



# GUIDELINES FOR THE INSTALLATION AND MAINTENANCE OF GREASE ARRESTORS

AND OTHER FOOD WASTE PRE-TREATMENT FACILITIES

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## INTRODUCTION

The following policy provides information on treatment, disposal, maintenance and installation associated with the management of trade wastewater. Your cooperation by adopting the policy provided will not only be profitable for you but will assist Hunter Water and other authorities in their efforts to help provide a clean pleasant environment.

Many liquid wastes generated as a by-product of trade industries contain products which can have detrimental effects within the house drains and the Corporation's sewerage system. These liquid wastes are defined as Prohibited Substances (trade wastewater).

Trade Wastewater is defined as "the liquid wastewater generated from any industry, business, or manufacturing process. It does not include domestic wastewater."

**An application for an agreement to discharge trade wastewater must be lodged with the Corporation and approval granted, prior to the installation of any trade wastewater facility or the discharge of trade wastewater into the Corporation's sewer.**

All treatment facilities accumulate residual wastes, both solid and liquid which must be regularly cleaned out and disposed of in an approved manner. The disposal of residual wastes such as greases, oils and sludges must be carried out in accordance with local council requirements.

The Trade Wastewater facilities, if properly maintained, will help to protect our workers, the sewerage system and the environment.

The information in this book is to be treated as a policy on grease wastewater. Further policy details can be found in the Hunter Water Trade Wastewater Policy. This document can be accessed from Hunter Water's website [www.hunterwater.com.au](http://www.hunterwater.com.au)

### **ILLEGAL DISCHARGE**

Section 31(1) of the Hunter Water Act 1991 makes reference to the discharge of substances to works owned by the Corporation without the written agreement of the Corporation.

**Maximum Penalty: \$10 000 (or \$20 000 in the case of a corporation).**

**The minimum size for any grease arrestor within the Corporation's area of operation is 1000 litres. However, under special circumstances, subject to the Corporation's authorisation, the above minimum capacity of 1000 litres may be reduced, eg, such as small coffee shops and other premises where minimal preparation of foods is carried out, may be allowed a reduction in their grease trap capacity.**

Filter Systems of an approved type are also acceptable for selected sites as nominated. A grease arrestor (filter or conventional trap) with a capacity of less than 500 litres will not be approved to be used with a dishwasher. Hunter Water Corporation may consider alternative technology as the applicant may propose.

## **TRADE WASTEWATER APPLICATIONS**

Before installation of any trade wastewater facilities, written application to do so must be made on a prescribed form and lodged with **the Trade Waste Group**.

Once the application is received and installation of the facility is inspected and meets the Corporation's requirements, an agreement is granted to the approved Applicant. The agreement will cover approval of any pre-treatment required, Corporation's charges if appropriate, discharge standards for wastewater quantity and quality and maintenance requirements.

### **There are two types of applications:**

- The **Major Agreement** is where the Corporation considers the proposed discharge to be significant, usually because of the nature or the quantity of the wastewater.
- The **Minor Agreement** is suitable for the majority of trade wastewater dischargers.

### **Criteria for Major Agreements**

A trade wastewater discharger will be issued with a Major Agreement if it complies with and meets one or more of the following criteria:

- The average concentration of BOD or NFR discharged to sewer is greater than 350 mg/L and the volume is greater than 500 kL/annum, or the average BOD or NFR concentration discharged to sewer is greater than 500 mg/L.
- The discharger cannot meet the acceptance standards for discharge to sewer contained in this document.
- A business which discharges, or is likely to discharge, heavy metals into the Corporation's sewerage system with a concentration greater than that which is normally associated with domestic sewage.
- A premises with 4 or more businesses which would be issued with separate trade wastewater agreements if they were "stand alone" businesses.
- A discharger who discharges, or is likely to discharge, any substance which, due to its concentration or quantity, is considered by the Corporation to represent a significant risk to the Corporation's operations and/or works.

## **INSTALLATION REQUIREMENTS FOR GREASE ARRESTORS**

- A trade wastewater pre-treatment facility must be installed in accordance with the relevant “Plumbing Codes AS 3500”.
- The plumbing and drainage work is to be carried out by a licensed plumber and in accordance with the relevant Codes of Practice and manufacturers guidelines.
- If the discharge from the premises does not meet the Corporation’s acceptance standards for discharge to sewer, then an approved alternative system will be required.

## **RETAIL FOOD BUSINESSES WHERE A GREASE TRAP IS NOT NEEDED**

The businesses listed below may not need a grease trap. However, all grease trap requirements should be made in consultation with your Trade Waste Officer.

- Canteen (no food prepared, employees bring own meals)
- Chocolate shop
- Coffee shop/sandwich shop without dishwasher and food
- Delicatessen (no hot food cooked and served, no meat cooked)
- Fish shop/seafood (fresh, no cooking on site) floor wastes (basket traps)
- Fruit and vegetable market (no on site preparation)
- Fruit salad bar
- Ice cream parlour
- Juice bar
- Mixed business
- Oyster processing depuration
- Nut shop
- Pet shops (retail)
- School canteen (no cooking, pie warmer may be used)

### **Requirements**

Although a grease trap may not be necessary, a dry basket arrestor is needed if floor wastes are in food preparation and handling areas. Trade wastewater must pass through the dry basket arrestor.

The garbage bin cleaning area should be roofed to exclude rainwater.

## **CHEMICAL AND/OR BACTERIAL ADDITIVES**

With regards to bacterial additives, they are highly sensitive to changes in their environment. They only operate in a narrow band of temperature and pH. If detergents or hot water are flushed into the grease trap this is enough to kill the colony of bacteria.

Use of biological additives in grease traps may be allowed on individual application, provided that each additive meets the following criteria:

- The company marketing the product has a letter from Hunter Water stating that Hunter Water has no objection to the use of the additive in grease traps.
- Use of the additive must not significantly reduce the buoyancy of the greasy layer in a grease trap and must not, in any way, increase the risk of the grease being discharged to sewer.
- The wastewater pumped from any grease trap, which contains the produce, must be acceptable for treatment and disposal at grease trap wastewater disposal depots.
- The use of the product in a grease trap must not increase the concentration of odours, especially sulphide, or other sulphur containing compounds in the sewerage.
- The product must not cause any adverse conditions or events, which might interfere with or cause reduced performance of the sewage transport and treatment systems.
- The additive and by-products resulting from its use must be demonstrated to cause no hazard for sewer maintenance staff working downstream from the grease trap, or to any contractor who pumps out, or otherwise maintains the grease trap.
- A suitable Management Plan is developed and implemented for these substances.

