



Water, Sewer, and Solid Waste Committee

14 October 2025

5:30 P.M. City Hall Room 101

(Or immediately following City Council Agenda Session)

Committee: Council Member Teresa Turk, Council Member Mike Wiederkehr, Council Member Scott Berna, Council Member Bob Stafford

Copy to: Mayor Molly Rawn, Keith Macedo, Steve Dotson, Kara Paxton, Kit Williams, Chris Brown, Alan Pugh, Jonathan Curth, Terry Gulley, Peter Nierengarten, Brian Pugh, Corey Granderson, Drake Vineyard, Aaron Watkins, Cody Ashworth, Scott Murphy, Brian Rowland, Stephen Jeffus, Jim Jenks

From: Tim Nyander, Utilities Director

CALL TO ORDER

UPDATES

PRESENTATIONS:

1. Overview of September's WRRF Monthly Operations

Scott Murphy – WRRF Project Manager, Inframark

2. Overview of September's Water & Sewer Operations

Tim Nyander – Utilities Director

OLD BUSINESS:

3. Water & Sewer Rate Study and Impact Fee Study Update

Stephen Dotson – Chief Financial Officer

INFORMATION ONLY

4. West Transmission Waterline Update

Corey Granderson – Utilities Engineer

INFORMATION ONLY

NEW BUSINESS:

5. Waterline Condition Assessments – Engineering Amendment with RJN Group

In response to historical failures on aging large-diameter waterlines in the Fayetteville system, the West Transmission Main project was expedited to install a critical third feed of treated water from Beaver Water District to Fayetteville. One goal of that project was to allow critical shut-downs and repairs on other water transmission lines that currently cannot be taken out of service due to demands for water usage in the system.

Construction is progressing on-time and on-budget for the West Transmission line to be operational by Summer 2026. During this time, desktop review and planning for condition assessments of other aging large diameter waterlines has been underway with RJN Group (Resolution 245-24; October 1, 2024). This initial scope has identified the highest critical water transmission mains that should be targeted for field testing and data collection using various technologies. The proposed amendment with RJN Group will provide for 'smart-ball' inspection of the 36-inch diameter waterline from Beaver Water District (approximately 9.8 miles) as well as vibroacoustic inspection of approximately 8.7 miles of additional aging waterlines in town with diameters from 24-inch to 30-inch.

The aim of these inspections is to further refine the areas of highest risk in our water transmission mains so that targeted repairs, rehabilitation, and replacements can proceed in the most cost-effective manner. The proposed contract amendment will allow for final planning, field coordination, preparation, and deployment of each scanning technology. It will also provide the subsequent detailed data analysis, reports, and recommendations for repair, rehab, and/or replacements along these alignments. Furthermore, a contingency is built into the fee to allow flexibility for additional field scans or other data collection if determined to be beneficial for the project to give actionable results. For example, if large portions of the 36-inch waterline from Beaver Water District are determined to have significant wall-loss using the 'smart-ball' technology, the team may elect to further investigate this line with additional deployment of the vibroacoustic analysis. Having contingency allows the project to only deploy the secondary scans in most-critical areas, thereby reducing scope and cost.

The existing contract was able to omit soil testing that was originally scoped for a savings of \$44,000 that will be applied towards Amendment 1 items. Therefore, the net contract increases for these services, including a \$120,000 contingency is **\$890,113.00**. Staff recommends approval of Amendment 1 to the Engineering Services Agreement with RJN Group for waterline condition assessments.

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

6. Environmental Consulting Operations, Inc. (ECO) Amendment No. 12

Discussion of Amendment No. 12 to the contract with Environmental Consulting Operations, Inc. in the amount of \$63,500.00 for wetlands mitigation site monitoring and management for Woolsey Wet Prairie in 2026. The 2026 "Not to Exceed" cost of **\$63,500.00** represents a 6.6% decrease to the contract amount that was approved by the City Council for 2025.

Amendment No. 12 ECO Scope of Services	Fee Estimate
Part A - 2026 Project Administration & Management	\$4,000.00
Part B - 2026 Annual Ecological Restoration Monitoring	\$25,000.00
Part C - 2026 Annual Adaptive Management Strategy	\$32,000.00
Part D - 2026 Update Surplus Wetland Credit Tracking Ledger	\$0.00
Part E - 2026 Academic Research Project Guidance	\$2,500.00
Total	\$63,500.00

STAFF REQUESTS THIS BE FORWARDED TO THE CITY COUNCIL FOR CONSIDERATION FOR APPROVAL

PRESENTATIONS

September’s WRRF Report
September’s Water & Sewer Operations Report

ATTACHMENTS

September’s WRRF Monthly Report
September’s Water & Sewer Operations Report
Amendment No.1 RJN Group
ECO Amendment No. 12

ADJOURN

Next Water, Sewer, Solid Waste Committee meets on Tuesday, November 11th, 2025, at 5:30 p.m.

Inframark Monthly Report

September 2025



CITY OF
FAYETTEVILLE
ARKANSAS





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Executive Summary

- 1. Hamestring Lift Station:**
 - Seal fail resulted in the flooding of the dry well and the systematic removal and service of the pumps
- 2. Noland Flow:**
 - Recent storms resulted in record flows at Noland (41MGD)
- 3. Infiltration and Inflow:**
 - Drainage basin smoke testing and inspection tentatively set for November
- 4. Woolsey Wet Prairie:**
 - Focus on control of Reed Canary grass and Carpet Grass
- 5. BMS:**
 - \$22,000 in income from Hay, Fertilizer, and WTR
- 6. Training:**
 - LO/TO
 - Hazard Recognition
- 7. Industrial Pretreatment:**
 - Over \$220,000 in surcharges for September
- 8. Financial:**
 - Project is approximately \$650,000 under budget for the year
- 9. Personnel:**
 - One termination for Drug Policy violation



Compliance

Paul R Noland:

The Paul R Noland facility achieved perfect permit compliance for August 2025:

Westside:

The Westside facility achieved perfect permit compliance for August 2025

Biosolids Management Site (BMS):

No effluent from Noland was been used to irrigate at BMS due to sufficient rainfall

Sanitary Sewer Overflows (SSOs):

- 1- September 23, 2025 Hamestring Lift Station 10,000gal

Financial

The Project continues to be well under budget for both the Maintenance and Chemical Rebateable accounts.

