PART 1 GENERAL

1.1 SECTION INCLUDES

A. Removal of designated construction including existing vinyl fence in areas of new chain link fencing.

B. Disposal of materials.

C. Identification of utilities, especially location of existing gas lines serving HVAC units in area of new chain link fencing..

D. Coordination with Owner's continued occupancy requirements.

E. Protection of all construction designated to remain.

1.2 RELATED SECTIONS

A. Division 1 - Construction Facilities and Temporary Controls: Barricades, security at Owner occupied areas, and cleanup during construction.

1.3 REGULATORY REQUIREMENTS

A. Conform to applicable code for demolition work, dust control, products requiring electrical disconnection and re-connection.

B. Obtain required permits from authorities.

C. Do not close or obstruct egress width to any building or site exit.

1.4 SCHEDULING

A. Describe demolition removal procedures and schedule.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 PREPARATION

A. Provide, erect, and maintain temporary barriers and security devices.

B. Protect existing materials which are not to be demolished.

C. Notify affected utility companies before starting work and comply with their requirements.

3.2 DEMOLITION

A. Demolish in an orderly and careful manner. Protect existing structures.

B. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

C. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

END OF SECTION

PART 1 – GENERAL

1.1 WORK INCLUDES

A. Contractor shall:

1. Install fuse bonded vinyl chain link fencing, powder coated piping, gates, etc. as indicated on the drawings and as specified. (Black)

1.2 RELATED WORK

A. Drawings and general provisions of Contract, including General and Supplementary apply to this section.

1.3 REFERENCES

A. ASTM A123 – Zinc (hot galvanized) Coatings of Products from Rolled, Pressed and Forged Steel Shapes, Bars and Strips.

B. ASTM F567 – Installation of Chain Link Fence.

C. ASTM A53 – Pipe, Steel, Black and Hot-dipped Zinc-coated (galvanized) Welded and Seamless for Ordinary Uses.

D. ASTM A428 – Weight of Coating on Aluminum-coated Iron or Steel Articles.

E. ASTM C94 – Ready-mixed Concrete.

F. FS-RR-F191-4F – Fencing, Wire and Post, Metal.

1.4 QUALITY ASSURANCE

A. Installing firm: Three (3) years documented experience in fancywork of complexity similar to project.

B. Installation: Comply with ASTM F567.

1.5 SUBMITTALS

A. Submit shop drawings, product data and samples in accordance with the General Conditions.

1. Product Data: Two (2) copies of complete product description of all items shown, specified.
2. Fabrication details of each fence type and gate.

1.6 DELIVERY, STORAGE & HANDLING

A. Arrange for and accept delivery of all products in sufficient quantities and time to maintain approved construction schedule.

B. Store all products off ground, in safe, dry location, out of way of construction operations.

C. Handle all products in manner to prevent damage to products and other work. Follow manufacturer's recommendations.

1.7 WARRANTY

A. Submit Contractor's Warranty in accordance with Standard documents for construction and General Conditions.

PART 2 – PRODUCTS

2.1 PIPE MATERIALS

A. Type II – Commercial Weight Pipe AF-40 manufactured from steel conforming to ASTM F1043 Group I-C, cold-formed, high frequency or induction welded and having coated with 1.0 ounce / .01 ounce of zinc per square foot, 30 / 15 micrograms of chromate per square inch and high performance polymer and shall demonstrate the ability to resist 1,000 hours of exposure to salt spray with a maximum of 5% red rust in a test conducted in accordance with ASTM F1043. Internal surface coated after welding, with a zinc-rich based organic coating having to withstand 650 hours of exposure to salt fog with a maximum of 5% red rust, when conducted in accordance with ASTM B-117. Type II pipe shall be 5540 pipe as manufactured by Allied Tube and Conduit, Harvey, Illinois, 60426, or approved equal.

B. All coatings shall be applied inside and out after welding.

C. Posts:

1. Post O.D.: 1-7/8"; .160" wall
2. Terminal Post O.D.: 2-3/8"; .160" wall
3. Gate Posts O.D.: 2-3/8"; .160" wall

E. Top Rail: 1-5/8" O.D.; .110"; 1.84 lbs./ft.

2.2 FABRIC

A. Extruded steel chain link fabric shall be furnished in accordance with ASTM F-668, Type 2A. Selvages shall be knuckled and knuckled.

