

STATEMENT OF WORK
 To Original Contract Routing Number ** *** *****
 Contract Amendment # (1, 2, 3, etc) Routing Number ** *** *****

These provisions are to be read and interpreted in conjunction with the provisions of the contract specified above.

I. Entity Name: TBD

Term: Contract ends October 31, 2018

II. Project Description:

This project will support TMDL development by producing in-lake and watershed models for Bear Creek reservoir and watershed. The models will be used to evaluate nutrient transport through the watershed and nutrient loading, both external and internal loading, to the reservoir as well as to evaluate management options for reducing the nutrient loading to Bear Creek reservoir.

III. Definitions

- CDPHE-Colorado Department of Public Health and Environment
- Division-Water Quality Control Division
- EPA- Environmental Protection Agency
- TMDL-Total Maximum Daily Load
- BCWA-Bear Creek Watershed Association
- WLA-Waste Load Allocation
- LA-Load Allocation
- RC-Reserve Capacity
- Lint-Internal Load
- TP-Total Phosphorus

IV. Work Plan:

Goal #1: To improve water quality in Bear Creek Reservoir by reducing nutrient pollution.		
Objective #1: No later than the expiration date of the contract, the Contractor shall identify the allowable load of total phosphorus that will attain the in-lake phosphorus and chlorophyll site-specific standards.		
		Budget <i>(What is the cost of this activity)</i>
Primary Activity #1 <i>(Needed to meet the project goal/objective)</i>	The Contractor shall develop an in-lake model for Bear Creek Reservoir.	\$
Sub-Activities #1 <i>(Needed to complete the Primary Activity)</i>	<ol style="list-style-type: none"> 1. The Contractor shall complete data acquisition and analysis. 2. The Contractor shall select a model- 3. The Contractor shall develop the model, calibrate and validate with the data. 4. The Contractor shall evaluate the sensitivity of the model. 	
		Budget

		<i>(What is the cost of this activity)</i>
Primary Activity #2 <i>(Needed to meet the project goal/objective)</i>	The Contractor shall develop a watershed model for the Bear Creek Watershed.	\$
Sub-Activities #2 <i>(Needed to complete the Primary Activity)</i>	<ol style="list-style-type: none"> 1. The Contractor shall complete data acquisition and analysis. 2. The Contractor shall select a model. 3. The Contractor shall develop the model, calibrate and validate with the data. 4. The Contractor shall evaluate the sensitivity of the model. 5. The Contractor shall link the watershed model and in-lake model. 	
		Budget <i>(What is the cost of this)</i>
Primary Activity #3 <i>(Needed to meet the project goal/objective)</i>	The Contractor shall train CDPHE staff to operate the models.	\$
Sub-Activities #3 <i>(Needed to complete the Primary Activity)</i>	<ol style="list-style-type: none"> 1. The Contractor shall produce model documentation. 2. The Contractor shall produce model operating manual/instructions. 3. The Contractor shall conduct model training sessions. 	
		Budget <i>(What is the cost of this)</i>
Primary Activity #4 <i>(Needed to meet the project goal/objective)</i>	The contractor supports 3 outreach modeling meetings with CDPHE and BCWA	\$
<p>Objective #2: No later than the expiration date of the contract, the Contractor shall identify (produce?) management scenarios to meet the reductions of total phosphorus from point sources and nonpoint sources (determine Waste Load Allocations and Load Allocations) that will attain the in-lake phosphorus and chlorophyll site-specific standards to attain and protect classified uses of the reservoir.</p>		
		Budget <i>(What is the cost of this activity)</i>
Primary Activity #1 <i>(Needed to meet the project goal/objective)</i>	The Contractor shall evaluate management scenarios.	\$

