ARC

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

5E

October 9, 2025

NOV 12 2025

Her Excellency, Governor Kelly A. Ayotte
and the Honorable Council
State House
Concord, NH 03301

REQUESTED ACTION

Authorize the New Hampshire Department of Environmental Services (NHDES) to amend a **SOLE SOURCE** contract (PO#9005857) with JFK Environmental Services LLC (VC # 420596-B001), Gloucester, MA, by extending the contract end date to September 30, 2026 from December 31, 2025, effective upon Governor and Council approval. This is a no cost time extension. The original agreement was approved by the Governor and Council on October 19, 2022, Item #76 and amended on August 30, 2024, Item #129. 100% DWSRF Management Funds.

EXPLANATION

NHDES requests approval of this amendment with JFK Environmental Services LLC (JFK) to fund the groundwater rise components of the NH Coastal Flood Risk Summary Update. This agreement is **SOLE SOURCE** because JFK has unique experience of integrating sea-level rise scenarios with groundwater modeling and has the modeling tools and datasets, prior experience and associated modeling efficiencies needed to complete the additional scope of work. The NH Coastal Flood Risk Summary provides science-based and user-informed guiding principles and a step-by-step approach for incorporating the updated coastal flood risk projections into private, local, state, and federal projects, including planning, regulatory and site-specific efforts. The guidance developed through this effort will be valuable to coastal NH communities and state agencies working to manage and protect groundwater resources and other coastal flood risks.

Significant progress has been made across all major project components including a completed groundwater rise and saltwater intrusion modeling for Durham, Madbury, Dover, Rollinsford, Portsmouth, and New Castle; updated and recalibrated models for the NH Seacoast east of Great Bay and south of Portsmouth; completed mapping of groundwater rise, groundwater depth zones, and vulnerable areas in modeled communities; initiated modeling and mapping for Newfields, Newmarket, and Exeter; and preparation of a guidance document to transfer monitoring-well data processing to the City of Portsmouth.

The need for a no-cost extension is due to unexpected delays as a result in the well drilling and monitoring equipment installation schedule taking substantially longer than originally anticipated due to both limitations in the availability of a well drilling contractor, and unanticipated close coordination with the City of Portsmouth to secure land access permission(s), and address site safety concerns for each drilling site.

Extension of the project will allow for collection of a full calendar year of groundwater level data from the new, citywide monitoring network and enable the City of Portsmouth to further identify subsurface infrastructure (water, sewer and stormwater) and other essential utilities that may be potentially vulnerable to inundation by shallow groundwater that is needed to further guide the municipal adaptive management plan process. Regionally, the longer data record will also assist in additional calibration of the groundwater level rise model and subsequent completion of the NH Coastal Flood Risk Report update for all the towns in the state's coastal zone. To date, $201,828 of the $283,369 has been spent.

If the other funds become no longer available, general funds will not be requested to support this program. This amendment has been approved by the Office of the Attorney General as to form, execution, and content.

We respectfully request your approval.

Robert R. Scott, Commissioner

AMENDMENT NO. 2
TO AGREEMENT BETWEEN THE
N.H. DEPARTMENT OF ENVIRONMENTAL SERVICES
AND
JFK ENVIRONMENTAL SERVICES LLC

CONTRACT FOR SERVICES – GROUNDWATER RISE MODELING AND MAPPING IN THE NH COASTAL ZONE & VULNERABILTY ASSESSMENT IN PORTSMOUTH

WHEREAS, the State of New Hampshire Department of Environmental Services (NHDES) has entered into an Agreement with JFK Environmental Services LLC in the amount of $245,914 to assist the New Hampshire Department of Environmental Services with conducting a groundwater rise model and mapping in the NH coastal zone and a vulnerability assessment of drinking water sources and infrastructure in Portsmouth, NH, through October 31, 2024, which was approved by Governor and Council on October 19, 2022, as Item #76 and amended on August 30, 2024, as Item #129.

WHEREAS, The Grantee and the State have agreed to amend the Agreement in certain respects;

NOW THEREFORE, amend the original contract between NHDES and JFK Environmental Services LLC as was approved by Governor and Council on October 19, 2022, as Item #76 and amended on August 30, 2024, as Item #129 in the following manner:

1. The Completion Date as set forth in sub-paragraph 1.7 shall be changed from December 31, 2025 to September 30, 2026.

2. Delete Exhibit B-Amendment 1 and replace with Exhibit B–Amendment 2. Exhibit B-Amendment 2 is attached hereto and incorporated into this amendment and agreement by reference.

All other conditions outlined in the contract shall remain in effect.

Robert R. Scott, Commissioner
Department of Environmental Services

10/9/25
Date

Jayne F. Knott, Owner
JFK Environmental Services LLC

9/29/25
Date

Assistant Attorney General
Department of Justice

10/15/25
Date

EXHIBIT B-Amendment 2
Scope of Services

JFK Environmental Services LLC (HydroPredictions) shall perform the tasks and complete the deliverables outlined below and specifically described in their proposal, entitled "Groundwater Rise Modeling in New Hampshire's Coastal Zone and Vulnerability Assessment in Portsmouth, New Hampshire."

Task 1: Project Team Meetings and Stakeholder Engagement
The project team and stakeholders will meet two times during the project to discuss the modeling and mapping progress and two times to discuss the development of the long-term monitoring network and the Portsmouth vulnerability study. This is necessary to ensure that the project team has access to the most recent and comprehensive groundwater, geological, and asset-based data for these analyses. In addition, these meetings will be important for the municipalities and stakeholders to inform the project team about specific concerns related to groundwater, infrastructure, and water quality. HydroPredictions will work closely with NHDES, NH Geological Survey, the City of Portsmouth, and Jennifer M. Jacobs and Associates, LLC (JMJ) to utilize the most recent and comprehensive data (including pumping test information, GEOLOGs, and the latest LiDAR data) to inform the modeling, mapping, and asset location/description parts of the project.

Task 2: Groundwater Rise Modeling
HydroPredictions proposes to conduct groundwater rise and saltwater intrusion modeling in the coastal-zone communities that have not been modeled. These include Dover, Madbury, Newfields, Rollinsford, and Exeter. In addition, groundwater flow and saltwater intrusion modeling will be conducted in Portsmouth and New Castle. The existing Durham, Newmarket, and Seacoast models will be updated with new data and the mapping results will be revised if necessary.

2.1: Update existing models and expand the groundwater flow and saltwater intrusion models to unmapped communities in the coastal zone
HydroPredictions will update the existing models with new data (including new LiDAR data, if available) and expand existing groundwater and saltwater intrusion models to areas within the coastal zone where groundwater rise has not been simulated. Groundwater modeling of Madbury, Dover and Rollinsford will be accomplished by expanding the Durham model north into these areas. Groundwater modeling of Newfields and Exeter (on the western side of the Squamscott River) will be accomplished by expanding the Newmarket model south into Newfields and Exeter.

2.2: Create a groundwater flow and saltwater intrusion model for Portsmouth and New Castle
A new groundwater model of Portsmouth and New Castle will be constructed to simulate groundwater rise and saltwater intrusion in these areas. This model will build upon the regional database (compiled during the previous modeling efforts) and the MODFLOW groundwater flow model that was completed for the Seacoast region with the following two enhancements. (1) SLR-induced groundwater rise in New Castle, which was not included in the original modeling effort, will be simulated and (2) a SEAWAT model will be constructed

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to investigate the potential for saltwater intrusion from groundwater withdrawals and SLR into drinking water sources serving Portsmouth/New Castle communities.

2.3: Present modeling results
HydroPredictions and JMJ will prepare and present the modeling results to project stakeholders.

Task 3: Groundwater Mapping
HydroPredictions proposes to map the present-day water-table (WT) depth in all the coastal-zone communities to help communities complete Step 5 of the Coastal Flood Risk Guidance. HydroPredictions will also map groundwater rise using the groundwater modeling output in ESRI ArcMap for Dover, Durham, Madbury, Portsmouth, New Castle, Newfields, Newmarket, Rollinsford, and Exeter.

3.1: Map Water Table Depth Zones
Areas vulnerable to the impacts of groundwater rise are areas within the Groundwater Rise Zone (GWRZ) where the groundwater table is currently shallow. Hydropredictions will map these areas and will include three WT depth zones: (1) WT less than 15 feet deep, (2) WT less than 10 feet deep, and (3) WT less than 5 feet deep. The WT depth mapping will be accomplished for all the coastal zone communities. To accomplish this, HydroPredictions will update the existing groundwater elevation database collected and analyzed for the previous and proposed modeling efforts and use it to contour existing groundwater elevations in the unconsolidated (shallow) aquifers of the modeled areas. Because many of the groundwater depth measurements in the NHDES and NH Geological Survey databases are relative to land surface, LiDAR land surface elevations will be used to estimate existing groundwater elevations relative to the common datum NAVD88. GIS will then be used to calculate the WT depth zones using LiDAR land surface and groundwater digital elevation models.

3.2: Create groundwater rise maps for the communities not previously mapped
HydroPredictions will generate groundwater-rise maps from the existing groundwater models of Newmarket and Durham and the new models created in Subtasks 2.1 and 2.2.

3.3: Place WT depth maps and groundwater rise maps on the coastal viewer
HydroPredictions will work with personnel at UNH Granit to place the following maps on the coastal viewer: (1) three present-day WT-depth zones, and (2) groundwater-rise maps for previously unmapped communities.

3.4: Present mapping results
HydroPredictions and JMJ will prepare a presentation and present the mapping results to the project stakeholders. Vulnerable areas will in the mapped communities will be highlighted and guidance on how this information can be use in the NH Coastal Flood Risk Guidance will be discussed.

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Task 4: Vulnerability Assessment of Drinking Water Sources and Infrastructure in Portsmouth, NH
HydroPredictions proposes to work with NHDES, the City of Portsmouth, and JMJ to assess drinking water quality and infrastructure vulnerabilities due to rising groundwater levels in Portsmouth. Threats to drinking water sources arise from the mobilization and transport of hazardous waste materials and other contaminants in soils from rising groundwater and ground-surface inundation from both tidal water flooding and groundwater inundation. Water-quality degradation and service interruptions may also occur when fresh or saline groundwater infiltrates old or damaged underground utility pipes including water, sewer, and/or gas lines. According to the Portsmouth Capital Improvement Plan, the wastewater collection system and water distribution system consist of more than 120 miles and 150 miles of pipe, respectfully. Many of the pipes are 50 to 100 years old and are reaching the end of their design life. As plans to replace these pipes are underway, it is essential to identify areas where rising groundwater and surface-water flooding are projected to impact underground infrastructure and what adaptation measures can be implemented in future design and construction projects.

4.1: Design a real-time groundwater modeling network
HydroPredictions will work with JMJ, UNH, and the City of Portsmouth to design a real-time groundwater monitoring network. The results of the groundwater rise simulations and mapping studies will be used to design a network of groundwater monitoring wells near the coast for monitoring groundwater levels in real time. The goal of the network is to support a near real-time forecasting/early warning systems of anomalously high groundwater levels and to track long-term groundwater level changes in Portsmouth's historic downtown. For the latter, the network will serve as monitoring program to enable adaptive management of infrastructure. Real-time groundwater measurements in Portsmouth will be compared with SLR measurements at the nearest tidal gauge to investigate and identify the timing and magnitude of the groundwater response as well as the relationship between SLR and groundwater level changes. These relationships will identify preliminary indicators for a forecasting/early warning system. Specific recommendations for siting monitoring wells will be made based on the groundwater modeling results and vulnerability assessments. To perform the work described in Subtask 4.1, it is assumed that HydroPredictions will have access to any existing real-time groundwater measurements that may be available.

