ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

PRELIMINARY SITE INVESTIGATION AT TELOPEA, NSW

FRASERS PROPERTY AUSTRALIA

27 AUGUST 2020
120034
VERSION 3

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

27 August 2020

Frasers Property Australia
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Attention: **Chris Koukoutaris**
Senior Development Manager

Preliminary site investigation at Telopea, NSW

Please find enclosed a copy of our report entitled as above. Thank you for the opportunity to undertake this work.

Should you have any queries, please do not hesitate to contact us on (02) 9922 1777.

For and on behalf of
Environmental Earth Sciences NSW

Project Manager / Proposal Author
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Project Director / Internal Reviewer
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Manager NSW

120034_PSI_V3

EXECUTIVE SUMMARY

Introduction and objectives

This report has been prepared by Environmental Earth Sciences NSW on behalf of *Frasers Property Telopea Developer Pty Ltd* to undertake a preliminary site investigation (PSI) for contamination as part of a redevelopment within the suburb of Telopea' NSW.

The site consists of 12 stages (Stage 1A, 1B, 1C, 1D, 1E, 1F, 2A, 2B, 2C, 2D, 3A and 3B) and is currently zoned as high density residential, with some commercial/industrial (mixed use) land use and areas of public open space land use within the City of Parramatta Local Government Authority.

Environmental Earth Sciences undertook a Stage 1 PSI report for the site that included both a desktop research component and a site inspection. As the properties were not vacant at the time of the inspection, the site inspection for each Stage was conducted from the driveway or the adjacent property.

Findings

As the majority of the properties and adjoining structures were constructed between 1955 and 1975, several of the roofs appear to be constructed with asbestos-containing materials (ACM).

Due to redevelopment in recent years, whereby some properties were demolished and the lots remain vacant and some lots are now occupied with high density residential properties, there is the probability of building and demolition material, including asbestos, remaining on the surface due to poor demolition practices.

As the majority of the Stages are currently occupied, there is the risk of hydrocarbon leaks and spills from vehicles parked onsite.

An assessment of the water in the ornamental fishpond within Stages 1B and 1C should be undertaken to assessment of any contamination.

Environmental Earth Sciences recommends removal of long grass prior to any further investigation to enable visual assessment of the ground surface.

Conclusion and recommendations

A Construction Environmental Management Plan (CEMP) and an Asbestos Management Plan (AMP) is required to ensure safe demolition of properties containing asbestos-containing material (ACM) in accordance with the following guidelines:

- Safe Work Australia (2019) - How to Manage and Control Asbestos in the Workplace.
- Safe Work Australia (2019) - How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) - Managing Asbestos in or on Soil.

- National Occupational Health and Safety Commission (2005) - Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003 (2005)].
- Western Australia Department of Health (WA DoH) (2009) - *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA DoH, 2009).
- WA DoH (2018) - *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* – Summary Update (WA DoH, 2018).
- National Environment Protection Council (NEPC) (2013) – National Environment Protection (Assessment of Site Contamination) Amendment Measure No.,1 2013 (ASC NEPM, 2013).

As a minimum, a Class B Asbestos Licence holder is recommended for the removal of bonded asbestos. If friable asbestos / asbestos fines are observed during excavation works, a Class A Asbestos Licence holder is required during excavation works to provide air quality monitoring and clearance certificates following removal of asbestos impacted material.

Due to the age of the buildings in the area, there is a potential for lead paint contamination of surface soils surrounding the residential properties. It should be noted that waste contaminated with lead (including lead paint waste) from residential premises is pre-classified as 'general solid waste (non-putrescible)' by the NSW Environmental Protection Agency (EPA) (2014) *Waste Classification Guidelines - Part 1: Classifying Waste* (NSW EPA, 2014).

During any proposed redevelopment there is a potential for unexpected subsurface finds (as is the case for any site), and consequently Environmental Earth Sciences recommends that these occurrences can be managed accordingly by preparation of an Environmental Management Plan (EMP) or similar management document. This would include procedures for:

- management of soil including environmental controls for mitigation of erosion, sedimentation, dust generation;
- excavation management;
- onsite / off-site soil material tracking;
- soil / spoil stockpile management;
- procedures for soil disposal and waste classification in accordance with NSW EPA (2014) - *Waste Classification Guidelines* (if required);
- Unexpected Findings Protocol (UFP) procedure for managing instances where gross contamination and/or hazardous materials are encountered, with appropriate consideration of WH&S controls for mitigating risk to construction workers.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

TABLE OF CONTENTS

Figures

Tables

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Appendices

1 INTRODUCTION

This report has been prepared by Environmental Earth Sciences NSW on behalf of *Frasers Property Telopea Developer Pty Ltd* to undertake a preliminary site investigation (PSI) for contamination purposes as part of a redevelopment within the suburb of Telopea, NSW. The proposed Telopea Master Plan outlines potential redevelopment of approximately 68 hectares in this suburb for mixed-use purposes, primarily aimed at introducing increased medium-high density residential land use. **Figure 1** indicates the proposed stages of urban renewal for Telopea.

This report should be read in conjunction with the limitations and appendices contained within the proposal (ref: PO120047_V1; 11 March 2020) and the limitations detailed in **Section 9** of this report.

1.1 Background

The Telopea CPA forms part of the **Telopea Precinct Master Plan** (February 2017), which was prepared by NSW Land and Housing Corporation (LAHC) and Parramatta City Council to facilitate the rezoning of the precinct in August 2018. The Master Plan seeks to revitalise the Telopea Precinct through the redevelopment of LAHC's social housing assets, as well as sites under private ownership, to deliver an integrated community with upgraded public domain and community facilities – and to capitalise on access to the new Parramatta Light Rail network.

The Telopea CPA is the land identified in **Figure A** and is currently owned by LAHC. The proposed redevelopment of the CPA is part of the NSW Government *Communities Plus* program, which seeks to deliver new communities where social housing blends with private and affordable housing with good access to transport, employment, improved community facilities and open space. The program seeks to leverage the expertise and capacity of the private and non-government sectors.

In December 2019, the NSW Government announced that the Affinity consortium, comprising Frasers and Hume Community Housing, were awarded the contract to redevelop the Telopea CPA. The SSDA represents the first step in the delivery of the planned redevelopment of the Telopea CPA and the Stage 1A works will provide the first integrated market housing development on the site, as well as a new arrival plaza for the Parramatta Light Rail.

1.2 Site Description

Telopea is located in the Parramatta Local Government Area (LGA). It is approximately 4km north-east of the Parramatta Central Business District (CBD), 6km south-west of Macquarie Park Strategic Centre, and 17km from Sydney CBD.

The Telopea CPA site is approximately 13.4 (ha) and comprises 99 individual allotments (refer to **Figure A**). It currently accommodates 486 social housing dwellings, across a mix of single dwelling, townhouse, and 3-9 storey residential flat buildings. The Estate also currently accommodates a range of existing community facilities including the Dundas Community Centre, Dundas Branch Library, Community Health Centre, Hope Connect church, and Telopea Christian Centre.

The immediate surrounds comprise predominantly residential properties within an established landscape setting. The broader Precinct contains the Telopea Public School, a neighbourhood centre known as the Waratah Shops, and two large Council parks known as Sturt Park and Acacia Park.

1.3 Proposed Development

The SSDA seeks Concept approval for the staged redevelopment of the Telopea CPA, as well as a detailed proposal for the first stage of development. The Concept proposal sets out the maximum building envelopes and GFA that can be accommodated across the CPA, and identifies the land uses and public infrastructure upgrades to be provided. The Concept proposal will establish the planning and development framework from which any future development application will be assessed against.

The Telopea CPA proposal comprises:

- A mixed-use development including:
    - approximately 4700 dwellings, including a mix of social, affordable and market dwellings;
    - inclusion of a new retail precinct with a new supermarket, food and beverage, and speciality retail;
    - proposed childcare facility;
    - proposed combined library and community centre; and
    - proposed combined Church, Residential Aged Care Facility and Independent living unit's facility.
- Delivery of new public open space, including:
    - a new light rail plaza;
    - Hill top park;
    - Eyles pedestrian link; and
    - Open space associated with the proposed library.
- Retention of existing significant trees.
- Road and intersection upgrades.
- Cycle way upgrades.
- Upgrade of utility services.

The Telopea CPA is divided into four precincts known as Core, North, South and East incorporating a total of 29 parcels. The Concept proposal is further detailed in the Urban Design Report prepared by Bates Smart and Hassell.

Figure A: Telopea estate concept plan

2 OBJECTIVES

The objective of this assessment is to undertake an additional Phase 1 desktop assessment of the Telopea site to ascertain the current contamination status of the site through a site visual inspection to complement existing information, provide a risk based assessment of properties within the development area and refine the conceptual site model (CSM) of contamination.

Results of the historical aerial review and site inspection will identify potential areas of risk for the proposed development due to possible contamination sources associated with previous construction / demolition of residential properties in the master plan development.

3 SCOPE OF WORK

3.1 Desktop review

- Detailed review of previous environmental assessment reports for the "Telopea Site" areas as indicated in "*Annexure M – Plan of the land*" figure provided to Environmental Earth Sciences by Frasers (**Figure 2**):
    - Parsons Brinkerhoff Pty Ltd (PB) (2009) – *Phase 1 Environmental Site Assessment*, Housing NSW Properties: Telopea Renewal Project, Telopea NSW 2117 (ref: 21608A PR_1281RevA; 21 December 2009); and
    - Environmental Earth Sciences (2019*), Due Diligence Risk Assessment of Proposed Telopea Master Plan Site, Telopea, NSW, Frasers Property Australia* (dated 8 November 2019, reference 119095_V2).
- Detailed review of historical aerial photographs to confirm potential areas of concern identified in PB (2009) and Environmental Earth Sciences (2019) and investigate any new areas of potential concern including parts of Stages 2B, 2D and 3A and Stage 3B that were not discussed in the previous reports.
- Detailed review of all buildings via Google Street View prior to attending site to identify potential higher risk properties based upon the visible conditions of properties and likely construction materials.
- Geology, soil, hydrology and meteorology maps and databases for areas not previously investigated, including portions of Stages 2B, 2D, 3A and all of Stage 3B.
- NSW Office of Water records on registered groundwater bores within 500 m of the site / Stages 1A to Stage 3B, to assess likely groundwater depths and quality (if available).
- Historical Title Certificates:

  As one title certificate is available for each of the following Stages: Stage 1A, 1B/1C, 1D, 1E, 2A, 2C, 2D, 3A; three additional title certificates were obtained one for Stage 1F, one for Stage 2B and one for Stage 3B.
- Council planning certificate information under Section 10.7 (Parts 2 and 5) of the *Environment Planning and Assessment Act 1979*:

  As one Section 149 (now Section 10.7) planning certificate is available for each of the following Stages: Stage 1A, 1B, 1C, 1D, 1E, 2A, 2C, 2D, 3A; three additional Section 10.7 planning certificates were requested: one for Stage 1F, one for Stage 2B and one for Stage 3B.
- NSW EPA search of register of notified properties under the Contaminated Land Management act 1997 (CLM Act) subject to investigation / remediation orders for areas not previously investigated, including portions of Stages 2B, 2D, 3A and all of Stage 3B.

3.2 Site inspection

- Site inspection of the residential lots and open space areas that were not previously investigated to (excludes any intrusive investigation):
    - identify site features and any potential activities of environmental concern; and
    - assess for any potential contaminants of concern, including asbestos on the ground surface.

4 SITE IDENTIFICATION AND SETTING

4.1 Location and property description

The site consists of 12 stages (Stage 1A, 1B, 1C, 1D, 1E, 1F, 2A, 2B, 2C, 2D, 3A and 3B) and is currently zoned as high density residential, with some commercial/industrial (mixed use) land use and areas of public open space land use and is within the City of Parramatta Local Government Authority.

Table 1 below summarises each Stage, the Lot and Deposition Plan (DP) numbers and the size of each Stage as based on figure provided by Frasers Property: *Tenure and Staging Plan; issue date 01.11.19)*, refer to **Figure 3**.

Table 1: Stages 1A – 3B

Stage	Lot	DP number	Size (m^2)	Total Size (ha)
1A	Lots 5 – 7	DP128229	21,280	2.13
1B	Part of Lot 171	DP1186793	9,181	0.92
1C	Part of Lot 171	DP1186793	7,118	0.71
1D	Part of Lot 2	DP811708	4,999	0.50
1E	Part of Lot 2 and Lot 1 Lot 1715	DP811708 DP213180	3,185 7,231	1.96
1F	Lot 1716	DP213180	9,087	0.91
2A	Lots 280 – 285, 287 – 288, 290 – 299	DP36743	12,840	1.28
2B	Lots 248 – 252, 275 and 276, 254 to 256, 245 and 246	DP36743	4,765 2,061 1,738	0.86
2C	Lots 262 – 268	DP36743	5,080	0.51
2D	Lots 308 – 319, 304 – 306	DP36743	8,950 2,033	1.09
3A	Part of Lot 100 Lots 1 and 2	DP1169946 DP596499	4,326 1,536	0.81

Stage	Lot	DP number	Size (m^2)	Total Size (ha)
	Lot 227 – 229	DP36743	2,256	
3B	Lots 154 – 156 Lots 149 – 152 Lots 108 – 111 Lots 119 – 122 Lots 136 – 141 Lots 126 – 129 Lots 96 – 100 Lots 89 – 92	DP36691	2,117 2,742 3,199 2,832 4,393 4,556 2,907 3,556	2.63

Notes:

1. Above information taken from Sixmaps (https://maps.six.nsw.gov.au) based on the *Annexure M – Plan of the land* and *Annexure N – Staging Plan* provided by Frasers Property.

4.2 Site surrounds

The following adjacent land uses were observed at the time of the site inspection:

Stage 1A

- **North** – Sturt Street with high density residential properties beyond.
- **South** – Residential properties and Sydney Young Nak Presbyterian Church with Manson Street beyond. Redstone (The Winter House) a heritage-listed private house located to the south west of Stage 1A. Sturt Park Skate Park, Ponds Creek Reserve (North) and The Ponds Creek lie to the south east of the site.
- **East** – Residential subdivisions and Telopea Public School to the south east beyond Manson Street.
- **West** – Telopea railway line with Adderton Road beyond.

Stages 1B, 1C, 1D, 1E and 1F:

- **North** – Shortland Street with high density residential properties beyond.
- **South** –Dundas Branch Library and Dundas Area Neighbourhood Centre, with Sturt Street and Telopea Public School beyond. Sturt Park Skate Park, Ponds Creek Reserve (North) and The Ponds Creek lie to the south east of the site.
- **East** – Commercial / industrial premises including Telopea Service Centre (a mechanical repairs and services business with two bowsers), Australia Post, The Valley Pharmacy, Dundas Valley Medical Centre and IGA Telopea. There was a former dry cleaner located within the Telopea shopping mall but this is no longer in operation.
- **West** – Sturt Street, with Telopea railway line and Adderton Road beyond.

Stages 2A, 2B, 2C and 2D

- **North** – Marshall Road with residential properties beyond.

- **South** – Shortland Street and high density residential and commercial / industrial premises.
- **East** – Evans Road, with large residential subdivisions and Sophies Cottage Kindergarten.
- **West** – Marshall Road, with residential properties and Telopea railway line beyond.

Stage 3A consists of two areas: north of Sturt Street and a second region north of Field Place to the west of Marshall Street.

Stage 3A – North of Sturt Street

- **North** – High density residential properties with Acacia Place north east of Osborne Avenue.
- **South** – Sturt Street with Telopea Public School to the south west and Sturt Park Skate Park beyond. The Ponds Creek lies further south.
- **East** – Residential properties with vacant grassland populated with trees and The Ponds Creek which lies approximately 152 metres (m) south east of GW4 sampling location (Environmental Earth Sciences, 2019).
- **West** – Evans Road with commercial / industrial Telopea shopping mall beyond including Telopea Service Centre, Australia Post and IGA Telopea.

Stage 3A – North of Field Place

- **North** – Residential properties with Telopea railway line and Adderton Road beyond.
- **South** – Field Place with high density residential properties beyond.
- **East** – Marshall Road with residential properties beyond.
- **West** – high density residential property with Telopea railway line further west.

Stage 3B

- **North** – Manson Street with residential properties and Sydney Young Nak Presbyterian Church beyond and Redstone (The Winter House) to the north west.
- **South** – Kissing Point Road with residential properties of the suburb of Dundas beyond.
- **East** – Telopea Public School, with Sturt Park Skate Park beyond and The Pond Creek to the south east.
- **West** – Adderton Road with Telopea railway line, residential properties and William Wade Park beyond.

4.3 Current land zoning

The current land zoning of each of the 12 Stages includes:

- Stage 1A: RE1: public recreation and R4: high density residential.
- Stages 1B, 1C, 1D and part of 1E B4: Mixed Use.
- Stages part of 1E, 1F, 2A, 2B, 2C, 2D, 3A and 3B: high density residential.

4.4 Sensitive receptors

The nearest sensitive human receptors are the site occupants, visitors and residents and visitors to neighbouring properties, which includes Telopea public school, Dundas Branch Library, Dundas Area Neighbourhood Centre and Telopea shopping mall as well as commuters using the Telopea railway line.

The nearest sensitive environmental receptors are the ecological communities which inhabit the soil, groundwater and remnant native bushland areas surrounding the site such as Sturt Park and Ponds Creek Reserve (North) to the south and east of the site as well as The Ponds Creek which lies approximately 120 m south east of the southern stage 3B (located south of Chestnut Avenue) and the groundwater which runs beneath the site.

The nearest terrestrial groundwater dependency ecosystems (GDE) are Sydney Turpentine Ironbark Forest approximately 140 m west of Adderton Road Hinterland Sandstone Gully Forest approximately 170 m west of Adderton road. There are no known GDE within the 12 Stages (http://www.bom.gov.au/water/groundwater/gde/map.shtml, accessed 23/04/2020).

4.5 Topography and vegetation

Chapman and Murphy (1989) describe the landscapes of the Sydney Basin as they existed prior to development.

Glenorie landscape is described as low rolling and steep hills with local relief 50-120 m, with slopes of between 5% to 20%.

Gymea landscape is described as undulating to rolling low hills with local relief of 20-80 m and slopes of between 10 % to 25%.

The topography of Blacktown landscape is described as gently undulating hills on Wianamatta Shale with local relief of 10-30 m with slopes of between less than 5% and 10%.

The site appears to slope towards the south and south east.

4.6 Regional geology

The Sydney 1:100 000 Geological Series Sheet 9130 (Geological Survey of NSW, 1983) describes the regional geology underlying the majority of the site as Wianamatta Group consisting of shale, and laminate (Rwa), with medium to coarse-grained quartz sandstone, with very minor shale and laminate lenses (Rh) to the south of Chestnut Avenue.

4.7 Soils

Stages 1A to 3A and four sections of the Stage 3B area are classified as belonging to the Glenorie Soil Landscape, three stages of 3B comprising of Lots 89 – 92, Lots 96 – 100 and Lots 108 – 111 are belonging to the Gymea Landscape with Lots 126 – 129 belonging to the Blacktown Soil Landscape.

The majority of the soils observed at the site incorporate soils classified in the Soil and Land Resources of the Hawkesbury-Nepean Catchment as belonging to the Glenorie Soil Landscape. Characteristics of these natural soils include shallow to moderately deep (<100 cm) red and brown podzolic soil on upper slopes crests grading to yellow podzolic soils and prairie soils on lower slopes and drainage lines. Limitations for Glenorie soils include moderate reactive highly plastic subsoil, high soil erosion hazard, localised seasonal water logging and moderate surface swelling potential.

Glenorie soil landscape is underlain by Wianamatta Group Ashfield Shale and Bringelly Shale formations. The Ashfield Shale is comprised of laminite and dark grey shale. Bringelly Shale consists of shale, calcareous claystone, laminite, fine to medium grained lithic-quartz sandstone (Herbert, 1983).

According to Soil and Land Resources of the Hawkesbury-Nepean Catchment, characteristics of the Gymea Landscape include undulating to rolling rises and low hills on Hawkesbury Sandstone with local relief of 20 – 80 m and slopes between 10% to 25%. Natural soils of this landscape include shallow to moderately deep yellow earths and earthy sands, shallow siliceous sands, localised podzolic soils, shallow to moderately deep siliceous. Limitations for Gymea soils include localised steep slopes, high soil erosion hazard, rock outcrop, shallow highly permeable soil, very low soil fertility.

The soils observed at Stage 3B (Lots 126 – 129) incorporate soils classified in the *Soil Landscapes of the Penrith 1:100 000 sheet* as belonging to the residual Blacktown Soil Landscape with gently undulating rises on Wianamatta Group shales and Hawkesbury shale. These soils are characterised by being shallow to moderately deep (<100cm) red and brown Podzolic soils on crests, supper slopes and well drained areas. Limitations of Blacktown soils include a moderately reactive and highly plastic subsoil with low fertility and poor drainage. However, they do still have a high capability for urban development given appropriate foundation design.

Refer to **Appendix A** for more information on the Glenorie, Gymea and Blacktown landscapes.

4.8 Acid sulfate soil risk

The Council planning certificates issued under Section 10.7 (Parts 2 and 5) of the NSW EPA Act states that the site is identified as Class 5 on the Acid sulfate Soils map. The *Parramatta Local Environment Plan 2011* Clause 6.1 describes Class 5 as: “works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the water table is likely to be lowered below 1 metre Australian Height Datum on adjacent Class 1, 2, 3 or 4 land”.

Typically, acid sulfate soils are not found in areas identified as Class 5. The site is also not within 500m of Class 1, 2, 3 or 4 risk and therefore, if dewatering is required in the proposed

development, the surrounding land is not expected to be at risk of the effects of acid sulfate soils.

For full acid sulfate soil map refer to Paramatta Local Environmental Plan 2011, *Acid Sulfate Soil Map – Sheet ASS_014* in **Appendix B**.

4.9 Hydrogeology, drainage and salinity

Stages 1A to 3A and five sections of the Stage 3B area are within the Glenhaven Hydrogeological Landscape (HGL) and three stages of 3B comprising of Lots 89 – 92, Lots 96 – 100 and Lots 108 – 111 are within the Hawkesbury HGL.

4.9.1 Glenhaven HGL

The Glenhaven HGL describes the regional landscape as being characterised by undulating hills with narrow ridges and hillcrests on Triassic Ashfield Shale over Hawkesbury Sandstone at Glenhaven, Eastwood, Roselea, Denistone West, Epping and West Ryde.

This HGL comprises sedimentary rocks from the Triassic Wianamatta Group (Ashfield Shale and Minchinbury Sandstone) and Hawkesbury Sandstone. The Wianamatta Group consists of laminite, black and grey shales and lithic sandstone. The Hawkesbury Sandstone is composed of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. Alluvial sands and gravels derived from the surrounding Wianamatta Group shales and Hawkesbury Sandstone are present along current streams. The shales of the HGL are moderately weathered and the regolith depth ranges from 1.0 – 1.5 m but can be deeper in some locations.

Water infiltrates through the steep hills and flows downslope laterally along clay rich layers within the soil material and also vertically through the underlying shales within the matrix and preferentially along fractures and bedding plains. The lateral movement of subsurface waters may be impeded by a soil texture change (lithic gravels and sands to sandy clay) at the change in slope.

The landscape does not exhibit any significant signs of salinity, potentially due to higher rainfall and the soil is deeper and therefore well drained so it stores less salt, with occasional sites appearing in the more poorly drained areas of the lower slopes and drainage depression. Salt export is low due to limited salt expression, high run-off and sandstone dominated drainage lines. Water EC is generally low in the incised sandstone streams, however can become higher in the shale drainage line.

Groundwater flow is unconfined along structures (bedding, joints, faults) in the fractured bedrock. Flow also occurs through connected pore spaces in sandstone units. Lateral flow occurs through colluvial and through colluvial and alluvial sediments on slopes and plains. Hydraulic conductivity and transmissivity are low to moderate.

Limitations include: minor localised gully erosion, localised salinity hazard in low lying areas and drainage depressions and high soil erosion hazard. Significant features of this HGL are deeply incised sandstone drainage lines in the upper landscape, flatter topography and minimal salinity for a landscape with Wianamatta Group. For full reports of salinity and hydrogeological information refer to **Appendix C.**

4.9.2 Hawkesbury HGL

The Hawkesbury HGL is characterised by plateaux, scarps, benches and hills on sandstone in the areas encompassing Lucas Heights and Woronora Plateau.

This HGL is characterised by sedimentary rocks from the Triassic Hawkesbury Sandstone and Narrabeen Group and minor outbreaks of Tertiary Basalt and Jurassic Volcanics. The Hawkesbury Sandstone is composed of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. The Narrabeen Group contains quartz and quartz-lithic sandstone, shale, claystone and minor conglomerate. These have been intruded by isolated Jurassic volcanic pipes containing basaltic breccia. Unconsolidated colluvial sediments derived from the surrounding Triassic sedimentary rocks have been deposited on the slopes of this HGL.

Water infiltrates vertically through interbedded sandstone and sandstone fractures (primary and secondary porosity) and laterally along bedding planes. The residence time of water moving through this landscape is likely to be relatively low due to the steep gradient and short flow path. Therefore, salt accumulation within groundwater is likely to be reduced.

Groundwater flow is typically unconfined along structures (bedding, joints and faults) in the fractured bedrock. Lateral flow occurs through colluvial sediments on slopes. Hydraulic conductivity is high and transmissivity is moderate to high.

Land salinity and water EC are low. Salts are flushed from the porous sandstone matrix which prevents salt accumulation at the surface. Salinity expression at the contact between basalts or Jurrasic Volcanics may be higher due to salts being flushed out from the basalt. For full reports of salinity and hydrogeological information please see **Appendix C.**

4.9.3 Nearby groundwater bores

A search on the NSW Department of Primary Industries Office of Water website (http://www.bom.gov.au/water/groundwater/explorer/map.shtml accessed on 23/04/2020) indicates that though there are ten monitoring or private use wells located within 500 m of Stage 3B (the most southern stage). There are no other groundwater bores within 500 m of the remaining eleven stages.

4.10 Flood risk

Based upon information from the City of Parramatta, the site is considered to be above the 1 in 100 year flood level. In any case, any development must adhere to the development control plans (DCP) for the City of Parramatta, as relevant.

4.11 Climate and meteorology

Regional meteorological data has been sourced from the Bureau of Meteorology (2020) (www.bom.gov.au, verified 20/04/2020) with monthly rainfall data received from Parramatta North (Masons Drive) weather station (located approximately 2.3 km west of the site). Average monthly rainfall volume was calculated from 1965, mean maximum and minimum monthly temperatures were calculated from 1967. This information is presented in **Table 2.**

Table 2: Average monthly climate data

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum Temperature (ºC)	29	28	26	24	21	18	18	19	22	24	26	28
Minimum Temperature (ºC)	18	18	16	13	10	8	6	7	9	12	14	16
Rainfall (mm)	102	126	113	90	66	93	44	55	50	68	83	72

5 HISTORICAL REVIEW

This section includes a review of:

- Historical land title search;
- Council planning certificate information under Section 10.7 (2) and (5) of the Environment Planning and Assessment Act 1979 (EP&A Act);
- Available historic aerial photography; and
- NSW Environment Protection Authority (EPA) search of register of notified properties under the Contaminated Land Management act 1997 (CLM Act) subject to investigation and/or remediation orders.

5.1 Historical aerial photograph review

A review of aerial photographs has been completed for areas of the site (parts of Stages 1A – 1F, Stages 2B, 2D and 3A and Stage 3B) are summarised in **Table 3** to **Table 7**. The earliest historical photograph available for the site is from 1943. From 1943 to 1975, the site and the surrounding area has undergone significant changes in both usage and development of public infrastructure. Refer to **Appendix D** for the aerial photographs.

Table 3: Site historical aerial photographs – Stages 1A – 1F

Year	Colour / B & W	Notes
1943	B & W	**Onsite:** The site area appears to be rural land with minimal vegetation, some trees in the western portion of site. **Offsite:** Site surrounds include more rural / residential properties in all directions. Directly east of site is the Telopea railway line and beyond this Vineyard Creek and Vineyard Creek reserve.
1955	B & W	**Onsite:** Streets have been development, potentially one structure has been built to the central-eastern portion of Stage A, otherwise no structures are visible.

Year	Colour / B & W	Notes
		Offsite: All roads and streets in western portion of Telopea have begun development, houses are starting to be constructed in the north eastern and central southern areas of the suburb.
1965	B & W	**Onsite:** Site remains similar to previous, however, the potential structure residing in the central-eastern portion of site no longer remains and structures have been built in Stage 1F. **Offsite:** Majority of the western portion of Telopea has been developed into high density residential. Only areas undeveloped are the site (comprising Stage 1A – Stage 1E).
1971	B & W	**Onsite:** Structures are now visible off Wade St and Eyles street (Stages 1D and 1E). Otherwise, remains similar to previous. **Offsite:** Surrounds are similar to previous.
1975	B & W	**Onsite:** Site off Polding Place and Sturt Street (Stage 1A) now has seven large structures, four to the south and three in the central northern portion. Development has begun off Sturt Street (Stage 1B and 1C) being three structures. **Offsite:** Surrounds are similar to previous.
1986	Colour	**Onsite:** Site remains similar to previous except for central-eastern portion of Stage 1A is now a landscaped open grassy space with footpaths and all developments in Stages 1B and 1C appear complete. **Offsite:** All of western Telopea is developed into high density residential.
1991	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous.
1994	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous.
2004	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous.
2007	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous.
2010	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous, however, earthworks occurring near the train station entrance on the corner of Sturt St and Shortland St.
2014	Colour	**Onsite:** Two smaller buildings to the north of Stage 1A are no longer there. The five larger buildings remain. **Offsite:** Surrounds are similar to previous, however, two new buildings near the train station entrance on the corner of Sturt St and Shortland St have been completed.
2020	Colour	**Onsite:** Site remains similar to previous. **Offsite:** Surrounds are similar to previous.

Table 4: Site historical aerial photographs – Stage 2B

Year	Colour / B & W	Notes
1943	B & W	The site consists of vacant grassland with one structure present in south western area. Surrounding land: Generally vacant grassland with trees and vegetation with a few properties evident north of the northern 2B Stage. Adderton Road is present north of the site.
1955	B & W	Construction of several residential properties commenced from 1943 to 1955. Surrounding land: Marshall Road, Sophie Street, Shortland Street, The Parade, Evans Road and Figtree Avenue are constructed. Approximately 20 properties are observed north of Marshall Road.
1965	B & W	There is a residential property now on each of the lots within Stage 2B. Surrounding land: there is a large increase in development of residential subdivisions from 1955 to 1965 to the north east, east and south west of Stage 2B. Development of Telopea shopping mall south of Shortland Street
1971	B & W	Site remains relatively unchanged. Surrounding land: further development of residential properties south of Field Place and Shortland Street
1975	B & W	Site remains relatively unchanged. Surrounding land: development of high density residential properties south west of Shortland Street.
1986 - 2004	Colour	Broadly as above.
2004	Colour	The site remains broadly as above. High density residential properties constructed north of Stage 2B area (west of Marshall Road).
2012 Nearmap	Colour	The site remains broadly as above. Further development of residential properties constructed north of Stage 2B area (west of Marshall Road).
Oct 2011 – Aug 2013 Nearmap	Colour	The site remains broadly as above. Building south of Stage 2B have been replaced with high density properties.
28/4/2015 Nearmap	Colour	The site remains broadly as above. Demolition of structures south of Stage 2B and construction of high density residential property completed by November 2015.
16/10/2015 Nearmap	Colour	The site remains broadly as above. Demolition of structures at the corner of Marshall Road and The Parade.
6/04/2016	Colour	The site remains broadly as above. Construction completed at the corner of Marshall Road and The Parade.
12/10/2016	Colour	The site remains broadly as above. Demolition of structures at the corner of Marshall Road and Sophie Street.
23/04/2017	Colour	The site remains broadly as above. Construction completed at the corner of Marshall Road and Sophie Street

Year	Colour / B & W	Notes
2020	Colour	Broadly as above.

Table 5: Historical aerial photographs - Stage 2D

Year	Colour / B & W	Notes
1943	B & W	The site and surrounding land consist of vacant grassland
1955	B & W	Construction of residential properties in the northern area commenced between 1943 and 1955. Surrounding land: Marshall Road, Sophie Street, Shortland Street, The Parade, Evans Road and Figtree Avenue are constructed. Early stages of earthworks evident/
1965	B & W	There is a residential property now on each of the lots within Stage 2D. Surrounding land: there is a large increase in development of residential subdivisions from 1955 to 1965.
1971	B & W	Site remains relatively unchanged. Surrounding land: further development of residential properties south of Shortland Street.
1975	B & W	Site remains relatively unchanged. Surrounding land: development of high density residential properties south west of Shortland Street.
1986 - 2007	Colour	Broadly as above.
2007	Colour	Residential property in southern end of Stage 2D demolished between 2004 and 2007.
Oct 2011 – Aug 2013 Nearmap	Colour	The site remains broadly as above. Buildings north of Stage 2D have been replaced with high density properties.
April – Nov 2015 Nearmap	Colour	The site remains broadly as above. Buildings south of Stage 2D (along Evans Road) have been replaced with high density properties.
16/10/2015 Nearmap	Colour	The site remains broadly as above. Demolition of structures at the corner of Marshall Road and The Parade.
6/04/2016	Colour	The site remains broadly as above. Construction completed at the corner of Marshall Road and The Parade.
12/10/2016	Colour	The site remains broadly as above. Demolition of structures at the corner of Marshall Road and Sophie Street.
23/04/2017	Colour	The site remains broadly as above. Construction completed at the corner of Marshall Road and Sophie Street
2020	Colour	Residential property in northern part of Stage 2D demolished between June and July 2018.

Table 6: Historical aerial photographs – Stage 3A (North of Field Place)

Year	Colour / B & W	Notes
1943	B & W	The site consists of vacant grassland and some trees. Surrounding land: Adderton Road and residential properties present north of Stage 3A.
1955	B & W	Construction of residential properties commenced by 1955. Surrounding land: Marshall Road and Field Place are constructed. Several properties present north of Stage 3A (north of Marshall Road). Bulk earthworks have commenced south and east of Stage 3A.
1965	B & W	Three residential properties now present on Stage 3A. Surrounding land: there is a large increase in development of residential subdivisions from 1955 to 1965.
1971	B & W	Site remains relatively unchanged. Surrounding land: further development of residential properties south of Stage 3A.
1975	B & W	Site remains relatively unchanged. Surrounding land: development of high density residential properties south of Shortland Street.
1986	Colour	Site remains relatively unchanged. Surrounding land: development of building south west of Field Place.
1991 - 2004	Colour	Broadly as above.
2004	Colour	Site remains relatively unchanged. Surrounding land: building demolished north of Stage 3A.
2007	Colour	Site remains relatively unchanged. Surrounding land: construction underway north of Stage 3A
2010	Colour	The site remains broadly as above. Surrounding land: five properties demolished south of Field Place and north of Shortland Street. Construction of high density residential property completed north of Stage 3A.
08/02/2014 Nearmap	Colour	The site remains broadly as above Surrounding land: two residential properties west of the Filed Place cul-de-sac now demolished.
May - Nov 2014 Nearmap	Colour	The site remains broadly as above Surrounding land: construction work underway west of Stage 3A and high density properties constructed by November 2014.
Jan – May 2016 Nearmap	Colour	The site remains broadly as above. Surrounding land: property demolished and construction work underway southwest of Stage 3A and high density properties constructed by May 2016.
2020	Colour	Remains broadly as above.

Table 7: Historical aerial photographs – Stage 3B

Year	Colour / B & W	Notes
1943	B & W	The site consists of vacant grassland. Surrounding land: Generally vacant grassland with a few properties evident north and south of Stage 3B. Kissing Point Road and Adderton Road are constructed.
1955	B & W	Residential development of the area commenced between 1943 and 1955. Surrounding land: Manson Street, Cunningham Street, Chestnut Avenue, Burke Street and Sturt Street are constructed. Earthworks and residential development underway north west, west and south of Stage 3B.
1965	B & W	There is a residential property now on each of the lots within Stage 3B. Surrounding land: there is a large increase in development of residential subdivisions from 1955 to 1965. Development of Telopea Public School and shopping mall underway.
1971	B & W	Site remains relatively unchanged. Surrounding land: several high density properties present north of Sturt Street.
1975	B & W	Site remains relatively unchanged. Surrounding land: development of high density residential properties north of Manson Street and also north of Sturt Street
1986 - 2007	Colour	Broadly as above.
Oct 2009 Nearmap	Colour	Site remains relatively unchanged. Redevelopment works underway in south western area of Adderton Road and completed by August 2012.
Sept 2011 Nearmap	Colour	Site remains relatively unchanged. Redevelopment works underway south of Stage 3B and north of Kissing Point Road and completed by April 2010.
May 2012 – May 2013	Colour	The site remains unchanged. Redevelopment of property at the corner of Manson Street and Burke Street completed by May 2013.
May 2013 – July 2014 Nearmap	Colour	The site remains unchanged. Surrounding land: demolition of properties and construction of new residential properties at Corner of Burke Street and Chestnut Avenue commenced in May 2013 and completed by July 2014.
Feb 2014 Nearmap	Colour	Site remains relatively unchanged. Large redevelopment works underway south of Stage 3B and north of Kissing Point Road and completed by November 2015.
April – Nov 2014 Nearmap	Colour	The site remains broadly as above. Demolition of three properties along Adderton Road commenced in April 2014 and construction of new residential properties completed by November 2014.

Year	Colour / B & W	Notes
Nov 2014	Colour	The site remains broadly as above. Redevelopment commenced at the corner of Cunningham Street and Chestnut Avenue.
2014	Colour	The site remains unchanged. Residential subdivision continues to extend south and south east and east of the site with earthworks commenced directly east of the site.
2020	Colour	Remains broadly as above.

5.2 Review of historical title certificates

As one title certificate is available for each of the following Stages: Stage 1A, 1B/1C, 1D, 1E, 2A, 2C, 2D, 3A; three additional title certificates are obtained:

- one for Stage 1F;
- one for Stage 2B;
- and one for Stage 3B.

A review of the historical title certificates provided is summarised in **Tables 7** to **9**. The earliest historical title certificate was dated from 1895 for Stage 1F. The searches reveal The Housing Commission of New South Wales has had ownership of the site since 1947. More details of the site historical titles are presented in **Appendix E**.

Table 8: Title Certificates for Stage 1F - Lot 1716 DP 213180 (19 Sturt Street)

Date of Acquisition	Registered Proprietor(s) & Occupations
Part Lots 7 & 8 DP 2522 – Area 5 Acres 0 Roods 5 ½ Perches – CTVol 1159 Fol 81	
1895 – 1936	Charles Robert Mobbs, fruit grower
1936 – 1936	Frederick Ernest Spurway, nursery man
1936 – 1936	John Jeremiah Leahy, grazier
1936 – 1938	Michael Barry, builder
1938 – 1941	Kenneth Victor Randolph Douglas, bank manager
Lot A DP 345313 – Area 8 Acres 0 Roods 37 ¾ Perches – CTVol 5273 Fol 63	
1941 – 1947	Arthur Farquhar Webster, bacteriologist
1947 – 1959	The Housing Commission of New South Wales
Part Lot 8 DP 2522 – Area 8 Acres – CTVol 2921 Fol's 201 & 202	
1919 – 1926	Thomas Todorovich, nurseryman John Todorovich, nurseryman

Date of Acquisition	Registered Proprietor(s) & Occupations
Part Lot 8 DP 2522 – Area 8 Acres – CTVol 3948 Fol 97	
1926 – 1937	William and Bertha Maxwell, engineer
1937 – 1947	Arthur Yates & Co Pty Limited
1947 – 1959	The Housing Commission of New South Wales
Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160	
1916 – 1938	Henry Charles William Pitz, builder
1938 – 1947	Adelaide Bice Pilz, widow
1947 – 1959	The Housing Commission of New South Wales
Part Portion 158 Parish Field of Mars – Area 17 Acres 2 Roods 7 Perches – CTVol 2680 Fol 134	
1916 – 1920	Caleb Moses Smith, orchardist
1920 – 1936	George Kirby McArthur, orchardist
1936 – 1947	Arthur Yates & Co Pty Limited
1947 – 1959	The Housing Commission of New South Wales
Part Portions 157, 158 & 110 Parish Field of Mars and other lands – CTVol 7700 Fol 205	
1959 – 1963	The Housing Commission of New South Wales
Lot 1716 DP 213180 – CTVol 9422 Fol 77	
1963 – 1988	The Housing Commission of New South Wales
Lot 1716 DP 213180	
1988 – todate	The Housing Commission of New South Wales

Table 9: Title Certificates for Stage 2B - Lot 251 of DP36743 (26 Marshall Road)

Date of Acquisition	Registered Proprietor(s) & Occupations
Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160	
1916 – 1938	Henry Charles William Pitz, builder
1938 – 1947	Adelaide Bice Pilz, widow
1947 – 1959	The Housing Commission of New South Wales
Part Portions 157, 158 & 110 Parish Field of Mars and other lands – CTVol 7700 Fol 205	
1959 – 1963	The Housing Commission of New South Wales
Lots 219A, 219B, Lots 220 to 237 & Lots 239 to 345 DP 36743 and other lands – CTVol 8451 Fol 143	
1963 – 1977	The Housing Commission of New South Wales

Date of Acquisition	Registered Proprietor(s) & Occupations
Lot 251 DP 36743 – CTVol 13364 Fol 136	
1977 – 1988	The Housing Commission of New South Wales
Lot 251 DP 36743	
1988 – todate	The Housing Commission of New South Wales

Table 10: Title Certificates for Stage 3B - Lot 138 of DP36691 (25 Burke Street)

Date of Acquisition	Registered Proprietor(s) & Occupations
Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160	
1916 – 1938	Henry Charles William Pitz, builder
1938 – 1947	Adelaide Bice Pilz, widow
1947 – 1959	The Housing Commission of New South Wales
Part Portions 156 & 157 Parish Field of Mars and other lands – CTVol 7700 Fol 205	
1959 – 1963	The Housing Commission of New South Wales
Lots 85 to 164 DP 36691 and other lands – CTVol 8407 Fol 156	
1963 – 1977	The Housing Commission of New South Wales
Lot 138 DP 36691 – CTVol 13229 Fol 50	
1977 – 1988	The Housing Commission of New South Wales
Lot 138 DP 36691	
1988 – todate	The Housing Commission of New South Wales

5.3 Council Planning Certificates

As one Section 149 (now Section 10.7) is available for each of the following Stages: Stage 1A, 1B, 1C, 1D, 1E, 2A, 2C, 2D, 3A; three additional Section 10.7 planning certificates were requested:

- one for Stage 1F: Lot 1716 DP 213180 (19 Sturt Street);
- one for Stage 2B: Lot 251 of DP36743 (26 Marshall Road); and
- one for Stage 3B: Lot 138 of DP36691 (25 Burke Street).

In relation to Section 59 (2) of the *Contaminated Land Management (CLM) Act 1997*, the Planning Certificate (Section 10.7 [2] & [5] under the *Environmental Planning and Assessment Act, 1979)*, states that the land for each of the three lots listed above:

- Is not significantly contaminated land within the meaning of the Contaminated Land Management Act 1997.

- Is not subject to a management order within the meaning of the Contaminated Land Management Act 1997.
- Is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Land Management Act 1997.
- Is not subject to an ongoing maintenance order within the meaning of the Contaminated Land Management Act 1997.
- Is the subject of a site audit statement within the meaning of that Act:

Please see **Appendix F** for full council planning certificates Section 10.7 for the three lots.

5.4 NSW EPA contaminated sites register

A search of the NSW EPA contaminated land public record database (accessed on 22 April 2020) showed no notices or records for the suburb of Telopea.

5.5 Previous assessments

5.5.1 2017 Preliminary environmental site history assessment

A preliminary environmental site history assessment was completed by Mott McDonald which includes a phase 1 environmental site assessment undertaken by Parsons Brinkerhoff. Refer to Appendix B in the following report:

- Mott McDonald Pty Ltd (2017) - *Telopea Master Plan, Preliminary Environmental Site History Assessment* (ref: 03.15; 30 March 2017; Rev D) (the “Master Plan”) and

The site identification, geology, topography, hydrogeology, surface water and historical aerial photography review is discussed in the above report.

The 2009 PSI states

“While some minor contamination at the site may have resulted from normal residential activities such as maintenance of vehicles and use of backyard incinerators, and from use of pesticides on site when the area was used for agricultural purposes (namely orchards), these activities may have impacted surface soils but are unlikely to have caused widespread contamination”.

The 2017 report, the “Master Plan” lists the following as areas of concern:

- Potential for asbestos-containing material (ACM) and heavy metals in the form of lead paint.
- There is the potential for soil contamination in the surface due to previous agricultural and residential activities.
- Soil mounds should be confirmed as comprising natural soil.

  - Environmental Earth Sciences response: there is no evidence that soil mounds contain natural material and due to the age of the buildings, there is the potential for fill material to have been used in the construction of the properties.

- The client should be contacted *if any soil staining, odour material or fill is encountered;*

  - Environmental Earth Sciences response: a Construction Environmental Management Plan (CEMP) and/or a Remediation Action Plan (RAP) be in place prior to commencing development works.

- *"A targeted intrusive soil and groundwater assessment be undertaken down gradient of the Telopea shopping centre and mechanical repairs and services business in order to confirm that the master plan area is not impacted by these land uses".*

  - Environmental Earth Sciences response: this report details the results of the soil and groundwater assessment.

5.5.2 2019 due diligence assessment

In 2019, Frasers Property commissioned Environmental Earth Sciences to undertake a due diligence risk assessment including a limited soil and groundwater assessment:

- Environmental Earth Sciences (2019), *Due Diligence Risk Assessment of Proposed Telopea Master Plan Site, Telopea, NSW, Frasers Property Australia* (dated 8 November 2019, reference 119095_V2).

For this assessment, Environmental Earth Sciences NSW was advised to focus on the following areas of concern formally identified as:

- Part of Lot 5 in Deposited Plan (DP) 128229;
- Part of Lot 2 in DP 811709;
- Part of Lot 1715 in DP 213180;
- Part of Lot 1716 in DP 213180; and
- Part of Lot 100 in DP 1169946.

Soil

Soil results were either reported below the limit of detection (LOR) or below adopted interim criteria for all soil samples.

Asbestos

During the site works, only one fragment of potentially asbestos containing material was observed across the site area. The potential asbestos-containing material, PACM1, resulted in positive detections for asbestos-containing material (ACM). The fragment was confirmed to contain "Chrysotile" (white asbestos). ACM fragments residing on the soil surface

exceeds adopted criteria, as “no visible asbestos for surface soil” is specified for Residential A, B and Recreational C land use (ASC NEPM, 2013).

Groundwater

Groundwater levels recorded in the four newly installed groundwater walls indicate that the local groundwater flow is towards the east. Groundwater was recorded between 1.4 m and 5.0 metres below ground level (mBGL).

Nickel and Zinc were reported above the freshwater criteria in three of the four samples, but these low-level concentrations are indicative of background groundwater dissolved metal concentrations.

Mercury was reported above the freshwater criteria in one of the four samples (GW2). It is noted that the freshwater criteria for Mercury is below the laboratory LOR and this concentration is low level and as there are no known aquatic or terrestrial groundwater dependent ecosystems in the vicinity of GW2, hence this concentration is deemed low risk.

Groundwater results were either reported below the limit of detection (LOR) or below adopted interim criteria for all remaining analytes.

Based on the due diligence assessment, there is a low risk of ACM contamination in the site that would pose unacceptable risk to current or future human users of the site or the environment in a residential / recreational land use scenario.

6 SITE INSPECTION AND OBSERVATIONS

A site inspection was conducted on 3 April 2020 by Environmental Earth Sciences in order to assess the current site condition and complement existing information and refine the conceptual site model (CSM) of contamination. Photographs of the site are presented in Photo Plates provided in **Appendix G**.

Recreational area of Stage 1A consists of stockpiles (Photo Plates 1 and 2). There are five large residential properties in Stage 1A with grass covered areas and concrete pavements with trace brick noted on the surface (Plate 3). Building and demolition material consisting of brick, concrete, ACM was observed in the northern grassland area. ACM is also noted in the roof of at least one of the residential properties.

Stage 1B and 1C consists of three high density residential properties with water feature in western area and raised grassland area to the west of 33 Sturt Street residential complex (Plates 4 to 6). Stages 1D, 1E and 1F consist of several high density residential properties (Plates 7 to 13).

Plates 14 to 20 are typical of the residential properties within Stage 2A with broken windows and deteriorated paint on the outer walls. A foul odour was noted from surface water present along south eastern area of Stage 2A (Plate 16). The properties at Stage 2A were constructed between 1955 and 1965 and several of the properties were constructed using ACM.

Stage 2B is comprised of two areas – one area west of Marshall Road with properties constructed prior to 1955 and currently overgrown with long grass (Plate 21). The second area of Stage 2B is south of Marshall Road (Plates 22 to 24). The properties at Stage 2B were constructed between 1955 and 1965 and several of the properties were constructed using ACM.

Stage 2C consists of high density properties and single storey residential properties overgrown with long grass (Plates 25 to 28) constructed between 1955 and 1965. All buildings within Stage 2C were constructed using ACM building materials.

East of The Parade is Stage 2D (Plates 29 to 32). There is an empty lot in the southern end of Stage 2D that is fenced off and anthropogenic material was noted under the tree (Plate 30). There is a further empty lot in the north of Stage 2D and the majority of the properties contain suspected ACM building materials.

Stage 3A is comprised of two areas – one area north of Field Place (Plates 33 to 35) with one property fenced off and overgrown with long grass (Plate 35). ACM was observed in the building structures. The second area of Stage 3A is north of Sturt Street and north and south of Moffatts Drive and consists of high density residential properties. During the Environmental Earth Sciences (2019) investigation, two groundwater boreholes were installed in this area.

Stage 3B is located south of Manson Street and to the West of Telopea Public School and Sturt Park (Plates 36 to 41) and consists of single storey residential buildings, some with fencing and overgrown with grass and several with suspected ACM observed in the building structures. Properties on Stage 3B were constructed prior to 1955.

No indication of underground fuel tanks was observed on site. No breather pipes, fill points or bunded areas were noted.

6.1 Findings

Environmental Earth Sciences undertook a Stage 1 PSI report for the site that included both a desktop research component and a site inspection. As the properties were not vacant at the time of the inspection, the site inspection for each Stage was conducted from the driveway or the adjacent property.

As the majority of the properties and adjoining structures were constructed by 1965 and 1975, several of the roofs appear to be constructed with asbestos-containing materials (ACM).

Waste contaminated with lead (including lead paint waste) from residential premises is pre-classified as ‘general solid waste (non-putrescible)’ by the NSW Environmental Protection Agency (EPA) (2014) *Waste Classification Guidelines - Part 1: Classifying Waste* (NSW EPA, 2014).

Due to redevelopment in recent years, whereby some properties were demolished, with lots remaining vacant, and some lots now redeveloped with high density residential properties, there is the possibility for the presence of building and demolition material, including asbestos, remaining on the surface or in shallow soils due to poor demolition practices.

As the majority of the Stages are currently occupied, there is also the risk of localised hydrocarbon leaks and spills from vehicles parked onsite.

An assessment of the water in the ornamental fishpond within Stages 1B and 1C should be undertaken to assessment of any contamination.

Environmental Earth Sciences recommends removal of long grass prior to any further investigation to enable visual assessment of the ground surface.

6.2 Risk Ratings

Table 10 summarises a preliminary risk categorisation of properties within each Stage, based upon visible construction materials used in buildings and the visible condition of the properties, observed during the site walkover. Where buildings were in a visibly dilapidated condition and hazardous building materials were present, these properties were ranked as having a high risk of surface soils being impacted by asbestos fibres.

Buildings which contain visible hazardous materials, but appear in a good condition are considered to pose a moderate risk to the proposed development works and costs, however, these risks can be mitigated by controlled and well managed demolition works.

Table 11: Summary of preliminary contamination risk for properties within proposed development stages

Stage	Lot	Current condition	Risk rating
1A[1]	Lots 5 – 7	Good condition	**LOW**
1B	Part of Lot 171	Good condition	**LOW**
1C	Part of Lot 171	Good condition	**LOW**
1D	Part of Lot 2	Good condition, asbestos building material	**MODERATE 1**
1E	Part of Lot 2 Lot 1715	Good condition, asbestos building material Good condition	**MODERATE 1** **LOW**
1F	Lot 1716	Good condition	**LOW**
2A	Lots 280, 281 and 285, 282 283 284 287 288 290 – 292, 294 – 295, 298 - 299 293 296 297	Good condition Good condition, asbestos building material Good condition, asbestos building material Good condition, asbestos building material Good condition, asbestos building material Good condition, asbestos building material Good condition Good condition Poor Condition, asbestos building material, several vehicles parked behind house Good condition, asbestos building material Good condition, asbestos building material	**LOW** **MODERATE 1** **MODERATE 1** **MODERATE 1** **MODERATE 1** **MODERATE 1** **LOW** **LOW** **HIGH** **MODERATE 1** **MODERATE 1**
2B	248 – 249, 275 and 276,	Good condition	**LOW**

Stage	Lot	Current condition	Risk rating
	250	Good condition, asbestos building material	MODERATE 1
	251	Good condition, asbestos building material	MODERATE 1
	252	Good condition, asbestos building material	MODERATE 1
	254	Good condition, asbestos building material	MODERATE 1
	255	Good condition, asbestos building material	MODERATE 1
	256	Good condition, asbestos building material	MODERATE 1
	245	Poor Condition, asbestos building material	HIGH
	246	Good condition	LOW
2C	Lots 262, 265, 268	Good condition	LOW
	263	Good condition, asbestos building material	MODERATE 1
	264	Good condition, asbestos building material	MODERATE 1
	266	Good condition, asbestos building material	MODERATE 1
	267	Good condition, asbestos building material	MODERATE 1
2D	308, 310, 311, 313 – 315, 318 – 319,	Good condition	LOW
	309	Empty Lot	LOW
	312	Poor Condition, asbestos building material	HIGH
	314	Good condition, asbestos building material	MODERATE 1
	316	Good condition, asbestos building material	MODERATE 1
	317	Empty Lot	LOW
	304	Good condition, asbestos building material	MODERATE 1
	305	Good condition, asbestos building material	MODERATE 1
	306	Good condition	LOW
3A	Part of Lot 100	Good condition	LOW
	Lots 1 and 2	Good condition	LOW
	Lot 227	Good condition.	MODERATE 1
	Lot 228	Poor Condition, asbestos roof	HIGH
	Lot 229	Good condition, asbestos building material	MODERATE 1
3B	154	Good condition	LOW
	155	Good condition, asbestos building material	MODERATE 1
	156	Good condition, asbestos building material	MODERATE 1
	149 – 151	Good condition	LOW
	152	Good condition, asbestos building material	MODERATE 1
	108 – 110	Good condition	LOW
	111	Good condition, asbestos building material	MODERATE 1
	119	Good condition, asbestos building material	MODERATE 1
	120	Good condition, asbestos building material	MODERATE 1
	121	Poor Condition, asbestos building material, several vehicles parked behind house	HIGH
	122	Good condition, asbestos building material	MODERATE 1
	136 – 139	Good condition	LOW
	140	Good condition, asbestos building material	MODERATE 1
	141	Good condition, asbestos building material	MODERATE 1
	126 – 127	Good condition	LOW
		Good condition, asbestos building material	

Stage	Lot	Current condition	Risk rating
	128	Good condition, asbestos building material	MODERATE 1
	129	Good condition, asbestos building material	MODERATE 1
	96	Good condition, asbestos building material	MODERATE 1
	97	Good condition	MODERATE 1
	98 – 100	Good condition, asbestos building material	LOW
	89	Good condition, asbestos building material	MODERATE 1
	90	Good condition, asbestos building material	MODERATE 1
	91	Good condition	MODERATE 1
	92		LOW

Notes:

1. Further detailed assessment has been completed for Stage 1A, which includes assessment of subsurface soils, not just building condition which this table presents. See Environmental Earth Sciences (2020) – *Detailed Site Investigation for Stage 1A, Telopea NSW,* for further detailed information.

HIGH RISK - desktop review and site inspection have identified potentially contaminating site activities and intrusive works must be carried out to confirm the presence or absence of contamination

MODERATE RISK - desktop review and site inspection cannot rule out the presence of potentially contaminating site activities without undertaking recommended intrusive works

MODERATE 1 - potential for contamination is limited in either likelihood or extent and the presence or absence of contamination is expected to be resolved by limited targeted sampling

MODERATE 2 - potential for contamination is greater or more extensive than Moderate 1 and will require a detailed site investigation to confirm the presence or absence of contamination

LOW RISK - desktop review and site inspection have not identified any potentially contaminating site activities

7 POTENTIAL FOR CONTAMINATION AND CONCEPTUAL SITE MODEL

7.1 Introduction

A key component of the investigation/ risk assessment process is the development of a Conceptual Site Model (CSM) as this drives the risk management and remediation process. This identifies potential sources of contamination, potential migration pathways along which identified contaminants could migrate and potential receptors which may become exposed.

The CSM considers all plausible pollutant linkages associated with the identified contamination. By evaluating these linkages proposed controls can be outlined and recommendations developed for appropriate remediation or management

7.2 Sources of contamination

Based on the current land-use, the current potential sources of contamination and their associated chemicals of potential concern (CoPCs) are as follows:

- Imported fill material;
- Use of lead paint on residential properties and fencing;
- ACM used in building structures and garages;
- Vehicle movements and parking onsite – source of hydrocarbons from leaks and spills;

- Onsite ornamental fishpond; and
- Building and demolition material remaining on site following poor demolition practices.

7.3 Pathways

The potential pathways by which contamination could reach potential receptors are considered to be:

- Direct contact (dermal);
- Inhalation of air borne fibres and/or ingestion of soil;
- Vertical and lateral migration of potential contaminants through the soil;
- Volatilisation of contamination through soil pore spaces;
- Migration of contaminants in the groundwater and onsite sewerage systems.

7.4 Receptors

Identified potential sensitive receptors are considered to be:

- Current and future workers / authorised site users (visitors) / unauthorised site users (trespassers);
- Current and future off-site works and maintenance workers;
- Adjacent site users and property;
- Commuters of the Telopea trainline;
- Site flora, fauna and soil processes; and
- Underlying groundwater.

7.5 Completed risk linkages

Based on the results of the desk study and investigation of soil, the potential pollutant linkages are summarised in **Table 11**.

Table 12: Exposure Pathway Risk Evaluation

Source	CoPC	Pathway	Receptor	Risk	Associated Data Gaps / Recommendations
Imported fill material **Lead paint** **Vehicles parked onsite** **Onsite water dam** **Anthropogenic material following poor demolition practices**	Heavy metals, BTEX and TRH, PAHs, OCP, OPPs	Direct contact; Ingestion and Inhalation	**Human -** Current and future site users **Ecological –** Site fauna	MODERATE 1	During any future site development detailed site investigation, waste classification and/or appropriate management should be carried out on soils prior to material management. Assessment of quality of water dam in Stage 1B /1C.
			Human - Adjacent site users	LOW	
		Plant uptake	**Ecological –** Site flora	LOW	
		Vertical and lateral migration	**Ecological -** Groundwater.	LOW	
ACM observed in building structures	Asbestos	Inhalation of fibres	**Human –** Current and future site users Future construction and maintenance users Adjacent site users and property	MODERATE 2	Mowing of overgrown grass areas, prior to detailed site walkover of all stages. Preparation of an Asbestos Management Plan and engage a Class B Licenced Asbestos removalist to supervise demolition of buildings.

Notes:

HIGH RISK - desktop review and site inspection have identified potentially contaminating site activities and intrusive works must be carried out to confirm the presence or absence of contamination

MODERATE RISK - desktop review and site inspection cannot rule out the presence of potentially contaminating site activities without undertaking recommended intrusive works

MODERATE 1 - potential for contamination is limited in either likelihood or extent and the presence or absence of contamination is expected to be resolved by limited targeted sampling

MODERATE 2 - potential for contamination is greater or more extensive than Moderate 1 and will require a detailed site investigation to confirm the presence or absence of contamination

LOW RISK - desktop review and site inspection have not identified any potentially contaminating site activities

8 CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

Environmental Earth Sciences NSW was commissioned by Frasers Property Australia to undertake a preliminary site investigation (PSI) for contamination purposes as part of a redevelopment within the suburb of Telopea', NSW.

The site consists of 12 stages (Stage 1A, 1B, 1C, 1D, 1E, 1F, 2A, 2B, 2C, 2D, 3A and 3B) and is currently zoned as high density residential, with some commercial/industrial (mixed use) land use and areas of public open space land use within the City of Parramatta Local Government Authority.

Environmental Earth Sciences undertook a Stage 1 PSI report for the site that included both a desktop research component and a site inspection. As the properties were not vacant at the time of the inspection, the site inspection for each Stage was conducted from the driveway or the adjacent property.

The majority of the properties and adjoining structures in the assessment area were constructed from 1955 and completed between 1965 and 1975, with several of the roofs appearing to be constructed with asbestos-containing materials (ACM).

Due to redevelopment in recent years, whereby some properties were demolished, there is the possibility for the presence of building and demolition material, including asbestos, remaining on the surface or in shallow soils due to poor demolition practices.

As the majority of the Stages are currently occupied, there is also the risk of localised hydrocarbon leaks and spills from vehicles parked onsite.

An assessment of the water in the ornamental fishpond within Stages 1B and 1C should be undertaken to assessment of any contamination.

Environmental Earth Sciences recommends removal of long grass prior to any further investigation to enable visual assessment of the ground surface.

8.2 Recommendations

A Construction Environmental Management Plan (CEMP) and an Asbestos Management Plan (AMP) is required to ensure safe demolition of properties containing asbestos-containing material (ACM) in accordance with the following guidelines:

- Safe Work Australia (2019) - How to Manage and Control Asbestos in the Workplace.
- Safe Work Australia (2019) - How to Safely Remove Asbestos Code of Practice.
- Safe Work NSW (2014) - Managing Asbestos in or on Soil.
- National Occupational Health and Safety Commission (2005) - Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres [NOHSC:3003 (2005)].

- Western Australia Department of Health (WA DoH) (2009) - *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* (WA DoH, 2009).

- WA DoH (2018) - *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia* – Summary Update (WA DoH, 2018).

- National Environment Protection Council (NEPC) (2013) – National Environment Protection (Assessment of Site Contamination) Amendment Measure No.,1 2013 (ASC NEPM, 2013).

As a minimum, a Class B Asbestos Licence holder is recommended for the removal of bonded asbestos. If friable asbestos / asbestos fines are observed during excavation works, a Class A Asbestos Licence holder is required during excavation works to provide air quality monitoring and clearance certificates following removal of asbestos impacted material.

During any proposed redevelopment there is a potential for unexpected subsurface finds (as is the case for any site), and consequently Environmental Earth Sciences recommends that these occurrences can be managed accordingly by preparation of an Environmental Management Plan (EMP) or similar management document. This would include procedures for:

- management of soil including environmental controls for mitigation of erosion, sedimentation, dust generation;

- excavation management;

- onsite / off-site soil material tracking;

- soil / spoil stockpile management;

- procedures for soil disposal and waste classification in accordance with NSW EPA (2014) - *Waste Classification Guidelines* (if required);

- Unexpected Findings Protocol (UFP) procedure for managing instances where gross contamination and/or hazardous materials are encountered, with appropriate consideration of WH&S controls for mitigating risk to construction workers.

9 LIMITATIONS

This report has been prepared by Environmental Earth Sciences NSW ACN 109 404 006 in response to and subject to the following limitations:

1. The specific instructions received from Frasers Property Australia Pty Ltd;

2. The specific scope of works set out in PO120047 issued by Environmental Earth Sciences for and on behalf of Frasers Property Australia Pty Ltd, is included in Section 3 (Scope of Work) of this report;

3. May not be relied upon by any third party not named in this report for any purpose except with the prior written consent of Environmental Earth Sciences NSW (which consent may or may not be given at the discretion of Environmental Earth Sciences NSW);

4. This report comprises the formal report, documentation sections, tables, figures and appendices as referred to in the index to this report and must not be released to any third party or copied in part without all the material included in this report for any reason;

5. The report only relates to the site referred to in the scope of works being located at Stages 1A, 1B, 1C, 1D, 1E, 1F, 2A, 2B, 2C, 2D, 3A, and 3B of the suburb of Telopea ("the site");

6. The report relates to the site as at the date of the report as conditions may change thereafter due to natural processes and/or site activities;

7. No warranty or guarantee is made in regard to any other use than as specified in the scope of works and only applies to the depth tested and reported in this report;

8. Fill, soil, groundwater and rock to the depth tested on the site may be fit for the use specified in this report. Unless it is expressly stated in this report, the fill, soil and/or rock may not be suitable for classification as clean fill, excavated natural material (ENM) or virgin excavated natural material (VENM) if deposited off site;

9. This report is not a geotechnical or planning report suitable for planning or zoning purposes; and

10. Our General Limitations set out at the back of the body of this report.

10 REFERENCES

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11 GLOSSARY OF TERMS

The following descriptions are of terms used in the text of this report.

Acid Sulfate Soil (ASS). A soil containing iron sulfides deposited during either the Pleistocene or Holocene geological epochs (Quaternary aged) as sea levels rose and fell.

Background. The natural level of a property.

Contaminant. Generally, any chemical species introduced into the soil or water. More particularly relates to those species that render soil or water unfit for beneficial use.

Contamination. Is considered to have occurred when the concentration of a specific element or compound is established as being greater than the normally expected (or actually quantified) background concentration.

Heavy Metals. All metallic elements whose atomic mass exceeds that of calcium (20) and includes lead (Pb), copper (Cu), Zinc (Zn), cadmium (Cd), and tin (Sn).

Horizon. An individual soil layer, based on texture and colour, which differs from those

Shale. Fine-grained sedimentary rock formed by the compaction of silt, clay, or sand that accumulates in deltas and on lake and ocean bottoms. It is the most abundant of all sedimentary rocks.

Subsoil. Subsurface material comprising the B and C horizons of soils with distinct profiles. They often have brighter colours and higher clay content than topsoils.

Texture. The size of particles in the soil. Texture is divided into six groups, depending on the amount of coarse sand, fine sand, silt and clay in the soil.

Topsoil. Part of the soil profile, typically the A1 horizon, containing material which is usually darker, more fertile and better structured than the underlying layers.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

ENVIRONMENTAL EARTH SCIENCES GENERAL LIMITATIONS

Scope of services
The work presented in this report is Environmental Earth Sciences response to the specific scope of works requested by, planned with and approved by the client. It cannot be relied on by any other third party for any purpose except with our prior written consent. Client may distribute this report to other parties and in doing so warrants that the report is suitable for the purpose it was intended for. However, any party wishing to rely on this report should contact us to determine the suitability of this report for their specific purpose.

Data should not be separated from the report
A report is provided inclusive of all documentation sections, limitations, tables, figures and appendices and should not be provided or copied in part without all supporting documentation for any reason, because misinterpretation may occur.

Subsurface conditions change
Understanding an environmental study will reduce exposure to the risk of the presence of contaminated soil and or groundwater. However, contaminants may be present in areas that were not investigated, or may migrate to other areas. Analysis cannot cover every type of contaminant that could possibly be present. When combined with field observations, field measurements and professional judgement, this approach increases the probability of identifying contaminated soil and or groundwater. Under no circumstances can it be considered that these findings represent the actual condition of the site at all points.

Environmental studies identify actual sub-surface conditions only at those points where samples are taken, when they are taken. Actual conditions between sampling locations differ from those inferred because no professional, no matter how qualified, and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden below the ground surface. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated. However, steps can be taken to help minimize the impact. For this reason, site owners should retain our services.

Problems with interpretation by others
Advice and interpretation is provided on the basis that subsequent work will be undertaken by Environmental Earth Sciences NSW. This will identify variances, maintain consistency in how data is interpreted, conduct additional tests that may be necessary and recommend solutions to problems encountered on site. Other parties may misinterpret our work and we cannot be responsible for how the information in this report is used. If further data is collected or comes to light we reserve the right to alter their conclusions.

Obtain regulatory approval
The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.

Limit of liability
This study has been carried out to a particular scope of works at a specified site and should not be used for any other purpose. This report is provided on the condition that Environmental Earth Sciences NSW disclaims all liability to any person or entity other than the client in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Environmental Earth Sciences NSW disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in Environmental Earth Sciences NSW's proposal number and according to Environmental Earth Sciences general terms and conditions and special terms and conditions for contaminated sites.

To the maximum extent permitted by law, we exclude all liability of whatever nature, whether in contract, tort or otherwise, for the acts, omissions or default, whether negligent or otherwise for any loss or damage whatsoever that may arise in any way in connection with the supply of services. Under circumstances where liability cannot be excluded, such liability is limited to the value of the purchased service.

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FIGURES

ENVIRONMENTAL EARTH SCIENCES CONTAMINATION RESOLVED	Drawn by: KA	Date: April 2020	**Frasers Property Australia**	Site Layout	Figure No. 1
	Proj. Manager: LL	Scale: As shown	Telopea, NSW		
	Job No: 120034	Source: Nearmaps			

ENVIRONMENTAL EARTH SCIENCES CONTAMINATION RESOLVED	Drawn by:	Date: April 2020	**Frasers Property Australia**	Figure No. 2
	Proj. Manager: LL	Scale: As shown	Telopea, NSW	Telopea Urban Renewal Area
	Job No: 120034	Sourced from Frasers Property		

ENVIRONMENTAL EARTH SCIENCES CONTAMINATION RESOLVED	Drawn by:	Date: April 2020	**Frasers Property Australia**	Tenure and Staging Plan	Figure No. 3
	Proj. Manager: LL	Scale: As shown	Telopea, NSW		
	Job No: 120034	Sourced from Frasers Property			

ENVIRONMENTAL EARTH SCIENCES
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APPENDIX A: SOIL LANDSCAPES

gn	GLENORIE	Erosional

Source: Soil and Land Resources of the Hawkesbury-Nepean Catchment *interactive DVD*

Landscape— undulating to rolling low hills on Wianamatta Group shales. Local relief 50-80 m, slopes 5-20%. Narrow ridges, hillcrests and valleys. Extensively cleared tall open-forest (wet sclerophyll forests).

Soils— shallow to moderately deep (<100 cm) *Red Podzolic Soils (Dr2.11)* on crests; moderately deep (70-150 cm) *Red* and *Brown Podzolic Soils (Dr2.11, Dr2.21, Db1.11, Db1.21)* on upper slopes; deep (>200 cm) *Yellow Podzolic Soils (Dy5.11)* and *Gleyed Podzolic Soils (Dg4.11)* along drainage lines.

Limitations— high soil erosion hazard, localised impermeable highly plastic soil, moderately reactive.

LOCATION

Glenorie soil landscape occurs north of the Parramatta River on the Hornsby Plateau in Baulkham Hills, Hornsby, Ku-ring-gai, and Ryde local government areas. Smaller isolated areas are at Condell Park, Hurstville, and on the Cumberland Lowlands at Rosehill.

LANDSCAPE

Geology

This soil landscape is underlain by Wianamatta Group Ashfield Shale and Bringelly Shale formations.

The Ashfield Shale is comprised of laminite and dark grey shale. Bringelly Shale consists of shale, calcareous claystone, laminite, fine to medium grained lithic-quartz sandstone (Herbert, 1983).

Topography

Low rolling and steep hills. Local relief 50-120 m, slopes 5-20%. Convex narrow (20-300 m) ridges and hillcrests grade into moderately inclined sideslopes with narrow concave drainage lines. Moderately inclined slopes of 10-15% are the dominant landform elements.

Vegetation

Extensively cleared tall open-forest (wet sclerophyll forest). Dominant tree species include Sydney blue gum *Eucalyptus saligna* and blackbutt *E. pilularis*. Other species include turpentine *Syncarpia glomulifera*, grey ironbark *E. paniculata*, white stringybark *E. globoidea* and rough-barked apple *Angophora floribunda*. Pittosporum *Pittosporum undulatum* and coffee bush *Breynia oblongifolia* are common understorey species (Benson, 1980). Most original vegetation has been extensively cleared, except for larger trees in many residential areas. Examples of original vegetation can be seen in parts of Dalrymple Hay Reserve at St Ives and in Blackwood Memorial Sanctuary at Beecroft.

Land use

Land is used for urban residential sites over much of this soil landscape (Turramurra, Carlingford). Rural land uses, mostly hobby farms and small rural subdivisions, occur at Glenorie, Dural and Castle Hill. These include equestrian activities, orchards, cut flower production and market gardens (Galston, Arcadia) and timber production (Cumberland State Forest).

Existing Erosion

Minor gully erosion is evident along unpaved roads. Moderate sheet erosion occurs on disturbed areas (e.g., cultivated lands). Small areas of moderate to severe sheet erosion occur in overgrazed paddocks on many hobby farms. Evidence of previous erosion is commonplace, especially where eroded topsoil has been deposited against fences.

SOILS

Dominant Soil Materials

gn1— Friable dark brown loam. This is generally a dark brown, friable loam, silt loam or silty clay loam with moderately to strongly pedal structure and porous rough-faced ped fabric. This material occurs as topsoil (A1 horizon).

Peds are commonly sub-angular blocky to polyhedral, 2-10 mm in size and are rough faced and porous. In uncompacted soils these peds break down readily to very small crumbs. Surface condition is distinctly friable, but may become hardsetting when compacted and dry. Colour is generally dark brown (10YR 3/3, 7.5YR 3/3) and may range from brownish-black (7.5YR 2/2) to brown (10YR 4/4). This material is occasionally water repellent. The pH ranges from moderately acid (pH 5.0) to slightly acid (pH 6.0). Shale fragments occur and charcoal is occasionally present whilst roots are common.

gn2— Hardsetting brown clay loam. This is commonly a clay loam to fine sandy clay loam with an apedal massive or weakly pedal structure and an earthy or porous, rough-faced ped fabric. This material occurs as an A2 horizon and is occasionally hardsetting when exposed at the surface.

Peds, when present, are sub-angular blocky, 10-50 mm in size, and are rough faced and porous. Otherwise this material has apedal massive structure with an earthy porous fabric. Colour is commonly brown (7.5YR 4/4), but may range between dull yellowish-brown (10YR 5/4) and reddish-brown (5YR 4/6). The pH ranges between strongly acid (pH 4.0) and moderately acid (pH 6.0). Shale rock fragments, charcoal fragments and roots are present.

gn3— Whole-coloured, reddish-brown, strongly pedal clay. This is medium clay with strongly pedal structure and smooth-faced, dense, ped fabric. It generally occurs as subsoil (B horizon).

Texture is generally medium clay, but may range from silty clay to heavy clay. The peds are usually sub-angular blocky or polyhedral. They range in size from 5-20 mm, and are smooth-faced and

porous. Cutans are also present. Colour is generally reddish-brown (5YR 4/6-8) and can range from bright reddish-brown (2.5YR 4/8) to dull yellowish-brown (10YR 5/4). The pH ranges from strongly acid (pH 4.0) to moderately acid (pH 5.5). Shale rock fragments are common. Roots are rare and charcoal fragments are absent.

gn4— Mottled grey plastic clay. This is a grey, mottled, medium to heavy clay with strongly pedal structure and dense, smooth ped fabric. It commonly occurs as deep subsoil.

The peds are usually sub-angular blocky, 10-20 mm in size, and are smooth-faced and dense. These can be broken down easily to smaller (2-5 mm) polyhedral peds. Colour is usually pale grey (5YR 7/1), but ranges from light reddish-grey (2.5YR 7/1) to brownish-grey (7.5YR 6/1). Yellow and red mottles are common. It is usually moist and is very plastic. The pH ranges from strongly acid (pH 4.0) to moderately acid (pH 5.0). Shale rock fragments and gravels are common. Roots are rare and charcoal is absent.

gn5— Brownish-grey plastic silty clay. This is commonly brownish-grey, plastic silty clay which is often saturated and exhibits apedal massive structure. It usually occurs as subsoil (B horizon).

Colour is dark brown (10YR 3/3) often becoming brownish-grey (10YR 4/1) with dark brown mottles at depth. This material is moderately sticky and very plastic when moist. The pH ranges from moderately acid (pH 5.0) to slightly acid (pH 6.5). Rock and charcoal fragments are absent and roots are rare.

Associated soil materials

Lateritic ironstone concretions. Red, concretionary, ironstone nodules are often found in the deep subsoil and are closely associated with **gn4** soil material.

Occurrence and Relationships

Crests. Up to 15 cm of friable, dark brown loam (**gn1**) overlies 10-30 cm of hardsetting, brown clay loam (gn2) and 30-100 cm of whole-coloured reddish-brown, strongly pedal clay (**gn3**). Occasionally **gn1** is absent. Boundaries between soil materials are usually clear. Total soil depth is commonly <150 cm (*Red Podzolic Soils* (*Dr 2.11*)).

Upper slopes and midslopes. Up to 15 cm of **gn1** overlies 5-30 cm of **gn2** and >100 cm of **gn3**. **gn3** usually overlies up to 150 cm of mottled grey, plastic, strongly structured clay (**gn4**). Occasionally the **gn1** soil material is absent. Boundaries between soil materials are usually clear. Total soil depth is 50->100 cm (*Red Podzolic Soils* (*Dr2.11, 2.21*), *Brown Podzolic Soils* (*Db 1.11,1.21*)).

Lower slopes. Generally 10-60 cm of **gn1** overlies 100 cm of **gn3** and 20-100 cm of **gn4**. Boundaries between soil materials are usually clear. Total soil depth is >150 cm (*Yellow Podzolic Soils* (*Dy 4.11, Dy 5.11*)).

Drainage lines. Up to 100 cm of brownish-grey, plastic, silty clay (**gn5**) overlies >100 cm of **gn4**. (*Humic Gleys* (*Uf6.6*)). Many drainage lines contain up to 100 cm of recently transported topsoil **gn1** overlying **gn4** (*Gleyed Podzolic Soils* (*Dg4.11*)) and occasionally **gn3** (*Yellow Podzolic Soils* (*Dy5.11*)).

In some forested areas soils may be gradational. These soils are typically covered with up to 20 cm of forest litter (*Prairie Soils* (*Gn 3.21*)).

Occasionally ironstone concretionary nodules associated with laterite occur above and within **gn4** at depth (*Red Lateritic Podzolic Soils* (*KS— Dr3.21*)).

LIMITATIONS TO DEVELOPMENT

Urban Capability

Generally, a low to moderate capability for urban development.

Rural Capability

Land generally capable of being grazed and regularly cultivated.

Landscape Limitations

Erosion hazard
Seasonal waterlogging (localised)
Moderate surface swelling potential

Soil Limitations

gn1 Low wet strength
Very strongly acid
High aluminium toxicity

gn2 Low wet strength
Stoniness (localised)
Low fertility
Strongly acid
High aluminium toxicity

gn3 Low wet strength
Low permeability (localised)
Low available water capacity
Stoniness (localised)
Salinity (localised)
Sodicity (localised)
Low fertility
Very strongly acid
Very high aluminium toxicity
High shrink-swell (localised)

gn4 Low wet strength
Low permeability
Low available water capacity
Stoniness
Strongly acid
Very high aluminium toxicity
Low fertility (localised)
Shrink-swell (localised)

gn5 Low wet strength
Low permeability
Low available water capacity
Salinity (localised)
Sodicity (localised)
High shrink-swell (localised)

Fertility

The general fertility is low to moderate. The topsoil (**gn1**) has moderate fertility with high available water capacity, moderate amounts of organic matter, and moderate nutrient status. **gn2** normally has low to moderate fertility with moderate available water capacity, high organic matter content, low CEC, and intrinsically low to moderate nutrient status. All the other soil materials have low fertility with moderate available water capacities, low to moderate CEC and generally low to moderate nitrogen and phosphorus levels (**gn3**-**gn5**). All soil materials are acid and are potentially aluminium toxic.

Erodibility

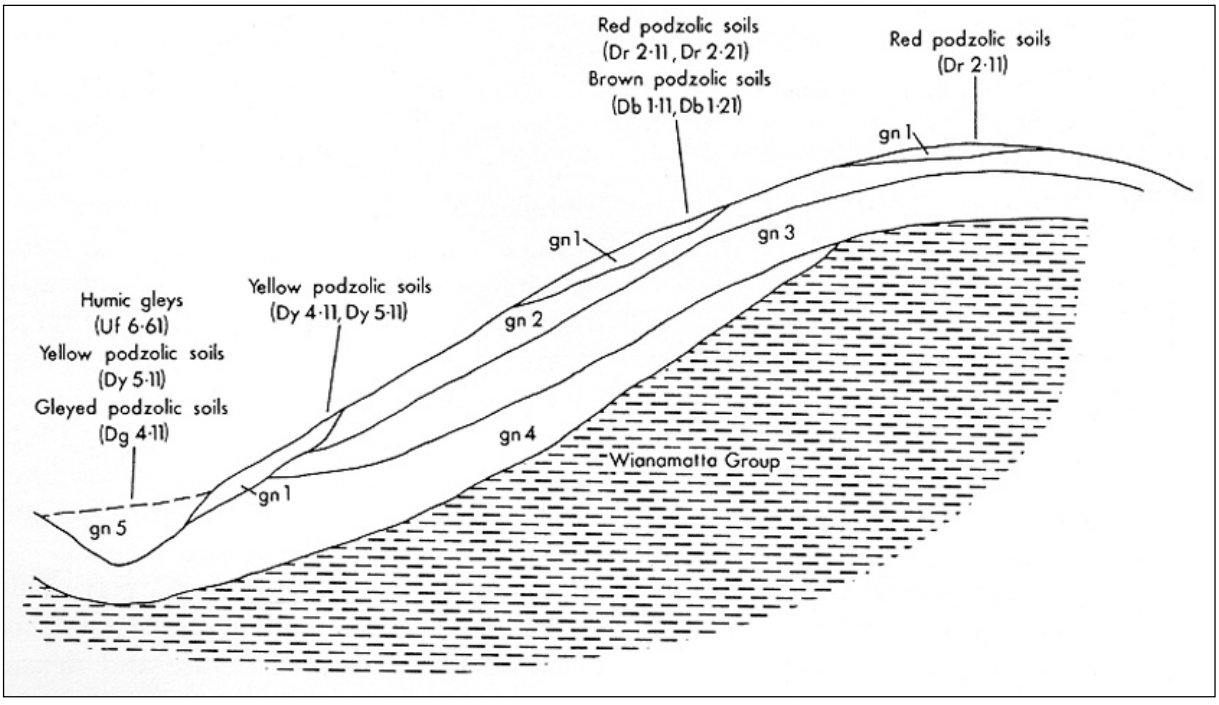
gn1 and **gn2** have low erodibility as they are generally high in organic matter have stable aggregates and are well graded. All the other soil materials are moderately erodible as they are finely graded and have relatively stable aggregates. **gn3**-**gn5** clays may be locally dispersible and should be considered highly erodible.

Erosion Hazard

The erosion hazard for non-concentrated flows ranges from moderate to very high. Calculated soil loss for the first twelve months of urban development ranges up to 65 t/ha for topsoil and 117 t/ha for exposed subsoil. The soil erosion hazard for concentrated flows is high.

Surface Movement Potential

Moderately reactive soil materials. Soils are deep and have high clay content. Clay often has low to moderate volume expansion. Tall trees are common on this landscape.



Schematic cross-section of Glenorie soil landscape illustrating the occurrence and relationship of the dominant soil materials.

gy	GYMEA	Erosional

Source: Soil and Land Resources of the Hawkesbury-Nepean Catchment *interactive DVD*

Landscape— undulating to rolling rises and low hills on Hawkesbury Sandstone. Local relief 20-80 m, slopes 10-25%. Rock outcrop <25%. Broad convex crests, moderately inclined sideslopes with wide benches, localised rock outcrop on low broken scarps. Extensively cleared open-forest (dry sclerophyll forest) and eucalypt woodland.

Soils— shallow to moderately deep (30-100 cm) *Yellow Earths (Gn2.24)* and *Earthy Sands (Uc5.11, Uc5.23)* on crests and inside of benches; shallow (<20 cm) *Siliceous Sands (Uc1.21)* on leading edges of benches; localised *Gleyed Podzolic Soils (Dg4.21)* and *Yellow Podzolic Soils (Dy4.11, Dy5.11, Dy5.41)* on shale lenses; shallow to moderately deep (<100 cm) *Siliceous Sands (Uc1.21)* and *Leached Sands (Uc2.21)* along drainage lines.

Limitations— localised steep slopes, high soil erosion hazard, rock outcrop, shallow highly permeable soil, very low soil fertility.

LOCATION

Occurs extensively throughout the Hornsby Plateau and along the foreshores of Sydney Harbour and the Parramatta and Georges Rivers. Examples include areas of Northbridge, Forestville, Drummoyne, Balmain, Arcadia and Berrilee.

LANDSCAPE

Geology

Hawkesbury Sandstone, which is a medium to coarse-grained quartz sandstone with minor shale and laminite lenses.

Topography

Undulating to rolling low hills with local relief 20-80 m and slopes of 10-25%. Sideslopes with narrow to wide outcropping sandstone rock benches (10-100 m), often forming broken scarps of <5 m.

Vegetation

The original dry sclerophyll woodland and open-forest have been extensively cleared. Low, dry sclerophyll open-woodland dominates ridges and upper slopes. Common species include red bloodwood *Eucalyptus gummifera*, yellow bloodwood *E. eximia*, scribbly gum *E. haemastoma*, brown stringybark *E. capitellata* and old man banksia *Banksia serrata*. On the more sheltered slopes, black ash *E. sieberi*, Sydney peppermint *E. piperita* and smooth-barked apple *Angophora costata* are common tree species. The dry sclerophyll understorey consists of shrubs from the families Epacridaceae, Myrtaceae, Fabaceae and Proteaceae.

Land use

Land use is mostly urban residential. Developed suburbs include Forestville, Northbridge and Drummoyne. Steeper sections are used for recreational purposes and often remain covered with native vegetation. Grazing occurs at Berrilee and there are small hobby farms in the north-west.

Existing Erosion

Severe sheet erosion occurs following bushfires, which destroy or damage stabilising vegetative cover. Minor gully erosion occurs along unpaved or poorly maintained roads and fire trails especially those frequented by four-wheel-drive vehicles and trail bikes.

Associated Soil Landscapes

Small areas (<40 ha) of Hawkesbury (**ha**) and Lambert (**la**) soil landscapes have been included within the Gymea soil landscape. In many respects these landscape have qualities in common with the Gymea soil landscape.

SOILS

Dominant Soil Materials

gy1— Loose, coarse sandy loam. This is loamy sand to sandy loam with loose, apedal single-grained structure and porous sandy fabric. It generally occurs as topsoil (A1 horizon).

The colour often becomes lighter with depth and ranges from brownish-black (10YR 2/2), when organic matter is present, to bleached dull yellow-orange (10YR 7/2). It is often water repellent under native vegetation. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.0). Small sandstone and platy ironstone fragments, charcoal fragments and roots are common.

gy2— Earthy, yellowish-brown clayey sand. This is commonly yellowish-brown clayey sand with apedal massive structure and porous earthy fabric. It commonly occurs as subsoil over sandstone bedrock (B horizon). Where it is exposed at the surface it forms hardsetting topsoil.

Texture may increase gradually to a light sandy clay loam with depth. Colour is commonly yellowish-brown (10YR 6/8) and orange mottles are occasionally present with depth. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.5). Sandstone and ironstone fragments are common and are often concentrated in stone lines in the upper parts of this material. Charcoal fragments are common whilst roots are rare.

gy3— Earthy to weakly pedal, yellowish-brown sandy clay loam. This is commonly a yellowish-brown sandy clay loam to sandy clay with an apedal massive structure and an earthy porous fabric. It usually occurs as subsoil (B or C horizon) on coarse sandstone.

Texture is commonly sandy clay loam, but may increase gradually with depth to sandy clay. Occasionally a weakly pedal structure of sub-angular blocky shaped peds are present. Peds are

commonly rough-faced and porous and range in size from 5-20 mm. Colour is commonly yellowish brown (10YR 5/8, 6/6, 6/8; 2.5Y 5/6, 5/4). Orange mottles may occur with depth. The pH ranges from strongly acid (pH 4.5) to slightly acid (pH 6.0). Strongly weathered sandstone fragments are common. Roots and charcoal fragments are rare.

gy4— Moderately to strongly pedal, yellowish-brown clay. This is commonly a yellowish-brown sandy clay or light clay with a moderately to strongly pedal structure and either a smooth or rough-faced ped fabric. This material occurs as subsoil on shale bedrock (B and C horizons).

Peds ranging in size from 5 mm to 50 mm, are either smooth or rough-faced and are polyhedral to sub-angular blocky. Colour is commonly yellow-brown (10YR 6/6),, but can vary from dark reddish-brown (2.5YR 3/6) to light grey (7.5YR 8/1). Red, orange and grey mottles are occasionally present at depth. The pH ranges from strongly acid (pH 4.0) to slightly acid (pH 6.0). Shale and ironstone fragments are often present, but charcoal fragments are absent and roots are rare.

Associated Soil Materials

Litter and decomposing organic debris. In areas of natural bushland, litter and organic debris occur on the soil surface. The litter layer can be developed to depths of up to 10 cm. Charcoal fragments are common. This material is often found in debris dams in association with white, loose quartz sand.

White, loose quartz sand. A surface wash of quartz sand grains. It occurs in depositional areas such as small debris dams and fans on breaks of slope. It is often mixed with the litter layer and is usually water repellent.

Occurrence and Relationships

Crests. Generally up to 30 cm of loose, quartz sandy loam (**gy1**) overlies bedrock (*Siliceous Sands* and *Lithosols* (*Uc 1.21*)) or <30 cm of earthy, yellowish-brown clayey sand (**gy2**) (*Earthy Sands* (*Uc5.11*)). Occasionally (**gy2**) overlies up to 30 cm of yellow earthy/weakly pedal sandy clay loam (**gy3**) (*Yellow Earths* (*Gn2.24*)). Boundaries between soil materials are gradual. Total soil depth is <50 cm.

Where severe erosion has occurred, **gy2** or **gy3** is often exposed as a hardsetting layer at the surface. Bedrock is exposed in some areas, particularly where bushfires are frequent.

Sideslopes. The soils on the sideslopes are discontinuous and rock outcrop may cover up to 25% of the ground surface. On the outside of benches and areas close to rock outcrop, up to 20 cm of **gy1** overlies bedrock (*Siliceous Sands*/*Lithosols* (*Uc1.21*)). On the inside of benches, up to 30 cm of **gy1** overlies 10-30 cm of **gy2**. Occasionally **gy2** overlies up to 30 cm of **gy3**. The boundaries between soil materials are gradual. Total soil depth is 30-70 cm (*Yellow Earths* (*Gn2.24*), *Earthy Sands* (*Uc5.11*)).

Shale lenses. Where shale lenses occur on the inside of benches, up to 30 cm of **gy1** overlies up to 100 cm of strongly pedal yellowish-brown clay (**gy4**). The boundary between soil materials is sharp to clear. Total soil depth is <100 cm (*Gleyed Podzolic Soils* (*Dg 4.21*), *Yellow Podzolic Soils* (*Dy 5.41*)).

Drainage lines. Up to 100 cm of **gy1** overlies bedrock (*Siliceous Sands* (*Uc1.2*) and *Leached Sands* (*Uc 2.21*)).

LIMITATIONS TO DEVELOPMENT

Urban Capability

Generally, low to moderate capability for urban development.

Rural Capability

Land not capable of being grazed or cultivated.

Landscape Limitations

Erosion hazard
Rock outcrop
Rockfall hazard (localised)
Steep slopes (localised)
Shallow soil

Soil Limitations

gy1 High permeability
Low available water capacity
Stoniness
Low fertility

gy2 Low available water capacity
Stoniness
Very low fertility
Very strongly acid
Very high aluminium toxicity

gy3 Low available water capacity
Low wet strength (localised)
Low permeability (localised)
Stoniness (localised)
Very low fertility
Very strongly acid
High aluminium toxicity

gy4 Low wet strength
High erodibility
Low permeability
Low available water capacity
Stoniness (localised)
Very low fertility
Very strongly acid
Very high aluminium toxicity

Fertility

Very poor. The soils of this unit are generally shallow, stony, moderately acid and highly permeable with low available water capacities. They also have a low to very low nutrient status with very low phosphorus and nitrogen levels and very low CEC.

Erodibility

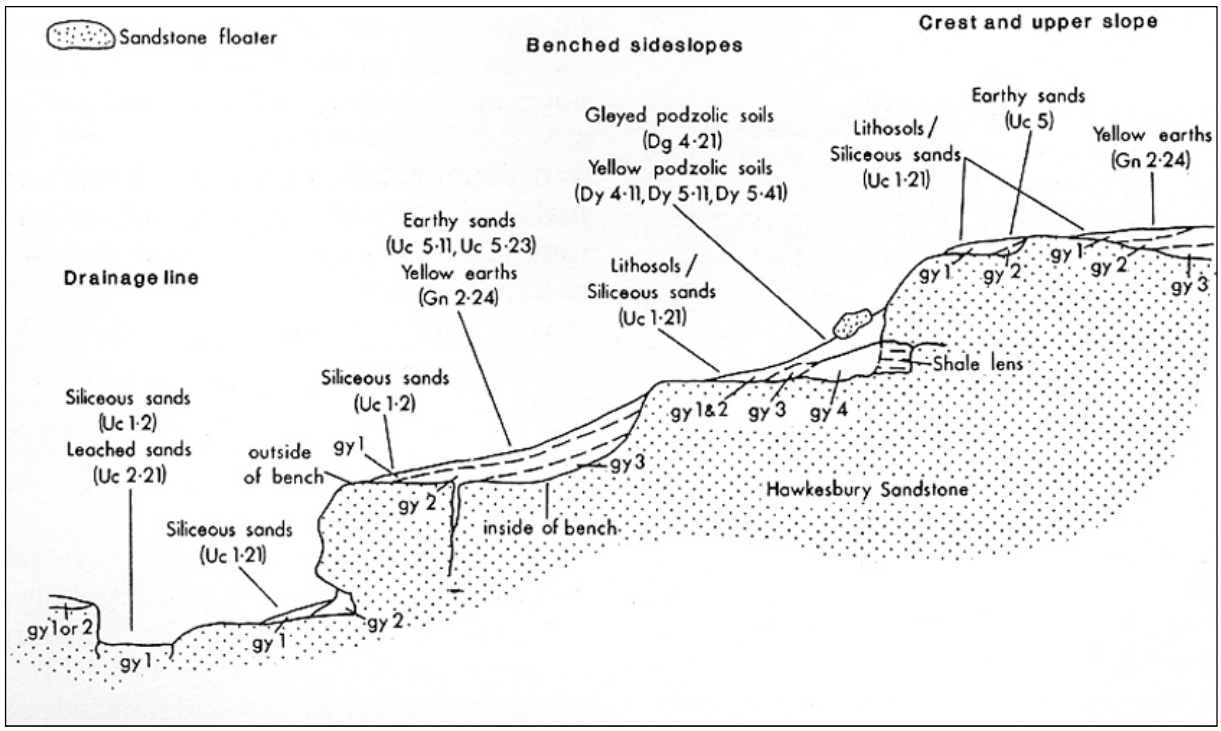
gy1 and **gy2** are composed of coarse sand grains and have very low erodibilities as they are freely drained and are held together by high organic matter contents (**gy1**) and/or non-dispersive clays (**gy2**). However, (**gy3**) is moderately erodible as it has a weakly coherent earthy fabric with low organic matter content. **gy4** is highly erodible as it is very low in organic matter and consists dominantly of fine sands in a clay matrix.

Erosion Hazard

The erosion hazard for non-concentrated flows is generally high to very high, but can range from moderate to extreme. Calculated soil loss for the first twelve months of development range up to 19 t/ha for topsoil and 464 t/ha for subsoil. Soil erosion hazard for concentrated flows is high to extreme.

Surface Movement Potential

The shallow sandy soils are stable to slightly reactive. In isolated instances where gy4 is >100 cm thick soils may be moderately reactive.



Schematic cross-section of Gymea soil landscape illustrating the occurrence and relationship of the dominant soil materials.

bt	BLACKTOWN	Residual

Source: Soil Landscapes of the Penrith 1:100,000 Sheet *report*

Landscape— gently undulating rises on Wianamatta Group shales and Hawkesbury shale. Local relief to 30 m, slopes are usually <5%. Broad rounded crests and ridges with gently inclined slopes. Cleared eucalypt woodland and tall open-forest (wet sclerophyll forests).

Soils— shallow to moderately deep (<100 cm) *Red and Brown Podzolic Soils (Dr3.21, Dr3.11, Db2.11)* on crests, upper slopes and well-drained areas; deep (150-300 cm) *Yellow Podzolic Soils* and *Soloths (Dy2.11, Dy3.11)* on lower slopes and in areas of poor drainage.

Limitations— moderately reactive highly plastic subsoil, low soil fertility, poor soil drainage.

LOCATION

Occurs extensively on the Cumberland Lowlands between the Georges and Parramatta Rivers in the south-west. Examples include Strathfield, Auburn and Belmore. Isolated examples are found north of Parramatta River on the Hornsby Plateau at Chatswood, Crows Nest, Duffys Forest, Dundas, Naremburn, Neutral Bay, St. Ives and St. Leonards.

LANDSCAPE

Geology

Wianamatta Group— Ashfield Shale consisting of laminite and dark grey siltstone and Bringelly Shale which consists of shale, with occasional calcareous claystone, laminite and coal.

This unit is occasionally underlain by claystone and laminite lenses within the Hawkesbury Sandstone such as at Duffys Forest.

Topography

Gently undulating rises on Wianamatta Shale with local relief 10-30 m and slopes generally <5%, but up to 10%. Crests and ridges are broad (200-600 m) and rounded with convex upper slopes grading into concave lower slopes. Rock outcrop is absent.

Vegetation

Almost completely cleared tall open-forest (wet sclerophyll forest) and open-woodland (dry sclerophyll forest). Remaining traces of the original wet sclerophyll forest containing Sydney blue gum *Eucalyptus saligna* and blackbutt *E. pilularis* are located at Ashfield Park. The original woodland and open-forest in drier areas to the west were dominated by forest red gum *E. tereticornis*, narrow-leaved ironbark *E. crebra* and grey box *E. moluccana*. This has been almost completely cleared. At Duffys Forest there is an open-forest dominated by ash *E. sieberi* with a dry sclerophyll shrub understorey.

Land use

The dominant land uses are intensive residential and light and heavy industry. Examples of residential areas include Newtown, Petersham, Strathfield and Belmore. Examples of industrial areas include Enfield, Lidcombe and Clyde.

Existing Erosion

No appreciable erosion occurs on this unit as most of the surface is covered by tiles, concrete, bitumen or turf.

Associated Soil Landscapes

Birrong (**bg**) soil landscape occurs along drainage depressions.

SOILS

Dominant Soil Materials

bt1— Friable brownish-black loam. This is a friable brownish-black loam to clay loam with moderately pedal sub-angular blocky structure and rough-faced porous ped fabric. This material occurs as topsoil (A1 horizon). Peds are well defined sub-angular blocky and range in size from 2mm to 20 mm. Surface condition is friable. Colour is commonly brownish-black (10YR 2/2), but can range from dark reddish-brown (5YR 3/2) to dark yellowish-brown (10YR 3/4). The pH ranges from slightly acid (pH 5.5) to neutral (pH 7.0). Rounded iron indurated fine gravel-sized shale fragments and charcoal fragments are sometimes present. Roots are common.

bt2— Hardsetting brown clay loam. This is a hardsetting brown clay loam to silty clay loam with apedal massive to weakly pedal structure and slowly porous earthy fabric. It commonly occurs as an A2 horizon. Peds when present are weakly developed, sub-angular blocky and are rough faced and porous. They range in size between 20 mm and 50 mm. Colour is commonly dark brown (7.5YR 4/3), but can range from dark reddish-brown (2.5YR 3/3) to dark brown (10YR 3/3). The pH ranges from moderately acid (pH 5.0) to slightly acid (pH 6.5). Platy ironstone gravel-sized shale fragments are common. Charcoal fragments and roots are rarely present.

bt3— Strongly pedal, mottled brown light clay. This is a brown light to medium clay with strongly pedal polyhedral or subangular-blocky structure and smooth-faced dense ped fabric. This material usually occurs as subsoil (B horizon). Texture often increases with depth. Peds range in size from 5 mm to 20 mm. Colour is usually brown (7.5YR 4/6), but may range from reddish-brown (2.5YR 4/6) to brown (10YR 4/6). Red, yellow or grey mottles are commonly present and often become more numerous with depth. The pH ranges from strongly acid (pH 4.5) to slightly acid (pH 6.5). Fine to coarse gravel-sized shale fragments are common and widespread and often occur in stratified bands. Both roots and charcoal fragments are rare.

bt4— Light grey plastic mottled clay. This is plastic light grey silty clay to heavy clay with moderately pedal polyhedral to sub-angular blocky structure and smooth-faced dense ped fabric. This material usually occurs as deep subsoil above shale bedrock (B3 or C horizon). Peds range in size from 2 mm to 20 mm. Colour is usually light grey (10YR 7/1) or, less commonly, greyish yellow (2.5Y 6/2). Red, yellow or grey mottles are common. The pH ranges from strongly acid (pH 4.0) to moderately acid (pH 5.5). Strongly weathered ironstone concretions and rock fragments are common. Gravel-sized shale fragments and roots are occasionally present. Charcoal fragments are rare.

Occurrence and Relationships

Crests. On crests and ridges up to 30 cm of friable brownish-black loam (**bt1**) overlies 10-20 cm of hardsetting brown clay loam (**bt2**) and up to 100 cm of strongly pedal, brown mottled light clay (**bt3**) (Red Podzolic Soils (Dr 3.21, 3.11) and Brown Podzolic Soils (Db 2.11)). **bt1** material is occasionally absent. Boundaries between the soil materials are usually clear. Total soil depth is <100 cm.

Upper slopes and midslopes. Up to 30 cm of **bt1** overlies 10-20 cm of **bt2** and 20-50 cm of **bt3**. This in turn overlies up to 100 cm of light grey plastic mottled clay (**bt4**). Occasionally the **bt1** material is absent. The boundaries between the soil materials are usually clear. Total soil depth is <200 cm (Red Podzolic Soils (Dr 3.21), Brown Podzolic Soils (Db 2.21)).

Lower sideslopes. Up to 30 cm of **bt1** overlies 10-30 cm of **bt2** and 40-100 cm of **bt3**. Below **bt3** there is usually >100 cm of **bt4**. The boundaries between the soil materials are clear. Total soil depth is >200 cm (Yellow Podzolic Soils (Dy 2.11, Dy 3.11)).

LIMITATIONS TO DEVELOPMENT

Urban Capability

High capability for urban development with appropriate foundation design.

Rural Capability

Small portions of this soil landscape that have not been urbanised are capable of sustaining regular cultivation and grazing.

Landscape Limitations

Moderately reactive soil
Seasonal waterlogging

Soil Limitations

bt1 Low wet strength
High organic matter
Low fertility
Sodicity (localised)
Strongly acid

bt2 Low wet strength
Hardsetting
Low fertility
Sodicity (localised)
Strongly acid
High aluminium toxicity

bt3 High shrink-swell (localised)
Low wet strength
Low permeability
Low available water capacity
Salinity (localised)

Sodicity (localised)
Very low fertility
Strongly acid
Very high aluminium toxicity

bt4 High shrink-swell (localised)
Low wet strength
Stoniness
Low available water capacity
Low permeability
Salinity (localised)
Sodicity (localised)
Very low fertility
Strongly acid
Very high aluminium toxicity
High erodibility (localised)

Fertility

General fertility is low to very low. Soil materials have low to moderate available water capacity, low CEC values, hardsetting surfaces (**bt2**), very low phosphorus and low to very low nitrogen levels. The subsoils (**bt3**, **bt4**) may be locally sodic with low permeability. When **bt1** is present its higher organic matter content and moderate nitrogen levels result in higher general fertility.

Erodibility

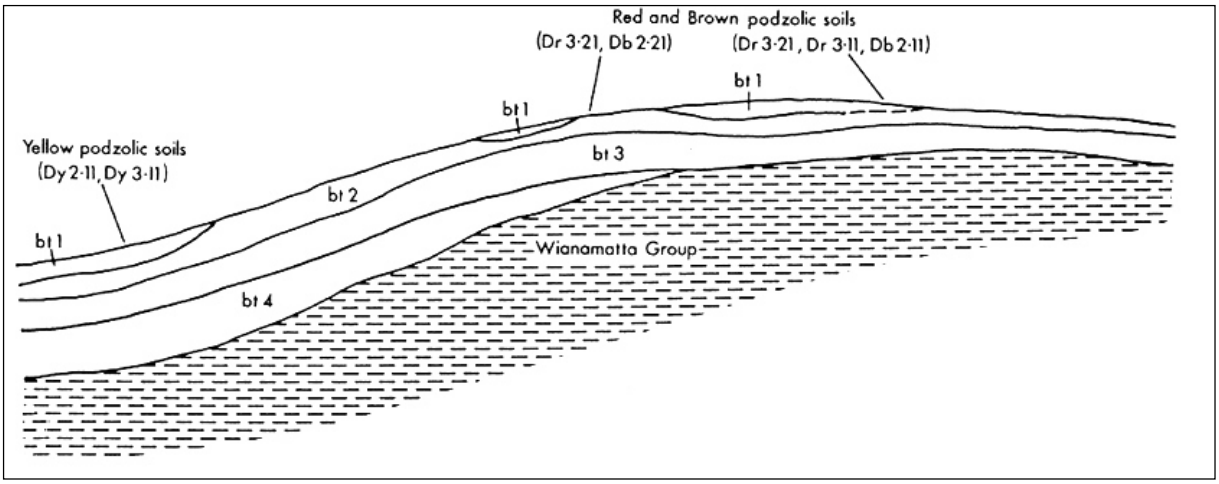
Blacktown soil materials have moderate erodibility. The topsoils (**bt1**, **bt2**) are often hardsetting and they have high fine sand and silt content, but they also have high to moderate organic matter content. The subsoils (**bt3**, **bt4**) are very low in organic matter. Where they are also highly dispersible and occasionally sodic the erodibility is high.

Erosion Hazard

The erosion hazard for non-concentrated flows is generally moderate, but ranges from low to very high. Calculated soil loss during the first twelve months of urban development ranges up to 73 t/ha for topsoil and 68 t/ha for exposed subsoil. Soil erosion hazard for concentrated flows is moderate to high.

Surface Movement Potential

The deep clay soils are moderately reactive. These are generally found on sideslopes and footslopes. Shallower soils on crests are slightly reactive.



Schematic cross-section of Blacktown soil landscape illustrating the occurrence and relationship of the dominant soil materials.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX B: ACID SULFATE SOIL MAP

Parramatta Local Environmental Plan 2011

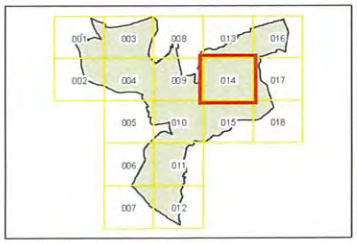
Acid Sulfate Soils Map - Sheet ASS_014

Acid Sulfate Soils

- Class 1
- Class 2
- Class 3
- Class 4
- Class 5

Cadastre

Cadastre 27/05/2011 © Parramatta City Council



N

0 200 400 Metres

Scale 1:10,000 @ A3

Projection: GDA 1994 MGA Zone 56

Map identification number

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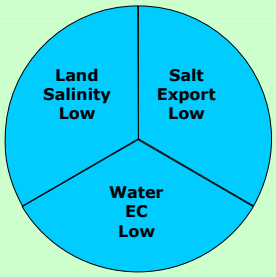
ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX C: HYDROGEOLOGICAL REPORTS

2. Glenhaven Hydrogeological Landscape

LOCALITIES	**GLENHAVEN, EASTWOOD, ROSELEA, DENISTONE WEST, EPPING, WEST RYDE**
TYPE AREA	**GLENHAVEN**
GRID REFERENCE	**316200 mE 6267000 mN (Z 56)**
GEOLOGY SHEET	**PENRITH 1:100 000; SYDNEY 1:100 000**
CONFIDENCE LEVEL	**MEDIUM**



OVERVIEW

The Glenhaven Hydrogeological Landscape (HGL) is characterised by undulating hills on Triassic Ashfield Shale over Hawkesbury Sandstone at Glenhaven, Eastwood, Roselea, Denistone West, Epping and West Ryde. It is an area of moderate to high rainfall (900 – 1200 mm) located in the north of the Sydney Metropolitan region, bordering the Hawkesbury Sandstone units on the Hornsby Plateau. It is found in both Hawkesbury-Nepean and Sydney Metropolitan catchments.

This HGL is distinguished by its peaked hills and plateau ridge which differs from the steeper hills and sandstones in adjoining HGLs. This HGL is defined by its hydrogeology, landform and soils. It consists of Wianamatta Group Shales (Ashfield Shale, Bringelly Shale or both) over Hawkesbury Sandstone. It covers the vast majority of the Glenorie Soil Landscape. Unlike HGLs of similar composition (i.e. shale hills over sandstone) such as Baulkham Hills or Bradbury, the Glenhaven HGL does not exhibit any significant signs of salinity, potentially because the rainfall is higher over Glenhaven HGL and the deeper soil is well drained and hence stores less salt than in Baulkham Hills or Bradbury, and most drainage comes directly out of Hawkesbury Sandstone landscapes.

This HGL comprises sedimentary rocks from the Triassic Wianamatta Group (Ashfield Shale and Minchinbury Sandstone) and Hawkesbury Sandstone. The Wianamatta Group consists of laminite, black and grey shales and lithic sandstone. The Hawkesbury Sandstone is composed of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. Alluvial sands and gravels derived from the surrounding Wianamatta Group shales and Hawkesbury Sandstone are present along current streams.

The landscape features undulating hills with narrow ridges and hillcrests. The sideslopes of the hills are moderately inclined, with slopes of 10–15%, and have narrow concave drainage lines. The shales of the HGL are moderately weathered and the regolith depth usually ranges from 1–1.5 m but may be deeper in some locations.

Soils are: typically Red Chromosols (Red Podzolic soils) on the crests of the low hills with Red and Brown Chromosols (Red and Brown Podzolic soils) on upper slopes and Yellow Chromosols (Yellow Podzolic Soils) on the lower slopes and within drainage lines. The Glenorie Soil Landscape covers the entire HGL, apparent from infrequent and very minor occurrences of West Pennant Hills Soil Landscape.

Water infiltrates through the steep hills and flows downslope laterally along clay rich layers within the soil material and also vertically through the underlying shales within the matrix and preferentially along fractures and bedding plains. The lateral movement of subsurface waters may be impeded by a soil texture change (lithic gravels and sands to sandy clay) at the change in slope.

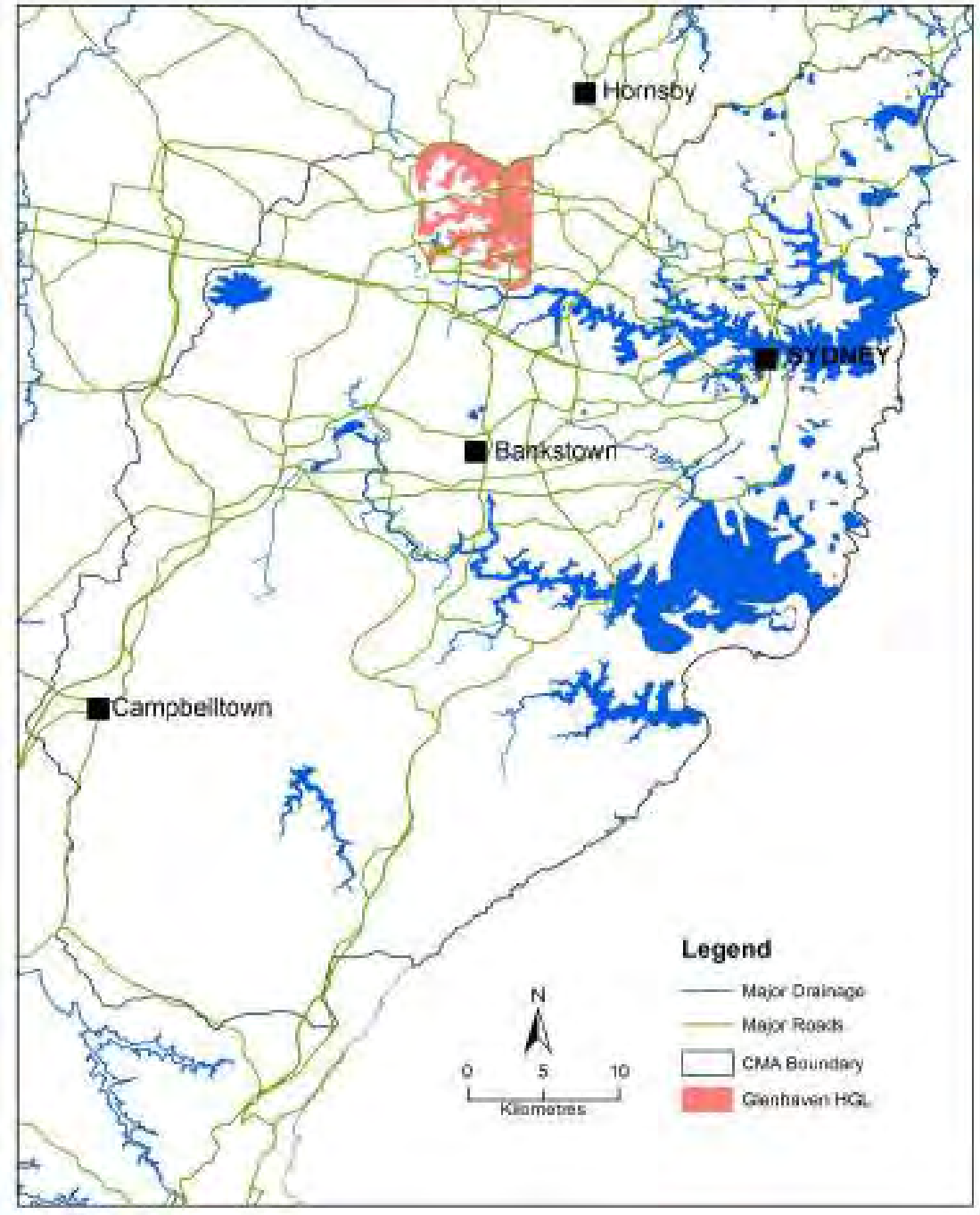
Land salinity within this landscape is low with occasional sites appearing in the more poorly drained areas of the lower slopes and drainage depressions. Salt export is low due to limited salt expression,

high run-off and sandstone dominated drainage lines. Water EC is generally low in the incised sandstone streams, however can become higher in the shale drainage lines.

Land use on this HGL is predominantly rural-residential including cut flower production, market gardens, equestrian activities and orchards. A distinct collection of species and vegetation communities remain as a distinguishing signature of Glenhaven HGL. *Blue Gum High Forest* is practically unique to Glenhaven HGL in they Sydney Metropolitan area and *Turpentine Ironbark Margin Forest* (widely distributed in Glenhaven HGL) does not occur in neighbouring HGLs (e.g. Baulkham Hills or Hawkesbury HGLs) therefore in this part of the catchment they represent a unique signature of Glenhaven HGL.

Limitations and hazards on this HGL include: minor localised gully erosion, localised salinity hazard in low lying areas and drainage depressions and high soil erosion hazard.

Significant features of this HGL are deeply incised sandstone drainage lines in the upper landscape, flatter topography and minimal salinity for a landscape with Wianamatta Group Shales.



Glenhaven HGL Distribution Map

SALINITY

OCCURRENCE (LAND)	Land salinity is low. Minor low level salt sites may occur in the low lying areas and within drainage depressions as these soils are less well drained.
EXPORT (LOAD)	Low levels of salt are exported from the HGL.
WATER (EC)	Water EC is low. Generally fresh water (<0.8 dS/m ECw). Water EC readings are generally low in the incised sandstone drainage lines but can become higher (1.1 dS ECw) where drainage lines are influenced by shale dominated materials.

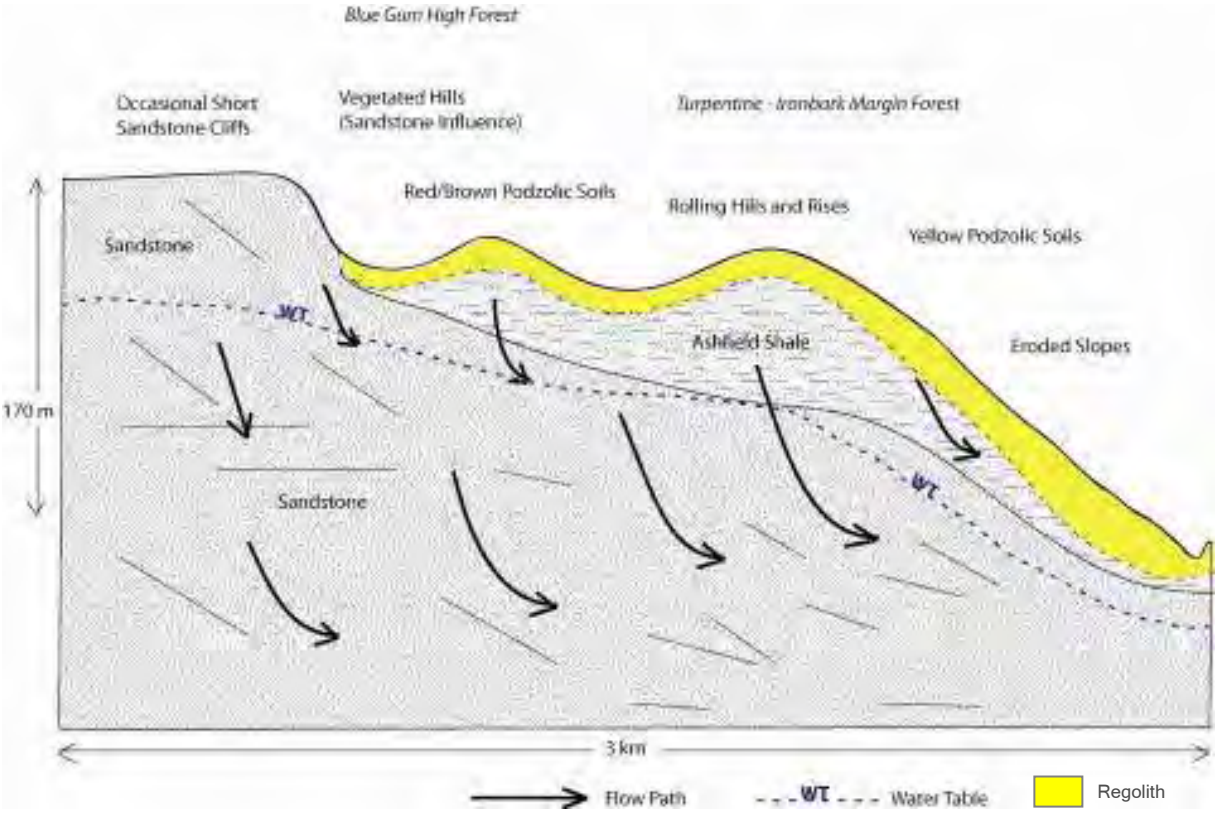
SALT MOBILITY

	AVAILABILITY		
SALT STORE	LOW	MODERATE	HIGH
HIGH			
MODERATE		**Glenhaven**	
LOW			

HAZARD

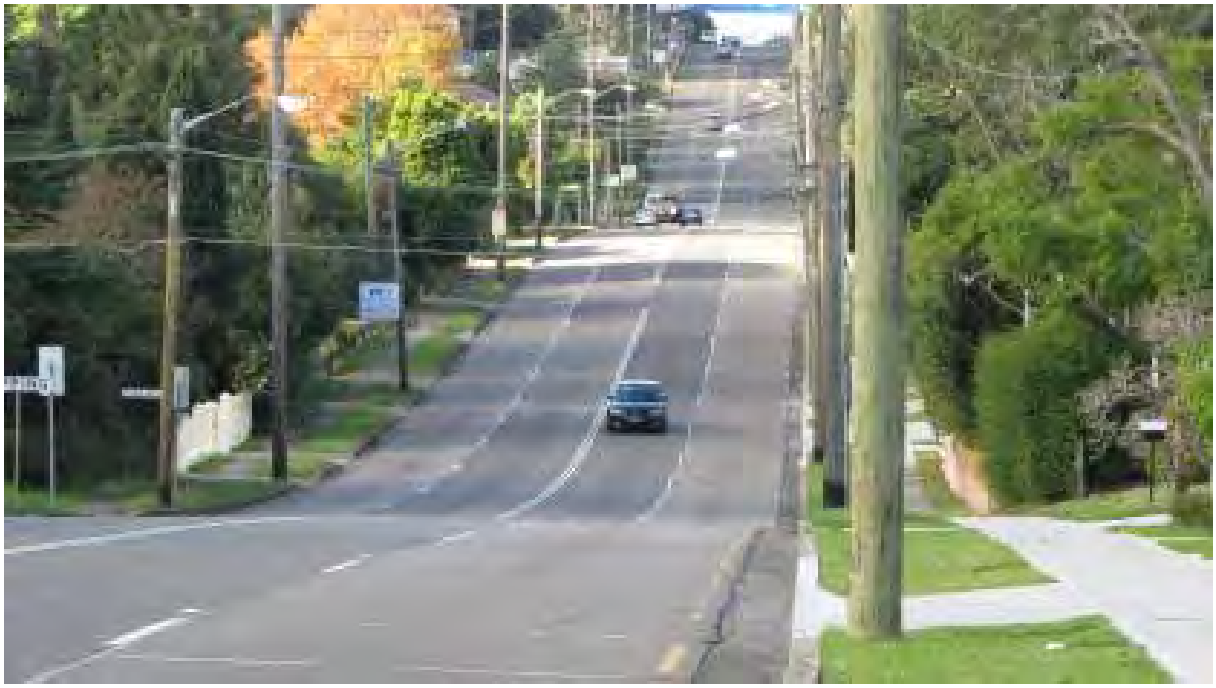
HAZARD ASSESSMENT	**Limited** potential impact	**Significant** potential impact	**Severe** potential impact
High likelihood of occurrence			
Moderate likelihood of occurrence	**Glenhaven**		
Low likelihood of occurrence			

LANDSCAPE ATTRIBUTES



Conceptual Glenhaven Hydrogeological Landscape cross-section showing the distribution of regolith, landforms, salt sites and flow paths.

LITHOLOGY *(Jones & Clark 1991; Geoscience Australia 2009)*	This HGL comprises consolidated sedimentary rocks from the Triassic period. The key lithologies are: • Ashfield Shale (Wianamatta Group) – black to light grey shale and laminite • Hawkesbury Sandstone – medium to coarse-grained quartz sandstone with minor shale and laminite lenses The Minchinbury Sandstone is a minor constituent of this HGL. Unconsolidated colluvial and alluvial gravels, sands and silts derived from the surrounding Triassic sedimentary rocks have been deposited on lower slopes and along streams within this HGL.
ANNUAL RAINFALL	900–1200 mm
REGOLITH-LANDFORMS	This HGL is characterised by moderately weathered shale forming undulating to rolling low hills (30–80 m) with narrow ridges and hillcrest that grade into moderately inclined sideslopes with narrow concave drainage lines. The regolith is moderately deep (1–1.5 m or deeper) and dominant materials include loams and plastic clays. Gravels are common within the regolith.



Typical Glenhaven HGL – Undulations to rolling hills over Ashfield Shale towards upper slope of HGL. Photo taken looking east along Carlingford Road, Epping (Photo: DECCW/Marion Winkler).

Typical Glenhaven HGL – Undulating hills close to sandstone outcropping, with higher sandstone influence on landscape shape: undulations tend to be shallower near to the boundary with sandstone landscape. Photo taken looking west along Murray Farm Road, Roselea (Photo: DECCW/Marion Winkler).

Typical Glenhaven HGL – High urban tree cover on undulating hills; urban trees include blue gums and turpentines of Blue Gum High Forest, *endangered ecological community. Photo taken looking north along Shaftsbury Road, Denistone West (Photo: DECCW/Marion Winkler).*

Typical Glenhaven HGL – Undulations to rolling hills over Ashfield Shale towards upper slope of HGL. Photo taken looking north along Shaftsbury Road, Eastwood (Photo: DECCW/Marion Winkler).

Glenhaven HGL – Quarry on Shaftsbury Road, Eastwood showing weathered Ashfield Shale (upper red soil in profile), Ashfield Shale (black layer) and underlying sandstones, towards upper slope of HGL. (Photo: DECCW/Marion Winkler).

Deep soils of Glenhaven HGL on lower slopes – deep, red clay soils of weathered Ashfield Shale on lower slopes of HGL, as seen in excavated rainwater tank pit (>5m deep) within grounds of Ryde TAFE. (Photo: DECCW/Marion Winkler).

SOIL LANDSCAPES	This HGL consists of the whole extent of Glenorie and West Pennant Hills Soil Landscapes in the Sydney Metropolitan region. West Pennant Hills Soil Landscape forms a very minor component of Glenhaven HGL. The Soil Landscapes are derived from Triassic aged sediments which are widespread throughout the landscape. The Glenhaven HGL low hills (Glenorie Soil Landscape) are formed on Triassic aged shale of the Wianamatta Group sediments. The soils that form are Red Chromosols (Red Podzolic soils) on the crests of the low hills, Red and Brown Chromosols (Red and Brown Podzolic soils) on upper slopes and Yellow Chromosols (Yellow Podzolic Soils) on the lower slopes and within drainage lines. Throughout the landscape the topsoil is a friable dark brown loam A1 horizon over a hard-setting brown clay loam A2 horizon. The subsoil of the landscape is reddish brown clay which grades to a mottled grey plastic clay. In the lower slopes and within drainage depressions, brownish-grey plastic silty clay, which is often saturated, can also occur as subsoil. The Glenhaven HGL hillslopes and benches within hills (West Pennant Hills Soil Landscape) are uncommon, forming on Tertiary aged shale which is composed of shale, claystone, siltstone/mudstone and sandstone-lithic sediment. The soils that form are Red, Brown and Yellow Kurosols (Red, Brown and Yellow Podzolic Soils) and Hydrosols (Gleyed Podzolic Soils).
RURAL LAND CAPABILITY	The rural capability class of Glenhaven HGL is III-V.
LAND USE	Much of the Glenhaven HGL has been urbanised and includes the Sydney suburbs of Glenhaven, Eastwood, Roselea, Denistone West, Epping and West Ryde.

KEY LAND DEGRADATION ISSUES	Limitations: • Minor localised gully erosion • Localised salinity hazard in low lying area and drainage depressions • High soil erosion hazard
VEGETATION	Glenhaven HGL is partially cleared of native vegetation. A distinct collection of species and vegetation communities remain as a distinguishing signature of Glenhaven HGL. Of the remaining native vegetation, less than half of the remnants retain >10% canopy cover (NPWS 2002). Communities include *Turpentine Ironbark Margin Forest* with minor occurences of *Turpentine Ironbark Forest, Blue Gum High Forest* and very minor occurences of *Sandstone Ridgetop Woodland* on the HGL boundary with Hawkesbury HGL. Common dominant tree species across vegation communities are: *Syncarpia glomulifera* (turpentine), *Eucalyptus paniculata* (grey ironbox), *E. eugeniodes* (thin-leaved stingybark), *E. saligna* (Sydney blue gum), *E. punctata* (grey gum), *E. pilularis* (blackbutt) and *Angophora costata* (smooth-barked apple). Trees/shrubs in the lower strata include *Pittosporum undulatum* (sweet pittosporum), *Acacia parramattensis* subsp *parramattensis* (Parramatta wattle), *Breynia oblongifolia* (coffee bush), *Elaeocarpus reticulatis* (blueberry ash) and *Allocasuarina torulosa* (forest oak). Signature: ***Blue Gum High Forest*** and ***Turpentine Ironbark Margin Forest*** *Blue Gum High Forest* (dominated by *Eucalyptus pilularis* or *E. saligna* with *Pittosporum undulatum, Elaeocarpus reticulatis* and *Allocasuarina torulosa* in the small tree strata; *Breynia oblongifolia, Pittosporum revolutum* and *Clerodendrum tomentosum* in the shrub layer) is practically unique to Glenhaven HGL in the Sydney Metro area and is a distinguishing feature between Glenhaven and Baulkham Hills HGLs. *Turpentine Ironbark Margin Forest* (widely distributed in Glenhaven HGL; dominated by *Eucalyptus punctata* and *Syncarpia glomulifera* with *Acacia parramattensis*) and *Turpentine - Ironbark Forest* (less frequent; dominated by *Syncarpia glomulifera, E. paniculata* and *E. eugenoides*) are typical communities of Glenhaven HGL.

VEGETATION ASSEMBLAGES

Glenhaven HGL is substantially cleared however the remaining vegetation communities are a distinguishing characteristic of Glenhaven HGL. The remnants of *Turpentine Ironbark Margin Forest* and *Turpentine Ironbark Forest* stand out from surrounding/adjacent HGL of Hawkesbury HGL, and *Blue Gum High Forest* is distinctive of Glenhaven HGL above other landscapes – a definitive feature between Glenhaven and Baulkham Hills HGLs.

Turpentine Ironbark Forest is dominated by *Syncarpia glomulifera* with *E. paniculata* and *E. eugeniodes* occurring less frequently. *Eucalyptus saligna* or *Eucalyptus punctata* also sometimes occur. In the lower strata are *Syncarpia glomulifera, Pittosporum undulatum, Trema aspera* and *Acacia parramattensis* subsp *parramattensis* and predominantly mesic species such as *Pittosporum revolutum, Breynia oblongifolia, Maytenus sylvestris, Polyscius sambucifolia* subsp. *A, Notelaea longifolia f. longifolia* and *Ozothamnus diosmifolius*.

Turpentine Ironbark Margin Forest is dominated by *Eucalyptus punctata* and *Syncarpia glomulifera* with small trees sparsely occurring in the lower strata, including *Acacia parramattensis* and *Pittosporum undulatum*.

Blue Gum High Forest (dominated by *Eucalyptus pilularis* or *E. saligna*) features on the Sydney Metropolitan catchment watershed and small pockets of *Sandstone Ridgetop Woodland* remain in Glenhaven HGL. Notably, *Blue Gum High Forest* is a critically endangered ecological community (NSW SC 2007).

Endangered ecological communities in Glenhaven HGL

FORMATION (Keith 2004)	STATE CLASS (Keith 2004)	LOCAL CLASS (NPWS 2002)	ENDANGERED ECOLOGICAL COMMUNITY
Wet Sclerophyll Forests	Northern Hinterland Wet Sclerophyll Forests	*Turpentine Ironbark Forest*	*Turpentine Ironbark Forest* and *Turpentine Ironbark Margin Forest* are listed together as *Sydney Turpentine-ironbark forest* (NSW Scientific Committee 1998)
		Turpentine Ironbark Margin Forest	
	North Coast Wet Sclerophyll Forests	*Blue Gum High Forest*	*Blue Gum High Forest* is listed as a critically endangered ecological community (NSW Scientific Committee 2007)
Dry Sclerophyll Forests		*Sandstone Ridgetop Woodland*	*n/a*

HYDROGEOLOGY

Groundwater flow in this HGL is unconfined along structures (bedding, joints, faults) in the fractured bedrock. Flow also occurs through connected pore spaces in sandstone units. Lateral flow occurs through colluvial and alluvial sediments on slopes and plains. Hydraulic conductivity and transmissivity are low to moderate.

Groundwater systems are local with short flow lengths and are loosely defined by topographic catchments. Water quality within these systems is fresh. Water table depths are intermediate to deep.

Residence times are short to medium. These landscapes have a fast to medium response time to changes in land management.

AQUIFER TYPE	Unconfined in fractured rock and through sandstone pores (dual porosity) Lateral flow through unconsolidated colluvial and alluvial sediments on slopes and plains
HYDRAULIC CONDUCTIVITY	Low to moderate Range: $>10^{-2}$–10 m/day
AQUIFER TRANSMISSIVITY	Low to moderate Range: <2–100 m^2/day
SPECIFIC YIELD	Low to moderate Range: <5–15%
HYDRAULIC GRADIENT	Moderate

	Range: 10–30%
GROUNDWATER SALINITY	Fresh Range: <0.8 dS/m
DEPTH TO WATER TABLE	Intermediate to deep Range: 2–>8 m
TYPICAL CATCHMENT SIZE	Small (<100 ha)
SCALE (FLOW LENGTH)	Local Flow length: <5 km (short)
RECHARGE ESTIMATE	Moderate
RESIDENCE TIME	Short to medium (months to years)
RESPONSIVENESS TO CHANGE	Fast to medium (months to years)

MANAGEMENT OPTIONS

The overarching salinity management strategies have specific biophysical outcomes. These outcomes are achieved by implementing a series of targeted land management actions taking into account the opportunities and constraints of the particular HGL. The actions recognise the need for diffuse and specific activities within the landscape that are required to impact on salinity issues.

Salinity processes are driven by the interactions between water use characteristics of vegetation, physical soil properties and hydrogeological processes within the HGL.

Actions that impact on the way water is used by vegetation or stored in the soil profile will have impacts on recharge. The influence of both continual and episodic recharge and the impacts of extreme weather events need to be considered in deciding on the appropriate management actions. Short and long-term climate cycles also need to be considered as they will have some bearing on salinity processes, particularly salt load and land salinity.

Where in some rural cases a land use change has occurred and the landscape has been altered (e.g. clearing of vegetation), a balance could occur. Where a balance does not occur it can result in the expression of salinity at various points in the landscape. In urban situations, where the landscape is altered further in shape (such as road and building construction including cut and fill practices) and water movement is impeded and/or water use is increased, salinity may emerge.

Emerging saline effects within the Sydney Metropolitan catchment have occurred in areas underlain by Wianamatta shales. Possible causes of urban salinity in Sydney are shown in the cross-sectional diagram for this HGL. The increased occurrence of salinity is related to:

- A decrease in deep-rooted vegetation
- Over-irrigation of crops, improved pastures and private gardens and lawns
- Alteration of natural drainage patterns by the construction of houses, roads, railways, channels etc.
- Creation of wet zones of waterlogged soil by impeded drainage
- Leakage of standing water bodies, pools, lakes and service pipes
- Exposure of susceptible soils
- Irrigation of sports grounds, golf courses, parks and gardens.

Where salinity is likely to occur in areas of urban development, the following overarching principles should apply:

- Land managers should clearly demonstrate what measures will be employed to ensure the salinity hazard does not increase (both on site and on adjoining land) as a result of a development.
- Identify and manage sensitive soils (e.g. sodic soils, reactive soils, type of salts, salt loads).
- New houses, buildings or infrastructure (including roads, pathways and retaining walls) in current or potentially salt affected areas may need to be built to withstand the effects of salinity (including the establishment of good drainage prior to construction).
- Employ deficit irrigation principles to prevent over-irrigation of sports grounds, golf courses, parks, private gardens and lawns; and limit the application of extra salt through water recycling programs or irrigation of saline groundwater.
- Implement a monitoring program (where deemed necessary) including a clear identification of responsibilities.

Landscape Function – Glenhaven HGL

The following list details the functions this landscape provides within a catchment scale salinity context:

- **A. The landscape provides fresh water runoff as an important water source**
- **B. The landscape provides fresh water runoff as an important dilution flow source**
- **C. The landscape provides important base flow to local streams**

Landscape Management Objectives – Glenhaven HGL

The following list details the appropriate strategies pertinent to this landscape:

- **Maintaining and maximising runoff:** This HGL contributes significant fresh water as dilution flow to the system. The fresh runoff mitigates the salt load, stream salinity and EC concentration of the local streams.

Urban Management Strategy Objectives – Glenhaven HGL

The following list (in priority order) details the appropriate urban strategies pertinent to this landscape:

- **Urban Vegetation (UV):** Maintain and enhance vegetation (including remnant vegetation) for the management of recharge, and as a buffer to excess water input. Waterwise gardening should be encouraged in residential areas.
- **Urban Management (UM):** The input of water into the landscape (lawns, gardens, sporting fields) including the management of recycled water requires careful management.
- **Riparian Management (RM**): Vegetation management in riparian areas will assist in minimising salt export to streams.
- **Urban Planning (UP):** Development must not increase the salinity hazard of the natural and built environment. Layout and design should consider locations of roads, infrastructure and greenspace as well as building allotments, and water sensitive urban design.
- **Urban Construction (UC**): Construction on saline land will require salt resistant/ resilient materials. On some Management Areas the typical slope gradient of this HGL requires consideration of depth of cut and location of roads; and infrastructure, including underground utilities.
- **Urban Investigations (UI**): The landscape contains significant salinity, and geological situations that predispose salinity development. Assessment of the location, intensity and scale of salinity is needed. There are areas of sensitive soils that need to be identified.

Investigations in new subdivision or re-development of areas is required for management of salinity consequences.

Specific Land Management Opportunities

A range of specific opportunities exist for this HGL:

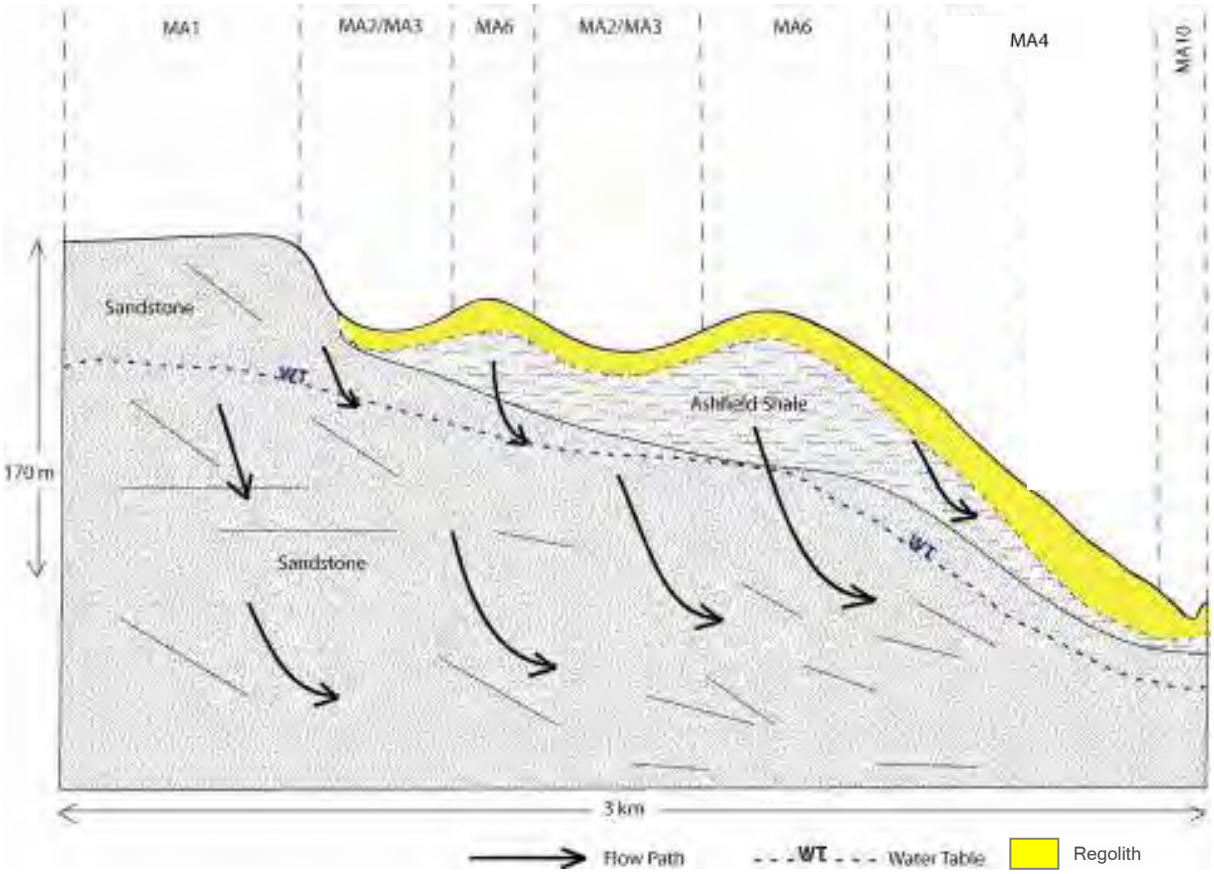
- Free draining soils reduces salinity risk.
- The sandstone unit underlying the shale allows for drainage of the HGL.
- Landscapes which are highly vegetated, aid in reducing recharge in the upper landscape and buffering minor salt store.
- Targeted biodiversity conservation – *Blue Gum High Forest* and *Turpentine – Ironbark Margin Forest* (endangered ecological communities) occur in this HGL, and the latter community is restricted to this HGL in the Sydney Basin.

Specific Land Management Constraints

Constraints for land management in this HGL include:

- Incidence of erosion and steep slopes may affect construction activities such as cut-and-fill, building of foundations and retaining walls.
- Locally connected aquifer systems may impact on water quality.

Specific Targeted Actions



Glenhaven HGL management cross-section (Refer to following table for explanation of codes)

Management Actions - Urban

MANAGEMENT AREA (MA)	ACTION (URBAN)
MA1 (RIDGES)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)**
MA2/MA3 (UPPER SLOPES EROSIONAL AND COLLUVIAL)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)** Promote the retention and establishment of deep-rooted vegetation that maximises water use in new urban development areas **(UV2)** **Urban Management** Minimise leakage of standing water bodies, pools, lakes and service pipes **(UM1)** **Urban Planning** Minimise use of infiltration and detention of stormwater in hazard areas, consider lining of detention systems to prevent infiltration (i.e. reconsider WSUD implications in relation to salinity management) **(UP2)** **Urban Construction** Minimise depth of cut and exposure of susceptible soils during development. Ensure fill material interface is not saline **(UC1)** Deep drainage should be minimised by maximising surface water runoff and drainage **(UC2)** **Urban Investigations** Investigate concentration and composition of salts in the soil profile, groundwater and surface waters during initial site assessment to determine salinity hazard **(UI1)** Identify and manage sodic soils **(UI3)**
MA6 (RISES)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)** Promote the retention and establishment of deep-rooted vegetation that maximises water use in new urban development areas **(UV2)** **Urban Management** Minimise leakage of standing water bodies, pools, lakes and service pipes **(UM1)** **Urban Planning** Minimise use of infiltration and detention of stormwater in hazard areas, consider lining of detention systems to prevent infiltration (i.e. reconsider WSUD implications in relation to salinity management) **(UP2)** **Urban Construction** Minimise depth of cut and exposure of susceptible soils during development. Ensure fill material interface is not saline **(UC1)**

MANAGEMENT AREA (MA)	ACTION (URBAN)
	Deep drainage should be minimised by maximising surface water runoff and drainage **(UC2)** **Urban Investigations** Investigate concentration and composition of salts in the soil profile, groundwater and surface waters during initial site assessment to determine salinity hazard **(UI1)** Identify and manage sodic soils **(UI3)**
MA 4 (MIDSLOPES – COLLUVIAL)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)** Promote the retention and establishment of deep-rooted vegetation that maximises water use in new urban development areas **(UV2)** **Urban Management** Minimise leakage of standing water bodies, pools, lakes and service pipes **(UM1)** **Urban Planning** Minimise use of infiltration and detention of stormwater in hazard areas, consider lining of detention systems to prevent infiltration (i.e. reconsider WSUD implications in relation to salinity management) **(UP2)** **Urban Construction** Minimise depth of cut and exposure of susceptible soils during development. Ensure fill material interface is not saline **(UC1)** Deep drainage should be minimised by maximising surface water runoff and drainage **(UC2)** Ensure road construction is suitable for conditions **(UC5)** Consider the use of salt protected materials for services, (e.g. salt resistant drainage pipes, casing of underground services) **(UC7)** Minimise the alteration of natural drainage patterns through construction of houses, roads, railways, channels etc. **(UC8)** **Urban Investigations** Investigate concentration and composition of salts in the soil profile, groundwater and surface waters during initial site assessment to determine salinity hazard **(UI1)** Identify and manage sodic soils **(UI3)**
MA10 (ALLUVIAL CHANNEL)	**Riparian Management** Retain or re-establish areas of effectively vegetated riparian buffer zones to manage discharge areas (preferably salt tolerant indigenous vegetation) **(RM1)** Maintain/re-establish effective vegetated riparian buffer zones **(RM2)**

High Hazard Land Use

AT RISK MANAGEMENT AREAS	ACTION
MA1, MA2, MA3, MA4, MA6 AND MA10	Avoid deep cut and exposure of erodable soils during development when establishing infrastructure and dwellings. Careful consideration should be given to the siting of new roads and infrastructure.

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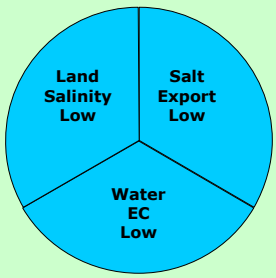
1. Hawkesbury Hydrogeological Landscape

LOCALITIES	**LUCAS HEIGHTS, MENAI, WEDDERBURN, APPIN**
TYPE AREA	**WEDDERBURN**
GRID REFERENCE	**299000 mE 6221000 mN (Z 56)**
GEOLOGY SHEET	**PENRITH 1:100 000; PORT HACKING 1:100 000; WOLLONGONG 1:100 000; SYDNEY 1:100 000**
CONFIDENCE LEVEL	**MEDIUM**



OVERVIEW

The Hawkesbury Hydrogeological Landscape (HGL) is characterised by plateaux, scarps, benches and hills on sandstone in the areas encompassing Lucas Heights and Woronora Plateau.

Landscape features plateaux, cliffs within escarpment, rises, hills and low hills, plains, slopes and benches within/on Hawkesbury Sandstone or Narrabeen Sandstone; rises, floodplains, swamps and levees on Tertiary and Quaternary Alluvium; and occasionally rises. The local relief is variable - typically 40–200 m with slopes of 20–70% and rock outcrops of 0–50%.

This HGL comprises sedimentary rocks from the Triassic Hawkesbury Sandstone and Narrabeen Group as well as minor outbreaks of Tertiary Basalt and Jurassic Volcanics. The Hawkesbury Sandstone is composed of medium to coarse-grained quartz sandstone with minor shale and laminite lenses. The Narrabeen Group contains quartz and quartz-lithic sandstone, shale, claystone and minor conglomerate. These have been intruded by isolated Jurassic volcanic pipes containing basaltic breccia. Unconsolidated colluvial sediments derived from the surrounding Triassic sedimentary rocks have been deposited on the slopes of this HGL.

Soils are: Rudosols (Lithosols, Siliceous Sands) and Tenosols (Earthy Sands) on crests and ridges; Kandosols (Brown Earths, Yellow Earths), Yellow and Red Kurosols (Yellow and Red Podzolic Soils) and Leptic Rudosols (Lithosols) on steep slopes; and Brown and Yellow Kandosols (Brown and Yellow Earths) and Yellow Dermosols (Yellow Podzolic Soils) on less steep sideslopes.

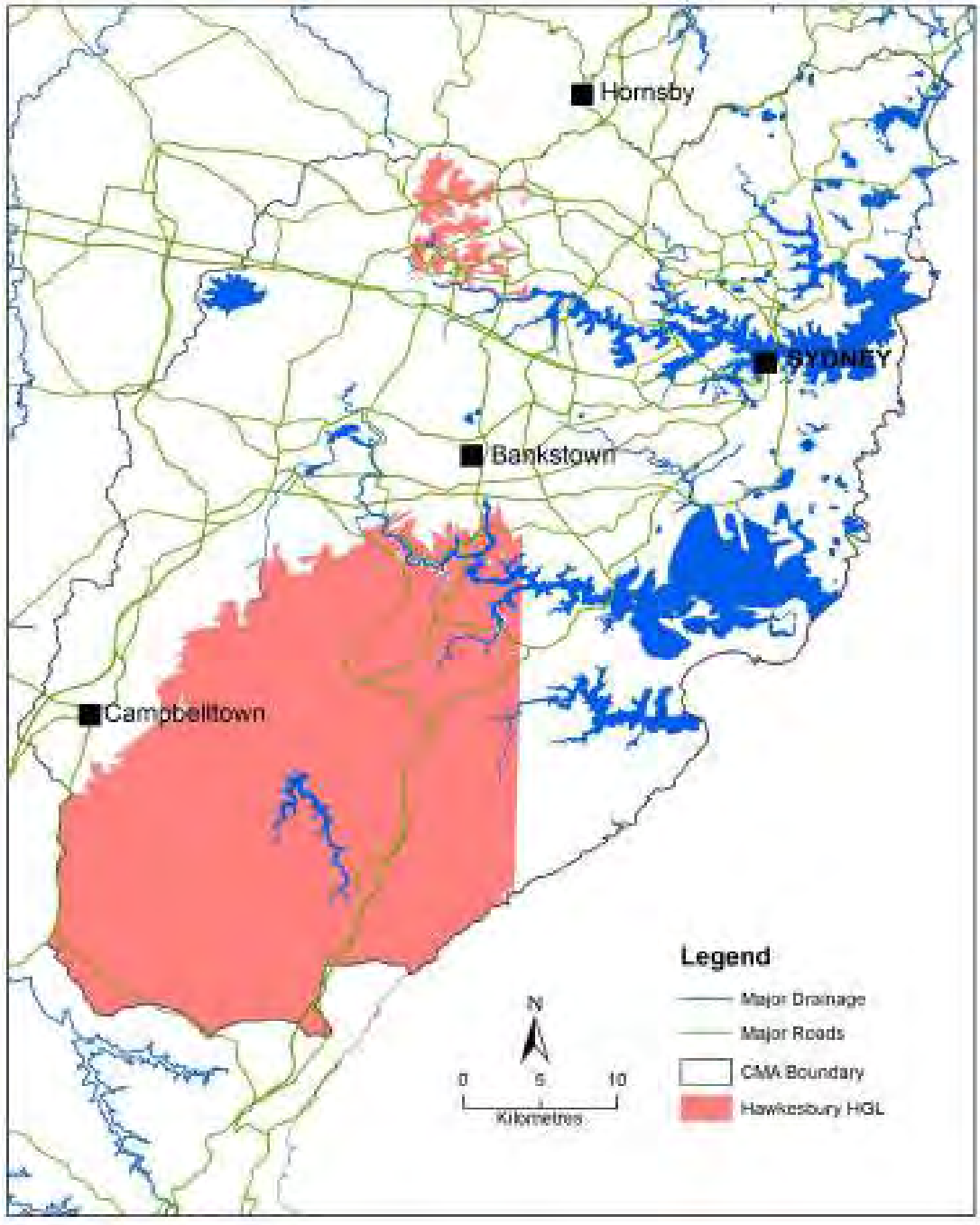
Water infiltrates vertically through interbedded sandstone and sandstone fractures (primary and secondary porosity) and laterally along bedding planes. The residence time of water moving through this landscape is likely to be relatively low due to the steep gradient and short flow path. Therefore, salt accumulation within groundwater is likely to be reduced.

Land salinity and water EC are low. Salts are flushed from the porous sandstone matrix which prevents salt accumulation at the surface. Salinity expression at the contact between basalts or Jurrasic Volcanics may be higher due to salts being flushed out from the basalt.

Land use across this HGL is mostly uncleared bushland reserved for recreation, nature conservation and drinking water supply catchment area. National Parks include the Royal National Park.

Limitations to land use are caused by potential landslip and rock falls and sheet and rill erosion, particularly during storms or after disturbance such as following bushfires.

Significant features of this landscape are the frequent rock outcrops, rocky benches, plateaux and scarps which are typical of a sandstone bedrock.



Hawkesbury HGL Distribution Map

SALINITY

OCCURRENCE (LAND)	Land salinity is low. This is largely due to the shallow sandy soils and deeply fractured bedrock associated with the sandstone dominated geology.
EXPORT (LOAD)	Salt export is low. Sandstone geologies carry low salt loads and associated regolith does not store salt. A low level of salts will be present within the sandstone aquifers which have largely originated from precipitation.
WATER (EC)	Water EC is low. Water quality is fresh.

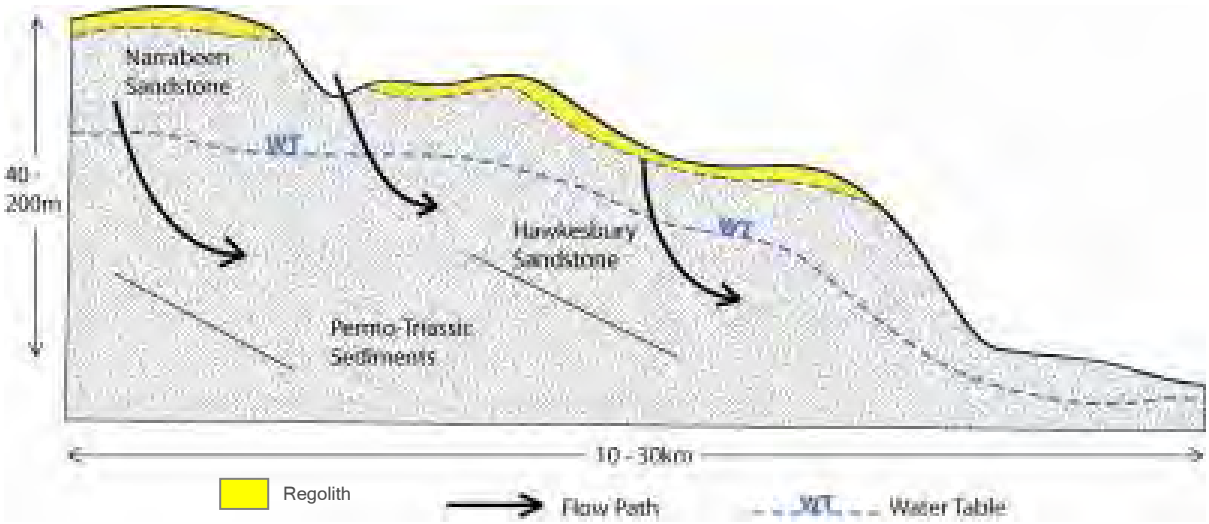
SALT MOBILITY

	AVAILABILITY		
SALT STORE	LOW	MODERATE	HIGH
HIGH			
MODERATE			
LOW			**Hawkesbury**

HAZARD

HAZARD ASSESSMENT	**Limited** potential impact	**Significant** potential impact	**Severe** potential impact
High likelihood of occurrence			
Moderate likelihood of occurrence			
Low likelihood of occurrence	**Hawkesbury**		

LANDSCAPE ATTRIBUTES



Conceptual Hawkesbury Hydrogeological Landscape cross-section showing the distribution of regolith, landforms, salt sites and flow paths.

LITHOLOGY ***(Sherwin & Holmes 1986; Jones & Clarke 1991; Geoscience Australia 2009)***	This HGL comprises consolidated sedimentary rocks from the Permian and Triassic periods. The key lithologies are: • Wianamatta Group (minor) – sandstone, siltstone and shale • Hawkesbury Sandstone – medium to coarse-grained quartz sandstone with minor shale and laminite lenses • Narrabeen Group – quartz and quartz-lithic sandstone, grey shale, red-brown claystone, minor conglomerate Unconsolidated colluvial sediments derived from the surrounding Triassic sedimentary rocks have been deposited on the slopes of this HGL.
ANNUAL RAINFALL	800–1600 mm
REGOLITH-LANDFORMS	Plateaux, cliffs within escarpment, rises, hills and low hills, plains, slopes and benches within/on moderately weathered Hawkesbury Sandstone and Narrabeen Sandstone; and rises, floodplains, swamps and levees on Tertiary and Quaternary Alluvium; and occasionally rises. The local relief is variable - typically 40–200 m with slopes of 20–70% and rock outcrops of 0–50% Regolith is largely unweathered sandstone, vegetated massive 90% quartzite structured formations; apart from rock fall boulder deposits from upper escarpment to talus slope and valley floor. Occasional occurrences of alluvium, sand, colluvium and sandstone-quartz, breccia, sedimentary, siltstone/mudstone and sandstone-quartz also exist.

Typical Hawkesbury HGL – shallow soil with rock outcrops and Dry Sclerophyll Forest vegetation. Photo taken at Wedderburn (Photo: DECCW/Marion Winkler).

Typical Hawkesbury HGL, sandstone escarpment, Wedderburn Gorge (Photo: DECCW/Marion Winkler).

Typical Hawkesbury HGL vegetation and rocky gully, Wedderburn (Photo: DECCW/Marion Winkler).

Hawkesbury HGL – Bedrock exposed along Parramatta River, Meadowbank, bordering Glenhaven HGL. Photo taken from Ryde Bridge looking north-east towards Parsonage Street, Meadowbank (Photo: DECCW/Marion Winkler).

Hawkesbury HGL – Sandstone bedrock cutting boundary with Glenhaven HGL under rail bridge at Victoria Road, West Ryde (Photo: DECCW/Marion Winkler).

Hawkesbury HGL, salt outbreak in sandstone rocks, northern side of Wedderburn Gorge (Photo: DECCW/Marion Winkler).

SOIL LANDSCAPES	Soil compositions on crests and ridges consist of; Rudosols (Lithosols, Siliceous Sands) and Tenosols (Earthy Sands). On steep slopes, Kandosols (Brown Earths, Yellow Earths), Yellow and Red Kurosols (Yellow and Red Podzolic Soils) and Leptic Rudosols (Lithosols), with Brown and Yellow Kandosols (Brown and Yellow Earths) and Yellow Dermosols (Yellow Podzolic Soils) on less steep sideslopes.
RURAL LAND CAPABILITY	Rural land capability VII (VIII).
LAND USE	Land use across this HGL is mostly uncleared bushland reserved for recreation, nature conservation and drinking water supply catchment area. National Parks include the Royal National Park and Sydney Catchment Authority Special Area. There are some major urban developments in the Lucas Heights, Wedderburn, Appin and Menai areas.
KEY LAND DEGRADATION ISSUES	Limitations: • Severe sheet erosion often occurs during storms and after ground cover is destroyed by bushfires (Atkinson 1983). • Minor gully erosion occurs along unpaved tracks and fire trails. • Severe sheet erosion also occurs following bushfires which disturb the stabilising vegetation and litter layer. Minor gully erosion occurs along unpaved or poorly maintained roads and fire trails. • Moderate sheet erosion is common on steep hillslopes. • Landslip and rock fall are widespread and evident on steep slopes with wet, unstable and disturbed soils. • Parts of this landscape have been permanently inundated

	by construction of Woronora Dam to supply drinking water to Sydney. • Some tracks have minor sheet and rill erosion.
VEGETATION	Hawkesbury HGL retains a large amount of native vegetation which is distinctive of this HGL. Communities include *Sydney Hinterland Transition Woodland* on the edge of the Sydney Basin; *Coastal Sandstone Ridgetop Woodland* on ridge tops and *Hinterland Sandstone Gully Forest* along sandstone gullies. Dominant tree species include *Corymbia gummifera* (red bloodwood), *Eucalyptus punctata* (grey gum), *Angophora costata* (smooth-barked apple), *Syncarpia glomulifera* (turpentine), *E. sieberi* (silvertop ash) and *E. racemosa* (narrow-leaved scribbly gum), *Banksia serrata* (old man banksia) and *Eucalyptus piperita* (Sydney peppermint). Signature: ***Sydney Hinterland Transition Woodland, Coastal Sandstone Ridgetop Woodland*** and ***Hinterland Sandstone Gully Forest*** These three communities align with the boundary of the Hawkesbury HGL and form a definitive vegetation signature.

VEGETATION ASSEMBLAGES

Sydney Hinterland Transition Woodland, a eucalypt woodland dominated by *Corymbia gummifera, Eucalyptus punctata, Angophora costata* and *Syncarpia glomulifera* with an open understorey of sclerophyll shrubs, sedges, forbs and grasses. Shrub species include *Phyllanthus hirtellus, Persoonia linearis, Leptospermum trinervium, Acacia ulicifolia, Persoonia levis, Acacia linifolia, Banksia spinulosa* and *Pimelea linifolia.* This transition woodland encircles the Cumberland Plain rainshadow, on loamy soils typically derived from sediments belonging to the Hawkesbury or Mittagong formations.

Coastal Sandstone Ridgetop Woodland is a low eucalypt forest dominated by *Corymbia gummifera, E. sieberi* and *E. racemosa* with a diverse sclerophyll shrub layer including *Leptospermum trinervium, Lambertia formosa, Persoonia levis, Banksia serrata, Platysace linearifolia, Acacia suaveolens, Isopogon anemonifolius, Dillwynia retorta, Petrophile pulchella, Banksia spinulosa, Bossiaea heterophylla, Banksia ericifolia, Acacia ulicifolia, Monotoca scoparia* and *Hakea dactyloides* and an open groundcover of sedges.

Hinterland Sandstone Gully Forest is an open eucalypt forest dominated by Angophora costata, Corymbia gummifera, Banksia serrata and Eucalyptus piperita with an abundant sclerophyll shrub stratum of Persoonia linearis, P. levis, Phyllanthus hirtellus, Leptospermum trinervium, Lomatia silaifolia, Banksia spinulosa, Platysace linearifolia, Ceratopetalum gummiferum, Acacia ulicifolia and Acacia terminalis, and a groundcover dominated by sedges. This forest surrounds the Cumberland plain, occurring along the western portion of the Woronora plateau.

Endangered ecological communities in Hawkesbury HGL

FORMATION (Keith 2004)	STATE CLASS (Keith 2004)	LOCAL CLASS (NPWS 2002)	ENDANGERED ECOLOGICAL COMMUNITY
Dry Sclerophyll Forests (shrubby subformation)	Sydney Hinterland Dry Sclerophyll Forests	*Sydney Hinterland Transition Woodland*	n/a
		Hinterland Sandstone Gully Forest	n/a

	Sydney Coastal Dry Sclerophyll Forests	*Coastal Sandstone Ridgetop Woodland*	n/a

HYDROGEOLOGY

Groundwater flow in this HGL is unconfined along structures (bedding, joints, faults) in the fractured bedrock. Flow also occurs through connected pore spaces in the sandstones. Lateral flow occurs through colluvial sediments on slopes. Flow will occur across the land surface where bedrock is exposed. Hydraulic conductivity is high. Transmissivity is moderate to high.

Groundwater systems are local to intermediate with short to intermediate flow lengths and are loosely defined by topographic catchments. Water quality within these systems is fresh. Water table depths are deep.

Residence times are short to medium. These landscapes have a fast to medium response time to changes in land management.

AQUIFER TYPE	Unconfined in fractured rock and through sandstone pores (dual porosity) Lateral flow through unconsolidated colluvial sediments on slopes Significant overland flow where bedrock is exposed
HYDRAULIC CONDUCTIVITY	High Range: >10 m/day
AQUIFER TRANSMISSIVITY	Moderate to high Range: 2–>100 m^2/day
SPECIFIC YIELD	Moderate to high Range: 5–>15%
HYDRAULIC GRADIENT	Moderate to steep Range: 10–>30%
GROUNDWATER SALINITY	Fresh Range: <0.8 dS/m.
DEPTH TO WATER TABLE	Deep Range: >8 m
TYPICAL CATCHMENT SIZE	Medium (100–1000 ha)
SCALE (FLOW LENGTH)	Local to intermediate Flow length: <15 km (short to intermediate)

RECHARGE ESTIMATE	High
RESIDENCE TIME	Short to medium (months to years)
RESPONSIVENESS TO CHANGE	Fast to medium (months to years)

MANAGEMENT OPTIONS

The overarching salinity management strategies have specific biophysical outcomes. These outcomes are achieved by implementing a series of targeted land management actions taking into account the opportunities and constraints of the particular HGL. The actions recognise the need for diffuse and specific activities within the landscape that are required to impact on salinity issues.

Salinity processes are driven by the interactions between water use characteristics of vegetation, physical soil properties and hydrogeological processes within the HGL.

Actions that impact on the way water is used by vegetation or stored in the soil profile will have impacts on recharge. The influence of both continual and episodic recharge and the impacts of extreme weather events need to be considered in deciding on the appropriate management actions. Short and long-term climate cycles also need to be considered as they will have some bearing on salinity processes, particularly salt load and land salinity.

Where in some rural cases a land use change has occurred and the landscape has been altered (e.g. clearing of vegetation), a balance could occur. Where a balance does not occur it can result in the expression of salinity at various points in the landscape. In urban situations, where the landscape is altered further in shape (such as road and building construction including cut and fill practices) and water movement is impeded and/or water use is increased, salinity may emerge.

Emerging saline effects within the Sydney Metropolitan catchment have occurred in areas underlain by Wianamatta shales. Possible causes of urban salinity in western part of the catchment are shown in the cross-sectional diagram for this HGL. The increased occurrence of salinity is related to:

- A decrease in deep-rooted vegetation
- Over-irrigation of crops, improved pastures and private gardens and lawns
- Alteration of natural drainage patterns by the construction of houses, roads, railways, channels etc.
- Creation of wet zones of waterlogged soil by impeded drainage
- Leakage of standing water bodies, pools, lakes and service pipes
- Exposure of susceptible soils
- Irrigation of sports grounds, golf courses, parks and gardens.

Where salinity is likely to occur in areas of urban development, the following overarching principles should apply:

- Land managers should clearly demonstrate what measures will be employed to ensure the salinity hazard does not increase (both on site and on adjoining land) as a result of a development.
- Identify and manage sensitive soils (e.g. sodic soils, reactive soils, type of salts, salt loads).
- New houses, buildings or infrastructure (including roads, pathways and retaining walls) in current or potentially salt affected areas may need to be built to withstand the effects of salinity (including the establishment of good drainage prior to construction).

- Employ deficit irrigation principles to prevent over-irrigation of sports grounds, golf courses, parks, private gardens and lawns; and limit the application of extra salt through water recycling programs or irrigation of saline groundwater.
- Implement a monitoring program (where deemed necessary) including a clear identification of responsibilities.

Landscape Function – Hawkesbury HGL

The following list details the functions this landscape provides within a catchment scale salinity context:

- **A. The landscape provides fresh water runoff as an important water source**
- **B. The landscape provides fresh water runoff as an important dilution flow source**
- **C. The landscape provides important base flow to local streams**

Landscape Management Objectives – Hawkesbury HGL

The following list details the appropriate strategies pertinent to this landscape:

- **Maintaining and maximising runoff:** This HGL contributes significant fresh water as dilution flow to the system. The fresh runoff mitigates the salt load, stream salinity and EC concentration of the local streams.

Urban Management Strategy Objectives – Hawkesbury HGL

Hawkesbury HGL is a low risk landscape for urban salinity development. The following list (in priority order) details the appropriate urban strategies relevant to this landscape:

- **Urban Vegetation (UV):** Maintain and enhance vegetation (including remnant vegetation) for the management of recharge, and as a buffer to excess water input. Waterwise gardening should be encouraged in residential areas.
- **Urban Management (UM):** The input of water into the landscape (lawns, gardens, sporting fields) including the management of recycled water requires careful management.
- **Urban Planning (UP):** Planning of sub-division layout and design is required to manage salinity consequences. Development must not increase the salinity hazard of the natural and built environment. Layout and design should consider locations of roads, infrastructure and greenspace as well as building allotments, and water sensitive urban design.
- **Riparian Management (RM**): Vegetation management in riparian areas will assist in minimising salt export to streams.
- **Urban Investigations (UI**): The landscape contains significant salinity, and geological situations that predispose salinity development. Assessment of the location, intensity and scale of salinity is needed. There are areas of sensitive sodic soils, particularly in drainage lines that need to be identified.
- **Urban Construction (UC**): Construction on saline land will require salt resistant/ resilient materials. The typical slope gradient of this HGL requires careful consideration of depth of cut and location of roads on hillslopes; and all infrastructure, including underground utilities.

Specific Land Management Opportunities

A range of specific opportunities exist for this HGL:

- Highly vegetated landscape
- Small salt sites are easily managed
- Deep drainage and high recharge reduce potential for local salinity

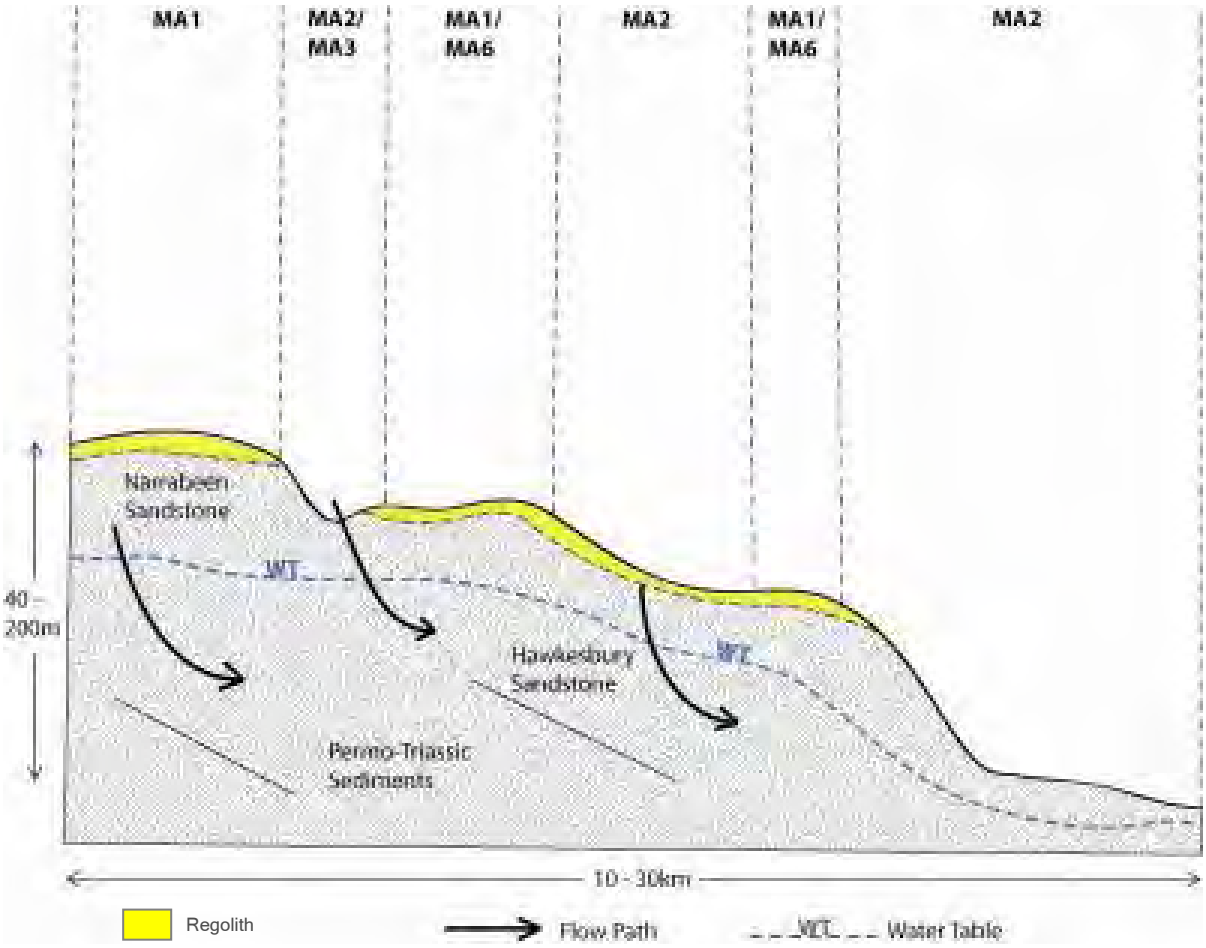
- Discharge management – integrated use of urban salinity management practices (salt resistant/resilient materials, water management) consistent with building codes would enable protection of infrastructure and dwellings.

Specific Land Management Constraints

Constraints for land management in this HGL include:

- Incidence of erosion and steep slopes may affect construction activities such as cut-and-fill, building of foundations and retaining walls.
- Locally connected aquifer systems may impact on water quality

Specific Targeted Actions



Hawkesbury HGL management cross-section (Refer to following table for explanation of codes)

MANAGEMENT AREA (MA)	ACTION (URBAN)
MA1 (RIDGES)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)**
MA2 (UPPER SLOPES EROSIONAL)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)**
MA1/6 (RIDGES AND RISES)	**Urban Vegetation** Retain or establish areas of deep-rooted salt tolerant indigenous vegetation to manage recharge or discharge sites **(UV1)** Promote the retention and establishment of deep-rooted vegetation that maximises water use in new urban development areas **(UV2)** **Urban Management** Minimise leakage of standing water bodies, pools, lakes and service pipes **(UM1)** **Urban Planning** Minimise use of infiltration and detention of stormwater in hazard areas, consider lining of detention systems to prevent infiltration (i.e. reconsider WSUD implications in relation to salinity management) **(UP2)** **Urban Investigations** Investigate concentration and composition of salts in the soil profile, groundwater and surface waters during initial site assessment to determine salinity hazard **(UI1)** Identify and manage sodic soils **(UI3)** **Urban Construction** Minimise depth of cut and exposure of susceptible soils during development. Ensure fill material interface is not saline **(UC1)** Deep drainage should be minimised by maximising surface water runoff and drainage **(UC2)**
MA10 (RIPARIAN ALLUVIAL CHANNEL)	**Riparian Management** Retain or re-establish areas of effectively vegetated riparian buffer zones to manage discharge areas (preferably salt tolerant indigenous vegetation) **(RM1)** Maintain/re-establish effective vegetated riparian buffer zones **(RM2)**

High Hazard Land Use

AT RISK MANAGEMENT AREAS	ACTION
MA1, MA2, MA1/6	Avoid deep cut and exposure of erodable soils during development when establishing infrastructure and dwellings. Careful consideration should be given to the siting of new roads and infrastructure.
MA10	Avoid obstruction to surface and sub-surface drainage that will cause wet areas creating waterlogging and salt mobilisation

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Stroud W.J., Sherwin L., Roy H.N. and Baker C.J. 1985, *Wollongong - Port Hacking 1:100 000 Geological Sheet 9029-9129*, 1st edition. Geological Survey of New South Wales, Sydney

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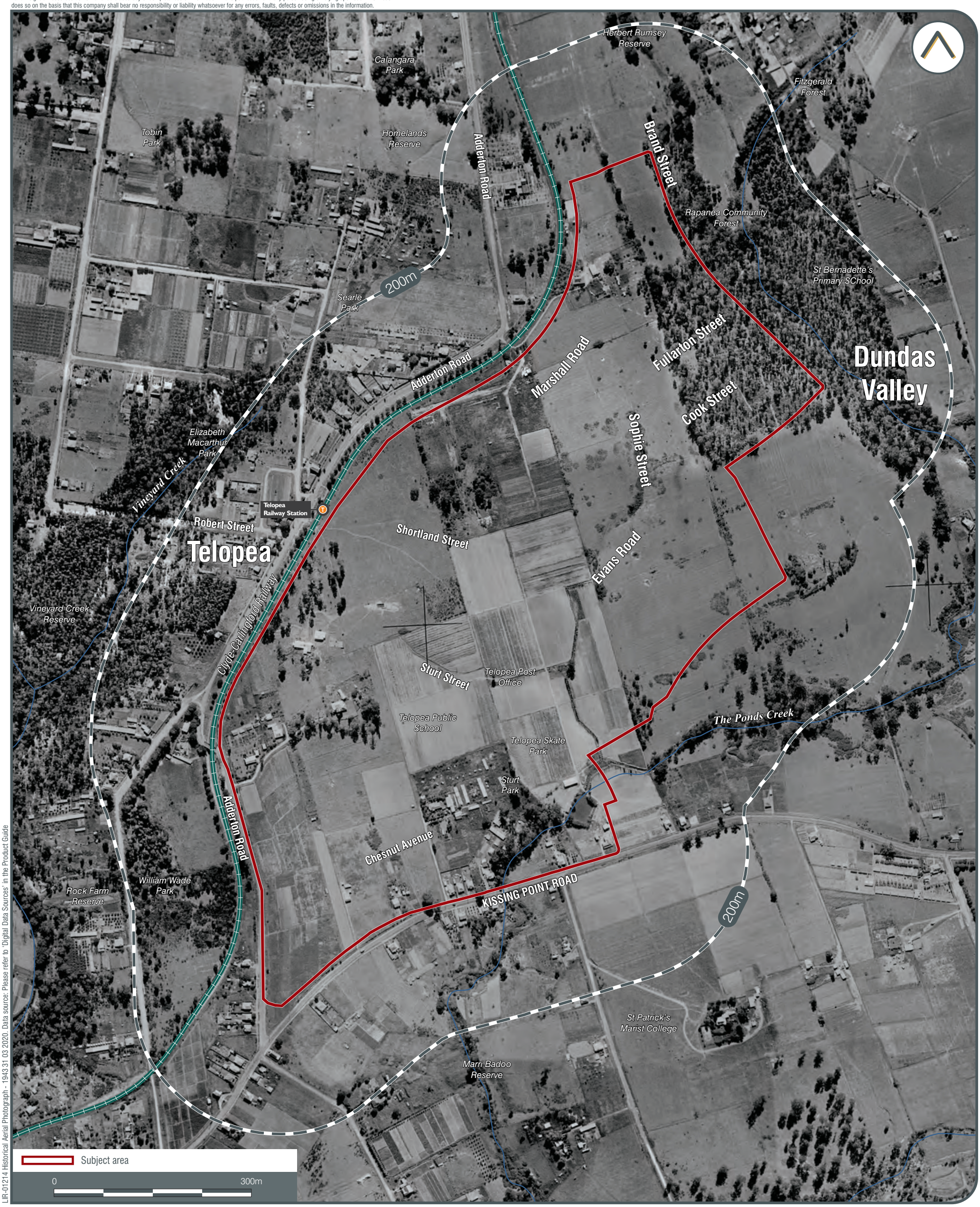
ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX D: HISTORICAL AERIAL PHOTOGRAPHS



LIR-01214 Historical Aerial Photograph - 1943 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1943

LAND INSIGHT & RESOURCES

MAP 1

LIR-01214 Historical Aerial Photograph - 1955 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1955

LAND INSIGHT & RESOURCES

MAP 2

LIR-01214 Historical Aerial Photograph - 1965 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1965

LAND INSIGHT & RESOURCES

MAP 3

LIR-01214 Historical Aerial Photograph - 1971 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1971

LAND INSIGHT & RESOURCES

MAP 4

LIR-01214 Historical Aerial Photograph - 1975 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1975

LAND INSIGHT & RESOURCES

MAP 5

LIR-01214 Historical Aerial Photograph - 1986 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1986

LAND INSIGHT & RESOURCES

MAP 6

LIR-01214 Historical Aerial Photograph - 1991 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1991

LAND INSIGHT & RESOURCES

MAP 7

LIR-01214 Historical Aerial Photograph - 1994 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 1994

LAND INSIGHT & RESOURCES

MAP 8

LIR-01214 Historical Aerial Photograph - 2004 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 2004

LAND INSIGHT & RESOURCES

MAP 9

LIR-01214 Historical Aerial Photograph - 2007 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 2007

LAND INSIGHT & RESOURCES

MAP 10

LIR-01214 Historical Aerial Photograph - 2010 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 2010

LAND INSIGHT & RESOURCES

MAP 11

LIR-01214 Historical Aerial Photograph - 2014 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 2014

LAND INSIGHT & RESOURCES

MAP 12

LIR-01214 Historical Aerial Photograph - 2020 31 03 2020. Data source: Please refer to 'Digital Data Sources' in the Product Guide

HISTORICAL AERIAL PHOTOGRAPH - 2020

LAND INSIGHT & RESOURCES

MAP 13

APPENDIX E: HISTORICAL TITLE CERTIFICATES

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

02nd April 2020

LAND INSIGHT AND RESOURCES PTY LTD
4/4307 Daydream Street,
Warriewood NSW 2102

Attention: Tim Osborne,

RE: **19 Sturt Street,**
Telopea

Current Search

Folio Identifier 1716/213180 (title attached)
DP 213180 (plan attached)
Dated 31st March, 2020
Registered Proprietor:
THE HOUSING COMMISSION OF NEW SOUTH WALES

Title Tree
Lot 1716 DP 213180

Folio Identifier 1716/213180

Certificate of Title Volume 9422 Folio 77

Certificate of Title Volume 7700 Folio 205

See Notes (a), (b), (c) & (d)

(a)

CTVol 5273 Folio 63

CTVol 1159 Folio 81

****

(b)

CTVol 3948 Folio 97

CTVol 2921 Folio's 201 & 202

****

(c)

CTVol 2680 Folio 160

****

(d)

CTVol 2680 Folio 134

****

Summary of Proprietor(s)
Lot 1716 DP 213180

Year	Proprietor (s)
	(Lot 1716 DP 213180)
1988 – todate	The Housing Commission of New South Wales
	(Lot 1716 DP 213180 – CTVol 9422 Fol 77)
1963 – 1988	The Housing Commission of New South Wales
	(Part Portions 157, 158 & 110 Parish Field of Mars and other lands – CTVol 7700 Fol 205)
1959 – 1963	The Housing Commission of New South Wales

See Notes (a), (b), (c) & (d)

Note (a)

	(Lot A DP 345313 – Area 8 Acres 0 Roods 37 ¾ Perches – CTVol 5273 Fol 63)
1947 – 1959	The Housing Commission of New South Wales
1941 – 1947	Arthur Farquhar Webster, bacteriologist
	(Part Lots 7 & 8 DP 2522 – Area 5 Acres 0 Roods 5 ½ Perches – CTVol 1159 Fol 81)
1938 – 1941	Kenneth Victor Randolph Douglas, bank manager
1936 – 1938	Michael Barry, builder
1936 – 1936	John Jeremiah Leahy, grazier
1936 – 1936	Frederick Ernest Spurway, nursery man
1895 – 1936	Charles Robert Mobbs, fruit grower

****

Note (b)

	(Part Lot 8 DP 2522 – Area 8 Acres – CTVol 3948 Fol 97)
1947 – 1959	The Housing Commission of New South Wales
1937 – 1947	Arthur Yates & Co Pty Limited
1926 – 1937	William Maxwell, engineer Bertha Maxwell, his wife
	(Part Lot 8 DP 2522 – Area 8 Acres – CTVol 2921 Fol's 201 & 202)
1919 – 1926	Thomas Todorovich, nurseryman John Todorovich, nurseryman

****

Note (c)

	(Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160)
1947 – 1959	The Housing Commission of New South Wales
1938 – 1947	Adelaide Bice Pilz, widow
1916 – 1938	Henry Charles William Pitz, builder

****

Note (d)

	(Part Portion 158 Parish Field of Mars – Area 17 Acres 2 Roods 7 Perches – CTVol 2680 Fol 134)
1947 – 1959	The Housing Commission of New South Wales
1936 – 1947	Arthur Yates & Co Pty Limited
1920 – 1936	George Kirby McArthur, orchardist
1916 – 1920	Caleb Moses Smith, orchardist

****

ADVANCE LEGAL SEARCHERS PTY LTD

(ACN 147 943 842)
ABN 82 147 943 842

18/36 Osborne Road,
Manly NSW 2095

Telephone: +612 9977 6713
Mobile: 0412 169 809
Email: search@alsearchers.com.au

02nd April 2020

LAND INSIGHT AND RESOURCES PTY LTD
4/4307 Daydream Street,
Warriewood NSW 2102

Attention: Tim Osborne,

RE: **25 Bourke Street**
Telopea

Current Search

Folio Identifier 138/36691 (title attached)
DP 36691 (plan attached)
Dated 31st March, 2020
Registered Proprietor:
THE HOUSING COMMISSION OF NEW SOUTH WALES

Title Tree
Lot 138 DP 36691

Folio Identifier 138/36691

Certificate of Title Volume 13229 Folio 50

Certificate of Title Volume 8407 Folio 156

Certificate of Title Volume 7700 Folio 205

Certificate of Title Volume 2680 Folio 160

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Summary of Proprietor(s)
Lot 138 DP 36691

Year	Proprietor (s)
	(Lot 138 DP 36691)
1988 – todate	The Housing Commission of New South Wales
	(Lot 138 DP 36691 – CTVol 13229 Fol 50)
1977 – 1988	The Housing Commission of New South Wales
	(Lots 85 to 164 DP 36691 and other lands – CTVol 8407 Fol 156)
1963 – 1977	The Housing Commission of New South Wales
	(Part Portions 156 & 157 Parish Field of Mars and other lands – CTVol 7700 Fol 205)
1959 – 1963	The Housing Commission of New South Wales
	(Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160)
1947 – 1959	The Housing Commission of New South Wales
1938 – 1947	Adelaide Bice Pilz, widow
1916 – 1938	Henry Charles William Pitz, builder

****

ADVANCE LEGAL SEARCHERS PTY LTD

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02nd April 2020

LAND INSIGHT AND RESOURCES PTY LTD
4/4307 Daydream Street,
Warriewood NSW 2102

Attention: Tim Osborne,

RE: **26 Marshall Road,**
Telopea

Current Search

Folio Identifier 251/36743 (title attached)
DP 36743 (plan attached)
Dated 31st March, 2020
Registered Proprietor:
THE HOUSING COMMISSION OF NEW SOUTH WALES

Title Tree
Lot 251 DP 36743

Folio Identifier 251/36743

Certificate of Title Volume 13364 Folio 136

Certificate of Title Volume 8451 Folio 143

Certificate of Title Volume 7700 Folio 205

Certificate of Title Volume 2680 Folio 160

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Summary of Proprietor(s)
Lot 251 DP 36743

Year	Proprietor (s)
	(Lot 251 DP 36743)
1988 – todate	The Housing Commission of New South Wales
	(Lot 251 DP 36743 – CTVol 13364 Fol 136)
1977 – 1988	The Housing Commission of New South Wales
	(Lots 219A, 219B, Lots 220 to 237 & Lots 239 to 345 DP 36743 and other lands – CTVol 8451 Fol 143)
1963 – 1977	The Housing Commission of New South Wales
	(Part Portions 157, 158 & 110 Parish Field of Mars and other lands – CTVol 7700 Fol 205)
1959 – 1963	The Housing Commission of New South Wales
	(Land in DP 953375 – Area 12 Acres – CTVol 2680 Fol 160)
1947 – 1959	The Housing Commission of New South Wales
1938 – 1947	Adelaide Bice Pilz, widow
1916 – 1938	Henry Charles William Pitz, builder

****

Cadastral Records Enquiry Report : Lot 1716 DP 213180

Ref : NOUSER

Locality : TELOPEA
Parish : FIELD OF MARS
LGA : CITY OF PARRAMATTA
County : CUMBERLAND

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP36691			
Lot(s): S			
DP1112596	REGISTERED	SURVEY	EASEMENT
Lot(s): 168			
SP89263	PRE-ALLOCATED	UNAVAILABLE	STRATA PLAN
DP36692			
Lot(s): 427			
DP1237804	WITHDRAWN	UNAVAILABLE	SUBDIVISION
DP1103349			
Lot(s): 100, 101			
DP36692	HISTORICAL	SURVEY	UNRESEARCHED
DP1169762			
Lot(s): 1, 2			
DP36692	HISTORICAL	SURVEY	UNRESEARCHED
DP1169946			
Lot(s): 100, 101			
DP216673	HISTORICAL	SURVEY	SUBDIVISION
DP1236665	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
Lot(s): 101			
NSW GAZ. 26-06-2015 Folio : 1927 VESTED IN THE HUME COMMUNITY HOUSING ASSOCIATION CO LTD - LOT 101 DP1169946			
DP1186793			
Lot(s): 171			
DP213180	HISTORICAL	SURVEY	SUBDIVISION
DP1189769			
Lot(s): 101, 102			
DP36692	HISTORICAL	SURVEY	UNRESEARCHED
SP85387			
DP409603	HISTORICAL	SURVEY	UNRESEARCHED
DP1158811	HISTORICAL	SURVEY	CONSOLIDATION
SP93190			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1205304	HISTORICAL	SURVEY	CONSOLIDATION
DP1228498	REGISTERED	SURVEY	EASEMENT
SP93642			
DP409603	HISTORICAL	SURVEY	UNRESEARCHED
DP409604	HISTORICAL	SURVEY	UNRESEARCHED
DP1049301	HISTORICAL	SURVEY	SUBDIVISION
SP94915			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1228065	HISTORICAL	SURVEY	REDEFINITION
SP95474			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1216958	HISTORICAL	SURVEY	REDEFINITION

Plan	Surv/Comp	Purpose
DP36691	SURVEY	UNRESEARCHED
DP36692	SURVEY	UNRESEARCHED
DP36743	SURVEY	UNRESEARCHED
DP36812	SURVEY	UNRESEARCHED
DP36841	SURVEY	UNRESEARCHED
DP128229	COMPILATION	DEPARTMENTAL
DP212329	SURVEY	SUBDIVISION
DP213180	SURVEY	SUBDIVISION
DP596499	SURVEY	SUBDIVISION
DP612605	SURVEY	SUBDIVISION
DP811709	SURVEY	SUBDIVISION
DP1103349	SURVEY	SUBDIVISION
DP1169762	SURVEY	SUBDIVISION
DP1169762	UNRESEARCHED	SUBDIVISION
DP1169946	SURVEY	SUBDIVISION
DP1169946	UNRESEARCHED	SUBDIVISION
DP1186793	COMPILATION	CONSOLIDATION
DP1189769	SURVEY	SUBDIVISION
SP44366	COMPILATION	STRATA PLAN
SP44367	COMPILATION	STRATA PLAN
SP85387	COMPILATION	STRATA PLAN
SP93190	COMPILATION	STRATA PLAN
SP93642	COMPILATION	STRATA PLAN
SP93642	UNRESEARCHED	STRATA PLAN
SP94915	COMPILATION	STRATA PLAN
SP95474	COMPILATION	STRATA PLAN

[redacted]

M

NEW SOUTH WALES

(For Grant and title reference prior to first edition see Deposited Plan.)

CERTIFICATE OF TITLE

PROPERTY ACT, 1900, as amended.

Vol. 9422 Fol. 77

1st Edition issued 30-4-1963.

Vol. 9422 Fol. 77 (Page 1)

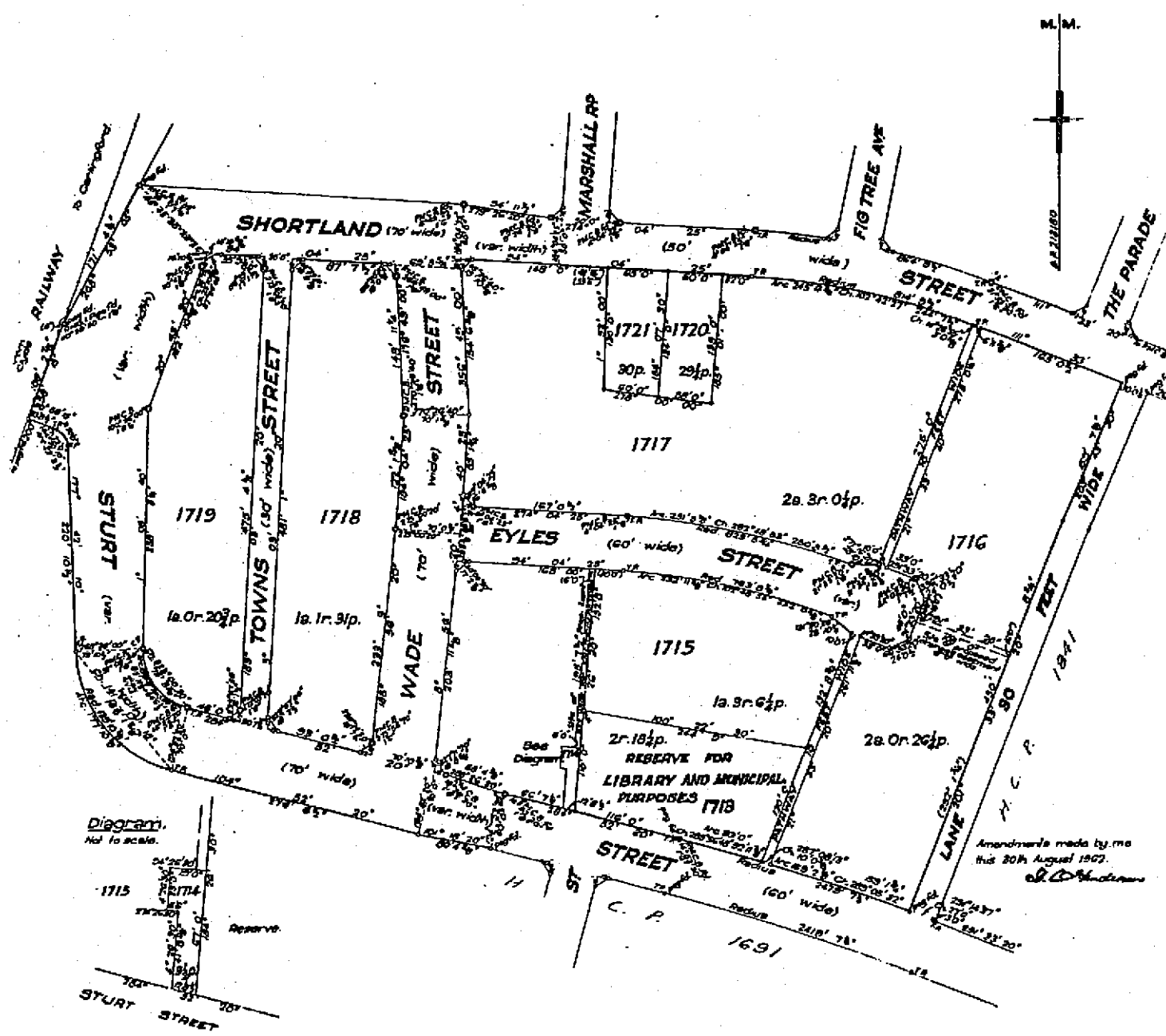
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness B Bailey

CANCELLED

Registrar-General.

PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO.

Estate in Fee Simple in Lot 1716 in Deposited Plan 213180 at Dundas in the City of Parramatta Parish of Field of Mars and County of Cumberland.

FIRST SCHEDULE (Continued overleaf)

THE HOUSING COMMISSION OF NEW SOUTH WALES.

Registrar General.

GRN

SECOND SCHEDULE (Continued overleaf)

ST 1609 V. C. N. BLIGHT, GOVERNMENT PRINTER

Vol. 9422 Fol 177

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar-General
CANCELLED SEE AUTO FOLIO					

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar-General	CANCELLATION
Transfer	T613010P	16.3.1964	Easement for Drainage (as more fully set out in the said instrument) affecting the site of proposed Drainage Easement 6 feet wide shewn within Lot 1716 in the plan hereon. DP213180	21.4.1964.		

ED

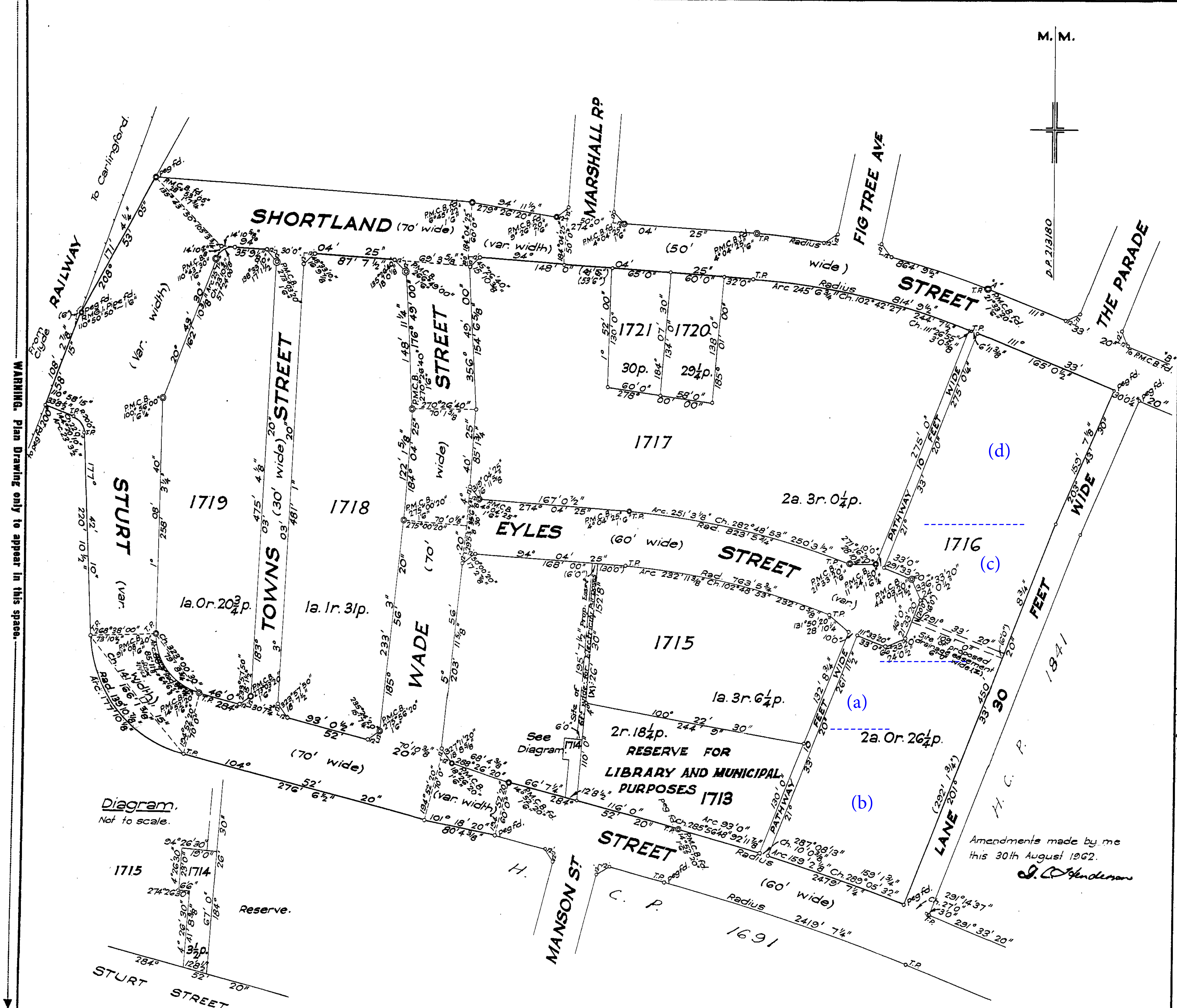
(Page 2 of 2 pages)

FORM No. 184A

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR-GENERAL ARE CANCELLED

Form 3 — TO BE USED WHERE DEDICATIONS, DRAINAGE RESERVES AND PUBLIC GARDEN AND RECREATION SPACES ARE PROVIDED.

WARNING. Plan Drawing only to appear in this space.



1.5799 S.328 V/1848 QQ/1848

Ref. 2337

WARNING. Plan Drawing only to appear in this space.

DP213180 (E)

Registered: [redacted] 22.3.1963

C.A. ....

Title System: Torrens

Purpose: Subdivision

Ref. Map: Dundas Valley Project

Last Plan: 50750(L) & DP.2522(PE)

OFFICE USE ONLY.

PLAN OF Subdivision of part of land in C.T. Vol. 7700 Fol. 205

Scale: 80 FEET to an inch

Mun./Shire City: PARRAMATTA

Locality: DUNDAS

Parish: Field of Mars

County: Cumberland

I, Donald Clifton Henderson of 13 Bligh St, Sydney a surveyor registered under the Surveyors Act, 1929, as amended, hereby certify that the survey represented in this plan is accurate and has been made * (1) by me ~~(2) under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on †18th Sept. 1961.

Signature. D. C. Henderson

Surveyor registered under Surveyors Act, 1929, as amended.
Datum Line of Azimuth. A–B

Statements of Dedications, Easements.
(Signatures and Seals to appear in panel provided.)

It is intended to create an easement for drainage purposes over the land shown as site of proposed drainage easement 6ft. wide within lot 1716 in favour of Parramatta City Council.

It is intended to create an easement for electricity purposes over the land shown as site of proposed easement 6ft wide for electricity purposes within lot 1715 in favour of the Sydney County Council.

* Strike out either (1) or (2). † Insert date of survey.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.

I hereby ... for regis... division a...
Subdivisio...
Council C...
Approve...
The Com...
was here...
of Counc...
Council C...
Mayor/Pr...

DP213180 (E)

Registered: 22.3.1963

C.A. ....

Title System: Torrens

Purpose: Subdivision

Ref. Map: Dundas Valley Project

Last Plan: 5075(L) & DP 2522 (Pt)

OFFICE USE ONLY.

PLAN OF Subdivision of part of land in C.T. Vol. 7700 Fol. 205

Scale: 80 FEET to an inch

Mun./Shire City: PARRAMATTA

Locality: DUNDAS

Parish: Field of Mars

County: Cumberland

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Surveyor registered under Surveyors Act, 1929, as amended.
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* Strike out either (1) or (2). † Insert date of survey.

WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION.

SIGNATURES AND SEALS ONLY.

I hereby certify that the requirements of the Local Government Act, 1919 (other than the requirements for registration of plans), have been complied with by the applicant in relation to the proposed subdivision and new road(s) set out herein.

Subdivision No. .... Date ....

Council Clerk ....

Approved by Council.
The Common Seal of The Council of the ....
was hereunto affixed on .... pursuant to a resolution of Council passed on ....

Council Clerk ....

Mayor/President ....

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 213180

FEET	INCHES	METRES
-	1 3/4	0.044
-	6	0.152
1	6	0.457
1	6 1/4	0.464
1	7 1/2	0.495
1	7 3/4	0.502
3	-	0.914
3	0 5/8	0.930
5	6 1/4	1.683
6	-	1.829
6	6	1.981
6	11 3/8	2.118
10	-	3.048
10	0 3/8	3.058
12	-	3.658
12	8 1/2	3.874
14	10 3/8	4.531
14	10 5/8	4.537
15	1 1/2	4.610
15	3 5/8	4.664
15	7 1/4	4.756
15	10 3/8	4.836
15	11 3/4	4.870
16	9 7/8	5.128
16	11 5/8	5.172
17	1 1/2	5.220
17	2 7/8	5.255
17	4 1/4	5.290
18	0 1/8	5.490
18	7 1/2	5.677
18	8 5/8	5.705
19	-	5.791
20	-	6.096
22	-	6.706
22	9	6.934
23	-	7.010
23	3 1/2	7.099
23	10 5/8	7.280
24	0 1/2	7.328
25	7 1/4	7.804
27	-	8.230
28	4 3/8	8.646
28	10 1/4	8.795
29	5 3/8	8.976
30	-	9.144
30	0 1/4	9.150
30	6 7/8	9.319
30	7 3/4	9.341
32	-	9.754
33	-	10.058
33	8 1/2	10.274
35	9 1/8	10.900
41	8 3/8	12.710
41	8 5/8	12.716
45	-	13.716
46	-	14.021
50	-	15.240
53	6	16.307
58	-	17.678
60	-	18.288
64	6 5/8	19.675
65	-	19.812
66	7 1/4	20.301
67	-	20.422
68	4 3/8	20.838
68	4 3/8	20.838
69	3 5/8	21.123
70	-	21.336
70	0 1/8	21.339
70	1 5/8	21.377
70	10 3/8	21.600
73	10 1/2	22.517
79	8 3/4	24.301
80	4 3/8	24.495
80	4 3/8	24.495
85	1 3/4	25.952
85	11 1/8	26.191

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 213180 CONTINUED

FEET	INCHES	METRES
87	7 1/2	26.708
92	11 7/8	28.343
93	-	28.346
93	0 1/2	28.359
94	11 1/2	28.943
105	3 3/4	32.099
108	2 7/8	32.991
109	-	33.223
110	-	33.528
116	-	35.357
122	1 5/8	37.227
130	-	39.624
132	8 3/4	40.456
134	-	40.843
138	-	42.062
139	10 7/8	42.643
148	-	45.110
148	11 1/4	45.396
152	8	46.533
154	6 5/8	47.107
159	1 3/4	48.508
159	2 1/8	48.517
159	7 1/8	48.644
162	10 3/8	49.641
165	0 1/2	50.305
166	1 3/8	50.632
167	0 1/2	50.914
168	-	51.206
171	4 1/4	52.229
177	0 1/8	53.953
177	10 1/8	54.207
195	7 1/2	59.627
200	-	60.960
203	11 5/8	62.170
220	10 1/2	67.323
232	0 5/8	70.729
232	11 3/8	71.003
233	3	71.095
244	7 1/2	74.562
245	6 3/4	74.847
250	3 1/2	76.289
251	3 1/8	76.584
251	3 1/4	76.587
258	3 1/4	78.721
261	11 1/2	79.845
275	-	83.820
275	0 1/4	83.826
275	0 1/2	83.833
276	6 1/2	84.290
292	1 3/4	89.046
450	-	137.160
475	4 1/8	144.885
481	1	146.634
763	5 3/4	232.708
814	9 1/2	248.349
823	5 3/4	250.996
864	9 1/2	263.589
1275	-	388.620
2419	7 1/4	737.495
2479	7 1/4	755.783

AC	RD	P	SQ M
-	-	3 1/2	88.5
-	-	29 1/4	739.8
-	-	30	758.8
-	2	18 1/4	2485
1	-	20 3/4	4572
1	1	31	5843
1	3	6 1/4	7240
2	-	26 1/4	8758

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 213180 CONTINUED

AC	RD	P	HA
2	3	1/4	1.114

Req:R752020 /Doc:DP 0213180 P /Rev:02-Mar-2000 /Sts:OK.OK /Prt:10-Nov-2009 08:17 /Pgs:ALL /Seq:3 of 4
Ref:ALSP /Src:M

Form 3 — **TO BE USED WHERE DEDICATIONS, DRAINAGE RESERVES AND PUBLIC GARDEN AND RECREATION SPACES ARE PROVIDED.**

Ⓔ DP213180

WARNING. Plan Drawing only to appear in this space.

SHORTLAND (70' wide)

MARSHALL Rd (var. width)

RAILWAY (Var. width)

STURT STREET (Var. width)

TOWNS STREET (30' wide)

WADE STREET (70' wide)

EYLES STREET (60' wide)

MANSON ST

STURT STREET

To Carlingford.

From Clyde

to peg fd.

1719

1718

1717

1721

1720

1715

1714

1713

1la. 0r. 20 3/4 p.

1a. 1r. 3lp.

2r. 18 1/4 p.

30p.

29 1/4 p.

3 1/2 p.

RESERVE FOR LIBRARY AND MU... PURPOSES

See Diagram.

Diagram.
Not to scale.

Reserve.

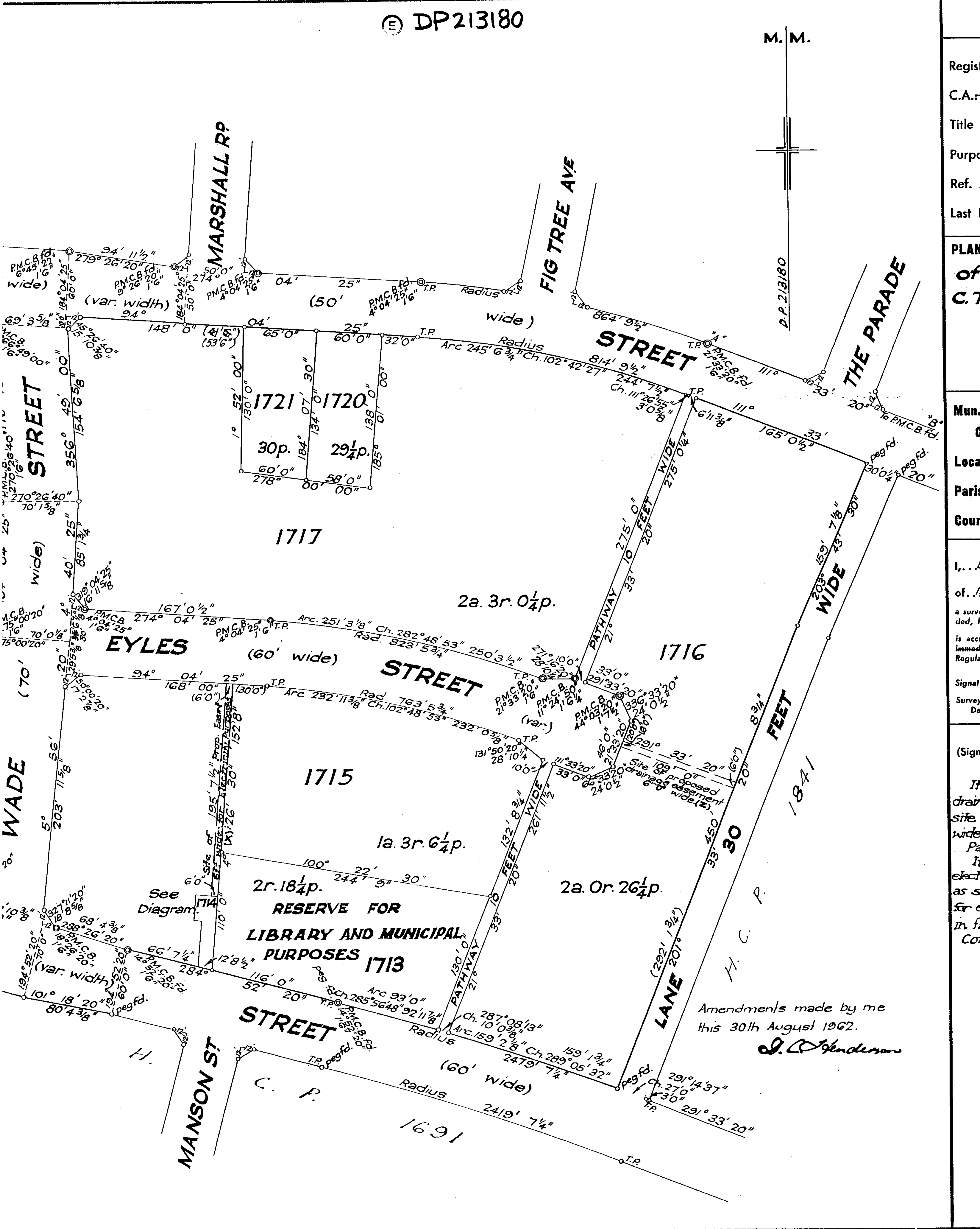
1.5799 S.328 V/1848
QQ/1848

Ref. 2337

WARNING. Plan Drawing only to appear in this space.

.IC GARDEN AND RECREATION SPACES ARE PROVIDED.

(E) DP213180



WARNING. Plan Drawing only to appear in this space.

Ref. 2337

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1716/213180

SEARCH DATE	TIME	EDITION NO	DATE
31/3/2020	2:58 PM	-	-

VOL 9422 FOL 77 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 1716 IN DEPOSITED PLAN 213180
AT DUNDAS
LOCAL GOVERNMENT AREA CITY OF PARRAMATTA
PARISH OF FIELD OF MARS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP213180

FIRST SCHEDULE

THE HOUSING COMMISSION OF NEW SOUTH WALES

SECOND SCHEDULE (1 NOTIFICATION)

1 J613010 EASEMENT FOR DRAINAGE AFFECTING THE DRAINAGE EASEMENT 6 FEET WIDE SHOWN WITHIN LOT 1716 IN DP213180

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 31/3/2020

Cadastral Records Enquiry Report : Lot 138 DP 36691

Ref : NOUSER

Locality : TELOPEA
Parish : FIELD OF MARS
LGA : CITY OF PARRAMATTA
County : CUMBERLAND

This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP31036			
Lot(s): 4			
DP1256316	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP31217			
Lot(s): 13			
DP1214082	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP36691			
Lot(s): 142			
DP1247826	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
Lot(s): S			
DP1112596	REGISTERED	SURVEY	EASEMENT
DP128244			
Lot(s): 1			
DP1242215	REGISTERED	SURVEY	EASEMENT
DP1066392			
Lot(s): 1			
DP31036	HISTORICAL	SURVEY	UNRESEARCHED
DP1078850			
Lot(s): 1, 2			
DP20393	HISTORICAL	SURVEY	UNRESEARCHED
DP1119566			
Lot(s): 201, 202			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP377991	HISTORICAL	SURVEY	UNRESEARCHED
DP1000480	HISTORICAL	SURVEY	SUBDIVISION
DP1092701	HISTORICAL	SURVEY	SUBDIVISION
DP1147957			
Lot(s): 171, 172			
DP31217	HISTORICAL	SURVEY	UNRESEARCHED
DP1152421			
Lot(s): 1, 2			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1157141			
Lot(s): 1, 2			
DP31217	HISTORICAL	SURVEY	UNRESEARCHED
DP1174937			
Lot(s): 1, 2			
DP200858	HISTORICAL	SURVEY	SUBDIVISION
DP1177668			
Lot(s): 1, 2			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1188258			
Lot(s): 102			
DP668822	HISTORICAL	COMPILATION	DEPARTMENTAL
DP915311	HISTORICAL	COMPILATION	UNRESEARCHED
DP915344	HISTORICAL	COMPILATION	UNRESEARCHED
DP1185771	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1185783	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
CA167382 - LOT 207 DP1185771			
CA167388 - LOT 208 DP1185783			
DP1191841			
Lot(s): 1, 2			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1194932			
Lot(s): 1			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1198171	REGISTERED	SURVEY	EASEMENT
DP1195153			
Lot(s): 1, 2			
DP544524	HISTORICAL	SURVEY	SUBDIVISION

	Status	Surv/Comp	Purpose
DP1196251			
Lot(s): 100, 101			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1197346			
Lot(s): 10, 11			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1199205			
Lot(s): 110, 111			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1200878			
Lot(s): 1, 2			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1206235			
Lot(s): 931, 932			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1214989			
Lot(s): 1, 2			
DP31217	HISTORICAL	SURVEY	UNRESEARCHED
DP1251238			
Lot(s): 31, 32			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
SP69740			
DP409603	HISTORICAL	SURVEY	UNRESEARCHED
DP409604	HISTORICAL	SURVEY	UNRESEARCHED
DP1049301	HISTORICAL	SURVEY	SUBDIVISION
SP78006			
DP709679	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1099721	HISTORICAL	SURVEY	REDEFINITION
SP82646			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP377991	HISTORICAL	SURVEY	UNRESEARCHED
DP1000480	HISTORICAL	SURVEY	SUBDIVISION
DP1092701	HISTORICAL	SURVEY	SUBDIVISION
SP83071			
DP656063	HISTORICAL	COMPILATION	DEPARTMENTAL
DP714346	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1142447	HISTORICAL	SURVEY	CONSOLIDATION
SP85124			
DP709657	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1179169	HISTORICAL	SURVEY	REDEFINITION
SP88430			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1186481	HISTORICAL	SURVEY	REDEFINITION
SP89522			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1194272	HISTORICAL	SURVEY	REDEFINITION
SP91231			
DP20393	HISTORICAL	SURVEY	UNRESEARCHED
DP1206649	HISTORICAL	SURVEY	CONSOLIDATION
SP91707			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP410820	HISTORICAL	SURVEY	UNRESEARCHED
DP1203959	HISTORICAL	SURVEY	CONSOLIDATION
SP92121			
DP36691	HISTORICAL	SURVEY	UNRESEARCHED
DP1202500	HISTORICAL	SURVEY	CONSOLIDATION
SP92618			
DP656062	HISTORICAL	COMPILATION	DEPARTMENTAL
DP1214972	HISTORICAL	SURVEY	REDEFINITION

Status	Surv/Comp	Purpose

Road
Polygon Id(s): 105010251
EX-SUR 2015-03

Plan	Surv/Comp	Purpose
DP20393	SURVEY	UNRESEARCHED
DP24969	SURVEY	UNRESEARCHED
DP31036	SURVEY	UNRESEARCHED
DP31217	SURVEY	UNRESEARCHED
DP36691	SURVEY	UNRESEARCHED
DP128244	COMPILATION	DEPARTMENTAL
DP200408	SURVEY	SUBDIVISION
DP200858	SURVEY	SUBDIVISION
DP217075	SURVEY	SUBDIVISION
DP251502	SURVEY	OLD SYSTEM CONVERSION
DP418114	SURVEY	UNRESEARCHED
DP512074	COMPILATION	SUBDIVISION
DP544524	SURVEY	SUBDIVISION
DP612384	COMPILATION	CONSOLIDATION
DP872245	SURVEY	SUBDIVISION
DP915747	SURVEY	UNRESEARCHED
DP916258	COMPILATION	UNRESEARCHED
DP1066392	SURVEY	SUBDIVISION
DP1078850	SURVEY	SUBDIVISION
DP1119566	SURVEY	SUBDIVISION
DP1147957	SURVEY	SUBDIVISION
DP1147957	UNRESEARCHED	SUBDIVISION
DP1152421	SURVEY	SUBDIVISION
DP1152421	UNRESEARCHED	SUBDIVISION
DP1157141	SURVEY	SUBDIVISION
DP1174937	SURVEY	SUBDIVISION
DP1177668	SURVEY	SUBDIVISION
DP1177668	UNRESEARCHED	SUBDIVISION
DP1188258	SURVEY	CONSOLIDATION
DP1191841	SURVEY	SUBDIVISION
DP1194932	SURVEY	CONSOLIDATION
DP1195153	SURVEY	SUBDIVISION
DP1195153	UNRESEARCHED	SUBDIVISION
DP1196251	SURVEY	SUBDIVISION
DP1196251	UNRESEARCHED	SUBDIVISION
DP1197346	SURVEY	SUBDIVISION
DP1197346	UNRESEARCHED	SUBDIVISION
DP1199205	SURVEY	SUBDIVISION
DP1199205	UNRESEARCHED	SUBDIVISION
DP1200878	SURVEY	SUBDIVISION
DP1200878	UNRESEARCHED	SUBDIVISION
DP1206235	SURVEY	SUBDIVISION
DP1206235	UNRESEARCHED	SUBDIVISION
DP1214989	SURVEY	SUBDIVISION
DP1214989	UNRESEARCHED	SUBDIVISION
DP1251238	SURVEY	SUBDIVISION
SP69740	COMPILATION	STRATA PLAN
SP78006	COMPILATION	STRATA PLAN
SP82646	COMPILATION	STRATA PLAN
SP83071	COMPILATION	STRATA PLAN
SP85124	COMPILATION	STRATA PLAN
SP85124	UNRESEARCHED	STRATA PLAN
SP88430	COMPILATION	STRATA PLAN
SP89522	COMPILATION	STRATA PLAN
SP89522	UNRESEARCHED	STRATA PLAN
SP91231	COMPILATION	STRATA PLAN
SP91707	COMPILATION	STRATA PLAN
SP92121	COMPILATION	STRATA PLAN
SP92121	UNRESEARCHED	STRATA PLAN
SP92618	COMPILATION	STRATA PLAN
SP92618	UNRESEARCHED	STRATA PLAN

NEW SOUTH WALES

C[redacted]ICATE OF TITLE

[redacted] PROPERTY ACT, 1900

Vol. 13229 Fol. 50

Appln No. 6299

Prior Title Vol. 8407 Fol. 156

EDITION ISSUED

CANCELLED 14 1 1977

(Page 1) Vol. 13229 Fol. 50

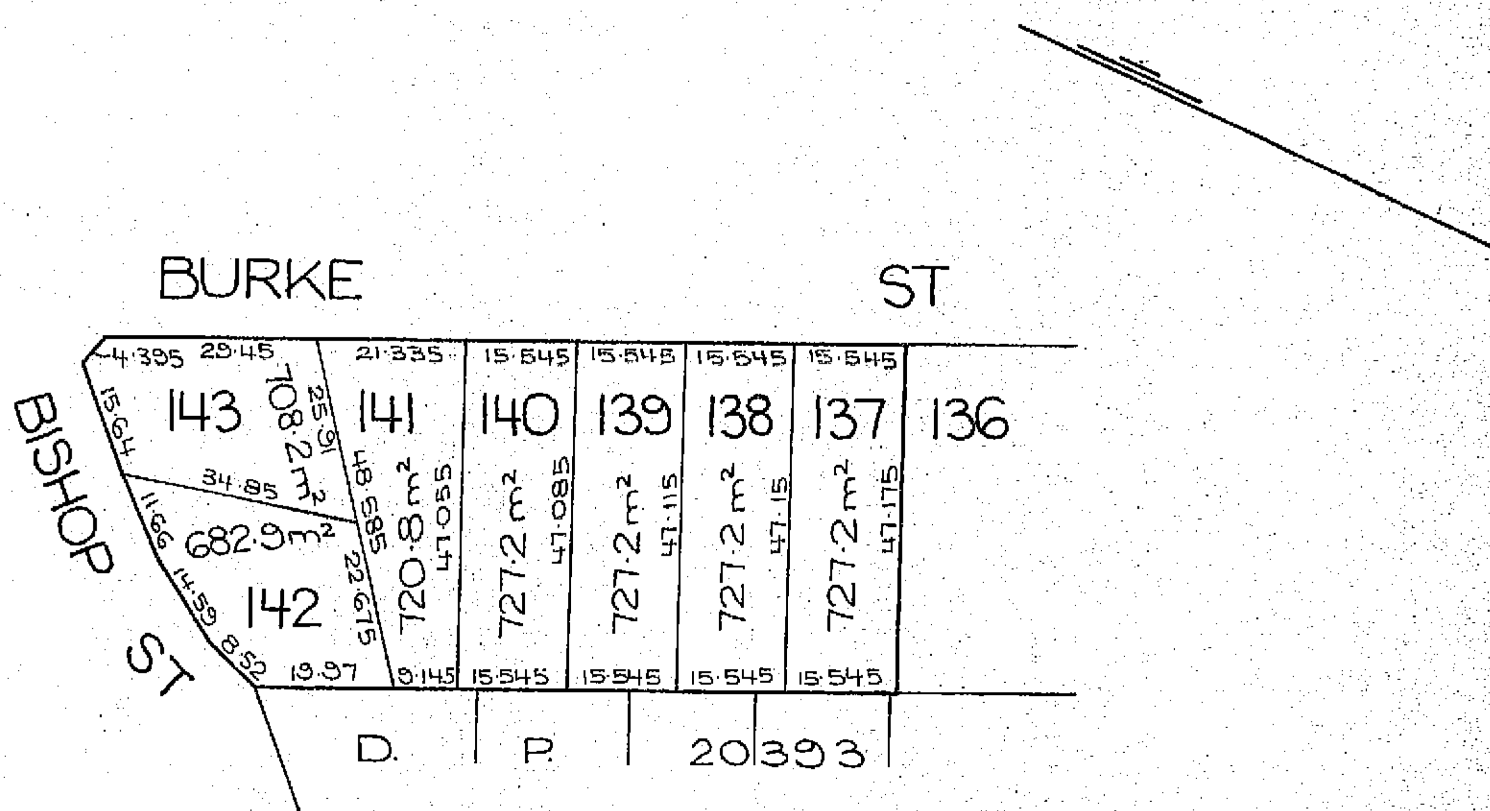
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

SEE AUTO FOLIO

J. Watson
Registrar General.

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



P760610 REDUCTION RATIO 1:1000

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 138 in Deposited Plan 36691 in the City of Parramatta Parish of Field of Mars and County of Cumberland being part of Portion 157 granted to William Hubbard on 22-2-1792 and part of Portion 156 granted to William Wade on 29-9-1792.

FIRST SCHEDULE

THE HOUSING COMMISSION OF NEW SOUTH WALES.

SECOND SCHEDULE

NIL.

ORN

PERSONS ARE CAUTIONED AGAINST ALTERING OR ADDING TO THIS CERTIFICATE OR ANY NOTIFICATION HEREON

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

RG 2/62 NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

Vol. 13229 Fol. 50

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT			ENTERED	Signature of Registrar General
	NATURE	NUMBER	DATE		
CANCELLED					
SEE AUTO FOLIO					

SECOND SCHEDULE (continued)

INSTRUMENT			PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		
NATURE	NUMBER	DATE						

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Plan Form No. 1 (for Deposited Plan)

~~Municipality of~~
~~Shire of~~
City of Parramatta
G610084 13·11·56

DP 36691 (E)

PLAN

of subdivision of part of the land shown
Real Property Application

PARISH OF FIELD OF MARS COUNTY

Scale 80 Feet to an inch

DIAGRAM 'A'
Not to Scale.

5a. Or. 1½p.
~~Ca. Or. 22p.~~

DP 366911 (E)

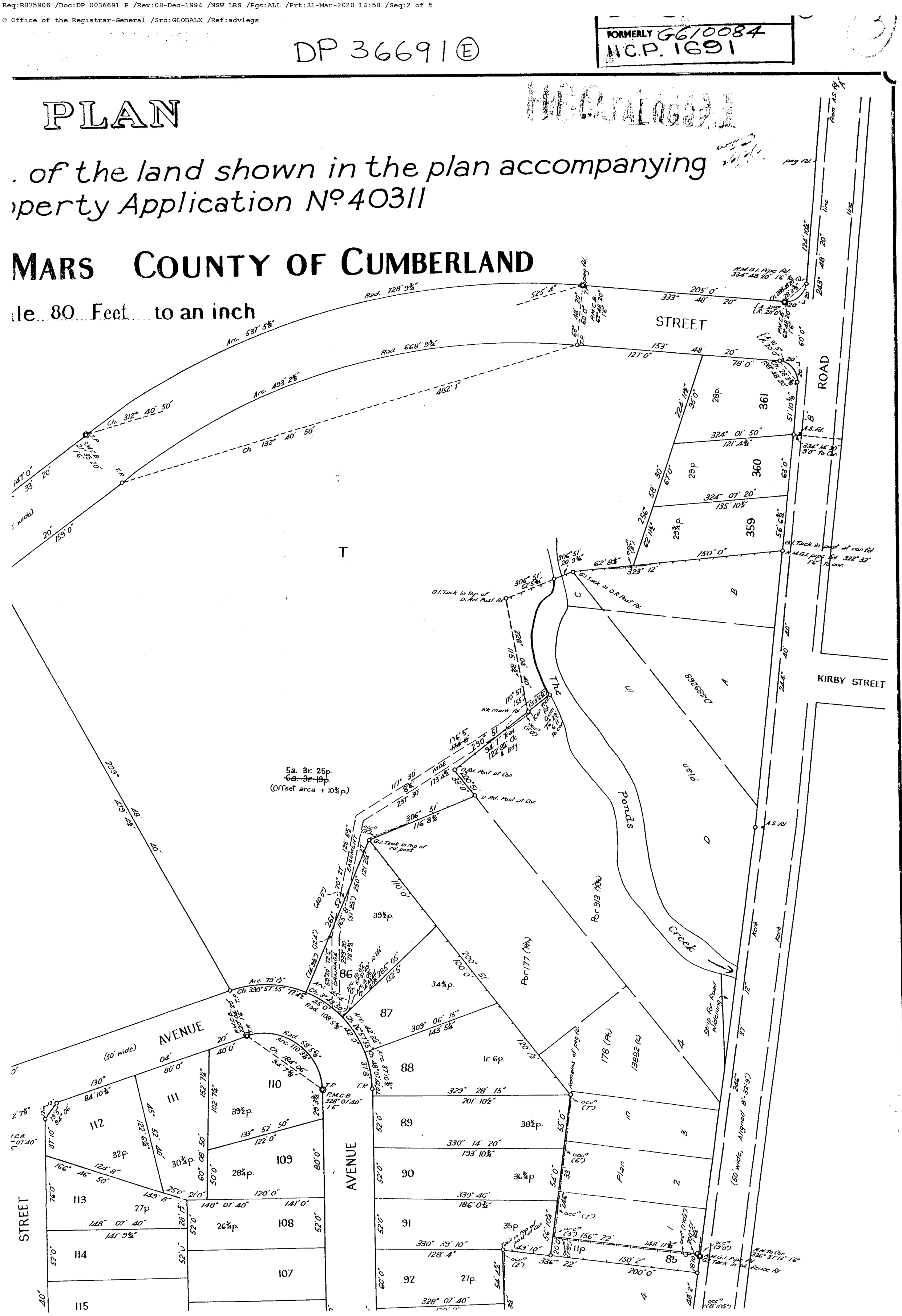
FORMERLY G610084
M.C.P. 1691

PLAN

. of the land shown in the plan accompanying
)perty Application No 40311

MARS COUNTY OF CUMBERLAND

le 80 Feet to an inch



CHESTNUT

POINT

STREET

Right of Way 20' wide

(50' wide)

ROAD

KISSING

DP 36691 (E)

Additions and amendments made by me
this 5th day of September, 1958

T.S. McKeon

Subscribed and declared before me at Sydney
this 12th day of August, A.D. 1956

G. McCarthy J.P.

I, Thomas Stanislaus McKeon. of 13 Bligh St, Sydney.
a Surveyor registered under the Surveyor's Act, 1929-46, do hereby solemnly and sincerely declare (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented, (c) that all physical objects indicated actually exist in the positions shown, (d) that the whole of the material facts in relation to the land are correctly represented, (e) that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1933 *(1) by me (2) ~~under my supervision, the character and extent of which was as required by the Survey Practice Regulations, 1933~~, and was completed on † 15th June, 1956, and the permanent marks have been placed as shown hereon.
And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act, 1900.

(Signature) T.S. McKeon
Surveyor registered under the Surveyors Act, 1929-46.

J.P.

Date of Survey 15th June, 1956

*Strike out either (1) or (2). †Insert date of Survey.

Ref 1588

F.P. 036691

DP 36691 (E)

Approved by Council & Covered by Council Clerk's Certificate

No. ..... of

..... Council Clerk.

Datum line of Azimuth A-B.

Additions and amendments made by
this 5th day of September, 1958

Sub

this

DIAGRAM 'B'
Scale: 40' = 1'

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691

FEET	INCHES	METRES
-	0 1/8	0.003
-	1	0.025
-	1 1/4	0.032
-	1 1/2	0.038
-	1 3/4	0.044
-	2	0.051
-	2 1/2	0.064
-	2 3/4	0.070
-	3	0.076
-	3 1/4	0.083
-	4	0.102
-	5	0.127
-	5 1/4	0.133
-	6	0.152
-	6 1/2	0.165
-	7	0.178
-	7 7/8	0.200
1	-	0.305
1	5 7/8	0.454
1	6	0.457
1	6 1/8	0.460
1	6 5/8	0.473
1	8	0.508
1	8 1/4	0.514
1	10 1/2	0.572
2	3 1/8	0.689
2	3 3/8	0.695
3	-	0.914
3	5 3/4	1.060
3	11 7/8	1.216
4	0 1/8	1.222
4	9 1/8	1.451
5	-	1.524
5	4 3/4	1.645
6	-	1.829
6	0 1/8	1.832
6	0 1/4	1.835
6	2 7/8	1.902
6	3 3/4	1.924
6	11	2.108
7	-	2.134
7	9 1/4	2.369
8	-	2.438
8	7 3/8	2.626
8	10 1/4	2.699
9	-	2.743
9	11	3.023
10	-	3.048
10	8 1/4	3.258
11	-	3.353
11	5 1/2	3.493
12	-	3.658
12	1	3.683
12	4	3.759
12	9 1/2	3.899
12	11 1/2	3.950
14	-	4.267
14	1 1/8	4.296
14	5	4.394
15	5 1/4	4.705
15	8 1/2	4.788
16	-	4.877
16	9 1/8	5.109
16	9 1/2	5.118
16	9 5/8	5.121
16	10	5.131
16	10 1/8	5.134
16	10 5/8	5.147
16	11 1/8	5.159
16	11 3/8	5.166
16	11 5/8	5.172
17	-	5.182
17	0 3/8	5.191
17	0 1/2	5.194
17	0 3/4	5.201
17	1 1/2	5.220
17	5	5.309

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691 CONTINUED

FEET	INCHES	METRES
17	5 3/8	5.318
17	8	5.385
17	8 1/2	5.398
17	8 5/8	5.401
17	8 3/4	5.404
17	9	5.410
18	1 3/4	5.531
18	10	5.740
19	5	5.918
19	9 1/2	6.033
20	-	6.096
20	0 1/2	6.109
20	9 3/4	6.344
21	-	6.401
22	-	6.706
23	-	7.010
23	7 1/4	7.195
24	2	7.366
24	9	7.544
24	10 1/4	7.576
24	10 1/2	7.582
25	-	7.620
25	4 7/8	7.744
25	7 7/8	7.820
26	2 5/8	7.991
26	2 7/8	7.998
27	-	8.230
27	2 3/8	8.290
27	5 1/2	8.369
28	-	8.534
28	1 1/2	8.573
28	3 3/8	8.620
28	10 3/4	8.807
29	1 7/8	8.887
29	3 3/4	8.934
29	6	8.992
30	-	9.144
30	1 1/2	9.182
31	-	9.449
31	5	9.576
33	-	10.058
37	8	11.481
37	10	11.532
37	10 3/8	11.541
38	3	11.659
39	9 3/4	12.135
40	-	12.192
40	3	12.268
40	5	12.319
41	1 3/4	12.541
42	-	12.802
42	3 1/4	12.884
42	10	13.056
43	2 1/8	13.160
43	3 1/4	13.189
43	3 3/4	13.202
43	6 7/8	13.281
45	-	13.716
45	4	13.818
46	-	14.021
46	0 1/8	14.024
46	0 5/8	14.037
47	4	14.427
47	10 1/2	14.592
48	-	14.630
48	0 1/2	14.643
48	2	14.681
48	9	14.859
48	9 5/8	14.875
48	10	14.884
48	10 1/2	14.897
49	-	14.935
49	8	15.138
49	10	15.189
50	-	15.240
50	5 1/4	15.373
50	6 1/4	15.399

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691 CONTINUED

FEET	INCHES	METRES
50	10 1/2	15.507
51	-	15.545
51	2 1/4	15.602
51	2 1/2	15.608
51	3 3/4	15.640
51	5 3/4	15.691
51	10 5/8	15.815
52	-	15.850
52	0 1/4	15.856
52	1 1/4	15.881
52	1 5/8	15.891
52	1 3/4	15.894
52	2 1/2	15.913
52	5 3/4	15.996
52	7 1/8	16.031
52	9	16.078
52	9 3/4	16.097
53	-	16.154
53	3 3/4	16.250
53	6 1/4	16.313
53	10 5/8	16.424
54	-	16.459
54	4 1/4	16.567
55	-	16.764
55	0 1/8	16.767
55	3 1/2	16.853
55	6 1/4	16.923
56	-	17.069
56	0 1/8	17.072
56	5 3/8	17.205
56	6 1/2	17.234
56	6 3/4	17.240
56	10 1/4	17.329
57	-	17.374
57	3	17.450
58	-	17.678
58	5 5/8	17.821
59	4 1/4	18.091
59	11 1/2	18.275
60	-	18.288
61	0 3/4	18.612
61	9	18.821
62	-	18.898
62	8 3/4	19.120
62	11 1/2	19.190
63	-	19.202
63	4 3/4	19.323
64	5	19.634
64	7 1/4	19.691
65	-	19.812
65	6 1/4	19.971
66	7	20.295
66	8 1/4	20.326
67	-	20.422
67	1 1/4	20.453
69	7 1/2	21.222
69	8 1/2	21.247
70	-	21.336
70	1 3/4	21.380
72	-	21.946
72	6	22.098
74	4 1/8	22.660
74	4 3/4	22.676
74	5 5/8	22.698
74	9 1/4	22.790
75	-	22.860
75	6 1/2	23.025
76	-	23.165
77	1 1/2	23.508
77	4 1/2	23.584
78	-	23.774
78	9 3/4	24.022
79	1 1/2	24.117
79	2	24.130
80	-	24.384
82	-	24.994
83	8 3/4	25.521

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691 CONTINUED

FEET	INCHES	METRES
84	10 3/4	25.876
85	-	25.908
85	3 3/4	26.003
85	6 1/4	26.067
87	-	26.518
89	10	27.381
90	-	27.432
90	1 1/2	27.470
92	4 1/2	28.156
92	8	28.245
94	7	28.829
94	7 5/8	28.845
95	-	28.956
95	1 3/8	28.991
96	4 1/2	29.375
96	7 1/2	29.451
98	10 1/4	30.131
100	-	30.480
102	0 1/2	31.102
102	3 3/4	31.185
102	4 3/4	31.210
102	7 1/4	31.274
102	10 3/4	31.363
103	10 1/2	31.661
105	1 1/2	32.042
106	4 3/4	32.429
107	-	32.614
108	0 1/4	32.925
108	5 5/8	33.061
110	-	33.528
110	3 1/4	33.611
111	-	33.833
112	9 1/2	34.379
112	10 3/8	34.401
114	4	34.849
115	8 1/4	35.262
115	10 1/2	35.319
116	8 3/4	35.579
117	11 1/4	35.947
118	4 3/4	36.087
118	11 5/8	36.262
120	-	36.576
120	1 1/2	36.614
120	10 1/2	36.843
121	2 1/4	36.938
121	4 3/4	37.001
122	-	37.186
122	5 3/4	37.332
122	6 1/4	37.344
122	8 1/4	37.395
124	-	37.795
124	3 1/4	37.878
124	8	37.998
124	10 1/4	38.056
125	5 1/2	38.240
127	-	38.710
128	4	39.116
128	8 3/4	39.237
132	1 1/2	40.272
132	5	40.361
134	8	41.046
135	-	41.148
135	0 1/4	41.154
135	0 3/4	41.167
135	10 1/2	41.415
137	4	41.859
138	9	42.291
139	4 7/8	42.491
139	7 1/4	42.551
141	-	42.977
141	6 3/4	43.148
141	9 3/4	43.224
141	10	43.231
142	1 7/8	43.329
142	6	43.434
142	6 1/2	43.447
142	9 3/4	43.529

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691 CONTINUED

FEET	INCHES	METRES
143	1 1/4	43.618
143	5 1/4	43.720
143	7 7/8	43.786
144	4 3/4	44.012
146	3	44.577
146	9 5/8	44.745
146	10 3/4	44.774
147	-	44.806
148	11 3/4	45.409
149	2 1/4	45.472
149	3 1/4	45.496
149	8	45.618
150	-	45.720
150	1 1/2	45.758
150	2	45.771
152	7 1/4	46.514
154	4 1/2	47.054
154	5 3/4	47.085
154	7	47.117
154	8 1/4	47.149
154	9 1/4	47.174
154	10 1/2	47.206
154	11 3/4	47.238
155	1	47.269
155	2 1/4	47.301
155	3 1/2	47.333
155	11 1/2	47.536
156	-	47.549
157	8	48.057
159	-	48.463
159	4 3/4	48.584
160	6	48.920
163	6 1/4	49.841
163	6 3/4	49.854
163	10 1/4	49.943
165	6 3/4	50.463
169	6	51.664
171	5	52.248
173	4 1/4	52.838
173	4 3/4	52.851
176	5	53.772
179	4 1/4	54.667
184	-	56.083
184	3 1/2	56.172
184	4 1/2	56.198
186	0 3/4	56.712
187	3 1/2	57.087
193	10 3/4	59.099
195	3 3/4	59.531
199	2 3/8	60.716
199	3 3/8	60.741
200	-	60.960
201	10 1/2	61.532
205	-	62.484
206	0 1/4	62.795
224	11 1/2	68.567
226	10	69.139
256	-	78.029
282	1	85.979
282	2 7/8	86.027
289	2 3/4	88.157
290	-	88.392
306	7 1/2	93.459
330	-	100.584
356	7 1/2	108.699
479	4 1/2	146.114
482	1	146.939
488	10	148.996
493	2 1/8	150.320
512	3 3/4	156.153
537	5 1/8	163.808
553	1 1/2	168.593
668	9 3/4	203.854
728	9 3/4	222.142
2419	7 1/4	737.495
2479	7 1/4	755.783

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 36691 CONTINUED

AC	RD	P	SQ M
-	-	3	75.9
-	-	3 1/4	82.2
-	-	10 3/4	271.9
-	-	11	278.2
-	-	25	632.3
-	-	25 3/4	651.3
-	-	26	657.6
-	-	26 1/4	663.9
-	-	26 1/2	670.3
-	-	26 3/4	676.6
-	-	27	682.9
-	-	27 1/4	689.2
-	-	27 1/2	695.6
-	-	27 3/4	701.9
-	-	28	708.2
-	-	28 1/4	714.5
-	-	28 1/2	720.8
-	-	28 3/4	727.2
-	-	29	733.5
-	-	29 1/4	739.8
-	-	29 1/2	746.1
-	-	29 3/4	752.5
-	-	30	758.8
-	-	30 1/4	765.1
-	-	30 1/2	771.4
-	-	30 3/4	777.8
-	-	31	784.1
-	-	31 1/2	796.7
-	-	32	809.4
-	-	34 3/4	878.9
-	-	35	885.2
-	-	36 3/4	929.5
-	-	37 1/4	942.2
-	-	38 1/2	973.8
-	-	39	986.4
-	-	39 1/2	999.1
-	1	1/4	1018
-	1	4 1/2	1126
-	1	6	1163
-	1	17	1442

AC	RD	P	HA
5	-	1 1/2	2.027
5	3	25	2.39

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 138/36691

SEARCH DATE	TIME	EDITION NO	DATE
31/3/2020	2:58 PM	-	-

VOL 13229 FOL 50 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 138 IN DEPOSITED PLAN 36691
LOCAL GOVERNMENT AREA CITY OF PARRAMATTA
PARISH OF FIELD OF MARS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP36691

FIRST SCHEDULE

THE HOUSING COMMISSION OF NEW SOUTH WALES

SECOND SCHEDULE (0 NOTIFICATIONS)

NIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

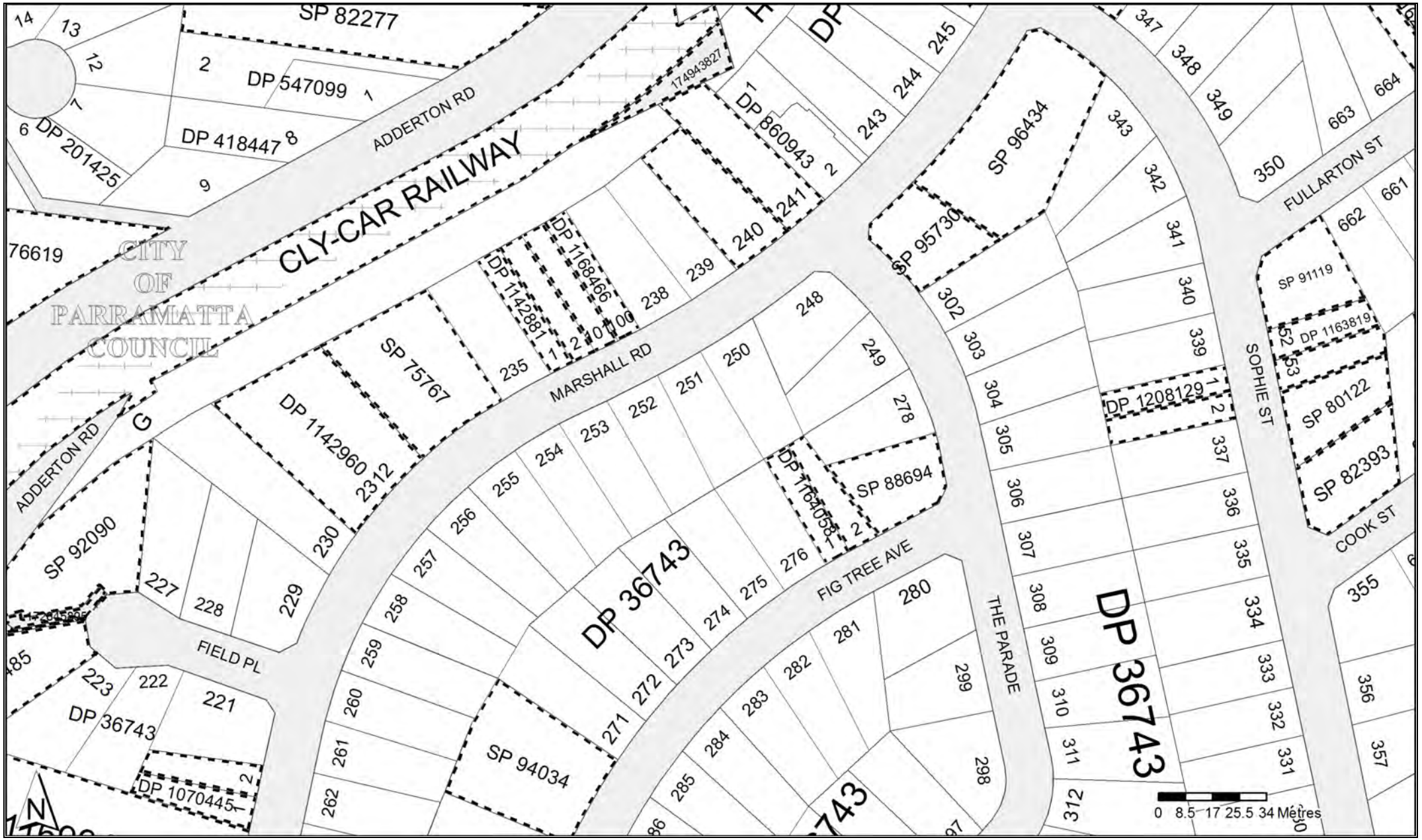
*** END OF SEARCH ***

advlegs PRINTED ON 31/3/2020

Cadastral Records Enquiry Report : Lot 251 DP 36743

Ref : NOUSER

Locality : TELOPEA
Parish : FIELD OF MARS
LGA : CITY OF PARRAMATTA
County : CUMBERLAND



This information is provided as a searching aid only.Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

	Status	Surv/Comp	Purpose
DP36743			
Lot(s): 241			
DP1250931	REGISTERED	SURVEY	RESUMPTION OR ACQUISITION
Lot(s): 639			
DP1240996	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
Lot(s): 240			
DP1215590	PRE-ALLOCATED	UNAVAILABLE	SUBDIVISION
DP1070445			
Lot(s): 1, 2			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1142881			
Lot(s): 1, 2			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1142960			
Lot(s): 2312			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1163819			
Lot(s): 52, 53			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1164058			
Lot(s): 1, 2			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1168466			
Lot(s): 100, 101			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1169945			
Lot(s): 101			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1188258			
Lot(s): 102			
DP668822	HISTORICAL	COMPILATION	DEPARTMENTAL
DP915311	HISTORICAL	COMPILATION	UNRESEARCHED
DP915344	HISTORICAL	COMPILATION	UNRESEARCHED
DP1185771	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
DP1185783	HISTORICAL	COMPILATION	LIMITED FOLIO CREATION
CA167382 - LOT 207 DP1185771			
CA167388 - LOT 208 DP1185783			
DP1208129			
Lot(s): 1, 2			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1211604			
Lot(s): 1			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1195178	HISTORICAL	SURVEY	CONSOLIDATION
DP1231626			
Lot(s): 1, 2			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
Road			
Polygon Id(s): 174943827			
CA167388 - LOT 208 DP1185783			
SP75767			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1088519	HISTORICAL	SURVEY	CONSOLIDATION
SP76619			
DP14134	HISTORICAL	SURVEY	UNRESEARCHED
DP1089540	HISTORICAL	SURVEY	CONSOLIDATION
SP80122			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1121179	HISTORICAL	SURVEY	REDEFINITION

	Status	Surv/Comp	Purpose
SP82277			
DP215377	HISTORICAL	SURVEY	SUBDIVISION
DP1118465	HISTORICAL	SURVEY	CONSOLIDATION
SP82393			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1139967	HISTORICAL	SURVEY	REDEFINITION
SP88694			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1188335	HISTORICAL	SURVEY	REDEFINITION
SP89047			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1191096	HISTORICAL	SURVEY	REDEFINITION
SP91119			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1223263	HISTORICAL	SURVEY	REDEFINITION
SP92090			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1195178	HISTORICAL	SURVEY	CONSOLIDATION
DP1211604	HISTORICAL	SURVEY	SUBDIVISION
SP92485			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1220588	HISTORICAL	SURVEY	REDEFINITION
SP94034			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1217934	HISTORICAL	SURVEY	CONSOLIDATION
SP95730			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1232324	HISTORICAL	SURVEY	REDEFINITION
SP96434			
DP36743	HISTORICAL	SURVEY	UNRESEARCHED
DP1231883	HISTORICAL	SURVEY	CONSOLIDATION

Plan	Surv/Comp	Purpose
DP36743	SURVEY	UNRESEARCHED
DP201425	SURVEY	SUBDIVISION
DP202214	SURVEY	SUBDIVISION
DP418447	COMPILATION	UNRESEARCHED
DP547099	COMPILATION	SUBDIVISION
DP860943	SURVEY	SUBDIVISION
DP1005182	COMPILATION	DEPARTMENTAL
DP1070445	SURVEY	SUBDIVISION
DP1142881	SURVEY	SUBDIVISION
DP1142960	SURVEY	CONSOLIDATION
DP1163819	SURVEY	SUBDIVISION
DP1163819	UNRESEARCHED	SUBDIVISION
DP1164058	SURVEY	SUBDIVISION
DP1164058	UNRESEARCHED	SUBDIVISION
DP1168466	SURVEY	SUBDIVISION
DP1169945	SURVEY	CONSOLIDATION
DP1169945	UNRESEARCHED	CONSOLIDATION
DP1188258	SURVEY	CONSOLIDATION
DP1208129	SURVEY	SUBDIVISION
DP1208129	UNRESEARCHED	SUBDIVISION
DP1231626	SURVEY	SUBDIVISION
DP1231626	UNRESEARCHED	SUBDIVISION
SP75767	COMPILATION	STRATA PLAN
SP76619	COMPILATION	STRATA PLAN
SP80122	COMPILATION	STRATA PLAN
SP82277	COMPILATION	STRATA PLAN
SP82393	COMPILATION	STRATA PLAN
SP88694	COMPILATION	STRATA PLAN
SP89047	COMPILATION	STRATA PLAN
SP89047	UNRESEARCHED	STRATA PLAN
SP91119	COMPILATION	STRATA PLAN
SP91119	UNRESEARCHED	STRATA PLAN
SP92090	COMPILATION	STRATA PLAN
SP92485	COMPILATION	STRATA PLAN
SP92485	UNRESEARCHED	STRATA PLAN
SP94034	COMPILATION	STRATA PLAN
SP95730	COMPILATION	STRATA PLAN
SP96434	COMPILATION	STRATA PLAN

CERTIFICATE OF TITLE

NEW SOUTH WALES — REAL PROPERTY ACT, 1900

Vol. 13364 Fol. 136

Appln. No. 5036

Prior Title Vol. 8451 Fol. 143

EDITION ISSUED

6 7 1977

I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

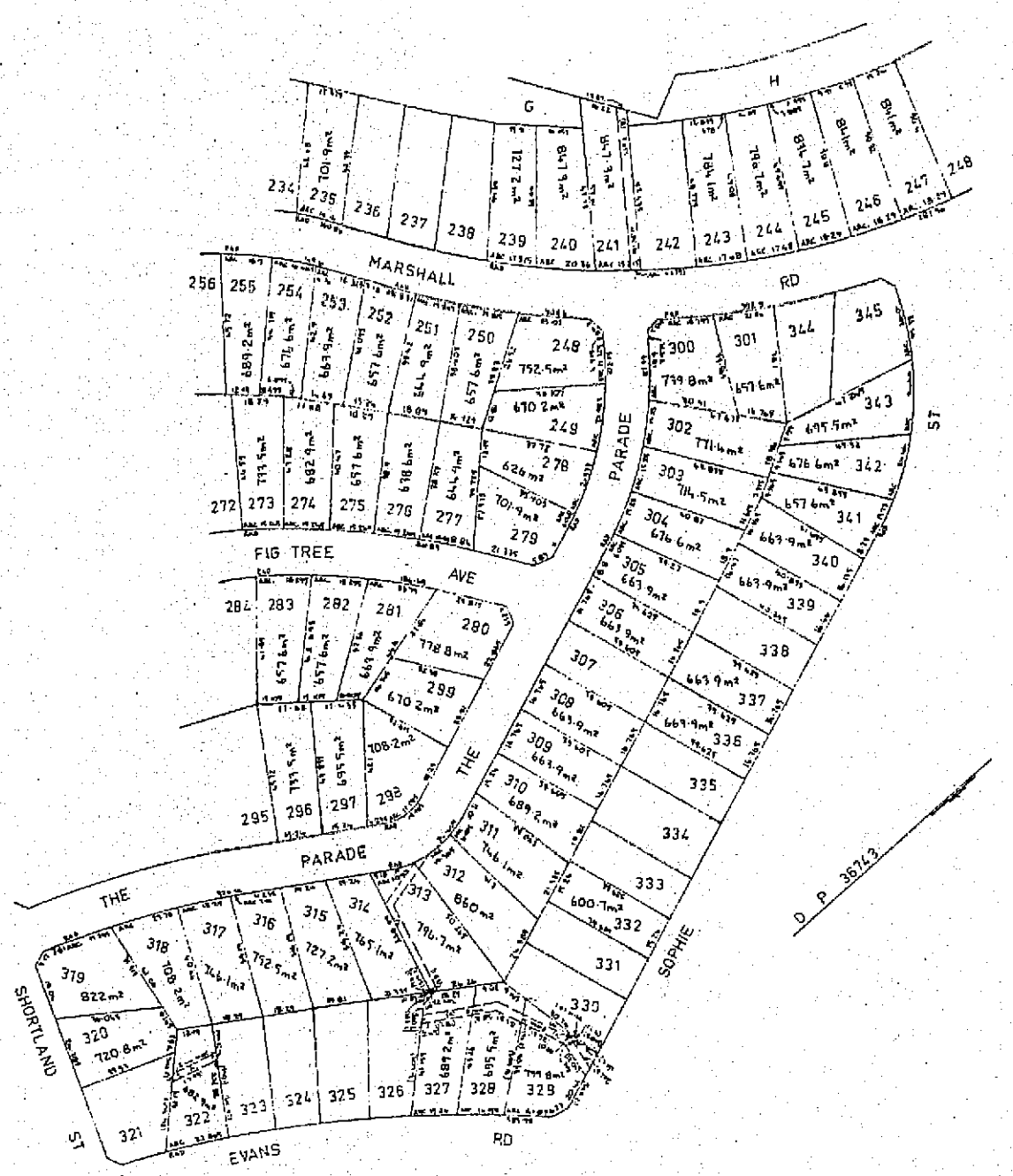
CANCELLED

Registrar General.

SEE AUTO FOLIO

PLAN SHOWING LOCATION OF LAND

LENGTHS ARE IN METRES



P930166 S

ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 251 in Deposited Plan 36743 in the City of Parramatta, Parish of Field of Mars and County of Cumberland being part of Portion 158 granted to John Pedrick on 22-2-1792.

FIRST SCHEDULE

THE HOUSING COMMISSION OF NEW SOUTH WALES.

SECOND SCHEDULE

GRN

NIL

FIRST SCHEDULE (continued)

REGISTERED PROPRIETOR	INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	ENTERED	Signature of Registrar General

CANCELLED

SEE AUTO FOLIO

SECOND SCHEDULE (continued)

INSTRUMENT NATURE	INSTRUMENT NUMBER	INSTRUMENT DATE	PARTICULARS	ENTERED	Signature of Registrar General	CANCELLATION		

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED

Plan Form No. 1 (for Deposited Plan)

~~Municipality of~~
~~Shire of~~
City of Parramatta

DP 36743 sh 1/3 (E)

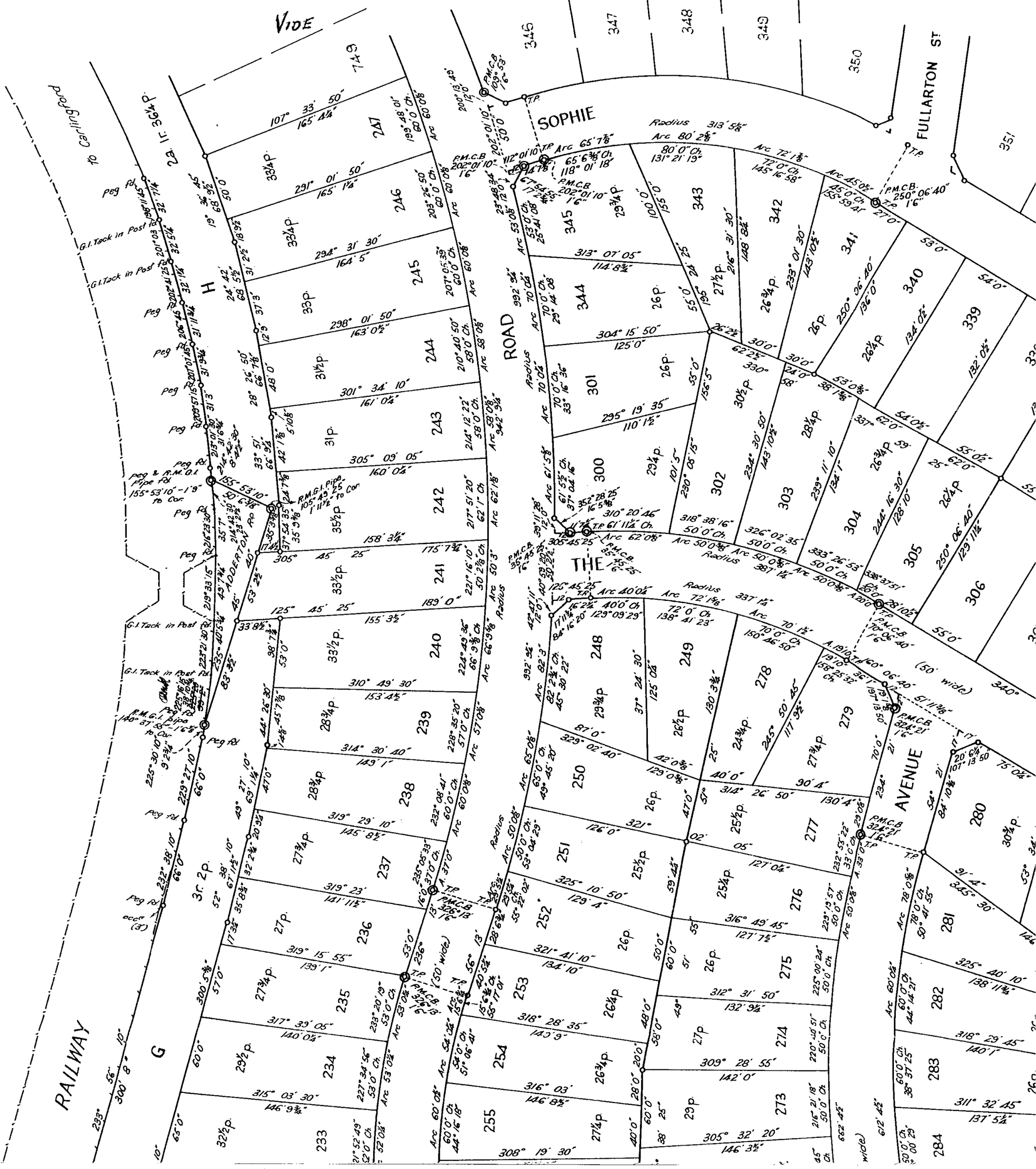
PLAN

Pors. 106, 109,
of subdivision of part of ~~the land shown on~~
~~Real Property Application No~~

G881504 23:1:58.

PARISH OF FIELD OF MARS COUNTY

Scale...80 Feet...to an inch



PLAN

Pors. 106, 109, 110, 157, & 158

~~of the land shown on the plan accompanying~~

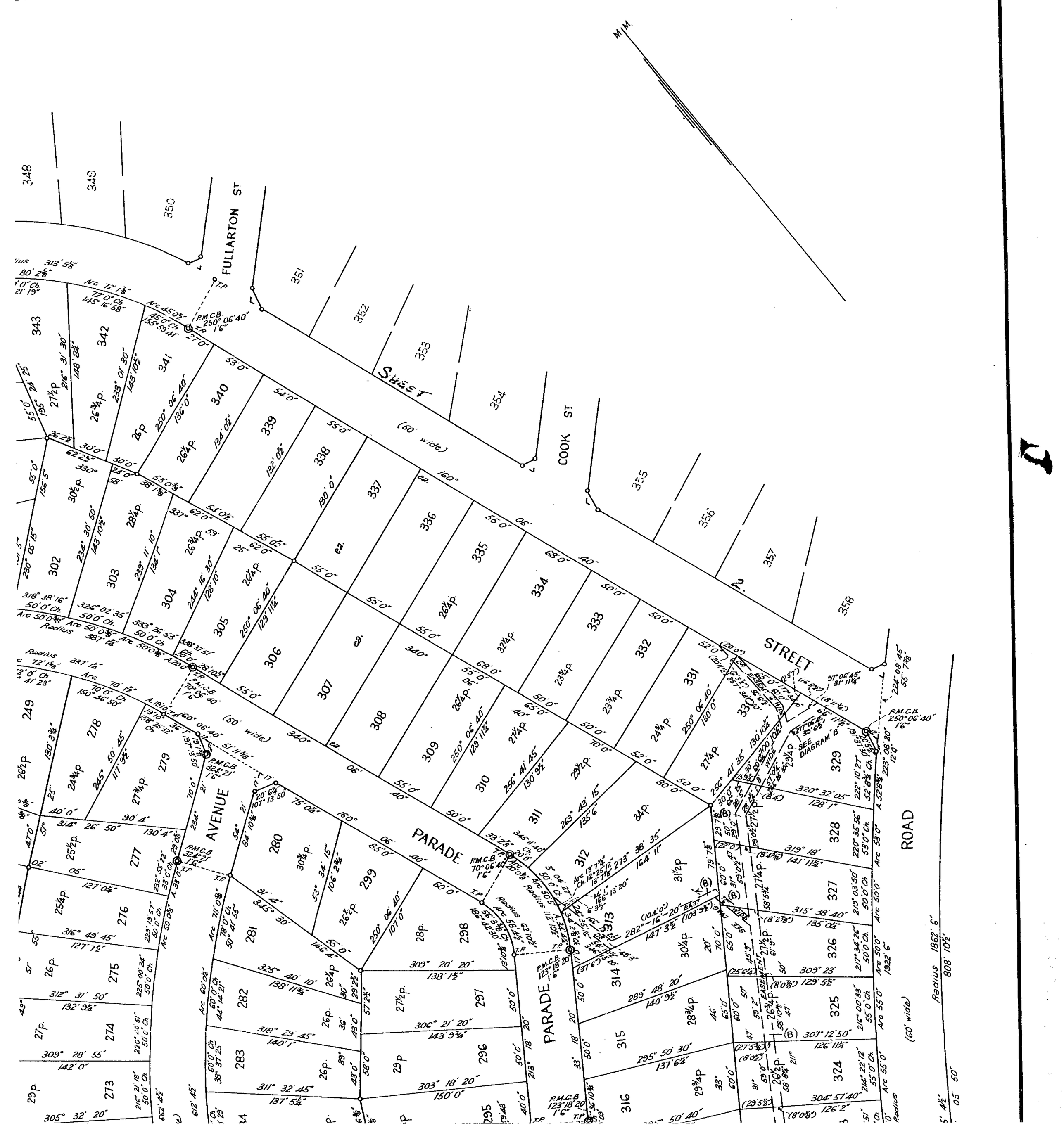
~~perty Application No. 40311~~

Sheet 1 of 3 Sheets

DP 36743 (E)
FORMERLY
H.C.P. 1743

MARS COUNTY OF CUMBERLAND

ale 80 Feet to an inch



1.3992 S.338

DP 36743

Ref 1637 sh

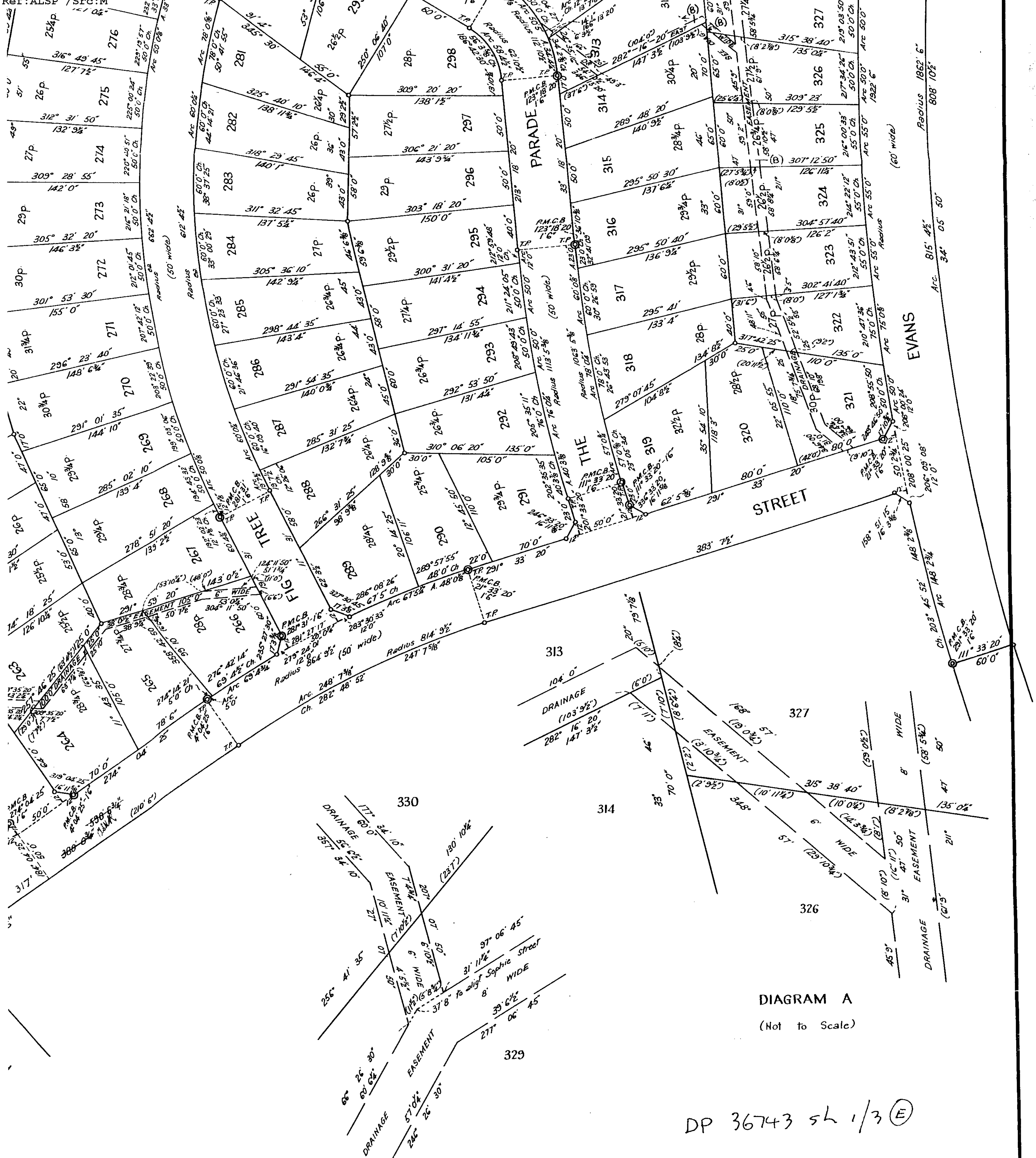


DIAGRAM B

(Not to Scale)

DP 36743 sh 1/3 (E)

AGE J 273837

(E)

I, Thomas Stanislaus McKeon, of 13 Bligh St, Sydney. a Surveyor registered under the Surveyor's Act, 1929-46, do hereby solemnly and sincerely declare (a) that all boundaries and measurements shown on this plan are correct, (b) that all survey marks found and relevant physical objects on or adjacent to the boundaries are correctly represented, (c) that all physical objects indicated actually exist in the positions shown, (d) that the whole of the material facts in relation to the land are correctly represented, (e) that the survey represented in this plan has been made in accordance with the Survey Practice Regulations, 1933 *(1) by me (2) ~~under my supervision, the character and extent of which was as required by the Survey Practice Regulations, 1933,~~ and was completed on †24th October 1956 and the reference & permanent marks have been placed as shown hereon.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act, 1900.

(Signature) [signature]
Surveyor registered under the Surveyors Act, 1929-46.

Subscribed and declared before me at Sydney

this 2nd day of November A.D. 1956

[signature] J.P. J.P.

Date of Survey 24-10-56

*Strike out either (1) or (2). †Insert date of Survey.

DP 36743

FORMERLY

H.C.P. 1743

Sheet 2 of 3 Sheets

WPSD 23-10

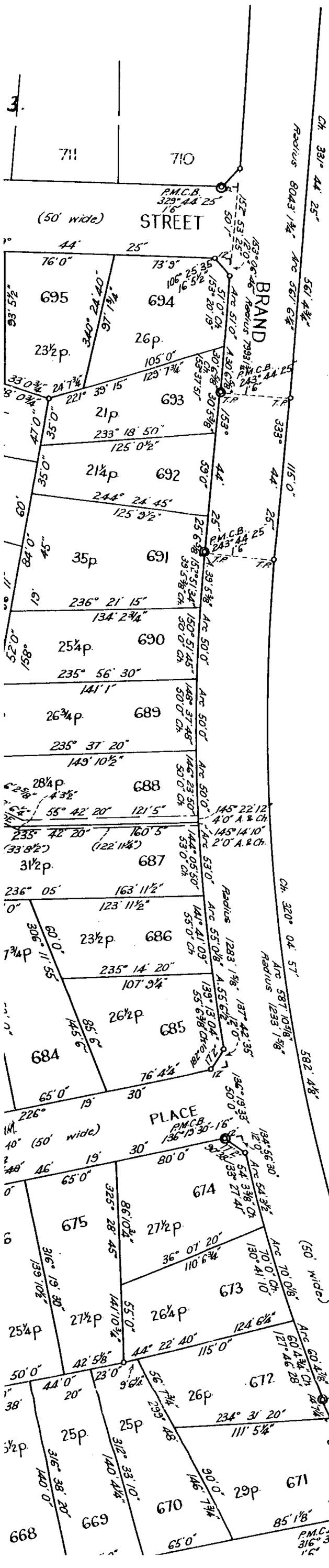
DP 36743 2/3 (E)

VIDE SHEET 3.

8767 P. 85

F

1r. 19½p. Add'l
18a. ~~2r. 20p.~~



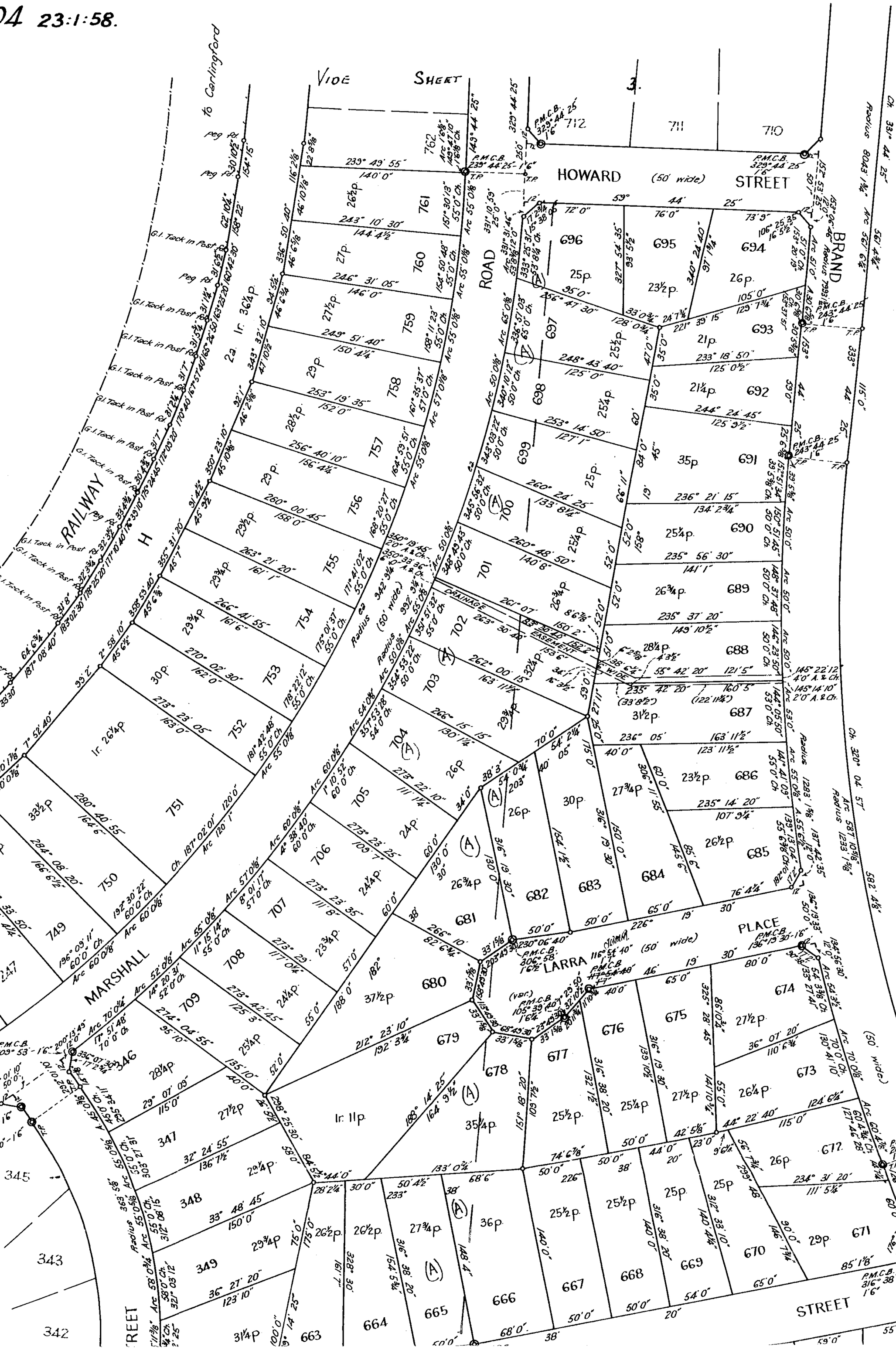
DP 36743 sh 2/3 (E)

DP

FORMERL

Scale : 80 Feet to an Inch.

G881504 23:1:58.



STREET

STREET

STREET

ROAD

LORD AVENUE

MOFFATTS DRIVE

YATES AVENUE

DP 36743 sh 2/3 (E)

This is Sheet 2 of the plan referred to in my declaration of 2nd November, 1956.

Justice of the Peace

Surveyor registered under the Surveyor's Act, 1929 - 1946.

PLAN AMENDED IN I.T.O. 8.9.89

Ref 1627 sh 2

STREET
FULLARTON
STREET
SHEET
COOK
STREET
VIDE
SOPHIE
EVANS
OSBORNE AVENUE
LORD AVENUE

(A) BENEFITED BY EASEMENT FOR WATER PIPE - A427471

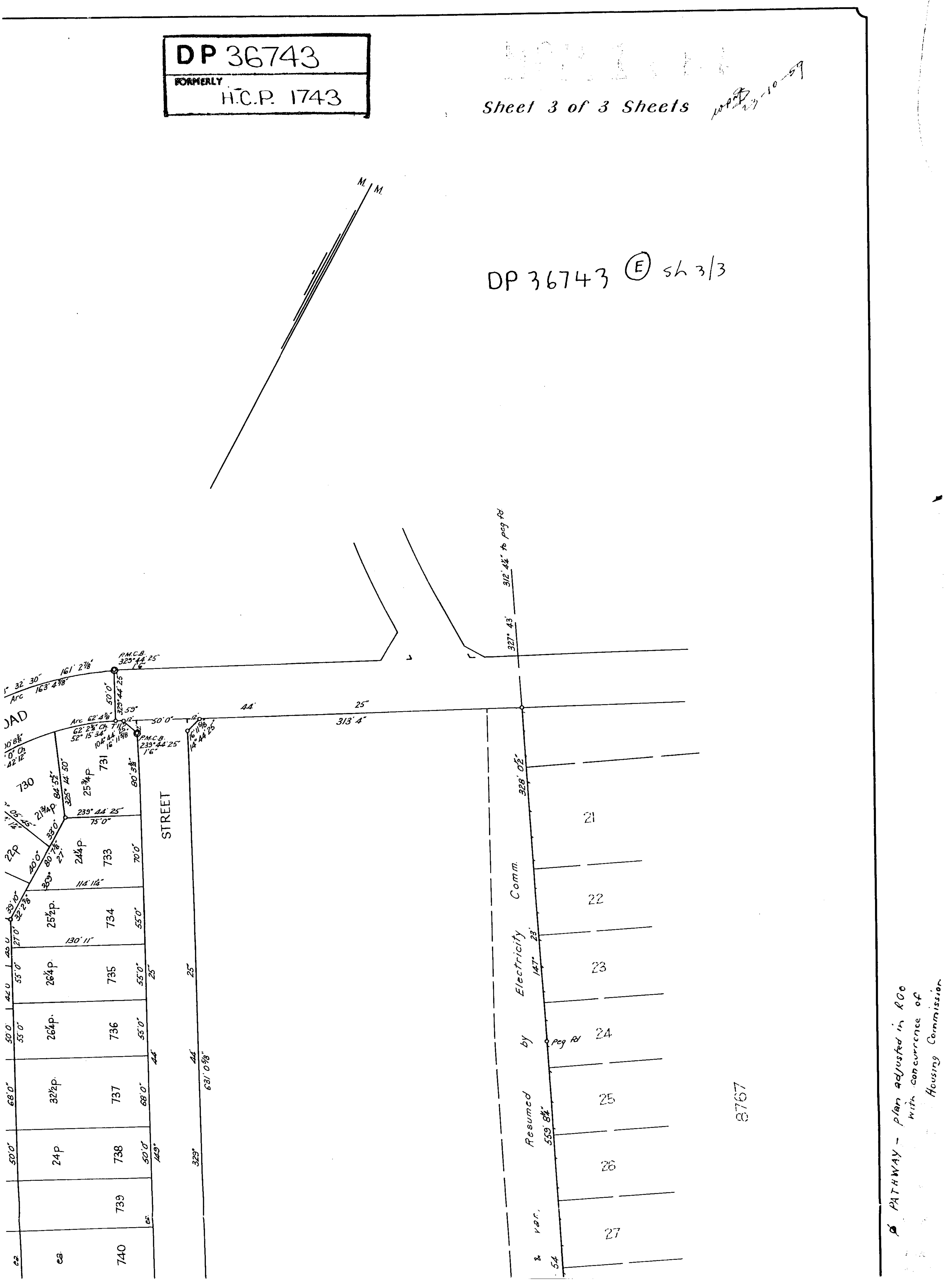
DP 36743 (E) sh 2/3

Justice of the Pea

1.3992. 5.328.

DP 36743

Ref 1637 sh 2

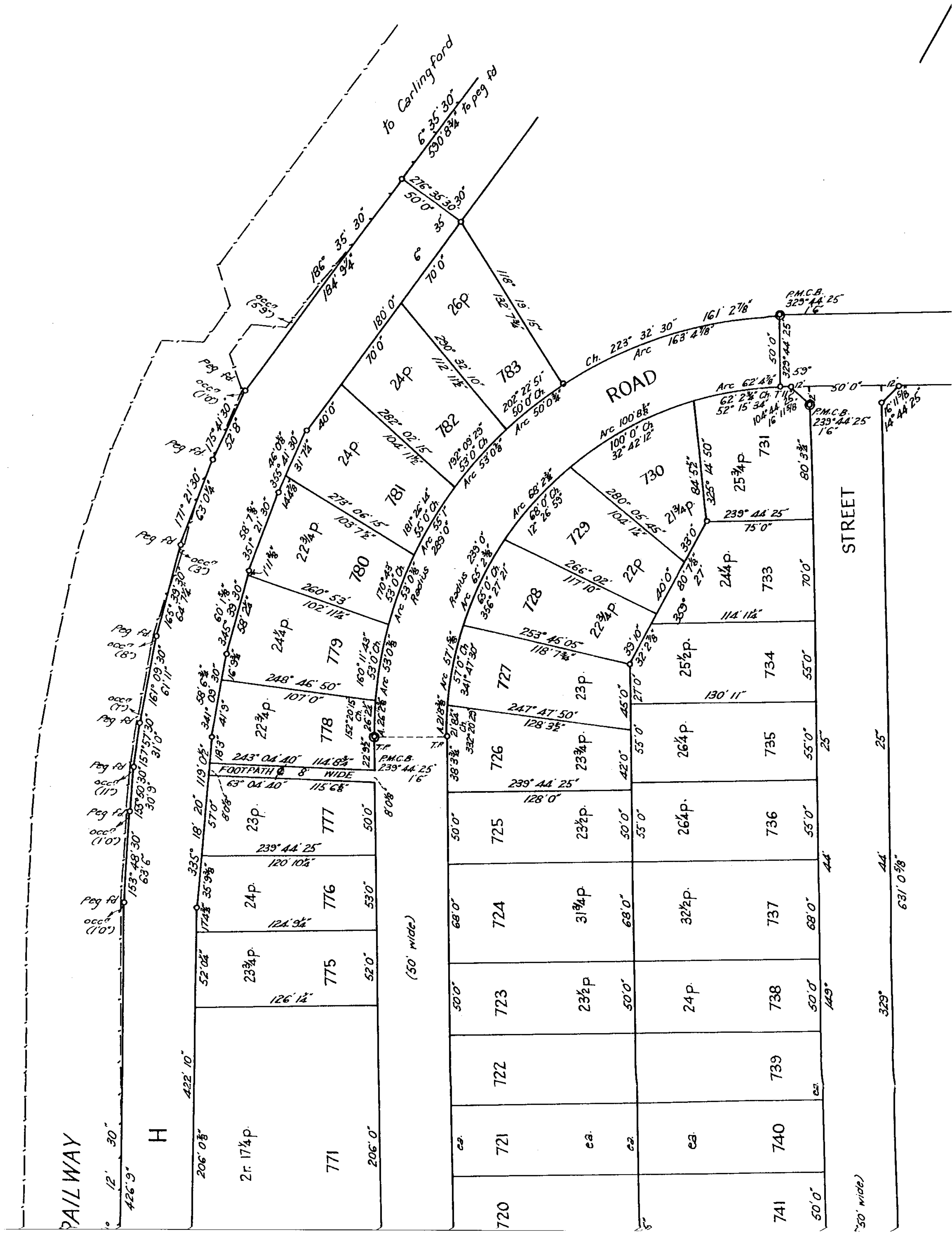

DP 36743
FORMERLY
H.C.P. 1743
Sheet 3 of 3 Sheets
DP 36743 (E) sh 3/3
M. M.
P.M.C.B. 329°44'25" 1'6"
161' 2⅞"
32' 30"
Arc 163' 4⅛"
OAD
50'0"
329°44'25"
59"
Arc 62' 4⅞"
62' 2¾" Ch. 7'1½"
52° 15' 34"
104°44' 16' 11⅝
12'
25'
50'0"
P.M.C.B. 239°44'25" 1'6"
16' 11⅝
14°44'25"
44' 25"
313' 4"
312' 4¼" to peg fd
327° 43'
328' 0½"
STREET
730
731
25¾p
84' 5½"
325° 14' 50"
80' 3½"
21¾p
239°44'25"
75'0"
33'0"
22p
40'0"
80' 7⅛"
27'
359°
24¼p
733
70'0"
114' 11¼"
39' 10"
32' 2⅞"
25½p.
734
55'0"
27'0"
130' 11"
26¼p.
735
55'0"
25'
26¼p.
736
55'0"
50'0"
44'
32½p.
737
68'0"
631' 0⅝"
24p
738
50'0"
149°
329°
739
740
21
22
23
24
25
26
27
Resumed by Electricity Comm. & var.
147° 23'
Peg fd
559' 8¼"
54
8767
PATHWAY - plan adjusted in RGO with concurrence of Housing Commission

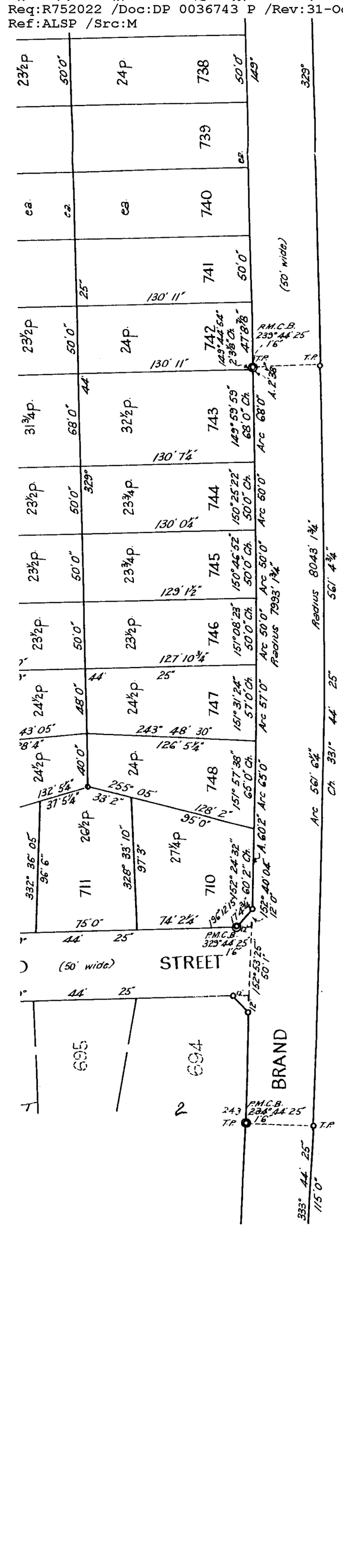
DP
FORMERLY

Scale : 80 Feet to an Inch

G881504 23:1:58

DP 36743 (E) sh 3/3





DP 36743 sh 3/3

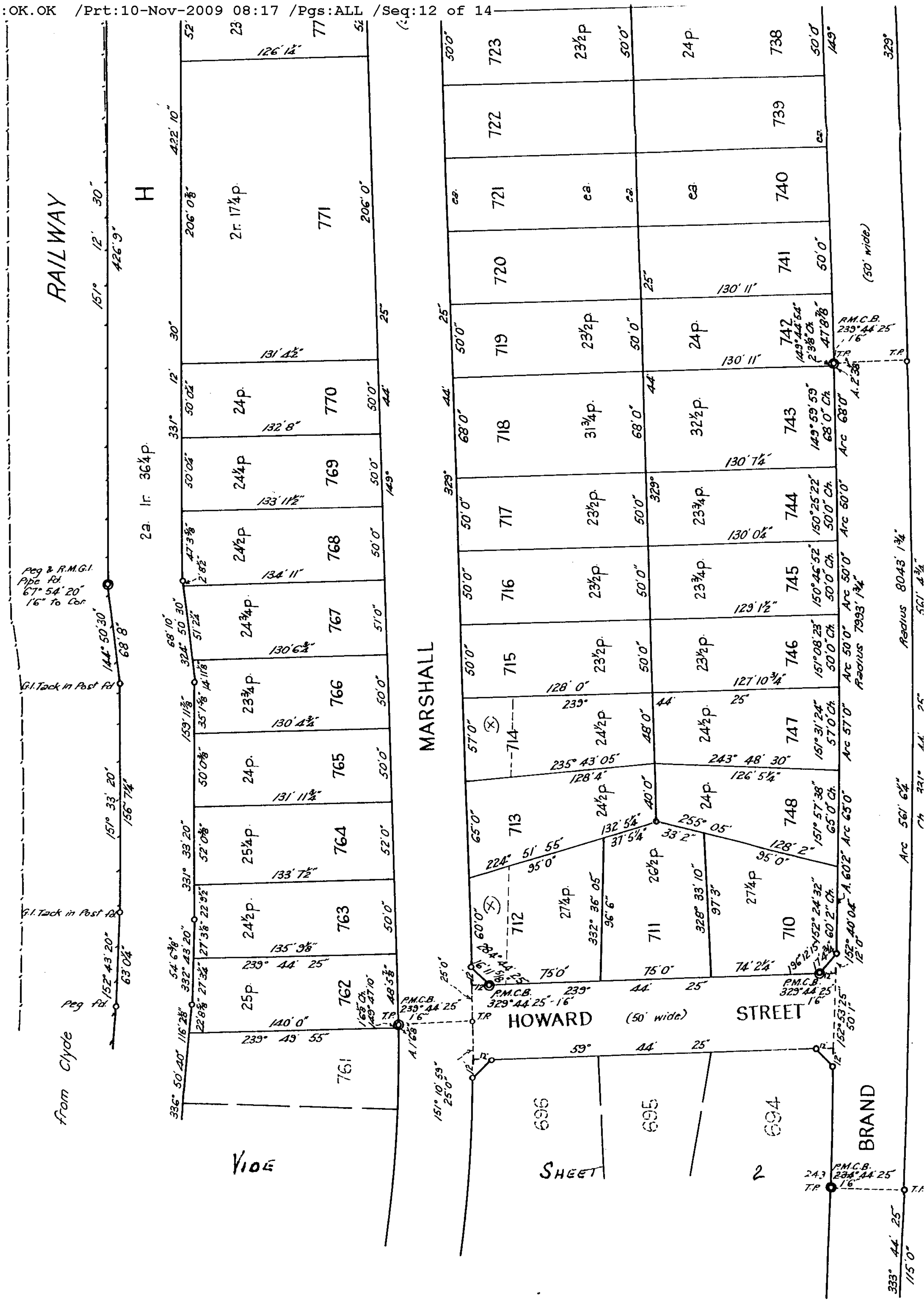
VIDE SHEET 2.

S. M. Cowley J.P.
Justice of the Peace.

This is Sheet 3 of the plan referred to in my declaration of 2nd November, 1956.

J. H. McLean.
Surveyor registered under the Surveyor's Act, 1929 - 1946

DP 1627 sh 3



DP 36743 (E) sh 3/3

(X) BENEFITED BY EASEMENT FOR
WATER PIPE A427471

[illegible]

Justice of the

1.3992. 5.328.

