



**Engineering Guidelines for
Subdivisions and Development**

**Part 6
Landscaping and Measures for
Erosion, Sedimentation and Pollution
Control
2014**

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PART 6 - LANDSCAPING AND MEASURES FOR EROSION SEDIMENTATION AND POLLUTION CONTROL

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1. INTRODUCTION

This section of the Engineering Guidelines for Subdivisions and Development outlines Council's recommended practice for the **Landscaping and Measures for Erosion, Sedimentation and Pollution Control**. It is in no way a comprehensive "Design Manual" and it is to be read in conjunction with and as a supplement to referenced standards.

The Subdivision and Development Guidelines comprise the following:

- Part 1 General Requirements
- Part 2 Roads
- Part 3 Drainage
- Part 4 Water Reticulation
- Part 5 Sewerage Reticulation
- Part 6 Landscaping, and Measures for Erosion, Sedimentation and Pollution Control**
- Part 7 Testing.

2. GENERAL

The object of these Guidelines is to:

- Encourage the implementation of environmental buffers and provide opportunities for repair and enhancement of natural systems especially for lands that were previously degraded;
- Encourage developers to appreciate landscape design as a fundamental and critical element of a development proposal and to include landscape design considerations at an early stage in the planning process.
- Protect the environment against soil erosion and soil loss from subdivision sites;
- Improve Water Quality;
- Prevent the degradation of drainage systems, waterways and the River Murray, from the deposition of soil, polluting substances and other foreign material from subdivision sites; and
- To minimise disturbances and provide necessary control measures to prevent loss of soil.

Relevant Acts and Guidelines include but are not limited to:

- Water Management Act 2000 (Part 3 management plans);
- Protection of the environment and operations Act 1997 (covers water, air, noise, pollution and waste);
- Native Vegetation Act 2003 No 130 (regulates clearing);
- Fisheries Management Act 1994 (protects fisheries and habitat);

- Noxious Weeds Act 1993 (control of noxious weeds);
- The Local Government Act 1993;
- Catchment Management Act 1989;
- Environmental Planning and Assessment Act 1979;
- Soil conservation Act 1938;
- Managing Urban Stormwater: Soils & Construction (Landcom); and
- State Environmental Planning Policies (Murray River SEPP 14, 44, 55).

3. LANDSCAPING FOR SUBDIVISIONS

General:

Prior to development of a landscape concept it is recommended that you carry out preliminary discussions with the appropriate Council Officer regarding the existing landscape features and concepts that will reinforce the character of the area and preserve the local native habitat.

3.1 LANDSCAPE GUIDELINES

A landscape plan will be required. The level of detail will depend on the size, scale and location of the development site. At a minimum, detail to include:

- Existing trees and landscape elements accurately plotted to scale;
- Species selection – including approximate height reached at maturity;
- Purchasing criteria;
- Planting schedule;
- Planting methodology; and
- Maintenance schedule.

At the initial stage of planning it is important that the trees to be retained on the development site are identified by a qualified arborist.

A tree protection plan is developed for the retained trees during the complete development phase. Refer to Table No 1 for design concepts that assist in the preservation of mature trees on a development site.

Council's nominal rate of street tree planting is one medium size tree every 15 metres or as directed. Tree purchase and planting is to be carried out as per Berrigan Shire Council standards. These standards are available on request.

At the completion of the planting and development of all reserves and street trees a handover inspection is to occur with the appropriate Council officer. Reserves to be dedicated to Council will only become Council's responsibility following the handover inspection and satisfactory completion. A letter stating the satisfactory completion of landscape works will be sent to the developer.

A maintenance period of a minimum of 12 months will apply unless otherwise nominated by Council. Following this period the release of the landscape bond will occur upon receipt of a written request.

Undesirable species are listed in Table No 2. These species are able to be removed without consent as exempt development.

3.2 CAR PARK LANDSCAPING

Ensure that car parking areas are landscaped to provide shade, define parking areas and improve the aesthetics of parking areas.

The development is to enhance the overall appearance of the streetscapes or streetscape elements including the street tree planting and other significant landscape elements.

4. NOXIOUS WEEDS

Under the Noxious Weeds Act 1993 Central Murray County Council is authorised to enforce the control of these plants. The NSW Department of Primary Industries makes regular updates the noxious weeds list for the Central Murray Region.

The Noxious Weeds Act 1993 requires that the growth and spread of all class 4 noxious weeds to be controlled according to the measures specified in the Central Murray Class 4 Noxious Weed Management Plan. The vegetation management plan prepared for the site is to include the listing of noxious weeds on site and the proposed control methods in dealing with these weeds.

4.1 CLEARING OF VEGETATION

The recommended flow of information is as follows:

- Identify the type of activity;
- List the applicable legislation and comply;
- Prepare a planning document for each activity;
- Type of activity whether exempt or complying; and
- Refer to the consent authority.

Clearing of vegetation is to comply with the following:

- The provisions of Clause 5.9 of Berrigan Local Environmental Plan 2013 and Chapter 8 of Berrigan Development Control Plan;
- The removal of trees, shrubs and ground cover shall be minimised to protect the ground surface from erosion;
- Removal of trees exceeding 200 mm in diameter and or 5 metres in height shall be undertaken only in accordance with Development or Building approvals. Any trees to be removed should be clearly identified on a plan;

location and health of all existing trees that exceed 200 mm in diameter and or 5 metres in height either on-site or on adjoining lands and within two metres of boundaries of the subject site. Removal of any trees will not be allowed before development approval unless written Council consent is obtained. In addition to Council requirements, approval may be required under the Native Vegetation Conservation Act.

