Organization: Pierce County - Public Works and Utility Department

WQC-2020-PiCoPW-00006
Version Date: 07/24/2019 08:44:10

**General Information**

**Project Title**

Diru Creek Bank Stabilization Project at 72nd

**Project Short Description**

This project is located near Puyallup, WA, and will stabilize eroding slopes and reverse channel incision along Diru Creek. Wooden bed-control structures will be constructed to help slow instream velocities, halt downcutting, and re-direct sediments to settle into a more stable and natural profile. The project will help Pierce County meet downstream Clarks Creek TMDL sediment goals and sediment-related issues affecting the Puyallup Tribe of Indian's Diru Creek Salmon Hatchery.

**Project Long Description**

The Diru Creek ravine is a 0.6 mile reach of Diru Creek located between 72nd Avenue East and 80th Street East in unincorporated Pierce County. The ravine has experienced severe channel incision (down-cutting) and side-slope erosion over the past 75 years. This destabilized condition persists today. The creek continues to erode its side-slopes, delivering excess sediment Clarks Creek and harming water quality and aquatic health.

During the last 13 years, the County has built and operated four stormwater treatment facilities in the upper Diru Creek watershed. Two more facilities will be built by 2022. These facilities provide considerable flow control and water quality treatment. They are designed to dampen the negative effects associated with large rain events, which are the primary driver of down-cutting in the channel. However, significant improvements are needed to restore damage caused by historic, un-treated urban flows.

Pierce County and the Puyallup Tribe of Indians (PTI) are collaborating to design and engineer a novel project solution. PTI bought 17.7 acres (1,400 linear feet) of the project area and hired Natural Design Consultants (NSD) to develop alternative methods for bank and channel stabilization.

The Diru Creek project will utilize a combination of riparian plantings and bio-engineering techniques to stabilize the channel's side-slopes and reverse the down-cutting in the streambed. These timber control structures are designed to slow instream velocities and redirect sediment to settle into a more natural stream profile. All materials will be firmly anchored to resist high-flow events. This proven Best Management Practice (BMP) is environmentally-friendly, highly effective and was recently used with great success by the City of Puyallup.

**General Information**

The outcome of this project will lead to a controlled level of streambed aggradation (raising) over time. The reduced sediment inputs and sediment storage will combine to provide measurable progress toward TMDL sediment reduction goals for Clarks Creek. This project will significantly reduce sediment impacts to the Diru Creek Salmon Hatchery located just downstream of the project area.

Pierce County will provide construction management and oversight of this project. The estimated construction cost for this project is $1,574,879 The County has budgeted $537,510 for 2019, and the plans are ready to proceed. The County is seeking this grant to secure the full funding necessary to construct the project in a single phase. Avoiding a multi-phased approach limits the duration of site disturbance and helps reduce costs overall.

| | | | |
|---|---|---|---|
| **Total Cost** | $1,574,879.00 | **Total Eligible Cost** | $1,574,879.00 |
| **Effective Date** | 7/1/2019 | **Expiration Date** | 12/31/2020 |

**Project Category**

- ✔ Nonpoint Source Activity
- On-Site Sewage System
- Stormwater Activity0
- Stormwater Facility
- Wastewater Facility

**Will Environmental Monitoring Data be collected?** No

**Ecology Program** Water Quality

**Overall Goal**

The goal of the project is to stabilize Diru Creek's streambed and channel banks, and to trap excess sediment within the project area. Stabilizing and retaining sediment will help reach the Total Maximum Daily Load (TMDL) goals for Clarks Creek, which is located downstream. Sediment reductions will also

help protect a downstream fish hatchery owned by the Puyallup Tribe of Indians (PTI) and provide significant salmonid habitat improvements overall.

## Project Characterization

### Project Themes

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

| | |
|---|---|
| Primary Theme: | Nonpoint Source Pollution |
| Secondary Theme(s): | TMDL Support |
| | Riparian/Wetland Restoration |
| | Watershed Management Plans |

### 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 |
|---|---|
| Clarks Creek TMDL | https://www.piercecountywa.gov/5488/Clarks-Creek-TMDL-Project |
| Diru Creek Water Quality Portal | https://www.waterqualitydata.us/provider/STORET/PUYALLUP/PUYALLUP-R_DIRU_1/ |

**Recipient Contacts**

**Project Manager**

Ingo Kuchta

*Contact Information*

Ingo Kuchta
Project Manager
2702 South 42nd Street, Suite 201

Tacoma, Washington 98409-7322
(253) 798-6165
(253) 798-7709
ikuchta@co.pierce.wa.us

**Authorized Signatory**

Melissa McFadden

*Contact Information*

Melissa McFadden
Assistant County Engineer - Stormwater
2702 South 42nd St, Suite 201
Tacoma, Washington 98409-7322
(253) 798-4684

melissa.mcfadden@piercecountygov.wa

**Billing Contact**

Christina Choate

*Contact Information*

**Recipient Contacts**

Christina Choate

2702 S 42nd St, Suite 201
Tacoma, Washington 98409
(253) 798-4127

christina.choate@piercecountywa.gov

**Other recipient signatures on printed agreement**

| Name | Title |
| --- | --- |

**Total Eligible Cost:** $1,574,879

**Grant Request**

* **Will your match be cash-only?** ✔ Yes No

**Grant Request:** $500,000
**Match Required:** $166,667

IMPORTANT NOTICE. Grants for nonpoint projects require a 25% match. Projects with cash-only match are eligible for up to $500,000 in grant. Projects with a mix of funds for match are eligible for up to $250,000 in grant. Cash match includes any eligible project costs paid for directly by the recipient that are not reimbursed by the Ecology grant or another third party. Donations that become the long-term property of the recipient are considered cash match. Loan money provided through the CWSRF is also considered cash match. In-kind contributions are considered non-cash match. More information on match requirements can be found in the Water Quality Combined Financial Assistance Guidelines which are available for download on the Application Menu.

**Loan Request**

* **Are you requesting or will you accept loan funds for part or all of the eligible project costs or to meet your match requirement?** Yes ✔ No

**What is the loan amount you are requesting or willing to accept?**

**What loan term do you prefer?** 5 years 20 years 30 Years

IMPORTANT NOTICE. Ecology may provide special loan funding for nonpoint projects in the following case: (1) projects that meet the criteria for "green project reserve" may receive up to 25% forgivable loan. Ecology will determine eligibility for special funding when developing funding packages.

**Other Funds**

* **Do you have any secured funds committed to this project?** ✔ Yes No

If Yes, complete the Secured Funds Table, and include any secured matching funds if known.

**Secured Funds Table**

| Source* | Type* | Amount Committed* |
|---|---|---|
| State/Federal agency: | | |
| State/Federal agency: | | |
| State/Federal agency: | | |
| Interlocal contributions: | | |
| Interlocal contributions: | | |
| Local agency: Pierce County | Cash | $537,510.00 |
| In-kind contributions: | | |
| Other | | |

**Scope of Work - Task 1 Grant and Loan Administration: 1**

**Task Number** 1

**Task Title** Grant and Loan Administration **Task Cost** $30,000.00

**Task Description**

A. The RECIPIENT shall carry out all work necessary to meet ECOLOGY grant or loan administration requirements. Responsibilities include, but are not limited to: Maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation; progress reports; and a recipient closeout report (including photos).
B. The RECIPIENT shall maintain documentation demonstrating compliance with applicable procurement, contracting, and interlocal agreement requirements; application for, receipt of, and compliance with all required permits, licenses, easements, or property rights necessary for the project; and submittal of required performance items.
C. The RECIPIENT shall manage the project. Efforts include, but are not limited to: conducting, coordinating, and scheduling project activities and assuring quality control. Every effort will be made to maintain effective communication with the RECIPIENT's designees; ECOLOGY; all affected local, state, or federal jurisdictions; and any interested individuals or groups. The RECIPIENT shall carry out this project in accordance with any completion dates outlined in this agreement.

**Task Goal Statement**

Properly managed and fully documented project that meets ECOLOGY’s grant or loan administrative requirements.

**Task Expected Outcomes**

* Timely and complete submittal of requests for reimbursement, quarterly progress reports, Recipient Closeout Report, and two-page outcome summary report.
* Properly maintained project documentation.

**Recipient Task Coordinator** Ingo Kuchta

Deliverables

| Deliverable # | Description | Due Date | Received? | EIM Study ID | Latitude | Longitude | Location Address |
|---|---|---|---|---|---|---|---|

| | | |
|---|---|---|
| 1.1 | Quarterly Progress Reports | 10/31/2019 |
| 1.2 | Recipient Closeout Report | 11/30/2020 |
| 1.3 | Project Outcome Summary Report | 11/30/2020 |

| | | | |
|---|---|---|---|
| Task Number | 2 | | |
| Task Title | Design Plans and Specs, Environmental Review | Task Cost | $60,000.00* |

Task Description

A. The RECIPIENT will coordinate preparation and submittal of State Environmental Policy Act (SEPA) documentation.

B. The RECIPIENT will be responsible for the application of, receipt of, and compliance with all permits and licenses necessary for the Project.

