

## Luhololo hydro

<b>Overview</b>	<b>Company name</b>	<b>Luponde Hydro ltd</b>	
	<b>Type of hydro</b>	<b>Small/mini run of the river hydro scheme</b>	
	<b>location</b>	<b>9°37'42.27"S 34°46'38.73"E</b>	
	<b>Gross head</b>	<b>212</b>	<b>m</b>
	<b>Expected net Head (gross head - friction losses - minor losses)</b>	<b>198.3</b>	<b>m</b>
	<b>Design flow rate</b>	<b>0.578</b>	<b>m3/s</b>
	<b>Total generation capacity (flow rate*net head*9.81*assumed efficiency of 80%)</b>	<b>900</b>	<b>kW</b>
	<b>Proposed turbine type</b>	<b>pelton</b>	
	<b>Number of turbines</b>	<b>1</b>	
<b>Headrace</b>	<b>Type</b>	<b>HDPE</b>	
	<b>Diameter (internal)</b>	<b>0.6</b>	<b>m</b>
	<b>Length</b>	<b>2094</b>	<b>m</b>
	<b>Pressure rating</b>	<b>PN4</b>	
	<b>Expected head loss</b>	<b>8.02</b>	<b>m</b>
<b>Penstock</b>	<b>Diameter</b>	<b>0.6</b>	<b>m</b>
	<b>Length</b>	<b>876</b>	<b>m</b>
	<b>Pressure rating</b>	<b>PN6 HDPE (204m)</b>	
		<b>PN10 HDPE (204m)</b>	
		<b>PN20 steel (240m)</b>	
		<b>PN30 steel (228m)</b>	
	<b>Expected head loss</b>	<b>4.47</b>	<b>m</b>
<b>Interconnection</b>	<p><b>Voltage stepped up to 33kV in indoor switchgear room, connected to private distribution network and national grid(TANESCO). Must be able to run in island mode together with the igola hydro project when TANESCO is down.</b></p>		

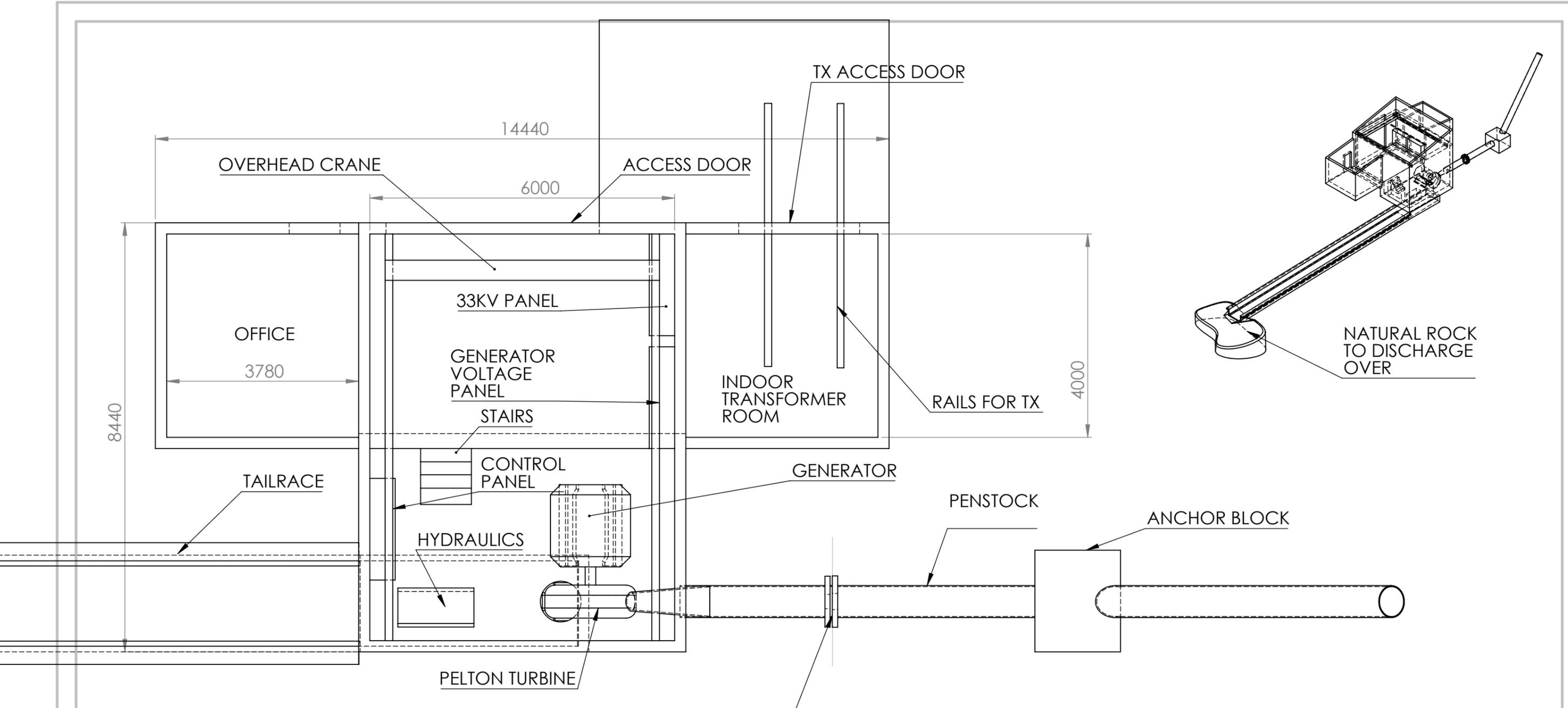
## Iuhololo monthly flow probability table

