



**ACT**  
Government

# Preventing pollution from residential building sites

Builders' booklet



**Yuma**

**Dhawura Nguna Dhawura Ngunnawal  
Ngunnawalwari dhawurawari  
Nginggada Dindi yindumaralidjinyin  
Dhawura Ngunnawal yindumaralidjinyin**

**Hello**

**This is Ngunnawal Country**

**We always respect Elders, male and female**

**We always respect Ngunnawal Country**

We acknowledge the Ngunnawal people as traditional custodians of the ACT and recognise any other people or families with connection to the lands of the ACT and region. We acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region.

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# Preventing pollution from residential building sites

## Builders' booklet



**This booklet focusses on erosion and sediment controls, as well as noise and waste management practices that can help minimise the release of pollutants from building sites.**

The booklet was developed by the Environment Protection Authority (EPA), in collaboration with the Housing Industry Association and Master Builders Australia, to help builders and associated trades meet their 'general environmental duty' and legal obligations under the Environment Protection Act 1997 and the Environment Protection Regulation 2005.



The 'general environmental duty' under section 22 of the Act requires all people to take practicable and reasonable steps to prevent or minimise any environmental harm or environmental nuisance.



## **It is an offence under the Regulation to:**



allow any substance other than rainwater to enter the stormwater system



not comply with an approved Erosion and Sediment Control Plan



undertake works which exceed the noise standards



burn waste material on site

Offences can lead to an **on-the-spot fine of up to \$200 for an individual or \$1,000 for a company**. More serious offences can lead to penalties of up to \$81,000, six months in jail and a criminal record.

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**YOUR SITE –  
KEEP IT RIGHT.  
THEN OUR  
WATERWAYS  
WILL BE ALRIGHT.**





# 01

## **Site establishment and approvals**

# 01 Site establishment and approvals



**It is the builder's responsibility to ensure pollution control measures are in place before work starts and to maintain them throughout construction until the site is fully stabilised.**

Builders must assess the physical characteristics of the site to determine how it can be developed with the smallest risk of environmental harm.

- ▶ Plan pollution controls to accommodate all stages of development.
- ▶ Ensure the Erosion and Sediment Control Plan (ESC Plan) includes all relevant pollution controls and is submitted to the planning and land authority or private certifier for approval.
- ▶ Check the minimum document requirements for the lodgement of development applications at [www.planning.act.gov.au](http://www.planning.act.gov.au).



## Before works commence

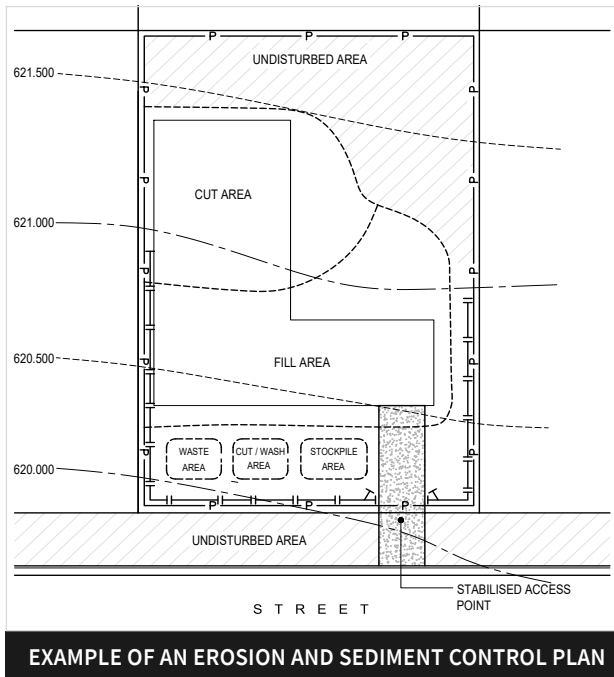
- ▶ Ensure ESC Plan controls are in place.
- ▶ Ensure employees and subcontractors are inducted to implement all pollution controls, including noise and waste management controls.
- ▶ **For more information, contact the EPA by calling 13 22 81 or [accesscanberra.act.gov.au](http://accesscanberra.act.gov.au)**



