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Director Design & Development

Planning & Development

Deferred Development Control Plan amendment - road pattern changes around Brighton and Bligh Streets, Riverstone

Item: DE3500 Report: DD360035 File: **DCP-15-420**

Council Meeting on 25 May 2016

Division is required

Topic

Adoption of the Growth Centres Development Control Plan (DCP) amendment to enable minor road pattern amendments around Brighton and Bligh Streets, Riverstone

Analysis

The proposed DCP amendment to reconfigure future roads will make better use of land that is no longer required for a trunk drainage purpose and will maximise the use of existing public roads.

Submissions received objecting to the proposal do not warrant changes to the plan and do not justify Council not adopting the

proposed amendments.

Council previously considered this matter at its Ordinary Meeting on 28 October 2015. It resolved to defer its decision so that an independent review of Council's proposed changes could be conducted, to ensure that the road pattern changes are justified and informed by appropriate hydraulic assessment. The previous report is at attachment 1.

The independent review conducted by Complete Urban Pty Ltd has concluded that the proposed changes are reasonable and acceptable.

Attachments:

Attachment 1 - Previous report to Council - DD350060, 28 October 2015, including its attachments

Attachment 2 - Independent review by Complete Urban Pty Ltd

Attachment 3 - Final DCP road pattern amendments recommended for adoption

Attachment 4 - Draft zone boundary variations to be implemented via a separate Planning Proposal

Report Recommendation

1. Support the amendment to the Blacktown City Council Growth Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 3.
2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council.
3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers.
4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 4, to reflect the new DCP road pattern.

1 Key reasons

1. The changes will benefit some affected landowners by delivering minor gains in developable area and deleting unnecessary new roads.
2. The proposed road pattern changes will benefit Blacktown City and the broader community by reducing the cost of providing trunk drainage infrastructure funded through Section 94 contributions. Every opportunity should be taken to reduce such costs.
3. The issues raised during the public exhibition are not sufficient enough to warrant changes to, or to not support, the draft amendments.
4. The independent review completed by Complete Urban Pty Ltd (at attachment 2) found

that the amended round pattern:

- a. Is generally better in complying with safe intersection design criteria than the adopted road pattern
 - b. Will benefit landowners by delivering minor gains in developable area, deleting unnecessary new roads and results in a better development shape that improves lot yield
 - c. Will benefit Blacktown City and the broader community by reducing Section 94 contribution costs
 - d. Achieves appropriate environmental outcomes
 - e. Represents a reasonable compromise between maximising developable land and achieving environmental outcomes.
5. The independent review recommends adoption of the proposed road pattern amendments as the issues raised during the exhibition do not warrant changes to the proposed amendments.

2 Supporting analysis

6. Independent assessment has been conducted

- a. Council engaged Complete Urban Pty Ltd to undertake an independent review of the proposed minor road pattern amendments. Complete Urban is a professional consulting company with urban development experience and capability.
- b. The independent review addressed:
 - i. Submissions made during exhibition of the proposed road pattern amendments. It found that:

Submission

Consultant's findings

The original alignment of Brighton Street should be retained.

The original alignment of Brighton Street is unformed for most of its length west of Bligh Street, is flood prone and has the riparian corridor on parts of it. Therefore it is not the most appropriate location for a new road.

The proposed corner at the end of Brighton Street will negatively impact adjoining properties.

The corner can be dealt with by careful design.

The location of the original basins/raingardens is inappropriate and will negatively impact properties.

The raingardens are required to treat stormwater before it enters the riparian corridor. The location of the raingardens is basically the same as the gazetted plans.

The changes will de-value properties.

The changes will improve development yield.

- ii. Engineering considerations, including traffic, road design and stormwater management. It found that:

- The amended road pattern provides better and safer intersection geometry as it provides square intersections, not the angled intersection on the adopted Indicative Layout Plan (ILP).
 - The amended road pattern has sufficient distance between intersections.
 - The amended road pattern maintains a similar traffic permeability and is an acceptable traffic outcome.
 - The amended road pattern minimises closure of existing roads. This minimises costs associated with land transfers and relocation of existing utility services.
 - There is sufficient drainage land remaining to provide the required stormwater management measures.
- iii. Environmental considerations, including riparian land. It found that:
- The proposed road pattern is permissible under current riparian land guidelines.
 - The reduction in riparian land north of Brighton Street can be offset within the zoned drainage land south of Brighton Street which is flood prone.
- iv. General planning considerations. It found that:
- The amended road pattern increases the land available for development and improves the shape of land to be developed. This improves overall development yield.
 - There is a minor negative where not all of the proposed drainage reserve will have perimeter road frontage. This is a minor issue.
 - Issues relating to asset protection zones can be managed through the design of the stormwater management measures adjoining the riparian land.

7. Independent assessment concluded that our proposal is sound

- a. The independent review concluded that the proposed amendments represent a reasonable compromise between maximising development and addressing environmental outcomes. It recommends adoption of the proposed DCP amendment.

8. Suggested Planning Proposal

- a. A Planning Proposal to vary the zone boundary between the SP2 and R2 zones is required to support the DCP amendment. This will particularly benefit lots fronting Bligh Street which currently have an infrastructure zoning preventing housing development. It will also mean that we do not have to acquire land that is not needed for a drainage purpose.

3 Context

9. Proposed future road patterns are shown on the Indicative Layout Plan

- a. Proposed future road patterns for the Riverstone Precinct are shown on the Indicative Layout Plan (ILP) in Schedule 1 of the *Blacktown City Council Growth Centre Precincts DCP 2010*.

10. We have delegation to amend the Growth Centres DCP

- a. The Secretary of the Department of Planning and Environment has issued an Instrument of Delegation that enables us to prepare and exhibit draft amendments to the Growth Centres DCP.

Attachments

Ref	Description	Files
1		 A1DD360035.pdf
2		 A2DD360035.pdf
3		 A3DD360035.pdf
4		 A4DD360035.pdf

Recommendations

Report Recommendation

1. Support the amendment to the Blacktown City Council Growth Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 3.
2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council.
3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers.
4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 4, to reflect the new DCP road pattern.

Committee Recommendation

1. Support the amendment to the Blacktown City Council Growth Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 3.
2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council.
3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers.
4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to

vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 4, to reflect the new DCP road pattern.

Committee Division

Mover: Bleasdale Second: Diaz

Supported: Bleasdale; Atalla; Benjamin; Kelly; White; Donaldson; Diaz

Opposed: Lowles; Bali; Pendleton; Dickens; Siljeg

Absent: Holmes; Smith; Robinson

Council Resolution

1. Support the amendment to the Blacktown City Council Growth Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 3, subject to the deletion of the road pattern variation to the north of Brighton Street and west of the southerly extension of James Street. The reason for not proceeding with this element is that it creates an undesirable precedent, whereby developers will attempt to reduce land required for drainage purposes by locating roads within those areas.
2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council.
3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers.
4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 4, to reflect the new DCP road pattern.



Director Design & Development
Planning & Development

Development Control Plan - minor road pattern amendments around Brighton and Bligh Streets, Riverstone

Item: DE3486 Report: DD350060 File: DCP-15-420

Ordinary Meeting on 28 October 2015 Committee Meeting on 21 October 2015

Division is required

Topic	Adoption of the Growth Centres Development Control Plan (DCP) amendment to enable minor road pattern amendments around Brighton and Bligh Streets, Riverstone.
Analysis	The proposed DCP amendment to reconfigure future roads will make better use of land that is no longer required for a trunk drainage purpose and will maximise the use of existing public roads. Submissions received objecting to the proposal do not warrant changes to the plan and do not justify Council not adopting the proposed amendments. Attachments: Attachment 1 - Final DCP road pattern amendments recommended for adoption Attachment 2 - Draft zone boundary variations to be implemented via a separate Planning Proposal Attachment 3 - Location of submitters' properties Attachment 4 - Map showing DCP road pattern variations
Report Recommendation	1. Support the amendment to the Blacktown City Council Growth Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 1. 2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council. 3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers. 4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 2, to reflect the new DCP road pattern.

Key reasons

1. The changes will benefit some affected landowners by delivering minor gains in developable area and deleting unnecessary new roads.
2. The proposed road pattern changes will benefit Blacktown City and the broader community by reducing the cost of providing trunk drainage infrastructure funded through Section 94 contributions. Every opportunity should be taken to reduce such costs.
3. The issues raised during the public exhibition are not sufficient enough to warrant changes to, or to not support, the draft amendments.

Supporting analysis

1. The proposed road pattern amendments make better use of surplus drainage land

- a. The road pattern amendments around Brighton and Bligh Streets, Riverstone take advantage of land that is no longer required for a trunk drainage purpose.
- b. The amendments also include deleting proposed new roads and instead relying on existing public road reservations where possible. Both measures result in the more efficient use of land.

2. Submissions received during public exhibition

- a. The DCP amendment was publicly exhibited for 28 days from 28 April to 26 May 2015. In response we received a total of 6 submissions. Two submissions were from public authorities, 2 were landowner submissions in support and 2 were landowner submissions objecting to the proposal.
- b. Attachment 3 shows the location of the submitters' properties.

3. Public authority submissions

- a. Sydney Water noted that a 100 mm water main in Brighton Street may be affected by the road pattern changes. They advise that this can be dealt with by following its Asset Adjustment and Protection Manual.
- b. The Department of Planning and Environment noted that the amended DCP should be submitted to the Secretary of the Department at least 15 days before it is made, as outlined in the Instrument of Delegation given to Council to prepare and exhibit draft amendments to the Growth Centre Precincts DCP. This procedural requirement will be completed.

4. Objections from landowner submissions

- a. The 2 landowners objecting to the proposal are located at 37 Bligh Street (Lot 193, DP 1007) and 27 Brighton Street (Lot 7, Section F, DP 712).
- b. The issues raised by landowners in objection and our response to those issues are summarised below. Refer to attachment 4 for the location of objectors' properties.

Objection	Response
The proposed location of the detention basin is inappropriate having regard to the topography and catchment (Property no. 3)	• The SP2 zone follows the recommendations from the Riverstone Precinct Water Cycle Management Strategy that helped to inform the Indicative Layout Plan (ILP) for the precinct.

Objection	Response
	It reflects both the alignment of an existing watercourse traversing the land and a native vegetation retention area, as shown on the North West Growth Centre Native Vegetation Map for the Riverstone Precinct
The property at 37 Bligh Street will be adversely affected by the detention basin (Property no. 3)	- New drainage infrastructure is a necessary requirement for any urban release area. - The property at 37 Bligh Street is affected by a proposed water quality basin. The water quality basin is required to treat runoff from development before it enters the riparian corridor, which follows the contours of an existing watercourse through the site. - The main detention area is at the Railway Terrace end of the SP2 zone.
The amenity of 37 Bligh Street will be negatively affected by the closure of Brighton Street and the creation of a corner immediately adjacent to the dwelling (Property no. 3)	- On balance, the proposed road pattern changes will benefit landowners in the area by creating greater development potential and delivering a more sensible road pattern. - The variation to the local road pattern includes a right-angle bend at the intersection of Brighton Street (original road alignment) and a proposed local road near the existing dwelling at 37 Bligh Street. Whilst it is noted that this would result in vehicles turning adjacent to the existing dwelling, the original ILP road pattern proposed a local road through the submitter's property. The DCP amendment proposes to remove the section of road that runs through the property, while a subsequent Planning Proposal will rezone the land no longer required for a local road from SP2 to R2.

Objection	Response
The realignment of Brighton Street to a corner in close proximity to the Bligh Street corner is inappropriate and dangerous (Property no. 3)	• The proposed break in Brighton Street will have local traffic benefits by eliminating a straight through connection between Railway Terrace and McCulloch Street. • This will improve safety conditions on Brighton Street by forcing slower travel speeds through the corner, rather than proceeding straight through. The proposed road pattern has been reviewed by our traffic planner and engineers who advise that the proposed road geometry is suitable.
There will be substantial de-valuation of property as a result of the road pattern changes (Property no. 3)	• The DCP amendment will remove a section of proposed road shown over the existing dwelling. Following this, a suggested Planning Proposal will rezone that part of the land from SP2 to R2. There is no evidence to suggest this will impact negatively on property values. • The proposed road pattern changes are seen as an improvement to the ILP and the development potential of the area and therefore it is likely that the valuation of the property will be higher. • As far as possible, the proposed road pattern and corresponding zone boundary variations will maximise development yield, taking into account existing environmental constraints. • Where land is to be acquired for a public purpose such as trunk drainage, the Just Terms Compensation Act 1991 provides that the amount of compensation will be not less than the market value of the land (unaffected by the zoning) at the date of acquisition. • There is no evidence to suggest that the proposed road pattern changes will devalue properties.