4.2: Construct a real-time groundwater monitoring network
HydroPredictions and JMJ will assist the City of Portsmouth in constructing a real-time groundwater monitoring network. Ten shallow wells (~20 feet deep) will be installed on City of Portsmouth land in the downtown area at varying distances from the coast. Specific recommendations for siting the monitoring wells will be made based on the groundwater modeling results and in collaboration with the City of Portsmouth and NHDES.

The wells near tidal water bodies will be used as sentinel wells where the magnitude of groundwater-level increases over time are projected to be the greatest, and the wells farther inland will be used to assess groundwater-level changes with distance from the coast. Because the wells will be long-term monitoring wells, they will be installed with 4" steel protective casings and concrete anchor pads below the frost line. Boring logs and well construction logs will be recorded and provided to NHDES and the City of Portsmouth for all monitoring wells installed. A hydrogeologist will be onsite to supervise well installation. Split

spoon samples will be collected, and the geologic material will be described and categorized using the unified soil classification system (USCS). After installation, the monitoring wells will be surveyed by a NH licensed land surveyor with a 0.1-foot horizontal and a 0.01-foot vertical resolution referenced to NAVD88. The NH State Plane coordinate system will be used to be consistent with the groundwater models.

Each well will be a long-term monitoring well equipped with a water-level logger that measures water-table elevation using a highly accurate pressure sensor adjusted for barometric pressure and temperature detector in a stainless-steel housing with corrosion resistant coating. Measurements will be made in the unconsolidated sediments above the bedrock. Two of the wells will be equipped with specialized water-level loggers capable of measuring water level, temperature and conductivity that can be used to monitor saltwater intrusion and soil salinity. In addition, HydroPredictions will set up a rain logger that records the tips of a tipping-bucket rain gauge. The rain logger is compatible with the water level loggers and will provide local rainfall data to correlate with groundwater-level changes. Groundwater levels and rainfall data will be collected in real time to capture significant water-level events such as king tides, storm surge from nor'easters and tropical cyclones, extreme precipitation events, and long-term changes from sea level rise. Each well and the rain logger will be equipped with a telemetry device (levelsender5) that uses GSM cellular communication to send the water level, temperature, and conductivity data to a home station through a cellular service provider. The data can be sent to 5 email addresses including the home station.

HydroPredictions will work with the City of Portsmouth to determine the optimum measurement and reporting frequencies from the data loggers. HydroPredictions will include a data plan of 5 MB/month that includes sampling every 15 minutes and reporting once/day for 11 sensors (10 wells and one rain gauge). In addition to automatic level logging, HydroPredictions recommends that the City of Portsmouth measure the water levels in the wells manually once per quarter to maintain proper equipment calibration. Maintenance of the monitoring network and the rain gauge will be the responsibility of the City of Portsmouth with guidance from the project team. Data storage and dissemination will be accomplished through one of the following options: UNH platform/system currently collecting data from Strawberry Banke, NHDES database, or establish a dedicated and secure share file site.

4.3: Identify threats to water quality

HydroPredictions will assess the potential for contaminant migrations due to SLR induced groundwater rise. Rising groundwater and ground-surface inundation has the potential to mobilize and transport hazardous waste materials and other contaminants as water (groundwater and surface water) encounter contaminated soils. Threats to drinking water sources (groundwater and surface water) and natural resources from the mobilization and transport of hazardous materials and other contaminants will be identified using a GIS mapping analysis. Vulnerable areas will be identified by combining the groundwater rise maps with the WT-depth zones. Hazardous waste disposal sites will be mapped, and the ones located within the GWRZ where groundwater is shallow will be flagged as areas where contaminants might be mobilized as groundwater levels rise.

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To perform the work described in Subtask 4.3, it is assumed that HydroPredictions will have access to hazardous waste disposal site information from the NHDES files including site locations, monitoring well data (both groundwater levels and contaminant concentrations), groundwater flow maps, and geological information including cross-sections and boring logs.

4.4: Identify threats to underground infrastructure

Groundwater rise in areas where groundwater is already shallow may be a risk to drinking water distribution systems, stormwater systems, wastewater treatment plants, wastewater pumping stations, and gas lines. HydroPredictions will identify threats to water, wastewater, and other underground infrastructure by conducting a vulnerability study that captures the exposure of underground infrastructure and characterizes the vulnerability based the sensitivity of the infrastructure and the adaptive capacity of the system. HydroPredictions will use a systems level approach including stakeholder input and an indicator-based GIS mapping study. Exposure will be determined by combining the groundwater rise maps with the WT-depth zones. Sensitivity will be based on infrastructure age and condition. Adaptive capacity will reflect the overall system's ability to cope with future rises in groundwater. Infrastructure may include stormwater systems (BMPs, culverts, existing and proposed stormwater pipes, etc.), sewer and water lines, and critical facilities within the vulnerable areas will be mapped and identified as high priorities for detailed adaptation planning. In performing this analysis, HydroPredictions will rely on the City of Portsmouth to provide us with GIS files and information on underground infrastructure such as depths, age, and condition.

4.5: Map saltwater intrusion into aquifers with SLR

The combination of over-pumping and SLR can lead to saltwater intrusion into public water supply wells. HydroPredictions will conduct saltwater intrusion modeling in the City of Portsmouth using SEAWAT, a saltwater intrusion computer code, with MODFLOW, the groundwater flow computer code. The goal of this investigation is to map relative salt concentrations with current groundwater withdrawals and project how these will change with future projected withdrawals and SLR. This study will help the City of Portsmouth plan future withdrawal volumes and help with the design and placement of new water supply wells. HydroPredictions will rely on the City of Portsmouth and NHDES to provide us with any aquifer/pumping test information collected in the permitting of existing public water supply wells in Portsmouth.

4.6: Contaminant fate and transport modeling

Contaminant fate and transport modeling from one or more of the source areas identified in Subtask 4.3 can be simulated with the MT3D solute transport computer code that is run with the MODFLOW groundwater flow model that will be constructed for Portsmouth. Solute transport modeling is proposed as an optional add-on to the proposed groundwater-rise modeling and mapping work and can be used to determine where the mobilized contaminants will go, what sensitive receptors may be affected, and the timing of the effects. Solute transport modeling can also be used to investigate and evaluate remedial alternatives for the containment or cleanup of groundwater contamination.

Contractor Initials JFK
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4.7: Develop an adaptive management approach for underground infrastructure adaptation

HydroPredictions will work with JMJ and the City of Portsmouth to develop an adaptive management approach for underground infrastructure adaptation using the real-time monitoring network for long-term tracking and decision-making. The team will analyze and recommend adaptation alternatives to be used within an adaptive management approach. The approach would provide adaptation pathways where early actions may transition to other actions in the future, and "signposts" that use the groundwater monitoring information to identify when predetermined adaptations are recommended.

Task 5: Final Report and Presentation of Results

HydroPredictions will prepare two reports: (1) a technical report documenting the model construction, assumptions, calibration, and limitations, and (2) a report of the Portsmouth vulnerability study with results and recommendations. A summary of the Portsmouth study results and recommendations will be prepared and presented to project stakeholders.

Task 6: Participate in 2025 Update of the New Hampshire Coastal Flood Risk Summary

HydroPredictions will participate as a sitting member of the Science and Technical Advisory Panel for the update of the 2025 New Hampshire Coastal Flood Risk Summary. Completion of the plan includes: attendance at up to five advisory panel meetings as a panel member and technical expert on sea level rise-induced groundwater rise in coastal communities, and its potential influence on coastal flooding; authoring a new chapter on coastal groundwater rise for the updated summary; reviewing and responding to internal and external comments on the draft summary report; and reviewing guidance document development for assessing groundwater level rise issues in coastal communities.

Deliverables

1. Maps in electronic format with accompanying GIS shapefiles or raster files will be produced for all modeled areas and will show groundwater rise, depth to groundwater zones, GWRZ, and vulnerable areas.
2. Groundwater Rise and Depth to Groundwater maps will be placed on the NH Coastal Viewer.
3. A final report on the Portsmouth vulnerability study will be prepared. This report will include:
    - Maps showing the locations of vulnerable stormwater assets, utilities, critical facilities, roadway sections, and hazardous disposal areas.
    - Tables presenting the number and/or length of assets that may be vulnerable
    - with rising groundwater.
    - The adaptive capacity of each infrastructure system will be presented by grouping exposed assets according to their sensitivity, i.e., age and condition.
    - Adaptation pathways using a flexible and stepwise adaptive management approach will be recommended.
4. A technical report on the modeling approach, assumptions, calibration, and limitations will be prepared. This report will also include additional data needs and related analysis gaps.
5. A new chapter on sea-level rise induced groundwater rise in the New Hampshire Coastal Flood Risk Summary.

Contractor Initials JFK
Date 09/29/25

Limited Partnership or LLC Certification of Authority

I, Jayne F Knott, **hereby certify** that I am the sole Partner, Member or
(Name)
Manager and the sole officer of JFK Environmental Services LLC, a limited liability partnership
(Name of Partnership or LLC)
under RSA 304-B, a limited liability professional partnership under RSA 304-D, or a limited liability company under RSA 304-C.

I certify that I am authorized to bind the partnership or LLC. I further certify that it is understood that the State of New Hampshire will rely on this certificate as evidence that the person listed above currently occupies the position indicated and that they have full authority to bind the partnership or LLC and that this authorization **shall remain valid for thirty (30)** days from the date of this Corporate Resolution.

DATED: 9/29/2025

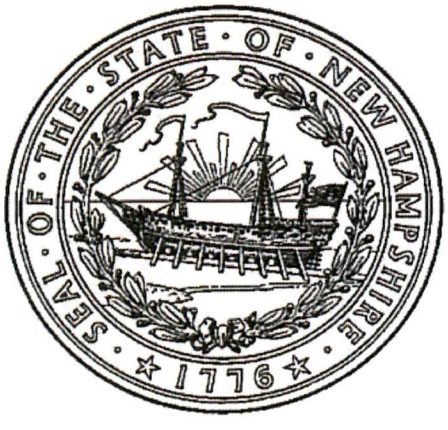
ATTEST: Jayne F. Knott, Ph.D.
Jayne F. Knott, Ph.D.
Owner

State of New Hampshire
Department of State

CERTIFICATE

I, David M. Scanlan, Secretary of State of the State of New Hampshire, do hereby certify that JFK ENVIRONMENTAL SERVICES LLC is a Massachusetts Limited Liability Company registered to transact business in New Hampshire on August 22, 2022. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: **909421**
Certificate Number: **0007295937**



IN TESTIMONY WHEREOF,
I hereto set my hand and cause to be affixed
the Seal of the State of New Hampshire,
this 29th day of September A.D. 2025.

