

Form No.



**PRODUCT STANDARD  
PROJECT ENGINEERING  
HYDERABAD**

**ANNEXURE-2  
TO PY-55127**

**REV NO. 00**

**Page 1 of 1**

**PROJECT: TURBO BLOWER STATION (Package-010A)**

**CUSTOMER: M/s NMDC LIMITED, 3.0MTPY INTEGRATED STEEL  
PLANT, NAGARNAR, CHHATTISHGARH**

**CONSULTANT: M/s MECON, RANCHI**

**LIST OF SWITCHBOARD SLDs**

<b>Sl. No.</b>	<b>Description</b>
1.	SLD of 415V TBMCC-1,2,3 (No. of Pages-2)
2.	SLD of 415V PDB (No. of Pages-1)
3.	SLD of 220V DCDB-1 (No. of Pages-1)
4.	SLD of 220V DCDB-2 (No. of Pages-1)
5.	SLD of 240V UPSDB-1,2 (No. of Pages-1)

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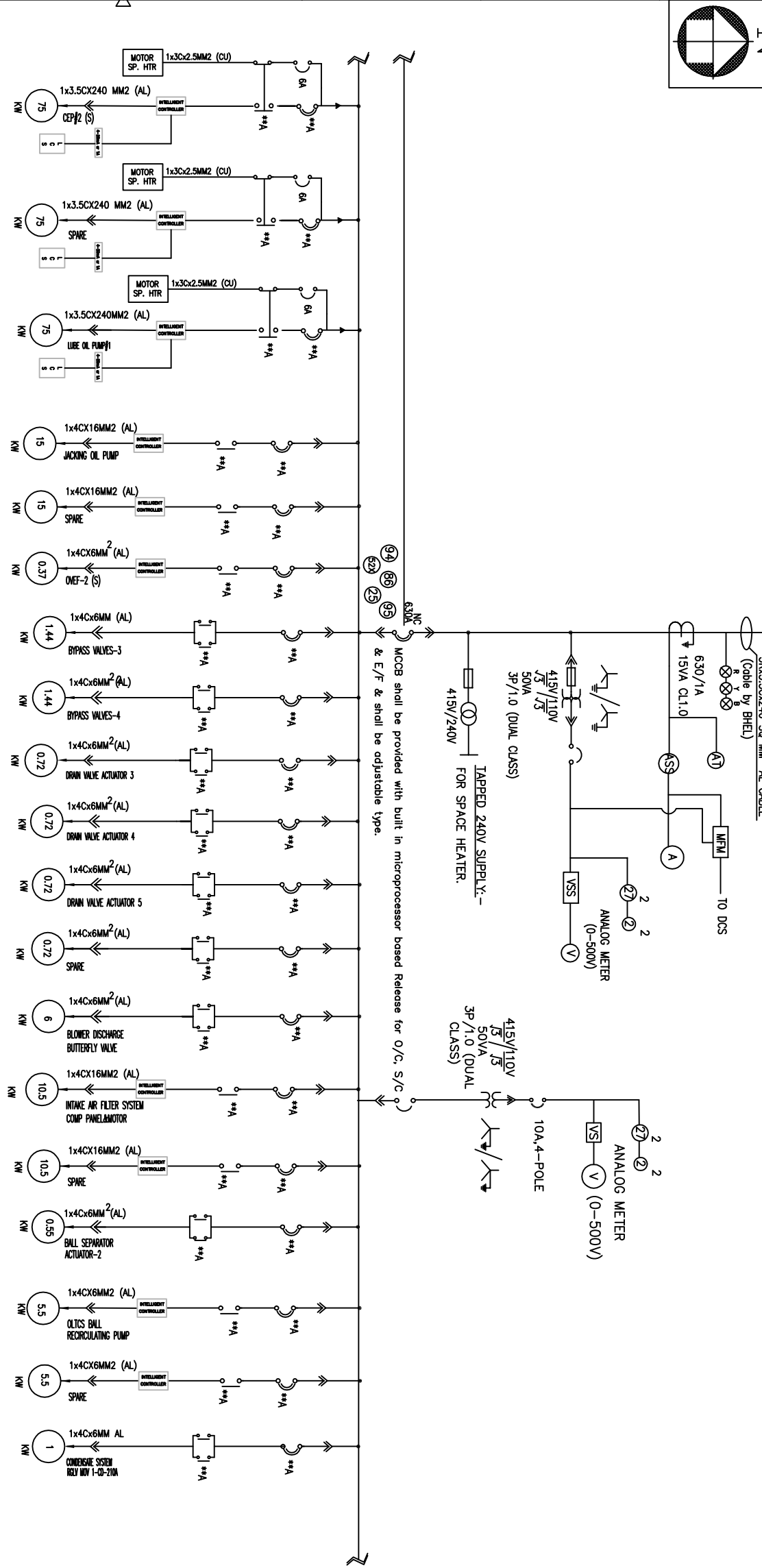
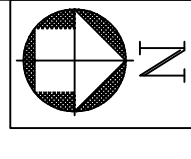
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Ref. Doc



