

## WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

### General Information

Project Title	Little Spokane – Eloika Lake Water Storage & Wetland Restoration
Project Short Description	The purpose of this project is to conduct the necessary field investigations, preliminary design, property owner outreach and coordination, permitting, and final design to construct a water level control structure at the outlet of Eloika Lake and restore and enhance 100 acres of wetland at the south end of the lake. The outlet control structure will allow storage of approximately 1,400 acre-feet of water and release of an additional 10 cfs over a period of 70 days during low flow periods.
Project Long Description	<p>Eloika Lake is a unique surface water storage opportunity. Approximately 1,400 acre-ft of water can be stored for release during low flow periods while still operating within the natural range of lake levels experienced each year. During the period of 2007 to 2017 lake levels always reached maximum elevation of at least 1,907 feet mean sea level (msl) during the spring and with one exception never fell below 1,905 feet msl (in 2007 the lake level fell to 1904.77 feet msl). Figure 1-Eloika Lake Level 2007-2017 was uploaded with this application. This project proposes to construct a control structure near the outlet of Eloika Lake that would hold the lake level at an elevation of 1,907 msl until mid-summer, thereby increasing flow in the West Branch Little Spokane and Little Spokane River by 10 cfs over a 70 day late summer low-flow period. This project also includes restoration of 100 acres of wetland at the south end of the lake, near the outlet, to enhance wildlife habitat, aquatic habitat, and water quality.</p> <p>On January 6, 1976 the Little Spokane River Instream Flow rule (WAC 173-555) was adopted. It set base flows on an 80% exceedance curve, meaning that 8 out of 10 years the stream flow would exceed the established base flow. Since that time the 7-day low flow at the USGS gage at Dartford has been below the minimum flow of 115 cfs 27 of 43 years, which means that the base flow has only exceeded the minimum flow approximately 3 out of every 10 years. The 7-day low flow since 1947 also shows a declining trend. Figure 2-Little Spokane River 7-day low flow was also uploaded with this application. The projected impacts of climate change will only exacerbate the problem. Spokane County recently completed a project to develop a transient integrated ground and surface water model for WRIA 55 using the USGS model GSFLOW (<a href="http://www.spokanewatersheds.org/wria-55-57-current-projects">http://www.spokanewatersheds.org/wria-55-57-current-projects</a>). A scenario based on projected climate change with no increased demand shows an average change in stream flow during July, August, and September ranging from -13.40 and -30.72 cfs.</p> <p>In addition to current streamflow declines during low flow periods and the projected impacts of climate change, over the next twenty years new consumptive water use from domestic permit exempt wells in WRIA 55 is estimated at 2,127 acre-feet per year. This project would provide a significant streamflow restoration offset for new domestic permit exempt use as required by RCW 90.94 and reduce the projected impacts from climate change.</p>

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There has been significant investigation into the feasibility of a water storage and wetland restoration project on Eloika Lake through watershed planning funding. In April 2009 PBS&J completed a surface water storage investigation in WRIA 55 and identified Eloika Lake as a potentially feasible surface water storage opportunity and recommended further investigation. In June of 2009 PBS&J completed the Eloika Lake In-Depth Surface Water Storage and Wetland Restoration Feasibility study which concluded that constructing a water control structure at the outlet of Eloika Lake was a viable option for creating downstream flow benefits. The feasibility study identified the following key action items to move forward:

1. Identification of land impacts around the lake including flooding extent and duration;
2. Discussion with and consensus of landowners regarding acceptable lake level impacts on their property;
3. Hydrologic and hydraulic analysis for various lake level management scenarios;
4. Identify specific location of control structure and complete control structure design;
5. Complete a detailed survey of the lake shore including the entire southern end wetland area;
6. Following the development of a lake level management strategy and assessment of potential impacts, communicate with all potentially impacted lake shore property owners to explore options for making the project acceptable;
7. Evaluate potential phosphorus loading and downstream temperature impacts from water release under the selected lake management strategy;
8. Reevaluate feasibility of the restoration scenarios upon completion of a site survey and wetland delineation;
9. Identify and address necessary permitting requirements; and
10. Develop a plan for ongoing operation and maintenance.

Both the surface water storage investigation and the feasibility study have been uploaded as support documents.

In 2010 PBS&J was contracted to conduct property owner outreach, since property owner acceptance of the project is a key component to move forward. PBS&J met with 6 key property owners at the south end of the lake and held a public meeting to describe the project. PBS&J concluded that landowner meetings suggest that none are completely against the project but that some will need to see clear benefits to ensure their support. PBS&J concluded from the public meeting that most landowners seemed to understand that the project was a benefit to the watershed and lake as a whole as well as to them individually. They noted that many individuals at the public meeting made encouraging comments to the group as a whole and in separate discussions with PBS&J personnel.

Since the completion of the feasibility study and landowner outreach the project has been on hold while additional funding has been sought, and the goals of the

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## General Information

Streamflow Restoration Grant Program are a perfect fit for funding this important project. This project proposes to move forward with the key action items identified in the feasibility study, including further assessment of benefits and impacts to lakeshore properties if the lake level were managed differently, preliminary design to meet the needs of the project goals and property owners, property owner and stakeholder outreach, assessments to support permitting and design, final design, necessary permitting and development of a long-term operation and maintenance plan.

Prior to developing this grant application Spokane County consulted the owner of a significant amount of property at the south end of the lake, which includes the probable location of a control structure and confirmed that he has an interest in the project. He has provided the landowner acknowledgement form to allow geotechnical and survey work to be conducted as part of this project, which has been uploaded. Additionally, the grant application was presented to the Eloika Lake Association and they have provided a letter of support.

Total Cost \$600,000.00\* Total Eligible Cost \$600,000.00\*

Effective Date 10/1/2020 Expiration Date 9/30/2022

Ecology Program Water Resources

Project Category ✓ Streamflow Restoration Grants

Will Environmental Monitoring Data be collected? Yes

If Yes, a Quality Assurance Project Plan (QAPP) will be required as a deliverable and environmental data may need to be entered into Ecology's Environmental Information Management (EIM) database.

Overall Goal The goal of this project is to complete the necessary studies, assessment, design and permitting to construct a control structure at the outlet of Eloika Lake and restore 100 acres of wetlands at the south end of the lake. Once completed this project will store 1,400 acre-feet and provide 10 cfs of additional streamflow over a 70-day late summer low-flow period, and restore of 100 acres of wetland at the south end of the lake to enhance wildlife habitat, aquatic habitat, and water quality. The project will include extensive landowner and stakeholder communication and collaboration to design a project that meets the needs of impacted landowners while significantly improving streamflow and restoring habitat.

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## Project Characterization

### Project Themes

Select a primary and secondary theme that best describes the work to be achieved during this project.

Primary Theme: Water Supply

Secondary Theme(s): Storage  
Riparian Restoration Planning and/or  
Implementation

### Project Website

If your project has a website, please enter the web address below. After entering a website and saving, another blank row will appear. Up to three websites may be provided.

