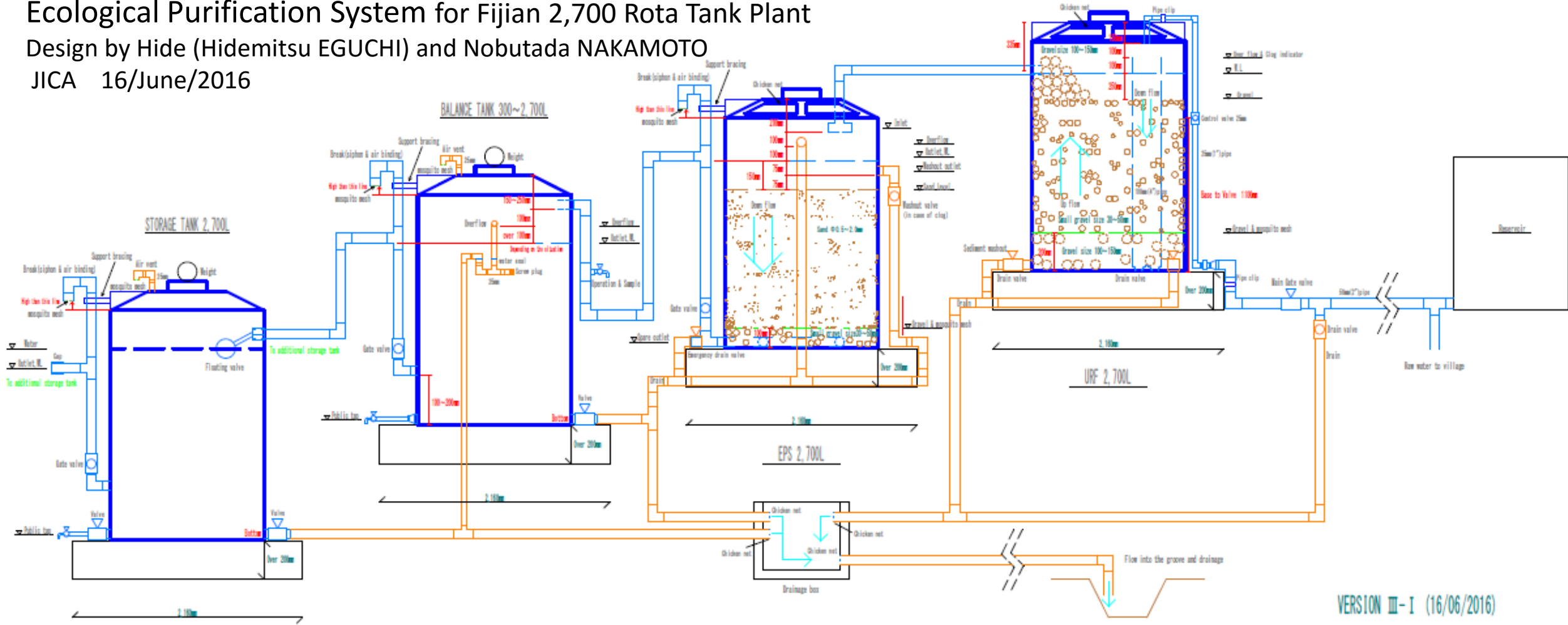


# Ecological Purification System for Fijian 2,700 Rota Tank Plant

Design by Hide (Hidemitsu EGUCHI) and Nobutada NAKAMOTO

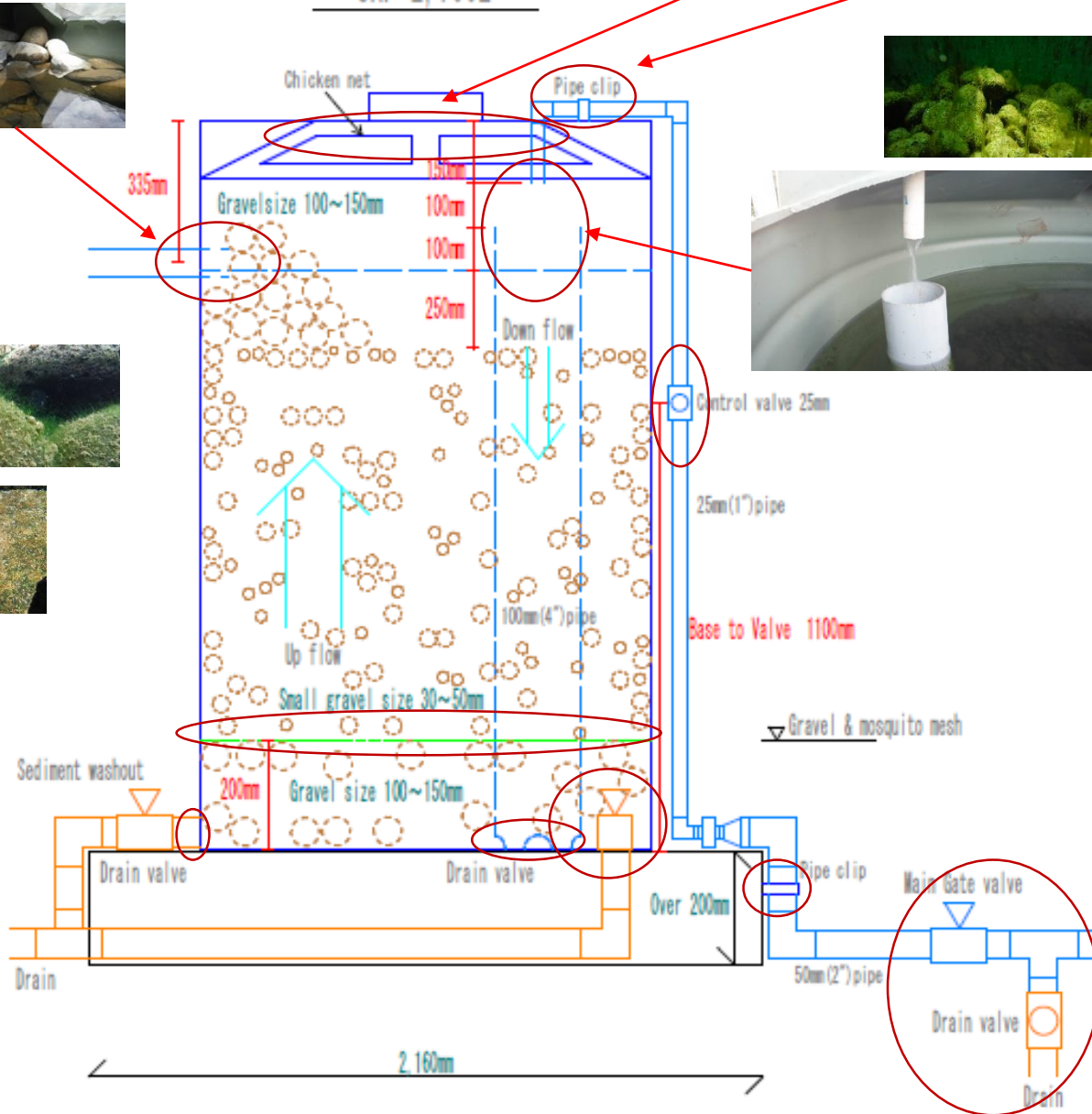
JICA 16/June/2016



VERSION III-I (16/06/2016)