Objection	Response
The ILP should retain and use the original alignment of Brighton Street, i.e. the way it was before the ILP shifted Brighton Street to the north when the rezoning of the Riverstone Precinct occurred under the Growth Centres State Environmental Planning Policy (SEPP) in 2010 (Property no. 2)	• The existing Brighton Street road reserve is both flood prone and contains significant vegetation that must be retained as part of a riparian corridor. • We consulted with the Office of Water to see whether there was any opportunity to reduce the physical extent of the drainage zone and riparian corridor that extends over Brighton Street. • The Office of Water confirmed that it would be acceptable to remove only a short section of riparian land to the north of existing Brighton Street. The DCP amendment reflects this advice. • The exhibited plan therefore represents a compromise between maximising developable land and the need to balance water cycle management with environmental outcomes.
Although the exhibited plan may have merit, an alternative plan could be more sympathetic to existing residences and still achieve an equal or superior overall design outcome (Property no. 2)	• The exhibited plan is based on technical studies undertaken at the precinct planning stage, along with further detailed investigations by our engineers to prepare detailed drainage design plans. • The exhibited plan is considered to be appropriate as it will benefit council by reducing the amount of land to be acquired for drainage purposes, while at the same time benefiting affected landowners by increasing the development potential of their land.

5. Issue raised by a supporter

Comment	Response
Inconsistent zoning information has been provided to prospective purchasers of Lot 2 Bligh Street. These purchasers have withdrawn from the sale of the land as a result of the information provided by Council (Property no. 4)	Upon finalisation of the DCP amendment, a Planning Proposal is recommended to proceed to vary the zone boundary between the SP2 and R2 zones to reflect the new road pattern. This will resolve any confusion surrounding the zoning of land

6. Suggested Planning Proposal

- a. A Planning Proposal to vary the zone boundary between the SP2 and R2 zones is required to support the DCP amendment. This will particularly benefit lots fronting Bligh Street which currently have an infrastructure zoning preventing housing development. It will also mean that we do not have to acquire land that is not needed for a drainage purpose.

Context

1. Proposed future road patterns are shown on the Indicative Layout Plan

- a. Proposed future road patterns for the Riverstone Precinct are shown on the Indicative Layout Plan (ILP) in Schedule 1 of the *Blacktown City Council Growth Centre Precincts DCP 2010*.

2. We have delegation to amend the Growth Centres DCP

- a. The Secretary of the Department of Planning and Environment has issued an Instrument of Delegation that enables us to prepare and exhibit draft amendments to the Growth Centres DCP.

Approval

	Name and position
→ Report author	McDermott F., Team Leader Release Areas
→ Endorsed by	Shannon C., Manager Strategic Planning
→ Director approval	Glennys James, Director Design & Development
	Signature:
→ General Manager approval	Kerry Robinson, General Manager
	Signature:

Attachments

Ref	Description	Files
1		 A1DD350060.pdf
2		 A2DD350060.pdf
3		 A3DD350060.pdf
4		 A4DD350060.pdf

Recommendations

Report	1. Support the amendment to the Blacktown City Council Growth
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Recommendation	Centre Precincts Development Control Plan (DCP) 2010 as shown on the plan at attachment 1. 2. Forward the amended draft Development Control Plan (DCP) to the Secretary of the Department of Planning and Environment at least 15 days before the DCP is made in accordance with the Instrument of Delegation given to Council. 3. Note that the DCP road pattern amendment will come into effect following publication of a notice in the local newspapers. 4. Prepare and forward a Planning Proposal to the Minister for Planning and Environment seeking a Gateway Determination to vary the zone boundary between the SP2 Infrastructure (Drainage) zone and the R2 Low Density Residential zone, as shown on the plan at attachment 2, to reflect the new DCP road pattern.
Committee Recommendation	1. That this matter be deferred for a review of the proposal by an independent engineering consultant and resubmitted to a future Council meeting. 2. It be noted that Messrs. F. Carrabetta and C. Gough, objectors, were received by the Planning & Development Committee between 6.41 p.m. and 6.50 p.m.
Committee Division	Supported: Pendleton; Lowles; Bleasdale; Bali; Dickens; Donaldson; Siljeg; Robinson Opposed: White Absent: Atalla; Benjamin; Kelly; Holmes; Smith; Diaz
Council Resolution	1. That this matter be deferred for a review of the proposal by an independent engineering consultant and resubmitted to a future Council meeting. 2. It be noted that Messrs. F. Carrabetta and C. Gough, objectors, were received by the Planning & Development Committee between 6.41 p.m. and 6.50 p.m.
Council Division	Supported: Bleasdale; Lowles; Atalla; Bali; Pendleton; Dickens; White; Donaldson; Siljeg; Holmes; Diaz Absent: Benjamin; Kelly; Smith; Robinson

ZONE INDEX



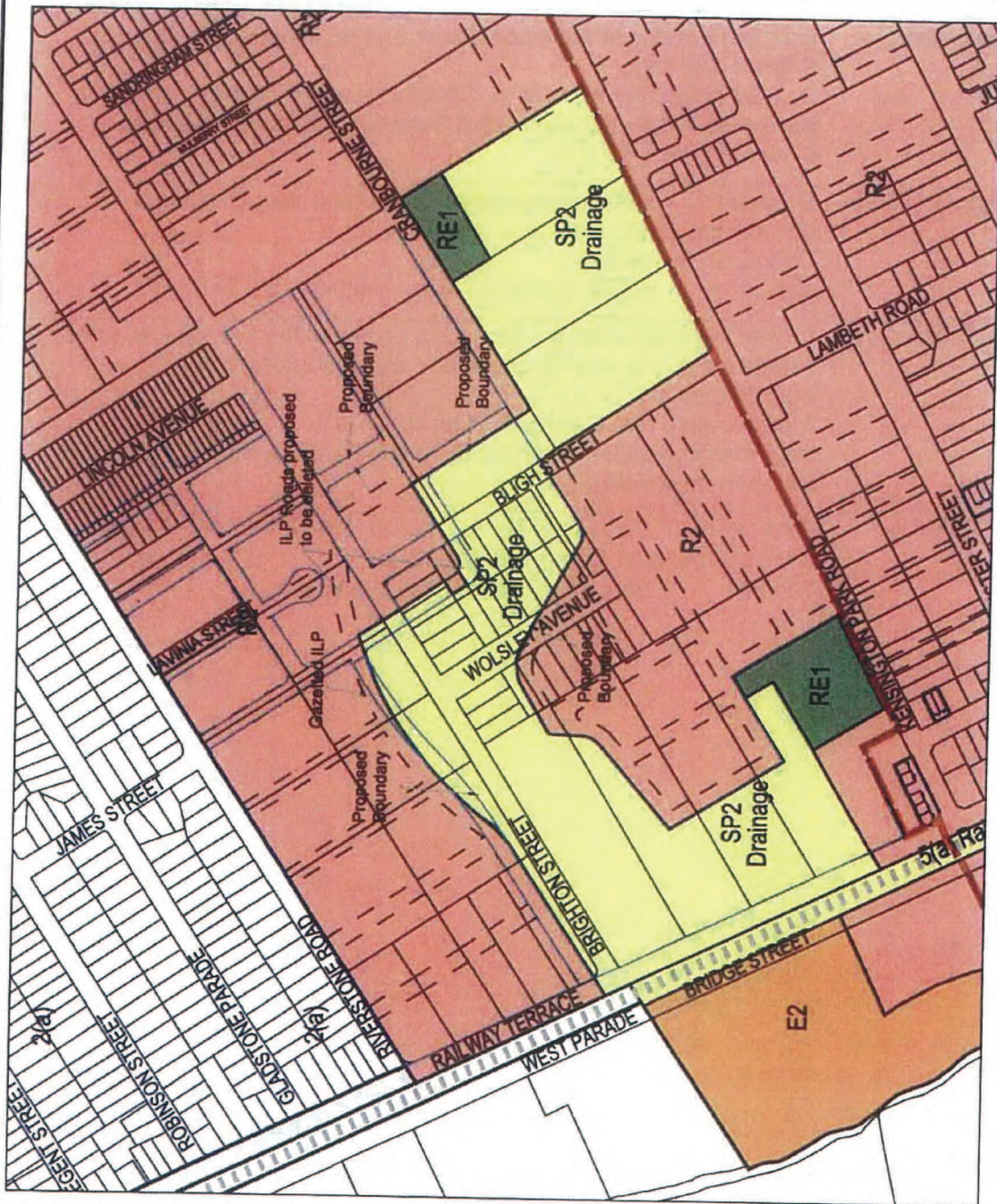
For Adoption

Existing local
road pattern

Proposed road
pattern
amendment

Draft DCP

PROPOSED AMENDMENT TO BCC
GROWTH PRECINCTS DCP 2010



Plot Date: 31/03/2015

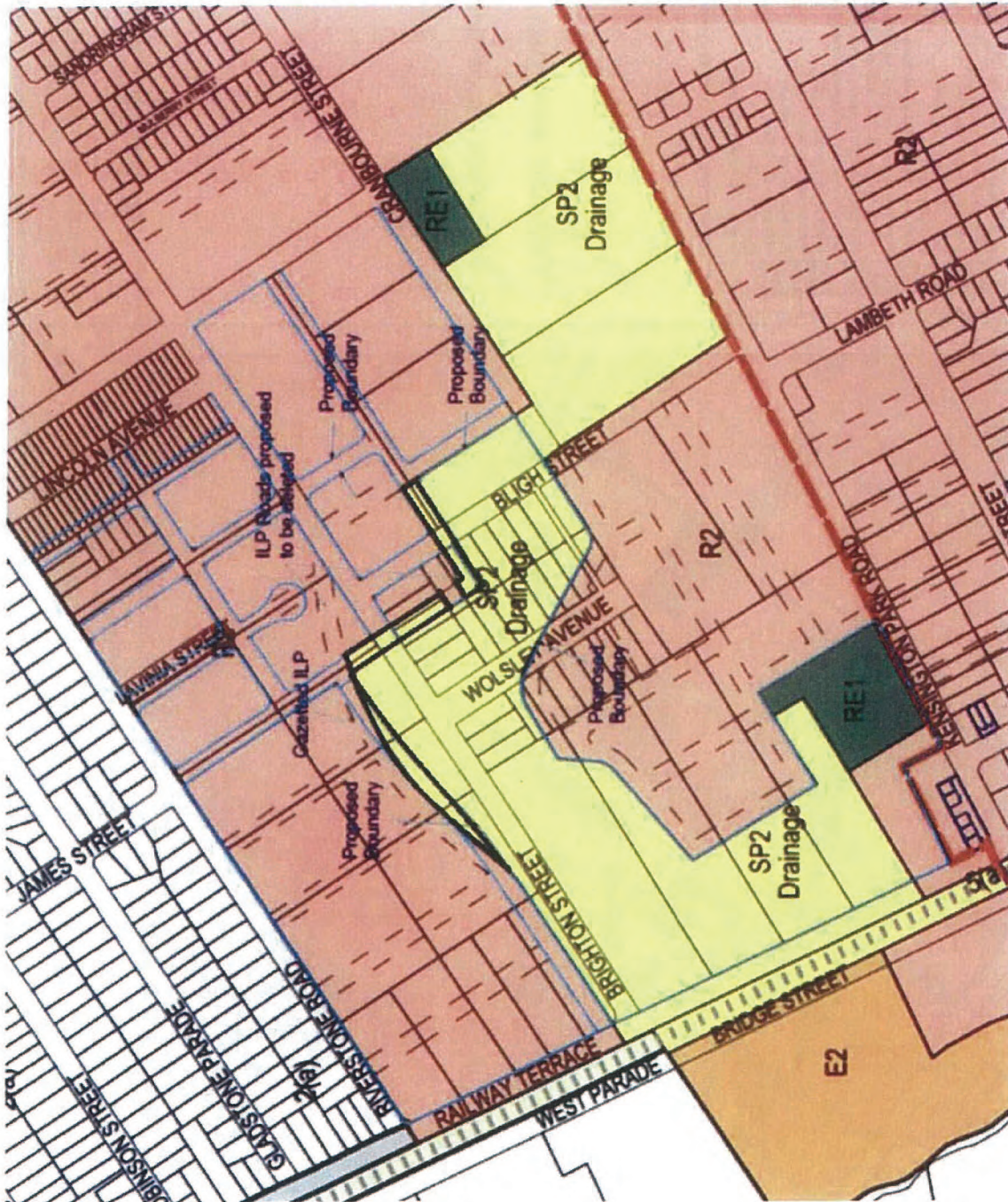
Scale
1:6000

County
Cumberland

Locality

Parish

NOTE: Do not scale from this map. Use D.P. information for accurate dimensions.