Website Title/Name

Web Address

**Recipient Contacts**

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**Project Manager**

Mike Hermanson

*Contact Information*

Mike Hermanson  
Water Resources Manager  
1004 N. Freya St.  
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(509) 477-7578

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**Authorized Signatory**

Gerry Gemmill

*Contact Information*

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**Billing Contact**

Lauri Clift

*Contact Information*

Lauri Clift  
Administrative Specialist  
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**WATER RESOURCES STREAMFLOW RESTORATION PROGRAM**

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

**Recipient Contacts**

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(509) 477-7579

lclift@spokanecounty.org

**Other recipient signatures on printed agreement**

**Name**

**Title**

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**Scope of Work - Task 1 Project Admin: 1**

Task Number	1						
Task Title	Project Administration			Task Cost	\$25,500.00		
Task Description	<p>A. The RECIPIENT will administer the project. Responsibilities will include, but not be limited to: maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation, progress reports and recipient closeout report; submittal of required performance items; and compliance with applicable procurement and contracting requirements.</p> <p>B. The RECIPIENT will develop and maintain tracking systems to monitor and measure all project objectives and activities. The RECIPIENT shall maintain these systems throughout the project period and measure accomplishments against project objectives at the end of the grant period.</p> <p>C. The RECIPIENT will, along with each request for reimbursement, prepare and submit a progress report to ECOLOGY’s project manager. The reports shall include, at a minimum, the following information:                      A comparison of actual accomplishments to the objectives established for the reporting period .The reasons for any delays if the project does not meet established objectives.Plan and schedule of activities for the upcoming two months.Analysis and explanations of any cost overruns.Any additional pertinent information.</p> <p>D. The RECIPIENT shall submit a Final Project Report encompassing the entire project with their last payment request. The RECIPIENT shall include the Final Project Report with the last monthly/quarterly project report. The RECIPIENT shall submit the final payment request and final report within 30 days of the end of this agreement.</p> <p>E. The RECIPIENT must manage and carry out this project in accordance with any completion dates outlined in this agreement.</p>						
Task Goal Statement	Properly managed project that meets agreement and Ecology administrative requirements.						
Task Expected Outcomes	* Timely and complete submittal of requests for reimbursement, quarterly progress reports and recipient closeout report. *Properly maintained project documentation						
Recipient Task Coordinator	Mike Hermanson						

Deliverables							
Deliverable #	Description	Due Date	Received?	EIM Study ID	EIM	Latitude	Loc Address

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Scope of Work - Task 1 Project Admin: 1

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		(ECY Use Only)	Sys Link
1.1	Quarterly payment request and progress report		
1.2	Quarterly payment request and progress report		

WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Scope of Work - Additional Tasks: 10 - Project Permitting

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Task Number	10		
Task Title	Project Permitting	Task Cost	\$77,760.00*
Task Description	<p>The purpose of this task is to obtain the necessary permits to implement the project including:</p> <ul style="list-style-type: none"><li>• Permitting Approach and Strategy Memorandum<ul style="list-style-type: none"><li>- Preparation of a summary of a recommended approach to completing environmental permits for the project including recommended strategies for permitting the project as quickly and efficiently as possible .</li></ul></li><li>• Agency Coordination<ul style="list-style-type: none"><li>- Consultation with the regulatory agencies.</li><li>- Coordination of the design with the regulatory agencies to ensure that the design meets permitting requirements.</li></ul></li><li>• Prepare Permit Applications. Likely permit applications and approvals include:<ul style="list-style-type: none"><li>- Joint Aquatic Resource Permit Application (JARPA)</li><li>- Hydraulic Permit Approval (HPA)</li><li>- State Environmental Policy Act (SEPA) Process</li><li>- Endangered Species Act (ESA) Consultation</li><li>- Shoreline Code Compliance</li><li>- Critical Areas Review</li><li>- Local Clearing/Floodplain Development Permit</li></ul></li><li>• Preparation of design drawings to support permit applications.</li><li>• Dam Safety Consultation, Dam Construction Permit<ul style="list-style-type: none"><li>- Initiate consultation with Ecology DSO during the Preliminary Design Phase of the project.</li><li>- Preparation of the Dam Construction Permit Application and supporting documentation , including the following:<ul style="list-style-type: none"><li>? -Hydrology and Hydraulics Report</li><li>? -Geotechnical Report</li><li>? -Final Design Drawings</li><li>? -Final Technical Specifications</li><li>? -Emergency Action Plan</li><li>? -Construction Inspection Plan</li><li>? -Operations and Maintenance Plan</li><li>- Consultation with Ecology DSO to review design documents</li></ul></li></ul></li></ul>		

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**Scope of Work - Additional Tasks: 10 - Project Permitting**

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- Water Right Permit
  - Completion of water right applications for the project, including a water right for beneficially using the water supply made available for mitigation, and a reservoir storage water right.
  - Preparation of draft Reports of Examinations for the project to support Ecology's processing of the water rights.

**Task Goal Statement**                      The goal of this task is to assess project permitting needs, develop a strategy for project permitting, consult with appropriate permitting entities, and prepare permit applications.

**Task Expected Outcomes**              The expected outcome of this task is a permitting approach that will enable successful project implementation and meet all appropriate regulatory requirements, and completed permit applications and associated documentation.

**Recipient Task Coordinator**            Mike Hermanson

**Deliverables**

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
10.1	Permitting Approach and Strategy Memorandum	7/31/2021						
10.2	Completed Permit Applications and Drawings	10/15/2021						
10.3	Dam Construction Permit Application	9/30/2022						
10.4	Supporting Reports for Dam	9/30/2022						

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**Scope of Work - Additional Tasks: 10 - Project Permitting**

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	Construction Permit	
10.5	Water Right Applications	9/30/2021
10.6	Reports of Examination	9/30/2022



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Scope of Work - Additional Tasks: 3 - Stakeholder and Property Owner Outreach

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Task Number	3		
Task Title	Stakeholder and Property Owner Outreach	Task Cost	\$21,848.00*
Task Description	<p>This task will be completed in two phases. The first phase of stakeholder and property owner outreach will take place at the beginning of the project. We will communicate with each property owner likely to be impacted. This outreach will describe the technical studies to be conducted to determine the hydrology of the contributing watershed, flow rates into and out of the lake, lake elevations, impacts and benefits for specific parcels, water quality impacts and benefits and wetland restoration opportunities.</p> <p>At the conclusion of the technical studies, a second phase of outreach will occur. We will communicate the results of the studies and discuss the development of project designs and operational plans, and how stakeholder and property owner input can be incorporated into the process. Land or easement acquisition will be discussed and negotiated as needed. At this time we will seek endorsement of the project by impacted property owners.</p> <p>We anticipate this task will include a combination of public meetings, correspondence and individual meetings.</p>		
Task Goal Statement	<p>The goal of this task is to successfully communicate and receive endorsement of the project from impacted property owners and other interested stakeholders, successfully negotiate necessary land or easement acquisition, and work collaboratively on project design to meet the needs of the property owners and the streamflow restoration goals of the project.</p>		
Task Expected Outcomes	<p>The expected outcome is endorsement of the project and project design by impacted property owners and other interested stakeholders.</p>		
Recipient Task Coordinator	Mike Hermanson		
Deliverables			

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**Scope of Work - Additional Tasks: 3 - Stakeholder and Property Owner Outreach**

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Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
3.1	Public Meeting Agendas, Sign in sheets, and meeting summaries	12/15/2021						

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Scope of Work - Additional Tasks: 4 - Site Investigations

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Task Number	4		
Task Title	Site Investigations	Task Cost	\$155,236.00*
Task Description	<p>This task includes field and site investigations necessary to support the assessment of hydrology, hydraulics and project design. Investigations include:</p> <ul style="list-style-type: none"><li>• Preparation of a Quality Assurance Project Plan (QAPP), as required by Ecology, for collecting and evaluating data as part of the site investigations with Ecology review and approval.</li><li>• Topographic survey of the lake shoreline and areas near the lake outlet that will be impacted by the proposed control structure and wetland restoration.</li><li>• Bathymetric survey of the lake to a depth needed to better understand lake storage volumes and inform design of the proposed outlet control structure.</li><li>• Geotechnical investigation of the proposed outlet control structure area, including:<ul style="list-style-type: none"><li>- Completion of at least two borings, drilled to a depth of at least 20 feet.</li><li>- Collection of at least three soil samples in each boring and laboratory analysis to determine key engineering properties.</li><li>- Desktop analysis of available geology maps and other pertinent information.</li><li>- Completion of a geotechnical engineering report to summarize recommendations for construction of an outlet control structure at Eloika Lake.</li></ul></li><li>• Wetland delineation, including:<ul style="list-style-type: none"><li>- Review of previous wetland reports and mapping;</li><li>- Preparation of a summary of wetland area and functions potentially impacted by project.</li><li>- Review of previous wetland mitigation reports and assessment of whether proposed mitigation is adequate and suitable for the proposed project.</li><li>- Wetland delineation to identify and map wetland extents on the properties at the outlet of Eloika Lake that will be impacted by the project.</li><li>- Summarize the wetland delineation in a memorandum</li></ul></li></ul>		
Task Goal Statement	The goal of this task is to collect all necessary data to support technical studies, project design, and permitting.		
Task Expected Outcomes	It is expected that this task will result in providing data and analysis that will support subsequent tasks including completion of technical studies, project design, and project permitting.		

