



AMENDMENT NO. 1

TO

IAA NO. C2200016

BETWEEN THE

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

AND

WASHINGTON STATE UNIVERSITY

PROJECT TITLE: Ditch maintenance and redesign for improved stormwater management

PURPOSE: To amend the Agreement between the state of Washington, Department of Ecology, hereinafter referred to as “ECOLOGY,” and the Washington State University (in Puyallup), hereinafter referred to as “WSU” or “CONTRACTOR.”

WHEREAS, budget and work are decreased by removal of Task 5.

IT IS MUTUALLY AGREED the Agreement is amended as follows:

- 1) The Scope of Work (Appendix A) is amended to remove Task 5 and make associated modifications to Task 3 objectives and Task 6 deliverables.
Deleted text is indicated with strike thru (~~sample~~) and new text is indicated with underlined (sample).

Project Outcomes

The project outcomes are to:

- ~~Characterize the ability of alternative retrofit strategies to mitigate pollutant loads and peak flows in roadside ditches;~~
- Characterize the ability of alternative plant palettes to mitigate pollutant loads and peak flows in roadside ditches.

Task 3.0: Site instrumentation – (June 1 to September 30, 2021)

Three ditches in ~~Pierce County~~ Washington State will be selected for this study. A split arrangement of three alternate vegetation and retrofit experimental setups. One of each experimental setup will be implemented in a ditch – with three ditch sites total (Figure 1).

~~Instrumentation required for all 3 sites is presented below:–~~

- ~~1. Seven flumes~~
- ~~2. Seven water level sensors~~
- ~~3. Seven automated samplers, preferably ISCO-6712 series~~
- ~~4. Three dataloggers with cellular modems~~
- ~~5. Three rain gauges~~
- ~~6. Seven secure enclosures~~

~~To reduce costs, the samplers and sensors will be interfaced with only three dataloggers (one datalogger per site). Suitable automated samplers from prior SAM projects may be available for this project and if so will be used to offset costs. A rain gauge will be interfaced with each datalogger. The selected equipment was chosen based on cost effectiveness and instrument accuracy and reliability. Equipment purchases by WSU are allowed upon signing of the contract with the exception of the ISCOs. A lender, King County, has identified available equipment for lending to WSU. If any of the seven ISCOs are unsuitable or cannot be borrowed, the WSU project manager will ask for approval to purchase ISCOs using the budget available for ISCO purchases in this contract. The SAM coordinator will authorize ISCO purchases in writing.~~

Task 5.0: Quantifying effects ditch maintenance and retrofit on water quality and quantity – (October 1, 2021 to August 31, 2023) ~~This task is removed from this contract by this amendment.~~

~~Maintenance activity will be quantified by tallying all human plus machine hours over the duration of the study. A metric for maintenance that weights automated, and manual time differently will be developed to quantify maintenance effort. Maintenance effort for the three ditch treatments will be compared to controls (no maintenance). Alterations to peak flow rates of inflow and outflow will be used to characterize the effect of the ditch reconfiguration for each of the four sections.~~

~~We will test 11 physio-chemical pollutants (dissolved organic carbon, total suspended solids, total phosphorus, ortho-phosphorous, total and dissolved copper, total and dissolved zinc, total petroleum hydrocarbons, total Kjeldahl nitrogen, and nitrate nitrite) during every qualifying storm event. Samples will be collected from both the influent and effluent from each ditch section. We will attempt to sample at least 4 storms a wet season, or 8 over the three year period of study. Pollutant removal efficiencies of each ditch reshaping treatment will be evaluated by quantifying inlet and outlet contaminant concentrations and mass loading rates at each ditch station.~~

- ~~D 5.1: Raw data collected to date (six months) with semi-monthly report — Target: April 30, 2022.~~
- ~~D 5.2: Raw data collected to date (six months) with semi-monthly report — Target: October 31, 2022.~~
- ~~D 5.3: Draft analysis and presentation shared at TAC meeting # 2 that outlines the total effort associated with water quality remediation by ditch treatment a total of 12 ditch sections. — Target: June 30, 2023~~
- ~~D 5.4: Revised analysis and revised report shared with TAC meeting # 3 — Target: August 30, 2023~~

Task 6.0: Communication of Findings

- ~~D 6.1: Draft report of study findings including the sections on data quality review and usability statement. — Target: December 31, 2023~~
- ~~D 6.2: Final report with complete appendices and Excel file of all QA/QC'd data collected over the project period — Target: January 31, 2024~~

Table 1: Target Deliverable Due Dates and Costs.

Deliverable by Task	Target Deliverable Date	Target Deliverable Cost
Task 1.0 Project Management		
D1.1 Semi-annual Progress Report	December 2021	\$1,910
D1.2 Semi-annual Progress Report	June 2022	\$1,910
D1.3 Semi-annual Progress Report	December 2022	\$1,910

D1.4 Semi-annual Progress Report	June 2023	\$1,910
D1.5 Semi-annual Progress Report	December 2023	\$1,910
Task 2.0 Planning and QAPP		
D2.1 Draft QAPP	July 2021	\$16,539
D2.1 Final QAPP	September 2021	\$5,513
Task 3.0 Site Instrumentation		
D3.1 Installation Memo	September 2021	\$144,581
Task 4.0 Evaluating Plants		
D4.1 Draft Plant Report	October 2023	\$62,177
D4.1 Final Plant Report	December 2023	\$62,177
Task 5.0 Evaluating Maintenance, Water Quality and Quantity		
D5.1 Raw Data Report	April 2022	\$26,393
D5.2 Raw Data Report	October 2022	\$26,393
D5.3 Draft Water Quality Report	June 2023	\$87,977
D5.4 Final Water Quality Report	August 2023	\$35,191
Task 6.0 Communication		
—D6.1 Whole Study Draft Report	December 2024 2023	\$5,228
—D6.2 Whole Study Final Report	January 2024	\$5,228
D6.3 Two Presentations	February 2024	\$5,228
D6.4 Draft Fact Sheet	March 2024	\$5,228
Total		\$497,403 310,993

Table 2: Contract financial summary

Task Number	WSU Salaries & Benefits	Supplies & Equip.	Travel	Personal Services (incl. Herrera)	Indirect (30% on WSU salaries & benefits)	Total task
1	\$7,346	\$0	\$0	\$0	\$2,204	\$9,550
2	\$7,348	\$0	\$0	\$12,500	\$2,204	\$22,052
3	\$15,794	\$75,000	\$0	\$49,049	\$4,738	\$144,581
4	\$89,119	\$1,000	\$7,500	\$0	\$26,735	\$124,354
5	\$89,119	\$47,600	\$0	\$12,500	\$26,735	\$175,954
6	\$16,086 8,043	\$0	\$0	\$0	\$4,826 2,413	\$20,912 10,456
Total	\$224,812 127,650	\$123,600 76,000	\$7,500	\$74,049 61,549	\$67,442 38,294	\$497,403 310,993

2) The Compensation section is amended to read as follows:

The total compensation is decreased by \$186,410 from \$497,403 to \$310,993.

All other terms and conditions of the original Agreement including any other amendments remain in full force and effect, except as expressly provided by this Amendment.

This Amendment is signed by persons who represent that they have the authority to execute this Amendment and bind their respective organizations to this Amendment.

This Amendment is effective on the Ecology signature date.

IN WITNESS WHEREOF, the parties below, having read this Amendment in its entirety, including any attachments, do agree in each and every particular as indicated by their below signatures.

**State of Washington
Department of Ecology**

Washington State University

By:

By:

Signature

Date

Signature

Date

Heather R. Bartlett

Dan Nordquist

Deputy Director

AVP