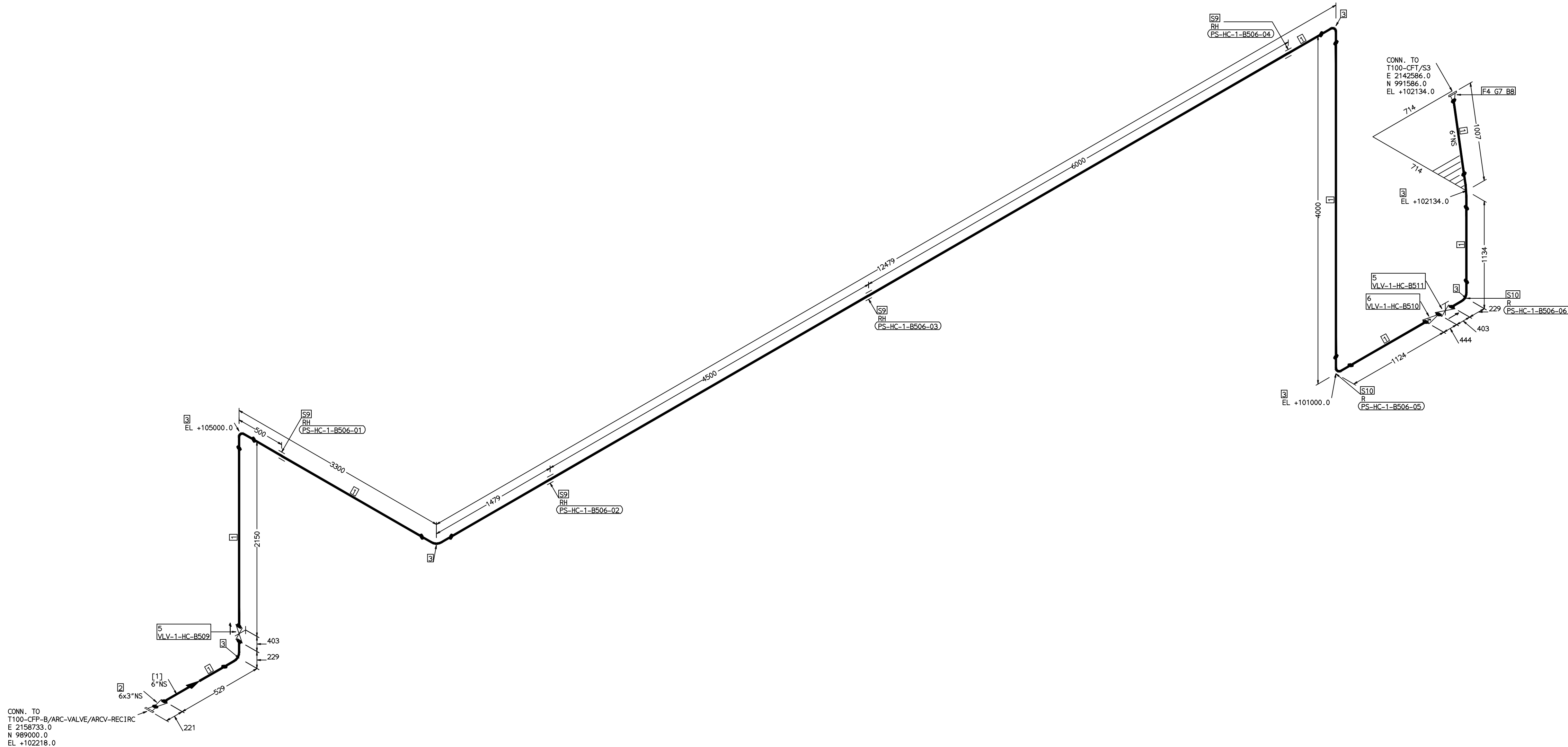


COMPUTER FILE NAME: _____



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (in)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
7	GASKET M.S. ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	6	CL300		1	0.56	HY7240363082
8	13 STUD WITH 2 NUTS ASME B18.2	A193GR88/A194GR8	3/4	M20X130		12	0.43	
9	RIGID HANGER		6			4	0	
10	PIPE REST		6			2	0	

NOTES:-

1. ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3. SUPPORT LOCATIONS ARE SUGGESTIVE, TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
4. PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT:	 BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELiance INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BBXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE: 1-CFP-B-RECIRCULATION		DRAWING NO: 1-381-01-06015		REV 00P
SHT. No. 1		NO. OF SHTS. 1		

[illegible]

LEGEND:-

	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A	-	ANCHOR
R	-	REST
RG	-	REST + GUIDE
RL	-	REST + LIMIT STOP
RLG	-	DIRECTION ANCHOR
RH	-	RIGID HANGER
SH	-	SPRING HANGER
BS	-	BOTTOM SPRING
VG	-	VERTICAL GUIDE

RECORD OF REVISIONS:-					
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	AP BY

COMPUTER FILE NAME: _____

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNIT/WT (Kg)	BHEL MATCODE
7	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	6	CL300		1	0.56	HYT240363082
8	130 STUD WITH 2 NUTS ASME B16.2	A193GR88/A194GR8	3/4	M20X130		12	0.43	
9	RIGID HANGER		6			4	0	
10	PIPE REST		6			3	0	

NOTES:-

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3. SUPPORT LOCATIONS ARE SUGGESTIVE, TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
4. PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT:

BECHTEL
FREDERICK, MARYLAND, U.S.A

PROJECT:

RELIANCE INDUSTRIES LIMITED
COAL BASED CAPTIVE POWER PLANT (CCPP)

RIL DRG NO. HAZIRA:

10090-PAT100-XXXX-XX-BHL-BXXX			
		NAME	SIGN


BHARAT HEAVY ELECTRICALS LTD
 PROJECT ENGINEERING &
 SYSTEMS DIVISION
 R.C.PURAM, HYDERABAD-502032.
 PE&SD LAYOUTS & PIPING ENGINEERING

	NAME	SIGN	DATE
DRN.	PCC	-SD-	05-05-14
CHKD.	VUK	-SD-	05-05-14
APPRD.	GS	-SD-	05-05-14
		SCALE: NTS	

TITLE:
1-CFP-C-RECIRCULATION

DRAWING NO: 1-381-01-06016		REV OOP
SHT. No. 1	NO. OF SHTS.	1

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK \$(mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B507-6-22B-NI	15.5	39.5	19.2	60				22B-RHP	6"

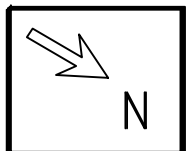
LEGEND:-

-  SUPPORT LOCATION
 DIRECTION OF FLOW
 WELD SYMBOL
- A - ANCHOR
 R - REST
 RG - REST + GUIDE
 RL - REST + LIMIT STOP
 RGL - DIRECTION ANCHOR
 RH - RIGID HANGER
 SH - SPRING HANGER
 BS - BOTTOM SPRING
 VG - VERTICAL GUIDE

RECORD OF REVISIONS:—

OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRO BY

COMPUTER FILE NAME: _____



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
15	RIGID HANGER		14			9	0	
16	PIPE REST		14			2	0	

[1]

NOTES:-

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY – FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPF HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE: 1-CFP-DISCH-UPTO-DC		DRAWING NO: 1-381-01-06017		REV OOP
		SHT. No. 1	NO. OF SHTS. 1	

REFERENCE DRAWINGS:-	LINE PARAMETERS:-									
	LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	O PR (Kg/cm2)	O TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
	HSAD-HC-BHL-1-B511-14-22B-NI	15.5	39.5	19.2	60				22B-RHP	14"
	HSAD-HC-BHL-1-B510-10-22B-NI	15.5	39.5	19.2	60				22B-RHP	10"
	HSAD-HC-BHL-1-B509-10-22B-NI	15.5	39.5	19.2	60				22B-RHP	10"
	HSAD-HC-BHL-1-B508-10-22B-NI	15.5	39.5	19.2	60				22B-RHP	10"

LEGEND:-

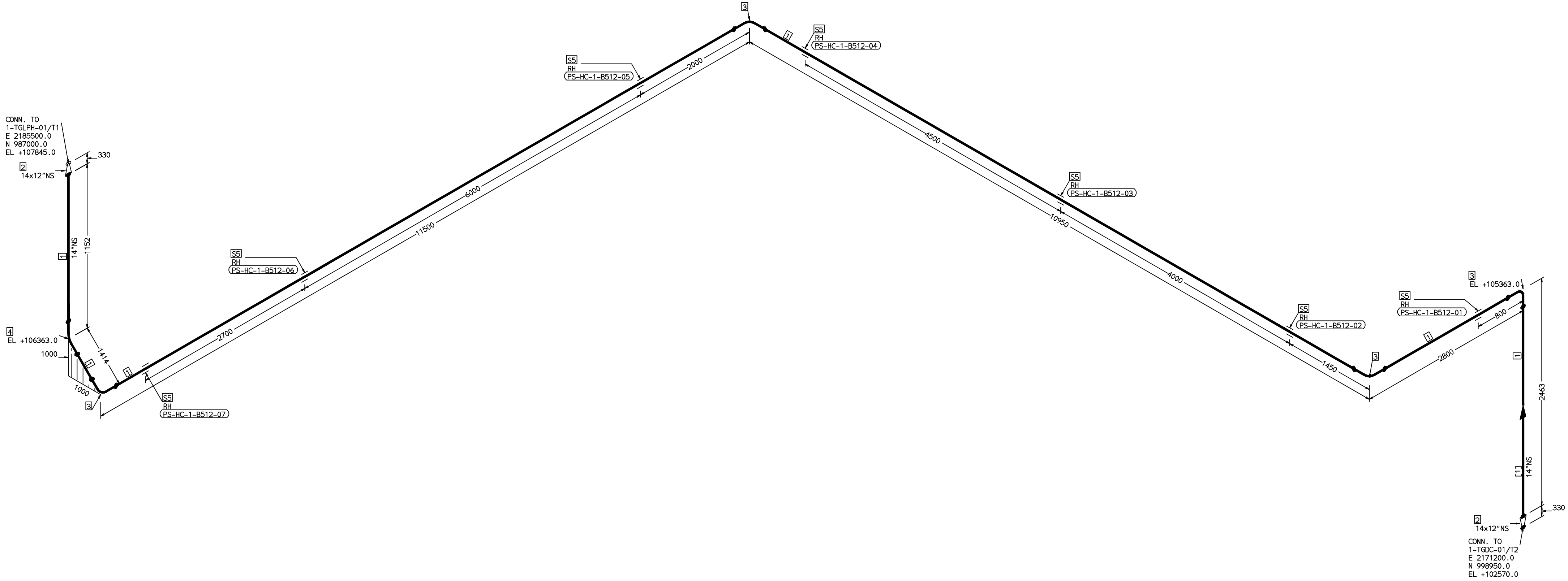
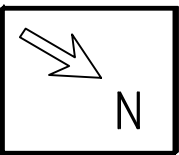
- | | |
|---|--------------------|
|  | SUPPORT LOCATION |
|  | DIRECTION OF FLOW |
|  | DIRECTION OF SLOPE |
|  | WELD SYMBOL |
-
- | | | |
|-----|---|-------------------|
| A | - | ANCHOR |
| R | - | REST |
| RG | - | REST + GUIDE |
| RL | - | REST + LIMIT STOP |
| RGL | - | DIRECTION ANCHOR |
| RH | - | RIGID HANGER |
| SH | - | SPRING HANGER |
| BS | - | BOTTOM SPRING |
| VG | - | VERTICAL GUIDE |

RECORD OF REVISIONS:—

OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPR BY

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		25571MM	41.36	
2	RDCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10SXS10S		2	15.3	
3	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		4	34.45	
4	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	14	S10S		1	17.225	
ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
5	RIGID HANGER		14			7	0	

[1]

NOTES:-

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- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A			
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)			
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)			
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX			

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAD-HC-BHL-1-B512-14-22B-NI	14.6	45.6	19.2	65			22B-RHP 14"