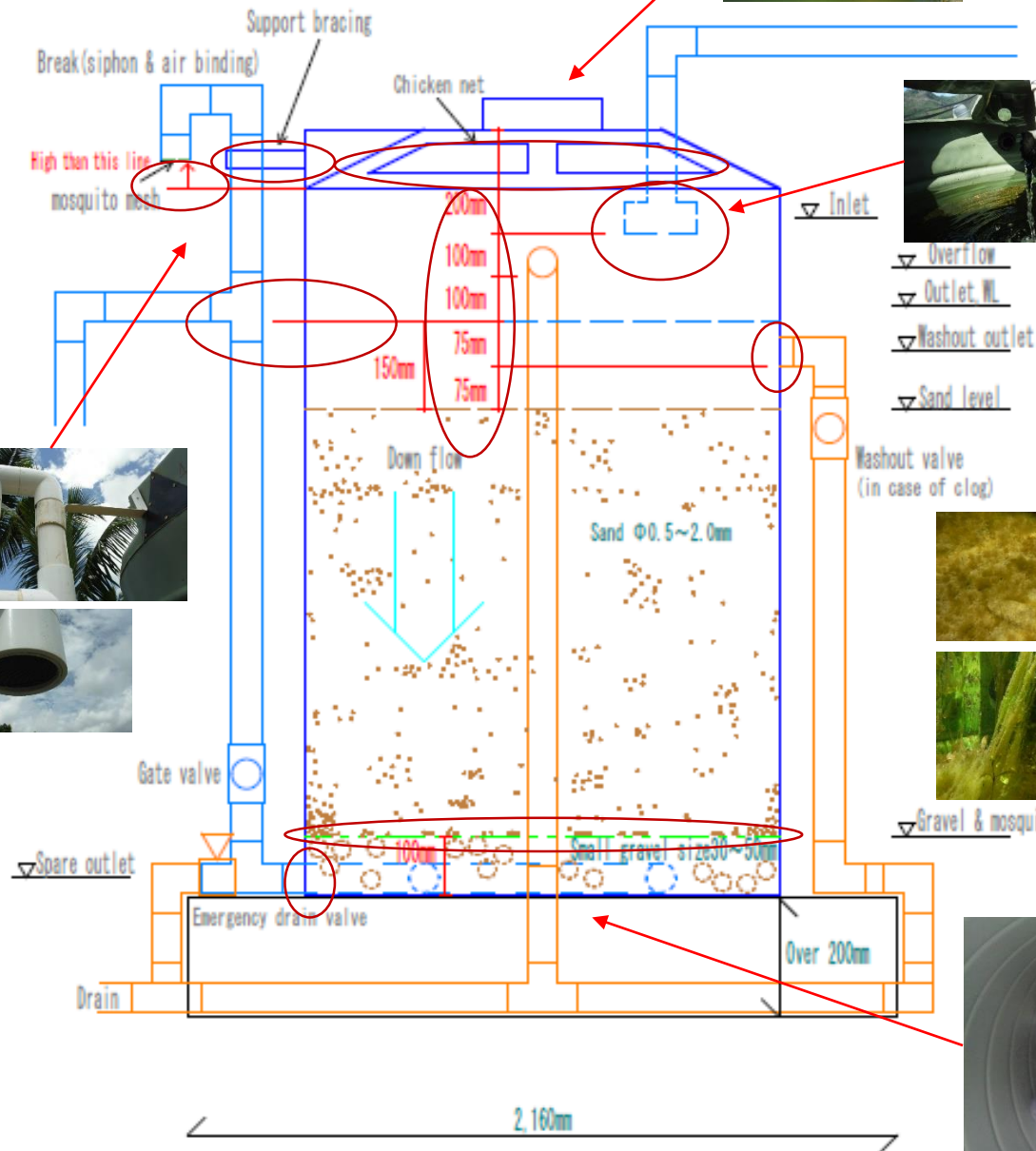
URF 2,700L



- 1) Inlet pipe size is 1 inch and is fixed with a clip to avoid any damage of the inlet pipe by shaking.
- 2) Flow rate can be controlled using a control valve (1 inch size) by watching the pouring of an inflow water. (Suitable valve setting height is 1,100 mm from the base.)
- 3) A gap of 100 mm between the inlet pipe (1 inch size) and the inner pipe (4 inches size) is necessary to confirm the flow rate and to sampling the raw water.
- 4) The height difference of 100 mm between the top edge of the inner pipe (4 inches) and the bottom height of the outlet (over-flow) pipe is requested to keep the level of seepage water from gravels. In order to guard the outlet pipe against the excess floating scum, the larger size of gravels are heaped up the outlet pipe
- 5) Insert a mosquito mesh (plastic) between the bottom a large gravel layer (100-150 mm size) and a gravel layer (30-50 mm size) to avoid dropping small stones from the gravel layer and to easy drain the accumulated muddy matter.
- 6) One drain pipe and valve are set near the bottom of the inner pipe to easy drain.
- 6) Open (cut) windows are covered with chicken mesh to avoid fallen leaves. And one cover near the inlet pipe can be lifted for a caretaker maintenance.
- 7) Each tank connector must be tightly connect from both sides (inside and outside) by two persons. Then the empty tank is filled with water. After the confirmation of no leakage from the connect point, this tank can be filled with the large gravel, mesh and small gravel.



EPS 2, 700L

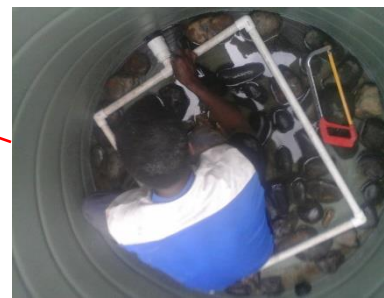


▽ Inlet  
 ▽ Overflow  
 ▽ Outlet WL  
 ▽ Washout outlet  
 ▽ Sand level

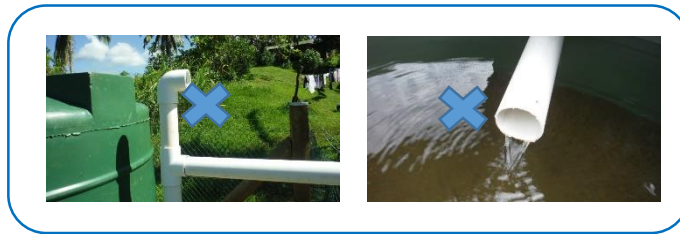
Washout valve  
 (in case of clog)