DRG. NO. 028843-12-186-1  
 NO. OF SHEETS 2

**INCOMER-2(FROM CUSTOMERS SWBD)**



REV.	DATE	ALTERED	BY	REASON
1	13.04.15	CHD/APPD	S.P.	DESIGNED IN LINE WITH CUSTOMER COMMENT
2	11.02.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
3	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
4	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
5	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
6	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
7	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
8	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
9	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT
10	08.01.15	CHD/APPD	S.P.	REDESIGNED IN LINE WITH CUSTOMER COMMENT

- LEGEND:**
- ⊗ I.T. AIR CIRCUIT BREAKER
  - ⊗ CURRENT TRANSFORMER
  - ⊗ DRAWOUT CONTACT
  - ⊗ CONTACTOR
  - ⊗ AUX. CONTACTOR
  - ⊗ A/M/CO AUTO CHANGEOVER
  - ⊗ MCCB
  - ⊗ MCB
  - ⊙ AMMETER
  - ⊙ VOLTMETER
  - ⊙ UNDER VOLTAGE RELAY
  - ⊙ TIMER
  - ⊙ TRIP EXT SUPERVISION RELAY
  - ⊙ HIGH SPEED TRIPPING RELAY
  - ⊙ THERMAL OVERLOAD RELAY WITH SINGLE PHASE PREVENTER
  - ⊙ CHECK SWITCH RELAY

**NOTES:**

29. LOS PROVISION SHALL BE THERE FOR ALL THE FEEDERS (DOL+RDL). SUPPLY OF LOS IS IN THE SCOPE OF BHEL.

30. RDL FEEDERS ARE NON-INTELLIGENT TYPE.

31. MCCB SHALL BE ADJUSTABLE TYPE FOR RATING >180A.

DESIGNED S.M.	CHD/APPD	S.P.	DATE	13.04.15
DRAWN S.M.	CHD/APPD	S.P.	DATE	11.02.15
CHECKED S.P.	CHD/APPD	S.P.	DATE	08.01.15
APPROVED S.P.	CHD/APPD	S.P.	DATE	08.01.15

PROJECT Drg. No. - NMDCC/BHEL/010A/00/29/DE/1409

SCALE: 415V MCC-1,2,3

SHEET: 02 OF 02

VENDOR'S DRAWING NO. 1-38121-02862

CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

CONSULTANT: MECON LIMITED

CLIENT: NMDCC LIMITED  
 3.0 MTPY INTEGRATED STEEL PLANT  
 (NISP), NAGARVAR, CHHATTISGARH  
 (NISP) BILIMBI STATION (PACKAGE NO. 00A)



