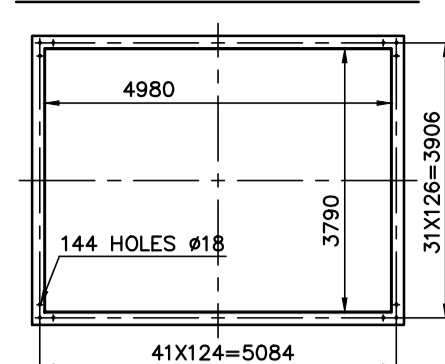
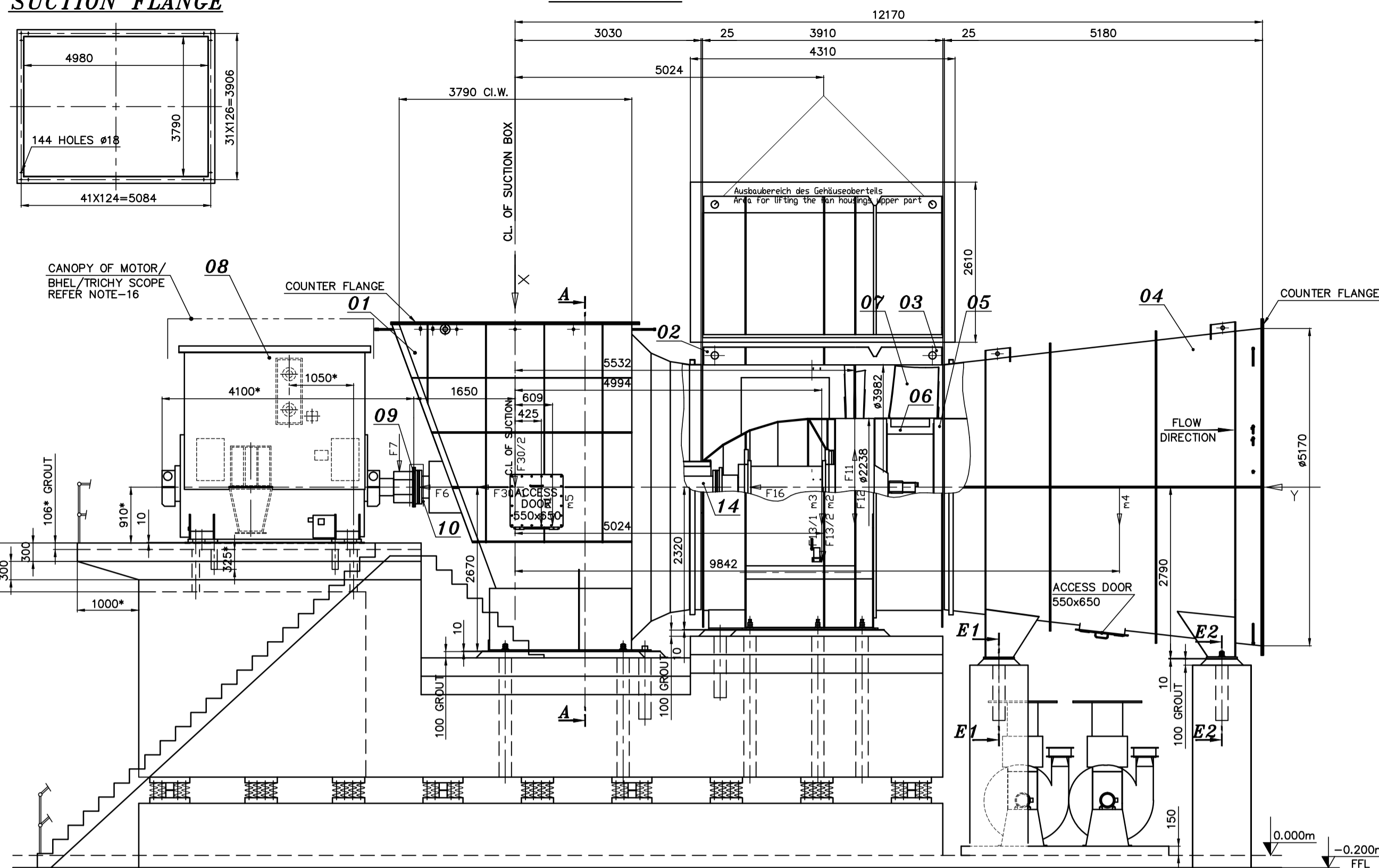


