

# City of Kimberly

## INSTRUCTION TO BIDDERS

### **INVITATION TO BID: CLOSED CIRCUIT TELEVISION (CCTV) CAMERA PIPELINE INSPECTION SYSTEM**

#### **INVITATION:**

Sealed proposals for furnishing One (1) Closed Circuit Television (CCTV) Camera Pipeline Inspection System as described in "Minimum Specifications" will be received at the City of Kimberly Public Works Department, 242 Hwy 30, Kimberly, Idaho 83341 until 10:00 AM on the 13<sup>th</sup> day of February, 2014, and then will be publicly opened and read. The price page(s) and the signature page(s) of the proposal must be the original—copies or faxed copies are not acceptable and will result in rejection of the bid.

The envelope containing your proposal must be sealed and identify that it is a bid proposal for the INVITATION TO BID: CLOSED CIRCUIT TELEVISION (CCTV) CAMERA PIPELINE INSPECTION SYSTEM, the vendor's name and address and the due date for the bid proposal. The envelope should be addressed:

CITY OF KIMBERLY  
PUBLIC WORKS DEPARTMENT  
242 HWY 30  
KIMBERLY, IDAHO

#### **REGISTRATION:**

All bidders who intend to respond to the **INVITATION TO BID: CLOSED CIRCUIT TELEVISION (CCTV) CAMERA PIPELINE INSPECTION SYSTEM** must register as a prospective bidder by completing and returning by fax or email the bidder registration form provided in the Instruction to Bidders.

#### **GENERAL:**

The intention of the specifications is to describe the Closed Circuit Television (CCTV) Camera Pipeline Inspection System in sufficient detail to secure bids on comparable equipment and or product. The Closed Circuit Television (CCTV) Camera Pipeline Inspection System will be used as part of regular wastewater maintenance functions as well as pipeline emergency response. Unit and/or Product bid shall meet or exceed specifications listed. Proposal to be submitted on forms furnished.

This invitation for bid packet is on file in the office of the City Clerk of the City of Kimberly. A copy of said documents can be obtained at the office of the City Clerk, 242 Hwy 30, Kimberly, Idaho 83341.

The original bid documents may be duplicated and/or faxed for Bidder to obtain additional copies, however the submitted bid proposal of the price page(s) and the signature



- Submittals as indicated in each section as follows:
  - A manufacturer's cut sheet of the Camera, Housing and lens.
  - A manufacturer's cut sheet of the Camera Transporter system including wheels
  - A manufacturer's cut sheet of the Video Cable and Cable Drum
  - A manufacturer's cut sheet of the Power Control Unit
  - A manufacturer's cut sheet of the Digital Video Recorder Unit
- Additional submittals for alternates may be required and shall be provided upon request during the review of the bids.

**INTERPRETATIONS:**

Interpretations, corrections and changes of the bid proposal will be made by Addendum. Addendums will be faxed, mailed or delivered to all parties recorded by the City of Kimberly as having received the bidding documents. Interpretations, corrections and changes of the bid proposal made in any other manner will not be binding, and Bidders shall not rely upon them.

**TERMS AND CONDITIONS:**

This formal bid document and subsequent Purchase Order are to be considered the City's sole terms and conditions. Bids submitted with any additional terms and conditions may not be considered.

**PREFERENCE FOR IDAHO DOMICILED BIDDERS:**

In determining the lowest responsible bidder, the City of Kimberly shall consider the preferences for Idaho domiciled public works contractors and Idaho suppliers for purchases as provided in Idaho Code Sections 67-2348 and 67-2349, as currently in force and subsequently amended. The law requires providing a reciprocal preference for Idaho domiciled bidders on purchases of materials, supplies or equipment. The law and any applicable percentage preference is ONLY applicable to bidders domiciled in a state granting THEIR in state bidders a preference law or a reciprocal preference law. It is not applicable to domiciled bidders in states without a preference law or a reciprocal preference law. Bidder shall indicate on the signature page, in the space provided, the bidder's state of domicile. If a bidder is domiciled outside the State of Idaho and desires to be considered as an Idaho domiciled bidder, he shall indicate this on the signature page, in the space provided. If the bidder indicates that he is domiciled outside the State of Idaho and that he desires to be considered as an Idaho domiciled bidder, he shall provide information with the bid sufficient to establish a significant Idaho economic presence as defined in Idaho Code Section 67-2349, as currently in force and subsequently amended. Proposals received without this information will be considered invalid. If the bidder is domiciled in a state with a bid preference penalty, the bidder shall provide information with the bid concerning the bidder's state of domicile, the amount of the bid preference penalty in his state and a copy of the applicable code section with respect thereto. Failure to provide such information may result in rejection of the bid.

**BASIS OF AWARD:**

The award of the bid will be made to the responsible bidder submitting the responsive bid which will best serve the interest and requirements of the City of Kimberly. The proposals will be

evaluated for compliance with the specifications furnished by the City of Kimberly. The contract will be awarded to the qualified bidder submitting the lowest bid price complying with the bidding procedures and meeting the specifications for the goods and/or services sought to be procured.

**BID IRREGULARITIES:**

If the proposal form furnished is not used or is altered or if there are unauthorized additions, conditional bids, or irregularities of any kind, which make the proposal incomplete, indefinite, irregular, or ambiguous; the proposal may be rejected. Proposals received without the signature of a Company representative under the heading **\*\*BID PROPOSAL SIGNATURE\*\*** will be considered invalid. The City of Kimberly reserves the right to accept or reject any or all proposals, to waive any or all proposals, to waive any informalities and irregularities in said proposals, and to accept individual bid items.

**TERM OF BID AND BID AWARD:**

The Bidder's proposal shall remain in effect for a period of 90 calendar days after the bid opening. If awarded the Bid, the successful Bidder will comply with the terms and conditions of the Bid Documents and subsequent Purchase Orders through the period of time as listed above. The City of Kimberly reserves the right to purchase any or all of the items as listed. The City of Kimberly reserves the right to purchase another unit(s) and/or item(s) per this bid proposal at a later date should the need arise and if the seller agrees to same pricing.

The successful Bidder will be required to provide a W9 and proof of works compensation coverage. Any subcontractors are also required to have workers compensation coverage.

**PROTEST PROCEDURES:**

Objections to specifications or bidding process are governed by Idaho Code Section 67-2806. Bidders may protest to the City of Kimberly that they were prejudiced by the City of Kimberly's procurement or award procedures. All protest must be submitted in writing to the City of Lewiston, City Clerk, 242 Hwy 30, Kimberly, Idaho 83341, at labeled with the following information:

Solicitation or Award Protest

INVITATION TO BID: CLOSED CIRCUIT TELEVISION (CCTV) CAMERA PIPELINE INSPECTION SYSTEM

The burden is on the protesting Bidder to produce evidence to sustain its protest. Written objection must be received within seven (7) business days after receipt of the notice of the decision being protest, or, in the case of a protest of a solicitation, at least (5) days prior to the bid opening date. A bidder who submits a bid or proposal in response to a solicitation waives any objections to the contents of the solicitation except those previously raised in writing.

Unless otherwise required by federal rules or regulations or Idaho statutes, the City of Kimberly shall not be obligated to postpone bid opening or award pending resolution of a protest where the City determines that proceeding with the selection process or award is in the best interest of the

City of Kimberly. The City of Kimberly shall document the basis and include it in its procurement file.

All administrative remedies must be exhausted before progressing to the judicial system. Judicial review of the City of Kimberly's decision relating to a solicitation or award protest shall be in accordance with Idaho statute.

**BIDDER'S CHECKLIST:**

- Bid Summary (Page 23) – Mandatory
- Descriptive Specification Checklists (Pages 6-22) – Mandatory
- Warranty documents (See Page 2) – Mandatory
- Descriptive information (See Page 2) – Mandatory
- Bidder Registration Form – Mandatory

**MINIMUM SPECIFICATIONS:**

One (1) Closed Circuit Television (CCTV) Camera Pipeline Inspection System

**REQUIRED FEATURES:** All features listed in Items 1 – 13 below must be included in base bid. FAILURE TO INCLUDE STANDARD EQUIPMENT REQUIRED IN BASE BID (Items 1 through 13) MAY BE CAUSE FOR NON-ACCEPTANCE OF BID.

