

# Security System Specifications HONEYWELL

Version	Date	Description of Revisions	Reason for Revisions
1	May, 2021	General updates	
1	June 24, 2021	Updated to new format	
5	February 2023	Contact updates	
7	November 24, 2023	Updated Installer list and contact information	
8	January 19, 2024	Updates to Account Manager	

**NOTE:**

**This Guideline does not override any governing codes, by-laws, or municipal standards. When conflict exists, the most stringent requirements will govern.**

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

**Any deviation from this document shall be approved by the Region Project Manager prior to proceeding.**

## **1 General**

### **1.1 GENERAL**

- 1.1.1 Where an item is shown on the Drawings and is specified in this Section, such item shall conform to the requirements of this Section. Consultant and/or Security Contractor are to provide design drawings identifying all physical security devices at each field location as per requirements provided by York Region
- 1.1.2 The Contractor must be, as a minimum, CANASA (Canadian Alarm and Security Association) certified. Additional certifications include CFAA (Canadian Fire Alarm Association) certified, and NFPA (National Fire Protection Association) certified.
- 1.1.3 All new equipment is to be supplied and installed by the Contractor unless existing equipment is verified to be functional and the Region has approved reuse of existing equipment.
- 1.1.4 Conform to the Region's Standards, including SCADA Standards, Wiring and Tagging Standards, where applicable.
- 1.1.5 Related documents: Conform to CANASA Canadian Alarm and Security Association installation guidelines.
- 1.1.6 Submit to the Electrical Safety Authority and any other applicable authority the necessary number of working drawings and specifications for examination and approval prior to commencement of work as required.
- 1.1.7 Carry out all changes and alterations required by the authorized inspector of the ESA and any authority having jurisdiction without delay to the progress of the Work and without extra cost.
- 1.1.8 The Contractor shall train the Region's personnel to fully operate and perform routine maintenance on the systems and equipment installed.

- 1.1.9 The Contractor shall provide all warranty services for facility security system for a period of two (2) years from the date of Total Performance of the Work and shall provide all necessary material required to replace defective products during this period.

## 1.2 HONEYWELL EBI SECURITY SYSTEM INSTALLERS

- 1.2.1 Security Control System design (riser layouts), electrical/IT requirements are to be provided and reviewed by Honeywell's Account Manager who can be contacted as follows:

Salvatore Di Leo  
Account Manager  
Honeywell | Honeywell Building Automation  
Cell: (647) 454-7323  
[salvatore.dileo@honeywell.com](mailto:salvatore.dileo@honeywell.com)

- 1.2.2 Installation of the Honeywell EBI security system(s) shall be completed by one of the Security System Installers pre-qualified under Request for Supplier Qualifications Number RFSQ-756-22 as listed below (as of October 31, 2023):

AC Electric	Chambers, Alex <a href="mailto:estimating@acelectricinc.ca">estimating@acelectricinc.ca</a> (416) 939-0244
CEC Services Inc.	Kyle Feinstein <a href="mailto:estimating@beswickgroup.com">estimating@beswickgroup.com</a> (905) 713-3711
Electro-Works Ltd.	Dondi Keough <a href="mailto:dondi@tcsecure.ca">dondi@tcsecure.ca</a> (416) 529-7180

## 1.3 REFERENCES

- 1.3.1 EEMAC TC3 PVC Fittings for use with Rigid PVC Conduit and Tubing.
- 1.3.2 CSA C22.2 No. 211.2 Rigid PVC (Unplasticized) Conduit.
- 1.3.3 CAN/CSA C22.2 No. 18-[98], Outlet Boxes, Conduit Boxes, and Fittings and Associated Hardware.
- 1.3.4 CSA C22.2 No. 211.2-[M1984(R1999)], Rigid PVC (Unplasticized) Conduit.

#### 1.3.5 Surveillance System Related References:

- 1.3.5.1 Canadian ICES-003 (Interference Causing Equipment Standard Policy)
- 1.3.5.2 Canadian Standards Association (CSA)
- 1.3.5.3 Conformity for Europe (CE)
- 1.3.5.4 Consultative Committee for International Radio (CCIR)
- 1.3.5.5 Electronic Industry Association (EIA)
- 1.3.5.6 Electrical Testing Laboratories (ETL)
- 1.3.5.7 Federal Communications Commission (FCC)
- 1.3.5.8 Joint Photographic Experts Group (JPEG)
- 1.3.5.9 Moving Picture Experts Group (MPEG)
- 1.3.5.10 National Television Systems Committee (NTSC)
- 1.3.5.11 Phase Alternating by Line (PAL)
- 1.3.5.12 Underwriters Laboratories Inc. (UL)

#### 1.4 NETWORK TCP/IP COORDINATION

- 1.4.1 The Region's Project Manager will coordinate for the installation of a network system component with ITS (Information Technology Services) and the appropriate BSA (Business System Analyst) at the Sites to allow for communications to the master station at Region's Central Monitoring Station to perform final tie in and commissioning.
- 1.4.2 If local IT Network infrastructure is not present, Wireless 3G network equipment shall be used. York Region ITS will supply the pre-configured Wireless 3G, Modem and 4 port switch as well as installation specifics.

- 1.4.3 The General Contractor will install all required conduits and junction boxes as well as the exterior antenna for the 3G Wireless equipment, in a location determined by ITS to achieve adequate network connectivity.
- 1.4.4 Network switch is to be located within the Honeywell security system cabinet. Both modem and switch shall be powered from Honeywell UPS power supplies.

## 1.5 SHOP DRAWINGS

- 1.5.1 Submit shop drawings showing the proposed location of all equipment to be installed under this Contract, whether existing equipment being reused or new equipment.
- 1.5.2 Shop drawings submission shall include:
  - 1.5.2.1 Schematic
  - 1.5.2.2 Wiring
  - 1.5.2.3 Interconnection Diagrams
- 1.5.3 Additional Requirements:
  - 1.5.3.1 For devices containing dip switches, jumpers or programming keypads include:
    - 1.5.3.1.1 Functional description.
    - 1.5.3.1.2 Performance data.
    - 1.5.3.1.3 Physical, electrical, and environmental requirements.
    - 1.5.3.1.4 Location drawing.
    - 1.5.3.1.5 Equipment descriptive literature.

- 1.5.3.1.6 Wiring details.
- 1.5.3.2 For programmable equipment, communication links and networks, submit bill of materials. Include in bill of materials hardware documentation.
  - 1.5.3.2.1 For hardware items include and clearly identify: Description, make, model, part number and serial number.
  - 1.5.3.2.2 For documentation include: Title and publisher for each item.
- 1.5.3.3 For Programmable Equipment Hardware include:
  - 1.5.3.3.1 Product description for each item including:
    - 1.5.3.3.1.1 Wiring and installation instructions.
    - 1.5.3.3.1.2 Functional description.
    - 1.5.3.3.1.3 Performance data.
    - 1.5.3.3.1.4 Physical, electrical, and environmental requirements.
    - 1.5.3.3.1.5 Adapters and controllers.
  - 1.5.3.3.2 Equipment layout drawings showing location of hardware, boards, jacks, cables, and terminals.
  - 1.5.3.3.3 Related field tag numbers and wire numbers, module tag assignment, rack module assignment, terminal, and terminal strip numbers.
  - 1.5.3.3.4 Location and identifier and pin assignment of plugs, jacks, and cables.

