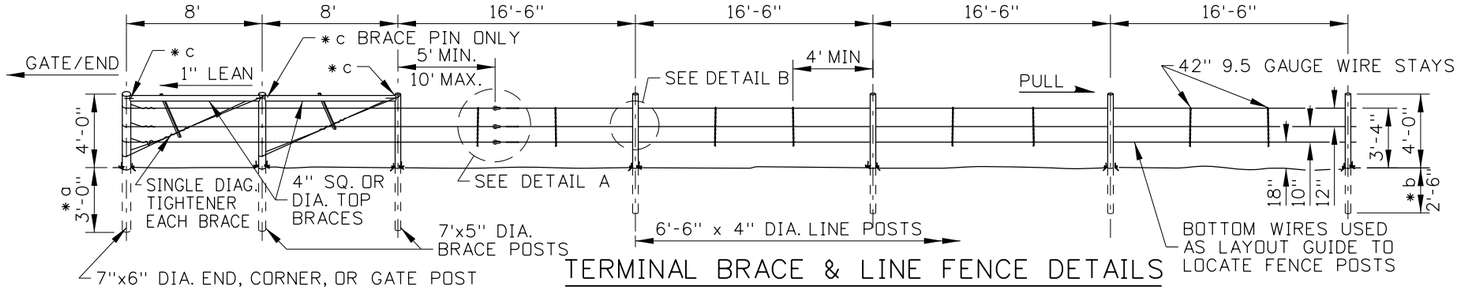
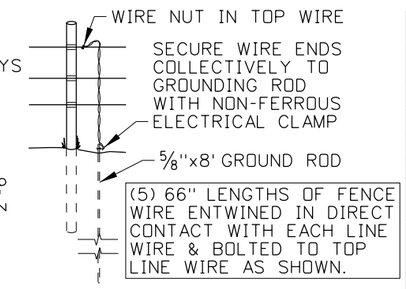


TERMINAL BRACE & LINE FENCE DETAILS

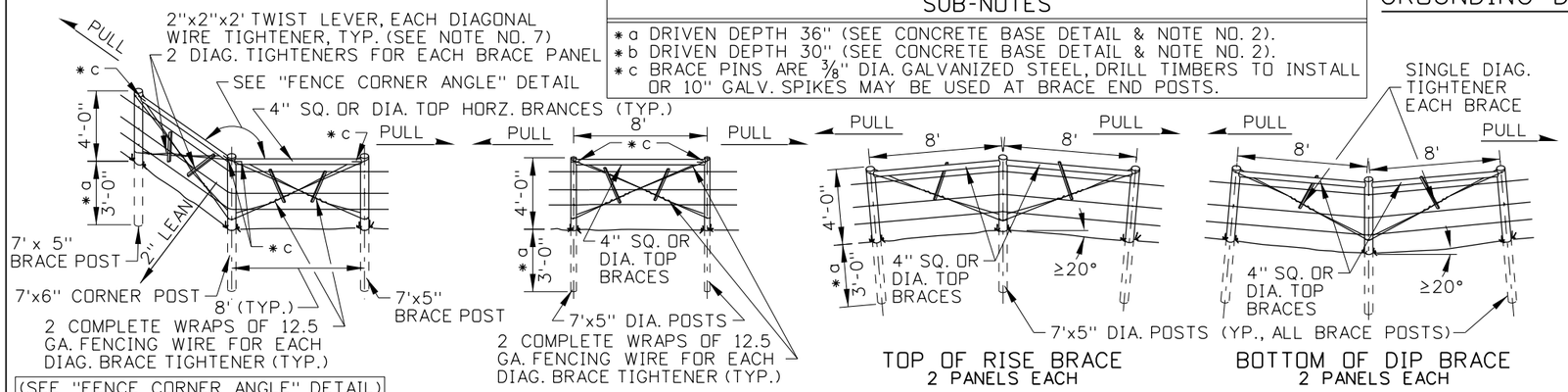


GROUNDING DETAIL

FENCE GROUNDING TABLE		
kV	* GROUNDING INTERVAL	FENCE DISTANCE FROM TRANSMISSION ℄
500	200'	<100'
500	500'	100' - 200'
345	400'	<100'
345	1000'	100' - 150'
>230	500'	50' - 100'
100-230	400'	WITHIN R/W
<100	1/4 MI.	WITHIN R/W

* FENCE SECTIONS THAT ARE LESS IN LENGTH THAN THE GROUNDING INTERVAL SHALL BE GROUNDED ONCE.

