

ITEM 2

POST EXHIBITION - REVIEW OF WOLLONGONG DEVELOPMENT CONTROL PLAN 2009: CHAPTER E23 RIPARIAN LAND MANAGEMENT

On 2 August 2021, Council resolved to exhibit an updated draft Wollongong Development Control Plan 2009 Chapter E23 Riparian Land Management to allow community consultation. The draft Chapter was exhibited between 16 August and 13 September 2021. A total of 14 submissions were received.

The purpose of this report is to provide feedback on the public exhibition and recommend that Council resolve to adopt an amended Wollongong Development Control Plan 2009 Chapter E23 Riparian Land Management.

RECOMMENDATION

The updated Wollongong Development Control Plan 2009 Chapter E23 Riparian Land Management (Attachment 3) be adopted and a notice be placed on Council's website.

REPORT AUTHORISATIONS

Report of: Chris Stewart, Manager City Strategy

Authorised by: Linda Davis, Director Planning + Environment - Future City + Neighbourhoods

ATTACHMENTS

- 1 Summary of Submissions
- 2 Table summarising key recommended changes to the exhibited Draft DCP Chapter
- 3 Marked up recommended changes to exhibited Draft Wollongong DCP 2009 Chapter E23 Riparian Land Management

BACKGROUND

Wollongong Development Control Plan (WDCP) 2009 Chapter E23 Riparian Land Management was adopted on 15 December 2009. The purpose of Chapter E23 is to require development standards designed to protect and enhance waterways and riparian lands. This includes development on land in or adjacent to mapped watercourses, and development which involves watercourse crossings. The DCP contains separate chapters on Floodplain Management and Stormwater Management that are not the subject of this amendment process.

The development controls in the DCP E23 Chapter are based upon the principles and recommendations contained in the *Riparian Corridor Management Study 2004* (RCM Study) prepared by NSW Department of Infrastructure, Planning and Natural Resources for Wollongong City Council. This study and its recommendations are based on the local characteristics of the Wollongong LGA and seek to ensure that the long-term functioning of each waterway and riparian lands align with its assessed environmental value or category.

The method used to categorise watercourses in the RCM Study, and included in the DCP Chapter, is different to that used by the NSW Natural Resource Access Regulator's (NRAR) *Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors* (2018). The NRAR Riparian Corridor Guidelines are general, State-wide guidelines that categorise all watercourses uniformly based on their location within a catchment. By contrast, the RCM Study provides width values based on an integrated approach to multiple waterway objectives which are specifically relevant to the characteristics of the catchment within which each watercourse is located. Importantly, the merit-based approach adopted by the RCM Study considers the geomorphology and strategic importance of each watercourse within its landscape context, having regard to both its existing condition and its potential long-term environmental functioning, including its potential to function as a linkage between areas of high conservation value.

Periodic review, update, and amendment of WDCP 2009 occurs as required, to ensure planning controls continue to be useful and relevant as a policy of Council.

In 2021 Wollongong DCP 2009 Chapter E23 Riparian Land Management was reviewed and a revised draft chapter prepared to –

- Comply and more closely align with the current requirements of the *Environmental Planning and Assessment Act 1979*, *Water Management Act 2000*, *Fisheries Management Act 1994* and *National Parks and Wildlife Act 1974*, a suite of Land Management and Biodiversity Conservation reforms 2017 and updated Council Policy;
- Reflect current legislation and names of Government Departments and agencies;
- Delete summaries of legislation;
- Strengthen requirements/development controls and include new requirements/controls to achieve improved riparian land management outcomes, consistent with the Riparian Corridor Management (RCM) Study 2004 and in recognition of the need for cycleways and shared paths to cross waterways, as well as special conditions for essential public road infrastructure;
- Restructure the Chapter to be more logical and consistent with other WDCP 2009 Chapters recently reviewed and updated;
- Clarify that the requirements for development reflect the principles and recommendations contained in the Riparian Corridor Management (RCM) Study 2004 prepared for Wollongong Council – the RCM recommendations are based on the local characteristics of the Wollongong LGA and provide width values specifically relevant to the Wollongong LGA, its geomorphology and waterway structure and function. Proposed new clauses clarify that differences may occur between Council's riparian corridor width requirements and those of the Department of Planning and Environment, and between Council's riparian corridor width requirements and E3 zoning (now referred to as C3 zoning);
- Include a section to link this Chapter to the Neighbourhood Planning process for the West Dapto Release Area and Chapter D16;
- Add/update definitions to be consistent with WLEP 2009 and to define previously undefined terms/define terms contained in new content; and
- Amend wording and diagrams to improve clarity.

On 2 August 2021 Council considered a report on the review of Chapter E23 and resolved that -

1 The draft Wollongong Development Control Plan 2009 - Chapter E23 Riparian Land Management be exhibited for a minimum period of 28 days.

2 Following the exhibition period, a report outlining the submissions received from the public exhibition process be prepared for Council's consideration.

The draft amended Development Control Plan Chapter was exhibited between 16 August and 13 September 2021.

PROPOSAL

As a consequence of the exhibition, 14 submissions were received which are summarised in Attachment 1. Following the exhibition an Industry workshop was held with representatives of Urban Development Institute of Australia (UDIA) – Illawarra Branch and the Property Council of Australia (PCA) - Illawarra Branch. A meeting was also held with a representative of NRAR. The meeting outcomes are summarised in the following section of this report.

As a consequence of the exhibition, workshop and meetings, the following amendments to the exhibited draft DCP chapter are proposed (highlighted in Attachment 3) –

- Background section included.
- DCP also applies to watercourses flowing west from the escarpment into the Sydney Drinking Water Catchment (but not mapped in LEP or DCP).

- Related legislation updated.
- Reference to Fish Passage Guidelines prepared by NSW Fisheries.
- Vegetation Management Plan guidelines updated to refer to adopted Floodplain Risk Management Study and Plan to ensure consistency.

It is recommended that Council adopt the updated DCP chapter.

CONSULTATION AND COMMUNICATION

The draft amended WDCP Chapter E23 Riparian Land Management was exhibited between 16 August and 13 September 2021. The public exhibition was advertised through Council's website and in the Illawarra Mercury newspaper. A copy of the suite of documents was available for viewing on Council's website. Restrictions relating to Covid prevented the use of libraries and Council's Administration Building for the display of exhibition material. All active Neighbourhood Forums were notified of the public exhibition by email.

Key stakeholders were notified of the public exhibition by email and mail, with 25 notifications sent across State agencies, the development industry, peak bodies and adjoining Councils.

The suite of documents included in the public exhibition was as follows –

- Council Report and Minutes (2 August 2021).
- Amended draft Wollongong DCP 2009 Chapter E23 Riparian Land Management.

As a result of the exhibition, the website page received 123 views, with 79 documents downloaded. A total of 14 submissions were received as follows –

- State Agencies/Stakeholder Group: 5.
- Peak Body: 1.
- Development Industry: 7.
- Community: 1.

A summary of submissions is contained in Attachment 1.

Natural Resource Access Regulator (NRAR) Meeting

A meeting was held on 11 November 2021 with a representative from NRAR and Council staff. NRAR was supportive of Council's continued use of the 2004 RCMS to inform the draft exhibited DCP Chapter E23.

Industry Workshop

After the exhibition period, a workshop was held on 11 March 2022 with representatives of the Urban Development Institute of Australia (UDIA) – Illawarra Branch and the Property Council of Australia (PCA) – Illawarra Branch to discuss key industry issues including those raised in submissions.

The key themes discussed and the staff recommendations in response are as follows –

A Industry position:

Request that Council pause the Chapter E23 review until the Council planned review of the 2004 Riparian Corridor Management Study (RCM Study) is completed.

Staff response:

Council staff consider the 2004 RCM Study remains relevant and the principles still apply. The submission received from the Department of Planning and Environment – EES also supported the relevance of the 2004 RCM Study. The need for Chapter E23 to be updated in the short term is justified particularly as the current chapter includes outdated legislation references. Staff recommend progressing the DCP amendment in the short term as the RCM Study review will not be completed until at least 12 to

18 months. Following completion of the RCM Study review the DCP chapter could again be reviewed if needed.

B Industry position:

The industry requested that 'performance criteria' be considered in terms of Vegetation Management Plans (VMPs) and hand over time frames are reduced from five years to three years.

Staff response:

Staff recommend the retention of the five-year standard time frame prior to hand over to reduce the risk burden to Council and the community. However, an earlier handover time frame could be considered where performance criteria are demonstrated to have been met and the risk burden to Council is demonstrated to be minor. This would only be considered on a case-by-case basis.

C Industry position:

The industry expressed support for more examples/pictorials within the DCP Chapter to guide outcomes.

Staff response:

Staff recommend that the current proposed DCP chapter amendments are progressed in the short term. The use of example/pictorials can be considered as part of the RCM Study review planned for the 2022/23 financial year and/or the West Dapto Green Network masterplan work which commenced in June 2022.

Internal Consultation

Preliminary stakeholder consultation was conducted with relevant Council Divisions to understand how WDCP 2009 Chapter E23 is referenced, with the aim of incorporating improvements. The Council teams consulted included Environment Planning, Development Assessment and Certification, Land Use Planning, Open Space & Environmental Services, West Dapto Urban Release and Design Technical Services. Advice was also sought from Council's Legal Team to check for clarity, legibility, and legal correctness of the proposed DCP Chapter amendments.

As a result of feedback from Council's Legal Team, the wording of the 'Purpose' section was strengthened, any potential for ambiguity overall was minimised and Section 7 (now Section 8 in the revised DCP Chapter) was amended slightly to better reflect the caselaw on LEP/DCP hierarchy.

State Government introduced Changes

Additionally, since the exhibition, the NSW Government has introduced a component of a suite of planning reforms, which has renamed "Environment zones" to "Conservation zones". This administrative name change came onto effect on 1 December 2021, and hence the revised DCP Chapter has been updated to reflect this change.

As well, since the exhibition, as of May 2022, the issue of controlled activity approvals has moved from NRAR to the Department of Planning and Environment - Water. The revised DCP Chapter has been updated to reflect this change.

This report contributes to the delivery of Our Wollongong Our Future 2032 Community Strategic Plan Objectives *"Our natural environments are protected, and our resources will be managed effectively"* and *"Development is well planned and sustainable and we protect our heritage"* under the Community Goal *"We value and protect our environment"*. It specifically delivers on the following -

Community Strategic Plan Strategy	Delivery Program 2022-2026 and Operational Plan 2022-2023 Core Business
Manage and effectively improve the cleanliness, health, biodiversity of land and water including creeks, lakes, waterways and oceans	Prepare Local Environmental Plans and Development Control Plans, which enable the community's goals for liveability, sustainability and amenity

CONCLUSION

A review of Wollongong Development Control Plan 2009 Chapter E23 Riparian Land Management has been conducted and identified the need for amendments in line with current legislation, state government guidelines and Council Policy.

This report recommends that Council adopt the amended Wollongong Development Control Plan 2009 Chapter E23 Riparian Land Management.

Attachment 1 Summary of Submissions

Issues Raised by State Agencies and a Stakeholder Group to the Exhibited DCP Chapter

Feedback on aspects of the draft exhibited DCP chapter was received from the following State agencies and key stakeholder group.

