SECTION 02821

CHAIN LINK FENCING AND GATES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for installing chain link fencing and gates.

1.2 RELATED SECTIONS

A. Section 03055: Portland Cement Concrete

1.3 REFERENCES

A. AASHTO M 111: Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products

B. AASHTO M 181: Chain Link Fence

C. AASHTO M 232: Zinc Coating (Hot Dip) on Iron and Steel Hardware

D. AASHTO M 280: Zinc-Coated (Galvanized) Steel Barbed Wire

E. AASHTO M 305: Aluminum Coated Steel Barbed Wire

F. ASTM A 392: Zinc-Coated Steel Chain-Link Fence Fabric

G. ASTM A 491: Aluminum-Coated Steel Chain-Link Fence Fabric

H. ASTM F 1083: Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

PART 2 PRODUCTS

2.1 GENERAL

A. Class B Concrete. Refer to Section 03055.

2.2 POSTS, CAPS, RAILS, COUPLINGS

A. Pipe posts and rails:
   1. Schedule 40, hot-dip galvanized coated pipe. ASTM F 1083.

B. Fitting: malleable cast iron or pressed steel coated as specified. AASHTO M 232.

C. Caps: AASHTO M 232
   1. Equip all pipe posts with a galvanized steel or malleable iron weather-resistant cap, designed to fit securely over the posts and carry an apron around the outside of the post.
   2. Where top rail is used, provide cap to permit passage of top rail.

2.3 CHAIN LINK FABRIC

A. Provide either Type I zinc-coated steel or Type II aluminum-coated steel fence fabric as specified. Refer to AASHTO M 181, ASTM A 392, and ASTM A 491.

B. Use 0.148 inch diameter wire for fence fabric 6 ft or higher and 0.120 inch diameter wire for fabric less than 6 ft high.

C. Provide 0.177 inch diameter spiral material for tension wires.

D. Tie fabric to supporting members of the same diameter as the fence fabric.

2.4 BARBED WIRE

A. Provide zinc-coated barbed wire when zinc-coated fence is used. Refer to AASHTO M 280.

B. Use 0.099 inch diameter barbed wire with 0.080 inch diameter 4-point barbs on 5 inch centers.

C. Provide aluminum-coated barbed wire when aluminum-coated fence is used. Refer to AASHTO M 305.

D. Support arm on the fence for barbed wire must support a 200 lb vertical load at the end of the arm without causing permanent deflection.

2.5 GATES

A. Construct gate posts and frames of the sizes following FG series Standard Drawings.
   1. Fasten gate frame corners together with pressed steel or malleable iron corner ells, riveted or welded as shown.
   2. Galvanize welded steel gate frames after fabrication as specified. AASHTO M 111.
   3. Do not use closed cells that would prohibit dipping to galvanizing tanks.

B. Follow the same standards for chain link fence fabric for covering the gate frames as for other fence fabric.

C. Furnish each gate with the appropriate hinges, latch, and drop-bar locking device.

PART 3 EXECUTION

3.1 INSTALLING POSTS

A. Install following FG series Standard Drawings.

B. Do not exceed the following spacing requirements when placing posts:

Radii of Curve	Maximum Post Spacing
Tangent or 500 ft	10 ft
200 ft to 500 ft	8 ft
100 ft to 200 ft	6 ft
0 ft to 100 ft	5 ft

C. Install brace posts at maximum 500 ft intervals or at angle points of 30 degrees or more.

D. Set posts in concrete walls or masonry where required.
   1. Set posts or post sockets in concrete walls to a minimum 18 in depth.
   2. Use 0.048 inch thick galvanized metal pipe sleeve socket with an inside diameter that allows post to fit loosely.
   3. Coat the inside of the socket and the outside of the posts with bituminous paint.
   4. Use sulfur caulk or other expansive grout to fasten the post in the socket.

E. Set posts in concrete bases.
   1. Place concrete a minimum of 6 inches below each post.

2. Construct at least 12 inch diameter bases for end posts, pull posts, corner posts, gate posts, and line posts.

3.2 INSTALLING FENCE FABRIC

A. Place fence fabric on the roadway side of posts unless otherwise specified.
   1. Place fabric approximately 1 inch above the ground.
   2. Maintain a straight grade between posts by excavating high points of the ground.
   3. Fill depression in the natural ground to within 1 inch of the bottom of fence.

B. Stretch the fabric taut and securely fasten to fence posts.
   1. Use stretch bars and metal bands to fasten material to end, gate, corner, and pull posts.
   2. Space metal bands at 1 ft intervals along the post.
   3. Cut the fabric at all pull and corner posts.
   4. Fasten fabric to line posts with tie wires or metal bands at 14 inch intervals.
   5. Attach the top edge of fabric to the top rail or tension cable with wire ties at approximately 24 inch intervals.
   6. Attach bottom of fabric to bottom tension wire, and the bottom edge of the fabric to the bottom tension wire with wire ties spaced at 24 inch intervals.

3.3 INSTALLING GATES

A. Install single gate or double gate as specified. Install plumb, level, and secure for full opening without interference.

B. Install ground-set items in concrete for anchorage as shown in the Standard Drawing or as recommended by the fence manufacturer. Adjust hardware for smooth operation.

C. Set gate openings according to manufacturer's dimensions.

D. Fabric description numbers:
   1. First number indicates height.
   2. Second number indicates width of fabric opening.

END OF SECTION