Final Report

Riverstone West Precinct Flooding Assessment

59918177

Prepared for

Department of Planning and Environment

25 February 2022

Cardno

Contact Information

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

Level 9 - The Forum
203 Pacific Highway
St Leonards NSW 2065
Australia

www.cardno.com
Phone +61 2 9496 7700
Fax +61 2 9496 7748

Document Information

Prepared for	Department of Planning and Environment
Project Name	Riverstone West Precinct Flooding Assessment
File Reference	59918177_R001_Rev0_Riverstone W Flooding Assessment.docx
Job Reference	59918177
Date	25 February 2022
Version Number	Rev 0

Author(s):

Venus Jofreh
Water Engineer

Effective Date 25/02/2022

Approved By:

Shefali Chakrabarty
Practice Lead – Urban Water Management

Date Approved 25/02/2022

Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
Rev A	12/02/2021	Draft Interim Report for Council review	VJ, MS	SC
Rev B	01/10/2021	Draft Report	VJ, YL	SC
Rev 0	25/02/2022	Final Report	SC	PP

Glossary

Annual Exceedance Probability (AEP)	The probability of an event occurring or being exceeded within a year. For example, a 5% AEP flood would have a 5% chance of occurring in any year. An approximate conversion between ARI and AEP is provided.

AEP	ARI
63.2 %	1 year
39.3 %	2 year
18.1 %	5 year
10 %	10 year
5 %	20 year
2 %	50 year
1 %	100 year
0.5 %	200 year
0.2 %	500 year

Australian Height Datum (AHD)	A standard national surface level datum approximately corresponding to mean sea level.
Average Recurrence Interval (ARI)	The long-term average period between occurrences equalling or exceeding a given value. For example, a 20 year ARI flood would occur on average once every 20 years.
Catchment	The area draining to a site. It always relates to a particular location and may include the catchments of tributary streams as well as the main stream.
Development	The erection of a building or the carrying out of work; or the use of land or of a building or work; or the subdivision of land.
Discharge	The rate of flow of water measured in terms of volume over time. It is to be distinguished from the speed or velocity of flow, which is a measure of how fast the water is moving rather than how much is moving.
Flood	Relatively high stream flow which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or overland runoff before entering a watercourse and/or coastal inundation resulting from super elevated sea levels and/or waves overtopping coastline defences.
Floodplain	Area of land which is subject to inundation by floods up to the probable maximum flood event, i.e. flood prone land.
Flood planning area	The area of land below the flood planning level and thus subject to flood related development controls.
Flood planning levels (FPLs)	Flood levels selected for planning purposes, as determined in floodplain management studies and incorporated in floodplain management plans. Selection should be based on an understanding of the full range of flood behaviour and the associated flood risk. It should also take into account the social, economic and ecological consequences associated with floods of different severities. Different FPLs may be appropriate for different categories of land use and for different flood plains. The concept of FPLs supersedes the “Standard flood event” of the first edition of the Manual. As FPLs do not necessarily extend to the limits of flood prone land (as defined by the probable maximum flood), floodplain management plans may apply to flood prone land beyond the defined FPLs.

Geographical Information Systems (GIS)	A system of software and procedures designed to support the management, manipulation, analysis and display of spatially referenced data.
Hydraulics	The term given to the study of water flow in a river, channel or pipe, in particular, the evaluation of flow parameters such as stage and velocity.
Hydrograph	A graph that shows how the discharge changes with time at any particular location.
Hydrology	The term given to the study of the rainfall and runoff process as it relates to the derivation of hydrographs for given floods.
Probable maximum flood (PMF)	The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions.
Risk	Chance of something happening that will have an impact. It is measured in terms of consequences and likelihood. For this study, it is the likelihood of consequences arising from the interaction of floods, communities and the environment.
Runoff	The amount of rainfall that actually ends up as stream or pipe flow, also known as rainfall excess.
Stormwater flooding	Inundation by local runoff. Stormwater flooding can be caused by local runoff exceeding the capacity of an urban stormwater drainage system or by the backwater effects of mainstream flooding causing the urban stormwater drainage system to overflow.
Topography	A surface which defines the ground level of a chosen area.

Abbreviations

AEP	Annual Exceedance Probability
ARI	Average Recurrence Intervals
ARR	Australian Rainfall and Runoff
DCP	Development Control Plan
DPE	Department of Planning and Environment
FERP	Flood Emergency Response Plan
FMS	Floodplain Management Strategy
GIS	Geographic Information System
ha	Hectare
ILP	Indicative Layout Plan
km	Kilometres
km^2	Square kilometres
LGA	Local Government Area
LiDAR	Light Detection and Ranging
m	Metre
m^2	Square metre
m^3	Cubic Metre
mAHD	Metres to Australian Height Datum
mm	Millimetre
m/s	Metres per second
NSW	New South Wales
PMF	Probable Maximum Flood
SEPP	State Environment Planning Policy
TfNSW	Transport for New South Wales

Table of Contents

Appendices

Tables

Figures

1 Introduction

1.1 Background

The Riverstone West precinct is planned to be a major employment area within the North West Growth Area and was zoned in August 2009 primarily for Business Park, general industrial and light industrial uses. Associated with the rezoning was a cut and fill strategy to raise land within the precinct to the 1% AEP flood level in order to achieve the minimum land height required for business and industrial development.

Since the rezoning of the precinct a number factors, internal and external to the precinct, have created the need to review the proposed development footprint and cut and fill strategy. These factors are:

- Proposed works by Transport for NSW (TfNSW) relating to Garfield Road West and Bandon Road. These upgrades are part of the TfNSW's North West Growth Centre Road Network Strategy (https://roads-waterways.transport.nsw.gov.au/projects/north-west-growth-centre-strategy/index.html) and have the potential to alter flood behaviour within and in the vicinity of the precinct, primarily near Garfield Road West;
- Amendment to the alignment of the southern end of the proposed "Spine Road" due to the proposed Garfield Road West works; and
- A previously planned "cut" area on Lot 11 DP 816720, a site immediately west of the precinct, being no longer available for this purpose.

1.2 Purpose of the Study

The overarching purpose of this study is to investigate the flood behaviour impacts of the development footprint of the Riverstone West Precinct and the associated earthworks.

1.3 Scope of Work

The scope of work is as follows:

1. Undertake hydrological modelling considering the Australian Rainfall and Runoff Guidelines 1987 (ARR1987);
2. Undertake hydraulic modelling to establish the existing, interim and design condition flood behaviour;
3. Consider different flooding scenarios including local catchment flooding and also Hawkesbury-Nepean flooding scenarios based on Hawkesbury-Nepean Regional Flood Study (2019); and
4. Assess the impacts of the proposed development footprint on flood behaviour.

2 Study Area and Context

2.1 Location

The location of the Study Area is shown in **Figure 2-1**. The Precinct is located within the Blacktown City Council Local Government Area (LGA). It is bound by Bandon Rd to the north, Garfield Road West to the south, Riverstone Parade to the east and Eastern Creek to the west. The total Study Area is approximately 274ha and currently contains around 40ha of industrial land and the remainder is grazing paddocks. There is an existing Sydney Water Sewerage Treatment Plant and Transgrid Substation located within the Precinct.

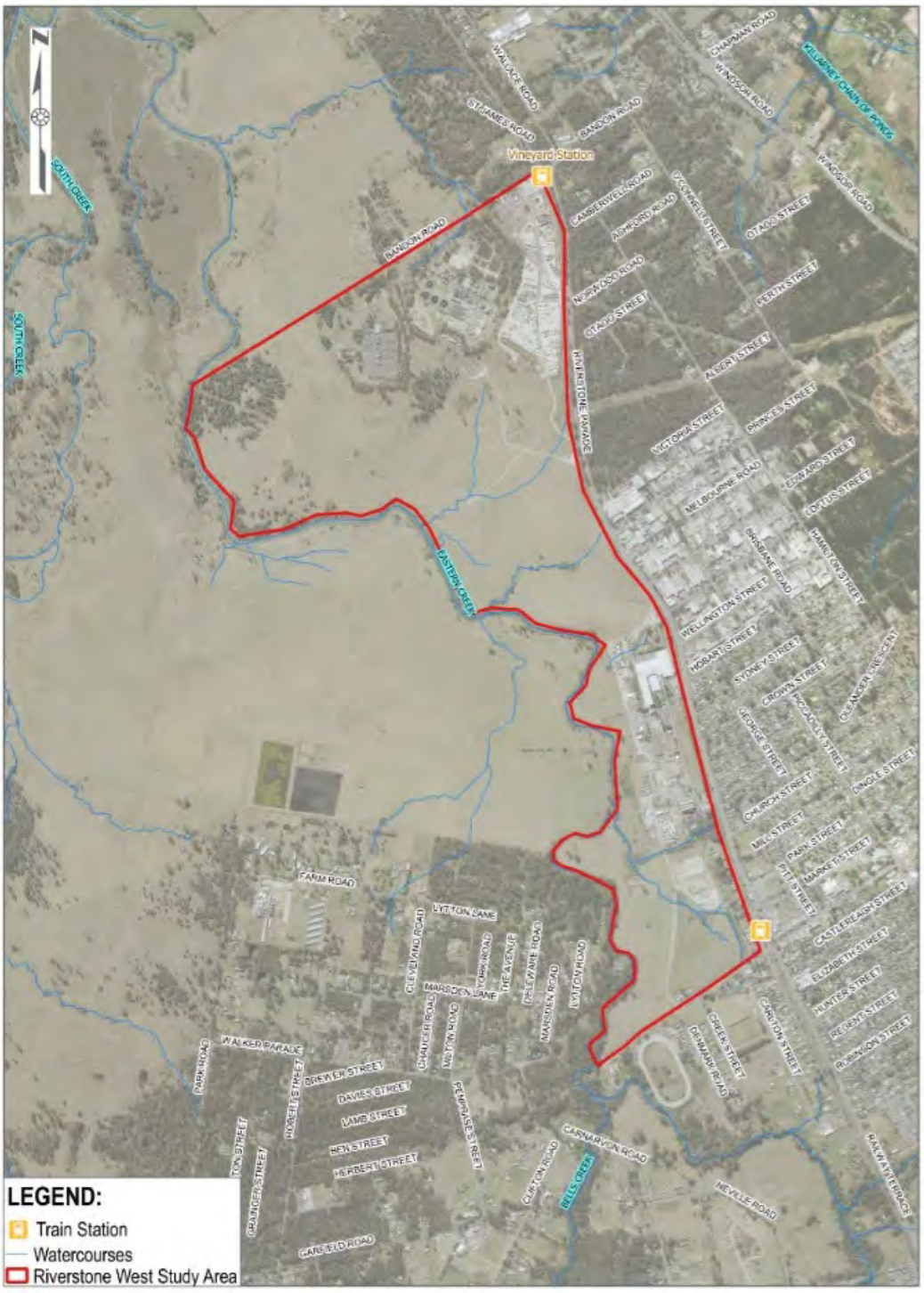


Figure 2-1 Study Area – Riverstone West Precinct (Aerial Image Source: Nearmap)

2.2 Topography and Existing Drainage

The Study Area is located between the low grounds along Eastern Creek to the west and high ridges along Riverstone Parade to the east. Therefore, terrain levels vary extensively between 5 mAHD to the west and 40 mAHD to the east.

Detailed survey of the Study Area (undertaken by Land Partners, 2008) was provided to Cardno. The site ground survey along with the 2019 1m Light Detection and Ranging (LiDAR) data was used to provide a detailed presentation of the topography of the site and surrounds.

The survey (Land Partners, 2008) also included some details of the drainage network within the Study Area and railway culverts including their alignment and invert levels at some locations. However, parts of the information such as size and invert levels of some culverts were missing. The missing information was requested and acquired from Transport for NSW (TfNSW).

The site survey is provided in **Appendix A**.

2.3 Land Use Zoning

The proposed land use zoning for the Study Area is shown in **Figure 2-2**. This figure has been generated by Cardno using the Department of Planning and Environment (DPE) land zoning downloaded from Cardno's GIS database.

As can be observed, the Study Area is zoned to include:

- Business Park;
- General Industrial;
- Infrastructure;
- Private Recreation; and
- Environmental Conservation.

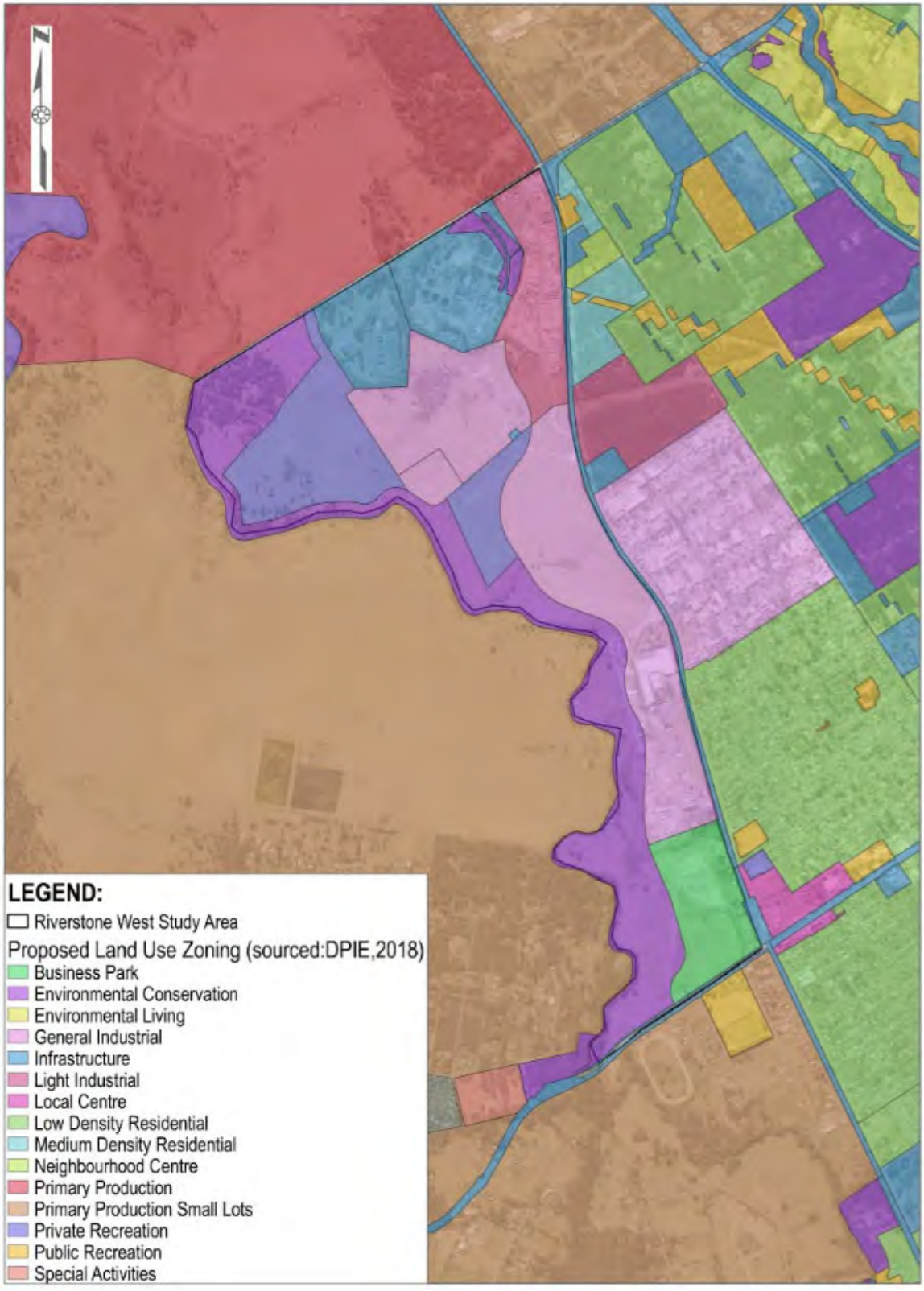


Figure 2-2 Land Zoning for the Study Area (Source of Data: DPE Land Zoning GIS Layers 2018)

2.4 Existing Flood Behaviour

The Study Area is located adjacent to Eastern creek and is also 3km upstream from the confluence of Eastern Creek and South Creek. South Creek then connects further downstream to Hawkesbury River. The area is subject to flooding from Eastern Creek, backwater flooding from Hawkesbury River; and local overland flows.

A number of studies have investigated flood behaviour at the site and surrounds. Details of these studies are provided in the following sections.

Figure 2-3 shows the flood extents along Riverstone West Precinct for different flood events and flooding scenarios sourced from Riverstone West Precinct Floodplain Management Strategy (Worley Parsons, 2014).

2.5 Previous Studies

2.5.1 Proposed Redevelopment of Riverstone West Precinct Flood Impact Assessment (Worley Parsons, 2008)

This study found that it was possible for the Study Area to be raised so a total of 121 ha will be above the 1 in 100 year ARI flood level of 17.3 m AHD without causing any significant impact on adjoining properties. The study also showed that a cut and fill strategy could be implemented without causing significant flood impacts on adjoining properties in the adopted design 100 year ARI local catchment flood.

2.5.2 Peer review of the Proposed Redevelopment of Riverstone West Flood Impact Assessment (Cardno, 2008)

Cardno undertook a review of the Worley Parsons 2008 flood impact assessment to assess the adequacy and appropriateness of the assumptions, model parameters and findings of this study. The review also made recommendations regarding additional work required to address any inadequacies and mechanisms that could reduce impacts on adjoining areas in the local flooding regime if found necessary.

2.5.3 Riverstone West Precinct Flood Impact Assessment Report (Worley Parsons, 2013)

Worley Parsons undertook a further flood investigation aimed at determining an optimal fill layout that was compatible with the existing flood characteristics of the Precinct and that would not cause unacceptable flood impacts on adjoining properties. The investigations included an assessment of the existing flood behaviour along the section of Eastern Creek that adjoins the site, definition of the predicted post-development flood characteristics (i.e., with the proposed filling in place), and an assessment of the magnitude and extent of any impacts that the proposed filling may have on flooding.

The purpose of this investigation was to determine an optimal fill extent that meets the guidelines and requirements outlined in the State Environment Planning Policy (SEPP 2009) and Development Control Plan (DCP 2009). The report also served as an updated Flood Impact Assessment Report for the proposed development of the Riverstone West Precinct.

2.5.4 Riverstone West Precinct Floodplain Management Strategy (Worley Parsons, 2014)

The requirement for this study is described as follows:

Although the Riverstone West FIA (2013) addressed the majority of flood related requirements outlined in the SEPP (2009) and DCP (2009), the guideline documents also require the preparation of a Floodplain Management Strategy (FMS). The FMS as described in Appendix C of the DCP (2009) is required for most development applications that involved development of land within the Riverstone West Precinct. The specific purpose of the FMS as outlined in the DCP (2009) is to:

- Define existing flooding at the site and in the vicinity of the site in accordance with the NSW Floodplain Development Manual, 2005 procedures;
- Determine the flood impacts on account of the proposed development, and investigate mitigation options which will input to the FMS;
- Develop a strategy that demonstrates flood impacts at the site and adjoining the site are managed in accordance with the requirements of the SEPP (2009) and the development controls in Section 4.3 of the DCP (2009); and

Develop a Flood Emergency Response Plan (FERP) in consultation with the State Emergency Services (SES).

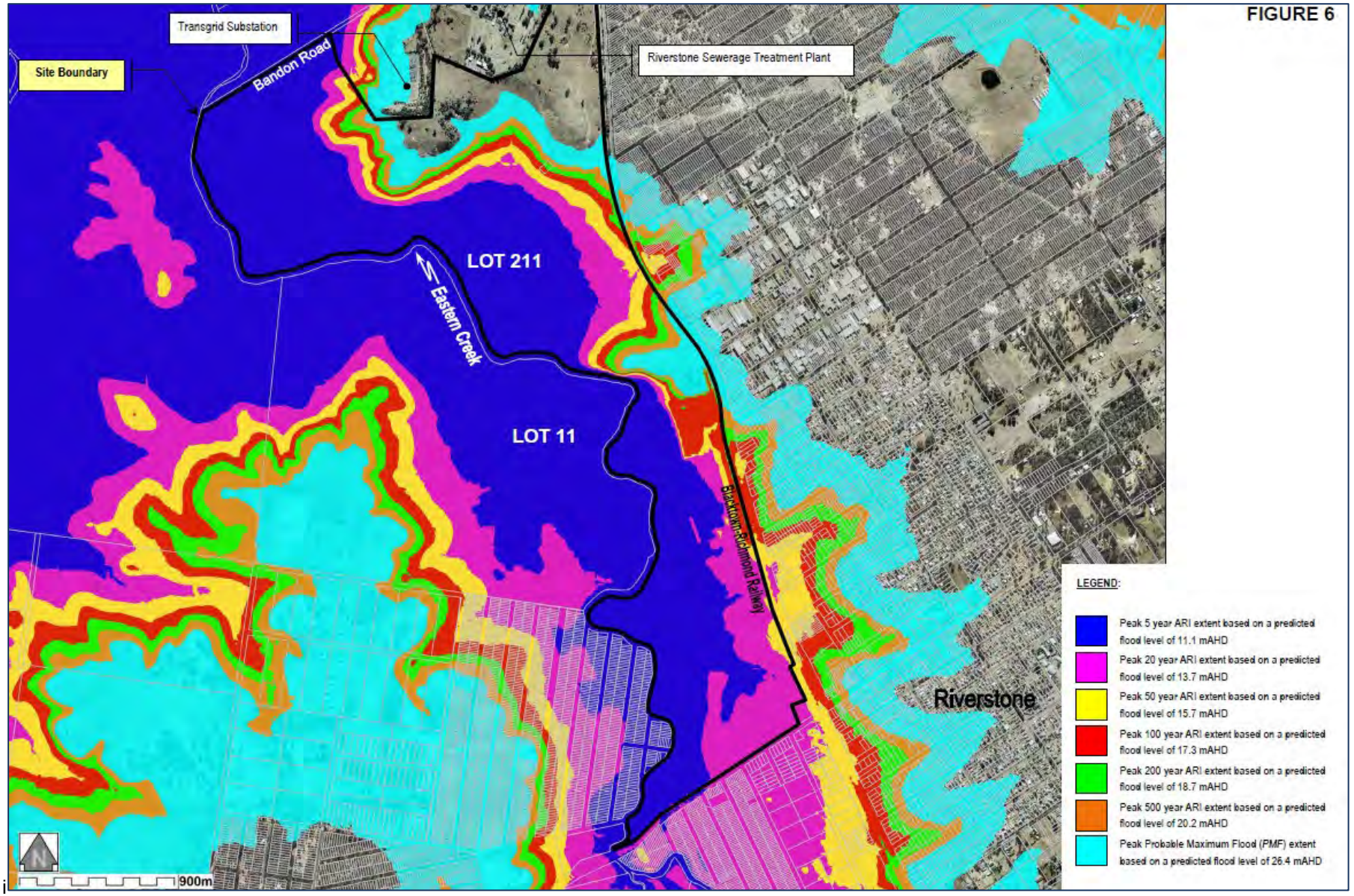


Figure 2-3 Haw kesbury River Flood Extents Under Different Flooding events and Scenarios (Source of Data: Riverstone West Precinct Floodplain Management Strategy (Worley Parsons, 2014))

2.5.5 Peer Review of the Riverstone West Floodplain Management Strategy (Cardno, 2014)

Cardno undertook a review of the Riverstone West Precinct Floodplain Management Strategy (2014) and the Riverstone West Precinct Flood Impact Assessment (2013) to identify any changes in the flood assessment as well as a review of the adequacy and appropriateness of the floodplain risk management study.

2.5.6 Eastern Creek Hydraulic Assessment (Catchment Simulation Solutions, 2014)

Catchment Simulation Solutions (CSS) undertook this hydraulic assessment study on behalf of Blacktown City Council as part of the Flood Planning Study for Eastern Creek and its tributaries contained within the Blacktown LGA. This study quantifies the existing flood behaviour across the Eastern Creek catchment for a range of design events. A XP-RAFTS hydrological model was used to define the design inflow hydrographs and a two-dimensional hydraulic model of Eastern Creek and its major tributaries was developed using the TUFLOW software. The model was verified by comparing simulated 1% AEP flood levels and discharges with 1% AEP flood levels and discharges documented in previous studies.

The study identified that flooding across the Eastern Creek catchment can occur as a result of major watercourses overtopping their banks as well as inundation from elevated Hawkesbury River water levels.

2.6 Proposed Development

According to the Riverstone West Precinct Development Control Plan (DCP, 2009):

"The vision for Riverstone West Precinct is to create an attractive employment precinct that provides for a diverse range of job opportunities to support the growing residential areas in Sydney's North West.

