Tender No : TPCODL/P&S/93/2020-21			
Package Name : Rate Contract for 11kV and 1.1 kV associated works (Construction / Augmentation/ refurbishment) all over TPCODL area			

Correction in Annexure I, Price Bid
Existing job description: Installation of DP Switch as per TPCODL Standard along with all necessary MS Channel & civil work, nutbolt etc
Corrected job description: Installation of DP Structure for 11KV Line as per TPCODL Standard along with all necessary MS Channel & civil work, nutbolt etc.

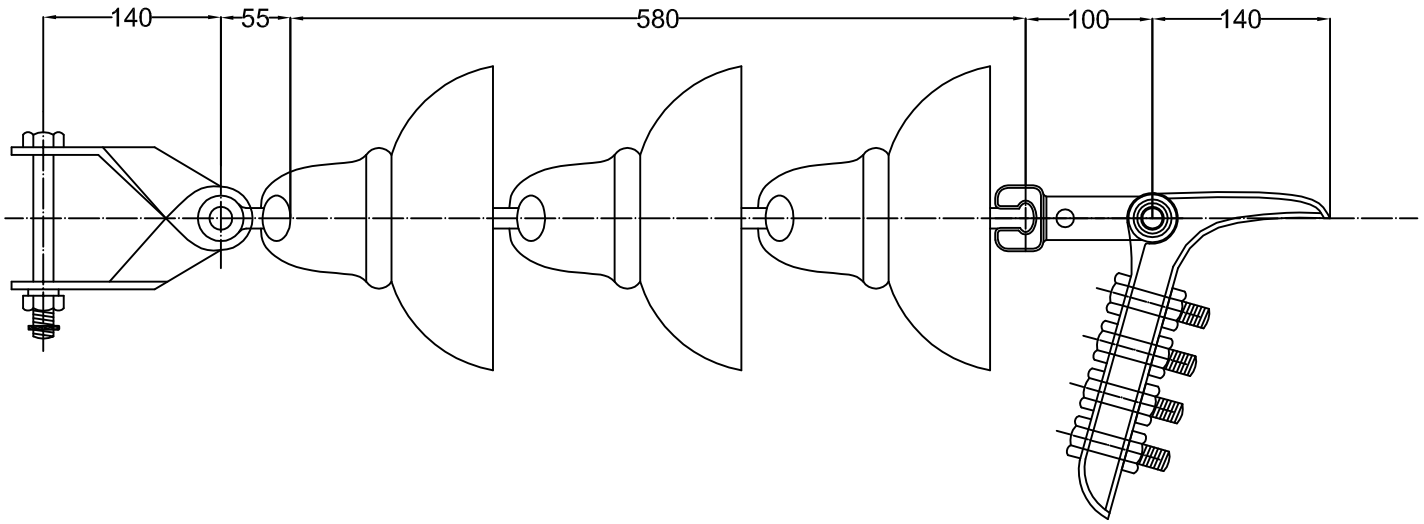
Consolidated Prebid Query Reply				
Sr. No.	**Detailed Reference to Tata Power Technical Document. Please specify Document No / Clause No / Page No**	**Description as per Bid Document**	**Remarks - Query / Clarification**	**TPCODL RESPONSE**
1	**2**	**3**	**4**	**5**
1	Annexure - I, Page no. 18	supply of 40 x 6 GI Flat for neutral	whether we have to quote including erection price or only the supply perice as erection work is not mentioned for said item?	Supply Price to be considered for 40 X 6 GI Flat. Installation cost to be considered under this line item **Installation of Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover. Approx 20KG GI Flat considered for each earthing chamber**
2	Annexure - I, Page no. 18	Errection of RS Joist pole(150x150mm) 11mtr.	Civil work / nomencleature of said item is not given. Kindly provide.	Drawing attached
3	Annexure - I, Page no. 18	Errection of 9mtr. long 300kg PSC pole	Brick betting/ Zebra paint/ nomencleature is not provided. Kindly clarify or provide the same.	Brick Betting is not considered, However Pole nomenclature paining as per GIS standard will be done separately. Same will be paid separately.
4	Annexure - I, Page no. 19	Installation of Earth Pit,Charcoal, Salt etc including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Dwg of RCC Slab abd earthing chember is not provided. Kindly provide	This is Construction Earthing chamber with 600mm x 600mm dimension.Suitable size of RCC Slab Cover to be used with load bearing capacity -10Ton.Drawing is attached for earthing.
5	Annexure - I, Page no. 20	Installation of DP Switch as per TPCODL Standard along with all necessary MS Channel & civil work, nutbolt etc	Erection of pole and fencing should also be considered for said item. Kindly clarify? Also, provide the fencing drawing as applicable	Fencing is not considered in the scope, however Pole erection , Insulator installation, earthing should be done as per TPCODL standard & drawing. Drawing is attached.
6	Annexure - I, Page no. 21	Supply of GI Nut , Bolt & Washer of different sizes For line	Erection scope is not mentioned in BOQ. Kindly clarify	Erection cost to be considred with respective associated work like Dp Structure installation, Fixing cross arm
7	Annexure - I, Page no. 21	Laying/ stringing of all size AB cables as per BOQ	Whther the supply and installation of Al. thimble/ lugs, IPC connectors and endcap, phase marking are included in the scope. Kindly clarify?	Supply of of Al. thimble/ lugs, IPC connectors and endcap & phase marking is not considered, however installation cost should be considered while laying / stringing
8	Annexure - I, Page no. 21	Supply & Installation of HT Danger Board as per TP Central Orissa Distribution Ltd. specification	Clamp for danger board is not provided in BOQ. Kindly clarify and inbuild in case needs to tobe supplied and installed?	All necessary material to be used while fixing of HT Danger board.Supply those material in scope of Vendor
9			Installation of DP Structure as per TPCODL Standard along with all necessary MS Channel & civil work, nutbolt etc	Drawaing attached
10			Provision of 12Hr Crane service for loading and unloading of poles and other items	Crane capacity should be 10Ton
11			Quotation in all items in each package is mandatory. In case any item is not quoted / any space in the Price Schedule is left blank by the bidder, the cost of such items shall be treated as inclusive and shall be borne by the bidder without any extra cost to TPCODL. => Our quarry, If supply or erection is not mentioned in Price BOQ, whether we can put “Zero” or leave blank in the concern box.	Please check Note below Annexure I Price schedule e.g. "Bidder should quote as mentioned in "Item description" column i.e. Supply or Installation or Supply and Installation both." Thus boxes which are not relevant to the "Item description" should be kept blank.

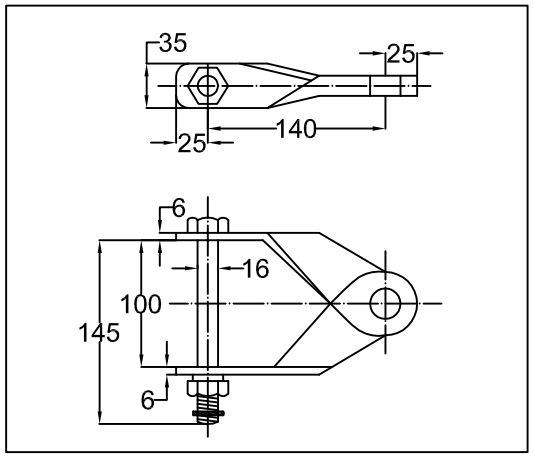
Sr. No.	Detailed Reference to Tata Power Technical Document. Please specify Document No / Clause No / Page No	Description as per Bid Document	Remarks - Query / Clarification	TPCODL RESPONSE
1	2	3	4	5
12			Technical specification as mentioned in Annexure-II, kindly provide. Not found in the Bid document	Attached
13			List of Approve make (if any), please may provide	There is no specific make however all material should be complied to GTP & should have valid type test report as per spec.
14			As the BOQ is voluminous and lengthy , kindly may provide the excel copy of the same	Excel copy is attached in tender loaded in ARIBA, please check clause number 3.2 and 3.3 of ARIBA.
15			General Condition of Contract (Annexure-VIII), please provide to us.	GCC is attached in ARIBA, clause no 1.2.1
16			Supply of 11 kV H. W fitting (B&S) (please refer Package-1, BCDD-1), kindly specify the meaning of B&S	11KV H.W. Fitting Ball & socket type for connecting 11KV Porcelain Disc Insulator.
17			Al paint + Black paint supply is mentioned in the BOQ (viz. item no. 11 & 12, package-1, BCDD-1) for 11 kV Pole. Our quarry is painting on pole is contractor scope or not. Also, in the same package (item no. 40), painting of R.S Joist pole is mentioned. Whether supply of paint is contractor scope or only erection (Painting) work need to do by contractor. Please advise	Supply of paint & as well as Painting of pole is in contractor scope, both are to be considered . Contractor to apply red oxide paint over RS joist pole, Aluminium paint to be used for painting Back clamp, channel & V Cross Arm. Black paint to be used for pole numbering.
18			For stringing of conductor in various sizes (viz, package 1, items no. 31 & 32), it is understood that AAAC Conductor supply is TPCODL scope. Our quarry is transportation of conductor from TPCODL store to site is your scope or contractor need to arrange the logistic of the same.	Supply of AAAC Conductor is in TPCODL Scope whereas Transportation from store to site is under contractor scope.
19			Same as above point 18, item applicable for various AB cables (SL. No. 41 to 44).	Supply of AB Cable is in TPCODL Scope whereas Transportation from store to site is under contractor scope.
20			Kindly may specify the sizes of GI Nut, Bolt, washer sizes (SL. No. 37).	Different size of Nut bolt, washers (5inch, 7Inch,10Inch, 12 Inch etc) as per site requirement.
21			For dismantling work like Conductors, PSC Poles, MS Channel, AAAC Conductor (SL. No. 45 -54 of BOQ package 1), Kindly confirm transportation of the materials from site to TPCODL store after dismantling is contractor scope or not. Please advise.	Transportation of the materials from site to TPCODL store after dismantling is in contractor scope
22			Supply of Top bracket 75x40mm MS channel (1.3kg each	Vendor has to supply Ms channel with 75x40mm with 1.3Kg each.
23			Supply of 100 x 50 x 6 mm MS channel for 4nos Cut point (52Kg per Cutpoint	Vendor has to Supply of 100 x 50 x 6 mm MS channel in Kg to be used for Cutpoint.
24			Dimension of RCC Slab cover -	
25			As per BOQ LA, 400AB Switch	Vendor has to supply Lighting Arrester, Distribution class, 400A AB switch & will also install in the Pole / DP structure with all necessary Support material and Earthing requirement.
26			DP Structure, Provision of Craddle Guard	TPCODL will supply the necessary Joist pole, Vendor has to construct the DP Structure along with necessary material , Earthing support& similarly for Installation of Cradle guard for Road crossing TPCODL will supply the necessary Joist pole, Vendor has to construct the Craddle guard along the road with necessary material & earthing support.
27			BOQ Sr No -33 & 34 location of concreting	This is required for RS joist pole concreting & couping. Drawing attached

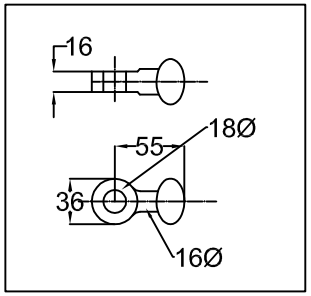
List of Drawing Hoisting in CESU's WEBSITE

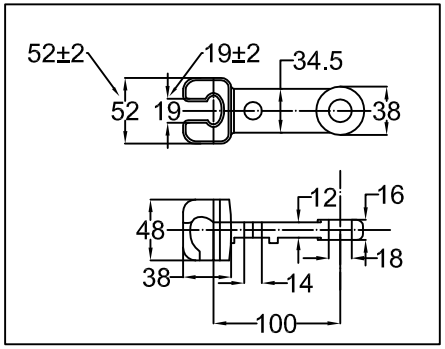
Sl. No.	Particulars	No. of Pages
1	4 bolted tension clamp	1
2	8 Mtr PSC Pole for LT Lines Model	1
3	10 Mtr PSC Pole 330KG.	1
4	10 Mtr PSC Pole 400KG.	1
5	11 KV V-Cross Arm For PSC Joist	1
6	11 KV V-Cross Arm For RS Joist	1
7	11 KV CT STR	1
8	11 KV SI STR	1
9	33 KV V-Cross Arm For PSC Joist	1
10	33 KV V-Cross Arm For RS Joist	1
11	33 KV CT STR	1
12	33 LA STR	1
13	33 KV PT STR	1
14	33 KV SI STR	1
15	200 KVA DT PLINTH	1
16	Arrangement of Spike	1
17	G1, G2, G3 BEAM	1
18	G2X, G2AX BEAM	1
19	G5B, G6A, G6B BEAM	1
20	G7A, G7B BEAM	1
21	R1 , R1X ,G5A BEAM	1
22	CABLE TRENCH ELEVATION & PLAN	4
23	CGL MAKE VCB FOUNDATION	1
24	DP Structure	3
25	DP Structure for DT	8
26	Earth mat laying	1
27	Earthing device for line & sub stn	2
28	Elevation 33 kV Sub Station	4
	FOUNDATION BOLT (INDOOR & OUTDOOR)	2
29	Indoor & Outdoor	2
30	PG Clamp	1
31	Schneider make 33 KV VCB	2
32	Schematic drawing	1
33	T clamp	1
34	T Column Str & Plan	6
35	Trans. Foundation	1
	Total Nos. Of Sheet	**60**

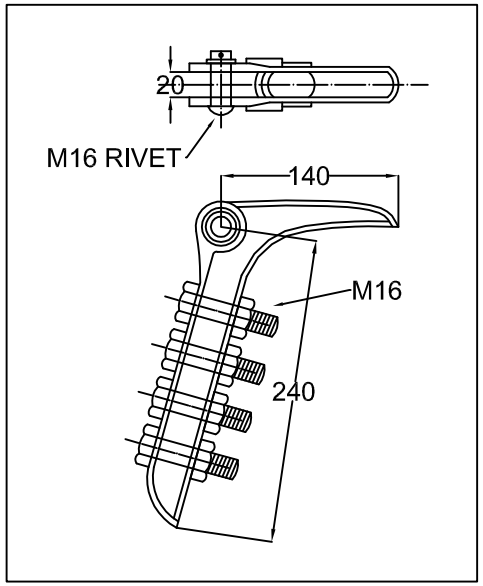
4 BOLTED TENSION CLAMP



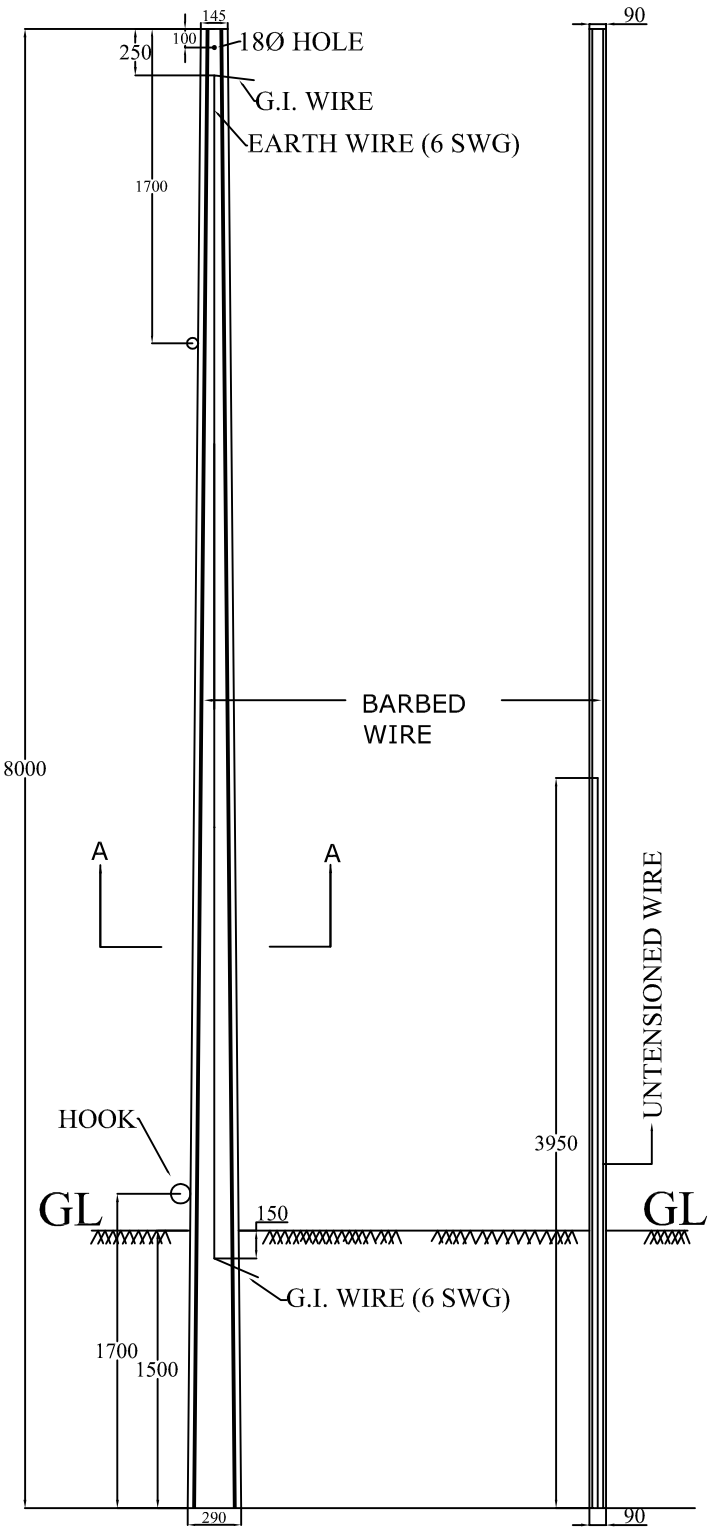




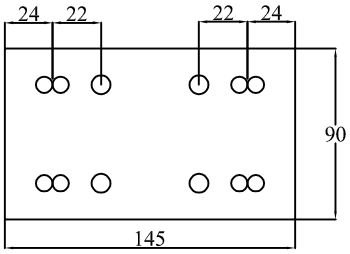




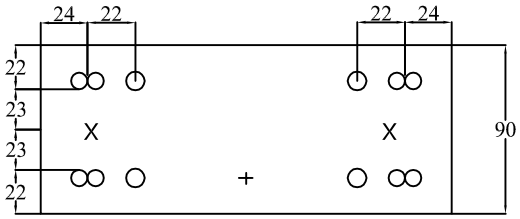
8.0 MTR/200Kg PSC POLE



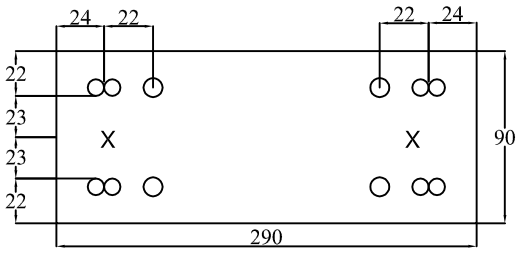
ELEVATION SIDE



PLAN AT TOP



PLAN AT A-A



PLAN AT BOTTOM

NOTE:

1)FACTOR OF SAFETY	2.5
2)CONCRETE GRADE	M-420
3)DIAMETER OF PRE STRESSING WIRE	4mm
4)ULTIMATE TENSILE STRENGTH OF PRE STRESSING WIRE Kg/Cm^2	17500
5)NUMBER OF TENSIONED WIRES	12
6)NUMBER OF UNTENSIONED WIRES	2
7)CONCRETE QUANTITY PER POLE	0.175M^3
8)STEEL QUANTITY PER POLE	10.25Kg
9)WEIGHT OF POLE	380Kg
10)CLEAR COVER TO WIRE	20mm

11)LOCATION OF HOLES AS PER REC STANDARDS
- ● - DENOTES TENSIONED WIRE
- ✕ - DENOTES UNTENSIONED WIRE
- + - POSSIBLE POSITION OF EARTH WIRE

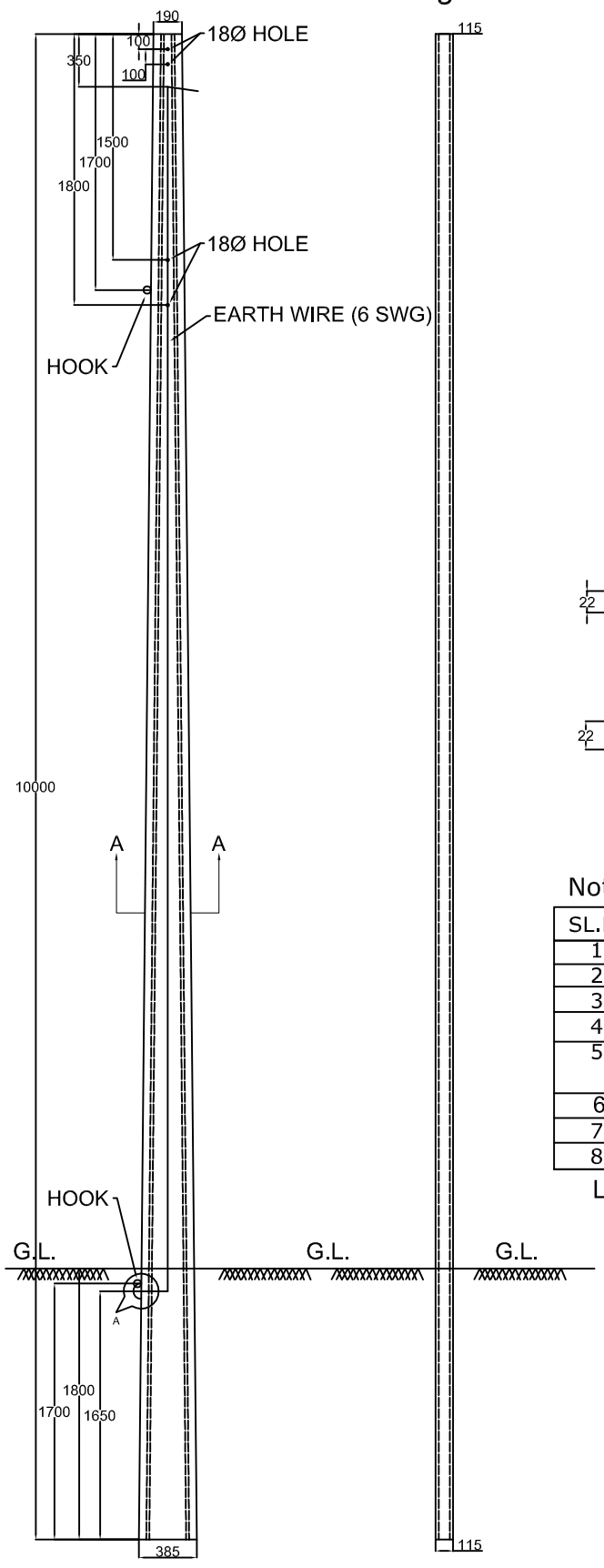
12)ALL DIMENSIONS ARE IN mm AND DRAWING IS NOT TO SCALE.

13)FOR HOLDING PART LENGTH UNTENTIONED WIRES IN POSITION, 4mm ØM.S. STRRUPS WILL BE USED WITH SUITABLE SPACING.

14)IF ANY PRACTICAL DIFFICULTY IS EXPERIENCE IN USING PART LENGTH INTENTIONED WIRES, FULL LENGTH WIRE WILL BE USED INSTEAD. BUT THE TENSION IN THESE WIRES WILL NOT EXCEED 5% OF THEIR U.T.S. VALUE.

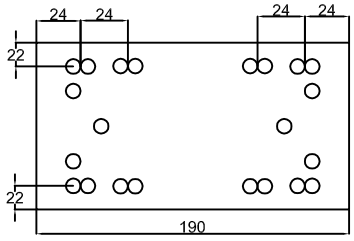
CESU CAPEX

10Mtrs /330 Kgs PSC POLE

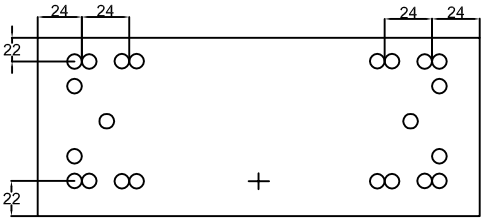


ELEVATION

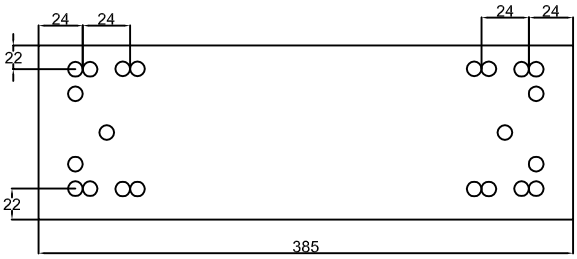
SIDE VIEW



PLAN AT TOP



PLAN AT A-A



PLAN AT BOTTOM

Note:- FACTOR OF SAFETY 2.5

SL.NO.	DESCRIPTION	QUANTITY
1.	NO. OF. TENSINED WIRES (4MM)	22 NOS.
2.	CONCRETE GRADE	M-420
3.	DIA OF PRESTRESSING WIRE	4MM
4.	WORKING LOAD	330 KGS
5.	ULTIMATE TENSILE STENGTH OF PRESTRESSING WIRE	17500 KG/CM²
6.	PLANTING DEPTH	1800MM
7.	CLEAR COVER	22 MM
8.	G.I. EARTH WIRE 6 SWG	1 NO.

LEGEND:-

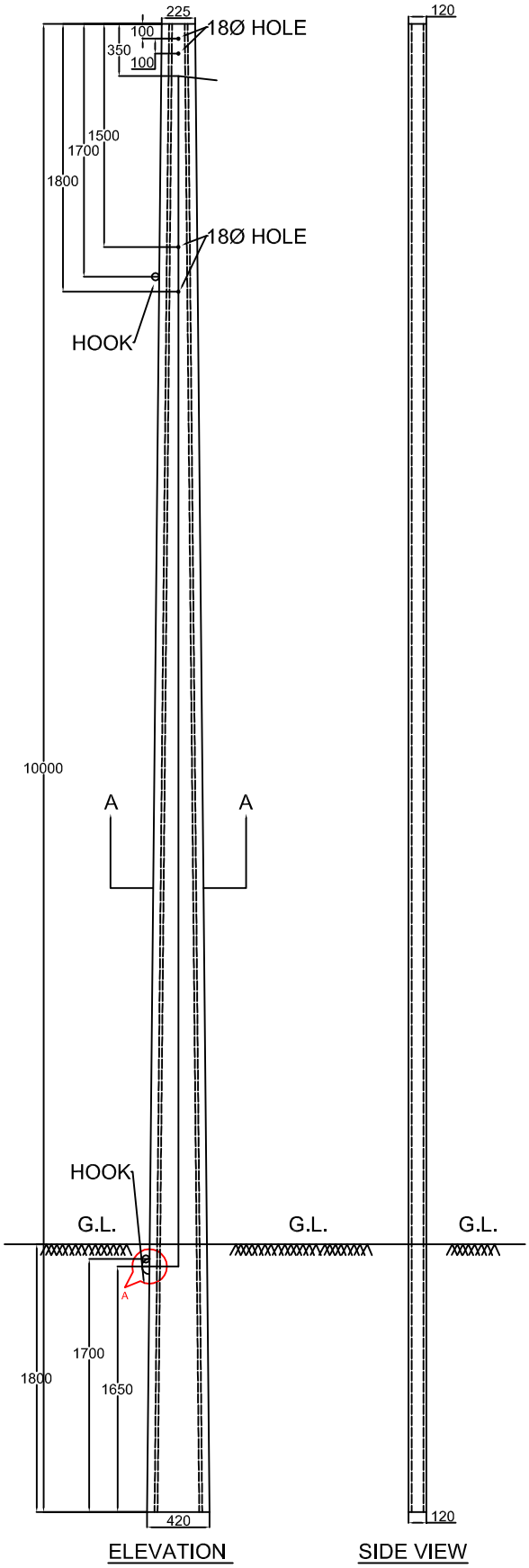
● - DENOTES TENSIONED WIRE

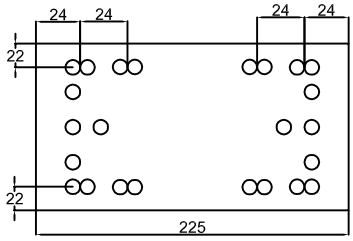
+ - DENOTES POSSIBLE OF EARTH WIRE

- ALL DIMENSION ARE NOT IN SCALE

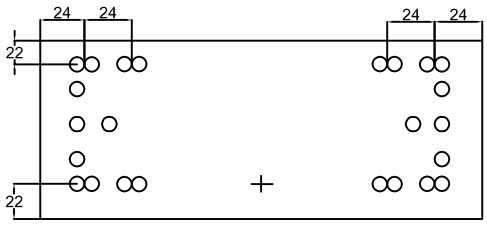
CESU CAPEX

10Mtrs/400 Kg PSC POLE

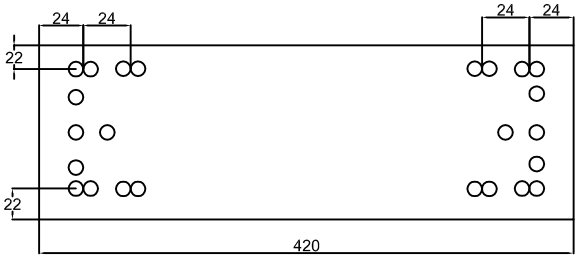




PLAN AT TOP



PLAN AT A-A



PLAN AT BOTTOM

Note:- FACTOR OF SAFETY 2.5

SL.NO.	DESCRIPTION	QUANTITY
1.	NO. OF. TENSINED WIRES (4MM)	24 NOS.
2.	CONCRETE GRADE	M-420
3.	DIA OF PRESTRESSING WIRE	4MM
4.	WORKING LOAD	400 KGS
5.	ULTIMATE TENSILE STENGTH OF PRESTRESSING WIRE	17500 KG/CM²
6.	PLANTING DEPTH	1800MM
7.	CLEAR COVER	22 MM
8.	G.I. EARTH WIRE 6 SWG	1 NO.

