres and, with our associate farmers and processors, produce over 600 million pounds of product annually.

Many of the farmers who produce for NORPAC are also members of the East Valley Water District. Production agriculture is reliant on irrigation. Growers in the Mount Angel and Silverton areas in Marion County are operating under the very real constraints of conditional groundwater permits, over-appropriated streams and declining aquifers. Farm operations are located within three areas listed by the department as "Groundwater Limited," which provides few alternatives for additional water supply.

The project proposed in the East Valley Water District's grant application will, in part, address off-channel storage alternatives and analyze storage required to provide ecological flows. NORPAC supports the District's request for continued funding partnership through this grant, enabling further development of a solution to a problem growing more severe with time.

Thank you for your support of this proactive request.

Sincerely,

George F. Smith
President and CEO

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AUG 03 2015

SALEM, OR