C. Prior to any ground-disturbing activities, the RECIPIENT will submit a DAHP EZ-1 form, along with any supplemental cultural resources documentation, to ECOLOGY's Project Manager.

D. The RECIPIENT will develop and submit two hard copies and one digital copy of a complete Ecology Design Report for ECOLOGY review. Only ECOLOGY-approved manuals may be used as the basis for project design, unless site-specific justification for alternate design has been pre-approved by ECOLOGY.

E. Prior to advertising for contractor bids, the RECIPIENT will submit two hard copies and one digital copy of the 90% Design Plans and Specifications to ECOLOGY's Project Manager for review. The plans must include ECOLOGY's Bid Specification Clauses (found at https://ecology.wa.gov/Asset-Collections/Doc-Assets/Water-quality/Grants-and-Loans/Facility-Resources/Standard-Contract-Clauses). ECOLOGY will provide the RECIPIENT with comments within 45 days of receipt.

F. The RECIPIENT will submit to ECOLOGY a current updated construction cost estimate and project schedule, along with each subsequent plan and specification submittal.

G. The RECIPIENT will submit legible design figures and construction plans to ECOLOGY, reduced to size 11x17 or smaller.

Task Goal Statement

The RECIPIENT will complete all design, environmental review and permitting tasks related to the Project. The

RECIPIENT will also submit the associated deliverables to ECOLOGY, and respond to ECOLOLGY comments in a timely manner.

Task Expected Outcomes

The project will meet the appropriate planning, design, environmental review, and permitting requirements set forth by SEPA, cultural resource protection requirements, ECOLOGY design standards, and all other applicable federal, state, and local laws and regulations.

Recipient Task Coordinator

Ingo Kuchta

Deliverables

| Deliverable # | Description | Due Date | Received? (ECY Use Only) | EIM Study ID | EIM System Link | Latitude | Longitude | Location Address |
|---|---|---|---|---|---|---|---|---|
| 2.1 | Upload copy of SEPA determination documentation to EAGL and notify ECOLOGY upon completion. | 1/3/2020 | | | | | | |
| 2.2 | Complete DAHP EZ-1 Form or ECOLOGY's ECY 05-05/106 form. Upload form along with applicable supplemental cultural resources documentation, if available. Notify ECOLOGY. | 10/31/2019 | | | | | | |

| | | |
|---|---|---|
| | (Cultural Resource surveys will be submitted directly to ECOLOGY Project Manager, not uploaded to EAGL.) | |
| 2.3 | Develop Inadvertent Discovery Plan, upload to EAGL, and notify ECOLOGY. | 10/31/2020 |
| 2.4 | Complete a Stormwater Project Design Report. Submit one hard copy to ECOLOGY engineer, along with a digital copy uploaded to EAGL. Notify ECOLOGY. | 7/19/2019 |
| 2.5 | Prepare responses to ECOLOGY Stormwater Project Design Report comments. Upload response to EAGL and notify ECOLOGY. | 8/30/2019 |
| 2.6 | Upload Ecology Design Report Acceptance Letter to EAGL and notify | 9/27/2019 |

| | | |
|---|---|---|
| | ECOLOGY. | |
| 2.7 | Prepare 90% Design Package (Plans, Bid Specs, and Engineer's Estimate). Submit one hard copy to ECOLOGY's Engineer. Upload one copy to EAGL and notify ECOLOGY. | 10/1/2019 |
| 2.8 | Prepare responses to ECOLOGY 90 Percent Design Package comments, upload to EAGL, and notify ECOLOGY upon completion. This step may take several exchanges, and may include revisions to the final 90 Percent Design package. Once finalized, a hard copy will also be submitted to the ECOLOGY Project Manager, who will review along with | 10/31/2019 |

| | | |
|---|---|---|
| | the ECOLOGY Engineer. | |
| 2.9 | Upload Ecology 90 Percent Design Package Acceptance Letter to EAGL and notify ECOLOGY. | 11/29/2019 |
| 2.10 | Develop a list of permits acquired and environmental review documents. Upload the list to EAGL and notify ECOLOGY. | 3/6/2020 |
| | Prepare Final Bid Package. Upload to EAGL and notify ECOLOGY. | 3/27/2020 |

| | | | |
|---|---|---|---|
| Task Number | 3 | | |
| Task Title | Construction Management | Task Cost | $11,000.00* |

Task Description

A. The RECIPIENT will provide construction oversight and management for the Project.

B. The RECIPIENT will submit a detailed construction quality assurance plan to ECOLOGY before the start of construction, which describes how adequate and competent construction oversight will be performed.

C. The RECIPIENT will conduct a pre-construction conference meeting and invite ECOLOGY to attend.

D. The RECIPIENT will submit an updated Project Schedule with projected cash flow to ECOLOGY within 30 days of the start of construction. The Project Schedule will be updated and/or revised whenever major changes occur, or at a minimum of every 3 months. The RECIPIENT will submit these updates along with the quarterly report, and will include an updated cash flow projection whenever changes to the construction schedule affect previous cash flow estimates.

E. Prior to execution, the RECIPIENT will submit any eligible change orders that are a significant deviation from the ECOLOGY-accepted plans and specifications in writing to ECOLOGY for review. All change orders that impact grant-eligible activities must have ECOLOGY approval prior to implementation. All other change orders must be reviewed by ECOLOGY for technical merit and should be submitted within 30 days after execution. Change orders are to be signed by the contractor, the engineer (if appropriate) and the RECIPIENT prior to submission for ECOLOGY approval.

F. The RECIPIENT will operate and maintain the Project to ensure it meets performance obligations. The RECIPIENT will develop and submit an operations and maintenance plan for all treatment, flow control, and Low Impact Development (LID) features. The operation and maintenance plan will describe how the RECIPIENT will ensure Project success consistent with the design manual used. This includes long term activities to assure ongoing pollutant removal and flow control capability, in accordance with the ECOLOGY-approved design manual.

G. Upon completion of construction, the RECIPIENT will provide to ECOLOGY:

1. A Stormwater Construction Completion Form signed by a professional engineer, indicating that the Project was completed in accordance with the plans, specifications, and major change orders approved by ECOLOGY's Project Engineer and as shown on record drawings.
2. GIS-compatible project area data in an ECOLOGY-approved format (.zip file).

Task Goal Statement

The RECIPIENT will oversee and manage construction of the project, communicate with ECOLOGY in a timely fashion, and provide ECOLOGY with all required and requested documentation.

Task Expected Outcomes

The project will be constructed on schedule and in accordance with the ECOLOGY-approved plans and specifications, while adhering to construction best management practices, the Construction Quality Assurance Project Plan, and all other applicable regulation.

Recipient Task Coordinator

Ingo Kuchta

Deliverables

| Deliverable # | Description | Due Date | Received? (ECY Use Only) | EIM Study ID | EIM System Link | Latitude | Longitude | Location Address |
|---|---|---|---|---|---|---|---|---|
| 3.1 | Provide a copy of contract documents (e.g. bid announcement, bid award, and bid tabulations). Upload to EAGL and notify ECOLOGY | 4/30/2020 | | | | | | |
| 3.2 | Provide a copy of signed and dated construction | 5/29/2020 | | | | | | |

| | | |
|---|---|---|
| | contract. Upload to EAGL and notify ECOLOGY. | |
| 3.3 | Develop Construction Quality Assurance Plan. Upload to EAGL and notify ECOLOGY when complete. | 6/30/2020 |
| 3.4 | Hold pre-construction conference. Upload meeting notes to EAGL and notify ECOLOGY. | 7/31/2020 |
| 3.5 | Update Project Schedule and upload to EAGL. Notify ECOLOGY. | 7/1/2020 |
| 3.6 | Revise cash flow estimates when changes in construction schedule occur. Upload to EAGL. Notify ECOLOGY. | 7/17/2020 |
| 3.7 | Upload Change Order(s) to EAGL and notify ECOLOGY. | 8/28/2020 |
| 3.8 | Develop Facility | 9/18/2020 |

| | |
|---|---|
| Operation and Maintenance Plan and upload to EAGL. Notify ECOLOGY. | |
| Complete Stormwater Construction Completion Form and upload to EAGL. Notify ECOLOGY when complete. | 10/31/2020 |
| Upload Project Area Shapefile (.zip) or ECOLOGY-approved equivalent for GIS-compatible project area data. | 10/31/2020 |

| | | | |
|---|---|---|---|
| Task Number | 4 | | |
| Task Title | Project Construction | Task Cost | $1,473,879.00* |

Task Description

A. The RECIPIENT will, in accordance with ECOLOGY-accepted plans and specifications, ensure complete construction of the Project.

B. The RECIPIENT will provide timely and complete construction progress reports and associated photographs in quarterly reporting.

C. The RECIPIENT will establish construction access and staging areas, traffic controls, and construction erosion/water pollution control measures per ECOLOGY-accepted plans and specifications.

