



CANTERBURY CITY COUNCIL

City of Cultural Diversity

STORMWATER MANAGEMENT

MANUAL

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INTRODUCTION

The Canterbury City Council Stormwater Management Manual (SMM) is designed to help developers adequately plan and provide appropriate stormwater pollution control measures as part of their development and to assist in compliance with development consent conditions. The SMM is not a stand-alone document and should be read in conjunction with Council's Stormwater Drainage Design Manual; Flood Management Policy and Flood Proofing Code and the relevant Development Codes. SMM has been largely adapted from the Sydney Coastal Councils' "Stormwater Pollution Control Code for Local Government" (May 1992).

The manual is divided into three sections:

- Section A - Business Descriptions (Sections 1 through 18)
- Section B - SMM Specifications and Conditions (Specifications S1 through S9)
- Section C - Flood Management Policy and Flood Proofing Code (Specification 10).

Section A shows the type of Development or Building conditions that may be applied to the proposed development based upon the *business description categories*. It also includes an outline of the expected waste and source controls with reference to Section Two for technical requirements and detailed specifications. Section B provides detailed information and diagrams on specific stormwater pollution control devices and useful pollution control measures and techniques. This is in the form of nine SMM Specifications. Section C is Council's Management Policy and Flood Proofing Code, a separate document. This Code is Council's policy in relation to flood liable land in the city area. The Code also encourages development which is compatible with flood risk of the area and where appropriate, building of main floors at least 0.5 metres above the standard flood level.

It is not intended that the SMM cover all possible situations. The purpose of this policy document is to provide a practical guide to aid in the preparation of applications and designs to be submitted to Council. It is not meant to absolve the developer of any necessity to plan for the particular requirements of the site being dealt with.

Other documents that may assist the developer or designer in dealing with the issues dealt with by SMM include:

G.A. Chapman and C.L. Murphy (1989), *Soil Landscapes of the Sydney 1:100 000 Sheet*, Soil Conservation Service of NSW.

NSW Department of Housing, Housing Production Division, *Managing Urban Stormwater: Soils and Construction*.

Southern Sydney Regional Organisation of Councils (SSROC); *Do it Right On-Site: Soil and Water Management for the Construction Industry*.

Southern Sydney Regional Organisation of Councils (SSROC), *Do it Right On-Site: Environmental Information for Builders, Fact Sheets 1-16*.

1. SERVICE STATIONS, MOTOR VEHICLE REPAIR SHOPS, PANEL BEATERS, MISCELLANEOUS MOTOR REPAIRS AND SERVICES

1.1 TYPE

This category includes all businesses where petroleum or petroleum products are sold or dispensed and where motor repairs are constructed, including panel beating and spray painting, brake repairs, muffler repairs, tyre fitting, radiator flushing and engine degreasing associated with motor vehicle operation. These guidelines do not cover marine fuelling points or marine service facilities.

1.2 WASTES

Pollutants sourced from the above category of business can be varied as to type and have potential to discharge into stormwater drainage systems if appropriately managed. Such pollutants can be either generated from site usage or be carried onto site from other source areas. These pollutants include litter, petroleum products, paints, solvents, coolants and degreasing agents, sediment, rubber particles and detergents.

1.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 1.3.1 The covered forecourt area must be graded from the canopy line into appropriate collection sumps within the forecourt area and/or grated drains on the canopy line, so that surface effluent generated within the covered area is directed into a dedicated drainage system for treatment, storage and disposal. **[618]**
- 1.3.2 Covered work areas, including workshops and lubebays, must be graded into the appropriate collection sumps and/or grated drains so that surface effluent generated within the workshop area is directed into a dedicated drainage system for treatment, storage and disposal. Details must be submitted with the Construction Certificate Application. **[619]**
- 1.3.3 The *workshop *forecourt areas must be cleaned by using dry absorbents and sweeping - do not use water. **[620]**
- 1.3.4 All cleaning wastes and spillage from the *workshop *covered forecourt areas must be collected and disposed of in a way that does not pollute waters, that is waste waters must be directed to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[621]**
- 1.3.5 All stormwater from the uncovered forecourt areas, that is pavement and roof areas, must be directed away from the covered areas in accordance with Specifications S2 & S8 of Council's Stormwater Management Manual. **[622]**

- 1.3.6 All drainage systems, sumps and traps must be regularly maintained so that they are kept clean and remain effective. **[623]**
- 1.3.7 All above ground waste storage tanks must comply with Specification S4 of Council's Stormwater Management Manual. **[624]**
- 1.3.8 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**
- 1.3.9 An emergency spill contingency plan in accordance with Specification S5 of Council's Stormwater Management Manual and clean-up procedures for oil and oil based products must be submitted. **[626]**
- 1.3.10 Spill containment measures must be provided for any isolated bays outside the covered forecourt area. **[628]**
- 1.3.11 Spray booths and internal drainage must be connected to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[629]**
- 1.3.12 Clearly labelled litter bins in prominent positions near the shop and/or carparking areas must be provided for customers and emptied regularly. **[630]**
- 1.3.13 Tanker delivery facilities must be provided with a spillage collection device which will collect spilled petroleum product. **[631]**

1.4 OTHER APPROPRIATE CONDITIONS

- 1.4.1 All vehicles washed on the premises must be washed in a wash bay that complies with Specification S6 of Council's Stormwater Management Manual and is connected to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[653]**
- 1.4.2 Waste oil must be stored in a covered and bunded area and regularly removed by a waste oil recycler. **[633]**
- 1.4.3 Areas used to store liquids and liquid containers must be adequately bunded and fitted with a drain which leads to a dead sump constructed of concrete or other impervious material. The bunded area must be constructed to hold 10% of the total volume of containers or 110% of the largest container, whichever is the greater. Full construction details must be submitted before the Construction Certificate is released. **[635]**
- 1.4.4 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 1.4.5 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-

Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

- 1.4.6 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 1.4.7 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

2. RESTAURANTS, TAKE AWAY FOOD PREMISES AND FOOD PROCESSING PREMISES

2.1 TYPE

This category includes any business providing food products for either retail or wholesale sales, including meat packagers and any premises handling dairy products, pastries or confectionery.

2.2 WASTES

Take-away businesses, including corner shops, shopping centres and fast food networks, experience heavy patronage and some are associated with large parking areas. Two potential sources of contamination exist: rubbish skips and bins exposed to rain and wind; and litter and oil contaminating parking areas.

Most food sales or processing premises conduct their activities indoors and most of their liquid wastes should discharge to the sewer via Sydney Water Corporation's approved treatment. Floor wastes shall not be hosed to the street gutters; this is an offence under the *Protection of the Environment Operations Act*. Floors shall be constructed so that there is no discharge of floor wastes to the street. All grated drains should discharge to the sewer.

