This specification is constructed as follows:

1. **Purpose of this Specification** 1
2. **Environmental Site Management** 3
3. **Environmental Site Management Plans** 4
4. **Erosion and Sediment Control Measures** 4

4.1 Stabilised Access Points 4
4.2 Silt Fences 7
4.3 Stockpile Protection 9
4.3 Drainage Structure Protection 10
4.4 Water Disposal / Sediment Settlement Basins 11

5. **Site Management** 12
5.1 Material Storage and Site Facilities 12
5.2 Hoardings and Hoarded Zones 12
5.3 Work Zones 13

6. **Additional References** 14
1. Purpose of this Specification

This specification is a guideline intended to assist personnel working on development sites to achieve the objectives and controls for Environmental Site Management. These are set out in Sutherland Shire Development Control Plan 2006, specifically in Chapter 8, Part 4: Environmental Site Management.

This specification covers the basics of environmental site management techniques for demolition and excavation, erosion and sediment control, and site management. Where warranted, the following environmental site management techniques may be employed on a site. This specification is intended to provide additional supporting information for applicants on some proven methods which may be utilised to achieve the objectives and controls specified in the DCP.

2. Environmental Site Management

Environmental Site Management aims to avoid potential pollution and minimise waste through the effective management of all construction processes. Environmental Site Management must maintain public safety in all areas affected by construction site activity and minimise the disruption to existing vehicular and pedestrian thoroughfares.

Environmental Site Management strategies must be implemented for any works occurring on a site and where public safety may be affected by development works. The person using the site is responsible for any environmental damage, injury or property damage arising from the activities on the site.

Environmental Site Management must be tailored to suit the site and needs to take into consideration the sites unique characteristics and constraints. Any Environmental Site Management methods employed on a site are to be maintained and modified to reflect works progression.

This specification covers the basics of environmental site management techniques for demolition and excavation, erosion and sediment control, and site management. Where warranted, the following environmental site management techniques are options that may be employed.

Environmental Site Management techniques are not limited to those discussed in this specification, and other methods may be employed if it can be demonstrated that the techniques meet the objectives and requirements of the DCP. Methods of Environmental Site Management include the following:

- Stabilised Access Points (SAP),
- Silt Fences,
- Stockpile Protection,
- Drainage Structure Protection,
- Water Disposal / Sediment Settlement Basins,
- Cleaning of the Public Way,
- Dust Control,
3. **Environmental Site Management Plans**

An Environmental Site Management Plan (ESMP) may be required for large scale developments (ie. development larger in scale than a dual occupancy), or for development in major centres or sensitive environments. The scale and complexity of an ESMP is determined on the scale and complexity of the proposed development.

The purpose of an ESMP is to demonstrate that erosion and sediment control, site and pedestrian safety and traffic control during the construction process has been considered and appropriate measures have been determined to prevent any adverse impacts.

4. **Erosion and Sediment Control Measures**

4.1 **Stabilised Access Points**

**Purpose**
A Stabilised Access Point (SAP) controls and defines both vehicular and pedestrian movements to and from a site, thereby minimising the transfer of sediment and ensuring the integrity of the public way is maintained.

**Installation / Operation**
If a SAP is appropriate for the site, then it is important that it is installed prior to the commencement of any site activity including demolition and excavation.

There are two types of SAP’s. Type I SAPs are most suitable for single dwellings, dual occupancies and exempt and complying development, while Type II SAPs are generally best suited to larger scale activities.
The following images provided examples of both types of SAP’s:

**Stabilised Access Points – Type I (Option 1)**

**Stabilised Access Points – Type I (Option 2)**
Stabilised Access Points – Type II

Type II SAPs often require the use of a shaker pad. These pads, which must be certified by a structural engineer, help to minimise the transfer of materials from the site by vehicles. An example of a shaker pad is provided below:

Shaker Pad Detail
Where a shaker pad is to be used, it is important that it is designed so that all vehicles must drive over the shaker pad when exiting the site. Barriers at the sides are an effective means to ensure that this happens.

4.2 Silt Fences

Purpose
Silt fences can prevent the transfer of sediment transported by stormwater. It is one of the most practical and cost effective ways of achieving sediment control, but must be installed correctly to be effective. Silt fences can also be used to protect drainage structures that are designed to collect and transport stormwater to a disposal point.

Installation / Operation
Where silt fences are to be used they should be installed prior to the commencement of any works on the site. They may be installed as follows:

- To hold silt fence up, drive 1.5m long star pickets into ground at maximum 2.5m intervals at downslope edge of trench. Allow for returns at either end of the silt fence and at regular intervals on a long silt fence.
- Dig a 150mm deep trench on the upslope side of the star pickets, then length of the intended sediment fence.
- Fix geotextile material suitable for the soils on the site to the upslope side of the star pickets, ensuring that the bottom 150mm of the material sits in the trench. Affix the geotextile material to the star pickets, ensuring there is a 150mm overlap where required, using UV resistant cables, wire ties or other suitable materials.
- Backfill trench over base of fabric and compact thoroughly.
- Where the silt fence is installed on a steep slope, reinforcing in the form of placement of boulders or silt socks on the downslope side of the silt fence may be required.

