

LEGEND:-

Block-1 (450 MW)

Block-2 (450 MW)

Block-3 (300 MW)

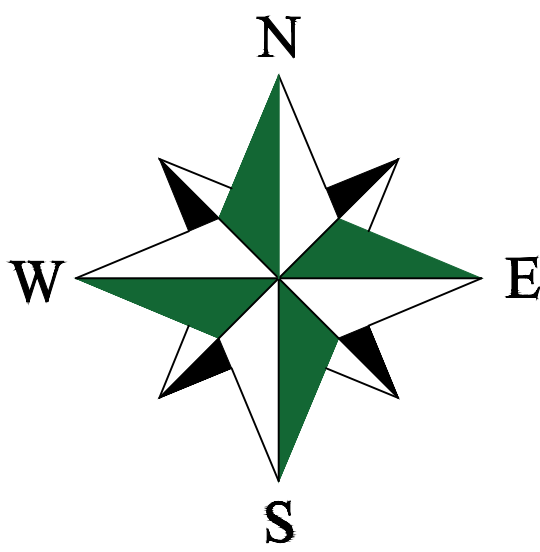
Existing Roads & Roads to be constructed by Land Vendor

Streams (will be retained as it is)

Highway

Excluded Land

Temple (will be retained as it is)



Notes for EPC Bidders :

- PSS locations is tentative and may change slightly.
- Bidders are advised to visit site location and appraise themselves with ground issues before bidding to avoid any gap in understanding.
- Land boundary shown is tentative. There may be Minor changes in the layout without effecting the total quantum of land and other technical considerations.
- Certain land parcels from the indicated overall layout may be excluded at a later stage.
- Further some existing roads/village roads may be required to be retained, accordingly same may be excluded from project layout at a later stage. However, land equivalent to a minimum of 4.75 Acres per MW of the awarded capacity shall be made available to the BOS Contractor for execution of the project.

Note w.r.t Interface of Fencing

- Fencing around Main Boundary of overall 900MW+300MW Solar Park and the fencing required to isolate the local routes/roads / unaquired land parcels passing inside the Project Boundary is in Land Vendor Scope. However, the same shall not be considered a pre-requisite for solar project construction. Bidder to take necessary measures like temporary fencing, guards, etc. for security and safety of their respective block at their own expenses.

- General
  - The tender drawings shall be read in conjunction with the provision of Technical Specifications.
  - The details show in drawing are suggestive and for tender purpose only.
  - Leveling of land, if applicable would be done in parallel and would not be considered as obstruction to progress w.r.t Engg. Design, procurement and construction at site (where land is already in order).
  - The Boundary demarcation is for reference purpose only however the actual boundaries may have slight variation.
- Reference Data for Project Site
  - Bidder shall conduct the topographical survey (optional) and Geo-technical investigation to finalize the Layout as per the actual topography & Geo-technical Data.
  - Layout of Internal Roads will be finalized during detailed Engineering. Approach road available to site is marked in the layout.
  - The land provided will be free from encumbrance. However, localized leveling will have to be done by bidder if required.
- Site Specific Considerations
  - All Temporary facilities for project development during construction including any approach road construction, security, etc. is in Bidder Scope.
  - All Internal Road & drains are deemed to be in Scope of Work of respective bidder.
  - All arrangements as necessary to take up the project construction work, are in bidder's scope as per provisions of Tender Documents.
  - Water and Construction power are under the scope of Bidder and hence are to be considered by bidder for the given projects, as per their respective requirements, while planning for the project site activities.
  - Excluded land will be provided with access passage as marked (Tentative) and fencing by Owner (through Land Contract) which will take place in parallel and would be completed before commissioning. However, during construction of project, any safety / protection of Owner's as well as Bidders' property / equipment / offices etc. would be Bidder's own responsibility.

FOR TENDER PURPOSE ONLY

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NTPC Renewable Energy Ltd  
(A GOVERNMENT OF INDIA ENTERPRISE)  
(ENGINEERING DIVISION)

PROJECT NAME: BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH

DRAWING NAME: Vicinity Map and Block Layout

PREPARED BY	CHECKED BY		APPROVED BY	DATE	SIZE	SCALE	DRG. NO.	
PK	CIVIL	ELE.	RRM	16.04.2026	A0	NTS	5802-004(EPC)-POC-A-001	R0
	AP	RR						

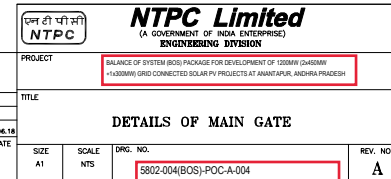
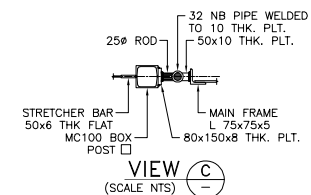
Minor adjustment in land boundary across 450MW blocks, to accommodate the overall array layout would be permitted subject to mutual agreement and approvals, if required.

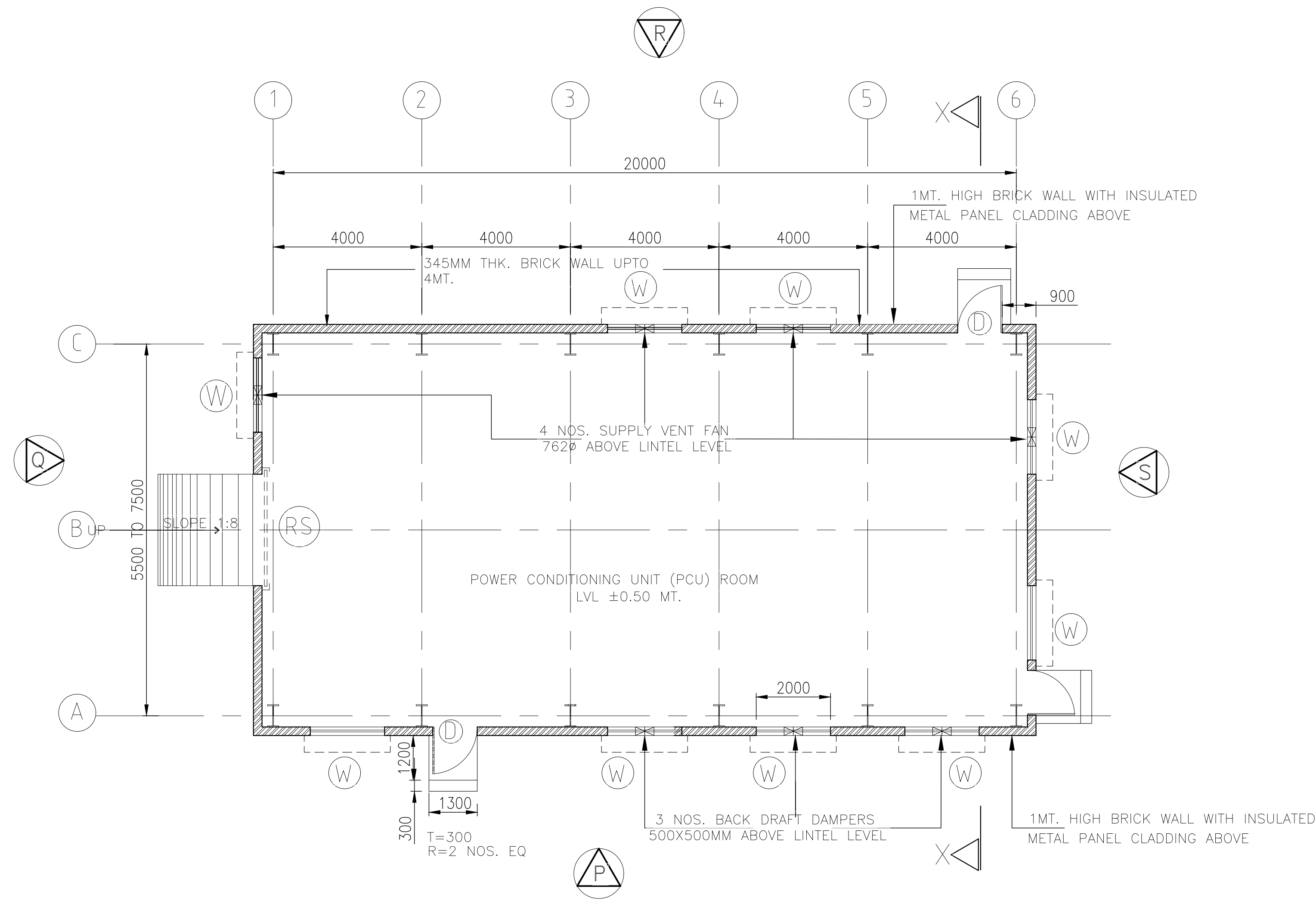
\*Coordinates are subject to minor variations pending precise ground assessment, reflecting technical adjustments based on actual field conditions.



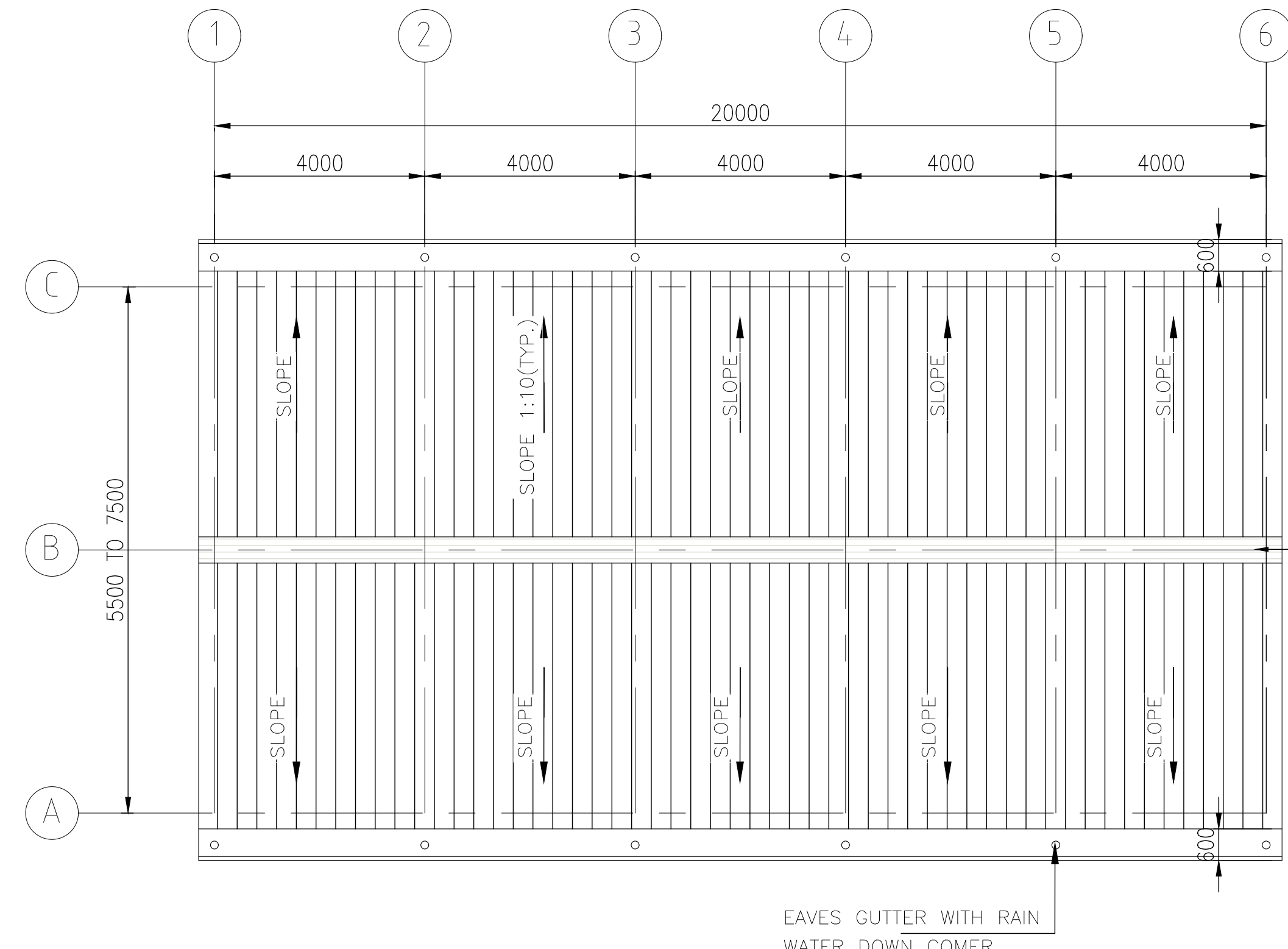
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PLAN AT ± 0.0 MTS. LVL.



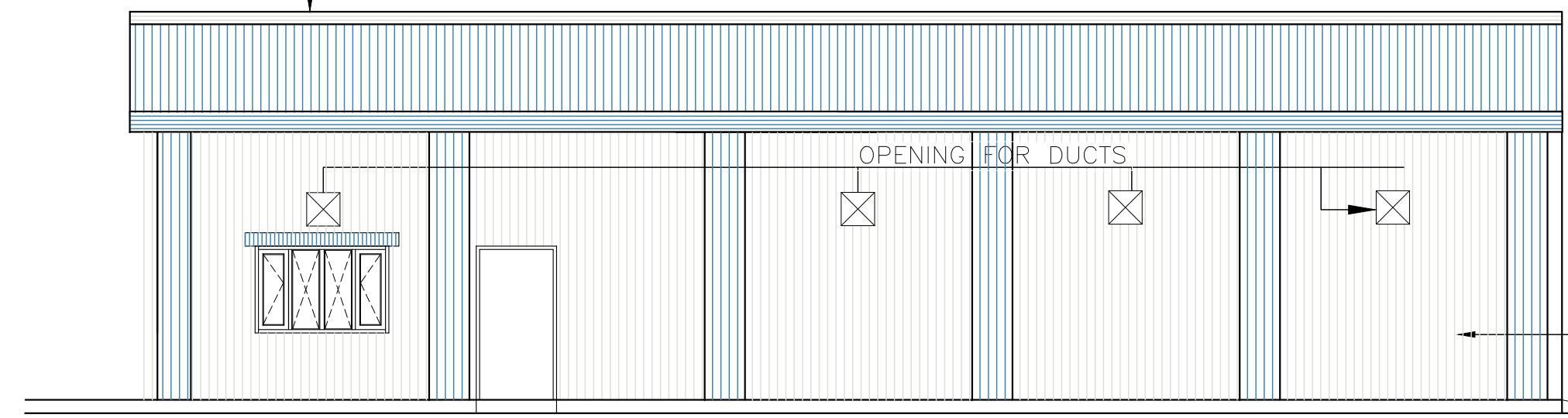
ROOF PLAN

INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002

RIDGE FINISHED WITH INSULATED DOUBLE SKIN METAL PANEL SHEETING AS/SPEC. WITH RAL 9002 COLOUR SHADE ON OUTSIDE & INSIDE FACE

EAVES GUTTER WITH RAIN WATER DOWN COVER

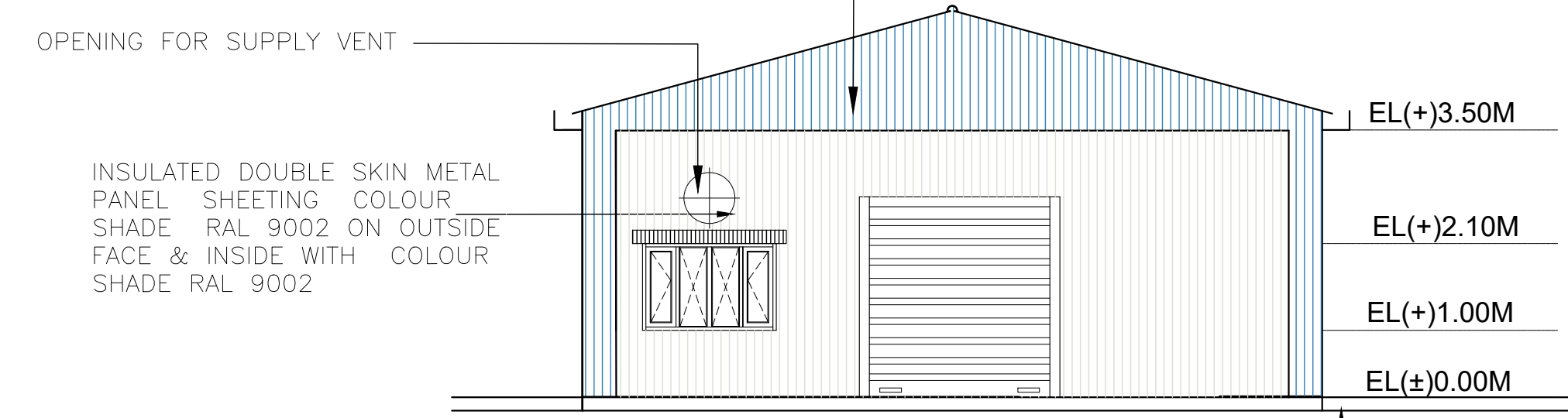
RIDGE FINISHED WITH INSULATED DOUBLE SKIN METAL PANEL SHEETING AS/SPEC. WITH RAL 9002 COLOUR SHADE ON OUTSIDE & INSIDE FACE



