SECTION 02822

RIGHT-OF-WAY FENCE AND GATE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Materials and procedures for constructing right-of-way fences and gates.

1.2 REFERENCES

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

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

C. AASHTO M 279: Zinc Coated (Galvanized) Steel Woven Wire Fence Fabric.

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

E. ASTM A 641: Zinc-Coated (Galvanized) Carbon Steel Wire.

F. National Electric Safety Code, Section 9.

1.3 RELATED SECTIONS

A. Section 03055: Portland Cement Concrete.

B. Section 06055: Timber and Timber Treatment.

PART 2 PRODUCTS

2.1 WIRE MESH FENCING

A. As specified in AASHTO M 279.

B. Grade 60, nominal 0.099 inch farm grade wire mesh fencing with a 6 inch vertical wire spacing.

C. Class I zinc coating.

2.2 BARBED WIRE

A. Galvanized barbed wire as specified. AASHTO M 280.

B. Two strands of nominal 0.099 inch diameter wire twisted with a 4-point nominal 0.080 inch barbs no more than 5 inches on center.

2.3 UNTREATED WOOD POSTS FOR LINES, GATES, ENDS AND CORNERS

A. Native juniper or approved equal.

B. Line posts must have a minimum circumference of 10 inches.

C. Gate, brace, and corner posts much have a minimum circumference of 12 inches.

D. All posts must be sound, free of decay or defects, and structurally suitable.

2.4 TREATED WOOD POSTS AND WOOD BRACE RAILS

A. Sound Douglas fir, hemlock, or pine that is free from decay, splits, multiple cracks or any other defect, and structurally suitable.

B. Round or sawed rectangular post and braces.
   1. Round posts must have a minimum circumference of 10 inches.
   2. Gate brace and corner posts much have a minimum circumference of 12 inches.
   3. Rectangular posts must have a minimum normal cross section area of 12 square inches.
   4. Square members may be rough sawn or S4S.
   5. A line drawn between the centers of the butt and tip of each post and brace rail must be inside of the actual longitudinal centerline of the post or rail within 1.67 percent of its length.
   6. Taper (diameter differential) in round members must not exceed 2 inches in 10 ft.

7. Fabricate posts and brace rails before pressure treatment of the wood members.
8. Field drill only after all exposed untreated surfaces of members are field treated with two coats of the same material as they were originally treated.
9. Treat post and brace rail following Section 06055.
10. Keep round posts free of bark, protruding knots, or other irregularities.

2.5 METAL POSTS AND BRACES (BRACE POSTS)

A. As Specified. ASTM A 702.

B. Coat fasteners as specified for Class 1 Coating. ASTM A 641.
1. Omit anchor plate only if the post is set in a concrete footing with a minimum cross sectional dimension of 4 inches and a depth equal to full penetration of the post.
2. Galvanized posts may be used in the place of painted posts if the galvanizing is a hot-dipped process that meets requirements as stated in AASHTO M 111.

2.6 TUBULAR-STEEL FRAME GATE WITH WIRE FABRIC

A. 1 inch diameter pipe gate frames as specified.

B. Place pipe braces vertically in each drive gate to provide uniform size panels.
1. 10 ft and 12 ft gates must have 1 vertical support.
2. 14 ft and 16 ft gates must have 2 vertical supports.

C. Dimension shown on the plans and in the specifications are the minimum clear openings between gate posts. The supplier must provide a gate with fittings to fill the opening.

D. Use galvanized woven fabric on the mesh wire fences of the same type and quality as specified for the fence and gates.
1. Space horizontal wires corresponding to that of the fence.
2. Provide an adjustable truss rod of 3/8 inch minimum diameter to prevent sagging on gates 10 ft or more in length.

E. Supply hot-dipped galvanized steel fittings as specified. AASHTO M 232.

F. Pintles for 10 ft and wider gates must be 5/8 inches in diameter or larger.

G. Frame and walk gates must be made of 1 inch galvanized steel tubing.

H. Fastener and single gates must be a 18 inch length of galvanized chain secured to the gate at one end and fitted with a snap fastener on the loose end.

I. All double drive gates must have a center latch in place of a chain fastener. A pin from the latch must fit in a socket embedded in concrete.

2.7 STAPLES

A. Galvanized No. 9 wire staples at least 1-1/2 inches in length.

2.8 ORNAMENTAL FENCE

A. Galvanized fabric for a Class 1 Coating as specified in AASHTO M 279.

B. Galvanized posts, frames and fittings as specified in AASHTO M 232.

C. Fabricate following Standard Drawings FG 1 and FG 2.

2.9 CONCRETE

A. Class B(AE) concrete. Refer to Section 03055.

B. Contractor may substitute higher class of concrete.

PART 3 EXECUTION

3.1 PREPARATION

A. Clear and grade a minimum area to permit proper fence installation.

3.2 INSTALLATION

A. Install end-braced posts in existing cross fences when intersected by the new right-of-way fence.

B. Brace corner post in two directions.

C. Brace end and gate posts in one direction.

D. Compact backfill material around post.

E. Cut wood posts to the designated height and slant top at an approximate 30 degree angle.

F. Use a 3/8 inch diameter x 8 inch long galvanized steel dowels to connect wood braces to the adjacent posts.

G. Tension brace wires until installation is rigid.

H. Bolt or butt weld metal braces to the metal posts.

I. Support each timber brace with two No. 6 gauge galvanized iron wires fastened to the wood posts.

J. Remove all sags from wire mesh fabric without causing tension crimps to fail.
   1. Every alternate lateral wire in the mesh fabric.
   2. Each strand of barbed wire to the post.

K. Install grounds anywhere electric transmission, distribution, or secondary lines cross a wood post fence, conforming to industry standard. (National Electric Safety Code, Section 9).

L. Install fence fabric and barbed wire on the side of the post away from the roadway.

M. Install ornamental fence following Standard Drawings FG 1 and FG 2.

END OF SECTION