LEGEND:-

● - DENOTES TENSIONED WIRE

+ - DENOTES POSSIBLE OF EARTH WIRE

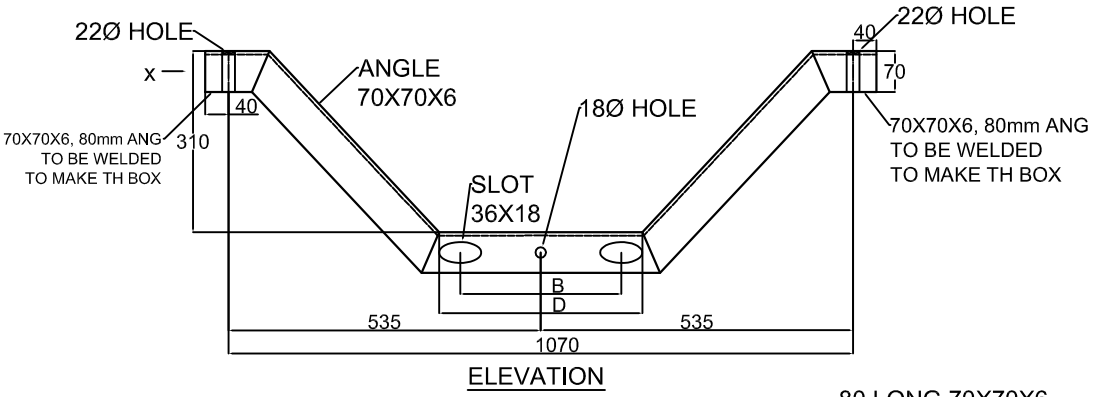
-ALL DIMENSION ARE NOT IN SCALE

CESU CAPEX

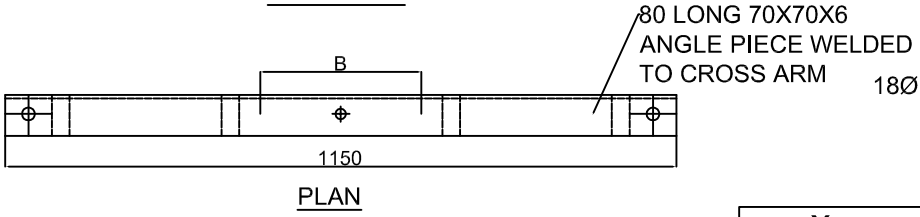
11 KV V-CROSS ARMS WITH TOP BRACKET & BACK CLAMP FOR PSC POLE

FABRICATED FROM 70X70X6 G.I. ANGLE

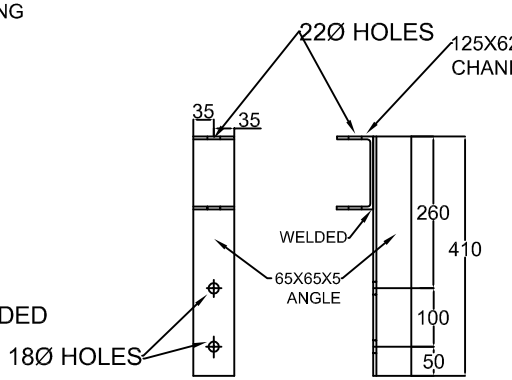
LENGTH OF POLE (L)	LOAD(KG)	A	B	C	D	BUTTOM LINE OF X-ARM FROM TOP OF THE POLE IN mm
10000 mm minimum	330	216	276	111	362	1170



ELEVATION



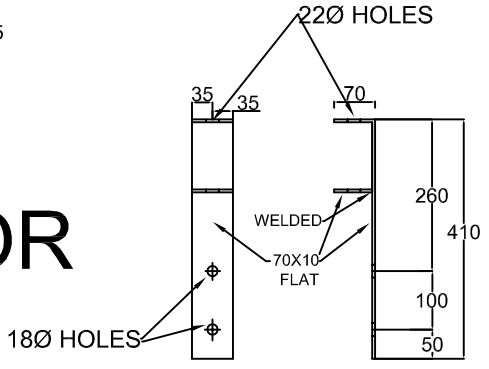
PLAN



ELEVATION END VIEW

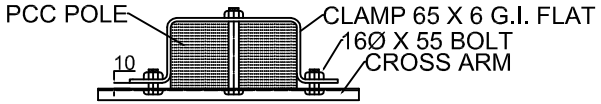
POLE TOP BRACKET

OR

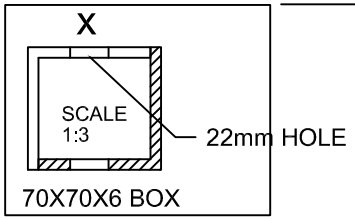


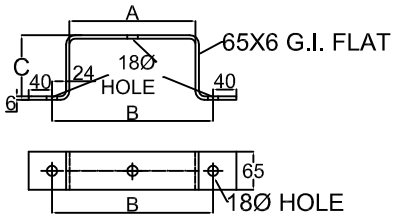
ELEVATION END VIEW

POLE TOP BRACKET



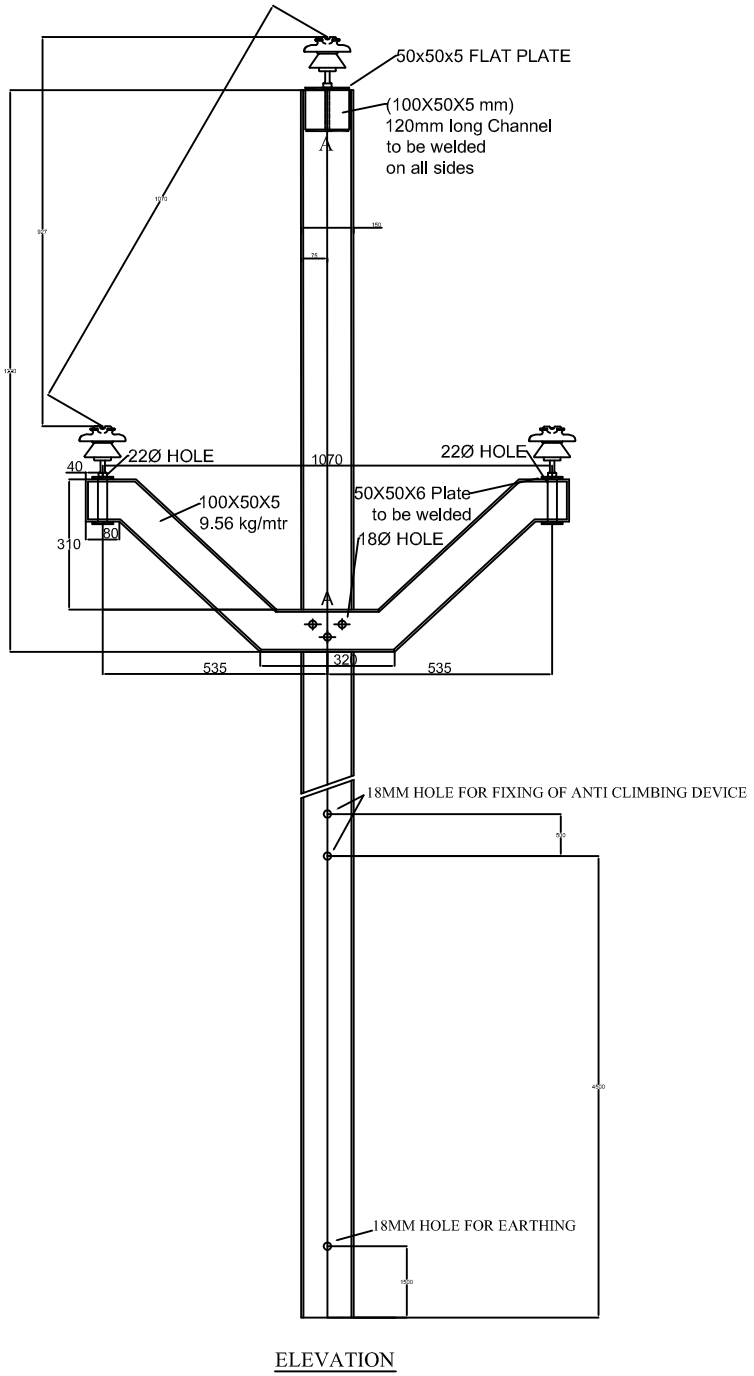
BACK CLAMPS & CROSS ARM ASSEMBLY



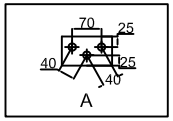


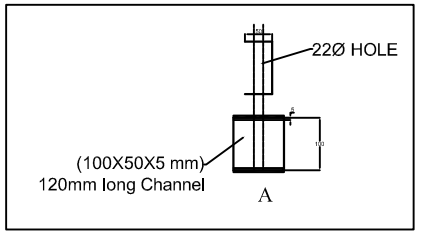
BACK CLAMP

11Kv V-CROSS ARM FOR RS JOIST

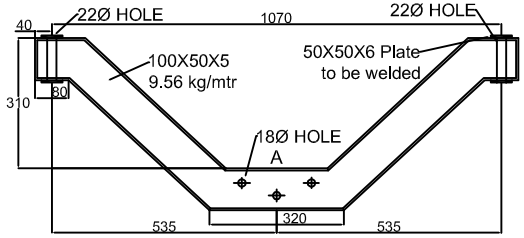


ELEVATION

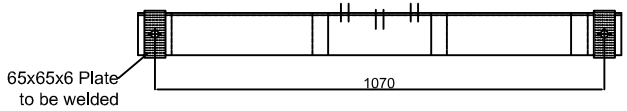




11Kv V-CROSS ARM FOR RS JOIST

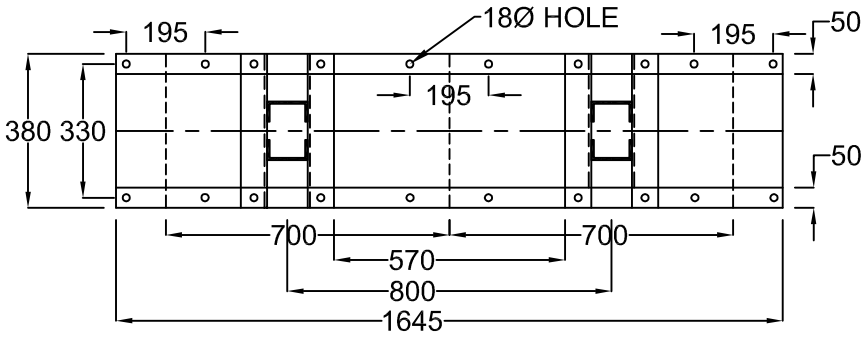


ELEVATION



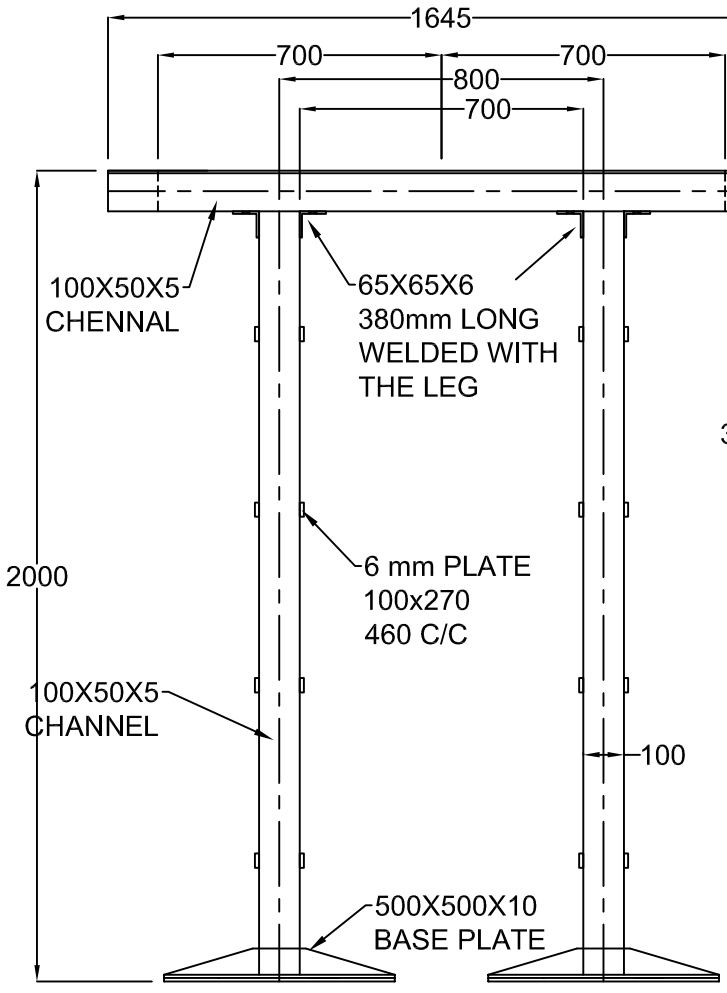
PLAN

CESU CAPEX

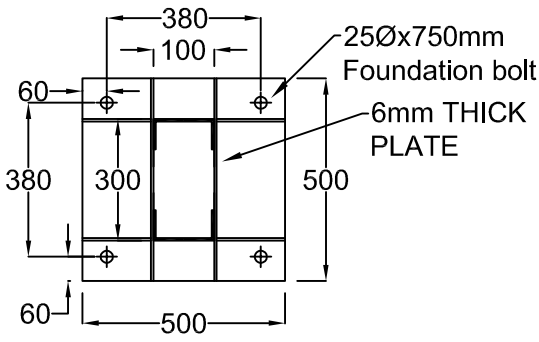


PLAN

11 KV CT

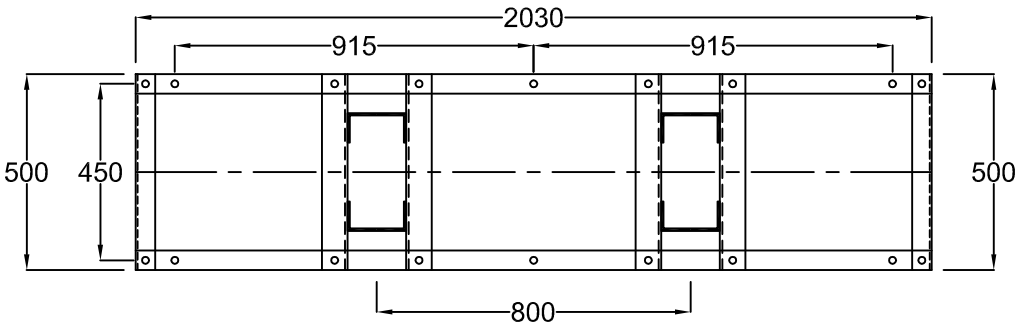


ELEVATION



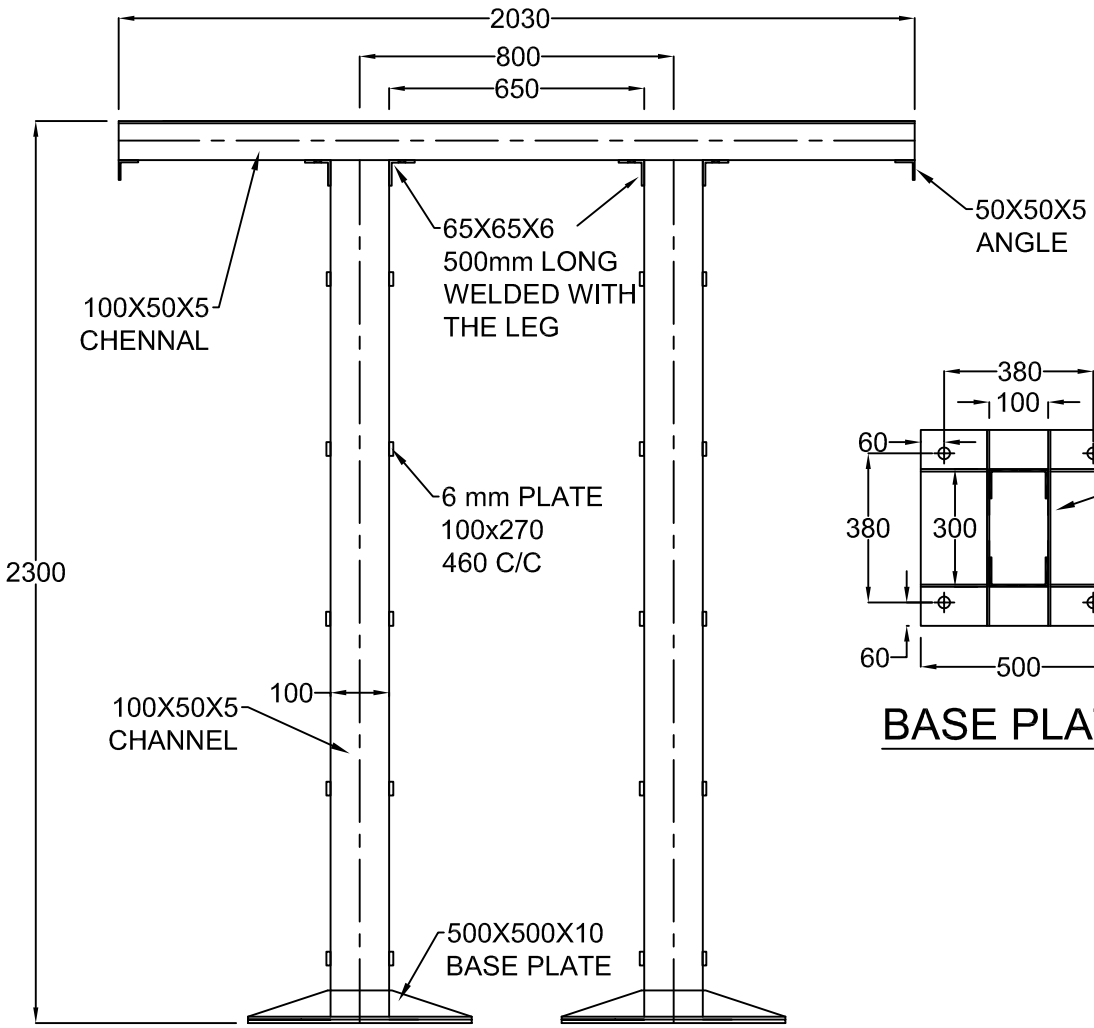
BASE PLATE

REV- 1

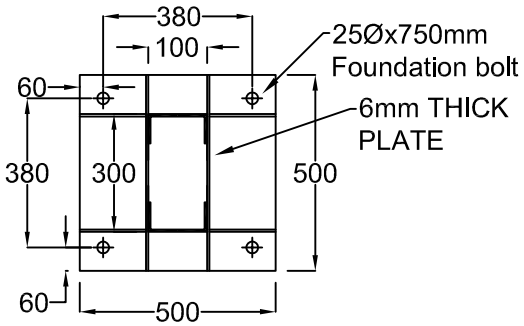


PLAN

11 KV SI



ELEVATION



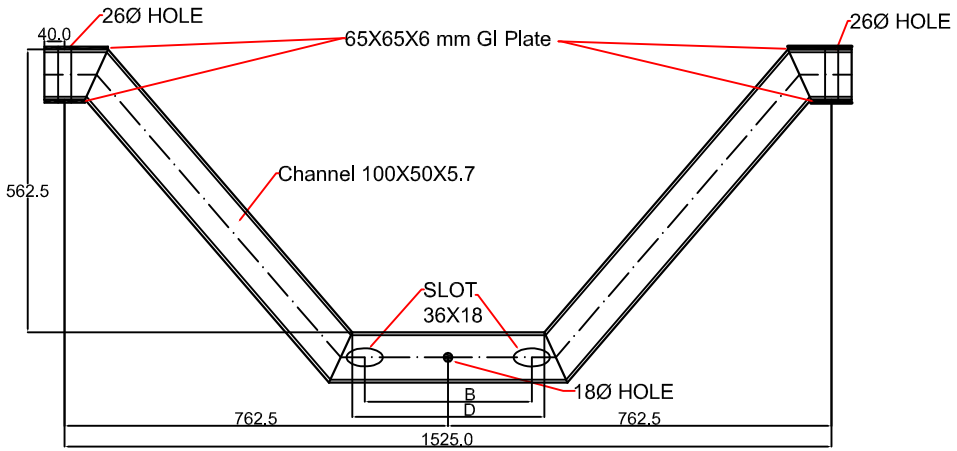
BASE PLATE

REV- 1

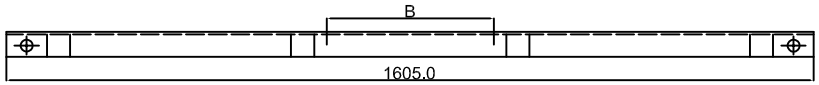
33 KV V-CROSS ARMS WITH POLE TOP BRACKET & BACK CLAMP FOR PSC POLE

CESU-CAPEX

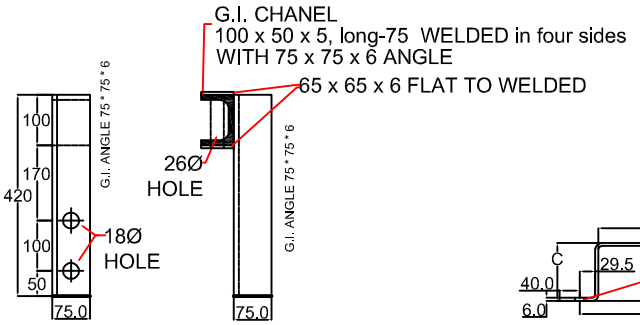
SL NO.	LENGTH OF POLE (L)	LOAD(KG)	A	B	C	D	CENTER LINE OF X-ARM FROM TOP OF THE POLE IN mm
01	10000 mm minimum	400	258	332	115	382	1800
02		330	225	299	111	362	1800