2.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 2.3.1 Waste storage bins must be covered at all time to prevent the entry of stormwater or dispersal by wind and must be sealed to prevent leakage. **[636]**
- 2.3.2 Stormwater from rooftops may discharge directly to stormwater drains provided water is not contaminated by other waters such as air-conditioning and cooling tower waste water. **[638]**
- 2.3.3 Loading and unloading docks must comply with Specification S3 of Council's Stormwater Management Manual. **[639]**
- 2.3.4 Aboveground storage tanks must comply with Specification S4 of Council's Stormwater Management Manual. **[640]**
- 2.3.5 An emergency spill contingency plan must be submitted to the Principal Certifying Authority with the Construction Certificate due to the storage of oil or dangerous goods outside the building. **[641]**
- 2.3.6 Garbage storage areas must comply with the requirements of Specification S7 of Council's Stormwater Management Manual. **[643]**
- 2.3.7 Water used to clean food preparation and eating areas must not be washed into the stormwater drainage system. **[644]**

- 2.3.8 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**
- 2.3.9 Loading and unloading docks must comply with Specification S3 of Council's Stormwater Management Manual. **[639]**
- 2.3.10 Aboveground storage tanks must comply with Specification S4 of Council's Stormwater Management Manual. **[640]**
- 2.3.11 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

2.4 OTHER APPROPRIATE CONDITIONS

- 2.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 2.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 2.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**

- 2.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

3. MOBILE BUSINESSES: TRANSPORT AND DELIVERY

3.1 TYPE

This category includes carpet cleaners, window cleaners, mobile lubrication vehicles, concrete trucks, fuel and heating oil delivery vehicles and concrete cutters.

3.2 WASTES

Carpet cleaning waste consists of detergent, fibres and liquid effluent which is frequently high in suspended solids and pesticides and have high Biochemical Oxygen Demand readings. Window cleaning waste consists of detergent and sediment. Mobile lubrication vehicles produce oils, grease and solids and other contaminants. Concrete trucks are regularly washed in gutters and excess concrete slurry is flushed in gutters causing sedimentation and loss of capacity of gully pits and stormwater drainage pits. Oil delivery vehicles and mobile lubrication vehicles are frequently the cause of accidental oil spills.

All of the substances mentioned above are prohibited from being discharged to the stormwater drainage system under provisions of the Protection of the Environment Operations Act, 1997.

3.3 SOURCE CONTROL

This type of business does not necessarily require Development Consent, however, the following standards of practice are required to avoid action under the Protection of the Environment Operations Act, 1997.

- 3.3.1 Carpet cleaning waste is permitted to discharge to the sewer via an approved treatment device in accordance with the requirements of the Sydney Water Corporation. Vehicles are not permitted to dispose of carpet cleaning waste into the stormwater drainage system.
- 3.3.2 Lubrication oil can be recycled and other oil wastes should be disposed of in landfill sites using commercial waste removal services.
- 3.3.3 Concrete and concrete pumping vehicles must not, under any circumstances, discharge any concrete or slurry into street gutters. Chutes, hoses and other ancillary equipment must be cleaned on site, using grassed areas or waste bins for disposal. Vehicles must not be cleaned on Council property.
- 3.3.4 Mobile lubrication vehicles and fuel and oil delivery must carry dry absorbent material, mats or the like.
- 3.3.5 Vehicles must be designed to prevent the discharge of wastes via winds, leaks or rain wash.

4. WHOLESALE AND FINISHED GOODS RETAILERS

4.1 TYPE

This category includes sellers of office equipment, white goods, furniture, electrical goods, sporting goods, clothing, etc. All warehousing facilities standing entirely on private property are included.

4.2 WASTES

The wastes likely to produce stormwater pollutants are from the parking area and from the disposal of packing waste. Parking areas will collect sediments, metals, oils, grease and litter.

4.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

4.3.1 Stormwater from rooftops may discharge directly to stormwater drains provided water is not contaminated by other waters such as air-conditioning and cooling tower waste water. **[638]**

4.3.2 Garbage storage areas must comply with the requirements of Specification S7 of Council's Stormwater Management Manual. **[643]**

4.3.3 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

4.3.4 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

4.4 OTHER APPROPRIATE CONDITIONS

4.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

4.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

4.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's

stormwater system in accordance with AUS-SPEC Specification D5 “Stormwater Drainage Design” and Clause 4 of Council’s Stormwater Management Manual - Specification 9 “A Guide for Stormwater Drainage Design”. **[221]**

- 4.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant’s engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

5. RETAIL SHOPPING CENTRES

5.1 TYPE

This category refers to supermarket development, retail shopping malls and other facilities which are built on private lands. This category includes 24 hour convenience stores and large retail warehouses.

5.2 WASTES

Of particular concern are parking areas because of significant vehicle usage. These areas accumulate concentrations of oils which may run off to the stormwater drainage system during rain. Rubbish, particularly food wastes and wastes from packaging, are often a problem.

5.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

5.3.1 Waste storage bins must be covered at all time to prevent the entry of stormwater or dispersal by wind and must be sealed to prevent leakage. **[636]**

5.3.2 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

5.3.3 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

5.3.4 Loading and unloading docks must comply with Specification S3 of Council's Stormwater Management Manual. **[639]**

5.4 OTHER APPROPRIATE CONDITIONS

5.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

5.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-

Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

- 5.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 5.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

6. CONSTRUCTION AND BUILDING SITES

6.1 TYPE

This category includes all subdivisions, construction and building sites of a residential, commercial or industrial nature.

6.2 WASTES

The majority of wastes are generated on the construction site or on land under local Council control immediately adjacent to the site. Building sites are major contributors of sediment, suspended solids, concrete wash and food waste to the stormwater system in urban areas. Major pollutants including paints, solvents and waste waters are generated by painting contractors. Concrete suppliers and concrete pumping contractors can cause waste concrete to be deposited in gutters. Stockpiles of mortar, sand, bricks and other materials contribute pollutants to the stormwater system and hence, receiving waters. Sawdust accumulation on sites may be washed or blown into the stormwater drainage system.

6.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

6.3.1 Submission of a Soil and Water Management Plan, including details of:

- (a) property details (location, applicant, drawn by, date, scale)
- (b) accurate property description (property boundary)
- (c) contours
- (d) access point and access control measures
- (e) location and type of all sediment control measures
- (f) location of existing vegetation to be retained and undisturbed ground
- (g) any existing watercourse or drainage
- (h) material stockpile areas and storage and control methods
- (i) location of new drainage features (stormwater inlet pits)
- (j) revegetation proposals, including specifications on materials used and methods of application

(NOTE: For guidance on the preparation of the Plan refer to the Soil and Water Management for Urban Development guidelines produced by the Southern Sydney Regional Organisation of Councils.) **[663]**

6.3.2 Council's warning sign for Soil and Water Management must be displayed on the most prominent point on the building site, visible to both the street and site workers. The sign must be displayed throughout construction. **[664]**

6.3.3 The capacity and effectiveness of erosion and sediment control devices must be maintained at all times. **[665]**

6.3.4 A copy of the Soil and Water Management Plan must be kept on site at all times and made available to Council officers on request. **[666]**

- 6.3.5 The construction site must have sediment erosion controls and methods implemented as described in Specifications S1 and S2 of Council's Stormwater Management Manual. **[667]**
- 6.3.6 Concrete pumping contractors must not allow the discharge of waste concrete to the stormwater system. Waste concrete must be collected and disposed of on-site. **[668]**
- 6.3.7 Materials must not be deposited on Council's roadways as a result of vehicles leaving the building site. **[673]**
- 6.3.8 Drains, gutters, roadways and accessways must be maintained free of sediment. Where required, gutters and roadways must be swept regularly to maintain them free from sediment. **[674]**
- 6.3.9 The site must be provided with a vehicle washdown area at the exit point of the site. The area must drain to an approved silt trap prior to disposal to the stormwater drainage system in accordance with the requirements of Specification S2 of Council's Stormwater Management Manual. Vehicle tyres must be clean before leaving the site. **[675]**
- 6.3.10 All disturbed areas must be stabilised against erosion within 14 days of completion, and prior to removal of sediment controls. **[676]**
- 6.3.11 Excavation waters must be diverted to settling ponds, where site area permits, prior to discharge through treatment devices to Council's stormwater drainage system. Installation and procedures must be in accordance with Specification S1 of Council's Stormwater Management Manual. **[677]**
- 6.3.12 Erosion and sedimentation control methods must comply with Specifications S1 and S2 of Council's Stormwater Management Manual. **[678]**
- 6.3.13 Stormwater from roof areas must be linked via a temporary downpipe to a council approved stormwater disposal system immediately after completion of the roof area. **[680]**

