

**Attachment K – Arboricultural
Impact Appraisal, Prepared by
Naturally Trees, dated
September 2017**



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Arboricultural Impact Appraisal and Method Statement

73-75 Gardeners Road
Eastlakes, NSW

Prepared for
Sydney Water

15 September 2017

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Summary

Sydney Water have engaged Architectus to prepare a Master Plan for land at 73-75 Gardeners Road, Eastlakes for the purposes of informing a Planning Proposal which seek to amend the current planning controls for the site to allow residential development and supporting land uses.

Sydney Water are in the process of divesting surplus land to allow redevelopment and improved utilisation of this land within the Sydney Metropolitan area. For the subject sites, due to their location within the wider context of Eastlakes, it is proposed to seek their rezoning to allow for residential development or other appropriate supporting land uses.

In order to test and demonstrate the suitability of the site for the proposed land uses, a master plan has been prepared by Architectus and considered by Naturally Trees. This master plan identifies that the site should be developed for residential with supporting land uses such as small scale shops, retail or similar uses. The proposal will enable the future redevelopment of both sites resulting in approximately 750 units, 1,417 parking spaces and a range of building heights between 6-14 storeys. No approval is sought for the master plan at this stage as it simply seeks to evidence that the proposed changes to the planning controls are appropriate.

Any future development of the site will be subject to future development applications lodged with Council. Our review of the master plan has identified that the site is suitable for the proposed land uses as residential and supporting land uses including supporting commercial / retail uses.

Twenty-seven high category trees and seventy-six low category trees are affected by the proposed master plan. However, a comprehensive landscaping scheme to mitigate these losses can be proposed as part of any subsequent detailed design Development Application following the amendment of the proposed planning controls. The proposed master plan may adversely affect a further sixty-one high category trees and thirty-two low category trees if appropriate protective measures are not taken. However, this report identifies adequate precautions to protect the retained trees as part of any future subsequent Development Application for the site under the proposed planning controls. The assessment of the master plan identifies that the site is appropriate for residential development with regards impact on trees, subject to detailed design and further assessment as part of any future development application.



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1. INTRODUCTION

- 1.1 **Instruction:** I am instructed by Architectus Sydney to inspect the tree population at 73-75 Gardeners Road, Eastlakes and to provide an arboricultural report to consider a master plan which informs a planning proposal which seeks amendments to the current planning controls for the site to permit residential development. This report investigates the impact of the proposed development on trees and provides the following guidelines for appropriate tree management and protective measures:
- a schedule of the relevant trees to include basic data and a condition assessment;
 - an appraisal of the impact of the proposal on trees and any resulting impact that has on local character and amenity;
 - a preliminary arboricultural method statement setting out appropriate protective measures and management for trees to be retained
- 1.2 **Purpose of this report:** This report provides an analysis of the impact of the development proposal on trees with additional guidance on appropriate management and protective measures. Its primary purpose is for the council to review the tree information in support of the planning submission and use as the basis for issuing a planning consent or engaging in further discussions towards that end. Within this planning process, it will be available for inspection by people other than tree experts so the information is presented to be helpful to those without a detailed knowledge of the subject.
- 1.3 **Qualifications and experience:** I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix 1.
- 1.4 **Documents and information provided:** Architectus Sydney provided me with copies of the following documents:
- Survey Plan, Dwg No. 150721 (Sheets 1 to 7), by Linker Surveying dated 4 August 2015;
 - Survey Plan, Dwg No. 118382500 (Sheets 1 to 2), by Cardno dated 25 May 2017; and
 - Draft Master Plan by Architectus Sydney.
- 1.5 **Scope of this report:** This report is concerned with one hundred and ninety-six trees located within, and adjacent to, the subject site. It takes no account of other trees, shrubs or groundcovers within the site unless stated otherwise. It includes a preliminary assessment based on the site visit and the documents provided, listed in 1.4 above.

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2. THE LAYOUT DESIGN

- 2.1 **Tree AZ method of tree assessment:** The TreeAZ assessment method determines the worthiness of trees in the planning process. TreeAZ is based on a systematic method of assessing whether individual trees are important and how much weight they should be given in management considerations. Simplistically, trees assessed as potentially important are categorised as 'A' and those assessed as less important are categorised as 'Z'. Further explanation of TreeAZ can be found in Appendix 3.

In the context of new development, all the Z trees are discounted as a material constraint in layout design. All the A trees are potentially important and they dictate the design constraints. This relatively simple constraints information is suitable for use by the architect to optimise the retention of the best trees in the context of other material considerations.

2.2 Site visit and collection of data

- 2.2.1 **Site visit:** I carried out an unaccompanied site visit on 11 August 2015 and again on 6 July 2017. All my observations were from ground level and I estimated all dimensions unless otherwise indicated. Aerial inspections, root or soil analysis, exploratory root trenching and internal diagnostic testing was not undertaken as part of this assessment. I did not have access to trees on other private properties and have confined observations of them to what was visible from within the property. The weather at the time of inspection was clear and dry with good visibility.
- 2.2.2 **Brief site description:** 73-75 Gardeners Road is located in the residential suburb of Eastlakes (refer figure 1). The site is on the southern side of the road and surrounded by residential development to the north and a golf course to the south. 73 Gardeners road is currently occupied by a Sydney Water Depot and 75 Gardeners road previously was occupied by a retail nursery centre which has since been demolished. A variety of ornamental, coniferous and indigenous trees are scattered throughout the site and around the site boundaries.

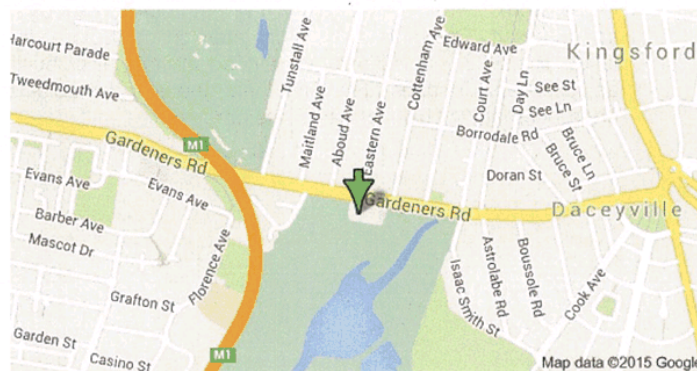


Figure 1: The location of the subject site (www.googlemaps.com).

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- 2.2.3 **Collection of basic data:** I inspected each tree and have collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. I have recorded this information in the tree schedule included, with explanatory notes, in Appendix 2. Each tree was then allocated to one of four categories (**AA**, **A**, **Z** or **ZZ**), which reflected its suitability as a material constraint on development.
- 2.2.4 **Identification and location of the trees:** I have illustrated the locations of the significant trees on the Tree Management Plan (Plan TMP01) included as Appendix 8. This plan is for illustrative purposes only and it should not be used for directly scaling measurements.
- 2.2.5 **Advanced interpretation of data:** Australian Standard *Protection of trees on development sites* (AS4970-2009), recommends that the trunk diameter measurement for each tree is used to calculate the tree protection zone (TPZ), which can then be interpreted to identify the design constraints and, once a layout has been consented, the exclusion zone is to be protected by barriers.
- 2.3 **The use of the tree information in layout design:** Following my inspection of the trees, the information listed in Appendix 2 was used to provide constraints guidance based on the locations of all the A trees. All the Z trees were discounted because they were not considered worthy of being a material constraint. This guidance identified two zones of constraint based on the following considerations:
- The tree protection zone (TPZ) is an area where ground disturbance must be carefully controlled. The TPZ was established according to the recommendations set out in AS4970-2009 and is the radial offset distance of twelve (x12) times the trunk diameter. In principle, a maximum encroachment of 10% is acceptable within the TPZ and a high level of care is needed during any activities that are authorised within it if important trees are to be successfully retained.
 - The structural root zone (SRZ) is a radial distance from the centre of a tree's trunk, where it is likely that structural, woody roots would be encountered. The distance is calculated on trunk flare diameter at ground level. The SRZ may also be influenced by natural or built structures, such as rocks and footings. The SRZ only needs to be calculated when major encroachment (>10%) into a TPZ is proposed.



3. ARBORICULTURAL IMPACT APPRAISAL

- 3.1 **Summary of the impact on trees:** I have assessed the impact of the proposal on trees by the extent of disturbance in TPZs and the encroachment of structures into the SRZ (as set out briefly in 2.3 above and more extensively in Appendix 2). All the trees that may be affected by the development proposal are listed in Table 1.

It should be noted that any tree removal or likely impact on existing vegetation will need to be subject to a further Development Application which will need to be assessed. At this detailed design phase of any future application, the impact of the sites redevelopment of future trees will need to be considered and there may be opportunities to retain a greater number of trees. This report considers the impacts of the high level master plan as a test case, in order to determine whether the site is suitable for residential redevelopment.

Table 1: Summary of existing trees and trees that may be affected by development

Impact	Reason	Important trees		Unimportant trees	
		AA	A	Z	ZZ
Retained trees that may be affected through disturbance to TPZs	Removal of existing surfacing/structures/landscaping and/or installation of new surfacing/structures/landscaping	1, 3, 97, 98, 100, 126	2, 4, 5, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 42, 43, 44, 94, 95, 96, 99, 102, 103, 104, 105, 106, 107, 108, 124, 125, 127, 128, 130, 145 (5x Trees), 146 (11x Trees), 148, 154, 155, 159, 160	6, 7, 11, 21, 22, 23, 41, 46, 47, 61, 62, 93, 109, 110, 111, 112, 113, 114, 115, 129, 131, 147, 149, 150, 151, 152, 153, 157, 158, 161	48, 156
Trees to be removed	Construction and/or level variations within TPZ	101, 135	27, 28, 32, 49, 51, 52, 56, 59, 74, 77, 78, 79, 86, 87, 91, 92, 120, 121, 123, 144, 162, 164, 165, 166, 168	24, 26, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 45, 50, 54, 55, 57, 58, 60, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 75, 76, 80, 81, 82, 83, 84, 85, 88, 89, 90, 117, 118, 119, 122, 132, 133, 134, 136, 137, 138, 139, 140, 141, 142, 143, 163, 167, 169, 170, 174	25, 53, 116, 171, 172, 173, 175, 176, 177, 178, 179, 180, 181, 182



3.2 Detailed impact appraisal

3.2.1 Category AA and A trees to be lost: The proposed development will necessitate the removal of twenty-seven high category trees (Trees 27, 28, 32, 49, 51, 52, 56, 59, 74, 77, 78, 79, 86, 87, 91, 92, 101, 120, 121, 123, 135, 144, 162, 164, 165, 166 and 168). These trees are considered moderate to high significance and display good health and condition. In order to compensate for loss of amenity, consideration has been given to replacement planting within the site.

3.2.2 Category AA and A trees that could potentially be adversely affected through TPZ disturbance: Sixty-one category A and AA trees could potentially be adversely affected through disturbance to their TPZs as follows:

- **Trees 1, 2, 3, 4 and 5:** These are important trees with a high potential to contribute to amenity so any adverse impacts on them should be minimised. The bulk of the proposed works remain largely outside their TPZ and direct impacts are not expected. The proposed pedestrian road must be designed to avoid disturbance to roots. I have reviewed the situation carefully and my experience is that these trees could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.
- **Trees 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19 and 20:** This avenue of Paperbarks are important trees with a high potential to contribute to amenity so any adverse impacts on them should be minimised. The proposed works remain outside their TPZ and direct impacts are not expected. These trees will form part of an open space or parkland. The existing stormwater canal will be piped and the area above reinstated as open area. I have reviewed the situation carefully and my experience is that these trees could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.
- **Trees 42, 43, 44, 94, 95, 96, 97, 98, 99, 100, 102, 103, 104, 105, 106, 107, 108, 124, 125, 127 and 128:** These are important trees with a high potential to contribute to amenity so any adverse impacts on them should be minimised. The bulk works remain largely outside the TPZ of these trees. Pedestrian paths should be relocated to the outer edge of their TPZ or in areas already occupied with existing hardstand surfaces. I have reviewed the situation and my experience is that these trees could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.
- **Tree 126:** The proposed Building B construction will occupy 8% of the TPZ of this large Sydney Blue Gum. The encroachment is within accordance with AS4970-2009 recommendations however the tree must be protected from site access and build zone. Extreme care and protection of the tree would be necessary if it is to be successfully retained. Specifically, the existing ground levels would be required to remain within the TPZ to avoid

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severance of structural roots. Canopy pruning will be required, however given the trees open and high canopy, this should be achievable without causing adverse impact to the trees health or appearance.

- **Trees 130, 145 (5x Trees), 146 (11x Trees), 148, 154, 155, 159 and 160:** The proposed works remain outside the TPZ of these trees and direct impacts are not expected. I have reviewed the situation carefully and my experience is that these trees could be successfully retained without any adverse effects if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.

3.2.3 Category Z and ZZ trees to be removed: The proposed development will necessitate the removal of seventy-six trees of low and very low retention value. None of these trees are considered significant or worthy of special measures to ensure their preservation.

3.2.4 Category Z trees to be retained: Thirty-two low category trees can be retained under the current proposal if appropriate protective measures are properly specified and controlled through a detailed arboricultural method statement.

3.3 Proposals to mitigate any impact

3.3.1 Protection of retained trees: The successful retention of trees within the site will depend on the quality of the protection and the administrative procedures to ensure protective measures remain in place throughout the development. An effective way of doing this is through an arboricultural method statement that can be specifically referred to in the planning condition. An arboricultural method statement for this site is set out in detail in Section 4.

3.3.2 New planting: In the context of the loss of trees, a comprehensive new landscaping scheme is proposed including new trees to be planted within available areas in prominent locations. The new trees should have the potential to reach a significant height without excessive inconvenience and be sustainable into the long term, significantly improving the potential of the site to contribute to local amenity and character.

3.3.3 Summary of the impact on local amenity: Twenty-seven high category trees and seventy-six low category trees are affected by the proposed master plan. However, a comprehensive landscaping scheme to mitigate these losses can be proposed as part of any subsequent detailed design Development Application following the amendment of the proposed planning controls. The proposed master plan may adversely affect a further sixty-one high category trees and thirty-two low category trees if appropriate protective measures are not taken. However, this report identifies adequate precautions to protect the retained trees as part of any future subsequent Development Application for the site under the proposed planning controls. The assessment of the master plan identifies that the site is appropriate for residential development with regards impact on trees, subject to detailed design and further assessment as part of any future development application.



4. ARBORICULTURAL METHOD STATEMENT

4.1 Introduction

4.1.1 **Terms of reference:** The impact appraisal in Section 3 identified the potential impacts on trees caused by proposed development. Section 4 is an arboricultural method statement setting out management and protection details that must be implemented to secure successful tree retention. It has evolved from Australian Standard AS4970-2009 *Protection of trees on development sites*.

4.1.2 **Plan TMP01:** Plan TMP01 in Appendix 8 is illustrative and based entirely on provided information. This plan should only be used for dealing with the tree issues and all scaled measurements must be checked against the original submission documents. The precise location of all protective measures must be confirmed at the pre-commencement meeting before any demolition or construction activity starts. Its base is the existing land survey, which has the proposed layout superimposed so the two can be easily compared. It shows the existing trees numbered, with high categories (A) highlighted in green triangles and low categories (Z) highlighted in blue rectangles. It also shows the locations of the proposed protective measures.

4.2 Tree protection with fencing and ground protection

4.2.1 **Protection fencing:** Tree protection fencing must comply with AS4970 (section 4.3) recommendations. An illustrative guide is included as Appendix 4. The approximate location of the barriers and the TPZs is illustrated on plan TMP01. The precise location of the fencing must be agreed with the project Arborist before any development activity starts.

4.2.2 **Ground protection:** Any TPZs outside the protective fencing must be covered in ground protection based on AS4970 recommendations until there is no risk of damage from the demolition and construction activity. An illustrative specification for this ground protection is included as Appendix 5. On this site, it must be installed near Tree 126 as illustrated on plan TMP01 before any demolition and construction starts.

4.3 **Precautions when working in TPZs:** Any work in TPZs must be done with care as set out in Appendix 6. On this site, special precautions must be taken near retained trees as illustrated on plan TMP01 and summarised below:

- **Removal of existing surfacing/structures and replacement with new surfacing/structures:** Retained trees may be adversely affected by the demolition and construction works or the installation of new surfacing. Any adverse impact must be minimised by following the guidance set out in Appendix 6.

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- **Installation of new soft landscaping:** All landscaping activity within TPZs has the potential to cause severe damage and any adverse impact must be minimised by following the guidance set out in Section 7 of Appendix 6.
- **Installation of new services or upgrading of existing services:** It is often difficult to clearly establish the detail of services until the construction is in progress. Where possible, it is proposed to use the existing services into the site and keep all new services outside TPZs. However, where existing services within TPZs require upgrading or new services have to be installed in TPZs, great care must be taken to minimise any disturbance. Trenchless installation should be the preferred option but if that is not feasible, any excavation must be carried out by hand according to the guidelines set out in Section 6 of Appendix 6. If services do need to be installed within TPZs, consultation must be obtained from the project Arborist and/or council before any works are carried out.

4.4 Other tree related works

- 4.4.1 **Site storage, cement mixing and washing points:** All site storage areas, cement mixing and washing points for equipment and vehicles must be outside TPZs unless otherwise agreed with the project Arborist and/or council. Where there is a risk of polluted water run off into TPZs, heavy-duty plastic sheeting and sandbags must be used to contain spillages and prevent contamination.
- 4.4.2 **Pruning:** Any pruning that is required to accommodate hoardings, scaffolding or to accommodate the unloading/loading of vehicles and has been approved by Council shall be carried out by a qualified Arborist (AQF3) and must be in accordance with AS4373 Australian Standards 'Pruning of Amenity Trees'.

4.5 Programme of tree protection and supervision

- 4.5.1 **Overview:** Tree protection cannot be reliably implemented without arboricultural input. The nature and extent of that input varies according to the complexity of the issues and the resources available on site. For this site, a summary of the level of arboricultural input that is likely to be required is set out in Appendix 7. The project arborist must be instructed to work within this framework to oversee the implementation of the protective measures and management proposals set out in this arboricultural method statement.

The framework in Appendix 7 must form the basis for the discharge of planning conditions through site visits by the project arborist. These supervisory actions must be confirmed by formal letters circulated to all relevant parties. These permanent records of each site visit will accumulate to provide the proof of compliance and allow conditions to be discharged as the development progresses. The developer must instruct the project arborist to comply with the



supervision requirements set out in this document before any work begins on site.

- 4.5.2 **Phasing of arboricultural input:** Trees can only be properly budgeted for and factored into the developing work programmes if the overall project management takes full account of tree issues once consent is confirmed. The project arborist must be involved in the following phases of the project management:

1. **Administrative preparation before work starts on site:** It is normal for a development proposal to vary considerably from the expectations before consent as the detailed planning of implementation evolves. The early instruction of the project arborist ensures that tree issues are factored into the complexities of site management and can often help ease site pressures through creative approaches to tree protection. Pre-commencement discussions between the project arborist and the developer's team is an effective means of managing the tree issues with difficult constraints.

2. **Pre-commencement site meeting:** A pre-commencement meeting must be held on site before any of the demolition and construction work begins. This must be attended by the site manager and the project arborist. Any clarifications or modifications to the consented details must be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection will be agreed and finalised by all parties, which will then form the basis of any supervision arrangements between the project arborist and the developer.

3. **Site supervision:** Once the site is active, the project arborist must visit at an interval agreed at the pre-commencement site meeting. The supervision arrangement must be sufficiently flexible to allow the supervision of all sensitive works as they occur. The project arborist's initial role is to liaise with developer to ensure that appropriate protective measures are designed and in place before any works start on site. Once the site is working, that role will switch to monitoring compliance with arboricultural conditions and advising on any tree problems that arise or modifications that become necessary.

- 4.6 **Site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents must be kept on site at all times and the site manager must brief all personnel who could have an impact on trees on the specific tree protection requirements. This must be a part of the site induction procedures and written into appropriate site management documents.



5. HOW TO USE THIS REPORT

5.1 **Limitations:** It is common that the detail of logistical issues such as site storage and the build programme are not finalised until after consent is issued. As this report has been prepared in advance of consent, some of its content may need to be updated as more detailed information becomes available once the post-consent project management starts. Although this document will remain the primary reference in the event of any disputes, some of its content may be superseded by authorised post-consent amendments.

5.2 **Suggestions for the effective use of this report:** Section 4 of this report, including the relevant appendices, is designed as an enforcement reference. It is constructed so the council can directly reference the detail in a planning condition. Referencing the report by name and relating conditions to specific subsections is an effective means of reducing confusion and facilitating enforcement in the event of problems during implementation. More specifically, the following issues should be directly referenced in the conditions for this site:

1. Pre-commencement meeting	4.5
2. Protection fence	4.2.1 and Appendix 4
3. Ground protection	4.2.2 and Appendix 5
4. Removal of surfacing/structures	4.3 and Appendix 6 (Section 4)
5. Installation of surfacing/structures	4.3 and Appendices 6 (Section 5)
6. Services	4.3 and Appendix 6 (Section 6)
7. Landscaping	4.3 and Appendix 6 (Section 7)
8. Programming of tree protection	4.5 and Appendix 7
9. Arboricultural supervision	4.5 and Appendix 7

Each of the above matters shall be supervised by the project arborist and the relevant conditions can only be discharged once that supervision has been confirmed in writing to the relevant parties. The last column of the table in Appendix 7 is to be used so that the various supervision issues can be recorded as they are confirmed by supervision letters. It is intended to act as a summary quick-reference to help keep track of the progress of the supervision.



6. OTHER CONSIDERATIONS

- 6.1 **Trees subject to statutory controls:** The subject trees are legally protected under Botany Bay City Council's Tree Preservation Order. It will be necessary to consult the council before any pruning or removal works other than certain exemptions can be carried out. The works specified above are necessary for reasonable management and should be acceptable to the council. However, tree owners should appreciate that the council may take an alternative point of view and have the option to refuse consent.
- 6.2 **Trees outside the property:** Trees located in the adjacent properties effectively out of the control of the owners of 73-75 Gardeners Road, Eastlakes. It will not be possible to easily carry out the recommended works without the full co-operation of the tree owners. The implications of non-cooperation require legal interpretation and are beyond the scope of this report.

7. BIBLIOGRAPHY

7.1 List of references:

Australian Standard AS4373-2007 *Pruning of Amenity Trees*.
Standards Australia.

Australian Standard AS4970-2009 *Protection of trees on development sites*.
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Barrell, J (2009) Draft for Practical Tree AZ version 9.02 A+NZ
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Brooker, M. Kleinig, D (1999) Field guide to eucalypts – South eastern Aust.
Blooming Books, Hawthorn Vic.

Matheny, N.P. & Clark, J.R. (1998) Trees & Development: A Technical Guide to Preservation of Trees During Land Development
International Society of Arboriculture, Savoy, Illinois.

Mattheck, Dr. Claus R., Breloer, Helge (1995) The Body Language of Trees - A Handbook for Failure Analysis:
The Stationery Office, London. England.

Robinson, L (1994) Field Guide to the Native Plants of Sydney
Kangaroo Press, Kenthurst NSW



8. DISCLAIMER**8.1 Limitations on use of this report:**

This report is to be utilized in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, and directly attached to that submission, report or presentation.

ASSUMPTIONS

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible: however, Naturally Trees can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

- Information contained in this report covers only those trees that were examined and reflects the condition of those trees at time of inspection: and*
- The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.*

Yours sincerely



Andrew Scales
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APPENDIX 1

Brief qualifications and experience of Andrew Scales

1. Qualifications:

Associate Diploma Horticulture	Northern Sydney Institute of TAFE	1995-1998
Certificate in Tree Surgery	Northern Sydney Institute of TAFE	1998
Associate Diploma Arboriculture	Northern Sydney Institute of TAFE	1999-2006

2. Practical experience:

Being involved in the arboricultural/horticultural industry for in excess of 10 years, I have developed skills and expertise recognized in the industry. Involvement in the construction industry and tertiary studies has provided me with a good knowledge of tree requirements within construction sites.

As director of Naturally Trees, in this year alone I have undertaken hundreds of arboricultural consultancy projects and have been engaged by a range of clients to undertake tree assessments. I have gained a wide range of practical tree knowledge through tree removal and pruning works.

3. Continuing professional development:

Visual Tree Assessment (Prof. Dr. Claus Mattheck)	Northern Sydney Institute of TAFE	2001
Wood Decay in Trees (F.W.M.R.Schwarze)	Northern Sydney Institute of TAFE	2004
Visual Tree Assessment (Prof. Dr. Claus Mattheck)	Carlton Hotel, Parramatta NSW	2004
Tree A-Z / Report Writing (Jeremy Barrell)	Northern Sydney Institute of TAFE	2006
Up by Roots – Healthy Soils and Trees in the Built Environment (James Urban)	The Sebel Parramatta NSW	2008
Tree Injection for Insect Control (Statement of Attainment)	Northern Sydney Institute of TAFE	2008
Quantified Tree Risk Assessment (QTRA) Registered Licensee #1655	South Western Sydney Institute	TAFE 2011
Practitioners Guide to Visual Tree Assessment	South Western Sydney Institute	TAFE 2011
Quantified Tree Risk Assessment (QTRA) Registered Licensee #1655	Richmond College NSW	TAFE 2014
VALID Approach to Likelihood of Failure (David Evans)	Centennial Park NSW	2017



APPENDIX 2

Tree schedule

NOTE: Colour annotation is AA & A trees with green background; Z & ZZ trees with blue background; trees to be removed in red text.

