NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION
STANDARD FORM OF AMENDMENT OF CONSULTANT CONTRACT

This is an amendment to the Contract entered into by New York City Economic Development Corporation (NYCEDC), a not-for-profit corporation organized pursuant to laws of the State of New York, having an office at 110 William Street, New York, New York 10038, and the Consultant:

Consultant's Name:	**Arcadis of New York, Inc.**				
Address:	655 Third Avenue, 12th Floor, NY NY 10017				
Contract No:	57880001	**Contract Date:**	11/6/2014	**Project No:**	5788
Project Name:	Technical Support for Appeal of FEMA NYC Flood Insurance Rate Maps				
Type of Services:	Consultant Services				

A copy of the Contract and copies of any and all prior amendments are attached hereto as Exhibit A.

The Contract is hereby amended as follows:

Amendment No:	1	**Effective Date:**	3/30/2015

TYPE OF AMENDMENT

☒ Extension of Term	Extension Date:	1/6/2016	
☐ Increase in Maximum Contract Price		Original Maximum Contract Price	$ 980,000.00
		Total Prior Increases	$ 0.00
		Amount of Current Increase	$ 0.00
		Revised Maximum Contract Price	$ 980,000.00

☒ Amended Scope of Services – See attached Exhibit B

☒ Other (as described below)

See attached Exhibit C – Amended and Restated Fee Schedule – The schedule has been revised to include lump sum negotiated amounts under Task 4. The original contract price has not changed.

NYCEDC Executive Committee Approval Date:	**12/13/13**

Capitalized terms used herein shall have the meanings set forth in the Contract, as previously amended, unless otherwise defined herein. Except as provided herein and in the pages attached hereto, if any, all terms and conditions of the Contract, as previously amended, remain unchanged and in full force and effect.

CONSULTANT'S NAME: Arcadis of New York, Inc.		**NEW YORK CITY ECONOMIC DEVELOPMENT CORPORATION**	
By:	Vatche Minassian	**By:**	Kim Vaccari
Printed Name:	VATCHE MINASSIAN	**Printed Name:**	Kim Vaccari
Title:	VICE PRESIDENT	**Title:**	CFO
Date Signed:	3/31/15	**Date Signed:**	4/8/15

EXHIBIT A

THE CONTRACT

(Incorporated by Reference)

EXHIBIT B

Scope of Services

Task 4 is hereby amended and restated as follows:

Task 4: Additional Outstanding Areas of Concern

Sub-Task 4.1: Rerun extratropical storms considering historical conditions

This task will be completed to determine whether the 30 extratropical storms simulated by FEMA have notable biases in the wind and pressure fields. Each of the 30 extratropical storms will be simulated considering historic tidal conditions. Wind data input into the model and water surface elevations output by the model will be compared to available observation data.

As part of this task, each of the validation storms simulated by FEMA will be reanalyzed. Sensitivity tests will be conducted for the validation storms to determine whether model adjustments (e.g. the wind drag algorithm in ADCIRC) improve model validation, as well as improve the performance of the 30 extratropical storms. Up to 130 ADCIRC simulations will be completed as part of this task.

Sub-Task 4.1 Deliverables:

The deliverables for this task will be:

- Intermediate Submission Memorandum; and
- Final Report

The Memorandum and Report will describe the model skill at replicating the 30 historical extratropical storms and validation storms used by FEMA, as well as recommended next steps to improve the model skill.

Sub-Task 4.2: Determine tidal conditions for each extratropical storm

This set of tasks will be completed to determine whether the random tides simulated by FEMA for the 30 extratropical storms have notable biases. FEMA tides will be compared to historic conditions and if necessary, the case for additional or revised random tide conditions will be documented.

If additional or revised tidal conditions are believed to be necessary, a revised methodology will be established to select random tidal phases, determine the adequate number of random tidal phases and select a final set of random tidal phases to be simulated.

Sub-Task 4.2 Deliverables:

The deliverables for this task will be:

- Intermediate Submission Memorandum; and
- Final Report

The Memorandum and Report will describe the proposed changes to tidal conditions for simulations, as well as recommended next steps including the number of simulations necessary in Sub-Task 4.5.

Sub-Task 4.3: Update Statistics – Phase 1

Using model outputs from Sub-Tasks 4.1 and 4.2, as well as updated statistical codes (either from FEMA directly or via conversation with FEMA) statistics will be updated throughout the study area.

