



Technical Service Proposal

Presented To

Washoe County
1001 East Ninth Street
Reno, NV 89512



Updated July 3, 2018

Presented By

Electro Scan Inc.

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A TECHNICAL SERVICES PROPOSAL TO CONDUCT AN ELECTRO SCANNING INSPECTION PROJECT FOR WASHOE COUNTY

A. INTRODUCTION

Electro Scan, Inc. is delighted to provide this Proposal to conduct an Electro Scanning Inspection Project as a Technical Services Agreement to Washoe County, Nevada ("County").

Electro Scan Inc. ("Contractor") understands the challenges of assessing underground sanitary sewer, stormwater, and water infrastructure and determining their remaining useful life. Given limited budgets, Contractor understands the importance of properly identifying and prioritizing critical sewers to assess the efficiency and effectiveness of repairs, rehabilitation, and replacements to optimize capital expenditures, minimize service disruptions, and maintain a consistent and sustainable conveyance network.

The Contractor also understands that the County prides itself on identifying new processes, procedures, and equipment that can support its growing infrastructure. As a result, the Contractor is pleased to provide this Technical Services Proposal to conduct an Electro Scanning Inspection Project.

Notable awards and achievements for Electro Scan Inc., and its products, include:

- Dedicated Chapter in the 7th Edition, Operations and Maintenance of Wastewater Collection Systems, Volume 1, (Published) December 2015
- Awarded U.S. Patent 9143740 (September 22, 2015). Multiple U.S. and Intl. patents pending.
- UKSTT Best Small Scheme Project Award, April 2015
- The New Economy CleanTech Award for Water & Wastewater Solutions, 2013
- PURE Award for Innovation, South West Water, England, 2013
- WEF Innovative Technology Award, 2013
- Sierra Nevada Innovation Challenge CleanTech Award, 2013
- NASTT/No-Dig, Joseph L. Abbott Jr., Award for Best Product Innovation, 2013

B. ELECTRO SCAN SERVICES

Electro Scan Inc. shall serve as Contractor for this project, with its headquarters in Sacramento, California. Currently, Electro Scan offers its products and services from international offices London (ENGLAND), Frankfurt (GERMANY), and Melbourne (AUSTRALIA), and supplying the largest sewer contractor in Japan. Additionally, given the significant condition assessment capabilities of the low voltage conductivity technology, WRC, developers of the world's leading CCTV inspection standards as adopted in the United States by the National Association of Sewer Service Companies (NASSCO) for Pipeline Assessment & Certification Program (PACP), has become Electro Scan Inc.'s exclusive representative of the technology to assist the United Kingdom.

In addition to holding all U.S. and international patents and patents pending for low voltage conductivity technologies, Electro Scan, Inc. possess the knowledge, expertise, development, and financial resources to mobilize, engage, deploy, conduct, capture, process, store, transmit, display, and summarize its data to streamline decision making within Washoe County.

C. WHAT IS ELECTRO SCAN OR LOW VOLTAGE CONDUCTIVITY INSPECTION?

Electro Scan Inc. is a next generation smart water and sewer technology platform that provides an impartial and unbiased pipe condition assessment that automatically locates, measures, and estimates defect flows in Gallons per Minute (GPM) and Gallons per Day per Inch Diameter Mile (GPD/IDM) for water and sewer pipes.

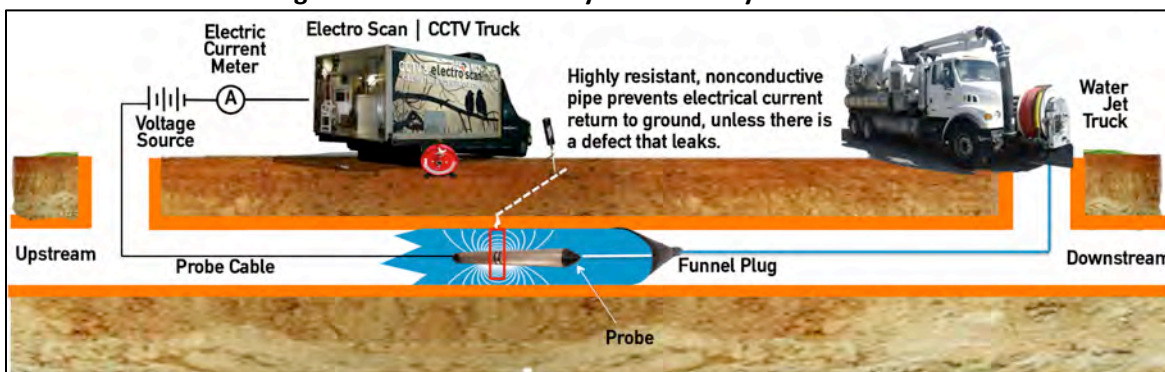
Electro Scan's patented technologies overcome common weaknesses of legacy inspection methods that overly rely on visual inspections that often miss major leaks and defects. By offering unambiguous measurements and locations of large and small defects that cause infiltration and exfiltration into sanitary sewer and pressurized water pipes, the Contractor is uniquely positioned to utilize its internationally recognized low voltage conductivity technology for this project.

