

Canal Headworks: Any Headwork which supplies water to the off taking canal.

- The Main Idea is to Raise the water level in the River so that it can be diverted into the off taking canal.
- These headworks may be Temporary or Permanent in Nature.

Temporary



- Temporary in Nature
- Constructed After flood.

Permanent



Permanent Concrete Structures Eg: Weir and Barrage.

Types:

- ①. Storage Headwork.
- ②. Diversion Headwork.

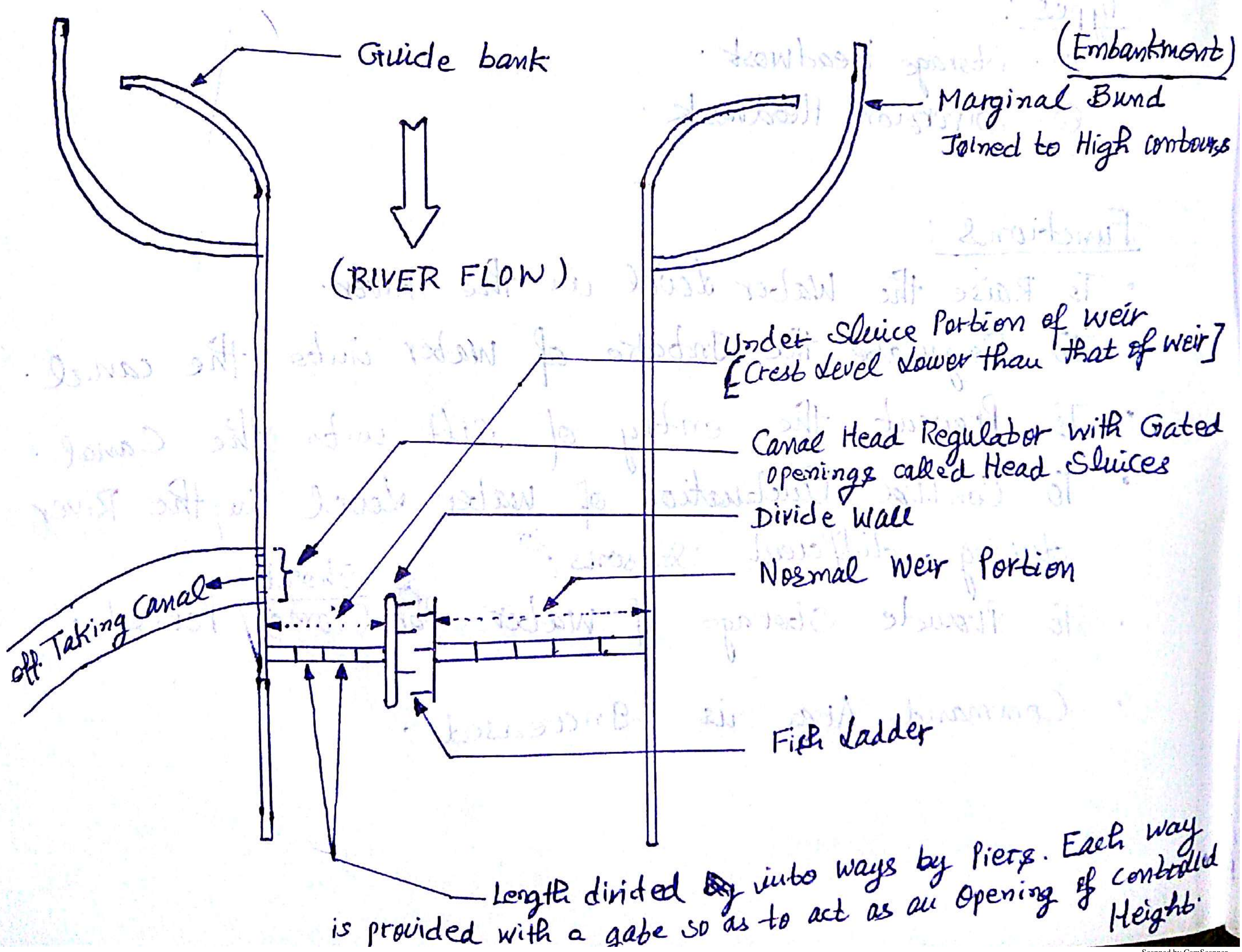
Functions:

- To Raise the water level in the River.
- To Regulate the intake of water into the canal.
- To Prevent the entry of silt into the canal.
- To Control fluctuation of water level in the River during different seasons.
- To provide storage of water for short (some) period.
- Command Area is increased.

Layout: Diversion Headworks mainly consist of a weir (or barrage) and a canal head Regulator.

A weir has a deep pocket of under Sluice Position upstream of itself and in front of the Canal head regulator on one or both sides. The under Sluice bays are separated from other weir bays by means of a divide wall.

In Addition, River Training Structures on the upstream and downstream of weir and sediment Excluding devices near the Canal head Regulator are Provided.



Selection of Site for diversion Head works :

- The River should be straight and narrow at the site.
- The elevation of site should be higher than the area to be irrigated (for gravity flow).
- River banks at site should be well defined and stable.
- Valuable land upstream of the barrier like weir or barrage should not be submerged.
- If possible should be nearly connected to Roads or Railway network.
- Site should be close to the cropland to minimize loss of water due to seepage & Evaporation.

