



Agenda Item Executive Summary

Item Name Engineering Services Agreement with
 Engineering Enterprises, Inc. for Basins N-1, E-1, Committee
& M-4 Sewer System Evaluation Survey or Board Board

BUDGET IMPACT

Amount:	\$122,513	Budgeted	\$800,000
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List what fund	Sewer Fund
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EXECUTIVE SUMMARY

This contract is for Sewer System Evaluation Survey (SSES) of Basins N-1, E-1, & M-4. Last year we performed flow monitoring of Basins N-1 & E-1 (Area south of Devon, north of the ComEd ROW) so now we are proposing to move into Phase 2 Sewer System Evaluation Survey (SSES) for that area. We also recently finished lining Basin M-4 (West of Oak Ave., north of Railroad Tracks) so we are ready to perform SSES for this area as well. SSES will consist of smoke testing of the sanitary sewers and manhole inspections. We will also televise all of the sewers to visually inspect the condition of the pipes. Once the Phase 2 SSES work is completed we plan to move into Phase 3 which is completing the rehabilitation of the defects found in Phase 2. This typically involves lining sewers and manholes, disconnecting illegal connections, etc.

We have been working with Engineering Enterprises, Inc. (EEI) on our sanitary sewer system rehabilitation and they are most familiar with this area.

ATTACHMENTS (PLEASE LIST)

Memo, Resolution, Agreement w/ Attachments

ACTION REQUESTED

- For Discussion Only
- Resolution
- Ordinance
- Motion:

MOTION: I move the Village Board approve Resolution 2020 - _____, a Resolution Approving of the Agreement for Professional Engineering Services Between the Village of Bartlett and Engineering Enterprises, Inc.

Staff: Dan Dinges, Director of Public Works Date: 4/29/20



PUBLIC WORKS MEMORANDUM

DATE: May 7, 2020

TO: Paula Schumacher
Village Administrator

FROM: Dan Dinges, PE
Director of Public Works

SUBJECT: Engineering Enterprises Inc. Engineering Service Agreements:
Basins M1-M7 Phase 1 Flow Monitoring Study
Basins N-2, E2 & E3 Phase 1 Flow Monitoring Study
Basin N-1, E-1 & M-4 Phase 2 Sewer System Evaluation Survey Analysis

We have been working on improving the sanitary sewers throughout the Village for a few years now and I wanted to provide our approach relative to Infiltration and Inflow (I/I) reduction. Our approach to I/I reduction is typically through a three phase approach. In Phase 1, basins are broken into subbasins with a target sanitary sewer total length of 10,000 – 12,000 LF. It doesn't always work out to fit into that window, but we try to get as close to it as possible. Flow and rainfall monitoring are conducted in the subbasins. The flow and rainfall data is analyzed to determine which basins have excessive infiltration, inflow or both. Those subbasins that do not have either excessive infiltration or inflow do not require any additional study. Those basins that have high infiltration, inflow or both move on to Phase 2.

In the Phase 2 Sewer System Evaluation Study (SSES) field work is conducted to identify the sources of I/I. Smoke testing and manhole inspections are conducted to identify inflow sources. In some cases dye water flooding would be a follow up work item to pin down defects found during smoke testing. Infiltration sources can also be identified during manhole testing, but the main field work item utilized to identify infiltration sources is televising. Flow isolation studies also can help identify infiltration sources. Once the defects are located, a plan is developed to rehabilitate the sewer system network within the basin. The last phase of I/I reduction, Phase 3, is simply completing the rehabilitation of the defects found within Phase 2.

We have skipped Phase 1 in areas where we have clay pipe because we have already televised these areas and determined they are in need of sewer lining. In these areas, we have been lining the clay pipes and then going to Phase 2 to smoke test, manhole inspections, etc.

Based on the described approach, we recommend flow monitoring the Cook County basins as the first step. We have divided the "Northern Basins" into subbasins and have devised a flow monitoring plan for them. Please find attached the recommended flow monitoring plan for Basins M1 – M-7. We included the subbasins that have already made it through Phase 3 where the sewers and manholes are lined to determine what improvements have been made. If they still exhibit a decent amount of infiltration, then it seems like we could point to the services as being the remaining issue.