Iuhololo monthly flow, Luponde hydro (m <sup>3</sup> /s)												
%	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec
10	1.29	1.32	1.75	2.02	1.49	0.81	0.65	0.58	0.47	0.44	0.52	0.78
20	0.91	0.96	1.30	1.62	1.17	0.70	0.56	0.49	0.40	0.36	0.39	0.61
30	0.74	0.80	1.08	1.33	1.01	0.61	0.52	0.42	0.37	0.33	0.33	0.51
40	0.62	0.68	0.88	1.13	0.87	0.57	0.48	0.40	0.35	0.32	0.30	0.43
50	0.54	0.60	0.78	0.96	0.78	0.52	0.44	0.39	0.34	0.30	0.28	0.38
60	0.46	0.54	0.68	0.78	0.70	0.49	0.42	0.37	0.31	0.28	0.25	0.33
70	0.40	0.48	0.60	0.67	0.60	0.44	0.39	0.34	0.29	0.26	0.24	0.29
80	0.35	0.42	0.54	0.56	0.55	0.41	0.35	0.30	0.27	0.25	0.22	0.25
90	0.27	0.36	0.43	0.44	0.48	0.34	0.30	0.27	0.24	0.21	0.20	0.20
100	0.17	0.25	0.33	0.39	0.35	0.25	0.24	0.21	0.19	0.15	0.14	0.15