Proposed zone boundary variations

Rezoned from SP2 Drainage to R2 Low Density Residential

Future Planning Proposal

ZONE INDEX

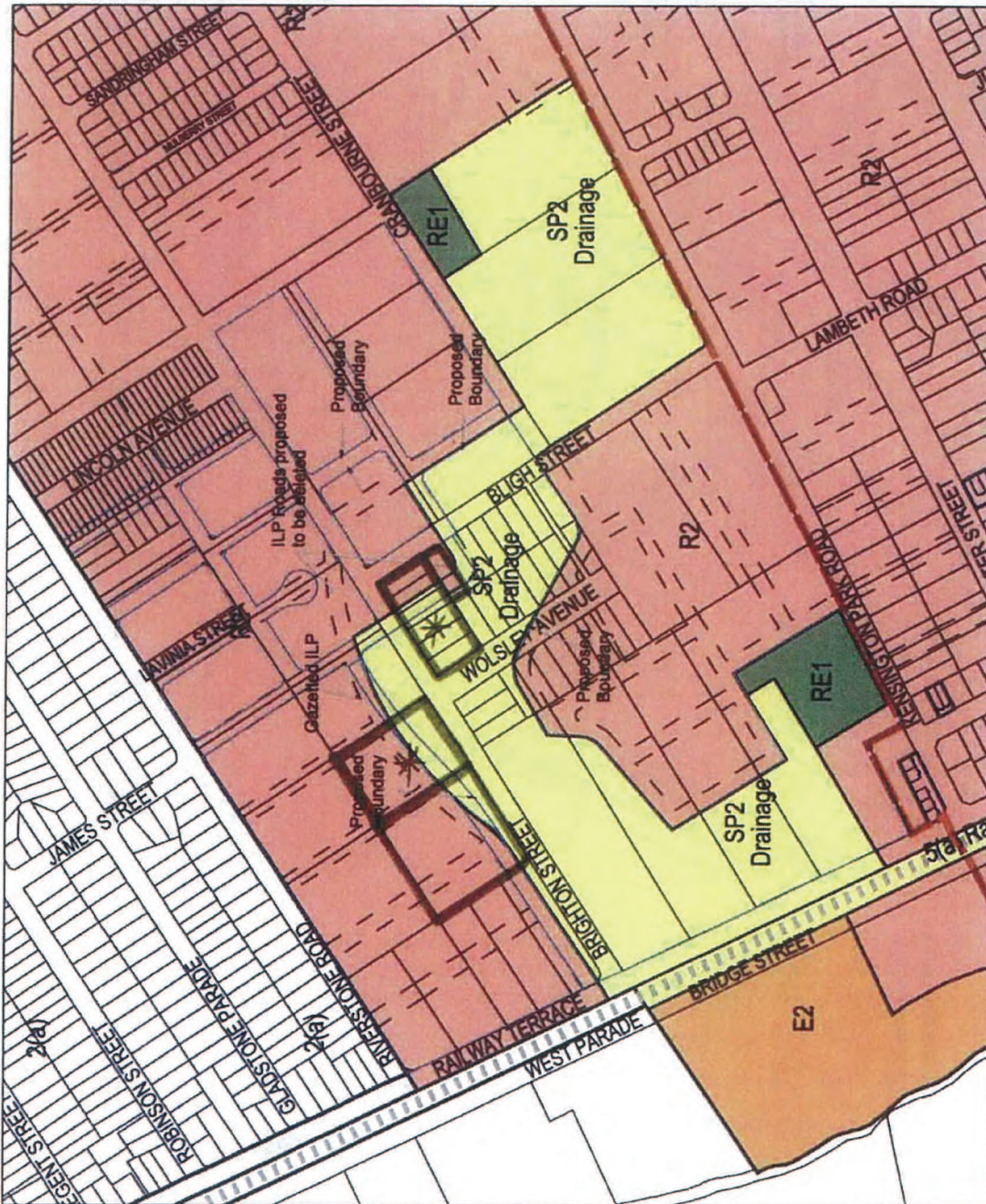


*Objectors' properties
 Supporters' properties

Draft DCP

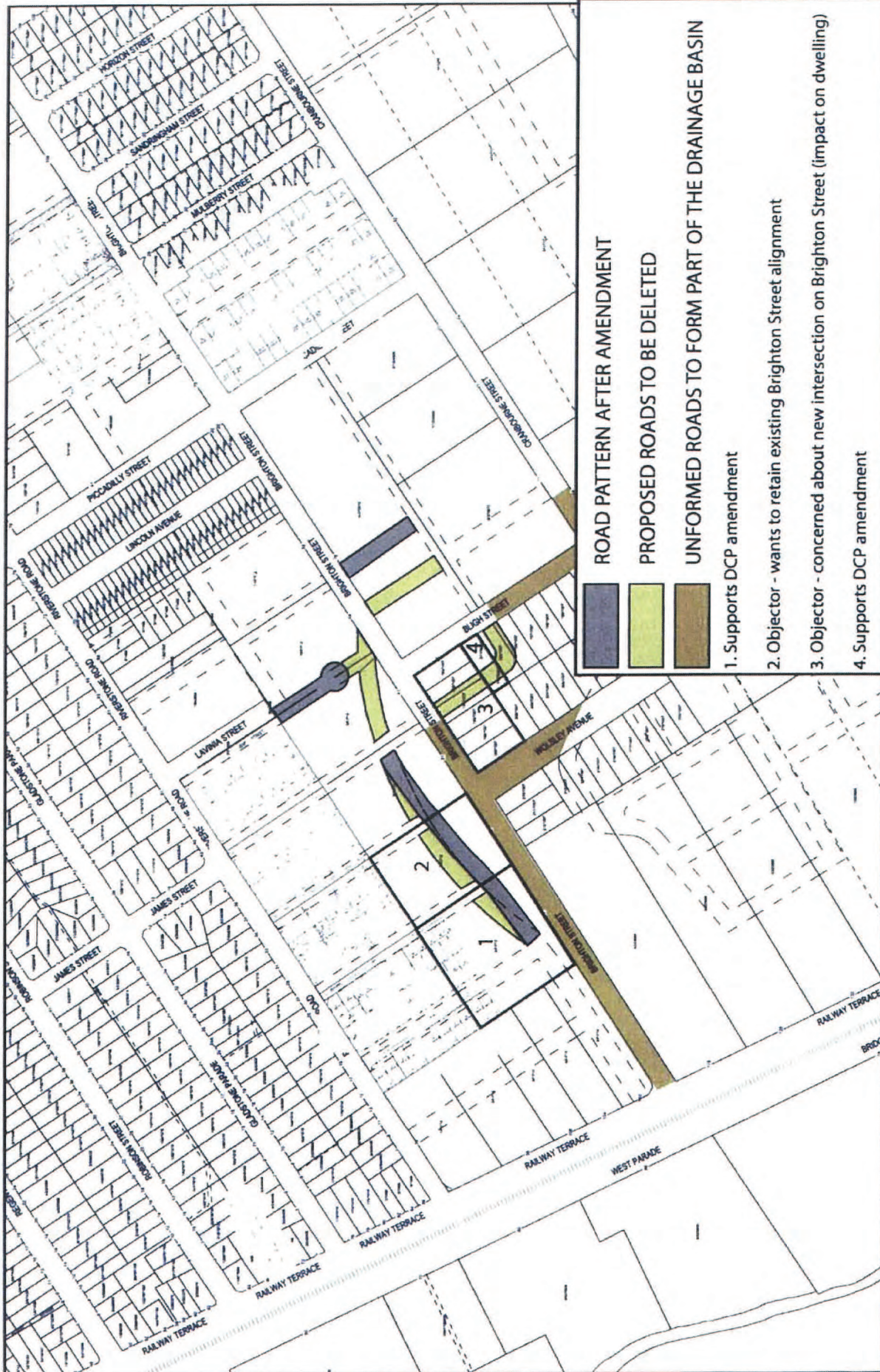
PROPOSED AMENDMENT TO BCC
 GROWTH PRECINCTS DCP 2010

NOTE: Do not scale from this map. Use D.P. information for accurate dimensions.



Plot Date: 31/03/2015

Locality	Scale	County
Parish	1:6000	Cumberland



COMPLETE



REVIEW OF PROPOSED ROAD PATTERN AMENDMENT BRIGHTON STREET. RIVERSTONE

ASSESSMENT OF AMENDED ROAD PATTERN

Assessment of road design options adjacent and inclusive of
Brighton Street, Bligh Street including influence of overland
flow path.

Reference Number : VP43781

Complete Urban Pty Ltd
Suite 3/10 Regent Street
Chippendale NSW 2008

Version (1): (15/03/16)



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**ARCHITECTURE
LANDSCAPE
ENGINEERING
MANAGEMENT**

1 EXECUTIVE SUMMARY

Blacktown City Council exhibited a proposed Development Control Plan (DCP) amendment to the Indicative Layout Plan (ILP) for Riverstone as part of the 2010 DCP.

The original ILP was designed to guide the development in this release area.

The proposed DCP amendment was instigated at the request of a landowner.

The proposed DCP amendments are generally minor in nature and maximise the retention of existing roads.

Submissions have been received from property owners in the area related to these proposed amendments.

This report assesses the proposed road amendments taking into account these submissions while being based on current Engineering design standards and Planning Practices that takes account of Engineering and Environmental standards and overall Community benefit and safety.

The proposed DCP amendments deliver practical and improved development outcomes while still addressing environmental and planning constraints.

2 BACKGROUND

The North West Growth Centre has accelerated the future development in this part of Blacktown. In the interests of providing for the growth of greater Sydney the North West Growth Centre will facilitate an increase of land for Sydney's Future.

A part of the growth area is The Riverstone Precinct which has already seen growth but is now to see much more.

As advised by Council and the "Department of Planning and Environment" (DPE):

Precinct planning for the Growth Centres Alex Avenue and Riverstone precincts was completed in 2010. The precinct planning involves the preparation of:

1. An Indicative Layout Plan (ILP) to guide planning and assessment of the precincts;
2. Technical reports and assessments to inform the planning outcome;
3. A precinct planning report summarising the proposed approach to developments;
4. A Development Control Plan (DCP);
5. A Section 94 Contributions Plan; and
6. An amendment to State Environmental Planning Policy – Sydney Growth Centres to facilitate the formal rezoning.

Since that time the following issues have been recognised:

7. As can be seen, the original plan was based generally on the residential grid system that maximises the yield of rectangular blocks within a rectangular grid of intersecting roads with the exception of a new curved deviation (cf Brighton Street.)
8. In certain areas, overland flow paths criss cross the residential grid pattern that allows for natural drainage across the area as indicated in the Riverstone Precinct Water Cycle Management Strategy that helped to inform the Indicative Layout Plan (ILP) for the precinct.

9. When developing the 2010 plan certain indicative geometry was provided in an early attempt to facilitate the drainage riparian and traffic functions of the area within the residential grid layout as mentioned above. This was sufficient for the Indicative Layout Plan (ILP) and DCP of the day.
10. Now that the development is being considered in more detail the Indicative Plan Layout (ILP) must be reviewed and must be considered in the context of practical Engineering and Environmental design principles.
11. These include Traffic Engineering, Road Safety considerations, overland flow paths during appropriate storm event return intervals and riparian zone corridors.
12. Once the detail design of these are built into the actual road and lot geometry and overlain over the drainage requirements for the area, a more practical, safe and harmonious design was needed that better serves the area from a traffic, road safety, drainage, geometry and WSUD perspective.
13. The opportunity was also taken to amend the detail of adjacent roads to also comply with contemporary Engineering Road Design Practice by relocating short lengths of road to improve geometry and comply with standards.
14. This report explores the history, development plan origins as well as the need to rationalise the design for an optimum, safe and practical layout.

3 INTRODUCTION TO PLANNING CONTEXT

Riverstone Precinct is located in the Blacktown local government area in the North West Growth Centre. (Figure1).

The precinct is 656 hectares and is bounded by Schofields Road to the south, Windsor Road to the east, Bandon Road to the north and the Richmond Rail Line to the west.

