280-300 LAKEMBA STREET AND 64-70 KING GEORGES ROAD, WILEY PARK NSW

CONSTRUCTION WASTE MANAGEMENT PLAN (WASTE MINIMISATION)

- DEMOLITION WASTE
- CONSTRUCTION WASTE
- ENVIRONMENTAL MANAGEMENT
- INCORPORATING COUNCIL STANDARD WASTE MANAGEMENT FORMS

May 2021 (Rev B)

PREPARED BY

Caverstock Group

CONTENTS

Caverstock Group

1.00 INTRODUCTION - WASTE MANAGEMENT PLAN

1.01 This Construction Waste Management Plan for the development at 280-300 Lakemba Street and 64-70 King Georges Road, Wiley Park, NSW has been compiled with reference to the following documentation from Canterbury-Bankstown Council and NSW Government:

- Canterbury-Bankstown Council Technical specification - Waste Minimisation and Management.
- Canterbury-Bankstown Council Environmental Health.
- Canterbury-Bankstown Council Environmental Policy- Air, Noise, Water.
- Canterbury-Bankstown Council Waste and Recycling.
- ALSO – Environmental Planning and Assessment Regulation 2000'
- Waste Avoidance and Recovery Act 2001.
- Protection of the Environment Operations Act 1997.
- NSW – EPA Waste Classification Guidelines Part 1 – Classifying Waste Nov 2014.
- Canterbury DCP 2012 Appendix 2 - Waste Requirements

1.02 The General Objectives of the Construction Waste Management Plan

1. Reduce demand for waste disposal.
2. Maximise re-use and recycling of materials.
3. Assist in achieving Federal and State Government waste minimisation targets.
4. Minimise environmental impact of waste.
5. Source separation and design to complement Council's and private providers waste management.
6. Encourage building design and construction techniques to minimise future waste generation.

1.03 This Construction Waste Management Plan is based on the following Architectural drawings:

- Basement Levels
- Ground Floor
- Upper Levels
- Sections
- ALSO, Higgins Survey plans

1.04 This Construction Waste Management Plan covers two phases of new development work:

- Demolition Phase Waste Management
- Construction Phase Waste Management

The Operational Ongoing Residential Waste Management Plan is by Others.

1.05 Special care is to be taken for all existing in-ground and visible cables and services conduits. The builder is to locate all underground services and also protect all services above and below ground.

2.00 DEMOLITION PHASE WASTE MANAGEMENT

2.01 Demolition works consist of the complete and careful demolition of the existing residences and retail premises facing King Georges Road and Lakemba Street, Wiley Park. It includes demolition of existing concrete driveways, awning, pits, sheds, fences and vegetation. Workers to wear Personal Protection Equipment.

2.02 Materials in Existing Building and Improvements

The following are generally materials found in the demolition works:

- Metal and Tile roofing
- Roof and stud wall timbers
- External sheds and garages
- Gyprock walls and ceilings
- Floor timbers and joists
- Brick foundations and structures
- PVC and Steel pipes
- Copper wiring and pipes
- Concrete paths and stairs
- Concrete and Asphalt paving
- Metal Structures and Awnings
- Concrete pits and pipes
- Trees and shrubs
- External walls and fences

2.03 The Objective

- Waste minimisation by recycling as much demolished material possible by removing to recycling yards or re-use of materials on site.
- Refer to Canterbury-Bankstown Council's Waste Management Plan Forms - Waste Management Plan - for Demolition & Construction - **Appendix A**.

2.04 Rescource Recovery Contacts

Demolisher to contact for material acceptance requirements at each Recovery Centre.

- VEOLA ENVIRONMENTAL SERVICES –
  CAMELIA – 8844 4200
  NORTH ROCKS - 132955
  HORSLEY PARK – 9620 2867
  CHULLORA – 9707 1709

- BINGO RESOURCE RECOVERY – 165 Woolpack Road, Smithfield
- CONCRETE RECYCLERS – 14 Thakery Road, Camelia
- KIMBRIKI RESOURCE RECOVERY CENTRE TERRY HILLS – 9486 3512
- SUEZ RECOVERY CENTRES – 1300 651 116 – Ryde, Artarmon, Belrose

3.00 CONSTRUCTION PHASE WASTE MANAGEMENT

3.01 With knowledgeable site supervision, waste minimisation can occur during construction of the building. The objective is to remove as little as possible, items that may be classified as Building Waste to land fill as there would be many items in the construction phase that could be used or recycled within the work methodology of the builder. Workers to wear Personal Protection Equipment.

The reuse of broken concrete paving and bricks for working surfaces for safe dry access and also these items would be used as granular fill around pipes is a good example. Timber re-used for set-out pegs and formwork bracing is another example. These items can save the builder the cost of purchasing new materials.

3.02 The new construction works will entail the following items of works:

- Excavation into soils and rock
- Concrete reinforced structure
- Masonry walls internal and external
- Metal and other façade
- Drainage works and external Services
- Internal Services fittings and fixtures
- Internal Gyprock stud walls
- Floor surfaces - Tiles & carpet
- Miscellaneous metal works
- Timber and glass screens and windows
- Painting internal and some external surfaces
- External Paving
- General landscaping

3.03 Controlled Workers Rubbish

Food scraps to be placed into 240 litre General Waste Bins and recyclable materials (bottles and cans, paper and cardboard) to be placed in two 240 litre Recyclable Bins. The Site Foreman is to ensure that no rubbish is all placed into the bins provided.

Both types of bins are to be removed every few days (or as needed) and either tipped at approved waste tip or recycled at the tip. These bins are to be managed by the builder who will engage the Waste Removal company.

3.04 The Objective

- Maintain a clean, healthy and safe workplace.
- Waste minimisation by recycling/reusing as much builders' waste material as possible. The builder is to manage Construction Waste to enable as much waste to be recycled On Site or removed to a Resource Recovery Centre.
- Refer to the attached Canterbury-Bankstown Council's Form - Waste Management Plan - **Appendix A** – Waste Requirements – Appendix 2.

4.00 ENVIRONMENTAL MANAGEMENT

a. Introduction

The aim of this report is to also promote sustainable development principals in both the operations of the building and the construction of the building structure and finishes. General thoughtful product selection by the Architect will enable the promotion of these principals.

Certain Council requirements are available to sensibly locate plant and equipment, screen certain items to lower noise, use specific water saving devices, reduce cars in the area, recycle waste, reduce greenhouse emissions and promote energy efficiency.

Supervision of construction workers by the builder and promoting respect for the neighbours and the environment of the area and sound management of the apartment when completed will assist in resolving future environmental issues of the project.

b. The Local Environment

To design and construct a new building project in Wiley Park, the Architect must respect the Environment of the area. The local environment which surrounds the site is currently changing. Strict supervision will be undertaken by the builder of all construction activities to reduce and minimize disruption for adjoining properties and the neighbourhood. Traffic Controllers to be used for all entering and exiting Vehicles.

c. Construction Considerations

- Water Conservation - reduce water usage in the building.
- Economical light fixtures to be used.
- Internal landscaping to soften the structure of the building.
- Reduce greenhouse gas emissions by sensible selection of equipment.
- Reduce disruption to neighbourhood community during the construction phase.
- Maintain control of materials delivery.
- Reduce noise, dust and vibration emissions from the construction site.
- Promote use of Public Transport for workers.

d. Conclusion

Adequate care through the site Design and Construction Works phase and good Asset Management will achieve an Environmentally Friendly building project.

The Construction phase is to be strictly supervised and all activities maintained by the builder to provide good construction practices that minimize disruption in the neighbourhood and recycle or reuse as much as possible.

APPENDIX A - CANTERBURY-BANKSTOWN COUNCIL'S FORM (WASTE MANAGEMENT PLAN)
- PART ONE - DEMOLITION PHASE.
- PART TWO - CONSTRUCTION PHASE

Note - Ongoing Waste Management Plan is a separate Report by Others

Waste Management Plan - Part One (Demolition Phase)

Site Address: 280-300 Lakemba St & 64-70 King Georges Rd Wiley Park.

Section 1: Asbestos Declaration – Hazmat Report to be completed prior to Construction Certificate.

Does Demolition Contain Asbestos? Yes No (TBA) ☐ ☐

All asbestos waste is to be managed in accordance with provisions of the NSW *Work Health and Safety Regulation* 2011

Is the asbestos friable	☐ Yes (go to section 2)	☐ No
Is the asbestos non friable and over 10m²	☐ Yes (go to section 2)	☐ No
Is the asbestos non-friable and under 10m²	☐ Yes (go to section 3)	☐ No

Section 2: Asbestos Removal Details – Hazmat Report to be completed prior to Construction Certificate.

WorkCover Licence No. and Class:	TBA
Demolition Contractor Details:	TBA
Licensed Landfill:	TBA

Section 3: General Demolition Waste

Approx - Not to be used for Pricing ††.