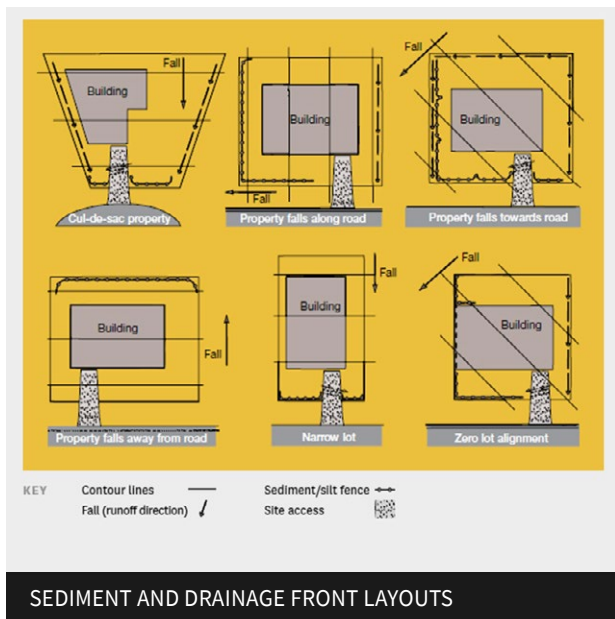
**It is an offence under the Environment Protection Regulation 2005 to allow sediments and other pollutants from a building site to enter the stormwater system and to not comply with an approved ESC Plan.**

# Erosion and sediment control plan

The following technical drawing details the minimum requirements in an Erosion and Sediment Control Plan.



Sediment fence and stabilised access layouts will vary according to the site:





# 02

## Erosion and sediment controls

## 02 Erosion and sediment controls



**Erosion and sediment control measures are the tools builders must use to prevent sediment leaving the site.**

Sediment blocks our drains, pollutes our creeks, lakes and rivers and has a major impact on water quality, aquatic plants and animals. It can obstruct roadways and paths causing hazards, reduce storage volume of reservoirs and increase filtration costs for water supplies.

Erosion controls keep the soil in place, reducing the amount of sediment and minimising the impact of construction. Sediment controls filter sediment (soil, sand and dust) from water entering the stormwater system.



**All building sites must have erosion and sediment controls in place prior to works commencing, with controls maintained throughout development.**



# Erosion controls

Some steps must be taken to minimise erosion on building sites:

## Keep existing vegetation

Vegetation helps protect the soil from the effects of rain and surface water. It acts as a cushion, so raindrops are unable to move soil particles when they hit the surface. Fast flowing water can carry more soil particles off site and vegetation slows the flow of water across the ground. Roots hold the soil together and grassed areas act as a filter by trapping soil particles.

- ▶ Decide what areas of vegetation to keep on site to help prevent erosion.
- ▶ Avoid clearing vegetation and excavating until building commences.
- ▶ Rope off or fence the vegetation and grassed areas to protect them from disturbance.
- ▶ Protect areas close to the boundary, drains, gutters and where surface water flows may carry sediment off site.



# Clean water diversion/ catch drain



**Diversion/catch drains reduce the amount of water travelling across a sloped surface.**

- ▶ Dig a trench on the high side of the block.
- ▶ Dig the trench about 150mm deep with a curbed shape.
- ▶ Make the trench gradient less than 5%.
- ▶ Manage the water on site—do not discharge it off site.

## Early downpipe connection

Connect downpipes to a rainwater tank or the stormwater system as soon as the roof is on. If this is not possible, use a temporary connection such as flexible tubing. Benefits include:

- ▶ fewer drainage problems on site
- ▶ less mud on site after rain
- ▶ a safer site
- ▶ less downtime after storms, so projects get finished sooner.

If roof water cannot be connected to a rainwater tank or the stormwater system, pipe the water away from the building onto a vegetated area or where it can be captured on site. This lets water seep into the ground with less damage to the surface of the soil.

**Do not discharge dirty water off site.** Pump the sediment laden water to a depression on site to allow sediments to settle before pumping off site. This can also allow water to evaporate, reducing the necessity to pump water off site. If water is discharged off site it must be less than 50 NTU.



