

Project Title: Designing of Steam line connected to 1.5MW Triveni Turbine

Client : Chatrapati Sambhaji Sakhar Udyog.

Result : Cost Effectiveness

Engineering Designed By -

Steam-Therm Consultancy,
Dombivli (East), Dist – Thane
Country India

Scope of Work.

Scope of Work:

1. Stress Analysis in CAESAR II for Steam inlet line to turbine length approx. length 50 m. Piping support details, Spring support datasheets, load Input to civil for foundation design
2. Stress Analysis IN CAESAR II for Steam Outlet line from turbine to plant length approx. length 250 m. Piping support details, Spring support datasheets, load Input to civil for foundation design
3. IBR Isometric Drawing in AutoCAD for 150NB Steam turbine Inlet line.
4. IBR Isometric Drawing in AutoCAD for 250NB Steam turbine exhaust line.
5. Pipe thickness Calculation of 150NB and 250NB steam line as per IBR.
6. Pressure drops calculation and Pipeline sizing of turbine Inlet steam line and exhaust steam.

Issue

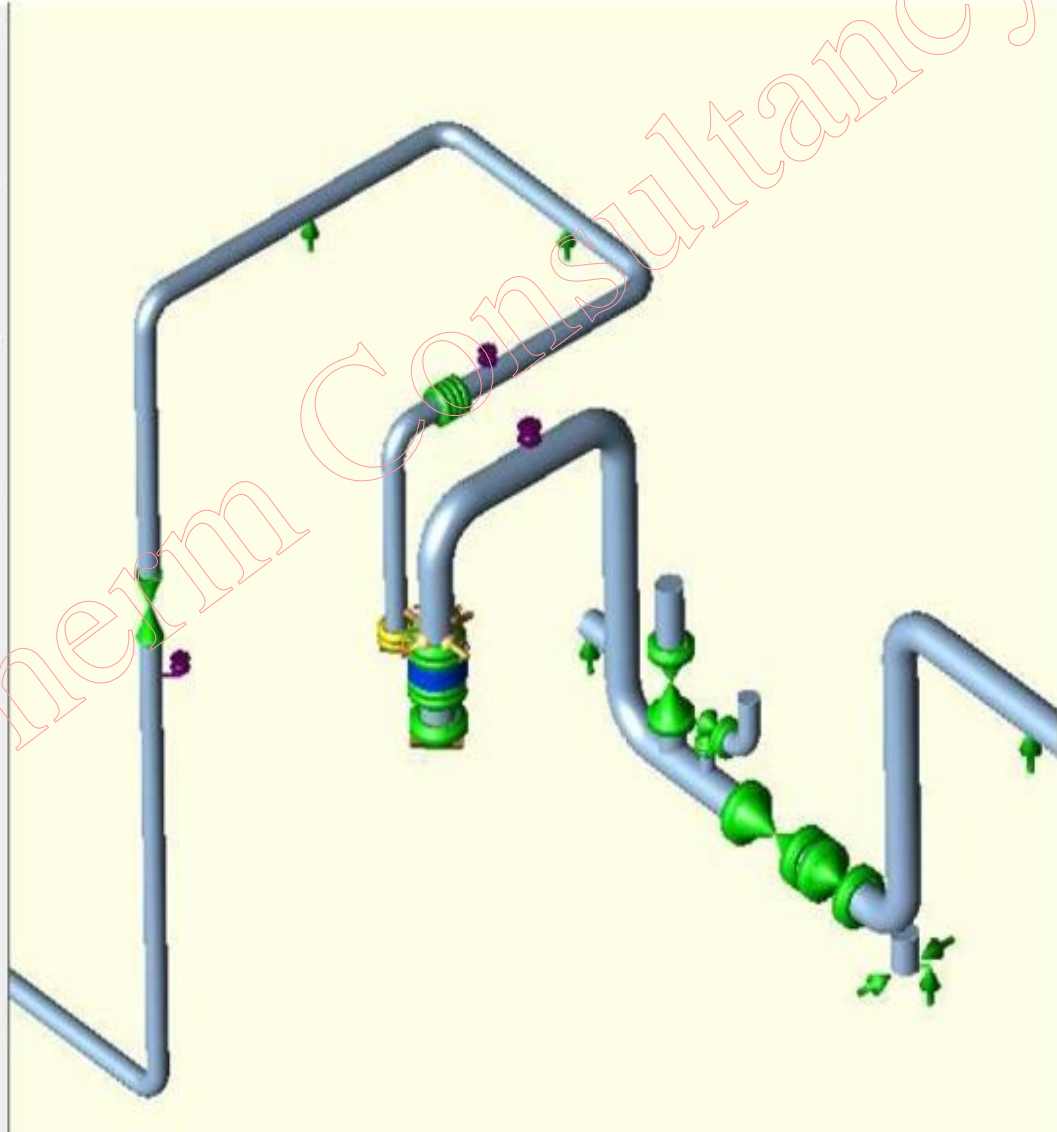
- At the initial stage of the project Client insisted to use turbine pipe size of 200nb, material SA335 Gr P11, pipe Sch.80 pipe for steam turbine inlet line and 250NB A106 GR. B sch.40 pipe for steam turbine exhaust line.

