RIPARIAN LAND CONTROLS

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INTRODUCTION

Creeks, aquatic habitats and the associated riparian environments are important systems which support water quality; maintain habitat, connectivity and biodiversity; and contribute to the character, amenity and aesthetics of the local area.

The impact of urban stormwater management systems has led to accelerated erosion, increased localised flooding, significant sediment deposition, increased pollution and weed proliferation as well as loss of habitat and biodiversity. This in turn has altered the way the community uses and values the waterways. For example, many creeks are now unfit for swimming or other forms of recreation.

Within Ku-ring-gai these changes are apparent within the streams and riparian systems that still exist within the local government area (LGA). Outside the LGA the impacts can be seen in the receiving water bodies such as Sydney Harbour, the Hawkesbury River and local coastal beaches.

This Part guides development on land identified within the Natural Resource – Riparian Lands Map in the KLEP (Local Centres) 2012 (see clause 6.4) and supports the achievement of the aims and objectives within the LEP.

Practical measures are provided to ensure multiple objectives are achieved without compromising planning, development, conservation and restoration needs.

This Part is set out as follows:

• 5.1 of this Part provides general controls for development within all riparian land.

• 5.2 - 5.4 of this Part provide additional provisions for development within specific categories of riparian land as identified on the Natural Resource – Riparian Lands Map in the KLEP (Local Centres) 2012.

Both sections must be addressed when preparing development applications.

The following specific riparian categories are applicable:

• Category 2 Riparian Land includes a 20m setback from the top of each bank which, together with the waterway (as defined in the KLEP (Local Centres 2012), forms the core riparian zone (CRZ); and a buffer zone of a further 10m from the core riparian zone. Refer Figure 5.2-1.

• Category 3 Riparian Land includes a 10m setback from the top of each bank which, together with the waterway, forms the core riparian zone (CRZ). Refer to Figure 5.3-1.

• Category 3a Riparian Land includes the area 10m on each side of a discontinuous or piped watercourse. Refer to Figure 5.4-1.

  **Note 1:** Category 1 Riparian Lands do not apply to the lands within the KLEP (Local Centres) 2012 and have therefore not been included in this DCP.

  **Note 2:** Development within ‘waterfront land’ may be Integrated Development. Integrated Development requires consent from at least one public body other than Council.
5.1 GENERAL

Objectives

1. To maintain natural waterways and floodplain processes.
2. To protect natural features, functions and biodiversity within riparian land (including the waterway).
3. To manage edge effects appropriately at the riparian land/urban interface.
4. To maintain and enhance the viability of riparian vegetation and habitats.
5. To protect and enhance water quality and aquatic habitat within the waterway and downstream.
6. To improve the connectivity and continuity of riparian vegetation and habitat.
7. To re-instate where feasible the natural functions and characteristics of the core riparian zone including reconstruction of existing piped or channelised waterways and natural waterways.
8. To prevent further piping and channelisation of watercourses.
9. To integrate human access to waterways without compromising the protection of riparian processes.

Controls

Location

1. Subdivisions and amalgamations must provide for a development footprint outside the riparian land.
2. Subdivisions (via perimeter roads) must front onto riparian land.
3. The provision of service infrastructure including stormwater and sewerage within the core riparian zone (CRZ) must be minimised.
4. Despite the provisions of 5.2 to 5.4 of this Part, safety fences are permitted within the CRZ. Fences must be set back an appropriate distance from the top of the bank, and be of an open design to minimise barriers to flora, fauna and water.
5. Encroachments onto riparian land may be permitted. In determining whether an encroachment is acceptable, the following must be considered:
   i) the location of existing structures to be retained within the riparian land;
   ii) the scale of the development;
   iii) the minimisation of any encroachment through the siting and design of the development;
   iv) location above the 1% flood level;
   v) enhancements proposed as part of the development such as offset areas;
   vi) ecological values.

Access

6. Opportunities for the community or residents to connect with and explore waterways are to be provided where appropriate.
7. Accessways must not compromise the integrity of riparian land. Walkways, tracks, cycleways and general access points may be established in the riparian land, where:
   i) they are designed and constructed to ensure minimum impact on the riparian land; and
   ii) they contribute to the management of edge effects or ongoing riparian maintenance.

Design

8. Impervious surfaces within the CRZ must be minimised. Where feasible, reduce the existing building footprint and impermeable surfaces within riparian zones.
9. The development must be designed to ensure connectivity of vegetation, hydrological flows and fauna movement to, and within, the riparian land and waterway.