## **BOUNDARY TRAP AND INSPECTION SHAFT REQUIREMENTS FOR TRADE WASTEWATER SITES**

All new commercial properties with new trade wastewater facilities require a boundary trap.

**GENERAL PRE-TREATMENT REQUIREMENTS FOR TRADE  
WASTEWATER GENERATORS**

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Abattoir</b>	high BOD, grease, solids, high NFR, sulphides	Screening, settling, aeration, lagooning, DAF unit or On Site Biological Treatment Plant	Pump-out by contractor.
<b>Bakery</b>	high BOD, high NFR	Grease arrestors (min. 1000 litres) or approved alternative system or Solids Settlement Pit, removable baskets in floor wastes	Solids waste land fill. Grease arrestor pumped-out by wastewater contractor.
<b>Bistro Hot food preparation and/or serving.</b>	grease and oil	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Boarding Houses Twenty or more people. Food preparation and/or serving.</b>	grease	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Butcher (retail)</b>	grease and solids	Grease arrestor (min 300 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Butcher (wholesale)</b>	grease and solids	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Cafeteria (with hot food preparation and/or serving)</b>	grease and solids	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Caterer Hot Food preparation and/or serving</b>	grease	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Canteen Hot food preparation and/or serving</b>	grease	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Community Halls (with hot food preparation and/or serving)</b>	grease	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Coffee Shops (with hot food preparation and/or serving)</b>	grease	Grease arrestor (min 500 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Dairy</b>	high BOD	DAF unit or On Site Biological Treatment Plant	Pump-out by wastewater contractor. floculant dry:- land fill, floculant wet: - goes to WRAPS*

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Garbage Bin Washing Area</b>	solid matter	Where ever possible connect to existing grease arrestor. May allow connection to sewer with silt trap and removable basket. Area bunded and roofed. Hinged lid acceptable.	Sump cleaned on a weekly basis and solids to landfill
<b>Guest Houses Twenty or more people Food preparation and/or serving</b>	grease	Grease arrestor (min 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Hot Bread and Pastry Shops</b>	grease and solids	Grease arrestors (min 1000 litres) or approved alternative system removable baskets in floor wastes	Grease arrestor pumped-out by wastewater contractor.
<b>Hospital Kitchen</b>	grease and oil, high temperatures	Grease arrestor capacity to cool hot water discharge to less than 38°C Size to be determined.	Pump-out by wastewater contractor.
<b>Hotel (with counter lunches or restaurant)</b>	grease	Grease arrestor; See restaurants.	Pump-out by wastewater contractor.
<b>Ice Cream Parlour</b>	Grease	No pretreatment (pre-wipe utensils with paper towels prior to washing)	

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Ice Cream Outlet (Hot food preparation and/or serving)</b>	grease	Grease arrestor (min 500L) or approved alternative system	Pump-out by wastewater contractor.
<b>Markets (Fruit and Vegetable)</b>	solid food scraps etc.	Removable baskets in floor wastes and solid settlement pits (min 1000 litres)	Pump-out by wastewater contractor.
<b>Motel (with restaurant smorgasboard)</b>	grease	Grease arrestor; (min capacity 1000 litres) or approved alternative system	Pump-out by wastewater contractor.
<b>Oil Refinery Including Margarine Manufacturing Oil recovery</b>	high BOD, low or high pH, solids, oils and grease	DAF unit or On Site pH Correction Oil separator	Pump-out by wastewater contractor.
<b>Pastry Cook</b>	grease and flour products	Flat bottom grease arrestor, solids removable baskets for in floor wastes. (Minimum 1000 litres or approved alternative system)	Grease arrestor pumped-out by wastewater contractor.

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Pies (Prepared on site)</b>	grease and pastry products	Grease arrestor (min 1000 litres) or approved alternative system, removable baskets in floor wastes.	Solids to land fill and grease arrestor pumped-out by trade wastewater carrier
<b>Potato Peeling (wholesale and commercial) Vegetable</b>	starch and peelings etc. NFR pH	Facility pumped out by Wastewater Contractor. Holding tanks. pH correction and Solid Settlement	Solids to land fill
<b>Poultry wholesale</b>	High BOD, high NFR, sulphates TOG COD	DAF unit or On Site Biological Treatment Plant pH Correction	Pump-out by trade wastewater carrier
<b>Restaurants with fast food outlets or smorgasbord</b>	grease and solid food scraps	Grease arrestor; allow 15 litres per dining room seat plus 250 litres per dishwasher (min capacity 1500 litres) or approved alternative system	Pump-out by wastewater contractor and solids to landfill
<b>Restaurants General</b>	grease and solid food scraps	Grease arrestor; allow 7.5 litres per dining room seat plus 250 litres per dishwasher (min capacity 1500 litres) or approved alternative system	Pump-out by wastewater contractor and solids to landfill

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Sandwich Bar (with hot food preparation and/or serving)</b>	grease	Grease arrestor (size to be determined by HWC) or approved alternative system	Pump-out by wastewater contractor.
<b>Sea Foods (Retail)</b>	solid food scraps organic solids high BOD solids odours	Dry arrestor pits for oysters, basket traps for fish,	Pump out by wastewater contractor.  Solids to land fill
<b>School: Home Science</b>	grease	Grease arrestor (min 1000 litres)	Pump-out by wastewater contractor.
<b>Laboratories</b>	Chemicals	Dilution Pit	Pump-out by wastewater contractor.
<b>Shopping Centre (including food preparation and/or serving)</b>	grease and solids	Grease arrestor to be determined by Hunter Water Corporation Basket traps for seafood preparation areas	Grease arrestors pumped-out by wastewater contractor.
<b>Shopping Centre Vehicle Repairs</b>	Oil and Grease	Oil Separator	Pump-out by wastewater contractor.
<b>Fresh Seafood Commercial*</b>	High BOD Solids Organic Solids Odour	Solid Settlement Pit Min 100 litres Screening Floor Waste Baskets Salt Water Reticulation.	All wastewater to be pumped out by wastewater contractors.  Solids to landfill.