Additionally, as part of this task and in coordination in Sub-Tasks 4.1 and 4.2, it is anticipated that up to two meetings will be held in New York City with ORR and potentially FEMA.

Sub-Task 4.3 Deliverables:

The deliverables for this task will be:

- Intermediate Submission Memorandum; and
- Final Report

Sub-Task 4.4: Meteorologist support (If necessary)

This task is for meteorologist support to revise wind and pressure fields following the findings from SubTask 4.1. Note that a meteorologist has not been identified and cost and schedule have been estimated. This may require a subcontractor or working with FEMA's meteorologists from the initial study.

Sub-Task 4.4 Deliverables:

In coordination with Sub-Task 4.5, the deliverables for this task will be:

- Intermediate Submission Memorandum; and
- Final Report

Sub-Task 4.5: Storm simulations to coordinate with meteorologists (If necessary)

This task will be completed in coordination with Sub-Task 4.1. In order to test revised wind and pressure fields produced by the meteorology team, versions of wind fields will be simulated in ADCIRC and compared to observed water surface elevation measurements. Up to 60 ADCIRC simulations will be completed as part of this task.

Sub-Task 4.5 Deliverables:

In coordination with Sub-Task 4.4, the deliverables for this task will be:

- Intermediate Submission Memorandum; and
- Final Report

Sub-Task 4.6: Run revised extratropical storm winds with multiple tidal conditions (If necessary)

Following the creation of revised wind and pressure fields for each of the 30 extratropical storms that require adjustment (based on Sub-Tasks 4.1, 4.4 and 4.5) and the determination of tidal conditions suitable for statistical analysis (Sub-Task 4.2), production runs will be conducted to simulate the extratropical storms to be considered in the statistical analysis in Sub-Task 4.7. Up to 120 ADCIRC simulations will be completed as part of this task.

Sub-Task 4.6 Deliverables:

The deliverable for this task will be:

- A PowerPoint presentation to ORR staff

Sub-Task 4.7: Update Statistics – Phase 2 (If necessary)

Using model outputs from Sub-Task 4.6, as well as updates from Sub-Task 4.3 and statistical codes (either from FEMA directly or via conversation with FEMA) to update statistics throughout the study area. This will be an update to Sub-Task 4.3 to include model outputs developed as part of Sub-Task 4.6.

Sub-Task 4.7 Deliverables:

The deliverable for this task will be a revised Task 4.3:

- Intermediate Submission Memorandum; and
- Final Report

Sub-Task 4.8: Prepare Formal Appeals (If necessary)

In coordination with the originally scoped Task 2, this task is additional funding for technical expert review of the appeal documentation given the nature of the proposed review and potential appeal.

Additionally, as part of this task it is anticipated that a meeting will be held in New York City with ORR and potentially FEMA.

Sub-Task 4.8 Deliverables:

The deliverable for this task will be:

- A technical review document from two reviewers outlining the review of the Draft Appeals Package, including recommended changes and comments to be addressed prior to finalizing the package described in Task 2.
- A technical review document from two reviewers outlining the review of the Final Appeals Package, including recommended changes and comments to be addressed prior to finalizing the package described in Task 2.
- A technical review document from two reviewers outlining the review of the Resubmission of the Final Appeals Package, including recommended changes and comments to be addressed prior to finalizing the package described in Task 2.

Timeline for Task 4

It is anticipated that the Consultant shall complete the services and associated deliverables within an estimated 4-month period and an additional 12-month window for resubmittal, with an anticipated schedule as follows:

	Months of Work				Resubmittal (if necessary)
	1	2	3	4	Up to 12 months
Sub-Task 4.1 Deliverables					
Sub-Task 4.2 Deliverables					
Sub-Task 4.3 Deliverables					
Sub-Task 4.4 Deliverables					
Sub-Task 4.5 Deliverables					
Sub-Task 4.6 Deliverables					
Sub-Task 4.7 Deliverables					
Sub-Task 4.8 Deliverables					

- The timeline above is intended to support the following estimated target dates for the 90-day appeals period:
  - Tasks 4.1 through 4.8 for Draft and Final Appeal: April through June 2015
  - Resubmittal (if necessary): July 2015 through June 2016

EXHIBIT C

Amended and Restated Fee Schedule

The maximum payment for each portion of the Services shall be the respective amounts set forth in the following table:

Task		Amount per Task
Task 1 (Total) – Evaluate technical review work to date		$ 260,000
Task 1 Payment Schedule		
Plan Formulation Document	$ 20,000	
Intermediate Submission Wave Period Conversion	$ 20,000	
Final Summary Report Wave Period Conversion	$ 35,000	
Intermediate Submission Starting Wave Conditions	$ 30,000	
Final Summary Report Starting Wave Conditions	$ 60,000	
Intermediate Submission Erosion Assessments	$ 15,000	
Final Summary Report Erosion Assessments	$ 20,000	
Intermediate Submission PFD Mapping	$ 10,000	
Final Summary Report PFD Mapping	$ 20,000	
Intermediate Submission Reverse Transects	$ 10,000	
Final Summary Report Reverse Transects	$ 20,000	
Task 2 (Total) – Prepare formal appeals		$ 135,000
Task 2 Payment Schedule		
Draft Appeals Package	$ 80,000	
Formal Appeals Package	$ 30,000	
Resubmission (if necessary)	$ 25,000	
Task 3 (Total) – Support public appeals		$ 15,000
Task 3 Payment Schedule		

Support for Each Appeal (10 in total)	$ 1,500

Additional Tasks

Task 4 Additional Outstanding Areas of Concern $ 490,000 (NTE)

Amended Task 4 Payment Schedule

4.1 Intermediate Submission Memo	$ 101,500	
4.1 Final Summary Report	$ 33,971	
4.2 Intermediate Submission Memo	$ 51,500	
4.2 Final Summary Report	$ 17,240	
4.3 Intermediate Submission Memo	$ 46,000	
4.3 Final Summary Report	$ 15,057	
4.4 Intermediate Submission Memo	$ 33,500	
4.4 Final Summary Report	$ 11,500	
4.5 Intermediate Submission Memo	$ 47,500	
4.5 Final Summary Report	$ 15,983	
4.6 PowerPoint Presentation	$ 49,821	
4.7 Intermediate Submission Memo	$ 23,000	
4.7 Final Summary Report	$ 7,676	
4.8 Review Document Draft Appeals Package	$ 11,896	
4.8 Review Document Final Appeals Package	$ 10,596	
4.8 Review Document Resubmission	$ 13,212	
Amended Task 4 Total		$ 489,952
Task 4 Allowance Amount Remaining		$48

Task 5 Advanced Public Appeals Management Tool $ 80,000

Maximum Contract Price (Tasks 1 – 5) **$ 980,000**

No multiplier overhead, administrative fee or other markup will be paid to the Consultant for Subcontractors' costs unless agreed to in advance in writing by NYCEDC. Amounts allocated for any Task or Sub-Task that are not fully expended may be re-allocated among other Tasks or Sub-Tasks at NYCEDC's sole discretion.

AMENDED AND RESTATED ADDITIONAL SERVICES: FEE SCHEDULE

ARCADIS

Title	Hourly Rate	Multiplier	Total Rate
Principal	$81.70	3.06	$250.00
Chief Project Manager	$64.20	3.06	$196.50
Project Manager	$56.30	3.06	$172.50
Lead Technical Engineer	$56.30	3.06	$172.50
Project Engineer	$39.70	3.06	$121.50
Technical Advisor	$81.70	3.06	$250.00
Coastal Engineer	$45.10	3.06	$138.00
Coastal Modeler	$31.00	3.06	$95.00
Hydrologist/Hydraulic Engineer	$49.00	3.06	$150.00
Senior GIS Analyst	$52.60	3.06	$161.00
GIS Project Manager	$56.30	3.06	$172.50
Staff GIS Analyst	$29.60	3.06	$90.50

Hourly Rates and Multipliers for Subconsultants

Title	Hourly Rate	Multiplier	Total Rate
KS Engineers, PC			
Senior Surveyor	$75.00	2.43	$182.25
Survey Party Chief	$35.00	2.43	$85.05
ATCS, PLC			
Project Engineer	$69.65	3.35	$233.33
Technical Advisor	$70.00	3.35	$234.50
Coastal Engineer	$69.00	3.35	$231.15
Hydrologist/Hydraulic Engineer	$67.00	3.35	$224.45
AKRF, Inc.			
Lead Technical Engineer	$52.89	2.98	$157.61
Coastal Engineer	$34.86	2.98	$103.88
Vertus Communications Management, LLC			

Project Manager	$90.00	1.10	$99.00
University of North Florida			
Dr. Don Resio	$200.00	N/A	$200.00

CPU Hourly Rates

CPU costs associated with Task 4 require an additional fee of $0.05 per CPU hour.