

DIVISION 28

**ELECTRONIC SAFETY AND
SECURITY**

Part 1 General

1.1 SECTION INCLUDES

- .1 Pedestals and pedestal heads.
- .2 Card readers.
- .3 PIN keypads and accessory hardware.
- .4 Message displays.
- .5 Industrial computers.
- .6 Wiring.
- .7 Accessory software.

1.2 RELATED SECTIONS

- .1 Section 28 23 00 – Video Surveillance

1.3 REFERENCE STANDARDS

- .1 Underwriters' Laboratories (UL)
 - .1 UL 294, Standard for Safety for Access Control System Units.
- .2 National Building Code (NBC) with Manitoba Amendments.

1.4 DESIGN PERFORMANCE REQUIREMENTS

- .1 Design security access system using company specializing in security access systems.
- .2 Design access control systems to meet safety requirements specified in accordance with UL 294 and NBC, including Manitoba amendments.
- .3 Design system to provide ease of operation, servicing, maintenance, testing and expansion of additional services.

1.5 SUBMITTALS

- .1 Product Data: Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Submit shop drawings, including:
 - .1 Functional description of equipment.
 - .2 Technical data for all devices.
 - .3 Device location plans and cable lists.
 - .4 Devices mounting location detail drawings.

- .5 Typical devices connection detail drawings.
- .2 Instructions: Submit manufacturer's installation instructions.
- .3 Manufacturer's Field Services: Submit copies of manufacturer's field reports.
- .2 Maintenance Data: Submit maintenance data for incorporation into manual specified in Section 01 78 00 - Submittal Procedures.
 - .1 Include:
 - .1 System configuration and equipment physical layout.
 - .2 Functional description of equipment.
 - .3 Instructions for operation of equipment.
 - .4 Illustrations and diagrams to supplement procedures.
 - .5 Operation instructions provided by manufacturer.
 - .6 Cleaning instructions.

Part 2 Products

2.1 PEDESTALS

- .1 Large head configuration.
 - .1 Structural steel tubing, 63 x 63 x 3.
 - .2 Powder coat paint finish, color to match existing.
 - .3 Baseplate and mounting plate for pedestal head.
 - .4 Top of head to be 48" above bottom of baseplate.
 - .5 Suitable for concealment of wiring in pedestal tubing.
 - .6 Acceptable manufacturer: Wallace International, PED-03-30-10-SH.

2.2 PEDESTAL HEADS

- .1 Large head.
 - .1 Black ABS plastic construction.
 - .2 Dimensions appx 600W, 400H, 250D.
 - .3 Confirm suitable space for all components in pedestal and on faceplate.
 - .4 Contoured weather shield.
 - .5 Stainless steel tamperproof screws.
 - .6 Hinging and removable 10mm gray PVC faceplate.
 - .7 Acceptable manufacturer: Wallace International, PH-ABS-01-16-12.

2.3 CARD READERS (RFID)

- .1 Provide card readers (RFID) complete with the following features:
 - .1 Long read range distance (up to 45 centimeters).
 - .2 Auto tuning.
 - .3 Reads all HID iCLASS and ISO15693 compatible (CSN) credentials

- .4 13.56 MHz technology platform compatible with existing City of Winnipeg 125 KHz readers.
- .5 UL94 Polycarbonate material, IP55 rated
- .6 12-24 VDC power supply
- .7 -30° to 65° C operating temperature
- .8 UL294/cUL (US), FCC Certification (US), IC (Canada).
- .9 Acceptable manufacturer shall be Startec SV565UTPUSA to match existing.

2.4 PIN KEYPADS

- .1 The keypad system will contain the following:
 - .1 Storm 1000 series 12-key telephone (part #: 1K12T103)
 - .2 USB Encoder: Storm 450 Series (part # 4500-003) (1 per keypad)
 - .3 USB Cable: USB cable with 90 degree mini connector (part#: 4500-013)

2.5 MESSAGE DISPLAYS

- .1 Provide message displays as indicated. Displays shall have the following features:
 - .1 15" sunlight readable VESA mount LCD screen.
 - .2 NEMA 4X rated 316 stainless steel enclosure.
 - .3 Rugged extruded aluminum chassis
 - .4 XGA display
 - .5 1500 nits brightness, low-power, high reliability solid state LED backlighting
 - .6 Resistive touch screen
 - .7 Built-in heater to allow for operating temperature range of -40°C to 60°C.
 - .8 Acceptable manufacturer shall be VarTech Systems Model # VT104VSHB-1-AU-2100-2600-JB to match existing.

2.6 INDUSTRIAL COMPUTERS

- .1 Provide industrial computers and associated equipment as indicated. REF: Nexcom PC NISE2000, Startec SV565UTPUSA (x2) and associated cables.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

3.2 INSTALLATION: SECURITY ACCESS

- .1 Install components in accordance with manufacturer's written installation instructions to locations, heights and surfaces shown on reviewed shop drawings.

