

Showground Precinct

Cattai Creek Riparian Assessment

59917014



Prepared for
APP Pty Ltd

21 September 2016

Contact Information

Cardno (NSW/ACT) Pty Ltd
ABN 95 001 145 035

Level 9
203 Pacific Highway
St Leonards NSW 2065

Telephone: +61 2 9496 7874
Facsimile: +61 2 9439 5170
International: +61 2 9496 7700

joshua.coates@cardno.com.au
www.cardno.com.au

Author(s):



Joshua Coates
Water Engineer

Approved By:



Emma Maratea
Senior Engineer

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APPENDIX A Cattai Creek Riparian Corridor

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1 Introduction

Cardno have been engaged by APP Pty Ltd to undertake a riparian assessment of Cattai Creek upstream of Carrington Road, adjacent to Ashford Avenue. The purpose of the assessment is to determine the riparian protection zone for the creek for where land is proposed for development.

The assessment has considered:

- > NSW Department of Primary Industries (Office of Water) *Guidelines for Riparian Corridors on Waterfront Land* (2012);
- > Survey information provided by APP Pty Ltd (4 September 2015); and
- > A site investigation (10 August 2016).

The output of the assessment includes mapping of the riparian zone and description of the riparian zone components and requirements in accordance with NSW Guidelines (2012).

2 Available Information

2.1 Survey

Detailed survey (4 September 2015) of a number of properties on Ashford Avenue was provided in DWG format. This information contained some top of bank survey which was used to map the Riparian Zone. For where top of bank survey was not available, an estimate based on the site investigation has been adopted, although it is noted that the top of bank survey covers a large proportion of the subject site.

2.2 Aerial Imagery

Aerial imagery featured throughout this report has been obtained from NearMap (www.nearmap.com, accessed 15 August 2016). Cardno hold a license to use imagery from NearMap.

2.3 Stream Mapping

Stream mapping has been obtained from NSW Office of Water. This dataset shows the locations of streams and their associated stream order to be used in identifying the required riparian protection zone width. Streams are mapped based upon 1:25,000 topographical maps and are classified based upon their stream order (Strahler System).

The reach of Cattai Creek adjacent to the subject site has been classified by NSW Office of Water at a second order stream.

3 Site Investigation

A site investigation was undertaken on 10 August 2016 to investigate Cattai Creek adjacent to properties on Ashford Avenue. The streams highlighted in **Figure 3-1** were inspected by foot.

The purpose of this site investigation was to:

- > Confirm the stream order as presented by NSW Office of Water is correct;
- > Confirm the stream alignment and top of bank for Cattai Creek; and

Confirm the location and number of upstream tributaries contributing to Cattai Creek.

First order streams (highlighted in red) were confirmed to be correct. No other major tributary was observed on site other than pipe discharges into the creek. This also confirms the reach of Cattai Creek upstream of Carrington Road (highlighted in blue) is a second order stream.

The stream alignment was observed in the field to be consistent with the NSW Office of Water mapping.

Cattai Creek, between 44 and 38 Ashford Avenue was observed to be incised with high, steep banks. Observations suggest that within this reach the active stream width to be approximately 3 metres. The depth of the channel is assumed to be approximately 5 – 6 metres. The top of bank was clearly observable and consistent with the survey provided.

From number 36 Ashford Avenue and upstream, the channel becomes wider and less incised. The low flow channel was observed to be approximately 3 meters wide, with a wider high flow channel approximately 16 metres wide. The top of bank was determined to be approximately 8 metres from the creek centre line.

