
SITA FALL MINI HYDRO POWER PROJECT SALIENT FEATURES

Location

State	Jharkhand
District	Ranchi
River/Tributary	Subernarekha/Raru
Diversion Weir	23 ⁰ 20' 33.52" N , 85 ⁰ 38' 38.99" E
Power House Site	23 ⁰ 20' 28.02" N , 85 ⁰ 38' 39.16" E

Hydrology

Catchment Area At Intake Site	33.55 km ²
Design Flood	201 m ³ /s
Design Discharge	0.87 m ³ /s

Diversion Structure

Type	Trench weir(below bed level)
Built	RCC
Length of Weir	10.66 m
Top elevation of weir	EL. 395.3 m
Average River Bed Level	EL. 395 m
FRL	EL. 394.25 m

Intake Structure

Type	Open chamber
Built	RCC
Invert Level	EL. 392.828 m
Size	3m(L) X 2.8m(W) X 4.87m(H)

Intake Channel

Type	Rectangular Open channel
Built	Stone masonry
Size	18.63m(L)X1.2m(W)X1.9m/0.73m(H)

Desilting Basin

Type	surface desilting basin
Built	RCC
Size of Basins	24m(L)X3m(W)X4.12m(H)(including hopper)
Minimum size of particles to be removed	0.2 mm and above
Settling velocity	2.5 cm/s
Silt Flushing arrangement	RCC Ducts

Power Channel

Type	Rectangular Open channel
Built	Stone masonry
Size	5m (L) X 0.9m (W) X 0.73m (H)
Invert Level(at start)	393.87m
Top Level(at start)	394.6 m

Forebay

Type	Rectangular tank(stepped)
Size(plan area)	44m (L) X 18m (W)
Invert Level(bottommost)	EL. 387.947 m
Top Level	EL. 394.75 m
C/L penstock	EL. 388.512 m

Penstock

Type	Steel lined circular-Surface
Size	0.53 m diameter
Length	618m to power house.
Design Discharge	0.87 m ³ /s

Power House

Type	Surface
Total Installed Capacity	700 KW
No. of Units	1
Capacity of Units	1 X 700 KW
Size Of power house	12.5 m (L) X 9 m (W)
Type Of Turbine	Horizontal Francis
Gross Head	104.5 m
Net Operating Head Design Discharge	95.5 m
Tail Race Channel	
Max. Tail Water Level	EL 289 m
Min. Tail Water Level	EL 288.5 m
Type	Rectangular Open Channel
Size	1.2m(W)x0.6m(H)
Length	28 m
Power Generation	
Installed Capacity	700 KW
75% Dependable Energy	2.19 GWh
Plant Load factor	36 %
Levellised Tariff at bus bar	Rs 5.43/kWh
COST ESTIMATE	INR (Crores)
Civil & HM Works	3.82
Electro Mechanical Works	1.50
TOTAL COST WITHOUT TRANSMISSION	5.32
Cost of Transmission Works	0.72
TOTAL COST WITH TRANSMISSION	6.04