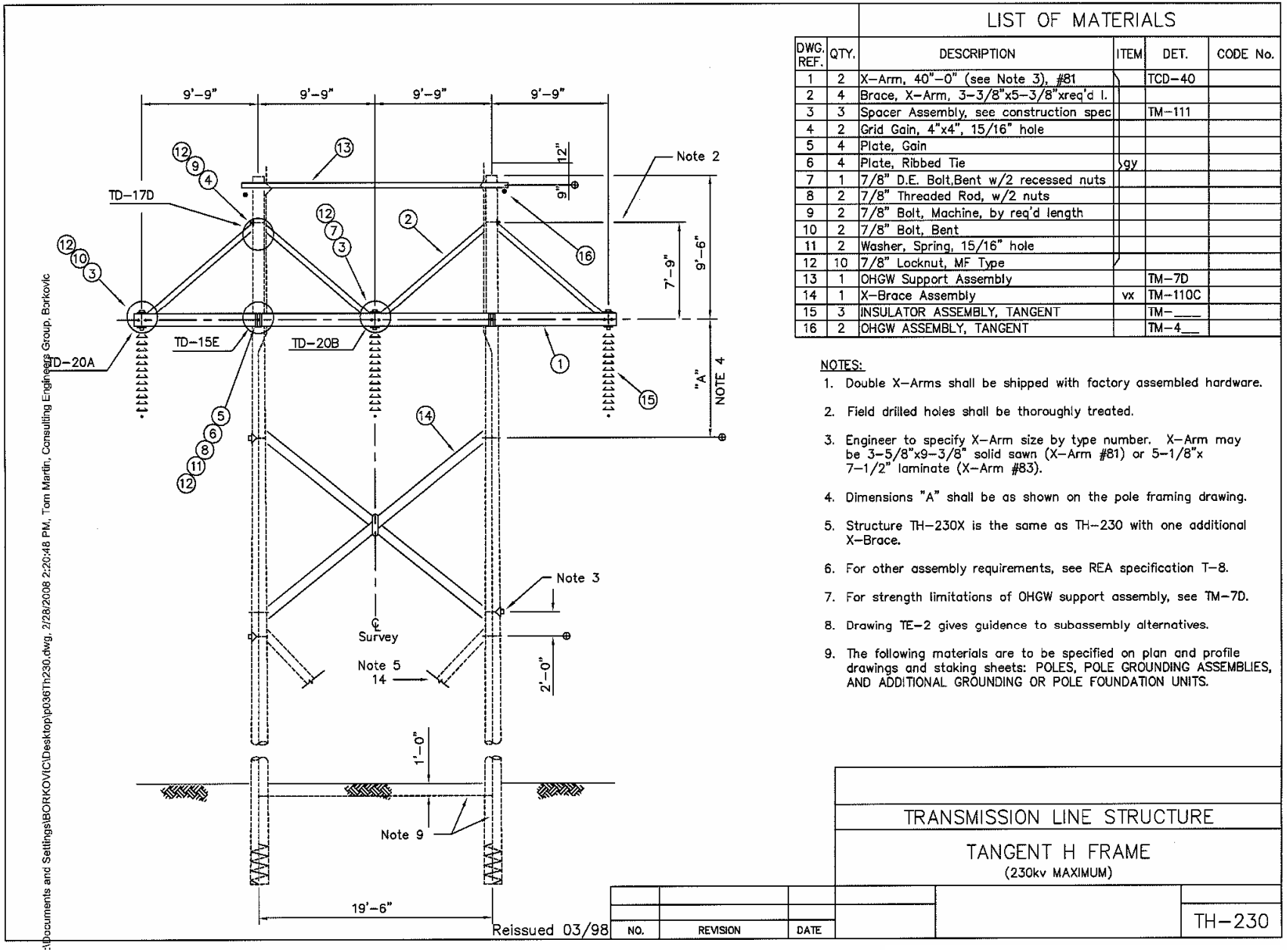

LIST OF MATERIALS

DWG. REF.	QTY.	DESCRIPTION	ITEM	DET.	CODE No.
1	2	X-Arm, 40"-0" (see Note 3), #81		TCD-40	
2	4	Brace, X-Arm, 3-3/8"x5-3/8"xreq'd l.			
3	3	Spacer Assembly, see construction spec		TM-111	
4	2	Grid Gain, 4"x4", 15/16" hole			
5	4	Plate, Gain			
6	4	Plate, Ribbed Tie	gy		
7	1	7/8" D.E. Bolt,Bent w/2 recessed nuts			
8	2	7/8" Threaded Rod, w/2 nuts			
9	2	7/8" Bolt, Machine, by req'd length			
10	2	7/8" Bolt, Bent			
11	2	Washer, Spring, 15/16" hole			
12	10	7/8" Locknut, MF Type			
13	1	OHGW Support Assembly		TM-7D	
14	1	X-Brace Assembly	vx	TM-110C	
15	3	INSULATOR ASSEMBLY, TANGENT		TM-____	
16	2	OHGW ASSEMBLY, TANGENT		TM-4__	

NOTES:

1. Double X-Arms shall be shipped with factory assembled hardware.
2. Field drilled holes shall be thoroughly treated.
3. Engineer to specify X-Arm size by type number. X-Arm may be 3-5/8"x9-3/8" solid sawn (X-Arm #81) or 5-1/8"x 7-1/2" laminate (X-Arm #83).
4. Dimensions "A" shall be as shown on the pole framing drawing.
5. Structure TH-230X is the same as TH-230 with one additional X-Brace.
6. For other assembly requirements, see REA specification T-8.
7. For strength limitations of OHGW support assembly, see TM-7D.
8. Drawing TE-2 gives guidence to subassembly alternatives.
9. The following materials are to be specified on plan and profile drawings and staking sheets: POLES, POLE GROUNDING ASSEMBLIES, AND ADDITIONAL GROUNDING OR POLE FOUNDATION UNITS.

NO.	REVISION	DATE

TRANSMISSION LINE STRUCTURE

TANGENT H FRAME
(230kv MAXIMUM)

TH-230

M-Power, LLC©
...harnessing the energy in nature.

Figure 5
Tangent H Frame Structure and ROW
M-Power Luverne Wind Farm
230 kV Generation Outlet Project
Barnes and Steele Counties, North Dakota