The Bidder will be required to indicate in the space provided after each item, whether they comply or have any exceptions, substitutions, deletions or any deviations from the specifications as written. Bidder must show proof that any exception is equal or superior to those specified. Please describe the exception on the line provided. If more space is required, list on last page under exceptions or describe on a separate sheet. Indicate the item number and a detail of the exception. Failure to indicate, may result in rejection of bid. If an item bid is other than factory standard/option (OEM) please indicate. Consideration will only be given to Bidders, who can demonstrate that their product(s) and delivery methods comply with these specifications. Notwithstanding the details presented in these specifications, it is the responsibility of the Bidder to verify the sustainability of the product(s) and delivery equipment and methods to meet the intent of these specifications

	Meets?	
	YES	NO
<b>1. System Basics</b>		
Complete inspection system shall have:		
<ul style="list-style-type: none"> <li>1) Three components:               <ul style="list-style-type: none"> <li>A. Automatic cable drum with cable.</li> <li>B. Single hand held operator pendant with viewing, digital recording and system controls.</li> <li>C. Crawler with zoom camera for 6" diameter and larger pipe inspection.</li> </ul> </li> <li>2) Can Bus communications protocol for system function, status monitoring, and remote diagnostics.</li> <li>3) Ability to connect to the internet via a network cable port for lifetime remote firmware upgrades and/or diagnostic services.</li> <li>4) The City of Kimberly requires the local distributor to perform a live equipment feature added upgrade via the internet at the City's facility prior to acceptance of bid.</li> <li>5) Camera and crawler operator functions to be able to work simultaneously.</li> <li>6) Electrical requirement not to exceed more than 575W, or 5 A at 115 VAC.</li> </ul>		
Exception(s) Detail:		

	Meets?	
	YES	NO
<b>2. Operator Pendant and Wireless Controller</b>		
<p>A. Pendant controller must be all in one to record video, control all system functions to include cable reel, and create an inspection report with detailed observations and scaled drawing of line segment using PACP codes and .mpeg pictures on the inspection report.</p> <p>B. Pendant controller must also be able to generate a detailed graph inclination report to show actual and calculated inclination of the line segment.</p> <p>C. The above must be achieved without any additional external devices or additional software.</p> <p>The system control pendant shall have:</p> <ol style="list-style-type: none"> <li>1) 8", hand held color touch-screen monitor with 800 x 600 display resolution for viewing, recording video and accessing control and configuration functions.</li> <li>2) Pendant to have side strap-handles and be curved for comfortable operation.</li> <li>3) Power on/off switch.</li> <li>4) Standard ability to connect to a network in order to access remote server download of for lifetime automatic performance and feature upgrades.</li> <li>5) Optional ability to connect to a network in order to work with repair studio software for remote diagnosis.</li> <li>6) Integral error code maintenance and repair protocol which informs the operator of current or pending operating or maintenance tasks that need to be addressed by flashing a code during use. Codes correlate with a specific repair or maintenance activity.</li> <li>7) Backside of pendant to have mounting hardware for various storage and mounting options. System to provide hardware for tilting-mount on a desktop or other flat surface.</li> <li>8) Dual software programmed joysticks for camera and crawler functions.</li> <li>9) Video signal output.</li> <li>10) Right multifunction joystick to control crawler's forward/reverse, left/right turning and speed.</li> <li>11) Left multifunction joystick to control camera's pan/tilt, zoom and home functions.</li> <li>12) Controls for manual and automatic focus of camera.</li> <li>13) Ability to display crawler pressure, temperature, sonde status, pitch (inclination) and roll.</li> <li>14) Pressure to be listed onscreen and saved within system history for predictive maintenance.</li> <li>15) Controls for adjusting illumination intensity of camera and auxiliary lighting.</li> <li>16) Ability to control cable reel functions: auto, manual, speed, direction, torque of the cable reel.</li> <li>17) Have a master single button to regain control from wireless controller.</li> <li>18) Minimum 20' control cable that connects the automatic cable drum with the pendant via an emergency on/off switch box junction.</li> <li>19) Ability to record digital video.</li> <li>20) Ability to capture digital stills.</li> <li>21) Ability to generate text on video.</li> <li>22) Ability to inform operator if one is getting close to flipping the crawler.</li> <li>23) Ability to directly engage or disengage electronic clutch.</li> <li>24) Ability to capture, correlate and store still images with distance and observation information, all of which can be output into several reporting packages or viewed onscreen.</li> <li>25) Captured data can be output via a file which will automatically populate relevant fields within existing or new WinCan software database.</li> <li>26) Captured visual data can be printed in an inspection report that has manhole to manhole schematic, observations, distances, asset information, operator details and PACP codes.</li> <li>27) Ability to operate crawler in cruise control mode where an operator does not need to touch the joystick for crawler speed.</li> <li>28) Ability to view system operational history and performance.</li> <li>29) Ability to view a full schematic and observation inspection report on the pendant.</li> <li>30) Ability to pause video when adding an observation as to not waste video file storage capacity.</li> <li>31) Ability to generate a graphic inclination report to show pipe grade along inspection route.</li> <li>32) 64 GB file storage for an average of 40 hours of digital video or thousands of digital stills.</li> <li>33) Output compartment at top of pendant that contains s-video, USB and network connections.</li> </ol>		

<p>34) On/off control of digital zoom function.  35) On/off control of auto shutter speed.  36) Ability to toggle front-view camera, integral rear view camera, and accessory rear view camera.  37) On/off control for camera lasers.  38) Ability to control laser intensity of increments of 25%.  39) Control for remotely controlled motorized camera lift.  40) Button to activate automated software routine (Macro) for viewing laterals on the left.  41) Button to activate automated software routine (Macro) for viewing laterals on the right.  42) Button to activate automated software routine (Macro) for performing a circumferential scan of a pipe joint.  43) Button to activate automated software routine (Macro) for auto-return that automatically returns the crawler within 5' of the insertion manhole and alerts the operator of its return for final extraction.  44) The ability to operate larger (10" minimum diameter) and smaller crawlers (minimum 4" diameter) with no need for additional control unit or cable upgrades.  45) CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.  46) Ability to measure cracks and other observations without the need for external software.  47) Total weight of no more than 6 lbs.</p> <p><b>The wireless controller shall have:</b></p> <ol style="list-style-type: none"> <li>1) Portable battery powered belt clip wireless controller with crawler, camera and cable reel functions for easy direct single person deployment and retrieval of the crawler at the access point (manhole/basin).</li> <li>2) Wireless controller to have 8 dual function buttons with clear labels as the function of each.</li> <li>3) Wireless controller to have colored LED indicators to inform operator as to what functions the buttons are activated for.</li> <li>4) Wireless controller to be digitally encoded to the system with which it is delivered.</li> <li>5) Digital control to have a range of at least 50' without radio frequency interference being able to compromise the signal. RF systems will not be accepted.</li> <li>6) Wireless encoder must work with a single specific system in order to provide secure control when several systems are being operated in the same area.</li> <li>7) For operator safety and system protection, there can be no chance for operational interference.</li> <li>8) The wireless controller shall be waterproof.</li> </ol>		
Exception(s) Detail:		

	Meets?	
<b>3. Steerable Motorized Crawler</b>	YES	NO
<p>The system crawler shall have:</p> <ol style="list-style-type: none"> <li>1) 6-wheel drive (3 wheels per side) to generate traction necessary to crawl 1000' in wet and slippery pipes.</li> <li>2) In 8" configuration with the middle wheel remaining, the 4 larger wheels must overlap the middle</li> </ol>		