The Precinct will be characterised by a mix of industrial, light industrial and commercial uses that will be supported by accessible public transport, small scale retail and community facilities such as child care centres.

A pleasant and safe work environment is envisaged through the provision of pedestrian-friendly streets, good landscape design, parks and open spaces with access to riparian corridors, and cycle ways as well as encouraging high-quality built form based on ecologically sustainable design (ESD) principles.

Focal points around Riverstone and Vineyard Stations will be created by providing pedestrian-focused main streets with access to the stations. Small shops, cafes and restaurants will be encouraged to activate station areas and provide areas for social interaction.

The Precinct will incorporate a Spine Road that will improve the amenity of Riverstone Township by providing an alternative route for heavy vehicles to pass through. A crossing beneath the rail line (underpass) at Bandon Road will provide access to the Spine Road for vehicles travelling from the west.

Streets within the vicinity of Riverstone and Vineyard Stations will maximise pedestrian amenity and safety whilst providing for the requirements of large and heavy vehicles."

An Indicative Development Layout (ILP) for Riverstone West Precinct is shown in **Figure 2-4**.

2.7 Proposed Road Upgrades

Transport for NSW has proposed upgrades to Garfield Road West and Bandon Road. Details of these are provided in **Figure 2-5**. The proposed upgrades have been reviewed as part of this study and incorporated in the flooding assessment (See Section 3.1.2 for details).

Figure 2-4 Riverstone West Indicative Layout Plan (Source of Data: Riverstone West Development Control Plan 2009)

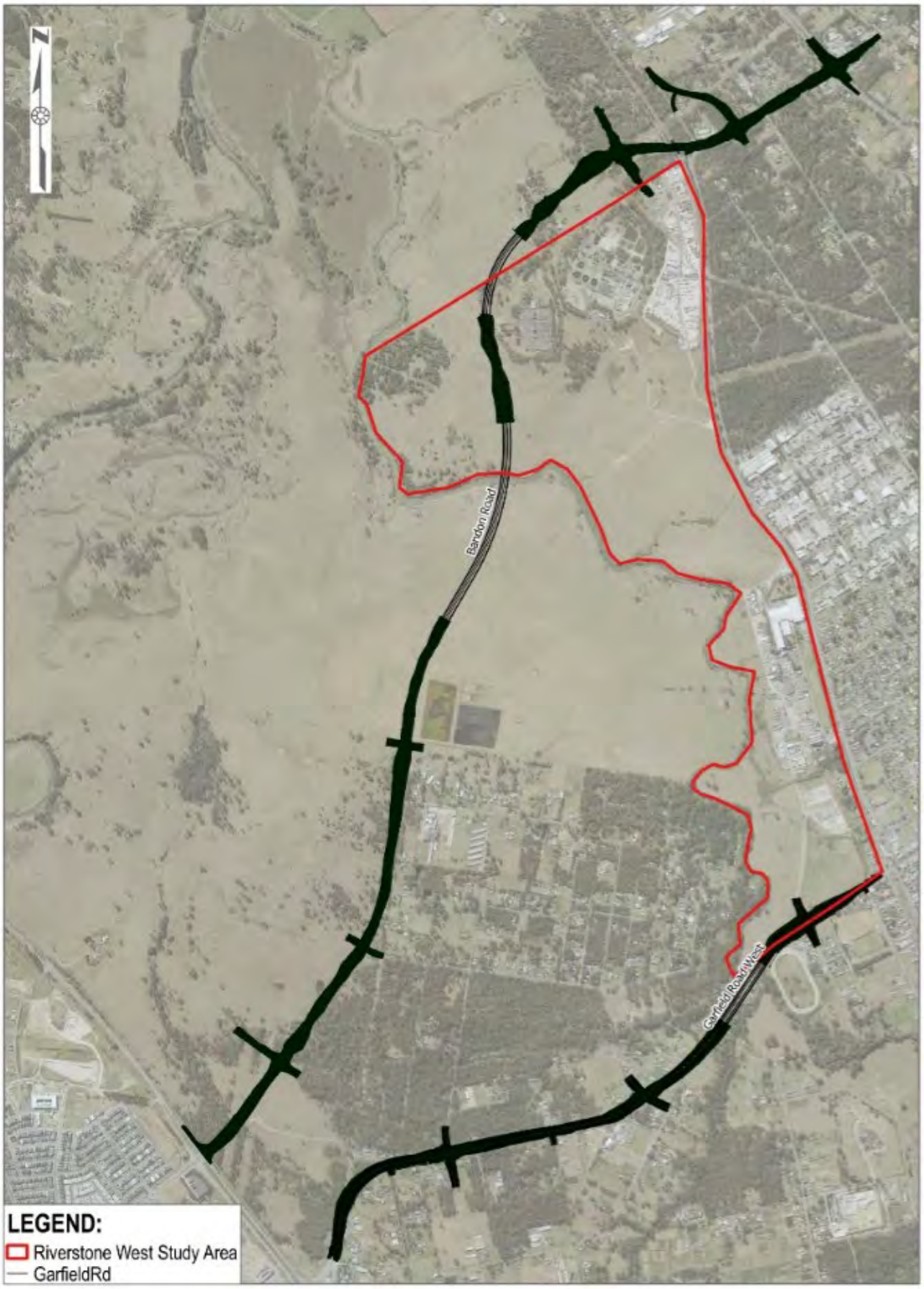


Figure 2-5 Proposed Garfield Road West and Bandon Road Alignment

3 Flooding Assessment

3.1 Modelling Approach

For this assessment flood modelling was undertaken to simulate the existing and future flood behaviour for the Study Area and surrounds. The hydraulic model for the Study Area and surrounds has been developed by Cardno.

Existing hydrology models and data were provided to Cardno for input into the hydraulic model. The following hydrology models and data inputs were used for the purpose of this flooding assessment:

> Eastern Creek XP-RAFTS model that was updated as part of the Eastern Creek Hydraulic Assessment (Catchment Simulation Solutions, 2014); and

> Inflow and Tailwater level data from the Hawkesbury-Nepean Regional Flood Study (WMAwater, 2019).

3.1.1 Model Simulations

For this study, the following flooding simulations were considered and adopted based on the available information and the flooding behaviour of the catchment:

> **Local Flooding:** This simulation is critical for designing drainage network and also assessing the impacts of the proposed development. The inflows for this simulation are extracted from two different sources:

- **Eastern Creek Local Flows:** This simulation applies the inflows from Eastern Creek and also the sub-catchments to the east of the Study Area. The fine delineation of the sub-catchments provides the possibility to present the flowpaths traversing the Study Area. The inflows for this simulation are from two sources:
  - Inflows for the subcatchment at the site and surrounds are extracted from the XP-RAFTS hydrology model of Eastern Creek (Catchment Simulation Solutions, 2014). The XP-RAFTS model is based on the ARR1987 parameters; and
  - The upstream boundary inflows are extracted from TUFLOW hydraulic model of Eastern Creek (Catchment Simulation Solutions, 2014).
- **Hawkesbury Nepean Study Flows**: This simulation considers local Eastern Creek and South Creek flooding through application of lump inflows into the model. The inflows for this scenario are adopted from the Hawkesbury-Nepean Regional Flood Study (2019) model data provided to Cardno by WMAwater. This scenario also considers Eastern Creek and South Creek flooding in isolation and without consideration of the backwater from Hawkesbury River.

> **Hawkesbury Nepean Study Tailwater Condition:** This simulation considers the backwater impacts from Hawkesbury River. This simulation is critical for assessing the impacts of the proposed development and also determining flood planning levels. The inflows and tailwater level hydrographs for this scenario are adopted from the Hawkesbury-Nepean Regional Flood Study (2019) data provided to Cardno by WMAwater.

Figure 3-1 shows the location of inflows applied into the hydraulic model for each simulation.

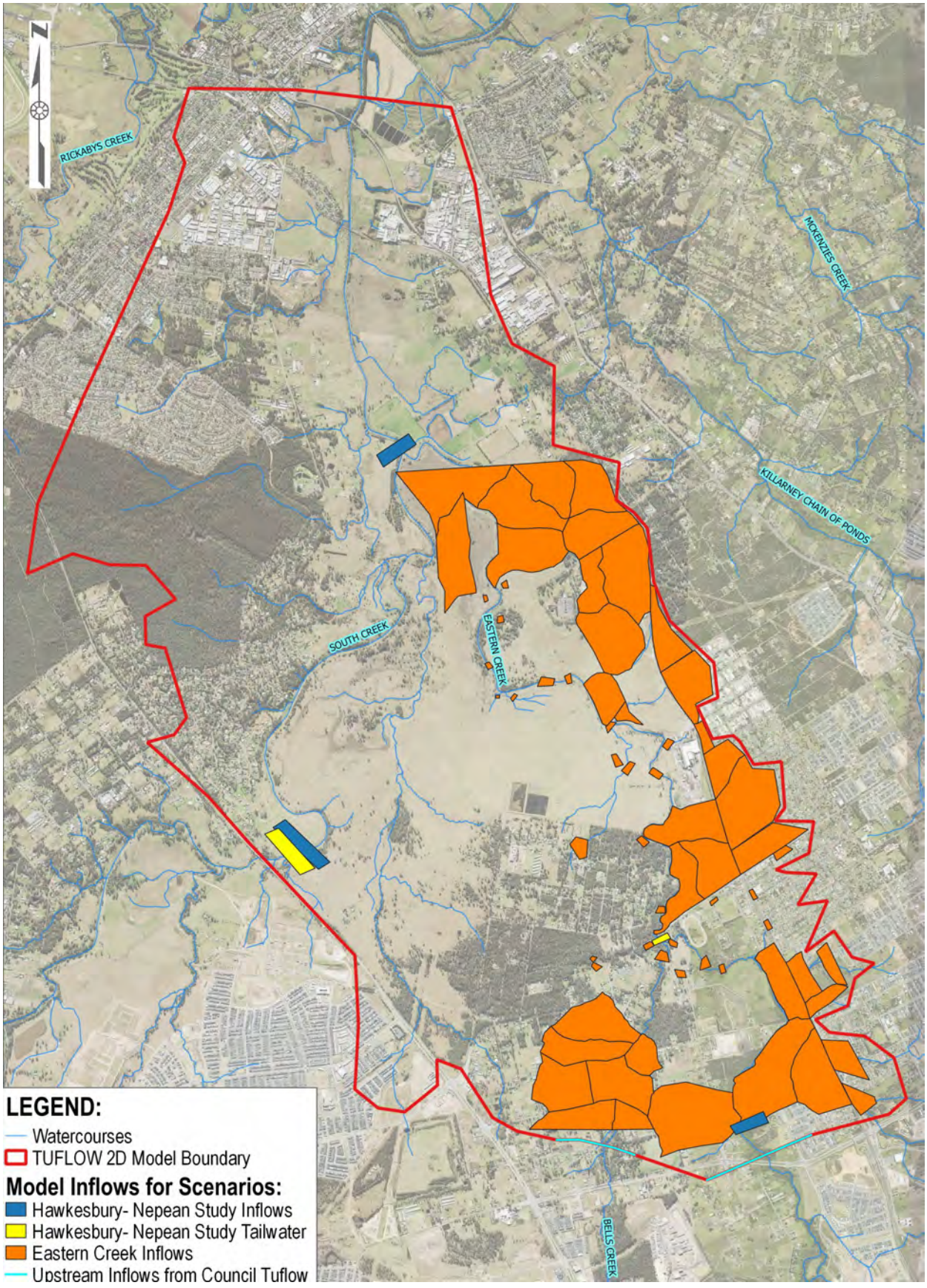


Figure 3-1 Location of Inflows Applied into the Hydraulic Model for each Model Simulation

3.1.2 Model Scenarios

To assess the impact of the proposed development of the Precinct, three scenarios can be considered for flood assessment:

- **Existing Scenario:** This scenario represents the existing conditions of the Study Area and surrounding areas and roads;
- **Interim Scenario:** This scenario represents the existing conditions with the proposed TfNSW Garfield Road West and Bandon Road upgrades included (Base Case); and
- **Design Scenario:** This scenario represents the TfNSW Garfield Road West and Bandon Road upgrades and the proposed Riverstone West Development footprint including the proposed fill pad and drainage network (**NOTE:** Compensatory cut not been assessed as part of this assessment).

Table 3-1 summarises the simulations and scenarios considered for undertaking the flood assessment as part of this study.

Table 3-1 Summary of Model Simulations and Scenarios

Flood Simulation / M Scenario	Local Inflow	Hawkesbury Nepean Inflow	Hawkesbury Nepean Tailwater
Existing Scenario	X	X	X
Interim Scenario	X	X	X
Design Scenario	X	X	X

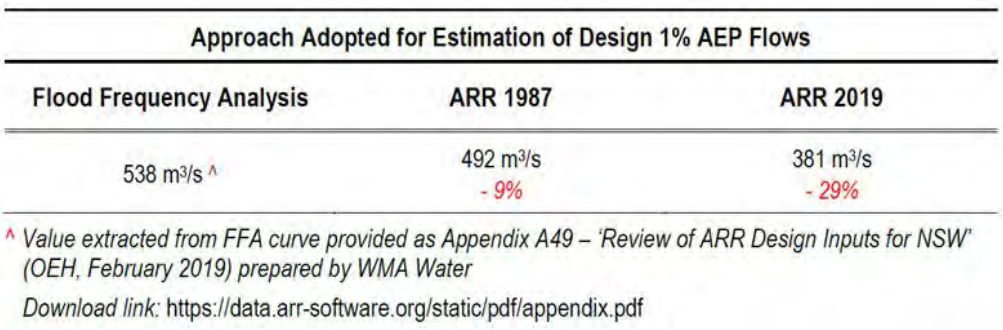
3.2 Hydrology Modelling

3.2.1 Overview

A hydrology model combines rainfall information with local catchment characteristics to estimate a series of runoff hydrographs at selected locations. These hydrographs are then incorporated into the hydraulic model to simulate the behaviour of the flood through creeks, channels and over the floodplain.

Cardno had initially undertaken this assessment based on the ARR2019 guidelines. However, following advice from Council, it was agreed to adopt the Eastern Creek Hydraulic Assessment (Catchment Simulation Solutions, 2014) hydrology which is based on ARR1987.

For the Wianamatta (South) Creek Catchment Flood Study (November 2020), Advisian had undertaken a comparison of flows from ARR2019 and ARR1987 at Elizabeth Drive (South Creek). The comparison showed that the ARR2019 flows were up to 20% lower as shown in **Figure 3-2**, so the ARR1987 guideline was considered to be more appropriate and was adopted.



Approach Adopted for Estimation of Design 1% AEP Flows		
Flood Frequency Analysis	**ARR 1987**	**ARR 2019**
538 m³/s ^	492 m³/s - 9%	381 m³/s - 29%

^ *Value extracted from FFA curve provided as Appendix A49 – 'Review of ARR Design Inputs for NSW' (OEH, February 2019) prepared by WMA Water*

Download link: https://data.arr-software.org/static/pdf/appendix.pdf

Figure 3-2 Comparison of Peak 1% AEP flows at Elizabeth Drive (South Creek) based on ARR1987 and ARR2019 Hydrology to FFA (Source: Wianamatta (South) Creek Catchment Flood Study Existing Conditions (2020))

Cardno undertook a sensitivity check for Eastern Creek to check the indicative 1% AEP peak flows in the Eastern Creek catchment based on transposition of a Flood Frequency Analysis (FFA) peak flow, ARR1987 peak flow and ARR2019 peak flow from Elizabeth Drive in South Creek. The calculations showed that

ARR2019 guidelines results in almost 20% reduction in flows in comparison to ARR1987 and confirmed that ARR1987 results are closer to the FFA.

3.2.2 Critical Duration

The XP-RAFTS model of Eastern Creek was run for the 1%, 5%, 20% AEP and PMF events for a range of durations including 1.5 hour, 2 hour and 9 hour.

The critical durations for the Study Area under the Local Inflows simulation was identified through comparison of flows under different durations and at three key locations within the Study Area. **Figure 3-3** shows the key locations where the flows have been compared. The results indicated that 2 hour can be selected as the critical duration as it generates higher local flows passing through the study site. Details of flows for the 1% AEP and 5% AEP and for different durations and also the critical durations are presented in **Table 3-2**.

Table 3-2 Flow Comparison and Critical Duration

Key Location	1% AEP Flow			Adopted 1% AEP Critical Duration
	1.5 Hour	2 Hour	9 Hour	
EAS0005100	44.7	49.2	29.7	2 Hour
EAS0300090	19.7	18.9	8.4	
EAS0003320	10.2	10.7	8.5	
Key Location	5% AEP Flow			Adopted 5% AEP Critical Duration
	1.5 Hour	2 Hour	9 Hour	
EAS0005100	33.046	36.975	23.74	2 Hour
EAS0300090	15.761	15.036	6.726	
EAS0003320	7.064	7.424	6.768	

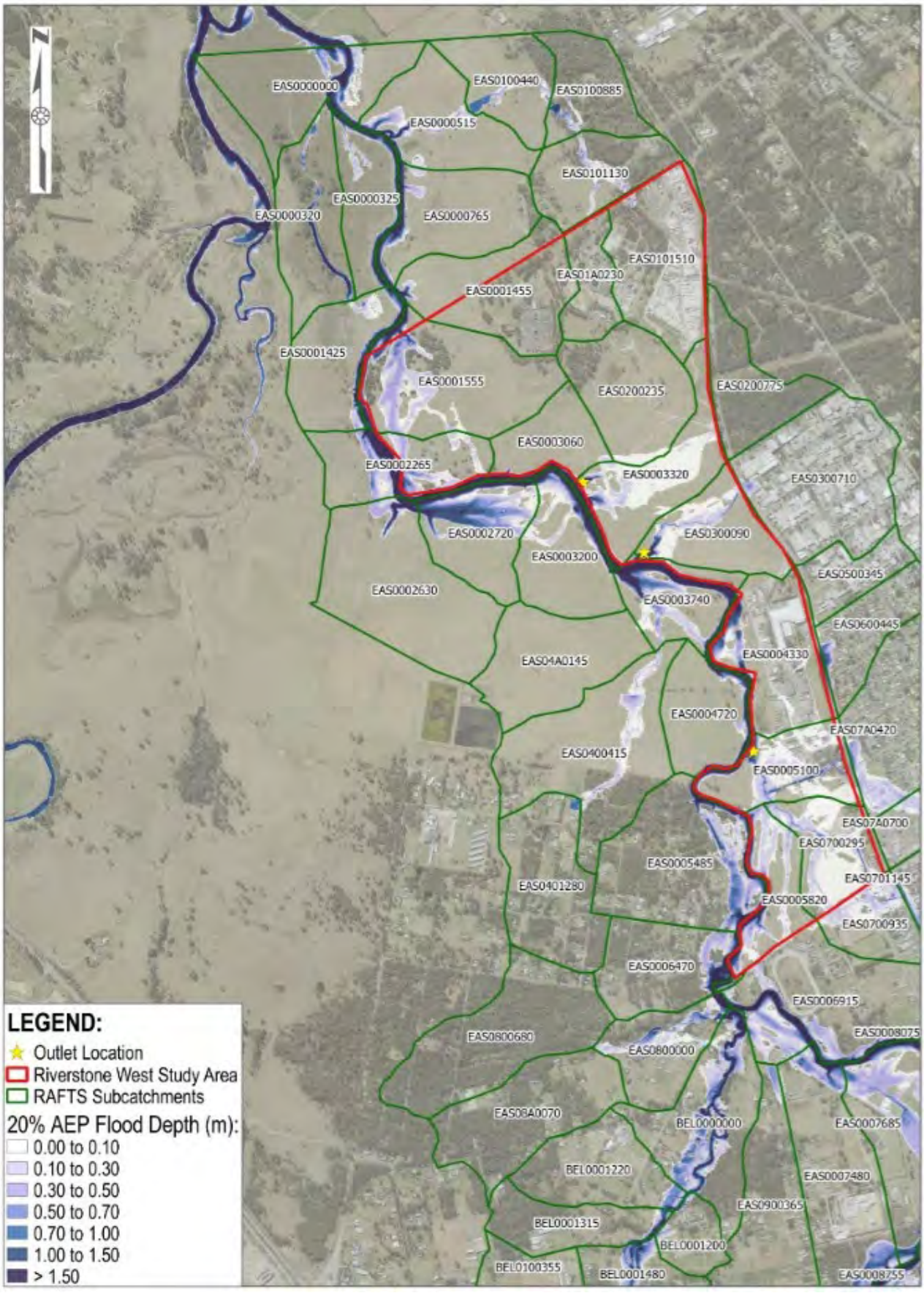


Figure 3-3 Key Locations for Identifying Critical Duration

3.3 Hydraulic Modelling

3.3.1 Existing Scenario Model Set-up

3.3.1.1 Model Extents

For the purpose of this assessment a 1D/2D hydraulic TUFLOW model was assembled by Cardno. **Figure 3-4** shows the extents of the hydraulic TUFLOW model adopted. The model extends from Schofields Road in the south to downstream of Windsor at the north (5km downstream of the Study Area). These model extents are considered sufficient to demonstrate any possible impacts of the proposed development on flooding on adjoining properties.

3.3.1.2 Model Topography

Model topography was adopted from the 2019 1m Light Detection and Ranging (LiDAR) data downloaded from ELVIS (Elevation Information System) website (https://elevation.fsdf.org.au/).

As discussed in **Section 2.2** detailed survey of the Study Area (undertaken by Land Partners, 2008) was also included in the model to provide a detailed presentation of the terrain at the Study Area (**Appendix A**).

Based on the size of watercourses within the model extent, existing flowpaths and Study Area, a grid size of 2m x 2m was considered suitable and adopted for this study. The existing ground level terrain for the Study Area and surrounds adopted in the model is shown in **Figure 3-5**.