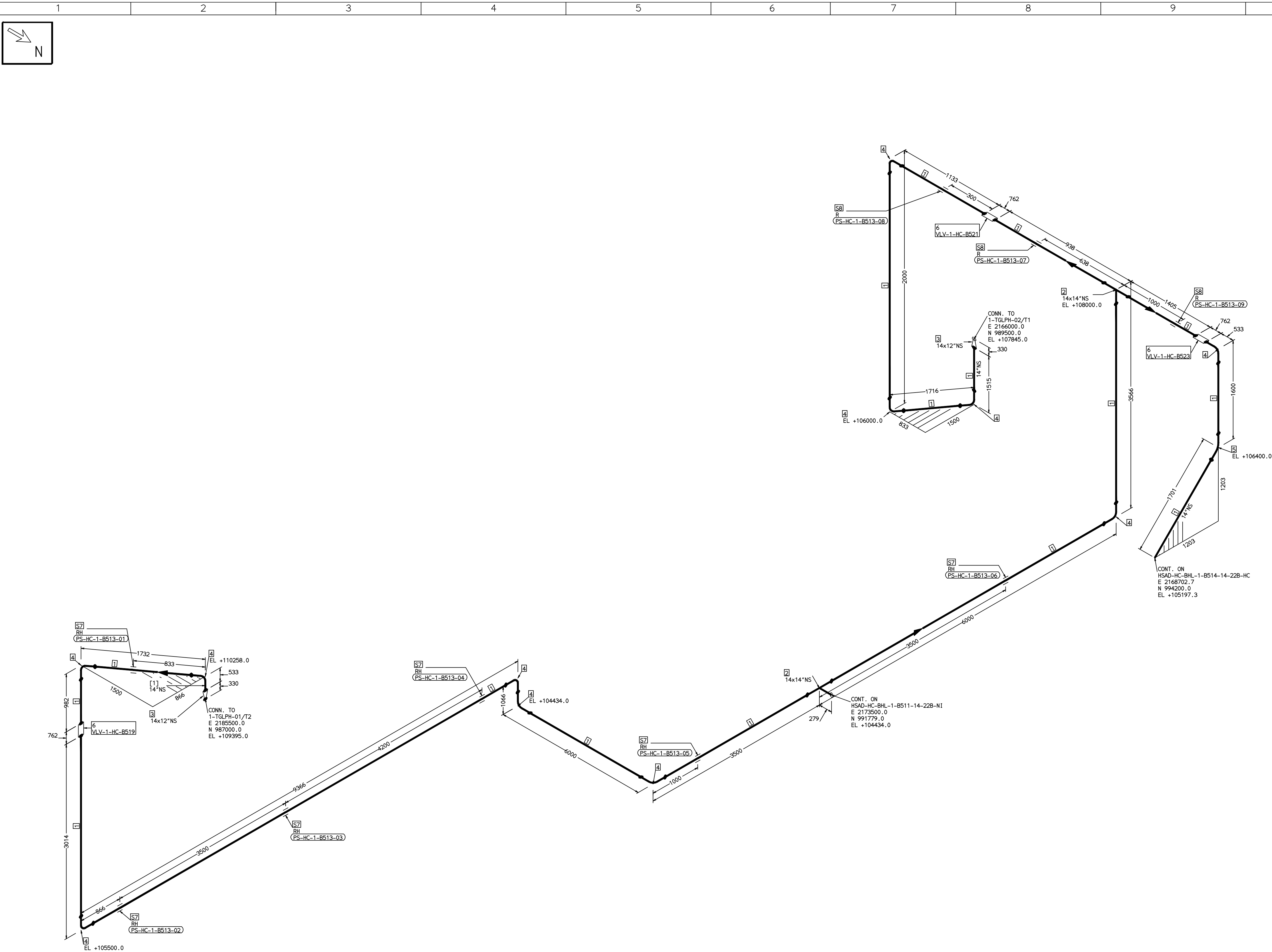
LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	ANCHOR
R	REST
RG	REST + GUIDE
RL	REST + LIMIT STOP
RGL	DIRECTION ANCHOR
RH	RIGID HANGER
SH	SPRING HANGER
BS	BOTTOM SPRING
VG	VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
					SCALE: NTS
TITLE: 1-CONDENSATE-PIPING-DC-LPH1		DRAWING NO: 1-381-01-06018			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		34735MM	41.36		
2	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		2	48		
3	ROCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10SXS10S		2	15.3		
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		11	34.45		
5	ELBOW LR 45 DEG ASME B16.9 BW	A403GRWP304	14	S10S		1	17.225		
6	GATE VALVE MO ASME B16.10 CL300 BW	A351GRCF8	14	CL300		3	810		

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
7	RIGID HANGER		14			6	0		
8	PIPE REST		14			3	0		

[1]

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PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAD-HC-BHL-1-B513-14-22B-HC	13.65	75.5	19.2	90		10/40	PGEL/MM
									22B-RHP
									14"

LEGEND:-

- SUPPORT LOCATION
- DIRECTION OF FLOW
- DIRECTION OF SLOPE
- WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

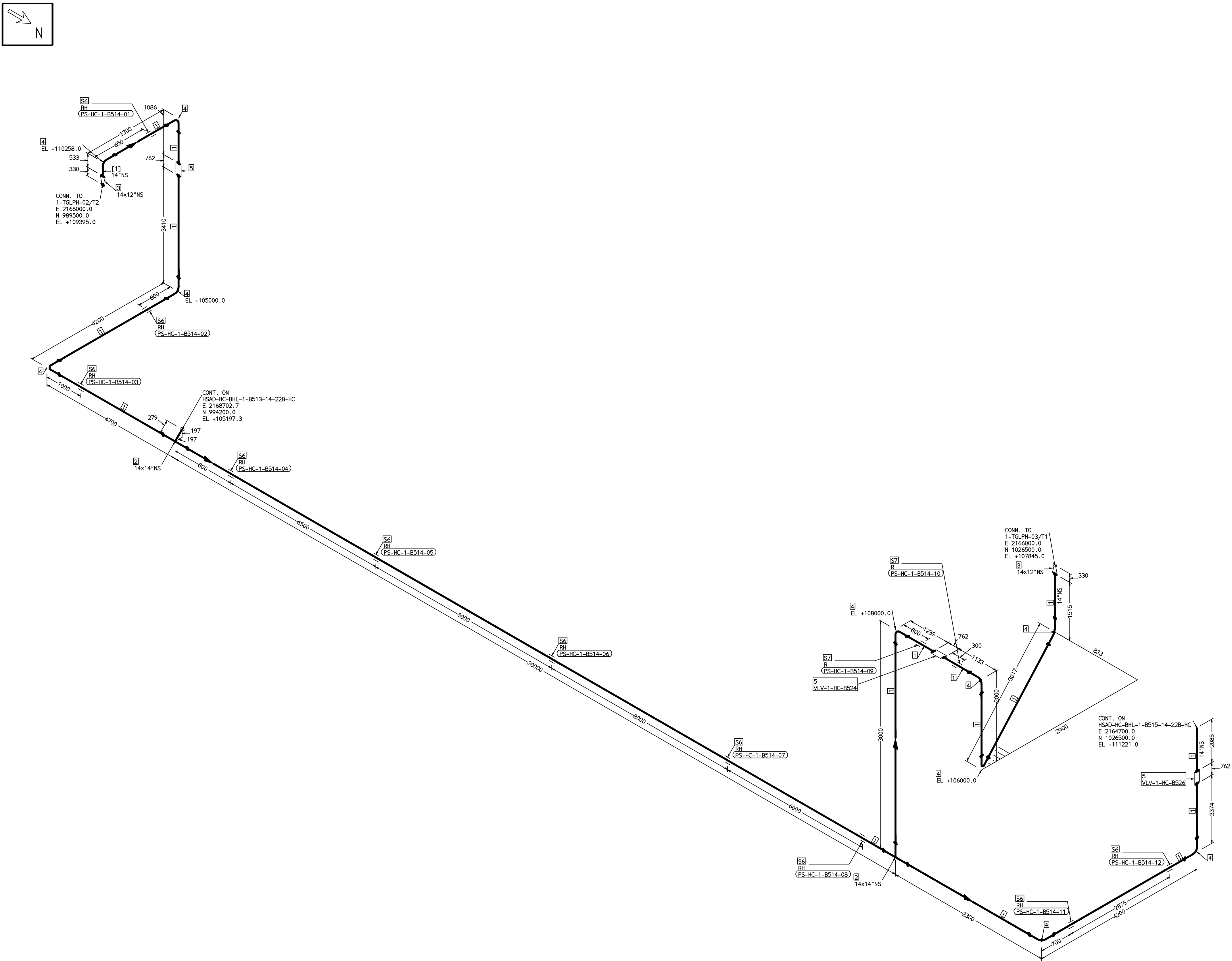
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-		05-05-14
CHKD.	VUK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
SCALE: NTS				
TITLE: 1-CONDENSATE-PIPING-LPH1-LPH2		DRAWING NO: 1-381-01-06019		REV OOP
SHT. No. 1		NO. OF SHTS. 1		

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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		57036MM	41.36	
2	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		2	48	
3	RDCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10XS10S		2	15.3	
4	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		10	34.45	
5	GATE VALVE MD ASME B16.10 CL300 BW	A351GRCP8	14	CL300		3	810	

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
6	RIGID HANGER		14			10	0	
7	PIPE REST		14			2	0	

[1]

NOTES:-

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PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
				SCALE: NTS	

TITLE:	1-CONDENSATE-PIPING-LPH2-LPH3	DRAWING NO:	1-381-01-06020	REV	OOP
		SHT. No.	1	NO. OF SHTS.	1

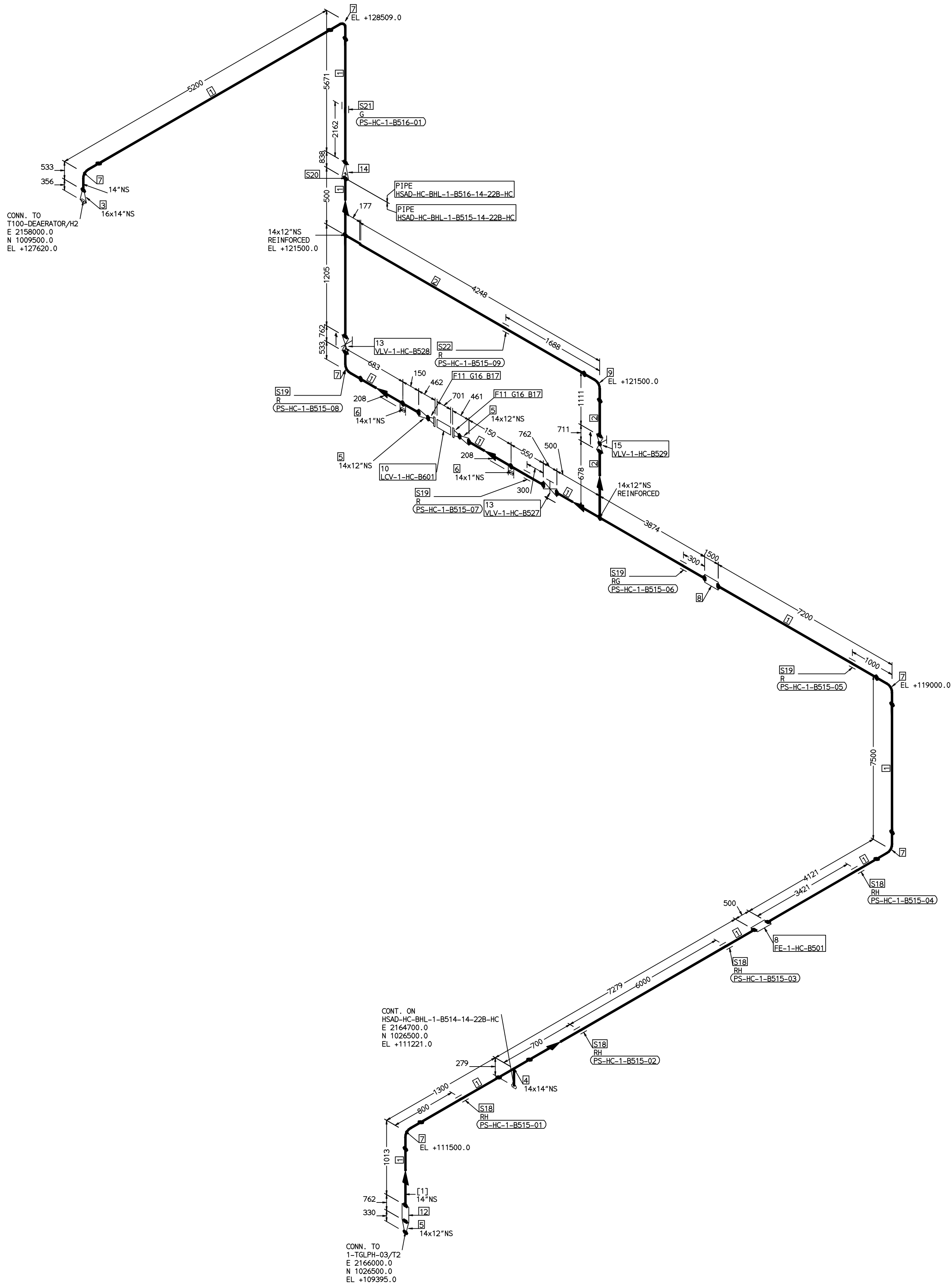
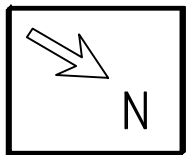
REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT
		HSAD-HC-BHL-1-B514-14-22B-HC	12.8	104.7	19.2	115		10/40	PGEL/MM
									22B-RHP
									14"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RGL	- DIRECTION ANCHOR
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

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COMPUTER FILE NAME:



REFERENCE DRAWINGS:-

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B515-14-228-HC	12.0	140.1	19.2	150	110/40	PGEL/MM	228-RHP	14"	
HSAD-HC-BHL-1-B516-14-228-HC	12.0	140.1	19.2	150	110/40	PGEL/MM	228-RHP	14"	

LEGEND:-

— SUPPORT LOCATION
— DIRECTION OF FLOW
— DIRECTION OF SLOPE
— WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS

FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A312GRTP304	14	S10S		41008MM	41.36
2	PIPE SMLS ASME B36.10 PE	A312GRTP304	12	S10S		5154MM	35.98
3	RDCR CONC ASME B16.9 BW	A403GRWP304	16 x 14	S10SX10S		1	18.8
4	TEE STRT ASME B16.9 BW	A403GRWP304	14 x 14	S10S		1	48
5	RDCR CONC ASME B16.9 BW	A403GRWP304	14 x 12	S10SX10S		3	15.3
6	HALF COUPLING ASME B16.11 CL3000	A182GRF304	14 x 1	CL3000		2	0.34
7	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	14	S10S		6	34.45
8	PIPING COMPONENT (USER DEFINED) BW	A403GRWP304	14	S10S		2	0
9	ELBOW LR 90 DEG ASME B16.9 BW	A403GRWP304	12	S10S		1	27.28
10	PIPING COMPONENT (USER DEFINED) CL300 RF(B16.5)	A403GRWP304	12	CL300		1	0
11	FLANGE WELD NECK ASME B16.5 CL300 RF	A182GRF304	12	CL300		2	58.79
12	GATE VALVE MO ASME B16.10 CL300 BW	A351GRCF8	14	CL300		1	810
13	GATE VALVE GO CL300 BW	A351GRCF8	14	CL300		2	610
14	SWING CHECK VALVE ASME B16.10 CL300 BW	A351GRCF8	14	CL300		1	878.2
15	REG GLOBE VALVE HO ASME B16.10 CL300 BW	A351GRCF8	12	CL300		1	588.75

