

**WHATCOM COUNTY CONTRACT
INFORMATION SHEET**

Whatcom County Contract No.
202208023-1

Originating Department:	Public Works
Division/Program: <i>(i.e. Dept. Division and Program)</i>	Natural Resources - 907010
Contract or Grant Administrator:	Gary Stoyka
Contractor's / Agency Name:	S.S. Papadopoulos & Associates, Inc.
Is this a New Contract? If not, is this an Amendment or Renewal to an Existing Contract? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Amendment or Renewal, (per WCC 3.08.100 (a)) Original Contract #: <u>202208023</u>	
Does contract require Council Approval? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If No, include WCC: _____ Already approved? Council Approved Date: _____ (Exclusions see: Whatcom County Codes 3.06.010, 3.08.090 and 3.08.100)	
Is this a grant agreement? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, grantor agency contract number(s): _____ CFDA#: _____	
Is this contract grant funded? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, Whatcom County grant contract number(s): <u>202004008</u>	
Is this contract the result of a RFP or Bid process? Contract _____ Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, RFP and Bid number(s): <u>22-05</u> Cost Center: <u>169121</u>	
Is this agreement excluded from E-Verify? No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> If no, include Attachment D Contractor Declaration form.	
If YES, indicate exclusion(s) below: <input type="checkbox"/> Professional services agreement for certified/licensed professional. <input type="checkbox"/> Contract work is for less than \$100,000. <input type="checkbox"/> Contract for Commercial off the shelf items (COTS). <input type="checkbox"/> Contract work is for less than 120 days. <input type="checkbox"/> Work related subcontract less than \$25,000. <input type="checkbox"/> Interlocal Agreement (between Governments). <input type="checkbox"/> Public Works - Local Agency/Federally Funded FHWA.	
Contract Amount:(sum of original contract amount and any prior amendments): \$ <u>286,016</u> This Amendment Amount: \$ <u>210,640</u> Total Amended Amount: \$ <u>496,656</u>	Council approval required for; all property leases, contracts or bid awards exceeding \$40,000 , and professional service contract amendments that have an increase greater than \$10,000 or 10% of contract amount, whichever is greater, except when: 1. Exercising an option contained in a contract previously approved by the council. 2. Contract is for design, construction, r-o-w acquisition, prof. services, or other capital costs approved by council in a capital budget appropriation ordinance. 3. Bid or award is for supplies. 4. Equipment is included in Exhibit "B" of the Budget Ordinance 5. Contract is for manufacturer's technical support and hardware maintenance of electronic systems and/or technical support and software maintenance from the developer of proprietary software currently used by Whatcom County.
Summary of Scope: Amendment No. 1 implements Phase 2 of improvements and upgrades to the Whatcom County Groundwater Model based on recommendations from a peer review of the model including compiling monthly data for a refined model and scenario development and visualization.	
Term of Contract:	Expiration Date: <u>12/31/23</u>

Contract Routing:	1. Prepared by: <u>Gary S. Stoyka</u>	Date: <u>2/8/23</u>
	2. Attorney signoff: <u>Christopher Quinn</u>	Date: <u>2/14/2023</u>
	3. AS Finance reviewed: <u>AT</u>	Date: <u>02/10/2023</u>
	4. IT reviewed (if IT related): _____	Date: _____
	5. Contractor signed: _____	Date: _____
	6. Submitted to Exec.: _____	Date: _____
	7. Council approved (if necessary): <u>AB2023-177</u>	Date: <u>03/21/2023</u>
	8. Executive signed: <u>Satpal Sidhu</u>	Date: <u>3/24/2023</u>
	9. Original to Council: _____	Date: _____

DocuSigned by:
Satpal Sidhu
AB2023-177
1192C7C18B864E3...

