

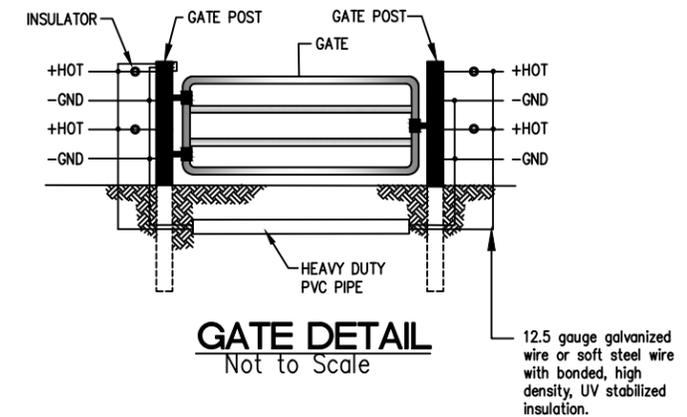
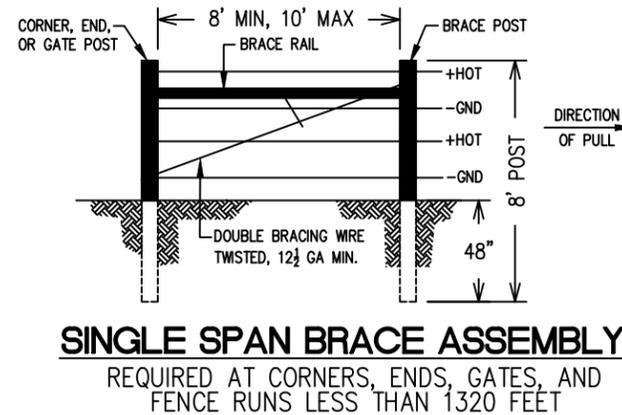
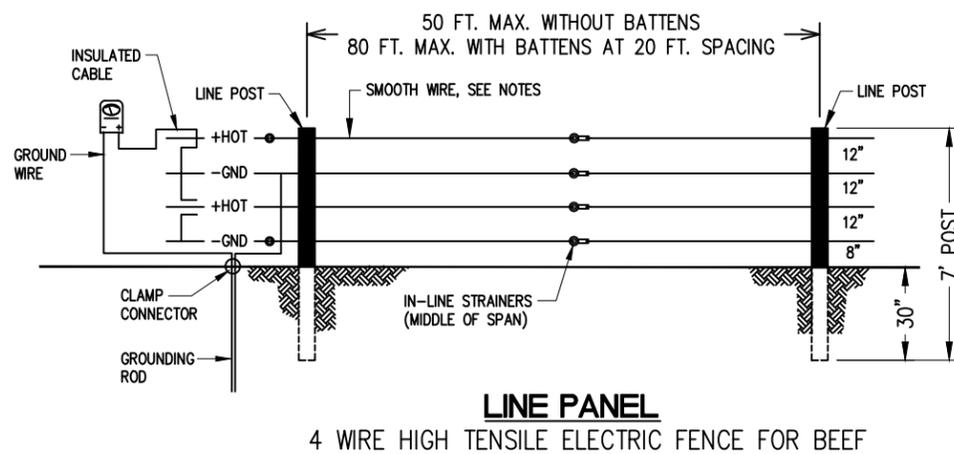
ELECTRIC NOTES:

1. The electric fence charger is to be at least 3 kV min, 5 kV is recommended. The charger is to be low impedance, UL-approved, and is to include all the safety features required by the manufacturer.
2. A properly grounded lightning arrester and a "lightning choke" shall be installed to protect the energizer from lightning strikes. A voltage spike protector is also recommended.
3. Insulators are required on all posts that are not self-insulating. Insulators may be either: UV-stabilized high-density polypropylene Type W or Type S; high strain end and corner tube insulators; or high strain porcelain corner Type O.
4. Electrical fences shall be clearly labeled or identified with the appropriate warning signs spaced every 300 feet or where the public has access.
5. Household electrical wire must not be used for any part of the electric fence. Splicing wires of different metals often results in oxidation and corrosion which causes short circuits and poor conductivity.
6. Avoid placing electrical fences parallel with telephone or commercial power lines. Static fields can sometimes be created.
7. A voltmeter needs to be used to monitor and maintain electrical fences. A digital voltmeter is recommended, but not required.