Solution Provided by STC

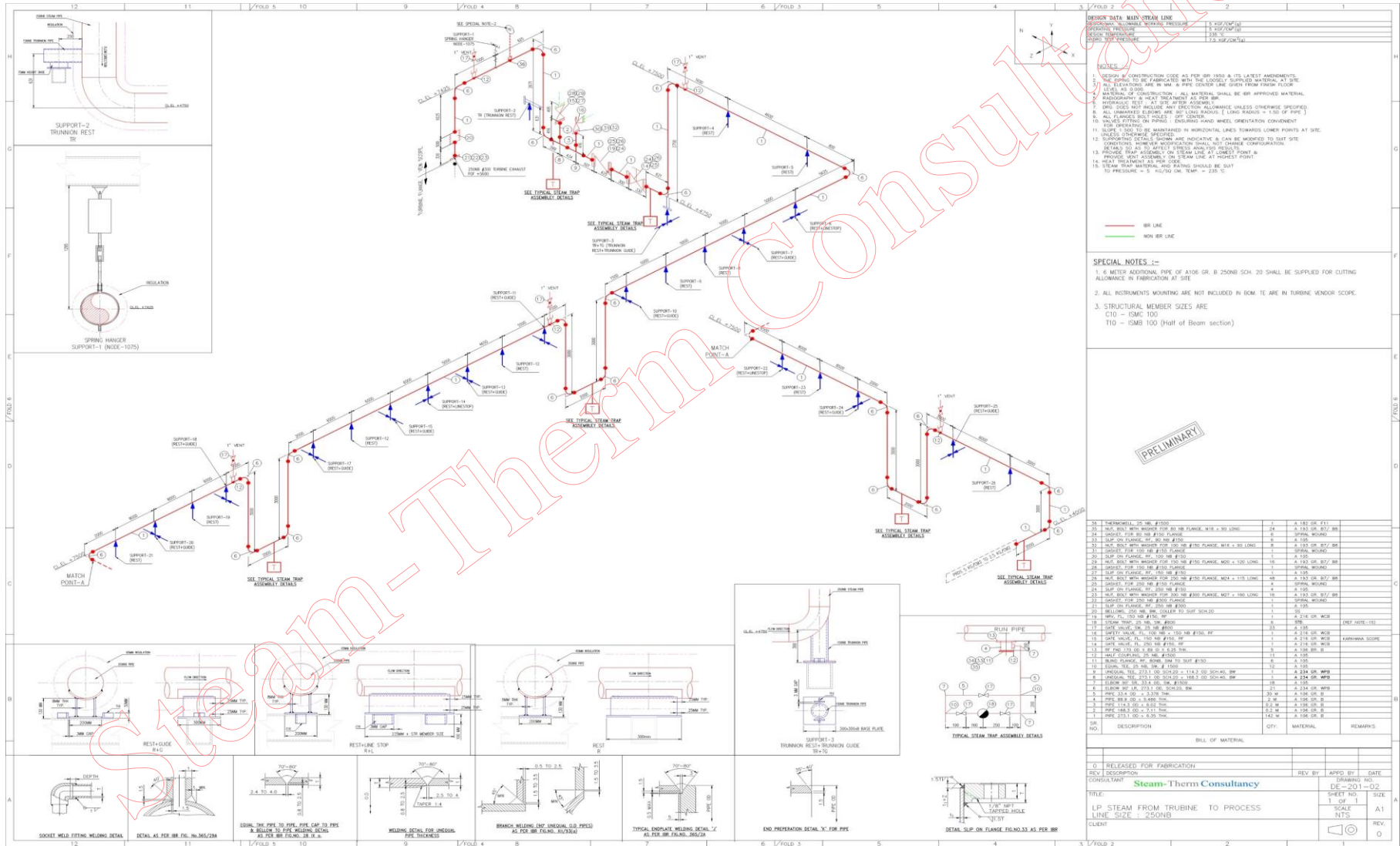
- In value engineering our expertise team studied the complete layout of the inlet and outlet steam piping. After completing proper engineering studies our expert team come up with cost effective solution of turbine inlet Steam pipe size as 150nb and thickness Sch.40 & Turbine exhaust steam pipe size as 250nb Sch.20.
- Here our team has suggested value engineering solution to lower the inlet pipe line size from 200nb to 150nb & its thickness from Sch.80 to sch.40 for Turbine inlet steam line. And also, we have reduced the pipe thickness from Sch.40 to Sch.20. which helps to reduce the capital cost of client.

Stress Analysis in CAESER II

<input type="checkbox"/> Bend	<input type="checkbox"/> Reducer
<input checked="" type="checkbox"/> Rigid	<input type="checkbox"/> SIFs & Tees
<input type="checkbox"/> Expansion Joint	
<input checked="" type="checkbox"/> Restraints	<input checked="" type="checkbox"/> Displacements
<input type="checkbox"/> Hangers	<input type="checkbox"/> Flange Checks
<input type="checkbox"/> Nozzle Flex.	<input type="checkbox"/> Nozzle Lmt Check
<input type="checkbox"/> Forces/Moments	
<input type="checkbox"/> Uniform Loads	
<input type="checkbox"/> Wind / Wave	
>>	
Material:	(181)A335 P11
<input checked="" type="checkbox"/> Allowable Stress	
>>	
Elastic Modulus (C):	2.0477E+005
Elastic Modulus (H1):	1.7445E+005
Elastic Modulus (H2):	2.0477E+005
Elastic Modulus (H3):	2.0477E+005
Poisson's Ratio:	0.2920
>>	
Refract Thk:	
Refract Density:	



Isometric Drawing in Auto Cad. Design of 250 NB high Pressure steam pipe line of 4.5 barg @ 235 deg C from Turbine outlet to Distillery



Piping Layout