Installation of Silt Fence
Silt Fence Diagram

Silt Fence with Returns

Reinforced Silt Fence
Silt fences should follow the natural contours of the land and should always be installed so that surface stormwater flows are directed through and not underneath the fence. On small building sites the silt fence should be installed on the low side and/or corner of the site to achieve maximum effectiveness.

It is important that silt fences are regularly checked for damage to ensure that any sediment collected is removed and disposed in a manner that does not cause pollution.

4.3 Stockpile Protection

Purpose
The purpose of stockpile protection is to provide adequate sediment and erosion control and/or to ensure pedestrian and traffic safety. The effective stockpiling of “stripped” topsoil, excavated material and other bulk building materials required for the construction process can save money and reduce environmental waste.

Installation / Operation
The effectiveness of any stockpile is determined by its location, accessibility and protection. Stockpile covers are held down with bricks, rocks, silt socks or something similar to prevent exposure of the covered material. Suitable covering material should be chosen to allow for the infiltration of rainwater while preventing the loss of material by wind movements.

It is preferable for stockpiles to be located on flat ground and away from drains and watercourses. If this is not possible, or if the stockpile is to remain in place for some time, then it is best to surround the stockpile with a silt fence for added protection.

The following diagrams present examples of suitable stockpile protection measures:

Stockpile Protection
Stockpile with Silt Fence

4.3 Drainage Structure Protection

**Purpose**
Drainage structures are designed to collect and transport stormwater to a disposal point. These structures have the potential to increase sediment transfer that can directly affect waterway siltation which is why they should be protected.

**Installation / Operation**
Where drainage structures may need to be protected silt fence enclosures or barriers should be erected around the existing surface inlet drainage pits. These devices can be installed directly against the pit or offset with the enclosed area being suitably stabilised.

Some methods of drainage structure protection are illustrated below:

**Surface Inlet Pit – Silt Fence Enclosure**
Another method of drainage structure protection are filter tube silt traps, although these are considered a secondary temporary measure to be employed where a pollution incident is possible. They supplement other protection measures where there is a high risk of pollution. An example of a filter tube silt trap is illustrated below:

4.4 Water Disposal / Sediment Settlement Basins

Purpose
Sediment basins are used to detain on-site stormwater or other flowing water and trap sediment through a settling process. Development sites involving major excavation either at or below the natural surface should consider the use of sediment basins to trap on-site sediment.

Installation / Operation
Sediment basins can be constructed from earth, rock or suitable crushed concrete products where formed as aboveground ponds or plastic or metal for underground tanks. The design will depend largely on site constraints and types of soil.
Stormwater flowing from upstream areas through active development sites with unstabilised surfaces may cause erosion and this should always be suitably managed and avoided.

Landcom’s publication *Managing Urban Stormwater: Soils and Construction* provides more detail on these systems.

An example is provided below:

*Diversion of Upstream Water & Energy Dissipation Techniques*

5. Site Management

5.1 Material Storage and Site Facilities

The storage of materials, hoisting equipment and facilities on the site also need to be considered when planning the construction process to avoid potential negative impacts and conflict of the public way. The storage of toilets, building materials, pallets, waste bins and stockpiles are aspects of the construction process which are managed on the site.

5.2 Hoardings and Hoarded Zones

**Purpose**

Hoardings prevent unauthorised access to a site and are used on all sites where demolition and construction activity is occurring as a public safety measure.
Hoarded Zones are designated areas adjacent or in close proximity to a construction site which are necessary for the management of the construction activities. There are two types of hoarded zones. They are:

‘A’ class hoarded zones which are located at ground level
‘B’ class hoarded zones which are an elevated area that also provides overhead protection for the pedestrian thoroughfare below.

**Installation / Operation**

It is important that hoardings are located on the boundary of the site and supported by bracing that ensures their stability in all weather conditions. Gates within hoardings should always open into the site to avoid conflicts with public vehicles and pedestrians. They may be constructed of chain wire, prefabricated chain wire (temporary fencing) or timber plywood.

### 5.3 Work Zones

**Purpose**

Work zones are areas within a road carriageway which are intended to assist with managing construction activities associated with development sites.

**Installation / Operation**

Work Zones are generally located adjacent to the kerb and gutter. They do not necessarily need to directly adjoin the frontage of the site but should be in close proximity to it.

These areas may also be used for temporary storage of materials associated with the site, but only in the permitted hours of operation of the site. The permitted hours of operation are indicated on the ‘Work Zone’ signs and are noted in the development consent.
6. Additional References

The following publications and legislation discuss issues relating to Environmental Site Management and may be useful to refer to for further information.


- Protection of the Environment Operations Act, 1997
- Environmental Offences and Penalties Act, 1989
- Environmental Planning and Assessment Act, 1979
- Fisheries Management Act, 1994
- Local Government Act, 1993
- Pollution Control Act, 1970
- Rivers and Foreshores Improvement Act, 1948
- Soil Conservation Act, 1938