B. All fencing fabric shall be fabricated from galvanized steel wire with a 9 gauge core of 0.148 inches and coated with black bonded finish per ASTM F934 with a minimum thickness of 15-25 mils at any point. Total thickness: .192" as manufactured by American Fencing Systems, Inc., or approved equal.

C. Mesh size shall be 1-3/4".

D. Height: 6'

2.3 CONCRETE MIX

A. Concrete: Class SI with minimum strength of 3000 psi at 28 days.

2.4 GATES

A. 7'-0" wide complying with ASTM F400.

B. Gate assembly shall be Type II 2" O.D. pipe with welded joints. Weld area repaired with zinc-rich coating applied per manufacturer's directions. Fabric shall match fence. Gate

B. Gate assembly shall be Type II 2" O.D. pipe with welded joints. Weld area repaired with zinc-rich coating applied per manufacturer's directions. Fabric shall match fence. Gate accessories, hinges, latches, center stops, drop rods, keepers and necessary hardware of quality required for industrial and commercial application. Latches shall permit padlocking.

2.5 SLATS

A. High density polyethylene (HDPE) with UV inhibitor; 3000 Series slats with bottom lock; 10 year warranty as manufactured by Fence Screen or approved equal. Color – Redwood.

2.6 FITTINGS

A. Post Caps – Pressed steel, designed to fit snugly over posts to exclude moisture. Supply cone type caps for terminal posts and loop type for line posts. All fittings to conform to ASTM F-626.

B. Rail and Brace Ends – Pressed steel, cup-shaped to receive rail and brace ends.

C. Tension Wire – Marcelled 7 gauge wire with minimum coating of 0.80 ounces of zinc or 0.40 ounces of aluminum per square foot of wire surface and conforming to ASTM A-824.

D. Tie Wires – Aluminum, 9 gauge, alloy 1100-H4 or equal.

E. Hog Rings – Steel wire, 11 gauge, with a minimum zinc coating of 0.80 ounces per square foot of wire surface or aluminum, 9 gauge.

F. All steel materials shall be galvanized.

2.7 FINISHES

A. All gate posts, line posts, post caps, rail posts, braces, latches, all hardware, etc. is to be powder coated. (Black)

B. Framework to undergo a chemical wash and treatment prior to powder coating. Polymer Coating to conform to ASTM 1043 performance criteria. Color to match chain link fence fabric.

PART 3 – EXECUTION

3.1 PREPARATION

A. Ensure that all prior construction and grading are properly completed before beginning work.

B. Start of work constitutes acceptance of existing conditions.

3.2 INSTALLATION

A. General – Installation to conform to ASTM F-567.

B. Height – Provide height as indicated on contract drawings.

C. Post Spacing – Space line posts at intervals not exceeding ten feet.

D. Post Setting – Set terminal, gate and line posts plumb in concrete footings. Top of footing shall be 2" above grade and sloped to direct water away from posts. Footings shall be tapered with minimum top size of 3x post diameter and minimum bottom size of 4x post diameter.

E. Bracing – Brace gate and terminal posts with horizontal brace rails and diagonal truss rods.

F. Top Tension Wire – When top rail is omitted stretch tension wire through loop caps and fasten to terminal posts.

G. Bottom Tension Wire – Stretch between terminal posts 6" above grade and fasten to outside of line posts with tie wires.

H. Fabric – Pull fabric taut with bottom selvage 1-1/2" above grade. Fasten to terminal posts with tension bars threaded through mesh and secured with tension bands maximum 15" intervals. Tie to line posts with tie wires spaced at maximum 12" on posts. Attach to bottom tension wire with top rings at maximum 24" intervals.

I. Gates – Install gates plumb, level and secure for full opening without interference. Anchor center stops and keepers in concrete.

J. Fasteners – Install nuts for fittings, bands and hardware bolts on inside of fence. Nuts to be on same side as posts.

3.3 ADJUST AND CLEAN

A. Upon completion of installation, carefully inspect entire installation. Correct all defective work.

B. Clean up all rubbish, debris, surplus materials, packaging and tools, and legally dispose of off-site.

END OF SECTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Steel bollards with plastic covers.
   2. Galvanized steel highway guardrail.