TEMPORARY DOWNPIPE EXAMPLES

# Sediment controls

Sediment controls must be put in place prior to starting works and kept in place until the site is fully stabilised. Controls must be checked daily and maintained throughout construction.

The range of sediment controls available include the following:

## Sediment fences

Sediment fences are one of the best ways to control sediment. They allow water to flow through and trap the soil. They will last up to six months if maintained.

### Building a sediment fence

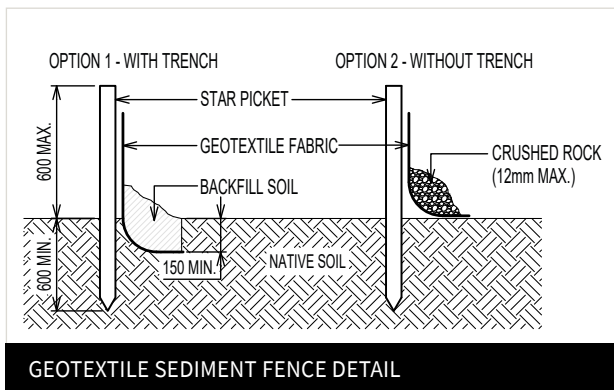
- ▶ Identify the low point, where the water would carry sediment off the site.
- ▶ Construct a sediment fence parallel to the contours of the site.
- ▶ Dig a 200mm deep trench along the fence line.
- ▶ Put 1.5m star pickets below trench no more than 2–3m apart and 600mm deep.
- ▶ Use a geotextile fabric.
- ▶ Filter cloth or shade cloth are not effective sediment control measures as they don't capture fine sediments.
- ▶ Bury the base of the geotextile fabric in the trench.
- ▶ Alternatively, use backfill or aggregate to make sure the geotextile fabric is tight on the ground.
- ▶ Ensure water cannot go underneath the geotextile fabric.



**SEDIMENT FENCE**

- ▶ Use wire/cable ties to attach the geotextile fabric to the upslope side of the star pickets/posts or perimeter fence.
- ▶ Join two pieces of geotextile fabric by overlapping the pieces by at least 150mm and supporting the join with a star picket or wire ties if fixed to perimeter fence.

Note: The performance of these controls can be improved by spreading gypsum over the disturbed soil and incorporating flocculants within the control measures, for example flocculant filled geo-socks.



## Straw bales

Straw bales should only be used together with sediment fences. They have a limited life span and can pollute drains as they start to break down.

## Core logs or geo-socks

Combined with other sediment controls, core logs or geo-socks can be effective, particularly in high traffic areas and restricted sites.

## Grassed buffers (refer to erosion controls)

Grassed buffers (vegetation strips) are an excellent additional filter before and/or after a sediment fence. Keep a grass or vegetated buffer strip between the kerb and construction boundary where possible to slow water flows and prevent erosion. If this area has previously been disturbed, install turf to provide protection. Maintain grass buffers throughout construction as required to minimise erosion.

## Dewatering

Dewatering refers to pumping water out of a footing / trench or excavation. Dewatering activities must be undertaken to ensure the water quality, if discharged from the site, meets 50 NTU.



**It is an offence to discharge water from the site that does not meet this standard.**

The water is often highly sediment laden. Take care to ensure sediments are settled out before pumping. When pumping, elevate the pump inlet to prevent disturbing sediments at the bottom of the footing/trench or excavation.

## Stormwater inlet protection

An inlet protection device prevents sediment-laden water from entering the stormwater drainage system.



**A stormwater inlet protection device is a temporary asset and must be decommissioned and removed at the conclusion of construction.**



**Do not use this control without other on-site erosion and sediment measures in place. It is to be used as a backup if the on-site measures fail (to reduce risk of committing an offence).**



**Check and maintain stormwater inlets daily and especially before and after rain events.**



Example of kerb inlet control with gravel wrapped in netting and geotextile fabric.



## Maintenance of controls

Regular maintenance of erosion and sediment controls is essential to the controls' success and effectiveness.

- ▶ Check controls daily and make repairs if required.
- ▶ Reapply aggregate to the entry/exits points as needed (refer to 'Stabilised access point' tab).
- ▶ Put controls back in place if they are moved, particularly at the end of each day or before it rains.
- ▶ Advise all workers of the importance of maintaining sediment controls and to keep vehicles off the site in wet weather.