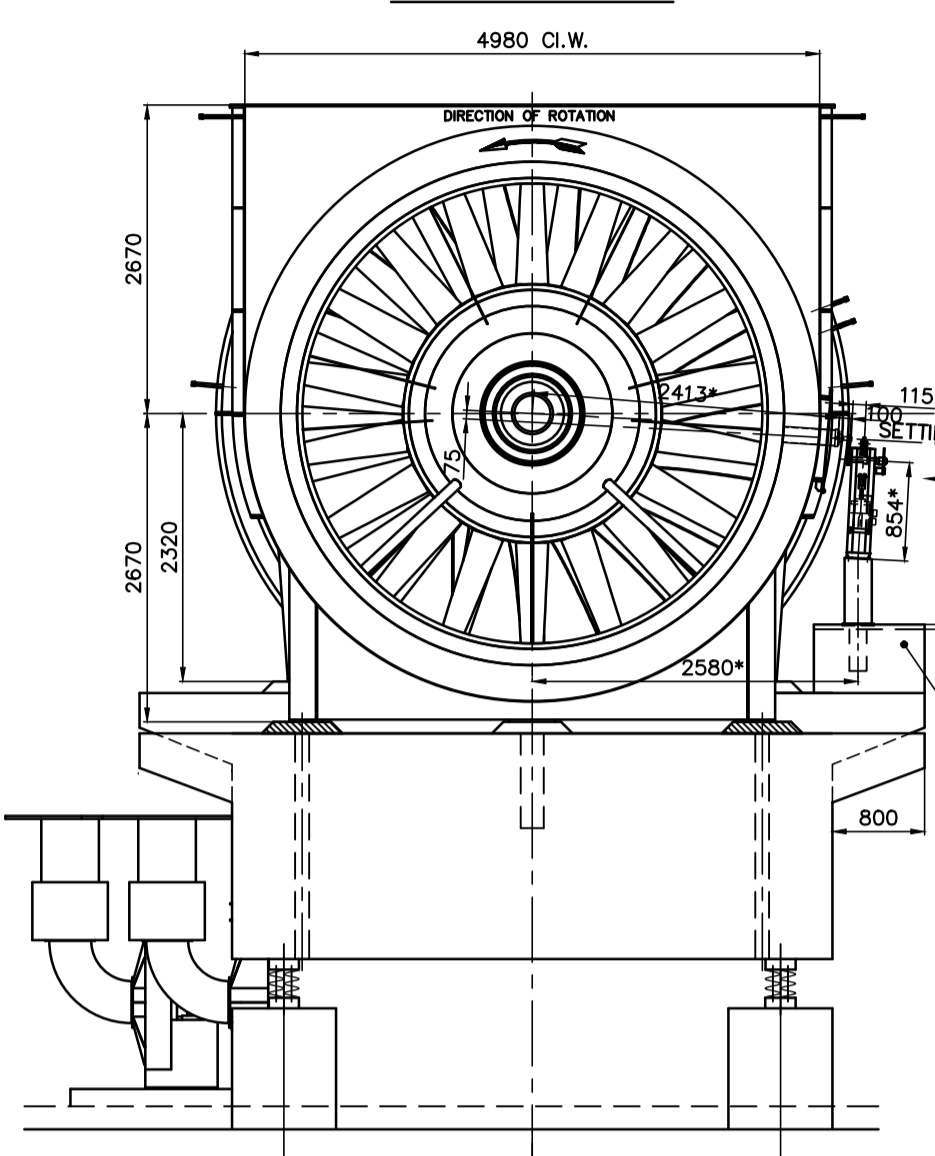
SUCTION FLANGE



ELEVATION



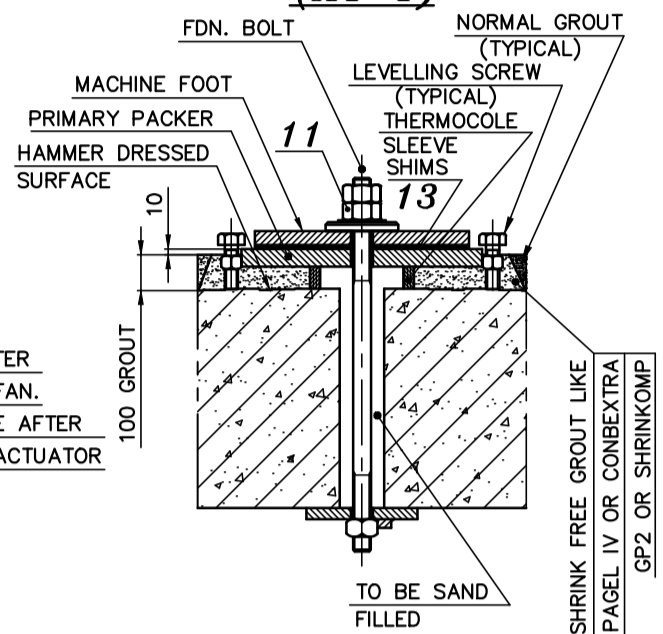
SECTION-AA



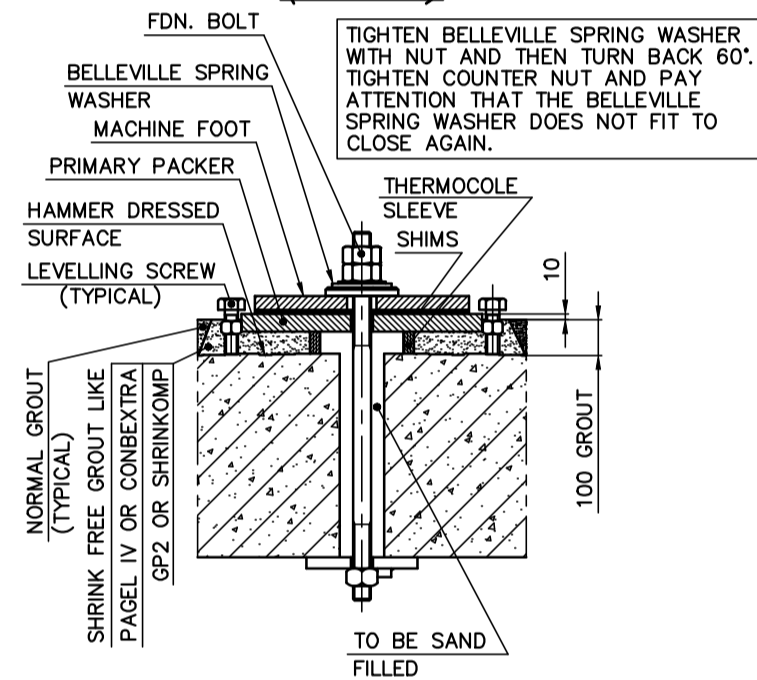
SL NO	DESCRIPTION	MATERIAL	QTY.
14	FAN SHAFT	42 CR Mo4	1
13	SHIMS	S.S	AS REQD.
12	PRIMARY PACKER	IS : 2062	AS REQD.
11	FOUNDATION FASTENERS FOR FAN	ASTM A105	17
10	COUPLING GUARD	IS : 2062	1
09	SPACER COUPLING	STEEL	1
08	MOTOR WITH FNDN. FASTENERS	5200KW / 745RPM	1
07	BLADES	AL. ALLOY	18
06	IMPELLER HUB	STEEL	1
05	HOUSING CORE	IS : 2062	1
04	DIFFUSER	IS : 2062	1
03	OUTLET GUIDE VANE ASSY.	IS : 2062	1
02	IMPELLER HOUSING	IS : 2062	1
01	SUCTION CHAMBER	IS : 2062	1