▽ Gravel & mosquito mesh

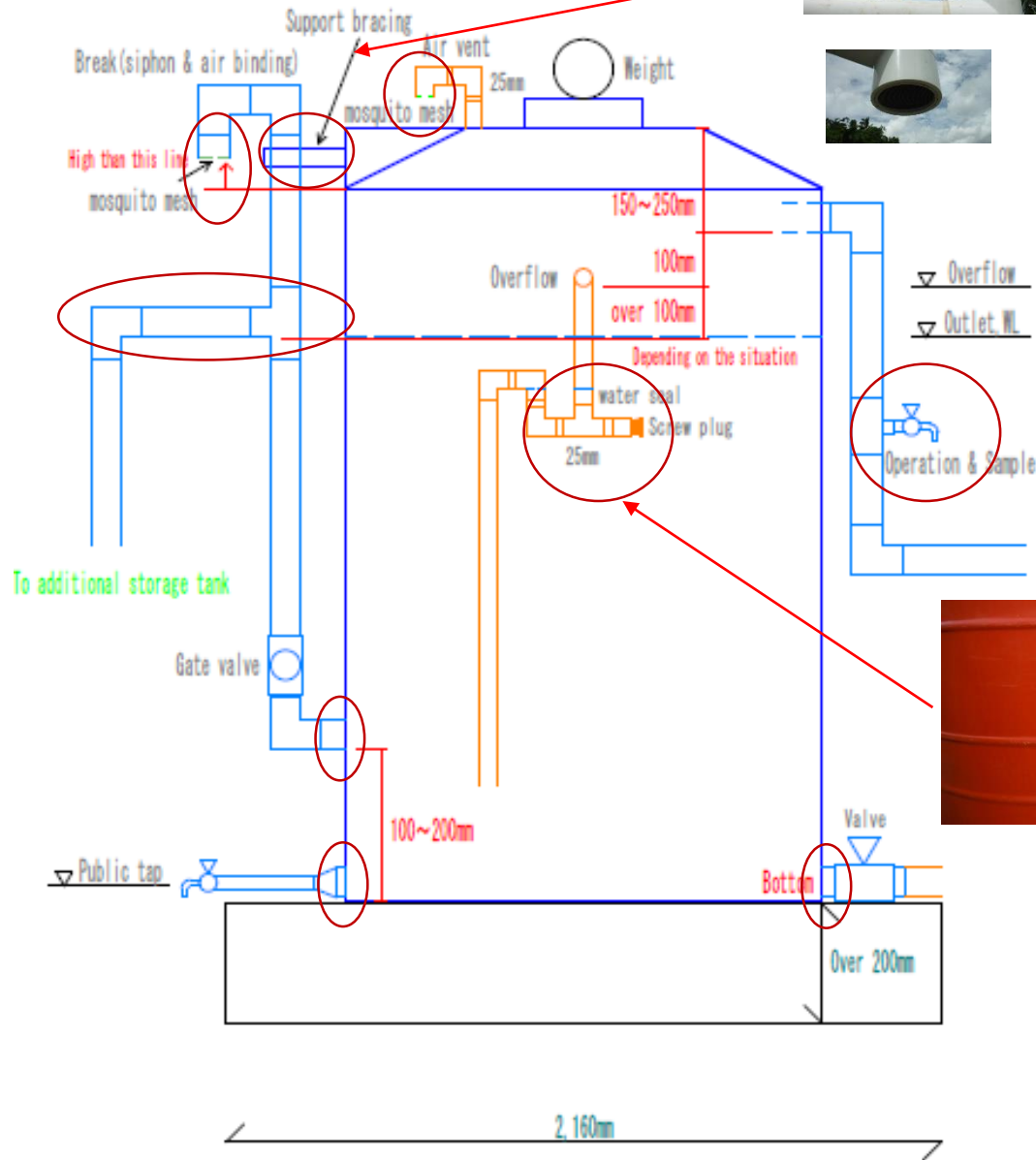


- 1) T pipe is connect to the inlet pipe. to avoid the disturbance the sand surface. This is protect the disturbance of sand surface from the unexpected large amount of inflow water.
- 2) Open (cut) windows are covered with chicken meth same as URF.
- 3) Height difference of each pipe are the key for normal operation. The order is siphon, inlet, over-flow, outlet, scum out and sand surface.
- 4) At the bottom, one layer of gravels (30-50 mm size) is placed until little bit over the drainage porous pipe (50 mm) for the filtrate in order to easy drain.
- 5) Insert mosquito mesh (plastic) between the gravel layer and the sand layer (sand size: 0.5 – 2 mm) to avoid the leak of sand particle.
- 6) At the bottom end of the siphon break system for filtrate is sealed with a mosquito mesh to avoid dust, rain drop and inversion of any animals.
- 7) Outlet pipe for the filtrate must be tighten using a brace or a clip to avoid any damage of the inlet pipe by shaking.
- 8) Each tank connector must be tightly connect from both sides (inside and outside) by two persons.
- 9) Then the empty tank is filled with water. After the confirmation of no leakage from the connect point, this tank can be filled with the gravel, mesh and sand.