CG420-1218C-3

ON DRG

20 FO 10 HS

FROM CUSTOMER'S 220V DCDB

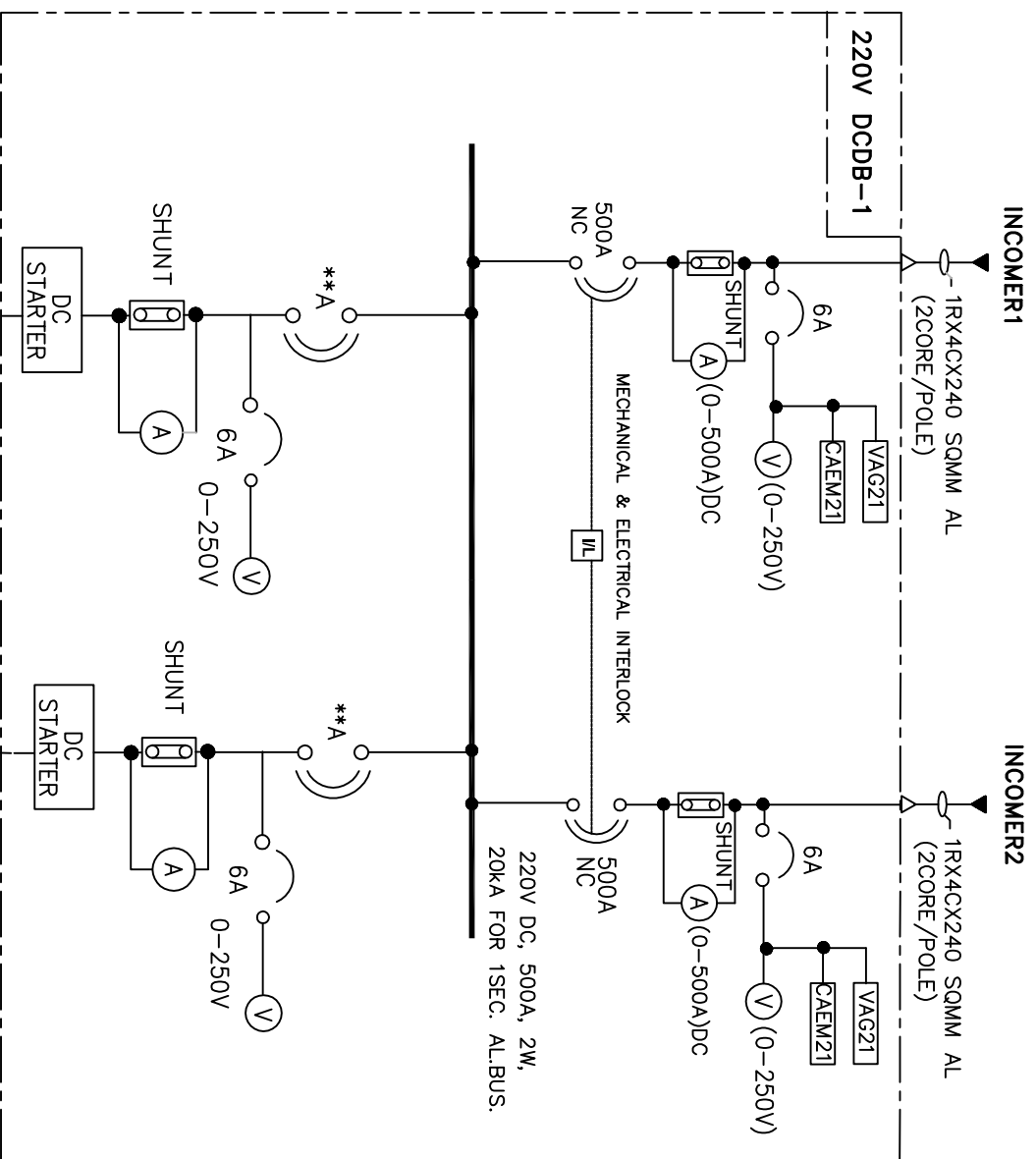


TABLE : OUTGOING FEEDER DETAILS

SL.	LOAD/FEEDER	FEEDER DETAILS		REMARKS
		TYPE	RATING	
01	EMG. OIL PUMP	M1	11KW	WITH DC STARTER CUBICLE
02	JACKING OIL PUMP	M1	15KW	WITH DC STARTER CUBICLE
03	SPARE	M1	11KW	WITHOUT DC STARTER CUBICLE
04	SPARE	M1	19KW	WITHOUT DC STARTER CUBICLE

