PART 1 – GENERAL

1.1 REFERENCE STANDARDS

.1 Not Applicable

1.2 RELATED WORK

.1 Not Applicable

1.3 SHOP DRAWINGS

.1 ULC Certificates: submit proof that the following companies are ULC certified for Commercial Types of Installation.

.2 Submit proof of Certificate that the installing service company is a ULC Listed alarm service company.

.3 Installation and Classification of Closed Circuit Video Equipment (CCVC Systems as per the ULC-S317 for Institutional Commercial Security System.

1.4 PERFORMANCE REQUIREMENTS

.1 The system installer shall be a firm with at least five years of successful installation experience with projects utilizing integrated video surveillance and equipment similar to that required for this project. A list of three (3) projects of similar size shall be made available, if requested.

1.5 DESCRIPTION OF SYSTEM

.1 Video Surveillance, Access Control and Intrusion Alarm are to be supplied and installed by one system integrator. The system integrator is responsible for providing all materials, labor and programming required for the integration of these systems. The video surveillance is to be integrated with the access control system to trigger record full images per second continuously during Lock Down events. All camera to be installed as per the drawings.

PART 2 PRODUCTS

2.1 VMS SOFTWARE

.1 VMS Software Feaures

.1 Remote Clients: qty. 5
.2 Thumbnail search
.3 Event search
.4 Multi-camera export
.5 Recording and playback timeline
.6 Bandwidth management
.7 Bookmark surveillance footage
.8 Standard of Acceptance: Avigilon ACC5

2.2 NETWORK VIDEO RECORDER FEATURES

.1 Input voltage 120V AC.
.2 Operating system: Microsoft Windows Server 2012.
.3 Form Factor: 2U rack mount chassis
.4 Memory: 16BG DDR4
.5 Processor: Intel Xeon Processor 2.4GHz
.6 Recording rate: up to 1200 Mpbs
.7 Recording Storage Capacity : 84 TB effective (after RAID 6)
.8 2 x 10 GbE SFP+ ports & 4 x 1 GbE RJ-45 ports (1000Base-T)
.9 Rack mounted
.10 Redundant, hot swappable
.11 Acceptable product: Avigilon #HD-NVR3-PRM-48TB.
.12 Quantities: Must have Two Avigilon network video recorders
.13 for storage and redundancy
.14 Remote view using video management software by Avigilon

2.3 REMOTE VIEWIN WORK STATION

.1 Four monitor remote workstations:
.2 Desktop/Tower Form complete with mouse, keyboard , and supports four high resolution monitors
.3 Comes with Avigilon VMS Software
.4 Viewing Streams: up to 144
.5 Viewing Rate: up to 10 MB/s
.6 Processor: Intel Xeon Processor E5-2620
.7 Memory: 8GB RAM
.8 Network Interface: 1 Gigabit Ethernet RJ-45 (1000Base-T)
.9 Video Outputs: 4 active (2 Display Port and 2 DVI)
.10 Optical Drive: 1 DVD-RW
.11 Acceptable product: HD-RMWS3-4MN-NA

2.4 MONITORS

.1 24 inch LED monitor, color.
.2 Aspect ratio: 16:10.
.3 Contrast Ratio: 1000:1
.4 Response Time: 6ms
.5 Resolution: 1920x1200
.6 Input voltage: 120 V AC.
.7 On-screen display for setup and adjustment.
.8 VGA and USB input..
.9 Front mounted controls.
.10 Construction: black plastic.
.11 Acceptable product: DELL #U2413.

2.5 CAMERAS

.1 Type 1:

.1 Internet protocol 10/100 base T POE
.2 4 x 3 Megapixel 1/3" Progressive scan sensor
.3 Each lens is a 3 Megapixel 2.8-8mm remote zoom and focus lens
.4 Wide Dynamic Range Performance
.5 Automatic exposure control and iris control
.6 Automatic removable IR Cut filter for IR sensitivity at night
.7 Support for external microphone and speaker for two way audio
.8 Support for external I/O interface for connecting alarm and relays
.9 VDC: 12 V, VAC: 24 , IEEE802.3at Type 2 POE Plus
.10 Must support 15FPS plus per lens
.11 Operating Temperature: -40 C
.12 4 x 3 MP (12MP) to come with proper mounting brackets
.13 Acceptable product: Avigilon #12W-H3-4MH-DP1 (Pendant Type)

.2 Type 2:

.1 Internet protocol 10/100 base T.
.2 VDC: 12 V, VAC: 24 , POE: IEEE802.3af class 2 compliant.
.3 5.0 mega pixel, day/night 3840(H) x2160(V).
.4 WDR 1/3" progressive scan CMOS.
.5 Image compression method (MPEG-4 Part 10/AVC), motion JPEG.
.6 Focal length: 3-9 mm.
.7 Auto iris (direct drive).
.8 Acceptable product: Avigilon #5.0L-H4A-BO1-IR.