- 1.5.3.3.5 Switch settings and addresses, firmware.
- 1.5.3.3.6 Interconnection Diagrams including wiring, cables, jacks between internal and external components, power supplies, processors, communications modules, racks, I/O modules, and peripherals. Label terminals, jacks, and pins. Show settings for jumpers and switches. Show address for each hardware module and point.
- 1.5.3.4 Review of shop drawings shall be, and is mutually understood to be, in reference to general design only. Review of the drawings shall not in any way relieve the Contractor of responsibility for errors or interference, or from the necessity of furnishing such works and materials as may be required for the completion of the work at any time until formal acceptance.

## **2 Products**

### **2.1 CONTROL PANEL**

- 2.1.1 Honeywell Tema Server2 Control Panel: TS2 up to 16 doors using Weigand Interface Units("WIU") (each WIU shall be capable of managing one access controlled door with either 1 in reader or 1 in and 1 out reader at the door). Uses on board TCP/IP, 128MB DDR SRAM. Include 6.5amp Electronic Security Devices SPS-6.5 Power Supply for Panel, and 5amp Electronic Security Devices SPS-5 for Lock power with Altronix ACM8 lock distribution w/Fire Interface. Include Full Size Cabinet and cabinet tamper switch. Power Supply to be CSA and ULC listed.
- 2.1.2 Honeywell Vista Alarm Panel for intrusion devices: Vista 128BPT Control, Burg, Commercial Panel 128 zones, transformer, 12V 7amp battery with UDS1100 device server, zone expanders and 3amp power supply. ULC listed.

- 2.1.3 Back up UPS Pro to power all security, access control and wireless network solution. Model to be used is Antigen-presenting cell ("APC") Pro BR 1300G or equivalent.

## 2.2 KEYPAD

- 2.2.1 Honeywell 6160 Series Remote Keypad: Honeywell commercial LCD remote keypad, 32-character backlit display, 12VDC, ULC listed.
- 2.2.2 Honeywell Code Pad Reader HID 5355AGK14
- 2.2.3 Honeywell Vista 6160.

## 2.3 INPUT/OUTPUT MODULE

- 2.3.1 Digital I/O Module A01, allows up to 4 inputs/outputs per unit.

## 2.4 WEIGAND INTERFACE UNIT

- 2.4.1 Honeywell A08 Weigand Interface Unit, allows control of one door configured as either 1 in reader or 1 in reader and 1 out reader.

## 2.5 INTERCOM

- 2.5.1 Zenitel Stentofon IP & SIP intercom system. Desktop video intercom station ITSV-2 with 5"capacitive touch screen and support for 720p HD Video and TCIV-2+ outdoor video intercom. These devices are Power Over Ethernet ("POE") and connect directly to the building LAN via POE network switch.

## 2.6 MULTITECHNOLOGY ICLASS READER

- 2.6.1 Card Readers: Provide multi-technology iClass / proximity card readers where shown on the Drawings and/or where required by the Contract. Card Readers shall be rated for indoor and outdoor use, have multicolour LED with beeper for operator status indications and will operate on 5-16 VDC. Provide thin line mullion style readers where required to match door frame configuration.



2.6.2 HID Corporation, Signo card reader Models 20 20NKS-00-000000 & 40 40NKS-00-000000.

## 2.7 PROXIMITY CARD

2.7.1 Proximity Cards used by the Region are HID Corporation ProxCard II, HU-1326LSSSV

2.7.2 The Contractor is not required to supply proximity cards to the Region unless otherwise indicated on the drawings.

## 2.8 LONG RANGE CARD READER

2.8.1 Long range proximity card reader, typical read range 3 to 5 meters

2.8.2 HID Corporation, iCLASS SE U90 to be used.

## 2.9 LONG RANGE PROXIMITY TAG

2.9.1 Long range proximity card, 860 – 960 MHZ proximity active vehicle tag.

2.9.2 HID Corporation, SIO Enabled UHF/iCLASS Smart Card.

## 2.10 DOOR CONTACTS

2.10.1 Magnetic door contacts.

2.10.2 GE Security/Interlogix 1078, or approved equivalent

## 2.11 BATTERIES

2.11.1 Gel Cell back-up batteries, 12V, 7 amp-hours.

2.11.2 Exaltor, or approved equivalent.

## 2.12 EXIT DEVICE/PANIC BARS

2.12.1 Push pad exit device, dull chrome finish, UL Listed Panic Hardware (FVSR), SA163 (N), tested in accordance to ANSI A156.3, 1989, Grade 1.

2.12.2 Von Duprin 99K-NL Series Exit Devices, or approved equivalent.

## 2.13 ELECTRIC DOOR STRIKES

2.13.1 Heavy duty, stainless steel construction, 3000 lbs. Static strength, UL 1034, ANSI/BHMA Grade 1, .25 Amps @ 24VDC.

2.13.2 Hess Series Strikes 1006, 9600 or approved equivalent.

## 2.14 ELECTRICAL POWER TRANSFER

2.14.1 Transfer of electrical power from door frame to the edge of a swinging door; two (2) 18 AWG wiring, 24VDC, 2A, 16A maximum surge.

2.14.2 Von Duprin EPT-2, or approved equivalent.

## 2.15 TRANSFORMERS

2.15.1 120V input, 16V output, 40VA, 60 Hz, single phase rating, copper conductors, dry type

2.15.2 Transformers shall be designed, constructed, and rated in accordance with UL, CSA and NEMA standards.

2.15.3 All transformers to be from a single manufacturer.

2.15.4 Frost, 1640, or approved equivalent.

## 2.16 MODEMS

2.16.1 Modem: Analog dial-up line type, RS-232 interface, 115VAC, 60 Hz, Connection speed up to 33.6 kbps, downloading speed up to 56kbps, CSA, UL Listed.

2.16.1.1 U.S. Robotics 56k V.90 Data Faxmodem.

## 2.17 REQUEST TO EXIT SENSORS

2.17.1 Wall mount high impact ABS plastic enclosure, alarm output: form "C" contact, single or double door use, adjustable to 60s, UL Listed.

2.17.2 Honeywell IS310, or approved equivalent.

## 2.18 EXIT PUSHBUTTON

2.18.1 Wall mount brushed stainless steel plate enclosure, momentary switch output, SPDT 10A @ 125/250 VAC, UL Listed.

2.18.2 Kantech PB-EXIT, or approved equivalent.

## 2.19 GLASS BREAK DETECTORS

2.19.1 Shall Detect breakage of plate, tempered, layered, laminated, and wired glass types, complete with automatic environment test circuitry, detection range of 9 meters, alarm contact 50mA @ 24VDC, UL Listed.

2.19.2 Honeywell FlexGuard FG-1625F, or approved equivalent.

## 2.20 MOTION DETECTORS

2.20.1 Wall mount motion monitor with temperature compensation, high impact ABS plastic enclosure, alarm output: form "C" contact, 125mA @ 28 VDC, tamper and trouble output contacts, UL Listed.