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL UNITWT (Kg)
16	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	12	CL300		2	1.41
17	180 STUD WITH 2 NUTS ASME B18.2	A193GRBB/A194GR8	1.1/8	M30X180		32	1.35
18	RIGID HANGER					4	0
19	PIPE REST					4	0
20	GENERAL ATTACHMENT					1	0
21	PIPE SUPPORT					1	0
22	PIPE REST					1	0

[1]

NOTES:-

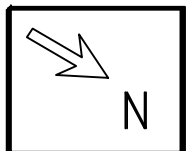
- ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
- ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
- SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
- PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
		SCALE: NTS		

TITLE:	DRAWING NO:	REV
1-CONDENSATE-PIPING-LPH3-DEAERATOR	1-381-01-06021	OOP
SHT. No. 1	NO. OF SHTS. 1	



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
16	GASKET M.S.W ASME B16.20 PTF FILLER B16.5 CL300 RF	SS304+PTFE	1.1/2	CL300		1	0.08	HY7240363040
17	100 STUD WITH 2 NUTS ASME B18.2	A193GR8B/A194GR8	3/4	M20X100		4	0.37	
18	RIGID HANGER		3			2	0	
19	PIPE REST		3			1	0	
20	RIGID HANGER		2			2	0	

NOTES:-

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2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3. SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
4. PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT: 

PROJECT:

CUSTOMER: Reliance Industries Limited

RIL DRG NO. HAZIRA:


BHARAT HEAVY ELECTRICALS LTD
PROJECT ENGINEERING &
SYSTEMS DIVISION
R.C.PURAM, HYDERABAD-502032.
PE&SD LAYOUTS & PIPING ENGINEERING

TITLE:
1-SPRAY-TO-BSS-DS-COND-DUMF

0

	NAME	SIGN	DATE
DRN.	PCC	-SD-	05-05-14
CHKD.	VUK	-SD-	05-05-14
APPRD.	GS	-SD-	05-05-14
		SCALE: NTS	

DRAWING NO:	REV
1-381-01-06022	00P

SHT. No. 1	NO. OF SHTS. 1
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	REFERENCE DRAWINGS:-
H	

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (\$mm)	INS MAT	PSPEC	BORE
HSAD-HC-BHL-1-B576-3-22B-N]	14.0	39.5	18.9	60			PGEL/MW	22B-RHP	3"
HSAD-HC-BHL-1-B577-2-22B-N]	14.0	39.5	18.9	60			PGEL/MW	22B-RHP	2"
HSAD-HC-BHL-1-B578-1.5-22B-N]	14.0	39.5	18.9	60			PGEL/MW	22B-RHP	1.1/2"

LEGEND:-

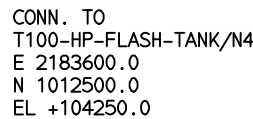
- | | |
|---|--------------------|
|  | SUPPORT LOCATION |
|  | DIRECTION OF FLOW |
|  | DIRECTION OF SLOPE |
|  | WELD SYMBOL |
-
- | | | |
|-----|---|-------------------|
| A | - | ANCHOR |
| R | - | REST |
| RG | - | REST + GUIDE |
| RL | - | REST + LIMIT STOP |
| RGL | - | DIRECTION ANCHOR |
| RH | - | RIGID HANGER |
| SH | - | SPRING HANGER |
| BS | - | BOTTOM SPRING |
| VG | - | VERTICAL GUIDE |

RECORD OF REVISIONS:—

OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY	APPR BY

COMPUTER FILE NAME: _____

A
B
C
D
E
F
G
H



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATERIAL CODE
15	GASKET M.S.W ASME B16.20 GRAPHITE FILLER B16.5 CL300 RF	SS304+GRAPH	4		CL300	4	0.32	HY7240365077
16	120 STUD WITH 2 NUTS ASME B18.2	A193GR87/A194GR2H	3/4	M20X120	CL300	32	0.41	HY71142198184
17	PIPE REST		8			2	0	
18	RIGID HANGER		8			4	0	
19	RIGID HANGER		6			7	0	
20	PIPE REST		6			5	0	

NOTES:-

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT: 

PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP
----------	--------------------------------------

CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
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RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX
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	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032.		NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
PE&SD	LAYOUTS & PIPING ENGINEERING			SCALE: NTS	
TITLE: 1-HPH6-DRAIN-PIPING		DRAWING NO: 1-381-01-06023			REV OOP
		SHT. No. 2		NO. OF SHTS. 2	

REFERENCE DRAWINGS:-	LINE PARAMETERS:-									
	LINE NUMBER	W PR (Kg/cm ²)	W TEMP (DegC)	D PR (Kg/cm ²)	D TEMP (DegC)	HT PR (Kg/cm ²)	INS THK \$(mm)	INS MAT	PSPEC	BORE
	HSAF-HD-BHL-1-B701-6-21B-HC	30.52	208.8	34.0	220		20/65	PGEL/MW	21B-RHP	6"
	HSAF-HD-BHL-1-B703-6-21B-HC	30.52	208.8	34.0	220		20/65	PGEL/MW	21B-RHP	6"
	HSAF-HD-BHL-1-B704-6-21B-HC	7.5	170.4	9.0	190		20/40	PGEL/MW	21B-RHP	6"
	HSAF-HD-BHL-1-B705-6-21B-HC	30.52	208.8	34.0	220		20/65	PGEL/MW	21B-RHP	6"
	HSAF-HD-BHL-1-B706-8-21B-HC		180.4		190			PGEL/MW	21B-RHP	8"
	HSAF-HD-BHL-1-B702-6-21B-HC	16.5	204.3	19.0	220		20/65	PGEL/MW	21B-RHP	6"

LEGEND:-

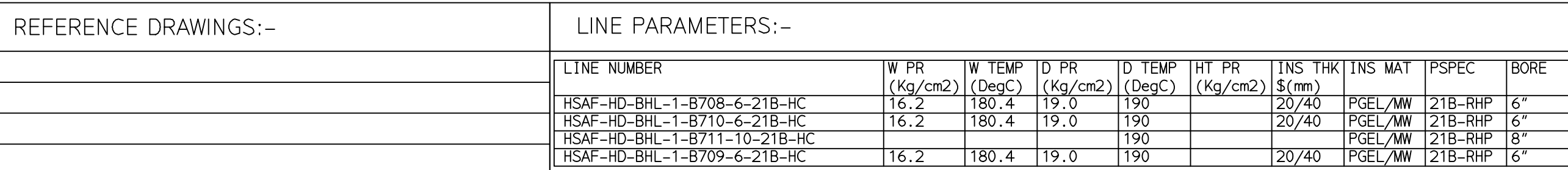
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:—

OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY

COMPUTER FILE NAME: _____



LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RG-L	- DIRECTION ANCHOR
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
14	GASKET M.S.W ASME B16.20 GRAPHITE FILLER B16.5 CL300 RF	SS304+GRAPH	4		CL300	2	0.32	HY7240365570
15	120 STUD WITH 2 NUTS ASME B18.2	A193GR7/A194GR2H	3/4	M20X120	CL300	16	0.41	HY7142198184
16	RIGID HANGER		6			8	0	
17	PIPE REST		6			4	0	

NOTES:-

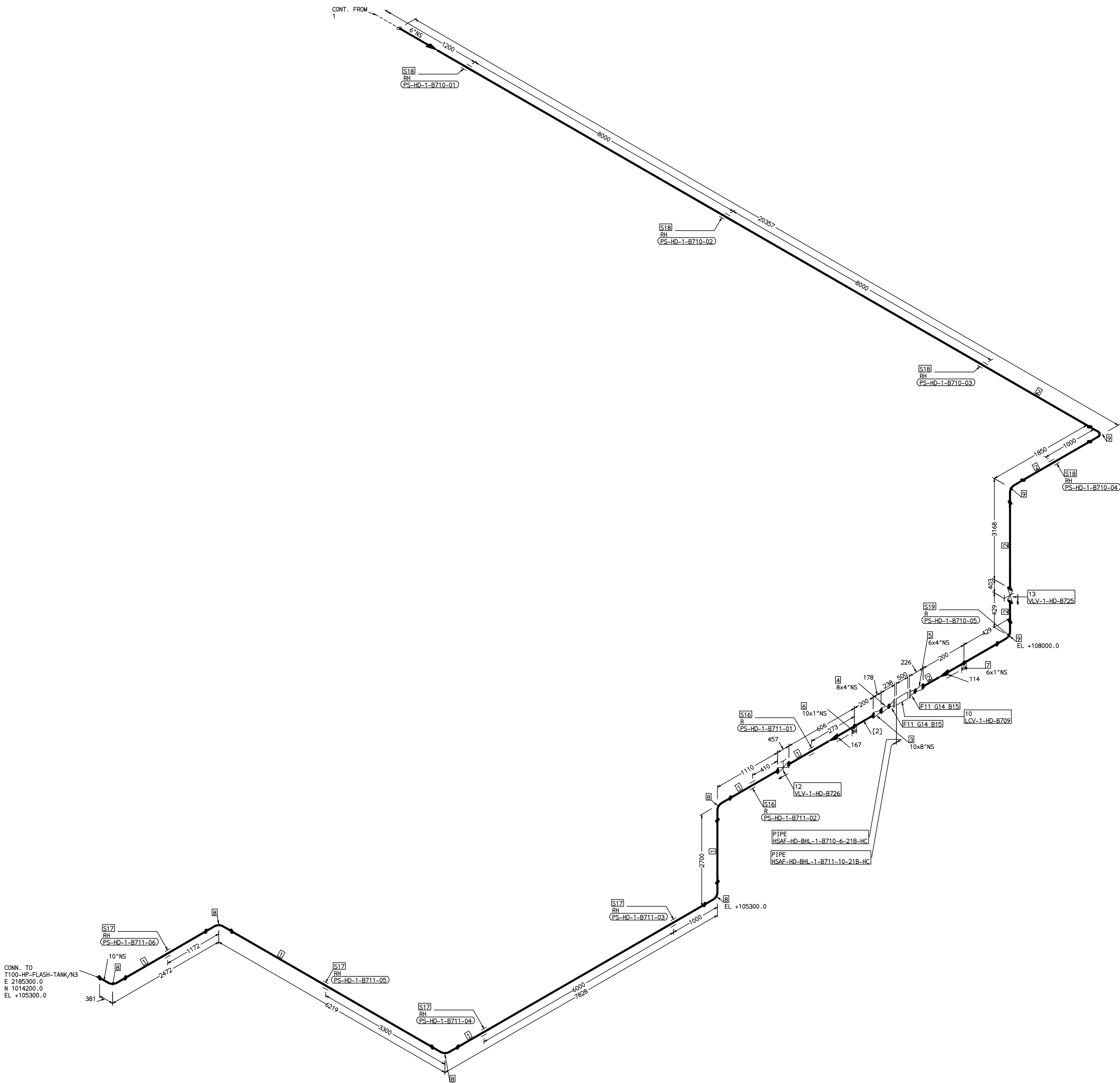
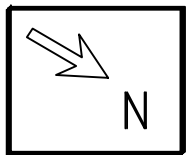
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6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY – FOR BID PURPOSE ONLY

CONSULTANT:				BECHTEL FREDERICK, MARYLAND, U.S.A	
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPH HAZIRA MANUFACTURING DIVISION (HMD)			
CUSTOMER:				RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)	
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX			
 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
				SCALE: NTS	
TITLE:		DRAWING NO:		REV	
1-PHP5-DRAIN-PIPING		1-381-01-06024		OOP	
		SHT. No. 1		NO. OF SHTS. 2	

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED.
IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



CONN. TO
T100-HP-FLASH-TANK/NS
E 2185300.0
N 1014200.0
EL +105300.0

REFERENCE DRAWINGS:-

LINE PARAMETERS:-

LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
HSAF-HD-BHL-1-B708-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
HSAF-HD-BHL-1-B710-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	
HSAF-HD-BHL-1-B711-10-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	8"	
HSAF-HD-BHL-1-B709-6-21B-HC	16.2	180.4	19.0	190	20/40	PGEL/MM	21B-RHP	6"	

LEGEND:-

- SUPPORT LOCATION
- DIRECTION OF FLOW
- DIRECTION OF SLOPE
- WELD SYMBOL
- A - ANCHOR
- R - REST
- RG - REST + GUIDE
- RL - REST + LIMIT STOP
- RGL - DIRECTION ANCHOR
- RH - RIGID HANGER
- SH - SPRING HANGER
- BS - BOTTOM SPRING
- VG - VERTICAL GUIDE

RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS

FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S40		17706MM	AA1049355687
2	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		28.26	AA1049355512
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 8	S40XS40		1	HY7242692121
4	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 4	S40XS40		1	HY7242692245
5	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		1	AA7242530350
6	HALF COUPLING ASME B16.11 CL3000	A105	10 x 1		CL3000	1	HY7242586062
7	HALF COUPLING ASME B16.11 CL3000	A105	6 x 1		CL3000	1	HY7242586062
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S40		5	HY7242502527
9	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		3	AA7242502276
10	PIPING COMPONENT (USER DEFINED)	A234GRWPB	4		CL300	1	
11	FLANGE WELD NECK ASME B16.5 CL300	A105	4	S40		2	AA7246306102
12	GATE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	10		CL300	1	AA7521428722
13	GATE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	6		CL300	1	AA7521428706

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	BHEL
14	GASKET M.S.W ASME B16.20 GRAPHITE	SS304+GRAPH	4		CL300	2	0.32
15	120 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X120	CL300	16	0.41
16	PIPE REST		10			2	0
17	RIGID HANGER		10			4	0
18	RIGID HANGER		6			4	0
19	PIPE REST		6			1	0