- 6.3.14 A single entry/exit point must be provided to the site which will be constructed of a minimum of 40mm aggregate of blue metal or recycled concrete. The depth of the entry/exit point must be 150mm. The length will be no less than 15m and the width no less than 3m. Water from the area above the entry/exit point shall be diverted to an approved sediment filter or trap by a bund or drain located above. **[681]**

7. LAUNDRIES AND DRY CLEANERS

7.1 TYPE

This category includes all commercial laundry facilities, such as linen supplies, nappy services and coin-operated laundries and all commercial and retail dry cleaners.

7.2 WASTES

All washing liquids must be discharged to the Sydney Water Corporation's sewer. Under no circumstances may laundry waste discharge to the stormwater system. The potential pollution of stormwater run-off from the storage and disposal of spent solvents and containers is a major concern.

7.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 7.3.1 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**
- 7.3.2 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**
- 7.3.3 Empty containers must be stored indoors or under cover subject to the requirements of Specifications S4, S5 & S7 of Council's Stormwater Management Manual. **[656]**

7.4 OTHER APPROPRIATE CONDITIONS

- 7.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
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Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**

- 7.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

8. NURSERY AND BUILDING SUPPLIES

8.1 TYPE

Premises selling bulk soils, sands, landscaping and building materials where storage of merchandise is likely to be outside roofed buildings.

8.2 WASTES

Stormwater run-off from such sites are likely to contain contaminants such as suspended solids, sand, oils and grease, nutrients, pesticides and herbicides. Some businesses may have small refuelling and/or repair facilities for delivery vehicles.

8.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

8.3.1 Stockpiles of all materials shall comply with the requirements of Specification S7 of Council's Stormwater Management Manual.

8.3.2 Run-off from the nursery area must be collected and discharged via a treatment device complying with Specification S2 of Council's Stormwater Management Manual. **[649]**

8.3.3 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

8.3.4 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

8.4 OTHER APPROPRIATE CONDITIONS

8.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

8.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

8.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's

stormwater system in accordance with AUS-SPEC Specification D5 “Stormwater Drainage Design” and Clause 4 of Council’s Stormwater Management Manual - Specification 9 “A Guide for Stormwater Drainage Design”. **[221]**

- 8.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant’s engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

9. RECYCLING FACILITIES, SCRAP METAL AND MOTOR WRECKERS

9.1 TYPE

This category includes vehicle wreckers and spare part reclaimers, scrap metal merchants and recycling depots for glass, plastic, paper or cardboard.

9.2 WASTES

The types of contaminants will vary depending on the primary activity of the premises. However, it is likely that stormwater run-off will be contaminated by metals, suspended solids, oils and grease and paper products. Paper products are likely to contribute a high biochemical oxygen demand input.

9.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 9.3.1 The storage of wrecking vehicles and spare parts must be located in roofed buildings. **[650]**
- 9.3.2 All drains must be properly graded and connected to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[651]**
- 9.3.3 Engine oils, fuels and other fluids must be removed from vehicles and under no circumstances must this material be discharged to the stormwater system. **[652]**
- 9.3.4 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**
- 9.3.5 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

9.4 OTHER APPROPRIATE CONDITIONS

- 9.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 9.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 9.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 9.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

10. SINGLE DWELLINGS AND DUAL OCCUPANCIES

10.1 TYPE

All new attached dual occupancies, detached dual occupancies, single dwellings, single dwelling additions and Class 10 structures including carports, garages, patios and sheds.

10.2 WASTES

Sealed areas are of concern for stormwater run-off and contamination. Wastes from such areas include grass clippings, suspended solid particles, household chemicals, detergents, oil and grease. For single dwelling additions, the controls below will only apply where **the increase in impervious area is more than 100% OR where the proposed total impervious area on the site is more than 70%.**

Impervious area includes roofed areas and hard paved areas such as driveways. This is not the same as the floor space ratio.

10.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 10.3.1 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

- 10.3.2 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 10.3.3 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 10.3.4 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**

11. TOWNHOUSES, VILLA HOMES AND MULTIPLE UNIT DEVELOPMENT

11.1 TYPE

All multiple dwellings, except dual occupancies.

11.2 WASTES

Communal parking areas are of concern for stormwater contamination. Wastes from such areas include oil, grease, suspended solid particles and detergent.

11.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

11.3.1 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

11.3.2 All vehicles washed on the premises must be washed in a wash bay that complies with Specification S6 of Council's Stormwater Management Manual and is connected to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[653]**

11.4 OTHER APPROPRIATE CONDITIONS

11.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

11.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

11.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**

- 11.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

12. VEHICLE DEPOTS

12.1 TYPE

This category includes bus depots, Council depots, RTA depots, car sales yards, care hire companies, equipment hire, vehicle manufactures, storage areas, agricultural and industrial equipment sales yards and storage yards.

12.2 WASTES

Wastes likely to be generated include oil, detergents, solvents and other vehicle associated pollutants.

12.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 12.3.1 All vehicles washed on the premises must be washed in a wash bay that complies with Specification S6 of Council's Stormwater Management Manual and is connected to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[653]**
- 12.3.2 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**
- 12.3.3 An emergency spill contingency plan must be submitted to the Principal Certifying Authority with the Construction Certificate due to the storage of oil or dangerous goods outside the building. **[641]**
- 12.3.4 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

12.4 OTHER APPROPRIATE CONDITIONS

- 12.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 12.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 12.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's

stormwater system in accordance with AUS-SPEC Specification D5 “Stormwater Drainage Design” and Clause 4 of Council’s Stormwater Management Manual - Specification 9 “A Guide for Stormwater Drainage Design”. **[221]**

- 12.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate.

The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage.

The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant’s engineer shall certify that all work has been carried out in accordance with the approved plans.

An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

13. WOOD PRODUCTS

13.1 TYPE

This category includes all timber mills, timber yards, workshops using timber or timber products, furniture manufacturers including office and kitchen décor and timber preserving works.

13.2 WASTES

Primary wastes are timber shavings, sawdust and wood chips. Maintenance and repair of equipment will produce waste oils and cleaning solvents. Businesses which finish products may produce waste paints, thinners, turpentine and shellac.

13.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

13.3.1 Loading and unloading docks must comply with Specification S3 of Council's Stormwater Management Manual. **[639]**

13.3.2 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**

13.3.3 Open areas in which timber or bulk products are stored must discharge via a stormwater treatment device in accordance with Specification S2 of Council's Stormwater Management Manual. **[655]**

13.3.4 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

13.4 OTHER APPROPRIATE CONDITIONS

13.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

13.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

13.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5

“Stormwater Drainage Design” and Clause 4 of Council’s Stormwater Management Manual - Specification 9 “A Guide for Stormwater Drainage Design”. **[221]**

- 13.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant’s engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council’s Stormwater Management Manual - Specification 9 “A Guide to Stormwater Drainage Design”. A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

14. CHEMICALS

14.1 TYPE

This category includes all premises for manufacturing, storage or sale of chemicals, either retail or wholesale. The category covers pharmaceuticals, chemicals, soaps, paints, industrial resins and glues, organic and agricultural chemicals.