2.20.2 Detection Systems DS940Q, Optex DX40 or approved equivalent.

## 2.21 AUDIO ANNUNCIATOR

2.21.1 Wall mount, 24VDC, 100dB @ 10', UL Listed.

2.21.2 Toxalert HORN/REM, or similar.

## 2.22 CLOSED CIRCUIT VIDEO EQUIPMENT SYSTEM (CCVE)

2.22.1 Honeywell Digital Video Manager. The Digital Video Management System (DVMS) shall be designed and developed to the following standards:

- 2.22.1.1 ISO 9001 (2000)
- 2.22.1.2 ISO/IEC 15504 Level 3 or higher  
(SPICE 2.0 Software Process Improvement and  
Capability Determination)
- 2.22.1.3 SEI CMM Level 3 or higher  
(American Software Engineering Institute - Capability  
Maturity Model)
- 2.22.1.4 The Digital Video Management System shall include:
  - 2.22.1.4.1 Database Server(s)
  - 2.22.1.4.2 Camera Server(s) or Digital Video  
Recorder ("DVR") depending on the site  
requirements
  - 2.22.1.4.3 Security or Control Systems
  - 2.22.1.4.4 Operator Stations
  - 2.22.1.4.5 IP Connected Keyboards
  - 2.22.1.4.6 Network connected cameras and/or  
network connected video encoders
  - 2.22.1.4.7 Analog Cameras connected to DVRs  
(smaller sites)
  - 2.22.1.4.8 Recording capability for sixty (30) days

2.22.2 The Digital Video Management System ("DVMS") shall be expandable to support a minimum of 4096 total cameras. As a minimum, the system must support the following network cameras and camera streamers:

- 2.22.2.1 Camera Streamers / Video Encoders:
  - Honeywell HNVE1
  - AXIS Communications M7001
  - AXIS Communications Q7401
  - AXIS Communications Q7404

- AXIS Communications Q7406
- AXIS Communications 240Q
- AXIS Communications 241S
- AXIS Communications 241SA
- AXIS Communications 241S Blade
- AXIS Communications 241Q
- AXIS Communications 241QA
- AXIS Communications 241Q Blade
- AXIS Communications 243Q Blade
- AXIS Communications 247S

#### 2.22.2.2 Network Cameras:

- Honeywell ACUIX IP Dome PTZ Camera
- Honeywell EQUIP HCD554IP(X) Camera
- Honeywell EQUIP HCS554IP(X) Camera
- Honeywell EQUIP HD4DIP(X) Mini-dome Camera
- Honeywell EQUIP HD3MDIP(X) Mini-dome Camera
- Honeywell EQUIP HD4MDIP(X) Mini-dome Camera
- Honeywell HCX13M
- Honeywell HCX3
- Honeywell HCX5D
- Honeywell Rapid Eye TM Multi Media
- Honeywell Rapid EyeTM Multi Media LT4
- Honeywell Rapid EyeTM Multi Media LT9
- Honeywell Rapid Eye™ Hybrid
- AXIS Communications M1011
- AXIS Communications M1011W
- AXIS Communications M1031W
- AXIS Communications M1054
- AXIS Communications M1103
- AXIS Communications M1104
- AXIS Communications M1113
- AXIS Communications M1114
- AXIS Communications M3011
- AXIS Communications M3014
- AXIS Communications M3113-R
- AXIS Communications M3114-R
- AXIS Communications M3203
- AXIS Communications M3204
- AXIS Communications P1311
- AXIS Communications P1343
- AXIS Communications P1344
- AXIS Communications P1346
- AXIS Communications P1347

- AXIS Communications P3301
- AXIS Communications P3304
- AXIS Communications P3343
- AXIS Communications P3344
- AXIS Communications P5532
- AXIS Communications P5534
- AXIS Communications P5544
- AXIS Communications Q1755
- AXIS Communications Q1910
- AXIS Communications Q6032
- AXIS Communications Q6034
- AXIS Communications 205
- AXIS Communications 206
- AXIS Communications 206M
- AXIS Communications 206W
- AXIS Communications 207
- AXIS Communications 207MW
- AXIS Communications 207W
- AXIS Communications 209FD
- AXIS Communications 209FD-R
- AXIS Communications 209MFD
- AXIS Communications 210
- AXIS Communications 210A
- AXIS Communications 211
- AXIS Communications 211A
- AXIS Communications 211M
- AXIS Communications 211W
- AXIS Communications 212 PTZ
- AXIS Communications 213 PTZ
- AXIS Communications 214 PTZ
- AXIS Communications 215 PTZ
- AXIS Communications 216FD
- AXIS Communications 216FD-V
- AXIS Communications 216MFD
- AXIS Communications 216MFD-V
- AXIS Communications 221
- AXIS Communications 223M
- AXIS Communications 225FD
- AXIS Communications 231D+
- AXIS Communications 232D+
- AXIS Communications 233D
- Sony IPELA SNC-CS10
- Sony IPELA SNC-CS11
- Sony IPELA SNC-CS20
- Sony IPELA SNC-CS50

- Sony IPELA SNC-CM120
- Sony IPELA SNC-DF40
- Sony IPELA SNC-DF50
- Sony IPELA SNC-DF70
- Sony IPELA SNC-DF80
- Sony IPELA SNC-DF85
- Sony IPELA SNC-DM110
- Sony IPELA SNC-DM160
- Sony IPELA SNC-DS10
- Sony IPELA SNC-DS60
- Sony IPELA SNC-P1
- Sony IPELA SNC-P5
- Sony IPELA SNC-RX530
- Sony IPELA SNC-RX550
- Sony IPELA SNC-RX570
- Sony IPELA SNC-RZ25
- Sony IPELA SNC-RZ50
- Panasonic WV-NP244
- Panasonic WV-NS202
- Panasonic WV-NW484
- Panasonic WV-NS954
- Panasonic WV-NW964
- Panasonic WV-NP502
- Panasonic WV-NW502

#### 2.22.2.3 Analog Cameras

- Honeywell AQUIX
- Honeywell HD3X
- Honeywell HD4X
- Honeywell HD5X
- Honeywell HD7X

2.22.2.4 The DVMS shall support at least industry-standard Motion JPEG, MPEG-4 and H.264 encoding formats.

2.22.2.5 If applicable the following DVRs are approved for use under this Contract:

Part	Description
HRE16R48D1T0	Rapid Eye Hybrid 16 channel, 1TB storage
HRE16R48D500	Rapid Eye Hybrid 16 channel, 500 Gb storage
HRE4R12D1T0	Rapid Eye Analog, 4 channel, 1TB

HRE4R12D500	Rapid Eye Analog, 4 channel, 500
HRE8R12D1T0	Rapid Eye Analog, 8 channel, 1TB
HRE8R12D500	Rapid Eye Analog, 8 channel, 500

2.22.3 The DVMS system shall be fully integrated with the Honeywell EBI system.

#### 2.22.4 Network and Video Cabling

2.22.4.1 A Local Area Network (LAN) shall be provided for communication between the system elements. All interfaces to the LAN shall be a minimum of 1000BaseTX Ethernet. The LAN may use additional technologies within the backbone for greater speed or distance. Acceptable types are:

2.22.4.1.1 FDDI (Fiber Distribution Data Interface)

2.22.4.1.2 1000BaseSX or 1000BaseLX Gigabit Ethernet

2.22.4.1.3 Asynchronous Transfer Mode (ATM)

2.22.4.2 The LAN shall use standard network cables. Acceptable cable types are:

2.22.4.2.1 Optical Fiber

2.22.4.2.2 Category 5e or Category 6 Unshielded Twisted Pair (UTP)

2.22.4.3 The LAN shall be logically and/or physically separate from any existing LAN infrastructure. Interconnection to other LANs shall be through one of the following:

2.22.4.3.1 A router

2.22.4.3.2 A Layer 3 capable network switch

2.22.4.3.3 As an additional VLAN to the existing LAN equipment. Where required to



interconnect VLANs, a router or Layer 3 capable switch shall be provided

- 2.22.5 It is not acceptable for network video cables to be run back to the Camera Server. All communications with the Camera Server shall be via the LAN. Each network camera or video streamer shall have a single network interface to be used for video and Pan/Tilt/Zoom communications.
- 2.22.6 Analog Cameras connected to Video Streamers or Digital Video Recorders shall utilize RG6U Coaxial Video Cable with BNC connectors for distances less than 750 linear feet. All coaxial cable to be 95% Copper Braided Coaxial cable per industry standard specifications. All analog cameras to be connected directly to Video Streamers or Digital Video Recorders with no splices.
- 2.22.7 Supply a complete and working Closed-Circuit Video Equipment ("CCVE") system.