ELEVATION AT P

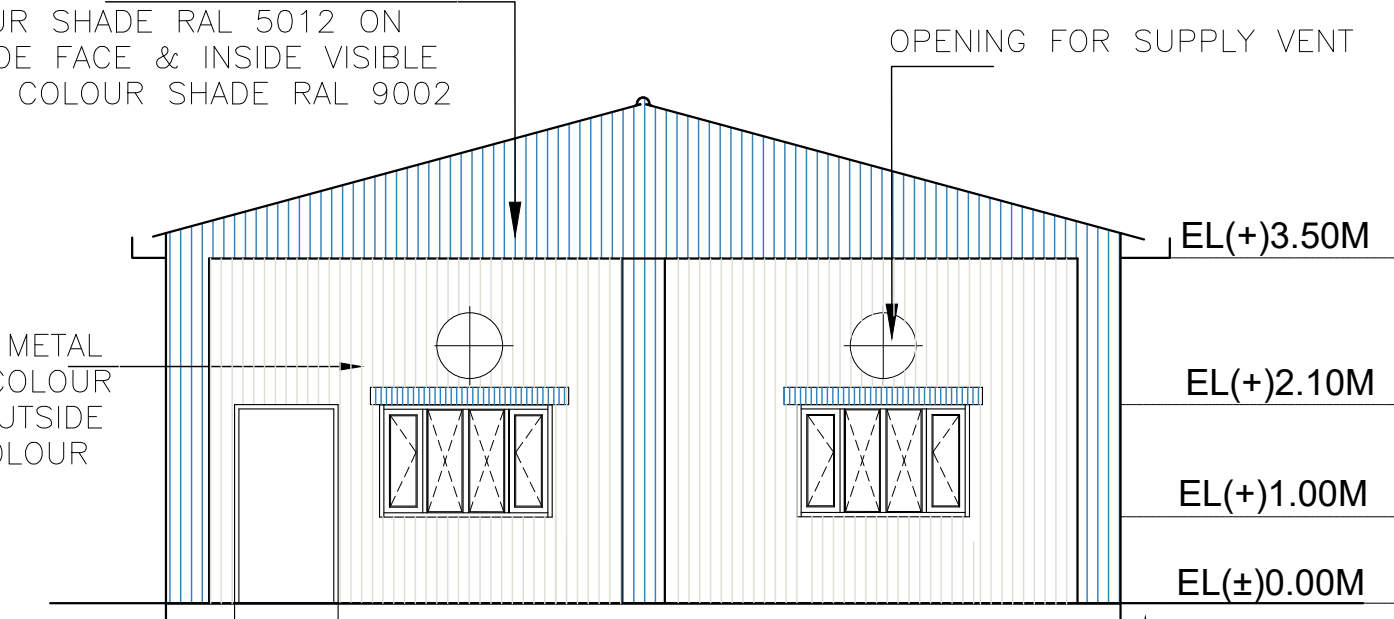
INSULATED DOUBLE SKIN METAL PANEL SHEETING COLOUR SHADE RAL 9002 ON OUTSIDE FACE & INSIDE WITH COLOUR SHADE RAL 9002

INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002



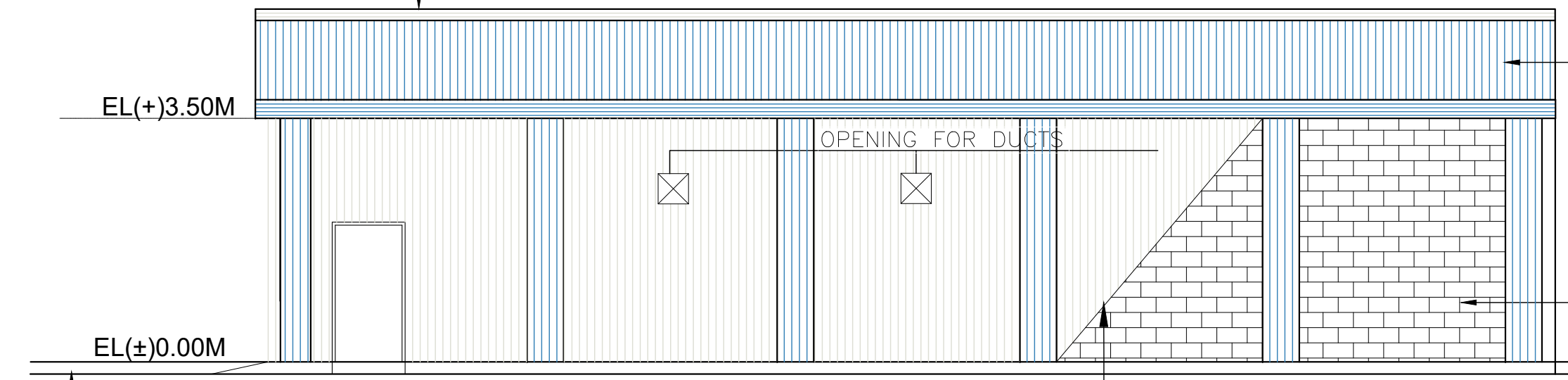
ELEVATION AT Q

INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002



ELEVATION AT S

RIDGE FINISHED WITH INSULATED DOUBLE SKIN METAL PANEL SHEETING AS/SPEC. WITH RAL 9002 COLOUR SHADE ON OUTSIDE & INSIDE FACE



ELEVATION AT R

INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002

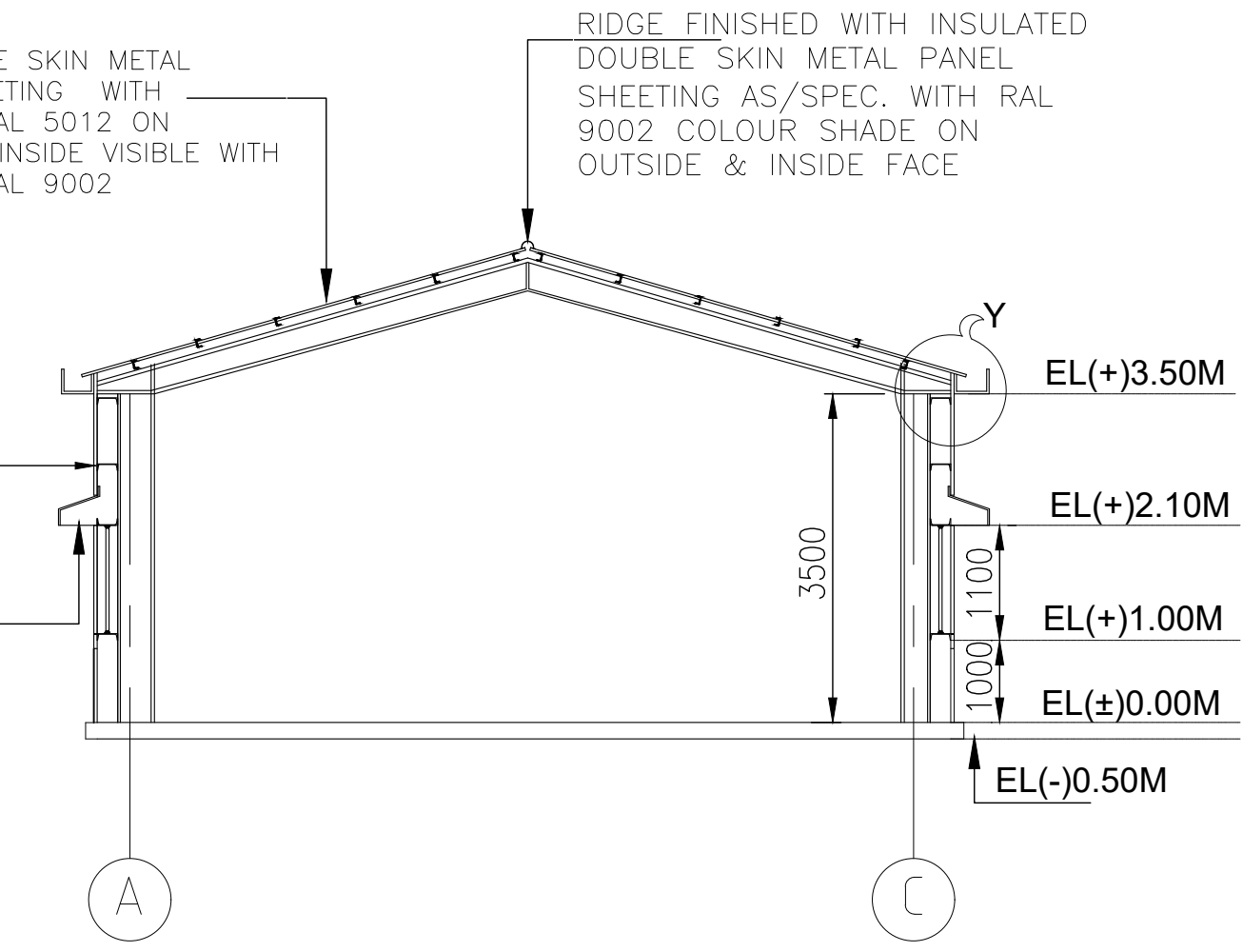
INSULATED DOUBLE SKIN METAL PANEL SHEETING COLOUR SHADE RAL 9002 ON OUTSIDE FACE & INSIDE WITH COLOUR SHADE RAL 9002

INSULATED DOUBLE SKIN METAL PANEL SHEETING OR FIRE WALL AS/SPEC.

INSULATED DOUBLE SKIN METAL PANEL ROOF SHEETING WITH COLOUR SHADE RAL 5012 ON OUTSIDE FACE & INSIDE VISIBLE WITH COLOUR SHADE RAL 9002

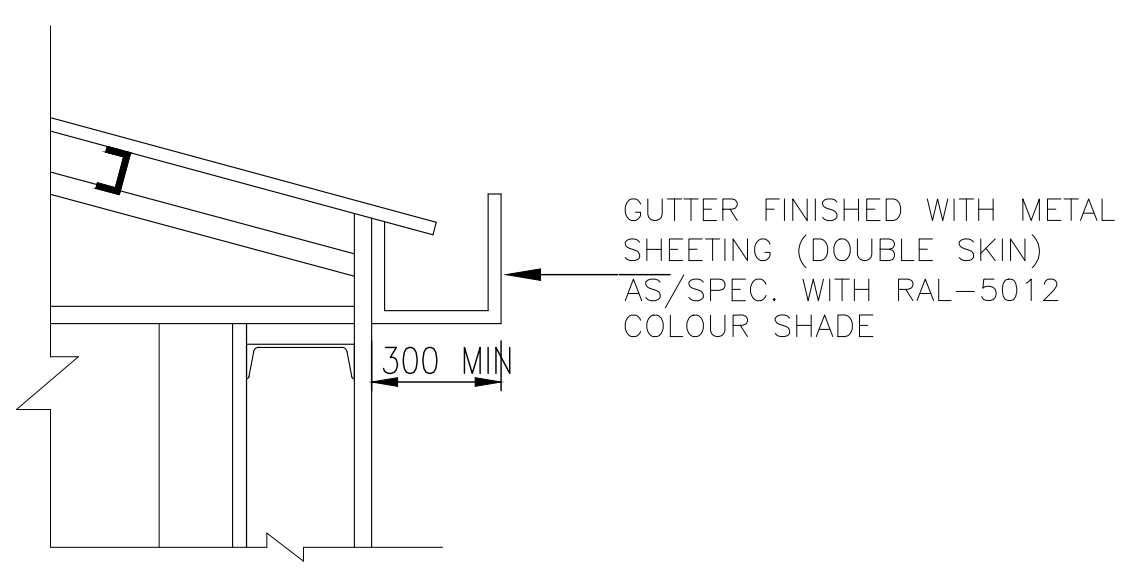
INSULATED DOUBLE SKIN METAL PANEL SHEETING COLOUR SHADE RAL 9002 ON OUTSIDE FACE & INSIDE WITH COLOUR SHADE RAL 9002

450MM WIDE SUNSHADE IN METAL SHEET(TYP.)



SECTION AT X-X

DOOR/ROLLING SHUTTER/WINDOWS/VENTS/DUCTS				
TYPE	SIZE	CILL LVL.	LINTEL LVL.	DESCRIPTION
D	1200X2100	0.00	2.100	
RS	REFER NOTE 5 & 6	0.00	H	
WINDOWS VENTILATORS DUCTS	REFER NOTE 5 AND 6.			



DETAIL AT Y

NOTES:-

- ALL DIMENSIONS ARE IN MM & LEVELS ARE IN METERS.
- DRAWING SHALL NOT BE SCALED ONLY WRITTEN DIMENSIONS SHALL BE FOLLOWED.
- ANY DOUBT OR DISCREPANCY IN THE DRAWING SHALL BE BROUGHT TO THE NOTICE OF THE ENGINEER-IN-CHARGE BEFORE EXECUTING THE WORK.
- WORK SHALL BE CARRIED OUT BASED ON DETAIL WORKING DRAWINGS TO BE PREPARED BY THE VENDOR & GOT APPROVED FROM NTPC, BEFORE EXECUTION.
- OPENING FOR ROLLING SHUTTER, DUCTS AND VENTILATOR'S SHALL BE AS PER INVERTER (PCU) MANUFACTURER RECOMMENDATIONS AND VENDOR DESIGN SUBJECT ON NTPC APPROVAL.
- LOCATIONS OF DOOR, ROLLING SHUTTER, WINDOWS, VENTS & DUCTS ARE INDICATIVE ONLY. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION OF PEB ROOM.
- REFER TECHNICAL SPECIFICATION FOR PEB-INVERTER ROOM IN CIVIL WORKS.

