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# SORKHANKALATEH

## 63/20 KV SUBSTATION

### GENERAL LAYOUT & SECTIONS

REFERENCE DOCUMENT & DWG

LEGENDS

NOTES

KEY PLAN

D	ISSUE FOR APPROVE	GHAFOURAN	GHAFOURAN	MANOORI	MANOORI	DANESHPOU	04.02.21
C	ISSUE FOR APPROVE	GHAFOURAN	GHAFOURAN	MANOORI	MANOORI	DANESHPOU	04.01.23
B	ACC TO LET NO.1403/179502/52320	EMARLOO	MANOORI	MANOORI	MANOORI	DANESHPOU	03.12.06
A	ACC TO LET NO.1403/179502/43747	EMARLOO	MANOORI	MANOORI	MANOORI	DANESHPOU	03.10.03
O	FIRST ISSUE	EMARLOO	MANOORI	MANOORI	MANOORI	DANESHPOU	03.07.14
Rev.	DESCRIPTION	DRAWN	DESIGNED	CHKD.	HEAD	APPR.	DATE



Magna Power Plants Construction &  
Development Co(MD-I)



MOHAM  
SHARGH  
CO.



GHODS NIROO  
CONSULTING ENGINEERS

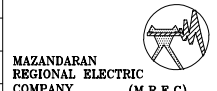
PROJECT: SORKHANKALATEH 63/20KV AIS S/S

TITLE: GENERAL LAYOUT & SECTIONS


OWNER'S DWG. NO. : MD1-BQ-06-SS-E-01-NYO-706 REV. NO. : D

SCALE : AS SHOWN FORMAT : A3 FILE NO. : SHEET: 0 OF 8

CONTRACT NO. : MD1-BQ-06-SS-E-01-NYO-706 DESIGN TYPE : BASIC DESIGN ☐ DETAIL DESIGN ☐



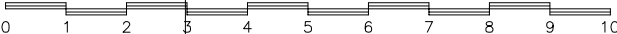
MAZANDARAN  
REGIONAL ELECTRIC  
COMPANY  
(M.R.E.C)



