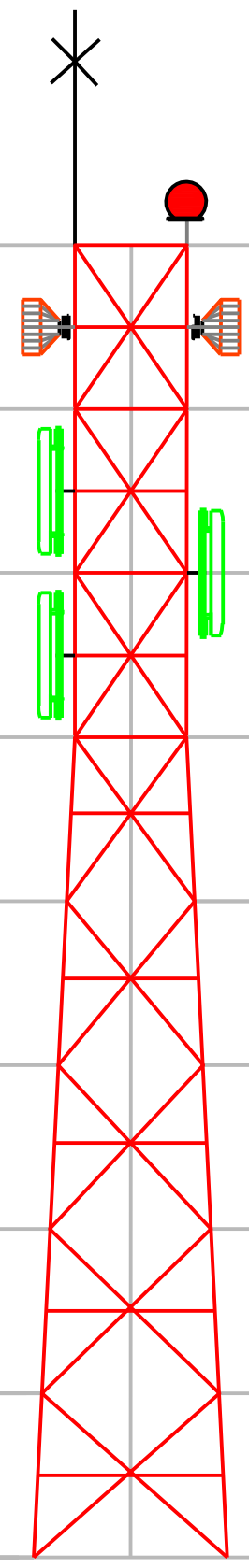
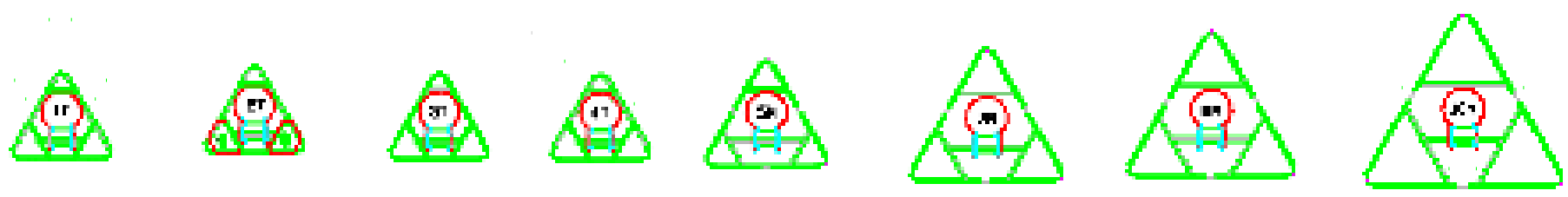
LEVEL	FACE WIDTH	PLATFORM
25000	1700	
22500	1700	WP
20000	1700	
17500	1700	
15000	1950	
12500	2200	
10000	2450	
7500	2700	RP
5000	2950	

PANEL NO	LENGTH(METER)	DIAGONALS	PANEL TOP- HORIZONTALS	PANEL MID- HORIZONTALS	PLAN BRACING	SEC. BRACING	LEGS SIZE	LEG LENGTH	LEG JOINT NAME	LADDER SUPPROT
1	2.5	45x45x5	50x50x4	45x45x04	50x50x4		65X65X5	4488		
2	2.5									
3	2.5	45x45x5	50x50x4	45x45x04			75X75X5	2500		
4	2.5				50x50x4		90x90x6	4898		
5	2.5	45x45x5		50x50x4						
6	2.5	45x45x5					90x90x8	5000		
7	2.5			50x50x4	50x50x4					
8	2.5	50x5					100x8	600		



PLAN VIEWS

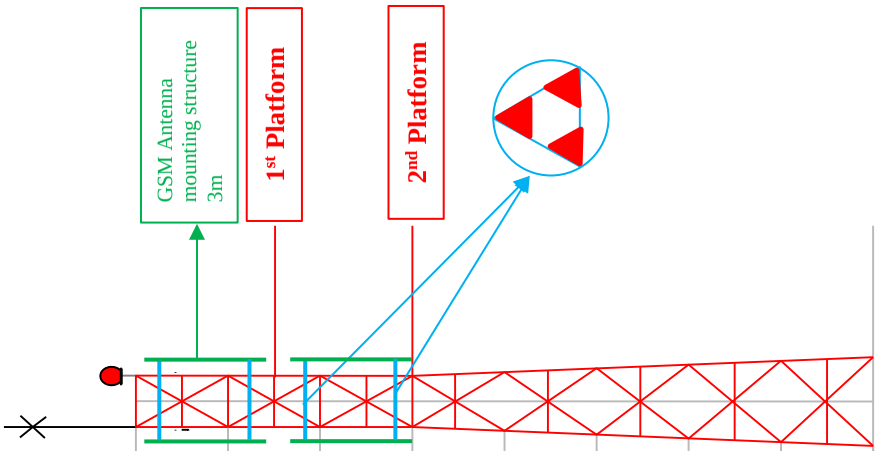


Tower Weight ≥ 2500 Kg	TITLE: 20 METER TOWER	Wind Speed	180 KMPH	Design:	TIA/EIA-222 G
	SUB. TITLE: TRIANGULAR ANGULAR TOWER	Deflection	< 0.5 Degree	F.O.S.	1.2 Dead Load & 1.6 Wind Load
	Drawing No.: AGD-319A	Loading	6 GSM Antenna (Weight 35kgs) 6 RRU Antenna (Weight 17kgs) 2x0.6m Parabolic MW Antenna	1	Date: 31.12.2020
	BHUTAN TELECOM LTD. THIMPHU BHUTAN				

