

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1		1	WASHER, SQUARE FLAT, 2 1/4"
2		1	CROSSARM, 10 FT., FIBERGLASS DEAD-END
3		2	BOLT, MACHINE, 3/4 INCH X 14 INCH
4		2	WASHER, CURVED, 2.5 X 2.5 WITH 13/16 HOLE
5		2	WASHER, 3/4 INCH LOCK SINGLE LOOP
6		3	INSULATOR, DEADEND, ONE-PIECE, 15 KV
7		1	WASHER, SINGLE COIL 5/8 INCH LOCK
8		1	BOLT, OVAL EYE, 5/8 X 14"
9		1	CLAMP
10		3	CLAMP

NOTES:

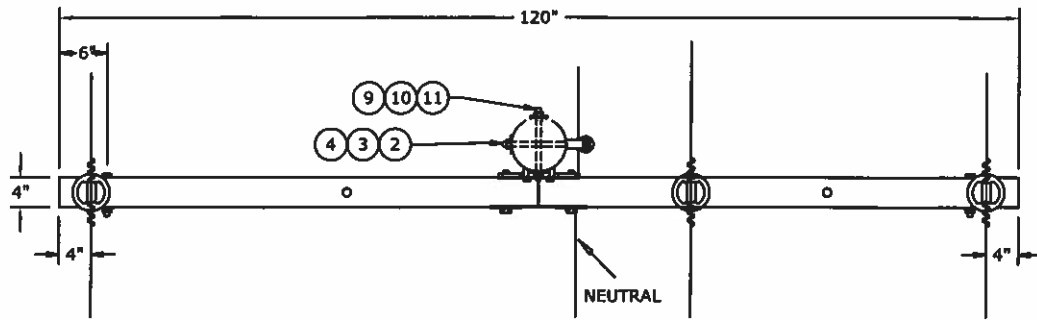
- STEEL POLES ARE TO BE GROUNDED THROUGH A DRIVEN GROUND ROD INSTALLED NEXT TO POLE.
- ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

3			
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0	10/15/20	RED	ERE
REVISED	BY		APPR.

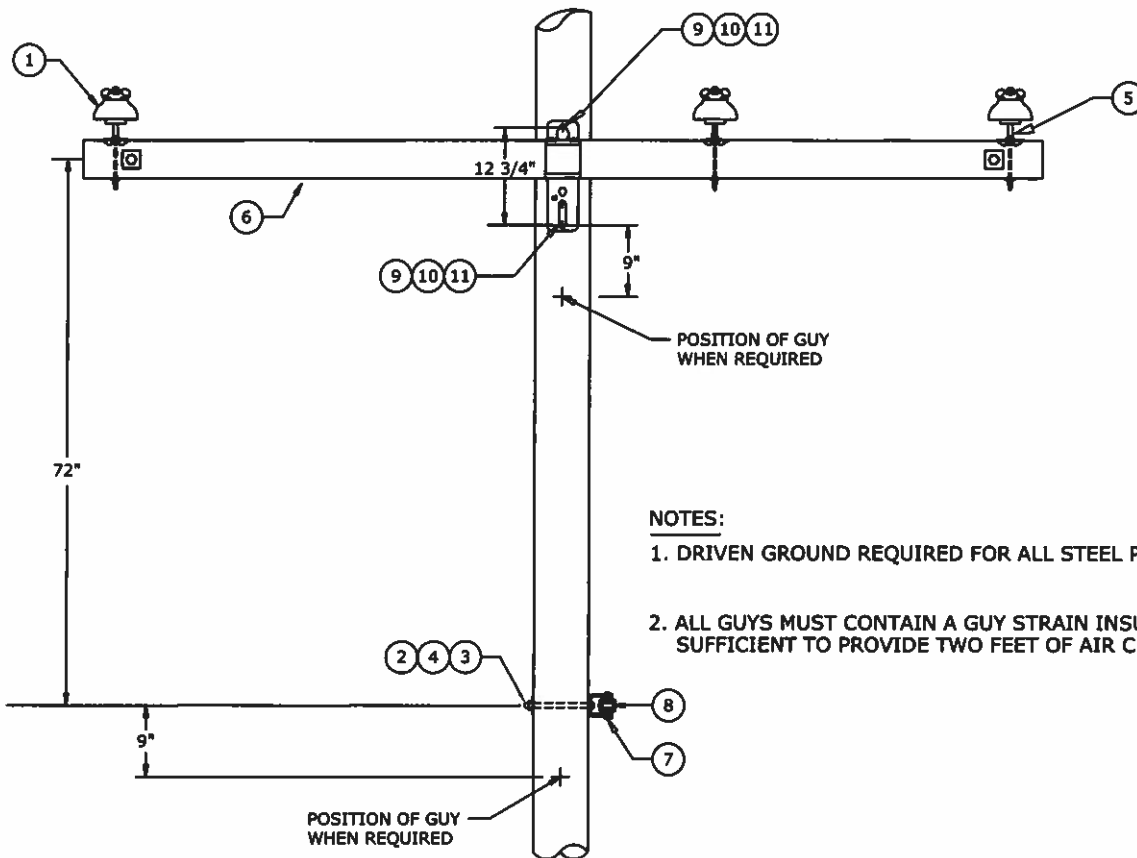
**CROSSARM CONSTRUCTION,
THREE-PHASE, DEADEND ON
FIBERGLASS ARM ON STEEL POLE, 15KV**

SCALE
1/2"=1'-0"

DWG.
C7-1BED



PLAN VIEW



FRONT VIEW

NOTES:

1. DRIVEN GROUND REQUIRED FOR ALL STEEL POLES
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

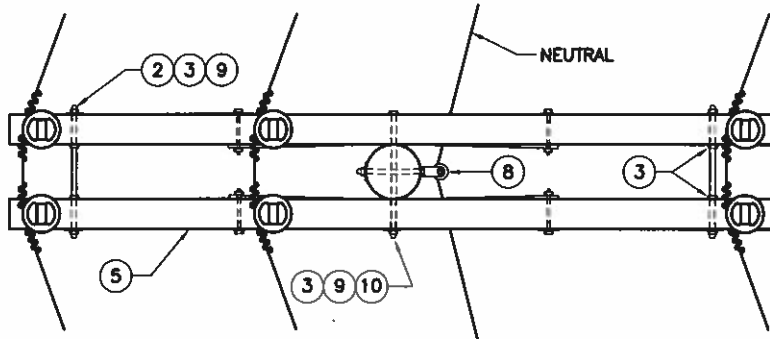
NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1		3	INSULATOR, PIN-TYPE, TIE TOP, CLASS 55-4
2		1	BOLT MACHINE 5/8 X 14
3		1	WASHER, LOCK, 5/8"
4		1	WASHER, SQUARE FLAT, 2 1/4" WITH 13/16" HOLE
5		3	PIN, CROSSARM, STEEL CLAMP TYPE
6		1	CROSSARM, 10 FT FIBERGLASS
7		3	CLEVIS, INSULATED SECONDARY/DEADEND
8		1	INSULATOR, SPOOL, CLASS 53-2
9		2	BOLT, DA 3/4 INCH X 14 INCH
10		2	WASHER, CURVED, 3.5 X 2.5 INCH
11		2	WASHER, LOCK, 3/4 INCH SINGLE COIL

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0	10/06/20	BEDFORD ED	ERE
REVISED	BY	APPR.	

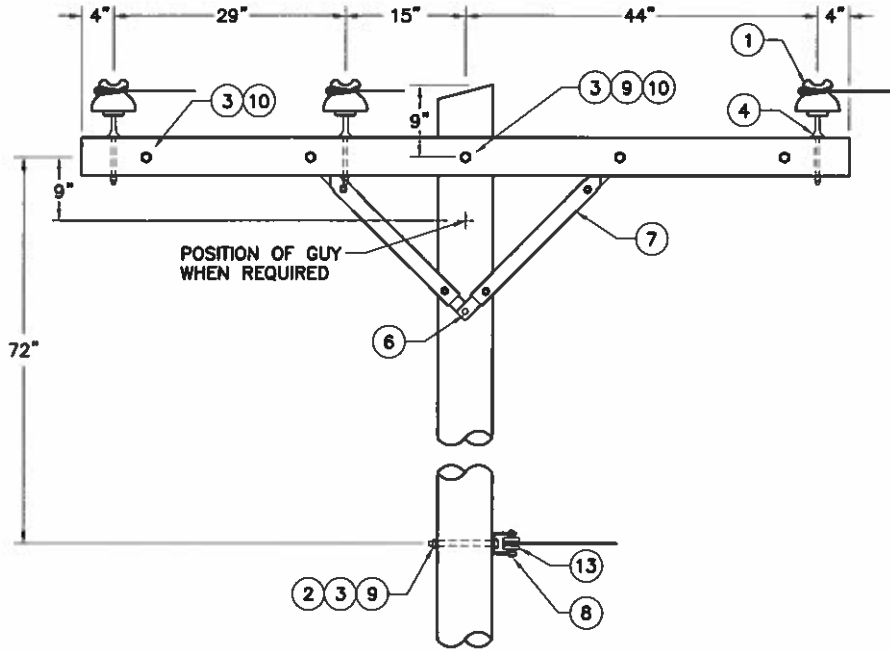
**CROSSARM CONSTRUCTION, THREE-PHASE
LARGE CONDUCTOR, SINGLE ARM, 15KV
TANGENT ARM ON STEEL TRANSMISSION POLE**

SCALE
1/2"=1'-0"

DWG.
C1FBED



PLAN VIEW



FRONT VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	6	INSULATOR, PIN TYPE
2	-	1	BOLT, MACHINE, 5/8" X REQ'D LENGTH
3	-	11	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
4	-	6	PIN, CROSSARM, STEEL
5	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
6	-	2	SCREW, LAG, 1/2" X 4"
7	-	4	EA, BRACE, WOOD, 38" SPAN
8	-	1	BRACKET, RIGID CLEVIS, INSULATED
9	-	11	WASHER, LOCK, 5/8"
10	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
11	-	4	BOLT, CARRIAGE, 3/8" X 4-1/2"
12	-	2	WASHER, LOCK, 3/8"
13	-	1	INSULATED SPOOL

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

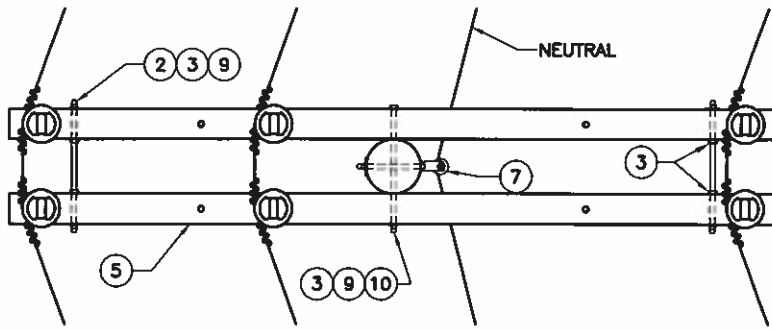
3			
2			
1			
0	1/26/05	CADD GRAPHICS	DST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION
THREE PHASE, LARGE CONDUCTOR
CENTER PHASE ON DOUBLE ARMS, 15KV**