Cap Summary as of September 2025									
Cap Type	Project Site	Monthly Budget	Monthly Expenses	Annual Budget	YTD Expenses	YTD Balance	Contract Months Passed	% of Contract Year	YTD Spend %
Maintenance	FAYETV	\$ 28,998.83	\$ 46,011.27	\$ 347,986.01	\$ 212,770.06	\$ 135,215.95	9	75%	61%
Maintenance	FYTNDL	\$ 61,923.31	\$ 87,107.59	\$ 743,079.72	\$ 298,061.07	\$ 445,018.65	9	75%	40%
Maintenance	FYTWS	\$ 17,413.59	\$ 6,437.17	\$ 208,963.11	\$ 37,742.55	\$ 171,220.56	9	75%	18%
Maintenance	FYTLAB	\$ 8,169.04	\$ -	\$ 98,028.42	\$ 710.54	\$ 97,317.88	9	75%	1%
Maintenance	FYTLSM	\$ 12,661.89	\$ 13,089.34	\$ 151,942.74	\$ 16,620.85	\$ 135,321.89	9	75%	11%
Total M&R		\$ 129,166.66	\$ 152,645.37	\$1,550,000.00	\$ 565,905.07	\$ 984,094.93	9	75%	37%
Chemical	FAYETV	\$ 8,419.02	\$ 1,016.06	\$ 101,028.20	\$ 5,973.57	\$ 95,054.63	9	75%	6%
Chemical	FYTNDL	\$ 17,977.74	\$ 45,097.76	\$ 215,732.82	\$ 286,125.73	\$ (70,392.91)	9	75%	133%
Chemical	FYTWS	\$ 5,055.56	\$ 4,286.84	\$ 60,666.71	\$ 22,289.81	\$ 38,376.90	9	75%	37%
Chemical	FYTLAB	\$ 2,371.66	\$ -	\$ 28,459.86	\$ 100.00	\$ 28,359.86	9	75%	0%
Chemical	FYTLSM	\$ 3,676.03	\$ -	\$ 44,112.41	\$ 10,309.75	\$ 33,802.66	9	75%	23%
Total Chemical		\$ 37,500.01	\$ 50,400.66	\$ 450,000.00	\$ 324,798.86	\$ 125,201.14	9	75%	72%

Notable Expenses:

- 1- \$11,106.74 Bypass pump rentals
- 2- \$5418.30 Transfer switch repair Westside
- 3- \$10,783.82 New Air Conditioner for the Noland Laboratory
- 4- \$3936.11 New motor for LS18
- 5- \$5394.68 Transfer switch repair Hamestring
- 6- \$31,940 Oxygen for Noland ozone disinfection

Hamestring



On Sunday, September 28th at approximately 1:00am, the impeller on pump number 4 split/cracked during operation resulting in a seal fail on the pump. Within hours, several feet of water accumulated in the dry well of the station. The pump was isolated to stop the flow and the dry well pumped down over the next several hours. Maintenance and Operations staff have since removed each motor sequentially to be dried and serviced by local shops. As of this report, pumps 2,3,5,and 7 have been returned to service while we wait on parts (new impellers and wear rings) for the remaining pumps. In order to reduce the potential for recurrence, larger sump pumps are being installed, water level alarms are being reconfigured to call out on SCADA, and an annual PM has been added to inspect and service each impeller and volute.



Maintenance



During a recent thunderstorm, lift station 56 (West Fork) received a lightning strike that caused considerable damage to the electrical equipment at the site. The breakers and variable frequency drives for pumps 2 and 3 were melted resulting in the loss of pumping capacity for our 2 largest pumps (100hp each). A bypass pump was immediately ordered and installed to prevent sewer overflows and remains in place as of this report. Once the City of West Fork completes their insurance claim, our staff will replace the damaged equipment and return the station to full operation.





Pretreatment

For the month of September, surcharges for Tyson foods were considerably higher than any other month so far this year. The previous highest monthly charge was \$106,535.23

Industrial Surcharges

Industry	Flow(MG)	TSS (mg/l)	BOD(mg)	Surcharge
Tyson Foods Inc.	6.837	2592.5	2292.5	\$202,861.88
Hiland Dairy	1.678	1876	1576	\$17,608.73
			Total	\$220,470.61

Septic Charges

Hauler	Loads	Charges
AR Portables	36	\$1,800
Best Jet	10	\$500
ABC Quick Pump	4	\$200
	Total	\$2,500

Elkins BOD Loadings

Month	Influent BOD Loading Lbs.	Organic Loading % of Design
Dec-24	10897	36.7
Jan-25	12152	41
Feb-25	13180	44.4
Mar-25	12501	42.1
Apr-25	23277	78.5
May-25	10531	35.5
Jun-25	12231	41.2
Jul-25	15282	51.5
Aug-25	15523	52.3
Sep-25	13844	46.7
Oct-25		
Nov-25		
Dec-25		

Biosolids Management

Hay, fertilizer, and WTR sales were up again for the month of September.

Water Treatment Res., Hay, and Fertilizer Sales:

August Sales	Weight	Customer	Amount
Fertilizer	6.91	Bill Love	138.20
	7.45	Bill Love	149.00
	9.69	Bill Love	193.80
	3.11	JB Smith	62.20
	15.35	JB Smith	307.00
Hay	50.02	David Jackson	3751.50
WTR	15.50	Beaver Water District	503.75
	12.80	Beaver Water District	416.00
	12.54	Beaver Water District	407.55
	11.64	Beaver Water District	378.30
	11.25	Beaver Water District	365.63
	15.25	Beaver Water District	495.63
	13.09	Beaver Water District	425.43
	11.01	Beaver Water District	357.83
	14.23	Beaver Water District	462.48
	19.05	Beaver Water District	619.13
	17.62	Beaver Water District	572.65
	17.55	Beaver Water District	570.38
	17.61	Beaver Water District	572.33
	19.45	Beaver Water District	632.13
	18.22	Beaver Water District	592.15
	17.98	Beaver Water District	584.35
	16.93	Beaver Water District	550.23
	18.11	Beaver Water District	588.58
	17.72	Beaver Water District	575.90
	17.87	Beaver Water District	580.78
	17.67	Beaver Water District	574.28
	16.94	Beaver Water District	550.55
	16.75	Beaver Water District	544.38



	16.86	Beaver Water District	547.95
	17.62	Beaver Water District	572.65
	12.64	Beaver Water District	410.80
	11.88	Beaver Water District	386.10
	13.68	Beaver Water District	444.60
	12.63	Beaver Water District	410.48
			\$20,455.93

Hay Production:

For September, growing conditions remained favorable, however, an army worm infestation reduced the hay quality on several of our fields. On advice from the County Extension Office, we have applied insecticide to control the worms, but hay production must be halted for several weeks to prevent toxicity issues.

Woolsey Wet Prairie

Below is a summary of our applications for the month:

September: mostly lespedeza, reed canary grass, and carpet grass

W2- spot sprayed 10 gallons of sulfo-sulfuron for Reed Canary grass control

W2- manually removed over 100 seed heads from Reed Canary grass to prevent spread

Noteworthy Events



On September 9th, Inframark hosted a cookout at the Westside Treatment Facility to show appreciation for our staff and City personnel. Over 75 people attended the event.





