

SALIENT FEATURES

1 Location

State	:	Uttarakhand
District	:	Pithoragarh
Tehsil	:	Thal
Place	:	Muwani, Chopda
Stream	:	Ramganga River
Nearest Airport	:	Dehradun
Nearest Rail Head	:	Tanakpur
Geographical Coordinates of Diversion Site		
a) Longitude	:	80°08'03.16"E
b) Latitude	:	29°48'03.73"N
c) Altitude	:	760 m

2 Hydrology

Gross Catchment Area	:	830 sq.km
Design Flood	:	7161 cumec

3 Diversion Arrangements

Location	:	2.7 km downstream of Thal town (along the river, actual location marked on drawing)
Type of structure	:	Concrete Barrage
River Bed Level	:	EL 760 m
Top of Barrage	:	EL 783 m
Length at FRL	:	107 m
FRL	:	EL 781 m
Barrage crest level	:	EL 762 m (undersluice), EL 763 m (other barrage bays)
No of bays/ bay width	:	Total 8 Nos (7 nos barrage bays and 1 no undersluice), each bay width 10.3 m.
Thickness of pier	:	2.5 m
Number of Gates	:	8 Nos
Type of Gates	:	Radial

4 Intake Structure

Type	:	Semi Circular
Location	:	Right Bank of river
Design Discharge	:	76.4 cumec
CL of Intake	:	EL 768.80 m
Bottom level of Intake	:	EL 766.05 m

5 Head Race Tunnel

Length	:	1970 m
Shape	:	Horse Shoe
Diameter	:	5.5 m
Design Discharge	:	76.4 cumec

6 Surge Tank

Type	: Simple
Dimension	: 15 m diameter, 42 m high

7 Pressure Shaft

Number	: One
Diameter & thickness	: 4.7 m dia, 22 mm thick
Length	: 280 m
Bifurcation	: 4.7 m dia pipe shall be bifurcated into two 3.2m dia 12 mm thick pipes.
Design Discharge	: 76.4 cumec

8 Power House

Location	: At right bank of river Ramganga near Chopra village
Type of Turbine	: Vertical Kaplan
Type of Generator	: Semi Umbrella
Power House Crane/Lifting Tackle Capacity	: EOT Crane, 80T/20T capacity of main hook,
Maximum Gross Head/Net Head	: 28.4 m / 22.2 m
Installed Capacity	: 15 MW (2X7.5 MW)
Maximum TWL	: 753.4 m
Minimum TWL	: 752.6 m
Units generated at 75% availability	: 61.15 MKwhr
Plant Load Factor at 75% availability	: 47.98 %

9 Construction Period : 36 Months

10 Cost Estimate & Financial Analysis

Civil works including gates	: 137.30 Cr
Electro-mechanical works	: 67.25 Cr
Total basic cost	: 204.55 Cr
IDC & FC	: 20.43 Crore
Price escalation	: 13.07 Cr
Price escalation	
Grand Total (including escalation. IDC & FC)	: 218.05 Cr
Levellised Tariff	: 5.85 Rs/Kwh

11 Power Evacuation

Evacuation of power will be through 33KV double circuit line from switchyard to 33 KV Gouchar sub-station near Thal.