	Approximate.	How will you manage this waste?		
Type of Material	**Estimated Amount (m³) APPROX.**	**Re-use On-site**	**Recycle Offsite**	**Landfill**
Bricks *Walls*	189 m³	☐ 189m³	☐ –	☐ –
Concrete *Floor, Paving, Kerb.*	68 m³	☐ 68m³	☐ –	☐ –
Tiles *Roof tiles*	8 tonnes	☐ –	☐ 8 tonnes	☐ –
Timber (clean) *Floor + Fences*	1,128 m²	☐ 240m²	☐ 888m²	☐ –
Timber (treated) –	0	☐ –	☐ –	☐ –
Plasterboard *Walls*	272 m²	☐ –	☐ 272 m²	☐ –
Metals *Roofing + Awning*	725 m²	☐ –	☐ 725 m²	☐ –
Green Waste *Trees + Leaves*	110 m³	☐ 70m³	☐ 40 m³	☐ –
Other *Windows + Doors*	122 off	☐ –	☐ 122 off	☐ –
Principal Off-Site Recycler		**Principal Licensed Landfill Site**		
• Concrete Recyclers - Smithfield • Suez Recovery Centres 1300-651116 • Veola Environmental - 88444200 • Kimbriki Terry Hills - 94863512 • Bingo Recovery - Smithfield.		• Kimbriki Resource Recovery Centre Terry Hills 94863512.		

Waste Management Plan - Part Two (Construction Phase)

Site Address: 280- 300 Lakemba St & 64-70 King Georges Rd Wiley Park NSW

Section 1: Estimated Amount of Excavation Material (m^3):
59,716m^3

- ☐ Re-use on-site
- ☑ Re-use off site (go to section 2)
- ☑ Landfill Disposal (go to section 3)

Section 2: Address if re-used off site:
Good clean fill to be certified and sent to other sites as Required. Soils and Rock.

Section 3: Name and Address of licensed landfill:
Kimbriki Resource Recovery Terry Hills 94863512

Section 4: Estimated Construction Material Waste
Approx - Not to be used for Pricing. Gr.

Type of Material:	Estimated Amount (m^3): Approximate	How will you manage this waste? Re-use on-site	Recycle Offsite	Landfill
Bricks + Blocks Cuts	72 m^3	☐ 72m^3	☐ 0	☐ 0
Concrete Fine Measured	0	☐ 0	☐ 0	☐ 0
Tiles and similar items.	2t	☐ 0	☐ 2t	☐ 0
Timber (clean) ply	≈38m^2	☐ 38m^2	☐ 0	☐ 0
Timber (treated) —	0	☐ 0	☐	☐ 0
Plasterboard offcuts	250m^2	☐ 100	☐ 150	☐ 0
Green Waste	0	☐ 0	☐ 0	☐ 0
Other Packaging	12tonnes	☐ 0	☐ 12tonnes	☐ 0

Off-Site Recycling Facilities	Licensed Landfill Site/s
• Suez Recovery 1300 651 116 • Bingo Recovery Smithfield • Veolo Environmental 88444200 • Kimbriki - 94863512	• Kimbriki Resource Recovery Centre Terry Hills 94863512

APPENDIX B - FACT SHEETS

- Fact Sheet 2 - Dust Control
- Fact Sheet 4 - Excavation Pump out
- Fact Sheet 6 - Protected Concrete Delivery
- Fact Sheet 7 - Protected Service Trucks
- Fact Sheet 8 - Protected Stockpiles
- Fact Sheet 12 - Protection of Gutters and Street Stormwater Drains
- Fact Sheet 13 - Protection of Site Stormwater Pits
- Fact Sheet 14 - Sediment Controls
- Fact Sheet 15 - Soil and Water Management Plan
- Fact Sheet 16 - Stabilised Site Access

Dust Control

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Dust Control

What is it?

Dust control refers to minimising the amount of dust that enters the air and stormwater system from your site.

Why is it important?

Dust blowing from your site has a four way impact. Firstly, it is a nuisance to neighbours which can result in poor relations or complaints about your company.

Secondly, it can result in adverse health effects like asthma in workers and others. Thirdly, blown away materials are blown away dollars, and finally, it is dangerous to the environment.

The environmental impact of dust and sediment is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. They carry nutrients which can lead to algal blooms and fish kills, as well as weeds which can take over from native plants.

Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 2

What do I need to do?

Before building commences:

Assess the dust potential of your site and decide on dust controls. If there is high risk of dust generation then barriers to divert the wind up and over the site can be constructed. These include shade cloth walls of height one-fifth the site length. Document controls on your Soil and Water Management Plan and ensure staff are aware of its importance.

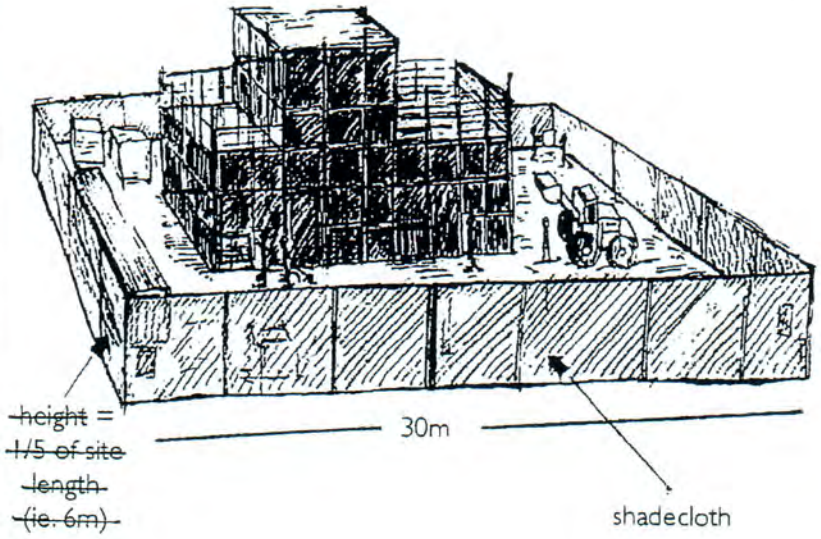
Installing the controls:

Good sediment management can alleviate most of the dust problem. Some of the steps that can be taken to minimise dust include:

- Maintain as much vegetation as possible
- Cover materials and stockpiles
- Ensure that all equipment has dust suppressors fitted
- Dampen the site slightly during excavation or when dust is being raised. Be careful not to wet it to the point of creating polluted runoff.
- Ensure that vehicles only leave via the stabilised site access
- Minimise the amount of the site that is disturbed at any one time

All of these actions will help to minimise the amount of sediment loose on the site and therefore the dust that can be generated.

If dust becomes too serious on windy days the best option is to cease work until wind conditions are suitable.



Excavation. Pump Out

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Excavation Pumpout

What is it?

Excavation pump out refers to the pumping of water collected in the bottom of excavated sites to the stormwater system. This water may be ground water or collected rain water.

Why is it important?

Rain Water

Rain water pooled on building sites picks up mud, dirt and any other contaminants present.

All of these pollutants can cause serious harm to our waterways. Even if the water is just muddy it can cause significant damage through smothering plants and bottom dwelling animals.

Ground Water

Ground water seeping up from aquifers may contain a range of contaminants such as heavy metals, petrochemicals and toxins depending on prior land uses in the area.

Approval is needed from the Department of Land and Water Conservation and Council to install ground water bores or spear points for pumpout of ground water.

Fact Sheet 4

What do I need to do?

Before building commences:

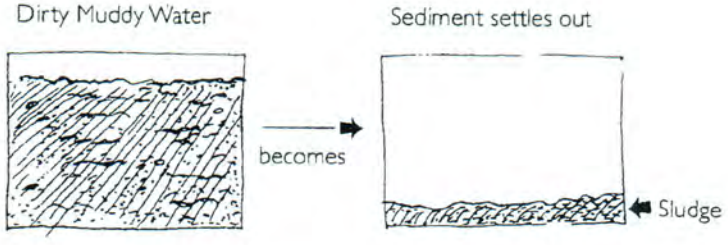
Review the site requirements and consider the best option for dealing with the collected water. Depending on the level of contamination it may be possible to:

1) pump it after treatment to the stormwater system
2) pump it to the sewer with approval from Sydney Water or
3) have it collected by a liquid waste company for disposal at a licensed treatment facility.

The second and third options are the most preferable as they reduce the risk to the stormwater system and ensure you are not breaking the law. Document the methods to be used on your Soil and Water Management Plan and ensure that staff are aware of its importance. If the groundwater is contaminated EPA advice should be sought and may require waste disposal tracking.

