

**AMENDMENT C234 TO
THE CARDINIA
PLANNING SCHEME:
PAKENHAM EAST PSP**

**LANDSCAPE
ARCHITECTURAL
EXPERT WITNESS
STATEMENT**

DATE MAY 28, 2018
REF ND2281
PREPARED FOR PARKLEA DEVELOPMENTS PTY LTD

URBIS

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Darren Atkinson
Senior Consultant	Tristan Andrews
Project Code	ND2281
Report Number	Expert Witness Statement



Urbis' Public Policy team has received ISO 20252 Certification for the provision of Social Policy Research and Evaluation

Template version 2016.1.0

All information supplied to Urbis in order to conduct this research has been treated in the strictest confidence. It shall only be used in this context and shall not be made available to third parties without client authorisation. Confidential information has been stored securely and data provided by respondents, as well as their identity, has been treated in the strictest confidence and all assurance given to respondents have been and shall be fulfilled.

© Urbis Valuations Pty Ltd
ABN 28 105 273 523

All Rights Reserved. No material may be reproduced without prior permission.

urbis.com.au

TABLE OF CONTENTS

1.	Introduction	1
1.1.	Summary of Opinion	2
2.	Context.....	3
2.1.	Setting.....	3
2.2.	Existing Vegetation	3
3.	Description of the Proposed Development	9
3.1.	Summary.....	9
3.2.	Landscape	9
4.	Summary of Opinion – Landscape ARchitecture.....	10
4.1.	Approach to Landscape Assessment	10
4.2.	Topography / Ridgelines	10
4.2.1.	Initial Visual Impact.....	10
4.2.2.	Landscape Recommendations	11
4.3.	Open Space / Reserves in the Southern Neighbourhood	11
4.3.1.	Landscape Recommendations	12
4.4.	General Landscape Considerations	13
4.4.1.	Hilltop Park.....	13
4.5.	Summary of Landscape Assessment	13
5.	Conclusion	14

Appendix A	Response to Planning Panels Victoria G2 Guide to Expert Evidence
Appendix B	Exhibited PSP
Appendix C	Revised VPA FUSP – Option 1 By Mesh Planning
Appendix D	Slope Analysis
Appendix E	Terrain Analysis
Appendix F	Slope Analysis of the existing Berwick and Officer townships by Urbis

PICTURES:

Picture 1 – Looking west from Mt. Ararat Road South towards the subject site and Princes Freeway reserve to the southern boundary.....	4
Picture 2 – View from the Princes Freeway (Pakenham Bypass) looking north across the subject site and noting the ridgeline’s in the long distance.....	4
Picture 3 – Looking north from the Princes Freeway towards the existing high point on the subject site.	5
Picture 4 – The character of the existing high point of the subject site looking east.....	5
Picture 5 – Character of the subject site at the high point looking towards the existing residence and farm sheds. Note the vegetation in this area is predominantly exotic.	6
Picture 6 – View from the Princes Highway looking south east from Deep Creek to the high point.....	6
Picture 7 - Looking south across Princes Highway to the entry road leading to the high point on the subject site.	7
Picture 8 - View from the access road to the highpoint off Princes Highway looking west to Deep Creek.....	7
Picture 9 - View from Dore Road looking west along the existing electricity easement towards the Pakenham township in the background.....	8
Picture 10 – View from the Canty Lane looking east towards the subject land.....	8
Picture 11 - View from the private access road / driveway off Princes Highway looking north to the existing sheds and residence on the hilltop	11

1. INTRODUCTION

My name is Darren John Atkinson and I am the Director of Landscape Architecture of Urbis Pty Ltd (Urbis), Level 12, 120 Collins Street, Melbourne. My qualifications and experience are set out in Appendix A of this report and summarised below.

I have over 28 years' experience on a diverse range of projects, locally, nationally and overseas. Typical experience includes concept design, site planning and investigation, landscape analysis, master planning, construction documentation, detail design and contract administration. These phases have been applied to private developments such as residential developments, shopping centres, streetscapes and other public works.

My work has encompassed most aspects of landscape architecture and I have project managed many landscape construction projects including government projects which required thorough public consultation.

- Residential developments; dual occupancy through to high-rise apartments and public housing.
- New communities and greenfield land development including drainage corridors, public open space and streetscapes.
- Aged care facilities and retirement villages.
- Streetscapes and shared pathways.
- Large infrastructure landscapes including freeways, desalination and water treatment plants.
- Retail outlets and commercial landscape design and documentation.
- General advice on landscape issues affecting property redevelopment.