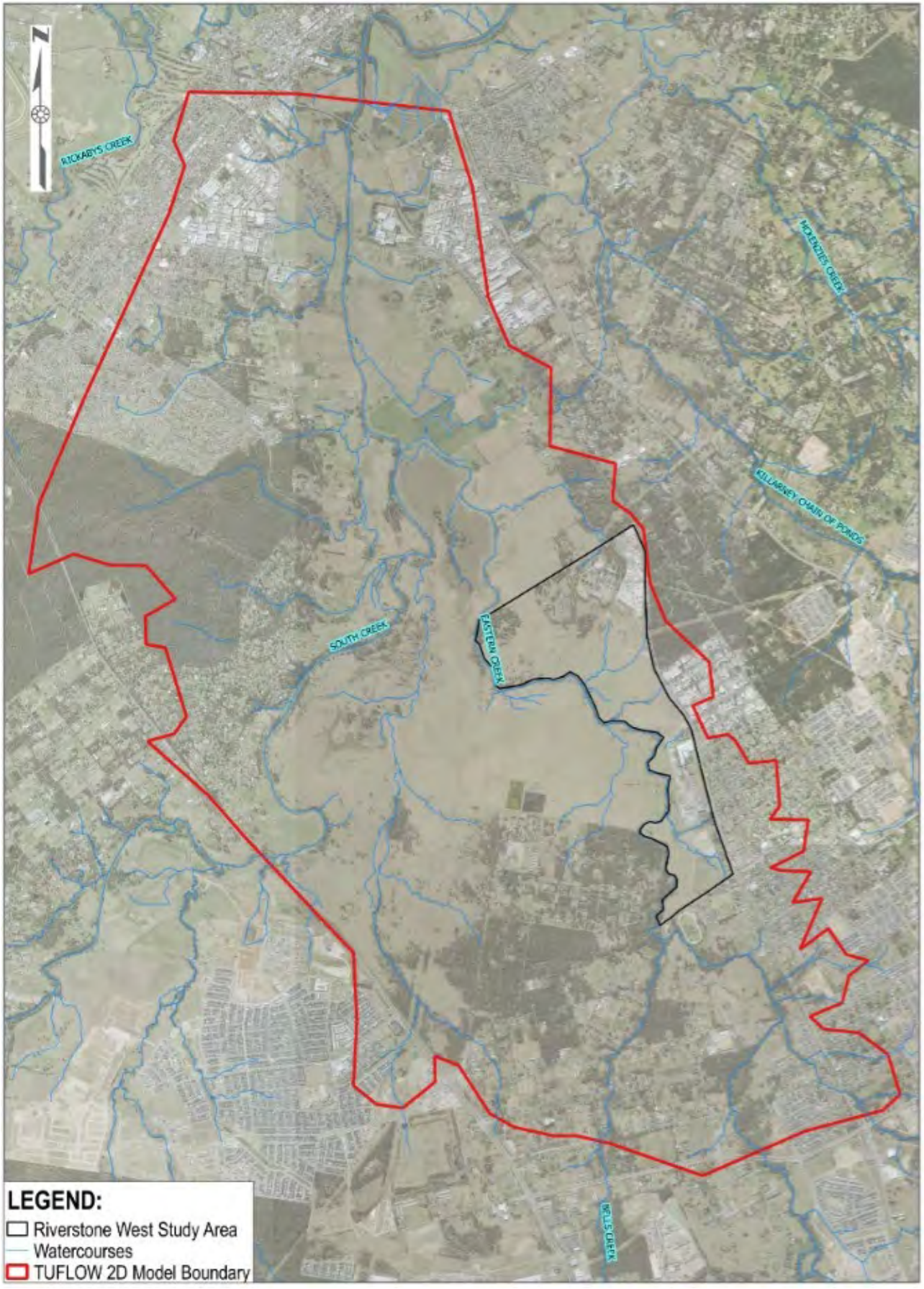


Figure 3-4 TUFLOW Model Extents

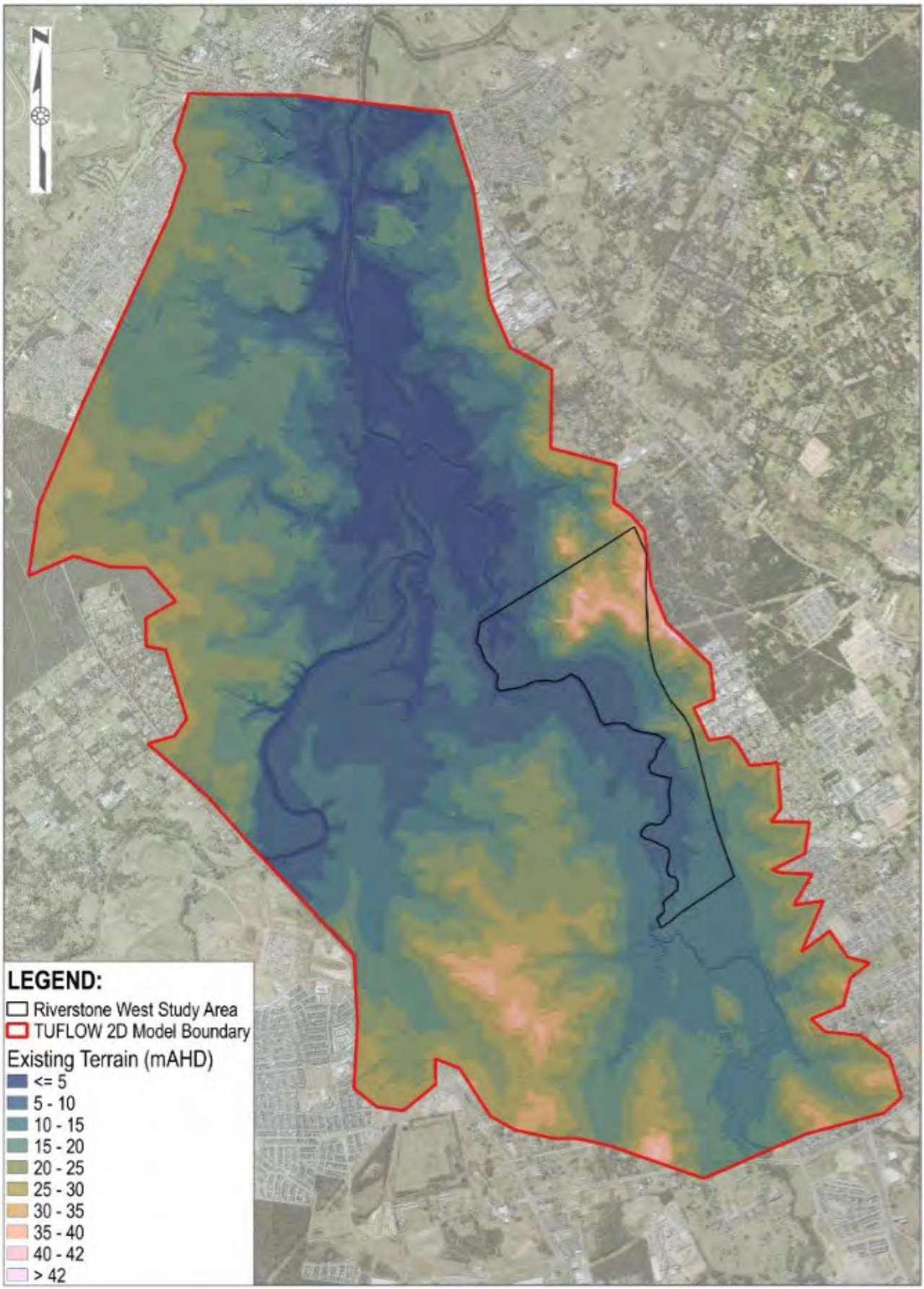


Figure 3-5 Adopted Topography at the Study Area and Surrounds

3.3.1.3 Hydraulic Roughness

Surface roughness was modelled in TUFLOW based on the roughness zones. Roughness zones for the model were determined using aerial photography, current land use zones, and site inspection carried out during the study. **Table 3-5** summarises the types of roughness zone and associating hydraulic roughness adopted in the model.

Table 3-3 Roughness Values for Different Roughness Zones

Roughness Zone	Manning's "n" Value
Light vegetation / Grass	0.035
Medium Vegetation	0.05
Dense Vegetation	0.1
Commercial / Industrial	0.1
Medium Residential	0.08
Low Residential	0.07
Railway	0.05
Roads	0.02

3.3.1.4 Existing Drainage Network

As discussed in **Section 2.2** the existing drainage network including railway culverts was modelled based on the site survey information, site inspection carried out during the study and also the information received from TfNSW. **Figure 3-6** shows the existing drainage network as included in the TUFLOW model.

Figure 3-6 Existing Drainage Network Included in the TUFLOW Model

3.3.1.5 Boundary Conditions

As discussed in **Section 3.1.1** different flooding simulations were considered in this study. **Table 3-4** shows the source of inflow and tailwater level boundary conditions adopted for each simulation.

Table 3-4 Source of Inflow Hydrographs and Tailwater Level Hydrographs Adopted in each Flooding Scenario

Flooding Scenario	Source of Inflows	Type/Source of Tailwater Level
Eastern Creek Local Flows with Free Outfall Downstream Boundary	- XP-RAFTS model (ARR1987) for local catchment AND Upstream inflows hydrographs extracted from Council's TUFLOW Model (Refer to **Section 2.5.6**)	Free Outfall
Eastern Creek Local Flows with 20% AEP Hawkesbury- Nepean Tailwater Level	- XP-RAFTS model (ARR1987) for local catchment AND Upstream inflows hydrographs extracted from Council's TUFLOW Model	20% AEP Hawkesbury-Nepean Tailwater Level
Eastern Creek Local Flows with 1% AEP Hawkesbury- Nepean Tailwater Level	- XP-RAFTS model (ARR1987) for local catchment AND Upstream inflows hydrographs extracted from Council's TUFLOW Model	1% AEP Hawkesbury-Nepean Tailwater Level
Hawkesbury-Nepean Study Flows	RUBICON model inflows (provided by WMAwater)	Free Outfall
Hawkesbury-Nepean Study Tailwater Condition	Hawkesbury-Nepean Regional Flood Study (provided by WMAwater)	Hawkesbury-Nepean Regional Flood Study (provided by WMAwater)

Hawkesbury Nepean backwaters are quite large and will cause significant flooding within the Study Area even in the smaller events. In such situation any fill or cut within the study area will be a small feature in comparison to the backwater and will have negligible impact on flood behaviour. Therefore, the local flooding simulations have been modelled with free outfall downstream boundary so that the impacts of the development on flood behaviour can be investigated and not be overshadowed by the backwater impacts.

3.3.2 Existing Scenario Model Results

The TUFLOW model was run for the three simulations as per **Table 3-4** for the 1% and 20% AEP events. The results are presented in **Figures E1** to **E8 in Appendix B.**

3.3.2.1 Local Flooding – Eastern Creek Flows with Free Outfall Downstream Boundary

In this simulation the Study Area is mostly flood free in the 1% AEP event with the exception of the flowpaths traversing the area form the upstream catchments at the east and south of the Study Area. The 1% AEP flood levels along Eastern Creek vary from 12.3 mAHD at Garfield Road West to 7.4 mAHD at Bandon Road (**Figure E4**).

In the 20% AEP event, similarly the majority of the Study Area is flood free. Flood levels along Eastern Creek vary form 11.06 mAHD at Garfield Road West to 6.5 mAHD at Bandon Road (**Figure E1**).

3.3.2.2 Local Flooding – Eastern Creek Flows with 20% AEP Hawkesbury-Nepean Tailwater Level

This simulation was undertaken for the 1% AEP event. It was observed that the site is partially flooded due to the impacts of the 20% AEP tailwater level from the Hawkesbury_Nepean system. Flood levels vary from 12.5 mAHD at Garfield Road West to 11.1 mAHD at Bandon Road (**Figure E7).**

3.3.2.3 Local Flooding – Eastern Creek Flows with 1% AEP Hawkesbury-Nepean Tailwater Level

This simulation was undertaken for the 1% AEP event. It was observed that the study site is almost completely flooded due to the impacts of the 1% AEP tailwater level from Hawkesbury-Nepean river system. A constant flood level of 17.3 m AHD is observed at the site and along Eastern Creek (**Figure E8).**

3.3.2.4 Local Flooding – Hawkesbury-Nepean Study Flows

In this simulation the 1% AEP flood levels along Eastern Creek vary from 11.5 mAHD at Garfield Road West to 6.6 mAHD at Bandon Road (**Figure E6**). In the 20% AEP event flood levels range from 10.6 mAHD at Garfield Road West to 5.7 mAHD at Bandon Road (**Figure E3**).

The flood levels and flood extents are generally smaller in comparison to the local Eastern Creek Flows simulation. This is predominantly due to the different distribution and magnitude of hydrology inflows into the model. It can be concluded that between the two local flooding simulations (Eastern Creek Flows and Hawkesbury-Nepean Study flows), the Eastern Creek flows is more critical for the purpose of this study as it provides the definition and magnitude of flows traversing the Study Area which are required for developing the fill and cut strategy and also designing the drainage network.

3.3.2.5 Hawkesbury-Nepean Study Tailwater Condition

In this simulation the bathtub impact form the Hawkesbury-Nepean backwater results in a constant flood level within the Study Area. The entire Study Area is flooded in the 1% AEP event with flood level of 17.3 mAHD (**Figure E5**). Depth and extent of flooding in the 20% AEP event is significant along Eastern Creek and the constant flood level of 9.9m AHD is observed (**Figure E2**).

3.3.3 Interim Scenario Model Set-up

To represent the Interim Scenario, the Existing Scenario model was updated to include the proposed designs for Bandon Road and Garfield Road West upgrades as provided by TfNSW (refer **Section 2.7**). **Figure 3-7** shows the changes in terrain levels for the Interim Scenario in comparison to the Existing Scenario.

Garfield Road West and Bandon Road upgrades result in increases and decreases in the terrain levels along the proposed roads. Bandon Road upgrade also includes two compensatory cuts as shown in **Figure 3-7.** These are located outside the Study Area.

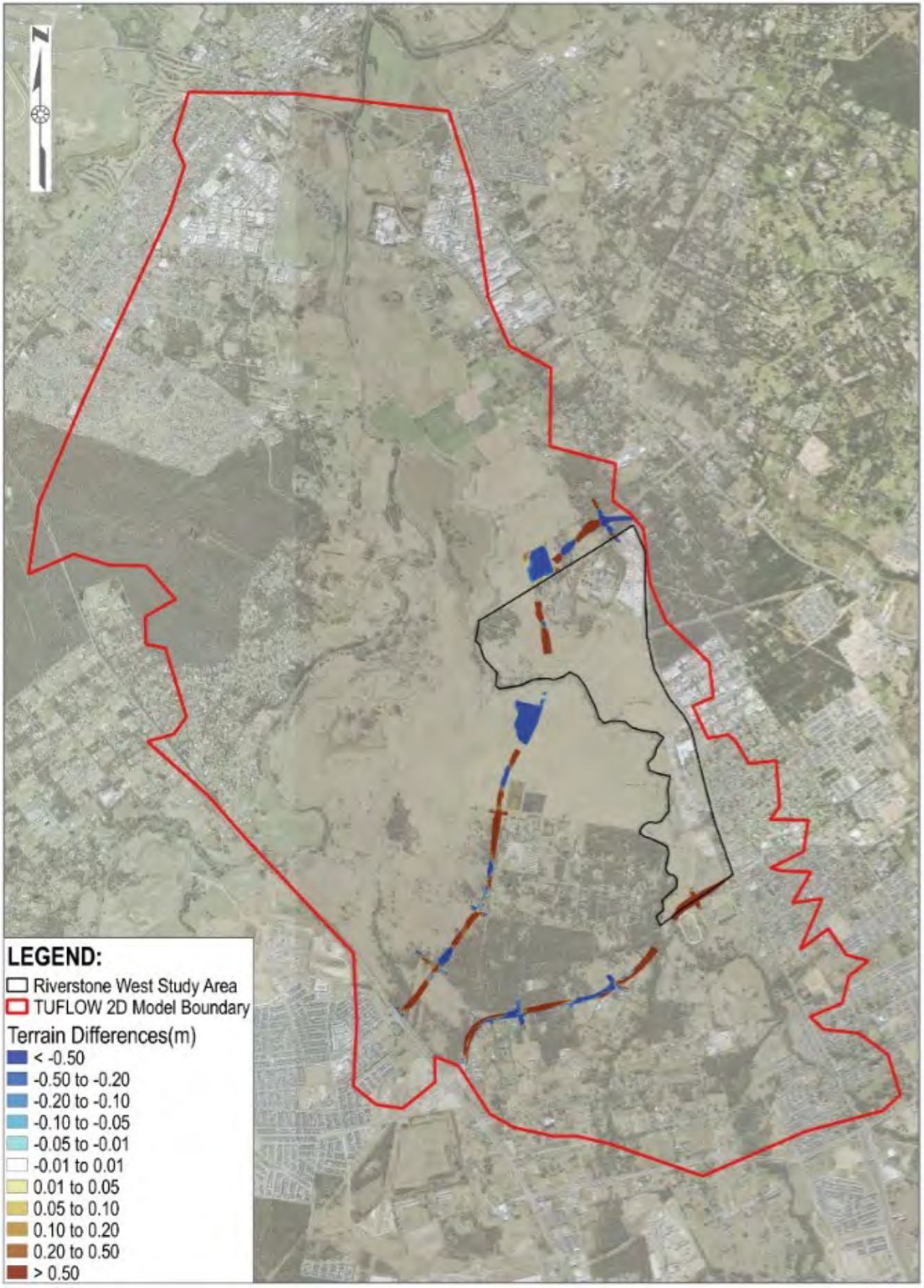


Figure 3-7 Terrain Difference Plot (Interim Scenario Less Existing Scenario)

3.3.4 Interim Scenario Model Results

The TUFLOW model was run for all the three flooding simulations discussed in Section 3.1.1 for the 20% AEP, 5% AEP, 1% AEP, 0.833% AEP, 0.5% AEP, 0.2% AEP and PMF events.

The differences between the Interim and Existing flood levels for the 20% AEP and 1% AEP events are presented in **Figure I1** to **Figure I6** in **Appendix B.**

It has been assumed that the hydraulic model with upgraded Bandon Road and Garfield Road West will form the Base Case for the purpose of Riverstone West Precinct assessment.

3.3.4.1 Local Flooding – Eastern Creek Flows with Free Outfall Downstream Boundary

The proposed Garfield Road West upgrade causes raised terrain levels on both sides of the confluence of Bells Creek and Eastern Creek (**Figure 3-6**). This results in reducing the width of the 1% AEP flood extent. Therefore the flood level increases of up to 50mm along the confluence are observed in the 1% AEP event (**Figure I4** and **Figure I6).** Localised flood level increases of up to 100mm are observed adjacent to Garfield Road West in the 1% AEP event (**Figure I4** and **Figure I6**).

Raising Garfield Road West levels adjacent to the Study Area results in increases in the 1% AEP flood levels and extents upstream of the site. It also results in decreases in flood levels and extents within and adjacent to the Riverstone West site (**Figure I4** and **Figure I6**).

The compensatory cut as a part of Bandon Road design is marginally within the 1% AEP flood extent and results in up to 60mm decrease in flood levels in both the local flooding simulations (**Figure I4** and **Figure I6**).

In the 20% AEP event the proposed Garfield Road West and Bandon Road upgrade impacts on flooding are almost similar to the 1% AEP event (**Figure I1 & Figure I3**).

3.3.4.2 Hawkesbury-Nepean Study Tailwater Condition

The impacts of the proposed Garfield Road West and Bandon Road upgrades on 1% and 20% AEP flood levels in this simulation is negligible (**Figure I2** and **Figure I5**). This is predominantly due to the small scale of the proposed terrain changes in comparison to the large flood depths produced by the backwater from Hawkesbury-Nepean River.

3.3.5 Design Scenario Model Set-up

The Design Scenario model has been developed through application of the following data:

- Proposed fill pad: The fill pad is designed to raise the development area to 17.3 mAHD (which is the Hawkesbury 1% AEP flood level) to ensure that the development will not be flooded by the backwater from Hawkesbury River;
- Proposed Spine Road (provided by land owner / developer): The Spine Road design has been aligned with the fill pad design to ensure consistency in the layout and levels; and
- Proposed drainage network: The proposed drainage network is designed to replace the existing overland flowpaths within the Study Area and convey flows from the east of the fill pad to Eastern Creek thereby avoiding any water ponding upstream of the fill area.

Figure 3-8 shows the changes in the terrain in the Design Scenario compared to Interim and also the proposed drainage network.

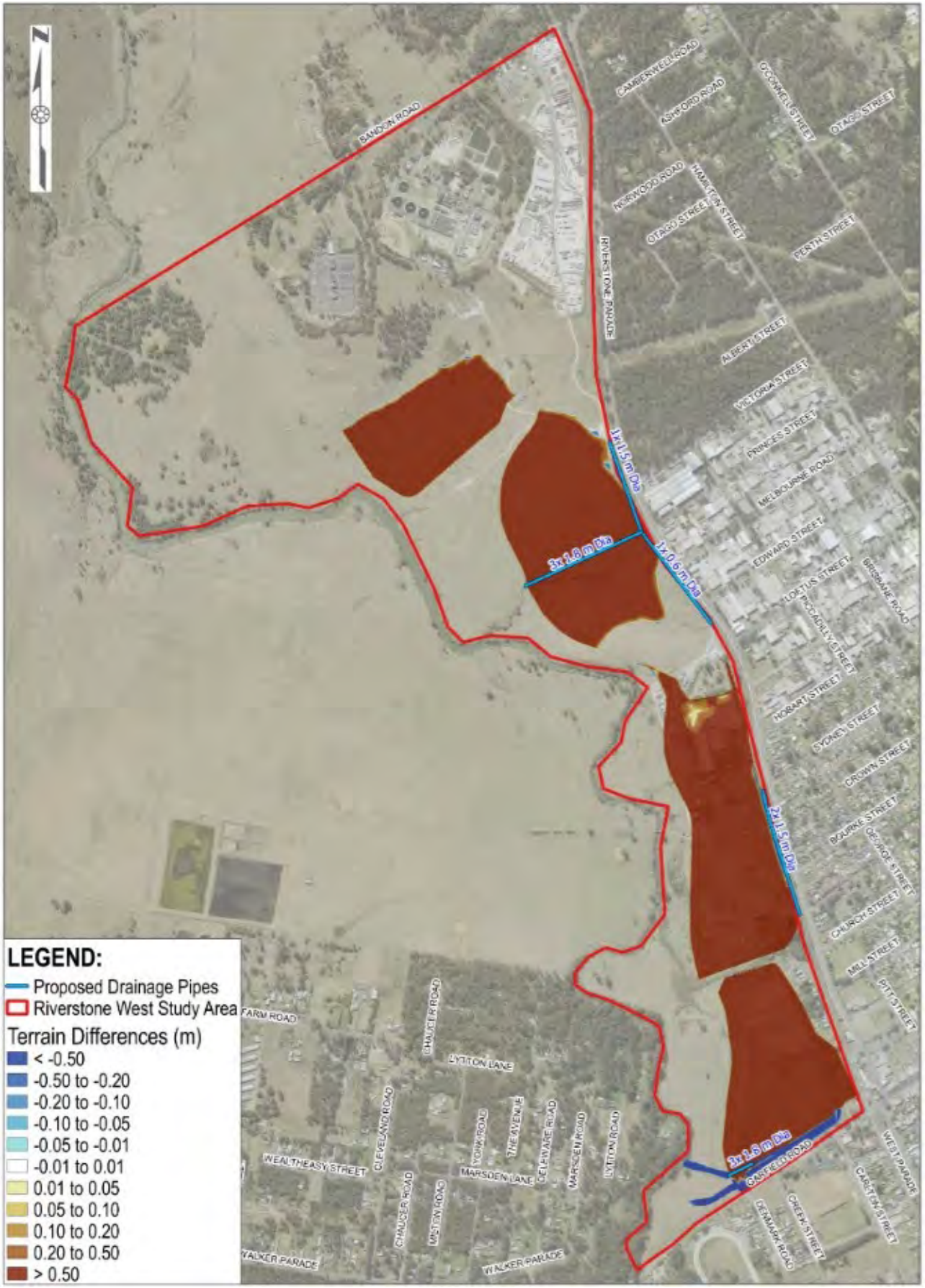


Figure 3-8 Proposed Drainage Network and Terrain Difference Plot (Design Less Interim)

3.3.6 Design Scenario Model Results

The Design Scenario model was run for the 20% AEP, 5% AEP, 1% AEP, 0.833% AEP, 0.5% AEP, 0.2% AEP and PMF events. The results for all the modelled events are provided in **Figures D1** to **Figure D35** in **Appendix B**.

3.3.6.1 Local Flooding – Eastern Creek Flows with Free Outfall Downstream Boundary

In the 20% AEP event the channel formalised upstream of the site redirect some of the upstream flows around the fill pad and into Eastern Creek. This results in the localised decreases in flood levels (up to 50 mm) along Riverstone Pde and the properties on the western side of Eastern Creek. Increases in flood levels are observed immediately adjacent to the proposed fill (**Figure D23)** but within the Study Area. A similar pattern is observed in the 5% AEP event (**Figure D26)**

The proposed fill pad is marginally within the 1% AEP local flood extent. This results in up to 50 mm increase in flood levels on properties along the western side of Eastern Creek and up to 500 mm within the Study Area. In this simulation, flood level decreases are observed upstream of the site and adjacent to Church Street, King Street and Princess Street (**Figure D29**). This is predominantly due to the provision of drainage networks and open channel proposed within the Study Area.

3.3.6.2 Local Flooding – Eastern Creek Flows with 20% AEP Hawkesbury-Nepean Tailwater Level

This simulation was undertaken for the 1% AEP event. It was observed that the proposed fill is partially within the flood extent and as a result increases in flood levels of up to 50 mm are observed on properties along the western side of Eastern Creek and within the Study Area (**Figure D30)**.

3.3.6.3 Local Flooding – Eastern Creek Flows with 1% AEP Hawkesbury-Nepean Tailwater Level

This simulation was undertaken for the 1% AEP event. It was observed that the proposed fill does not affect the flood levels within the Study Area and along Eastern Creek. However increased flood levels are observed along Riverstone Pde. These increased flood levels are a result of backwater through the proposed channels and drainage pipes (**Figure D31)**.

3.3.6.4 Local Flooding – Hawkesbury-Nepean Study Flows

In this simulation the 1% AEP flood levels increases of up to 300mm within the Study Area are observed. Flood level decreases of up to 50mm are also observed along Eastern Creek (**Figure D33**). In this simulation the impacts of the proposed development on 20% AEP event flood levels is negligible (**Figure D25)**.

It should be noted that the observed increases are contained within the creek corridor and are not affecting any adjacent roads or properties.

3.3.6.5 Hawkesbury-Nepean Study Tailwater Condition

The impacts of the fill pad on 1% and 20% AEP event flood levels in this simulation is negligible (**Figure D24** and **Figure D32**). This is predominantly due to the small scale of the proposed terrain changes in comparison to the large flood depths produced by the backwater from Hawkesbury-Nepean River.

4 Conclusion

The Riverstone West Precinct was rezoned in August 2009 to allow industrial, light industrial and business park uses. Since the Precinct is subject to flooding from Eastern Creek, backwater flooding from Hawkesbury River, and local overland flows; it is proposed to fill the land to the 1% AEP Hawkesbury-Nepean Tailwater level of 17.3 mAHD. This flood assessment was undertaken to review the flood implications of this.