- Minimal clearing of vegetation, including trees less than 4.5 metres in height, may be undertaken without consent or in accordance with approved plans for the following purposes:
 - * Survey or geotechnical investigations where clearing is limited to obtaining site lines or essential vehicle access;
 - * Reduction of the fire hazard in accordance with:
 - The Rural Fires Act 1997
 - NSW RFS Planning For Bushfire Protection 2006
 - According to the needs of a fire radiation zone at the direction of council, providing the material is removed in a way that does not disturb the ground surface;
- In compliance with a notice for the destruction of noxious weeds or vegetation harbouring vermin;
- Activities not requiring development consent, providing the material is removed in a way that does not disturb the ground surface, as in (ii) above, and/or the land is not within 20 metres of an urban stream (Section C) and/or the gradient is not steeper than 1(V):4(H) or not covered by the Native Vegetation Conservation Act.

For subdivisional work clearing must be limited to 2 metres from the edge of any essential construction activity as shown on the approved engineering plans.

All reasonable care must be taken to protect other vegetation from damage during construction. This will include the following:

- Clearly marking trees to remain;
- Avoiding compaction of ground within the drip line of trees to remain;
- Clearly delineating the area of disturbance and keeping all vehicles, building materials and refuse within that area. These areas are to be clearly marked exclusion zone;
- Limiting the number of access points to the site; and
- Clearly restrict access to no go areas and provide exclusion fencing prior to the commencement of works on site.

4.2 ESTABLISHMENT OF VEGETATION

- Promote revegetation of disturbed areas;
- Conserve native vegetation;
- Equal consideration should be given to native grasses, legumes, shrubs and trees;
- Consider seasonal conditions to match the time of year to seedling germination and survival;
- Replace or re-establish any damaged vegetation;

- Perennial vegetation is preferable;
- Revegetate 90% of the disturbed areas within eight months of the initial revegetation plantings and; and
- Revegetation must comply with an approved Master Plan, the Master Plan must comply with any other relevant strategy policy plan or the like relevant to vegetation management.

4.3 TABLE NO 1 – TREE MANAGEMENT ON A DEVELOPMENT SITE

IMPACT OF TREE	CONSTRUCTION ACTIVITY	METHODS TO MINIMISE TREE DAMAGE
Root Loss	Stripping site or organic surface soil during mass grading.	Restrict stripping of topsoil around trees. Any woody vegetation to be removed adjacent to trees should be cut at ground level and not pulled out by equipment, or root injury to remaining trees may result.
Root Loss	Lowering grade, scarifying, preparing subgrade for fills and structures.	Use retaining walls with discontinuous footings to maintain natural grade as far as possible from trees. Excavate to finish grade by hand and cut exposed roots with a saw to avoid root wrenching and shattering by equipment, or cut with root pruning equipment. Spoil behind cut face can be removed by equipment sitting outside the dripline of the tree.
Root Loss	Subgrade preparation for pavement.	Use paving materials requiring a minimum amount of excavation (eg reinforced concrete instead of asphalt). Design traffic patterns to avoid heavy loads adjacent to trees (heavy load bearing pavements require thicker base material and subgrade compaction). Specify minimum subgrade compaction under pavement within dripline (extra reinforcement in concrete or geotextile under asphalt may be needed).
Root Loss	Excavations for footings and wall foundations.	Design walls/structures with discontinuous footings, pier foundations. Excavate by hand. Avoid slab foundations, post and beam footings.
Root Loss	Trenching for utilities, drainage.	Co-ordinate utility trench locations with installation contractors. Consolidate utility trenches. Excavate trenches by hand in areas with roots larger than 25 mm in diameter. Tunnel under woody roots rather than cutting them.

IMPACT OF TREE	CONSTRUCTION ACTIVITY	METHODS TO MINIMISE TREE DAMAGE
Wounding top of tree	Injury from equipment.	Fence trees to enclose low branches and protect trunk. Report all damage promptly so arborist can treat appropriately.
Wounding top of tree	Pruning for vertical clearance for building, traffic and construction equipment.	Prune to minimum height required prior to construction. Consider minimum height requirements of construction equipment and emergency vehicles over roads. All pruning should be performed by an arborist, not by construction personnel.
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Compacted soils.	Fence trees to keep traffic and storage out of root area. In areas of engineered fills, specify minimum compaction (usually 85%) if fill will not support a structure. Provide a storage yard and traffic areas for construction activity well away from trees. Protect soil surface from traffic compaction with thick mulch.
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Spills, waste disposal (eg paint, oil, fuel).	Post notices on fences prohibiting dumping and disposal of waste around trees. Require immediate cleanup of accidental spills.
Unfavourable conditions for root growth, chronic stress from reduced root systems.	Soil sterilants (herbicides).	Use herbicides safe for use around existing vegetation.

4.4 TABLE NO 2 – UNDESIRABLE PLANT SPECIES

COMMON NAME	SCIENTIFIC NAME	QUALIFICATIONS
NOXIOUS WEEDS		
Castor Oil Plant	Ricinus communis	
Willows	Salix ssp.	
Tree of Heaven	Alilanthus altissima	
Rhus Tree	Toxicodendron succedaneum	
UNDESIRABLE SPECIES		
Bamboo		All species and cultivars.
Celtis ssp.		Specific species.
Cootamundra Wattle	Acacia baileyana	
Golden Wattle	Acacia salignus	
Desert Ash	Fraxinus oxycarpus	
Box Elder	Acer negundo	

5. EROSION, SEDIMENTATION AND POLLUTION CONTROL