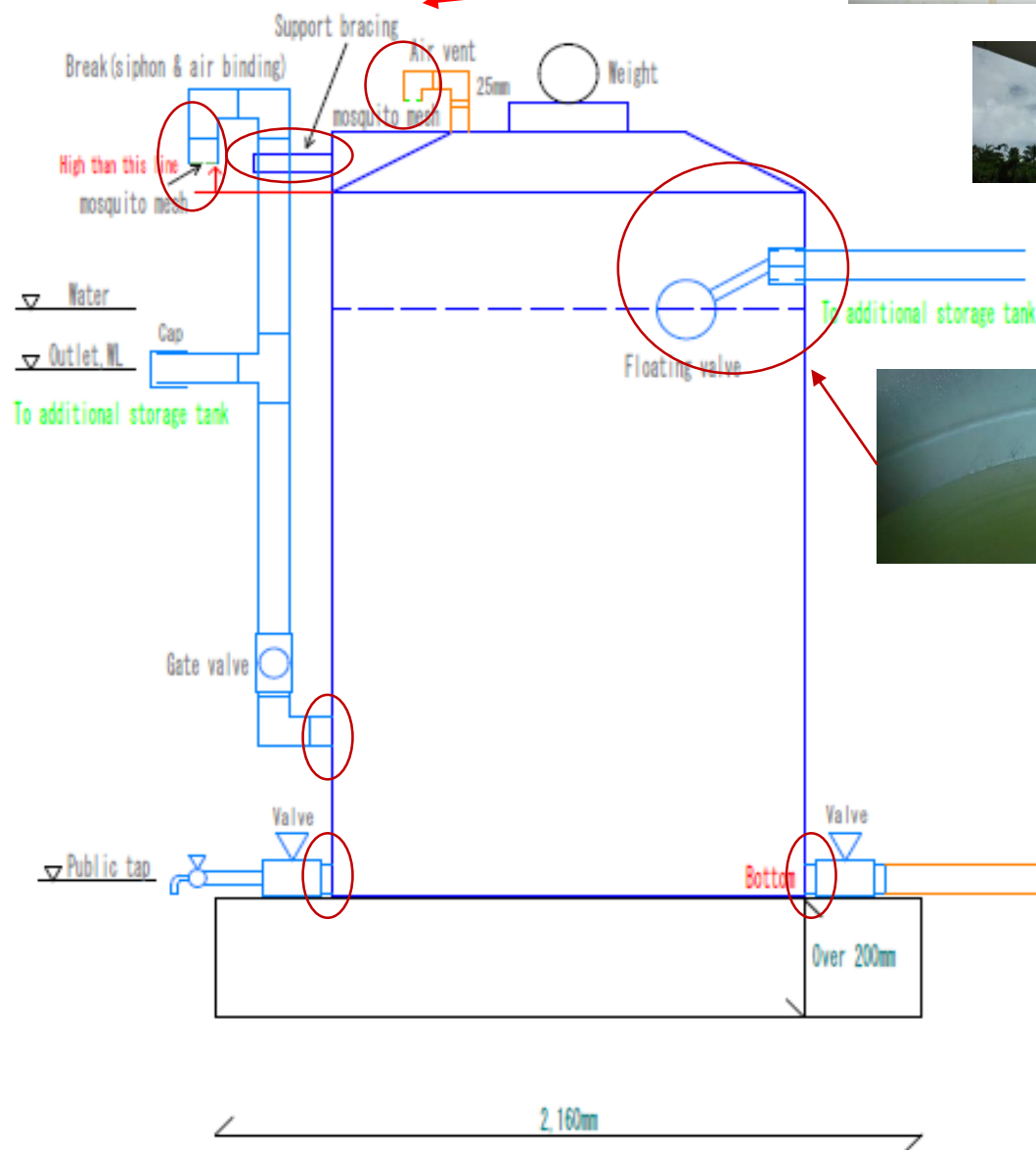
BALANCE TANK 300~2,700L



- 1) A sampling tap is set before the inlet point to the balance tank in order to start up operation and to check the water quality of the filtrate.
- 2) Correct pipe setting order is the key to normal operation. The order of setting height is siphon, inlet, over-flow and outlet.
- 3) At the downward ends of a siphon break system and an air ventilation are sealed with a mosquito mesh to avoid dust, rain drop and inversion of any animals.
- 4) Outlet pipe for the filtrate must be tighten using a brace or a clip to avoid any damage of the inlet pipe by shaking.
- 5) Adjust the height of the water level of the outlet of the balance tank in case of usage of a storage tank. Caution to natural gravity flow to a storage
- 6) S shape over-flow should be set to avoid inversion of any animals.
- 7) A screw plug is set at the bottom for an emergency drain and cleaning.
- 8) Each tank connector must be tightly connect from both sides (inside and outside) by two persons.
- 9) Then the empty tank is filled with water. After the confirmation of no leakage from the connect point, this tank can be use for normal storage.



STORAGE TANK 2,700L

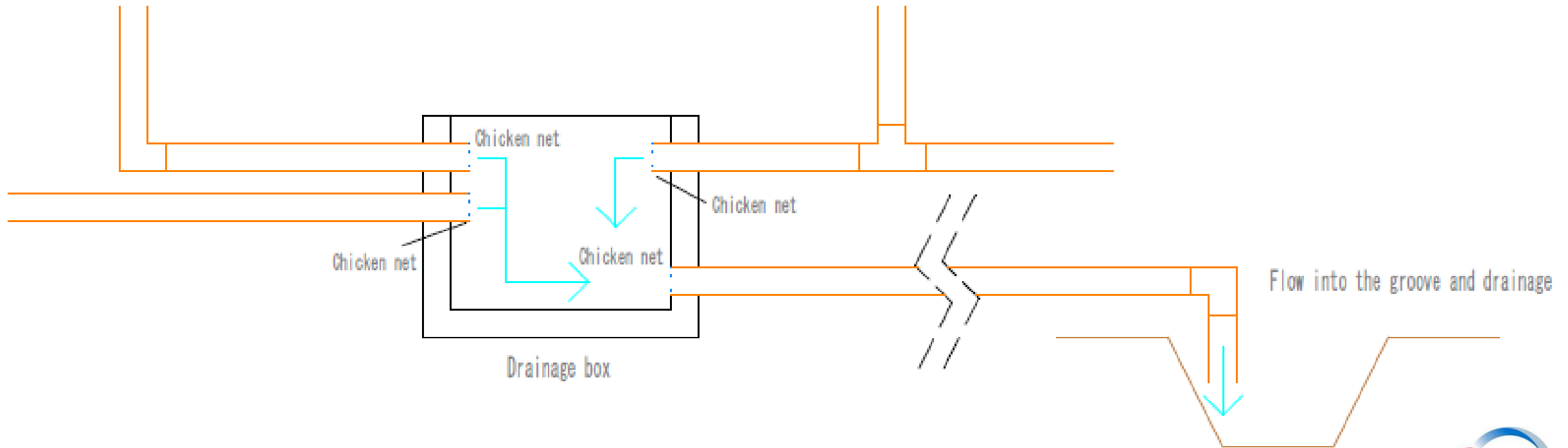


- 1) Floating valve is set to the inlet from a balance tank.
- 2) Correct pipe setting order is the key to normal operation. The order of setting height is siphon, inlet, over-flow and outlet.
- 3) At the downward ends of a siphon break system and an air ventilation are sealed with a mosquito mesh to avoid dust, rain drop and inversion of any animals.
- 4) Outlet pipe for the filtrate must be tighten using a brace or a clip to avoid any damage of the inlet pipe by shaking. If any other optional storage tank is not necessary in future, this outlet pipe is not necessary to set.
- 5) Each tank connecter must be tightly connect from both sides (inside and outside) by two persons.
- 6) Then the empty tank is filled with water. After the confirmation of no leakage from the connect point, this tank can be use for normal storage.

Pipe ends in the sink (Drainage box) are covered with mesh in order to prevent an inversion of frog, leaves, etc.

