GUYS AND ANCHORS

I. DESIGN

The guying systems and specifications in this section have been designed according to the requirements set forth in the National Electrical Safety Code (NESC) (1993 Edition). Section 26 of the NESC gives the details to be considered when designing guying systems. The factors included in the design are:

A. CONDUCTOR TENSIONS (MAXIMUM)

B. SHIELD AND NEUTRAL TENSIONS (MAXIMUM)

C. WIND LOADING

D. COLUMNAR LOADING OF POLE (MAXIMUM BOWING MOMENT)

E. NESC GRADE B CONSTRUCTION (SEE NOTE BELOW)

F. NESC OVERLOAD CAPACITY FACTORS (TABLE 264-1)

Note: JEA designs all Overhead Electric Facilities to NESC Grade B construction even when a lower grade may be allowable by Code.

II. GROUNDING

JEA design criterion requires that all downguys be grounded whether they contain insulators or not. This grounding is accomplished by installing a #4 CU jumper between the guy strand and the pole ground. This connection would be below the lowest guy insulator if one or more are installed in the guy strand. Section 215C2 of the NESC allows for some exceptions in this area that the JEA chooses not to allow.

III. MATERIAL AND USES

A. GUY STRAND

JEA uses two sizes of guy strand to accomplish all distribution guying requirements. They are 3/8" and 7/16" in diameter and are made of galvanized steel and conform to ASTM specification A475-72. The minimum breaking strengths are 11,500 pounds and 20,800 pounds respectively.

B. STRAIN INSULATORS

Strain insulators come in two lengths, 60" and 144". They are to be used in downguys and spanguys that are in close proximity to energized conductor or equipment on the pole. The purpose for these is so that if a guy system failed and the guy strand fell against energized conductor, the guy strand itself would not become energized. The 144" insulator is normally used in the A and B phase positions, with the 60" normally used at the C phase position. The 144" insulator is also used on poles where the conductor size changes (i.e., 636 KCM aluminum deadends vertically and 1/0 aluminum conductor continues on) and on deadend poles with equipment (i.e., transformers, risers, etc.). Strain insulators (guy breakers) shall not touch primary conductors or insulators.

C. BOLTS

Guy plates are provided with bolts for each plate, but may not be needed if already supplied with another plate. Bolts are provided to attach to a standard 50 foot, class 2 wood pole for normal construction. If a downguy is installed on a larger pole, a bolt plate will need to plated if available.

D. GUY ATTACHMENTS

The guy strand is attached to the pole by use of one of two different pole attachment plates. These plates are stackable at one location on the pole to allow for installing two downguys at one point on the pole (i.e., 636 KCM aluminum deadended on crossarms requires two 7/16" downguys at bolt hole 73) - See plate GY7SPL. Provisions for downguys are also provided on the steel crossarm and the 3-phase cutout and arrester bracket if required.

E. GUY ANCHORS

Two basic types of anchoring systems are used for downguys -- one is the screw type and the other is the "Manta-Ray" type. The screw anchors come in two different styles, a single-helix and a multi or double-helix. The single-helix anchor is 8 feet long with a 10" diameter screw. The multi-helix anchor is 5 feet long and comes with a 10" and 11.3" diameter screws. The "Manta-Ray" anchoring system is a patented system that allows for the installation of a high-strength anchor in areas not accessible to large trucks or equipment. The "Manta-Ray" holding strength is equivalent to that of the multi-helix anchor. Holding strengths for guy anchors are very dependent on the type of soil conditions in which the anchor is placed. Below is a table to quantify typical holding strengths for anchors.

TABLE 1: ANCHOR HOLDING STRENGTH

Anchor Type	Holding Strength	
	Poor Soil	Good Soil
Single-Helix	6,000 pounds	10,000 pounds
Multi-Helix	*18,000 pounds	*18,000 pounds
Manta-Ray	>15,000 pounds	>15,000 pounds

Poor soil includes: Loose sand, wet clay, loam and marsh lands.
Good soil includes: Compacted clay and gravel, hardpan, claypan, and compacted sand.

- Depends on obtaining one (1) full twist in the anchor rod upon installation.

F. SECONDARY GUYS

These guidelines are for the normal construction practices. For secondary attachments at higher than normal levels, guy leads would need to be adjusted accordingly.

III.F.1. For #2 Triplex or Quadraplex and 1/0 Triplex secondary busses between distribution line poles, a "GY3" with a 12 foot guy lead is required.

III.F.2. For 2/0 or 4/0 PAP or Quadraplex secondary busses between distribution line poles, a "GY3" with a 15 foot guy lead is required.

III.F.3. If a downguy is required for a secondary drop form a distribution line pole to the customer, a "GY3" with a 10 foot guy lead would be adequate.

III.F.4. For #6 Duplex busses or drops, the Engineer will decide on a case to case basis if any guying is required.

G. SIDEWALK GUYS

These utilize 3/8" guy strand only and are to be used only when a normal guy lead cannot be obtained. This type of downguy exerts a very large moment on the pole in the area of the stand-off pipe, often exceeding the minimum bowing moment for the pole if used in heavy strain situations. The limitations of the guy strand and all the components of the guy system are usually exceeded if used on more than single-phase primary or secondary drop installations. It may be necessary to install a strain pole if conditions exceed the above.

H. POLE KEYS

These are for use on concrete poles where a conventional downguy and anchor cannot be installed. They are for loose soil conditions and should only be used as a last resort method for resisting light strains. The heavy duty key is for use on LT class and larger poles. The light duty key is for class 3 and class H poles.

- Before requesting that a pole key be installed, please review the design with your supervisor.

I. BOG SHOES

These are for poles being set in "Muck" areas. Their use is limited and is usually reserved for smaller wire installations. It is much more preferable to increase the setting depth of the pole to reach a more stable layer than to utilize bog shoes. When these type areas are encountered it may be necessary to obtain a soil boring to determine the required setting depth.

- Before requesting that a bog shoe be installed, please review the design with your supervisor.

J. POLE BRACES

These are used to secure a pole that may be undermined by an excavation operation. They shall always be installed perpendicular to the overhead wires. The heavy duty brace is for three-phase lines and larger poles. The light duty brace is for single and two-phase lines and smaller poles or poles being partially exposed. The use of these braces is not an exact science. There are many factors to be considered when evaluating a construction site and making a determination as to what method of pole support to use. NEVER GUESS!!!. Always know that the method chosen will accomplish the task required.

K. BUTT GUYS

These guys have very little application and should be only used if you are well experienced in their use. The heavy duty butt guy is mainly used for soft earth areas where pole settlement is a possibility. The light duty butt guy is for use where very little of the pole is to be exposed and where at least three (3) feet of the pole butt is in solid ground not to be disturbed. As with pole braces, always know that the method chosen will accomplish the task.

L. PUSH POLES

The basic use of this type installation is where a downguy has to be temporarily removed. This should not be considered a permanent installation. Push poles do have limitations. If you have any questions at all about their ability to accomplish the task, consult your supervisor.

IV. PLACEMENT

Guys are required on many different types of structures and installations. They are basically used to offset an unbalanced force exerted on the pole by the conductors. The tables in this section cover most all the installations you will encounter on the JEA distribution system. However, there are some that will not fall into a description found in the tables. If you have any question about the structure type or guy requirements, please consult your supervisor.

V. STRAIN POLES

Strain poles are not practical for all situations. Wood poles are not strain poles, and class 3 concrete poles should also not be considered as strain poles. Please consult with your supervisor about the use of strain poles and the limitations that may apply to your situation.

VI. DOWNGUY ANCHOR PLACEMENT

TABLE 2: ANCHOR PLACEMENT

POLE SIZE	TOP GUY LEAD ANCHOR PLACEMENT FROM BASE OF POLE (FT) *
30	15
35	20
40	20
45	25
50	25
55	30
60	30
65	35
70	35
75	40
80	40

* This is based on a normal setting depth.
** 3 feet is the minimum anchor separation.
5 feet is desired.

GA (Guy Angle) - A guy angle of 30 degrees is required. If an angle of less than 30 degrees is to be installed, please review with your supervisor.

The eye of the anchor (or extension) should be at one foot above grade to prevent the guy grip from being damaged at the eye by landscaping and from being covered by plant growth.

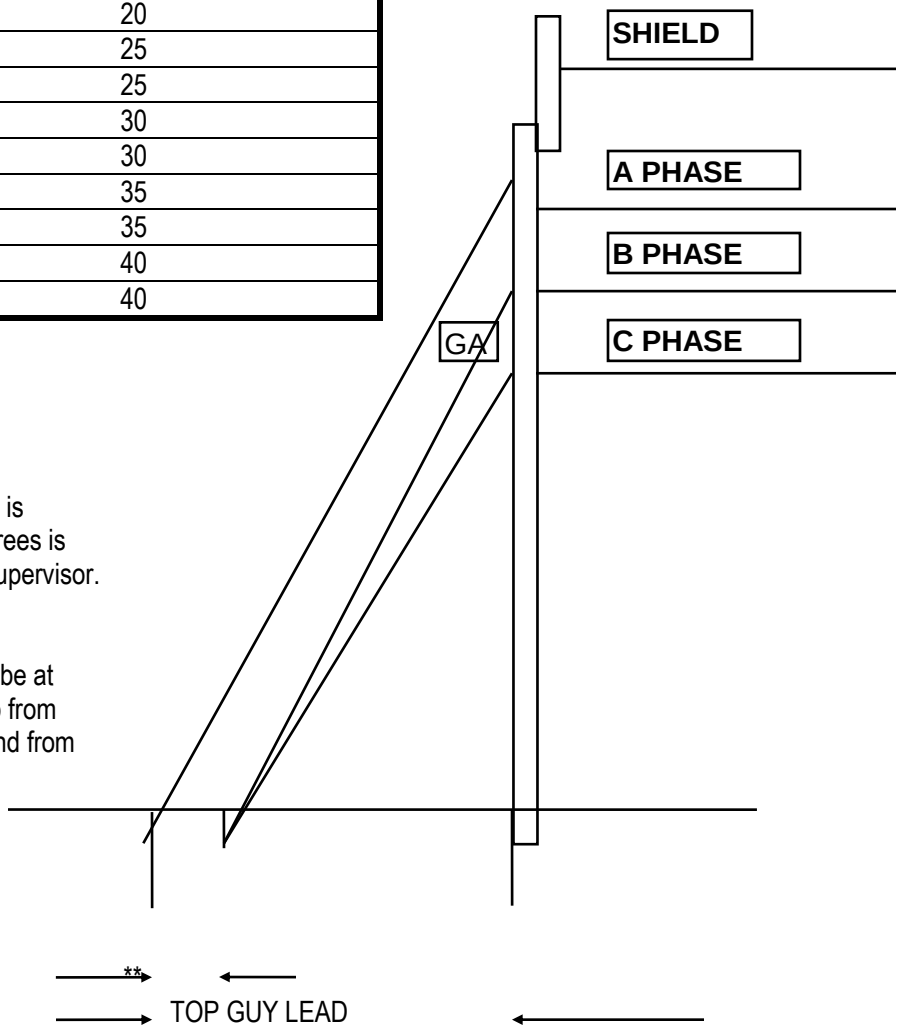


TABLE 3: GUYS AND SUPPORT PLATES

PLATE	DESCRIPTION
GY3	3/8" DOWNGUY WITH 8 FOOT SCREW ANCHOR
GY3-A	3/8" DOWNGUY WITHOUT ANCHOR
GY3SPN	3/8" SPANGUY
GY3BK	BREAKER ADDITION FOR EXISTING 3/8" SPANGUY AT POLE
GY3MBK	BREAKER ADDITION FOR EXISTING 3/8" SPANGUY MIDSPAN
GY3SW	3/8" SIDEWALK DOWNGUY
GY7	7/16" DOWNGUY WITH MULTI-HELIX ANCHOR
GY7-A	7/16" DOWNGUY WITHOUT ANCHOR
GY7SPN	7/16" SPANGUY
GY7BK	BREAKER ADDITION FOR EXISTING 7/16" SPANGUY AT POLE
GY7MBK	BREAKER ADDITION FOR EXISTING 7/16" SPANGUY MIDSPAN
GY7SPL	7/16" SPECIAL DOWNGUY FOR HORIZONTAL CONSTRUCTION
GY7MR	7/16" DOWNGUY WITH MANTA-RAY ANCHOR
GYX3.5	MULTI-HELIX ANCHOR EXTENSION 3'-6"
GYX5	MULTI-HELIX ANCHOR EXTENSION 5'-0"
GYX3.5MR	MANTA-RAY ANCHOR EXTENSION 3'-6"
GYX7MR	MANTA-RAY ANCHOR EXTENSION 7'-0"
GYBOG-C	BOGSHOE FOR CONCRETE POLE
GYBOG-W	BOGSHOE FOR WOOD POLE
GYBRACE-LD	POLE BRACE, LIGHT DUTY
GYBRACE-HD	POLE BRACE, HEAVY DUTY
GYBUTT-LD	BUTTGUY, LIGHT DUTY
GYBUTT-HD	BUTTGUY, HEAVY DUTY
GYKEY-LD	POLE KEY, LIGHT DUTY
GYKEY-HD	POLE KEY, HEAVY DUTY
GYPUSH	PUSH POLE

OPTIONS

*5 – 60" Strain Insulator

*12 – 144" Strain Insulator

PLATE EXAMPLES

GY7*5	7/16" Downguy with 60" strain insulator and a multi-helix anchor
GY3-A*5	3/8" Downguy with 60" strain insulator and no anchor
GY3SPN*12	3/8" Spanguy with a 144" strain insulator
GY3	3/8" Downguy with 8 foot screw anchor