While most sewer utilities have relied on closed-circuit television (CCTV) inspection to see, interpret, and catalog pipeline defect, in dry-weather conditions, in contrast, Electro Scan assess 360-degrees of a pipe's wall while simulating conditions when a pipe is full of water in wet weather conditions.

Successfully tested and benchmarked in US EPA field verification studies (for both Sewer Mains and Laterals) Electro Scan's patented technology releases a focused array of low voltage, high frequency electrical current of only 10 volts and 40 milliamps (i.e. approximately the equivalent of six (6) AA batteries), to locate and quantify all defects in non-conductive (e.g. asbestos, brick, cement, plastic, reinforced concrete or cement, vitrified clay, etc.) sewer mains and laterals.

Non-conductive materials naturally prevent electricity from passing through, or along, the wall of a pipe. As a result, no electrical current should ever be able to "leak" or escape from inside a pipe unless there is a crack or break in the pipe. A defect in the pipe that leaks water will also leak electrical current. With a constant applied voltage, the larger the defect, the greater the electric current.

Figure 1 – Electric Circuitry of a Sanitary Sewer Main



Electro Scan testing is carried out by pulling an electrode or probe, through a pipe and measuring the variation of electric current flow through the wall of the pipe, then through the ground to an electrode on the surface – a metal stake serving as grounding.

Electro Scan locates defects and corrosion by consistently monitoring the electrical continuity of the pipe. Most sewer pipe materials are electrical insulators. A defect in the pipe that leaks water will also leak electrical current. Therefore, given a constantly applied voltage, monitored by the system, the larger the defect, the greater the electric current reading. As well documented in the field of geophysics and described in ASTM F2550-13, the larger the hole, the greater the water flow or leak.

D. WHY SHOULD WASHOE COUNTY CONSIDER AN ELECTRO SCAN PROJECT TO ASSESS ITS INFRASTRUCTURE?

1. **Many sewer utilities under regulatory compliance orders are recognizing CCTV is not adequate to locate and quantify all defects, and many are changing their rehabilitation acceptance criteria to include Electro Scanning Inspection.**

CIPP, CMOM, and SSES specifications are being revised to incorporate the breakthrough pipe intelligence offered by Electro Scan. Agencies such as the City and County of San Francisco (CA), Miami-Dade (FL), East Bay Municipal Utility District (EBMUD) (CA), Nashville Metro Water Services (TN), James City Service Authority (part of HRSD) (VA), and others under Administrative Order or Consent Decree are employing Electro Scan's low-voltage testing to help identify infiltration into their sewers.

2. **According to the Seventh Edition of the *Operation and Maintenance of Wastewater Collection Systems* Manual, which serves as the basis for the US EPA's CMOM program, Electro Scan is recommended to not only help identify and quantify leaks, but to also test CIPP linings, post rehab.**

As stated in the manual "unlike CCTV inspection, smoke testing, dye flood testing, ground-penetrating radar, and laser profiling technologies, no third-party interpretation of defect cataloging is required. In addition, no visual observations, manual coding, or interpretation of data by the operator is required. Each defect found is given an estimate in gallons per minute (gpm) of the potential amount of water that may flow through the defect. By providing an objective numeric value for each defect, electro scanning takes the guesswork out of quantifying pipe defects."

Co-authored by Dr. Ken Kerri, former Program Director of the Office of Water Programs, and originator of the series of Water and Wastewater Field Training Guides, the chapter on Electro Scan was written and contributed to the Seventh Edition, Volume 1, as a result of the technology's significant change to the acceptance criteria for rehabilitated pipes.

E. HOW DOES ELECTRO SCAN COMPARE TO TRADITIONAL CCTV INSPECTION?

Electro Scan finds defects that are typically not seen by television inspection. While CCTV inspection relies on visual identification of pipe defects and problems, Electro Scan is a new process that automatically identifies, locates, and measures all defects that have the potential to allow for infiltration. Infiltration is a key factor causing Sanitary Sewer Overflows (SSOs) and Combined Sewer Overflows (CSO) caused by cracks & defects found in manholes, sewer mains, service connections, and laterals.

A key limitation of CCTV is its inability to visually see most leaks, especially if the inspection is conducted in dry weather conditions. In contrast to CCTV inspection, Electro Scan can work year-round, in dry or wet weather conditions. Moreover, Electro Scan provides more complete information – it locates every defect to the closest 1 cm and provides an estimate of the potential peak amount of infiltration caused by each defect, and the pipe segment as a whole. In addition to finding defects in existing pipes, another major capability of Electro Scan is its ability to find all leaks in newly installed or recently repaired pipes, including lining projects, to ensure contractors deliver “leak free” projects.