<p>wheels to provide continuous traction to go over joints and debris and avoid high centering where 4 wheel crawlers can no longer move forward due to hi-centering on bottom of crawler body.</p> <ol style="list-style-type: none"> <li>3) The tractor shall have proportional left, right, forward and reverse capability via manual and automatic controls via a joystick and direct buttons amongst the operator pendant and wireless controller.</li> <li>4) Proportional steering means that the 3 wheels on the left and the right of the crawler will move proportionally at the same time to move the crawler in the intended left, right, forward, backward or combination direction. Crawlers that can only drive in a single direction to the left, right, forward or backward at a time (bump steering) will be deemed unacceptable.</li> <li>5) Maximum size of 12.2"L x 4.3"W x 3.5"H, allowing proper clearance in 6" and lined pipes.</li> <li>6) A minimum of two powerful EC drive motors.</li> <li>7) Motors must maintain full power even at lower speeds without depending on drawing more current to do so.</li> <li>8) Electronic clutch that can be engaged and disengaged without needing to move the crawler.</li> <li>9) Systems that demand movement of the crawler to engage or disengage a mechanical clutch will be deemed unacceptable.</li> <li>10) System to be isolated in a way where major crawler electronic components will not be destroyed if there is a cut and connection between power and other wires within the cable.</li> <li>11) Can accept an option for a remotely operated lift that can raise the camera a minimum of 7" from its lowest position.</li> <li>12) When in 8" wheel configuration, crawler must insure that the bottom of the pan and tilt zoom camera is at least 1 3/8" from the bottom of a flat surface to enable crawling over obstacles.</li> <li>13) When in 8" wheel configuration, crawler must be able to drive in/out of 8" pipe if the crawler should become tipped over without dragging the camera or crawler on the bottom of the pipe.</li> <li>14) Full sensor package with inclination, roll, sonde, pressure, heat and motor readings.</li> <li>15) Integral rearview color camera with high-lux tri-L.E.D. lighting to be positioned at the top rear of the crawler body and not to have any visible increase in the diameter of the crawler body or be integrated with the rear connector.</li> <li>16) Ability to remotely toggle between rear and forward viewing cameras using the operator control pendant.</li> <li>17) Slotted locking mechanism, the simple turn of which drives 3 stainless bearings into the rotate shaft of the camera for secure, easy attachment with 1-bar waterproof rating.</li> <li>18) Keyway on camera rotation shaft to ensure damage-free mating of electrical pins between crawler and camera.</li> <li>19) Rear receptacle that allows cable attachment with 2 turns of the stainless-steel cable connector's outer barrel. No tools required.</li> <li>20) A spring-loaded pin on the rear receptacle to lock the stainless-steel cable connector's outer barrel, ensuring a secure connection and delivering pull strength beyond the 1000-lb-rated break strength of the cable.</li> <li>21) Minimum weight of 18.5 lbs. (with small wheels).</li> <li>22) Length of no more than 12.2" (18" with camera and optional lift installed) for easy navigation through 90-degree inverts without rolling.</li> <li>23) Crawler body must be machined from a single continuous and complete piece of machined aluminum.</li> <li>24) Two-piece bodies from top to bottom or front to rear crawlers will be deemed unacceptable.</li> <li>25) Single piece crawler body to have single top-plate access for control boards, single bottom-plate access for motors, and dual side-plate access for gears, ensuring maximum protection against leaks caused by bending stress.</li> <li>26) Tractor chassis of bronze, brass or other soft metals shall be deemed unacceptable.</li> <li>27) Machined keyway on all 6 axles to ensure positive drive and facilitate quick wheel change-out. Spacers and wheels shall attach with a single screw; plates and spacer-bars shall be deemed unacceptable.</li> <li>28) Machined tight fitting axle to wheel keyway to assure wheel stays on the unit without turning if a bolt loosens.</li> <li>29) Systems that use bolts and washers as the only means to secure a wheel will be deemed unacceptable.</li> <li>30) CAN-bus control architecture allowing for precision control, diagnostic monitoring and future</li> </ol>		
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<p>upgradeability.</p> <p>31) Three (3) wheel sets and spacers for inspection of pipes 6"-24".</p> <p>32) Wheels to be tapered to conform to pipe sidewall.</p> <p>33) Compatibility with the following standard and optional wheel and spacer sets:</p> <p>34) 20mm wide spacers (set of 4 supplied standard)</p> <p>35) 3.33" rubber wheels (set of 6 supplied standard)</p> <p>36) 4.33" grooved rubber wheels (set of 4 supplied standard)</p> <p>37) 4.33" soft composite grease wheels with traction grit impregnation (set of 4 supplied standard)</p> <p>38) 5.31" grooved rubber wheels (set of 4 supplied standard)</p> <p>39) 3.33" pointed carbide wheels (set of 6)</p> <p>40) 4.33" pointed carbide wheels (set of 4)</p> <p>41) Ability to fit in 8" pipe with top mount auxiliary lighting attached.</p> <p>42) A tilting rear cable connector that points vertically to protect cable during deployment into manhole, but which tilts to horizontal position during operation. Rear connectors that integrate a rear camera will not be accepted.</p> <p>43) Strong stainless steel locking mechanism to augment the strain relief internal to the cable.</p> <p>44) Stainless cable connector shell to carry a lifetime warranty.</p> <p>45) 512 Hz or 33 kHz integral sonde to facilitate locating crawler.</p> <p>46) A valve for purge and pressurization of camera-body. (Pressurization helps prevent ingress of water and helps prevent internal condensation and fogging.)</p>		
Exception(s) Detail:		

	Meets?	
	YES	NO
<b>4. Pan/Tilt Color Zoom Camera</b>		
<p>The system camera shall have:</p> <p>1) 10X optical zoom with 12X digital zoom multiplier for a total zoom of 120X.</p> <p>2) Ability to produce a high-quality color video image with a readable resolution of no less than 420 HTV lines.</p> <p>3) Pan and tilt motors with no exposed gears or wires.</p> <p>4) Ability to pan a full 360 degrees and tilt ± 135 degrees for full viewing of laterals and joints.</p> <p>5) Ability to view behind crawler for upstream lateral rubber seal view on gravity-flow PVC pipes.</p> <p>6) Dual projection lasers, 50mm apart, to be able to measure observations and gauge pipe diameter.</p> <p>7) CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.</p> <p>8) Solid-state circuitry designed to withstand shock and vibration while being pushed, pulled or propelled through the pipe.</p> <p>9) Ability to connect to crawler body via a 1.5" long, 5/8" diameter stainless-steel keyed connection plug with 10-pin internal female connection port. Connection must be waterproof.</p> <p>10) Front housing made of aluminum and stainless steel, with windshield made of impact-resistant, distortion-free material.</p> <p>11) Housing that is fully sealed and waterproof per IP68 to withstand external pressure up to 1 bar without damage or leaking.</p> <p>12) Encoders to measure pan and tilt position, allowing camera to be controlled using automated software routines (Macros) stored in the operator pendant and to show camera position on the pendant.</p> <p>13) Ability to attach to the front of the crawler by a simple turn of a slotted locking mechanism atop the crawler that drives 3 stainless bearings into the rotate shaft of the camera, all while maintaining a 1-bar waterproof seal.</p> <p>14) Illumination provided by a minimum of 40 LEDs within the front housing area of 1 7/8"W x 2 1/2"H</p>		

<p>and deliver a 13,000-lux reading at 1' and a 3-lux reading at 25'.</p> <p>15) Lighting must illuminate targets beyond 10'.</p> <p>16) A valve for purge and pressurization of camera-body. (Pressurization helps prevent ingress of water and helps prevent internal condensation and fogging.)</p> <p>17) A total weight of no more than 3.3 lb.</p> <p>18) A maximum size of 7" L x 3"W x 3"H in order to fit within a diameter of 3.5".</p> <p>19) Integral clutches to protect pan and tilt motors.</p>		
Exception(s) Detail:		