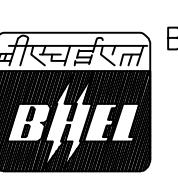
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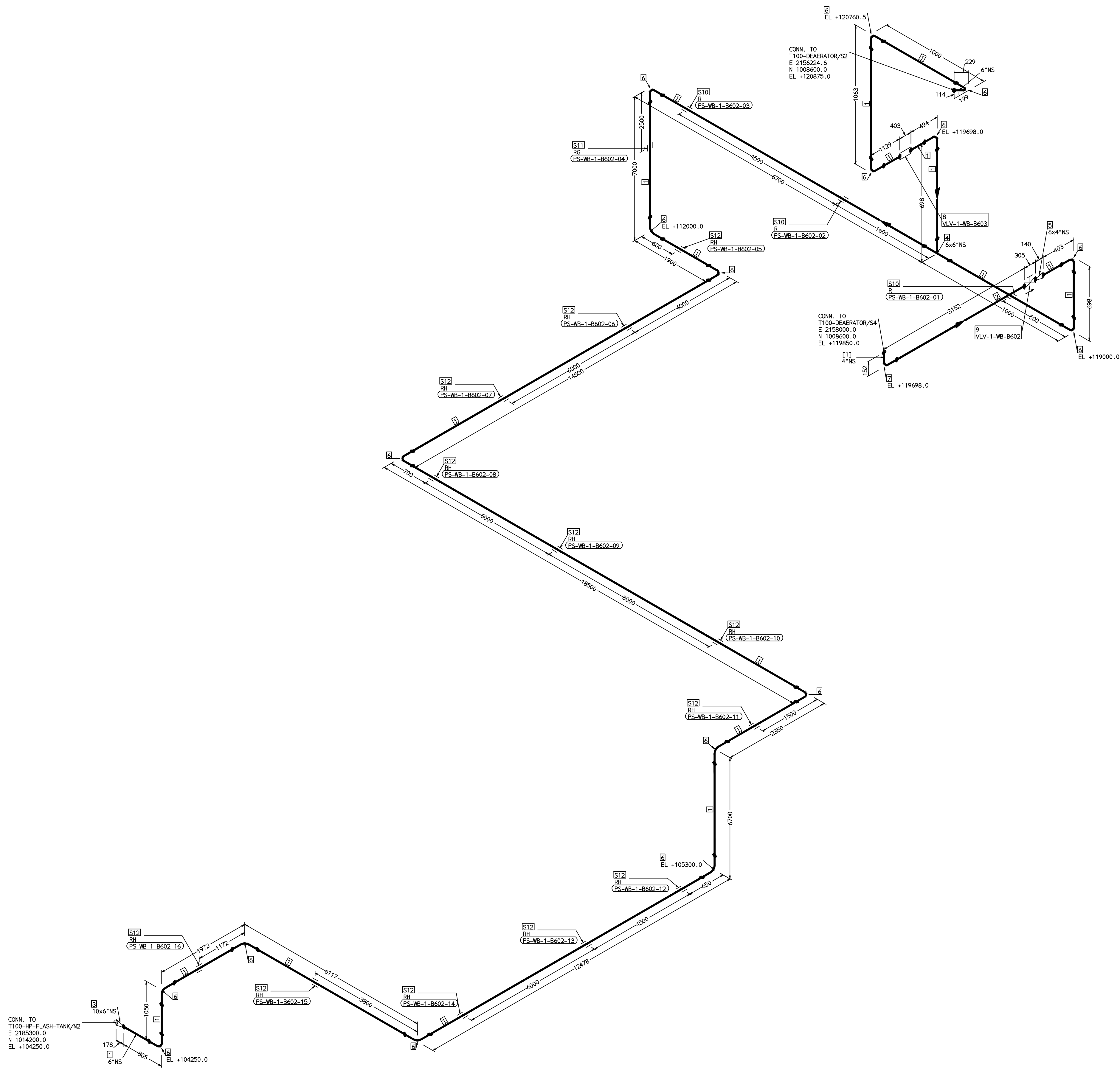
NOTES:-

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- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN.	PCC	-SD- 05-05-14
	CHKD.	VUK	-SD- 05-05-14
	APPRD.	GS	-SD- 05-05-14
SCALE: NTS			
TITLE: 1-HPH5-DRAIN-PIPING		DRAWING NO: 1-381-01-06024	
		SHT. No. 2	NO. OF SHTS. 2
		REV OOP	



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (in)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
10	PIPE REST		6			3	0	
11	PIPE SUPPORT		6			1	0	
12	RIGID HANGER		6			12	0	

NOTES:-

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6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY – FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE: 1-DEAERATOR-OVERFLOW-DRAIN		DRAWING NO: 1-381-01-06025		REV OOP
		SHT. No. 1	NO. OF SHTS. 1	

[illegible]

LEGEND:-

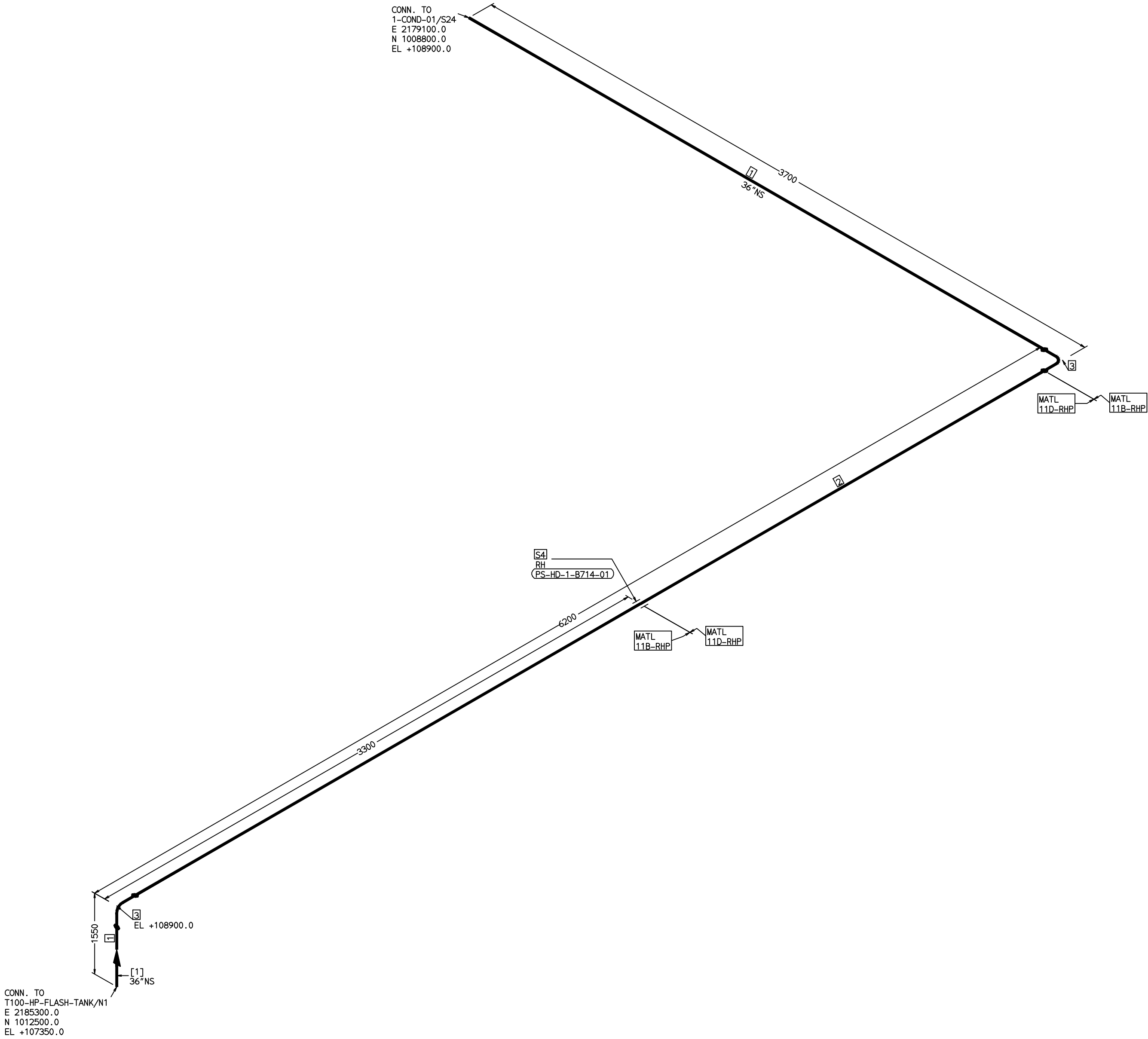
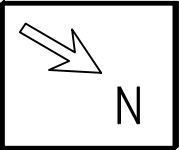
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RGL	- DIRECTION ANCHOR
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
00P	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE EFSW ASME B36.10 PE	A672GRB60	36	XS			4434MM	282.29
2	PIPE ERW/SAM 15-3589 PE	153589RFE3	36	T10			1528MM	222.94
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	36	XS		2	604.34	

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
4	PIPE SUPPORT		36			1	0	

[1]

NOTES:-

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- SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
- PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
- DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	 BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	 RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

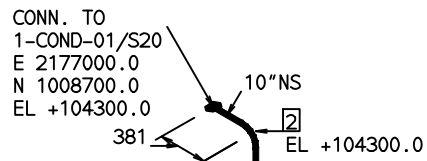
REFERENCE DRAWINGS:-	

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE
HSAF-HD-BHL-1-B714-36-11B-HC							PGEL/MM	11B-RHP	36"

- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
					SCALE: NTS
TITLE: 1-HP-FLASH-TANK-VENT-PPG		DRAWING NO: 1-381-01-06026			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNIT WT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		12864MM	41.76	AA1049355660
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		4	26.6	AA7242592349
[1]								

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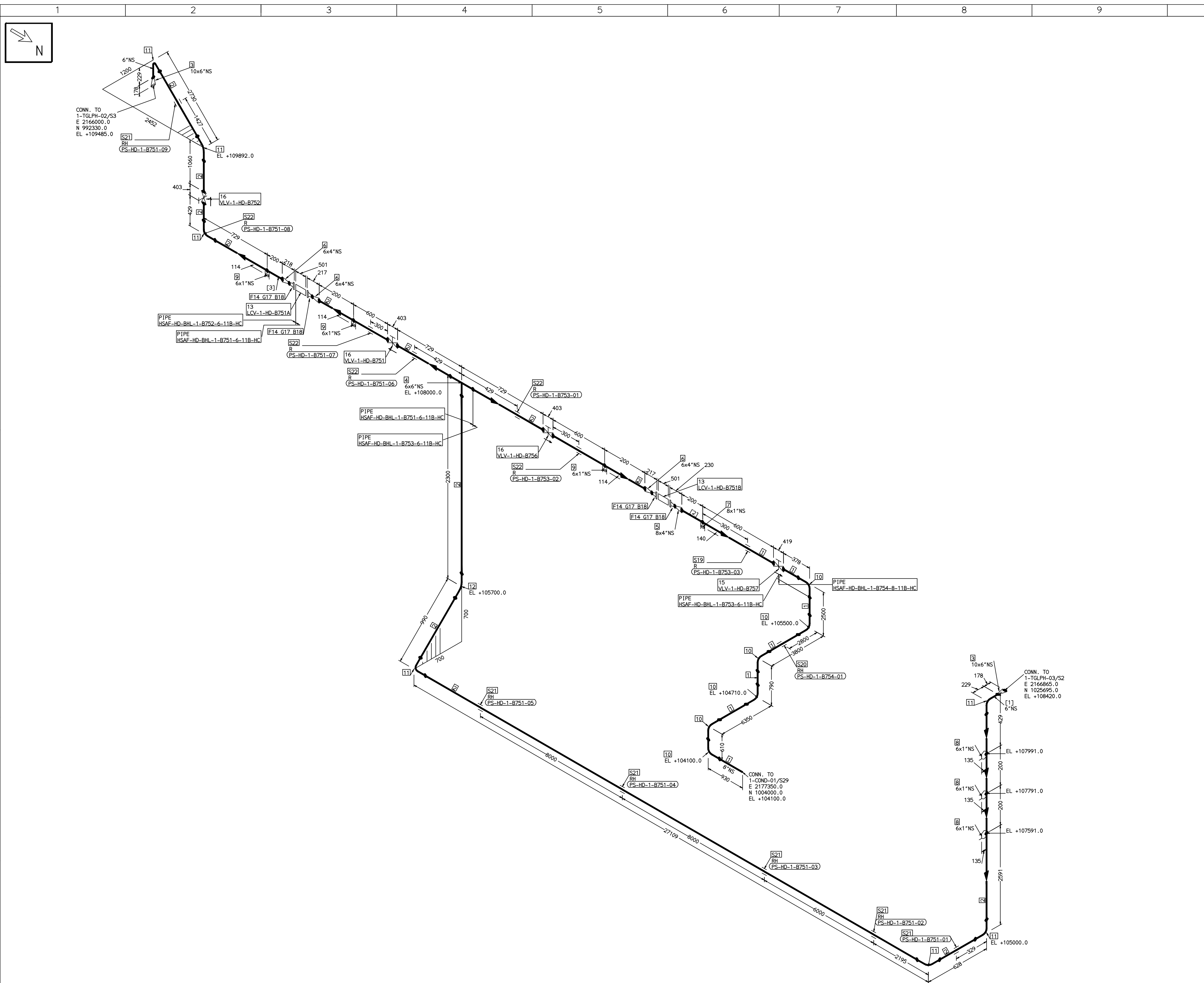
PRELIMINARY – FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A		
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)		
CUSTOMER:		RELIANCIE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)		
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX		