Installing the controls:

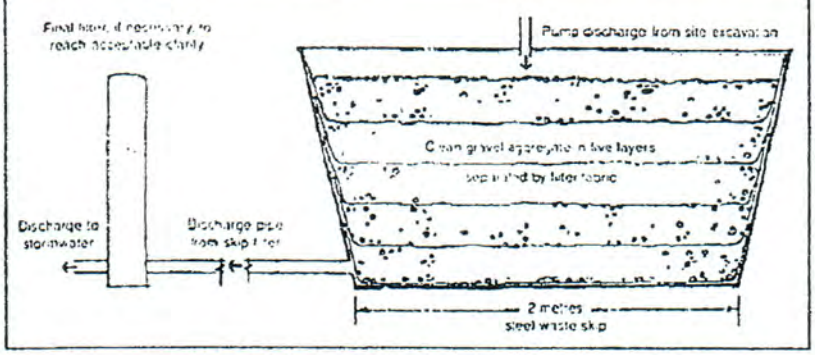
If the water contains only sediment it can be pumped to the stormwater system after filtering. It must have less than 50 mg/L Total Suspended Solids. This is water with no visible cloudiness. If you do not have time or room on-site to let the sediment settle naturally, flocculants such as gypsum can be used. Flocculants speed up the settling process. Unfortunately they raise the pH of the water and pH correction is needed prior to pumping to the stormwater system. Some flocculating agents can be toxic to fish above certain critical concentrations. Council advice should be sought prior to their use. Once settled, pump the clean water from the top to an area of the site where it can soak in or to the stormwaer system. The settled sediments, "the sludge", can be reused on site or disposed of in a bin.



Sediment settles over time but can be sped up with floculant.
Reuse sediment or place in bin

Pump clear water to "soak in" site or to stormwater system

One method of filtering site water before discharge into the stormwater system.



Source: Environetwork News, EPA, 5/99

Maintenance of the sediment controls:

If you install a filtering system such as the one pictured it will need to be cleaned regularly to remove the sediment that it filters out.

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

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

For further information on preventing pollution from building and construction sites contact your local council:

'Do it right on site' is funded by the Natural Heritage Trust and the Southern Sydney Regional Organisation of Councils – Bankstown, Botany Bay, Canterbury, Hurstville, Kogarah, Marrickville, Randwick, Rockdale, South Sydney, Sutherland Shire, Waverley and Woollahra.

THE DRAIN IS JUST FOR RAIN

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Protected Concrete Delivery

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Concrete Delivery

What is it?

This refers to receiving concrete deliveries in a manner that does not pollute the stormwater system.

In the past the usual way of delivering concrete was for the truck to park either in the site access point or next to the site and pump the concrete to the required area. Any spills would land on the road. The chute of the concrete truck would often be washed down, resulting in all of this waste concrete slurry entering the drains and our rivers.

Why is it important?

Concrete that enters the stormwater system causes several problems.

It hardens in the pipes, reducing their diameter. This increases the risk of flooding to the surrounding neighbourhoods.

It also affects the pH of the water, making it toxic to many plants and animals. This kind of pollution results in major fish kills.

Fact Sheet 6

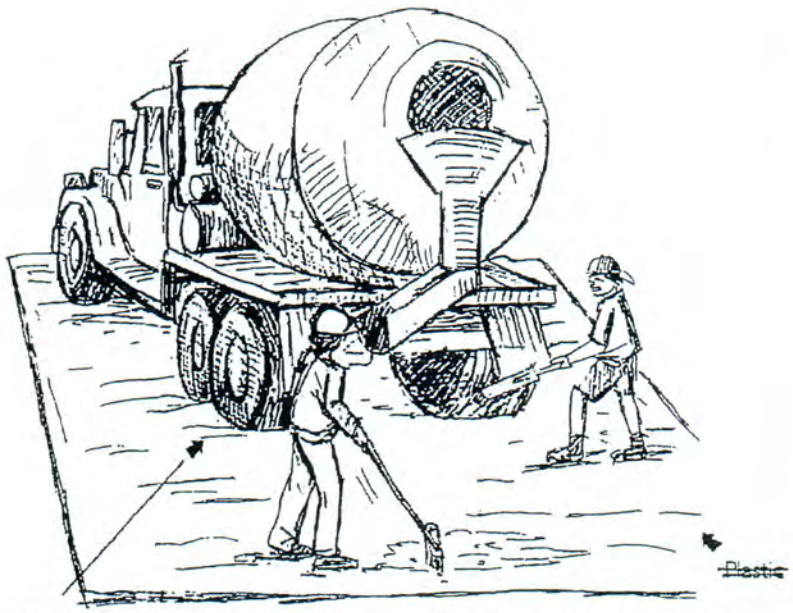
What do I need to do?

Before building commences:

Plan to have concrete deliveries made entirely on the site where spillage can be cleaned up without risk of it entering the stormwater system. If this is not possible you will need to place controls around and under the concrete truck to catch any spills. Document the delivery area on your Soil and Water Management Plan. Purchase these controls and ensure staff are aware of the need to use them. When selecting a concrete supplier ask them if they comply with the Australian Premixed Concrete Association guidelines for safe concrete delivery.

Installing the controls:

1. Before pumping begins, place ~~plastic under the concrete pump and~~ temporary bunds across all downslope gutters to trap any spillage. Sweep up all spillage before removing the bunds. Do not wash it away.
2. Ideally vehicles and equipment should be washed down within a designated bunded area within the site where the washwater can soak in to the ground or at a washdown depot. If more washwater occurs than can soak into the ground, it can be stored, settled and/or filtered by techniques that render waters clear for safe discharge to council drains ie: 50mg/l Total Suspended Solids which means clear water with no visible turbidity (cloudiness). pH correction may be required. Contact suppliers for help with meeting EPA requirements.

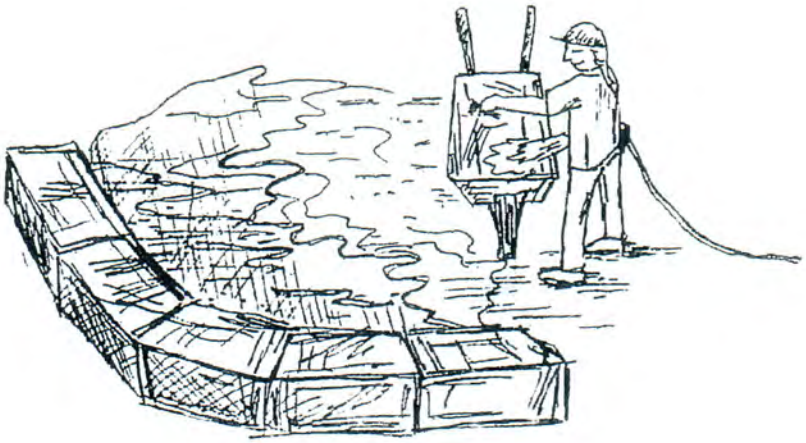


Scrape down wheels/tyres

Ensure tyres are clean before leaving construction site

Collect and remove all spillage
Sweep up residues

Wash down chutes and barrels in proper wash area on site or at a washdown depot. If not applicable, collect wash water in a wheelbarrow and transport on site to wash area



Letting any materials enter the stormwater system may result in fines

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

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Protected Service Trenches

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Service Trenches

What are they?

This refers to installing phone, power, water and drainage services in a manner that does not pollute the stormwater system.

Why are they important?

Underground service connections can concentrate runoff into rivulets and channels that cause rapid soil erosion and pollution of discharged waters.

This sediment has significant impacts on our waterways. It smothers animals and plants that live on the bottom of creek beds. It settles and make the creeks shallower. This results in the sun's rays heating the water. Many native plants and animals can not survive in this hotter water and die.

Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 7

What do I need to do?

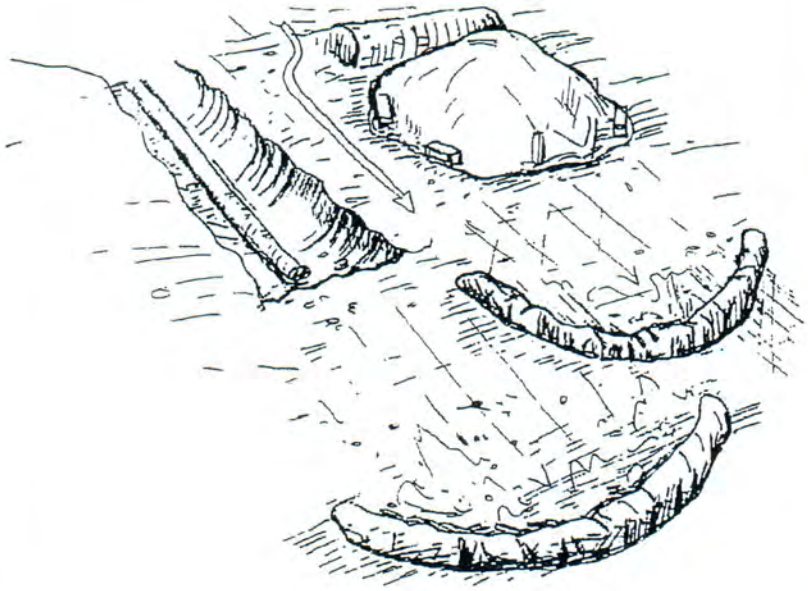
Before building commences:

Decide where the service trenches will need to go. Document them on your Soil and Water Management Plan. Ideally they should be away from areas where water flow is likely to concentrate. Plan to coordinate the various service connections so that a single trench can be used and schedule work to periods when rainfall is low.