**WHATCOM COUNTY
PUBLIC WORKS DEPARTMENT**

**Elizabeth Kosa
Interim Director**




NATURAL RESOURCES

322 N. Commercial, Suite 110
Bellingham, WA 98225
Telephone: (360) 778-6230
FAX: (360) 778-6231
www.whatcomcounty.us

MEMORANDUM

TO: The Honorable Satpal Singh Sidhu, Whatcom County Executive, and The Honorable Members of the Whatcom County Council, collectively serving in their capacity as the Whatcom County Flood Control Zone District Board of Supervisors.

THROUGH: Elizabeth Kosa, Interim Public Works Director

FROM: Gary S. Stoyka, Natural Resources Manager 

RE: Contract Amendment with S.S. Papadopoulos & Associates, Inc. to make refinements and upgrades to the Whatcom County Groundwater Model

DATE: February 27, 2023

Requested Action

Public Works respectfully requests that the County Executive, and the County Council, acting as the Flood Control Zone District Board of Supervisors, enter into Amendment No. 1 to Whatcom County Contract No. 202208023 with S.S. Papadopoulos & Associates, Inc., for the purpose of making Phase 2 refinements and improvements to the Whatcom County Groundwater Model.

Background and Purpose

The work in this contract amendment includes Phase 2 of a set of refinements and improvements to the Whatcom County Groundwater Model. The goal of the groundwater modeling project is to develop a model which will adequately assess the impacts to surface water flow from groundwater pumping and to inform the development of a water management plan that balances the needs of salmon and other aquatic resources with out-of-stream water needs. The model is envisioned to be a crucial tool in developing solutions that are necessary to resolve the long-standing water management issues in Whatcom County. The initial steady-state numerical model was completed in 2019 on behalf of WRIA 1 Watershed Management Board agencies and other partners, with the Whatcom County Flood Control Zone District acting as the contracting agent and project manager. Following completion of the initial numerical model, a peer review of the model was conducted to ensure it is scientifically sound and meets industry standards prior to conducting further modeling work. The peer review identified several refinements that would improve the performance of the model. Furthermore, it has been concluded that the current steady-state model will need to be converted to a transient model in order to adequately simulate the effects of groundwater pumping and other activities on stream flows. This contract implements the recommended refinements and initiates modifications necessary to develop the transient model for later use in running simulations.

Funding Amount and Source

This amendment is for \$210,640 for a total contract amount not to exceed \$496,656. Of this amount, \$181,250 will be reimbursed by Department of Ecology Grant Agreement No. SEAFB-2019-WhCoPW-00054A. There are sufficient funds in the 2023 FCZD budget to fund this agreement.

Please contact Gary Stoyka at extension 6218 for any clarification or additional information on the agreement and the associated project.

Whatcom County Contract No.

202208023-1

Amendment No. 1
Whatcom County Contract No. 202208023
CONTRACT BETWEEN WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT AND
S.S. PAPADOPULOS & ASSOCIATES, INC.

THIS AMENDMENT is to the Contract between Whatcom County Flood Control Zone District and S.S. Papadopoulos & Associates, Inc., dated September 19, 2022 and designated "Whatcom County Contract No. 202208023". In consideration of the mutual benefits to be derived, the parties agree to the following:

This Amendment extends the term of this Agreement through December 31, 2023, and increases the maximum consideration by \$ 210,640.00 to a total consideration of \$ 496,656.00.

This Amendment also adds the following to the Scope of Work, Exhibit A:

Phase 2

The second phase tasks focus on construction and calibration of the baseline monthly average transient (BMAT) simulation, constructing and performing the 5 scenario simulations (S1MAT – S5MAT), and if necessary, performing an alternative scenario simulation.

Construction of the monthly average model files entails pulling the formatted data compiled in Phase 1 into MODFLOW formats for the appropriate boundary conditions, specifying the 60 monthly average stress periods and including required basic, solver and output control files. In conjunction with these efforts, postprocessing will be adapted to the monthly average transient output. Upon completion of these tasks, simulation testing will commence, verifying consistency of the numerical model with the conceptual model of groundwater flow in the Lower Nooksack basin.