The Amendment applies to the Pakenham East precinct, which is an area of approximately 630 hectares generally bounded by Deep Creek Ryan Road and the Pakenham township to the west, Mount Ararat Road North and South to the east and the Princess Freeway to the south.

Key components of the Amendment I have focused on that could influence the landscape outcome include the following:

- Topography. The PSP vision refers to "protecting ridgelines, facilitating responsive development on steeper land, safe guarding views to and from hilltops" and
- The location of the open space.

As a preliminary matter, I was instructed to review the briefing material provided, the subject of the Amendment. I was then directed to:

- Consider and formulate your own opinions, within the limits of your expertise, with respect to the appropriateness of the Amendment in respect of relevant landscape considerations; and
- Prepare a statement of evidence which sets out the conclusions which you have reached, and clearly state the basis upon which you have arrived at that conclusion, including any facts you have relied upon or assumption which you have made which form part of the reasoning by which you reach your conclusions.

In undertaking my expert report, I inspected the site on Wednesday 9th May, 2018 and neighbouring areas and have considered the following documents:

- Amendment C234 documentation including all material submitted as part of the rezoning request including the Guidelines for Slope Management in Subdivisions.
- Submissions to the VPA responding to the exhibition of C234.
- Cardinia Shire Council Developer landscape guidelines, January 2017.
- Clause 56.05 Urban Landscape of the Cardinia Planning Scheme.

My assessment of the proposed residential rezoning C234 has considered the site planning scenario prepared by Mesh Planning.

1.1. SUMMARY OF OPINION

It is my opinion that the proposed rezoning and residential development as proposed in the Mesh FUSP responds appropriately to the existing landscape setting and topography of the subject site and functionality of active open space. My opinion as outlined in this witness statement also confirms that a residential development with two areas of active open space responds to the existing topography, proposed services and infrastructure and will provide an acceptable landscape outcome for future residents and users of the southern precinct.

In addition to the plans prepared by Mesh Planning I have also prepared a slope analysis of the broader Pakenham and Officer area (Appendix F) that indicates slope analysis and where residential estates have been successfully designed on slopes greater than 10% and not had a negative visual impact on ridgelines. However, I agree this should be kept to a minimum and as graphically presented in the exhibited PSP and the Mesh FUSP I believe this objective is met.

As referenced in the exhibited PSP the active open space (AOS) is collocated on a 13.5-hectare area towards the southern border of the precinct. I am of the opinion the open space could be successfully reduced in size and sited in this general zone and adjacent to the gas easement. As shown in the Mesh FUSP a second area of AOS could be located further east and abutting a future government school.

The proposed FUSP option is well considered and will provide for extensive connectivity between assets within the PSP. This feature and the associated zones for landscaping ensures that the character and amenity of the residential area, from a landscape perspective, will be enhanced. The landscape functionality and outcome will be appropriate to the area and contribute to the character of Cardinia Shire.

2. CONTEXT

2.1. SETTING

The subject area is located within the Pakenham East PSP and neighbours the Ryan Road and Pakenham township to the west, the Princes Freeway to the south, the Mount Ararat Road to the east. The Princes Highway runs east-west through the subject land. The subject land I have reviewed and referenced in this statement relates to the land south of the Princes Highway.

The vegetation on the subject site has been highly modified since settlement and contains mostly introduced pasture grasses for cattle grazing. Good quality areas of remnant vegetations are located within Mt Ararat Road South, Princes Freeway, Cauty Lane and Princes Highway and provides significant screening of the subject site. Additional canopy planting along these interfaces associated with streetscapes and open space associated with water quality will ensure a leafy contribution to the neighbourhood.

The site is in the South East Growth Corridor and generally zoned Farming Zone. The Amendment will rezone the area to Urban Growth Zone.

2.2. EXISTING VEGETATION

As described in Amendment C234 the study area is a highly modified landscape and is dominated by pasture grass. Good patches of native vegetation are generally located along road reserves such as Cauty Lane and along Deep Creek. Remnant vegetation comprises several poor to good quality patches and I understand the site planning would attempt to retain these areas if possible. Some scattered indigenous trees are present throughout the study area and are recommended for retention.

The Pakenham East PSP requires future development to respond to flora and fauna species and habitats in accordance with the Pakenham East Native Vegetation Precinct Plan. I support this requirement and note additional mapping of the existing vegetation on the subject land is in progress. An additional tree survey has been commissioned and will confirm the status of all vegetation for protection and removal.