Also shown at:

<http://www.planning.nsw.gov.au/enus/deliveringhomes/priorityprecincts/prioritygrowthareasandprecincts/northwestprioritylandreleasearea.aspx>

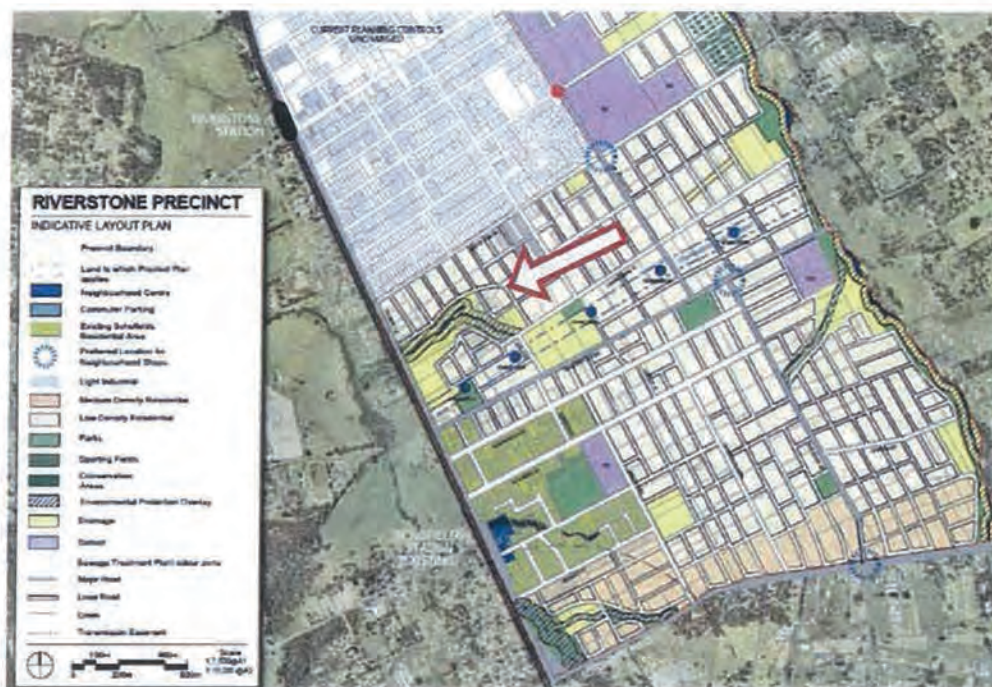
The precinct planning is supported by:

See Appendix A

These studies identified the main constraints and opportunities for development in the Riverstone Precinct.

BCC prepared a S94 Contributions plan to deliver the local infrastructure to support the development of the Riverstone Precinct.

The particular area in question is Brighton Street near Bligh Street as shown on Figure 1 and is designated as Riparian Corridor number T 14. (See arrow on Figure 1).



Arrow showing location of site in question as displayed on the Riverstone Precinct Indicative Layout Plan (ILP) in the BCC Growth Centre DCP 2010.

Figure 1: Growth Centre DCP 2010

The precinct planning requirements for Riparian Zone Corridors is described in the: "Alex Avenue and Riverstone Precinct Planning Part 2 of 3: Riparian Assessment" by GHD dated July 2008.

This study identified a category 2 watercourse and a short section of category 3 watercourse within the study area. A category 2 watercourse comprises - 20 metre wide riparian zone + 10 metre wide 'vegetated buffer', measured from top of bank. Since the precinct planning was complete in 2010, the NSW office of Water issued new riparian guidelines in 1st July 2012. The guidelines are based on stream order and delete the vegetated buffers previously included. They also allow modification of first order stream. BCC obtained in principle support for the deletion of the short section of the first order stream in Brighton Street subject to retaining the main creek and offsetting the area removed. The main reason for the curved deviation of Brighton Street was to retain the short section of riparian corridor.

The resulting amended design is shown in Figure 2 below. To facilitate the amendment of the DCP the normal process was followed. The DCP amendment was publicly exhibited for 28 days from 28 April to 26 May 2015. In response Council received a total of 6 submissions. Two submissions were from public authorities, two were landowner submissions in support and two were landowner submissions objecting to the proposal.

The Council objective is to seek the adoption of the Growth Centres Development Control Plan (DCP) amendment to the road pattern around Brighton and Bligh Streets, Riverstone as shown on Figure 2.

COMPLETE Urban agrees that the proposed DCP amendment to reconfigure future roads will make better use of land that is no longer required for a Riparian purpose, will maximise the use of existing public roads and deliver a more practical development outcome.

4 DESCRIPTION OF ILP ROAD GEOMETRY AND PROPOSED AMENDMENT

The street road geometry as proposed in the 2010 LEP involved a large curved radius layout that simply moved the original straight line of Brighton Street to a road boundary to the north to skirt around a nominal watercourse route.

The geometry provided some anomalous aspects that need to be addressed. These are addressed below.

The simplistic radius curved road geometry was probably sound at the time to recognise the general line of the Riparian Corridor T14 in the 2008 GHD Riparian Assessment report. This location is not the low point and took no account of safe road design geometry.

The curve based on a simple radius crosses the adjacent road. This will not meet the requirements of current safe design of trafficable roads. The simple radius curve makes this land difficult to develop through poor geometry. It is also not clear as to who would have the opportunity to buy and develop the existing dedicated roads.

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The opportunity has also been taken to incorporate the edge road to within the drainage zone as a result of the drainage design by Councils Engineers. This occurred following issues raised by a property owner in Brighton Street about the extent of the drainage zone in the area.

Council agreed and sought to amend the plans with the NSW Office of Water. The Office of Water agreed in January 2014 to the removal of a short section of riparian land to the North of Brighton Street to be removed. This is being replaced nearby but will not impact on properties as it will be located on flood prone land.

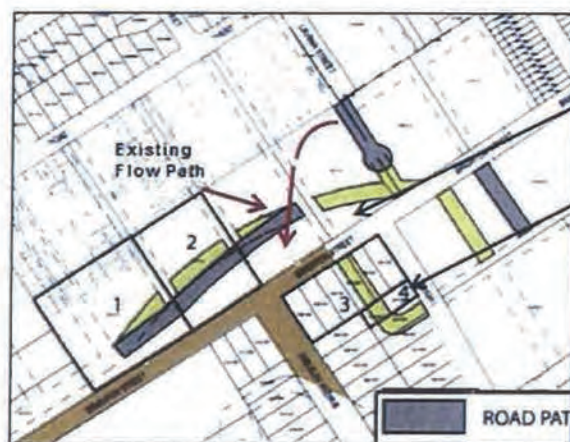
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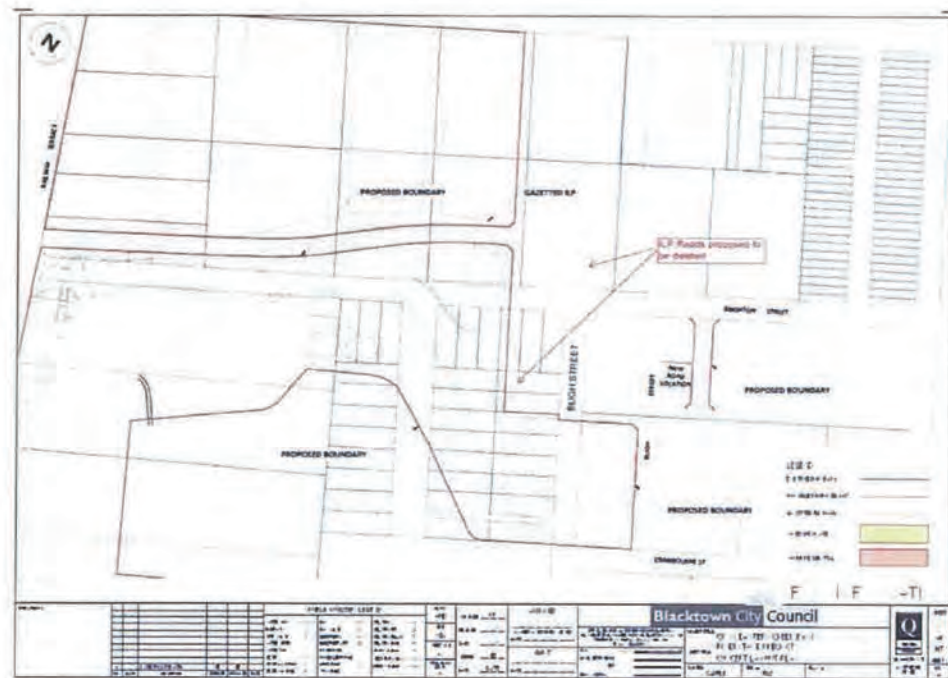


Figure 3 : CPO Eastern Creek Basins RIVERSTONE PRECINCT CONCEPT LAYOUT PLAN

5 COMMUNITY AND GOVERNMENT DEPARTMENT SUBMISSIONS AND RESPONSES

A total of 6 submissions were received.

5.1 PROPERTY OWNER OBJECTIONS.

The following submissions against were received from nearby property owners. (Note: the numbers quoted relate to the numbers shown on Figure 2).

1. Property 2:

a. The ILP should retain and use the original alignment of Brighton Street, i.e. the way it was before the ILP shifted Brighton Street to the north when the rezoning of the Riverstone Precinct occurred under the Growth Centres State Environmental Planning Policy (SEPP) in 2010.

b. Although the exhibited plan may have merit, an alternative plan could be more sympathetic to existing residences and still achieve an equal or superior overall design outcome.

Note: The existing Brighton Street unformed Road Reserve is Flood Prone. It has been nominated as a riparian corridor.

2. Property 3:

a. The proposed location of the raingarden basin is inappropriate having regard to the topography and catchment.

b. The property at 37 Bligh Street will be adversely affected by the detention basin.

c. The amenity of 37 Bligh Street will be negatively affected by the closure of Brighton Street and the creation of a corner immediately adjacent to the dwelling.

d. The realignment of Brighton Street to a corner in close proximity to the Bligh Street corner is inappropriate and dangerous.

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Notes: The raingardens being provided will be landscaped and will include Bio located inlets to the riparian corridor to achieve water quality outcomes. The location of the intersection is appropriate and complies with minimum intersection separation as per Councils standards. A better yield will result due to the amended road pattern. The submission also made reference to some historical filling in the area. This was considered as part of the analysis, however was not assessed as a substantive issue for the road pattern amendment due to the proposed overland flow path design which will resolve any matters of concern.

5.2 ISSUE RAISED BY A SUPPORTER:

Two submissions noted general support for the proposed change.

a. Inconsistent zoning information has been provided to prospective purchasers of Lot 2 Bligh Street. These purchasers have withdrawn from the sale of the land as a result of the information provided by Council.

Note: this is outside the scope of this study.

All of the issues raised above have been assessed and are addressed in the Conclusions and Recommendations below.

5.3 Public authority submissions

a. **Sydney Water** noted that a 100 mm water main in Brighton Street may be affected by the road pattern changes. They advise that this can be dealt with by following its Asset Adjustment and Protection Manual.

It is noted that an objector pointed out that a 600 mm dia water main exists on the south side of Cranbourne Street and turns to the east side of Bligh Street. This area is outside of the proposed DCP change.

b. The **Department of Planning and Environment** advise that there were no objections to the proposed road pattern Amendment.

It is also noted that other agencies such as NSW Primary Industries, Fishing and Aquaculture, and like organisations were notified. However these did not make any submissions.

6 ROAD DESIGN STANDARDS

The applicable standards to be used to assess such a road design are incorporated in the Austroads Design Guides. "Austroads" (the Association of Australasian road transport and traffic agencies) consists of all of the Australian Road Authorities that have joined together to provide quality, uniform and detailed design guides for application across Australia.

In regard to Road Design, The AUSTROAD Guides state:

The objectives of new and existing road projects should be carefully considered to achieve the desired balance between the level of traffic service provided, safety, whole-of-life costs, flexibility for future upgrading or rehabilitation and environmental impact.

Specific objectives related to geometric road design are listed below:

- provision of a road that is safe to travel on for all road users at the appropriate travel speeds, and a roadside that reduces the incidence and severity of crashes.
- maintenance of a degree of uniformity, particularly across administrative boundaries to
- provide a consistent and operationally effective driving experience relative to the functional class of road
- development of economically efficient designs to maximise the limited funds available for road construction and maintenance
- adequately provide for the future requirements of the road network
- cater for the types of vehicles expected to use the road
- mitigation of environmental impacts (during construction and operation) both in the immediate vicinity of the road and over a wider area.

The Broad Road Design Process shown as a flow chart is attached on Figure 3 below.