BILL OF MATERIAL

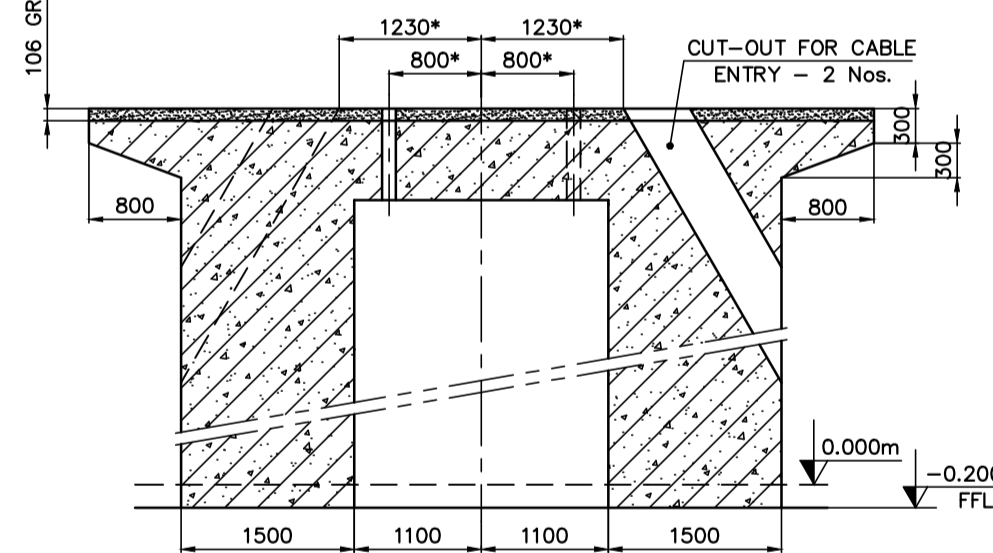
SECTION-B1B1 (AT I)



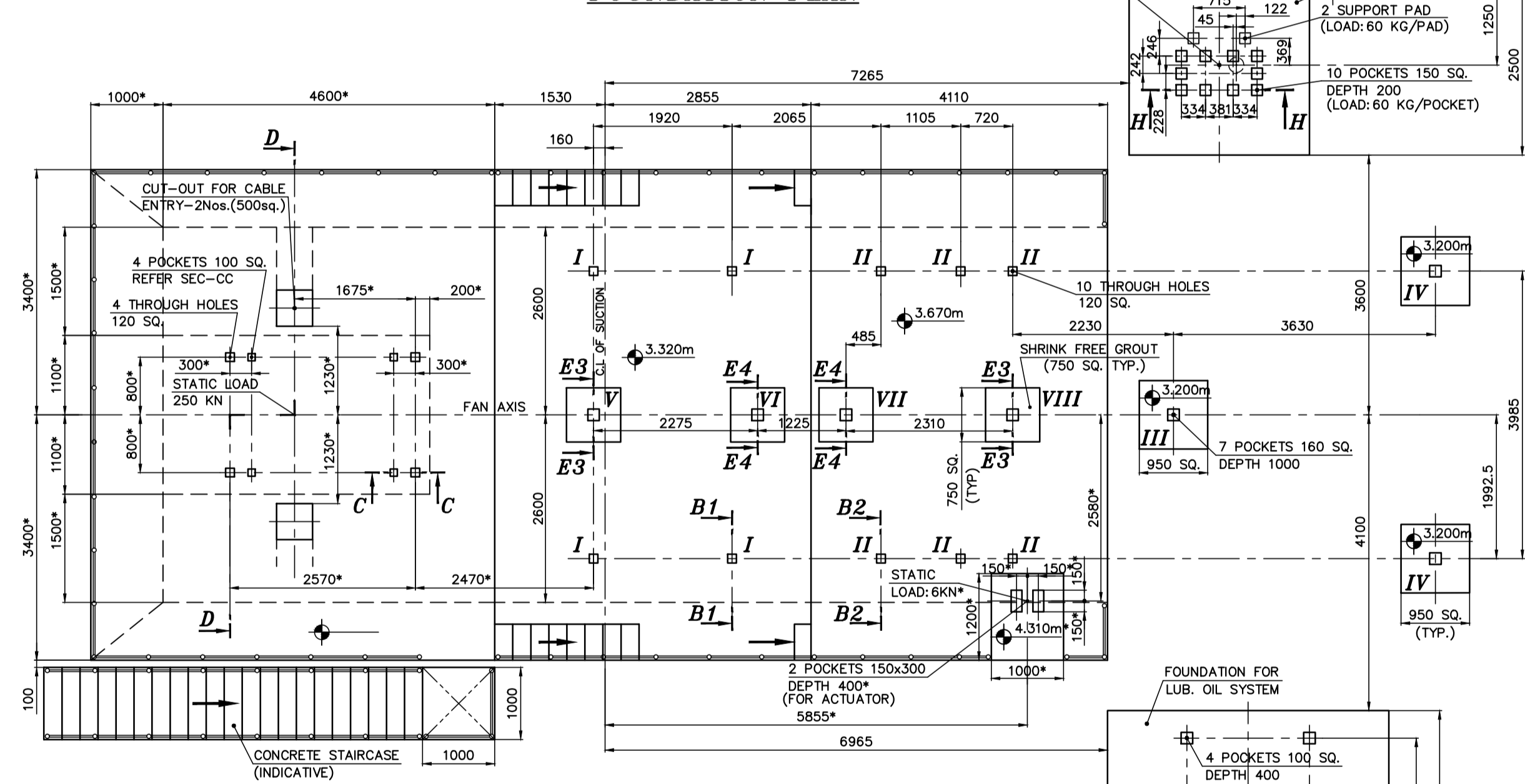
SECTION-B2B2 (AT II)