MINIMUM FENCING REQUIREMENTS BY FENCE TYPE					
Fence type	# of Strands/Boards	Travel Lane	Interior	Exterior	Exclusion
Electric, High-Tensile, Smooth	1	M	NO	NO	NO
	2	M	M	NO	NO
	3	E	M	NO	NO
	4 (min. 2 hot)	E	E	M	NO
	5	E	E	E	M

M = Meets Minimum Requirement
 E = Exceeds Minimum Requirement
 NO = Does Not Meet Requirement

Wire Spacing		
Species	# of Wires	Wire spacing (inches from ground)
Cattle	1	26-32
	2	20,34
	3	13, 24, 36
	4	8, 20, 32, 44
	5	8, 16, 24, 34, 44



Designed _____
 Drawn _____
 Checked _____
 Approved _____

Operator: _____
 Sheet: HIGH TENSILE ELECTRIC FENCE FOR BEEF
 Project: _____
 Twp/Co: _____

United States Department of Agriculture
USDA
 Natural Resources Conservation Service

File No. BEEF-HTE
 Drawing No. _____
 Sheet 1 of 3

07/17/2023, 1=1

Details meet NRCS-NJ Practice Std 382, Fence, and Fence (382) Technical Reference, Dated Nov 2021, for critical confinement or exclusion.

HIGH TENSILE ELECTRIC WIRE NOTES:

All wire to be new ASTM Class 3 galvanized or aluminum-coated material. High tensile smooth wire to be 12-1/2 gauge, 200 ksi tensile strength, and 1540 pounds breaking strength. Wire to be attached to the side of the fence that will receive the greatest pressure from animals. Place wire on the outside of posts on curves and corners. Tension to be set with in-line wire strainers and/or tension indicator springs to prevent sag. Wrap and twist wires or use crimping sleeves on end and gate posts.

High tensile coated or polymer encased wire to be 12-1/2 gauge, coated with UV resistant polymer with a strength of 1,300 lb per wire or 4,000 lb per rail.

If battens are used, line post spacing can be increased as shown. Batten or stay depth shall be sufficient to maintain wire spacing. Battens shall be 1" diameter composite material, 1/2" fiberglass, 3/8" PVC, or steel post with insulators. Clips to hold wire in batten slots need to allow wire to slide freely.

Installing Wire

- a. For electrified high tensile fences, the tension needs to be maintained to keep the required distance between strands. If wires start to sag, they must be tightened.
- b. Wires must be attached to conductive posts with an appropriate ceramic, UV resistant HDPE (High Density Polyethylene) or HDPP (High Density Polypropylene) or tube type plastic reinforced insulators. The tubular plastic reinforced high strain insulator can be used on the outside of corners, curves or bends.
- c. Wire is tied off using the "thread through method" (a half hitch and 3 wraps) or with compression sleeves a length of high tensile wire is fastened around the groove of the insulator then looped around the post and stapled on opposite side of post. An alternative is the tubular plastic reinforced insulator to prevent cracking of the plastic and grounding of the wire. All insulators must be rated for use with high tensile fence.
- d. Wire that pulls through corners or bends may be suspended from the inside of posts in corners and bends using ceramic or appropriate UV resistant HPDE or HDPP donut type plastic high strain insulators. The tubular plastic reinforced high strain insulators can wrap around the outside of bends and corner post.

REQUIRED FENCE POSTS SIZES (WOOD)			
POST LOCATION	ROUND	SQUARE	LENGTH
Corner, End & Gates	6 inch	6 inch	8 feet
Brace Posts	5 inch	5 inch	8 feet
Brace Rails	4 inch	4 inch	7 feet
Line Posts	4 inch	4 inch	7 feet

POST NOTES:

Wooden posts to be the minimum size as shown in the table. Untreated posts may be red cedar or black locust. All other wood posts must be pressure treated.

Steel posts may be 'T', 'U', or 'Y'-shaped with anchor plates with a minimum weight of 1.3 lbs per foot. Steel posts to be painted or hot-dipped galvanized with 2 ounces of zinc coating per square foot. Steel line posts shall be driven into the ground to the top of the anchor plate. A wooden post shall be used for every third or fourth steel line post.

Steel, 1.25 lbs/ft (excluding anchor plate) and at least 18" in the ground

T post, 1-3/8" x 1-3/8" x 1/8" thick

U post, 2" x 1-1/4" x 3/32" thick

L post, 2" x 2" x 1/4" thick

Galvanized steel post/pipe, at least 2" diameter

HDPE, 1.33" or manufacturer recommendations and at least 12" in the ground

Where posts cannot be set to the minimum depth specified, line post holes must be at least 12 inches deep, and all other posts must be at least 24 inches deep. All shallow post holes are to be three times the post diameter and backfilled with concrete.

