

The Standard Methods of the Maintenance and the Cleaning in the STP System

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Kitakyushu City Preservation Association

Index

Page

Preface

the Visual Checking Item for the Maintenance

----- 1

Fig.1

----- 2 , 3

Fig.2

----- 4

the Method of Cleaning

----- 5

Fig.3

----- 6

Fig.4

----- 7

Fig.5

----- 8

the Monitoring of water quality

----- 9

Date

Drainage System

----- 10

The various box in the drainage

----- 11

The measuring equipment for scum thickness

----- 12

The measuring equipment for sludge thickness

----- 14

The bad state in the splinkling weir (maintenance)

----- 17

Preface

It is very important thing that users of STP system must follow the right use.

So, the orner or government authorities of STP must teach the guidance of right use for users.

- 1) STP system treats all domestic waste waters, but does not treat the gabages.
- 2) Do not dispose the gabages in STP system.
- 3) All domestic waste water dischrge by washing must be inflowed.

Note It is right to flow the bleaching agent(chlorite type) into STP system.

The bleaching agent(chlorite type) is resoluted in the anaerobic tank.

the Visual Checking Item for the Maintenance

1. the Drainage ----- always

the state of the maintenance box in the drainage

OK open or damaged → need to be repaired

2. the STP

1) the Equipment around the STP ----- always

(1) the state of exhaust pipe

OK damaged → need to be repaired

(2) the state of the inlet hole of air

OK closed → need to be kept open

(3) the state of the effluent pipe

OK closed → need to be kept open

(4) the state of the manhole

OK damaged → need to be repaired

2) the Inner State of the STP ----- every 6 months

(1) the state of the leak in the both anaerobic tank

NON leaked → need to be repaired

(2) the accumulated state of the scum in the 1st anaerobic tank (see Fig.1)

NON large thickness
→ need to be cleaned (taken out)

(3) the state of carried SS at the outlet pipe in the 1st anaerobic tank (see Fig.1)

NON carried over → need to be cleaned

(4) the accumulated state of SS on the sprinkling weir

NON large
→ need to be cleaned (cleaned)

(5) the state of concrete-corrosion at the sprinkling weirs

NON corrosion → need to be repaired

(6) the sprinkling state from all sprinkling weirs
(equally sprinkling , most important checking item)
(see fig.2)

OK not equally → need to be repaired

Solid substances in inflow water are accumulated in the bottom of the 1st anaerobic tank.

The organic matters in solid substances are digested by many bacterias there. (It is called " the sludge ".)

Gas caused by digestion rise the organic matters to surface with the organic matters.

Those risen organic matters are called " the scum ". The thickness of the scum is getting larger and larger as STP is used.

Max thickness of it is the depth of the lowest piont at the outlet pipe(almost 1.4 m).

If the thickness of the scum is larger than it's point, the scum carries over to the 2nd anaerobic tank.