Table 1: Feedback from State Agencies/Stakeholder Group relating to the Exhibited DCP Chapter

Agency/ Stakeholder Group	DCP Chapter Related Issues/Comments	Implications for draft DCP Chapter
(the then) Department of Planning, Industry and Environment – Environment, Energy & Science (EES)	<p>Provide the following general comments on the proposed amendments -</p> <ul style="list-style-type: none"> EES commends Wollongong City Council (Council) on the ongoing use of the riparian buffer widths for streams outlined within the Riparian Corridor Management Study 2004 (RCMS) and we fully support their use. It is recommended that Council include reference to the Coastal Management Act 2016 and the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP) in the list of relevant legislation for Chapter E23. We suggest future revisions of the DCP be consistent and align with actions and objectives within Council's Coastal Management Programs (CMPs) including the certified Lake Illawarra CMP. We recommend that consideration is also given to allowing flood impacts due to riparian rehabilitation be considered and managed in accordance with Council's adopted Floodplain Risk Management Study and Plans to ensure multi-objective outcomes for waterway health and flood risk are managed strategically. <p>It is noteworthy that the RCMS is a strategic approach that considers the existing merits of catchments and adopts an integrated understanding of the multi-functional nature of riparian land (eg. biodiversity, flooding, stormwater, urban interface, open space, etc)</p> <p>The objectives flagged in the RCMS focus on setbacks necessary to enable optimal functioning of natural processes (and allow for engineered outcomes where appropriate). The NSW Natural Resources Access Regulator's (NRAR) approach, however, is a systematic approach to stream ordering and does not address the merits or attributes of each catchment. The NRAR approach is solely for appraising assessment and delivery of an approval, not for identifying strategic outcomes.</p>	<p>The revised DCP chapter has added the Coastal Management Act 2016 and Chapter 2 Coastal Management of State Environmental Planning Policy (Resilience and Hazards) 2021 to the list of relevant legislation.</p> <p>The revised DCP chapter now includes in Section 10.9 Vegetation Management Plan "The VMP must be in accordance with the relevant Council adopted Floodplain Risk Management Study and Plan with respect to the restoration of vegetated (riparian) corridors and associated flood behaviour. Otherwise, the VMP must consider a flood study for the specific development to ensure the proposed vegetation densities do not adversely increase the flood affectation upon surrounding properties in the locality."</p>

Agency/ Stakeholder Group	DCP Chapter Related Issues/Comments	Implications for draft DCP Chapter
	EES are looking forward to continuing to work closely with Council on the protection, enhancement and management of Wollongong's riparian areas, flood risk outcomes, the implementation of the Lake Illawarra CMP and preparation of the Wollongong CMP.	
Water NSW	<p>We note that both the both the LEP and supporting DCP contain riparian provisions that map waterways east of the escarpment. In our submission to the Wollongong Draft Local Strategic Planning Statement (our ref: D2020/50468), we suggested that Council may wish to extend its riparian mapping west of the escarpment, to include waterways and riparian areas within the SDWC and specifically those lands under private ownership. This inclusion would also better align the riparian mapping of Wollongong with adjoining LGAs such as Wingecarribee, providing a holistic overview of riparian land and identifying connection opportunities. We also suggested classifying watercourses according to the Strahler stream order system, with buffers increasing in proportion to stream order. These suggested inclusions would improve the overall functionality of the DCP provisions and aid in corridor enhancement.</p> <p>Our main concern is that it is not fully clear how the riparian mapping provisions of the LEP inter-relate with the DCP provisions. The LEP and DCP adopt different mapping approaches and contain different provisions. The DCP would benefit by providing more detail regarding how the LEP mapping was undertaken, and how LEP and DCP riparian land maps interrelate with one another. The DCP would also benefit by improved linkages to the riparian provisions of the LEP and by explaining how and where the DCP provisions apply more broadly. For example, The DCP provisions also appear to apply to mapped areas draining east of the escarpment as well as unmapped areas draining west, while the LEP provisions appear to apply only to the former. Also, the LEP applies riparian considerations to waterways which are mapped in one colour, whereas the DCP distinguishes between four categories of riparian land (four colours). While overlapping, the maps apply to different areas of waterway reaches.</p> <p>Over the longer term, it may benefit Council to -</p> <ul style="list-style-type: none"> Consider reviewing its riparian mapping to better consolidate the LEP and DCP mapping and the associated provisions. 	<p>Only a very small area of the local government area has the potential for development in the Sydney Water Drinking Catchment area. Not all suggestions from Water NSW have been incorporated into the revised DCP chapter.</p> <p>An extra point about watercourses that flow west from the escarpment has been added under Section 5 Development to which this Chapter Applies.</p> <p>Council would consider updating the LEP riparian clause as a separate project, but it is not considered a high priority.</p>

Agency/ Stakeholder Group	DCP Chapter Related Issues/Comments	Implications for draft DCP Chapter
	<ul style="list-style-type: none"> Review its LEP provisions in relation to riparian management. Explore calling up the DCP maps in the LEP's riparian clause and adding a wider range of heads of consideration for Council to take into account before determining development applications. If calling up the DCP mapping is not possible, then the heads of consideration may still be able to incorporate the thematic categories pertaining to the DCP mapping, such as environmental corridors, terrestrial and aquatic habitats, bank stability and water quality. A good example of this approach is contained within the Shoalhaven LEP 2014 (clause 7.6). Clause 7.6 contains comprehensive provisions for protecting water courses and riparian habitats, including hydrological and ecological-related heads of consideration for the consent authority to take into account before issuing development consent. 	
DPI Fisheries	<p>DPI Fisheries has reviewed the proposed amendments to the Riparian Land Management chapter in the Wollongong DCP 2009 and commends Council on this management approach.</p> <p>Most of the waterways that are included in the maps that accompany this chapter are considered to be key fish habitat, and under the FM Act and DPI Policy DPI Fisheries has a key interest in maintaining the passage of fish in these waterways and removing historical barriers to fish passage.</p> <p>DPI Fisheries recommends that waterway crossings are designed in accordance with the following document <i>Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (insert web links). While the fish passage requirements outlined in this amended chapter mostly seem to align with DPI Fisheries design guidelines, to clearly demonstrate the requirement to align with FM Act considerations, the maintenance of fish passage should be included as a key consideration for the waterway crossing design parameters outlined for all waterway categories in Section 9.6 of this chapter.</p> <p>DPI Fisheries is particularly concerned that the design parameters outlined in section 9.6.2B will result in the design of perched culvert crossings, that block fish passage. This is not supported by the Department in key fish habitat. This section should include an additional dot point stating that -</p>	<p>The revised DCP chapter has added "Any watercourse crossings within mapped Key Fish Habitat must have regard to the Fish Passage Guidelines developed by NSW Fisheries" as an extra dot point to Category 1 and Category 2 watercourses under Design, Siting and Management Measures in Table 2 Objectives and Design Guidance for Watercourse Categories.</p> <p>The revised DCP chapter has added "The base of box culverts of watercourses in mapped Key Fish Habitat are to be set so that it does not block the passage of fish" in section 10.6.2B.</p>

Agency/ Stakeholder Group	DCP Chapter Related Issues/Comments	Implications for draft DCP Chapter
	<ul style="list-style-type: none"> The base of the box culverts are to be set so that it does not block the passage of fish. DPI Fisheries generally recommend that base level of box culverts are set so that the base of the culvert cell sits approximately 100mm below the surrounding substrate level of the waterway. 	
NSW RFS	No concerns or issues in relation to bushfire.	None
National Trust of Australia Illawarra Shoalhaven Branch	<p>As a general comment, the Trust considers an unresolved problem with many riparian zones is the lack of maintenance, and in particular, invasive species management. The Trust acknowledges that this DCP chapter deals with new development proposals.</p> <p>We believe ongoing maintenance issues, such as invasive species management, should be considered at the approval stage of future developments. The Trust would support the incorporation of conditions to consider maintenance in the initial design and/or the ongoing maintenance in the approval.</p>	<p>Council's <i>Vegetation Management Plan Guidelines for Development Applications and Unauthorised Works</i> referred to in section 10.9 of the revised DCP chapter has a specific section on maintenance. Conditions about implementing vegetation management plans and their maintenance period are usually applied to development consents. Additional content about the maintenance of riparian zones is not proposed.</p>

Issues Raised by a Peak Body and Industry Groups to the exhibited draft DCP Chapter

The following table illustrates the comment and range of issues raised through the public exhibition by a peak body and industry groups and the Council Officer response:

The following table illustrates the comments and range of issues raised by Industry through the public exhibition and the Council Officer response:

Table 2: Feedback from Peak Body and Industry Groups relating to the exhibited draft DCP Chapter

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
Urban Development Institute of Australia (UDIA)	<p>Recommend that Council continues to allow applicants to use the Natural Resource Access Regulator, <i>Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors 2018</i>, to determine the most appropriate riparian corridor widths for classified streams present on a development site.</p> <p>Recommend that Council does not increase riparian corridor widths beyond the NRAR Guidelines and/or beyond land zoned E3 Environmental Management.</p> <p>UDIA is concerned about draft DCP Clauses 9.2.3 and 9.2.4, which allow Council to increase the riparian corridor widths beyond the NRAR Guidelines and land zoned E3 Environmental Management based on flooding. The draft clauses will impact on the maximum developable area within a</p>	<p>No change:</p> <p>The NSW Water Management Act 2000 regulates controlled activities that are carried out in, on, or under waterfront land. Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary. An approval is required from the NRAR to undertake controlled activities on waterfront land, unless that activity is otherwise exempt.</p> <p>Council policy on riparian management is not subservient to, or superseded by, the NRAR 'Guidelines for controlled activities on waterfront land'. The NRAR Guidelines relate to applications for controlled activity approvals under the Water Management Act. NRAR is the authority responsible for controlled activity approvals. Council is, usually, the authority responsible for determining development applications after an evaluation in accordance</p>

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	<p>site zoned residential; and since they are a minimum width requirement, it could allow Council to impose greater riparian corridor widths at the Development Application stage.</p> <p>UDIA contends that the current NRAR Guidelines provide a workable outcome with riparian land management. NRAR's practical approach has achieved a balance of providing ecological outcomes at the various greenfield development sites within the West Dapto urban release area.</p> <p>The process to amend the riparian corridor width requirements (Clause 9.2.6 and 9.2.7) should also require Council to consider a broader range of issues than those presented.</p>	<p>with section 4.15 of the EP&A Act. Section 4.15(1)(a)(iii) provides that a DCP is a matter that a consent authority must take into consideration. The NRAR guidelines and the DCP sit in two separate statutory frameworks that are linked only through Division 8.8 of the Act (Integrated Development). However, there is nothing (Council's internal legal advice) which makes provisions in an adopted DCP relating to riparian management subservient to the NRAR guidelines.</p> <p>The NRAR's Guidelines for controlled activities on waterfront land—Riparian corridors (2018) are not legislated. The Guidelines state: "The NRAR recommends a VRZ [vegetated riparian zone] width based on watercourse order as classified under the Strahler System of ordering watercourses and using Hydroline Spatial Data which is published on the department's website."</p> <p>As stated in the submission from the then Department of Planning, Industry and Environment – Environment, Energy & Science, the Strahler System of ordering watercourses does not address the merits or attributes of each catchment. The NRAR approach is solely for appraising assessment and delivery of an approval, not for identifying strategic outcomes.</p> <p>The exhibited draft DCP Chapter did not change or prevent the need for a controlled activity approval when required.</p> <p>While the exhibited draft DCP Chapter has removed the previous note about any proposed variation to the minimum riparian corridor width requirements between the bed of any river, watercourse, lake or estuary and 40 metres inland from the river, lake or estuary will require appropriate negotiations to occur directly with the [Department of Planning and Environment - previously NRAR], prior to the lodgment of any Integrated Development Application under section 91 of the Environmental Planning and Assessment Act 1979, draft Chapter E23 still allows variations to the minimum riparian corridor width requirements to be applied for. The 2018 NRAR guidelines for waterfront land are general state-wide guidelines that categorise all watercourses uniformly based on their location in the catchment.</p> <p>The exhibited draft chapter E23 DCP relies on the 2004 RCM study. This study is based on local characteristics of the Wollongong LGA and provides riparian corridor widths specifically relevant to the Wollongong LGA, its geomorphology and waterway structure and function.</p> <p>Council staff understand that the 2004 RCM study is also fully supported by the Department of Planning and Environment.</p>