See Volume C Part 4C.3-5 and 4C.6 for Safety Fencing Controls
5.1 GENERAL (continued)

Controls

10 Riparian vegetation is to be retained and enhanced.

11 Disturbance of soils within riparian land must be minimised, except where required for rehabilitation or remediation of the waterway.

Watercourse and flood processes

12 Watercourse and riparian land management must be integrated with flooding risk. Flood management studies must consider the impacts of rehabilitation and remediation of riparian land in the assessment of risk and in any proposed mitigation strategies.

13 No works shall be undertaken on or near a natural waterway or section of natural waterway that would cause straightening, significant relocation, widening, narrowing, piping or lining of the natural waterway.

14 Stream bank stabilisation works should be by use of re-vegetation methods, or if necessary, be of a ‘soft engineering’ design.

15 All stormwater discharge is to be treated before it enters the waterway.

Note: Refer to Volume C Part 4 of this DCP for standards for post-construction water quality.

16 Water quality and quantity treatments should not compromise the biodiversity objectives of this DCP or objectives of this Part.

Note: Council may require, as a condition of consent, that a restriction-on-use be placed over the riparian land, the terms of which do not permit any works or development including earthworks, construction, landscaping, removal of vegetation or changes to the natural waterbody, without the written concurrence of Council.
5.2 CATEGORY 2 TERRESTRIAL AND AQUATIC HABITAT

Objectives

1. To preserve and enhance the viability, condition, connectivity and extent of native riparian vegetation.
2. To protect and/or provide habitat for terrestrial and aquatic fauna.
3. To protect and/or provide bank and bed stability.
4. To contribute to improved water quality within the catchment.
5. To provide a riparian buffer to counter edge effects on the urban interface.
6. To provide for bushfire asset protection zones outside the core riparian zone.

Location

1. All parts of the development are to be located outside the core riparian zone (CRZ) of category 2 lands being 20m from the top of each bank.
2. All parts of the development are to be located outside the Category 2 buffer, being 10m from the CRZ. Any variation of the prescribed width must be justified by geomorphological and environmental considerations.
3. Any Asset Protection Zone (APZ) proposed for bushfire management must be located outside the CRZ.
4. An APZ is permitted in the buffer where there is no practical alternative available.

Access

5. Any access to the waterway must be located at strategic points where the ecological integrity of the existing riparian vegetation, stream bed and bank stability will not be compromised.
6. Crossings (i.e. bridges) over natural waterbodies must maintain riparian connectivity; retain natural stream bed and bank profile; prevent scour and erosion of the stream bed or banks during storm events; not restrict bankfull or floodplain flows and not inhibit natural sediment transport. This is to be achieved by:
   i) minimising the number of crossings;
   ii) minimising the width of the crossing;
   iii) establishing the crossings at right angles to the flow rather than at an oblique angle; and
   iv) minimising disturbance to existing native riparian vegetation.

Note: Refer to the NSW Office of Water Guidelines for Watercourse Crossings on Waterfront Land.
5.2 CATEGORY 2 TERRESTRIAL AND AQUATIC HABITAT (continued)

Controls

Design

7 Where the riparian land within the CRZ or buffer has been disturbed or degraded appropriate riparian vegetation is to be regenerated or rehabilitated. Local native vegetation assemblages, capable of supporting the long term ecological function of the riparian land, must be used.

8 Where practicable, protection, regeneration and rehabilitation of vegetation in the CRZ is to retain or achieve a density that would occur naturally.

Note: Practicability will be considered on merit. For instance, within existing asset protection zones on bushfire prone lands, the density and design of vegetated areas will need to meet the requirements for Asset Protection Zones under Planning for Bushfire Protection 2006 rather than the above controls.

9 Particular emphasis is to be given to the retention, regeneration or revegetation of the CRZ in key locations. Key locations include:
   i) where two or more watercourses join;
   ii) sites with significant erosion;
   iii) stormwater outlets.

10 Despite the controls in Part 6 of this volume (Biodiversity controls), plantings within the CRZ is to consist of locally native species. Any annual plant species used must also be native.

11 Planting within sites that include land identified as Category 2 buffer is to consist of not less than 70% locally native tree species and 30% locally native understorey species. Species are to reflect the relevant vegetation communities within the area. A mix of groundcover, shrubs and trees is desirable.