David M. Scanlan
Secretary of State

JFKENVI-01 JMILLS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 9/30/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER License # 1780862
HUB International New England
600 Longwater Drive
Norwell, MA 02061-9146

CONTACT NAME:
PHONE (A/C, No, Ext): (781) 792-3200 FAX (A/C, No): (781) 792-3400
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Nautilus Insurance Company	17370
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
JFK Environmental Services LLC
P. O. Box 29
Gloucester, MA 01931

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY							
	CLAIMS-MADE X OCCUR			ECP2031040-15	1/1/2025	1/1/2026	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:						POLLUTION LIABI	$ 1,000,000
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO							
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per person)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liab			ECP2031040-15	1/1/2025	1/1/2026	$2,500 Deductible	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
P. O. Box 95
Concord, NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Marda J. Bravery

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 09/30/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

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PRODUCER	CONTACT NAME: Norma Jean Fowler
HUB INTERNATIONAL NEW ENGLAND LLC	PHONE (A/C, No, Ext): (978) 661-6862 FAX (A/C, No):
	E-MAIL ADDRESS: Normajean.Fowler@hubinternational.com
600 LONGWATER DRIVE	INSURER(S) AFFORDING COVERAGE / NAIC #
NORWELL MA 02061	INSURER A : ACE AMERICAN INSURANCE CO 22667
INSURED	INSURER B :
JFK ENVIRONMENTAL SERVICES LLC	INSURER C :
	INSURER D :
PO BOX 29	INSURER E :
GLOUCESTER MA 01931	INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 1157769 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
				N/A			PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS			N/A			BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE			N/A			AGGREGATE	$
	☐ DED ☐ RETENTION $							$
A	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	Y / N N/A	N/A	N/A	6S62UB4N77986625	01/21/2025	01/21/2026	☒ PER STATUTE ☐ OTH-ER
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
				N/A				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Workers' Compensation benefits will be paid to Massachusetts employees only. Pursuant to Endorsement WC 20 03 06 B, no authorization is given to pay claims for benefits to employees in states other than Massachusetts if the insured hires, or has hired those employees outside of Massachusetts.

This certificate of insurance shows the policy in force on the date that this certificate was issued (unless the expiration date on the above policy precedes the issue date of this certificate of insurance). The status of this coverage can be monitored daily by accessing the Proof of Coverage - Coverage Verification Search tool at www.mass.gov/lwd/workers-compensation/investigations/.

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
PO Box 95

Concord NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Daniel M. Crowley, CPCU, Vice President – Residual Market – WCRIBMA

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

August 3, 2024

APPROVED G & C
DATE 08/30/2024
ITEM # RECEIVED
SEP 09 2024
DES/DWGWB
By

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, NH 03301

REQUESTED ACTION

Authorize the New Hampshire Department of Environmental Services (NHDES) to amend a **SOLE SOURCE** contract (PO#9005857) with JFK Environmental Services LLC (VC # 420596-B001), Gloucester, MA, by increasing the contract by $37,455 from $245,914 to $283,369, revising the scope of work and extending the contract end date to December 31, 2025 from October 31, 2024, effective upon Governor and Council approval. The original agreement was approved by the Governor and Council on October 19, 2022, Item #76. 100% Drinking Water Management Funds.

Funding is available in the following account:

	FY 2025
03-44-44-441018-4790--102-500731	$37,455
Dept. of Environmental Services, DWSRF Loan Management, Contracts for Program Services	

EXPLANATION

NHDES requests approval of this amendment with JFK Environmental Services LLC (JFK) to fund the groundwater rise components of the NH Coastal Flood Risk Summary Update. This agreement is **SOLE SOURCE** because JFK has unique experience of integrating sea-level rise scenarios with groundwater modeling and has the modeling tools and datasets, prior experience and associated modeling efficiencies needed to complete the additional scope of work. The NH Coastal Flood Risk Summary provides science-based and user-informed guiding principles and a step-by-step approach for incorporating the updated coastal flood risk projections into private, local, state, and federal projects, including planning, regulatory and site-specific efforts. The guidance developed through this effort will be valuable to coastal NH communities and state agencies working to manage and protect groundwater resources and other coastal flood risks.

The additional funds are needed due to increase costs in drilling, surveying and equipment. Original estimates are more than two years old, and target locations have been visited and schedules have been put in place to install monitoring wells and purchase devices. Those contractor and equipment costs were updated and have all increased. The data collected will be used to update the Coastal Flood Risk Summary report.

Under the original agreement the modeling for Portsmouth is complete. The model expansion to the other Great Bay and coastal towns is approximately 60% complete. Portsmouth's groundwater level network

configuration is complete and city-owned sites for monitoring wells have been chosen. The City does not want drilling and well installation processes to occur during the summer months and based on City Department's schedules that work is now scheduled for October. Amending the agreement to extend the time period to December 31, 2025 will allow JFK to complete the additional work. To date, $70,537.50 of the original $245,914 has been spent.

In the event that the federal funds become no longer available, general funds will not be requested to support this program. This amendment has been approved by the Office of the Attorney General as to form, execution, and content.

We respectfully request your approval.

Robert R. Scott, Commissioner

AMENDMENT NO. 1
TO AGREEMENT BETWEEN THE
N.H. DEPARTMENT OF ENVIRONMENTAL SERVICES
AND
JFK ENVIRONMENTAL SERVICES LLC

CONTRACT FOR SERVICES – GROUNDWATER RISE MODELING AND MAPPING IN THE NH COASTAL ZONE & VULNERABILTY ASSESSMENT IN PORTSMOUTH

WHEREAS, the State of New Hampshire Department of Environmental Services (NHDES) has entered into an Agreement with JFK Environmental Services LLC in the amount of $245,914 to assist the New Hampshire Department of Environmental Services with conducting a groundwater rise model and mapping in the NH coastal zone and a vulnerability assessment of drinking water sources and infrastructure in Portsmouth, NH, through October 31, 2024, which was approved by Governor and Council on October 19, 2022, as Item #76.

WHEREAS, The Grantee and the State have agreed to amend the Agreement in certain respects;

NOW THEREFORE, amend the original contract between NHDES and JFK Environmental Services LLC as was approved by Governor and Council on October 19, 2022, as Item #76 in the following manner:

1. The Completion Date as set forth in sub-paragraph 1.7 shall be changed from October 31, 2024 to December 31, 2025.

2. The Grant Limitation as set forth in sub-paragraph 1.8 shall be changed from $245,914 to $283,369.

3. Delete Exhibit B, C and Attachment A and replace with Exhibit B–Amendment 1, Exhibit C–Amendment 1 and Attachment A-Amendment 1. Exhibit B-Amendment 1, Exhibit C-Amendment 1 and Attachment A-Amendment 1 are attached hereto and incorporated into this amendment and agreement by reference.

All other conditions outlined in the contract shall remain in effect.

Robert R. Scott, Commissioner
Department of Environmental Services

8/5/24
Date

Jayne F. Knott, Owner
JFK Environmental Services LLC

7/25/2024
Date

Assistant Attorney General
Department of Justice
As to form, Substance, and execution

8/7/2024
Date

EXHIBIT B-Amendment 1
Scope of Services

JFK Environmental Services LLC (HydroPredictions) shall perform the tasks and complete the deliverables outlined below and specifically described in their proposal, entitled "Groundwater Rise Modeling in New Hampshire's Coastal Zone and Vulnerability Assessment in Portsmouth, New Hampshire."

Task 1: Project Team Meetings and Stakeholder Engagement
The project team and stakeholders will meet two times during the project to discuss the modeling and mapping progress and two times to discuss the development of the long-term monitoring network and the Portsmouth vulnerability study. This is necessary to ensure that the project team has access to the most recent and comprehensive groundwater, geological, and asset-based data for these analyses. In addition, these meetings will be important for the municipalities and stakeholders to inform the project team about specific concerns related to groundwater, infrastructure, and water quality. HydroPredictions will work closely with NHDES, NH Geological Survey, the City of Portsmouth, and Jennifer M. Jacobs and Associates, LLC (JMJ) to utilize the most recent and comprehensive data (including pumping test information, GEOLOGs, and the latest LiDAR data) to inform the modeling, mapping, and asset location/description parts of the project.

Task 2: Groundwater Rise Modeling
HydroPredictions proposes to conduct groundwater rise and saltwater intrusion modeling in the coastal-zone communities that have not been modeled. These include Dover, Madbury, Newfields, Rollinsford, and Exeter. In addition, groundwater flow and saltwater intrusion modeling will be conducted in Portsmouth and New Castle. The existing Durham, Newmarket, and Seacoast models will be updated with new data and the mapping results will be revised if necessary.

2.1: Update existing models and expand the groundwater flow and saltwater intrusion models to unmapped communities in the coastal zone
HydroPredictions will update the existing models with new data (including new LiDAR data, if available) and expand existing groundwater and saltwater intrusion models to areas within the coastal zone where groundwater rise has not been simulated. Groundwater modeling of Madbury, Dover and Rollinsford will be accomplished by expanding the Durham model north into these areas. Groundwater modeling of Newfields and Exeter (on the western side of the Squamscott River) will be accomplished by expanding the Newmarket model south into Newfields and Exeter.

2.2: Create a groundwater flow and saltwater intrusion model for Portsmouth and New Castle
A new groundwater model of Portsmouth and New Castle will be constructed to simulate groundwater rise and saltwater intrusion in these areas. This model will build upon the regional database (compiled during the previous modeling efforts) and the MODFLOW groundwater flow model that was completed for the Seacoast region with the following two enhancements. (1) SLR-induced groundwater rise in New Castle, which was not included in the original modeling effort, will be simulated and (2) a SEAWAT model will be constructed

Contractor Initials JJK
Date 7/25/2024

to investigate the potential for saltwater intrusion from groundwater withdrawals and SLR into drinking water sources serving Portsmouth/New Castle communities.

2.3: Present modeling results
HydroPredictions and JMJ will prepare and present the modeling results to project stakeholders.

Task 3: Groundwater Mapping
HydroPredictions proposes to map the present-day water-table (WT) depth in all the coastal-zone communities to help communities complete Step 5 of the Coastal Flood Risk Guidance. HydroPredictions will also map groundwater rise using the groundwater modeling output in ESRI ArcMap for Dover, Durham, Madbury, Portsmouth, New Castle, Newfields, Newmarket, Rollinsford, and Exeter.

3.1: Map Water Table Depth Zones
Areas vulnerable to the impacts of groundwater rise are areas within the Groundwater Rise Zone (GWRZ) where the groundwater table is currently shallow. Hydropredictions will map these areas and will include three WT depth zones: (1) WT less than 15 feet deep, (2) WT less than 10 feet deep, and (3) WT less than 5 feet deep. The WT depth mapping will be accomplished for all the coastal zone communities. To accomplish this, HydroPredictions will update the existing groundwater elevation database collected and analyzed for the previous and proposed modeling efforts and use it to contour existing groundwater elevations in the unconsolidated (shallow) aquifers of the modeled areas. Because many of the groundwater depth measurements in the NHDES and NH Geological Survey databases are relative to land surface, LiDAR land surface elevations will be used to estimate existing groundwater elevations relative to the common datum NAVD88. GIS will then be used to calculate the WT depth zones using LiDAR land surface and groundwater digital elevation models.

3.2: Create groundwater rise maps for the communities not previously mapped
HydroPredictions will generate groundwater-rise maps from the existing groundwater models of Newmarket and Durham and the new models created in Subtasks 2.1 and 2.2.

3.3: Place WT depth maps and groundwater rise maps on the coastal viewer
HydroPredictions will work with personnel at UNH Granit to place the following maps on the coastal viewer: (1) three present-day WT-depth zones, and (2) groundwater-rise maps for previously unmapped communities.

3.4: Present mapping results
HydroPredictions and JMJ will prepare a presentation and present the mapping results to the project stakeholders. Vulnerable areas will in the mapped communities will be highlighted and guidance on how this information can be use in the NH Coastal Flood Risk Guidance will be discussed.