ELEVATION

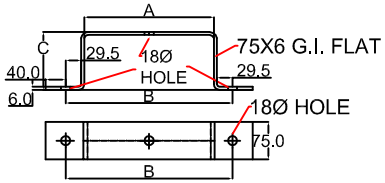


PLAN

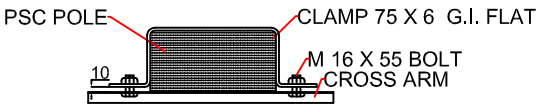


ELEVATION END VIEW

POLE TOP BRACKET



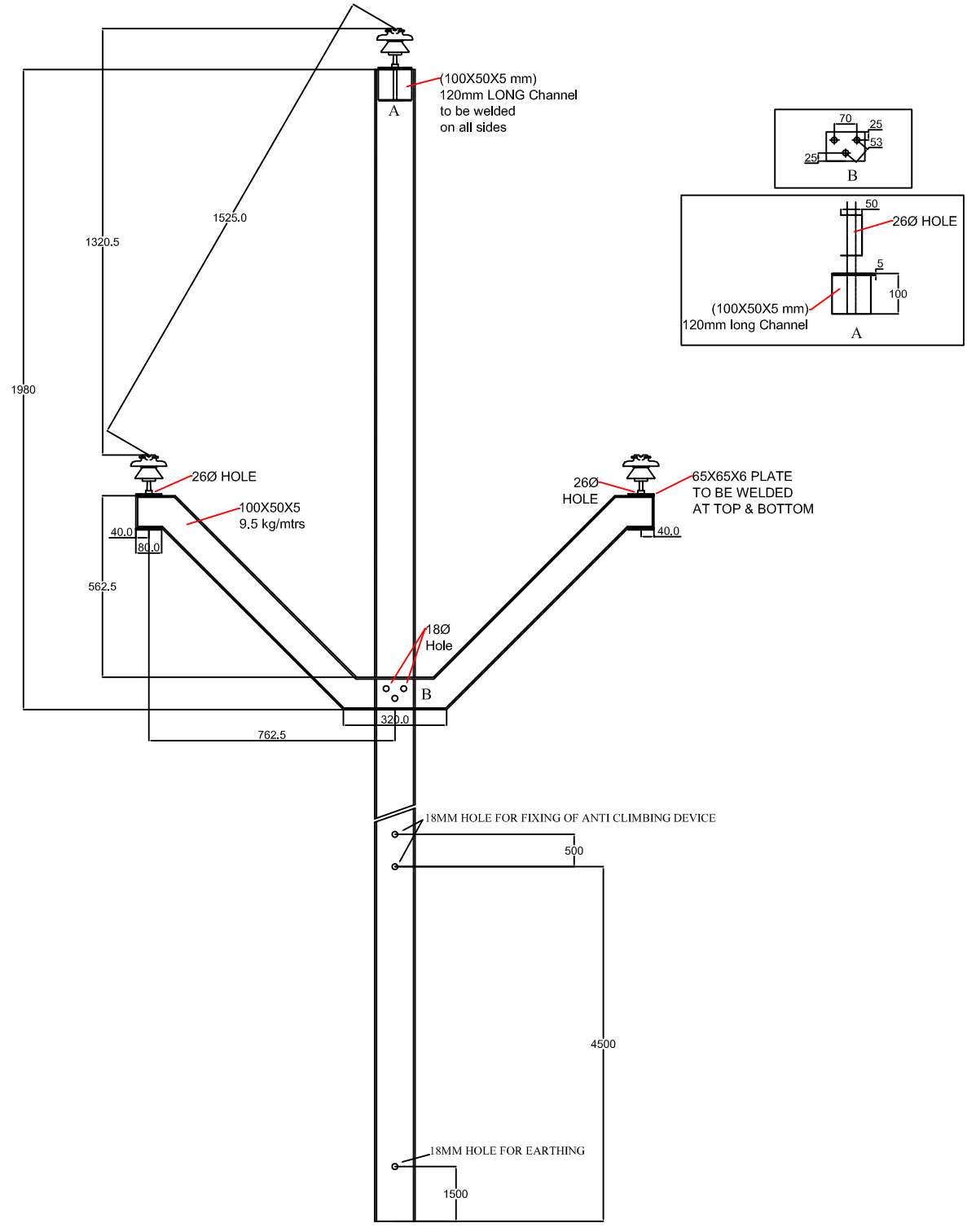
BACK CLAMP



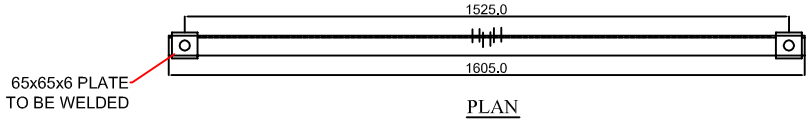
BACK CLAMP & CROSS ARM ASSEMBLY

CESU CAPEX

33Kv V-CROSS ARM FOR RS JOIST



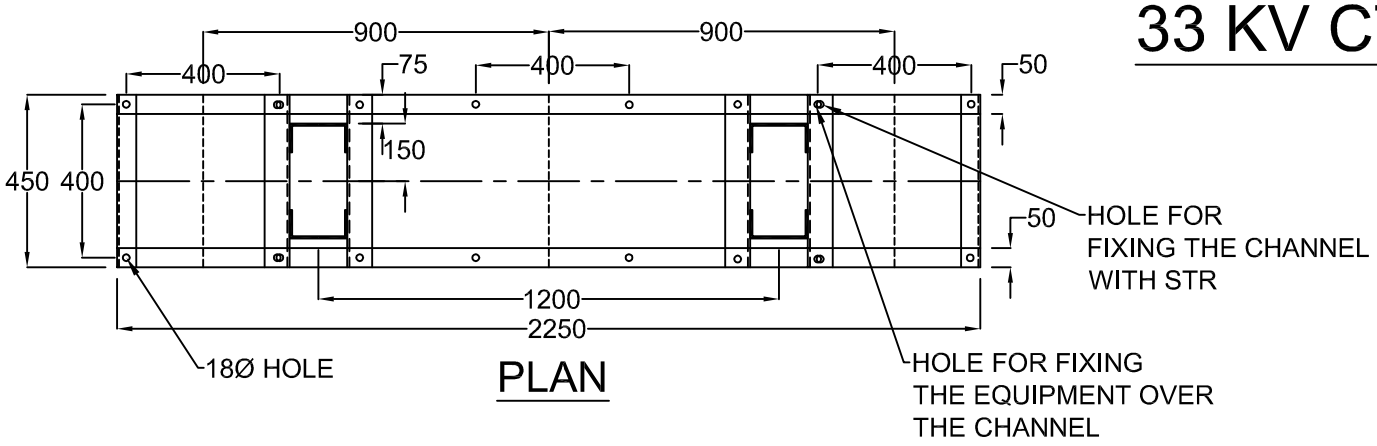
ELEVATION



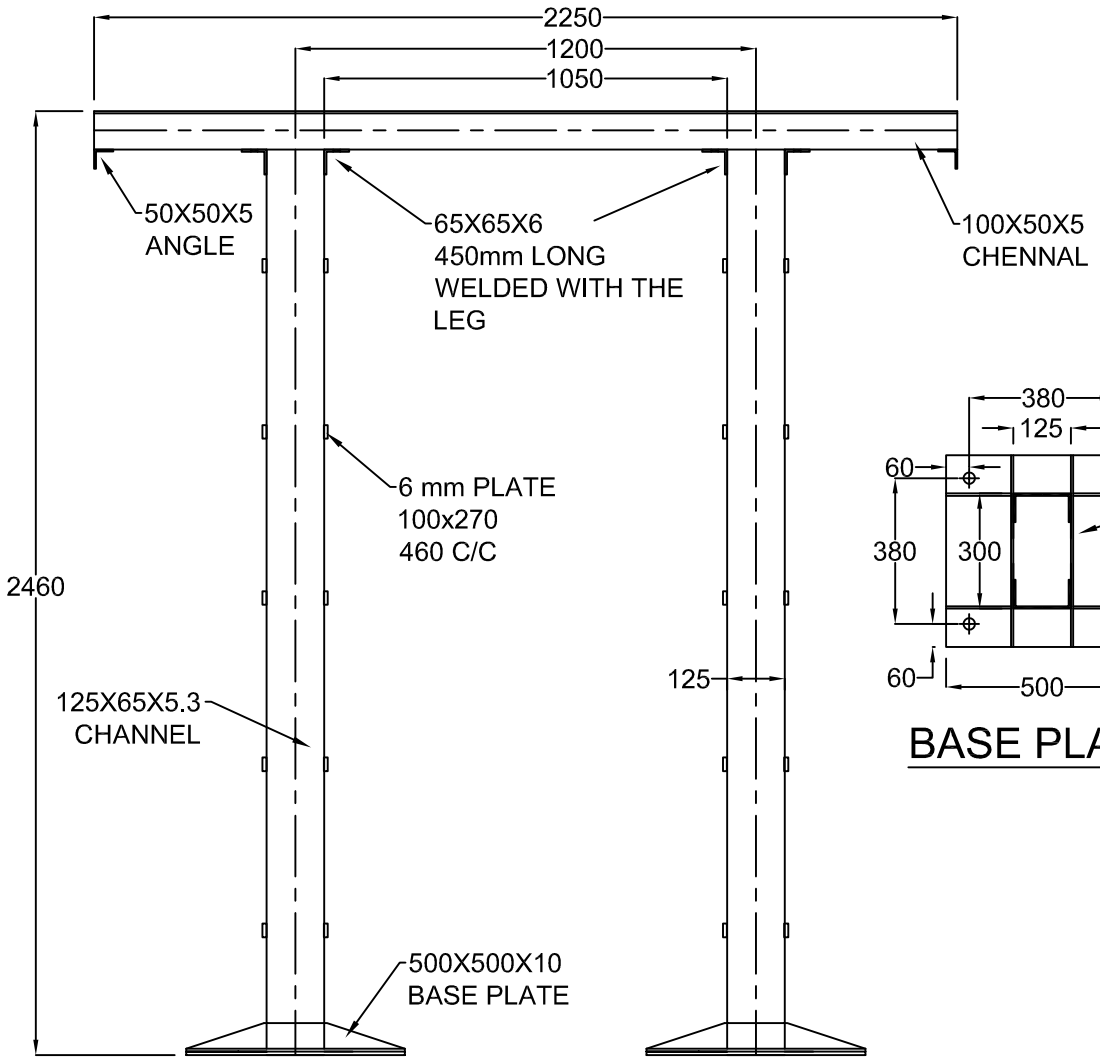
PLAN

CESU CAPEX

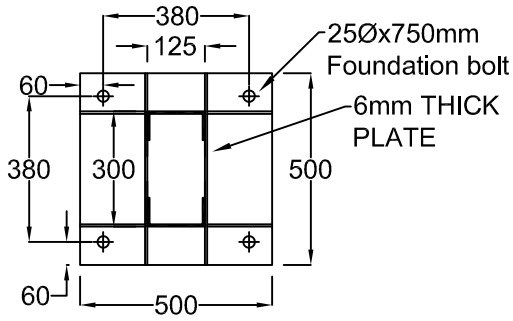
33 KV CT



PLAN



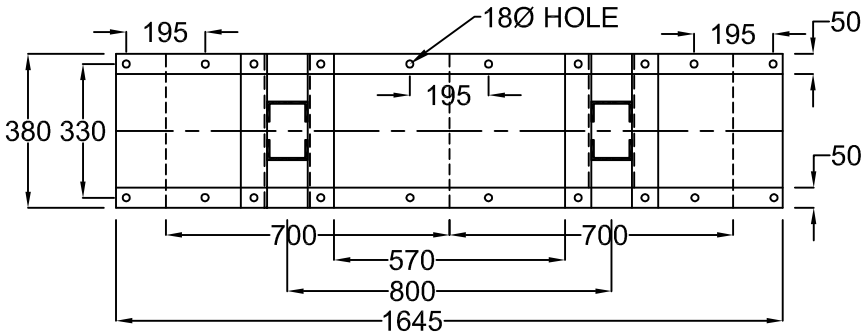
ELEVATION



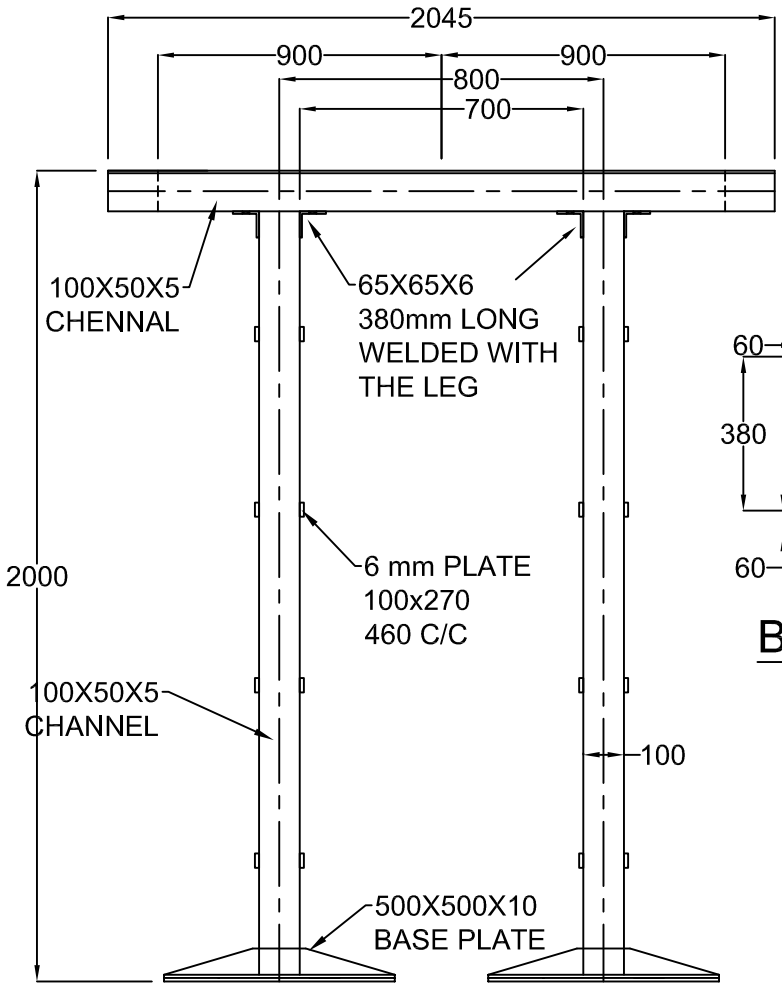
BASE PLATE

REV- 1

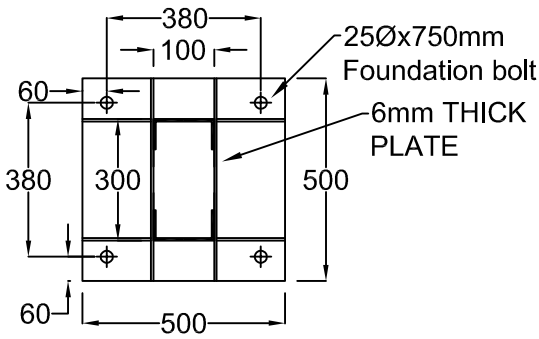
33 kv LA



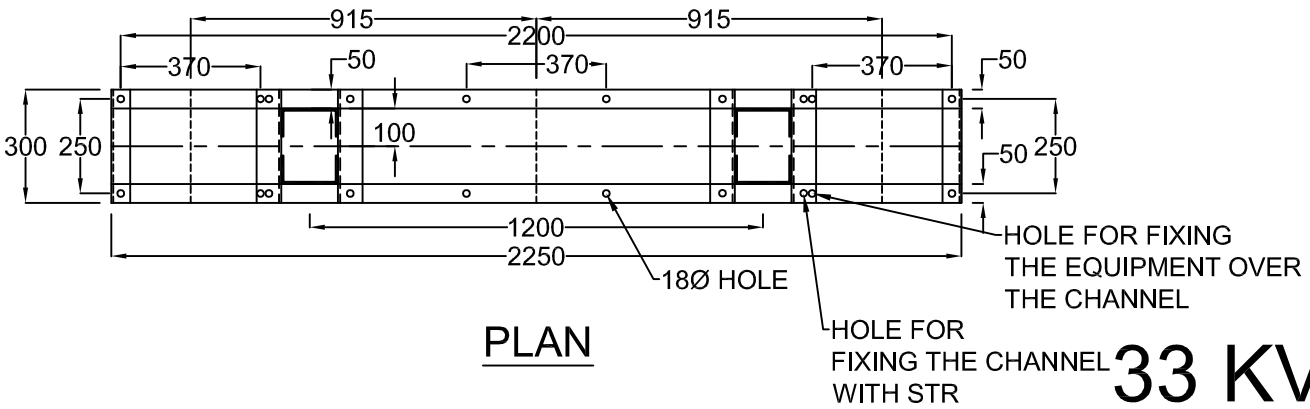
PLAN



ELEVATION

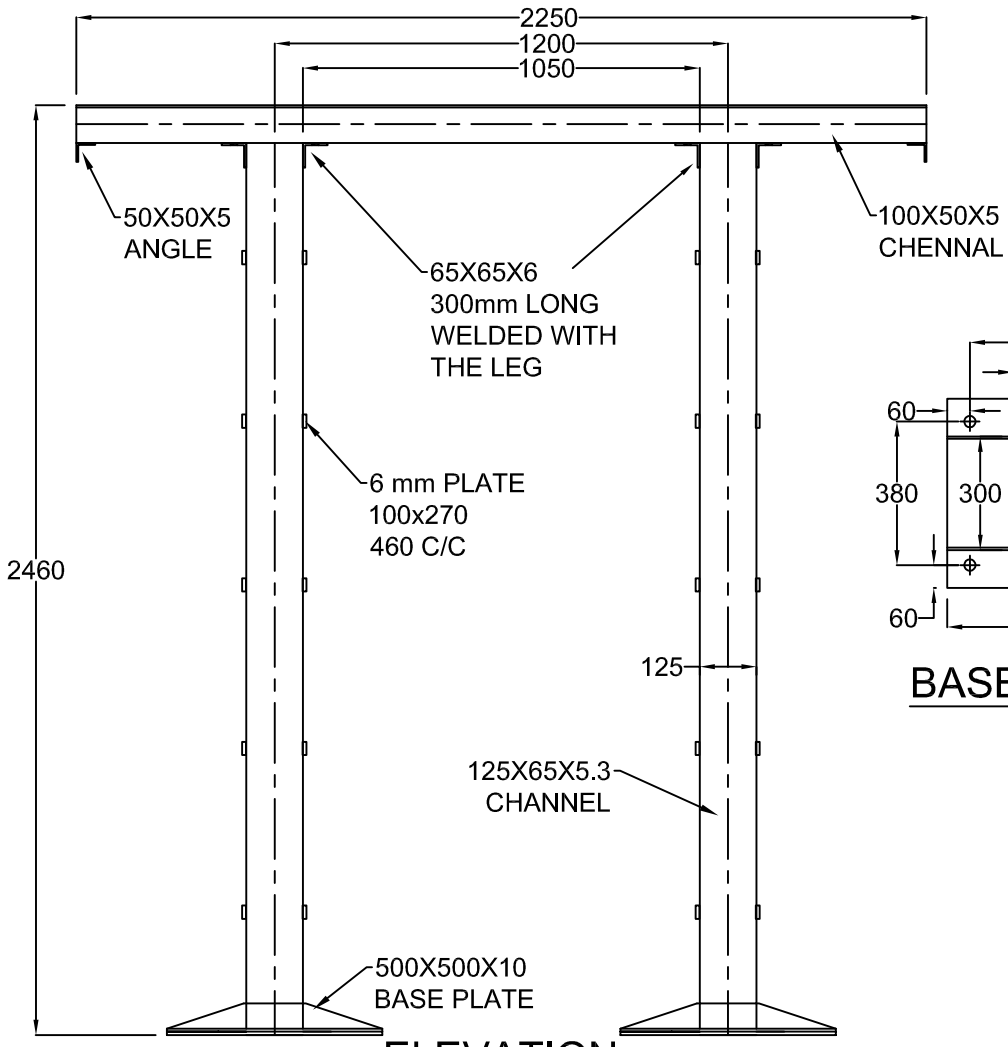


BASE PLATE

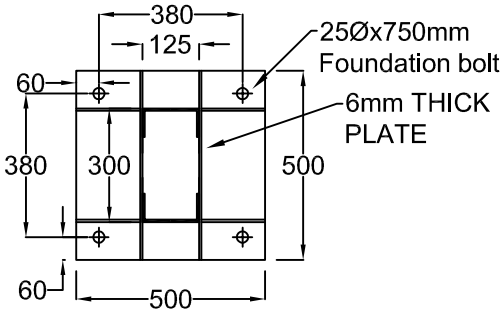


PLAN

33 KV PT

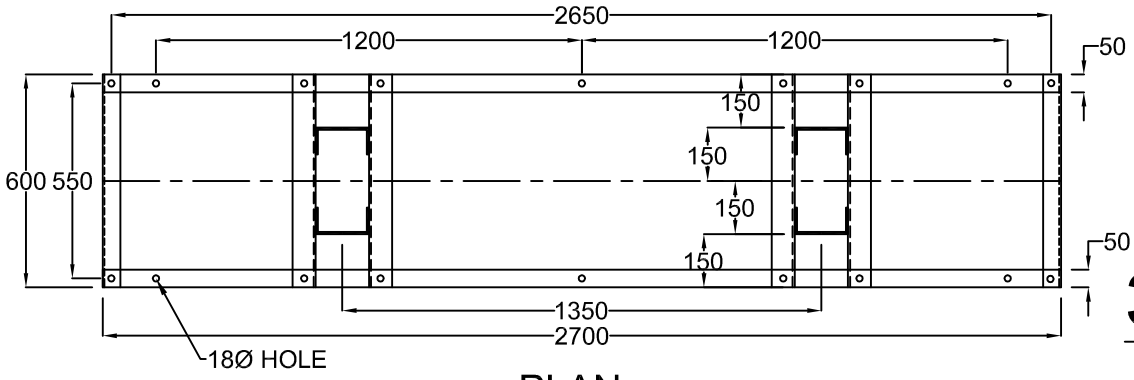


ELEVATION



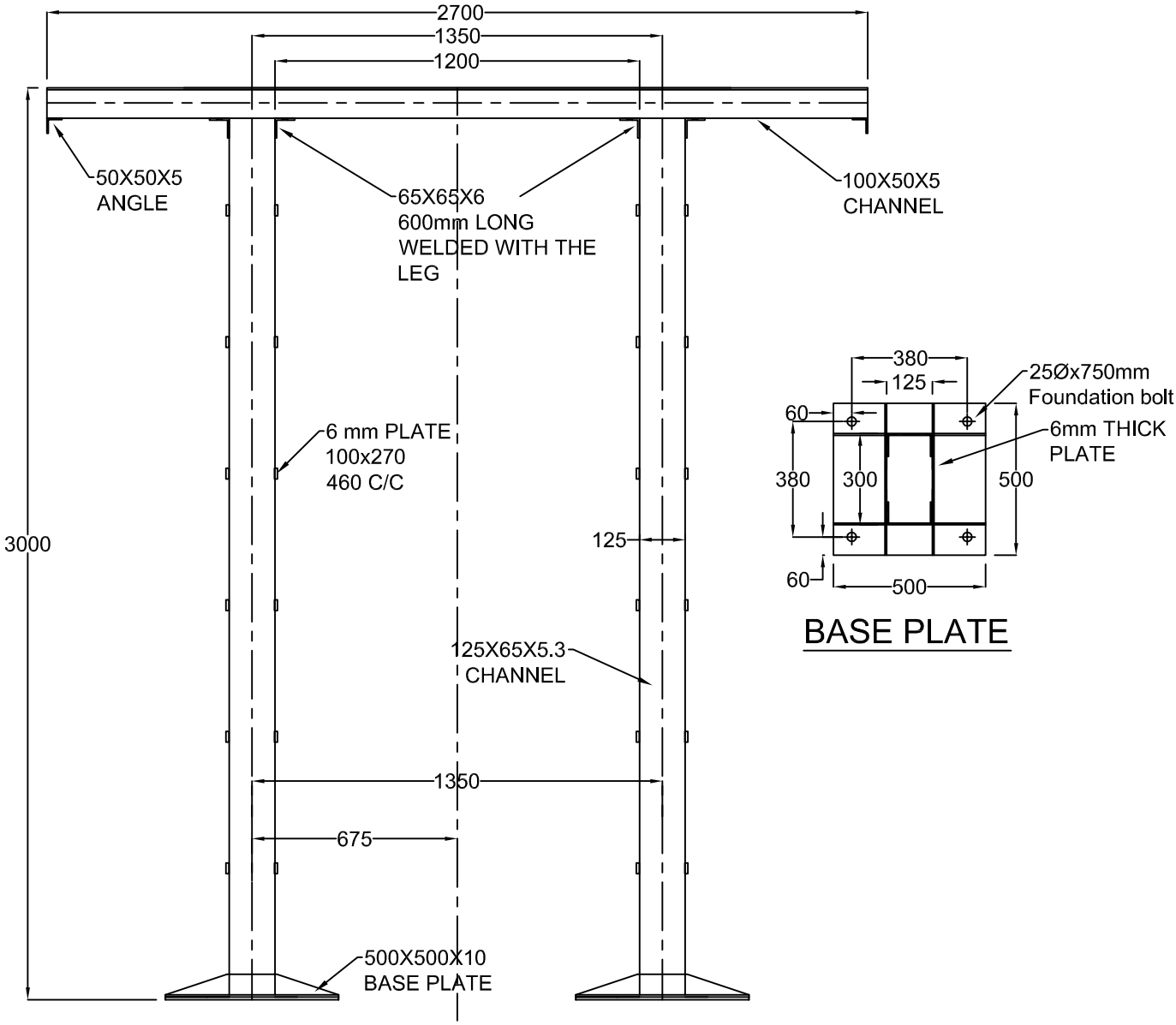
BASE PLATE

REV- 1



PLAN

33 KV SI

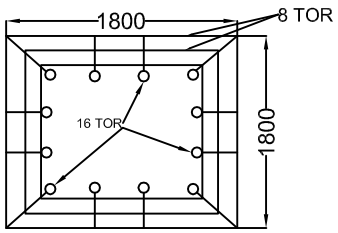


ELEVATION

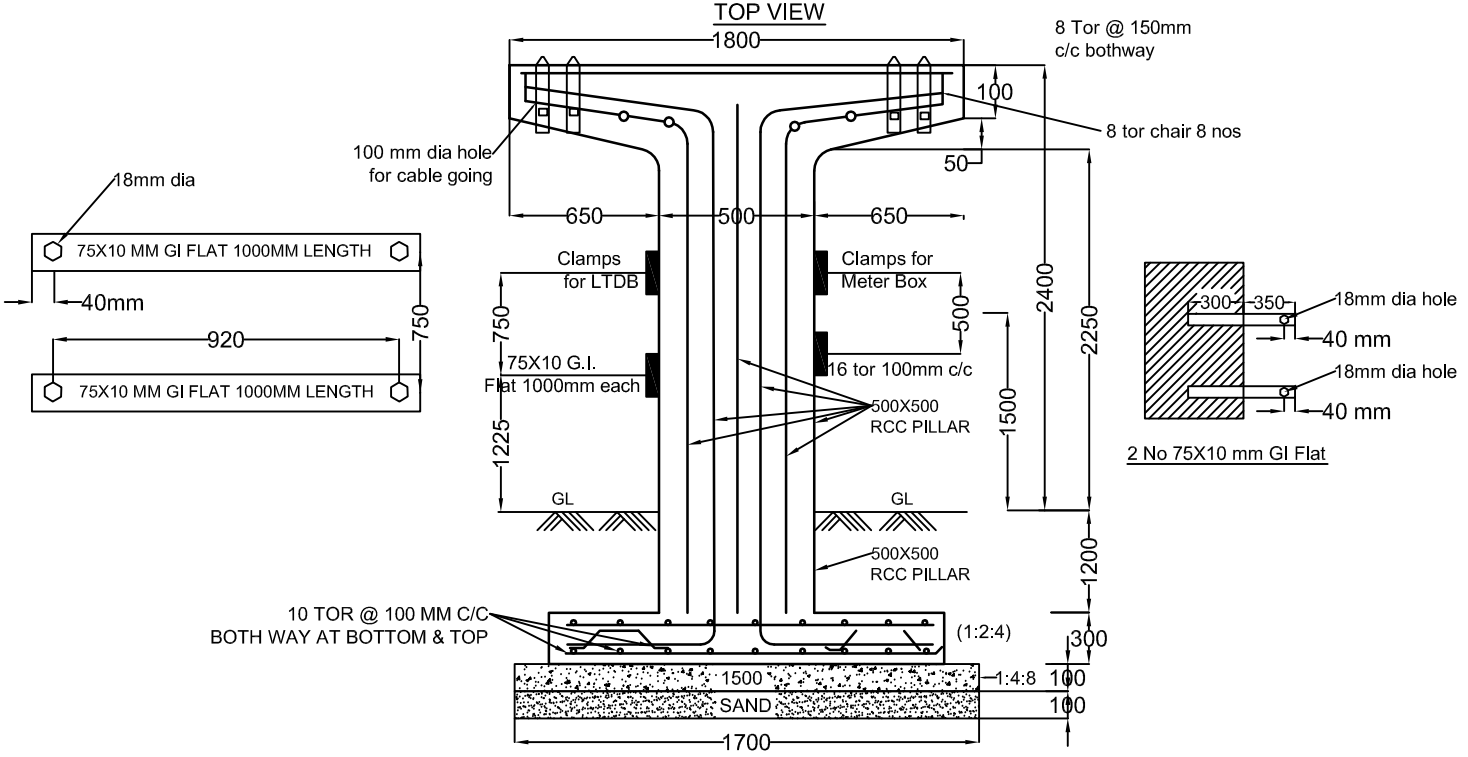
BASE PLATE

REV- 1

200 KVA D.T. FOUNDATION

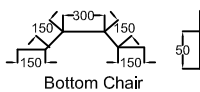


TOP VIEW

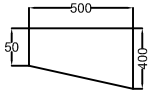


ROD DETAILS

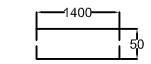
PEDESTAL:- 100 MM C/C=
12 Nox3600+550+300)m= 53.4m
4 legged stirrup:- 8 tor 150mm c/c
22nosx4x(266+400+266+400+100+100)
= 134.8m
BOTTOM:-10 Tor 100mm c/c bothway
(16 nos x1.45m)x2 =46.4m
For 2 Layers- 46.4 x2= 92.8
Chair:- 10 Tor
4No x(150+150+300+150+150)= 3.6m
TOP:-8 TOR 150mm c/c bothway
2 x12 nosx1.65m= 39.6m
Chair:-10 tor
8 nox1500= 12m



Bottom Chair

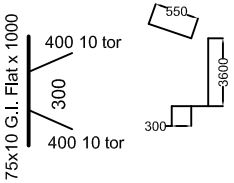


Top chair
8 tor 8 nos.

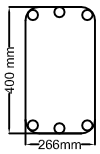


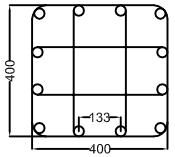
Bottom Foundation

Grounting of Flat



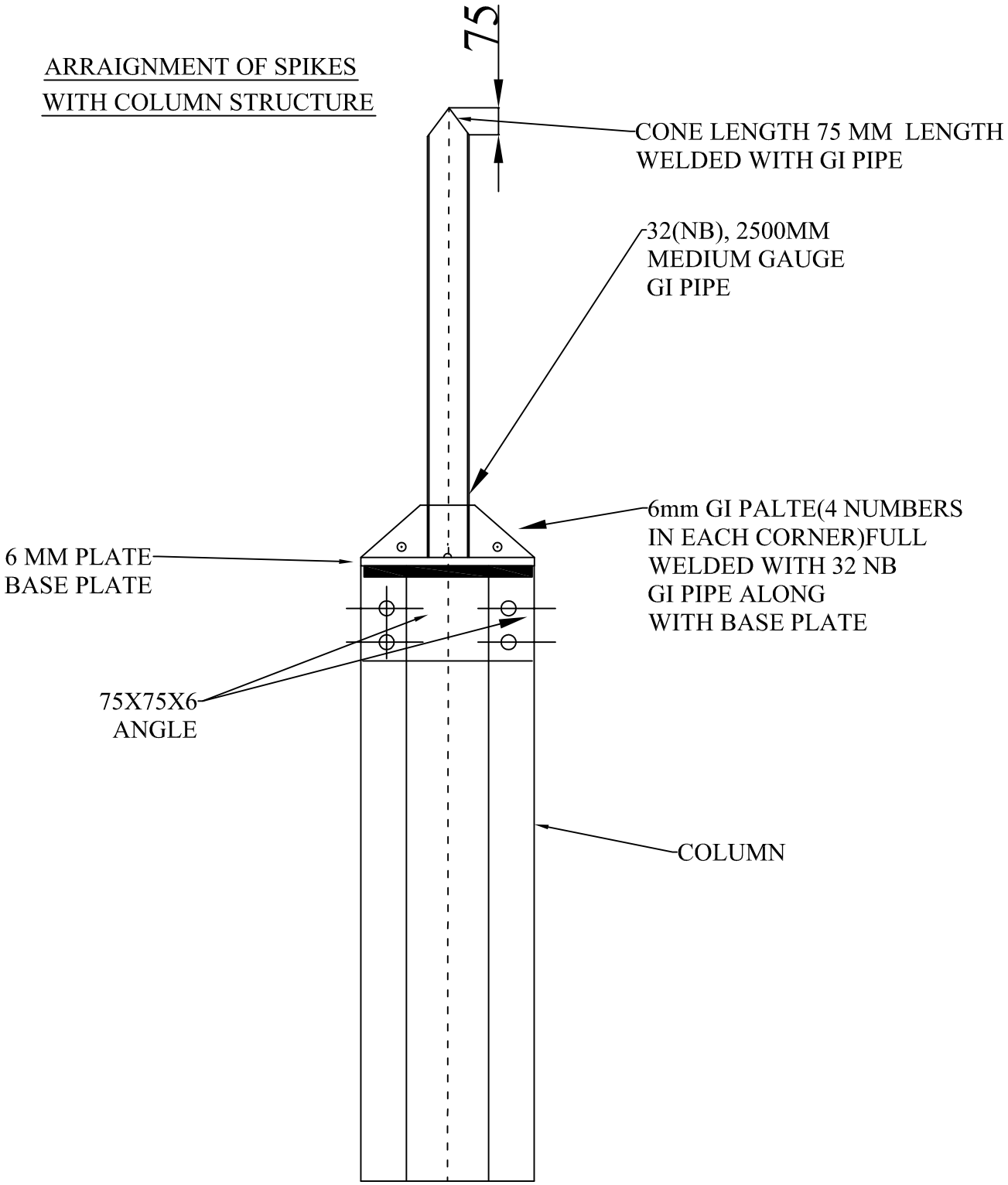
8 tor 4 legged stirrup-150c/c

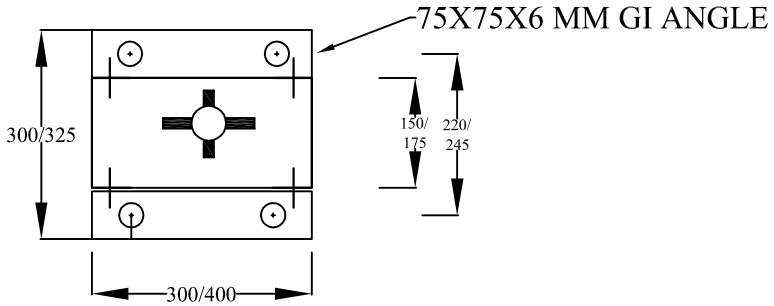




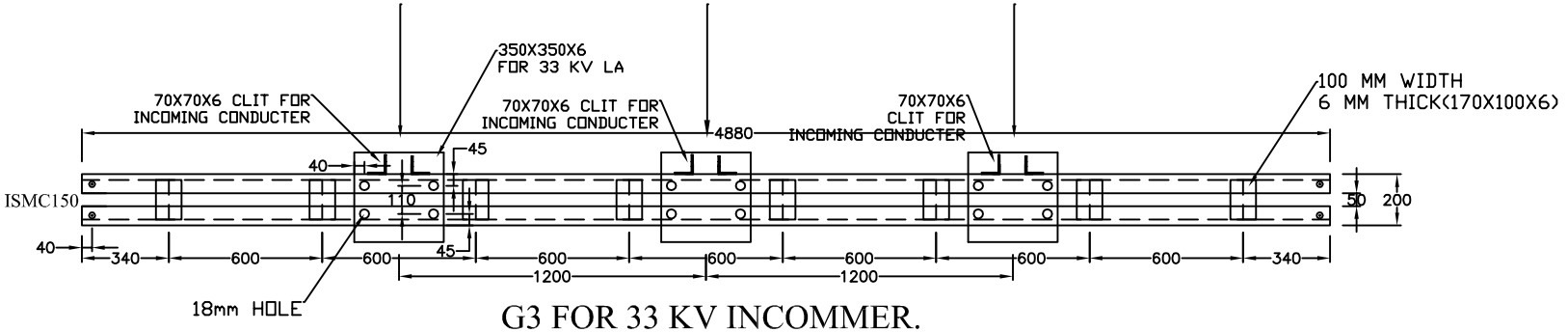
CROSS SECTION

ARRAIGNMENT OF SPIKES
WITH COLUMN STRUCTURE

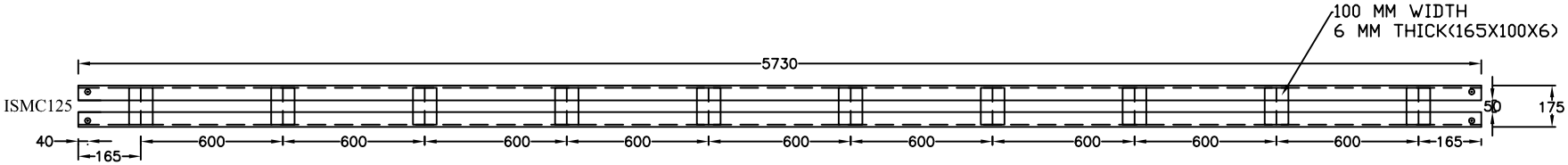




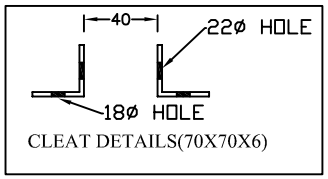
TOP PLAN OF
STRUCTURE

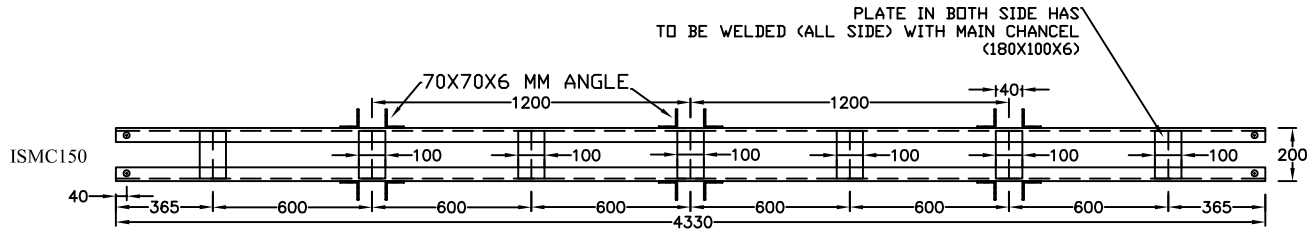


G3 FOR 33 KV INCOMMER.

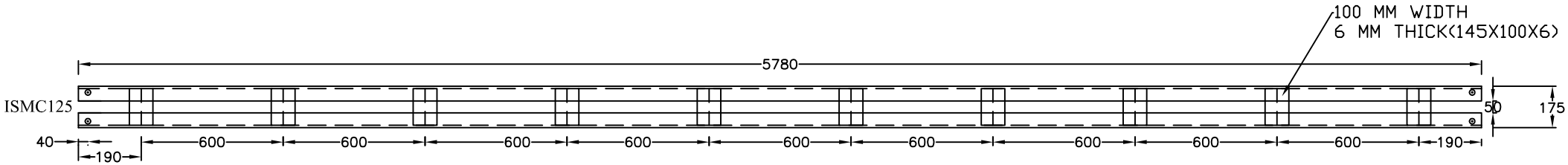


G2.

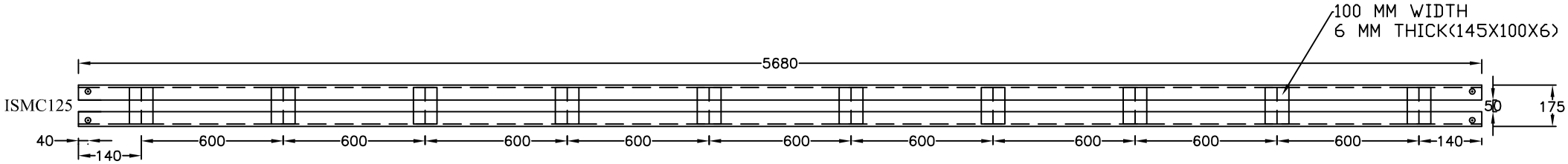




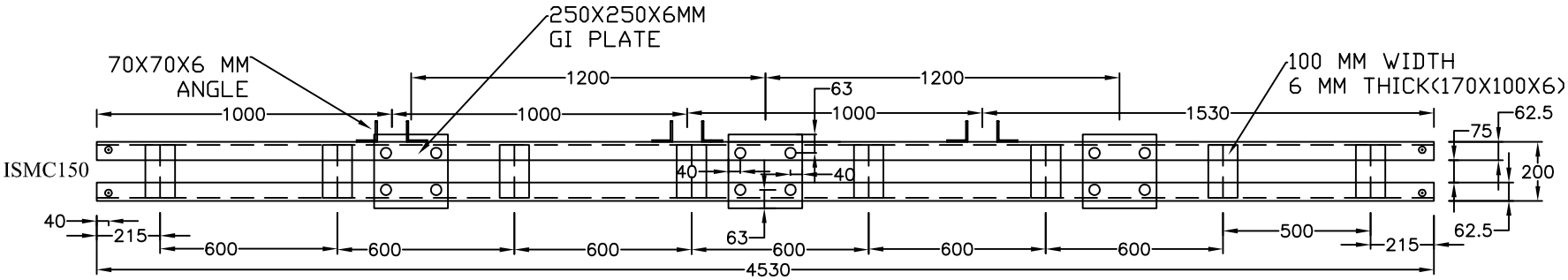
G1(BUS CLEAT HOLES TO BE PROVIDED ON BOTH SIDES)



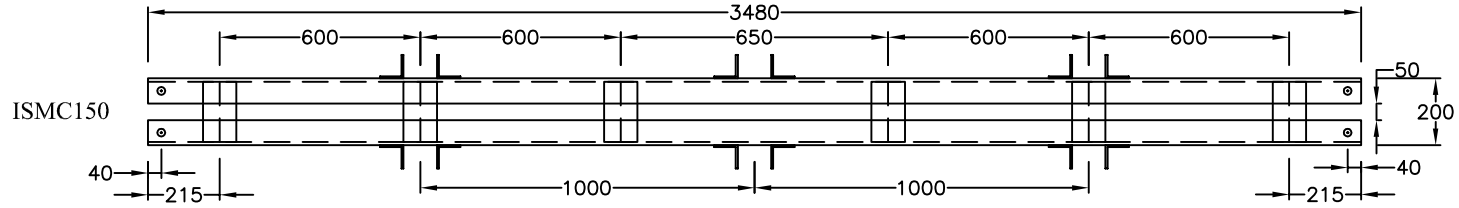
G2-AX(TO BE USED IN NUAPADA S/S).



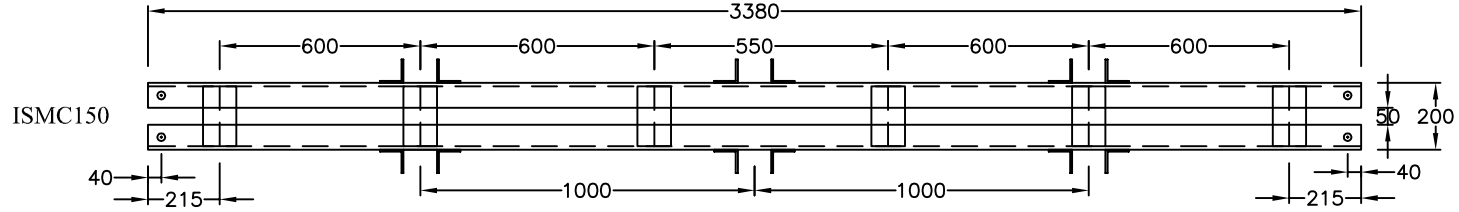
G2X.(RCMS EXTENT)



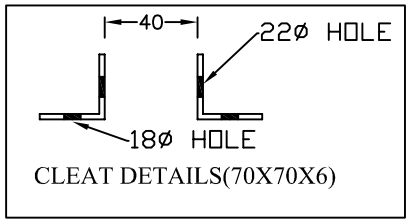
G5B (PLATE FOR LA SHOULD BE PROVIDED,)

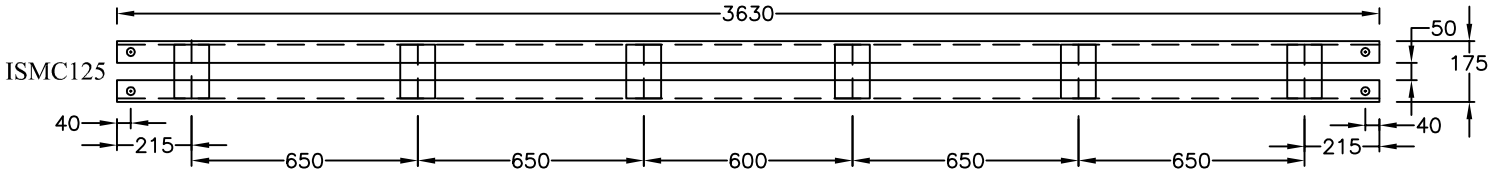


G6A

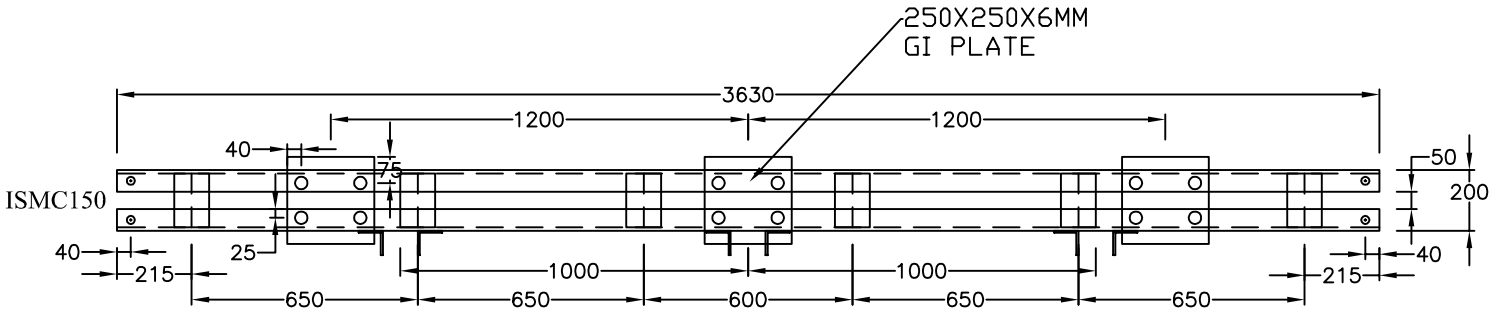


G6B

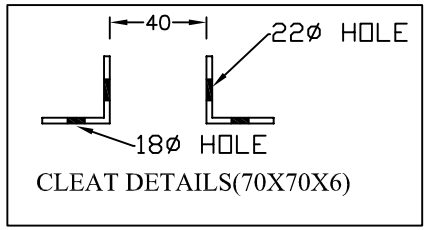




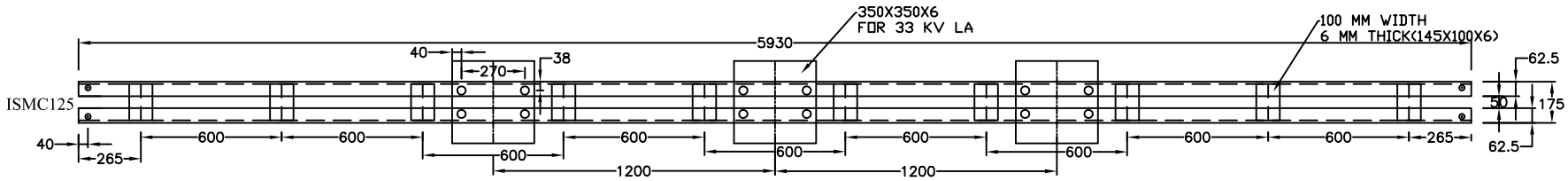
G7A



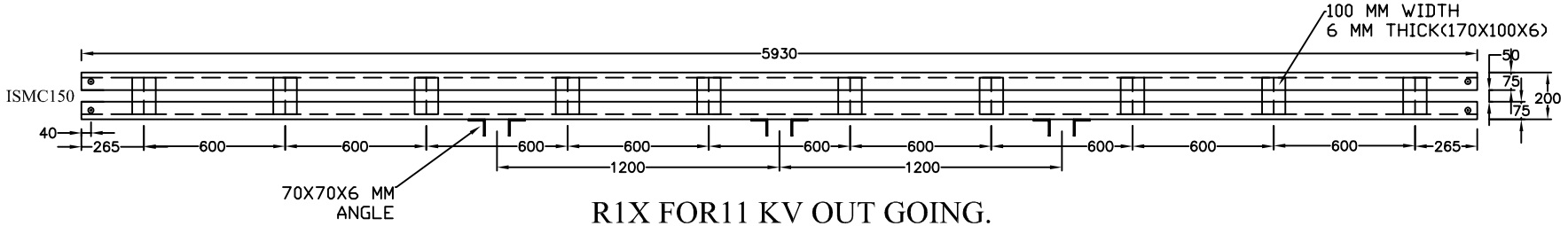
G7B



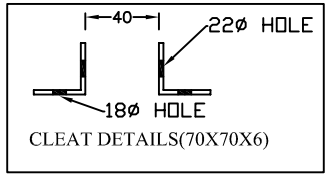
CLEAT DETAILS(70X70X6)



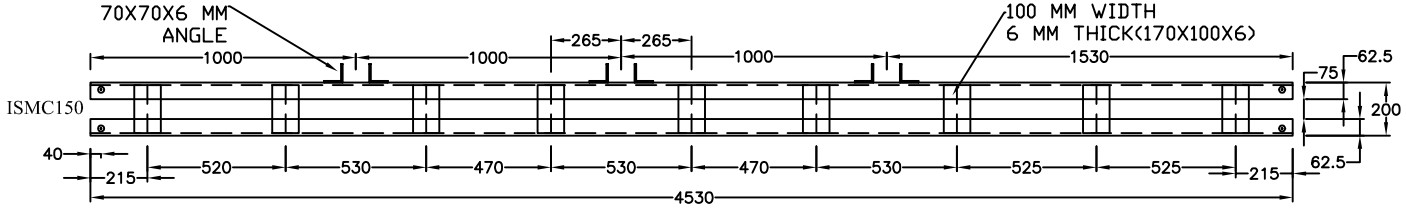
R1 FOR 11 KV LA.



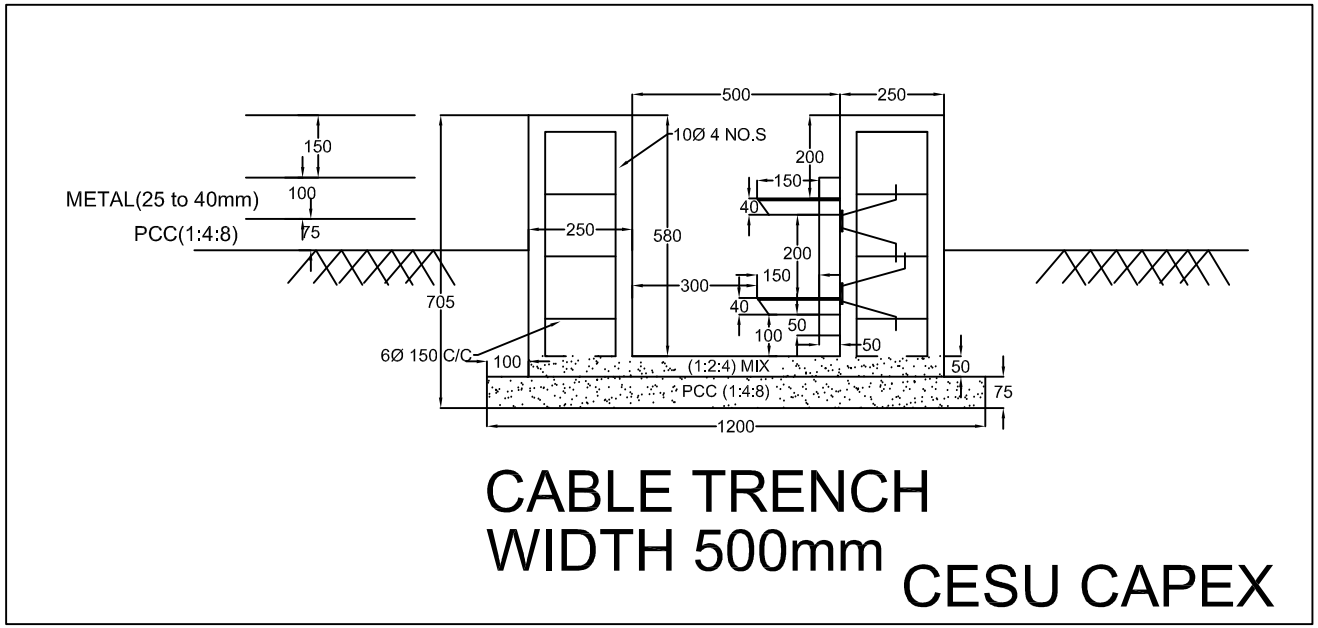
R1X FOR11 KV OUT GOING.