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
UDIA	Recommend that Council imposes a maximum three (3) year timeframe for a developer to establish and maintain a riparian corridor prior to handover to Council. Any extension will impose an unreasonable development cost, especially if a developer must undertake emergency works following extreme weather, respond to unlawful actions and/or constantly remove illegal dumping. Reference is made to the Camden Council <i>Dedication of Constrained Lands Policy</i> .	No change: Council's published <i>Vegetation Management Plan Guidelines for Development Applications and Unauthorised Works</i> requires management actions outlined in the VMP to be maintained for a minimum period of five years. The exhibited draft DCP Chapter states: "For any land proposed to be transferred to Council, all necessary revegetation or other works are to be completed in accordance with the approved VMP to the satisfaction of Council, prior to Council accepting the transfer of the land." Three years may be insufficient time to meet the performance criteria of a VMP for land proposed to be transferred to Council.
UDIA	The Illawarra Region is facing increasing housing stress and frequent rental price hikes. Provisions that result in further loss of housing potential are concerning, especially with Council's proposal to increase the riparian corridor widths over and above current NRAR guidelines. A minimum width requirement for riparian land could also result in a further loss of developable land at DA Stage. This uncertainty will impact on development feasibilities, especially with the combined buffer zone requirements to manage bushfire risk. The increased riparian corridor widths will result in higher house prices to achieve a reasonable return on investment. Council should not increase restrictions on developable housing land for an industry which is facing uncertainty due to the COVID pandemic and added time constraints imposed by the neighbourhood planning process.	No change: Council considers the proposed changes in the draft exhibited DCP Chapter do not impose a more onerous requirement on development. The riparian corridor categories in DCP Chapter E23 remain unchanged. The provisions are designed to simply add more clarity regarding the riparian corridor land management requirements. Any riparian corridor outcome other than those stated in Table 1 of DCP Chapter E23 would be negotiated and justified based on the specific context of the subject watercourse. Council considers the multiple benefits of appropriate riparian corridor management justify our continued policy approach. The attraction of an urban release area such as West Dapto will benefit from the contribution of appropriate managed riparian corridors. The use of green spaces to combat urban heat island effects, contribution to the general health and well-being of residents while also providing an increased amenity for the community are a few of those benefits. Staff will continue to work with the development industry to achieve sustainable development outcomes.
UDIA	To reduce ongoing Council maintenance costs and developer financial burdens, UDIA recommends that the following options should be investigated: <ul style="list-style-type: none"> The use of Special Infrastructure Contribution (SIC) Grant funds to improve biodiversity outcomes for the West Dapto regional catchment; Introduction of a reasonable rate price increase for new landowners living in areas of high environmental value which contain 	Noted

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	<p>Category 1 Streams' and</p> <ul style="list-style-type: none"> Other creative solutions to the ownership and maintenance of riparian lands by the community and/or other stakeholders <p>Council to investigate the funding and maintenance options for riparian lands.</p>	
Esker P/L Woodcote Developments P/L	<p>Concern re departure of the draft chapter from the Natural Resources Access Regulator's guidelines which are grounded in the Water Management Act (2000) and widely accepted throughout NSW. Large amounts of residential land in WDURA will be sterilized by introducing the requirement for larger riparian corridors - knock-on effect of further reducing developable land by increasing asset protection zones and flood levels.</p>	No change: see response to UDIA submission above
Esker P/L Woodcote Developments P/L	<p>The draft chapter requires riparian zones to be free of detention basins – they will need to be positioned within residential land. The NRAR Guidelines for Controlled</p> <p>Activities on Waterfront Land permits basins within the outer 50% of the vegetated riparian zone and, for lesser streams, basins can be online.</p> <p>Establishing and maintaining larger riparian corridors is a costly exercise and the mechanism for ensuring a positive, long term environmental outcome needs serious consideration.</p>	<p>No change:</p> <p>The exhibited draft DCP Chapter does allow for variations to the applicable minimum total riparian corridor widths to be applied for.</p>
Esker P/L Woodcote Developments P/L	<p>The draft chapter is guided by an outdated 2004 report - methodology and implications superseded by the NRAR Guidelines for Controlled Activities on Waterfront Land (published in 2012).</p>	<p>No change:</p> <p>While the 2004 RCM Study was prepared about 15 years ago, Council does not consider the Study to be outdated as evidenced by the West Dapto Vision document adopted by Council in December 2018 that includes specific reference to the 2004 RCM Study.</p> <p>The then Department of Planning, Industry and Environment – Environment, Energy & Science's submission to the public exhibition of draft DCP Chapter supports the ongoing use of the riparian buffer widths for streams outlined within the RCM Study 2004.</p> <p>The NRAR Guidelines for Controlled Activities on Waterfront Land are general, Statewide guidelines that categorise all watercourses uniformly based on their location within a catchment. Detailed site-specific investigations of the watercourse are not required to use the Strahler System of ordering.</p> <p>By contrast, the RCM Study provides width</p>

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
		<p>values based on an integrated approach to multiple waterway objectives which are specifically relevant to the characteristics of the catchment within which each watercourse is located. Importantly, the merit-based approach adopted by the RCM Study considers the geomorphology and strategic importance of each watercourse within its landscape context, having regard to both its existing condition and its potential long-term environmental functioning, including its potential to function as a linkage between areas of high conservation value.</p> <p>In Council's adopted Delivery Program 2018-22 and Operational Plan 2021-22, the Budget lists a Landscape development plan for West Dapto - for riparian corridors (\$120k allocated over 2021/22) and Review Riparian Corridor Management Study and Policy (\$102k allocated over 2021/22 – 22/23). These may result in further revisions to WDCP Chapter E23.</p>
Esker P/L Woodcote Developments P/L	The draft chapter requires a higher standard of VMP than what is required under the NRAR guidelines for Vegetation Management Plans on Waterfront Land. The NRAR guidelines are widely used throughout the state and deemed to be acceptable.	<p>No change:</p> <p>While NRAR's <i>Guidelines for vegetation management plans on waterfront land</i> may be widely accepted across NSW, Council's published <i>Vegetation Management Plan Guidelines for Development Applications and Unauthorised Works</i> have been specifically designed for the Wollongong LGA.</p>
Cardno (NSW/ACT) P/L	<p>Seeks to override the local environmental planning provisions. The Environmental Planning and Assessment Act 1979 states that a DCP should facilitate development that is permissible and consistent with applicable land use zones – proposed clause 9.2.4 does not facilitate permitted development nor achieve the objectives of urban zoned land. It has the effect of restricting urban development on land zoned for that purpose. Potential to contradict WLEP 2009 – if Council's intention is to change the permissible development and/or introduce new objectives for development on urban zoned land then these changes must be made to the LEP, not implemented via a DCP.</p>	<p>No change:</p> <p>The exhibited draft DCP Chapter has been internally legally reviewed including proposed clause 9.2.4 (now clause 10.2.4 in the revised DCP Chapter) and has not been found to contradict WLEP 2009.</p> <p>Council staff may consider reviewing LEP provisions if needed at a later time.</p>
Cardno (NSW/ACT) P/L	<p>Despite proposed DCP amendments all DAs involving works within riparian corridors are required to be referred to the Natural Resource Access Regulator for assessment under the NRAR guidelines</p> <p>Integrated development application requires approval from NRAR.</p> <p>Proposed DCP presents a disparity with</p>	<p>No change:</p> <p>The draft exhibited DCP Chapter continues to require an Integrated Development Application if a Controlled Activity Approval issued under the Water Management Act 2000 is needed to allow the development.</p> <p>DAs will continue to be referred to the Department of Environment and Planning (previously NRAR) as required. The</p>

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	<p>NRAR's requirements for CAAs and GTAs. Submission of applications through the Planning Portal – the DCP cannot override the WM Act or the integrated assessment requirements of NRAR as set out in the EP&A Act.</p> <p>Majority of DCPs in metro areas are consistent with NRAR's guidelines - an explanation should be given as to why Wollongong should be an exception.</p>	<p>Department of Environment and Planning will continue to assess DAs according to their criteria and issue General Terms of Approval.</p> <p>It is not the intent of Council to override the WM Act or integrated assessment requirements. Council agrees that NRAR is the relevant approval authority for controlled activities. Council is responsible for the DA merit assessment. Where proposed Chapter E23 corridor width requirements exceed those set out in the NRAR guidelines this is for strategic riparian outcome purposes which is also Council's responsibility.</p>
Cardno (NSW/ACT) P/L	<p>The Western Sydney Aerotropolis (WSA) is an urban release area intended to set a new standard for water quality and riparian management. Overall, the comparison with the WSA DCP shows some key shortfalls in Council's draft DCP Ch.E23:</p> <ul style="list-style-type: none"> • A lack of acknowledgement and innovative urban design measures regarding riparian corridors and their important role in passive and open community space. • A lack of measures outlining methods to integrate riparian lands into an overall landscape. • A lack of new and innovative methods in facilitating aquatic and terrestrial biodiversity in the riparian corridor, and its impacts more broadly. 	<p>No change:</p> <p>Noted. The environment of the Western Sydney Aerotropolis urban release area is different to the environment of the urban release areas in the Wollongong LGA.</p>
Cardno (NSW/ACT) P/L	<p>In working with subconsultants on Neighbourhood Plans, Planning Proposals and Development Applications, Cardno notes more than 25 existing Vegetation Management Plans (VMPs) would be affected by the Council's revised DCP Ch. E23. None of these existing and approved VMPs are consistent with the riparian width requirements of the <i>Riparian Corridor Management Study 2004</i> (RCMS) nor consistent with the draft DCP.</p>	<p>No change:</p> <p>The exhibited draft DCP Chapter is a baseline to guide a strategic riparian management outcome for the Wollongong LGA.</p> <p>Any variation request to the riparian corridor widths will be assessed on merit during the Neighbourhood Planning stage or DA stage in accordance with Chapter A1 of the Wollongong DCP 2009.</p>
Cardno (NSW/ACT) P/L	<p>The RCMS on which the Draft DCP Ch. E23 relies, was guided by state government policy at the time (2004). The RCMS has since been outdated and superseded. NRAR's current guidelines for <i>Controlled Activity Approvals on Waterfront Land</i> was published in 2018</p> <p>and is now the best practice - Council should consider implementing this state wide, contemporary guideline. We also note</p>	<p>No change: see response to Esker P/L submission above</p>