Note: Council may support a variation to 10) or 11) above if suitable justification is provided. Planting of potential environmental weeds will not be permitted.

Watercourse and flood processes

12 Channel and bank stability within the CRZ is to be protected by avoiding the removal of natural stream structure, vegetation and woody debris, except where debris creates a flood hazard.

13 Development is to be designed to maintain or emulate a naturally functioning watercourse wherever possible.

14 Piped services through the CRZ must be avoided. Where necessary use nondestructive techniques such as direct drilling, where no part of the pipe is above ground or above the bed of the waterway. In exceptional circumstances piered crossings may be considered.

See Volume B Part 4
BUSHFIRE RISK
5.3 CATEGORY 3 BANK STABILITY AND WATER QUALITY

Objectives

1. To protect and/or provide bank and bed stability.
2. To contribute to improved water quality within the catchment.

Location

1. All parts of the development are to be located outside the core riparian zone (CRZ) of Category 3 Riparian Land being 10m from the top of each bank.
2. An Asset Protection Zone (APZ) proposed for bushfire management is permitted within the CRZ only where no practical alternative exists.

Access

3. Any access to the waterway must be located at strategic points where the ecological integrity of the existing riparian vegetation, stream bed and bank stability are not compromised.
4. Crossings (ie. bridges) over natural waterbodies must maintain riparian connectivity; retain natural stream bed and bank profile; prevent scour and erosion of the stream bed or banks during storm events; not restrict bankfull or floodplain flows and not inhibit natural sediment transport. This is to be achieved by:
   i) minimising the number of crossings;
   ii) minimising the width of the crossing;
   iii) establishing the crossings at right angles to the flow rather than at an oblique angle; and
   iv) minimising disturbance to existing native riparian vegetation.

Note: Refer to the NSW Office of Water Guidelines for Watercourse Crossings on Waterfront Land.
5.3 CATEGORY 3 BANK STABILITY AND WATER QUALITY (continued)

Controls

**Design**

5 Where the CRZ has been disturbed or degraded, appropriate riparian vegetation is to be regenerated or rehabilitated. Locally native vegetation assemblages, capable of supporting the long term ecological function of the riparian land, must be used.

6 Protection, regeneration and rehabilitation of vegetation in the CRZ to achieve a density that would occur naturally, except where the zone is within bushfire prone land.

7 Particular emphasis is to be given to the retention, regeneration or revegetation of the CRZ in key locations. Key locations include:
   i) where 2 or more watercourses join;
   ii) sites with significant erosion;
   iii) stormwater outlets.

8 Planting within the channel and within 2 metres of the top of the bank is to consist of locally native species. Species are to reflect the relevant vegetation communities within the area. A mix of groundcover, shrubs and trees is desirable.

9 Planting within Category 3 lands more than 2 metres from the top of the bank is to consist of not less than 70% locally native tree species and 30% locally native understorey species. Species are to reflect the relevant vegetation communities within the area. A mix of groundcover, shrubs and trees is desirable.

   **Note:** Council may support a variation to 8) or 9) above if suitable justification is provided. Planting of potential environmental weeds will not be permitted.

**Watercourse and flood processes**

10 Channel and bank stability within the CRZ is to be protected by avoiding the removal of natural stream structures, vegetation and woody debris, except where debris creates a flood hazard.

11 Development is to be designed to maintain or emulate a naturally functioning watercourse wherever possible.

12 Piped services through the CRZ must be avoided. Where necessary use nondestructive techniques such as direct drilling, where no part of the pipe is above ground or above the bed of the waterway. In exceptional circumstances piered crossings may be considered.
5.4 CATEGORY 3A WATERCOURSE RESTORATION

Objectives

1 To re-create the core riparian zone.
2 To emulate a naturally functioning watercourse, with associated riparian vegetation where possible.
3 To prevent development from compromising the ability to re-create the core riparian zone (including the watercourse) in the future.
4 To contribute to improved water quality within the catchment.

Access

3 Vehicular and pedestrian crossings over piped waterways must comply with the easement provisions in Volume C Part 4C.4.

Watercourse and flood processes

4 Where feasible, reinstatement of the channel form of watercourses is to be undertaken where they have been piped or channelised. Feasibility of channel restoration is to be determined taking into consideration the factors outlined in the Location Controls in clause 5.4 (2) of this Part.

5 Where a watercourse is re-created, the Design, Access and Watercourse and Flood Process Controls for Category 3 apply.