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
			SCALE: NTS	
TITLE: 1-HP-FLASH-TANK-DRAIN-PPG		DRAWING NO: 1-381-01-06027		REV 00P
		SHT. No. 1	NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
1	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		12498MM	33.32	AA1049355563	
2	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		39286MM	28.26	AA1049355512	
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 6	S20XS40		2	0	AA7242530458	
4	TEE STRT ASME B16.9 BW	A234GRWPB	6 x 6	S40		1	11	AA7242511275	
5	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 4	S20XS40		1	6.5	AA7242530393	
6	RDCR CONC ASME B16.9 BW	A234GRWPB	6 x 4	S40XS40		3	3.9	AA7242530350	
7	HALF COUPLING ASME B16.11 CL3000 SW	A105	8 x 1		CL3000	1	0.34	HY7242586062	
8	TEMP STUB BECTEL TYPE-T 1" NPT THRD	A105	6 x 1			3	0		
9	HALF COUPLING ASME B16.11 CL3000 SW	A105	6 x 1		CL3000	3	0.34	HY7242586062	
10	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		6	16.99	AA7242502314	
11	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		7	11.01	AA7242502276	
12	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	6	S40		1	5.505	HY7242566568	
13	PIPING COMPONENT (USER DEFINED) CL150 RF(B16.5)	A234GRWPB	4		CL150	2	0		
14	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	4	S40	CL150	4	7.11	HY7246361103	
15	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	8		CL150	1	141	AA7521408713	
16	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	6		CL150	3	91.5	AA7521408705	

ERECTION MATERIALS									
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE	
17	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	4	0.32	HY7240362035	
18	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	S/8	M16X100	CL150	32	0.21	HY7142198060	
19	PIPE REST		8			1	0		
20	RIGID HANGER		8			1	0		
21	RIGID HANGER		6			6	0		
22	PIPE REST		6			5	0		

[1] [2] [3]

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 - REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	 BECTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	 RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

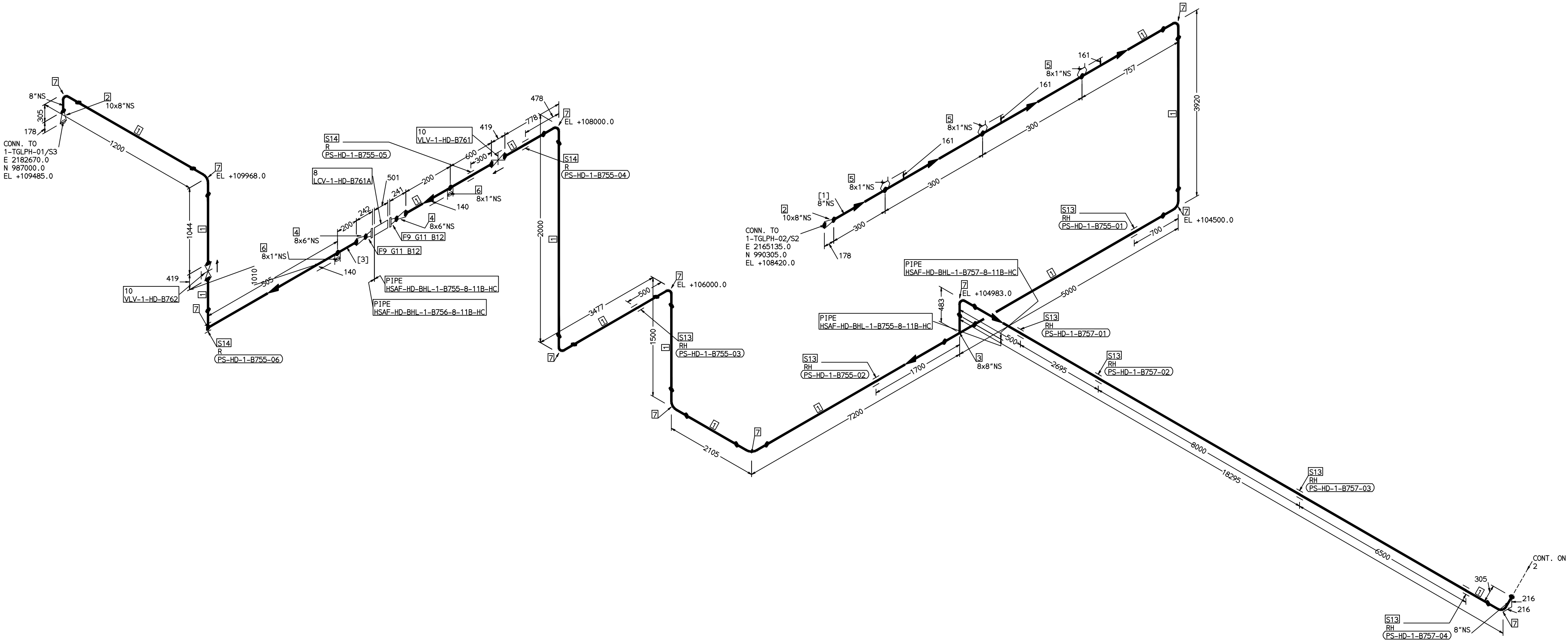
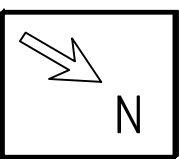
 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING	NAME	SIGN	DATE
	DRN.	PCC	-SD- 05-05-14
	CHKD.	VJK	-SD- 05-05-14
TITLE: 1-LPH3-DRAIN-PIPING	APPRD.	GS	-SD- 05-05-14
	SCALE: NTS		
	DRAWING NO: 1-381-01-06028	REV OOP	
SHT. No. 1		NO. OF SHTS. 1	

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAF-HD-BHL-1-B751-6-11B-HC		110.3	3.5	125		10/40	PGEL/MM
		HSAF-HD-BHL-1-B753-6-11B-HC	2.74	110.3	3.5	125		10/40	PGEL/MM
		HSAF-HD-BHL-1-B754-8-11B-HC							PGEL/MM
		HSAF-HD-BHL-1-B752-6-11B-HC							11B-RHP

- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
 - A - ANCHOR
 - R - REST
 - RG - REST + GUIDE
 - RL - REST + LIMIT STOP
 - RGL - DIRECTION ANCHOR
 - RH - RIGID HANGER
 - SH - SPRING HANGER
 - BS - BOTTOM SPRING
 - VG - VERTICAL GUIDE

RECORD OF REVISIONS:-				
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VJK
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY

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FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		43730MM	33.32	AA1049355563
2	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 8	S20XS20		2	7.5	AA7242530482
3	TEE STRT ASME B16.9 BW	A234GRWPB	8 x 8	S20		1	29	AA7242511313
4	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 6	S20XS40		2	6.5	AA7242530423
5	TEMP STUB BECHTEL TYPE-T 1 1/4"	A105	8 x 1			3	0	
6	NPT THRD							
7	HALF COUPLING ASME B16.11 CL3000	A105	8 x 1		CL3000	2	0.34	HY7242586062
8	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		12	16.99	AA7242502314
9	FLANGE WELD NECK ASME B16.5 CL150	A105	6	S40	CL150	1	0	HY7246361120
10	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	8		CL150	2	141	AA7521408713

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
11	GASKET M.S.W ASME B16.20 PTFE	SS304+PTFE	6		CL150	2	0.56	HY7240362043
12	FILLER B16.5 CL150 RF	A193GRB7/A194GR2H	3/4	M20X110	CL150	16	0.39	HY7142198176
13	RIGID HANGER		8			7	0	
14	PIPE REST		8			3	0	

[1] [3]

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PRELIMINARY - FOR BID PURPOSE ONLY

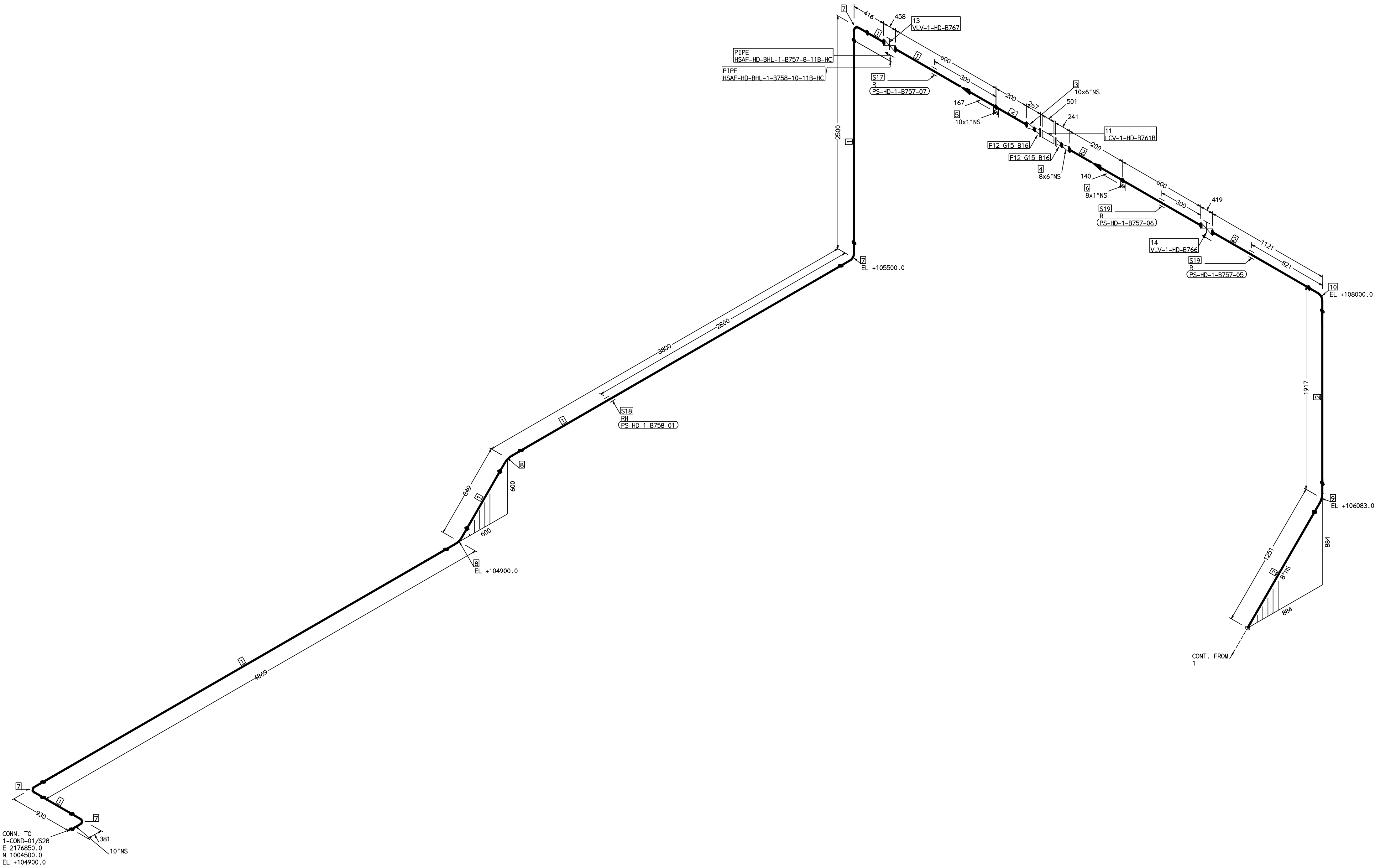
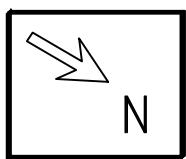
CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

NAME	SIGN	DATE
DRN. PCC	-SD-	05-05-14
CHKD. VUK	-SD-	05-05-14
APPRD. GS	-SD-	05-05-14
SCALE: NTS		

TITLE: 1-LPH2-DRAIN-PIPING	DRAWING NO: 1-381-01-06029	REV OOP
SHT. No. 1	NO. OF SHTS. 2	

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COMPUTER FILE NAME:



FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	BHEL
						UNITWT (Kg)	MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		10861MM	41.76
2	PIPE SMLS ASME B36.10 PE	A106GRB	8	S20		4225MM	33.32
3	RDCR CONC ASME B16.9 BW	A234GRWPB	10 x 6	S20XS40		1	0
4	RDCR CONC ASME B16.9 BW	A234GRWPB	8 x 6	S20XS40		1	6.5
5	HALF COUPLING ASME B16.11 CL3000	A105	10 x 1		CL3000	1	0.34
6	HALF COUPLING ASME B16.11 CL3000	A105	8 x 1		CL3000	1	0.34
7	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		4	26.6
8	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	10	S20		2	13.3
9	ELBOW LR 45 DEG ASME B16.9 BW	A234GRWPB	8	S20		1	8.495
10	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	8	S20		1	16.99
11	PIPING COMPONENT (USER DEFINED) CL150 RF (B16.5)	A234GRWPB	6		CL150	1	0
12	FLANGE WELD NECK ASME B16.5 CL150	A105	6	S40	CL150	2	10.91
13	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	10		CL150	1	225
14	GATE VALVE HO ASME B16.10 CL150 BW	A216GRWCB	8		CL150	1	141

ERECTION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	BHEL
						UNITWT (Kg)	MATCODE
15	GASKET W.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	2	0.56
16	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X110	CL150	16	0.39
17	PIPE REST		10			1	0
18	RIGID HANGER		10			1	0
19	PIPE REST		8			2	0

[2]

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PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK (mm)	INS MAT
		HSAP-HD-BHL-1-B755-8-11B-HC	VAC	81.1	3.0	100		10/40	PGEL/MM
		HSAP-HD-BHL-1-B757-8-11B-HC	VAC	81.1	3.0	100		10/40	PGEL/MM
		HSAP-HD-BHL-1-B758-10-11B-HC							PGEL/MM
		HSAP-HD-BHL-1-B756-8-11B-HC							11B-RHP

- LEGEND:-
- SUPPORT LOCATION
 - DIRECTION OF FLOW
 - DIRECTION OF SLOPE
 - WELD SYMBOL
- A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL - REST + LIMIT STOP
RH - RIGID HANGER
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VG - VERTICAL GUIDE