Appendix



Inframark Compliance Monthly Report

Meeting
Date:
Report Date: September
Date: 2025

Project: Fayetteville, AR

Facility: Noland WRRF

Attending:

Permit Compliance

Parameter	Monthly Actual	Monthly Limit	Percent Available	Comments
White River Flow, MGD	6.81			
Effluent D.O., mg/L	15.05	11.00	37	
Effluent pH max, S.U.	7.6	9.0	15	
Effluent pH min, S.U.	7.5	6.0	25	
Effluent Fecal Coliform, MPN	48	200	76	
Effluent Ammonia, mg/L	0.07	0.5	86	
Effluent Ammonia, lbs./ day	4.2	53	92	
Effluent T-Phos, mg/L	0.19	1.0	81	
Effluent T-Phos, lbs./ day	10.42	105	90	
Effluent CBOD, mg/L	3.0	5.7	47	
Effluent CBOD, lbs./ day	162	599	73	
Effluent TSS, mg/L	1.4	5.0	72	
Effluent TSS, lbs./ day	75	525	86	
Effluent TDS, mg/L	298	500	40	
Effluent TDS, lbs./ day	15,783	52,542	70	
Effluent Sulfate, mg/L	45	119	62	
Effluent Sulfate, lbs./ day	2,601	12,505	79	
Effluent Nitrates, mg/L	6.4	Report		
Effluent Nitrates, lbs./ day	370	Report		

Influent Parameters	Value	Comments
Influent Flow, MGD	7.48	
Influent BOD, lbs./ day	13,844	
Influent TSS, lbs./ day	12,907	
Influent Ammonia, lbs./ day	1,153	
Influent T-Phos, lbs./ day	233	



Inframark Compliance Monthly Report

Meeting Date: September 2025
Report Date:

Project: Fayetteville, AR
Facility: West Side WWRF

Attending:

Permit Compliance

Parameter	Monthly Actual	Monthly Limit	Percent Available	Comments
GC Discharge, MGD	10.72			
Effluent D.O., mg/L	8.80	6.90	27.54	
Effluent pH, min. S.U.	7.21	6.00	20.17	
Effluent pH, max. S.U.	7.79	9.00	13.44	
Effluent Fecal Coliform, MPN	30.45	200.00	84.77	
Effluent CBOD, mg/L	1.98	5.30	62.69	
Effluent CBOD, lbs./ day	180.70	442.00	59.12	
Effluent TSS, mg/L	1.16	10.00	88.43	
Effluent TSS, lbs./ day	107.43	834.00	87.12	
Effluent Ammonia, mg/L	0.06	1.00	94.15	
Effluent Ammonia, lbs./ day	5.65	83.40	93.22	
Effluent T-Phos, mg/L	0.18	1.00	81.78	
Effluent T-Phos, lbs./ day	15.27	83.40	81.69	
Effluent Nitrate, mg/L	4.24			Possible Permit Limit Pending

Influent Parameters	Value	Comments
Influent Flow, MGD	10.7	
Influent BOD lbs./ day	10,758.3	
Influent TSS lbs./ day	13,844.0	
Influent Ammonia lbs./ day	1,357.2	
Influent T-Phos, lbs./ day	298.1	

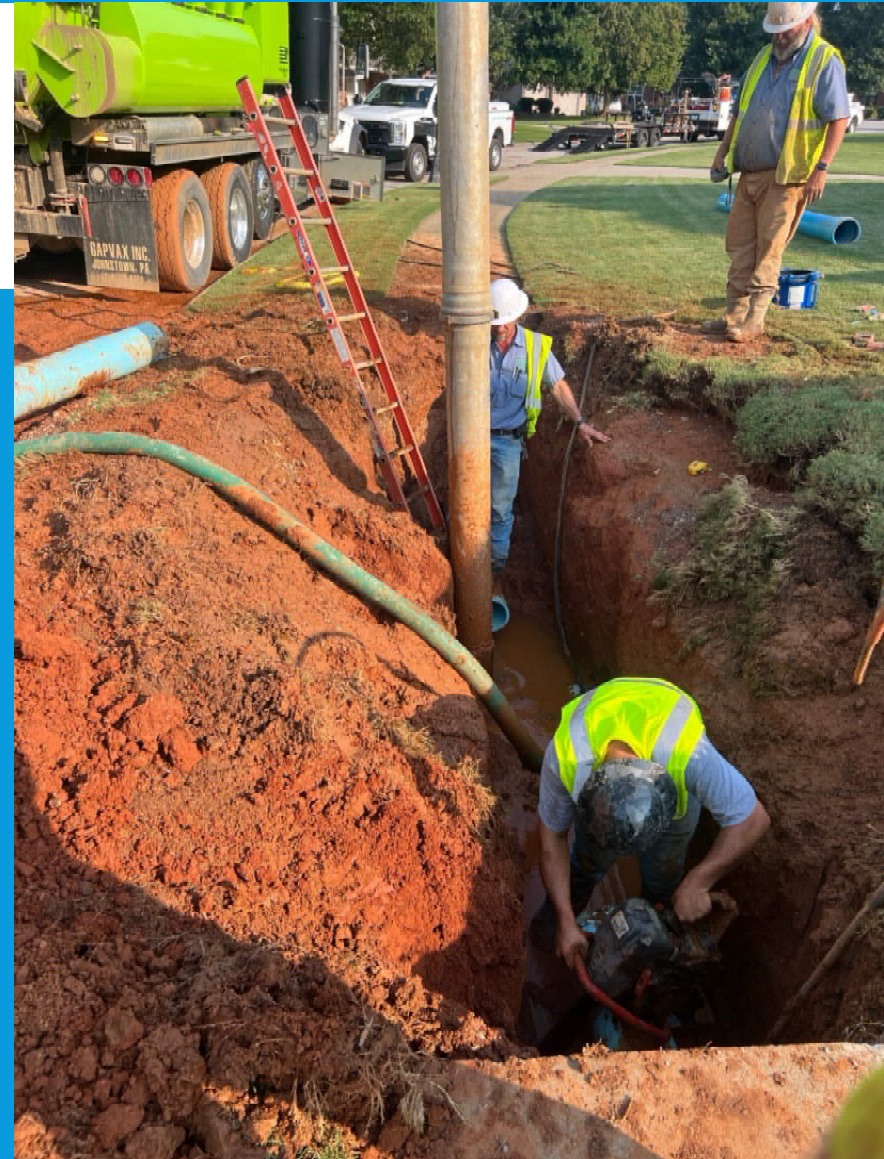
WATER/SEWER/METER OPERATIONS REPORT

September 2025

WATER

- 71 work orders for distribution system maintenance completed.
- 32 hydrants repaired.
- 60 after-hours calls.

8" repair on North Independence Place.





2" main repair utilizing hydro excavation (left) and a leaking service saddle being replaced (right).



Water main repair on top of Stone Mountain on East Crestline Place. This line was deep and required a large excavation!



CONSTRUCTION

- 14 new service water and sewer taps
- 68 polyethylene services replaced; primarily on the east side of Fayetteville in the S Woodsprings area.

SEWER

- 53,457 feet of sewer mains washed.
- 29,644 feet of sewer main inspected via CCTV.
- 4 point repairs on sewer mains.
- 4,938 feet of sewer main inspected via smoke testing.
- 1 after-hours call.

METER AND OTHER SERVICES



- 853 cellular meters installed
- 11,025 feet of water transmission main easement cleared
- 15 after-hours calls

Easement near Van Asche that was cleared.

YEAR TO DATE STATISTICS

- Water distribution system work orders completed – 887
- Hydrants repaired – 63
- Polyethylene water service lines replaced – 467
- New service water/sewer taps – 146
- Sewer mains washed/jetted – 727,782 feet
- Sewer mains inspected via CCTV – 259,110
- Point repairs on sewer mains – 60
- Total cellular meters in the system – 28,587



We conduct a group study session on Wednesday mornings. These study sessions are designed to help our employees pass their Water Distribution Operator exams. This gives an avenue for progression and promotion.

CITY OF FAYETTEVILLE, ARKANSAS
AMENDMENT NO. 1
FOR
PROFESSIONAL ENGINEERING SERVICES
WITH
R/N GROUP. INC.