B. Related Sections:
   1. Section 010300 – Alternates.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A36 - Structural Steel.
   2. ASTM A283 - Carbon Steel Plates, Shapes, and Bars.
   3. ASTM A153/A153M - Standard Specifications for Zinc (Hot-dip galvanized) Coatings on Iron and Steel Products.

1.3 SUBMITTALS

A. Submit under provisions of Division 1 - General Requirements: Submittals.

B. Product Data: For the following:
   1. Guardrails, bollard covers.

C. Shop Drawings:
   1. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Store and handle products in compliance with Division 1 - General Requirements: Storage and Protection.

B. Accept fabricated items on site in manufacturer's protective packaging. Inspect for damage.

C. Deliver manufactured repair materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's name and type of products.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

B. For manufactured repair materials, perform work within the environmental limits set by each manufacturer.

PART 2 PRODUCTS

2.1 METALS - GENERAL

A. STEEL:
1. Steel Sections: ASTM A36.
2. Pipe Bollards: ASTM A53, Grade B, Schedule 80.

2.2 BOLLARD COVERS

A. Domed top, 1/8" nominal wall thickness, plastic, low density polyethylene (LDPE), as manufactured by Ideal Shield or approved equal. Color to be selected by Owner.

2.4 GUARDRAIL

A. Hot dipped galvanized in accordance with ASTM A-123; Class B; .135" thick. 12" high W-Beam Rail Elements, with guard rail terminals on both ends as manufactured by Ideal Shield or approve equal.

B. Post: W6 x 8.5.

PART 3 EXECUTION

3.1 STEEL FINISHES

A. Galvanized Finishes:
1. All steel exposed to the weather to be galvanized.

3.2 EXAMINATION

A. Verification of existing conditions before starting work.

B. Verify that field conditions, including openings and substrate conditions, are acceptable and are ready to receive the work of this section.

C. Beginning of installation means erector accepts existing conditions.

3.3 INSTALLATION - GENERAL

A. Install bollard covers by tape method for a permanent installation or other approved manufacturer's recommendation.

3.4 ERECTION TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch per fabricated.

B. Maximum Offset From True Alignment: 1/4 inch.

C. For Fabricated Items:
1. Maximum Variation from Indicated Position: 1/8 inch.
2. Maximum Variation from Plumb: 1/8 inch in 12 feet.
3. Maximum Offset from Indicated Alignment: 1/8 inch.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Chain Link Gate: Motor operated, cantilevered horizontal slide (4 feet H. x 20 feet W.).
   2. Note: Electrical Work is not a part of this contract. Owner to provide and contractor to coordinate.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design gates, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for gate.
   1. Gate operators, including operating instructions.
   2. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work. Show accessories, hardware, gate operation, and operational clearances.
   1. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
   2. Wiring Diagrams: For power, signal, and control wiring.

C. Samples for Initial Selection: For components with factory-applied color finishes.

D. Delegated-Design Submittal: For gate framework indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified factory-authorized service representative.

B. Product Certificates: For operator, and gate, from manufacturer.

C. Product Test Reports: For framing strength according to ASTM F 1043.

D. Field quality-control reports.

E. Warranty: Sample of warranty.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For the following to include in emergency, operation, and maintenance manuals:
   1. Polymer finishes.
   2. Gate hardware.
   3. Gate operator.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Emergency Access Requirements: Comply with requirements of authorities having jurisdiction for gates with automatic gate operators serving as a required means of access.

1.7 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
   1. Failures include, but are not limited to, the following:
      a. Faulty operation of gate operators and controls.
      b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   2. Warranty Period; 3 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 HORIZONTAL CANTILEVERED SLIDE GATES

A. General: Comply with ASTM F 1184 for gate posts and single sliding gate types.
   1. Classification: Class 1 with external roller assemblies.

B. MANUFACTURER
   1. Hoover Fence Co., Model "CL-CANT-GATE KIT-AUTO" or approved equal.
   2. Sliding gate operator is specified under paragraph 2.4.

C. Pipe and Tubing
   1. Gate assembly shall be Type II 2" O.D. horizontal pipe with welded joints and 1-5/8" O.D. diagonal bracing. Weld area repaired with zinc-rich coating applied per manufacturer's directions. Fabric shall match fence. Gate accessories, of quality required for industrial and commercial application.