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	that removing the provision from DCP Ch. E23 which allowed applicants to default to NRAR guidelines is a significant policy change and needs to be justified by way of evidence	
Cardno (NSW/ACT) P/L	Part 5 approval under the EP&A Act on waterfront land would be assessed against the WM Act and CAA guidelines, not the DCP – resulting in inconsistency in the size of riparian corridor for Part 4 or Part 5 of the EP&A Act.	No change: Council Officers understand that the DCP can be used to guide assessments under Part 5 of the Act. The exhibited and revised DCP Chapter states: This Chapter applies to any development requiring development consent under Part 4 or approval under Part 5 of the Environmental Planning and Assessment Act 1979. Setting aside that Council may take into consideration the objectives of the WM Act, its own DCP provisions and local policy directions for riparian land management, the Water Management (General) Regulation 2018, s41 'Controlled activities—public authorities' provides a general exemption for public authorities for all controlled activities on waterfront land for EP&A Act Part 5 activities
Cardno (NSW/ACT) P/L	Council have not described the level of consultation, if any, with NRAR, OEH, Fisheries or DPIE during the formation of DCP Ch. E23.	Key stakeholders, including relevant agencies, were consulted during and post public exhibition.
Cardno (NSW/ACT) P/L	The reduction in net developable area will impact development contributions, and funding of infrastructure. Riparian areas will either be dedicated to council ownership resulting in increased caretaker costs to Council or retained by the developer resulting in increased land management costs. Additionally, Council have not considered the financial cost of maintaining APZ's on riparian lands that are in excess of state standards. Affects Council's operational plan and resourcing as well as impacts community safety. Extra riparian land beyond what is required for the CAA will require an additional Vegetation Management Plan, Bond for Works and additional costs to developers and Council. The general public and Council's Executive must be informed of these financial implications before considering the draft DCP Ch. E23. A mapping exercise for Stage 5 West Dapto Urban Release Area: e reduction in developable land as a result of riparian corridors required by Draft DCP Ch. E23 where the corridor	No change: Final lot yield outcomes for the ultimate development of West Dapto can only be estimated at this stage in the release area life. A conservative approach to yield estimates has been undertaken in Council local contributions considerations. More recent Planning Proposals and Neighbourhood Planning processes are resulting in situations where density outcomes higher than those informing contributions planning may be achieved. There may be various constraints understood at the detailed planning stage that results in yield not being achieved in some areas. On balance Council is comfortable our strategic estimates remain useful. In addition Council is committed to regular review of local contributions in line with a changing release area. IPART in its most recent review recommended Council revise the contributions plan within three years

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	reaches beyond environmental land use zones. Council's riparian width requirements incur greater consequences to developable land than that of NRARs.	
Cardno (NSW/ACT) P/L	Overall, Cardno are not in support of the draft DCP Chapter E23 in its current form. Moving forward, we strongly believe it beneficial for Council to hold an industry workshop to further discuss the draft amendment and collect a robust evidence base. Evidence and consultation will be essential in adopting a more holistic and effective approach to riparian land management.	An Industry workshop was held 11 March 2022. Noted - a review of the RCM study including community engagement will be undertaken in the future subject to available funding.
SLR Consulting Australia P/L	The RCM Study that continues to inform Chapter E23 is primarily based on low resolution aerial imagery that does not reflect today's advances in aerial imagery technology, nor does it accurately reflect ground conditions, along with digital terrain models for only three catchments, the southern most of which is primarily located in the Shellharbour LGA to the south. The remaining catchments within the Wollongong Local Government Area (LGA) were not mapped at all. Consequently, while it is acknowledged that the RCM Study was prepared to address the characteristics of the Illawarra Escarpment, it does not provide an accurate reflection of riparian land within the Wollongong LGA. Therefore, the RCM Study is not considered to provide a definitive assessment of the LGA's watercourses, as identified within Chapter E23.	No change: see response to Esker P/L submission above
SLR Consulting Australia P/L	9.2.2: Replacement of "shall be designed" with "must be designed": flexibility needed based on site specific conditions – riparian corridors may be sought in areas without connectivity or value, resulting in increased costs.	No change: Must is a stronger word than shall and has been deliberately chosen. The exhibited draft DCP Chapter E23 still allows variations to be applied for. One of the objectives of exhibited draft DCP Chapter E23 is to protect watercourses, banks and riparian corridors and improve their environmental function and stability. Applying DCP Chapter E23 ought to lead to increases in connectivity and value and this is a desired outcome.
SLR Consulting Australia P/L	The divergence of the Chapter E23 requirements from the Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors which are widely accepted is unnecessary and creates confusion for applicants and the broader community, with competing responses from Council and NRAR, the specialist State authority tasked with managing waterfront land.	No change: see response to UDIA submission above

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
SLR Consulting Australia P/L	9.2.5 [now 10.2.5 in the revised DCP Chapter]: controls proposed go beyond the requirements of the RCM.	No change: The exhibited draft DCP Chapter does allow for variations to the applicable minimum total riparian corridor widths to be applied for. In addition it was considered important to create refined guidelines for essential public road infrastructure crossing watercourses to ensure an economical and environmentally feasible outcome for the community.
SLR Consulting Australia P/L	Clear span structures: economic implications – request revision.	No change: Section 9.6 (now section 10.6 in the revised DCP Chapter) of the exhibited draft DCP has been carefully considered so that total number of watercourse crossings in the LGA is minimised and environmental outcomes are achieved. In addition provision has been made for 'Essential watercourse crossings for public road infrastructure.
SLR Consulting Australia P/L	Proposed amendment in bold: Water quantity and quality treatment systems such as stormwater detention basins are to be constructed and located outside the riparian corridor, unless it can be demonstrated the infrastructure provides riparian function, such as wildlife habitat.	No change: The exhibited draft DCP Chapter does allow for variations to the applicable minimum total riparian corridor widths to be applied for.
SLR Consulting Australia P/L	Definition of Riparian vegetation – native.	No change: Several references are made to native riparian vegetation in exhibited draft DCP Chapter E23.
Stockland	The Natural Resource Access Regulator assesses riparian corridors under the current adopted guidelines, consistent with the obligations under the Water Management Act. The modifications to Chapter E23 of the WDCP are not consistent with adopted legislation. Despite the modifications, all Development Applications involving works within Riparian Corridors are still required to be referred to the Natural Resource Access Regulator for assessment under the NRAR guidelines. In order to provide consistency with adopted legislation, we request that Chapter E23 of the WDCP reference the current NRAR guidelines.	No change: see response to UDIA submission above
Stockland	The 2004 Riparian Study relies on historic methods of Riparian Classification which do not represent current best practice guidelines. <ul style="list-style-type: none"> The 2004 study is not consistent with current legislative requirements. 	No change: see response to Esker P/L submission above

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	<ul style="list-style-type: none"> The current 2018 NRAR guidelines provide the most appropriate and ecologically robust methodology for classifying Riparian Corridors. The 2004 study did not incorporate any ground truthing of corridor classification or function. <p>The current guidelines allow for detailed site interpretation on a creek by creek basis, to ensure the full suite of environmental, ecological and water management outcomes are addressed.</p> <p>The NRAR Riparian Corridor guidelines deliver environmentally sustainable outcomes for Riparian Corridors across NSW informed by industry leading hydrological experts, providing certainty and consistency across new communities and development projects.</p>	
Stockland	<p>The proposed amendments will significantly impact existing operational projects where Riparian Corridor outcomes have been planned and designed during rezoning and adopted Neighbourhood Plans. Will have significant impacts on project planning, delivery and environmental outcomes.</p> <p>Request clause which states that the revised provisions only relate to projects where rezoning and Neighbourhood Plans have not already been lodged or adopted.</p> <p>There is extensive detailed design and consultancy effort and cost required to achieve Council support for rezoning of land and adoption of a Neighbourhood Plan. It would be inappropriate to require agreed outcomes for Riparian Corridors to be reviewed and revised again as part of a Development Application process.</p>	<p>No change:</p> <p>The exhibited draft DCP Chapter is a baseline to guide a strategic riparian management outcome for the Wollongong LGA.</p> <p>Any variation request to the riparian corridor widths will be assessed on merit during the Neighbourhood Planning stage or DA stage in accordance with Chapter A1 of the Wollongong DCP 2009.</p>
Stockland	<p>Adoption of corridors in excess of 100m for all creek lines extending from the escarpment area without any detailed ground truthing will significantly impact the delivery of residential neighbourhoods, reduce housing availability and increase land costs.</p> <p>We request that any revision to the WDCP specially require on-site investigation of creek lines to determine an appropriate classification and function.</p>	<p>No change:</p> <p>Council's current Chapter E23 of WDCP contains out of date references to legislation and information and requires strengthening to achieve better riparian outcomes. Updates can be done before additional watercourse site investigation mapping has been completed.</p> <p>In Council's adopted Delivery Program 2018-22 and Operational Plan 2021-22, the Budget lists Landscape development plan for West Dapto - for riparian corridors (\$120k allocated over 2021/22 and Review Riparian Corridor Management Study and Policy (\$102k allocated over 2021/22 – 22/23).</p> <p>These may result in further revisions to Chapter E23.</p>
Stockland	As a major land holder and developer in the West Dapto Release Area, we	Noted

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	would welcome any further opportunity to be part of discussions on this topic.	
Urbanco Group P/L	<p>Riparian Corridor requirements are currently overseen by the Natural Resource Access Regulator, within the Department of Planning Industry and Environment. The Natural Resource Access Regulator assesses riparian corridors under the current adopted guidelines, consistent with the obligations under the Water Management Act.</p> <p>Modifications to Chapter E23 of the WDCP are not consistent with adopted legislation.</p> <p>The existing NRAR guidelines were developed by leading hydrological specialists and government agencies following extensive community and industry consultation. The NRAR guidelines specifically require detailed investigation of individual corridor geomorphology, waterway structure and function based on current conditions.</p>	No change: see response to UDIA submission above
Urbanco Group P/L	<p>The 2004 Riparian Study was a broad scale high level review of riparian corridors which relied on aerial photography and GIS data. The 2004 study did not incorporate any ground truthing of corridor classification or function.</p> <p>The 2004 study relies on historic methods of Riparian Classification which do not represent current best practice guidelines and are not consistent with current legislative requirements.</p>	No change: see response to Esker P/L submission above
Urbanco Group P/L	<p>Request clause be included in Chapter 23 which states that the revised provisions only relate to land / projects where rezoning and Neighbourhood Plans have not already been lodged or adopted.</p> <p>It would be inappropriate to require agreed outcomes for Riparian Corridors to be reviewed and revised again as part of a Development Application process.</p>	<p>No change:</p> <p>The exhibited draft DCP Chapter is a baseline to guide a strategic riparian management outcome for the Wollongong LGA.</p> <p>Any variation request to the riparian corridor widths will be assessed on merit during the Neighbourhood Planning stage or DA stage in accordance with Chapter A1 of the Wollongong DCP 2009.</p>
Indesco (on behalf of Legacy Property)	<p>Council's requirements are significantly more onerous than the state government Natural Resources Access Regulator's (NRAR) requirements for riparian zones, as outlined in their 'Guidelines for Controlled Activities on Waterfront Land (2018)'. Clause 9.2.3 seeks to override NRAR/state government requirements, which use a Strahler method for categorising</p>	No change: see response to UDIA submission above