<b>Generator/Source</b>	<b>Major Characteristics of Wastewater</b>	<b>Treatment Methods and Facilities</b>	<b>Pre-treatment Outcome</b>
<b>Small Goods Manufacture</b>	grease	DAF Unit or On Site Bio Treatment Plant. Grease arrestor (min 1000 L)	Pump-out by wastewater contractor.
<b>Supermarket Incorporating Butcher, Bakeries and Delicatessens</b>	grease	See Shopping Centre	Solids to land fill and grease arrestor pumped-out by wastewater contractor.
<b>Take-away Food (with hot food preparation and/or serving)</b>	grease	Grease arrestor (min 1000 litres <b>or</b> approved alternative system)	Pump-out by wastewater carrier

## TRADE WASTEWATER PRE-TREATMENT FACILITY SIZE

### CALCULATION FOR SLOPING BOTTOM GREASE ARRESTOR SIZES (For Guidance Purposes Only)

**A. Restaurants including Fast Food and Smorgasbord style, Clubs, Hotels, etc.**

Allow 15 litres per dining room seat plus 250 litres for each dishwashing machine; minimum capacity of 1000 litres.

**B. Commercial Butcher shops, Seafood's, Food Preparation etc.**

Total the capacity of all sinks, tubs and other fixtures plus three times the capacity of all hot water heating units. Minimum capacity of 1000 litres.

**C. Food Processing Plants, Small Goods Factories etc.**

These are not included in the above calculations. Details of proposed trade wastewater facilities must be submitted by applicant to the Corporation, together with application to discharge trade wastewater to the Corporation's sewers.

**“All commercial premises, engaged in the cooking and preparation of food stuffs, shall be required to install and maintain an adequately sized grease trap to prevent the discharge of oils, fats, grease and other prohibited substances into the Corporation's sewerage system.”**

## CALCULATION FOR GREASE FILTER SYSTEM SIZE

### Typically for the Majority of Grease Wastewater Discharge

Model	Discharge Capacity	Dimensions
E100	Up to 1000 litres/day, typical 0 - 69 seats	800 mm dia by 1300 mm high
E125	Retro fit to existing grease arrestor	

## **TRADE WASTEWATER AGREEMENTS**

Written permission to discharge Prohibited Substances (trade wastewater) will only be given on receipt of an application for an Agreement, which can be made at any of Hunter Water Corporation's Offices.

There is a Trade Wastewater application establishment fee prior to an agreement being issued.

A Trade Wastewater agreement will be issued on completion of installation to the Corporation's requirements.

### **CONDITIONS OF AN AGREEMENT**

AN agreement is subject to a number of conditions (which will be specified on the agreement) and may relate to the following:

- a) (i) The type of equipment to be installed for pre-treatment and monitoring of the wastewater; and
- (ii) The conditions associated with the operation of such equipment.
- b) The agreed rate of discharge to sewer.
- c) The type of wastewater to be accepted.
- d) The agreed times of discharge and the days of operation.
- e) Conditions relating to the payment of fees.
- f) The power of the Corporation to enter land or buildings.
- g) The power of the Corporation to impose standards in relation to the quality of wastewater to be discharged.

### **TRANSFER OF AGREEMENT**

An Agreement cannot be transferred by the holder of the Agreement to any other person. Should any person other than the holder of the Agreement become responsible for the discharge in question, then such discharge will be in breach of the Hunter Water Act 1991. In this instance a new Agreement must be obtained from the Corporation or steps will be taken by the Corporation to prevent such discharge.

In considering the issue of a new Agreement the Corporation will take into account conditions at the time of the new application, and it cannot be assumed that the conditions of the new Agreement will be identical to those previously specified.

## CANCELLATION OF AN AGREEMENT

The Corporation may cancel or suspend an agreement at any time:

- a) If the holder has contravened any conditions of the Agreement.
- b) For any other reason the Corporation considers sufficient.

On cancellation or suspension of an Agreement, discharge of trade wastewater to the sewer or stormwater system must cease, and the Corporation may take all reasonable steps to ensure that this occurs.

## AGREEMENT RE-ESTABLISHMENT

After an Agreement has been cancelled the Corporation may decide to issue a new agreement with altered Schedules. This will allow the Applicant to continue discharging to the Corporation's sewer.

## AGREEMENT BREACHES AND NOTIFICATION

If the owner/operator of the trade wastewater facility does not follow the rules stated in the agreement the Corporation can take action to make sure the rules are followed. Action is graded in the following:

**Level 1:**        **Do the Right Thing.** Inspection may reveal that the trade wastewater facility is not operating to the agreement specifications. The Corporation will serve notice of what action needs to be taken by the owner/operator to operate according to the agreement. A follow up pollution control inspection fee will be charged with breaches of agreement conditions.

**Level 2:**        **Warning and Letter.** If the second inspection of the trade wastewater facility reveals that the facility is not operating to the agreement specifications, notice will be served again and a letter will be sent. This letter will contain what needs to be done to operate the facility within agreement limits and a warning. The warning is of disconnection from the Hunter Water's sewerage system.

**Level 3:**        **Notice of Disconnection.** If on the third inspection, the facility is still in breach of agreement specifications, a notice of disconnection will be served and the sewer will be disconnected immediately from the offending premises. Connection will only re-occur when the owner/operator notifies the Corporation that they have the facility operating within agreement specifications and inspection reveals this.

**Note:**            **Action will be taken to recover costs incurred by the Corporation in relation to sewage blockages caused by grease.**

## **GUIDELINES FOR THE INSTALLATION OF GREASE ARRESTORS**

All non-residential premises, engaged in the cooking and preparation of foodstuffs, are to **install and maintain an adequately sized grease arrestor**, to prevent the discharge of oil, fats, solids and grease wastes into Hunter Water Corporation's sewerage system.

**A minimum sized grease arrestor of 1000 litres is required by Hunter Water Corporation.**

However, under special circumstances, subject to the Hunter Water Corporation's authorisation, the above minimum capacity of 1000 litres may be reduced, eg premises where minimal food preparation is carried out or with restricted room for installation purposes.

**No work is to commence until a completed application has been submitted to Hunter Water's Trade Waste Group.**

Notification to be given to the Trade Waste Group of completion of installation.