CLEAT DETAILS(70X70X6)

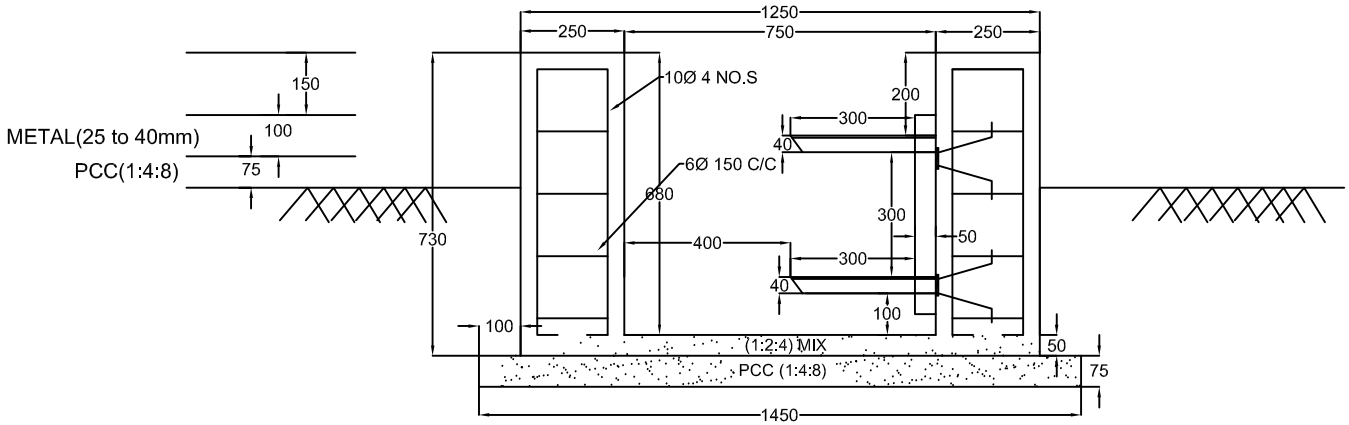


G5A



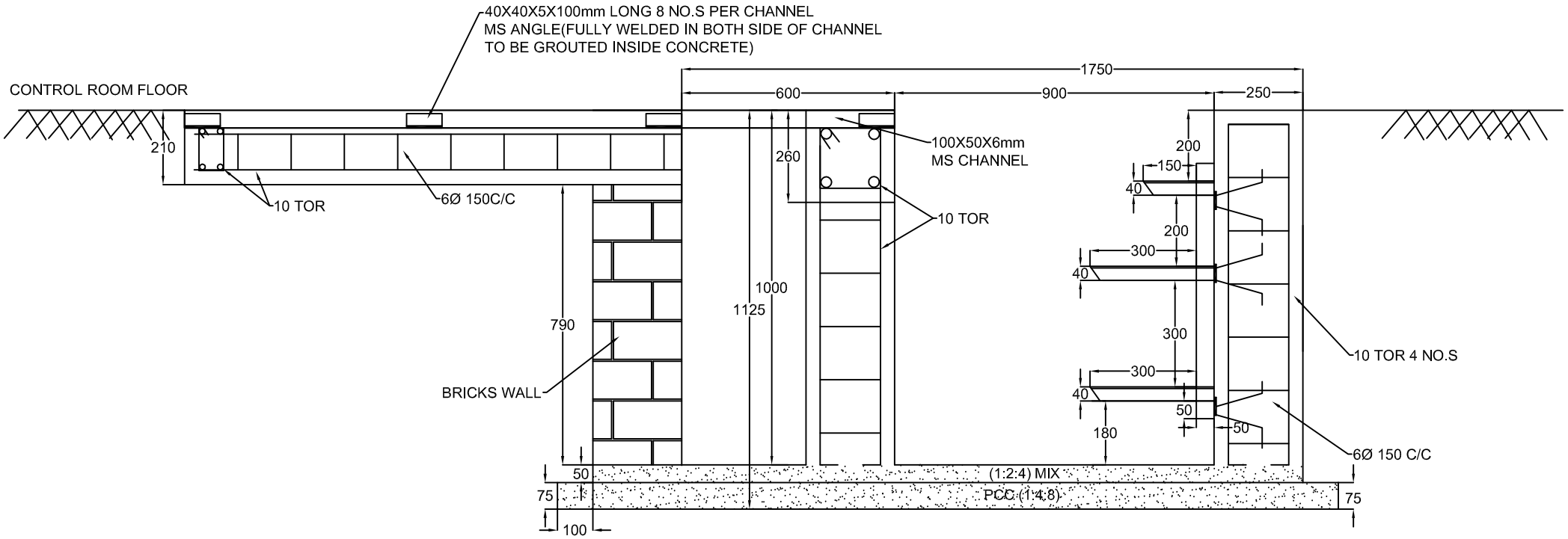
CABLE TRENCH WIDTH 500mm

CESU CAPEX



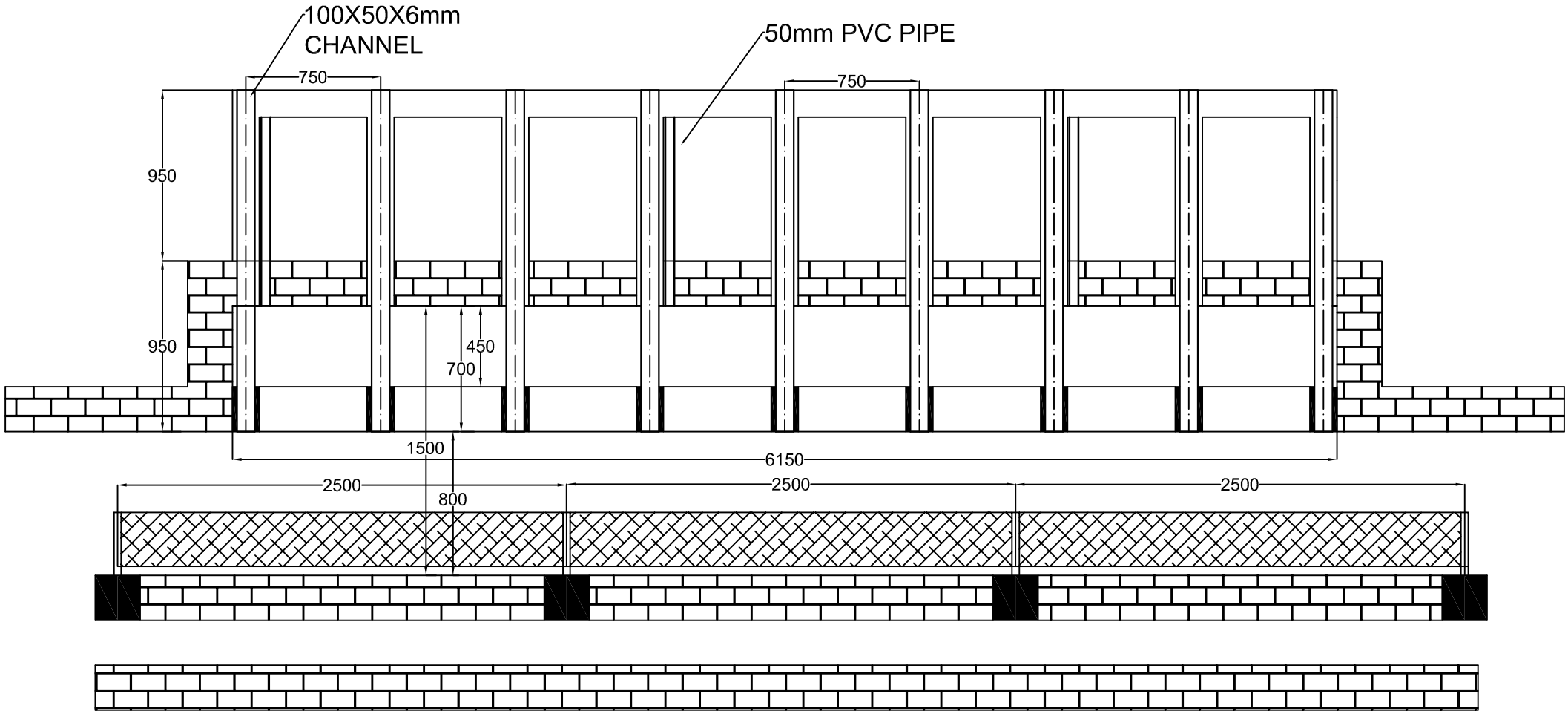
CABLE TRENCH WIDTH 750mm

CESU CAPEX



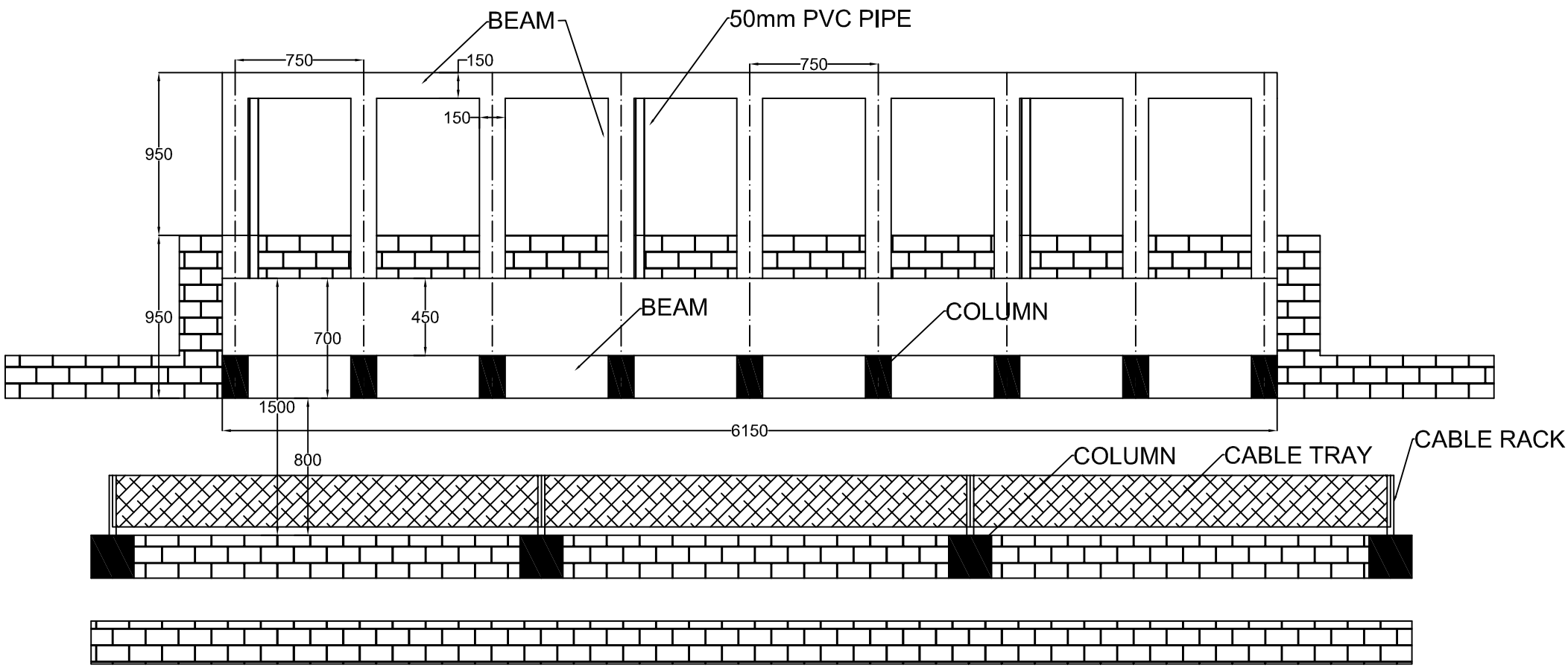
ELEVATION OF CABLE TRENCH WIDTH OF 1500mm

CESU CAPEX



PLAN OF CABLE TRENCH FOR 11kv INDOOR PANEL

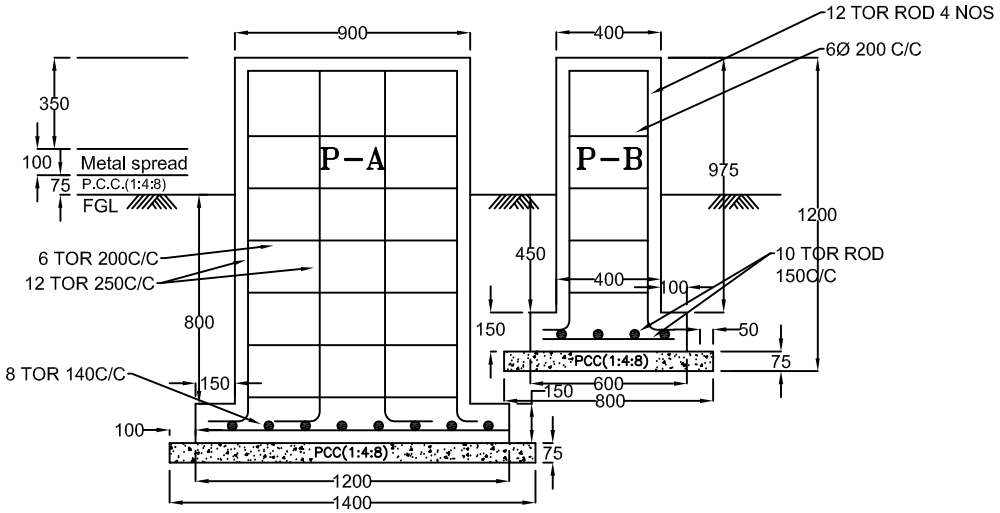
CESU CAPEX



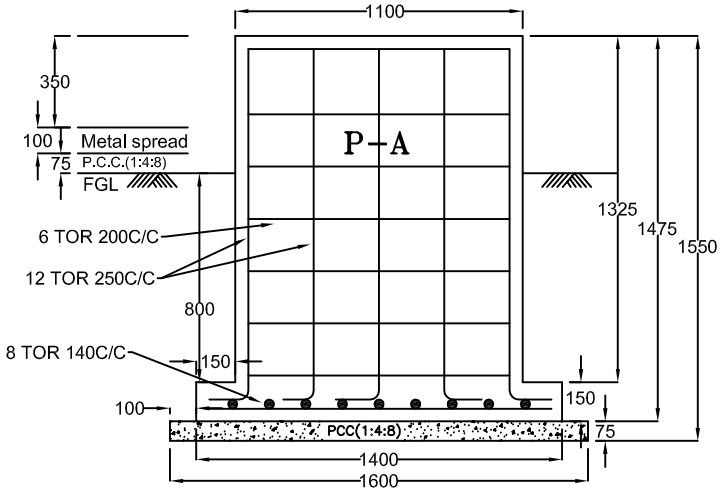
PLAN OF CABLE TRENCH FOR 11kv INDOOR PANEL
SHOWING COLUMN, BEAM, BRICKS WALL

CESU CAPEX

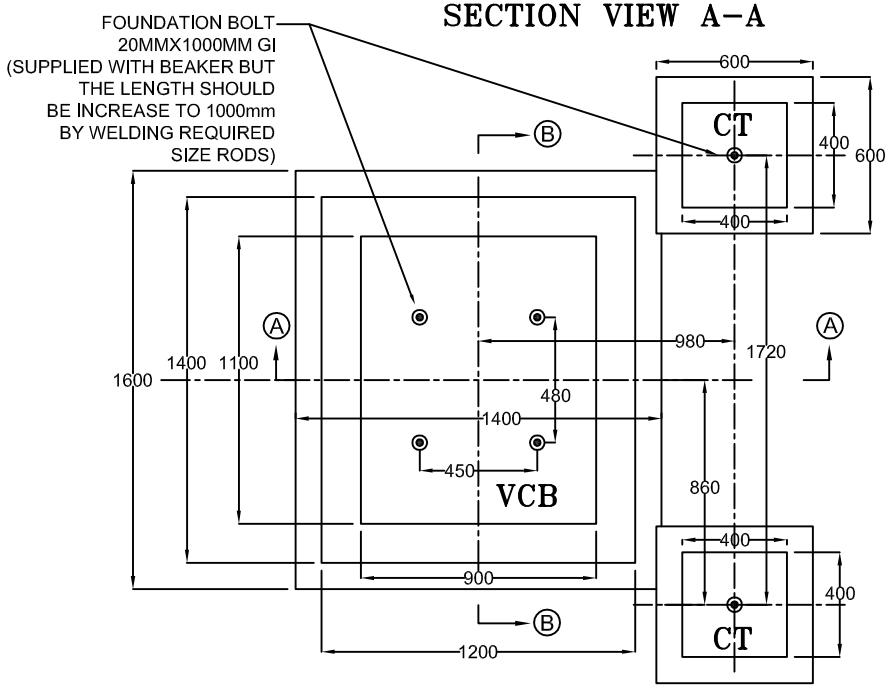
FOUNDATION DETAILS FOR 33 KV VCB
CGL MAKE WITH CT FOUNDATION



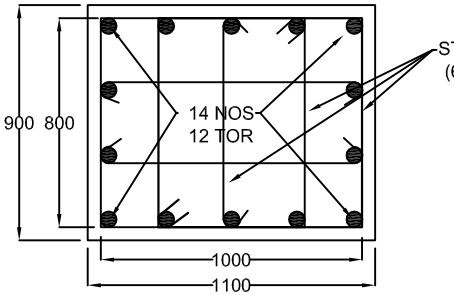
SECTION VIEW A-A



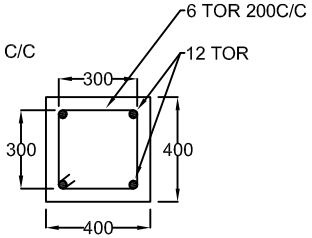
SECTION VIEW B-B



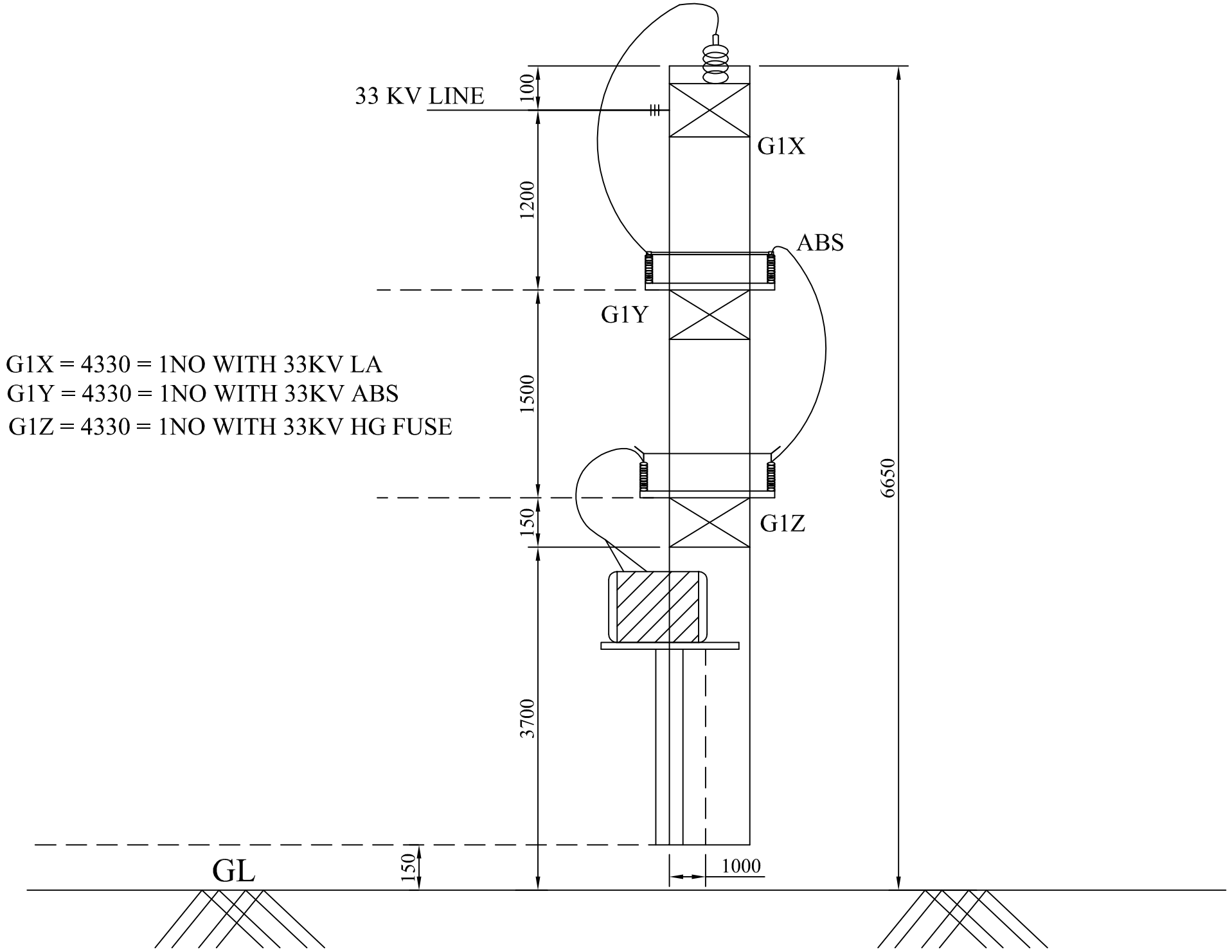
PLAN

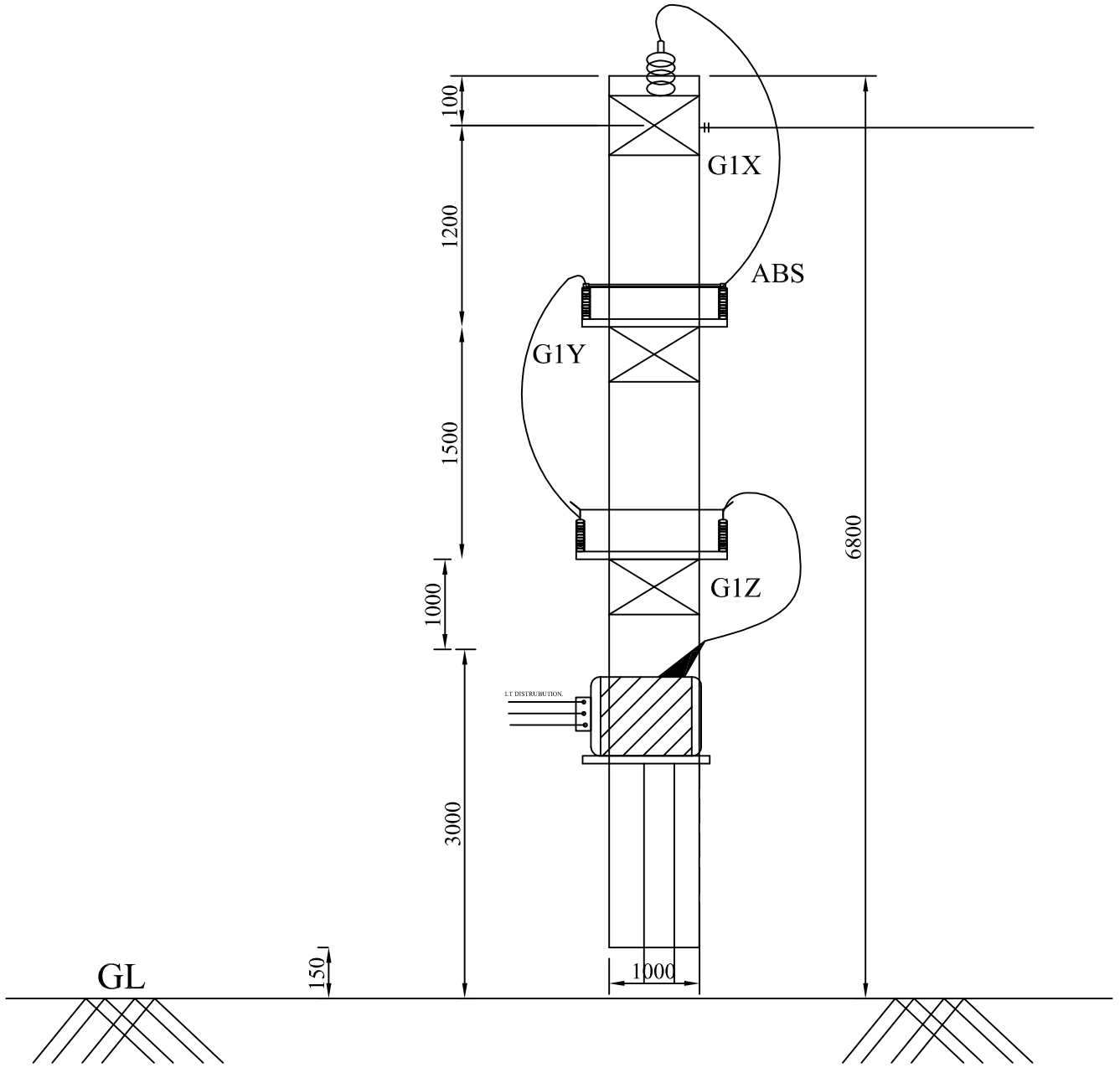


P-A



P-B

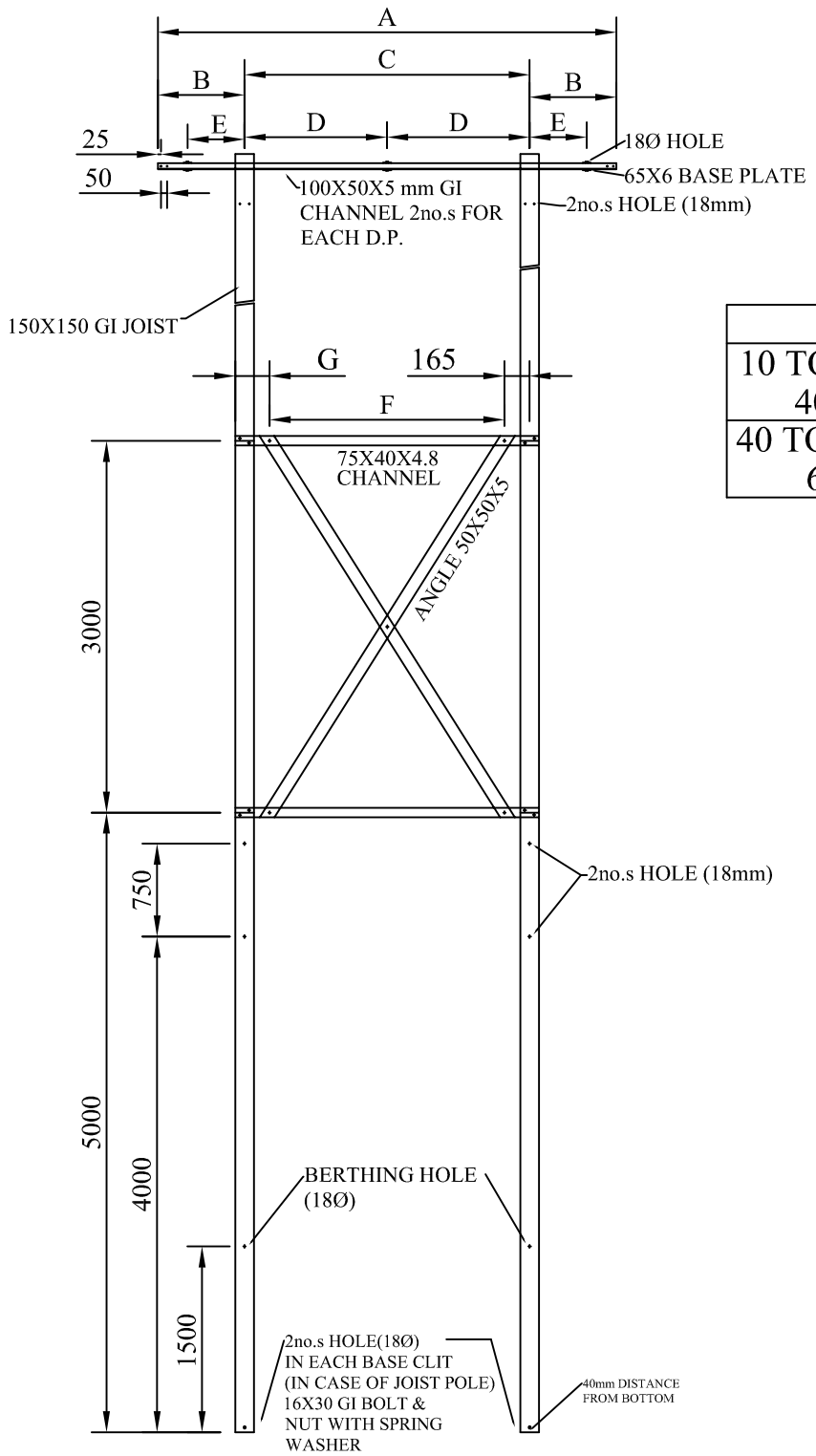

33 KV LINE
100
1200
1500
150
3700
150
6650
G1X
ABS
G1Y
G1Z
GL
1000
G1X = 4330 = 1NO WITH 33KV LA
G1Y = 4330 = 1NO WITH 33KV ABS
G1Z = 4330 = 1NO WITH 33KV HG FUSE



11 KV DP STR.

CESU CAPEX

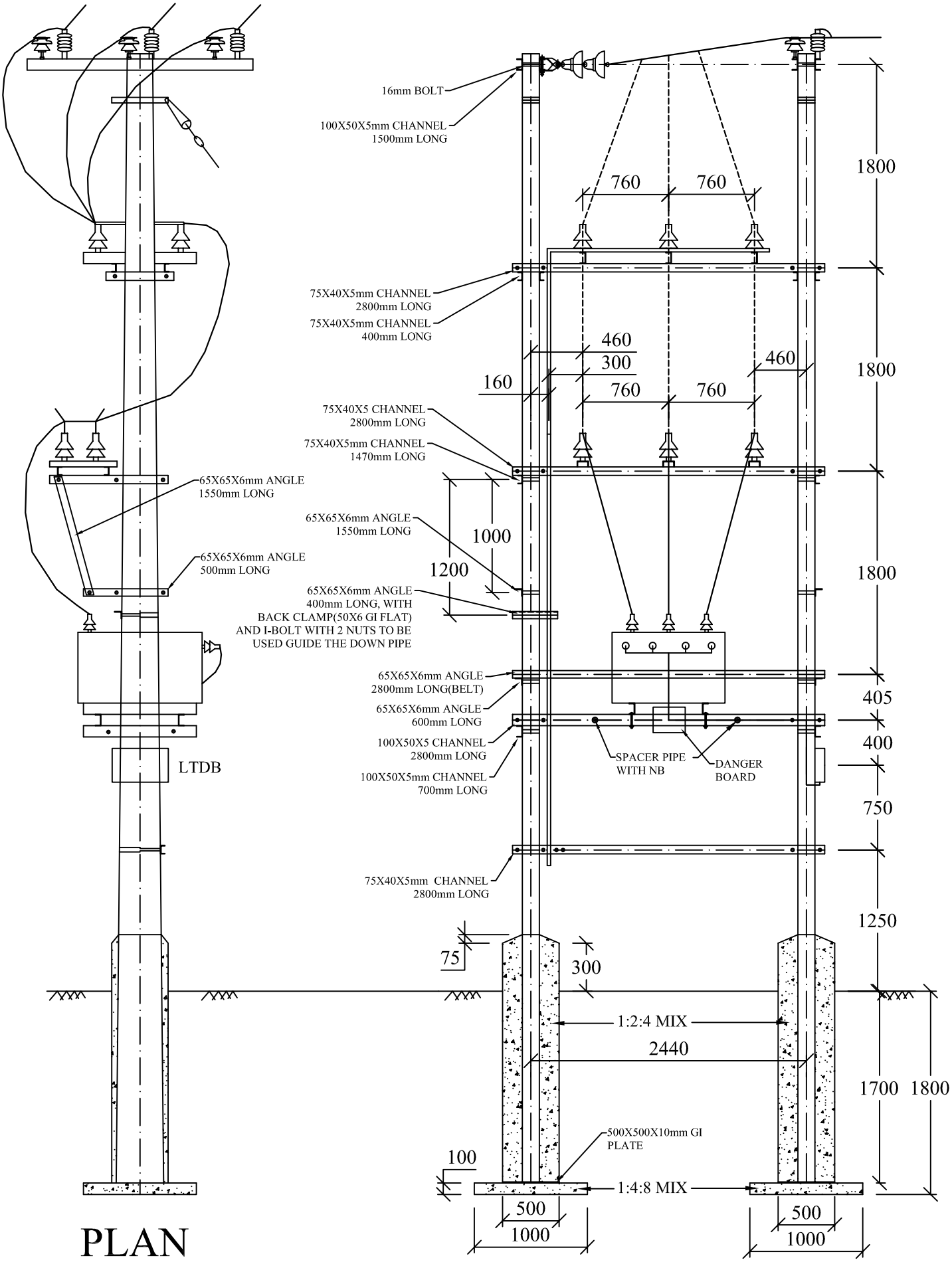
DP STRUCTURE FOR 11/33kv(PSC & JOIST)