D. In order to stabilize the existing Diru Creek banks and streambed, and to arrest incoming sediment to help rebuild the natural stream grade, the following structures will be constructed (according to ECOLOGY-approved plans) within the project area:

1.Between 31 and 42 (depending on funding) timber-frame structures will be installed at key locations to stabilize banks and vulnerable hillsides along Diru Creek. These structures will be anchored in place, and will provide armoring against erosion from peak streamflows while holding the existing sediments in place. Sediment in these structures will also be augmented with soils and revegetated in order to increase root cohesion and further reduce erosion over time.

2. Between 24 and 39 (depending on funding) bed-control matrices will be installed over incised streambed areas. These engineered structures employ 10-inch diameter logs arranged in layers, forming a grid-like matrix that helps armor the streambed against further incision. These log matrices are underlain by geotextile fabric and then packed with 6 to 12 inches of uncompacted slash (small sticks, boughs, and other coniferous woody debris left over from timber harvesting operations). The slash forms a mesh that slows the flow of water, protecting the matrix structure by reducing the stream's force. The mesh also provides storage, sequestering sediments and allowing the streambed to aggrade naturally over time.

3. Cobble and boulder streambed armoring will be placed immediately downstream of the 80th ST E outfall to

reduce splash erosion and prevent culvert failure during peak-flow events.

E. All existing native vegetation is to be preserved. The RECIPIENT will also plant native riparian vegetation along the entire project area. Current design plan estimates call for planting across approximately 4 acres, including eroded streambanks and any bare areas where construction clearing or invasive species removal has occurred. Infill planting will also be employed to augment sparse areas of existing native vegetation.

F. The RECIPIENT will monitor progress and project effectiveness throughout construction. Regular field surveys will record:

1. Qualitative morphology changes,

2. Measures of bed aggradation and/or sediment volumes in timber structures,

3. Assessment of riparian planting survival.

Task Goal Statement

This RECIPIENT will install bioengineered structures and native vegetation along Lower Diru Creek, in accordance with ECOLOGY-approved plans and specifications.

Task Expected Outcomes

The Project will help improve salmonid habitat, help protect Diru Creek's tribal fish hatchery, and help meet TMDL goals for both Lower Diru and Clarks Creek by reducing sediment input from eroding banks and streambed, and by arresting and retaining incoming sediments.

Recipient Task Coordinator

Ingo Kuchta

Deliverables

| Deliverable # | Description | Due Date | Received? (ECY Use | EIM Study ID | EIM System Link | Latitude | Longitude | Location Address |
|---|---|---|---|---|---|---|---|---|

| | | |
|---|---|---|
| | | Only) |
| 4.1 | Construction progress reports included in quarterly reports. | 7/31/2020 |
| 4.2 | Establish temporary construction access and staging area, traffic controls, and construction erosion/water pollution control measures per ECOLOGY-accepte d plans and specifications. Photos and any applicable documentation will be included in quarterly construction progress reports. | 9/1/2020 |
| 4.3 | Place up to 42 timber frame structures at key locations (per ECOLOGY-approve d plans) to stabilize streambanks and adjacent slopes. Photos and any | 10/16/2020 |

| | | |
|---|---|---|
| | applicable documentation will be included in quarterly construction progress reports. | |
| 4.4 | Place up to 39 timber-matrix bed control structures at incised stream reaches (per ECOLOGY-approved plans). Photos and any applicable documentation will be included in quarterly construction progress reports. | 10/16/2020 |
| 4.5 | Install streambed cobles and boulders at the 80th ST E culvert to reduce splash erosion and prevent failure during peak-flow events. Photos and any applicable documentation will be included in quarterly construction | 10/16/2020 |

| | | |
|---|---|---|
| | progress reports. | |
| 4.6 | Plant native riparian vegetation as needed along project area, up to 4 acres. Photos and any applicable documentation will be included in quarterly construction progress reports. | 10/16/2020 |
| 4.7 | Monitor project effectiveness throughout project. Regular field surveys will record: (1) qualitative morphology changes, (2) quantitative measures of bed aggradation and/or sediment volumes in timber structures (3) assessment of riparian planting survival. Submit recorded field data and photographs in quarterly construction | 9/1/2020 |

progress reports.

## Scope of Work Summary

| Task Title | Task Cost |
|---|---|
| Design Plans and Specs, Environmental Review | $60,000.00 |
| Construction Management | $11,000.00 |
| Project Construction | $1,473,879.00 |
| Project Administration/Management | $30,000.00 |
| **Total** | $1,574,879.00 |

**Total Eligible Costs**
(from the General Information Form)
$1,574,879.00

| Subcategory | |
|---|---|
| ***Are you applying to refinance debt for a wastewater facility project that has been completed (i.e., standard refinance)?** | Yes ✔ No |
| ***Do you want your project to be considered for GPR subsidy under the CWSRF program? (NOTE: Projects are only eligible if they meet EPA's GPR criteria, and applicants accept a CWSRF loan.)** | Yes ✔ No |
| ***Is this a wastewater facility project that includes Construction tasks for which you are seeking funding and is the population of the community that will pay for the project less than 25,000 and do you want to be considered for Financial Hardship subsidy?** | Yes ✔ No |

**Describe the process used to estimate the cost of the project. If your process included reviewing similar projects, describe how this review affected your estimate.**

The estimates for the project were provided by Natural Systems Design (NSD). NSD completed the 90 percent design on schedule and budget as of October 2018. Cost estimates for the final design and preliminary construction phases were provided by NSD based on similar projects such as the Clarks Creek Stabilization project in the same watershed as the proposed project. Pierce County estimated its roles in the project based on previous similar successful construction and design projects. Construction estimates will be refined as the design progresses throughout 2018. The current estimates of the design phases should accurately reflect the cost of the project. Pierce County included this detailed estimate in its six year Capital Facilities Plan.

**Describe the process used to determine that this project is the lowest cost solution to the problem.**

*If the proposed project is not the lowest cost, describe the other benefits or considerations such as feasibility, community acceptance, or coordination with other projects that influenced the decision making process.*

The root cause of the problem the Project is going to solve is altered hydrology due to upstream development, loss of wetlands and draining of tributary properties. Historical logging in the ravine also contributed to the destabilization of the channel. Alternative methods to modify the hydrology by restoring wetlands and upland storage of surface water were investigated by NSD. These alternatives proved too costly and required cooperation by several private property owners. Past efforts by the County to restore wetlands on private property have not been well-received by the public, mainly due to the restriction of land-use and critical area regulations that come with wetland buffers. In addition to a lack of community acceptance, the Project alternatives do not address the problem of historic sediment destabilization. The preferred design approach of streambed and bank restoration are needed to return the creek to a more natural grade and profile to reduce sediment inputs. Sediment reduction is the driver of this project, due to the hatchery water supply impacts, as well as the Clarks Creek TMDL.

The Diru Creek Bank Stabilization Project at 72nd originally emerged as capital improvement project for the Clarks Creek Basin Plan (Pierce County, 2006). The preferred design approach for the Project was developed through a multi-reach inventory, project area prioritization and alternatives analysis. This analysis was the basis for this Project's public vetting and community stakeholder review. It was officially adopted by the Pierce County Council as part of the Clarks Creek Basin Plan in 2006. The Clarks Creek Initiative (CCI) is the community stakeholder group assembled to review the 2006 Basin Plan. CCI was reformed by Ecology in 2008 to help track the development of the Clarks Creek TMDL. CCI again vetted the Project concept as it developed its recommendations for implementing the TMDL required sediment load reductions. The TMDL Report by Ecology evaluated the Project as an example project critical to meeting the County's assigned sediment load reduction target (see Appendix H of the attached TMDL report).

In 2010, the Project was evaluated by the Puyallup Tribe. It was identified as a priority project for achieving sediment reductions, largely in part

because the project area is immediately upstream of its salmon hatchery. The Project's engineering concepts were evaluated in the Clarks Creek Sediment Reduction Action Plan (Puyallup Tribe of Indians, 2013). The Tribe fully supports this project proposal, as shown in the attached letter of support.