	Meets?	
5. Motorized Automatic Cable Drum	YES	NO
<p>The system cable reel shall have:</p> <ol style="list-style-type: none"> <li>1) <b>Automatic cable reel must be fully automatic in both directions.</b></li> <li>2) Capacity for the systems 1000' cable.</li> <li>3) A hub equipped with a continuous-contact slip-ring assembly to allow the cable to be dispensed and retrieved while the camera and tractors are operational.</li> <li>4) An environmentally sealed slip ring whose contacts shall be of an alloy of gold.</li> <li>5) A motorized system with sensors that monitor cable tension in order to coordinate cable feed/retrieval with direction and exact speed of the crawler.</li> <li>6) Ability to perform all forward, backward and different speed functions without the operator having to control any cable reel functions directly.</li> <li>7) An emergency stop switch.</li> <li>8) Ability to operate in both automatic and manual modes.</li> <li>9) External cable reel chassis to be made of strong and lightweight aircraft grade aluminum.</li> <li>10) Work with pendant based speed and torque controls to adjust for different pipe conditions and user preferences.</li> <li>11) Weight of no more than 125 lb. (including 1000' of cable).</li> <li>12) CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.</li> <li>13) Work with a remote wireless pendant granting control of crawler and reel while away from the primary control pendant.</li> <li>14) Ability to operate manually, with direct control of speed, direction and torque.</li> <li>15) Large extension pulley arm option for extending the cable drop point 3' from the cable reel.</li> <li>16) Teflon coated integral drip tray at bottom beneath stored cable. Allows for liquids to drain and be collected in a specific area for health and safety reasons. Can be slid out the front without tools for emptying and cleaning.</li> <li>17) BNC video output for local video connection.</li> <li>18) Size of no larger than 21"H x 14.5"W x 24.5"D with standard cable roll bar that extends 15" from the front of the reel.</li> <li>19) Two handles to be at the top left and right of the cable reel for moving and transport.</li> <li>20) Extended roll bar to be able to be placed back against the reel for storage and shipment without the need for additional fasteners or tools.</li> <li>21) Pendant-based power/torque controls for winching back crawler in optional free-wheel mode.</li> <li>22) Ability to run automated software routines (Macros) in which the reel, crawler and camera function are automatically coordinated to accomplish a specific task without operator intervention.</li> <li>23) All moving hazardous components to be completely covered/enclosed to prevent injury – hand or clothing can't reach dangerous moving parts.</li> </ol>		

<p>24) Open access design of the front, top and sides where an operator can touch level-wind mechanism, gears, chains and belts will be deemed unacceptable.</p> <p>25) Optional cable protection accessories, including:</p> <p>A. Upper cable guide that uses Delrin (or similar) roller mounted to lightweight aluminum frame to protect cable from abrasion during operation, and to limit operator strain during setup.</p> <p>B. Lower roller assembly that uses Delrin (or similar) roller mounted to lightweight aluminum frame to protect cable from abrasion during operation, and to limit operator strain during setup. Designs requiring use of interlocking poles shall be deemed unacceptable.</p>		
Exception(s) Detail:		

	Meets?	
6. Lightweight Heavy Duty Transmission Cable	YES	NO
<p>The system cable reel shall have:</p> <ol style="list-style-type: none"> <li>1) 1000' of cable with maximum 6-wire continuous-length multi-conductor wires for lightweight and easy maintenance performance.</li> <li>2) Kevlar reinforcement to provide minimum break strength of 1000 lbs.</li> <li>3) Diameter of no more than 0.255" (6.5mm).</li> <li>4) Weight of no more than 10.8 lb. per 328' (.03 lb. per ft.) to promote portability, long crawler runs and easy handling for multiple sized crawlers.</li> <li>5) Strain relief to be internal to the cable and cable connector.</li> <li>6) No external wires, pig tails or other visible external strain mechanisms will be accepted.</li> <li>7) Waterproof rating of at least 1 bar or 1 atmosphere.</li> <li>8) Tough outer jacket to resist tears and scrapes.</li> <li>9) Smooth outer jacket to reduce friction.</li> <li>10) Steel-armored jacket at crawler end to prevent cable damage around pipe bends.</li> <li>11) Solid stainless steel screw on connector at crawler end that locks with two turns, and which engages a locking spring-loaded pin on the rear of the crawler to secure the cable and provide strain relief.</li> <li>12) Connections that require ANY tools or screws will be deemed unacceptable.</li> <li>13) Crawler electrical connection with keyway to prevent damage to electrical pins when mating with camera or crawler.</li> <li>14) Ability to be re-terminated by soldering no more than 6 wires, and then sealed and strain-relieved using a quick-dry epoxy.</li> <li>15) Procedure shall take no more than half an hour to complete. More than 6-wire wire solder repair and Scotch-cast style solutions that require longer cure times will be deemed unacceptable.</li> <li>16) Complete re-termination kit to be included with system.</li> <li>17) Compatibility with fully automatic cable reel, manual cable reel.</li> <li>18) Cable to be only single connection regardless of use of optional items such as additional lighting, side scanning camera, rear camera, laser circle, laser dots, remotely operated lift or large pipe carriage.</li> <li>19) Ability to connect directly to the following without any modification or exterior wires, ability to be operated by system controls in this specification: <ol style="list-style-type: none"> <li>A. New 4" minimum pipe ID crawler</li> <li>B. New 6" minimum pipe ID crawler with integral motorized lift</li> <li>C. New 10" minimum pipe ID crawler</li> </ol> </li> </ol>		

Exception(s) Detail:		
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	Meets?	
7. Pipeline Observation Archiving and Reporting Software	YES	NO
The system control pendant shall have:		
<ol style="list-style-type: none"> <li>1) Captured visual data can be printed in an inspection report that has manhole to manhole schematic, observations, distances, asset information, operator details and PACP codes.</li> <li>2) Software to have capability of printing out an inclination report with both slope % and distance variance over the entire length of the asset inspection.</li> <li>3) For printing, the included software will require a truck or office PC with USB I/O and a printer.</li> <li>4) Data collected can be used to seamlessly integrate with the City's GIS mapping and asset management software via optional software modules.</li> <li>5) Bidder to provide sample inspection and inclination reports with bid response.</li> </ol>		
Exception(s) Detail:		

	Meets?	
8. Camera Inspection Trailer Specifications	YES	NO
Standard Trailer Equipment Included:		
<ol style="list-style-type: none"> <li>A. 7'W x 14'L tandem axle enclosed trailer</li> <li>B. Approximate 80" interior height</li> <li>C. Aluminum fenders</li> <li>D. Aluminum roof &amp; floor</li> <li>E. White pre-painted .050" aluminum side skins</li> <li>F. Aluminum uprights, 16" on center, 1 1/2"x 1"</li> <li>G. Aluminum roof skin</li> <li>H. 16" High tread plate aluminum gravel guard installed on lower front of trailer</li> <li>I. Full width dual swing out rear doors with heavy duty door retainers to secure doors in the open position</li> <li>J. Single front curbside door with RV style, deadbolt, and the ability to open and close door from inside and outside the trailer</li> <li>K. (2) Torflex 3,500 Lb. axles with electric brakes on both axles</li> <li>L. (2) L.E.D. S/T/T lights in each rear corner post and L.E.D. clearance/marker lights</li> <li>M. Break away battery &amp; switch</li> <li>N. 2 5/16" Coupler and 7-way trailer plug</li> <li>O. Extended tongue to incorporate installation of RV generator and insulated generator enclosure</li> <li>P. Heavy duty trailer tongue jack</li> <li>Q. Whelen R2LPPA Linear L.E.D. mini light bar installed on front and rear of trailer roof with on/off switch in operators area</li> </ol>		

Exception(s) Detail:		
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	Meets?	
9. Operators Area	YES	NO
<ul style="list-style-type: none"> <li>A. Solid bulkhead wall with sliding window separating operator and work areas.</li> <li>B. Pass through door with latch in bulkhead wall between operator and equipment area.</li> <li>C. Formica desk surface that will match the contour of the inner walls.</li> <li>D. (2) Floor to ceiling storage cabinets.</li> <li>E. Ceiling-mounted 12 volt L.E.D. lights to illuminate the office area.</li> <li>F. (2) LCD monitors, (1) for use with camera control pendant and (1) for use with laptop.</li> <li>G. Operators chair.</li> <li>H. Under desk 2-drawer file cabinet.</li> <li>I. Wall outlets to be placed under and over the desk surface.</li> <li>J. Desk mounted internal/external video selector.</li> <li>K. Walls to be covered with plywood and gray FRP.</li> <li>L. Ceiling to be covered with dark colored carpeting.</li> <li>M. Floor will be covered with black anti-skid treaded rubber.</li> </ul>		
Exception(s) Detail:		

