

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Horizontal-slide, motor-operated gates.
 - 3. Vehicle Access Gates
 - 4. Personnel gates
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for cast-in-place concrete for operator bases/pads, vehicle access gate posts, and fence post footings.

1.03 BUY AMERICAN REQUIREMENTS

- A. Provide certificates to show that all products meet the following requirements.
 - 1. American Iron and Steel (AIS)
 - 2. Build America, Buy America Act
- B. See Supplementary Conditions for details.

1.04 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: Barbed wire.
 - d. Gates and hardware.
 - e. Gate operators, including operating instructions and motor characteristics.
- B. Shop Drawings: For each type of fence and gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include accessories, hardware, gate operation, and operational clearances.
 - 3. Gate Operator: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.
 - 4. Wiring Diagrams: For power, signal, and control wiring.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For gate operators to include in emergency, operation, and maintenance manuals.
 - 1. Emergency Access Requirements: According to the requirements of the Authorities Having Jurisdiction for gates with automatic gate operators serving as a required means of access.

1.06 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.
- B. Field Measurements: Verify layout information for vehicle access gates shown on Drawings in relation to existing terrain and tree lines.

1.07 WARRANTY

- A. Special Warranty: Installer 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. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - c. Faulty operation of gate operators and controls.
 - 2. Warranty Period: Five years from date of Substantial Completion. Frost heaving may be excluded.

PART 2 - PRODUCTS

2.01 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Steel Wire for Fabric: Wire diameter of 9 gauge (0.1532inch).
 - a. Mesh Size: 2 inches.
 - b. Zinc-Coated Fabric: ASTM A 392-96, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied before weaving.
 - 3. Selvage: Twisted top and knuckled bottom.

2.02 FENCE FRAMEWORK

- A. Posts and Rails: ASTM F 1043 Group 1C for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 Group 1C based on the following:
 - 1. Fence Height: As indicated on Drawings.
 - 2. Heavy-Industrial-Strength Material: Group 1C, SS-40, round steel pipe, electric-resistance-welded pipe.
 - a. Line Post: 2-3/8 inches (2.375 inches in diameter, 60-inch driven embedment.
 - b. End, Corner, and Pull Posts: 2-7/8 inches (2.875 inches in diameter, 60-inch embedment (minimum 3.5-foot concrete embedment below 1.5-foot NFS soil embedment). Minimum 10-inch post footing diameter.
 - c. Cantilevered Sliding Gate Posts: 4.0 inches in diameter.
 - 3. Brace Rails and Truss Rods: 1-5/8-inch brace rail and 3/8-inch truss rod. ASTM 1043 Group 1C.
 - 4. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz/sq. ft. average zinc coating according to ASTM A 123/A 123M.

2.03 TENSION WIRE

- A. Metallic-Coated Steel Wire: 0.177-inch-diameter, marcelled tension wire according to ASTM A 817 or ASTM A 824, with the following metallic coating:
 - 1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
 - a. Class 4: Not less than 1.2 oz./sq. ft. of uncoated wire surface.

2.04 HORIZONTAL SLIDE GATES

- A. General: Single chain link cantilever slide gates, posts, hardware manufactured to comply with ASTM F 1184. Provide automated vehicular gates according to ASTM F 2200 and UL 325.
 - 1. Classification: Type II Cantilever Slide, Class 1 with external roller assemblies.
 - a. Gate Frame Dimensions: As indicated.
- B. Gate Frames:
 - 1. Pipe and Tubing:
 - a. Zinc-Coated Steel: Protective coating and finish to match fence framework.
 - b. Gate Posts: ASTM F 1184. Provide round tubular steel posts.
 - c. Gate Frames and Bracing: Round tubular steel.
 - 2. Frame Corner Construction: Welded.
 - 3. Extended Gate Posts and Frame Members: Extend gate posts and frame end members above top of chain link fabric at both ends of gate frame 12 inches as required to attach barbed wire assemblies.

