

## Introduction

Wastewater from wash bays facility 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. A business that intends to install a wash bay must ensure it is approved by the relevant authority. For premises connected to sewer this will require an approval from the Water Corporation. For premises where sewer is not available, then an approval will be required from the Shire of Serpentine Jarrahdale or Department of Health in the form of an Application to Construct or Install an Apparatus for the Treatment of Sewerage (Septic Application Form).

A wash bay is required to contain, recycle and dispose of waste water generated to the satisfaction of the Shire. The purpose of this documents is to help businesses and developers design and operate a wash bay in accordance with legislative and the Shire's requirements, to ensure the facility contains contaminated wash water for treatment before disposal. Approval for wash bays and the criteria for the discharge of waste water may also be required from the Department of Health and/or Water Corporation.

In specifying the wash-down bay design criteria for facilities disposing to sewer, the Shire of Serpentine Jarrahdale has endeavoured to incorporate current Water Corporation wash bay design criteria. However Water Corporation criteria may be subject to change and applicants are therefore encouraged to visit [www.watercorporation.com.au](http://www.watercorporation.com.au) and review Water Corporation design requirements when considering the design of any wash bay which may or will dispose to sewer.

## Wash Bay Approval Process

The process to approve a wash bay will vary depending on whether the wash water is discharged to sewer or to ground by an approved receptacle for drainage. However in both scenarios a Development Approval is generally required. If a roof structure is proposed, (the wash pad is greater than 20m<sup>2</sup>), a Building Licence is also generally required.

- Sewer – For a wash bay that discharges to sewer, an Application for Development Approval will be required to be submit to the Shire and an approval from the Water Corporation in the form or a Trade Waste Permit will be required to connect a wash bay to sewer.
- Onsite Disposal, Recycling or a Storage tank – To approve a wash bay that discharges the liquid waste onsite via an approve receptacle for drainage, or into a recycling system or storage tank, an 'Application for Development Approval' and an 'Application to Construct or Install an Apparatus for the Treatment of Sewage' is required to be submit to the Shire.

Once Development Approval has been issued and all supportive documentation for the septic application has been provided, if the facility is intended to produce less than 540L/day of wastewater then Local Government can issue the approval to construct. If the facility produces more than 540L/day then the application will be sent to the Department of Health WA for approval and issuing the approval to construct.

Once the wash bay is constructed, it will need to be inspected by an Environmental Health Officer and following this if found to be compliant with the approval and all necessary documentation has been provided by the applicant, a permit to use will be issued.



A wash bay approved by the Shire of Serpentine Jarrahdale or Department of Health WA, may include conditions associated with the use and operation of the facility as deemed necessary by the approving body.

## Wash Bay Location

Prior to submitting application/s to construct a wash bay that discharges to ground, the sites suitability for onsite disposal should first be considered. Wash bays should not be located close to sensitive water resources, including but not limited to protected waterways, drinking water catchments, conservation valued wetlands and the Swan and the Canning River. The Shire of Serpentine Jarrahdale will assess the proposed location of any wash bay and the suitability of the location with surrounding land uses. A site and soil evaluation will be required to be carried out in accordance with AS/NZS 1547 On-site domestic waste water management and will be used to determine if the site is suitable for onsite disposal.

## Installation of a Wash Bay

All works in relation to the design and construction of a wash 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 wash bay must include a copy of the Plumbers Licensing Board's Certificate of Compliance which shall be submitted to the Shire of Serpentine Jarrahdale (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.

## Wash Bay Design Recommendations

### Wash Bay Pad

In order to contain the wash water, a wash bay pad should be constructed of sufficient size to prevent over-spray or splashes from escaping its confines. A recommended rule is for the pad to be 2m greater in width and length than the largest vehicles 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 any structural damage.

The wash 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 containment barriers such as walls are 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 pad floor should be graded to drain towards a collection point or a channel connected to the sediment trap. The wash bay floor and 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.