In accordance with the AGREEMENT for Professional Engineering Services dated October 1, 2024, between the City of Fayetteville, Arkansas (hereinafter called OWNER) and R/N GROUP, INC. (hereinafter called ENGINEER), OWNER hereby authorizes ENGINEER to proceed with the following services:

Section I - Project Description

Under the AGREEMENT, the OWNER retained R/N Group to provide professional engineering services. The Project involved planning, ascertaining methods of inspection, determining the level of effort, and developing cost estimates for assessing the condition of thirteen sections of critical waterlines, totaling approximately 47.3 miles of pipes. It has since been determined that additional services will be needed. Specifically, the additional services consist of certain condition assessment tasks, for certain waterlines, stemming from recommendations generated in the original scope of work.

Section II - Scope

The ENGINEER shall perform professional services utilizing the procedures identified in the original Scope of the AGREEMENT and as described in Exhibit A herein.

Section III - Time of Service

ENGINEER will proceed with providing the services set forth herein immediately upon execution of this Authorization and as described in Exhibit B herein.

Section IV - Compensation

OWNER shall compensate ENGINEER for providing these additional services a total sum not-to-exceed **\$890,113.00**, as provided in the Compensation Table (Exhibit C) herein provided.

All prices will remain firm for the initial term of the Agreement period. Any de-escalation/escalation in prices will be made on an annual basis thereafter at the sole discretion of

the OWNER. Requests for price adjustments must be made by the ENGINEER in writing at least 60 days in advance. The baseline for determining price adjustments will be based upon the closing date of the solicitation. All requests for price increase or decrease are subject to review and approval by the ENGINEER. The maximum increase will have a ceiling of 10% annually and a net decrease of 10% annually. Changes in prices shall be based on the U.S. Bureau of Labor Statistics, Employment Cost Index, average increase or decrease for the most recent calendar year (see <http://www.bls.gov/ECI>; update with the appropriate ECI Index, CIU1010000100000A and Management, Professional, and Related).

In consideration of the mutual covenants and Agreements herein contained, the OWNER and ENGINEER stipulate and agree that the Agreement for Professional Engineering Services dated October 1, 2024, is hereby amended as described in Exhibits A and B, attached hereto and made part of this agreement.

All other provisions of the original Agreement remain in full force and effect.

IN WITNESS THEREOF, the parties hereto have caused this AGREEMENT to be executed this _____ day of _____, 20____.

AUTHORIZED BY:

CITY OF FAYETTEVILLE, Arkansas

By: _____

Name: _____

Title: _____

Date: _____

ACCEPTED BY:

RJN Group, Inc.

By:  _____

Name: Daniel Jackson

Title: Sr. Vice President

Date: October 8, 2025

END OF AMENDMENT

EXHIBIT A – SCOPE OF SERVICES

RJN is proposing the following scope of services for the Water Main Assessment for the City of Fayetteville.

A. Project Management and Meetings

1. Provide project management services including invoicing, scope, schedule, and fee tracking, and closeout services.
2. Provide monthly updates to City staff through the duration of the project.
3. Meet with City staff as necessary to discuss progress of the project.

B. Pipeline Section 2

1. Preparatory Work, Data Review, and Planning
 - a. Conduct a kickoff meeting with the City to discuss the project.
 - b. Finalize determination of Pipers® launch and retrieval locations.
 - c. Perform mock deployment planning. This may include planning for strategies/provisions such as a “dummy” Pipers multi-sensor, a clamp-on flowmeter, and/or other measures to finalize the preparation of the Pipers deployment and ensure its success.
 - d. Prepare for a field planning visit.
 - e. INGU Data Preparation
 - i. Kickoff Meeting – RJN and INGU
 - ii. INGU Deliverables
 - iii. KMZ File of Water Main Paths
 1. Mapping grade locates
 2. Excel Elevation Profile(s)
 3. Questionnaire(s)
2. Field Reconnaissance Visits and Equipment Preparation
 - a. Meet with City staff on-site for site visit inspections. During visit, discuss any questions that arose during the data review process.
 - b. Observe pump operations and take steps to measure travel time.
 - c. Field assessment:
 - i. Observe valve exercising by City staff to confirm operation, if possible.
 - ii. Finalize methodology for inserting and catching Pipers.
 - d. Discuss results of preliminary assessment with City.
 - e. Following installation of valved taps by City, provide equipment and personnel to perform internal inspection of the water main and retrieval of the inspection tools. Customize catching devices as necessary.
3. Internal Inspections
 - a. Contract with INGU on the rental of Pipers multi-sensors.
 - b. Work with the City to assist in the Pipers launching.

- c. Perform up to three Pipers deployments, with a minimum of two successful capture and retrievals. Being that the Pipers ball is carried through the pipeline with the flow of water, the duration of time it stays within the pipeline is a function of the water velocity. We understand from the City that typical velocities in this pipeline are 2.5 fps to 3.7 fps. Thus the Pipers ball would likely need to stay in this pipeline for approximately four hours per deployment.
4. Data Evaluation and Technical Memorandum (TM)
 - a. Review and analyze inspection results and recommendations.
 - i. Pipers' technology includes the following results:
 1. Acoustic leak detection
 2. Air and gas pocket detection
 3. High resolution pressure sensing
 4. Deposit, debris, and blockage locating
 5. Magnetometer survey to detect variations in bulk wall thickness and internal corrosion, with a minimum wall loss threshold of 30%. The Pipers ball will ONLY be able to state "yes/no" for wall loss of 30% or greater at all points along the pipe. It does not give precise info about wall loss. (Pipes having wall losses of 30-45% can be considered to be in "marginal" condition; beyond 45%, they can be considered to be in "distressed" condition.)

The Pipers ball uses microelectromechanical systems (MEMS) magnetometers to measure the passive magnetic field within ferromagnetic pipelines. Metal loss has a significant impact on the magnetic structure of the pipeline, thereby influencing the passive magnetic field detected by the Pipers ball. Research has shown that metal loss features with a minimum depth of 30% of the nominal wall thickness consistently reduce axial and radial magnetic flux density (MFD). The average total MFD within each pipe segment is calculated and compared with the average total MFD of the parent pipeline. If the disparity exceeds an empirically determined threshold, the pipe segment is flagged as a potential candidate for containing a "metal loss" anomaly with a depth exceeding 30% of the nominal wall thickness.
 - b. Include a summary of the work completed and results of the internal screening.
 - c. Prepare a GIS map of the water main system, including findings from the site inspections, document review, and internal screening.
 - d. Provide recommendations for further inspections, rehabilitation/repair, and/or maintenance of the water main. "Recommendations for further inspection", if any, would likely entail Broadband Electro-Magnetic (BEM) inspection. This would likely be recommended in certain areas if Pipers detects wall loss of at least 30%.

The BEM assessment is a non-destructive testing method of measuring wall thickness. Wall conditions are recorded along the area at which the hand scanning

tool is placed. These recordings are converted using software and a calibration database to develop an apparent wall thickness. The original pipe wall thickness ("reference wall thickness") is determined using industry handbook information that was current at the time the pipeline was constructed. Subtracting the measured wall thickness from the reference wall thickness yields a determination of wall loss. Although the BEM assessment can detect where internal and/or external wall loss has occurred, it cannot distinguish between internal and external wall loss.

