

## **ITEM 162 - CHAIN LINK FENCES**

### DESCRIPTION

#### 162-1.2 ADD:

This item shall also include the installation of two (or three if ALT #3 is awarded) new electric cantilever slide gates, modifications at two existing electric cantilever slide gates, two existing electric pedestrian gates, and 3 non-electric gates, including, but not limited to, the following:

#### New Route 9 Electric Cantilever Slide Gate (Gate #2):

- Furnish and install new 20' x 10' cantilever slide gate, posts, foundations, etc.
- Furnish and install new electric gate operator, 1HP, 120V, foundation, detector loops, etc.
- Furnish and install new 100A, 120/240V, Single-Phase, 3-Wire utility service to gate, including utility meter, service entrance rated disconnect, load center, conduit and wiring, etc.
- Furnish and Install Access Control equipment, including card readers, wireless reader interfaces, antenna pole and foundation, antenna and hardware, etc.
- Furnish and install Area Light, pole & foundation, etc.
- Furnish miscellaneous material, equipment and labor as needed for a complete and accepted gate installation.

#### New Growmark Electric Cantilever Slide Gate (Gate #10):

- Furnish and install new 24' x 10' cantilever slide gate, posts, foundations, etc.
- Furnish and install new electric gate operator, 1HP, 120V, foundation, detector loops, etc.
- Furnish and install new 100A, 120/240V, Single-Phase, 3-Wire utility service to gate, including utility meter, service entrance rated disconnect, load center, conduit and wiring, etc.
- Furnish and install Access Control equipment, including card readers, wireless reader interfaces, antenna pole and foundation, antenna and hardware, etc.
- Furnish and install Area Light, pole & foundation, etc.
- Furnish miscellaneous material, equipment and labor as needed for a complete and accepted gate installation.

#### Additions and modifications to existing Access Control equipment at Terminal Building for New Gates #2 & #10:

- Furnish and install new antennas, masts, Panel Interface Modules (PIM), Match Reader Interface modules (MRIA), Access Controller, cable, conduit and wiring, hardware, etc.

#### Modify Existing Terminal East Gate Electric Cantilever Slide Gate (Gate #4):

- Remove existing cantilever slide gate, posts, etc.
- Disconnect and remove existing electric gate operator, taking care to not damage existing power, control and detector loop wiring.
- Furnish and install new 24' x 8' cantilever slide gate, posts, foundations, etc.
- Furnish and install new electric gate operator, 1HP, 120V, on existing gate operator concrete foundation and reconnect to existing power, control and detector loop wiring. NOTE: Contractor shall verify existing voltage and phases of existing power and provide new electric gate operator to match.

- Furnish and install two new additional detector loops, one on each side of gate, including detector loop electronics in new electric gate operator housing.
- At the existing pedestrian gate, the existing magnetic lock and card reader shall be reused and reattached to new pedestrian gate to match existing installation.

Modify Existing Terminal West Gate Electric Cantilever Slide Gate (Gate #7):

- Remove existing cantilever slide gate, posts, etc.
- Disconnect and remove existing electric gate operator, taking care to not damage existing power, control and detector loop wiring. NOTE: Existing Match Reader Interface unit and associated Space Heater inside existing electric gate operator housing for slide gate operator control shall be removed and reinstalled and reconnected in new electric gate operator housing.
- Furnish and install new 24' x 8' cantilever slide gate, posts, foundations, etc.
- Furnish and install new electric gate operator, 1HP, 120V, on existing gate operator concrete foundation and reconnect to existing power, control and detector loop wiring. NOTE: Contractor shall verify existing voltage and phases of existing power and provide new electric gate operator to match.
- Furnish and install two new additional detector loops, one on each side of gate, including detector loop electronics in new electric gate operator housing.

Modify Existing Terminal West Electric Pedestrian Gate (Near Gate #7):

- Remove pedestrian gate, posts, etc.
- Furnish and install new 4' x 8' pedestrian gate, posts, foundation, etc.
- Existing gate magnetic lock and card reader shall be reused and reinstalled on new pedestrian gate. All equipment and wiring shall be protected from damage during construction. NOTE: Existing Match Reader Interface unit and associated Space Heater inside existing Gate #7 electric cantilever gate operator housing for pedestrian gate control shall be removed and reinstalled and reconnected in new Gate #7 electric cantilever gate operator housing.

