PROUD ASIA

WASTE WATER TREATMENT
&
WATER RECLAIM SYSTEM

Getting
the world
into a better
environment

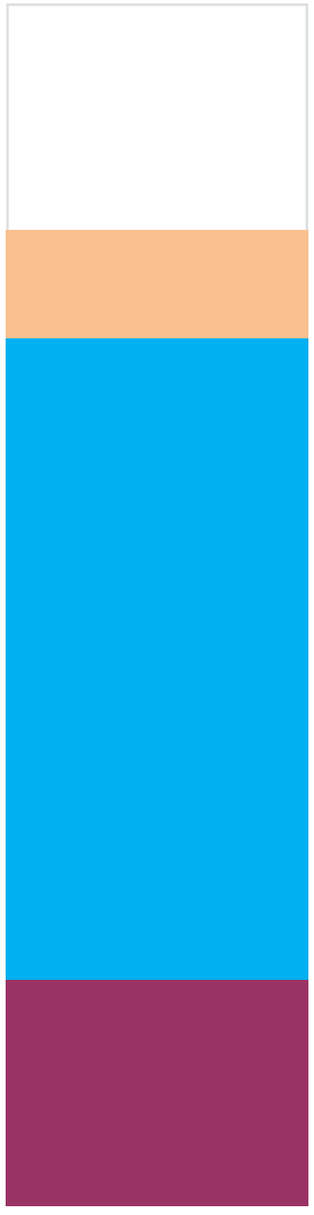
Environment and human are deeply related

In the world of technologies, the human activities produce the high volume of waste (liquid, solid and gas) that more than 50% are discharged into the natural resources. This creates the unbalance of the environment. Only special techniques with experience team of engineers could help nature to solve the waste problems.

Since 1996, Proud Asia with it's environmental spirit team has been working hard to develop wastewater treatment systems with the combination between the proven conventional design and the updated technologies to improve the performance of treatment system for restoring our environment.

METHOD

Biochemical Oxygen Demand (BOD) due to various parts of sewage



Grease and oil

5% – 10% of all BOD

Soluble and Suspended Solids

10% – 50% of all BOD

Settleable Solids

10% – 30% of all BOD

PROUD ASIA

THE WORKING SYSTEM

SEPTIC TANK

- Biological Treatment

  Biochemical Reaction

Anaerobic Treatment

Fermentation of Biomass (CH_2O)

1 gm COD > 0.351 Litre CH_4

2 CH_2O > CH_4 + CO_2

Biogas

CH_4 + CO_2

CO_2 + H_2O

1 person > 35 gm BOD/day
= 12.285 Litres
= 442.3 kJ
= 0.123 kWH

Energy

Aerobic Treatment

Bacteria enzyme

CH_2O + O_2

Carbohydrate + Oxygen

CO_2 + H_2O + $C_{25}H_{27}NO_{22}P$

Carbon dioxide + Water + new bacteria cells

Package Wastewater Treatment Tank

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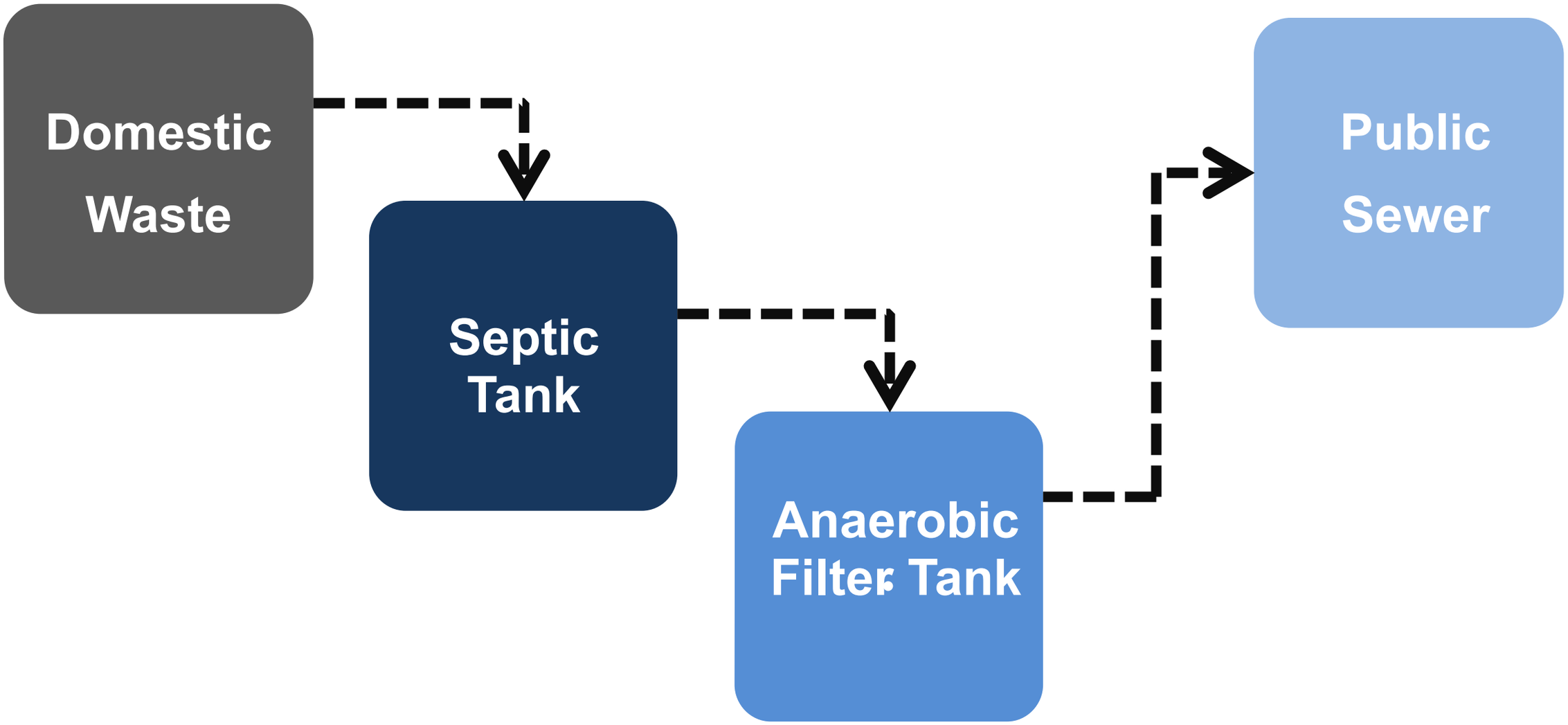
THE WORKING SYSTEM

SEPTIC – ANAEROBIC FILTER TANK



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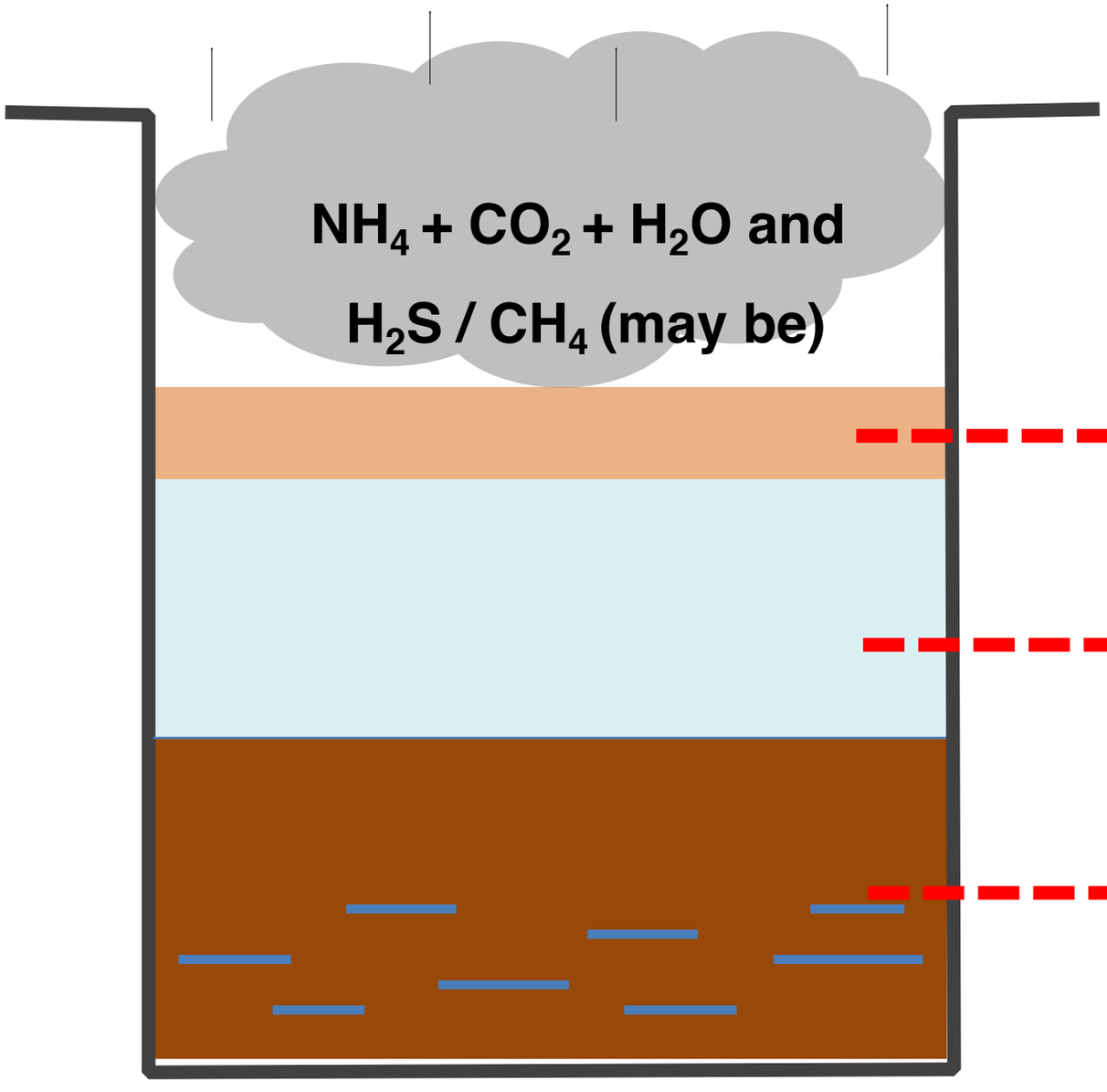
THE WORKING SYSTEM

SEPTIC – ANAEROBIC FILTER TANK

* Separation and Digestion



LAYER 1

Scum layer floating on the top

LAYER 2

Supernatant layer in the middle

LAYER 3

Sludge layer at the bottom

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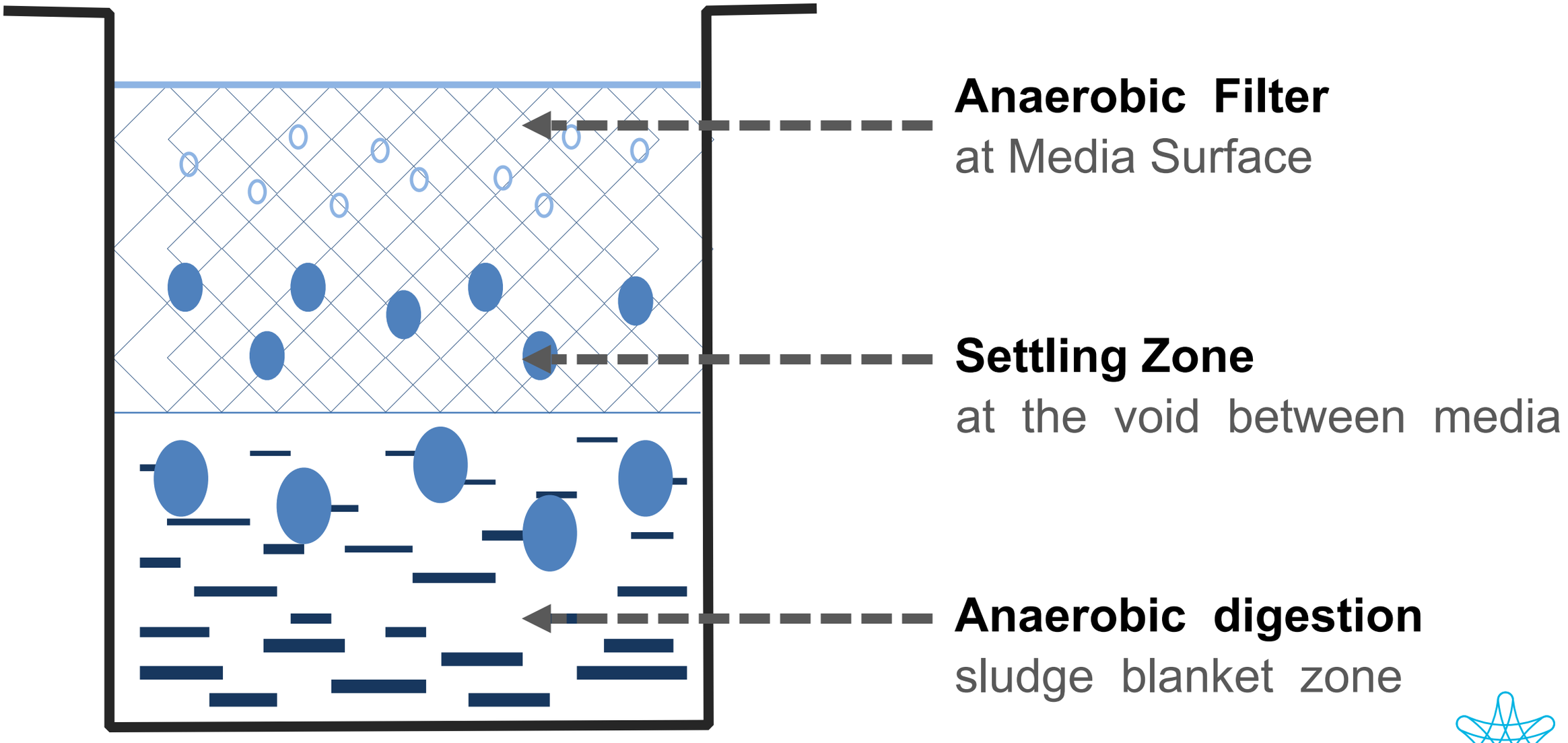
THE WORKING SYSTEM

SEPTIC-ANAEROBIC FILTER TANK

*** Growth of Microorganism**



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THE WORKING SYSTEM

Advantages of Anaerobic upflow filter

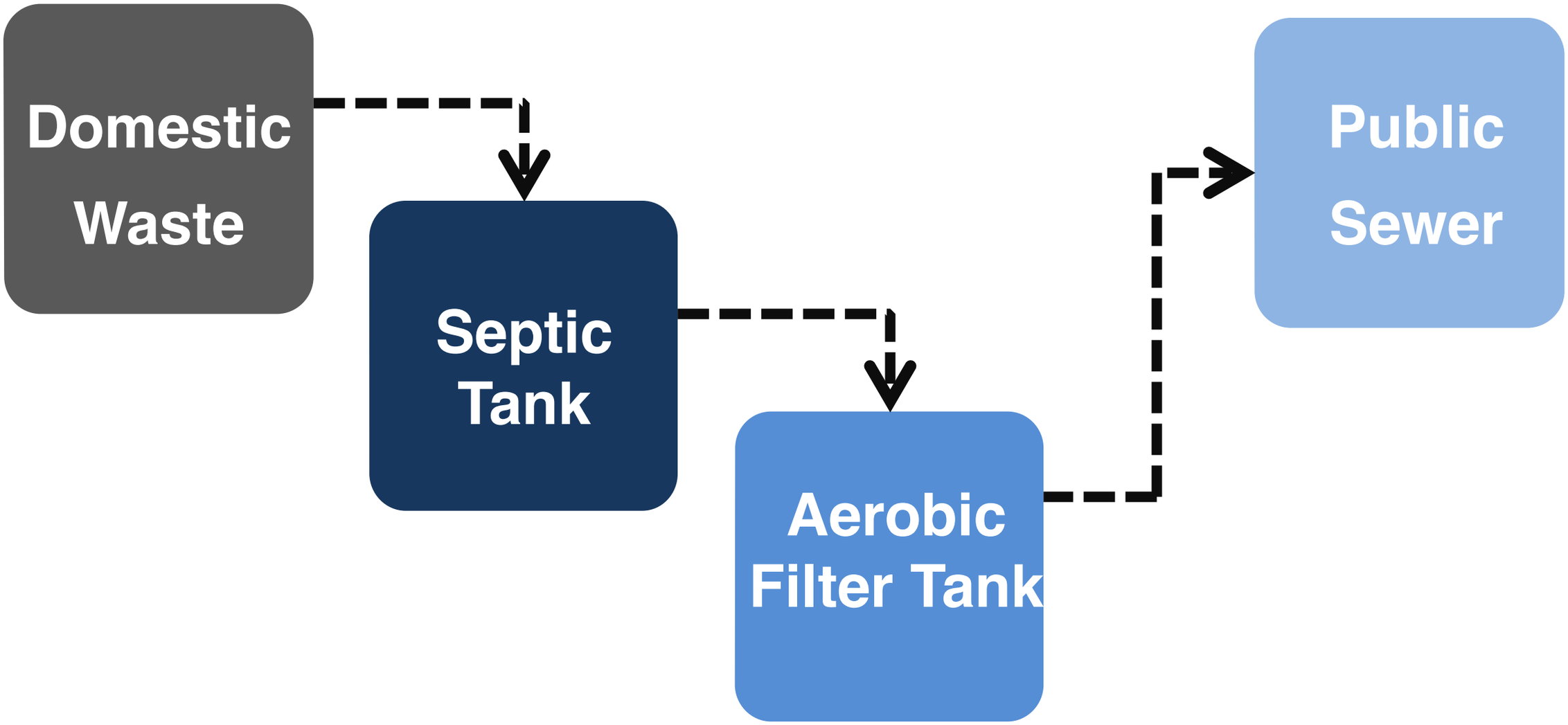
- High degree of waste stabilization
- Low sludge production
- Low nutrient requirements
- Low capital & operating cost
- Clear, odourless, nuisance free effluent
- Non shock load

Advantages of STAR tank over septic & cesspool tank

- **Easy installation**
- **Minimum operating cost**
- **Especially in high water table area**
- **Effluent can discharge to public drain**

THE WORKING SYSTEM

SEPTIC – AEROBIC FILTER TANK



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Microorganisms in AS system

- Activated sludge floc
  - Bacteria: major component
  - Fungi: low pH, toxicity, N deficient waste
  - Protozoa: gazing on bacteria
  - Rotifers: multicellular organism (help to floc formation)
  - Organic/ inorganic particle

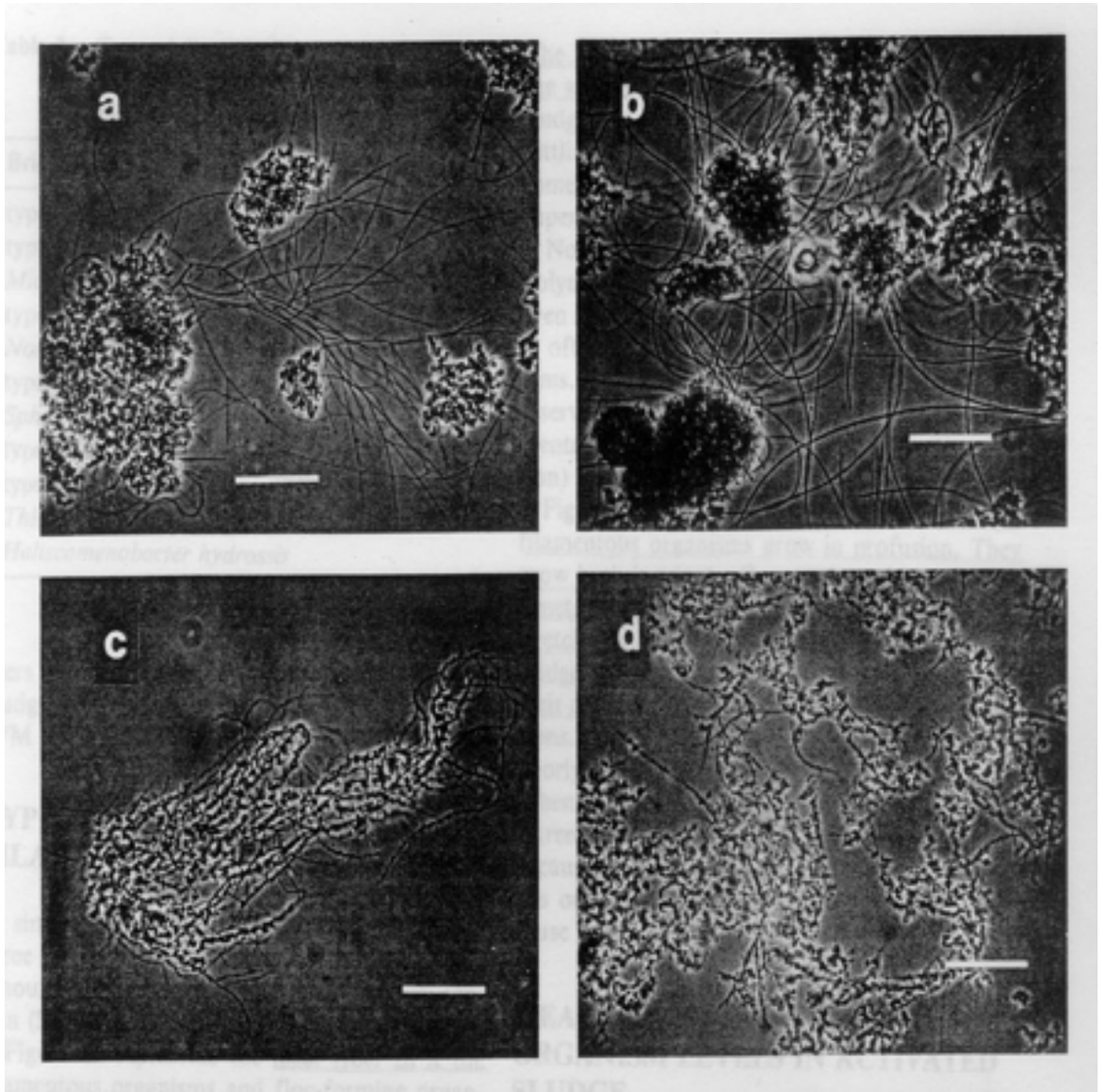

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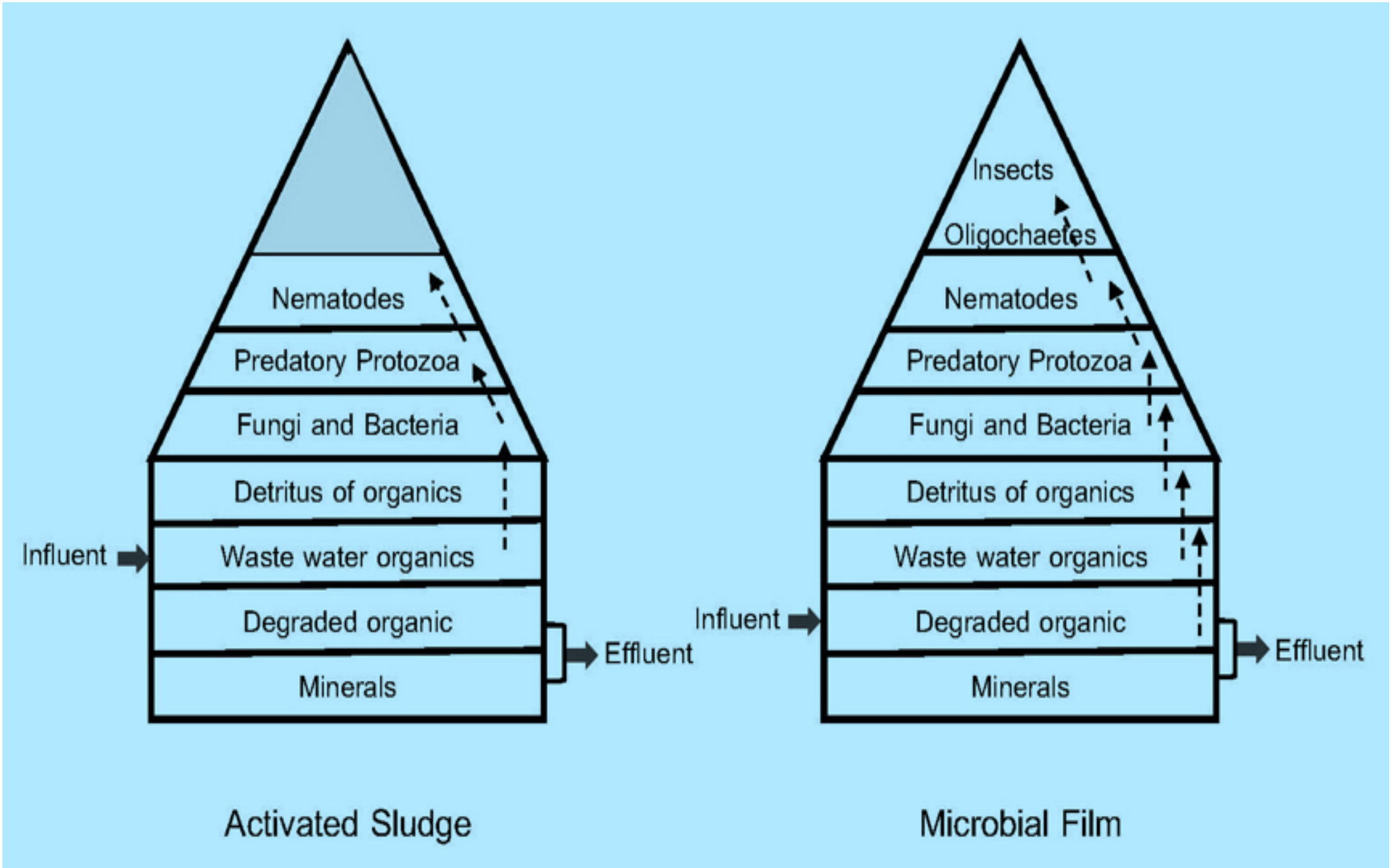
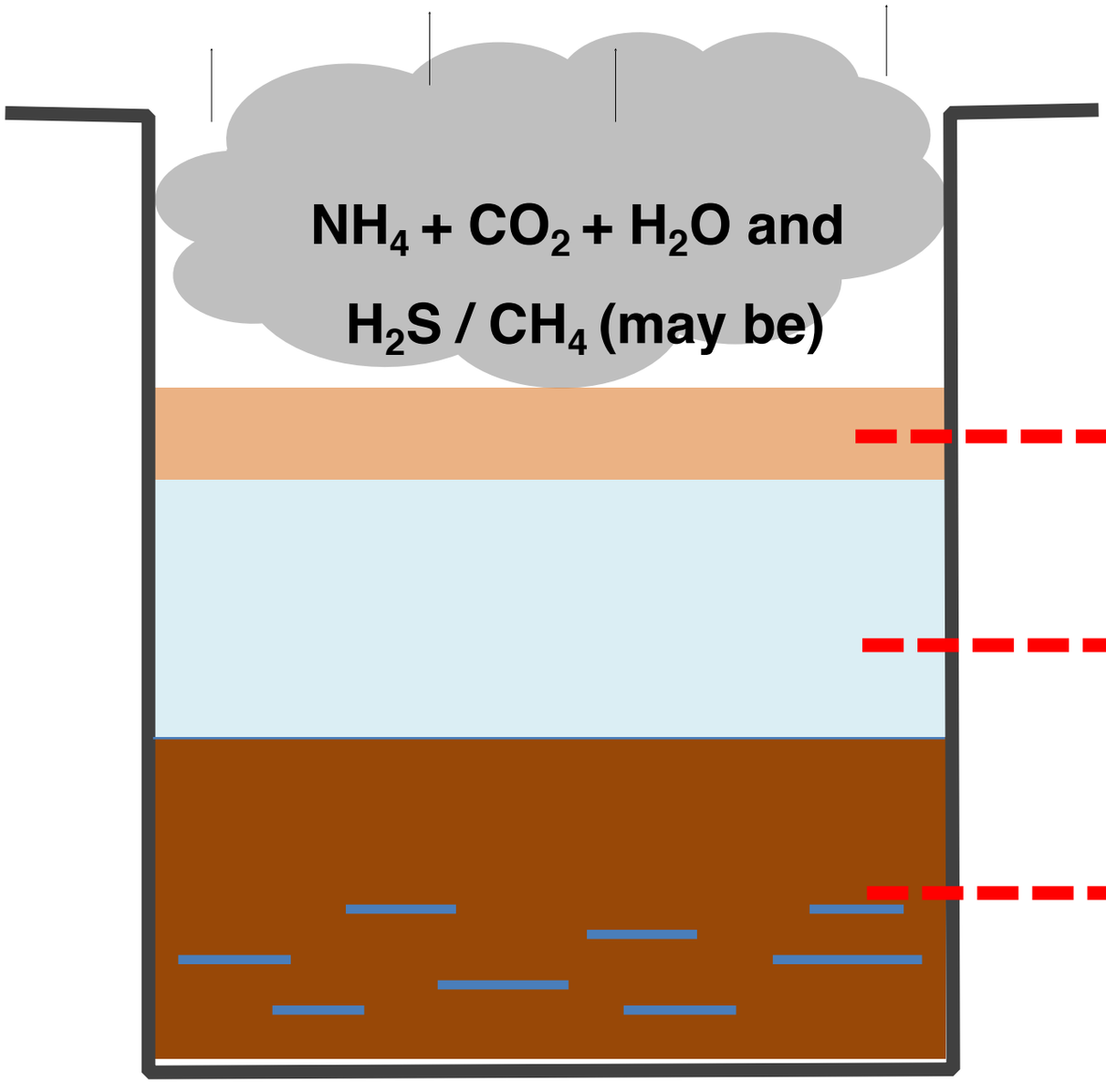
Diagram of microorganisms comparing between Activated Sludge and Fixed Film



THE WORKING SYSTEM

SEPTIC TANK

*** Separation and Digestion**



LAYER 1
Scum layer floating on the top

LAYER 2
Supernatant layer in the middle

LAYER 3
Sludge layer at the bottom

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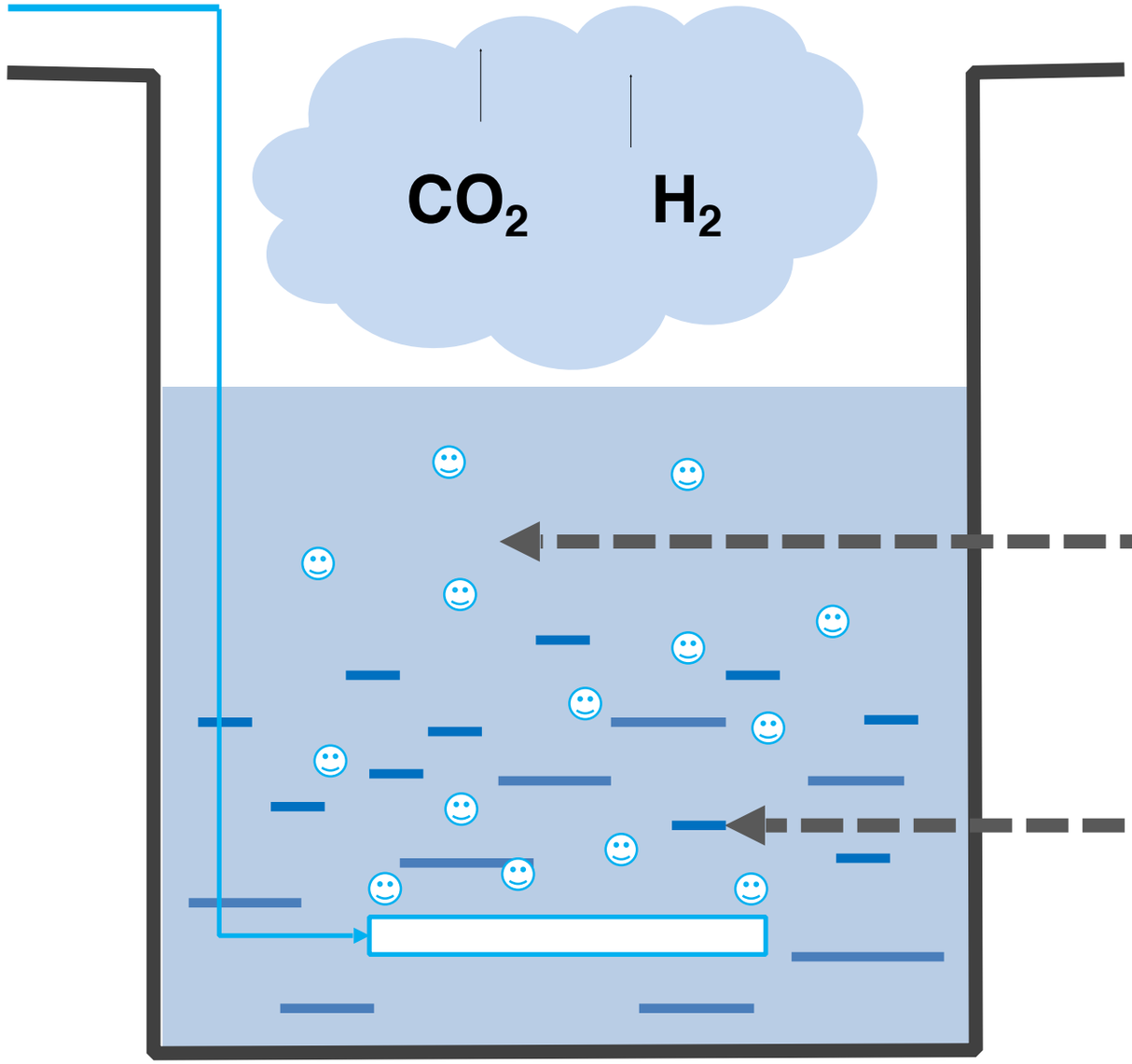
THE WORKING SYSTEM

AEROBIC FILTER TANK

*** Activated Sludge and Fixed-Film Combination**



CO_2 + O_2 + H_2 + New cell + H_2O + Energy + N.P.K

Organic, inorganic and bacteria

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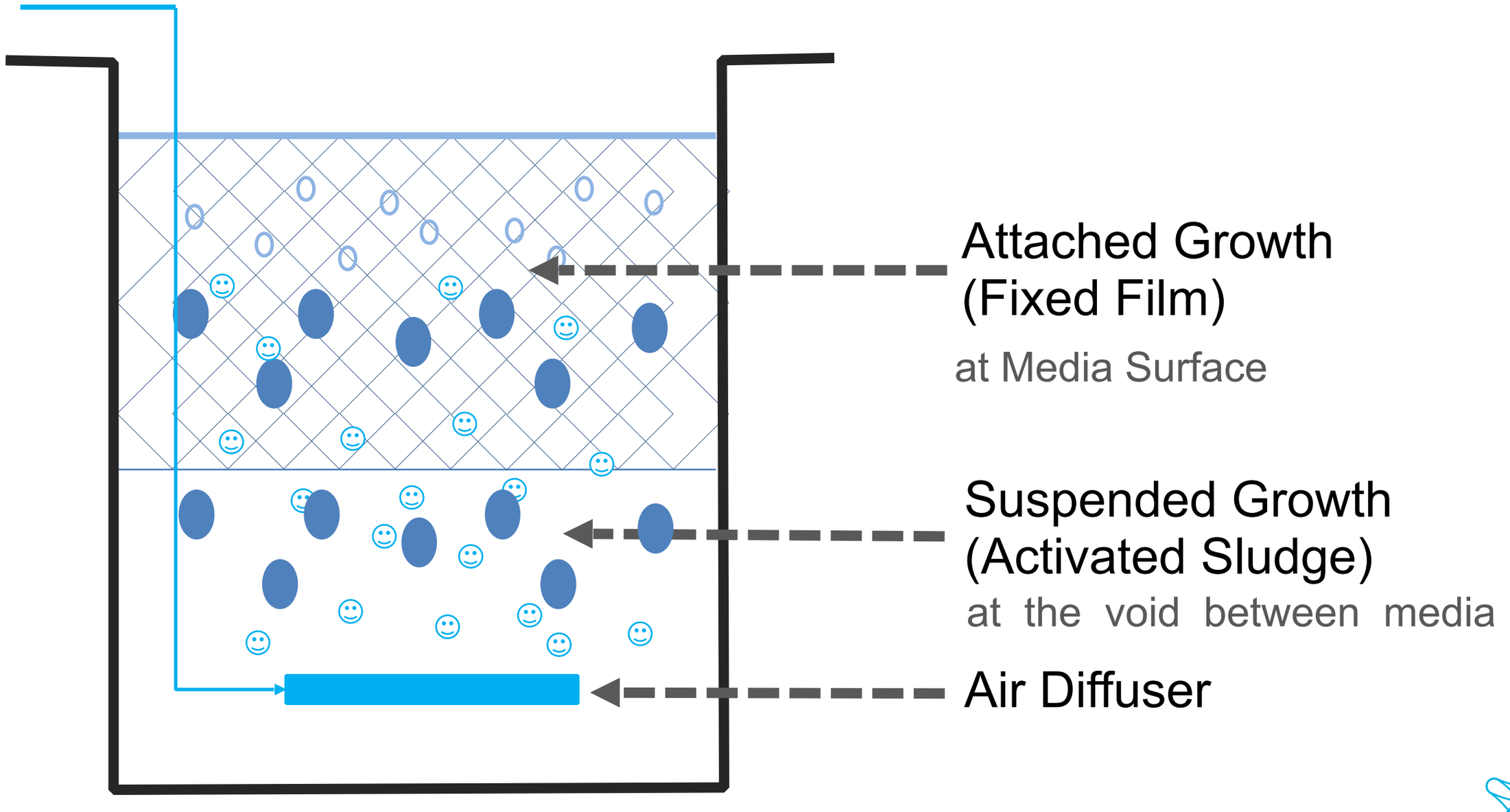
THE WORKING SYSTEM

AEROBIC FILTER TANK

* Fixed-Film and Activated Sludge Combination



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THE WORKING SYSTEM

Advantages of Aerobic filter

- Low sludge production
- Shock load
- Clear, odourless, nuisance free effluent
- Low installation area require
- Effluent meets the highest standards

Avantagese of STAR tank over septic & cesspool tank

- **Easy installation**
- **Minimum operating cost**
- **Especially in high water table area**
- **Effluent can discharge to public drain**

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SERVICE & PRODUCT

PROUD
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TURN KEY BIO & CHEMICAL WASTE WATER TREATMENT

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WATER RECLAIM SYSTEM

"OASIS" MBR
Membrane BioReactor system

STAR "OASIS" delivers

...more and cleaner water
...in less time
...requiring less space
...with a safe work environment
...at lower costs!

...เพื่อน้ำใสสะอาดกว่า
...บำบัดรวดเร็ว
...ขนาดเล็กกว่าเดิม
...ปกป้องบำรุงรักษาสิ่งแวดล้อม
...ประหยัดค่าใช้จ่าย

Membrane Bioreactor (MBR) are the best available system for wastewater treatment and reuse.
MBR are becoming an important part of advancing water stability.

PROUDASIA

Biological Wastewater Treatment Solutions

For over 15 years, PROUDASIA has provided solutions in biological wastewater treatment throughout the world. With our systems approach and innovative technologies, PROUDASIA provides our customers with a competitive edge in biological wastewater treatment. PROUDASIA continues to innovate with the STAR-OASIS® Membrane Bioreactor (MBR) featuring the new Hollow Fiber Membrane Technology.

The Proof is in the Water

BOD_5 mg/l	< 5
TSS mg/l	< 1

Fit for

- Water recycling
- Municipal Plants
- Remote Site Man Camps
- Conventional Plant Retrofits
- Industrial Plants with Stringent Discharge Requirements

เหมาะสำหรับ
- การนำน้ำกลับมาใช้ใหม่
- ระบบบำบัดน้ำเสียชุมชน
- ระบบบำบัดน้ำเสียชั่วคราว
- ปรับปรุงแบบเดิม
- น้ำเสียอุตสาหกรรมที่ต้องการการบำบัดที่มีประสิทธิภาพ

Hollow Fiber Technical Specifications	
Membrane Material	Composite PVDF
Size of the Module(Wide*Length,mm)	534*1020
Outer/inner size of the membrane(mm)	2.5/1.0
Pore Size	0.2 μm
Membrane Area (m^2)	8.0
Flux rate for waste water treatments	≥ 20 L/H/M^2
pH	2-11
Temperature(℃)	5 ~ 45
Operating Pressure	-0.01 ~ -0.06MPa

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STAR" MBR Tank model OASIS-10 at PTT : Bang pa in Gasoline Station

PROUD ASIA Head Office

Effluent from MBR Tank

"STAR" MBR Tank model OASIS-150 at Samitivej Sriracha Hospital

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Improve the quality of effluent from community to public drain Project

"STAR" MBR Tank 8 Site at Nontaburi, Saraburi, Patumthani, Pranakornsri Ayudhaya

The Office of Strategy Management : Upper Central Provincial Cluster 1 Thailand

PROUD
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"STAR" MBR Tank 13 Site at HomePro & MegaHome Departmentstore

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PRODUCT :

PACKAGE WASTE WATER TREATMENT

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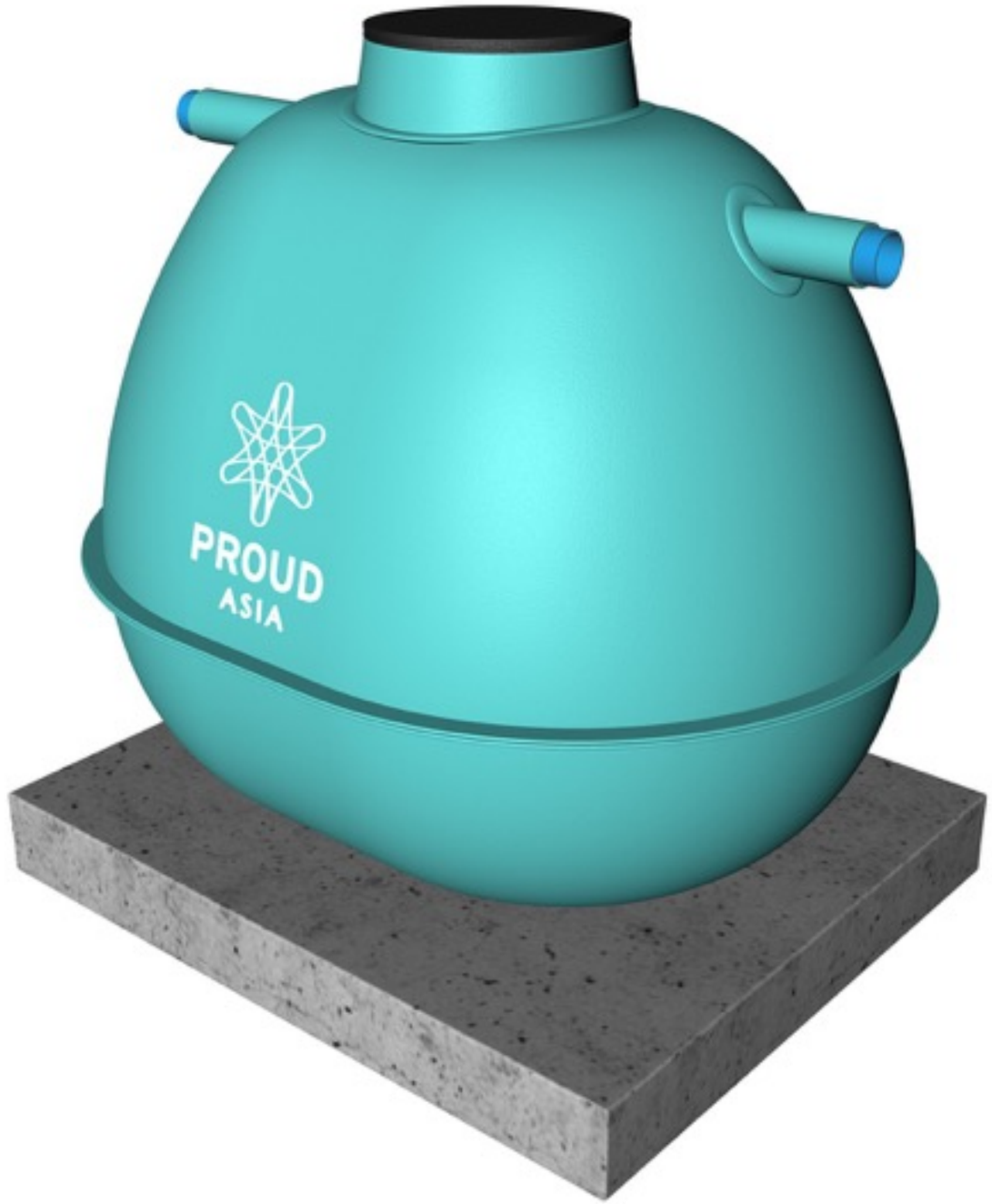

PRODUCT :

PS

Septic anaerobic filter tank.

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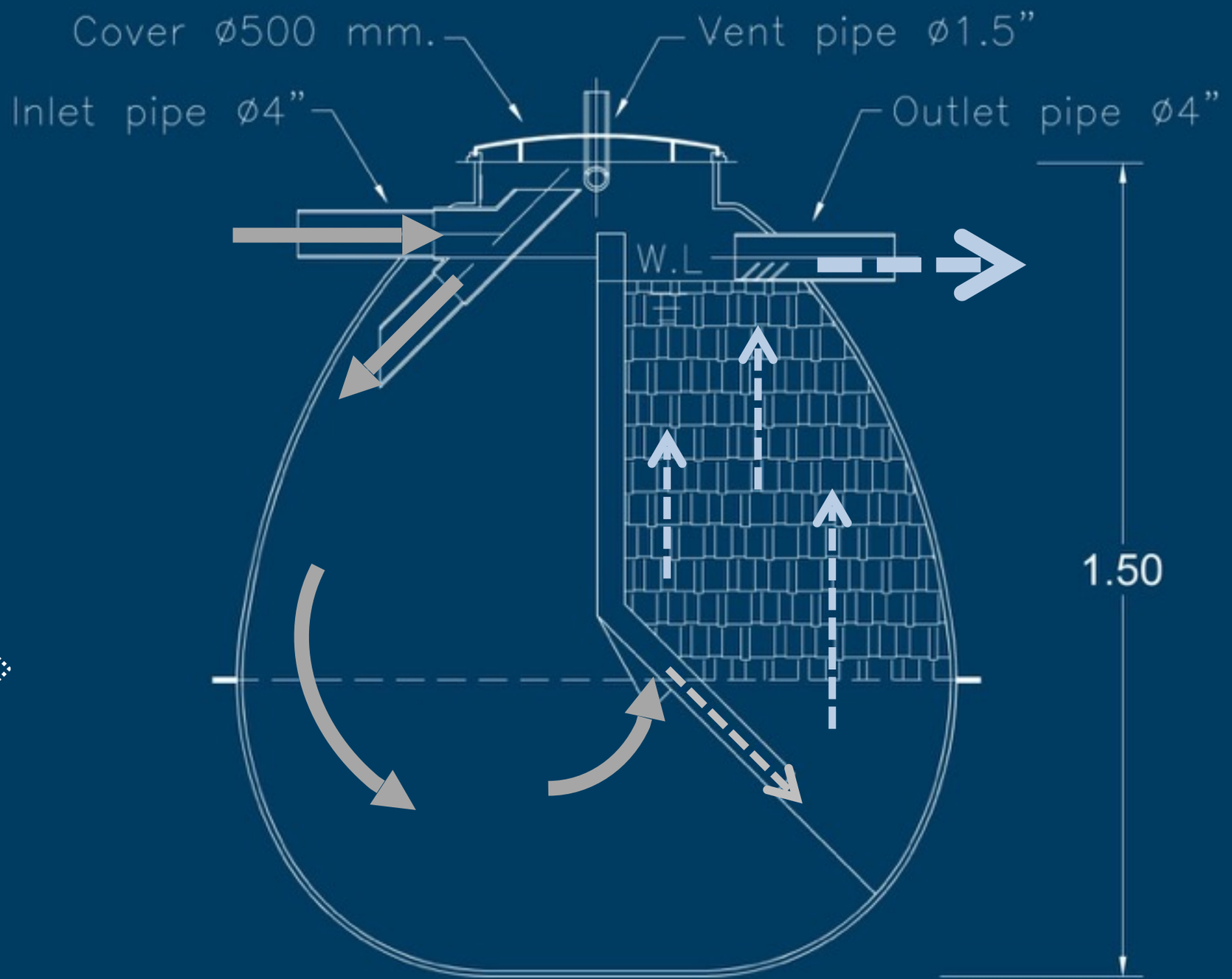
ASIA

1st SEPTIC CHAMBER

- This is to increase the efficiency of the septic chamber
- Heavy grease and solid will be separated before flowing into the 2nd chamber

2nd Anaerobic Filter CHAMBER

- The slow hydraulic flow rate is controlled give the most efficient surface contact between wastewater and bio media layer. Water has been treated, before letting into public drain.

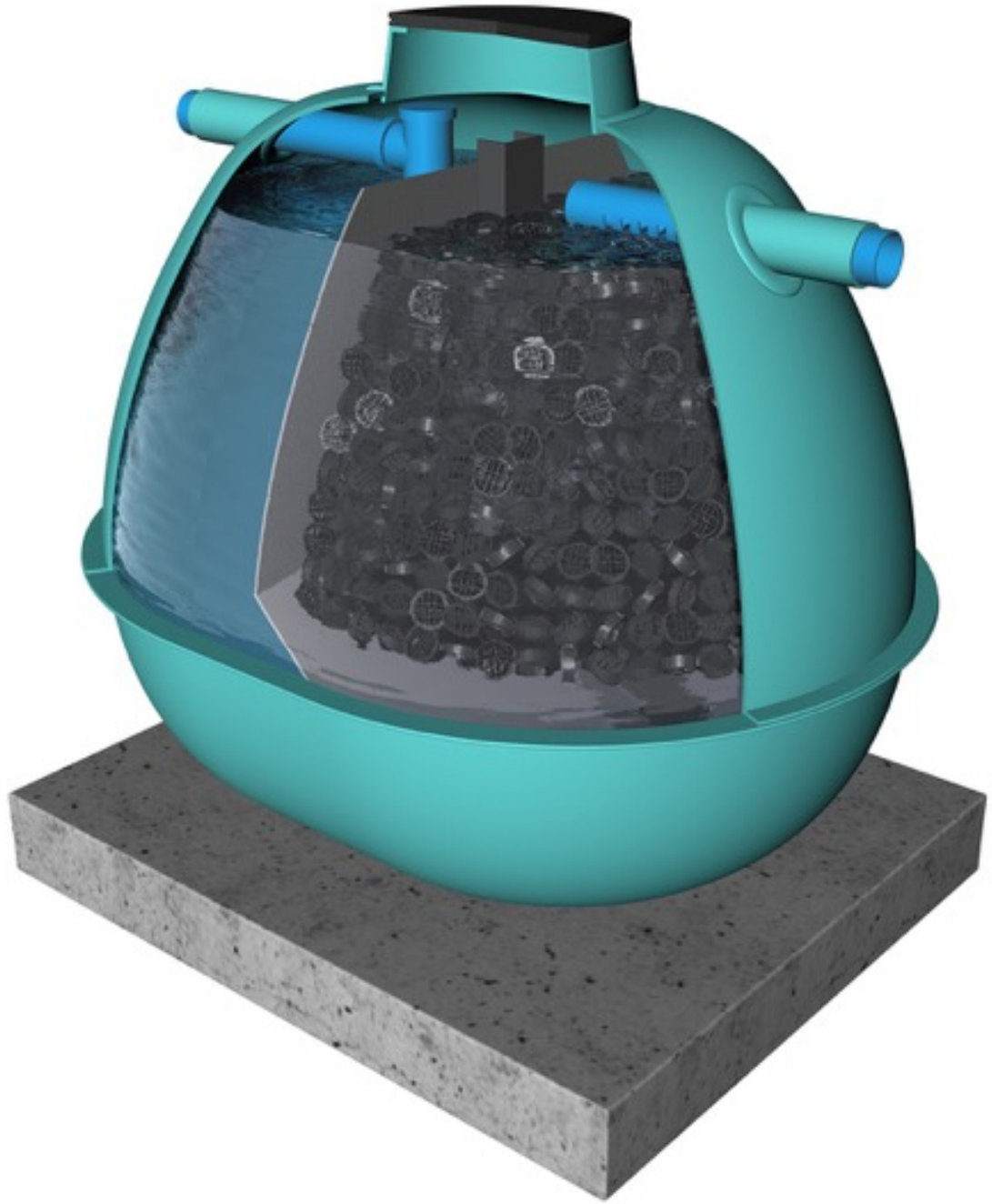


SECTION A-A

PRODUCT :

PS Septic anaerobic filter tank.

PROUD ASIA



PRODUCT :

PS

Septic anaerobic filter tank.

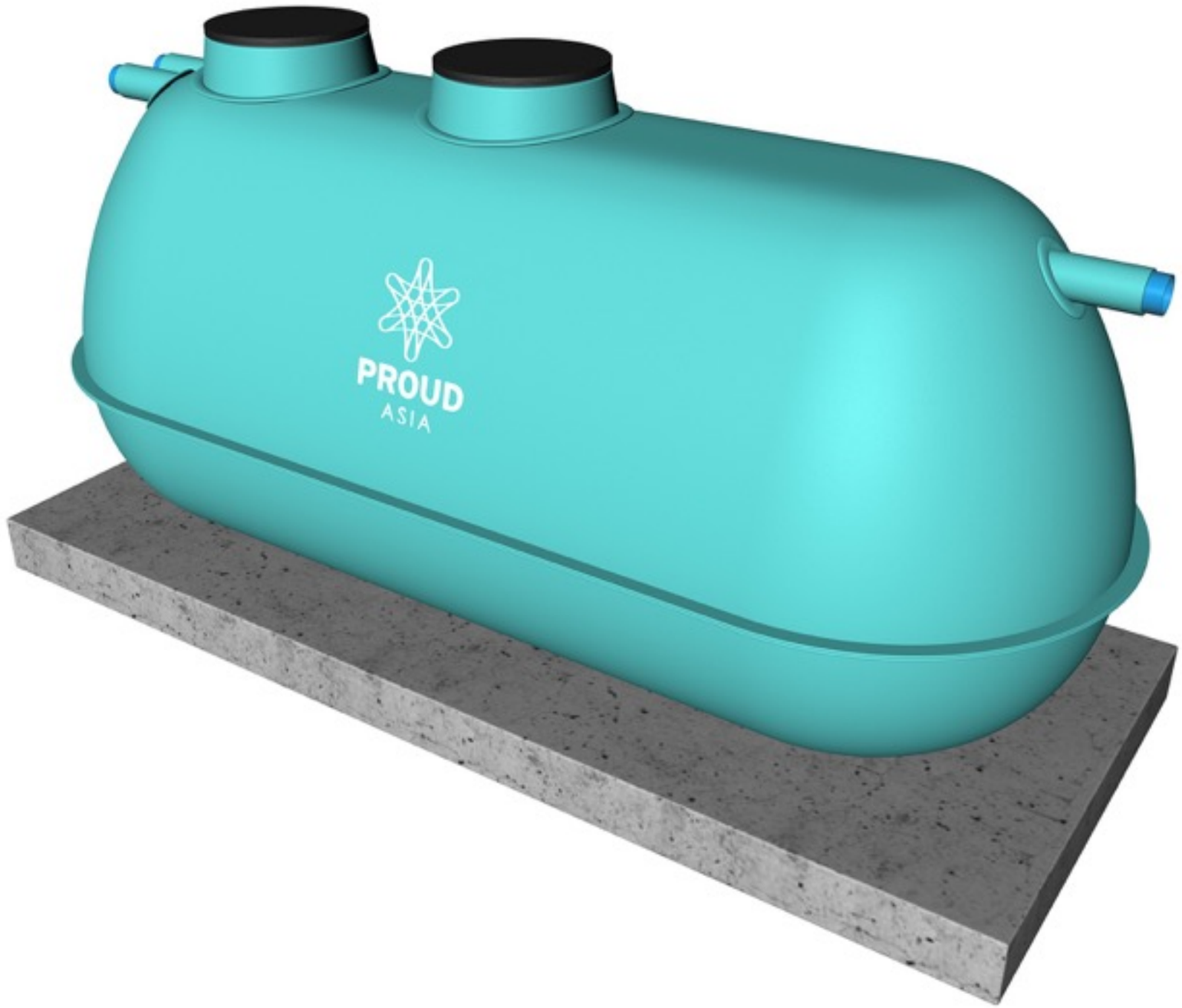
PROUD
ASIA

PRODUCT :

PS

Septic anaerobic filter tank.

PROUD
ASIA



PRODUCT :

SC

Septic anaerobic filter tank.

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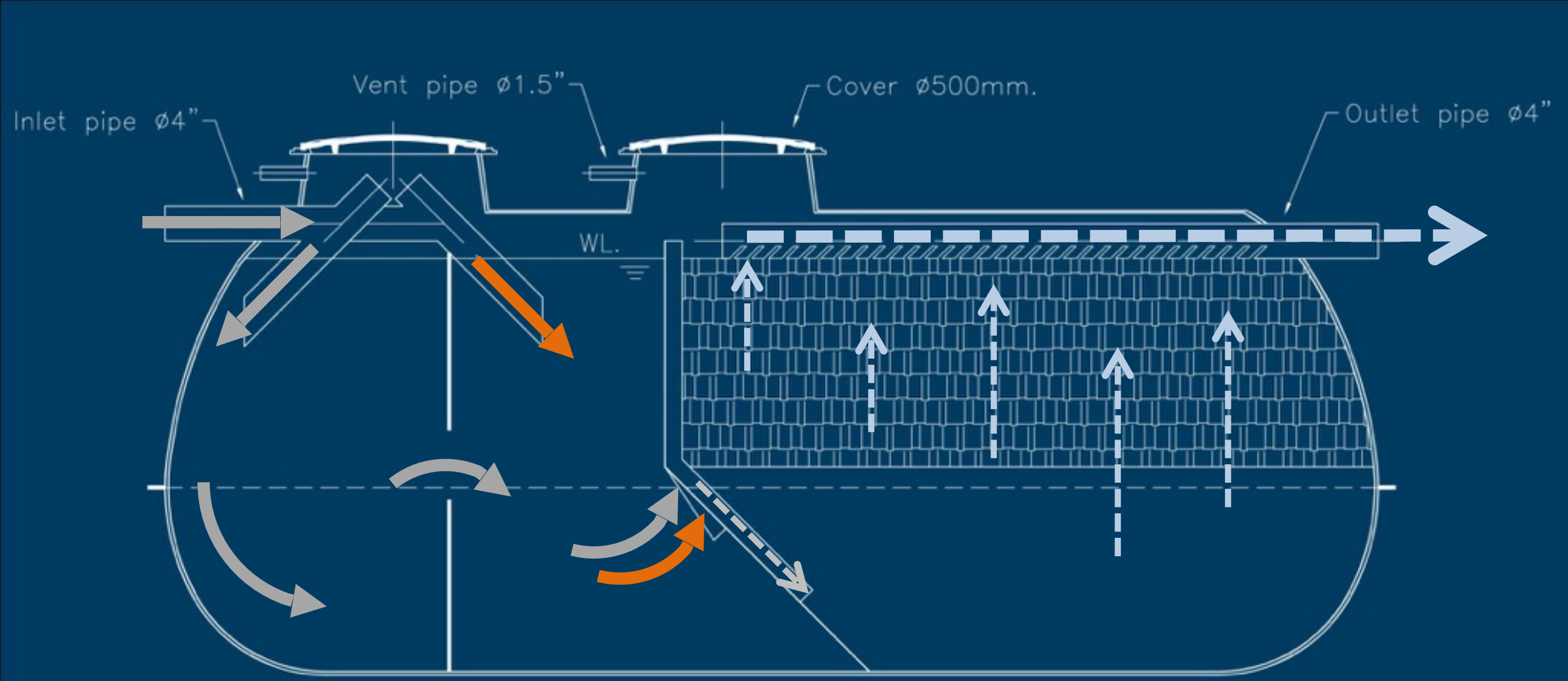


1st SEPTIC CHAMBER

-Heavy grease and solid will be separated before flowing into the 2nd chamber

2nd SEPTIC CHAMBER

-Collects wastewater from first chamber and other domestic use.

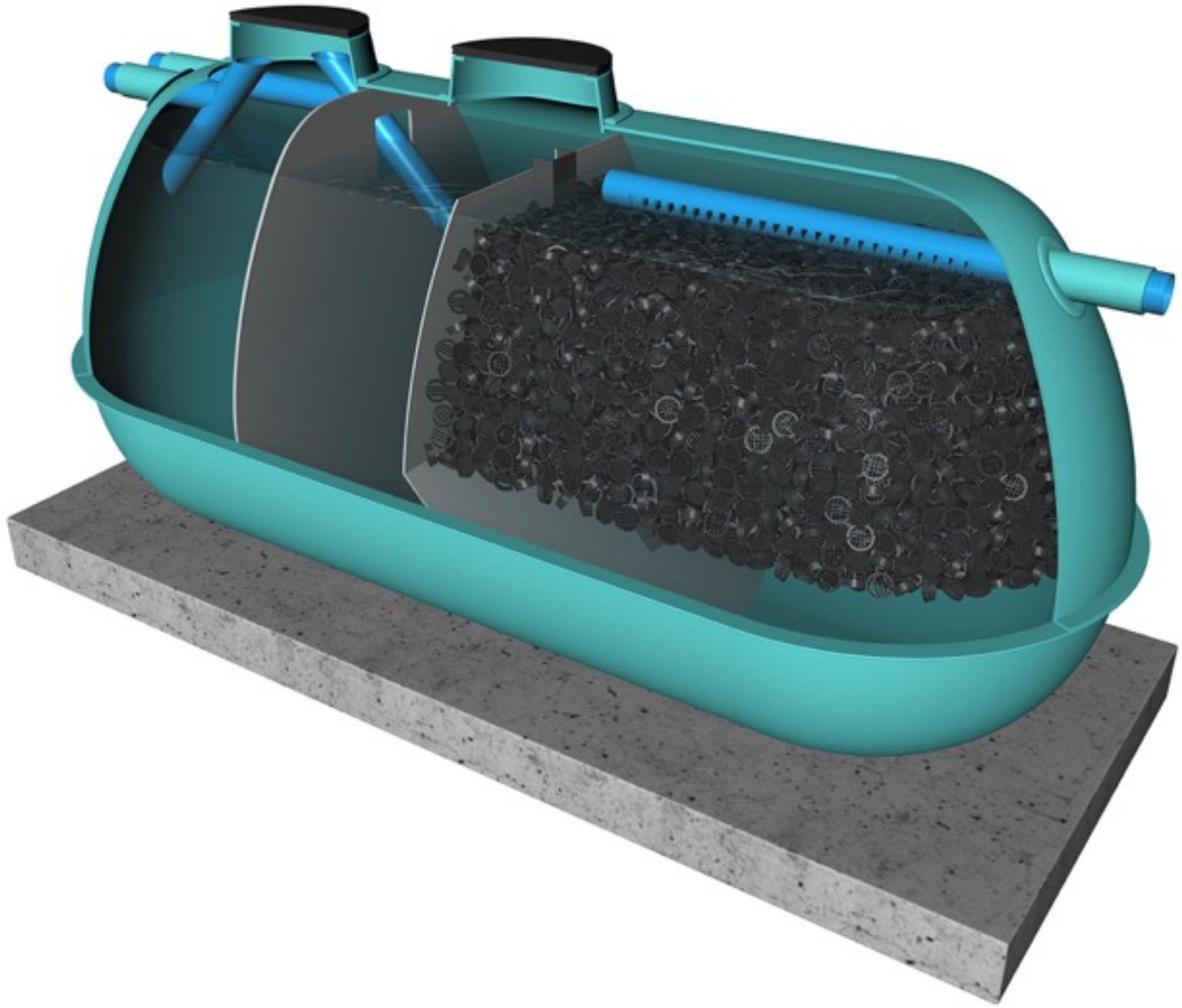
3rd ANAEROBIC FILTER CHAMBER

- The slow hydraulic flow rate is controlled give the most efficient surface contact between wastewater and bio media layer. Water has been treated, before letting into public drain.

PRODUCT :

SC Septic anaerobic filter tank.

PROUD ASIA



PRODUCT :

SC

Septic anaerobic filter tank.

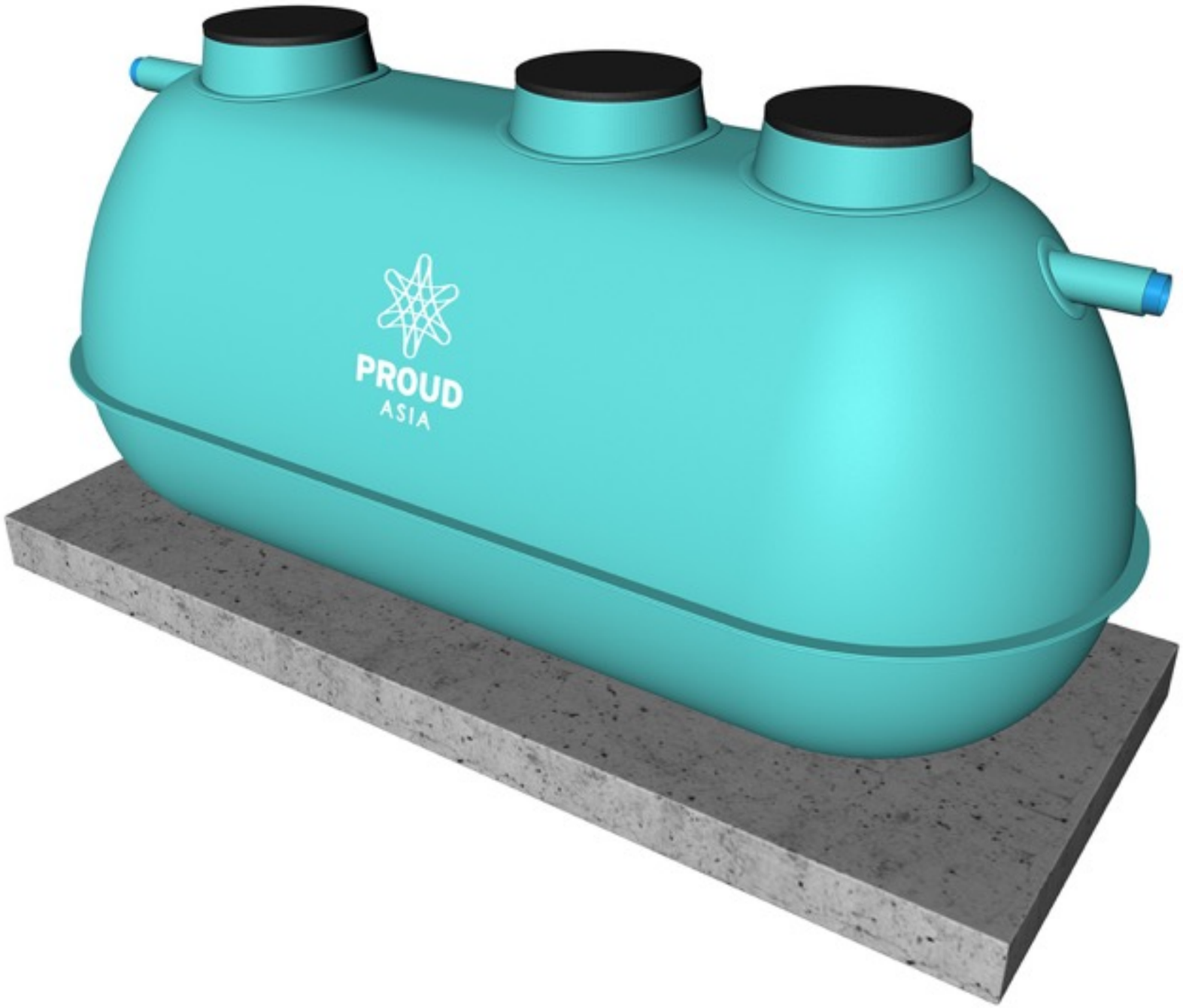
PROUD
ASIA

PRODUCT :

SC

Septic anaerobic filter tank.

PROUD
ASIA



PRODUCT :

SSA Septic anaerobic filter tank.

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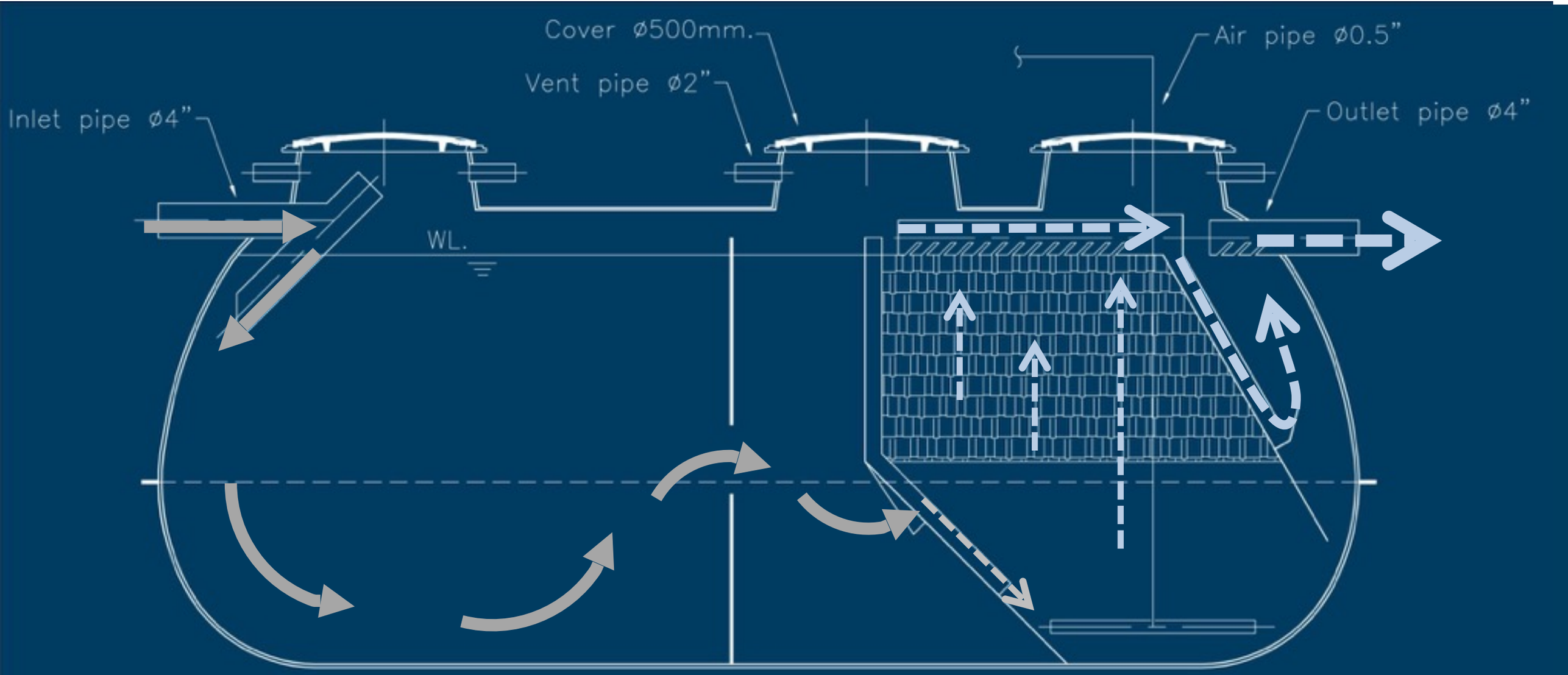


1st SEPTIC CHAMBER

- 2 Septic chambers
- Heavy grease and solid will be separated before flowing into the 2nd chamber

2nd AEROBIC FILTER CHAMBER

- Floc and fixed film aerobic bacteria will digest organic matters with aerobic reaction.

3rd SEDIMENTATION CHAMBER

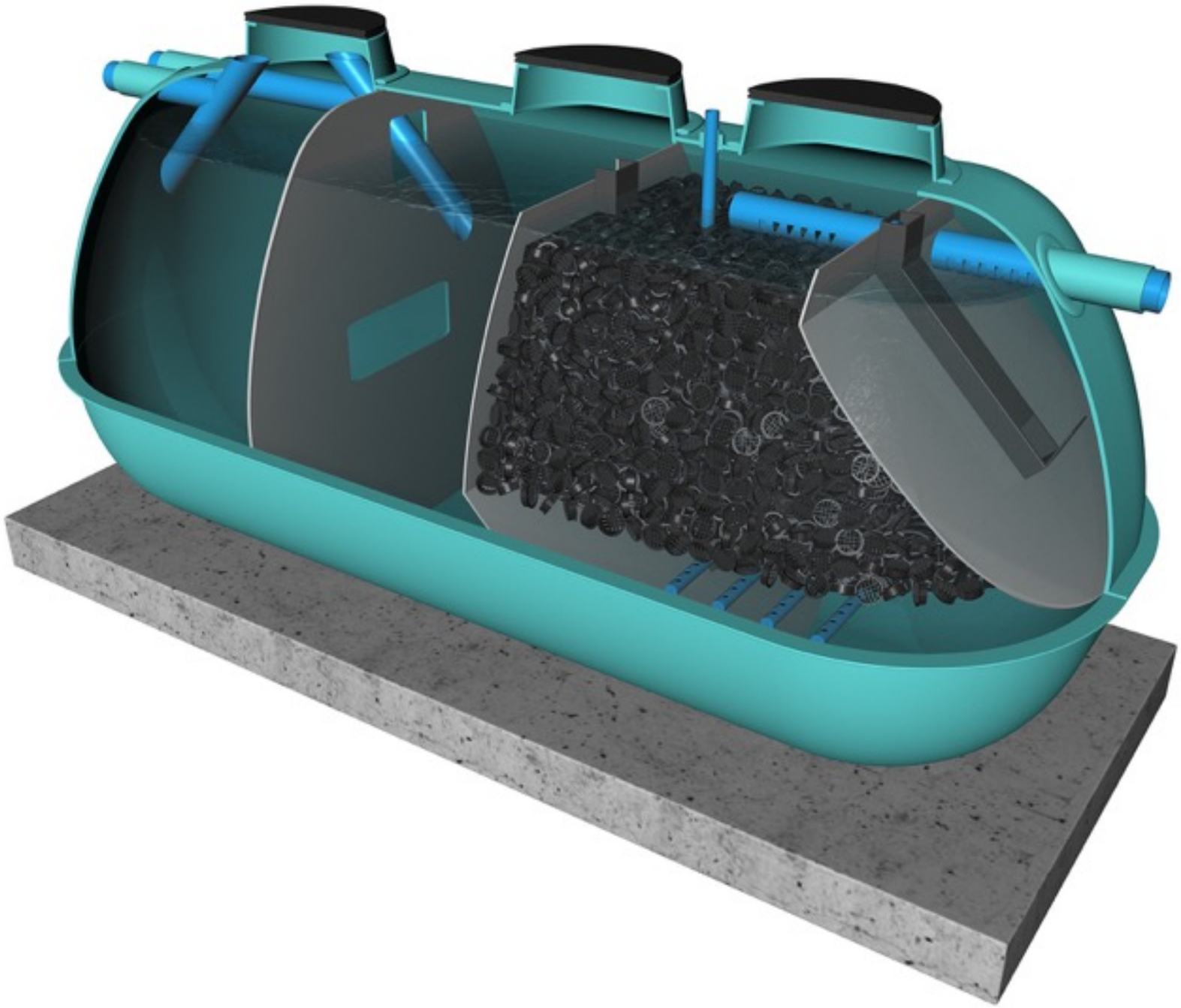
- This chamber will separate some residual sludge and return it to contact aeration chamber

PRODUCT :

SSA

Septic anaerobic filter tank.

PROUD ASIA



PRODUCT :

SSA

Septic anaerobic filter tank.

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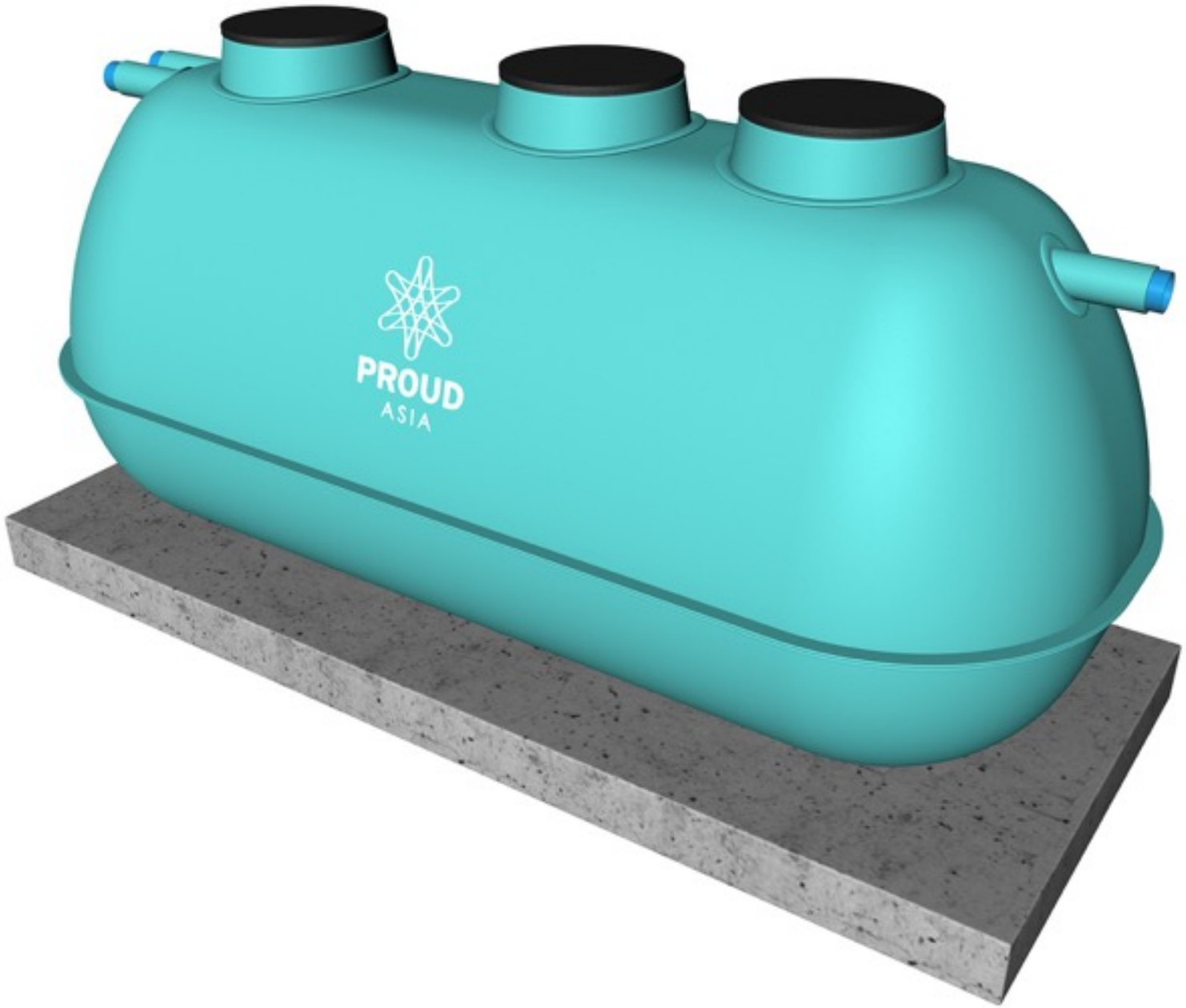
PRODUCT :

SSA Septic anaerobic filter tank.

PROUD
ASIA



PRODUCT :

SCA Septic aerobic filter tank.

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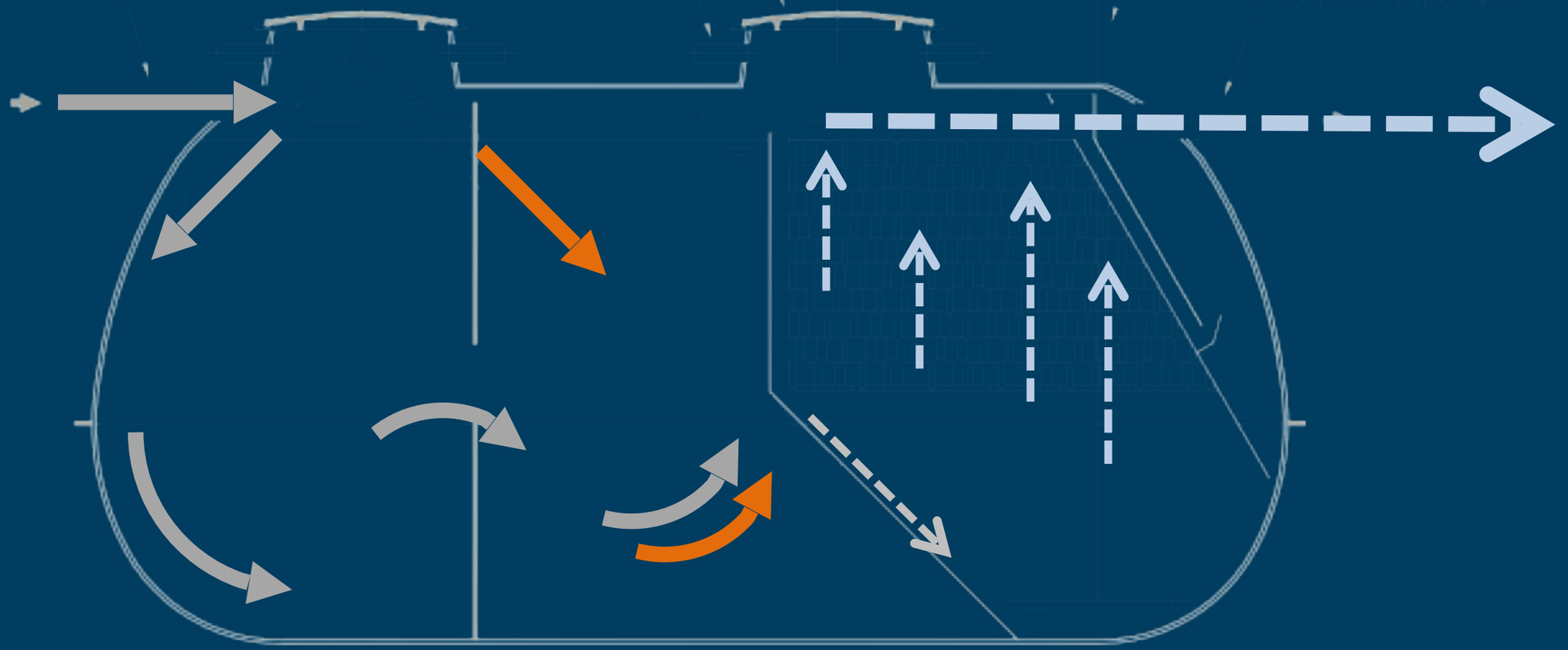
ASIA



1st SEPTIC CHAMBER

-Heavy grease and solid will be separated before flowing into the 2nd chamber.

2nd SEPTIC CHAMBER

-Collects wastewater from first chamber and other domestic use.

3rd AEROBIC FILTER CHAMBER

-Floc and fixed film aerobic bacteria will digest organic matters with aerobic reaction.
- Last chamber will separate some residual sludge and return it to contact aeration chamber

PRODUCT :

SCA

Biological contact media with aeration tank.

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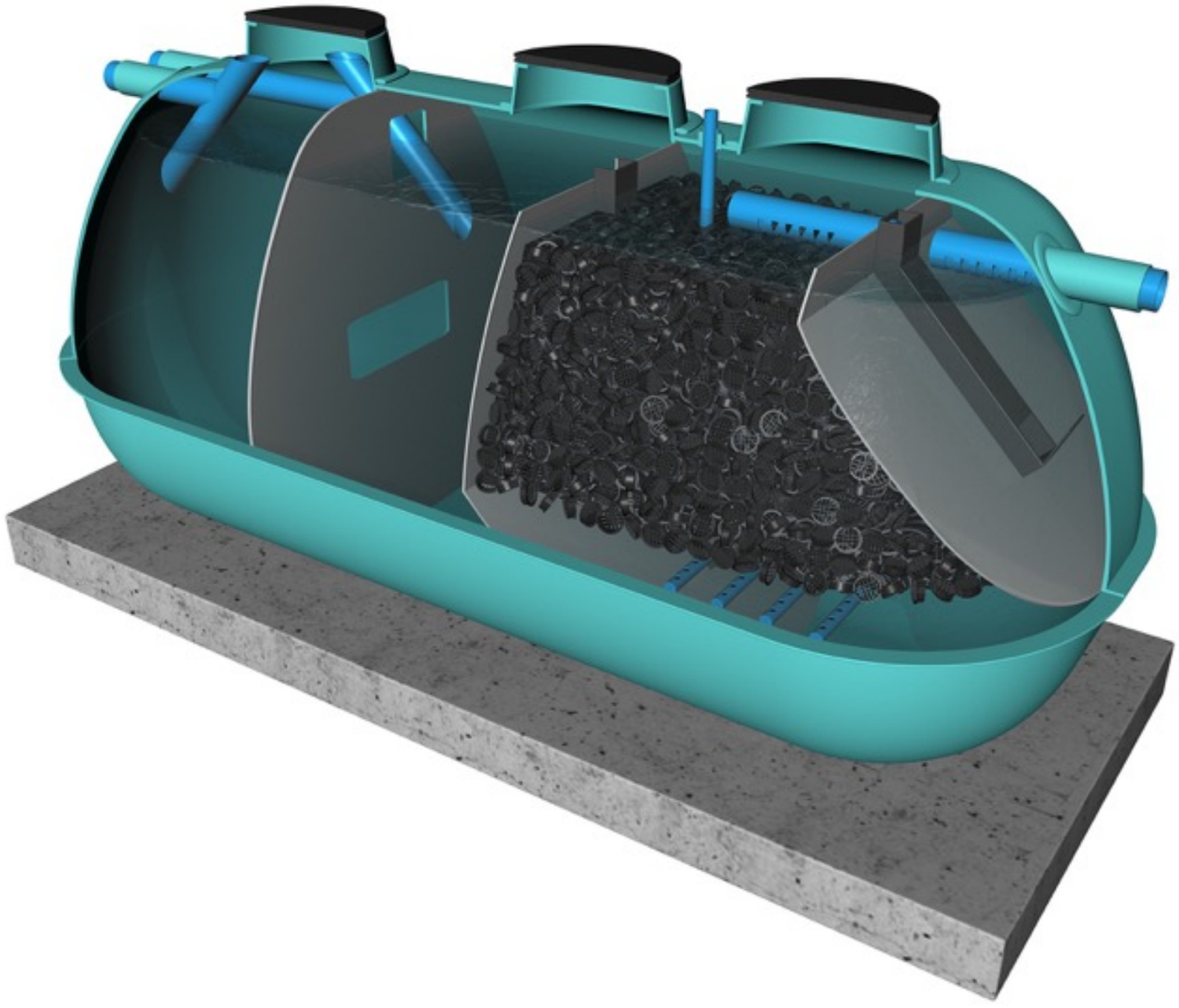
ASIA



PRODUCT :

SCA

Septic aerobic filter tank.

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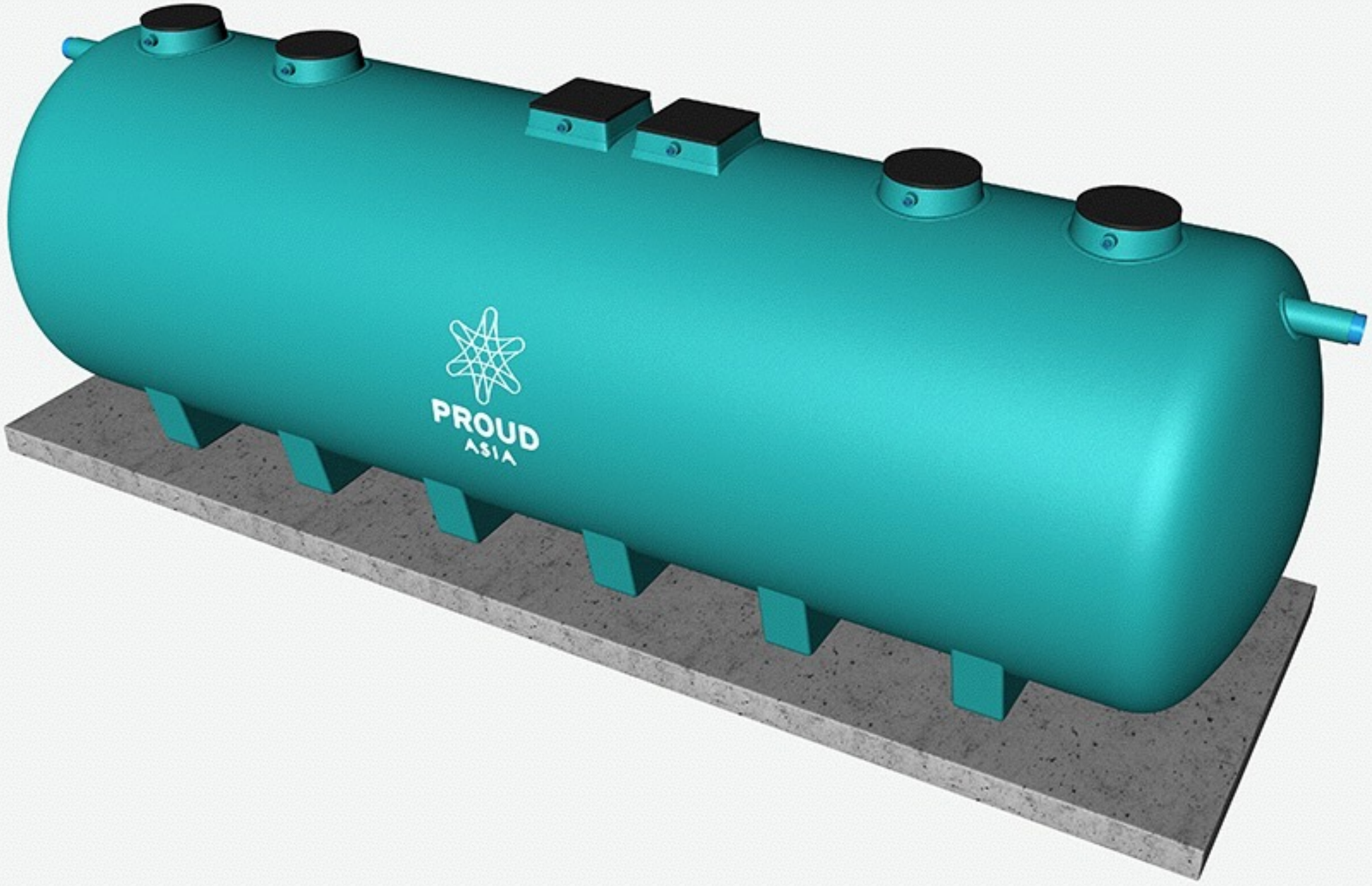
PRODUCT :

SCA

Biological contact media with aeration tank.

PROUD
ASIA



PRODUCT :

BCM Biological contact media with aeration tank.

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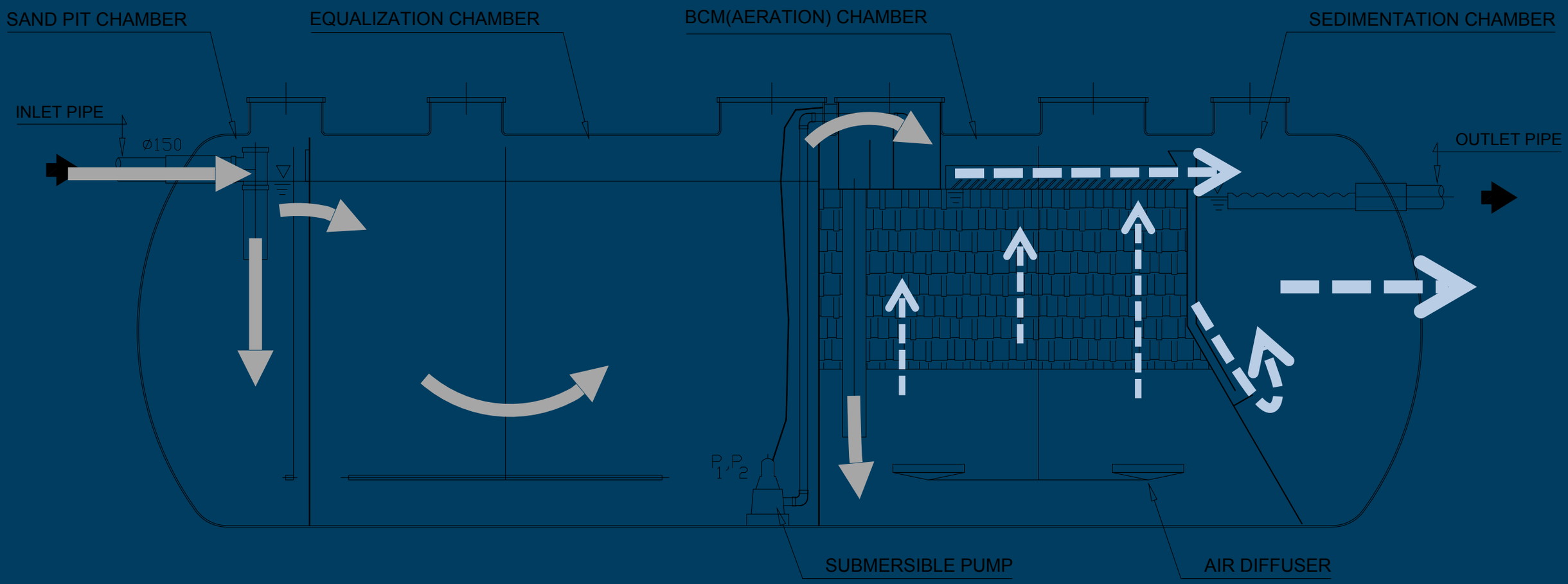

1st Sand Pit Chamber

- Solid & garbage will be separated before flowing into EQ chamber

2nd EQ Chamber

-Various quality water will be transformed into one and pumped to Aeration Chamber

3rd Aeration Chamber & Sediment. Chamber

- Floc and fixed film bacteria will digest organic matters with aerobic reaction, Sediment. chamber will separate some residual sludge and return it to contact aeration chamber

PRODUCT :

BCM Biological contact media with aeration tank.

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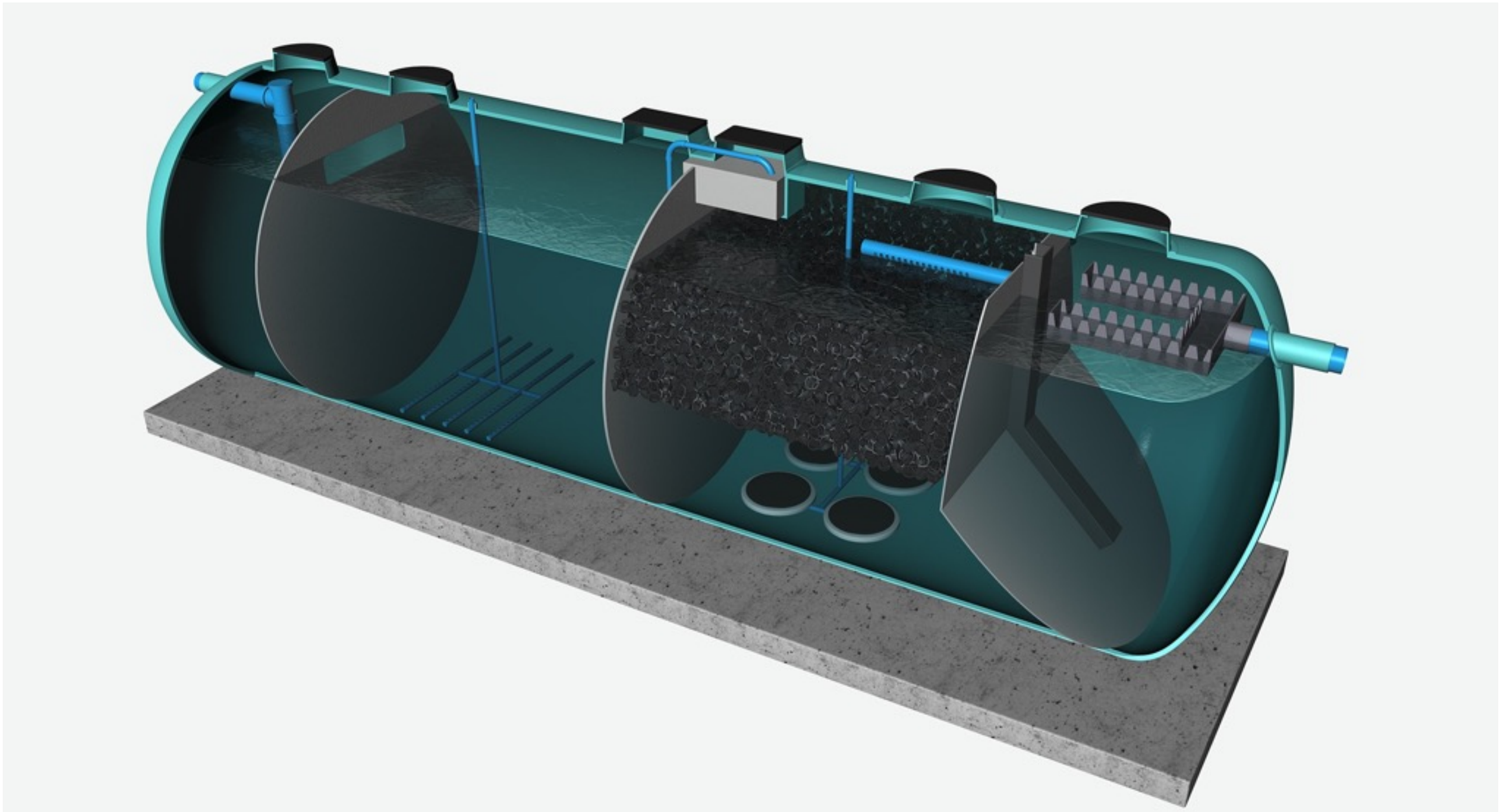

PRODUCT :

BCM Biological contact media with aeration tank.

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PRODUCT :

BCM Biological contact media with aeration tank.

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OASIS

Membrane Bioreactor Technology

Why MBR ?

Membrane bioreactors are the best available system for wastewater treatment and reuse it is also an important part of advancing water stability

MEMBRANE

Filtration Basic

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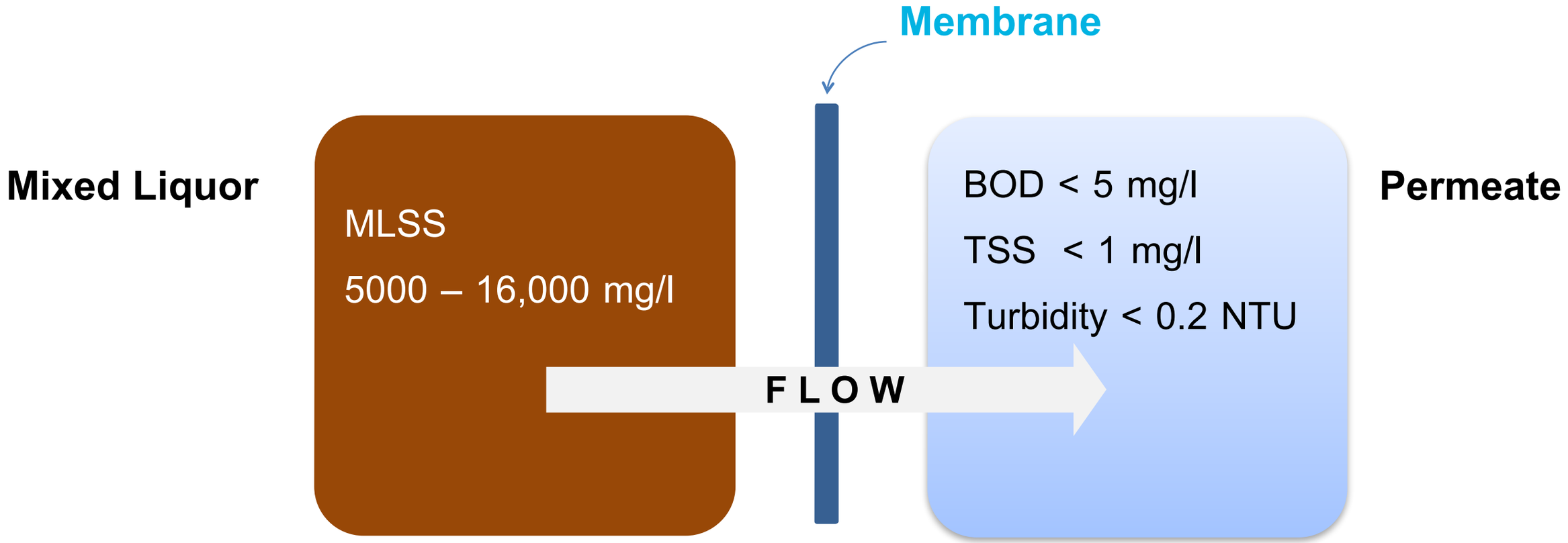
Low-Pressure Polymeric Membrane



- Separation device like a clarifier to separate suspended solids from water.

What is a membrane ?

- Physical barrier : suspended solids bigger than pore size remain in the process tank.

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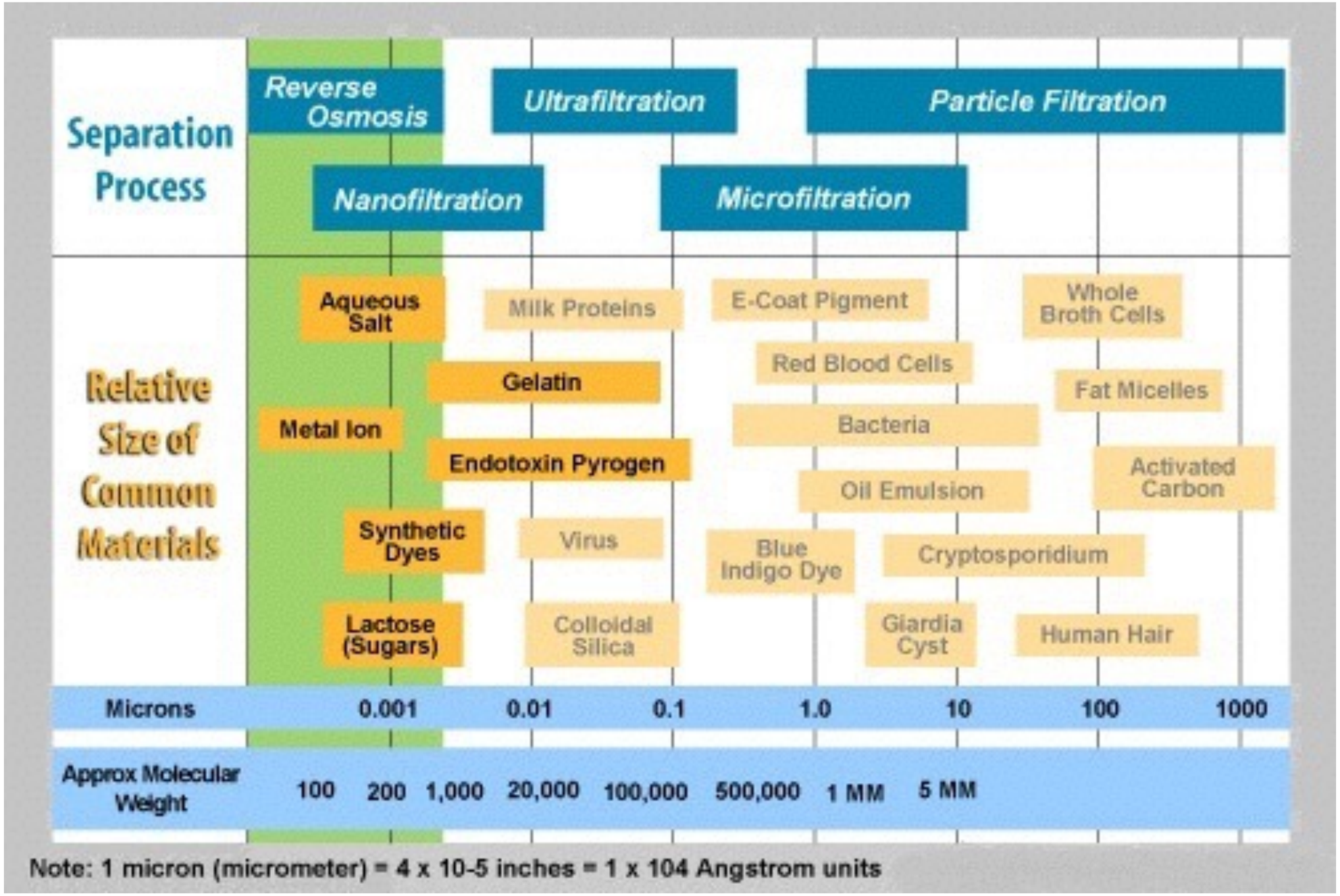
Membrane Filtration Spectrum



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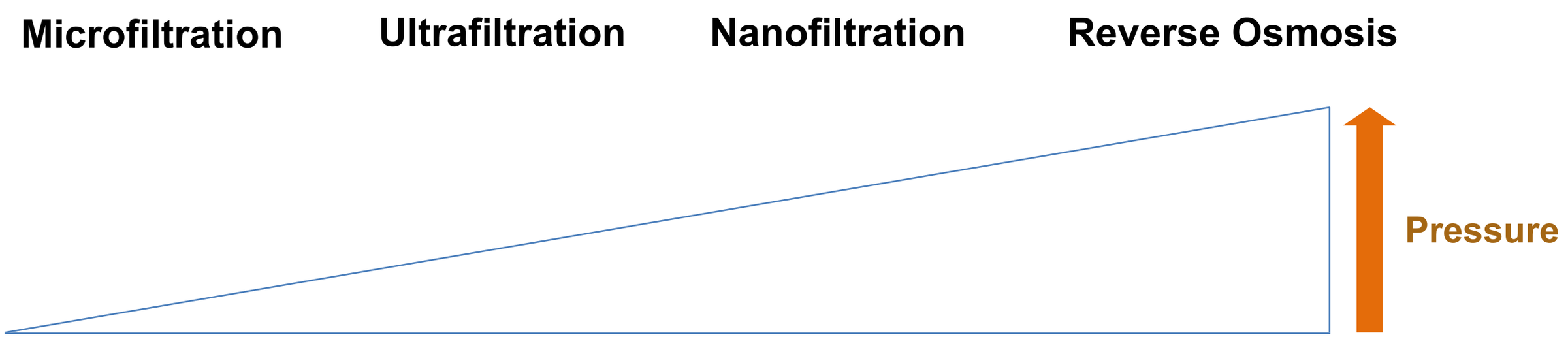
Membrane Spectrum



INCREASING Transmembrane Pressure

DECREASING Membrane Operational life

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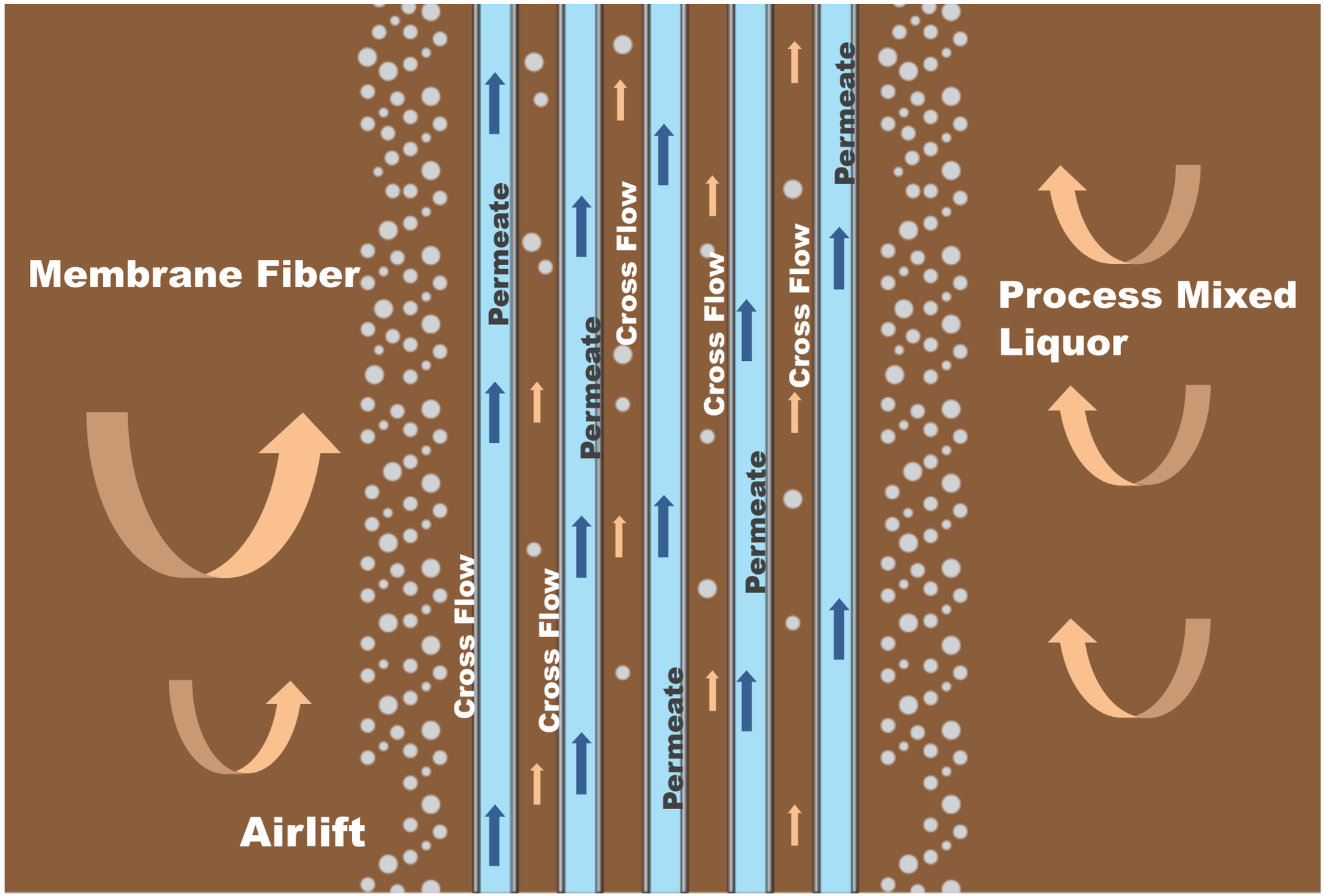
Membrane Filtration Process



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Membrane Bioreactor (MBR)

-THE MEMBRANE PROCESS involves a suspended growth activated system that utilizes micro porous membranes for solid/liquid separation.

-An emerging advances wastewater treatment technology ever increasing number of bacteria around the world.

-This very compact arrangement provides a MF/UF quality effluent suitable for recycle application.

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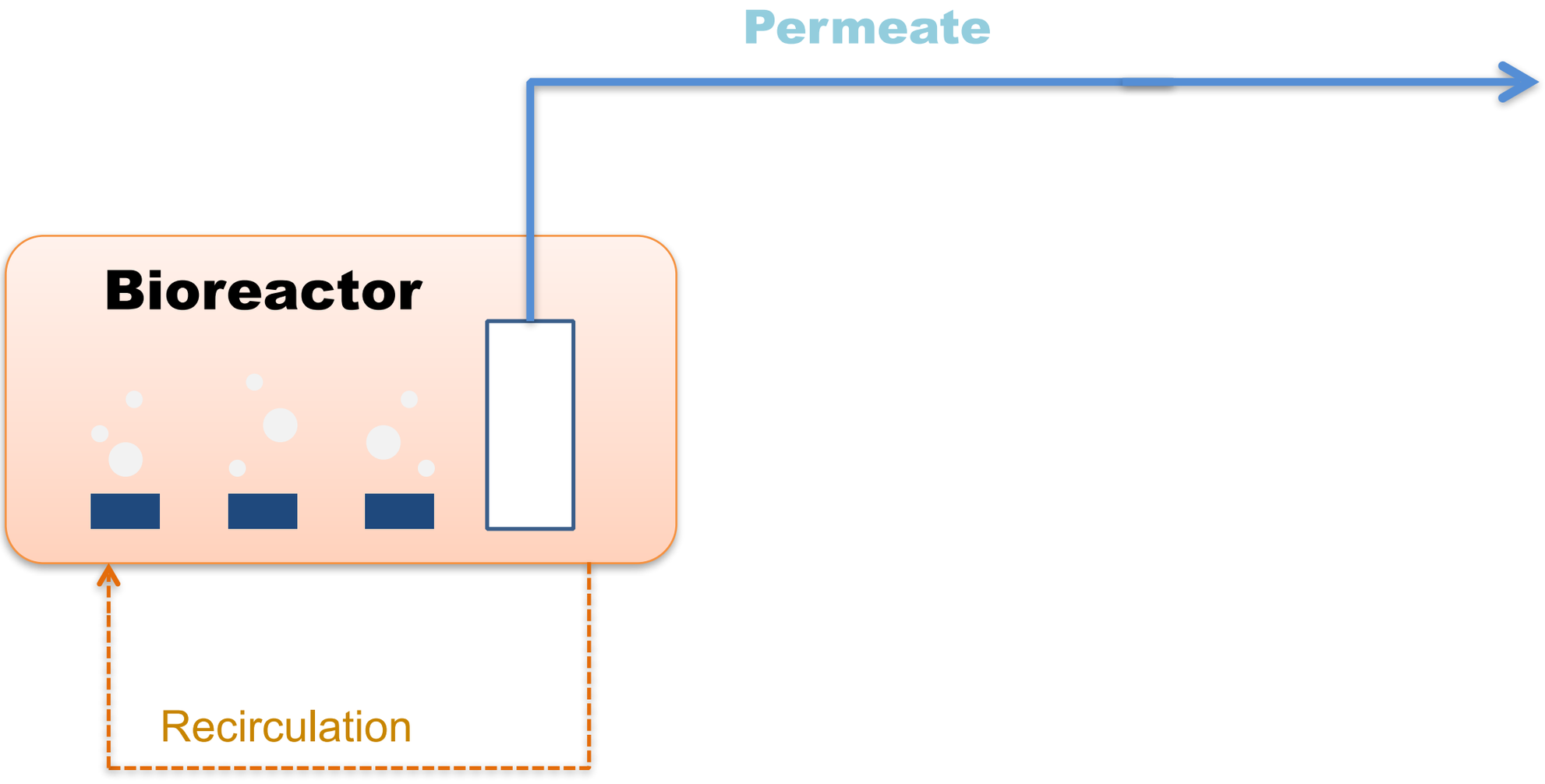
Immersed Membrane MBR

High surface area – Reduced energy consumption



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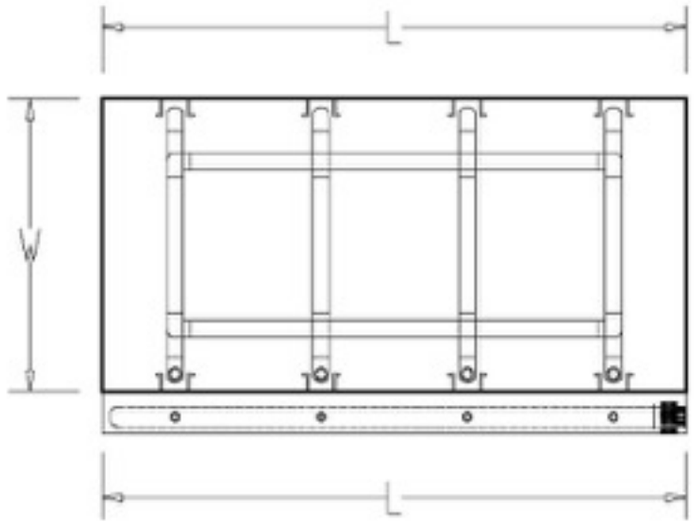
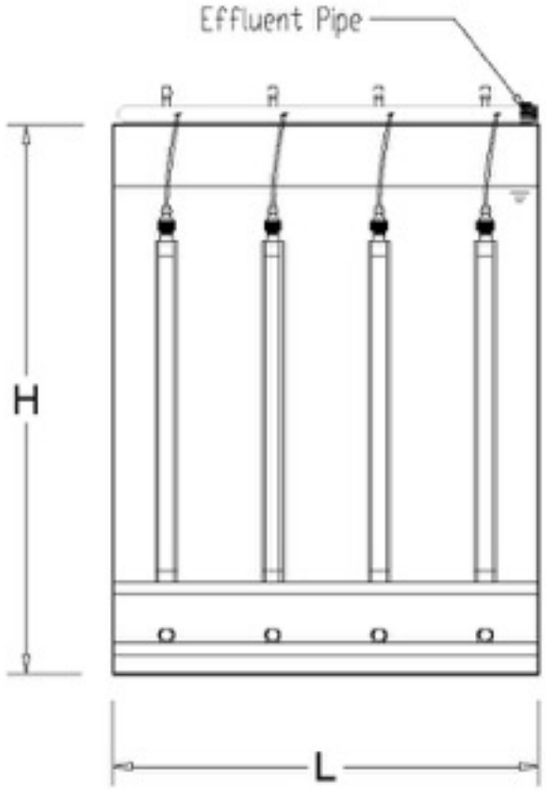
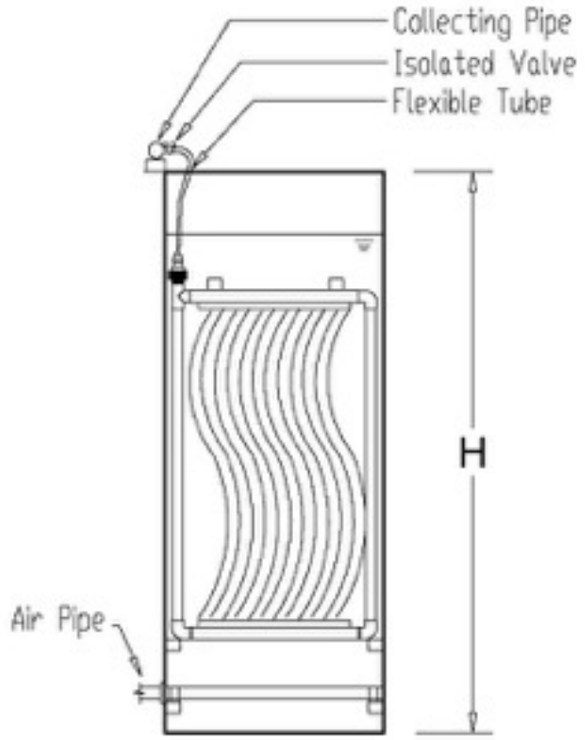
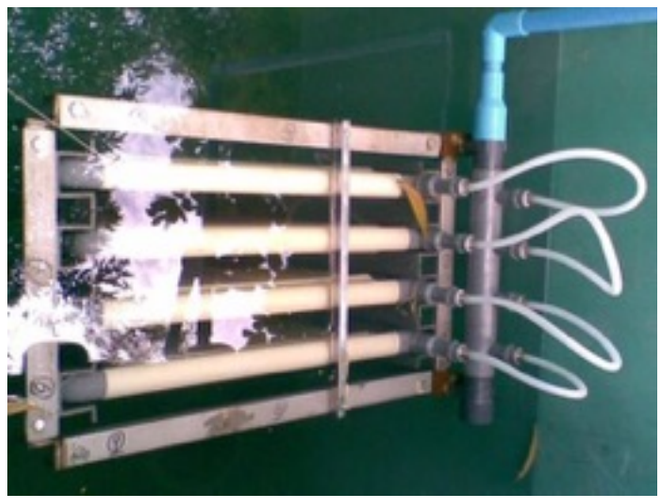
Membrane Operating system







Top View



Side View

OASIS

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Benefits of Immersed MBR technology

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Value of MBR technology over conventional processes

- Fewer process steps to achieve comparable effluent quality
- Eliminates sludge settle ability problem
- Small Footprint
- Modular expansion capability
- Reduced sludge yield
- High quality effluent
- Low effluent turbidity
- Excellent nutrient removal capability
- High rejection efficiency of organic constituents, solids
  and micro - Organism
- Uncompromised effluent in upset conditions

OASIS

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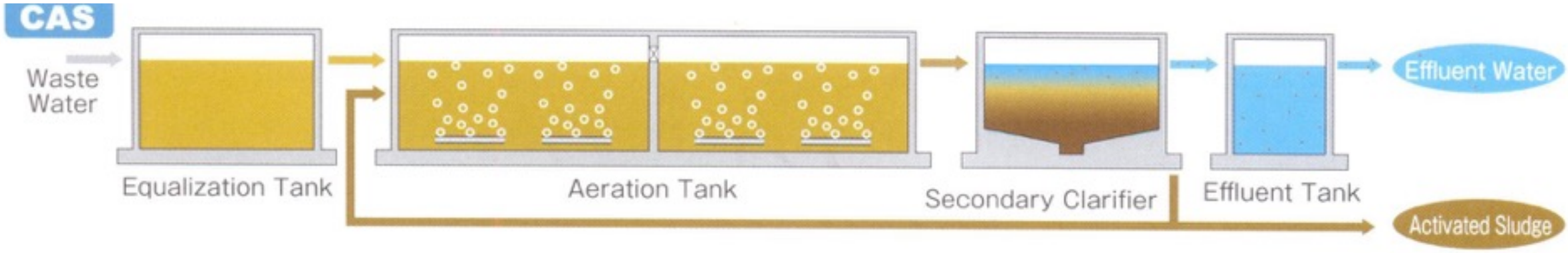
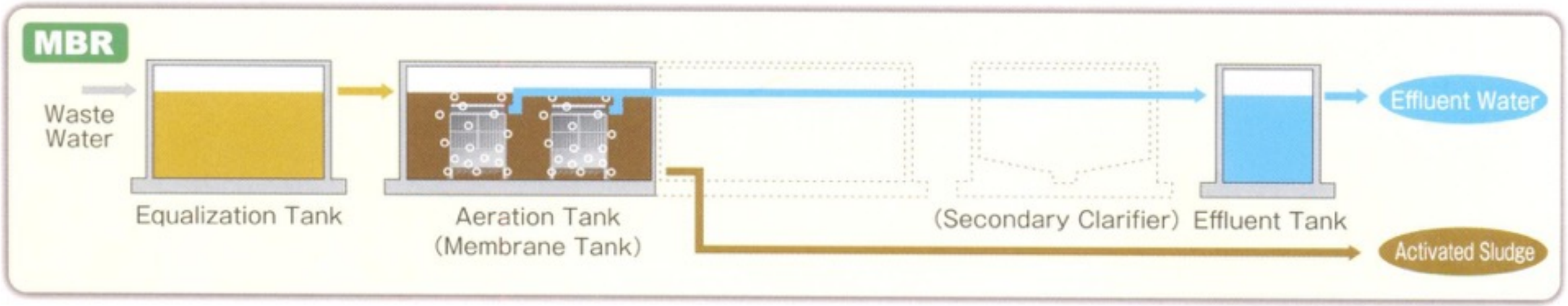
SYSTEM COMPARISION

Conventional Process.



Integrated Membrane Bioreactor.



PROUDASIA

Integrated Membrane Bioreactor Process

MLSS COMPARISION

Conventional

2000 – 4000 mg/l

Integrated Membrane Bioreactor

8000 – 16,000 mg/l

$$\frac{F}{M} = \frac{\text{BOD Loading}}{\text{MLSS x Aeration Vol.}}$$

BOD x daily flow

OASIS

PROUD ASIA

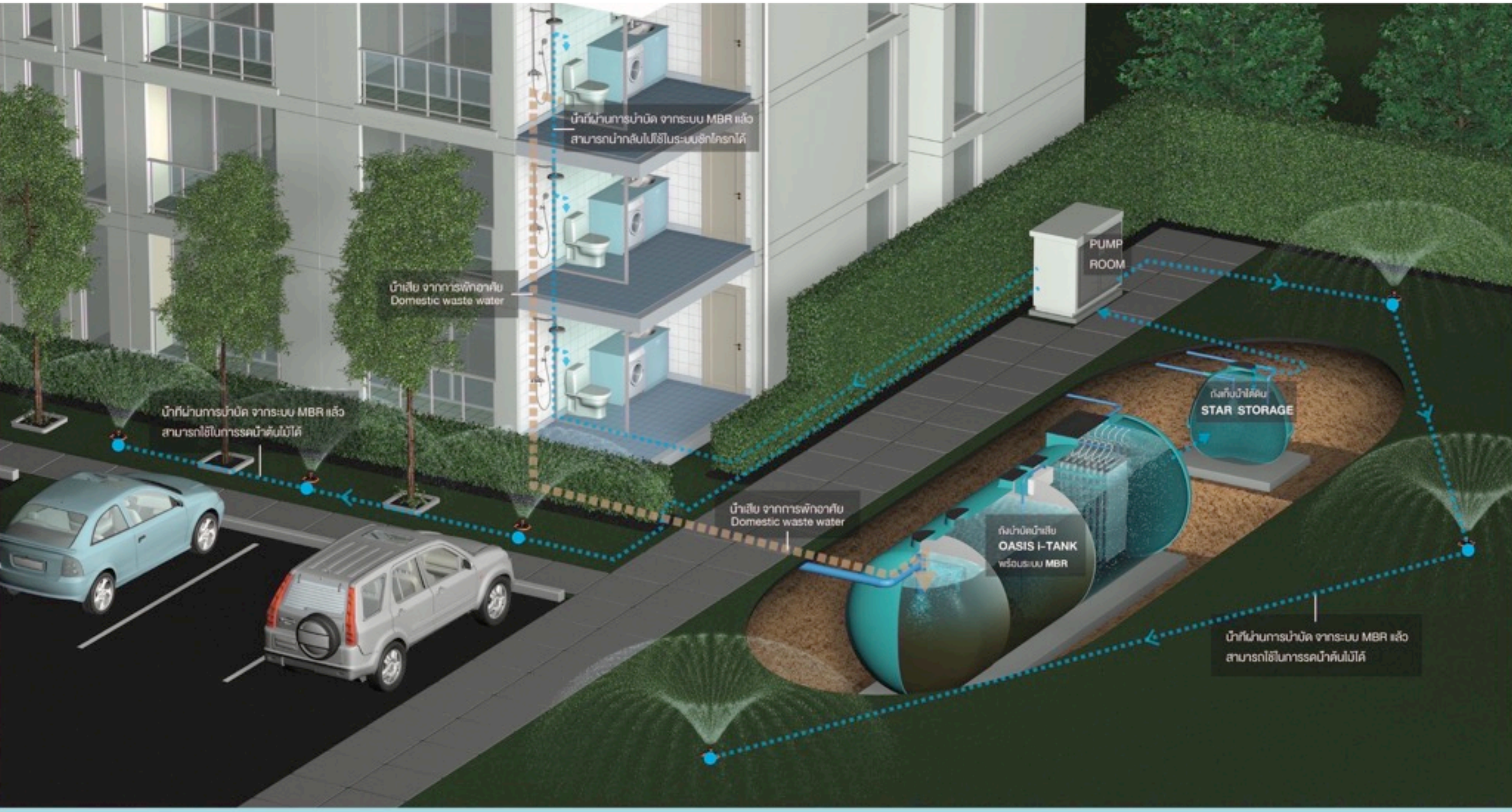
SIZE COMPARISION

Tank Volume	
Activated Sludge Process	
Conventional	25% MBR

MBR Usage

OASIS

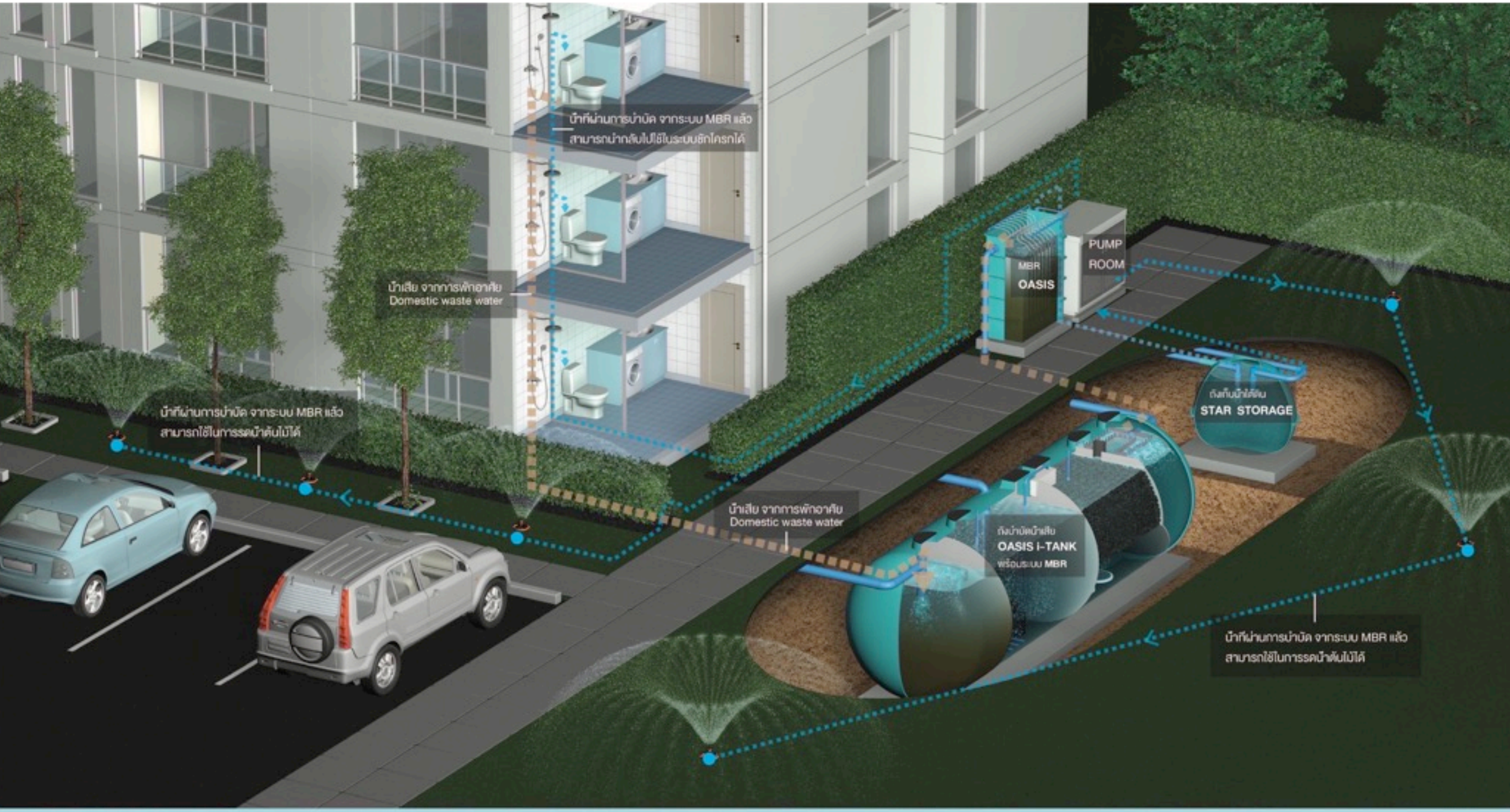
PROUD
ASIA



การใช้ประโยชน์จากน้ำที่ผ่านการ Recycle โดยระบบ MBR (Membrane Bio Reactor)

MBR membrane bioreactor system

OASIS



การใช้ประโยชน์จากน้ำที่ผ่านการ Recycle โดยระบบ MBR (Membrane Bio Reactor)

MBR membrane bioreactor system

OASIS

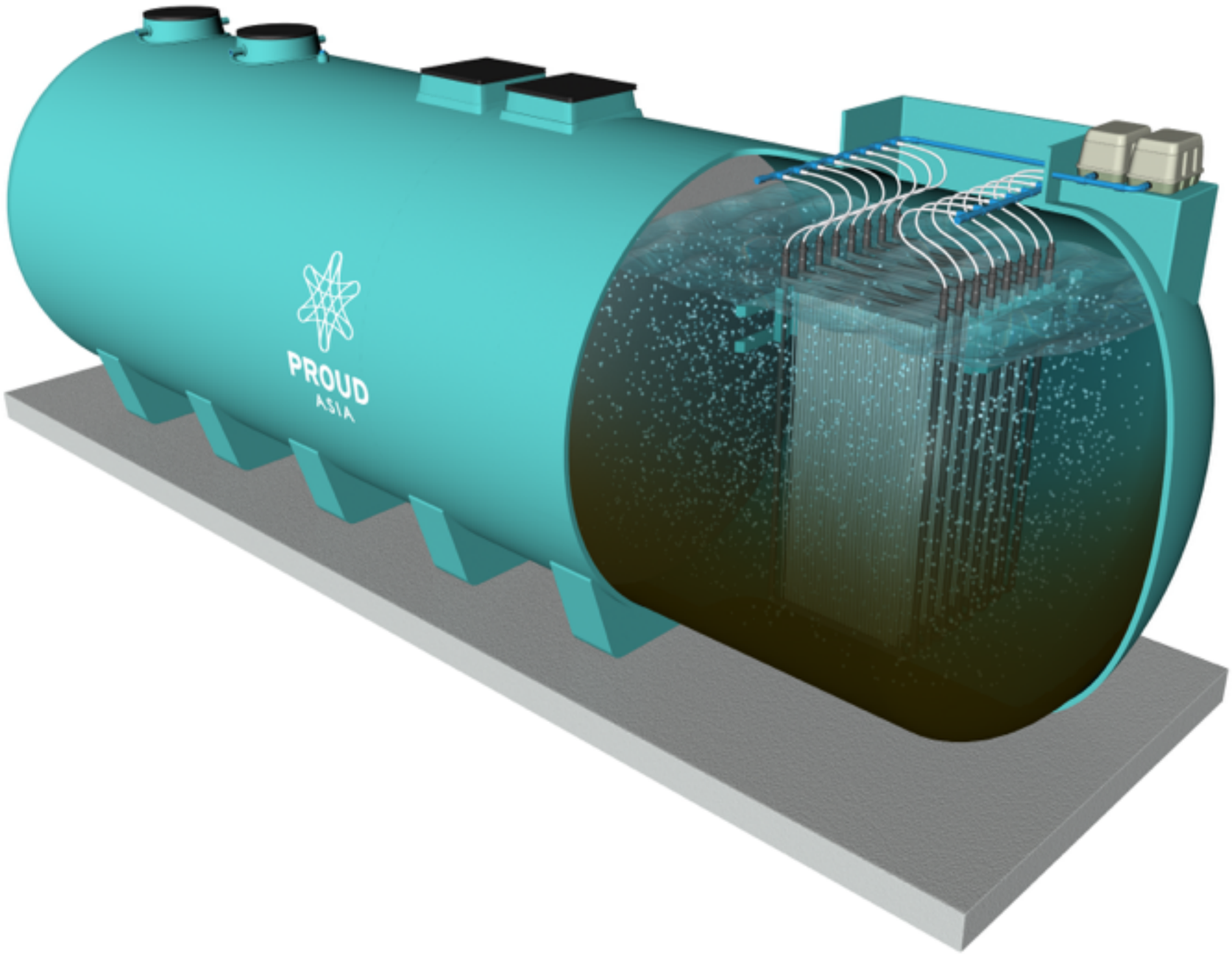
Water Recycling (MBR permeate)

- Toilet flushing
- Irrigation
- Floor washing
- Vehicle washing

https://youtu.be/5dF_YCgJC6o

OASIS

PROUD ASIA

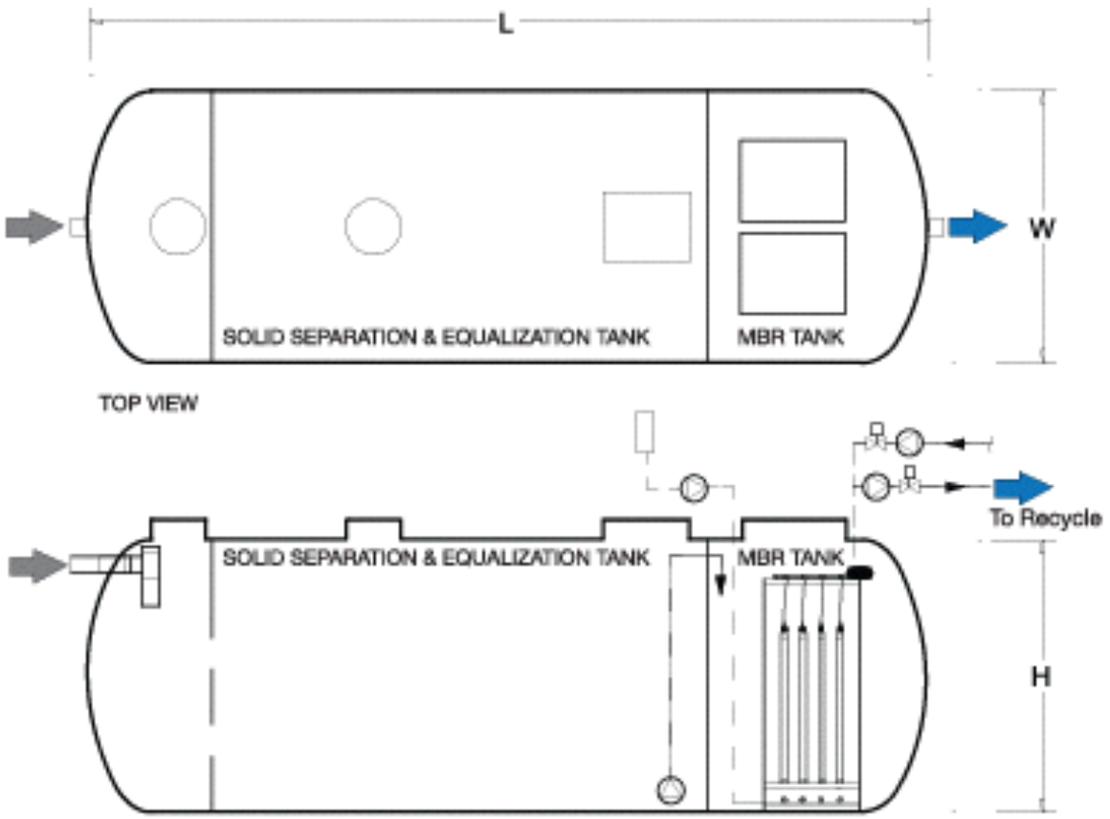


OASIS

PRODUCT :

OASIS - i tank

PROUD
ASIA



STAR - OASIS SPECIFICATION

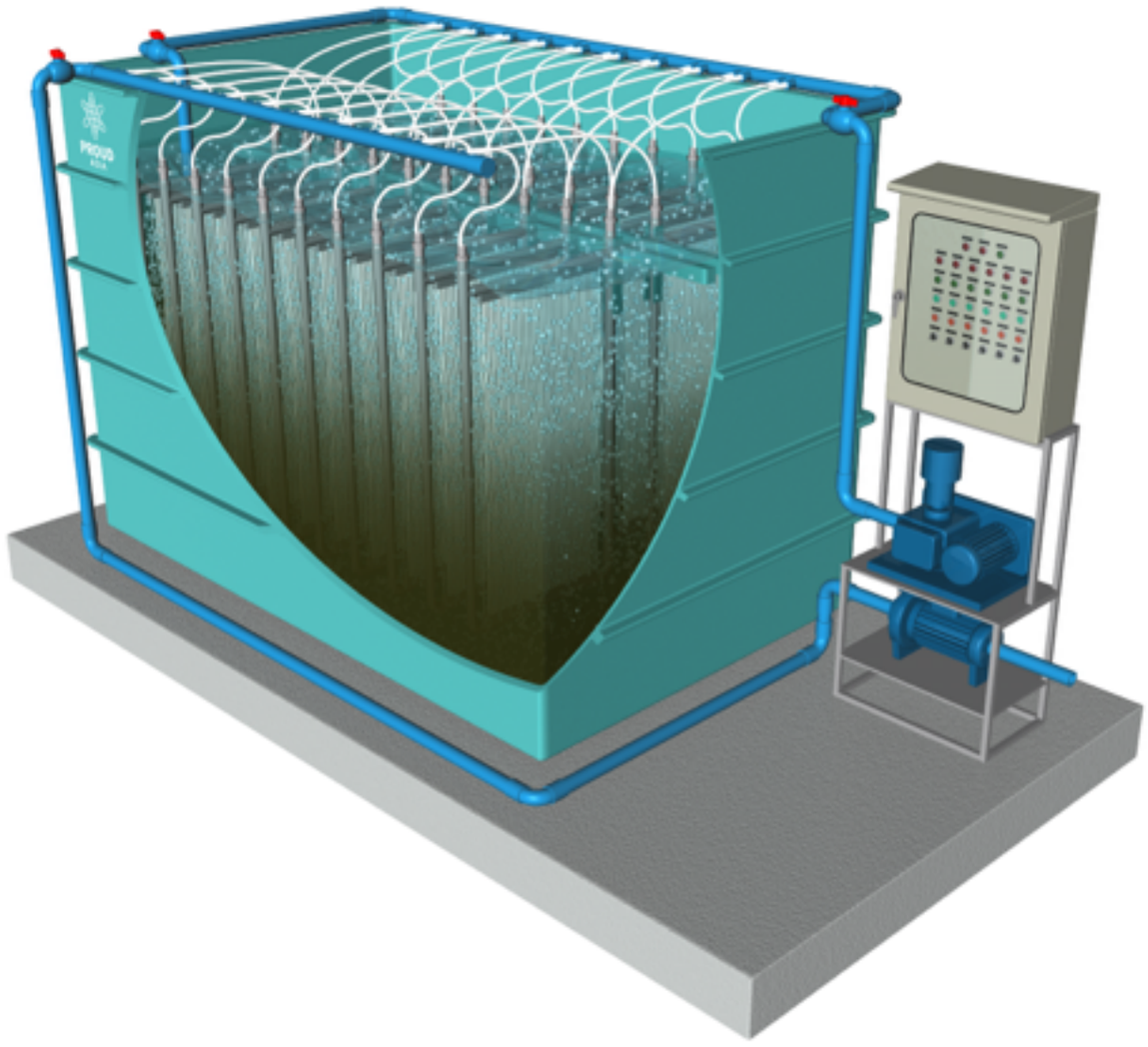
Model	Flow Rate (cmd.)	No. of Membrane Module	MBR Dimension Tank W (m.)	L (m.)	H (m.)
OASIS - 5 P	5	2	2.00	2.50	2.15
OASIS - 10 P	10	4	2.00	4.15	2.15
OASIS - 20 P	20	8	2.00	7.60	2.15
OASIS - 30 P	30	12	2.50	7.45	2.70
OASIS - 50 P	50	20	2.50	12.20	2.70

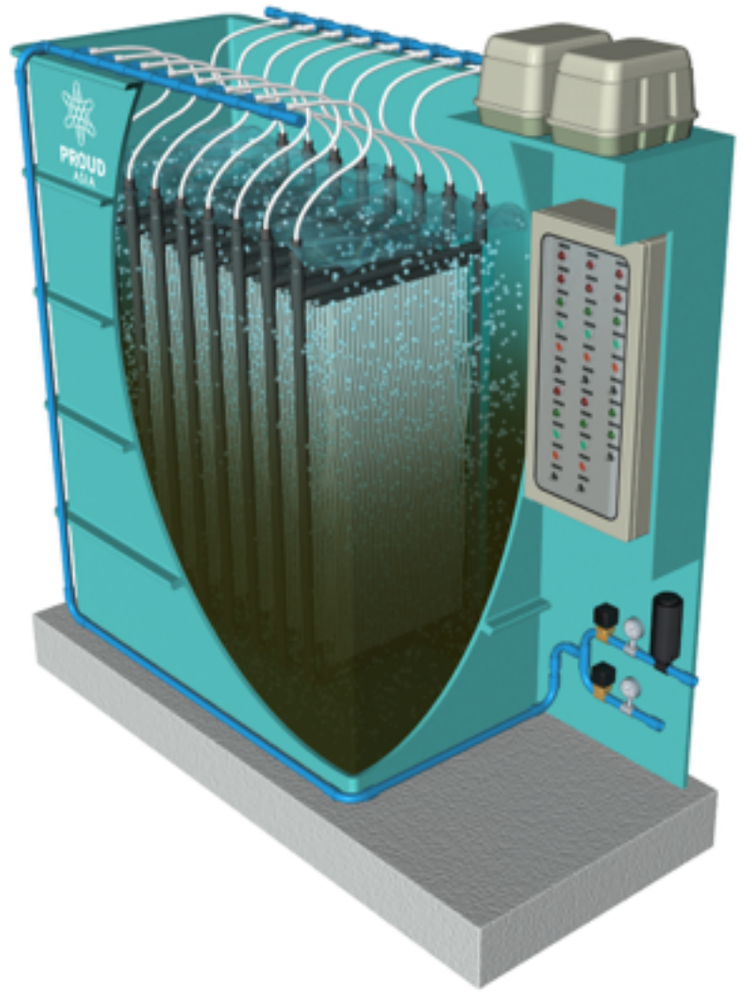
OASIS

PRODUCT :

OASIS - i tank

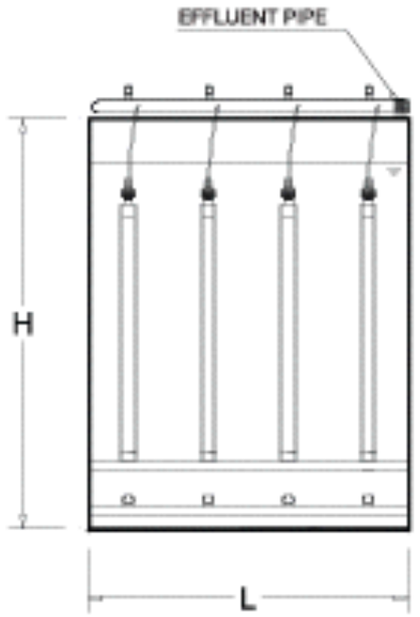
PROUD ASIA



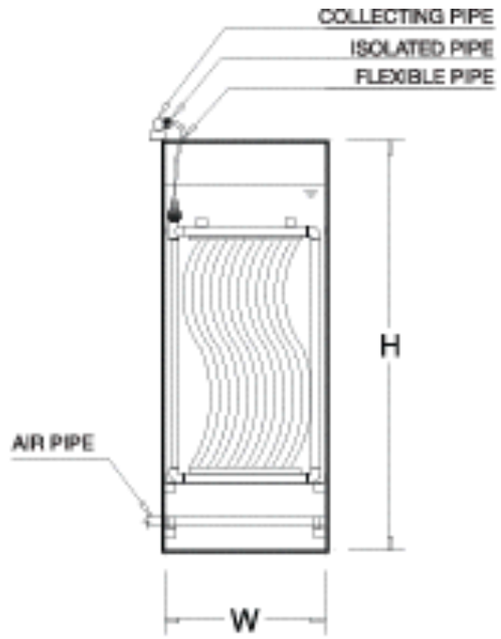


PRODUCT :

OASIS - Tank & c-Tank



Side View



Side View

STAR - OASIS SPECIFICATION

Model	Flow Rate (cmd.)	No. of Membrane Module	MBR Dimension Tank W (m.)	L (m.)	H (m.)
OASIS - 5	5	2	0.70	0.70	1.80
OASIS - 10	10	4	0.70	1.40	1.80
OASIS - 20	20	8	0.70	2.70	1.80
OASIS - 30	30	12	1.40	2.05	1.80
OASIS - 50	50	20	1.40	3.40	1.80

OASIS

PRODUCT :

OASIS - Tank & c-Tank

PROUD ASIA

Project Reference MBR OASIS

STAR" MBR Tank model OASIS-10 at PTT : Bang pa in Gasoline Station

PROUD ASIA Head Office

Effluent from MBR Tank

"STAR" MBR Tank model OASIS-150 at Samitivej Sriracha Hospital

OASIS

OASIS - Tank & c-Tank

PROUD ASIA

Project Reference MBR OASIS

Improve the quality of effluent from community to public drain Project

"STAR" MBR Tank 8 Site at Nontaburi, Saraburi, Patumthani, Pranakornsri Ayudhaya

The Office of Strategy Management : Upper Central Provincial Cluster 1 Thailand

OASIS

PROUD ASIA

Project Reference MBR OASIS

"STAR" MBR Tank 13 Site at HomePro & MegaHome Departmentstore

OASIS

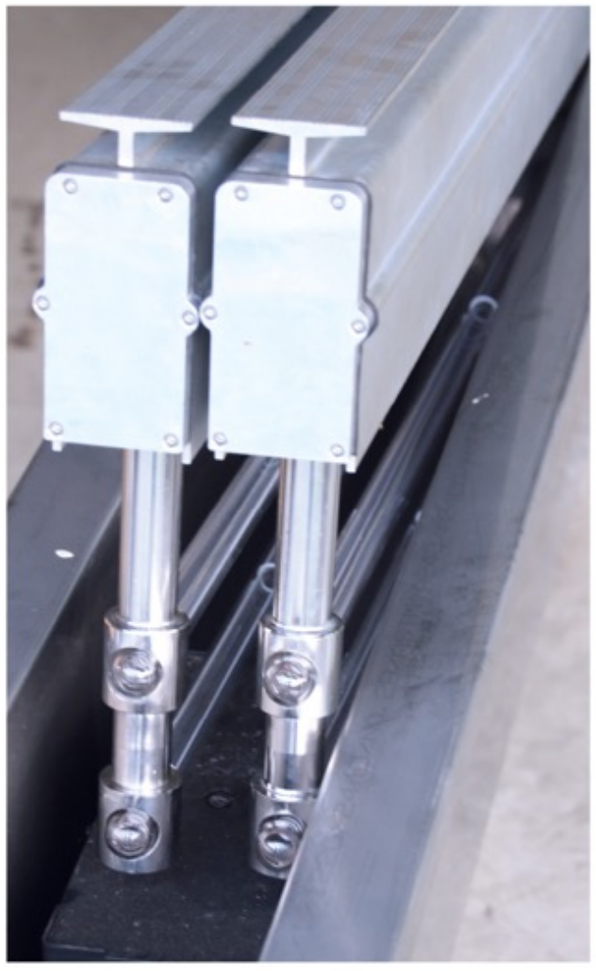
PROUD
ASIA

BLAZOR

UV Infection System

GETTING TO KNOW BLAZOR PACKAGE ULTRAVIOLET DISINFECTION SYSTEM

BLAZOR PACKAGE ULTRAVIOLET DISINFECTION SYSTEM IS DEVELOPED WITH THE LATEST TECHNOLOGIES, WHICH RESULTS IN A SIMPLE PRODUCT LINE TO INSTALL, SERVICE AND OPERATE, YET RELIABLE.



BLAZOR

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UV LAMPS

BLAZOR utilize various length of lamps to fit different site condition. Their UV output after one year is approximately 65% of the output after the 100 hour burn-in period. It should also be kept in mind that frequent cycling shortens the life of the lamps.

BLAZOR

PROUD
ASIA

PROUD

ASIA

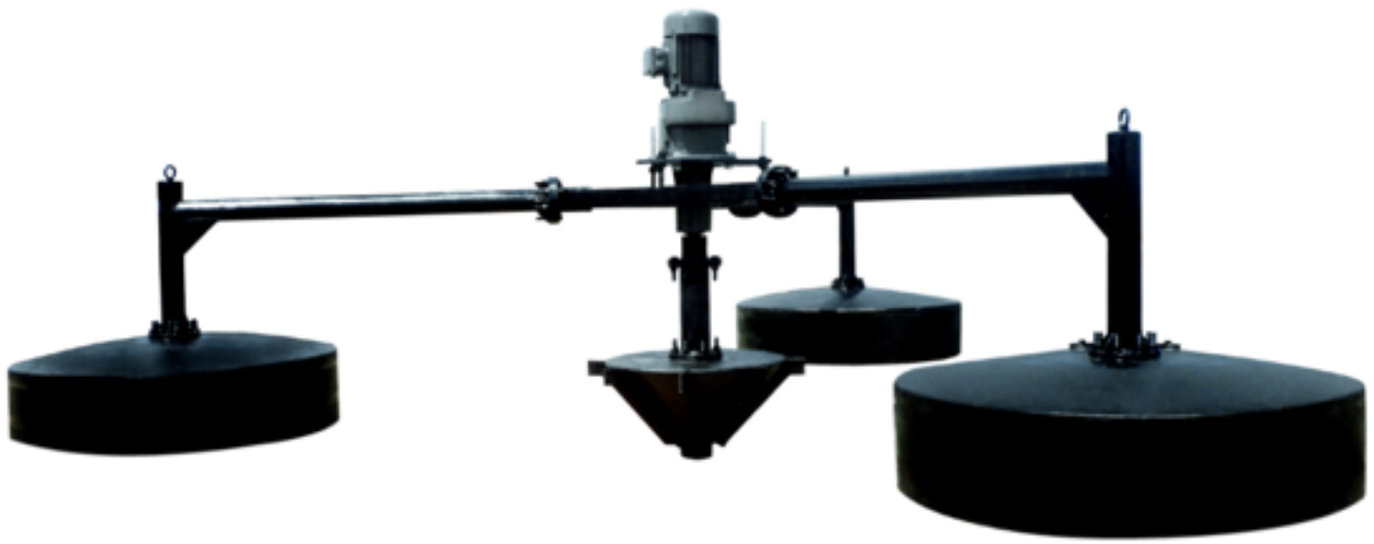
Accessories

Bacta-Pur®

BACTERIA

Accessories

PROUD
ASIA



Accessories

PROUD
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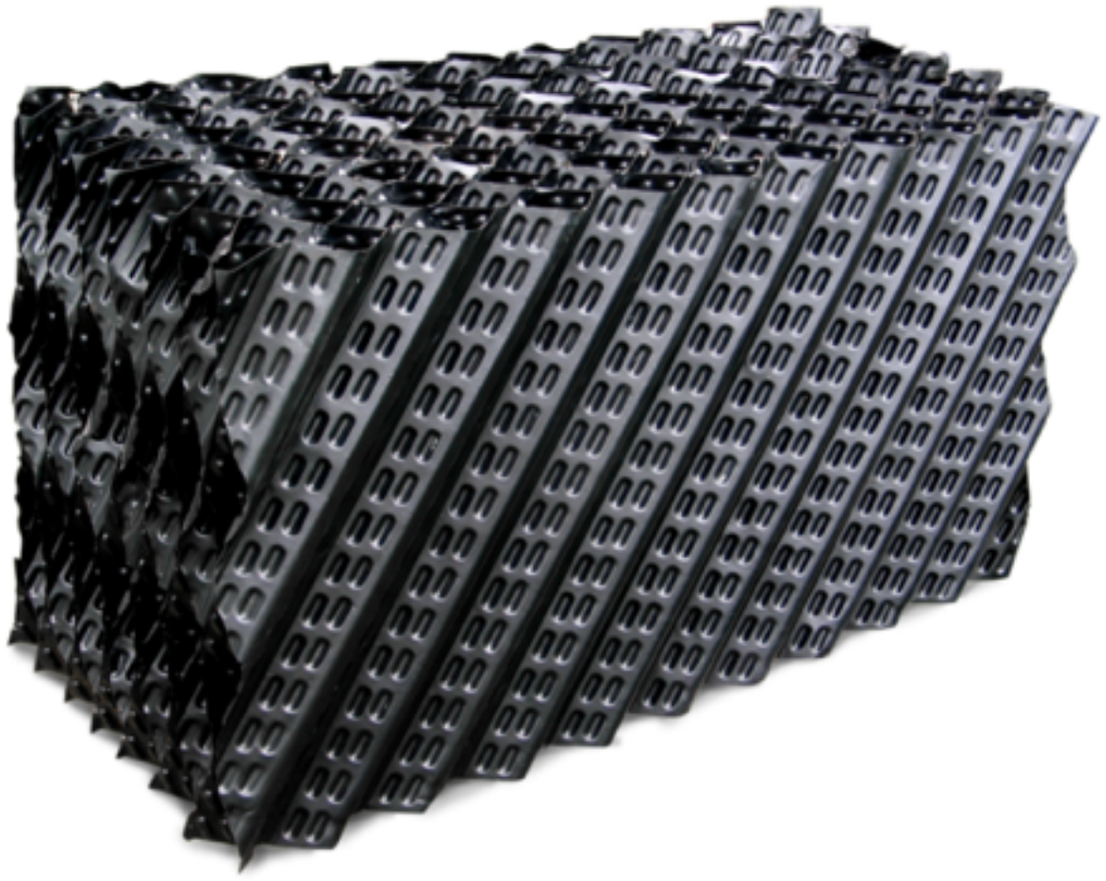
New Invention
“Octa Flora”



Accessories

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QUALITY CERTIFICATION

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Site Reference

Government.

Reference

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Campus and Cooperate.

Reference

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Commercial.

HomePro
Home is HomePro
www.homepro.co.th

Carrefour

TESCO Lotus

EGAT
Power for Thai Happiness

makro

dtac

Sheraton
Grand
HOTEL & SPA
EDINBURGH

Reference

PROUD
ASIA

contact

PROUD
ASIA

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Email. : proudasia@yahoo.com

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THANK YOU VERY MUCH !