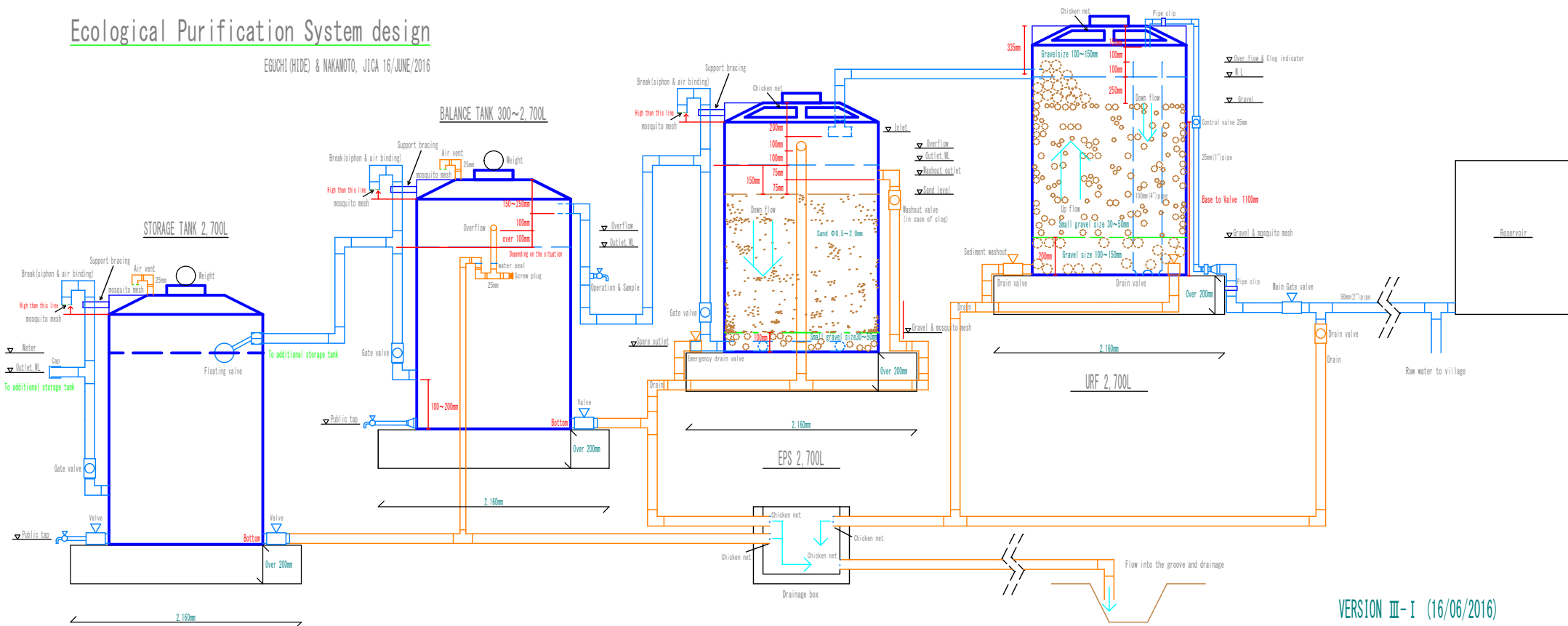
The end of the last drainage pipe should be extended to the existing creek.

The drainage pipe of the sink for public tap should also be extended to the existing creek.



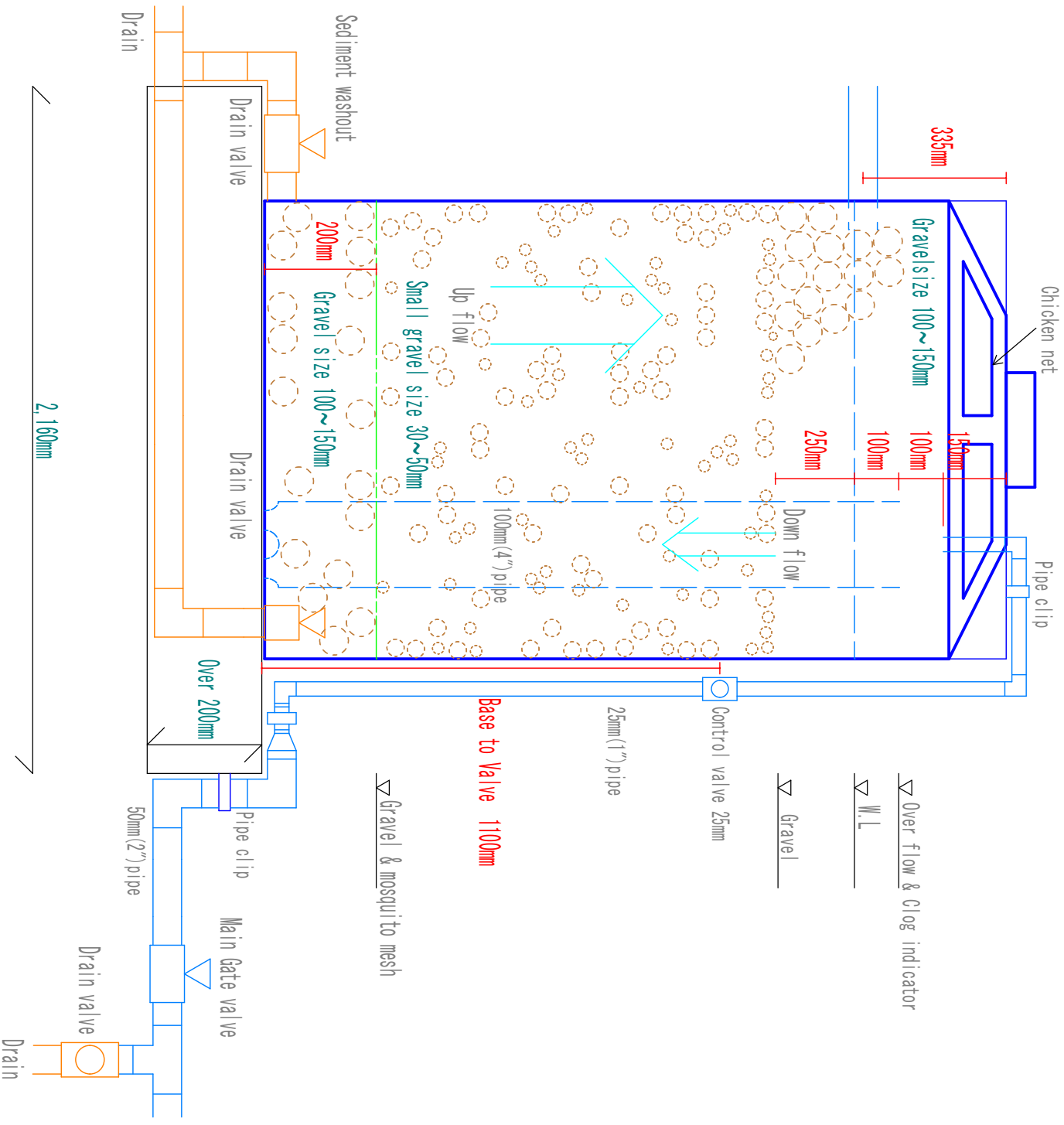
# Ecological Purification System design

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VERSION III-I (16/06/2016)