Picture 1 – Looking west from Mt. Ararat Road South towards the subject site and Princes Freeway reserve to the southern boundary. The topography raises to a low hill to the north.



Picture 2 – View from the Princes Freeway (Pakenham Bypass) looking north across the subject site and noting the ridgelines in the far distance



Picture 3 – Looking north from the Princes Freeway towards the existing high point on the subject site.



Picture 4 – The character of the existing high point of the subject site looking east towards Mount Ararat Road South.



Picture 5 – Character of the subject site at the high point looking southeast towards an existing residence and farm sheds. Note the vegetation in this area is predominantly exotic.



Picture 6 – View from the Princes Highway looking south east from Deep Creek to the high point.



Picture 7 - Looking south across Princes Highway to the entry road leading to the high point on the subject site.



Picture 8 - View from the access road to the highpoint off Princes Highway looking west to Deep Creek.



Picture 9 - View from Dore Road looking west along the existing electricity easement towards the Pakenham township in the background.



Picture 10 – View from Canty Lane looking east towards the subject land.

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1. SUMMARY

The landscape opinion has been prepared to respond to the exhibited Future Urban Structure Plan by the Victorian Planning Authority (December 2017) and the proposed Future Urban Structure Plan prepared by Mesh Planning on behalf of Parklea Developments (May 2018).

The proposed residential rezoning and references in the documentation provided indicates two areas of consideration as follows:

- Topography. The PSP vision refers to "...protecting ridgelines, facilitating responsive development on steeper land, safe guarding views to and from hilltops" and
- The location of the active open space and whether it should be collocated or split into two independent assets.

3.2. LANDSCAPE

The landscape response has been guided by the principles set out in PSP and primarily focused on the topography of the interface between the subject site south of the Princes Highway and the location of active open space (refer Appendix B and C). Responding to the revised FUSP – Option 1 by Mesh Planning (refer to Appendix C) consideration has also been given to the land north of the Princes Highway and the existing townships of Pakenham and Officer to the west and the Princes Freeway (Pakenham Bypass) interface to the south.

The proposed layout recognises the sensitivity of the ridgelines and landscape setting and the need to be sensitive to views to and from the broader landscape.

The approach to the location of the AOS from a landscape perspective is applauded as both sites proposed are located along the axis of the connector boulevards and become focal points within the new community.

4. SUMMARY OF OPINION – LANDSCAPE ARCHITECTURE

My assessment of Amendment C234 to the Cardinia Planning Scheme has been undertaken referencing the exhibited PSP and an alternate development scenario prepared by Mesh Planning. My evidence report, including the appended plans and maps are the base for my assessment and conclude the proposed Mesh Planning option provides acceptable landscape outcomes for the proposed residential rezoning.

The recommendations I have set out in this section aim to indicate how the revised FUSP can respond to concerns raised and the proposed amendments can be supported.

4.1. APPROACH TO LANDSCAPE ASSESSMENT

The objective of the landscape assessment is to meet the following objectives:

- The impact of residential built form will not be visually intrusive on the high points including ridgelines.
- The location of any retarding basin or public open space required for active open space and the management of stormwater within the site will be on relatively flat land and at low points.
- Pedestrian connections throughout the new community will be safe with clear wayfinding.
- The size and location of uncredited and credited public open space will be best practice and located to maximise the yield of the development.
- Consider options for AOS siting, having regard to Clause 56.05 Urban Landscape.

4.2. TOPOGRAPHY / RIDGELINES

In my opinion the northern boundary along the Princes Highway is the most sensitive interface to be considered and appropriate landscape design to ameliorate any negative impact on the broader precinct is my principal concern to consider.

From the Princes Freeway (Pakenham Bypass), views towards the subject site will be partially screened by the existing vegetation within this road reserve. The potential built form on the elevations above 51 metres will be partially visible and would not be completely screened by the existing vegetation. However, evidence suggests new communities are often softened within a short to medium term by new landscaping. The exhibited PSP and proposed FUSP site credited open space on this hilltop to assist integration of the residential zone at detail design.

Visual exposure works both ways. If views are possible from the hilltops then views will be possible from the broader precinct. However, in my opinion the visual impact will be minimal as the views are long distance and as street trees and private gardens establish the impact of the built form will be ameliorated over time.

I have reviewed the exhibited PSP at Requirement R7, together with the Guidelines to Slope Management in Subdivisions and confirm they are an appropriate guide when designing future lots and the associated infrastructure such as roads and services.

4.2.1. Initial Visual Impact

The visual impact from the hilltop location is low given the relative lack of visibility of the existing site sheds and residences currently located in this area on the subject site.

Future built form may be visible in the short term, but I have observed hilltops are generally vegetated in the medium term and become vegetated with a combination of established street tree planting complemented with private garden plantings.

The slope analysis in Appendix F indicates how the townships of Pakenham East and Officer have been developed and where ridgelines have been successfully integrated into the urban design.



Picture 11 - View from the private access road / driveway off Princes Highway looking north to the existing sheds and residence on the hilltop

4.2.2. Landscape Recommendations

Future design of land above 50 metres where some slopes exceed 10% will require consideration. I understand the worst-case scenario may be in the order of 1 in 13.5 (sourced SMEC Engineering). I therefore recommend the following to ameliorate grading concerns.

- Erosion control through an Environmental Management Plan and
- Terraces / benching of lots involving stone retaining walls. With lot depths typically in the order of 28 – 32 metres I understand this can be achieved and may require 1 metre high walls at some frontages and varying between 1 and 2 metres at the rear of lots.

The requirements of R7 are supported acknowledging more detailed urban design and landscape site planning will be required to influence future engineering works and contribute to a slope management plan subject to the responsible authority's approval.

The slope management plan will minimise the visual impact of retaining walls and ensure landscaping opportunities are maximised.

4.3. OPEN SPACE / RESERVES IN THE SOUTHERN NEIGHBOURHOOD

The sport and recreation reserves will attract visitors to the area by providing a range of active recreational options.

The exhibited PSP and proposed amendment provides 10% NDA credited open space and a range of recreational opportunities that meet the PSP Guideline standard. This provision is provided by local parks and local sports reserves (23.68 hectares). The objective of the guidelines also calls for 95% of dwellings to be within 400 metres of a local park, which has also been achieved.

In my opinion the exhibited active open space in the southern precinct has numerous options. In reviewing the proposal to split the AOS into two I understand the two zones can provide the following infrastructure as follows:

AOS 1 – 10.1ha	AOS 2 – 3.8 ha
3 x Senior Ovals	2 x Soccer
Larger Pavilion	4 x Netball
Cricket Nets	Medium Pavilion
Car Parking	Playground
	Car Parking

AOS 1 appears to be relocated westerly and bordered by the gas easement. The minor relocation of this asset will benefit from a slighter flatter zone as it moves out of the area with more slope. In addition, it would be better integrated with the gas easement and visually connects to the uncredited open space and drainage infrastructure to the south. This area of this AOS has been calculated at approximately 10.1 hectares thus above Standard C13 where the provision states active open space should be at least 8 hectares in area.

AOS2 is located adjacent to a future government school and indoor recreation zone to the northeast. This area of AOS connects to the watercourse to the west and uncredited open space and drainage reserve to the south. The size of this AOS is approximately 3.8 hectares thus less than the provision referenced in Standard C13. As this southern portion already meets the requirements with AOS 1 I am of the opinion this secondary AOS in the location proposed can meet other provisions of the standards such as adjoining schools and other community facilities where practical and this sharing space between the future school and community.

I have reviewed clause 56.05 of the Cardinia Planning Scheme in relation to the open space locations and in my opinion the alternate scheme meets the public open space provision objectives as follows:

- To provide a network of quality, well-distributed, multi-functional and cost-effective public open space that includes local parks, active open space, linear parks and trails and links to regional open space.
- To provide a network of open space that caters for a broad range of users.
- To encourage healthy and active communities.
- To provide adequate unencumbered land for public open space and integrate and encumbered land with open space network.
- To ensure land provided for public open space can be managed in an environmentally sustainable way and contributes to the development of sustainable neighbourhoods.

Given the sensitive approach to recreational design and the strategic integration proposed, it is anticipated that there will be no negative impacts to the broader neighbourhood at these locations. Both areas of AOS provide flexibility for future uses.

4.3.1. Landscape Recommendations

The proposed AOS outlined in the Mesh FUSP can be supported. The size and orientation of the two areas can accommodate various forms of active recreation and we know this requirement does change over time so the spaces allocated need to be flexible and situated in areas where they can be integrated with other assets in the new community.

I am also of the strong opinion that a degree of visual connectivity between all reserves and adjacent uses is critical to ensure that community protection through environmental design (CPTED) principles can be achieved and the area is landscaped to reflect and continue the existing landscape setting along this corridor.

4.4. GENERAL LANDSCAPE CONSIDERATIONS

The Amendment will set the scene for a vibrant and healthy community. The internal road and pedestrian path system and associated open space provides for generous tree planting. The internal road and open space hierarchy and associated landscaping is connected throughout the site via green links. They lead to the proposed built form.

Street tree planting is proposed throughout the proposed development and will be a mix of native and exotic species. Most species have been selected from the Cardinia Shire Landscape Guidelines.

The PSP is unique as the site planning and circulation is contained with no link to the south or east as the Princes Freeway (Pakenham Bypass) has not considered a connector road to the land to the south.

4.4.1. Hilltop Park

The proposed hill top pocket park is credited open space located on the steepest part of the southern precinct of the exhibited PSP. This park may include a lookout to take advantage of the views across the valley.

The design of the park will be functional with the pedestrian paths linking to the broader path networks and will be an opportunity to plant trees and establish a treed hilltop to integrate future development with the backdrop of ridgelines in the distance.

The area may include a small playground located centrally in the space and may also include picnic furniture such as a bench seat and a small shelter for the future residents of the development to enjoy and share with visitors to the area.

4.5. SUMMARY OF LANDSCAPE ASSESSMENT

Based on my review of the subject site, surrounding neighbourhood and direct interfaces, I consider the requirements set out in Amendment and alternative Mesh FUSP – Option 1 can be achieved and will enhance the exhibited PSP. The proposal will meet the requirements of the PSP.

The alternative Mesh FUSP can achieve the following:

- Retention and protection of significant vegetation;
- Planting of new trees;
- Achieve connectivity across the precinct with an integrated pedestrian and open space network;
- Create a defined and integrated landscape with the gas easement along the western boundary of AOS 1 (10.1 hectares) including 3 senior ovals, cricket nets, car parking and a large pavilion. The proposed repositioning will reduce future earthworks to the east of this zone.
- Create a second AOS2 (3.8 hectares) adjacent to future government school and indoor recreation and adjacent to the uncredited open space / drainage reserve including 2 soccer pitches, 4 netball courts, playground, medium pavilion and car parking;
- Develop a pocket park on the hill top
- Design and integrate pedestrian and cycle path connections to the broader path network;
- Screen planting and feature fencing to major road boundaries;
- Enhance Deep Creek with weed control and rehabilitation planting; and
- Establish a tree canopy within the streetscapes ensuring the spacing and arrangement maximises opportunities for planting.

In summary, I support the proposed FUSP – Option 1 designed to respond to the exhibited PSP that sufficiently considers the existing topography and future grading requirements.

5. CONCLUSION

It is my opinion that the alternative Mesh FUSP as detailed is an improved landscape outcome for the proposed residential rezoning; Amendment C234.

The plan has effectively responded to existing topography and concerns about the impact of development on the ridgelines. The site planning provides opportunities for collocating AOS with other assets such as AOS1 adjacent to the gas easement and AOS2 adjacent to a proposed government school.

Pedestrian connection through the PSP have been considered and will connect all areas of open space and significant community assets within the precinct.

In addition, and as a requirement of the responsible authority's developer landscape guidelines a landscape master plan will outline the role and function of each type open space type reflecting local context and interests. The landscape master plan will aim to provide a clear overview of the landscaping intentions for the site and demonstrate that due consideration has been given to the relevant planning policy documents including the precinct structure plan and vegetation management plans have been met. An extensive checklist needs to be completed and submitted with all proposed landscape master plans.

The landscape master plan should items including but not limited to the following:

- Existing and proposed contours and levels including falls;
- Existing trees and vegetation approved to be retained and or removed including roadside remnant vegetation;
- Reserve boundaries;
- Existing and proposed easements;
- Road and nature strip widths (generally in accordance with VPA PSP Note – Our Roads: Connecting People);
- The proposed location of all furniture and play elements;
- An indicative plant schedule and areas to be grassed including sporting facilities;
- Proposed location of mounding and view lines if relevant;
- Proposed location of car parking;
- Consideration of and compliance with Crime Prevention Through Environmental Design Principles (CPTED) and
- Any items required to be delivered under the relevant Development Contributions Plan (DCP).

I have made all enquires that I believe are desirable and appropriate in order to provide accurate evidence. No matters of significance that I regard to be significant have been withheld from the Panel.

APPENDIX A RESPONSE TO PLANNING PANELS

VICTORIA G2 GUIDE TO EXPERT EVIDENCE

1. Name and Professional Address of Expert

Darren John Atkinson

Director, Landscape Architecture.

Urbis Pty Ltd.

Level 12, 120 Collins Street, Melbourne.

Telephone No: 8663 4888, Facsimile No: 8663 4999.

2. Qualifications and experience

Qualifications and Professional Affiliations

Bachelor of Applied Science in Landscape Architecture, RMIT 1989.

Registered Landscape Architect – # 000695 – Current.

Fellow of the Australian Institute of Landscape Architects (AILA).

President AILA Victoria – 2005 - 2007

Chair AILA National Membership Committee – Current.

Member AILA National Practices Committee – Current

Member VPELA - Current

Experience

Gerner and Sanderson Consulting Group – Landscape Architect, 1988 – 1991.

Scenic Spectrums – Landscape Architect, 1991 – 1992.

Department of Planning and Development – Contract Landscape Architect. 1992 – 1994

Melbourne Parks and Waterways – Contract Landscape Architect, 1994

ASPECT – Landscape Architect, 1994 – 1996

Fisher Stewart / Earth Tech / SMEC Urban including an 18-month contract position at Bayside City Council – Manager of Landscape Architecture, 1996 - 2011

Urbis - Director, Melbourne Design, July 2011 onwards.

3. Area of expertise

My work has encompassed most aspects of landscape architecture and I have expertise in the preparation of landscape plans for many project types including:

- Mixed use developments;
- Medium and high density residential developments;
- Commercial and industrial developments;
- Shopping Centres;
- Parks, Reserves and Open Space relating to sports infrastructure;
- Residential Estates and New Communities and
- General advice and expert opinions on landscape amelioration.

4. Expertise to prepare this Report

I have worked as a Landscape Architect for over 28 years' experience on a diverse range of projects, locally, nationally and overseas. Typical experience includes concept design, site planning and investigation, landscape analysis, master planning, construction documentation, detail design and contract administration. These phases have been applied to private developments such as residential developments, shopping centres, streetscapes and other public works.

5. Instructions received in relation to this matter

I have been instructed by Minter Ellison Lawyers, in briefing material dated 1st May 2018 to provide expert landscape evidence, particularly relating to the sensitive ridgelines and open space network.

6. Facts, matters and assumptions upon which the report proceeds

My evidence is based principally on the assessment of the Mesh FUSP outcome contemplated in terms of future development of the subject land.

7. Reference documents used to prepare the plans, sections and photo simulations

As specified in the evidence.

8. Identity of the person and Supporting Professionals

Other persons relied upon in the preparation of this report:

- Tristan Andrews – Registered Landscape Architect
- Alistair Towers – National Spatial and Applications Manager

APPENDIX B

EXHIBITED PSP



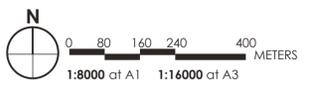
- precinct boundary
- urban growth boundary
- walkable catchment boundary
- residential
- local town centre
- business
- local convenience centre
- future government school
- potential non-government school
- community facilities
- indoor recreation
- credited open space
- conservation area
- utilities easement - electricity
- utilities easement - gas transmission
- utilities - gas transmission city gate
- utilities - substation
- uncredited open space / drainage
- watercourse
- existing arterial road reserve (princes highway)
- existing urban
- primary arterial road
- connector - boulevard
- main street
- connector road
- access street
- bridge
- pedestrian / cyclist bridge
- potential future sports reserve

Copyright, Victorian Planning Authority 2017. The state of Victoria does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the State of Victoria shall bear no responsibility or liability whatsoever for any errors, faults, defects or omission in the information.