FOR TENDER PURPOSE ONLY



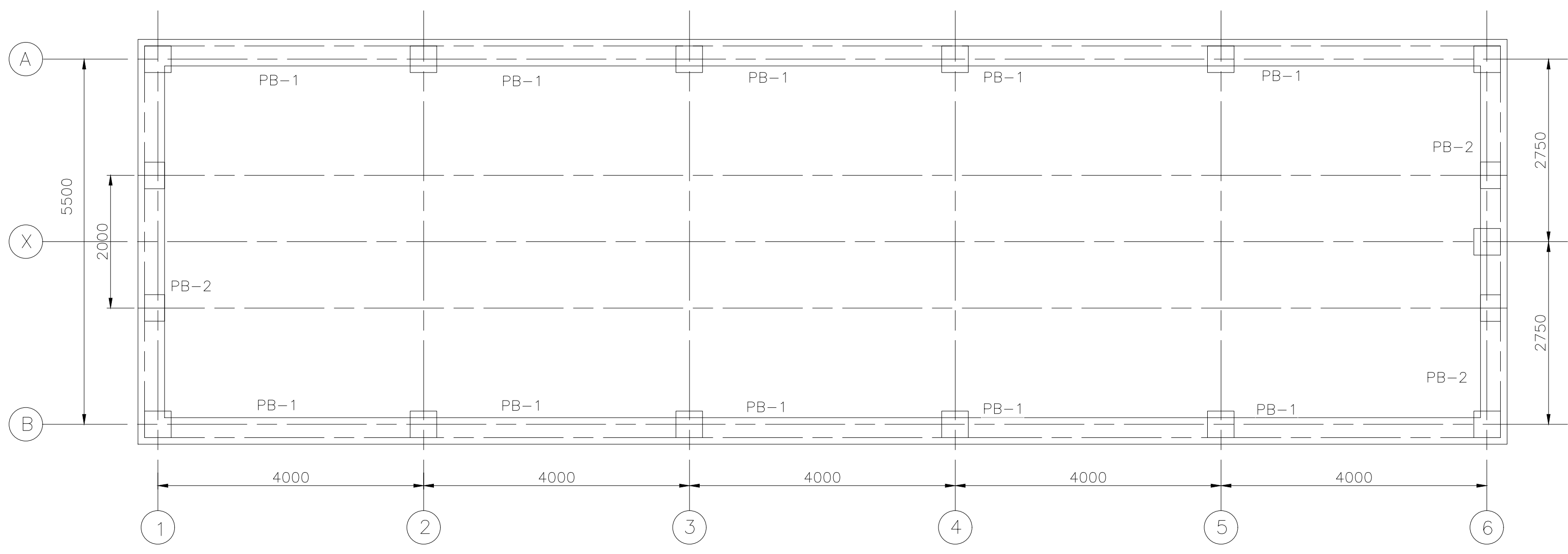
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NTPC Renewable Energy Limited  
(A wholly Owned Subsidiary of NTPC Limited)

PROJECT **BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH**

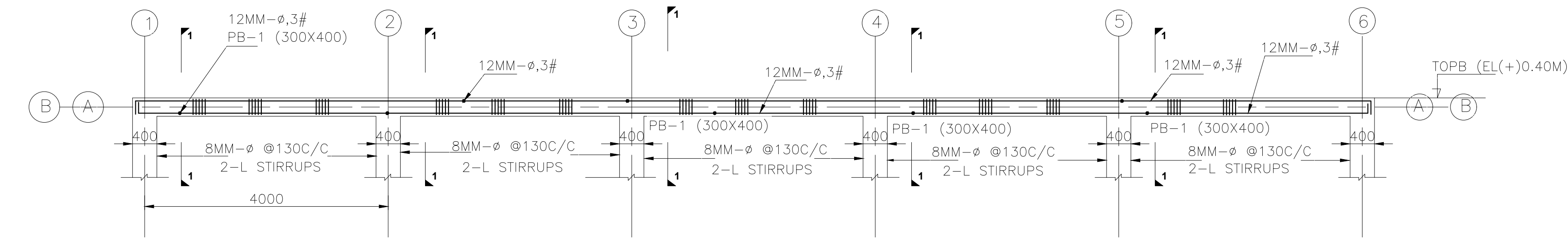
TITLE **PEB INVERTOR ROOM**

PREPARED BY	CHECKED BY	APPROVED BY	DATE	SIZE	SCALE	DRG. NO.	REV. NO.
RAM	SG AT	RR MAURYA	03.05.2022	AO	NTS	5802-004(BOS)-POC-A-005	RA

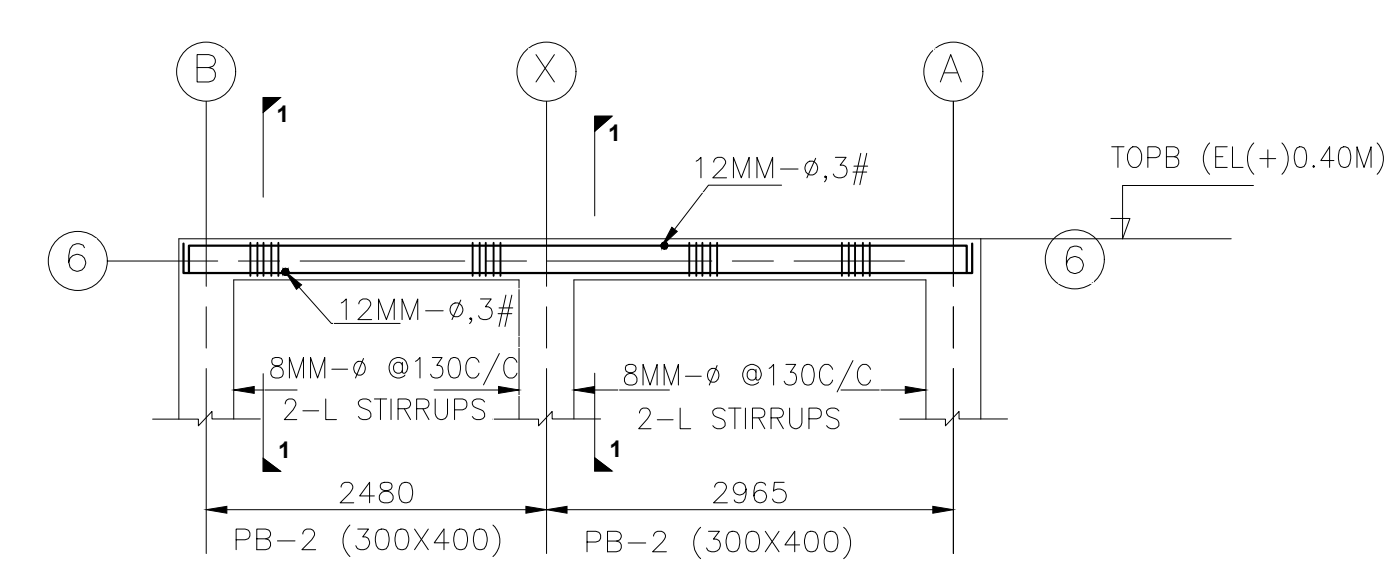
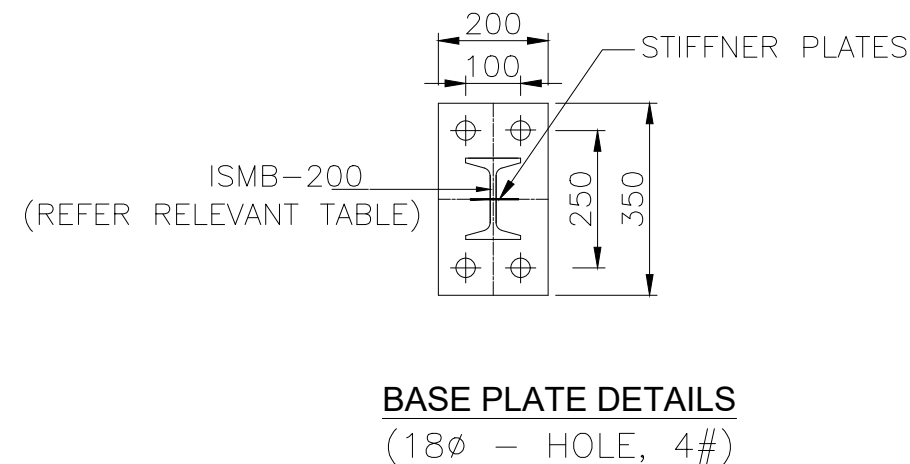
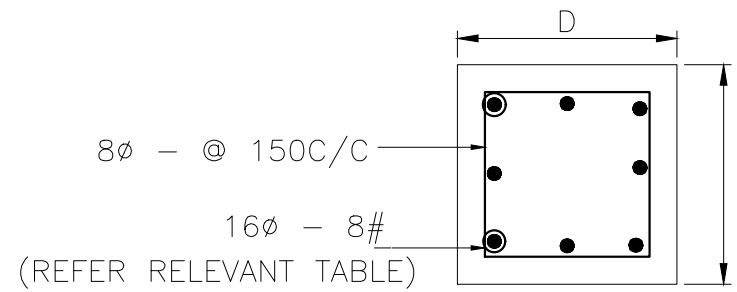
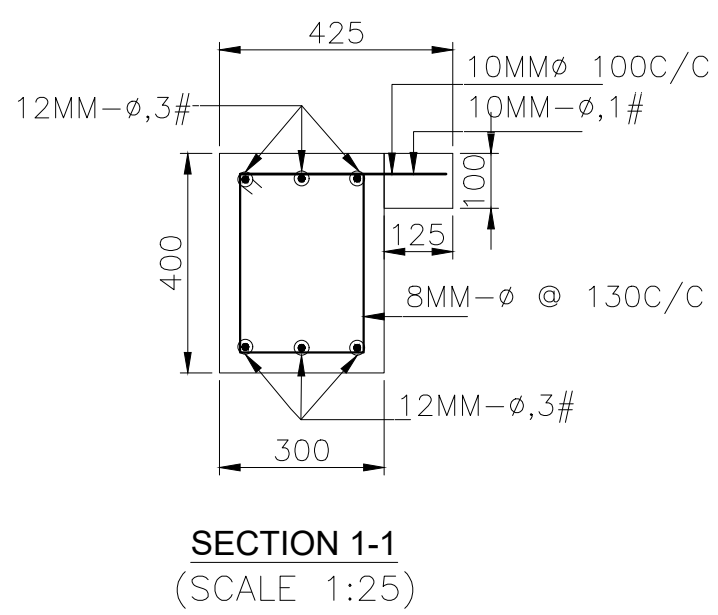
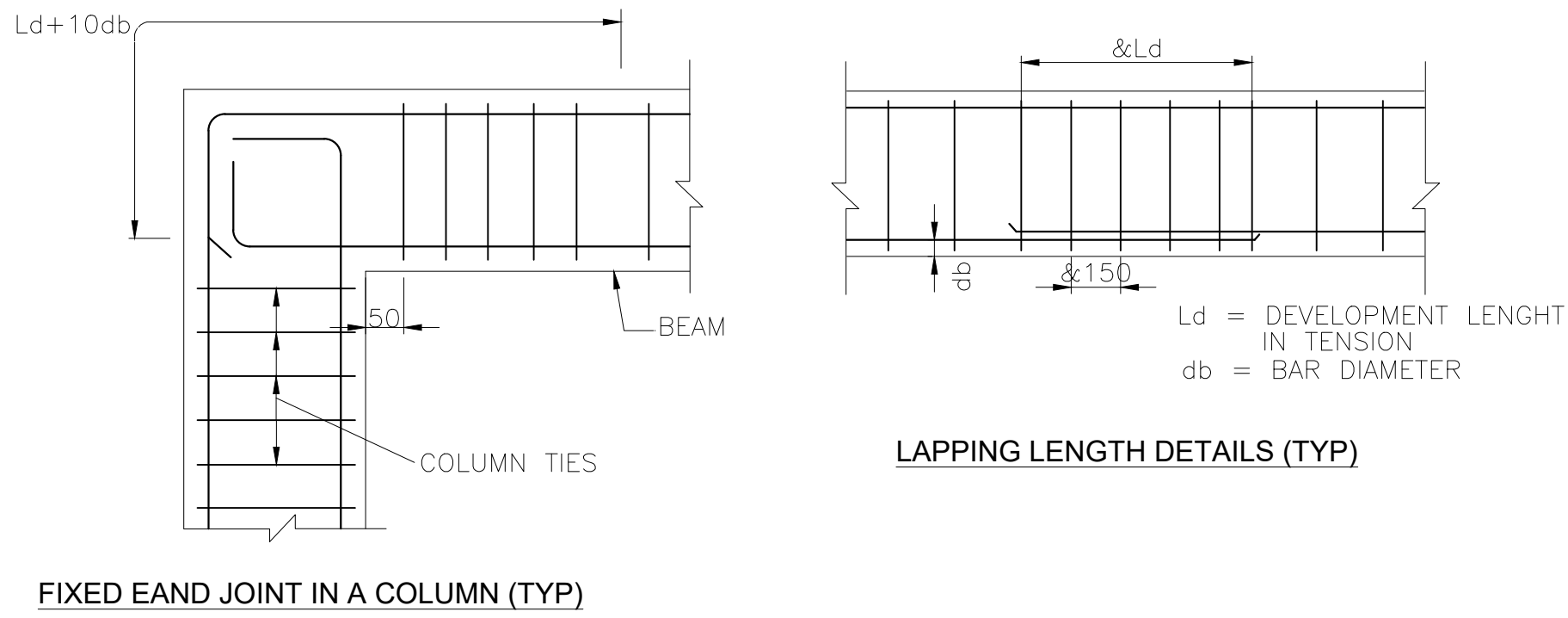




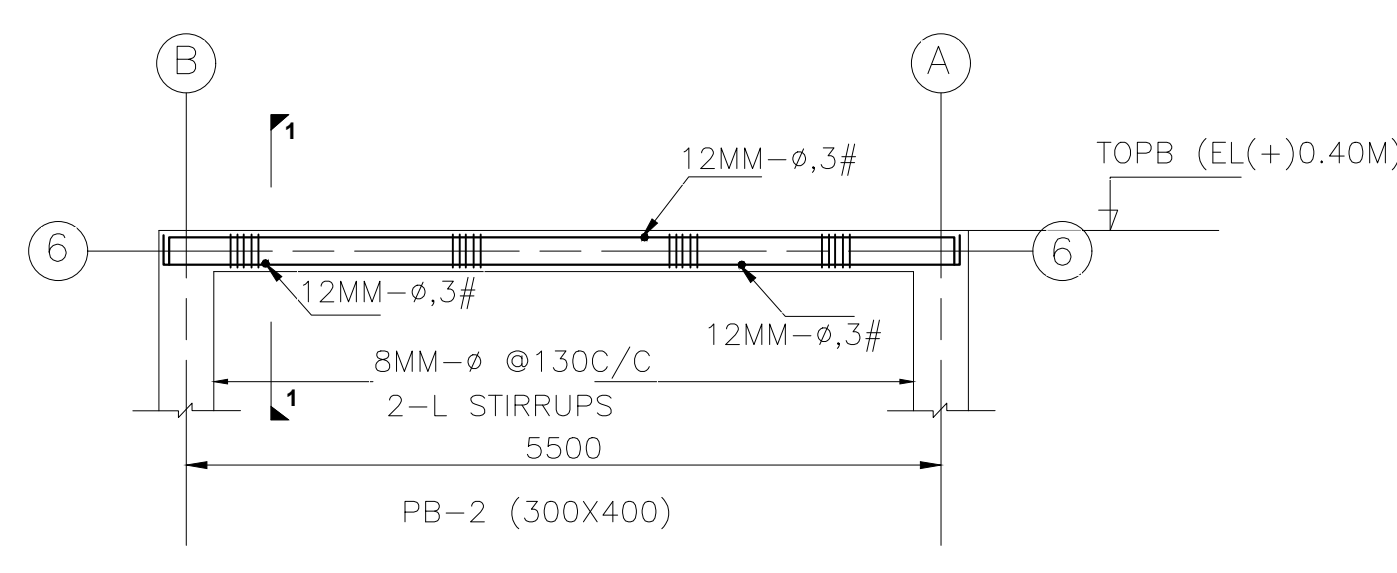
PLINTH BEAM PLAN AT ELEVATION +0.40M



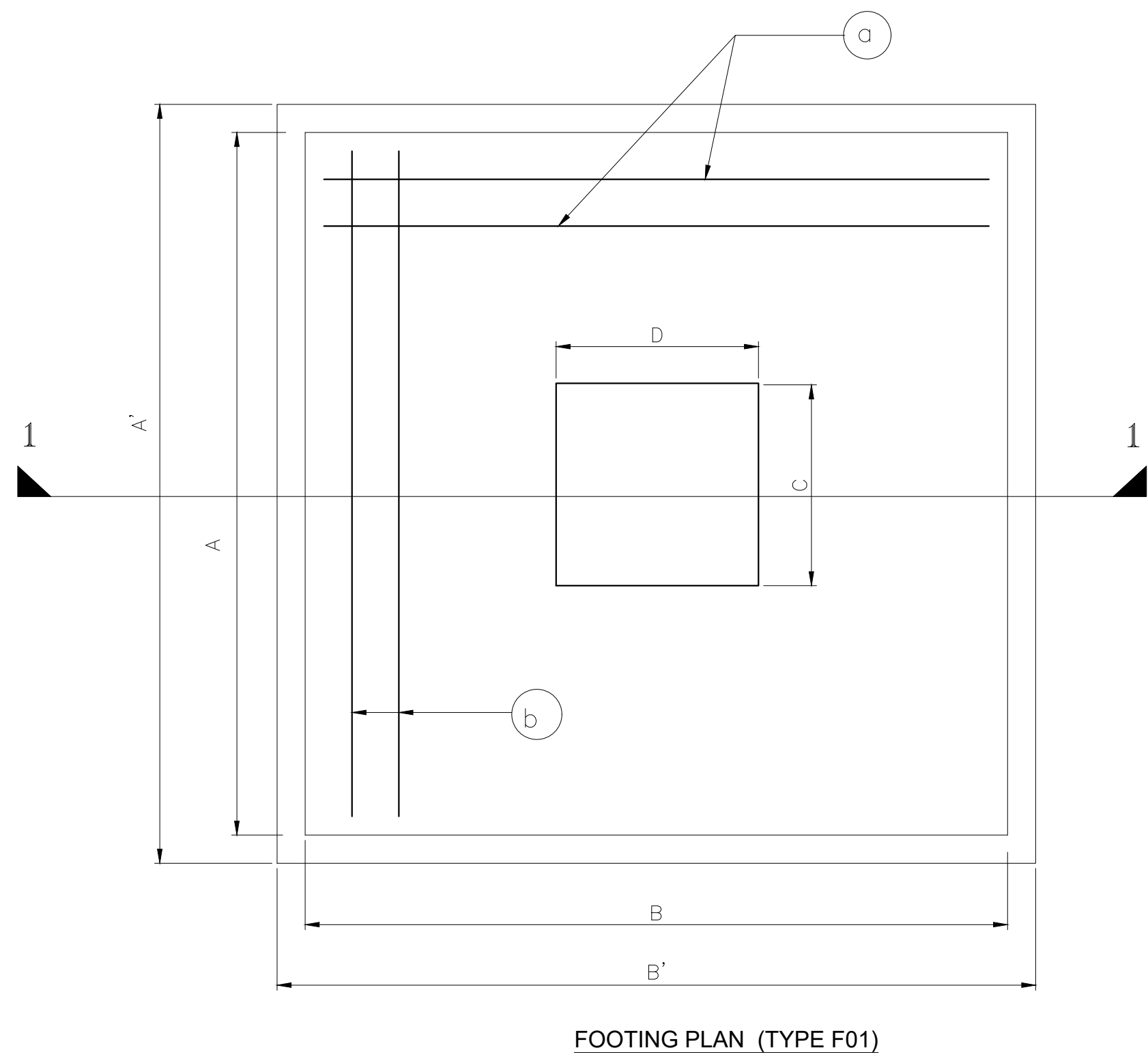
ALONG GRID A & B



PLINTH BEAM ALONG GRID-6



PLINTH BEAM ALONG GRID-1



FOOTING PLAN. (TYPE F01)