## GOOD BUILDING PRACTICES



## POOR BUILDING PRACTICES



**It is an offence under the Environment Protection Regulation 2005 to not install and maintain site erosion and sediment control measures.**

# 03

**Stabilised access  
point**

# 03 Stabilised access point



A stabilised access point consists of a pad of aggregate or similar material underlain with geotextile fabric. It helps protect the surface of the site from vehicle traffic and helps prevent soil/sediment from leaving the site.



A stabilised access point provides a clean, stable surface for vehicles to unload and should be used for all deliveries.

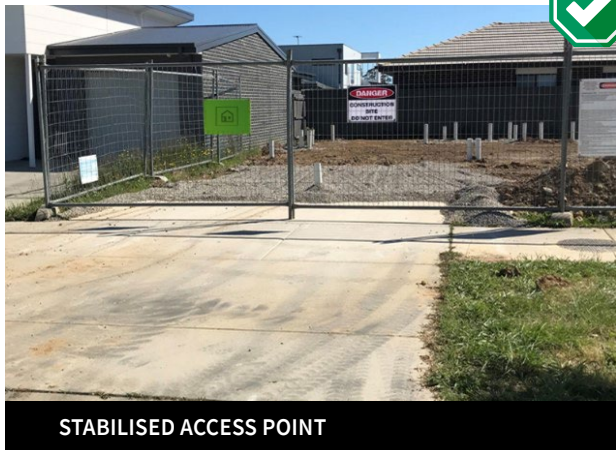
Inappropriate access arrangements cause a major problem as vehicles track dirt and mud from the site that will result in sediment entering the storm water system or cause road/footpath hazards.



Limit access to the site during and immediately after wet weather.

It is the responsibility of the builder to put a stabilised access point in place.

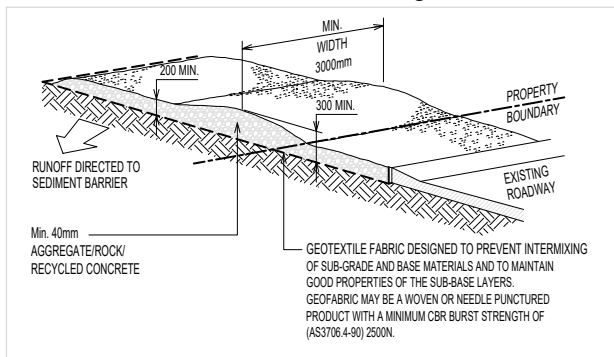
- ▶ If possible, choose an access site in an elevated position with little or no water run-off from upslope.
- ▶ The appropriate location for construction access may not be the proposed driveway location.
- ▶ It is recommended, where practical, to restrict access to one point for ease of maintenance.
- ▶ Clearly identify the access point and advise all workers (including delivery drivers) they must use the access point to minimise pollution.



**STABILISED ACCESS POINT**

# Building a stabilised access point

- ▶ Remove the top layer of soil at least 3m wide from the road (or existing driveway if used as access point) to the nearest building point. Place the excess soil away from stormwater drains within the site.
- ▶ Treat any dispersive subsoil with gypsum to reduce the potential for erosion.
- ▶ Place an underlay of heavy-duty geotextile fabric or the control will not be effective.
- ▶ Use road base or 50mm aggregate or recycled concrete to a depth of 150–200mm.
- ▶ Where the pad slopes towards the road, install a 300mm high bund (hump) across the pad to divert stormwater run-off to a sediment fence for filtering.



## EXAMPLE OF STABILISED ACCESS POINT

**Note:** Allow for pedestrian and cycle access if the pad is placed over a footpath.

- ▶ **Limit access to one entry point** where practicable to help site management.
- ▶ Monitor the stabilised access point/crossover for compaction from vehicles and add new gravel or aggregate as required.
- ▶ Restrict vehicle movements on the verge by assigning a designated parking area for people working on site. Sometimes the parking area may need to be located a short distance away from the site.
- ▶ Use a shovel to remove mud from truck tyres before they leave the site.
- ▶ Clean the road as necessary when mud enters the road.