Installing the controls:

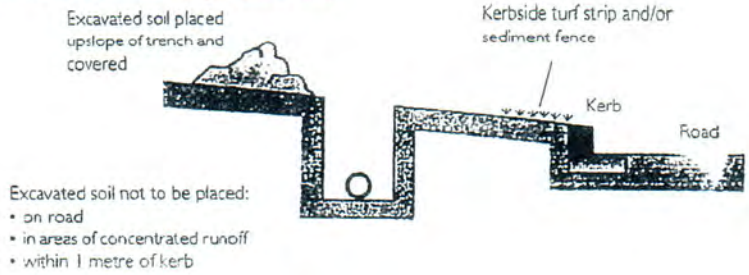
1. Remove and store vegetated topsoil so that it can be replaced after works to provide immediate erosion protection.
2. Place the soil on the uphill side of trenches to divert water flow away from the trench line. Temporary bunds can also be used.
3. The trench should be open for a maximum of 6 days. Once completed, backfill subsoil and compact.
4. Replace topsoil and any grass / vegetation to match surrounding ground levels. If trench runs are steep place sediment barriers at 5 metre intervals to prevent erosion.

If cutting of pavement is required, ensure that proper measures are taken to prevent 'cuttings' entering the stormwater - see Fact Sheet 5 on *'Protected Concrete, Brick and Tile Cutting'* in this series.



Minimise the width of cut and the time trenches are open - then quickly stabilise the backfill.

When Excavating Trench...



Maintenance of the controls:

If using temporary bunds, sediment will need to be collected from them to maintain their effectiveness. This material can be re-stockpiled, used on site or collected by an Earth Moving Company. The stockpile of excavated sediment that will be reused to cover the trench should also be checked regularly to ensure it is compacted and not being washed away - see Fact Sheet 8 on '*Protected Stockpiles*' in this series for more information.

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Protected Stockpiles

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Stockpiles

What are they?

They are materials such as sand, gravel, topsoil, mulch and woodchip stored in a way that will not enter the stormwater system.

Why are they important?

Stockpiles are at risk of being washed or blown away and polluting stormwater. Loose materials in heaps with steep sides and impervious foundations are most at risk. Not only does this affect the environment but it is expensive to the builder, increasing the amount of materials needing to be purchased for the development.

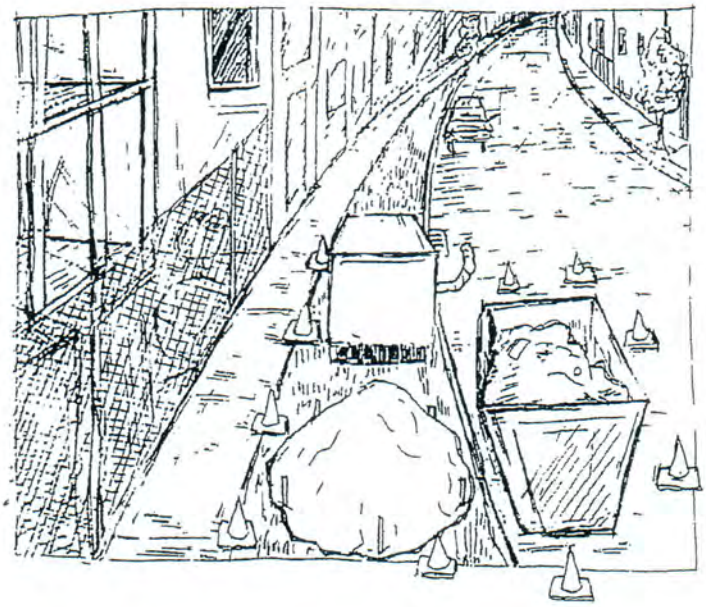
The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower and smothering animals and plants that live on the creek beds. This shallower water depth also results in the suns rays heating the water. Many native plants and animals can not survive in this hotter water and die.

Fact Sheet 8

What do I need to do?

Before building commences:

Identify a protected storage area for stockpiles. This should be inside the site under cover, away from stormwater flow paths, with erosion control measures such as sediment fence, gravel sausage or straw bales placed around them. If there is no room on site Council approval will be needed to store materials on the kerb or footpath. Materials should be stored in sand bags or bale/pallet containers with sediment controls around them. Document your storage area on the soil and water management plan and ensure staff are aware of its importance.

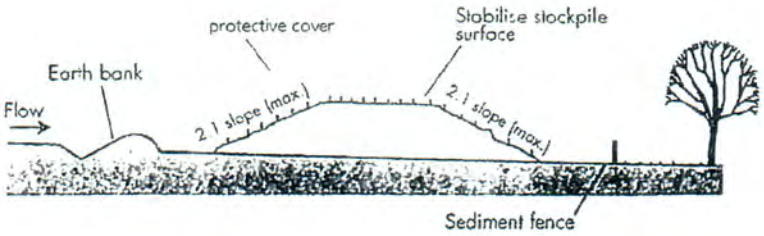


Installing the controls:

1. Locate stockpile away from stormwater flow paths, roads and hazard areas (ideally at least 5m away).
2. Place on a level area as a low, flat, elongated mound.
3. Where there is sufficient area topsoil stockpiles shall be less than 2m in height.
4. Construct an earth bank on the upslope side to divert run off around the stockpile and a sediment fence 1 to 2 m downslope of the stockpile (or sand bag, gravel sausage).
5. Stockpiles should be covered during windy conditions, rain or unattended site periods.
6. Once the roof has been installed on the frame, move stockpiles inside.

Maintenance of the controls:

Stockpiles should be checked and covered at the end of each day. Materials trapped by the down slope controls should be removed regularly to maintain their effectiveness. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company. Incorrect storage of stockpiles is a major source of stormwater pollution. All site workers, subcontractors, and delivery drivers should be advised of their responsibilities. Delivery drivers should be given a designated location to deliver materials on site.



Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Councils if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

1. Diversion of Upslope Water
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4. Excavation Pump Out
5. Protected Concrete, Brick and Tile Cutting
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7. Protected Service Trenches
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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

For further information on preventing pollution from building and construction sites contact your local council:

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Protection of Gutter and Street Stormwater Drains

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protection of Gutter and Street Stormwater Drains

What is it?

This refers to placing sediment collection devices around or in the drains down slope of your site to prevent pollutants entering. ***This should not be your only measure.***

Street drain protection is a backup measure to support your on-site controls.

Why is it important?

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. This results in the sun's rays heating the water. Many native plants and animals can not survive in this hotter water. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 12

What do I need to do?

Before building commences:

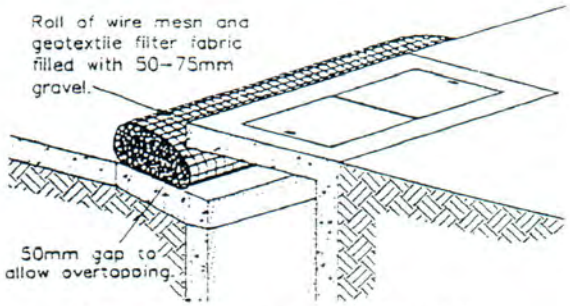
Find the street drains below your work site. Choose the most appropriate method for protection and install prior to commencement of building works. Document these on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

Choose the best down slope control method for your site. Those that collect sediment above the pit are easier to clean but have low storage capacity compared to controls that 'sit' in the pits. Place cones around controls in the gutters or on roads to prevent drivers damaging them.

Portable gravel kerb inlet sediment trap:

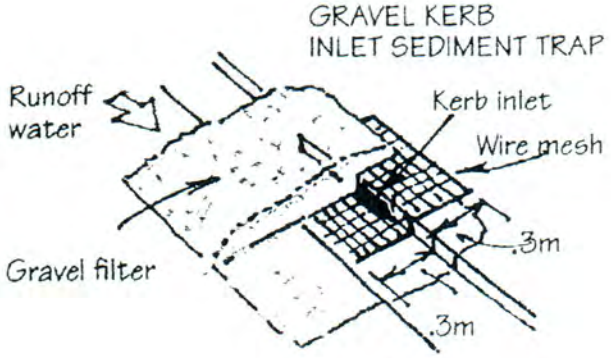
This trap involves a roll of wire mesh and geotextile filter fabric filled with gravel in front of the kerb inlet. It has the benefit of being portable and easily removed for cleaning. Ensure there is a gap at the top to allow overtopping and prevent flooding.