Fig.1 the accumulated state of the scum in the 1st anaerobic tank

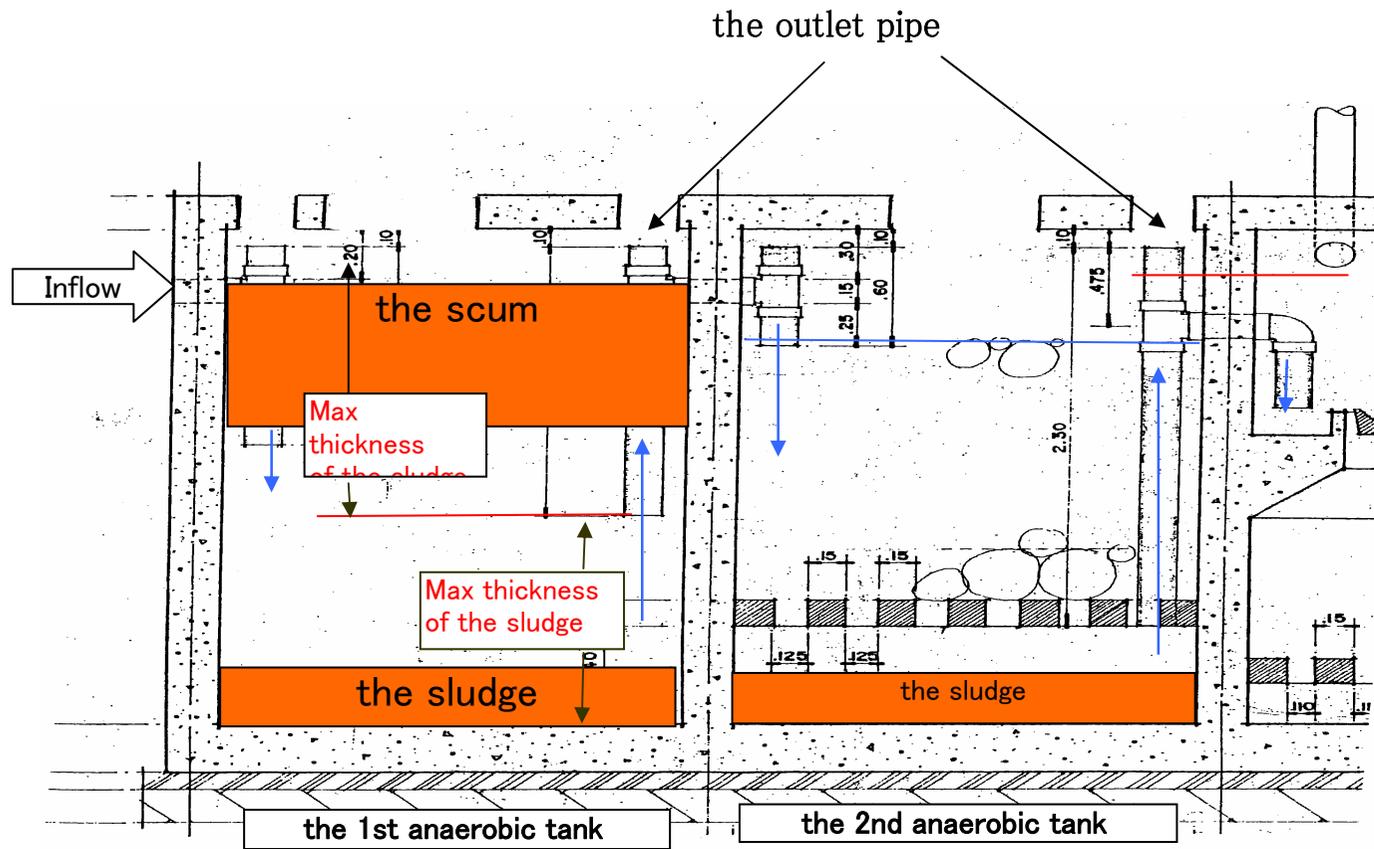
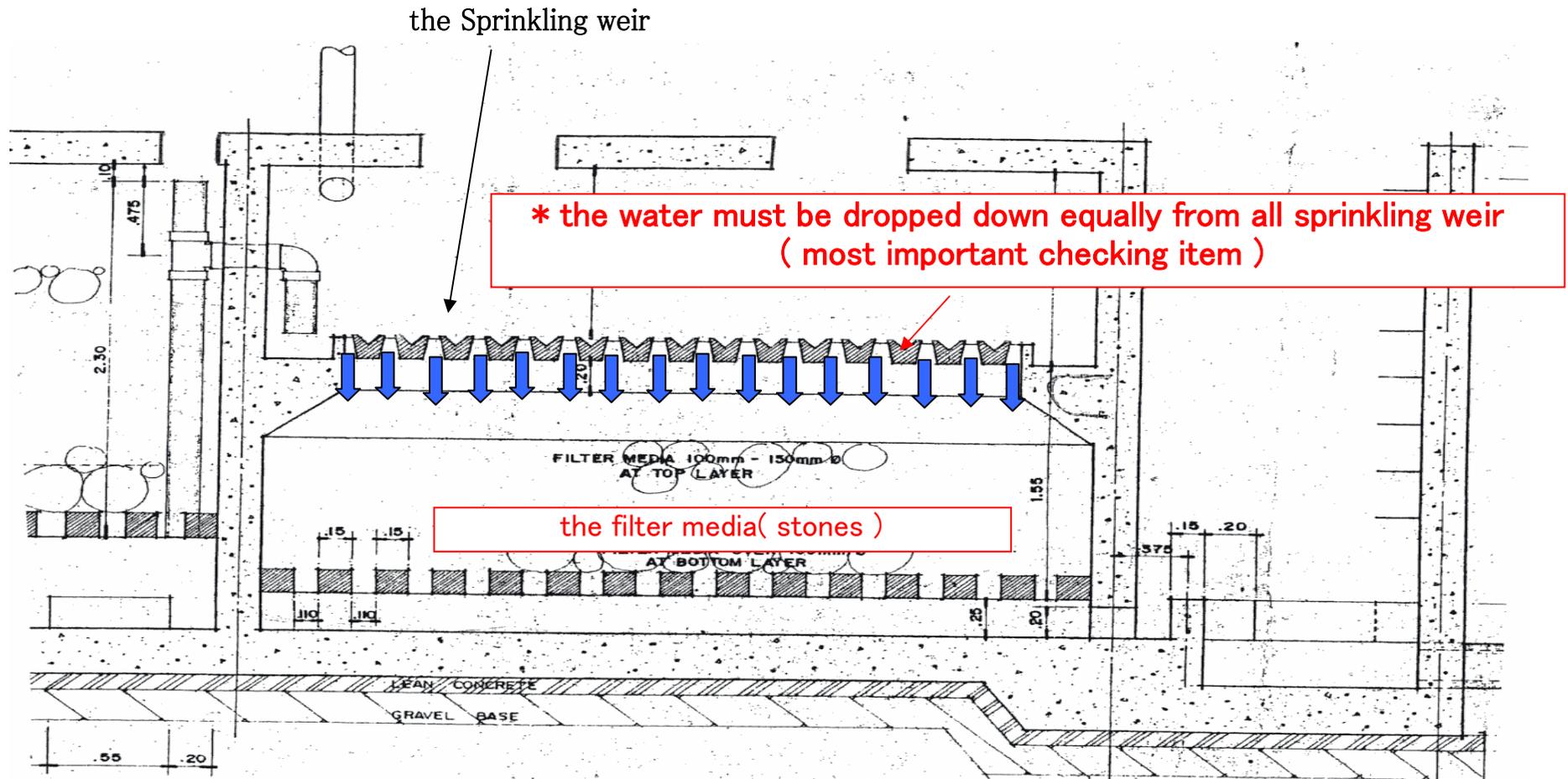