Contractor Initials JFK
Date 7/25/2024

Task 4: Vulnerability Assessment of Drinking Water Sources and Infrastructure in Portsmouth, NH
HydroPredictions proposes to work with NHDES, the City of Portsmouth, and JMJ to assess drinking water quality and infrastructure vulnerabilities due to rising groundwater levels in Portsmouth. Threats to drinking water sources arise from the mobilization and transport of hazardous waste materials and other contaminants in soils from rising groundwater and ground-surface inundation from both tidal water flooding and groundwater inundation. Water-quality degradation and service interruptions may also occur when fresh or saline groundwater infiltrates old or damaged underground utility pipes including water, sewer, and/or gas lines. According to the Portsmouth Capital Improvement Plan, the wastewater collection system and water distribution system consist of more than 120 miles and 150 miles of pipe, respectfully. Many of the pipes are 50 to 100 years old and are reaching the end of their design life. As plans to replace these pipes are underway, it is essential to identify areas where rising groundwater and surface-water flooding are projected to impact underground infrastructure and what adaptation measures can be implemented in future design and construction projects.

4.1: Design a real-time groundwater modeling network
HydroPredictions will work with JMJ, UNH, and the City of Portsmouth to design a real-time groundwater monitoring network. The results of the groundwater rise simulations and mapping studies will be used to design a network of groundwater monitoring wells near the coast for monitoring groundwater levels in real time. The goal of the network is to support a near real-time forecasting/early warning systems of anomalously high groundwater levels and to track long-term groundwater level changes in Portsmouth's historic downtown. For the latter, the network will serve as monitoring program to enable adaptive management of infrastructure. Real-time groundwater measurements in Portsmouth will be compared with SLR measurements at the nearest tidal gauge to investigate and identify the timing and magnitude of the groundwater response as well as the relationship between SLR and groundwater level changes. These relationships will identify preliminary indicators for a forecasting/early warning system. Specific recommendations for siting monitoring wells will be made based on the groundwater modeling results and vulnerability assessments. To perform the work described in Subtask 4.1, it is assumed that HydroPredictions will have access to any existing real-time groundwater measurements that may be available.

4.2: Construct a real-time groundwater monitoring network
HydroPredictions and JMJ will assist the City of Portsmouth in constructing a real-time groundwater monitoring network. Ten shallow wells (~20 feet deep) will be installed on City of Portsmouth land in the downtown area at varying distances from the coast. Specific recommendations for siting the monitoring wells will be made based on the groundwater modeling results and in collaboration with the City of Portsmouth and NHDES.

The wells near tidal water bodies will be used as sentinel wells where the magnitude of groundwater-level increases over time are projected to be the greatest, and the wells farther inland will be used to assess groundwater-level changes with distance from the coast. Because the wells will be long-term monitoring wells, they will be installed with 4" steel protective casings and concrete anchor pads below the frost line. Boring logs and well construction logs will be recorded and provided to NHDES and the City of Portsmouth for all monitoring wells installed. A hydrogeologist will be onsite to supervise well installation. Split

spoon samples will be collected, and the geologic material will be described and categorized using the unified soil classification system (USCS). After installation, the monitoring wells will be surveyed by a NH licensed land surveyor with a 0.1-foot horizontal and a 0.01-foot vertical resolution referenced to NAVD88. The NH State Plane coordinate system will be used to be consistent with the groundwater models.

Each well will be a long-term monitoring well equipped with a water-level logger that measures water-table elevation using a highly accurate pressure sensor adjusted for barometric pressure and temperature detector in a stainless-steel housing with corrosion resistant coating. Measurements will be made in the unconsolidated sediments above the bedrock. Two of the wells will be equipped with specialized water-level loggers capable of measuring water level, temperature and conductivity that can be used to monitor saltwater intrusion and soil salinity. In addition, HydroPredictions will set up a rain logger that records the tips of a tipping-bucket rain gauge. The rain logger is compatible with the water level loggers and will provide local rainfall data to correlate with groundwater-level changes. Groundwater levels and rainfall data will be collected in real time to capture significant water-level events such as king tides, storm surge from nor'easters and tropical cyclones, extreme precipitation events, and long-term changes from sea level rise. Each well and the rain logger will be equipped with a telemetry device (levelsender5) that uses GSM cellular communication to send the water level, temperature, and conductivity data to a home station through a cellular service provider. The data can be sent to 5 email addresses including the home station.

HydroPredictions will work with the City of Portsmouth to determine the optimum measurement and reporting frequencies from the data loggers. HydroPredictions will include a data plan of 5 MB/month that includes sampling every 15 minutes and reporting once/day for 11 sensors (10 wells and one rain gauge). In addition to automatic level logging, HydroPredictions recommends that the City of Portsmouth measure the water levels in the wells manually once per quarter to maintain proper equipment calibration. Maintenance of the monitoring network and the rain gauge will be the responsibility of the City of Portsmouth with guidance from the project team. Data storage and dissemination will be accomplished through one of the following options: UNH platform/system currently collecting data from Strawberry Banke, NHDES database, or establish a dedicated and secure share file site.

4.3: Identify threats to water quality

HydroPredictions will assess the potential for contaminant migrations due to SLR induced groundwater rise. Rising groundwater and ground-surface inundation has the potential to mobilize and transport hazardous waste materials and other contaminants as water (groundwater and surface water) encounter contaminated soils. Threats to drinking water sources (groundwater and surface water) and natural resources from the mobilization and transport of hazardous materials and other contaminants will be identified using a GIS mapping analysis. Vulnerable areas will be identified by combining the groundwater rise maps with the WT-depth zones. Hazardous waste disposal sites will be mapped, and the ones located within the GWRZ where groundwater is shallow will be flagged as areas where contaminants might be mobilized as groundwater levels rise.

Contractor Initials JFK
Date 7/25/2024

To perform the work described in Subtask 4.3, it is assumed that HydroPredictions will have access to hazardous waste disposal site information from the NHDES files including site locations, monitoring well data (both groundwater levels and contaminant concentrations), groundwater flow maps, and geological information including cross-sections and boring logs.

4.4: Identify threats to underground infrastructure

Groundwater rise in areas where groundwater is already shallow may be a risk to drinking water distribution systems, stormwater systems, wastewater treatment plants, wastewater pumping stations, and gas lines. HydroPredictions will identify threats to water, wastewater, and other underground infrastructure by conducting a vulnerability study that captures the exposure of underground infrastructure and characterizes the vulnerability based the sensitivity of the infrastructure and the adaptive capacity of the system. HydroPredictions will use a systems level approach including stakeholder input and an indicator-based GIS mapping study. Exposure will be determined by combining the groundwater rise maps with the WT-depth zones. Sensitivity will be based on infrastructure age and condition. Adaptive capacity will reflect the overall system's ability to cope with future rises in groundwater. Infrastructure may include stormwater systems (BMPs, culverts, existing and proposed stormwater pipes, etc.), sewer and water lines, and critical facilities within the vulnerable areas will be mapped and identified as high priorities for detailed adaptation planning. In performing this analysis, HydroPredictions will rely on the City of Portsmouth to provide us with GIS files and information on underground infrastructure such as depths, age, and condition.

4.5: Map saltwater intrusion into aquifers with SLR

The combination of over-pumping and SLR can lead to saltwater intrusion into public water supply wells. HydroPredictions will conduct saltwater intrusion modeling in the City of Portsmouth using SEAWAT, a saltwater intrusion computer code, with MODFLOW, the groundwater flow computer code. The goal of this investigation is to map relative salt concentrations with current groundwater withdrawals and project how these will change with future projected withdrawals and SLR. This study will help the City of Portsmouth plan future withdrawal volumes and help with the design and placement of new water supply wells. HydroPredictions will rely on the City of Portsmouth and NHDES to provide us with any aquifer/pumping test information collected in the permitting of existing public water supply wells in Portsmouth.

4.6: Contaminant fate and transport modeling

Contaminant fate and transport modeling from one or more of the source areas identified in Subtask 4.3 can be simulated with the MT3D solute transport computer code that is run with the MODFLOW groundwater flow model that will be constructed for Portsmouth. Solute transport modeling is proposed as an optional add-on to the proposed groundwater-rise modeling and mapping work and can be used to determine where the mobilized contaminants will go, what sensitive receptors may be affected, and the timing of the effects. Solute transport modeling can also be used to investigate and evaluate remedial alternatives for the containment or cleanup of groundwater contamination.

4.7: Develop an adaptive management approach for underground infrastructure adaptation

HydroPredictions will work with JMJ and the City of Portsmouth to develop an adaptive management approach for underground infrastructure adaptation using the real-time monitoring network for long-term tracking and decision-making. The team will analyze and recommend adaptation alternatives to be used within an adaptive management approach. The approach would provide adaptation pathways where early actions may transition to other actions in the future, and "signposts" that use the groundwater monitoring information to identify when predetermined adaptations are recommended.

Task 5: Final Report and Presentation of Results

HydroPredictions will prepare two reports: (1) a technical report documenting the model construction, assumptions, calibration, and limitations, and (2) a report of the Portsmouth vulnerability study with results and recommendations. A summary of the Portsmouth study results and recommendations will be prepared and presented to project stakeholders.

Task 6: Participate in 2025 Update of the New Hampshire Coastal Flood Risk Summary

HydroPredictions will participate as a sitting member of the Science and Technical Advisory Panel for the update of the 2025 New Hampshire Coastal Flood Risk Summary. Completion of the plan includes: attendance at up to five advisory panel meetings as a panel member and technical expert on sea level rise-induced groundwater rise in coastal communities, and its potential influence on coastal flooding; authoring a new chapter on coastal groundwater rise for the updated summary; reviewing and responding to internal and external comments on the draft summary report; and reviewing guidance document development for assessing groundwater level rise issues in coastal communities.

Deliverables Schedule

1. Maps in electronic format with accompanying GIS shapefiles or raster files will be produced for all modeled areas and will show groundwater rise, depth to groundwater zones, GWRZ, and vulnerable areas (Due: September 2025).
2. Groundwater Rise and Depth to Groundwater maps will be placed on the NH Coastal Viewer (Due: September – December 2025).
3. A final report on the Portsmouth vulnerability study will be prepared (Due: December 2025). This report will include:
    - Maps showing the locations of vulnerable stormwater assets, utilities, critical facilities, roadway sections, and hazardous disposal areas.
    - Tables presenting the number and/or length of assets that may be vulnerable
    - with rising groundwater.
    - The adaptive capacity of each infrastructure system will be presented by grouping exposed assets according to their sensitivity, i.e., age and condition.
    - Adaptation pathways using a flexible and stepwise adaptive management

Contractor Initials JFK
Date 7/25/2024

approach will be recommended.

4. A technical report on the modeling approach, assumptions, calibration, and limitations will be prepared. This report will also include additional data needs and related analysis gaps (Due: December 31, 2025).
5. A new chapter on sea-level rise induced groundwater rise in the 2025 New Hampshire Coastal Flood Risk Summary (Due: December 31, 2025).

Contractor Initials JFK
Date 11/25/2024

EXHIBIT C – Amendment 1
Method of Payment and Contract Price

The State shall pay to the Contractor the total reimbursable program costs in accordance with the following requirements:

Reimbursement requests for program costs shall be made by the Contractor using a payment request form as supplied by the State, which shall be completed and signed by the Contractor. The payment request form shall be accompanied by proper supporting documentation, including costs incurred per task and any relevant deliverables. Documentation of reimbursable costs may include invoices for supplies, equipment, services, contractual services, and a report of personnel, travel and indirect costs. Payments shall be made to the Contractor no more frequently than monthly.

The total reimbursement shall not exceed $283,369.

