



MEETING	DATE	TIME	LOCATION
Joint Sanitary District	Tuesday, October 6, 2020	6:30 p.m.	VIRTUAL MEETING 1900 W. Grand Chute Blvd.

****VIRTUAL MEETING PARTICIPATION OPTIONS****

Web Access:

<https://grandchute.my.webex.com/grandchute.my/j.php?MTID=ma00f1d95576889fa02fc616d0358ea69>

Access Code: 126 909 3174

Meeting Password: 1900

Telephone Access:

Dial: (408) 418-9388

Access Code: 126 909 3174

Meeting Password: 1900

PLEASE STAY CONNECTED AFTER THE SAN MEETING FOR THE TOWN BOARD MEETING

- A. CALL TO ORDER/ROLL CALL
- B. APPROVAL OF AGENDA/ORDER OF THE DAY
- C. PUBLIC INPUT **No public comment** will be permitted at this meeting out of a concern for fairness and safety as many attendees will be attending remotely without any meaningful ability to participate.
- D. CONSENT AGENDA
(Items on the Consent Agenda are routine in nature and require one motion to approve all items listed. Prior to voting on the Consent Agenda, items on the Consent Agenda may be removed at the request of any Supervisor and addressed immediately following the motion to approve the other items on the Consent Agenda.)
 - 1. Approve regular joint meeting minutes – September 15, 2020
- E. FINANCIAL REPORTS
 - 1. Approval of Voucher List – October 6, 2020
- F. NEW BUSINESS
 - 1. Approval of proposal with Hydrovo, LLC for a water leak detection survey in the amount of \$26,450.
- G. ADJOURNMENT

PLEASE STAY CONNECTED AFTER THE SAN MEETING FOR THE TOWN BOARD MEETING

Public Notice: Agendas are posted in the following locations: Town Hall bulletin boards & Town website www.grandchute.net 2015 Wisconsin Act 79 allows the publication of certain legal notices on an Internet site maintained by a municipality. This law allows these types of legal notices to be posted in one physical location in the jurisdiction (instead of three) if also placed on an Internet site maintained by the local government.

Special Accommodations: Requests from persons with disabilities who need assistance to participate in this meeting should be made to the Clerk's Office at (920-832-5644) with at least 24-hour notice.

Notice of Possible Quorum: A quorum of the Town Board, Plan Commission, Board of Review, Licensing Committee, Parks Commission, Community Development Authority, Joint Review Board, Zoning Board of Appeals and/or Police and Fire Commission may be present at this meeting for the purpose of gathering information and possible discussion on items listed on this agenda. However, unless otherwise noted in this agenda, no official action by the Town Board, Plan Commission, Board of Review, Licensing Committee, Parks Commission, Joint Review Board, Zoning Board of Appeals and/or Police and Fire Commission will be taken at this meeting.

VIRTUAL JOINT REGULAR MEETING – SANITARY DISTRICT NO. 1, NO. 2, NO. 3 & EAST SIDE UTILITY DISTRICT – 1900 W. GRAND CHUTE BLVD., GRAND CHUTE, WI – SEPTEMBER 15, 2020

CALL TO ORDER/ROLL CALL

Virtual meeting called to order at 6:30 p.m. by Dave Schowalter, presiding officer.

PRESENT: Dave Schowalter, Brad Gehring, Jeff Ings, Jeff Nooyen, Travis Thyssen, and Angie Cain, Town Clerk

STAFF: Jim March, Town Administrator; Tim Bantes, Fire Chief; Greg Peterson, Police Chief; Robert Buckingham, Community Development Director; Brent Braun, IT Director; Katie Schwartz, Director of Public Works; Julie Wahlen, Finance Director; Mike Patza, Town Planner; Karen Heyrman, Deputy Director of Public Works; Atty. Rossmeissl, Herrling Clark Law Offices; and Nick Vande Hey, McMahon

OTHERS: 1 in attendance (virtual)

APPROVAL OF AGENDA/ORDER OF THE DAY

Motion (Thyssen/Gehring) to approve the agenda as printed. Motion carried.