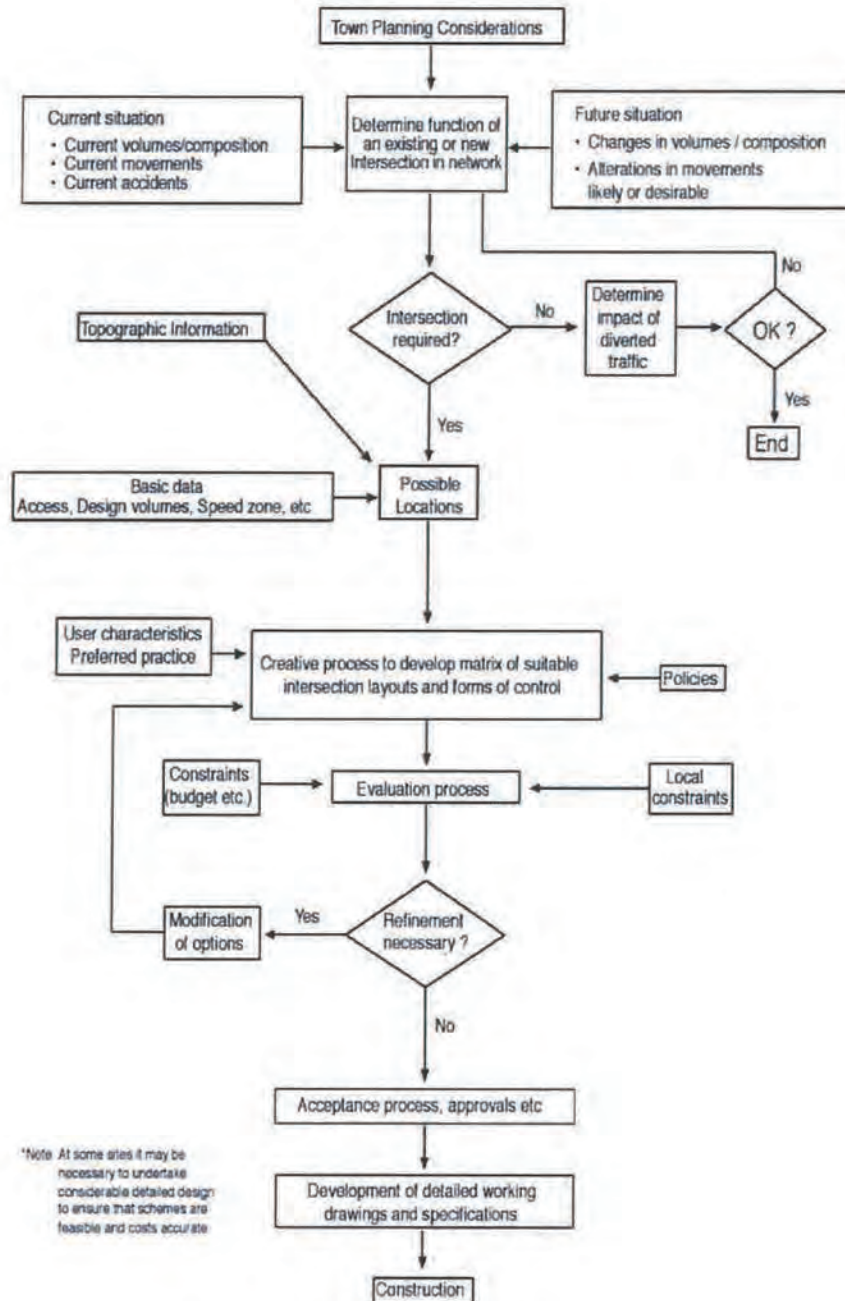


Figure 4: Road Design Process

More specifically the Austroads "Guide to Road Design" Parts state as follows:

Part 2 Design Considerations

2.2.1 Horizontal Alignment

1. Establish the alignment of the approaches. Straight and flat alignments are ideal. Where it is necessary for a road to change direction as it passes through an intersection the tangent points for the horizontal curve should be located (i.e. locate tangent points) on approaches some distance from the intersection (rather than have a sharp change in direction at the intersection).
2. Align the side road to intersect the major road at 90° and a straight on the immediate approach.

Part 3 – Geometric Design:

3.1 Factors affecting design decisions

3. A range of factors influence design choices for road projects. Design characteristics and values adopted must provide a satisfactory service to roads users and be economically viable within the financial, topographical and environmental constraints that may exist.

Austroads also nominate the following requirements:

4. Road centrelines should be designed to intersect as close to 90° as possible so that driver observation angles to potentially conflicting vehicles are satisfactory. This is particularly important for older drivers who may have limited ability to turn their head and neck to observe potentially conflicting traffic (Veith 2004).
5. On local roads staggered T treatments can be used as a measure to reduce the 'permeability' of the area for through traffic.

6.1 APPLICATION TO THE ROADS IN QUESTION AND ASSOCIATED COMMENTS.

The adopted ILP road alignment for Brighton Street includes curved and angled approaches to intersections which is not consistent with the Austroad recommendations for approaches to intersections being straight and square. The proposed amendment by Council is consistent with Austroads guidelines.

The DCP identifies all roads in the study area as Local roads. The nominal speed limit will be 50km/hr. (See Section 3 of Councils Engineering Guide for development.)

It is deemed from our own experience and expertise in road design that both the revised road design amendment of Brighton Street and the deletion and addition of minor roads shown in Figure 2 comply within the detail and intent of sound Engineering principles as well as the authoritative Austroad Design Guides.

An objection raised by Property Owner "3" however to the development of a corner at Brighton Street and Bligh Street does raise an issue worthy of note. This corner is certainly not inappropriate nor dangerous however as a right angle bend it is recommended that Council pay close attention to the intersection geometry and swept paths when this section of road is designed taking account of the adjacent property.

The intersection separation distance is within the order of 32 meters which is considered acceptable and consistent with Council standards.

7 PLANNING CONSIDERATIONS

It is also appropriate to take account of basic planning consideration. A basic square grid pattern optimises block sizes and appropriate dimensions to suit residential lots. The grid pattern also facilitates permeability and access for residents. When local roads front only public reserves, passive surveillance is also improved. Finally the Rural Five Service also prefer local roads fronting public reserves to improve the asset protection zone (APZ) to residential property.

8 RIPARIAN ZONE CORRIDOR ISSUES

The "Alex Avenue and Riverstone Precinct Planning, Part 2 of 3 Riparian Assessment" report 2008 by GHD identifies the proposed riparian corridors to be retained in the precinct planning. These were assessed on the guidelines at the time and are shown on the adopted ILP. The guidelines at the time of precinct planning include a core riparian zone (CRZ) and a Vegetated Buffer (VB). The width of these is based on a watercourse category.

The location of the riparian land required the realignment of the Brighton Street Road reserve as shown on the ILP. Since the gazettal of the Riverstone Precinct new riparian guidelines have been issued by NSW Office of Water (NSWOW, 2012.). These changed the method of classifying watercourse and the width of the riparian land primarily by deleting the Vegetated Buffer (VB). In response to a Land owner request Council consulted with NSWOW and received in principle agreement that the short section of riparian Land of T14 could be removed and offset within the drainage land. This provides opportunity to modify the road pattern as proposed by Council.

Council developed Concept designs of stormwater treatment basins that facilitates the riparian zone as well as the water sensitive Urban Design outcomes consistent with the precinct planning.

The resulting riparian zone corridor, stormwater detention basins and road network geometry are shown in Figure 4 below.

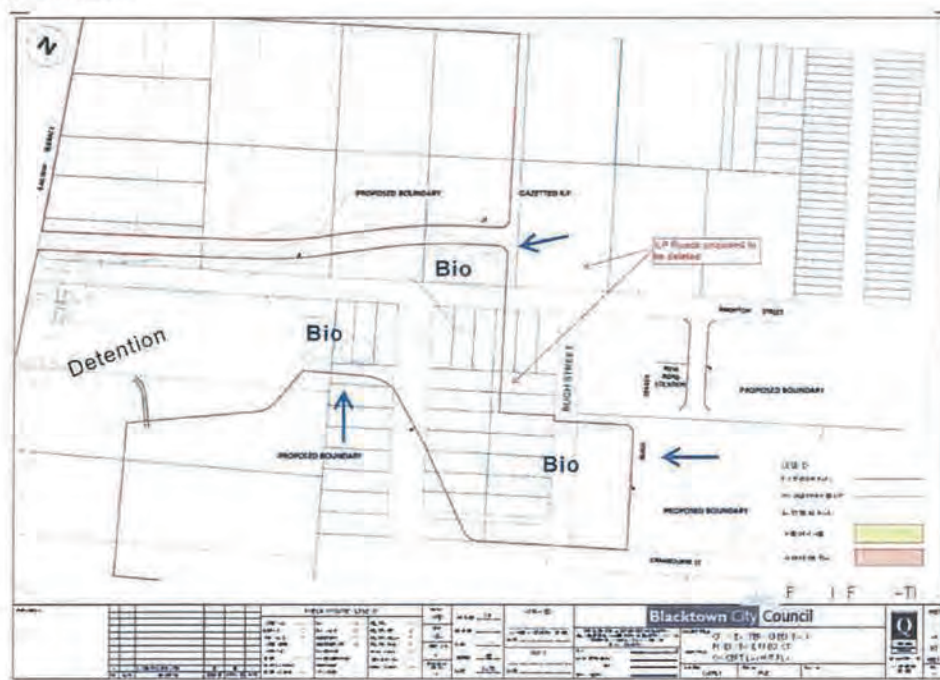


Figure 5 : Proposed Amended Road Pattern with Riparian Zone Corridor

9 SUMMATION OF ISSUES

When taking account the various factors assessed in this report it can be seen that competing priorities have been recognised however the status and sequence of events mitigates a number of these issues.

The 2010 ILP set out initial parameters for area based on standards and constraints at that time.

Changes in riparian guidelines have provided an opportunity to review the ILP and improve it to be compliant with road design standards.

The road layout has been reviewed alongside the objections received. The road layout has also been assessed in accordance with standard road design principles and in accordance with the requirements of the Austroad Guides. From a technical perspective the principles of traffic design have been applied appropriately to provide safe and manageable road system geometry in Councils proposed amendments.

It has been noted that care is needed for the final design of the right hand corner of Brighton and Bligh Streets however this is a relatively minor design detail to be taken into account when detail design is undertaken.

The riparian corridor and adjacent bio retention have been designed appropriately and will convey stormwater and normal flows through the residential area and accounts for all requirements in this regard.

The historical aspects of the area involving filling etc have been considered however they are not considered to be substantive enough to alter the practical nature of the design and the proper water course development and road design objectives sought to be achieved.

It has also been noted that no rezoning is required and only involves minor changes to the ILP. From a town planning perspective the amendment delivers more land for development and due to better shaped block, provides an improved yield. There is also a reduced net land cost to Section 94 Contributions Plan.

Due to the levels and the required water course grades as well as the upstream and downstream effects it is inappropriate to retain the original Brighton Street alignment as a road. Brighton Street is after all a low point in this area and sections of Land adjacent are subject to flooding. The amended riparian and road layout will contribute a great deal to improving this situation dramatically. The ILP curved alignment is not considered appropriate and a 90° intersection is preferred. The relocation and deletion of the minor roads is also recommended for the reasons stated above. Final details of these can be confirmed, with development proposals for the land. An attempt has been made to provide an equal or superior design however the horizontal and vertical constraints lead back to the proposed amended road pattern.

The proposed road geometry, riparian corridors and basins are located appropriately and are a good solution to optimising the property owners and the Council's (on behalf of the Community) objectives. The careful attention to the detailed design of the Brighton / Bligh Street intersection should however be addressed to ensure road safety is maintained.

10 CONCLUSION

Following an assessment of the issues associated with the comparison of the 2010 ILP as versus the current proposed road pattern amendment the primary concern is a sound Road Design and Road Safety outcome. The riparian and overland flow path parameters and detention basins that have also been arrived at taking account of current design standards are appropriate. It is considered that the proposed road pattern and corresponding zone boundary variations will maximise development yield, taking into account existing environmental constraints.

- The changes will benefit some affected landowners by delivering minor gains in developable area and deleting unnecessary new roads.
- The proposed road pattern changes will benefit Blacktown City and the broader community by reducing the cost of providing trunk drainage infrastructure funded through Section 94 contributions. Every opportunity should be taken to reduce such costs.
- The issues raised during the public exhibition are not sufficient enough to warrant changes to, or to not support, the draft amendments.
- The one exception to the above has been the recommended need to pay particular attention to the geometry and swept paths for vehicles travelling through the Brighton / Bligh Street Intersection to provide safe road geometry however this does not affect the DCP amendment.

The proposed DCP amendment therefore represents a reasonable compromise between maximising developable land and the need to balance water cycle management with environmental outcomes.

11 RECOMMENDATIONS

It is recommended that the proposed road pattern amendment to the DCP be adopted.

