

AMENDMENT TO PROFESSIONAL SERVICES CONTRACT

AGENCY: SC Office of Resilience

PROJECT NAME: Dillon County Infrastructure

PROJECT NUMBER: D30-N014-MJ

NAME OF FIRM: Weston & Sampson

This Contract is changed as follows: *(Insert description of change in space provided below.)*

Contract increase of \$38,200 and extension of the contract schedule by six weeks to evaluate alternate solutions for Riverdale Project (IP-21-1700-01).

ADJUSTMENTS IN THE CONTRACT SUM:

1. BASIC & SUPPLEMENTAL SERVICES FEE:

Contract Fees Prior to This Amendment		\$703,190.00
Change in Fees Per This Amendment	\$38,200.00	
Total Revised Basic & Supplemental Services Fee:		\$741,390.00

2. ADDITIONAL SERVICES FEE:

Contract Fee Prior to This Amendment		\$0.00
Change in Fee Per This Amendment	\$0.00	
Total Revised Additional Services Fee:		\$0.00

3. REIMBURSABLE EXPENSES:

Contract Fee Prior to This Amendment		\$0.00
Change in Amount Per This Amendment	\$0.00	
Total Revised Reimbursable Expenses:		\$0.00

4. TOTAL CONTRACT AMOUNT:

Total Contract Prior to This Amendment		\$703,190.00
Total Amendment Amount	\$38,200.00	
Total Revised Contract Amount:		\$741,390.00

AGENCY ACCEPTANCE AND CERTIFICATION

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

Change is within Agency A-E Contract Amendment Certification of: \$0.00 Yes No

BY: Phleisha Lewis **TITLE:** Mitigation Director **DATE:** 10/04/2023

APPROVED BY: *August D Jordan* **DATE:** 10/05/2023

(OSE PROJECT MANAGER)

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Total Contract Prior to This Amendment		\$703,190.00
Total Amendment Amount	\$38,200.00	
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AGENCY ACCEPTANCE AND CERTIFICATION

I certify that the Agency has authorized, unencumbered funds available for obligation to this contract.

Change is within Agency A-E Contract Amendment Certification of: \$0.00 Yes No

BY: [Signature] TITLE: Chief of Staff DATE: 10/02/2023
General Council

**AMENDMENT REQUEST SUMMARY –
PROFESSIONAL SERVICES CONTRACT**

AGENCY: SC Office of Resilience

PROJECT NAME: Dillon County Infrastructure

PROJECT NUMBER: D30-N014-MJ


NAME OF FIRM: Weston & Sampson

This Contract is requested to be changed as follows: *(Insert description of change in space provided below.)*
Contract increase of \$38,200 and extension of the contract schedule by six weeks to evaluate alternate solutions for Riverdale Project (IP-21-1700-01).

ADJUSTMENTS IN THE CONTRACT SUM:

1. REQUESTED CHANGE TO BASIC & SUPPLEMENTAL SERVICES FEE:		
	Change in Fee Per This Amendment	\$38,200.00
2. REQUESTED CHANGE TO ADDITIONAL SERVICES FEE:		
	Change in Fee Per This Amendment	\$0.00
3. REQUESTED CHANGE TO REIMBURSABLE EXPENSES:		
	Change in Amount Per This Amendment	\$0.00
4. REQUESTED CHANGE TO TOTAL CONTRACT AMOUNT:		
	Total Amendment Amount:	\$ 38,200.00

A/E ACCEPTANCE:

BY:  Date: 9/28/23
(Signature of A/E Representative)
 Print Name of A/E Representative: Meaghan E. Moody, PE

Instruction to A/E: Attach documentation as needed to justify the requested change to the contract and submit to Agency.

September 18, 2023

Pamela Kendrick
Environmental & Infrastructure Program Manager
South Carolina Office of Resilience
632 Rosewood Drive
Columbia, SC 29201

Re: SCOR Project No. IP-21-1700-01 10010620 4600925333 - SCOR Dillon Stormwater Improvements – Riverdale Modeling

Dear Ms. Kendrick:

Weston & Sampson's understanding at the time of contract negotiations regarding the modeling scope of work for the referenced project was that the existing model conditions were to be verified as consistent with field conditions and the proposed upgrades confirmed as sufficient to provide stormwater improvements. The modeling scope was provided to Weston & Sampson based on the 2021 City of Dillon Stormwater Masterplan and the 2022 Dillon County Flood Management Study. Upon receiving the Dillon County Riverdale model, Weston & Sampson found that the proposed upgrades were insufficient to meet the 25-year, 24-hour design storm condition.