VII. DOWNGUY REQUIREMENTS – VERTICAL CONSTRUCTION

TABLE 4 : SINGLE PHASE

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	GUY PLATE FOR 2/0 TO 636 KCM	BOLT HOLE
DA1	GY3	B5	N/A	N/A
DA1-5	GY3	B30	N/A	N/A
DA2	GY3	B5	N/A	N/A
DA2-5	GY3	B30	N/A	N/A
DA3	GY3	B5	N/A	N/A
DA3-5	GY3	B30	N/A	N/A
DA4	GY3(2)	B5, 7	N/A	N/A
DA4-5	GY3(2)	B30, 35	N/A	N/A
DA5	GY3	7	N/A	N/A
DA5-5	GY3	35	N/A	N/A
DA18(A)	GY3	B5	N/A	N/A
DA18(B)	GY3 GY3-A	B5 B68	N/A	N/A
DA18(C)	GY3 GY3-A	B5 B106	N/A	N/A
DA18-5(A)	GY3	B30	N/A	N/A
DA18-5(B)	GY3	B68	N/A	N/A
DA18-5(C)	GY3	B106	N/A	N/A
DA20(A)	GY3	B5	N/A	N/A
DA20(B)	GY3 GY3-A	B5 B68	N/A	N/A
DA20(C)	GY3 GY3-A	B5 B106	N/A	N/A
DA20-5(A)	GY3	B30	N/A	N/A
DA20-5(B)	GY3	B68	N/A	N/A
DA20-5(C)	GY3	B106	N/A	N/A
DA22(A)	GY3	7	N/A	N/A
DA22(B)	GY3 GY3-A	7 73	N/A	N/A
DA22(C)	GY3 GY3-A	7 111	N/A	N/A
DA22-5(A)	GY3	35	N/A	N/A
DA22-5(B)	GY3	73	N/A	N/A
DA22-5(C)	GY3	111	N/A	N/A

VII. DOWNGUY REQUIREMENTS – VERTICAL CONSTRUCTION (CONTINUED)

TABLE 5 : TWO PHASE

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	GUY PLATE FOR 2/0 TO 636 KCM	BOLT HOLE
DB1	GY3	B5	N/A	N/A
DB1-5	GY3	B30	N/A	N/A
DB2	GY3 GY3-A	B5 B68	N/A	N/A
DB2-5	GY3 GY3-A	B30 B68	N/A	N/A
DB3	GY3(2)	B5, B68	N/A	N/A
DB3-5	GY3(2)	B30, B68	N/A	N/A
DB4	GY3(4)	B5, 7, B68, 73	N/A	N/A
DB4-5	GY3(4)	B30, 35, B68, 73	N/A	N/A
DB5	GY3(2)	7, 73	N/A	N/A
DB5-5	GY3(2)	35, 73	N/A	N/A
DB18(A&B)	GY3(2)	B5, B68	N/A	N/A
DB18(A&C)	GY3(2)	B5, B106	N/A	N/A
DB18(B&C)	GY3(2)	B5, B68	N/A	N/A
DB18-5(A&B)	GY3(2)	B30, B68	N/A	N/A
DB18-5(A&C)	GY3(2)	B30, B106	N/A	N/A
DB18-5(B&C)	GY3(2)	B68, B106	N/A	N/A
DB20(A&C)	GY3(2)	B5, B68	N/A	N/A
DB20(A&C)	GY3(2)	B5, B106	N/A	N/A
DB20(B&C)	GY3(2)	B5, B68	N/A	N/A
DB20-5(A&B)	GY3(2)	B30, B68	N/A	N/A
DB20-5(A&C)	GY3(2)	B30, B106	N/A	N/A
DB20-5(B&C)	GY3(2)	B68, B106	N/A	N/A
DB22(A&B)	GY3 GY3-A	7 73	N/A	N/A
DB22(A&C)	GY3 GY3-A	7 111	N/A	N/A
DB22(B&C)	GY3 GY3-A	7 73	N/A	N/A
DB22-5(A&B)	GY3 GY3-A	35 73	N/A	N/A
DB22-5(A&C)	GY3 GY3-A	35 111	N/A	N/A
DB22-5(B&C)	GY3 GY3-A	73 111	N/A	N/A

VII. DOWNGUY REQUIREMENTS – VERTICAL CONSTRUCTION (CONTINUED)

TABLE 6: THREE PHASE

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	GUY PLATE FOR 2/0 TO 636 KCM	BOLT HOLE
DC1	GY3 GY3-A	B5 B106	GY3(2) GY3-A	B5, B68 B106
DC1-5	GY3 GY3-A	B30 B106	GY3(2) GY3-A	B30, B68 B106
DC2	GY3(2) GY3-A	B5, B68 B106	GY3(3) GY3-A	B5, B68, B106 B192
DC2-5	GY3(2) GY3-A	B30, B68 B106	GY3(3) GY3-A	B30, B68, B106 B192
DC3(30-45)	GY3(2) GY3-A	B5, B68 B106	GY7(2) GY7-A(2)	B5, B106 B68, B192
DC3(45-60)	GY3(2) GY3-A	B5, B68 B106	GY7(3) GY7-A	B5, B68, B106 B192
DC3-5(30-45)	GY3(2) GY3-A	B30, B68 B106	GY7(2) GY7-A(2)	B30, B106 B68, B192
DC3-5(45-60)	GY3(2) GY3-A	B30, B68 B106	GY7(3) GY7-A	B30, B68, B106 B192
DC4	GY3(4) GY3-A(2)	B5, 7, B68, 73 B106, 111	GY7(6) GY7-A(2)	B5, 7, B73, B106, 111, B192, 198
DC4-5	GY3(4) GY3-A(2)	B30, 35, B68, 73 B106, 111	GY7(6) GY7-A(2)	B30, 35, B68, 73, B106, 111 B192, 198
DC5	GY3(2) GY3-A	7,73 111	GY7(3) GY7-A	7, 73, 111 198
DC5-5	GY3(2) GY3-A	35, 73 111	GY7(3) GY7-A	35, 73, 111 198
DC7SL	GY3(2) GY3-A	7,73 111	GY7(3) GY7-A	7, 73, 111 198
DC18	GY3(2) GY3-A	B5, B68 B106	GY7(3) GY7-A	B5, B68, B106 B192
DC18-5	GY3(2) GY3-A	B30, B68 B106	GY7(3) GY7-A	B30, B68, B106 B192
DC20	GY3(2) GY3-A	B5, B68 B106	GY7(3) GY7-A	B5, B68, B106 B192
DC20-5	GY3(2) GY3-A	B30, B68 B106	GY7(3) GY7-A	B30, B68, B106 B192
DC22	GY3(2) GY3-A	7, 73 111	GY3(3) GY3-A	7, 73, 111 198
DC22-5	GY3(2) GY3-A	35, 73 111	GY3(3) GY3-A	35, 73, 111 198

VIII. SPANGUY & STUBGUY REQUIREMENTS – VERTICAL CONSTRUCTION

TABLE 7: ONE & TWO PHASE - 1/0 OR SMALLER

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	STUB POLE *DOWNGUY
DA1	GY3SPN	B5	GY3
DA1-5	GY3SPN	B30	GY3
DA2	GY3SPN	B5	GY3
DA2-5	GY3SPN	B30	GY3
DA3	GY3SPN	B5	GY3
DA3-5	GY3SPN	B30	GY3
DA4	GY3SPN(2)	B5, 7	GY3
DA4-5	GY3SPN(2)	B30, 35	GY3
DA5	GY3SPN	7	GY3
DA5-5	GY3SPN	35	GY3
DA18(A)	GY3SPN	B5	GY3
DA18(B)	GY3SPN(2)	B5, B68	GY3
DA18(C)	GY3SPN(2)	B5, B106	GY3
DA18-5(A)	GY3SPN	B30	GY3
DA18-5(B)	GY3SPN	B68	GY3
DA18-5(C)	GY3SPN	B106	GY3
DA20(A)	GY3SPN	B5	GY3
DA20(B)	GY3SPN(2)	B5, B68	GY3
DA20(C)	GY3SPN(2)	B5, B106	GY3
DA20-5(A)	GY3SPN	B30	GY3
DA20-5(B)	GY3SPN	B68	GY3
DA20-5(C)	GY3SPN	B106	GY3
DB1	GY3SPN	B5	GY3
DB1-5	GY3SPN	B30	GY3
DB2	GY3SPN(2)	B5, B68	GY3
DB2-5	GY3SPN(2)	B30, B68	GY3
DB3	GY3SPN(2)	B5, B68	GY3
DB3-5	GY3SPN(2)	B30, B68	GY3
DB4	GY3SPN(4)	B5, 7, B68, 73	GY3(2)
DB4-5	GY3SPN(4)	B30, 35, B68, 73	GY3
DB5	GY3SPN(2)	B5, B68	GY3(2)
DB5-5	GY3SPN(2)	B30, B68	GY3
DB18(A&B)	GY3SPN(2)	B5, B68	GY3(2)
DB18(A&C)	GY3SPN(2)	B5. B106	GY3(2)
DB18(B&C)	GY3SPN(2)	B5, B68	GY3(2)
DB18-5(A&B)	GY3SPN(2)	B30, B68	GY3
DB18-5(A&C)	GY3SPN(2)	B30, B106	GY3
DB18-5(B&C)	GY3SPN(2)	B68, B106	GY3
DB20(A&B)	GY3SPN(2)	B5, B68	GY3(2)
DB20(A&C)	GY3SPN(2)	B5, B106	GY3(2)
DB20(B&C)	GY3SPN(2)	B5, B68	GY3(2)
DB20-5(A&B)	GY3SPN(2)	B30, B68	GY3
DB20-5(A&C)	GY3SPN(2)	B30, B106	GY3
DB20-5(B&C)	GY3SPN(2)	B68, B106	GY3

* Where more than one stub pole is required, use size and number of downguys shown at each stub pole location.

VIII. SPANGUY & STUBGUY – VERTICAL CONSTRUCTION (CONTINUED)

TABLE 8: THREE PHASE - 1/0 OR SMALLER

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	STUB POLE *DOWNGUY
DC1	GY3SPN(2)	B5, B68	GY3
DC1-5	GY3SPN(2)	B30, B106	GY3
DC2	GY3SPN(2)	B5, B68	GY3
DC2-5	GY3SPN(2)	B30, B106	GY3
DC3(30-45)	GY3SPN(2)	B5, B68	GY3
DC3(45-60)	GY3SPN(2)	B5, B68	GY3(2)
DC3-5(30-45)	GY3SPN(2)	B30, B106	GY3
DC3-5(45-60)	GY3SPN(2)	B30, B106	GY3
DC4	GY3SPN(4)	B5, 7, B68, 73	GY3(2)
DC4-5	GY3SPN(4)	B30, 35, B106, 111	GY3
DC5	GY3SPN(2)	7, 73	GY3(2)
DC5-5	GY3SPN(2)	35, 111	GY3
DC7SL	GY3SPN(2)	7, 73	GY3(2)
DC18	GY3SPN(2)	B5, B68	GY3(2)
DC18-5	GY3SPN(2)	B30, B106	GY3
DC20	GY3SPN(2)	B5, B68	GY3(2)
DC20-5	GY3SPN(2)	B30, B106	GY3

* Where more than one stub pole is required, use size and number of downguys shown at each stub pole location.

TABLE 9: THREE-PHASE - 2/0 TO 636 KCM

STRUCTURE TYPE	GUY PLATE FOR 2/0 to 636 KCM	BOLT HOLE	STUB POLE *DOWNGUY
DC1	GY3SPN(2)	B5, B68	GY3
DC1-5	GY3SPN(2)	B30, B106	GY3
DC2	GY3SPN(3)	B5, B68, B106	GY3(2)
DC2-5	GY3SPN(2)	B30, B106	GY3(2)
DC3(30-45)	GY3SPN(3)	B5, B68, B106	GY3(3)
DC3(45-60)	GY3SPN(4)	B5, B30, B68, B106	GY7
DC3-5(30-45)	GY3SPN(2)	B30, B106	GY3(2)
DC3-5(45-60)	GY3SPN(3)	B30, B68, B106	GY7(2)
DC4	GY3SPN(8)	B5, 7, B68, 73, B106, 111, B192, 198	GY7(2)
DC4-5	GY3SPN(8)	B30, 35, B68, 73, B106, 111, B192, 198	GY7(2)
DC5	GY3SPN(4)	7, 73, 111, 198	GY7(2)
DC5-5	GY3SPN(4)	35, 73, 111, 198	GY7(2)
DC7SL	GY3SPN(4)	7, 73, 111, 198	GY7(2)
DC18	GY3SPN(4)	B5, B68, B106, B192	GY7(2)
DC18-5	GY3SPN(4)	B30, B68, B106, B192	GY7(2)
DC20	GY3SPN(4)	B5, B68, B106, B192	GY7(2)
DC20-5	GY3SPN(4)	B30, B68, B106, B192	GY7(2)

* Where more than one stub pole is required, use size and number of downguys shown at each stub pole location.