14.2 WASTES

Wastes generated by these types of businesses are numerous and usually toxic. This section applies only to those quantities and types of chemicals listed as exempt from licensing under the WorkCover Authority requirements.

14.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

- 14.3.1 An emergency spill contingency plan must be submitted to the Principal Certifying Authority with the Construction Certificate due to the storage of oil or dangerous goods outside the building. **[641]**
- 14.3.2 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**
- 14.3.3 Empty containers must be stored indoors or under cover subject to the requirements of Specifications S4, S5 & S7 of Council's Stormwater Management Manual. **[656]**
- 14.3.4 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**
- 14.3.5 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

14.4 OTHER APPROPRIATE CONDITIONS

- 14.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 14.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 14.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 14.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

15. PARKS, GARDENS, GOLF COURSES AND MARKET GARDENS

15.1 TYPE

This category refers to all recreational parks and gardens, playing fields, private and public golf courses and market gardens.

15.2 WASTES

Stormwater run-off from these areas contains contaminants such as pesticides and herbicides, nutrients and sediments. These areas frequently contribute nutrients after rain which cause eutrophication and sedimentation in receiving waters.

15.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

15.3.1 Empty containers must be stored indoors or under cover subject to the requirements of Specifications S4, S5 & S7 of Council's Stormwater Management Manual. **[656]**

15.3.2 Clearly labelled litter bins must be placed in prominent positions on all marina walkways, workshop and retail business areas must be provided to the satisfaction of Council. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

15.4 OTHER APPROPRIATE CONDITIONS

15.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

15.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[359]**

15.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**

15.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared

in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate.

The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage.

The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans.

An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. [225]

16. PRINTERS, PUBLISHERS AND FILM PROCESSORS

16.1 TYPE

This category includes all manufacturers of books, periodicals and newspapers, including bookbinders, typesetters and desktop publishers.

16.2 WASTES

Most environmentally hazardous activities will occur indoors and pollution will arise only with those activities which have the potential to come in contact with stormwater. Of particular concern, is temporary storage of wastes outside the building and loading and unloading of chemicals and waste chemicals and containers. Many wastes are produced from printing and film processing, including inks, ink sludge, solvents, acids, alkalis, chlorides, chromium, zinc, lead, formaldehyde, silver and plastics.

16.3 SOURCE CONTROL

The following conditions may be applied depending on the circumstances of the application under consideration.

16.3.1 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**

16.3.2 Clearly labelled litter bins must be placed in prominent positions on all marina walkways, workshop and retail business areas must be provided to the satisfaction of Council. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**

16.4 OTHER APPROPRIATE CONDITIONS

16.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**

16.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**

- 16.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 16.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

17. ALL OTHER MANUFACTURING

17.1 TYPE

This category covers all manufacturing enterprises not specifically mentioned above and includes clothing, textiles, leather, pottery and all manufacturers of metallic products.

17.2 WASTES

This category is too broad to specifically identify wastes generated.

17.3 SOURCE CONTROL

A series of general controls is presented here which should be identified for all manufacturers. These conditions may be applied depending on the circumstances of the application under consideration.

- 17.3.1 All drains receiving manufacturing waste must discharge to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. **[658]**
- 17.3.2 All chemicals stored on site must be stored in bunded areas in accordance with the requirements of Specification S7 of Council's Stormwater Management Manual. **[647]**
- 17.3.3 Clearly labelled litter bins must be placed in prominent positions in all workshop and retail business areas. The bins must be provided with self-closing lids and must be sealed to prevent leakage and dispersal of garbage by wind, water or animals. **[661]**
- 17.3.4 Signs must be painted on stormwater drains indicating that they are not to take liquid or solid waste. **[625]**
- 17.3.5 An emergency spill contingency plan must be submitted to the Principal Certifying Authority with the Construction Certificate due to the storage of oil or dangerous goods outside the building. **[641]**
- 17.3.6 Cooling tower waste water must be discharged to the Sydney Water Corporation's sewer in accordance with that Authority's requirements. Discharge to the stormwater drainage system is prohibited. **[659]**

17.4 OTHER APPROPRIATE CONDITIONS

- 17.4.1 Full width grated drains being provided across each vehicular entrance/exit to the site where internal areas drain towards the street, and be connected to the street drainage system in accordance with Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[220]**
- 17.4.2 Driveways, parking and service areas are to be constructed or repaired in accordance with the appropriate AUS-SPEC #1 Specifications: C242-Flexible Pavements; C245-Asphaltic Concrete; C247-Mass Concrete Subbase; C248-Plain or Reinforced Concrete Base; C254-Segmental Paving; C255-Bituminous Microsurfacing. **[207]**
- 17.4.3 All downpipes, pits and drainage pipes shall be installed and/or repaired and/or cleaned out to ensure that stormwater is conveyed from the site to Council's stormwater system in accordance with AUS-SPEC Specification D5 "Stormwater Drainage Design" and Clause 4 of Council's Stormwater Management Manual - Specification 9 "A Guide for Stormwater Drainage Design". **[221]**
- 17.4.4 Full details of the hydraulic evaluation of the entire stormwater drainage system must be prepared by a practising Civil Engineer. The details shall be prepared in accordance with Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". Three (3) copies of plans and calculations, with levels reduced to Australian Height Datum (AHD) must be submitted with the application for the Construction Certificate. The design must include the provision for on-site stormwater detention (OSD). The Stormwater Drainage System must be constructed in accordance with the approved plans and in accordance with AUS-SPEC #1 Specification C221-Pipe Drainage. The applicant shall provide a Works-as-Executed plan detailing all the site drainage and the OSD system. The plan shall be prepared by a registered surveyor or an engineer. The plan shall record all the relevant design levels and dimensions of the OSD system. The applicant's engineer shall certify that all work has been carried out in accordance with the approved plans. An appropriate instrument must be registered on the title of the property, concerning the presence and ongoing operation of the on-site detention system as specified in Appendix 7.5 of Council's Stormwater Management Manual - Specification 9 "A Guide to Stormwater Drainage Design". A sample document is included in the manual setting out the terms of the instrument to be registered. **[225]**

SMM SPECIFICATIONS

This section of the Stormwater Management Manual contains the Specifications referred to in each of the Business Description sheets. There are nine specifications (S1 through S9) which cover the following matters:

1. Soil and Water Management on Construction Sites;
2. Treatment Devices;
3. Loading and Unloading Liquids;
4. Aboveground Storage Tanks;
5. Clean-up Procedures for Oil and Oil-Based Products;
6. Washdown Areas for Commercial Vehicles;
7. Waste and Material Storage;
8. Fuelling Points;
9. Stormwater Drainage Design.

The first eight specifications are attached to this document. Specification 9 is actually Council's Stormwater Drainage Design Manual (SDDM). Specification 9 refers you to that document.

S1 SOIL & WATER MANAGEMENT ON CONSTRUCTION SITES

This section should be read in conjunction with the Southern Sydney Regional Organisation of Council's, "Do it Right on Site", Soil and Water Management for the Construction Industry Fact sheets and the NSW Department of Housing publication, "Managing Urban Stormwater: Soils and Construction", 1998.

