

**VILLAGE OF CARPENTERSVILLE  
REQUESTS FOR PROPOSALS  
WATER DISTRIBUTION VALVE EXERCISING**

**OWNER:**

Village of Carpentersville ("**Village**")  
1200 L.W. Besinger Drive  
Carpentersville, Illinois 60110

The Village will receive proposals for the work generally described as follows:

2016 – 2017 Water Distribution Valve Exercising Program ("**Work**")

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**INSTRUCTIONS TO BIDDERS**

Preparation of Proposals

All proposals for the Work shall be made only on the blank Contract/Proposal form attached to this Request for Proposals and shall be complete with a price for each and every item named in the Schedule of Prices section of the Contract/Proposal form. All proposals must be signed by an authorized official. All proposals shall be accompanied by a cashier's or certified check, in form and from a surety satisfactory to the Village, in an amount equal to at least ten percent of the Total Contract Price named in the Schedule of Prices section of the Contract/Proposal form. Proposals that contain omissions, erasures, alterations, or additions not called for, conditional or alternative bids unless called for, or that contain irregularities of any kind may be rejected.

Clarifications

The Village reserves the right to make clarifications, corrections, or changes in this Request for Proposals at any time prior to the time proposals are opened. All bidders or prospective bidders will be informed of said clarifications, corrections, or changes.

Delivery of Proposals

Each proposal shall be submitted in a sealed envelope plainly marked with the title of the contract and bidder's full legal name and shall be addressed and delivered to the place and before the time set forth above. Proposals may be delivered by mail or in person. Proposals received after the time specified above will be returned unopened.

Opening of Proposals

Proposals will be publicly opened and read at the time and place specified above. Bidders, their authorized agents, and interested parties are invited to be present.

Withdrawal of Proposals

No proposal shall be withdrawn for a period of 45 days after the opening of any proposal.

## Rejection of Proposals

Proposals that are not submitted on the Contract/Proposal form or that are not prepared in accordance with these Instructions to Bidders may be rejected. If not rejected, the Village may demand correction of any deficiency and accept the deficiently prepared proposal upon compliance with these Instructions to Bidders.

## Acceptance of Proposals

Proposals submitted are offers only and the decision to accept or reject is a function of quality, reliability, capability, reputation, and expertise of the bidders.

The Village reserves the right to accept the proposal that is in its judgment, the best and most favorable to the interests of the Village and to the public; to reject the low price proposal; to accept any item of any proposal; to reject any and all proposals; and to waive irregularities and informalities in any proposal submitted or in the request for proposal process; provided, however, the waiver of any prior defect or informality shall not be considered a waiver of any future or similar defect or informality. Bidders should not rely upon, or anticipate, such waivers in submitting their proposal.

Upon acceptance of the successful Bidder's proposal by the Village, the successful Bidder's proposal, together with the Village's notification of acceptance in the form attached to this Request for Proposals, shall become the contract for the Work.

DATED this 11<sup>th</sup> day of May, 2016.

By: *Bob Cole*

Director of Public Works  
Village of Carpentersville

**VILLAGE OF CARPENTERSVILLE  
CONTRACT/PROPOSAL FOR THE  
2016 – 2017 WATER DISTRIBUTION VALVE EXERCISING PROGRAM**

Full Name of Contractors: M.E. Simpson  
Principal Office Address: 3406 Enterprise Ave. Valparaiso, IN 46383  
Local Office Address: \_\_\_\_\_  
Contact Person: Randy Lusk  
E-mail: \_\_\_\_\_  
Telephone Number: 800 255 – 1521

TO: Village of Carpentersville ("**Village**")  
1200 L.W. Besinger Drive  
Carpentersville, Illinois 60110  
Attention: Bob Cole, Director of Public Works

*Bidder warrants and represents that Bidder has carefully examined the Work Site described below and has reviewed and understood all documents included, referred to, or mentioned in this bound set of documents, including Addenda Number. "**NONE**", which are securely stapled to the end of this Contract/Proposal.*

**1. Work Proposal**

A. **Contract and Work.** If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall, at its sole cost and expense, provide, perform, and complete, in the manner specified and described, and upon the terms and conditions set forth, in this Contract/Proposal and the Village's written notification of acceptance in the form included in this bound set of documents, all of the following, all of which is herein referred to as the "**Work**":

1. **Labor, Equipment, Materials, and Supplies.** Provide, perform, and complete, in the manner specified and described in this Contract/Proposal, all necessary work, labor, services, transportation, equipment, materials, supplies, information, data, and other means and items necessary for the **2016-17 Water Distribution Valve Exercising Program ("Work")**
2. **Permits.** Procure and furnish all permits, licenses, and other governmental approvals and authorizations necessary in connection therewith;
3. **Bonds and Insurance.** Procure and furnish all bonds and all insurance certificates ~~and policies of insurance~~ specified in this Contract/Proposal;
4. **Taxes.** Pay all applicable federal, state, and local taxes;
5. **Miscellaneous.** Do all other things required of Bidder by this Contract/Proposal; and
6. **Quality.** Provide, perform, and complete all of the foregoing in a proper and workmanlike manner, consistent with the standards of recognized professional firms in performing Work of a similar nature, in full compliance with, and as required by or pursuant, to this Contract/Proposal, and with the greatest economy, efficiency, and expedition consistent therewith, with only new, undamaged, and first quality equipment, materials, and supplies.