TABLE -2

SPAN (S)	COLOUMN / RAFTER	BASE PLATE SIZE	PEDESTAL SIZE	MAIN RAINFORCEMENT OF PEDESTAL
S = 5.5M	ISMB 200	350X200	400X400	16ø-8NOS
5.5M< S <=6.5M	ISMB 250	400X225	450X400	16ø-8NOS
6.5M< S <= 7.5M	ISMB 300	450X250	500X400	16ø-10NOS

TABLE -1, PART-A (FOR SPAN S=5.5M)

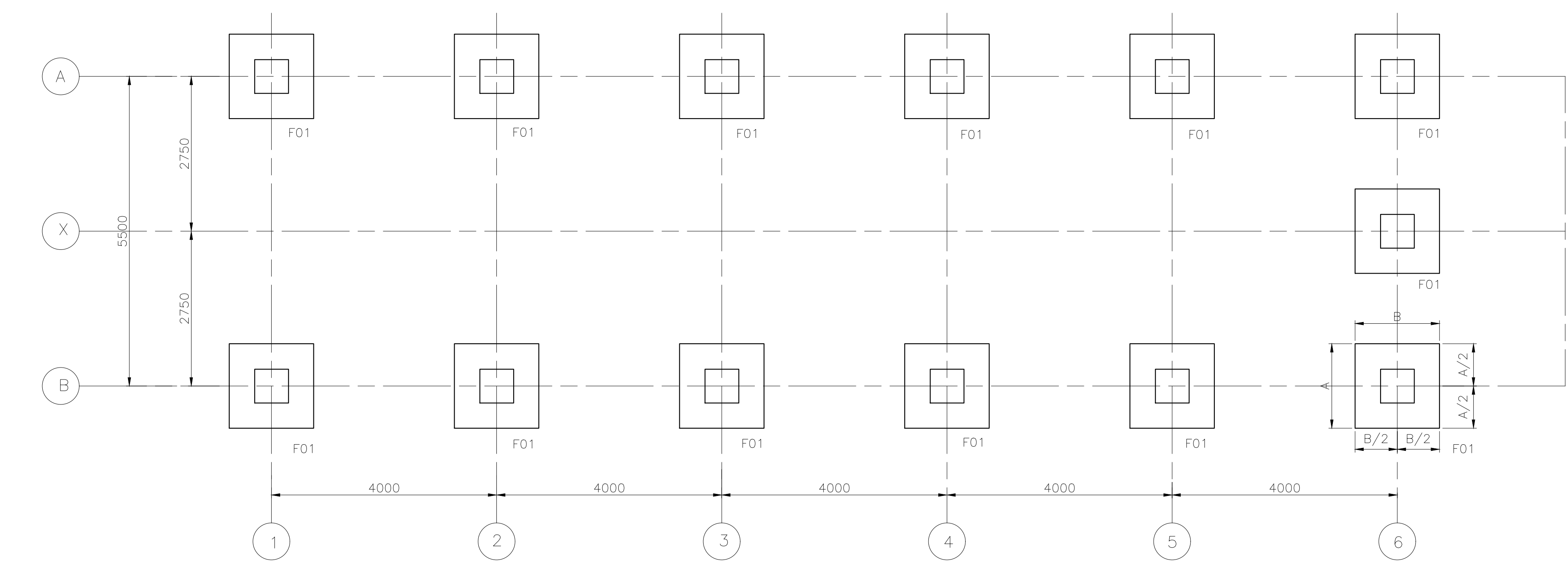
FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1400	1500	1400	1500	300	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	1800	1900	1800	1900	325	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2000	2100	2000	2100	350	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2200	2300	2200	2300	375	12ø - @200c/c	12ø - @200c/c

TABLE -1, PART-B (FOR 5.5M < SPAN <= 6.5M)

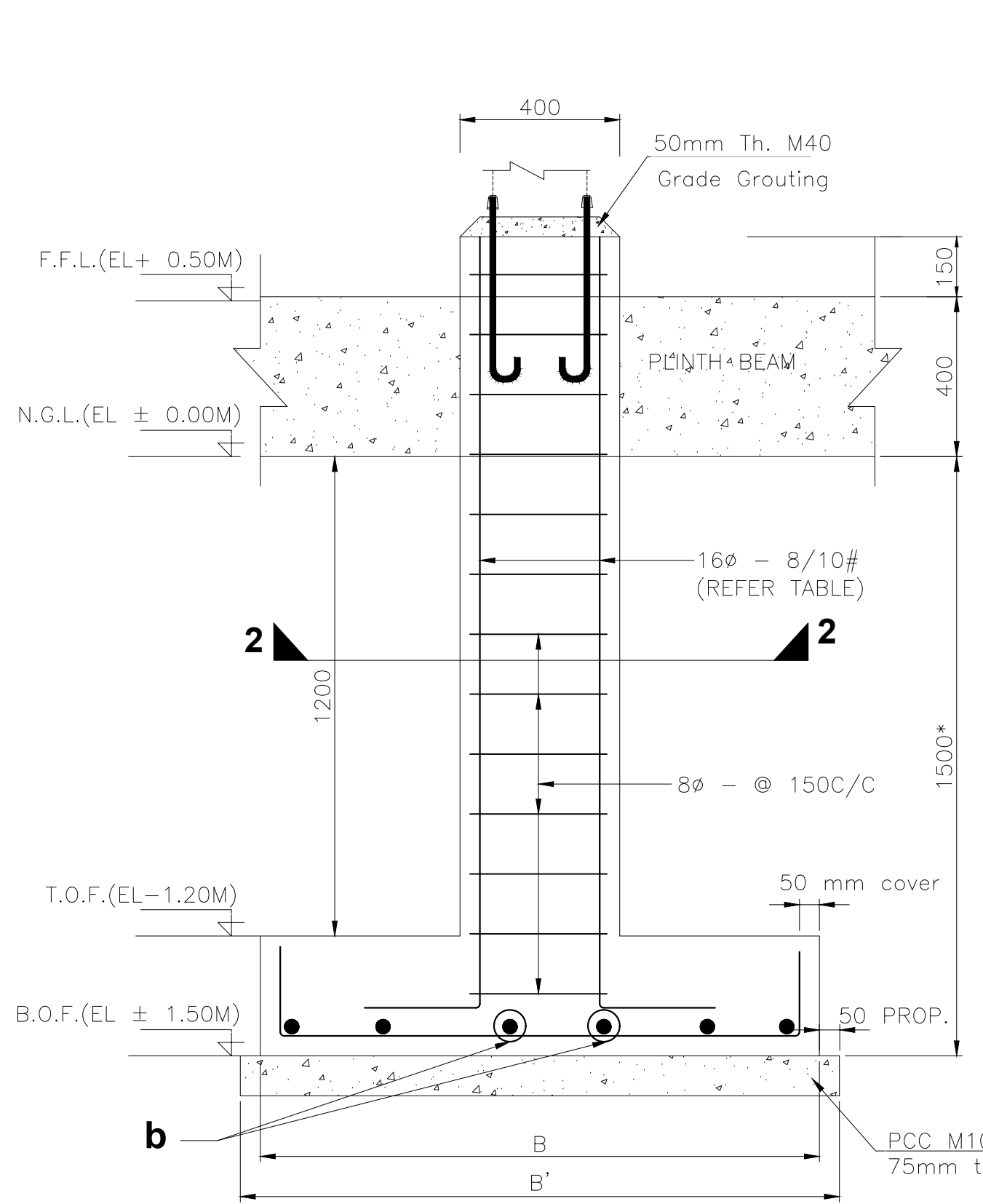
FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1500	1600	1500	1600	325	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	1900	2000	1900	2000	350	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2100	2200	2100	2200	375	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2300	2400	2300	2400	400	12ø - @200c/c	12ø - @200c/c

TABLE -1, PART-C (FOR 6.5M < SPAN <= 7.5M)

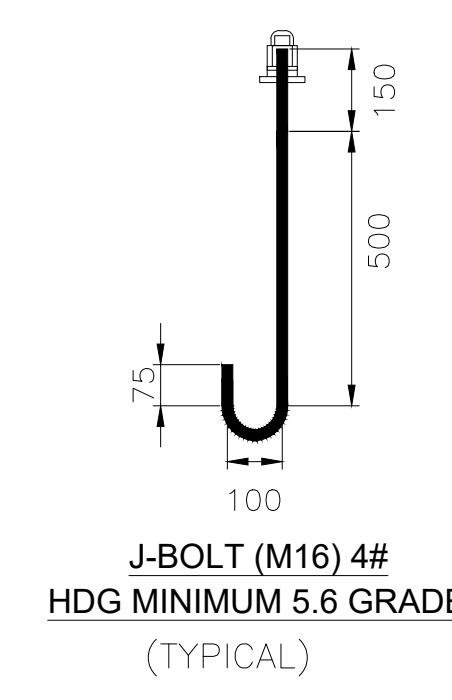
FOUNDATION REINFORCEMENT SCHEDULE									
S.NO.	SBC (IN T/SQM)	COLUMN	A	A'	B	B'	T	a	b
1	20 <= SBC	F01	1600	1700	1600	1700	350	12ø - @250c/c	12ø - @250c/c
2	10 <=SBC < 20	F01	2000	2100	2000	2100	375	12ø - @250c/c	12ø - @250c/c
3	7 <=SBC < 10	F01	2200	2300	2200	2300	400	12ø - @200c/c	12ø - @200c/c
4	5 = SBC < 7	F01	2400	2500	2400	2500	400	12ø - @200c/c	12ø - @200c/c



FOUNDATION FOR INVERTER ROOM  
AT EL. (- 1.20M )



SECTION 1-1  
FOUNDATION DETAILS



### NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- GRADE OF CONCRETE SHALL BE M-30 WITH 20mm DOWN GRADED AGGREGATES
- REINFORCEMENT SHALL BE OF HIGH YIELD STRENGTH DEFORMED BAR OF GRADE Fe500 CONFORMING TO IS:1786
- MIN CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS FOOTING - 50MM, COLUMN - 50MM, PLINTH BEAM-50MM, SLAB-20MM.
- LAP LENGTH SHALL BE 50D WHERE D IS THE DIA OF THE SMALLER BAR BEING LAPPED
- LAPPING OF BARS SHALL BE SUITABLY STAGGERED AND IN NO CASE MORE THAN 50% BARS SHALL BE LAPPED AT ANY SECTION.
- ALL HOOKS, BENDS, LAPS AND SPLICES SHALL BE AS PER RELEVANT IS CODE
- BIDDER MAY CHOOSE BUILDING SPAN (C/C) FROM 5.5M TO 7.5M. FOUNDATION DETAILS HAVE BEEN MENTIONED FOR DIFFERENT RANGES OF SAFE BEARING CAPACITY (SBC). FOUNDATION COLUMN PEDESTAL, BASE PLATE, REINFORCEMENT DETAILS. SIZES ETC. SHALL BE DECIDED BASED ON TABLE-1 & TABLE-2 CONSIDERING THE SBC AND C/C SPAN. IN CASE OF SBC LESS THEN 5 T/SQM, FOUNDATION SHALL BE DESIGN BY BIDDER CONSIDERING PROJECT SPECIFIC CONDITIONS AND SHALL BE SUBMITTED FOR NTPC APPROVAL.
- NO FOUNDATION SHALL BE LAID ON BACK FILLED SOIL.
- IF ROCK IS ENCOUNTERED AT SHALLOW DEPTH, THEN FOUNDATION MAY BE PLACED AT TOP OF ROCKY STRATA, HOWEVER IN NO CASE DEPTH OF FOUNDATION SHALL BE LESS THAN 1M. SBC SHALL BE DECIDED BY GEOTECHNICAL INVESTIGATION WORK CARRIED OUT BY CONTRACTOR AND APPROVAL BY NTPC IN GEOTECHNICAL INVESTIGATION REPORT.
- DRAWING SHALL NOT BE SCALED. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- PERIPHERAL GARLAND DRAIN SHALL BE MADE ALL AROUND THE PEB INVERTER ROOMS AND CONNECTED TO NEAR BY DRAINS.
- 750MM WIDE PLINTH PROTECTION WITH 100MM THK. PCC LAID OVER WELL COMPACTED 100MM DRY BRICK BALLAST ALL AROUND THE PEB ROOM IN LINE WITH TECHNICAL SPECIFICATION.
- THE FGL OF PEB ROOM SHALL BE MINIMUM 500MM ABOVE SURROUNDING NGL.
- ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED. THE THICKNESS OF GALVANIZATION SHALL BE IN LINE WITH IS4759. HOWEVER MINIMUM THICKNESS OF GALVANIZATION SHALL BE MAINTAINED AS 110 MICRON FOR ALL MEMBERS.
- BIDDER SHALL SUBMIT THE DETAILED FABRICATION DRAWING AND PUFF PANEL DETAILS (DEVELOPED BASED ON NTPC TENDER DRAWING AND TECHNICAL SPECIFICATION) FOR NTPC INFORMATION BEFORE START OF WORK. ALL WORKS SHALL BE EXECUTED IN LINE WITH APPROVED DRAWING'S.
- ALL BRACING'S LIKE BRC-1, BRC-2 SHALL BE CONTINUED IN EVERY ALTERNATE BAY IN CASE THE NO. OF BAYS ARE INCREASED. THE NO OF BAYS MAY BE REDUCED BASED ON BIDDER REQUIREMENT MAINTAINING THE BRACING IN EVERY ALTERNATE BAY. BIDDER SHALL ENSURE THAT THE BRACING IN BOTH THE DIAGONAL DIRECTIONS ARE PROVIDED IN PEB.
- THE OPENINGS SHOWN IN PEB ARE TENTATIVE VENDOR SHALL FINALIZE THE SAME DURING DETAILED ENGG. BASED ON NTPC APPROVAL. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION AND SUBMIT FOR NTPC APPROVAL BEFORE EXECUTION/MANUFACTURING.
- THE SIZES OF FOUNDATION MENTIONED IN TABLE-1 FOR DIFFERENT RANGES OF SBC ARE MINIMUM SIZE TO BE ADOPTED BY BIDDER.
- THE SIZES OF STRUCTURAL STEEL MEMBERS IN TABLE-2 ARE MINIMUM SIZES TO BE ADOPTED FOR DIFFERENT RANGES OF SPAN.