## Wash Bay Roofing

Wash bays within the Shire of Serpentine Jarrahdale must be covered to contain wash water and prevent the ingress of stormwater. The roof should have a one-metre overhang for every three meters of height above the bund (approximately 200) to prevent wind-driven rain entering the wash bay. However, if this is impractical, walls or skirts can be used instead. If a roof is not practice, the Shire may consider alternative means of disposing the stormwater such as an approved stormwater diversion device, which diverts the stormwater to a stand along soak wells capable of handling a 1:10 year storm event.

## Sediment Trap

Wash water collected on the pad should initially drain to a sediment trap. The Shire recommends the size of the sediment trap be able to hold the anticipated volume of waste water for a minimum of 12 hours, to allow the sediment/silt to drop out of the solution. Otherwise the size will depend on the contamination levels from the vehicles 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, but the frequency can depend on the level of contamination of the items being washed. Due to being potentially contaminated, any sediment removed from the trap or other tanks should be disposed of to an approved landfill facility.

## Collection/Pump Tanks

A collection/pump tank(s) is prior to any oil/water separator(s), to allow for the de-emulsification of oil from the wash water. The collection/pump tank should be able to hold the anticipated volume of waste water for a 12 hour period. Two interconnecting tanks are recommended as this will greatly improve the separation time for de-emulsification. Note that a sediment trap will not be accepted to be used as a collection/pump tank. Accumulated oil and sediment within these a collection or pump tank will need to be pumped out and removed for disposal by a licenced Controlled Waste Contractor.

## Oil Water Separator

If hydrocarbons are present within the waste water, an oil water separator is required to be installed. It needs to be situated on the wash pad or within a sealed and bunded area that has a floor waste that drains back into the collection tank or wash pad. Common separators include vertical gravity separators (VGS), coalescing plate separator (CPS), or hydrocyclone unit. The separator chosen should be able to consistently produce a waste stream with a maximum of 15ppm (roughly 15mg/L) of hydrocarbons. Note that triple interceptors are not approved as primary (main) oil/water separation devices.

To ensure proper function, separators should be maintained regularly in accordance with the manufactures recommendation, and the Shire will require evidence of a maintenance agreement/arrangements. This is unless a maintenance agreement has been required under approval from the Department of Health or the Water Corporation of Western Australia.

Nutrient Reduction Technology



The Shire of Serpentine Jarrahdale encourages the incorporation of nutrient reducing technology into any wash bay designed to dispose treated wastewater on-site. If phosphorus free quick break detergents and degreasers are able to be used, the nutrient levels should be minimal and no further treatment may be required. However most detergents and degreasers are high in phosphorus and this nutrient rich wash water can be damaging to the environment. Soil modified leach drains and phosphorus removing Aerobic Treatment Units are examples of nutrient reducing technology.

## Leach drains

The Shire will only permit wash down bays to discharge liquid waste to ground by Department of Health approved leach drains (soak wells not permitted). Leach drains must be installed in accordance with the requirements of the Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1964, Government Sewage Policy and Shire of Serpentine Jarrahdale. Leach drains should be -

- A minimum of 1.8 m from any boundary, building or structure and 1.2 m from any sealed or paved area,
- A minimum of 1.5m above the highest known seasons, tidal water table.
- A maximum of 300mm below finishing ground level or 300mm of cover.
- Min of 6 m from any sub soil drain or open drainage system and 30 m from any bore or well used for human consumption.

## Recycling Systems

In situations where onsite disposal is not appropriate or greener alternative are being sought, waste water can be collected and passed through a treatment process for reuse. However the reuse of waste water can pose a risk to health from the growth of bacteria, viruses, accumulation of hazardous contaminants etc., therefore the level of treatment is greater in comparison to other disposal methods.