- .2 Provide concrete foundation to match existing. Sleeve wiring through concrete into structural tubing.
- .3 Install and securely mount components.
- .4 Install required boxes in inconspicuous accessible locations.
- .5 Conceal conduit and wiring.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Services:
 - .1 Have manufacturer of products, supplied under this Section, review Work involved in the handling, installation/application, protection and cleaning, of its products and submit written reports, in acceptable format, to verify compliance of Work with Contract.
 - .2 Manufacturer's Field Services: Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.4 VERIFICATION

- .1 Perform verification inspections and test in the presence of Contract Administrator.
 - .1 Provide all necessary tools and equipment.
 - .2 Ensure appropriate subcontractors, and manufacturer's representatives are present for verification.
- .2 Performance testing
 - .1 Test procedure: perform test on a "go-no-go" basis.
 - .1 Make only operator adjustments required to show proof of performance.
 - .2 Test to demonstrate and verify that installed System complies with installation and technical requirements of this specification under operating conditions.
- .3 Visual verification: Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with Contract Documents. Visual inspection to include:
 - .1 Sturdiness of equipment fastening.
 - .2 Non-existence of installation related damages.
 - .3 Compliance of device locations with reviewed shop drawings.
 - .4 Compatibility of equipment installation with physical environment.
 - .5 Inclusion of all accessories.
 - .6 Device and cabling identification.
 - .7 Application and location of CSA or ULC approval decals.
- .4 Technical verification: Purpose to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:
 - .1 Validate sensitivity of readers.

- .2 Connecting joints and equipment fastening.
- .3 Compliance with manufacturer's specification, product literature and installation instructions.
- .5 Operational verification: Purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:
 - .1 Operation of each device individually and within its environment.
 - .2 Operation of each device in relation with programmable schedule and or/specific functions.

3.5 CLEANING

- .1 Remove protective coverings from accessories and components.
- .2 Adjust all components for correct function.
- .3 Clean housings and system components, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.
- .4 Clean all components free from dirt and fingerprints.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Video cameras.

1.2 RELATED SECTIONS

- .1 Section 26 50 00 – Lighting
- .2 Section 28 13 00 – Access Control

1.3 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA International)
 - .1 CSA C22.1, Canadian Electrical Code, Part 1 Safety Standard for Electrical Installations.
 - .2 CAN/CSA-C22.3 No.1, Overhead Systems.
- .2 Underwriters Laboratories of Canada (ULC)
 - .1 ULC-S317, Installation and Classification of Closed Circuit Video Equipment (CCVC) Systems for Institutional and Commercial Security Systems.

1.4 DEFINITIONS

- .1 CCTV: Closed Circuit Television.
- .2 CCVC: Closed Circuit Video.
- .3 CCD: Charge Coupled Device.
- .4 FOV: Field of View.

1.5 DESIGN PERFORMANCE REQUIREMENTS

- .1 Camera functions such as pan/tilt and zoom fully supported by existing CCTV system.
 - .1 Operator shall be able to control all camera functions.
 - .2 Manually control pan, tilt and lens functions.
 - .3 Set pan and tilt home position.
 - .4 Set and clear movement limits of pan and tilt mechanism.
 - .5 Adjust motorized zoom lens.
- .2 Environment: Design video components and systems to operate with all specified requirements under following ambient temperatures:
 - .1 Indoor installations:
 - .1 Temperature: 0C to 30C.

- .2 Humidity: 10 to 90%.
- .2 Outdoor installations:
 - .1 Temperature: -40C to 55C.
 - .2 Humidity: 10 to 100%.

1.6 SUBMITTALS

- .1 Shop Drawings: Submit in accordance with Section 26 05 01 – Common Work Results - Electrical and Section 01 33 00 - Submittal Procedures. Shop drawings to indicate project layout, camera locations, point-to-point diagrams, cable schematics, risers, mounting details and identification labeling scheme including:
 - .1 Functional description of equipment.
 - .2 Technical data sheets of all devices.
 - .3 Device location plans and cable lists.
 - .4 Video camera surveillance chart.
 - .5 Video interconnection detail drawings.
- .2 Maintenance Data: Submit maintenance data for incorporation into manual specified in Section 26 05 01 – Common Work Results - Electrical and Section 01 78 00 - Close-out Submittals. Include following:
 - .1 System configuration and equipment physical layout.
 - .2 Functional description of equipment.
 - .3 Instructions on operation, adjustment and cleaning.
 - .4 Illustrations and diagrams to supplement procedures.
 - .5 Manufacturer's operation instructions