As stated in the Seventh Edition, Volume 1, *Operations and Maintenance of Wastewater Collection System*, Lesson 4, “CCTV provides structural assessments from operators' visual observations of identified impairments, while electro scanning provides assessment via an automated quantification (no visual interpretation) of defects. The pipe defects identified are related to openings caused by cracks, fractures, joint defects, and defects at service connections that provide pathways for water to enter or exit (infiltrate/exfiltrate) the system. In some cases, no PACP [NASSCO-based Pipeline Assessment Certification Program] defects may be observed from CCTV; however, by applying Electro Scan's low-voltage/high frequency technology, invisible defects not seen by CCTV inspection may be identified.”

As provided in the Seventh Edition, Volume 1, *Operations and Maintenance of Wastewater Collection System* manual, electro scanning has many common applications in pipe and system assessment, including:

- Sewer mains and laterals suspected of infiltration, including submerged or partially submerged pipes.
- Post-rehabilitation certification of lining projects.
- New property developments and their service connections, before acceptance by third-party contractors.
- Sewer mains televised multiple times with conflicting or no callouts
- Assessment of siphons.
- Sewer mains running underneath rivers or streams, unable to be televised using CCTV inspection.
- Sewer System Evaluation Surveys (SSEs) to more accurately pinpoint sources of infiltration
- Pre- and post-grout assessment.
- Large interceptors requiring leak detection at and below the surface of the water.

F. PROJECT TEAM

Project Manager	Mark Grabowski Mr. Grabowski will be in-charge of all aspects of the Project, including project kick-off, day-to-day administration, data collection and analysis, report delivery, and formal project presentation. Mark has overseen all aspects of the design, development, and production of the Electro Scan patent-pending technology ensuring full compliance with ASTM F2550-13. Mark has managed over 900,000 feet of scanning since joining the company in May 2012. Prior to joining Electro Scan, Mr. Grabowski served as Product Manager and Project Engineer at Aries Industries, where he was in charge of product management for pipeline rehabilitation and inspection products. Mr. Grabowski was also Water and Wastewater Project Manager at C.W. Purpero, Inc. (Milwaukee, WI), where he was involved with numerous underground infrastructure projects, including design & construction of flood/runoff control systems, lift stations, innovative pollutant removal systems, installation of major water, sanitary sewer, storm sewer, and force main systems utilizing both open cut and trenchless technology methods. A member of the National Association of Sewer Service Companies (NASSCO) and OSHA Certified for Confined Space Entry, Mark received his Bachelor of Science in Mechanical Engineering and Construction Management from the University of Central Florida (2004).
Senior Advisory	Charles Wilmut, P.E. Mr. Wilmut will be a Special Advisory to Electro Scan Inc. for this project. Prior to joining the Company, Mr. Wilmut was Director of Texas operations for Burgess & Niple, Inc. from January 2009 to December 2012. He served as Principal-In-Charge for more than 200 successful Sewer System Evaluation Surveys (SSES) and Inflow/Infiltration Studies (I/I). He has authored several I/I analyses and SSES reports, including the first approved by State and Environmental Protection Agency authorities throughout the southeastern United States. Mr. Wilmut was an early adopter of the Electro Scan technology during his tenure with Burgess & Niple, completing over 300,000 feet of scanning projects using predecessor versions of the electro scan technology.
Field Technician	Matthew Campos, Lead Field Operations Technician Matt is the Director of Field Operations for Electro Scan, Inc. and has been involved with and managed numerous pipeline inspection technology bench-marking projects throughout the US. Mr. Campos will be in-charge of all field equipment set-up and teardown. He has been Lead Field Technician of over one hundred (100) Electro Scan projects, completing over 500,000 feet of scanning in from 2014 to present.

Detailed resumes available upon request.

G. SCOPE OF WORK

This project will consist of Electro Scan testing of approximately 14,000 feet of 24" to 30" gravity sanitary sewer pipe pre-selected by the County. Electro Scan data is desired to identify and measure, in gallons per minute, any pipe wall weaknesses, including holes, cracks, pinholes, defective joints and service connections, or any other openings to ground where electric current, and water can escape the pipe wall. Electro Scanning Inspection will be performed as recommended in the *Operations and Maintenance of Wastewater Collection Systems*, Volume 1, 7th Edition and in accordance with ASTM F2550-13, *Standard Practice for Locating Leaks in Sewer Pipes By Measuring the Variation in Electro Current Flow Through the Pipe Wall*.

Table 1 – Proposed Electro Scan Project Scope of Work

	Area or Catchment	Sewer Mains	
		Length in L.F.	Approx. Number of Pipe Segments
1	Assessment of Various 24" to 30" Mainlines	14,000	45
	TOTAL	14,000	45

The investigation will be achieved through a four (4) part work plan, including:

- Part 1 – Preparatory Work and Mobilization
- Part 2 – Electro Scan Testing
- Part 3 – Project Administration, Management, Supervision and QA/QC
- Part 4 – Data Evaluation, Analysis, and Reporting

Part 1 – Preparatory Work and Mobilization

1. Collect and review existing information including: reports, maps, flow records, maintenance records and other pertinent information. Information to be provided by the County to the Contractor at a minimum of 2 weeks prior to the commencement of the project.
2. Preparation of equipment to be assigned and transported to the project site.
3. Hold a project kick-off meeting prior to commencement of any work to ensure that all work is conducted in the most efficient and economic manner, with proper liaison between Contractor and County personnel.
4. Assist the County with preparations for any required Traffic Control or logistical arrangements to assure safe environments for workers and residents.