The second contract is for Phase 1 Flow Monitoring of Basins N-2, E-2 & E-3. An exhibit is attached that shows the area but it is generally located south of the ComEd ROW between Prospect Ave. and County Farm Rd. When we were investigating the options to bring the excess flow from the MWRD area to the Bittersweet WWTP we looked at utilizing the sanitary sewers in this area. We found that this area appears to have excessive I/I and did not have available capacity.

The third contract is for Phase 2 Sewer System Evaluation Survey Analysis for areas that we have already performed flow monitoring and/or lined the sewers. Basins N-1, E-1 & M-4 are shown in the attached exhibit. Basin M-4 is the area west of Oak Ave. & north of the railroad tracks. Basins N-1 & E-1 are located south of Devon and north of the Com Ed ROW. Once the Phase 2 analysis is completed we would plan to put together a Phase 3 – Rehabilitation program together based on the results of the Phase 2 report.

Our overall goal is to always have at least one of each Phase being worked on during a budget year. Each year we will determine where to start a new Phase 1 and then move to Phase 2 from the previous year's Phase 1, and move to Phase 3 from the previous year's Phase 2. The goal of the phased approach is to limit the amount of money spent during Phase 2 and Phase 3. If subbasins do not have excessive I/I, then why conduct smoke testing, manhole inspections and/or televising within them. This should allow us to reduce our costs while reducing I/I issues and sewer backups.

We recommend that the Village Board approve the three agreements with EEI.

MOTION: I move the Village Board approve Resolution 2020 - _____, a Resolution Approving of the Agreement for Professional Engineering Services Between the Village of Bartlett and Engineering Enterprises, Inc.

RESOLUTION 2020 - _____

**A RESOLUTION APPROVING OF THE AGREEMENT FOR PROFESSIONAL
ENGINEERING SERVICES BETWEEN THE VILLAGE OF BARTLETT AND
ENGINEERING ENTERPRISES, INC. [BASINS N-1, E-1, M-4]**

BE IT RESOLVED by the President and Board of Trustees of the Village of Bartlett, Cook, DuPage and Kane Counties, Illinois, as follows:

SECTION ONE: The Agreement for Professional Engineering Services between the Village of Bartlett and Engineering Enterprises, Inc. dated May 19, 2020, (the "Agreement"), a copy of which is appended hereto and expressly incorporated herein by this reference, is hereby approved.

SECTION TWO: That the Village President and the Village Clerk are hereby authorized and directed to sign and attest, respectively, the Agreement on behalf of the Village of Bartlett.

SECTION THREE: SEVERABILITY. The various provisions of this Resolution are to be considered as severable, and of any part or portion of this Resolution shall be held invalid by any Court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this Resolution.

SECTION FOUR: REPEAL OF PRIOR RESOLUTIONS. All prior Ordinances and Resolutions in conflict or inconsistent herewith are hereby expressly repealed only to the extent of such conflict or inconsistency.

SECTION FIVE: EFFECTIVE DATE. This Resolution shall be in full force and effect upon passage and approval.

ROLL CALL VOTE:

AYES:

NAYS:

ABSENT:

PASSED:

APPROVED:

Kevin Wallace, Village President

ATTEST:

Lorna Giles, Village Clerk

CERTIFICATION

I, the undersigned, do hereby certify that I am the Village Clerk of the Village of Bartlett, Cook, DuPage and Kane Counties, Illinois, and that the foregoing is a true, complete and exact copy of Resolution 2020 - _____ enacted on May 19, 2020, and approved on May 19, 2020, as the same appears from the official records of the Village of Bartlett.

Lorna Giles, Village Clerk



April 27, 2020

Mr. Daniel Dinges, P.E.
Director of Public Works
Village of Bartlett
228 South Main Street
Bartlett, IL 60103

**Re: Basin N-1, E-1 & M-4 Phase 2 Sewer System Evaluation Survey Analysis
Village of Bartlett, Cook, DuPage, & Kane Cos., IL**

Dear Dan:

In accordance with your request, enclosed for your review and consideration is our proposed agreement for the Basins N-1, E-1 and M-4 Phase 2 Sewer System Evaluation Survey (SSES). The Phase 2 SSES work is prioritized based off the results of the flow monitoring completed in Basins N-1 and E-1 during the spring/early summer of 2019, as well as past Inflow and Infiltration (I/I) observations in Basin M-4. The SSES fieldwork and analysis is completed to identify the defects contributing to excessive I/I throughout the basin and then define a cost-effective implementation plan for correcting the defects.

