1 GENERAL

1.1 RELATED WORK

.1	Basic Electrical Materials and Methods	Section 26 05 01
.2	Fastenings and Supports	Section 26 05 29
.3	Control Panels	Section 40 10 00
.4	Programmable Logic Controller	Section 40 20 00

1.2 SCOPE

.1 This section specifies the supply, installation, field testing and placing into operation of flow, pressure, temperature, level, turbidity and other instruments of control and instrumentation.

1.3 SUBMITTALS

.1 Submit shop drawings in accordance with Section 40 00 05.

2 PRODUCTS

2.1 INSTRUMENTS

.1 Provide each instrument with mechanisms that are corrosion resistant.

.2 Provide each instrument with mechanisms enclosed in a dustproof and moisture proof case.

.3 Provide all indicator and gauge dials finished in permanent white with black graduations and figures.

.4 Potentiometric signals shall have a “live” zero or positive minimum value in the signal range.

.5 Each component shall be carefully selected and designed for a long lifetime with ample margin to withstand transient and other surge voltages, which may occur in the circuits from any source in the power supply.

.6 Each component and composite instrument shall be suitable for the location and installation position at the attitude designated on the drawings, eg. Horizontal, vertical or sloped position.

.7 The Contractor shall provide all power supplies. Instruments shall be powered from the same control panel to which the measured signal is being transmitted, unless specifically noted otherwise. The power source to each instrument shall be individually fused, fuse size based on instrument power requirements.

.8 Integrating counters and elapsed time meters shall show the total quantity that has passed through the meter and shall not require the use of a multiplier other than cipher additions. The integrators shall have at least seven figures.

.9 All control panel mounted instruments shall be suitable for flush mounting and shall be furnished with bezel.

.10 All materials shall conform to the standards of the Canadian Standards Association (CSA).

.11 For factory calibrated instruments, the factory calibration sheets shall be submitted in the O&M manual.

.12 For field calibrated instruments, the field calibration sheets shall be submitted in the O&M manual.

.13 All instruments to be installed per manufacturer's recommended installation guidelines.

.14 Provide instrument tag fastened to each instrument. Instrument tag to be stainless steel or powder coated aluminum.

2.2 ULTRASONIC LEVEL TRANSMITTERS

.1 Ultrasonic level sensing transmitters suitable for hazardous locations and wastewater applications as indicated for monitor lift station wet well levels.

.2 Power Supply: 120VAC

.3 Output: 4-20mA, Hart protocol.

.4 Minimum Range: 0-10m (coordinate wet well depth with mechanical).

.5 CSA Approved.

.6 Chemical resistant polyester/polycarbonate alloy surface mounted EEMAC 4X rated enclosure complete with LCD and bar graph display.

.7 Level sensing transducers complete with built-in temperature compensation and submersible transducer shield. Remotely mount transducers in wet well above highest incoming sewer main. Coordinate exact location with mechanical. Supply necessary length of transducer cable between transducer and panel mounted transmitter.

.8 Acceptable manufacturer shall be Siemens Milltronics MultiRanger 100/200.

2.3 H_2S DETECTOR

.1 Provide hydrogen sulfide detectors suitable for wastewater applications as follows:

.1 Transmitter Display: Multi-Colour LED

.2 Output: 4-20mA

.3 Power: 24VDC

.4 Transmitter Operation Temperature: -55 to 85˚C

.5 Transmitter Enclosure: Surface mount/pipe mount, NEMA 7

.6 Sensor Response Time: 90% in 30 seconds

.7 Sensor Operating Temperature: -40 to 75˚C

.8 Sensor Enclosure: Aluminum or 316 SS

.9 Provide one complete new calibration kit to left on site following commissioning.

.10 Provide hardware and cables required for remote mounting of sensor head as per drawings.

.11 Acceptable manufacturer shall be Net-Safety model Millennium II, Det-Tronics Model GTD1AN25W2 c/w GTSG2100P, Honeywell Sensepoint, MSA Ultima X Series or approved equal in accordance with B.7.

2.4 FLOAT SWITCHES

.1 Provide float switches as indicated, teardrop shaped submersible, weighted and encapsulated in an enclosure suitable for immersion in wastewater. Acceptable manufacturer shall be Flygt ENM-10.

.2 Float switches shall be individually suspended y means of submersible cable affixed to a galvanized steel float bracket as indicated on the drawings. Provide float rings to prevent cable entanglement. Acceptable manufacturer shall be Flygt 13-520006.

2.5 FLOW SWITCHES

.1 24VDC Power supply

.2 Dry contact output to indicate no flow alarm

.3 Acceptable manufacturer: IFM Efector SI5010 or approved equal in accordance with B.7.

3 EXECUTION

3.1 INSTALLATION

.1 Coordinate the work of this Section with the installation of the equipment specified in the relevant mechanical sections and shown on the mechanical and electrical drawings.

.2 Perform all work in compliance with the relevant sections of this Division.

3.2 FIELD INSTRUMENT MOUNTING

.1 "Mounting" shall mean the positioning and fastening with proper brackets in the position required.

.2 All equipment shall be mounted in accordance with manufacturer's recommendations.

.3 Locations of all field instruments are subject to modification by the Contract Administrator who reserves the right to move any item up to 3 meters from the position shown, without change to the contract price, provided notice is given before the related work has commenced.

.4 Exact locations of all field instruments shall be site determined by the Contractor to the satisfaction of the Contract Administrator to ensure proper operation of the device.

.5 Employ and all means of trade, skill and workmanship to install all field instruments to the satisfaction of the Contract Administrator.

3.3 COMMISSIONING

.1 Instrument manufacturer's qualified service representative shall be on site as required to perform instrument calibration, testing and commissioning and to instruct the City of Winnipeg's representative in all aspects of instrument operation and maintenance.

END OF SECTION