INVENTORY NO \_\_\_\_\_ SIGN. AND DATE \_\_\_\_\_ REF. DRG. NO. \_\_\_\_\_ COMPUTER FILE NAME \_\_\_\_\_

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**LEGEND:**

- (A) AMMETER
- (V) VOLTMETER
- MCCB
- MCB
- CABLE
- ⊗ INDICATION LAMP

**NOTES:-**

- DCDB SHALL BE SINGLE FRONT, DRAWOUT TYPE WITH IP 54 DEGREE OF PROTECTION
- PAIN T SHADE SHALL BE LIGHT GREY RAL-7035
- CABLE ENTRY FROM BOTTOM
- MATERIAL SHALL BE CRCA SHEET STEEL WITH 2MM THICKNESS FOR LOADS AND 1.6MM THICKNESS FOR NON-LOAD MEMBERS. UNDRILLED REMOVABLE BOTTOM CABLE GLAND PLATE THICKNESS SHALL BE 3MM.
- 50\*6MM EARTH BUS BAR SHALL BE RUN THROUGHOUT THE LENGTH ON THE BOTTOM PANEL
- RATING OF ALL COMPONENTS OF DC STARTER PANELS SHALL BE SELECTED AS PER DC DUTY
- REFER TABLE FOR RATING AND QTY OF FEEDER DETAILS
- BUS CHANNEL SHALL BE ISMC-75
- MCCB SHALL HAVE S/C & O/C PROTECTION FEATURE AND SHALL BE MICROPROCESSOR BASED WITH ADJUSTABLE OVERLOAD AND SHORT CIRCUIT RELEASE.
- MCCB <160A SHALL NOT BE ADJUSTABLE TYPE.
- MCCB/MCB SHALL BE SUITABLE FOR DC DUTY.
- BOTH INCOMERS AND ALL OUT GOING MCCB FEEDERS SHALL HAVE ON, OFF, TRIP INDICATIONS LAMP(LED CLUSTER TYPE)

SUBMITTED FOR: APPROVAL INFORMATION RECORD CONSTRUCTION

CLIENT: **NMDC LIMITED**  
 3.0 MTPY INTEGRATED STEEL PLANT  
 (NISP), NAGARNAR, CHHATTISGARH  
 TURBO BLOWER STATION (PACKAGE NO. 010A)

CONSULTANT: **MECON LIMITED**  
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CONTRACTOR: **BHARAT HEAVY ELECTRICALS LTD.**  
 HYDERABAD

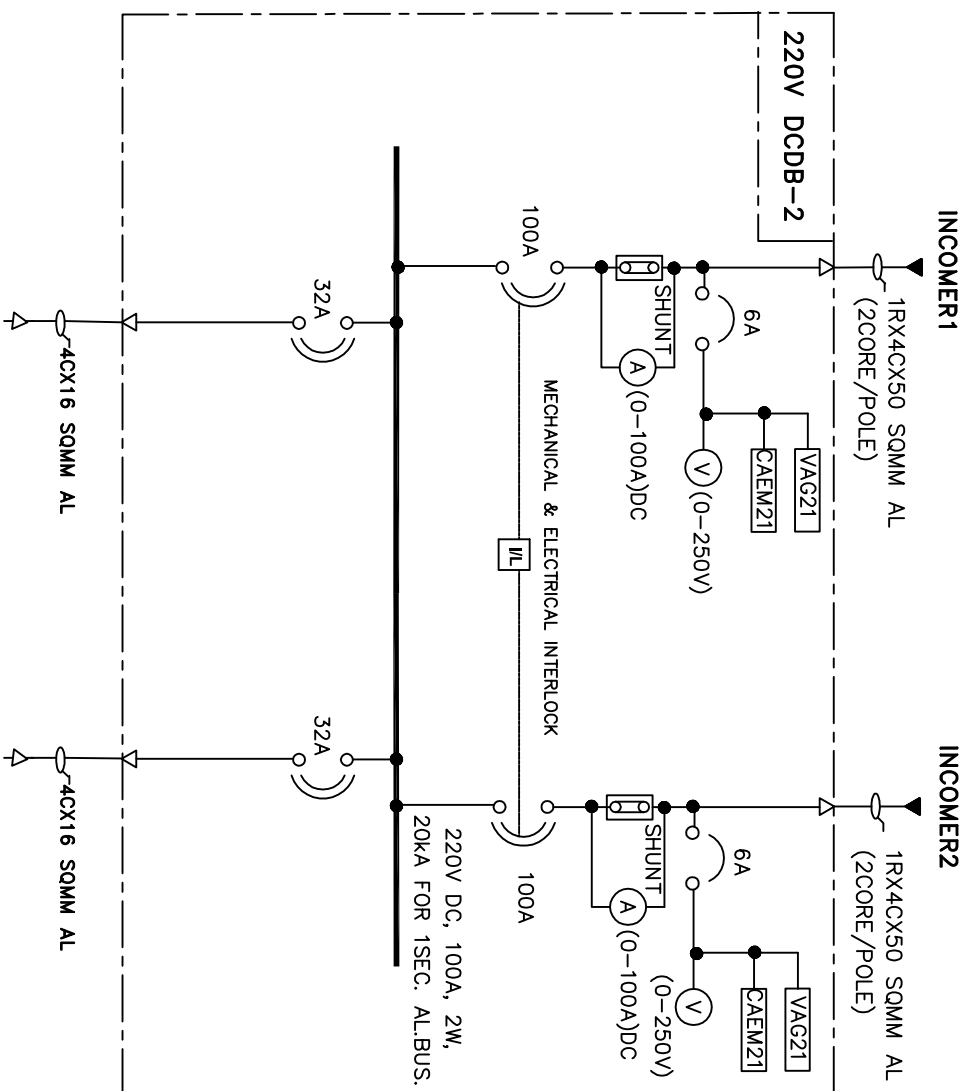
DESIGNED S.M. -sd-  
 DRAWN S.M. -sd-  
 CHECKED S.P. -sd-  
 APPROVED J.K.P. -sd-  
 DATE: 08.01.15

