



# Guidelines for the design and operation of wash down bays

**Health Services Information Package**

## Introduction

Waste water from washdown bays typically contains detergents, degreasers and oily residues. This wash water can be high in nutrients and/or hydrocarbons and poses a considerable threat to the environment if discharged untreated. Any business proposing to install a washdown bay must ensure it is approved by the relevant authority. For premises connected to sewer this will require the approval of the Water Corporation. For premises which do not have sewer available this will require approval from the City of Swan in the form of an Application to Construct or Install an Apparatus for the Treatment of Sewerage (Septic Application Form).

The following design and operating guidelines have been created to assist businesses and developers in designing washdown bays capable of containing contaminated wash water for treatment before appropriate disposal.

In specifying washdown bay design criteria for washdown bays disposing to sewer, the City of Swan has endeavoured to incorporate current Water Corporation washdown bay design criteria. However Water Corporation criteria may be subject to change and developers are therefore encouraged to visit [www.watercorporation.com.au](http://www.watercorporation.com.au) when considering the design of any washdown bay which may or will dispose to sewer.

## Washdown bay approval process

In order to obtain approval from the Water Corporation to connect a washdown bay to sewer it will be necessary to lodge a Trade Waste Application with them. For premises not on sewer, any washdown bay that produces over 540L/day of wastewater require approval from local government *and* the Department of Health. Wastewater systems producing less than 540L/day require local government approval *only*. Local government receives the application in both situations and will process approvals through to the Department of Health on behalf of the applicant.

Regardless of whether it is connected to sewer or septic Planning Approval is also required in the form of a Development Application. For systems greater than 20m<sup>2</sup> in area a roof structure is also required and this will require a Building Licence. For more information on the Health, Building or Planning approval process contact 9267 9267.

## Installation of a washdown bay

All works in relation to the design and construction of a washdown bay must comply with the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974* and Australian Standard AS/NZS 3500.2:2003 Plumbing and Drainage. Any plumbing installed in connection with the washdown bay must include a copy of the Plumbers Licensing Board's Certificate of Compliance which shall be submitted to the City of Swan (and Water Corporation if appropriate) on completion of the installation. This is a statement in writing confirming all plumbing and associated wastewater apparatus have been installed in accordance with the manufacturer's specifications.

## Recommendations for washdown bays

### Washdown Bay Pad

In order to contain wash water, the washdown bay pad should be of sufficient size to prevent any over-spray or splashes from escaping its confines. A recommended rule is for the washdown pad being designed to have roughly 2m greater width and length than the largest vehicles or equipment to be washed. The pad must be made from an impervious material such as concrete and engineered to withstand the loads which will pass over it throughout the life of the pad without structural damage.

The washdown bay pad should have a raised perimeter bund at least 75mm high and 100mm wide surrounding the pad on which the washing is to occur unless alternative containment measures such as walls have been proposed. Bunding in the form of installed speed humps at the entry and exit points of the wash bay should also be provided in order to divert surface rainwater run-off away from the wash area.

The wash bay floor should be graded to drain towards a collection point or channel connected to the sediment trap or pump tank. The wash bay floor and the drainage channel must have a minimum grade of 1:80. This will ensure the wash water is able to drain adequately without pooling or overflowing the bunds.

### **Sediment Trap**

A sediment trap is often required to remove sediment from washdown bay wash water prior to disposal. The size of the sediment trap required will depend on the contamination levels of the vehicles or equipment being washed, the volume and flow rate of the incoming wash water and the time needed for sediment to drop out of the wash water in the trap. Sediment traps should be inspected and cleaned on a regular basis to remove sediment.

### **Oil / Water Separators**

An oil/water separator is often required to remove oil from washdown bay wash water prior to disposal. Washdown bays connected to an approved oil/water separator such as a vertical gravity separator (VGS), coalescing plate separator (CPS), or hydro cyclone unit should be designed to consistently produce a waste stream (the watery part once the oil has been removed) with a maximum hydrocarbon level of 30ppm (roughly 30mg/L). Note that triple interceptors will no longer be approved as the primary or main oil/water separation device in any washdown bay process.

