

Lanco Mandakini Hydro Energy Private Limited

(Phata Byung H. E. Project (76 MW), Uttarakhand)

SALIENT FEATURES

Sr. no.	Feature	Description
1.	PROJECT LOCATION	
	State	Uttarakhand
	District	Rudraprayag
	Tehsil	Ukhimath
	Nearest rail head	Rishikesh
	Nearest airport	Dehradun
	River	Mandakini
	Longitude	79° 00'28"E
	Latitude	30° 37'35"N
	Location	Sitapur village
	Longitude	79° 04'05"E
	Latitude	30° 33'40"N
	Location	Byung village
2.	HYDROLOGY	
	Catchment area (up to dam site)	247.44 sq. km.
	Snow bound catchment area	2,605.94 ha
	Standard Project flood (SPF)	1850 cumec
3.	RIVER DIVERSSION	
	Diversion arrangement (This will be used for discharging a part of SPF)	D-shaped tunnels
	Diversion discharge	150 cumec
4.	DAM	
	Full Reservoir Level (FRL)	1635 m
	Minimum Draw Down Level (MDDL)	1630 m

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	Dam top	1637 m
	Deepest river bed level	1611 m
	Height of the dam from river bed level	26 m
5.	SPILLWAY ARRANGEMENT	
	Type	Sluice Spillway
	Length	16 m
	Number of bays	2
	Crest elevation	1621 m
	Crest elevation of sluice bay	1632 m
	Size of vent ways	8.5 m x 11.0 m
	Thickness of piers	3.5 m
	Regulation gates	Radial gates
	Design Flood	1850 cumec
6.	RESERVOIR	
	Gross storage at FRL	-
	Live storage	-
	Length of submergence	520 m
7.	INTAKE	
	Type	Vertical straight
	No. of intakes	2
	Design discharge	12.5 cumec each
	Invert level	1625 m
	Intake gate	2
	Trash rack (No. & size)	2 nos. of 2.275 m (H) x 3.0 m (W) for each intake
8.	DESILTING BASIN	

Sr. no.	Feature	Description
	No., type & size of desilting chamber	2 nos. of 140 m (L) x 9.0 (W) x 11.5 m (D) including hopper
	Particle size to be removed	0.15 mm and above
	Flow through velocity (max.)	0.137 m / sec
	Size of gate (d/s)	D/s gate 2.5 m x 1.24 m
	No. of gates	1 for each desilting chamber
	Flushing velocity	4.5 m/sec
9.	FLUSHING DUCT	
	No. of ducts	1
	Duct size	3.6 m D shape
	No. of gates	1 gate for each basin
	Flushing velocity	4.5 m / sec
10.	HEAD RACE TUNNEL	
	Length	9.32 km
	Diameter	3.8(W)X3.5(H)
	Design discharge	20.8 cumec
	Shape	Modified D shaped
	Velocity	1.77 m/sec
11.	ADITS	
	No.	3
12.	SURGE SHAFT	
	Type	Restricted orifice type
	Diameter	6.3 m
	Maximum upsurge level	1667.7 m
	Top elevation of surge shaft	1670.0 m
13.	PRESSURE SHAFT	

Sr. no.	Feature	Description
	Main	Underground
	Type	Steel lined
	Diameter	2.5 m, 2.2m and 1.75m
	Length	1242 m
14.	POWER HOUSE	
	Location	Byung village
	Type	Underground
	Size	49 m (L) x 14.5 m (W) x 35.5 m (H)
	Type of turbines	Francis
	Generating units	2
	Maximum gross head	445.5 m
	Rated net head	421.8 m
	C.L. of turbine	1184.5m
	Tail water level	1190
	Draft tube gates	2 Nos.
	Transformer	7 Nos. (Single Phase)
	Type of switchyard	GIS
15.	TAIL RACE TUNNEL	
	Type	Underground tunnel
	Shape	4.2 m D shape
	Length	355.4 m
16.	POWER GENERATION	
	Installed capacity	2 x 38 MW
	Annual energy generation in 90% dependable year	385 GWh

PROJECT STATUS- PHYSICAL PROGRESS OF COMPONENTS

Sr. no.	Component	Progress
1	Dam	<ul style="list-style-type: none">• Work on dam reconstruction was under progress, after completing the demolition of damaged dam structure, concreting is 50% completed
2	Head Race Tunnel	<ul style="list-style-type: none">• 99% of the HRT excavation has been completed• Concrete lining is in progress between HRT Face 2 and Face 3 and Face 6 to Face 9
3	Surge Shaft	<ul style="list-style-type: none">• Excavation of surge shaft is completed• Concrete lining is under progress
4	Pressure Shaft	<ul style="list-style-type: none">• 60% excavation of pressure shaft and Tunnel is completed• Ferrule election (HM works) is under progress
5	Power House	<ul style="list-style-type: none">• 100% of the power house excavation has been completed• 30% concreting completed

- Overall about 74% of the project has been completed.
- As per Lender's Engineer assessment, the estimated time to complete the balance project works will be 24 months from the actual work restart.

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