BHUTAN TELECOM LIMITED

Technical Specification sheet of 20 mtr. 3 Legged Angular Tower AGD-319A

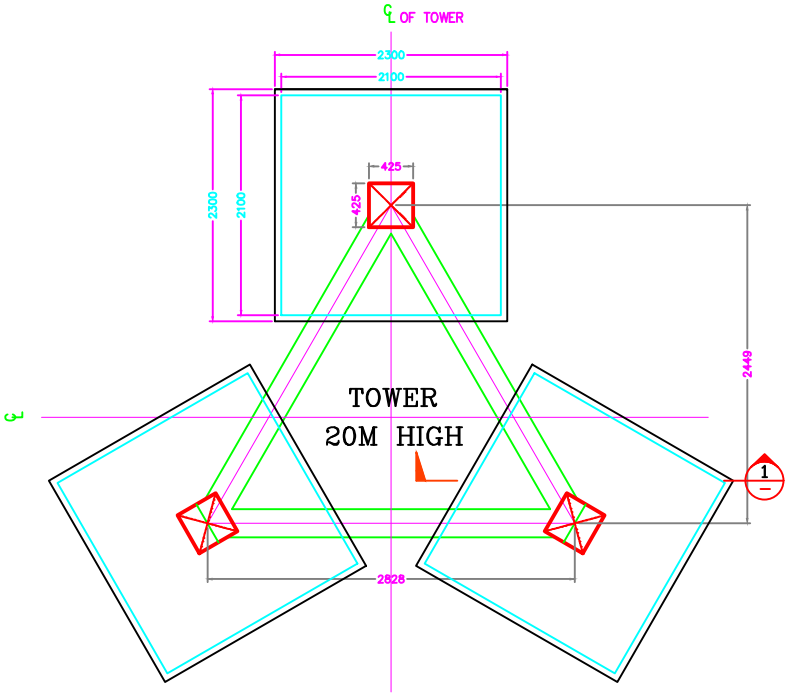
Sl.No			DETAILS	Remarks
1		**Design Specification Reference**	ANSI/TIA-222G	
	1.1	Design Wind Velocity		
		Survival	180Km/h	
	1.2	Twist & Sway	less than 1.0 degree	
	1.3	Factor of safety	1.2 For Dead Load	
			1.6 for Wind Load	
	1.4	Antenna Loading		
		Remote Radio Head	6 nos. RRU	17 Kgs each
		Sectoral Antennas	6 nos. GSM Antenna	35 Kgs each
		Microwave Antennas	2 nos of 0.6m MW	20 Kgs each
	1.5	Antenna Pole Mount stand	8 nos of 3m	
2		**Obstruction Light System**		
	2.1	No. of Obstruction Light Lamp & Watts	1 No. LED Type	
	2.2	Power Cable Type & Length	2.5 Sqmm & 30 mtr. Length	2 core armored
3		**Lightning Protection & Earthing System (Grounding System)**		
	3.1	Lightning Arrestor	1.2mtr long	1 nos
4		**Structure of Tower**	Self-Supporting 3 Legged Angular Construction with vertical ladder in the center integrated with Cable tray & Horizontal cable tray from tower to Building.	
	4.1	Main Leg	90 Degree Angle	
	4.2	Bracing	90 Degree Angle	
	4.3	Climbing Ladder	400mm Rung Width, 300mm Rung space & 700mm Hoop	
	4.4	Cable Tray Vertical	400mm Width	along tower height
	4.5	Cable Tray Horizontal	450mm Width (6 mtr)	
	4.6	Platforms		
		Working (Round)	2 Nos	1 no at 16.25m, 1 no at 12.5m
		Rest	0	
5		**Foundation bolt & Template**	As per tower design	Included
	5.1	Bolts & Nut with Spring	Hot Dipped Galvanized Property Class 5.6	
	5.2	Plane Washer	As per standard ASTM A 153	Extra 5%
	5.3	Hot Dipped Galvanized	As per Standard ISO 1461	85 Microns
6		**Others to specified**		
	6.1	Weight Per Tower	2500 Kgs	(+/-) 5 %
	6.2	Paint	as per International Standard	As per requirement