	Meets?	
10. Equipment Area	YES	NO
<ul style="list-style-type: none"> <li>A. Varied work bench surfaces with built in Stanley Vidmar heavy duty tool box.</li> <li>B. Tool box drawers to have die cut foam inserts to organize camera parts.</li> <li>C. Wall mounted storage shelf.</li> <li>D. Slide out crawler tray under cable reel.</li> <li>E. Ceiling-mounted L.E.D. lights illuminate the work area.</li> <li>F. Work benches will be constructed from plywood and covered with gray FRP.</li> <li>G. Tops of work benches will be covered with butcher block.</li> <li>H. An outlet will be placed in the bulkhead wall for a rear facing monitor.</li> <li>I. Wash down system with on demand pressure pump, lighted switch, water tank with exterior fill, and 25' retractable hose reel with spray nozzle.</li> <li>J. An external BNC video input connection and 12 volt socket will be placed at the rear of the trailer.</li> <li>K. Storage rack for far distance camera inspection equipment.</li> <li>L. Tool package to include manhole hook, pick, sledge hammer and shovel, with mounts/brackets)</li> <li>M. Walls to be covered with plywood and gray FRP.</li> <li>N. Ceiling to be covered with dark colored carpeting.</li> <li>O. Floor will be covered with black anti-skid treaded rubber.</li> <li>P. (1) Rear facing LCD monitor connected to control pendant video signal.</li> </ul>		
Exception(s) Detail:		

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	Meets?	
	YES	NO
<b>11. Standard Electrical Package</b>		
<ul style="list-style-type: none"> <li>A. Enclosed and sound insulated tongue mounted generator compartment with access openings to do daily oil checks and complete maintenance.</li> <li>B. Honda 6.5 Kw generator with starting battery.</li> <li>C. Remote mounted start/stop control panel with hour meter.</li> <li>D. Electronic fuel gauge in control panel.</li> <li>E. Fuel tank to be sized for generator to operate a minimum of 8 hours without refueling.</li> <li>F. Shore power cord and breaker box.</li> <li>G. 50 Amp auto transfer switch.</li> <li>H. 12 volt power converter.</li> <li>I. Roof mounted air conditioner with heat strip.</li> <li>J. A 120 Volt wall heater with thermostat located in the operator's area.</li> <li>K. All 120 Volt components to be wired to generator and shore power.</li> </ul>		
Exception(s) Detail:		

	Meets?	
	YES	NO
<b>12. Accessories</b>		
<ul style="list-style-type: none"> <li>A. Hand sanitizer</li> <li>B. Waterless soap</li> <li>C. Paper towels with mount</li> <li>D. Rubber gloves with mount</li> <li>E. First aid kit</li> <li>F. Fire extinguisher</li> <li>G. Rain X</li> <li>H. 409 surface cleaner</li> <li>I. Rope cleat located are rear of trailer</li> <li>J. Wall mounted storage shelf</li> <li>K. Dry-erase board</li> <li>L. Safety package</li> <li>M. Traffic cones</li> <li>N. Operator, Parts and Owners Manuals for all equipment awarded</li> </ul>		
Exception(s) Detail:		
<b>Price for Above Equipment Specification:</b>	\$	

	Meets?	
<b>13. Far Distance and Remote Confined Space Video Inspection Equipment</b>	YES	NO
<p>General Requirements:</p> <ol style="list-style-type: none"> <li>1) The proposed system must be a self-contained camera system. Camera systems that require a generator or shore/house power will be deemed unacceptable.</li> <li>2) Warranty: The system furnished in accordance with these specifications shall be covered for a period of 1 year.</li> <li>3) Warranty: The portable viewing device and the battery pack with charger shall be covered by a 1 (one) year warranty.</li> <li>4) Optional maintenance plans or extended warranty shall be available.</li> <li>5) The proposed system must be able to be operated by one person thus requiring no entry into confined space areas. Systems that require confined space entries will be deemed unacceptable.</li> <li>6) System must have NRTL certification (listed and labeled) for the OSHA Federal Regulation for safe use of electrical equipment.</li> <li>7) No tools required for the setting up or accessorizing the system. Only 3 cables required – power, camera and video.</li> </ol> <p><b>Camera Head: Module and Housing</b></p> <ol style="list-style-type: none"> <li>1) The camera will produce a color video image and provide a minimum of 460 HTV Lines of video resolution.</li> <li>2) The image sensor shall be a Color Hyper-Had CCD with expanded sensitivity to view down a minimum diameter of 6” pipe lines and have a minimum clear viewing range of 200’ with bright pipe sidewall detail.</li> <li>3) Camera construction shall include all solid-state circuitry designed to withstand shocks and vibrations.</li> <li>4) The camera shall have a zoom feature of 36:1 optical and a digital zoom of 12 times for a total of 432:1 magnification. Systems with less optical zoom will be deemed unacceptable.</li> <li>5) The camera head shall have an image stabilization function that is operated via a single direct button function on the control unit.</li> <li>6) Camera shall have ability for auto and manual focus via single click of the camera control joystick.</li> <li>7) System illumination shall be provided by HID (High Intensity Discharge) lighting element with a proprietary reflector (greater than 4”) with a light pattern that produces a tight 6” round bright halo of light that surrounds the camera mounted (Haloptic Technology). Color temperature will average at 5000 Kelvin to provide for bright and contrast lighting at far distances. Xenon, Halogen, L.E.D or filament lamps will be deemed unacceptable.</li> <li>8) Camera and lamps will be mounted in a coaxial fashion (camera directly in front of the lighting element) where the light beam is directly calibrated/centered to narrowest (most magnified) field of view of the camera. This allows for exact targeting of pipeline features at far distances. Must be able to read a peak lux value of 400 at a distance of 200 feet.</li> <li>9) System to have an option for a wide-angle near object camera to be mounted to the opposite side of the Haloptic enabled camera.</li> <li>10) For safety – camera/lamp body shall be able to be touched without burning even after operating at full power for an hour.</li> <li>11) The complete camera housing shall be made of anodized and powder coated aluminum as well as stainless steel and designed for damp and underwater environments with an operating temperature range of 20° to 110° F.</li> <li>12) Camera shall be rated as IP68 (waterproof/dustproof), able to be submerged in water.</li> </ol>		



- 13) Camera shall have Schrader air valve for purge and pressurization of electronic components to prevent internal lens fogging when there is extreme change in environmental temperature.
- 14) Camera shall have an opening other than the Schrader valve to allow for the introduction of dry air at the same time moist air is being purged out of the system. Purge release port is released via single machined head screw opening.
- 15) Camera must have dual pressure relief valves so system can't harm the system or an operator by accidental over pressurization.
- 16) System to enable lamp replacement via the rear camera or cap assembly. Once removed a light engine can be easily removed and replaced in the field.
- 17) Camera shall have ability to manually tilt via two side arms that have 1/3" diameter solid stainless steel journals.
- 18) All camera and lighting wires shall be housed within the camera housing. Cameras that have ANY wires other than the main cable that come out of the camera head or lights will be deemed unacceptable.
- 19) System shall have quick-connect camera head feature where camera head attaches electrically to the cable via a single waterproof connector and mechanically to the pole via a single cam lock and collar. No tools required.
- 20) Full lighting and camera capability to be able to fit into a 6.0" diameter opening, providing viewing and some access to sub 8" diameters.
- 21) Camera window shall be made of scratch resistant sapphire crystal.