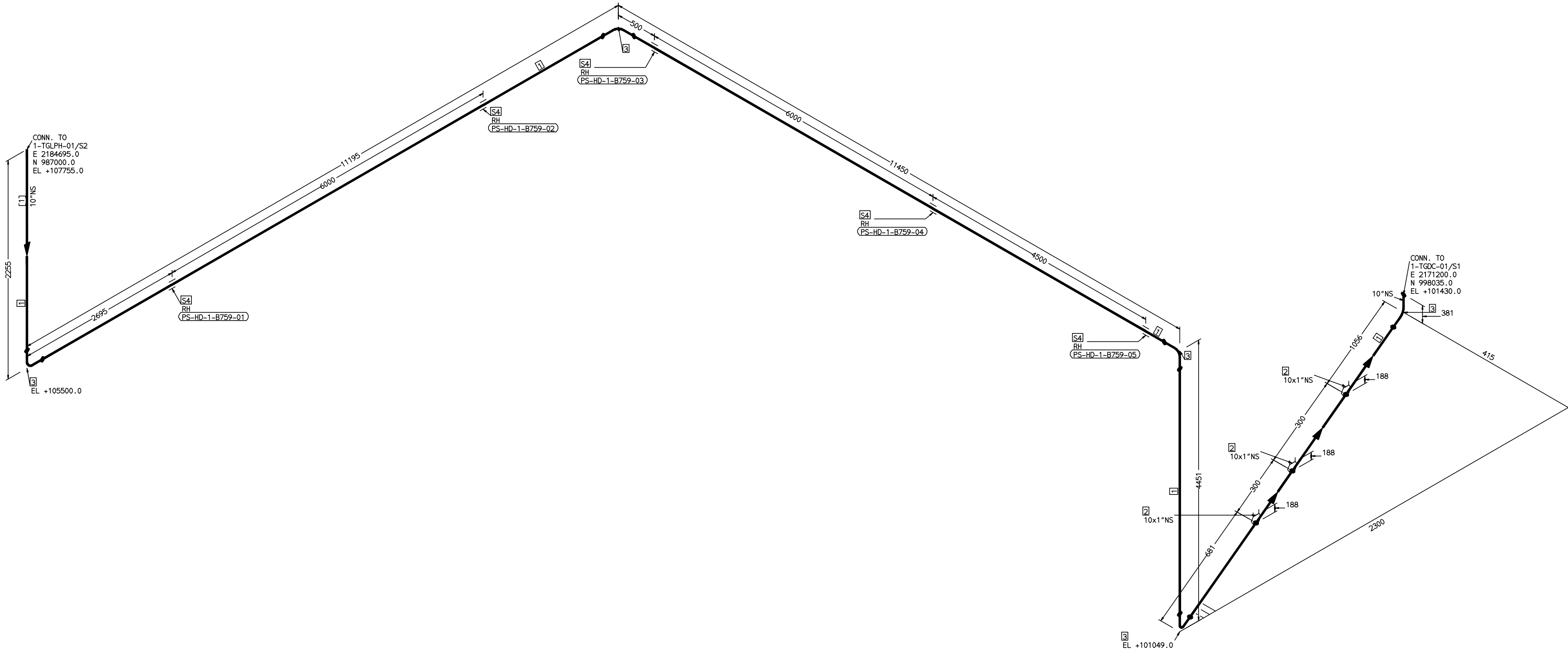
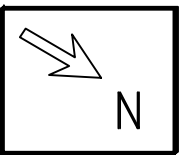
RECORD OF REVISIONS:-

REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-		05-05-14
CHKD.	VUK	-SD-		05-05-14
APPRD.	GS	-SD-		05-05-14
SCALE: NTS				
TITLE: 1-LPH2-DRAIN-PIPING		DRAWING NO: 1-381-01-06029		REV OOP
SHT. No. 2		NO. OF SHTS. 2		

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	10	S20		28259MM	41.76	AA1049355660
2	TEMP STUB BECHTEL TYPE-T 1 1/4"	A105	10 x 1			3	0	
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	10	S20		5	26.6	AA7242502349
ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
4	RIGID HANGER		10			5	0	

[1]

NOTES:-

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3. SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
4. PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

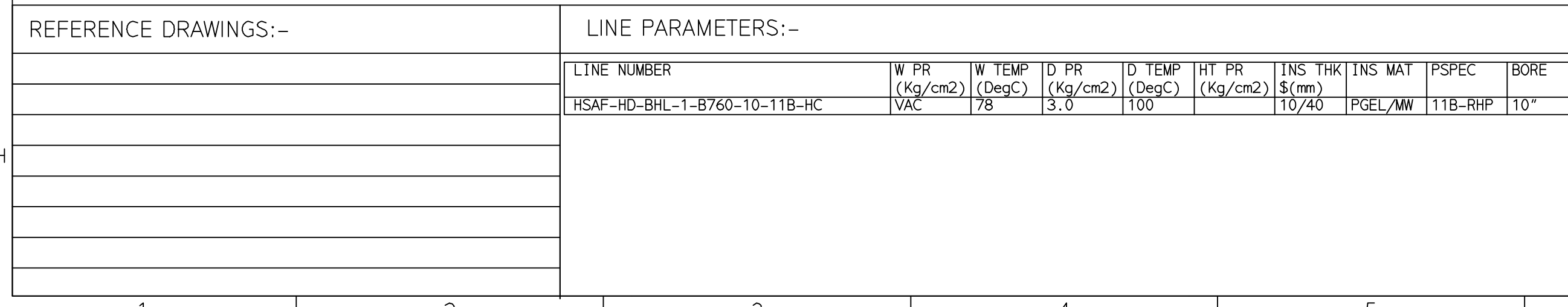
CONSULTANT:	 BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	 RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAF-HD-BHL-1-B759-10-11B-HC	VAC	78	3.0	100		10/40	PGEL/MM
									11B-RHP
									10"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RGL	- REST + LIMIT STOP
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
					SCALE: NTS
TITLE: 1-LPH1-DRAIN-PIPING		DRAWING NO: 1-381-01-06030			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

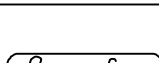


ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)	SHEL MATCODE
5	RIGID HANGER					2	0	

TITLE:
1-DC-DRAIN-PIPING

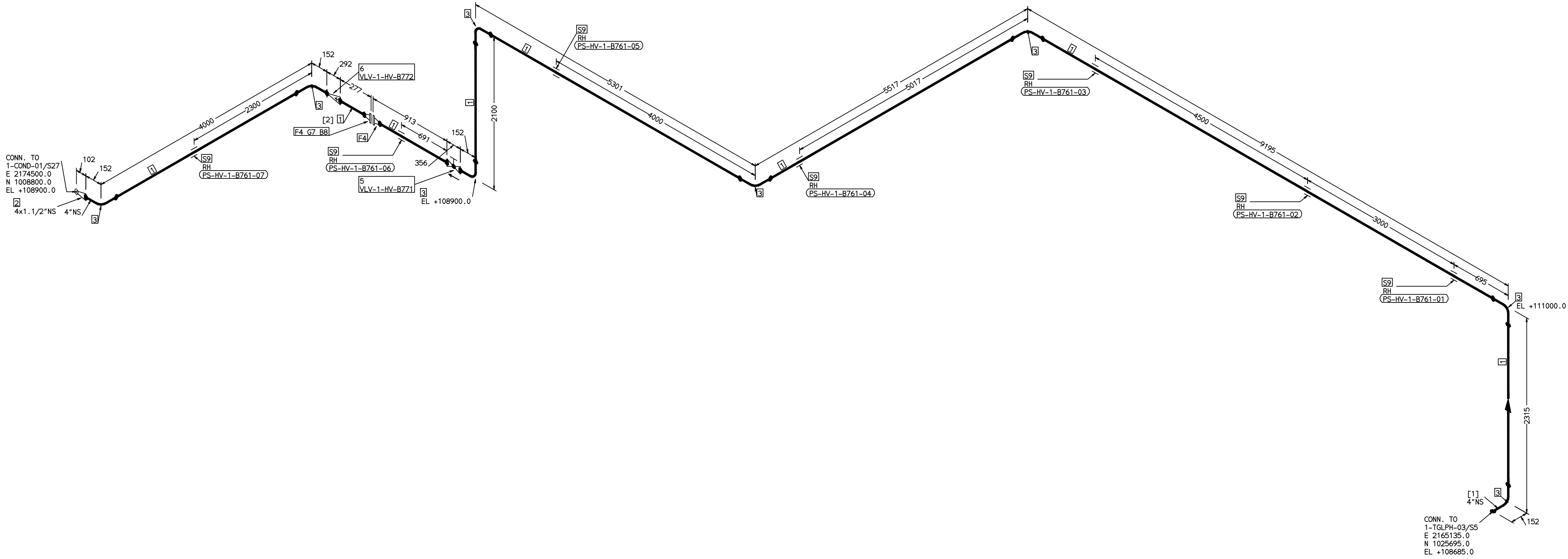
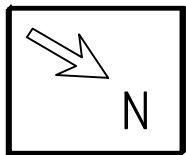
PRELIMINARY – FOR BID PURPOSE ONLY

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

	BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R. C. PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
				SCALE: NTS	
TITLE: 1-DC-DRAIN-PIPING		DRAWING NO: 1-381-01-06031			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	4	S40		27640MM	16.08	AA1049355415
2	RODR CONC ASME B16.9 BW	A234GRWPB	4 x 1.1/2	S40XS80		1	1.6	
3	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	4	S40		8	4.23	AA7242502217
4	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	4	S40	CL150	2	7.11	HY7246361103
5	GLOBE VALVE HO ASME B16.10 CL300 BW	A216GRWCB	4		CL300	1	88	AA7501428689
6	SWING CHECK VALVE ASME B16.10 CL150 BW	A216GRWCB	4		CL150	1	47.3	AA7541408689

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
7	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	4		CL150	1	0.32	HY7240362035
8	100 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	5/8	M16X100	CL150	8	0.21	HY7142198060
9	RIGID HANGER		4			7	0	

[1] [2]

NOTES:-

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5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAF-HV-BHL-1-B761-4-11B-HC							11B-RHP

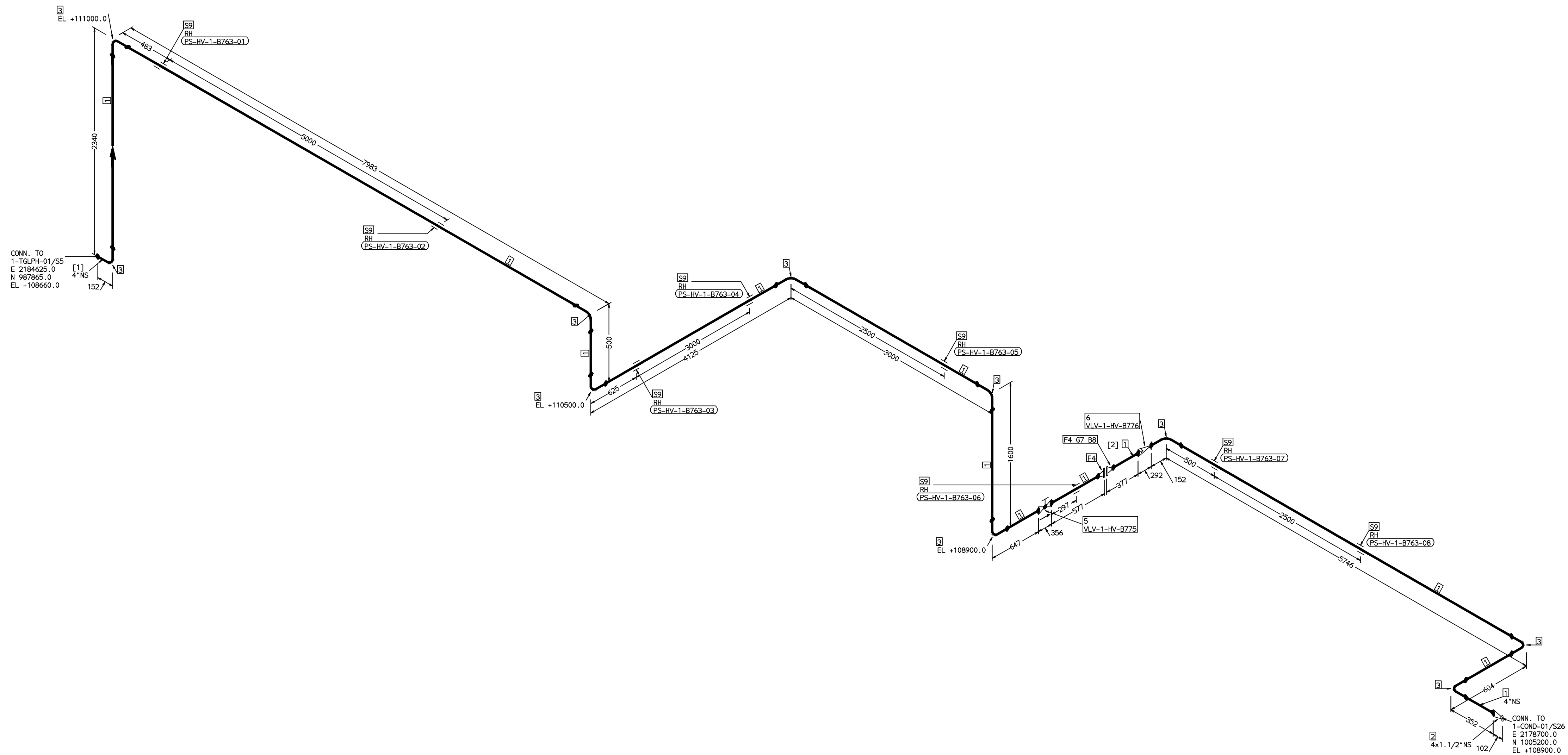
LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	ANCHOR
R	REST
RG	REST + GUIDE
RL	REST + LIMIT STOP
RGL	DIRECTION ANCHOR
RH	RIGID HANGER
SH	SPRING HANGER
BS	BOTTOM SPRING
VG	VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING			NAME	SIGN	DATE
					DRN.	PCC	-SD-
					CHKD.	VUK	-SD-
					APPRD.	GS	-SD-
TITLE: 1-LPH3-VENT-PIPING		DRAWING NO: 1-381-01-06032		REV OOP		SCALE: NTS	
		SHT. No. 1		NO. OF SHTS. 1			