SUB-CONTRACTOR'S LOGO





GHAFOURAN	GHAFOURAN	MANOORI	MANOORI	DANESHPOU	04.02.21
DRAWN	DESIGNED	CHKD.	HEAD	APPR.	DATE

MAPNA'S DWG. NO. : MD1-BQ-06-SS-E-01-NYO-706 REV. NO. : D SUB CONTRACTOR DWG. NO.: D

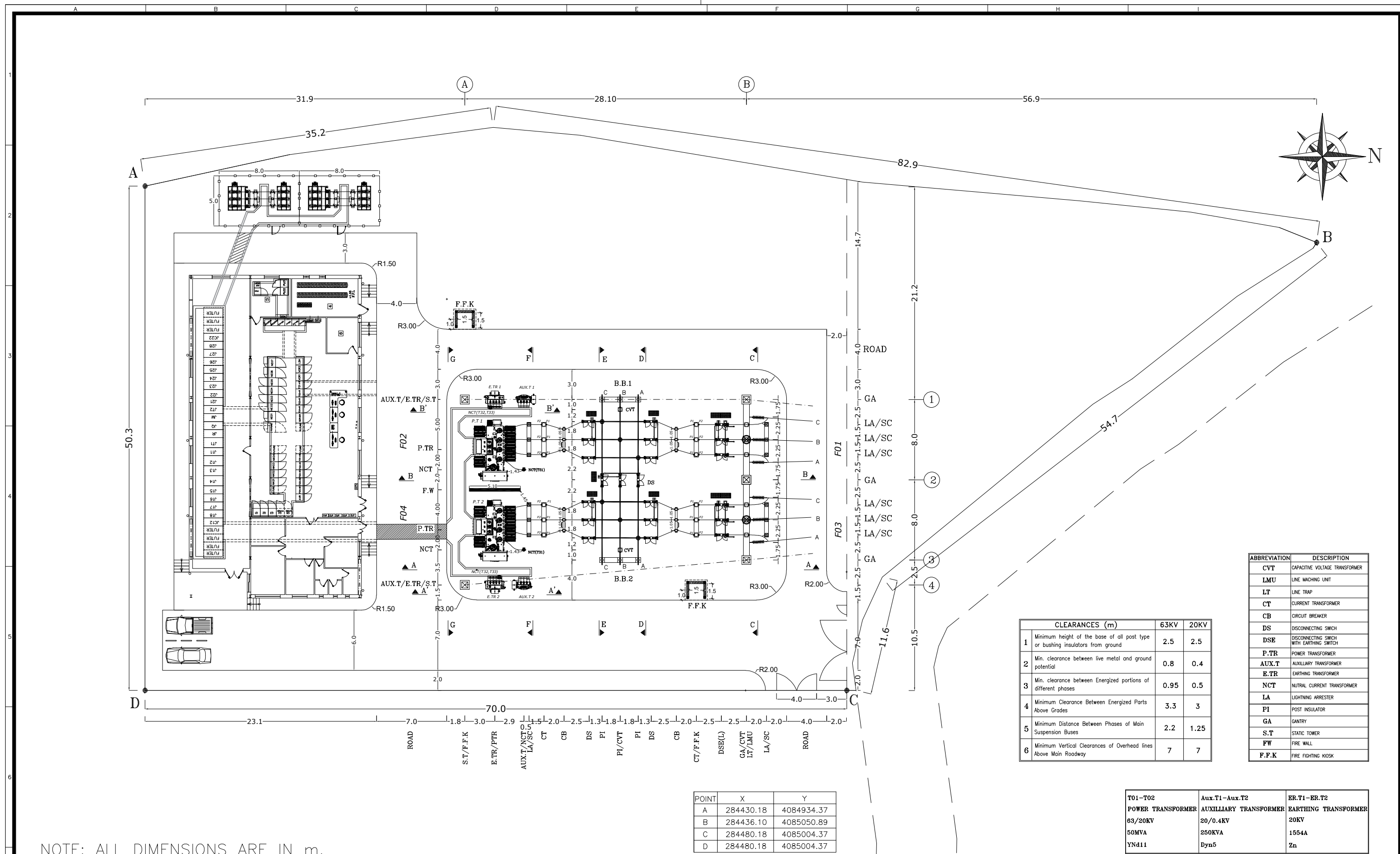


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Page	Description	Revision				
		<i>0</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
00	COVER SHEET	X	X	X	X	X
01	INDEX	X	X	X	X	X
02	GENERAL LAYOUT	X	X	X	X	X
03	SECTION A-A	X	X	X	X	X
04	SECTION B-B		X	X	X	X
05	SECTION C-C	X	X	X	X	X
06	SECTION D-D&E-E	X	X	X	X	X
07	SECTION F-F	X	X	X	X	X
08	SECTION G-G	X	X	X	X	X

<div>MAZANDARAN REGIONAL ELECTRIC COMPANY</div> <div></div>	SUB-CONTRACTOR'S LOGO	E						DWG./Doc. No. MD1-BQ-06-SS-E-01-NYO-706	SCALE :	<div><div>Mapna Power Plants Construction &amp; Development Co(MD-1)</div></div>	<div><div>MOHAM SHARGH CO.</div></div>	<div><div>GHODS NIROO CONSULTING ENGINEERS</div></div>			
		D	ISSUE FOR APPROVE	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.02.21		
		C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.01.23		
	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.12.06	DRAWING TITLE:  INDEX	REV. NO. : D  SHEET: 1 OF: 8
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.10.03		
MAPNA'S DWG, No. : MD1-BQ-06-SS-E-01-NYO-706	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14	DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT :  SORKHANKALATEH 63/20KV AIS S/S			
		REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE							

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NOTE: ALL DIMENSIONS ARE IN m.