Designed _____
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 Checked _____
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Operator: _____
 Sheet: _____
 Project: _____
 Twp/Co: _____

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File No.
 BEEF-HTE-2

Drawing No.

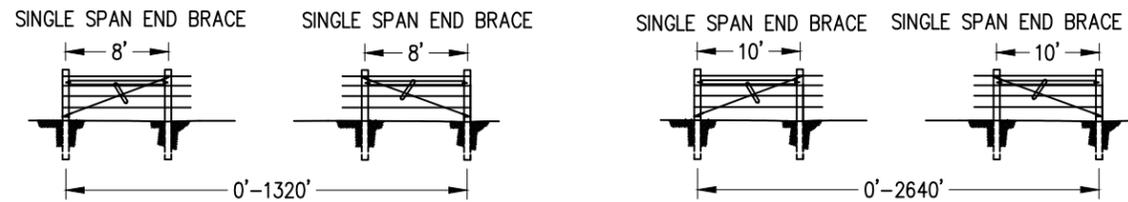
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Installing Curves

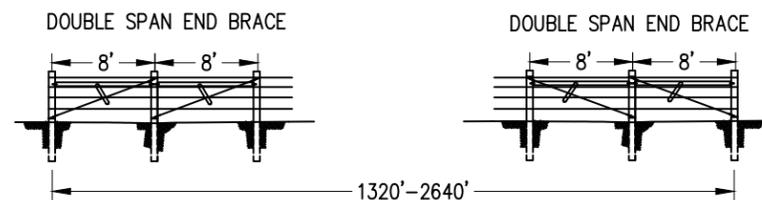
- a. Installing curves in high tensile wire fences is permissible if the change in direction from one post to the next does not exceed 20 degrees. Posts on curves shall be 5-inch minimum top diameter for changes up to 14 degrees and 6-inch minimum top diameter for changes up to 20 degrees
- b. Posts on curves should be driven 48 inches deep with 4 inches of lean to the outside of the curve and spaced no closer than 4 feet apart. (In an 8-foot long section 14 degrees is approximately 24 inches off straight line and 20 degrees is approx. 35 inches off the straight line)

Brace assemblies are required at all corners, ends, gates, and at fence runs less than 1,320 ft. Double brace assemblies are required on runs greater than 1320 feet, alignment changes greater than 20 degrees, and on uneven terrain. Brace wires to be double wrapped and tightened with a twist stick or in-line tightener. Fasteners for wood posts to be 9-gauge galvanized wire staples, 1-1/4 inches long. Staples to be driven diagonally to wood grain with a space to permit wire movement.

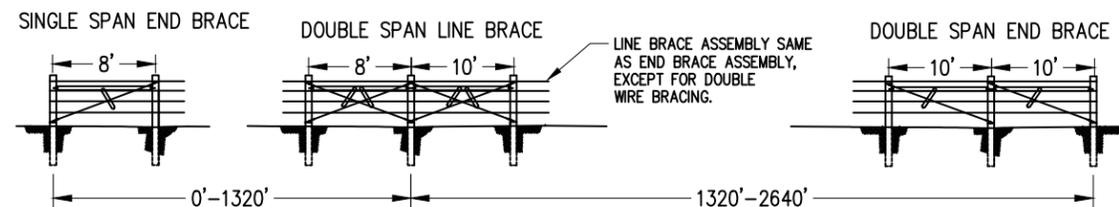
SPACING FOR BRACE ASSEMBLIES



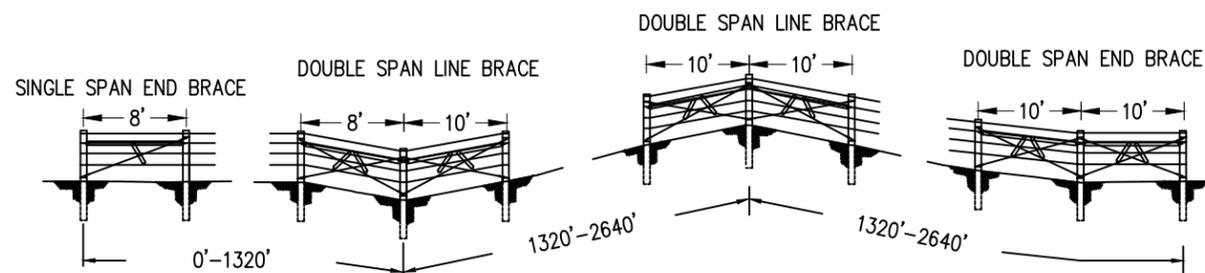
1. USE 8'/10' SINGLE SPAN BRACE ASSEMBLIES FOR RUNS OF FENCE THAT ARE LESS THAN 1320/2640 FEET BETWEEN CORNER, END, AND/OR GATE POSTS.