B. Performance Standards. If this Contract/Proposal is accepted, Bidder proposes, and agrees, that all Work shall be fully provided, performed, and completed in accordance with the specifications attached to, and by this reference made a part of, this Contract/Proposal as Exhibit A.

C. Responsibility for Damage or Loss. Bidder proposes, and agrees, that Bidder shall be responsible and liable for, and shall promptly and without charge to the Village repair or replace, any damage done to, and any loss or injury suffered by, the Village, the Work, the Work Site, or other property or persons as a result of the Work.

~~D. Inspection/Testing/Rejection. The Village shall have the right to inspect all or any part of the Work and to reject all or any part of the Work that is, in the Village's judgment, defective or damaged or that in any way fails to conform strictly to the requirements of this Contract/Proposal and the Village, without limiting its other rights or remedies, may require correction or replacement at Bidder's cost, perform or have performed all Work necessary to complete or correct all or any part of the Work that is defective, damaged, or nonconforming and charge Bidder with any excess cost incurred thereby, or cancel all or any part of any order or this Contract/Proposal. Work so rejected may be returned or held at Bidder's expense and risk.~~

## 2. Contract Price Proposal

If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall take in full payment for all Work and other matters set forth under Section 1 above, including overhead and profit, taxes, contributions, premiums, and compensation to all subcontractors and suppliers, the compensation set forth below.

### A. SCHEDULE OF PRICES

<b>Project Description</b>	<b>Annual Cost</b>
<b>2016:</b> Provide all labor and equipment necessary to exercise approximately 1425 water distribution valves.	\$57,000
<b>2017:</b> Provide all labor and equipment necessary to exercise approximately 1425 water distribution valves	\$58,245
<b>Total Two Year Cost</b>	<b>\$115,245</b>

### **TOTAL CONTRACT PRICE:**

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One Hundred Fifteen Thousand Two Hundred Forty Five & No/Hundreds  
(in writing):

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\$115,245 & 00/100  
(in figures):

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**B. BASIS FOR DETERMINING PRICES**

It is expressly understood and agreed that:

1. All prices stated in the Schedule of Prices are firm and shall not be subject to escalation or change;
2. The Village is not subject to state or local sales, use, and excise taxes, that no such taxes are included in the Schedule of Prices, and that all claim or right to claim any additional compensation by reason of the payment of any such tax is hereby waived and released;
3. All other applicable federal, state, and local taxes of every kind and nature applicable to the Work are included in the Schedule of Prices.
4. The approximate quantities set forth in the Schedule of Prices for each Unit Price Item are the Village's estimate only, that the Village reserves the right to increase or decrease such quantities, that payment for each Unit Price Item shall be made only on the actual number of acceptable units of such Unit Price Item installed complete in place in full compliance with this Contract/Proposal, and that all claim or right to dispute or complain of any such estimated quantity, or to assert that there was any misunderstanding in regard to the nature or amount of any Unit Price Item to be provided or performed, is hereby waived and released.]

**C. TIME OF PAYMENT**

It is expressly understood and agreed that all payments shall be made in accordance with the following schedule:

**2016**

<b>Invoice Submission Date Dead Line</b>	<b>Payment Release Date</b>
June 1, 2016	June 24, 2016
July 1, 2016	July 22, 2016
August 1, 2016	August 19, 2016
September 1, 2016	September 23, 2016
October 1, 2016	October 21, 2016
November 1, 2016	November 18, 2016
December 1, 2016	December 23, 2016

**2017**

<b>Invoice Submission Date Dead Line</b>	<b>Payment Release Date</b>
June 1, 2017	June 25, 2017
July 1, 2017	July 23, 2017
August 1, 2017	August 20, 2017
September 1, 2017	September 24, 2017
October 1, 2017	October 22, 2017
November 1, 2017	November 19, 2017
December 1, 2017	December 24, 2017

All payments may be subject to deduction or setoff by reason of any failure of Bidder to perform under this Contract/Proposal. Each payment shall include Bidder's certification of the value of, and partial or final waivers of lien covering, all Work for which payment is then requested and Bidder's certification that all prior payments have been properly applied to the payment or reimbursement of the costs with respect to which they were paid.