.3 Type 3 &4:

.1 Internet protocol 10/100 base T.
.2 VDC: 12 V, VAC: 24 , POE: IEEE802.3af class 2 compliant.
.3 3.0 mega pixel, day/night 2048(H) x1536(V).
.4 WDR 1/3" progressive scan CMOS.
.5 Image compression method (MPEG-4 Part 10/AVC), motion JPEG.
.6 Focal length: 3-9 mm.
.7 Auto iris (direct drive).
.8 Acceptable product: Avigilon #3.0C-H4A-D1.

.4 Type 5:

.1 Internet protocol 10/100 base T POE
.2 4 x 3 Megapixel 1/3" Progressive scan sensor
.3 Each lens is a 3 Megapixel 2.8-8mm remote zoom and focus lens
.4 Wide Dynamic Range Performance
.5 Automatic exposure control and iris control
.6 Automatic removable IR Cut filter for IR sensitivity at night
.7 Support for external microphone and speaker for two way audio

.8 Support for external I/O interface for connecting alarm and relays
.9 VDC: 12 V, VAC: 24 , IEEE802.3at Type 2 POE Plus
.10 Must support 15FPS plus per lens
.11 Operating Temperature: -40 C
.12 4 x 3 MP (12MP) to come with proper mounting brackets
.13 Acceptable product: Avigilon #12W-H3-4MH-D01 (Surface Type)

.5 Type 6:

.1 Internet protocol 10/100 base T POE
.2 3 x 3 Megapixel 1/3" Progressive scan sensor
.3 Each lens is a 3 Megapixel 2.8-8mm remote zoom and focus lens
.4 Wide Dynamic Range Performance
.5 Automatic exposure control and iris control
.6 Automatic removable IR Cut filter for IR sensitivity at night
.7 Support for external microphone and speaker for two way audio
.8 Support for external I/O interface for connecting alarm and relays
.9 VDC: 12 V, VAC: 24 , IEEE802.3at Type 2 POE Plus
.10 Must support 15FPS plus per lens
.11 Operating Temperature: -40 C
.12 3 x 3 MP (9MP) to come with proper mounting brackets
.13 Acceptable product: Avigilon #9W-H3-3MH-DP1 (Pendant Type)

2.6 POE SWITCHES

.1 POE Switches features:

.1 Form Factor: 1U rack mount chassis
.2 24 x 10/100/1000 (POE+) + 2 x 10/100/1000 + 2 x combo Gigabit SPF
.3 Power: 740W POE power
.4 Standard of Acceptance: Cisco 2960-x

2.7 UPS

.1 UPS features:

.1 120 V output
.2 2200 VA.
.3 1050Watt
.4 Rack Mounted UPS
.5 Standard of Acceptance: Eaton 5PX2200

PART 3 – EXECUTION

3.1 INSTALLATION

.1 Comply with manufacturer's written data, including product technical bulletins, product catalogue installation instructions, product carton installation instructions, and data sheet.

.2 Install video surveillance equipment and components in accordance with [ULC-S317].

.6 Install cable, boxes, mounting hardware, brackets, video cameras and system components in accordance with manufacturer's written installation instructions.

.7 Install components secure, properly aligned and in locations shown on reviewed shop drawings.

.8 Connect cameras to cabling in accordance with installation instructions.

.9 Install ULC labels where required.

3.2 FIELD QUALITY CONTROL

.1 Manufacturer's Field Services:

.1 Obtain written reports from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product.

.2 Submit 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 Schedule site visits to review Work at stages listed:

.1 Upon completion of Work, after cleaning is carried out.

3.3 SYSTEM START-UP

.1 Perform verification inspections and test in the presence of Consultant

.2 Provide all necessary tools, ladders and equipment.

.3 Ensure appropriate subcontractors manufacturer's representatives are present for verification.

.4 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.

.5 Technical verification: purpose to ensure that all systems and devices are properly installed and free of defects and damage. Technical verification includes:

.8 Measurements of tension and power.
.9 Connecting joints and equipment fastening.
.10 Measurements of signals (dB, lux, baud rate, etc).
.11 Compliance with manufacturer's specification, product literature and installation instructions.

.6 Operational verification: purpose to ensure that devices and systems' performance meet or exceed established functional requirements. Operational verification includes:

.12 Operation of each device individually and within its environment.
.13 Operation of each device in relation with programmable schedule and or/specific functions.
.14 Operation control of camera lens, pan, tilt and zoom.
.15 Switching of camera to any monitor.
.16 Switching of system video recorder to selective monitor.
.17 Set dwell times.

3.4 ADJUSTING

.1 Remove protective coverings from cameras and components.

.2 Adjust cameras for correct function.

3.5 CLEANING

.1 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