Compared with Pipers, the BEM would provide much more precise wall loss data at the point(s) where it is applied on the excavated pipe.

It would also be appropriate during BEM inspection to make use of the excavated trench and perform soil corrosivity testing and visual inspection of the external pipe wall. The BEM and related tasks constitute the "Step 2" Condition Assessment action presented in the Water Line Condition Assessment Planning & Prep Report; "Step 2" would likely cost approximately 80% of the Pipers work ("Step 1") proposed herein. This is based on the assumption that ten BEM excavations would be conducted for Pipeline Section 2.

- e. Include budgetary pricing and recommended timing (urgency) for implementation of recommendations.
- f. Technical Memorandum (TM) Submittal:
 - i. Provide a digital draft of TM,
 - ii. Revise draft based on City comments and submit a digital and two hard copies (if desired) of final TM.
 - iii. Provide digital copies of all data, results, and photographs from inspections.
 - iv. Submit a digital and two hard copies (if desired).

C. Pipeline Sections 7, 8, 9A and 12

RJN is proposing the following scope of services for the "Advanced Vibroacoustic Analysis" (AVA) Condition Assessments: Water Transmission Pipeline Sections 7, 8, 9A, 12" project in the City of Fayetteville:

1. Preparatory Work & Data Review
 - a. Conduct a kickoff meeting with the City to discuss the project scope, objectives, roles, and establish lines of communication for the duration of the work.
 - b. Discuss project approach, schedule of work, and set expectations for the project.
 - c. Share follow-up questions with the City for discussion.
 - d. Visit the project area and investigate the access points.
 - e. Prepare a confirmation list for the City to check accessibility to fire hydrants, valves, and vaults to meet project objectives.
 - f. Ensure selected sites are acceptable and provide suitable locations concerning safety and equipment performance, adjust segment plans accordingly based on access availability and site conditions.

2. AVA powered by DRI™ Inspections
3. Provide all necessary AVA inspection equipment and a three-to-four-person crew to complete field work.
 - a. Use external vibroacoustic sensors and data acquisition units at predefined access points (e.g., hydrants, valves, or hydro-excavated “potholes”) along each pipeline segment to enable AVA testing.
 - b. Introduce Vibroacoustic signals into the water column using a centrally positioned wave generator between the sensors to excite the pipeline and capture its dynamic response. (AVA instrumentation contacts the metallic pipe/appurtenances, but does not contact the water column directly.)
 - c. Measure the distance between access points to ensure appropriate resolution and segment coverage.
 - d. Perform on-site and remote QA/QC of field data before demobilization to confirm data integrity.
4. Data Analysis, Report and Recommendations
 - a. Determine if any leaks are present on the testing segments and inform the City of the location within three working days.
 - b. Post-process the inspection data to assess localized pipe wall stiffness and identify structural anomalies using both time and frequency domain analyses. Correlate wall stiffness to wall loss averaged over the available resolution length. Post-inspection analysis in the time-frequency domain identifies and locates leaks and pipe wall distress and reports residual wall thickness for most iron pipes with a resolution of 20 to 30 feet, when access points are spaced at 1,000 feet or less. This capability will ensure that sub pipe stick levels defects are both detected and located, not lost in an average result over a longer resolution length.

The AVA/Kenwave analysis is such that average pipe wall loss over the resolution length (20 to 30 feet) can be calculated to quantify and characterize wall loss as follows: “Good (Less than 5%)”, “Satisfactory (5% to 20%)”, “Sufficient (20% to 30%)”, “Marginal (30% to 40%)”, or “Distressed (Greater than 40%)”. We will use the calculated wall loss data and follow AWWA M28 guidelines to craft a recommended scope of improvements.
 - c. Include a summary of the work completed and results of the AVA inspections delivered in a draft report including:
 - i. A GIS map of the water main system, including findings from the AVA inspections.
 - ii. Engineering recommendations for further inspections, rehabilitation/repair, and/or maintenance based on the inspection data. “Recommendations for further inspection”, if any, would likely entail Broadband Electro-Magnetic (BEM) inspection. This would likely be recommended in certain areas if AVA detects significant wall loss. While AVA provides precise wall loss data averaged across the entire circumference of the pipe along a resolution segment, BEM provides

precise wall loss data at the exact point(s) on the pipe circumference where it is applied on the excavated pipe. It would also be appropriate during BEM inspection to make use of the excavated trench and perform soil corrosivity testing and visual inspection of the external pipe wall. The BEM and related tasks constitute the "Step 2" Condition Assessment action presented in the Water Line Condition Assessment Planning & Prep Report; "Step 2" would likely cost approximately 20% of the AVA work ("Step 1") proposed herein. This is based on the assumption that four BEM excavations would be conducted for Pipeline Section 9A and two each would be conducted for Pipeline Sections 7, 8, and 12.

- iii. Budgetary pricing and recommended timing (urgency) for implementation of recommendations.
- d. Meet with City Staff to discuss findings and recommendations and revise draft accordingly.
- e. Submit a digital and two hard copies (if desired) of the final report. The basic inspection deliverable includes a condition assessment report with residual wall thickness, identified leaks, location of both leaks and pipe wall distress along the inspected watermain, and structural integrity grading 1-3 based on percent wall loss with supporting Excel tables and color-coded GIS shapefile. The report will include recommendations based on these findings. The recommendations may entail some combination of additional analysis (likely consisting of BEM and related tasks, as described above), repairs, rehabilitation, and/or replacements; all identified at specific portions of the pipeline.
- f. Provide digital copies of all inspection data, analysis results, and photographs from inspections, including GIS databases and shapefiles
- g. Upload final report and supporting documents to Clarity®. Clarity is RJN's digital platform that unites powerful data analytics, smart AI automation, and GIS data management tools to deliver a single resource for monitoring and assessing system conditions and performance.