PUBLIC INPUT – There was no public input.

CONSENT AGENDA

Approve regular joint meeting minutes – September 1, 2020
Accept Monthly Report – August 2020
Accept PSC Conventional Rate Case Analysis

Motion (Thyssen/Ings) to approve the consent agenda. Motion carried.

FINANCIAL REPORTS

Approval of Voucher Lists – September 15, 2020
San 1, 2, 3 & East Side – \$95,833.27 ACH – \$9,004.57
Accept Monthly Budget Statements – August 2020

Motion (Gehring/Nooyen) to approve the voucher list and accept the budget statements. Motion carried.

NEW BUSINESS

Authorization to purchase a 2020 Cummins 50/60 Hz-150kW diesel generator from Cummins, Inc. at a state bid of \$86,912.68 (budgeted item).

Motion (Thyssen/Ings) to approve.

Supv. Thyssen questioned if they had looked into permanent generators.

Dir. Schwartz explained they would look into them for the future. They can use the mobile generators at any of the lift stations and move them around.

Motion carried.

ADJOURNMENT

Motion (Nooyen/Thyssen) to adjourn. Motion carried.

VIRTUAL JOINT REGULAR MEETING – SANITARY DISTRICT NO. 1, NO. 2, NO. 3 & EAST SIDE
UTILITY DISTRICT – 1900 W. GRAND CHUTE BLVD., GRAND CHUTE, WI – SEPTEMBER 15,
2020

Meeting adjourned 6:34 p.m.

These minutes were taken at a regular meeting held on September 15, 2020 and entered in this record book,
September 17, 2020 by:

Angie Cain, Town Clerk
Joint Sanitary District No. 1, No. 2, No. 3 & East Side Utility District
INITIAL DRAFT

Dave Schowalter, President: _____

Jeff Nooyen, Commissioner: _____

Travis Thyssen, Commissioner: _____

Brad Gehring, Commissioner: _____

Jeff Ings, Commissioner: _____

Angie Cain, Secretary: _____

Julie M. Wahlen, Treasurer: _____

Check Issue Dates: 9/16/2020 - 10/6/2020

Sep 24, 2020 09:34AM

Check Number	Check Issue Date	Payee	Invoice Number	Description	Invoice GL Account	Check Amount
95881	10/06/2020	ABTEK OF WISCONSIN LLC	1873041	SERVER ROOM FIBER WORK	61-01-92300-295	155.07
95881	10/06/2020	ABTEK OF WISCONSIN LLC	1873041	SERVER ROOM FIBER WORK	62-02-85100-295	155.07
95881	10/06/2020	ABTEK OF WISCONSIN LLC	1873041	SERVER ROOM FIBER WORK	63-03-82000-295	155.07
Total 95881:						465.21
95883	10/06/2020	AMERICAN CONSERVATION &	11618	AQUAHAWK V12.06 10/1/2020 - 11/1/2020	62-02-85100-290	468.75
95883	10/06/2020	AMERICAN CONSERVATION &	11618	AQUAHAWK V12.06 10/1/2020 - 11/1/2020	61-01-92300-290	468.75
Total 95883:						937.50
95893	10/06/2020	FAITH TECHNOLOGIES, INC	61273	HRS FOR DATA, ACCESS, & POWER CABLES	61-01-92300-295	2,500.00
95893	10/06/2020	FAITH TECHNOLOGIES, INC	61273	HRS FOR DATA, ACCESS, & POWER CABLES	62-02-85100-295	2,500.00
95893	10/06/2020	FAITH TECHNOLOGIES, INC	61273	HRS FOR DATA, ACCESS, & POWER CABLES	63-03-82000-295	2,500.00
Total 95893:						7,500.00
95895	10/06/2020	FOX WEST REGIONAL SEWER	4811	OPERATIONS & MAINT - SEWERAGE AUGUST 20	62-02-82601-290	70,173.55
95895	10/06/2020	FOX WEST REGIONAL SEWER	4811	EQUIPMENT REPLACEMENT-SEWERAGE - AUGUS	62-02-40301-000	10,338.58
95895	10/06/2020	FOX WEST REGIONAL SEWER	4811	DEBT SERVICE - SEWERAGE - AUGUST 20	62-02-40400-000	49,161.50
95895	10/06/2020	FOX WEST REGIONAL SEWER	4811	DEPRECIATION-SEWERAGE AUGUST 20	62-02-40300-000	7,758.51
Total 95895:						137,432.14
95903	10/06/2020	MACQUEEN EQUIPMENT GRO	P16651	MISC PARTS FOR SANITARY SEWER MAINT	62-02-82700-340	1,460.34
Total 95903:						1,460.34
95905	10/06/2020	MARCO, INC	7976874	MONTHLY PLOTTER BILL	61-01-92300-295	30.40
95905	10/06/2020	MARCO, INC	7976874	MONTHLY PLOTTER BILL	62-02-85100-295	30.40
95905	10/06/2020	MARCO, INC	7976874	MONTHLY PLOTTER BILL	63-03-82000-295	30.40