**Upload a detailed budget for the project and any supporting documentation, including engineers estimates, cost analysis, etc.**

| Attachment Description | Attachment |
|---|---|
| Detailed Project Budget | _Upload/96114_906585-D812Budget.xlsx |
| Puyallup Tribe of Indians' Letter of Support | _Upload/96114_906585_2-LOSPuyallupTribe.pdf |

## Project Information

**Project Length in months:** 17

*(The difference between the effective date and the expiration date on the General Information Page)*

**Project Start Date** 9/2/2019

*(The date the actual work will start, or if interim refinance, the date the work started)*

**Please identify all 12 digit HUCs in which the project work will be done.**

| HUC | Percentage |
|---|---|
| 171100140502 | 100% |

## Water Body and Water Quality Needs Addressed

**Check all type(s) of water bodies that this project targets: ***

- ✔ Freshwater rivers
- Freshwater lakes
- Freshwater wetlands
- Ground water
- Direct marine water
- Saltwater estuary
- Other **(specify):**

**Check all the resource protection and regulatory requirements that this project addresses: ***

- ✔ Endangered or threatened salmonids
- Other Endangered Species Act protected species **(specify):**
- Protection of shellfish habitat
- ✔ National Pollutant Discharge Elimination System (NPDES) permit requirements
- State Waste Discharge Permit
- ✔ Other **(specify):** Clarks Creek TMDL waste load allocation for reducing sediment

**Check all the water quality parameters that this project targets: ***

- ✔ Dissolved oxygen
- ✔ Sediment
- Nitrogen
- Fecal coliform
- Phosphorus
- Temperature
- pH
- Other **(specify):**

**Identify the water bodies, any impairments (Category 4A, 4B, and 5 waters), and listing parameters that your project will address.**

**Water Body Name**
Clarks Creek
Diru Creek

**Are you addressing a TMDL?** ✔ Yes No

**TMDL Name**
Clarks Creek Watershed Bacteria TMDL

**Water Body and Water Quality Needs Addressed**

Clarks Creek Watershed DO TMDL

## Nonpoint Source Activity Project Information

**Check all the type(s) of project that apply:**

Agricultural best management practices (BMP)
- ✔ Other BMPs **(specify):** Instream Bioengineering Techniques to Reduce Sediment Loads
- ✔ Site specific planning for BMP implementation

Groundwater/aquifer/wellhead protection and/or planning
Lake restoration planning and/or implementation
Public outreach and education
- ✔ Riparian/wetland restoration
- ✔ TMDL support
- ✔ Water Quality monitoring

Other **(specify):**

**Is the project planning, implementation or a combination of both? ***

Planning ✔ Implementation Planning/Implementation

| Implementation Action | Reference the plan(s) that describe this action, including page numbers and where a copy can be obtained |
|---|---|
| Diru Creek Instream Bank Stabilization Project (upstream of 72nd Street E) | Puyallup Tribe of Indian's Clarks Creek Sediment Reduction Action Plan, 2013 (pp. ES-5, 2-1, 2-8, 3-6, 4-2, 4-6, and Appendix A pg 6. [available at https://bit.ly/2P2g7vl ] |
| Diru Creek Instream Bank Stabilization Project | Pierce County Surface Water Improvement Program Report, 2019-2024 (pg. 14) [See uploads] |
| Diru Creek Instream Bank Stabilization Project (upstream of 72nd Street E) | Clarks Creek Dissolved Oxygen and Sediment Total Maximum Daily Load Water Quality Improvement Report and Implementation Plan, 2014 (ECY Publication no. 14-10-030) pp 128, 132, 136 [see uploads] |
| Diru Creek Instream Bank Stabilization Project (upstream of 72nd Street E) | Pierce County Clarks Creek Restoration Plan (TMDL Implementation Plan, 2017) pp 58, 60, 62, 63, 92, 124, and 133. [see uploads] |
| Diru Creek Instream Bank Stabilization Project | Pierce County's Clear Creek and Clarks Creek Basin Plan (2006) Chapters 8, 9 and 10 Capital Improvement Projects: pp 8-17, 9-8, 9-49, 9-51, 10-21, 10-22 [see uploads] |

## Project Team

**Fill out the following table to describe your Project Team, including staff, contractors, and partner agencies:**

| Team Member Name/and or Title | Key Responsibilities | Qualifications/ Experience | Estimated Total Hours Devoted to the Project | Who will take over the person's responsibilities if they are unable to work on the project? |
|---|---|---|---|---|
| Ingo Kuchta, Project Manager | Managing grant, managing consultant, general project management, and construction management. | Over 20 years of design and project management experience. Managed three phases of creek restoration projects on Clover Creek as well as other riverine habitat and stormwater infrastructure projects. | 80.00 | Pierce County Surface Water Management has 4 qualified Project Managers on staff that could take over these responsibilities. |
| Natural Systems Design, Consultant | Completion of final design, plans, specifications, design report and construction estimate. | Tim Abbey Ph.D. RG, Rocky Hrachovec P.E. and their team are highly qualified in the area of river and stream restoration. They have completed numerous projects ranging from dam removals to innovative log jam and stabilization projects using natural materials that work with natural processes. | 140.00 | Natural Systems Design has a staff of 29 people to draw from, in the event that individual staff are not able to work on this project. If the consultant is somehow unable to continue the work another consultant will be hired or the project may be completed using Surface Water Management engineering or design staff. |
| Char Naylor, the Puyallup Tribe of Indians | Char Naylor: tribal representative, water quality program manager, | The Puyallup Tribe of Indians (PTI) has various skilled people in various | 25.00 | In the event that Char could not continue as the tribes representative, the tribe would |

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| | project partner, funding partner | disciplines within their Natural Resource Management and Fisheries departments. The Tribe is very familiar with Diru and Clarks Creek due to the two salmon hatcheries they operate there. PTI is a major cooperating partner in the TMDL and they are closely involved with the capital projects the County is sponsoring to meets its sediment reduction targets. | | appoint another of their staff to the position. |
| Marty Ereth, Environmental Biologist 2 | Environmental Permitting | Employed as a Biologist and Environmental Lead for Pierce County Surface Water Management. Over 9 years experience in permitting Capital and maintenance projects. Spent 16 years as a Habitat Biologist for the Skokomish Indian Tribe and 10 years working as a Scientific Technician for various state and federal resource agencies. | 80.00 | Surface Water Management has 6 qualified individuals in the Environmental Permitting section that can take over these responsibilities. |
| Tim Hagan, Senior Water | Clarks Creek TMDL | Mr. Hagan has 24 years of | 40.00 | Tom Kantz, Ph.D. Water Quality |

**Project Team**

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| Quality Planner | Project manager | public and private sector experience working in soil science, revegetation and water quality science. Mr. Hagan is a Senior Water Quality Planner for Pierce County since 2014. Mr. Hagan is a: Certified Municipal Stormwater Manager # 371, Certified Professional in Erosion and Sediment Control # 7268, Certified Erosion, Sediment and Stormwater Inspector #7263, Certified Professional in Stormwater Quality # 1353, CA Licensed SWPPP Developer and Inspector # 24413. | | Supervisor can take over these responsibilities. |
| Jefferey Davidson, Civil Engineer 1 | Engineering support | 20 years of experience working on projects as the design engineer. | 20.00 | Surface Water Management has 5 qualified individuals in the Capitol improvement section that can take over these responsibilities. |
| David Davis, Engineering Technician 3 | Prepare billings and backup documentation. | 10 yrs construction inspection experience, CESCL certified, LID design and Inspection | 140.00 | Surface Water Management has 5 qualified individuals in the Capitol improvement section that can take over these |

**Project Team**

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| | | certification. | | responsibilities. |
| Christina Choate, Grant Accountant 1 | Prepare billings and backup documentation | Christina Choate has 7 years financial grant management experience between City of Lakewood and Cowlitz County Health Department. Her experience includes federal direct, federal indirect, state and local grants. She also received a Grant Management Certification from Management Concepts. | 20.00 | Pierce County has 2 qualified individuals in the Budget and Finance section that can take over these responsibilities. |

*To add a team member, fill out a row and SAVE. A blank row will appear. To remove a team member, clear the contents of the entire row and SAVE. One blank row is always visible.*

**Describe similar projects that your project team or organization has completed. Note any deviations from the original proposal in scope, budget, or schedule and briefly describe project success and lessons learned. If the project was funded by Ecology, include the Ecology grant or loan number.**

In 2018, NSD successfully completed the Upper Clarks Creek Sediment Stabilization project for the City of Puyallup. Clarks Creek faces the same erosion problems (streambed incision and channel bank instability) as Diru Creek and has similar morphology. Staff from Pierce County, along with staff from Ecology, Puyallup Tribe, Muckleshoot Tribe, USACE, WDFW, DNR and the Pierce Conservation District have been out to the site to learn more about these techniques. NSD used information and designs developed for the successful Upper Clarks Creek Sediment Stabilization project to develop the bioengineering techniques proposed for the Diru Creek project.

Within the last ten years Pierce County received millions in grants from DOE to implement water quality projects. The County has a proven track record that it can receive grant revenue and implement quality nonpoint projects that deliver Ecology objectives in a timely, cost effective manner. Examples include:

**Project Team**

1) Pierce County Septic Repair small loan program (G1400568, $314,706 & G0700322/L0700022, $433,735) resulted in immediate water quality improvements throughout unincorporated Pierce County and exceeded targets for numbers of system repairs.
2) The Ball Creek Floodplain Restoration project (G1500021, $1,925,000) finished on time and under budget in the Fall of 2018.
3) Woodland Creek Water Quality Facility (WQC-2018-PiCoSW-00077, $1,717,000) built a large stormwater treatment pond to reduce sediment and peak flows into Clarks Creek.

**Describe the steps you have taken to be ready to proceed immediately with the project. Provide detailed information and documentation on project elements such as status of designs, permits, interlocal agreements, landowner agreements, easements, other secured funding, staff, or agency approvals.**

*If applicable, describe the environmental review completed such as:*
** National Environmental Policy Act (NEPA)*
** Environmental Review Process (SERP)*
** State Environmental Policy Act (SEPA)*
** Cultural Resource Assessment*

The Project has 90 percent design completed and draft plans are available. The Project's final design, permits and construction documents will be finalized prior to the grant award date. If funded, the County will provide Ecology with copies of the final design and design reports for comment/review to ensure the project meets the goals of the grant. The proposed budget incorporates time for County staff to incorporate Ecology feedback into the final design and construction documents.