Contractor Initials JFK
Date 7/25/2024

ATTACHMENT A – AMENDMENT 1
BUDGET ESTIMATE

Task	Task Subtotals
1.0. Project Team Meetings and Stakeholder Engagement	$2,640
2.1. Update existing models and expand the groundwater flow and saltwater intrusion models to unmapped communities in the coastal zone	$27,720
2.2. Create a groundwater flow and saltwater intrusion model for Portsmouth and New Castle	$19,800
2.3. Present modeling results	$1,980
3.1. Map Water Table Depth Zones	$19,800
3.2. Create groundwater rise maps for the communities not previously mapped	$6,600
3.3. Place WT depth maps and groundwater rise maps on the coastal viewer	$6,600
3.4. Present mapping results	$1,980
4.1. Design a real-time groundwater modeling network	$6,600
4.2. Construct a real-time groundwater monitoring network	$91,082
4.3. Identify threats to water quality	$6,600
4.4. Identify threats to underground infrastructure	$16,500
4.5. Map saltwater intrusion into aquifers with SLR	$6,600
4.6. Contaminant fate and transport modeling	$13,200
4.7. Develop an adaptive management approach for underground infrastructure adaptation	$19,800
5.0. Final Report and Presentation of Results	$11,880
6.0 Attend the Science Technical Advisory Panel meetings for the update of the 2025 New Hampshire Coastal Flood Summary as a member, and author the update of the groundwater level rise and impact chapter.	$23,987
Totals	**$283,369**

Contractor Initials JFK
Date 7/25/2024

Limited Partnership or LLC Certification of Authority

I, Jayne F Knott, **hereby certify** that I am the sole Partner, Member or
(Name)
Manager and the sole officer of JFK Environmental Services LLC a limited liability partnership
(Name of Partnership or LLC)
under RSA 304-B, a limited liability professional partnership under RSA 304-D, or a limited liability company under RSA 304-C.

I certify that I am authorized to bind the partnership or LLC. I further certify that it is understood that the State of New Hampshire will rely on this certificate as evidence that the person listed above currently occupies the position indicated and that they have full authority to bind the partnership or LLC and that this authorization **shall remain valid for thirty (30)** days from the date of this Corporate Resolution.

DATED: 7/25/2024 **ATTEST:** Jayne F. Knott
Jayne F. Knott
Owner

State of New Hampshire

Department of State

CERTIFICATE

I, David M. Scanlan, Secretary of State of the State of New Hampshire, do hereby certify that JFK ENVIRONMENTAL SERVICES LLC is a Massachusetts Limited Liability Company registered to transact business in New Hampshire on August 22, 2022. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: **909421**

Certificate Number: **0006735669**

IN TESTIMONY WHEREOF,

I hereto set my hand and cause to be affixed the Seal of the State of New Hampshire, this 12th day of July A.D. 2024.

David M. Scanlan

Secretary of State

JFKENVI-01 JMILLS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 7/19/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER License # 1780862 HUB International New England 600 Longwater Drive Norwell, MA 02061-9146	CONTACT NAME: PHONE (A/C, No, Ext): (781) 792-3200 FAX (A/C, No): (781) 792-3400 E-MAIL ADDRESS:
	INSURER(S) AFFORDING COVERAGE — NAIC #
	INSURER A : Nautilus Insurance Company — 17370
INSURED JFK Environmental Services LLC P. O. Box 29 Gloucester, MA 01931	INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY							
	CLAIMS-MADE X OCCUR			ECP2031040-14	1/1/2024	1/1/2025	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:						POLLUTION LIABI	$ 1,000,000
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO							
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per person)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident)	$
							PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liab			ECP2031040-14	1/1/2024	1/1/2025	$2,500 Deductible	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
P. O. Box 95
Concord, NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Marda J. Keaney

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 07/30/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Norma Jean Fowler	
HUB INTERNATIONAL NEW ENGLAND LLC	PHONE (A/C, No, Ext): (978) 661-6862	FAX (A/C, No):
600 LONGWATER DRIVE	E-MAIL ADDRESS: Normajean.Fowler@hubinternational.com	
NORWELL MA 02061	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A : ACE AMERICAN INSURANCE CO	22667
JFK ENVIRONMENTAL SERVICES LLC	INSURER B :	
	INSURER C :	
PO BOX 29	INSURER D :	
GLOUCESTER MA 01931	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** 1031364 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
				N/A			PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS			N/A			BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB ☐ CLAIMS-MADE			N/A			AGGREGATE	$
	DED ☐ RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☒ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N/A (Mandatory in NH)	N/A	N/A	6S62UB4N77986624	01/21/2024	01/21/2025	E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
				N/A				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Workers' Compensation benefits will be paid to Massachusetts employees only. Pursuant to Endorsement WC 20 03 06 B, no authorization is given to pay claims for benefits to employees in states other than Massachusetts if the insured hires, or has hired those employees outside of Massachusetts.

This certificate of insurance shows the policy in force on the date that this certificate was issued (unless the expiration date on the above policy precedes the issue date of this certificate of insurance). The status of this coverage can be monitored daily by accessing the Proof of Coverage - Coverage Verification Search tool at www.mass.gov/lwd/workers-compensation/investigations/.

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
PO Box 95

Concord NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Daniel M. Crowley, CPCU, Vice President – Residual Market – WCRIBMA

The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner

September 22, 2022

His Excellency, Governor Christopher T. Sununu
and the Honorable Council
State House
Concord, NH 03301

APPROVED G & C
DATE 19 October 2022
ITEM # 7H

REQUESTED ACTION

Authorize the Department of Environmental Services (NHDES) to enter into a **SOLE SOURCE** contract with JFK Environmental Services LLC (VC # 420596-B001), Gloucester, MA, for a total of $245,914 to conduct groundwater rise modeling and mapping in the NH coastal zone and a vulnerability assessment of drinking water sources and infrastructure in Portsmouth, NH, effective upon Governor and Council approval through October 31, 2024. 81.3% Federal, 18.7% DW Management Funds.

Funding is available in the accounts as follows:

	FY 2023
03-44-44-441018-4718–102-500731 Dept. of Environmental Services, DWSRF Administration, Contracts for Program Services	$200,000
03-44-44-441018-4790–102-500731 Dept. of Environmental Services, DWSRF Loan Management, Contracts for Program Services	$45,914

EXPLANATION

This agreement is **SOLE SOURCE** because JFK Environmental Services has the unique experience of integrating sea-level rise (SLR) scenarios with groundwater modeling and have developed the existing groundwater models for the Towns of Newmarket and Durham, which will be expanded through this project into other communities where groundwater modeling has not been completed and groundwater rise has not been simulated. JFK Environmental Services have the modeling tools and datasets in place to create a model that is compatible with the existing groundwater models in the NH coastal zone. Due to the project team's prior experience and associated modeling efficiencies, the proposed study will not only focus on SLR-induced groundwater rise and saltwater intrusion, but also potential impacts to drinking water sources and infrastructure.

Groundwater modeling and groundwater rise mapping has already been completed in the NH coastal zone east of Great Bay. This agreement will enable JFK Environmental Services to work with NHDES to complete groundwater modeling and groundwater rise mapping for Dover, Exeter, Madbury, New Castle, Newfields, Portsmouth, and Rollinsford. The results of this modeling effort will be publicly available for municipalities, state agencies, residents, and other stakeholders to better understand flood risk for a variety of SLR scenarios and the risk of saltwater intrusion. Additionally, this contract will enable JFK Environmental Services to support the City of Portsmouth by assessing drinking water quality and infrastructure

vulnerabilities due to rising groundwater levels. Many underground utility pipes in Portsmouth are 50-100 years old, and as plans to replace these pipes progress, it is essential to identify areas where rising groundwater and surface-water flooding are projected to impact underground infrastructure and what adaptation measures can be implemented in future design and construction projects.

Total project costs for this agreement are $245,914. NHDES will provide 100% of project costs through federal and other funds. In the event that the Federal and other funds become no longer available, general funds will not be requested to perform this work.

This agreement has been approved by the Department of Justice as to form, substance and execution.

We respectfully request your approval.

Robert R. Scott, Commissioner

Notice: This agreement and all of its attachments shall become public upon submission to Governor and Executive Council for approval. Any information that is private, confidential or proprietary must be clearly identified to the agency and agreed to in writing prior to signing the contract.

AGREEMENT

The State of New Hampshire and the Contractor hereby mutually agree as follows:

GENERAL PROVISIONS

1. IDENTIFICATION.

1.1 State Agency Name New Hampshire Department of Environmental Services		1.2 State Agency Address 29 Hazen Drive, Concord, NH 03302-0095	
1.3 Contractor Name JFK Environmental Services LLC		1.4 Contractor Address 29 Salt Island Road, Gloucester, MA 01930	
1.5 Contractor Phone Number 508-344-2831	1.6 Account Number 03-44-44-441018-4718-102 03-44-44-441018-4790-102	1.7 Completion Date October 31, 2024	1.8 Price Limitation $245,914
1.9 Contracting Officer for State Agency Steve Couture, Coastal Program		1.10 State Agency Telephone Number 603-559-0027	
1.11 Contractor Signature Jayne F. Knott Date: 8/23/22		1.12 Name and Title of Contractor Signatory Jayne F. Knott, Owner	
1.13 State Agency Signature Date: 9/23/22		1.14 Name and Title of State Agency Signatory Robert R. Scott Commissioner, NHDES	
1.15 Approval by the N.H. Department of Administration, Division of Personnel *(if applicable)* By:		Director, On:	
1.16 Approval by the Attorney General (Form, Substance and Execution) *(if applicable)* By:		On: 9/30/2022	
1.17 Approval by the Governor and Executive Council *(if applicable)* G&C Item number:		G&C Meeting Date:	

Contractor Initials JFK
Date 8/23/22

2. SERVICES TO BE PERFORMED. The State of New Hampshire, acting through the agency identified in block 1.1 ("State"), engages contractor identified in block 1.3 ("Contractor") to perform, and the Contractor shall perform, the work or sale of goods, or both, identified and more particularly described in the attached EXHIBIT B which is incorporated herein by reference ("Services").

3. EFFECTIVE DATE/COMPLETION OF SERVICES.

3.1 Notwithstanding any provision of this Agreement to the contrary, and subject to the approval of the Governor and Executive Council of the State of New Hampshire, if applicable, this Agreement, and all obligations of the parties hereunder, shall become effective on the date the Governor and Executive Council approve this Agreement as indicated in block 1.17, unless no such approval is required, in which case the Agreement shall become effective on the date the Agreement is signed by the State Agency as shown in block 1.13 ("Effective Date").

3.2 If the Contractor commences the Services prior to the Effective Date, all Services performed by the Contractor prior to the Effective Date shall be performed at the sole risk of the Contractor, and in the event that this Agreement does not become effective, the State shall have no liability to the Contractor, including without limitation, any obligation to pay the Contractor for any costs incurred or Services performed. Contractor must complete all Services by the Completion Date specified in block 1.7.

4. CONDITIONAL NATURE OF AGREEMENT.

Notwithstanding any provision of this Agreement to the contrary, all obligations of the State hereunder, including, without limitation, the continuance of payments hereunder, are contingent upon the availability and continued appropriation of funds affected by any state or federal legislative or executive action that reduces, eliminates or otherwise modifies the appropriation or availability of funding for this Agreement and the Scope for Services provided in EXHIBIT B, in whole or in part. In no event shall the State be liable for any payments hereunder in excess of such available appropriated funds. In the event of a reduction or termination of appropriated funds, the State shall have the right to withhold payment until such funds become available, if ever, and shall have the right to reduce or terminate the Services under this Agreement immediately upon giving the Contractor notice of such reduction or termination. The State shall not be required to transfer funds from any other account or source to the Account identified in block 1.6 in the event funds in that Account are reduced or unavailable.

5. CONTRACT PRICE/PRICE LIMITATION/ PAYMENT.

5.1 The contract price, method of payment, and terms of payment are identified and more particularly described in EXHIBIT C which is incorporated herein by reference.