### 3. Contract Time Proposal

If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall commence the Work within 10 days following the Village's acceptance of this Contract/Proposal provided Bidder shall have furnished to the Village all ~~bonds and~~ all insurance certificates ~~[and policies of insurance]~~ specified in this Contract/Proposal. If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall perform the Work diligently and continuously and shall complete the Work not later than December 31, 2016. The Village may modify the Time of Performance at any time upon 15 days prior written notice to the Bidder. Delays caused by the Village shall extend the Time of Performance; provided, however, that Bidder shall be responsible for completion of all Work within the Time of Performance, notwithstanding any strike or other work stoppage by employees of either Bidder or of the Village.

### 4. Financial Assurance

A. ~~Bonds.~~ If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall provide a Performance Bond and a Labor and Material Payment Bond, on forms provided by, or otherwise acceptable to, the Village, from a surety company acceptable to the Village, each in the penal sum of the Contract Price, within 10 days following the Village's acceptance of this Contract/Proposal.

B. Insurance. If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall provide certificates ~~[and policies]~~ of insurance evidencing the minimum insurance coverages and limits set forth below within 10 days following the Village's acceptance of this Contract/Proposal. Such policies shall be in form, and from companies, acceptable to the Village. The insurance coverages and limits set forth below shall be deemed to be minimum coverages and limits and shall not be construed in any way as a limitation on Bidder's duty to carry adequate insurance or on Bidder's liability for losses or damages under this Contract/Proposal. The minimum insurance coverages and limits that shall be maintained at all times while providing, performing, or completing the Work are as follows:

#### 1. Workers' Compensation and Employer's Liability

Limits shall not be less than:

Worker's Compensation: Statutory

Employer's Liability:     \$500,000 ea. accident-injury  
                                   \$500,000 ea. employee-disease  
                                   \$500,000 disease-policy

Such insurance shall evidence that coverage applies to the State of Illinois.

2. Comprehensive Motor Vehicle Liability

Limits for vehicles owned, non-owned or rented shall not be less than:

\$1,000,000 Bodily Injury and Property Damage Combined Single Limit

3. Comprehensive General Liability

Limits shall not be less than:

\$1,000,000 Bodily Injury and Property Damage Combined Single Limit.

Coverage is to be written on an "occurrence" basis.

Coverage to include:

- Premises Operations
- Products/Completed Operations
- Independent Contractors
- Personal Injury (with Employment Exclusion deleted)
- Broad Form Property Damage Endorsement
- "X," "C," and "U"
- Contractual Liability

Contractual Liability coverage shall specifically include the indemnification set forth below.

4. Umbrella Liability

Limits shall not be less than:

\$2,000,000 Bodily Injury and Property Damage Combined Single Limit.

This Policy shall apply in excess of the limits stated in 1, 2, and 3 above.

C. Indemnification. If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall indemnify, save harmless, and defend the Village against all damages, liability, claims, losses, and expenses (including attorneys' fees) that may arise, or be alleged to have arisen, out of or in connection with Bidder's performance of, or failure to perform, the Work or any part thereof, or any failure to meet the representations and warranties set forth in Section 6 of this Contract/Proposal.

D. Penalties. If this Contract/Proposal is accepted, Bidder proposes, and agrees, that Bidder shall be solely liable for any fines or civil penalties that are imposed by any governmental or quasi-governmental agency or body that may arise, or be alleged to have arisen, out of or in connection with Bidder's performance of, or failure to perform, the Work or any part thereof.

5. Firm Proposal

All prices and other terms stated in this Contract/Proposal are firm and shall not be subject to withdrawal, escalation, or change provided the Village accepts this Contract/Proposal within 45 days after the date this sealed Contract/Proposal is opened.

## 6. Bidder's Representations and Warranties

In order to induce the Village to accept this Contract/Proposal, Bidder hereby represents and warrants as follows:

A. The Work. The Work, and all of its components, shall strictly conform to the requirements of this Contract/Proposal, including, without limitation, the performance standards set forth in Subsection 1B of this Contract/Proposal; and shall be fit, sufficient, and suitable for the purposes expressed in, or reasonably inferred from, this Contract/Proposal and the warranties expressed herein shall be in addition to any other warranties expressed or implied by law, which are hereby reserved unto the Village.