Modify Existing Terminal East Electric Pedestrian Gate (Near Gate #4):

- Remove pedestrian gate, posts, etc.
- Furnish and install new 4' x 8' pedestrian gate, posts, foundation, etc.
- Existing gate magnetic lock and card reader shall be reused and reinstalled on new pedestrian gate. All equipment and wiring shall be protected from damage during construction.

Alternate #3: New Growmark Electric Cantilever Slide Gate (If Awarded):

- Furnish and install new 24' x 10' cantilever slide gate, posts, foundations, etc.
- Furnish and install new electric gate operator, 1HP, 120V, foundation, detector loops, etc.
- Furnish and install new conduit and 120V power wiring to load center installed as part of Gate #10 work.
- Furnish and install Access Control equipment, including card readers, wireless reader interfaces, antennas and hardware, etc. Wireless reader interfaces shall be installed in NEMA 4X enclosure installed as part of Gate #10 work; resize enclosure as needed to house Alternate #3 equipment. Antennas shall be installed on antenna pole installed as part of Gate #10 work.
- Furnish miscellaneous material, equipment and labor as needed for a complete and accepted gate installation.

Alternate #3: Additions and modifications to existing Access Control equipment at Terminal Building for New Growmark Electric Cantilever Slide Gate (If Awarded):

- Furnish and install new antennas, Panel Interface Modules (PIM), Match Reader Interface modules (MRIA), cable, conduit and wiring, hardware, etc.

Access Control:

- The existing access control equipment at Bloomington Airport was furnished and is maintained by Thompson Electronics Company. To maintain sole-source responsibility for the Access Control System, the new access control equipment under this project shall be furnished by Thompson Electronics Company, hereafter referred to as the Access Control Contractor.

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- The new access control equipment shall be furnished, installed and tested as a complete, operational and accepted Access Control System, and shall include all material, equipment, labor and appurtenances as required. Major components of the Access Control System work shall include, but not be limited to, the following:

New Gates #2 & #10:

- Access Control Contractor shall furnish NEMA 4X stainless steel hinged cover enclosure, complete and prewired, with space heater, power supply and wireless reader interfaces. Installation on antenna pole and conduit and wiring to remote equipment shall be by Electrical Contractor.
- Access Control Contractor shall furnish antennas, grounding connection cables, grounding blocks, coaxial antenna cables, and related hardware. Installation on antenna pole shall be by Electrical Contractor.
- Access Control Contractor shall furnish long range card readers. Installation and conduit and wiring to remote equipment shall be by Electrical Contractor.
- Access Control Contractor shall provide technical assistance and supervision of installation and startup of access control equipment at New Gates #2 & #10.
- In addition to work described above, Electrical Contractor shall furnish and install antenna poles and foundations, and ground wires, ground rods and exothermic welds.
- Electrical Contractor shall coordinate all work with Access Control Contractor.

Additions and modifications to existing Access Control equipment at Terminal Building for New Gates #2 & #10:

- The Access Control Contractor shall furnish and install all labor, materials and equipment in Terminal Bldg, including any cables, conduits, antennas,

masts, panel interface modules (PIM), match reader interface modules (MRIA), new access controller, accessories, etc., as required for a complete and accepted access control installation in the terminal building.

Existing Terminal West Gate #7:

- The Access Control Contractor shall inspect and test existing Match Reader Interface (MRIA) units and space heaters, both before and after relocation to new gate operator. Defective items or items requiring replacement shall be noted and a printed list delivered to the RE.
- Access Control Contractor shall provide technical assistance and supervision of installation and startup of relocated access control equipment.
- Electrical Contractor shall disconnect Match Reader Interface (MRIA) units and space heaters, install in new gate operator housing, and reconnect to existing power and access control wiring.