Property acquisition is underway. This project is a collaboration between PTI and the County. Although PTI has purchased 17.7 acres of land for the project, additional acquisition and easements are needed to complete the project. The County's Right-of-Way department is anticipating all easements required for the Project to be completed in November of 2018. Permitting for the project is on schedule and will be submitted by the end of October of 2018, and the attached Cultural Resources form is available for review.

The County has committed over $500,000 in match dollars to manage and construct the project. County Council have reviewed and approved the project scope. Staff are already in place to oversee project management, construction, and monitoring. These County staff have participated in site visits to the Upper Clarks Creek Bank Stabilization Project in Puyallup and are familiar with this project type.

**Upload a Project Schedule that includes all tasks necessary to complete the project, including tasks that are not part of the funding request.**

| Attachment Description | Attachment |
|---|---|
| Project Timeline | _Upload/96216_906603-DraftProjectTimeline.xlsx |

**Describe the process used by your organization to select the project for implementation. In your description please include:**

*(1) All criteria used to evaluate the value, feasibility and site suitability of the proposed project.*
*(2) Alternatives to the proposed project that were considered.*
*(3) A list of project stakeholders, their involvement in the decision-making process, and their level of support for the project.*
*(4) The plan to ensure long term project success and maintenance of the water quality benefits.*

(1) The Diru Creek Bed and Bank Stabilization Project at 72nd originally emerged as an in-stream capital improvement project for the Clear Creek and Clarks Creek Basin Plan (Pierce County 2006). The preferred design approach for the Project was developed through a multi-reach inventory, project area prioritization, and alternatives analysis. This analysis was the basis for this Project's public vetting and stakeholder review. It was officially adopted by the Pierce County Council as part of the Clarks Creek Basin Plan.

In 2010, the Diru Creek Bed and Bank Stabilization Project was evaluated by the Puyallup Tribe of Indians. It was identified as a 'Tier 1' priority project for achieving sediment reductions (PTI Action Plan Alternatives Technical Memo 2012). The Project's engineering concepts were evaluated in the Clarks Creek Sediment Reduction Action Plan (PTI 2013). In 2014, the Department of Ecology issued the Clarks Creek TMDL (publication 14-10-030) to Pierce County. The projects listed in the PTI, Sediment Reduction Action Plan, including the Project, were identified in the Clarks Creek TMDL as meeting the requirements of the sediment waste load allocation.

(2) During the development of the PTI Sediment Reduction Action Plan (2013), alternative sediment reduction projects and locations were also considered. Each was technically evaluated using a pair of linked models, the Hydrologic Simulation Program and the Hydrologic Engineering Centers River Analysis System. These modeling tools were supported by a magnitude-frequency analysis spreadsheet and the development of an effective work index based on flow duration curves, stream channel hydraulics and sediment gradient (Alternatives Technical Memo, PTI 2012). The CCI stakeholder group then used these tools to evaluate these project alternatives. The proposed project is identified as providing the greatest cost-to-benefit for sediment reduction.

The Project is significantly enhanced in its scope and design since it was first described in the County's basin Plan (2006) or PTI's Sediment Reduction Action Plan (2013). The enhanced scope is determined by NSD to be a cost-effective approach for the expected outcomes. The expanded project area and enhanced design will achieve greater progress toward the sediment load reduction targets assigned by the TMDL. The enhancement now provides other ecosystem benefits; including increased riparian shade, woody material recruitment, habitat enhancement, and flood protection.

(3) The Project boasts several supportive stakeholders, such as;
• Clarks Creek Initiative (CCI) is the public stakeholder group which was instrumental in assessing project alternatives in 2012 and identifying the Project as among the top cost-to-benefit projects for sediment reduction.
• Pierce County Council has indicated their support of this project by adopting the 2006 Basin Plan. They have given approval to develop this grant proposal to partially fund the project. Council has also approved 2019-2024 Surface Water Improvement Program, which is the primary budget workplan for surface water capital improvement projects, allocating over $500,000 in funding for the Project (see page 14 of the SWIP in the uploads section).
• The Technical Advisory Committee (TAC) guides the implementation of its Clarks Creek TMDL Implementation Plan. An important component of the County's implementation strategy in Clarks Creek is the assembly of the TAC. This group is composed of the County and the three central entities (Ecology, EPA and PTI) involved with the development of the TMDL since its inception. They are supportive of this project.
• The Puyallup Tribe of Indians are key stakeholders in the proposed project. As stated previously, the Project will provide significant reduction in the sediment load that clogs the Diru Creek Hatchery. PTI not only is a key decision-maker in the Project design, but sponsored NSD to fully engineer the Project before turning it over to the County to seek construction funds.

(4) The County's TMDL Implementation Plan creates an annual inspection and accounting system to reliably record the Project's sediment reduction benefits on an ongoing basis. Once the Project is constructed, it will be quantitatively modeled for its average annual sediment reducing performance in the "as built" condition. Once this analysis is complete, the project becomes eligible for annual water quality credit inspections and auditing. Project benefits will be credited toward TMDL obligations, provided it continues to meet defined performance obligations. Two programmatic responses are initiated if inspections indicate the project is not meeting performance standards. First, water quality crediting for that year will be prorated or withheld. Second, a maintenance referral for reestablishing the Project's originally engineered functionality will be recorded. In addition, necessary repairs will be initiated within the year of their discovery.

| Attachment Description | Attachment |
|---|---|
| Clarks Creek DO and Sediment TMDL Report (publication 14-10-030) | _Upload/95247_906601-ClarksCreekDOandSedimentTMDLReport_Ecology2014.pdf |
| Pierce County's Clarks Creek TMDL Implementation Plan | _Upload/95247_906601_2-ClarksCreekRestorationPlan_ApprovedFinalSubmittal_030217.pdf |
| Puyallup Tribe's Clarks Creek Sediment Reduction Action Plan Alternatives | _Upload/95247_906601_3-ClarksCreekSedimentReductionActionPlan_AlternativesTechnicalMemo_PTI_2012.docx |
| Pierce County's Clear Creek and Clarks Creek Basin Plan | _Upload/95247_906601_4-PierceCounty_ClearCreekandClarksCr |

| | |
|---|---|
| | eekBasinPlan_VolumeI_2006.pdf |
| Puyallup Tribe's Clarks Creek Sediment Reduction Action Plan (Links) | _Upload/95247_906601_5-PTI_ClarksCreekSedimentReductionActionPlan(LinksOnly).docx |
| NSD Diru Creek Bank Stabilization Assessment and Conceptual Design | _Upload/95247_906601_6-DiruCk_Conceptual_Design_12162016_REDUCED.pdf |
| Surface Water Improvement Program (SWIP) | _Upload/95247_906601_7-2019_swip_web.pdf |

**Name the water body(ies) the project will improve or protect and describe the current regulatory requirements and available planning documents for the water body. Include a description of any NPDES permitting requirements, TMDLs, or local watershed plans.**

The project will improve water quality conditions in Diru Creek, a tributary to Clarks Creek. Several planning documents support the prioritization of this project, providing justification for capital work in the Clarks Creek watershed. These documents are:

1) Clarks Creek Dissolved Oxygen and Sediment Total Maximum Daily Load Report (Ecology 2014).
2) Clarks Creek Restoration Plan (aka Pierce County TMDL Implementation Plan, 2017).
3) Puyallup Tribe of Indians (PTI) Clarks Creek Sediment Reduction Action Plan (2013).
4) Clear Creek and Clarks Creek Basin Plan (Pierce County 2006).

TMDL:

In 2014, the Department of Ecology issued the Clarks Creek TMDL (publication 14-10-030) to Pierce County. The projects listed in the PTI Sediment Reduction Action Plan were identified in the Clarks Creek TMDL as meeting the requirements of the sediment waste load allocation. The Diru Creek project was thoroughly described, vetted and analyzed in the PTI Plan. It was therefore implicitly listed by Ecology as a suitable project for meeting the County's TMDL targets.

NPDES:

The upcoming 2019 Pierce County Phase I NPDES Permit will incorporate elements of the Clarks Creek TMDL Implementation Plan's capital project list. This list includes the Diru Creek Bed and Bank Stabilization Project. The Appendix II section of the upcoming NPDES Permit will require the County to meet expected (modeled) sediment reduction performance of this instream project. It also requires other instream projects and upland stormwater facility projects listed in the County's 5-year Capital Facilities Plan. The NPDES Permit also requires Minimum Requirements 5 and 7 (Water Quality Treatment and Hydrologic Flow Control). These are applied to the design of four stormwater treatment facilities recently built in the upper Diru Creek watershed. Two more facilities will be constructed by 2022. These facilities provide flow control and water quality treatment. They are designed to dampen the negative effects associated with large rain events, which are the primary driver of episodic down-cutting in the channel. Restoration efforts as outlined in this project are still needed to address the sediment sources that have resulted from historic flows.

**Describe how the project area is connected to this water body and how implementation of the project will meet regulatory**

**requirements or support the water quality planning efforts listed above. Reference the specific requirements or recommendations that the project will address and discuss how the project will reduce or prevent the pollutants listed from entering the waterbody. All projects in the Puget Sound Region must include the elements of the Puget Sound Action Agenda that will be supported by the proposed project.**

The Project area is located along the lower reach of Diru Creek, approximately 0.5 miles upstream of its confluence with Clarks Creek. Both water bodies are in the lower Puyallup River watershed within the south Puget Sound lowlands. Clarks Creek is on the State of Washington's 303(d) list of impaired water bodies because of low DO since 2014, and is now listed for sediment since 2016.

This project has been identified in several planning documents as a key step in meeting TMDL load allocations. Bioengineered structures will help to stabilize eroding banks and reverse channel incision in the creek bed, reducing sediment recruitment and downstream transport. This directly addresses sediment impairments resulting in the 303(d) listing of these water bodies. Additionally, the project provides large woody debris, sediment storage and improved riparian vegetation, which helps provide a finite level of sediment removal while improving stream habitat.

Clarks Creek (including tributaries/Diru Creek) is a productive salmonid stream with seven different native species that spawn, rear, and migrate in its waters (Coho, Pink, Chinook, Chum, Steelhead, Coastal Cutthroat, and Bull Trout). Chinook, bull trout, and steelhead are designated as threatened by the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA). Also, the Puget Sound-Georgia Straits Coho salmon population is listed as a species of concern under the ESA.

Additionally, the Project benefits several of the Vital Signs outlined in the Puget Sound Action Agenda:
A) Chinook Salmon (habitat and water quality improvement in salmon bearing streams).
B) Freshwater Quality (reduced sediment loading and transport in Diru and Clarks Creeks).
C) Land Development and Cover (providing riparian and in-stream restoration in a creek impacted by historic and existing land uses).

The Project addresses several Sub-Strategies and Regional Priorities outlined in the Puget Sound Action Agenda, including elements of both the Stormwater and Habitat Strategic Initiatives.

Stormwater Strategic Initiative:

10.1) Manage urban runoff at the basin and watershed scale:
10.1-1: Undertake basin and watershed planning that integrates land use planning and stormwater management. 10.1-2: Undertake capital planning on catchment or watershed basis.

10.3) Fix problems caused by existing development.
10.3-3: Assess the maintenance needs and life-cycle strategies for existing stormwater infrastructure, and prioritize infrastructure replacement.

10.4) Control sources of pollutants.
10.4-1: Promote source control and technical assistance programs at the local level.

21.1) Complete Total Maximum Daily Load (TMDL) studies and other necessary water cleanup plans for Puget Sound to set pollution discharge limits and determine responses to water quality impairments.

Habitat Strategic Initiative:

1.2) Support local governments to adopt and implement plans, regulations, and policies consistent with protection and recovery targets. 1.2-1: Implementation of actions from existing strategic plans that address ecosystem pressures (sources and stressors) from land development, shoreline infrastructure, roads, and estuarine/freshwater structural barriers.
1.2-2: Focus on protection and restoration of areas in and surrounded by lower intensity land uses, including agriculture.
1.2-3: Address critical information gaps important for the current implementation of Comprehensive Plans, Critical Areas Ordinances, and Shoreline Master Programs, as well as their next round of updates.

1.3) Improve, strengthen and streamline implementation and enforcement of laws, plans, regulations, and permits consistent with protection and recovery targets.
1.3-3: Promote protection and restoration of marine/freshwater riparian corridors, especially priority areas identified in existing plans.

2.2) Implement and maintain priority freshwater and terrestrial restoration projects. 2.2-2: Implement restoration of riparian areas.

Other Sub-strategies Addressed:

6.5) Maintain and enhance the community infrastructure that supports salmon recovery.

9.6) Increase compliance with and enforcement of environmental laws, regulations, and permits.

8.3-6) Improve compliance with existing environmental laws by ensuring adequate resources for enforcing existing laws and assessing the implementation (permitting and enforcement) and outcome effectiveness of existing laws and regulatory programs.

16.2-2) Implement a landscape-level strategy (such as a watershed) that integrates protection, restoration, and enhancement opportunities.

**Describe the measure and method that will be used to determine the water quality benefit and overall success of the project.**

There are two measurable benefits this project provides: sediment source reduction and water quality treatment. The Project will be assigned both a benchmark and threshold to measure performance in these areas. The benchmark represents a baseline for how well the project prevents sediment loading based on the highest level of designed functionality. It is initially determined as an engineering detail (modeled assumption) in the Project's specifications, and then verified or re-calibrated immediately after construction (i.e. the as-built condition). For the Project's initial performance benchmark, the initial improvement potential was based on a study performed by Brown and Caldwell on behalf of PTI. Analyses estimated the amount of sediment being generated by each of the identified sources. In-channel sources were quantified using field-approximated volumes of eroded material, converted to an average annual rate and derived using a 95-year timeline (1916 to 2011). It is highly likely that erosion rates have increased due to more recent development in the upper watershed. Therefore, the estimated annual channel erosion rates are likely to be conservative and actual benefits of sediment reduction can be even greater than originally anticipated. An updated benchmark value will be established following project completion. Additional information of measures and methods used to determine the water quality benefit and overall success can be found in the Clarks Creek Sediment Reduction Action Plan (Puyallup Tribe 2013).

**Using the method described above, estimate the water quality and public health benefits that will be achieved through implementing of the proposed project.**

Using the cross-sectional areas and modeling results provided in the Clarks Creek Sediment Reduction Action Plan (Puyallup Tribe 2013, p 2-8), conservative estimates indicate a sediment reduction of around 7.4 tons per year. Over the design life of this project (20 years or more), the anticipated sediment reduction benefit for this project is around 148 tons. However, recent field surveys by the contractor (NSD) have identified additional areas of stream bank erosion and channel incision. Given the updated project scope, it is likely to provide significantly larger sediment reduction benefits.

Another element of the water quality benefits provided by this project relate to ability of the proposed bioengineered structures to trap and store sediment over time. This benefit is provided primarily by the timber bed-control matrices, but the timber stabilization frames will also provide interstitial storage. Because these structures will be built in-place, they will vary depending upon site conditions within the Diru Creek Ravine. As

such, quantifying the specific benefit is difficult. 90 percent design specifications indicate that a typical bed-control structure will be constructed using four cubic yards of uncompacted timber slash and call for between 24 and 39 of these units. According to the design engineer, experience with a similar project (the City of Puyallup's 2018 Clarks Creek Channel and Bank Stabilization Project) indicates that this four-cubic yard volume of slash material consists of around 25 percent interstitial void space. Using these estimates, this project could be conservatively projected to provide up to between 20 and 40 cubic yards of storage. Based on the conversion factors used by Brown and Caldwell in the Clarks Creek Sediment Reduction Action Plan (100lbs/foot), this translates to an approximate range of 32 to 50 tons of sediment storage capacity over the life of the project.

Together, these estimates indicate that this project can be conservatively estimated to provide between a 180 and 200-ton reduction in sediment loading over its design life, marking significant progress toward achieving sediment load allocations for the Clarks Creek sediment TMDL.

**How long will the project provide a water quality benefit after the funding assistance ends? Who will be responsible for maintaining this benefit during its useful life?**

The County's Operations and Maintenance divisions are responsible for the ongoing inspections and maintenance actions necessary to sustain the Project's functionality through its design lifecycle. The expected lifecycle of the Project will be at least 20 years, given the implementation cycle of the Clarks Creek TMDL is a 20-year plan. SWM personnel will inspect the Project area annually using the guidelines outlined in the Clarks Creek Restoration Plan and its annual water quality credit inspection protocol. The inspection process specifically accommodates the TMDL accounting systems which rely on ongoing demonstrations of performance to justify annual water quality crediting (i.e. compliance reporting).

If regular inspections indicate that the Project is functioning consistent with its originally designed performance standard (its benchmark), it receives full credit for its estimated annual average sediment reduction. If inspection or modeling data show the project is no longer functioning within acceptable limits, then maintenance activities will be initiated. Maintenance referrals will address the deficiencies and return the structure to its original performance obligations within one calendar year. This includes damage due to vandalism, structure failure, or any natural process that leads to diminished performance (wildlife, flooding, etc.).

**Will any measures be taken to reduce greenhouse gases as part of the project? What policies or measures has your organization put in place to reduce greenhouse gas emissions apart from this project?**

This grant, if awarded, will allow the County to construct the Project in its entirety as a single-entry effort. This preferred option will avoid the multi-year mobilization and construction activity associated with a phased implementation approach. A single project effort to construct the entire

project at once will certainly reduce greenhouse gases due to less repeated traffic, less staging and less equipment activity.

In 2010, Pierce County became an ENERGY STAR partner, which was a declaration of our commitment to reducing energy consumption. Through this partnership we have pledged to consistently benchmark our energy performance, implement a plan or policy to reduce energy use, and educate Pierce County staff about energy conservation.