**DIRT ON ROAD DUE TO ABSENCE OF STABILISED ACCESS POINT**



**It is an offence under the Environment Protection Regulation 2005 if the footpath, gutter, and road adjacent to the development is not clear of soil, sand, building materials and waste**





# 04

## Material and waste management

# 04 Material and waste management



**Incorrect storage of stockpiles and building materials (such as sand, gravel, mulch, soil, etc.) can lead to loss of materials. It can be a major source of pollution to our waterways and cause costly losses.**



Minimise waste generation by following the ACT waste management hierarchy of reduce, reuse, recycle, recover, and dispose appropriately.

## Preferred to least desirable

### Reduce

waste generation

### Reuse

goods and materials

### Recycle

material into new products

### Recover

energy from suitable sorted materials

### Landfill

residual waste to protect human health and the environment



# Stockpile management

Appropriate location and protection of stockpiles helps reduce damage to your building block.

- ▶ When ordering materials, give clear instructions about where to place the delivery.
- ▶ Clearly mark stockpile area. This will help manage the site.
- ▶ To prevent the potential loss of materials, limit the amount of material onsite if possible.
- ▶ Advise all workers (including delivery drivers, etc.) of their responsibilities to minimise pollution.

Protect stockpiles and building materials from entering the stormwater system:

- ▶ Place them near the stabilised access point.
- ▶ Store them behind sediment fences.
- ▶ Protect them by covering where necessary.
- ▶ Locate them away from high water flow areas (e.g. drainage channels, kerb inlet pits, paved areas and driveways).
- ▶ Keep stockpile height below 2m.
- ▶ Apply a stabilising agent to the surface, such as seed, a soil stabilising polymer or hydro-mulch to minimise erosion and compaction from rainfall.



**EXAMPLE OF WELL MANAGED STOCKPILE**



**EXAMPLE OF POORLY MANAGED STOCKPILE**

# Waste management and disposal

## Reduce waste by:

- ▶ ordering only what is needed
- ▶ using prefabricated products
- ▶ separating materials for recycling. This includes timber, steel and metal scraps, electrical cuttings, bricks, concrete, tiles, etc.

## Waste storage and disposal

- ▶ Install onsite waste collection, such as a skip bin or waste/recycling bags.
- ▶ Cover the bin or waste bag/enclosure to prevent the waste escaping.
- ▶ Where possible, collect materials for recycling and/or keep different materials in separate bins.
- ▶ Arrange regular and timely clearance of bins to avoid overfilling.



Contact ACT NoWaste for waste minimisation and recycling information on 13 22 81.

## Penalties apply if litter:

- ▶ is deposited in a public place
- ▶ escapes your building site
- ▶ is not deposited in a suitable receptacle
- ▶ causes injury to a person or animal.



Contact City Rangers  
for more information regarding  
litter on 13 22 81.



**EXAMPLE OF WELL MANAGED WASTE/RECYCLING BAG**



**EXAMPLE OF WELL MANAGED SKIP BIN**

## Hazardous substances and other waste

- ▶ Dispose of any liquid waste (fuel, wet paint, solvents, etc) through a hazardous waste contractor or facility licensed to accept the waste.
- ▶ Follow the waste minimisation hierarchy of reduce, reuse, recycle and dispose appropriately.
- ▶ Store all possible pollutant materials (e.g. chemicals and fuel) well clear of any poorly drained areas, flood-prone areas, stream banks, channels and stormwater drainage areas.
- ▶ Store pollutant materials in a designated area, under cover where possible.



**It is an offence under the Environment Protection Regulation 2005 to place soil, sand, building material or waste from development in the stormwater system, a waterway, or where it may enter the stormwater system or a waterway.**



# 05

**Designated  
cutting area and  
wash area**

# 05 Designated cutting area and wash area



A designated cutting and/or wash area helps keep contaminated water out of the stormwater system.



It is an offence under the Environment Protection Act 2005 to allow a pollutant to enter the stormwater system or a waterway or place a pollutant in a position where it is likely to enter the stormwater system or a waterway.

Dust from bricks, tiles and soil can cause significant environmental issues in our waterways. Concrete and mortar can block stormwater drains and gutters. Cement can raise the pH of waterways, hugely impacting aquatic animals and plants. Acrylic and oil-based paints, even in small amounts, have significant negative impacts.



