GUIDELINES FOR OILY WATER SEPARATORS

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CASSOWARY COAST REGIONAL COUNCIL

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INTRODUCTION

The following policy provides information on treatment, disposal, maintenance and installation associated with the management of trade wastewater. Your co-operation by adopting the policy provided will not only be profitable for you but will assist Cassowary Coast Regional Council 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 Council's sewerage system. These liquid wastes are defined as Prohibited Substances (trade wastewater).

Trade Wastewater is defined as "the liquid waste 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 Council and approval granted, prior to the installation of any trade wastewater facility or the discharge of trade wastewater into the Council'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 sludge's must be carried out in accordance with local council requirements.

Trade waste pre-treatment facilities, if properly maintained will help to protect our workers, the sewerage system and the environment.

The information in this leaflet is to be treated as a guide only. Further policy details can be found in the Cassowary Coast Regional Council's Trade Waste Environmental Management Plan

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 any Cassowary Coast Regional Council office.

Once the application is received and installation of the facility is inspected and meets the Council's requirements, a permit is granted to the approved Applicant.

The permit will cover approval of any pre-treatment required, Council charges if appropriate, discharge standards for wastewater quantity and quality and maintenance requirements.

There are two types of application:

- The **Major Agreement (category 3)** is where the Council considers the proposed discharge to be significant, usually because of the nature or the quantity of the wastewater.

- The **Minor Agreement (Category 1 & 2)** is suitable for the majority of trade waste dischargers.

Breaches of Agreement

Section 182 Criteria for suspending or cancelling trade waste approval

A local government may suspend or cancel a trade waste approval (the ***proposed action***) if the local government is satisfied—

(a) the approval holder has contravened a condition of the approval; or

(b) the approval holder has contravened a provision of this Act; or

(c) the approval is no longer appropriate because the circumstances under which trade wastes are generated by the holder have significantly changed since the approval was given; or
(d) urgent action is necessary in the interests of public health or safety to prevent environmental harm or prevent damage to the local government's sewerage system.

It is an offence under section 193 of the *Water Supply (Safety and Reliability) Act 2008* ("the Act) to discharge trade waste into Council's infrastructure without an approval of Council under section 180 of the Act. Penalties of up to 1665 penalty units ($166,500.00) apply.

Criteria for Major Agreements

A trade waste 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 600 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 Council's sewerage system with a concentration greater than that which is normally associated with domestic sewage.

- A discharger which discharges, or is likely to discharge, any substance which, due to its concentration or quantity, is considered by the Council to represent a significant risk to the Council's operations and/or works.

GUIDELINES FOR THE INSTALLATION OF OIL SEPARATORS

If a site produces trade wastewater which requires an oil separator, an above ground oil separator with plate packs is the only oil separator to be installed within the Council's area of operations.

The size required for an above ground plate separator is determined by the volume of wastewater produced that the facility is to handle, and the time which the separator must treat the wastewater.

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

Installation Requirements:

Trade wastewater pre-treatment facility must be installed by a licensed plumber in accordance with the relevant Plumbing Codes of Practice AS 3500 and Trade Waste Environmental Policy.

For the installation of trade waste facilities in a service station, reference also needs to be made to the following:

1. Department of Environmental and Conservation QLD (DEC): Environmental Guideline:

   Surface Water Management on the Covered Forecourt Areas of Service Stations.

2. The Australian Institute of Petroleum Ltd. (AIP): Specific Requirements for the Control of Water Effluent's from Service Stations in QLD.

Install a plate separator unit with diaphragm pump on a concrete slab in a well ventilated location, preferably near an outside wall of the workshop or wash down areas.

Install a 150mm high kerb around the separator and pump to capture any leakages or spills, as well as a bund drain point located at the lowest point of the kerbed area.

This drain point is to be plumbed back to the collection sump in a minimum 75mm PVC pipe work.

Connect clear water outlet point (50mm min) from the outlet connection of the unit to the sewer discharge point. It is also required that a sample valve be installed in the outlet line to facilitate sampling of the system discharge a 25mm ball valve is suitable for this purpose.

Plumb the oil skimmer outlet to a 20 litre oil drum (minimum) which should be positioned under the separator inside the bunded area. An oil resistant flexible hose should be used to allow easy removal of this drum.