A TUFLOW hydraulic flood model was established for the existing, interim (with Bandon Rd and Garfield Rd upgrades) and developed conditions (with Bandon Rd and Garfield Rd upgrades, and the proposed fill pads), for the local Eastern Creek flows, Hawkesbury Nepean inflows and Hawkesbury-Nepean Tailwater level flood events.

The key finding of the assessment undertaken is that local flooding due to Eastern Creek flows is most impacted by the proposed fill. As can be observed from the flood mapping provided (**Appendix B**), the impacts are predominately observed in the 1% AEP Eastern Creek Flows with free outfall downstream boundary event and 1% AEP Eastern Creek Flows with 20% AEP Hawkesbury-Nepean Tailwater Level event. Increases greater than 10mm are observed on adjoining properties. These increases will have to be mitigated to ensure that there are no impacts from the proposed fills pads.

There are increases also observed along Riverstone Pde, however these are predominantly stormwater drainage issues and can be resolved by drainage upgrades.

While increases and decreases of up to 10mm can be observed for most of the modelled events and scenarios assessed and are widespread for certain areas, these are considered to be within the modelling tolerances and can be considered as ‘negligible/no impact’.

5 References

Department of Planning 2009, Riverstone West Precinct Development Control Plan.

Worley Parsons, 2008, Proposed Redevelopment of Riverstone West Precinct Flood Impact Assessment.

Cardno 2008, Peer review of the Proposed Redevelopment of Riverstone West Flood Impact Assessment.

Worley Parsons, 2013, Riverstone West precinct Flood Impact Assessment Report.

Worley Parsons, 2014, Riverstone West Precinct Floodplain Management Strategy.

Cardno, 2014, Peer Review of the Riverstone West Floodplain Management Strategy.

EMGA Mitchell McLennan, 2014, Riverstone West Precinct: Salinity and Groundwater Assessment and Management Plan.

JBS&G Australia Pty Ltd, 2018, Assessment of Groundwater Levels During Site Filling Works: 211 Riverstone Pde, Riverstone, Riverstone West Precinct.

Advisian 2020, Wianamatta (South) Creek Catchment Flood Study Existing Conditions.

APPENDIX

A

SITE SURVEY

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

M.G.A. NORTH (ZONE 56)

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF SHEET SET LOCATIONS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	**LOCAL AUTHORITY** BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	**SCALE** 1:6000 (A1)
MERIDIAN N/A	**CONTOUR INTERVAL** 1.0 Metre
CO-ORD SYSTEM MGA	**SURVEYOR** BS **DATE OF SURVEY** 03/03/08
CCAD FILE 71372-DE1	**DRAWN** JMD **DATE** 24/09/2013
AUTOCAD FILE 73341	**CHECKED** GKO **DATE** ??/??/??
ARCHIVE FILE 73341	**APPROVED** GKO **DATE** ??/??/??

PLAN NUMBER

73341

060701

10 0 10 20 30 40 50 METRES

SCALE 1 : 500

M.G.A. NORTH (ZONE 56)

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

BANDON ROAD

WALLACE ROAD

DULWICH ROAD

RIVERSTONE PARADE

TO RICHMOND

TO BLACKTOWN

RAILWAY LINE

VINEYARD STATION

LEVEL CROSSING

EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH

LOT 211 DP 830505

RD

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

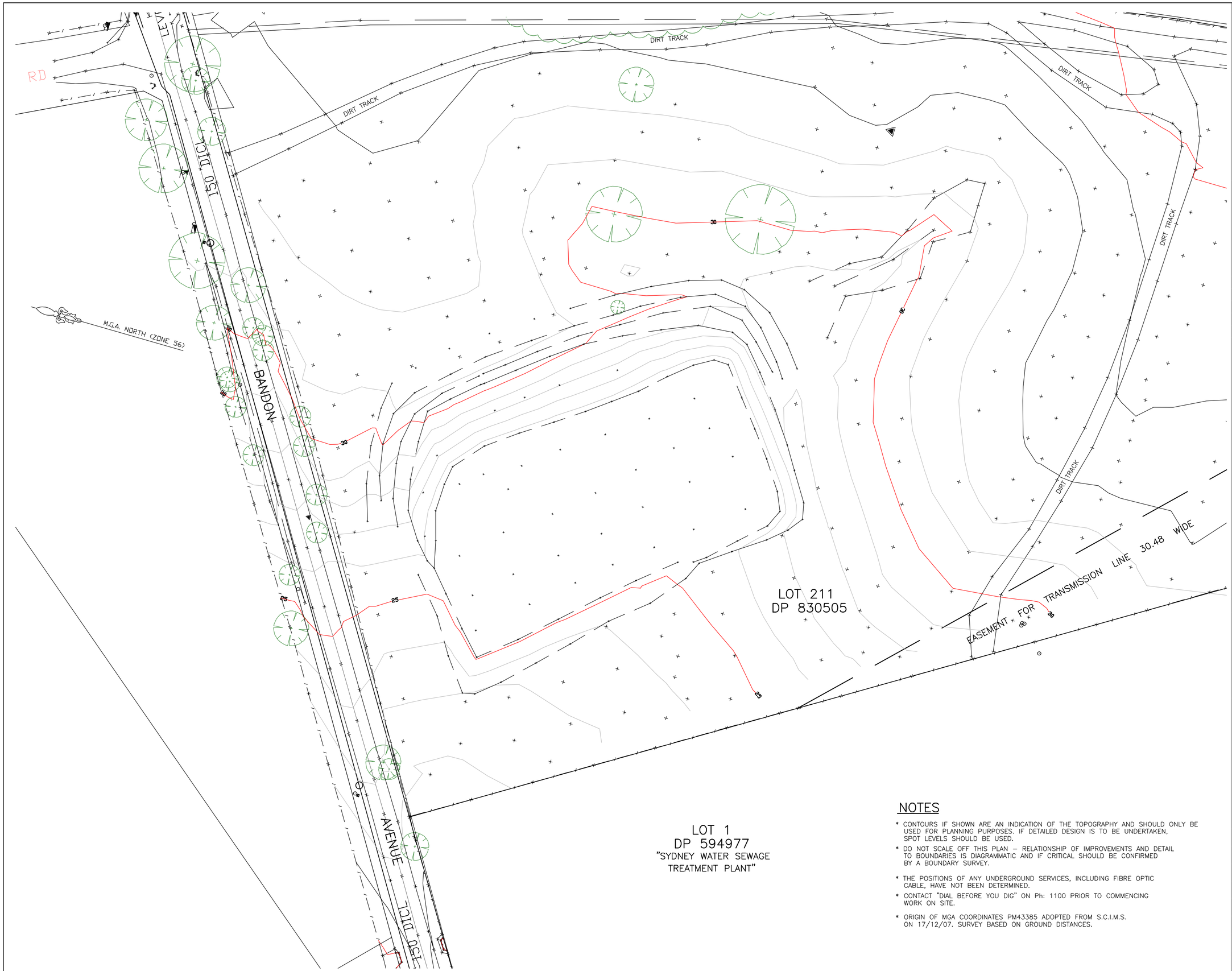
Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

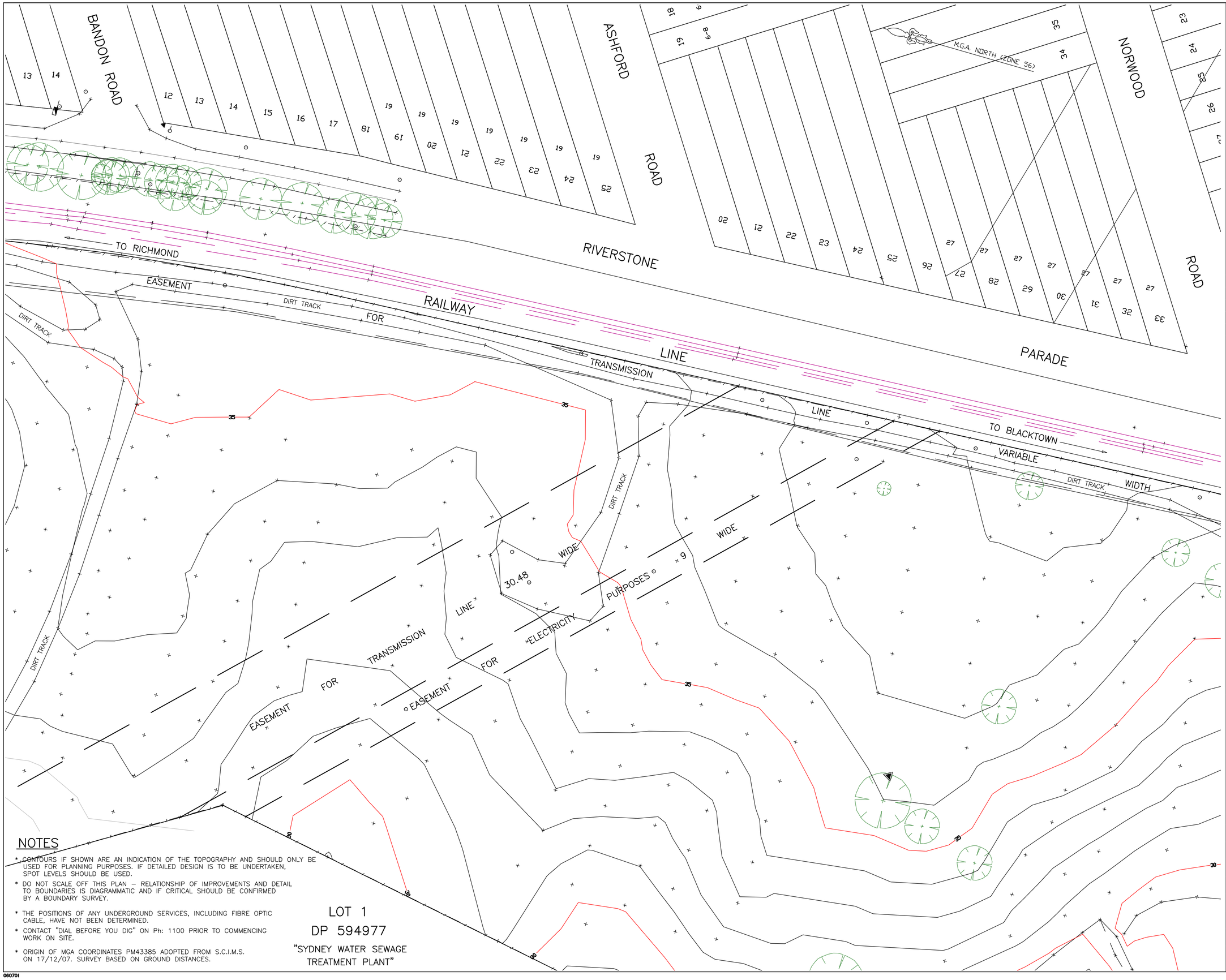
LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 53563

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 4 OF 25

060701

M.G.A. NORTH (ZONE 56)

RIVERSTONE

OTAGO STREET

CLYDE STREET

PARADE

TO RICHMOND

TO BLACKTOWN

EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH

RAILWAY LINE

DIRT TRACK

DIRT TRACK

DIRT TRACK

LOT 211
DP 830505

ORIGIN OF LEVELS
PM43386 RL 38.296

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM	**LOCAL AUTHORITY**
AHD	BLACKTOWN COUNCIL
HEIGHT ORIGIN	**SCALE**
PM 43386 RL 38.296	1:500 (A1)
MERIDIAN	**CONTOUR INTERVAL**
N/A	1.0 Metre
CO-ORD SYSTEM	**SURVEYOR** / **DATE OF SURVEY**
MGA	BS / 03/03/08
CCAD FILE	**DRAWN** / **DATE**
71372-DE1	JMD / 24/09/2013
AUTOCAD FILE	**CHECKED** / **DATE**
73341	GKO / ??/??/??
ARCHIVE FILE	**APPROVED** / **DATE**
73341	GKO / ??/??/??
PLAN NUMBER	
73341	

SHEET 5 OF 25

M.G.A. NORTH (ZONE 56)

TO RICHMOND

RIVERSTONE

PERTH STREET

ALBERT STREET

PARADE

TO BLACKTOWN

EASEMENT FOR TRANSMISSION LINE 60.96 WIDE

RAILWAY LINE

DIRT TRACK

VARIABLE WIDTH

LOT 211
DP 830505

375 CICL

250 CICL

Pressure Main

Pressure Main

Sewer Main CICL

Sewer Main CICL

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

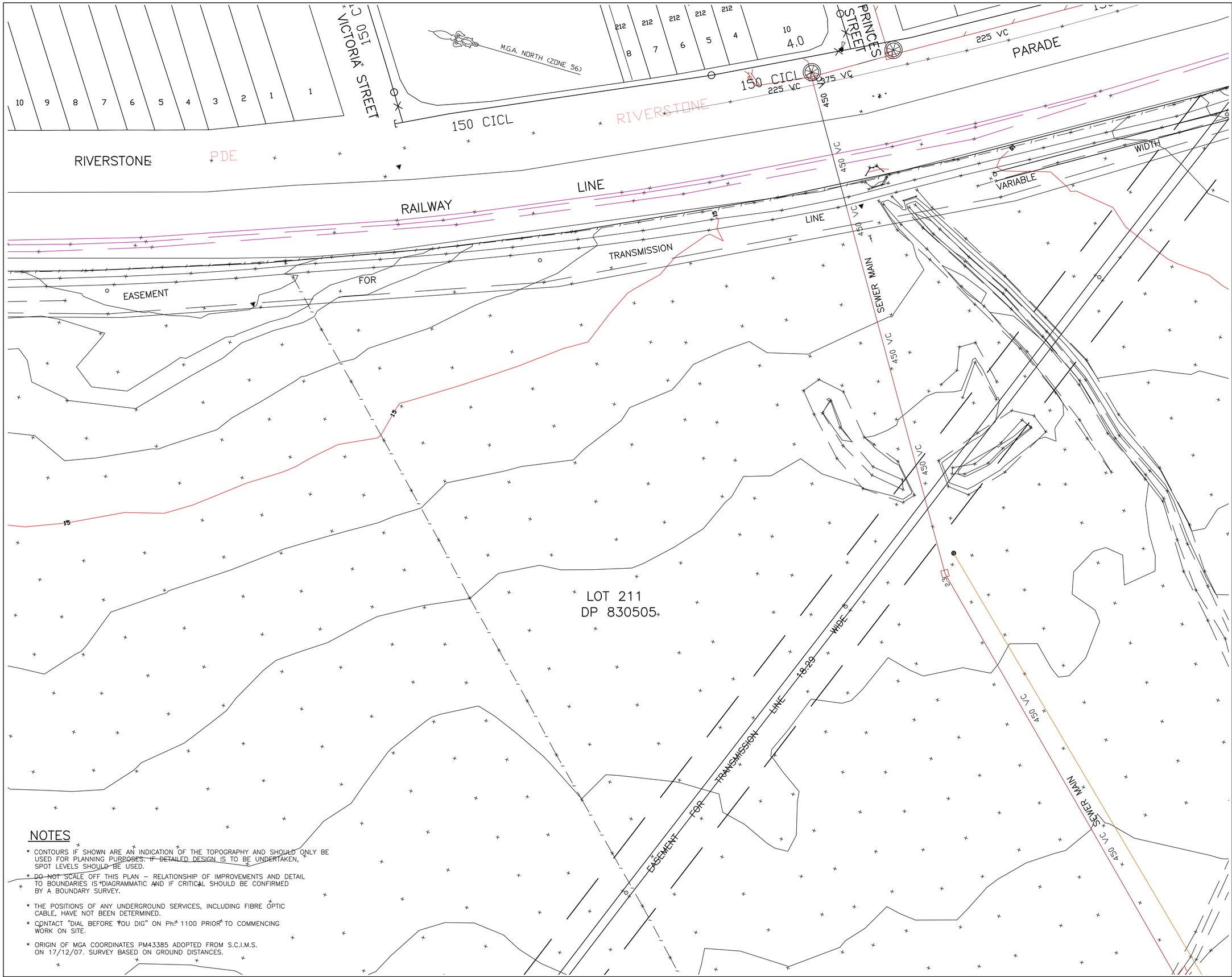
LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/04
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

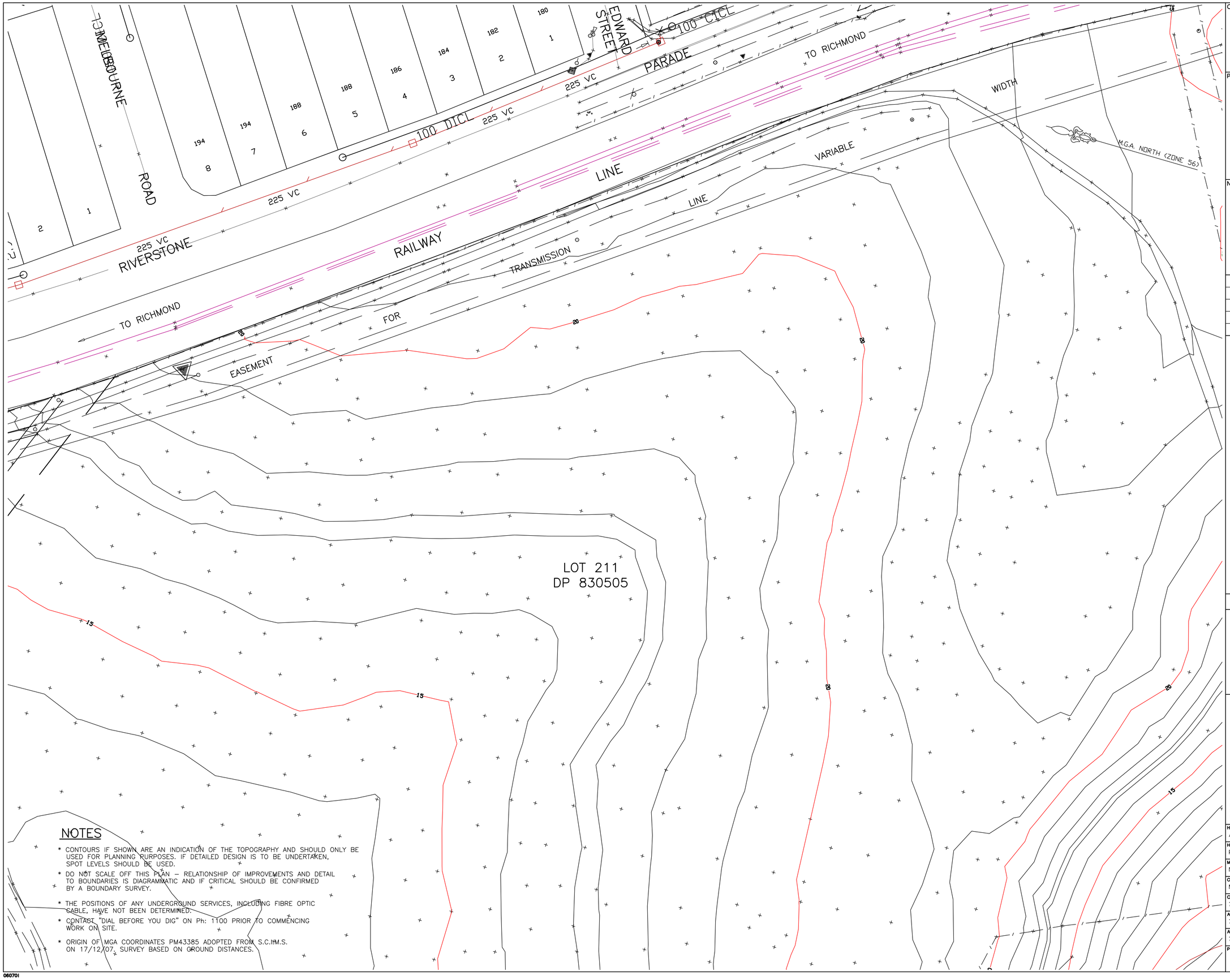
Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:6000 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 7 OF 25



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

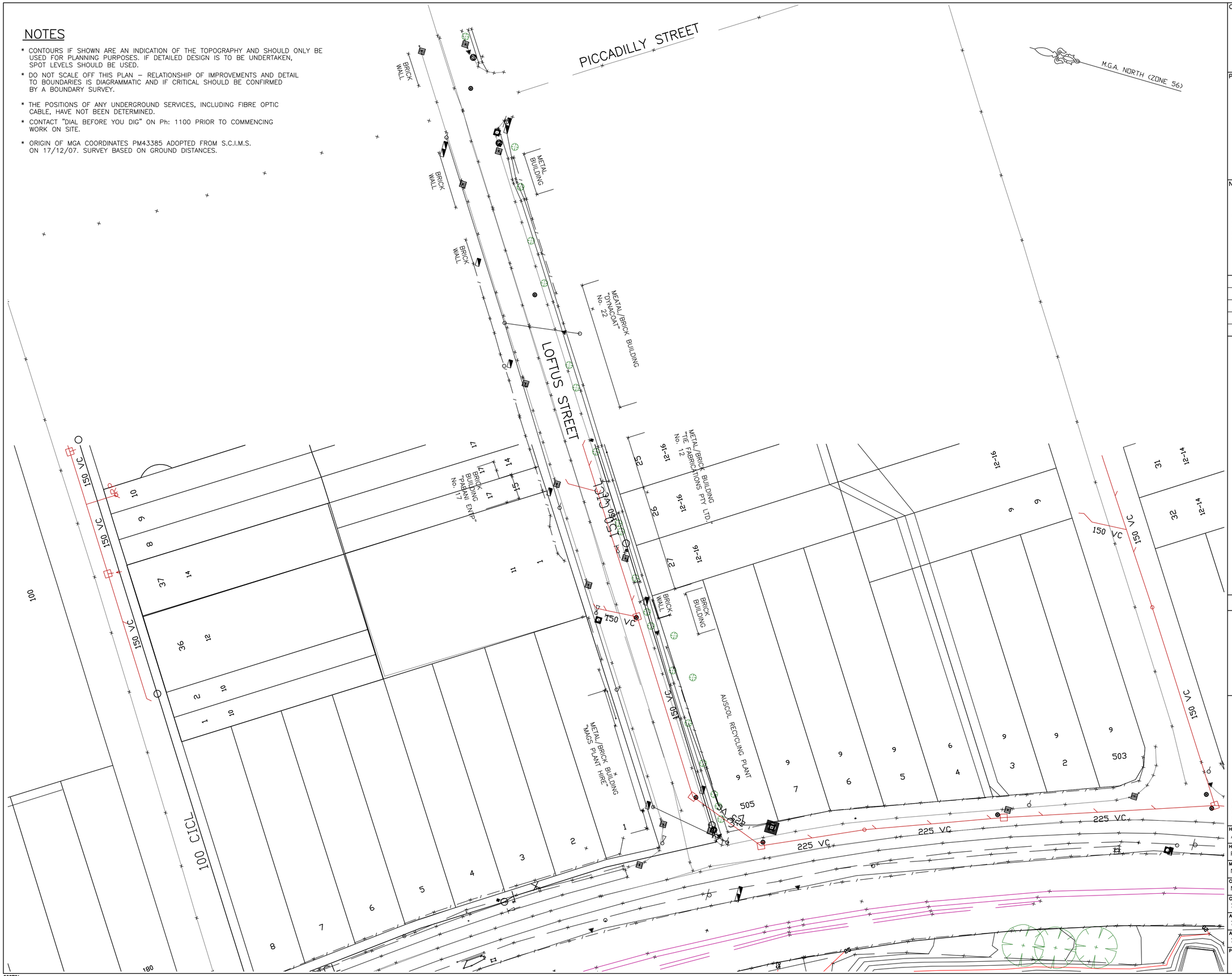
ISO 9001:2008 FS 53563

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 8 OF 25

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.



CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

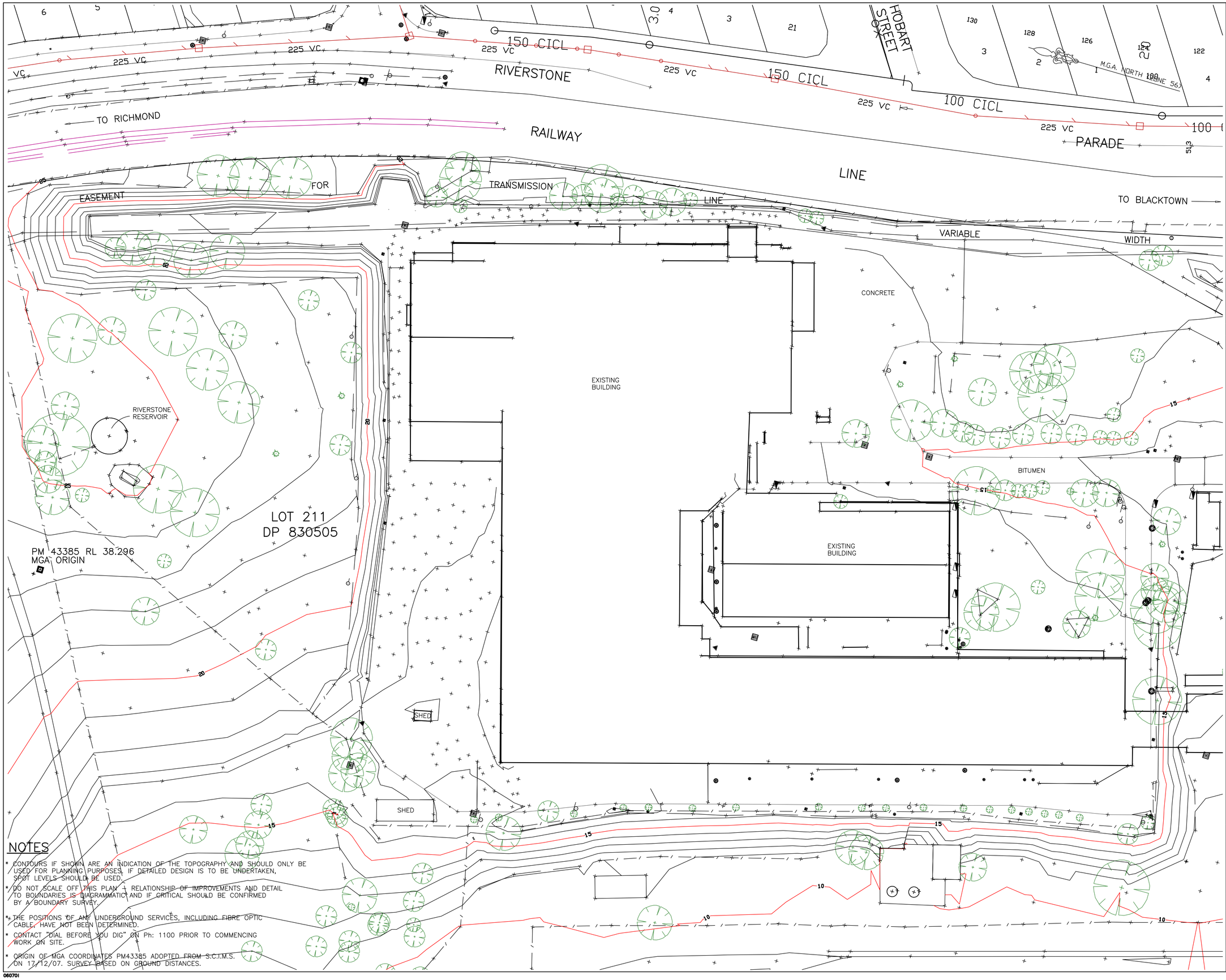
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: ??/??/??
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 9 OF 25

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN - RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM	AHD	LOCAL AUTHORITY	BLACKTOWN COUNCIL
HEIGHT ORIGIN	PM 43386 RL 38.296	SCALE	1:500 (A1)
MERIDIAN	N/A	CONTOUR INTERVAL	1.0 Metre
CO-ORD SYSTEM	MGA	SURVEYOR	BS
		DATE OF SURVEY	03/03/08
CCAD FILE	71372-DE1	DRAWN	JMD
		DATE	24/09/2013
AUTOCAD FILE	73341	CHECKED	GKO
		DATE	??/??/??
ARCHIVE FILE	73341	APPROVED	GKO
		DATE	??/??/??
PLAN NUMBER	73341		

SHEET 10 OF 25

M.G.A. NORTH (ZONE 56)

SYDNEY STREET

CROWN STREET

BOURKE STREET

RIVERSTONE PARADE

RIVERSTONE

PARADE

TO RICHMOND

TO BLACKTOWN

RAILWAY LINE

LOT 211
DP 830505

211

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph. 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM AHD	**LOCAL AUTHORITY** BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	**SCALE** 1:500 (A1)
MERIDIAN N/A	**CONTOUR INTERVAL** 1.0 Metre
CO-ORD SYSTEM MGA	**SURVEYOR** BS **DATE OF SURVEY** 03/03/08
CCAD FILE 71372-DE1	**DRAWN** JMD **DATE** 24/09/2013
AUTOCAD FILE 73341	**CHECKED** GKO **DATE** ??/??/??
ARCHIVE FILE 73341	**APPROVED** GKO **DATE** ??/??/??
PLAN NUMBER 73341	

060701

M.G.A. NORTH (ZONE 56)

88-90 | 88-90 | 88-90 | 78-86 | 84 | 82 | 48 | 103

8 | 7 | 6 | 5 | 101 | 102

2.2 | 2.2 | 2.2 | 3.8 | 2.2 | 2.9

KING STREET

CHURCH STREET

76 | 74 | 72 | 70 | 13 | 66

1 | A | B | 1 | 1 | 2

100 CICL

250 DICL | 250 DICL | 250 DICL

9.32

150 PVC | 150 PVC

150 CICL | 150 CICL | 150 CICL

400 VC | 400 VC | 400 VC | 400 VC | 400 VC | 400 VC | 400 VC | 400 VC | 400 VC

3.6 | 9.5

250 SCL

Overflow

RAILWAY

PARADE

TO RICHMOND

TO BLACKTOWN

RAILWAY LINE

RAIL CROSSING

15

GUARDS BUILDING

THICK BUSH

525 VC

525 VC

525 VC

9 VC

4.0

ROAD

(PRIVATE ROAD)

RICHARDS

6

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??

PLAN NUMBER

73341

SHEET 12 OF 25

060701

M.G.A. NORTH (ZONE 56)

MILL STREET

RIVERSTONE PARADE

RIVERSTONE RAILWAY STATION

TO BLACKTOWN

TO RICHMOND

RAILWAY LINE

EASEMENT FOR TRANSMISSION LINE VARIABLE WIDTH

RICHARDS ROAD (PRIVATE ROAD)

445823 F7

100 DICL

150 CICL

250 DICL

225 VC

150 VC

400 VC

100 uPVC

17.0

31.0

44-52

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

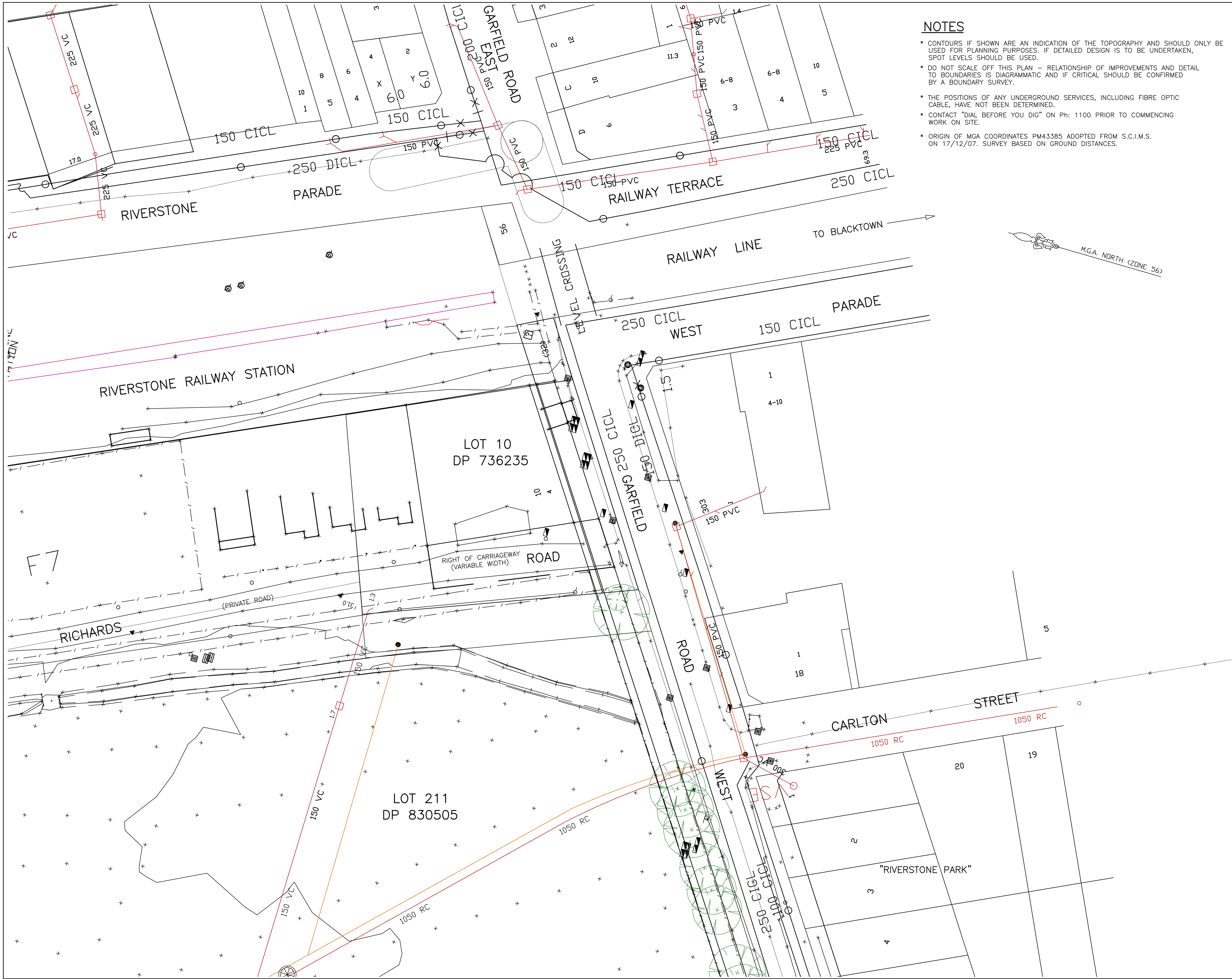
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: ??/??/??
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.



CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	LOCAL AUTHORITY BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	SCALE 1:500 (A1)
MERIDIAN N/A	CONTOUR INTERVAL 1.0 Metre
CO-ORD SYSTEM MGA	SURVEYOR BS / DATE OF SURVEY 03/03/08
CCAD FILE 71372-DE1	DRAWN JMD / DATE 24/09/2013
AUTOCAD FILE 73341	CHECKED GKO / DATE ??/??/??
ARCHIVE FILE 73341	APPROVED GKO / DATE ??/??/??

PLAN NUMBER

73341

060701

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

LOT 211
DP 830505

"RIVERSTONE PARK"

CREEK STREET

DENMARK STREET

PACER STREET

EASTERN CREEK

FIBRO COTTAGE

WEATHERBOARD COTTAGE

WEATHERBOARD COTTAGE

FIBRO COTTAGE

PIPELINE EASEMENT

24.385

WIDE

1050 RC

250 CICL

150 CICL

100 CICL

100 oPVC

M.G.A. NORTH (ZONE 56)

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:1000 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 15 OF 25

060701

M.G.A. NORTH (ZONE 56)

LOT 211
DP 830505

PIPELINE EASEMENT 24.385 WIDE

GARFIELD CIRCUIT

EAST ROAD

EASTERN ROAD

LYTTON CIRCUIT

CREEK

WEST

COUNCIL LAND

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

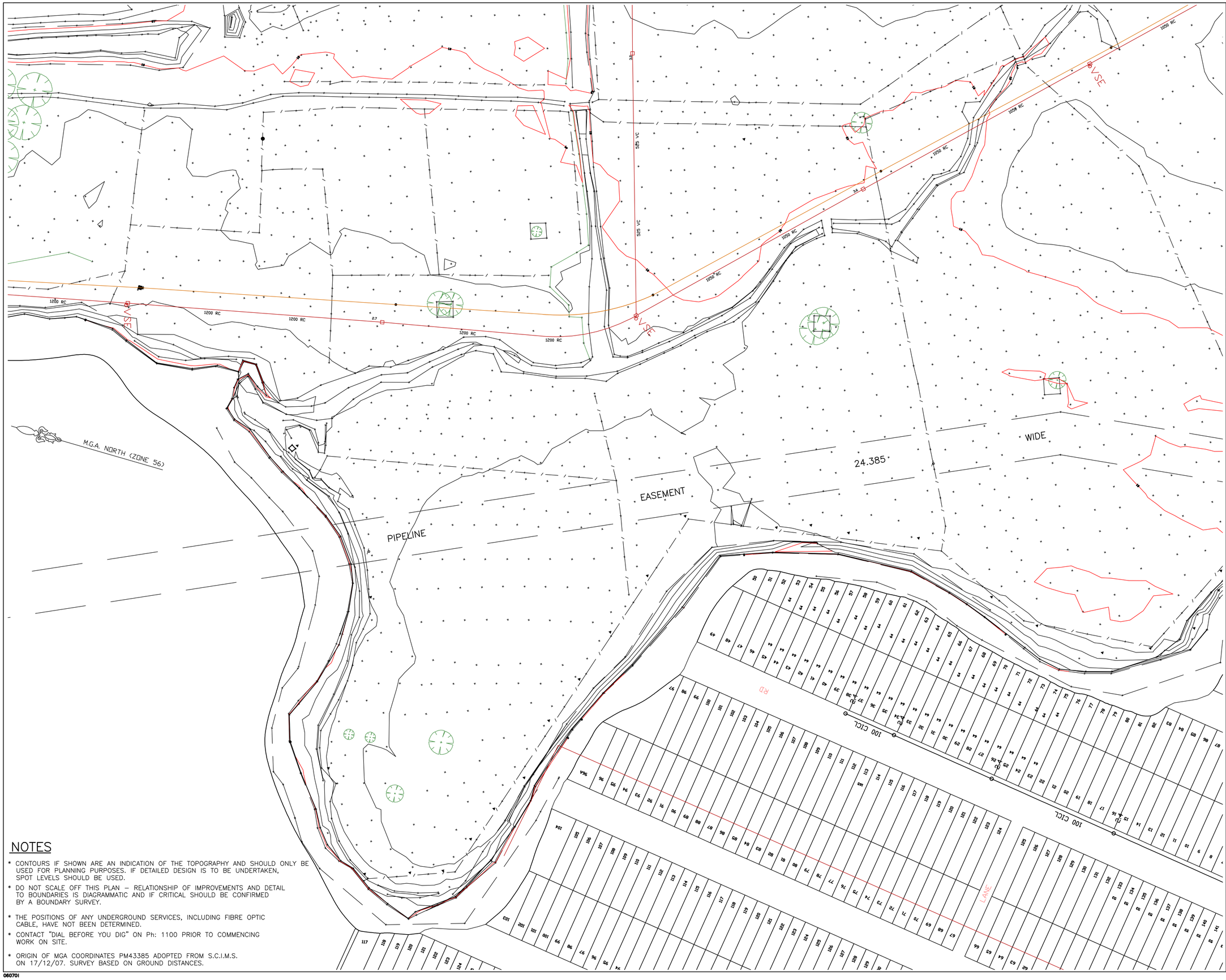
ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:500 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO DATE: ??/??/??

PLAN NUMBER: 73341

SHEET 16 OF 25

080701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

060701

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

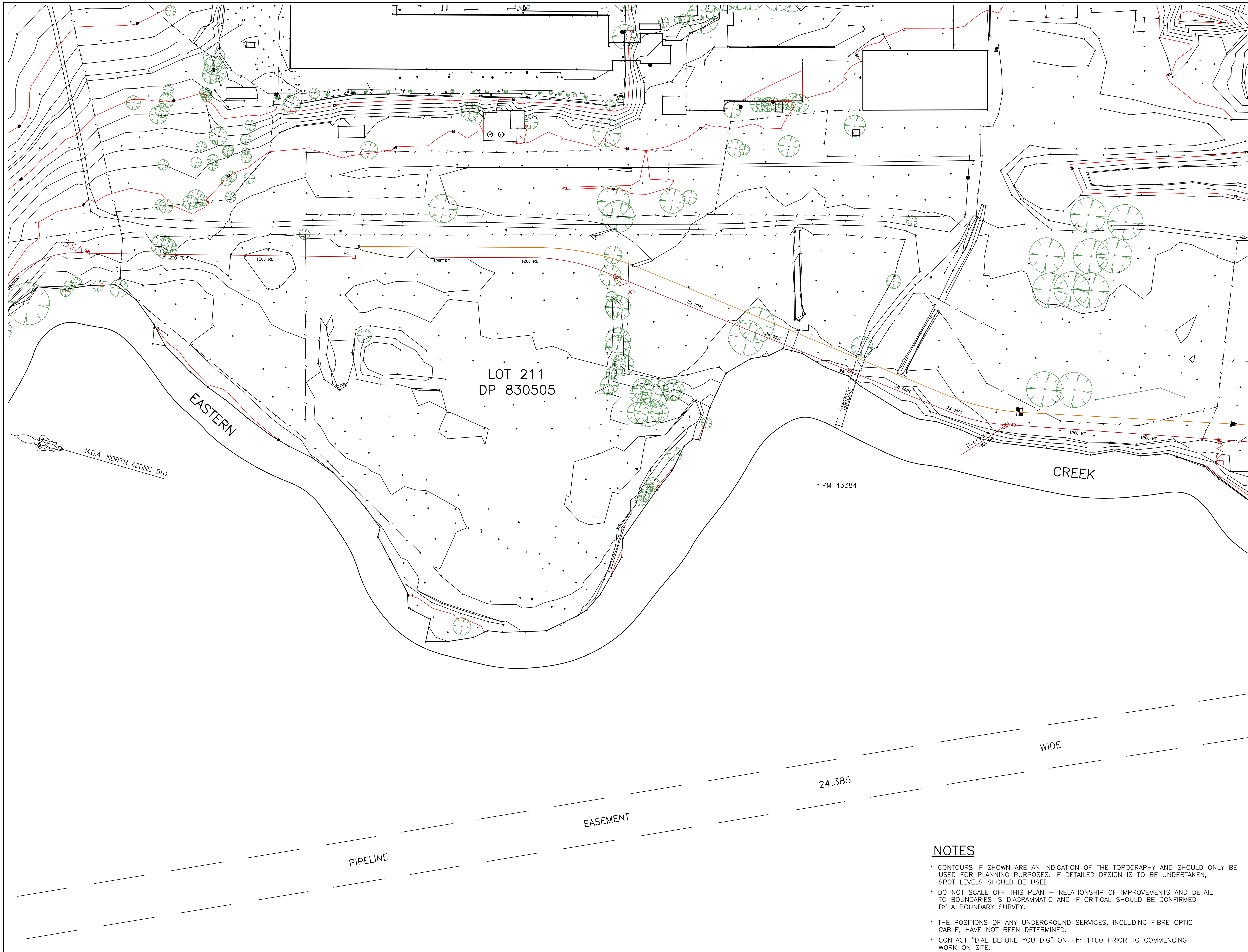
Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:1000 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??
PLAN NUMBER: 73341	

SHEET 17 OF 25



CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

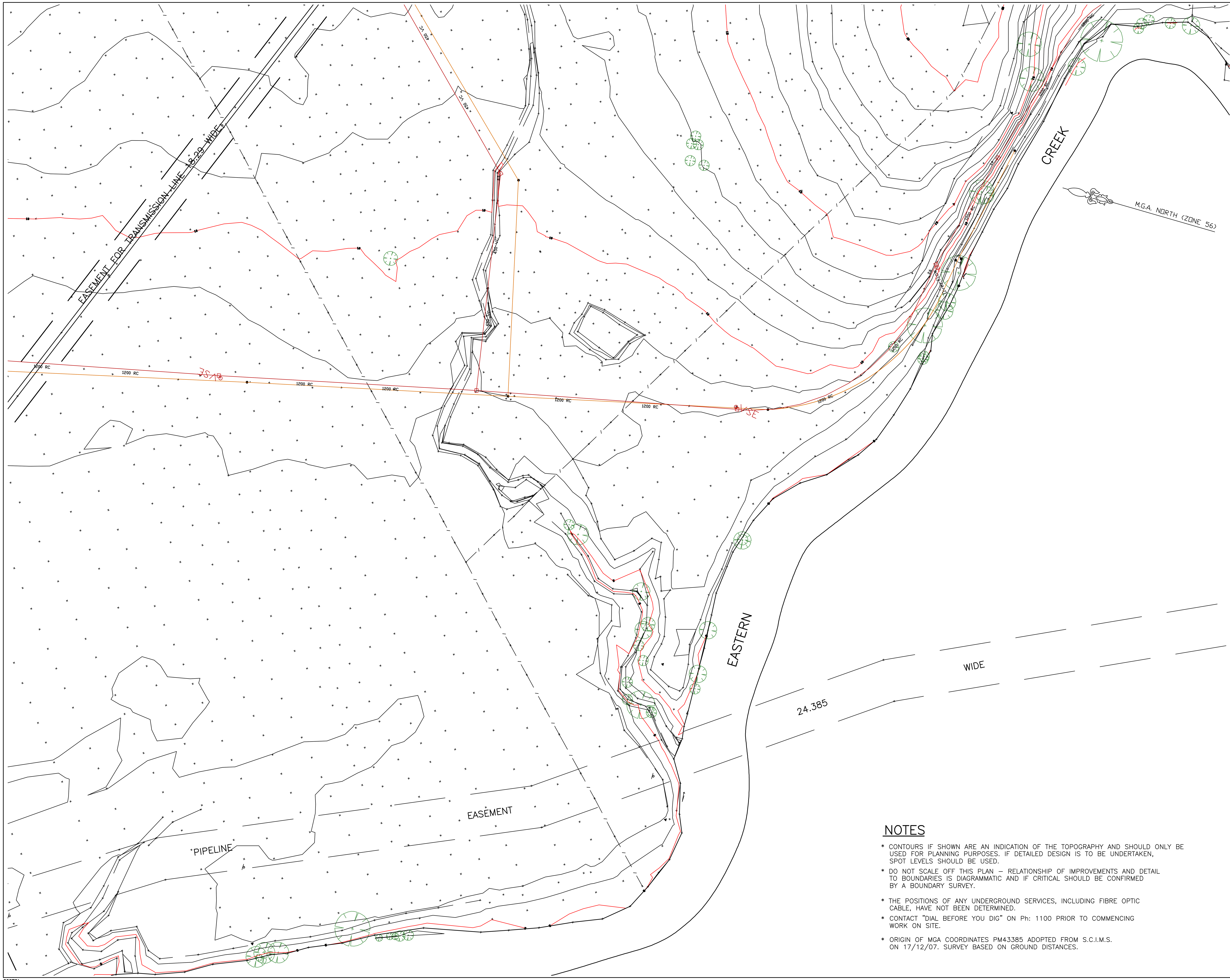
LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM: AHD		LOCAL AUTHORITY: BLACKTOWN COUNCIL	
HEIGHT ORIGIN: PM 43386 RL 38.296		SCALE: 1:1000 (A1)	
MERIDIAN: N/A		CONTOUR INTERVAL: 1.0 Metre	
CO-ORD SYSTEM: MGA		SURVEYOR: BS	DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1		DRAWN: JMD	DATE: 24/09/2013
AUTOCAD FILE: 73341		CHECKED: GKO	DATE: ??/??/??
ARCHIVE FILE: 73341		APPROVED: GKO	DATE: ??/??/??

