PART 1 - GENERAL

1.1 REFERENCES

.1 Abbreviations:
- .1 Electronic Access Control (EAC): control of people through entrances and exits of controlled area. Security utilizing hardware systems and specialized procedures to control and monitor movements within a controlled area.
- .2 DRS: Door Release System.

.2 Reference Standards:
- .1 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Underwriters' Laboratories (UL)
  - .1 UL 294-2009, Access Control System Units.
  - .2 UL 325-13, Standard for Door, Drapery, Gate, Louver and Window Operators and Systems.
- .3 Equipment shall be listed by a testing laboratory.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for access controls and equipment and include product characteristics, performance criteria, physical size, finish and limitations.
- .2 Submit drawings to show range of travel and all electrical connections. Also show the size and location of the concrete mounting pad and electrical underground runs including vehicle detection logs.
- .3 Submit two (2) copies of WHMIS MSDS in accordance with Section 01 35 29 - Health and Safety Requirements.
- .4 Submit:
  - .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.

.3 Shop Drawings:
- .1 Submit drawings for review.
- .2 Shop drawings to indicate project layout, including details.
  - .1 Shop drawings to indicate, mounting heights and locations, wiring diagrams.
  - .2 Submit complete equipment list.

.4 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .1 Submit ULC/UL Product Safety Certificates.
- .2 Submit verification Certificate that service company is ULC/UL List alarm service company.
- .3 Submit verification Certificate that security access system is "Certified alarm system".

.5 Test and Evaluation Reports:
- .1 Submit certified test reports from approved independent testing laboratories indicating compliance with specifications for specified performance characteristics and physical properties.

.6 Manufacturer's Instructions: submit manufacturer's installation instructions.

.7 Manufacturer's Field Reports: submit manufacturer's written reports within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.3 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for access controls and equipment for incorporation into manual.
- .1 Include:
  - .1 System configuration and equipment physical layout.
  - .2 Functional description of equipment.
  - .3 Instructions of operation of equipment.
  - .4 Illustrations and diagrams to supplement procedures.
  - .5 Operation instructions provided by manufacturer.
  - .6 Cleaning instructions.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:
- .1 Store materials off ground in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
- .2 Store and protect access controls and equipment from nicks, scratches, and blemishes.
- .3 Replace defective or damaged materials with new.

.4 Packaging Waste Management: remove for reuse and return packaging materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.5 MEASUREMENT FOR PAYMENT

.1 Automatic Gate System: The supply of all materials, labour, plant and equipment for the installation of the two (2) automatic gate systems to be measured by the Each (Ea) calculated when fully installed and operational. Include incidental to the unit price all costs for all gate system components, including but not necessarily limited to, gate controllers, power supply, card readers, proximity cards, card reader housing and pedestals, conductive loops and gate operators.

.2 Manual Gates: The supply of all labour, materials, plant and equipment for the installation of the Manual Gates, as indicated on the drawings, will be measured by the Each (Ea.) as calculated from actual field measurements.

.3 Include incidental to the unit price the costs of all excavation, concrete foundation, hardware, backfilling and compaction as required.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 The Gate System shall include the following:
- .1 Gate Controller.
- .2 Power supply.
- .3 Card Readers
- .4 Proximity Cards.
- .5 Card Reader Housing and Pedestal.
- .6 Conductive loops.
- .7 Gate Operator
- .8 Gate system components shall be ULC Certified.

.2 Gate Controller:
- .1 Capable of monitoring and controlling two (2) automatic gates and their respective card readers.
- .2 Compatible with gate operator.
- .3 Remote control of gates via communication with PC.
- .4 Voltage input shall be compatible with power supply voltage output.
- .5 UL/ULC certified.
- .6 Communicates with gate operator and card reader over 22 AWG twisted pair cabling (shielded for card reader).
- .7 Network connectivity via TCP/IP interface.
- .8 Complete with access control management software.
  - .1 Capable of modifying access permissions of each individual card.

.3 Gate Operator:
- .1 Lifts and lowers gate arm upon signal from door controller.
- .2 Manual override.
- .3 208V/60Hz single phase input.
- .4 Inductive loop vehicular detection to open gate from one direction.
- .5 Arm length: 4 m minimum.
- .6 Battery backup providing twenty-four (24) hour operation upon loss of power.
- .7 Weatherproof and acceptable for outdoor installations.
- .8 Gate arm operator determined by signal from gate controller.
- .9 14 gauge (minimum) galvanized steel exterior with powder coat finish proven to withstand 1000-hour salt spray test.
- .10 Capable of operation at -25°C without a heater.
- .11 Stop and hold open / hold close switch.

.4 Power supply for Gate controller:
- .1 120V/60HZ input.
- .2 Compatible with gate controller.
- .3 Battery backup providing twenty-four (24) hour operation upon loss of power.

.5 Card Reader:
- .1 Compatible with gate controller.
- .2 Communicates with gate controller over 22 AWG shielded twisted pair cabling.
- .3 Weatherproof and acceptable for outdoor installations.
- .4 Compatible with dual encoded proximity cards.
- .5 Integrated buzzer and bicolour LED indicator light.
- .6 Reading distance: 50-200 mm.

.6 Proximity Cards:
- .1 Compatible with card reader.
- .2 Dual encoded proximity type.

.3 Plastic, credit card size.
.4 Sealed and highly resistant to normal handling and weather.
.5 Quantity of Cards: 500.
.6 Ten key fobs for staff.

.6 Card Reader Housing and Pedestal
.1 900 mm tall.
.2 Zinc plated 12-guage steel with black powder coat.
.3 Weatherproof and acceptable for outdoor installation.

PART 3 - EXECUTION

3.1 INSTALLATION: AUTOMATIC GATE SYSTEM

.1 Install two (2) gate system units and components in accordance with CAN/ULC and in accordance with manufacturer's recommendations.

.2 Fully enclose exterior cables in conduit.

.3 Securely fasten all components to wall or structure.

.4 Lockable and removable housing cover.

3.2 SITE TEST AND INSPECTION

.1 Pretesting procedure:
.1 Verify that system is fully operational and meets all system performance requirements of this specification.

.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.
.2 Documentation review:
.1 This review will determine if information provided is sufficient to meet requirements of this specification.
.2 Provide for review all System manuals, as installed drawings and pretest forms.

.3 Subsystem functional test:
.1 Conduct operational testing after review of documentation is completed.

Proceed as follows.

.1 Perform operational test of each Subsystem to verify that all equipment is properly connected, interfaced and is functionally operational to meet requirements of this specification.

.2 Distribution (or interface) system:

.1 Check each gate utilizing a volt/ohm (or signal level) meter to confirm each function and to insure that system meets all performance requirements.

.3 Total system test:

.1 Proceed with testing when system and subsystems are functionally tested and accepted. Total system tests to verify that requirements have been met for control signals in accordance with this specification.

.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:

.1 Validate sensitivity of readers and applicability and application of cards.
.2 Connecting joints and equipment fastening.
.3 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:

.1 Operation of each device individually and within its environment.
.2 Operation of each device in relation with programmable schedule and or/specific functions.

3.3 FIELD QUALITY CONTROL

.1 Manufacturer Services:

.1 Manufacturer of products, supplied under this Section, to 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:

.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 Ensure manufacturer's representative is present before and during critical periods of installation and testing.

3.4 PROTECTION

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by access controls and equipment installation.

END