No.	Genus species	Height	Spread	DBH	TPZ	Foliage %	Age class	Defects/Comments	Location	Services	Significance	Tree AZ
1	<i>Eucalyptus saligna</i>	30	20	700	8.4	80%	M	Nil	Grass	Adjacent building	H	AA1
2	<i>Eucalyptus robusta</i>	9	10	350	4.2	80%	M	Nil	Grass	Nil	M	A1
3	<i>Eucalyptus saligna</i>	30	20	1000	12	80%	M	Nil	Grass	Adjacent building	H	AA1
4	<i>Melaleuca quinquenervia</i>	12	6	300	3.6	70%	M	Nil	Grass	Adjacent structure	M	A1
5	<i>Melaleuca quinquenervia</i>	12	6	300	3.6	70%	M	Nil	Grass	Adjacent structure	M	A1
6	<i>Melaleuca quinquenervia</i>	20	14	500	6	80%	M	Co-dominant (x4 trunk), Growing against building	Garden bed	Adjacent building	H	Z2
7	<i>Melaleuca quinquenervia</i>	16	12	500	6	80%	M	Growing against building	Garden bed	Adjacent building	H	Z2
8	<i>Melaleuca quinquenervia</i>	18	12	400	4.8	80%	M	Nil	Grass	Adjacent driveway	H	A1
9	<i>Melaleuca quinquenervia</i>	18	14	500	6	80%	M	Nil	Grass	Adjacent driveway	H	A1
10	<i>Melaleuca quinquenervia</i>	14	8	450	5.4	80%	M	Nil	Grass	Adjacent structure	M	A1
11	<i>Acacia sp.</i>	5	7	250	3	70%	M	Nil	Grass	Nil	L	Z1
12	<i>Melaleuca quinquenervia</i>	14	8	450	5.4	80%	M	Nil	Grass	Adjacent structure	M	A1
13	<i>Melaleuca quinquenervia</i>	18	12	500	6	80%	M	Nil	Grass	Nil	H	A1
14	<i>Melaleuca quinquenervia</i>	20	14	500	6	80%	M	Nil	Grass	Nil	H	A1
15	<i>Melaleuca quinquenervia</i>	18	12	500	6	80%	M	Nil	Grass	Nil	H	A1
16	<i>Melaleuca quinquenervia</i>	18	16	1000	12	80%	M	Nil	Grass	Nil	H	A1
17	<i>Melaleuca quinquenervia</i>	20	16	600	7.2	80%	M	Nil	Grass	Nil	H	A1
18	<i>Melaleuca quinquenervia</i>	18	14	600	7.2	80%	M	Nil	Grass	Nil	H	A1
19	<i>Melaleuca quinquenervia</i>	18	14	600	7.2	80%	M	Nil	Grass	Nil	H	A1
20	<i>Melaleuca quinquenervia</i>	18	14	600	7.2	80%	M	Nil	Grass	Nil	H	A1
21	<i>Callistemon sp.</i>	5	5	200	2.4	70%	M	Nil	Grass	LV wires	L	Z1
22	<i>Melaleuca quinquenervia</i>	6	5	300	3.6	60%	M	Lopped under wires, Epicormic growth	Grass	LV wires	M	Z9
23	<i>Callistemon sp.</i>	5	5	200	2.4	70%	M	Nil	Grass	LV wires	L	Z1
24	<i>Populus nigra 'italica'</i>	14	6	450	5.4	60%	O	Borer	Garden bed	Adjacent building	M	Z4
25	<i>Eucalyptus nicholi</i>	9	6	350	4.2	0%	O	Nil	Garden bed	Adjacent building	M	ZZ4
26	<i>Syagrus romanzoffiana</i>	14	5	350	4.2	80%	M	Nil	Garden bed	Nil	M	Z3
27	<i>Eucalyptus botryoides</i>	9	6	300	3.6	80%	S	Nil	Garden bed	Nil	M	A1

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No.	Genus species	Height	Spread	DBH	TPZ	Foliage %	Age class	Defects/Comments	Location	Services	Significance	Tree AZ
28	<i>Corymbia citriodora</i>	14	10	350	4.2	90%	M	Nil	Garden bed	Adjacent building	H	A1
29	<i>Syagrus romanzoffiana</i>	14	5	350	4.2	80%	M	Nil	Garden bed	Nil	M	Z3
30	<i>Syagrus romanzoffiana</i>	14	5	350	4.2	80%	M	Nil	Garden bed	Nil	M	Z3
31	<i>Syagrus romanzoffiana</i>	14	5	350	4.2	80%	M	Nil	Garden bed	Nil	M	Z3
32	<i>Corymbia citriodora</i>	16	14	500	6	90%	M	Nil	Garden bed	Adjacent structure	H	A1
33	<i>Robinia pseudoacacia</i>	12	14	450	5.4	80%	M	Nil	Garden bed	Adjacent building	M	Z12
34	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
35	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
36	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
37	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
38	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
39	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
40	<i>Acacia sp.</i>	5	6	350	4.2	40%	O	Borer, Growing out of retaining wall	Dripline disturbance	Adjacent structure	M	Z4
41	<i>Melaleuca quinquenervia</i>	6	6	300	3.6	70%	M	Lopped under wires, Epicormic growth	Grass	LV wires	M	Z9
42	<i>Corymbia citriodora</i>	22	16	500	6	80%	M	Nil	Garden bed	Adjacent building	H	A1
43	<i>Corymbia citriodora</i>	22	16	500	6	80%	M	Nil	Garden bed	Adjacent building	H	A1
44	<i>Eucalyptus scoparia</i>	22	18	700	8.4	80%	M	Nil	Garden bed	Adjacent building	H	A1
45	<i>Mangifera indica</i>	6	5	250	3	80%	M	Nil	Garden bed	Adjacent building	L	Z1
46	<i>Syzygium sp.</i>	9	8	250	3	90%	S	Pushing over block wall	Garden bed	Adjacent structure	M	Z2
47	<i>Cupressus sp.</i>	8	5	200	2.4	90%	M	Nil	Garden bed	Adjacent structure	L	Z12
48	<i>Pinus radiata</i>	9	8	400	4.8	50%	O	Failures	Grass	Adjacent structure	M	Z24
49	<i>Casuarina cunninghamiana</i>	22	14	500	6	80%	M	Nil	Garden bed	Adjacent structure	H	A1
50	<i>Acacia sp.</i>	5	6	350	4.2	40%	O	Borer	Dripline disturbance	Adjacent structure	M	Z4
51	<i>Casuarina cunninghamiana</i>	18	9	350	4.2	80%	M	Nil	Garden bed	Adjacent structure	M	A1
52	<i>Casuarina cunninghamiana</i>	18	9	350	4.2	80%	M	Nil	Garden bed	Adjacent structure	M	A1
53	<i>Acacia elata</i>	9	6	300	3.6	50%	O	Borer	Garden bed	Nil	L	Z24
54	<i>Eucalyptus saligna</i>	14	9	350	4.2	70%	M	Leaning, Hazard beam	Garden bed	Nil	M	Z5
55	<i>Melaleuca quinquenervia</i>	10	4	250	3	70%	S	Nil	Garden bed	Nil	L	Z1
56	<i>Eucalyptus punctata</i>	14	10	350	4.2	70%	M	Nil	Garden bed	Nil	M	A1
57	<i>Celtis sinensis</i>	7	7	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
58	<i>Eucalyptus scoparia</i>	10	8	300	3.6	70%	M	Nil	Garden bed	Nil	M	Z9

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59	<i>Melaleuca quinquenervia</i>	14	7	400	4.8	80%	M	Nil	Garden bed	Nil	M	A1
60	<i>Radermachera sinica</i>	10	8	350	4.2	80%	M	Nil	Garden bed	Adjacent structure	M	Z10
61	<i>Callistemon sp.</i>	5	4	150	2	80%	S	Nil	Grass	Kerb	L	Z1
62	<i>Callistemon sp.</i>	5	4	150	2	80%	S	Nil	Grass	Kerb	L	Z1
63	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
64	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
65	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
66	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
67	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
68	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
69	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
70	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
71	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
72	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
73	<i>Syagrus romanzoffiana</i>	9	4	250	3	80%	M	Nil	Garden bed	Nil	M	Z3
74	<i>Syzygium sp.</i>	10	8	300	3.6	90%	M	Nil	Garden bed	Nil	M	A1
75	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
76	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
77	<i>Lophostemon confertus</i>	16	10	400	4.8	90%	M	Nil	Garden bed	Nil	H	A1
78	<i>Lophostemon confertus</i>	12	8	300	3.6	80%	M	Nil	Garden bed	Nil	M	A1
79	<i>Syzygium sp.</i>	16	12	500	6	80%	M	Nil	Garden bed	Nil	H	A1
80	<i>Stenocarpus sinuatus</i>	10	7	300	3.6	80%	M	Nil	Garden bed	Nil	M	Z10
81	<i>Radermachera sinica</i>	10	8	350	4.2	80%	M	Nil	Garden bed	Adjacent structure	M	Z10
82	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
83	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Gravel	Adjacent structure	M	Z3
84	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Gravel	Adjacent structure	M	Z3
85	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Gravel	Adjacent structure	M	Z3
86	<i>Casuarina cunninghamiana</i>	14	14	500	6	80%	M	Nil	Garden bed	Nil	H	A1
87	<i>Corymbia citriodora</i>	18	18	600	7.2	80%	M	Nil	Gravel	Adjacent structure	H	A1
88	<i>Archontophoenix alexandrae</i>	5	3	150	2	90%	S	Nil	Garden bed	Nil	L	Z1
89	<i>Archontophoenix alexandrae</i>	5	3	150	2	90%	S	Nil	Garden bed	Nil	L	Z1
90	<i>Archontophoenix alexandrae</i>	5	3	150	2	90%	S	Nil	Garden bed	Nil	L	Z1
91	<i>Eucalyptus saligna</i>	18	16	700	8.4	80%	M	Nil	Garden bed	Nil	H	A1

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No.	Genus species	Height	Spread	DBH	TPZ	Foliage %	Age class	Defects/Comments	Location	Services	Significance	Tree AZ
92	<i>Angophora costata</i>	10	12	450	5.4	90%	M	Nil	Garden bed	Nil	H	A1
93	<i>Callistemon</i> sp.	5	4	150	2	80%	M	Nil	Grass	Nil	L	Z1
94	<i>Casuarina cunninghamiana</i>	14	6	350	4.2	80%	M	Nil	Garden bed	Nil	M	A1
95	<i>Casuarina cunninghamiana</i>	16	7	300	3.6	80%	M	Nil	Garden bed	Nil	M	A1
96	<i>Casuarina cunninghamiana</i>	16	7	300	3.6	80%	M	Nil	Garden bed	Nil	M	A1
97	<i>Eucalyptus saligna</i>	24	16	500	6	80%	M	Nil	Garden bed	Nil	H	AA1
98	<i>Eucalyptus saligna</i>	24	16	500	6	80%	M	Nil	Garden bed	Nil	H	AA1
99	<i>Eucalyptus saligna</i>	10	12	300	3.6	80%	M	Nil	Garden bed	Nil	M	A1
100	<i>Eucalyptus saligna</i>	26	20	800	9.6	80%	M	Nil	Garden bed	Nil	H	AA1
101	<i>Eucalyptus saligna</i>	24	16	500	6	80%	M	Nil	Garden bed	Nil	H	AA1
102	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
103	<i>Harpephyllum caffrum</i>	12	10	250	3	90%	M	Nil	Garden bed	Nil	M	A1
104	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
105	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
106	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
107	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
108	<i>Harpephyllum caffrum</i>	12	10	400	4.8	90%	M	Nil	Garden bed	Nil	M	A1
109	<i>Casuarina cunninghamiana</i>	8	4	300	3.6	60%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
110	<i>Melaleuca quinquenervia</i>	7	4	300	3.6	70%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
111	<i>Casuarina cunninghamiana</i>	8	4	300	3.6	60%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
112	<i>Casuarina cunninghamiana</i>	8	4	300	3.6	60%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
113	<i>Casuarina cunninghamiana</i>	8	4	300	3.6	60%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
114	<i>Melaleuca quinquenervia</i>	7	4	300	3.6	70%	M	Lopped under wires, Epicormic growth	Grass	LV wires	L	Z9
115	<i>Harpephyllum caffrum</i>	16	14	500	6	70%	O	Failures, Tight growing space	Garden bed	LV wires	M	Z10
116	<i>Populus nigra 'italica'</i>	18	10	900	10.8	30%	O	Failures	Garden bed	Adjacent building	M	Z24
117	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3

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118	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
119	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
120	<i>Harpephyllum caffrum</i>	16	16	600	7.2	80%	M	Co-dominant	Garden bed	Nil	H	A1
121	<i>Podocarpus elatus</i>	18	12	500	6	80%	M	Included bark	Garden bed	Nil	M	A1
122	<i>Phoenix canariensis</i>	8	5	500	6	80%	M	Nil	Garden bed	Nil	M	Z1
123	<i>Harpephyllum caffrum</i>	16	16	600	7.2	80%	M	Co-dominant	Garden bed	Nil	H	A1
124	<i>Harpephyllum caffrum</i>	16	16	600	7.2	80%	M	Co-dominant	Garden bed	Nil	H	A1
125	<i>Harpephyllum caffrum</i>	16	16	600	7.2	80%	M	Co-dominant	Garden bed	Nil	H	A1
126	<i>Eucalyptus saligna</i>	28	20	1000	12	80%	M	Nil	Garden bed	Nil	H	AA1
127	<i>Eucalyptus saligna</i>	26	22	800	9.6	80%	M	Co-dominant	Garden bed	Nil	H	A2
128	<i>Eucalyptus saligna</i>	9	8	300	3.6	70%	S	Nil	Garden bed	Adjacent driveway	M	A1
129	<i>Melaleuca quinquenervia</i>	8	5	250	3	80%	M	Nil	Garden bed	Nil	L	Z1
130	<i>Banksia integrifolia</i>	9	7	300	3.6	90%	M	Nil	Grass	Nil	M	A1
131	<i>Casuarina cunninghamiana</i>	14	12	450	5.4	80%	M	Borer, Basal decay, Growing against building	Garden bed	Adjacent building	M	Z5
132	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
133	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
134	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
135	<i>Eucalyptus saligna</i>	28	18	700	8.4	80%	M	Failures	Garden bed	Nil	H	AA1
136	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
137	<i>Syagrus romanzoffiana</i>	12	4	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
138	<i>Pinus radiata</i>	20	18	700	8.4	50%	O	Failures	Garden bed	Nil	H	Z4
139	<i>Pinus radiata</i>	20	18	700	8.4	50%	O	Failures	Garden bed	Nil	H	Z4
140	<i>Callistemon sp.</i>	6	5	200	2.4	80%	M	Nil	Garden bed	Nil	L	Z1
141	<i>Persea americana</i>	9	9	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
142	<i>Persea americana</i>	9	9	300	3.6	80%	M	Nil	Garden bed	Adjacent structure	M	Z3
143	<i>Phoenix canariensis</i>	8	4	400	4.8	80%	M	Nil	Garden bed	Nil	M	Z12
144	<i>Phoenix canariensis</i>	14	6	600	7.2	90%	M	Nil	Garden bed	Nil	M	A1
145	<i>Banksia integrifolia</i>	12	12	450	5.4	80%	M	5 x Trees	Grass	Nil	M	A1
146	<i>Melaleuca quinquenervia</i>	12	8	250	3	80%	M	11 x Trees	Grass	Nil	M	A1
147	<i>Banksia integrifolia</i>	6	5	250	3	80%	S	Nil	Grass	Nil	M	Z1
148	<i>Banksia integrifolia</i>	8	5	300	3.6	80%	M	Nil	Grass	Nil	M	A1
149	<i>Eucalyptus saligna</i>	7	5	200	2.4	80%	S	Nil	Grass	Nil	L	Z1
150	<i>Eucalyptus saligna</i>	7	5	200	2.4	80%	S	Nil	Grass	Nil	L	Z1
151	<i>Eucalyptus saligna</i>	7	5	200	2.4	80%	S	Nil	Grass	Nil	L	Z1

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152	<i>Pinus radiata</i>	18	16	700	8.4	70%	O	Nil	Grass	Nil	H	Z3
153	<i>Pinus radiata</i>	14	8	500	6	70%	O	Borer	Grass	Adjacent structure	M	Z4
154	<i>Eucalyptus botryoides</i>	14	10	400	4.8	90%	M	Nil	Grass	Nil	M	A1
155	<i>Eucalyptus botryoides</i>	14	10	400	4.8	90%	M	Nil	Grass	Nil	M	A1
156	<i>Pinus radiata</i>	15	8	500	6	0%	O	Dead tree	Grass	Nil	M	Z24
157	<i>Pinus radiata</i>	15	8	400	4.8	30%	O	Borer	Grass	Nil	M	Z4
158	<i>Acacia saligna</i>	7	5	200	2.4	80%	M	Nil	Garden bed	Nil	L	Z1
159	<i>Angophora costata</i>	10	5	250	3	80%	S	Nil	Garden bed	Nil	L	A1
160	<i>Angophora costata</i>	10	5	250	3	80%	S	Nil	Garden bed	Nil	L	A1
161	<i>Angophora costata</i>	8	3	150	2	80%	S	Nil	Garden bed	Nil	L	Z1
162	<i>Phoenix canariensis</i>	14	6	600	7.2	90%	M	Nil	Garden bed	Nil	M	A1
163	<i>Callistemon sp.</i>	5	3	150	2	80%	M	Nil	Garden bed	Nil	L	Z1
164	<i>Casuarina cunninghamiana</i>	12	8	300	3.6	80%	M	Nil	Grass	Adjacent structure	M	A1
165	<i>Eucalyptus botryoides</i>	18	14	500	6	80%	M	Nil	Garden bed	Kerb	H	A1
166	<i>Eucalyptus botryoides</i>	18	14	500	6	80%	M	Nil	Garden bed	Kerb	H	A1
167	<i>Agonis flexuosa</i>	6	7	300	3.6	50%	O	Co-dominant	Garden bed	LV wires	L	Z4
168	<i>Eucalyptus botryoides</i>	18	14	500	6	80%	M	Cambium damage, Scar on trunk	Garden bed	Kerb	H	A2
169	<i>Acacia sp.</i>	5	5	200	2.4	50%	M	Dieback	Garden bed	Nil	L	Z1
170	<i>Eucalyptus botryoides</i>	12	12	350	4.2	70%	M	Acute lean	Garden bed	Nil	M	Z9
171	<i>Agonis flexuosa</i>	8	8	400	4.8	60%	O	Cavity, Decay	Garden bed	Nil	M	Z25
172	<i>Agonis flexuosa</i>	4	3	150	2	60%	O	Cavity	Garden bed	Nil	M	Z29
173	<i>Eucalyptus botryoides</i>	4	5	150	2	50%	S	Leaning, Suppressed canopy	Garden bed	Nil	L	Z25
174	<i>Eucalyptus ficifolia</i>	4	4	100	2	80%	S	Nil	Garden bed	Nil	L	Z1
175	<i>Casuarina cunninghamiana</i>	5	3	150	2	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25
176	<i>Casuarina cunninghamiana</i>	5	3	150	2	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25
177	<i>Casuarina cunninghamiana</i>	5	3	150	2	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25
178	<i>Casuarina cunninghamiana</i>	5	3	150	2	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25
179	<i>Casuarina cunninghamiana</i>	5	3	150	2	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25
180	<i>Casuarina cunninghamiana</i>	5	3	300	3.6	20%	M	Lopped under power-lines	Grass	LV wires	L	Z25

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Report on trees at 73-75 Gardeners Road, Eastlakes for Sydney Water

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No.	Genus species	Height	Spread	DBH	TPZ	Foliage %	Age class	Defects/Comments	Location	Services	Significance	Tree AZ
181	<i>Casuarina cunninghamiana</i>	5	3	300	3.6	20%	M	Lopped under power-lines	Grass	LV wires	L	ZZ5
182	<i>Casuarina cunninghamiana</i>	5	3	300	3.6	20%	M	Lopped under power-lines	Grass	LV wires	L	ZZ5

Explanatory Notes

- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Measurements taken with a tape or clinometer are indicated with a '"'. Less reliable estimated dimensions are indicated with a '?'.
- **Species:** The species identification is based on visual observations and the botanical name. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.
- **Tree number:** relates to the reference number used on site diagram/report.
- **Height:** Height is estimated to the nearest metre.
- **Spread:** The average crown spread is visually estimated to the nearest metre from the outermost tips of the live lateral branches.
- **DBH:** These figures relate to 1.4m above ground level and are recorded in millimetres. If appropriate, diameter is measured with a diameter tape. 'M' indicates trees or shrubs with multiple stems.
- **Foliage Cover:** Percent of estimated live foliage cover for particular species range.
- **Age class:**
 - Y Young = recently planted
 - S Semi-mature (<20% of life expectancy)
 - M Mature (20-80% of life expectancy)
 - O Over-mature (>80% of life expectancy)
- **TPZ:** The Tree Protection Zone (TPZ) is the radial offset distance of twelve times the trunk diameter in meters.
- **Tree AZ:** See reference for Tree AZ categories in Appendix 3.
- **Significance:** A tree's significance/value in the landscape takes into account its prominence from a wide range of perspectives. This includes, but is not limited to neighbour hood perspective, local perspective and site perspective. The significance of the subject trees has been categorized into three groups, such as: High, Moderate or Low significance.

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APPENDIX 3

TreeAZ Categories (Version 9.02 A+NZ)

Z

Category Z: Unimportant trees not worthy of being a material constraint

Local policy exemptions: Trees that are unsuitable for legal protection for local policy reasons including size, proximity and species

Z1	Young or insignificant small trees, i.e. below the local size threshold for legal protection, etc
Z2	Too close to a building, i.e. exempt from legal protection because of proximity, etc
Z3	Species that cannot be protected for other reasons, i.e. scheduled noxious weeds, out of character in a setting of acknowledged importance, etc

High risk of death or failure: Trees that are likely to be removed within 10 years because of acute health issues or severe structural failure

Z4	Dead, dying, diseased or declining
Z5	Severe damage and/or structural defects where a high risk of failure cannot be satisfactorily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, overgrown and vulnerable to adverse weather conditions, etc
Z6	Instability, i.e. poor anchorage, increased exposure, etc

Excessive nuisance: Trees that are likely to be removed within 10 years because of unacceptable impact on people

Z7	Excessive, severe and intolerable inconvenience to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. dominance, debris, interference, etc
Z8	Excessive, severe and intolerable damage to property to the extent that a locally recognised court or tribunal would be likely to authorise removal, i.e. severe structural damage to surfacing and buildings, etc

Good management: Trees that are likely to be removed within 10 years through responsible management of the tree population

Z9	Severe damage and/or structural defects where a high risk of failure can be temporarily reduced by reasonable remedial care, i.e. cavities, decay, included bark, wounds, excessive imbalance, vulnerable to adverse weather conditions, etc
Z10	Poor condition or location with a low potential for recovery or improvement, i.e. dominated by adjacent trees or buildings, poor architectural framework, etc
Z11	Removal would benefit better adjacent trees, i.e. relieve physical interference, suppression, etc
Z12	Unacceptably expensive to retain, i.e. severe defects requiring excessive levels of maintenance, etc

NOTE: Z trees with a high risk of death/failure (Z4, Z5 & Z6) or causing severe inconvenience (Z7 & Z8) at the time of assessment and need an urgent risk assessment can be designated as ZZ. ZZ trees are likely to be unsuitable for retention and at the bottom of the categorisation hierarchy. In contrast, although Z trees are not worthy of influencing new designs, urgent removal is not essential and they could be retained in the short term, if appropriate.

A

Category A: Important trees suitable for retention for more than 10 years and worthy of being a material constraint

A1	No significant defects and could be retained with minimal remedial care
A2	Minor defects that could be addressed by remedial care and/or work to adjacent trees
A3	Special significance for historical, cultural, commemorative or rarity reasons that would warrant extraordinary efforts to retain for more than 10 years
A4	Trees that may be worthy of legal protection for ecological reasons (Advisory requiring specialist assessment)

NOTE: Category A1 trees that are already large and exceptional, or have the potential to become so with minimal maintenance, can be designated as AA at the discretion of the assessor. Although all A and AA trees are sufficiently important to be material constraints, AA trees are at the top of the categorisation hierarchy and should be given the most weight in any selection process.

TreeAZ is designed by Barrell Tree Consultancy (www.treeaz.com/tree_az/)

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APPENDIX 4

Tree protection fencing and signs - Illustrative specification

Protective fencing: Protective 1.8m high fencing should be installed at the location illustrated on the Tree Management Plan before any site works start. All uprights should be fixed in position for the duration of the development activity. The fixings must be able to withstand the pressures of everyday site work.

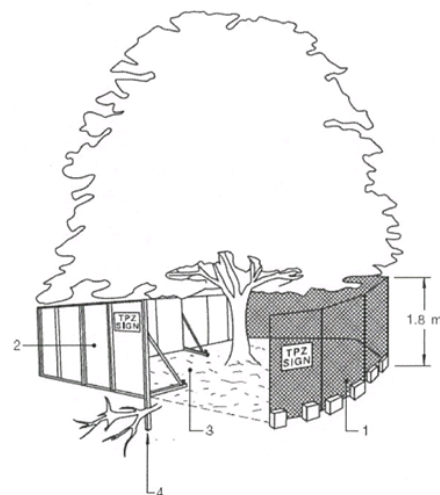
Inside the protective fencing, the following rules must be strictly observed:

- No vehicular access
- No storage of excavated debris, building materials or fuels
- No excessive cultivation for landscape planting
- No fires
- No mixing of cement
- No service installation or excavation

Once erected, protective fencing must not be removed or altered without consulting first with the project Arborist.

Shade cloth or similar should be attached to reduce the transport of dust, other particulate matter and liquids into the protected area and signage must be attached to outside of fencing.

Signage: All signs are to provide clear and readily accessible information to indicate that a TPZ has been established. Signage identifying the TPZ must be attached to outside of fencing and be visible from within the development site.



Signage example:



Legend

1. Chain wire mesh panels with shade cloth (if required) attached, held in place with concrete feet.
2. Alternative plywood or wooden paling fence panels. This fencing material also prevents building materials or soil entering the TPZ.
3. Mulch installation across surface of TPZ (at the discretion of the project arborist). No excavation, construction activity, grade changes, surface treatment or storage of materials of any kind is permitted within the TPZ.
4. Bracing is permissible within the TPZ. Installation of supports should avoid damaging roots.

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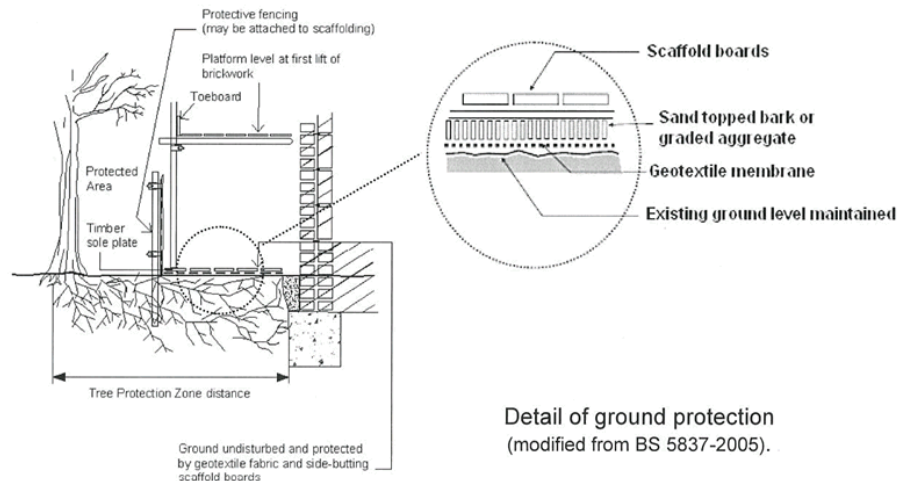
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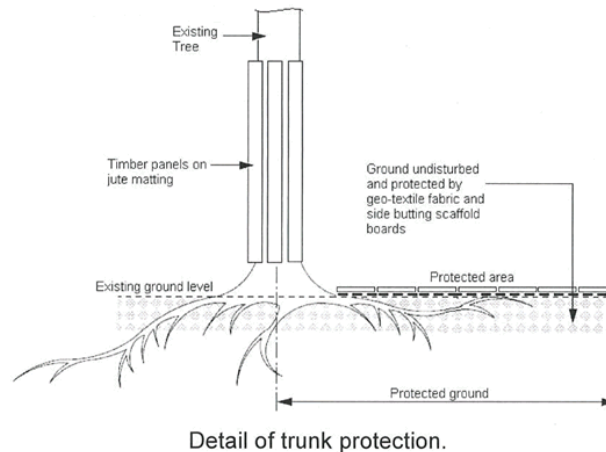
APPENDIX 5

Root zone and trunk protection - Illustrative specification

Root zone protection: Where necessary, access through the TPZ can be achieved by laying aggregate and timber boards (or similar) over the root zone to protect roots. The ground beneath the boarding should be left undisturbed and should be protected with a porous geo-textile fabric covered with sand or mulch.



Trunk protection: Where fencing cannot be installed, the vertical trunk of exposed trees shall be protected by the placement of 3.6m lengths of 50 x 100mm hardwood timbers, spaced vertically, at 150mm centres and secured by 2mm wire at 300mm wide spacing over suitable protective padding material e.g. Jute Matting. The trunk protection shall be maintained intact until the completion of all work on site.



APPENDIX 6**General guidance for working in TPZ****1 PURPOSE OF THIS GUIDANCE**

This guidance sets out the general principles that must be followed when working within a TPZ. Where more detail is required, it will be supplemented by illustrative specifications in other appendices in this document (refer Appendix 4 and 5).

This guidance is based on the Australian Standards (2009) AS4970: *Protection of Trees on Construction Sites*.

Once the site works start, this guidance is specifically for the site personnel to help them understand what has been agreed and explain what is required to fully meet their obligations to protect trees. All personnel working in TPZs must be properly briefed about their responsibilities towards important trees based on this guidance.

This guidance should always be read in conjunction with the Tree Management Plan (TMP01) illustrating the areas where specific precautions are necessary. Each area where precautions are required is explained on the plan as identified on the legend. All protective measures should be installed according to the prevailing site conditions and agreed as satisfactory by the Project Arborist before any demolition or construction work starts.

2 TREE PROTECTION**2.1 Tree Protection Zone (TPZ)**

The TPZ is a radial setback, extending outwards from the centre of the trunk, where disturbance must be minimised if important trees are to be successfully retained. The TPZ area is illustrated on the Tree Management Plan (TMP01) accompanying this guidance.

- The TPZ is a radial setback extending outwards from the centre of the trunk equal to the DBH x 12.
- This area shall be protected by tree protective fencing (refer Appendix 4).
- Any part of the TPZ outside of the tree protective fencing area must be isolated from the work operations by protective barriers and/or root zone protection for the duration of the work (refer Appendix 5).
- The Project Arborist shall approve the extent of the TPZ prior to commencement of works.
- The TPZ shall be mulched to a depth of 90mm with approved organic mulch e.g. leaf and wood chip where possible.
- Supplementary watering shall be provided in dry periods to reduce water or construction stress, particularly to those trees which may incur minor root disturbance.

The following activities shall be excluded within the TPZ:

- Excavation, compaction or disturbance of the existing soil.
- The movement or storage of materials, waste or fill.
- Soil level changes
- Disposal/runoff of waste materials and chemicals including paint, solvents, cement slurry, fuel, oil and other toxic liquids
- Movement or storage of plant, machinery, equipment or vehicles.
- Any activity likely to damage the trunk, crown or root system.

2.2 Arboricultural supervision

Any work within TPZs requires a high level of care. Qualified arboricultural supervision is essential to minimise the risk of misunderstanding and misinterpretation. Site personnel must be properly briefed before any work starts. Ongoing work must be inspected regularly and, on completion, the work must be signed off by the Project Arborist to confirm compliance by the contractor.

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2.3 Tree protection fencing, root zone and trunk protection

Prior to site establishment, tree protection fencing and root zone and trunk protection shall be installed to establish the TPZ for trees to be retained in accordance with site conditions. These protective barriers shall be maintained entire for the duration of the construction program (refer Appendix 4 and 5).

Tree protection fencing and trunk and root zone protection shall be removed following completion of construction. The mulch layer in the TPZ shall be retained and replenished where required to maintain a 75mm thickness

2.4 Pruning

All pruning work required (including root pruning) should be in accordance with Australian Standard No 4373-1996 - Pruning of Amenity Trees.

2.5 Tree Damage

In the event of damage to a tree or the TPZ, the Project Arborist shall be engaged to inspect and provide advice on remedial action. This should be implemented as soon as practicable and certified by the Project Arborist.

2.6 Post construction maintenance

In the event of any tree deteriorating in health after the construction period, the Project Arborist shall be engaged to provide advice on any remedial action. Remedial action shall be implemented as soon as practicable and certified by the Project Arborist.

3 EXCAVATION AND FILL IN TPZ**3.1 Excavation within TPZ**

If excavation within the TPZ is required the following shall be applied to preserve tree root systems:

- Excavation within TPZ must be carried out under the instruction and supervision of the Project Arborist.
- A root mapping exercise is to be undertaken and certified by the Project Arborist. Root mapping shall be undertaken by either ground penetrating radar, air spade, water laser or by hand excavation using hand tools, taking care not to damage the bark and wood of any roots.
- The purpose of the root mapping shall be to locate woody structural roots greater than 40mm in diameter. Where possible, flexible clumps of smaller roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage.
- If digging by hand, a fork shall be used to loosen the soil and help locate any substantial roots.
- Once roots have been located, the trowel shall be used to clear the soil away from them without damaging the bark.
- Exposed roots to be removed shall be cut cleanly with a sharp saw or secateurs.
- Roots temporarily exposed shall be protected from direct sunlight, drying out and extremes of temperature by appropriate covering.

3.2 Fill within TPZ

Placement of fill material within the Tree Protection Zone of trees to be retained should be avoided where possible. However, where fill cannot be avoided:

- All fill material to be placed within the TPZ should be approved by Project Arborist and consist of a course, gap-graded material to provide aeration and percolation to the root zone. Materials containing a high percentage of 'fines' is unacceptable for this purpose.
- The fill material should be consolidated with a non-vibrating roller to minimise compaction of the underlying soil.
- No fill material should be placed in direct contact with the trunk.



4 DEMOLITION OF SURFACING/STRUCTURES IN TPZ

4.1 Definitions of surfacing and structures

For the purposes of this guidance, the following broad definitions apply:

- **Surfacing:** Any hard surfacing used as a vehicular road, parking or pedestrian path including tarmac, solid stone, crushed stone, compacted aggregate, concrete and timber decking.
- **Structures:** Any man-made structure above or below ground including service pipes, walls, gate piers, buildings and foundations. Typically, this would include drainage structures, services, car-ports, bin stores and concrete slabs that support buildings.

4.2 Demolition and access

Roots frequently grow adjacent to and beneath existing surfacing/structures so great care is needed during access and demolition. Damage can occur through physical disturbance of roots and/or the compaction of soil around them from the weight of machinery or repeated pedestrian passage. This is not generally a problem whilst surfacing/structures are in place because they spread the load on the soil beneath and further protective measures are not normally necessary. However, once they are removed and the soil below is newly exposed, damage to roots becomes an issue and the following guidance must be implemented:

- No vehicular or repeated pedestrian access into TPZ permitted unless on existing hard surfacing or root zone protection.
- Regular vehicular and pedestrian access routes must be protected from compaction with temporary root zone protection as set out in Appendix 5.
- Where a TPZ is exposed by the work, it must be protected as set out in AS4970 until there is no risk of damage from the development activity.

4.3 Removal of surfacing/structures

Removing existing surfacing/structures is a high-risk activity for any adjacent roots and the following guidance must be observed:

- Appropriate tools for manually removing debris may include a pneumatic breaker, crow bar, sledgehammer, pick, mattock, shovel, spade, trowel, fork and wheelbarrow.
- Machines with a long reach may be used if they can work from outside the TPZ or from protected areas within the TPZ.
- Debris to be removed from the TPZ manually must be moved across existing hard surfacing or temporary root zone protection in a way that prevents compaction of soil. Alternatively, it can be lifted out by machines provided this does not disturb the TPZ.
- Great care must be taken throughout these operations not to damage roots.

5 INSTALLATION OF SURFACING/STRUCTURES IN TPZ

5.1 Basic principles: New surfacing/structures in a TPZ are potentially damaging to trees because they may disturb the soil and disrupt the existing exchange of water and gases in and out of it. Adverse impact on trees can be reduced by minimising the extent of these changes within the TPZ.

- **Surfacing:** Suitable surfacing should be relatively permeable to allow water and gas movement, load spreading to avoid localised compaction and require little or no excavation to limit direct damage. The actual specification of the surfacing is an engineering issue that needs to be considered in the context of the bearing capacity of the soil, the intended loading and the frequency of loading. The detail of product and specification are beyond the scope of this guidance and must be provided separately by the appropriate specialist.
- **Structures:** Where possible structures are to be constructed above ground level on piled supports and redirecting water to where it is needed. The detailed design and specification of such structures is an engineering issue that should be informed and guided by the Project Arborist. Conventional strip foundations in the TPZ for any significant structure may cause excessive root loss and are unlikely to be acceptable. However, disturbance can be significantly reduced by supporting the above ground part of the structures on small diameter piles/piers or

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cast floor slabs set above ground level. The design should be sufficiently flexible to allow the piles to be moved if significant roots are encountered in the preferred locations.

5.2 Establishing the depth of roots

The precise location and depth of roots within the soil is unpredictable and will only be known when careful digging starts on site. Ideally, all new surfacing within a TPZ should be no-dig, i.e. requiring no excavation whatsoever, but this is rarely possible on undulating surfaces.

New surfacing normally requires an evenly graded sub-base layer, which can be made up to any high points with granular, permeable fills such as crushed stone or sharp sand. This sub-base must not be compacted as would happen in conventional surface installation. Some limited excavation is usually necessary to achieve this and need not be damaging to trees if carried out carefully and large roots are not cut.

Tree roots and grass roots rarely occupy the same soil volume at the top of the soil profile, so the removal of a turf layer up to 50mm is unlikely to be damaging to trees. It may be possible to dig to a greater depth depending on local conditions but this would need to be assessed by the Project Arborist.

6 SERVICES IN TPZ

For the purposes of this guidance, services are considered as structures. Excavation to upgrade existing services or to install new services within a TPZ may damage retained trees and should only be chosen as a last resort. In the event that excavation emerges as the preferred option, the decision should be reviewed by the Project Arborist before any work is carried out. If excavation is agreed, all digging should be done carefully and follow the guidance set out in 3.1 above.

7 SOFT LANDSCAPING IN TPZ

For the purposes of this guidance, soft landscaping includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch). It does not include the installation of solid structures or compacted surfacing.

Soft landscaping activity after construction can be extremely damaging to trees.

No significant excavation or cultivation shall occur within the TPZ (e.g. planting holes). Where new designs require levels to be increased to tie in with new structures or surrounding ground level, good quality and relatively permeable top soil should be used for the fill. It should be firmed into place but not over compacted in preparation for turfing or careful shrub planting.

All areas close to tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage.



APPENDIX 7**Schedule of works and responsibilities**

Hold Point	Task	Responsibility	Certification	Timing of Inspection
1	Indicate clearly (with spray paint) trees approved for removal only	Principal Contractor	Project Arborist	Prior to demolition and site establishment
2	Establishment of tree protection fencing and additional root, trunk and/or branch protection	Principal Contractor	Project Arborist	Prior to demolition and site establishment
3	Supervise all excavations works proposed within the TPZ	Principal Contractor	Project Arborist	As required prior to the works proceeding adjacent to the tree
4	Inspection of trees by Project Arborist	Principal Contractor	Project Arborist	Monthly during construction period
5	Final inspection of trees by Project Arborist	Principal Contractor	Project Arborist	Prior to the issue of Occupation Certificate



APPENDIX 8

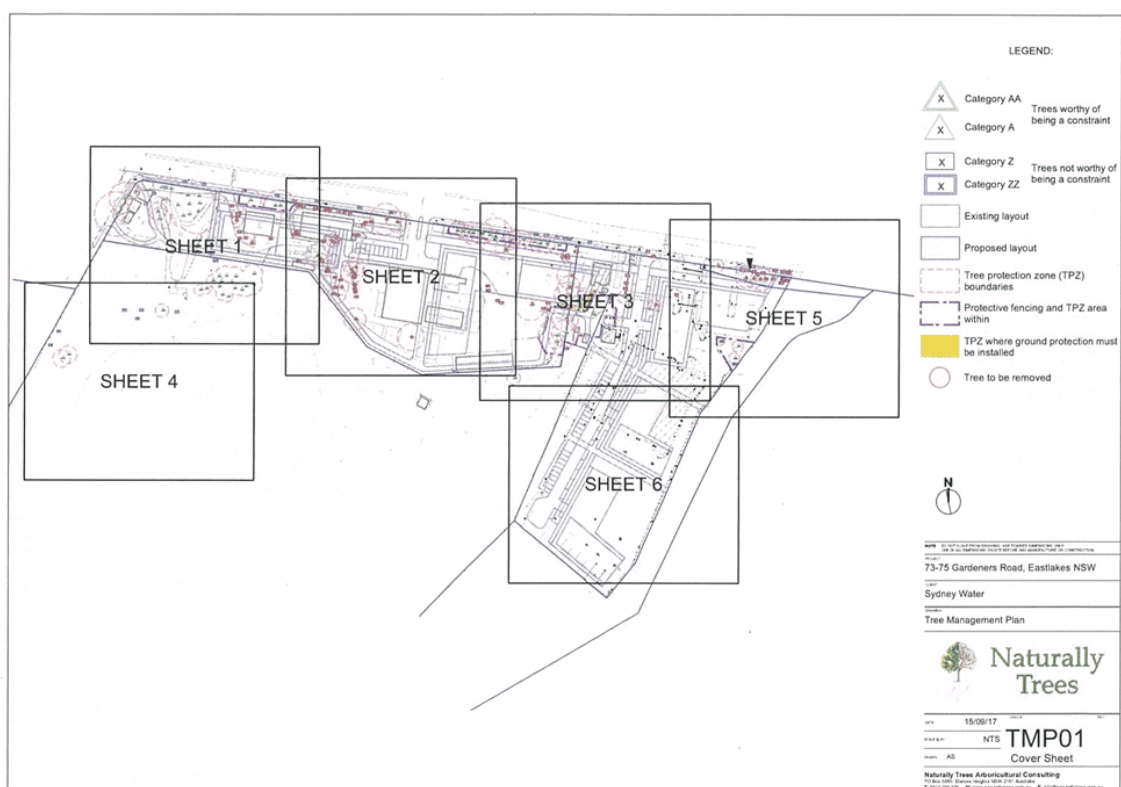
Tree management plan

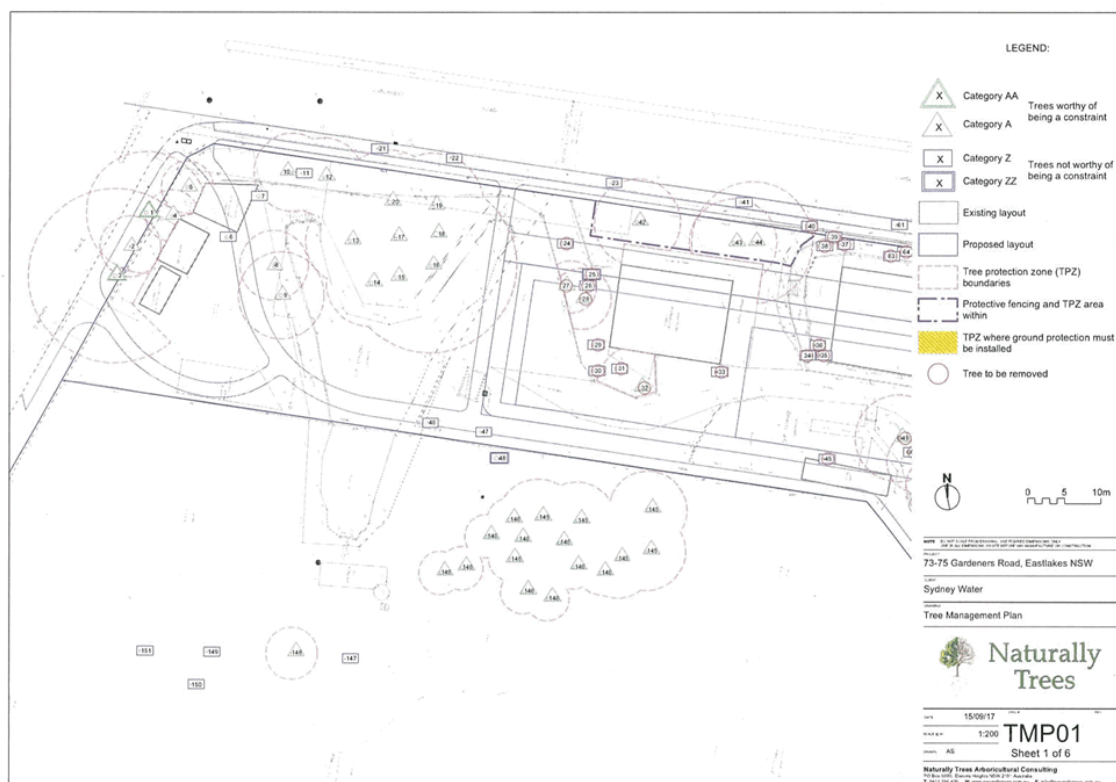
-refer attached Tree Management Plan, Dwg No. TMP01,
by Naturally Trees dated 15 September 2017

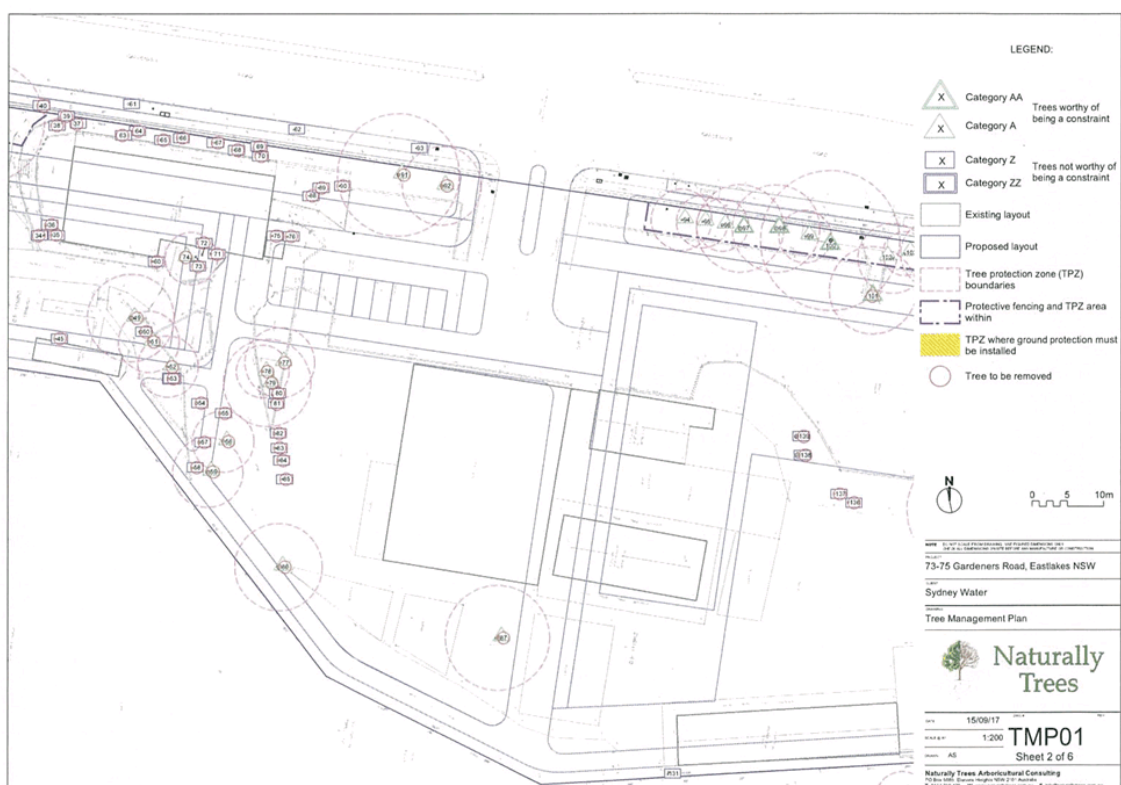
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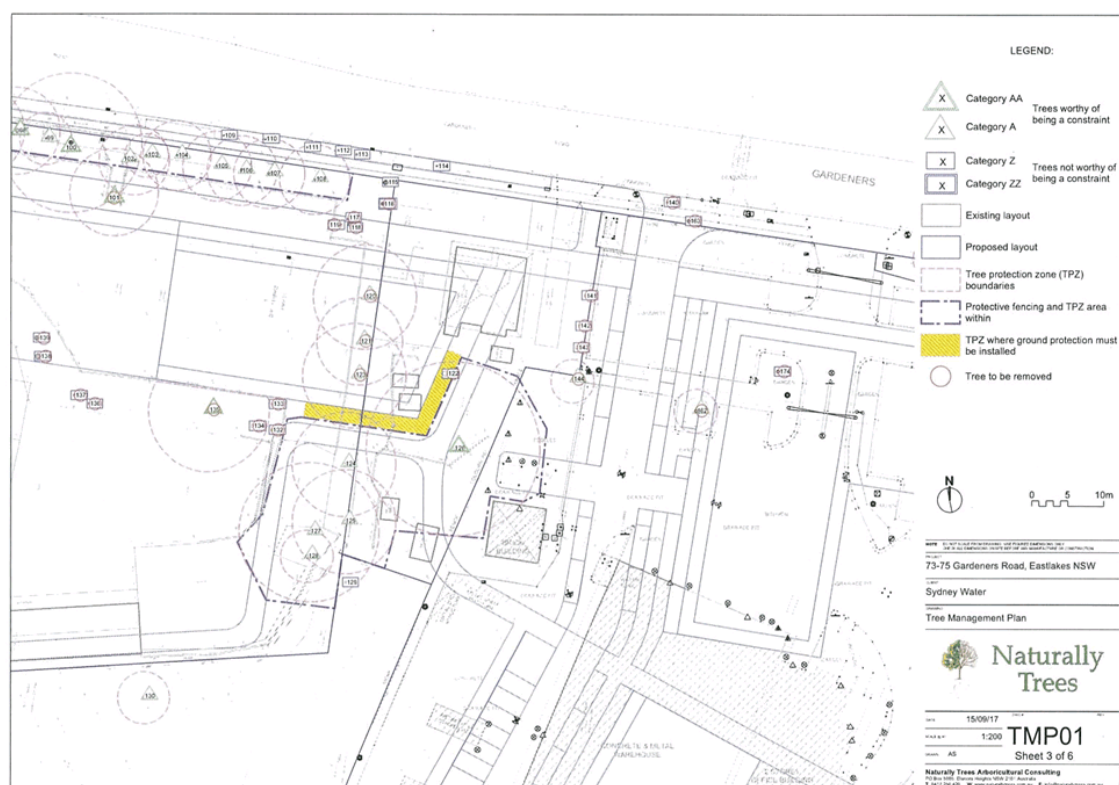
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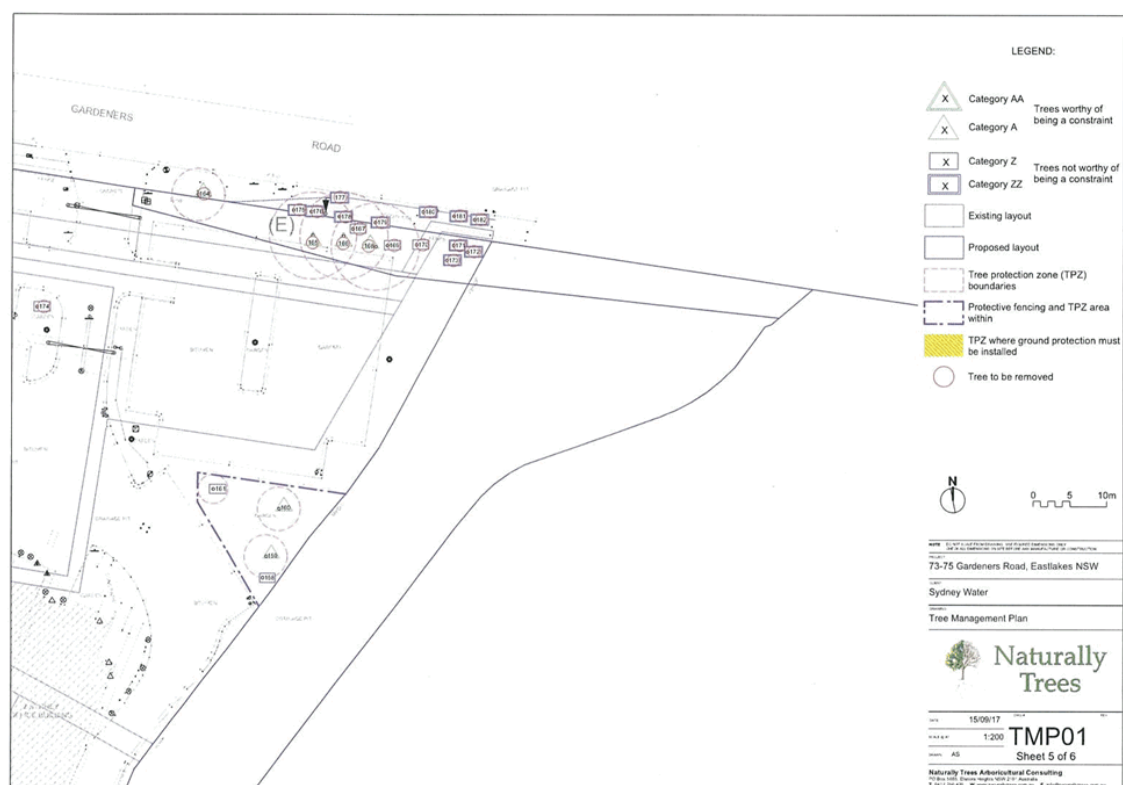






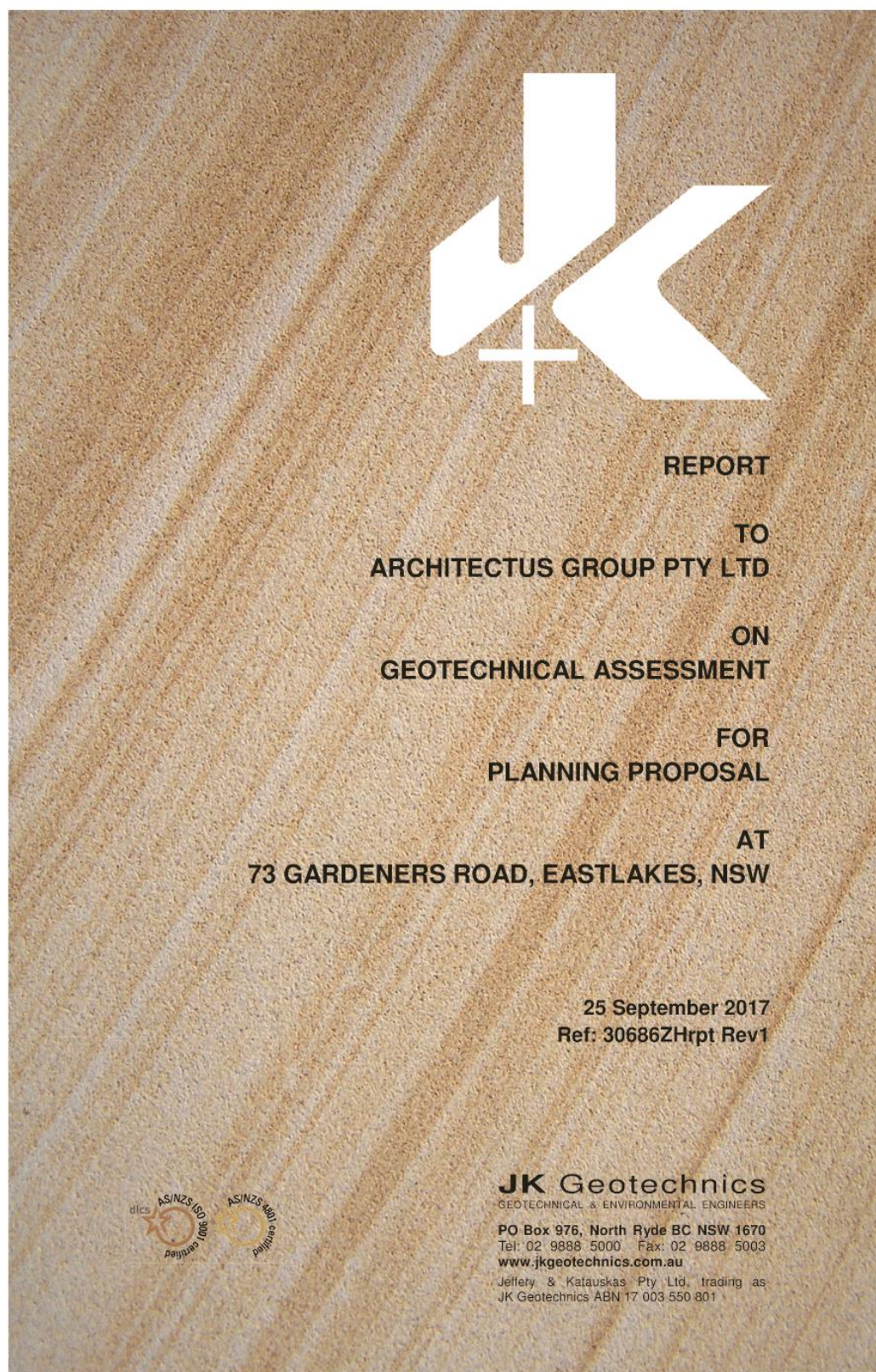








**Attachment L – Geotechnical
Assessment 73 Gardeners
Road, Prepared by JK
Geotechnics, dated July 2017**





Date: 25 September 2017
Report No: 30686ZHRpt
Revision No: 1

Report prepared by:

Adrian Hulskamp
Senior Associate | Geotechnical Engineer

Report reviewed by:

Agi Zenon
Principal | Geotechnical Engineer

For and on behalf of
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FIGURE 1: SITE LOCATION PLAN

FIGURE 2: GEOTECHICAL SITE PLAN

FIGURE 3: GEOTECHNICAL MAPPING SYMBOLS



1 INTRODUCTION

This report presents the results of a limited scope geotechnical assessment for the proposed development at 73 Gardeners Road, Eastlakes, NSW. A site location plan is presented on the attached Figure 1. The assessment was commissioned by Jane Freeman of Architectus Group Pty Ltd (AG) by signed 'Acceptance of Proposal' form dated 22 June 2017. The commission was on the basis of our proposal (Ref P28577ZH Eastlakes dated 4 May 2017).

To assist with our assessment, we have been supplied with the following information:

1. A survey plan (Drawing No. 118382500 Rev 00, dated 25 May 2017) prepared by Cardno;
2. An unreferenced 'Draft Master Concept' plan prepared by AG dated 6 July 2017. The plan shows two sites, of which 'Site 2' comprises the subject site. 'Site 1' (No. 75 Gardeners Road) bounds the subject site to the west; and
3. Borehole logs (EL01 to EL45 and SS01 and SS02, dated 1 May 2015) and a Sample Location Plan prepared by CH2M Hill. The boreholes were drilled on the neighbouring site ('Site 1') to the west.

The purpose of the geotechnical assessment was to complete a walkover inspection of the site and to map relevant surface features and to review the provided CH2M Hill borehole logs and subsurface information from previous nearby geotechnical investigations carried out by JK Geotechnics. Based on the above, we present our preliminary comments and recommendations to address the likely range of geotechnical issues and constraints for the proposed development.

JK Geotechnics carried out a geotechnical assessment for the neighbouring site ('Site 1') to the west of the subject site and the results were presented in our report (Ref 28577ZTHrpt dated 10 August 2015). We understand that 'Site 1' may also be developed in the future with residential buildings underlain by basements.

2 PROPOSED DEVELOPMENT

We understand that the proposed development is at a 'Draft' Master Plan stage and exact details are currently not available.

The outline of the proposed development site is shown on the attached Figure 2.



We understand that the proposal seeks to rezone the site to allow redevelopment for residential uses at a later stage, following the sites divestment by Sydney Water. This will be subject to a future Development application by others at a later stage. A master plan development has been prepared to inform the proposed planning controls for the site and this is the subject of this report.

Based on our discussions with staff from AG and Sydney Water during the walkover inspection and with reference to the provided unreferenced 'Draft Master Concept' plan, we understand that the development is likely to comprise construction of several residential apartment buildings each up to fourteen storeys high underlain by one, two or possibly even three basement levels. The proposed basement finished floor levels and extents have not been indicated and this is subject to further detailed design and assessment at a later stage.

For the purpose of this report, we have assumed that excavation to a maximum depth of 9m below existing grade will be required for construction of the proposed basements and that the proposed excavations may extend to, or relatively close to, the site boundaries.

We have not been provided with any structural loads, however, we assume that the loads could be in the moderate to high range.

3 ASSESSMENT PROCEDURE

3.1 Walkover Inspection

On 6 July 2017 our Senior Associate level Geotechnical Engineer (Adrian Hulskamp) carried out a walkover inspection of the topographic, surface drainage and geological conditions of the site and its immediate environs. Mapping of the primary geotechnical features identified on, or in close proximity to, the site was carried out and is presented on Figure 2, which is based on the provided survey plan.

Our observations of the western creek bank, as described in Section 4 below, were mostly carried out from within the Lakes Golf Course public car park to the east of the subject site.

Figure 3 presents details of the geotechnical mapping terms and symbols used on Figure 2. Slope angles were measured using a hand held clinometer and the dimensions of features which were accessible were tape measured, otherwise they were estimated. The feature locations shown on Figure 2 are approximate only and, should any of these features be critical to the proposed development, we recommend they be located more accurately using instrument survey techniques.



Specific subsurface investigations, laboratory testing and assessment of potential contamination of the subsurface soils and groundwater were beyond the scope of this assessment.

3.2 Desktop Review of Available Subsurface Information

The walkover inspection was supplemented by a review and search of relevant geotechnical and geological information in our database, as well as a review of the provided CH2M Hill borehole logs.

4 SITE OBSERVATIONS

The following should be read in conjunction with the attached Figure 2.

The site is located within relatively flat to slightly undulating topography. The site is trapezoidal in shape and is approximately 160m to 190m long (north-south) and approximately 65m to 88m wide (east-west). Gardeners Road bounds the site to the north. The site itself is relatively flat.

At the time of the walkover inspection, the site was used by Sydney Water as a maintenance depot. A large concrete and metal warehouse was located towards the middle of the site. The ground floor of the warehouse comprised an on-grade concrete floor slab. A two storey office building adjoined the eastern side of the warehouse building. Both the warehouse and office building appeared to be in good external condition, based on a cursory inspection from within the site. The ground surface surrounding the warehouse and office building was generally covered with concrete and asphaltic concrete pavements, which were in good condition. There were also areas around the perimeter of the site which were covered with grass and garden beds, which contained small to medium sized trees. A small brick 'Pump House' building was located towards the north-western corner of the site and appeared to be in good external condition. A small electrical 'kiosk' was located at the far north-western corner of the site, just off Gardeners Road. The eastern and southern sides of the 'kiosk' platform was supported by an approximate 1m high concrete block retaining wall, which was in good condition.

The Sydney Water 'Dial Before You Dig' plan of the site indicates a 250mm diameter Cast Iron (CI) sewer main passes below the western and central portions of the site. The two maintenance holes within the site had invert depths of either 6m or 6.2m below existing grade. There was also a 250mm diameter sewer rising main which passed below the north-western corner of the site and terminated below the aforementioned brick 'Pump House' building. The plan does not indicate the invert depth of the sewer rising main.



The neighbouring site located off the northern end of the western site boundary (No. 75 Gardeners Road) was mostly vacant, with the exception of a small brick house, which was set back approximately 5m from the common boundary. A detailed description of this neighbouring site was presented in our geotechnical report (Ref 28577ZTHrpt dated 10 August 2015). However, we note though that the former buildings previously described on the neighbouring site to the west had been demolished.

The Lakes Golf Course, which generally comprised vacant areas covered by grass and patchy vegetation, bound the site to the south-west, south and east. In some areas, however, the vegetation was dense, which limited our observations across the common boundaries. A creek ran adjacent to the entire length of the eastern site boundary. There was water estimated to be less than approximately 1m deep in the base of the creek. The western bank of the creek which ranged between approximately 3m and 5m high abutted the eastern boundary of the subject site and generally graded between approximately 15° and 40°. The western creek bank was often obscured by dense vegetation, though where the vegetation was sparse, sandy soils were exposed. Scour and erosion along the toe of the creek banks was evident. The crest of the western creek bank was generally supported by a timber retaining wall to a maximum height of approximately 1m, which in some areas was in poor condition. The timber retaining wall was located just outside the eastern site boundary. Several concrete stormwater pipes daylighted within the western creek bank. Erosion was evident around and below the headwalls of some of the pipe outlets. The toe of the creek bank adjacent to the northern end of the site was supported by a brick retaining wall to a maximum height of approximately 2m and appeared to be in good condition. The creek extended below Gardeners Road to the north through a culvert.

5 ANTICIPATED SUBSURFACE CONDITIONS

The 1:100,000 Geological Map of the Sydney indicates the site is underlain by freshwater swamp, which comprises 'peat, sandy peat and mud' but close to the surrounding transgressive dunes, which comprise 'marine' sands of Quaternary age.

Based on the subsurface conditions encountered in the closest CH2M Hill boreholes drilled on the neighbouring site to the west, several previous investigations carried out on nearby sites located within approximately 600m to the east and west of the site and our site observations, we anticipate that the subsurface conditions at the site may comprise the following:

- Sandy fill of variable, but generally limited (less than 1m) thickness.



- The upper subsurface profile may comprise 'soft' soils such as peats and clays as well as sand, though we expect the soils at depth to comprise fine to medium grained sand/silty sand. The density of the sands is expected to increase with depth to at least medium dense and possibly dense and very dense.
- Groundwater could range between less than 2m deep on the eastern side of the site adjacent to the creek to greater than 6m depth on the western side of the site.
- Bedrock is unlikely to be encountered within at least 20m depth, possibly deeper.

6 PRELIMINARY COMMENTS AND RECOMMENDATIONS

6.1 Geotechnical Investigation

Once the architectural drawings are available, we recommend that a site specific geotechnical investigation be completed to assess the subsurface conditions for each proposed building. As a guide, the geotechnical investigations should include, but not be limited to, the following:

- Completion of Cone Penetration Testing (CPT);
- Drilling of boreholes for subsequent laboratory soil testing;
- Completion of groundwater seepage analysis to assess groundwater pumping volumes, suitable embedment depth(s) of the basement shoring systems and the potential groundwater drawdown outside the basement excavations;
- Sampling of the groundwater to assess its quality for disposal purposes; and
- Provide site specific comments and recommendations on geotechnical issues relevant to the proposed development.

We also recommend that a detailed geotechnical assessment be carried out on the western creek bank to the east of the site to assess its stability and provide advice on stabilisation measures, if appropriate.

From experience, we expect the groundwater seepage analysis will be required by Water NSW who will most likely be a consent authority for development on the subject site.

We would be pleased to prepare a proposal for the geotechnical investigations, detailed creek assessment and groundwater seepage analysis at the appropriate time.



6.2 Geotechnical Issues and Constraints

Based on the anticipated subsurface conditions and our experience in this area of Sydney, the likely range of geotechnical issues that will need to be addressed in the design and construction of the proposed development are assessed to be as follows:

Excavation Conditions and Techniques

- Prior to the commencement of excavation, reference should be made to the Safe Work Australia 'Code of Practice – Excavation Work' dated July 2015.
- Council may require a dilapidation survey on the Gardeners Road pavement. Should there be structures present on the neighbouring site to the west at the time of demolition and excavation, then dilapidation surveys should also be carried out on any structures located within 30m of any proposed excavation.
- Prior to the commencement of excavation, we recommend that a detailed services search be carried out across the site. The details should then be plotted onto a survey plan for future reference.
- Where excavation extends below an existing buried service, temporary propping of the buried services may be required, so as to prevent damage to the services as a result of the excavation. Alternatively, the buried service may require diversion, prior to the commencement of, or in association with, excavation.
- A waste classification will need to be assigned to any soil excavated from the site prior to offsite disposal. Subject to the appropriate testing, material can be classified as Virgin Excavated Natural Material (VENM), General Solid, Restricted Solid or Hazardous Waste. Analysis takes seven to 10 working days to complete, therefore, an adequate allowance should be included in the construction program unless testing is completed prior to construction. If contamination is encountered, then substantial further testing and associated delays should be expected. We strongly recommend that this issue is addressed prior to the commencement of excavation on site.
- Following dewatering, where required, bulk excavation to a maximum depth of 9m is expected to encounter soil and may readily be completed using buckets fitted to hydraulic excavators. If there are buildings presented to the west, then we note that sudden stop/start movements of tracked equipment should be avoided, so as to reduce the transmission of ground borne



vibrations which may cause damage to the buildings, boundary walls and paved surfaces. The potential damage may arise from adverse vibrations and/or settlement of the ground due to the vibrations.

Excavation Support

- Where the site geometry permits, and provided the depth of excavation does not exceed 3m, we consider temporary batter slopes through the soil profile feasible above the groundwater level. The temporary batter slopes should be provisionally cut no steeper than 1 Vertical (V) in 1.5 Horizontal (H) subject to geotechnical inspection and provided all surcharge loads are kept well away from the crest of the temporary batters.
- Where the excavation extends to, or close to, the site boundaries or where the excavation depth exceeds 3m, the sides of the excavation will need to be supported by an engineer designed shoring system, which must be installed prior to the commencement of excavation. Suitable shoring systems may comprise secant pile walls, contiguous pile walls, sheet pile walls or cutter soil mixing (CSM) slurry walls. We note that contiguous pile walls will only suitable for excavations above the groundwater table.
- The shoring system must be founded with sufficient embedment below bulk excavation level to satisfy stability, piping and founding considerations. To reduce deflections, the shoring system may need to be anchored and/or braced internally, as excavation proceeds. Careful control of the construction sequence will be required to reduce potential movements.
- For progressively propped or anchored shoring systems, where minor wall movements can be tolerated (for example, adjacent to the Gardeners Road street frontage and provided there are no movement sensitive buried services present), a uniform rectangular earth pressure distribution of $6H$ (kPa) should be adopted for the soil profile, where H is the retained height. For progressively propped or anchored shoring systems located in areas that are sensitive to lateral movement (for example, walls which are adjacent to movement sensitive buried services or adjacent to existing buildings, such as the brick 'Pump House'), a uniform rectangular earth pressure distribution of $8H$ (kPa) should be adopted for the soil profile, where H is the retained height. Any surcharge (including construction loads, traffic, inclined backfill surfaces etc.) affecting the walls should be allowed for in the design using an 'at rest' (K_0) earth pressure coefficient of 0.6. A bulk unit weight of 20kN/m^3 should be assumed for the soil profile above the groundwater and 10kN/m^3 for below the groundwater.



- Hydrostatic pressures also need to be considered in the wall design and these are additional to the earth pressure recommendations above. Particular attention needs to be given to the hydrostatic pressures during dewatering as differential water pressures will occur and will have a significant impact on the wall stability and loads.
- If anchors are to extend below a neighbouring property, then permission from the neighbouring property owner must be obtained prior to installation.
- The piling contractor may require a working platform, prior to the commencement of piling. The design of such a platform depends on the loading from the piling rig and the platform material used, as well as the subgrade material properties. Therefore, the working platform design cannot be completed until the platform material is selected and a specific piling rig nominated. We can complete a piling rig working platform design at the appropriate time, if requested.

Dewatering

- If groundwater is present within the depth of excavation then in order to maintain a 'dry' excavation during construction, internal dewatering will be required. We expect that dewatering will be carried out using a spear point system or well system.
- If there are buildings present on the neighbouring site to the west, then we forewarn that any uncontrolled lowering of groundwater levels may cause settlement of the nearby structures, unless those structures are fully suspended off piled footings. It will be essential that groundwater levels are adequately monitored during dewatering to reduce the potential for damage to nearby buildings.
- If there are buildings present on the neighbouring site to the west, survey monitoring of the buildings may be warranted to confirm that no untoward settlement of the buildings has occurred as a result of the dewatering.
- Approvals will be required from Water NSW for temporary dewatering.
- We recommend that the dewatering contractor's proposed dewatering methodology be reviewed by the geotechnical engineer, prior to implementation to confirm its suitability.

**Footings**

- Based on the expected moderate to high column loads, we recommend that the proposed buildings be uniformly supported on either piled footings or a piled raft slab.
- Suitable pile types may include continuous flight auger (cfa) piles or steel (helix) screw piles.
- Steel and concrete durability testing should be carried out.
- Allowable end bearing pressures for pile design will be a function of the pile diameter, founding depths, strength/density of the founding material and presence of groundwater.

Basement Floor Slabs

- Where the proposed basement is located above the groundwater table, then we expect that an on-grade floor slab will be appropriate. The subgrade should be proof rolled with a large static smooth drum roller of at least 10 tonnes deadweight with the final pass carried out under the direction of an experienced geotechnical engineer for the detection of unstable or soft areas. Heaving areas should be locally removed down to a stable base and replaced with engineered fill. Possible alternatives to stripping the full depth of the heaving areas must be provided by the geotechnical engineer during the proof rolling inspection, if appropriate.
- Alternatively, if the proposed basement will be located below the groundwater table, then the basement floor slab will need to be designed as a 'tanked' structure to resist the uplift pressures. Care must be taken with the detailing and construction of the waterproofing at the interface between the floor slab and basement walls, as well as any penetrations through the floor slab.

External Pavements

- For external pavements the subgrade at design subgrade level must be proof rolled as per our comments above. For preliminary design purposes, a subgrade CBR value of 3% is applicable for a clay subgrade and 7% for sand subgrade. The actual design CBR value must be confirmed by laboratory CBR tests on subgrade samples, prior to final design of the pavement.



7 GENERAL COMMENTS

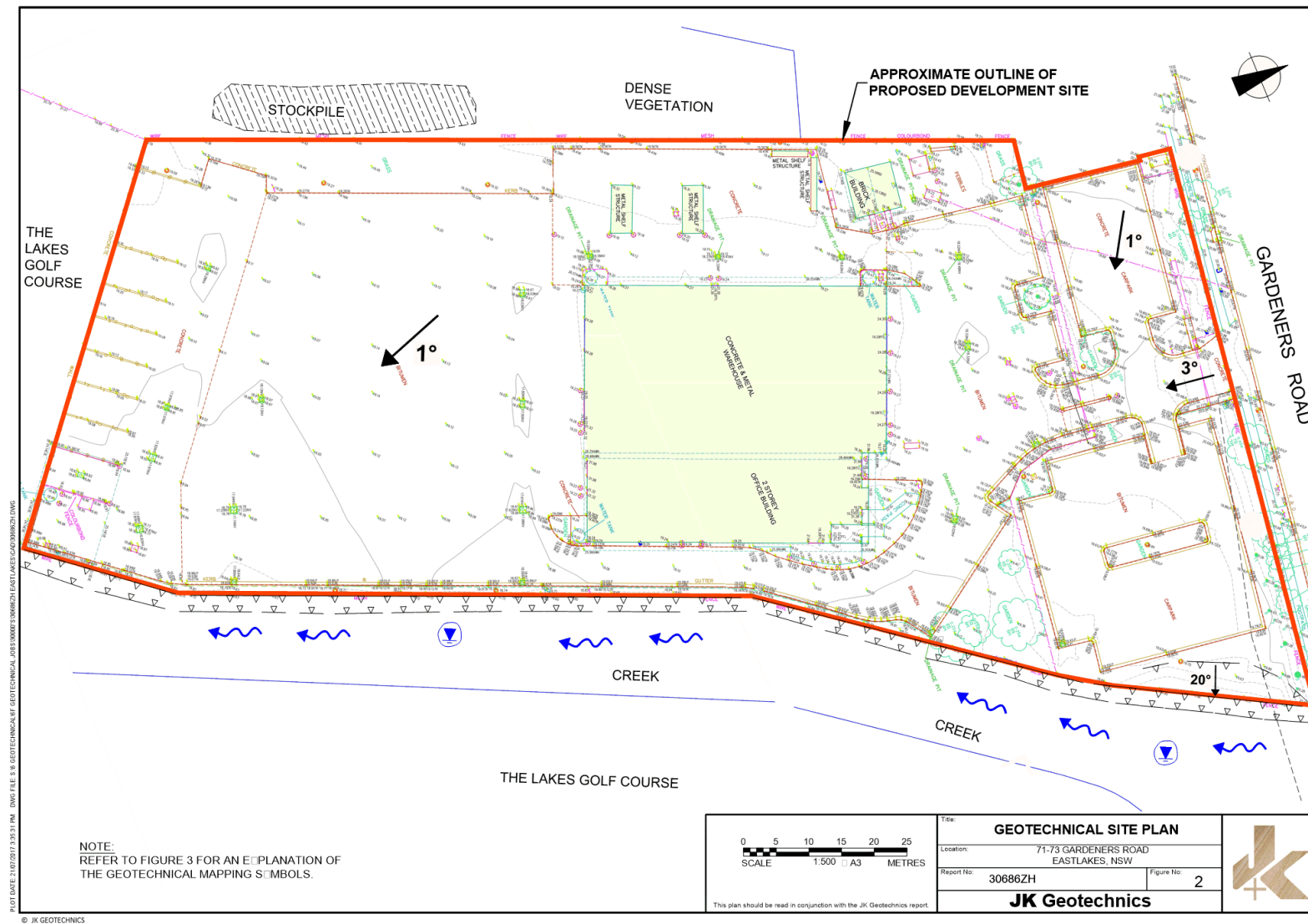
Occasionally, the subsurface conditions may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact this office.

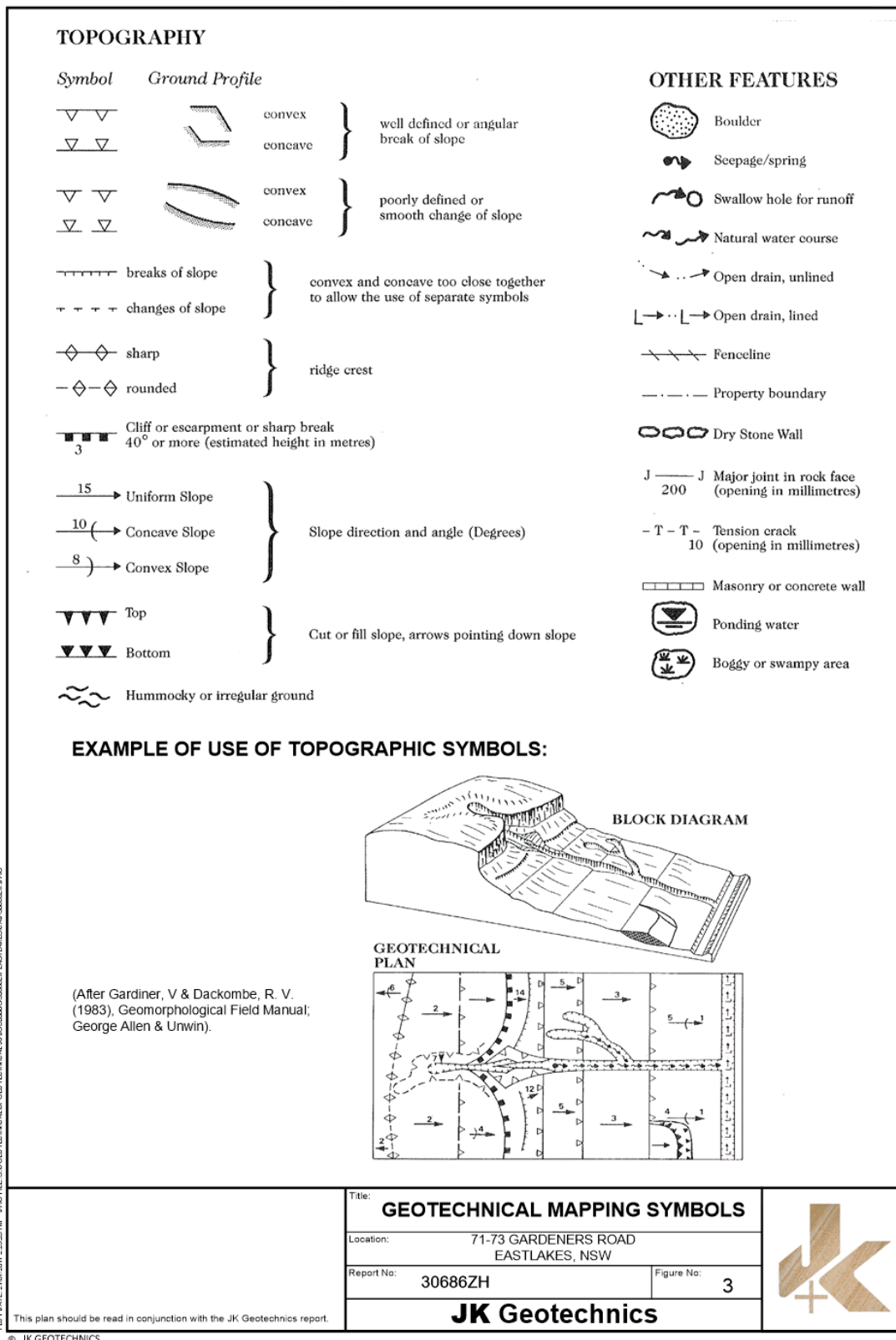
The recommendations presented in this report include specific issues to be addressed during the construction phase of the project. As an example, special treatment of soft spots may be required as a result of their discovery during proof-rolling, etc. In the event that any of the construction phase recommendations presented in this report are not implemented, the general recommendations may become inapplicable and JK Geotechnics accept no responsibility whatsoever for the performance of the structure where recommendations are not implemented in full and properly tested, inspected and documented.

This report provides preliminary advice only on geotechnical aspects for the proposed civil and structural design and is subject to completion of a site specific geotechnical investigation. As part of the documentation stage of this project, Contract Documents and Specifications may be prepared based on our report. However, there may be design features we are not aware of or have not commented on for a variety of reasons. The designers should satisfy themselves that all the necessary advice has been obtained. If required, we could be commissioned to review the geotechnical aspects of contract documents to confirm the intent of our recommendations has been correctly implemented.

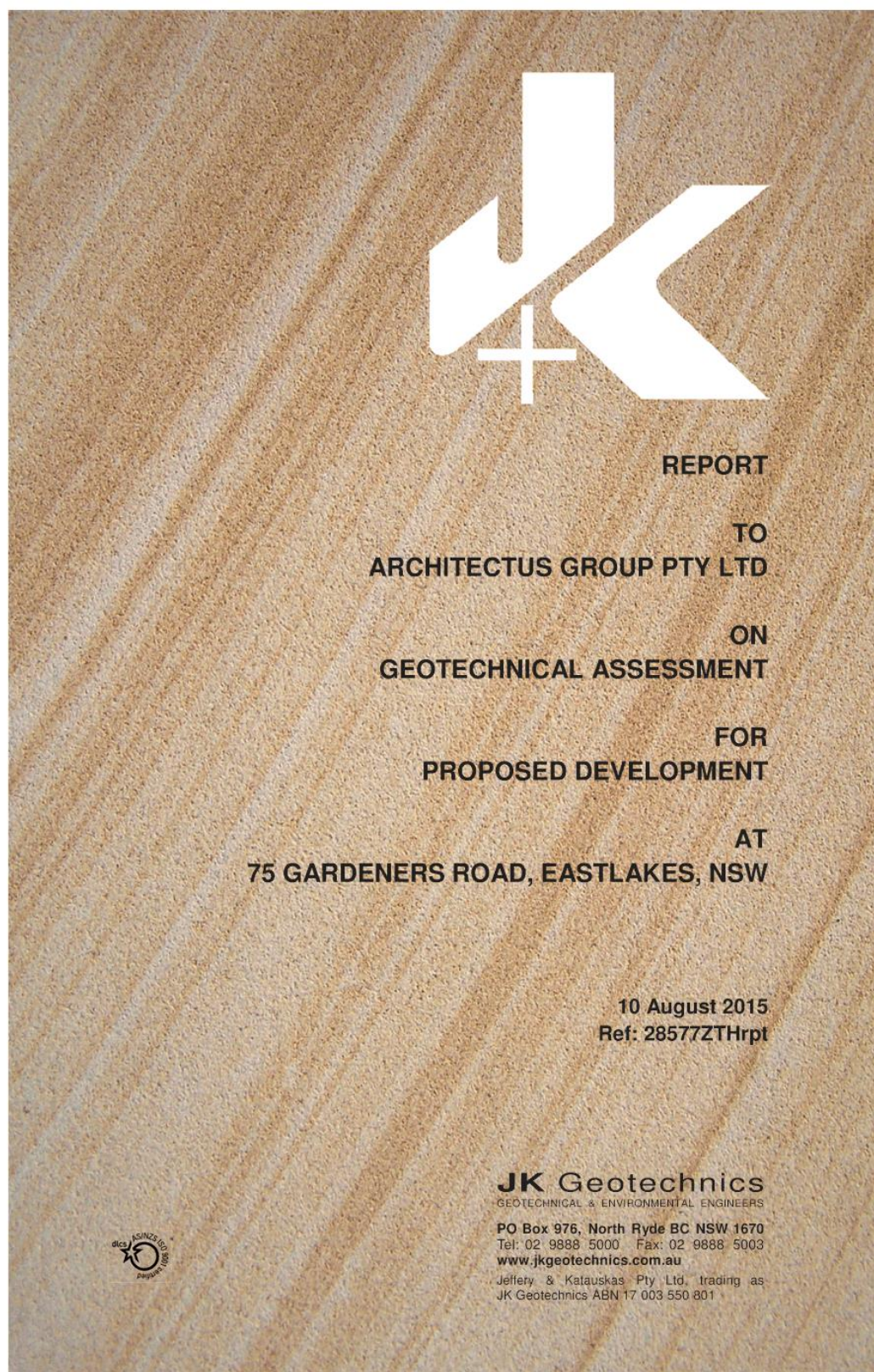
This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.







**Attachment M – Geotechnical
Assessment 75 Gardeners
Road, Prepared by JK
Geotechnics, dated May 2015**





Date: 10 August 2015
Report No: 28577ZTHrpt
Revision No: 0

Report prepared by:

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For and on behalf of
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FIGURE 1: GEOTECHNICAL SITE PLAN

FIGURE 2: GEOTECHNICAL MAPPING SYMBOLS



1 INTRODUCTION

This report presents the results of a geotechnical assessment for the proposed development at 75 Gardeners Road, Eastlakes, NSW. The assessment was commissioned by Ms Jane Freeman of Architectus Group Pty Ltd by signed 'Acceptance of Proposal' form. The assessment was completed in accordance with our proposal, Ref: 'P40788ZH', dated 2 July 2015.

To assist with our assessment, we have been supplied with the following information:

1. A survey plan (Reference No. 150721, dated 4 August 2015) prepared by Linker Surveying.
2. An unreferenced and undated proposed subdivision plan prepared by Sydney Water.
3. Borehole logs (EL01 to EL45 and SS01 and SS02, dated 1 May 2015) and a Sample Location Plan prepared by CH2M.

The purpose of the geotechnical assessment was to complete a walkover inspection to map relevant surface features and to review the supplied CH2M borehole logs and subsurface information from previous geotechnical investigations we have completed on a nearby site. Based on our observations and review of the above subsurface information, we provide our preliminary comments and recommendations on excavation conditions and support, retaining walls, dewatering, footings, basement level on-grade floor slabs and further geotechnical input.

2 PROPOSED DEVELOPMENT

The proposed development is currently at a Master Plan stage, so exact details have not been provided to us. However, the approximate outline of the proposed development site is shown on the attached Figure 1.

Based on our discussions with staff from Architectus Group, we understand that the development is likely to comprise construction of several multi-storey residential apartment buildings underlain by up to two basement car parking levels. The extent and finished floor levels of the proposed basement basements have not been indicated.

For the purpose of this report, we have assumed that excavation to a maximum depth of about 6m below existing grade will be required for construction of the proposed basements and that the excavations may extend to the site boundaries.



We have not been provided with any structural loads, however, we assume that the loads could be in the moderate to high range.

3 ASSESSMENT PROCEDURE

3.1 Walkover Inspection

The geotechnical assessment included a walkover inspection of the topographic, surface drainage and geological conditions of the site and its immediate environs by a Senior Associate Geotechnical Engineer (Adrian Hulskamp) on 20 July 2015. Mapping of the primary geotechnical features identified on site was carried out and is presented on Figure 1, which is based on the supplied survey plan.

Figure 2 presents details of the geotechnical mapping terms and symbols used in Figure 1. Slope angles were measured using a hand held clinometer and the dimensions of features which were accessible were tape measured, otherwise they were estimated. The feature locations shown on Figure 1 are approximate only and, should any of these features be critical to the proposed development, we recommend they be located more accurately using instrument survey techniques.

Specific subsurface investigations, laboratory testing and assessment of potential contamination of the subsurface soils and groundwater were beyond the scope of this assessment.

3.2 Desktop Review of Available Subsurface Information

We have supplemented our walkover inspection by a review and search of relevant geotechnical and geological information in our data-base. We have also been supplied with CH2M borehole logs.

Jeffery and Katauskas (now trading as JK Geotechnics) has completed a previous geotechnical investigation at the nearby Eastlakes Shopping Centre, which is located approximately 400m to the west of the site.



4 SITE DESCRIPTION

The following site description should be read in conjunction with the attached Figure 1.

The site is located within the relatively flat to slightly undulating topography. Gardeners Road and Slattery Place bound the site to the north and west, respectively. The site is approximately 250m long (east-west) and between about 35m and 80m wide (north-south). The Lakes Golf Course which was located to the south was generally covered by grass and patchy vegetation.

At the time of the walkover inspection, the site was occupied by a nursery ('Gardens R Us') business. There were several single storey structures scattered around the site which were generally of timber and weatherboard construction. The ground surface within the site was generally flat to gently sloping. However, just inside the central portion of the southern site boundary, the ground sloped down towards the golf course between about 15° and 20°. This slope appeared to be a sand 'dune' and was generally covered with dense vegetation. The ground surface within the site was often covered with asphaltic concrete (AC) and concrete pavements, but in many areas the ground surface was unsealed. The pavement surfaces were generally in poor condition with numerous cracks and potholes present. Several medium to large trees were scattered across the site, particularly towards the western end of the site.

Several retaining walls were observed, including timber 'Koppers' log walls within the south-eastern and north-western corners of the site. Retained heights were typically up to about 2m. The 'Koppers' log retaining wall at the north-western corner of the site adjacent to the easement was in poor condition, with several timber soldiers and panels leaning over by up to about 20° from the vertical.

The site along the central and eastern ends of the northern site boundary was supported by a concrete crib retaining wall to a maximum height of about 1.6m. The wall appeared to be in good condition, based on a cursory inspection from Gardeners Road. The retained ground surface within the site appeared to have been raised by filling over a width of about 10m back from the crib wall.

Towards the western end of the site there was a gully feature. Along the base of the gully was a drainage easement which contained ponding water. Where the soils were exposed in the base of the easement, the soils had a 'boggy' and 'clayey' appearance. There was no safe access on foot to the base of the gully. At the north-western and north-eastern sides of the easement were concrete headwalls which surrounded reinforced concrete pipes (RCP), which ranged between 450mm and 1200mm diameter. The RCP appeared to drain from below Gardeners Road. The



easement itself appeared to drain towards the golf course to the south. The sides of the easement were supported by low height dilapidated timber 'koppers' log and sandstone block retaining walls.

The neighbouring site to the east was occupied by a single storey brick house. Ground surface levels across the common boundary were similar.

5 ANTICIPATED SUBSURFACE CONDITIONS

The 1:100,000 Geological Map of the Sydney indicates the majority of the site is underlain by transgressive dunes, which comprise 'marine' sands of Quaternary age. However, the map indicates that the western end of the site where the gully feature is present is underlain by freshwater swamp, which comprises 'peat, sandy peat and mud'.

Based on the subsurface conditions encountered in the CH2M boreholes, our previous investigations completed at the nearby Eastlakes Shopping Centre, and our site observations, we anticipate that the subsurface conditions at the site may comprise the following:

- Sandy fill of variable thickness across the site. The CH2M boreholes suggest the fill may be up to about 2m deep. Inclusions such as sandstone gravel and cobbles are present within the fill.
- The natural soils are expected to comprise predominantly fine to medium grained sand and silty sand. The density of the subsurface profile is expected to increase with depth to at least medium dense and possibly dense and very dense.
- At the western end of the site within the gully feature, peat and sandy clay is expected at relatively shallow depth.
- Groundwater is expected between depths of about 1.2m and 8.4m below existing surface levels. Hence groundwater may be at, or very close to, ground surface level within the gully and deepest just behind the crest of the sand 'dune' feature within the central portion of the site.
- Bedrock is unlikely to be encountered at this site within at least 20m depth, possibly deeper.



6 PRELIMINARY COMMENTS AND RECOMMENDATIONS

6.1 Geotechnical Investigation

Once the architectural drawings are available, we recommend that a site specific geotechnical investigation be completed to assess the subsurface conditions. The investigation should include completion of Electrical Friction Cone Penetration (EFCP) tests, as well as boreholes for recovery of samples for subsequent laboratory tests.

EFCP testing involves continuously pushing a testing probe with a conical tip into the soil profile using the hydraulic rams of the EFCP rig. Measurements of the end resistance of the cone tip and the frictional resistance of a separate sleeve located directly behind the cone are made during the testing. We note that EFCP testing does not provide sample recovery. The subsurface material identification, including material strength/density, is by interpretation of the test results using empirical correlations.

We would be happy to prepare a proposal, if requested.

6.2 Geotechnical Issues and Constraints

Based on the anticipated subsurface conditions and our past experience in this, and similar areas, of Sydney, the likely range of geotechnical issues that will need to be addressed in the design and construction of the proposed development are assessed to be as follows:

- The existing buildings, structures and retaining walls will need to be carefully demolished, as there is the potential to damage, de-stabilise and/or remove support from neighbouring buildings, paved surfaces and buried services.
- Council may require a dilapidation survey on the adjoining road pavements. Dilapidation surveys are also recommended for all neighbouring properties if they lie within the zone of influence of the proposed excavations. The zone of influence of the excavations may be defined as a horizontal distance of '2H' from the excavations, where 'H' is the depth of the excavations in metres.
- Prior to the commencement of excavation, we strongly recommend that a detailed services search be carried out across the site. The details should then be plotted onto a survey plan for future reference.



- Reference should be made to Section 7 of this report for guidance on the offsite disposal of soil and groundwater.
- Prior to the commencement of excavation, reference should be made to the Safe Work Australia 'Code of Practice – Excavation Work' dated July 2014.
- Bulk excavations to a maximum assumed depth of 6m will encounter the soil profile and may be readily completed using buckets fitted to hydraulic excavators. We note that sudden stop/start movements of tracked equipment on this site should be avoided, so as to reduce the transmission of ground borne vibrations which may cause damage to neighbouring buildings, boundary walls and nearby paved surfaces. The potential damage may arise from adverse vibrations and/or settlement of the ground, due to the vibrations.
- Following dewatering, if required, and where the site geometry permits, we consider temporary batter slopes through the soil profile feasible. The temporary batter slopes should be cut no steeper than 1 Vertical (V) in 1.5 Horizontal (H), provided all surcharge loads are kept well away from the crest of the temporary batters.
- If the excavations extend to, or close to, the site boundaries, the sides of the excavation will need to be supported by an engineer designed shoring system, which must be installed prior to the commencement of excavation. Suitable systems may comprise secant pile retaining walls, contiguous pile retaining walls, steel sheet pile retaining walls or cutter soil mixing (CSM) slurry walls. We note that contiguous pile walls will only be suitable for excavations above the groundwater table.
- The shoring system piles must be founded with sufficient embedment below bulk excavation level to satisfy stability and founding considerations and will need to be installed prior to the commencement of excavation. To reduce deflections, the shoring system will need to be anchored and/or braced internally, as excavation proceeds. Careful control of the construction sequence will be required to reduce potential movements.
- If ground anchors are to extend below neighbouring properties, then permission from neighbouring property owners must be obtained prior to installation.



- Dewatering will be required where the excavations extend below the groundwater table. Due to the expected relatively high permeability of the natural sand profile, it is likely that dewatering could be carried out using a spear point system or well system.
- The proposed basements are expected to be relatively large in plan area. Discharge from the drainage system could be significant and therefore a dewatering license may need to be obtained from the relevant authorities, such as the DPI Water, to allow temporary dewatering and discharge. Limits are imposed on the amount of discharge allowed and analysis of the likely discharge volume is expected as part of the approval process. This will require the installation of standpipes to monitor groundwater levels and infiltration testing to assess the permeability of the subsoil profile. Based on those results, the groundwater inflow into the basements may be estimated. If the permissible limit for permanent discharge cannot be met, tanked basements would be required, such that the basement walls and slab are designed to resist hydrostatic uplift forces. A groundwater investigation and seepage analysis would be required to assess the permeability of the subsoil profile and to estimate likely discharge volumes. Such investigation can only be completed once the plan extent and depth of the basements are known.
- Based on the expected moderate to high column loads, we recommend that the proposed buildings be uniformly supported on piled footings. Due to the presence of groundwater and sandy subsoils, suitable pile types would include continuous flight auger (CFA) piles or steel (helix) screw piles. If steel screw piles are used, consideration must be given to potential long-term corrosion. Allowable end bearing pressures for pile design will be a function of the pile diameter, founding depths, density of the founding material and presence of groundwater.
- We expect that in most areas of the site, the basement floor slabs may be constructed as a slab-on-grade. However, if a basement is proposed close to the gully, the basement floor slabs may need to be designed as suspended due to the expected presence of weak and compressible soils, such as peat and 'soft' clay. Where a slab-on-grade is proposed, we recommend that the subgrade be proof rolled with a large static roller. The final pass of proof rolling should be carried out under the direction of an experienced geotechnical engineer for the detection of unstable or soft areas. Heaving areas should be locally removed down to a stable base and replaced with engineered fill. Possible alternatives to stripping the full depth of the heaving areas must be provided by the geotechnical engineer during the proof rolling inspection, if appropriate. For tanked basements, proof rolling of the subgrade may not be necessary as the uplift forces will control the slab design.



- For external pavements, the subgrade must be proof rolled, as per our comments in the paragraph above. For preliminary design purposes, a subgrade CBR value of 3% is applicable for clayey subgrade and 7% for sandy subgrade. The actual design CBR value must be confirmed by laboratory CBR tests on the subgrade.
- Suitable materials for use as engineered fill comprise well graded granular materials such as crushed sandstone. Alternatively, excavated sandy soils may be suitable for reuse as engineered fill provided they are free of organic matter and do not contain particle sizes greater than 75mm. Compaction should be carried out in maximum 200mm thick loose layers to a density ratio of at least 98% of Standard Maximum Dry Density (SMDD) or an I_D of 75%, whichever is appropriate.
- The piling contractor is likely to require a working platform, prior to the commencement of piling works. The design of such a platform depends on the loading from the piling rig, the track width, the material used for the platform, as well as the subgrade material properties. As such design of the working platform cannot be completed until the platform material is selected and a specific piling rig nominated. The effects of excavations for construction of the working platform on the shoring system and dewatering must be given due consideration.
- We note the presence of the easement at the western end of the site. Further advice must be obtained from either a civil or hydraulic engineer with respect to construction either within, or immediately adjacent to, the easement.

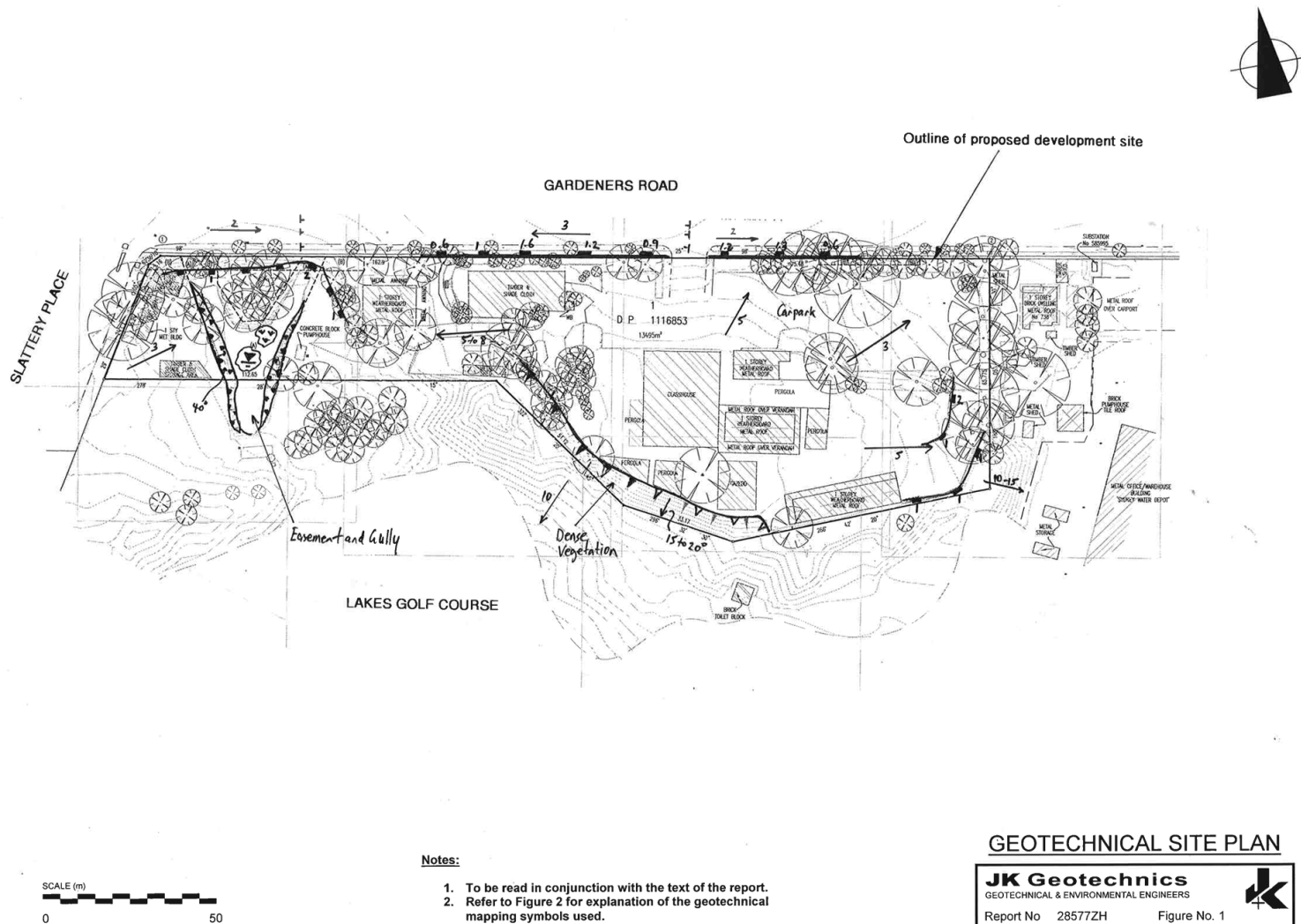


7 GENERAL COMMENTS

Occasionally, the subsurface conditions may be found to be different (or may be interpreted to be different) from those expected. Variation can also occur with groundwater conditions, especially after climatic changes. If such differences appear to exist, we recommend that you immediately contact this office.

A waste classification will need to be assigned to any soil excavated from the site prior to offsite disposal. Subject to the appropriate testing, material can be classified as Virgin Excavated Natural Material (VENM), General Solid, Restricted Solid or Hazardous Waste. If the natural soil has been stockpiled, classification of this soil as Excavated Natural Material (ENM) can also be undertaken, if requested. However, the criteria for ENM are more stringent and the cost associated with attempting to meet these criteria may be significant. Analysis takes seven to 10 working days to complete, therefore, an adequate allowance should be included in the construction program unless testing is completed prior to construction. If contamination is encountered, then substantial further testing (and associated delays) should be expected. We strongly recommend that this issue is addressed prior to the commencement of excavation on site.

This report has been prepared for the particular project described and no responsibility is accepted for the use of any part of this report in any other context or for any other purpose. If there is any change in the proposed development described in this report then all recommendations should be reviewed. Copyright in this report is the property of JK Geotechnics. We have used a degree of care, skill and diligence normally exercised by consulting engineers in similar circumstances and locality. No other warranty expressed or implied is made or intended. Subject to payment of all fees due for the investigation, the client alone shall have a licence to use this report. The report shall not be reproduced except in full.



TOPOGRAPHY

Symbol Ground Profile

convex
concavewell defined or angular
break of slopeconvex
concavepoorly defined or
smooth change of slope

breaks of slope

changes of slope

convex and concave too close together
to allow the use of separate symbols

sharp



rounded

ridge crest

Cliff or escarpment or sharp break
40° or more (estimated height in metres)

15 → Uniform Slope



10 (→ Concave Slope



8) → Convex Slope

Slope direction and angle (Degrees)



Top



Bottom

Cut or fill slope, arrows pointing down slope



Hummocky or irregular ground

OTHER FEATURES

Boulder



Seepage/spring



Swallow hole for runoff



Natural water course



Open drain, unlined



Open drain, lined



Fenceline



Property boundary



Dry Stone Wall

Major joint in rock face
(opening in millimetres)Tension crack
(opening in millimetres)

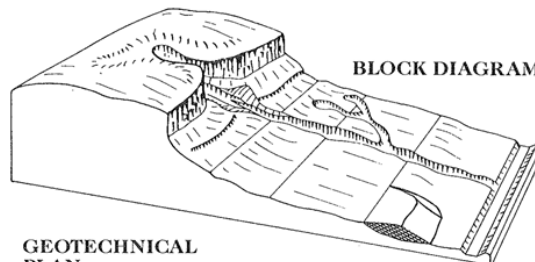
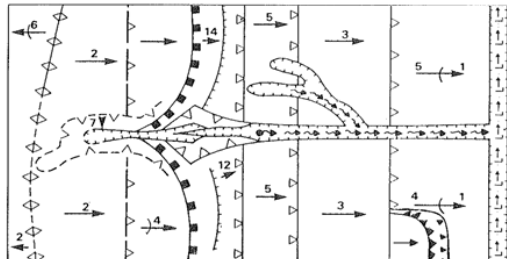
Masonry or concrete wall



Ponding water



Boggy or swampy area

EXAMPLE OF USE OF TOPOGRAPHIC SYMBOLS:**BLOCK DIAGRAM****GEOTECHNICAL
PLAN**

(After Gardiner, V & Dackombe, R.V.
(1983), Geomorphological Field Manual;
George Allen & Unwin).

GEOTECHNICAL MAPPING SYMBOLS

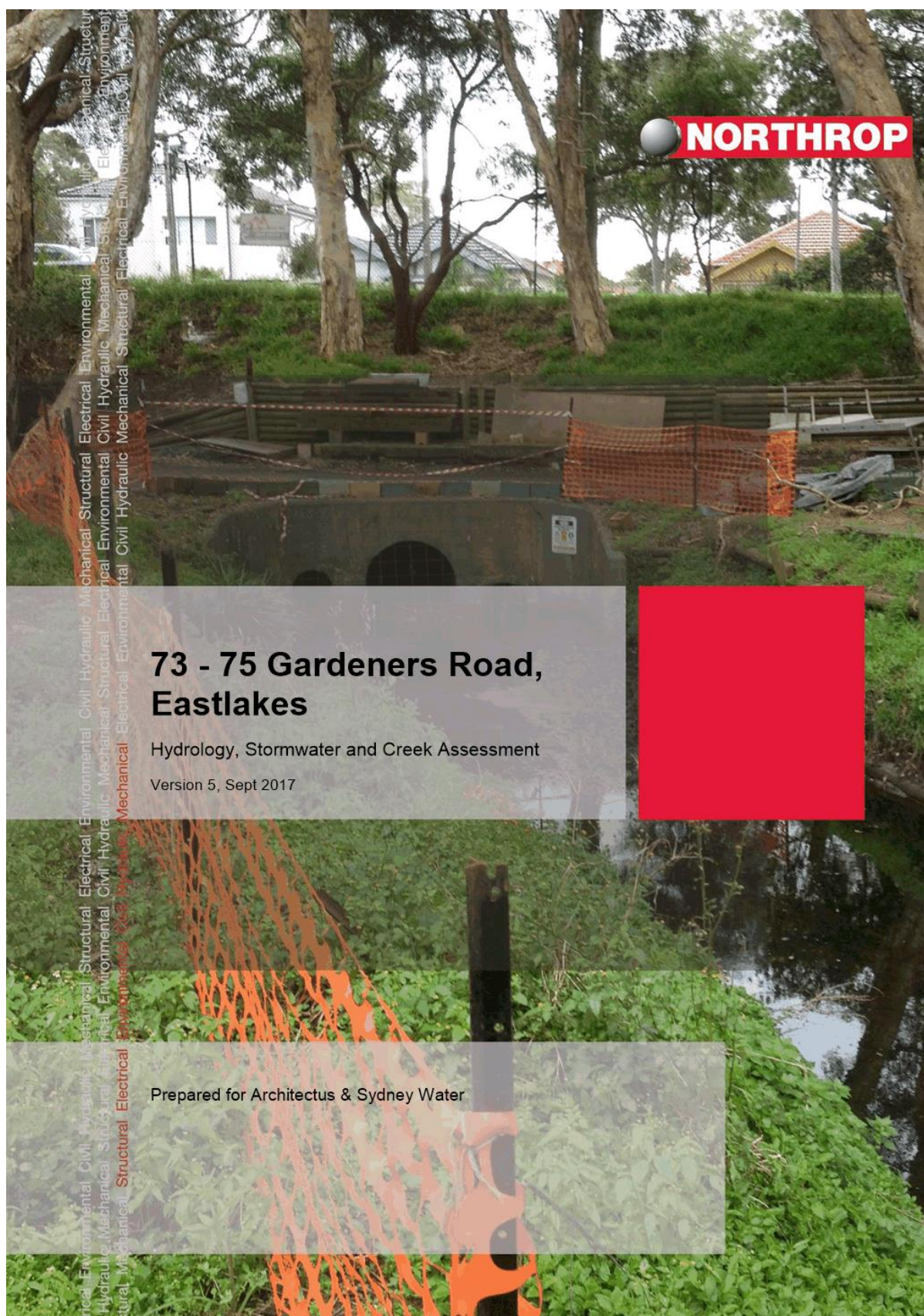
JK Geotechnics
GEOTECHNICAL & ENVIRONMENTAL ENGINEERS



Report No. 28577ZH

Figure No. 2

**Attachment N – Hydrology,
Stromwater and Creek
Assessment 73-75 Gardeners
Road, Prepared by Northrop
Consulting, dated September
2017**





Any future development of the site will be subject to future development applications lodged with Council. Our review of the Master Plan has identified that the site is suitable for the proposed land uses as residential and supporting commercial / retail land uses.

The investigations for this Stormwater Report primarily focused on the following objectives:

- Outline existing site hydrology
- Outline existing flooding constraints
- Identify existing stormwater infrastructure within the vicinity of the proposed site.
- Identify upgrade works and options to existing stormwater infrastructure as part of the proposed development
- Identify risk and engineering challenges associated with the proposed development and outline recommendations.

2. EXISTING SITE CONDITIONS

2.1. Site Description

The project extents incorporates Site 1 located at 75 Gardeners Road and Site 2 located at 73 Gardeners Road, Eastlakes, NSW. The sites are situated within The Botany Council Local Government Area (LGA). The total site area is approximately 2.7 Ha or 27,000m².

The site is bounded by Gardeners Road and residential areas to the north and Eastlakes Golf Club to the immediate south, which drains to Botany Wetlands. The site is bounded by Sydney Water Drainage assets along the eastern and western extents.



Figure 2: Existing Site Conditions



Along the western extent of site 1 at 75 Gardeners Road, two Sydney Water stormwater pipes drain into open channels that intersect the site in a north-south alignment. Immediately downstream of the site the open channels converge and enter back into closed culvert and a Gross Pollutant Trap (GPT) - Rocla CDS unit. Ultimately this flow discharges via a pipe into the chain of ponds within the golf course.

The existing depot site at 73 Gardeners Roads is mostly impervious and drains via multiple stormwater outlets directly into an existing Sydney Water channel which drains along the eastern boundary of the site. The stormwater channel also drains into the larger pond system within the golf course.

3. CATCHMENT CONTEXT

3.1. Upstream Catchment

The upstream stormwater catchments draining to the existing stormwater channels bounding the site are shown in Figure 3, and have the following characteristics:

- Urban Residential catchment
- Relatively flat topography grading gradually to the south.
- Gardeners Road represents a mounded barrier to flow by rising above the surrounding streets.
- Stormwater pipes drain beneath Gardeners Road and into the site at 75 Gardeners Road.
- Drainage infrastructure generally in poor condition

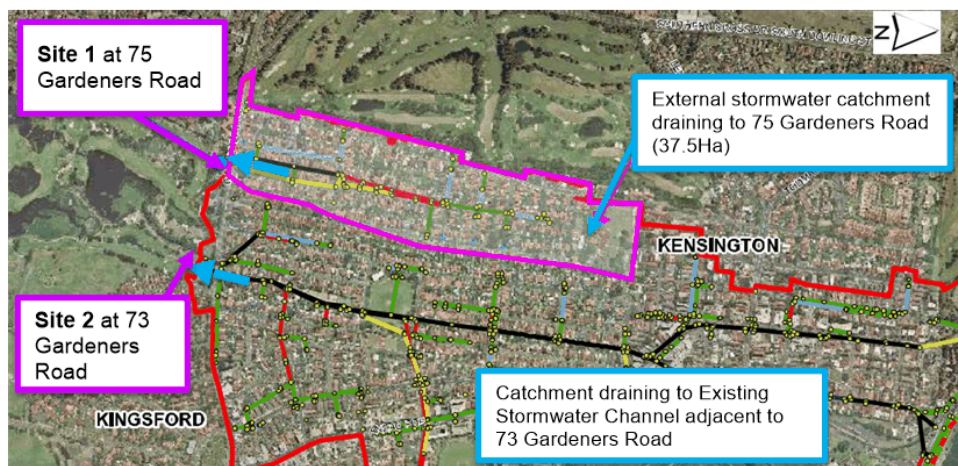
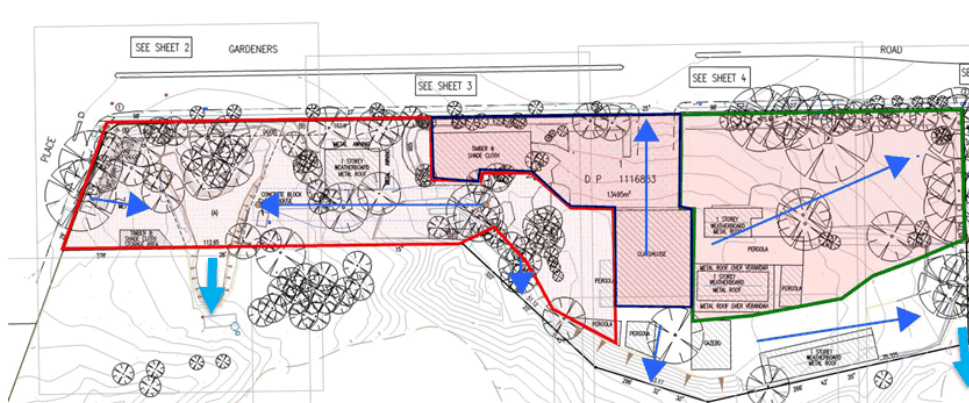


Figure 3: Upstream catchment

The existing site at 75 Gardeners Road has four distinct drainage sub catchments as shown in Figure 4. Drainage to the southeast is not clearly defined and Sydney Water have advised of the presence of a 600mm Stormwater pipe in this area, however, it was not picked up in the site survey.



The existing site at 73 Gardeners Road has four distinct drainage sub catchments as shown in Figure 5. The site is drained *via* piped stormwater outlets to the existing Sydney water channel that drains along the eastern boundary of the site.

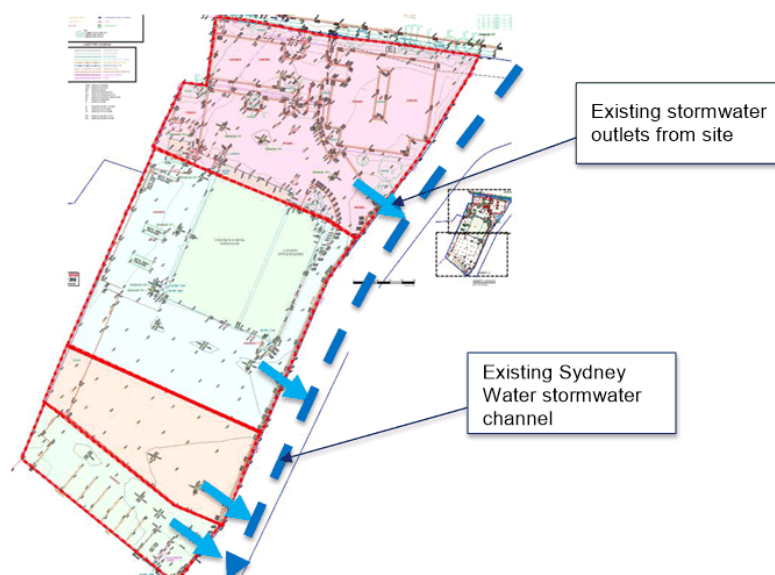


Figure 5: Approximate site sub catchments plan (73 Gardeners Road)

Downstream of the site has the following characteristics:

- Open channels drain into Eastlakes Golf Course
- Site sits at northern extent of Botany Wetlands (with an adopted Plan of Management, PoM)
- Site sits on land called Botany Water Reserve
- Significance of Botany Wetlands
 - Largest coastal freshwater wetland system in the Sydney region
 - Important wildlife habitats for EECs and migratory water birds
 - Listed on State Heritage Register and Directory of Important wetlands in Australia
 - Subject to State and Commonwealth legislation
 - Important function is stormwater conveyance and flood storage
 - Relevant PoM Targets:
 - Maintain and enhance water quality – GPT performance, SIGNAL macroinvertebrate scores
 - Manage infrastructure in good working order
 - Relevant PoM Action:
 - Repair/Replace defective GPT

Sydney Water's asset database details for the site are shown in Figures 6 and 7 below. Note the following characteristics, with numbers representing the items shown and described below:

- [illegible]

Figure 6: Sydney Water Hydra Plot for site, marked with locations of key assets for 75 Gardeners Road



- Existing 225mm dia. sewer main (8)
- Sydney Water Depot (9)
- 10,000mm wide x 1,520 deep open stormwater channel (C) drains along eastern boundary of site at 73 Gardeners Road (11)



Figure 7: Sydney Water Hydra Plot for site, marked with locations of key assets for 73 Gardeners Road

5. FLOODING

Northrop has reviewed the available Catchment and Flood Planning information provided by Botany Council and Sydney Water for 73-75 Gardeners Road, Eastlakes and provide the following comments relevant to flooding:

Site 1 (75 Gardeners Road)

- The stormwater channels within 75 Gardeners Road are inundated by greater than 2m flood depth. Surrounding areas are also affected with lesser depths. Any access via Slattery Place is inundated to 150mm depth.
- Upstream of Gardeners Road flooding occurs over a relatively large area, with 11 residential properties showing inundation in the 1-2m depth range.

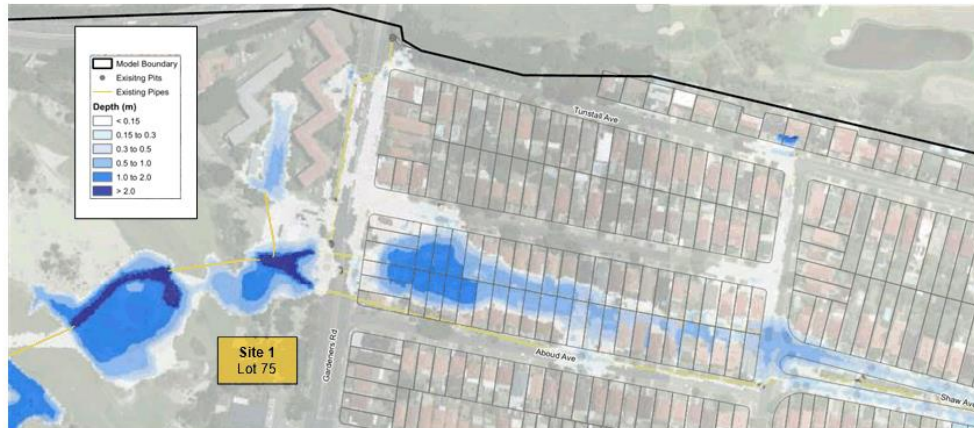


Figure 9: Modelled flood depths/extents 75 Gardeners Road and its upstream catchment (1% AEP Event)
Source: WMA Water, 2015



Figure 10: Modelled flood depths/extents 73-75 Gardeners Road and its upstream catchment (1% AEP Event)
Source: WMA Water, 2015

5.1. Flood Management Measures

Site 1 (75 Gardeners Road)

Ideally any solution developed for 75 Gardeners Road should accommodate or allow for flood mitigation both on the site, and upstream of Gardeners Road. WMA Water have modelled various flood solutions and the results in relation to flood depths and extents are shown in the Report. They concluded that amplification or duplication of the western conduit under Gardeners Road would have a beneficial effect.



Site 2 (73 Gardeners Road)

The proposed communal open space areas proposed along the Sydney Water channel (eastern boundary) covers an area approximately 2,500m². Reducing existing levels across these extents (by approx. 220mm) would sufficiently offset loss to flood storage.

5.2. Flood planning levels at 73 Gardeners Road

Flood planning levels will be dictated by Council's Development Control Plan and in accordance with the NSW Floodplain Development Manual (2005)

- Habitable floor levels to be 1% AEP flood level (RL 19m) + 500mm freeboard = **19.5m AHD**
- Basement driveway entry to be set at a min 1% AEP flood level + 500mm freeboard = **19.5m AHD**

5.3. Flooding Response

The subject sites are affected on the eastern and western peripheries by Overland Flow in the 1% AEP flood event. The master plan has attempted to respond to existing flood conditions by locating buildings outside of the flood prone areas where possible and minor encroachments / earthworks in flood affected areas would be subject to a detailed Flood Impact Assessment following any detailed design as part of any future Development Application for the site.

Flood Planning Levels are achievable for both 73 and 75 Gardeners Road and these levels offer:

- A clear delineation between the 1% AEP flood prone land and the 'built' development portion
- A reduction in risk of flooding for the car park. Basement access is provided above the car park itself. In this regard the entrance to the basement parking is given an allowance of freeboard higher than the 1% AEP flood level



6. WESTERN DRAINAGE EASEMENT

The assets in the western drainage channel are shown in Plates 1-4.