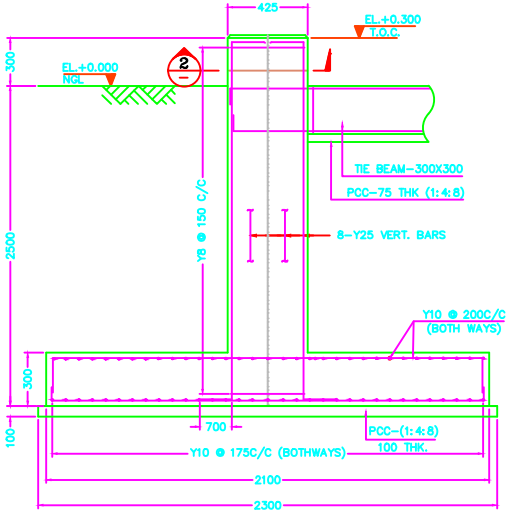
LEG JOINT NAME								
LEG LENGTH	4488		2500	4898		5000		600
LEGS SIZE	65X65X5		75X75X5	90x90x6		90x90x8		100x8
PANEL NO	1	2	3	4	5	6	7	8
LENGTH (METER)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
DIAGONALS	45x45x5		45x45x5	45x45x5		45x45x5		50x5
PANEL TOP– HORIZONTALS	50x50x4		50x50x4					
PANEL MID– HORIZONTALS	45x45x04		45x45x04	50x50x4		50x50x4		
PLAN BRACING	50x50x4			50x50x4		50x50x4		
SEC. BRACING								



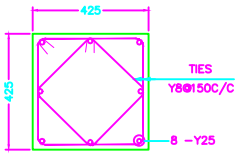
Platform Preview



FOUNDATION KEY PLAN

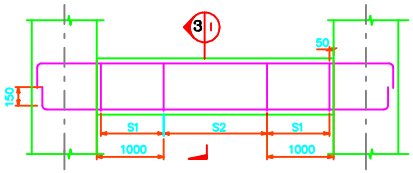


SECTION 1

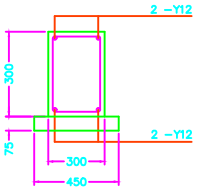


SECTION 2

COLUMN 450X450

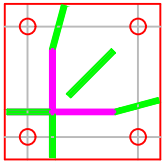


TIE BEAM (TYP DETAILS)

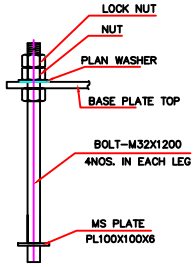


SECTION 3

STIRRUP DETAILS
S1:-2 LEGGED Y8 @ 100 C/C
S2:-2 LEGGED Y8 @ 200 C/C



BASE PLATE



ANCHOR BOLT

NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. USE M20 GRADE CONCRETE AND Fe 415 GRADE FOR STEEL.
3. CLEAR COVER TO MAIN REINFORCEMENT:-
   (a) 50MM FOR FOUNDATION (b) 25MM FOR BEAMS
   (c) 40MM FOR COLUMNS (d) 50MM AT ENDS
4. PRIOR TO AND DURING CONCRETING ALL BOLTS SHALL BE SECURELY HELD IN POSITION BY USE OF TEMPLATE.
5. BEFORE COMMENCEMENT OF CONSTRUCTION USING THIS DESIGN, CLIENT/CONTRACTOR SHALL CARRY OUT DETAILED SOIL INVESTIGATION OF EVERY SITE.
6. THIS FOUNDATION DESIGN SHALL NOT BE USED IN CASE HIGHLY SOIL ARE FOUND AT ANY DEPTH DURING SOIL INVESTIGATION.
7. CONCRETE SHALL BE MECHANICALLY MIXED & VIBRATED.
8. SPLICING OF BARS SHALL NOT BE MORE THAN 50% AT ANY LOCATION.
9. PROPER CURING OF CONCRETE SHALL BE DONE.
10. BENDING OF BARS SHALL BE AS PER IS:2502.
11. ANY DISCREPANCY SHOULD BE BROUGHT TO THE CONSULTANT'S ATTENTION.

GENERAL DETAILS

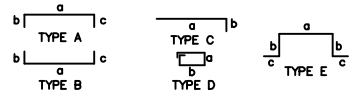
S.No	DESCRIPTION	DETAILS
1	SOIL BEARING CAPACITY	10.00 T/SQM
2	DRY DENSITY OF SOIL	1.75 T/SQM
3	ANGLE OF REPOSE	25.00 DEGREE

BILL OF MATERIALS

ITEM	UNIT	TOTAL
EXCAVATION	CUM	50.7
PCC-(1:4:8)	CUM	1.9
RCC-M20	CUM	5.56
STEEL-Fe415	KG	600

CHAIRS SHALL BE PROVIDED WHEREEVER REQUIRED

BAR BENDING SCHEDULE



BHUTAN TELECOM LTD. THIMPHU

TITLE : FOUNDATION DETAILS FOR 20M HIGH TRIANGULAR TOWER SBC : 10 T/SQM

DRAWING No.	SH. NO.	REV.
AGD-319A		