<p>Sub-Activities #1 <i>(Needed to complete the Primary Activity)</i></p>	<ol style="list-style-type: none"> 1. The Contractor shall develop management scenarios 2. The Contractor shall operate/run management scenarios 3. The Contractor shall analyze results from modelling scenarios and prepare interim and final project reports 	
		<p>Budget <i>(What is the cost of this activity)</i></p>
<p>Primary Activity #2 <i>(Needed to meet the project goal/objective)</i></p>	<p>The Contractor shall manage project data acquisition and model development components & prepare reports.</p>	<p>\$</p>
<p>Standards and Requirements <i>(These establish quality and ensure the activity will provide the expected results)</i></p>	<ol style="list-style-type: none"> 1. The Contractor shall have a representative attend all meetings with Division upon request from CDPHE. 2. The Contractor shall participate in meetings or trainings as requested by CDPHE 3. The Contractor shall report to/notify CDPHE any changes in key staff through resignation, reassignment, termination, layoff, reduction in hours, and/or duties, or other circumstances within 10 business days of knowledge of this change. Work on the project shall be suspended until an acceptable replacement, as determined by all parties, has been secured. 4. The Contractor shall use existing data. New data will not be collected under this contract. The Contractor shall get prior approval from CDPHE for all data used in model development and associated tasks. 5. The Contractor shall select an in-lake model based on a rationale resulting from the initial data analysis. 6. The in-lake model for Bear Creek reservoir shall be developed to predict nutrient concentrations, chlorophyll responses, and dissolved oxygen responses to nutrient loading. 7. The in-lake model shall include internal loading. 8. The in-lake model shall include translators for nutrient-chlorophyll a concentrations. 9. The watershed model shall include fate and transport of nutrients. 10. The models shall be designed to assist CDPHE in determining the: <ol style="list-style-type: none"> a. Nutrient reductions by source necessary to attain the site-specific TP and chlorophyll a standards. 	

	<p>b. Benefits of stopping destratification of the reservoir.</p> <p>c. Feasibility and effectiveness of reducing internal recycling of phosphorus.</p> <ol style="list-style-type: none"> 11. The Contractor shall develop management scenarios in collaboration with CDPHE TMDL staff 12. The Contractor shall operate/run management scenarios using the lake and watershed models. 13. The contractor shall coordinate with CDPHE TMDL staff on the location and date of outreach model meeting with the BCWA stakeholders. 14. The final report shall include project data results and analysis 15. The final report shall summarize all activities completed in accordance with project deliverables and all project costs incurred by the Contractor, as required, at the conclusion of all planned activities. 16. The Contractor shall submit a final report summarizing all activities completed in accordance with project deliverables and all project costs at the conclusion of all planned activities. The final report shall be submitted in draft form to the Colorado Department of Public Health and Environment TMDL Workgroup for approval no later than one month prior to the contract end date. Reports and other deliverables shall be submitted electronically to the extent possible. Printed reports shall be submitted on recycled paper. 17. Project success and completeness are evaluated in the final report. 18. The Contractor shall get approval for all outreach materials by the CDPHE TMDL program coordinator prior to publishing on the website or distributing. 19. The Contractor shall comply with all CDPHE branding policies. This information is located on the Colorado Brand website brandCOLORADO.gov and incorporated and made part of this contract by reference. 20. The content of electronic documents located on CDPHE and non-CDPHE websites and information contained on CDPHE and non-CDPHE websites may be updated periodically during the contract term. The Contractor shall monitor documents and website content for updates and comply with all updates. 	
<p>Expected Results of the Activity <i>(Meets the project goal/objective)</i></p>	<p>Credible/Robust tools that will help improve water quality in the Bear Creek Reservoir by calculating the needed reduction in nutrient loads, by sources, to the reservoir.</p>	