~~B. Compliance with Laws. The Work, and all of its components, shall be provided, performed, and completed in compliance with, and Bidder agrees to be bound by, all applicable federal, state, and local laws, orders, rules, and regulations, as they may be modified or amended from time to time, including without limitation *[the Prevailing Wage Act, 820 ILCS 130/0.01 et seq. (in furtherance of which, a copy of the Village's ordinance ascertaining the prevailing rate of wages, in effect as of the date of this Contract/Proposal, has been attached as an Appendix to this Contract/Proposal; if the Illinois Department of Labor revises the prevailing rate of hourly wages to be paid, the revised rate shall apply to this Contract); any other]* *[any]* prevailing wage laws; any statutes requiring preference to laborers of specified classes; any statutes prohibiting discrimination because of, or requiring affirmative action based on, race, creed, color, national origin, age, sex, or other prohibited classification; and any statutes regarding safety or the performance of the Work. Further, Bidder shall have a written sexual harassment policy in compliance with Section 2-105 of the Illinois Human Rights Act during the course of the work.~~

C. Not Barred. Bidder is not barred by law from contracting with the Village or with any other unit of state or local government as a result of (i) a delinquency in the payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate Revenue Act, its liability for the tax or the amount of tax, as set forth in 65 ILCS 5/11-42.1-1; or (ii) a violation of either Section 33E-3 or Section 33E-4 of Article 33 of the Criminal Code of 1961, 720 ILCS 5/33E-1 et seq.

D. Qualified. Bidder has the requisite experience, ability, capital, facilities, plant, organization, and staff to enable Bidder to perform the Work successfully and promptly and to commence and complete the Work within the Contract Price and Contract Time Proposals set forth above.

## 7. Acknowledgements

In submitting this Contract/Proposal, Bidder acknowledges and agrees that:

A. Reliance. The Village is relying on all warranties, representations, and statements made by Bidder in this Contract/Proposal.

B. Reservation of Rights. The Village reserves the right to reject any and all proposals, reserves the right to reject the low price proposal, and reserves such other rights as are set forth in the Instructions to Bidders.

C. Acceptance. If this Contract/Proposal is accepted, Bidder shall be bound by each and every term, condition, or provision contained in this Contract/Proposal and in the Village's written notification of acceptance in the form included in this bound set of documents.



D. Remedies. Each of the rights and remedies reserved to the Village in this Contract/Proposal shall be cumulative and additional to any other or further remedies provided in law or equity or in this Contract/Proposal.

E. Time. Time is of the essence in the performance of all terms and provisions of this Contract/Proposal and, except where stated otherwise references in this Contract/Proposal to days shall be construed to refer to calendar days and time.

F. No Waiver. No examination, inspection, investigation, test, measurement, review, determination, decision, certificate, or approval by the Village, whether before or after the Village's acceptance of this Contract/Proposal; nor any information or data supplied by the Village, whether before or after the Village's acceptance of this Contract/Proposal; nor any order by the Village for the payment of money; nor any payment for, or use, possession, or acceptance of, the whole or any part of the Work by the Village; nor any extension of time granted by the Village; nor any delay by the Village in exercising any right under this Contract/Proposal; nor any other act or omission of the Village shall constitute or be deemed to be an acceptance of any defective, damaged, or nonconforming Work, nor operate to waive or otherwise diminish the effect of any representation or warranty made by Bidder; or of any requirement or provision of this Contract/Proposal; or of any remedy, power, or right of the Village.

G. Severability. It is hereby expressed to be the intent of the parties to this Contract/Proposal that should any provision, covenant, agreement, or portion of this Contract/Proposal or its application to any Person or property be held invalid by a court of competent jurisdiction, the remaining provisions of this Contract/Proposal and the validity, enforceability, and application to any Person or property shall not be impaired thereby, but the remaining provisions shall be interpreted, applied, and enforced so as to achieve, as near as may be, the purpose and intent of this Contract/Proposal to the greatest extent permitted by applicable law.

H. Amendments and Modifications. No amendment or modification to this Contract/Proposal shall be effective until it is reduced to writing and approved and executed by the corporate authorities of the parties in accordance with all applicable statutory procedures.

I. Assignment. Neither this Contract/Proposal, nor any interest herein, shall be assigned or subcontracted, in whole or in part, by Bidder except upon the prior written consent of the Village.

J. Governing Law. This Contract/Proposal shall be governed by, construed and enforced in accordance with the internal laws, but not the conflicts of laws rules, of the State of Illinois.

K. Certified Payrolls. Bidder shall, in accordance with Section 5 of the Illinois Prevailing Wage Act, 820 ILCS 130/5, submit to the Village, on a monthly basis, a certified payroll. The certified payroll shall consist of a complete copy of those records required to be made and kept by the Prevailing Wage Act. The certified payroll shall be accompanied by a statement signed by the Bidder or subcontractor which certifies that: (1) such records are true and accurate; (2) the hourly rate paid is not less than the general prevailing rate of hourly wages required by the Prevailing Wage Act; and (3) Bidder or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class B misdemeanor. A general contractor may rely upon the certification of a lower tier subcontractor, provided that the general contractor does not knowingly rely upon a subcontractor's false certification. Upon two business days' notice, Bidder and each subcontractor shall make available for inspection the records required to be made and kept by the Act: (i) to the Village, its officers and agents, and to the Director of the Illinois Department of Labor and his or hers deputies and agents; and (ii) at all reasonable hours at a location within this State.