SUB-NOTES
*a DRIVEN DEPTH 36" (SEE CONCRETE BASE DETAIL & NOTE NO. 2).
*b DRIVEN DEPTH 30" (SEE CONCRETE BASE DETAIL & NOTE NO. 2).
*c BRACE PINS ARE 3/8" DIA. GALVANIZED STEEL, DRILL TIMBERS TO INSTALL OR 10" GALV. SPIKES MAY BE USED AT BRACE END POSTS.

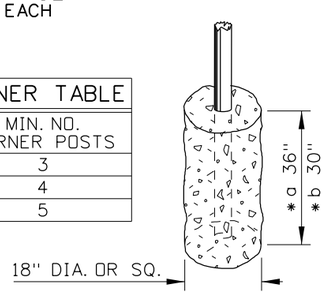


BRACE DETAILS

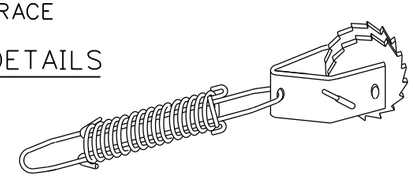
NOTES

1. ALL WOODEN POSTS AND HORIZONTAL BRACES SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AASHTO M 133. TIMBER DIAMETERS SHOWN SHALL BE MEASURED AT THE SMALL END. THE SMALL ENDS SHALL BE DRIVEN/SET IN THE SOIL.
2. END POSTS, BRACE POSTS AND LINE POSTS ARE RECOMMENDED TO BE MECHANICALLY DRIVEN INTO THE GROUND WHERE SOIL CONDITIONS PERMIT. WHERE SOIL CONDITIONS DO NOT PERMIT DRIVEN POSTS THE CONCRETE BASE SHALL BE INSTALLED (SEE CONCRETE BASE DETAIL).
3. TO ALLOW FOR EXPANSION AND CONTRACTION, DO NOT STAPLE THE WIRES TIGHT TO THE BRACE POSTS. THE STAPLES ARE 1¾" - 9 GAGE WITH SLASH CUT POINTS. THE STAPLES SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A 116, CLASS 1.
4. BRACE PINS, WIRE STAYS, SPIKES, TENSION INDICATOR SPRINGS, AND IN-LINE TIGHTENERS SHALL HAVE A ZINC COATING IN ACCORDANCE WITH ASTM A 116, CLASS 3.
5. ALL FENCE WIRE SHALL BE BARBLESS DOUBLE WEAVE 12.5 GAGE STEEL WITH A MINIMUM OF 57,000 PSI TENSILE STRENGTH. THE WIRE SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A 116, CLASS 3.
6 IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS SHALL MEET THE FOLLOWING:
   a. IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS SHALL BE USED WHEN CALLED FOR IN THE PLANS.
   b. THE IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRING SHALL BE A SEPARATE PAY ITEM.
   c. IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS ARE TO BE USED AS A UNIT.
   d. TIGHTENERS ARE TO BE PLACED ON ALL THREE WIRE SETS. TIGHTENING FOR STRAIGHT RUNS SHOULD BE 80 TO 100 LBS. AND ON CRESTS AND DIPS SHOULD BE 50 TO 75 LBS. ROUNDED CORNERS ARE TIGHTENED THE SAME AS STRAIGHT RUNS.
   e. TIGHTENERS ARE TO BE PLACED 5' TO 10' FROM A BRACE.
   f. IN LINE WIRE TIGHTENERS SHALL BE INSTALLED BETWEEN EACH SET OF CORNER, EVEN TERRAIN LINE, AND RISE/DIP BRACES.
7. PROPER TENSION ON THE DIAGONAL BRACE TIGHTENERS IS TO BE ACCOMPLISHED BY TWISTING A MINIMUM OF 3 TO 5 TURNS. EACH DIAGONAL BRACE WIRE TIGHTENER SHALL CONSIST OF (2) COMPLETE WRAPS OF FENCE WIRE (THE WIRE TIE-OFF SHOULD BE OFFSET FROM THE POSITION OF THE TWIST LEVER). THE TWIST LEVER SHOULD BE SECURELY FASTENED AGAINST THE HORIZONTAL BRACE RAIL OR THE OPPOSING DIAGONAL BRACE TIGHTENER.
8. LINE WIRES SHOULD BE STAPLED TO THE BRACE POSTS ONLY AFTER TAKING UP PRELIMINARY TENSION OF APPROXIMATELY 50-80 LBS. ON EACH WIRE SET.
9. LINE WIRES SHALL BE STRUNG ON THE OUTSIDE (WILDLIFE SIDE) OF EVEN TERRAIN LINE BRACES AND RISE/DIP BRACES. LINE WIRES SHALL ALWAYS BE STRUNG ON THE EXTERIOR ANGLE SIDE OF CORNER BRACES.
10. THE MAXIMUM FENCE RUN BETWEEN BRACE PANELS SHALL BE 1320 FEET.
11. ALL WILDLIFE FENCE LINE WIRE SHALL BE GROUNDED ACCORDING TO THE "FENCE GROUNDING TABLE" ACCORDING TO THE METHOD SHOWN ON "GROUNDING DETAIL".
12. IN-LINE WIRE SPICES SHALL BE SPLICED ACCORDING TO THE METHOD SHOWN IN THE "WIRE SPLICES" DETAIL. WIRE TIE-OFFS AND TERMINAL ENDS MAY BE SPLICED OR WRAPPED.
13. NOT TO SCALE.