PLAN NUMBER
73341



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

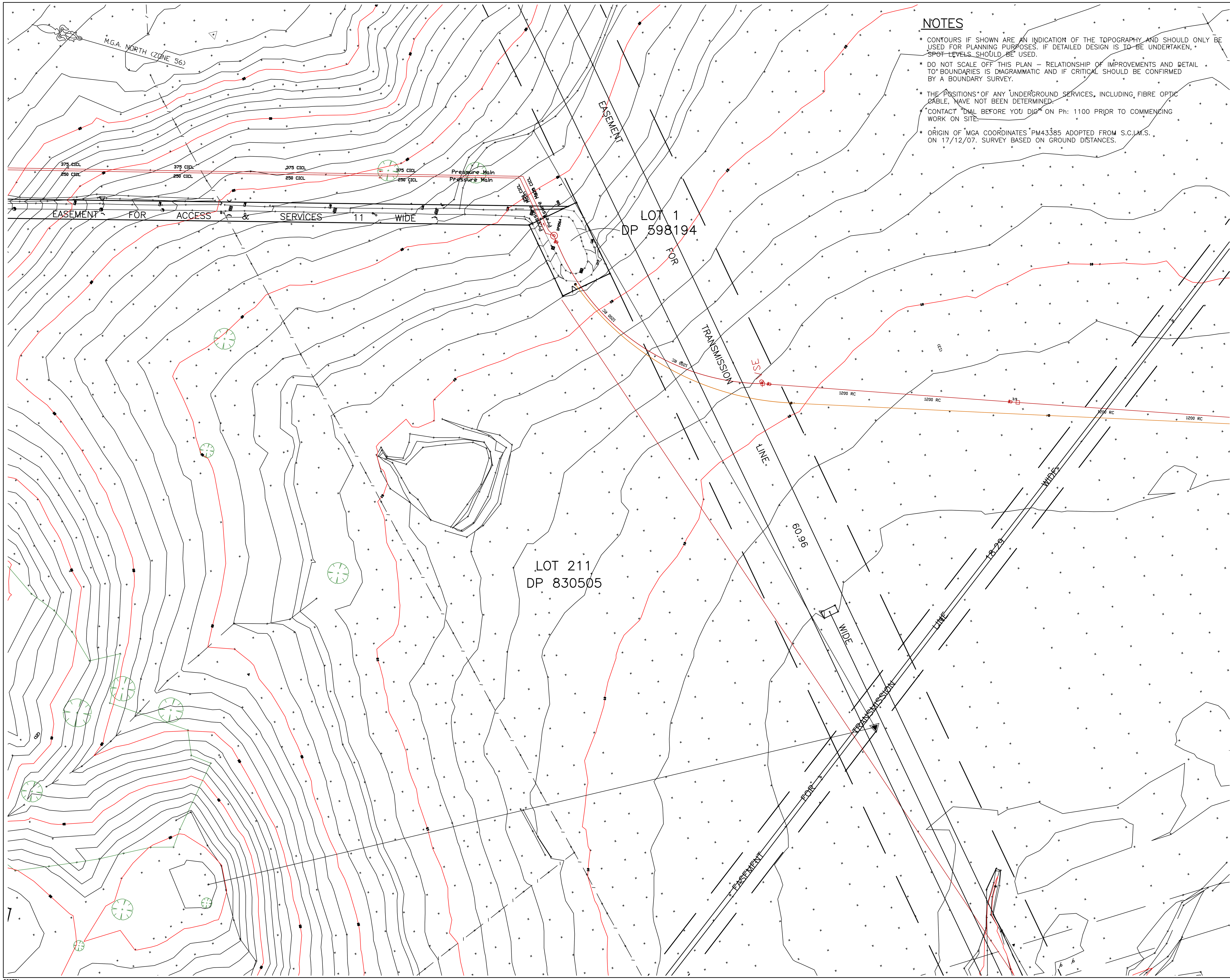
Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	LOCAL AUTHORITY BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	SCALE 1:1000 (A1)
MERIDIAN N/A	CONTOUR INTERVAL 1.0 Metre
CO-ORD SYSTEM MGA	SURVEYOR BS — DATE OF SURVEY 03/03/08
CCAD FILE 71372-DE1	DRAWN JMD — DATE 24/09/2013
AUTOCAD FILE 73341	CHECKED GKO — DATE ??/??/??
ARCHIVE FILE 73341	APPROVED GKO — DATE ??/??/??
PLAN NUMBER 73341	

SHEET 19 OF 25

060701



NOTES

- CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
- DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
- THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
- CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
- ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au
ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	LOCAL AUTHORITY BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	SCALE 1:1000 (A1)
MERIDIAN N/A	CONTOUR INTERVAL 1.0 Metre
CO-ORD SYSTEM MGA	SURVEYOR BS — DATE OF SURVEY 03/03/08
CCAD FILE 71372-DE1	DRAWN JMD — DATE 24/09/2013
AUTOCAD FILE 73341	CHECKED GKO — DATE ??/??/??
ARCHIVE FILE 73341	APPROVED GKO — DATE ??/??/??
PLAN NUMBER 73341	SHEET 20 OF 25

060701

LOT 211
DP 830505

EASEMENT FOR TRANSMISSION LINE 18.29 WIDE

M.G.A. NORTH (ZONE 56)

CREEK

EASTERN

DIRT TRACK

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

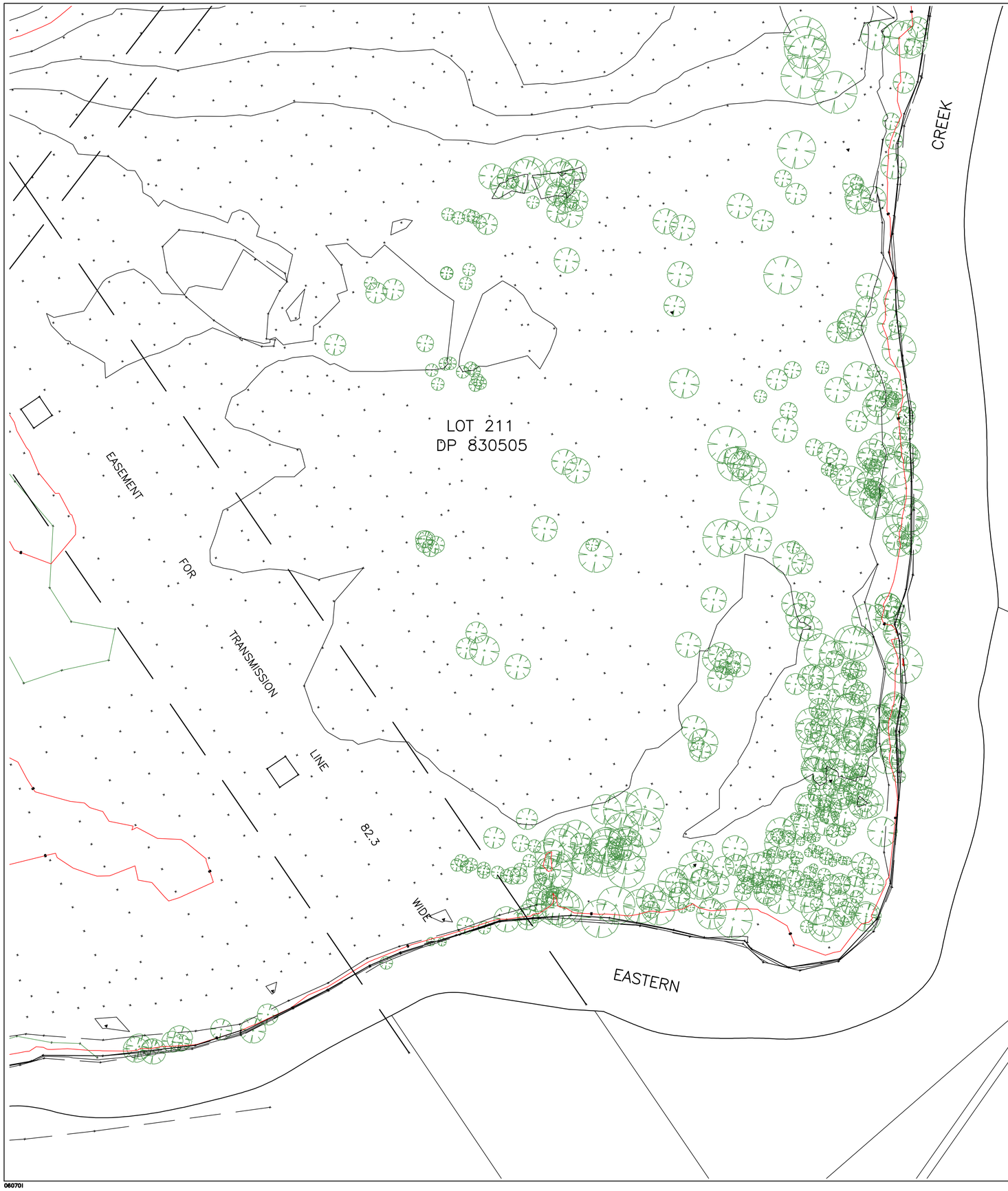
ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	**LOCAL AUTHORITY** BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	**SCALE** 1:1000 (A1)
MERIDIAN N/A	**CONTOUR INTERVAL** 1.0 Metre
CO-ORD SYSTEM MGA	**SURVEYOR** BS **DATE OF SURVEY** 03/03/08
CCAD FILE 71372-DE1	**DRAWN** JMD **DATE** 24/09/2013
AUTOCAD FILE 73341	**CHECKED** GKO **DATE** ??/??/??
ARCHIVE FILE 73341	**APPROVED** GKO **DATE** ??/??/??

PLAN NUMBER 73341

SHEET 21 OF 25

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

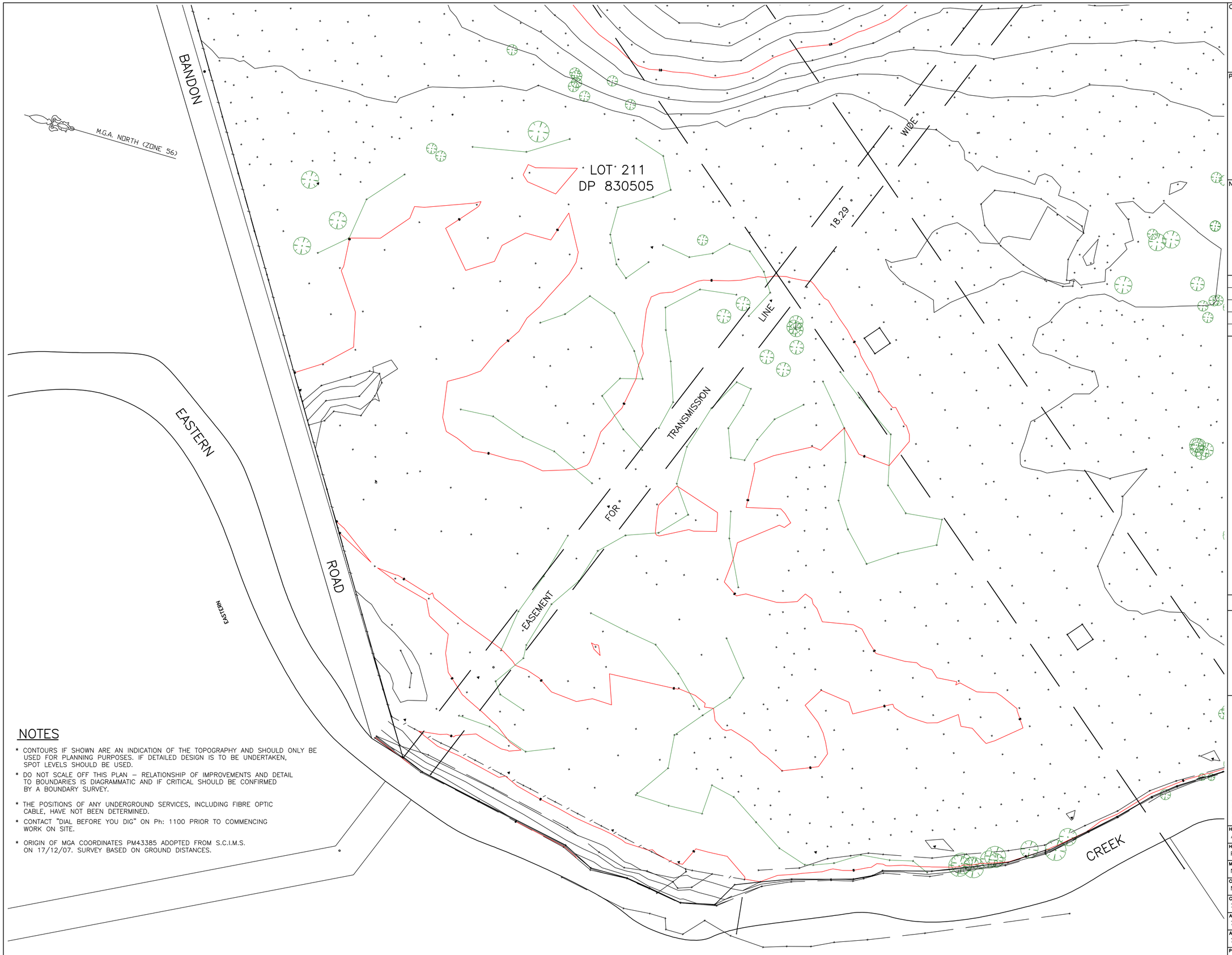
t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008
FS 535063

HEIGHT DATUM: AHD	LOCAL AUTHORITY: BLACKTOWN COUNCIL
HEIGHT ORIGIN: PM 43386 RL 38.296	SCALE: 1:1000 (A1)
MERIDIAN: N/A	CONTOUR INTERVAL: 1.0 Metre
CO-ORD SYSTEM: MGA	SURVEYOR: BS — DATE OF SURVEY: 03/03/08
CCAD FILE: 71372-DE1	DRAWN: JMD — DATE: 24/09/2013
AUTOCAD FILE: 73341	CHECKED: GKO — DATE: ??/??/??
ARCHIVE FILE: 73341	APPROVED: GKO — DATE: ??/??/??

PLAN NUMBER: 73341

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS
built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

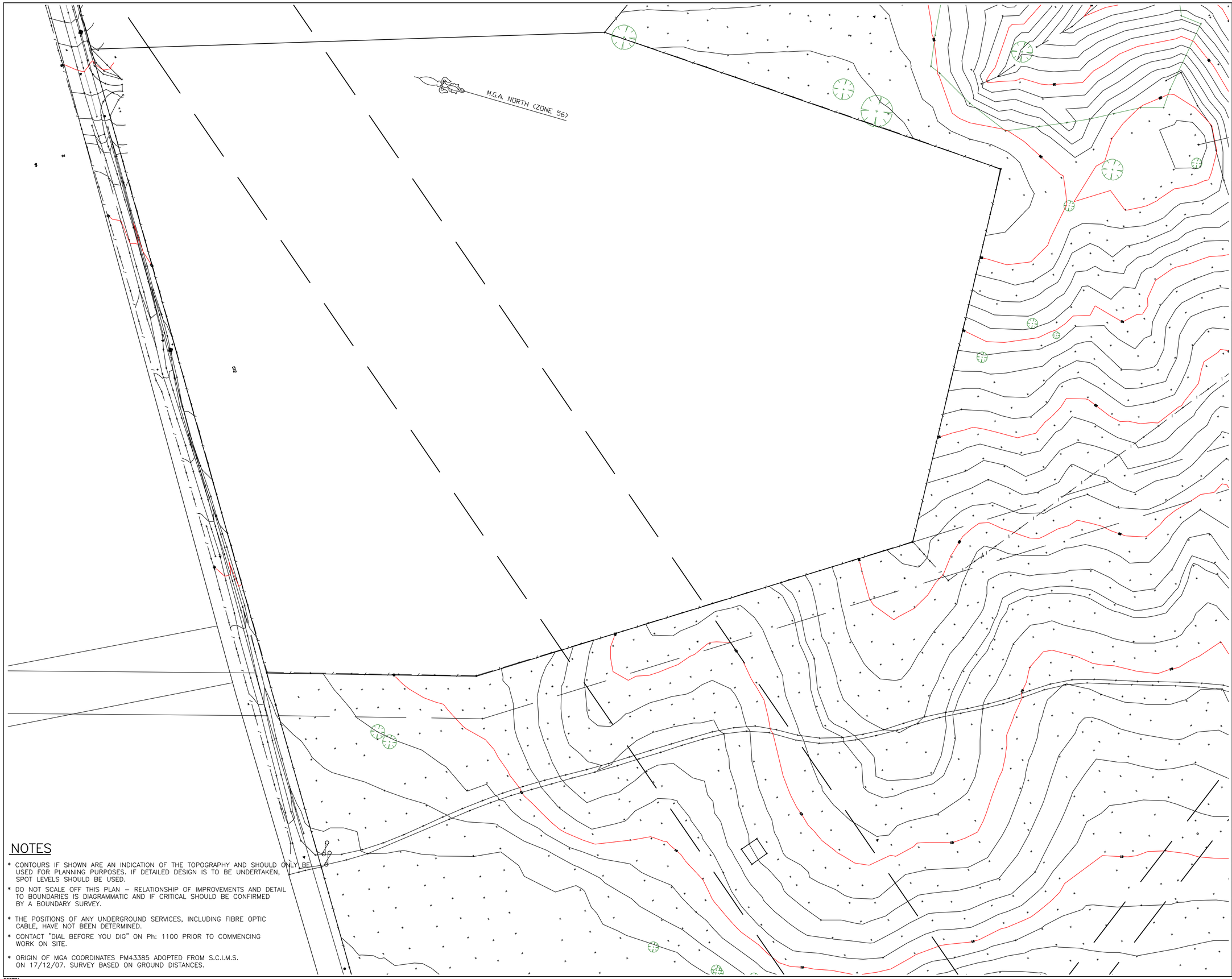
ISO 9001:2008
FS 535063

HEIGHT DATUM	LOCAL AUTHORITY	
AHD	BLACKTOWN COUNCIL	
HEIGHT ORIGIN	**SCALE**	
PM 43386 RL 38.296	1:1000 (A1)	
MERIDIAN	**CONTOUR INTERVAL**	
N/A	1.0 Metre	
CO-ORD SYSTEM	**SURVEYOR**	**DATE OF SURVEY**
MGA	BS	03/03/08
CCAD FILE	**DRAWN**	**DATE**
71372-DE1	JMD	24/09/2013
AUTOCAD FILE	**CHECKED**	**DATE**
73341	GKO	??/??/??
ARCHIVE FILE	**APPROVED**	**DATE**
73341	GKO	??/??/??

PLAN NUMBER

73341

060701



NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.

CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

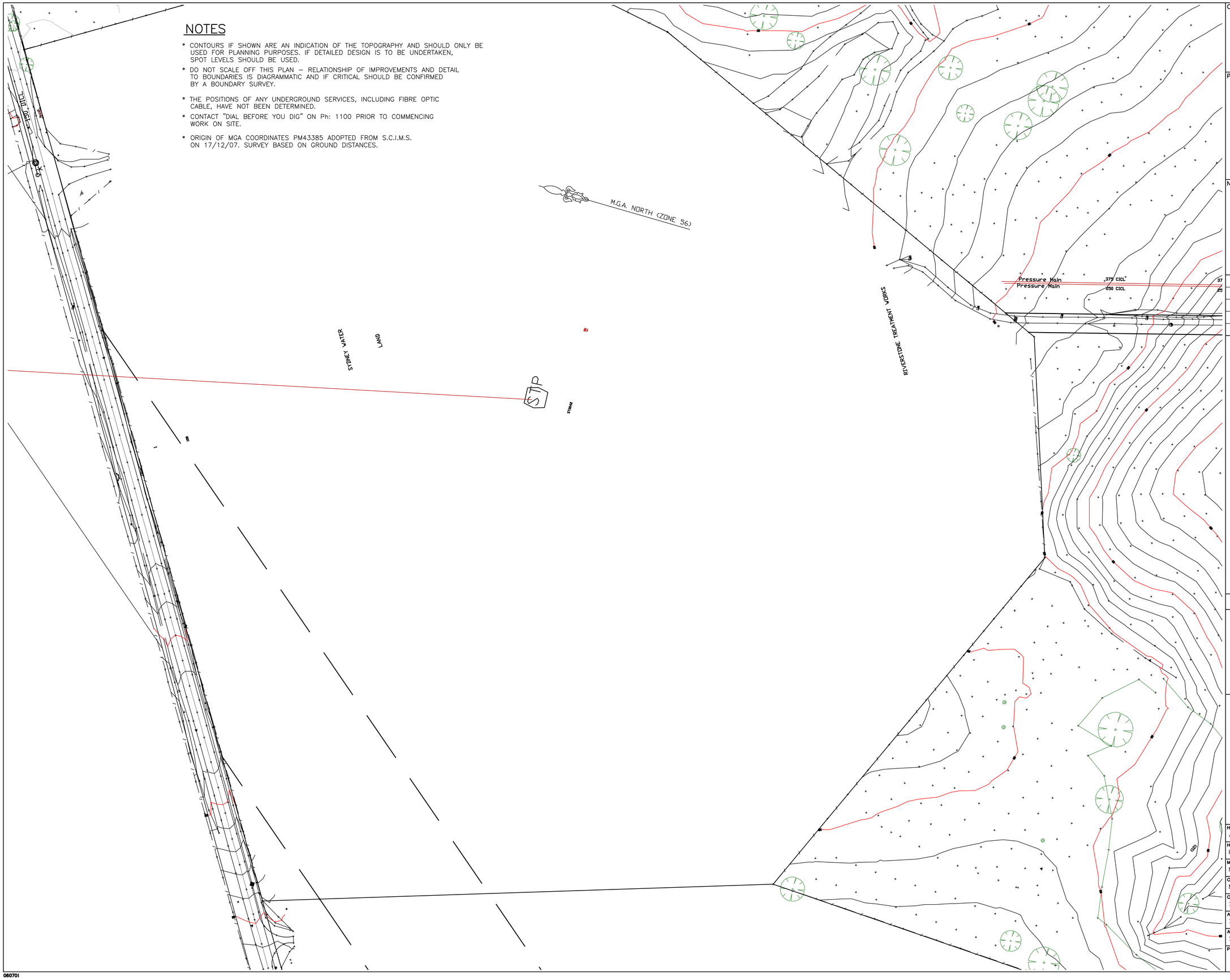
ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	**LOCAL AUTHORITY** BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	**SCALE** 1:1000 (A1)
MERIDIAN N/A	**CONTOUR INTERVAL** 1.0 Metre
CO-ORD SYSTEM MGA	**SURVEYOR** BS **DATE OF SURVEY** 03/03/08
CCAD FILE 71372-DE1	**DRAWN** JMD **DATE** 24/09/2013
AUTOCAD FILE 73341	**CHECKED** GKO **DATE** ??/??/??
ARCHIVE FILE 73341	**APPROVED** GKO **DATE** ??/??/??
PLAN NUMBER 73341	

060701

NOTES

* CONTOURS IF SHOWN ARE AN INDICATION OF THE TOPOGRAPHY AND SHOULD ONLY BE USED FOR PLANNING PURPOSES. IF DETAILED DESIGN IS TO BE UNDERTAKEN, SPOT LEVELS SHOULD BE USED.
* DO NOT SCALE OFF THIS PLAN – RELATIONSHIP OF IMPROVEMENTS AND DETAIL TO BOUNDARIES IS DIAGRAMMATIC AND IF CRITICAL SHOULD BE CONFIRMED BY A BOUNDARY SURVEY.
* THE POSITIONS OF ANY UNDERGROUND SERVICES, INCLUDING FIBRE OPTIC CABLE, HAVE NOT BEEN DETERMINED.
* CONTACT "DIAL BEFORE YOU DIG" ON Ph: 1100 PRIOR TO COMMENCING WORK ON SITE.
* ORIGIN OF MGA COORDINATES PM43385 ADOPTED FROM S.C.I.M.S. ON 17/12/07. SURVEY BASED ON GROUND DISTANCES.



CLIENT

RIVERSTONE PARADE PTY LTD

PROJECT

PLAN OF DETAILS & CONTOURS OVER RIVERSTONE WEST PRECINCT BEING LOT 211 IN DP 830505

NOTES

The title boundaries shown hereon were not marked at the time of survey and have been determined by plan dimensions only and not by field survey.
Services shown hereon have been located where possible by field survey. If not able to be so located, services have been plotted from the records of relevant authorities where available and have been noted accordingly on the plan. Where such records do not exist or are inadequate a notation has been made hereon.
Prior to any demolition, excavation or construction on the site, the relevant authority should be contacted for possible location of further underground services and detailed locations of all services.

LEGEND

- BENCH MARK
- TELEPHONE PIT
- WATER METER
- TREE D= DIAMETER TRUNK S= SPREAD OF CANOPY H= HEIGHT
- WATER HYDRANT
- STOP VALVE
- SEWER MAINTENANCE HOLE
- ELECT LIGHT POLE
- POWER POLE (light)
- POWER POLE
- GRATE
- GAS METER
- GATE
- MAN HOLE
- TAP
- INSPECTION HOLE
- CLOTHES HOIST
- GULLY PIT

Symbols shown are indicative only. The symbol size and orientation does not necessarily represent the real size or orientation of the feature.