INTRODUCTION

Development has a significant impact on local waterways. Soil, sand and other building materials do find their way into the stormwater system, into creeks and rivers harming their ecology. These controls aim to reduce the impact of construction activities on local waterway environments.

Erosion occurs when vegetation cover is removed during urban construction or land development and in the subsequent earth movement and land shaping which follows. Sediment mobilised in this activity enters the natural and stormwater drainage systems, blocks stormwater drains, reduces water depth, causes turbidity, reduces recreational amenity and damages aquatic ecosystems. It is also a major carrier of persistent pollutants in waterways and frequently has heavy metals and pesticides adhering to the finer particles.

Sedimentation represents a considerable cost to the community in cleaning and maintenance of stormwater infrastructure, in increased flooding due to reduced capacity of drainage systems and in dredging of receiving waters. In addition, individual land holders incur costs in importing topsoil to replace lost soil and in establishing ground cover to avoid further erosion.

In fully developed urbanised areas, the primary constraint on builders and developers is one of space. Large pollution control devices on the building sites are not usually possible. However, efficient control devices on building sites often requires only minor works or minor changes to practices. These which have benefits, not only to the community in improved sediment control, but also to the builder in improved access and site conditions and less lost time due to water-logged sites.

CAUSES OF POLLUTION ON BUILDING SITES

The following are common causes of pollution:

- Earthworks associated with construction of foundations and excavations;
- Earthworks for terracing and landscaping;
- Uncovered and unprotected stockpiles of soil and sand;
- Access by vehicles on and off site;
- Activities which cause the removal of vegetation, particularly on road verges.

Pollution from building sites causes gully pits to fill and block which aggravates local flooding and pollution problems, and presents a significant cost to Council in cleaning and maintenance.

COUNCIL REQUIREMENTS

- A Soil and Water Management Plan must be submitted with the Development Application for all new dwellings and alterations and additions where the gross floor area increases by more than 50% (for the requirements of a Soil and Water Management Plan, refer to Council);
- All basic construction activities, (activities that do not require a Soil and Water Management Plan) require the following basic control measures implemented on the site prior to work commencing:
 - ◆ Stabilised vehicle access point;
 - ◆ Sedimentation fencing at the boundary (low point);
 - ◆ Sedimentation fencing around material stockpiles.
- All control measures outlined in the Soil and Water Management Plan must be implemented on the site prior to work commencing.
- Only uncontaminated fill can be used.
- On sloping sites, minimise cut and fill and building bulk by stepping the building down the slope or using existing levels.
- The form, bulk, scale and location of cut and fill is to be controlled to ensure that there are no adverse impacts on neighbouring properties.
- Development on land indicated on the Acid Sulfate Soils Planning Maps (published by the NSW Acid Sulfate Management Committee), within classes 1 to 5 may require the preparation of an Acid Sulfate Soil Management Plan assessing the risk of acid sulfate soils.
- For further information on Soil and Water Management during construction activities refer to:
 - ◆ SSROC “Do it Right on Site”, Soil and Water Management for the Construction Industry;
 - ◆ SSROC “Do it Right on Site”, Environmental Information for Builders, Fact Sheet 1-16;
 - ◆ NSW Department of Housing, Housing Product Division, Managing Urban Stormwater: Soils and Construction.

PREVENTING POLLUTION FROM BUILDING SITES

The following pages contain information developed by the Southern Sydney Regional Organisation of Councils during the “Do it Right On-Site” project. The following fact sheets will help you stop pollution from building sites:

1. Diversion of Upslope Water
2. Dust Control
3. Early Installation of Roof Drainage
4. Excavation Pump Out
5. Protected Concrete, Brick and Tile Cutting
6. Protected Concrete Delivery
7. Protected Service Trenches
8. Protected Stockpiles
9. Protected Wash Areas
10. Protected Waste Management and Chemical Storage
11. Protecting Vegetation
12. Protection of Gutter and Street Stormwater Drains

13. Protection of Site Stormwater Pits
14. Sediment Controls
15. Soil and Water Management Plans
16. Stabilised Site Access

S2 TREATMENT DEVICES

This specification covers the following stormwater treatment devices:

1. Silt Arrestor Pit;
2. Oil/Water Separators;
3. Filter Trenches & Absorption Trenches;
4. Detention Basins
5. Wetlands
6. Gross Pollutant Traps
7. Booms
8. Trash Racks

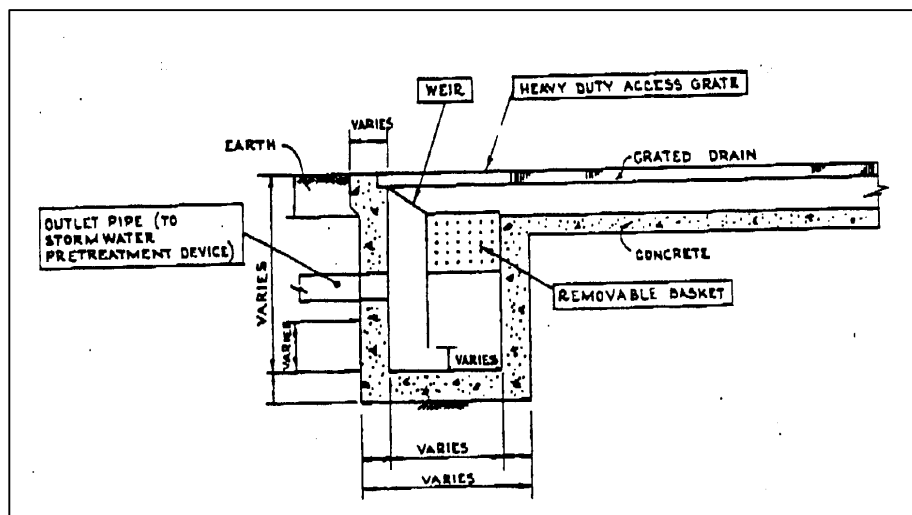
Each of these devices and their use in the Council area is discussed on the following pages.

1. SILT & LITTER ARRESTOR PITS

This section includes Silt Arrestor Pits and Stormwater Run-off Quality Control and Interception Pits. Each system's purpose is to remove silt, grit, litter and other sediment pollutants from stormwater before it is discharged from the site. Maintenance of these devices is critical and they should be designed to provide easy access for regular maintenance.