L. Conflicts of Interest. Bidder represents and certifies that, to the best of its knowledge, (1) no elected or appointed Village official, employee or agent has a personal financial interest in the business of the Bidder or in this Contract/Proposal, or has personally received payment or other consideration for this Contract/Proposal; (2) as of the date of this Contract/Proposal, neither Bidder nor any person employed or associated with Bidder has any interest that would conflict in any manner or degree with the performance of the obligations under this Contract/Proposal; and (3) neither Bidder nor any person employed by or associated with Bidder shall at any time during the term of this Contract/Proposal obtain or acquire any interest that would conflict in any manner or degree with the performance of the obligations under this Contract/Proposal.

DATED this 11<sup>th</sup> day of May, 2016

CONTRACTOR SIGNATURE: 

Contractors Status: (X) IN Corporation ( ) \_\_\_\_\_ Partnership ( ) Individual Proprietor  
(State) (State)

Contractors Name: M.E. Simpson Co., Inc.

Doing Business As (if different): \_\_\_\_\_

Signature of Contractors or Authorized Agent: \_\_\_\_\_

(corporate seal) Printed Name: \_\_\_\_\_

(if corporation) Title/Position: \_\_\_\_\_

Contractors Business Address: 3406 Enterprise Ave.  
Valparaiso, IN 46383

Contractors Business Telephone: 800-255-1521 Facsimile: 888-531-2444

Contractors E-mail mikea@mesimpson.com

If a Corporation or Partnership, list all Officers or Partners:

NAME	TITLE	ADDRESS
Michael Simpson	CEO, Treasurer	3406 Enterprise, Valpo
Dan E. Hood	President	3406 Enterprise, Valpo
Pamela Hood	Secretary	3406 Enterprise, Valpo
John H. Van Arsdel	Director	3406 Enterprise, Valpo

DATED this 11<sup>th</sup> day of May, 2016

**ACCEPTANCE**

The Contract/Proposal attached hereto and by this reference incorporated herein and made a part hereof is hereby accepted by the order of the Village of Carpentersville ("**Village**") this 17<sup>th</sup> day of May, 2016.

This Acceptance, together with the Contract/Proposal attached hereto, constitutes the entire and only agreement between the parties relating to the accomplishment of the Work and the compensation therefor and supersedes and merges any other prior or contemporaneous discussions, agreements, or understandings, whether written or oral, and shall prevail over any contradictory or inconsistent terms or conditions contained in any purchase order, acceptance, acknowledgement, invoice, or other standard form used by the parties in the performance of the Contract/Proposal. Any such contradictory or inconsistent terms or conditions shall be deemed objected to by the Village without further notice of objection and shall be of no effect nor in any circumstances binding upon the Village unless accepted by the Village in a written document plainly labeled "Amendment to Contract/Proposal." Acceptance or rejection by the Village of any such contradictory or inconsistent terms or conditions shall not constitute acceptance of any other contradictory or inconsistent terms or conditions.

**VILLAGE OF CARPENTERSVILLE**

By:   
\_\_\_\_\_  
**J. Mark Rooney**  
**Village Manager**

The Water Distribution System Valve Assessment Program is conducted in the field by a Contractor using TWO (2) (trained technicians on each valve team). When necessary, the Contractor may use a hydraulic valve machine capable of operating 2" through 60" valves. This machine can be set with a torque as low as 5 foot pounds and is capable of increasing up to 2,500 foot pounds. The hydraulic valve operator with the "adjustable torque control" feature, along with experienced operating personnel, prevents excessive breakage during valve exercising. The Contractor will furnish all labor, material, transportation, tools, and equipment necessary to perform the program. The Contractor shall be required to provide such skilled and trained personnel and equipment necessary to complete the work herein specified. These personnel are required to have a minimum of three years field experience in valve location, exercising and computer mapping. They will locate and operate each main line valve in the system. The important operation and location details of each valve will be noted and compiled on a "Valve Assessment Report" and submitted to The Village of Carpentersville Public Works Department your office, as a Valve Book, for your permanent records.

The valve information will then be entered into Polcon Pro-Valve<sup>®</sup> (detailed later) or an approved database program. All mainline valve information will be entered into Polcon Pro-Valve<sup>®</sup> (the data base) with an appropriate diagram showing each valve at its location. All pertinent information such as size, number of turns to operate, depth to the operating nut, right or left turn, normally open or closed, and location by measurement from existing landmarks is a part of each valve record.