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	watercourses and apply lesser riparian zones.	
Indesco (on behalf of Legacy Property)	Floodplain risk management and riparian corridor management are interlinked, with controls required to be managed in parallel – proposed amendments to E23 without consideration of E13 not ideal.	No change: Council's internal Senior Stormwater Development Engineer provided input to the draft exhibited DCP Chapter. Floodplain risk management and DCP Chapter E13 Floodplain Management have been considered as part of riparian management. Refer to objective 5(f) (now 6(f) in revised DCP Chapter E23) of draft exhibited DCP Chapter E23 which states: Ensure riparian management is compatible with, and does not adversely affect, floodplain risk management objectives in urban areas.
Indesco (on behalf of Legacy Property)	Loss of net developable adjacent riparian corridors or existing zoning for riparian corridors - impacts housing supply and ease of development within WCC. The requirement to consider future unmapped bushfire impacts due to the creation of riparian corridors in line with VMPs, exacerbates widening effects and reduction on developable land.	No change: see response to UDIA submission above
Indesco (on behalf of Legacy Property)	Inability to provide sewer and (in rarer cases) other utilities to service development within riparian corridors. The amendment does not consider exemptions that allow non-riparian uses within the outer 50% of the VRZ.	No change: The exhibited draft DCP Chapter does allow for variations to the applicable minimum total riparian corridor widths to be applied for.
Indesco (on behalf of Legacy Property)	A wholistic approach is required to establish new pioneering way forward for riparian management guidelines.	Noted - a review of the RCM study including community engagement will be undertaken in the future subject to available funding.
AIXA Management P/L	Review strengthens reliance on an outdated and flawed Riparian Corridor Management (RCM) Study prepared by the NSW Government in 2004. Shortcomings well documented. Since the 2004 study, there has been considerable advancement in GIS mapping capabilities and flood modelling, both of which have informed more recent approaches to riparian land management, including by the NSW Government. These advancements have not been considered in the review of Chapter E23. Unsustainable policy position by Council in this area.	No change: see response to Esker P/L submission above
AIXA Management P/L	Hard fought attraction of investment to Wollongong should not be jeopardised by poor policy – one that isolates Wollongong in a policy sense from other LGAs, is contrary to State policy, is outdated/ignores contemporary knowledge, increases uncertainty in	No change: The then Department of Planning, Industry and Environment – Environment, Energy & Science's submission to the public exhibition of draft updated DCP Chapter E23 supports the ongoing use of the riparian buffer widths for streams outlined within the RCM Study

Name	DCP Chapter related Issues/Comments	Implications for draft DCP Chapter
	outcomes for prospective investors. Sends unfavourable signals for investment in Wollongong LGA.	2004.
AIXA Management P/L	The result is that land that is otherwise earmarked for development is sterilised from Development - increases pressure on housing affordability.	No change: see response to UDIA submission above
AIXA Management P/L	Undermines recently approved West Dapto Contributions Plans because the lot yield will be overstated, leading to a shortfall of contributions recovered by Council. Further financial pressure on Council expected from resulting increase in public land (sterilised development land) which has in perpetuity maintenance costs.	No change: see response to Cardno submission above
AIXA Management P/L	Risk draft revisions adopted and prove unenforceable – due to inconsistency between the DCP and NSW government regulations, Planning decisions by Council will be challenged through alternative processes (NSW Land and Environment Court and Joint Regional Planning Panel) – not an unlikely outcome as it has already occurred. Decisions will be taken out of hands of Council and approvals will take longer because of these procedural matters causing delays to housing supplies/negatively impacts housing affordability	No change: It is not the intent of Council to override the WM Act or integrated assessment requirements. Council agrees that Department of Planning and Environment is the relevant approval authority for controlled activities. Council is responsible for the DA merit assessment. Where proposed Chapter E23 corridor width requirements exceed those set out in the NRAR guidelines this is for strategic riparian outcome purposes which is also Council's responsibility

Issues Raised by a Community Member Relating to the exhibited draft DCP Chapter

Feedback on aspects of the draft DCP exhibited was received from a community member as follows-

Table 3: Feedback from a Community Member relating to the exhibited draft DCP Chapter

Issue Category	Summary of Issue	Staff Comment	Proposed Response
Introduction	<p>The current Introduction (2009 version) is concise. It clearly outlines what is in the DCP. It should be retained as is.</p> <p>The draft Contains statements which are clearly wrong eg The many water courses ... flow from the escarpment ...</p> <p>Not all water courses flow from the escarpment. The implication is this DCP only applies to the watercourses that originate in the escarpment. This whole section (with minor editing) would be better included as a preface to the document, with the 2009 Introduction intact.</p>	<p>The expanded introduction in the draft provides more and relevant information appropriate to an introduction. The first two paragraphs from the current version are addressed in the 'purpose' section of the draft.</p>	<p>Suggest deleting the words "from the escarpment", otherwise no other changes to the Introduction.</p>
Purpose	<p>The purpose should be a concise statement as to the need for the document.</p> <p>Recommended replacing paragraph 1, with -</p> <p>DCP E23 provides requirements and guidance for the development, care and maintenance of riparian lands associated with designated waterways and water bodies within the Wollongong LGA,</p> <p>Note the requirements and guidance are set out throughout the documents.</p> <p>Paragraph 2 and 3 should be relocated to section on Related Legislation.</p>	<p>Agree the purpose should be concise.</p>	<p>Paragraphs 2 and 3 provide explanatory context around the controls and its relationship with other legislative and policy frameworks and have been moved to a new section entitled Background after the Introduction section.</p>
Objective	<p>Under document management this should come after the Purpose.</p> <p>Wording change line 1 to</p> <p>To ensure as best as possible -</p> <ul style="list-style-type: none"> a) The banks and riparian areas of water courses and water bodies are developed, improved and maintained to optimise the function of the watercourse. b) To provide vegetation that - <ul style="list-style-type: none"> a. meets the minimum requirement to achieve the planned purpose of the waterway b. provides for, and if considered necessary, enhances, the ecological communities of the waterway and riparian area. <p>The statement to minimise the number of waterway crossings, is an extension of the requirements in the RCM study, which looked to minimise road crossings.</p>	<p>Based on feedback objectives (a) and (d) could be improved.</p>	<p>Amend wording of objective (a) to – <i>Protect Wollongong LGA's watercourses, banks and riparian corridors and improve their environmental, ecological and hydrological function and stability.</i></p> <p>Amend wording of objective (d) to – <i>Minimise the number and environmental impact of new watercourse crossings to maximise connectivity.</i></p>

Issue Category	Summary of Issue	Staff Comment	Proposed Response
	<p>Waterway crossings cover a wide area of potential crossings including -</p> <ul style="list-style-type: none"> • Natural foot crossings for animals and humans • Natural ford crossings which allows for vehicle crossings • Formed vehicle ford crossings • Weirs • Causeways Bridges of various sizes • Services – water and sewerage pipes, power lines and • Animal overpasses <p>Most of these are set out in more detailed in the DCP.</p> <p>Suggested wording -</p> <p>Optimise waterway crossings to minimise the impact on the waterway function and maintain the stability of the embankment and riparian area.</p> <p>Points e) – h) as are. These reflect the objectives in these areas.</p>		
Land to which this Chapter Applies	This is not required as it is stated in both the Introduction (proposed Preface) and the Purpose	This section makes the application of the DCP chapter clear, this is highly useful from a legal perspective and is consistent with the contemporary approach being used for updates to other chapters.	No change.
Development to which this Chapter Applies	The wording “or as confirmed by Council” gives an out or an additional requirement. This needs to be clarified. Guidance is needed as to what maybe additional. Does this mean exception from compliance?	The phrase “or as confirmed by Council” provides a caveat in case the mapping has errors or where watercourses are west flowing and are not mapped but treated as Category 1.	No change.
	The remainder of this section draws attention to the specific areas and is agreed. Suggest wording as to residential zoning be reference to LEP land use classification.	The phrase residential zones in DCP chapter would be generally understood by readers to be the residential zones listed and described under Wollongong LEP 2009.	No change.

Issue Category	Summary of Issue	Staff Comment	Proposed Response
Related Legislation	Include here the statements from the 2021 Purpose, as mentioned above.	See comment above. This section is a simple list of relevant legislation and does not provide detail of its relationship or connection to the chapter.	No change.
Relationship to Clause 7.4 of Wollongong Local Environmental Plan 2009	Recommends wording be added after the heading and within the body "(as amended)" to ensure the current maps and requirements are taken into account at the time of development and planning.	It is standard practice that reference to the Wollongong Local Environmental Plan 2009 and Wollongong Local Environmental Plan 2009 Riparian Land Map would be to the latest versions.	No change.
Development Controls	9.1 Categorisation It mentions 4 categories Category 4 needs to be against the fourth dot point/or just remove mention of the fourth category as it is said later at 9.1.3. If followed, edit back to 3 Categories.	Based on the feedback clarification is considered appropriate.	Amend wording for 9.1.1 to – <i>The watercourses have been mapped as one or more of the following, depending upon the nature and function of each watercourse:</i>
Riparian Corridor Design and Management	Table 2 page 7 Category 3 Add within the table not as a footnote <i>Open channels identified on the maps as drainage assets for stormwater management are normally Category 3 waterways. Vegetation selection must not impede stormwater flow within the waterway, to the top of the embankment.</i>	Clarification considered unnecessary.	No change.
Watercourse Crossings	You restate the objective here. To minimise the total number of watercourse crossings in the LGA. It is a meaningless objective. Where does it apply to a particular development? This should be removed and the heading replaced with Optimising Watercourse Crossings" The objective should reflect design consideration – see comments at Objective above.	The objective stated here is specific to this clause.	No change.

Issue Category	Summary of Issue	Staff Comment	Proposed Response
	This gives a clearer requirement for the developer to design to. The requirements for developers to consider are set out at 9.6.2 with the optimisation set out at 9.1.3.		
Stormwater/ Water Quality Treatment	This section should reinforce the associated DCP's relating to stormwater management E14 and floodplain management E13. Reference may also be made to riparian guidance to where flood overland flows return to the waterway. This especially so from detention basin overtopping.	DCP Chapters E13 and E14 are mentioned in section 8 – 'Relationship to Other DCP Chapters and Council Manuals'.	No change.
Definitions	Add definition of Watercourse Crossings.	Inclusion of a definition for watercourse crossings is considered appropriate.	Amend to include definition of Watercourse crossing, as follows: <i>Means a structure designed and Constructed to provide access for vehicles, trains, cyclists, pedestrians, livestock or utilities over or through a watercourse. This includes bridges, culverts and causeways.</i>
Miscellaneous	Removal of listing of vegetation as included in the 2009 attachments from the 2021 DCP. Reference could be made to a "Guidance list of plantings" this guidance can be that list from 2009 as amended. Amendments do not require Council approval or public exhibition if they are in line with the objectives set out for vegetation selection included for each category.	It is acknowledged that advice on riparian vegetation can be helpful for developers and associates, however it can be case specific. Given the prime purpose of a DCP relates to controls it is considered more appropriate to provide this information in supplementary guidelines.	No change.