SECTION-DD*



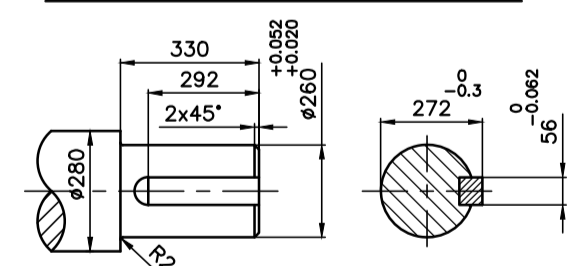
FOUNDATION PLAN



ID. NO.	(m) MASS IN (KG)	(F) FORCE IN (N)	DESIGNATION
30/2	12401		Stat. and dyn. forces caused by air stream of suction box in vert. direction
30/1	52856		Stat. and dyn. forces caused by air stream of suction box in horiz. direction
16	57087		Axial thrust of the fan (due to pressure increase)
15	464060		Load during starting sequence by short-circuit torque of the motor
14	-		Foundation
13/2	104500		Max. load when lifting the fan housings upper part
13/1	111330		Max. load when lifting the rotor assembly
12	717540		Unbalance in case of damage
11	27077		Max. rotating load due to unbalance of the fan rotor
10	-		Oil supply unit with oil filling
9	-		Frame of the motor
8	-		Drive motor
7	12430		Radial load on motor shaft
6	16719		Axial thrust on motor shaft for motor with fixed bearing
5	2260		Intermediate shaft with coupling
4	12710		Diffuser with tail fairing
3	11348		Complete rotor assembly
2	23670		Fan housing with straightener vane section
1	11080		Suction box with inlet nozzle and intermediate shaft cover

Point Forces in [N]	Vertical	Dynamic load Vertical	Stat. horiz. Dead Load horiz. across the axis	Stat. horiz. Dyn. Load horiz. across the axis
VIII			±2600	±13000
VII			+192200 -78100	±13000 ±13600 ±358800
VI			±78000	±15600 ±2800
V			±3200	±15600 ±2800
IV	+47100	±7000	±9500	±9500 ±7000
III	+68900	±5800	±13800	±12200 ±5800
II	+110500	±5300 ±145300	±22100	±22100 ±4600 ±125700
I	+93700	±2800	±18800	±18800 ±2800

MOTOR SHAFT END*



MOTOR BEARING DATA:*

BEARING SIZE	DE	NDE
	22-#225	22-#225
OIL QTY.	23Lts.	23Lts.
MAX. OIL INLET TEMP.	40°C	40°C
OIL GRADE	ISO VG 46 OR EQUI.	ISO VG 46 OR EQUI.