The importance of the Valve Assessment Program is apparent when major emergencies arise and Utility personnel are unable to either locate or close a valve or several valves during a water main break. The same problem occurs when valves that are normally closed need to be opened during a firefighting effort and these valves then fail in the closed position. These situations may occur if valves are not exercised annually or at least every two years.

Any valves that break or fail during the exercising program will be repaired or replaced at the expense of the *Utility*. The Contractor cannot be held responsible for possible valve failures during exercising.

## PROJECT OVERVIEW

### LOCATING

- All main line water valves will be located and positions recorded in such a manner to allow the location to be known and readily re-creatable by *Utility* personnel upon demand.
- Water maps will be examined to determine the anticipated location of each water valve.
- The existence of all water valves shown on the water maps will be verified by visual inspection.
- Any water valves shown, but not identified by visual inspection, will be searched for using a magnetic locator.
- Should search by magnetic locator fail, radio-detection equipment shall be used to trace existing water mains to establish the configuration and the probable location of water valves.
- A combination of recorded information, manual and technical testing techniques as is needed will be employed in order to establish the location of remaining water valves.
- Once located, valve boxes or valve vault covers shall be painted with an environmentally formulated precautionary blue paint for future identification.

## EXERCISING

- Each of the located water valves will be exercised to an extent to insure its ability to operate through its full range of “turns” or complete revolutions upon demand.
- The Contractor shall notify the *Director of Public Works or Designee*, of the intent to exercise a certain group of water valves. They shall obtain permission to perform the work at least twenty-four (24) hours or one (1) working day in advance of the intended start of scheduled work.
- They will first attempt to operate each of the valves manually.
- Valves requiring an operating torque greater than one hundred (100) foot-pounds shall be exercised by a portable hydraulic valve machine.
  - This machine shall be capable of operating all valves in the *Utility* water system. It shall have torque-limiting capabilities that allow incremental settings from five (5) to twenty-five hundred (2500) foot pounds of torque. Most importantly, this machine shall be solely and completely dependent upon the operator for continuous control of direction and torque, otherwise known as “non-locking” or “adjustable torque control” capability.
  - Valves will be exercised with the minimum torque required in order to prevent valve damage. During initial valve closure the valve will be turned no more than five (5) turns before turn direction is reversed for two (2) turns, thus allowing the threads of the stem and gate to free themselves. This closure and partial reversal process shall be repeated until the valve has achieved full closure.
- The valves shall be exercised from full open to full closure a minimum of three (3) times until such time as this can be done without further turn range improvement or no further reduction in the required operating torque is noted. Then, the top and bottom operation range shall be additionally exercised an additional three (3) times.

## MAPPING

- A sketch of every valve location is made in the field.
- Mapping is an optional addition to the Water Distribution System Valve Assessment Program. The *Utility* has the option of acquiring the physical hard copy of the Valve Book, the Electronic Database, and/or the secure online Polcon Pro-Valve® database.
- When requested, all of the information collected will be compiled by means of Polcon Pro-Valve® software driven water valve database with graphic interface and hard copy reproduction capabilities.
- The Contractor will provide a valve mapping and exercise report for each valve located in the form of a valve book.
- Each intersection or valve location will be sketched identifying the valve placement and, if applicable, hydrant placement. This sketch is to be a visual representation drawn not to scale but proportional. Drawings will include the curb or street edges and other landmarks necessary for valve location. They will then place this information into Polcon Pro-Valve® software or approved database.

- The report shall include, but not be limited to, the following water valve information:
  - Identifying number consistent and compatible with system presently employed by the *Utility*
  - Location referenced by coordinates in landmark system approved by the *Utility*
  - Location by street and cross-street names
  - Size
  - Type
  - Operating nut depth
  - Enclosure type
  - Number of turns to achieve full closure
  - Direction of closure
  - Present valve position
  - Date exercised
  - A graphic drawing of each location with measurements from existing landmarks

## **GPS LOCATIONS**

The Contractors GPS Location Program will be accomplished by using a Trimble GPS GeoXH receiver. The Contractor will locate all water appureteneces and other structures selected by the utility for location with the Trimble GeoXH receiver. The units used shall utilize twelve-channel receivers that will receive correction factors from a differential beacon, low flying satellite, or a Beacon on a Belt.