The compensation for this task is charged at a flat rate price, see Table 2.

Part 2 – Electro Scan Testing for Sewer Mains

General

The Electro Scan test is carried out by pulling an electrode, called a probe, through the pipe and measuring the variation of electric current flow through the wall of the pipe, then through the ground to an electrode on the surface – a metal stake driven into the ground – all in accordance with ASTM F2550-13.

Utilizing an existing CCTV truck's cable and reel, swapped out in just a few minutes in the field, Electro Scan will locate defects and corrosion by checking the electrical continuity of each sewer main in the identified pilot area.

The Jet Truck and Operator will lightly flush the pipes and to pull the Electro Scan probe through the pipe while surrounding it with water. Operator should also be allowed to refill truck from any local hydrant.

Figure 2



Electro Scan ES-620 probe and Funnel Cone preparing to enter a manhole.

Figure 3

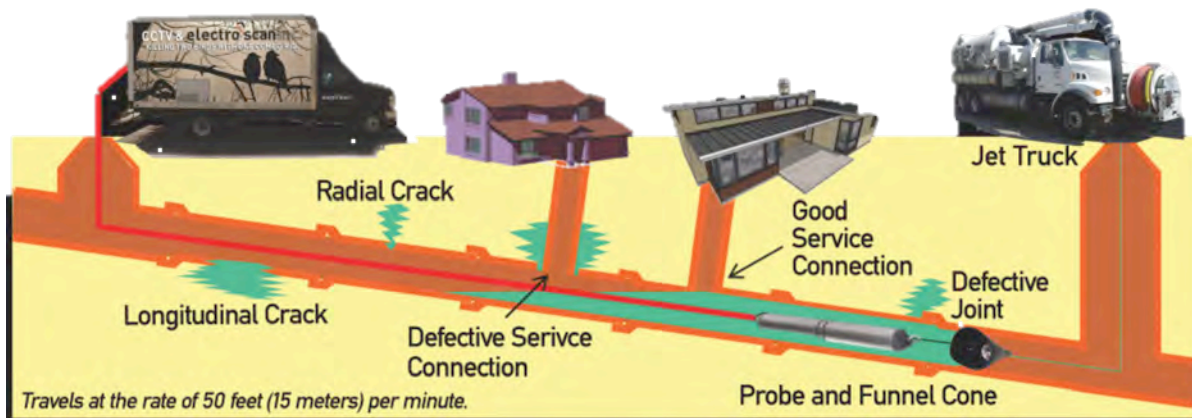


Jet Truck Operator, pulling the Electro Scan probe through the pipe, while surrounding it with water.

Electro Scan Testing of Sewer Mains – Field Operation

For each sewer main, the Electro Scan procedure begins with a light flushing of the sewer line and then using the hydraulic jet hose and reel to pull the Electro Scan probe through the pipe from the downstream manhole to the upstream manhole where the Combo CCTV/Electro Scan truck is positioned.

For sewer mains up to and including 15" diameters, the sewer line will be flushed from the downstream manhole, the nozzle removed at the upstream manhole, a Sliding Funnel Plug will be attached to the hose, and the Electro Scan probe will be attached to the Sliding Funnel Plug. The hydraulically powered jet truck would then pull the probe through the pipe while simultaneously providing the water necessary for the probe to electrically examine the pipe walls.

Figure 4 – Typical Field Set-Up for Sewer Mains Electro Scan Testing

It should be noted that while water is used to surround the Electro Scan probe, only a small portion of the probe must technically be surrounded in 360° of water to allow electrical current to conduct or reach the wall of the pipe. While only a portion of water is required, Electro Scan recommends maintaining a 6-10 ft. column or reservoir of water be maintained behind the full cone to allow sufficient water to surcharge 24-36 inches up each sewer lateral. By allowing water to surround the entire service connection, Electro Scan will be able to successfully test all elements of the connection for defects.

Figure 5

Portable Electro Scan Reel Platform for remote access locations, such as Right-of-ways and easements.

Figure 6

Portable Electro Scan Reel Platform being deployed in remote access sewers in Japan.

For pipe diameters 16" and larger or for those pipes where access for the jet truck is limited, the Sliding Funnel Plugs will not be applicable due to safety and logistics. Therefore, alternative method(s) can be implemented, and these pipe segments can be fully surcharged by plugging the upstream side of the next downstream manhole. This can allow the effluent flow (possibly in addition to water from a nearby fire hydrant) to be used to surcharge the immediate pipe segment. Once that pipe is scanned, another plug can be inserted at the next manhole downstream, the upstream plug removed, and the same water allowed to run downstream and be reused. Or, if pipe segments are located close or adjacent to a pump station, the pump can be shut down, allowing the pipe(s) to surcharge under careful supervision.