Part 2 Products

2.1 MATERIALS

- .1 Video Camera Characteristics:
 - .1 5 megapixel resolution.
 - .2 0.1 lux @ F0.2.
 - .3 0 lux B/W with IR LED on.
 - .4 30fps at all resolutions.
 - .5 2.6x varifocal.
 - .6 H.265/H.264 support.
 - .7 Lens distortion correction.
 - .8 IP66.
 - .9 24VAC +/- 10%, 12 VDC +/- 10%, PoE (IEEE802.3af, Class 3).
 - .10 Max 14W.
 - .11 Environment: Outdoor.
 - .12 Mounting brackets:

- .1 SBP300HM6 Cap Adapter
- .2 SBP-300WM wall mount
- .3 SBP 300 PM Pole mount adapter
- .4 Provide custom bracket to extend existing Lane 2 camera appx 1500mm to the side of pole for unobstructed view of Lane 2 lane exit signage. Support must have min two attachment points to pole, separated by min 600mm, for stability and adequate rigidity to resist vibration in moderate winds. Bracket shall be stainless, epoxy painted, or powder coated for a long life finish.
- .13 Pan tilt zoom (PTZ).
- .14 Approved manufacturer: Samsung SNV-8081R.
- .15 Video cable: Cat 6 PoE, UV Rated with shielded connectors installed & boots.

2.2 PRODUCTS AND SCOPE

- .1 New Lane 4 cameras:
 - .1 Provide two media convertors Comnet CNFE2MCPEO (no equal) in hauled wastewater building #2 control panel. One for North side camera, one for South side camera. Provide 24VAC power.
 - .2 Utilize existing fiber to Sludge Dewatering Building. Terminate with LC connector.
 - .3 Utilize existing fiber LC-02 on the fiber riser.
 - .4 Install one (1) Comnet CNFE22MC media convertor (no equal) in the ComNet cage, far left slot.
 - .5 Install fiber patch cable from fiber riser in the Admin Building to the media convertor.
- .2 Existing Lane 3 cameras:
 - .1 Utilize existing fiber from Pelco media convertor in hauled wastewater building #2. Terminate fiber with LC connector to Fiber Riser, use LC-03.
 - .2 Provide Pelco FRV40M1ST (no equal) and install fiber patch cable from Fiber Riser LC-03 to copper/analog in the Admin building Security Cabinet.
- .3 The City will make terminations to head end equipment and will configure the existing software.

2.3 JUNCTION BOX

- .1 Metal, sized to handle all system conduit interconnections with appropriate expansion.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

- .1 Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions, and datasheet.

3.2 INSTALLATION

- .1 Install surveillance cameras on lighting fixture poles as indicated (Refer to Section 26 50 00).
- .2 Install video surveillance equipment and components in accordance with ULC-S317.
- .3 Install cable, boxes, mounting hardware, brackets, video cameras and system components in accordance with manufacturer's written installation instructions.
- .4 Install components secure, properly aligned and in locations shown on reviewed shop drawings.
- .5 Connect cameras to cabling in accordance with installation instructions.
- .6 Install ULC labels where required.

3.3 FIELD QUALITY CONTROL

- .1 Manufacturer's Services:
 - .1 Have manufacturer of products, supplied under this Section, review Work involved in the handling, installation/application, protection and cleaning, of its products and submit written reports, in acceptable format, to verify compliance of Work with Contract.
- .2 City review:
 - .1 City representative Ron Risley will be onsite when the contractor is installing the new cameras. The Contractor shall give notice of at least 7 days prior to the camera being installed.

3.4 VERIFICATION

- .1 Perform verification inspections and test in the presence of Contract Administrator.
 - .1 Provide all necessary tools, ladders and equipment.
 - .2 Ensure appropriate subcontractors, and manufacturer's representatives are present for verification.
- .2 Visual verification: Objective is to assess quality of installation and assembly and overall appearance to ensure compliance with Contract Documents. Visual inspection to include:
 - .1 Sturdiness of equipment fastening.
 - .2 Non-existence of installation related damages.
 - .3 Compliance of device locations with reviewed shop drawings.
 - .4 Compatibility of equipment installation with physical environment.
 - .5 Inclusion of all accessories.
 - .6 Device and cabling identification.
 - .7 Application and location of ULC approval decals.

- .3 Technical verification: Purpose is to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:
 - .1 Measurements of voltage and power.
 - .2 Connecting joints and equipment fastening.
 - .3 Compliance with manufacturer's specification, product literature and installation instructions.
- .4 Operational verification: Purpose is to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:
 - .1 Operation of each device individually and within its environment.
 - .2 Operation of each device in relation with programmable schedule and or/specific functions.
 - .3 Operation control of camera lens, pan, tilt and zoom.
 - .4 Switching of camera to any monitor.

3.5 CLEANING AND ADJUSTING

- .1 Remove protective coverings from cameras and components.
- .2 Adjust cameras for correct function.
- .3 Clean camera housing, system components and lens, free from marks, packing tape, and finger prints, in accordance with manufacturer's written cleaning recommendations.

END OF SECTION