- 4. Hardware:
 - a. Hangers, Roller Assemblies, and Stops: Fabricated from galvanized steel.
- C. Gate Opening: Per plans.
- D. Gate Frame Finish: Galvanized Steel
- E. Chain Link Filler Finish: To match specification of adjacent fence. Chain link mesh size, and wire gauge to match that of existing fence. Fabric shall be attached between each internal upright with hook bolts spaced no more than 15 inches on center as recommended by manufacturer.

2.05 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Post Caps: Provide for each gate post.
 - 1. Provide line barbed wire arms with loop to receive tension wire.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
 - 1. Rail Sleeves: Pressed Steel or round steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate rails to posts.
- D. Tension and Brace Bands: Pressed steel.
- E. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- F. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- G. Barbed Wire Arms: Pressed steel, with slots for attaching strands of barbed wire, for each post unless otherwise indicated, and as follows:
 - 1. Provide line posts with arms that accommodate top rail or tension wire.
 - 2. Provide corner arms at fence corner posts unless extended posts are indicated.
 - 3. Single-Arm Type: Type I, slanted arm.
- H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch-diameter wire.
- I. Finish:
 - 1. Metallic Coating for Pressed Steel: Not less than 1.2 oz./sq. ft. of zinc.

2.06 BARBED WIRE

- A. Steel Barbed Wire: ASTM A 121, double-strand barbed wire, 0.099-inch-diameter line wire with 0.080-inch-diameter, four-point round barbs spaced not more than 5 inches o.c.
 - 1. Zinc Coating: Type Z, Class 3.
 - 2. Fence: Three strands of equally-spaced barbed wire attached to barb wire support arms on straight segments, and corner barb wire arms at corners; single strand barbed wire at top of fence fabric.

2.07 GATE OPERATORS

- A. Operators: Factory-assembled, automatic, gate-operating system designed for gate size, type, weight, and frequency of use. Control system shall have characteristics suitable for Project conditions, with control stations, safety devices, and weatherproof enclosures.
 - 1. Operator design shall allow for removal of cover or motor without disturbing limit-switch adjustment and without affecting auxiliary emergency operation.
 - 2. Electronic components shall have built-in troubleshooting diagnostic feature.
 - 3. Unit shall be designed and wired for both right-hand/left-hand opening, permitting universal installation.
 - 4. Operator shall be installed on the secure side of the fence to prevent tampering.
- B. 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.
- C. UL Standard: Manufacture and label gate operators according to UL 325.
- D. Motors: Comply with NEMA MG 1.
 - 1. Duty: Continuous duty at ambient temperature of 40 deg C and at altitude of 3300 feet above sea level.
 - 2. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.
 - 3. Service Factor: 1.15.
 - 4. Electrical Characteristics:
 - a. Cantilevered Gates:
 - 1) Horsepower: 1/2 hp (minimum).
 - 2) Voltage: 2120 V ac, single-phase, 60 Hz.
- E. Gate Operators: Equipment base/pad mounted and as follows:
 - 1. Mechanical Cantilevered Slide Gate Operators:
 - a. Duty: Medium duty, commercial/industrial.
 - b. Gate Speed: Minimum 45 feet per minute.
 - c. Maximum Gate Weight: 600 lb.
 - d. Frequency of Use: 4 cycles per day.
 - e. Operating Type: Roller chain, with manual release.