Draft Chapter E23: Riparian Land Management

Post Exhibition Recommendations June 2022

New section 2 Background	Contains information moved from Purpose about the Riparian Corridor Management Study and categorisation of watercourses. Sections renumbered sequentially.
5 Development to which this Chapter Applies	Updated with: ; and any watercourse that flows west from the escarpment that has not been included within Council's published DCP Riparian Corridors mapping layer. These watercourses are to be considered as Category 1 watercourses.
6 Objectives	Minor changes to proposed objectives - a Protect Wollongong LGA's watercourses, banks and riparian corridors and improve their environmental, ecological and hydrological function and stability; b Minimise the number and environmental impact of new waterway crossings to maximise connectivity; c Enhance the aesthetic qualities and educational values of the local creek landscapes; d Protect and enhance any the cultural heritage -values of riparian corridors.
7 Related Legislation	Added - <ul style="list-style-type: none"> Coastal Management Act 2016 Chapter 2 Coastal Management of State Environmental Planning Policy (Resilience and Hazards) 2021 Local Government Act 1993
8 Relationship to Clause 7.4 of Wollongong Local Environmental Plan 2009	First sentence reworded: If a development complies with this Chapter, then - The objective of clause 7.4 Riparian Lands of Wollongong Local Environmental Plan 2009 will be met is to ensure that development does not adversely impact upon riparian lands. The requirements of this Chapter are intended to ensure that developments meet this objective.
10.2.3	"NRAR" replaced with "the Department of Planning and Environment", "Department of Planning, Industry and Environment" replaced with "Department of Planning and Environment".
10.3.1	Reworded: Any new development within, over or adjacent to any mapped watercourse to which this Chapter applies shall be designed, sited and managed to meet the specific riparian corridor objectives for the relevant watercourse category as set out in Table 2.
Table 2 Design, Siting and Management Measures - Category 1 – Environmental Corridor	New measure added: <ul style="list-style-type: none"> Any watercourse crossings within mapped Key Fish Habitat must have regard to the Fish Passage Guidelines developed by NSW Fisheries.

Table 2 Design, Siting and Management Measures - Category 2 – Terrestrial and Aquatic Habitat	New measure added: <ul style="list-style-type: none">Any watercourse crossings within mapped Key Fish Habitat must have regard to the Fish Passage Guidelines developed by NSW Fisheries.
Table 2 Design, Siting and Management Measures - Category 3 – Bank Stability and Water Quality	Last dot point “Use flood appropriate vegetation to ensure a flood hazard free overland flow path” deleted and replaced with Implement weed management and restore areas with appropriate native vegetation and densities.
6.1 Minimum Riparian Corridor Width Requirements	Added: Figure 2. Diagram of a bridge crossing spanning a watercourse and riparian corridor (not to scale) (source: Office of Water 2012).
10.6.2 B Encroachments for Essential Public Road Infrastructure	New c The base of box culverts of watercourses in mapped Key Fish Habitat are to be set so that it does not block the passage of fish.
10.9 Vegetation Management Plan	Reworded d: “The VMP must consider any relevant flood studies (ie modelled for either the entire catchment or the specific development) to ensure that the proposed vegetation densities do not increase the flood affectation upon surrounding properties in the locality.” deleted and replaced with The VMP must be in accordance with the relevant Council adopted Floodplain Risk Management Study and Plan with respect to the restoration of vegetated (riparian) corridors and associated flood behaviour. Otherwise, the VMP must consider a flood study for the specific development to ensure the proposed vegetation densities do not adversely increase the flood affectation upon surrounding properties in the locality.
Definitions	Minor changes to definition of Adjacent to the bed or bank of any mapped watercourses. Definitions for Essential infrastructure services, Non-essential infrastructure services and Non-essential watercourse crossings for public road infrastructure deleted. Definition for Watercourse crossing added.



Contents

1	INTRODUCTION	1
2	BACKGROUND	1
3	PURPOSE	1
4	LAND TO WHICH THIS CHAPTER APPLIES	2
5	DEVELOPMENT TO WHICH THIS CHAPTER APPLIES	2
6	OBJECTIVES	2
7	RELATED LEGISLATION	3
8	RELATIONSHIP TO CLAUSE 7.4 OF WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009	3
9	RELATIONSHIP TO OTHER DCP CHAPTERS AND COUNCIL MANUALS	3
10	DEVELOPMENT CONTROLS	3
10.1	Watercourse Categorisation	3
10.2	Riparian Corridor Width Requirements	4
10.3	Riparian Corridor Design and Management	5
10.4	Bush Fire Asset Protection Zones	8
10.5	Fencing	8
10.6	Watercourse Crossings	8
10.7	Stormwater/Water Quality Treatment	10
10.8	Restoration Works	10
10.9	Vegetation Management Plan	10
10.10	General	10
11	DEVELOPMENT APPLICATION INFORMATION REQUIREMENTS	11
	DEFINITIONS	12

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

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Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

1 INTRODUCTION

The many watercourses of the Wollongong Local Government Area (LGA) flow ~~from the escarpment~~ to the coast, through a range of landscapes. Over time, the majority of these watercourses and associated riparian lands have undergone varying modifications and changes due to urban development and rural uses.

Effective riparian land management is key to bed and bank stability, water quality, biodiversity and environmental corridor function to promote the long-term health of the catchments within which these watercourses flow.

The riparian land within and beside watercourses provides, or has the potential to provide, a number of important environmental and other quality of life related functions, including:

- habitat for a diversity of plant and animal species;
- movement corridors for wildlife;
- conveyance of flood flows;
- reduction of bank and channel erosion;
- maintenance of water quality;
- a protective buffer between development and watercourses;
- visual amenity; and
- nature-based recreation.

Protecting and properly managing riparian land is vital to reduce the pressure on, and threats to, watercourses and their associated ecosystems, and to support the biodiversity of the Wollongong LGA in the long term.

2 BACKGROUND

The development controls contained in this Chapter are based on the principles and recommendations contained in the *Riparian Corridor Management Study* (NSW Department of Infrastructure, Planning and Natural Resources, 2004) (RCM Study) prepared for Wollongong City Council. This study and its recommendations are based on the local characteristics of the Wollongong LGA and seek to ensure that the long term functioning of each waterway and riparian lands align with its assessed environmental value or category.

The method used to categorise watercourses in the RCM Study and this Chapter is different to that of the NSW Natural Resource Access Regulator's (NRAR's) *Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors* (2018). The NRAR Riparian Corridor Guidelines are general, Statewide guidelines that categorise all watercourses uniformly based on their location within a catchment. By contrast the RCM Study provides width values based on an integrated approach to multiple waterway objectives which are specifically relevant to the characteristics of the catchment within which each watercourse is located. Importantly, the merit-based approach adopted by the RCM Study considers the geomorphology and strategic importance of each watercourse within its landscape context, having regard to both its existing condition and its potential long-term environmental functioning, including its potential to function as a linkage between areas of high conservation value.

3 PURPOSE

The purpose of this Chapter is to provide Council's minimum requirements for development to minimise any adverse impact on riparian lands as a result of development. This includes development on land in or adjacent to mapped watercourses, and development which involves watercourse crossings.

~~The requirements reflect the principles and recommendations contained in the *Riparian Corridor Management Study* (NSW Department of Infrastructure, Planning and Natural Resources, 2004) (RCM Study) prepared for Wollongong City Council. This study and its recommendations are based on the local characteristics of the Wollongong LGA and seek to ensure that the long term functioning of each waterway and riparian lands align with its assessed environmental value or category.~~

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

~~The method used to categorise watercourses in the RCM Study is different to that used by the NSW Natural Resource Access Regulator's (NRAR's) *Guidelines for Controlled Activities on Waterfront Land – Riparian Corridors* (2018). The NRAR Riparian Corridor Guidelines are general, Statewide guidelines that categorise all watercourses uniformly based on their location within a catchment, while the RCM Study provides width values specifically relevant to the Wollongong LGA, its geomorphology and waterway structure and function.~~

4 LAND TO WHICH THIS CHAPTER APPLIES

This Chapter of the DCP applies to all lands within the Wollongong LGA.

5 DEVELOPMENT TO WHICH THIS CHAPTER APPLIES

This Chapter applies to any development requiring development consent under Part 4 or approval under Part 5 of the *Environmental Planning and Assessment Act 1979* that is proposed to take place on land within, over or adjacent to:

- any Category 1, Category 2 or Category 3 watercourse mapped within Council's published DCP Riparian Corridors mapping layer (www.wollongong.nsw.gov.au/about/maps) or as confirmed by Council; and
- any watercourse that flows west from the escarpment that has not been included within Council's published DCP Riparian Corridors mapping layer. These watercourses are to be considered as Category 1 watercourses.

This Chapter must also be considered in the Neighbourhood Planning process for the West Dapto Release Area as detailed in Chapter D16: West Dapto Release Area of this DCP. Endorsed site specific provisions of Chapter D16 or other site specific chapters override the general provisions of this chapter, and will be used for the assessment of Development Applications.

This Chapter does not apply to development for the following purposes in residential zones of the Wollongong LGA:

- a The erection or demolition of a dwelling-house or dual occupancy building not involving the subdivision of land, or
- b Alterations and additions to an existing dwelling-house or dual occupancy building, or
- c Ancillary facilities associated with an existing dwelling-house or dual occupancy building.

For the above types of development, Council's planning provisions including Chapter E13: Floodplain Management and Chapter E14: Stormwater Management of this DCP apply.

6 OBJECTIVES

The objectives of this DCP Chapter are to:

- a Protect ~~Wollongong LGA's~~ watercourses, banks and riparian corridors and improve their environmental, ecological and hydrological function and stability;
- b Protect and enhance native riparian vegetation and associated habitat;
- c Protect and enhance the viability of threatened ecological communities and threatened species;
- d Minimise the number and environmental impact of new waterway crossings to maximise connectivity;
- e Enhance the aesthetic qualities and educational values of ~~the~~ local creek landscapes;
- f Ensure riparian management is compatible with, and does not adversely affect, floodplain risk management objectives in urban areas;
- g Maintain or improve water quality; and
- h Protect and enhance any-the cultural heritage-values of riparian corridors.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

7 RELATED LEGISLATION

The following legislation is related to this Chapter:

- *Environmental Planning and Assessment Act 1979*
- *Water Management Act 2000*
- *Water Management (General) Regulation 2018*
- *Biodiversity Conservation Act 2016*
- *National Parks and Wildlife Act 1974*
- *Fisheries Management Act 1994*
- *Coastal Management Act 2016*
- *Chapter 2 Coastal Management of State Environmental Planning Policy (Resilience and Hazards) 2021*
- *Local Government Act 1993*
- *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth).

8 RELATIONSHIP TO CLAUSE 7.4 OF WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

~~If a development complies with this Chapter, then it~~ The objective of clause 7.4 Riparian Lands of Wollongong Local Environmental Plan 2009 ~~will be met~~ is to ensure that development does not adversely impact upon riparian lands. The requirements of this Chapter are intended to ensure that developments meet this objective.

Clause 7.4 of Wollongong Local Environmental Plan 2009 applies to “riparian land” shown on the Wollongong Local Environmental Plan 2009 Riparian Land Map (www.wollongong.nsw.gov.au/about/maps).

The watercourses mapped as “riparian land” under Wollongong Local Environmental Plan 2009 have a corresponding mapped category under this DCP Chapter as described in section 9.1 below.

9 RELATIONSHIP TO OTHER DCP CHAPTERS AND COUNCIL MANUALS

This Chapter is referred to in:

- Chapter B2: Residential Subdivisions
- Chapter B5: Industrial Development
- Chapter B6: Development in the Illawarra Escarpment
- Chapter D16: West Dapto Release Area
- Chapter E6: Landscaping
- West Dapto Open Space Design Manual

and is related to:

- Chapter E13: Floodplain Management
- Chapter E14: Stormwater Management
- Chapter E15: Water Sensitive Urban Design
- West Dapto Open Space Technical Manual.

