

September 19, 2019

Mr. William D. Cunningham  
Assistant to the Public Works Director  
Village of Orland Park  
15655 Ravinia Avenue  
Orland Park, Illinois 60462

**SUBJECT:      PROFESSIONAL ENGINEERING SERVICES - 151<sup>ST</sup> ST. LIFT STATION WET WELL  
UPGRADES & 151<sup>ST</sup> ST. FORCE MAIN INSPECTION (OPTION 1 – ONE PIPE RUN)**

Dear Mr. Cunningham:

RJN Group, Inc. (RJN) is pleased to submit this proposal to provide Professional Engineering Services to assist the Village of Orland Park (Village) with a Preliminary Design for upgrades to the 151<sup>st</sup> St. Lift Station wet well as well as an inspection of the 151<sup>st</sup> St. Lift Station force main.

This project is a follow up to the assessment of the existing lift station and will provide a report of design options for upgrading the configuration of the Lift Station including enlarging the top barrel sections of the wet well, relocating the pressure transducer & backup floats, assessing new operational set points, adding a bypass pumping valve / valve vault, and determining the feasibility for a permanent onsite standby emergency bypass pump. The wet well is not expected to be moved from its current location, but we will conduct a survey to look at locations for the proposed valve vault and onsite backup pump.

In addition to the wet well upgrades, the Village would also like to assess the condition of the existing force main which shows signs of deterioration and is a critical part of the infrastructure for the Village. The 151<sup>st</sup> St. lift station force main was constructed in 1972 and consists of 1,972 linear feet of 20-inch ductile iron pipe. Severe corrosion was observed at the discharge manhole during the previous lift station assessment investigation. The inspection will be performed using the MTA Pipe Inspector which is a tetherless device that can show locations of corrosion, air pockets and leaks, all of which are key indicators of a potential pipe failure.

#### **PROPOSED SCOPE OF WORK**

Our proposed scope of work is as follows:

**A. 151<sup>st</sup> St. Lift Station – Wet Well & Other Upgrades, Preliminary Design**

1. Topographic survey of existing lift station site, and immediate surrounding area including the bypass pumping valve location and backup pump location. Includes parcel ownership/identification and limits of any existing easements.
2. General review of the wastewater system and project planning area. In addition, we will review Cook County maps to determine any flood plain or wetland impacts on the site.
3. Assessment of the location and feasibility for adding a valve vault with a bypass pumping valve and determine the feasibility for a permanent onsite standby emergency bypass pump.
4. Preliminary design for modifying the wet well by replacing the existing flat top and 4-foot barrel sections with new 8-foot barrel sections, flat top and a double hatched access port.
5. Provide recommendations for the proposed operational set points and the relocation of the pressure transducer and floats.
6. Detail upgrades recommended including a technical description of each upgrade.
7. Include in the report whether the Village will need to acquire permanent or temporary easements for each upgrade.
8. Provide an opinion of probable cost for each component of the lift station upgrade including any recommended forcemain rehabilitation work.
9. Provide a list of all permits that are anticipated to be required.
10. Provide project sequencing information to keep the existing lift station in operation at all times.
11. Complete a “utility pull” by requesting information on other utilities in the area from the applicable utility companies. Determine if there are utility conflicts based on the information provided.
12. Submit up to three copies of the Preliminary Design Report that will include all the items described hereinabove. The Village’s comments will be incorporated into the Final Design.

*Note: This proposal does not include soil borings, environmental testing, design of new pumps, electrical equipment, or landscaping, permit application submittals, or construction plans, specifications and bidding.*

## **B. MTA Pipe Inspector (151<sup>st</sup> St. Lift Station Forcemain)**

13. Provide initial site visit to allow the team to plan for the actual deployment and inspection using MTA Pipe Inspector
14. Provide equipment and personnel as necessary for MTA Pipe Inspection of the 151<sup>st</sup> St. Force main. This proposal includes one (1) pipe inspection run.
15. Provide device tracking and survey grade GPS locates along the route of the force main along with updated force main exhibits in GIS.
16. RJN will prepare a summary memo and perform analysis of data including the following:
  - a. Acoustic sound recording for detection of smallest leakages and air pockets with pinpoint accuracy
  - b. Pressure recording along the entire pipe length
  - c. Length measurement including meter display
  - d. Optical examination & Video in HD-quality
17. Provide a sub-contractor for bypass pumping of the forcemain to allow for flushing of the wet well with clean water from a Village provided fire hydrant.
18. Provide general project management, including startup, coordination of the project with the Village and MTA, providing updates on progress and deliverables including recommendations for replacement or improvements.

*Note: Design of rehabilitation or replacement associated with the 151<sup>st</sup> St. forcemain is not part of this proposal, but it can be added as an amendment.*

## **SCHEDULE**

The investigation work including the MTA inspection will be completed within 8 weeks of a notice to proceed to allow Final Design budget numbers to be included in the 2019 budget. The final preliminary design report will be provided within 10 weeks of the completion of the investigation.

## **ITEMS REQUESTED FROM ORLAND PARK**

We request the following items from the Village:

1. Access to the lift station dry well, wet well & manholes to accommodate the MTA inspection and bypass pumping.
2. Assistance with traffic control where needed in high traffic locations.
3. Water & access to hydrants for flushing of the forcemain prior to and during the MTA inspection at no cost.

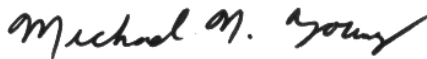
4. Assistance from the Village in removing and replacing the check valve for insertion of the MTA Inspector within the Village's dry well.

**PROPOSED FEE**

The proposed scope of services will be invoiced on a time and material basis using the enclosed fee schedule with an estimated billing of \$49,750.

We appreciate the opportunity to continue providing the Village with professional services on this important project. If you have any questions, please feel free to contact me at 630-682-4700 x314.

Sincerely,  
RJN Group Inc.



Michael N. Young, P.E.  
Principal



Joseph M. Sullivan  
Project Manager

Village of Orland Park  
151st ST Lift Station Upgrades & MTA Force Main Inspection  
Option 1 - One Inspection Run

Task No.	Task Description	200 PD	185 SPM	165 PM	120 PE	100 EI	95 CAD	90 GIS	70 FT	65 CL	110 RE	Total Hours	Total Cost
1001	Survey Coordination	-	-	4	2	-	-	-	-	1	-	7	\$1,000
1002	General and Project Area Planning	-	-	4	-	-	-	-	-	-	-	4	\$700
1003	Lift Station survey site review	-	-	2	2	-	-	2	-	-	-	6	\$800
1004	Lift Station Wet Well Preliminary design	-	2	4	4	2	4	-	-	-	-	16	\$2,100
1005	Cost Estimate	1	1	4	4	-	-	-	-	-	-	9.5	\$1,500
1006	Permit Requirements	-	3	-	4	-	-	-	-	-	-	7	\$1,100
1007	Backup Pump & Bypass Valve Assessment	-	1	4	2	2	-	-	-	-	-	9	\$1,300
2001	MTA Mobilization	-	2	-	-	-	-	-	-	1	-	3	\$500
2002	Initial Site Visit	-	-	4	-	-	-	-	-	-	-	4	\$700
2003	MTA Pipe Inspection	-	4	4	4	-	-	-	-	-	-	12	\$1,900
2004	RJN Prepare Summary Memo & Data Analysis	-	-	2	4	-	-	4	-	1	-	11	\$1,300
2005	MTA Data Deliverables	-	-	-	1	-	-	-	-	1	-	2	\$200
3001	Project Setup, Management & Meetings	1	2	8	-	2	-	-	-	1	-	13.5	\$2,100
		1	15	40	27	6	4	6	-	5	-	104	\$15,200

Direct Expenses

9901	Survey of 151st St. Lift Station Surrounding Area												\$3,060
9902	Mobilization MTA												\$9,850
9903	Bypass Pumping & Flushing of Forcemain												\$13,300
9904	MTA Analysis & Data Deliverables												\$7,940
9905	Shipping												\$250
9906	Mileage												\$150
Total Cost													\$49,750

PD	Project Director
SPM	Senior Project Manager
PM	Project Manager
PE	Project Engineer
EI	Engineering Intern
CAD	CAD Technician
GIS	GIS Technician
FT	Field Tech
CL	Clerical
RE	Resident Engineer





FORCE MAIN SUMMARY:

1,972 LF of 20" DIP