### **Holding Tanks**

The Department of Health may approve of a washdown bay disposing wash water into a temporary holding tank for offsite disposal. If a holding tank is approved for installation it should have backup systems such as floating cut-off switches, alarms, or overflow tanks installed in case of pump failures or holding tank overflows.

### **Leach Drains**

Leach drains connected to any washdown bay must be installed in accordance with the requirements of local government and the *Health Act 1911*.

### **Backflow Devices**

All washdown bays connected to a mains water supply must have a backflow device installed, as required by the Water Corporation. Vehicle and machinery washdown bays are deemed to be a high hazard backflow risk and therefore a boundary containment device is required to comply with the [Water Corporation Backflow Prevention Policy](#).

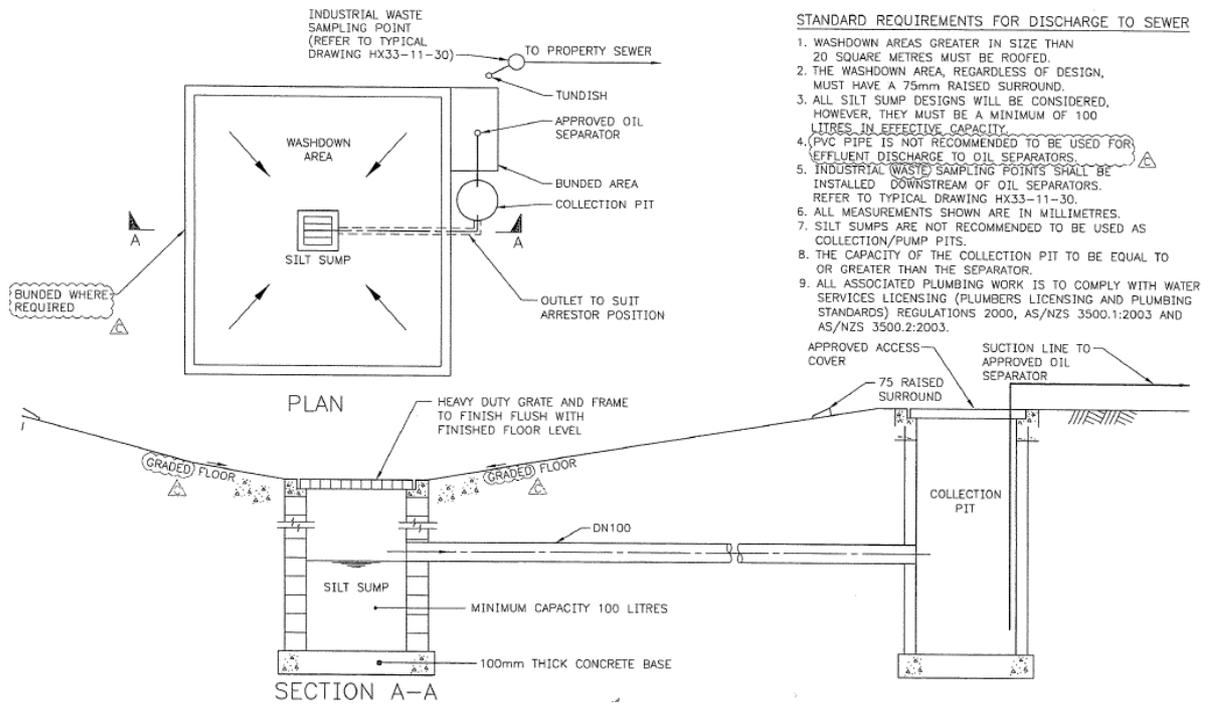
### **Washdown Bay Roofing**

All washdown bays within the City of Swan over 20m<sup>2</sup> in area are required to be roofed to adequately contain wash water and prevent the ingress of stormwater. For areas less than 20m<sup>2</sup> a roof structure is not mandatory although it is recommended. This helps minimise running costs as you do not have to process uncontaminated rainwater.