**It is the responsibility of the builder to ensure that measures are in place to prevent any waste from entering the stormwater system. All workers on site are responsible for any waste they generate.**

- ▶ Find a location away from any drains for cutting bricks, concrete or tiles, mixing cement or mortar or washing equipment.
- ▶ Ensure the area is large enough to contain all excess water, residues and waste.
- ▶ Place sediment fences and straw bale filters down slope to help filter the wastewater.

**Note:** sediment fences will not stop chemicals.

# Concrete slurry

- ▶ Contain concrete waste washed from trucks and mixer units so it does not leave the site or enter the stormwater system.
- ▶ Collect wash water from concrete mixers in a wheelbarrow and get rid of it in your wash area.
- ▶ Safely remove concrete slurry by tipping small amounts in a ditch lined with plastic or geotextile liners. When the water evaporates or soaks into the surface, recycle the solids in construction, use them as road base, or dispose them to landfill.



**It is an offence under the Environment Protection Act 2005 to allow a pollutant to enter the stormwater system or a waterway or place a pollutant in a position where it is likely to enter the stormwater system or a waterway.**

# Painting tools

- ▶ Remove excess paint from brushes, rollers and trays before washing; this means you need less water to clean this equipment.
- ▶ Keep paint and washwater within the site and away from hard-sealed surfaces leading to gutter, stormwater drains / sumps and waterways
- ▶ Consider using products that treat water-based paint waste, allowing for easier disposal; for example, paint hardener and water/paint residue separator.
- ▶ Wash oil-based paints in a series of solvent baths.
- ▶ Reuse the solvent several times and store it in labelled, sealed containers.
- ▶ Dispose of waste solvent through a hazardous waste contractor or facility licensed to accept the waste. Do not place solvent in a normal bin or on the ground.

# Maintenance

- ▶ The designated wash area and its sediment controls will need regular maintenance to ensure they work effectively.
- ▶ Dispose any solids collected from this area to landfill.
- ▶ Remove any built-up sediment.
- ▶ Check for holes or other breaks in the controls and repair and replace them as necessary.
- ▶ Brush dirt and mud off equipment before washing it.

# 06

## Other controls

## 06 Other controls



**Where building work generates pollution, builders must take all reasonable and practicable measures to minimise that pollution.**



For more information, see Environment protection guidelines.

[www.accesscanberra.act.gov.au](http://www.accesscanberra.act.gov.au)



# Dust

Dust contributes significantly to sediment issues due to wind erosion. Sites that remain exposed for long periods must have dust suppression methods applied and builders must take all reasonable and practicable measures to minimise dust.

- ▶ Keep existing vegetation where possible.
- ▶ Strip areas progressively and only where it is necessary for works to occur.
- ▶ Use stabilisation methods such as matting, grass or mulch.
- ▶ Dampen the ground with a light water spray. Check any chemicals added to the water to increase dust suppression will not impact on adjacent water bodies.
- ▶ Roughen the surface of exposed soil.
- ▶ Cover stockpiles and locate them where they are protected from the wind.
- ▶ Restrict vehicle movements.
- ▶ Cover loads when transporting material.
- ▶ Construct wind breaks such as wind fences.
- ▶ When an area of works is completed, revegetate immediately.



**In relation to air pollution, it is an offence for a person to cause an environmental nuisance.**

# Noise

Conduct all building work that generates noise that exceeds the noise standards within the allowed time periods.

## Building work details

Building work details	Monday to Saturday	Sunday and Public Holidays
Industrial, city and town centre areas	6am to 8pm	6am to 8pm
Any other area when work is completed within two weeks	7am to 8pm	8am to 8pm
Any other area when work is not completed within two weeks	7am to 6pm	Building work not to exceed Noise Standard



For more information regarding Noise Standards refer to [Schedule 2 of the Environment Protection Regulation 2005](#).