The feature and attribute data will be input on the GeoXH data collector using the TerraSync™ software. Data will be transferred into the GPS Pathfinder Office software. This software supports all aspects of GIS data collection and data maintenance, and can be exported into a variety of industry–standard GIS and database formats. The GPS position data that is collected will be “post processed” using current correction factors published and available on the Internet if correction factors for the correction beacon are not able to be obtained, or the low flying satellite is unable to provide correction factors. The information collected will be gathered and placed in an access database, which will be provided on a CD so that the information can be imported into your GIS Mapping system or other database formats.

Once the mainline valves have been located, the Contractor Project Team will perform the following:

- **The Project Team will collect GPS Coordinates** of all mainline valves assessed using the above “Scope of Work”
- The Project Team will work with the Utility to develop a “data dictionary” which will define the information to be collected for each attribute. The Data dictionary shall have the following but not limited to:
  - Date and time the information was gathered.
  - The unique identifying number for each attribute consistent and compatible with system presently employed by the *Utility*.
  - Location for each attribute referenced by Northing and Easting coordinates generated from the GPS location in the Utility’s local State Plane Coordinate system.
  - Type of Attribute (mainline valve).
  - Offset information if the attribute needs to have the location determined by an offset coordinate due to blocked signals from the GPS satellites.
  - Any other data required to be collected as part of the attribute data set as defined by the Data Dictionary. This Data Dictionary will be assembled by the Project Team and the Utility.

- **The accuracy of each GPS location will be sub-meter.**
- **The location of “offset” GPS locations** shall be accomplished by use of a Laser Rangefinder with an accuracy of 1/10<sup>th</sup> of a foot with an automatic Electronic Compass coupled to the GPS data collector. This is so that a bearing and distance from the offset location to the target GPS location can be recorded as part of the attribute data. This will allow coordinates to be generated in high tree canopy and urban canyons where normal coverage would not be possible.
- **GPS locations will need to have readings** from at least four satellites in position and a reading from a local GPS beacon, or five satellites for the position to be considered accurate as a differentially corrected GPS location.
- **“PDOP” readings need to be less than 5.** “PDOP” readings greater than 5 will not be considered as accurate locations.
- **A minimum of 30 readings** for each position shall be taken.
- **Position of the GPS satellites shall be given primary consideration.** The position of the satellites shall be recorded as part of the data. If the satellites are low on the horizon, it is expected that the project team will wait until the position is better before attempting to gather the GPS position. Data collected with the satellites low on the horizon and/or poorly distributed shall not be considered valid.
- **The information collected** will be compiled into the **Pathfinder Office** or **TerraSync™** software database with the ability to export the information into a format acceptable to the Utility such as Microsoft Access, Microsoft Excel, .DXF file, or .SHP file for use in the Utility’s GIS system or CAD mapping program, and also included in the Polcon Pro Valve® database.
- **All locations will be differentially corrected** for accuracy. A stationary beacon or mobile beacon can be set up to allow differential correction. All data will be “Post- Processed”, so that a comparison can be made to a Local stationary GPS receiver. The locations of the stationary GPS stations can be obtained from the Internet. The particular stationary GPS receiver shall be listed in the final report as the station used for differential correction. This will allow for a greater accuracy of the GPS locations.

## **DOCUMENTATION OF GPS LOCATIONS**

The Contractor will provide a location report for each valve located, included in the Valve Assessment book and/or a database on a CD in a format agreed upon between the Utility and the Contractor. Valve locations will be compiled into a database such as Access or Excel.

- The GPS location data collected will be exported into a database for Utility use
- The GPS data collected shall include but is not limited to the following information:
  - a. *Identifying number consistent and compatible with system presently employed by the Utility.*
  - b. *Location referenced by coordinates using the **Illinois State Plane Coordinate System.***
  - c. *Location by street and cross-street names*
  - d. *Type of structure.*
  - e. *Date and time data was collected.*

## **POLCON PRO-VALVE®**

In lieu of the Access database, the contractor may provide **Polcon Pro-Valve®** online database.

Any database and software utilized, must have the ability to be read and manipulated with any other database product that supports Object Database Connectivity (ODBC). This provides flexibility to a user that needs to cross platforms.

The images shall be drawn using a stand-alone program called "TurboCad" by IMSI (or approved equal). The program must have the ability to make an extremely detailed drawing of the valve area. Also, for the purpose of editing, every item in a drawing is must be a separate object which can be selected and edited by simply pointing and clicking.