The agreement includes a detailed scope of services, estimate of level of effort and associated cost and schedule for the project. We are proposing to provide our professional engineering services for a fixed fee cost of \$122,513. Our proposed schedule is to conduct the field work and analysis in the summer and complete the report in the winter. We are proposing to utilize Duke's as a subcontractor for the field work on this project.

We look forward to continuing our outstanding partnership with the Village and look forward to working with you and members of your staff on this project. If you have any questions or require any additional information, please do not hesitate to contact me.

Respectfully submitted,

ENGINEERING ENTERPRISES, INC.

A handwritten signature in cursive script that reads "Jeffrey W. Freeman".

Jeffrey W. Freeman, P.E., CFM, LEED AP
Chief Executive Officer

JWF/anu

Enclosures

pc: STD, CRW, ANU, DMT, ARS, DRA – EEI (Via E-mail)

**AGREEMENT FOR CONSULTING ENGINEERING SERVICES FOR
BASINS N-1, E-1 & M-4 Phase 2 SSES**

This Agreement made this _____ day of _____, 2020 by and between the Village of Bartlett, Cook, DuPage, and Kane Counties, Illinois, a municipal corporation of the State of Illinois (hereinafter referred to as the "VILLAGE") and Engineering Enterprises, Inc. of 52 Wheeler Road, Sugar Grove, Illinois, 60554 (hereinafter referred to as the "ENGINEER").

In consideration of the mutual covenants and agreements contained in this Agreement, the VILLAGE and the ENGINEER agree, covenant and bind themselves as follows:

1. Services: ENGINEER agrees to perform for the VILLAGE the Services defined within Attachment A.
2. Direction: The Director of Public Works, or his written designee, shall act as the VILLAGE'S representative with respect to the Services to be provided by the ENGINEER under this Agreement and shall transmit instructions and receive information with respect to the Consulting Engineering Services.
3. Compensation: The work items, estimated staff time, and projected fees for each work item are summarized within Attachment B. Based on this computation, the VILLAGE agrees to pay the ENGINEER for providing the Services set forth herein a fixed fee amount of \$122,513.
4. Term: The term of this Agreement shall be active through December 31, 2020 unless otherwise extended through written confirmation by both parties. The work items and phases shall be completed in accordance with the schedule defined within Attachment C.
5. Payment: Engineer shall invoice the VILLAGE on a monthly basis for Services performed and any costs and expenses incurred during the previous thirty (30) day period. The VILLAGE shall pay the ENGINEER within thirty (30) days of receipt of said invoice.
6. Termination: This Agreement may be terminated upon fourteen (14) days written notice of either party. In the event of termination, the ENGINEER shall prepare a final invoice and be due compensation calculated as described in paragraph 3 for all costs incurred through the date of termination.
7. Documents: All related writings, notes, documents, information, files, etc., created, compiled, prepared and/or obtained by the ENGINEER on behalf of the VILLAGE for the Services provided herein shall be used solely for the intended project.
8. Notices: All notices given pursuant to this Agreement shall be sent Certified Mail, postage prepaid, to the parties at the following addresses:

The VILLAGE :

Village of Bartlett
228 South Main Street
Bartlett, IL 60103
Attn: Daniel Dinges, P.E.
Director of Public Works

The ENGINEER:

Engineering Enterprises, Inc.
52 Wheeler Road
Sugar Grove, IL 60554
Attn: Jeffrey W. Freeman, P.E. CFM, LEED AP
Chief Executive Officer

- 9. Waiver: The failure of either party hereto, at any time, to insist upon performance or observation of any term, covenant, agreement or condition contained herein shall not in any manner be constructed as a waiver of any right to enforce any term, covenant, agreement or condition hereto contained.
- 10. Amendment: No purported oral amendment, change or alteration hereto shall be allowed. Any amendment hereto shall be in writing by the governing body of the VILLAGE and signed by the ENGINEER.
- 11. Succession: This Agreement shall ensure to the benefit of the parties hereto, their heirs, successors and assigns.

IN WITNESS WHEREOF, we have hereunto signed our names the day and year first above written.