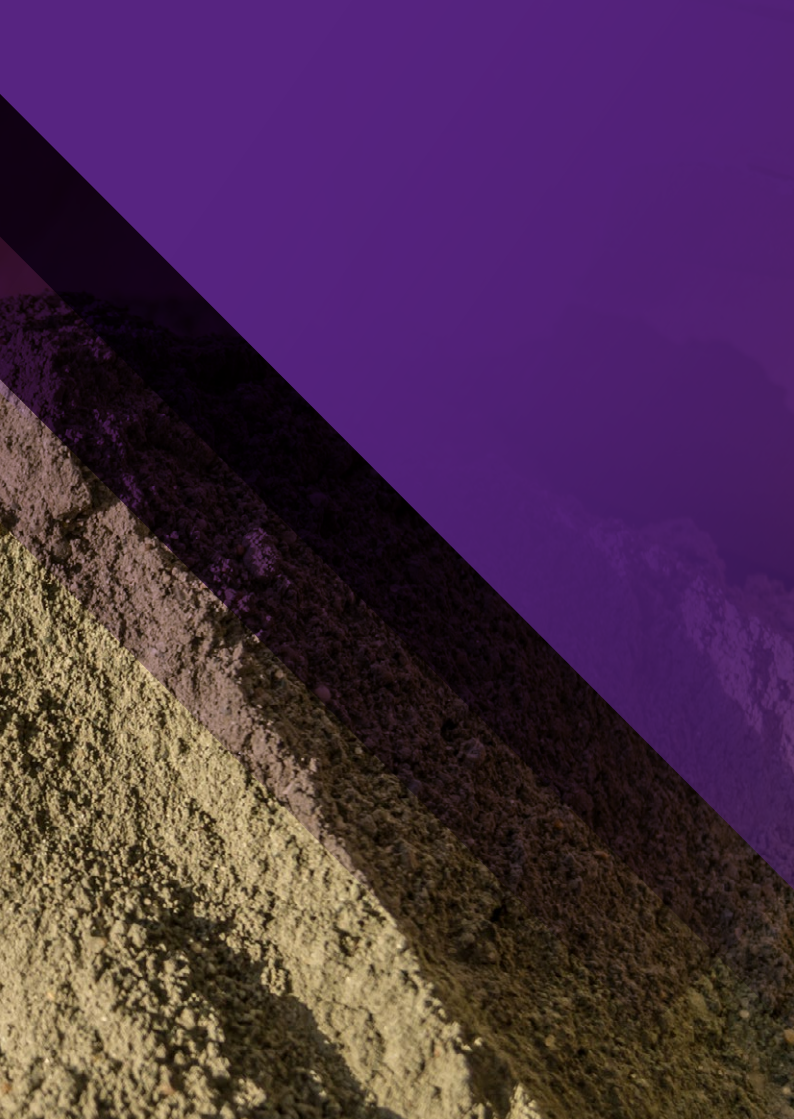
**In relation to noise, it is an offence under the Environment Protection Regulation 2005 to emit noise in excess of the Noise Standards outside the allowed time periods.**

# Fire

Burning of waste materials on site is illegal. A fire may be permitted for heating purposes provided it is in a brazier or constructed fireplace. Only burn seasoned untreated timber for heating purposes.



**It is an offence under the Environment Protection Regulation 2005 to burn waste materials on the site, such as plastics, chemicals or wood that is painted, chemically treated or contaminated with chemicals.**



# 07

## **Builder's checklist**

# Builder's checklist



## POLLUTION CONTROLS

Grassed areas/vegetation buffers (undisturbed areas, including nature strips/ verges) identified and protected.

Entry and exit points (access points/ crossovers) stabilised with crushed aggregate (or similar) and located as far away from the lowest point of the site as possible.

Catch drains and perimeter banks in place to divert up-slope water onto stable areas with sediment controls and not into neighbouring properties.

Sediment fences installed along the lowest side/s of the site and around stormwater drains adjacent the site.

Stockpile areas identified behind sediment fences within the site area and away from stormwater drains.



## POLLUTION CONTROLS

**Cutting and washing areas identified within site.**

**On-site waste collection (skip bins or waste/recycling bags) in place within site.**

**Pollution control maintenance identified and scheduled.**



**ACT**  
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## **Preventing pollution from residential building sites**

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[accesscanberra.act.gov.au](http://accesscanberra.act.gov.au).

