

HOW TO BUILD A PHOSPHORUS PRECIPITATION UNIT FOR DITCH WATER TREATMENT



TURKU AMK
TURKU UNIVERSITY OF
APPLIED SCIENCES

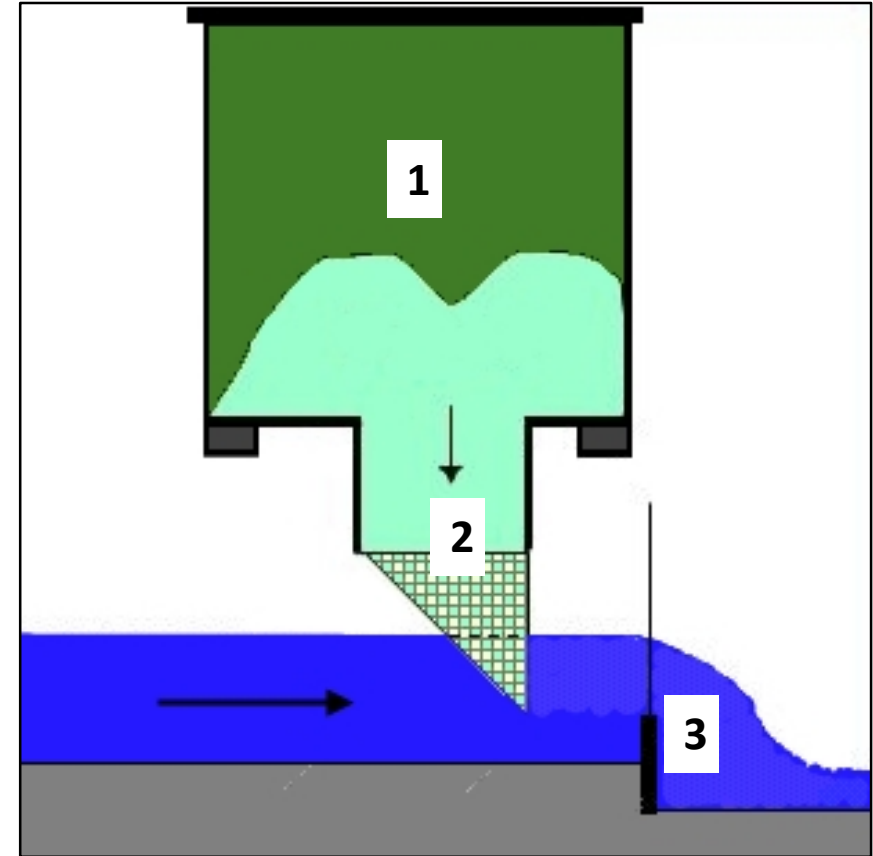


Direct phosphorus (P) precipitation can be used for load reduction in open ditches.

Gravity and discharge operated P precipitation unit was originally developed at MTT by Aaro Närvänen

The unit consists of:

- Precipitant storage (1)
- Dispenser cone (2)
- V-notch weir (3)

