

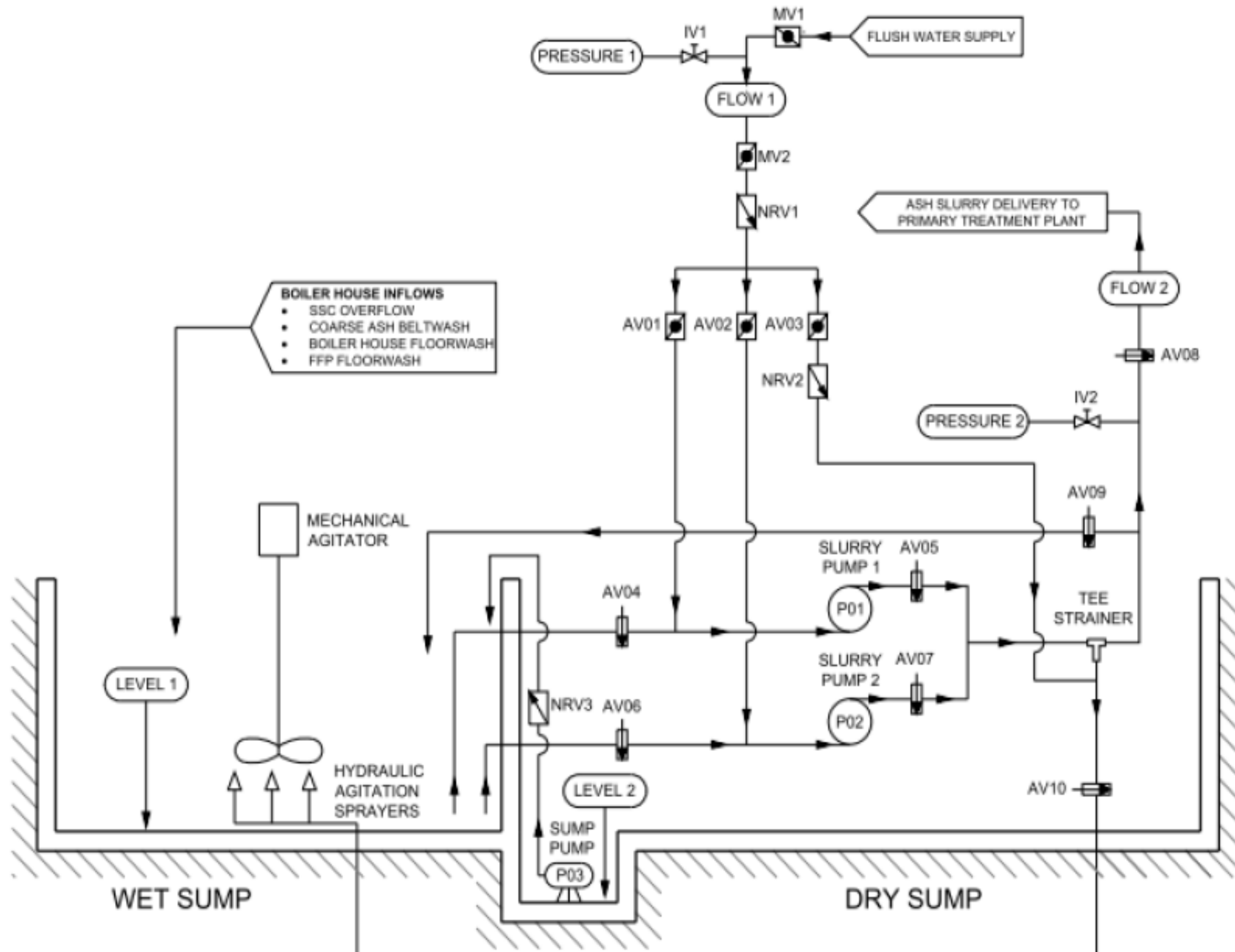


# Scope of Work

## Primary and Secondary Clarifier Valve Automation Project

22 March 2022

# Boiler Degrit Sump



# Replacement of Equipment

	Unit 6	Unit 5	Unit 4	Unit 3	Unit 2	Unit 1
<b>Pumps</b>	Pumping Length-260m. Flow rate-20.7 l/s. Static Head-10.7m. <b>2 Pumps</b>	Pumping Length-371.7m. Flow rate-21.3 l/s. Static Head-10.7m. <b>2 Pumps</b>	Pumping Length-483.5m. Flow rate-21.0 l/s. Static Head-10.7m. <b>2 Pumps</b>	Pumping Length-655.2m. Flow rate-30.6 l/s. Static Head-10.7m. <b>2 Pumps</b>	Pumping Length-706.9m. Flow rate-31.3 l/s. Static Head-10.7m. <b>2 Pumps</b>	Length-818.6m. Flow rate-31.1 l/s. Static Head-10.7m. <b>2 Pumps</b>
<b>Pump Suction</b>	90mm	90mm	90mm	90mm	90mm	90mm
<b>Pump Discharge</b>	62mm	62mm	62mm	62mm	62mm	62mm
<b>Pump Motors</b>	22 kW	30 kW	37 kW	37 kW	55 kW	55 kW
<b>Actuators</b>	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)	7 X Actuators(2 X quarter turn actuators, 5 X knife gate actuators)
<b>Level transmitters</b>	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)	2 X Level transmitters (Wet and Dry sump)
<b>Submersible pump</b>	1 X 1.3 kw	1 X 1.3 kw	1 X 1.3 kw	1 X 1.3 kw	1 X Lowara 1.3 kw	1 X 1.3 kw
<b>Flow meters</b>	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling	1 X Slurry discharge flowmeter with cabling
<b>Valves</b>	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve	5 X Knife gate valves, 2 X butterfly valve
<b>Agitator motor</b>					1 X 37Kw motor	1 X 37Kw motor