5.2 The payment by the State of the contract price shall be the only and the complete reimbursement to the Contractor for all expenses, of whatever nature incurred by the Contractor in the performance hereof, and shall be the only and the complete compensation to the Contractor for the Services. The State shall have no liability to the Contractor other than the contract price.

5.3 The State reserves the right to offset from any amounts otherwise payable to the Contractor under this Agreement those liquidated amounts required or permitted by N.H. RSA 80:7 through RSA 80:7-c or any other provision of law.

5.4 Notwithstanding any provision in this Agreement to the contrary, and notwithstanding unexpected circumstances, in no event shall the total of all payments authorized, or actually made hereunder, exceed the Price Limitation set forth in block 1.8.

6. COMPLIANCE BY CONTRACTOR WITH LAWS AND REGULATIONS/ EQUAL EMPLOYMENT OPPORTUNITY.

6.1 In connection with the performance of the Services, the Contractor shall comply with all applicable statutes, laws, regulations, and orders of federal, state, county or municipal authorities which impose any obligation or duty upon the Contractor, including, but not limited to, civil rights and equal employment opportunity laws. In addition, if this Agreement is funded in any part by monies of the United States, the Contractor shall comply with all federal executive orders, rules, regulations and statutes, and with any rules, regulations and guidelines as the State or the United States issue to implement these regulations. The Contractor shall also comply with all applicable intellectual property laws.

6.2 During the term of this Agreement, the Contractor shall not discriminate against employees or applicants for employment because of race, color, religion, creed, age, sex, handicap, sexual orientation, or national origin and will take affirmative action to prevent such discrimination.

6.3. The Contractor agrees to permit the State or United States access to any of the Contractor's books, records and accounts for the purpose of ascertaining compliance with all rules, regulations and orders, and the covenants, terms and conditions of this Agreement.

7. PERSONNEL.

7.1 The Contractor shall at its own expense provide all personnel necessary to perform the Services. The Contractor warrants that all personnel engaged in the Services shall be qualified to perform the Services, and shall be properly licensed and otherwise authorized to do so under all applicable laws.

7.2 Unless otherwise authorized in writing, during the term of this Agreement, and for a period of six (6) months after the Completion Date in block 1.7, the Contractor shall not hire, and shall not permit any subcontractor or other person, firm or corporation with whom it is engaged in a combined effort to perform the Services to hire, any person who is a State employee or official, who is materially involved in the procurement, administration or performance of this Agreement. This provision shall survive termination of this Agreement.

7.3 The Contracting Officer specified in block 1.9, or his or her successor, shall be the State's representative. In the event of any dispute concerning the interpretation of this Agreement, the Contracting Officer's decision shall be final for the State.

Contractor Initials CK

Date 08/23/22

8. EVENT OF DEFAULT/REMEDIES.

8.1 Any one or more of the following acts or omissions of the Contractor shall constitute an event of default hereunder ("Event of Default"):

8.1.1 failure to perform the Services satisfactorily or on schedule;

8.1.2 failure to submit any report required hereunder; and/or

8.1.3 failure to perform any other covenant, term or condition of this Agreement.

8.2 Upon the occurrence of any Event of Default, the State may take any one, or more, or all, of the following actions:

8.2.1 give the Contractor a written notice specifying the Event of Default and requiring it to be remedied within, in the absence of a greater or lesser specification of time, thirty (30) days from the date of the notice; and if the Event of Default is not timely cured, terminate this Agreement, effective two (2) days after giving the Contractor notice of termination;

8.2.2 give the Contractor a written notice specifying the Event of Default and suspending all payments to be made under this Agreement and ordering that the portion of the contract price which would otherwise accrue to the Contractor during the period from the date of such notice until such time as the State determines that the Contractor has cured the Event of Default shall never be paid to the Contractor;

8.2.3 give the Contractor a written notice specifying the Event of Default and set off against any other obligations the State may owe to the Contractor any damages the State suffers by reason of any Event of Default; and/or

8.2.4 give the Contractor a written notice specifying the Event of Default, treat the Agreement as breached, terminate the Agreement and pursue any of its remedies at law or in equity, or both.

8.3. No failure by the State to enforce any provisions hereof after any Event of Default shall be deemed a waiver of its rights with regard to that Event of Default, or any subsequent Event of Default. No express failure to enforce any Event of Default shall be deemed a waiver of the right of the State to enforce each and all of the provisions hereof upon any further or other Event of Default on the part of the Contractor.

9. TERMINATION.

9.1 Notwithstanding paragraph 8, the State may, at its sole discretion, terminate the Agreement for any reason, in whole or in part, by thirty (30) days written notice to the Contractor that the State is exercising its option to terminate the Agreement.

9.2 In the event of an early termination of this Agreement for any reason other than the completion of the Services, the Contractor shall, at the State's discretion, deliver to the Contracting Officer, not later than fifteen (15) days after the date of termination, a report ("Termination Report") describing in detail all Services performed, and the contract price earned, to and including the date of termination. The form, subject matter, content, and number of copies of the Termination Report shall be identical to those of any Final Report described in the attached EXHIBIT B. In addition, at the State's discretion, the Contractor shall, within 15 days of notice of early termination, develop and submit to the State a Transition Plan for services under the Agreement.

10. DATA/ACCESS/CONFIDENTIALITY/ PRESERVATION.

10.1 As used in this Agreement, the word "data" shall mean all information and things developed or obtained during the performance of, or acquired or developed by reason of, this Agreement, including, but not limited to, all studies, reports, files, formulae, surveys, maps, charts, sound recordings, video recordings, pictorial reproductions, drawings, analyses, graphic representations, computer programs, computer printouts, notes, letters, memoranda, papers, and documents, all whether finished or unfinished.

10.2 All data and any property which has been received from the State or purchased with funds provided for that purpose under this Agreement, shall be the property of the State, and shall be returned to the State upon demand or upon termination of this Agreement for any reason.

10.3 Confidentiality of data shall be governed by N.H. RSA chapter 91-A or other existing law. Disclosure of data requires prior written approval of the State.

11. CONTRACTOR'S RELATION TO THE STATE. In the performance of this Agreement the Contractor is in all respects an independent contractor, and is neither an agent nor an employee of the State. Neither the Contractor nor any of its officers, employees, agents or members shall have authority to bind the State or receive any benefits, workers' compensation or other emoluments provided by the State to its employees.

12. ASSIGNMENT/DELEGATION/SUBCONTRACTS.

12.1 The Contractor shall not assign, or otherwise transfer any interest in this Agreement without the prior written notice, which shall be provided to the State at least fifteen (15) days prior to the assignment, and a written consent of the State. For purposes of this paragraph, a Change of Control shall constitute assignment. "Change of Control" means (a) merger, consolidation, or a transaction or series of related transactions in which a third party, together with its affiliates, becomes the direct or indirect owner of fifty percent (50%) or more of the voting shares or similar equity interests, or combined voting power of the Contractor, or (b) the sale of all or substantially all of the assets of the Contractor.

12.2 None of the Services shall be subcontracted by the Contractor without prior written notice and consent of the State. The State is entitled to copies of all subcontracts and assignment agreements and shall not be bound by any provisions contained in a subcontract or an assignment agreement to which it is not a party.

13. INDEMNIFICATION. Unless otherwise exempted by law, the Contractor shall indemnify and hold harmless the State, its officers and employees, from and against any and all claims, liabilities and costs for any personal injury or property damages, patent or copyright infringement, or other claims asserted against the State, its officers or employees, which arise out of (or which may be claimed to arise out of) the acts or omission of the

Contractor Initials QTK

Date 12/23/20

Contractor, or subcontractors, including but not limited to the negligence, reckless or intentional conduct. The State shall not be liable for any costs incurred by the Contractor arising under this paragraph 13. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the State, which immunity is hereby reserved to the State. This covenant in paragraph 13 shall survive the termination of this Agreement.

14. INSURANCE.

14.1 The Contractor shall, at its sole expense, obtain and continuously maintain in force, and shall require any subcontractor or assignee to obtain and maintain in force, the following insurance:

14.1.1 commercial general liability insurance against all claims of bodily injury, death or property damage, in amounts of not less than $1,000,000 per occurrence and $2,000,000 aggregate or excess; and

14.1.2 special cause of loss coverage form covering all property subject to subparagraph 10.2 herein, in an amount not less than 80% of the whole replacement value of the property.

14.2 The policies described in subparagraph 14.1 herein shall be on policy forms and endorsements approved for use in the State of New Hampshire by the N.H. Department of Insurance, and issued by insurers licensed in the State of New Hampshire.

14.3 The Contractor shall furnish to the Contracting Officer identified in block 1.9, or his or her successor, a certificate(s) of insurance for all insurance required under this Agreement. Contractor shall also furnish to the Contracting Officer identified in block 1.9, or his or her successor, certificate(s) of insurance for all renewal(s) of insurance required under this Agreement no later than ten (10) days prior to the expiration date of each insurance policy. The certificate(s) of insurance and any renewals thereof shall be attached and are incorporated herein by reference.

15. WORKERS' COMPENSATION.

15.1 By signing this agreement, the Contractor agrees, certifies and warrants that the Contractor is in compliance with or exempt from, the requirements of N.H. RSA chapter 281-A *("Workers' Compensation")*.

15.2 To the extent the Contractor is subject to the requirements of N.H. RSA chapter 281-A, Contractor shall maintain, and require any subcontractor or assignee to secure and maintain, payment of Workers' Compensation in connection with activities which the person proposes to undertake pursuant to this Agreement. The Contractor shall furnish the Contracting Officer identified in block 1.9, or his or her successor, proof of Workers' Compensation in the manner described in N.H. RSA chapter 281-A and any applicable renewal(s) thereof, which shall be attached and are incorporated herein by reference. The State shall not be responsible for payment of any Workers' Compensation premiums or for any other claim or benefit for Contractor, or any subcontractor or employee of Contractor, which might arise under applicable State of New Hampshire Workers' Compensation laws in connection with the performance of the Services under this Agreement.

16. NOTICE. Any notice by a party hereto to the other party shall be deemed to have been duly delivered or given at the time of mailing by certified mail, postage prepaid, in a United States Post Office addressed to the parties at the addresses given in blocks 1.2 and 1.4, herein.

17. AMENDMENT. This Agreement may be amended, waived or discharged only by an instrument in writing signed by the parties hereto and only after approval of such amendment, waiver or discharge by the Governor and Executive Council of the State of New Hampshire unless no such approval is required under the circumstances pursuant to State law, rule or policy.

18. CHOICE OF LAW AND FORUM. This Agreement shall be governed, interpreted and construed in accordance with the laws of the State of New Hampshire, and is binding upon and inures to the benefit of the parties and their respective successors and assigns. The wording used in this Agreement is the wording chosen by the parties to express their mutual intent, and no rule of construction shall be applied against or in favor of any party. Any actions arising out of this Agreement shall be brought and maintained in New Hampshire Superior Court which shall have exclusive jurisdiction thereof.

19. CONFLICTING TERMS. In the event of a conflict between the terms of this P-37 form (as modified in EXHIBIT A) and/or attachments and amendment thereof, the terms of the P-37 (as modified in EXHIBIT A) shall control.

20. THIRD PARTIES. The parties hereto do not intend to benefit any third parties and this Agreement shall not be construed to confer any such benefit.

21. HEADINGS. The headings throughout the Agreement are for reference purposes only, and the words contained therein shall in no way be held to explain, modify, amplify or aid in the interpretation, construction or meaning of the provisions of this Agreement.