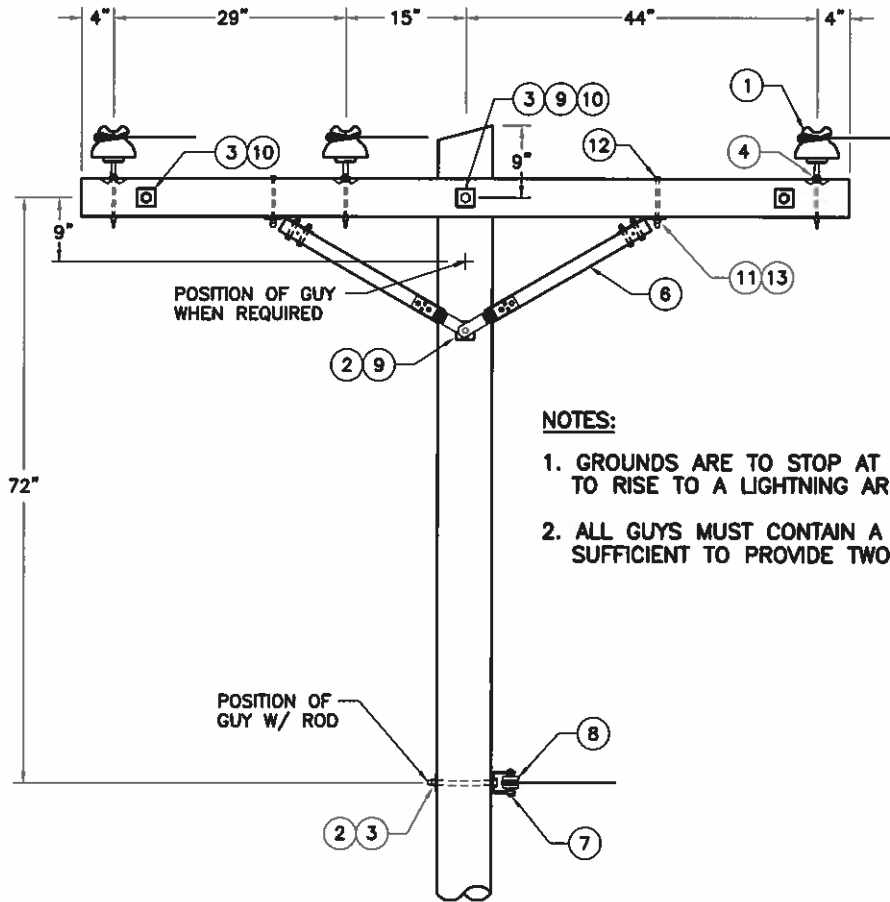


SCALE
1/2"=1'-0"

DWG.
C2-1EC



PLAN VIEW



FRONT VIEW

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	6	INSULATOR, PIN TYPE
2	-	2	BOLT, MACHINE, 5/8" X REQ'D LENGTH
3	-	11	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
4	-	6	PIN, CROSSARM, STEEL CLAMP TYPE
5	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
6	-	4	EA, BRACE, WOOD, 60° SPAN
7	-	1	BRACKET, RIGID CLEVIS
8	-	1	INSULATED SPOOL
9	-	12	NUT, WASHER, LOCK, 5/8"
10	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
11	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
12	-	4	WASHER, ROUND, 1-3/8" WITH 9/16" HOLE
13	-	4	NUT, WASHER, LOCK, 1/2"

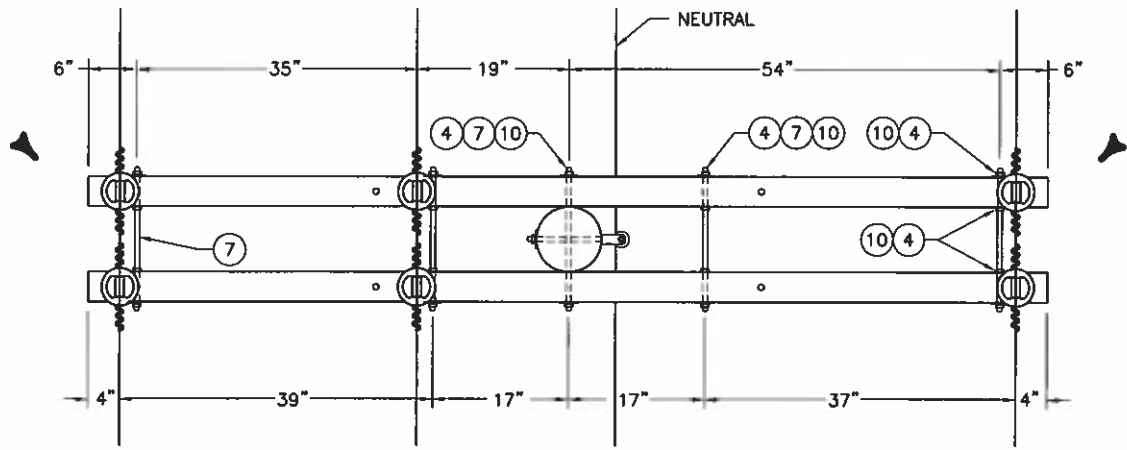
3			
2			
1	1/28/03	CADD GRAPHICS	DST
0	6/18/04	CADD GRAPHICS	DST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION
THREE PHASE, LARGE CONDUCTOR
CENTER PHASE ON DOUBLE ARMS, 15KV**

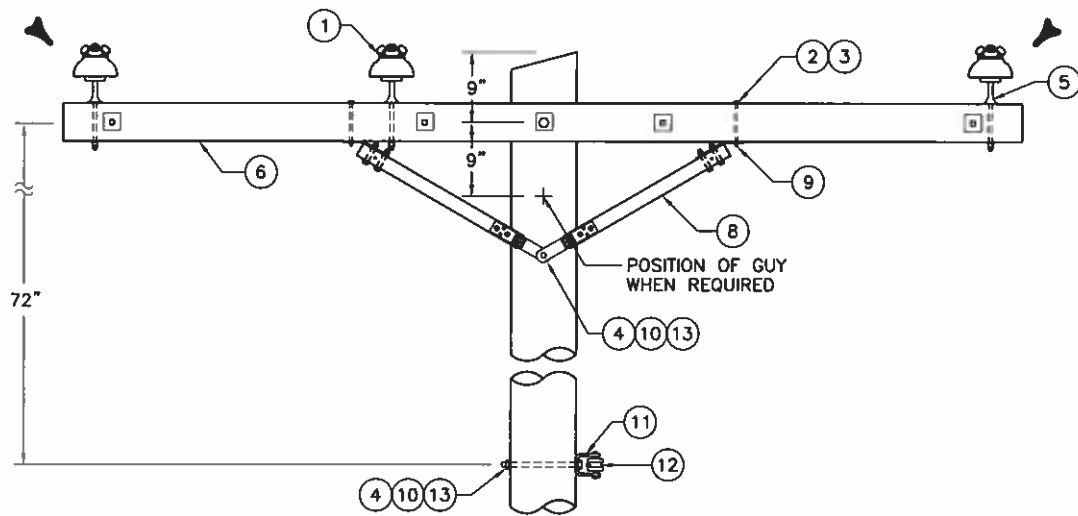


SCALE
1/2"=1'-0"

DWG.
C2-1SEC



PLAN VIEW



FRONT VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	6	INSULATOR, PIN TYPE
2	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
3	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
4	-	19	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
5	-	6	PIN, CROSSARM, STEEL
6	-	2	CROSSARM, 3-3/4" X 4-3/4" X 10'-0"
7	-	5	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
8	-	4	EA, BRACE, WOOD, 60" SPAN
9	-	4	WASHER, LOCK, 1/2"
10	-	20	WASHER, LOCK, 5/8"
11	-	1	BRACKET, RIGID CLEVIS
12	-	1	INSULATED, SPOOL
13	-	2	BOLT, MACHINE, 5/8" X REQ'D LENGTH

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

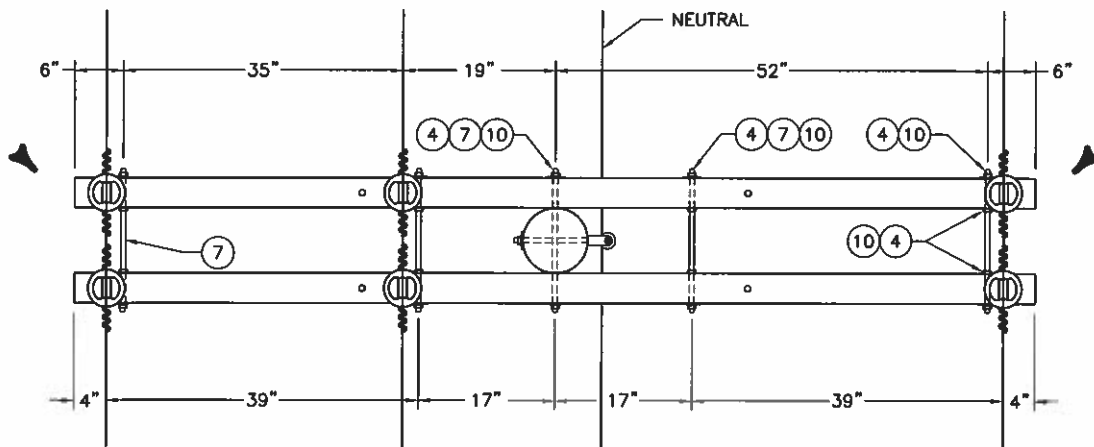
3			
2			
1	11/10/05	CADO GRAPHICS	OST
0	1/28/05	CADO GRAPHICS	OST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION
THREE PHASE, CENTER
PHASE ON ARM, 15KV**