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PROJECT **BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH**

TITLE **PEB INVERTOR ROOM**

PREPARED BY	CHECKED BY	APPROVED BY	DATE	SIZE	SCALE	DRG. NO.	REV. NO.
RAM	CIVIL SG	ELE. AT	RR MAURYA	03.05.2022	AO	NTS	5802-004(BOS)-POC-A-005
							RA



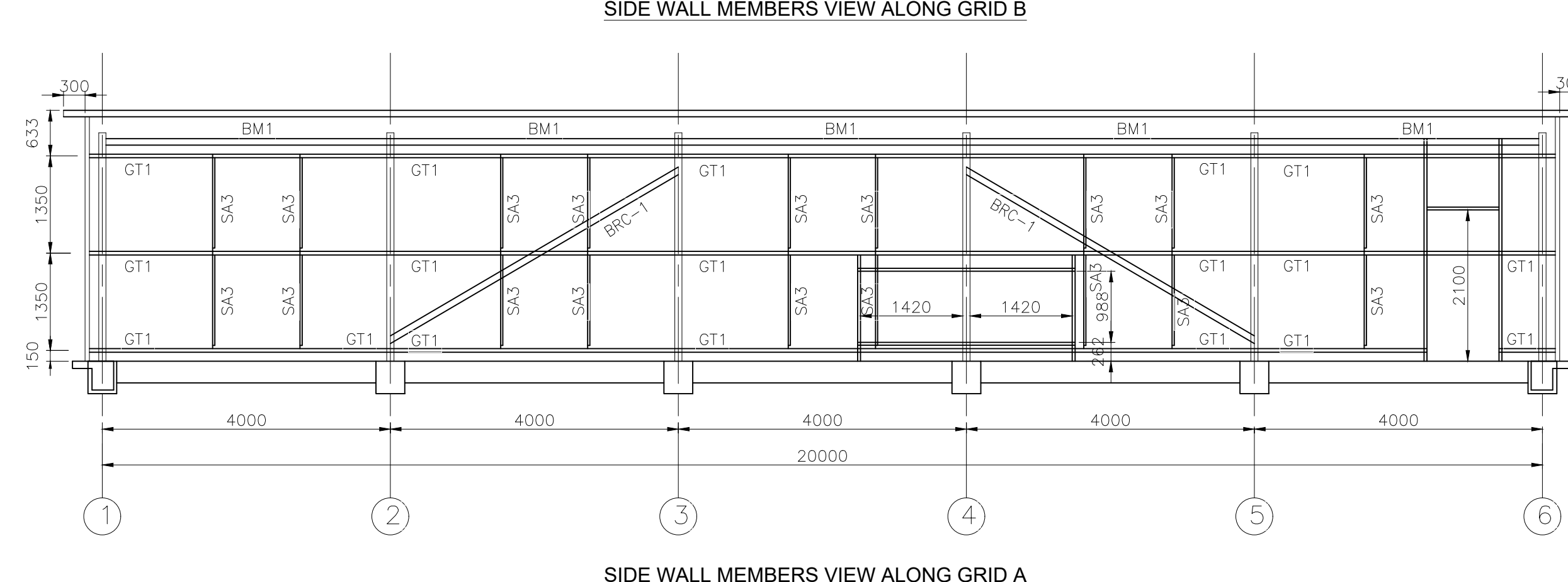
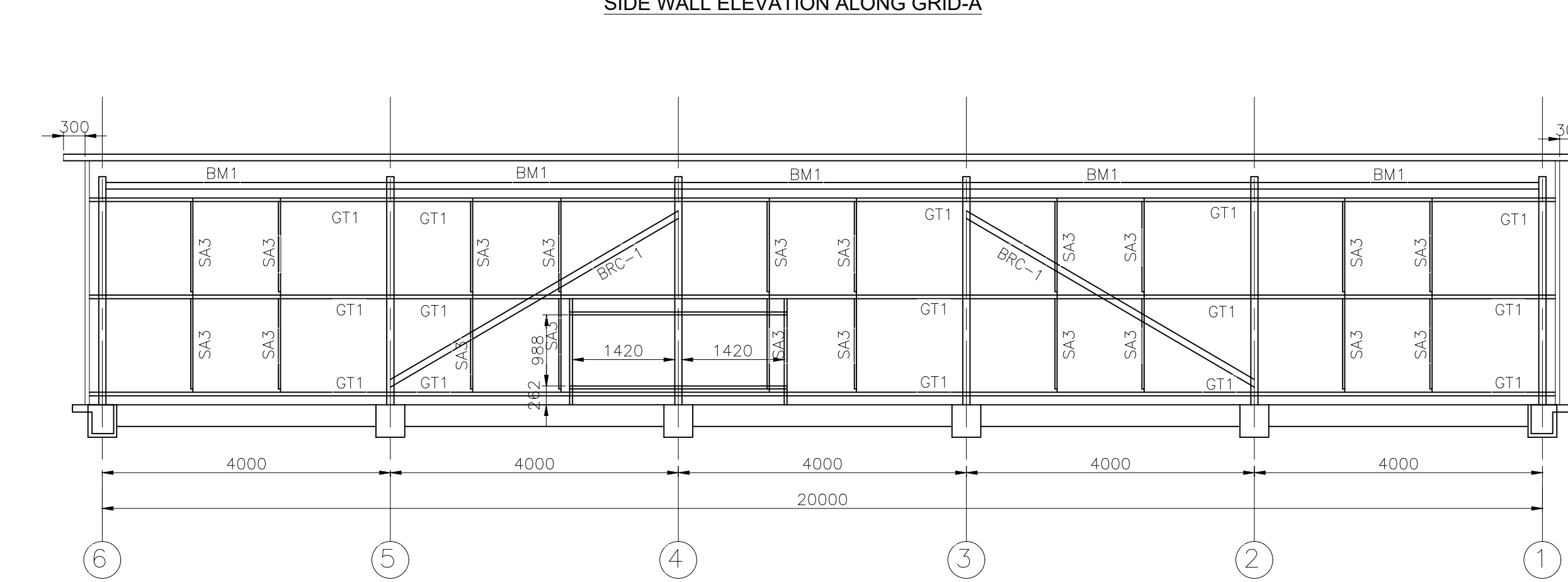
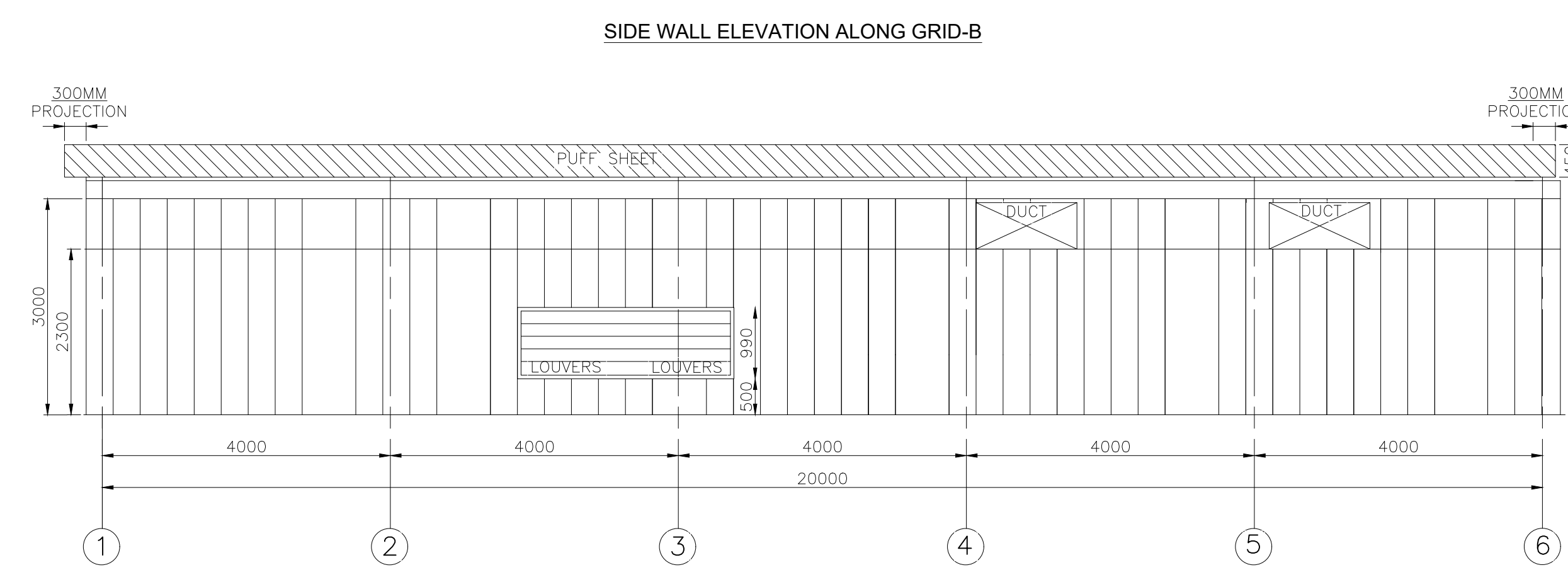
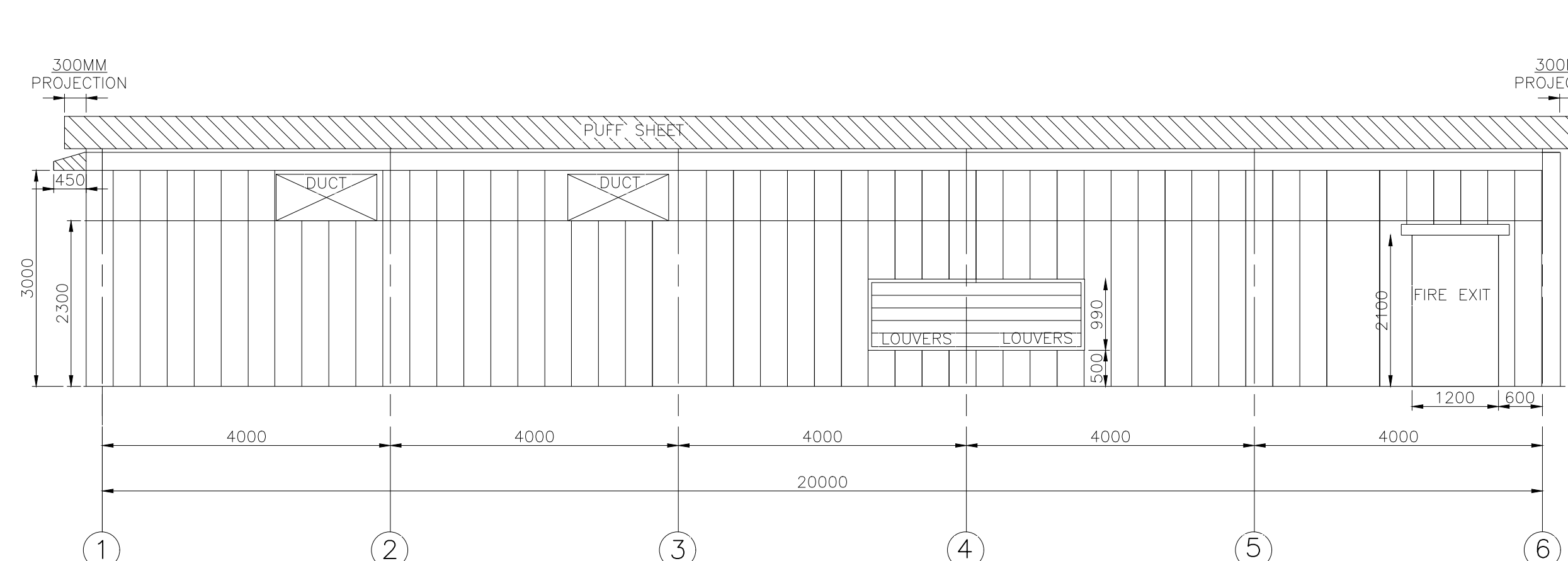
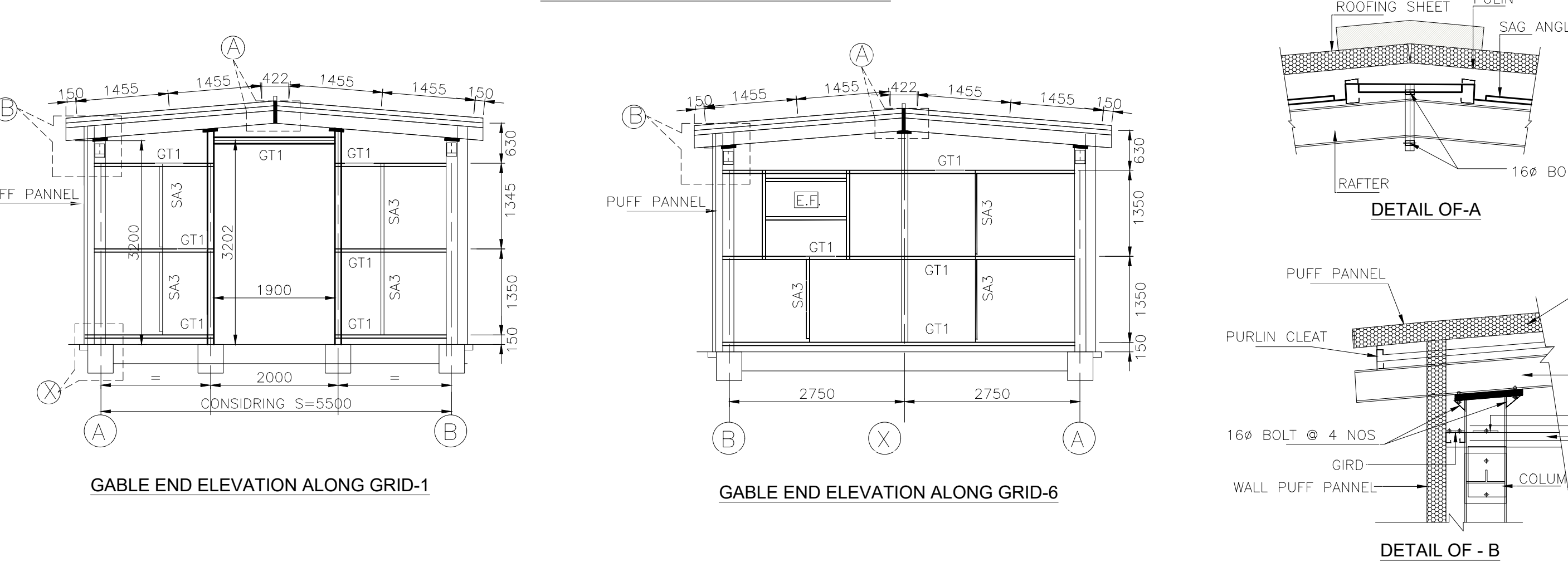
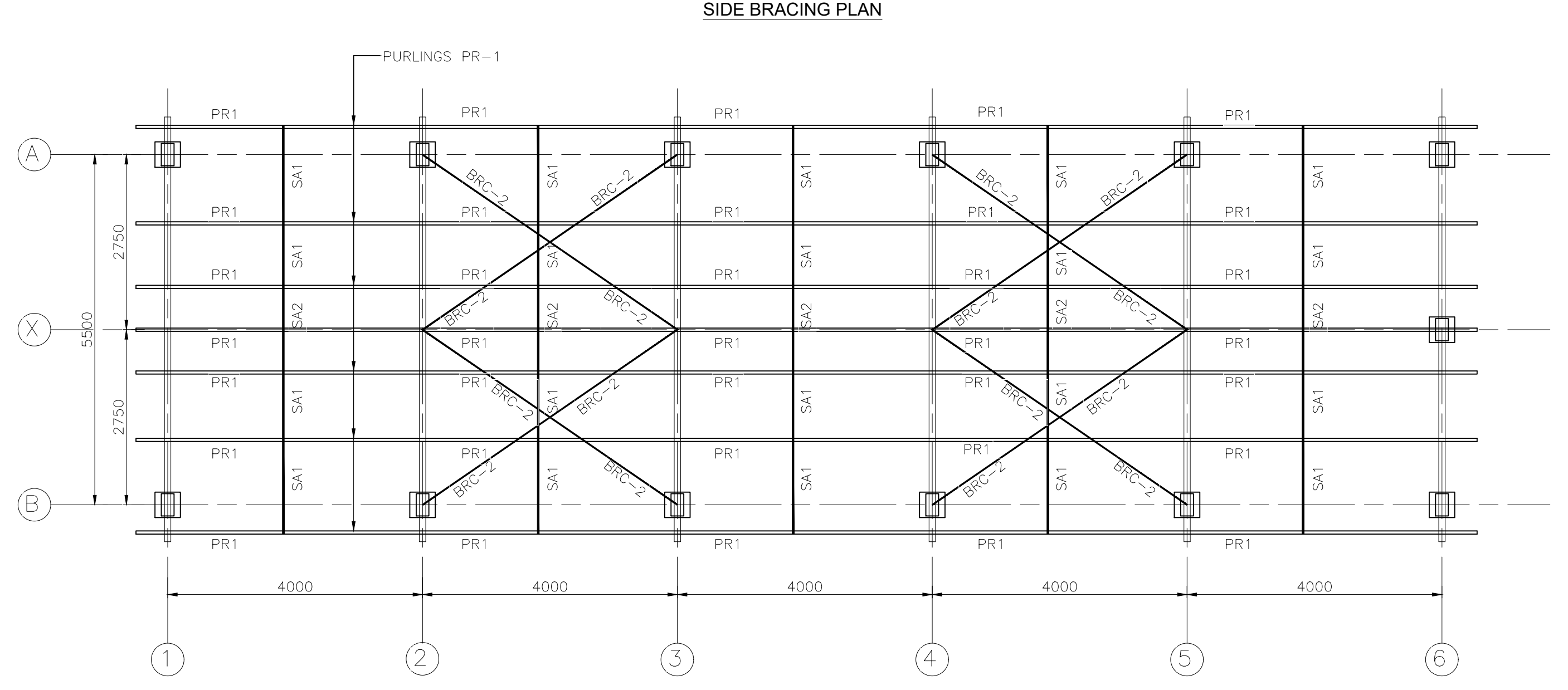
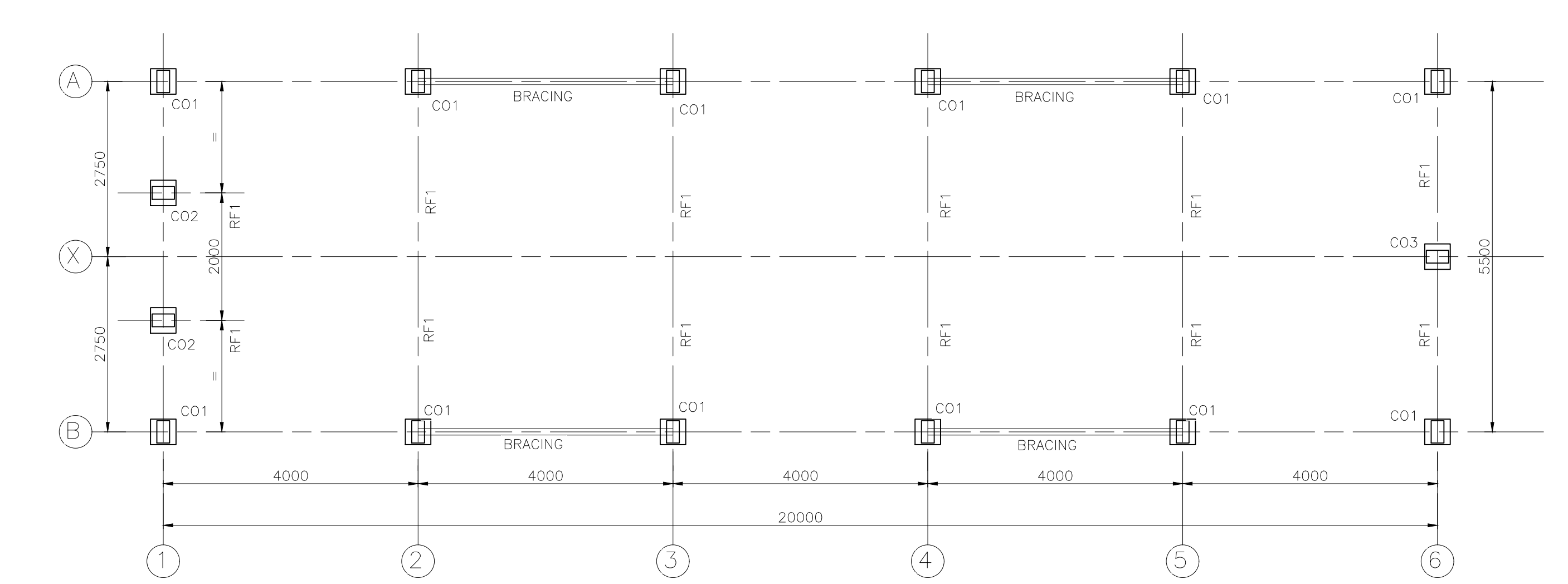
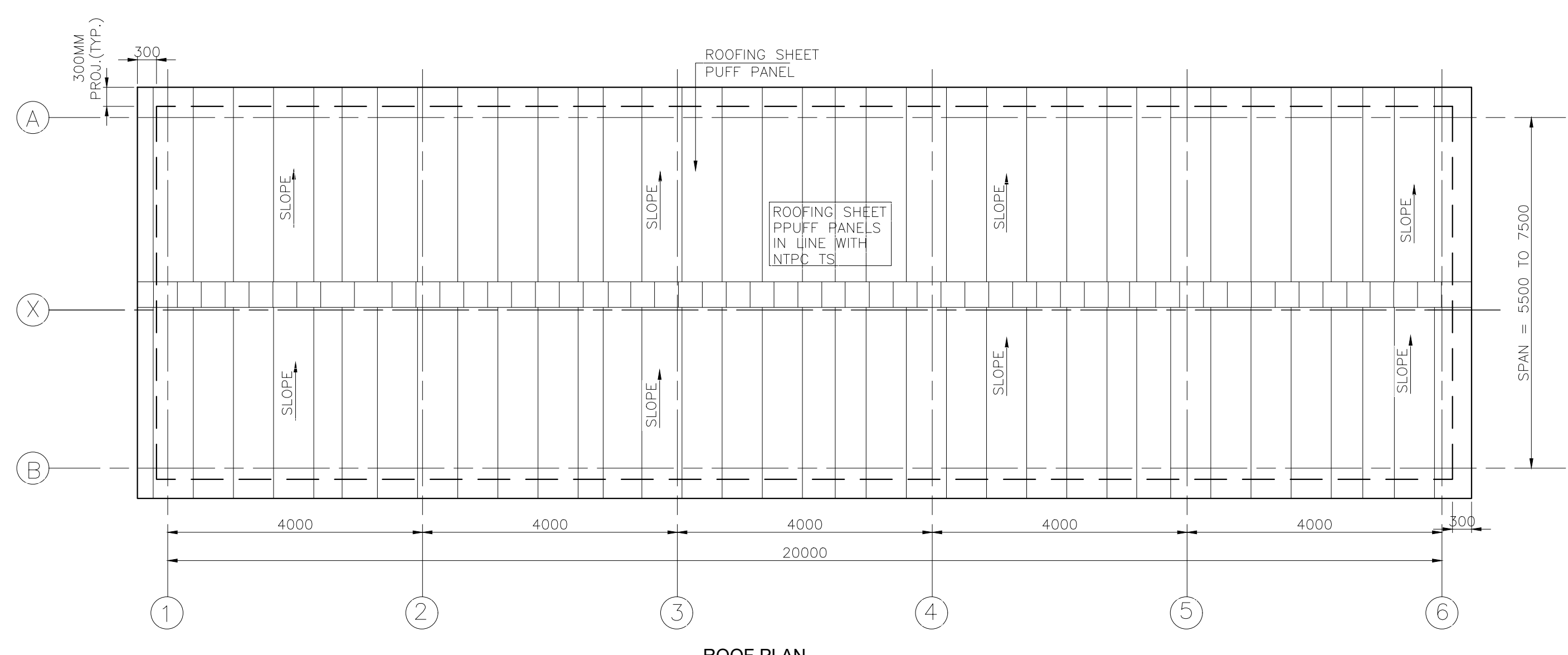
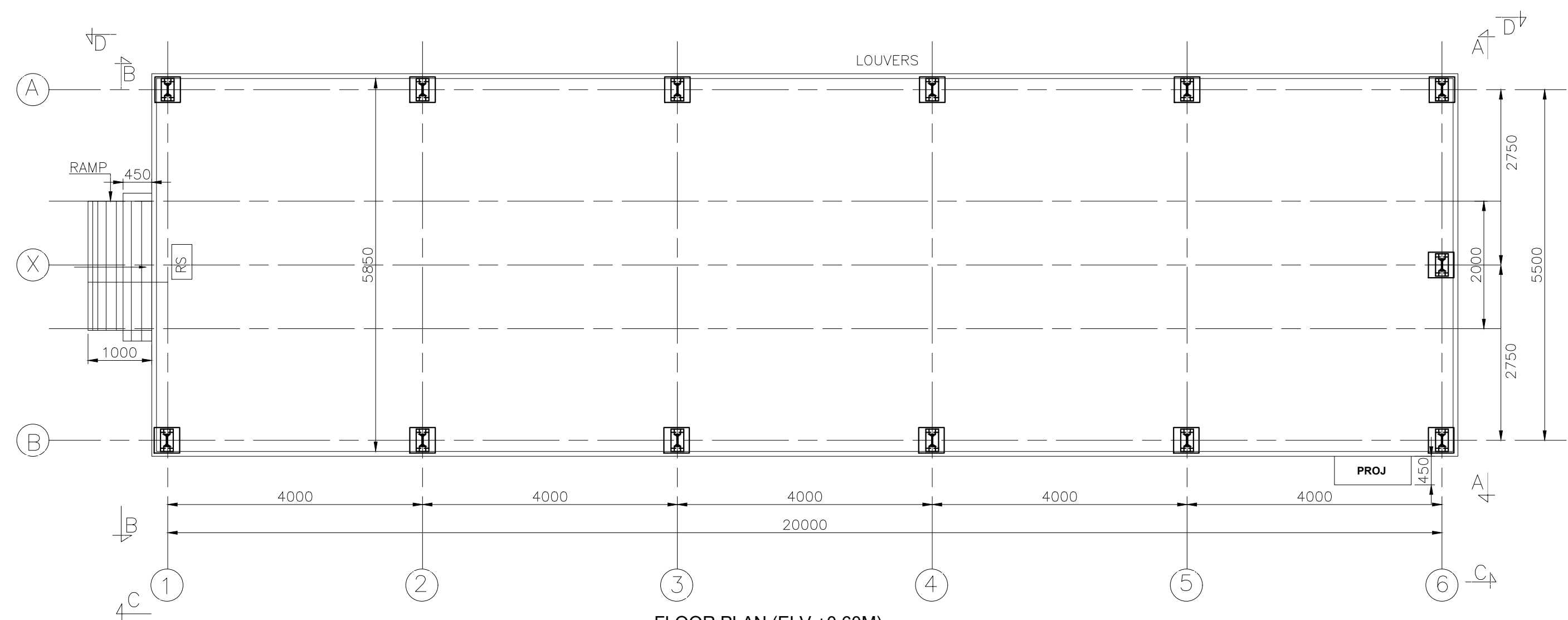
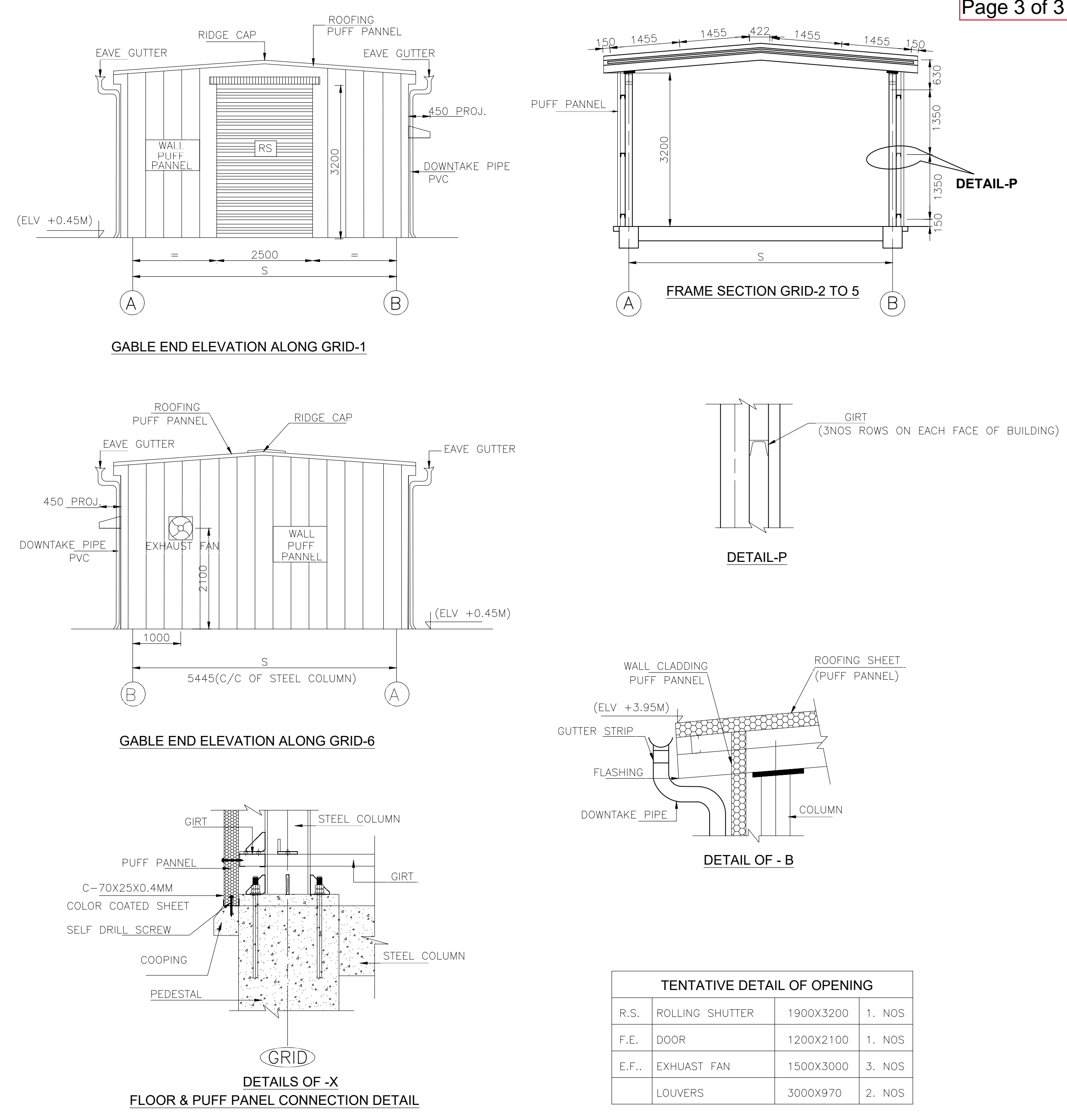