VILLAGE OF BARTLETT

ENGINEERING ENTERPRISES, INC.:

Title: _____

Jeffrey W. Freeman

Chief Executive Officer

ATTEST:

ATTEST:

Title: _____

Angie Smith

Administrative Assistant

ATTACHMENT A – SCOPE OF SERVICES

BASIN N-1, E-1 & M-4 PHASE 2 SANITARY SEWER EVALUATION STUDY (SSES) – 2020
Village of Bartlett, Cook, DuPage & Kane Co., IL

Introduction

Phase 1 Flow Monitoring was completed in the Basins N-1 and E-1 during the spring/early summer of 2019. The flow monitoring outlined various inflow and infiltration issues within Basins N-1 and E-1. Subbasins E1-A, E1-B and N1-A exhibit signs of excessive rainfall derived infiltration and inflow (RDII) and all the subbasins (Subbasins N1-A, N1-B, E1-A & E1-B) exhibit signs of excessive constant infiltration. Basin M-4 has exhibited an excessive amount of I/I within the past. An exhibit define the limits of Basins and Subbasins of N-1, E-1 and M-4 is attached.

After determining the basins have excessive I/I, the next step in the Inflow and Infiltration Reduciton Program (IIRP) is a Phase 2 Sewer System Evaluation Survey (SSES) analysis. The SSES is conducted within those basins to locate the defects. The scope and cost of the Basins N-1, E-1 & M-1 SSES work includes dual blower smoke testing and level-2 manhole inspections for an estimated 62,379 LF of mains and an estimated 306 manholes in Subbasins Basins N1-A, E1-A, E1-B, M-4A and M-4B. The smoke testing and manhole inspections will be conducted to locate sources of RDII. Village staff is in the process of televising the video from all the subbasins. EEI will review the video as part of this analysis.

Prior to smoke testing, it is recommended the Village alert those who will be affected by the activities of the upcoming work. Those who will be affected by smoke testing include residents and business owners in the study area, the police and fire department, schools, and any others who will be in, or around, the smoke testing area. EEI will work with Village Staff to make any modifications to the Village's SSES Communication Plan the Village sees fit. EEI's SSES subcontractor, Duke's will be responsible for placing door hangers prior to smoke testing, removing door hangers after smoke testing, and coordinating the setup and removal of road signs during smoke testing. The subcontractor will also have a call center available to answer residential questions. The Village will be responsible for sending out mailers, providing any printed media, updating the Village's website, updating social media, and answering any questions from the residents that cannot be answered by the subcontractor.

All cost and schedule decisions are based on EEI's best knowledge of the study area to-date. A project initiation meeting will be conducted prior to the beginning of the SSES work to outline all necessary efforts and discuss anticipated challenges and solutions. This initiation meeting will include representatives from the Village, as well as any other entities, such as the police and fire department, that the Village designates as prudent to invite.

A financial analysis of the cost projected to fix the defects found during the SSES work will also be provided for the Village. The financial analysis, along with a complete list of defects found during the SSES work, will be reviewed with the Village during a progress review meeting. A summary SSES Report will be provided for the Village and will contain an outline of all defects and findings along with the corresponding financial analysis for the defects. A GIS file containing the location of the defects will also be made available to the Village.

The proposed work items for this project are as follows:

PROJECT FACILITATION & MEETINGS:

- 0.1 Project Administration
- 0.2 Project Initiation and Progress Meeting (2 Total Meetings)

SSES FIELD WORK AND ANALYSIS TOTAL:

- 1.1 SSES Advance Communication with Subbasin Residents & Online
- 1.2 Conduct Smoke Testing Within Subbasins N1-A, E1-A, E1-B, M4-A & M4-B
- 1.3 Conduct Level 2 Manhole Inspections Within Subbasins N1-A, E1-A, E1-B, M4-A & M4-B
- 1.4 Televising Video Analysis for Subbasins N1-A, N1-B, E1-A, E1-B, M4-A & M4-B
- 1.5 Analyze Field Work
- 1.6 Conduct Financial Analysis for Manhole and Sewer Rehabilitation

REPORT:

- 2.1 Prepare SSES Summary Report

Additional Services

The above scope summarizes the work items that will be completed for this contract. Additional work items, including additional meetings beyond the project initiation meeting defined in the above scope, shall be considered outside the scope of the base contract and will be billed in accordance with the Standard Schedule of Charges.