LANDPARTNERS built environment consultants

Sydney Office
Level 2, 23-29 South Street
Rydalmere NSW 2116
PO Box 1144
Dundas NSW 2117

t (61) 9685 2000
f (61) 9685 2001
e sydney@landpartners.com.au
w www.landpartners.com.au

ISO 9001:2008 FS 535063

HEIGHT DATUM AHD	**LOCAL AUTHORITY** BLACKTOWN COUNCIL
HEIGHT ORIGIN PM 43386 RL 38.296	**SCALE** 1:1000 (A1)
MERIDIAN N/A	**CONTOUR INTERVAL** 1.0 Metre
CO-ORD SYSTEM MGA	**SURVEYOR** BS **DATE OF SURVEY** 03/03/08
CCAD FILE 71372-DE1	**DRAWN** JMD **DATE** 24/09/2013
AUTOCAD FILE 73341	**CHECKED** GKO **DATE** ??/??/??
ARCHIVE FILE 73341	**APPROVED** GKO **DATE** ??/??/??
PLAN NUMBER 73341	

APPENDIX

B

FLOOD MODELLING RESULTS

59918177 - 177 Riverstone West Flood Assessment

INDEX OF FIGURES

D28	Hawkesbury Neapean Inflow Simulation - 5% AEP
D29	Local Flow Simulation - 1% AEP
D29.1	Local Flow Simulation - 1% AEP-Model Extent with Aerial
D29.2	Local Flow Simulation - 1% AEP-Model Extent without Aerial
D30	Local Flow Simulation - 1% AEP with 20% AEP HN TWL
D30.1	Local Flow Simulation - 1% AEP with 20% AEP HN TWL-Model Extent with Aerial
D30.2	Local Flow Simulation - 1% AEP with 20% AEP HN TWL-Model Extent without Aerial
D31	Local Flow Simulation - 1% AEP with 1% AEP HN TWL
D31.1	Local Flow Simulation - 1% AEP with 1% AEP HN TWL-Model Extent with Aerial
D31.2	Local Flow Simulation - 1% AEP with 1% AEP HN TWL-Model Extent without Aerial
D32	Hawkesbury Neapean Tailwater Simulation - 1% AEP
D32.1	Hawkesbury Neapean Tailwater Simulation - 1% AEP-Model Extent with Aerial
D32.2	Hawkesbury Neapean Tailwater Simulation - 1% AEP-Model Extent without Aerial
D33	Hawkesbury Neapean Inflow Simulation - 1% AEP
	Design Less Existing
D34	Local Flow Simulation - 20% AEP
D35	Local Flow Simulation - 1% AEP

Planning, Industry & Environment

Existing Local Flow Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- Water Level Contours (0.1m)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

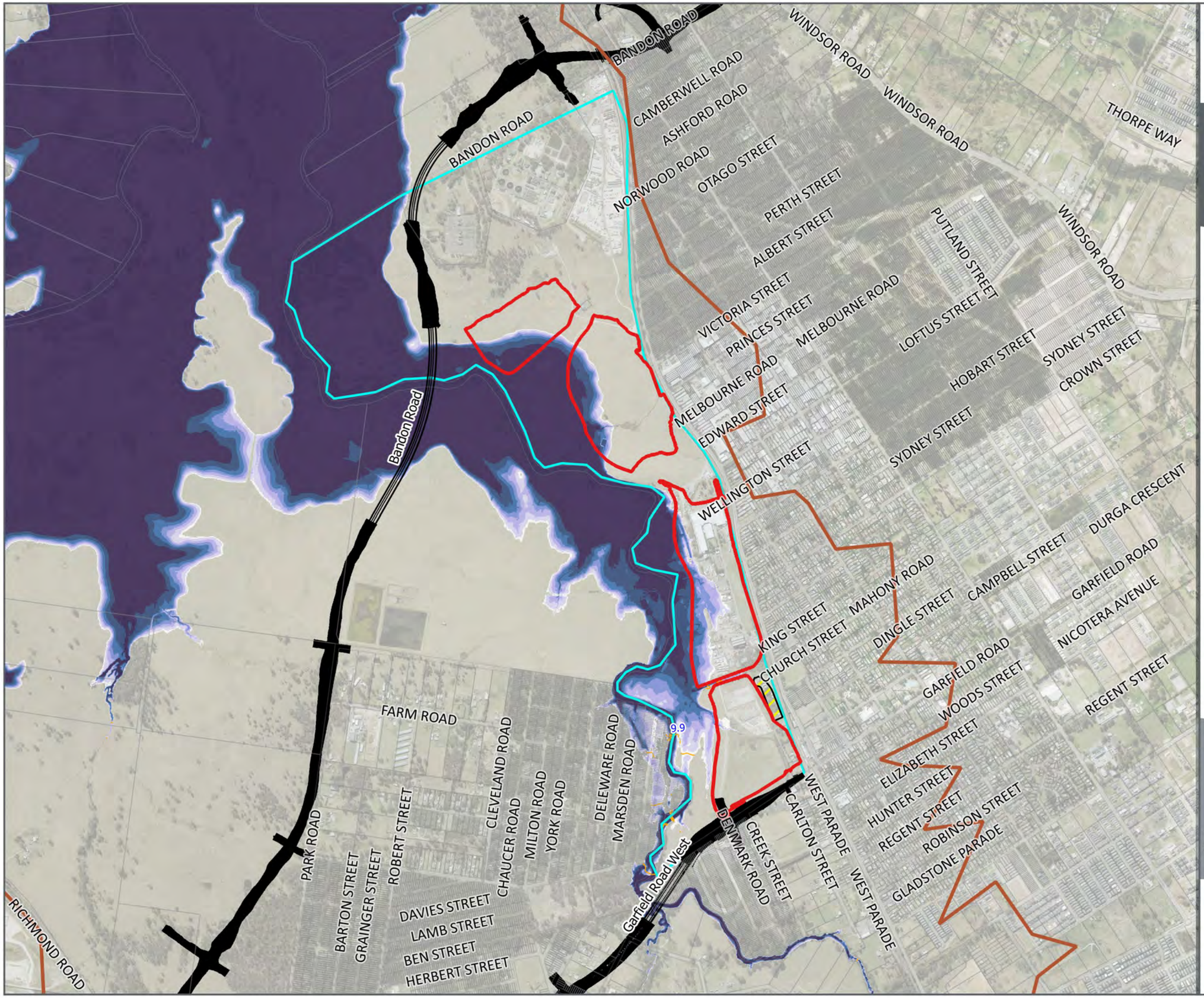
FIGURE E1

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



NSW GOVERNMENT | Planning, Industry & Environment

Existing Hawkesbury-Nepean Tailwater Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE E2

1:17,000 Scale at A3

0 0.5 1 km

N

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Existing Hawkesbury-Nepean Inflow Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE E3

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Existing Local Flow Simulation 1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

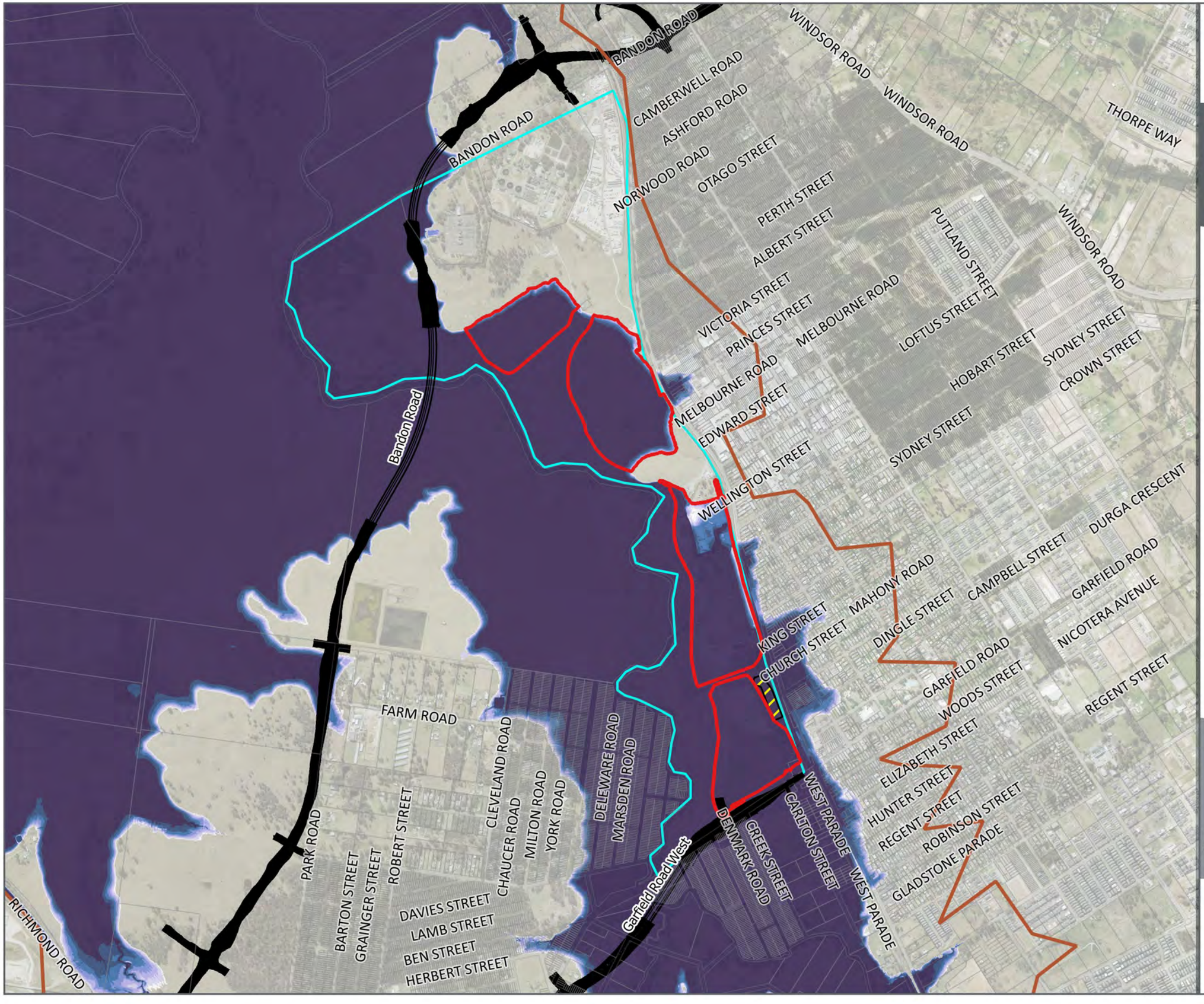
FIGURE E4

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Existing Hawkesbury-Nepean Tailwater Simulation 1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE E5

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Existing Hawkesbury-Nepean Inflow Simulation 1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE E6

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Existing - 1%AEP Local Flooding with 20% AEP Hawkesbury Nepean Tailwater Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

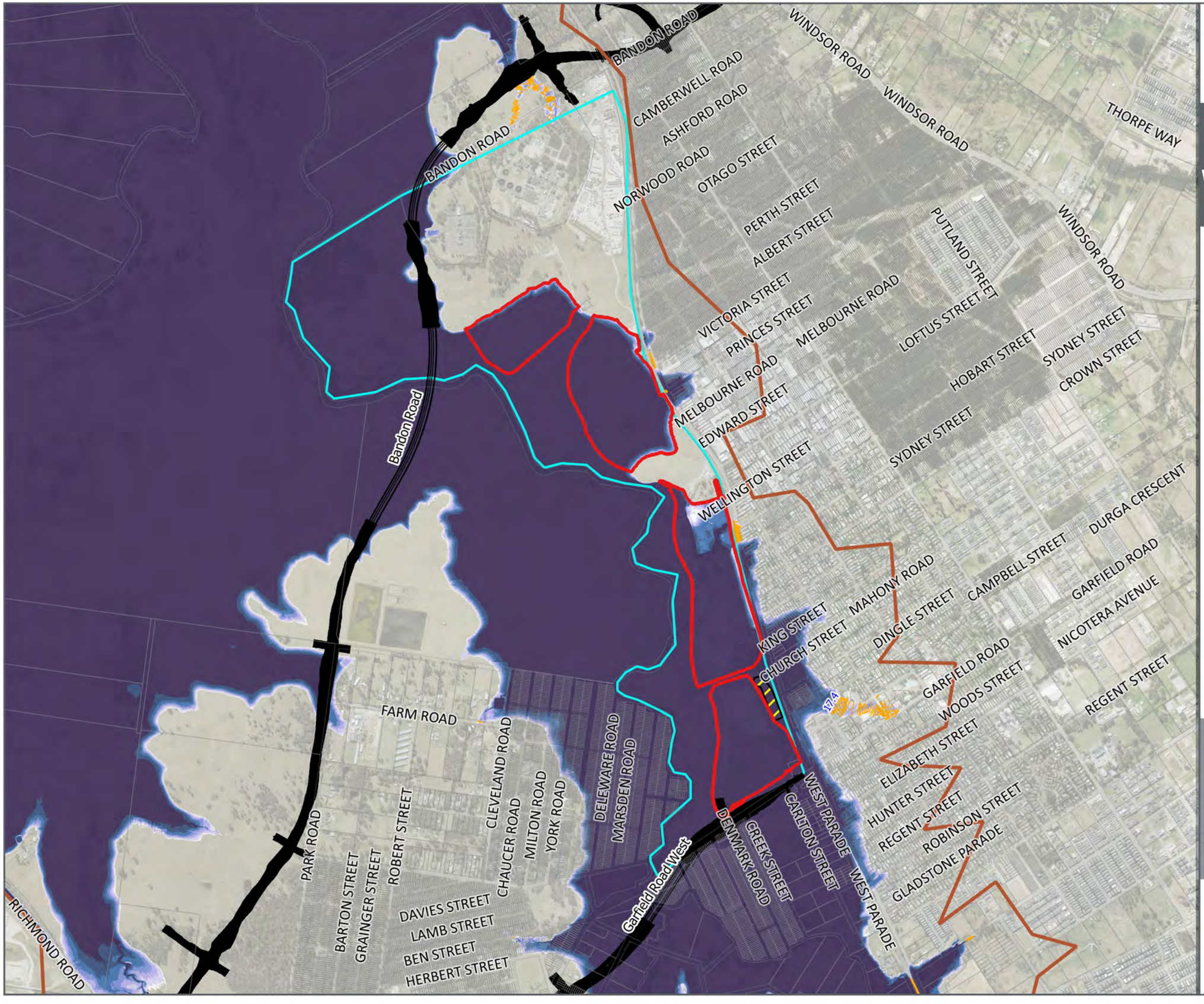
FIGURE E7

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



NSW GOVERNMENT | Planning, Industry & Environment

Existing - 1%AEP Local Flooding with 1% AEP Hawkesbury Nepean Tailwater Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE E8

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Interim Less Existing- Local Flow Simulation 20% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE I1

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Interim Less Existing - Hawkesbury-Nepean Tailwater Simulation
20% AEP Water Level Difference
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

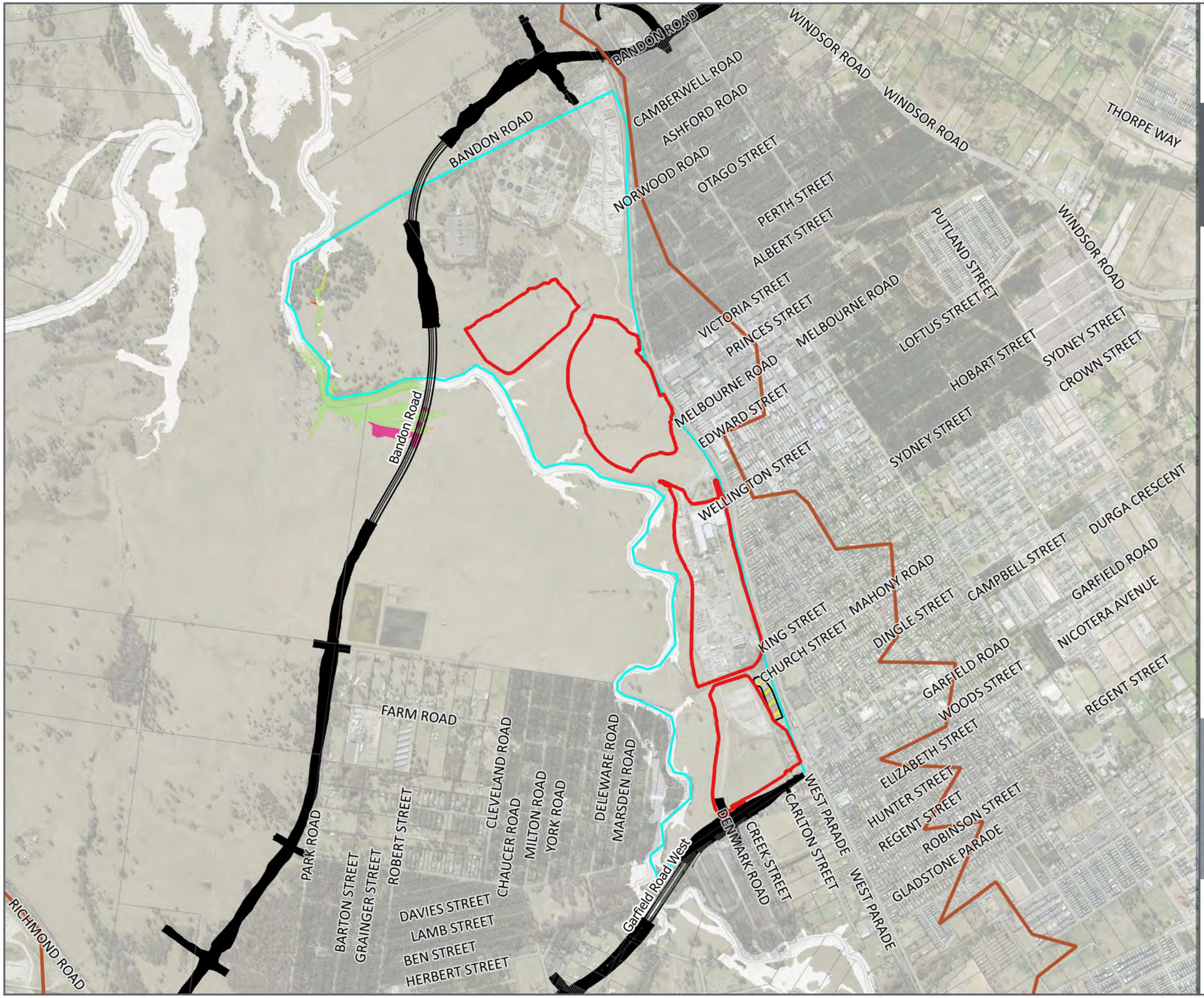
FIGURE I2

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



NSW GOVERNMENT | Planning, Industry & Environment

Interim Less Existing - Hawkesbury-Nepean Inflow Simulation 20% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE I3

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Interim Less Existing- Local Flow Simulation 1% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

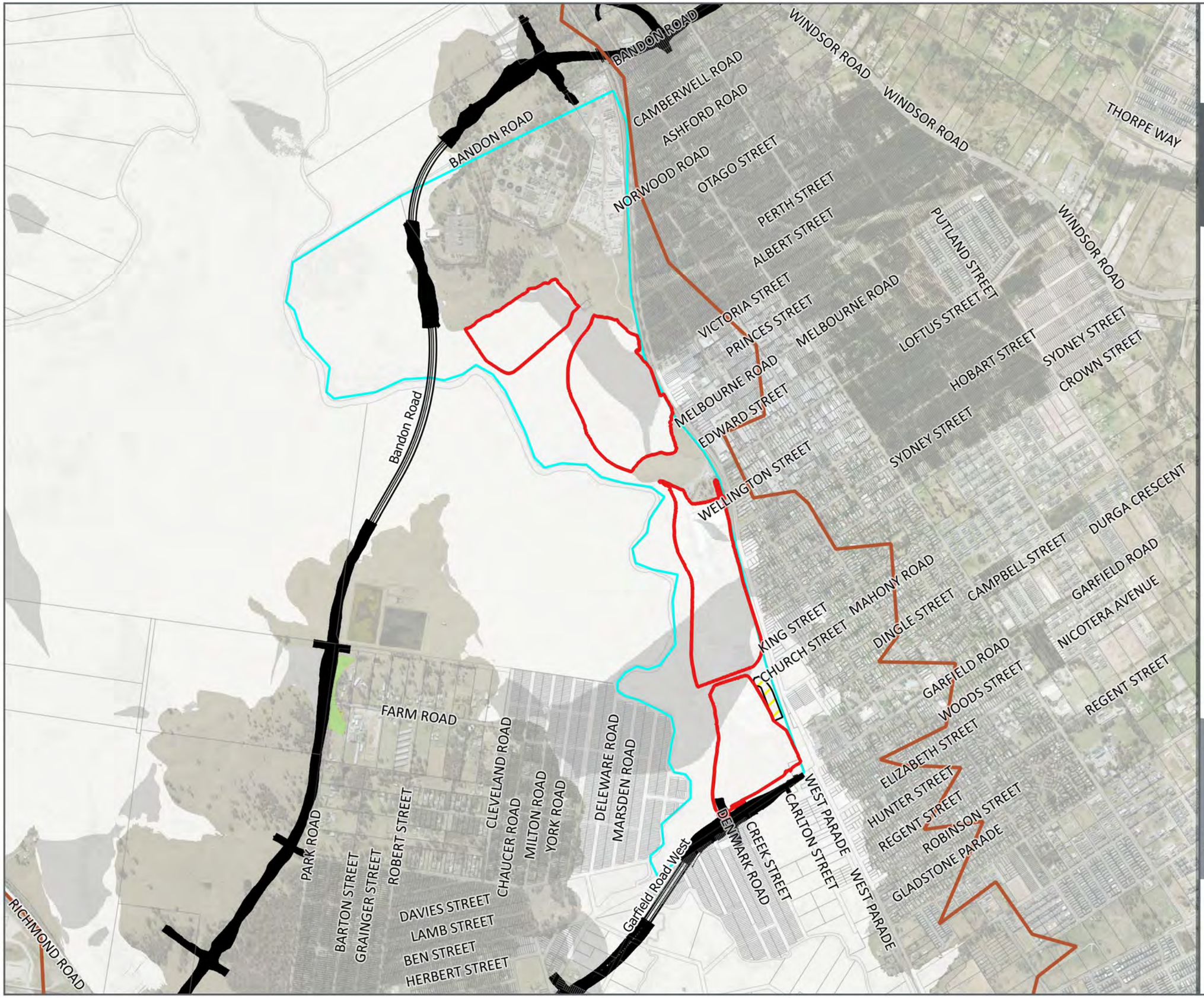
FIGURE I4

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Interim Less Existing - Hawkesbury-Nepean Tailwater Simulation
1% AEP Water Level Difference
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE I5

1:17,000 Scale at A3

0 0.5 1 km

N

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Interim Less Existing - Hawkesbury-Nepean Inflow Simulation 1% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE I6

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- Water Level Contours (0.1m)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