Pierce County has also signed on to the International Facilities Management Association's (IFMA) Energy Challenge, which is a national call-to-action for a reduction in energy use of 15%. To further support energy reduction Pierce County has also taken the Northwest Plug Load Pledge that demonstrates their commitment to procuring energy efficient products and reducing negative environmental impacts. The County is working with the Puget Sound Clean Air Agency and State Department of Ecology on the development of a greenhouse gas emissions inventory and regional directions on reducing greenhouse gas emissions. Additional work will include updating the Regional Emissions Analysis, recalibrating the Four-Part Greenhouse Gas Strategy and expanding on the region's Climate Adaptation/Resiliency Work Program. County Greenhouse Policy requires purchases to contain recycled content where possible. The County is also looking to strengthen its Environmental Purchasing Policy to look at life cycle costs. The County Policy encourages its employees to conserve water in their daily practices. Regarding Greenhouse Gas Emission Reductions: all employees receive education on what creates greenhouse gas. County buildings are now using 12 percent less energy than previous years based on practical conservation and replacement measures (i.e. energy efficient lighting)

Reducing energy use means the County is committed through its Policy to offset harmful greenhouse gas emissions that are caused by generating energy at County owned facilities. In consequence, window replacement projects on County buildings have reduced heat loss by more than 10 percent. Energy Efficiency has also been improved with a reportable reduction of 15% in electricity and natural gas use in County facilities over January 2010 levels. All new County facilities are built to a LEED Silver or better standard. At least 50% of the County's office products purchased have recycled content. And it continues to strive to meet a total reduction in the amount of landfill waste by 30%. 50% of Pierce County's general use fleet is hybrid/electric/alternative fuel vehicles. 25% of Pierce County employee commute trips are by public transit, carpool/van pool, bicycle, walk, drive electric vehicles, telecommute or by use of a compressed work week schedule.

**Upload a map or maps that show an aerial view of the project area, an estimated direction of flow for the project area, potential locations for the proposed facility or activity, and how the project connects to the water body named above.**

*These maps do not need to be precise but they should help the reviewer with a general understanding of the area. If access to GIS software is*

*not available, screen shots or snips from Google Maps with arrows and text added using a paint program may be used.*

| Attachment Description | Attachment |
|---|---|
| Map of Diru Creek vicinity, including Clark's Creek and the Puyallup River. | _Upload/95308_906599-DiruGrant2019_ProjectVicinity.jpg |
| Map of Diru Creek project area (flows S to N). | _Upload/95308_906599_2-DiruGrant2019_ProjectArea.jpg |
| Map of zoning/land use surrounding Diru Creek. | _Upload/95308_906599_3-DiruGrant2019_Zoning.jpg |

Instructions:

Please upload the appropriate documents.
The type of project and the funding source you're applying for or have received determines the Environmental and Cultural Review documents that you must upload.
When done, click the SAVE button.

If you have a wastewater or stormwater facility project, and you are applying for or have received a loan from the CWSRF, when applicable upload the following documents.

SEPA Checklist
SEPA Threshold Determination
Affidavit of Publication of SEPA Threshold Determination
Public Meeting Documents
SERP Coversheet
SERP Checklist
SERP Determination
Other SERP/SEPA Documentation
Ecology 05-05/106 Review Form
EZ-1 Form (If Ecology is the lead agency, an Ecology 05/05-106 Form is required)
Cultural Review Final

Determination
DAHP Letter of Concurrence
Completed activity/location specific Inadvertent Discovery Plan (IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

In addition to the above documents, if you are required to prepare a federal cross cutter report, when applicable upload the following documents.

Cross Cutter Report
Cross Cutter Checklist
Cross Cutter Final Determination

If you have a stormwater facility project, and you are applying for or have received funding via SFAP but not CWSRF, when applicable upload the following documents.

SEPA Checklist
SEPA Threshold Determination
Affidavit of Publication of SEPA Threshold Determination
Ecology 05-05/106 Review Form
EZ-1 Form (If Ecology is the lead agency, an Ecology 05/05-106 Form is

required)
Cultural Review Final Determination (No sensitive information allowed)
DAHP Letter of Concurrence
Completed activity/location specific Inadvertent Discovery Plan (IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

If you have a nonpoint activity, an onsite sewage system, or a stormwater activity project, regardless of the funding source, when applicable upload the following documents.

✔ Ecology 05-05/106 Review Form
EZ-1 Form (If Ecology is the lead agency, an Ecology 05/05-106 Form is required)
Cultural Review Final Determination (No sensitive information allowed)
DAHP Letter of Concurrence
Completed activity/location specific

Inadvertent Discovery Plan
(IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

Upload Documents

| Description | Attachments |
| --- | --- |
| Cultural Resources Form | _Upload/96113_907011-Ecology05-05DiruCrCulturalResourcesForm.docx |

## Uploads

| Description | Attachments |
|---|---|
| Signed Council Documents | _Upload/97001_884773-CouncilForms_Signed.pdf |
| NSD Construction Estimate | _Upload/97001_884825-NSDTotalConstructionEstimate.pdf |
| Puyallup Tribe of Indians Letter of Support | _Upload/97001_884823-LOSPuyallupTribe.pdf |
| NSD 90 percent special provisions | _Upload/97001_884823_3-SpecialProvisionsDiru_90percent.pdf |
| NSD 90 percent plans | _Upload/97001_884823_4-Diru_PlanSet90percent.pdf |
| Revised Budget | _Upload/97001_884823_5-D812Budget.pdf |
| SFY20 Funding Offer Letter | https://ecyeagl/IntelliGrants_BASE/_Upload/97001_884823_6-FundedEXCEPTGMAnoncompliant_Part38.pdf |
| Revised Schedule July 2019 | https://ecyeagl/IntelliGrants_BASE/_Upload/97001_884823_7-D812schedule.pdf |

**Screening, Eligibilities, and Additional Requirements Checklist**

Select “Followup” to draw attention to anything that either the Fund Coordinator or future Financial or Project Manager need to be aware of.

| Topic | Checked | Comment | Followup |
|---|---|---|---|
| On the General Information Form, confirm that the Project Title and Short Description are free of obvious errors, misspellings, or grammar mistakes. Return to the applicant for modifications if needed. | ✔ | Clear description | |
| On the General Information Form and the Funding Request Form evaluate whether the funding requested plus other sources of funding is adequate. Return to the applicant for modifications if needed. | ✔ | TEC entered as $1,574,879 (project cost), though maximum TEC is $666,666 ($500,000 grant). Additional funding secured: Cash Pierce County $537,510. Only $166,667 required for match. Additional $537,369 will need to be secured to reach total project cost. | |
| On the General Information Form and the Project Information Form, evaluate whether the Effective Date, Project Start Date, and the Expiration Date are reasonable given the project type and complexity. Return to the applicant for modifications if needed. | ✔ | 7/1/2019-12/31/2020. Start 9/2/19. 17 month project | |
| Evaluate the Project for general eligibility. If potentially ineligible, change status to "Application Potentially Ineligible". | ✔ | Eligible if buffer widths meet minimum requirement and not on state or federal owned property. | ✔ |
| Evaluate the project for specific eligibilities. If there are components that appear to be ineligible for one or more funding sources, check the box next to "Scope of Work includes ineligible components." below and describe the ineligibilities in the Comment column. | ✔ | Task 2: Designs, Task 3: Construction Management using stormwater template language. Task 4: Construction includes large wood and slash in-stream structures, boulders, cobbles, approximates 4 acres of planting . Buffer widths not mentioned. | |
| On the Subcategory Form, confirm that the correct | ✔ | all no | |

| | | | |
|---|---|---|---|
| Yes/No answers are checked. Return to the applicant for modifications if needed. | | | |
| If a Nonpoint Source Activity project and it includes BMPs, determine if project is on state- or federally-owned land. If so, change status to "Application Potentially Ineligible". | ✔ | Unclear who owns the property | ✔ |
| If a Nonpoint Source Activity project, determine if the project is eligible for Section 319 funding and state the reason in the Comment field. | ✔ | 319 eligible (if buffer requirement met) | ✔ |
| If a Nonpoint Source Activity project, determine if the project addresses a watershed-based plan or TMDL that includes EPA's 9 key elements. If so, state this is in the Comment field. | ✔ | Clarks Creek Watershed Bacteria and DO TMDLs, Puyallup Tribe of Indian's Clarks Creek Sediment Reduction Action Plan, Pierce County TMDL Implementation Plan Pierce County's Clear Creek and Clarks Creek Basin Plan | |
| If a Stormwater Facility Construction project, confirm that the following document was uploaded and adequate: Ecology's letter approving the Plans and Specifications. Return to the applicant for modifications if needed. | ✔ | N/A for nonpoint applications (instream structures, bank stabilization) | |
| If the GPR Form was completed, verify GPR eligibility against EPA guidance. If additional documentation or a business case is required, check the followup box and explain in the Comment field. | ✔ | N/A | |
| If a Wastewater Facility Refinance project, confirm that a copy of the following were uploaded and adequate: (1) Ecology's letter approving the Facility Plan; (2) Ecology's letter approving the Plans and Specifications; and (3) the Declaration of Construction of Water Pollutions Control Facilities. Return to the applicant for modifications if needed. | ✔ | N/A | |
| If the Financial Hardship Form was completed and the | ✔ | N/A | |

applicant answered "Income Survey" as the source of the MHI amount, confirm that an Income Survey was uploaded and check the followup box (an evaluation of the income survey will occur later). Return to the applicant for modifications if needed.