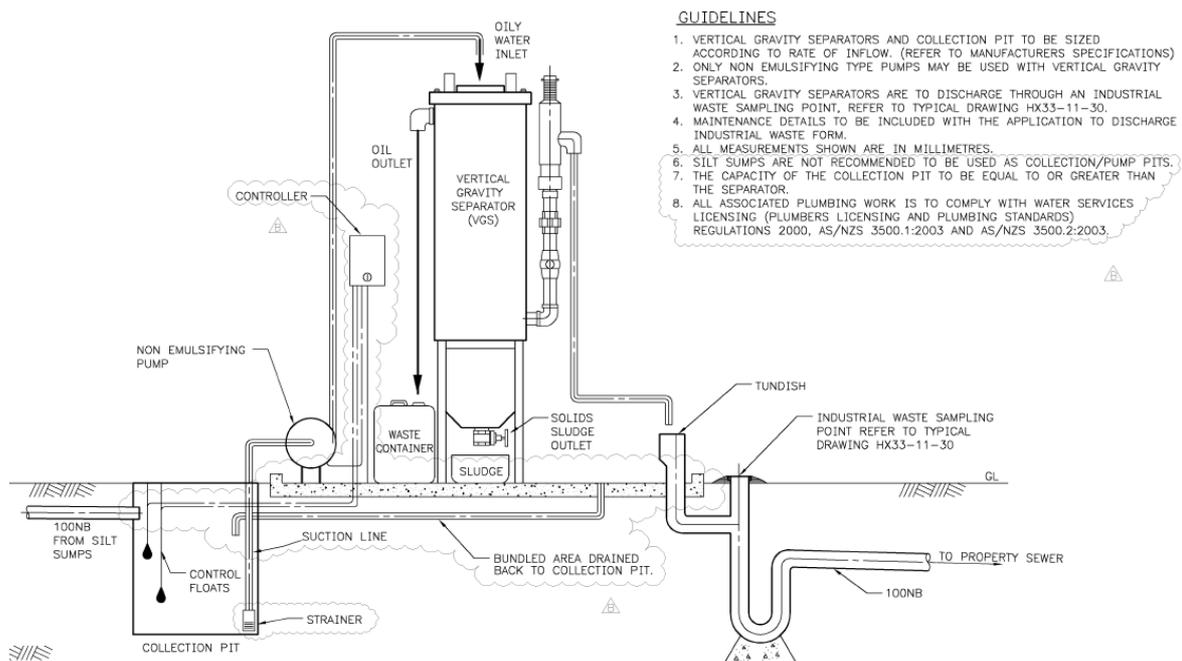
### **Sampling Points**

An inspection and sampling point should be provided prior to the point where any washdown bay waste water is disposed of either to sewer or onsite effluent disposal system.