Install a ball valve on the solids hopper outlet at the bottom of the separator so that solids can be drained from the unit, via the bund drain pipe work back into the collection sump.

If a quick-break detergent is to be used in the pre-treatment facility such as a plate separator, the detergent must break apart and release the oils trapped within residence time of the facility.

Any glycols or antifreeze to be used on a trade wastewater site must be contained.

A licensed wastewater contractor is to collect and dispose of the glycols and antifreeze.

No chemical emulsions, surfactants or water soluble degreases to be present.

ABOVE-GROUND SEPARATORS

• **Above-ground oily water separators are the only oil separators to be installed**

• When an upgrade of a trade wastewater site is required, above-ground separators must be installed.

• The size required for an above-ground coalescing plate separator is determined by the volume of wastewater produced that the facility is to handle, and the time in which the separator must treat the wastewater. Consultants approached for the installation of trade wastewater facilities will stipulate facility size.

- The **retention** pits are to have a minimum size of 750 litres or a **retention time** of more than 1 hour, whichever is the greater.

QUICK-BREAK DETERGENTS IN OILY WATER PRE-TREATMENT

• If quick-break detergents are to be used in a pre-treatment facility, such as an oil separator, the detergent must separate and release the oils trapped within residence time of the facility.

Residence time is the time taken for a particle to move from the inlet of a pre-treatment facility to the outlet to sewer. If, for example, the residence time is thirty minutes, the detergents must breakdown and release the oil within thirty minutes.

If the detergent does not breakdown within residence time, there is a risk that the oil may enter the sewer. In the sewer the detergents may then release the oil and untreated oily wastewater goes to the Council's treatment works and becomes hard to treat.

GLYCOLS AND ANTIFREEZE, TREATMENT & DISPOSAL

• **No Glycols or Antifreeze are to enter the Shires sewer system**

Any glycols or antifreeze to be used at a site must be contained. After containment, it is the responsibility of the site's owner/operator to contact a licensed wastewater contractor to collect and dispose of the glycols and antifreeze.

INSPECTION SHAFT REQUIREMENTS FOR TRADE WASTEWATER SITES

All new commercial properties with new trade wastewater facilities require an inspection shaft.

GENERAL PRE-TREATMENT REQUIREMENTS FOR TRADE WASTEWATER GENERATORS

Generator	Major Characteristics of Wastewater	Treatment Methods and Facilities	Pre-treatment Outcome
Panel Beaters Wash Bay Area for General and Rubbing Down Purposes (10 cars or more per week)	oil, solvents, silt, solids, lacquers, NFR, pH	Above-ground Oil Separator Wash Bay Area with Floor Sump **Note:** Area to be Roofed and Bunded	Pump-out of separator by Wastewater contractor. Sump water to contractor and resulting dry sludge to landfill.
Panel Beaters Wash Bay Area for General and Rubbing Down Purposes (below 10 cars per week)	oil, solvents, silt, solids, lacquers, NFR, pH	Floor Sump with Coldice Bend (Silt Arrestor) Sand filter	Wastewater to be removed by wastewater contractor.
Detailing	oil, grease, solvents, silt, NFR, pH	Above-ground Oil Separator, Floor Sump with Coldice Bend **Note:** Area to be roofed and bunded	Pump-out of separator by Wastewater contractor. Sump water to contractor and resulting dry sludge to landfill.
Car Wash Bay Commercial	oil, grease, silt, detergents, COD	Above-ground Oil Separator, Floor Sump with Coldice Bend, **Note:** Area to be roofed and bunded	Pump-out of separator by Wastewater contractor. Sump water to contractor and resulting dry sludge to landfill.
Service Stations, Forecourts, Work Bay and Wash Bay Areas 10% of overhang over forecourt	oil, solvents, silt, detergents, NFR, pH	Above-ground Oil Separator, Floor Sump with Coldice Bend, **Note:** Area to be roofed and bunded	Pump-out of separator by Wastewater contractor. Sump water to contractor and resulting dry sludge to landfill.
Private Car Wash Bay Residential Strata Units 10% of overhang over roofed area.	oil, solvents, silt, detergents, NFR, pH	Floor Sump with Coldice Bend, **Note:** Area to be roofed and bunded	Wastewater to be removed by wastewater contractor.