The quality of the recycled waste water that is required to be maintained before reuse is specified by the Guidance note for wash down facilities using recycled water. If an application is submit to the Shire for a wash bay connected to a recycling system, the applicant will need to provide signed certification or a report from an appropriately qualified person to state the system can monitor and maintain water quality in accordance with the guidance note, by continuously monitoring/dosing the liquid waste, otherwise demonstrate the water quality can be maintained and monitored though operational monitoring/verification in accordance with a communication/operational management plan.

## Holding Tanks

In other situations where the site may not be suitable to discharge to ground, or washing is required for a short duration, the Shire or the Department of Health may issue a temporary approval for a wash bay that discharges into a holding tank. Such facilities must have an automatic cut off, closure or backup system in place in case pumps fail or holding tanks reach capacity. Floating cut-off switches, alarms, and overflow tanks are examples of backup systems which can be installed in case of pump failures and holding tank overflows. In addition to this, the Shire will require the facility to be metered and controlled waste receipts be provided to the Shire to demonstrate correct disposal.





## Sampling points

An approved industrial waste sampling point is required to be installed after the oil/water separator but prior to the point of disposal to ground or connection to an Aerobic Treatment Unit. If a flow meter is required to be installed, the industrial waste sampling point is required to be a maximum of 2m from the flow monitoring device.