## 2.23 CONDUIT, FASTENINGS AND FITTINGS

- 2.23.1 Comply with relevant standards.
- 2.23.2 Rigid PVC conduit: Conduit, including elbows and fitting, Schedule 40 wall thickness, solvent weld connections, by IPEX Inc., Carlon.
- 2.23.3 Conduit straps for rigid steel and PVC conduit: Malleable iron, hot-dip galvanized, single hole type for conduits up to 50 mm, two-hole type for conduits larger than 50 mm.
- 2.23.4 Beam clamps: Hot dip galvanized steel designed to clamp onto both sides of the flange. Cat. #S997BC-HG (100-230 mm flange) by Sasco Tube & Roll Forming Inc., Cat. #S999BC-HA (175-430 mm flange) by Sasco Tube & Roll Forming Inc., or type CS91 by Construt Inc.
- 2.23.5 Rigid PVC conduit connectors: Adapter type with threaded male portion, by IPEX Inc., Carlon.

- 2.23.6 Expansion couplings: With ground straps or clamps. Type XJ by Cooper Crouse-Hinds Canada.
- 2.23.7 Swivel couplings: Threaded, one piece, by Elliot Electrical Manufacturing Co. Running threads are not acceptable.
- 2.23.8 Conduit spacers: Malleable iron, sized to suite conduit size, by O-Z/Gedney Co., or 1300 Series by Thomas & Betts Ltd.
- 2.23.9 Conduit seals and fittings for hazardous locations: Suitable for applications in designated area, by Crouse-hinds, Pyle-National of Canada Inc., Killark Electrical Manufacturing Co., Appleton Electric Ltd., or O-Z/Gedney Co.
- 2.23.10 Hazardous area seal filling compound: As recommended by seal manufacturer.
- 2.23.11 Pull cords: 6 mm polypropylene or nylon material. Pro-pull rope by Ideal. Industries Inc.
- 2.23.12 Bituminous backpaint: In accordance with CAN/CGSB-1.108.
- 2.24 WIRING AND MISCELLANEOUS
  - 2.24.1 Provide all RS-232, RS-485, Optical Fibre and Ethernet cabling, and Fibre and Ethernet jacks as required for a complete network, if applicable.
  - 2.24.2 RS-485 Cables
    - 2.24.2.1 EIA Industrial RS-485.
    - 2.24.2.2 Conductors: Twisted pair, each conductor No. 22 AWG stranded copper.
      - 2.24.2.2.1 Pairs: 2.
      - 2.24.2.2.2 Shield: Aluminum-polyester and 90% copper tinned braid.
      - 2.24.2.2.3 Jacket: Black UV resistant PVC.
      - 2.24.2.2.4 Electrical Characteristics at 20oC

2.24.2.2.4.1 Capacitance: 36.1 pF/m

2.24.2.2.4.2 Impedance: 120 ohms

2.24.2.2.4.3 Propagation Velocity: 78%

2.24.2.2.5 Belden Datalene Insulated 3107A.

#### 2.24.3 CAT6 Cables

2.24.3.1 Conform with the following plenum rated Ethernet 100BASE-T TIA/EIA 568-B.2-1 Category 06 cable:

2.24.3.1.1 CSA Certified for trays and risers.

2.24.3.1.2 Conductors: Unshielded twisted pair, #23 AWG solid copper.

2.24.3.1.3 Pairs: 4

2.24.3.1.4 Jacket: Blue Flamearrest, CSA FT4/FT6 rating.

2.24.3.1.5 Certification/Testing to Category 06 in accordance with the current TIA/ISO Channel Standards.

2.24.3.1.6 Belden #2400.

#### 2.24.4 Instrumentation Cables (4-20mA)

2.24.4.1 Belden #8760

2.24.4.1.1 #18 AWG.

2.24.4.1.2 16-stranded copper.

2.24.4.1.3 Beldfoil aluminium polyester shield.

2.24.4.1.4 Twisted shielded pair.

2.24.4.1.5 Bare #20AWG copper drain wire.

## 2.24.5 Ringnet Cables

### 2.24.5.1 Low capacitance EIA RS-232/422

- 2.24.5.1.1 #24AWG.
- 2.24.5.1.2 7x32-stranded copper.
- 2.24.5.1.3 Overall Beldfoil aluminium polyester shield plus tinned copper braid shield (65% coverage minimum).
- 2.24.5.1.4 4 conductors.
- 2.24.5.1.5 EIA RS-232 applications.
- 2.24.5.1.6 Belden #9829, or approved equivalent.

## 2.24.6 Serial Cables

### 2.24.6.1 Belden #9945

- 2.24.6.1.1 #22AWG.
- 2.24.6.1.2 7-stranded copper.
- 2.24.6.1.3 Overall Beldfoil aluminium polyester shield plus 65% minimum tinned copper braid shield.
- 2.24.6.1.4 9 conductors. Select Belden trade number to suit number of conductors required for the specific application – Belden #99xx.
- 2.24.6.1.5 EIA RS-232 applications.

## 2.24.7 Wiring Accessories

- 2.24.7.1 Wire and cable markers: Printable, self-laminating, self-adhesive markers, white background, black lettering on white background, vinyl plastic or polyester film suitable to environment. E-Z-Code by Thomas &

Betts Ltd., or approved equivalent. Wire marker to be sleeved with clear heatshrink tubing.

- 2.24.7.2 Terminal blocks: 600 V, 25 A minimum rating, modular, 35 mm DIN rail mounted, provision for circuit number labelling, individually removable, sized to accommodate conductor size and circuit current. Sak Series by Weidmuller Ltd., UK Series by Phoenix Terminal Blocks Ltd., WK Series by Wieland Electric Inc., Entrelec.
- 2.24.7.3 Field wiring terminations: Where screw-type terminal blocks are provided, supply insulated fork tongue terminals. Sta-Kon by Thomas & Betts Ltd., Scotchlok by 3M Canada Inc.
- 2.24.7.4 Moisture and waterproofing: In wet locations, with Liquid Tape by Ideal.
- 2.24.7.5 Cables ties: Nylon, one-piece, self-locking type, by Thomas & Betts Ltd., Burndy Inc., Wieland Electric Inc.
- 2.24.7.6 Electrical insulating tape: Scotch 33 by 3M Canada Inc.
- 2.24.7.7 Cable grips: To accommodate type and geometry of cable supported, single weave, variable mesh design, by Thomas and Betts Ltd., Crouse Hinds, Woodhead Canada Ltd.
- 2.24.7.8 Cable pulling lubricant: Compatible with cable covering and not to cause damage or corrosion to conduits or ducts. Yellow 77 by Ideal.
- 2.24.7.9 Input 120VAC power to all security related access control panels must be provided at each location identified in the design drawings and must be independent and isolated from any other loads.