Check Number	Check Issue Date	Payee	Invoice Number	Description	Invoice GL Account	Check Amount
Total 95905:						91.20
95907	10/06/2020	MCMAHON	0919698	CONST ADMIN/ONSITE REP 2020 WATERMAIN PR	61-00-10700	11,311.20
95907	10/06/2020	MCMAHON	0919699	STORM SEWER RECORD INFO-SPENCER ST WAT	63-00-10700	287.00
95907	10/06/2020	MCMAHON	0919701	STORM WATER ALT ANALYSIS CASALOMA DR S E	63-00-10700	3,837.60
95907	10/06/2020	MCMAHON	0919704	REAR YARD SW GRADING-WHITE HAWK MEADOW	63-03-82000-210	153.60
95907	10/06/2020	MCMAHON	0919705	BUTTERFLY FIELDS POND STORMWATER EVALUA	63-03-82000-210	2,035.60
95907	10/06/2020	MCMAHON	0919706	FLOODING FROM WEST WHISPERING GROVE SU	63-00-10700	7,152.50
95907	10/06/2020	MCMAHON	0919707	FRENCH RD CULVERT RECORD DRAWING	63-00-10700	1,020.65
95907	10/06/2020	MCMAHON	0919707	GENERAL ENGINEERING SERVICES FOR 2020	63-03-82000-210	1,252.40
95907	10/06/2020	MCMAHON	0919708	MS4&TMDL PLANNING-POLLUTION PREVENTION	63-03-82000-210	1,144.80
95907	10/06/2020	MCMAHON	0919720	CONST ADMIN/ONSITE REP BLUEMOUND/EIGHTH/	61-00-10700	4,259.93
Total 95907:						32,455.28
95909	10/06/2020	OUTAGAMIE COUNTY TREAS	14625	LANDFILL FEES HIGHWAY SWEEPINGS	63-03-82000-290	1,377.18
Total 95909:						1,377.18
95912	10/06/2020	PJK CO INC	10022428	HMI SCREEN REPLACEMENT BST 2-3	61-01-67801-390	2,762.35
Total 95912:						2,762.35
95913	10/06/2020	PRECISION SEALCOATING IN	01298	STREET SWEEPING 9-7-20 THRU 9-11-20	63-03-82000-290	8,635.50
Total 95913:						8,635.50
95914	10/06/2020	PUBLIC SERVICE COMMISSIO	2008-I-02310	APPLICATION TO ADJUST WATER RATES	61-01-92300-210	478.91