Failure to comply with the above requirements is a breach of the Hunter Water 1991.

- Section 31 of the Act makes reference to the requirement of written permission from the Hunter Water Corporation prior to the discharge of substances into the works owned by the Corporation. **Maximum Penalty: \$10,000 (\$20,000 for a corporation).**

### **Installation Requirements:**

- Trade wastewater pre-treatment equipment must be installed in accordance with the relevant Codes of Practice and Regulations and Hunter Water Corporation's requirements.
- The plumbing and drainage work is to be carried out by a person licensed by the Building Services Corporation of NSW in accordance with National Plumbing and Drainage Standards, the relevant Codes of Practice and manufacturer's guidelines.
- A maximum of 3 (three) extension rings is permissible to extend the height of a pit located under the ground.
- The inlet and outlet risers of Grease Traps/General Purpose pit are to be extended to ground level and fitted with a gas tight inspection lid (bolted trap screw).
- The top of all pits is to be a minimum of 150mm above ground level unless the pit is fitted with a heavy duty lid, fully sealed and slightly raised to prevent the ingress of surface water.
- Inlet and outlet ventilation (induct and educt) for Grease Arresters shall be 100mm nominal size.

- All lids must have standard gatic or accesshole lifting boss fittings for ease of removal.
- All components are to be greased during installation.
- The design of lids shall comply with the National Standard for Manual Handling, published February 1990 by the National Occupational Health and Safety Commission.
- A sample point shall be provided at the outlet of the pre-treatment equipment.
- All new commercial properties with new trade wastewater facilities require a boundary trap.
- Grease trap lids to have a maximum weight of 16 Kg.

## **TRADE WASTEWATER MAINTENANCE PROGRAM**

Treatment facilities serving food preparation areas become progressively less efficient as grease, oil and sludge accumulate. These facilities therefore require regular cleaning to prevent blockages, associated odour problems and health hazards. If properly maintained the arrestor will stop grease and food solids getting into the sewer and subsequently onto the beaches.

- **MAINTENANCE OF GREASE ARRESTORS**

A grease arrestor (grease trap) represents a significant investment in wastewater pre-treatment by its owner, and the wastewater it retains (grease and food solids) is the mass of pollutants prevented from entering the sewerage system over the time span between each complete clean out. Failure to service it correctly, at the required frequency, or to dispose of the wastewater improperly is a waste of resources and effort, as well as a direct contribution to environmental degradation.

- **CLEANING**

The Corporation requires that facilities be completely cleaned by a licensed liquid wastewater contractor at regular intervals. The frequency may vary, depending on the type of activities carried out on the premises.

- *A well ventilated grease arrestor fitted with an airtight lid may reduce odour problems.*
- *Don't use solvents or odour control agents in your grease arrestor until endorsed by Hunter Water Corporation.*
- *Don't use pesticides in grease arrestors.*

Wastewater contractors and the Corporation's Trade Wastewater group will advise on the necessary intervals for the cleaning of grease wastewater treatment facilities. It is approximately every three months.

**Cleaning Procedure  
to be Adopted by Licensed Contractors**

- *Once a floating layer of fat or oil 75 millimetres thick has formed on the surface, the grease arrestor must be cleaned out.*
- *Grease arrestors must be cleaned out at least every 3 months.*
- *Grease trap lids are to be removed and facility completely pumped out, not just skimmed.*
- *The sides and baffles are to be scraped and cleaned of all residue.*
- *The grease trap is to be re-filled with clean water*
- *A docket is to be completed by the contractor and left with the occupier.*

**Cleaning Procedure for the Ecotec Grease Extractor**

- *Cleaning Procedures for the Ecotec Grease Extractor*
- *Extractors are to be completely pumped out*
- *Sides are to be cleaned of all residue*
- *Used filter is to be removed and a clean one put in its place.*

**Note:** Dockets for the cleaning of the facility are to be kept on site for inspection purposes. Managers should review contract cleaning regularly to avoid under-servicing or over-servicing. It is also the responsibility of the owner/operator of the facility to contact the contractors on the prescribed times so the facility can be pumped-out and serviced. It is also the responsibility of the owner/operator to contact the Corporation's Trade Waste group if any incidence or malfunction occurs with regard to the treatment facility.

- **The Corporation requires the owner/operator to have a written maintenance program in place to record:**
  - \* cleaning frequency
  - \* pump maintenance
  - \* maintenance of facility
  - \* and must contain all dockets regarding treatment facilities

## TRADE WASTEWATER MANAGEMENT

Reducing the discharge of contaminants does not necessarily mean spending a lot of money on additional pre-treatment facilities. As the cleaning frequency of a treatment facility is governed by the quantity of accumulated wastewater, it is in the agreement holders interest to ensure minimal wastewater is deposited via the house drains into the facility.

By adopting some of the following practices you can help reduce pollutants.

- *Use less water by adopting dry (i.e. waterless) cleaning methods. The less water used the less trade wastewater to be treated.*
- *Dry cleaning methods include wiping up spills and sweeping, rather than hosing.*
- *Ensure all equipment is properly cleaned and maintained.*
- *Scrape cooking utensils and plates before washing*
- *Use low (or no) phosphate content cleaning products. Use as little cleaning product as possible. Detergents dissolve grease which allows the grease to pass through the grease trap more easily into the sewerage system causing drain blockages.*
- *Dispose of waste oil and grease separately and not down the drain. Make sure that you have enough waste oil storage and a collection program with an oil and fat recycler.*
- *Use aluminium foil and absorbent material to collect grease and oil spills around stoves and fryers etc*
- *Use minimal grease and oil for cooking*
- *Never put solid wastes of any type down the sink, even coffee grounds or tea leaves. Provide suitable garbage containers.*
- *Maintain all pre-treatment equipment on a regular basis. Check the level of grease in the arrestor. Have the waste grease and sludge removed regularly.*
- *Use cleaning products that have a pH range 6.5 – 10*
- *Use low phosphate free cleaning products.*
- *Encourage kitchen staff to know what can and cannot be put down the sink.*

No solvents, bacteria, enzymes or other substances are to be used in your grease trap without special permission from Hunter Water Corporation.

Trade waste facilities are to be maintained by the owner/operator. They are to be maintained at a level that allows the facility to operate efficiently and effectively within agreement discharge limits. Failure to comply with agreement discharge limits will result with charges applied accordingly.