D. Frame Corner Construction: Welded.

E. Overhead Track Assembly: Manufacturer's standard track, with overhead framing supports, bracing, and accessories, engineered to support size, weight, width, operation, and design of gate and roller assemblies.

2.2 FABRIC

A. Extruded steel chain link fabric shall be furnished in accordance with ASTM F-668, Type 2A. Selvages shall be knuckled and knuckled.

B. All fencing fabric shall be fabricated from galvanized steel wire with a 9 gauge core of 0.148 inches and coated with black bonded finish per ASTM F934 with a minimum thickness of 15-25 mils at any point. Total thickness: .192" as manufactured by American Fencing Systems, Inc., or approved equal.

C. Mesh size shall be 1-3/4", black without privacy slats.

2.3 FINISHES

A. All gate posts, line posts, post caps, rail posts, braces, latches, all hardware, etc. is to be powder coated. (Black)

B. Framework to undergo a chemical wash and treatment prior to powder coating. Polymer Coating to conform to ASTM 1043 performance criteria. Color to match chain link fence fabric.

2.4 GATE OPERATOR

A. General: Provide factory-assembled automatic operating system designed for gate size, type, weight, and operation frequency. Provide operation control system with characteristics suitable for Project conditions, with remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.
   1. Provide operator designed so motor may be removed without disturbing limit-switch adjustment and without affecting auxiliary emergency operator.
   2. Provide operator with UL approved components.
   3. Provide electronic components with built-in troubleshooting diagnostic feature.
   4. Provide unit designed and wired for both right-hand/left-hand opening, permitting universal installation.
   5. Provide a total of two (2) wireless edge kits.
   6. Provide a total of four (4) monitors through-beam photo eyes.

B. MANUFACTURER
   1. Lift Master Elite Series, Model # SL585UL or approved equal.
   2. Provide all standard features.

C. Comply with NFPA 70.

D. UL Standard: Fabricate and label gate operators to comply with UL 325.
   1. Automatic Closing Timer: With adjustable time delay before closing and timer cut-off switch.
   2. Open Override Circuit: Designed to override closing commands.
   3. Reversal Time Delay: Designed to protect gate system from shock load on reversal in both directions.
   4. Maximum Run Timer: Designed to prevent damage to gate system by shutting down system if normal time to open gate is exceeded.
   5. Clock Timer: 24-hour, Seven-day programmable for regular events.

E. Accessories:
   1. Warning Module: Audio alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving; compliant with the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.
   2. Battery Backup System: Battery-powered drive and access-control system, independent of primary drive system.
      a. Fail Safe: Gate opens and remains open until power is restored.
      b. Fail Secure: Gate cycles on battery power, then fail safe when battery is discharged.
   3. External electric-powered lock with delay timer allowing time for lock to release before gate operates.
   4. Instructional, Safety, and Warning Labels and Signs: Manufacturer's standard for components and features specified.

5. Equipment Bases/Pads: Cast-in-place or precast concrete, depth not less than 6 inches below frost line, dimensioned and reinforced according to gate-operator component manufacturer's written instructions.

2.5 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout, recommended in writing by manufacturer, for exterior applications.

2.6 FENCE GROUNDING

A. Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.
1. Material above Finished Grade: Copper.
2. Material on or below Finished Grade: Copper.
3. Bonding Jumpers: Braided copper tape, 1 inch wide, woven of No. 30 AWG bare copper wire, terminated with copper ferrules.

B. Connectors and Grounding Rods: Comply with UL 467.
1. Connectors for Below-Grade Use: Exothermic welded type.
2. Grounding Rods: Copper-clad steel, 5/8 by 96 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 INSTALLATION, GENERAL

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements indicated.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 GATE OPERATOR INSTALLATION

A. General: Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.

B. Comply with NFPA 70 and manufacturer's written instructions for grounding of electric-powered motors, controls, and other devices.

1. Bond across openings, with and without gates, except openings indicated as Retain paragraph below if fencing terminates at a building or other structure equipped with lightning protection system.

3.6 ADJUSTING

A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's personnel to adjust, operate, and maintain chain-link fences and gates.

END OF SECTION