## 2.25 AUTOMATIC ARM AND LOOP SENSOR

- 2.25.1 If supply and installation of high speed automatic rising barrier for access control for vehicles is required, arm is to open via multi technology card reader compatible with Honeywell EBI system. Arm is to reopen on vehicle exit via vehicle sensing loop and reset loop. Gate shall also be able to open and close with configurable timer.
  - 2.25.2 (Qty. 2) Model G89-18 Autogate: As supplied by Canadian Parking Equipment Limited.
  - 2.25.3 Security system installer to ensure that automatic arm is integrated with security system.
  - 2.25.4 Arm Length: (Qty. of 2) 3.0 m.
  - 2.25.5 Arm tip support (Qty. of 2).
  - 2.25.6 Barrier open command by Honeywell EBI system card reader.
  - 2.25.7 Vehicle sensing loop/detector.
  - 2.25.8 Sealing template with anchoring rods.
  - 2.25.9 Heater.
  - 2.25.10 If telephone service is required at gate, touchtone Bell phone to be installed with Bell Canada service direct to facility administration desk.
- 2.26 LOCKSMITHING AND DOOR HARDWARE
- 2.26.1 All doors to be equipped as outlined in the associated Security Device Summary document. Where specifics are not available, doors should be equipped with Sergeant or Corbin locksets, compatible with future replacement of the cylinder core with a Medeco M3 IC core cylinder.
  - 2.26.2 For ALL Environmental Water and Wastewater facilities Medeco M3 Logic Cylinders shall be used for all exterior doors, and doors that need to be secured. All door hardware must be compatible with Medeco M3 Logic Cylinders

- 2.26.3 Interior exiting through any single door (not overhead doors) should involve the use of a push paddle exit device installed at a standard height.

## **2.27 UNIVERSAL WASHROOM REQUIREMENTS**

*(Security Contractor to ensure emergency button is linked to the security system and monitored by third party (if monitoring is available) ONLY. All below devices are purchased and installed under General Contractor and any subcontractor)*

### **2.27.1 Emergency Call System as per OBC ((3.8.3.12(2))**

- 2.27.1.1 3.8.3.12(27(a)) Provide visual and audible signal both inside and outside of the washroom that are activated by the emergency button inside the washroom.
- 2.27.1.2 3.8.3.12(28(b)) Identify clearly with signage that contains the words "IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY BUTTON AND AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE" in letters at least 25 mm high with a 5 mm stroke and that is posted above the emergency button.
- 2.27.1.3 Ensure emergency alarms are linked to a centrally monitored switchboard for facilities that have the capability. If third party monitoring is not available, alarms will remain local.

### **2.27.2 Product Requirements (Camden Door Control) equipment package (CX-WEC10) which includes: Emergency Button, LED Annunciator with sounder, Dome Light with sounder and sign.**

### **2.27.3 Security Contractor to ensure emergency button alarms are reporting to EBI**

### **2.27.4 Security Contractor to ensure emergency button is linked to the intrusion panel and monitored remotely by the Region's third party monitoring company**

## **3 Execution**

### 3.1 INSTALLATION – CONDUITS

- 3.1.1 Connect conduits to electrical boxes and electrical equipment enclosures in wet or sprinklered areas with watertight conduit connectors.
- 3.1.2 Install conduits to conserve headroom in exposed locations and to minimize interference in spaces through which they pass.
- 3.1.3 Install conduits 150 mm minimum clear of steam and hot water pipes and 1000 mm minimum clear of heaters.
- 3.1.4 Provide rigid galvanized steel conduits, minimum trade size 19 mm for concealed or exposed conduits and 25 mm for conduits embedded in concrete.
- 3.1.5 Provide rigid PVC conduit underground or in corrosive areas. Provide 50 mm thick concrete tiles to protect direct buried PVC conduit.
- 3.1.6 For conduit systems in or running through hazardous areas, provide conduit, fittings, seals, and associated components complying with requirements of applicable Codes and Standards.
- 3.1.7 Install exposed conduits symmetrical with building construction and with accepted bends or pull boxes where conduits change direction.
- 3.1.8 Provide expansion fittings in straight conduit runs exceeding 60 m and at building expansion joints.
- 3.1.9 Install conduits and fittings surface mounted.
- 3.1.10 Install conduits recessed in brick or bare concrete block walls as walls are being erected. Do not cut into walls after walls are in place. Do not install horizontal runs in masonry walls. Do not install conduits in terrazzo or concrete toppings.
- 3.1.11 Attach exposed conduits in place with galvanized steel hangers one-hole straps spaced at 1300 mm centres maximum. Group conduits together whenever possible. Use galvanized steel hangers and supports. Perforated straps are not acceptable.



- 3.1.12 Provide pipe spacers for exposed conduits on concrete or masonry walls.
- 3.1.13 Provide drill-in type expansion bolts and machine screws for supporting hangers and straps.
- 3.1.14 Locate conduits penetrating floors, permitting direct vertical connection with minimal bending.
- 3.1.15 Provide flexible liquid-tight conduit between rigid conduit system and equipment which may be subject to vibration or adjustment, such as motors or motorized equipment.
- 3.1.16 Provide flexible metal conduit between junction boxes and luminaries in office areas and outlets within office partitions.
- 3.1.17 For building interior concrete wall and floor penetrations excluding penetrations into wet wells or hazardous chambers, install Schedule 40 galvanized steel pipe conduit sleeves, protruding 50 mm through floors and flush with wall surfaces prior to pouring concrete. Size sleeve for free passage of conduit. Seal all penetrations.
- 3.1.18 Size conduits according to Inspection Authority (ESA) requirements.
- 3.1.19 Route conduits to avoid beams, columns, and other obstructions.
- 3.1.20 To prevent corrosion of concrete embedded conduits, prior to concrete placement, apply 40 microns minimum of bituminous backpaint to conduit exterior surface at concrete entry points (150 mm inside and 100 mm outside the concrete).
- 3.1.21 Embedded conduits: Ensure that the maximum outside diameter of concrete embedded conduit is 1/3 of the structural slab thickness measured at thinnest point. Ensure minimum space between each conduit running parallel is 3 times the O.D. of largest conduit. Do not run conduits running parallel to beam axes, directly above beams. Offset conduits running parallel to beams by a minimum of 300 mm minimum from face of beam to outside wall of conduit. Cross conduits at right angles wherever

possible. Run conduits in space between layers of reinforcing steel without deforming reinforcing steel pattern.

- 3.1.22 Cut PVC jacket conduit thread removing plastic jacket. Coat exposed metal with zinc rich primer. Tighten conduit utilizing strap wrenches. Coat damaged conduit surfaces and exposed threads as recommended by conduit manufacturer.
- 3.1.23 Coat damaged surfaces and exposed threads of corrosion resistant conduit as recommended by conduit manufacturer.
- 3.1.24 Ream cut conduits to remove burrs; paint completed galvanized steel joints and field cut threads with zinc rich primer paint.
- 3.1.25 Clean conduit run with an accepted cleaner equipped with a mandrel.
- 3.1.26 Provide watertight, steel capped bushings on ends.
- 3.1.27 Install expansion fittings on dry side of plastic water stops where required.
- 3.1.28 Where conduits pass through a waterproof membrane, provide an oversized sleeve before membrane is installed. Use cold mastic between sleeves and conduits.
- 3.1.29 Do not commence surface conduit installation Work until masonry ceiling, wall and floor finishes are completed. Finish surface mounted conduit installation Work prior to painting.
- 3.1.30 Touch up and repair coated conduits and fittings including any exposed threads with compound material supplied by conduit manufacturer.
- 3.1.31 For flush mounted panelboards, provide two 25 mm empty conduits (minimum) up to ceiling space and where applicable, two 25 mm empty conduits (minimum) down through floor into ceiling or basement space below.
- 3.1.32 Provide pull cords in conduits with 1000 mm of slack at each end.