Alternate #3: New Growmark Electric Cantilever Slide Gate (If Awarded):

- Access Control Contractor shall furnish Alternate #3 Gate wireless reader interfaces, complete and prewired, in the NEMA 4X enclosure provided with Gate #10 access control equipment, resizing enclosure as needed to house additional equipment. Installation of conduit and wiring to remote equipment shall be by Electrical Contractor, as detailed on the Plans.
- Access Control Contractor shall furnish antennas, grounding connection cables, grounding blocks, coaxial antenna cables, and related hardware. Installation on antenna pole shall be by Electrical Contractor.
- Access Control Contractor shall furnish long range card readers. Installation and conduit and wiring to remote equipment shall be by Electrical Contractor.
- Access Control Contractor shall provide technical assistance and supervision of installation and startup of access control equipment.
- In addition to work described above, Electrical Contractor shall furnish and install antenna pole and foundation, and ground wires, ground rods and exothermic welds.
- Electrical Contractor shall coordinate all work with Access Control Contractor.

Additions and modifications to existing Access Control equipment at Terminal Building for Alternate #3: New Growmark Electric Cantilever Slide Gate (If Awarded):

- The Access Control Contractor shall furnish and install all labor, materials and equipment in Terminal Bldg, including any cables, conduits, antennas, masts, panel interface modules (PIM), match reader interface modules (MRIA), accessories, etc., as required for a complete and accepted access control installation in the terminal building.

MATERIALS

162-2.1     FABRIC

(D.)

REWRITE: Last Sentence

The color of the **vinyl** coating shall be black and shall meet the approval of the Engineer.  
**The vinyl coating applies all fence fabric, rails, posts, braces, stretcher bars, couplings, ties and other miscellaneous materials for Alternate #1 only.**

162-2.3     FENCE POSTS, POST TOPS AND EXTENSIONS, RAILS, GATES, BRACES, STRETCHER BARS, AND CLIPS

(C) GATES

(1.) SLIDE GATES

ADD:

MOTORIZED GATE OPERATORS

- A.     The Contractor shall furnish and install electric chain drive gate operators, **Linear/Osco Model HSLG-1, 1 HP, 120V, Single-Phase, or equivalent. Gate operator shall capable of opening a maximum gate weight of at least 1700 lbs and maximum gate width of 55 feet. NOTE: At Terminal Building East & West Gates (Gate #4 & #7), provide gate operator matching existing voltage and phases.**

**Provide 20A, 1P circuit breaker for Gate Operator, 20A, 1P circuit breaker for Area Light, 20A, 1P circuit breaker for Access Control Equipment, minimum of two 20A, 1P "Spare" circuit breakers.**

- B.     The electric gate operator shall be suitable for ground mounting. At Route 9 Gate (#2) and Growmark Gates (#10 & Alternate #3), gate operator shall include an operator concrete foundation. At Terminal Building East Gate (#4) and West Gate (#7) gate operator shall be installed on existing concrete foundation. Electric gate operators shall be suitable for outdoor use and enclosed in a weatherproof housing. Heating equipment shall be provided if recommended by the manufacturer. Operators shall be equipped with a heavy duty reversing contact, magnetic brake, adjustable clutch, emergency disconnect, full driven limit switches, completely prewired and factory tested. Operator shall be equipped with pressure sensitive controller to reverse the gate operation if an obstruction is encountered. The operator shall be provided with an early alert audible signal broadcasting an audible alert while the gate is opening or closing.
- C.     As installed, the electric gate operators shall open via dry contact closure from the Access Control System card-reader/access controller and shall close via an adjustable time-delay-to-close, initially set at 15 seconds.
- D.     "Safety" detector loops on both sides of gate shall be used to keep gate open as long as a vehicle is over them. The adjustable time-delay-to-closure shall not commence until vehicle has cleared all "Safety" loops.