**Controller (Control Box, Menu System, Portable Vest and Battery)**

- 1) The size of the control box shall be no greater than 5 1/8" x 2" x 6".
- 2) Control box shall mount within a pocket that is on the right front side of the included safety, power and control vest.
- 3) The control unit shall contain controls on the top of the box for zoom, manual/auto focus, image stabilization, 3-position rocker switch for 1.front camera with light, 2.front camera without light, 3.rear camera with light, 4.rear camera without light), menu-items. Main 12V power switch located at rear of box.
- 4) Control Box shall have input and output connectors on its bottom and side. BNC Video out, military spec locking connector with keyway for main control cable to be located at bottom for ergonomic cable management and 3-pin XLR secured connector for 12V DC power input to be at rear of box for close and direct access to battery or optional 12V power cable.
- 5) Control box switches/controls shall be backlit rocker style and joystick.
- 6) Control Box shall have splash proof switches and connectors.
- 7) System control box shall have a single joystick to control zoom, focus and auto focus. Backward and forward will control telephoto and macro zoom while left and right will control far and near manual focus. Depressing the joystick in the center will engage auto focus.
- 8) Joystick shall also be used to address on-screen menu items.
- 9) Toggle onscreen menu items shall be as follows:
- 10) Menu for Haloptic system.
- 11) Shadow Brite feature toggle.
- 12) Calibration setting.
- 13) Safety operator vest shall fit all sizes via adjustable front snaps and be made of ANSI rated yellow for daytime safety and have reflective tape for night time visibility and safety.
- 14) Safety operator vest shall have zipper back pouch to enclose all available battery sizes. Pouch will be located lower center of the back for safe and comfortable use.
- 15) Safety operator vest shall have control box pouch located at waist level on the right hand side. Pouch will have necessary opening for all input, outputs and control access.
- 16) Safety vest shall have integral Velcro cable straps for neat and orderly management of excess camera cable.
- 17) An automatic battery charger shall be included.
- 18) The safety operator vest shall contain a minimum 95-watt hour rechargeable battery pack.
- 19) Battery shall have 10" pigtail with 3-pin XLR locking connector to attach to control unit.
- 20) Battery life shall be 5 hours with continuous use with maximum illumination. While

intermittent use is greater than 8 hours.

- 21) Control box shall have colored (green, orange, red) LED indicator to let operator know condition of battery charge.

**Controller (Control Box, Menu System, Portable Vest and Battery)**

- 1) A telescoping pole adjustable from 6' to 24' shall be included to permit placement of the camera into a variety of areas. Pole diameter must be large enough to internally house the camera connector and cable.
- 2) Pole end (opposite of camera) shall have standoff where cable exits in order to protect cable from continuous small diameter bending and banging of the end of the pole.
- 3) A 40' video/camera control cable shall be integrated inside the pole. Cable is externally armored near the camera connector end to make it easy to feed through the pole.
- 4) Maintenance bag shall be supplied with necessary maintenance tools and supplies.
- 5) System shall have ability to add optional 6' extension to standard pole.
- 6) System shall have ability to work with optional carbon fiber 16' and 30' poles.
- 7) Due to the need to correctly position the camera for maximum results, carbon fiber poles shall be of the following specification to reduce operator fatigue and enhance ability to deliver the camera without bending or damaging the pole.
- 8) 24' extended - 13 lbs., 4 section, retracted height 81", maximum pole dia. 1 7/8"
- 9) Carbon fiber poles shall have solid aluminum clasps with multi position lever to quickly and securely lock pole into preferred length.
- 10) All carbon fiber poles shall have option of either 6' or 18' extension for deeper inspection capability.
- 11) Camera head positioning shall be calibrated and have adjustable pole mounted targeting and stabilization fixture capability via a 3' aluminum rod to assist viewing dropped lines, centering camera in different diameter lines and to assist with stabilizing and dampening image from manhole or basin bottom.
- 12) Fixture shall be calibrated with markings that correspond to centering camera in 6-60" lines.
- 13) Fixture shall have spring loaded foot to allow for a minimum of 3" of travel to properly center the camera to maximize viewing results. Systems without targeting, centering and stabilization fixture will be deemed unacceptable.
- 14) Targeting system shall have ability to add different spring tensions that correspond with different camera and lighting configurations.
- 15) Targeting system shall have option to be fitted with 5' carbon fiber rod for use when inspection line drops in manholes.
- 16) Shall be able to attach a sump stabilizer to stabilize rod according to calibrated centering lines for environments that are filled with soft sediment.
- 17) System shall have provisions for portable hard side shipping/transport and storage case with wheels and extending handle for ease of transport. This shall hold all components except for the pole in a single organized case.
- 18) Portable case shall not weigh more than 45 pounds when loaded with all equipment and viewing device.
- 19) Portable case shall have custom foam cutouts for safety operator vest, control box, camera head, battery charger, battery, tool kit, viewing device and accessories and cable.
- 20) System shall have option for heavy duty pole, camera head and stand-off shipping case that measures 8 inch dia. x 96 inch in Length. Weight 20lbs.

**Video Image Viewing, Recording & Storing**

- 1) A Digital Video recorder (DV) device shall be provided for viewing live video and storing still images.
- 2) The DV recorder shall have a minimum 3.5" viewing area and be able to be mounted directly to the pole, operate wirelessly and operate with several viewing recording monitors of the same size and type. 2 monitors included in standard package.
- 3) The DV recorder shall transfer digital images via micro-SD or mini USB.
- 4) The DV recorder shall the ability to capture still images on a micro-SD card with no less than 4 GB of storage.

<p>5) The DV recorder shall be powered via a battery and receive video from the control box via a BNC connector to the video/recorder pole mounted docking station.</p> <p>6) The DV recorder shall have the ability to take digital stills or record video.</p> <p>7) Video viewer/recorder can dock to the pole for direct video or be removed from the docking station for wireless video transmission of up to 30’.</p> <p><b>Manhole-viewing auxiliary camera</b></p> <p>1) Camera with 90 degree lens shall be provided to view of near structures and objects.</p> <p>2) Illumination shall be provided by 18 LEDs surrounding the camera lens within a 1.2” diameter and to have a combination of wide and narrow angle lighting capability for a variety of viewing applications within confined spaces.</p> <p>3) Camera shall have the ability to be removed with no tools for service or adding to another system.</p> <p>4) Camera shall be waterproof.</p>		
Exception(s) Detail:		
<b>Price for Far Distance and Remote Confined Space Video Inspection Equipment:</b>		<b>\$</b>

**DISCRETIONARY OPTIONS:**

Items 14 – 17 below may be ordered by the City of Kimberly, but the bidder is not required to have these options available.

	<b>Meets?</b>	
<b>14. Remotely operated motorized camera lift</b>	<b>YES</b>	<b>NO</b>
<p>1) The Crawler must allow for an electronically controlled lift to raise and lower the camera automatically once the crawler is deployed in the pipe via the main remote pendant and the wireless auxiliary remote control. Manual or fixed lifts will not be accepted.</p> <p>2) The camera lift must be made from solid aluminum and stainless steel.</p> <p>3) Camera lift must have a range of 3.1 inches to 10.2 inches.</p> <p>4) Housing to be fully sealed and waterproof per IP68 to withstand external pressure up to 1 bar without damage or leaking.</p> <p>5) Internal pressurization to protect against water ingress.</p> <p>6) Ability to raise camera 7” from the complete down position.</p> <p>7) Ability to fit in 10” diameter pipe when mounted on crawler with smallest wheels.</p> <p>8) The remote lift must be operated by a CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.</p> <p>9) Accessory port on top for attachment for access to power, video and CAN BUS control.</p> <p>10) Ability to mount auxiliary lighting and rearview camera at top position for view near center of pipe and above flow.</p> <p>11) Can be remotely controlled using operator pendant.</p> <p>12) Pressurized struts and motors to ensure reliable, precise control in a compact form factor.</p> <p>13) Ability to connect remote lift to crawler body via a 1.5” long, 5/8” diameter stainless-steel keyed connection plug with a simple turn of a slotted locking mechanism atop of the crawler that drives 3 stainless steel bearings into the rotation shaft of the camera, 10-pin internal female connection port and two set screws on either side of the lift that attach to the top plate of the crawler body. Connection must be waterproof. Systems with pigtailed, exterior cable connections or loose wires will be deemed unacceptable.</p> <p>14) Ability to connect the camera to remote lift via a 1.5” long, 5/8” diameter stainless-steel keyed connection plug with 10-pin internal female connection port. Connection must be waterproof.</p>		