URF 2, 700L



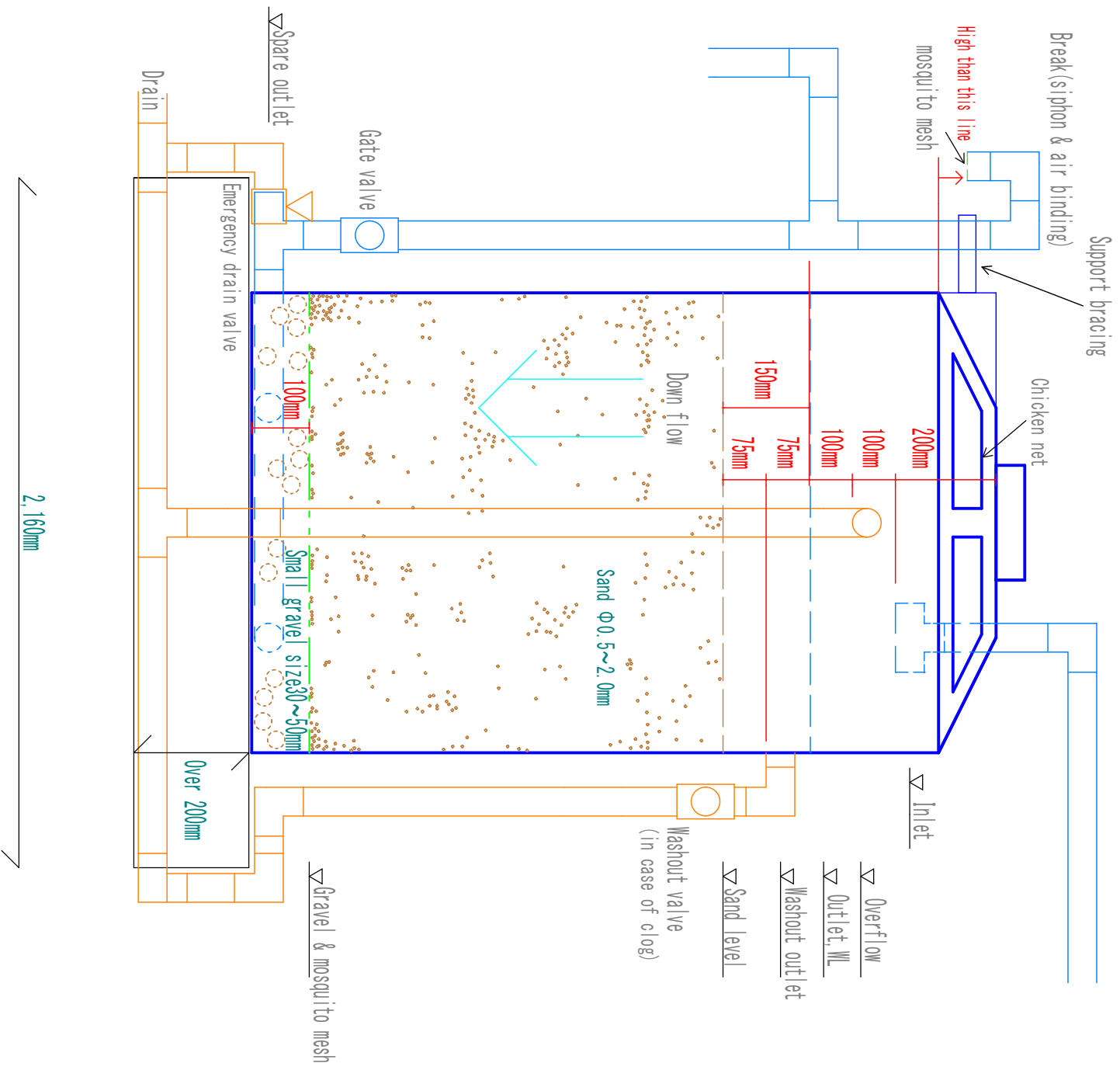


Ecological Purification System design

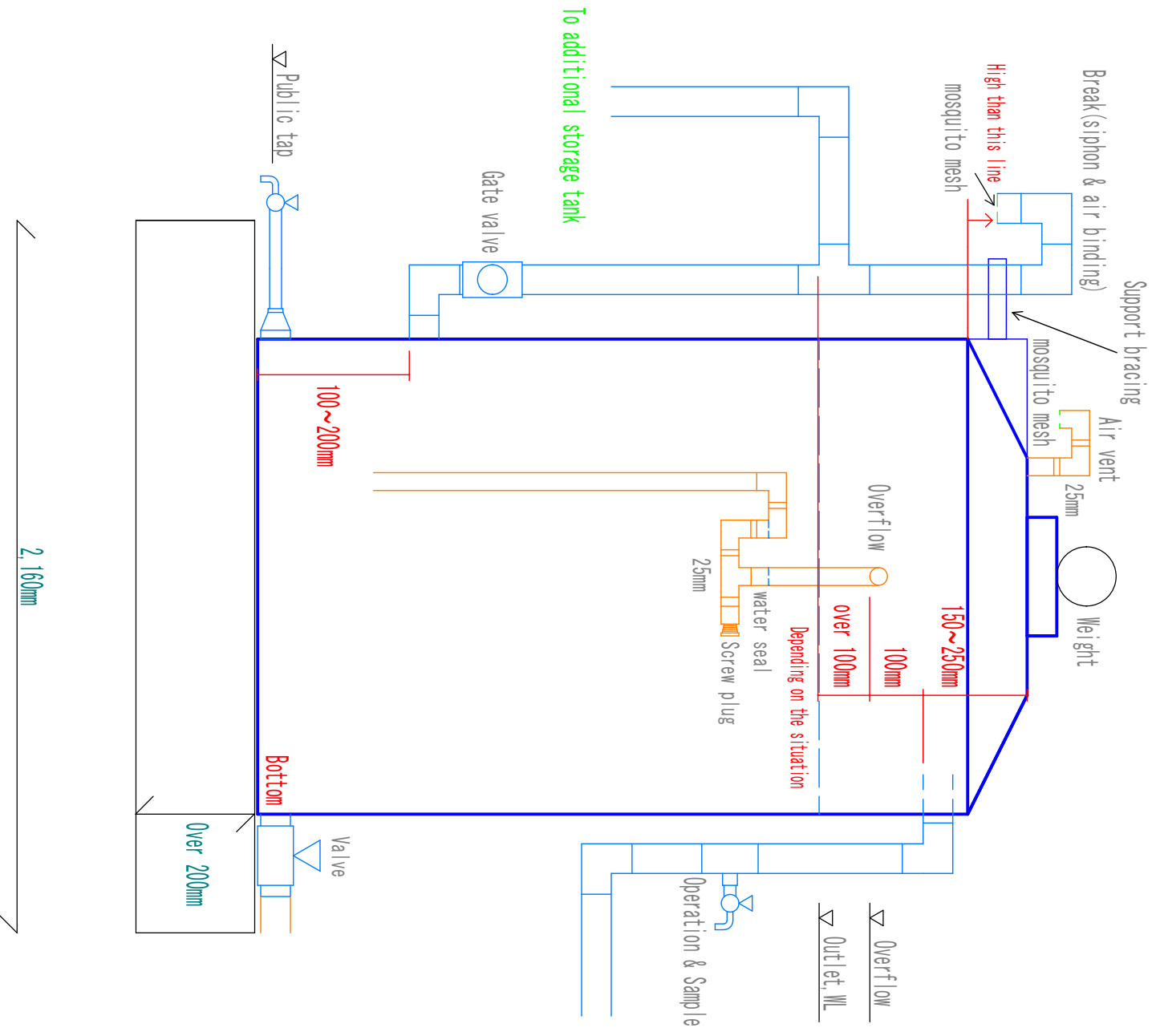
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VERSION III - 1