<p>Measurement of Expected Results <i>(What will be measured to ensure the expected results are achieved)</i></p>	<ol style="list-style-type: none"> 1. Identification of sources of nutrient loads and concentrations as well as fate and transport of nutrients to Bear Creek reservoir 2. Options for addressing sources to ensure Bear Creek reservoir meets site-specific phosphorus and chlorophyll a water quality standards. 3. Modeling system that accurately simulates in-lake nutrient responses to changes in loading from the watershed 4. Calibrated, verified, and validated in lake and watershed models 5. Model output that supports identification of wasteload and load allocations necessary for meeting site specific standards 6. Model output that supports management options for achieving reductions necessary to meet site specific standards 	
		<p>Completion Date <i>(When is the deliverable due)</i></p>
<p>Deliverables <i>(Typically tangible objects produced as a result of the activity- evidence of progress and compliance with standards and requirements)</i></p>	<p>The Contractor shall submit xxx via e-mail/FAX/hard copy, to “My position title”</p> <ol style="list-style-type: none"> 1. Draft Final Report, including all data collected for the project and all presentations produced for the project. 2 An in-lake model for Bear Creek Reservoir 3 An in-lake model for Bear Creek 4 Training materials 5 model documentation and user manuals. 6 Evaluation of management scenarios. 7 Reports of evaluation of management scenarios 8 A list of potential best management practices to be implemented to reduce nutrient loading to the Bear Creek Reservoir to achieve water quality standards for TP and chlorophyll a. 9 Final project report, including all data collected for the project and all presentations produced for the project. <ol style="list-style-type: none"> 1. The Contractor shall submit water quality data analysis and reports in the project final report. 	<p>No later than, (ex: 2 weeks before contract expiration)</p> <p>TBD after selection of vendor, before contracting</p> <p>TBD after selection of vendor, before contracting</p> <p>TBD after selection of vendor, before contracting</p> <p>TBD after selection of vendor, before contracting</p>

TOTAL BUDGET	\$
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V. Key Personnel:

Joni Nuttle
TMDL Workgroup
Restoration and Protection Unit
Watershed Section, Water Quality Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South, Denver, CO 80246
Phone: 303-692-3533
Email: Joni.Nuttle@state.co.us

Tammy Allen
Unit Manager
Restoration and Protection Unit
Watershed Section, Water Quality Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South, Denver, CO 80246
Phone: 303-692-3554
Email: Tamara.Allen@state.co.us

Evan Butcher
Project Manager
Water Quality Control Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South, Denver, Colorado 80246
Phone: 303 692-3315
Email: evan.butcher@state.co.us

VI. Monitoring:

CDPHE's monitoring of this contract for compliance with performance requirements will be conducted throughout the contract period by the *(title of responsible individual)*. Methods used will include a review of documentation determined by CDPHE to be reflective of performance to include progress reports *(you may also list other types of documents or information that will be reviewed, for example "and invoices, site visit results and electronic data")*. *If you do not want to identify specific documents, complete the sentence with* and other fiscal and programmatic documentation as applicable. *Performance evaluations are optional for interagency agreements (Colorado state departments and IHEs). If conducting evaluations of these entities, delete these instructions. If not conducting evaluations of these entities, delete these instructions and the following 2 sentences.* The Contractor's performance will be evaluated at set intervals and communicated to the contractor. A Final Contractor Performance Evaluation will be conducted at the end of the life of the contract.

VII. Resolution of Non-Compliance:

The Contractor will be notified in writing within (?) calendar days of discovery of a compliance issue. Within (?) calendar days of discovery, the Contractor and the State will collaborate, when appropriate, to determine the action(s) necessary to rectify the compliance issue and determine when the action(s) must be completed. The action(s) and time line for completion will be documented in writing and agreed to by both parties. If extenuating circumstances arise that requires an extension to the time line, the Contractor must email a request to the *(title of responsible individual)* and receive approval for a new due date. The State will oversee the completion/implementation of the

action(s) to ensure time lines are met and the issue(s) is resolved. If the Contractor demonstrates inaction or disregard for the agreed upon compliance resolution plan, the State may exercise its rights under the provisions of this contract.