- f. Drive Type: Enclosed worm gear and chain-and-sprocket reducers, roller-chain drive.
 - g. Lift Master AC Heavy-Duty Industrial Slide Gate Operator Model CSL24U or approved equal.
- F. Operating Type: Screw.
- G. Controls: Electric controls separated from gate and motor and drive mechanism, with NEMA 250, Type 3R enclosure for pedestal mounting and with space for additional optional equipment.
- H. Control Devices:
 - 1. Radio Control: Digital system consisting of code-compatible universal receiver for each gate, located where indicated, with remote antenna and coaxial cable and mounting brackets designed to operate gates. Provide two programmable transmitter(s) with multiple-code capability, permitting validating or voiding of not less than 1,000 codes per channel configured for the following functions:
 - a. Transmitters: Single-button operated, with open and close function.
 - b. Compatible with LiftMaster CSL24UL.
- I. Obstruction Detection Devices: Provide each motorized gate with automatic safety sensor(s). Activation of sensor(s) causes operator to immediately function as follows:
 - 1. Action: Stop gate in opening cycle and reverse gate in closing cycle and hold until clear of obstruction.
 - 2. Internal Sensor: Built-in torque or current monitor senses gate is obstructed.
 - 3. Sensor Edge: Contact-pressure-sensitive safety edge, profile, and sensitivity designed for type of gate and component indicated, in locations as follows. Connect to control circuit using gate edge transmitter and operator receiver system.
 - a. Where indicated on Drawings.
 - 4. Photoelectric/Infrared Sensor: Designed to detect an obstruction in gate's path when infrared beam in the zone pattern is interrupted.
- J. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop gate at fully open and fully closed positions.
- K. Emergency Release Mechanism: Quick-disconnect release of operator drive system, permitting manual operation if operator fails. Control circuit power is disconnected during manual operation.
 - 1. Type: Mechanical device, key, or crank-activated release.
- L. Operating Features:
 - 1. Digital Microprocessor Control: Electronic programmable means for setting, changing, and adjusting control features. Provide unit that is isolated from voltage spikes and surges.
 - 2. System Integration: With controlling circuit board capable of accepting any type of input from external devices.
 - 3. Open Override Circuit: Designed to override closing commands.

4. Reversal Time Delay: Designed to protect gate system from shock load on reversal in both directions.
 5. Maximum Run Timer: Designed to prevent damage to gate system by shutting down system if normal time to open gate is exceeded.
- M. Accessories:
1. Warning Module: Visual, strobe-light alarm sounding three to five seconds in advance of gate operation and continuing until gate stops moving.
 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 magnetic lock with delay timer allowing time for lock to release before gate operates.
 4. Fire box.
 5. Instructional, Safety, and Warning Labels and Signs: According to UL 325.
 6. Equipment Bases/Pads: Cast-in-place or precast concrete, depth not less than 12 inches, dimensioned and reinforced according to gate-operator component manufacturer's written instructions and as indicated on Drawings.
 7. Heater: Install operational heater to provide an operational service temperature range down to minus 40 deg F.

2.08 VEHICLE ACCESS GATE

- A. Post and frame: Shop-fabricated and finished to slip over inner gate post embedded in concrete.
1. Outer Post: 6-inch SCH 80 (5.761" I.D.) carbon steel.
 - a. Outer Post Cap: 3/8" plate steel, welded to outer post with 5/16" fillet welds.
 2. Inner Post: 5-inch SCH 80 (5.563" O.D.) carbon steel.
 - a. Inner Post Cap: 3/8" plate steel, recessed 3/8" from end of pipe welded to inner post with 3/8" fillet welds.
 3. Gate Frame: Steel pipe truss welded to outer post.
 - a. Top and Bottom: 3" SCH 40 carbon steel.
 - b. Internal vertical members: 3" SCH 40 carbon steel.
- B. Bearing Disk: Ultra High Molecular Weight Plastic, 4.5" diameter x 1/2", fabricated to fit flat against inner post cap cavity.
- C. Paint: Prepare all exposed surfaces, primer coat, intermediate coat, and two finish coats. This includes the exterior of the inner post.
1. Guarantee: A two (2) year guarantee which commences on the date of acceptance against failure of all coatings shall be provided. Failure of any coating during the guarantee period shall be repaired by the Contractor which shall absorb all costs related to the repair of the coating.