TABLE -2, BILL OF MATERIAL									
S.NO	PART MARK	DESCRIPTION	SPAN (S)			SHAPE	MATERIAL SPECIFICATION	GRADE OF MATERIAL	GALVANIZATION COATING THICKNESS
			S = 5.5M	5.5M< S <=6.5M	6.5M< S <= 7.5M				
1	PR1	C-PURLIN	100x50x20x3.15	100x50x20x3.15	100x50x20x3.15		COLD FORM	350	AS PER IS 4759
2	GT1	C-GIRT	100x50x20x3.15	100x50x20x3.15	100x50x20x3.15		COLD FORM	350	AS PER IS 4759
3	RF1	RAFTER	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
4	CO1	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
5	CO2	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
6	CO3	COLUMN	ISMB-200	ISMB-250	ISMB-300		HOT ROLLED	250	AS PER IS 4759
7	SP1	STRUT ANGLE	ANGLE-65x65x5	ANGLE-65x65x5	ANGLE-65x65x5		HOT ROLLED	250	AS PER IS 4759
8	BM1	BEAM HEADER	ISMB-150	ISMB-150	ISMB-150		HOT ROLLED	250	AS PER IS 4759
9	SA-1	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
10	SA-2	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
11	SA-3	SAG ANGLE	50X50X3	50X50X3	50X50X3		HOT ROLLED	250	AS PER IS 4759
12	BRC-1,BRC-2	STRUT PIPE	89MM (OD)	89MM (OD)	89MM (OD)		HOT ROLLED	250	AS PER IS 4759

\* PURLIN SPACING SHALL BE MAINTAINED AS MAXIMUM 1450 MM FOR ALL SIZES OF SPANS.



#### NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- GRADE OF CONCRETE SHALL BE M-30 WITH 20mm DOWN GRADED AGGREGATES
- REINFORCEMENT SHALL BE OF HIGH YIELD STRENGTH DEFORMED BAR OF GRADE Fe500 CONFORMING TO IS:1786
- MIN CLEAR COVER TO MAIN REINFORCEMENT SHALL BE AS FOLLOWS FOOTING - 50MM, COLUMN - 50MM, PLINTH BEAM-50MM, SLAB-20MM.
- LAP LENGTH SHALL BE 50D WHERE D IS THE DIA OF THE SMALLER BAR BEING LAPPED
- LAPPING OF BARS SHALL BE SUITABLY STAGGERED AND IN NO CASE MORE THAN 50% BARS SHALL BE LAPPED AT ANY SECTION.
- ALL HOOKS, BENDS, LAPS AND SPLICES SHALL BE AS PER RELEVANT IS CODE
- BIDDER MAY CHOOSE BUILDING SPAN (C/C) FROM 5.5M TO 7.5M. FOUNDATION DETAILS HAVE BEEN MENTIONED FOR DIFFERENT RANGES OF SAFE BEARING CAPACITY (SBC). FOUNDATION COLUMN PEDESTAL, BASE PLATE, REINFORCEMENT DETAILS, SIZES ETC SHALL BE DECIDED BASED ON TABLE-1 & TABLE-2 CONSIDERING THE SBC AND C/C SPAN. IN CASE OF SBC LESS THEN 5 T/50M, FOUNDATION SHALL BE DESIGN BY BIDDER CONSIDERING PROJECT SPECIFIC CONDITIONS AND SHALL BE SUBMITTED FOR NTPC APPROVAL.
- NO FOUNDATION SHALL BE LAID ON BACK FILLED SOIL.
- IF ROCK IS ENCOUNTERED AT SHALLOW DEPTH THEN FOUNDATION MAY BE PLACED AT TOP OF ROCKY STRATA, HOWEVER IN NO CASE DEPTH OF FOUNDATION SHALL BE LESS THAN 1M. SBC SHALL BE DECIDED BY GEOTECHNICAL INVESTIGATION WORK CARRIED OUT BY CONTRACTOR AND APPROVAL BY NTPC IN GEOTECHNICAL INVESTIGATION REPORT.
- DRAWING SHALL NOT BE SCALED. ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
- PERIPHERAL GARLAND DRAIN SHALL BE MADE ALL AROUND THE PEB INVERTER ROOMS AND CONNECTED TO NEAR BY DRAINS.
- 750MM WIDE PLINTH PROTECTION WITH 75MM THK. PCC LAID OVER WELL COMPACTED 75MM DRY BRICK BALLAST ALL AROUND THE PEB ROOM IN LINE WITH TECHNICAL SPECIFICATION.
- THE FGL OF PEB ROOM MINIMUM 500MM ABOVE SURROUNDING NGL.
- ALL STRUCTURAL STEEL MEMBERS SHALL BE GALVANIZED.THE THICKNESS OF GALVANIZATION SHALL BE IN LINE WITH IS4759. HOWEVER MINIMUM THICKNESS OF GALVANIZATION SHALL BE MAINTAINED AS 110 MICRON FOR ALL MEMBERS.
- BIDDER SHALL SUBMIT THE DETAILED FABRICATION DRAWING AND PUFF PANEL DETAILS (DEVELOPED BASED ON NTPC TENDER DRAWING AND TECHNICAL SPECIFICATION) FOR NTPC INFORMATION BEFORE START OF WORK.
- ALL WORKS SHALL BE EXECUTED IN LINE WITH APPROVED DRAWINGS.
- ALL BRACING LIKE BRC-1, BRC-2 SHALL BE CONTINUED IN EVERY ALTERNATE BAY IN CASE THE NO. OF BAYS ARE INCREASED. THE NO OF BAYS MAY BE REDUCED BASED ON BIDDER REQUIREMENT MAINTAINING THE BRACING IN EVERY ALTERNATE BAY. BIDDER SHALL ENSURE THAT THE BRACING IN BOTH THE DIAGONAL DIRECTIONS ARE PROVIDED IN PEB.
- THE OPENINGS SHOWN IN PEB ARE TENTATIVE. VENDOR SHALL FINALIZE THE SAME DURING DETAILED ENGG. BASED ON NTPC APPROVAL. VENTILATION AND DUCTS SHALL BE DESIGN CONSIDERING HEAT CALCULATION AND SUBMIT FOR NTPC APPROVAL BEFORE EXECUTION/MANUFACTURING.
- THE SIZES OF FOUNDATION MENTIONED IN TABLE-1 FOR DIFFERENT RANGES OF SBC ARE MINIMUM SIZE TO BE ADOPTED BY BIDDER.
- THE SIZES OF STRUCTURAL STEEL MEMBERS IN TABLE-2 ARE MINIMUM SIZES TO BE ADOPTED FOR DIFFERENT RANGES OF SPAN.

FOR TENDER PURPOSE ONLY



एन टी सी नवीकरणीय  
**एनटीपीसी नवीकरणीय ऊर्जा लिमिटेड**  
**NTPC Renewable Energy Limited**  
(A wholly Owned Subsidiary of NTPC Limited)

PROJECT **BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH**

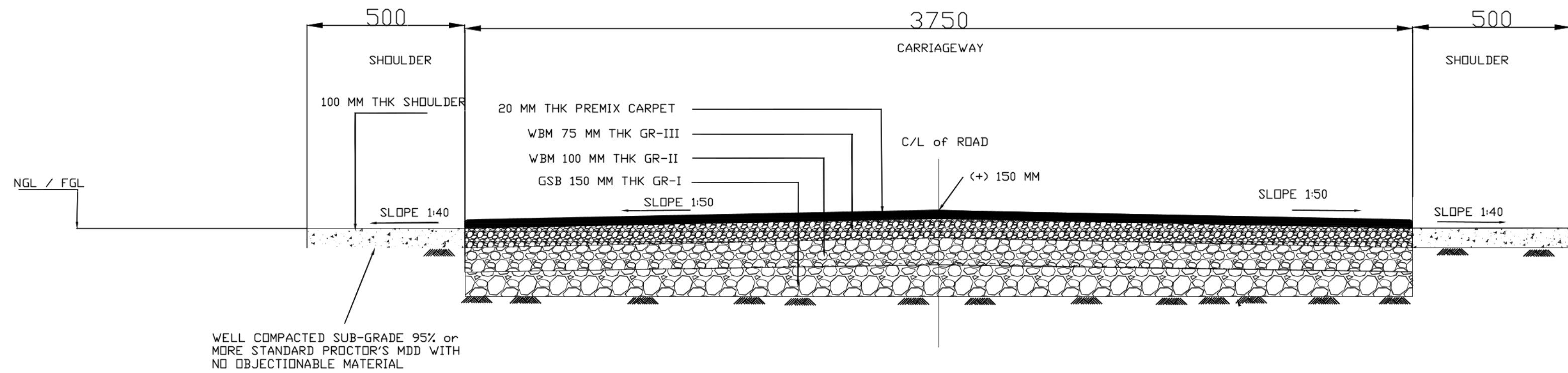
TITLE **PEB INVERTOR ROOM**

PREPARED BY	CHECKED BY	APPROVED BY	DATE
RAM	CIVIL ELE. SG AT	RR MAURYA	03.05.2022

SIZE	SCALE	DRG. NO.	REV. NO.
AO	NTS	5802-004(BOS)-POC-A-005	RA



# TYPICAL CROSS SECTION OF APPROACH & Switchyard ROADS (Inside the Plot)



## TYPICAL SECTION FOR ROADS

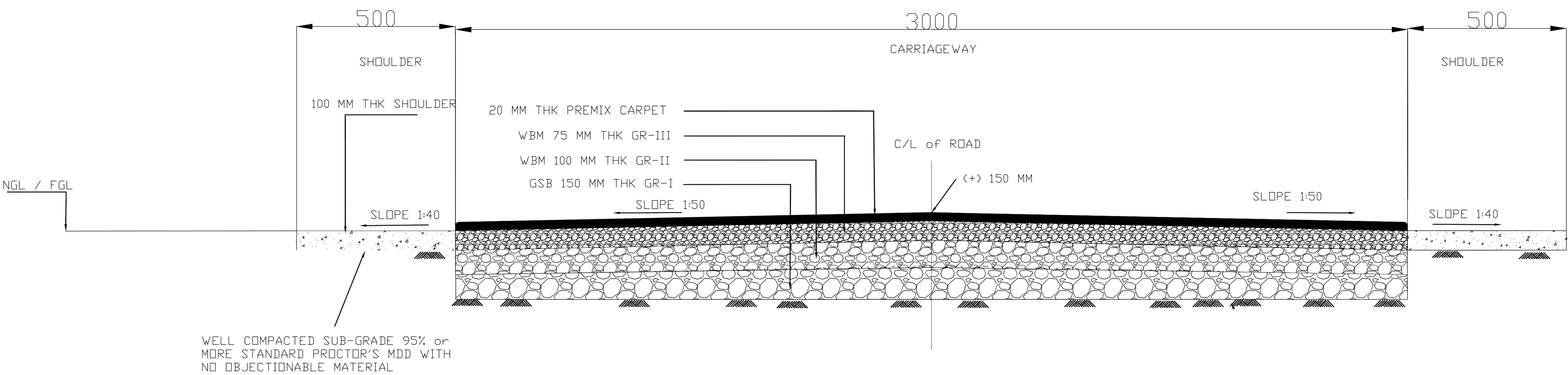
### NOTES:

- ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
- THE LEVEL AT THE TOP OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP OF BITUMINOUS CARPET AT THE CENTER OF THE ROAD.
- CAMBER SHALL BE PROVIDED AT SUB-GRADE LEVEL
- CBR VALES OF THE SUB-GRADE LEVEL SHOULD BE MIN. 4%. IF THE ACTUAL CBR IS LESS THAN 4% IN A PARTICULAR STRETCH THEN THE SAME MATERIAL SHALL BE MODIFIED WITH INCREASE IN GSB THICKNESS.
- THE SHOULDERS ON BOTH SIDE OF THE ROAD SHALL BE PROPERLY COMPACTED.
- THE ROAD SHALL BE MINIMUM 150 MM ABOVE FGL.
- WBM 100 MM THK AMY BE MODIFIED TO 75 MM THK FOR WBM CONSTRUCTION WITH CORRESPONDING INCREASE OF 50 MM IN GSB THICKNESS.
- ROADS WOULD BE SUITABLY CONNECTED WITH SLOPING APPROACHES WITH MAIN ROAD BY THE BIDDER WHERE EVER SUCH CONNECTIONS ARE ENVISAGED.

				NTPC Renewable Energy Limited		
				PROJECT	BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH	
				TITLE	Typical Cross sectional details of Approach & Switchyard Roads (inside the Plot)	
FOR TENDER PURPOSE ONLY				SIZE	5802-004(BOS)-POC-A-006A	REV. NO. R0
PREPARED BY	CHECKED BY		APPROVED BY	DATE		
SSSG	SSSG		R R MAURYA	22.02.2026	A0	



TYPICAL CROSS SECTION OF INTERNAL ROADS (Inside the Plot)



TYPICAL SECTION FOR ROADS

NOTES:

- 1. ALL DIMENSIONS ARE IN MM AND LEVELS IN METERS.
- 2. THE LEVEL AT THE TOP OF THE ROAD SHALL CORRESPOND TO THE LEVEL AT THE TOP SHALL CORRESPOND TO THE LEVEL AT THE TOP OF BITUMINOUS CARPET AT THE CENTER OF THE ROAD.
- 3. CAMBER SHALL BE PROVIDED AT SUB-GRADE LEVEL
- 4. CBR VALES OF THE SUB-GRADE LEVEL SHOULD BE MIN. 4%. IF THE ACTUAL CBR IS LESS THAN 4% IN A PARTICULAR STRETCH THEN THE SAME MATERIAL SHALL BE MODIFIED WITH INCREASE IN GSB THICKNESS.
- 5. THE SHOULDERS ON BOTH SIDE OF THE ROAD SHALL BE PROPERLY COMPACTED.
- 6. THE ROAD SHALL BE MINIMUM 150 MM ABOVE FGL.
- 7. WBM 100 MM THK AMY BE MODIFIED TO 75 MM THK FOR WBM CONSTRUCTION WITH CORRESPONDING INCREASE OF 50 MM IN GSB THICKNESS.
- 8. ROADS WOULD BE SUITABLY CONNECTED WITH SLOPING APPROACHES WITH MAIN ROAD BY THE BIDDER WHERE EVER SUCH CONNECTIONS ARE ENVISAGED.

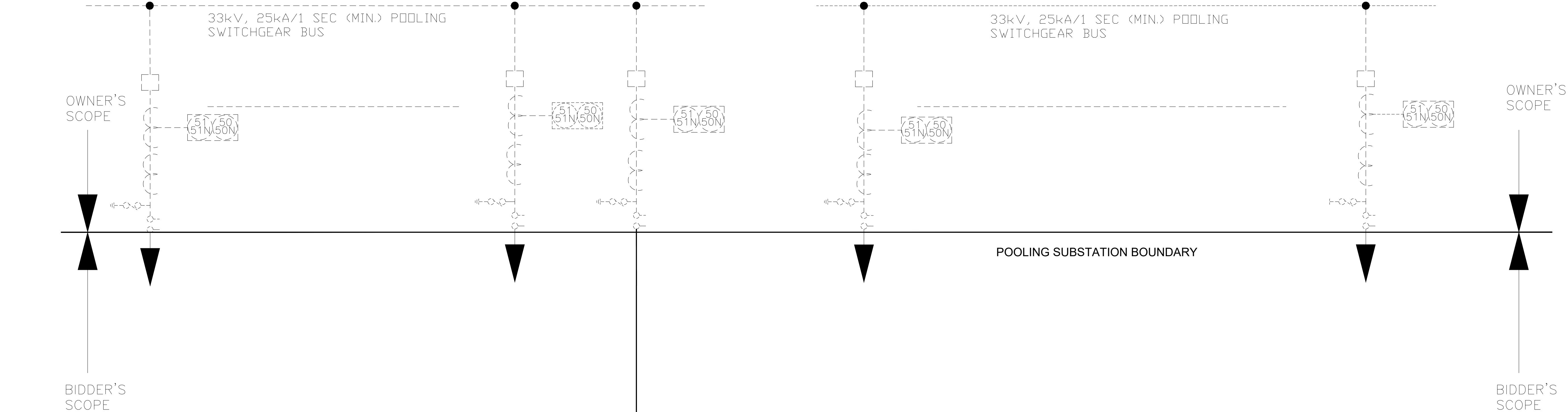
FOR TENDER PURPOSE ONLY	NTPC Renewable Energy Limited							
	PROJECT BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH							
	TITLE TYPICAL DETAIL OF ROADS ( Internal / Within Plot)							
PREPARED BY	CHECKED BY		APPROVED BY	DATE	SIZE	SCALE	DRG. 5802-004(BOS)-POC-A-006A NO.	REV. NO.
SSSG	CIVIL	ELE.	R R MAURYA	22.02.2026	AO	NTS		R1
	SSSG							







33 kV MAIN POOLING INDOOR SWITCHGEAR AT OWNER'S POOLING SUBSTATION SWITCHYARD



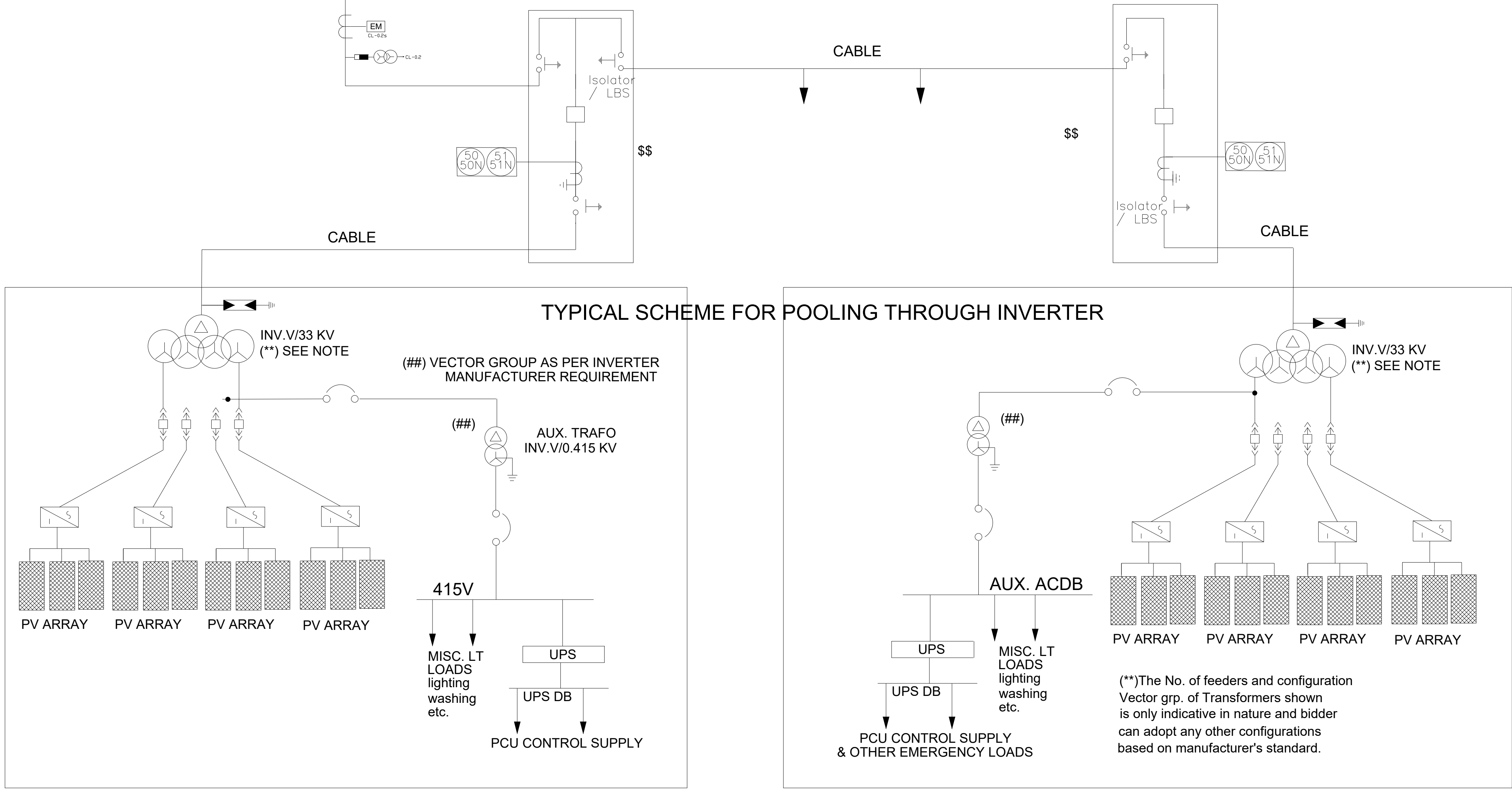
THE MAXIMUM NUMBER OF 33KV INCOMER FEEDERS AVAILABLE AT 33KV MAIN POOLING SWITCHGEAR OF OWNER'S POOLING SUBSTATION, FOR INTERCONNECTION OF SOLAR PLANT CABLES, DYNAMIC REACTIVE POWER COMPENSATION EQUIPMENT AND HARMONIC FILTERS OF EACH 450MW SOLAR BLOCK IS THIRTY (30) AND OF 300MW SOLAR BLOCK IS TWENTY (20). THE POWER FROM THE BLOCKS SHALL BE EQUALLY DIVIDED (TO THE EXTENT POSSIBLE) AMONG THE ABOVE 33KV FEEDERS DESIGNATED FOR THE RESPECTIVE BLOCKS. 33KV CABLES SHALL BE SUITABLY SIZED TO CARRY THE POWER FROM SOLAR PLANT. NO ADDITIONAL FEEDERS WILL BE PROVIDED BEYOND THE SPECIFIED NUMBER OF FEEDERS FOR INTERCONNECTION OF SOLAR BLOCKS, HARMONIC FILTERS, REACTIVE POWER COMPENSATION EQUIPMENT ETC.