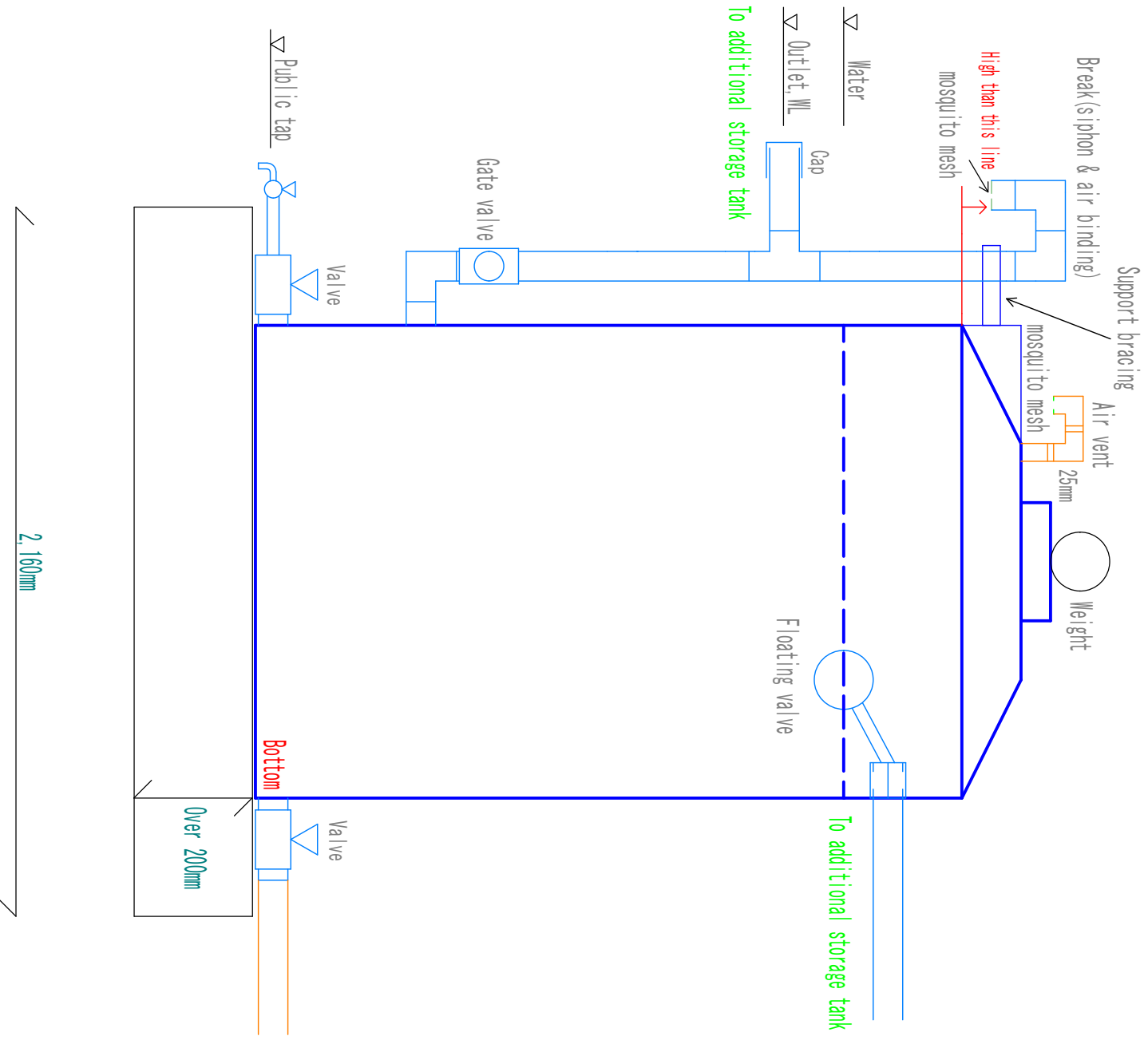
EPS 2, 700L



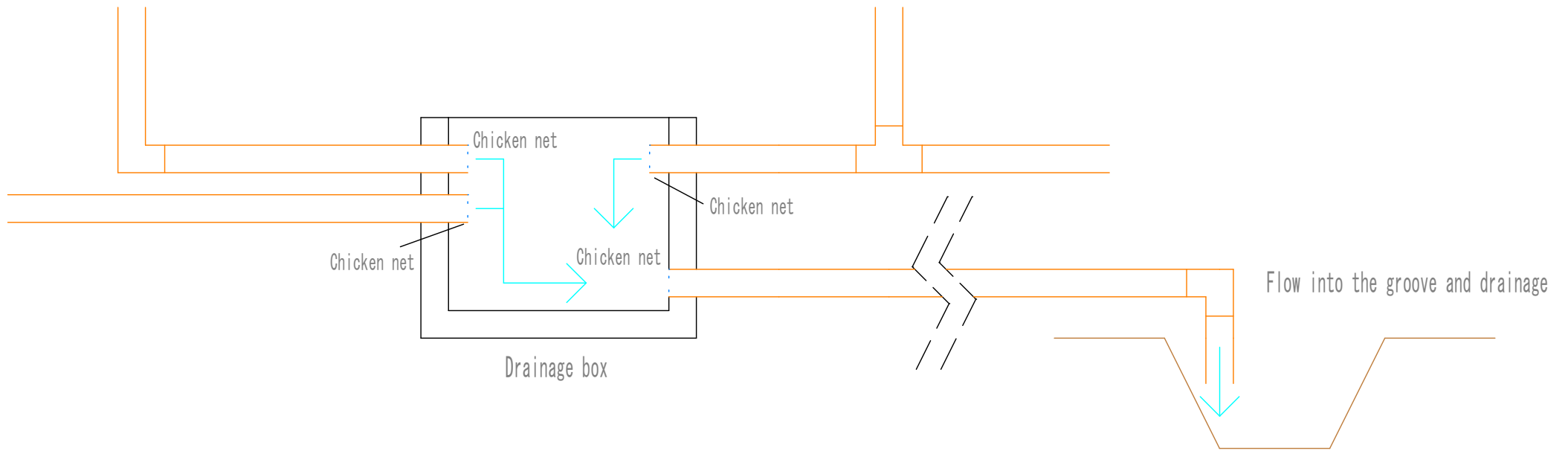
# BALANCE TANK 300~2,700L



## STORAGE TANK 2, 700L

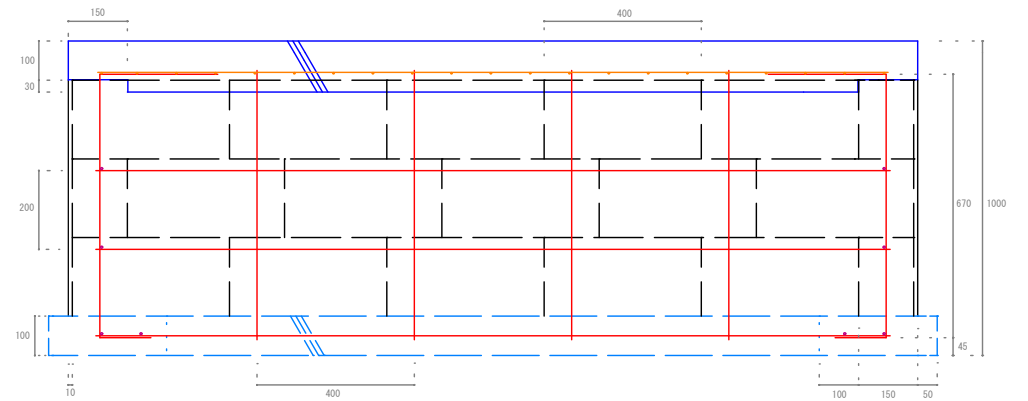
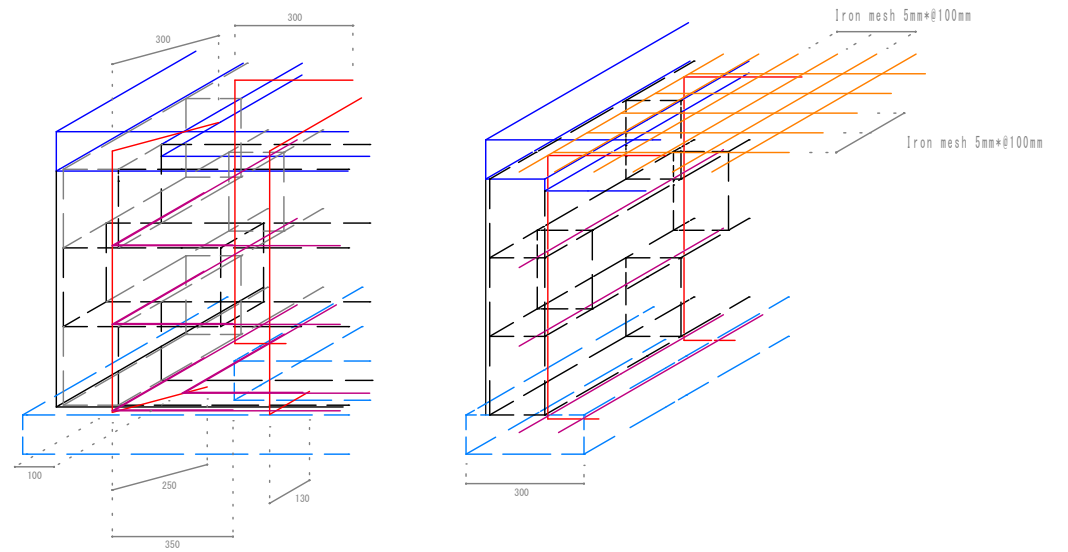
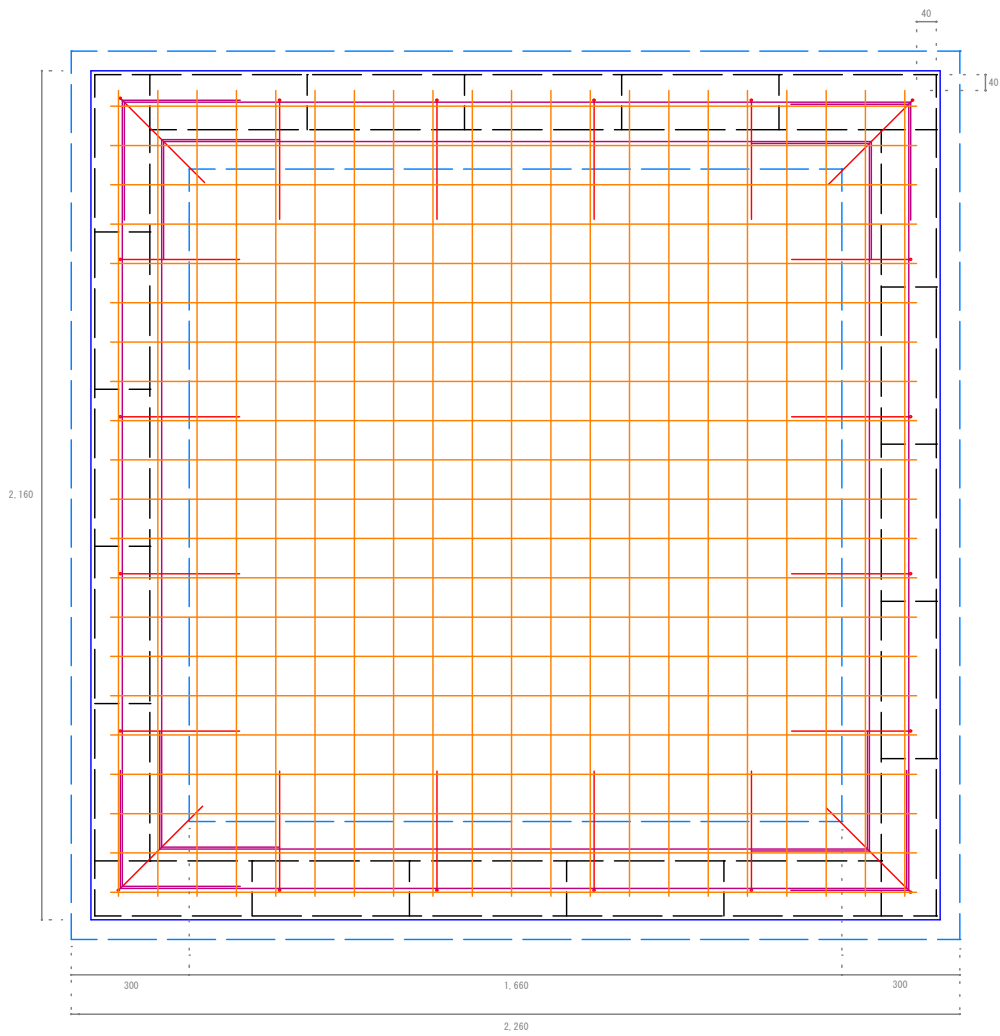


Ecological Purification System design  
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VERSION III-I



# EPS Basement design

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# EPS Basement design

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