POINT	X	Y
A	284430.18	4084934.37
B	284436.10	4085050.89
C	284480.18	4085004.37
D	284480.18	4085004.37

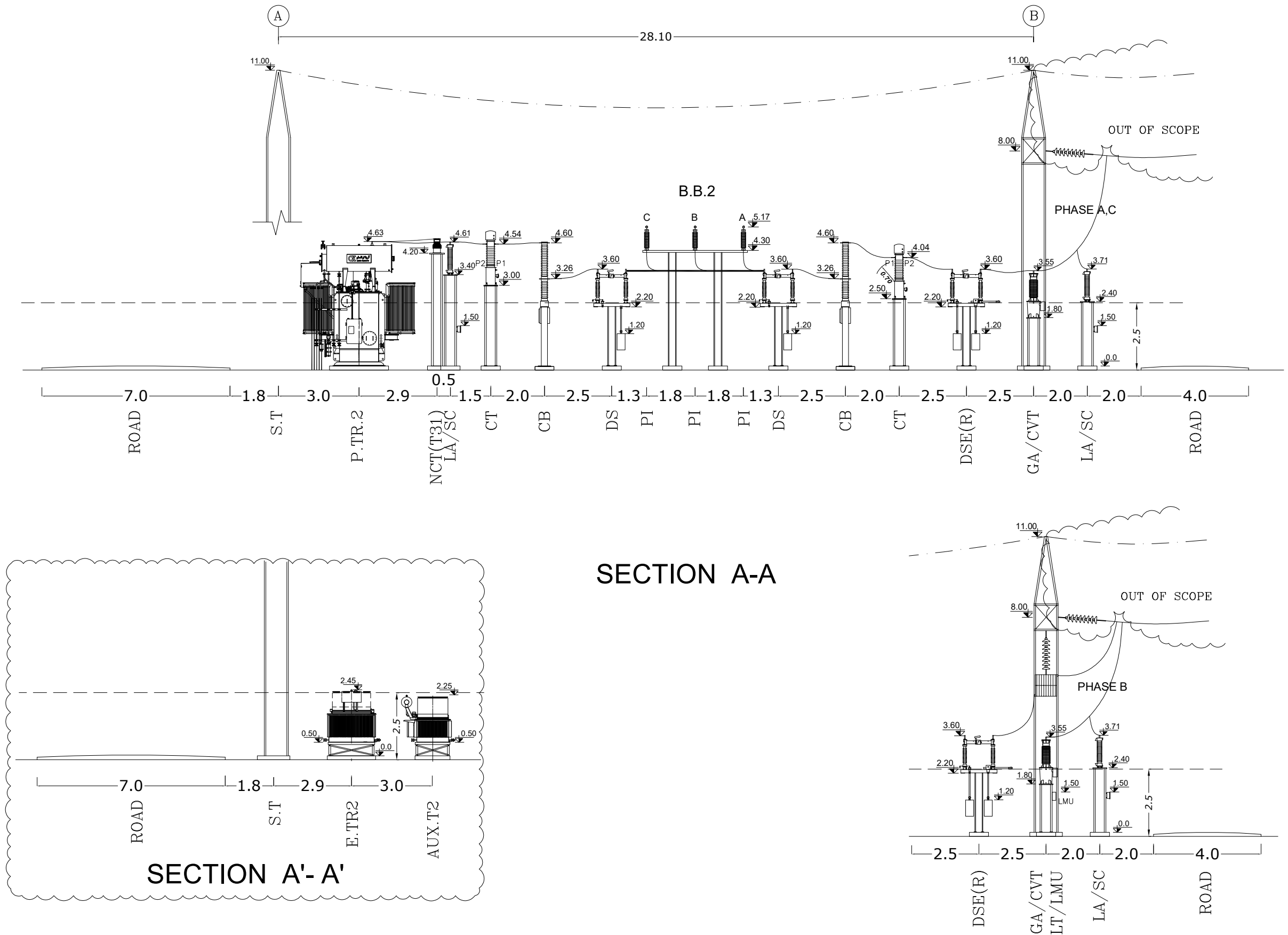
CLEARANCES (m)		63KV	20KV
1	Minimum height of the base of all post type or bushing insulators from ground	2.5	2.5
2	Min. clearance between live metal and ground potential	0.8	0.4
3	Min. clearance between Energized portions of different phases	0.95	0.5
4	Minimum Clearance Between Energized Parts Above Grades	3.3	3
5	Minimum Distance Between Phases of Main Suspension Buses	2.2	1.25
6	Minimum Vertical Clearances of Overhead lines Above Main Roadway	7	7





ABBREVIATION	DESCRIPTION
CVT	CAPACITIVE VOLTAGE TRANSFORMER
LMU	LINE MACHING UNIT
LT	LINE TRAP
CT	CURRENT TRANSFORMER
CB	CIRCUIT BREAKER
DS	DISCONNECTING SWITCH
DSE	DISCONNECTING SWITCH WITH EARTHING SWITCH
P.T.R	POWER TRANSFORMER
AUX.T	AUXILIARY TRANSFORMER
E.T.R	EARTHING TRANSFORMER
NCT	NUTRAL CURRENT TRANSFORMER
LA	LIGHTNING ARRESTER
PI	POST INSULATOR
GA	GANTRY
S.T	STATIC TOWER
FW	FIRE WALL
F.F.K	FIRE FIGHTING KIOSK