D. Contingency

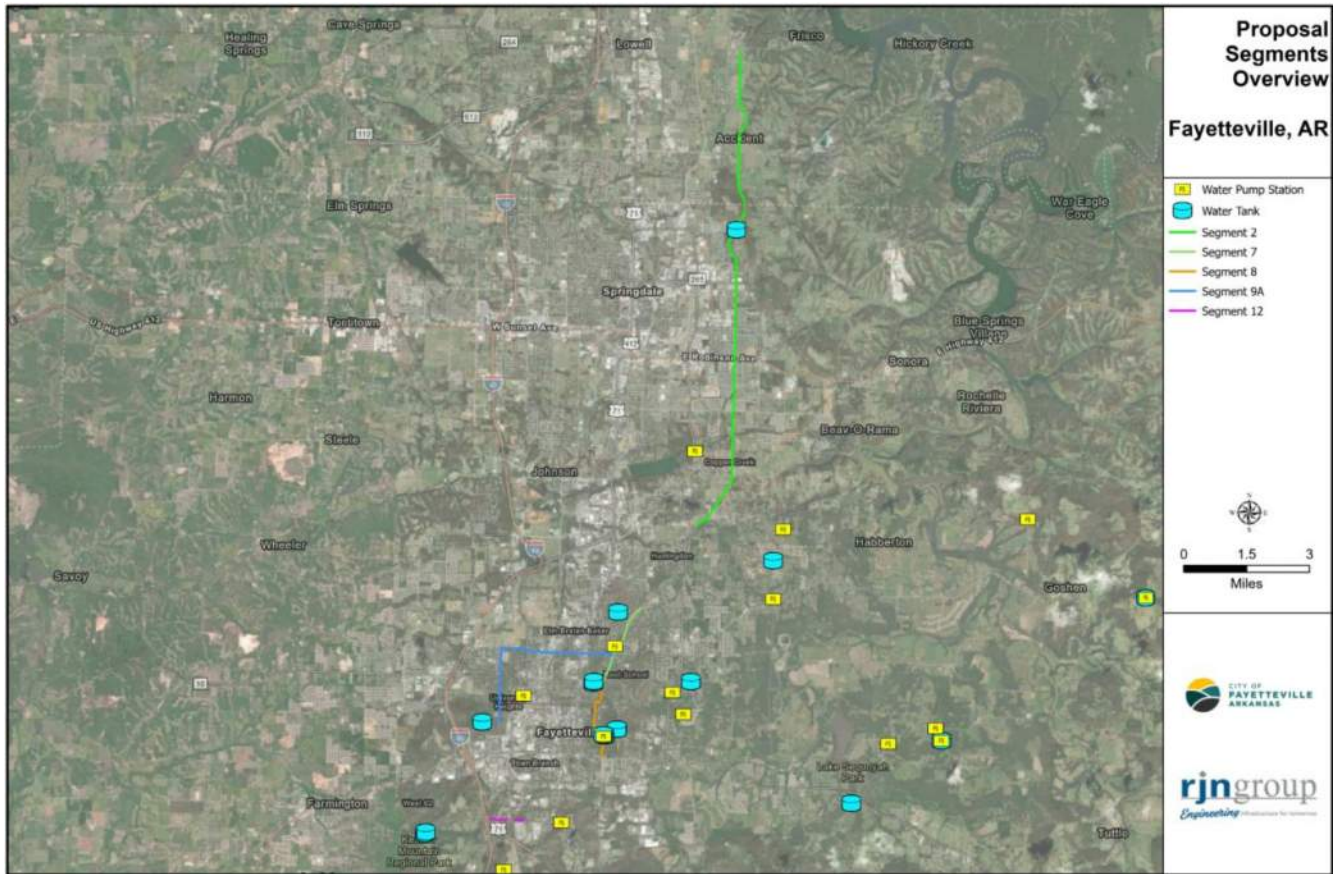
This represents an allowance for unexpected issues that may arise during the course of the work and would necessitate appreciable additional effort. RJN would promptly notify the City if any such issues arise, and their related cost impact. Contingency funds could be used for subsequent AVA inspection of portions of Segment 2 should additional inspection data become necessary.

In the Water Line Condition Assessment Planning & Prep Report, \$44,000.00 was allocated for soil condition testing. However, as work on the report advanced it was determined that, all things considered, soil condition testing would not yet be a cost-effective expenditure, and RJN recommended that it not be performed as part of the Report. Thus, those related funds have not been, and will not be, spent as part of the Report contract.

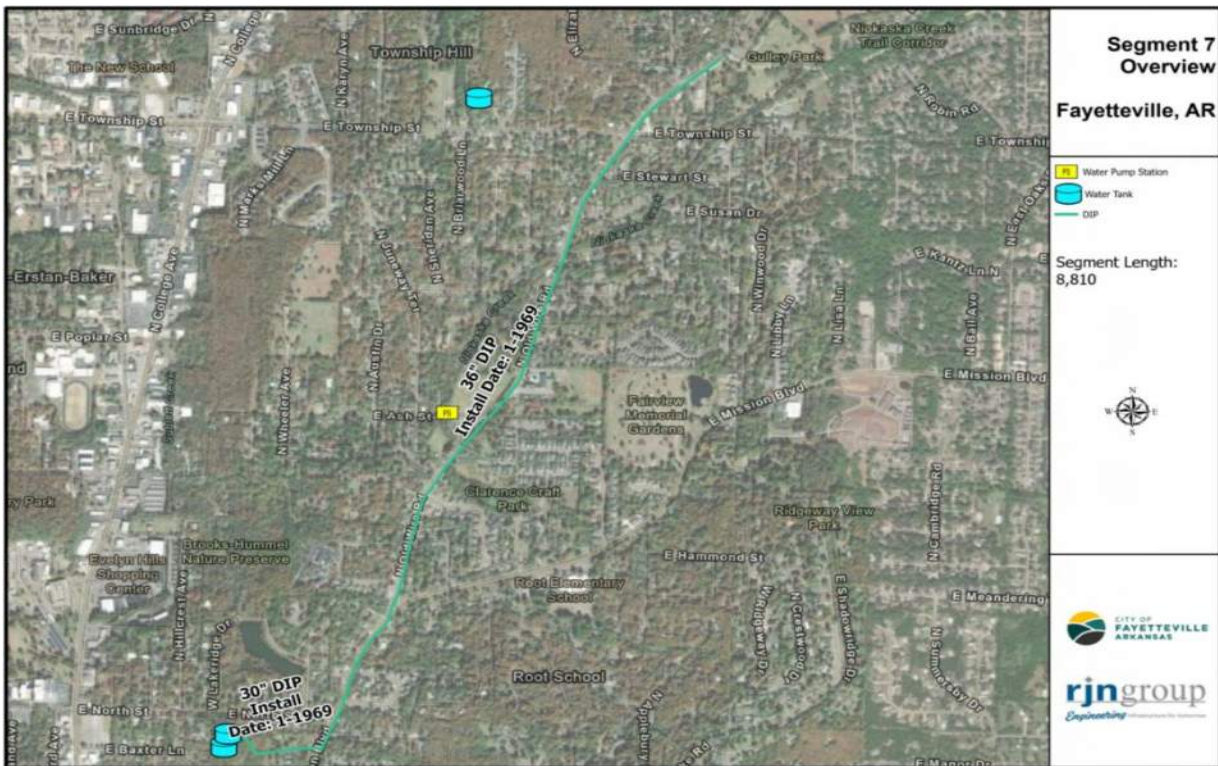
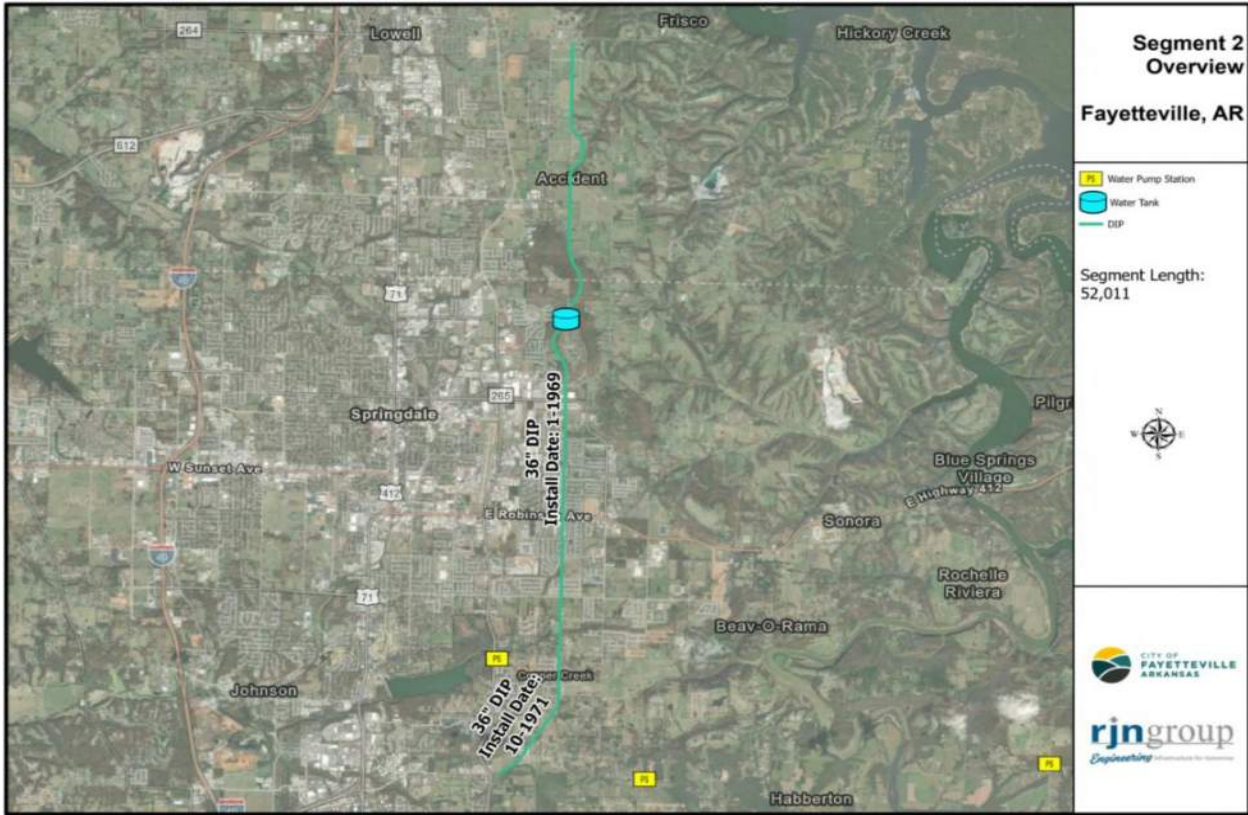
E. Items Requested from the City