Review of proposed road pattern amendment Brighton Street, Riverstone **COMPLETE**



Current Panarama photo of Brighton / Bligh intersection

General photos near the Brighton Street area:



Appendix 1

SUPPORTING TECHNICAL DOCUMENTS AND REPORTS

The following identifies technical documents, studies, relevant legislation, and reports which have been used for researching this contributions plan:

- Macroplan Australia Pty Ltd (2007) *Riverstone & Alex Avenue Precincts Demographic Profile and Community Infrastructure Report*, November 2007, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2008) *Alex Avenue and Riverstone Precincts - Integrated Natural Environment Management Part 3 of 3: Water Sensitive Urban Design and Flooding Draft Report Part 3 of 3*, September 2008, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2008) *Alex Avenue and Riverstone Precinct Planning Part 2 of 3: Riparian Assessment* July 2008, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2010) *Riverstone and Alex Avenue Precincts – Post exhibition Flooding and Water Cycle Management (including Climate Change Impact Flooding)*, May 2010, prepared for the Growth Centres Commission.
- ARUP Pty Ltd (2007) *The Draft Riverstone & Alex Avenue Transport & Access Study*, prepared for the Growth Centres Commission.
- Road Delay Solutions (2009) *North West Growth Centres Indicative Layout Plan Revision Transport and Traffic Model Year 2036 report*.
- *Environmental Planning and Assessment Act 1979*.
- *Environmental Planning and Assessment Regulation 2000*.
- Department of Planning *Development Contributions Practice Note (July 2005)*.
- Growth Centres Commission (2006), *Special Infrastructure Contribution Practice Note*, December 2006.
- Growth Centres Commission (2006), *Growth Centres Development Code*, October 2006.

COMPLETE



REVIEW OF PROPOSED ROAD PATTERN AMENDMENT BRIGHTON STREET. RIVERSTONE

ASSESSMENT OF AMENDED ROAD PATTERN

Assessment of road design options adjacent and inclusive of
Brighton Street, Bligh Street including influence of overland
flow path.

Reference Number : VP43781

Complete Urban Pty Ltd
Suite 3/10 Regent Street
Chippendale NSW 2008

Version (1): (15/03/16)



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**ARCHITECTURE
LANDSCAPE
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MANAGEMENT**

1 EXECUTIVE SUMMARY

Blacktown City Council exhibited a proposed Development Control Plan (DCP) amendment to the Indicative Layout Plan (ILP) for Riverstone as part of the 2010 DCP.

The original ILP was designed to guide the development in this release area.

The proposed DCP amendment was instigated at the request of a landowner.

The proposed DCP amendments are generally minor in nature and maximise the retention of existing roads.

Submissions have been received from property owners in the area related to these proposed amendments.

This report assesses the proposed road amendments taking into account these submissions while being based on current Engineering design standards and Planning Practices that takes account of Engineering and Environmental standards and overall Community benefit and safety.

The proposed DCP amendments deliver practical and improved development outcomes while still addressing environmental and planning constraints.

2 BACKGROUND

The North West Growth Centre has accelerated the future development in this part of Blacktown. In the interests of providing for the growth of greater Sydney the North West Growth Centre will facilitate an increase of land for Sydney's Future. A part of the growth area is The Riverstone Precinct which has already seen growth but is now to see much more.

As advised by Council and the "Department of Planning and Environment" (DPE):

Precinct planning for the Growth Centres Alex Avenue and Riverstone precincts was completed in 2010. The precinct planning involves the preparation of:

1. An Indicative Layout Plan (ILP) to guide planning and assessment of the precincts;
2. Technical reports and assessments to inform the planning outcome;
3. A precinct planning report summarising the proposed approach to developments;
4. A Development Control Plan (DCP);
5. A Section 94 Contributions Plan; and
6. An amendment to State Environmental Planning Policy – Sydney Growth Centres to facilitate the formal rezoning.

Since that time the following issues have been recognised:

7. As can be seen, the original plan was based generally on the residential grid system that maximises the yield of rectangular blocks within a rectangular grid of intersecting roads with the exception of a new curved deviation (cf Brighton Street.)
8. In certain areas, overland flow paths criss cross the residential grid pattern that allows for natural drainage across the area as indicated in the Riverstone Precinct Water Cycle Management Strategy that helped to inform the Indicative Layout Plan (ILP) for the precinct.

9. When developing the 2010 plan certain indicative geometry was provided in an early attempt to facilitate the drainage riparian and traffic functions of the area within the residential grid layout as mentioned above. This was sufficient for the Indicative Layout Plan (ILP) and DCP of the day.
10. Now that the development is being considered in more detail the Indicative Plan Layout (ILP) must be reviewed and must be considered in the context of practical Engineering and Environmental design principles.
11. These include Traffic Engineering, Road Safety considerations, overland flow paths during appropriate storm event return intervals and riparian zone corridors.
12. Once the detail design of these are built into the actual road and lot geometry and overlain over the drainage requirements for the area, a more practical, safe and harmonious design was needed that better serves the area from a traffic, road safety, drainage, geometry and WSUD perspective.
13. The opportunity was also taken to amend the detail of adjacent roads to also comply with contemporary Engineering Road Design Practice by relocating short lengths of road to improve geometry and comply with standards.
14. This report explores the history, development plan origins as well as the need to rationalise the design for an optimum, safe and practical layout.

3 INTRODUCTION TO PLANNING CONTEXT

Riverstone Precinct is located in the Blacktown local government area in the North West Growth Centre. (Figure1).

The precinct is 656 hectares and is bounded by Schofields Road to the south, Windsor Road to the east, Bandon Road to the north and the Richmond Rail Line to the west.

Also shown at:

<http://www.planning.nsw.gov.au/enus/deliveringhomes/priorityprecincts/prioritygrowthareasandprecincts/northwestprioritylandreleasearea.aspx>

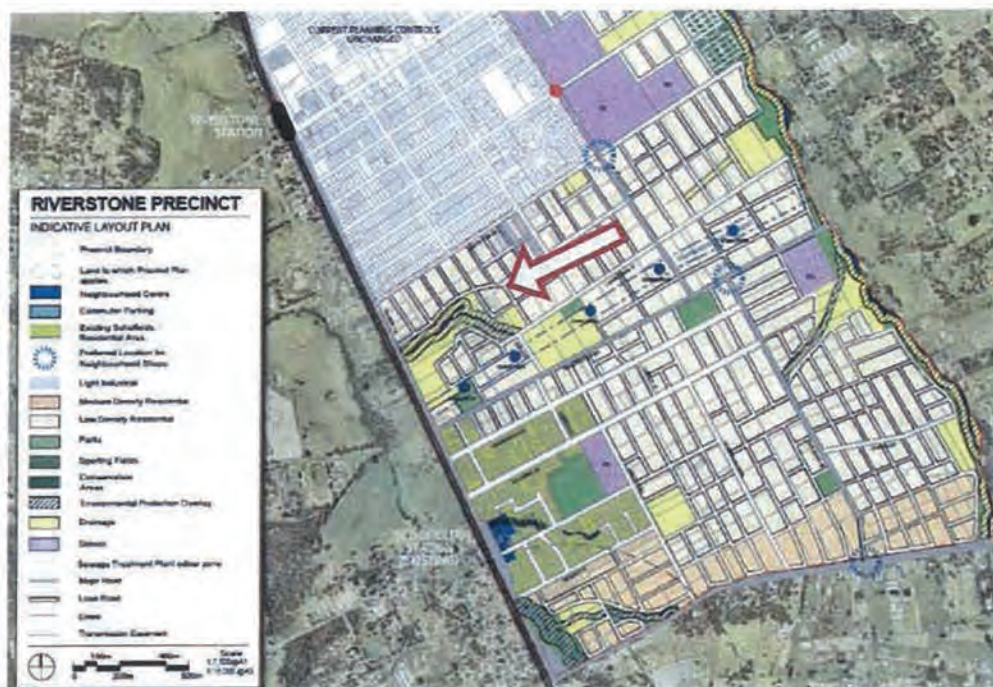
The precinct planning is supported by:

See Appendix A

These studies identified the main constraints and opportunities for development in the Riverstone Precinct.

BCC prepared a S94 Contributions plan to deliver the local infrastructure to support the development of the Riverstone Precinct.

The particular area in question is Brighton Street near Bligh Street as shown on Figure 1 and is designated as Riparian Corridor number T 14. (See arrow on Figure 1).



← Arrow showing location of site in question as displayed on the Riverstone Precinct Indicative Layout Plan (ILP) in the BCC Growth Centre DCP 2010.

Figure 1: Growth Centre DCP 2010

The precinct planning requirements for Riparian Zone Corridors is described in the: "Alex Avenue and Riverstone Precinct Planning Part 2 of 3: Riparian Assessment" by GHD dated July 2008.

This study identified a category 2 watercourse and a short section of category 3 watercourse within the study area. A category 2 watercourse comprises - 20 metre wide riparian zone + 10 metre wide 'vegetated buffer', measured from top of bank. Since the precinct planning was complete in 2010, the NSW office of Water issued new riparian guidelines in 1st July 2012. The guidelines are based on stream order and delete the vegetated buffers previously included. They also allow modification of first order stream. BCC obtained in principle support for the deletion of the short section of the first order stream in Brighton Street subject to retaining the main creek and offsetting the area removed. The main reason for the curved deviation of Brighton Street was to retain the short section of riparian corridor.

The resulting amended design is shown in Figure 2 below. To facilitate the amendment of the DCP the normal process was followed. The DCP amendment was publicly exhibited for 28 days from 28 April to 26 May 2015. In response Council received a total of 6 submissions. Two submissions were from public authorities, two were landowner submissions in support and two were landowner submissions objecting to the proposal.

The Council objective is to seek the adoption of the Growth Centres Development Control Plan (DCP) amendment to the road pattern around Brighton and Bligh Streets, Riverstone as shown on Figure 2.

COMPLETE Urban agrees that the proposed DCP amendment to reconfigure future roads will make better use of land that is no longer required for a Riparian purpose, will maximise the use of existing public roads and deliver a more practical development outcome.

4 DESCRIPTION OF ILP ROAD GEOMETRY AND PROPOSED AMENDMENT

The street road geometry as proposed in the 2010 LEP involved a large curved radius layout that simply moved the original straight line of Brighton Street to a road boundary to the north to skirt around a nominal watercourse route.

The geometry provided some anomalous aspects that need to be addressed. These are addressed below.

The simplistic radius curved road geometry was probably sound at the time to recognise the general line of the Riparian Corridor T14 in the 2008 GHD Riparian Assessment report. This location is not the low point and took no account of safe road design geometry.

The curve based on a simple radius crosses the adjacent road. This will not meet the requirements of current safe design of trafficable roads. The simple radius curve makes this land difficult to develop through poor geometry. It is also not clear as to who would have the opportunity to buy and develop the existing dedicated roads.

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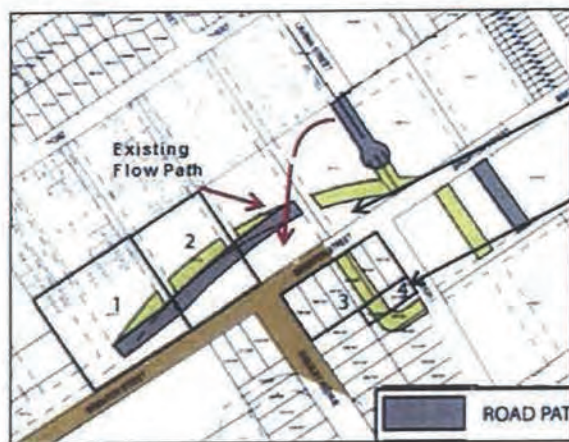
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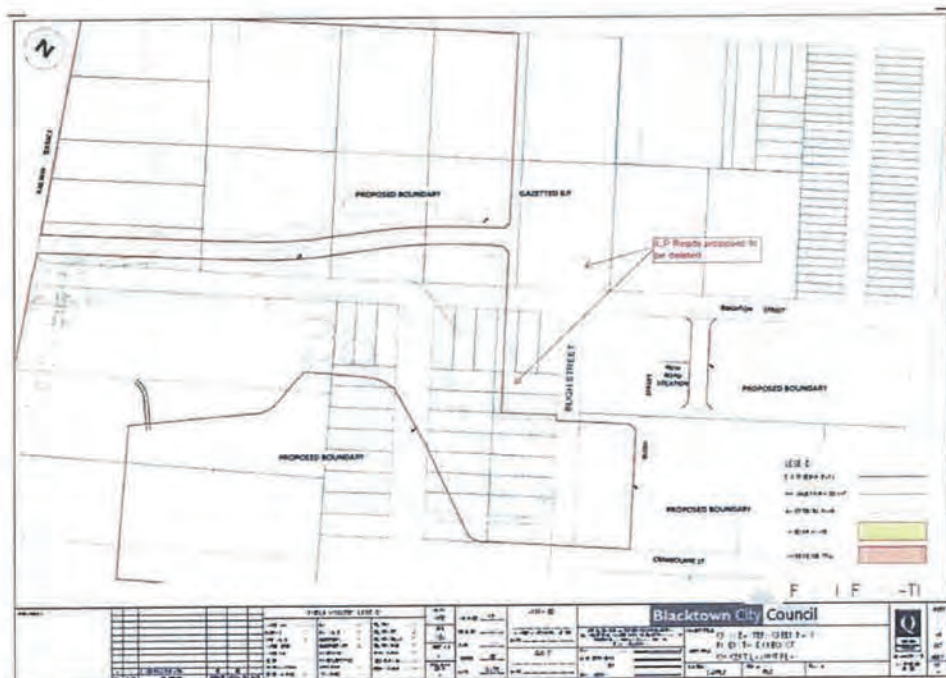


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5.3 Public authority submissions

a. **Sydney Water** noted that a 100 mm water main in Brighton Street may be affected by the road pattern changes. They advise that this can be dealt with by following its Asset Adjustment and Protection Manual.