22. SPECIAL PROVISIONS. Additional or modifying provisions set forth in the attached EXHIBIT A are incorporated herein by reference.

23. SEVERABILITY. In the event any of the provisions of this Agreement are held by a court of competent jurisdiction to be contrary to any state or federal law, the remaining provisions of this Agreement will remain in full force and effect.

24. ENTIRE AGREEMENT. This Agreement, which may be executed in a number of counterparts, each of which shall be deemed an original, constitutes the entire agreement and understanding between the parties, and supersedes all prior agreements and understandings with respect to the subject matter hereof.

Contractor Initials [signature]

Date 2/23/22

Exhibit A
Special Provisions

In addition to the General Provisions of Paragraph 1 through 24, the following provisions as required by federal regulations apply to this Agreement:

Federal Funds paid under this Agreement are from a Grant to the State from United States Environmental Protection Agency, New Hampshire Drinking Water State Revolving Fund under CFDA #66.468. All applicable requirements, regulations, provisions, terms and conditions of this Federal Grant are hereby adopted in full force and effect to the relationship between the New Hampshire Department of Environmental Services (NHDES) and the Contractor. Additionally, the Contractor shall comply with the terms of the FFATA by providing NHDES with their Unique Entity Identifier (Unique Entity ID), and all applicable Executive Compensation Data information as required under the FFATA.

Contractor Initials
Date 8/23/22

Exhibit B
Scope of Services

JFK Environmental Services LLC (HydroPredictions) shall perform the tasks and complete the deliverables outlined below and specifically described in their proposal, entitled "Groundwater Rise Modeling in New Hampshire's Coastal Zone and Vulnerability Assessment in Portsmouth, New Hampshire."

Task 1: Project Team Meetings and Stakeholder Engagement
The project team and stakeholders will meet two times during the project to discuss the modeling and mapping progress and two times to discuss the development of the long-term monitoring network and the Portsmouth vulnerability study. This is necessary to ensure that the project team has access to the most recent and comprehensive groundwater, geological, and asset-based data for these analyses. In addition, these meetings will be important for the municipalities and stakeholders to inform the project team about specific concerns related to groundwater, infrastructure, and water quality. HydroPredictions will work closely with NHDES, NH Geological Survey, the City of Portsmouth, and Jennifer M. Jacobs and Associates, LLC (JMJ) to utilize the most recent and comprehensive data (including pumping test information, GEOLOGs, and the latest LiDAR data) to inform the modeling, mapping, and asset location/description parts of the project.

Task 2: Groundwater Rise Modeling
HydroPredictions proposes to conduct groundwater rise and saltwater intrusion modeling in the coastal-zone communities that have not been modeled. These include Dover, Madbury, Newfields, Rollinsford, and Exeter. In addition, groundwater flow and saltwater intrusion modeling will be conducted in Portsmouth and New Castle. The existing Durham, Newmarket, and Seacoast models will be updated with new data and the mapping results will be revised if necessary.

2.1: Update existing models and expand the groundwater flow and saltwater intrusion models to unmapped communities in the coastal zone
HydroPredictions will update the existing models with new data (including new LiDAR data, if available) and expand existing groundwater and saltwater intrusion models to areas within the coastal zone where groundwater rise has not been simulated. Groundwater modeling of Madbury, Dover and Rollinsford will be accomplished by expanding the Durham model north into these areas. Groundwater modeling of Newfields and Exeter (on the western side of the Squamscott River) will be accomplished by expanding the Newmarket model south into Newfields and Exeter.

2.2: Create a groundwater flow and saltwater intrusion model for Portsmouth and New Castle
A new groundwater model of Portsmouth and New Castle will be constructed to simulate groundwater rise and saltwater intrusion in these areas. This model will build upon the regional database (compiled during the previous modeling efforts) and the MODFLOW groundwater flow model that was completed for the Seacoast region with the following two enhancements. (1) SLR-induced groundwater rise in New Castle, which was not included in the original modeling effort, will be simulated and (2) a SEAWAT model will be constructed to investigate the potential for saltwater intrusion from groundwater withdrawals and SLR into drinking water sources serving Portsmouth/New Castle communities.

2.3: Present modeling results
HydroPredictions and JMJ will prepare and present the modeling results to project stakeholders.

Task 3: Groundwater Mapping
HydroPredictions proposes to map the present-day water-table (WT) depth in all the coastal-zone communities to help communities complete Step 5 of the Coastal Flood Risk Guidance. HydroPredictions will also map groundwater rise using the groundwater modeling output in ESRI ArcMap for Dover, Durham, Madbury, Portsmouth, New Castle, Newfields, Newmarket, Rollinsford, and Exeter.

3.1: Map Water Table Depth Zones
Areas vulnerable to the impacts of groundwater rise are areas within the Groundwater Rise Zone (GWRZ) where the groundwater table is currently shallow. Hydropredictions will map these areas and will include

Contractor Initials
Date 8/23/22

three WT depth zones: (1) WT less than 15 feet deep, (2) WT less than 10 feet deep, and (3) WT less than 5 feet deep. The WT depth mapping will be accomplished for all the coastal zone communities. To accomplish this, HydroPredictions will update the existing groundwater elevation database collected and analyzed for the previous and proposed modeling efforts and use it to contour existing groundwater elevations in the unconsolidated (shallow) aquifers of the modeled areas. Because many of the groundwater depth measurements in the NHDES and NH Geological Survey databases are relative to land surface, LiDAR land surface elevations will be used to estimate existing groundwater elevations relative to the common datum NAVD88. GIS will then be used to calculate the WT depth zones using LiDAR land surface and groundwater digital elevation models.

3.2: Create groundwater rise maps for the communities not previously mapped
HydroPredictions will generate groundwater-rise maps from the existing groundwater models of Newmarket and Durham and the new models created in Subtasks 2.1 and 2.2.

3.3: Place WT depth maps and groundwater rise maps on the coastal viewer
HydroPredictions will work with personnel at UNH Granit to place the following maps on the coastal viewer: (1) three present-day WT-depth zones, and (2) groundwater-rise maps for previously unmapped communities.

3.4: Present mapping results
HydroPredictions and JMJ will prepare a presentation and present the mapping results to the project stakeholders. Vulnerable areas will in the mapped communities will be highlighted and guidance on how this information can be use in the NH Coastal Flood Risk Guidance will be discussed.

Task 4: Vulnerability Assessment of Drinking Water Sources and Infrastructure in Portsmouth, NH
HydroPredictions proposes to work with NHDES, the City of Portsmouth, and JMJ to assess drinking water quality and infrastructure vulnerabilities due to rising groundwater levels in Portsmouth. Threats to drinking water sources arise from the mobilization and transport of hazardous waste materials and other contaminants in soils from rising groundwater and ground-surface inundation from both tidal water flooding and groundwater inundation. Water-quality degradation and service interruptions may also occur when fresh or saline groundwater infiltrates old or damaged underground utility pipes including water, sewer, and/or gas lines. According to the Portsmouth Capital Improvement Plan, the wastewater collection system and water distribution system consist of more than 120 miles and 150 miles of pipe, respectfully. Many of the pipes are 50 to 100 years old and are reaching the end of their design life. As plans to replace these pipes are underway, it is essential to identify areas where rising groundwater and surface-water flooding are projected to impact underground infrastructure and what adaptation measures can be implemented in future design and construction projects.

4.1: Design a real-time groundwater modeling network
HydroPredictions will work with JMJ, UNH, and the City of Portsmouth to design a real-time groundwater monitoring network. The results of the groundwater rise simulations and mapping studies will be used to design a network of groundwater monitoring wells near the coast for monitoring groundwater levels in real time. The goal of the network is to support a near real-time forecasting/early warning systems of anomalously high groundwater levels and to track long-term groundwater level changes in Portsmouth's historic downtown. For the latter, the network will serve as monitoring program to enable adaptive management of infrastructure. Real-time groundwater measurements in Portsmouth will be compared with SLR measurements at the nearest tidal gauge to investigate and identify the timing and magnitude of the groundwater response as well as the relationship between SLR and groundwater level changes. These relationships will identify preliminary indicators for a forecasting/early warning system. Specific recommendations for siting monitoring wells will be made based on the groundwater modeling results and vulnerability assessments. To perform the work described in Subtask 4.1, it is assumed that HydroPredictions will have access to any existing real-time groundwater measurements that may be available.

Contractor Initials JJK
Date 12/27/22

4.2: Construct a real-time groundwater monitoring network
HydroPredictions and JMJ will assist the City of Portsmouth in constructing a real-time groundwater monitoring network. Ten shallow wells (~20 feet deep) will be installed on City of Portsmouth land in the downtown area at varying distances from the coast. Specific recommendations for siting the monitoring wells will be made based on the groundwater modeling results and in collaboration with the City of Portsmouth and NHDES.

The wells near tidal water bodies will be used as sentinel wells where the magnitude of groundwater-level increases over time are projected to be the greatest, and the wells farther inland will be used to assess groundwater-level changes with distance from the coast. Because the wells will be long-term monitoring wells, they will be installed with 4" steel protective casings and concrete anchor pads below the frost line. Boring logs and well construction logs will be recorded and provided to NHDES and the City of Portsmouth for all monitoring wells installed. A hydrogeologist will be onsite to supervise well installation. Split spoon samples will be collected, and the geologic material will be described and categorized using the unified soil classification system (USCS). After installation, the monitoring wells will be surveyed by a NH licensed land surveyor with a 0.1-foot horizontal and a 0.01-foot vertical resolution referenced to NAVD88. The NH State Plane coordinate system will be used to be consistent with the groundwater models.

Each well will be a long-term monitoring well equipped with a water-level logger that measures water-table elevation using a highly accurate pressure sensor adjusted for barometric pressure and temperature detector in a stainless-steel housing with corrosion resistant coating. Measurements will be made in the unconsolidated sediments above the bedrock. Two of the wells will be equipped with specialized water-level loggers capable of measuring water level, temperature and conductivity that can be used to monitor saltwater intrusion and soil salinity. In addition, HydroPredictions will set up a rain logger that records the tips of a tipping-bucket rain gauge. The rain logger is compatible with the water level loggers and will provide local rainfall data to correlate with groundwater-level changes. Groundwater levels and rainfall data will be collected in real time to capture significant water-level events such as king tides, storm surge from nor'easters and tropical cyclones, extreme precipitation events, and long-term changes from sea level rise. Each well and the rain logger will be equipped with a telemetry device (levelsender5) that uses GSM cellular communication to send the water level, temperature, and conductivity data to a home station through a cellular service provider. The data can be sent to 5 email addresses including the home station.

HydroPredictions will work with the City of Portsmouth to determine the optimum measurement and reporting frequencies from the data loggers. HydroPredictions will include a data plan of 5 MB/month that includes sampling every 15 minutes and reporting once/day for 11 sensors (10 wells and one rain gauge). In addition to automatic level logging, HydroPredictions recommends that the City of Portsmouth measure the water levels in the wells manually once per quarter to maintain proper equipment calibration. Maintenance of the monitoring network and the rain gauge will be the responsibility of the City of Portsmouth with guidance from the project team. Data storage and dissemination will be accomplished through one of the following options: UNH platform/system currently collecting data from Strawberry Banke, NHDES database, or establish a dedicated and secure share file site.

4.3: Identify threats to water quality
HydroPredictions will assess the potential for contaminant migrations due to SLR induced groundwater rise. Rising groundwater and ground-surface inundation has the potential to mobilize and transport hazardous waste materials and other contaminants as water (groundwater and surface water) encounter contaminated soils. Threats to drinking water sources (groundwater and surface water) and natural resources from the mobilization and transport of hazardous materials and other contaminants will be identified using a GIS mapping analysis. Vulnerable areas will be identified by combining the groundwater rise maps with the WT-depth zones. Hazardous waste disposal sites will be mapped, and the ones located within the GWRZ where groundwater is shallow will be flagged as areas where contaminants might be mobilized as groundwater levels rise.