VIII. SPANGUY & STUBGUY (CONTINUED)

TABLE 10: HORIZONTAL - 1/0 OR SMALLER

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	STUB POLE *DOWNGUY
T1	GY3SPN	B68	GY3
T1-5	GY3SPN	B20	GY3
T2(5-30)	GY3SPN(2)	B5, B68	GY3(2)
T2-5(5-30)	GY3SPN	B20	GY3
T5	GY3SPN(2)	7,73	GY3(2)
T5-5	GY3SPN	25	GY3
T8(30-60)	GY3SPN(2)	B5, B68	GY3(2)
T8-5(30-60)	GY3SPN	B20	GY3
T20	GY3SPN(2)	B5, B106	GY3(2)
T20-5	GY3SPN	B68	GY3
T22	GY3SPN	111	GY3
T22-5	GY3SPN	73	GY3
VB1-5	GY3SPN	B20	GY3
VB2-5(5-30)	GY3SPN	B20	GY3
VB7-5	GY3SPN	25	GY3
VB8-5(30-60)	GY3SPN	B20	GY3
VB20-5	GY3SPN	B68	GY3
VB22-5	GY3SPN	73	GY3

IX. DOWNGUY REQUIREMENTS – HORIZONTAL CONSTRUCTION

TABLE 11: HORIZONTAL - 2/0 TO 636 KCM

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	STUB POLE *DOWNGUY
T1	GY3SPN	B68	GY3
T1-5	GY3SPN	B20	GY3
T2(5-30)	GY3SPN	B5, B68	GY3(2)
T2-5(5-30)	GY3SPN(2)	B20	GY3(2)
T5	GY7SPN(3)	7, 73, 198	GY7(2)
T5-5	GY7SPN(2)	25, 198	GY7(2)
T8(30-60)	GY7SPN(3)	B5, B68, B192	GY7(2)
T8-5(30-60)	GY7SPN(2)	B20, B192	GY7(2)
T20	GY7SPN(3)	B5, B105, B192	GY7(2)
T20-5	GY7SPN(2)	B68, B192	GY7(2)
T22	GY3SPN	111	GY3
T22-5	GY3SPN	73	GY3

* Where more than one stub pole is required, use size and number of downguys shown at each stub pole location.

IX. DOWNGUY REQUIREMENTS – HORIZONTAL CONSTRUCTION

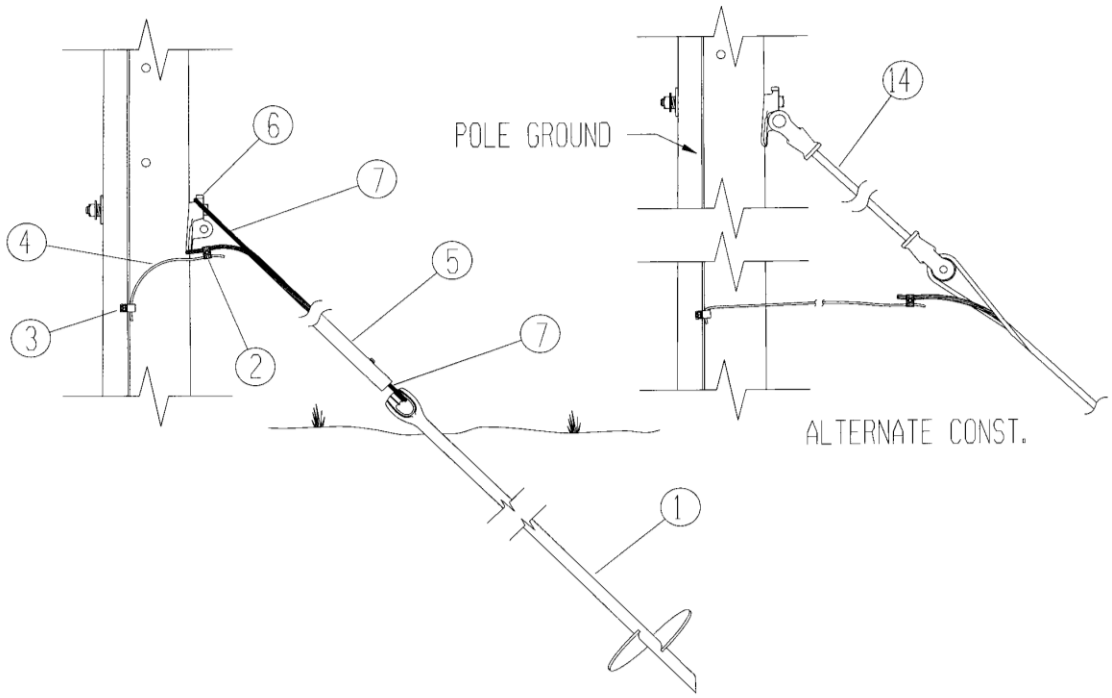
TABLE 12: 1/0 OR SMALLER & 2/0 TO 636 KCM

STRUCTURE TYPE	GUY PLATE FOR 1/0 OR SMALLER	BOLT HOLE	GUY PLATE FOR 2/0 TO 636 KCM	BOLT HOLE
T1	GY3	B68	GY3	B68
T1-5	GY3	B20	GY3	B20
T2(5-30)	GY3(2)	B5, B68	GY3(2)	B5, B68
T2-5(5-30)	GY3	B20	GY7	B20
T5	GY3(2)	7, 73	GY7 GY7SPL GY7-A	7, 73 73 198
T5-5	GY3	25	GY7 GY7SPL GY7-A	25 25 198
T8(30-60)	GY3(2)	B5, B68	GY7(2) GY7SPL	B5, B68 B68
T8-5(30-60)	GY3	B20	GY7(2) GY7SPL	B20, B192 B20
T20	GY3(2)	B5, B106	GY7(2) GY7SPL GY7-A	B5, B106 B106 B192
T20-5	GY3	B68	GY7 GY7SPL GY7-A	B68 B68 B192
T22	GY3	111	GY3	111
T22-5	GY3	73	GY3	73
VB1-5	GY3	B20	N/A	N/A
VB2-5(5-30)	GY3	B20	N/A	N/A
VB7-5	GY3	25	N/A	N/A
VB8-5(30-60)	GY3	B20	N/A	N/A
VB20-5	GY3	B68	N/A	N/A
VB22-5	GY3	73	N/A	N/A

GY3

3/8" DOWNGUY WITH 8 FOOT SCREW ANCHOR

OPTIONS: *5, *12
BOLT PLATE: NONE

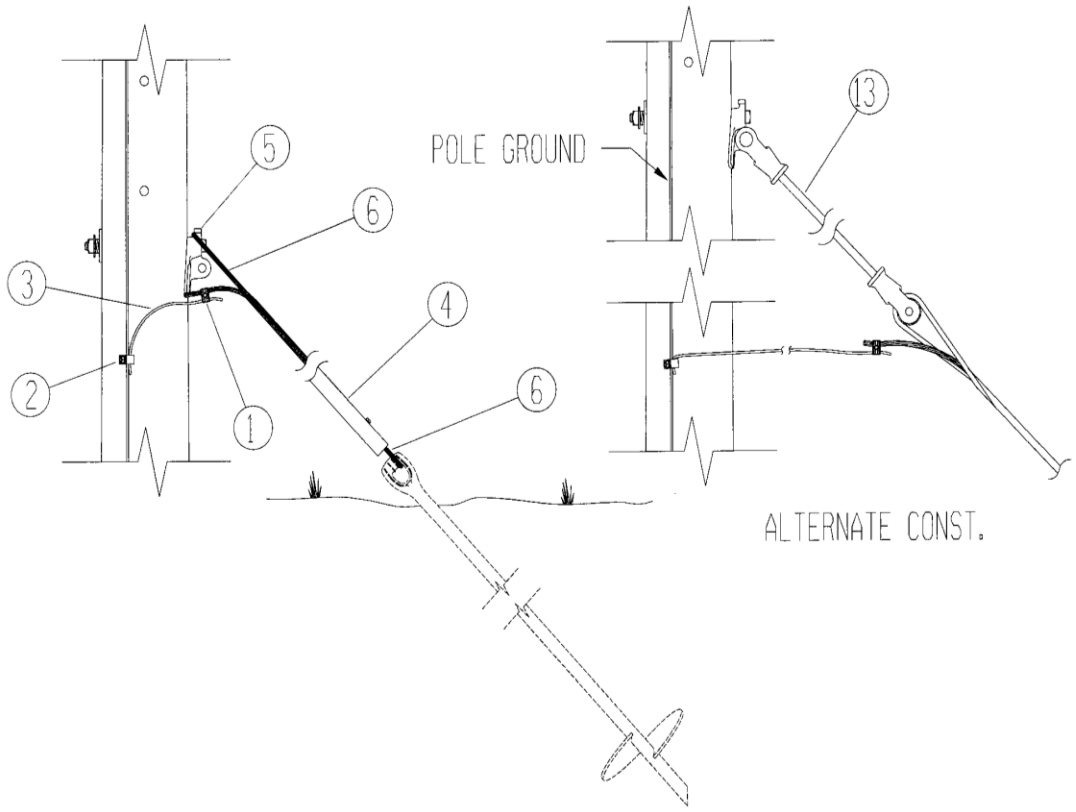


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	CNN CP 002	1	CONNECTOR, #2, 6-2 MAIN, 2-1/0 TAP, ALUMINUM COMPRESSION, PARALLEL TAP,
3	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
4	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
5	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
6	GUY AT 008	1	GUY ATTACHMENT (COMBINATION) 20,000 POUNDS
7	GUY GR 001	2	GUY GRIP, FOR 3/8" GUY STRAND
8	GUY ST 005	50	GUY STRAND, 3/8"
9	WAS RD 005	1	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
10	WAS SF 003	1	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
11	WAS SP 002	1	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
12	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
13	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
14	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GY3-A

3/8" DOWNGUY WITHOUT ANCHOR

OPTIONS: *5, *12
BOLT PLATE: NONE

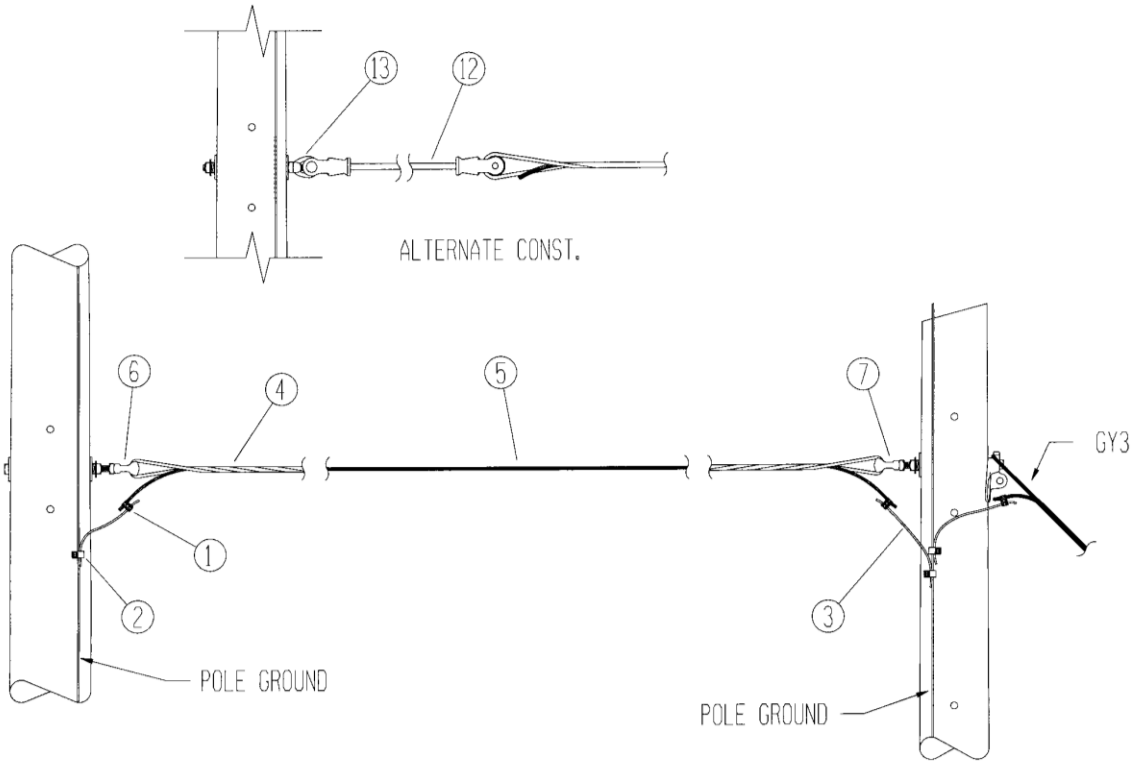


NO.	ITEM ID	QTY	DESCRIPTION
1	CNN CP 002	1	CONNECTOR, #2, 6-2 MAIN, 2-1/0 TAP, ALUMINUM COMPRESSION, PARALLEL TAP,
2	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
3	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
4	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
5	GUY AT 008	1	GUY ATTACHMENT (COMBINATION) 20,000 POUNDS
6	GUY GR 001	2	GUY GRIP, FOR 3/8" GUY STRAND
7	GUY ST 005	50	GUY STRAND, 3/8"
8	WAS RD 005	1	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
9	WAS SF 003	1	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
10	WAS SP 002	1	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
11	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
12	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
13	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GY3SPN