- E. A pressure-sensitive Gate Edge safety strip mounted on leading edge of cantilever slide gate shall be utilized to reverse electric gate operator upon contact with an obstruction while closing gate and shall be either hard wired or wirelessly connected to gate operator.
- F. Gate operators shall include 315MHz radio receivers for future remote control of operators.
- G. Gate operators shall include a duplex 120V receptacle inside housing as part of standard power switch assembly.
- H. Gate operator housing shall be padlockable. Padlocks shall be provided for each gate operator and shall be BEST padlocks, as manufactured by Stanley, or equivalent. **NOTE: The Contractor shall coordinate the furnishing of these padlocks with the Owner.**

#### UL-235 COMPLIANCE

- A. Gate installation shall comply with all requirements of UL 235, including, but not limited to:
  - 1. All openings of the slide gate are guarded or screened from the bottom of the gate to a minimum of 4 feet above ground to prevent a 2-1/4" diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position.
  - 2. All exposed pinch points are eliminated or guarded and guarding is supplied for all exposed rollers.
  - 3. A warning sign (see detail, on plans) must be affixed to both sides of the slide gate.
- B. The Motorized Cantilever Slide Gate Operator shall be classified a Class IV - Restricted Access Vehicular Gate Operator, with the following features:
  - 1. For primary protection, the gate operator shall have an inherent obstruction sensing system, self-contained within the operator. This system shall sense and initiate the reverse of the gate within 2 seconds of contact with a solid object.
  - 2. Connections shall be provided in gate operator for an external contact sensor. A contact sensing device, such as a gate edge sensor, shall be used for secondary protection.
  - 3. Gate operator shall have an internal gate "in motion" audible alarm which beeps 3 seconds prior to gate movement and throughout the gate's movement.

#### DETECTOR LOOP AND DETECTORS

- A. Detector loop size, location, sawing method, sealant type and number of loops shall be as shown on the plans and as recommended by the manufacturer. The detector electronics shall have adjustable sensitivity and be housed in the operator housing. A detector loop shall be required on each side of the gate.

#### ACCESS CONTROL SYSTEM EQUIPMENT

- A. Compatibility. All new Access Control System improvements shall be compatible with the existing access control equipment installed at the Airport. The Access Control Contractor shall verify compatibility prior to submitting equipment for review by A/E.
- B. Card Readers. Card reader shall be Indala FlexPass Long Range Reader. Install in weatherproof housing for exterior mounting as detailed on the plans. Card readers shall be supplied by Access Control Contractor for installation by Electrical Contractor.
- C. Wireless Reader Interface. Wireless reader interface (radio) shall be Ingersoll-Rand/Schlage model WRI-100-OTD, with two Form C relay outputs. Two wireless card reader interface units shall be supplied per new electric cantilever slide gates (Gate #2, Gate #10 & Alt #3 Gate), one for the incoming (landside) card reader and one for the outgoing (airside) card reader. Furnish regulated power supply to provide 12VDC power for wireless reader interface units. Furnish thermostatically controlled space heater to maintain temperature above 32°F in ambient -10°F. All equipment shall be installed in a NEMA 4X stainless steel hinged cover enclosure, Hoffman, or equivalent, sized as required to house equipment. Wireless reader interface equipment in enclosure shall be furnished complete by Access Control Contractor for installation by Electrical Contractor and wiring to external equipment as detailed on the plans.
- D. Antenna, antenna cable and lightning protection at new electric cantilever slide gates (Gate #2, Gate #10 & Alt #3 Gate) shall be supplied by Access Control Contractor for installation by the Electrical Contractor.
- E. Antenna Pole at New Route 9 Electric Cantilever Slide Gate (Gate #2) shall be Kim Lighting (no alternate) Model PRA10-34125/FM/LG-P, 10' tall, round, straight aluminum. No vibration damper will be required. Foundation shall be as detailed on the plans. Antenna pole and foundation shall be furnished and installed by Electrical Contractor, location shall be as directed by Access Control Contractor.
- F. Antenna Pole at New Growmark Electric Cantilever Slide Gate (Gate #10) shall be Kim Lighting (no alternate) Model PRA16-5188/FM/LG-P, 16' tall, round, straight aluminum. No vibration damper will be required. Foundation shall be as detailed on the plans. Antenna pole and foundation shall be furnished and installed by Electrical Contractor, location shall be as directed by Access Control Contractor.
- G. The following equipment shall be furnished and installed in Airport Terminal Building by Access Control Contractor, and shall include all cables, conduit, wiring, masts and accessories as required for a complete and accepted installation:
- Panel Interface Modules (PIM) shall be as manufactured by Ingersoll-Rand/Schlage.
  - Match Reader Interface Modules (MRIA) shall be as manufactured by Hirsch.
  - Access Controller shall be Hirsch Digi\*Trac Model 8 Controller. Access Control Contractor shall install controller and integrate it into existing Airport Access Control System.
  - Antennas, antenna cables and lightning protection as required.