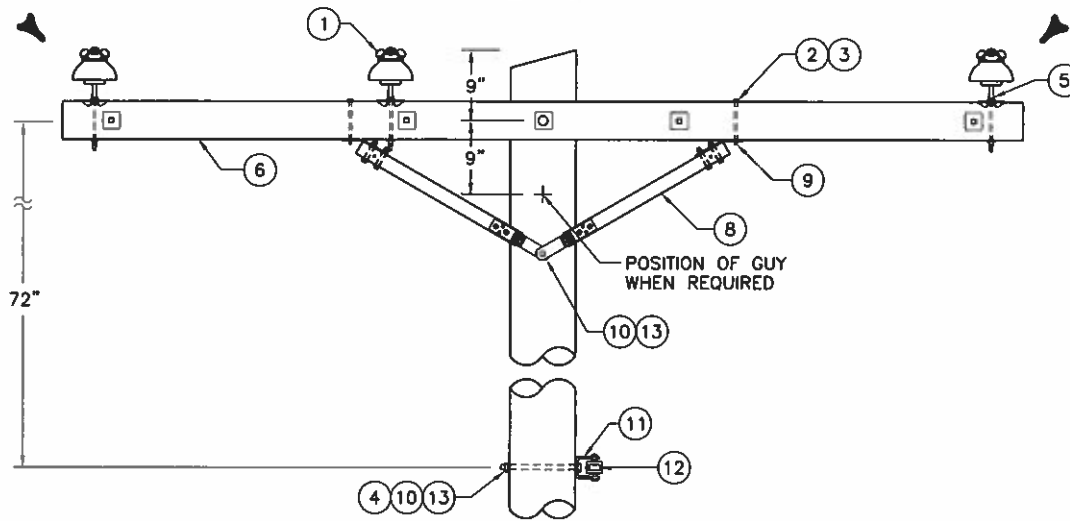


SCALE
1/2"=1'-0"

DWG.
C2-2EC



PLAN VIEW



PLAN VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	6	INSULATOR, PIN TYPE
2	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
3	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
4	-	19	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
5	-	6	PIN, CROSSARM, STEEL CLAMP TYPE
6	-	2	CROSSARM, 3-3/4" X 4-3/4" X 10'-0"
7	-	5	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
8	-	4	EA, BRACE, WOOD, 60" SPAN
9	-	4	WASHER, LOCK, 1/2"
10	-	20	WASHER, LOCK, 5/8"
11	-	1	BRACKET, RIGID CLEVIS
12	-	1	INSULATED, SPOOL
13	-	2	BOLT, MACHINE, 5/8" X REQ'D LENGTH

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

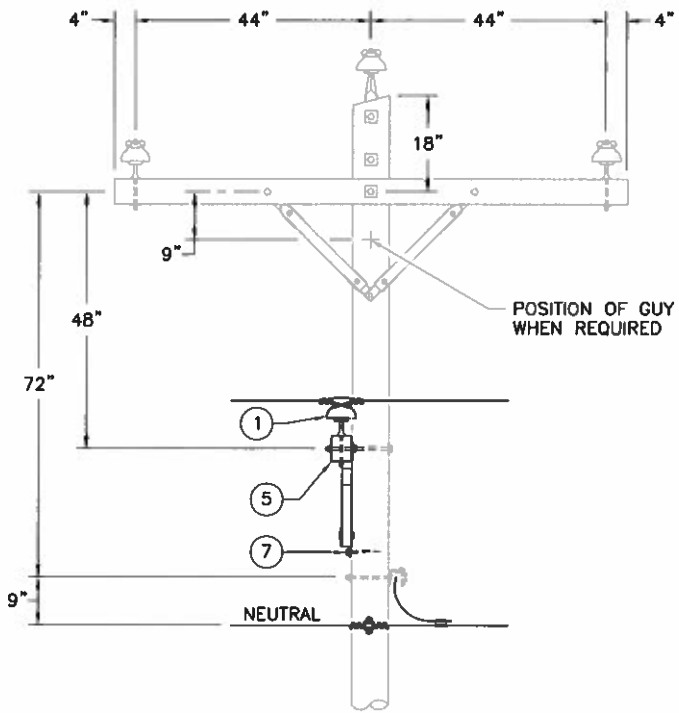
3			
2			
1	11/10/05	CADD GRAPHICS	OST
0	1/28/05	CADD GRAPHICS	OST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION
THREE PHASE, LARGE CONDUCTOR
CENTER PHASE ON ARM, 15KV**

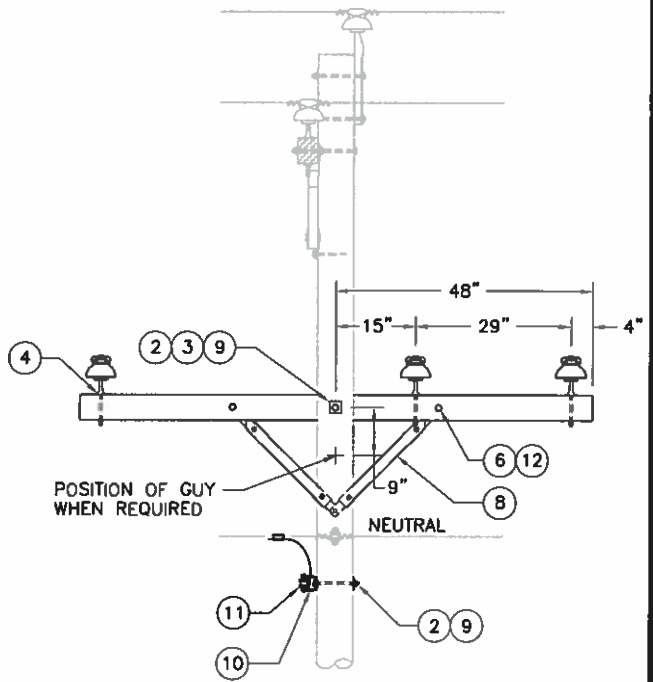


SCALE
1/2"=1'-0"

DWG.
C2-2SEC



FRONT VIEW



SIDE VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	3	INSULATOR, PIN TYPE
2	-	2	BOLT, MACHINE, 5/8" X REQUIRED LENGTH
3	-	1	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
4	-	3	PIN, CROSSARM, STEEL
5	-	1	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
6	-	2	BOLT, CARRIAGE, 3/8" X 4-1/2"
7	-	1	SCREW, LAG, 1/2" X 4"
8	-	2	EA, BRACE, WOOD, 38" SPAN
9	-	2	WASHER, LOCK, 5/8"
10	-	1	BRACKET, RIGID CLEVIS
11	-	1	INSULATED SPOOL
12	-	2	WASHER, LOCK, 3/8"

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

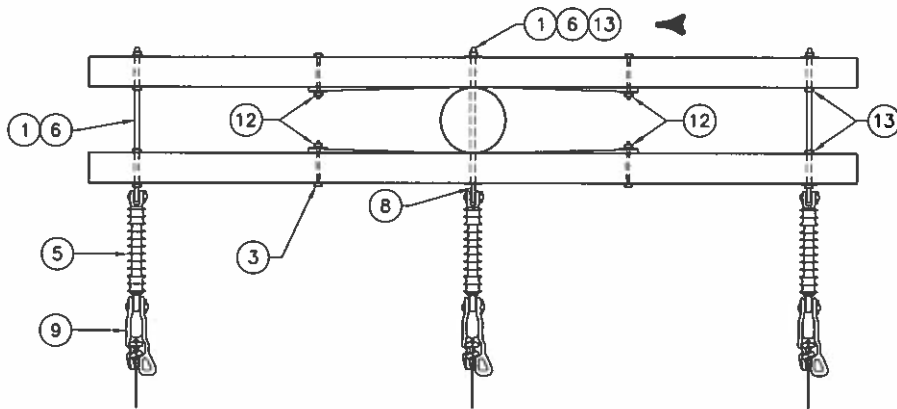
3			
2			
1			
0	12/8/05	CADD GRAPHICS	QST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION, THREE PHASE
SINGLE LINE ARM, 15KV**

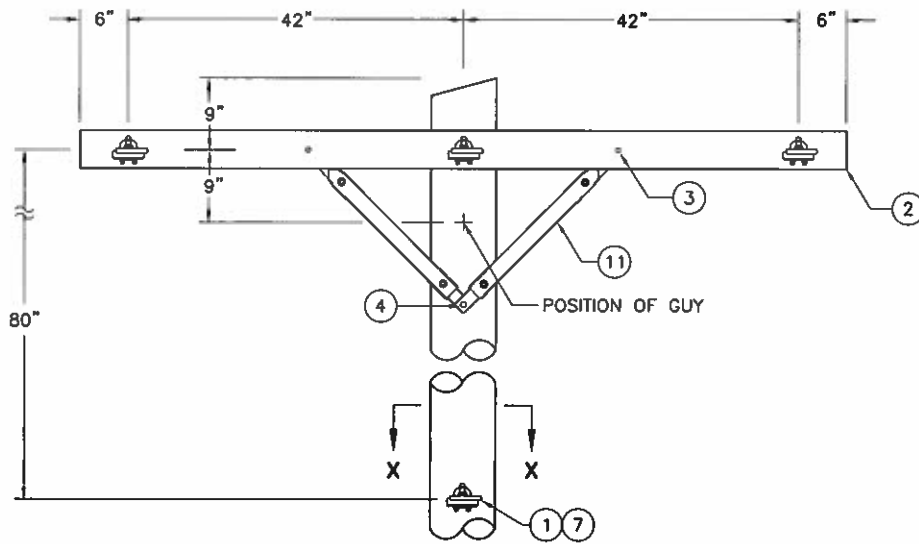


SCALE
1/2"=1'-6"

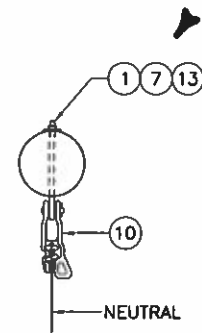
DWG.
C6EC



PLAN VIEW



FRONT VIEW



SECTION X-X

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	12	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
2	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
3	-	4	BOLT, CARRIAGE, 3/8" X 4-1/2"
4	-	2	SCREW, LAG, 1/2" X 4"
5	-	3	POLYMER DEADEND, 15KV
6	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
7	-	1	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
8	-	3	NUT, OVAL EYE, 5/8"
9	-	3	DEADEND ASSEMBLY, PRIMARY
10	-	1	DEADEND ASSEMBLY, NEUTRAL
11	-	4	EA, BRACE, WOOD, 38" SPAN
12	-	4	WASHER, LOCK, 3/8"
13	-	11	WASHER, LOCK, 5/8"

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

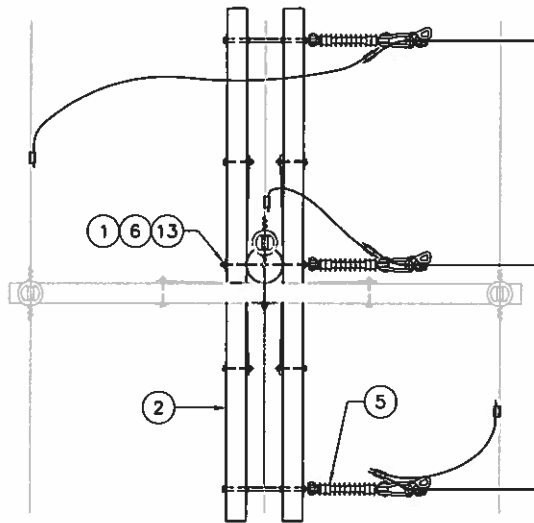
3			
2			
1	11/10/05	CADD GRAPHICS	DST
0	1/28/05	CADD GRAPHICS	DST
REVISED	BY	APPR.	