Attachment B:
ESTIMATE OF LEVEL OF EFFORT AND ASSOCIATED COST FOR PROFESSIONAL ENGINEERING SERVICES
BASINS N-1, E-1 & M-4 PHASE 2 SEWER SYSTEM EVALUATION SURVEY (SSES) ANALYSIS
INFLOW AND INFILTRATION REDUCTION PROGRAM
Village of Barrlett, Cook, DuPage, & Kane Counties, IL

WORK ITEM NO.	WORK ITEM	ENTITY:	EEI										SUB-CONSULTANT	WORK ITEM HOUR SUMM.	COST PER ITEM
			PROJECT ROLE:	PRINCIPAL	SENIOR PROJECT MANAGER	PROJECT ENGINEER	SENIOR PROJECT TECHN. I	PROJECT TECHN. I	SENIOR PROJECT SURVEYOR I	SENIOR PROJECT SURVEYOR II	ADMIN.				
		HOURLY RATE:	\$214	\$203	\$145	\$145	\$145	\$133	\$160	\$172	\$70				
0.1	Project Administration		1	4									5	\$1,026	
0.2	Project Initiation & Progress Meeting (2 Meetings Total)		6	8		8					1		23	\$4,138	
		Project Facilitation Subtotal:	7	12		8					1		28	\$5,164	
SEWER SYSTEM EVALUATION SURVEY (SSES) FIELD WORK AND ANALYSIS															
1.1	SSES Advance Communication With Subbasin Residents & Online		1	4		8							13	\$2,186	
1.2	Conduct Smoke Testing Within Subbasins N1-A, E1-A, E1-B, M4-A & M4-B					12						\$41,633	12	\$43,373	
1.3	Conduct Level 2 Manhole Inspections Within Subbasins N1-A, E1-A, E1-B, M4-A & M4-B					6						\$33,890	6	\$34,750	
1.4	Televising Video Analysis for Subbasins N1-A, N1-B, E1-A, E1-B, M4-A & M4-B		2	4		50							56	\$8,490	
1.5	Analyze Field Work		2	4		30							36	\$5,590	
1.6	Conduct Financial Analysis For Manhole and Sewer Rehabilitation		2	4		20							26	\$4,140	
		SSES Field Work and Analysis Subtotal:	7	16		126						\$75,513	149	\$98,529	
REPORT															
2.1	Prepare SSES Summary Report		3	16		80		20			4		123	\$18,670	
		Report Subtotal:	3	16		80		20			4		123	\$18,670	
		PROJECT TOTAL:	17	44		214		20			5	\$75,513	300	\$122,363	

DIRECT EXPENSES	
Mileage =	\$50
Printing =	\$100
DIRECT EXPENSES = \$150	

LABOR EXPENSES	
Engineering Expenses =	\$43,600
Drafting Expenses =	\$2,900
Administrative Expenses =	\$350
Subconsultant Expenses =	\$75,513
TOTAL LABOR EXPENSES = \$122,363	
TOTAL CONTRACT COSTS = \$122,513	



Standard Schedule of Charges

January 1, 2020

EMPLOYEE DESIGNATION	CLASSIFICATION	HOURLY RATE
Senior Principal	E-4	\$214.00
Principal	E-3	\$209.00
Senior Project Manager	E-2	\$203.00
Project Manager	E-1	\$183.00
Senior Project Engineer/Planner/Surveyor II	P-6	\$172.00
Senior Project Engineer/Planner/Surveyor I	P-5	\$160.00
Project Engineer/Planner/Surveyor	P-4	\$145.00
Senior Engineer/Planner/Surveyor	P-3	\$133.00
Engineer/Planner/Surveyor	P-2	\$121.00
Associate Engineer/Planner/Surveyor	P-1	\$109.00
Senior Project Technician II	T-6	\$158.00
Senior Project Technician I	T-5	\$145.00
Project Technician	T-4	\$133.00
Senior Technician	T-3	\$121.00
Technician	T-2	\$109.00
Associate Technician	T-1	\$ 96.00
GIS Technician	G-1	\$ 90.00
Engineering/Land Surveying Intern	I-1	\$ 79.00
Administrative Assistant	A-3	\$ 70.00

VEHICLES, REPROGRAPHICS, DIRECT COSTS, DRONE AND EXPERT TESTIMONY

Vehicle for Construction Observation		\$ 15.00
In-House Scanning and Reproduction	\$0.25/Sq. Ft. (Black & White) \$1.00/Sq. Ft. (Color)	
Reimbursable Expenses (Direct Costs)	Cost	
Services by Others (Direct Costs)	Cost + 10%	
Unmanned Aircraft System / Unmanned Aerial Vehicle / Drone		\$ 200.00
Expert Testimony		\$ 250.00