Figure 7



Figure 8

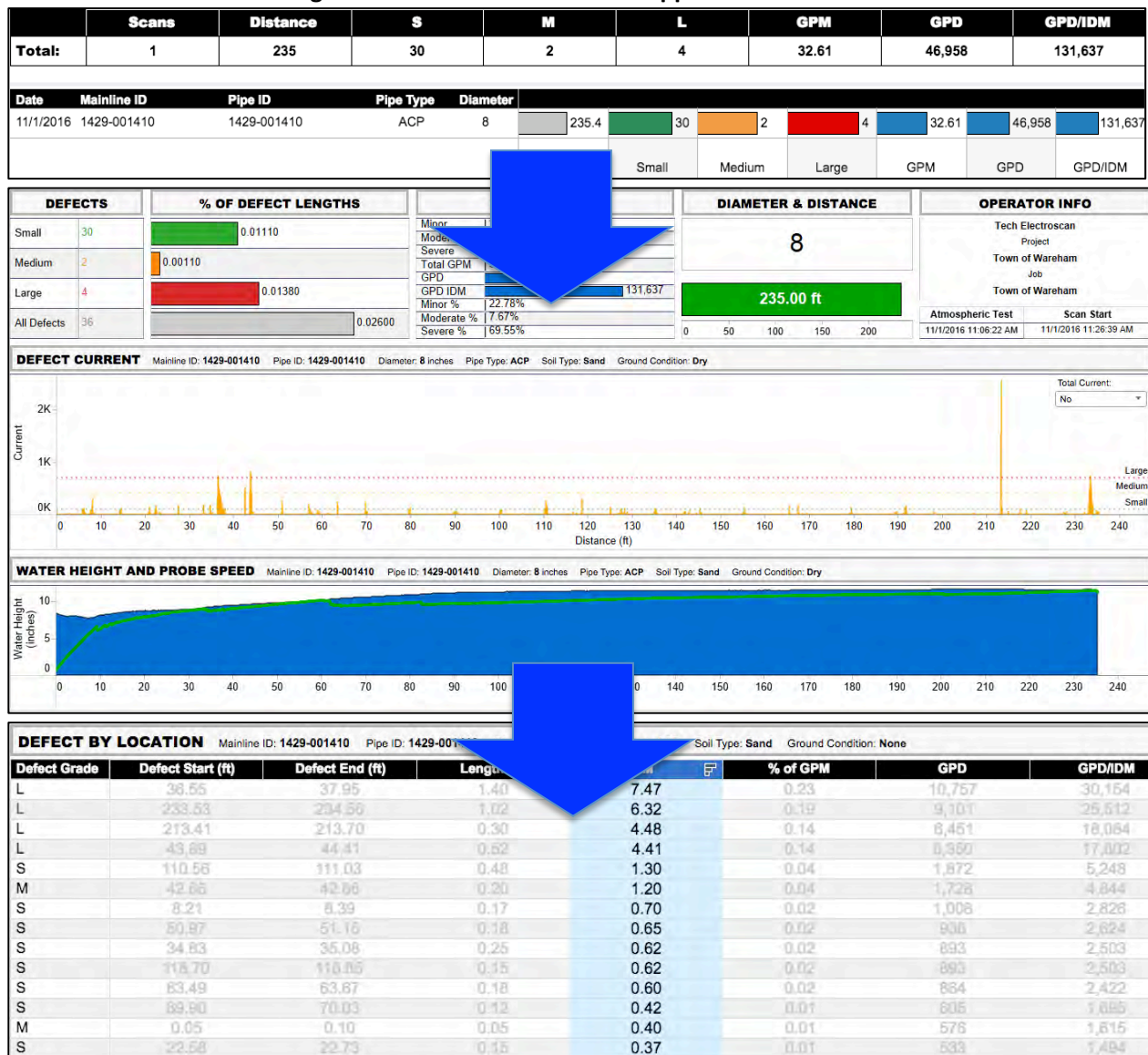


Plug inserted in 24" CIPP lined sewer mains in the City of Houston to surcharge pipe for 360-degree Electro Scanning Testing of pipe wall.

All data will be fed back to the Electro Scan Combo CCTV truck or Mobile Electro Scan Platform via the standard CCTV coaxial cable. Once the data is collected on the system's laptop computer, it will all be uploaded to the project's *Critical Sewers*® cloud-based portal where it will be instantly processed and available for Contractor and staff to view.

Electro Scan's custom and proprietary algorithms are used to grade the size and type of each leak, structural defects, and graphically display the defect grade size, type and frequency for each manhole-to-manhole pipe section. In addition, Electro Scan's software will provide an estimated **Gallons Per Minute** infiltration rate per defect and for also for the entire pipe segment. The Electro Scan traces have a resolution of less than 0.1ft. This information can be readily used to qualitatively identify the problems, highest potential infiltration sections and assist with the selection of the most cost effective repair method.