3/8" SPANGUY

OPTIONS: *5, *12
BOLT PLATE: NONE

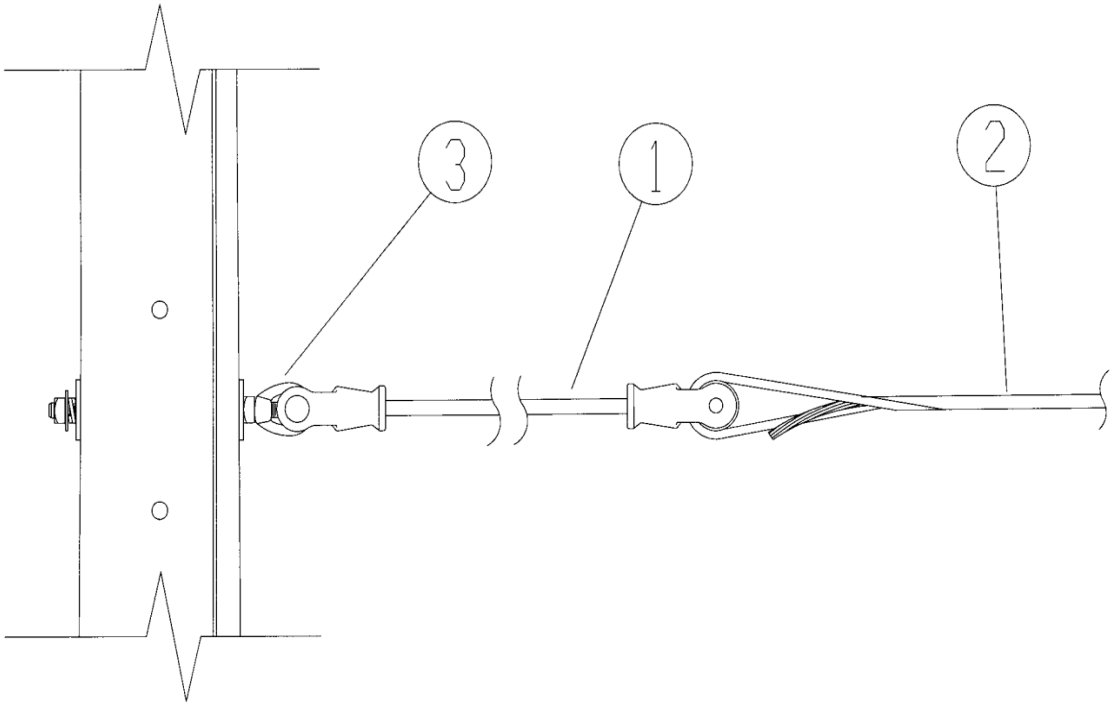


NO.	ITEM ID	QTY	DESCRIPTION
1	CNN CP 002	2	CONNECTOR, #2, 6-2 MAIN, 2-1/0 TAP, ALUMINUM COMPRESSION, PARALLEL TAP,
2	CNN VG 003	2	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
3	COB CO 028	5	CONDUCTOR, BARE COPPER, #4 SOL.
4	GUY GR 001	2	GUY GRIP, FOR 3/8" GUY STRAND
5	GUY ST 005	80	GUY STRAND, 3/8"
6	NUT TE 002	1	NUT, THIMBLE EYE, 3/4, SINGLE
7	NUT TE 003	1	NUT, THIMBLE EYE, 3/4, TWIN
8	WAS RD 005	1	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
9	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
10	WAS SP 002	1	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
11	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
12	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
13	NUT EY 003	1	NUT, EYE, 3/4

GY3BK

BREAKER ADDITION FOR EXISTING 3/8" SPANGUY AT POLE

OPTIONS: *5, *12
BOLT PLATE: NONE

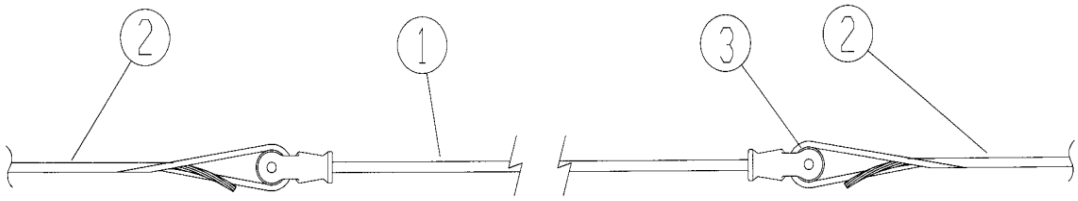


NO.	ITEM ID	QTY	DESCRIPTION
1	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
2	GUY GR 001	1	GUY GRIP, FOR 3/8" GUY STRAND
3	NUT EY 003	1	NUT, EYE, 3/4

GY3MBK

BREAKER ADDITION FOR EXISTING 3/8" SPANGUY AT MIDSPAN

OPTIONS: *5, *12
BOLT PLATE: NONE



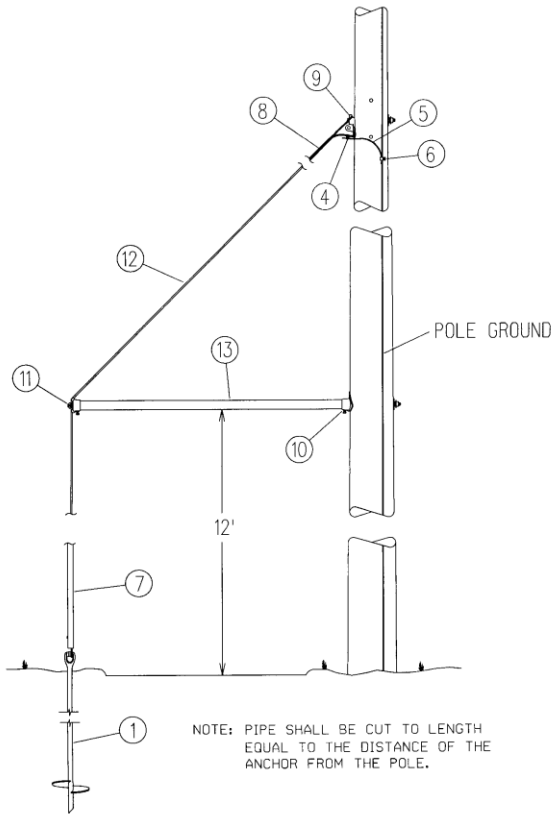
NO.	ITEM ID	QTY	DESCRIPTION
1	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
2	GUY GR 001	2	GUY GRIP, FOR 3/8" GUY STRAND
3	GUY RO 001	1	GUY ROLLER, 13/16" HOLE

GY3SW

3/8" SIDEWALK DOWNGUY

OPTIONS: *5, *12

BOLT PLATE: NONE



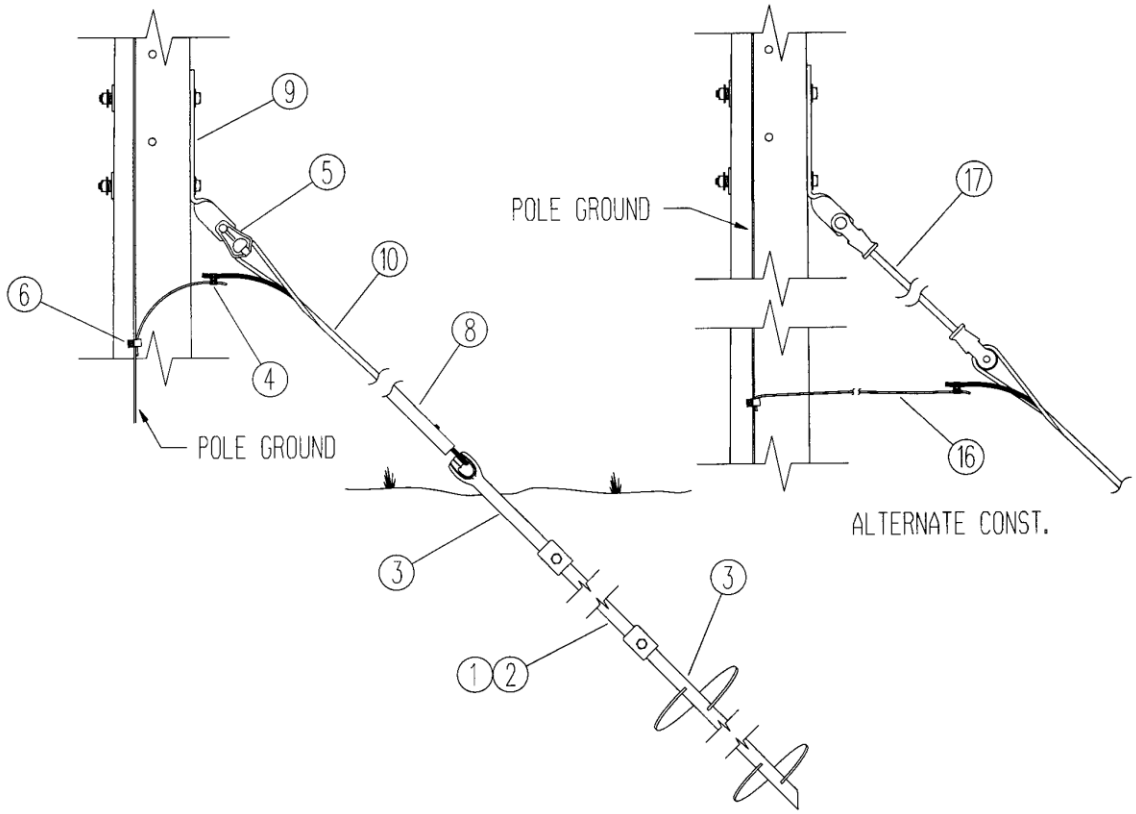
NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	BOL MS 020	1	BOLT, MACHINE, SQUARE HEAD, 5/8X14
3	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
4	CNN CP 002	1	CONNECTOR, #2, 6-2 MAIN, 2-1/0 TAP, ALUMINUM COMPRESSION,
5	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
6	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
7	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
8	GUY GR 001	2	GUY GRIP, FOR 3/8" GUY STRAND
9	GUY AT 008	1	GUY ATTACHMENT (COMBINATION) 20,000 POUNDS
10	GUY FI 001	1	GUY FITTING, SIDEWALK, POLE PLATE
11	GUY FI 002	1	GUY FITTING, SIDEWALK, SINGLE GUY CLAMP
12	GUY ST 005	50	GUY STRAND, 3/8"
13		1	PIPE, GALVANIZED, 2 IN. DIA., 6 FOOT LONG
14	SCW LA 002	1	SCREW, LAG, 1/2 IN. DIA., 4 IN. LONG
15	WAS RD 005	2	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
16	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
17	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT

GY7

7/16" DOWNGUY WITH MULTI-HELIX ANCHOR

OPTIONS: *5, *12

BOLT PLATE: NONE



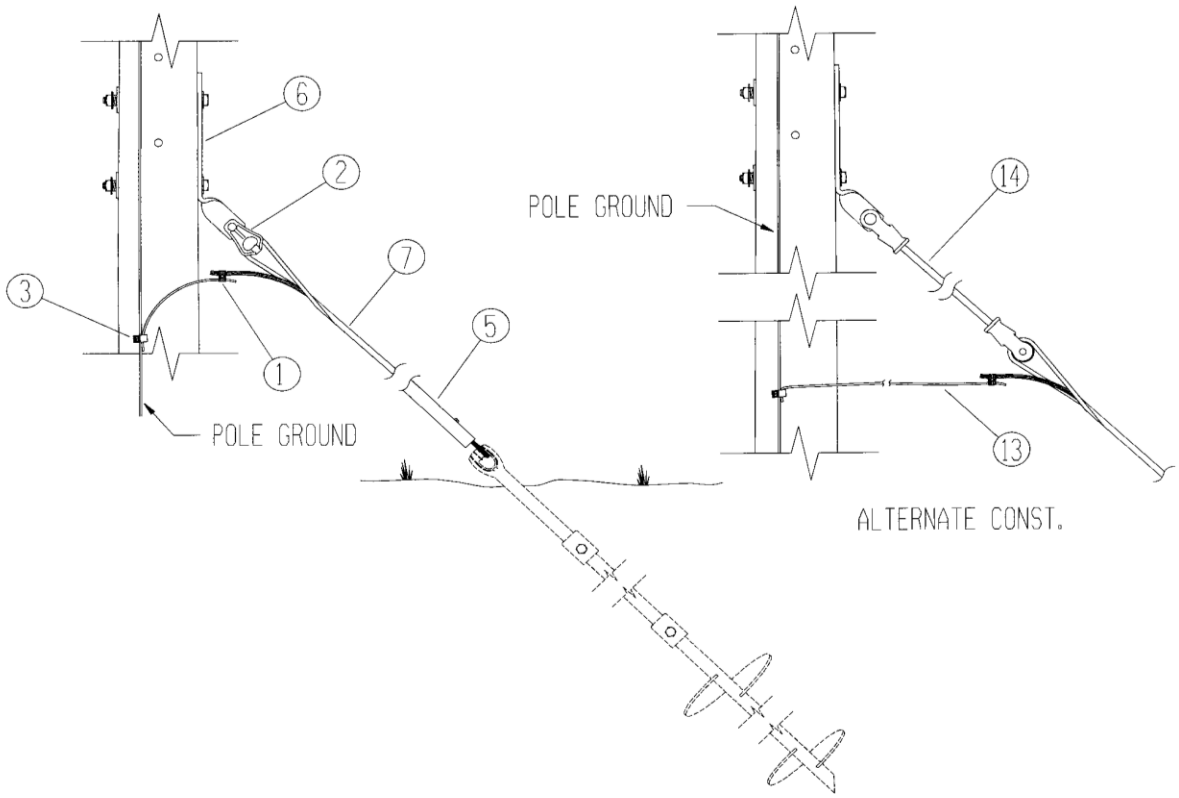
NO.	ITEM ID	QTY	DESCRIPTION
1	ANC EX 002	1	ANCHOR EXTENSION, 3-1/2 FOOT
2	ANC EX 003	3	ANCHOR EXTENSION, 5 FOOT
3	ANC MS 002	1	ANCHOR, MULTI-HELIX, 5 FOOT LONG, 10/11.3 IN. DIA. HELIX
4	CNN CP 005	1	CONNECTOR, #3, 6-2 MAIN, 2/0-3/0 TAP, COMPRESSION, PARALLEL
5	CLE TH 001	1	CLEVIS, THIMBLE, 20,000 POUNDS
6	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
7	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
8	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
9	GUY AT 004	1	GUY ATTACHMENT, 20,000 POUNDS MIN. ULTIMATE
10	GUY GR 002	2	GUY GRIP, FOR 7/16" GUY STRAND
11	GUY ST 006	50	GUY STRAND, 7/16"
12	WAS RD 005	4	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
13	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
14	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
15	BOL MS 036	2	BOLT, MACHINE, SQUARE HEAD 3/4X14
16	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
17	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GY7-A

