

NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATION

382A - FENCE - BARBED, WOVEN, OR WOODEN

1. SCOPE

The work shall consist of furnishing and installing permanent non-electrified fences and related essential components.

2. MATERIALS

Unless otherwise shown on the drawings or specified in Section 10, materials for barbed, woven, or wooden fencing shall conform to the following requirements:

Wire

Fencing wire shall be galvanized barbed wire or woven wire. Where high-tensile metal is utilized, it shall have class III galvanization. Gauge required as a minimum shall be as listed in Table 1.

**Table 1 – Gauge Wire Required for Conventional Barbed or Woven and Hi-tensile Wire**

<b>Material</b>	<b>Conventional</b>	<b>Hi-Tensile</b>
Barbed Wire	12-1/2 g.	15-1/2 g.
Barbs	4 pt – 14 g.	16-1/2
Top & Bottom Woven	10-1/2g.	10-1/2
Remaining Woven	11 g.	12-1/2g.
Stay Wires	11 g.	12-1/2 g.

Where electrified wire is used, refer to Specification 382B, Fence – High Tensile Wire.

Under no circumstances shall barbed or woven wire be intentionally electrified. All reasonable measures shall also be taken to ensure such wires will not be accidentally electrified.

Fence Posts and Braces

Wood posts shall be of black locust, white or red cedar, 0.40 lbs/ft<sup>3</sup> CCA pressure treated softwood or other wood of equal life and strength such as 0.40 lbs/ft<sup>3</sup> ACQ or 0.41 lbs/ft<sup>3</sup>, CBA-A or 0.21 lbs/ft<sup>3</sup> CA-B. The posts shall be sound, new, and free from decay, with all limbs trimmed flush with the body of the post. The posts shall be substantially straight throughout their length. Post corner and brace post shall be a minimum of 5 inches in diameter and line posts a minimum of 3 inches in diameter. Square posts with equivalent cross sections may be used.

Steel posts shall be galvanized T-section with anchor or U-section, weighing not less than 1.1 pounds per foot of length, with a length as shown on the drawings or as specified in Section 10.

Wooden brace rails shall be a minimum of 4 inches in diameter and have a length of 7-1/2 to 8 feet. Steel brace rails shall be galvanized and a minimum of 1-1/2 inches diameter and have a length of 7-1/2 to 8 feet.

## Fasteners

For wood posts with barbed or woven wire the fasteners shall be galvanized 9 gauge wire staples with a minimum length of 1-1/2 inches, except for very hard woods such as locust where the minimum length is 1 inch.

Where ACQ, CBA-A or CA-B treated wood is used, the fasteners shall be hot-dipped galvanized or made of stainless steel.

For steel posts the fasteners shall be either 16 gauge galvanized wire wrapped around strand and post or manufactured wire clips labeled for such application.

## Wooden Fences

Wood posts shall be as specified above. Other type posts shall be as specified in Section 10. Wooden planking shall be a minimum of 0.25 lbs/ft<sup>3</sup> CCA pressure treatment or wood of equal life and strength such as 0.25 lbs/ft<sup>3</sup> ACQ or 0.20 lbs/ft<sup>3</sup> CBA-A or 0.10 lbs/ft<sup>3</sup> CA-B. All planks shall be a minimum of 1 inch by 6 inches nominal.

## Gates

Gates shall be the types, sizes, and quality needed to achieve the level of control required. All hardware necessary for the proper functioning of the gate shall be included. Gate and associated hardware shall be installed according to the manufacturer's recommendations.

### 3. SETTING POSTS

#### Spacing

Unless otherwise shown on the drawings or specified in Section 10, line post for barbed wire, woven wire, and board fencing shall be a maximum of 16 feet apart.

#### Method of Installation

In mineral soils, corner and brace posts shall be set a minimum of 3 feet and line posts a minimum of 2 feet unless otherwise specified on the drawings. Steel posts shall be driven, unless otherwise specified. In organic soils, depth shall be as specified in Section 10.