<p>15) Must have an auxiliary light port that is protected when auxiliary lights are not connected with a stainless steel cover that is waterproof and easily removal with 2 set screw to connect auxiliary lights.</p> <p>16) Ability to mount to crawler with instant-contact slide-connector on top of the remote camera lift. Any exposed wiring shall be deemed unacceptable.</p> <p>17) Ability to accept pan/tilt color zoom camera or side scanning camera without compromising any of the camera's functionality.</p> <p>18) Ability to accept forward connecting auxiliary light which extends side scan and pan and tilt camera completely beyond the front edge or the crawler so it does not interfere with captured video and side scan data when viewing the pipe bottom.</p> <p>A. Auxiliary light port must be able to accept 2 different style auxiliary lights.</p> <p>B. Twin focused super-bright LED lamps (2-watt each) for inspecting large pipes.</p> <p>C. Twin focused super-bright LED lamps (2-watt each) with color rearview camera integrated into the back of the auxiliary light housing.</p> <p>19) Ability to be controlled via automated software routines (Macros) where auto centering and other features can be conducted with the single push of a button.</p> <p>20) Ability to pause upward motion of camera lift to inform operator that pan and tilt camera will view crawler when conducting downward viewing, therefore giving the operator the options to not continue raising the camera.</p> <p>21) Auxiliary lighting that has:</p> <p>A. Twin focused super-bright LED lamps (2-watt each) with color rearview camera integrated into the back of the auxiliary light housing.</p> <p>B. Ability to mount to crawler with instant-contact slide-connector positioned at top rear of crawler or optional camera lift.</p> <p>C. Any exposed wiring or pigtailed shall be deemed unacceptable.</p> <p>D. Waterproof design (when mounted) with ability to withstand 1 bar external pressure.</p> <p>E. Rear-viewing color camera with single hi-lux tri-LED lamp (necessary when using lift and needing to see above water flow)</p>		
Exception(s) Detail:		
<b>Remotely operated motorized camera lift Price:</b>	<b>\$</b>	

	<b>Meets?</b>	
<b>15. Large Pipe Carriage Specifications</b>	<b>YES</b>	<b>NO</b>
<p>1) The crawler must allow for the addition of a large pipe carriage accessory. Large diameter crawlers with their own drive system will not be accepted.</p> <p>2) The carriage must have a wheelbase or stance of 14.5 inches wide and 12.2 inches in length for stability and navigating debris and offsets in the pipe.</p> <p>3) The carriage must weigh more than 32 pounds.</p> <p>4) The carriage must be constructed of machined aluminum and stainless steel for durability.</p> <p>5) The carriage must allow for better centering performance 24 to 48 inches.</p> <p>6) Ability to improve crawling ability in 24 inches lines or larger where flow and debris is present.</p> <p>7) Greater clearance than typical large crawler (up to 7" along centerline), which, along with large wheels, dramatically reduces resistance of flow on crawler.</p> <p>8) The crawler must attach to the carriage via 2 screws mounted to the bottom plate of the carriage and crawler.</p> <p>9) The carriage must be driven by direct gear drives. Chain or belt driven units will be accepted.</p> <p>10) The carriage must be compatible with the following wheels.</p> <p>A. Set of 4 common 36mm diameter by 20mm wide spacers</p>		

B. (4) 5.31" (135mm) diameter by 2.6" wide grooved soft sediment rubber wheels C. (4) 4.33" (110mm) diameter grooved rubber wheels D. (4) 5.31" (135mm) diameter grooved rubber wheels E. (4) 5.31" (135mm) diameter soft composite grease wheels with traction grit impregnation F. (4) 4.33" (110mm) diameter pointed carbide wheels G. (4) large pneumatic wheels 11) The carriage must have stainless steel axels for durability. 12) The carriage must be waterproof and sealed.		
Exception(s) Detail:		
<b>Large Pipe Carriage Price:</b>	<b>\$</b>	

	<b>Meets?</b>	
<b>16. Large Line Steerable Motorized Crawler</b>	<b>YES</b>	<b>NO</b>
<p>The system crawler shall have:</p> <ol style="list-style-type: none"> <li>1. 4-wheel drive (2 wheels per side) to generate traction necessary to crawl 1000' in wet and slippery pipes.</li> <li>2. The tractor shall have proportional left, right, forward and reverse capability via manual and automatic controls via a joystick and direct buttons amongst the operator pendant and wireless controller.</li> <li>3. Proportional steering means that the 2 wheels on the left and the right of the crawler will move proportionally at the same time to move the crawler in the intended left, right, forward, backward or combination direction. Crawlers that can only drive in a single direction to the left, right, forward or backward at a time (bump steering) will be deemed unacceptable.</li> <li>4. Dimensions shall be 27.6" x 9.4" x 9.8" (L x W x H), allowing operation in 18" minimum pipelines.</li> <li>5. A minimum of two powerful EC drive motors. Motors must maintain full power even at lower speeds without depending on drawing more current to do so.</li> <li>6. An electronic clutch that can be engaged and disengaged without needing to move the crawler. Systems that demand movement of the crawler to engage or disengage a mechanical clutch will be deemed unacceptable.</li> <li>7. System to be isolated in a way where major crawler electronic components will not be destroyed if there is a cut and connection between power and other wires within the cable.</li> <li>8. An integral, remotely controlled lift that can raise the camera to a proper level to inspect up to 48".</li> <li>9. Can accept an optional additional lift that allows proper camera level to inspect 72" pipelines</li> <li>10. Full sensor package with inclination, roll, sonde, pressure, heat and motor readings that report back to the operator station.</li> <li>11. Integral rearview color camera with high-lux tri-LED lighting to be positioned at the top rear of the crawler body and not to have any visible increase in the diameter of the crawler body or be integrated with the rear connector.</li> <li>12. Ability to remotely toggle between rear- and forward-viewing cameras using the operator control pendant.</li> <li>13. Slotted locking mechanism, the simple turn of which drives 3 stainless bearings into the rotate shaft of the camera for secure, easy attachment with 1-bar waterproof rating.</li> <li>14. Keyway on camera rotation shaft to ensure damage-free mating of electrical pins between crawler and camera.</li> <li>15. Rear receptacle that allows cable attachment with 2 turns of the stainless-steel cable</li> </ol>		

<p>connector's outer barrel. No tools required.</p> <ol style="list-style-type: none"> <li>16. A spring-loaded pin on the rear receptacle to lock the stainless-steel cable connector's outer barrel, ensuring a secure connection and delivering pull strength beyond the 1000-lb-rated break strength of the cable.</li> <li>17. Minimum weight of 70 pounds.</li> <li>18. Crawler body must be machined from a single continuous and complete piece of machined anodized aluminum. Two piece bodies from top to bottom or front to rear crawlers will be deemed unacceptable.</li> <li>19. Single piece crawler body to have single top-plate access for control boards, single bottom-plate access for motors, and dual side-plate access for gears, ensuring maximum protection against leaks caused by bending stress. Tractor chassis of bronze, brass or other soft metals shall be deemed unacceptable.</li> <li>20. Machined keyway on all 4 axles to ensure positive drive and facilitate quick wheel change-out. Spacers and wheels shall attach with a single screw; plates and spacer-bars shall be deemed unacceptable.</li> <li>21. Machined tight fitting axel to wheel keyway to assure wheel stays on the unit without turning if a bolt loosens. Systems that use bolts and washers as the only means to secure a wheel will be deemed unacceptable.</li> <li>22. CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.</li> <li>23. Two (4) wheel sets and spacers supplied for inspection of pipes 18" - 72".</li> <li>24. A tilting rear cable connector that points vertically to protect cable during deployment into manhole, but which tilts to horizontal position during operation. Rear connectors that integrate a rear camera will not be accepted.</li> <li>25. Strong stainless steel locking mechanism to augment the strain relief internal to the cable.</li> <li>26. Stainless cable connector shell to carry a lifetime warranty.</li> <li>27. Multiple frequency (512 and 640 Hz) integral sonde to facilitate locating crawler. Controls for selecting frequency shall be located in the pendant controls at the operator station.</li> <li>28. 4 Integral Auxiliary L.E.D. lights that is independently adjustable.</li> <li>29. IP68 water proof rating to withstand external water pressure up to 32 feet.</li> <li>30. An interface for a second rear-viewing color camera with single hi-lux tri-LED lamp for use when the integral lift is utilized to bring cameras above the water line.</li> <li>31. A sensor system allowing automatic camera centering inside the pipe when the remote lift is in use.</li> </ol>		
Exception(s) Detail:		
<b>Large Line Steerable Motorized Crawler Price:</b>		<b>\$</b>