CROSSARM CONSTRUCTION, THREE
PHASE, DEADEND, 15KV



SCALE
1/2"=1'-0"

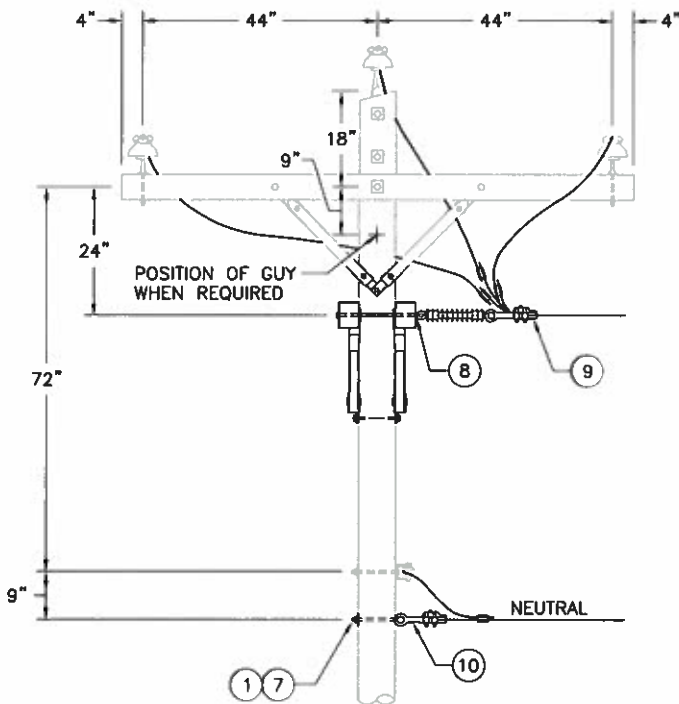
DWG.
C7EC



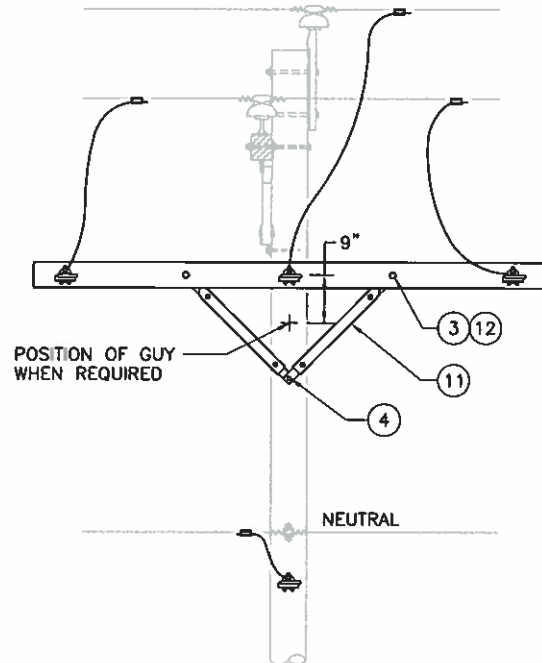
PLAN VIEW

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
3. ADD PIN INSULATOR SUPPORT FOR JUMPER CONDUCTORS AS NEEDED.



FRONT VIEW



SIDE VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	11	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
2	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
3	-	4	BOLT, CARRIAGE, 3/8" X 4-1/2"
4	-	2	SCREW, LAG, 1/2" X 4"
5	-	2	POLYMER DEADEND, 15KV
6	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
7	-	1	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
8	-	3	NUT, OVAL EYE, 5/8"
9	-	3	DEADEND ASSEMBLY, PRIMARY
10	-	1	DEADEND ASSEMBLY, NEUTRAL
11	-	4	EA, BRACE, WOOD, 36" SPAN
12	-	4	WASHER, LOCK, 3/8"
13	-	11	WASHER, LOCK, 5/8"

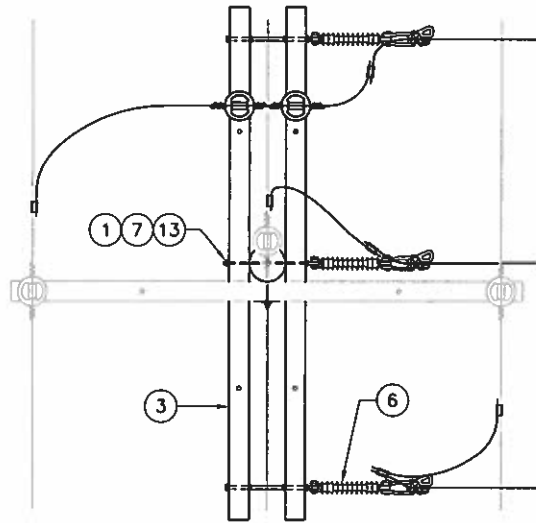
3			
2			
1			
0	12/14/05	CADD GRAPHICS	DST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION THREE PHASE
SINGLE LINE ARM, 15KV**



SCALE
1/2"=1'-6"

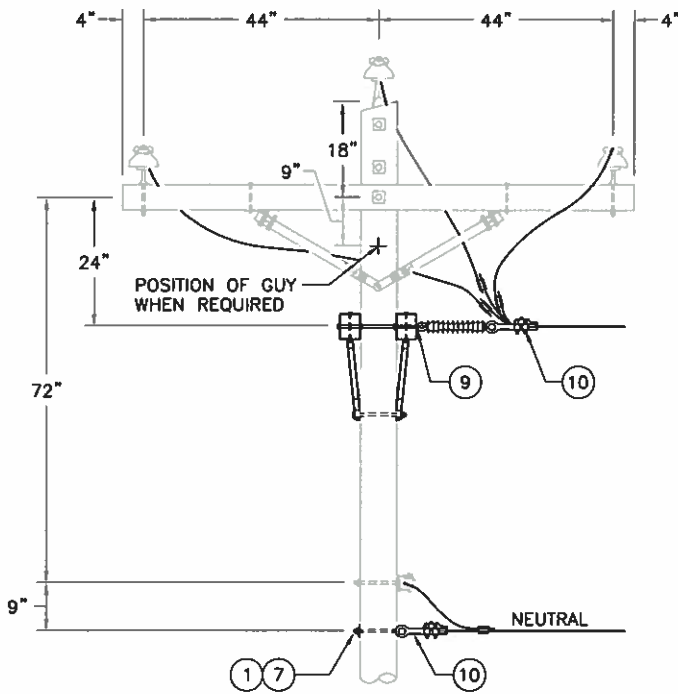
DWG.
C7-2EC



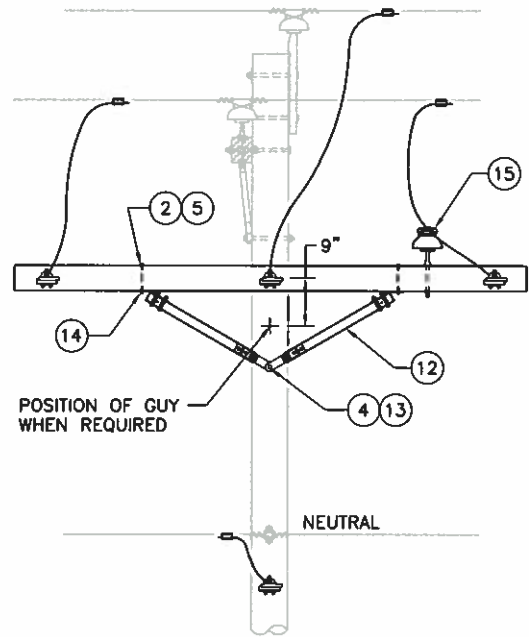
PLAN VIEW

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.



FRONT VIEW



SIDE VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	12	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
2	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
3	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
4	-	1	BOLT, MACHINE, 5/8" X REQ'D LENGTH
5	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
6	-	3	POLYMER DEADEND, 15 KV
7	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
8	-	1	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
9	-	3	NUT, OVAL EYE, 5/8"
10	-	3	DEADEND ASSEMBLY, PRIMARY
11	-	1	DEADEND ASSEMBLY, NEUTRAL
12	-	4	EA, BRACE, WOOD, 60" SPAN
13	-	12	WASHER, LOCK, 5/8"
14	-	4	WASHER, LOCK, 1/2"
15	-	2	INSULATOR, PIN TYPE, AS REQ'D

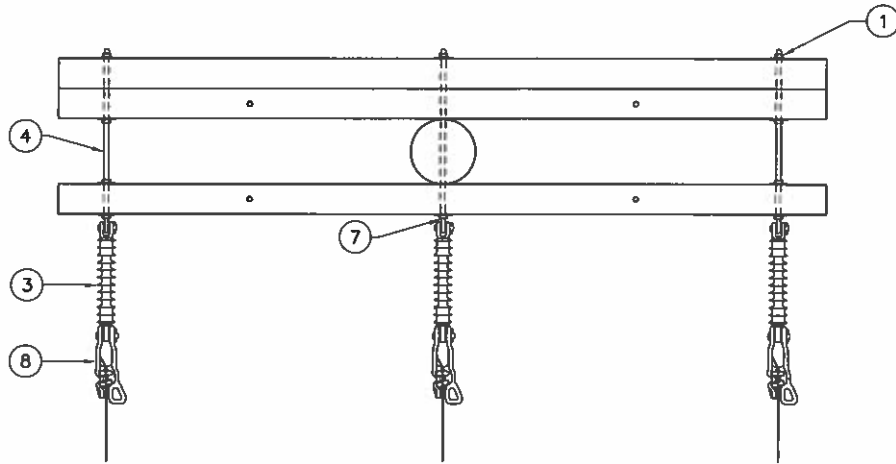
3			
2			
1			
0	3/10/08	CADD GRAPHICS	OST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION THREE PHASE
LARGE CONDUCTOR, SINGLE LINE ARM, 15KV**

