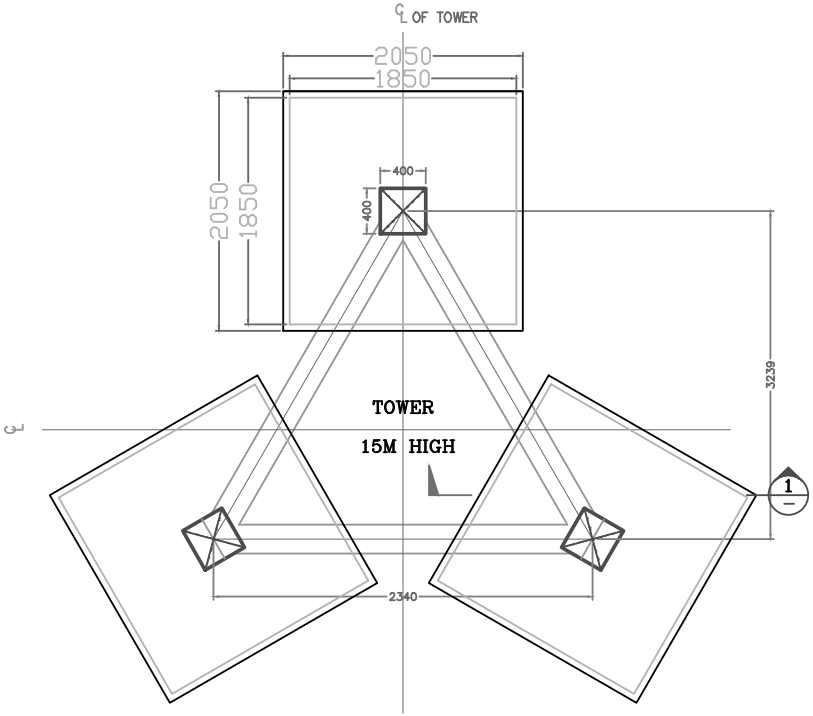
PLAN BRACING	PANEL MID– HORIZONTALS	PANEL TOP– HORIZONTALS	DIAGONALS	LENGTH (METER)	PANEL NO		LEGS SIZE	LEG LENGTH	LEG JOINT NAME		PLATFORM	FACE WIDTH	LEVEL
									A			2000	15000
50x50x4	45x45x04	50x50x4	50x50x4	2.5	1		65x65x5	2500				2000	12500
			50x50x4	2.5	2			2500	B	Working Platform		2000	10000
				2.5	3		70X70X5	2500				2000	7500
	45x45x04	50x50x4	50x5	2.5	4			2500	C			2000	5000
50x50x4	50x50x4		50x50x4	2.5	5		80x80x8	2503				2250	2500
				2.5	6			2503	D			2500	0000

PLAN VIEWS

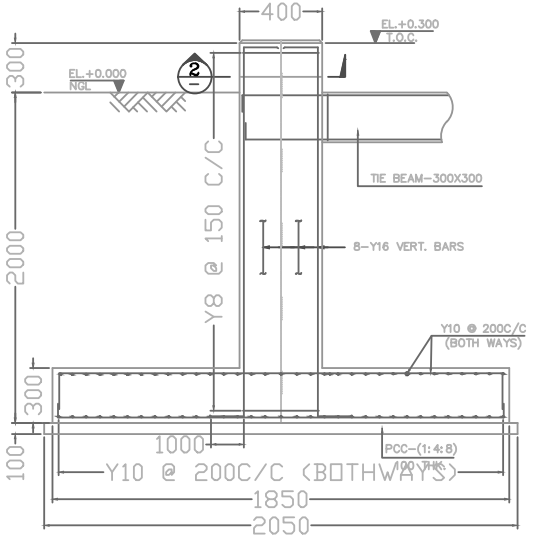
1)Remote Radio Head– 6nos
(Total Weight 102kgs.)
2)Sectoral Antennas – 6nos
(Total Weight 210kgs.)
3)Microwave Antennas (0.6m)–2nos
(Total Weight 40kgs.)

TITLE	15 METER TOWER	Wind Speed	180 KMPH	Design	TIA/EIA–222 G
SUB. TITLE	TRIANGULAR ANGULAR TOWER	Deflection	< 1.0 Degree	Rev:	1
Drawing No.	BT–2023–01	Loading	352 kgs.	Drawn Date	19–11–2022
BHUTAN TELECOM LTD. BHUTAN		Tower Weight 2200 kgs.			