TRADE WASTEWATER PERMITS

Permission to discharge Prohibited Substances (trade waste water) will only be given on receipt of a completed application form for a permit, which can be made at any of Cassowary Coast Regional Council Offices.

There is a Trade Wastewater annual fee payable on the next customer tariff account.

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

CONDITIONS OF A PERMIT

A permit is subject to a number of conditions which will be specified on the permit.

TRANSFER OF TRADE WASTE PERMIT

A permit cannot be transferred by the holder of the agreement to any other person. Should any person other than the holder of the permit become responsible for the discharge in question, then such discharge will be in breach of the *Water Supply (Safety & Reliability) Act 2008.*

In this instance a new permit must be obtained from the Council or steps will be taken by the Council to prevent such discharge.

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

CANCELLATION OF A PERMIT

The Council may cancel or suspend a permit:

a) If the holder has contravened any conditions of the permit.

b) For any other reason the Council considers sufficient.

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

PERMIT RE-ESTABLISHMENT

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

PERMIT BREACHES AND NOTIFICATION

If the owner/operator of the trade wastewater facility does not follow the rules stated in the permit the Council 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 waste facility is not operating to the permit conditions. The Council will serve notice of what action needs to be taken by the owner/operator to operate according to the permit. A follow up trade waste inspection fee will be charged with breaches of permit conditions.

Level 2: Warning and Letter. If the second inspection of the trade waste facility reveals that the facility is not operating to the permit 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 permit limits and a warning. The warning is of disconnection from the Cassowary Coast Regional Council's sewerage system.

Level 3: Notice of Disconnection. If on the third inspection, the facility is still in breach of permit 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 Council that they have the facility operating within permit specifications and an inspection reveals this.

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

TRADE WASTE MAINTENANCE PROGRAM

Oil Separators become progressively less efficient as wastewaters accumulate. These facilities therefore require regular cleaning to prevent blockages, associated odour problems and health hazards. If properly maintained the pre-treatment facilities will limit the amount of oil, grease, solids, etc. getting into the sewer and potentially onto our beaches. Not to service the facility properly, at the required frequency is a waste of your money and a direct contribution to environmental degradation.

Cleaning

Trade waste pre-treatment facilities are required to be cleaned out by a licensed liquid wastewater contractor at regular intervals. The frequency may vary, depending on the type of activities carried out on the premises.

- **Don't use solvents or odour control agents in your oil separator.**
- **Don't use pesticides in oil separator.**

Wastewater contractors and the Council's Trade Waste Officer will advise on the necessary intervals for the cleaning of wastewater treatment facilities.

Cleaning Frequency and Cleaning Procedures

The following cleaning frequencies for facilities must be done at least within the time indicated. The cleaning time may vary within the time frame mentioned depending on the nature of wastewater generated and how much is produced.

Above-ground coalescing plate separators

Above-ground separators must be pumped-out and cleaned at least every three months by an approved wastewater contractor.

Sumps

Sumps must be cleaned as required or the sludge may build up to an excessive level and the sump becomes ineffective. The sludge collected is to be treated in the same manner as an Above-ground oil separator.

Diaphragm Pumps

Pumps are to be serviced and maintained as per the manufacturer's guidelines.

Cleaning Procedure to be adopted by Licensed Contractors

- Facilities are to be completely pumped out (Sludge & oil removed)
- Plate pack to be removed and cleaned/maintained and reinstalled.
- The oil separator is to be re-filled with clean water

The Council 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 WASTE MANAGEMENT

Reducing pollutants 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 permit holder's 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.

- Use low (or no) phosphate content cleaning products. Use as little cleaning product as possible. Detergents dissolve oil which allows the oil to pass through the oil separator more easily into the sewerage system.

- Dispose of waste oil and grease separately and not down the drain

- Use absorbent material to collect grease and oil spills around pre-treatment facilities.

- Maintain all pre-treatment equipment on a regular basis. Check the level of oil in the separator.

- Use cleaning products that have a pH range 6.5 - 10

Trade wastewater facilities are to be maintained by the wastewater contractor. They are to be maintained at a level that allows the facility to operate efficiently and effectively within permit discharge limits.

Failure to comply with permit 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 Council's satisfaction. The disposal of residual waste such as grease, oils and sludge 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

Council Means the cassowary Coast Regional Council having its Head Office at 70 Rankin Street, Innisfail.