SCALE: N.T.S. SHEET 01 OF 02 REV. 02  
 PROJECT Drg. No. - 3-38121-02433  
 NMDC/BHEL/010A/00/29/DE/1404

CG420-1218C-3  
ON DRG.

20 FO 20 HS

FROM CUSTOMER'S 220V DCDB



\*\*TABLE : OUTGOING FEEDER DETAILS

SL. NO.	LOAD/FEEDER	FEEDER DETAILS			REMARKS
		TYPE	RATING	FEEDERS	
01	EMG. ENCLOSURE LIGHTING	--	32A	3	1 FEEDERS/TB
02	CONTRACTUAL SPARE	--	32A	2	
03	BHEL SPARE	--	32A	2	

INVENTORY NO	SIGN. AND DATE	REF. DRG. NO.	COMPUTER FILE NAME

REV.	DATE	ALTERED	REV.	DATE	ALTERED	S.M.	REV.	DATE	ALTERED	S.M.	REV.	DATE	ALTERED	S.M.	REV.	DATE	ALTERED	S.M.	

**LEGEND:**

- (A) AMMETER
- (V) VOLTMETER
- CAEM21 BATTERY E/F RELAY
- VAG21 DC UNDER VOLTAGE RELAY
- MCCB
- MCB
- CABLE

**NOTES:-**

\*\* REFER TABLE FOR RATING AND QTY. OF FEEDER DETAILS.  
REFER TO SHEET 01 FOR NOTES.

SUBMITTED FOR:	APPROVAL	INFORMATION	REFERENCE	RECORD	CONSTRUCTION
CLIENT					

CLIENT  
**NMDC LIMITED**  
 3.0 MTPY INTEGRATED STEEL PLANT  
 (NISP), NAGARNAR, CHHATTISGARH  
 TURBO BLOWER STATION (PACKAGE NO. 010A)