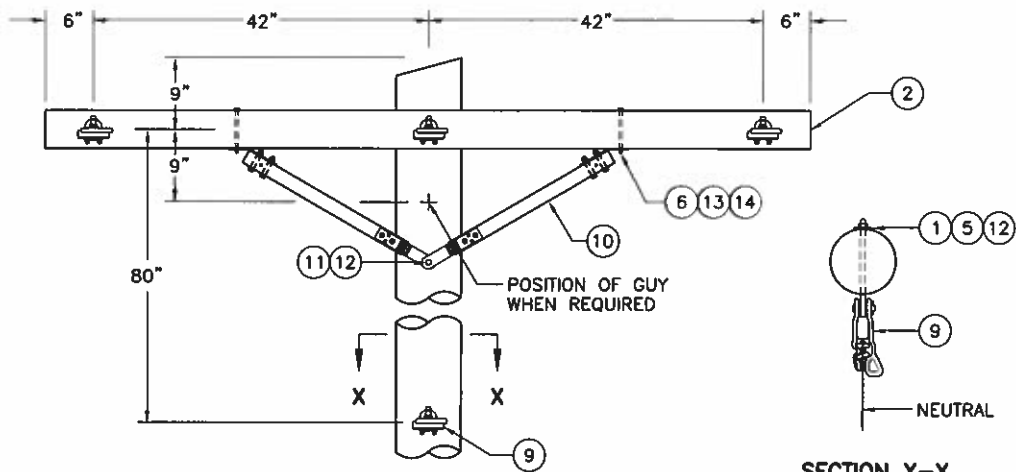


SCALE
1/2"=1'-6"

DWG.
C7SEC



PLAN VIEW



FRONT VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	11	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
2	-	3	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
3	-	3	POLYMER DEADEND, 15 KV
4	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
5	-	1	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
6	-	4	BOLT, MACHINE, 1/2" X 6"
7	-	3	NUT, OVAL EYE, 5/8"
8	-	3	DEADEND ASSEMBLY, PRIMARY
9	-	1	DEADEND ASSEMBLY, NEUTRAL
10	-	4	EA, BRACE, WOOD, 60" SPAN
11	-	1	BOLT, MACHINE, 5/8" X REQ'D LENGTH
12	-	11	WASHER LOCK, 5/8"
13	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
14	-	4	WASHER, LOCK, 1/2"

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

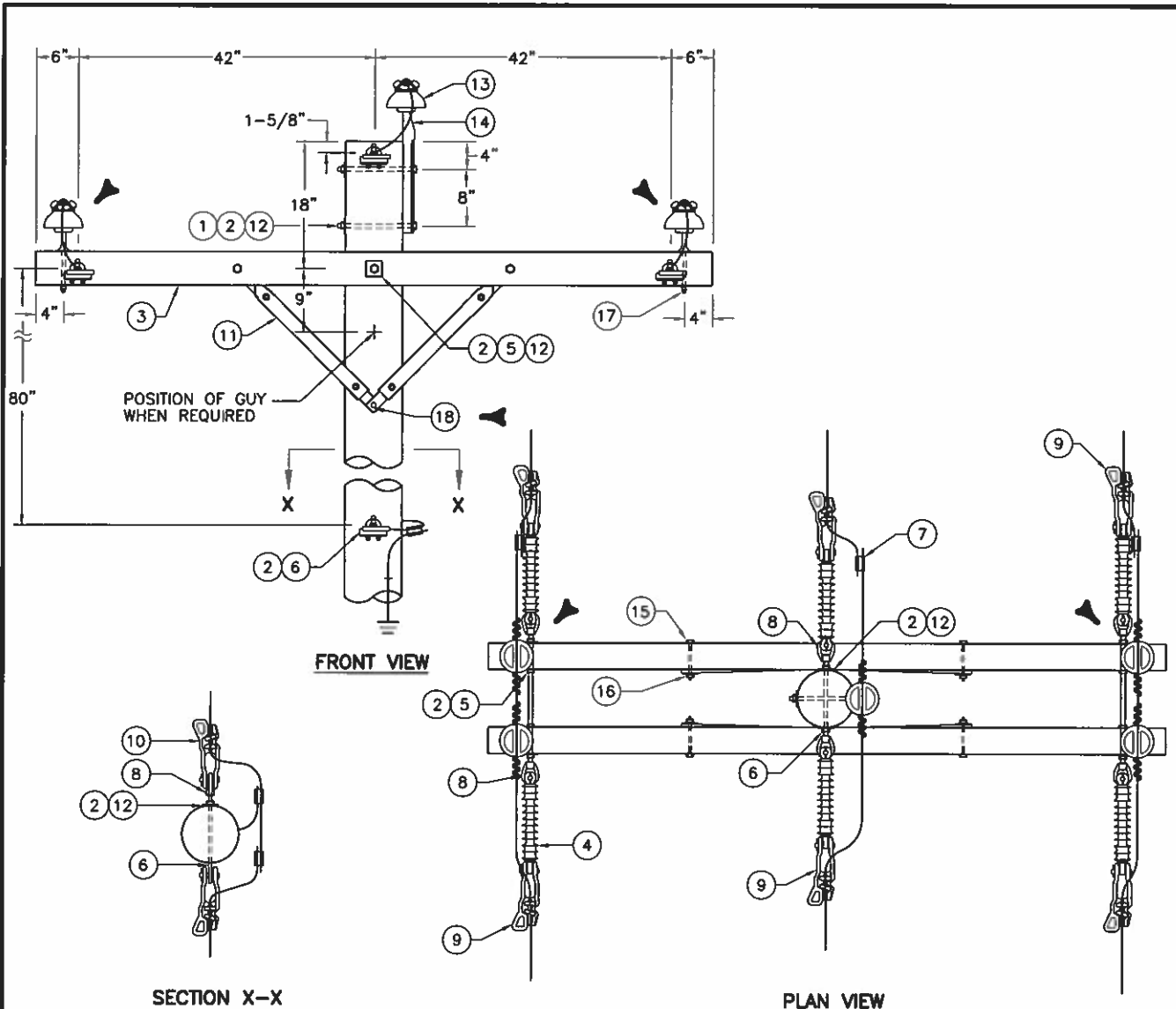
3			
2			
1			
0	12/8/05	CADD GRAPHICS	OST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION,
THREE PHASE, LARGE CONDUCTOR,
DEADEND ON TRIPLE ARMS, 15KV**



SCALE
1/2"=1'-0"

DWG.
C7-1SEC



SECTION X-X

PLAN VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	2	BOLT, MACHINE, 5/8" X REQ'D LENGTH
2	-	15	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
3	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
4	-	6	POLYMER DEADEND, 15KV
5	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
6	-	2	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
7	-	X	CONNECTORS, AS REQ'D
8	-	6	NUT, OVAL EYE, 5/8"
9	-	6	DEADEND ASSEMBLY, PRIMARY
10	-	2	DEADEND ASSEMBLY, NEUTRAL
11	-	4	EA, BRACE, WOOD, 38" SPAN
12	-	13	WASHER, LOCK, 5/8"
13	-	5	INSULATOR, PIN TYPE
14	-	1	PIN, POLE TOP
15	-	4	BOLT, CARRIAGE, 3/8" X 4-1/2"
16	-	4	WASHER, LOCK 3/8"
17	-	4	PIN, CROSSARM, STEEL, 5/8" X 10-3/4"
18	-	2	SCREW, LAG, 1/2" X 4"

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

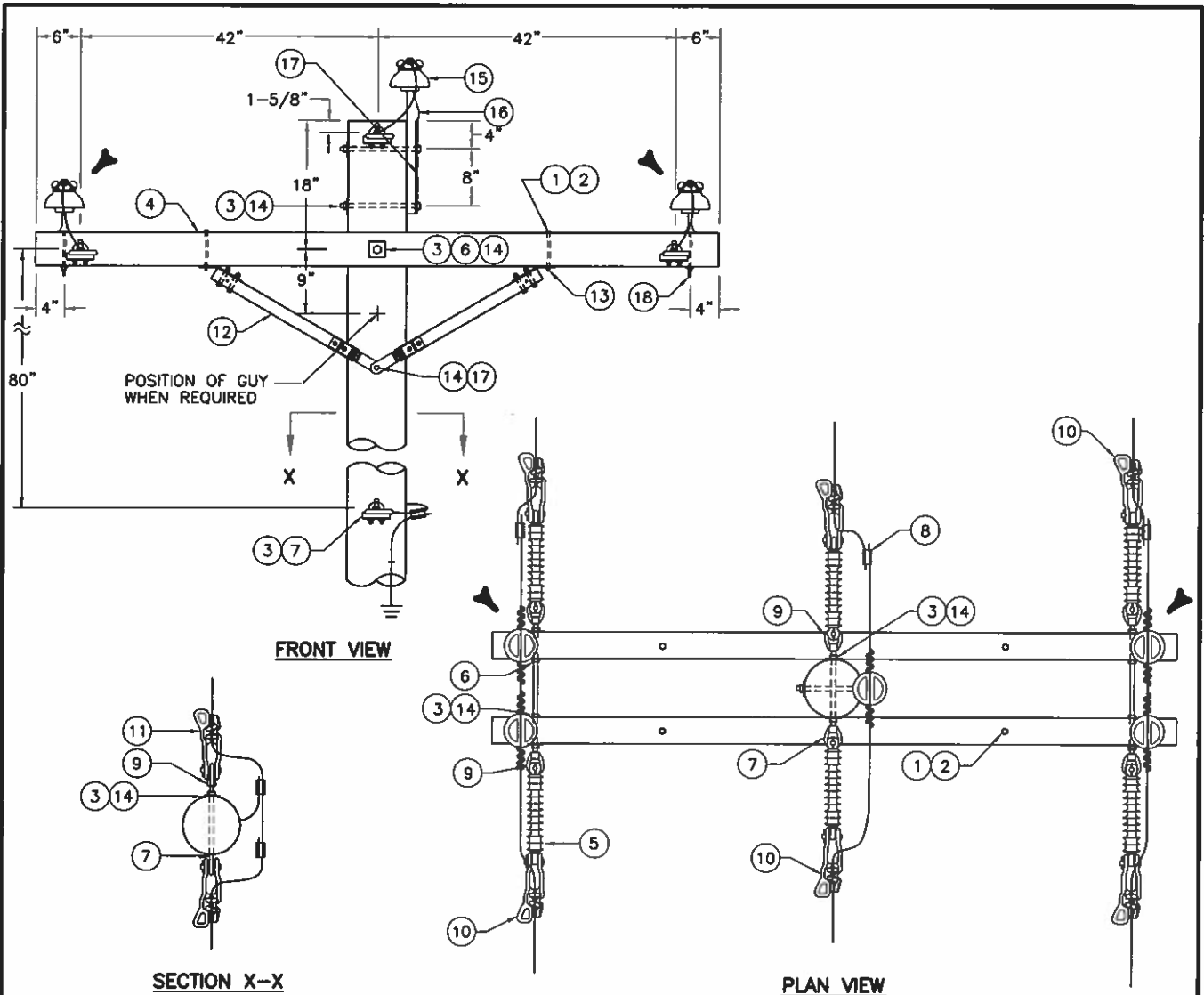
3			
2			
1	12/29/05	CADD GRAPHICS	OST
0	2/10/05	CADD GRAPHICS	OST
REVISED	BY	APPR.	

