

CHAPTER – 2

SALIENT FEATURES

LOCATION

State	:	Uttaranchal
District	:	Tehri & Pauri Garhwal
River	:	Ganga
Location of Dam & Power House	:	Near Kaudiyala Village
Nearest Rail head	:	Rishikesh
Nearest Airport	:	Jolly Grant (Near Dehradun)

HYDROLOGY

Ganga River	
Catchment area at diversion site	: 21375 sq. km
Snow catchment	: 4268 sq. km

DIVERSION TUNNEL

Location of Diversion Tunnel	:	Right Bank
Invert EL of DT at Inlet	:	EL 402.0 m
Invert EL of DT at Outlet	:	EL 401.0 m
Diversion Discharge	:	1382 cumec
Diameter of Diversion Tunnel	:	11.0 m
Shape of Diversion Tunnel	:	Horse Shoe Shaped
Length of Diversion Tunnel	:	380 m

DIVERSION TUNNEL GATES

Nos.	:	Two
Size	:	4.6 m x 11.0 m
Sill elevation	:	EL 402.0 m

COFFER DAMS

Location of u/s coffer dam	:	80 m u/s of dam axis
Location of d/s coffer dam	:	170 m d/s of dam axis
Top of u/s coffer dam	:	EL 424.00 m
Top of d/s coffer dam	:	EL. 412.00 m

DAM

Type	:	Concrete Gravity
Dam Top	:	EL 460.00 m
Minimum river bed level at dam site	:	EL 401.55m
Dam Height above River Bed	:	58.45 m
Deepest Foundation Level	:	EL 375.0 m
Dam Height above Deepest Foundation Level	:	85.0 m
Length of Dam at Top	:	262 m

SPILLWAY

Type	: Orifice Type
Design Flood	: 38000 cumec
Width of spillway	: 207 m
Nos. of Bays	: 9 (including one standby)
Crest of Spillway	: EL 427.0 m
Width of each bay	: 15.0 m
Regulation gates	: Hydraulically operated radial gates of size 15 m x 23 m

UNDER SLUICE

Nos. of Openings	: 8
Size of Openings	: 3.0 m (Width) x 3.0 m (Height)
Type of Gate	: Hydraulically operated vertical lift gates
Crest of Under Sluice	: EL 404.00 m

RESERVOIR

FRL	: EL 457.00 m
MDDL	: EL 453.00 m
River Bed Slope	: 1 : 775
Gross storage at FRL	: 137.77 M cum
Gross storage at MDDL	: 116.71 M cum
Live storage	: 21.06 M cum
Reservoir area at FRL	: 5.51 sq. km
Length of reservoir	
Ganga & Alaknanda limb	: 32.5 km
Ganga & Bhagirathi limb	: 31.3 km

INTAKE

Nos.	: 4
Size of Openings	: 7.9 m x 9.5 m
Invert Level at Inlet	: EL 431.00 m
Trash Rack	: Inclined

HEADRACE TUNNEL

Nos.	: 4
Size & type	: 9.5 m dia., Horse-shoe shaped
Design Discharge	: 278.84 cumec through each tunnel
Length	
HRT 1	: 185m
HRT2	: 195m
HRT 3	: 210m
HRT 4	: 220m

PRESSURE SHAFT

Nos. ,Size & Shape	: 4 No, 5.5 m dia, Circular
Design Discharge	: 139.42 cumec each
Length of Pressure Shaft (8 nos)	: 80 m, 70m, 70m, 55 m, 55m, 45m, 45 m & 30 m

POWER HOUSE COMPLEX

Location	: Left Bank
Type	: Underground
Installed Capacity	: 440 MW
Size of Power House Cavern	: 252 m x 27.2 m x 44.5 m
Size of Transformer Cavern	: 250 m x 14.5 m x 10.5 m
Type of Turbine	: Kaplan
Generating units	: 8 nos. of 55 MW each
Net head available	: 43.71 m (as per Design E&M)
Type of switchgear	: GIS (Outdoor)
Size of pothead yard	: 50 m x 120m

Main Access Tunnel

Length	: 375 m
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Cable cum Ventilation Tunnel

Size of Tunnel	: 6 m, D-shaped
No.	: 1
Length	: 145 m

D/S SURGE SHAFT

Nos., Type & Size	: 4 No, Restricted Orifice Type, 26 m Dia
Nos. of Gate	: 8
Nos., & Size of Opening	: 8, 5.3 m x 6.4 m

Branch Tailrace Tunnels

Nos. & Size	: 8 Nos., 6.4 m Dia, Horse-shoe shaped
Length	: 85 m, 95 m, 150m, 160 m, 215 m ,205m, 145 m and 135 m

Main Tailrace Tunnels

Nos. & Size	: 4 No, 9.0 m Dia, Horse-shoe shaped
Length	
TRT 1	245 m
TRT 2	: 190 m
TRT 3	: 140 m
TRT 4	: 210 m
Tailrace outlet stoplogs 1 set	: 7.5 m x 9.0 m

POWER GENERATION

Installed capacity	: 440 MW
Annual energy generation in 90% dependable year at 95% machine availability	: 1902.69 MU