Any apparatus or equipment used for the treatment/monitoring of trade wastewater is to be maintained to the Corporation's satisfaction

The disposal of residual waste such as grease, oils and sludges must be carried out in accordance with local Council and Environment Protection Authority requirements.

If the above suggestions are followed, the pump out frequency can be reduced, blockages in house drains may be avoided and money can be saved.

The correct management of trade wastewater, including suitable and proper maintenance of treatment facilities will result in a cleaner environment.

## TRADE WASTEWATER TERMINOLOGY AND DEFINITIONS

- Corporation** - Means the Hunter Water Corporation Ltd, ACN 053 102 837, a company incorporated in NSW and having its Head Office at 426-432 King Street, Newcastle
- Applicant** - A person applying for a trade wastewater agreement to discharge trade wastewater to the Corporation's sewer using the standard Trade Wastewater application form.
- The Act** - The Hunter Water Act, 1991.
- Customer Contract** - Means a contract of a kind referred to in Section 36(1); of the Act
- Agreement** - This is a legally binding document setting out the conditions that the applicant must comply with before it may discharge any substance other than normal domestic wastewater to a sewer or stormwater channel operated by the Corporation.
- Trade Wastewater** - This is defined as "the liquid wastewater generated from any industry, business, or manufacturing process. It does not include domestic wastewater."
- Prohibited Substances** - Prohibited Substances, in accordance with the Corporations Act, are substances which may not be discharged to a sewer or stormwater channel operated by the Corporation without the prior written permission of the Corporation. A list of such substances is attached to this document and from this it can be seen, Item (e), that this includes all trade wastes.
- Works** - Means water mains, sewer mains, sewage treatment works, drainage channels and any works ancillary to those works.
- Pre-treatment Facilities** - Means any apparatus or equipment used to modify the characteristics of an effluent prior to its discharge into Corporation works, and can include grease traps, oil separators, dilution pits etc.
- Biological Treatment** - This involves bacteria consuming the organic parts of an effluent within a controlled system eg activated sludge or trickling filters.

- Treatment Works** - These are collections of treatment facilities which are generally described as Primary if they are based on physical processes (such as screening and sedimentation) and Secondary if they are based on biological processes (such as activated sludge and trickling filters). The distinctions between types of works based on such nomenclature are continually becoming less clear, and definition based on measurable parameters is preferred.
- Oxygen Demand** - Is an indirect measure of the organic matter present in an effluent, usually specified in such a way as to identify the means used in measurement, eg Biochemical Oxygen Demand (BOD) or Chemical Oxygen Demand (COD).
- Suspended Solids (NFR)** - Suspended solids or Non-filterable residue (NFR) is a measure of the suspended particles in an effluent, and is determined by retention on a prescribed filter.
- Biological Treatment** - This involves bacteria consuming the organic parts of the wastewater within a controlled system, eg. activated sludge or trickling filters.
- Grease Arrestor** - A facility used to cool the discharge from commercial premises engaged in food preparation and arrest grease, oils and sludges.
- Hazardous Wastewater** - This is any wastewater containing significant quantities danger to the life of living organisms when released into the environment or to the safety of a substance or substances which may present a humans or equipment if incorrectly handled.
- pH** - This is a universal number scale from 1 - 14 used for expressing the acidity or alkalinity of an effluent; numbers lower than 7 indicate acidity and those higher than 7 indicate alkalinity.
- WRAPS** - Waste Recycling And Processing Service. This is a company located in Sydney that handle all manner of trade wastewater and toxic wastewater that is unable to be treated locally by the limited recycling facilities provided by wastewater contractors.
- HWC** - That is the 'Hunter Water Corporation'
- Fees** - Breach of agreement conditions will require a follow up pollution control inspection and a fee will have to be paid for cost recovery.

## **PROBLEMS CAUSED BY TRADE WASTEWATER AND ADVERSE EFFECTS**

### **Grease, Oil and Sludges**

- a) Cause blockages in poorly maintained pretreatment (grease arrestor) facilities
- b) Upon cooling, accumulate on the walls of sewer pipes and pump stations causing blockages and other maintenance problems
- c) Deposit in wastewater treatment works on channels, screens and tanks.
- d) Cause overflow conditions in premises where facilities are not cleaned on a regular basis
- e) Contribute to pollution and odour problems if these residual wastes are not disposed of properly at an approved facility

### **Suspended Solids**

These are small particles of matter in wastewater. High levels of suspended solids cause blockages/odours in the sewerage system.

### **Detergents**

The major problem caused to treatment works from detergents occurs after treatment. Foaming can sometimes occur in wastewater structures. However, since the introduction of biodegradable detergents, this problem has been greatly reduced.

### **High Strength Wastes (BOD)**

Wastes with a high biochemical oxygen demand (BOD) can cause severe disruption to secondary treatment works (especially activated sludge plants) with additional load resulting in extra costs. Excessive detention periods in treatment facilities or in the sewerage system can cause odorous hydrogen sulphide gas emission which is a hazard to workers and degrades and corrodes sewer assets.

### **Acidic Wastes**

Wastes with a pH below 6.5 can be hazardous to the Corporation's personnel and cause corrosion and structural damage within the sewerage system. High volumes of acidic waste can also adversely affect treatment works.

### **Alkaline Wastes**

Wastes with a pH above 10 may cause burning on exposed tissue and can damage rubber ring joints within the sewerage system. High volumes of acidic and alkaline wastes can also cause problems in treatment works.

## PROHIBITED SUBSTANCES

The discharger shall not allow any substance to enter the Corporation's sewers or stormwater system except as provided for by the Agreement. In particular, the discharger shall not directly or indirectly discharge prohibited substances without the prior written permission of the Corporation.