Silt Arrestor Pits

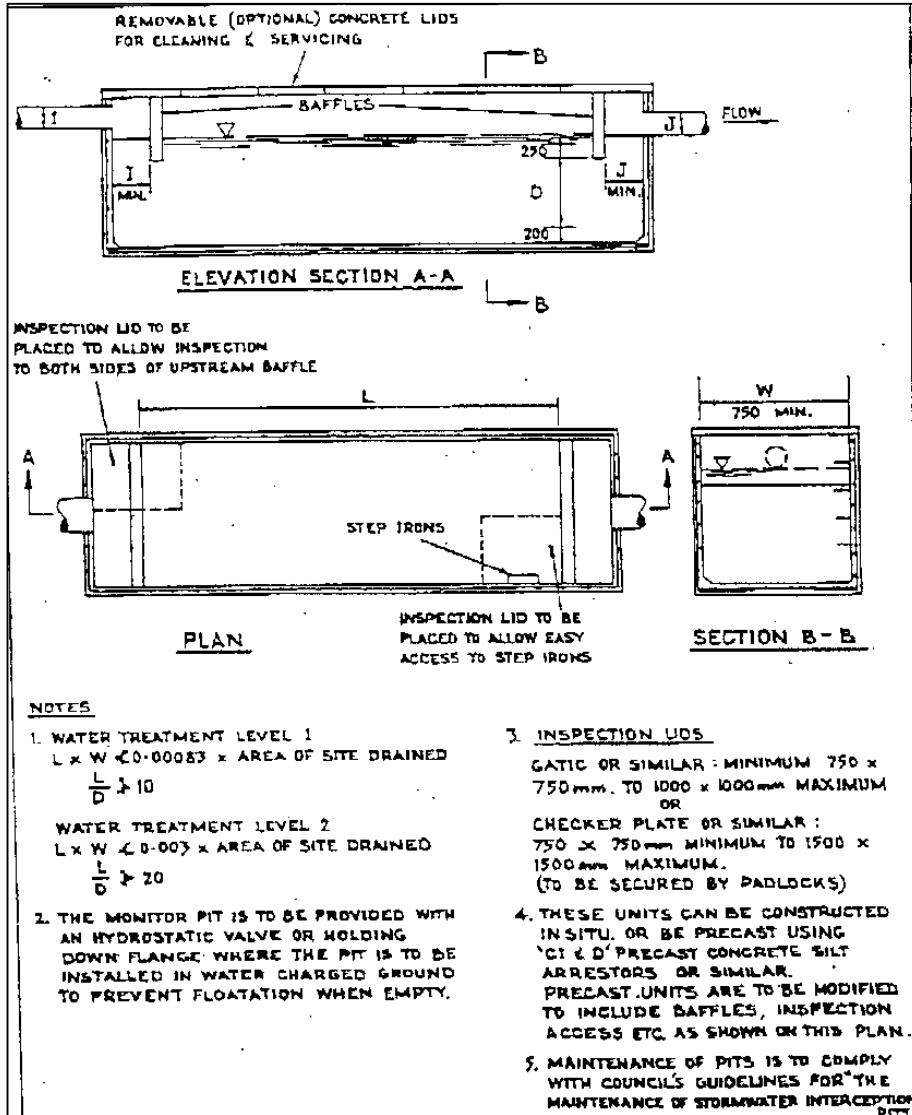
These devices should be installed to collect stormwater run-off from paved surfaces such as forecourt areas of service station or commercial washdown bays. The paved area is suitably graded and drained to the arrestor pit and discharged via a stormwater treatment device before entering the stormwater drainage system. Approval must be obtained from Council on the design and sizing of this device. Council's SDDM provides assistance on the sizing of the silt storage facility. A typical silt arrestor pit is shown below.



Stormwater Run-Off Quality Control Interception Pits

These are normally precast pits with baffles to contain sediment on the bottom and floatables on the top. The velocity of flow through the pits is to be low enough to allow sedimentation of the specified amount and size of particles.

Stormwater interception pits are to be accessible for inspection at any time by the Council and other relevant authorities and accessible for maintenance by truck mounted, suction cleaning equipment. They are to be kept clean and maintained by the owner of the property. Approval shall be obtained from the Council prior to installation. A typical device is shown below.



2. OIL/WATER SEPARATORS

This section describes the general requirements of oil/water separators and gives brief details on types of specific separators. When considering design standards for oil/water separators, expert advice should be sought from manufacturers and relevant control authorities. Approval must be sought and licence obtained before discharging oil contaminated water to the sewer systems. Contact the Sydney Water Corporation Trade Waste Office.

Requirements Regardless Of Separator Type

- Appropriate removable covers must be provided that allow easy access for observation and maintenance.
- Stormwater from building rooftops and other impervious surfaces not likely to be contaminated by oil shall discharge downstream of the separator.
- Any pump mechanism shall be installed downstream of the separator to prevent oil emulsification.

Oil/Water separators should be installed by a professional pollution control organisation. Many of these units are prefabricated and may be installed off the shelf.

- Oil/Water separators must be cleaned frequently to keep accumulated oil from escaping during an extreme storm. Corrugated separators require provision for continuous draw-off from the oil skimmer into secure waste oil storage prior to disposal. This may be to drum or underground storage.

Corrugated separators require provision for sediment removal at appropriate times, either into suitable receptacles or by return into the solids settlement pit, being part of the system design. Pump controls on aboveground separators must be automated for low level stop and manual operation for high level start to protect trade waste systems from raw products transfers. In addition:

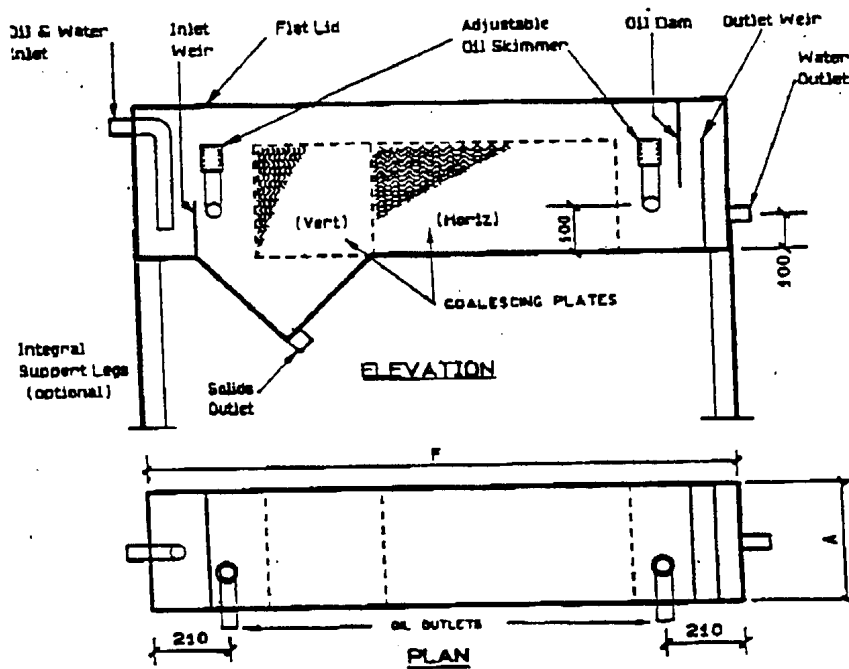
- ◆ The facility shall be inspected weekly by the owner;
- ◆ Oil absorbent pads are to be replaced as needed;
- ◆ The effluent shut off valve is to be closed during cleaning operations;
- ◆ Waste oil and residuals shall be disposed of to a licensed waste oil recycler;
- ◆ Any standing water removed during the maintenance operation must be disposed of to a sanitary sewer at an approved discharge location; and
- ◆ Following removal of any standing water, it shall be replaced with clean water to prevent oil escaping to the outlet weir or orifice.

Coalescing Plate Interceptors

The plate interceptor is a self-contained above ground device equipped with corrugated plates of various configurations in which rapidly rising oil and/or rapidly settling solids are retained as the water phase passes through the system. The device is always equipped with oil skimming capabilities and is generally pump fed under controlled flow rate conditions. A typical separator is shown below.

Separator design will vary, depending upon the following input/output criteria:

- Anticipated input pollutant levels of critical materials.
- Anticipated maximum hourly effluent throughout for which pump capacity is also related. Unit should have an hourly throughput capacity approximately 10% in excess of the pump capacity.
- Required trade waste discharge criteria that need to be met.
- This is specified by the Sydney Water Corporation, Trade Waste Section.