7/16" DOWNGUY WITHOUT ANCHOR

OPTIONS: *5, *12

BOLT PLATE: NONE

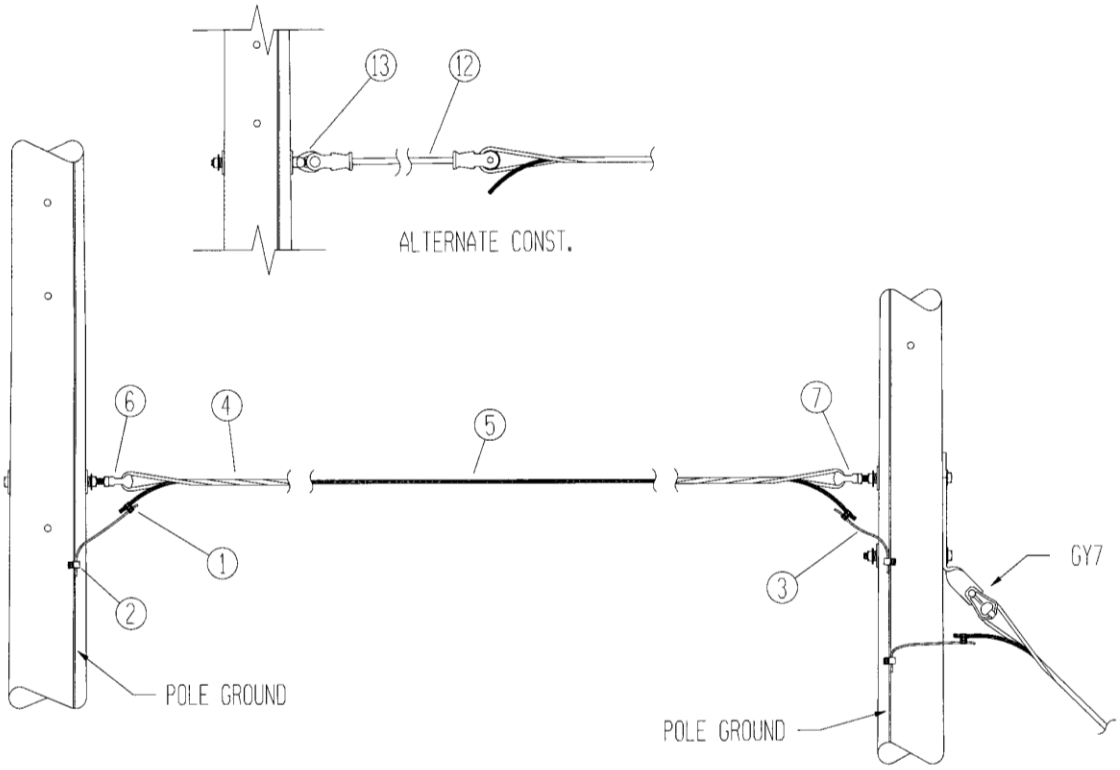


NO.	ITEM ID	QTY	DESCRIPTION
1	CNN CP 005	1	CONNECTOR, #3, 6-2 MAIN, 2/0-3/0 TAP, COMPRESSION, PARALLEL TAP, ALUMINUM,
2	CLE TH 001	1	CLEVIS, THIMBLE, 20,000 POUNDS
3	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
4	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
5	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
6	GUY AT 004	1	GUY ATTACHMENT, 20,000 POUNDS MIN. ULTIMATE
7	GUY GR 002	2	GUY GRIP, FOR 7/16" GUY STRAND
8	GUY ST 006	50	GUY STRAND, 7/16"
9	WAS RD 005	4	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
10	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
11	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
12	BOL MS 036	2	BOLT, MACHINE, SQUARE HEAD 3/4X14
13	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
14	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GY7SPN

7/16" SPANGUY

OPTIONS: *5, *12
BOLT PLATE: NONE

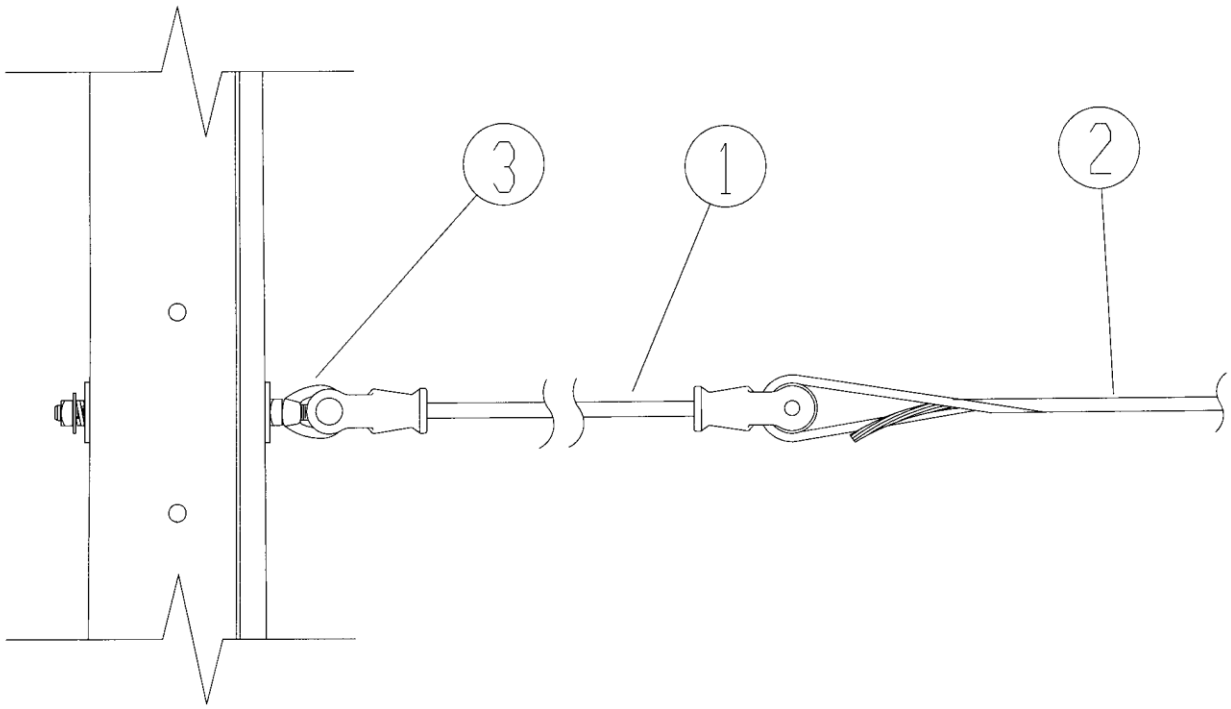


NO.	ITEM ID	QTY	DESCRIPTION
1	CNN CP 005	2	CONNECTOR, #3, 6-2 MAIN, 2/0-3/0 TAP, COMPRESSION, PARALLEL TAP, ALUMINUM,
2	CNN VG 003	2	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
3	COB CO 028	5	CONDUCTOR, BARE COPPER, #4 SOL.
4	GUY GR 002	2	GUY GRIP, FOR 7/16" GUY STRAND
5	GUY ST 006	80	GUY STRAND, 7/16"
6	NUT TE 002	1	NUT, THIMBLE EYE, 3/4, SINGLE
7	NUT TE 003	1	NUT, THIMBLE EYE, 3/4, TWIN
8	WAS RD 005	1	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
9	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
10	WAS SP 002	1	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
11	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
12	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
13	NUT EY 003	1	NUT, EYE, 3/4

GY7BK

BREAKER ADDITION FOR EXISTING 7/16" SPANGUY AT POLE

OPTIONS: *5, *12
BOLT PLATE: NONE

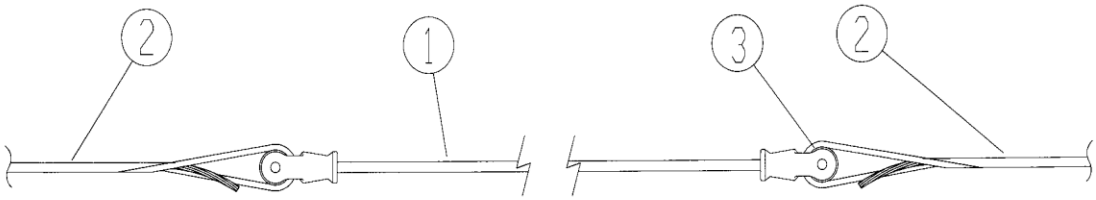


NO.	ITEM ID	QTY	DESCRIPTION
1	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
2	GUY GR 002	1	GUY GRIP, FOR 7/16" GUY STRAND
3	NUT EY 003	1	NUT, EYE, 3/4

GY7MBK

BREAKER ADDITION FOR EXISTING 7/16” SPANGUY AT MIDSPAN

OPTIONS: *5, *12
BOLT PLATE: NONE

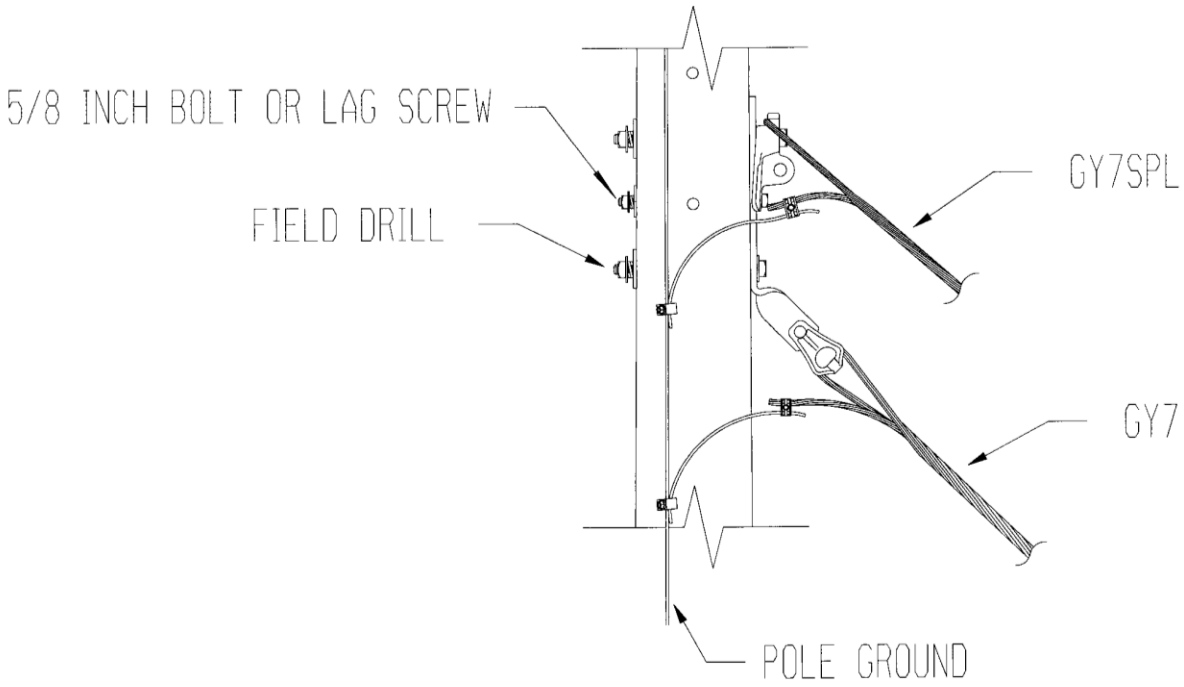


NO.	ITEM ID	QTY	DESCRIPTION
1	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR
2	GUY GR 002	2	GUY GRIP, FOR 7/16” GUY STRAND
3	GUY RO 001	1	GUY ROLLER, 13/16” HOLE