### **Prohibited Substances**

- (a) Any substance which could cause an explosion or fire in any of the Corporation's works.
- (b) Discrete oil.
- (c) Any infectious or contagious substance, whether solid or liquid, which has not been disinfected.
- (d) Any toxic substance.
- (e) Any trade wastewater.
- (f) Any substance, whether or not a solvent, an enzyme, a mutant bacteria or an odour control agent, which could materially affect the operation of a grease arrestor or other device or equipment used for the treatment of wastewater.
- (g) Any substance which is carcinogenic or mutagenic and could materially affect the environment.
- (h) Any animal matter, wool, hair, fleshings, feathers, dust, ashes, soil, rubbish, grease, garbage, dead animal, vegetable or fruit parings, wood, rags, synthetic plastics, steam or any solid matter.
- (i) Any matter which, in the opinion of the Corporation:
  - (i) is injurious to, or liable to form compounds injurious to any part of the Corporation's Works or to employees of the Corporation engaged in the operation or maintenance of the works; or
  - (ii) will impair or be liable to impair the operations or functions of the Corporation, or which the Corporation has, by notice in writing, served personally or by post, required the customer to cease or refrain from discharging.
- (j) Any other substance which may, within the meaning of the Protection of the Environment Operations Act 1997, cause pollution of any water.
- (k) Any other substance which the Corporation may declare to be prohibited by notice published in a newspaper circulating generally in the area covered by the Operating Licence.

## **SAMPLING, MONITORING AND INSPECTION OF TRADE WASTEWATER FACILITIES**

The Corporation must be notified on completion of installation of the trade wastewater facility. A HWC officer will then make an initial inspection of the site and determine if the trade wastewater facility is operating within the conditions of the agreement.

It is the discharger's responsibility to ensure that both the quality and quantity of the wastewater discharged to sewer are in accordance with the Corporation's requirements.

To ensure compliance with the Corporation's acceptance standards and the conditions of the Agreement, authorised officers of the Hunter Water Corporation may enter premises to carry out inspections and collect samples for analysis.

Samples are to be collected and analysed in accordance with Standard Methods for the Examination of Water and Wastewater (Current Edition APHA - AWWA - WPCF), and every effort is to be made to ensure that such samples truly represent the nature and extent of the discharge.

All analyses of samples shall be carried out by a NATA approved laboratory or a laboratory approved by the Corporation.

Maintenance personnel may require inspections and sampling when reporting unusual odours or build-up of wastewater in the Corporation's sewerage system

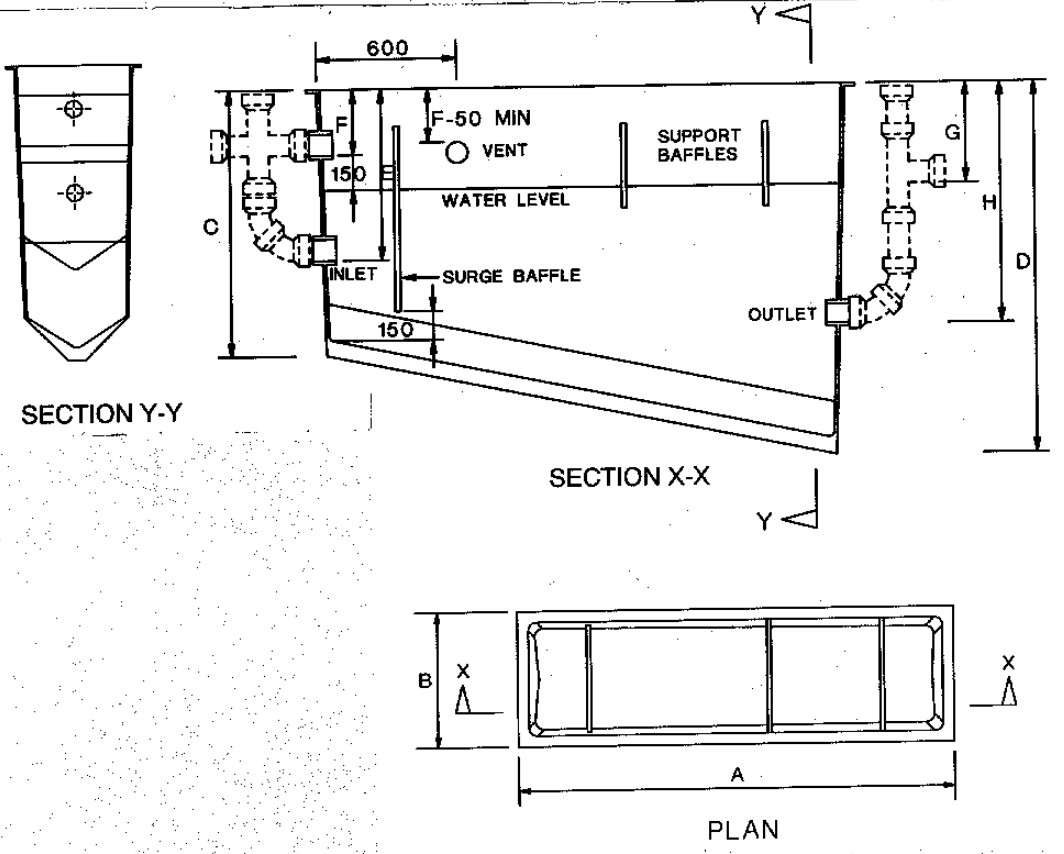
- **Sampling of Trade Wastewater**

The purpose of sampling trade wastewater before it enters the Corporation's sewer is to check that it complies with acceptance standards prescribed under the Hunter Water Corporation's Trade Wastewater Policy.