CONSULTANT  
  
**MECON LIMITED**

CONTRACTOR  
  
**BHARAT HEAVY ELECTRICALS LTD.**  
 HYDERABAD

DESIGNED S.M. --sd--  
 DRAWN S.M. --sd--  
 CHECKED S.P. --sd--  
 APPROVED J.K.P. --sd--  
 DATE: 08.01.15

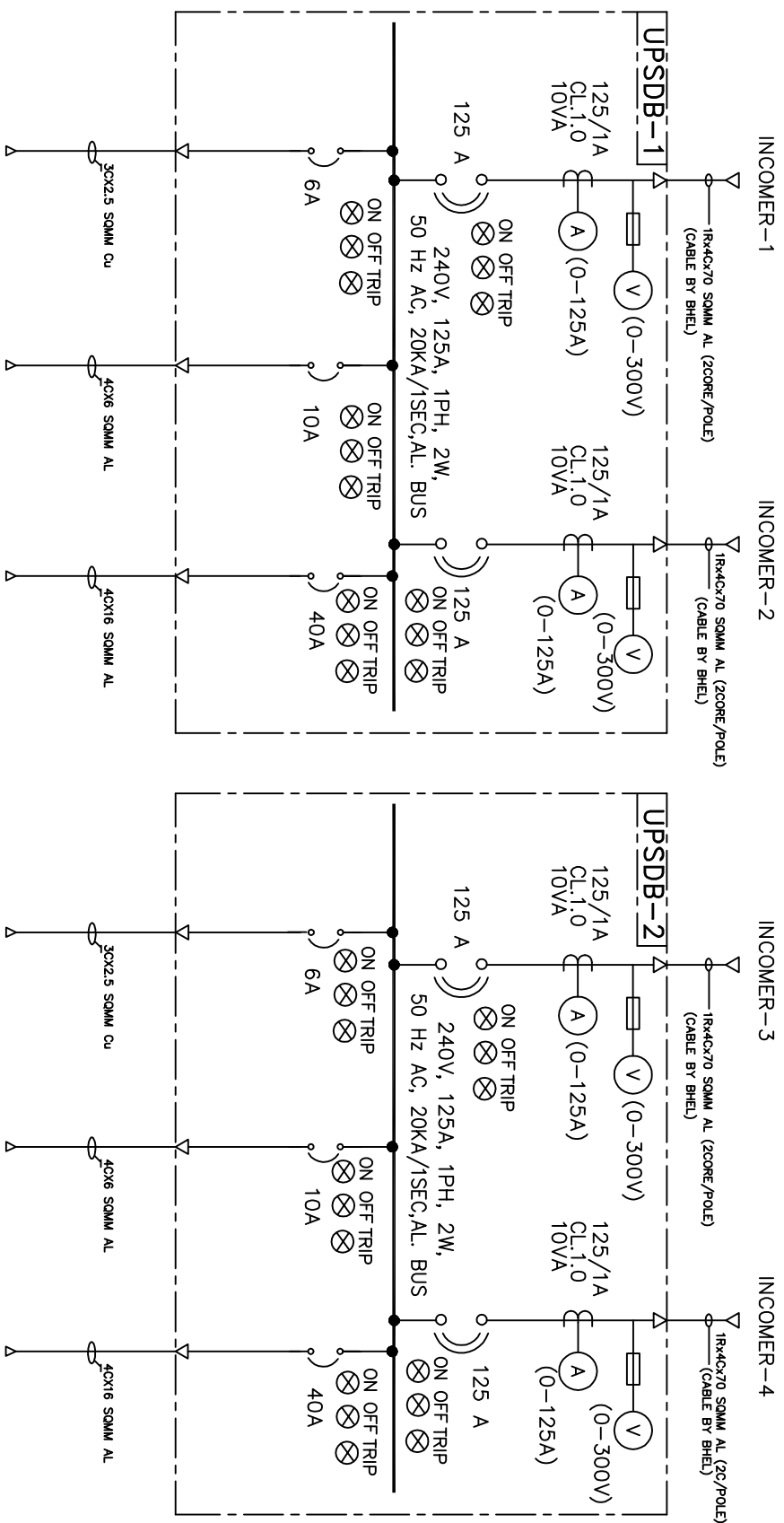
SCALE N.T.S SHEET 02 OF 02 REV. 02

VENDOR'S DRAWING NO. 3-38121-02433

PROJECT Drg. No. NMDC/BHEL/010A/00/29/DE/1404

53420-1218C-3 ON DRG.

10 FO 10 HS



**NOTES:-**

1. UPS DB SHALL BE SINGLE FRONT, DRAWOUT TYPE .
2. CABLE ENTRY FROM BOTTOM
3. PAINT SHADE PROTECTION SHALL BE IP-54
4. ENCLOSURE PROTECTION SHALL BE IP-54
5. ON, OFF, TRIP INDICATING LAMPS SHALL BE OF LED (CLUSTER TYPE)
6. MCCB SHALL HAVE S/C, O/C & E/F PROTECTION FEATURE AND SHALL BE MICROPROCESSOR BASED WITH ADJUSTABLE OVERLOAD AND SHORT CIRCUIT RELEASE.
7. MCCB <160A SHALL NOT BE ADJUSTABLE TYPE.
8. UPSDB SHALL HAVE BASE CHANNEL OF SIZE ISMC-75
9. REFER TABLE FOR RATING AND QTY OF FEEDER DETAILS
10. CABLE SIZES SHALL BE AS PER LT POWER CABLE SIZING CALCULATION WHICH SHALL BE SUBMITTED SEPARATELY
11. 50\*6MM EARTH BUS BAR SHALL RUN THROUGHOUT THE LENGTH OF THE PANEL AT THE BOTTOM.
12. MATERIAL SHALL BE CRCA SHEET STEEL WITH 2MM THICKNESS FOR LOADS AND 1.6MM THICKNESS FOR NON-LOAD MEMBERS.
13. UNDRILLED REMOVABLE BOTTOM CABLE GLAND PLATE THICKNESS SHALL BE 3MM.