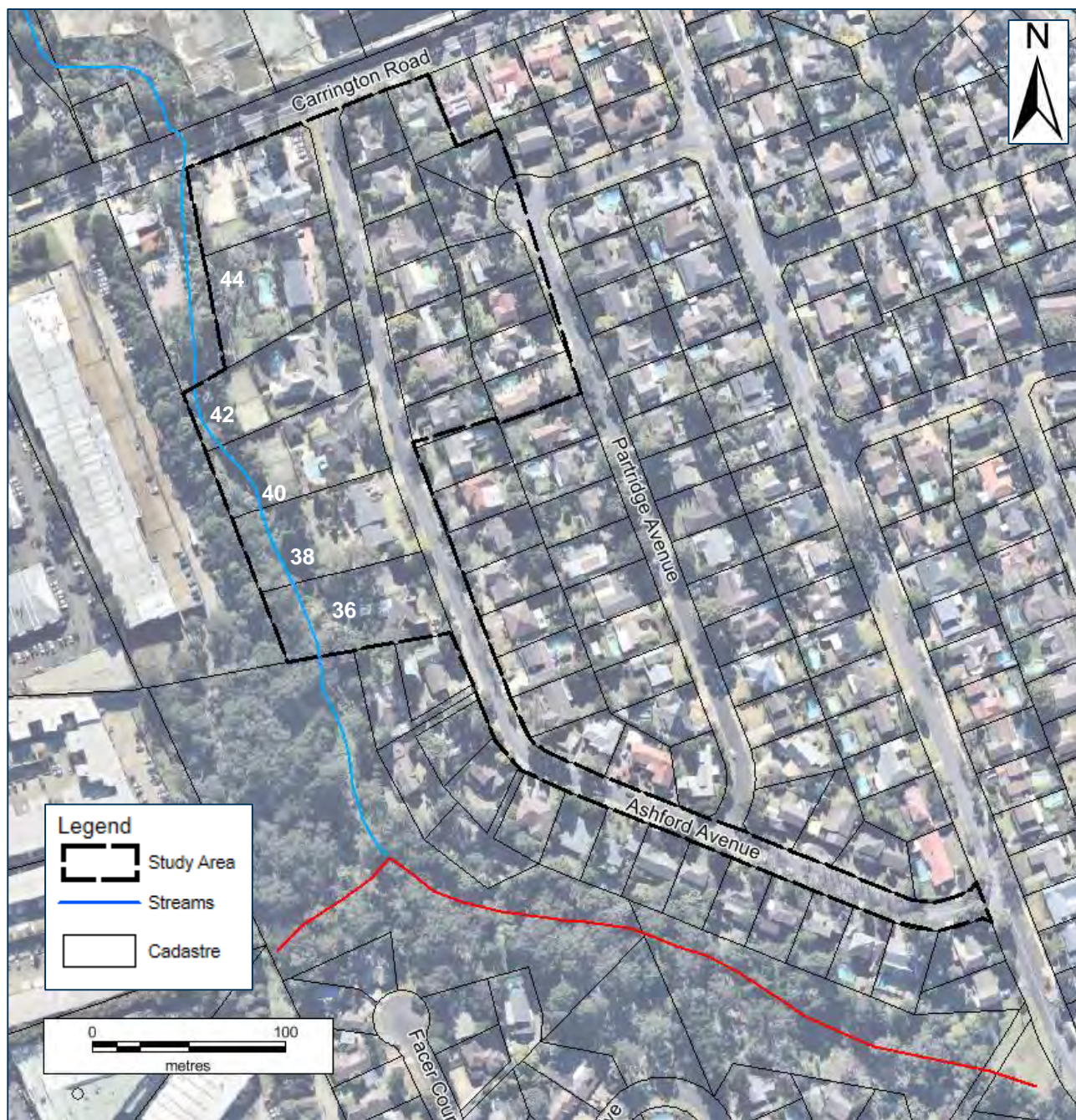


Figure 3-1 Site Investigation

4 Riparian Assessment

Based upon the site investigation, detail survey and the NSW Office of Water *Guidelines for riparian corridors on waterfront land*, the riparian zone adjacent to the subject site has been mapped. This is presented in **Appendix A**

The reach of Cattai Creek adjacent to the subject site is mapped as a second order stream per NSW Office water watercourse mapping. This is confirmed to be correct based on the site investigation undertaken.

Therefore, the required riparian protection zone (on the right bank of the reach) and associated permitted activities are:

- > Vegetated Riparian Zone of 20 metres (measured from the top of bank);
- > Possible to offset the riparian zone for non-Riparian Corridor uses;
- > Cycle ways and footpaths can be contained within the riparian zones; and
- > The stream is unable to be realigned.

The vegetated riparian zone is required to be 20 meters from the top of bank. For some locations along the stream, survey of the top of bank has been provided and this forms the basis for defining the vegetated riparian zone.

For locations where survey is not available, the top of bank is based upon observations from the site investigation.

Offsetting could be considered as a possible option here as the land identified in the outer 50% of the classified riparian protection zone contains existing development. This rule can apply if the average width of the riparian corridor can be achieved over the length of the watercourse within the development.

It is understood that only land on the Eastern side of Cattai Creek is controlled for this development and as such offsetting on the opposite side of the creek may not be possible. It is noted that offsetting must occur within the development site, therefore any land that may not be suitable for development on the Eastern side of Cattai Creek may be able to have the riparian protection zone extended to reduce the overall riparian protection zone throughout the stream.

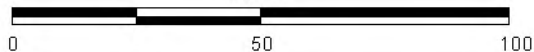
5 Conclusions

The riparian corridor assessment was based on sufficient available data and field inspections to ensure an accurate representation of existing stream conditions. The resulting riparian corridor mapping provided in **Appendix A** can be used with confidence to inform planning decisions.



Scale 1:1,500 Scale at A3

Metres



Riparian Protection Zone

59917014 - ASHFORD AVENUE RIPARIAN ASSESSMENT
APPENDIX A



Map Produced by Cardno NSW/Act, W&E
Date: 20 September 2016
Coordinate System: MGA Zone 56
Project: 59917014
Map: Cattai_Creek_Riparian_Zone.wor

Aerial imagery supplied by nearmap (July 2016)