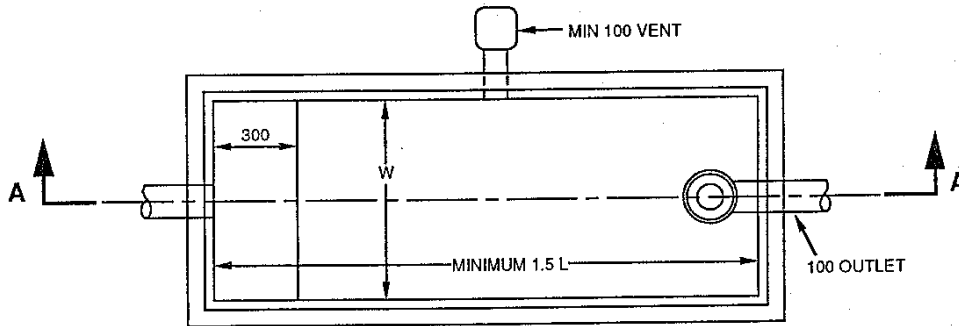
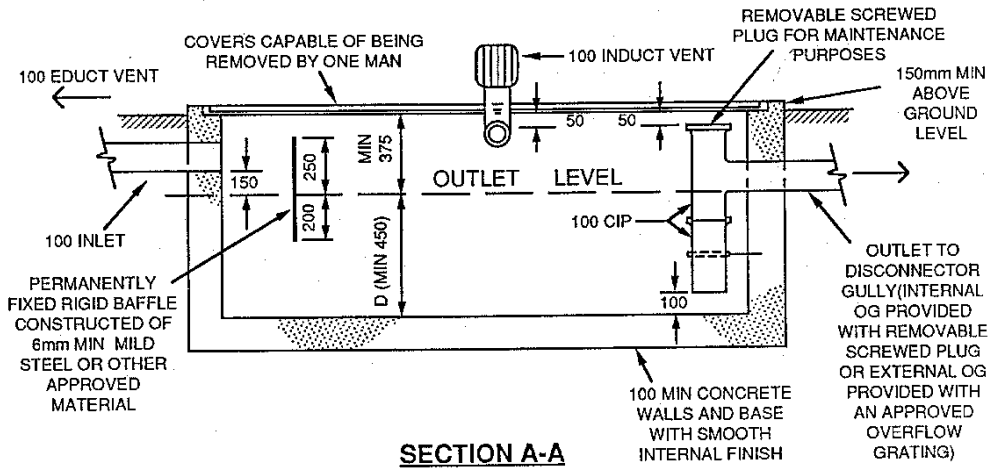
It also allows inspectors to determine if the facility is functioning efficiently in reducing the amount of contaminants being discharged to sewer.

# **GENERAL FOOD WASTE TREATMENT FACILITIES**

**STANDARD SLOPING BOTTOM**  
**GREASE ARRESTOR DESIGN**



## TYPICAL FLAT BOTTOM GREASE TRAP



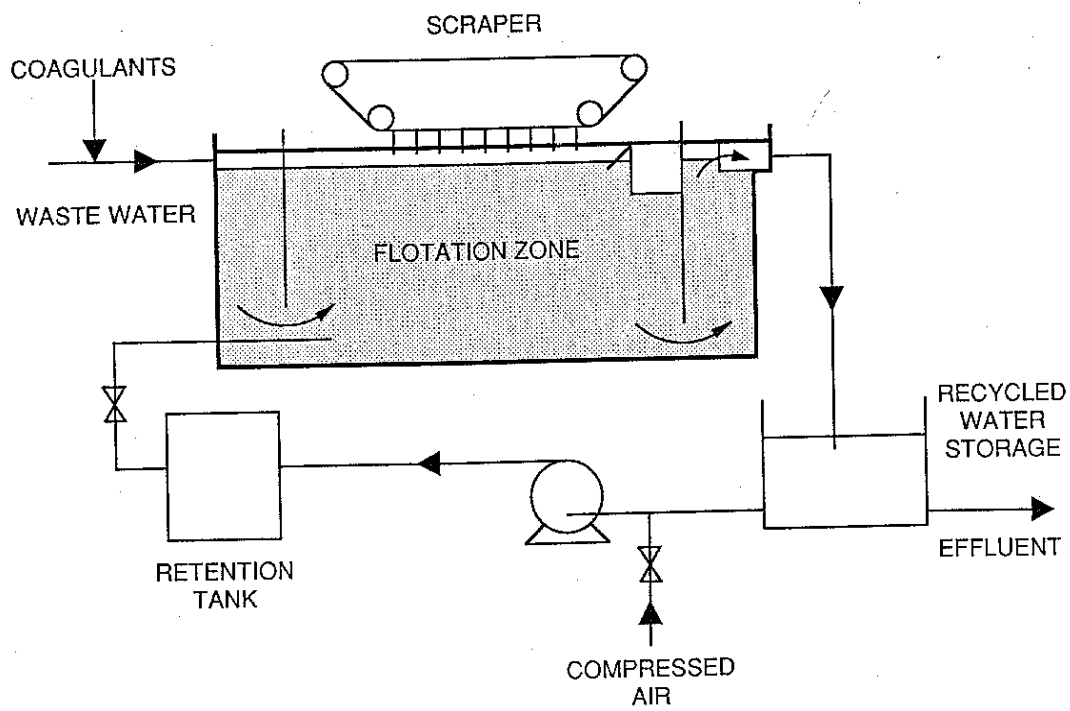
**NOTE:**

- INTERCEPTOR TO BE CONNECTED AND SIZED AS SPECIFIED IN THE TRADE WASTE APPLICATION
- INTERCEPTOR SHALL HAVE A MINIMUM CAPACITY BELOW THE INVERT LEVEL OF THE OUTLET PIPE OF 250 LITRES, OR HAVE A CAPACITY EQUIVALENT TO THE MAXIMUM HOURLY DISCHARGE, WHICHEVER IS GREATER
- WHERE INSTALLED ABOVE GROUND THE INTERCEPTOR MAY BE CONSTRUCTED USING OTHER APPROVED MATERIALS SUBJECT TO ADEQUATE STRUCTURAL SUPPORT FOR THE INTERCEPTOR BEING PROVIDED
- CONSTRUCTION TO BE SIMILAR TO SLOPING BOTTOM (BOAT SHAPE) GREASE TRAP

VOLUME CALCULATION  

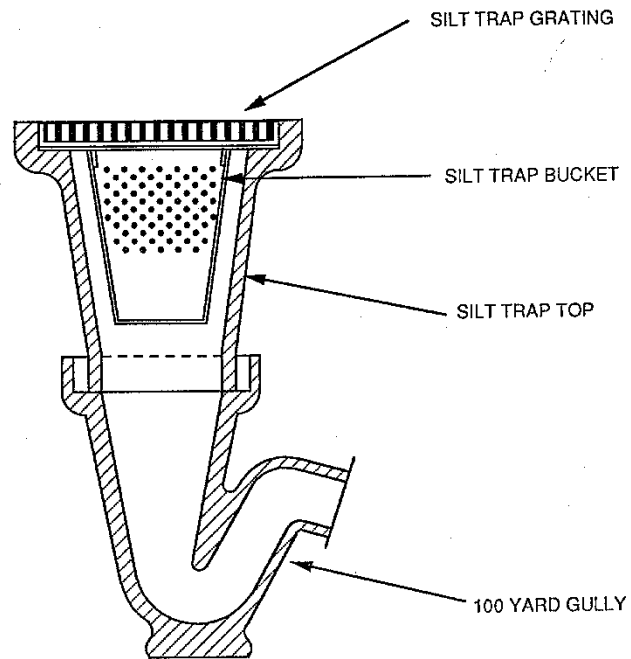
$$\text{VOLUME LTRS} = \frac{L \times W \times D}{1000000}$$
 L, W & D ARE IN MM