## 3.2 INSTALLATION – WIRES AND CABLES

- 3.2.1 Provide wires of number and size (including corresponding raceways) required, with space conductors as indicated in the Drawings. Provide adequate wiring for actual equipment installed.
- 3.2.2 Provide wire and cable according to the drawings and security system requirements.
- 3.2.3 Pull cable into ducts, conduits, and cable trays in accordance with cable manufacturer's recommendations. Use patented cable grips suitable for cable type, or pulling eyes fastened directly onto cable conductors.
- 3.2.4 Limit pulling tension and minimum bending radii to those recommended by manufacturer.
- 3.2.5 Prevent damage to cable jackets by utilizing adequate lubricant when pulling cables through ducts and conduits.
- 3.2.6 Support cables in manholes and utility tunnels on cable trays or cable racks.
- 3.2.7 Arrange cables in parallel rows on cable trays. Maintain cable spacing by fastening cables, with cable ties, a minimum of every 2000 mm minimum on straight horizontal runs and to each rung at bends, including two rungs of adjoining straight sections. Fasten cables on vertical tray runs every 1000 mm.
- 3.2.8 Connect cables to electrical boxes and equipment enclosures located in wet or sprinkled areas with watertight cable connectors.
- 3.2.9 Provide cable grips for vertical and catenary cable suspension installations to reduce cable tension at connectors and at cable bends.
- 3.2.10 Install through wiring in junctions and pull boxes having no connection within the box. Leave a minimum of 150 mm of slack inside box.

- 3.2.11 Facilitate making of joints and connections by leaving sufficient slack in each conductor at panelboards, outlet boxes and other devices.
- 3.2.12 Do not connect more than three lighting circuits for three phase panels and two lighting circuits for single phase panels to a common neutral.
- 3.2.13 Use #10 AWG minimum for home runs to lighting panels exceeding 25 m.
- 3.2.14 Install instrumentation signal wires in separate raceways from power and control wiring.
- 3.2.15 Provide mechanical protection for cables within 1500 mm of the floor in buildings and within 2000 mm above grade outdoors.
- 3.2.16 Identify each cable by attaching a cable marker at each end, in all intermediate manholes, junction boxes and pull boxes.
- 3.2.17 Provide cable grips on vertical and horizontal cable suspensions.
- 3.2.18 Install cables to conserve headroom in exposed locations and to minimize the amount of interference in spaces through which they pass.
- 3.2.19 Do not install horizontal runs in hollow masonry walls.
- 3.2.20 Passage through any structural member or precast slab must be approved by the Consultant.
- 3.2.21 Where exposed, install raceways and cables parallel with building lines and group neatly.
- 3.2.22 Maintain the integrity of all fire separations by sealing around all cables where they pass through any fire barriers. Generally, this includes all floors ceilings and concrete and masonry walls.
- 3.2.23 As far as is practicable, all feeder wiring shall be continuous from origin to panel termination without running splices in intermediate pull boxes or splicing chambers. Sufficient slack shall be left at

the termination point to make proper connections to the equipment.

3.2.24 Do not embed armored cables in concrete.

### 3.3 INSTALLATION – HONEYWELL EBI SYSTEM AND SECURITY DEVICES

3.3.1 Supply, install, test, and commission Honeywell EBI system components, communication equipment, and associated equipment to ensure the functionality of complete security system and network. Report all construction defects which will affect the progress of the Work to the Region and the Consultant.

3.3.2 The Drawings have been developed on a conceptual basis. The Contractor is responsible for providing/verifying the quantities and part numbers contained in the following table, and for all additional components, cables, etc. required to complete the Work as defined in the Specifications and on the Drawings.

#### **Building “A” - Type of Building or Name**

##### **Basement Level (if applicable)**

Part #	Description	Qty
TS2	Honeywell Temaline Control Panel	TBD
6160	Honeywell Vista Series Remote Keypad	TBD
128BPE	Honeywell Vista Commercial Intrusion Panel	TBD
TK_C21P	Honeywell Lonworks Digital I/O Module	as required
TK_S014	Honeywell Lonworks Weigand Interface Unit	as required
RP15/RP40/RPK40	HID Corporation, Multi technology card reader to suit application	TBD
Hess Series Strikes 1006, or similar.	Electric Strike	TBD
1078, or similar	Magnetic Door Contact	TBD
	Overhead Magnetic Door Contact	TBD
	Motion Sensor (360 degree)	TBD
	Motion Sensor (directional)	TBD
	Glass Break Detector	TBD
IS310, or similar	Request to Exit Sensors (set to shunt	TBD

Part #	Description	Qty
	forced entry only – not to release doors)	
RCI 991RBPTD9	Arming Button	TBD

#### Ground Floor Level (if applicable)

Part #	Description	Qty
TS2	Honeywell Temaline Control Panel	TBD
6160	Honeywell Vista Series Remote Keypad	TBD
128BPE	Honeywell Vista Commercial Intrusion Panel	TBD
TK_C21P	Honeywell Lonworks Digital I/O Module	as required
TK_S014	Honeywell Lonworks Weigand Interface Unit	as required
RP15/RP40/RPK40	HID Corporation, Multi technology card reader to suit application	TBD
Hess Series Strikes 1006, or similar.	Electric Strike	TBD
1078, or similar	Magnetic Door Contact	TBD
	Overhead Magnetic Door Contact	TBD
	Motion Sensor (360 degree)	TBD
	Motion Sensor (directional)	TBD
	Glass Break Detector	TBD
IS310, or similar	Request to Exit Sensors (set to shunt forced entry only – not to release doors)	TBD
RCI 991RBPTD9	Arming Button	TBD

#### Second Floor Level (if applicable)

Part #	Description	Qty
TS2	Honeywell Temaline Control Panel	TBD
6160	Honeywell Vista Series Remote Keypad	TBD
128BPE	Honeywell Vista Commercial Intrusion Panel	TBD
TK_C21P	Honeywell Lonworks Digital I/O Module	as required
TK_S014	Honeywell Lonworks Weigand Interface Unit	as required
RP15/RP40/RPK40	HID Corporation, Multi technology card reader to suit application	TBD
Hess Series Strikes 1006, or similar.	Electric Strike	TBD
1078, or similar	Magnetic Door Contact	TBD

Part #	Description	Qty
	Overhead Magnetic Door Contact	TBD
	Motion Sensor (360 degree)	TBD
	Motion Sensor (directional)	TBD
	Glass Break Detector	TBD
IS310, or similar	Request to Exit Sensors (set to shunt forced entry only – not to release doors)	TBD
RCI 991RBPTD9	Arming Button	TBD

- 3.3.3 The Drawings have been developed on a conceptual basis. The Contractor is responsible for providing/verifying the quantities and part numbers contained in the following table, and for all additional components, cables, etc. required to complete the Work as defined in the Specifications and on the Drawings.
- 3.3.4 A minimum of at least 20% alarm inputs and 20% relay outputs to remain as spare. Unless otherwise noted in the Contract Drawings the Honeywell EBI security system inputs and outputs shall be 80% full, leaving 20% spare capacity.
- 3.3.5 The Honeywell EBI Control Panel, Vista Remote Keypad and additional nodes, if required, to be housed in NEMA 4 control panel. Control panel to be wall mounted located as shown on the drawings. Control panel locations and other mounting locations may be re-located upon the Region's approval
- 3.3.6 Honeywell EBI Control Panels where applicable, to be equipped with battery backup supply. Control Panel batteries to consist of two (2) 12V, 7AH batteries per control panel.
- 3.3.7 Honeywell EBI system equipment and all other equipment to be installed according to the manufacturer's recommendations.
- 3.3.8 The Security System Device Summary document provided by the Region is to be the primary document used when designing the system by Honeywell.