Fig.2 the sprinkling state from all sprinkling weirs(equally sprinkling)



the Method of Cleaning

1. the Judgment of Cleaning time

1) The Drainage

the stopping water flow by solids in the drainage pipe

2) The anaerobic tank

(1) the scum thickness in the 1st anaerobic tank is lower than the lowest level.

(2) SS from the outlet pipe in the 1st anaerobic tank carries over to the 2nd anaerobic tank.

(3) SS from the outlet pipe in the 2nd anaerobic tank carries over to the weir.

3) The aerobic tank

(1) Many SS on the sprinkling weir → need to wash the sprinkling weirs

(2) Many SS in the effluent → need to wash the filter media

2. the Method of Cleaning

1) the sewage pipe ----- every time (see Fig.3)

2) the anaerobic tank ----- once a year (in Japan) (see Fig.4)

The cleaning in the anaerobic tank needs the vaccum car.

(1) The scum and the sludge in the 1st anaerobic tank is taken out by the hose of the vaccum car.

The hose is put in from the manhole.

(2) The sludge in the 2st anaerobic tank is taken out by the hose of the vaccum car.

The hose is put in from the outlet pipe in the 2nd anaerobic tank.

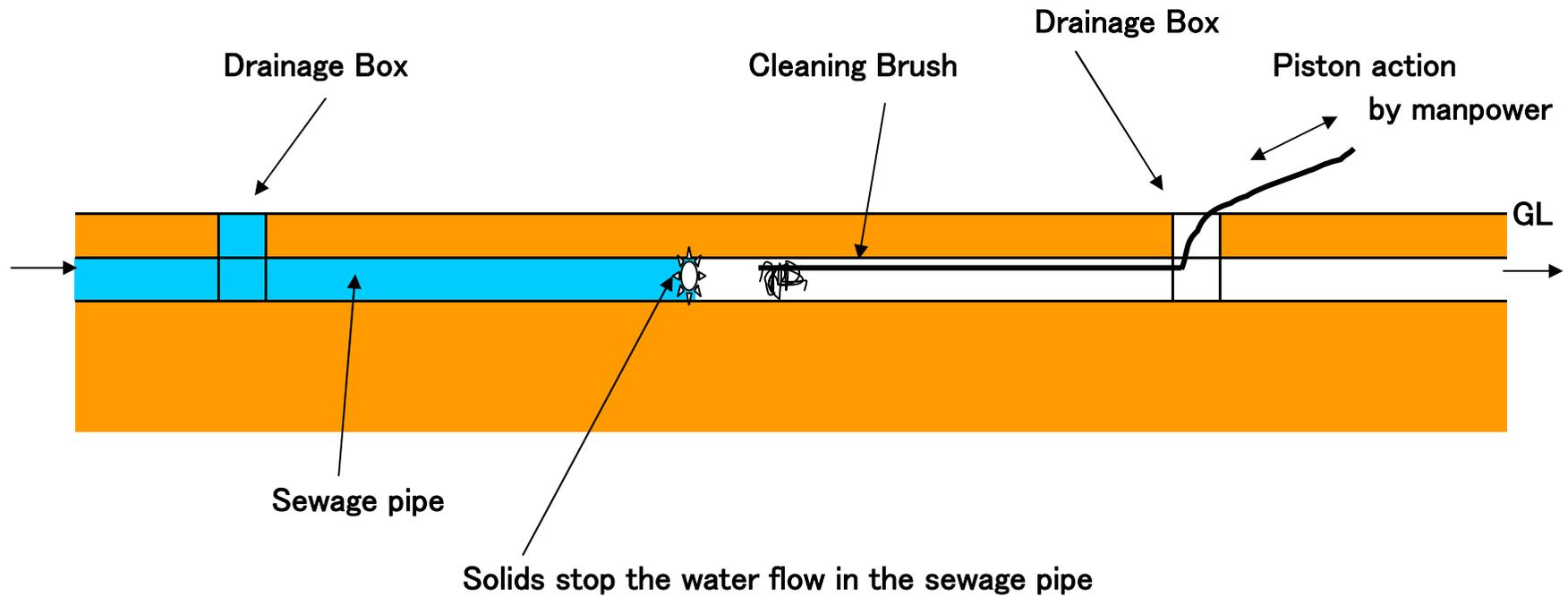
3) the aerobic tank ----- once a year (in Japan) (see Fig.5)

(1) Many SS on the sprikling weirs is washed out by tap water

(2) Many SS in the effluent shows the phenomenon that the aerobic bacterias are taken off from the filter media.

If SS can not be cleaned by the showering of tap water , the filter medias must be taken out and be washed.

Fig.3 The Method of Sewage pipe cleaning (Simple method)



- 1) Cleaning brush is made of steel or bamboo.
- 2) The length of cleaning brush is the length of each drainage box
- 3) The right cleaning is executed by high pressure water method

Fig.4 the cleaning in the anaerobic tank

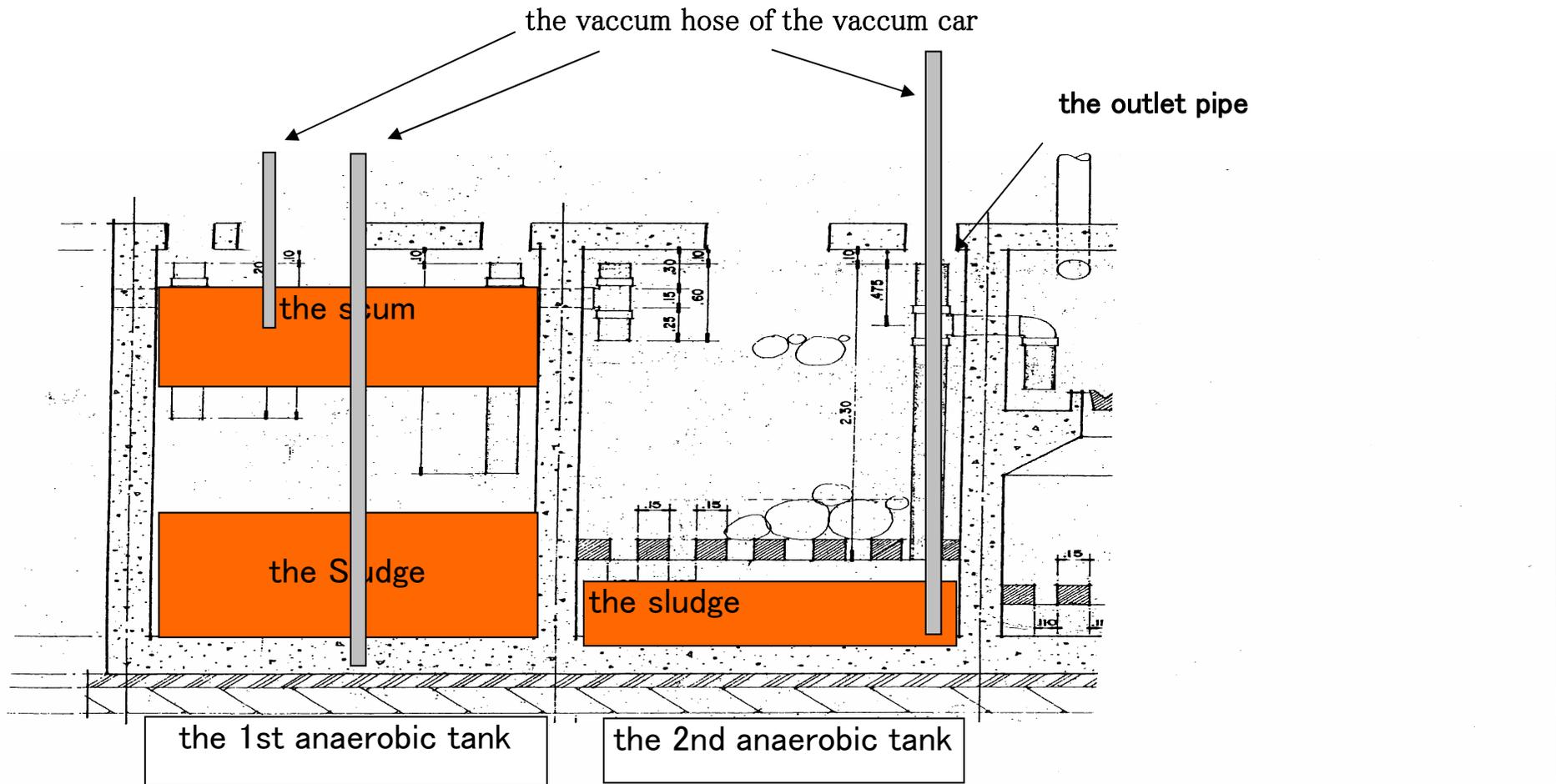
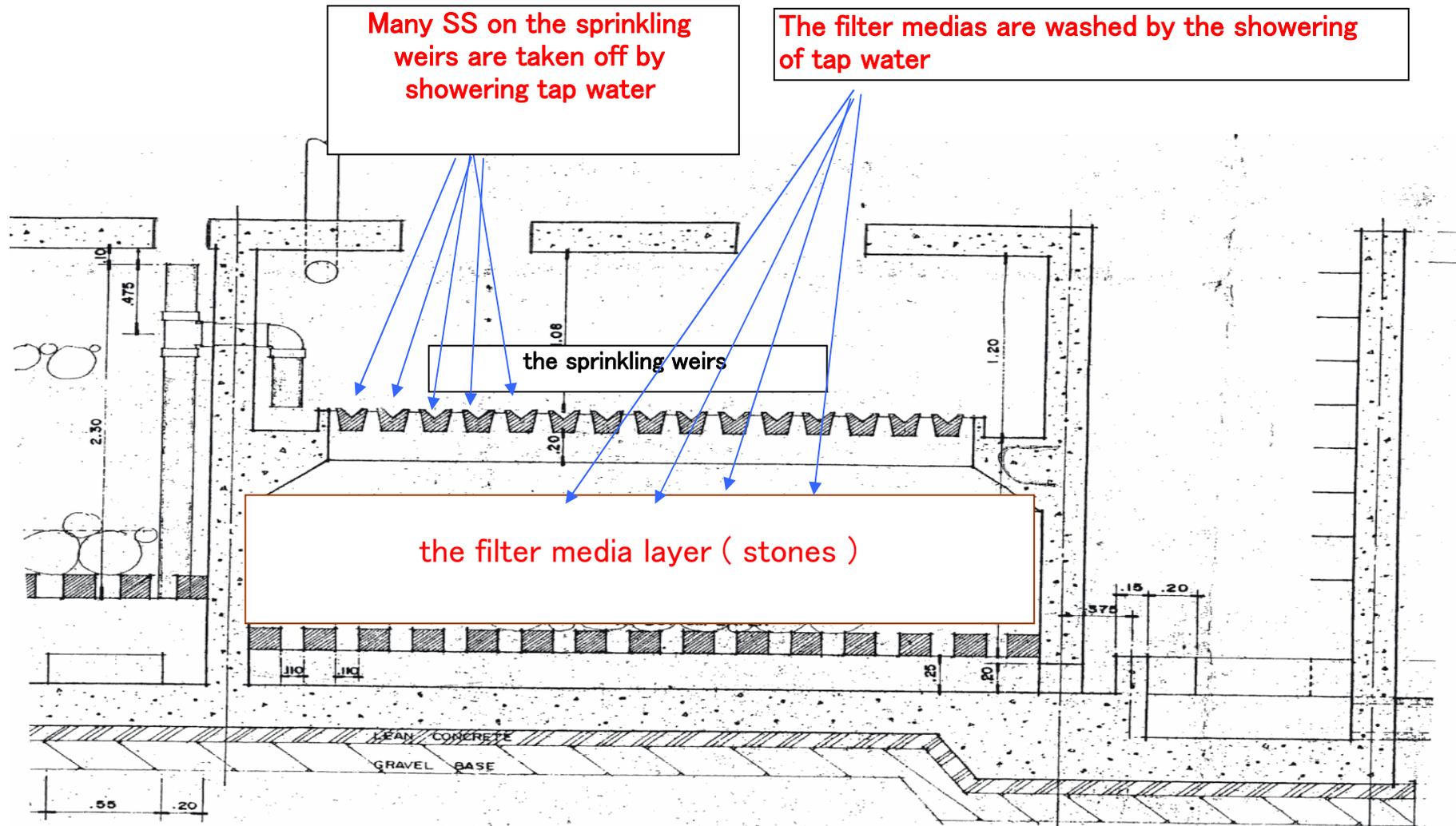


Fig.5 the cleaning in the aerobic tank



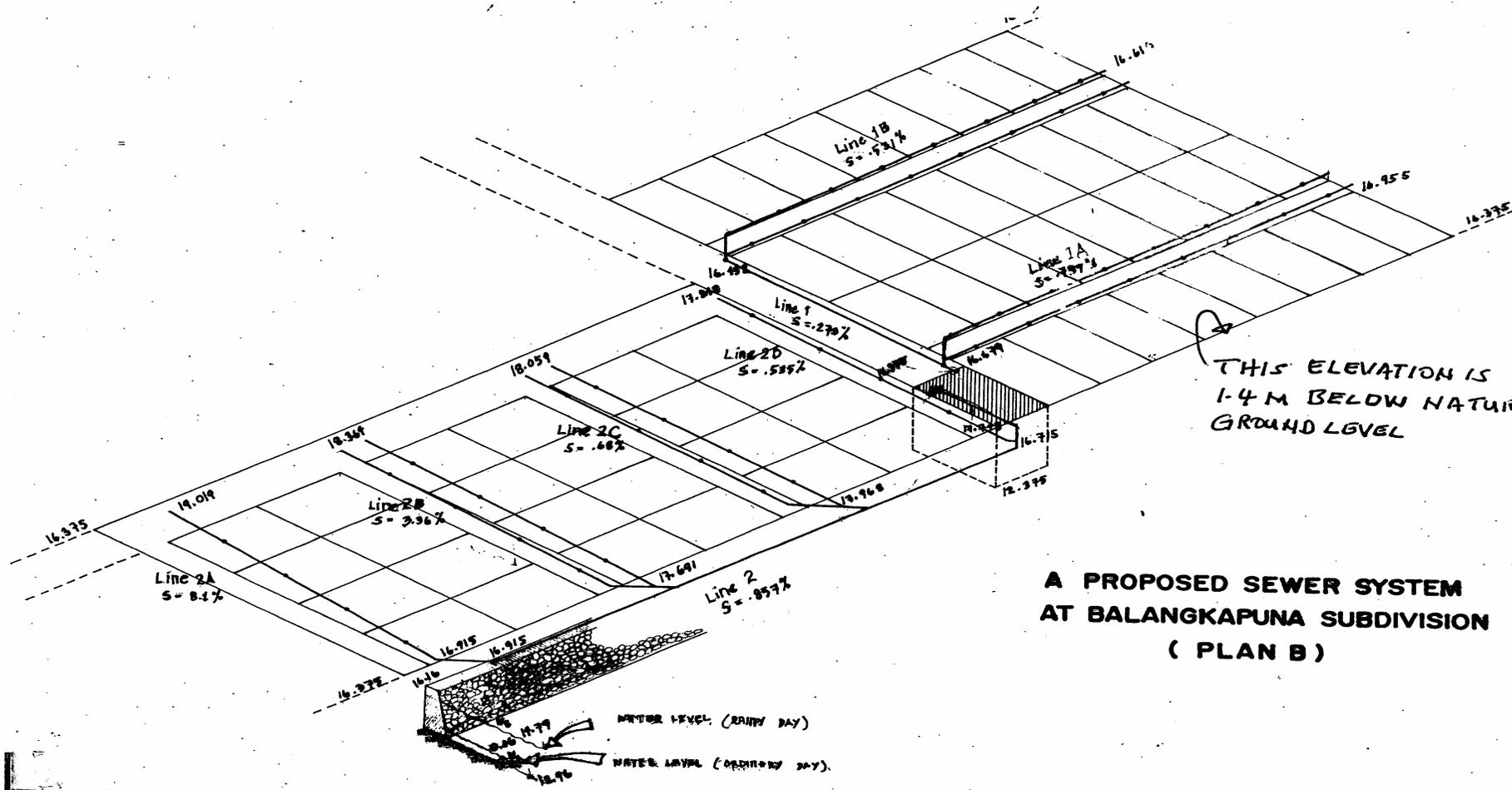
the Monitoring of water quality

The regular monitoring of water quality is very important.

We can confirm the ability of STP.

The item of water quality is followed.

item	Times of monitoring	Place of monitoring
pH	4 Times or more a year	inflow and effluent
TSS(mg/l)	4 Times or more a year	inflow and effluent
BOD(mg/l)	4 Times or more a year	inflow and effluent
E.Coli.(number/cm ³)	4 Times or more a year	effluent
TN(mg/l)	4 Times or more a year	inflow and effluent
TP(mg/l)	4 Times or more a year	inflow and effluent
Option		
Tranceparency		
Color		
Oil		
Surface active agent		



THIS ELEVATION IS
1.4 M BELOW NATURAL
GROUND LEVEL

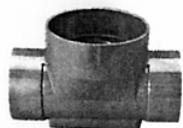
**A PROPOSED SEWER SYSTEM
AT BALANGKAPUNA SUBDIVISION
(PLAN B)**

WATER LEVEL (RAINY DAY)

WATER LEVEL (ORDINARY DAY)

The Various Box in the drainage

Straight



● ● ⊕ ST

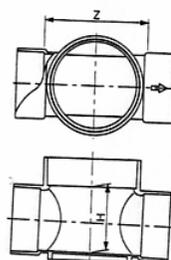
100-150

DMSS※
DMST

2,900円 4

単位:mm

品番	呼び径			寸法	
	マス径	排水管径	枝管径	Z	H
DMSS	150	100	—	190	113
DMST	150	100	—	190	128



Curve(90 degree)



- ● ⊕ 90L右 100-150
- ● ⊕ 90L左 100-150
- ● ⊕ 90L(左右兼用) 100-150

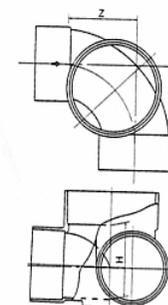
DM9LR
DM9LL

DMS90LL※
DMS9L

2,900円 4

単位:mm

品番	呼び径			寸法	
	マス径	排水管径	枝管径	Z	H
DM9LR・L	150	100	—	125	128
DMS90LL	150	100	—	121	128



Joint

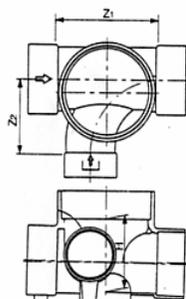


- ● ⊕ 90Y右 100×75-150 DM9Y1R
- ● ⊕ 90Y左 100×75-150 DM9Y1L

3,900円 4

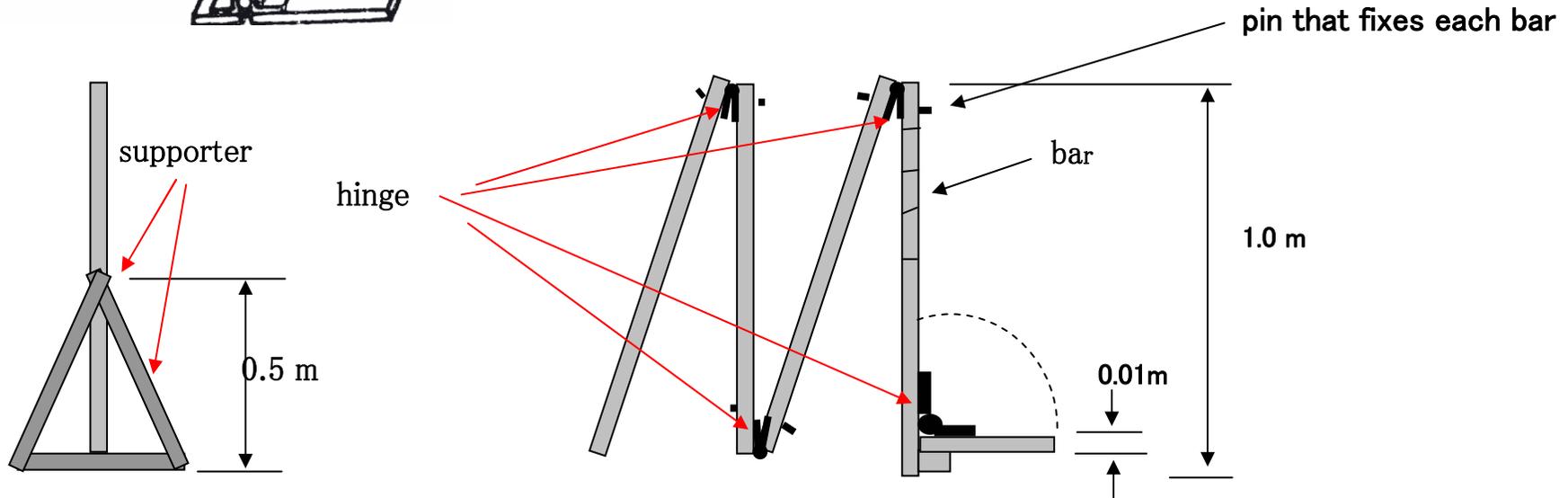
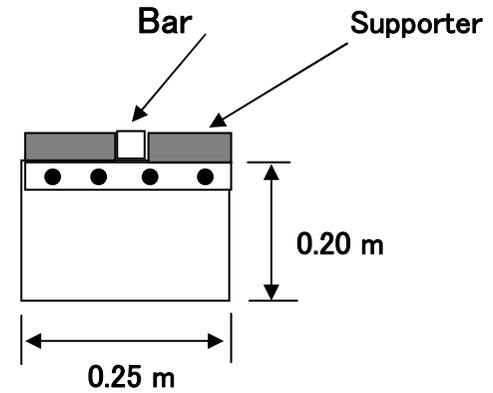
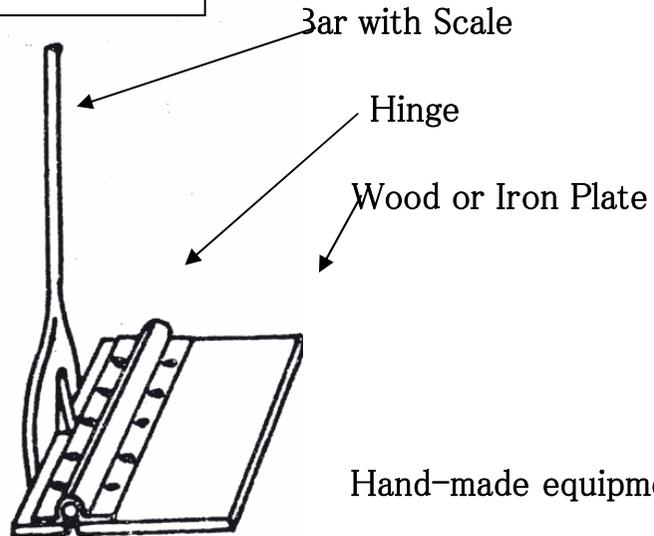
単位:mm

マス径	排水管径	枝管径	寸法		
			Z ₁	Z ₂	H
150	100	75	190	135	129

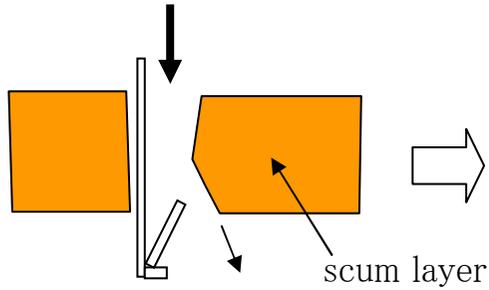


The measuring equipment for the scum thickenss

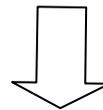
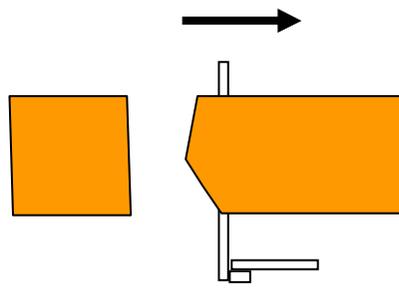
example



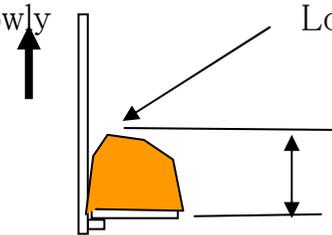
Insert the equipment vertically to the scum layer



Slide the equipment slowly

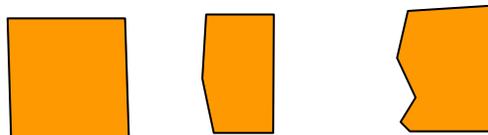


Raise the equipment slowly

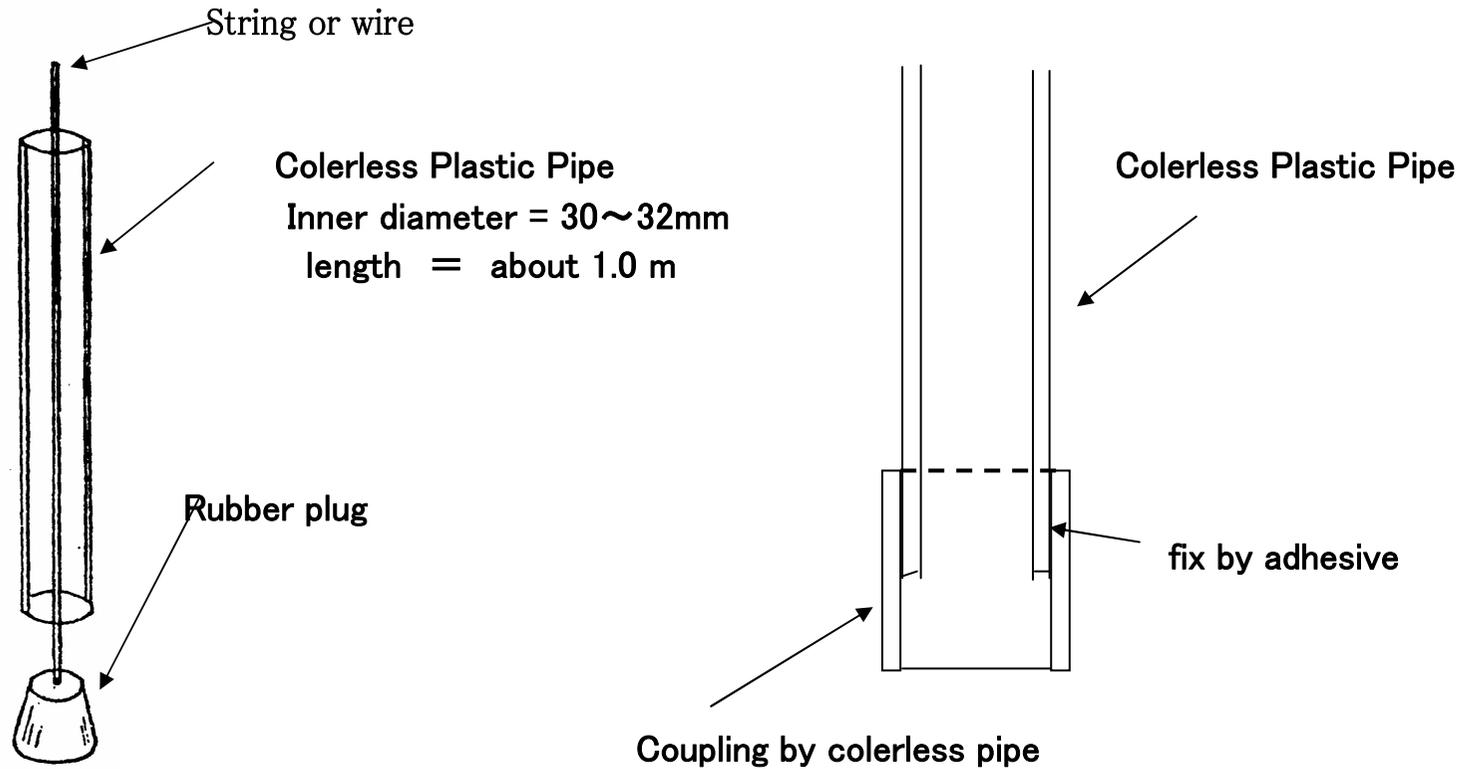


Look the scale at the top position of the scum

the thickness of the scum



The measuring equipment for the sludge thickenss



The Bad State in the Sprinkling Weir (Maintenance)



The Corroded Sprinkling Weir

There is no water on the sprinkling weir



the Corroded Sprinkling Weir

the Corroded Main Gutter

The Bad State in the Sprinkling Weir (Maintenance)



The main gutter is corroded here.

The water on the main gutter dropped down straightly here without sprinkling from the weir.