2. USE DOUBLE SPAN BRACE ASSEMBLIES FOR RUNS OF FENCE THAT ARE 1320 TO 2640 FEET BETWEEN CORNER, END, AND/OR GATE POSTS.

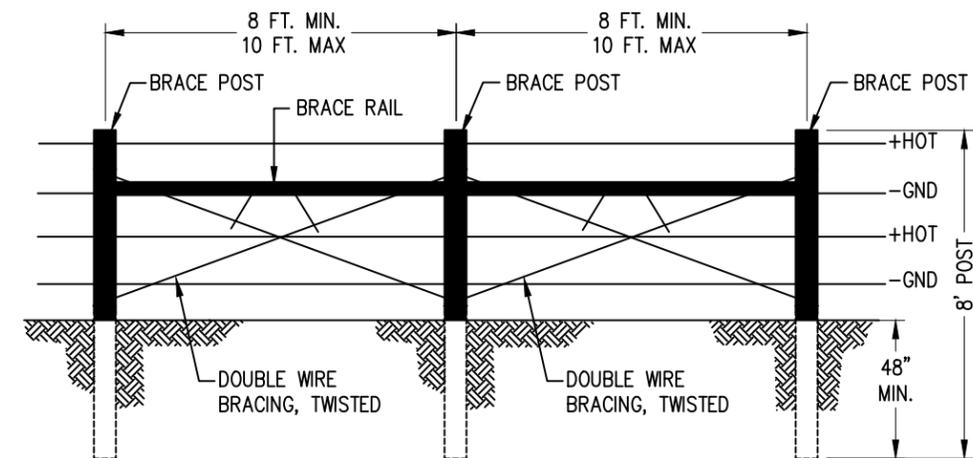


3. USE LINE BRACES TO DIVIDE FENCE LENGTHS WHERE RUNS OF FENCE ARE MORE THAN 2640 FEET LONG. A RUN IS THE DISTANCE BETWEEN A CORNER, END OR GATE POST AND THE NEXT CORNER, END, OR GATE POST.



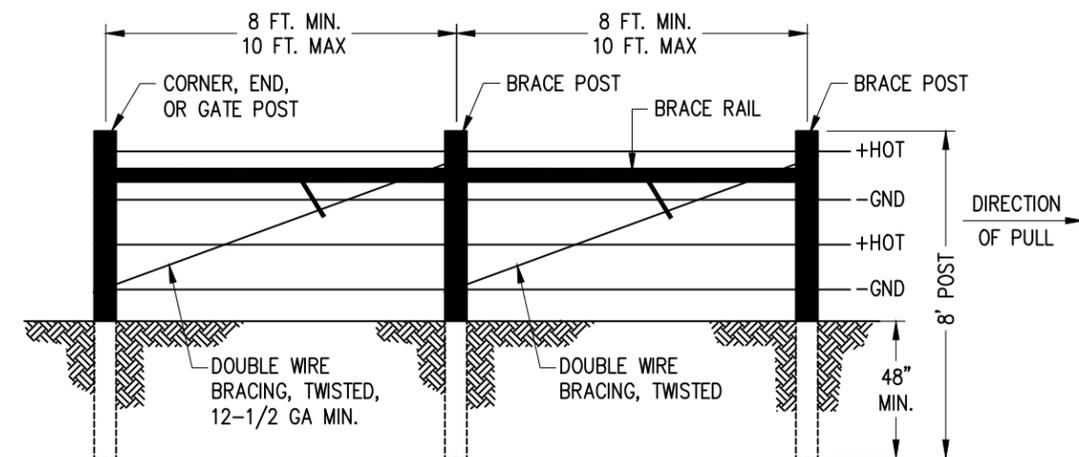
4. ON UNEVEN TERRAIN, LOCATE LINE BRACES AT THE TOP AND BOTTOM OF EACH HILL.

DETAILS APPLY TO 3 OR 4 STRANDS OF HIGH TENSILE ELECTRIC FENCING



DOUBLE SPAN LINE BRACE ASSEMBLY

FOR FENCE RUNS GREATER THAN 1320 FEET AND ALIGNMENT CHANGES GREATER THAN 20 DEGREES



DOUBLE SPAN END BRACE ASSEMBLY

REQUIRED AT CORNERS, ENDS, OR GATES WHERE FENCE RUN IS GREATER THAN 1320 FEET

Designed _____
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Operator: _____
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File No. BEEF-HTE-3
Drawing No. _____