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Scope of Work - Additional Tasks: 4 - Site Investigations

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Recipient Task Coordinator      Mike Hermanson

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
4.1	QAPP	12/31/2020						
4.2	Topographic/Bathy metric Survey	5/31/2021						
4.3	Geotechnical Engineering Report	7/31/2021						
4.4	Wetland Delineation Memorandum	7/31/2021						

WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Scope of Work - Additional Tasks: 5 - Technical Studies to Support Preliminary Design

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Task Number	5		
Task Title	Technical Studies to Support Preliminary Design	Task Cost	\$123,100.00*
Task Description	<p>This task includes technical studies to support preliminary project design and permitting including:</p> <ul style="list-style-type: none"><li>• Preliminary Hydrology and Hydraulics Analysis and Report, including:<ul style="list-style-type: none"><li>- Delineation of the lake watershed boundary.</li><li>- Hydrologic calculations to estimate lake inflows and compare against recorded inflow data.</li><li>- Completion of hydraulic analysis to estimate flow rates, velocities, and water surface elevations at the lake outlet under both existing and proposed conditions (with the proposed outlet structure).</li><li>- Completion of hydraulic analysis to evaluate potential impact to downstream water surface elevations. Analysis will evaluate hydraulic conditions from lake outlet to 200 feet downstream of the proposed outlet structure.</li><li>- Preparation of a report summarizing lake hydrology and hydraulics in a format that will satisfy Ecology Dam Safety Office (DSO) requirements.</li></ul></li><li>• Preliminary Operations Plan Analysis, including:<ul style="list-style-type: none"><li>- Development of a water balance spreadsheet model to estimate flows to and from the lake on a monthly time step based on estimated inflows and control with the proposed outlet structure.</li><li>- Preparation of preliminary recommendations for operation of outlet gates and controls.</li><li>- Preparation of a memorandum summarizing the water balance and operating recommendations.</li></ul></li><li>• Water Quality Evaluation<ul style="list-style-type: none"><li>- Preparation of a predictive water quality model using CE-QUAL-W2 or another approved water quality model to assess the impact of the lake outlet structure on the temperature, dissolved oxygen, and pH of water released from the lake. Use available data from TMDL work in the development of the model and coordinate with Ecology and others in the preparation of the model.</li><li>- Preparation of a memorandum summarizing the results of the water quality (temperature, dissolved oxygen, and pH) modeling.</li></ul></li><li>• Cultural Resources Review<ul style="list-style-type: none"><li>- Preparation of a preliminary assessment of potential cultural resource issues through review of existing documents at Washington State Department of Archeology and Historic Preservation.</li><li>- Completion of a cultural resources field survey to determine whether the project will have any impact on cultural and historical resources.</li></ul></li></ul>		

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**Scope of Work - Additional Tasks: 5 - Technical Studies to Support Preliminary Design**

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- Preparation of a short memorandum summarizing the findings of the cultural resources review.
- Assessment of Benefits and Impacts
  - Evaluation of the potential benefits of the proposed project on the availability of water to offset future out-of-stream domestic water use.
  - Evaluation of the benefits and impacts of the proposed project on adjacent landowners, including extent and timing of inundation.
  - Evaluation and characterization of the potential benefits and impacts of the proposed project on instream flows, fish habitat, and fish passage. The evaluation will be based on prior work done to characterize instream flows and fish habitat and passage conditions.
  - Identification and evaluation of wetland benefits and impacts and potential wetland mitigation.
  - Preparation of a short memorandum summarizing potential benefits and impacts of the project.

**Task Goal Statement**                      The goal of this task is to complete the technical studies necessary to support preliminary project design, stakeholder and property owner collaboration, final design and permitting.

**Task Expected Outcomes**                      Completion of technical studies necessary to support preliminary project design, stakeholder and property owner collaboration, final design and permitting.

**Recipient Task Coordinator**                      Mike Hermanson

**Deliverables**

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
5.1	Preliminary Hydraulics and Hydrology Report	7/31/2021						
5.2	Preliminary Operations Plan	7/31/2021						
5.3	Water Quality	8/31/2021						

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**Scope of Work - Additional Tasks: 5 - Technical Studies to Support Preliminary Design**

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Summary

Memorandum

5.4 Preliminary Benefits 8/31/2021  
and Impacts

Memorandum

5.5 Cultural Resources 7/31/2021  
Review

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Scope of Work - Additional Tasks: 6 - Preliminary (30%) Design

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Task Number	6		
Task Title	Preliminary (30%) Design	Task Cost	\$63,961.00*
Task Description	<p>Preliminary (30%) Design Drawings: Prepare preliminary design drawings, including:</p> <ul style="list-style-type: none"><li>• Cover sheet</li><li>• General Notes, Legends, Abbreviations</li><li>• Overall Site Plan</li><li>• Existing Conditions Plans (Outlet and Wetland Area)</li><li>• Construction Access Plan</li><li>• Site Plans (Outlet and Wetland Mitigation Area)</li><li>• Outlet Control Structure Plan</li><li>• Outlet Control Structure Sections</li><li>• Wetland Mitigation Plans</li><li>• Wetland Mitigation Sections</li></ul> <p>Preliminary Design Report: Prepare a preliminary design report with the following information:</p> <ul style="list-style-type: none"><li>• An overview of the project</li><li>• A summary of the key findings from the technical studies prepared as part of Technical Studies Task</li><li>• The cost information and permitting summary<ul style="list-style-type: none"><li>• Recommendations for further design development</li></ul></li><li>• Preliminary Design Drawings and Calculations</li><li>• Figures, Maps, Exhibits</li><li>• Other pertinent references and information</li></ul> <p>Costs and Implementation</p> <ul style="list-style-type: none"><li>• Preparation of an opinion of the probable construction cost to reflect the preliminary design of the project.</li><li>• Complete a preliminary (desktop) review of potential environmental impacts and prepare a short memorandum summarizing potential impacts and likely permitting and regulatory requirements.</li></ul>		
Task Goal Statement	<p>The goal of this task is to complete a 30% project design, prepare a preliminary design report, develop an opinion of probable cost, and complete a permitting assessment. The preliminary design will be done in collaboration with property owners and stakeholders so that the direction of the design is acceptable to all interested parties.</p>		

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**Scope of Work - Additional Tasks: 6 - Preliminary (30%) Design**

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Task Expected Outcomes            The expected outcome is a 30% design, design report, opinion of probable cost, and permitting assessment that is acceptable to interested parties and is feasible to construct.

Recipient Task Coordinator        Mike Hermanson

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
6.1	Preliminary Design Drawings	9/30/2021						
6.2	Preliminary Design Report	9/30/2021						
6.3	Preliminary Opinion of Probable Construction Costs	9/30/2021						
6.4	Preliminary Environmental Permitting Summary	9/30/2021						

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**Scope of Work - Additional Tasks: 7 - 60% Design**

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Task Number	7		
Task Title	60% Design	Task Cost	\$48,298.00*
Task Description	<p>The purpose of this task is to achieve 60% project design, and includes the following:</p> <ul style="list-style-type: none"> <li>• Written responses to comments on the preliminary design.</li> <li>• Update the hydrology and hydraulics with new design information, as follows:             <ul style="list-style-type: none"> <li>- Refine the hydrologic and hydraulic analyses developed as part of the Technical Studies Task .</li> <li>- Update the water balance spreadsheet model developed as part of the Technical Studies Task .</li> </ul> </li> <li>• Preparation of 60% complete design drawings, including refinement of the preliminary design drawings to the 60% complete level and addition of the following drawings:             <ul style="list-style-type: none"> <li>- Clearing and Demolition Plan</li> <li>- Outlet Control Structure Details</li> <li>- Wetland Mitigation Details</li> </ul> </li> <li>• Preparation of an outline of technical specifications to be developed for the project. This task assumes that specifications will be developed in APWA/WSDOT format.</li> <li>• Preparation of an updated opinion of the probable construction cost to reflect the 60% design of the project.</li> </ul>		
Task Goal Statement	The goal of this task is to complete a 60% project design.		
Task Expected Outcomes	The expected outcome of this task is a 60% project design.		
Recipient Task Coordinator	Mike Hermanson		

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
7.1	Response to Preliminary Design	10/31/2021						

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**Scope of Work - Additional Tasks: 7 - 60% Design**

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	Comments	
7.2	60% Design Drawings	3/31/2022
7.3	60% Technical Specifications Outline	3/31/2022
7.4	60% Opinion of Probable Construction Costs	3/31/2022



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**Scope of Work - Additional Tasks: 8 - 90% Design**

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8.4	Specifications 90% Opinion of Probable Construction Costs	7/31/2022
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WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Scope of Work - Additional Tasks: 9 - Final Design and Design Report

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Task Number	9		
Task Title	Final Design and Design Report	Task Cost	\$34,963.00*
Task Description	<p>The purpose of this task is to complete a final design and design report including:</p> <ul style="list-style-type: none"><li>• Finalize Technical Studies: Update the following technical Studies Prepared during the Technical Studies and Preliminary Design tasks of the project to reflect the final design of the project.<ul style="list-style-type: none"><li>- Preliminary Hydraulics and Hydrology Report</li><li>- Preliminary Operations Plan</li><li>- Water Quality (Temperature) Summary Memorandum</li><li>- Preliminary Benefits and Impacts Memorandum</li><li>- Environmental Permitting Summary Memorandum</li></ul></li><li>• Final Design Report: Prepare a final design report with the following information:<ul style="list-style-type: none"><li>- An overview of the project</li><li>- A summary of the key findings from the technical studies finalized as part of this task</li><li>- The final technical studies (as appendices)</li><li>- The final opinion of probable construction costs</li><li>- Recommendations for permitting and implementation</li><li>- Final Design Drawings and Calculations</li><li>- Figures, Maps, Exhibits</li><li>- Other Pertinent References and Information</li></ul></li><li>• Final Design<ul style="list-style-type: none"><li>- Comment Responses: Provide written responses to comments provided by the County on the 90% design.</li><li>- Final (100%) Design Drawings: Prepare final (100% complete) design drawings, including refinement of the 90% drawings to the 100% complete level.</li><li>- Technical Specifications: Prepare final technical specifications for the project in APWA/WSDOT format.</li><li>- Opinion of Probable Cost: Prepare an updated opinion of the probable construction cost to reflect the final (100% complete) design of the project.</li></ul></li></ul>		
Task Goal Statement	<p>The goal of this task is to finalize the technical studies, design report and project design drawings and specifications so that the project is ready for bidding and construction.</p>		

WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

Scope of Work - Additional Tasks: 9 - Final Design and Design Report

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Task Expected Outcomes            The expected outcome of this task is a final design package that is ready for bidding and construction.

Recipient Task Coordinator        Mike Hermanson

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
9.1	Final Design Report	9/15/2022						
9.2	Response to 90% Design Comments	8/15/2022						
9.3	Final Design Drawings	9/30/2022						
9.4	Final Technical Specifications	9/30/2022						
9.5	Final Opinion of Probable Construction Costs	9/30/2022						

# WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

## Scope of Work Summary

<b>Task Title</b>	<b>Task Cost</b>
Project Management	\$11,250.00
Project Administration	\$25,500.00
Stakeholder and Property Owner Outreach	\$21,848.00
Site Investigations	\$155,236.00
Technical Studies to Support Preliminary Design	\$123,100.00
Preliminary (30%) Design	\$63,961.00
60% Design	\$48,298.00
90% Design	\$38,084.00
Final Design and Design Report	\$34,963.00
Project Permitting	\$77,760.00
<b>Total</b>	<b>\$600,000.00</b>

### **Total Eligible Costs**

(from the General Information Form)

\$600,000.00

Streamflow Restoration

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**REQUIREMENTS BY PROJECT TYPE****Water right acquisition**

Does this project include a water rights acquisition component?

Yes  No

**Water storage**

Does this project include a managed aquifer recharge component?

Yes  No

**Altered water management or infrastructure**

Does this project include an Altered Water Management component?

Yes  No

**Watershed function, riparian and fish habitat improvements**

Does this project involve the use or acquisition of private land, or land not owned by the applicant?

Yes  No

Upload a landowner acknowledgement form (Form: ECY 070-614).

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920301-EloikaLake-LandOwnerAcknowledgementForm.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920301-EloikaLake-LandOwnerAcknowledgementForm.pdf)

**WARNING:** This is a requirement, you will not be able to submit this application unless a signed landowner acknowledgement form is uploaded.

If this project involves a land acquisition, have you consulted the Recreation and Conservation Office (RCO) Acquisition Manual 3 before completing your application?

Yes  No

**Feasibility studies**

**Streamflow Restoration**

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Does this project involve a Feasibility Study?

Yes  No

**Other**

Does this project fit into the Other project category?

Yes  No

**PRIORITIES AND BENEFITS**

Is this project identified in an Ecology-adopted RCW 90.94.020 or 90.94.030 watershed plan or related rulemaking document?

Yes  No

Is any component of this project required under statute, rule, ordinance or court order?

Yes  No

Provide specific location of the project, including the WRIA, and specific stream reach that will benefit from the project.

This project is located in WRIA 55, as shown in Figure 5. Water will be stored in Eloika Lake and released into the West Branch of the Little Spokane River (West Branch). The West Branch below Eloika Lake and the mainstem Little Spokane River below the confluence with the West Branch will benefit from this project. This project will increase flows in the last three miles of the West Branch and for 33 miles of the Little Spokane River, which is approximately 50 miles long. The project will also include restoration and/or enhancement of approximately 100 acres of wetland at the south end of Eloika Lake.

Clearly and completely describe the project streamflow benefits. Include the amount of increased streamflow (if known), timing, and location of streamflow benefits.

**Streamflow Restoration**

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Eloika Lake has the capacity to store approximately 1,400 acre-ft of water for release later in the summer than currently occurs. This water could be released in a number of different scenarios, one of which is 10 cfs over a 70 day late summer low-flow period. This estimate is based on the Eloika Lake In-Depth Surface Water Storage and Wetland Restoration Feasibility Study, and lake level measurements taken between 2007 and 2017, both of which have been uploaded.

During the 2007-2017 period the lake level always reached at least 1907 feet msl during the spring and with one exception never fell below 1905 feet msl (in 2007 it fell to 1904.77 feet msl). The lake level typically begins to fall below 1907 between March and May. A control structure would be used to hold the lake level at 1907 through mid to late summer at which time water would be released until the lake level reached 1905. The surface area of the lake is approximately 700 acres, therefore 1,400 acre-ft would be available to be stored and released.