2. Standard: Unless otherwise specified, all work and materials for the preparation and coating of all metal surfaces shall conform to the applicable requirements specified in the Steel Structures Painting Manual, Volume 2, System and Specifications, latest edition, published by the Steel Structures Painting Council.
 3. Finish coat color: Safety Red.
- D. Grease: Low-temperature grease, applied liberally to bearing disk and exterior of inner pipe after concrete foundation has cured prior to outer pipe installation.
1. Product: Dow Corning Molykote 33 Extreme Low Temperature Grease or approved equal.
- E. Signs: 1/8-inch flat aluminum sign panels that conform to ASTM B209, allow-temper 6061-T6, 5052-H36, or 5052-H38. The blanks must be free from laminations, blisters, open seams, pits, holes, or other defects that may affect their appearance or use. The thickness must be uniform and the blank commercially flat.
1. All background sheeting applied to flat sheet and extruded panel signs must be in accordance with ATSM D4956, Type III, IV, VII, VIII, IX, or XI retroreflective sheeting and must have Class 1, 3, or 4 adhesive backing. Retroreflective sheeting must be high intensity that is an un-metallized micro prismatic reflective material.
 2. Hardware:
 - a. Fasten signs as indicated on the Drawings to vehicle access gates using perforated steel tubing.
 - b. Bolts, nuts, lock and flat washers must be either hot-dipped galvanized or commercial quality stainless steel. All accessible hardware shall be tamper resistant.

2.09 GROUT AND ANCHORING CEMENT

- A. Non-shrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, non-shrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.10 PERSONNEL GATE

- A. General: ASTM F900 for gate posts and personnel gate.
1. Gate Leaf Width and Height: As indicated on Drawings
 2. Framework Member Sizes and Strength: Based on gate fabric height as indicated.
 3. Gate Frame and Bracing: Round Tubular Steel, Welded.
- B. Posts and Rails: ASTM F1043 Group 1C. Provide members with minimum dimensions and wall thicknesses according to ASTM F 1043 Group 1C based on the following:
- a. Posts: 2-7/8 inches (2.875 inches) in diameter, 60-inch embedment (minimum 3.5-foot concrete embedment below 1.5-foot NFS soil embedment). Minimum 10-inch post footing diameter.

- b. Extended Posts and Frame Members: Fabricate gate posts and frame members to extend 12 inches above top of chain-link fabric at both ends of gate frame to attach barbed wire assemblies, matching fence line construction.
- C. Brace Rails and Truss Rods: As specified under Part 2.02 of this Section.
- D. Chain Link Filler Finish: To match specification of adjacent fence. Chain link mesh size, and wire gauge to match that of existing fence. Fabric shall be attached between each internal upright with hook bolts spaced no more than 15 inches on center as recommended by manufacturer.
- E. Gate Fittings: As specified under Part 2.05 of this Section with the following additional components:
 - 1. Hinges: 180-degree swing. Bulldog Hinges or approved equal.
 - 2. Latch: Permitting operation from both sides of the gate. DAC Industries Commercial Strong-Arm latch for round frame or approved equal.
- F. Gate Accessories:
 - 1. Keyed Padlock shall be provided by Owner.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for fence boundary, site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Engineer.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
- B. Locate all existing and proposed underground utilities and piping which cross under the fence line.

3.03 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing as shown on design plan.
- B. Post Setting: Set posts by mechanically driving into soil at indicated spacing into firm, undisturbed soil.
 - 1. Verify no conflicts between posts and buried utilities exist.
 - 2. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with mechanical devices.

3. Mechanically Driven Posts: Drive into soil to depth of 48 inches for line posts and 60 inches for terminal and corner posts. Protect post top to prevent distortion.
- C. Sliding Gate Posts: Anchor posts in concrete at a depth of 60 inches. Place top of concrete 18 inches below grade and backfill remaining annular space with compacted NFS fill.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet on center.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 1. Locate horizontal braces at mid-height of fabric on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 1. Extended along top and bottom of fence fabric. Install top tension wire through post cap loops. Install bottom tension wire within 6 inches of bottom of fabric and tie to each post with not less than same diameter and type of wire.
 2. Extended along top of barbed wire arms and top of fence fabric to support barbed tape.
- H. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- I. Tension Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
- J. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces and rails at 24 inches o.c.
- K. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- L. Barbed Wire: Install barbed wire uniformly spaced, angled toward security side of fence. Pull wire taut, install securely to extension arms, and secure to end post or terminal arms.