Figure 9 – Critical Sewers Cloud Application View



The compensation for this task is included in the “per foot” price as shown below in Table 2.

Part 3 – Project Administration, Management, Supervision and QA/QC

This task consists of supervision of field personnel, project administration, and management, scheduling of field tasks, general management and supervision of field personnel, and quality assurance/control of fieldwork and data management activities. Additionally, it will include:

1. General administration and periodic meetings as necessary with the County.
2. Internal project control procedures on schedules, budget, quality control review and invoices.

The compensation for this task is included in the “per foot” price as shown below in Table 2.

Part 4 – Data Evaluation and Analysis

This task consists of evaluating and analyzing the collected data and presenting the results in the form of a report. This data will be presented in both tabular and graphic formats to facilitate a comparative condition assessment of line segments. Project Summary Excels and Individual Scan PDFs will be delivered.

Data collected in the field will include:

- Length of sewer line
- Location of sewer line (map)
- Pipe defect locations
- Classification of all Defects as Large, Medium, and Small
- Classification of Potential Infiltration Flow for all Defects as Minor, Moderate, and Severe Peak Estimated Flow.
- A Total Estimated Peak Gallons per minute (GPM) will be provided for each defect and pipe segment, as a whole.
- If CCTV inspection reports and videos are available, and as time permits, significant anomalies identified through the electro scanning process will be compared to corresponding defects displayed from previously available CCTV video or reports, provided by the County to the Contractor at least two weeks prior to beginning field work, made available in digital format (i.e. mpg for video and PDF for reports).

No additional CCTV shall be performed as part of this scope of work. For an additional fee, the County may purchase a temporary site license to view Electro Scan data on its cloud-based Critical Sewers® application. Otherwise, data may be viewed in the field as data is collected for the sewer mainlines only.

In addition, the following will be provided as a final deliverable:

- **Three (3) copies of the draft report** will be prepared for submittal to the County for review and comments.
- **Three (3) copies of the Final Report** incorporating the comments from the review of the draft report will be furnished. **Final Report in Microsoft Office 2010 and in PDF** format will be included.

The compensation for this task will be priced as shown below in Table 2.

H. SCHEDULE

The work will be initiated within thirty (30) days of the receipt of Authorization to Proceed, and is estimated to be complete within fourteen (14) working days, and the report delivered within twenty-one (21) days of fieldwork completion.

I. COMPENSATION AND PAYMENT TERMS

The compensation for this task will be based on a “Per Each” for Preparatory Work & Mobilization and Reporting, in addition to “Per Linear Foot” basis for Sewer Mains.

The total price to cover all services described under the Scope of Work will be computed based on the unit prices shown in Table 2 and quantities of work completed as authorized by the County including the lump sum tasks amounts being established by percent of completion. Tasks listed as “per each” or “L.F.” are estimated. Quantities found in field investigation may vary and will be performed and charged by the unit price shown in Tables 2 in an amount not to exceed the total proposal cost. Any time Electro Scan crews are unable to perform work as scheduled due to circumstances beyond their control, the County will be billed at \$2,500 per day or \$300 per hour. Invoices will be rendered monthly and are due within thirty (30) days of receipt.

Table 2 – Estimated Quantities and Pricing Including Jet Truck

Task	Task Description	Unit	Unit Price	Estimated Quantity	Total Price
1.	Preparatory Work & Mobilization	INCLUDED			
2.	Electro Scanning Inspection of Interceptor Sewer Lines 24” to 30” – Including Stringing, Plugging, and Surcharging	L.F.	\$7.00	14,000 (min. 12,000)	\$98,000
3.	Jet Truck / Water Truck Services	Each	\$2,000	10	\$20,000
4.	Project Administration and Management, Supervision & QA/QC	INCLUDED			
5.	Data Evaluation, Analysis & Reporting <i>Project Summary Excels & Individual Scan PDFs.</i>				
6.	Traffic Control, Water Usage, Permitting, Bonding	EXCLUDED			
TOTAL					\$124,500

J. RELEVANT CASE STUDIES

Additional information available upon request.