As stated in Weston & Sampson's letter sent on September 7, 2023, the provided SSA model for the Riverdale community was rebuilt in ICPR4 for consistency with the City of Dillon model. During Weston & Sampson's modeling efforts it was found that storm event scenarios 25 years and greater would not run for a full 24-hour period simulation in the ICPR4 model and would stop providing results at the 12-hour time step. Weston & Sampson reached out to Streamline (ICPR4 parent company) for assistance and was notified that the 1D model stopped calculating results due to unrealistically high staging at the nodes (20+ ft). The model would only provide results for a 24-hour period for the 1, 5, and 10-year storms for the Riverdale North area. Riverdale South was able to run for a full 24-hour period for a 25-year storm but stopped providing results at the 12-hour mark for a 100-year storm. The high model staging is due to inadequately sized systems that are unable to provide proper mitigation during flood conditions. Because the model is in 1D, it cannot account for surface flow outside of the node location, so all area stormwater stacks on top of the nodes causing model failure.

Weston & Sampson had an internal expert review the SSA and ICPR4 models to verify that proper procedures were being followed and the model issues were not due to user error. During this review, the expert agreed that the ICPR4 model was operating correctly and that the proposed upgrades were insufficient for storms in excess of 25-year events. He also noted that the Riverdale South recommended improvements appear to change the flow path away from the existing shown in the 100-year FEMA flood map, specifically at the property located just upstream of the outfall, TMS# 070-00-00-176. If flows are redirected as proposed as in the Dillon County Flood Management Study, a Letter of Map Revision (LOMR) could be necessary for the property. The Benefit-Cost Analysis (BCA) currently takes into account the improvements stated in the 2022 Dillon County Flood Management Study which are insufficient to manage a 25-year storm. A change in recommended designs will require a new BCA.

Weston & Sampson proposes the following scope of work to establish a stormwater basis for design that manages the 50-year, 24-hour design storm event:

- Convert the established ICPR4 1D model into a 2D model to more effectively evaluate surface runoff and storage conditions.
- Consider alternate solutions for Riverdale North and South that are not limited to pipe upsizing and ditch widening. Uninhabited properties where channels and wetlands are currently located will be evaluated for storage solutions that may limit the amount of pipe and ditches that will need to be upsized. Up to two (2) alternatives will be presented for review and approval by SCOR and Dillon County.
 - Targeted solutions will account for the construction costs necessary to manage a 25-year storm event with a goal of maintaining a BCA with a ratio greater than 1. If a cost-effective solution that

meets the FEMA BCA requirements cannot be established, Weston & Sampson will notify SCOR immediately for guidance in performing remaining work.

- o Weston & Sampson will recommend if easements are necessary for proposed solutions. The estimated costs to acquire easements and draft easement plats will be incorporated into the anticipated construction cost for use with the BCA. Due to the variability of easement costs, the price to purchase easements from property owners will not be included in the construction cost estimate. This scope of work does not include easement acquisition.
- o This scope of work and associated fee does not include submission of a revised BCA to FEMA. Further investigation into available information from the previously established BCA will be necessary for Weston & Sampson to develop a revised analysis.
- o 50-year and 100-year, 24-hour storms will be run in the model to obtain results necessary for permitting, but solutions will not be sought to mitigate flooding during these events.
- Solutions will attempt to avoid LOMR or CLOMR for proposed solutions.
 - o Weston & Sampson will notify SCOR if a LOMR or CLOMR is necessary for proposed solutions. Obtaining a LOMR/CLOMR is not included in this scope of work.
- A technical memorandum of findings will be issued for review as draft and finalized following review with SCOR and Dillon County. Improvements will then be incorporated into the project plans and specifications.

It is estimated that the out-of-scope efforts, already completed as well as anticipated, for the proposed modeling work and solution development as described account for approximately 6 weeks of delay in schedule and contribute \$38,200 of additional coordination and model development costs for the Riverdale project. Please refer to the table below for a breakdown of efforts.

Please don't hesitate to reach out if there are any additional questions.

TASK NO.	TASK DESCRIPTION	Person-Hours						Billing Costs	
		PaigeL PM	BlakeD Pro.Eng	LucasH ProjScI	LoiseK Eng1	AndyW TechLdr	MoodyM SrTmLdr	TOTAL HOURS	TOTAL COST
1	Conversion of ICPR4 1D model to 2D	4	10	24	24		2	64	\$8,300.00
2	Model Calibration	2	8	18	18	2		48	\$6,100.00
3	Develop 2 Scenarios for Proposed Improvements	4	8	30	24			66	\$8,200.00
4	Analysis of Results	8	4	16	16	2	2	48	\$6,800.00
5	Technical Memo	8	8	20	24	2	2	64	\$8,800.00
TOTALS		26	38	108	104	6	6	288	\$38,200.00

SCOR Project Number Breakdown Totals

- IP-21-1700-01 10010620 4600925333, Dillon County – Riverdale Project: \$38,200.00

Sincerely,

WESTON & SAMPSON ENGINEERS, INC.



Meghan Moody, PE
Sr. Team Leader