	A	B	C	D	E	F	G
10 TO 40	3700		2300		460		240
		700		1150		1970	
40 TO 60	4200		2500		600		240
		850		1250			

CESU CAPEX

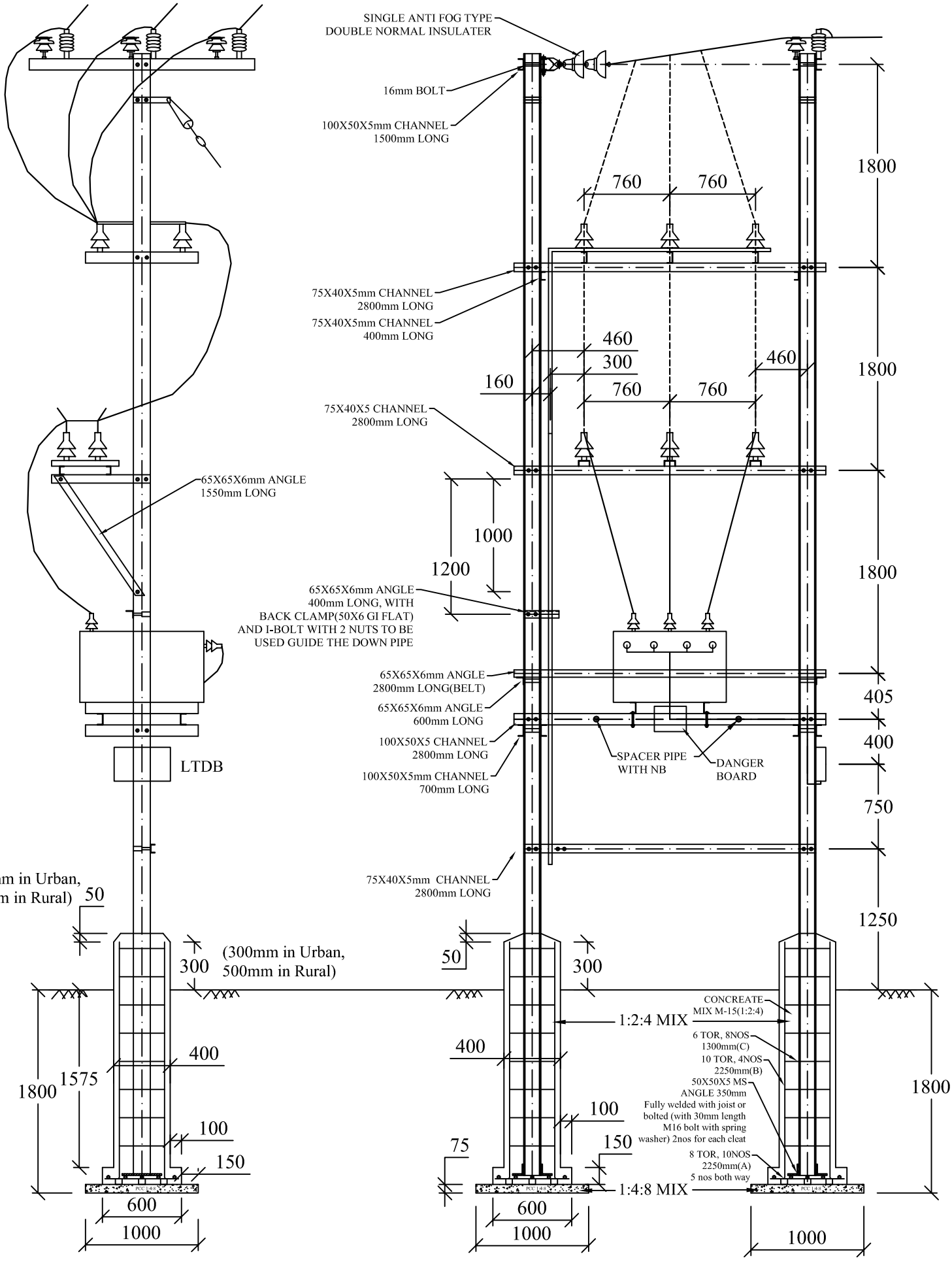
DP STRUCTURE USING 10000mm, 400kg PSC POLE(150X150X10000mm)



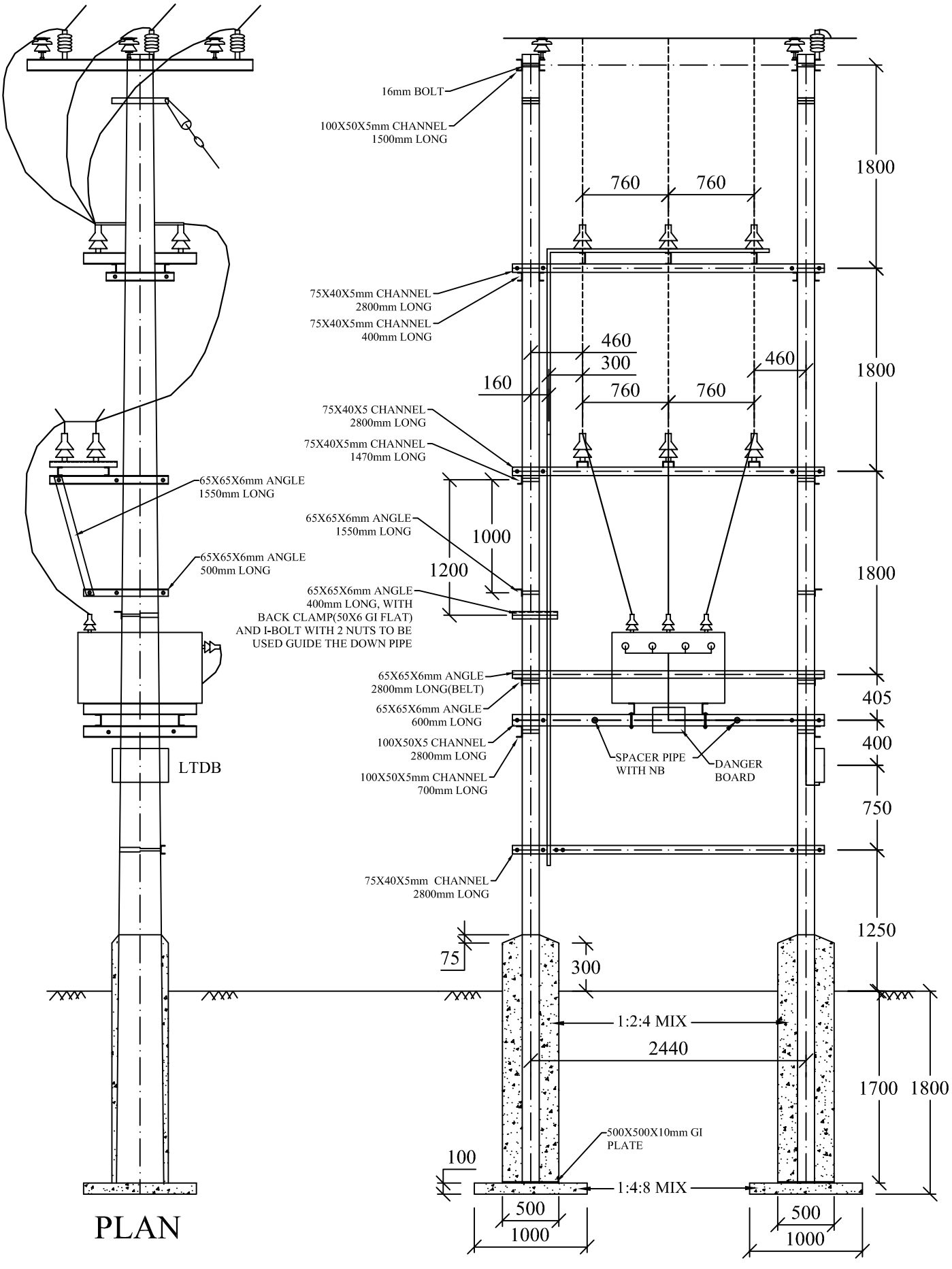
PLAN

ELEVATION

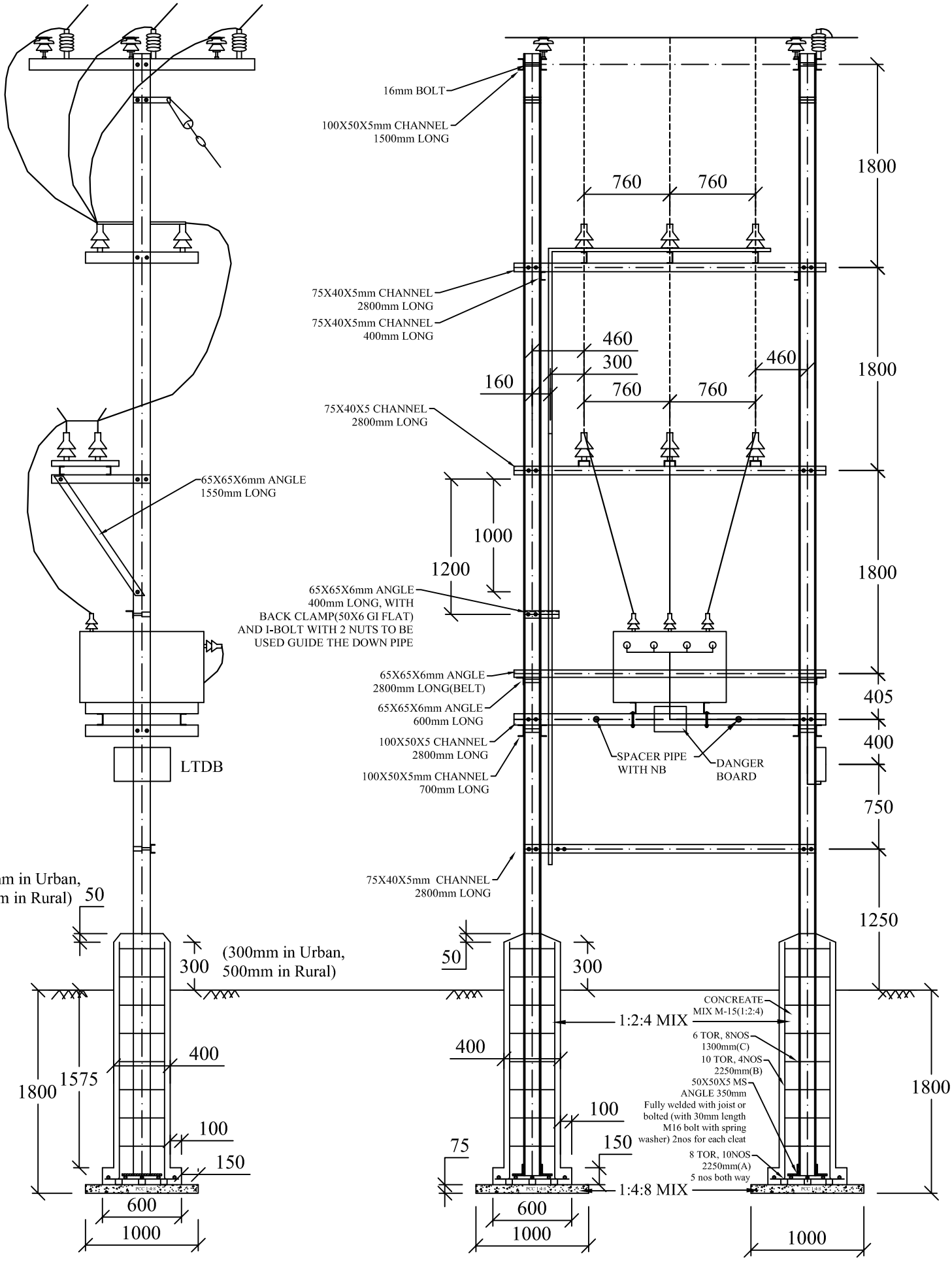
DP STRUCTURE USING RS JOIST(150X150X10000mm)



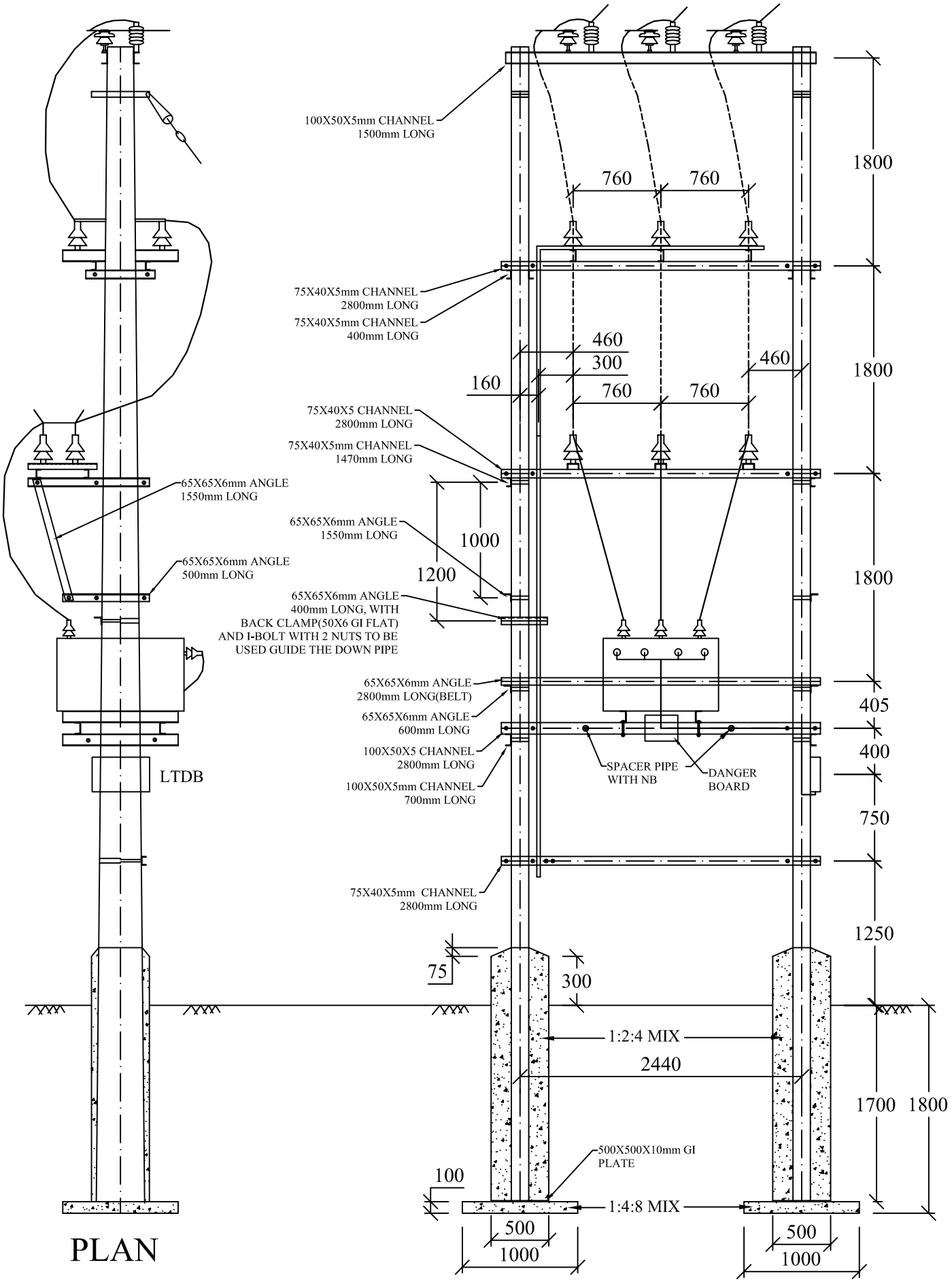
DP STRUCTURE USING 10000mm, 400kg PSC POLE(150X150X10000mm)



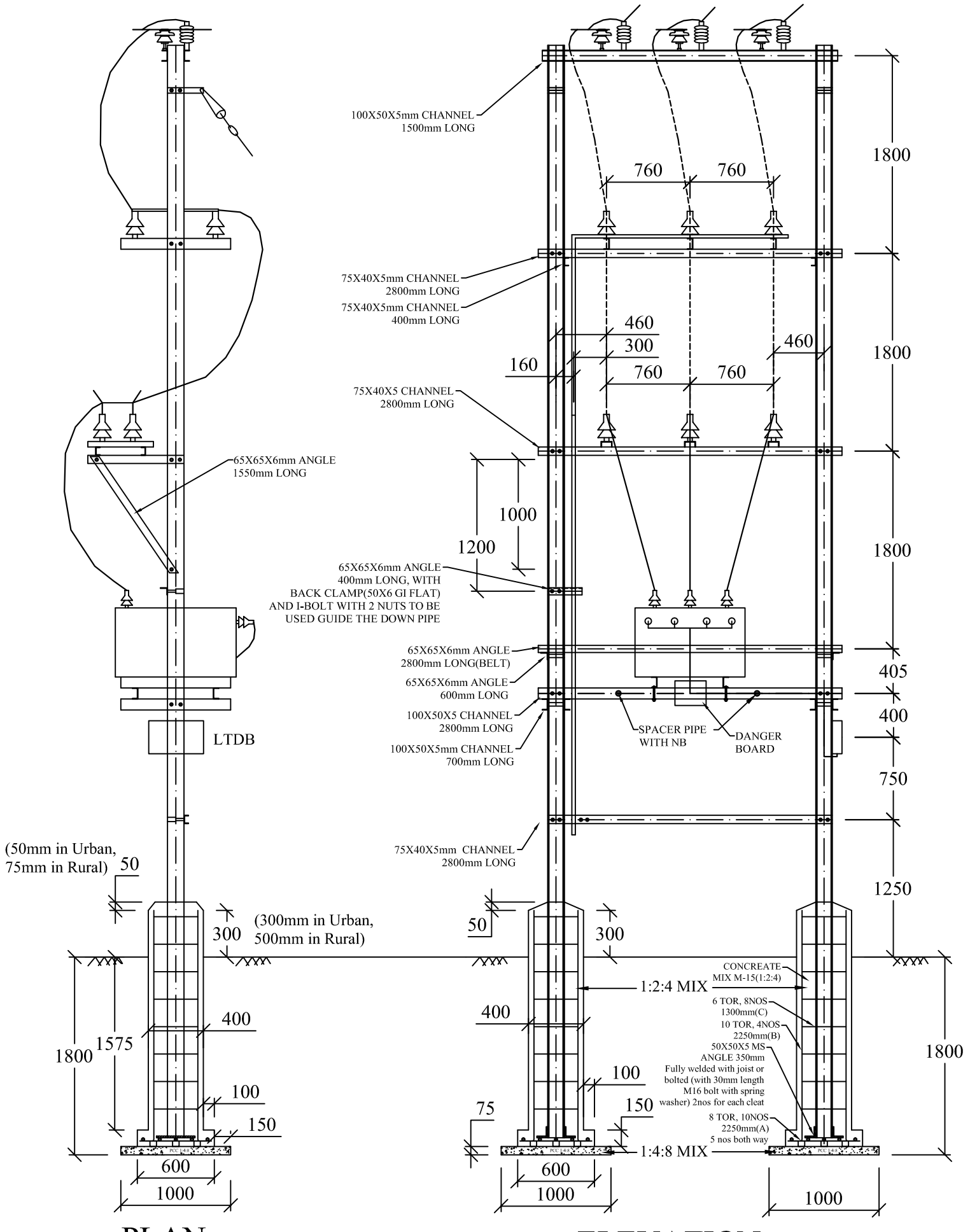
DP STRUCTURE USING RS JOIST(150X150X10000mm)



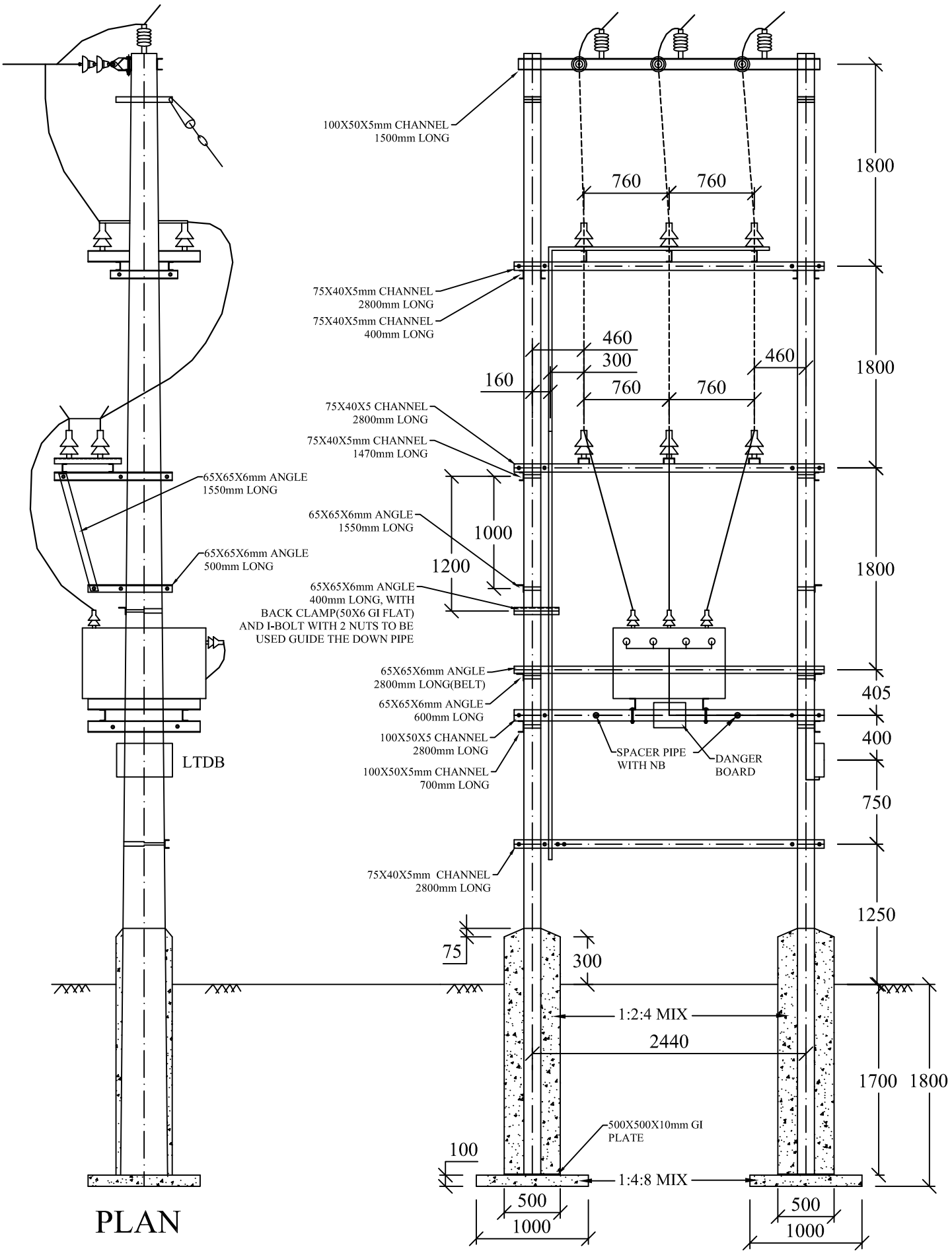
DP STRUCTURE USING 10000mm, 400kg PSC POLE(150X150X10000mm)



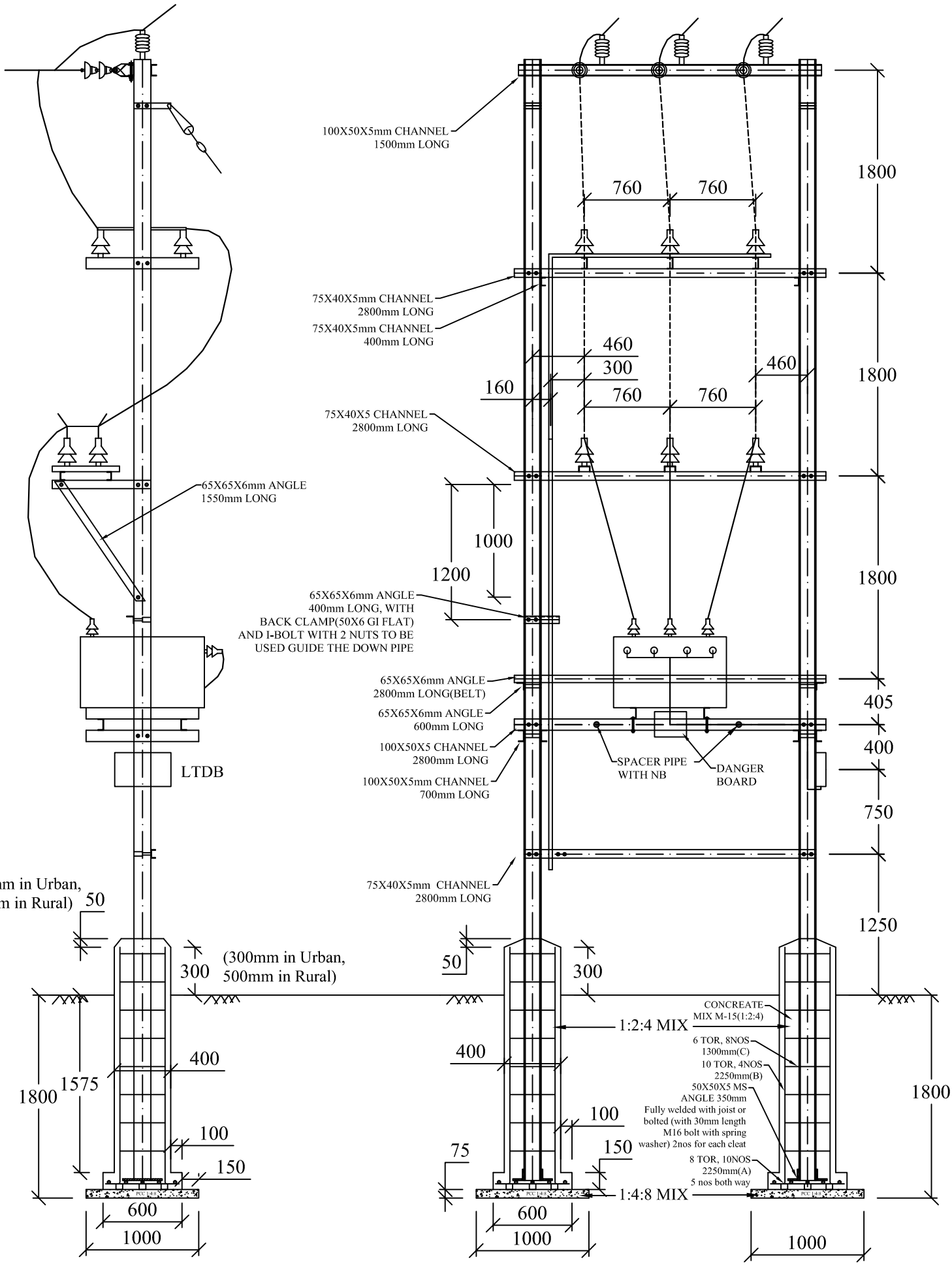
DP STRUCTURE USING RS JOIST(150X150X10000mm)



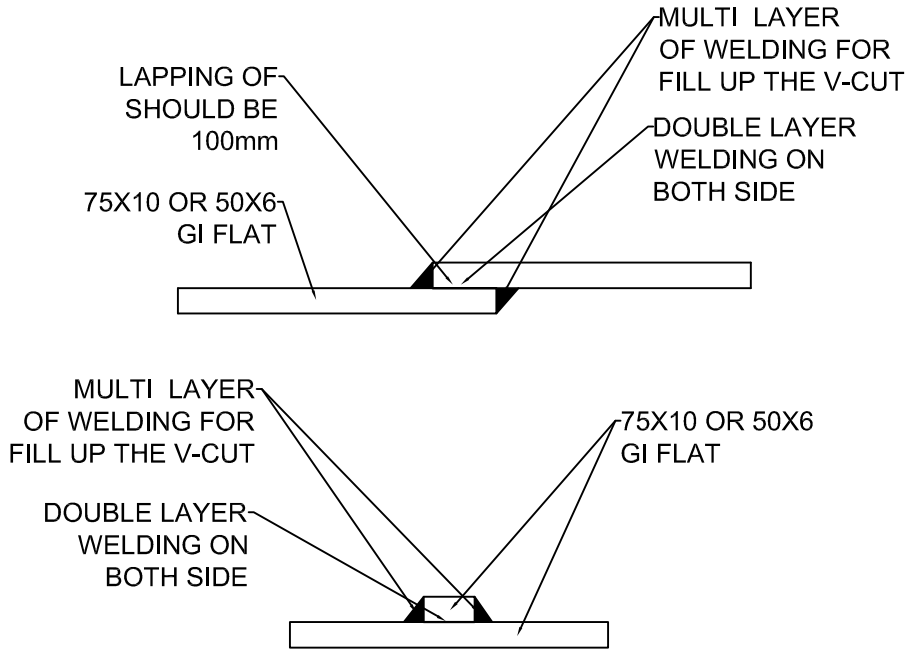
DP STRUCTURE USING 10000mm, 400kg PSC POLE(150X150X10000mm)



DP STRUCTURE USING RS JOIST(150X150X10000mm)



EARTH MAT LAYING

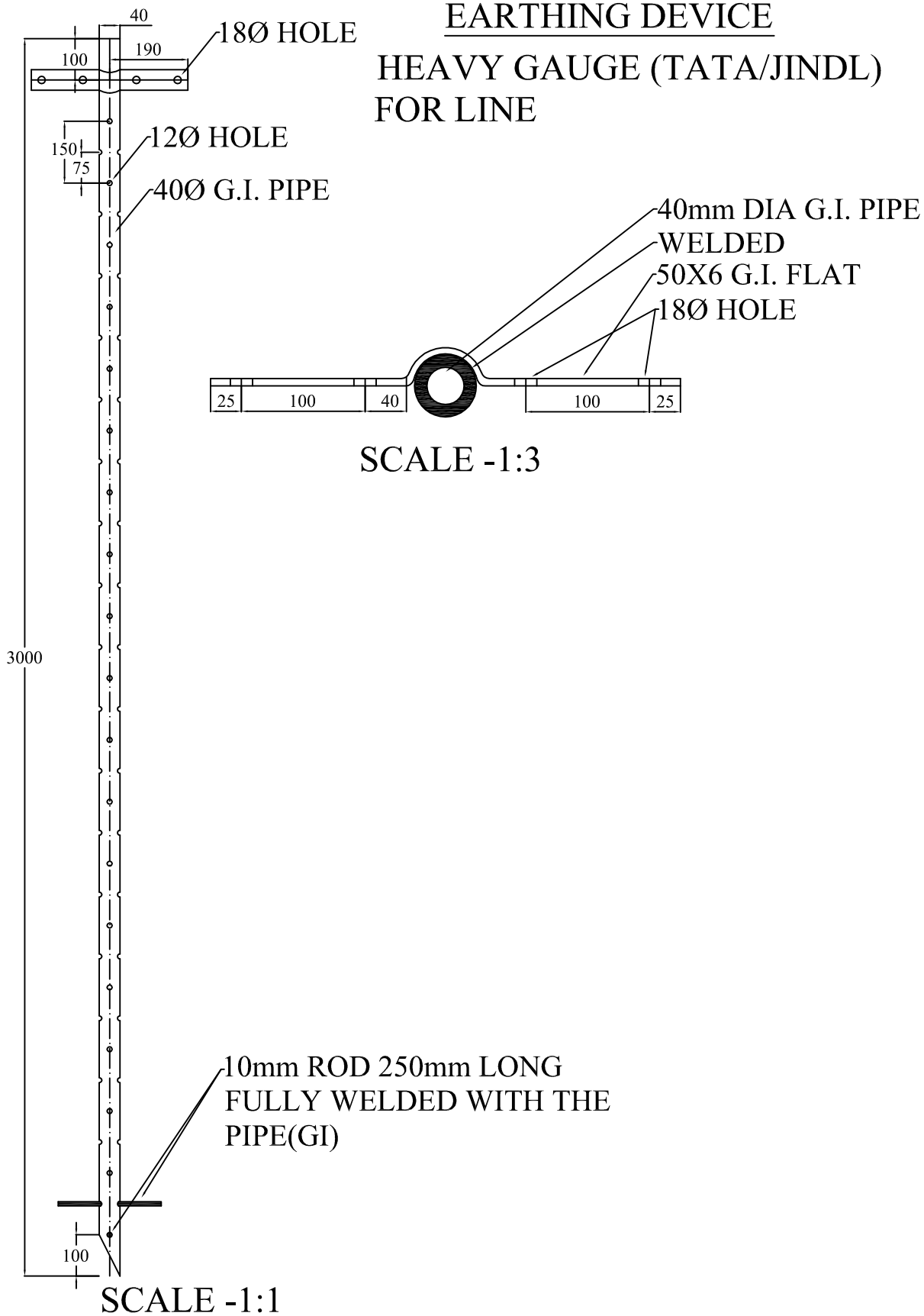


NOTE:

1. ZINC TO BE REMOVED(THE JOINTING PORTION OF THE FLAT) PRIOR TO WELDING OF JOINT.
2. AFTER REMOVAL OF ZINC THE JOINTING PORTION SHOULD BE RIGIDLY HOLD BY USING "C" CLAMP THEN ONLY THE WELDING WAS SHOULD BE TAKEN UP.
3. THE FLUX SHOULD BE REMOVE BEFORE PUTTING THE SUCCESSIVE LAYERS OF THE WELDING.
4. AFTER COMPLETION OF WELDING WORK THE "C" CLAMP SHOULD BE REMOVED.
5. JUST AFTER COMPLETION OF WELDING WORK TWO LAYER OF ANTICORROSION PAINT SHOULD BE APPLIED IMMEDIATELY.
6. THEN DOUBLE LAYER OF BLACK BITUMINOUS PAINT SHOULD BE APPLIED OVER THE WELDING PORTION.
7. BEFORE BURRING THE FLAT INSIDE THE TRENCH EACH JOINT SHOULD BE COVERED WITH BLACK TAPE.
8. EACH JOINTING PORTION COVERED WITH CONCRETE MIX(1:2:4) ALL AROUND BEFORE FILLING OF SOIL.