**PLEASE REFER TO THE MARKED DRAWINGS AND THE SECURITY  
DEVICE SUMMARY DOCUMENT FOR THE SPECIFIC SECURITY AND  
LOCKSMITHING REQUIREMENTS.**



## Project Name and Location Address

### Typical Application Types

#### Application Type #1 - Main Entry Doors:

(Suitable for main entry doors equipped with access control and the ability to arm/disarm the intrusion system - typically include one main entrance and one entry at garage locations)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Magnetic Door Contact (single door)	1
Request to Exit Motion Sensor	1
Electric Strike	1
Entry Card Reader (mounted exterior)	1
Exit/Arming Card Reader (mounted interior)	1
Arming Pushbutton (mounted interior)	1

#### Application Type #2 - Secondary Entry Doors:

(Suitable for doors that will be used for access control once the security intrusion system has been disarmed - no arming or disarming from these locations)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Magnetic Door Contact (single door)	1
Request to Exit Motion Sensor	1
Electric Strike	1
Card Reader (mounted exterior)	1

#### Application Type #3 – Emergency / Perimeter Exits

(Suitable for doors and/or entry points where monitoring of a “door forced open” alarm is required - typically placed on all emergency exits or perimeter doors where entry by access control is not required)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Magnetic Door Contact (single door)	1
Request to Exit Motion Sensor	1
Peizzo Buzzer - local alarm to sound upon “door held open alarm”	1

**Application Type #4 - Overhead Garage Door:**

(Suitable for garage door entry points to detect illegal entry.)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Magnetic Door Contact suitable to application	1

**Application Type #5 – Overhead Garage Door with Access Control**

(Suitable for garage door entry that will be used for access control once the security intrusion system has been disarmed – no arming or disarming from these locations)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Card Reader (mounted exterior)	1
Magnetic Door Contact (single door)	1

**Application Type #6 – Outer Perimeter Entry Gate:**

(Suitable for application where gate entry/control is required by access card - typical setting is a minimum of 25 feet inset from public roadways)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Dual Height Mount Pedestal	1
Long Range Card Reader (mounted exterior)	1
Entry Card Reader (mounted exterior)	1
Communication Device	TBD
Local Remote Device Release	TBD

**Application Type #7 - Secondary Entry Doors (Electromagnetic Lock):**

(Suitable for doors that will be used for access control once the security intrusion system has been disarmed - no arming or disarming from these locations)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Entry/Exit Card Reader	2
Electromagnetic Lock	1
Magnetic Door Contact (single door)	1
Request to Exit Motion Sensor	1

**Application Type #8 – Monitoring Points**

(Suitable for doors and/or entry points where monitoring of a “door forced open” alarm is required - typically placed on roof hatches or other similar entry points)

LIST OF DOORS WITH THIS APPLICATION BY NUMBER:

#

(# Doors in Total – Each to Receive the Following)

Equipment	Qty
Magnetic Door Contact	1

- 3.3.9 Motion detectors to be installed as identified on the Drawings and integrated into Honeywell EBI and Vista systems.
- 3.3.10 Glass break sensors to be installed as identified on the Drawings and integrated into Honeywell EBI and Vista systems.
- 3.3.11 Contractor to supply all necessary wiring, termination equipment/devices and other necessary equipment not specified in the Contract Document but which is necessary to implement a fully functional Honeywell EBI security system and mechanical key lock system. Details for lock placement, function and keying can be found in the associated Security Device Summary document.
- 3.3.12 All wires shall be CSA approved and have a flame test value equal to, or lower than, that required by the local building or fire code where it is being used, including the OBC.

- 3.3.13 End of line supervision shall be used on all installations. End of line resistors should be installed at the detection device and not the control panel.
- 3.3.14 All devices should be installed with a continuous, splice free cable run, wherever possible.
- 3.3.15 If splices are required, the splices shall be made in approved by Electrical Contractor junction boxes. Splice box locations shall be marked on the wiring diagram.
- 3.3.16 Wire lists shall be permanently affixed inside the control panel.
- 3.3.17 Security wiring should not run in parallel within 12" of 110 V AC or higher voltage electrical wiring or conduit.
- 3.3.18 All applicable local, provincial or federal codes shall be followed.
- 3.3.19 The location of equipment shown on Drawings may be revised by the Consultant during construction, and the Contractor shall not be entitled to any additional costs for the relocation of equipment provide that the new the location is within 6 meters of original location.
- 3.3.20 Install transformers complete with mounting brackets and hardware in positions in accordance with the manufacturer's instructions.
- 3.3.21 The Contractor shall provide all necessary lugs and mounting equipment which is not already provided with transformers.
- 3.3.22 For Regional water and wastewater facilities, Honeywell Vista Control Panel relay outputs to be wired to facility field controller providing security system discrete dry contact inputs to the SCADA system. Inputs to be wired fail safe include:.
  - 3.3.22.1 Intrusion Alarm
  - 3.3.22.2 Security System Disarmed
  - 3.3.22.3 Spare

- 3.3.23 The facility to communicate with Honeywell EBI Central Server at Region Headquarters via TCP/IP. Activation of switch/hub ports on networking equipment maintained by Region's Information Technology Services ("ITS") group to be co-ordinated by the Region. Contractor to provide one (1) week prior notification to the IT group for activation of network ports.
- 3.3.24 IP addresses to be released by Region upon request.
- 3.3.25 If local IT Network infrastructure is not present, Wireless 3G network equipment shall be used. York Region ITS will supply the pre-configured Wireless 3G, Modem and 4 port switch as well as installation specifics.
- 3.3.26 The General Contractor will install all required conduits and junction boxes as well as the exterior antenna for the 3G Wireless Equipment in a location determined by ITS to achieve adequate network connectivity.
- 3.3.27 Network switch is to be located within the Honeywell security system cabinet. Both modem and switch should be power from Honeywell UPS power supplies.
- 3.3.28 All replaced or extra equipment to be delivered to the Region upon project completion of this Contract.
- 3.3.29 Where magnetic locking devices are to be used, and where permitted federal, provincial, Local Municipal or Town/City Codes, all necessary permits, engineered drawings, and fire alarm interconnection shall be completed.
- 3.3.30 Comply with all applicable ordinances when installing access control systems.
- 3.3.31 All manufacturers' requirements and electrical code requirements for grounding and bonding, including the requirements of the OESC and OBC, shall be followed.
- 3.3.32 Magnetic door contacts to be installed on all exterior access doors and interior doors, as identified within the Device Summary Chart as well as the Contract drawing.

- 3.3.33 Electric door strikes to be installed on all doors as identified within the Device Summary Chart as well as the Contract drawing. Door key locks to allow key override of door strikes in all cases.