**LEGEND:-**

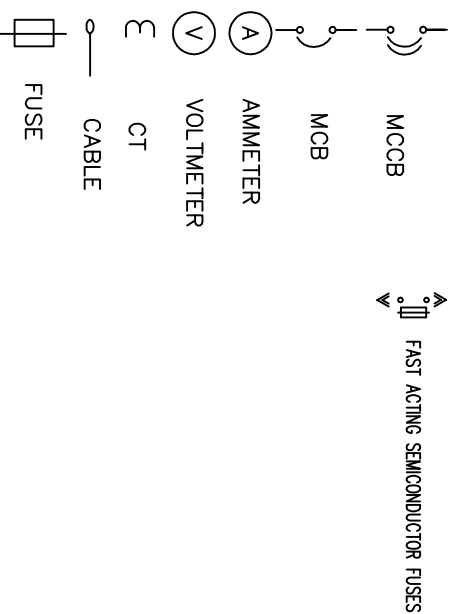


TABLE : OUTGOING FEEDER DETAILS FOR UPSDB-1 & 2

Sl.	FEEDER DESCRIPTION	MCCB RATING	UPSDB-1 QTY.	UPSDB-2 QTY.
01	TB-1.2	TSI MONITORING SYSTEM	6A	2
02	TB-3	TSI MONITORING SYSTEM	6A	1
03	TB-1.2	ASC SD PANEL	10A	4
04	TB-3	ASC SD PANEL	10A	2
05	COMMON	MASTER CONTROL PANEL	10A	2
06	TB-1.2	EHTC	6A	4
07	TB-3	EHTC	6A	2
08	TB-1.2	TP TMR CH1	6A	4
09	TB-3	TP TMR CH1	6A	2
10	TB-1.2	TP TMR CH2	6A	4
11	TB-3	TP TMR CH2	6A	2
12	TB-1.2	TP TMR CH3	6A	4
13	TB-3	TP TMR CH3	6A	2
14	TB-1.2	TMR COMMON STATION+CLCS	6A	4
15	TB-3	TMR COMMON STATION+CLCS	6A	2
16	TB-1.2	ATRS	10A	4
17	TB-3	ATRS	10A	2
18	TB-1.2	TB BOP CONTROL	6A	4
19	TB-3	TB BOP CONTROL	6A	2
20	COMMON	NETWORK PANEL COMMON-1	10A	2
21	COMMON	NW PNL CUM PWR DISTRIB	40A	2
22	---	CONTRACTUAL SPARE	6A	5
23	---	CONTRACTUAL SPARE	10A	3
24	---	CONTRACTUAL SPARE	40A	1
25	---	BHEL SPARE	6A	6
26	---	BHEL SPARE	10A	4
27	---	BHEL SPARE	40A	2

INVENTORY NO \_\_\_\_\_ SIGN. AND DATE \_\_\_\_\_ REF. DRG. NO. \_\_\_\_\_ COMPUTER FILE NAME \_\_\_\_\_

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REV.	DATE	ALTERED	REV.	DATE	ALTERED
CHD/APPD			CHD/APPD		
ZONE			ZONE		

DESIGNED S.M. -sd-	DATE 11.02.15	ALTERED	DATE	ALTERED
DRAWN S.M. -sd-	CHD/APPD			
CHECKED S.P. -sd-				
APPROVED U.K.P.				
DATE: 08.01.15				
SCALE N.T.S.	SHEET 01 OF 01	REV. 01		
VENDOR'S DRAWING NO.				
PROJECT Drg. No. -				
	NMDC/BHEL/010A/00/29/DE/1406			

CLIENT: NMDG LIMITED (NISP), NAGARNAR, CHHATTISGARH TURBO BLOWER STATION (PACKAGE NO. 010A)

CONSULTANT: MECON LIMITED

CONTRACTOR: BHARAT HEAVY ELECTRICALS LTD. HYDERABAD

DESIGNED FOR: SLD FOR TURBO BLOWER 240V AC UPSDB-1,2