It is noted that an objector pointed out that a 600 mm dia water main exists on the south side of Cranbourne Street and turns to the east side of Bligh Street. This area is outside of the proposed DCP change.

b. The **Department of Planning and Environment** advise that there were no objections to the proposed road pattern Amendment.

It is also noted that other agencies such as NSW Primary Industries, Fishing and Aquaculture, and like organisations were notified. However these did not make any submissions.

6 ROAD DESIGN STANDARDS

The applicable standards to be used to assess such a road design are incorporated in the Austroads Design Guides. "Austroads" (the Association of Australasian road transport and traffic agencies) consists of all of the Australian Road Authorities that have joined together to provide quality, uniform and detailed design guides for application across Australia.

In regard to Road Design, The AUSTROAD Guides state:

The objectives of new and existing road projects should be carefully considered to achieve the desired balance between the level of traffic service provided, safety, whole-of-life costs, flexibility for future upgrading or rehabilitation and environmental impact.

Specific objectives related to geometric road design are listed below:

- provision of a road that is safe to travel on for all road users at the appropriate travel speeds, and a roadside that reduces the incidence and severity of crashes.
- maintenance of a degree of uniformity, particularly across administrative boundaries to
- provide a consistent and operationally effective driving experience relative to the functional class of road
- development of economically efficient designs to maximise the limited funds available for road construction and maintenance
- adequately provide for the future requirements of the road network.
- cater for the types of vehicles expected to use the road
- mitigation of environmental impacts (during construction and operation) both in the immediate vicinity of the road and over a wider area.

The Broad Road Design Process shown as a flow chart is attached on Figure 3 below:

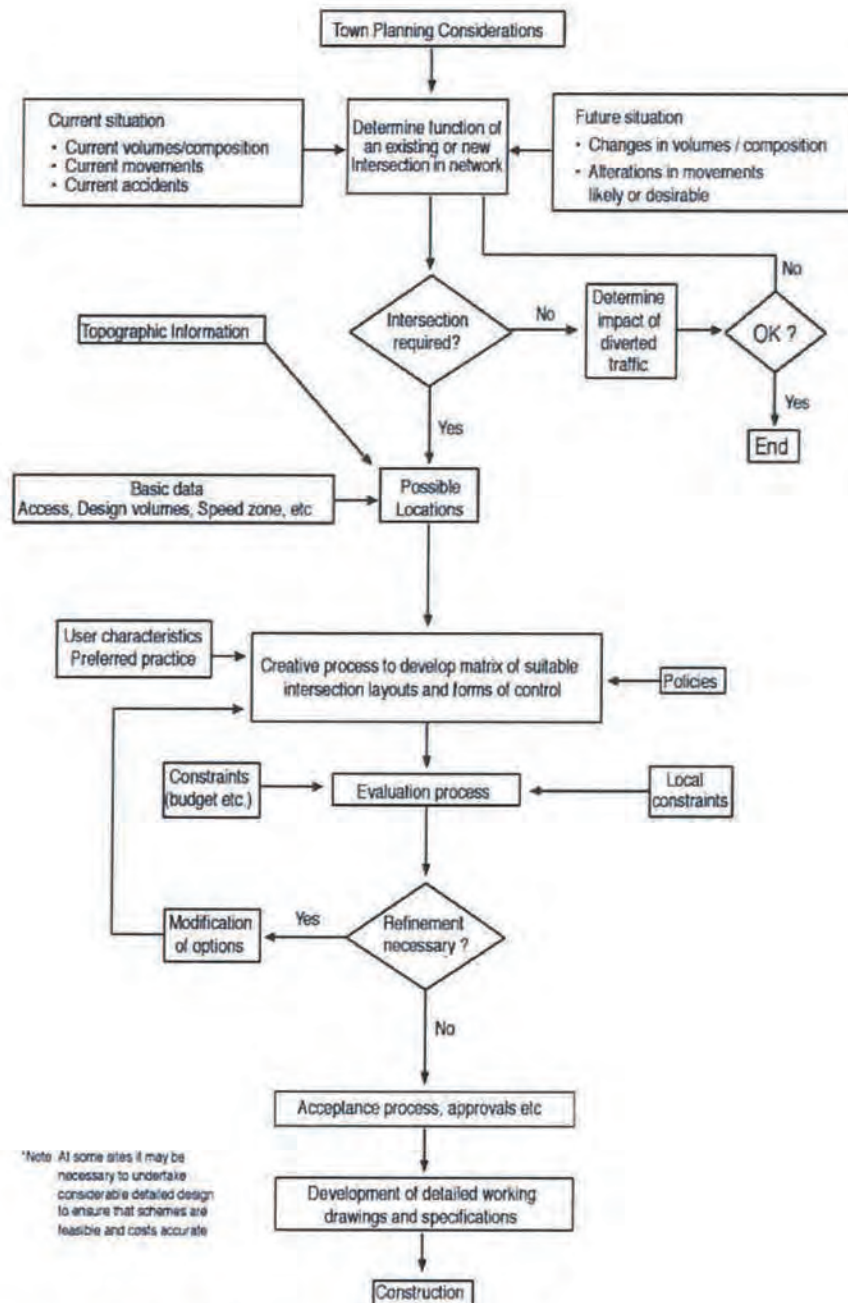


Figure 4: Road Design Process

More specifically the Austroads "Guide to Road Design" Parts state as follows:

Part 2 Design Considerations

2.2.1 Horizontal Alignment

1. Establish the alignment of the approaches. Straight and flat alignments are ideal. Where it is necessary for a road to change direction as it passes through an intersection the tangent points for the horizontal curve should be located (i.e. locate tangent points) on approaches some distance from the intersection (rather than have a sharp change in direction at the intersection).
2. Align the side road to intersect the major road at 90° and a straight on the immediate approach.

Part 3 – Geometric Design:

3.1 Factors affecting design decisions

3. A range of factors influence design choices for road projects. Design characteristics and values adopted must provide a satisfactory service to roads users and be economically viable within the financial, topographical and environmental constraints that may exist.

Austroads also nominate the following requirements:

4. Road centrelines should be designed to intersect as close to 90° as possible so that driver observation angles to potentially conflicting vehicles are satisfactory. This is particularly important for older drivers who may have limited ability to turn their head and neck to observe potentially conflicting traffic (Veith 2004).
5. On local roads staggered T treatments can be used as a measure to reduce the 'permeability' of the area for through traffic.

6.1 APPLICATION TO THE ROADS IN QUESTION AND ASSOCIATED COMMENTS.

The adopted ILP road alignment for Brighton Street includes curved and angled approaches to intersections which is not consistent with the Austroad recommendations for approaches to intersections being straight and square. The proposed amendment by Council is consistent with Austroads guidelines.

The DCP identifies all roads in the study area as Local roads. The nominal speed limit will be 50km/hr. (See Section 3 of Councils Engineering Guide for development.)

It is deemed from our own experience and expertise in road design that both the revised road design amendment of Brighton Street and the deletion and addition of minor roads shown in Figure 2 comply within the detail and intent of sound Engineering principles as well as the authoritative Austroad Design Guides.

An objection raised by Property Owner "3" however to the development of a corner at Brighton Street and Bligh Street does raise an issue worthy of note. This corner is certainly not inappropriate nor dangerous however as a right angle bend it is recommended that Council pay close attention to the intersection geometry and swept paths when this section of road is designed taking account of the adjacent property.

The intersection separation distance is within the order of 32 meters which is considered acceptable and consistent with Council standards.

7 PLANNING CONSIDERATIONS

It is also appropriate to take account of basic planning consideration. A basic square grid pattern optimises block sizes and appropriate dimensions to suit residential lots. The grid pattern also facilitates permeability and access for residents. When local roads front only public reserves, passive surveillance is also improved. Finally the Rural Five Service also prefer local roads fronting public reserves to improve the asset protection zone (APZ) to residential property.

8 RIPARIAN ZONE CORRIDOR ISSUES

The "Alex Avenue and Riverstone Precinct Planning, Part 2 of 3 Riparian Assessment" report 2008 by GHD identifies the proposed riparian corridors to be retained in the precinct planning. These were assessed on the guidelines at the time and are shown on the adopted ILP. The guidelines at the time of precinct planning include a core riparian zone (CRZ) and a Vegetated Buffer (VB). The width of these is based on a watercourse category.

The location of the riparian land required the realignment of the Brighton Street Road reserve as shown on the ILP. Since the gazettal of the Riverstone Precinct new riparian guidelines have been issued by NSW Office of Water (NSWOW, 2012.). These changed the method of classifying watercourse and the width of the riparian land primarily by deleting the Vegetated Buffer (VB). In response to a Land owner request Council consulted with NSWOW and received in principle agreement that the short section of riparian Land of T14 could be removed and offset within the drainage land. This provides opportunity to modify the road pattern as proposed by Council.

Council developed Concept designs of stormwater treatment basins that facilitates the riparian zone as well as the water sensitive Urban Design outcomes consistent with the precinct planning.

The resulting riparian zone corridor, stormwater detention basins and road network geometry are shown in Figure 4 below.

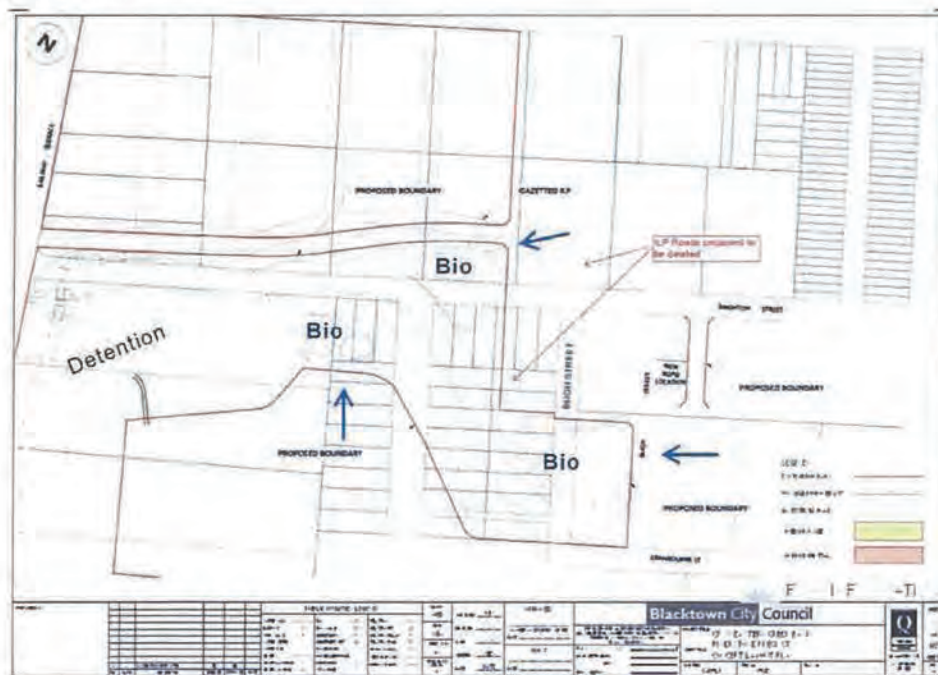


Figure 5 : Proposed Amended Road Pattern with Riparian Zone Corridor

9 SUMMATION OF ISSUES

When taking account the various factors assessed in this report it can be seen that competing priorities have been recognised however the status and sequence of events mitigates a number of these issues.

The 2010 ILP set out initial parameters for area based on standards and constraints at that time.

Changes in riparian guidelines have provided an opportunity to review the ILP and improve it to be compliant with road design standards.

The road layout has been reviewed alongside the objections received. The road layout has also been assessed in accordance with standard road design principles and in accordance with the requirements of the Austroad Guides. From a technical perspective the principles of traffic design have been applied appropriately to provide safe and manageable road system geometry in Councils proposed amendments.