ALTERNATE CONFIGURATION TO LOCAL POOLING SWITCHGEAR :-  
BIDDER CAN DIRECTLY TERMINATE CABLE (UPTO 2 SETS) FROM UPTO TWO SEPARATE SAME CAPACITY SOLAR INVERTER BLOCKS (WITH ICOG) AT ONE MAIN POOLING STATION 33kv FEEDER. IF THE INVERTER BLOCK (WITH ICOG) PROPOSED BY THE BIDDER FOR TERMINATION AT ONE NTPC REL'S 33KV POOLING SWITCHGEAR FEEDER ARE OF DIFFERENT CAPACITY FROM THE OTHER, THEN THE SAME MAY ALSO BE ALLOWED FOR INTERCONNECTION TO THE SAME FEEDER, AFTER REVIEWING THE INVERTER BLOCK CAPACITIES TAKING INTO ACCOUNT THE ELECTRICAL PROTECTION REQUIREMENTS.

(Max. 35 MW)  
33kV CABLES

\$\$ BIDDER CAN FOLLOW ANY OF THE FOLLOWING ARRANGEMENT TO ACHIEVE

1. BIDDER MAY OFFER OUTDOOR ARRANGEMENT WITH VCB,CT AND ISOLATOR. ASSOCIATED RELAY PANEL SHALL BE KEPT WITHIN SUITABLE KIOSK .
2. BIDDER MAY OFFER THE PROPOSED ARRANGEMENT USING 33KV
3. BIDDER MAY OFFER STANDALONE SWITCHGEAR PANEL FOR INVERTER TRANSFORMER FEEDER INSIDE THE INVERTER ROOM AND CONNECT THROUGH SUITABLE OUTDOOR ISOLATOR.
4. ISOLATOR SHALL BE LOCATED IN RING SO THAT EACH SECTION OF RING CAN BE ISOLATED, SUBJECTED TO APPROVAL DURING DETAIL ENGINEERING.
5. PROTECTION SCHEME IN RMU AS PER RELATED SPECIFICATION.



NOTES:

1. THERE IS NO CMCS BUILDING ENVISAGED FOR THE 450MW AND 300MW SOLAR PROJECTS UNDER BIDDER'S SCOPE. BIDDER SHALL PLACE THE SCADA/OWSEWS PANEL AT OWNER'S RESPECTIVE POOLING SUBSTATION SWITCHYARD CONTROL BUILDING. NTPC REL SHALL PROVIDE REDUNDANT 220V DC AND 230V AC SUPPLY SOURCE TO THE BIDDER FOR SCADA/OWSEWS PANEL AT OWNER'S SWITCHYARD CONTROL ROOM. NECESSARY WIRING IS IN BIDDER'S SCOPE. BIDDER SHALL PROVIDE SUITABLE UPS WITH BACK UP TIME AS MENTIONED IN THE TECHNICAL SPECIFICATIONS FOR THE AFORESAID EQUIPMENT IN OWNER'S SWITCHYARD CONTROL BUILDING (AS REQUIRED).
2. IN CASE OF OUTDOOR INVERTER, THE INBUILT LT TRANSFORMER FOR AUX SUPPLY SHOULD BE DESIGNED AND SIZED IN ORDER TO TAKE CARE OF ALL EMERGENCY LOADS AND MISCELLANEOUS LOADS RELATED TO MAINTENANCE ACTIVITY WITH REDUNDANCY.
3. SUITABLE UPS AND/OR DC SYSTEM WITH BACK UP AS PER TS IS TO BE PROVIDED FOR AUXILIARY POWER SUPPLY FOR PCS (IF REQUIRED) AND OTHER PROTECTION, CONTROL AND ANY EMERGENCY LOADS.
4. THE INVERTER TRANSFORMER ARRANGEMENT SHOWN IS TYPICAL. THE TRANSFORMER CONFIGURATION, VECTOR GROUP, IMPEDANCE, INSULATION CLASS ETC. AS PER INVERTER MANUFACTURER RECOMMENDED DESIGN PARAMETER ARRANGEMENT.
5. BIDDER SHALL USE 33KV CABLES FOR CONNECTING FROM LOCAL POOLING SWITCHGEAR/ICOG (AS APPLICABLE) TO OWNER'S 33KV MAIN POOLING SWITCHGEAR DIRECTLY. SUPPLY OF CABLES AND ACCESSORIES INCLUDING JOINTING AND TERMINATION KITS INCLUDING LAYING AND TERMINATION SHALL BE IN THE SCOPE OF THE BIDDER.
6. OTGT TEST SHALL BE PERFORMED AT THE METERING POINT SPECIFIED IN TECHNICAL SPECIFICATION.
7. BIDDER MAY USE LOCAL POOLING SWITCHGEAR FOR LOCAL POOLING OR CONNECT INVERTER TRANSFORMER OUTPUT TO THE 33KV POOLING SWITCHGEAR THROUGH ICOG TYPE BREAKER PANEL AT INVERTER TRANSFORMER END.
8. BIDDER TO PROVIDE ALL TECHNICAL DETAILS INCLUDING INVERTER PSSE MODEL, PSCAD MODEL & INVERTER BENCHMARKING REPORT TO NTPC REL AND FACILITATE NTPC REL FOR CONDUCTING GRID CONNECTIVITY COMPLIANCE AS PER LATEST CEA TECHNICAL STANDARD FOR CONNECTIVITY TO GRID AND ACTUAL REQUIREMENT OF INVERTER DETAILS SHALL BE INTIMATED BY NTPC REL DURING DETAILED ENGINEERING
9. INVERTER SHALL BE PROVIDED WITH DUAL OR MULTIMASTER FACILITY & VMS SHALL BE PROVIDED WITH DUAL OR SINGLE MASTER FACILITY.
10. BIDDER TO PROVIDE NECESSARY ARRANGEMENT TO TRANSMIT SOLAR PLANT DATA TO STATE LDC/RLD/REMC AS PER TELEMETRY REQUIREMENT OF RELEVANT REGULATION, GUIDELINES. NECESSARY COMMUNICATION INFRASTRUCTURE/SOFTWARE IN THIS REGARD UPTO LDC SHALL BE UNDER BIDDER'S SCOPE. BIDDER SHALL USE PROPOSED FOTE PANEL TO BE INSTALLED AT NTPC REL SWITCHYARD CONTROL ROOM FOR SOLAR SCADA DATA AVAILABILITY TO RLD/REMC. IF ANY MODIFICATIONS/UPGRADATION IS REQUIRED AT FOTE, IT SHALL BE DONE BY THE BIDDER.
11. THE METALLIC SCREEN/ARMOUR OF CORE AND CONDUCTOR OF HT CABLES SHALL BE CAPABLE OF CARRYING SYSTEM EARTH FAULT CURRENT.
12. HARMONIC FILTERS SHALL BE INSTALLED AT NECESSARY LOCATIONS KEEPING IN VIEW OF POWER TRANSFORMER CONFIGURATION OF INDIVIDUAL BLOCKS SUCH THAT THE STATUTORY REQUIREMENTS AT POI ARE MET WITH.
13. SUPPLY OF SOLAR PV MODULES IS NOT IN THE SCOPE OF THE BIDDER

FOR TENDER PURPOSE ONLY



**NTPC Renewable Energy Ltd**  
(A GROUP COMPANY OF NTPC LTD)  
(ENGINEERING DIVISION)

PROJECT **BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW (2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR, ANDHRA PRADESH**

TITLE **BLOCK SINGLE LINE DIAGRAM**

PREPARED BY	CHECKED BY	APPROVED BY	DATE	SIZE	SCALE	DRG. NO.	REV. NO.
RR	CIVIL ELE. JPP	AD	16.04.2026		NTS	5802-004(BOS)-POE-A-001/2	R0

## **19. PROFORMA FOR JOINT UNDERTAKING FOR AMC OF CRITICAL EQUIPMENT FOR STIPULATED DURATION BEYOND O&M PERIOD**

End customer tender forms is attached ,.Bidder needs to submit undertaking in reference to End customer tender forms wherever required (During execution, O&M, CAMC).



**PROFORMA FOR JOINT UNDERTAKING FOR AMC OF CRITICAL EQUIPMENT  
FOR STIPULATED DURATION BEYOND O&M PERIOD**

**(On non-judicial stamp paper of appropriate value)**

In consideration of the NTPC Renewable Energy Limited, (hereinafter referred to as the 'Employer', which expression shall unless repugnant to the context or meaning thereof include its successors, administrators and assigns) having awarded to M/s. .... with its Registered/Head Office at..... (hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Employer's Notification of Award No. .... dated ..... and the same having been unequivocally accepted by the Contractor resulting in a 'Contract' bearing No. .... dated..... valued at..... for..... (Scope of Contract)..... and the Contractor for providing **Annual Maintenance Contract (AMC) of Critical Equipment for Stipulated Duration beyond O&M Period** as specified in the Bidding Documents.

Contractor further agrees to the bidding document that the AMC of *Invertor/ SCADA/ Tracker System / Robotic Cleaning System/Dynamic Reactive Power Compensation Equipment other than Inverter* shall be carried out through its vendor M/s.....with its Registered/Head Office at..... (hereinafter referred to as the 'OEM', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns). Contractor and OEM shall be jointly and severally liable to undertake the responsibility outlined in bidding document.

IN WITNESS WHEREOF, the 'Contractor' and the 'OEM', through their authorized representative, have executed these presents on the Day, Month and Year first mentioned above at ..... (Name of the Place) .....

**For and on behalf of**

.....  
**(Contractor's Name)**

**For and on behalf of**

.....  
**(OEM's name)**

Signature .....  
Name .....  
Designation of .....  
Authorised representative

Signature .....  
Name .....  
Designation of .....  
Authorised representative

**WITNESS :**

**WITNESS :**

-----	
1.    Signature .....	1. Signature .....
2.    Name .....	2. Name .....
3.    Address .....	3. Address .....
-----	

\* Please strike off whichever not applicable. Separate Joint undertaking is required to be furnished for aforesaid equipments.



## **7. FORM OF COMPLETION CERTIFICATE**

End customer tender forms is attached ,.Bidder needs to submit undertaking in reference to End customer tender forms wherever required (During execution, O&M, CAMC).

## 7. Form of Completion Certificate

Date: \_\_\_\_\_

NIT No: \_\_\_\_\_

[Name of Contract]

To: [Name and address of Contractor]

Dear Sirs,

Pursuant to GCC Clause 24 (Completion of the Facilities) of the General Conditions of the Contract entered into between yourselves and the Employer dated [date], relating to the [brief description of the facilities], we hereby notify you that the following part(s) of the Facilities was (were) complete on the date specified below, and that, in accordance with the terms of the Contract, the Employer hereby takes over the said part(s) of the Facilities, together with the responsibility for care and custody and the risk of loss thereof on the date mentioned below.

1. Description of the Facilities or part thereof: [description]
2. Date of Completion: [date]

However, you are required to complete the outstanding items listed in the attachment hereto as soon as practicable.

This letter does not relieve you of your obligation to complete the execution of the Facilities including Guarantee Test(s) in accordance with the Contract nor of your obligations during the Defect Liability Period.

Very truly yours,

---

Title  
(Project Manager)



## **8. FORM OF OPERATIONAL ACCEPTANCE CERTIFICATE**

End customer tender forms is attached ,.Bidder needs to submit undertaking in reference to End customer tender forms wherever required (During execution, O&M, CAMC).

## 8. Form of Operational Acceptance Certificate

Date: \_\_\_\_\_

NIT No: \_\_\_\_\_

*[Name of Contract]*

To: *[Name and address of Contractor]*

Dear Sirs,

Pursuant to GCC Sub-Clause 25.3 (Operational Acceptance) of the General Conditions of the Contract entered into between yourselves and the Employer dated *[date]*, relating to the *[brief description of the facilities]*, we hereby notify you that the Functional Guarantees of the following part(s) of the Facilities were satisfactorily attained on the date specified below.

1. Description of the Facilities or part thereof: *[description]*
2. Date of Operational Acceptance: *[date]*

This letter does not relieve you of your obligation to complete the execution of the Facilities in accordance with the Contract nor of your obligations during the Defect Liability Period.

Very truly yours,

Title  
(Project Manager)

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**BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW  
(2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR,  
ANDHRA PRADESH**

**BIDDING DOCUMENT NO. : NRE-CS-5802-004(BOS)-9**

**Declaration on Local Content**

Dear Sir(s),

I/ we have read the provisions of “**Preference to Make In India**” enclosed with the **Bid Data Sheet**. In terms of the requirement of the aforesaid provisions, I/ we hereby declare the following:

1. In order to avail **evaluation eligibility**, I/ we hereby declare that I/we are **supplying/ sourcing the following goods/ services as/ from Class-I Local Supplier**:

<b>Sl. No.</b>	<b>Description of Goods &amp; Services</b>	<b>Quantity/ Weight</b>	<b>Details of the Location(s) at which Local Value Addition is made</b>
1.	<b>Common items for Transmission, Distribution and Generation Sector</b> at Annexure-IA to Ministry of Power OM No. A-1/2021-FSC-Part(5) dated 16.11.2021. The Minimum Local Content (%) as mentioned under the aforementioned OM shall be complied.		

2. I/ we undertake that a certificate from the statutory auditor or cost auditor (in the case the bidder is a company) OR from a practicing cost accountant or practicing chartered accountant (in respect of bidders other than companies) certifying the percentage of local content shall be submitted by us prior to submission of our last bill for payment.
3. Further, I/ we hereby confirm the following:

Whether the bidder is presently debarred/ banned by any other procuring entity for violation of ‘Public Procurement (Preference to Make In India), Order 2017’ (PPP-MII Order) dated 15.06.2017 issued by Department of Industrial Policy and Promotion (DIPP) and its subsequent revisions	<input type="radio"/> NO <input type="radio"/> YES
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4. I/ we agree to furnish any information as a proof of the above to your satisfaction as and when required.

(Signature)

Bidder's Name .....

**BALANCE OF SYSTEM (BOS) PACKAGE FOR DEVELOPMENT OF 1200MW  
(2x450MW+1x300MW) GRID CONNECTED SOLAR PV PROJECTS AT ANANTAPUR,  
ANDHRA PRADESH**

**BIDDING DOCUMENT NO. : NRE-CS-5802-004(BOS)-9**

**Details of Foreign Principals of Indian Bidders  
(to be submitted only if applicable as per clause 1.e of Section-2 of Integrity pact)**

**We hereby declare the details of our foreign principals as below:**

**(The name and address of foreign principals or associates)**

.....