

## CHAPTER – 2

### SALIENT FEATURES

#### 1. LOCATION

- |       |                  |   |  |
|-------|------------------|---|--|
| (i)   | Location         |   | Diversion site: Near village Singoli<br>Power Station: Near Village Phalai |
| (ii)  | District         | - | Rudraprayag  |
| (iii) | Tehsil           | - | Okhimath   |
| (iv)  | Diversion Site   |   |  |
|       | Latitude         | - | 30° 30' 17" N  |
|       | Longitude        | - | 79° 05' 22" E  |
| (v)   | Power House Site |   |  |
|       | Latitude         | - | 30° 24' 11" N  |
|       | Longitude        | - | 79° 02' 25" E  |
| (vi)  | River            | - | Mandakini  |

#### 2. HYDROLOGY

- |      |                      |             |
|------|----------------------|-------------|
| (i)  | Total catchment area | 650 sq. km. |
| (ii) | Snow bound catchment | 294 sq. km. |

#### 3. DESIGN FLOOD DISCHARGE

- |      |  |             |
|------|--|-------------|
| (i)  | Design Flood Discharge<br>1 to 100 year frequency  | 1284 Cumecs |
| (ii) | Design Flood Discharge<br>1 to 1000 year frequency | 1709 Cumecs |

#### 4. DIVERSION BARRAGE

- |       |                                 |   |
|-------|---------------------------------|---|
| (i)   | River bed level at barrage site | 1005 m  |
| (ii)  | High Flood Level                | 1010 m  |
| (iii) | Type of diversion               | Gated barrage 68 m long with 5 bays of<br>12 m each |
| (iv)  | Intake structure                | Head Regulator of 2 spans of 8 m each               |

**5. SEDIMENTATION TANK**

(i)	Size	140 x 18 x 10 m approx.
(ii)	Design discharge for flushing	
	Lean period (November-March)	1.0 cumec
	Rest of year	3.0-5.0 cumec

**6. POWER TUNNEL**

(i)	Shape	Horse shoe
(ii)	Diameter	3.5 m
(iii)	Length	12.5 km
(iv)	Number of adits	3
(v)	Design discharge	40 cumecs

**7. SURGE TANK**

(i)	Type	Restricted Orifice
(ii)	Diameter	12 m (approx.)

**8. PENSTOCK**

(i)	Main Penstock	One No. 2.80 dia.
(ii)	Unit Penstock	3 nos. branching off the main penstock

**9. POWER HOUSE**

(i)	Location	Near village Phalai
(ii)	Type	Surface
(iii)	Maximum Gross Head	210.0 m
(iv)	Installed capacity	60 MW (3 x 20 MW)
(v)	Type of turbine	Francis

**10. TAIL RACE**

(i)	Type	Trapezoidal
(ii)	Bottom width	10.0 m
(iii)	Length	100 m

## **11. ANNUAL ELECTRICAL ENERGY**

### Gross Annual Generation

(i)	During 90% dependability year	354.94 MU
(ii)	During 75% dependability year	372.96 MU
(iii)	During 60% dependability year	394.34 MU
(iv)	During 50% dependability year	400.30 MU