T01-T02 POWER TRANSFORMER 63/20KV 50MVA YNd11	Aux.T1-Aux.T2 AUXILLIARY TRANSFORMER 20/0.4KV 250KVA Dyn5	ER.T1-ER.T2 EARTHING TRANSFORMER 20KV 1554A Zn
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<div></div> <div>MAZANDARAN REGIONAL ELECTRIC COMPANY (M.R.E.C)</div>	SUB-CONTRACTOR'S LOGO	E						DWG./Doc. No. MD1-BQ-06-SS-E-01-NYO-706	SCALE : 1/350	<div></div> <div>Mapna Power Plants Construction &amp; Development Co(MD-1)</div>	<div></div> <div>MOHAM SHARGH CO.</div>	<div></div> <div>GHODS NIROO CONSULTING ENGINEERS</div>				
		D	ISSUE FOR APPROVE	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.02.21			
		C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.01.23			
	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.12.06	DRAWING TITLE:  GENERAL LAYOUT				REV. NO. : D			
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.10.03						SHEET: 2 OF: 8		
	MAPNA'S DWG. No. :  MD1-BQ-06-SS-E-01-NYO-706	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14				DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT :  SORKHANKALATEH 63/20KV AIS S/S
			REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE							

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		D	ISSUE FOR APPROVE	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.02.21
		C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.01.23
	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.12.06
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.10.03
MAPNA'S DWG. No. : MD1-BQ-06-SS-E-01-NYO-706	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14	DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT : SORKHANKALATEH 63/20KV AIS S/S	
		REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE					

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SECTION B-B

SECTION B'- B'

SECTION B.B.1

REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE
O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14
A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.10.03
B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.12.06
C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU	04.01.23
D	ISSUE FOR APPROVE	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU	04.02.21
E						

DWG./Doc. No.	SCALE	REV. NO.	SHEET	FORMAT	PROJECT
MD1-BQ-06-SS-E-01-NY0-706	1/150	D	4 OF 8	A3	SORKHANKALATEH 63/20KV AIS S/S

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
P.TR.1	2.9		
NCT(T31) LA/SC	0.5		
CT	1.5		
CB	2.0		
DS	2.5		
PI	1.3		
PI	1.8		
PI	1.8		
PI	1.3		
DS	2.5		
CB	2.0		
CT	2.5		
DSE(R)	2.5		
GA/CVT	2.5		
LA/SC	2.0		
ROAD	4.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
DSE(R)	2.5		
GA/CVT LT/LMU	2.5		
LA/SC	2.0		
ROAD	4.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
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S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
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S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		
E.TR1	2.9		
AUX.T1	3.0		