APPENDIX C REVISED VPA FUSP – OPTION 1 BY MESH PLANNING

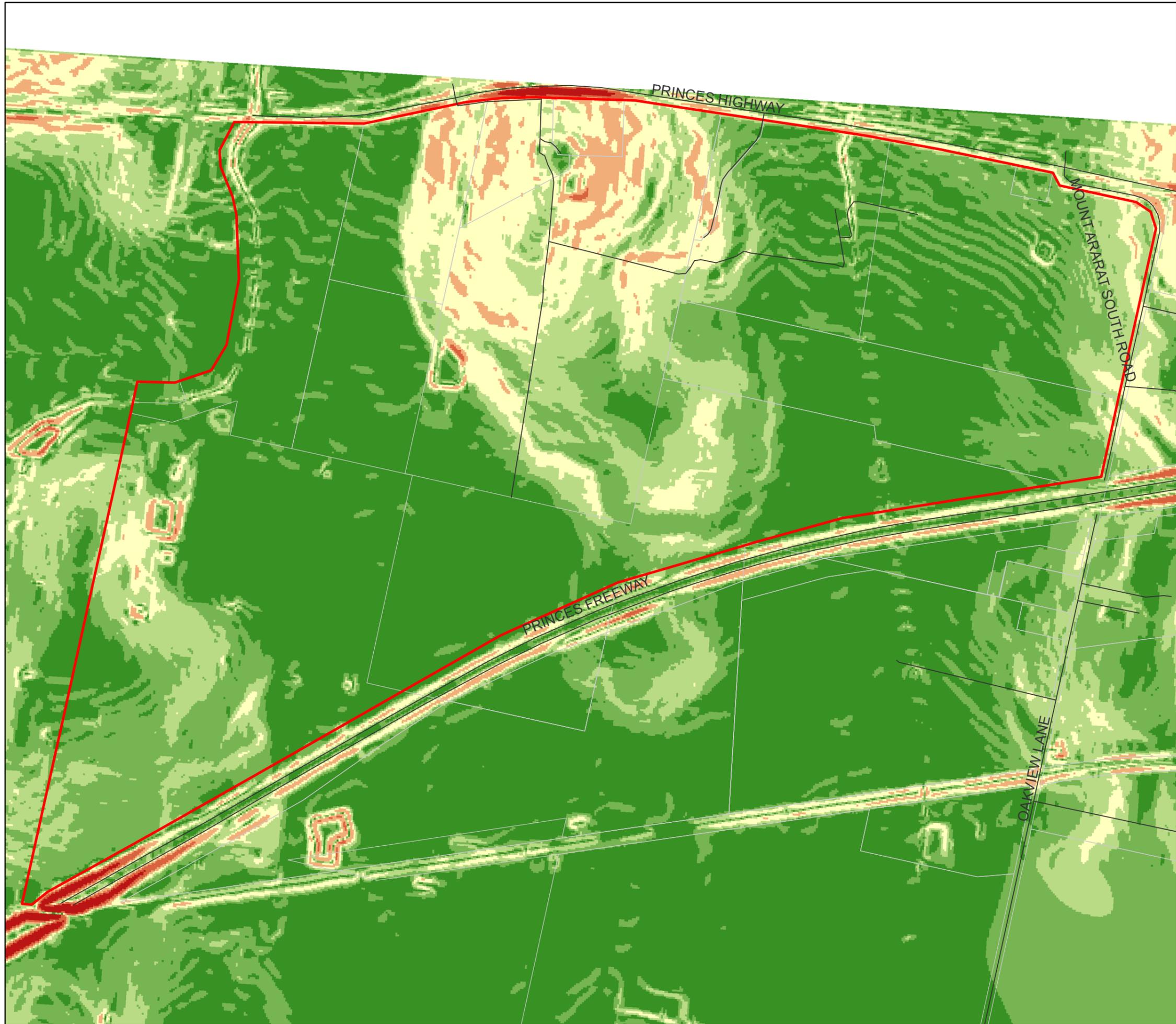


- precinct boundary
- urban growth boundary
- walkable catchment boundary
- residential
- local town centre
- business
- local convenience centre
- future government school
- potential non-government school
- community facilities
- indoor recreation
- credited open space
- conservation area
- utilities easement - electricity
- utilities easement - gas transmission
- utilities - gas transmission city gate
- utilities - substation
- uncredited open space / drainage
- watercourse
- existing arterial road reserve (princes highway)
- existing urban
- primary arterial road
- connector - boulevard
- main street
- connector road
- access street



APPENDIX D

SLOPE ANALYSIS



PAKENHAM EAST: SLOPE ANALYSIS

- ROADS
- SITE BOUNDARY
- CADASTRE
- SLOPE (%)
- 0 - 1
- 2 - 3
- 4 - 6
- 7 - 9
- 10 - 15
- 16 - 23
- 24 - 42



1:10,000@A3

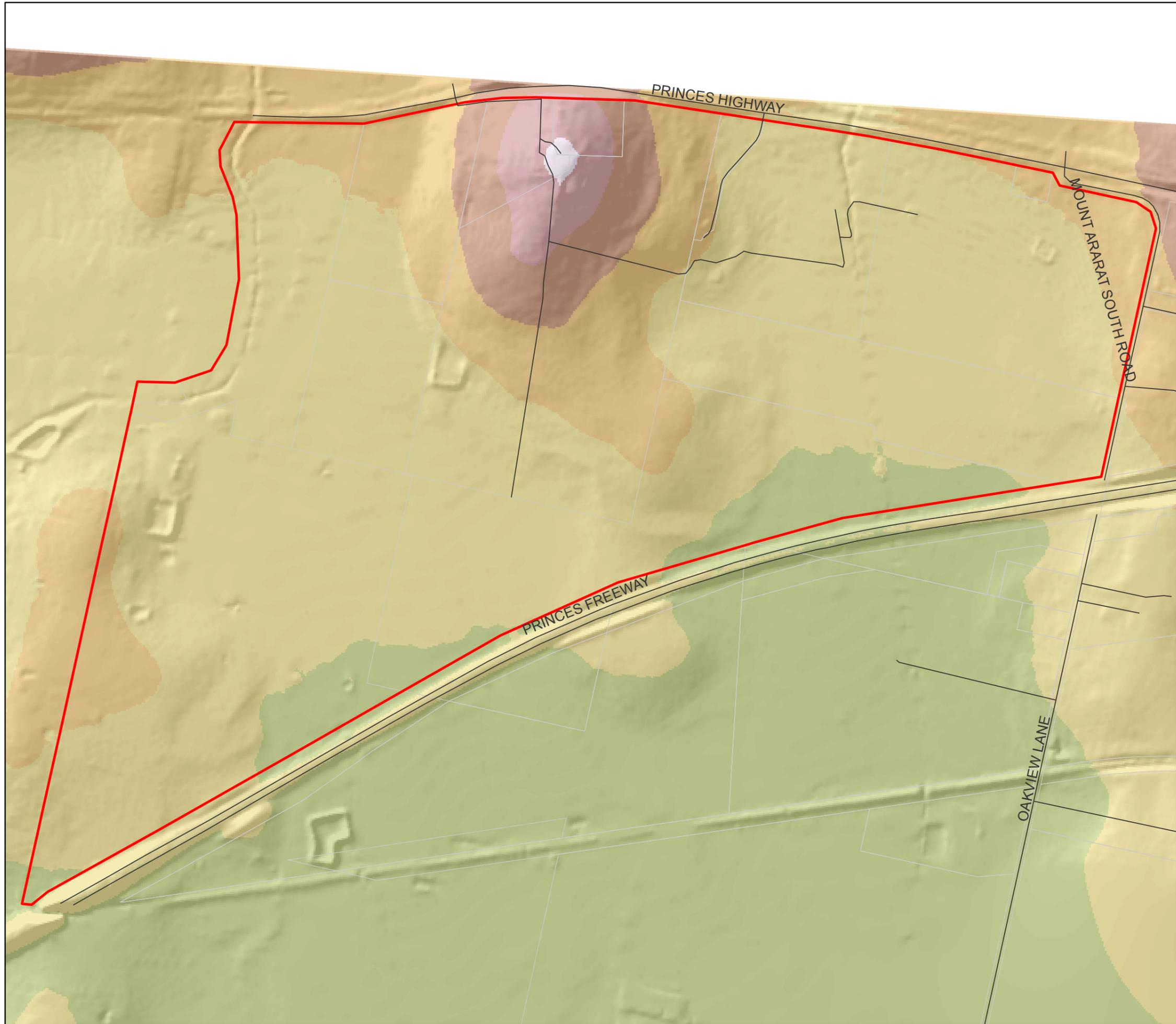
GDA94 MGA55

19/05/2015



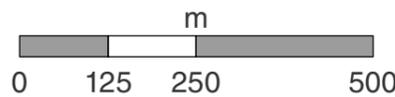
APPENDIX E

TERRAIN ANALYSIS



PAKENHAM EAST: TERRAIN ANALYSIS

- ROADS
- SITE BOUNDARY
- CADASTRE
- ELEVATION (m)
- 12 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 60
- 61 - 70
- 71 - 80



1:10,000@A3

GDA94 MGA55

19/05/2015



APPENDIX F SLOPE ANALYSIS OF THE EXISTING BERWICK AND OFFICER TOWNSHIPS BY URBIS



BRISBANE

Level 7, 123 Albert Street
Brisbane QLD 4000
Australia
T +61 7 3007 3800

MELBOURNE

Level 12, 120 Collins Street
Melbourne VIC 3000
Australia
T +61 3 8663 4888

PERTH

Level 14, The Quadrant
1 William Street
Perth WA 6000
Australia
T +61 8 9346 0500

SYDNEY

Level 23, Darling Park Tower 2
201 Sussex Street
Sydney NSW 2000
Australia
T +61 2 8233 9900