#### AREA LIGHT AND POLE

- A. Area light shall be Kim Lighting (no alternate), Model 1A/STL3/150PMH120\*/A-25/TDP (\* = color to be selected by owner), 150W Pulse Start Metal Halide, 120V, with photocell receptacle & photocell, and double tension structural option. Pole shall be Kim Lighting (no alternate) Model PRA10-34125/A/TD\*/DR-GFI (\* = color to be

selected by owner), 10' tall, round, straight aluminum, with 20A duplex GFCI receptacle opposite handhole. No vibration damper will be required. Provide weatherproof cover for receptacle which complies with NEC article 406.9b1. Cover shall remain raintight whether or not a plug and cord is inserted. Cover shall be extra-deep, padlockable, cast aluminum construction, as manufactured by Hubbell, WP26M, or equivalent.

#### POLYMER CONCRETE HANDHOLE

- A. Polymer concrete handholes shall be open-bottom design and shall be Quazite/Hubbell #PG-2436-BA-42 with #PG-2436-HH-00-17 cover, or equivalent. Handholes shall be 24"W x 36"L x 42"D. The use of chopped fiberglass strands, high density polyethylene or high density polystyrene is unacceptable. Plastic and/or fiberglass boxes will not be considered as acceptable alternates for polymer concrete handholes.

#### LOAD CENTERS

- A. Load Center shall be 100A, 120/240V, single-phase, with 100A 2P Main Breaker, in outdoor rainproof enclosure, Square D QO116M100RB (16-pole), Eaton CH14B100R (14-pole), or equivalent. Provide surge protective device with load center.

#### SERVICE ENTRANCE RATED DISCONNECT

- A. Service Entrance Rated Disconnect shall be Heavy Duty, 100A, Fusible, 120/240V, Single-Phase, 3-Wire, listed as suitable for use as Service Entrance Equipment, with ground bar and neutral bar assemblies, with 100A Class R fuses, in NEMA 4X enclosure, Square D, Eaton/Cutler Hammer, General Electric, or equivalent.

#### 162-2.10 SIGNS

DELETE: This Section.

ADD:

The Contractor shall provide and install signage on fence and gates as shown on the plans.

#### 162-3.11 FENCE AND GATE REMOVAL

DELETE: This Section.

ADD:

This work shall consist of the removal and disposal of existing wire fence and gates. The existing fence shall be removed completely including posts and foundations.

In the turf areas, the existing fence posts shall be pulled and not cut off. All resulting holes in turf shall be filled and compacted in accordance with Item 152.

In pavement areas, the existing posts shall be cut off and ground flush with the existing pavement surface. All resulting holes in existing pavement shall be filled with nonshrink grout.

The removed chain link fence shall be rolled into manageable sized bundles and be turned over to the Airport at a location to be determined by the Airport. The remaining removed material shall be disposed of off airport property.

Turf areas disturbed by the removal process shall be restored in accordance with Item 901.

Existing gate operators that are removed shall be turned over to the airport.

Existing magnetic locks and readers on 4 foot gates at terminal shall be reused for new 4 foot gate at the terminal. Cost for removal and reinstallation of magnetic lock and readers shall be included in the cost of the 4 foot gate.

ADD:

162-3.13    RESTORATION

All areas disturbed by the Contractor's operations shall be restored to their original condition to the satisfaction of the Engineer and the Airport. The restoration shall include any necessary backfilling, grading, compacting and additional turfing required. The Contractor shall be responsible for maintaining all disturbed areas until final acceptance.