CROSSARM CONSTRUCTION
THREE PHASE, DOUBLE DEADEND, 15KV



SCALE
1/2"=1'-0"

DWG.
C8EC



NO	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
2	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
3	-	18	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
4	-	2	CROSSARM, 3-3/4" X 4-3/4" X 8'-0"
5	-	6	POLYMER DEADEND, 15KV
6	-	3	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
7	-	2	BOLT, OVAL EYE, 5/8" X REQ'D LENGTH
8	-	X	CONNECTORS, AS REQ'D
9	-	6	NUT, OVAL EYE, 5/8"
10	-	6	DEADEND ASSEMBLY, PRIMARY
11	-	2	DEADEND ASSEMBLY, NEUTRAL
12	-	4	EA, BRACE, WOOD, 60" SPAN
13	-	4	WASHER, LOCK, 1/2"
14	-	18	WASHER, LOCK, 5/8"
15	-	5	INSULATOR, PIN TYPE
16	-	1	PIN, POLE TOP
17	-	3	BOLT, MACHINE, 5/8" X REQ'D LENGTH
18	-	4	PIN, CROSSARM, STEEL, 5/8" X 10-3/4"

NOTES:

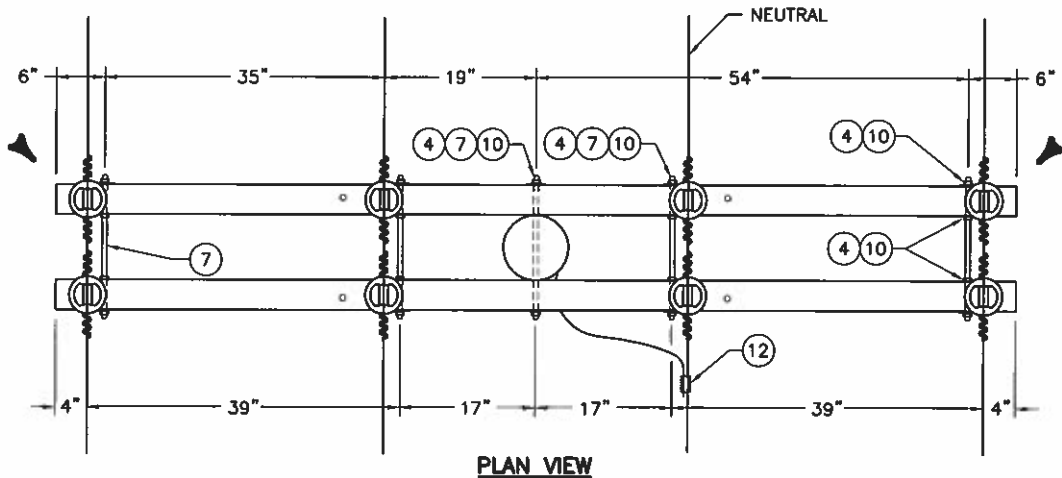
1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.

3			
2			
1	11/10/05	CADD GRAPHICS	OST
0	2/10/05	CADD GRAPHICS	OST
REVISED	BY	APPR.	

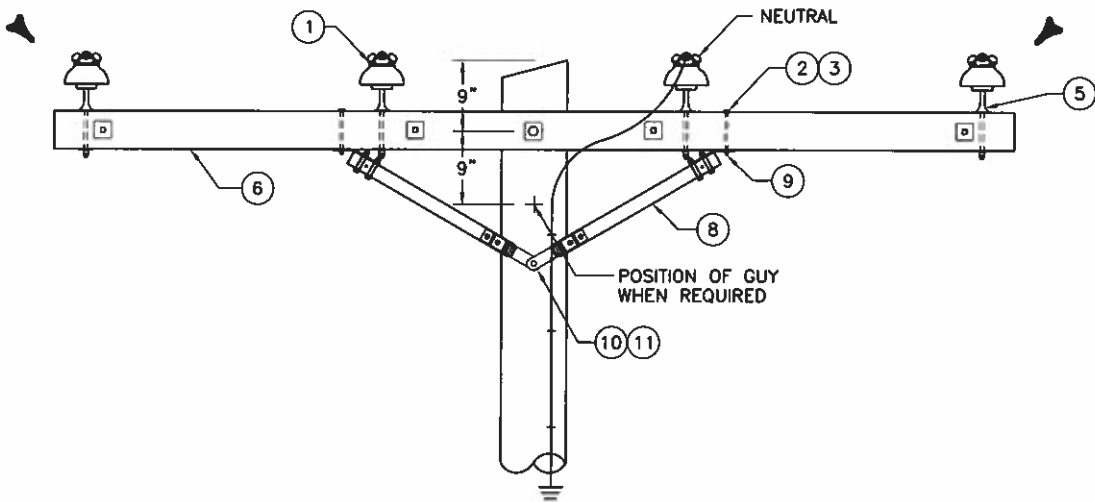
**CROSSARM CONSTRUCTION,
THREE PHASE, LARGE CONDUCTOR
DOUBLE DEADEND, 15KV**

ELECTRICITIES

SCALE 1/2"=1'-0" DWG. C8SEC



PLAN VIEW



FRONT VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	8	INSULATOR, PIN TYPE
2	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
3	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
4	-	18	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
5	-	8	PIN, CROSSARM, STEEL
6	-	2	CROSSARM, 3-3/4" X 4-3/4" X 10'-0"
7	-	5	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
8	-	4	EA, BRACE, WOOD, 60" SPAN
9	-	4	WASHER, LOCK, 1/2"
10	-	19	WASHER, LOCK, 5/8"
11	-	1	BOLT, MACHINE, 5/8" X REQ'D LENGTH
12	-	X	CONNECTORS, AS REQ'D

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
3. THE NEUTRAL INSULATOR IS TO BE DIFFERENT IN SIZE OR COLOR FROM THE PRIMARY INSULATORS PER NESC 220B2B.

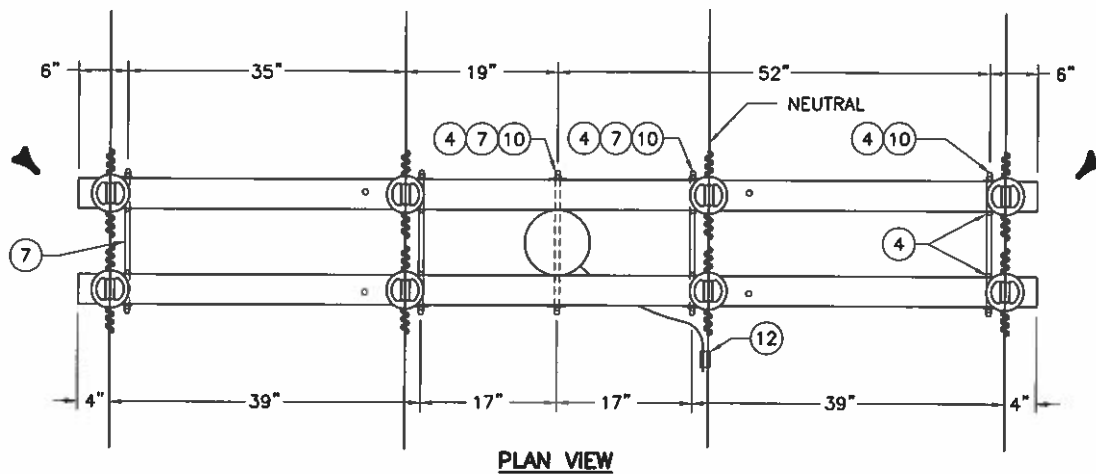
3			
2			
1	11/10/05	CADD GRAPHICS	DST
0	1/28/05	CADD GRAPHICS	DST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION, THREE PHASE,
NEUTRAL ON DOUBLE ARMS, 15KV**

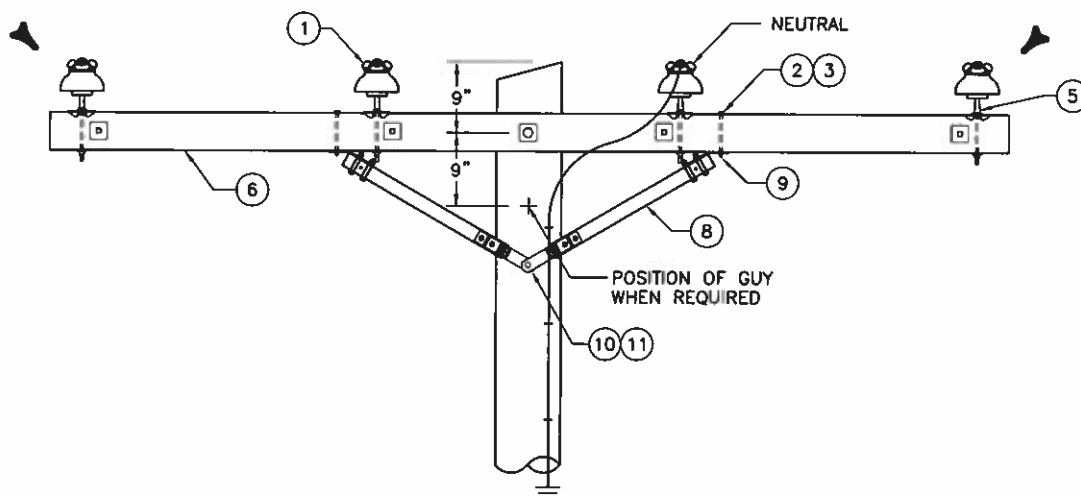


SCALE
1/2"=1'-0"

DWG.
C9EC



PLAN VIEW



FRONT VIEW

NO.	INVENTORY NO.	QUANTITY	DESCRIPTION
1	-	8	INSULATOR, PIN TYPE
2	-	4	BOLT, MACHINE, 1/2" X REQ'D LENGTH
3	-	4	WASHER, 1-3/8" ROUND WITH 9/16" HOLE
4	-	18	WASHER, 2-1/4" SQUARE WITH 11/16" HOLE
5	-	8	PIN, CROSSARM, STEEL CLAMP TYPE
6	-	2	CROSSARM, 3-3/4" X 4-3/4" X 10'-0"
7	-	5	BOLT, DOUBLE ARMING, 5/8" X REQ'D LENGTH
8	-	4	EA. BRACE, WOOD, 60" SPAN
9	-	4	WASHER, LOCK, 1/2"
10	-	19	WASHER, LOCK, 5/8"
11	-	1	BOLT, MACHINE, 5/8" X REQ'D LENGTH
12	-	X	CONNECTORS, AS REQ'D

NOTES:

1. GROUNDS ARE TO STOP AT THE NEUTRAL POSITION EXCEPT TO RISE TO A LIGHTNING ARRESTER OR TRANSFORMER.
2. ALL GUYS MUST CONTAIN A GUY STRAIN INSULATOR SUFFICIENT TO PROVIDE TWO FEET OF AIR CLEARANCE.
3. THE NEUTRAL INSULATOR IS TO BE DIFFERENT IN SIZE OR COLOR FROM THE PRIMARY INSULATORS PER NESC 220B2B.