3. FILTER TRENCHES, ABSORPTION TRENCHES

These structures are used as rudimentary filtration devices for turbid run-off from building sites prior to disposal to the stormwater drainage system; or, conversely, as methods of disposing of small quantities of slightly contaminated waters from areas such as car washing spaces of residential flats, or driveways or courtyards. The trapped water soaks into the ground and maintains vital soil moisture.

In most parts of NSW, soil infiltration rates are too low to permit their use for anything other than minor loadings. The degree of subsurface infiltration available depends upon other than minor loadings. The degree of subsurface infiltration available depends upon:

- Physical characteristics of the soils;
- Nature of the local ground water system; and
- Depth to and physical characteristics of the bedrock.

A study has been carried out to determine the suitability of soils in the Council area, to be used for infiltration. That study ("Absorptive Capacity of Soils in Canterbury Council, A. R. Brown 1993) found that undisturbed soil landscapes in the Council area were not suitable for this use. Despite these findings, there may be some isolated patches of soil landscape that may be suitable for infiltration.

A proposal to dispose of stormwater in the manner is to be supported by absorption tests carried out at the site. These tests and accompanying design are to be carried out by a suitably qualified Civil Engineer.

Filter Trenches

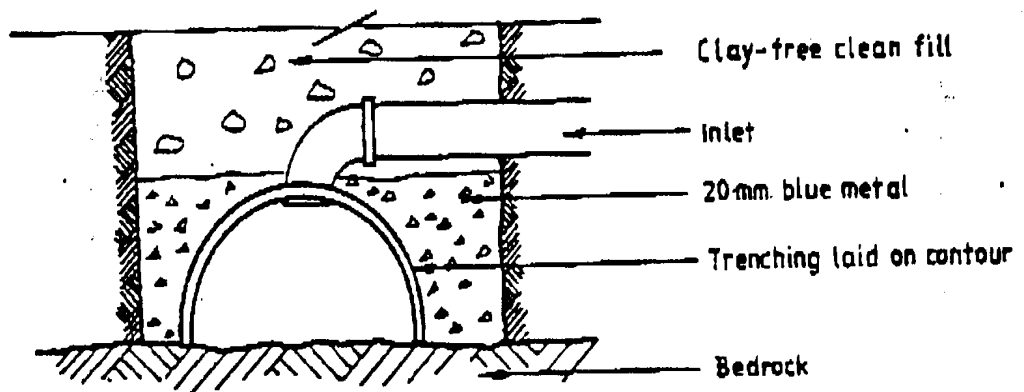
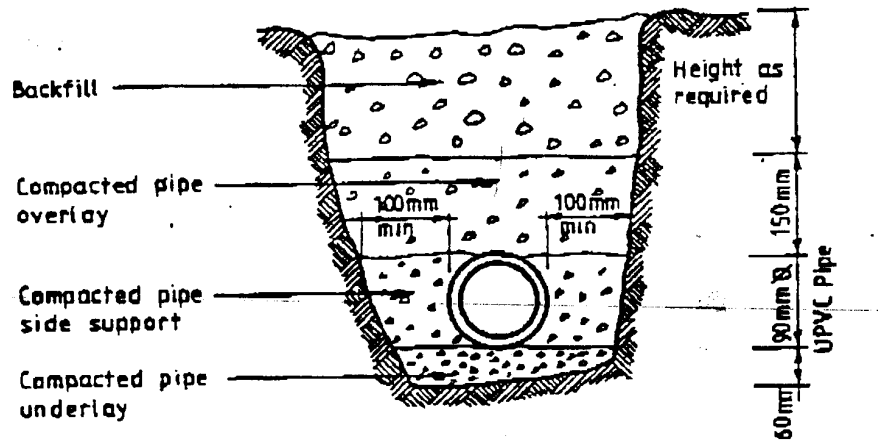
A filter trench is constructed on the down-slope side of construction sites as a continuous filter for run-off contaminated with sedimentation and ground water seepage. A filter trench is constructed as a temporary pollution control device.

Filter trenches consist of a trench containing a subsoil drain backfilled with gravel. Subsoil drains are graded to discharge to the stormwater drainage system (See Specification S1). Absorption and Dispersal Trenches

Absorption trenches are constructed in a similar fashion but are intended to be permanent or semi-permanent devices. They work in precisely the opposite fashion to a filter trench. Absorption trenches are designed to discharge water to the ground water. They may be utilised in areas where contaminants are present at low levels and could normally be discharged to the stormwater drainage system, and where appropriate, space and soil depths available.

Dispersal trenches are constructed across the contour of the rock strata where near-surface rock prevents the use of absorption trenches. Run-off filters through the gravel trench and is dispersed across the rock strata, some absorbing into the soil layer above.

The following schematic guidelines are provided for the construction of absorption and dispersal trenches.



4. DETENTION BASINS

Dry Detention Basins

These temporary structures retain flows for short periods, are primarily designed to reduce the sediment load from development sites (exposed areas). As a pollution control device, beyond sediment control and the removal of urban pollutants associated with sediment source, they have limited value.

Suspended solids (fines) absorb to their surface some pollutants, including heavy metals, nutrients and organochlorins. The solids are usually not removed in the detention process unless gypsum is applied to settle them before release. Gypsum does not affect water acidity, has the advantage of being readily available and is inexpensive.

Wet Detention Basins

Since many chemical pollutants in urban run-off are associated with particulate matter, wet detention basins are usually the single most cost-effective means of stormwater pollution control. The superior effectiveness of wet detention basins for pollution control is probably due to several different removal processes operating at the same time. These processes include physical flocculation, transformation and biological uptake.

5. WETLANDS

Wetlands, whether natural or artificial, from effective controls of sediments and dissolved pollutants such as nutrients, metals and bacteria from sewerage. These pollutants are only marginally reduced using other techniques. Wetlands operate most effectively when utilised in conjunction with trash racks or gross pollutant traps. The technique requires pre-planning and large spaces and under most circumstances, it is not suitable for retro-fitting to existing drainage system.

6. GROSS POLLUTANT TRAPS

Gross Pollutant Traps (GPT's) are currently being used to reduce stormwater pollutants such as floating litter and sediment and can be retro-fitted to existing drainage systems. GPT's have been widely used in the Australian Capital Territory in conjunction with pond or wetland systems. In the developments, a series of minor pollutant traps may be located throughout the catchment. In catchments where GPT's are retro-fitted, space often does not permit this and a single major or open GPT may be installed. The operational success of GPTs is dependent on adequate and regular maintenance. If maintenance is not adequate, GPT's will not only be ineffective in control of pollutants, but may add to pollution problems. In addition, without adequate maintenance GPT's may cause flooding hazards.

7. BOOMS

Booms are useful only in collecting surface litter. They are installed across waterways to collect floating and partially submerged trash, including oil and grease. Regular maintenance to remove the litter is essential. This is accomplished manually by a boat maintenance crew.

In Sydney, trials indicate that booms are not successful when the benefits and costs are considered. In times of high flow or strong wind, floating litter can escape under and over the boom. They are also aesthetically unpleasing, have a short life span (3-4 years) and require regular maintenance. Booms have advantages in that they rise and fall with the water level and do not block the flow and therefore, do not cause upstream flooding.