- **Cleaning and removing slurry around the drainage trenches around the boiler house.**
- **Replacement of cabling.**
- **Cleaning of both the wet and dry sumps.**
- **Purchase and installation of submersible pumps.**
  - 30 l/s
  - 30 kW

# Transfer House 7

	Pumping Length-260m. Flow rate-20.7 l/s. Static Head-10.7m. <b>2 Pumps</b>
<b>Pumps</b>	
<b>Pump motors</b>	22 kW
	7 X Actuators (2 X quarter turn actuators, 5 X knife gate actuators)
<b>Actuators</b>	
	2 X Level transmitters (Wet and Dry sump)
<b>Level transmitters</b>	
	1 X 1.3 kw
<b>Submersible pump</b>	
	1 X Slurry discharge flowmeter with cabling
<b>Flow meters</b>	
	5 X Knife gate valves, 2 X butterfly valve
<b>Valves</b>	

**Remedial work including cleaning and draining out slurry water from both the wet and dry sumps.**

# Transfer House 8 sump

Pumps	34 m Head, 10 l/s
Motors	11 kW
Actuators	2 x Actuators to operate Butterfly Valves
Pressure Indicators	2x Pressure Indicators
Level Transmitters	Level Transmitters
Valves	2 x Butterfly Valves 2 x Non-Return Valve all 80 NB
Pipe work	80 NB Pipe 30 m

- Remedial work include cleaning of the sump.
- Chosen pumps shall be compatible with existing pipework.

- **Enclosed Container to house the equipment.**
- **6 X CPU set to be replaced**
- **6 X HMI panels to be replaced**
- **75m of Cat5e cables to be replaced.**

# Primary and Secondary Clarifiers

**Actuation of the following valves per clarifier:**

No.	KKS	Size
1	0 0GNB*4 AA501	65 NB
2	0 0GNB*5 AA501	50 NB
3	0 0GNB*4 AA502	65 NB
4	0 0GNB*5 AA502	50 NB
5	0 0GNB*4 AA503	65 NB
6	0 0GNB*5 AA503	50 NB
7	0 0GNB*4 AA504	65 NB
8	00GNB*5 AA504	50 NB
9	0 0GNB*4 AA505	65 NB
10	0 0GNB*5 AA505	50 NB
11	0 0GNB*4 AA506	65 NB
12	0 0GNB*5 AA506	50 NB

- **Additional 50NB flushing pipe**
- **Changing the 50NB discharge pipe and replacing it with 60 NB pipe. (This scope only for Clarifier 1&2).**



- **The scope of the re-design, construct (within the existing structure) of a Oil Skimmer to replace the existing.**
- **Problem with the existing Oil Skimmer:**
  - is that the decant pipe is highly inefficient in collecting the decanted oil. A large portion of oil remains uncollected.
  - The rotation of the multi-disc oil skimmer is highly inefficient in separating oil for collection

## Scoring Method

SCORE	PERCENTAGE	DESCRIPTION
5	100	<b>COMPLIANT</b> <ul style="list-style-type: none"><li>• Meet technical requirement(s)/AND;</li><li>• No foreseen technical risk(s) in meeting technical requirements.</li></ul>
4	80	<b>COMPLIANT WITH ASSOCIATED QUALIFICATIONS</b> <ul style="list-style-type: none"><li>• Meet technical requirement(s) with;</li><li>• Acceptable technical risk(s) AND/OR;</li><li>• Acceptable exceptions AND/OR;</li><li>• Acceptable conditions.</li></ul>
2	40	<b>NON-COMPLIANT</b> <ul style="list-style-type: none"><li>• Does not meet technical requirement(s) AND/OR; Unacceptable technical risk(s) AND/OR;</li><li>• Unacceptable exceptions AND/OR;</li><li>• Unacceptable conditions.</li></ul>
0	0	<b>TOTALLY DEFICIENT OR NON-RESPONSIVE</b>

# Technical Evaluation Criteria

## Evaluation Scores

<b>Technical (100%)</b>	
3.1 General	10%
3.2 Mechanical	40%
3.3 Control & Instrumentation	30%
3.4 Electrical	15%
3.6 Configuration – and Documentation Management	5%
<b>TOTAL (100%)</b>	
<b>Overall minimum threshold for qualification (70%)</b>	

- **Mandatory**

1.	Company experience in executing multi-discipline (Mechanical, EC&I), engineering projects with particular emphasis on slurry pipework projects.	Company's portfolio of experience in engineering projects >3yrs, as a minimum the portfolio should include: <ul style="list-style-type: none"><li>• Brief description of the projects</li><li>• Designs experience, clearly described</li></ul>	Indication of competence in managing engineering projects
----	---	---	---

- **Qualitative**

- **General Evaluation Criteria 10%**

- Project Execution Methodology and Project Program
    - CVs of key personnel

- **Mechanical 40%**

- Individual experience in execution similar projects > 3years
    - Company experience in design and executing Oil Skimmer plants

- **Electrical 15%**
  - Contractor shall specify load requirements using template 240-56227927
  - Previous experience in switchgear modifications
  
- **Control and Instrumentation 30%**
  - Proposed solution
  - CV of qualified C&I Engineer or Electrical
  
- **Configuration and Document Management 5%**
  - Understanding of Eskom configuration system.

# Questions