Portable Gravel Kerb Inlet Sediment Trap

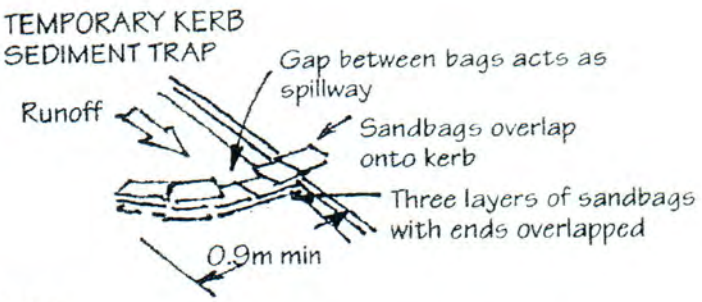
Gravel surface barrier strategy

This method involves placing wire mesh over the drain and placing large gravel upslope of it. The sediment will be filtered out into the gravel with only the clean water entering the stormwater system.



Sandbag kerb sediment trap

Place sandbags in front of flow of water. This will slow down the water enabling sediment to settle out. Two or three of these traps in a row may be required to ensure sediment settles out.



Pit Baskets

There are a range of products that can be placed inside side entry pits that act as baskets or sacks to trap any pollutants that enter. Council permission must be sought before placing any items inside the side entry / gully pit.

Maintenance of the sediment controls:

All sediment collection devices will need to be cleaned regularly to maintain effectiveness. The built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

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16. Stabilised Site Access

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Protection of Site Stormwater Pits

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

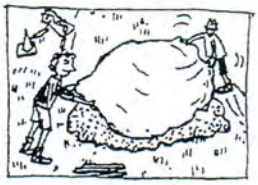
Protection of Site Stormwater Pits

What is it?

This refers to placement of sediment collection devices around any existing stormwater drains on the site.

Why is it important?

Stormwater drains on the construction site are at high risk of having pollutants such as dirt, stockpiled soil, mulch and barkchips washed straight into them. The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower, smothering animals and plants that live on the creek beds. Many native plants and animals can not survive this and die.



Fact Sheet 13

What do I need to do?

Before building commences:

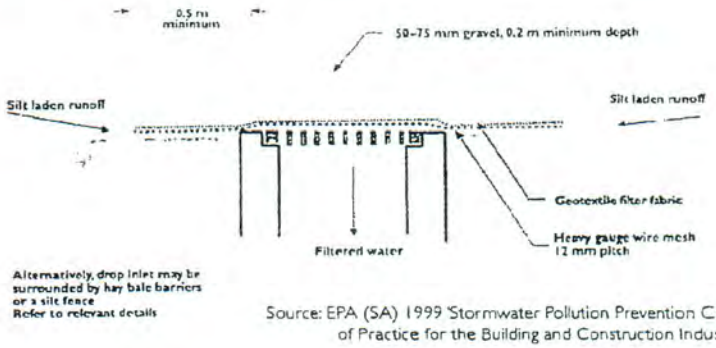
Identify any stormwater drains on the site. Plan the layout of the work site so that any wash down areas, tile or brick cutting areas are not near these drains. Clearly mark the stormwater drains on the site and choose a method of protection for them. Install the protective controls prior to building work commencing. Document all of this on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

There are a range of sediment traps to choose from.

Drop inlet sediment Trap:

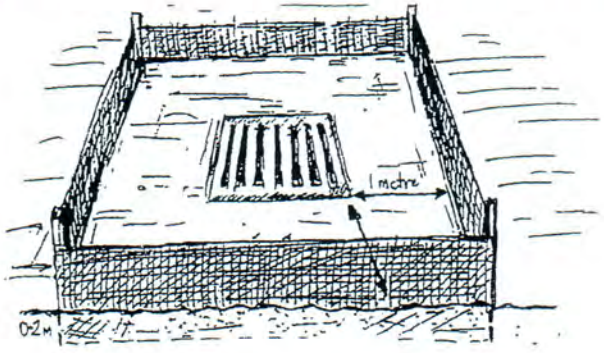
Three layers on top of the drain to trap the sediment. 1) heavy gauge wire netting or mesh 2) geotextile filter fabric with 3) a layer of prewashed 50-75mm gravel on top.



Source: EPA (SA) 1999 'Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry.

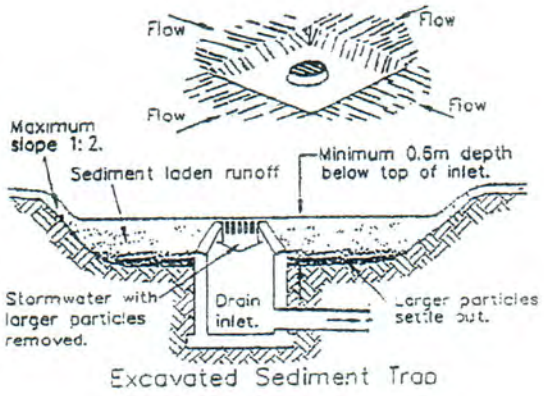
Sediment Fence drop inlet sediment trap:

Sediment fence staked around the drain to trap sediment. Note: It is important to partially bury the fabric so that water and sediment can not just flow underneath. The more space between the fence and the drain, the more chance of sediment settling and the greater the capacity of the trap.



Geotextile Filter Fabric Drop Inlet Sediment Trap

Excavated sediment trap: This is a detention basin technique for on-site drains. The basin depth needs to be at least 0.6m to ensure that water is held in place and sediment can settle out.



Excavated Sediment Trap

Source: Department of Conservation and Land Management (1995) 'Preparing an Erosion and Sediment Control Plan'

Maintenance of the controls:

All sediment collection devices need regular maintenance to stay effective. Remove the built up sediment and check for holes or other breaks in the controls. Repair and replace them. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

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THE DRAIN IS JUST FOR RAIN

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Sediment Controls

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Sediment Control

What is it?

These are a range of products installed across drainage flows to filter sediment out of water and enable its deposition by slowing down water flow. They include sediment fences, straw bales, grass/vegetation strips and sediment traps/basins. Other controls may be available and advice should be sought from suppliers of Sediment Control Equipment.

Why is it important?

Sediment on building sites causes problems not only for the environment but also for builders. A dirty site causes difficulties in wet weather, increases costs from having to replace stockpiles that are washed away, increases clean up costs, penalties and potential damage to your company's reputation if fined for polluting.

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds. They settle and make the creeks shallower. Many native plants and animals can not survive this and die. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 14

What do I need to do?

Before building commences:

Prepare a soil and water management plan, also known as a sediment control plan. This will be required by Council prior to issuing a construction certificate (either at DA stage or as a condition of consent) and should outline the methods you will use to prevent pollution of the stormwater system throughout the life of the development. There may be different controls needed as the site develops due to changes in drainage patterns and vegetation. This should be thought through and shown on your plans. Council can provide you with sample plans, however it is important that you develop a plan specifically for your site.

Remember the more erosion you can prevent the less sediment will need to be captured! The easiest way to prevent erosion is to leave shrubs and grass in place. This has the dual effect of holding the soil and dirt together as well as filtering and slowing down water flows enabling sediment to settle out.

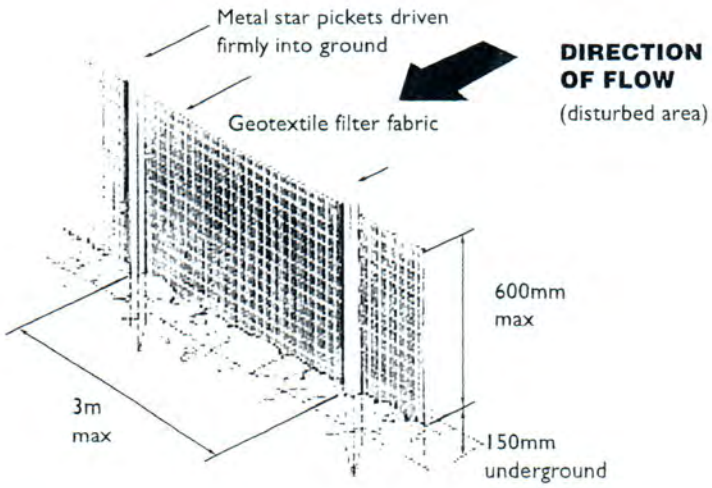
If vegetation needs to be removed try not to do it until immediately before works commence or stage the works to limit the amount of the site that is disturbed at any given time. As you move into a new area, revegetate the finished area. Another way to minimise erosion is to ensure that you only have small amounts of sand, soil and other stockpiles on site at any time. Ensure stockpiles are stored in ways to reduce erosion - see Fact Sheet 8 on *Protected Stockpiles*.