8. TRASH RACKS

Trash racks are fixed structures of vertical bars designed to remove debris from stormwater. They are effective only in removing floating litter and some heavier sediments. They must be regularly maintained (especially after storms), to ensure that they do not cause a flooding upstream. The major pollutants collected include organic matter (60-80%), plastics (15-20%), paper (10%) and glass, metallics and rags. The type and quantity of pollutants are determined by the land use in catchment.

S3 LOADING AND UNLOADING LIQUIDS

Many loading and unloading activities relating to chemicals are subject to controls under the *Dangerous Goods Act 1975* and *Regulations 1978*.

This section is concerned with the construction and waste water pollution controls of the area itself.

Aboveground Loading and Unloading Facilities

- Areas in which loading and unloading take place shall be covered.
- The area shall be constructed, banded or landscaped to prevent the entry of stormwater to the loading and unloading area.
- The owner shall submit to Council an emergency spill contingency plan where loading or unloading activities involve quantities of a hazardous chemical.

Below-ground Storage Tanks

- The owner shall submit to Council an emergency spill contingency Plan.
- To avoid loss due to spills during transfer procedures, a spill collection sump or other spill container shall be provided. See conditions for fuelling points in Specification S8.
- Small containers shall be stored according to Specification S7.

S4 ABOVEGROUND STORAGE TANKS

This section covers goods other than dangerous goods defined in the Dangerous Goods Act and Regulations. It should be regarded as complementary to other safety plans, codes and licences required by authorities administering relevant legislation (NSW Fire Brigade, Work Cover Authority (Dangerous Goods Branch), NSW Environment Protection Authority and Council).

The following arrangements are required:

- The tank shall be provided with an overflow protection system to reduce the risk of spillage during loading.
- The tank shall be installed on a concrete surface and drained by a grated drainage system to a dead-end sump.
- The spill collection sump shall be able to store a volume within the sump equal to 10% of the total tank storage or 110% of the volume of the largest tank, whichever is greater.
- Outlets from the tank shall have positive control to prevent uncontrolled discharge from the tank area.
- Sumps shall be cleaned and maintained weekly or after spills or storms, and wastes disposed of in a manner approved by the NSW Environment Protection Authority.
- All uncovered paved areas in the vicinity of the storage and loading docks shall be drained to the stormwater drainage system via a treatment device approved by Council.

S5 CLEAN-UP PROCEDURES FOR OIL & OIL BASED PRODUCTS

Owners of facilities which store or process oil and/or oil based products and of motor repair shops using, selling or storing petrol solvents and other automotive products shall submit and have regard to the following.

Emergency Spill Contingency Plan

The following shall be submitted to Council on application for development:

- Work Cover Authority documentation demonstrating full compliance with the Dangerous Goods Act and Regulations and other relevant Acts.
- A site plan showing the location of stormwater drains on or near the site.
- A description of materials to be stored on site and locations of all storage facilities.
- A description of all devices to stop spills from leaving the site.
- A plan with:
 - ◆ Notification procedures;
 - ◆ Designated member of staff responsible for spill clean-up;
 - ◆ Description of minor spill procedures and equipment location on site.

Spill Procedures

- Take immediate steps to stop the source of the spill.
- Spillage and leakages must be contained and prevented from contaminating soil or water, or from entering any drains (other than emergency spill drains and sumps). If there is a chance of the spill entering the stormwater drainage system, isolate the inlet.
- If the material is a hazardous solvent or involves a large spill, contact the NSW Fire Brigade immediately. The NSW Environment Protection Authority has a booklet, *Chemical Incidents Emergency Telephone Contacts* for use in these situations.
- Clean-up materials, including absorbent materials used to absorb spills of hazardous waste and degreasers, shall not be disposed of in the garbage. These materials must be bagged or placed in a drum clearly labelled, and an approved private contractor must remove the waste.
- Oiled materials shall be placed in a sealed plastic bag and may be disposed of with the garbage.
- For small spills such as minor oil spills:
 - ◆ Cover the spill with absorbent materials which can be swept or picked up. Use sawdust, vermiculite or commercial absorbent pads. These materials should be kept on site.
 - ◆ If the spill involves battery acid, neutralise the acid with cement, lime or baking soda, a quantity of which shall be kept as part of a spill kit.

S6 WASH DOWN AREAS FOR COMMERCIAL VEHICLES

These requirements refer to all methods of washing vehicles. Vehicle washing waste water contains levels of oil, grease, sediment and heavy metals as well as detergent. Waste water from all such facilities shall be discharged to the sewer in accordance with Sydney Water Corporation's regulations and via an approved treatment facility.

Vehicle washing may take place only in facilities approved by Council and the Sydney Water Corporation, or in a designated washing area at the owner's premises which meets the relevant criteria of Council of Sydney Water Corporation.

Any business may establish a vehicle washdown bay if:

- The area is covered (or if uncovered is bunded to exclude stormwater) and complies with Sydney Water Corporation's regulations.
- The area is paved with concrete.
- A drain to the sewer collects all waters.
- A treatment device approved by the Sydney Water Corporation is constructed.
- A Trade Waste Agreement has been negotiated with the Sydney Water Trade Waste Office.

S7 WASTE & MATERIAL STORAGE

This section applies only to storage of non-flammable solids and wastes which are not covered by the Dangerous Goods Act.

Waste Storage Areas

All potentially polluting wastes should be stored as follows to prevent contamination of stormwater:

- They should be stored, where possible, inside a building.
- If outside, they should be in a waste container which is impervious and has an adequate cover.
- Any paved storage area should be covered by a roof. Where this is not possible, a tarpaulin should be used.

Liquid Wastes

Areas used to store liquid wastes, including vehicle service workshops, shall comply with the above **and** shall be bunded and fitted with a drain which leads to a dead end sump constructed of concrete or other impervious material. Once a spill has occurred, the liquid in the sump should be collected and reused or disposed of correctly. The bunded area shall be constructed to hold 10% of the total volume of containers or 110% of the largest container, whichever is the greater.

Storage of Bulk Materials

The requirements refer to businesses which store bulk materials on site, such as compost, sawdust, sand, gravel, topsoil, wood chips, cement and other building materials.

Bulk materials shall be stored according to the following:

- Materials shall be kept in a covered building or in canopy areas which are concrete paved.
- For temporary stockpiles, a plastic sheet covering which is weighted down will be adequate; such stockpiles shall be protected by a straw bale barrier on the downhill side.
- For permanent stockpiles, the area shall be paved and drained via a treatment device as outlined in Specification S2.
- For stockpiles where regular access is required, for example, where loads of sand or topsoil are sold, the areas shall be bunded on three sides by concrete, brick or timber walls, concrete paved and drained via a local water/sewerage authority approved pre-treatment device (or the drainage point shall be protected by a well maintained and permanent geo-textile fence).

S8 FUELLING POINTS

These requirements apply to all refuelling points, including service stations and any depot or other area which dispenses fuel.

- Fuel bowsers and the service area shall be covered and/or bunded to prevent direct entry of rainfall.
- Tanker fuelling points shall be provided with a spillage collection trap and diverted back into a storage tank.
- Suitable clean-up materials and procedures shall be maintained on site, as outlined in Specification S5.

S9 STORMWATER DRAINAGE DESIGN

This specification deals with the details of the provision of stormwater drainage in a development. It covers piped drainage and on-site detention requirements. It also discusses procedures relating to the discharge of stormwater through other properties (via easements) and into controlled receiving waters.

The specification is actually a separate document titled "Stormwater Drainage Design Manual" and is available from the Customer Service Centre of Council for a fee.