The West Branch is closed from June 1 through October 31, therefore during June no additional water would be stored, and the control structure would be run of the river (i.e., the quantity entering the lake would equal the quantity leaving the lake).

Available gage and monitoring data were compiled to better understand existing conditions at Eloika Lake and to estimate changes expected from construction of an outlet control structure designed to hold the lake level high during the late winter and early spring and allow stored water to be released during the late summer low-flow period. A combination of transducers and manual measurement have been used at Eloika Lake since 2007 to monitor lake levels, inflows, and outflows. Where data are missing, interpolation of records between known values. The uploaded Figure 3 – Eloika Lake Outflow and Lake Level – With Control Structure – Dry Year (2015) Conditions illustrates the change in the estimated lake level and outflows over the driest year from the period of record (2015). The figure also shows the impact that the proposed control structure could have on lake levels and outflows. In the example shown, outflows were reduced by an average 8 cfs to represent the volume of water that could be stored in the lake from early February to early May (approximate 1,400 acre-feet total) by controlling outflows with stop logs or a gate. The outflows were then increased by an average 10 cfs from to simulate the release of the 1,400 acre-feet of through the low-flow period (early August through mid-October). The change in lake level was estimated by calculating the difference between estimated inflows and outflows. The graph indicates that there is sufficient inflow, even during a dry year like 2015, to capture 1,400 acre-feet during the late winter and early spring for release during the late summer low-flow period to

Streamflow Restoration

provide instream flow benefits and off-set downstream uses.

Fill out the streamflow benefits table as appropriate for this project. Cells may be left blank, you may enter monthly or yearly data (this table will not calculate the total).

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOT
Acre-feet							613.8	613.8	172.4				1400
Instantaneous Quantity							10	10	10				
✓ CFS													
GPM													

Upload supporting documentation for the table above.

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920660\\_2-Figure3-EloikaLakeOutflowandLakeLevel.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920660_2-Figure3-EloikaLakeOutflowandLakeLevel.pdf)

Describe how this project benefits threatened or endangered salmonids, native fish, and aquatic species of concern. Specify species and life-stage, and support your statements with documentation.

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_921749-DRAFTWRIA55LSRCurrentAquaticHabitatConditions02262020.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_921749-DRAFTWRIA55LSRCurrentAquaticHabitatConditions02262020.pdf)

The Little Spokane River and its tributaries support numerous fish species, including native Redband Trout (RBT) which are of particular importance. Current aquatic habitat conditions and fish species distribution are documented in the WRIA 55-Little Spokane River Watershed Current Aquatic Habitat Conditions for RCW 90.94 Net Ecological Benefit Evaluation which has been uploaded. RBT are considered a species of special concern by the American Fisheries Society and the U.S. Fish and Wildlife Service in most states where the subspecies historically existed, and are classified as a sensitive species by the U.S. Forest Service and Bureau of Land Management. Six states, four federal agencies, five tribal governments and one non-governmental organization signed a Rangewide Conservation Agreement for Interior Redband Trout in July 2014. In 2016 this group developed the Conservation Strategy for Interior Redband Trout (Interior Redband Trout Conservation Team, 2016). This strategy identifies the historical and current distribution of RBT populations. The Little Spokane drainage basin (HUC 17010308) is identified as having 917 conservation

**Streamflow Restoration**

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populations, 653 km of historical stream distribution, and 303 km of current distribution. The Conservation Strategy states that “As with other interior salmonid species, the distribution and abundance of Redband has declined due to anthropogenic influences...Non-point source pollution, sediment and runoff associated from urban development, reduced stream flows, altered thermal regimes due to drought and/or climate change... are growing concerns.” The proposed project will address the identified concerns by enhancing stream flow during critical low flow periods.

The Upper Columbia United Tribes (UCUT), which includes the Couer d’Alene Tribe of Indians, Confederated Tribes of the Colville Reservation, Kalispel Tribe of Indians, Kootenai Tribe of Idaho, and the Spokane Tribe of Indians, is pursuing the reintroduction of Chinook and Steelhead upstream of Chief Joseph and Grand Coulee dams. In May 2019 UCUT completed Phase I of their phased approach to Fish Passage and Reintroduction into the U.S. and Canadian Upper Columbia Basin. The Phase I report confirms the reintroduction of salmon to the U.S. portion of the Upper Columbia River upstream of Chief Joseph Dam is likely to achieve identified tribal goals within existing constraints including current dam operation, existing riverine and reservoir habitat conditions, donor stock availability and risks to resident fish species. The greatest amounts of highly rated habitats are located within the Spokane Subbasin (UCUT, 2019). The proposed project will enhance habitat by increasing streamflow during critical low flow months.

Describe the existing causes of aquatic resource degradation that this project is designed to address. How will the project have meaningful effect on these problems without causing adverse impacts on the watershed ?

This project is designed to address low flows during the late summer and early fall, and offset consumptive water use from new permit exempt domestic use, which is estimated at 2,127 acre-ft/year over the next twenty years. As previously described, the 7-day low flow at the USGS gage at Dartford has been below the minimum flow of 115 cfs 27 of the last 43 years and the 7-day low flow shows a declining trend from the period 1947-2019. The project proposes to storage additional water in Eloika Lake between March and May, thereby reducing stream flow below natural during that time period. An analysis of streamflow data over the period 1948-2018 at the Dartford Gage shows that the 90% exceedance curve during the storage period is greater than the base flows established in WAC 173-555, and therefore will be available for storage 9 out of every ten years for the entire storage period, and almost every year for a portion of the storage period (95% exceedance curve), as shown in Figure 4 LSR at Dartford 1948-2018 Exceedance Curves. While the project will marginally reduce flows during the storage period, a reduction in streamflow during that period will not cause adverse impacts on the watershed, while addressing a major cause of aquatic resource degradation – low late

**Streamflow Restoration**

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summer/early fall streamflow. Figure 3 – Eloika Lake Outflow and Lake Level – With Control Structure – Dry Year (2015) Conditions illustrates the change in the estimated lake level and outflows over the driest year from the period of record (2015), and demonstrates that the project can have a meaningful effect without causing adverse impacts on the watershed.

Describe evidence that the proposed project will provide stated benefits following project completion.

The Eloika Lake In-Depth Surface Storage and Wetland Restoration Feasibility study completed by PBS&J in 2009 found that the proposed project is feasible and will provide both streamflow and habitat benefits. Additionally, lake level measurements were taken during the period 2007-2017 and demonstrate that there is adequate water supply for the proposed storage scenario even in drought years such as 2015, as shown in Figure 1 Eloika Lake Level 2007-2017. Figure 3 Eloika Lake Outflow and Lake Level – With Control Structure – Dry Year (2015) Conditions illustrates the change in the estimated lake level and outflows over the driest year from the period of record (2015), and demonstrates the instream benefits from the proposed project.

How does this project and related benefits align with community needs and other watershed planning processes? Include specific references to other plans that specify this project, or that this project supports.

There is a long history of community recognition of the value of instream flow preservation in WRIA 55. During 1974- 1975 there was significant public participation in the development of WAC 173-555. The 1975 document Water Resources Management Program, Little Spokane River Basin, Water Resources Inventory Area No. 55 details the public interests in WRIA 55. The following were some of the public interest statements included in the plan: “It is essential to establish and maintain instream flow to preserve ‘instream values’ ” and “Conservation of natural aesthetic assets and of rural atmosphere are of major importance to the people of this basin.”