DP 36743

Ref 1637 sh

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 1/3

FEET	INCHES	METRES
-	0 3/8	0.010
-	0 1/2	0.013
-	0 7/8	0.022
-	1	0.025
-	1 1/2	0.038
-	4	0.102
-	5	0.127
-	6	0.152
-	7 1/4	0.184
1	6	0.457
1	6 1/8	0.460
2	-	0.610
2	11	0.889
3	-	0.914
4	-	1.219
5	-	1.524
5	2 1/2	1.588
5	4 3/4	1.645
5	6	1.676
5	7 1/4	1.708
5	8 3/8	1.737
5	10 1/8	1.781
6	-	1.829
6	2 1/2	1.892
6	7 1/4	2.013
6	8 1/2	2.045
7	-	2.134
8	0 1/8	2.442
10	1 3/8	3.083
12	-	3.658
14	7 1/8	4.448
15	-	4.572
16	-	4.877
17	3	5.258
17	3 1/8	5.261
18	9 1/2	5.728
19	7 1/2	5.982
19	9 7/8	6.042
23	-	7.010
25	5 1/2	7.760
26	-	7.925
26	2 1/2	7.988
28	10 1/4	8.795
29	2 1/2	8.903
29	5 1/4	8.973
29	5 1/2	8.979
29	6 1/2	9.004
29	6 3/4	9.011
29	7 1/8	9.020
29	11 1/2	9.131
29	11 5/8	9.134
31	2 1/2	9.512
31	2 3/4	9.519
31	3	9.525
31	6	9.601
31	6 3/4	9.620
31	10 1/4	9.709
31	11 1/2	9.741
32	5 1/4	9.887
32	7 1/4	9.938
33	-	10.058
33	2 1/8	10.112
33	8 1/2	10.274
35	8 3/4	10.890
35	9 3/8	10.906
35	9 5/8	10.912
36	1	10.998
37	3	11.354
38	4	11.684
39	11 1/2	12.179
40	3 1/4	12.275
40	5	12.319
41	-	12.497
42	1 1/2	12.840
45	7 7/8	13.916
50	-	15.240
50	0 1/8	15.243

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 1/3 CONTD

FEET	INCHES	METRES
50	2 3/4	15.310
51	11 3/8	15.834
52	-	15.850
52	3	15.926
53	-	16.154
54	5 3/4	16.605
55	-	16.764
55	0 1/4	16.770
56	6 1/2	17.234
57	2 1/2	17.437
58	-	17.678
58	5 1/2	17.818
58	10	17.932
59	-	17.983
60	-	18.288
60	4 1/8	18.393
61	5 1/8	18.723
61	5 1/2	18.733
61	6	18.745
61	9	18.821
61	11 1/4	18.879
62	2 1/2	18.961
64	6	19.660
65	-	19.812
65	6 3/8	19.974
66	9 3/8	20.355
67	5	20.549
67	5 1/4	20.555
68	3 5/8	20.818
69	4 1/2	21.146
72	-	21.946
75	-	22.860
76	-	23.165
76	11 1/4	23.451
77	-	23.470
78	-	23.774
78	6	23.927
80	-	24.384
81	2 1/2	24.752
83	2 1/2	25.362
97	2	29.616
98	7 3/4	30.067
99	10	30.429
125	6 1/4	38.259
126	-	38.405
126	2	38.456
126	11 1/4	38.691
127	0 1/4	38.716
127	1 1/4	38.741
129	4	39.421
130	10 3/4	39.897
135	-	41.148
139	2 1/2	42.431
140	9 1/2	42.913
141	11 1/2	43.269
143	0 1/4	43.593
144	10	44.145
145	8 1/2	44.412
146	4	44.602
148	5 1/4	45.244
148	6 3/4	45.282
149	7 1/4	45.599
151	-	46.025
156	6	47.701
160	0 1/4	48.774
164	5	50.114
164	11	50.267
165	4 1/4	50.400
171	4 1/4	52.229
173	2 3/8	52.791
175	7 3/4	53.537
231	11 1/4	70.695
236	6 3/4	72.104
273	6 3/4	83.382
285	9 5/8	87.112
288	9 7/8	88.033
447	-	136.246

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 1/3 CONTD

FEET	INCHES	METRES
530	4	161.646
545	-	166.116
550	-	167.640
550	2 1/8	167.694
550	7 1/4	167.824
650	7 1/4	198.304
720	7 1/4	219.640
1050	-	320.040
5860	7 1/4	1786.312
7010	-	2136.648
8507	0 1/4	2592.940
13001	2 1/4	3962.762
14800	1 3/4	4511.084
14820	9 5/8	4517.380
15060	1 5/8	4590.329
18900	1 3/4	5760.764
20052	-	6111.850
22700	1 3/4	6919.004
25001	1 1/4	7620.337
27003	6	8230.667
28002	-	8535.010
36003	0 1/8	10973.718
40022	0 3/4	12198.725
40090	4	12219.534
47006	10 7/8	14327.705
48001	7 1/2	14630.895
50016	6 1/8	15245.032
53001	4 5/8	16154.822
55001	-	16764.305
55006	9 5/8	16766.073
58005	11 3/8	17680.213
60300	8	18379.643
65001	4 5/8	19812.422
65004	7 1/4	19813.403
65006	6	19813.981
87000	5	26517.727

AC	RD	P	SQ M
-	-	2.8	70.8
-	-	3 1/2	88.5
-	-	23.07	583.5
-	-	24 3/4	626
-	-	25 1/2	645
-	-	26	657.6
-	-	26 1/4	663.9
-	-	26 1/2	670.3
-	-	26 3/4	676.6
-	-	27	682.9
-	-	27 1/4	689.2
-	-	27 3/4	701.9
-	-	28 3/4	727.2
-	-	29 1/2	746.1
-	-	29 3/4	752.5
-	-	30 1/4	765.1
-	-	31 1/2	796.7
-	-	32 1/2	822
-	-	35 1/2	897.9
-	-	37 1/4	942.2
-	-	39 3/4	1005
-	1	1 1/4	1043
-	1	6 1/2	1176
-	1	32 3/4	1840
-	2	26 3/4	2700
-	2	27 1/4	2713
-	2	33 1/2	2871

AC	RD	P	HA
5	3	19 3/4	2.377
2825	-	2.7	1143
3025	-	3.7	1224
3300	-	11.47	1335

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 2/3

FEET	INCHES	METRES
-	0 5/8	0.016
-	10	0.254
1	6 1/8	0.460
4	4 3/8	1.330
5	-	1.524
5	6 1/2	1.689
5	7	1.702
5	7 1/4	1.708
6	-	1.829
7	-	2.134
10	-	3.048
11	1 1/4	3.385
11	11 1/4	3.639
12	-	3.658
14	-	4.267
14	7 1/4	4.451
15	-	4.572
15	4 3/4	4.693
16	5 1/2	5.017
17	1 7/8	5.229
20	11 1/2	6.388
22	8 5/8	6.925
25	-	7.620
30	4 3/4	9.265
31	1 1/4	9.481
31	2 1/4	9.506
31	5 1/4	9.582
31	6 1/4	9.608
31	7	9.627
31	8	9.652
32	1 3/4	9.798
32	2	9.804
32	2 1/2	9.817
32	3 3/4	9.849
32	9 1/2	9.995
33	1 5/8	10.100
33	1 7/8	10.106
33	4 3/4	10.179
39	3 3/8	11.973
39	5 3/8	12.024
43	1 7/8	13.154
44	-	13.411
45	-	13.716
45	0 3/8	13.726
45	6 7/8	13.891
45	9 1/2	13.957
45	10 3/8	13.980
46	2 5/8	14.087
46	6 5/8	14.189
46	6 3/4	14.192
46	10 7/8	14.297
47	10 1/2	14.592
50	0 7/8	15.262
50	1	15.265
50	9 3/4	15.488
52	-	15.850
53	8 1/4	16.364
54	-	16.459
54	3 3/8	16.545
55	-	16.764
55	0 1/8	16.767
55	0 5/8	16.780
55	7 1/4	16.948
55	10 3/4	17.037
56	4 1/4	17.177
56	5 3/4	17.215
57	-	17.374
58	-	17.678
60	6 1/8	18.444
60	6 1/2	18.453
62	10 1/4	19.158
64	6 3/4	19.679
65	-	19.812
68	9 1/2	20.968
70	-	21.336
72	-	21.946
73	-	22.250

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 2/3 CONTD

FEET	INCHES	METRES
73	9	22.479
75	2 5/8	22.927
76	-	23.165
80	7 1/4	24.568
81	0 3/4	24.708
85	-	25.908
93	5 1/2	28.486
95	-	28.956
99	1 5/8	30.216
100	1 7/8	30.528
107	9 1/4	32.849
109	7	33.401
111	5 1/4	33.966
111	8	34.036
120	7 7/8	36.776
127	1	38.735
130	1 1/4	39.656
131	-	39.929
133	0 1/4	40.545
134	11 1/2	41.135
135	0 1/4	41.154
135	10	41.402
142	2 1/2	43.345
150	4 1/4	45.828
152	-	46.330
154	5 3/4	47.085
161	1	49.098
161	6	49.225
161	6 5/8	49.241
162	-	49.378
163	-	49.682
163	11 1/2	49.975
164	6	50.140
165	4 1/4	50.400
166	6 1/2	50.762
175	-	53.340
192	9 1/4	58.757
215	-	65.532
300	10 1/2	91.707
311	0 1/4	94.799
522	-	159.106
550	7 1/4	167.824
570	7 1/4	173.920
680	-	207.264
942	9 1/4	287.357
1366	3 3/4	416.452
1486	4	453.034
5006	9 5/8	1526.073
6188	-	1886.102
15001	2 3/4	4572.375
15600	1 5/8	4754.921
15806	0 1/8	4817.672
47001	3	14325.981
54060	7 3/4	16477.685
59004	4 3/4	17984.540
62006	3 5/8	18899.521
65004	-	19813.219
65007	7 1/2	19814.324

AC	RD	P	SQ M
-	-	1	25.3
-	-	2 1/2	63.2
-	-	22.97	581
-	-	23 3/4	600.7
-	-	25 1/4	638.6
-	-	25 1/2	645
-	-	25 3/4	651.3
-	-	26	657.6
-	-	26 1/4	663.9
-	-	26 1/2	670.3
-	-	26 3/4	676.6
-	-	27	682.9
-	-	27 1/4	689.2
-	-	27 3/4	701.9
-	-	28 1/4	714.5
-	-	29	733.5

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 2/3 CONTD

AC	RD	P	SQ M
-	-	29 1/2	746.1
-	-	29 3/4	752.5
-	-	30	758.8
-	-	33 1/2	847.3
-	-	36	910.5
-	1	26 1/4	1676

AC	RD	P	HA
5	-	28 1/2	2.096
5	-	31 1/4	2.1
2500	-	2.67	1012

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 3/3

FEET	INCHES	METRES
-	0 1/2	0.013
1	-	0.305
1	6	0.457
1	11 3/8	0.594
2	8 1/2	0.826
4	-	1.219
5	-	1.524
7	11	2.413
13	8	4.166
14	4 7/8	4.391
15	3	4.646
16	9 3/4	5.124
17	4 3/4	5.302
18	-	5.486
22	9 1/2	6.947
30	9	9.373
31	-	9.449
35	-	10.668
38	3 3/4	11.678
39	10	12.141
43	1 7/8	13.154
45	-	13.716
46	0 1/8	14.024
50	0 1/4	15.246
50	0 3/8	15.250
50	1	15.265
51	2 1/4	15.602
52	0 1/4	15.856
52	0 3/8	15.859
52	8	16.053
55	1	16.789
58	7 5/8	17.872
60	1 5/8	18.329
61	11	18.872
64	7 1/4	19.691
65	-	19.812
68	-	20.726
74	2 1/4	22.612
75	-	22.860
100	-	30.480
102	11 1/4	31.375
103	7 1/2	31.585
104	1 1/4	31.731
104	11 1/2	31.991
107	-	32.614
112	11 1/2	34.430
114	8 3/4	34.969
117	10	35.916
118	7 3/4	36.163
119	0 1/4	36.278
126	5 1/4	38.538
127	10 3/4	38.983
128	-	39.014
128	2 1/2	39.078
129	1 1/4	39.351
130	0 1/4	39.630
130	4 3/4	39.745
130	6 3/4	39.795
130	7 1/4	39.808
130	11	39.903
133	11 1/2	40.831
156	7 1/4	47.733
161	2 7/8	49.146
163	4 7/8	49.806
184	9 1/4	56.318
289	-	88.087
328	0 1/4	99.981
426	9	130.073
491	5	149.784
553	1	168.580
570	-	173.736
590	8 3/4	180.054
633	3 5/8	193.030
641	9	195.605
5559	8 1/4	1694.593
12817	11 3/8	3906.911
33007	6	10060.686

CONVERSION TABLE ADDED IN DEPARTMENT OF LANDS

DP 36743 SH 3/3 CONTD

FEET	INCHES	METRES
57005	-	17375.124
65004	9 1/4	19813.454
65005	8 3/8	19813.737

AC	RD	P	SQ M
-	-	2	50.6
-	-	2 1/4	56.9
-	-	2.72	68.8
-	-	21.67	548.1
-	-	22	556.4
-	-	22 3/4	575.4
-	-	23	581.7
-	-	23 3/4	600.7
-	-	24	607
-	-	24 1/4	613.4
-	-	24.47	618.9
-	-	24 1/2	619.7
-	-	25 1/4	638.6
-	-	32 1/2	822
-	2	17 1/4	2460

AC	RD	P	HA
5	-	23 3/4	2.083
5	-	24	2.084
18	1	19 1/2	7.435
2425	-	2.45	981.4
2725	-	2.35	1103

NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 251/36743

SEARCH DATE	TIME	EDITION NO	DATE
31/3/2020	2:58 PM	-	-

VOL 13364 FOL 136 IS THE CURRENT CERTIFICATE OF TITLE

LAND

LOT 251 IN DEPOSITED PLAN 36743
LOCAL GOVERNMENT AREA CITY OF PARRAMATTA
PARISH OF FIELD OF MARS COUNTY OF CUMBERLAND
TITLE DIAGRAM DP36743

FIRST SCHEDULE

THE HOUSING COMMISSION OF NEW SOUTH WALES

SECOND SCHEDULE (0 NOTIFICATIONS)

NIL

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

advlegs PRINTED ON 31/3/2020

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX F: COUNCIL PLANNING CERTIFICATES

PLANNING CERTIFICATE

CERTIFICATE UNDER SECTION 10.7

Environmental Planning and Assessment Act, 1979 as amended

Certificate No: 2019/1905

Fee: $133.00

Issue Date: 31 March 2020

Receipt No: 5956287

Applicant Ref: 120034:119668

DESCRIPTION OF LAND

Address: 19 Sturt Street
TELOPEA NSW 2117

Lot Details: Lot 1716 DP 213180

SECTION A

The following Environmental Planning Instrument to which this certificate relates applies to the land:

Parramatta Local Environmental Plan 2011

For the purpose of **Section 10.7(2)** it is advised that as the date of this certificate the abovementioned land is affected by the matters referred to as follows:

Contact us:
council@cityofparramatta.nsw.gov.au | 02 9806 5050
@cityofparramatta | PO Box 32, Parramatta, NSW 2124
ABN 49 907 174 773 | **cityofparramatta.nsw.gov.au**

The land is zoned: R4 High Density Residential PLEP2011

Zone R4 - High Density Residential (Parramatta Local Environmental Plan 2011)

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979.
NOTE: This table is an excerpt from Parramatta Local Environmental Plan 2011 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

Zone R4 High Density Residential

1 Objectives of zone
• To provide for the housing needs of the community within a high density residential environment.
• To provide a variety of housing types within a high density residential environment.
• To enable other land uses that provide facilities or services to meet the day to day needs of residents.
• To provide opportunity for high density residential development close to major transport nodes, services and employment opportunities.
• To provide opportunities for people to carry out a reasonable range of activities from their homes if such activities will not adversely affect the amenity of the neighbourhood.

2 Permitted without consent
Home occupations

3 Permitted with consent
Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Home-based child care; Home businesses; Hostels; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Water recycling facilities

4 Prohibited
Pond-based aquaculture; Tank-based aquaculture; Any other development not specified in item 2 or 3

SECTION B
State Policies and Regional Environmental Plans
The land is also affected by the following State Environmental Planning Policies (SEPP) and Regional Environmental Plans (SREP):

State Environmental Planning Policy (SEPP) No.19 - Bushland in Urban Areas
State Environmental Planning Policy (SEPP) No.21 - Caravan Parks
State Environmental Planning Policy (SEPP) No.33 -Hazardous and Offensive Development
State Environmental Planning Policy (SEPP) No.55 - Remediation of Land
State Environmental Planning Policy (SEPP) No.64 - Advertising and Signage
State Environmental Planning Policy (SEPP) No.65 – Design Quality of Residential Flat Development.
State Environmental Planning Policy (SEPP) No.70 -Affordable Housing (Revised Schemes)
State Environmental Planning Policy (SEPP) (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (SEPP) (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005
State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (SEPP) (Infrastructure) 2007
State Environmental Planning Policy (SEPP) (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (SEPP) (Affordable Rental Housing) 2009
State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (SEPP) (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (SEPP) (Concurrences) 2018
State Environmental Planning Policy (SEPP) (Primary Production and Rural Development) 2019

Sydney Regional Environmental Plan (SREP) No.9 (No.2) - Extractive Industries
Sydney Regional Environmental Plan (SREP) – (Sydney Harbour Catchment) 2005

DRAFT State Environmental Planning Policy to amend State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006 – Amendment to include the Greater Parramatta Priority Growth Area as a Growth Centre
DRAFT State Environmental Planning Policy (Draft SEPP) – Environment

N.B. All enquiries as to the application of Draft State Environmental Planning Policies should be directed to The NSW Department of Planning, Industry and Environment.

Draft Local Environmental Plan
The land is not affected by a Draft Local Environmental Plan which has been placed on Public Exhibition and has not yet been published.

Development Control Plan
The land is affected by Parramatta Development Control Plan 2011.

The Minister for Planning has issued directions that provisions of an EPI do not apply to certain Part 4 development where a concept plan has been approved under Part 3A.

Development Standards
The land is affected by a minimum lot size of 600 square metres for a Dual Occupancy under Clause 6.11 of the Parramatta Local Environmental Plan 2011.

The land is affected by a minimum lot size of 550 square metres on the Minimum Lot Size map of Parramatta Local Environmental Plan 2011.

Development Contribution Plan
The Parramatta Section 94A Development Contributions Plan (Amendment No. 5) applies to the land.

Heritage Item/Heritage Conservation Area
An item of environmental heritage is not situated on the land.

The land is not located in a heritage conservation area.

Road Widening
The land is not affected by road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.
(b) Any Environmental Planning Instrument.
(c) Any Resolution of Council.

Land Reservation Acquisition
The land is not affected by Land Reservation Acquisition in Parramatta Local Environmental Plan 2011.

Site Compatibility Certificate (Seniors Housing, Infrastructure and Affordable Rental Housing)At the date of issue of this certificate Council is not aware of any

a. Site compatibility certificate (affordable rental housing),
a. Site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments),
b. Site compatibility certificate (seniors housing)

in respect to the land issued pursuant to the Environmental Planning & Assessment Amendment (Site Compatibility Certificates) Regulation 2009 (NSW).

Contamination
Matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 – as listed:

Clause 59(2)(a) - is the land to which the certificate relates is significantly contaminated land?
NO

Clause 59(2)(b) - is the land to which the certificate relates is subject to a management order?
NO

Clause 59(2)(c) - is the land to which the certificate relates is the subject of an approved voluntary management proposal?
NO

Clause 59(2)(d) - is the land to which the certificate relates is subject to an ongoing maintenance order?
NO

Clause 59(2)(e) - is the land to which the certificate relates is the subject of a site audit statement?
NO

Tree Preservation
The land is subject to Section 5.4 Preservation of Trees or Vegetation in Parramatta Development Control Plan 2011.

Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

Coastal Protection
Has the owner (or any previous owner) of the land been consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?
NO

Council Policy
Council has not adopted a policy to restrict the development of the land by reason of the likelihood of projected sea level rise (coastal protection), tidal inundation, subsidence or any other risk.

Council has adopted a policy covering the entire City of Parramatta to restrict development of any land by reason of the likelihood of flooding.

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Parramatta. The Policy will restrict the development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Councils website at www.cityofparramatta.nsw.gov.au or from the Customer Service Centre.

Mine Subsidence
The land is not affected by the Coal Mine Subsidence Compensation Act 2017 proclaiming land to be a Mine Subsidence District.

Bushfire Land
The land is not bushfire prone land.

Threatened Species
The Environment Agency Head with responsibility for the Biodiversity Conservation Act 2016 has not advised Council that the land includes or comprises an area of outstanding biodiversity value.

Biodiversity certified land
The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. *Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.*

Biodiversity stewardship sites
The Chief Executive of the Office of Environment and Heritage has not notified the Council if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.

Native vegetation clearing set asides
Council has not been notified of the land containing a set aside area under section 60ZC of the Local Land Services Act 2013.

Property vegetation plans
Council has not been notified of the existence of the property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 on the land.

Paper Subdivision information
The land is not subject to any development plan adopted by a relevant authority or that is proposed to be subject to a consent ballot. A subdivision order does not apply to the land.

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of the Environmental Planning and Assessment Regulation 2000.

Loose-Fill Asbestos Register
Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.

Site verification certificates
Council is not aware of whether there is a current site verification certificate in respect of the land.

Affected Building Notices and Building Product Rectification Orders
Council is not aware of whether there is any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in respect of the land.

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.* ***building product rectification order*** has the same meaning as in the *Building Products (Safety) Act 2017.*

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Note: This does not constitute a Complying Development Certificate under section 4.27 of the Environmental Planning and Assessment Act 1979

The following information only addresses whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of **Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is not a statement that complying development is permissible on the land.

Other land exemptions within of the State Environmental Planning Policy (Exempt and Complying Development Codes) 2008 may also apply. Furthermore, other provisions within the relevant Local Environmental Plan or a State Environmental Planning Policy which restrict complying development on the land may also apply.

It is your responsibility to ensure that you comply with the relevant complying development provisions for the land. Failure to comply with these provisions may mean that a Complying Development Certificate is invalid.

Note: Low Rise Medium Density Housing Code
The land is in a deferred area under Clause 3B.63 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Complying Development pursuant to the Low Rise Medium Density Housing Code **may not** be carried out on the land.

Housing Code; Rural Housing Code

Complying Development pursuant to the Housing Code and Rural Housing Code **may** be carried out on the land under **Clause 1.17A (1) (c) to (e), (2), (3) and (4) and Clause 1.18 (1)(c3) and Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Commercial and Industrial (New Buildings and Additions) Code

Complying Development pursuant to the Commercial and Industrial (New Buildings and Additions) Code **may** be carried out on the land under **Clause 1.17A (1) (c) to (e), (2), (3) and (4) and Clause 1.18 (1)(c3) and Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

Housing Alterations Code; General Development Code; General Commercial and Industrial (Alterations) Code; Container Recycling Facilities Code; Subdivision Code; Demolition Code; Fire Safety Code

Complying Development pursuant to the Housing Alterations Code, General Development Code, General Commercial and Industrial (Alterations) Code, Container Recycling Facilities Code, Subdivision Code, Demolition Code and Fire Safety Code **may** be carried out on the land under **Clause 1.17A (1) (c) to (e), (2), (3) and (4) and Clause 1.18 (1)(c3) and Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

SPECIAL NOTES

The land is identified as Class 5 on the Acid Sulfate Soils map. Refer to Clause 6.1 of Parramatta Local Environmental Plan 2011.

Applicants for Sections 10.7 Certificates are advised that Council does not hold sufficient information to fully detail the effect of any encumbrances on the title of the subject land. The information available to Council is provided on the basis that neither Council nor its servants hold out advice or warrant to you in any way its accuracy, nor shall Council or its servants, be liable for any negligence in the preparation of that information. Further information should be sought from relevant Statutory Departments.

SECTION C

The following additional information is issued under Section 10.7(5)

Pursuant to S10.7(5) the Council supplies information as set out below on the basis that the Council takes no responsibility for the accuracy of the information. The information if material should be independently checked by the applicant.

Telopea Precinct

This land is identified as "Telopea Precinct" on the Key Sites Map of the Parramatta Local Environmental Plan 2011. See Part 6 of the Parramatta Local Environmental Plan 2011.

Intensive Urban Development Area

This land is identified as an "Intensive Urban Development Area" on the Intensive Urban Development Area Map in the Parramatta Local Environmental Plan 2011. Part 8 of the Parramatta Local Environmental Plan 2011 applies to the land.

Aboriginal Sensitivity Map - Parramatta Development Control Plan (DCP) 2011

Aboriginal Heritage – low sensitivity – limited potential to contain items of Aboriginal heritage. Contact Council's Customer Service/Duty Planner (02) 9806 5050 for more information.

Flood Information

The land is considered by Council TO BE ABOVE the 1 in 100 year mainstream flood level.

This information is based on data available to the Council. It is provided on the basis that neither Council nor its servants hold out advice or warrant to you in any way its accuracy, nor shall the Council or its servants, be liable for any negligence in the preparation of that information.

Note: Advisory Information regarding Combustible Cladding

External combustible cladding on multi-storey buildings has been identified in local government areas including the City of Parramatta. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

Properties that have combustible cladding on buildings are listed in the NSW Government Combustible Cladding Register. Please refer to https://www.claddingregistration.nsw.gov.au/ or call 1300 305 695 for further information regarding the NSW Government Combustible Cladding Register.

There is potential for combustible cladding to be present on buildings that are not listed on the Register.

Note: Advisory Information regarding Loose-Fill asbestos Insulation
Research undertaken by the Loose-Fill Asbestos Insulation Taskforce has determined that there is a potential for loose-fill asbestos insulation to be found in residential dwellings constructed prior to 1980 in 28 local government areas including the City of Parramatta.

Some residential homes located in the City of Parramatta may contain loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Please Contact NSW Fair Trading for further information.

This information has been provided pursuant to section 10.7(5) of the Environmental Planning and Assessment Act, 1979 as amended.

Brett Newman
Chief Executive Officer

per

dated 31 March 2020

PLANNING CERTIFICATE

CERTIFICATE UNDER SECTION 10.7

Environmental Planning and Assessment Act, 1979 as amended

Certificate No: 2019/1903

Fee: $133.00

Issue Date: 31 March 2020

Receipt No: 5956287

Applicant Ref: 120034:119668

DESCRIPTION OF LAND

Address: 25 Burke Street
TELOPEA NSW 2117

Lot Details: Lot 138 DP 36691

SECTION A

The following Environmental Planning Instrument to which this certificate relates applies to the land:

Parramatta Local Environmental Plan 2011

For the purpose of **Section 10.7(2)** it is advised that as the date of this certificate the abovementioned land is affected by the matters referred to as follows:

Contact us:
council@cityofparramatta.nsw.gov.au | 02 9806 5050
@cityofparramatta | PO Box 32, Parramatta, NSW 2124
ABN 49 907 174 773 | **cityofparramatta.nsw.gov.au**

The land is zoned: R4 High Density Residential PLEP2011

Zone R4 - High Density Residential (Parramatta Local Environmental Plan 2011)

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979.
NOTE: This table is an excerpt from Parramatta Local Environmental Plan 2011 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

Zone R4 High Density Residential

1 Objectives of zone
• To provide for the housing needs of the community within a high density residential environment.
• To provide a variety of housing types within a high density residential environment.
• To enable other land uses that provide facilities or services to meet the day to day needs of residents.
• To provide opportunity for high density residential development close to major transport nodes, services and employment opportunities.
• To provide opportunities for people to carry out a reasonable range of activities from their homes if such activities will not adversely affect the amenity of the neighbourhood.

2 Permitted without consent
Home occupations

3 Permitted with consent
Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Home-based child care; Home businesses; Hostels; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Water recycling facilities

4 Prohibited
Pond-based aquaculture; Tank-based aquaculture; Any other development not specified in item 2 or 3

SECTION B
State Policies and Regional Environmental Plans
The land is also affected by the following State Environmental Planning Policies (SEPP) and Regional Environmental Plans (SREP):

State Environmental Planning Policy (SEPP) No.19 - Bushland in Urban Areas
State Environmental Planning Policy (SEPP) No.21 - Caravan Parks
State Environmental Planning Policy (SEPP) No.33 -Hazardous and Offensive Development
State Environmental Planning Policy (SEPP) No.55 - Remediation of Land
State Environmental Planning Policy (SEPP) No.64 - Advertising and Signage
State Environmental Planning Policy (SEPP) No.65 – Design Quality of Residential Flat Development.
State Environmental Planning Policy (SEPP) No.70 -Affordable Housing (Revised Schemes)
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State Environmental Planning Policy (SEPP) (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005
State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (SEPP) (Infrastructure) 2007
State Environmental Planning Policy (SEPP) (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (SEPP) (Affordable Rental Housing) 2009
State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (SEPP) (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (SEPP) (Concurrences) 2018
State Environmental Planning Policy (SEPP) (Primary Production and Rural Development) 2019

Sydney Regional Environmental Plan (SREP) No.9 (No.2) - Extractive Industries
Sydney Regional Environmental Plan (SREP) – (Sydney Harbour Catchment) 2005

DRAFT State Environmental Planning Policy to amend State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006 – Amendment to include the Greater Parramatta Priority Growth Area as a Growth Centre
DRAFT State Environmental Planning Policy (Draft SEPP) – Environment

N.B. All enquiries as to the application of Draft State Environmental Planning Policies should be directed to The NSW Department of Planning, Industry and Environment.

Draft Local Environmental Plan
The land is not affected by a Draft Local Environmental Plan which has been placed on Public Exhibition and has not yet been published.

Development Control Plan
The land is affected by Parramatta Development Control Plan 2011.

The Minister for Planning has issued directions that provisions of an EPI do not apply to certain Part 4 development where a concept plan has been approved under Part 3A.

Development Standards
The land is affected by a minimum lot size of 600 square metres for a Dual Occupancy under Clause 6.11 of the Parramatta Local Environmental Plan 2011.

The land is affected by a minimum lot size of 550 square metres on the Minimum Lot Size map of Parramatta Local Environmental Plan 2011.

Development Contribution Plan
The Parramatta Section 94A Development Contributions Plan (Amendment No. 5) applies to the land.

Heritage Item/Heritage Conservation Area
An item of environmental heritage is not situated on the land.

The land is not located in a heritage conservation area.

Road Widening
The land is not affected by road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.
(b) Any Environmental Planning Instrument.
(c) Any Resolution of Council.

Land Reservation Acquisition
The land is not affected by Land Reservation Acquisition in Parramatta Local Environmental Plan 2011.

Site Compatibility Certificate (Seniors Housing, Infrastructure and Affordable Rental Housing)At the date of issue of this certificate Council is not aware of any

a. Site compatibility certificate (affordable rental housing),
a. Site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments),
b. Site compatibility certificate (seniors housing)

in respect to the land issued pursuant to the Environmental Planning & Assessment Amendment (Site Compatibility Certificates) Regulation 2009 (NSW).

Contamination
Matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 – as listed:

Clause 59(2)(a) - is the land to which the certificate relates is significantly contaminated land?
NO

Clause 59(2)(b) - is the land to which the certificate relates is subject to a management order?
NO

Clause 59(2)(c) - is the land to which the certificate relates is the subject of an approved voluntary management proposal?
NO

Clause 59(2)(d) - is the land to which the certificate relates is subject to an ongoing maintenance order?
NO

Clause 59(2)(e) - is the land to which the certificate relates is the subject of a site audit statement?
NO

Tree Preservation
The land is subject to Section 5.4 Preservation of Trees or Vegetation in Parramatta Development Control Plan 2011.

Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

Coastal Protection
Has the owner (or any previous owner) of the land been consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?
NO

Council Policy
Council has not adopted a policy to restrict the development of the land by reason of the likelihood of projected sea level rise (coastal protection), tidal inundation, subsidence or any other risk.

Council has adopted a policy covering the entire City of Parramatta to restrict development of any land by reason of the likelihood of flooding.

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Parramatta. The Policy will restrict the development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Councils website at www.cityofparramatta.nsw.gov.au or from the Customer Service Centre.

Mine Subsidence
The land is not affected by the Coal Mine Subsidence Compensation Act 2017 proclaiming land to be a Mine Subsidence District.

Bushfire Land
The land is not bushfire prone land.

Threatened Species
The Environment Agency Head with responsibility for the Biodiversity Conservation Act 2016 has not advised Council that the land includes or comprises an area of outstanding biodiversity value.

Biodiversity certified land
The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. *Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.*

Biodiversity stewardship sites

The Chief Executive of the Office of Environment and Heritage has not notified the Council if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.

Native vegetation clearing set asides

Council has not been notified of the land containing a set aside area under section 60ZC of the Local Land Services Act 2013.

Property vegetation plans

Council has not been notified of the existence of the property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 on the land.

Paper Subdivision information

The land is not subject to any development plan adopted by a relevant authority or that is proposed to be subject to a consent ballot. A subdivision order does not apply to the land.

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of the Environmental Planning and Assessment Regulation 2000.

Loose-Fill Asbestos Register

Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.

Site verification certificates

Council is not aware of whether there is a current site verification certificate in respect of the land.

Affected Building Notices and Building Product Rectification Orders

Council is not aware of whether there is any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in respect of the land.

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.* ***building product rectification order*** has the same meaning as in the *Building Products (Safety) Act 2017.*

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

Note: This does not constitute a Complying Development Certificate under section 4.27 of the Environmental Planning and Assessment Act 1979

The following information only addresses whether or not the land is land on which complying development may be carried out under each of the codes for complying development because of the provisions of **Clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1)(c3) and 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. It is not a statement that complying development is permissible on the land.

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Note: Low Rise Medium Density Housing Code
The land is in a deferred area under Clause 3B.63 of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008. Complying Development pursuant to the Low Rise Medium Density Housing Code **may not** be carried out on the land.

Housing Code; Rural Housing Code

Complying Development pursuant to the Housing Code and Rural Housing Code **may** be carried out on the land under **Clause 1.17A (1) (c) to (e), (2), (3) and (4) and Clause 1.18 (1)(c3) and Clause 1.19** of State Environmental Planning Policy (Exempt and Complying Development Codes) 2008.

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SPECIAL NOTES

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Applicants for Sections 10.7 Certificates are advised that Council does not hold sufficient information to fully detail the effect of any encumbrances on the title of the subject land. The information available to Council is provided on the basis that neither Council nor its servants hold out advice or warrant to you in any way its accuracy, nor shall Council or its servants, be liable for any negligence in the preparation of that information. Further information should be sought from relevant Statutory Departments.

SECTION C

The following additional information is issued under Section 10.7(5)

Pursuant to S10.7(5) the Council supplies information as set out below on the basis that the Council takes no responsibility for the accuracy of the information. The information if material should be independently checked by the applicant.

Telopea Precinct

This land is identified as "Telopea Precinct" on the Key Sites Map of the Parramatta Local Environmental Plan 2011. See Part 6 of the Parramatta Local Environmental Plan 2011.

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This land is identified as an "Intensive Urban Development Area" on the Intensive Urban Development Area Map in the Parramatta Local Environmental Plan 2011. Part 8 of the Parramatta Local Environmental Plan 2011 applies to the land.

Aboriginal Sensitivity Map - Parramatta Development Control Plan (DCP) 2011

Aboriginal Heritage – low sensitivity – limited potential to contain items of Aboriginal heritage. Contact Council's Customer Service/Duty Planner (02) 9806 5050 for more information.

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External combustible cladding on multi-storey buildings has been identified in local government areas including the City of Parramatta. Combustible cladding is a material that is capable of readily burning.

You should make your own enquiries as to the type of materials that have been used to construct the building. It is recommended that the purchaser obtain a building report from an appropriately qualified person to determine if any cladding type material may pose a risk to the building's occupants. Council may issue orders to rectify a building where combustible cladding is found.

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Research undertaken by the Loose-Fill Asbestos Insulation Taskforce has determined that there is a potential for loose-fill asbestos insulation to be found in residential dwellings constructed prior to 1980 in 28 local government areas including the City of Parramatta.

Some residential homes located in the City of Parramatta may contain loose-fill asbestos insulation, for example in the roof space. NSW Fair Trading maintains a Register of homes that are affected by loose-fill asbestos insulation.

You should make your own enquiries as to the age of the buildings on the land to which this certificate relates and, if it contains a building constructed prior to 1980, the council strongly recommends that any potential purchaser obtain advice from a licensed asbestos assessor to determine whether loose fill asbestos is present in any building on the land and, if so, the health risks (if any) this may pose for the building's occupants.

Please Contact NSW Fair Trading for further information.

This information has been provided pursuant to section 10.7(5) of the Environmental Planning and Assessment Act, 1979 as amended.

Brett Newman
Chief Executive Officer

per

dated 31 March 2020

PLANNING CERTIFICATE

CERTIFICATE UNDER SECTION 10.7

Environmental Planning and Assessment Act, 1979 as amended

Certificate No: 2019/1904

Fee: $133.00

Issue Date: 31 March 2020

Receipt No: 5956287

Applicant Ref: 120034:119668

DESCRIPTION OF LAND

Address: 26 Marshall Road
TELOPEA NSW 2117

Lot Details: Lot 251 DP 36743

SECTION A

The following Environmental Planning Instrument to which this certificate relates applies to the land:

Parramatta Local Environmental Plan 2011

For the purpose of **Section 10.7(2)** it is advised that as the date of this certificate the abovementioned land is affected by the matters referred to as follows:

Contact us:
council@cityofparramatta.nsw.gov.au | 02 9806 5050
@cityofparramatta | PO Box 32, Parramatta, NSW 2124
ABN 49 907 174 773 | **cityofparramatta.nsw.gov.au**

The land is zoned: R4 High Density Residential PLEP2011

Zone R4 - High Density Residential (Parramatta Local Environmental Plan 2011)

Issued pursuant to Section 10.7 of the Environmental Planning and Assessment Act, 1979.
NOTE: This table is an excerpt from Parramatta Local Environmental Plan 2011 and must be read in conjunction with and subject to the other provisions of that instrument, and in force at that date.

Zone R4 High Density Residential

1 Objectives of zone
• To provide for the housing needs of the community within a high density residential environment.
• To provide a variety of housing types within a high density residential environment.
• To enable other land uses that provide facilities or services to meet the day to day needs of residents.
• To provide opportunity for high density residential development close to major transport nodes, services and employment opportunities.
• To provide opportunities for people to carry out a reasonable range of activities from their homes if such activities will not adversely affect the amenity of the neighbourhood.

2 Permitted without consent
Home occupations

3 Permitted with consent
Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Educational establishments; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Flood mitigation works; Home-based child care; Home businesses; Hostels; Information and education facilities; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Public administration buildings; Recreation areas; Recreation facilities (indoor); Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Water recycling facilities

4 Prohibited
Pond-based aquaculture; Tank-based aquaculture; Any other development not specified in item 2 or 3

SECTION B
State Policies and Regional Environmental Plans
The land is also affected by the following State Environmental Planning Policies (SEPP) and Regional Environmental Plans (SREP):

State Environmental Planning Policy (SEPP) No.19 - Bushland in Urban Areas
State Environmental Planning Policy (SEPP) No.21 - Caravan Parks
State Environmental Planning Policy (SEPP) No.33 -Hazardous and Offensive Development
State Environmental Planning Policy (SEPP) No.55 - Remediation of Land
State Environmental Planning Policy (SEPP) No.64 - Advertising and Signage
State Environmental Planning Policy (SEPP) No.65 – Design Quality of Residential Flat Development.
State Environmental Planning Policy (SEPP) No.70 -Affordable Housing (Revised Schemes)
State Environmental Planning Policy (SEPP) (Housing for Seniors or People with a Disability) 2004
State Environmental Planning Policy (SEPP) (Building Sustainability Index: BASIX) 2004
State Environmental Planning Policy (SEPP) (State Significant Precincts) 2005
State Environmental Planning Policy (SEPP) (Mining, Petroleum Production and Extractive Industries) 2007
State Environmental Planning Policy (SEPP) (Infrastructure) 2007
State Environmental Planning Policy (SEPP) (Exempt and Complying Development Codes) 2008
State Environmental Planning Policy (SEPP) (Affordable Rental Housing) 2009
State Environmental Planning Policy (SEPP) (Vegetation in Non-Rural Areas) 2017
State Environmental Planning Policy (SEPP) (Educational Establishments and Child Care Facilities) 2017
State Environmental Planning Policy (SEPP) (Concurrences) 2018
State Environmental Planning Policy (SEPP) (Primary Production and Rural Development) 2019

Sydney Regional Environmental Plan (SREP) No.9 (No.2) - Extractive Industries
Sydney Regional Environmental Plan (SREP) – (Sydney Harbour Catchment) 2005

DRAFT State Environmental Planning Policy to amend State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres) 2006 – Amendment to include the Greater Parramatta Priority Growth Area as a Growth Centre
DRAFT State Environmental Planning Policy (Draft SEPP) – Environment

N.B. All enquiries as to the application of Draft State Environmental Planning Policies should be directed to The NSW Department of Planning, Industry and Environment.

Draft Local Environmental Plan
The land is not affected by a Draft Local Environmental Plan which has been placed on Public Exhibition and has not yet been published.

Development Control Plan
The land is affected by Parramatta Development Control Plan 2011.

The Minister for Planning has issued directions that provisions of an EPI do not apply to certain Part 4 development where a concept plan has been approved under Part 3A.

Development Standards
The land is affected by a minimum lot size of 600 square metres for a Dual Occupancy under Clause 6.11 of the Parramatta Local Environmental Plan 2011.

The land is affected by a minimum lot size of 550 square metres on the Minimum Lot Size map of Parramatta Local Environmental Plan 2011.

Development Contribution Plan
The Parramatta Section 94A Development Contributions Plan (Amendment No. 5) applies to the land.

Heritage Item/Heritage Conservation Area
An item of environmental heritage is not situated on the land.

The land is not located in a heritage conservation area.

Road Widening
The land is not affected by road widening or road realignment under:

(a) Division 2 of Part 3 of the Roads Act 1993.
(b) Any Environmental Planning Instrument.
(c) Any Resolution of Council.

Land Reservation Acquisition
The land is not affected by Land Reservation Acquisition in Parramatta Local Environmental Plan 2011.

Site Compatibility Certificate (Seniors Housing, Infrastructure and Affordable Rental Housing)At the date of issue of this certificate Council is not aware of any

a. Site compatibility certificate (affordable rental housing),
a. Site compatibility certificate (infrastructure) or site compatibility certificate (schools or TAFE establishments),
b. Site compatibility certificate (seniors housing)

in respect to the land issued pursuant to the Environmental Planning & Assessment Amendment (Site Compatibility Certificates) Regulation 2009 (NSW).

Contamination
Matters contained in Clause 59(2) as amended in the Contaminated Land Management Act 1997 – as listed:

Clause 59(2)(a) - is the land to which the certificate relates is significantly contaminated land?
NO

Clause 59(2)(b) - is the land to which the certificate relates is subject to a management order?
NO

Clause 59(2)(c) - is the land to which the certificate relates is the subject of an approved voluntary management proposal?
NO

Clause 59(2)(d) - is the land to which the certificate relates is subject to an ongoing maintenance order?
NO

Clause 59(2)(e) - is the land to which the certificate relates is the subject of a site audit statement?
NO

Tree Preservation
The land is subject to Section 5.4 Preservation of Trees or Vegetation in Parramatta Development Control Plan 2011.

Council has not been notified of an order under the Trees (Disputes Between Neighbours) Act 2006 to carry out work in relation to a tree on the land.

Coastal Protection
Has the owner (or any previous owner) of the land been consented in writing to the land being subject to annual charges under section 496B of the Local Government Act 1993 for coastal protection services that relate to existing coastal protection works (within the meaning of section 553B of that Act)?
NO

Council Policy
Council has not adopted a policy to restrict the development of the land by reason of the likelihood of projected sea level rise (coastal protection), tidal inundation, subsidence or any other risk.

Council has adopted a policy covering the entire City of Parramatta to restrict development of any land by reason of the likelihood of flooding.

Council has adopted by resolution a policy on contaminated land that applies to all land within the City of Parramatta. The Policy will restrict the development of the land if the circumstances set out in the policy prevail. A copy of the policy is available on Councils website at www.cityofparramatta.nsw.gov.au or from the Customer Service Centre.

Mine Subsidence
The land is not affected by the Coal Mine Subsidence Compensation Act 2017 proclaiming land to be a Mine Subsidence District.

Bushfire Land
The land is not bushfire prone land.

Threatened Species
The Environment Agency Head with responsibility for the Biodiversity Conservation Act 2016 has not advised Council that the land includes or comprises an area of outstanding biodiversity value.

Biodiversity certified land
The land is not biodiversity certified land under Part 8 of the Biodiversity Conservation Act 2016.

Note. *Biodiversity certified land includes land certified under Part 7AA of the Threatened Species Conservation Act 1995 that is taken to be certified under Part 8 of the Biodiversity Conservation Act 2016.*

Biodiversity stewardship sites

The Chief Executive of the Office of Environment and Heritage has not notified the Council if the land is a biodiversity stewardship site under a biodiversity stewardship agreement under Part 5 of the Biodiversity Conservation Act 2016.

Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the Threatened Species Conservation Act 1995 that are taken to be biodiversity stewardship agreements under Part 5 of the Biodiversity Conservation Act 2016.

Native vegetation clearing set asides

Council has not been notified of the land containing a set aside area under section 60ZC of the Local Land Services Act 2013.

Property vegetation plans

Council has not been notified of the existence of the property vegetation plan approved under Part 4 of the Native Vegetation Act 2003 on the land.

Paper Subdivision information

The land is not subject to any development plan adopted by a relevant authority or that is proposed to be subject to a consent ballot. A subdivision order does not apply to the land.

Note: Words and expressions used in this clause have the same meaning as they have in Part 16C of the Environmental Planning and Assessment Regulation 2000.

Loose-Fill Asbestos Register

Council has not been notified by NSW Fair Trading of the property being listed on the loose-fill asbestos insulation register maintained by the Secretary of NSW Fair Trading.

Site verification certificates

Council is not aware of whether there is a current site verification certificate in respect of the land.

Affected Building Notices and Building Product Rectification Orders

Council is not aware of whether there is any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in respect of the land.

Note: ***affected building notice*** has the same meaning as in the *Building Products (Safety) Act 2017.* ***building product rectification order*** has the same meaning as in the *Building Products (Safety) Act 2017.*

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Brett Newman
Chief Executive Officer

per

dated 31 March 2020

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX G: PHOTOGRAPHIC PLATES

1. Recreational area of Stage 1A (facing south).

2. Recreational area of Stage 1A (north of Polding Place).

3. Western area of Stage 1A (facing north).

4. Currently 33 Sturt Street – proposed to be Stage 1C (facing south east).

5. Water feature in western area of Stages 1B / 1C (facing east).

6. West of entrance to 33 Sturt Street residential complex (facing north east).

7. Stage 1D

8. Stage 1D and 1E

9. Stage 1E

10. Northern side of 1E (view from Shortland street).

11. Stage 1F

12. Stage 1F

13. Northern area of Stage 1F (facing south).

14. South eastern area of Stage 2A.

15. South eastern area of Stage 2A.

16. Foul odour noted on ground surface of Stage 2A.

17. South eastern area of Stage 2A.

18. Property: 2 FigTree Avenue located in south western area of Stage 2A (facing east).

19. North western area of Stage 2A (facing east).

20. Northern area of Stage 2A.

21. Northern area of Stage 2B.

22. Stage 2B at the corner of Marshall Road and the Parade.

23. Stage 2B – 26 Marshall Road (facing south).

24. Western area of Stage 2B (facing south east).

25. Stage 2C.

26. Stage 2C.

27. Stage 2C.

28. Stage 2C.

29. Southern end of Stage 2D.

30. Stage 2D: empty lot, with anthropogenic material around the base of the tree, potential for ACM fragments.

31. Stage 2D – property: 10 The Parade.

32. Centre of 2D – 16 The Parade.

33. Stage 3A - north of Field Place.

34. Stage 3A - north of Field Place.

35. Stage 3A - North of Field Place.

36. Stage 3B - West of Burke Street.

37. Stage 3B - West of Burke Street

38. Stage 3B – 17 Chestnut Avenue.

39. **Stage 3B- West of Telopea Public School**

40. Stage 3B.

41. Stage3B – Corner of Burke Street and Cunningham Street.