Installing the controls:

The sediment controls need to be in place prior to the commencement of building works. Remember that the sediment controls will need to be altered as construction occurs and the sites drainage patterns change.

Sediment Fence

A sediment or silt fence is the most widely used strategy. It is constructed from heavy duty geofabric. Although a sediment fence looks like shade cloth it is very different and is not interchangeable. A sediment fence is specifically designed to allow the free passage of water and trap sediment



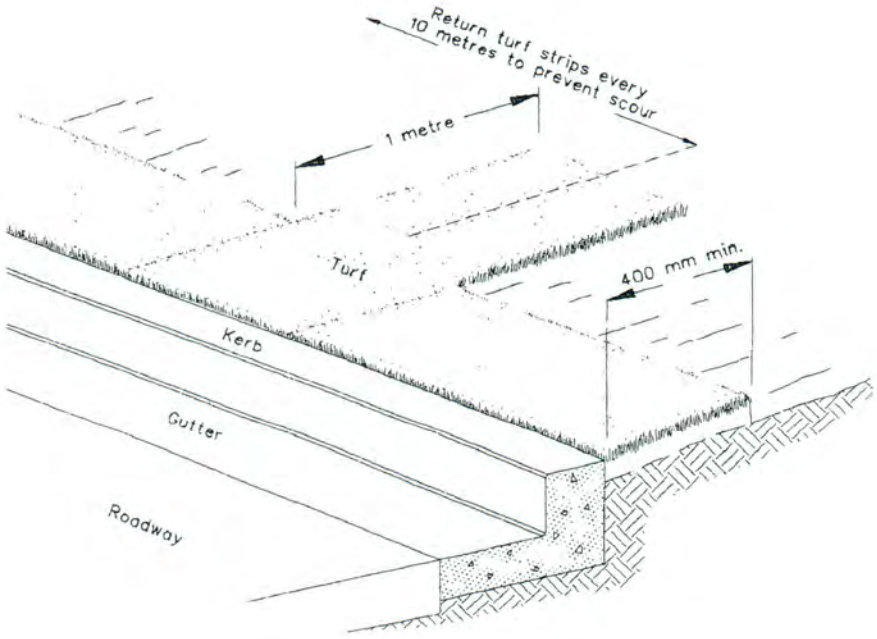
Sediment Fence (continued)

Construction Notes:

1. construct the sediment fence as close as possible to parallel to the contours of the site
2. drive 1.5m long star picket into ground, 3m apart
3. dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched
4. backfill trench over the base of fabric (where the sediment barrier has to be located on hard pavement that cannot be trenched, a gravity system held firm by its weight eg: gravel sausage can be used.)
5. fix self supporting geotextile to upslope side of posts with wire ties or as recommended by geotextile manufacturer
6. join sections of fabric at a support post with a 150mm overlap

Grass Strip Filters

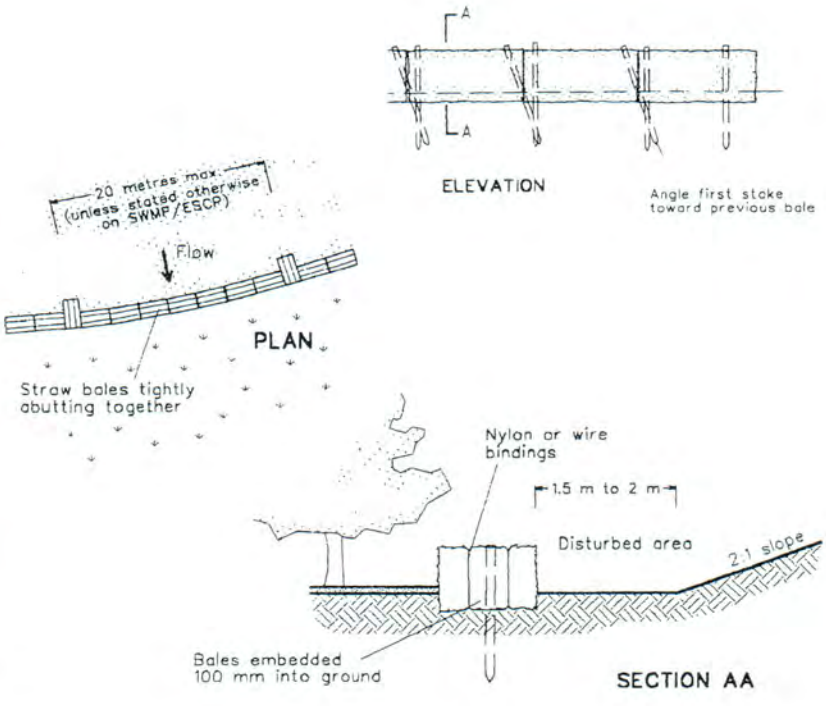
These are strips of undisturbed vegetation or grass planted down slope from earthworks. They provide a simple method of trapping coarse sediment. The flatter and wider the strips are, the more effective they become. They are only suitable on low grades. A 400mm wide grass strip between the kerb and the footpath can be a good last resort sediment control, filtering the water before it enters the stormwater system.



Straw Bale Filters

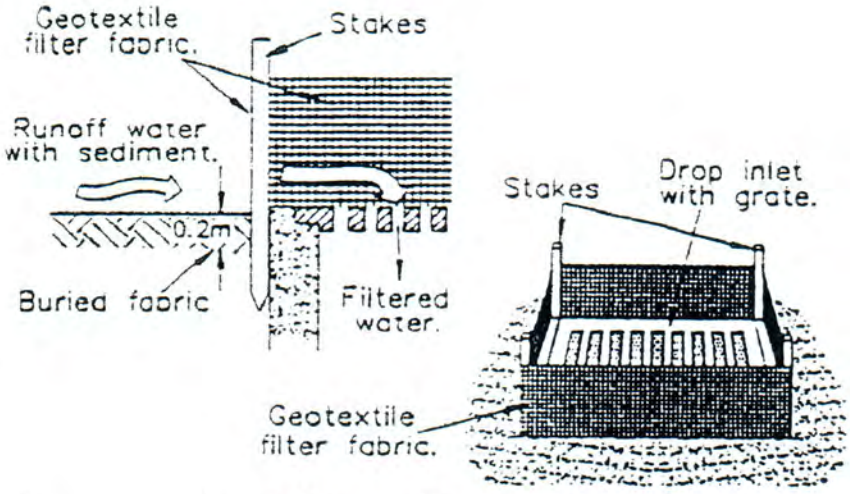
These are straw bales tightly abutted together and partially buried into the ground. They are only suitable for low flows. Filter fabric can be placed in front of them adding to the sediment stoppage. It is recommended that at least 4 bales are used as during a storm any less result in the water simply hitting the bales and flowing around them. This defeats the purpose of using them, which is to slow the water and have it filter through the bales with the sediment settling out.

Straw bales are usually used incorrectly. Seek Council guidance if unsure.

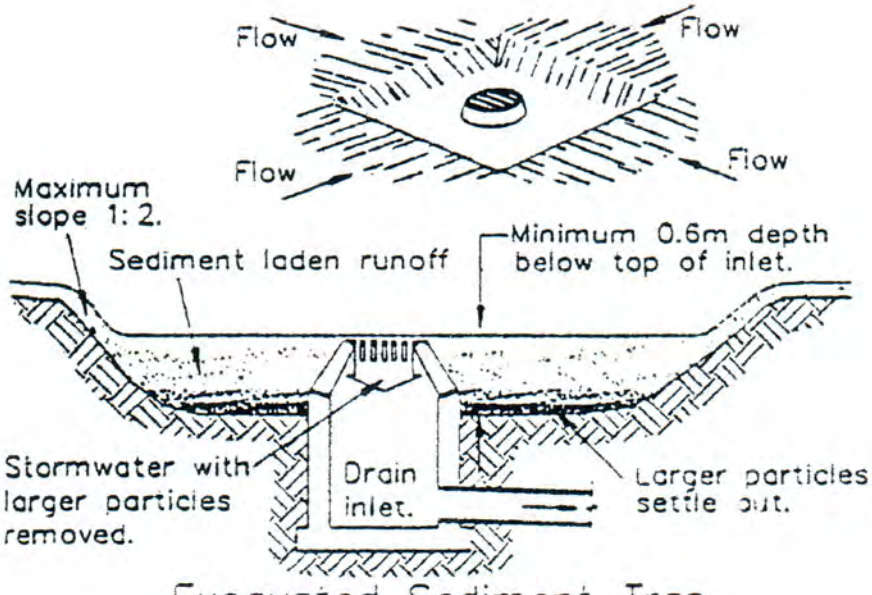


Sediment Traps / Ponds

These are basins designed to capture a concentrated sediment laden flow and store it under still conditions enabling the silt to deposit at the bottom of the trap. The effectiveness of the traps to remove fine particles may be improved by the placement of filter fabric along the uphill face of the embankment.