Applicant A person applying for a trade waste permit to discharge trade wastewater to the Council's sewer.

The Act The Water Supply (Safety & Reliability) Act 2008

Customer Contract Means a contract of a kind referred to in Section 180 of the Act

Trade Waste Permit 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 Council.

Trade Waste 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 Water Supply (Safety & Reliability) Act 2008, are substances which may not be discharged to a sewer or stormwater channel operated by the Council without the prior written permission of the Council. 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 Council 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 e.g. 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, e.g. Biochemical Oxygen Demand (BOD) or Chemical Oxygen Demand (COD).

Suspended Solids 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, e.g. 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 sludge.

Hazardous Waste This is any waste 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.

PROBLEMS CAUSED BY TRADE WASTEWATER AND ADVERSE EFFECTS

Grease, Oil and Sludge

a) Cause blockages in poorly maintained pre-treatment (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

Use products low in phosphates less than pH10 and use sparingly and efficiently.

High Strength Wastes (BOD)

Wastewaters 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 pre-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

Wastewaters with a pH below 6.0 can be hazardous to the Council's personnel and cause corrosion and structural damage within the sewerage system. High volumes of acidic wastewater can also adversely affect treatment works.

Alkaline Wastes

Wastewaters 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 wastewaters can also cause problems in treatment works.

PROHIBITED SUBSTANCES

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

Prohibited Substances

(a) Any substance which could cause an explosion or fire in any of the Council'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 Council:

(i) is injurious to, or liable to form compounds injurious to any part of the Council's Works or to employees of the Council engaged in the operation or maintenance of the works; or

(ii) will impair or be liable to impair the operations or functions of the Council, or which the Council 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 Council 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 Council must be notified on completion of installation of the trade waste facility. A trade waste permit to discharge to the Council's sewerage system will then be forwarded to the applicant.

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 Council's requirements.

To ensure compliance with the Council's acceptance standards and the conditions of the permit, authorised officers of the Cassowary Coast Regional Council 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 Council.

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

- **Sampling of Trade Wastewater**

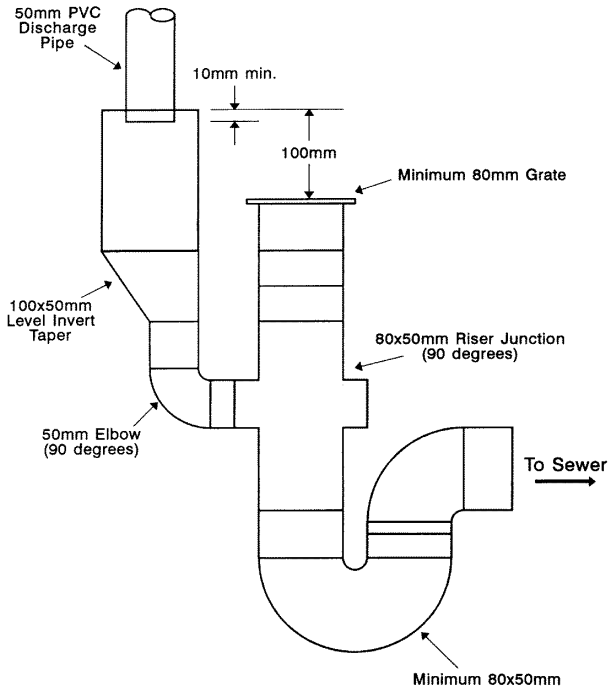
The purpose of sampling trade waste water before it enters the Council's sewer is to check that it complies with acceptance standards prescribed under the cassowary Coast Regional Councils Trade waste Policy. It also allows inspectors to determine if the facility is functioning efficiently in reducing the amount of contaminants being discharged to sewer.

OIL SEPARATORS FOR SERVICE STATIONS AND VEHICLE REPAIR SHOPS

RECOMMENDED CONNECTION FROM OILY WATER SEPARATOR TO SEWER

From hydrocyclone separation systems, corrugated plate interceptors and vertical gravity separators.

The treated water from HSS, VGS or CPI shall discharge via an inlet riser to a gully as shown on the attached diagram. This point is to be used for sampling the quality of the effluent from the pre-treatment equipment.