COMPONENT	WIDTH (m)	HEIGHT (m)	TYPE
ROAD	7.0		
S.T	1.8		

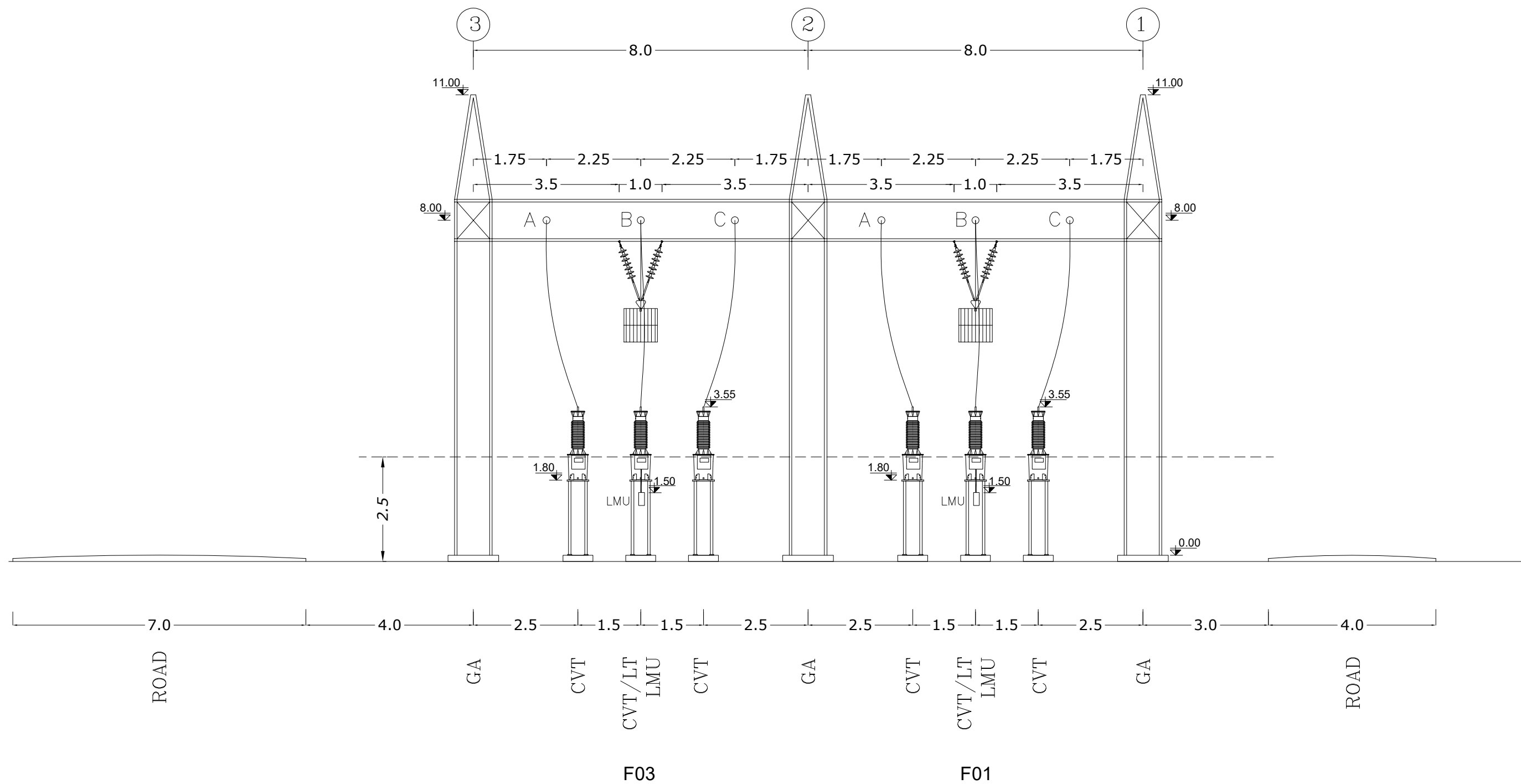
## SECTION B-B

SECTION B'- B'





DRAWING TITLE: SECTION B-B