METHOD OF MEASUREMENT

162-4.2    DELETE: This Paragraph

162-4.4    DELETE: This Paragraph

ADD:

162-4.6    Item AR162720: Electric Gate – 20'

Measurement shall be made for each Motor-Operated 20-foot Cantilever Slide Gate installed in place, operational, tested and accepted, and shall include Cantilever Slide Gate, Detector Loops, Motor Operator, Motor Operator Foundation, Utility Service, Service Disconnect, Load Center, Area Light, Pole & Foundation, Support Posts & Foundations, Strut-Type Framing, C-Channel, Access Control Equipment (card readers, wireless reader interface, space heaters, NEMA 4X enclosure, etc), Antenna Pole & Foundation, polymer concrete handholes, conduit and wiring, hardware, etc.

This Item shall also include all modifications to the existing Access Control equipment in the Terminal Bldg for New Gates #2 & #10, installed in place, operational, tested and accepted, and shall include antennas, masts, Panel Interface Modules (PIM), Match Reader Interface modules (MRIA), Access Controller, cable, conduit and wiring, hardware, etc.

162-4.7    Item AR162724, AS162724 (Alt. #1) & AT162724 (Alt. #2): Electric Gate – 24'

Measurement shall be made for each Motor-Operated 24-foot Cantilever Slide Gate installed in place, operational, tested and accepted, and shall include, as a minimum, the Cantilever Slide Gate, Detector Loops, Motor Operator and, where applicable, Motor Operator Foundation, Utility Service, Service Disconnect, Load Center, Area Light, Pole & Foundation, Support Posts & Foundations, Strut-Type Framing, C-Channel, Access Control Equipment (card readers, wireless reader interface, space heaters, NEMA 4X enclosure, etc), Antenna Pole & Foundation, polymer concrete handholes, conduit and wiring, hardware, etc.

162-4.8    Item AU162724: Electric Gate – 24' (Alt. #3)

Measurement shall be made for each Motor-Operated 24-foot Cantilever Slide Gate installed in place, operational, tested and accepted, and shall include Cantilever Slide Gate, Detector

Loops, Motor Operator, Motor Operator Foundation, Support Posts & Foundations, C-Channel, Access Control Equipment (card readers, wireless reader interface, etc), and polymer concrete handholes, conduit and wiring, hardware, etc.

This Item shall also include all modifications to the existing Access Control equipment in the Terminal Bldg for Alt. #3 Gate, installed in place, operational, tested and accepted, and shall include antennas, masts, Panel Interface Modules (PIM), Match Reader Interface modules (MRIA), cable, conduit and wiring, hardware, etc.

162-4.9 Item AS162304 (Alt. #1) & AT162604 (Alt. #2): Class E Gate – 4”

Measurement shall be made for each Class E Gate – 4’ installed in place, tested and accepted, and shall include, as a minimum, the gate, posts, foundations and electrical work.

BASIS OF PAYMENT

162-5.2 DELETE: This Paragraph

162-5.4 DELETE: This Paragraph

Payment will be made under:

- Item AR162510 – Class E Fence 10’ – per linear foot.
- Item AR162620 – Class E Gate - 20’ – per each.
- Item AR162624 – Class E Gate - 24’ – per each.
- Item AR162720 – Electric Gate - 20’ – per each.
- Item AR162724 – Electric Gate - 24’ – per each.
- Item AR162900 – Remove Class E Fence – per linear foot.
- Item AR162905 – Remove Gate – per each.
- Item AR162908 – Remove Electric Gate – per each.
- Item AS162304 – Class E Gate - 4’ - Vinyl – per each.
- Item AS162408 – Class E Fence 8’ - Vinyl – per linear foot.
- Item AS162724 – Electric Gate - 24’ - Vinyl – per each.
- Item AT162508 – Class E Fence 8’ – per linear foot.
- Item AT162604 – Class E Gate - 4’ – per each.
- Item AT162724 – Electric Gate – 24’ – per each.
- Item AU162724 – Electric Gate – 24’ – per each.