1. Updated GIS geodatabases and/or shape files for the water distribution system.
2. Facilitating coordination with Beaver Water District.
3. Access to pipeline for inspection. Assistance locating and operating (i.e. opening and closing valves) facilities as required.
4. Excavation of pipes at Pipers launch and retrieval stations, sufficient for valved taps as described below. Related trench safety, backfill, compaction, and site restoration.
5. One valved pipeline tap at Pipers launch station and another one at retrieval station. Based on recent conversations with INGU, it is anticipated that a tap as large as 6" may be needed at the launch location (within BWD site) and a tap as large as 8" may be needed at the retrieval location (near Joyce Blvd. valve vault). Both locations are unpaved. These taps will need to be made at the 12 o'clock position on the pipe, a gate valve (full tap size) will need to be installed at the tapping flange, and a riser assembly projecting above the ground surface must be installed. (RJN will furnish and install the additional equipment needed for Pipers insertion and retrieval, as discussed above.)
6. Operation of valves as necessary for isolating the pipeline and launching the Pipers multi-sensor.
7. Assistance with traffic control in high traffic areas, as necessary.
8. Hydro-excavating ("potholing") as necessary such that AVA equipment can access the pipe sufficiently. It is anticipated that a total of 22 potholes will be necessary (5 for Pipeline Segment 7, 7 for #8, 10 for #9A, and 0 for #12). Further description, including cost projections, is provided in the Waterline Condition Assessment Planning & Prep Report.

F. Map of All Involved Pipeline Sections






G. Maps of Each Pipeline Section





**Segment 12
Overview**
Fayetteville, AR

-  Water Pump Station
 -  Water Tank
 -  CIP
- Segment Length:
2,625




City of Fayetteville Arkansas



rjn group
Engineering

EXHIBIT B– PROPOSED SCHEDULE

RJN is prepared to start work immediately upon an Agreement.

Task	Timeline
Pipeline Section 2	
Field Reconnaissance Visit	To be completed within one month of NTP.
Internal Inspections	To be completed within two months of a successful Field Reconnaissance Visit.
Technical Memorandum	To be completed within three months of successful Internal Inspection.
Pipeline Section 7, 8, 9A, 12	
Site Investigation and Planning	To be completed in early 2026
AVA Inspections	To be completed within two months of site investigations, weather permitting (anticipated for Feb & March 2026)
Preliminary Analysis Results	To be completed within two months of successful inspections.
Draft Report	To be completed within two months of completion of analysis.

EXHIBIT C – COMPENSATION SCHEDULE

Pricing Terms for Invoicing: Lump Sum

Original Contract Value: \$267,380.00

Amendment Value: \$890,113

Not-to-Exceed Total Project Cost: \$1,157,493

This project will be invoiced on a lump sum, percent complete basis based on the Cost Schedule on the next page.

Task	Unit Price	Units	Fee
<i>Project Management</i>			<i>\$56,790</i>
Pipeline Section 2			
Preparatory Work, Data Review, and Planning			\$25,940
Field Reconnaissance Visits and Equipment Preparation			\$40,110
Internal Inspections			\$51,010
Data Evaluation and Technical Memorandum			\$30,450
<i>Subtotal</i>			<i>\$147,499</i>
Pipeline Section 7, 8, 9A, 12			
Site Investigation and Planning	Lump Sum		\$71,530
AVA Inspection	\$9/ft	45,417 ft	\$408,753
Analysis and Reporting	Lump Sum		\$129,530
<i>Subtotal</i>			<i>\$609,813</i>
Total			\$814,113
<u>Deletion</u> of "Soil Corrosivity Testing (as needed)"			-\$44,000
<i>Contingency</i>			<i>\$120,000</i>
TOTAL NET AMENDMENT PRICE:			\$890,113

Proposal Option

This Proposal can be amended to include additional work upon joint approval by the City and RJN.

**AMENDMENT NO. 12
TO
AGREEMENT FOR ENVIRONMENTAL CONSULTING SERVICES
BETWEEN CITY OF FAYETTEVILLE, ARKANSAS AND
ENVIRONMENTAL CONSULTING OPERATIONS, INCORPORATED
FOR
WOOLSEY WET PRAIRIE ECOLOGICAL MONITORING AND MANAGEMENT
ENVIRONMENTAL CONSULTING SERVICES**

THIS AMENDMENT NO. 12 to the Agreement For Professional Environmental Consulting Services, dated May 8, 2014 (the “Agreement”), by and between CITY OF FAYETTEVILLE, ARKANSAS (CITY) and ENVIRONMENTAL CONSULTING OPERATIONS, INC. (ECO) for environmental consulting services in connection with monitoring and ecological adaptive management of CITY’s wetland mitigation site known as Woolsey Wet Prairie (SITE) is made and entered into for purposes of continuity of SITE wetland habitat status in order to maintain surplus wetland credits generated at SITE and due to Corps of Engineers (Corps) regulatory requirements to manage and maintain wetland compensatory mitigation in perpetuity to assure SITE continues to meet ecological performance standards.