- NOTES:-**
- THE LOADS INDICATED ON FOUNDATION ARE WITHOUT ALLOWANCES FOR VIBRATIONS. CIVIL DESIGNERS ARE RESPONSIBLE FOR PROPER DESIGN OF FOUNDATION TAKING INTO ACCOUNT OF THE ALLOWANCES FOR VIBRATION ALSO.
 - THE DIFFERENT NATURAL FREQUENCY OF THE FOUNDATION HAVE TO BE 20% AWAY FROM THE SPEED FREQUENCY, f_{max} = n/60 AND 15% AWAY FROM THE DOUBLE OF THE SPEED FREQUENCY, 2 x f_{max}. THIS MEANS : 0.8xf_n TO 1.2xf_n AND 0.85x(2xf_n) TO 1.15x(2xf_n). SPEED FREQUENCY f_{max} = 12.4166 HZ (2 * f_{max}) = 24.8333 HZ
 - THE STIFFNESS OF THE FOUNDATION HAS TO BE AT LEAST CF > 1.0E+06 N/MM FOR EACH LOAD POINT OF THE FAN IN LONGITUDINAL TRANSVERSAL AND VERTICAL DIRECTIONS RELATING TO THE FAN AXIS. IT HAS TO BE TAKEN INTO CONSIDERATION THAT ON SETTLING THE FOUNDATION THE TOTAL NATURAL FREQUENCIES OF THE FOUNDATION CAN ARISE DUE TO THE SOIL COMPACTION AND THE RESULTING INCREASES OF THE ELASTIC MODULUS. AN UNEVEN SETTLING OF THE FOUNDATION HAS TO BE EXCLUDED.
 - THE RATIO OF THE FOUNDATION MASS TO THE ROTOR MASS HAS TO BE GREATER THAN 25.
 - ADOPT IS: 2974 / PART-IV FOR THE FOUNDATION DESIGN.
 - THE PERMISSIBLE MAXIMUM AMPLITUDE REFERRED TO SUPPORTING AREA-TOP EDGE OF FOUNDATION IS 150 MICRONS.
 - THE CONNECTING DUCTS AT INLET AND OUTLET OF FAN MUST BE SELF SUPPORTED AND SHOULD NOT BE WELDED WITH EXPANSION JOINTS.
 - FOUNDATION POCKETS SHOULD BE PERPENDICULAR TO THE FLAT SURFACES OF FOUNDATION.
 - ACCURATE TEMPLATES SHALL BE USED FOR LOCATING CORES FOR POCKET HOLES TO ENSURE THEIR DIMENSIONAL ACCURACY.
 - TOLERANCE BETWEEN ANY TWO POCKET CENTRES IS ±5 mm.
 - TOLERANCE ON CONCRETE LEVELS - 25 mm.
 - IN AREAS WHERE SOLE PLATES AND ANCHOR PLATES ARE TO BE INCORPORATED IN FOUNDATION CONCRETE, THE SIZE OF THE COARSE AGGREGATE USED SHALL NOT EXCEED 20 mm AND DOWN GRADED TO FACILITATE CHIPPING AND SCRAPPING AND THEREBY ENSURING MAXIMUM CONTACT ON THE MATING AREAS.
 - NON-SHRINK GROUT IS TO BE USED. REFER GENERAL SPECIFICATIONS ISSUED BY BHEL/RANIPET FOR NON-SHRINK GROUT. THIS ALSO CONTAINS THE PREPARATIONS OF PRIMARY PACKERS & SHIMS.
 - GROUTING SHOULD BE DONE ONLY AFTER FINAL ALIGNMENT OF FAN.
 - ELEVATION & POCKET DEPTHS SHOWN IN FOUNDATION PLAN ARE INCLUDE GROUTING THICKNESS.
 - GROUTING IS IN THE SCOPE OF ERECTION GROUP / ERECTION CONTRACTOR.
 - HANDRAILS, STEEL PLATFORMS & CANOPY FOR MOTOR AND THEIR EMBEDMENTS ARE IN THE SCOPE OF BHEL/TRICHY.
 - FAN FOUNDATION SHOULD NOT BE USED AS SUPPORT FOR OTHER STRUCTURES OR EQUIPMENTS.
 - FOUNDATION CONFIGURATION SHOWN IN THIS DRAWING IS ONLY INFORMATIVE/TYPICAL TYPE AND DETAILS OF FOUNDATION ARE TO BE FINALISED BY CIVIL DESIGNERS.
 - FOR MOTOR ERECTION, REFER MOTOR SUPPLIER'S ERECTION MANUAL.
 - BASE FRAME, SOLE PLATE, FOUNDATION BOLTS & FASTENERS RELATED TO MOTORS ARE IN THE SCOPE OF MOTOR SUPPLIER (BHEL BHOPAL UNIT)