It has been noted that care is needed for the final design of the right hand corner of Brighton and Bligh Streets however this is a relatively minor design detail to be taken into account when detail design is undertaken.

The riparian corridor and adjacent bio retention have been designed appropriately and will convey stormwater and normal flows through the residential area and accounts for all requirements in this regard.

The historical aspects of the area involving filling etc have been considered however they are not considered to be substantive enough to alter the practical nature of the design and the proper water course development and road design objectives sought to be achieved.

It has also been noted that no rezoning is required and only involves minor changes to the ILP. From a town planning perspective the amendment delivers more land for development and due to better shaped block, provides an improved yield. There is also a reduced net land cost to Section 94 Contributions Plan.

Due to the levels and the required water course grades as well as the upstream and downstream effects it is inappropriate to retain the original Brighton Street alignment as a road. Brighton Street is after all a low point in this area and sections of Land adjacent are subject to flooding. The amended riparian and road layout will contribute a great deal to improving this situation dramatically. The ILP curved alignment is not considered appropriate and a 90° intersection is preferred. The relocation and deletion of the minor roads is also recommended for the reasons stated above. Final details of these can be confirmed, with development proposals for the land. An attempt has been made to provide an equal or superior design however the horizontal and vertical constraints lead back to the proposed amended road pattern.

The proposed road geometry, riparian corridors and basins are located appropriately and are a good solution to optimising the property owners and the Council's (on behalf of the Community) objectives. The careful attention to the detailed design of the Brighton / Bligh Street intersection should however be addressed to ensure road safety is maintained.

10 CONCLUSION

Following an assessment of the issues associated with the comparison of the 2010 ILP as versus the current proposed road pattern amendment the primary concern is a sound Road Design and Road Safety outcome. The riparian and overland flow path parameters and detention basins that have also been arrived at taking account of current design standards are appropriate. It is considered that the proposed road pattern and corresponding zone boundary variations will maximise development yield, taking into account existing environmental constraints.

- The changes will benefit some affected landowners by delivering minor gains in developable area and deleting unnecessary new roads.
- The proposed road pattern changes will benefit Blacktown City and the broader community by reducing the cost of providing trunk drainage infrastructure funded through Section 94 contributions. Every opportunity should be taken to reduce such costs.
- The issues raised during the public exhibition are not sufficient enough to warrant changes to, or to not support, the draft amendments.
- The one exception to the above has been the recommended need to pay particular attention to the geometry and swept paths for vehicles travelling through the Brighton / Bligh Street Intersection to provide safe road geometry however this does not affect the DCP amendment.

The proposed DCP amendment therefore represents a reasonable compromise between maximising developable land and the need to balance water cycle management with environmental outcomes.

11 RECOMMENDATIONS

It is recommended that the proposed road pattern amendment to the DCP be adopted.

Review of proposed road pattern amendment Brighton Street, Riverstone **COMPLETE**



Current Panarama photo of Brighton / Bligh intersection

General photos near the Brighton Street area:



Appendix 1

SUPPORTING TECHNICAL DOCUMENTS AND REPORTS

The following identifies technical documents, studies, relevant legislation, and reports which have been used for researching this contributions plan:

- Macroplan Australia Pty Ltd (2007) *Riverstone & Alex Avenue Precincts Demographic Profile and Community Infrastructure Report*, November 2007, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2008) *Alex Avenue and Riverstone Precincts - Integrated Natural Environment Management Part 3 of 3: Water Sensitive Urban Design and Flooding Draft Report Part 3 of 3*, September 2008, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2008) *Alex Avenue and Riverstone Precinct Planning Part 2 of 3: Riparian Assessment* July 2008, prepared for the Growth Centres Commission.
- GHD Pty Ltd (2010) *Riverstone and Alex Avenue Precincts – Post exhibition Flooding and Water Cycle Management (including Climate Change Impact Flooding)*, May 2010, prepared for the Growth Centres Commission.
- ARUP Pty Ltd (2007) *The Draft Riverstone & Alex Avenue Transport & Access Study*, prepared for the Growth Centres Commission.
- Road Delay Solutions (2009) *North West Growth Centres Indicative Layout Plan Revision Transport and Traffic Model Year 2036 report*.
- *Environmental Planning and Assessment Act 1979*.
- *Environmental Planning and Assessment Regulation 2000*.
- Department of Planning *Development Contributions Practice Note (July 2005)*.
- Growth Centres Commission (2006), *Special Infrastructure Contribution Practice Note*, December 2006.
- Growth Centres Commission (2006), *Growth Centres Development Code*, October 2006.

ZONE INDEX



For Adoption

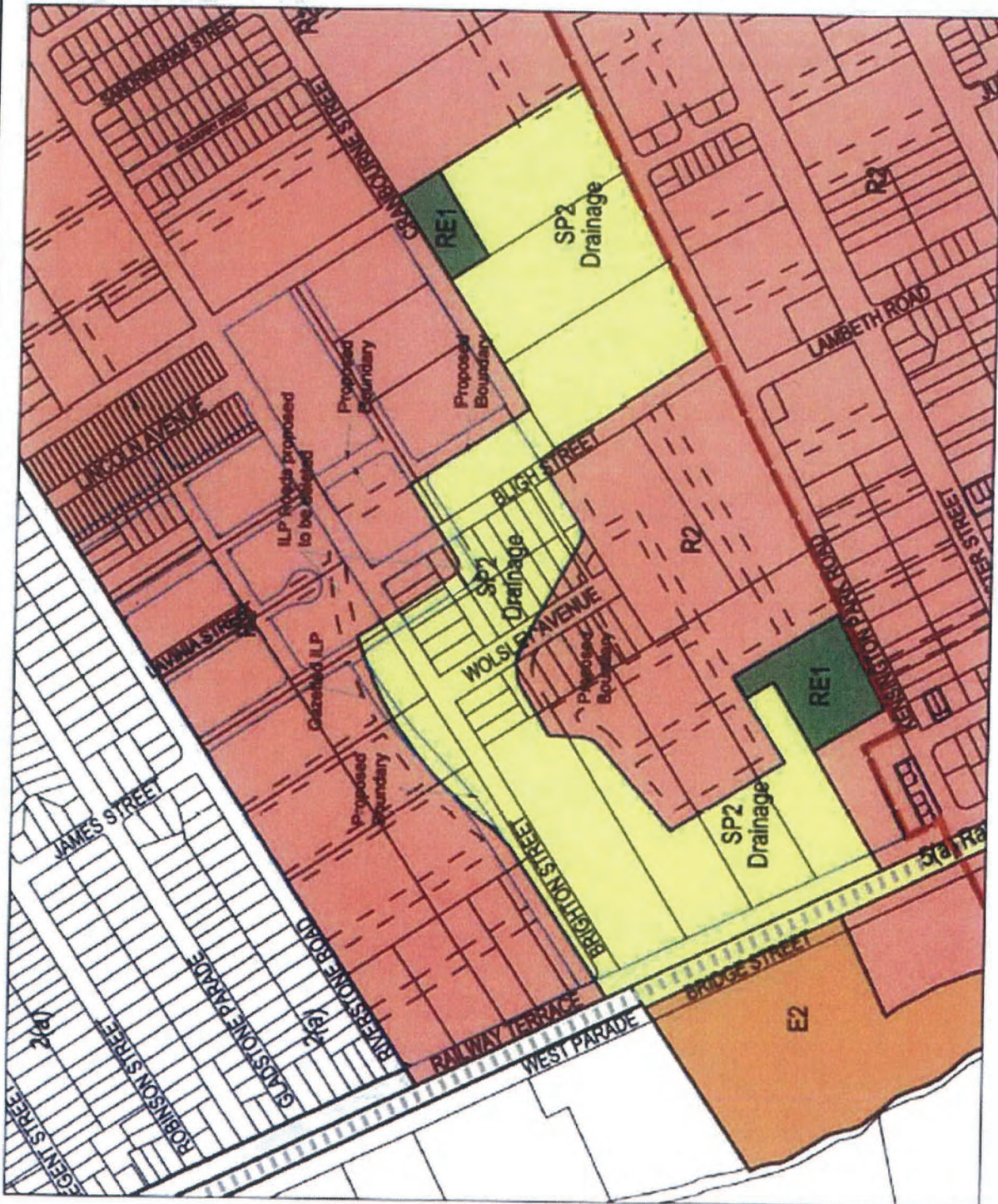
Existing local road pattern

Proposed road pattern amendment

Draft DCP

PROPOSED AMENDMENT TO BCC
 GROWTH PRECINCTS DCP 2010

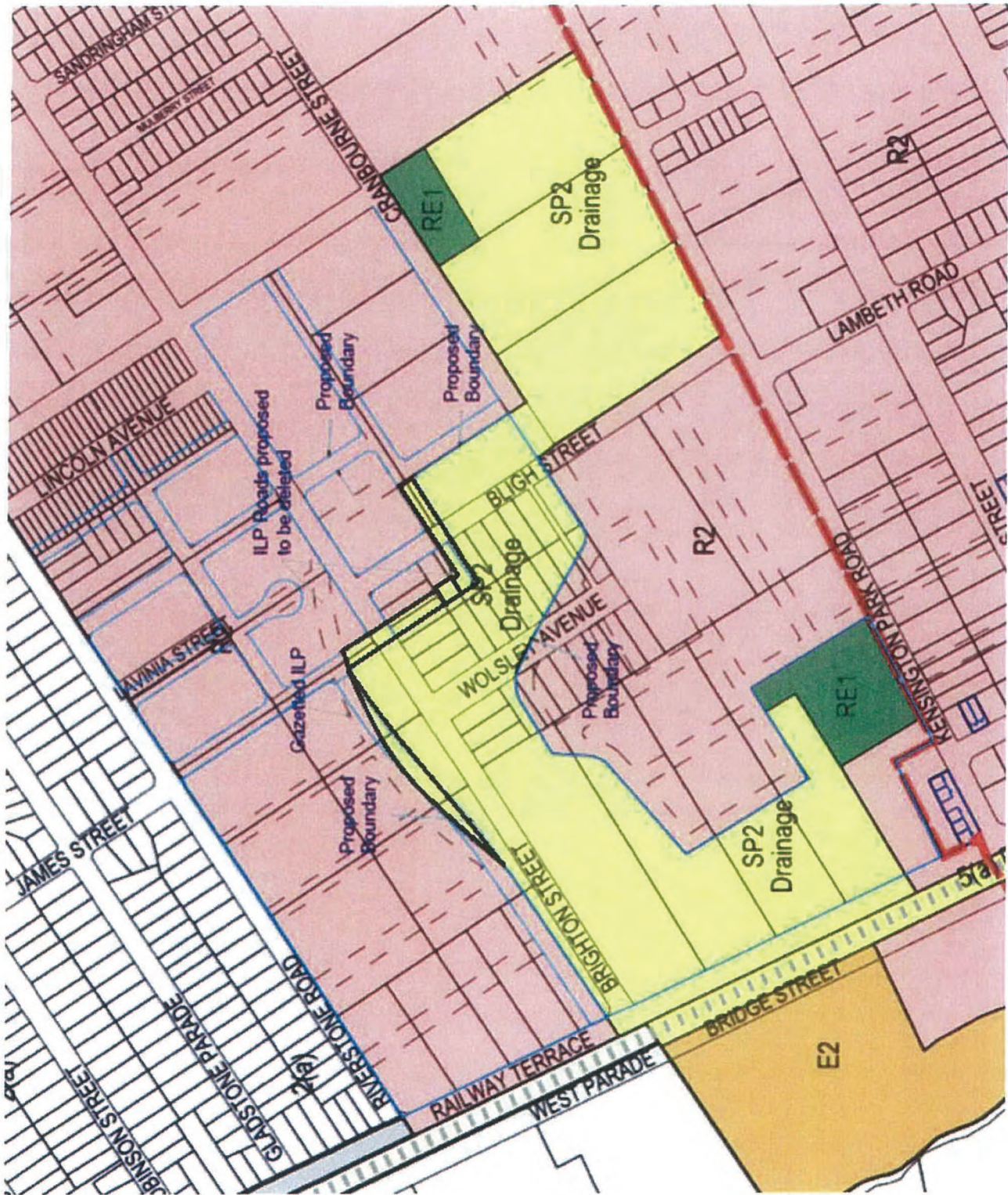
NOTE: Do not scale from this map. Use D.P. information for accurate dimension



Plot Date: 31/03/2015

Scale
 1:6000

Locality
 Parish
 County
 Cumberland



Proposed zone boundary variations

Rezone from SP2 Drainage to R2 Low Density Residential

Future Planning Proposal