GY7SPL

7/16" SPECIAL DOWNGUY FOR HORIZONTAL CONSTRUCTION

OPTIONS: *5, *12
BOLT PLATE: NONE

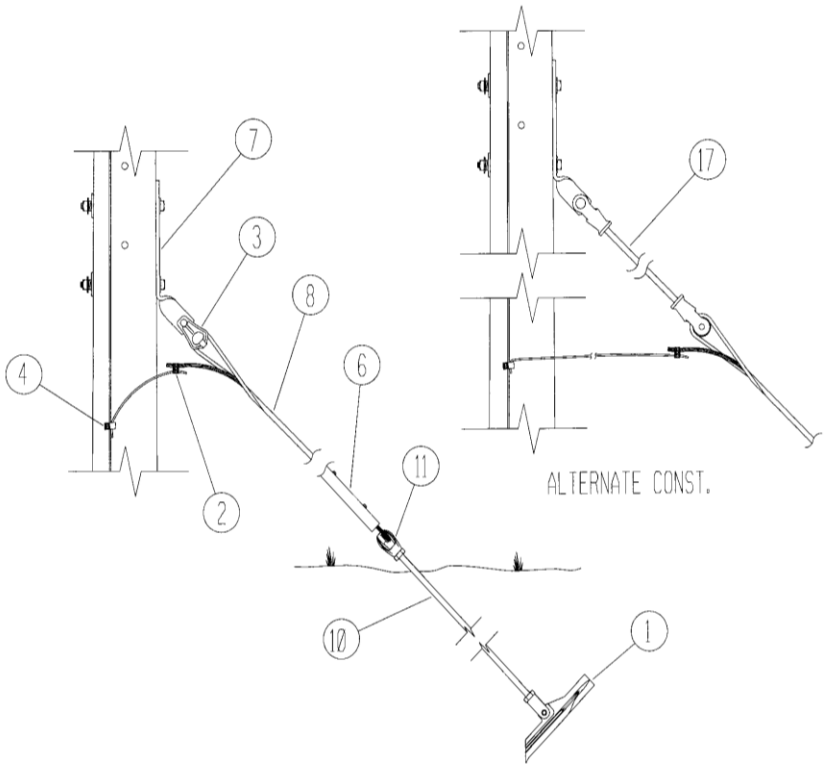


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC AE 001	1	ANCHOR, EYEBOLT ASSEMBLY, TRIPLE EYE
2	ANC EX ***	*	GENERAL CODE FOR EXTENSION (PLATED SEPARATE)
3	ANC MS 002	1	ANCHOR, MULTI-HELIX, 5 FOOT LONG, 10/11.3 IN. DIA. HELIX
4	CNN CP 005	1	CONNECTOR, #3, 6-2 MAIN, 2/0-3/0 TAP, COMPRESSION, PARALLEL
5	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
6	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
7	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
8	GUY AT 008	1	GUY ATTACHMENT (COMBINATION) 20,000 POUNDS
9	GUY GR 002	2	GUY GRIP, FOR 7/16" GUY STRAND
10	GUY ST 006	50	GUY STRAND, 7/16"
11	WAS RD 004	1	WASHER, ROUND, 1-3/4 IN. DIA., FOR 5/8 IN. DIA. BOLT
12	WAS RD 005	1	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
13	WAS SF 002	1	WASHER, SQUARE, FLAT, 2-1/4 IN., FOR 5/8 IN. DIA. BOLT
14	WAS SF 003	1	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
15	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
16	BOL MS 020	1	BOLT, MACHINE, SQUARE HEAD 5/8X14
17	BOL MS 036	1	BOLT, MACHINE, SQUARE HEAD 3/4X14
18	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
19	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GY7MR

7/16" DOWNGUY WITH MANTA-RAY ANCHOR

OPTIONS: *5, *12
BOLT PLATE: NONE

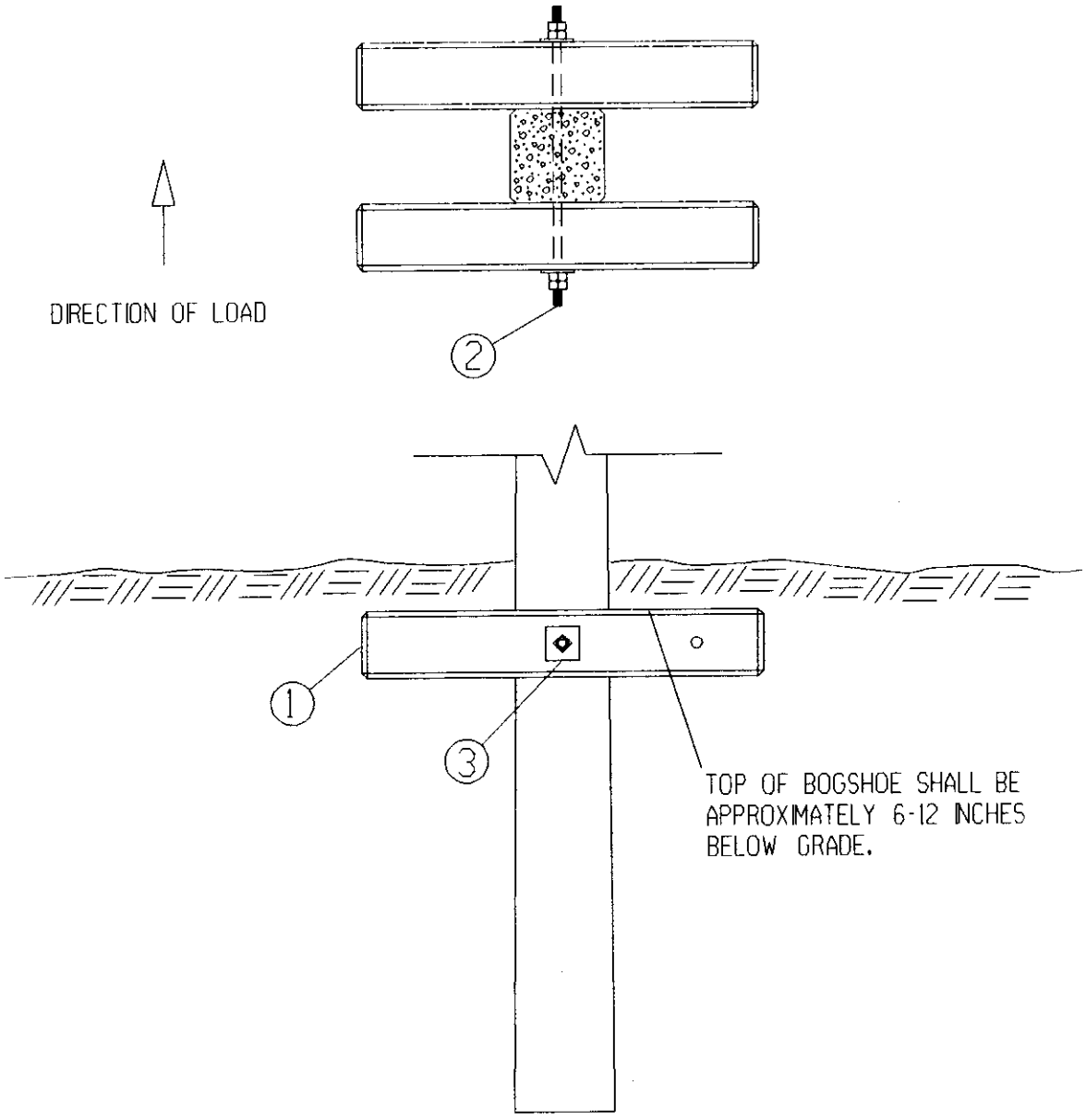


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC MR 001	1	ANCHOR, MANTA-RAY
2	CNN CP 005	1	CONNECTOR, #3, 6-2 MAIN, 2/0-3/0 TAP, COMPRESSION, PARALLEL
3	CLE TH 001	1	CLEVIS, THIMBLE, 20,000 POUNDS
4	CNN VG 003	1	CONNECTOR, VISE TYPE, #6- #2 SOL., #10- #2 SOL.
5	COB CO 028	3	CONDUCTOR, BARE COPPER, #4 SOL.
6	GUA GW 002	1	GUARD, GUY WIRE (YELLOW)
7	GUY AT 004	1	GUY ATTACHMENT, 20,000 POUNDS MIN. ULTIMATE
8	GUY GR 002	2	GUY GRIP, FOR 7/16" GUY STRAND
9	GUY ST 006	50	GUY STRAND, 7/16"
10	ROD ** ***	*	GENERAL CODE FOR EXTENSION (PLATED SEPERATE)
11	THI EY 002	1	THIMBLE EYE, TWIN, FOR MANTA-RAY ANCHOR
12	WAS RD 005	4	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
13	WAS SF 003	2	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
14	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT
15	BOL MS 036	2	BOLT, MACHINE, SQUARE HEAD 3/4X14
16	COB CO 028	10	CONDUCTOR, BARE COPPER, #4 SOL.
17	INS GB ***	1	GENERAL CODE FOR STRAIN INSULATOR

GYBOG-C

BOGSHOE FOR CONCRETE POLE

OPTIONS: NONE
BOLT PLATE: NONE

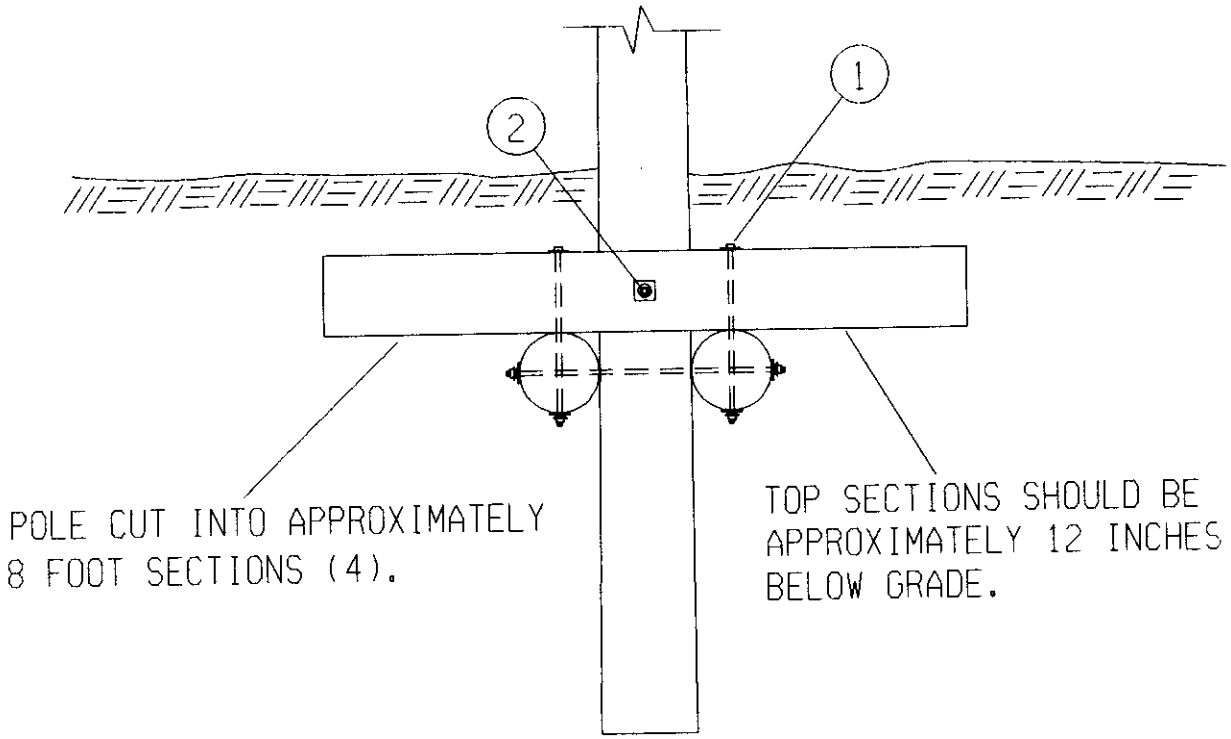


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC BS 001	2	ANCHOR, BOGSHOE, CONCRETE
2	ROD HA 007	1	ROD, HANGER, 1-1/2 IN. DIA., 60 IN. LONG
3	WAS SF 008	2	WASHER, 6 IN. SQUARE, FLAT, FOR 1-1/2 IN. DIA. BOLT

GYBOG-W

BOGSHOE FOR WOOD POLE

OPTIONS: NONE
BOLT PLATE: NONE

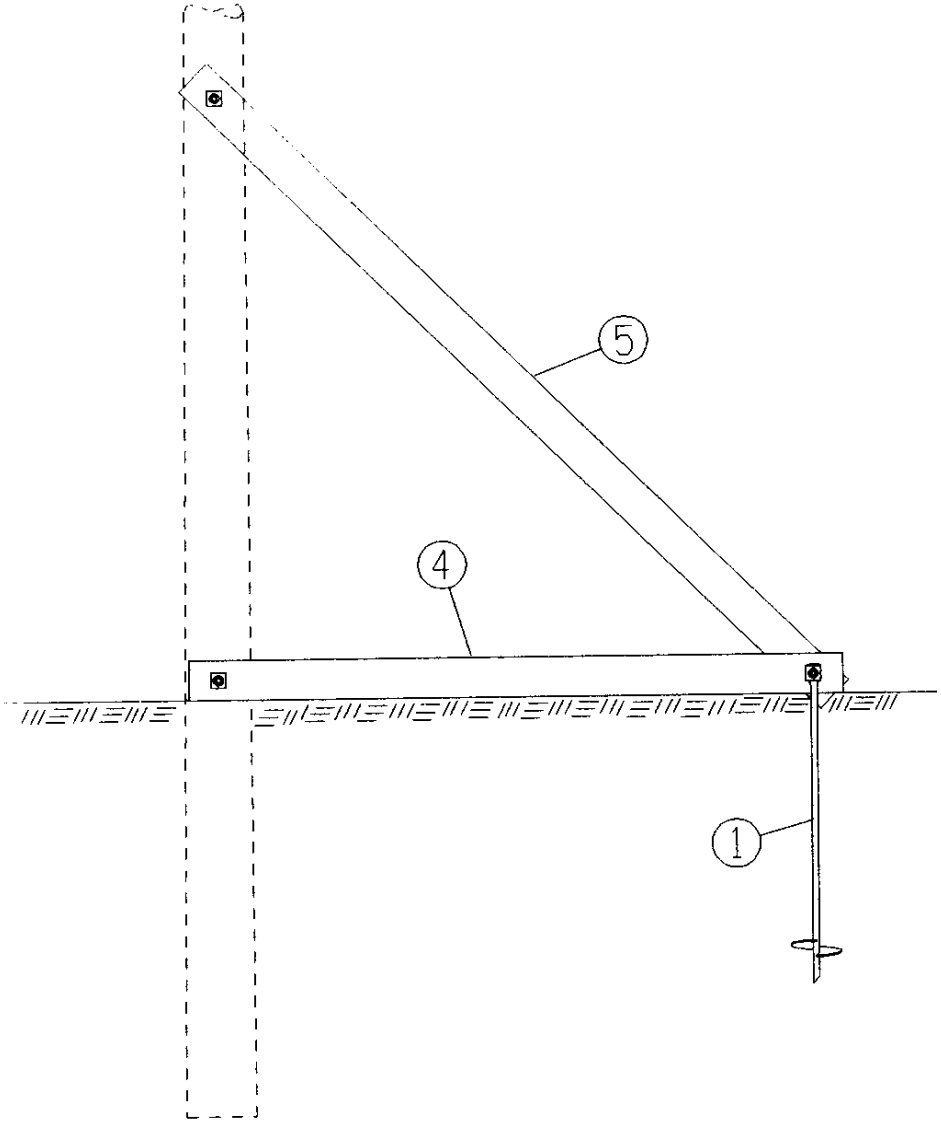


NO.	ITEM ID	QTY	DESCRIPTION
1	BOL MS 043	4	BOLT, MACHINE, SQUARE HEAD 3/4X28
2	POL WO 003	1	POLE, WOOD, 35 FOOT, CLASS 4, CCA TREATED
3	ROD HA 004	2	ROD, HANGER, 1 IN. DIA., 40 IN. LONG
4	WAS RD 005	4	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
5	WAS SC 003	4	WASHER, SQUARE, CURVED, 4 IN., FOR 1 IN. DIA. BOLT
6	WAS SF 003	8	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
7	WAS SP 002	4	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT

GYBRACE-LD

POLE BRACE – LIGHT DUTY

OPTIONS: NONE
BOLT PLATE: NONE

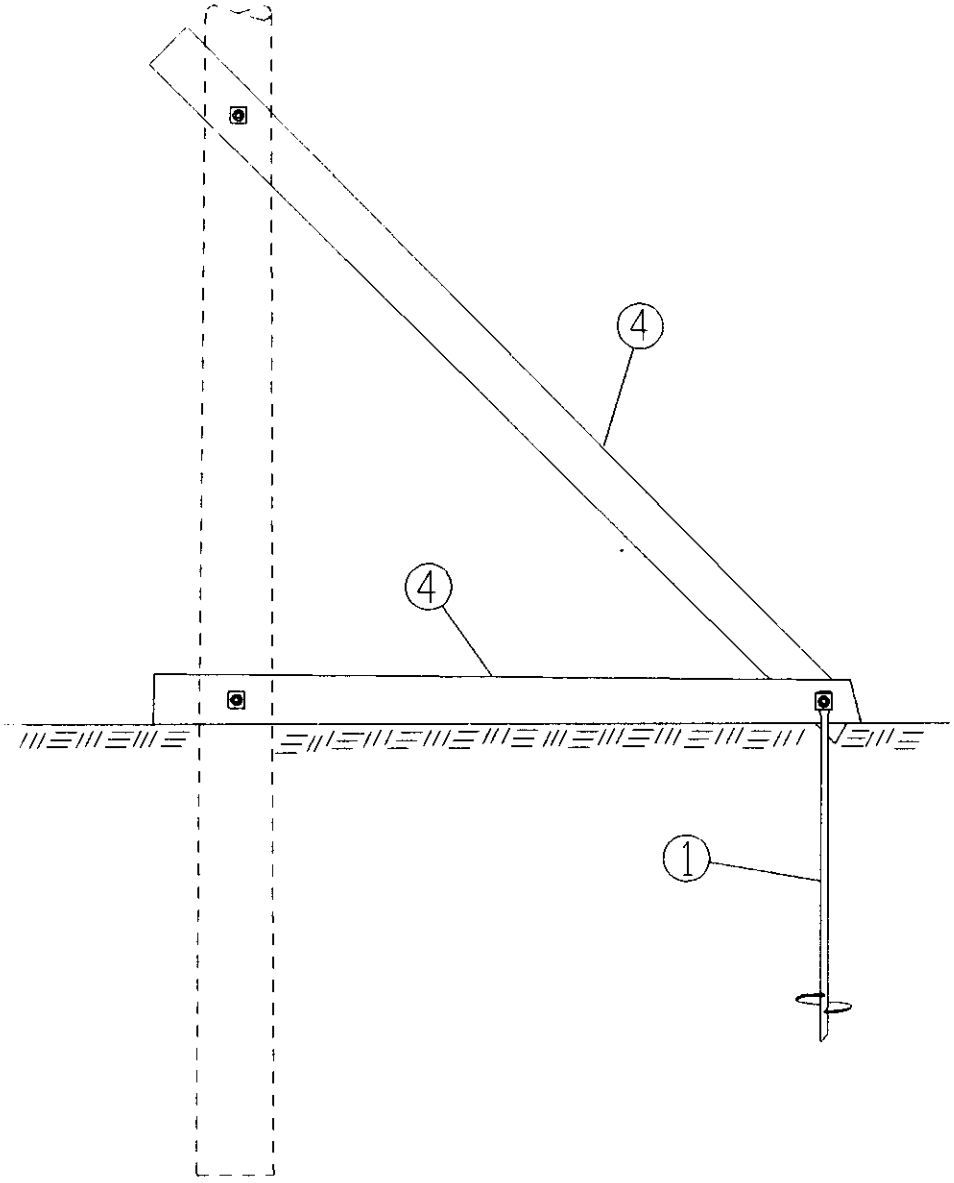


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	BOL DA 016	2	BOLT, DOUBLE ARMING 3/4X16
3	BOL DA 017	1	BOLT, DOUBLE ARMING 3/4X17
4	CXA WO 008	1	CROSSARM, WOOD, 6” X 8” X 11’
5	CXA WO 009	1	CROSSARM, WOOD, 6” X 8” X 15”
6	WAS RD 005	5	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
7	WAS SF 003	7	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT

GYBRACE-HD

POLE BRACE – HEAVY DUTY

OPTIONS: NONE
BOLT PLATE: NONE

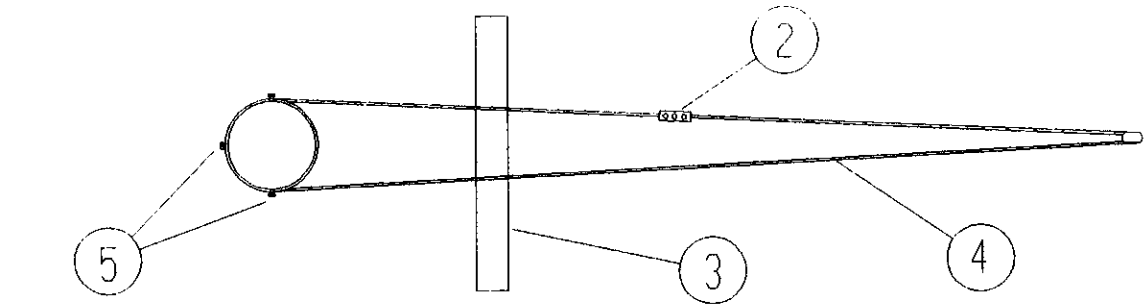


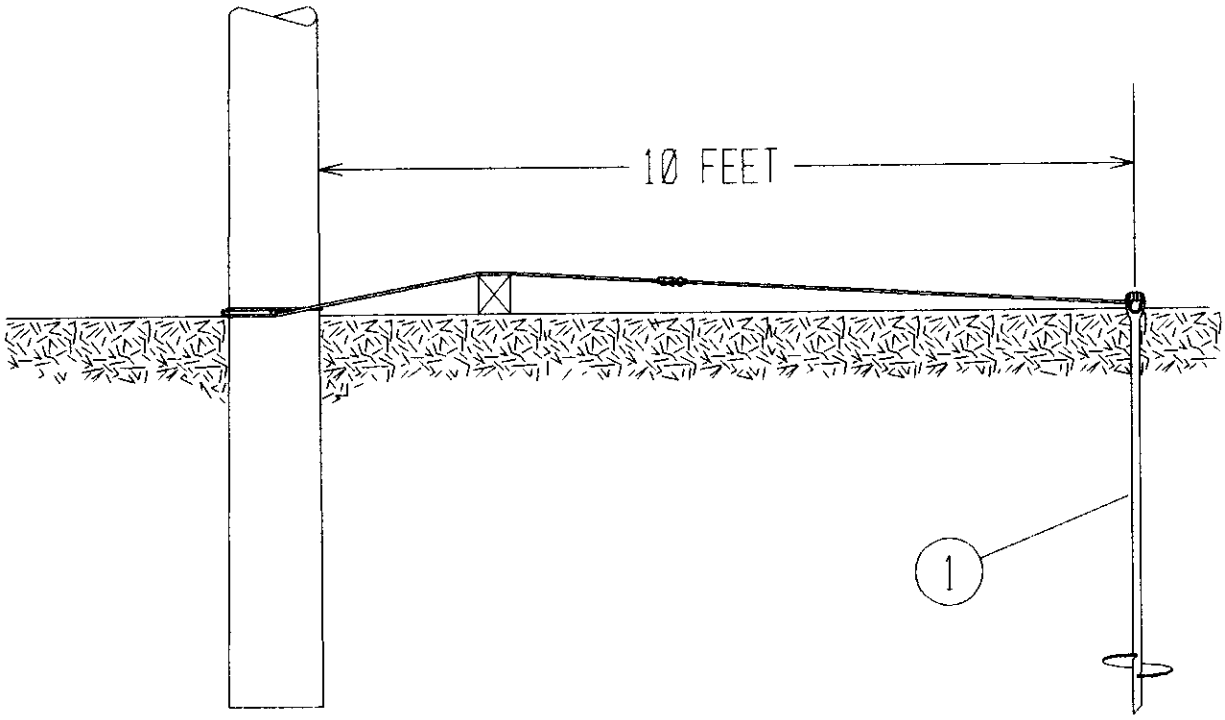
NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	BOL DA 021	1	BOLT, DOUBLE ARMING 3/4X26
3	BOL DA 022	2	BOLT, DOUBLE ARMING 3/4X28
4	POL WO 001	2	POLE, WOOD, CLASS 4, CCA TREATED
5	WAS SF 003	6	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT

GYBUTT-LD

BUTTGUY – LIGHT DUTY

OPTIONS: NONE
BOLT PLATE: NONE



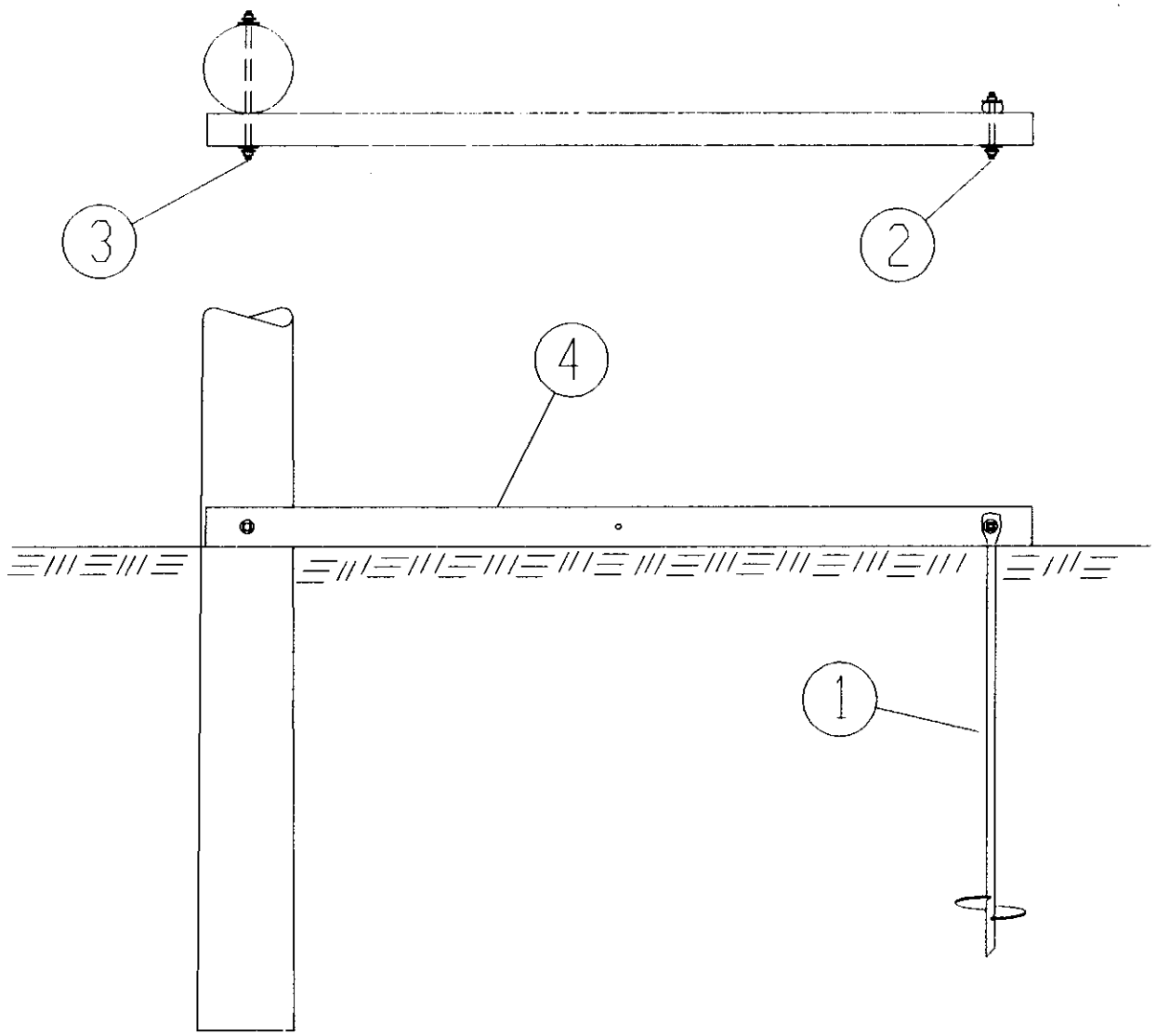


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	CLA CS 001	1	CLAMP, SUSPENSION, 3-BOLT TYPE
3	CXA WO 004	1	CROSSARM, WOOD, 5-3/4" X 4-3/4" X 10'
4	GUY ST 005	30	GUY STRAND, 3/8 IN.
5	SCW LA 002	3	SCREW, LAG, 1/2 IN. DIA., 4 IN. LENGTH