10 DEVELOPMENT CONTROLS

10.1 Watercourse Categorisation

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

10.1.1 The category of each watercourse within the Wollongong LGA is provided in Council's Riparian Corridors map within the Constraints and Planning DCPs layer of Council's public mapping system.

The watercourses have been categorised into one or more of the following ~~four~~ **categories**, depending upon the nature and function of each watercourse:

- Category 1 – Environmental Corridor
- Category 2 – Terrestrial and Aquatic Habitat
- Category 3 – Bank Stability and Water Quality
- Predominantly piped or heavily engineered.

10.1.2 Watercourses that flow west from the escarpment have not been included in the Riparian Corridors map but are to be considered as Category 1 watercourses.

10.1.3 This Chapter does not have any particular controls for development within, over or adjacent to watercourses mapped as predominantly piped or heavily engineered. Chapter E14: Stormwater Management of this DCP needs to be considered for these types of developments.

10.2 Riparian Corridor Width Requirements

10.2.1 The riparian corridor consists of:

- the channel which comprises the bed and banks of the watercourse (to the highest bank), and
- the core riparian zone measured from the top of the highest bank on either side of the watercourse; and
- the vegetated buffer (where applicable) adjoining the core riparian zone (see Figure 1 below).

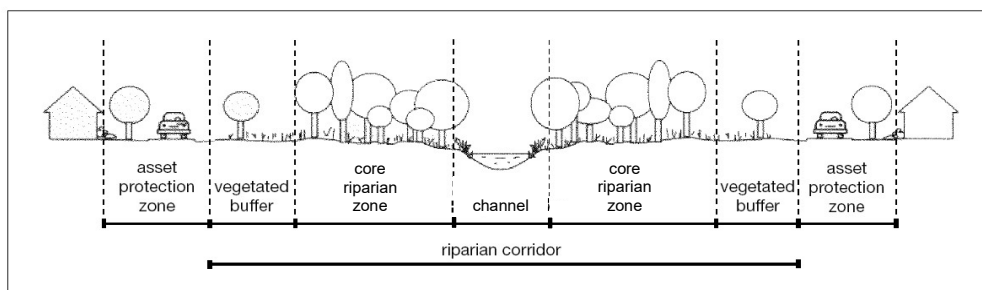


Figure 1. Diagram of a typical riparian corridor for a Category 1 or Category 2 watercourse (not to scale).

10.2.2 Any development to which this Chapter applies must be designed to achieve the minimum total riparian corridor width requirement for the specific watercourse category as set out in Table 1 below. The core riparian zone width is measured from the top of the highest watercourse bank away from the watercourse.

Table 1 Minimum Width Requirements for Riparian Corridors

Watercourse Category	Minimum Core Riparian Zone Width (each side of watercourse)	Minimum Vegetated Buffer Width (each side of watercourse)	Minimum Total Riparian Corridor Width
Category 1	40 metres	10 metres	100 metres + channel width
Category 2	20 metres	10 metres	60 metres + channel width
Category 3	10 metres	–	20 metres + channel width

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

- 10.2.3** The minimum width requirements set out in Table 1 may exceed those stipulated in General Terms of Approval from ~~NRAR~~the Department of Planning and Environment, a Controlled Activity Approval or within guidelines published by the Department of Planning, ~~Industry~~ and Environment.
- 10.2.4** The minimum width requirements set out in Table 1 may result in riparian corridor widths extending beyond land that has been zoned ~~EC3~~ Environmental Management ~~based on flooding~~.
- 10.2.5** Except as provided by clause 9.6 of this Chapter, no development other than environmental management works is to take place within the applicable minimum total riparian corridor width specified in Table 1.
- 10.2.6** Any variation to the minimum widths set out in Table 1 are to be addressed as a variation to a control in the DCP as outlined at Part 8 of Chapter A1: Introduction of this DCP and if approved environmental/biodiversity compensation will be required within the development site.
- a When considering a variation request, the following matters will, at a minimum be considered:
- i Whether the variation will result in any adverse impact on the functions of the riparian corridor (including as a result of edge effects over time) or flood hazard risk or increased risk from any other hazard; and
- ii Whether reasonable alternative design options exist which would enable the minimum width requirements set out in Table 1 to be achieved.

10.3 Riparian Corridor Design and Management

- 10.3.1** Any ~~new~~ development ~~within, over or adjacent to any mapped watercourse~~to which this Chapter applies shall be designed, sited and managed to meet the specific riparian corridor objectives for the relevant watercourse category as set out in Table 2.
- 10.3.2** The land within the riparian corridor is to be restored/revegetated as part of a proposed development in accordance with the approved Vegetation Management Plan (VMP) (refer to clause 9.9 for VMP requirements).

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

Table 2 Objectives and Design Guidance for Watercourse Categories

Watercourse Category	Watercourse Objectives	Design, Siting and Management Measures
Category 1 – Environmental Corridor	<p>Maximise the protection of terrestrial and aquatic habitat to:</p> <ul style="list-style-type: none"> provide a continuous corridor width for the movement of flora and fauna; provide extensive habitat (and connectivity between habitat nodes) for terrestrial and aquatic fauna; maintain the viability of native riparian vegetation; manage edge effects at the riparian/urban interface; provide bank stability; and protect water quality. 	<ul style="list-style-type: none"> Provide a continuous riparian corridor that also provides linkages to stands of remnant vegetation where applicable. Restore/rehabilitate the vegetation, geomorphic structure, hydrology and water quality of the riparian corridor to its original (pre-European) condition as far as practicable. Locate infrastructure and utility services (ie power, water, sewerage and water quality treatment ponds etc) outside of the core riparian zone and vegetated buffer. Encroachment into the vegetated buffer may be possible if unavoidable and the impact on riparian functions is minimised. Any infrastructure and utility services within the vegetated buffer are to be sited to retain existing trees and the location and construction methods are to be determined by a consulting arborist. Tree locations are to be survey accurate. Provide a suitable interface between the riparian area and urban development (roads, cycleways, playing fields, open space) to minimise edge effects. Minimise the number of road crossings Maintain riparian connectivity by the use of piered crossings in preference to pipes or culverts. Any watercourse crossings within mapped Key Fish Habitat must have regard to the Fish Passage Guidelines developed by NSW Fisheries. Minimise the impact of cycleways/shared paths, walking tracks and general access points by using ecologically informed design principles. Locate flood compatible uses (eg playing fields) outside of the riparian corridor. Manage and treat stormwater run-off outside the riparian corridor before discharge into the watercourse.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

Table 2 Objectives and Design Guidance for Watercourse Categories (continued)

Watercourse Category	Watercourse Objectives	Design, Siting and Management Measures
Category 2 – Terrestrial and Aquatic Habitat	<p>Maintain/restore the natural functions of a watercourse to:</p> <ul style="list-style-type: none"> maintain the viability of native riparian vegetation; provide suitable habitat for terrestrial and aquatic fauna; provide bank stability, and protect water quality. 	<ul style="list-style-type: none"> Restore/rehabilitate the vegetation, geomorphic structure, hydrology and water quality of the riparian corridor to its original (pre-European) condition as far as practicable. Locate infrastructure or utility services (ie power, water, sewerage and water quality treatment ponds etc) outside of the core riparian zone and vegetated buffer. Encroachment into the vegetated buffer may be possible if unavoidable and the impact on riparian functions is minimised. Any infrastructure and utility services within the vegetated buffer are to be sited to retain existing trees and the location and construction methods are to be determined by a consulting arborist. Tree locations are to be survey accurate. Provide a suitable interface between the riparian area and urban development (roads, cycleways, playing fields, open space) to minimise edge effects. Minimise the number of road crossings. Maintain riparian connectivity by the use of piered crossings in preference to pipes or culverts. <u>Any watercourse crossings within mapped Key Fish Habitat must have regard to the Fish Passage Guidelines developed by NSW Fisheries.</u> Minimise the impact of cycleways/shared paths, walking tracks and general access points by using ecologically informed design principles. Locate flood compatible uses (eg playing fields) outside of the riparian corridor. Manage and treat stormwater run-off outside the riparian corridor before discharge into the watercourse.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

Watercourse Category	Watercourse Objectives	Design, Siting and Management Measures
Category 3 – Bank Stability and Water Quality	<p>Minimise sedimentation and nutrient transfer to:</p> <ul style="list-style-type: none"> provide bank stability; protect water quality, and protect native vegetation. 	<ul style="list-style-type: none"> Emulate a naturally functioning watercourse with a suitable riparian corridor width. Provide suitable vegetated habitat refuges for terrestrial and aquatic fauna, wherever possible. Treat stormwater run-off outside the riparian corridor before discharge into the riparian zone, wherever possible. Use flood appropriate vegetation to ensure a flood hazard free overland flow path Implement weed management and restore areas with appropriate native vegetation and densities.

Note: Category 3 often applies to open channels with very little remnant vegetation.

10.4 Bush Fire Asset Protection Zones

10.4.1 Any bush fire Asset Protection Zone (APZ) is required to be located and managed within the defined limits of the development site and outside of the minimum total riparian corridor width (see Figure 1).

10.5 Fencing

10.5.1 Fencing is to be restricted to the outer edge of the total riparian corridor width.

10.5.2 The design of fencing shall comply with the requirements stated in the Floodplain Management Chapter contained in Part E of this DCP.

10.5.3 Any proposed fence adjoining the riparian corridor is to be designed to avoid steep batters and should be of an open, permeable style to maintain views to and from the riparian area.

10.6 Watercourse Crossings

The objective of this clause is to minimise the total number of watercourse crossings in the LGA and require all watercourse crossings to achieve specified environmental outcomes.

10.6.1 Minimum Riparian Corridor Width Requirements

All proposed watercourse crossings for roads, cycleways/shared paths and utility infrastructure must comply with the minimum riparian corridor width requirements in Table 1 of clause 9.2 by spanning the applicable minimum riparian corridor width (see Figure 2 below).

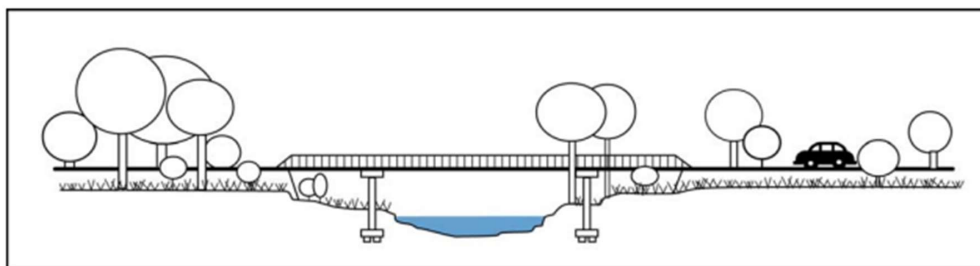


Figure 2. Diagram of a bridge crossing spanning a watercourse and riparian corridor (not to scale) (source: Office of Water 2012).