Check Issue Dates: 9/16/2020 - 10/6/2020

Sep 24, 2020 09:34AM

Check Number	Check Issue Date	Payee	Invoice Number	Description	Invoice GL Account	Check Amount
Total 95914:						478.91
95917	10/06/2020	WESTWOOD PROFESSIONAL	3200900092	PROF SVCS ILLICIT DISCHARGE PROGRAM	63-03-81000-000	3,972.02
Total 95917:						3,972.02
95923	09/24/2020	MCC INC	20371	STUMPF PARKING LOT PATCH	61-01-67300-390	907.50
Total 95923:						907.50
95924	09/24/2020	MICHELS PIPELINE	2020-02-THR	PAY REQ 3-EVERGREEN DR TOWN LAKES AVE TO	63-00-10700	7,579.00
Total 95924:						7,579.00
95925	09/24/2020	PTS CONTRACTORS INC	2020-11-SIX/FI	PAY REQ 6 FINAL-2020 WATERMAIN CONSTRUCTI	61-00-10700	28,984.88
Total 95925:						28,984.88
95927	09/24/2020	WE ENERGIES	0475-274-330-	ELECTRIC SVCS FOR BOOSTER STATIONS	61-01-62300-344	4,078.35
95927	09/24/2020	WE ENERGIES	0475-274-330-	GAS SVCS FOR BOOSTER STATIONS	61-01-62600-344	33.84
95927	09/24/2020	WE ENERGIES	0475-274-330-	ELECTRIC SVCS FOR WATER TOWERS	61-01-67200-349	138.89
95927	09/24/2020	WE ENERGIES	0475-274-330-	GAS/ELECTRIC SVCS LIFT STATIONS	62-02-82100-220	1,514.14
95927	09/24/2020	WE ENERGIES	0475-274-330-	ELECTRIC SVCS FOR STORM WATER PONDS	63-03-82000-220	914.77
Total 95927:						6,679.99
Grand Totals:						241,719.00

Check Issue Date	Payee	Invoice Number	Description	Invoice GL Acct	Check Amount
61					
09/21/2020	CITY OF APPLETON	092120 30002	1901 W COLLEGE AVE WATER SERVICES	61-01-60200-390	221,667.38
09/21/2020	CITY OF APPLETON	092120 30002	1901 W COLLEGE CFP FIRELINE	61-01-60200-390	35,384.00
09/21/2020	CITY OF APPLETON	09212020 300	WATER SERVICES 2800 W SECOND ST	61-01-60200-390	106,092.73
Total 200921001:					363,144.11
Total 61:					363,144.11
62					
09/21/2020	CITY OF APPLETON	092120 30000	MEMORY MELODY SEWER SERVICES	62-02-82600-290	2,450.90
Total 200921001:					2,450.90
Total 62:					2,450.90
Grand Totals:					365,595.01

Angie Cain, Secretary:

Angie Cain

Date:

9/24/2020



AGENDA REQUEST
10/6/2020

TOPIC: Approval of proposal from Hydrevo, LLC for a water leak detection survey in the amount of \$26,450.

<input checked="" type="checkbox"/> New Business <input type="checkbox"/> Unfinished Business <input type="checkbox"/> Reports <input type="checkbox"/> Closed Session <input type="checkbox"/> Ordinance/Resolution	Meeting: Sanitary District 1
Department Reporting: Public Works	Submitted By: Katie Schwartz, PE, Director PW

ISSUE: Shall the Sanitary Commission approve the proposal from Hydrevo, LLC for a water leak detection survey in the amount of \$26,450.

BACKGROUND/ANALYSIS: The Non-Revenue Water Study recently completed by AECOM continues to confirm the belief that the majority of the water loss in the Town is primarily leakage in the system. The study had suggested several next steps, one of which included advanced technology such as the Utilis satellite imagery that was completed earlier this year. Unfortunately, that process had limited successful results. The AECOM study also indicated that the Town start in Area 3 and Area 4 as identified on Figure ES-1 (see attached) for a more traditional leakage investigation as these two areas have been identified with the highest nighttime flows and thereby have the largest potential of leakage and ultimately cost savings to the Town. The attached proposal focuses on these two areas.

RECOMMENDATION: Staff recommends approval of the proposal from Hydrevo, LLC for a water leak detection survey in the amount of \$26,450.