WHEREAS, this **AMENDMENT NO. 12** is a renewal of the May 8, 2014, Agreement that included a provision for automatic renewal of ECO’s annual Scope of Services beyond 2014 for additional 1-year terms upon mutual agreement by both CITY and ECO. Unless specifically stated, all other terms and conditions of the Agreement shall remain in full force and effect. Neither this Amendment nor the Agreement may be modified except in writing signed by an authorized representative of the CITY and ECO.

NOW THEREFORE, the CITY and ECO agree to amend the Agreement for ECO’s Scope of Services as follows:

1. Part A - Project Administration & Management

- a) General administration and project management activities;
- b) Perform project initiation activities;
- c) Provide environmental regulatory and technical information to CITY;
- d) Meet with CITY, and/or CITY Contractors for information exchange, goal and timeline setting, reviewing management strategies, and action items;
- e) Perform internal project control including budgeting, scheduling, and quality control;
- f) Part A applies to January through December 2026. Renewal of ECO's annual Scope of Services will be reviewed by the City Council and amended upon approval for renewal of Part A services beyond 2026.

2. Part B - Annual Ecological Restoration Monitoring

- a) Conduct qualitative monitoring activities throughout the growing season to maintain cumulative plant species lists, evaluations of seasonal hydrology and associated plant communities, and identification of stands of non-native / invasive plant species to be controlled;
- b) Observe and document total plant species richness for the mitigation SITE in historical comprehensive plant species lists;
- c) Record locations of concentrated stands of non-native and native invasive plant species and locations of rare Arkansas Natural Heritage Commission (ANHC) tracking plant species on wetland cell maps;
- d) Develop 2026 Woolsey Wet Prairie Adaptive Management Strategy & Monitoring Report No. 20 that is consistent with historical monitoring and management activities at Site in a format to be used for SITE adaptive management purposes;
- e) Part B applies to January through December 2026. Renewal of ECO's annual Scope of Services will be reviewed by the City Council and amended upon approval for renewal of Part B services beyond 2026.

3. Part C - Annual Adaptive Management Strategy

- a) Continued development and implementation of annual strategy for specific controls of invasive species via selection, coordination, and scheduling of time sensitive hydrology controls, herbicide applications, mowing, prescribed burning, and hand pulling;
- b) Make SITE visits throughout the growing season to make observations of hydrology, vegetation, and effectiveness of invasive vegetation control;
- c) Oversee selection, scheduling, and coordination of SITE adaptive management activities and provide guidance pertaining to SITE Deed-Restrictive Covenant restrictions to CITY and CITY's Contractors associated with management of SITE;
- d) Provide restoration ecology advisory technical guidance to CITY and CITY's Contractors associated with management of SITE for the purpose of implementation of adaptive management activities that are compliant with SITE permanent protection measures and restrictions specified in the CITY's Corps Section 404 Permit;
- e) Document and maintain records of adaptive management activities implemented and the date of use;
- f) Make adjustments, as necessary, to timing and type of vegetation management to be implemented including, but not restricted to, hydrology management, mowing, herbicide applications, prescribed burning, and hand pulling of invasive plant species;

- g) Utilize wetland cell aerial photographs showing locations of concentrated stands of invasive and non-native plant species and locations of rare ANHC tracking plant species in order to target and prioritize areas for specific management activities;
- h) Develop herbicide application specifications that include specific types of herbicides to apply to specific invasive plant species by CITY contractors;
- i) Schedule and select type of herbicide, adjuvant, and application rate to be used for specific target non-native and invasive plant species at specific locations and document herbicide effectiveness;
- j) Coordinate, schedule, and observe areas where herbicide applications have been made to evaluate effectiveness for controlling invasive species by CITY contractors;
- k) Develop burn specifications that clearly identify prescribed Burn Contractor responsibilities as a part of CITY's informal bid process that identify: SITE preparation, notifications, and Burn Contractor responsibilities;
- l) Coordinate, schedule, and observe prescribed burn to evaluate Burn Contractor's conformance with state laws, notifications, and specifications;
- m) Part C applies to January through December 2026. Renewal of ECO's annual Scope of Services will be reviewed by the City Council and amended upon approval for renewal of Part C services beyond 2026.

4. Part D - Update Credit Tracking Ledger for Surplus Wetland Credits

- a) SITE has generated surplus of wetland credits above those required by CITY's Corps Section 404 permit for wetland compensatory mitigation. CITY has received Corps approval to use wetland credits to mitigate for wetland impacts caused by the CITY's infrastructure improvement projects within Illinois River watershed HUC 11110103.
- b) At the time of development of this amendment under the 2025 Scope of Services, CITY has not utilized any surplus wetland credits for City infrastructure improvement projects requiring wetland compensatory mitigation.
- c) It is unknown at the current time, whether Part D services will be necessary for January through December 2026 and will be a function of whether or not surplus credit transactions occur. Should 2026 wetland credit transactions occur, ECO shall update wetland credit ledger accordingly for submittal to Corps at the end of 2026.
- 5) Part D applies to January through December 2026. Renewal of ECO's annual Scope of Services will be reviewed by the City Council and amended upon approval for renewal of Part D services beyond 2026.

5. Part E – Academic Research Project Review and Guidance

- a) During 2017, there was an increased interest in the SITE for academic research projects from various departments of the University of Arkansas ranging from herpetology to soil microbiology. While research projects at the site are exciting and encouraged, the need exists for guidance and oversight to ensure that all parties involved are made aware of the various requirements of the CITY’s Corps Section 404 permit and Deed Restricted Covenant for the SITE. Failure to manage research project activities at the SITE has the potential to result in the CITY not being in compliance with the terms and conditions of the CITY’s Corps Section 404 permit and the Deed Restricted Covenant for the SITE.
- b) ECO, Inc. has developed a research request form and academic research guidance document intended for use by proposed research projects that will provide project-specific relative information to ECO, Inc., CITY’s Contractors, and the CITY for review and approval, while also educating the applicant about the SITE Corps Section 404 permit requirements. ECO, Inc. will review academic research project proposals and provide project-specific guidance to parties conducting research at SITE.
- c) Part E applies to January through December 2026. Renewal of ECO's annual Scope of Services will be reviewed by the City Council and amended upon approval for renewal of Part E services beyond 2026.

6. Compensation


For the amended Scope of Services described herein, CITY agrees to pay ECO the sum specified below on Cost Detail Table. The total payment shall be a lump sum “not to exceed” amount of **SIXTY-THREE THOUSAND FIVE HUNDRED U.S. DOLLARS (\$63,500.00)**.

Amendment No. 12 – 2026 Cost Detail

Amended ECO Scope of Services	Fee Estimate
Part A - 2025 Project Administration & Management	\$4,000
Part B - 2025 Annual Ecological Restoration Monitoring	\$25,000
Part C - 2025 Annual Adaptive Management Strategy	\$32,000
Part D - 2025 Update Surplus Wetland Credit Tracking Ledger	\$0
Part E - 2025 Academic Research Project Guidance	\$2,500
Total	\$63,500

The CITY and ECO intending to be legally bound, indicate their approval of this **AMENDMENT NO. 12** by their signatures below:

**ENVIRONMENTAL CONSULTING
OPERATIONS, INC.**

By: 
Seth Pickens, President

Date: September 29, 2025

CITY OF FAYETTEVILLE

By: _____
Molly Rawn, Mayor

Date: _____

ATTEST:

By: _____
Kara Paxton, City Clerk/Treasurer

Date: _____