Components :

- ①. Weir or Barrage.
- ②. Scouring Sluices or Under Sluices.
- ③. Divide Wall.
- ④. Canal Head Regulator.
- ⑤. Fish Ladder.
- ⑥. Silt Excluder.
- ⑦. Marginal bunds and Guid banks
- ⑧. Silt Pocket or Trap

Weir: The Weir is a solid construction/structure ^{Across} the River to Raise the water level in the River and divert the water into the Canal.

- Usually Aligned at Right angle to the direction of flow.

Based on materials of construction, design features and type of soil foundation the weir may be of different types:

- ①. Masonry Weirs with Vertical drop walls.
- ②. Rock fill weirs with Sloping Aprons.
- ③. Concrete Weirs with a downstream Glacis.

①. Vertical Drop Weirs

- It consists of Masonry wall with a Vertical (or nearly Vertical) downstream face and a horizontal concrete floor.
- The shutters are provided at the Crest which are dropped during flood so as to Reduce Afflux.
- Impervious horizontal Floor is provided.
- At Upstream End Block Protection is provided.
- At downstream End Graded Inverted filter is provided.
- Launching Aprons are provided before Block Protection and After Inverted Filter, to safeguard against Scouring action.

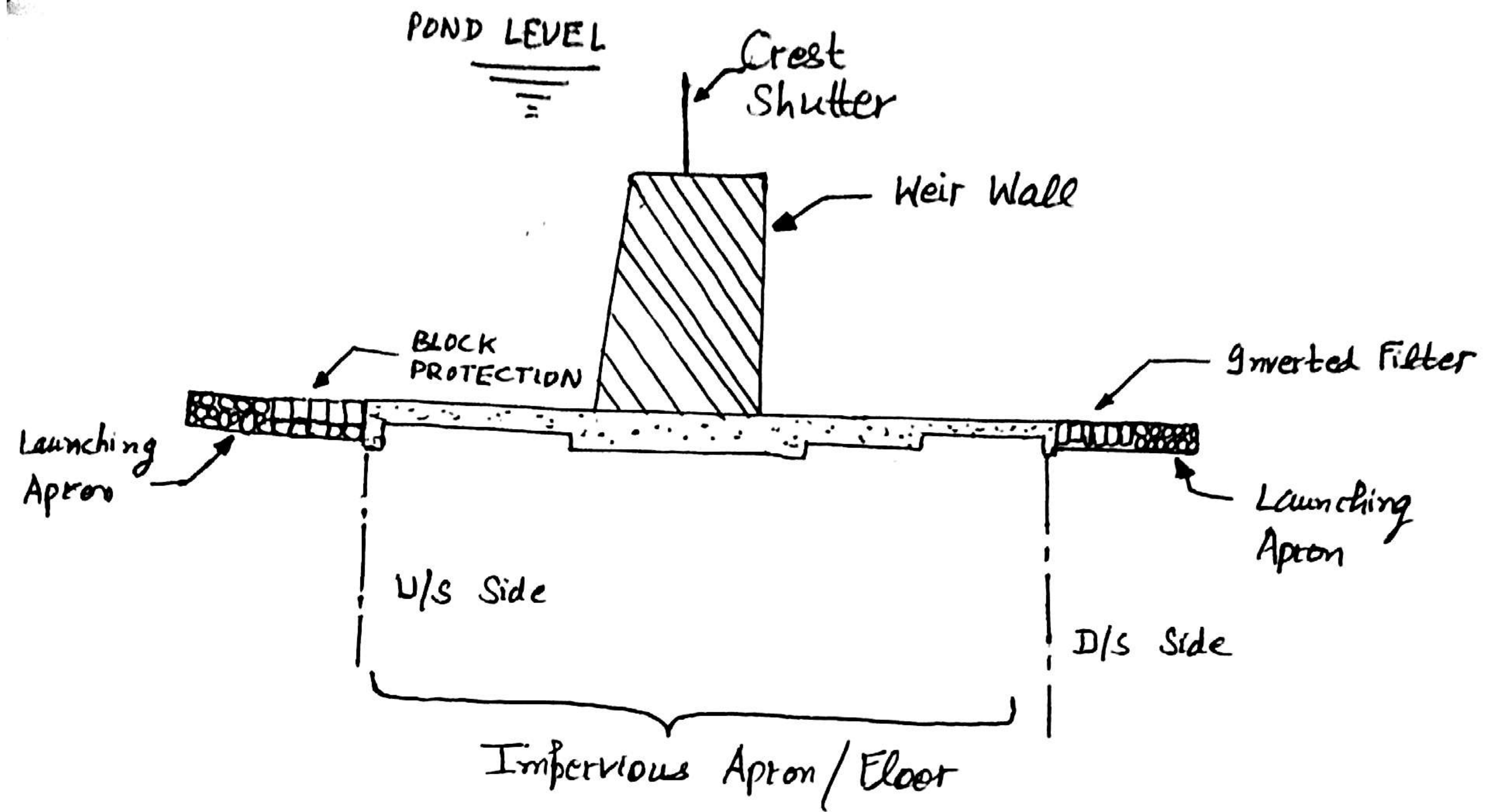


Fig: Vertical Drop Weir

②. Rock Fill Weirs

- It consists of a main Masonary Weir Wall.
- A Number of Intervening Core walls.
- The Space B/w Core walls is filled with the fragments of rock, which is termed as Rock-fill.
- Slope of 1 in 4 on Upstream Side is given.
- On downstream Side, 1 in 20 slope is given.
- Suitable in case of Fine Sand Foundation.