FISCAL IMPACT: BUDGET
Proposal amount is \$26,450. \$19,125 remains in 61-01-92300-290 (Contractual Services) for 2020 while the remainder of \$7,325 is requested via a SAN 1 fund transfer.

ATTACHMENTS:
Attachment No. 1 - Proposal from Hydrevo, LLC
Attachment No. 2 - Figure ES-1 from AECOM NRW Study



**PROPOSAL
FOR:**

Water Leak Detection Survey

**PREPARED
FOR:**

Town of Grand Chute, WI

**PREPARED
BY:**

Hydrevo, LLC



September 23, 2020

Town of Grand Chute
Attn: Katie Schwartz
1900 W. Grand Chute Blvd.
Grand Chute, WI 54913-9613

Subject: **Proposal for Water Distribution System Leak Survey**

Dear Katie,

Hydrevo would like to thank you for the opportunity to submit this proposal for a leak detection survey for the Town of Grand Chute, WI (Town).

According to our information, AECOM completed a non-revenue water (NRW) study in March of this year. Results of the study indicate nighttime flows in the system are approximately 900 GPM, which is roughly 3 times higher than expected in a system the size of Grand Chute. A significant portion of this is suspected to be to leakage, with a majority in Area 3 and Area 4.

Hydrevo specializes in water leak detection on distribution and transmission systems. Our staff has nearly 30 years of acoustic leak detection experience. Hydrevo provides a highly technical and professional service. We use the most current suite of equipment including, but not limited to; leak survey tools, acoustic ground microphones and leak noise correlators.

As owner/operator, I will work directly with the Town to accomplish our mutual goal of locating your water losses from leaks so that they can be repaired as quickly as possible, saving the Town money while conserving water. This proposal includes the following sections:

- Company Profile** – Page 2
- Procedures and Methods** – Page 4
- Preparations for Service** – Page 6
- List of Equipment to be Used** – Page 6
- Pricing** – Page 7

We appreciate your interest in our services. If you have any questions about this proposal or to schedule the work, please contact me at 206-954-3356 or rmeston@hydrevolution.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Rob Meston", is written over a light blue circular stamp.

Rob Meston
President

COMPANY PROFILE

Profile

Hydrevo was formed by Rob Meston in early 2019. Rob has spent many years in the acoustic leak detection field. Rob's experience led him to train utilities around the country on how to survey their own systems for leaks. Hydrevo was created so that Rob could focus on his passion of teaching others how to survey a water system with the correct procedures and methods so that the purveyor has the highest likelihood of locating water loss from leakage.

In addition to the training component of our service, we provide these additional services:

- **LEAK DETECTION SURVEYS**
- **LEAK DETECTION EQUIPMENT SALES**
- **PURCHASE OF USED LEAK DETECTION EQUIPMENT**
- **VALVE EXERCISING**
- **WATER AUDIT VALIDATION**

We provide our services to the following clients:

- **MUNICIPALITIES (PUBLIC AND PRIVATE)**
- **PUBLIC UTILITY DISTRICTS**
- **WATER COMPANIES**
- **COMMUNITY SERVICES DISTRICTS**
- **DEPARTMENT OF DEFENSE**
- **ENGINEERING FIRMS**
- **CONTRACTORS**
- **COMMERCIAL AND RESIDENTIAL CLIENTS**

Financial Condition

Hydrevo does not have any bankruptcy, pending litigation, or any negative credit. In addition, we have a strong balance sheet and Hydrevo is debt free.

Employee Bios

Rob Meston, President/Field Technician. Rob Meston has nearly 29 years of experience in water conservation. He started as a Leak Detection Field Technician with Utility Services Associates, a small Montana company, in 1990. In 1994, Rob was promoted to Branch Manager, in charge of operations. Shortly thereafter, Utility Services Associates was sold to Hughes Supply and then HD Supply. Rob and two business partners purchased the leak detection assets from HD Supply in 2008 and re-formed Utility Services Associates.