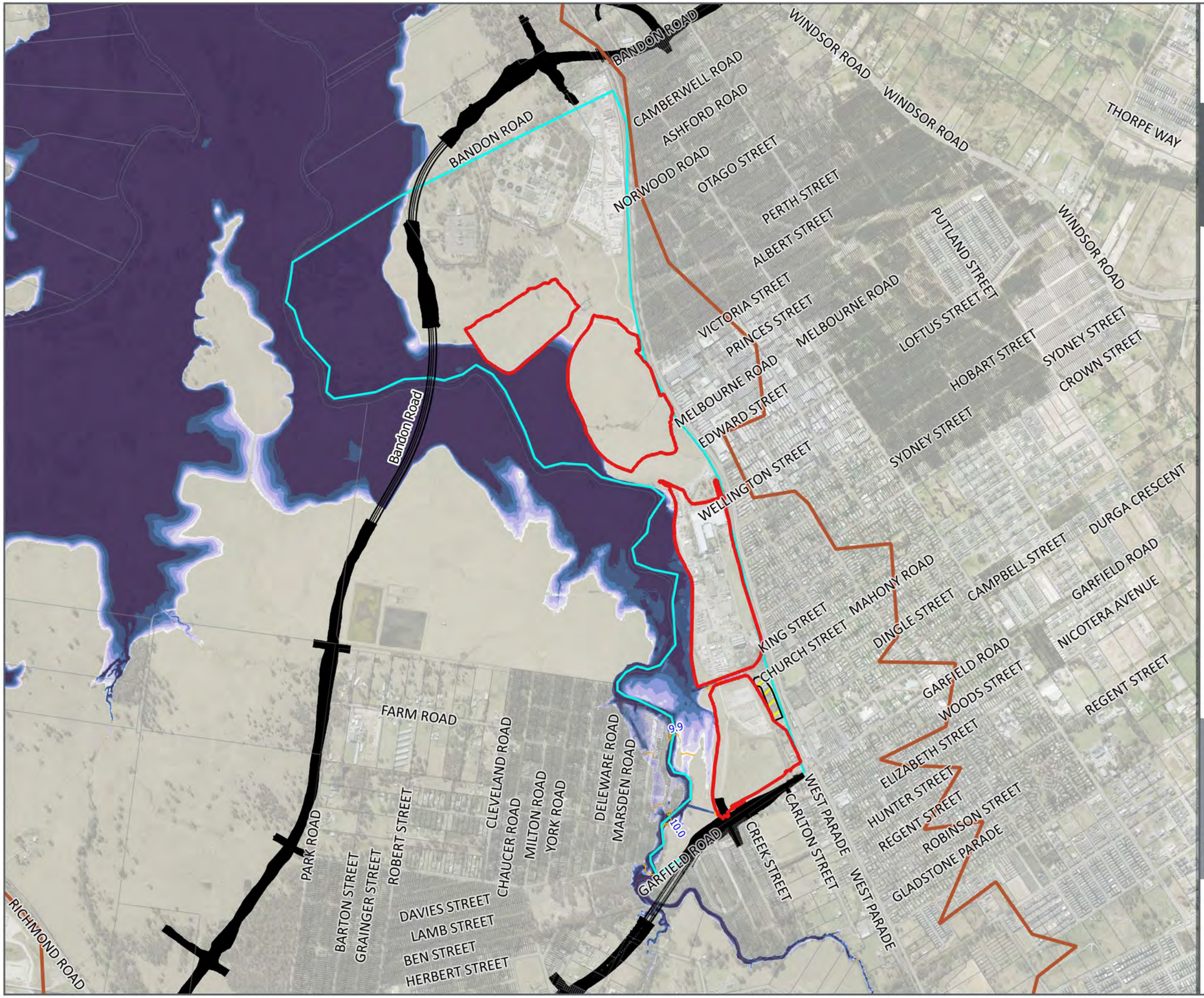
FIGURE D1

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D2

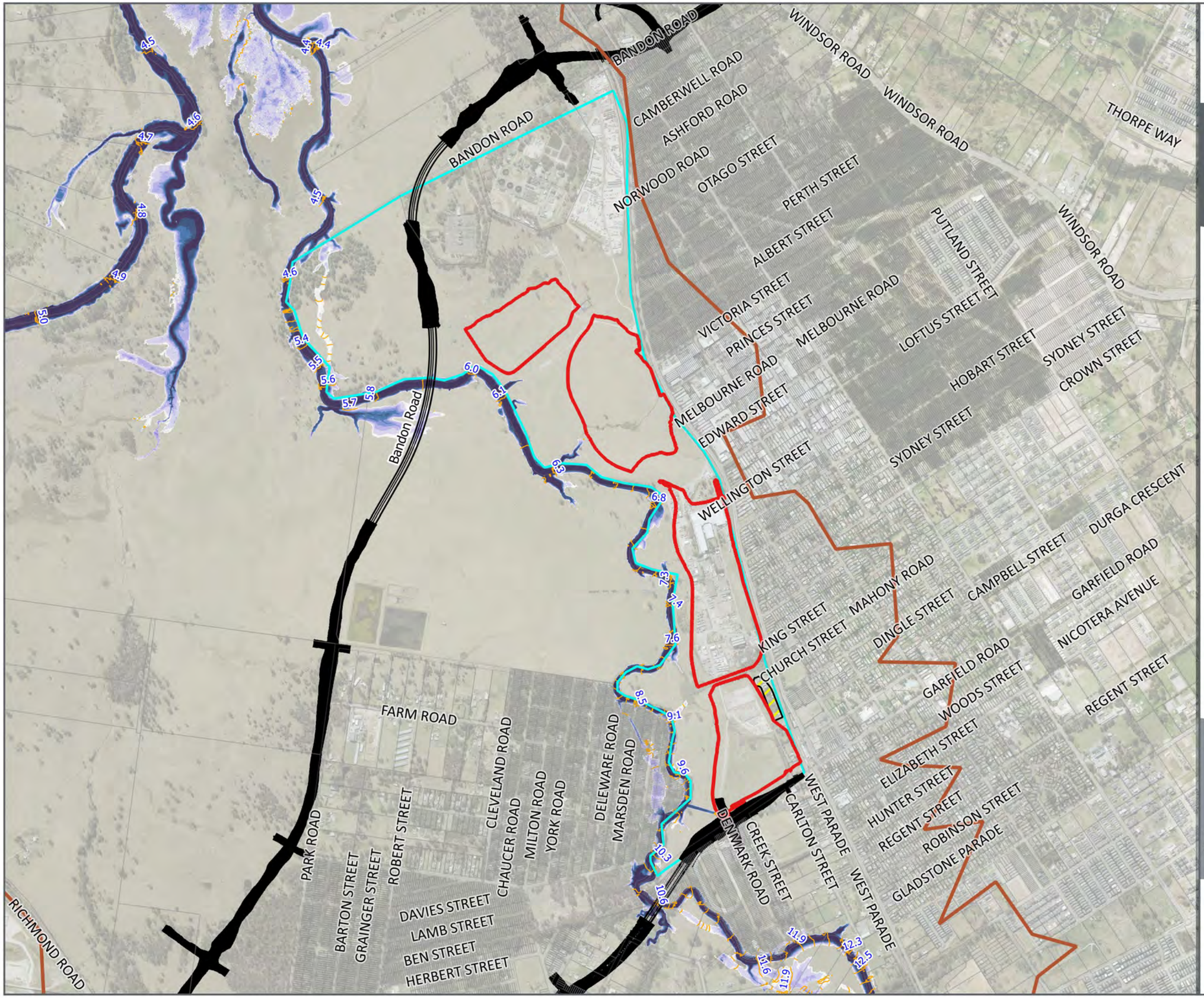
1:17,000 Scale at A3

0 0.5 1 km

N

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



NSW GOVERNMENT | Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation 20% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D3

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation 5% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D4

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation 5% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D5

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation
5% AEP Water Level Contours and Depth
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D6

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Local Flow Simulation 1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D7

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design - 1%AEP Local Flooding with 20% AEP Hawkesbury Nepean Tailwater Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D8

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design - 1%AEP Local Flooding with 1% AEP Hawkesbury Nepean Tailwater Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D9

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation 1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D10

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation
1% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D11

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation 0.833% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D12

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury- Nepean Tailwater Simulation 0.833% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

BANDON ROAD
CAMBERWELL ROAD
ASHFORD ROAD
NORWOOD ROAD
OTAGO STREET
WINDSOR ROAD
THORPE WAY
PERTH STREET
ALBERT STREET
VICTORIA STREET
PRINCES STREET
MELBOURNE ROAD
PUTLAND STREET
LOFTUS STREET
HOBART STREET
SYDNEY STREET
CROWN STREET
EDWARD STREET
WELLINGTON STREET
DURGA CRESCENT
CAMPBELL STREET
GARFIELD ROAD
NICOTERA AVENUE
MAHONY ROAD
DINGLE STREET
KING STREET
CHURCH STREET
WOODS STREET
REGENT STREET
ELIZABETH STREET
HUNTER STREET
ROBINSON STREET
GLADSTONE PARADE
WEST PARADE
CARLTON STREET
CREEK STREET
DENMARK ROAD
Garfield Road West
DELEWARE ROAD
MARSDEN ROAD
FARM ROAD
CLEVELAND ROAD
CHAUCER ROAD
MILTON ROAD
YORK ROAD
PARK ROAD
BARTON STREET
GRAINGER STREET
ROBERT STREET
DAVIES STREET
LAMB STREET
BEN STREET
HERBERT STREET
RICHMOND ROAD
Bandon Road

FIGURE D13

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation 0.5% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D14

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation 0.5% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D15

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation 0.5% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D16

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation 0.2% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D17

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation 0.2% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D18

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation 0.2% AEP Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D19

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Local Flow Simulation PMF Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D20

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Tailwater Simulation PMF Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D21

1:17,000 Scale at A3

0 0.5 1 km

N

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Hawkesbury-Nepean Inflow Simulation PMF Water Level Contours and Depth

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre
- 0.1m Water Level Contour (mAHD)

Flood Depth (m)

- 0.00 to 0.10
- 0.10 to 0.30
- 0.30 to 0.50
- 0.50 to 0.70
- 0.70 to 1.00
- 1.00 to 1.50
- > 1.50

FIGURE D22

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Local Flow Simulation
20% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D23

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Tailwater Simulation
20% AEP Water Level Difference
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D24

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Inflow Simulation
20% AEP Water Level Difference
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D25

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Local Flow Simulation
5% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D26

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Tailwater Simulation
5% AEP Water Level Difference
177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.10 to 0.20
- 0.05 to 0.10
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

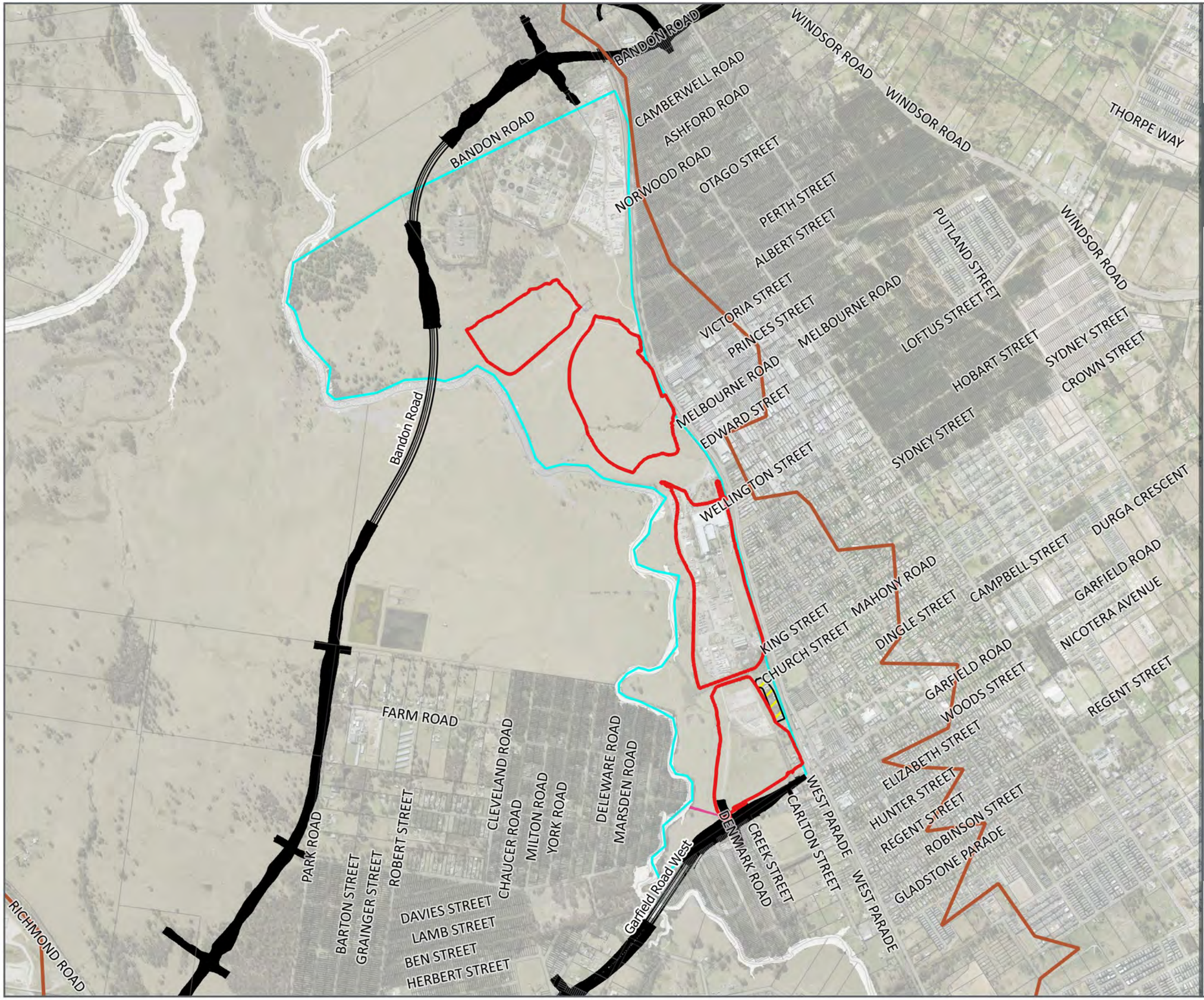
FIGURE D27

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Inflow Simulation 5% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D28

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Local Flow Simulation
1% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D29

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Local Flow Simulation
1% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D29.1

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Local Flow Simulation 1% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D29.2

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 20% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D30

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 20% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D30.1

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 20% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

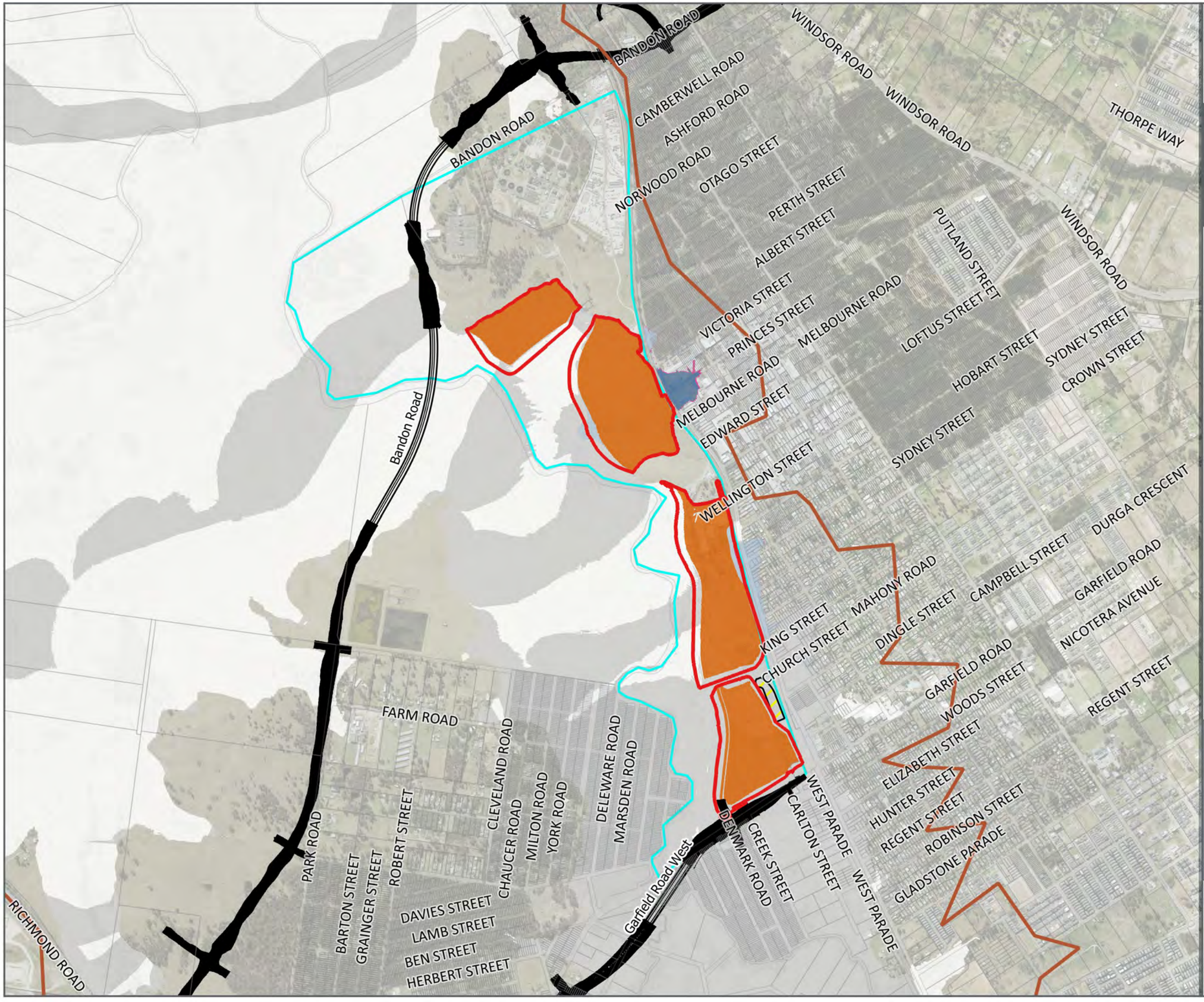
FIGURE D30.2

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 1% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West
Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D31

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 1% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D31.1

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - 1%AEP Local Flooding with 1% AEP Hawkesbury Nepean Tailwater Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

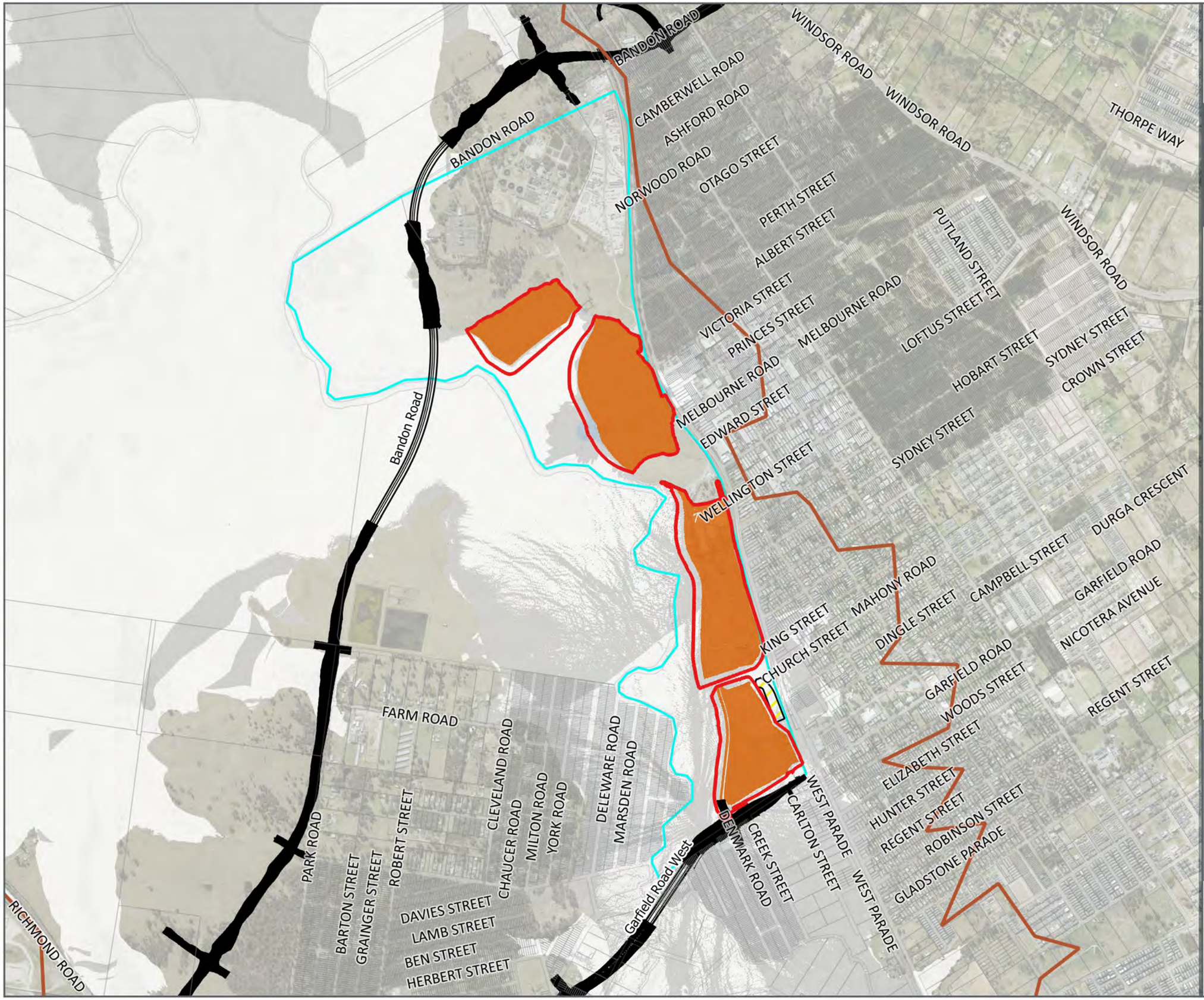
FIGURE D31.2

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Tailwater Simulation 1% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D32

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Tailwater Simulation 1% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D32.1

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Tailwater Simulation 1% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

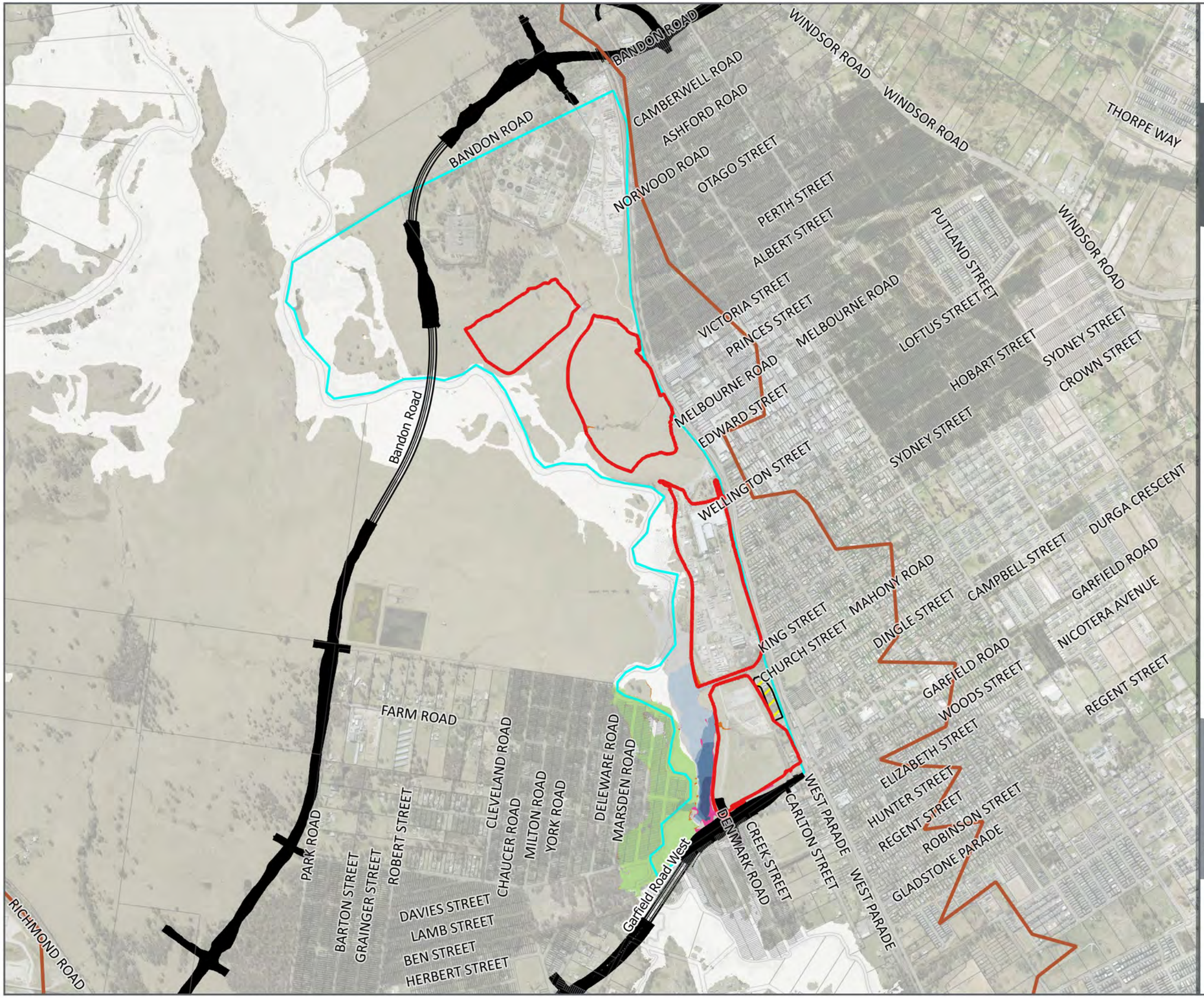
FIGURE D32.2

1:40,000 Scale at A3

0 1 2 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz



Planning, Industry & Environment

Design Less Interim - Hawkesbury-Nepean Inflow Simulation 1% AEP Water Level Difference

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D33

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

Planning, Industry & Environment

Design Less Existing- Local Flow Simulation 20% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D34

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz

NSW GOVERNMENT | Planning, Industry & Environment

Design Less Existing- Local Flow Simulation
1% AEP Water Level Difference Plot

177 Riverstone West Flood Assessment

Legend

- Roads
- Fill Pad Extent
- Riverstone West Precinct Boundary
- Study Extent
- Heritage Buildings Extent
- NSW Cadastre

Water Level Difference (m)

- < -0.50
- -0.50 to -0.20
- -0.20 to -0.10
- -0.10 to -0.05
- -0.05 to -0.01
- -0.01 to 0
- 0 to 0.01
- 0.01 to 0.05
- 0.05 to 0.10
- 0.10 to 0.20
- 0.20 to 0.50
- > 0.50

Wet Dry Analysis

- Was Wet, Now Dry
- Was Dry, Now Wet

FIGURE D35

1:17,000 Scale at A3

0 0.5 1 km

Cardno

Map Produced by National Water & Environment (Water)
Date: 2022-2-23| Project: 59918177
Coordinate System: MGA Zone 56
Map: 177_RiverstoneW FA CF_Appendix.qgz