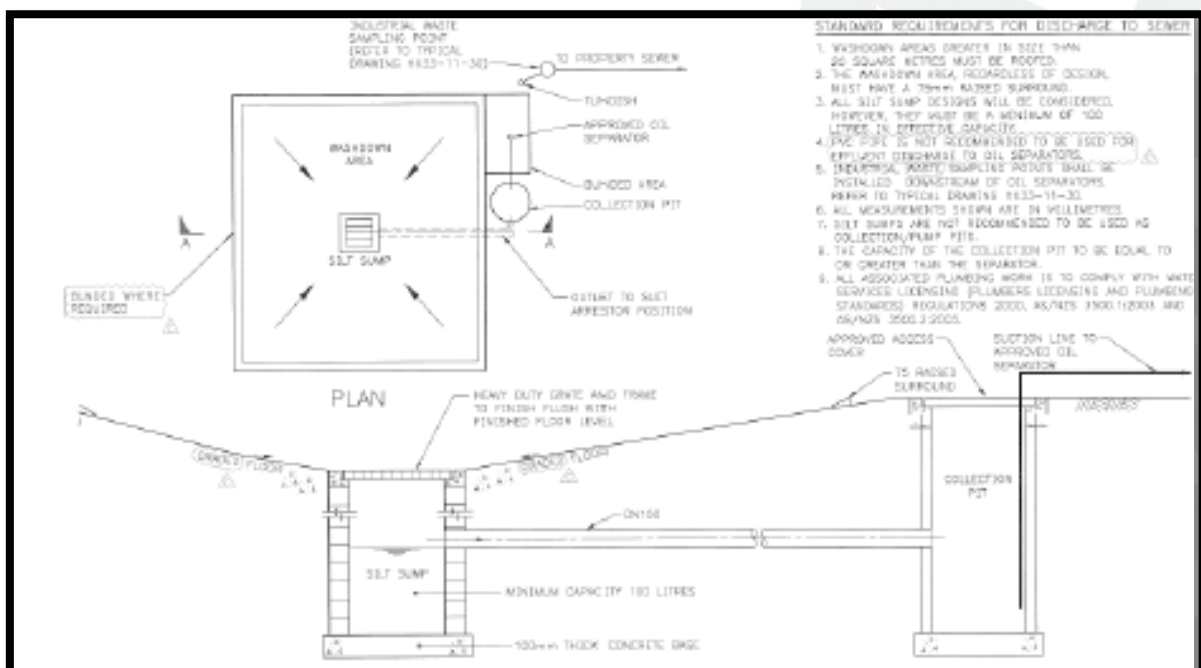
## Backflow Devices

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

<http://www.watercorporation.com.au/B/backflow.cfm>

## Example Drawings

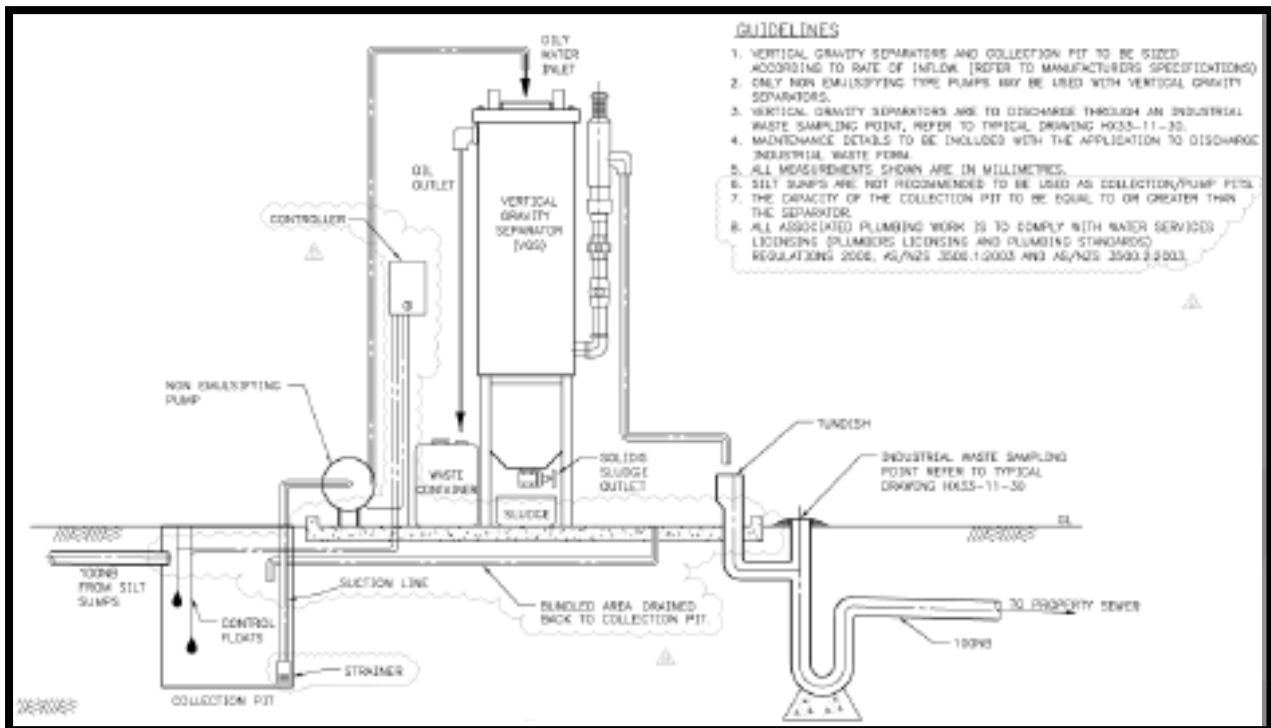
Typical mechanical wash down area (image taken from Water Corp diagram HX33-12-20)