Plate 1: Eastern arm of channel



Plate 2: Western arm inflow



Plate 3: Arm confluence and outflow



Plate 4: Eastern arm inflow

The following defines the channel characteristics:

- Note from previous section that the channel is flood affected
- The channels have stable banks comprising grouted sandstone, and vegetated earth with occasional timber retaining structures
- The channel has no vegetation in the base and is dominated by stormwater sediment deposition, containing organic matter, which anecdotally decomposes to yield odours. Gross pollutants litter the channel base.
- The channel base is very unsightly with the combination of muddy sediments and gross pollutants.
- Vegetation on the channel banks is typically introduced, likely to be environmental weeds.
- A grove of mature *Melaleuca* trees is situated on a spur of land which separates the two inflow channels

1. Within the site, extend conduits from Gardeners Road through the site. This may occur in pipes or culverts that would converge at a point just downstream of the southern site boundary.
2. In addition to Item 1, allow for future additional or enlarged conduits to be placed under Gardeners Road. This would have the effect of mitigating flooding upstream of Gardeners Road;
3. The existing GPT is ineffective and needs to be decommissioned. Sydney Water consider the lack of hydraulic head at the site makes a replacement GPT unfeasible. However, stormwater pipes which drains toward the west of the site from Slattery Place could be fitted with GPTs if adequate hydraulic head is available;
4. Where the stormwater conduits converge, there are two options available, i.e.:
 - a. remove the existing stormwater conduit and daylight the creek in an open vegetated channel (creek). This channel would connect to the existing pond on the golf course. Golf course re-shaping would be required on the 13th fairway to accommodate this. A bridge would be required to allow access over the channel for golfers. This would provide a solution for an overland flow path, in addition to providing a better ecosystem outcome. A stilling pond could be created at this outflow point with fringe planting of macrophytes to prevent litter moving through the 13th fairway. This flow path would convey water after all rain and runoff events in the upstream catchment. It would be vegetated with native creek vegetation.
 - b. Combine the conduits from Gardeners Road into a chamber and then into one or two conduits to convey flow beneath the 13th fairway and into the existing pond. A surcharge pit will be required at the point of convergence of the conduits and a vegetated swale across the 13th fairway would be required as an overland flow path. A bridge would be required for golfers. This overland flow path would only convey water after the capacity of the conduits is exceeded, and therefore would be a dry grassed swale for most of the time that could be mown.
5. The pipes from Slattery Place would be incorporated into the new trunk drainage arrangement by creating an outflow point into the stilling basin (as in Figure 11)

| 13

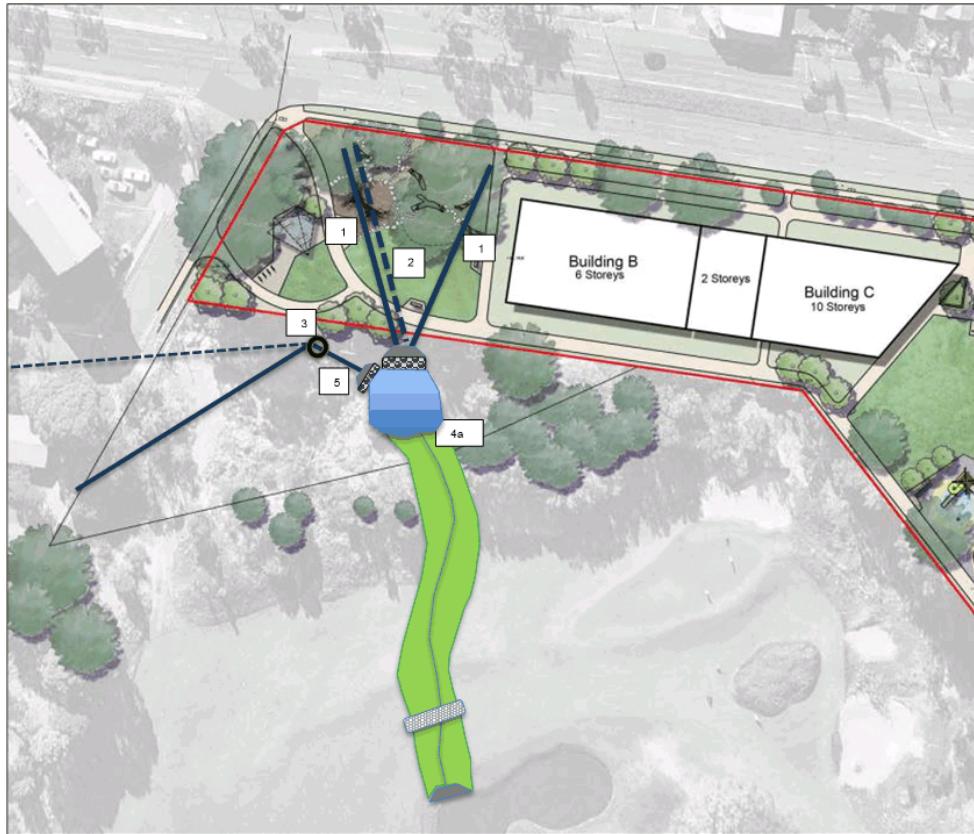


Figure 11: Preferred stormwater concept for the western side of the development. (Note that the outlet to the golf course pond could be shifted further to the east)

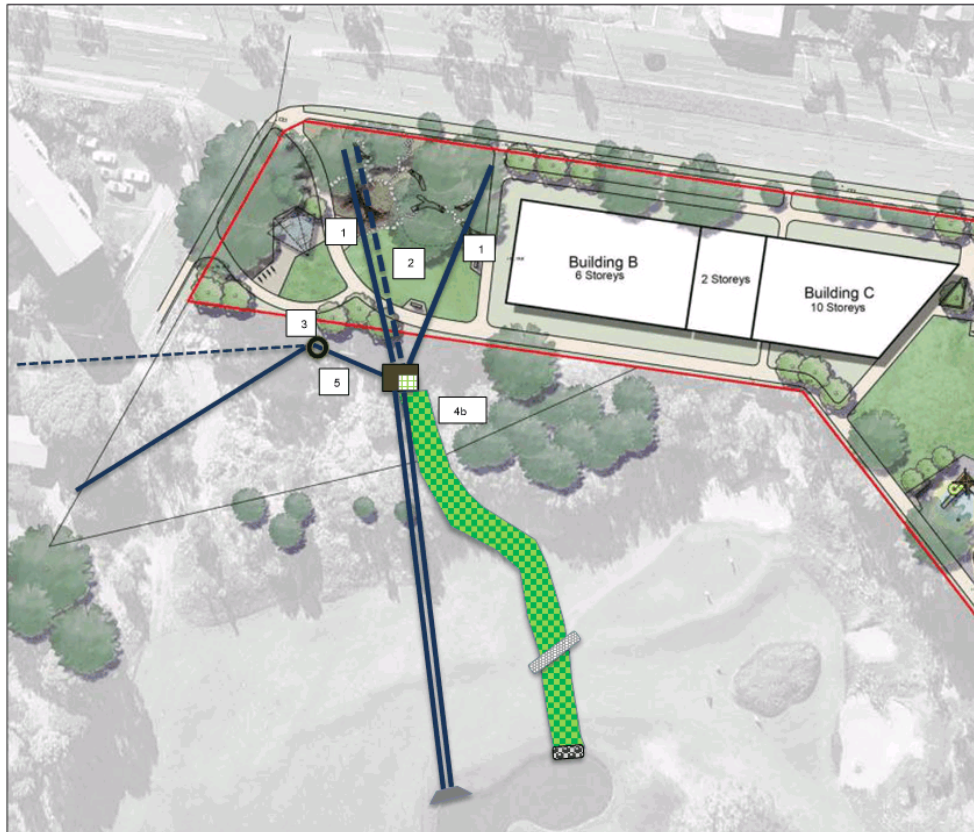


Figure 12: Alternate stormwater concept for the western side of the development. (Note that the grassed channel and two pipes as shown could be swapped)



7. PLANNING CONTEXT

7.1. Catchment Planning

From the *Botany Bay and Catchment Water Quality Improvement Plan* (Sydney Metro CMA, 2011), all new development, or re-development needs to meet the following targets:

Stormwater reduction targets recommended for urban development in the Botany Bay Catchment.

	Greenfield Developments Large re-developments	Multi-unit dwellings. Commercial developments. Industrial developments. Small re-developments.
Stormwater Pollutant		
Gross pollutants	90%	90%
Total suspended solids (TSS)	85%	80%
Total phosphorus (TP)	60%	55%
Total nitrogen (TN)	45%	40%

7.2. Council's planning

Based on *Botany Bay Development Control Plan 2013, Part 3G (Draft Amendment No. 1)*
Stormwater Management, MUSIC modelling is required to demonstrate target pollutant reductions,
 in accordance with *Draft NSW MUSIC Modelling Guideline*.

- C4** The treatment measure(s) shall include one or more of the following methods or any other as appropriate:
- (i) Gross Pollutant Traps;
 - (ii) Sediment Traps/ Basins;
 - (iii) Oil Separators;
 - (iv) Bio-retention Systems;
 - (v) Constructed wetlands; and
 - (vi) Rain Gardens.



(ii) For new commercial, industrial and residential flat building (including subdivisions):

- Compliance with State Environmental Planning Policy - Building Sustainability Index (BASIX);
- Site analysis;
- Detailed Water Sensitive Urban Design Strategy (WSUD Strategy);
- Erosion and Sediment Controls Plan (for sites with area $\leq 2,500\text{m}^2$);
- Soil and Water Management Plan (for sites with area $> 2,500\text{m}^2$);
- Water Management Statement (for development containing ≤ 15 dwellings); and
- Integrated Water Cycle Plan (for development containing > 15 dwellings).

Note: Integrated Water Cycle Plan is a summary of water conservation measures to be applied on site, including an estimate of total water demands and expected savings associated with water conservation measures, as well as details on how water demands will be managed and monitored.

C6 The following components shall be incorporated in the WSUD design:

- (i) WSUD elements should be integrated into landscaped areas to fit seamlessly into a development;
- (ii) WSUD elements should be located and configured to maximise the impervious area that is treated; and
- (iii) Above-ground rain gardens may be adopted, in the form of planter boxes, to treat runoff from roof areas not draining to a rainwater tank. These typically require less space than an 'in-ground bio-retention system, but may be more costly to construct.

Note: Consideration should be given to incorporation of multiple uses of WSUD infrastructure (e.g. stormwater detention and treatment) where possible.

7.3. Sydney Water

Works to stabilise or enclose the stormwater channels within Site 1 (75 Gardeners Road) will require building approvals from Sydney Water and should be designed in accordance with their Draft Policy for Building over or adjacent to Stormwater Assets (2015).

7.4. NSW Office of Water

Based on *Water Management Act 2000* and the associated *Guidelines for Riparian Corridors on Waterfront Land*, Sydney Water will need to submit a Controlled Activity Permit for works within 40m of the top of banks of the western channels.

If the creek is constructed across the 13th fairway, the same Guideline would be used in the design, i.e. soft engineering comprising a combination of rock (minimal), vegetation and geotextiles.

7.4.1. Riparian Requirements

The Sydney Water stormwater channel adjacent to 73 Gardeners Road is likely regulated as a 'watercourse' by DPI Water and a minimum 10m riparian setback would need to be established as part of any redevelopment of the site.

The riparian setback is defined from the highest bank of the watercourse. Based on an inspection of the site - the highest bank generally follows the property boundary line. The Riparian setback should be considered as 10m setback from property boundary.

In accordance with DPI Water Guidelines (2012), development works may be undertaken within the outer 50% of the Vegetated Riparian Zone (VRZ) - outer 5m, as long as the works within these outer extents are offset by connecting an equivalent area to the riparian corridor within the development site. The inner 50% of the VRZ must be fully protected and vegetated with native riparian plant species.

- Recreational areas.
- Lot and infrastructure development.
- Road construction.

- Stormwater outlet structures and essential services.
- Bridges.
- Cycleways and paths.

Maintain consistent 5m wide inner VRZ along the length of the site and offset encroachment in the outer 5m via provision of offset VRZ in areas nominated as communal open space.

7.5. Summary of planning requirements

At this early stage, it is considered that the site is appropriate for the proposed rezoning of the site, subject to further investigations as part of any future development applications including but not limited to:

- Site Stormwater Concept to include WSUD principles (Strategy) and modelled in MUSIC to achieve water quality performance targets
- Integrated Water Management Plan
- Controlled Activity Permit required for submission to NSW Office of Water
- Sydney Water Approval for building over or adjacent to Stormwater Assets (Western Drainage Easement)



8. PROPOSED STORMWATER STRATEGY

Northrop has reviewed the '*Botany Bay Development Control Plan 2013*' (DCP) to inform the stormwater drainage provisions required for the proposed development. Further consultation is required with Council Engineers to confirm any site-specific stormwater management requirements.

8.1. Piped Drainage Network

A new stormwater drainage network will need to be provided in accordance with best practice for managing urban stormwater, and to satisfy Council's stormwater management requirements.

As a minimum, the proposed stormwater drainage infrastructure is to be designed to capture and convey stormwater flows generated from the 10 year ARI storm event to Sydney Water's drainage infrastructure on the western and eastern extents of the site.

All flows above and beyond the 10 year ARI storm event (up to the 100 year storm event) can be conveyed via overland flow paths. Overland flow paths shall be designed to not present a hazard to people or damage to property.

8.2. On-site Stormwater Detention

The provision of On-site Stormwater Detention (OSD) will be required by Council/Sydney Water. Further consultation is required with Council and Sydney Water Engineers to confirm the OSD requirements for this development. As the site is located upstream of Sydney Water drainage assets, OSD storage will be required, and should be sized in accordance with Sydney Water requirements. Where discharge to Gardeners Road is proposed, OSD should be sized in accordance with Council requirements.

8.3. Controlling Stormwater Pollution

In order to achieve the site stormwater pollutant control targets, the stormwater system for the proposed development would need to include stormwater gross pollutant traps, swales, rainwater tanks, infiltration systems where feasible, and bioretention systems. The use of infiltration techniques (e.g. bioretention, swales) may be constrained by shallow groundwater table.

8.3.1. Rainwater Harvesting

Council's DCP encourages the use of rainwater tanks and the use of stored rainwater for non-potable uses (e.g. irrigation, washing and flushing of toilets). Rainwater tank sizing is to consider BASIX certificate requirements for the development.

A preliminary stormwater concept for Site 1 is depicted in Figure 13. It demonstrates the following characteristics and inclusions:

- Western site drainage arrangement as per Figures 11 or 12.
- WSUD elements, including:
 - rain tanks for reuse on the site;
 - unlined bioretention swales at the site perimeter which would be integrated with landscaping;
 - diffuse surface flow paths to filter flows
 - Infiltration systems within communal space areas
 - Gross Pollutant Traps at outlet points

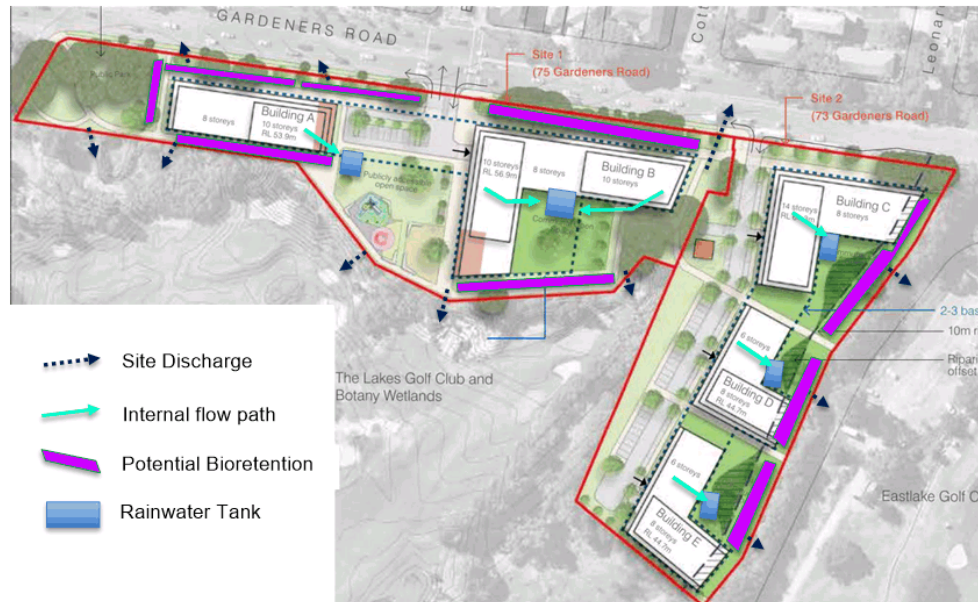


Figure 13: Preliminary Stormwater Concept

9. CONCLUSIONS

The current proposal seeks consent to rezone the sites to allow for their on sale and re-development by others at a later stage. Both sites may be sold jointly or separate depending on decommissioning of the Sydney Water Depot site and market forces.

At this early stage, it is considered that the site is appropriate for the proposed rezoning of the site, subject to further investigations as part of any future development applications including but not limited to:

- Site Stormwater Concept to include WSUD principles (Strategy) and modelled in MUSIC to achieve water quality performance targets
- Integrated Water Management Plan
- Controlled Activity Permit required for submission to NSW Office of Water
- Sydney Water Approval for building over or adjacent to Stormwater Assets (Western Drainage Easement)

The following investigations are also recommended to provide further information on the potential servicing needs of the development:

- Consult Botany Council and Sydney Water Engineers to confirm site-specific stormwater management requirements (including OSD requirements and water quality treatment targets).
- Consult with Sydney Water to obtain further advice regarding the stormwater channel works (western boundary)
- Consult with Sydney Water to obtain further detailed flood information



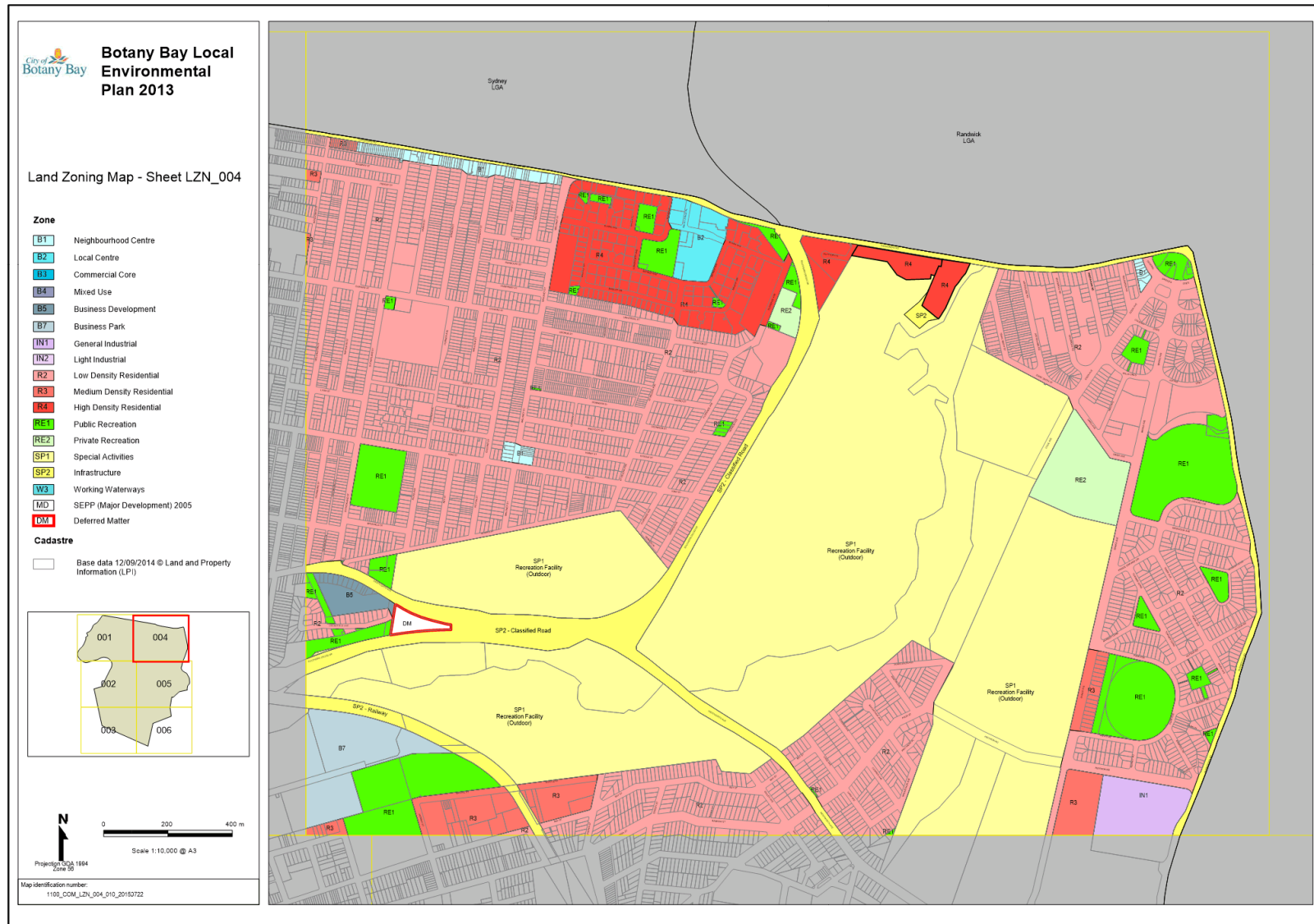
- All other details (including the suitability of proposed connections to stormwater infrastructure) will be subject to specific / detailed applications with the respective Authorities, at relevant / subsequent phases of the project.

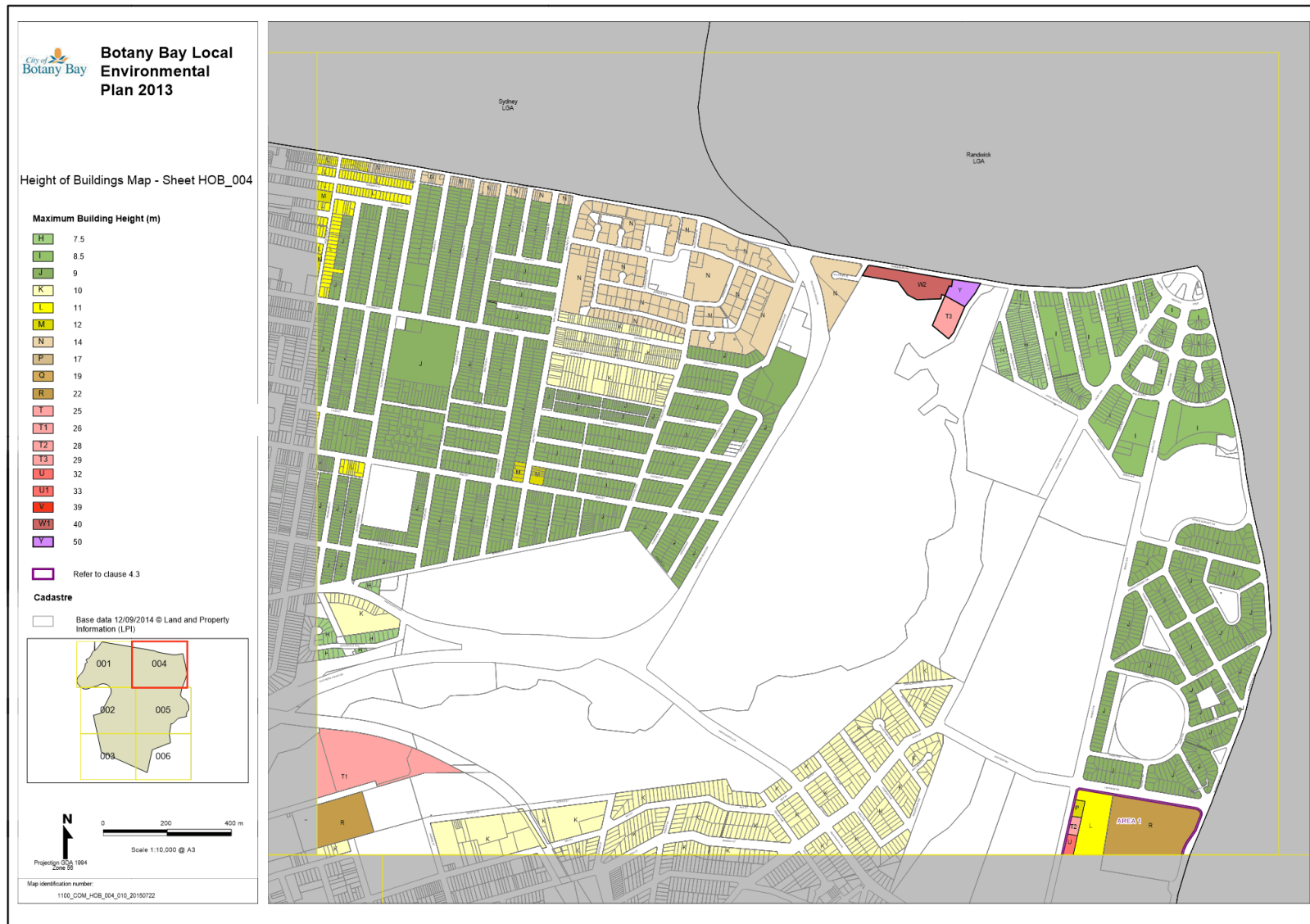
9.1. Project Risks

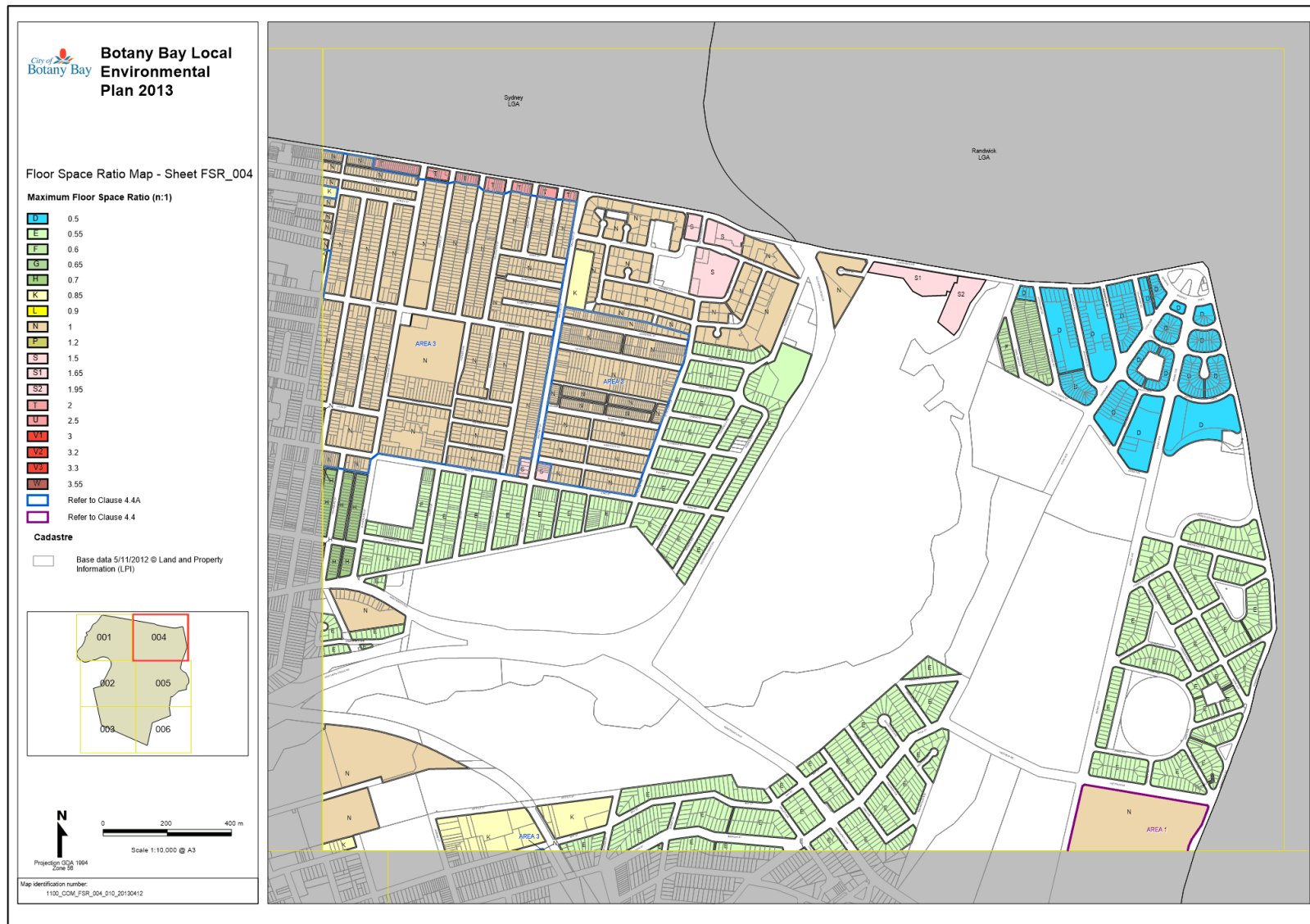
The following project risks are identified for the development:

- The site is deemed to be situated within a flood affected area and further site specific flood investigations will be required at later design stages to determine adequate flood planning responses.
- Further discussions are required for works to be undertaken to the stormwater channel intersecting the western extent of Site 1. An application to Sydney Water will inform the requirements for building over or adjacent to the stormwater assets and may place restrictions on the development.

**Attachment O – Proposed
Mapping Amendments,
Prepared by Architectus,
dated September 2017**







12/78-07
Sydney
WATER

21 June 2012

Mr R.J Dowsett
Director, Planning & Development
City of Botany Bay
PO Box 331
MASCOT NSW 1460

Dear Sir,

Gardens R Us site – Lot 1 DP.1116853

I refer to your letter dated 11 May 2012 and my subsequent emails with Ms Catherine McMahon of your office.

We are surprised by Council's proposal that part of this property be 'excised as public open space' as this should not be part of the considerations in the preparation of a local environmental plan. Sydney Water does not agree to any part of the property being transferred to Council as open space or for any other purpose.

In respect of the proposed amendments to the draft Botany Bay LEP 2012, Sydney Water has no objection to:

- (a) the property being zoned SP1 Special Activities zone with the following uses being permitted with consent:

Entertainment facilities: Food and drink premises; Function centres; Garden centres; Hardware and building supplies; Landscaping material supplies; Recreation areas; and Recreation facilities (indoor).