In 2019, Rob left Utility Services to start Hydrevo so that he could focus on leak detection training and equipment sales. Rob is one of the most senior leak detection experts in the country. Collectively, he has surveyed tens of thousands of miles of pipe for leaks and has located thousands of leaks of all types and sizes. Rob's project experience ranges from finding single leaks for homeowners to large scale leak survey and training projects, covering thousands of miles of pipe across the US and many overseas locations.

References

Our owner/operator has been involved in thousands of leak detection projects on all types and sizes of water systems. He has located and pinpointed thousands of leaks. Following are current references for projects completed by Hydrovo:

Project Name: Water System Leak Survey
Client Name: King County Water City 49, Burien, WA
Client Contact: Mr. Mike Helland, Lead
Cell: 206-735-0917
Mhellandwd49@gmail.com
Contract Value: \$8,500.00
Project Duration: Surveyed approximately 60 miles of pipe in 10 days

The City was experiencing an increase in non-revenue water loss, which was suspected to be mostly from system leaks. Upon completion of the survey, we were able to detect and pinpoint 30 leaks. All types of pipe were surveyed; however, the system is comprised of mostly cast and ductile iron mains with copper, poly and galvanized services.

Project Name: Leak Detection and Training Program
Client Name: Grizzly Flats Community Services City
Client Contact: Ms. Jodi Lauther, General Manager
530-622-9626
gfbill@sbcglobal.net
Contract Value: \$35,000.00 (including equipment sales, field survey and training)
Project Duration: 10 days

Hydrovo sold Grizzly Flats a suite of equipment and provided hands on training and a complete acoustic survey of their water system, which consists of approximately 25 miles of mostly AC water main with plastic services. We completed most of the system survey (a small amount remained to be surveyed when the project was completed) and were able to locate 3 significant main leaks and many smaller leaks. The system is comprised of mostly asbestos cement with poly services. We completed a point to point to point survey, checking all available appurtenances.

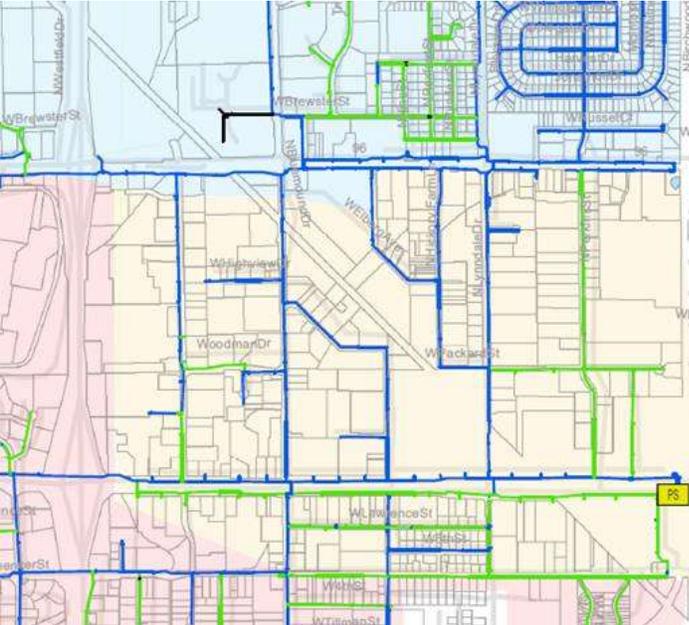
Project Name: Leak Detection Survey
Client Name: City of Dover, ID
Client Contact: Mr. Bill Strand, City Council President
208-755-1116
billstrand@NHDESofoveridaho.org
Contract Value: \$2,000.00
Project Duration: 2 days on site

Hydrovo was tasked with surveying a 100% PVC system in attempts of locating approximately 11 gallons per minute in water loss. PVC is very difficult to survey and requires much more thorough and extensive procedures and methods. We were able to locate a majority of the loss.