To perform the work described in Subtask 4.3, it is assumed that HydroPredictions will have access to hazardous waste disposal site information from the NHDES files including site locations, monitoring well

Contractor Initials
Date 12/13/22

data (both groundwater levels and contaminant concentrations), groundwater flow maps, and geological information including cross-sections and boring logs.

4.4: Identify threats to underground infrastructure
Groundwater rise in areas where groundwater is already shallow may be a risk to drinking water distribution systems, stormwater systems, wastewater treatment plants, wastewater pumping stations, and gas lines. HydroPredictions will identify threats to water, wastewater, and other underground infrastructure by conducting a vulnerability study that captures the exposure of underground infrastructure and characterizes the vulnerability based the sensitivity of the infrastructure and the adaptive capacity of the system. HydroPredictions will use a systems level approach including stakeholder input and an indicator-based GIS mapping study. Exposure will be determined by combining the groundwater rise maps with the WT-depth zones. Sensitivity will be based on infrastructure age and condition. Adaptive capacity will reflect the overall system's ability to cope with future rises in groundwater. Infrastructure may include stormwater systems (BMPs, culverts, existing and proposed stormwater pipes, etc.), sewer and water lines, and critical facilities within the vulnerable areas will be mapped and identified as high priorities for detailed adaptation planning. In performing this analysis, HydroPredictions will rely on the City of Portsmouth to provide us with GIS files and information on underground infrastructure such as depths, age, and condition.

4.5: Map saltwater intrusion into aquifers with SLR
The combination of over-pumping and SLR can lead to saltwater intrusion into public water supply wells. HydroPredictions will conduct saltwater intrusion modeling in the City of Portsmouth using SEAWAT, a saltwater intrusion computer code, with MODFLOW, the groundwater flow computer code. The goal of this investigation is to map relative salt concentrations with current groundwater withdrawals and project how these will change with future projected withdrawals and SLR. This study will help the City of Portsmouth plan future withdrawal volumes and help with the design and placement of new water supply wells. HydroPredictions will rely on the City of Portsmouth and NHDES to provide us with any aquifer/pumping test information collected in the permitting of existing public water supply wells in Portsmouth.

4.6: Contaminant fate and transport modeling
Contaminant fate and transport modeling from one or more of the source areas identified in Subtask 4.3 can be simulated with the MT3D solute transport computer code that is run with the MODFLOW groundwater flow model that will be constructed for Portsmouth. Solute transport modeling is proposed as an optional add-on to the proposed groundwater-rise modeling and mapping work and can be used to determine where the mobilized contaminants will go, what sensitive receptors may be affected, and the timing of the effects. Solute transport modeling can also be used to investigate and evaluate remedial alternatives for the containment or cleanup of groundwater contamination.

4.7: Develop an adaptive management approach for underground infrastructure adaptation
HydroPredictions will work with JMJ and the City of Portsmouth to develop an adaptive management approach for underground infrastructure adaptation using the real-time monitoring network for long-term tracking and decision-making. The team will analyze and recommend adaptation alternatives to be used within an adaptive management approach. The approach would provide adaptation pathways where early actions may transition to other actions in the future, and "signposts" that use the groundwater monitoring information to identify when predetermined adaptations are recommended.

Task 5: Final Report and Presentation of Results
HydroPredictions will prepare two reports: (1) a technical report documenting the model construction, assumptions, calibration, and limitations, and (2) a report of the Portsmouth vulnerability study with results and recommendations. A summary of the Portsmouth study results and recommendations will be prepared and presented to project stakeholders.

Contractor Initials
Date 8/23/22

Deliverables Schedule

1. Maps in electronic format with accompanying GIS shapefiles or raster files will be produced for all modeled areas and will show groundwater rise, depth to groundwater zones, GWRZ, and vulnerable areas (Due: September 30, 2023).
2. Groundwater Rise and Depth to Groundwater maps will be placed on the NH Coastal Viewer (Due: September 30, 2023).
3. A one-page paper will be written in cooperation with NHDES on how to use this information with the NH Coastal Flood Risk Guidance Document (Due: September 30, 2023).
4. A final report on the Portsmouth vulnerability study will be prepared (Due: September 30, 2024). This report will include:
    - Maps showing the locations of vulnerable stormwater assets, utilities, critical facilities, roadway sections, and hazardous disposal areas.
    - Tables presenting the number and/or length of assets that may be vulnerable
    - with rising groundwater.
    - The adaptive capacity of each infrastructure system will be presented by grouping exposed assets according to their sensitivity, i.e., age and condition.
    - Adaptation pathways using a flexible and stepwise adaptive management approach will be recommended.
5. A technical report on the modeling approach, assumptions, calibration, and limitations will be prepared. This report will also include additional data needs and related analysis gaps (Due: September 30, 2024).

Contractor Initials _____

Date 8/23/22

Exhibit C
Method of Payment and Contract Price

The State shall pay to the Contractor the total reimbursable program costs in accordance with the following requirements:

Reimbursement requests for program costs shall be made by the Contractor using a payment request form as supplied by the State, which shall be completed and signed by the Contractor. The payment request form shall be accompanied by proper supporting documentation, including costs incurred per task and any relevant deliverables. Documentation of reimbursable costs may include invoices for supplies, equipment, services, contractual services, and a report of personnel, travel and indirect costs. Payments shall be made to the Contractor no more frequently than monthly.

The total reimbursement shall not exceed $245,914.00.

Contractor Initials JFK
Date 8/23/22

Limited Partnership or LLC Certification of Authority

I, Jayne F Knott, hereby certify that I am the sole Partner, Member or
(Name)

Manager and the sole officer of JFK Environmental Services LLC a limited liability partnership
(Name of Partnership or LLC)

under RSA 304-B, a limited liability professional partnership under RSA 304-D, or a limited liability company under RSA 304-C.

I certify that I am authorized to bind the partnership or LLC. I further certify that it is understood that the State of New Hampshire will rely on this certificate as evidence that the person listed above currently occupies the position indicated and that they have full authority to bind the partnership or LLC and that this authorization **shall remain valid for thirty (30)** days from the date of this Corporate Resolution.

DATED: 8/22/2022

ATTEST: Jayne F. Knott

Jayne F. Knott
Owner

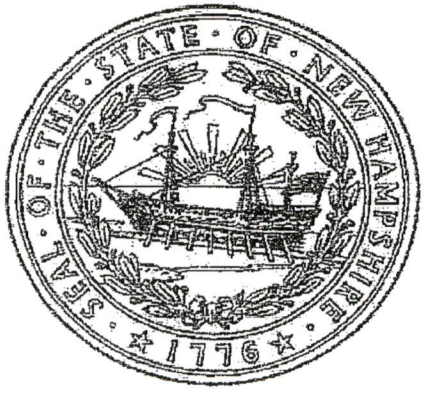
State of New Hampshire
Department of State

CERTIFICATE

I, David M. Scanlan. Secretary of State of the State of New Hampshire, do hereby certify that JFK ENVIRONMENTAL SERVICES LLC is a Massachusetts Limited Liability Company registered to transact business in New Hampshire on August 22, 2022. I further certify that all fees and documents required by the Secretary of State's office have been received and is in good standing as far as this office is concerned.

Business ID: **909421**

Certificate Number : **0005852972**



IN TESTIMONY WHEREOF.

I hereto set my hand and cause to be affixed the Seal of the State of New Hampshire, this 22nd day of **August** A.D. **2022.**

David M. Scanlan

Secretary of State

JFKENVI-01 JMILLS

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 8/19/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER License # 1780862
HUB International New England
600 Longwater Drive
Norwell, MA 02061-9146

CONTACT NAME:
PHONE (A/C, No, Ext): (781) 792-3200 FAX (A/C, No): (781) 792-3400
E-MAIL ADDRESS:

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Nautilus Insurance Company	17370
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
JFK Environmental Services LLC
P. O. Box 29
Gloucester, MA 01931

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY							
	CLAIMS-MADE X OCCUR			ECP203104012	1/1/2022	1/1/2023	EACH OCCURRENCE	$ 1,000,000
							DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER						POLLUTION LIABI	$ 1,000,000
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB / OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB / CLAIMS-MADE						AGGREGATE	$
	DED / RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						PER STATUTE / OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N N/A						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liab			ECP203104012	1/1/2022	1/1/2023	$2,500 Deductible	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
P. O. Box 95
Concord, NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 08/19/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Kathleen Tausevich	
HUB INTERNATIONAL NEW ENGLAND LLC	PHONE (A/C, No, Ext): (781) 792-3298	FAX (A/C, No):
	E-MAIL ADDRESS: haley.churchill@hubinternational.com	
600 LONGWATER DRIVE	INSURER(S) AFFORDING COVERAGE	NAIC #
NORWELL MA 02061	INSURER A: ACE AMERICAN INSURANCE CO	22667
INSURED	INSURER B:	
JFK ENVIRONMENTAL SERVICES LLC	INSURER C:	
	INSURER D:	
115 GLEN AVENUE	INSURER E:	
UPTON MA 01568	INSURER F:	

COVERAGES **CERTIFICATE NUMBER:** 806727 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
				N/A			PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY ☐ SCHEDULED AUTOS			N/A			BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB ☐ OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB ☐ CLAIMS-MADE			N/A			AGGREGATE	$
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N/A (Mandatory in NH)	N/A	N/A	6S62UB4N77986622	01/21/2022	01/21/2023	E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
				N/A				

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Workers' Compensation benefits will be paid to Massachusetts employees only. Pursuant to Endorsement WC 20 03 06 B, no authorization is given to pay claims for benefits to employees in states other than Massachusetts if the insured hires, or has hired those employees outside of Massachusetts.

This certificate of insurance shows the policy in force on the date that this certificate was issued (unless the expiration date on the above policy precedes the issue date of this certificate of insurance). The status of this coverage can be monitored daily by accessing the Proof of Coverage - Coverage Verification Search tool at www.mass.gov/lwd/workers-compensation/investigations/.

CERTIFICATE HOLDER

New Hampshire Department of Environmental Services
PO Box 95

Concord NH 03302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Daniel M. Crowley, CPCU, Vice President – Residual Market – WCRIBMA

ATTACHMENT A
BUDGET ESTIMATE

Task	Task Subtotals
1.0. Project Team Meetings and Stakeholder Engagement	$2,640
2.1. Update existing models and expand the groundwater flow and saltwater intrusion models to unmapped communities in the coastal zone	$27,720
2.2. Create a groundwater flow and saltwater intrusion model for Portsmouth and New Castle	$19,800
2.3. Present modeling results	$1,980
3.1. Map Water Table Depth Zones	$19,800
3.2. Create groundwater rise maps for the communities not previously mapped	$6,600
3.3. Place WT depth maps and groundwater rise maps on the coastal viewer	$6,600
3.4. Present mapping results	$1,980
4.1. Design a real-time groundwater modeling network	$6,600
4.2. Construct a real-time groundwater monitoring network	$77,614
4.3. Identify threats to water quality	$6,600
4.4. Identify threats to underground infrastructure	$16,500
4.5. Map saltwater intrusion into aquifers with SLR	$6,600
4.6. Contaminant fate and transport modeling	$13,200
4.7. Develop an adaptive management approach for underground infrastructure adaptation	$19,800
5.0. Final Report and Presentation of Results	$11,880
Totals	$245,914