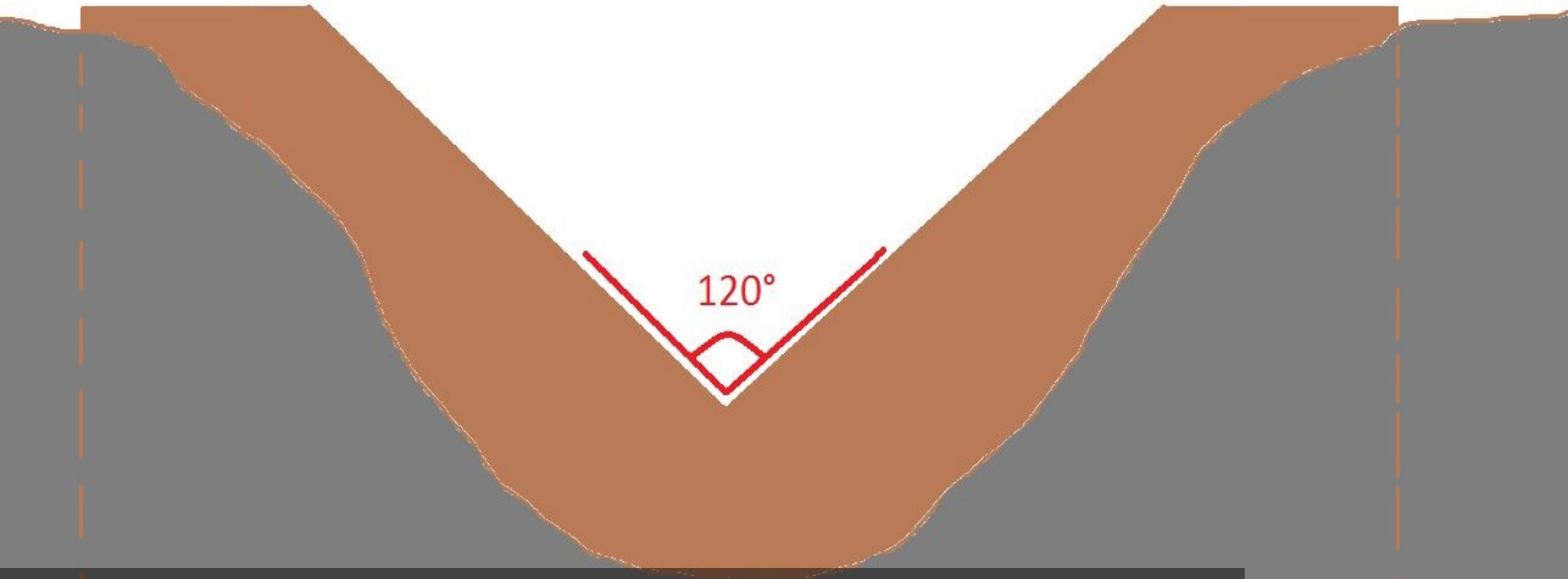


To start the building of a chemical dispenser unit, some excavations need to be made for the v-notch weir.



The plywood for v-notch weir is installed deep inside the ground.





The V-notch weir regulates the water level and dissolving of the precipitant chemical according to discharge rate. The plywood is cut to a 120-degree angle.

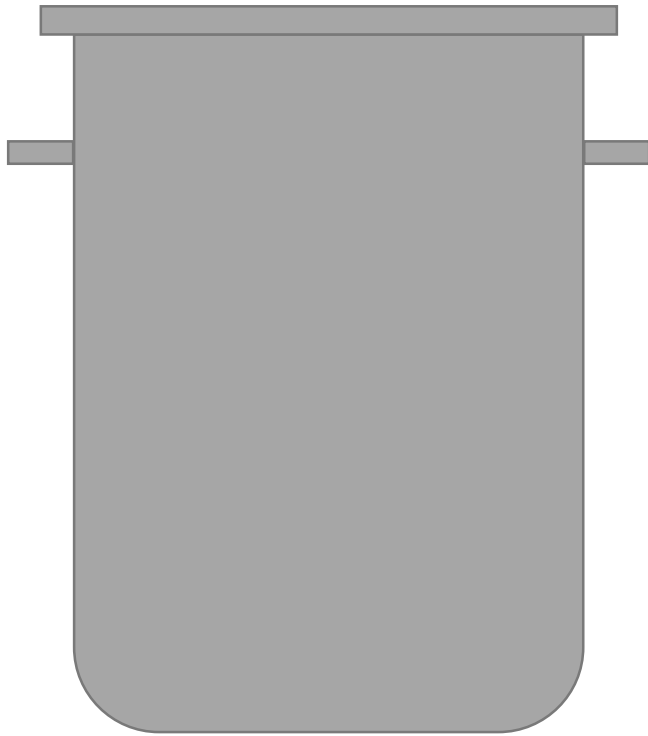


For the flow measurement purposes a metallic V-shape of the same angle can also be installed to create a sharp crest measurement weir.



The platform for the dispenser is made from wood and the foundation pillars have to be installed deep into the ground

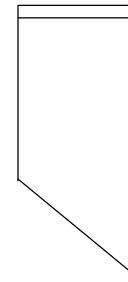
The chemical dispenser is built from a container, a polyethene pipe with a collar and a polyester dispenser cone.



Container



Pipe with
a collar



Dispenser
cone

The pipe is installed at the bottom of the container by making a hole on the bottom, so the pipe barely fits in it. The collar on the pipe is used to tighten any gaps on the bottom by using big screws. Sealing foam was also used under the collar to prevent any moisture getting in to the container from below.





The dispenser cone is installed in the pipe with braces to keep it from falling down because of the weight of the chemical.



For the proper height of the dispenser cone, the tip should be at the same level as the point of v-notch weir. That way the chemical in the cone makes contact only with flowing water.

Granular precipitation chemical (ferric sulphate) is added to the container.



After all installations,
the container is
secured on its
position and locked
from the top.



The unit is
ready for use!



The phosphorus
precipitation unit
ready and
working!