PROCEDURES AND METHODS

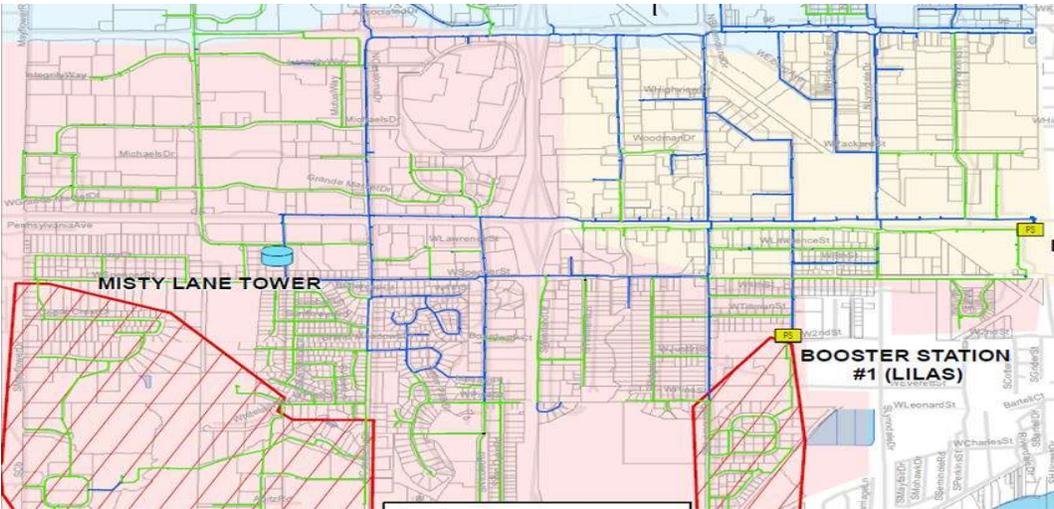
Our Methodologies are the standards we live by. Every project is unique, and in each case, we highlight, summarily, what is specified and expected. We understand the Town wants to survey two areas of the water system for leaks:

1. Area 3 (highlighted in yellow)



Area 3 consists of approximately 12 miles of main (8 DI and 4 PVC). Service lines on the DI mains are metal and service on the PVC mains are plastic. Based on a recent study completed by AECOM, nighttime flows in Area 3 are estimated at approximately 206 GPM.

2. Area 4 (highlighted in pink)



Area 4 consists of approximately 35 miles of main (9 DI and 26 PVC). Service lines on 1 and 2” lines are metal and plastic on service lines 4” and greater. According to AECOM’s report, nighttime flows in Area 4 are estimated at approximately 364 GPM.

Based on the information we have received about the system specifications in Area 3 and Area 4, our approach to the survey of each area will be as follows:

1. In areas where PVC mains and/or service exist, Hydrevo will test **all available** access points, including hydrants, valves, and services. This step will be done using a leak noise amplifier as described in the Equipment List, which is listed on the next page.
2. In areas that are comprised of DI and metal services, we will test access points every 300' or so; including valves, hydrants, and selected services (where distances between hydrants and valves exceed 300').
3. Review of the maps provided with the bid documents indicates there is adequate access to most lines, However, whenever access is limited, we will use an acoustic ground microphone and/or probe and acoustic device where lines run under landscaping, etc., and sound the lines at 6-10' intervals. We will pre-approve these situations with the Town.
4. Whenever leak noise is detected, we will record the location and appurtenance(s) where the noise was detected. This is done electronically, using Apple Notepad. On a project of this nature, we will typically survey (listen) Monday through Thursday.
5. Possible leak locations will be re-checked, and if the noise is still present, we will use various acoustic leak detection equipment to pinpoint the leakage (equipment follows on the next page). **Note** - If a large leak is suspected, we will point that leak within 2 hours of detection and report it to the Town so that repairs can begin as quickly as possible. We can then re-check the area once the leak is repaired, to ensure there are no other leaks in the area that may have been masked by the large leak. Other noises will typically be pinpointed on Friday's of each week. Hydrant leaks and other obvious, visible leaks (meter gaskets, curb stops, etc.) will be pinpointed as they are found.
6. A Leak Sheet will be drawn up at each location and will include:
 - Leak Type
 - Leak Location (Address)
 - Estimated Water Loss
 - Leak Severity (by Class 1, 2 or 3, with 1 being the worst)
 - GPS waypoints using an Apple iPhone (7S or better)
 - Photo of Leak Location
 - Each leak location will be painted as a blue X and marked "LEAK" using environmentally friendly paint.
 - We will provide the Town with a copy of Leak Sheets at the beginning of each day (from leaks pinpointed the day before).
7. Hydrevo will resurvey areas where leaks are found and repaired (while still on site) to ensure no quiet leaks were masked by the original leak.
8. Hydrevo will provide a Final Report within 20 days of project completion. The Town will receive one copy of each (hard and electronic), however, if more copies are required, Hydrevo will supply as many as required at no additional charge. The Final Report will include the following:
 - **Cover Letter** with Executive Summary in Narrative Format. The Executive Summary will include tables for time spent surveying, pinpointing, approximate footage surveyed, estimated GPD water loss, quantity of leaks found, type of leaks found, and project observations with recommendations for system improvements (as well as a list of maintenance items discovered during the survey such as missing or broken valve lids, etc.)
 - **Survey Review** discussing the procedures and methods used during the survey phase.