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

10.6.2 Encroachments for Essential Public Road Infrastructure

A. Despite clause 9.6.1, watercourse crossings of Category 1 or 2 watercourses and which fulfill the definition of 'essential watercourse crossing for public road infrastructure' in this Chapter, may encroach within the minimum riparian corridor width providing that:

- a The crossing of a Category 1 or 2 watercourse uses a single span or piered bridge design; and
- b Bridge piers or foundations are located outside the existing low flow channel of the watercourse; and
- c The crossing is as close to perpendicular as practical to the natural watercourse; and
- d Any works required within the riparian corridor incorporate soft-engineering solutions and natural channel design techniques, particularly to preserve natural ecological stream functions (aquatic and terrestrial) including fish passage; and
- e The design incorporates sufficient unobstructed width on both sides of the watercourse (ie from top of bank) and vertical clearance between the underside of the bridge and the top of bank to facilitate dry passage for the greatest range of ground dwelling fauna as possible (from reptiles to small macropods), during a 2% AEP (or 1 in 50 AEP) flood event.
- f The design provides access for maintenance, and where applicable, pedestrian connectivity. For any shared path, a minimum 2.5 metre width is required and the overall design must meet the requirements of the relevant Australian Standards and AUSTROADS Guides.
- g Where the watercourse crossing is new (ie is not replacing and upgrading an existing crossing), appropriate compensatory riparian restoration will be provided at a suitable location as part of the development within the same catchment.

B. Despite clause 9.6.1, watercourse crossings over Category 3 watercourses and which fulfill the definition of 'essential watercourse crossing for public road infrastructure' in this Chapter, may use a:

- single span,
- piered bridge, or
- box culvert design

and encroach within the minimum riparian corridor width providing that:

- a Bridge piers or foundations are located outside the existing low flow channel of the watercourse; and
- b The shape and sizes of precast elements are designed to optimise dry passage for a range of ground dwelling fauna (from reptiles to small macropods) during a 5% AEP (1 in 20 AEP) flood event.
- ~~c~~ **The base of box culverts of watercourses in mapped Key Fish Habitat are to be set so that it does not block the passage of fish.**
- ~~cd~~ The design provides access for maintenance, and where applicable, pedestrian connectivity.
- ~~de~~ Where the watercourse crossing is new (ie is not replacing and upgrading an existing crossing), and/or results in an impact to existing riparian vegetation, appropriate compensatory riparian restoration will be provided at a suitable location as part of the development within the same catchment.

10.6.3 Co-location of Roads, Cycleways/Shared Paths and Utility Infrastructure

Roads, cycleways/shared paths and utility infrastructure should be co-located within single crossings unless doing so in a particular circumstance will lead to greater impacts to the ecological functioning of the riparian corridor than not co-locating the infrastructure.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

10.7 Stormwater/Water Quality Treatment

- a Water quantity and quality treatment systems such as stormwater detention basins are to be constructed and located outside the riparian corridor.
- b Sediment and litter capture and management must be undertaken outside the riparian corridor.

10.8 Restoration Works

- a Works to stabilise the watercourse bed or bank are to be carried out with soft engineering methods. Designs must aim to maintain or mimic existing or natural hydraulic, hydrologic, geomorphic and ecological functions of the watercourse, including regeneration and/or rehabilitation of appropriate local native riparian vegetation and ecological amenity.
- b Stream bank stability is to be promoted by retaining and establishing well vegetated riparian zones. Restoration works within the riparian corridor must be coordinated through Council or in some cases, the NSW Natural Resources Access Regulator directly.
- c All works involving soil disturbance are to be carried out in accordance with the NSW Landcom publication titled *Managing Urban Stormwater: Soils and Construction*, 4th edition (March 2004).

10.9 Vegetation Management Plan

- a A Vegetation Management Plan (VMP) must be submitted with any Integrated Development Application or Development Application lodged for any proposed development this Chapter applies to.
- b The VMP must be prepared in accordance with Council's published *Vegetation Management Plan Guidelines for Development Applications and Unauthorised Works* (available via www.wollongong.nsw.gov.au); and in the case of Integrated Development, the VMP must also be prepared in accordance with the Natural Resources Access Regulator's *Guidelines for Vegetation Management Plans on Waterfront Land*.
- c The VMP must identify maintenance access points and trails.
- d ~~The VMP must consider any relevant flood studies (ie modelled for either the entire catchment or the specific development) to ensure that the proposed vegetation densities do not increase the flood affectation upon surrounding properties in the locality.~~ **The VMP must be in accordance with the relevant Council adopted Floodplain Risk Management Study and Plan with respect to the restoration of vegetated (riparian) corridors and associated flood behaviour. Otherwise, the VMP must consider a flood study for the specific development to ensure the proposed vegetation densities do not adversely increase the flood affectation upon surrounding properties in the locality.**
- e Where the riparian corridor width is in adjoining lots with different ownership and separate development applications for each lot are proposed, the preparation and implementation of a VMP submitted with a development application is to be coordinated with the adjoining lot landowner(s).
- f For any land proposed to be transferred to Council, all necessary revegetation or other works are to be completed in accordance with the approved VMP to the satisfaction of Council, prior to Council accepting the transfer of the land.

10.10 General

- a Subdivisions and new development should front onto the riparian corridor and not back onto it, perimeter roads are encouraged for this purpose.
- b For subdivisions, where relevant, the bush fire assessment report must assess whether the creation of riparian corridors and the implementation of the VMP will result in the creation of potential future and unmapped Bush Fire Prone Land and assess the bush fire risk for future development.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

- c Services should be located outside of the riparian corridor.
- d Access to the watercourse for maintenance and passive recreation should be planned in strategic locations where the existing vegetation will not be impacted and the stream bed and bank stability will not be compromised. The integration of infrastructure to accommodate self-directed recreational activities such as walking, running and cycling ~~and~~ will create activity and opportunities for passive surveillance and encourage social interaction in a natural setting.

11 DEVELOPMENT APPLICATION INFORMATION REQUIREMENTS

The following information and matters must be provided/addressed with a Development Application to which this Chapter applies:

- a A **Site Plan** which shows the siting and design of existing and proposed buildings, including any outbuildings or ancillary structures such as garages, sheds, pergolas and pools. The site plan shall be at a scale of 1:100, 1:200 or 1:500, depending upon the size of the subject development site.

Note: The siting, design and landscape treatment of the proposal should maximise the habitat values (if any) and minimise disruption to the connectivity of riparian habitats.
- b A **Survey Plan** or a detailed **Site Analysis Plan** must show the following:
 - ‘Top of bank’ and centreline of the watercourse.
 - The setback distances between existing and proposed buildings/structures and the top of bank.
 - Plotting of the riparian corridor buffer according to the watercourse category and widths as identified in table 1.
 - Existing contour levels at two metre intervals.
 - All areas that exceed a slope class of 18°.
 - A suitable scale (ie 1:100, 1:200 or 1:500 scale), depending on the size of the overall landholding.
- c A **Tree Survey Plan** (ie prepared by a registered surveyor) which shows the location and species type of existing trees and understorey shrubs within the site, including the riparian corridor.
- d A **Vegetation Management Plan** (VMP) which indicates how the natural qualities of the riparian corridor have been retained or are proposed to be restored as far as possible through the retention or reinstatement of natural levels and native vegetation and/or the removal of trees (eg willows) and other non-native plants/vegetation.
- e Any Asset Protection Zone required should be clearly shown on the Site Plan and Site Analysis Plan, and the recommendations considered in the Tree Survey Plan and VMP.
- f All plans and documents are to be consistent.
- g An Integrated Development Application is required if any of the following additional approvals are needed to allow the development:
 - i Controlled Activity Approval issued under the *Water Management Act 2000*;
 - ii Permit issued under the *Fisheries Management Act 1994*;
 - iii Aboriginal Heritage Impact Permit issued under the *National Parks and Wildlife Act 1974*.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

DEFINITIONS

Adjacent to any Category 1, Category 2 or Category 3 watercourse: Means land within the width of the riparian corridor for the relevant watercourse category as set out in section 9.2 plus an additional ten metres landward away from the outer edge of the riparian corridor.

Adjacent to ~~the bed or bank of any mapped watercourses~~: Means land within the width of the riparian corridor for the relevant watercourse category as set out in section 9.2 plus an additional ten metres landward away from the outer edge of the riparian corridor.

Channel width: The perpendicular width between the top of bank on each side of a watercourse.

Compensatory riparian restoration: Restoration work with locally indigenous plant species on an area of riparian land located on Council owned land within the same catchment that is generally of similar size as the difference in square metres between the riparian corridor width provided as part of critical public road bridge design, and what would have been required by Table 1 were it not for the exemption provided by clause 9.6.

Core riparian zone (CRZ): Means the minimum land space measured from the top of the highest bank to be fully vegetated with well-structured local provenance native vegetation (including trees, shrubs and groundcovers). Refer to Figure 1.

~~**Essential infrastructure services:** Infrastructure services that are essential for the social and economic wellbeing of the community as determined by Council or State authority or utility provider.~~

Essential watercourse crossings for public road infrastructure: ~~A~~ Watercourse crossings identified within the current West Dapto Development Contributions Plan or within Chapter D16 of the Wollongong Development Control Plan 2009 or adopted as part of a Council endorsed Neighbourhood Plan or Planning Proposal.

Low flow channel: The channel within a watercourse in which water is contained during periods of dry weather, base or environmental flow when the watercourse is not in flood. The low flow is usually not constant but varies with groundwater levels and long term weather conditions.

~~**Non-essential infrastructure services:** Infrastructure services that are not essential for the social and economic wellbeing of the community as determined by Council or State authority or utility provider.~~

~~**Non-essential watercourse crossings for public road infrastructure:** Watercourse crossings not identified within the current West Dapto Development Contributions Plan and not identified within Chapter D16 of the Wollongong Development Control Plan 2009 and not adopted as part of a Council endorsed Neighbourhood Plan or Planning Proposal.~~

Riparian corridor: Refers to any land (and its associated vegetation) that adjoins, directly influences, or is influenced by a watercourse. Its outer limit is measured from the top of a watercourse bank away from the watercourse centreline. It includes a core riparian zone (CRZ) and a vegetated buffer.

Riparian vegetation: Is vegetation that grows within the riparian corridor including on water surfaces, below water surfaces, on watercourse banks, and along the edges of watercourses.

Soft engineering: The practice of using sustainable ecological principles and natural elements to resolve a situation and minimise the impact on the environment. This may include the use of vegetation and stones or other natural materials to stabilise or reduce the erosion of a watercourse bank and soften or enhance the watercourse aesthetic.

Top of bank or highest bank: Is where the channel changes to the floodplain.

Utility infrastructure: Infrastructure required for the provision of water, electricity, sewerage and telecommunications services.

Vegetated buffer: A vegetated buffer extends an additional 10m from the CRZ and applies to Category 1 and 2 watercourses. The vegetated buffer serves to protect the CRZ from edge effects such as weed invasion, micro-climate changes, litter, trampling and pollution.

Part E –General Controls – Environmental Controls

Chapter E23: Riparian Land Management

Waterbody (artificial): Means an artificial body of water, including any constructed waterway, canal, inlet, bay, channel, dam, pond, lake or artificial wetland, but does not include a dry detention basin or other stormwater management construction that is only intended to hold water intermittently.

Watercourse: Means any river, creek, stream or chain of ponds, whether artificially modified or not, in which water usually flows, either continuously or intermittently, in a defined channel with bed and banks, but does not include a waterbody (artificial).

Watercourse crossing: Means a structure designed and constructed to provide access for vehicles, trains, cyclists, pedestrians, livestock or utilities over or through a watercourse. This includes bridges, culverts and causeways.