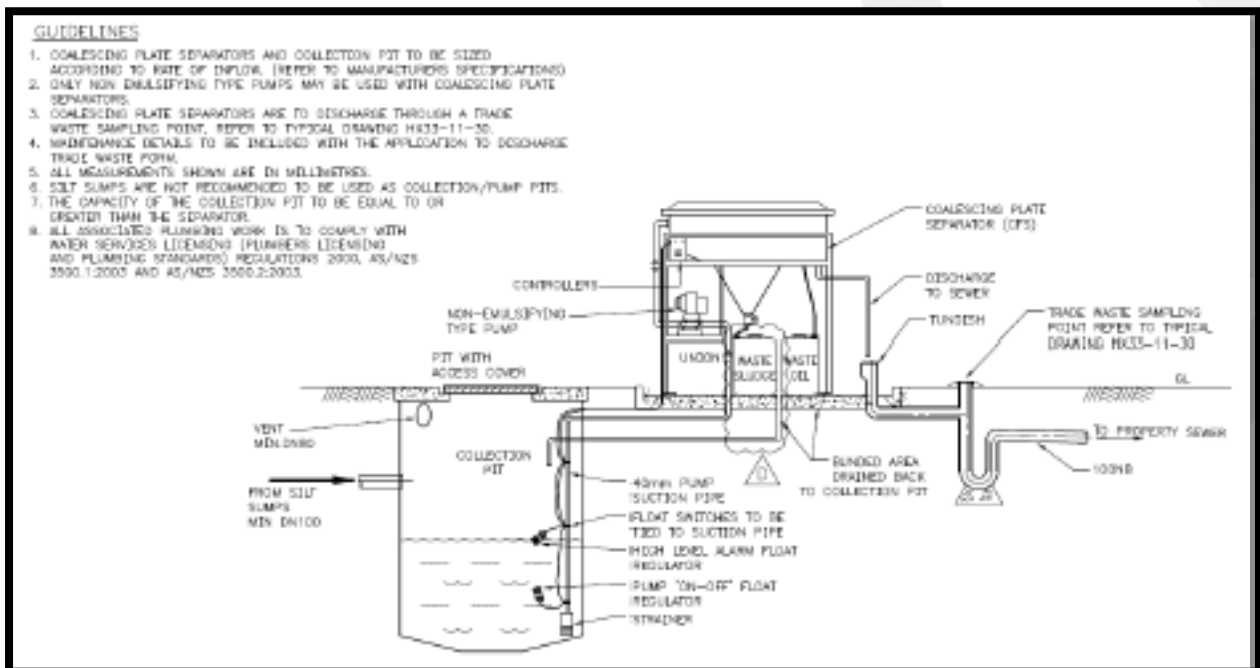
T: 9526 1111 F: 08 9525 5441 E: [info@sjshire.wa.gov.au](mailto:info@sjshire.wa.gov.au) W: [sjshire.wa.gov.au](http://sjshire.wa.gov.au)

A: 6 Paterson Street Mundijong Western Australia 6123 ABN: 98 924 720 841

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)



## Cleaning Chemicals/Agents

Only cleaning chemicals/agents specified or approved for use with the oil water separator should be used within the wash bay. Generally the type of cleaning agents permitted are quick break, biodegradable detergents and degreasers. These products allow the oily wash water to de-emulsify in the collection/pump tanks or oil water separator, enabling the oil to be recovered prior to discharging into the leach drain or sewer. Oil recovered by the separator should be collected within a weather-proof containers for recycling and removed from site by a licensed Controlled Waste contractor.

## Installation and Testing Requirements

The owner of a wash bay approved by the Shire of Serpentine Jarrahdale to discharge on-site is required to sample the quality of the wastewater being discharged into the receptacle for drainage within 3 months of a permit to use being issued. Samples must be obtained from the waste sampling point and tested by a NATA accredited laboratory and compared to the water quality parameters provided in the table below. If the initial test results indicate the system is performing adequately, then testing can resume on a six month basis with all results being held onsite for a minimum of 3 years and presented to Council inspectors on request. The below table is the expected water quality to be achieved prior to discharging to ground, and if not met indicates further treatment may be required.

Indicative wastewater criteria acceptable to the Shire of Serpentine Jarrahdale:

Parameter	Specification
Hydrocarbons	<15mg/l
Suspended Solids	<1,500ppm
Salinity	1800 micro-Siemens/centremetre (max)
Surfactants (detergents)	5mg/l max
pH	Within range of 5.5 – 8.5
Benzene, Toluene, ethyl benzene, Xylene, (BETEX)	10 micrograms/L (cumulative max)
Other toxic soluble contaminants	Maximum 10 times the guideline criteria or investigation trigger for local water values as published in the relevant <a href="#">National water quality management strategy guideline criteria</a> to protect local water resources values.