TYPICAL ROOFING OF TRADE WASTEWATER GENERATING AREAS

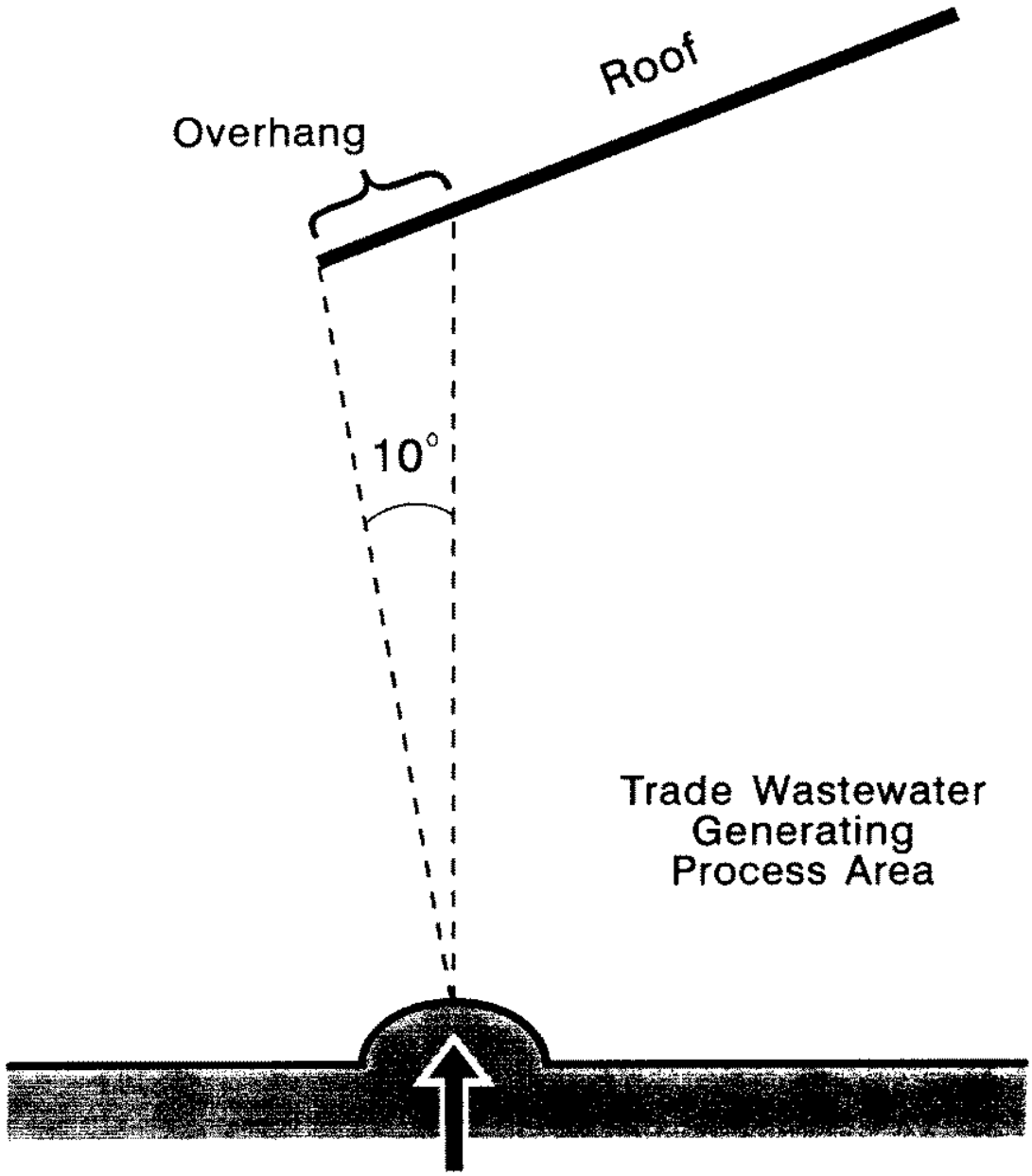
When a trade waste generating process does not occur fully within a building, suitable roofing must be constructed to prevent the ingress of rainwater to the sewer.

For a structure where one or more sides is open to the weather, the roof must extend outwards to at least 10 degrees from a vertical line taken from the peak of the bund (see drawing below).