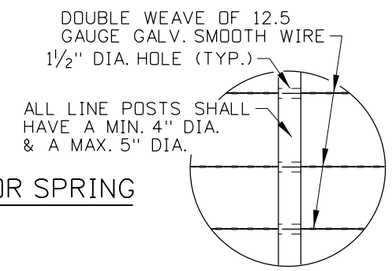
ROUNDED CORNER TABLE	
EXT. COR. ANGLE	MIN. NO. CORNER POSTS
0° - 20°	3
>20° - 40°	4
>40° - 60°	5



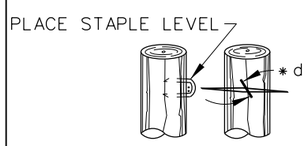
CONCRETE BASE



IN-LINE WIRE TIGHTENER & TENSION INDICATOR SPRING

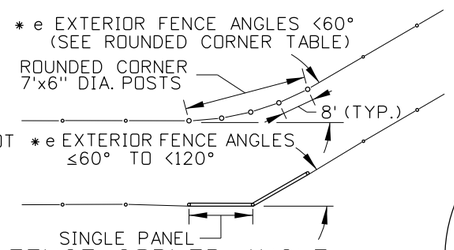


DETAIL B

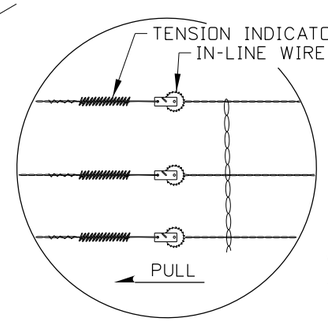


LEVEL POST STAPLE

USE AT POSTS WHERE SOIL CONDITIONS DO NOT PERMIT DRIVEN POSTS

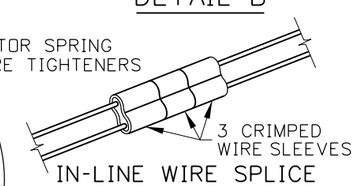


FENCE CORNER ANGLE

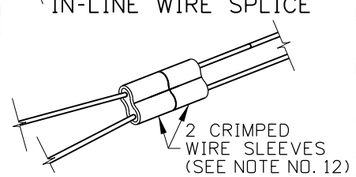


DETAIL A

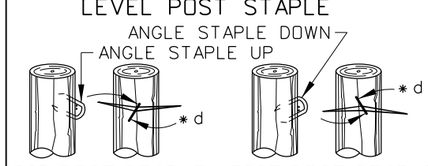
(SEE NOTE NO. 6)



IN-LINE WIRE SPLICE



WIRE TIE-OFF & TERMINAL END WIRE SPLICES



DIP POST STAPLE RISE POST STAPLE

BRACE STAPLING DETAILS

*d ROTATE STAPLE ON BRACE POSTS TO STRADDLE ACCROSS THE WOOD GRAIN, ALLOW ENOUGH SPACE FOR WIRES TO SLIDE THROUGH THE DRIVEN BACK OF THE STAPLE.

*e WHEN THE EXTERIOR FENCE ANGLE IS 60° OR LESS, USE THE ROUNDED FENCE CORNER (SEE TABLE) WITH 7'x6" POSTS. FOR EXTERIOR FENCE ANGLES GREATER THAN & EQUAL TO 60° AND LESS THAN 120° USE (1) CORNER BRACE. FOR EXTERIOR ANGLES GREATER THAN 120° A COMBINATION (2) CORNER BRACES ARE REQUIRED.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILFORD L. MILLER
DATE ORIGINAL SIGNED: OCTOBER 17, 2005

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-05	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: f2e_1005.dgn

DRAWING DATE: JANUARY, 2004

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

WILDLIFE FENCE
FENCE TYPE 9

English

STANDARD DRAWING NO.
F-2-E

SHEET 1 OF 1