NOT TO SCALE

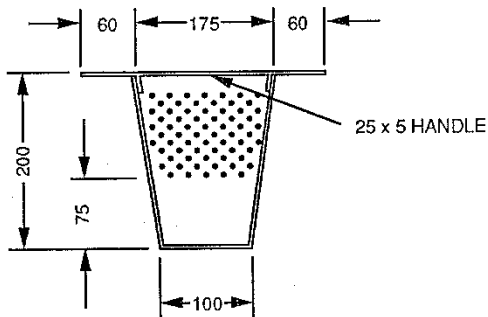


### BASIC DESIGN OF AIR FLOTATION SEPARATOR

## SILT TRAP



## SILT TRAP ASSEMBLY



### BUCKET SPECIFICATION

BUCKET TO BE CONSTRUCTED OF 3mm MIN THICK MILD STEEL PLATE WITH 5 ROWS OF 10mm DIAMETER HOLES AT 25mm CENTRES.

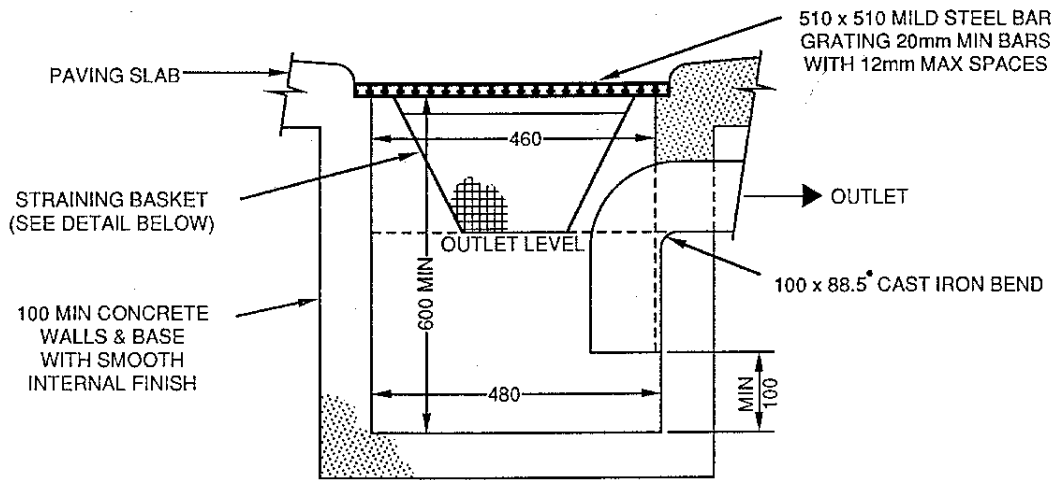
BUCKET TO BE GALVANISED AFTER FABRICATION.

### BUCKET DETAILS

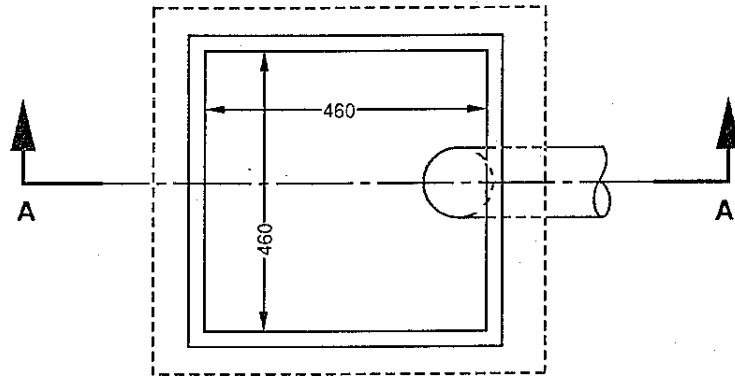
**NOTE:** ALTERNATIVELY TRAP MAY BE CONSTRUCTED USING CAST IRON PIPES AND FITTINGS WITH APPROVED JOINTS

TRAP TO BE CONNECTED AS SPECIFIED IN THE CONSENT FOR INSTALLATION

## STRAINING PIT

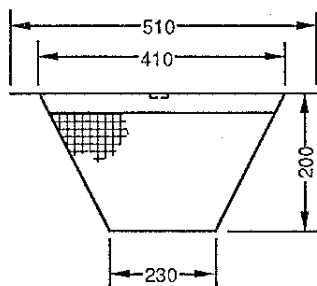


**SECTION AA**

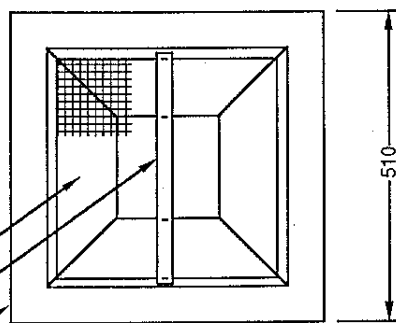


**PIT PLAN**

BUCKET AND GRATING REMOVED



WOVEN WIRE MESH BASKET  
25 x 10 HANDLE  
ANGLE IRON FRAME



**PLAN**

### **BASKET SPECIFICATION**

BASKET TO BE CONSTRUCTED OF 2.5mm MIN DIA MILD STEEL WIRE WOVEN TO GIVE 7mm APERTURE WIDTHS ON A 32 x 32 x 3 ANGLE IRON FRAME. BASKET TO BE GALVANISED AFTER MANUFACTURE. ALTERNATIVELY THE BASKET MAY BE CONSTRUCTED FROM 3mm MIN THICK MILD STEEL PLATE WITH 6mm DIA HOLES AT 12mm CENTRES OVER THE ENTIRE AREA OF THE BASKET. THE BASKET TO BE GALVANISED AFTER MANUFACTURE.

### **BUCKET DETAILS**

PIT TO BE CONNECTED AS SPECIFIED IN THE CONSENT FOR INSTALLATION