The WRIA 55/57 Watershed Plan, approved on January 31, 2006, includes the following policy – “Assure that instream flows for the Little Spokane River meet the needs of rainbow trout and mountain whitefish and other representative aquatic biota.” The WRIA 55/57 Detailed Implementation Plan includes recommendations to conduct the feasibility study for an Eloika Lake storage project, the feasibility study that serves as the basis for this project application.

In May 2019 UCUT completed Phase I of their phased approach to Fish Passage and Reintroduction into the U.S. and Canadian Upper Columbia Basin. The Little Spokane River Basin has been identified as an area with significant potential habitat, and additional stream flow will enhance that habitat.

**Streamflow Restoration**

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In a comment letter on the draft permit exempt well demand memorandum the Spokane Tribe provided the following statement related to their interest in WRIA 55:

“The Spokane Tribe historically relied on the salmon and steelhead that inhabited the Little Spokane River and its tributaries for their subsistence. Redband trout currently inhabit the Little Spokane River watershed, and are labeled as a species of concern and a sensitive species by U.S.F.W.S., U.S.F.S., B.L.M., and W.D.F.W..

Today the tribe is trying to rebuild their first foods by protecting and enhancing redband trout waters , and reestablishing salmon within the tribes historical fishing grounds. It is important to maintain the Little Spokane River watershed as it is one of the last cold-water refuges within the greater Spokane River watershed.”

In March 2020, the Eloika Lake Association Board met and unanimously voted to support this grant application . A letter of support has been uploaded.

At the March 5, 2020 WRIA 55 Planning Unit meeting this project and grant application was discussed and supported by the group. Pertinent stakeholders at the meeting that approved supporting the project application include the Spokane Tribe, The Kalispel Tribe, the Spokane River Keeper, the Lands Council, Spokane Conservation District, Pend Oreille County Conservation District, and Washington Department of Fish and Wildlife.

**PROJECT BUDGET**

What information did you use to estimate total project costs and develop your budget? How does the cost of this project compare to similar projects in similar areas?

The project budget for design and permitting the project was developed in consultation with our watershed planning consultants, Anchor QEA and Aspect Consulting, who are experienced water resource engineers and hydrologists and have developed storage projects in watersheds throughout Washington State . The consulting team estimated hours, effort, and costs needed to complete each of the tasks outlined in this proposal.

Spokane County staff time was estimated based on the experience of implementing multiple projects of this type over the course of the last 20 years.

When constructed, this project offers very good value in terms of the cost per acre-foot of water stored for release to benefit late summer flows and offset downstream uses. Two sources were used to provide a general estimate for project construction: 1) the Eloika Lake In-Depth Surface Water Storage and Wetland Restoration

**Streamflow Restoration**

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Feasibility, and 2) costs from the recently completed Saltese Flats Wetland Restoration project. Spokane County Environmental Services led the design and construction of a project that included a wetland restoration and multiple water control structures. This project has many similarities with the proposed project. Based on those two sources we anticipate that the wetland restoration costs will likely be between \$1.1 million and \$2.8 million, and the outlet control structure cost will range from \$100,000-\$300,000. Given these estimates and the estimated budget for design and permitting, the total cost for both the outlet control structure and wetland restoration is anticipated to be between \$1.8 million and \$3.7 million. Based on the estimated 1,400 acre-ft the project will provide, the cost of the project will likely range between \$1,286 and \$2,642 per acre-ft. Spokane County recently purchased water rights in WRIA 55 at \$2,720 per acre-ft. Our watershed planning consultant has indicated that the cost of constructing new storage facilities in Washington, including projects that have recently been funded by Ecology, is typically in excess of \$15,000 per acre-ft of stored water and can be much higher, depending on the size and complexity of the project.

Provide documentation or other information used to estimate project costs.

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920672\\_1-EloikaProjectBudget.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920672_1-EloikaProjectBudget.pdf)

What level of operations and maintenance will the project need to continue its benefits? Operations and maintenance costs are not eligible costs for this funding opportunity. If the project needs operation and maintenance, how do you plan on supporting these needs throughout the life of the project (if applicable)?

The proposed project will conclude with final designs and permits for project bidding and construction, but the project will not be constructed, therefore there will be no immediate O&M costs associated with this specific project. When constructed the proposed outlet control structure and restored wetland areas will require some operation and maintenance effort to continue to provide the stated benefits. Operations and maintenance activities will likely include the following:

- Regular inspection to ensure that debris is not piled up on the upstream side of the structure (weekly when controls activated during the spring and early summer)
- Cleaning and removal of debris (Weekly when controls are activated)
- Operation and adjustment of the controls (stop logs or gates) in the structure to achieve the desired outflow

**Streamflow Restoration**

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and lake conditions. Automatic gates will be considered to minimize the need for regular adjustment. (1 to 3 times per season)

- Maintenance of controls (stop logs or gates), including lubricating mechanical parts, exercising moving parts, and repair of any damaged components (Annually)
- Maintenance of wetland plantings (As needed)

Spokane County is aware of the need to fund O&M for the various projects that will comprise the WRIA 55 90.94 Watershed Plan Update. At the direction of the Spokane County Board of Commissioners Water Resources staff is currently working with attorneys from the civil deputy prosecuting attorney's office to develop a proposed approach to fund O&M of WRIA 55 RCW 90.94 water and non-water offset projects. A policy proposal is not complete at the time of this application, but the direction of the Board of County Commissioners and the use of attorney resources demonstrates the intent of Spokane County to develop a self-sustaining funding mechanism for these expenses.

If this grant does not cover the full cost of the project, identify other sources of funding for the completion of the project, as well as operation, maintenance, monitoring, and contingency implementation costs over the lifetime of the project.

This grant will cover design and permitting costs. Spokane County plans to submit a subsequent grant application for project construction upon completion of the proposed project. Spokane County is aware of the need to fund O&M for the various projects that will comprise the WRIA 55 90.94 Watershed Plan Update. At the direction of the Spokane County Board of Commissioners Water Resources staff is currently working with attorneys from the civil deputy prosecuting attorney's office to develop a proposed approach to fund O &M of WRIA 55 RCW 90.94 water and non-water offset projects. A policy proposal is not complete at the time of this application, but the direction of the Board of County Commissioners and the use of attorney resources demonstrates the intent of Spokane County to develop a self-sustaining funding mechanism for these expenses.

**PROJECT DURABILITY AND RESILIENCY**

Describe how this project and the anticipated benefits are tailored to the local conditions where the project will

**Streamflow Restoration**

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be implemented.

The proposed project is designed specifically to be implemented in the local area taking into account all facets of the project. The proposed project will store water well within the natural lake level fluctuation, and therefore will not inundate additional area beyond what currently occurs on yearly basis, to which property owners are now accustomed to. As described in this application, significant outreach has occurred to lake shore property owners and the Eloika Lake Association has provided a letter of support for the project. The project benefits are perfectly aligned with the needs of the watershed and the streamflow restoration program, and RCW 90.94 priorities to increase flows during critical low flow periods. The project will provide significant offset for the projected 2,127 acre-ft of new consumptive permit exempt domestic water use projected in WRIA 55.

Explain how the project is feasible and likely to be successful in providing the proposed benefits.

As demonstrated throughout this application, the proposed project is well suited to provide instream flow benefits to the West Branch Little Spokane River and mainstem Little Spokane River at a low cost compared to the quantity of instream flow benefit expected from the project. Total costs for this project are \$600,000 and project construction costs are estimated to range between \$1.2 million and \$3.1 million. Based on the estimated 1,400 acre-ft the project will provide, the cost of the project will likely range between \$1,286 and \$2,642 per acre-ft. The cost per acre-foot for other constructed storage projects that have been funded by Ecology is typically much higher.

Spokane County has the experience to design, permit, construct and operate a water control structure and wetland restoration. We have recently finished a wetland restoration with several water control structures at the Saltese Flats wetland, and have managed the Newman lake water control structure for many years.

The project will operate well within the current hydrologic regime, as demonstrated by Figure 1 and Figure 3, and the data provided in the Eloika Lake In-Depth Surface Storage and Wetland Restoration Feasibility. The project will also operate within the hydrologic regime forecasted under climate change scenarios, specifically earlier snowmelt runoff.

Explain how the project benefits are sustainable, and occur at regular intervals, and will persist over time.

Based on the following, the benefits of the proposed project are sustainable, will occur at regular intervals and will persist over time:

**Streamflow Restoration**

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1. The proposed project will operate within the natural range of lake elevations as demonstrated through lake level monitoring.
2. The proposed project assumes storage volumes based on 2015 drought year conditions, and will not be significantly impacted by earlier runoff associated with climate change.
3. Spokane County is well suited to own and operate a control structure of this nature. The County now owns and operates water control structures related to the Saltese Flats Wetland Restoration, and has operated the water control structures at Newman Lake for many years.

Describe known uncertainties and risks in regards to the proposed project. How do you plan on minimizing these uncertainties and risks?

There are three principle uncertainties at this stage of the project: 1. lakeshore property owner acceptance, 2. potential impacts on surface water temperature, and 3. fish passage.

While the project will operate within the natural fluctuation of lake levels that currently exists, it will keep the water level higher for a longer period than naturally occurs; however, this does not have a large impact on many property owners because the area of the lake only increases by 5 acres between lake level 1905 and 1907, and the lateral extent of the water surface on most properties does not increase significantly. The property owners that will be impacted the most are at the south end of the lake. The wetland restoration will improve portions of their property that will experience longer inundation. The Eloika Lake Property Owner Outreach Report provides the following summary related to outreach to the most impacted property owners:

“Each landowner who initially expressed opposition or serious concern about the project seemed to do so due to not wanting to be told what to do on their private land, as opposed to being invited to participate in a cooperative effort which benefits them. All seemed to be under the impression that they would be told what to do and would be required to pay for any enhancements to their property. None of them seemed aware of the potential for enhancing wetlands on their properties in a manner that would increase the appearance, wildlife values, recreational values and appraisal value. Prior to these meetings, many thought the project would potentially decrease their property values. This is likely the first time someone with knowledge of wetland design was available to them to even briefly explore options for wetland enhancements that consider the unique character of their property and their own goals. Not every goal of each landowner can be accommodated so there is a need for future discussion and compromise.”

Spokane County has discussed the project with the most impacted land owner, who also owns the property where a control structure would be located, and he is interested in moving forward with additional data

**Streamflow Restoration**

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collection, site investigations, assessments and design.

A critical component of this project is collaboration with property owners . The detailed survey and modeling of water levels will enable property owners to fully understand the impact of holding the lake level higher for a longer period. We intend to work closely with the most impacted property owners on the wetland restoration design so that they can realize benefits from the project. Based on the Eloika Lake Property Owner Outreach report, this approach will address this project uncertainty.

One concern often expressed by resource managers related to water storage is the potential warming of water stored in a lake or reservoir and the impact the releases might have on water temperatures downstream, particularly during the late summer. As part of the evaluation of Eloika Lake, water quality analyses and modeling will be completed to better understand the impact that storing additional water and controlling outflows will have on water temperatures downstream of Eloika Lake. In addition, Ecology is in the process of completing a total maximum daily load (TMDL) report for dissolved oxygen and pH, which are constituents of concern in the Little Spokane River and its tributaries. These constituents will also be analyzed. If needed, measures will be identified to mitigate for impacts on temperature, dissolved oxygen, and pH. Potential measures could include adjustments to the schedule of storage and releases or design of the outlet control structure to allow from releases from deeper in the lake and aeration.

When control structures are constructed in a stream or river channel, one of the common concerns that has to be addressed is impact to fish passage and habitat conditions. The proposed control structure will be a low-head

How did you consider the anticipated impacts of climate change and drought in your project development?

The Integrated Groundwater/Surface Water Model for the Little Spokane Watershed is the perfect tool to analyze the projected impacts from climate change on the hydrology of the watershed. The model operates by taking precipitation as a general input and then the model determines if that precipitation falls as snow or rain, and how long it resides in the watershed based on temperature. This allows a scenario to be run that changes the timing of precipitation and the temperature at which it falls and resides in the watershed, i.e. how long does it stay as snowpack. A model scenario was run that changed the baseline temperature and precipitation based on the UW Climate Impacts Group medium emission projection. The climate change model scenario projects a decrease in average stream flow at the Dartford Gage during July, August, and September of between 13.4 and 30.7 cfs. This is largely the result of an earlier and smaller snowmelt runoff, not a change in the annual water supply.

The proposed project will provide significant mitigation to address the projected impacts of climate change .

**Streamflow Restoration**

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The total water supply during the spring time is not projected to change, just the timing. Figure 6 shows the average hydrograph at the Dartford Gage between 2002 and 2017 for the baseline scenario and climate change scenario, and shows the shift of water supply to earlier in the year. Therefore, a project that enables storage of water within the watershed to be released later in the summer is well suited to mitigate some of the project impacts of climate change.

**READINESS TO PROCEED AND PROJECT MONITORING**

Which affected tribes, governments, and key stakeholders have you engaged and how have you engaged with them during project development?

This project was developed in conjunction with the WRIA 55 RCW 90.94 Watershed Plan Update process. This project has been presented and discussed at multiple meetings with representatives from the Spokane Tribe, Kalispel Tribe, Pend Oreille County, Stevens County, Washington Department of Fish and Wildlife, and Eloika Lake Association in attendance. At the March 5, 2020 WRIA 55 meeting the group approved supporting this grant application. Also, Spokane County staff met with Ecology Eastern Region Water Resources staff to present and discuss the proposed project. No significant road blocks were identified at the meeting.

Provide letters of support and other evidence.

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920684-SheldonMagnusonLetterofSupport.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920684-SheldonMagnusonLetterofSupport.pdf)  
[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920684\\_2-EloikaLakeAssoc-LetterofSupport.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920684_2-EloikaLakeAssoc-LetterofSupport.pdf)  
[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138523\\_920684\\_3-CGSgrantlitrtoECY-SpoCtyMarch112020.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138523_920684_3-CGSgrantlitrtoECY-SpoCtyMarch112020.pdf)

What is the current status of this project?

Several studies have been completed for the project. Initial discussions have occurred with key property owners. The project is ready to be developed by conducting the necessary field investigations, completing preliminary design, continuing property owner outreach and coordination, permitting, and completing final designs ready for bidding and contracting. The field investigations and preliminary design will proceed as soon

Streamflow Restoration

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as funding is available.

**Designer/engineer status (if relevant):**

Preplanning (pre-permitting)	Status: Not Started
Pre-design (design reports)	Status: Not Started
Schematic design	Status: Not Started
Design development	Status: Not Started
Construction documents	Status: Not Started
Bid documents (ready for bid)	Status: Not Started

**Permit status (if relevant):**

SEPA	Status: Not Started
401	Status: Not Started
Dept. of Fish and Wildlife consultation	Status: Not Started
Storage and/or Secondary Use Permit	Status: Not Started
Other	Status:
Other	Status:
Other	Status:

Describe staff, planning, and commitments in place to complete, monitor, and maintain the project. Include staff roles, responsibilities and qualifications relevant to the proposed scope of work.