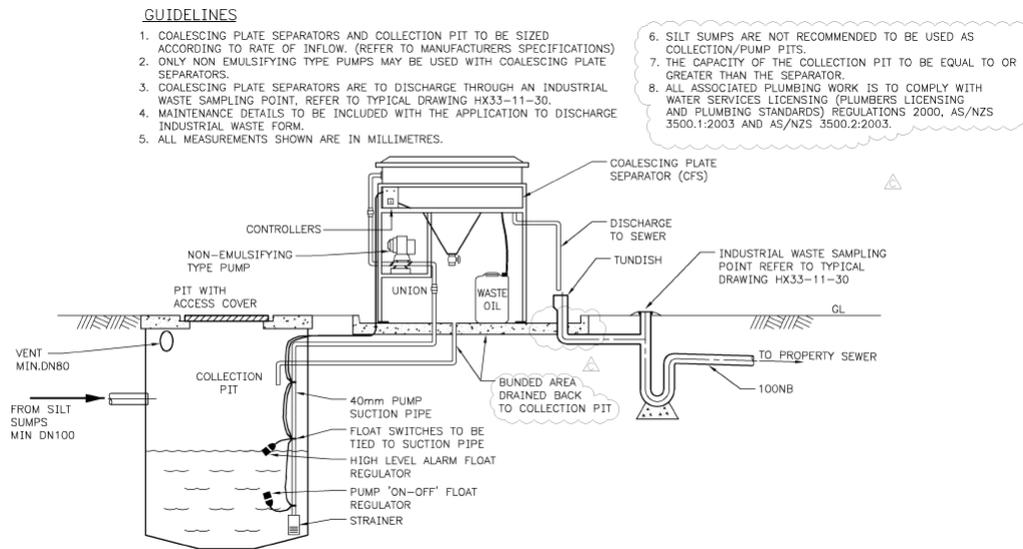
## Typical washdown bay setup (image taken from Water Corp diagram HX33-12-20)



## Typical vertical gravity separator (image taken from Water Corp diagram HX33-12-11)



## Typical small plate separator (image taken from Water Corp diagram HX33-12-10)



## Testing

In order to ensure the system is operating correctly owners should periodically undertake testing. Samples should be collected and analysed through a NATA accredited laboratory to ensure required discharge criteria are being adhered to. A copy of the sample testing results shall be kept onsite for a minimum of 3 years and presented to local government on request. In addition the City or Water Corporation may undertake their own sampling of the system. The Department of Water's Water Quality Protection Note 68 has more information on discharge criteria.

### Indicative waste water criteria acceptable to the City of Swan:

Measured component	Limiting criteria
pH	Within the range 5.5 to 8.5
Salinity (measured as electrical conductivity)	1800 $\mu$ S/cm (maximum)
Surfactants (detergents)	5 mg/L (maximum)
Total petroleum hydrocarbons	30 mg/L (maximum)
BTEX (benzene, toluene, ethyl benzene and xylene)	10 $\mu$ g/L (cumulative maximum)
Other toxic soluble contaminants	Ten times the guideline criteria or investigation trigger for local water values as published in the relevant National water quality management strategy guideline criteria to protect local water resource values

## **System maintenance**

The City of Swan requires maintenance arrangements in line with the manufacturer's recommendations to be implemented for any apparatus connected to a washdown bay. If the washdown bay is connected to sewer the Water Corporation may establish its own maintenance requirements. For more information, refer to the manufacturer's directions or contact the Water Corporation.

## **Quick break detergents and degreasers**

All washdown bay operators using detergents or degreasers to wash vehicles or equipment should use quick break products. This will allow the oily wash water to de-emulsify in the pump tank prior to entering the oil/water separator.

Hydrocarbons and quick break residues recovered by an oil/water separator should be stored in weather-proof containers for recycling. Waste oil is a controlled waste substance and must be removed by a licensed liquid waste contractor.

## **Nutrient reduction technology**

The City of Swan encourages the developers of washdown bays designed to dispose of treated wastewater to ground to incorporate nutrient reduction technology where the soils are incapable of retaining phosphorus (phosphorus retention index below 20). If phosphorus free quick break detergents and degreasers are used the nutrient levels should be minimal and no further treatment for nutrients may be required. However most detergents and degreasers are high in phosphorus and this nutrient rich wash water can be damaging to the environment and contributes to the problem of algal blooms and eutrophication.

## **Further information**

Further information can be obtained from the following agencies;

City of Swan:

9267 9267

[www.swan.wa.gov.au](http://www.swan.wa.gov.au)

Water Corporation:

13 13 95

[www.watercorporation.com.au](http://www.watercorporation.com.au)

Department of Water:

6364 7600

[www.water.wa.gov.au](http://www.water.wa.gov.au)