When posts are set by excavating postholes, the postholes shall be at least 6 inches larger than the diameter or side dimension of the post.

Unless otherwise specified, posts shall be backfilled with earth. Earth backfill around posts shall be thoroughly tamped in layers not thicker than 4 inches and shall completely fill the posthole 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 posthole to the ground surface. Backfill, either earth or concrete, shall be crowned up around the post to 2 inches above the ground surface.

No stress shall be applied to posts set in concrete until at least 24 hours after the concrete has set. Posts for gates shall be allowed to set for at least 48 hours.

#### 4. CORNER ASSEMBLY

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

#### 5. BRACE ASSEMBLY

Brace posts shall be wooden. Braces shall be wooden or steel. Brace assembly shall be, as a minimum, a single unit installed at all the following locations:

- a. On either side of gate openings.
- b. Wherever wires terminate.
- c. In straight fence sections, at intervals of no more than 660 feet.
- d. At the beginning and end of each curve.

In organic soils, the brace assembly shall be as described in Section 10.

#### 6. ATTACHING FENCE TO POSTS

The fence shall be attached to posts as follows:

- a. The fencing shall be placed on the side of the post opposite the area being protected, except on curves.
- b. The barbed wire and woven wire shall be fastened to each brace and corner assembly by wrapping each horizontal strand around the post and tying it back on itself with no less than 3 tightly wound wraps using manufactured fasteners labeled for such application or installed according to manufacturer's recommendations.
- c. The barbed wire and woven wire shall be fastened to each line post. Use staples for wooden posts and wire for steel posts. Woven wire fencing shall be attached at alternate horizontal strands to each post. Each strand of barbed wire shall be attached to each post. Staples shall be driven diagonally to the grain of the wood and shall not be driven so tightly as to bind the wire against the post.
- d. The wooden fencing shall be fastened to each steel post by using pipe clamps as shown on the drawings. The clamps shall fit snugly around the post and the carriage bolt head shall be on the same side as the livestock. Each wooden plank shall be long enough to span 3 posts so that all joints do not occur on one post, except at fence corners and ends.

#### 7. FENCING AT DEPRESSIONS

Where fencing is installed parallel to the ground surface, the line posts subject to upward pull shall be anchored by means of extra embedment or by special anchors as detailed on the drawings.

Where the fence is installed with the top wire straight across the depression, extra length posts shall be used to allow normal post embedment. Unless otherwise specified, extra space between the bottom of the fence and ground shall be closed with additional strands of barbed wire properly anchored.

## 8. CROSSING WATERCOURSES

Where fence crosses small watercourses, end the fence at the top of streambank on each side with an appropriate brace assembly. From separate posts driven next to the brace assembly but not wired to it, construct a separate section of fence across the watercourse.

Where the fence crosses larger watercourses or areas prone to frequent flooding capable of carrying debris that could lodge on the fence, a special structure, such as a swing gate, will be installed. Provisions will be made as shown on the drawings or specified in Section 10.

9. MEASUREMENT AND PAYMENT

Method 1

For items of work for which specific unit prices are established in the contract, the length of each type and kind of fence will be measured to the nearest linear foot along the profile of the fence, including gates, stream crossings, and other special structures. Payment for each type and kind of fence will be made at the contract unit price. Such payment will constitute full compensation for all labor, materials, equipment, tools, and other appurtenances necessary and incidental to the completion of the work, including supplying, fabricating, and installing gates, stream crossings, and other special structures.

Method 2

For items of work for which specific lump sum prices are established in the contract, the quantity of each type and kind of fence will not be measured. Payment for each type and kind of fence will be made at the contract lump sum price. Such payment will constitute full compensation for all labor, materials, equipment, tools, and other appurtenances necessary and incidental to the completion of the work, including supplying, fabricating and installing gates, stream crossings, and other special structures.

Compensation for any item of work described in the contract, but not listed in the bid schedule will be included in the payment for the item of work to which it is made subsidiary. Such items and the items to which they are made subsidiary are identified in Section 10.

10. ITEMS OF WORK AND ADDITIONAL CONDITIONS: