

Installation and Maintenance of Grease Interceptors

Application Formalities for
License for Food and Beverage Establishments

Legal Basis for Installation of Grease Interceptors

In accordance with the stipulations of “Guidelines on Application for One-stop Licensing Service for Food and Beverage Establishments” of IAM, a food and beverage / beverage establishment is required to install a grease interceptor according to its **operation scale**.



Specifications of Grease Interceptors

The type of grease of interceptor is determined by the food sold:

- Type **A** (Cafés, ice cream parlours, tearooms)
- Type **B** (Congee and noodle shops, restaurants)

Specifications of Grease Interceptors for Beverage Establishments – Type A Grease Interceptor (Cafés, Ice Cream Parlours, Tearooms)

Category of grease interceptor	Number of seats (persons)	Minimum volume of grease interceptor ⁽¹⁾ (litre)	Measurement of grease interceptor (mm)				Height H _s (mm)	Diameter of inlet and outlet pipes d (mm)
			Length (L ₁ +L ₂)	Width W	Depth H _L ⁽²⁾	Total depth H _T		
1	Seats≤10	300	1000	600	600	900	300	100
2	10<Seats≤15	360	1200	600	600	900	300	100
3	15<Seats≤20	450	1500	600	600	900	300	100
4	20<Seats≤50	630	1500	700	700	1050	350	100
5	50<Seats≤80	950	1700	800	800	1200	400	100
6	80<Seats≤100	1000	1800	800	800	1200	400	100
7	100<Seats≤120	1440	2000	900	900	1350	450	100
8	120<Seats≤160	1730	2200	1050	900	1350	450	150

Specifications of Grease Interceptors for Food and Beverage Establishments – Type B Grease Interceptor (Congee and Noodle Shops, Restaurants, Tea Restaurants)

Category of grease interceptor	Number of seats (persons)	Minimum volume of grease interceptor ⁽¹⁾ (litre)	Measurement of grease interceptor (mm)				Height H _s (mm)	Diameter of inlet and outlet pipes d (mm)
			Length (L1+L2)	Width W	Depth H _L ⁽²⁾	Total depth H _T		
1	Seats≤10	360	1200	600	600	900	300	100
2	10<Seats≤15	450	1500	600	600	900	300	100
3	15<Seats≤30	630	1500	700	700	1050	350	100
4	30<Seats≤50	950	1700	800	800	1200	400	100
5	50<Seats≤100	1730	2200	1050	900	1350	450	150
6	100<Seats≤150	2730	2500	1150	1100	1650	550	150
7	150<Seats≤300	3150	2500	1200	1200	1800	600	150
8	300<Seats≤500	3500	2800	1250	1200	1800	600	200
9	500<Seats≤900	3900	3000	1300	1200	1800	600	200×2

Note: Volume of grease interceptor is calculated based on the water body in the grease interceptor only.

⁽¹⁾Minimum volume of grease interceptor = (L1+L2) × W × (H_L-d) ÷ 1,000,000

⁽²⁾H_L=H_T× 2 ÷ 3

Installation Methods of Grease Interceptors

Installation Method	Requirement	Condition
Underground	Installed under the ground	Installation of underground grease interceptor is preferred.
Surface	Installed on the ground	Installation of surface grease interceptor can only be adopted when information about structural or other reasons are provided.

Area of Installation of Grease Interceptor

- Location easy to be cleaned and inspected, within the area in the establishment
- Far from food preparation and storage areas

Important Notes on Installation

- The grease interceptor must be connected to the internal **sewerage system** of the building.
- Wastewater without grease, such as the condensed water of air-conditioners and wastewater of fish tanks, **should not** be discharged to the grease interceptor.
- Fixed facilities, such as **shelves, working counters, cabinets and refrigerators**, are not allowed to be installed above the grease interceptor.

Drawings and documents required to be submitted

- Drainage layout plan and drainage system drawing with a scale of 1:100
(A copy of the building's drainage system drawings issued by the Land, Public Works and Transport Bureau is required to be attached.)

*It is required to clearly show the direction of drainage flow and the condition of connection between the grease interceptor and the building's original sewerage system.

*Underground grease interceptors are required to indicate the information about inlet and outlet pipes (pipe diameters and elevation of invert level), the elevation of the (design) invert level of new or original sewage manhole of the building at the upstream and downstream of grease interceptors.

- Detailed drawings of grease interceptor: overhead view, layout plan and sectional drawing.

- Location drawing of grease interceptor

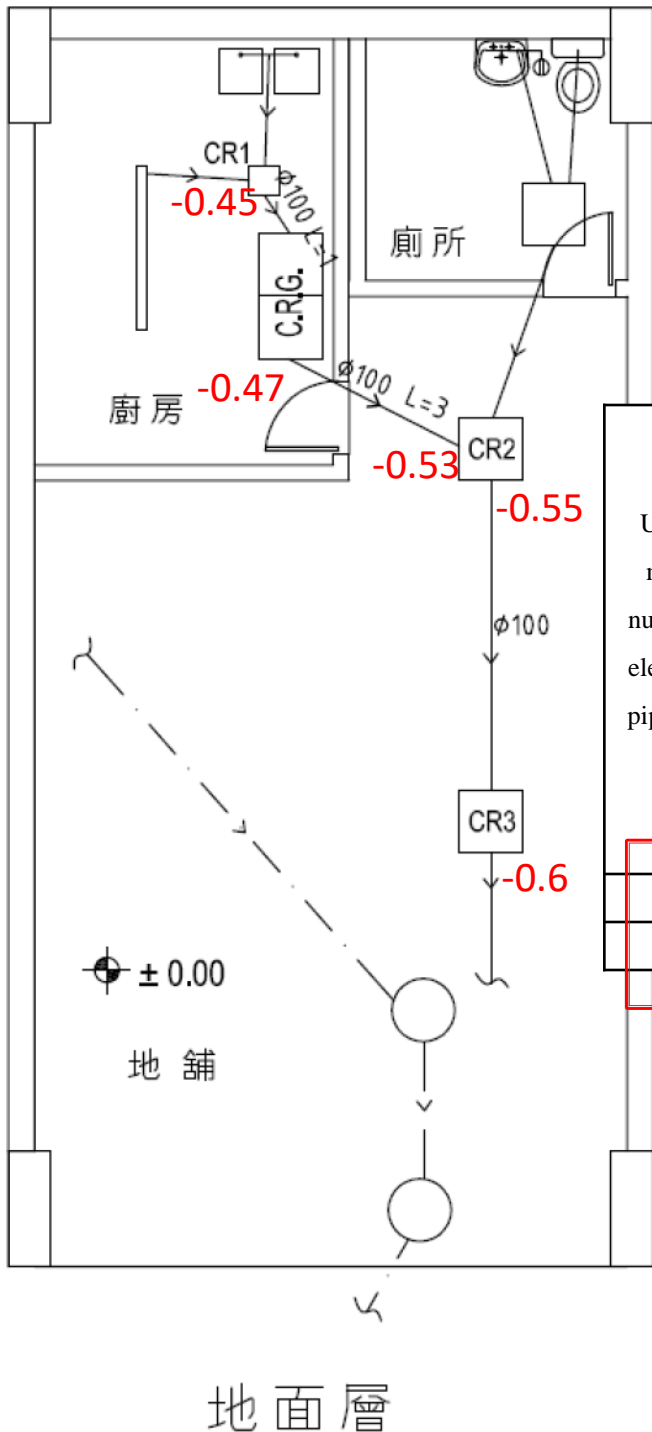
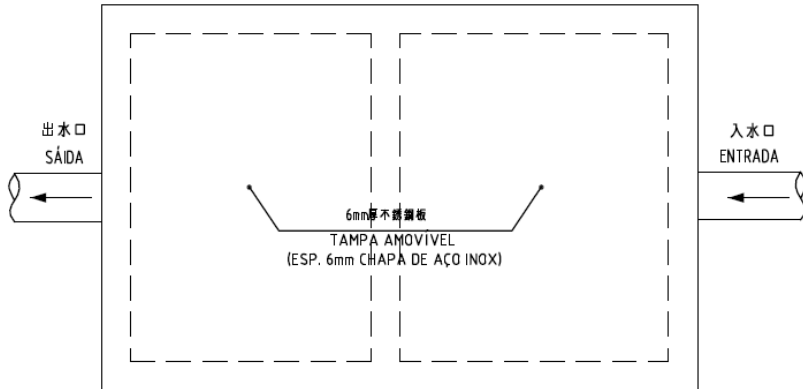


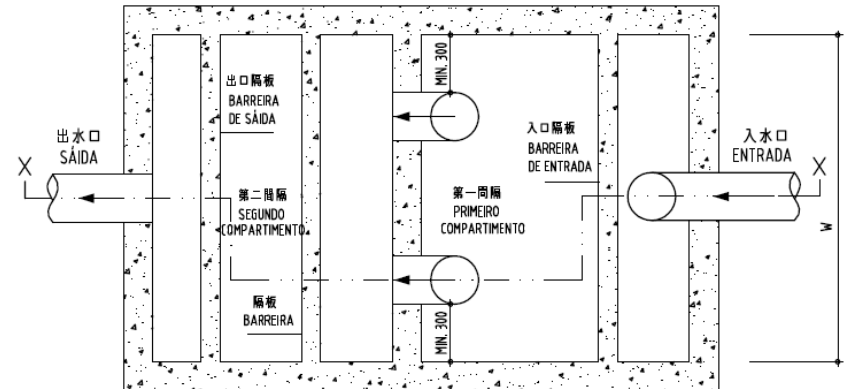
Table of Sewerage Network of Grease Interceptors

Upstream manhole number and elevation of pipe bottom (m)	Elevation of pipe bottom of discharge pipe of grease interceptor (m)	Downstream manhole number and elevation of pipe bottom (m)	Original sewage manhole number and elevation of pipe bottom (m)	Diameter (mm) and distance (m) of pipe section		Gradient of pipe section (%)	
				Upstream	Downstream	Upstream	Downstream
CR1	CRG	CR2	CR3	100	100	2%	2%
-0.45	-0.47	-0.53	-0.6	1	3		

Standard detailed drawing of grease interceptor



頂視圖 COBERTURA

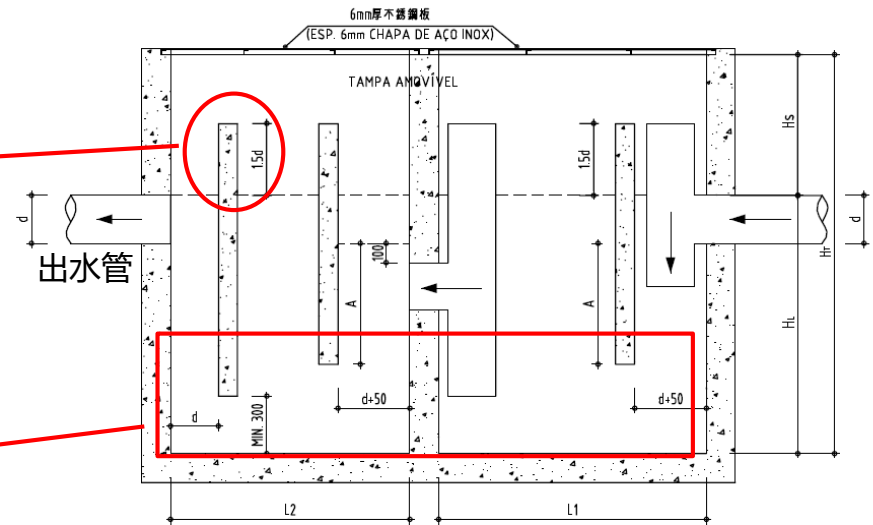


平面圖 PLANTA

Height is 1.5 times of the diameter of outlet pipe (counting from pipe top)

Different depths to the bottom of grease interceptor

(with reference to different detailed drawings of grease interceptors)



切面圖 CORTE X-X

Maintenance of Grease Interceptors



Regularly inspect the grease interceptors

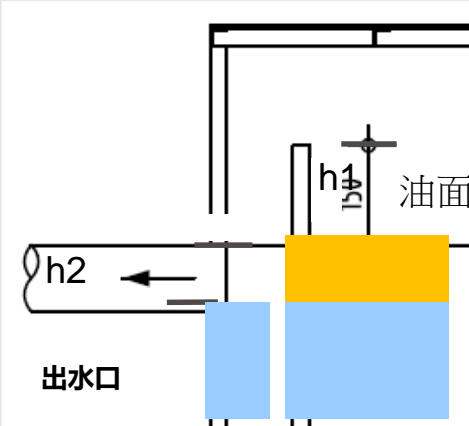
Suggest twice every week

Regularly remove grease in the grease interceptor

Maintain efficient operation to avoid pipes being clogged up

Clean up according to the operation condition

When the height between the grease accumulation in the outlet compartment and the top of the baffle is not higher than the diameter height of the outlet pipe ($h1 < h2$), clean-up is required. $h1$ can be 15cm.



Any destruction and damage found

Repair immediately

Be careful when handling the grease and waste during clean-up process

Avoid contamination of food and storage area

Grease interceptor in good operation



No grease in the outlet compartment and the grease interceptor in good operation



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Improper maintenance of grease interceptors

Improper use of grease interceptors causes discharge of grease and blockage of sewers.

- ✓ Due to poor cleaning, improper operation and operation failure of grease interceptors, grease and sewage are discharged into municipal sewers for extended periods. After the grease solidifies, it obstructs the operation of public sewers and blocks them, affecting environmental hygiene and leading to floods.



Blockage of public sewers due to improper cleaning of grease interceptors (*Rua do Rebanho*)



Grease Blocking Sewers

澳門力報 > 即時新聞 > 市政署清出4,200公斤油脂污物

連夜清理俾利喇下水道

市政署清出4,200公斤油脂污物

🕒 10/02/2021 👁 19349



Grease Blocking Sewers

IAM often finds grease substances that block the sewers when clearing the sewerage network. After investigation, the causes involve some food establishments which have not installed grease interceptors in compliance with the specifications or have not cleaned them up regularly. Due to the severe situation of illegal discharge of sewage, the drainage capacity of sewers are affected, aggravating floods. In view of this, **IAM focuses on stepping up inspection of illegal blackspots and food establishment with repeated offences.**



Through optimisation of the prosecution procedures, IAM initiates **prosecution** and **issues written record immediately** to food establishments which have not installed grease interceptors in compliance with the specifications or have not cleaned them up properly.

Offence	Prosecution Content	Penalty
Poor maintenance of facilities (Article 54 and Article 78)	<ul style="list-style-type: none"> ● Failure to maintain proper operation of grease interceptor ● Poor cleanliness of grease interceptor ● Destruction or damage of grease interceptor 	<ul style="list-style-type: none"> ● A fine of between MOP2,500.00 and MOP7,500.00 is imposed. <p>Note: If rectification is not made within the deadline, IAM will order temporary closure of the establishment until the offence is rectified.</p>
Illegal alteration (Article 19 and Article 70)	<ul style="list-style-type: none"> ● Illegal alteration of pipes of grease interceptor ● Stop using / not using grease interceptor 	<ul style="list-style-type: none"> ● A fine of between MOP7,500.00 and MOP15,000.00 is imposed. <p>Note: If rectification is not made within the deadline, IAM will order temporary closure of the establishment until the offence is rectified.</p>
Offences against environmental hygiene and cleanliness (Article 80)	<ul style="list-style-type: none"> ● Negative impacts and results in environmental hygiene and cleanliness of the establishment or the surrounding area due to poor maintenance and cleanliness of grease interceptors 	<ul style="list-style-type: none"> ● A fine of between MOP15,000.00 and MOP35,000.00 is imposed. <p>Note: Recidivism, posing risks to users or relevant individuals, or causing damage to the local tourism image is punishable by permanent closure of establishment.</p>




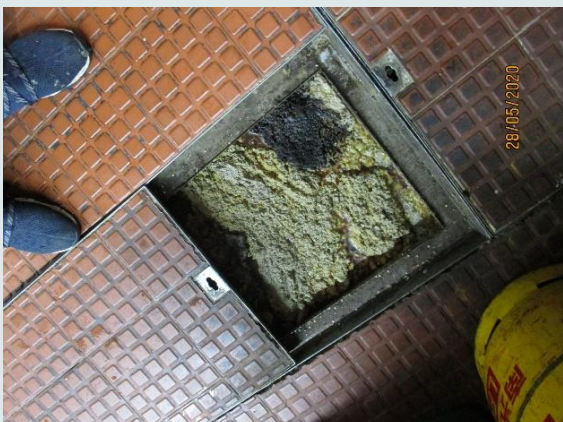
Statistics on Inspection of Grease Interceptors from 2020 to April 2021

Inspection Period	Number of Inspections	Notices Issued	Written Records Issued
Whole year 2020	917 establishments / times	235 cases	111 cases
January to April 2021	460 establishments / times	123 cases	81 cases
Total	1377 establishments/ times	358 cases	192 cases




- ✓ Prosecution for the offences will be initiated in accordance with the “**General Regulations Governing Public Places**” and **Decree-Law no. 16/96/M** if applicable. Offenders are punishable by a fine up to a maximum of **MOP35,000** and **closure of establishment** in severe cases.
- ✓ The penalty of **closure of establishment** was imposed on 1 establishment in 2020.
- ✓ The penalty of **closure of establishment** was imposed on 2 establishments in 2021 until now.



Poor Maintenance of Facilities – Failure to Maintain Proper Operation of Grease Interceptors

Condition of Grease Interceptor Found during Inspection	Issue	Processing Procedure
 <p>Water level reaches the top.</p>	<ul style="list-style-type: none"> ●No grease separation function ●Direct discharge of grease into sewers ●Possible blockage of sewers 	<p>Issue written record immediately</p> <p>↓</p> <p>Clean up and make improvement as soon as possible</p> <p>↓</p> <p>Arrange re-inspection</p>
 <p>Outlet compartment is filled with grease and water level reaches the top.</p>		
 <p>Grease has hardened.</p>		
 <p>Grease reaches the top.</p>		

Poor Maintenance of Facilities – Poor Cleanliness of Grease Interceptors

Condition of Grease Interceptor Found during Inspection		Issue	Processing Procedure
		The grease interceptor lacks cleaning and grease has been discharged to sewers.	<p>Issue written record immediately</p> <p>↓</p> <p>Clean-up and make improvement as soon as possible</p> <p>↓</p> <p>Arrange re-inspection</p>
Grease flowing from water outlet	Grease flowing from water outlet		
		Poor clean-up	<p>Issue notice</p> <p>↓</p> <p>Strengthen clean-up</p>
A small amount of grease at water outlet			



Poor Maintenance of Facilities – Destruction and Damage of Grease Interceptors

Condition of Grease Interceptor Found during Inspection		Issue	Processing Procedure
		Damage of grease interceptors affects the grease separation performance, leading to the discharge of grease into the sewers.	<p>Issue written record immediately</p> <p>↓</p> <p>Clean up as soon as possible</p> <p>↓</p> <p>Make improvement within deadline</p> <p>↓</p> <p>Arrange re-inspection</p>
Loose H pipe	Lacking outlet baffle		
			
Loose baffle	No baffle		

Illegal Alteration

Condition of Grease Interceptor Found during Inspection		Issue	Processing Procedure
		<p>Grease and sewage</p> <ul style="list-style-type: none">● Not discharged into grease interceptor● Unknown flow direction● Direct discharge into drainage of building	<p>Issue written record immediately</p> <p>↓</p> <p>Make improvement within deadline</p> <p>↓</p> <p>Arrange re-inspection</p>
Release water to sinks	Sewage does not enter the grease interceptor and it does not show any traces of use.		
			
Test water and wastewater do not enter the grease interceptor and it does not show any traces of use.	Grease and sewage are found to be discharged into illegal outlet drain in pump sump.		




Illegal Alteration

Condition of Grease Interceptor Found during Inspection	Issue	Processing Procedure
 <p>A photograph showing the interior of a grease interceptor. A red circle highlights the outlet compartment, which is the lower section where grease and sewage are discharged. The date stamp '30/04/2021' is visible in the bottom right corner.</p>	<ul style="list-style-type: none">● Unauthorised addition of sink, and grease and sewage are discharged into the outlet compartment of grease interceptor● Grease and sewage of sinks are required to be discharged to the inlet compartment through pipes.	<p>Issue written record immediately</p> <p>↓</p> <p>Make improvement within deadline</p> <p>↓</p> <p>Arrange re-inspection</p>
 <p>A photograph of a kitchen floor with orange tiles. A red circle highlights a drainage pipe opening where a sink has been removed. A yellow container is visible on the floor. The date stamp '17/05/2021 21:18' is visible in the bottom right corner.</p>	<ul style="list-style-type: none">● Illegal removal of drainage pipes● Grease and sewage are discharged to the outlet compartment of grease interceptor from the floor.	<p>Issue written record immediately</p> <p>↓</p> <p>Make improvement within deadline</p> <p>↓</p> <p>Arrange re-inspection</p>

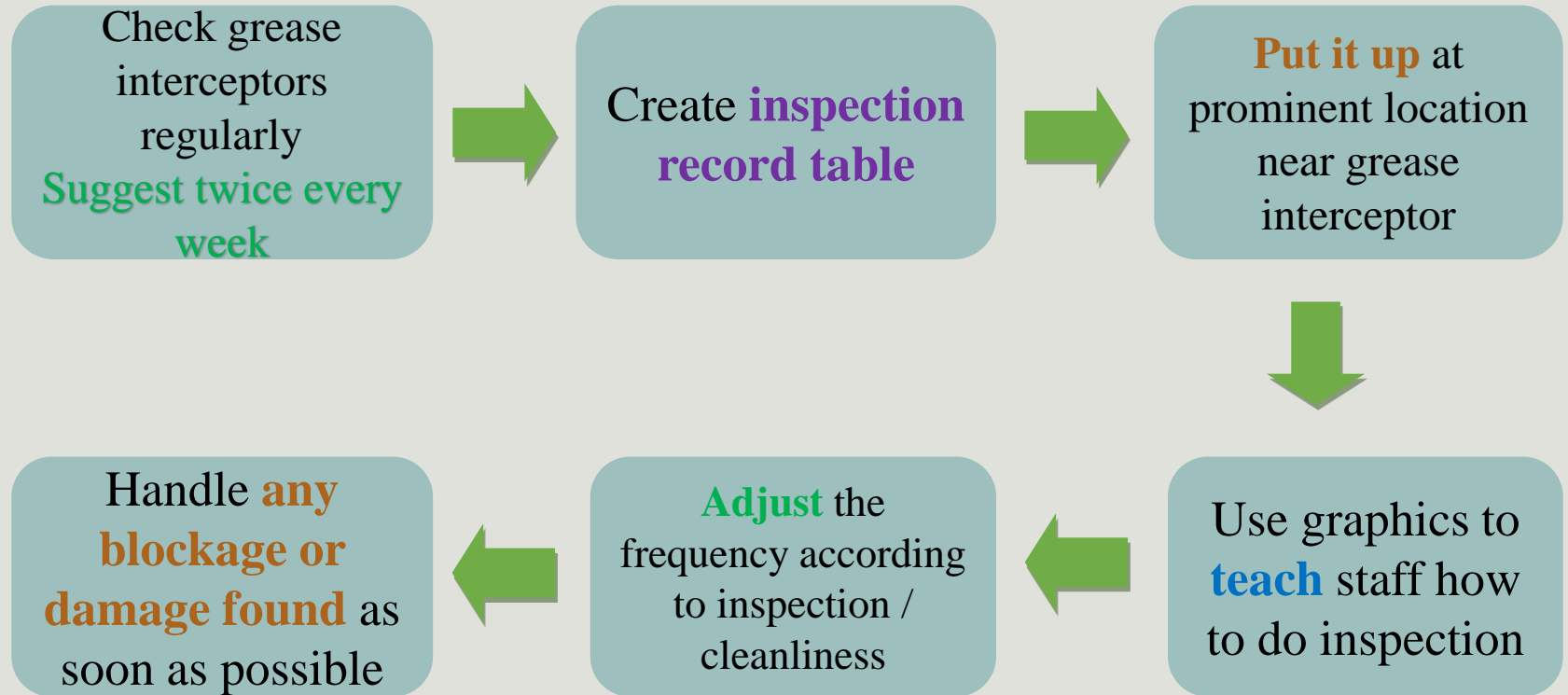
Sharing of Improved Cases

Case	First Inspection	Re-inspection
1		
2		

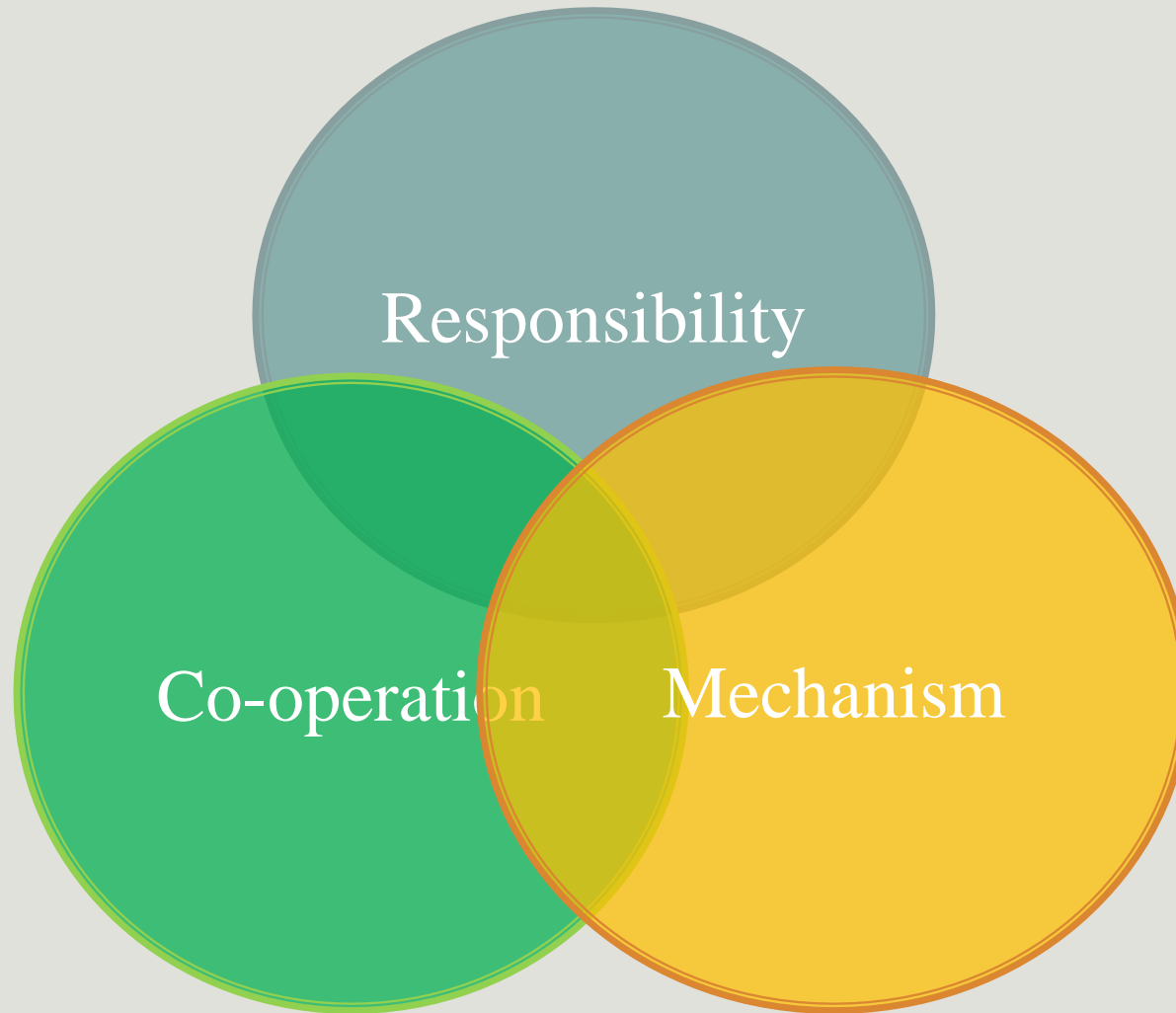
Sharing of Improved Cases

Case	First Inspection	Re-inspection
3	 <p>Illegal alteration – illegal water outlet of pump sump</p>	 <p>Illegal water outlet has been sealed.</p>
	 <p>Changed to temporary soft pipe that does not meet the specifications</p>	 <p>Changed to hard pipe</p>

Advice on Maintenance of Grease Interceptors



Elements of Joint Maintenance of Drainage Network



THANK YOU!