- FAN DETAILS:-**
- TYPE : SAF 40/22.4-1
 - MAKE : M/s. BHEL/RANIPET
 - TOTAL WEIGHT OF FAN (WITHOUT MOTOR, COUPLING ETC.) : 55000 Kg (APPROX)
 - WEIGHT OF ROTATING PARTS : 11500 Kg
 - GD² OF FAN : 26000 Kg.m²
 - SPEED OF FAN : 745 RPM
 - NO. OF FANS PER BOILER : TWO
- MOTOR DETAILS:-***
- MAKE : M/s. BHEL/BHOPAL
 - TYPE : 5200KW / 745RPM
 - CAPACITY : 5200KW / 745RPM
 - GD² OF MOTOR : 26000 Kg.m²
 - WEIGHT OF MOTOR : 11500 Kg
 - WEIGHT OF ROTATING PARTS : 26000 Kg.m²
 - MOTOR DRAWING NUMBER : 745 RPM
- MOTOR COOLER DATA***
- WATER PRESSURE DROP ACROSS COOLER = 0.4 Kg/cm²
 - TEMP. RISE OF WATER ACROSS COOLER = 5°C
 - WATER INLET TEMP. = 38°C
 - MAX. OPERATING PRESSURE OF WATER = 6 Kg/cm²
 - TOTAL REQUIREMENT OF WATER = 590 LPM

- FOUNDATION LOAD OF MOTOR*:**
- MAX. FORCE CALCULATED FROM THE MAX. IMPULSE TORQUE - FM = 446KN
 FORCE EXERTED BY WEIGHT ON EACH SIDE - FG = 115KN
 FOUNDATION LOAD ON EACH SIDE COMPRESSION - FA = FM+FG = 561KN
 TENSILE FORCE - FB = FM-FG = 331KN
 THE FORCE OCCUR ALTERNATIVELY INDEPENDENT OF THE DIRECTION OF ROTATION.
-

CUSTOMER NO : R550 & R551

CUSTOMER		नेयवेली लिग्नाइट कारपोरेशन लिमिटेड NEYVELI LIGNITE CORPORATION LIMITED (NLC LTD)
CONSULTANT		एम/एस लामेयर अंतर्राष्ट्रीय निजी इंडिया लिमिटेड M/S LAHMEYER INTERNATIONAL (INDIA) PVT. LTD
PROJECT	PACKAGE: STEAM GENERATOR AND AUXILIARIES (NTA1) NEYVELI NEW THERMAL POWER PROJECT (NTPP) 2 X 500 MW LIGNITE FIRED UNITS AT NEYVELI	
	BHARAT HEAVY ELECTRICALS LIMITED., BOILER AUXILIARIES PLANT RANIPET - 632 406	
DRAWN	P.S.N	Sd..... 28.05.14
CHECKED	SANDEEP	Sd..... 28.05.14
APPROVED	V.P.S	Sd..... 28.05.14
PROJECTION	SCALE	N.T.S
	TITLE	GA DRAWING FOR ID FAN WITH FOUNDATION PLAN AND LOADING DATA SAF 40/22.4-1
	DRG.NO.	1-00-099-28905
	REV	00