**SORKHANKALATEH 63/20KV AIS S/S**

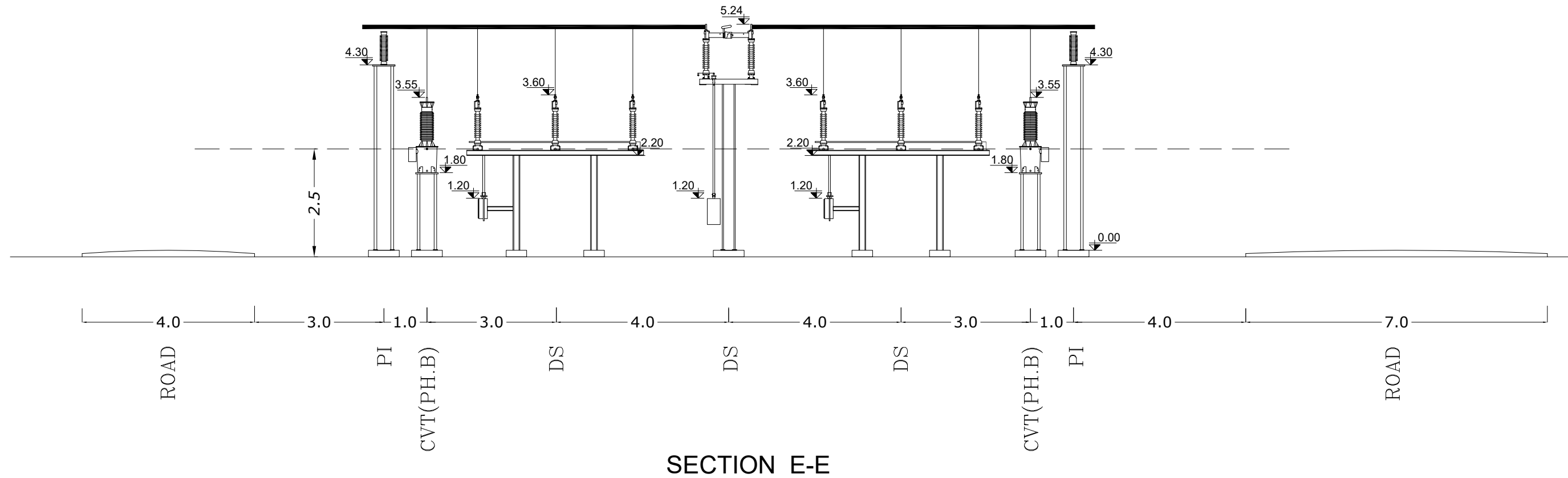
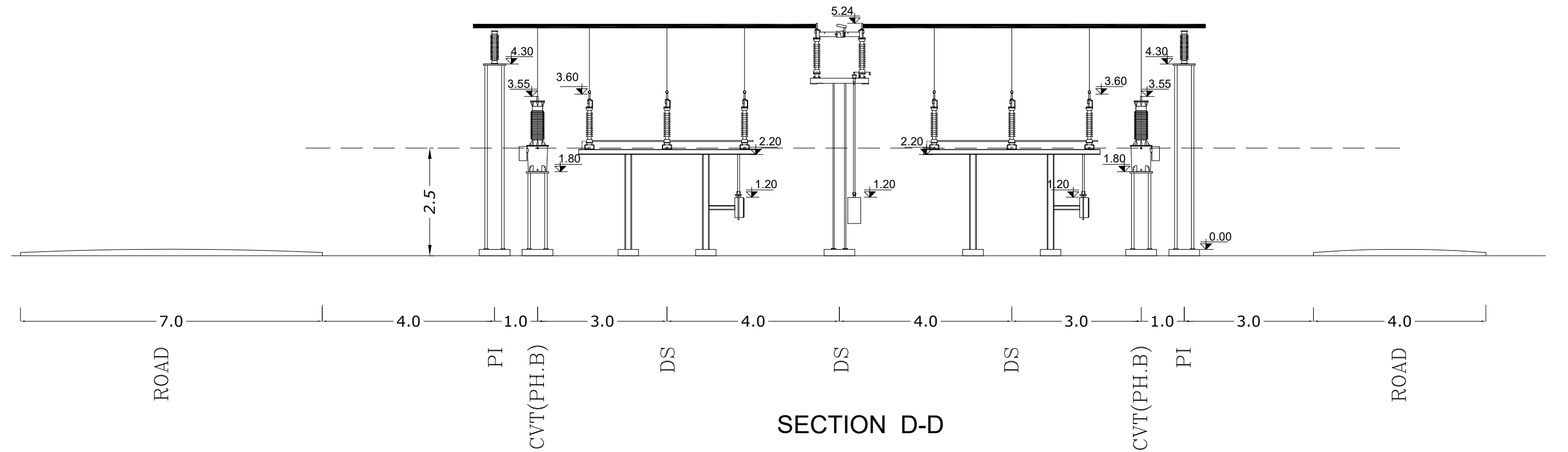
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SECTION C-C