- (b) the floor space ratio for the site being 1:1; and

- (c) the maximum height on the buildings on the property being 14 metres (as currently indicated on the Height of Building Map attached to the draft Botany Bay LEP 2012).

Yours faithfully,



Gary Inberg
Manager, Group Property

Sydney Water Corporation ABN 49 776 225 038
1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | www.sydneywater.com.au
Delivering essential and sustainable water services for the benefit of the community

C. McMahon



LEP practice note	
STANDARD INSTRUMENT FOR LEPS	
Local Planning	
Ref No.	PN 10-001 (supersedes and replaces PN 08-002)
Issued	14 December 2010
Date	PN 06-002; PS 09-011

Zoning for Infrastructure in LEPs

The purpose of this practice note is to provide guidance to councils on zoning public infrastructure land in standard instrument local environmental plans. It supersedes and replaces the previous LEP Practice Note on this subject [LEP PN 08-002]. It also updates the information provided for Special Purpose 'SP' zones in PN 06-002.

Introduction

State Environmental Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP) was introduced to facilitate the delivery of infrastructure across NSW by improving regulatory certainty and efficiency.

The Infrastructure SEPP, which came into effect on 1 January 2008, has specific planning provisions and development controls for 25 types (sectors) of infrastructure:

- air transport facilities
- correctional centres
- educational establishments
- electricity generating works
- electricity transmission and distribution
- emergency services facilities
- flood mitigation and bushfire hazard reduction
- forestry activities
- gas transmission and distribution
- health services facilities
- housing and group homes
- parks and other public reserves
- port, wharf and boating facilities
- public administration buildings
- rail infrastructure facilities
- research stations
- road and traffic facilities
- sewerage systems
- soil conservation works
- stormwater management systems
- telecommunications networks
- travelling stock reserves
- waste or resource management facilities

- water supply systems
- waterway or foreshore management activities.

Zoning public infrastructure

To complement the provisions of the Infrastructure SEPP, this practice note provides advice on zoning public infrastructure land when a council is preparing a local environmental plan (LEP).

A number of approaches have previously been taken in zoning infrastructure land in LEPs. These zoning methods often restricted new infrastructure developments, redevelopment of sites for alternative uses or disposal of surplus public land.

The new zoning approach advocated here provides greater flexibility and adaptive management of land used for the provision of public or private infrastructure. It moves away from zoning infrastructure land as 'special use' or 'special purpose' zones, which previously limited the ability of infrastructure providers to respond to changing demographic trends and provide the public with infrastructure and services outside existing locations.

Matters to consider upfront

Prior to zoning infrastructure land in new LEPs, the following steps should first be taken:

- Identify whether the **infrastructure type** is covered in the Infrastructure SEPP, including

whether the SEPP provisions are associated with public or private infrastructure.

- Identify whether the infrastructure is **currently operating** or is no longer used; whether the land is intended for other future infrastructure purposes or whether the land is now considered to be **surplus public land**.

The Infrastructure SEPP identifies the prescribed zones for various types of infrastructure. This should act as a guide when determining the choice of zone for particular uses.

Follow the principles for zoning infrastructure land in this practice note in *sequential* order, selecting the most appropriate principle for the land being zoned.

Six principles for zoning infrastructure

The following principles should be followed when zoning infrastructure land in new LEPs.

1. Where the infrastructure type is permitted on all land in the Infrastructure SEPP:
 - future infrastructure may be placed in any zone
 - existing 'special use' zones should be rezoned the same as the adjacent zone
 - roads must be zoned.
2. Where the infrastructure type is only permitted in certain prescribed zones in the Infrastructure SEPP:
 - provide for future infrastructure in prescribed zones rather than special use zones
 - existing 'special use' zones should be rezoned the same as the adjacent land (if a prescribed zone)
 - rezone land SP2 Infrastructure, if there is no adjacent prescribed zone.
3. If currently zoned 'special use', the following infrastructure land should remain zoned for a 'special purpose':
 - special purposes such as cemeteries, sewage treatment plants, waste disposal or landfill sites (rezone as SP2 Infrastructure)
 - strategic sites (rezone as SP2 Infrastructure)
 - large complexes (rezone as SP1 Special Activities).

It is anticipated that only a minority of TAFEs and schools across NSW could be considered a 'strategic site', however, to

assist in the initial assessment the following criteria should be used:

- is it 20 hectares or more in size; and/or
 - does it provide a wide range of facilities (meeting rooms, halls, pool, sports fields, tennis courts and the like) that can also be used by the surrounding community; and/or
 - is it of regional significance (i.e. the only school servicing a large region).
4. Where land is to be zoned SP1 Special Activities or SP2 Infrastructure:
 - include flexible zone boundary provisions where appropriate.
 - use generic land use map annotations.
 5. Where surplus public land is currently zoned 'special use':
 - where a valid site compatibility certificate exists, the land is to be rezoned consistent with the certificate, or
 - the land should be rezoned as a compatible land use, (e.g. to a prescribed zone).
 6. When preparing an LEP, avoid duplicating provisions in the Infrastructure SEPP (including those to manage impacts on infrastructure corridors).

Zoning principles explained

The infrastructure zoning principles are explained here. The principles are intended to support a zoning regime which provides greater flexibility and adaptive management of public infrastructure land. Councils should also take these zoning principles into account when zoning land for private infrastructure or services.

Principle 1 - Zoning for infrastructure that is permitted on all land

The Infrastructure SEPP identifies several types of infrastructure activities undertaken by public authorities that are permissible in all LEP zones, irrespective of the LEP zoning.

This includes:

- roads and railway lines
- utility distribution networks such as electricity lines, or gas, water and sewage pipelines
- certain environmental management works (e.g. bushfire management, flood mitigation, waterway and foreshore works and soil conservation works).

Principle 1.1 - Providing for future infrastructure

'Special purpose' zones are not required in LEPs to permit infrastructure that is already permitted on all land through the Infrastructure SEPP. It is not necessary for infrastructure types to be listed separately in any zone as permitted uses in the LEP zoning table if they are automatically permitted through the Infrastructure SEPP.

For **private** infrastructure, please see note in Principle 2.1 regarding zoning provisions.

Principle 1.2 - Rezoning existing 'special use' zones

For infrastructure or services prescribed in all zones and those currently zoned 'special use', (e.g. roads, railway lines, substations, pipelines etc), the appropriate adjacent land zone should generally be used.

Applying the adjacent zone type to public infrastructure land follows a basic planning principle of aligning land uses. It is established practice to refer to the zoning of adjoining land when seeking to establish an appropriate zoning for land. In many cases the infrastructure land would have been zoned the same as the adjoining land if it had not been used instead for an infrastructure purpose.

This approach avoids the need for spot rezonings when the infrastructure use expands, ceases, is realigned or is downsized in the future. It is preferable that the land use zone be the same as the adjacent zoning, so that future uses are compatible with existing surrounding uses.

Principle 1.3 - Roads must be zoned

Currently in many LEPs, roads are unzoned. In future, all land is to be zoned in LEPs, including roads.

Roads should be zoned as outlined below.

- Classified roads that pass through major retail centres should be zoned using the appropriate business zone for the adjoining land. This provides a planning framework for considering potential development over or below roads and on footpaths.
- Freeways, Tollways, Transitways, National Highways and major roads (carrying greater than 40,000 vehicles per day) outside of major centres may be zoned SP2 Infrastructure. Other regional roads may be appropriate for an SP2 zoning, e.g. Pacific Highway. Councils

should consult with the relevant Department of Planning Regional Office.

- Outside major centres, roads that carry less than 40,000 vehicles per day should generally be zoned the same as the adjoining land.¹
- All other roads should be zoned in accordance with the adjoining land. This avoids the need for spot rezonings where the roads are closed, or where the alignment of the roads changes, which can commonly occur in rural and release areas.

In cases where a road forms a boundary between zones:

- the whole of the road should be zoned the same zone (i.e. the zone boundary should not run down the middle of the road); and
- wherever possible, the zone applied should be the same as that applied to adjoining land, and which provides for a range of land uses to assist with flexibility in land use planning.

An assessment should be made on a case by case basis using the information provided, to determine the appropriate zoning for an unzoned road.

Principle 2 – Zoning for infrastructure that is permitted only in prescribed zones

'Prescribed zone' is a reference to the standard zones in the Standard Instrument (Local Environmental Plans) Order 2006 (the Standard Instrument) which have been nominated as the zones where certain types of infrastructure are permitted under the Infrastructure SEPP.

Each of the 25 types of infrastructure in the SEPP has a list of prescribed zones where the infrastructure activity may be undertaken.

Principle 2.1 - Providing for future infrastructure in prescribed zones

In most circumstances, 'special use' or 'special purpose' zones will not be required in LEPs to cater for current or proposed infrastructure. Most types of infrastructure development are permitted under the Infrastructure SEPP in a

¹ The RTA provides Annual Average Daily Traffic Volume maps on its website for reference for Metro areas, and Data for Regional areas Regional Areas - Traffic Volume Data: <http://163.189.7.150/publicationsstatisticsforms/aadtdata/index.html?plid=trafficvolume>
Metro Areas - Traffic Volume Maps: http://163.189.7.150/publicationsstatisticsforms/downloads/traffic_volume_maps/traffic_vol_maps_dl1.html

range of suitable 'prescribed zones'. It is therefore not necessary to include these infrastructure types as permitted uses in the LEP zoning table—they are automatically permitted through the Infrastructure SEPP.

As an example, when zoning a new land release area, it is unnecessary to set aside land to be zoned 'special use' for a new public school. Public schools are automatically permitted within residential and business zones under the Infrastructure SEPP.

Note: Given the Infrastructure SEPP applies only to certain private infrastructure types, zoning provisions may be required in the LEP zoning table to allow private infrastructure as a permitted use in nominated zones.

Principle 2.2 - Rezoning existing 'special use' zones to adjacent prescribed zones

Most existing infrastructure land currently zoned 'special use' should be rezoned in the LEP according to what the adjacent zone is, if that zone is a 'prescribed zone' in the ISEPP which permits that type of infrastructure.

Where infrastructure adjoins multiple zones (that are prescribed zones), the following rules apply:

- all the land should be zoned the same (i.e. the zone boundary should not run down the middle of the site), unless there is an exceptional circumstance (e.g. large sites with multiple infrastructure uses), and
- adopt a zone that is **compatible with surrounding land uses**, having regard to:
 - the nature and character of the subject site
 - existing adjacent land uses and preferred future uses
 - regional strategy priorities
 - availability of services and infrastructure to support new land uses
 - environmental impacts and risks

An assessment will need to be made on a case-by-case basis to consider the appropriateness of the various adjacent zone types.

Principle 2.3 - Rezoning existing 'special use' zones when there are no adjacent prescribed zones

Most existing infrastructure lands should be zoned according to what the adjacent land use zone is, if that adjacent zone is a prescribed zone for that infrastructure type.

However if none of the adjacent zones are 'prescribed zones' for that particular infrastructure type under the Infrastructure

SEPP, then the site should be zoned SP2 Infrastructure.

All public infrastructure listed under the SEPP are permitted in SP1 Special Activities and SP2 Infrastructure zones. Regardless of what the surrounding land use zones are, if an existing facility is zoned SP2 Infrastructure it can continue to operate under the provisions of the SEPP.

As an example, an existing hospital may be located on land adjacent to an R2 Low Density Residential zone. As R2 is not a prescribed zone for hospitals under the Infrastructure SEPP, it is not possible to apply Principle 2.2 when rezoning the site. The hospital land should be zoned SP2 Infrastructure to ensure that the existing use remains permissible. (Note: In this case, if the site is to be redeveloped or becomes surplus public land, a rezoning would then be required.)

Principle 3 – Certain special purpose zones should remain as special purpose zones

Principle 3.1 - Where the land use is unlikely to change, and where the use is not otherwise covered in this practice note, land may be zoned SP2 Infrastructure.

Infrastructure land that is highly unlikely to be used for a different purpose in the future should be zoned 'special purpose'. For example, cemeteries and sewage treatment plants.

These lands should be zoned SP2 Infrastructure.

Principle 3.2 - Large precinct sites should remain in special purpose zones

Major state infrastructure on large sites may be zoned SP2 Infrastructure.

Examples could include major hospitals and universities that constitute large precincts, making identification of appropriate zones more problematic. Other examples might include major:

- dams;
- sewage treatment plants;
- power stations;
- correctional centres; and
- airports.

Areas of Commonwealth land used for Defence purposes should be zoned SP2 (Defence).

Where a site consists of a mix of diverse uses not readily zoned SP2, e.g. research, education, business and accommodation, then these should, where possible, be zoned a standard zone which allows an appropriate mix of land uses. In cases where no suitable standard zone can be applied to the infrastructure use, only then should zone SP1 be applied. By applying a zone other than SP1, greater flexibility is provided for the precinct.

Principle 4 - Rules for using SP1 and SP2 zones

Principle 4.1 - Maintain flexible zone boundaries

Councils are advised that when adopting an SP1 or SP2 zoning for infrastructure land in an LEP, clause 5.3 of the Standard Instrument ('Development near zone boundaries') should generally be adopted.

Clause 5.3 provides flexibility where the investigation of a site reveals that a use allowed on the other side of a zone boundary would enable a more logical and appropriate development of the site and be compatible with the planning objectives and land uses for the adjoining zone. This clause applies to the land within the distance from the boundary nominated in the LEP.

Development permitted on the adjoining land would then be permitted on the SP1 or SP2 land if the carrying out of the development is desirable due to compatible land use planning, infrastructure capacity and other planning principles relating to the efficient and timely development of land.

Principle 4.2 - Generic land use map annotations

The land uses in zones SP1 Special Activities or SP2 zone-Infrastructure should be annotated on the Land Zoning Map. This annotation should use the infrastructure categories contained in the Infrastructure SEPP or the Standard Instrument dictionary, rather than the specific type of infrastructure.

For example, 'educational establishment' should be used rather than 'TAFE' or 'primary school'. Councils should note that the Infrastructure SEPP allows a range of infrastructure uses to occur within a special purpose zone regardless of the annotation on the map and therefore only one category should be used (no need to list any ancillary uses).

In general, the Standard Instrument definition for the primary use should be applied to the land

zoning map for any area zoned SP1 or SP2. Other uses will be ancillary to this primary use.

The following annotations should be used on the Land Zoning Map for land that may be zoned SP2 in accordance with this practice note.

Infrastructure categories to be used on land zoning maps *

Infrastructure categories to be used on land zoning maps *	Examples of infrastructure type
Air transport facility	airports, heliport
Correctional centre	prisons, remand centre, detention centre
Educational establishment	high school, primary school, TAFE, university
Health services facility	hospitals, medical centres
Waste or resource management facility	landfill, waste transfer station, waste depot
Water supply system	dams, reservoirs, water treatment facilities

Note. * See Infrastructure SEPP for a full list.

Principle 5 - Zoning surplus public land

Government land that is no longer required to provide services or infrastructure is sometimes classified as 'surplus' public land. The NSW Government has updated planning provisions in regard to 'surplus' public land.

The Infrastructure SEPP provides a more tailored and local solution for such land, to ensure new land uses are appropriate and compatible with surrounding land. Councils are requested to follow the broad policy direction of the Infrastructure SEPP when preparing new LEPs covering surplus public land, by following the principles outlined below.

Principle 5.1 - Zone surplus public land as a compatible land use

Surplus public land should be rezoned to be compatible with surrounding land uses having regard to:

- the nature and character of the subject site
- existing adjacent land uses and preferred future uses
- regional strategy priorities
- availability of services and infrastructure to support new land uses
- environmental impacts and risks.

An assessment will need to be made on a case-by-case basis to consider the appropriateness of the various adjacent zone types.

Principle 5.2 - If relevant, adopt the zone in the site compatibility certificate

If a valid **site compatibility certificate** applies to the infrastructure land, then the land should be zoned in the LEP *to be generally compatible with the nominated land use in the certificate*².

Note. Under the Infrastructure SEPP, additional uses may be undertaken on certain State land if the uses are permitted on adjacent land. To ensure that the additional land uses are appropriate, a site compatibility certificate must first be obtained from the Director-General of the Department of Planning before a development application can be lodged. For more information on site compatibility certificates please see *SEPP (Infrastructure) 2007: Director-General's site compatibility certificate—guideline for applications* on the Department's website.

In some rare instances, it may be more appropriate for a council to consider adopting a different zone type to the adjacent land use nominated in the site compatibility certificate (following consideration of the issues outlined in Principle 5.1 above). Where this is the case, it should be identified by councils in their section 64 and section 68 reports to the Director-General.

Principle 6—Avoid additional provisions in LEPs

The Infrastructure SEPP provides consistent state-wide provisions for considering the impacts of certain types of development on land adjacent to linear infrastructure and vice versa. These considerations include the impact:

- of road or rail noise or vibration on residential and other sensitive development adjacent busy roads and railway lines
- of development with frontage to classified roads (impacts associated with traffic, access, safety)
- of development involving excavation adjacent to a classified road or railway line
- on rail safety if a new public railway crossing is required or an old crossing needs to be upgraded
- on safety if adjacent to a gas pipeline
- of development within a road *corridor* in which *an easement* is reserved for a future infrastructure purpose.

² A site compatibility certificate may be provided for the purposes of clauses 18 or 57 of the ISEPP although the clause 18 provisions for State land are an interim measure that will only apply until LEPs drafted under the Standard Instrument are in place and apply to the site.

LEPs should not include provisions that deal with these matters as they are already addressed by the Infrastructure SEPP.

Councils should discuss any proposed local infrastructure provision with the relevant regional office of the Department to determine whether the proposal is consistent with the SEPP and suitable for inclusion in the LEP.

It is advisable that no new or amending provisions for development that is covered by the Infrastructure SEPP be included in LEPs.

Permissibility of private infrastructure

The Infrastructure SEPP principally focuses on providing for the delivery of infrastructure or services by local and State government authorities.

There are however certain types of infrastructure where the SEPP provisions apply equally to private or public infrastructure, including:

- electricity generating works
- licensed gas pipelines
- health services facilities (e.g. hospitals)
- group homes
- certain port-related development
- sewage treatment plants
- certain telecommunications infrastructure
- waste management and transfer facilities.

Most other private infrastructure remains regulated under local planning rules (e.g. LEPs), including where the infrastructure is permitted and whether development consent is required.

It is recommended that, if a council is zoning private infrastructure land, the above zoning principles be followed rather than automatically reverting to 'special purpose' zoning.

Further information

For more advice on the Infrastructure SEPP, and LEP preparation and the standard instrument see <http://www.planning.nsw.gov.au>. If you have further enquiries, please phone the Planning Information Centre 02 9228 6333 or email information@planning.nsw.gov.au.

Authorised by:
Sam Haddad
Director General



DIRECTIONS PAPER

A DRAFT VISION
FOR THE CITY OF
BOTANY BAY

WHAT DO
YOU WANT
FOR OUR
COMMUNITY
IN 2040?



MAYOR'S MESSAGE

For almost a year now, we have been working on our “Botany Bay 2040” process to create a vision for the City of Botany Bay for the next 25 years. This Directions Paper is the final step in the process towards finalising our vision. This paper sets out six themes and 25 specific priorities that reflect the feedback we have received through our surveys, community meetings and resident submissions. It provides a clear basis for residents, ratepayers and local businesses to give us detailed responses and suggestions through the public consultation process that will accompany this paper.

Our City prospered over the last 30 years as the Council and community worked together towards a shared vision. Under the visionary leadership of previous Mayor Ron Hoenig the residential amenity of our community was transformed and the financial viability of our Council was restored. We addressed the challenges of a declining population and of polluting industrial development scattered through our residential areas. We fought for and finally won a commitment to a second airport at Badgery's Creek. The reputation of our area rose dramatically and became a sought after location.

The challenges we face now and will face into the future are very different. The most obvious pressure comes from a growing population. Sydney's CBD is home to Australia's strongest jobs market and most consistent economic growth. This drives both strong demand for housing close to the CBD and bipartisan State Government policies to increase housing density in areas close to the CBD. This is a reality that we have to manage practically. We have to be clear about what we will do to ensure that residential amenity is protected and even enhanced as population increases. This Directions Paper sets out some ideas to respond to this challenge by delivering more space for recreation, more parking at local shopping centres, enhanced local shopping strips and better access to public transport.

Other challenges arise from the need to adjust to changing preferences, desires and aspirations. People are living alone or as couples without children for longer. They are looking to stay in the same place as they age. While some households shrink, others expand as children stay with their families for longer. Our housing policies need to respond to this diversity of needs. People are also looking for new ways to enjoy themselves and form networks in their communities and our public spaces need to adjust to allow this to happen.

Botany Bay 2040 will not contain every idea and every project that we wish to see happen over the next 25 years. Instead it will be clear about our shared values and objectives for our City, and a number of key projects that will help us achieve them. Clarity on these matters will position Council to better allocate limited resources as we consider annual budgets and five year asset plans. Having a clear, shared vision for our City will help us negotiate more effectively with State Governments, major landowners and with developers to ensure that we get better outcomes for all residents.

Ben Keneally
Mayor

EXECUTIVE SUMMARY

Thanks to our comprehensive community consultation process, we now have a very clear understanding of the type of City in which our residents want to live.

The type of city we want to live in is very much like the one we live in now – with similar values, similar strengths and opportunities and with a few common frustrations addressed. But most of us understand that preserving these essential features does not mean stopping all change. We understand that progress and development are inevitable, but that by managing it well, we can preserve and enhance the aspects of our local community that we hold most dear. Our objectives for the City of Botany Bay are summarised in six key themes that articulate what we want to preserve and what we want to see change and grow. Over thirty different ideas and priorities are set out under the six themes to give expression to the themes and help make them real.

HOUSING FOR A DIVERSE COMMUNITY

We want a diverse community. Our City will be a place where our housing options support all types of residents – where high and low income people live, where single people and large families live, where people can move through many phases of life in the one community, and where dwellings are accessible for people with disabilities.

CONNECTED NOT CONGESTED

We want to be able to easily access all that our local community has to offer. We want to be able to get to our shopping centres without struggling for a parking space, access our train station and get between our suburbs easily on foot, bicycle or in a car.

STAYING ACTIVE

We want an environment and recreational facilities that help us to stay physically active through our entire life. We want walking

and bike tracks, more exercise and sporting facilities in our parks and more sporting fields to cater for the growing population and a more active lifestyle.

GREAT LOCAL STREETS

We want clean and inviting streets with shady trees, active street frontages and human scale development at the street front. We want better shopping strips with outdoor areas and a more pedestrian friendly feel.

HIGH VALUE JOBS

We want good local jobs based on a diverse economy. Many people still worry about the legacy of pollution in our soils and groundwater so they want to see safe, clean local industries.

EVERYONE BELONGS

We want a strong sense of community – to be a city where everyone feels they belong, where we all feel listened to and respected. We want decisions to be taken locally, by local people who know the local community.

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BRINGING IT ALL TOGETHER: THE BOTANY WETLANDS

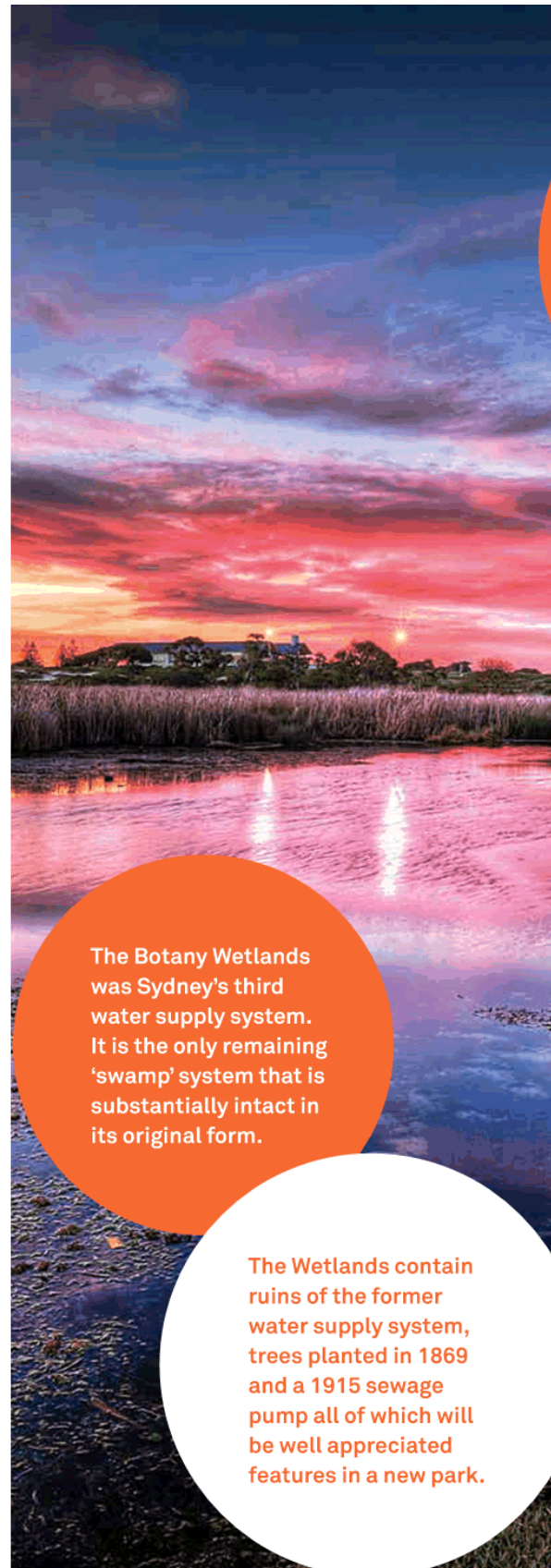
The Botany Wetlands provide an extraordinary opportunity to give life to “Botany Bay 2040” and create a unique community asset that defines our City. While the Wetlands were once broadly accessible, they are now the hidden gem of our City, largely locked up within golf courses and commercial estates.

This Directions Paper proposes working over the next 25 years to restore community access to the Wetlands, starting with cycling and pedestrian connections from Gardeners Road through the golf courses to the Lord St Business park then along the Millpond to Sir Joseph Banks Park.

Eventually we could create a massive new park covering the current Eastlakes Golf Course, providing the green space that our increasing population will need. As apartment living continues to grow, ready access to parks is essential to help people stay active. The new park with pedestrian and bicycle links would restore internal connections through our City from the Bay through to Gardeners Road – making it easy once again to get from Mascot to Botany and Daceyville and to connect onwards to the city and other points.

This proposal is sure to be controversial – but this is the opportunity to debate such big ideas. A major new park will benefit thousands of residents and restore public access to the Wetlands. A long term transition plan with Sydney Water would give certainty to the Golf Club over the next 20 years, but would also allow time for the planning and operational transition to occur.

4 DIRECTIONS PAPER



The Wetlands contain ruins of the former water supply system, trees planted in 1869 and a 1915 sewage pump all of which will be well appreciated features in a new park.

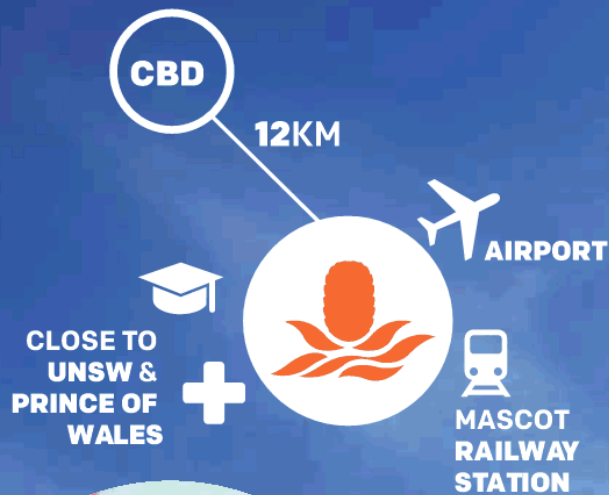


OUR CITY TODAY

For two decades from the 1970s we saw a decline in our population as people left the inner southern suburbs and moved further out and away from the Sydney CBD. However, Botany Bay is growing again and our population is back at the levels of the early 1970s.

This is consistent with a worldwide trend of people wanting to live and work closer to the city and big infrastructure, such as airports, hospitals and universities. Our society is more affluent than ever before. We have more choices about where and how we live. A sign of this affluence is that we have more cars per household. Family and household structures are transforming, and our population is ageing. In 1972 life expectancy was just 72 years in 2011 it was 83 years. There are more people living in single person households with almost one quarter of residences within our City being single households. There are fewer people in the average household than there were 30 years ago. These big social changes make this the perfect time to set out a new Vision for the City of Botany Bay.

Previous council administrations and our community have worked to remove noxious industries from our City and transformed Botany Bay into a garden city. These administrations showed us what can be achieved with a singular vision and the tenacity to fight for it. We need to build on our past efforts and adjust for the changes that are happening in Botany Bay.



4,452 LOCAL BUSINESSES

IN 2011, THE DOMINANT HOUSEHOLD TYPE IN THE CITY OF BOTANY BAY WAS 'COUPLE FAMILIES WITH DEPENDENTS' AND BY 2026 THIS IS EXPECTED TO CHANGE TO 'COUPLES WITHOUT DEPENDENTS'.

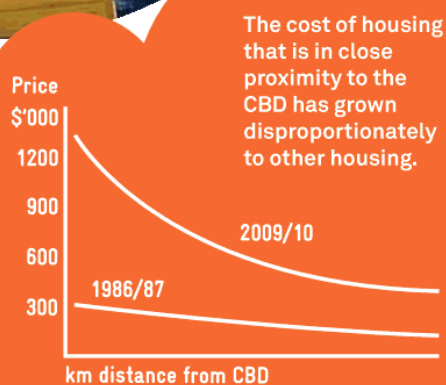




Over the last two to three years the population has increased dramatically, but is now expected to grow at a slower and more consistent rate over the next twenty five years. This will allow infrastructure to expand in line with the population and dwelling growth.



62,445 LOCAL JOBS



A DRAFT VISION FOR THE CITY OF BOTANY BAY 7

SUMMARY OF

BIG IDEAS**1** 

More Aged Care Facilities to support people in the different stages of their lives.