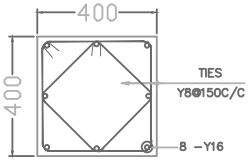
Bhutan Telecom 2023 Project				
Technical Specification sheet of 15 mtr. 3 Legged Angular Tower BT-2023-01				
S.No.			DETAILS	REMARK
1		**DESIGN SPECIFICATION**	(ANSI/TIA-222G)	
	1.1	Design Wind Velocity		
		Survival	180 KMPH	
	1.2	Twist & Sway	Less than 1.0 degree	
	1.3	Factor of Safety	1.2 For Dead Load	
			1.6 For Wind Load	
	1.4	Antenna Loading	352 Kg	
		Remote Radio Head	6 Nos (17 Kg)	102 Kg
		Sectorial Antenna	6 Nos (35 Kg)	210 Kg
		MW Antenna	2 Nos 0.6 m Dia (20 Kg)	40 Kg
	1.5	Antenna Mounting Structure	GSM mount - 6 Nos MW Mount - 2 Nos	
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 x 25 mtr. Length	2 core armoured
3		**Lighting Protection**		
	3.1	Lightning Arrestor	1.2mtr long	1 nos
4	4.1	**Structure Of Tower**	Self Suppprting 3 legged Angular construction with vertical ladder in the center intergrated with cable tray & horizontal cable tray from tower to Building	
	4.2	Main Leg	90 Degree Angle	
	4.3	Bracing	90 Degree Angle	
	4.4	Climbing Ladder	450 mm Rung Width, 300mm Rung space & 700mm Hoop	
	4.5	Cable Tray Verticle	450 mm Width	along the tower Height
	4.6	Cable Tray Horizontal	450 mm Width	6 MTR.
	4.7	Platforms		
		Working	1 Nos	
		Rest	0	
5		Foundation bolt & Template	As Per Tower Design	Included
	5.1	Bolts & Nut with spring &	Hot Dipped Galvanized Property Class 5.6	Extra 5% will be provided
	5.2	Plane washer	As per Standard **ASTM A 153**	
	5,3	Hot Dipped Galvanization	As per Standard **ISO 1461**	85 Microns
6	6.1	Weight Per Tower	2200 Kgs	(+/-) 5%
	6.2	Drawing No	BT-2023-01	



FOUNDATION KEY PLAN

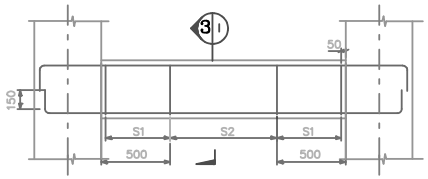


SECTION 1

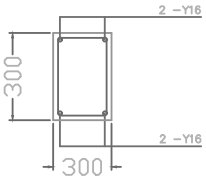


SECTION 2

COLUMN 400X400

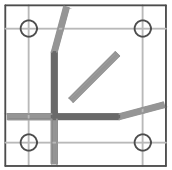


TIE BEAM (TYP DETAILS)

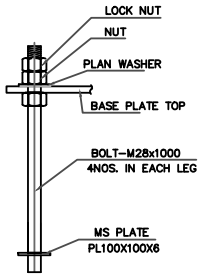


SECTION 3

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	27.5
PCC-(1:4:8)	CUM	1.5
RCC-M20	CUM	4.71
STEEL-Fe415	KG	420

CHAIRS SHALL BE PROVIDED WHEREEVER REQUIRED

REVISION NOTES

REV. NO.	DESCRIPTION		DATE	SIGN.
DRAWN	CHECKED	APPROVED	DATE	SCALE
Bhutan Telecom	Bhutan Telecom	Bhutan Telecom	20-11-2022	NTS

CLIENT: BHUTAN TELECOM LTD. BHUTAN

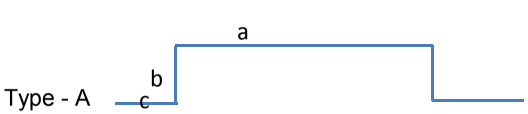
DESIGN BY: BHUTAN TELECOM LTD. BHUTAN

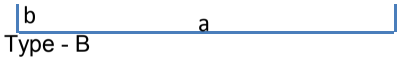
PROJECT : GENERIC ISOLATED FOUNDATION DESIGN

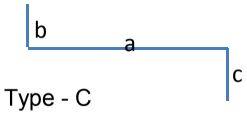
TITLE : FOUNDATION DETAILS FOR 15M HIGH TRIANGULAR TOWER SBC : 10 T/SQM

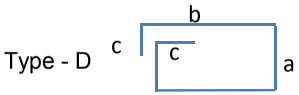
DRAWING No.	SH. NO.	REV.
BT-2023-01		

Bar Bending Schedule of 15m high 3legged tower









Cover -	
Slab	50 mm
Column	40 mm
Beam	25 mm

Item	Position	Type	Dia. Of Rebar	Size a	Size b	Size c	Length	Qty in Nos both ways or total	Unit wt	Total Weight of
			(mm)	(mm)	(mm)	(mm)	(mm)		(kg/m)	(kg)
Raft Slab	Top	B	B10	1750	150	-	2050	60	0.62	76
	Bottom	B	B10	1750	150	-	2050	60	0.62	76
Tie Beams	Top	B	B16	2640	300	-	3240	6	1.58	31
	Bottom	B	B16	2640	300	-	3240	6	1.58	31
	Strips	D	B8	250	250	80	1160	42	0.40	19
Column	Main	C	B16	2200	284	600	3084	24	1.58	117
	Ties	D	B8	292	292	80	1328	48	0.40	25
		D	B8	206	206	80	986	48	0.40	19
							Total (5% extra considered)			420

* Chairs Shall be Provided whenever required

Notes :

1. Dimensions of Bars are along the Center Lines.

3. Splicing of Bars should not be more than 50%. Length of splice as per Standards.