- **Pinpointing Review** discussing the procedures and methods used during the pinpointing phase.
- **Leak Sheets** detailing the location of the leak, time spent pinpointing the leak, type of leak, estimated size (in gallons), a drawing of the leak location, leak classification (based on estimated severity of the leak), GPS waypoints, and a photo of the leak location.

PREPARATIONS FOR SERVICE

While preparations for service are important for several reasons, Hydroveo can effectively survey the lines with minimal preparations for our service. If possible, we ask that the Town clean all valve boxes in the survey area for easy contact of our equipment to each operating nut. This minimizes the use of a probe rod, which can amplify ambient noise and possibly mask quieter leak noises. Curb stops that are buried should, if possible, be located and exposed prior to our survey. It's also recommended that the Town send a helper with us at all times.

LIST OF EQUIPMENT TO BE USED

Hydroveo utilizes state of the art leak detection equipment including, but not limited to the following:

1. A **leak noise surveyor** allows the operator to listen for leak noise by placing an acoustic sensor (transducer) in contact with any access point in the distribution system (valve, hydrant, service, etc.). Sound from the pipeline is transmitted through aviator-quality headphones, which allows the operator to determine if leak type noise is present. We use the follow models of leak noise surveyors:
 - **FCS S30 Leak Surveyor**
2. A **leak noise correlator** is a computer/electronic device used to pinpoint leaks in pressurized water lines. Typically, correlation systems use acoustic sensors (transducers) that are placed in contact with the pipe at two or more points (valves, services, etc.) in attempts to straddle the suspected leak. The sound, which is transmitted by radio signal from each outstation, is processed through a mathematical algorithm which determines the difference in the time it takes noise to travel from the suspected leak to each of the sensors. These are complex and sophisticated pieces of equipment that should be used only by experienced, highly trained, people. We use the follow model of correlation devices:
 - **SubSurface Leak Detection LC-2500**
3. A **ground microphone** is a device used for validating correlation results or for use as a survey tool in areas where there are few to no access points. It is also used as a back-up to the FCS S30 if required. We use the following models of ground microphones:
 - **SubSurface LD-12**
 - **Pollard Geophones**
4. A **line and metal locator** are used when system maps are incomplete, and the line needs to be located (pipe and cable locator), or valve lids need to be located (metal detector). We use the following models of line and metal locators:

- **Subsurface Instruments PL2000 Line Locator (for non-PVC lines)**
- **Subsurface Instrument ML-1M Metal Detector**

PRICE

The following pricing is inclusive of all travel costs, overhead, and profit. We will hold this price for 90 days.

We estimate Area 3 will take approximately 6 days to complete. We estimate Area 4 will take approximately 18 days to complete.

Area 3

Lump Sum: \$ 7,550.00

Area 4

Lump Sum: \$18,900.00

TOTAL QUOTE: \$26,450.00

End of Quote