# LUHOLOLO HYDRO CONCEPTUAL SITE OVERVIEW

14/9/2016  
DRAWING REV 4.0



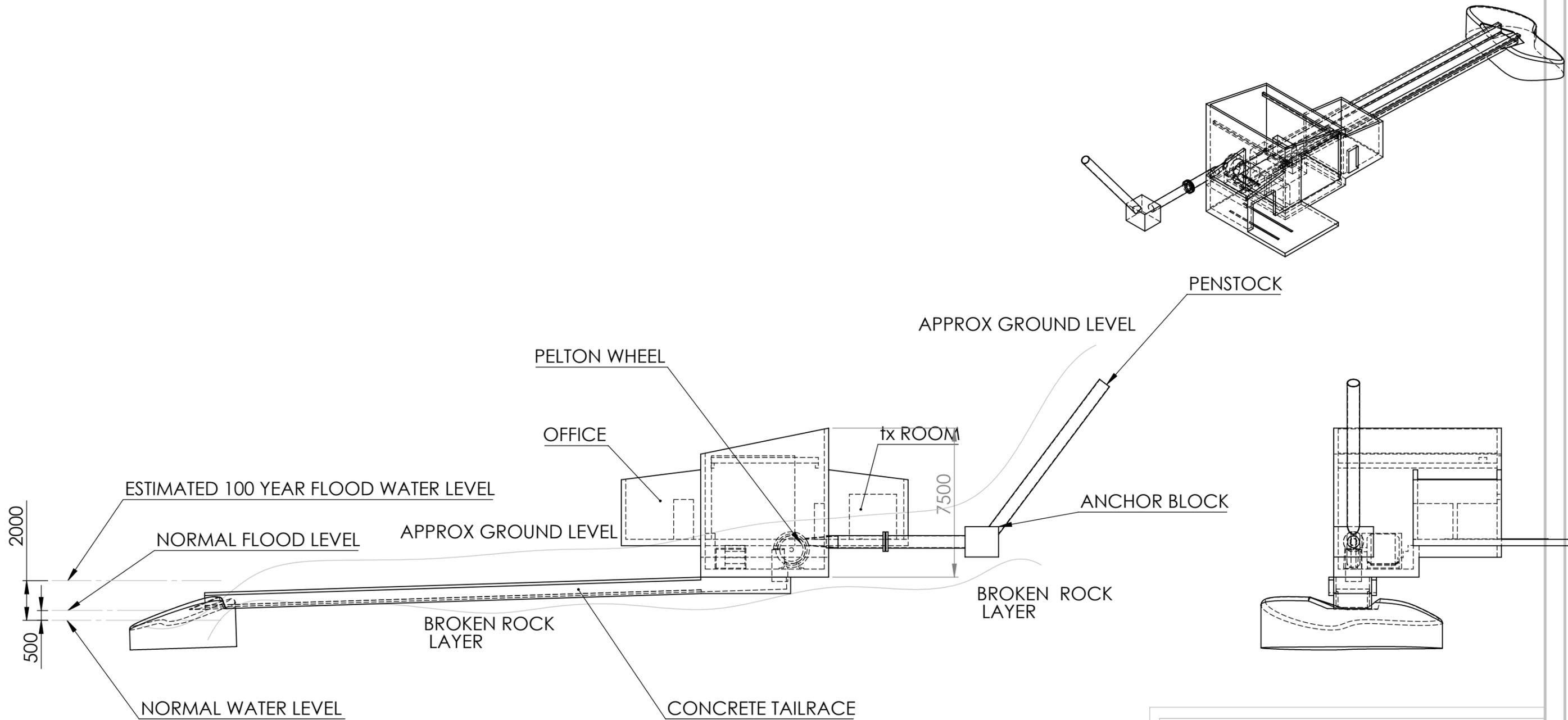


WATER SUPPLIED BY FLANGED 630mm PIPE, ALL PIPE WORK AND TURBINE CONNECTIONS BEYOND THIS POINT WILL BE THE RESPONSIBILITY OF THE TURBINE SUPPLIER