	<b>Meets?</b>	
<b>17. Operator Camera Control Unit (CCU), Desktop Controller, Handheld Control Pendant and Wireless Controller</b>	<b>YES</b>	<b>NO</b>
<ol style="list-style-type: none"> <li>1) 10" integrated color touch-screen monitor with 800 x 600 display resolution for viewing, recording video and accessing control and configuration functions.</li> <li>2) Power on/off switch.</li> <li>3) Adjustable macro/function keys.</li> <li>4) Integrated QWERTY keyboard.</li> <li>5) Integral error code maintenance and repair protocol which informs the operator of current or pending operating or maintenance tasks that need to be addressed by flashing a code during use. Codes correlate with a specific repair or maintenance activity.</li> <li>6) Dual 3-axis joysticks to control all camera and crawler functions.</li> <li>7) Controls for manual and automatic focus of camera.</li> <li>8) Must display crawler pressure, temperature, sonde status, pitch (inclination) and roll.</li> </ol>		

<ul style="list-style-type: none"> <li>9) Pressure to be listed onscreen and saved within system history for predictive maintenance.</li> <li>10) Controls for adjusting illumination intensity of camera and auxiliary lighting.</li> <li>11) Ability to control cable reel functions: auto, manual, speed, direction, torque of the cable reel.</li> <li>12) Have a master single button to regain control from wireless controller.</li> <li>13) All necessary controls and capabilities to record digital video.</li> <li>14) All necessary controls and capabilities to capture digital stills.</li> <li>15) All necessary controls and capabilities to capture digital pipe scans.</li> <li>16) All necessary controls and capabilities to control lateral launch camera (should it be added in the future)</li> <li>17) Ability to generate text on video.</li> <li>18) Ability to inform operator if in danger of tipping or flipping the crawler.</li> <li>19) Ability to directly engage or disengage electronic clutch.</li> <li>20) Ability to capture, correlate and store still images with distance and observation information, all of which can be output into several reporting packages or viewed onscreen.</li> <li>21) Captured data can be output via file which will automatically populate relevant fields within existing or new software database.</li> <li>22) On/off control of digital zoom functions.</li> <li>23) On/off control of auto shutter speed.</li> <li>24) Ability to toggle front-view camera, integral rear view camera, and accessory rear view camera.</li> <li>25) On/off control for camera lasers.</li> <li>26) Ability to control laser intensity of increments of 25%.</li> <li>27) Control for remotely controlled motorized camera lift.</li> <li>28) Button to activate automated software routine (Macro) for viewing laterals on the left.</li> <li>29) Button to activate automated software routine (Macro) for viewing laterals on the right.</li> <li>30) Button to activate automated software routine (Macro) for performing a circumferential scan of a pipe joint.</li> <li>31) Button to activate automated software routine (Macro) for auto-return that automatically returns the crawler within 5 feet of the insertion manhole and alerts the operator of its return for final extraction.</li> <li>32) The ability to operate larger (24" minimum diameter) and smaller crawlers (minimum 4" diameter) with no need for additional control unit or cable upgrades.</li> <li>33) CAN-bus control architecture allowing for precision control, diagnostic monitoring and future upgradeability.</li> <li>34) Ability to measure cracks and other observations without the need for external software.</li> </ul>		
Exception(s) Detail:		
<b>Operator Camera Control Unit (CCU), Desktop Controller, Handheld Control Pendant and Wireless Controller Price:</b>	<b>\$</b>	

**Bidder shall provide a minimum of 2 days of onsite training to Public Works CCTV personnel.**

Public Works considers CCTV inspection camera equipment to be an essential tool to its ability to successfully respond to emergencies. Because of the nature of the work and the environmental stress the equipment must endure, it is expected that equipment failures will occur. Therein Bidders shall provide facilities for factory equipment repair and replacement with loaner units.

**BID SUMMARY:**

For the City of Kimberly, Twin Falls County, Idaho. The undersigned, as bidder declares that he/she has carefully examined the work and all bid items, and agrees that if this bid is accepted that Bidder will contract with the City of Kimberly, pursuant to the terms and conditions of the City purchase order, to provide and deliver all the materials specified in the contract in the manner and time herein prescribed, and in accordance with the requirements of the Public Works Department, Bidder will take in full payment of the following prices of materials and equipment for the; **CLOSED CIRCUIT TELEVISION (CCTV) CAMERA PIPELINE INSPECTION SYSTEM**

***Item Total Cost***

- 1-12. System Basics, Operator Pendant and Wireless Controller, Steerable Motorized Crawler, Pan/Tilt Zoom Camera, Motorized Automatic Cable Drum, Lightweight Heavy Duty Transmission Cable, Pipeline Observation Archiving and Reporting Software, Camera Inspection Trailer specifications, Operations Area, Equipment Area, Standard Electrical Package, Accessories. \$ \_\_\_\_\_
- 13. Far Distance and Remote Confined Space Video Inspection Equipment \$ \_\_\_\_\_
- 14. Remotely Operated Motorized Camera Lift \$ \_\_\_\_\_
- 15. Large Pipe Carriage Specifications \$ \_\_\_\_\_
- 16. Large Line Steerable Motorized Crawler \$ \_\_\_\_\_
- 17. Operator Camera Control Unit (CCU), Desktop Controller, Handheld Control Pendant Wireless Controller. \$ \_\_\_\_\_

***Hourly Rates for:***

Training \$ \_\_\_\_\_  
Emergency Equipment Repair and/or Replacement cost (hour rate \$ \_\_\_\_\_)

Bidder's State of Domicile \_\_\_\_\_. Failure to furnish information on State of Domicile may result in Rejection of Bid. (Please see section entitled Bidder's State of Domicile).  
Amount of Bid Preference Penalty (If Applicable) \_\_\_\_\_.

**TOTAL BASE BID AMOUNT BID FOR ITEMS 1-13 \$ \_\_\_\_\_**  
WRITTEN IN WORDS \_\_\_\_\_

**Business Name:** \_\_\_\_\_

**Bidder Signature** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Name:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**Business Address:** \_\_\_\_\_  
**Street** \_\_\_\_\_

\_\_\_\_\_, \_\_\_\_\_  
**City and State Zip Code**

**Phone:** \_\_\_\_\_ **Fax Number:** \_\_\_\_\_





**CITY OF KIMBERLY  
BIDDER REGISTRATION FORM**

**INVITATION TO BID: LONG-RANGE CLOSED CIRCUIT TELEVISION (CCTV)  
CAMERA PIPELINE INSPECTION SYSTEM**

All bidders intending to submit bids must immediately complete this form and fax it to the City of Kimberly, City Clerk office.

Bidders failing to comply with this requirement will not receive addendums that might be issued which could affect the bid being submitted.

FAX TO: 208-423-4297

Or email to [rwright@cityofkimberly.org](mailto:rwright@cityofkimberly.org)

If the document is emailed please follow up with a phone call to 208-423-4151

**Firm Name:**

**Address:**

**City and State:**

**Phone:**

**Fax:**

**Email:**

**Contact Person (Name & Title):**

**Date:**