GYBUTT-HD

BUTTGUY – HEAVY DUTY

OPTIONS: NONE
BOLT PLATE: NONE

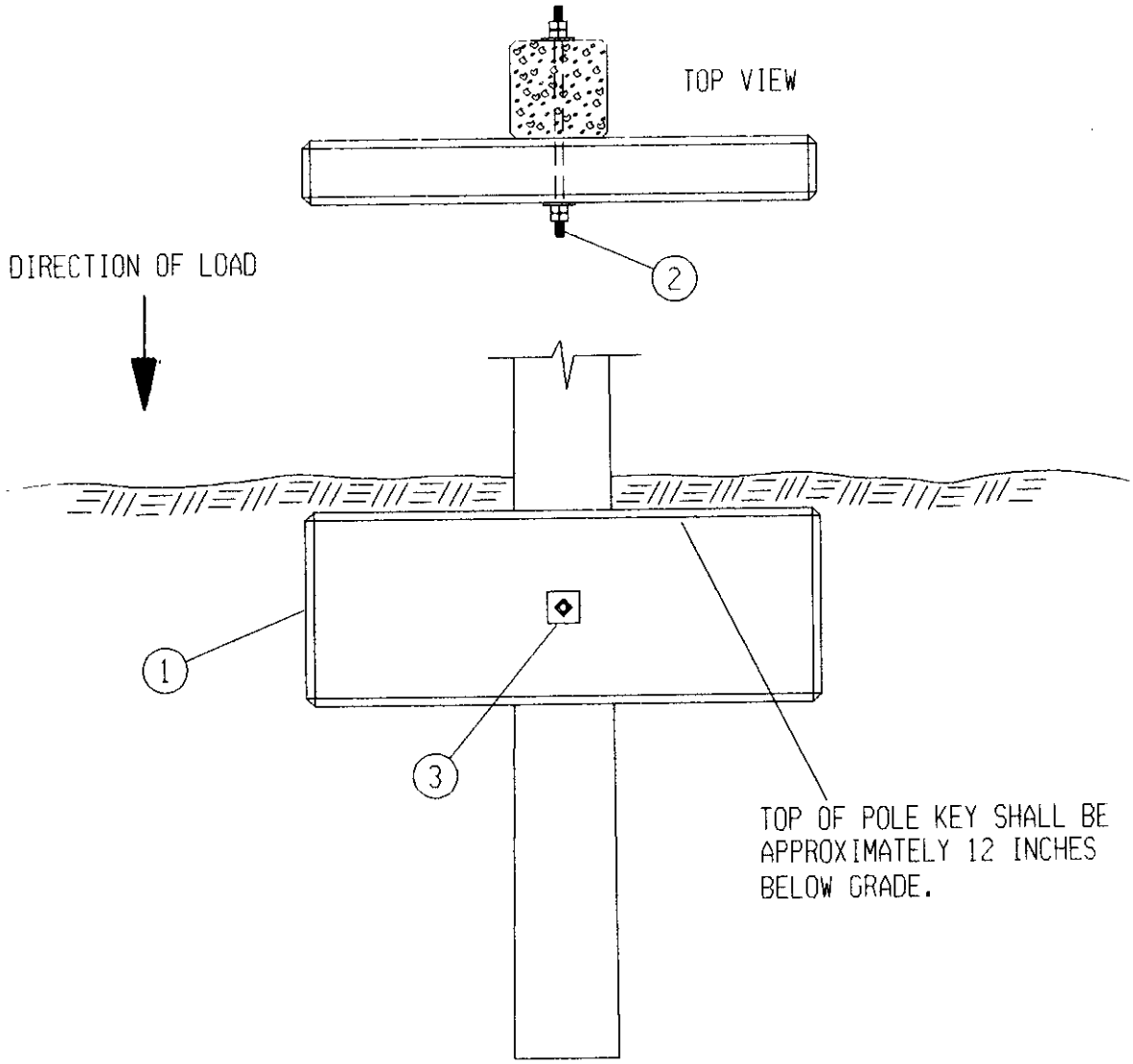


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	BOL DA 014	1	BOLT, DOUBLE ARMING 3/4X12
3	BOL DA 020	1	BOLT, DOUBLE ARMING 3/4X24
4	CXA WO 005	1	CROSSARM, WOOD, 5-3/4" X 5-3/4" X 10'
5	WAS RD 005	4	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
6	WAS SF 003	4	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
7	WAS SP 002	4	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT

GYKEY-LD

POLE KEY – LIGHT DUTY

OPTIONS: NONE
BOLT PLATE: NONE

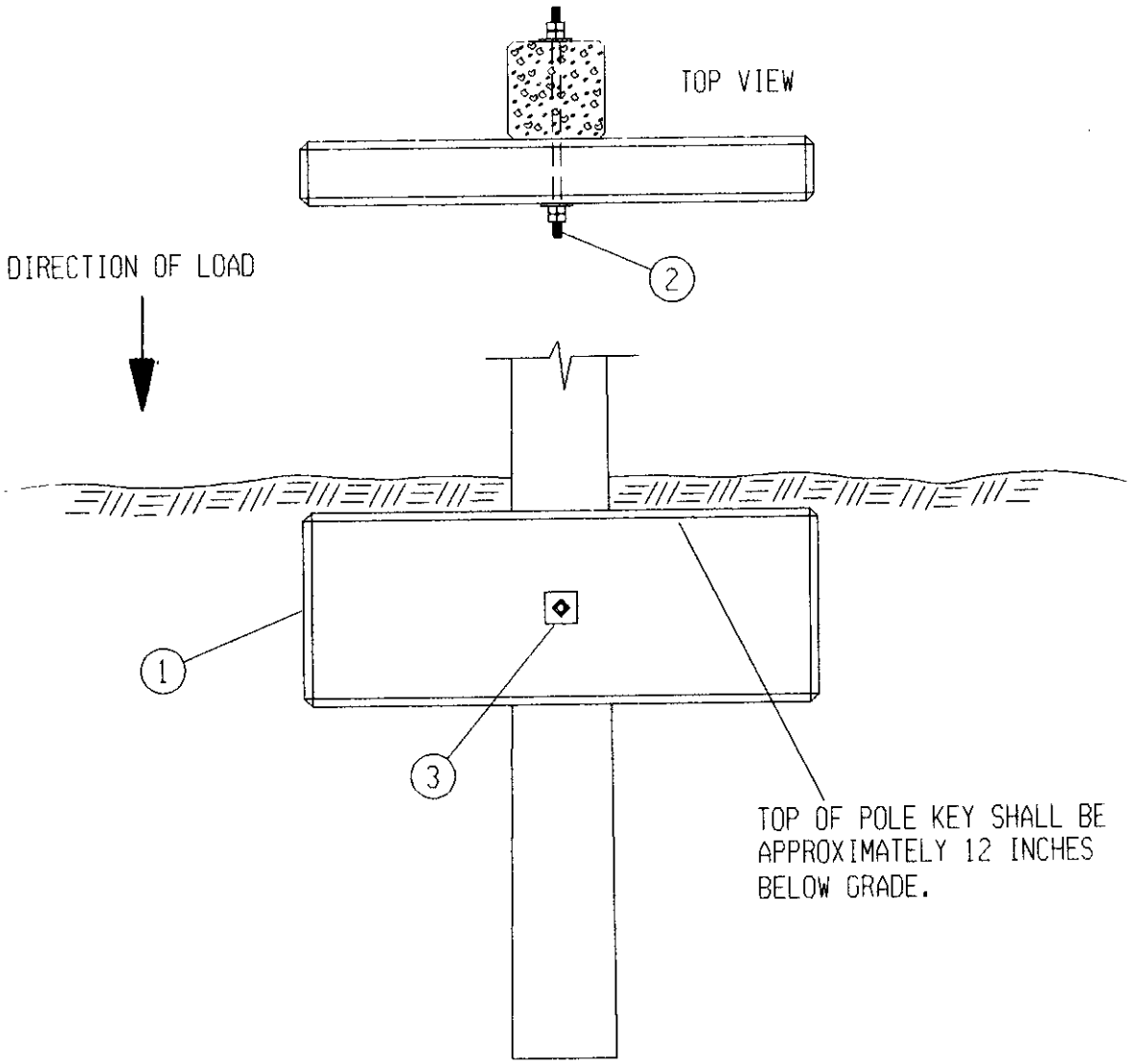


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC KY 001	1	ANCHOR KEY, 6 FOOT LENGTH
2	ROD HA 008	1	ROD, HANGER, 1-1/2 IN. DIA., 40 IN. LENGTH
3	WAS SF 008	2	WASHER, 6 IN. SQUARE, FLAT, FOR 1-1/2 IN. DIA. BOLT

GYKEY-HD

POLE KEY – HEAVY DUTY

OPTIONS: NONE
BOLT PLATE: NONE

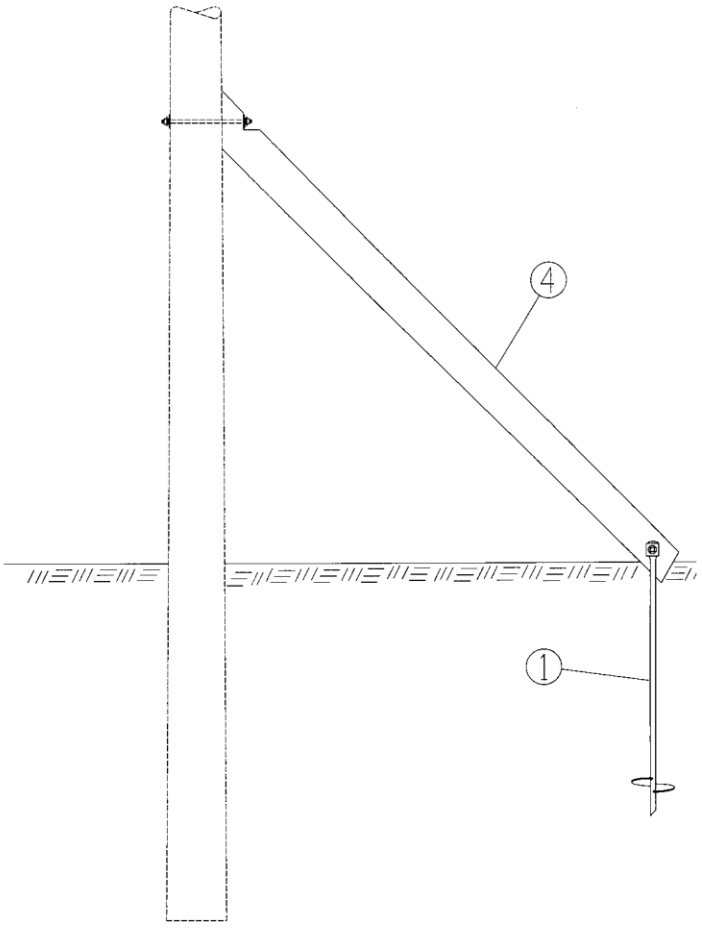


NO.	ITEM ID	QTY	DESCRIPTION
1	ANC KY 002	1	ANCHOR KEY, 8 FOOT LENGTH
2	ROD HA 008	1	ROD, HANGER, 1-1/2 IN. DIA., 40 IN. LENGTH
3	WAS SF 008	2	WASHER, 6 IN. SQUARE, FLAT, FOR 1-1/2 IN. DIA. BOLT

GYPUSH

PUSH POLE

OPTIONS: NONE
BOLT PLATE: NONE



NO.	ITEM ID	QTY	DESCRIPTION
1	ANC SS 002	1	ANCHOR, SINGLE HELIX, 8 FOOT LENGTH
2	BOL DA 018	1	BOLT, DOUBLE ARMING 3/4X20
3	BOL DA 019	1	BOLT, DOUBLE ARMING 3/4X22
4	POL WO 003	1	POLE, WOOD, 35 FOOT, CLASS 4
5	WAS RD 005	2	WASHER, ROUND, 2 IN. DIA., FOR 3/4 IN. DIA. BOLT
6	WAS SF 003	4	WASHER, SQUARE, FLAT, 3 IN., FOR 3/4 IN. DIA. BOLT
7	WAS SP 002	2	WASHER, SPRING, DOUBLE HELIX, FOR 3/4 IN. DIA. BOLT