#### 3.4 INSTALLATION – HONEYWELL EBI ENTERPRISE SOFTWARE INTEGRATION

- 3.4.1 Integrate the facility into the Regions existing Honeywell EBI Enterprise software.
- 3.4.2 The Contractor to co-ordinate the Work with the Region to incorporate facility into the Region Honeywell EBI system.
- 3.4.3 The Contractor to allow for two (2) Working Days of Work to perform this installation and integration in its bid price. This Work shall be completed a minimum of 15 Working Days prior to the date of Substantial Performance of the Work. The Contractor to coordinate with the Region's Security and Life Safety Coordinator at (905) 830-4444 ext.6900 .

#### 3.5 OPERATION - GENERAL

- 3.5.1 Operation of the Honeywell EBI security system to function similarly to existing Honeywell EBI systems installed at Region water and wastewater and corporate facilities. The Contractor to confirm all security system functions and operation with the Region of York Security and Life Safety Coordinator at (905) 830-4444 ext.6900 prior to any programming.
- 3.5.2 Overview: A general overview of the operation of the system is as follows:
  - 3.5.2.1 The system shall allow for the monitoring of intrusion detection alarms inside the system alarm monitoring module, in addition to giving command and control of supported intrusion detection devices. Once alarms are brought into the system, they shall be stored in the system audit trail.

- 3.5.2.2 All system events not designated as alarm conditions shall be stored in the system audit trail.
- 3.5.2.3 Each door may be programmed to generate “Forced Door” and “Door Open Too Long” alarms. These alarms shall have the ability to have a user-definable time delay. Request to exit (“RTE”) motion sensors to be installed on interior of all perimeter exit doors which are equipped with door contacts to prevent false forced entry caused by egress of personnel. RTEs to be configured to shunt forced entry only; RTEs shall not to be configured to release the electric strike mechanisms in place.
- 3.5.2.4 The system shall upload/download information to the control panels automatically while the control panels are in communication with the host server application. A data download may also be initiated manually. This may consist of either controller database information or alarms and events.
- 3.5.3 Authentication to Honeywell EBI System shall be via programmed Door Groups, Time Groups and Access Groups.
- 3.5.4 Main entry doors to be assigned Access Group “A”.
- 3.5.5 HID Reader and combination HID Reader and Arming Button to function as a method of arming and disarming security system respectively.
- 3.5.6 Upon presentation of proximity card identified as Region Water and Wastewater personnel to card reader, Honeywell EBI Control Panel will activate electric door strikes on Access Group “A” doors, allowing those doors to be opened.
- 3.5.7 Upon authorized entry to facility, this should automatically disable Control Panel security thereby disarming the system. “Security System Disarmed” input shall be signaled to field controller.

- 3.5.8 Prior to exiting facility, personnel will arm the security system by present their card to the interior card reader and pushing “Confirm” pushbutton (Arming Button). This sequence of events will arm the security system. “Security System Armed” input shall be signalled to field controller. The action of breaking the door contact shall not to arm the security system.
- 3.5.9 Upon manual key entry to facility, “Intrusion Alarm” input shall be signalled to field controller.
- 3.5.10 Upon illegal forced entry to facility, “Intrusion Alarm” input signalled to field controller. Control Panel maintains “Security System Armed” input signal to field controller.

### 3.6 FIELD QUALITY CONTROL

#### 3.6.1 Cable and Wire – 1000 Volt and Below

- 3.6.1.1 Conduct insulation resistance measurements using a “Megger” (500 V instrument for circuit up to 350 V system, 1000 V instrument for 351-600 V systems).
- 3.6.1.2 Record test results in a logbook and submit to the Consultant for reference. Replace or repair circuits which do not meet inspection Authority requirements. With equipment disconnected, measure insulation resistance of the following circuits:
  - 3.6.1.3 Power and lighting feeders: Phase-to-phase, phase-to-ground.
    - 3.6.1.3.1 Control circuits: To ground only.
    - 3.6.1.3.2 Do not perform “Megger” tests on equipment containing solid-state components.
  - 3.6.1.4 Disconnect power factor correction capacitors from system prior to testing.

#### 3.6.2 Instrumentation Wiring



- 3.6.2.1 Check continuity of each conductor using ohmmeter of DC buzzer. Megger or 120-volt filament lamp testing is not acceptable.
- 3.6.3 Carry out functional tests with the Region's Representative to confirm field wiring, interlocks, and RPU functionality.
- 3.6.4 Depending upon magnitude and complexity, divide security system into convenient sections, energize one section at a time and check out operation of section.
- 3.6.5 Upon completion of sectional tests, undertake group testing.
- 3.6.6 Check out complete system for operational sequencing.
- 3.6.7 For local testing, each device/sensor should be tested and marked off one by one until all devices/sensors are tested. Each sensor shall be verified to the zone.
- 3.6.8 Submit to the Consultant one copy of all test results.
- 3.6.9 Provide a written list of all passwords, keywords, serial numbers and/or configurations that are encountered during the installation of the operating system and application software. This information to be provided in writing to the York Region Security and Life Safety Coordinator at (905) 830-4444 ext.6900.
- 3.6.10 Assign all warranties, licenses, and product registration to the Regional Municipality of York.
- 3.6.11 Turn over to the York Region Security and Life Safety Coordinator (905) 830-4444 ext.6900 all installation software, user manuals, accessory cables, calibration units and any other material accompanying the installed equipment.

### 3.7 WIRING IDENTIFICATION

- 3.7.1 Identify all wiring including fibre optic cabling, wire markers.
- 3.7.2 Colour code power, feeder, and branch conductors at both ends with coloured plastic tapes. Tapes are not required where

conductors are identified by jacket colour. Maintain phase and colour sequence throughout.

- 3.7.3 Identify each conductor, including spares, with a unique alphanumeric designation to facilitate troubleshooting and maintenance as identified by Region of York standards.
- 3.7.4 Identify RPU wiring at terminal blocks and connection points with RPU terminal (I/O) address numbers as identified by Region of York standards.

### 3.8 SITE TESTING

- 3.8.1 Following installation of Honeywell EBI System at the facility, Site testing shall be performed by the Contractor. Testing to be coordinated with the Region.
- 3.8.2 Record test results in a logbook and submit to the Consultant for reference. Replace or repair circuits which do not meet inspection Authority requirements.
- 3.8.3 The Facility to be tested to confirm operation of Honeywell EBI System in accordance with Section 3.7 Operation – General.
- 3.8.4 The Region's representative to be present for all testing. The Region's representative to confirm that testing has been satisfactorily completed and that system is ready for operational use as intended.
- 3.8.5 All facility exterior access doors to be tested for valid entry and intrusion entry by presentation of test proximity card(s) to reader. The corresponding inputs to SCADA system to be confirmed. The system to be tested with both valid and invalid proximity cards.
- 3.8.6 All applicable doors to be tested for valid entry and intrusion entry. The corresponding inputs to SCADA system to be confirmed.
- 3.8.7 Key override to facility through main entry door to be tested for by manually opening door with mechanical key. Corresponding inputs to SCADA system to be confirmed.

- 3.8.8 Security system arming/disarming to be tested and verified.
- 3.8.9 All event and alarm conditions to be verified that are logged to Honeywell EBI Control Panel to be verified.
- 3.8.10 Local testing to be performed at the facility. Following successful demonstration of local testing, operational testing to be performed utilizing Region's existing Honeywell EBI Server.
- 3.8.11 Following successful integration with Honeywell EBI Server, shift programming of the facility, if applicable, to be coordinated through the Region's Security and Life Safety Coordinator (905) 830-4444 ext.6900.

END OF SECTION