After model testing, monthly average water level and stream flow observation data will be incorporated into a parameter estimation framework. Both manual and automated parameter estimation methods will be used to determine parameter values providing the best fit between simulated and observed monthly average values. Following the monthly average transient calibration, the model will be used to simulate the existing demonstration scenario from the 2019 WGM report, adapted to monthly stress periods. Predictions from the demonstration scenario will be evaluated for consistency with the conceptual model and the seasonal average transient predictions from the 2019 WGM report.

Predictions using the monthly average transient model will provide the baseline results, or BMAT results. The BMAT simulation will be modified to construct each of the 5 scenario simulations, S1MAT – S5MAT. Scenario construction will typically entail modifying the MODFLOW WEL package and may also require modifications to the SFR and/or DRN to represent changes in surface water diversions and adjustments to agricultural drains, respectively. These modifications will be dictated by the explicit details of each scenario as specified in Track 3 of Phase 1.

Differences between BMAT and scenarios S1MAT – S5MAT will be evaluated in terms of changes to stream flow magnitude and timing, groundwater levels and their changes with time, and the distribution and timing of stream seepages. In the event that prediction capabilities for a particular scenario are limited, an alternative scenario may be developed and implemented to replace that scenario. Development, construction, and simulation of the alternative scenario will mimic the process implemented for the original 5 scenarios.

Phase 3

The third phase consists of primarily two areas of focus, (1) WGM version tracking and control, and (2) developing a technical memorandum.

Version tracking and control will occur throughout the Phase 1, 2 and 3 efforts, as needed to ensure that model versions are preserved as tools available for future use. For example, the steady state and seasonal average transient model versions will be maintained. This will allow the possibility for future analysis to rely on a variety of model configurations:

steady state for long term assessments, seasonal average transient to examine issues on a relatively broad scale and the monthly average transient to assess impacts below the seasonal level.

For the steady state, SAT and MAT models to be comparable, SSP&A recommends reevaluating steady state and SAT data sets after the MAT has been completed. This step, outside of this current scope, will allow the opportunity for potentially refined and/or updated information collected during MAT model development to be implemented within the steady state and SAT models. This process will also insure conceptual and water budget consistency between the steady state, SAT and MAT models.

The technical memorandum will provide a brief overview of the efforts associated with Phases 1, 2 and 3. Components of the memorandum will include:

- Model refinements, identifying each of the changes made during Phase 1 and Phase 2,
- Data compilation summary, identifying data types, sources and data gaps,
- Updated Calibration, summarizing the adjustments performed to improve fit between the simulated and observed values,
- Scenario Descriptions identifying the type, location, and specifics including objectives, and timing, and
- Scenario Results summarizing effectiveness of the individual scenarios in achieving the stated objectives.

A draft version of the memorandum will be provided to the working group and comments solicited. The Project Team will, within the available scope and level of effort, respond to each of the comments, revise the memorandum and provide a final version.

This Amendment also adds the following to the Compensation, Exhibit B:

STAFF CATEGORY	\$/HR	Phase 2: Monthly Average Simulation Development				Phase 2: Scenario Simulations				Phase 3: Documentation Tasks				SUBTOTALS (Across)	
		With CPU Charge		Without CPU Charge		With CPU Charge		Without CPU Charge		With CPU Charge		Without CPU Charge		HOURS	DOLLARS
		Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars		
Principal	\$147.00													0	\$0
Senior Associate	\$274.00			40	\$10,960			64	\$3,756			44	\$12,056	178	\$48,772
Associate	\$249.00													0	\$0
Senior Hydrogeologist/Scientist	\$218.00													0	\$0
Senior Project Hydrogeologist/Scientist	\$300.00	84	\$18,480	84	\$16,800			142	\$28,400			64	\$12,800	374	\$76,480
Project Hydrogeologist/Scientist	\$191.00													0	\$0
Senior Staff Hydrogeologist/Scientist	\$171.00			48	\$8,208			60	\$10,260			0	\$0	108	\$18,468
Staff Hydrogeologist/Scientist	\$146.00			128	\$18,688			71	\$10,366			56	\$8,176	255	\$37,230
Technician	\$111.00													0	\$0
Support personal	\$101.00													0	\$0
														0	\$0
														0	\$0
														0	\$0
Field Supervisor	\$191.00													0	\$0
Field Scientist	\$146.00													0	\$0
Field Technician	\$101.00													0	\$0
														0	\$0
														0	\$0
Labor Total		84	\$18,480	300	\$54,656	0	\$0	367	\$74,782	0	\$0	164	\$33,032	915	\$180,950
Task Total (Including GRT)			\$73,136.00					\$74,782.00				\$33,032.00		\$180,950.00	
EXPENSE	Cost		Cost +		Cost		Cost +		Cost		Cost +		Expense Total	Expense Total +10%	
	Cost	Cost +	Cost	Cost +	Cost	Cost +	Cost	Cost +	Cost	Cost +					
TRAVEL - Per Diem (\$85 or \$135 per day)													\$0	\$0.00	
TRAVEL - Airfare													\$0	\$0.00	
TRAVEL - Vehicle rental													\$0	\$0.00	
TRAVEL - Personal vehicle mileage													\$0	\$0.00	
Telephone/fax													\$0	\$0.00	
In-home copies													\$0	\$0.00	
Supplies													\$0	\$0.00	
Postage / courier													\$0	\$0.00	
Equipment rental and supplies													\$0	\$0.00	
Computer Services													\$0	\$0.00	
Temporary or other expenses													\$0	\$0.00	
AESI - Subcontracting	\$5,200	\$5,200	\$0	\$0	\$8,820	\$8,820	\$0	\$0	\$15,670	\$15,670	\$0	\$0	\$29,690	\$29,690.00	
													\$0	\$0.00	
General Expense Total	\$5,200	\$5,200	\$0	\$0	\$8,820	\$8,820	\$0	\$0	\$15,670	\$15,670	\$0	\$0	\$29,690	\$29,690.00	
Task Expense Total (Including GRT)		\$5,200.00				\$8,820.00				\$15,670.00				\$29,690.00	
TOTAL LABOR, EXPENSES and GRT:			\$78,336.00				\$83,602.00				\$48,702.00				\$210,640.00

Unless specifically amended by this agreement, all other terms and conditions of the original contract shall remain in full force and effect.

This Amendment takes effect: March 10, 2023, regardless of the date of signature.

IN WITNESS WHEREOF, Whatcom County and S.S. Papadopoulos & Associates, Inc. have executed this Amendment on the date and year below written.

DATED this 3/24/2023 day of March, 2023.

Each person signing this Contract represents and warrants that he or she is duly authorized and has legal capacity to execute and deliver this Contract.

CONTRACTOR:

S.S. Papadopoulos & Associates, Inc.
 3/23/2023
0A6E33A192DC449...
Gilbert Barth, Senior Associate

S.S. Papadopoulos & Associates, Inc.
3100 Arapahoe Ave., Suite 203
Boulder, CO 80303-1050

Contact Name: Gilbert Barth
Contact Phone: (303) 939-8880
Contact Email: gbarth@sspa.com

WHATCOM COUNTY FLOOD CONTROL ZONE DISTRICT:

Recommended for Approval:


DocuSigned by:
 3/24/2023
870E242DD76C408...
Department Director Date

Approved as to form:

DocuSigned by:
 3/24/2023
EC486EF5C88E4FD...
Senior Deputy Prosecuting Attorney Date

Approved:

Accepted for Whatcom County Flood Control Zone District:

By:  3/24/2023
1192C7C18B664E3...
Satpal Singh Sidhu, Whatcom County Executive