	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A - ANCHOR
R - REST
RG - REST + GUIDE
RL - REST + LIMIT STOP
RGL- DIRECTION ANCHOR
RH - RIGID HANGER
SH - SPRING HANGER
BS - BOTTOM SPRING
VG - VERTICAL GUIDE

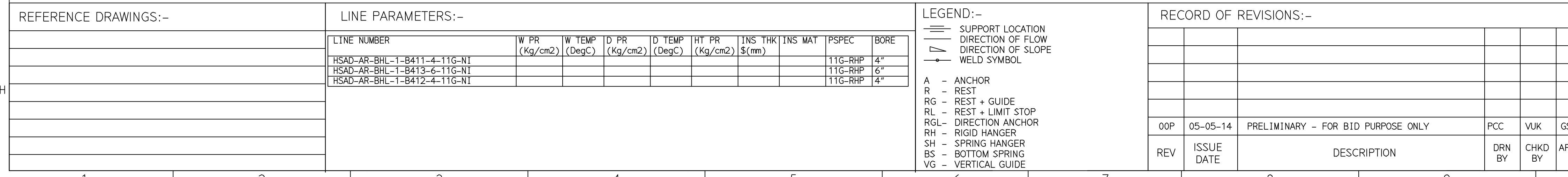


[1] [2]

- | | |
|------------------------------------|---|
| PRELIMINARY – FOR BID PURPOSE ONLY | |
| CONSULTANT: | 
BECHTEL
FREDERICK, MARYLAND, U.S.A |
| PROJECT: | STG PACKAGE (4 X 93.1 MW STGs), CCPP
HAZIRA MANUFACTURING DIVISION (HMD) |
| CUSTOMER: | 
RELIANCE INDUSTRIES LIMITED
COAL BASED CAPTIVE POWER PLANT (CCPP) |
| RIL DRG NO. HAZIRA: | 10090-HATX00-XXXX-XX-BHL-BXXX |

REFERENCE DRAWINGS:-	LINE PARAMETERS:-										LEGEND:- SUPPORT LOCATION DIRECTION OF FLOW DIRECTION OF SLOPE WELD SYMBOL A - ANCHOR R - REST RG - REST + GUIDE RL - REST + LIMIT STOP RGL - DIRECTION ANCHOR RH - RIGID HANGER SH - SPRING HANGER BS - BOTTOM SPRING VG - VERTICAL GUIDE	RECORD OF REVISIONS:-						भारत भारती BHEL BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING				NAME	SIGN	DATE
	LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT	PSPEC	BORE		DRN.	PCC	-SD-	05-05-14									
	HSAF-BVHL-1-B763-4-11B-HC											CHKD.	VUK	-SD-	05-05-14									
												APPRD.	GS	-SD-	05-05-14									
															SCALE: NTS									
												TITLE:			DRAWING NO:		REV							
												1-LPH1-VENT-PIPING			1-381-01-06034		OOP							
												OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY			PCC	VUK	GS					
											REV	ISSUE DATE	DESCRIPTION			DRN BY	CHKD BY	APPRD BY						
																SHT. No. 1	No. OF SHTS.	1						

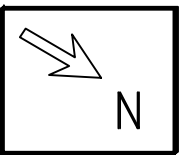
COMPUTER FILE NAME: _____



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6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELiance INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BBXX

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
				SCALE: NTS
TITLE:		DRAWING NO:		REV
1-CONDENSER-AIR-EVACUATION		1-381-01-06035		00P
		SHT. No. 1	NO. OF SHTS. 1	



ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (in)	SCHEDULE	RATING	QTY	UNITWT (kg)	BHEL MATCODE
4	GASKET M.S.W ASME B16.20 PTFE FILLER 1.16.15 CL150 RF	SS304+PTFE	10		CL150	1	1.14	HY7240362060
5	120 STD WITH 2 NUTS ASME B16.2	A193GR7H	7/8	M24X120	CL150	12	0.6	HY7142198460
6	RIGID HANGER					2	0	

NOTES:-

- PRELIMINARY – FOR BID PURPOSE ONLY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
	DRN.	PCC	-SD-	05-05-14
	CHKD.	VUK	-SD-	05-05-14
	APPRD.	GS	-SD-	05-05-14
			SCALE: NTS	

TITLE: 1-SJAE-EXHAUST-PPG	DRAWING NO: 1-381-01-06036		REV 00P
	SHT. No. 1	NO. OF SHTS. 1	

LEGEND:-

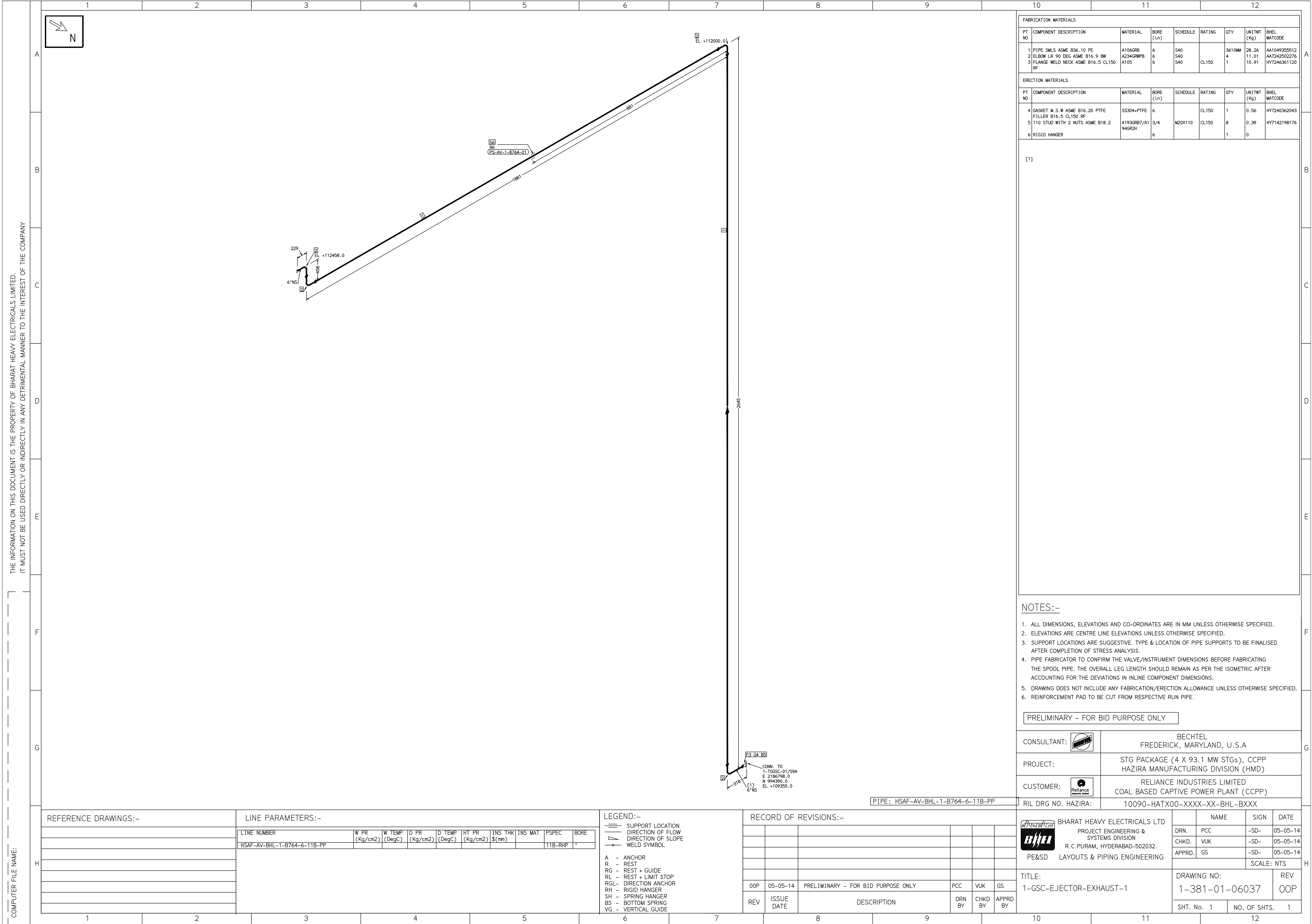
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL

A	-	ANCHOR
R	-	REST
RG	-	REST + GUIDE
RL	-	REST + LIMIT STOP
RGL	-	DIRECTION ANCHOR
RI	-	RIGID HANGER
SH	-	SPRING HANGER
BS	-	BOTTOM SPRING
VG	-	VERTICAL GUIDE

RECORD OF REVISIONS:-						
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY	APPR BY

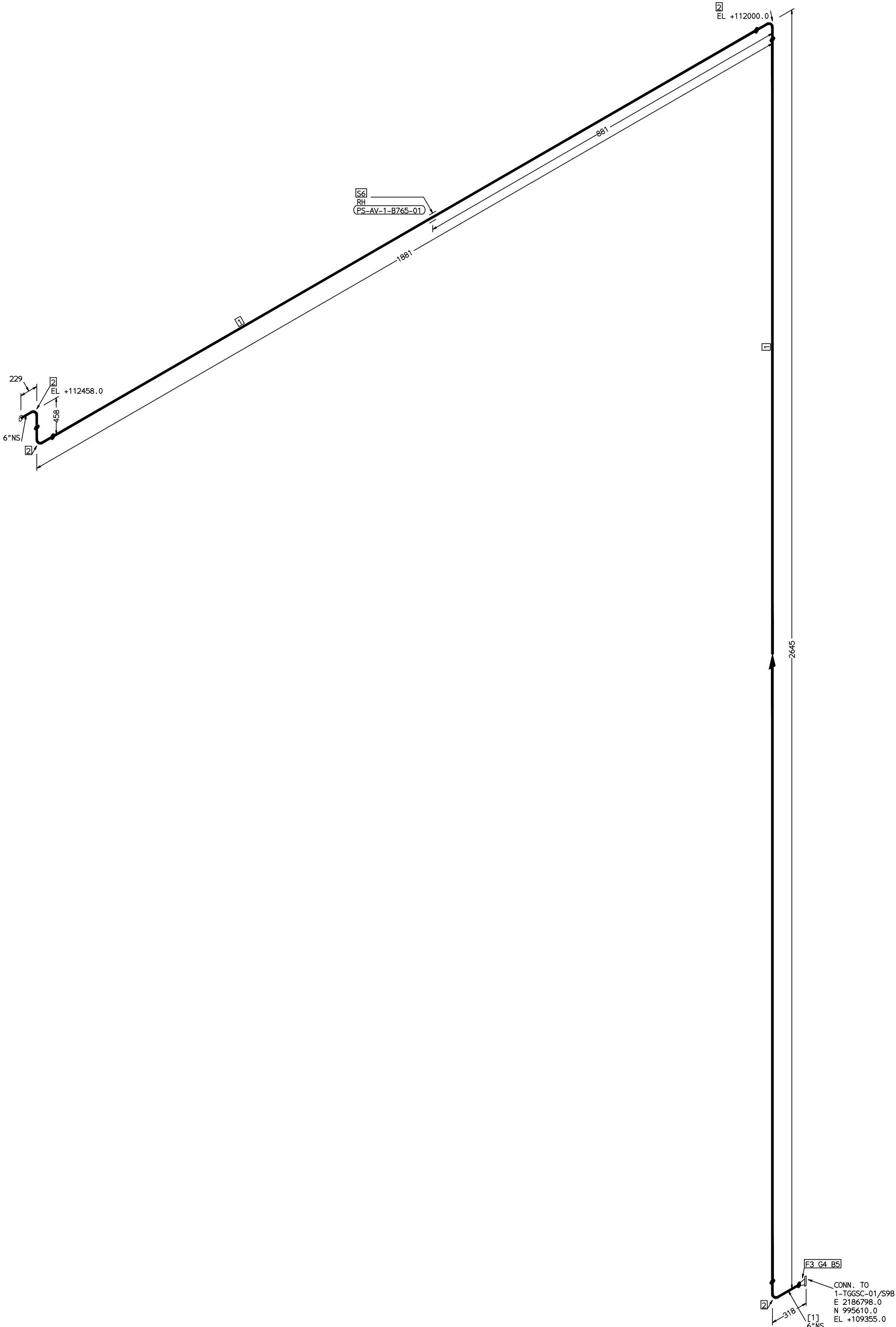
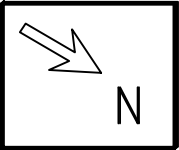
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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	6	S40		3610MM	28.26	AA1049355512
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	6	S40		4	11.01	AA7242502276
3	FLANGE WELD NECK ASME B16.5 CL150 RF	A105	6	S40	CL150	1	10.91	HY7246361120

ERECTION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (In)	SCHEDULE	RATING	QTY	UNITWT (Kg)	BHEL MATCODE
4	GASKET M.S.W ASME B16.20 PTFE FILLER B16.5 CL150 RF	SS304+PTFE	6		CL150	1	0.56	HY7240362043
5	110 STUD WITH 2 NUTS ASME B18.2	A193GRB7/A194GR2H	3/4	M20X110	CL150	8	0.39	HY7142198176
6	RIGID HANGER		6			1	0	

[1]

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PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A			
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)			
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)			
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX			

REFERENCE DRAWINGS:-		LINE PARAMETERS:-							
		LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$(mm)	INS MAT
		HSAF-AV-BHL-1-B765-6-11B-PP							11B-RHP

LEGEND:-

	SUPPORT LOCATION		DIRECTION OF FLOW
			
			