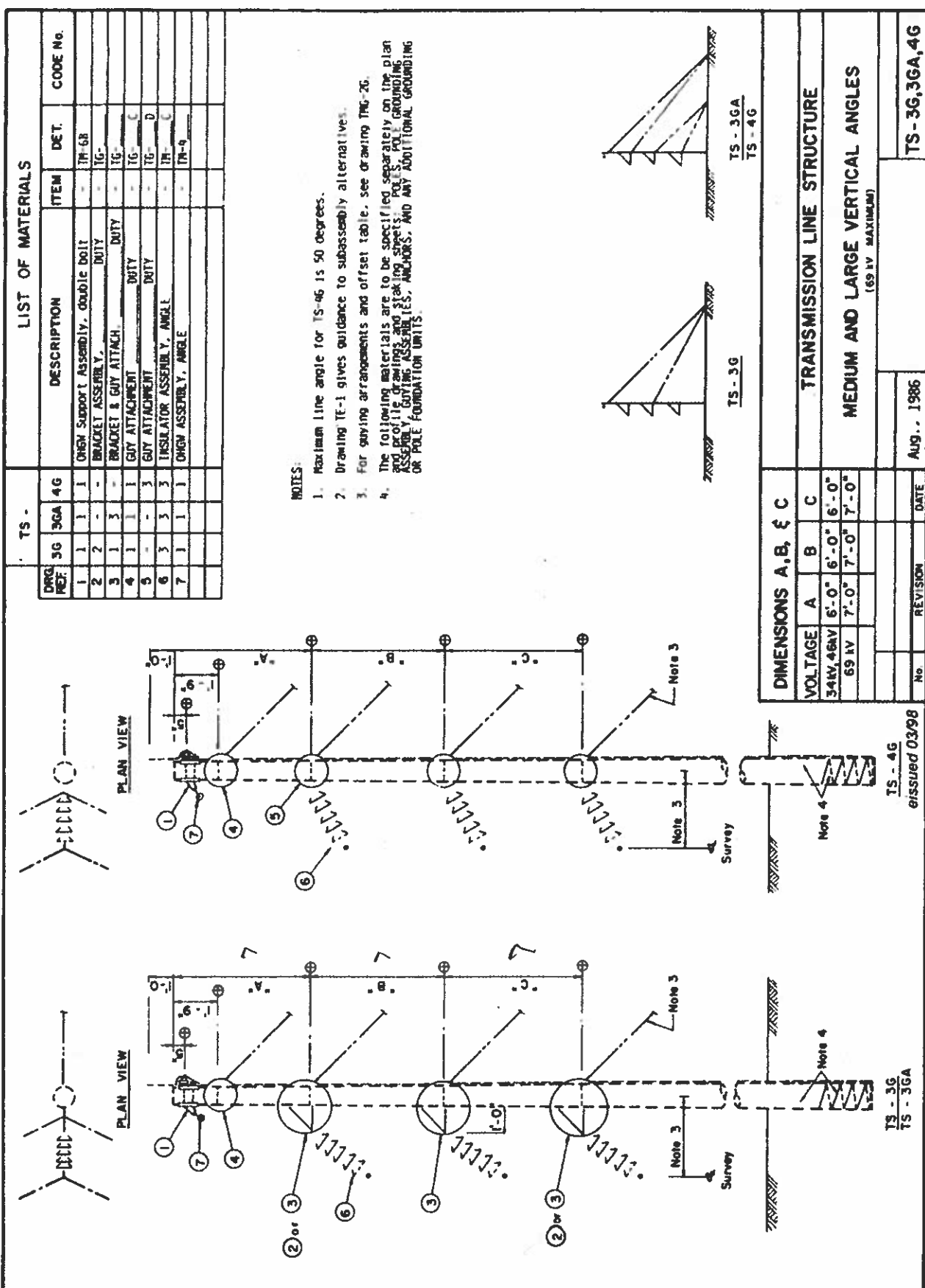
3			
2			
1	11/10/05	CADD GRAPHICS	OST
0	1/28/05	CADD GRAPHICS	OST
REVISED	BY	APPR.	

**CROSSARM CONSTRUCTION
THREE PHASE, LARGE CONDUCTOR
NEUTRAL ON DOUBLE ARMS, 15KV**



SCALE
1/2"=1'-0"

DWG.
C9SEC



LIST OF MATERIALS

DRG. REF.	TS -			DESCRIPTION	ITEM	DET.	CODE No.
	3G	3GA	4G				
1	1	1	1	OHGW SUPPORT ASSEMBLY, DOUBLE BOLT BRACKET ASSEMBLY, DUTY	-	TH-6R	
2	2	-	-	BRACKET & GUY ATTACH. DUTY	-	IG-	
3	1	3	-	GUY ATTACHMENT DUTY	-	IG-C	
4	1	1	1	INSULATOR ASSEMBLY, ANGLE	-	IG-D	
5	3	3	3	OHGW ASSEMBLY, ANGLE	-	TH-C	
6	1	1	1	OHGW ASSEMBLY, ANGLE	-	TH-9	
7	1	1	1				

NOTES:

1. Maximum line angle for TS-4G is 50 degrees.
2. Drawing TE-1 gives guidance to subassembly alternatives.
3. For guying arrangements and offset table, see drawing THG-26.
4. The following materials are to be specified separately on the plan and profile drawings and stacking sheets: POLES, POLY GROUNDING ASSEMBLY, GUYING ASSEMBLIES, ANCHORS, AND ANY ADDITIONAL GROUNDING OR POLE FOUNDATION UNITS.

DIMENSIONS A, B, & C			
VOLTAGE	A	B	C
34KV, 46KV	6'-0"	6'-0"	6'-0"
69 KV	7'-0"	7'-0"	7'-0"

**TRANSMISSION LINE STRUCTURE
MEDIUM AND LARGE VERTICAL ANGLES
(69 KV MAXIMUM)**

NO.	REVISION	DATE
		AUG. 1986

TS - 4G
ISSUED 03/98

TS - 3G
TS - 3GA

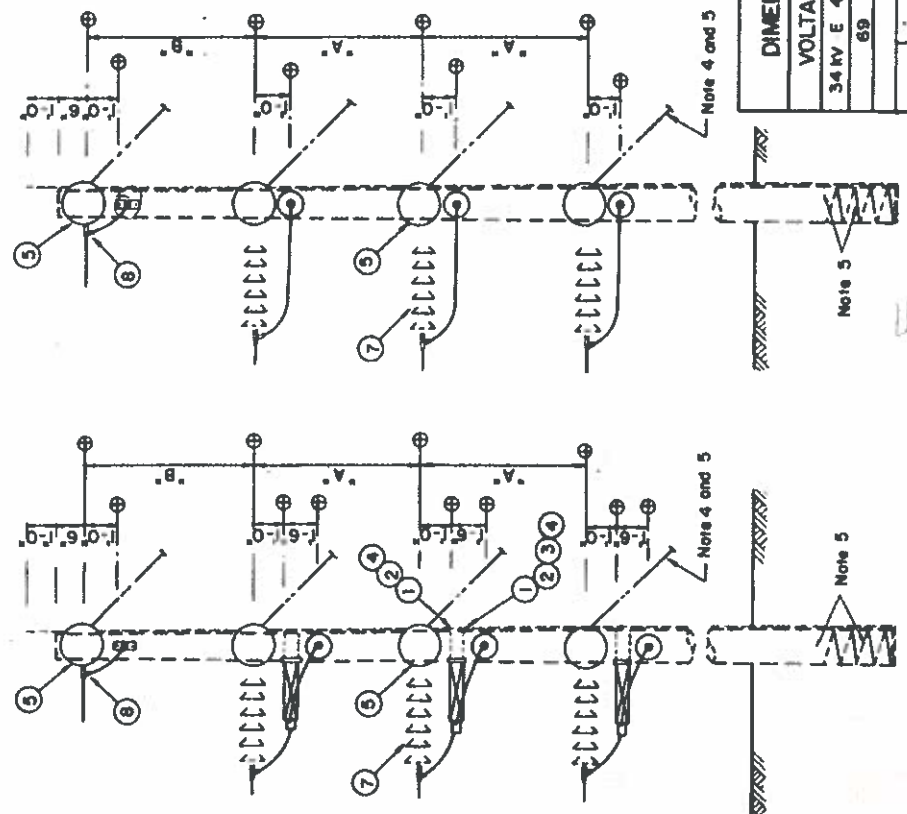
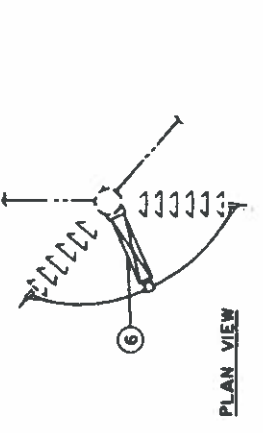
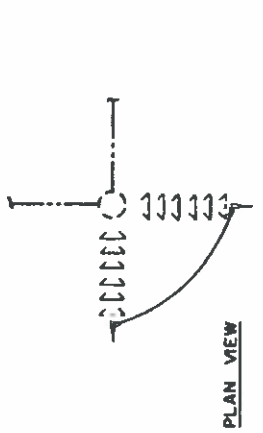
TS - 3G, 3GA, 4G

LIST OF MATERIALS

TS-5		DESCRIPTION	ITEM	DET.	CODE No.
ORG. REF.	QA				
1	6	3/4" Bolt, Machine, by req'd length	c		
2	6	Washer, Curved, 4" sq. x 1/4" 13/16" hole	d		
3	3	Washer, Spring, 13/16" hole	om		
4	6	3/4" Locknut, RF Type	ek		
5	8	GY ATTACHMENT, RUTY	TE-1-D		
6	3	INSULATOR, HORIZONTAL POST, WITH CLAMP	TH-3		
7	6	INSULATOR ASSEMBLY, DEADEND	TH-4		
8	2	DRUM ASSEMBLY, DEADEND	TH-5		

NOTES:

1. Metal shims should be used to adjust post insulators when brackets are located on uneven pole surfaces.
2. The minimum line angle for TS-5GA is 50 degrees. The maximum line angle for TS-5G is 30 degrees.
3. Drawing TE-1 gives guidance to subassembly alternatives.
4. For guying arrangements, see drawing TNG-26.
5. The following materials are to be specified separately on plan and profile drawings and staking sheets: POLES, POLE GROUNDING ASSEMBLY, GUYING ASSEMBLIES, ANCHORS, AND ANY ADDITIONAL GROUNDING OR POLE FOUNDATION UNITS.



