

CONSTRUCTION SPECIFICATION

NV-92. FIELD FENCE

1. SCOPE

The work shall consist of furnishing and installing field fence, including gates and fittings.

2. MATERIALS

Wire Gauge. When the size of steel wire is designated, the diameter shall be defined for U.S. Steel Wire Gage.

Fencing. Fencing materials shall conform to the requirements of ASTM A 121 for barbed wire, ASTM A 116 for woven wire, ASTM A 390 for poultry fence or netting, and ASTM A 854 for high-tensile wire. Barbed wire and woven wire shall be Class 3 zinc coated, unless otherwise specified. High-tensile wire shall have Type I zinc coating, unless otherwise specified.

Stays, Fasteners, and Tension Wire. Stays and fasteners shall conform to the requirements of the appropriate ASTM for the fencing material specified, unless otherwise specified. Tension wires shall have a tensile strength not less than 58,000 pounds per square inch. Stays, fasteners and tension wire shall have Class 3 zinc coating as specified in ASTM A 641.

Wood Fence Posts. Unless otherwise specified, wood posts shall be of red cedar, redwood, juniper, treated pine or of other wood of equal life and strength. Preservative treatment shall conform to Federal Specification TT-W-571. Pine posts shall be treated with a creosote solution with not less than 10 lbs. retention per cubic foot or with pentachlorophenol with not less than 0.6 lbs. retention per cubic foot. The posts shall be sound, free from decay, with all limbs trimmed substantially flush with the body. All posts shall be substantially straight throughout their full length.

Wood Braces. Wood braces shall be of wood material equal to or better than construction grade Douglas Fir. Wood braces shall be pressure treated in accordance with Federal Specification TT-W-571.

Steel Fence Posts and Braces: Steel fence posts and braces shall conform to the requirements of ASTM A 702 for steel posts and ASTM A 53 for bracing pipes. Steel fence posts and braces shall have a protective coating wither galvanizing by the hot dip process or painted using one or more coats of high grade, weather resistant paint or enamel applied and baked.

Panel Gates. Panel gates shall be the specified types, sizes, and quality and shall include the necessary fittings required for installation. The fittings shall consist of not less than two hinges and one latch or galvanized chain for fastening. Latches shall be of such design that a padlock may be used for locking. All fittings shall not be of a lesser quality than the gate manufacturer's standard.

Wire Gates. Wire gates shall be the type shown on the drawing, constructed in accordance with specifications, at the locations, and to the dimensions shown on the drawings. The

materials shall conform to the kinds, grades, and sizes specified for a new fence, and shall include the necessary fittings and stays.

Staples. Staples required to secure the fence wire to wood posts shall be 9-gauge galvanized wire with a minimum length of 1½ inches for soft woods and a minimum length of one inch for close-grain hardwoods.

3. SETTING POSTS

Concrete or wood posts shall be set in holes and backfilled with earth except where otherwise specified. Wood posts may be driven when approved by the Engineer. Steel posts shall be driven unless otherwise specified.

Holes for installing fence posts shall be at least six (6) inches larger than the diameter or side dimension of the posts.

Earth backfill around posts shall be thoroughly tamped in layers not thicker than four (4) inches and shall completely fill the post hole up to the ground surface. Concrete backfill around posts shall be rodded into place in layers not thicker than 12-inches and shall completely fill the post hole to the surface of the ground. Backfill, either earth or concrete, shall be crowned-up around posts at the ground surface.

No stress shall be applied to posts set in concrete for a period of not less than 24-hours following the development of a firm set of the concrete.

4. CORNER ASSEMBLY

Unless otherwise specified on the drawings, corner assemblies shall be installed at all points where the fence alignment changes 15 degrees or more.

5. END PANELS

End panels shall be built at gates and fence ends.

6. PULL POST ASSEMBLY

Pull post assembly (bracing within a section of straight fence) shall be installed at the following locations:

- a. In straight fence sections, at intervals not to exceed 1320 feet.
- b. At any point where the vertical angle described by two adjacent reaches of wire is upward and exceeds ten (10) degrees.
- c. At the beginning and end of each curved fence section.

7. ATTACHING FENCING TO POSTS

The fencing shall be stretched and attached to posts as follows:

- a. The fencing wire or netting shall be placed on the side of the post opposite the area being protected, except for installation along curved sections.

- b. The fencing wire or netting shall be placed on the outside for installation along curved sections.
- c. The fencing wire or netting shall be fastened to each end post, corner post and pull post by wrapping each horizontal strand around the post and tying it back on itself with not less than three (3) tightly wound wraps.
- d. The fencing wire or netting shall be fastened to wooden line posts by means of steel staples. Woven wire fencing shall be attached at alternate horizontal strands. Each strand of barbed wire shall be attached to each post. Steel staples shall be driven diagonally with the grain of wood and at a slight downward angle and shall not be driven so tightly as to bind the wire against the post.
- e. The fencing wire or netting shall be fastened to steel or concrete line posts with either two turns of 14 gauge galvanized steel or iron wire or in accordance with recommendations provided by the post's manufacturer.
- f. Wire shall be spliced by means of a Western Union splice or by suitable splice sleeves applied with a tool designed for that purpose. The Western Union splice shall have no less than eight (8) wraps of each end about the other. All wraps shall be tightly wound and closely spaced. Splices made with splice sleeves shall have a tensile strength no less than 80 percent of the strength of the wire being spliced.

8. STAYS

Stays shall be attached to the fencing, at the spacing as shown on the drawings, to ensure maintenance of the proper spacing of the fence wire strands.

9. CROSSINGS AT DEPRESSIONS AND WATERCOURSES

Where fencing is installed parallel to the ground surface, the line posts subject to upward pull shall be anchored.

- a. If the fence wire or netting is installed parallel to the ground surface, the line posts subject to uplift shall be anchored by means of extra embedment or by special anchors as detailed on the drawings.
- b. If the fence wire is installed with the top wire straight and parallel to the ground surface on either side of the depression, extra length posts shall be used to allow normal post embedment. Unless otherwise specified, excess space between the bottom of the fence and the ground shall be closed with extra strands of barbed wire or with netting.