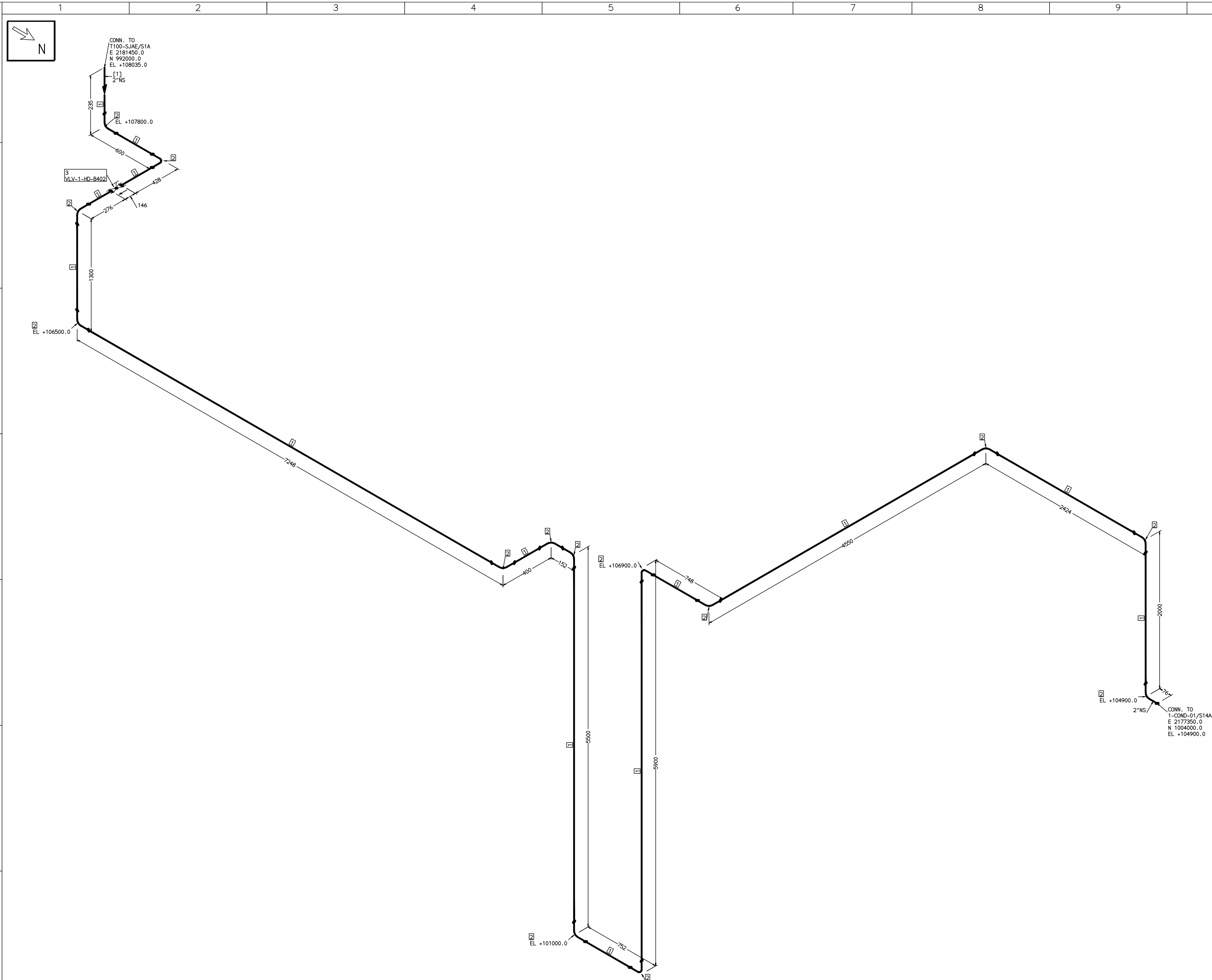
A	- ANCHOR	R	- REST
RG	- REST + GUIDE	RL	- REST + LIMIT STOP
RGL	- DIRECTION ANCHOR	RH	- RIGID HANGER
SH	- SPRING HANGER	BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE		

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY		PCC	VUK
REV	ISSUE DATE	DESCRIPTION		DRN BY	CHKD BY
				APPRD BY	

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME		SIGN	DATE
		DRN.	PCC	-SD-	05-05-14
		CHKD.	VUK	-SD-	05-05-14
		APPRD.	GS	-SD-	05-05-14
				SCALE: NTS	
TITLE: 1-GSC-EJECTOR-EXHAUST-2		DRAWING NO: 1-381-01-06038			REV OOP
		SHT. No. 1		NO. OF SHTS. 1	

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COMPUTER FILE NAME:



FABRICATION MATERIALS								
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNIT/WT (Kg)	BHEL MATCODE
1	PIPE SMLS ASME B36.10 PE	A106GRB	2	S40		30461MM	5.44	AA1049355270
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	2	S40		14	0.75	AA7242502110
3	GLOBE VALVE HD CL800 SW	A105	2		CL800	1	11.4	AA7501468630

[1]

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PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:	 BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:	STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:	 RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:	10090-HATX00-XXXX-XX-BHL-BXXX

REFERENCE DRAWINGS:-	

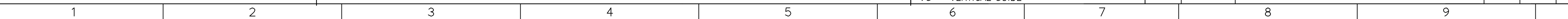
LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$ (mm)	INS MAT	PSPEC	BORE
HSAD-HD-BHL-1-B417-2-11G-HC								11G-RHP	"

LEGEND:-	
	SUPPORT LOCATION
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	WELD SYMBOL
A	- ANCHOR
R	- REST
RG	- REST + GUIDE
RL	- REST + LIMIT STOP
RGL	- DIRECTION ANCHOR
RH	- RIGID HANGER
SH	- SPRING HANGER
BS	- BOTTOM SPRING
VG	- VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

 BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032. PE&SD LAYOUTS & PIPING ENGINEERING		NAME	SIGN	DATE
DRN.	PCC	-SD-	05-05-14	
CHKD.	VUK	-SD-	05-05-14	
APPRD.	GS	-SD-	05-05-14	
SCALE: NTS				
TITLE: 1-SJAE-A-INTER-COND-DRAIN-PPG		DRAWING NO: 1-381-01-06039		REV OOP
SHT. No. 1		NO. OF SHTS. 1		

COMPUTER FILE NAME: _____



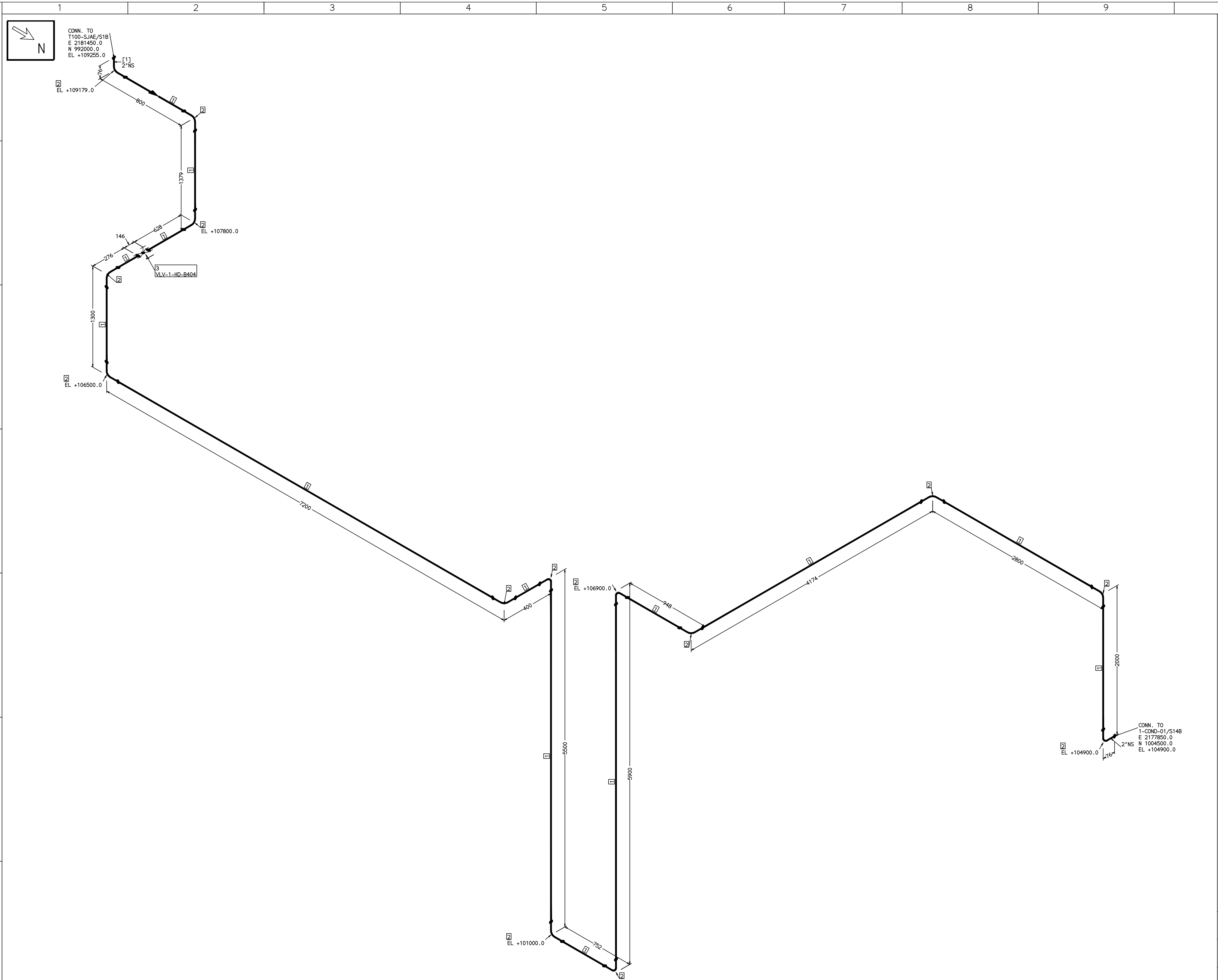
1. ALL DIMENSIONS, ELEVATIONS AND CO-ORDINATES ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. ELEVATIONS ARE CENTRE LINE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
3. SUPPORT LOCATIONS ARE SUGGESTIVE. TYPE & LOCATION OF PIPE SUPPORTS TO BE FINALISED AFTER COMPLETION OF STRESS ANALYSIS.
4. PIPE FABRICATOR TO CONFIRM THE VALVE/INSTRUMENT DIMENSIONS BEFORE FABRICATING THE SPOOL PIPE. THE OVERALL LEG LENGTH SHOULD REMAIN AS PER THE ISOMETRIC AFTER ACCOUNTING FOR THE DEVIATIONS IN INLINE COMPONENT DIMENSIONS.
5. DRAWING DOES NOT INCLUDE ANY FABRICATION/ERECTION ALLOWANCE UNLESS OTHERWISE SPECIFIED.
6. REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BBXX

10	11	12
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IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY DETRIMENTAL MANNER TO THE INTEREST OF THE COMPANY

COMPUTER FILE NAME:



FABRICATION MATERIALS							
PT NO	COMPONENT DESCRIPTION	MATERIAL	BORE (Ln)	SCHEDULE	RATING	QTY	UNITWT (Kg)
1	PIPE SMLS ASME B36.10 PE	A106GRB	2	S40		32081MM	5.44
2	ELBOW LR 90 DEG ASME B16.9 BW	A234GRWPB	2	S40		14	0.75
3	GLOBE VALVE HD CL800 SW	A105	2		CL800	1	11.4
							AA1049355270
							AA7242502110
							AA7501468630

[1]

NOTES:-

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- REINFORCEMENT PAD TO BE CUT FROM RESPECTIVE RUN PIPE.

PRELIMINARY - FOR BID PURPOSE ONLY

CONSULTANT:		BECHTEL FREDERICK, MARYLAND, U.S.A			
PROJECT:		STG PACKAGE (4 X 93.1 MW STGs), CCPP HAZIRA MANUFACTURING DIVISION (HMD)			
CUSTOMER:		RELIANCE INDUSTRIES LIMITED COAL BASED CAPTIVE POWER PLANT (CCPP)			
RIL DRG NO. HAZIRA:		10090-HATX00-XXXX-XX-BHL-BXXX			

REFERENCE DRAWINGS:-	

LINE PARAMETERS:-									
LINE NUMBER	W PR (Kg/cm2)	W TEMP (DegC)	D PR (Kg/cm2)	D TEMP (DegC)	HT PR (Kg/cm2)	INS THK \$ (mm)	INS MAT	PSPEC	BORE
HSAD-HD-BHL-1-B418-2-11G-HC								11G-RHP	"

LEGEND:-	
	A - ANCHOR
	R - REST
	RG - REST + GUIDE
	RL - REST + LIMIT STOP
	RGL- DIRECTION ANCHOR
	RH - RIGID HANGER
	SH - SPRING HANGER
	BS - BOTTOM SPRING
	VG - VERTICAL GUIDE

RECORD OF REVISIONS:-					
OOP	05-05-14	PRELIMINARY - FOR BID PURPOSE ONLY	PCC	VUK	GS
REV	ISSUE DATE	DESCRIPTION	DRN BY	CHKD BY	APPRD BY

		BHARAT HEAVY ELECTRICALS LTD PROJECT ENGINEERING & SYSTEMS DIVISION R.C.PURAM, HYDERABAD-502032.		NAME	SIGN	DATE
PE&SD	LAYOUTS & PIPING ENGINEERING			DRN.	PCC	-SD- 05-05-14
				CHKD.	VUK	-SD- 05-05-14
				APPRD.	GS	-SD- 05-05-14
				SCALE: NTS		
TITLE: 1-SJAE-B-INTER-COND-DRAIN-PPG		DRAWING NO: 1-381-01-06041		REV OOP		
		SHT. No. 1		NO. OF SHTS. 1		