**RIFT VALLEY ENERGY**

CONCEPTUAL LAYOUT FOR TENDER PURPOSES – FINAL LAYOUT TO BE DETERMINED FROM SELECTED TURBINE PROPOSALS

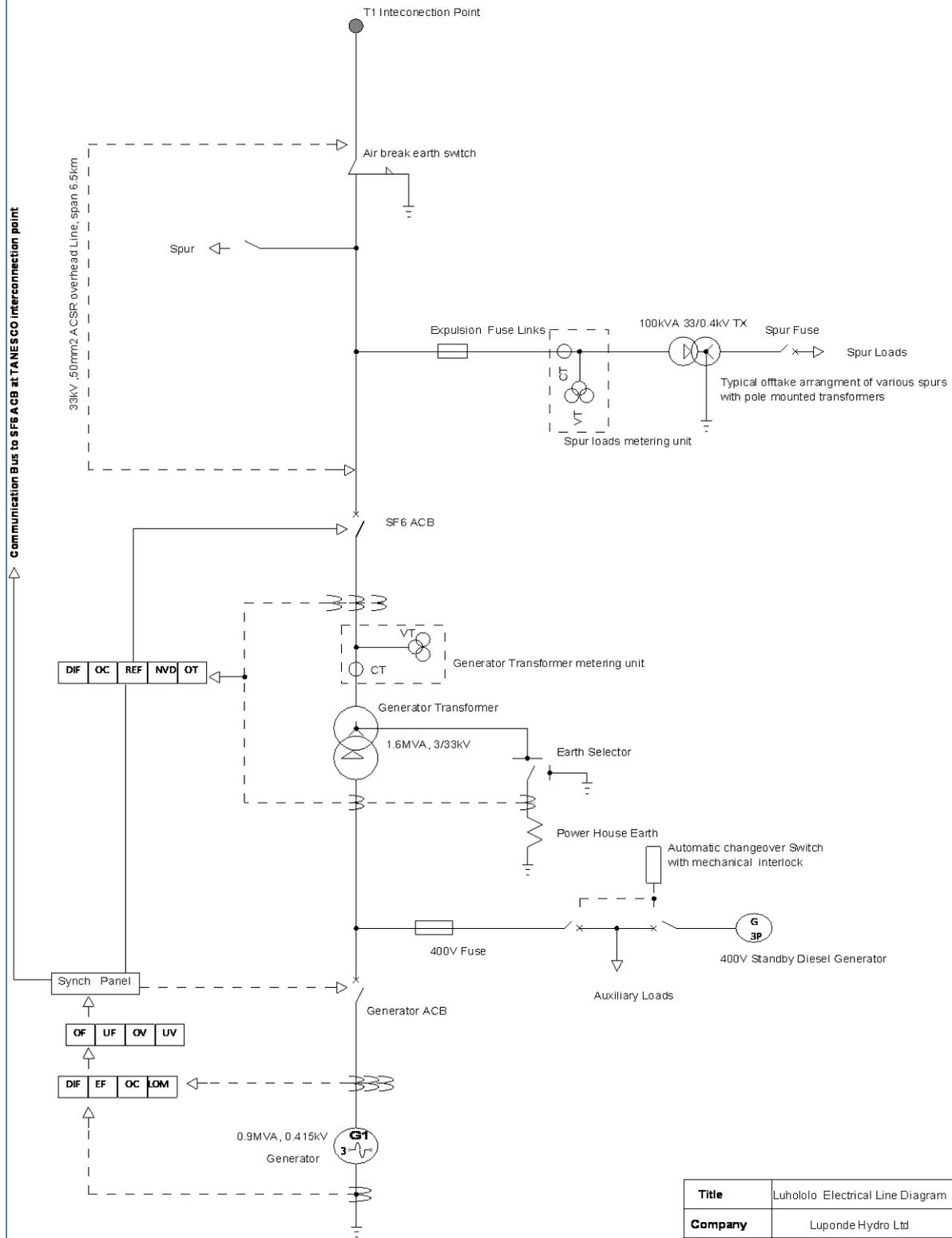
DRAWING	POWERHOUSE PLAN
PROJECT	LUHOLOLO HYDRO
REVISION	3.0
DATE	25/1/2016



NOTE: THE SUPPLIER SHOULD ENDEAVOR TO KEEP THE FOOTING OF THE ALTERNATOR ABOVE THE 100 YEAR FLOOD LEVEL

<b>RIFT VALLEY ENERGY</b> 	
CONCEPTUAL LAYOUT FOR TENDER PURPOSES – FINAL LAYOUT TO BE DETERMINED FROM SELECTED TURBINE PROPOSALS	
DRAWING	POWERHOUSE PROFILE
PROJECT	LUHOLOLO HYDRO
REVISION	3.0
DATE	25/1/2016

## PRELIMINARY LUHOLOLO HYDRO SCHEMATIC ELECTRICAL LINE DIAGRAM



<b>Title</b>	Luhololo Electrical Line Diagram
<b>Company</b>	Luponde Hydro Ltd
<b>Date</b>	31/03/2017
<b>Revision</b>	4