3.04 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. Gate movement shall not be initiated by gravity when the operator is disengaged/disconnected per ASTM F-1184.
- B. There shall be a maximum gap of 2-1/4 inches between the horizontal plane of the moving gate panel and any fixed obstacle (support posts, "fall-over" posts, hardware, etc.). Except that said obstacle be more than 16 inches from moving horizontal plane of the gate panel per ASTM F-2200 (Section 6.1.4).
- C. Gate receiver guides shall be recessed behind the leading edge of the receiver post or another fixed object per ASTM F-2200 (Section 6.1.4).
- D. Attach hardware by means which will prevent unauthorized removal. Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side.
- E. Adjust hardware for smooth operation.

3.05 GATE-OPERATOR INSTALLATION

- A. Install gate operators according to manufacturer's written instructions, aligned and true to fence line and grade.
- B. Excavation: Hand-excavate holes for posts, pedestals, and equipment bases/pads, in firm, undisturbed soil to dimensions and depths and at locations according to gate-operator component manufacturer's written instructions and as indicated.
- C. Mounting: Mount opener on pedestal in accordance with manufacturer's instructions.
- D. Ground electric-powered motors, controls, and other devices according to NFPA 70 and manufacturer's written instructions.

3.06 VEHICLE ACCESS GATE INSTALLATION

- A. Install posts and gates where shown in the Drawings.
- B. Adjust post plumb, with height such that top of gate is between 40 and 45 inches measured vertically from gate midpoint to finished grade surface.
- C. Setting posts:
 - 1. Remove loose and foreign materials from holes and the soil moistened prior to placing concrete.
 - 2. Provide tops of footings that are trowel finished and sloped or domed to shed water away from posts.
 - 3. Maintain posts plumb set in concrete until concrete has set. Keep exposed concrete moist for at least seven consecutive calendar days after placement or cured with a membrane curing material, as approved.
- D. Allow concrete base and inner post installation to cure a minimum of seven days prior to setting gate assembly.

E. Chains and Locks:

1. Use 3/16" hot-dipped galvanized chain as indicated on the Drawings. Provided padlocks keyed the same for each gate.

F. Signs:

1. Stop sign shall be installed level using tamper-resistant fasteners, where indicated on Drawings. Sign legend shall face vehicles approaching from outside the restricted property.

3.07 FIELD QUALITY CONTROL

A. Prepare test reports.

- B. Field verify all keys provided to Owner unlock vehicle access gate padlocks. Leave gates in the locked position upon completion, and deliver three (3) sets of keys for locks to Owner.

3.08 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.

- B. Automatic Gate Operator: Energize circuits to electrical equipment and devices, start units, and verify proper motor rotation and unit operation.

1. Hydraulic Operator: Purge operating system, adjust pressure and fluid levels, and check for leaks.
2. Test and adjust operators, controls, and safety devices. Replace damaged and malfunctioning controls and equipment.
3. Lubricate operator and related components.

- C. Lubricate hardware and other moving parts.

3.09 CLEANING

- A. Clean up debris and unused material and remove from site.

3.10 DEMONSTRATION

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

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

- A. Vehicle Access Gate: Vehicle Access Gate shall be measured on a per each basis in place.

4.02 BASIS OF PAYMENT

- A. Payment for Vehicle Access Gate will not be paid until installation is completed.

- B. Payment for Chain Link Fences, Horizontal Slide Gates, and Operators is subsidiary to Pay Item 331100-11 Pump House.

END OF SECTION

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