The Water Resources section of Spokane County Environmental Services has a long history of successfully implementing watershed planning and water resource grant projects. Mike Hermanson will manage the project with assistance from Amy Sumner. A short summary of relevant qualifications is provided below. Additional staff may be involved in the project including Rob Lindsay (Water Programs Manager), Ben Brattebo (Water Reclamation Engineer), and Nicole Feiten (Water Resources Specialist). Spokane County currently has a contract with a

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consultant team of Aspect Consulting, Anchor Environmental, and EarthFX to provide technical and facilitation assistance for the WRIA 55 RCW 90.94 Watershed Plan Update. Both Anchor Environmental and Aspect Consulting provided information for the proposed project scope of work. The process to select consultants for the WRIA 55 RCW 90.94 Watershed Plan Update project included the potential to add additional projects of this nature to the scope of work, which is an option with this project. If this project is selected for funding Spokane County will evaluate the consultant selection process for this project.

The Water Resources section of Environmental Services works closely with the Water Reclamation section. As described in other sections of the grant application, the Water Reclamation section has recently completed a 10 year project to design, permit, and construct a wetland restoration project with multiple control structures, which would be very similar to the proposed project. Ben Brattebo, Water Reclamation Manager, will be available to provide invaluable guidance on implementing the proposed project. Additionally, Spokane County Public Works maintains the Newman Lake water control structure and can provide guidance on lake management issues.

Mike Hermanson is the Water Resources Manager in the Spokane County Department of Environmental Services. He has worked at Spokane County for 13 years. He has an additional 4 years of experience in environmental consulting and 3 years at a conservation district. He has managed numerous water resource projects. Examples include the development and

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implementation of the WRIA 54 Watershed Plan and Detailed Implementation Plan, Little Spokane Water Bank, Little Spokane Integrated Ground and Surface Water Model, West Plains Hydrogeologic Framework and Conceptual Groundwater Flow Model, and Spokane County Water Use Inventory and Demand Forecast Model. He has a degree in Environmental Science and he is a certified Professional Hydrologist through the American Institute of Hydrology.

Amy Sumner is the Water Resources Project Manager at Spokane County Department of Environmental Services. She has worked at Spokane County since June 2018. However, she has an additional 10 years' experience as an environmental professional in non-profit, private, Tribal and state government organizations in Alaska. Her work with Spokane County includes field work and data analysis in support of the WRIA 55 Watershed Plan update and the Spokane Valley Rathdrum Prairie Aquifer monitoring program. Examples of her work in Alaska include the development of the Jordan Creek Watershed Management Plan and Riparian Assessment, the Duck Creek Nancy St. Wetland Water Quality Assessment, the Montana Creek Stewardship Plan, and the Vanderbilt Creek Watershed Recovery and Management Plan. She has a degree in environmental studies as well as professional certificates in watershed management and river restoration.

**Environmental monitoring**

Will environmental data be collected as part of this project?

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✓ Yes No

A Quality Assurance Project Plan (QAPP) will be a required project element. If it is not already complete, QAPP development should be included in the budget and scope of work. QAPP approval by Ecology will be required before any environmental data collection occurs as part of the project. If QAPP is complete, upload it here.

**WATER RESOURCES STREAMFLOW RESTORATION PROGRAM**

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

**Budget Proposal**

Total Eligible Costs (from General Information form)
\$600,000.00

**By Task**

Task Title	Task Cost	Amount	Total
Project Management		\$11,250.00	\$11,250.00
Project Administration		\$25,500.00	\$25,500.00
Stakeholder and Property Owner Outreach		\$21,848.00	\$21,848.00
Site Investigations		\$155,236.00	\$155,236.00
Technical Studies to Support Preliminary Design		\$123,100.00	\$123,100.00
Preliminary (30%) Design		\$63,961.00	\$63,961.00
60% Design		\$48,298.00	\$48,298.00
90% Design		\$38,084.00	\$38,084.00
Final Design and Design Report		\$34,963.00	\$34,963.00
Project Permitting		\$77,760.00	\$77,760.00
<b>Total</b>	\$600,000.00	\$600,000.00	\$600,000.00

**By Element**

Element	Amount	Total
Salaries - 1		\$0
Benefits - 1		\$0
Salaries and Benefits Combined - 1	\$63,000.00	\$63,000.00
Contracts	\$522,000.00	\$522,000.00
Travel		\$0
Equipment - 2		\$0
Goods/services - 3		\$0
Overhead - 4	\$15,000.00	\$15,000.00
<b>Total</b>	\$600,000.00	\$600,000.00

If you receive a grant, you are responsible for procuring professional, personal, or other services using sound business judgment and good administrative procedures consistent with applicable state, and local laws, orders, regulations, and permits. This includes issuance of invitation of bids, requests for proposals, selection of contractors, award of sub-agreements, and other related procurement matters.

1 Fill in either the "Salaries" field and the "Benefits" field or fill in the "Salaries and Benefits Combined" field

## WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

### Budget Proposal

- 2 Upload an itemized list of all equipment, its cost, and explain why the equipment is needed. Equipment is defined as tangible personal property with a useful life of more than one year and an acquisition cost of more than \$5,000 per functional unit or system. Equipment will be tracked on the Equipment Purchase Report in EAGL.
- 3 Upload an itemized list of all Goods and Services
- 4 Overhead cannot exceed the rate identified in the Ecology publication. Administrative Requirements for the Recipients of Ecology Grants and Loans Managed in EAGL, current version.

### Upload Documents

Click the Browse button

Select your file

Click Save, your file will appear in the List of uploaded documents

Repeat for each file

To Delete a file, select the Delete checkbox next to the file and click SAVE

Additional Comments

## WATER RESOURCES STREAMFLOW RESTORATION PROGRAM

Organization: Spokane County Utilities - Water Resources Section

WRSRP-2020-SCUWRS-00044

### Uploads

#### Description

Figure 1 Eloika Lake Level 2007-17

Figure 2 Little Spokane Low Flow

Figure 3 Eloika Lake Outflow and Lake Level

Figure 4 LSR at Dartford 1948-2018 Exceedance Curves

Figure 5 Project Location

Figure 6 Climate Change Hydrograph

Eloika Lake In-Depth Surface Water Storage and Wetland Restoration Feasibility

Eloika Lake Property Owner Outreach Report

WRIA 55 Current Aquatic Habitat Conditions

2016 Conservation Strategy for Interior Redband Trout

WRIA 55 Exempt Well Demand Memo

#### Attachments

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884773-Figure1EloikaLakeLevel2007-17.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884773-Figure1EloikaLakeLevel2007-17.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884825-Figure2-LSRLowFlow.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884825-Figure2-LSRLowFlow.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823-Figure3-EloikaLakeOutflowandLakeLevel.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823-Figure3-EloikaLakeOutflowandLakeLevel.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_2-Figure4-LSRatDartford1948-2018ExceedanceCurves.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_2-Figure4-LSRatDartford1948-2018ExceedanceCurves.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_3-Figure5-ProjectLocation.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_3-Figure5-ProjectLocation.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_4-Figure6-ClimateChangeHydrograph.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_4-Figure6-ClimateChangeHydrograph.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_5-PBSJ-Eloika-Lake-Report-Final-06-27-09.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_5-PBSJ-Eloika-Lake-Report-Final-06-27-09.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_6-PBSJ-Eloika-Outreach-2010-Report.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_6-PBSJ-Eloika-Outreach-2010-Report.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_7-DRAFTWRIA55LSRCurrentAquaticHabitatConditions02262020.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_7-DRAFTWRIA55LSRCurrentAquaticHabitatConditions02262020.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_8-2016ConservationStrategyforInteriorRedbandTrout.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_8-2016ConservationStrategyforInteriorRedbandTrout.pdf)

[https://ecyeagl/IntelliGrants\\_BASE/\\_Upload/138541\\_884823\\_9-DraftWRIA556091ExemptWellDemandMemo\\_3-2-20.pdf](https://ecyeagl/IntelliGrants_BASE/_Upload/138541_884823_9-DraftWRIA556091ExemptWellDemandMemo_3-2-20.pdf)