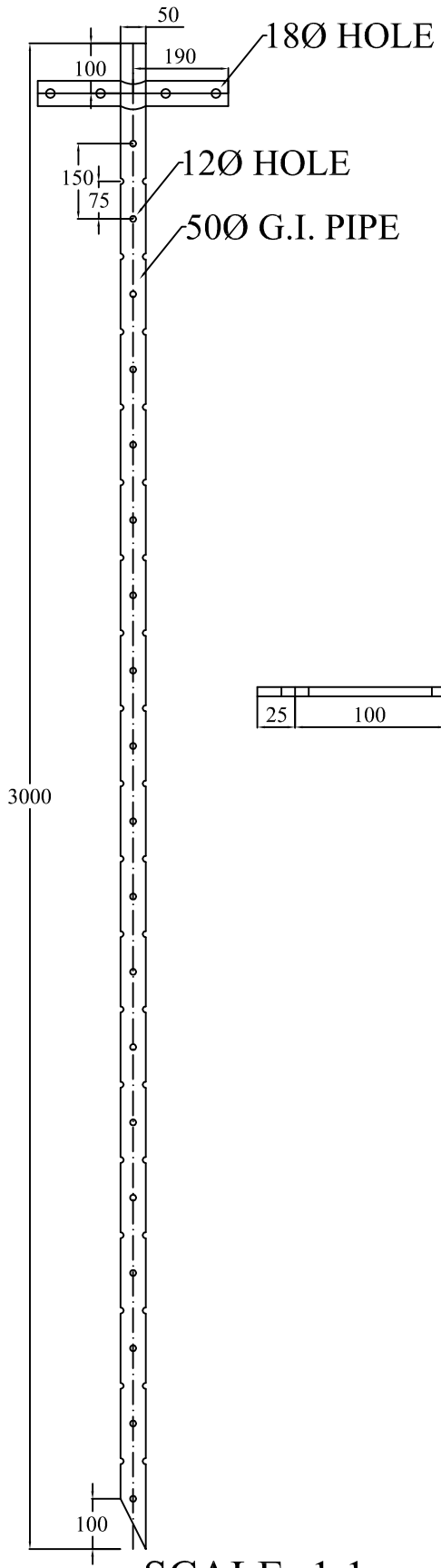
EARTHING DEVICE

HEAVY GAUGE (TATA/JINDL) FOR LINE

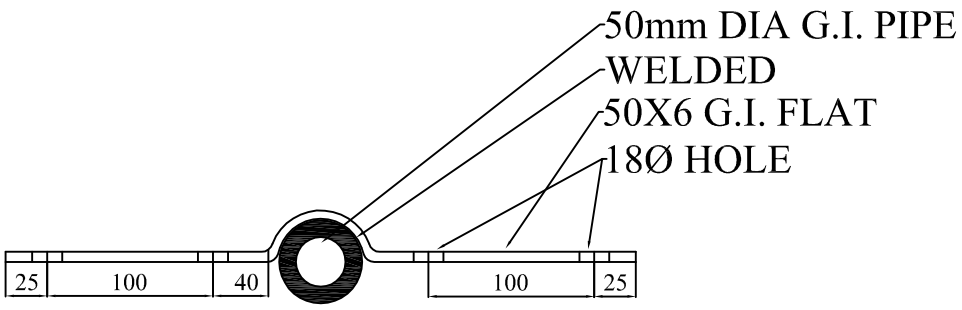


EARTHING DEVICE

HEAVY GAUGE (TATA/GINDL) FOR SUB-STATION

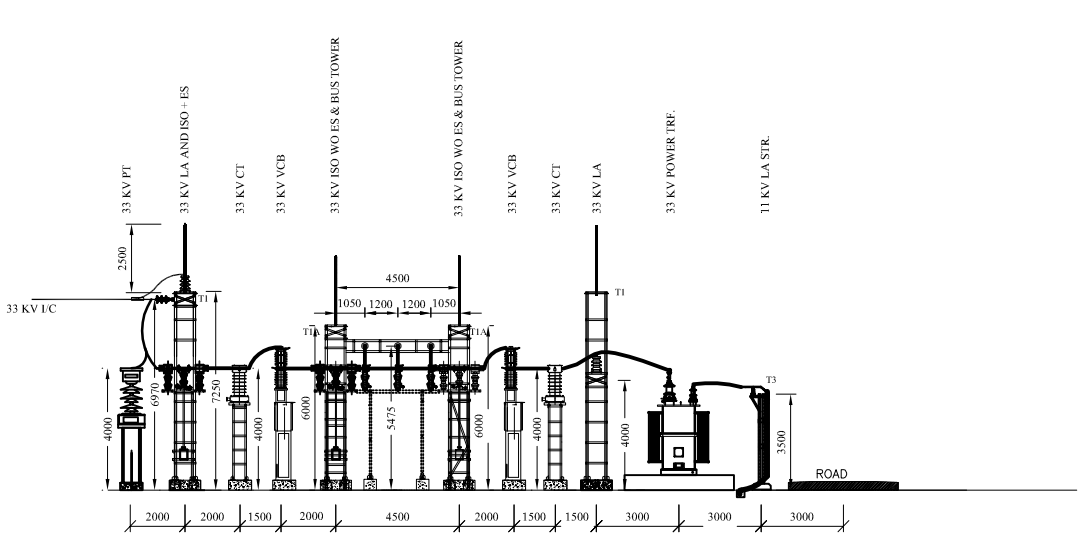


SCALE -1:1

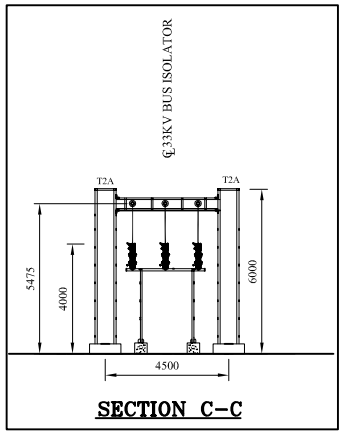


SCALE -1:3

CESU CAPEX



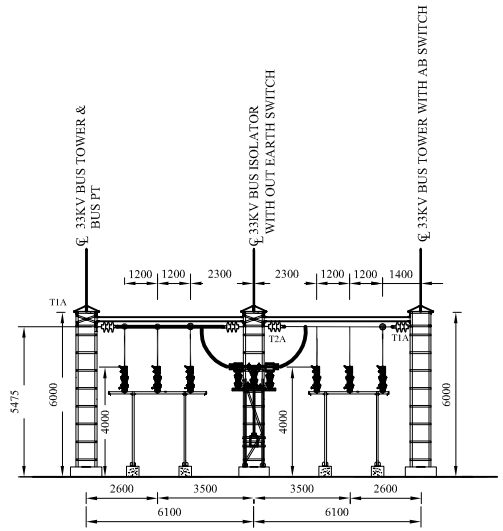
SECTION A–A



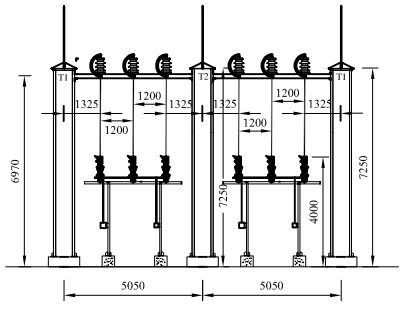
SECTION C–C

NOTE:
1) ALL DIMENSIONS ARE IN MM.
2) SPIKES SHOULD BE 25ø AND 2500 MM LONG.

CLEARANCES:-
1. 33KV PHASE TO PHASE = 1500
2. 11KV PHASE TO PHASE = 650
2. 33KV GROUND CLEARANCE = 4000
4. 11KV GROUND CLEARANCE = 3200
5. 33KV PHASE TO EARTH PART = 610
6. 11KV PHASE TO EARTH PART = 310
7. SECTIONAL CLEARANCE – 3000

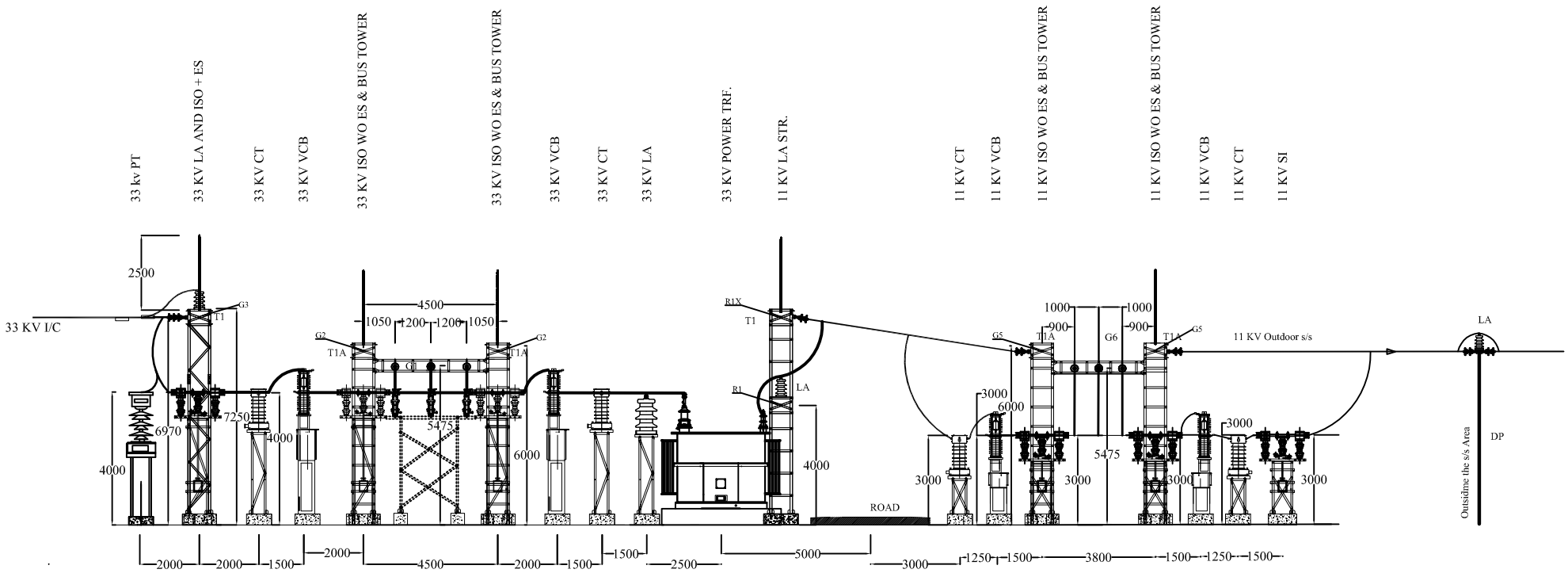


SECTION B–B



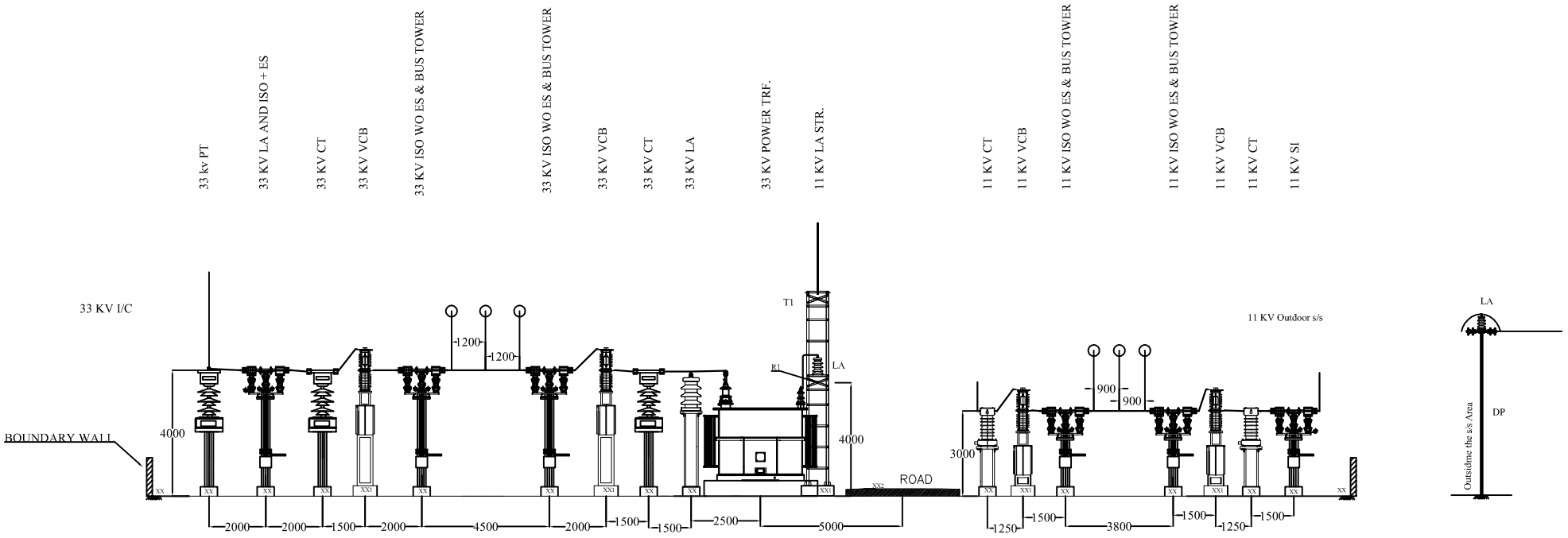
SECTION D–D

CESU CAPEX



Outdoor Primary S/S
SECTION A-A

CESU CAPEX



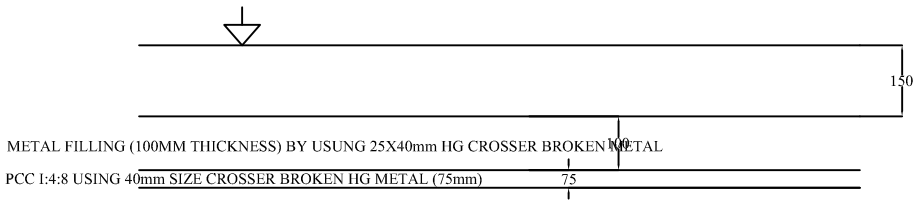
Outdoor TYPE Primary S/S
SHOWING THE EQUIPMENT POSITION IN LONGITUDINAL VIEW

TOP OF THE PLINTH SHOULD BE 325mm ABOVE THE METAL.

THE TOP HEIGHT OF THE ROAD SHOULD BE 200mm ABOVE METAL - XX2

CONCRETE LEVEL OF CB TO DECIDED AS PER THE STRUCTURE AVAILABLE FOR MAINTAINING 4000mm IN 33kv, 3000mm MINIMUM IN 11kv - XX1

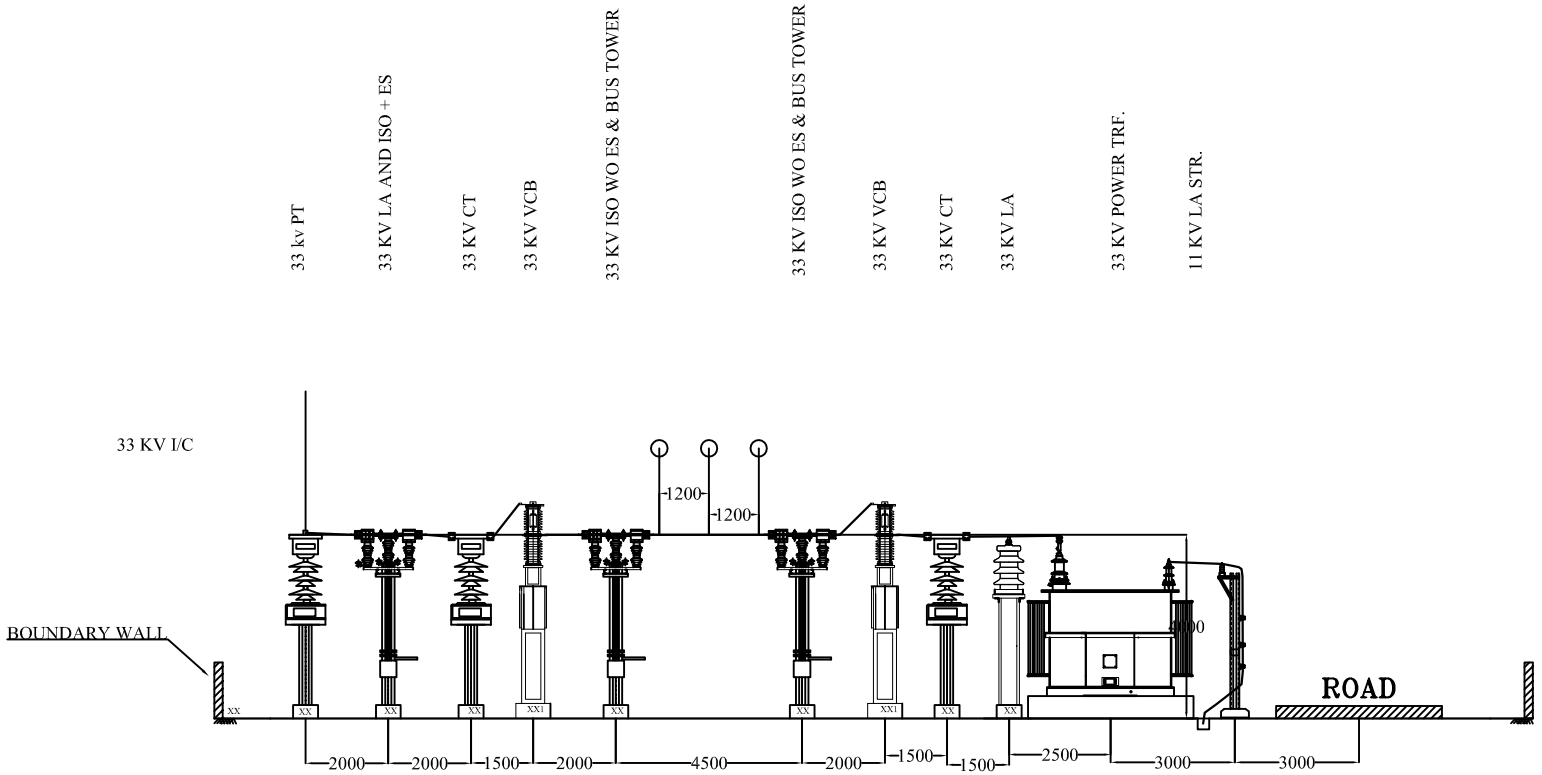
TOP OF FOUNDATION LAVEL OF COLUMN EQUIPMENT (EXCEPT CB), CABLE TRENCH, DRAIN,(150mm ABOVE METAL) - XX



METAL FILLING (100MM THICKNESS) BY USUNG 25X40mm HG CROSSER BROKEN METAL

PCC I:4:8 USING 40mm SIZE CROSSER BROKEN HG METAL (75mm)

CESU CAPEX



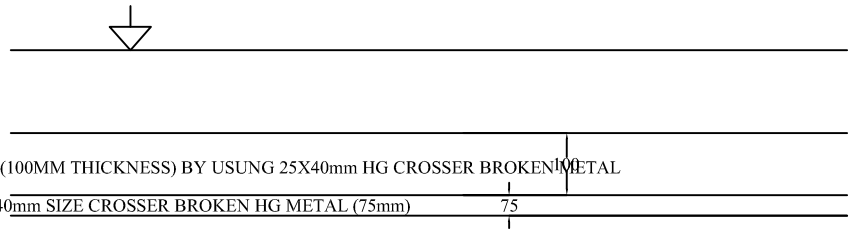
INDOOR TYPE Primary S/S
SHOWING THE EQUIPMENT POSITION IN LONGITUDINAL VIEW

TOP OF THE PLINTH SHOULD BE 325mm ABOVE THE METAL.

THE TOP HEIGHT OF THE ROAD SHOULD BE 200mm ABOVE METAL - XX2

CONCRETE LEVEL OF CB TO DECIDED AS PER THE STRUCTURE AVAILABLE FOR MAINTAINING 4000mm IN 33kv, 3000mm MINIMUM IN 11kv - XX1

TOP OF FOUNDATION LAVEL OF COLUMN EQUIPMENT (EXCEPT CB), CABLE TRENCH, DRAIN,(150mm ABOVE METAL) - XX

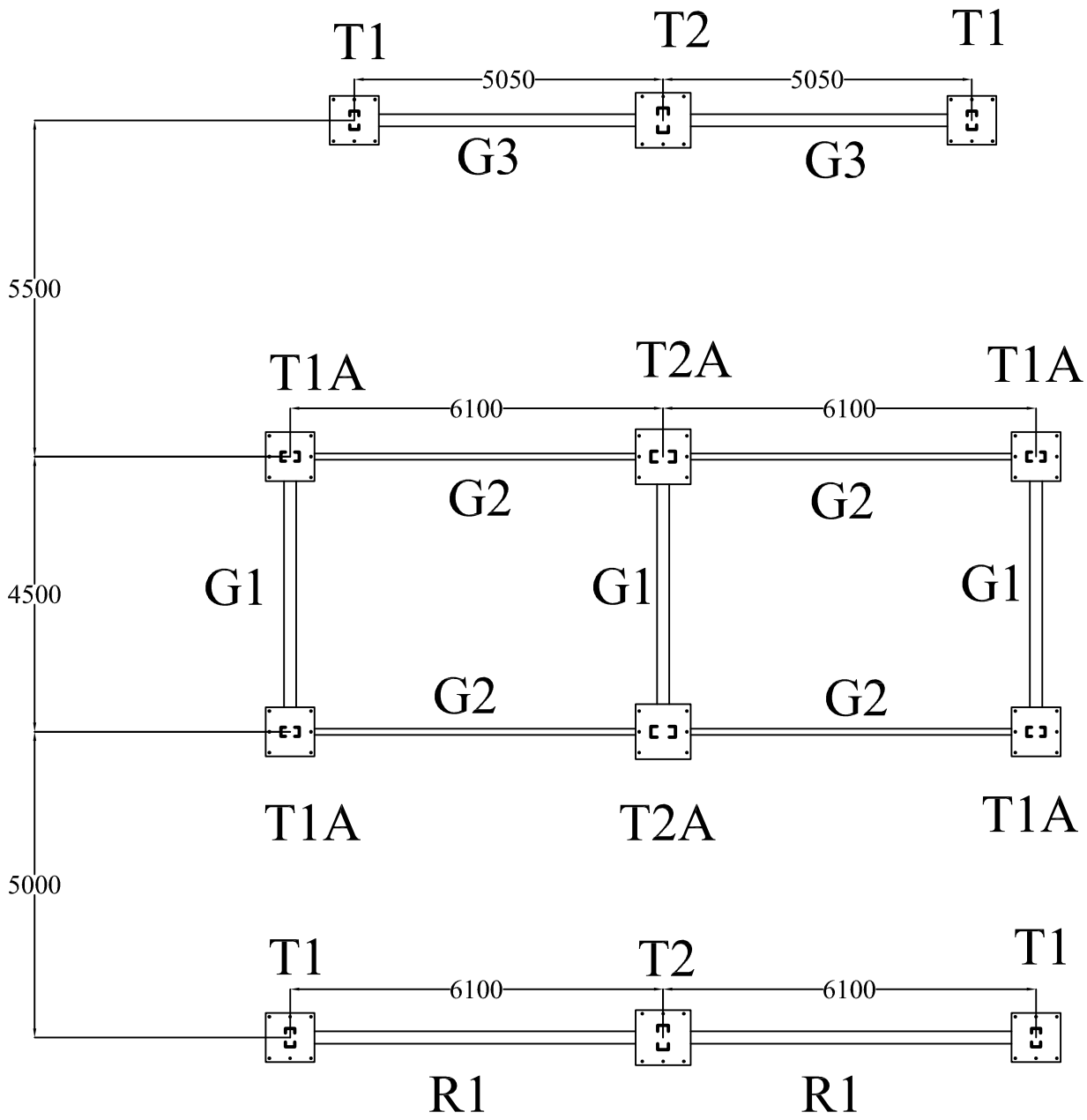


METAL FILLING (100MM THICKNESS) BY USUNG 25X40mm HG CROSSER BROKEN METAL

PCC I:4:8 USING 40mm SIZE CROSSER BROKEN HG METAL (75mm)

CESU CAPEX

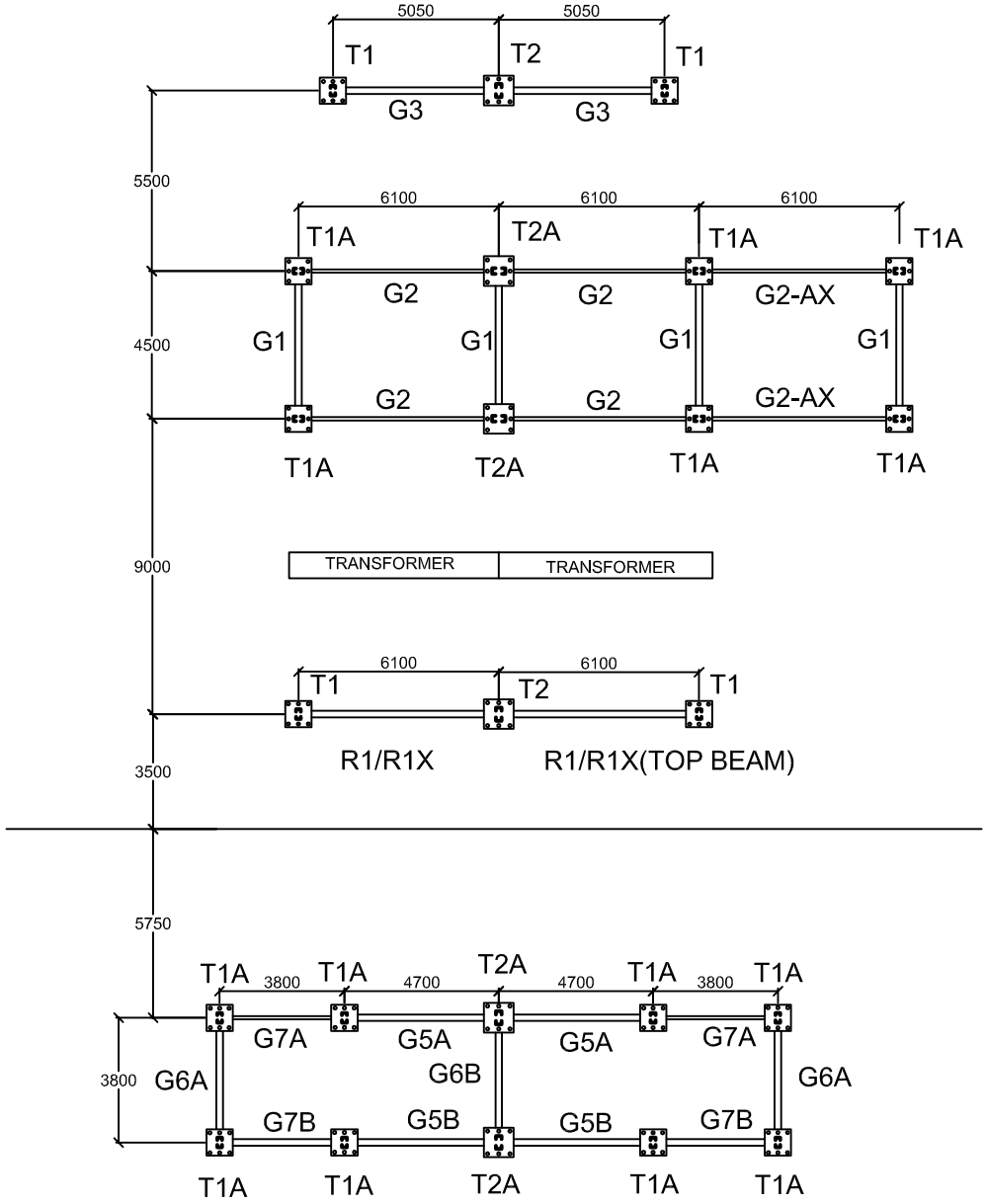
FOUNDTATION BOLT ARRANGEMENT FOR INDOOR



ALL THE BOLT HOLES 34mm.

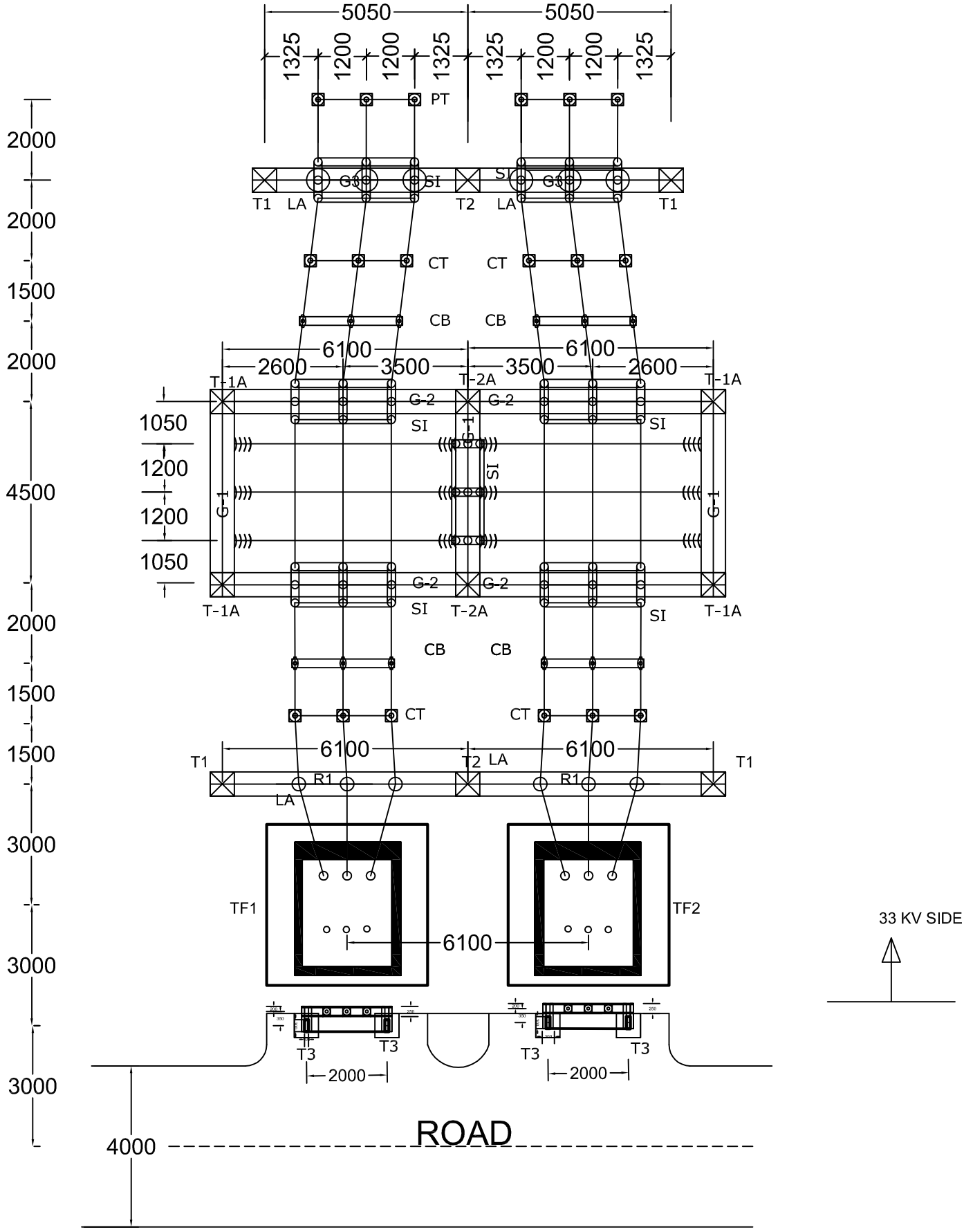
CESU CAPEX

FOUNDATION BOLT ARRANGEMENT FOR OUTDOOR

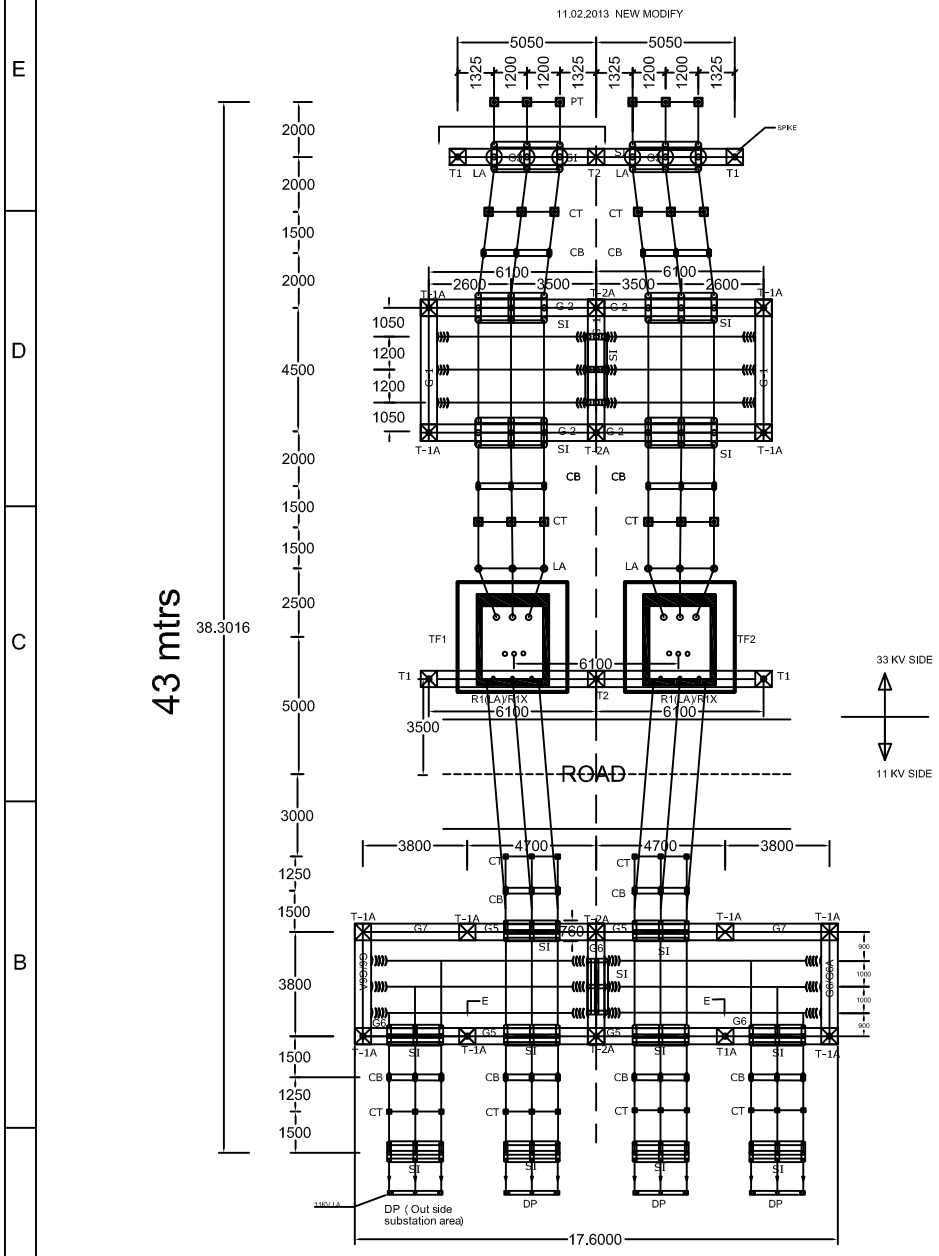


ALL THE BOLT HOLES 34mm.