Geotextile Filter Fabric Drop Inlet Sediment Trap.



Excavated Sediment Trap

Maintenance of the sediment controls:

Sediment controls will naturally fill up with sediment and need to be maintained to stay effective. This involves removing the built up sediment as well as ensuring that they are still in good working condition.

Often sediment controls will be moved during works and they should be checked daily to ensure they have been put back in place properly.

Straw bales deteriorate and can end up polluting waterways. Their average life is 3 months and should be inspected regularly. Enclosing bales in sediment fence reduces this risk. At the end of their life they can be used as mulch on gardens. Sediment fences should also be checked regularly for holes.

Some Councils do not allow straw bales to be used, so check with them when planning your controls.

Soil and water controls should be kept in place until works are completed. If landscaping is not completed prior to handover ensure that the new owners are aware of their responsibility to prevent pollution from entering the stormwater system.

DO IT RIGHT ON SITE
ENVIRONMENTAL INFORMATION FOR BUILDERS

Suppliers of Sediment Control Equipment

There are a large number of companies that supply sediment control equipment listed in Outdoor Design Source and the Yellow Pages. While we do not necessarily endorse any particular company or product we thought it useful to list some company details as a starting point for you:

Total Erosion and Pollution ph: 02 9524 0155

GSE Lining Technology ph: 02 9821 2977

Hardware House

Maccaferri Pty Ltd ph: 02 9648 3800

Mulch Mat Products ph: 02 9905 5344

Naturelink Environmental ph: 02 4578 4588

Polyfabrics Australia Pty Ltd ph: 02 9829 5599

Spraygrass Landscapes ph: 02 9627 4352

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Soil and Water Management Plans

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Soil and Water Management Plans

What are they?

A Soil and Water Management Plan (also called an erosion and sediment control plan) is the formal plan designed to control erosion and sedimentation on a building site. It details the specific methods of erosion and sediment control that will be used to meet the specific site conditions at the various stages of construction. A Soil and Water Management Plan will be required by Council prior to issuing a construction certificate (either at DA stage or as a condition of consent).

Why are they important?

The Building and Construction Industry has a large impact on the environment, in particular our waterways. Sand, soil, cement slurry, paint and other building materials that enter our waterways kill fish and aquatic plants, silt up streams, and block stormwater pipes, leading to increased flooding. Due to the high number of construction sites even small amounts of pollution from each site is enough to cause significant damage to our waterways. Soil and Water Management Plans help in reducing pollution from building sites.

Fact Sheet 15

What do I need to do?

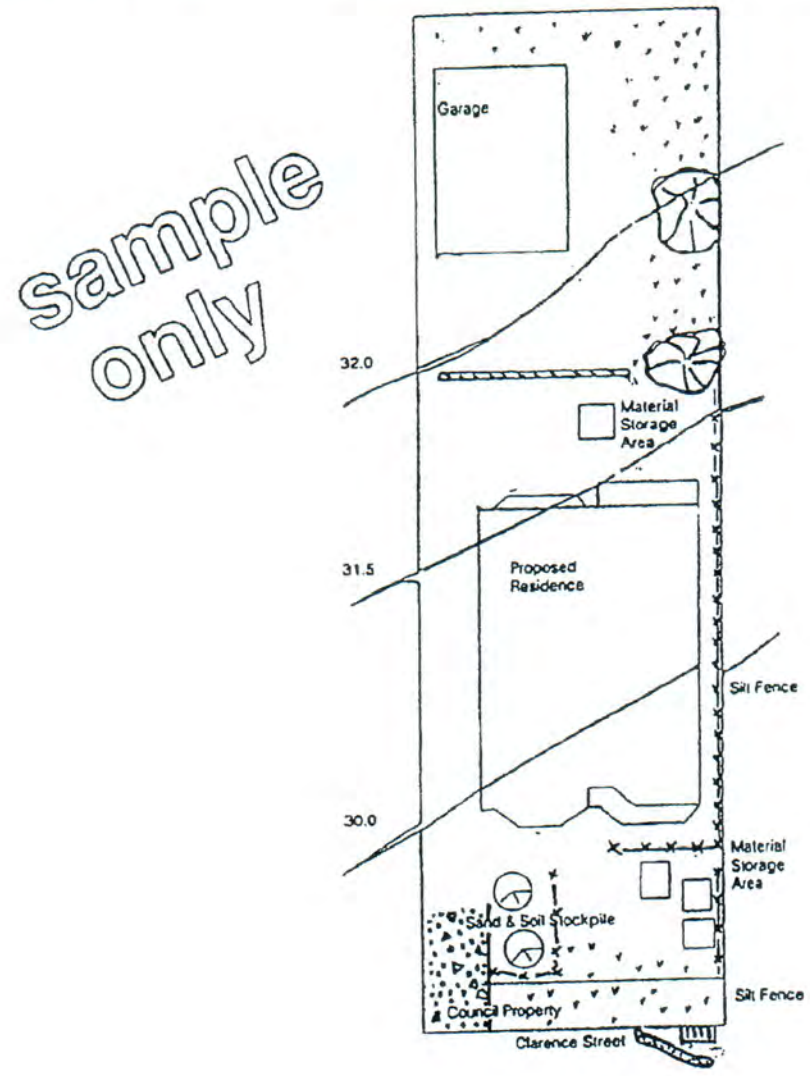
Develop a Soil and Water Management Plan along with other site documentation. The plan needs to include a minimum of:

- Basic site information
- Property boundary
- North point
- Contours initial and final
- Date
- Author
- Construction details
- 'Site' or 'disturbed area'
- Vehicle access point
- Location of stockpiles and secure chemical storage area
- Location and details of all temporary and permanent soil and water management controls
- Staging of works - the Soil and Water Management Controls will need to be altered as the site is developed and drainage patterns altered. The phases and controls to be used for each phase should be specified (major projects only)
- Location of all drains, downpipes, pits and watercourses
- Location of vegetation to be removed
- Revegetation program
- Stormwater management
- Integration with onsite detention / infiltration
- Stormwater discharge point if proposed

Other details may be required depending on the scale of the development and the specific requirements of the site- Council can advise on this and provide you with example Plans. Remember the example Plan will need to be modified to meet the needs of your specific site.

Councils may accept written plans stating what you will do to control sediment and erosion for smaller sites and developments that involve a minimum amount of earthworks, clearing or delivery of building materials. Contact the local Council for more information.

Example: Soil & Water Management Plan for Larger Sites



Note

1. All erosion and sediment control measures to be inspected and maintained daily by site manager
2. minimise distrubed areas
3. all stockpiles to be clear from drains, gutters and footpaths
4. drainage is to be connected to stormwater system as soon as possible
5. roads and footpath to be swept daily
6. If you do not comply you may be liable to a $750 or $1500 fine