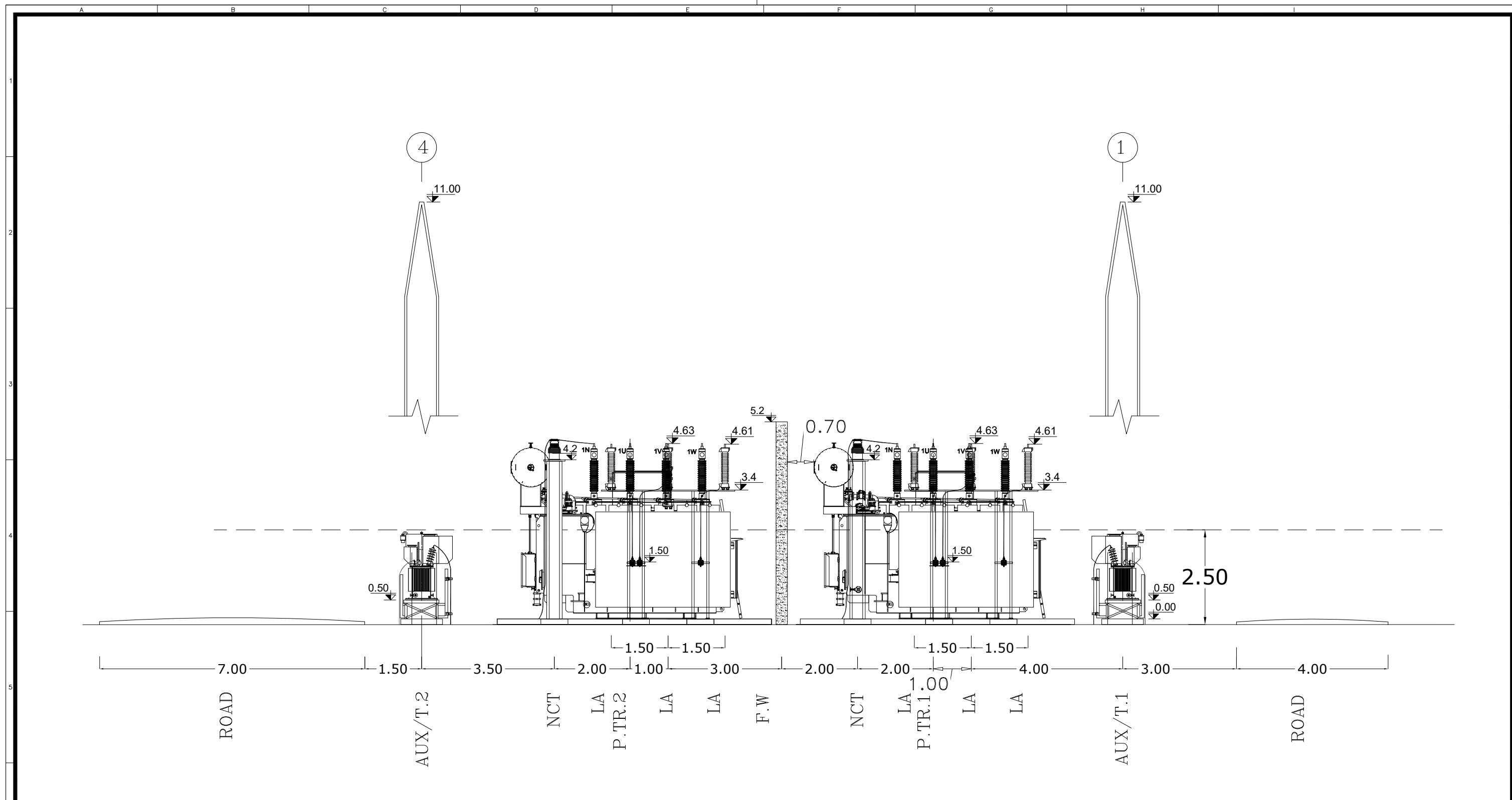
<div></div> <div>MAZANDARAN REGIONAL ELECTRIC COMPANY (M.R.E.C)</div>	SUB-CONTRACTOR'S LOGO	E						DWG./Doc. No. MD1-BQ-06-SS-E-01-NYO-706	SCALE :1/100	<div></div> <div>Mapna Power Plants Construction &amp; Development Co(MD-1)</div>	<div></div> <div>MOHAM SHARGH CO.</div>	<div></div> <div>GHODS NIROO CONSULTING ENGINEERS</div>			
		D	ISSUE FOR APPROVE	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.02.21		
		C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU						04.01.23		
	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.12.06	DRAWING TITLE:  SECTION C-C	REV. NO. : D  SHEET: 5 OF: 8
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.10.03		
MAPNA'S DWG. No. : MD1-BQ-06-SS-E-01-NYO-706	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14	DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT :  SORKHANKALATEH 63/20KV AIS S/S			
		REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE							