DIMENSIONS A & B	
VOLTAGE	A B
34 KV E 48KV	6'-0" 6'-0"
69 KV	7'-0" 7'-0"

TRANSMISSION LINE STRUCTURE

VERTICAL DOUBLE DEAD END

(69 KV MAXIMUM)

NO.	REVISION	DATE
		AUG., 1985

TS - 5G
Reissued 03/98

TS - 5GA

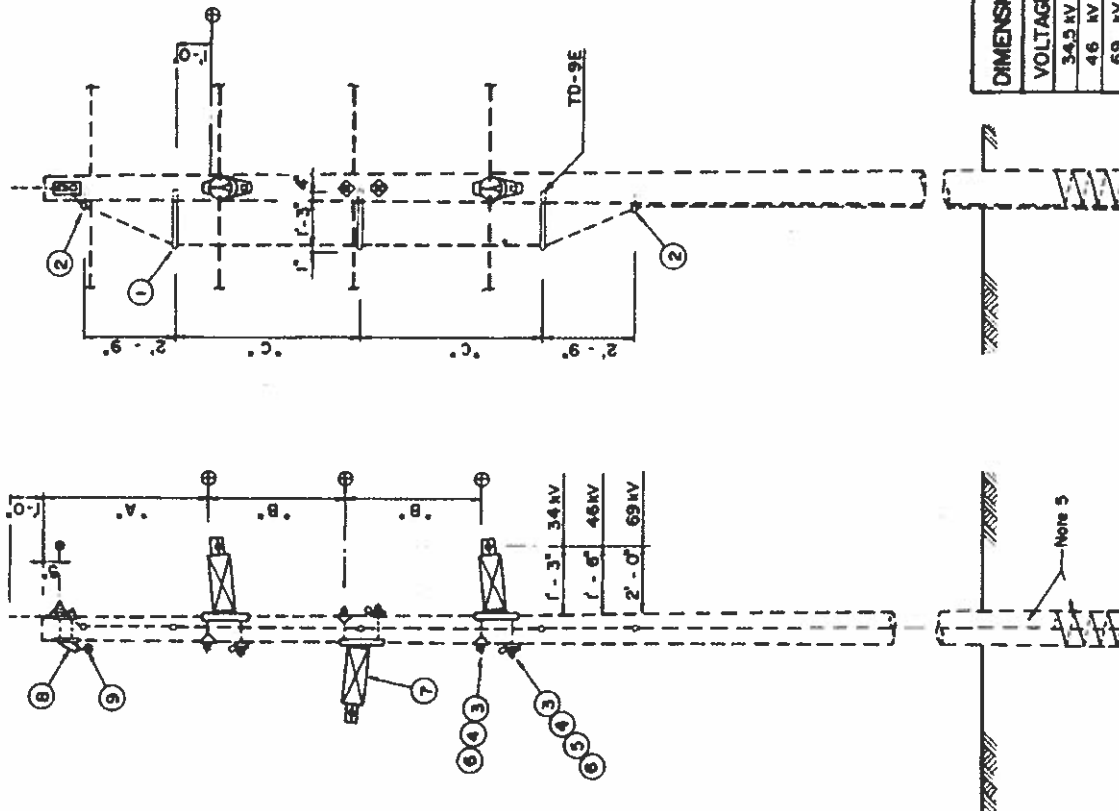
TS-5G,5GA

LIST OF MATERIALS

DRG. REF.	QTY.	DESCRIPTION	ITEM	DET.	CODE No
1	3	Rod, Fiberglass, 3/4" x 1'-8"			
2	2	W/holder, w/#22 wood screw	nr		
3	6	3/4" Bolt, Machine, by req'd length	c		
4	6	Washer, Curved, 4" sq. x 1/4", 13/16" hole	d		
5	3	Washer, Std Jbl., 13/16" hole	em		
6	6	3/4" Locknut, NF Type	ek		
7	3	INSULATOR, HORIZONTAL POST, WITH CLAMP	TH-3		
8	1	OHM SUPPORT ASSEMBLY	TH-5		
9	1	OHM ASSEMBLY, TANGENT	TH-4		

NOTES:

1. Metal shims should be used to adjust post insulator when brackets are located on uneven pole surfaces.
2. Strength limitations of horizontal post:
 - a. Maximum cantilever load 2,800 lbs.
 - b. Maximum tensile and compression (Loads a and b are simultaneous) 5,000 lbs.
3. For strength limitations of overhead ground wire support assembly, see TH-6.
4. Drawing TE-1 gives guidance to subassembly alternatives.
5. The following materials are to be specified on the plan and profile drawings and staking sheets: POLE, POLE GROUNDING ASSEMBLY, AND ANY ADDITIONAL GROUNDING OR FOUNDATION UNITS.

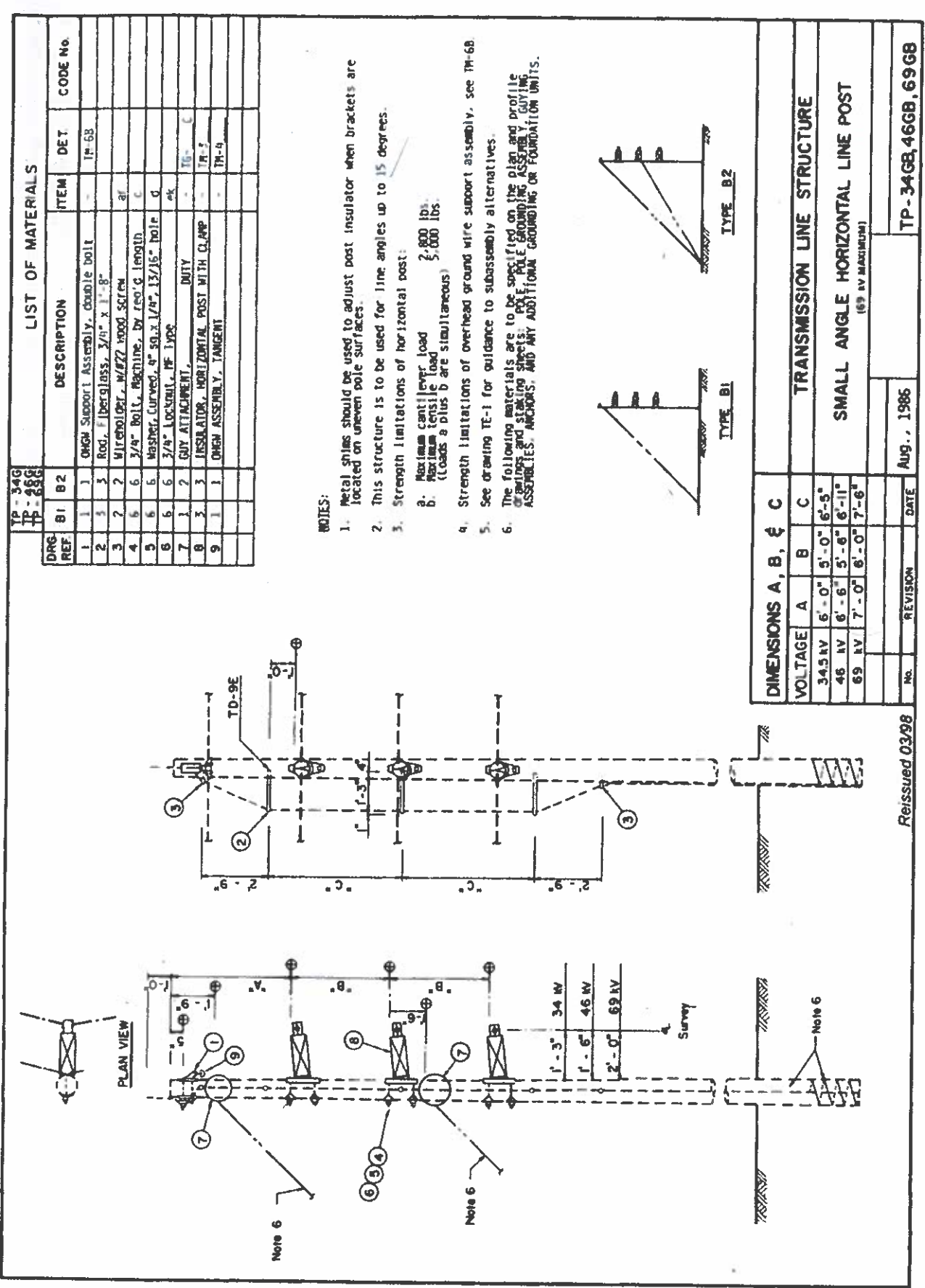


DIMENSIONS A, B, AND C	TRANSMISSION LINE STRUCTURE			
	VOLTAGE	A	B	C
34.9 kV	5'-0"	4'-0"	5'-5"	
46 kV	5'-6"	4'-6"	5'-11"	
69 kV	6'-0"	5'-0"	6'-6"	

Reissued 03/98

Aug., 1986

TP-34G,46G,69G



LIST OF MATERIALS

DRG. REF.	BI	B2	DESCRIPTION	ITEM	DET.	CODE No.
1	1	1	OHGM Support Assembly, double bolt	-	TM-68	
2	3	3	Rod, Fiberglass, 3/4" x 1'-8"	af		
3	2	2	W/ELONG. W/ELZ WOOD SCREW			
4	6	6	3/8" Bolt, Machine, by req'd length	c		
5	6	6	Washer, Curved, 5/8 sq. 1/8", 13/16" hole	d		
6	6	6	3/8" Locknut, NF 1/2"	ek		
7	1	2	GUY ATTACHMENT, DUTY		TM-C	
8	3	3	INSULATOR, HORIZONTAL POST WITH CLAMP		TM-F	
9	1	1	OHGM ASSEMBLY, TANGENT		TM-h	

NOTES:

1. Metal shims should be used to adjust post insulator when brackets are located on uneven pole surfaces.
2. This structure is to be used for line angles up to 15 degrees.
3. Strength limitations of horizontal post:
 - a. Maximum cantilever load 2,800 lbs.
 - b. Maximum tensile load 5,000 lbs. (Loads a plus b are simultaneous)
4. Strength limitations of overhead ground wire support assembly, see TM-68
5. See drawing TE-1 for guidance to subassembly alternatives.
6. The following materials are to be specified on the plan and profile drawings and stacking sheets: OHGM SUPPORT ASSEMBLY, GUYING ASSEMBLIES, ANCHORS, AND ANY ADDITIONAL GROUNDING OR FOUNDATION UNITS.



DIMENSIONS A, B, & C			
VOLTAGE	A	B	C
34.5 KV	6'-0"	5'-0"	6'-5"
46 KV	6'-6"	5'-6"	6'-11"
69 KV	7'-0"	6'-0"	7'-6"

TRANSMISSION LINE STRUCTURE

SMALL ANGLE HORIZONTAL LINE POST
(69 KV MAXIMUM)

Reissued 03/98

Aug., 1986

TP-34GB, 46GB, 69GB