Legend

Undisturbed vegetation

Silt Fence

Stockpiles

Gravel access

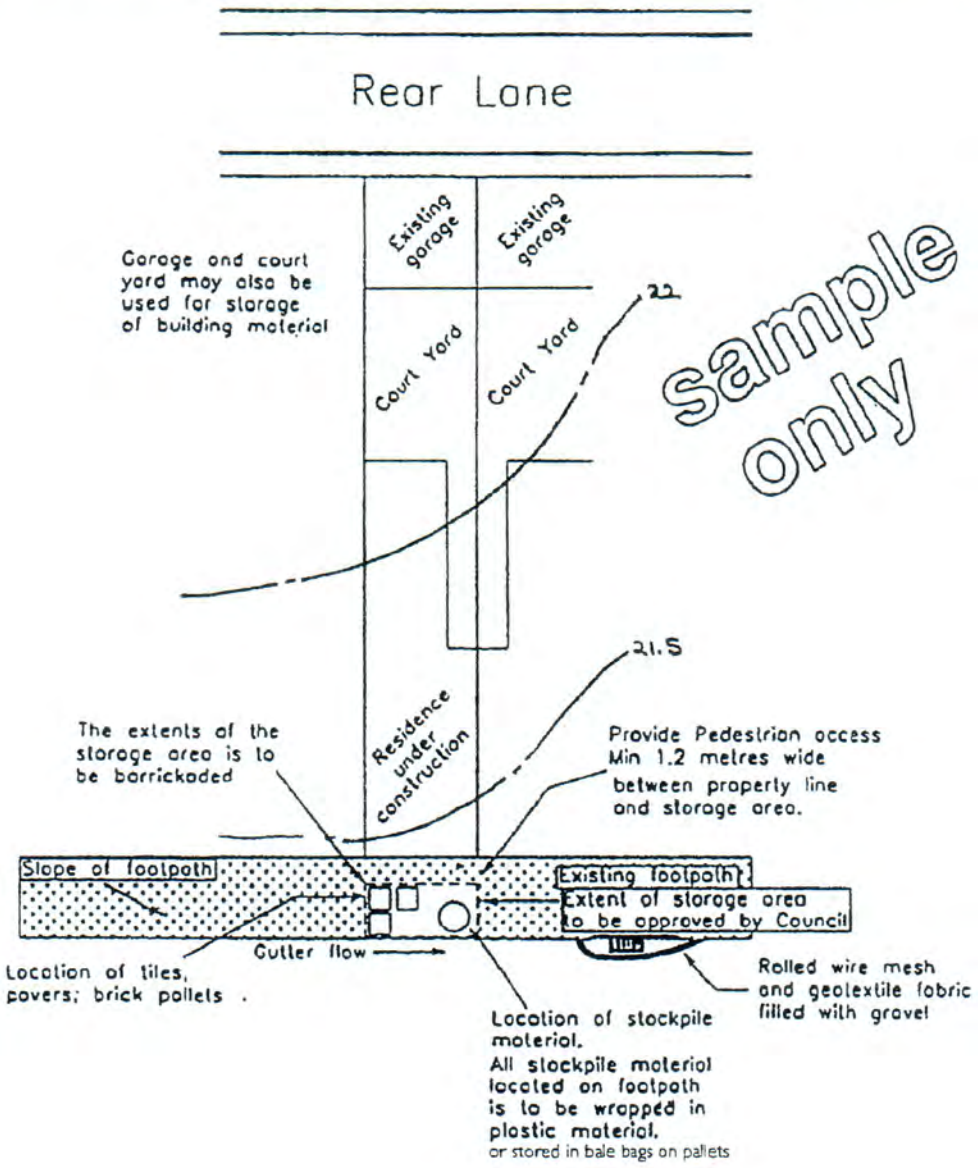
Geotextile fabric filled with gravel

water diversion

Stormwater pit.

Drawn by: Mr House Date: 02/08/00	Location: 3 Smith Street, Bankstown	Scale: Not to Scale	Applicant: Mr Andrews

Example: Soil & Water Management Plan for Small Restrictive Site



Note

1. All erosion and sediment control measures to be inspected and maintained daily by site manager
2. Existing garage and court yeard can be used as storage area for building materials
3. Council approval must be obtained prior to the placement of any materials on the footpath
4. all stockpiles to be clear from drains, gutters and footpaths
5. drainage is to be connected to stormwater system as soon as possible
6. roads and footpath to be swept daily
7. If you do not comply you may be liable to a $750 or $1500 fine

Legend

Stockpiles

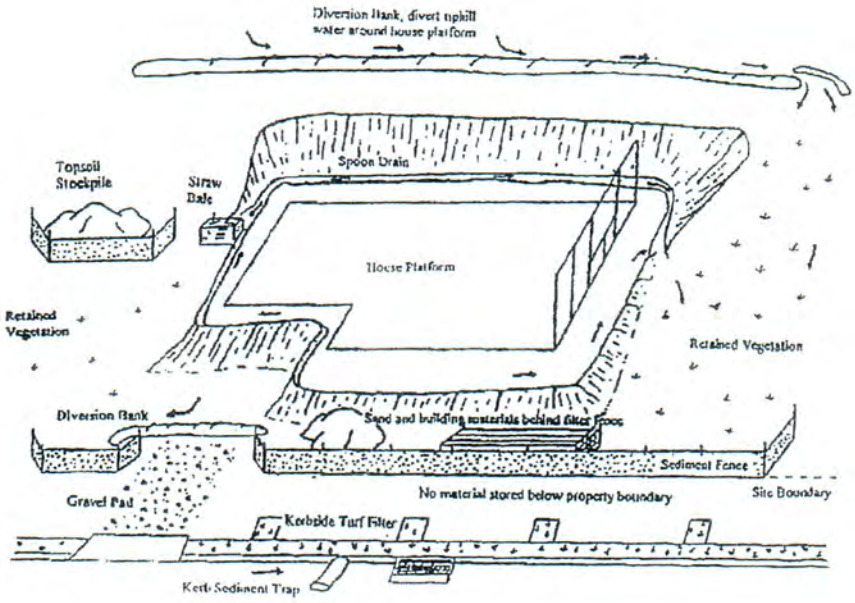
Geotextile with gravel

Footpath

Stormwater pit

Drawn by: Mr House Date: 02/08/00	Location: 3 Smith Street, Bankstown	Scale: Not to Scale	Applicant: Mr Andrews

Example: Soil & Water Management Plan for Larger Site



Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

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

For further information on preventing pollution from building and construction sites contact your local council:

'Do it right on site' is funded by the Natural Heritage Trust and the Southern Sydney Regional Organisation of Councils – Bankstown, Botany Bay, Canterbury, Hurstville, Kogarah, Marrickville, Randwick, Rockdale, South Sydney, Sutherland Shire, Waverley and Woollahra.

THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Stablised Site Access

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Stablised Site Access What is it?

A single entry/exit point for the site that is stabilised to reduce the tracking of sediment off the site on to Council's road and the stormwater system.

Why is it important?

A stabilised track allows vehicles to enter and exit the site safely during all weather conditions without either destroying valuable grass or carrying large amounts of mud and dirt on to the paved road surfaces. It provides a clean, dry surface for vehicles to enter and unload. The stabilised site access has a rough coarse surface which traps mud from vehicle tyres as they roll across it.

Mud and dirt have significant impacts on our waterways. They smother animals and plants that live on the bottom of creek beds. They settle and make the creek shallower. Many native plants and animals can not survive this and die. Even though mud and dirt are 'natural' they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 16

What do I need to do?

Before building commences:

Identify the best location to place the entry/exit point- ideally it should be in an elevated position with little or no water flowing to it from upslope and away from any down slope stormwater pits. All deliveries should be able to be made through this point. Document it on your Soil and Water Management Plan and ensure staff are aware of its importance.

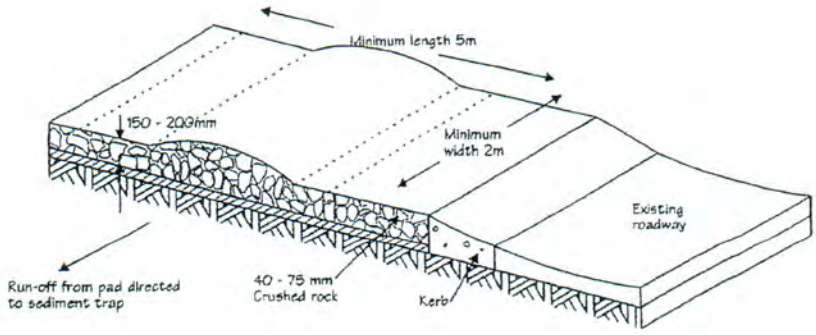
Installing the stablised access point:

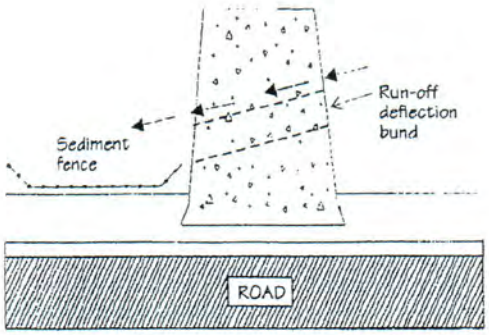
The recommended construction method for stabilising the access point is laying down 200mm of aggregate or recycled concrete greater than 40mm in size. (note: crushed sandstone is not suitable).

Where the access area slopes toward the road, a diversion hump should be installed across the stabilised area to direct stormwater run-off to the side where it can be filtered by a sediment fence. If the construction process enables it the permanent driveway can be laid and used as the access point.

Construction notes:

1. Strip at least 150mm of topsoil, level area and stockpile in space available
2. Compact subgrade
3. Cover area with needle punched geotextile
4. Construct a 200mm thick pad over geotextile using aggregate at least 40mm in size. Length ideally from kerb to building footprint.
5. Construct diversion hump 300mm thick immediately within boundary to divert water to a sediment fence or other sediment trap





On larger sites cattle grid or shaker grids can also be installed at the access point. These allow the wheels to turn a couple of times and shake off excess dirt. If mud still remains wheels can be washed as long as the wash water does not drain to the street. It should drain to a detention area on site to allow the sediment to settle out and the water to evaporate or can be pumped into undisturbed grassed areas where it can soak into the ground.

Maintenance of the stabilised access point:

As vehicles use the stabilised access point they will slowly compact the gravel or rock. If the access point becomes smooth it will no longer help control sediment as it is the rough surface that slows water flows and shakes off mud and dirt from tyres. It is therefore important to monitor the surface of the access point and to add new gravel or rock as needed. Roads should be inspected for any sediment that has escaped the site at the end of each day and swept if necessary. This should also be done when ever rain looks likely.

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