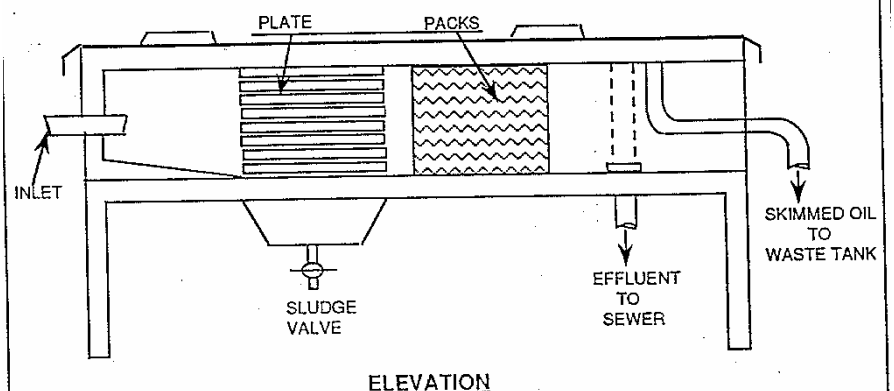
Note: This does not imply that the roof must be slanted at 10 degrees to the horizontal. Council is aware that, under certain conditions, some rainwater will blow under the roof.

To ensure that no surface stormwater can flow onto the trade wastewater generating process area, a bund/speed hump/kerbing, at least 150mm high, is necessary around the area. As the overall surface water flow across the site must be taken into consideration, the height of the bund/speed hump/kerbing may have to be increased, to prevent stormwater flow onto the process area.

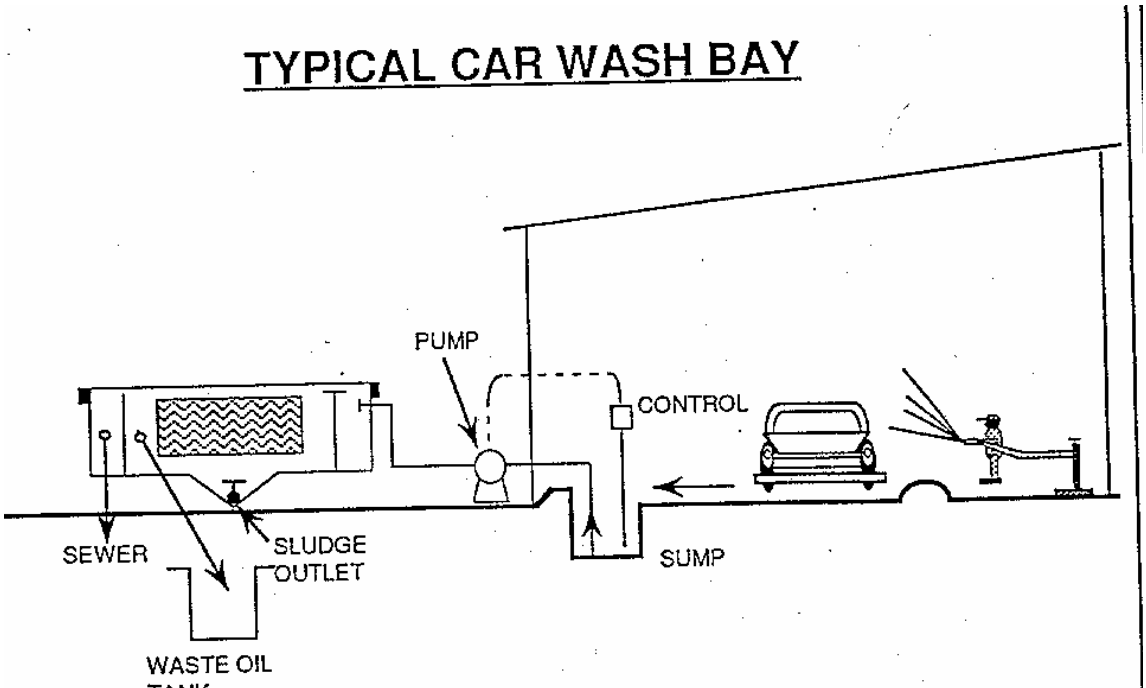
Minimum 10 Degrees



TYPICAL OILY WATER SEPARATOR



ELEVATION


TYPICAL CAR WASH BAY
PUMP
CONTROL
SEWER
SLUDGE
OUTLET
SUMP
WASTE OIL