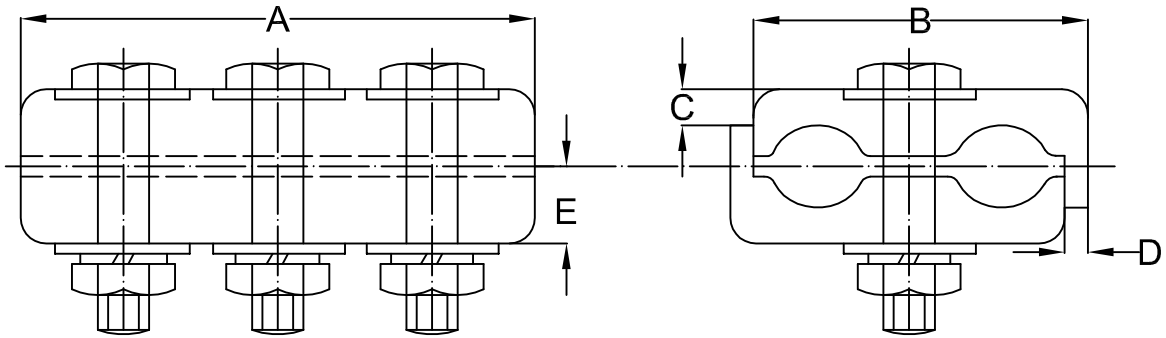
INDOOR S/S



CESU CAPEX


11.02.2013 NEW MODIFY
5050
5050
1325
1200
1200
1325
PT
SPIKE
T1
LA
T2
CT
CB
6100
2600
3500
T-1A
T-2A
G-2
SI
1050
1200
4500
G-1
2000
1500
2500
TF1
TF2
R1(LA)/R1X
33 KV SIDE
11 KV SIDE
ROAD
3800
4700
760
G7
G5
G6
G6/G6A
E
900
1000
DP (Out side substation area)
DP
17.6000
43 mtrs
38.3016
30 mtrs
CESU CAPEX

PG CLAMP

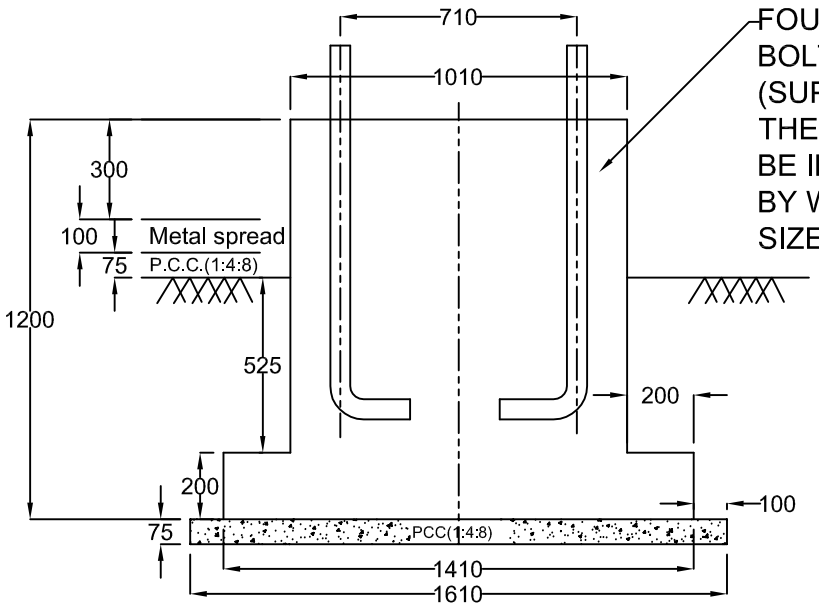


TECHNICAL DATA:

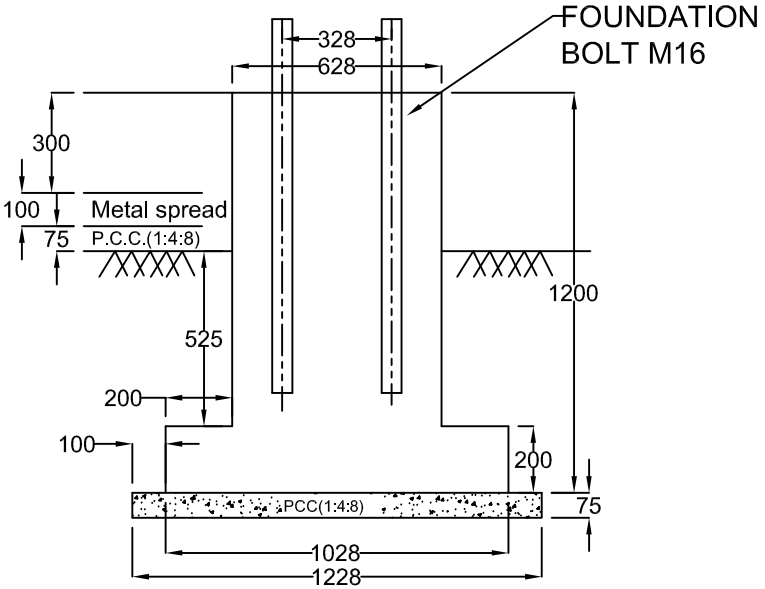
1.ALUMINUM ALLOY - LM-6
2.BOLT&NUT IS -1367(HDG)
3.SPRING & FLAT WASHER - ELECTRO GALVANIZED
4.TOLERENCE +5%
5.ALL DIMENSION ARE IN MM.

CONDUCTOR NAME	NOMINAL AREA(mm²)	CONDUCTOR DIA	DIMENSION IN mm					NO. OF BOLTS
			A	B	C	D	E	
DOG-DOG	100	12.78 -12.78	100	65	10	4.5	15	3, M12 (HDG)
RACOON-RACOON	80	11.43-11.43	100	58	10	4.5	15	3, M12(HDG)
RABBIT-RABBIT	55	9.45-9.45	95	54	10	4.5	13	3,M12(HDG)
ZEBRA-ZEBRA	420	28.62-28.62	150	102	15	5	18	3,M16(HDG)
ZEBRA-PANTHER	420-230	28.62-19.70	150	102	15	5	18	3,M16(HDG)

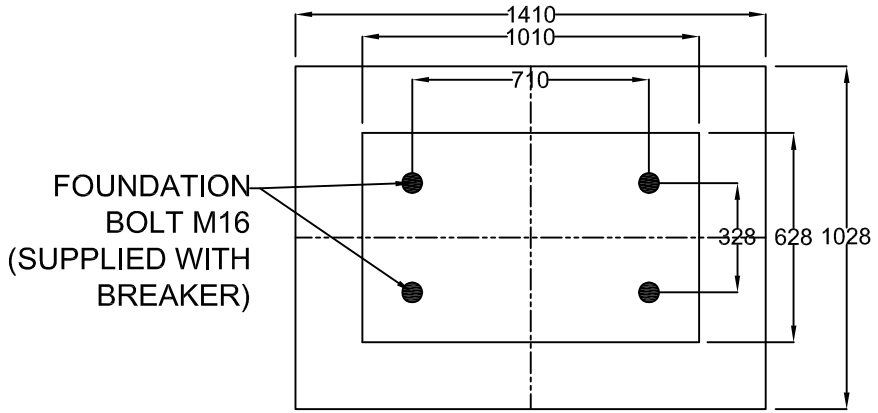
SCHNEIDER MAKE 33kv AND 11kv CB FOUNDATION NOT SHOWING RODS



FRONT VIEW(ELEVATION)

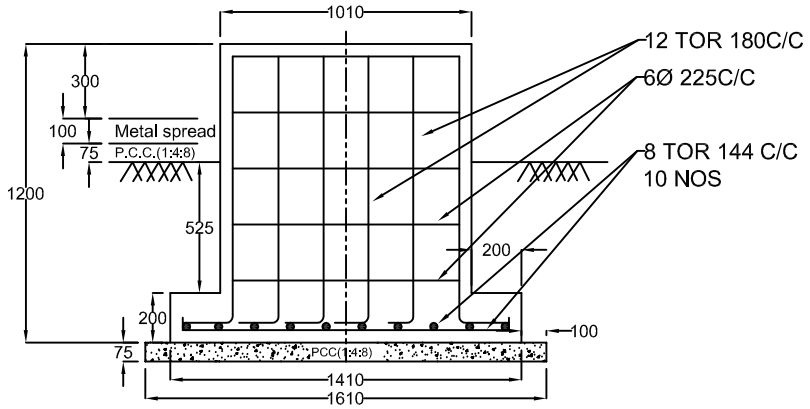


SIDE VIEW(ELEVATION)

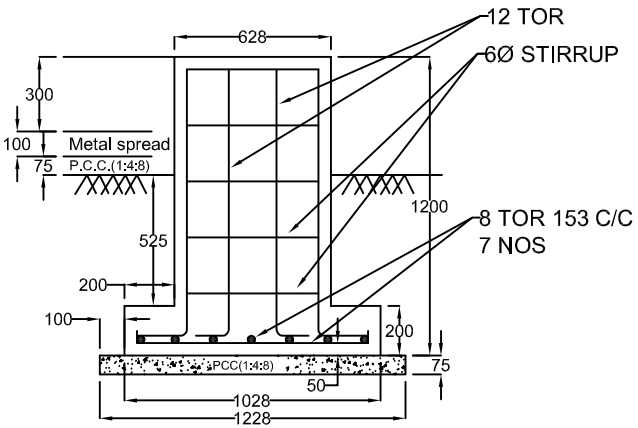


PLAN

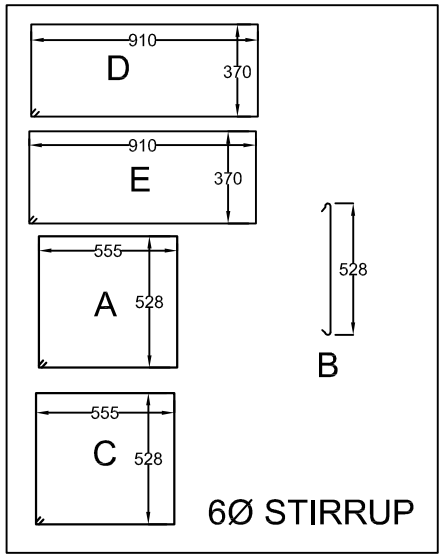
SCHNEIDER MAKE 33kv AND 11kv CB FOUNDATION

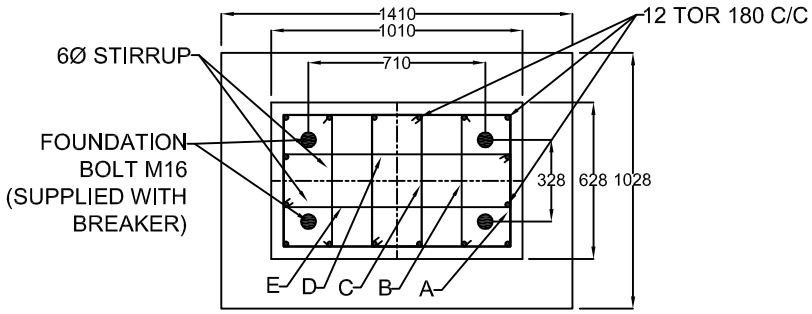


FRONT VIEW(ELEVATION)

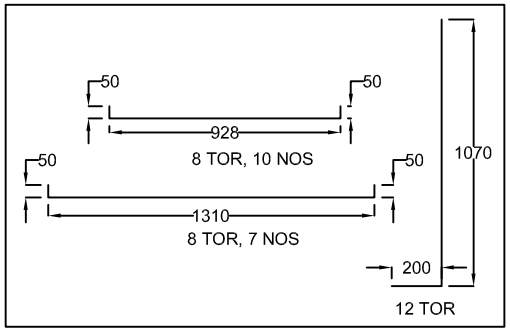


SIDE VIEW(ELEVATION)

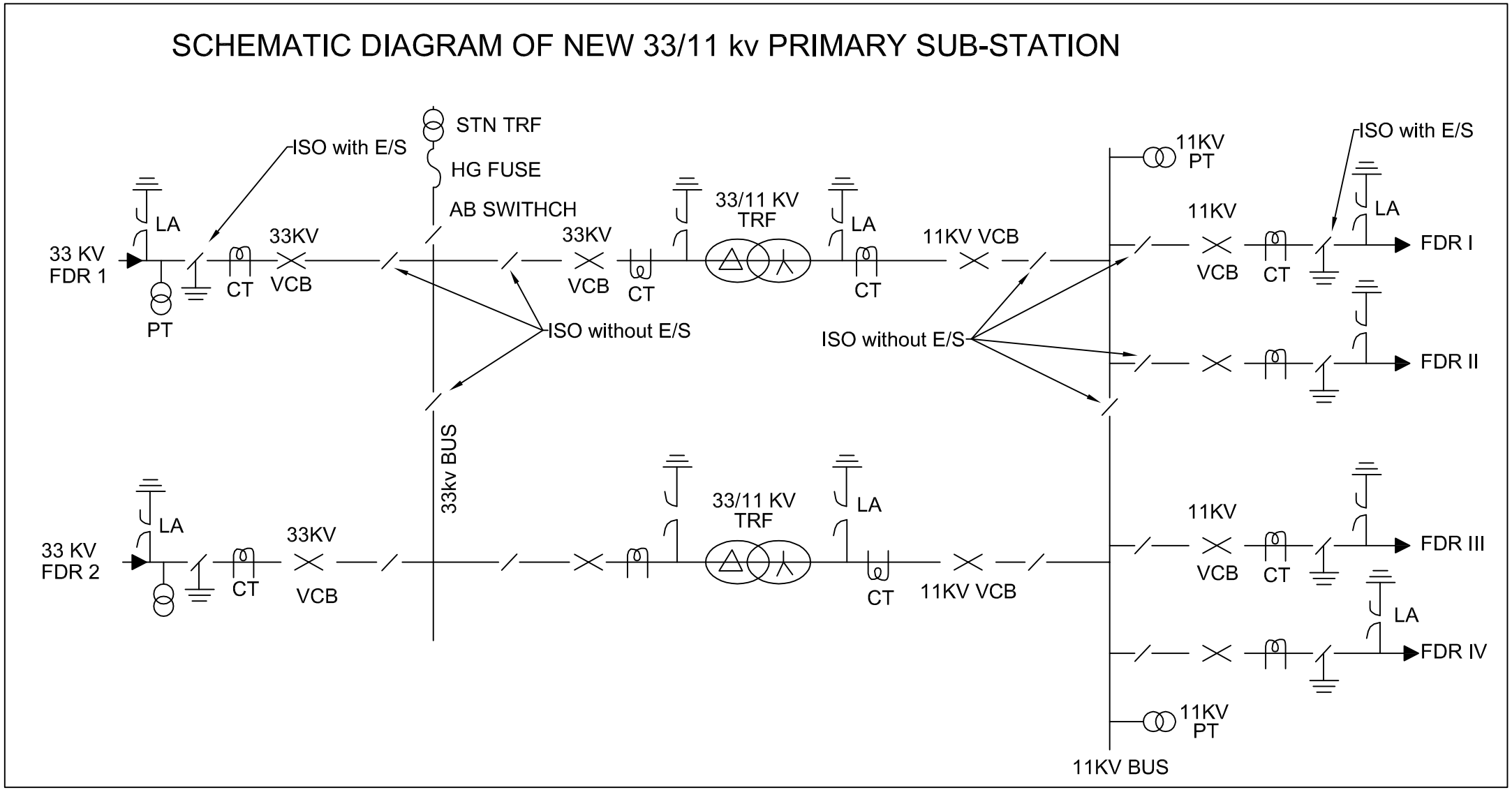




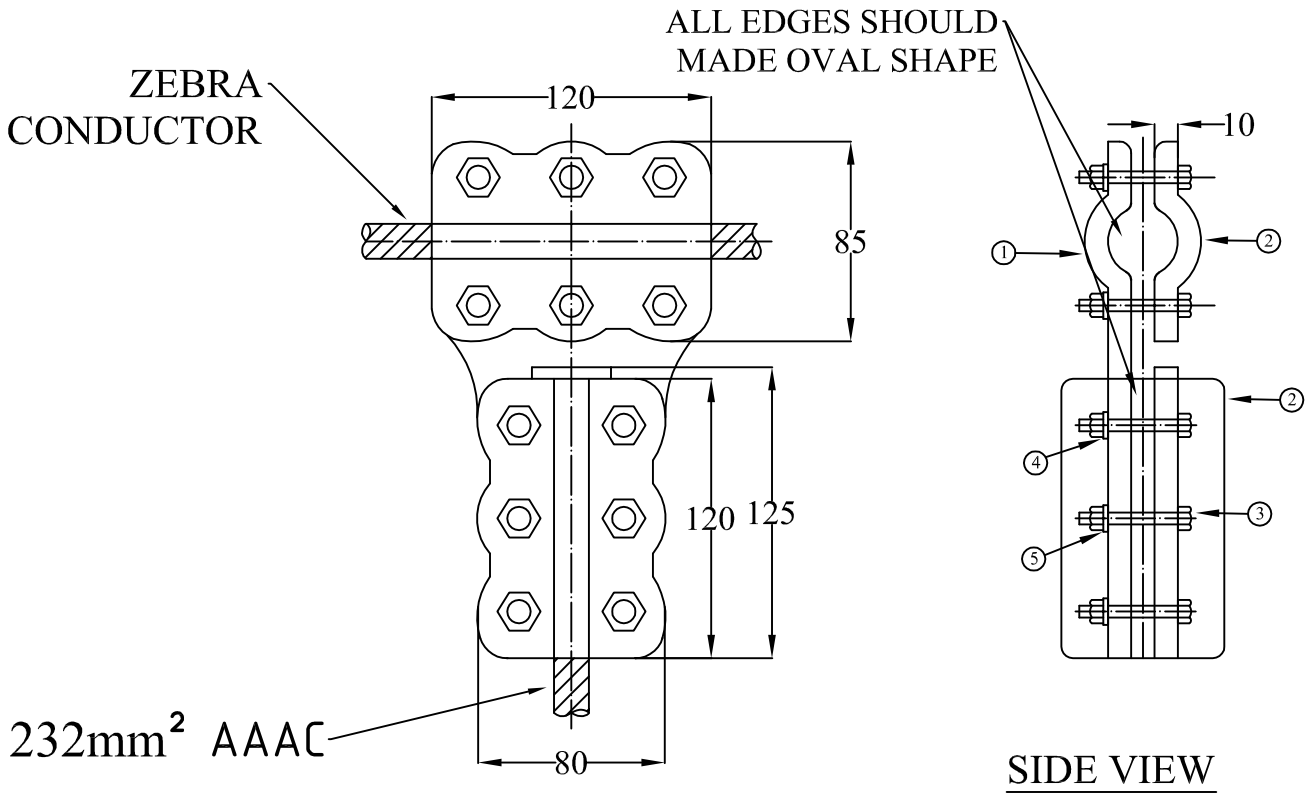
PLAN



SCHEMATIC DIAGRAM OF NEW 33/11 kv PRIMARY SUB-STATION



T-CLAMP



FRONT VIEW

SIDE VIEW

TECHNICAL DATA:

1.CLAMP AS PER IS:5561

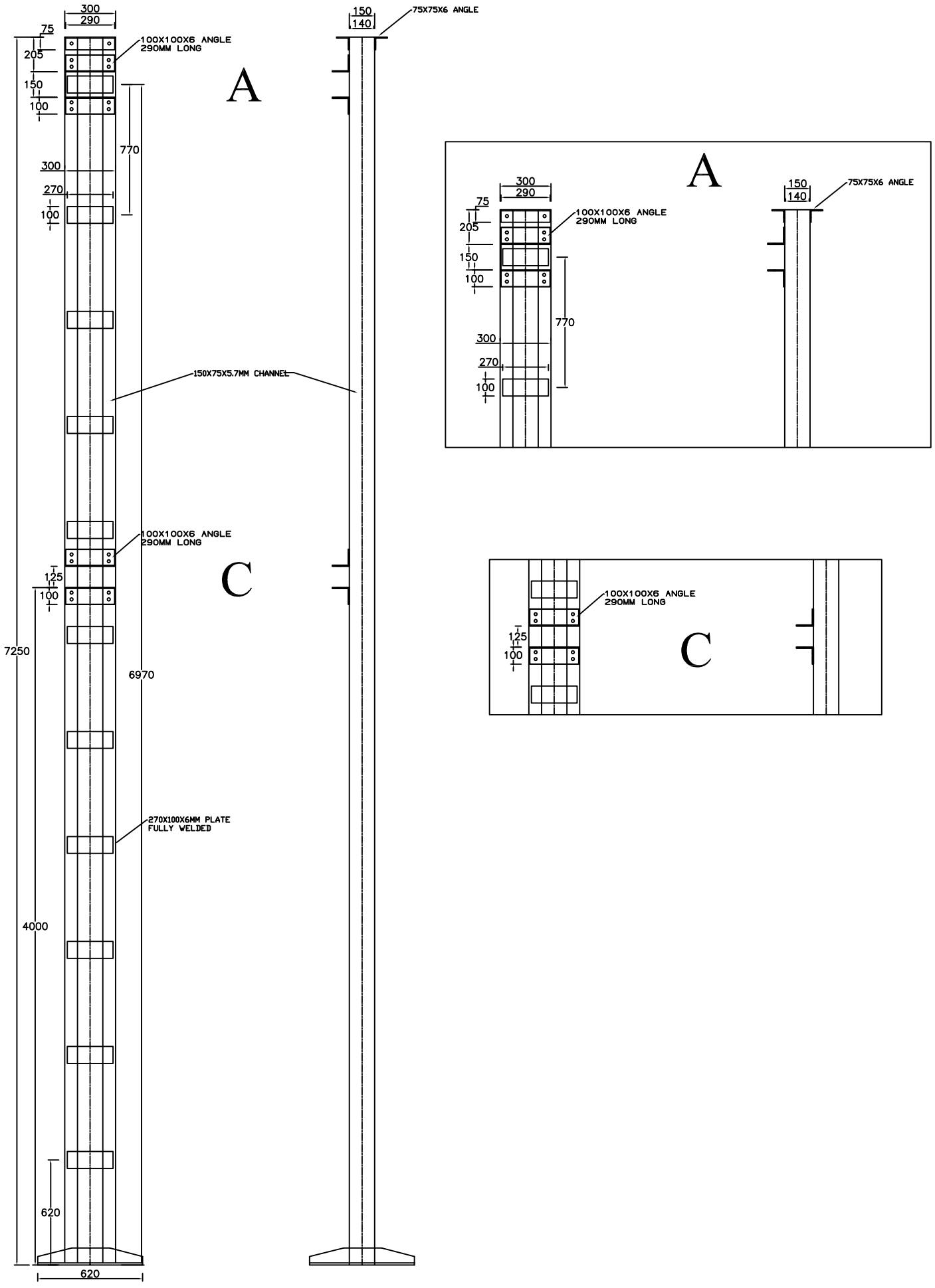
2.ALL FERROUS PARTS ARE HOT DIP GALVANIZED CONFORMING TO IS:2633& SPRING WASHER ARE ELECTRO GALVANIZED CONFORMING TO IS:1573 SERVICE COND.III

3.GENERAL TOLERANCE ±5%

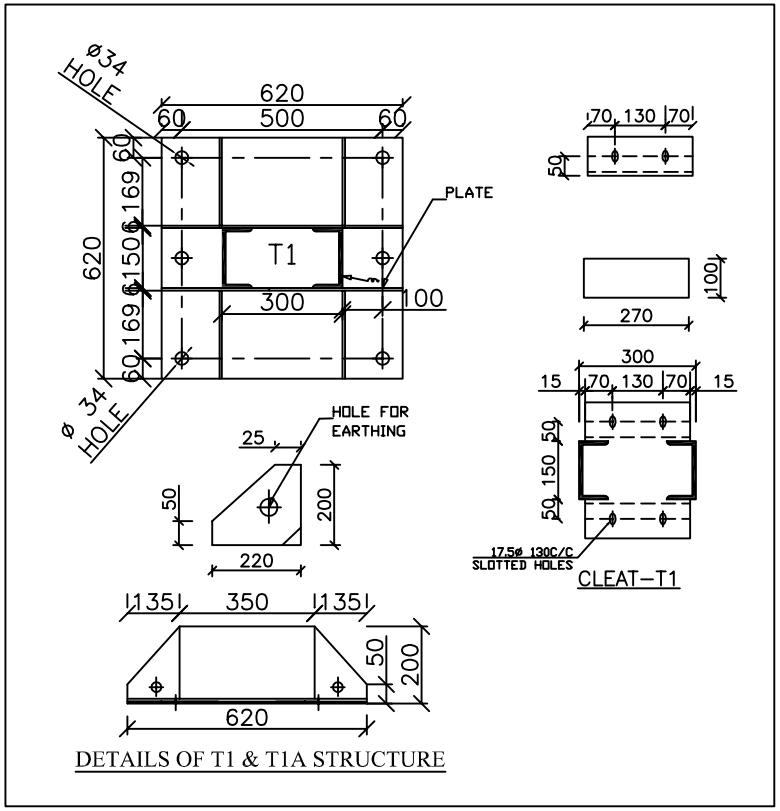
4.MIN. THICKNESS 10mmOF CURRENT CARRYING PART.

BILL OF MATERIALS

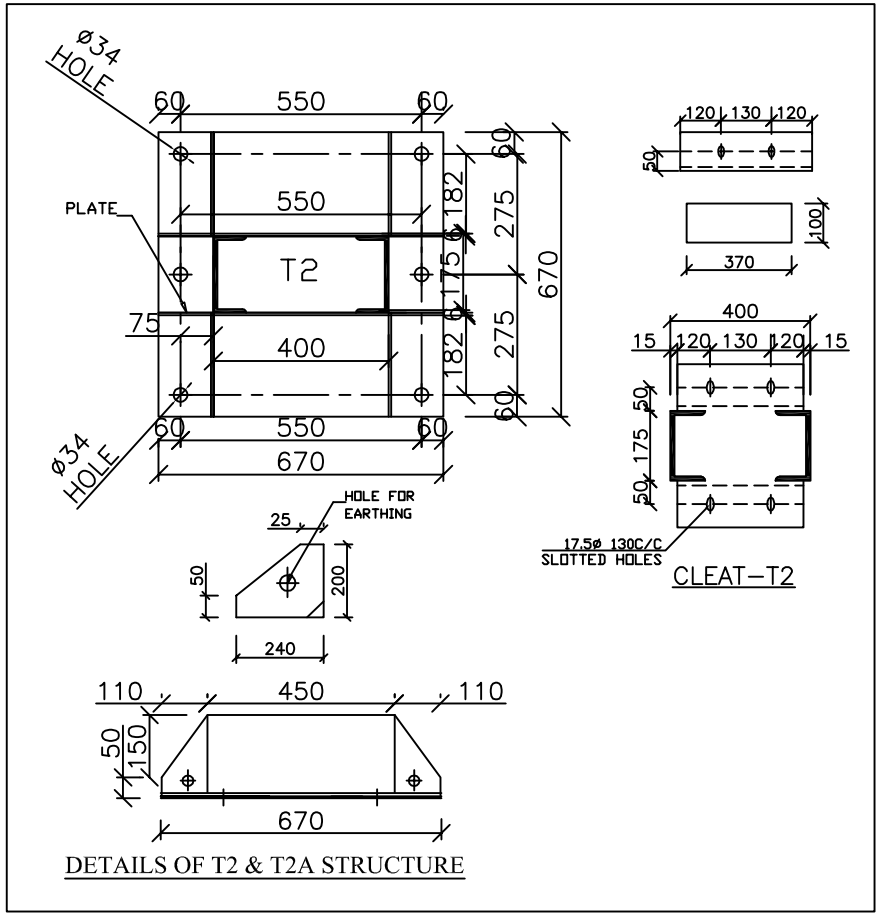
SL NO.	DESCRIPTION	MATERIAL	GRADE	SURFACE TREATMENT	QTY
1	CLAMP	ALUMINUM ALLOY	LM-6,IS:617	---	1 SET
2	KEEPER	ALUMINUM ALLOY	LM-6,IS:617	---	1 SET
3	M12 NUT & BOLT	MS	GR 5.0 & 5.6, IS:1367	H.D.G.	12 SET
4	M12 FLAT WASHER	MS	IS:2062	H.D.G.	12 NOS
5	M12 SPRING WASHER	SPRING STEEL	IS:4072	E.G.	12 NOS



T1 COLUMN WITH BEAM ARRANGEMENT



DETAILS OF T1 & T1A STRUCTURE

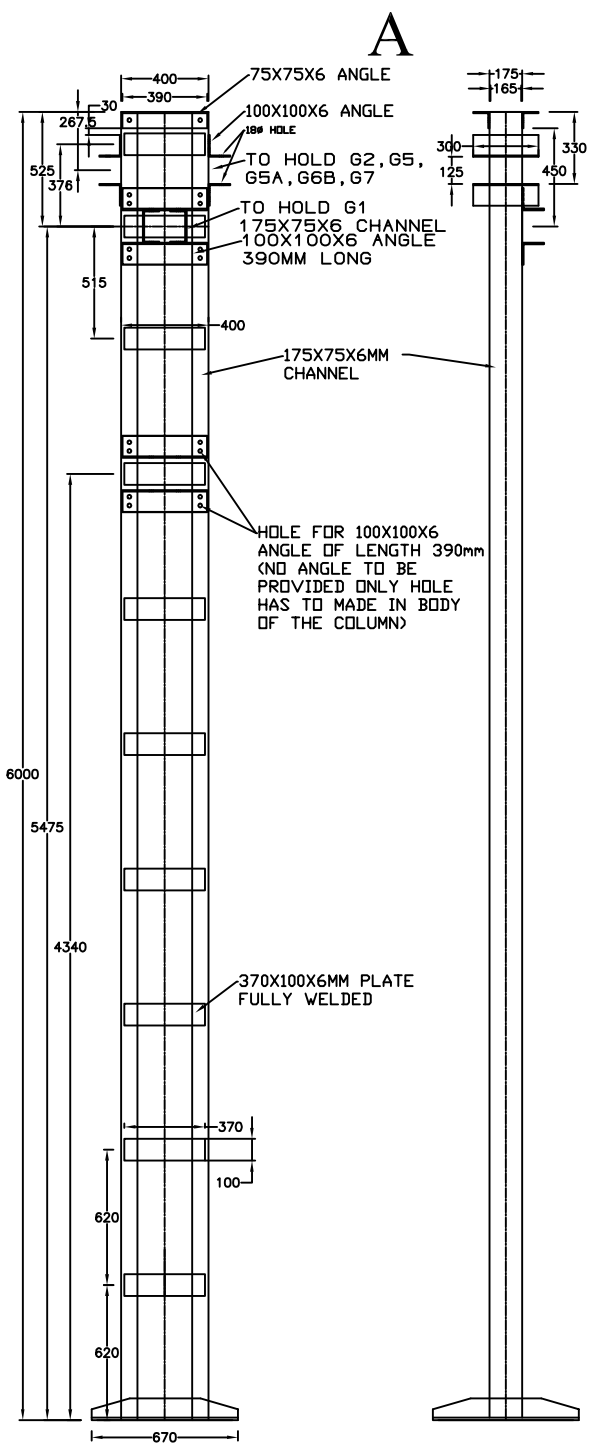


DETAILS OF T2 & T2A STRUCTURE

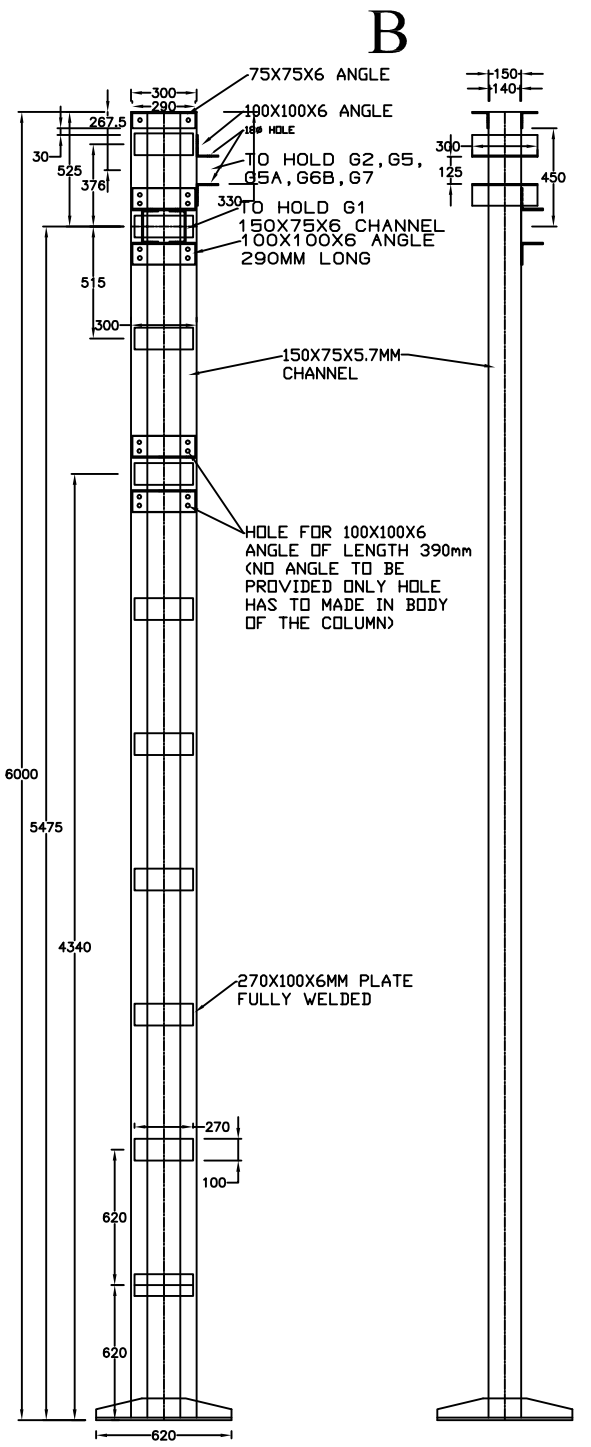
BILL OF MATERIAL

ERECTION MARKS	DESCRIPTION	A	B	C	TOTAL B+C	D	E	F
1	T1/T2	205	6970	280	7250	150	125	4000
2	T1A/T2A	450	5475	525	6000	150		
3	FOUNDATION BOLT	T1	T2	T1A	T2A	T3		
	a.32x1400	0	6 NOS	0	6 NOS	0		
	b.32x1000	6 NOS	0	6 NOS	0	0		
	c.25x750					4 nos		