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	C	ACC TO LET NO.1403/179502/52320	GHAFOURIAN	GHAFOURIAN	M.NOORI	DANESHPOU	04.01.23						DRAWING TITLE:  SECTION D-D&E-E	REV. NO. : D
	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.12.06							SHEET: 6 OF: 8
	A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.10.03							
SUB CONTRACTOR DWG. NO.:	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14	DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT :  SORKHANKALATEH 63/20KV AIS S/S		
		REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE						

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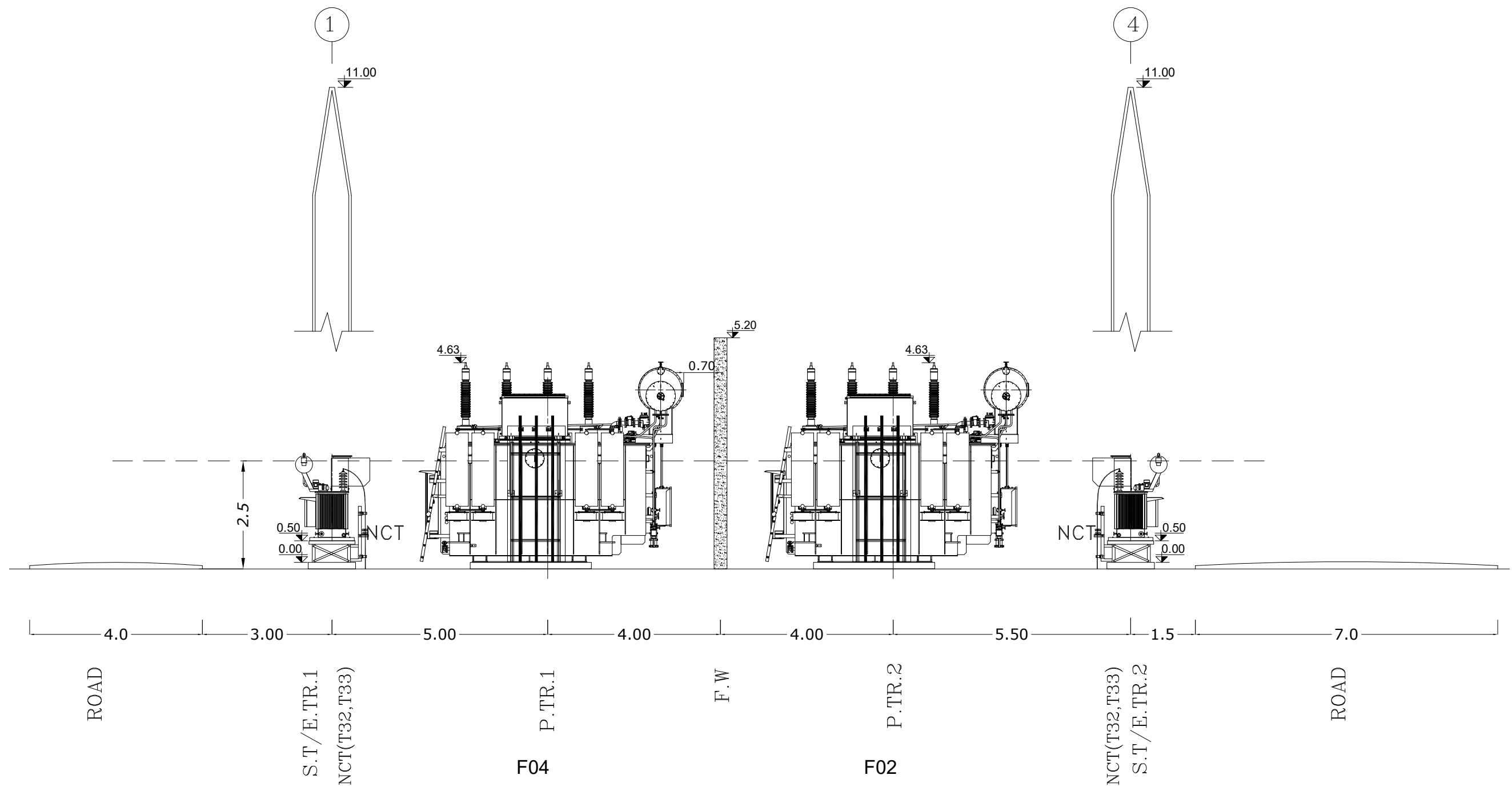






SECTION F-F

<div></div> <div>MAZANDARAN REGIONAL ELECTRIC COMPANY (M.R.E.C)</div>	SUB-CONTRACTOR'S LOGO	E						DWG./Doc. No. MD1-BQ-06-SS-E-01-NY0-706	SCALE :1/100	<div></div> <div>Mapna Power Plants Construction &amp; Development Co(MD-1)</div>	<div></div> <div>MOHAM SHARGH CO.</div>	<div></div> <div>GHODS NIROOM CONSULTING ENGINEERS</div>				
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	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.12.06	DRAWING TITLE:  SECTION F-F	REV. NO. : D	SHEET: 7 OF: 8
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.10.03			
		O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.07.14			
	MAPNA'S DWG. No. : MD1-BQ-06-SS-E-01-NY0-706	NIYAM'S LOGO	REV.	DESCRIPTION	DWN	DESN	CHKD						APPR	DATE	DESIGN STAGE :	FILE No.



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	SUB CONTRACTOR DWG. NO.:	B	ACC TO LET NO.1403/179502/52320	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.12.06	DRAWING TITLE: <div>SECTION G-G</div>	REV. NO. : D SHEET: 8 OF: 8
		A	ACC TO LET NO.1403/179502/43747	EMARLOO	M.NOORI	M.NOORI	DANESHPOU						03.10.03		
MAPNA'S DWG. No. : MD1-BQ-06-SS-E-01-NYO-706	NIYAM'S LOGO	O	FIRST ISSUE	EMARLOO	M.NOORI	M.NOORI	DANESHPOU	03.07.14	DESIGN STAGE :	FILE No.	FORMAT : A3	PROJECT : SORKHANKALATEH 63/20KV AIS S/S			
		REV.	DESCRIPTION	DWN	DESN	CHKD	APPR	DATE							