**Additional Comments**

**Upload Documents**

Click the Browse button
Select your file
Click Save, your file will appear in the List of uploaded documents
Reapeat for each fike
To delete a file, select the Delete checkbox next to the tile and click SAVE

**Offer Letter Paragraphs: Check all that apply:**

**For Screeners**

Scope of Work includes BMP Implementation.
Scope of Work includes collecting ambient Water Quality Data.
Project appears to duplicate previously funded work.
Scope of Work includes ineligible components.
Project Administrative cost in Task 1 is >15% of Total Eligible Costs.
Task Costs are unclear
Project includes BMPs on private property. Land Owner agreements must be included.

**For Fund Coordinator**

Project includes land acquisition.
Project is a Design, Construction, or combined Design/Construction project offered funding. An Investment Grade Efficiency Audit (IGEA) may be required.
Project is a facility project offered funding. It may be subject the GMA.

Project eligible for 319 funding, but offered centennial grant funding.
Project offered 319 funding.
Project is offered hardship funding.
Project is offered CWSRF loan. A Financial Capability Assessment is required.
Project is an activity project offered >$250,000 in grant. Cash match is required.
Project is a Step 3 or Step 4 wastewater facility project offered a CWSRF loan and designated as an equivalency project. Compliance with the federal environmental cross cutters must be confirmed, and the federal standards for architectural and engineering services procurement apply.
Project is a wastewater or stormwater facility project offered a CWSRF loan and that includes a construction component. The applicant must certify it has prepared a Fiscal Sustainability Plan or an equivalent plan(s).
Project is being conducted by a public body and is offered a CWSRF loan. The applicant must certify is has conducted a Cost and Effectiveness Analysis.

**For Project Management Team**

Project is on increased oversight.

Designated for increased oversight on:

Provide an explanation of the factor(s) used to determine that increased oversight is needed and the measures used to implement increased oversight.

**Other notes for offer letter paragraphs:**

**Reviewer:** Leanne Whitesell

✔ **Evaluation Finished?**

| Category | Criteria Number | Evaluation Criteria | Score | Justification For Score |
|---|---|---|---|---|
| **Scope of Work - Additional Tasks** | 1.1 | The scope of work represents a complete and concise description of the project tasks and outcomes, including deliverables and timelines. | 13/75 | Minimum match required is identified in the secured funding table. Match is provided by County. No documentation that the matching funds are eligible or committed to the project. Grant request plus committed match does not equal total project cost. I assume the cover the additional expenses. |
| **Project Schedule** | 2.1 | The project schedule includes all tasks including pre-project administrative elements such as permitting, MOUs, land owner agreements, etc., and provides sufficient time to complete all elements. | 59/25 | Unclear if applicant is able to commit to Ecology minimum buffer widths (split 35 feet/100 feet). Unclear if Task 4D3 is eligible for funding (cobble and boulder streambed armoring). Unclear how Task 4F will be accomplished. |
| | 2.2 | The applicant is ready to start on the proposed scope of work and can begin drawing down funds. | /75 | |
| **Task Costs/Budget** | 3.1 | The application demonstrates how the applicant arrived at the cost estimate for each task. The process used by the | 45/50 | Budget is very detailed. Estimated hours provided along with detailed construction estimate. |

| | | | | |
|---|---|---|---|---|
| | | applicant to develop this estimate is based on real-world data. | | |
| | 3.2 | The cost to complete the scope of work is reasonable when compared to similar projects in the region. | 76/85 | This project was prioritized by several stakeholder groups, including the TMDL. Weak discussion on not addressing alternatives to restore wetlands and upland storage. Will increased flows degrade the in-stream practices proposed by the project? |
| **Additional Funding Information** | 4.1 | Applicant has identified adequate matching funds. (Full points if no match is required.) | 40/15 | Good team in place to manage the project, but unclear who is going to do the construction. |
| **Project Team** | 5.1 | Team members' roles and responsibilities are well defined and adequate for the scope of work. Team members' past experience is relevant to the proposed project. Applicant has a plan in place to maintain sufficient staffing levels to complete the project. | 22/50 | Project schedule includes all deliverables. Would prefer that the grant term is longer to allow for any unexpected delays. |
| | 5.2 | Team members' past experience is relevant | 75/15 | Design is 90% complete! Permits should have been submitted Fall 2018 (expected to be in place prior to the grant starting). Property acquisition is underway (expected to be in place prior to the grant starting). |
| **Project** | 6.1 | Applicant used a complete and | 40/40 | This project directly implements |

| | | | | |
|---|---|---|---|---|
| **Planning & Development** | | well-defined set of criteria to determine the value and feasibly of the proposed project and included the useful life and long-term maintenance costs in their evaluation of the project and project alternatives. | | actions outlined in the TMDL, it has been prioritized by the county, and they are actively working to address upstream stormwater issues. |
| | 6.2 | Applicant has provided documentation showing that key stakeholders have been identified and will support the project. | 18/20 | Good discussion on stakeholder involvement. Would like to see a letter from more stakeholders on the TAC. |
| **Water Quality & Public Health Improvements** | 7.1 | Project proposes to reduce or prevent pollution in a waterbody that has been identified as a priority by a local, state or federal agency. | 120/135 | Project is working on a waterbody that is impaired for DO, sediment, and bacteria. Multiple TMDLs and restoration plans exist that prioritize in-stream work to address the impairments. This project is consistent with the Puget Sound Action Agenda. |
| | 7.2 | The proposed project area is directly connected to the water body identified for improvement and applicant has provided sufficient technical justification to show the proposed project will reduce the pollutants of concern in the water body identified for improvement. | 150/150 | This project will reduce sediment by stabilizing streambank and adding woody debris to restore streambed. Unclear if project will address other impairments (DO and bacteria). |
| | 7.3 | Applicant has identified how each task will be evaluated in order to determine success, noted if the measure is quantitative or qualitative, and defined a goal. | 45/50 | Will model sediment reduction. |

| | | | |
|---|---|---|---|
| 7.4 | The project will achieve substantial water quality and public health benefits. | 89/100 | Estimated load reductions provided. |
| 7.5 | Applicant has a plan and commitments in place to fund long-term maintenance and sustain the water quality benefits of this project. | 50/50 | Annual inspections for 20 years, with maintenance activities funded by the County. |
| 7.6 | How well does the applicant and the project address greenhouse emission reductions in accordance with RCW 70.235.070? | 12/15 | Less mobilization effort. Agency has measures in place to reduce GHG. |
| | **TOTAL** | 866/950 | |

**Action Items/ Offer Letter Notes/ Eligibility Notes**

Ensure that applicant has enough match - Grant request plus committed match does not equal total project cost. I assume the cover the additional expenses, but this needs to be confirmed.
Unclear if Task 4D3 is eligible for funding (cobble and boulder streambed armoring).
Would prefer that the grant term is longer to allow for any unexpected delays.
If funded, ensure that applicant is aware of ALL Ecology requirements for BMP implementation during negotiation, specifically pre-construction paperwork and long-term maintenance.

| Offer Amounts | Funding Source* | Funding Category | Amount* | Int Rate | Term |
|---|---|---|---|---|---|
| | Section 319-2020 | 319 | $500,000 | % | |
| | | Centennial hardship grant | $0 | % | |
| | | Centennial Preconstruction Grant | $0 | % | |
| | | Centennial non point source | $0 | % | |
| | | Stormwater Grant | $0 | % | |
| | | CWSRF Activity | $0 | % | |
| | | CWSRF Facility | $0 | % | |
| | | CWSRF Preconstruction Loan | $0 | % | |
| | | CWSRF Preconstruction Forgivable Principal | $0 | % | |
| | | CWSRF GPR Loan | $0 | % | |
| | | CWSRF GPR Forgivable Principal | $0 | % | |
| | | CWSRF Hardship Forgivable Principal | $0 | % | |

**Offer Comments**

Upload Proposed Funding Letter (Draft List) and Funding Offer Letter (Final List) here.

**WATER QUALITY COMBINED FINANCIAL ASSISTANCE**

Organization: Pierce County - Public Works and Utility Department

WQC-2020-PiCoPW-00006

Version Date: 07/24/2019 08:44:10

**Evaluation Summary**

| | |
|---|---|
| **Number of Evaluators** | 2 |
| **Financial Hardship** | 0 /50 |
| **Reviewer Average - TOTAL Score** | 879.5 /1000 |
| **Final Score** | 879.5 |
| **Rank** | 11 |

**Final Review Comments**