CESU CAPEX

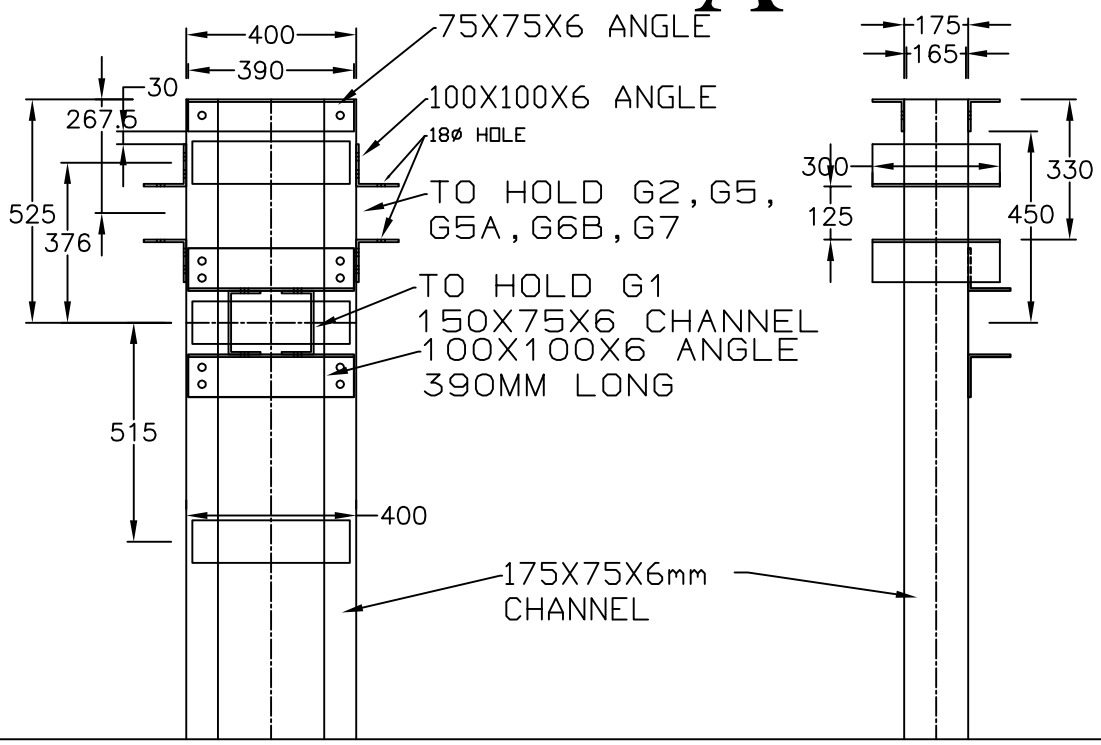


T2A COLUMN WITH BEAM ARRANGEMENT

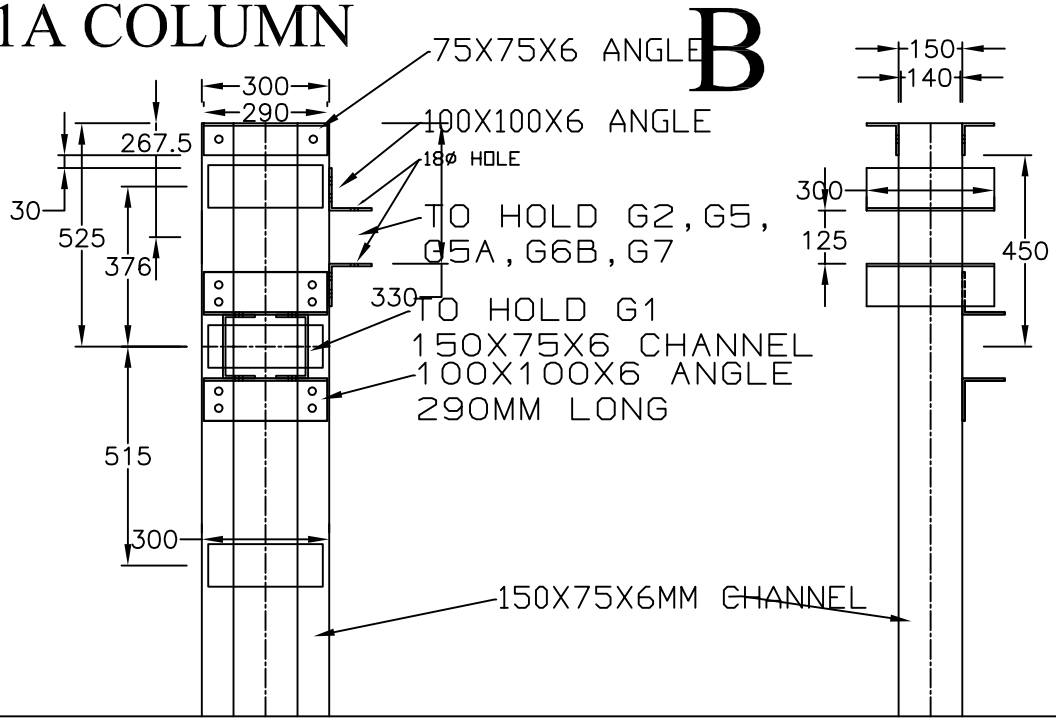


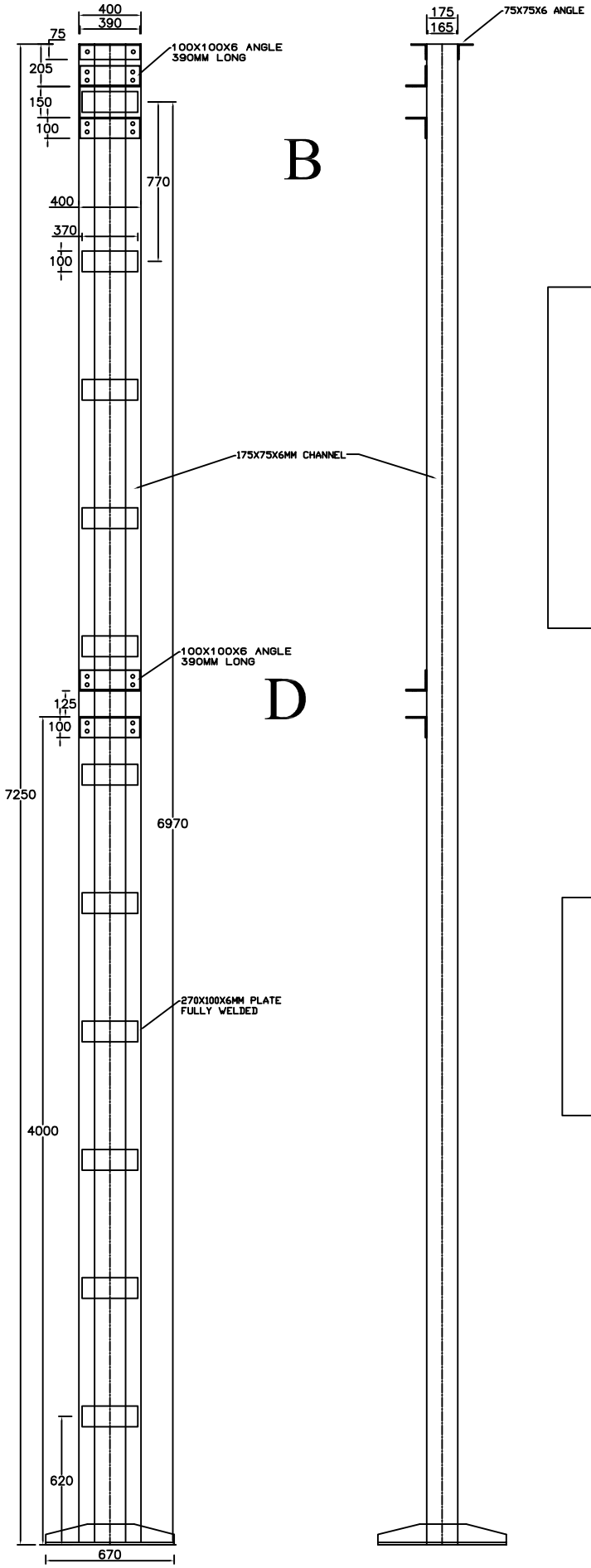
T1A COLUMN WITH BEAM ARRANGEMENT

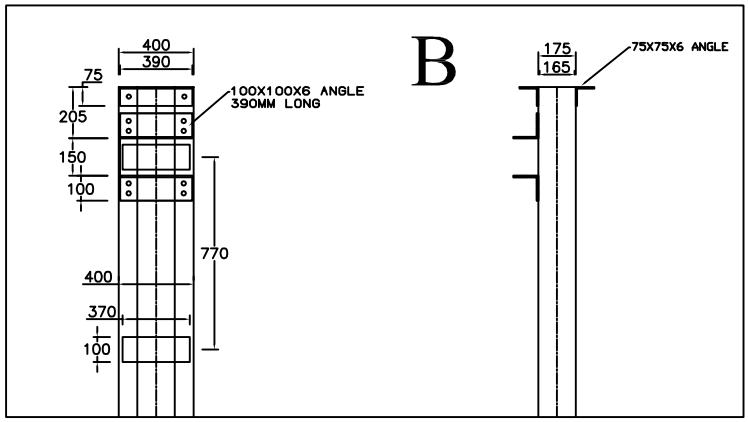
T2A COLUMN A

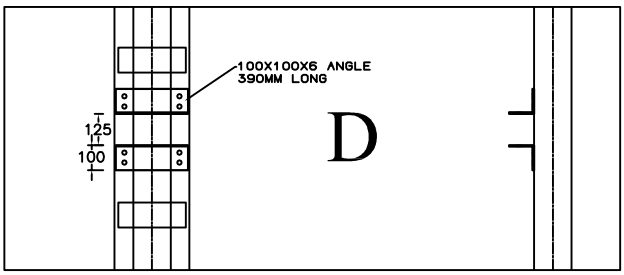


T1A COLUMN B





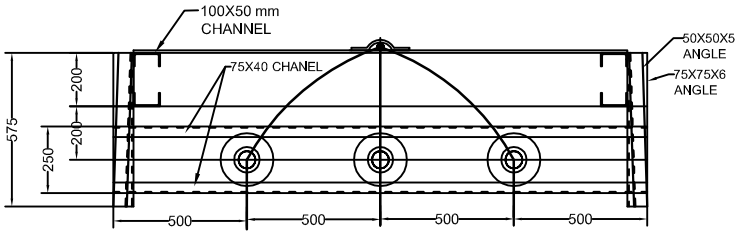




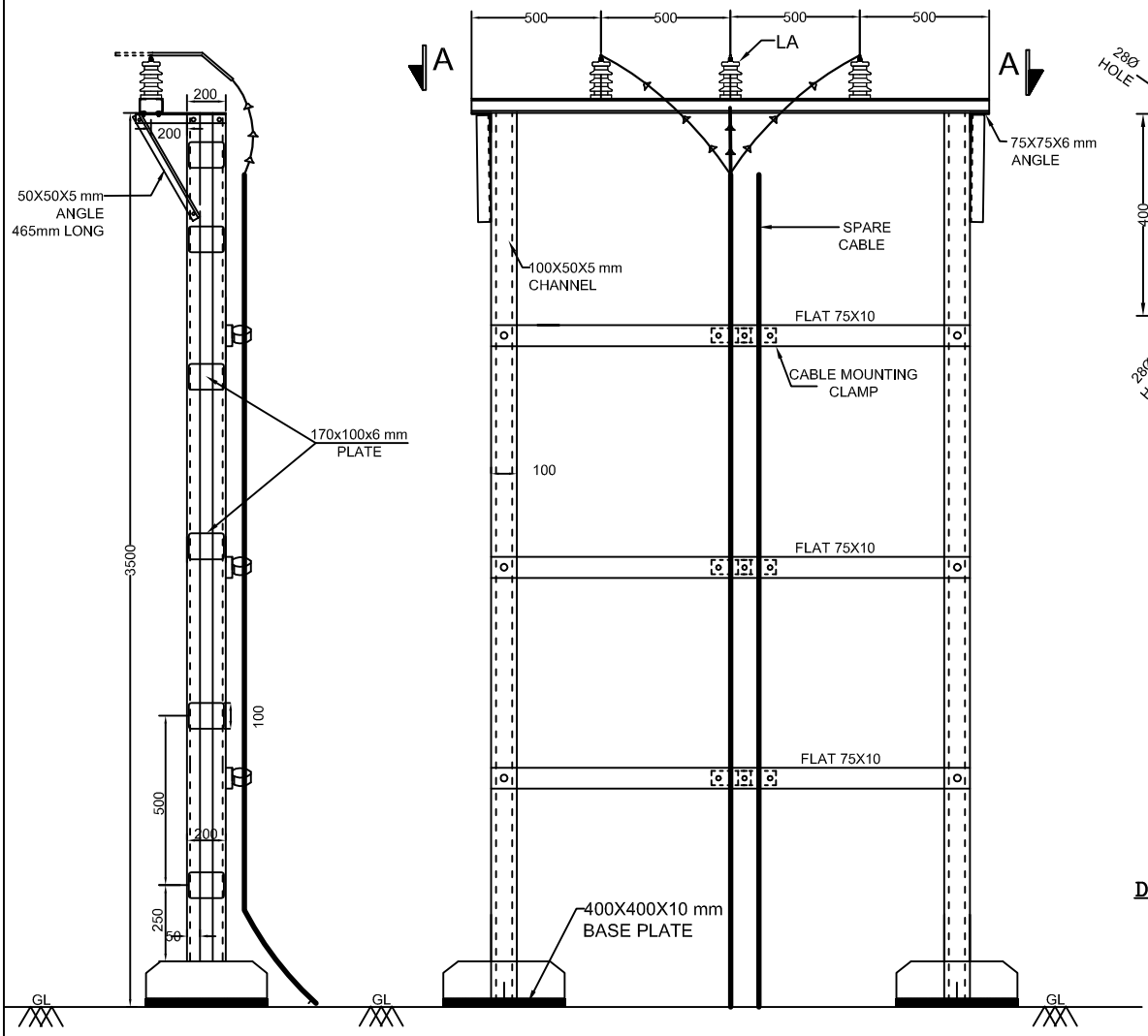
T2 COLUMN WITH BEAM ARRANGEMENT

T3 COLUMN STRUCTURE

REV–1

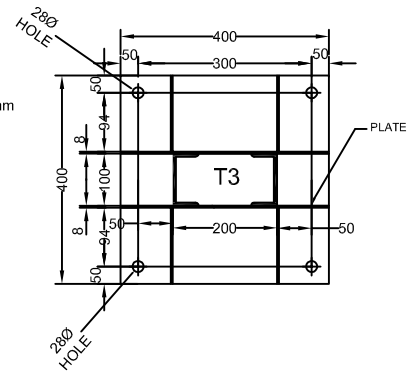


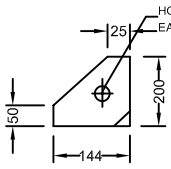
PLAN

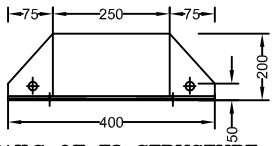


SIDE VIEW

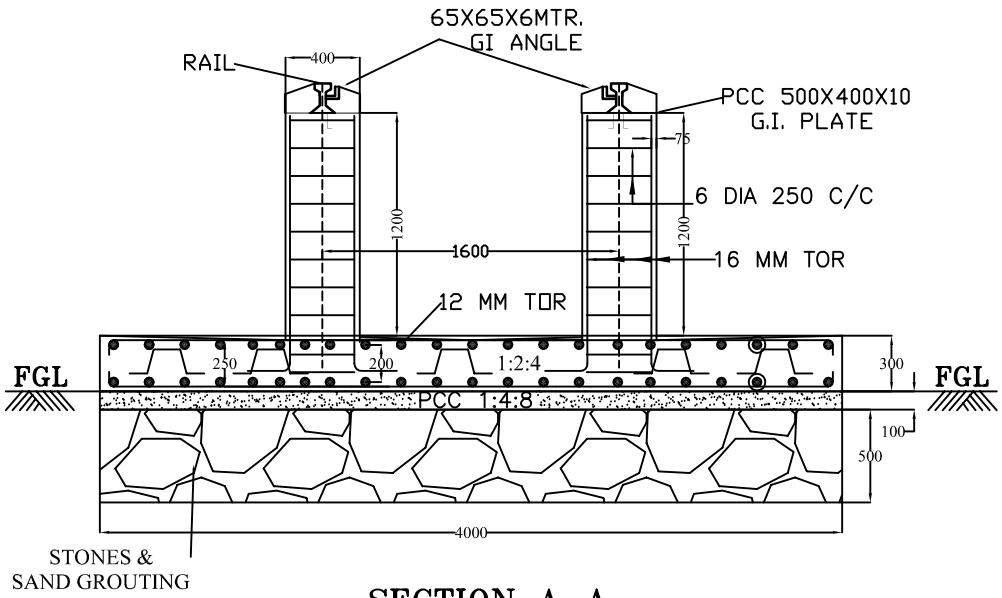
FRONT VIEW



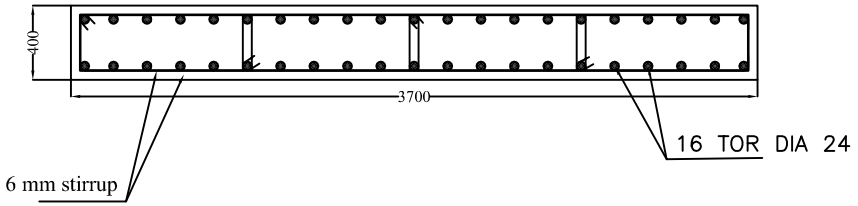




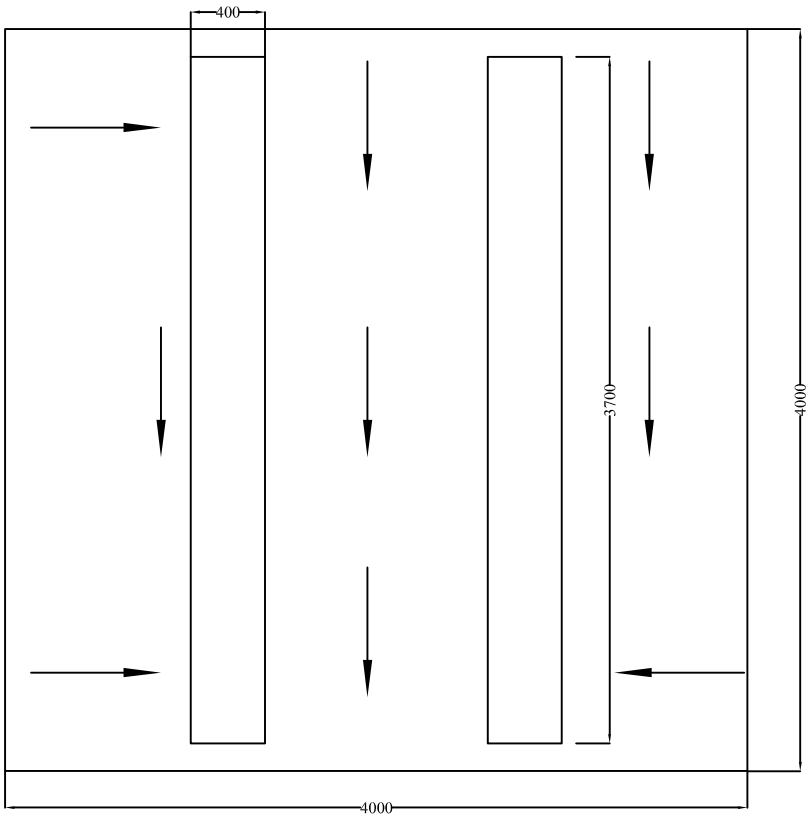
DETAILS OF T3 STRUCTURE



SECTION A–A



LV SIDE



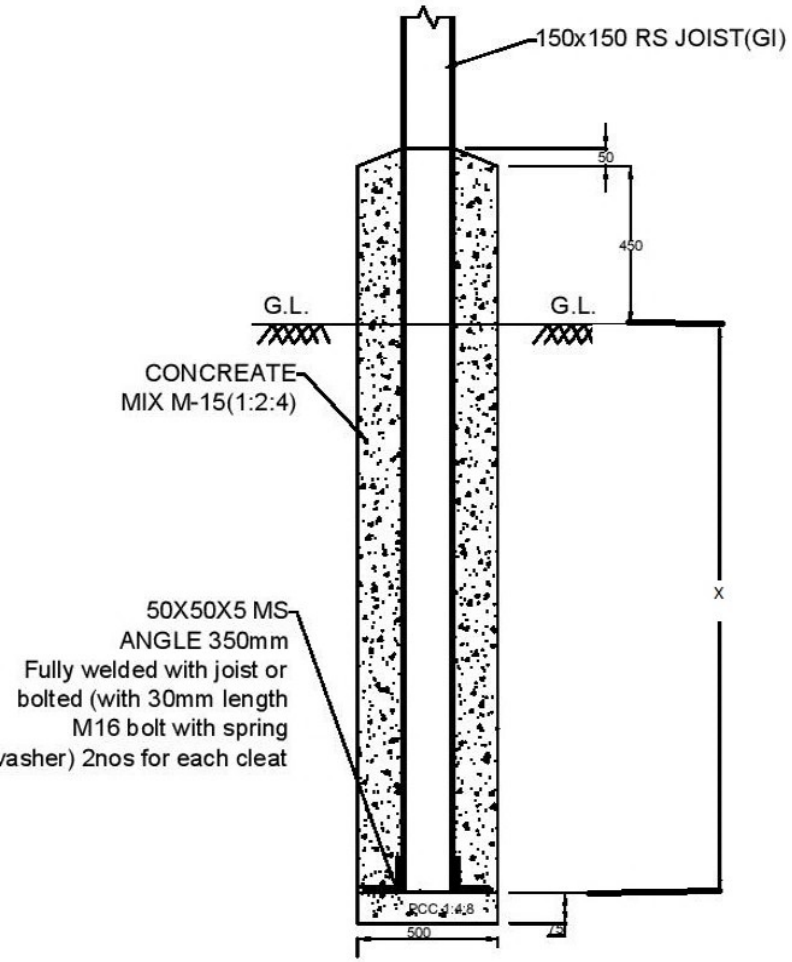
HV SIDE

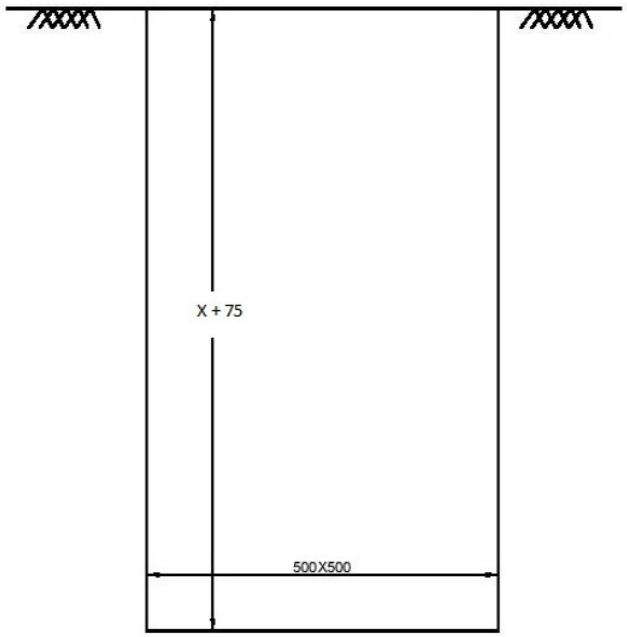
NOTES:

1. RAIL DISTANCE SHALL BE AS PER ACTUAL POWER TRANSFORMER RECEIVE AT SITE.

CESU

DRAWING FOR CONCREATING OF RS JOIST 150X150X FOR NORMAL POLES





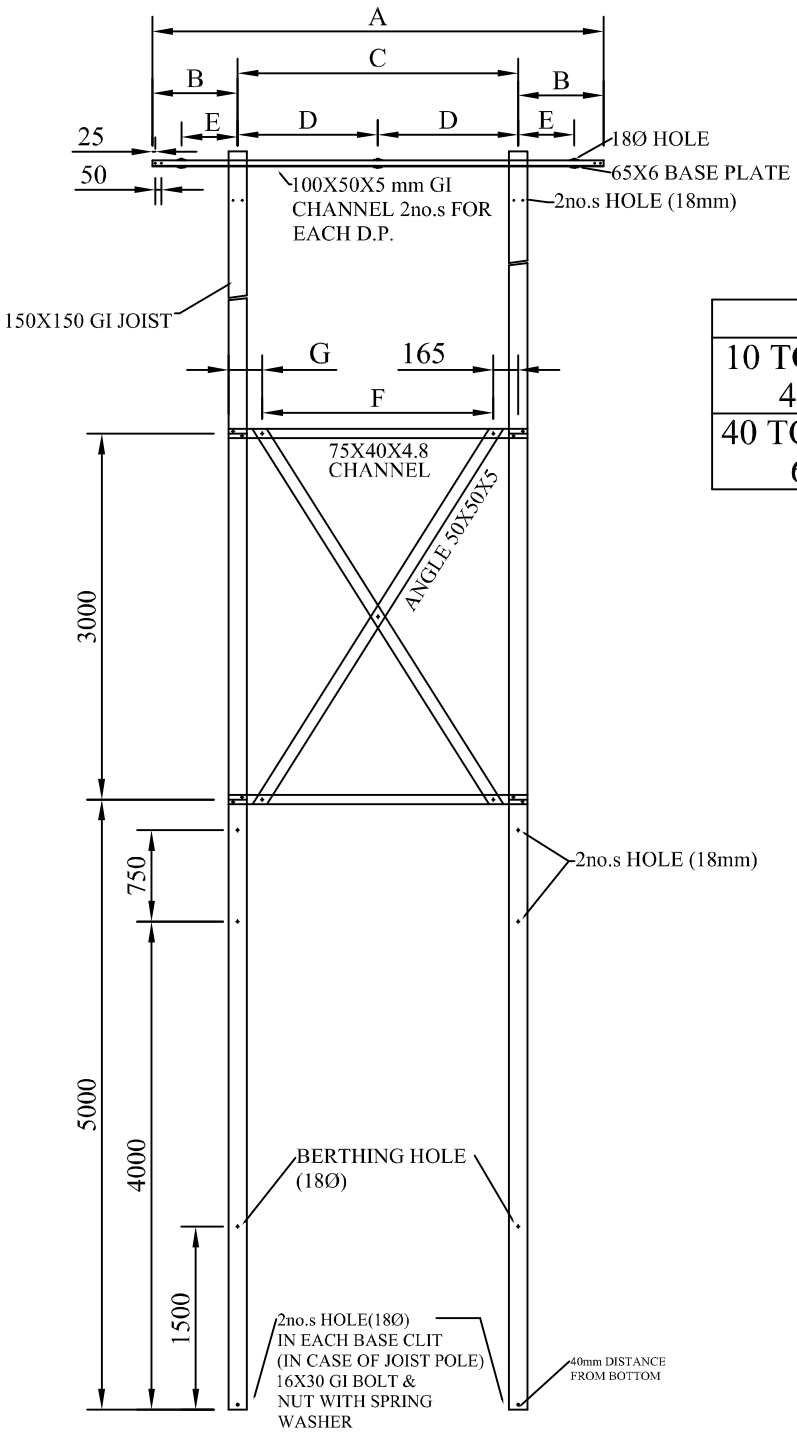
POLE PIT TO BE EXCAVATED

NOTE:

1.MS ANGLE, Fully welded with joist or bolted (with 30mm length M16 bolt with spring washer) 2nos for each cleat = 0.35X(3.8kg/mtr)=1.33kg

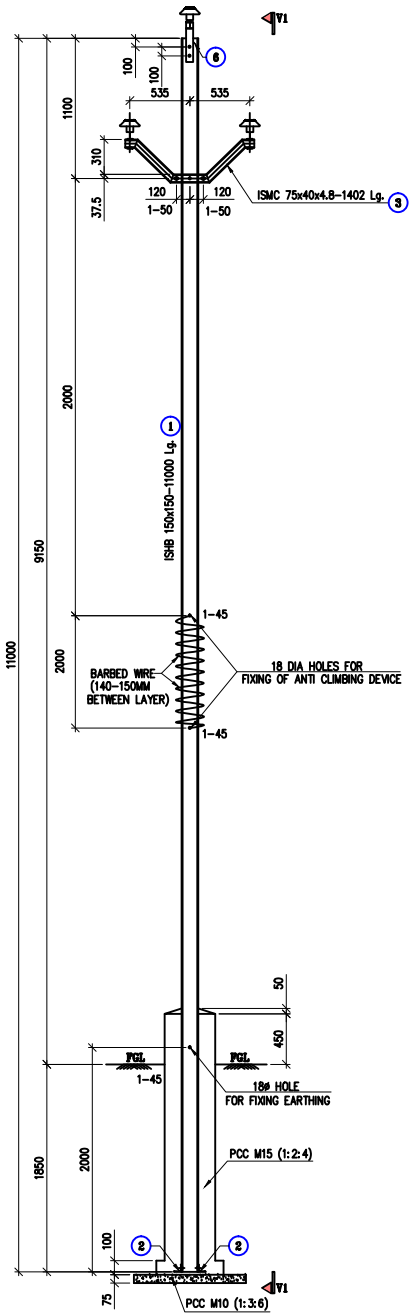
2. A 'X" WILL VARY DEPENDING UPON THE LENGTH OF THE POLE.
   B) ALL OTHER IMENSIONS WILL REMAIN AS IT IS.
   C) RODS HAS TO BE PROVIDED IN ANGLE LOCATION MORE THEN 10 degree.
   D) X = (1/6)* LENGTH OF POLE

DP STRUCTURE FOR 11/33kv(PSC & JOIST)

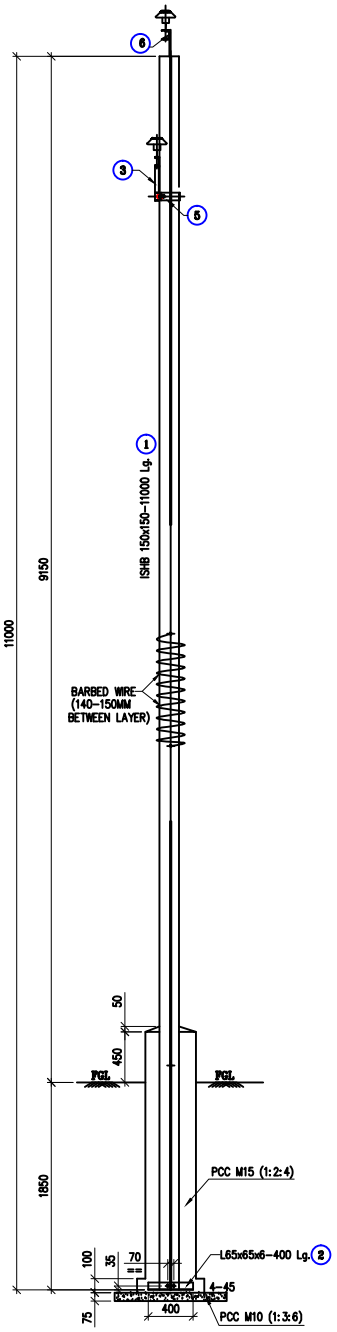


	A	B	C	D	E	F	G
10 TO 40	3700		2300		460		240
		700		1150		1970	
40 TO 60	4200		2500		600		240
		850		1250			

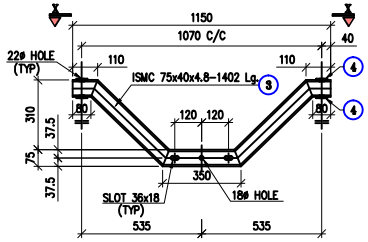
CESU CAPEX



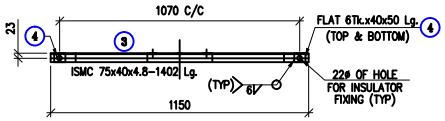
11kV V-CROSS ARM FOR RS 'H' JOIST



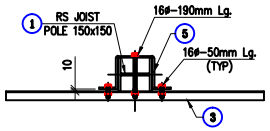
VIEW V1-V1



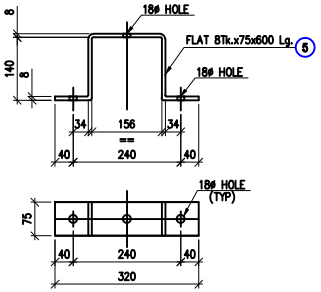
DETAILS OF X-ARM



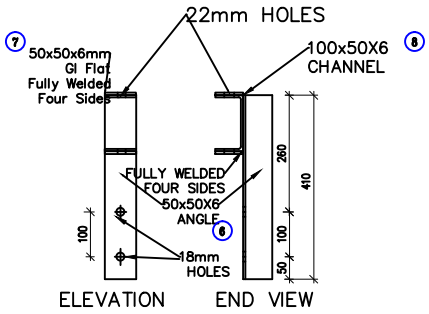
VIEW X-X



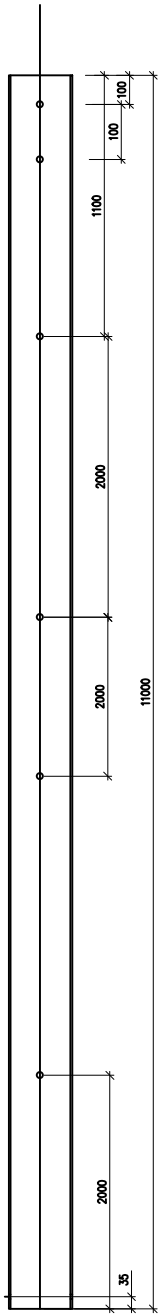
BACK CLAMPS & CROSS ARM ASSEMBLY



DETAILS OF CLAMP



POLE TOP BRACKET



LEGENDS:-

FGL – FINISHED GROUND LEVEL
TYP. – TYPICAL

NOTES:-

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE SPECIFIED.
2. ALL WELDS ARE 6MM FILLET CONTINUOUS WELD UNLESS OTHERWISE SPECIFIED.
4. SPRING WASHER SHALL CONFORM TO IS-3063.
5. ALL BOLTS NUTS AND LOCK NUTS SHALL CONFORM TO REQUIREMENTS OF INDIAN STANDARD SPECIFICATION IS : 1363/1367 (LATEST REVISION)
6. ALL PLAN WASHERS SHOULD CONFORM TO IS 2016.
7. ALL STRUCTURAL STEEL SHALL BE OF MILD STEEL GRADE E250A AS PER IS 2062:2006 SHALL BE USED.
8. ALL STRUCTURAL STEEL SHALL BE HOT DIP GALVANIZED WITH MIN. COATING OF 610 g/Sq.m & FOR SURFACE WITCH SHALL BE EMBEDDED IN CONCRETE THE ZINC COATING SHALL BE MIN. 800 g/Sq.m AS PER TECH. SPEC., & IS:4759 & IS:2633.
9. FASTENING BOLTS & NUTS SHALL BE GALVANIZED AS PER TECHNICAL SPECIFICATION.
10. ALL SPRING WASHERS SHALL BE ELECTRO GALVANIZED AS PER TECHNICAL SPECIFICATION.
11. PLAIN WASHERS SHALL BE HOT DIP GALVANIZED AS PER TECHNICAL SPECIFICATION.
12. ALL BOLT HOLES ARE 18mm FOR M16 BOLTS UNLESS NOTED OTHERWISE.

BILL OF QUANTITY PER STRUCTURE

Erection No.	Size/ Description	Length (mm)	QTY (No off)	Section wt/m	Weight/ Piece	Total Weight (Kg)
1	ISHB 150x150	11000	1	34.60	380.60	380.60
2	L65x65x6	400	2	5.80	2.32	4.64
3	ISMC 75x40x4.8	1420	1	7.14	10.13	10.13
4	50x6 THK. FLAT	50	4	2.355	0.1177	0.471
5	75x8 THK. FLAT	600	1	4.71	2.83	2.83
6	ISMC 50x50x6	410	1	4.5	1.845	1.845
7	50x6 THK. FLAT	50	2	2.355	0.1177	0.235
8	ISMC 100x50x6	50	1	9.56	0.478	0.478

11.0M 150x150 RS JOIST POLE LINE POLE WITH V CROSS ARM AND TOP BRACKET

DWG: PHIROJ