There are three areas of information that shall be recorded in the database. The first area is the **valve card**. The valve card keeps all the information about the valve that normally doesn't change year to year including:

- Valve number
- Map page number
- Street name
- Cross street name
- Size
- Turn direction
- Type
- Operating nut depth
- Position
- Box style
- Site
- x-y Coordinates of the valve

The second area is the **exercising history**. As valves are turned year to year some information changes, this information is kept in ascending order by date so that the most recent information for the valve is always on top. Probably the most important piece of history information is the valve code. The valve code is used to organize the valves into groups. For example: a valve with no problems is coded "Valve OK" a valve that cannot be exercised because of debris in the box is coded "Box full of debris". There are many other valve codes describing the condition of the valves. The history section includes:

- Turn date
- Number of turns
- Technician
- Machine torque ratings
- Valve codes
- Comments

The third area is the **drawing** area. Each valve has an associated image assigned to it. The drawing must then be embedded into the database and assigned to the proper valves. The drawings are not to scale but are a proportional representation of the area around the valve.

In order to make the information worth having, the database and soft provided must pulls all the valve information together into a variety of reports. Reports include:

- Valve Card Books
- Exception Report
- Valve Listing by Number
- Valve Listing by Street
- Problem Valve List (Useful for Work Orders)



## ASSUMPTIONS AND SERVICES PROVIDED BY THE UTILITY

- The *Utility* will furnish all maps, atlases, (two copies) and records necessary to properly conduct the valve-exercising program.
- As a part of the Water Distribution System Valve Assessment Program the *Utility* must make available, on a reasonable but periodic basis, certain personnel with a working knowledge of the water system who may be helpful in attempting to locate particularly hard-to-find water valves. The selection of the specific personnel and times they would be available would be made entirely at the discretion and direction of the *Director of Public Works, or Water Superintendent*. The immediacy and longevity of the availability shall not be considered justifiable reason for the contractor to fail to complete the work in accordance with the completion schedule specified.
- The *Utility* will provide records such as old valve cards or any additional information to make the valve location and exercising easier to perform. This information shall be regarded as **CONFIDENTIAL** by the Contractor and will not be shared with anyone outside of the *Utility* without consent of the *Utility*.
- The *Utility* will notify other departments in the city, town, or village as to the activity of valve exercising. This is done so various departments are aware the program is in progress should there be a problem with part of the distribution system, and notification can be made promptly.
- The *Utility* will also make available, on a reasonable but periodic basis, certain personnel with a working knowledge of the water system who may be helpful in attempting to locate particularly hard-to-find valves and for general information about the water system. *This person will not need to assist the Project Team on a full time basis*, but only on an "as needed" basis.
- The *Utility* will assist, if needed, to help gain entry into sites difficult to get into due to security issues or other concerns. This may be required of areas where distribution mains run in easements on private property.

## EQUIPMENT USED

- Truck mounted hydraulic valve operator w/adjustable torque control
- Portable hydraulic valve operator w/adjustable torque control
- Extendable valve keys for manual operation
- All necessary hand tools
- Truck mounted arrow board/signage, and warning lights on trucks.
- Traffic control equipment, including properly sized traffic cones with reflective stripes when needed or required.
- All necessary safety equipment, including Rose confined space entry equipment and Crowcon air monitoring / gas detection equipment when needed or required.
- Schonstedt or Chicago Tape magnetic locator
- Radio Detection RD400 series line locator

## SAFETY

Safety is a major part of this project; the *Utility* requires a safe work environment for its employees, technical service providers and the general public. The technical service provider is required to provide a safe work environment at all times during this project. The technical service provider will

provide personnel trained in **Confined Space Entry & Self-Rescue, Work Place First Aid, CPR and Traffic Control**. While in the field on this project, the technical service provider and its employees will follow all of the necessary safety procedures to protect themselves, the *Utility* staff and general public. **A minimum of Two-Person Teams will be used at all times for Safety and Quality Assurance.**

Therefore, the technical service provider will adhere to the following:

- Any water meter and/or valve locations located in a "**confined space**" such as pit or vault installations that **require entry** will be treated in accordance with the safety rules regarding **Confined Space Entry** as is designated by the *Utility, The Department of Labor and OSHA*. Project personnel will be **trained** (certified were applicable) in Confined Space Entry & Self-Rescue.
- Proper PPE (personal protection equipment) shall be worn at all times. A class III reflective safety vest will be worn for all work. Class II will not be accepted.
- The Project Team will follow all **traffic safety rules**, as is designated by the *Utility, The Department of Labor, OSHA and the State Department of Transportation*. Project personnel will be **trained** (certified were applicable) by an organization such as the **AMERICAN TRAFFIC SAFETY SERVICES ASSOCIATION (ATSSA)**, in Traffic Control and Safety (MUTCD Standards).
- The Project Team will follow all procedures regarding **Work Place First Aid & CPR**, as is designated by the *Utility, The Department of Labor and OSHA*. Project personnel will be **trained** (certified were applicable) in First Aid & CPR.
- The Project Manager and the Project Leader will be trained in accordance with OSHA Standard 1910 (General Industry) and be in possession of an **OSHA 10 Hour or 30 Hour Card**.