Mad Creek Interceptor

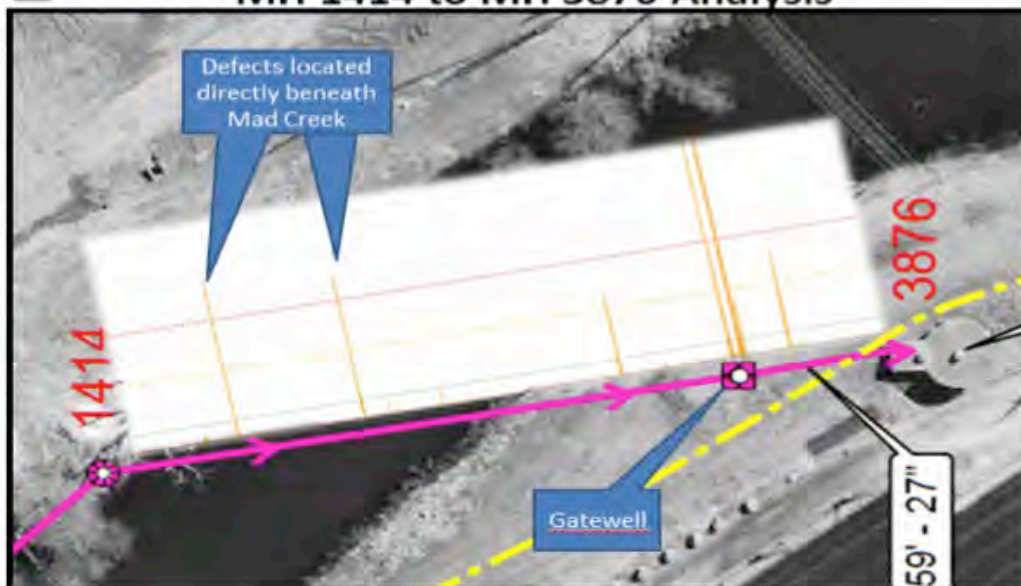
The City of Muscatine, Iowa, experiences high-flow conditions in its sanitary sewer interceptors that run through flood control levees on the Mississippi River. As a critical sewer, the US Army Corps of Engineers ordered the City to inspect its interceptors on a regular basis; however, taking large, high-flow pipes off-line and using bypass pumping and dewatering to allow for visual inspection can be an expensive and time-consuming process, often with mixed results.

Instead, the City chose Electro Scan to inspect its large diameter mains. By simply turning off the pump station and allowing a temporary build-up in effluent flow, Electro Scan was able to inspect all 3,000 feet (i.e. 12 segments) of 24" & 27" CIPP-lined RCP in less than a day and half the cost of CCTV inspection. Additionally, defects often not seen on CCTV were located and quantified in GPM (LPS).



1

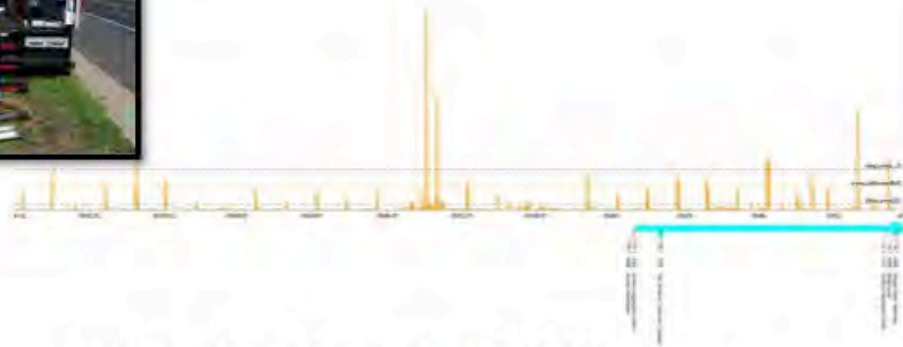
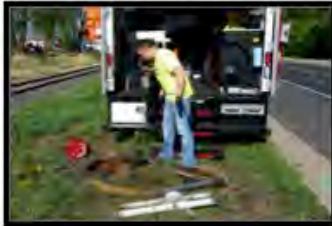
MH 1414 to MH 3876 Analysis





City of Golden Valley, MN Interceptor Inspection

The City of Golden Valley, MN, had a sewershed that was at capacity, and as such, a moratorium on new construction was issued. Unfortunately city desired to build a new community center within the boundaries of the sewershed. Engineering firm Short Elliot Hendrickson (SEH) hired Electro Scan to perform an investigation of their 28" interceptor to see if regaining capacity by rehabilitating the interceptor alone could be a solution. Previous attempts at CCTV were unsuccessful due to the flow and obstructions in the pipe. SEH and Golden Valley were ecstatic with the project because Electro Scan was able to inspect 100% of the pipes and the data was objective and quantifiable,. Additionally, the pipe never had to be taken out of service or bypass pumped.



RANKED BY WORST DEFECT FLOW Electro Scan Compared to CCTV			
1 xx' (CCTV) 167' (ES)	electro³scan_{inc.} Estimated Defect Flow 3.6 GPM	No CCTV Image Available (Survey Abandoned)	
2 48' (CCTV) 45' (ES)	electro³scan_{inc.} Estimated Defect Flow 2.2 GPM	Street: LAUREL AVE Upstream: MH E35 Downstream: MH E36 CCTV Callout: NONE	

K. INFORMATION AND SERVICES TO BE PROVIDED BY THE COUNTY

The County shall provide the following information and services:

- 1. Water to refill the jet truck to be provided at no charge. If a meter is required, the payment shall be allowed as a pass-thru to the County on the contract's final total.**
- 2. Permits, if necessary.**
3. Coordination with residents for access to the manholes located in backyards and right-of-ways.
4. GIS map, preferably hardcopy and digital format of existing sewer system showing sewer lines and manhole numbers.
5. CCTV Inspection reports and videos for all segments of pipe Electro Scanned prior to the commencement of the project.
6. Liaison with officials to provide effective coordination and cooperation between police, utility departments, and the Engineer, as necessary during execution of field.
7. Assistance by knowledgeable staff member of manhole and cleanout locations, in locating buried or hidden manholes or cleanouts.
8. Expose and/or open manholes that require excavation, cutting of pavement, and/or have lids fastened or frozen in place.
9. The necessary County equipment and assistance as might be required to remove the specialized equipment (cleaning nozzle and hose, probe and coaxial cable, sewer plugs, etc.) from the sewer should the equipment become lodged during the course of the work, and to complete line repair and restoration of the area. However, the County will not be responsible for damage to Contractor / Electro Scan's equipment.

L. TERMS AND CONDITIONS

General Conditions: These general conditions are incorporated by reference into the proposal and are part of the Agreement under which services are to be performed by the Contractor for the County. Contractor will follow the County's instructions both verbal and written at all times.

County Personnel Assistance: Electro Scan may require assistance from County Personnel to perform tasks, which may be out of Electro Scan's scope of work. These tasks include, but are not limited to:

- Coordination and cooperation between local agencies such as police, utility departments, County, Engineer, and others as necessary
- Assistance by knowledgeable staff member of manhole and cleanout locations, in locating buried or hidden manholes or cleanouts
- Expose and/or open manholes that require excavation, cutting of pavement, and/or have lids fastened or frozen in place

Damage Limitations: Under no circumstances will the Contractor be responsible for indirect, incidental or consequential damages. The Contractor also is not responsible for the rendering of or failure to render architectural, engineering or surveying professional services.

Pre-existing Conditions: The Contractor will not be responsible for liability, loss or expense (including damage caused by the backup of basement sewers) where the primary cause of the claim or damage is pre-existing conditions including faulty, inadequate or defective design, construction, maintenance or repair of property or contamination of the subsurface where the condition existed prior to the start of the Contractor's work. The County is responsible for loss of service equipment caused by the pre-existing conditions at the job site.

Environmental Conditions: The debris is represented to Contractor to be non-hazardous, requiring no manifesting or special permitting. The County will be responsible for any additional costs or claims associated with the treatment, storage, disposal of the removed debris, or breach of the above representation, at any time during or after the completion of this project, if necessary.

Indemnification: The Contractor and the County will each indemnify the other in proportion to relative fault for liability, loss and expense incurred by the other party resulting from a negligent act or omission in performance of work under this Agreement. The County also will indemnify Contractor for liability, loss and expense resulting from Contractor's services if the Contractor is acting at the direction or instruction of the County or where the primary cause of any damages is due to information provided by the County.

Entire Agreement: This proposal together with any written documents which may be incorporated by specific reference herein constitutes the entire agreement between the parties and supersedes all previous communications between them, either oral or written. The waiver by Contractor of any term, condition or provision herein stated shall not be construed to be a waiver of any other term, condition or provision hereof.

M. NOTICE TO PROCEED

The completion of the proposed work shall be contingent upon receipt of Authorization to Proceed by the County and a signed copy of this proposal.

Electro Scan Inc.**Washoe County**
*(or Authorized Agent)*_____
Mark Grabowski, Vice President_____
Signature_____
Date_____
Print_____
Date

APPENDIX

The following documents explain of the effectiveness of Electro Scan Technology when used for pipeline condition assessment, rehabilitation planning, and rehabilitation certification. Follow the links to download each document:

Standards and Practices

Operation and Maintenance of Wastewater Collection Systems, Volume I

<http://www.owp.csus.edu/courses/wastewater/operation-and-maintenance-of-wastewater-collection-systems-vol-i.php>

Evolution of Collection System Best Practices (featuring Electro Scan), Dr. Kenneth Kerri, California State University WEFTEC Paper

http://www.electroscan.com/wp-content/uploads/2015/12/2014-WEFTEC_Paper_Evolution-of-Best-Practices.pdf

WEFTEC Slide Presentation

<http://www.electroscan.com/wp-content/uploads/2015/12/2014-10-01-Evolution-CSM.pdf>

Best Practice Guidelines for Sewer Main Assessment

http://www.electroscan.com/wp-content/uploads/2015/06/Best_Practice_Guidelines_June-2015.pdf

USEPA, Field Demonstration of Condition Assessment Technologies, July 2011

http://www.electroscan.com/wp-content/uploads/2013/02/2011-07-01-EPA-Field-Demonstration-of-Condition-Assessment-Technologies_EPA_600-R-11-078.pdf

USEPA Field Demonstration Project Revisited, Kansas City, MO, July 2012

http://www.electroscan.com/wp-content/uploads/2014/01/EPA_Field-Demo-Project-Revisited.pdf

ASTM F2550-13 - Standard Practice for Locating Leaks in Sewer Pipes By Measuring the Variation of Electric Current Flow Through the Pipe Wall

<http://www.astm.org/Standards/F2550.htm>