2 

Revitalised Shopping Precincts at Mascot, Botany and Eastlakes.

3 

Increased application of Universal Housing Design in new dwellings and major renovations.

4 

Redevelop Council's Administration Centre in Mascot to include a multi-purpose cultural hub for local amateur theatre productions and art space.

5 

The South East Light Rail extended through to Eastgardens.

6 

A Transport Hub and Bus Interchange developed at Mascot Station that provides improved bus connections across the City to the Airport, the Sydney CBD and the beaches.

7 

Upgraded Council Parking Facilities at the Mascot station precinct and at the Mascot and Botany shops.

8 

Increased and improved pedestrian and cycle paths including using the freight corridor.

9 

Ensure adequate facilities and places in child care centres and primary schools in line with the population.

10 

Improve road safety and congestion by supporting further transition to rail freight.

11 

Create a major new park to provide more open space and access to the Botany Wetlands.

12 

Beautified street scapes with more trees and lighting.

13 

Create a facility to showcase the unique history and heritage of our City.

14 

Sir Joseph Banks Park and the Botany Golf Course to be redeveloped to provide more sporting fields, greater choice of activities including a bmx bike track, greater feeling of safety, more amenities and better access to the bay.

15 

A multi- function sport and leisure centre that is open all year round at the Botany Aquatic Centre.

16 

Ongoing remediation of contamination on industrial land.

17 

Maintain the mix of industrial, commercial and residential land in our City.

18 

Rename the established residential section of Mascot as Lauriston Park.

19 

Encourage high value industry investment that leverages our proximity to the Sydney CBD, the Airport and Port Botany.

20 

Encourage and support weekend and night markets that bring together fresh fruit and vegetable suppliers and artisanal manufacturers and craftware.

21 

Local events and festivals that reflect the diversity and aspirations of our community.

22 

Communities to manage their local pocket parks so that their design and facilities matches the needs of that group of residents.

23 

Create a year round indoor sports facility for sports such as indoor cricket, volley ball, badminton.

24 

Cultural, social and physical barriers removed to enable for community involvement for all of our residents.

25 

Protect our established residential precincts.

HOUSING FOR A DIVERSE COMMUNITY

Everyone needs a place to call home. We want our City to house people at all life stages, lifestyles and income levels. We want to plan for a growing population in a way that ensures the character of existing residential neighbourhoods is retained. We want a diverse, clean and safe urban city.



23%

OF THE POPULATION
ATTENDS AN
EDUCATIONAL
INSTITUTION

IN 2040 WE WANT:



- More Aged Care Facilities to support people in the different stages of their lives

- Revitalised Shopping Precincts at Mascot, Botany and Eastlakes



- Increased application of the Universal Housing Design in new dwellings and major renovations

- Granny flats to support multi-generational families.



- Develop a social and affordable housing plan to ensure that development and planning continues to support diverse community needs.

YOU TOLD US:

You want the City of Botany Bay to have housing options for different types of people. You want new developments in logical locations, built to standards agreed to with the community to minimise impacts on infrastructure, services, amenity and lifestyles.

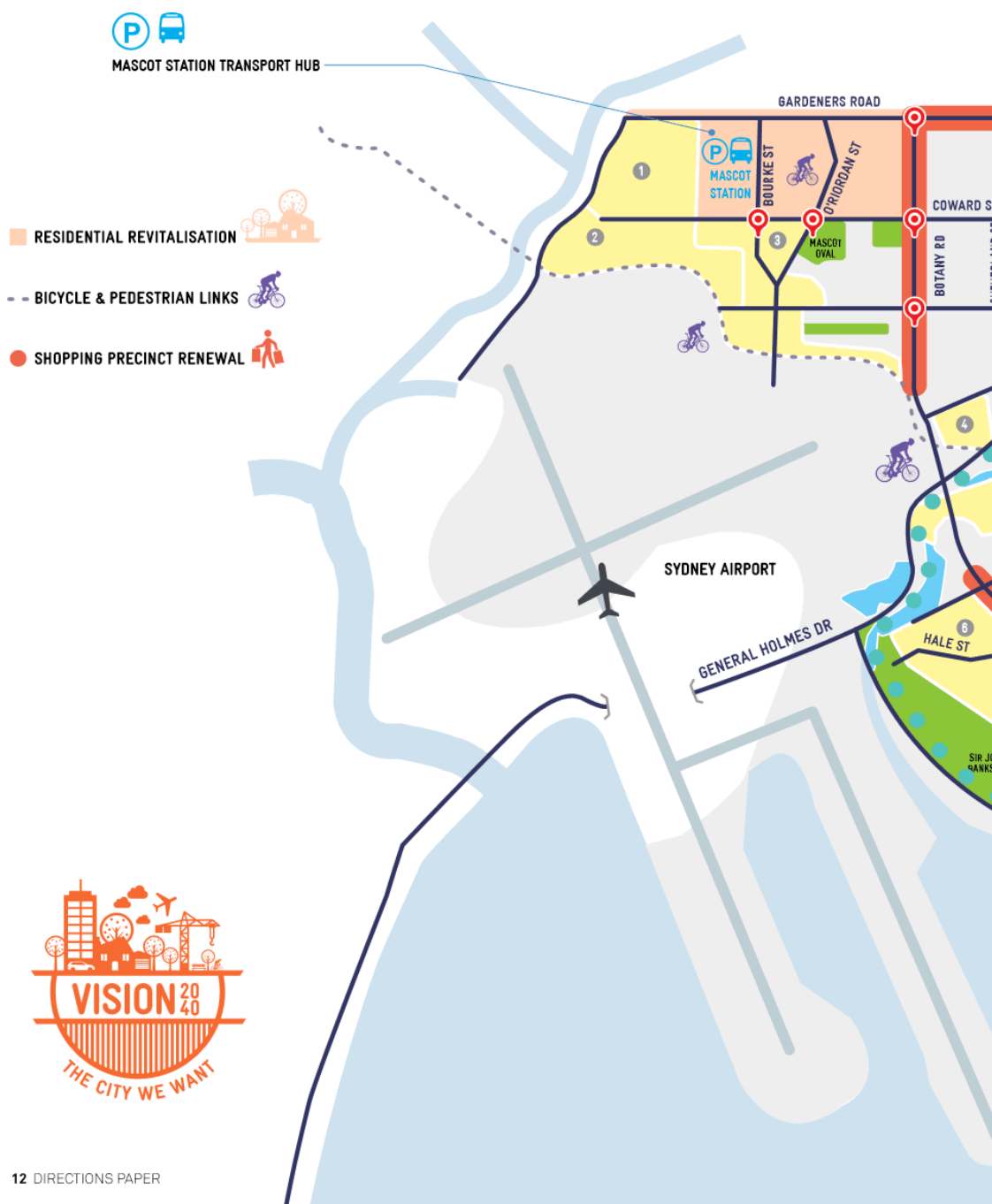
You told us that you want to see high quality residential development matched with green space and infrastructure to protect the quality of life for existing and new residents.

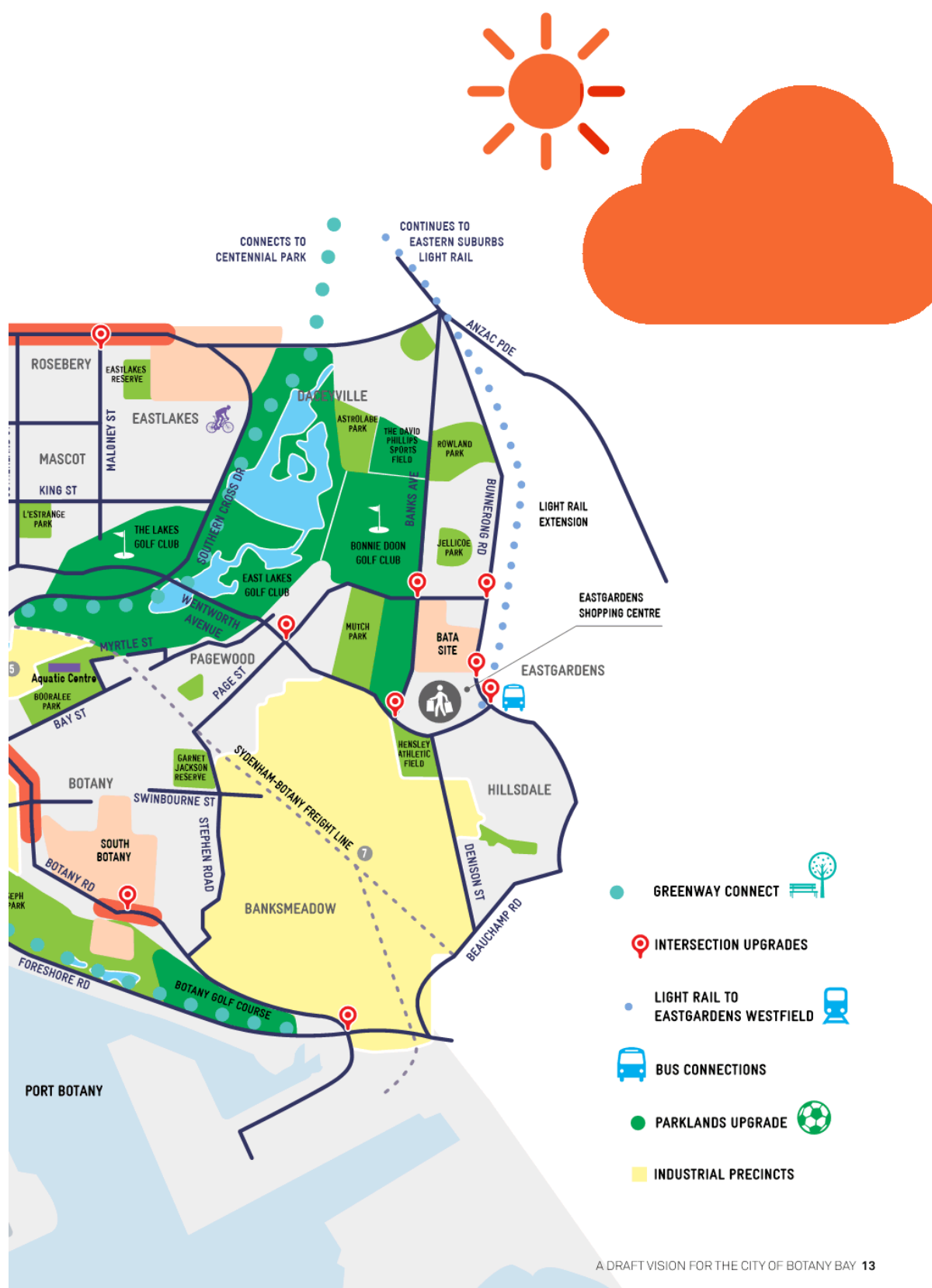
You want more involvement in the urban design and architectural feel of our City through input into the Design Review Panel.



A DRAFT VISION FOR THE CITY OF BOTANY BAY 11

THE CITY WE WANT





STAYING ACTIVE

We want to stay active and healthy. We have great parks and reserves that we want to continue to improve and expand on for all types of recreational use.

IN 2040 WE WANT:

- Shared cycle and pedestrian paths that link the Millponds to Centennial Park and the CBD



- Develop more playing fields to accommodate growing population and increased participation - consider Astrolabe and Mutch Parks and Botany Golf Course

- Sir Joseph Banks Park be redeveloped to provide greater choice of activities, greater feeling of safety, more amenities



- A multi- function sport and leisure centre that is open all year round at the Botany Aquatic Centre

- Transformation of the Eastlakes Golf Course into a major public park, reinstating public access to the Botany Wetlands



- Develop an indoor sport facility for sports such as volley ball, badminton and indoor cricket



YOU TOLD US:

You love our parklands but want to see them upgraded so that you feel safe to use them during the day and at night. You want park facilities designed to make them places where the community wants to meet for both active and passive recreation. You want different types of sporting facilities across the City so that there are options for people of all ages in all seasons.



A DRAFT VISION FOR THE CITY OF BOTANY BAY 15

GREAT LOCAL STREETS

The way a City feels is determined by what it feels like to walk along its streets. We want to feel safe walking down the street with trees that provide shade for pedestrians, interesting shops and inviting urban spaces.



IN 2040 WE WANT:



- Design our streetscapes to promote safety and encourage pedestrian activity.

- Increase our City's urban canopy with trees that suit each location.



- Develop a lighting policy that keeps our City safe but uses the best technology to reduce energy use and eliminate light pollution.

- Shopping strips with vibrant outdoor eateries and attractive street furniture and flower beds

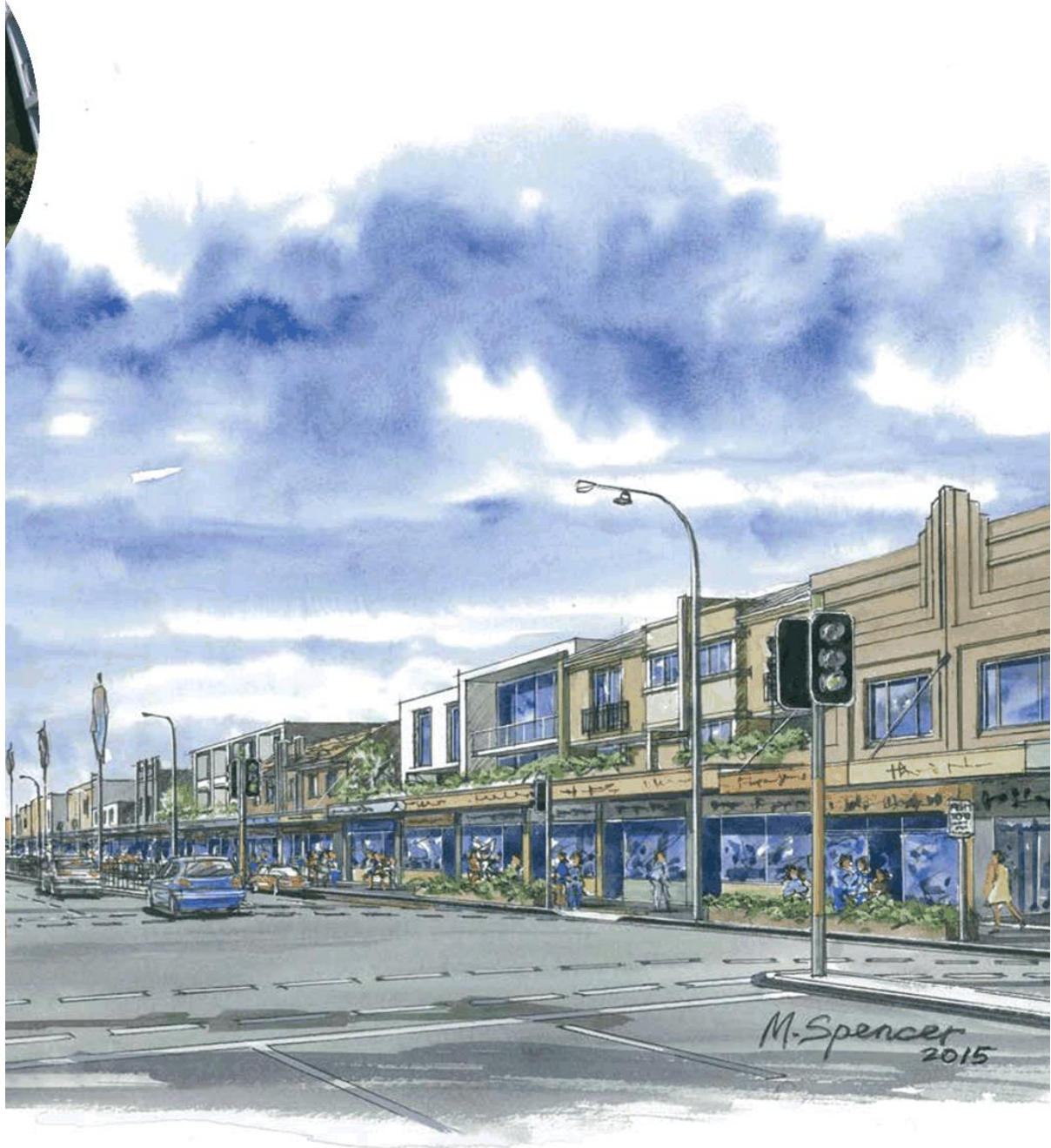


YOU TOLD US:

You want beautiful streetscapes to encourage a sense of community, a feeling of safety and pedestrian activity. You want to see more outdoor and evening dining options.

You want our streets to be accessible and inviting to all members of our community.





A DRAFT VISION FOR THE CITY OF BOTANY BAY 17

HIGH VALUE JOBS

Trade and industry has been the animating force of Botany Bay's history and our pattern of community development. Our City has seen significant change over the last 25 years. The industries that we see in our City will continue to evolve but current major manufacturing precincts should be retained to support local jobs. The Vision 2040 project provides an opportunity to discuss which types of industries we want to attract in the future.

IN 2040 WE WANT:



- Ongoing remediation of heavy industry land and contamination

- Themed and coordinated business precincts for a mix of light industries



- To maintain the mix of industrial, commercial and residential land in our City

- To encourage high value clean industry that leverages our proximity to the Sydney CBD, the Airport and Port Botany



- Encourage and support weekend and night markets that bring together fresh fruit and vegetable suppliers and artisanal manufacturers and craftware.

YOU TOLD US:

You are pleased that the transition from heavy industry to high value jobs has already begun. In the future, you want to see former warehouses used for commercial businesses to increase the number of jobs available locally. You want the types of jobs available to reflect the needs of our community.

Our City's proximity to the airport is an asset that can attract local and international business through quality conferencing facilities, logistics enterprises, service industries, smaller artisanal manufacturing and serviced apartments.



A DRAFT VISION FOR THE CITY OF BOTANY BAY 19

CONNECTED NOT CONGESTED

We want it to be easy to get around our City. Residents want to use their local shops, services and schools. We want to build accessible cycle and pedestrian paths so we have stronger physical connections between our neighbourhoods and better access to public transport.

IN 2040 WE WANT:

- The South East Light Rail extended from Kingsford to Eastgardens



- Buses that better connect areas within our City

- New multistorey car parking facilities in the Mascot Train Station Precinct and at the Botany and Mascot Shopping Strips.



- Increased and improved pedestrian and cycle paths

- Utilise extra corridors of land beside the freight line corridor for a greenway space for cycling, walking and recreation linking into the Botany Wetlands



- Improve road safety and congestion by upgrading key intersections

YOU TOLD US:

You want to see stronger connection between the suburbs of Our City to make it easier to do your shopping locally, get to sporting fields and parks or visit friends and family that live nearby. You want transport hubs created and well serviced, with links across the city and to main destinations for work, entertainment and education. You want to see better walking, cycling and bus connections to the airport, the Sydney CBD and the beaches.

You want us to focus on developing ways to manage or separate the heavy truck movements on the roads within our City. You want safer roads that are less congested and that encourage more pedestrian activity. You want more pathways for cyclists and pedestrians and that our parks and green spaces should also connect across the city, providing active transport options.

You want more parking made available with mechanisms put in place so that non-resident commuters and city visitors pay for parking.



EVERYONE BELONGS

We have a peaceful and friendly community with a strong sense of identity. Our future is bright and we want to ensure that our community has confidence in the Council and is part of local decision making. We want everyone to be welcome in the City of Botany Bay and to ensure our community has good access to the social services they need.



YOU TOLD US:

You welcome diversity and new residents to this City that we are so proud to call home. You have an enormous sense of pride in our City and that the suburbs where you live are more than just an address for you. You want to strengthen community pride with local playgrounds and gardens managed by nearby residents, local history and culture preserved and local fairs and festivals reflective of the multicultural nature of the City.

You want more markets and other meeting places to be available across the City to bring the community together. You want Men's Sheds and workshops to help residents to meet one another and share knowledge and skills.

You have a strong sense of social justice and it is important to you that our City has the infrastructure and services to support the inclusion of people of all ages, abilities and backgrounds.

You value the history and local identity of each of our suburbs. We were asked to consider renaming the established residential section of Mascot as Lauriston Park to preserve its separate identity to the Mascot Station Precinct.

You value our uniqueness as a community. You want us to remain independent and not be amalgamated.

IN 2040 WE WANT:

- Local events and festivals to reflect the diversity and experiences of our community



- Communities to manage their local pocket park so that their design and facilities matches the needs of local residents.

- Council buildings to be upgraded and accessible for all community members to be able to use them.



- Cultural, social and physical barriers removed to enable community involvement for all of our residents.



- A facility to display our heritage and history and for the Botany Historical Trust to meet.



HOW DO WE PAY FOR THE VISION?

BIG IDEAS AND BIG CHOICES

The ideas and aspirations that are outlined in this document are achievable but they will require a greater investment of funds and resources. Council wants to know what you think of the funding options. Which combination is best for our community and our City?



USER PAYS

Paid parking, hire fees and service payments for the use of Council infrastructure or services can be used to fund projects for the City. User pays mean that the cost of the infrastructure or service is born by the people that use them instead of the community as a whole.

SHARED COSTS & BENEFITS WITH PRIVATE BUSINESSES

Partnering with local and larger businesses can attract investment to the City. To be sustainable, these partnerships must benefit the community and be commercially viable for the business.



SPECIAL PURPOSE LEVY

Council has the option to apply for a Special Rate Variation or Levy to fund a specific initiative or project. This can be used to apply the levy for a short period of time or to a particular area of the City.



ADVOCATE FOR SHARED COSTS & BENEFITS WITH OTHER GOVERNMENT AGENCIES

In conjunction with one of the other funding options, Council can advocate for a cost sharing arrangement with State or Federal Governments. Often, through grant programs or individual negotiation, Councils can negotiate a shared funding arrangement between the different levels of government.

SECTION 94

Council can levy property developers for contributions to public amenities and services for the needs of the growing and changing population. Development contributions can be monetary or in-kind and can be used to help provide parks, local road improvements, town centre improvements, community centres and other services.



FINANCIALLY RESPONSIBLE BORROWING

Financially responsible borrowing is a useful tool to ensure inter-generational equity by financing long-lived assets, and to smooth out uneven patterns of expenditure on major projects.



NEXT STEPS

In 2015, the City of Botany Bay will finalise and launch our 25 year Vision for our City. We want your help to make it the best it can be. Tell us what you think of the ideas and aspirations that we have outlined in this Directions Paper.

Copies of the Directions Paper can be found online and in our Libraries, our Administration Centre and in the Mayor's Office. On the back cover of the document there are six different ways that you can contact Council to let us know what you think.

DO YOU WANT TO HAVE YOUR SAY?



@ VISION2040@botanybay.nsw.gov.au








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YOUR COUNCILLORS	WARD 1	WARD 2	WARD 3	WARD 4	WARD 5	WARD 6
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City of
Botany Bay





PREFACE

Open space is one of Sydney’s greatest assets. Our national parks, harbour, beaches, coastal walks, waterfront promenades, rivers, playgrounds and reserves are integral to the character and life of the city.

In this report the hydrological, recreational and ecological fragments of the city are mapped and then pulled together into a proposition for a cohesive green infrastructure network for greater Sydney.

This report builds on investigations undertaken by the Office of the Government Architect for the Department of Planning and Environment in the development of District Plans. It interrogates the vision and objectives of the Sydney Green Grid and uses a combination of GIS data mapping and consultation to develop an overview of the green infrastructure needs and character of each district.

Each district is analysed for its spatial qualities, open space, waterways, its context and key natural features. This data informs a series of strategic opportunities for building the Sydney Green Grid within each district. Green Grid project opportunities have been identified and preliminary prioritisation has been informed by a comprehensive consultation process with stakeholders, including landowners and state and local government agencies.

This report is one step in an ongoing process. It provides preliminary prioritisation of Green Grid opportunities in terms of their strategic potential as catalysts for the establishment of a new interconnected high performance green infrastructure network which will support healthy urban growth. Future reports should be undertaken to assess the future delivery and implementation strategies of Green Grid projects.

FINAL REPORT 23.03.17
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PREPARED FOR
DEPARTMENT OF
PLANNING AND ENVIRONMENT

IN ASSOCIATION WITH
THE OFFICE OF
THE GOVERNMENT ARCHITECT

Landing Lights Wetlands, Rockdale

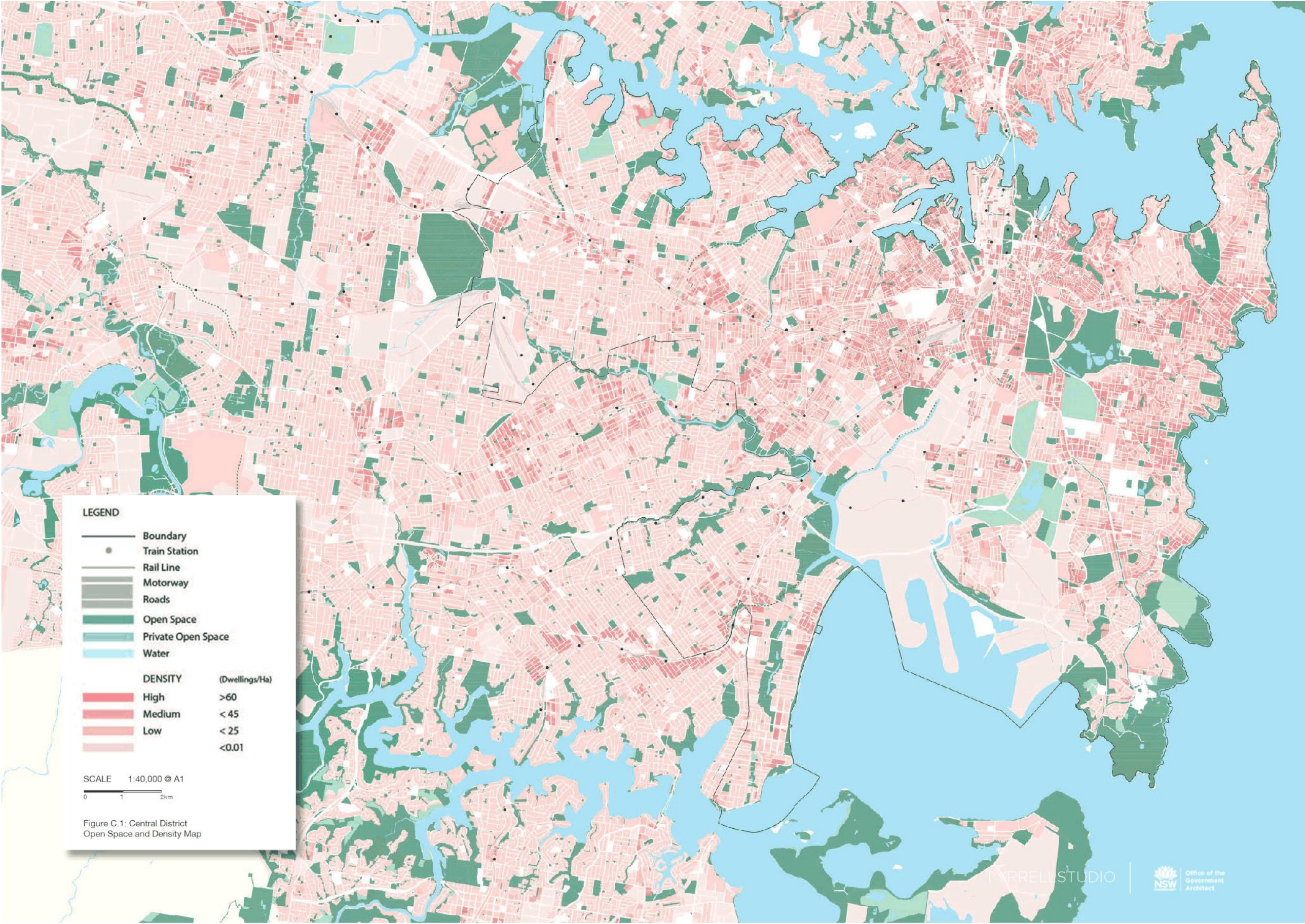
CENTRAL

SPATIAL FRAMEWORK



TYRRELLSTUDIO





CENTRAL DISTRICT

1.1 LANDSCAPE CHARACTER

THE HISTORY OF DEVELOPMENT AND THE CHARACTER OF SYDNEY HAS BEEN INFLUENCED BY TOPOGRAPHY AND THE UNDERLYING NATURAL FEATURES. THE SYDNEY GREEN GRID BUILDS UPON THE GEOMORPHOLOGY OF PLACE TO CREATE LOCALLY RESPONSIVE OPEN SPACE STRATEGIES. THESE LANDSCAPE FEATURES HAVE BEEN USED TO ESTABLISH A FRAMEWORK FOR FUTURE PROJECT AND DEVELOPMENT OPPORTUNITIES.



Sydney Harbour



Ballast Point Park



Bare Island Fort, La Perouse

The Central district is characterised by a series of sandstone outcrops and formations along the east coast and harbourfront, large aeolian sand dunes to the southern and eastern suburbs and rolling shale hills to the inner-west. Due to development, many of the waterfront locations within the Central district have been disturbed with large areas of land reclamation in former wetlands, estuaries and bays.

The primary water catchments within the district are the Cooks River, Botany Bay, Port Jackson and The Parramatta River. Many of the creeks within the catchments have been channelised or piped so that there are limited natural creek systems throughout the district. These remnant natural systems and drainage corridors often provide open space

linkage or environmental rehabilitation opportunities. A large number of parklands within the district are located on reclaimed land in the bays at the heads of these former creeklines and natural waterways.

The rocky sandstone outcrops around the harbour form numerous protected bays beaches along with dramatic headlands. Much of the waterfront has been privatised with open space occupying isolated pockets often at the heads of bays or along watercourses. A number of former defence sites have protected some significant open space parcels within these areas.

Industry has historically developed in the flatter more swampy areas to the west of Sydney Cove in the Bays Precinct and Iron Cove and to the south of the district in Botany Bay, along the Alexandria Canal and

the Lachlan Swamps. These post-industrial landscapes have provided opportunities for improving open space access within the district. Some excellent examples include new parklands at Ballast Point in Balmain and BP Park at Waverton.

The landscape character of the district is diverse, changing from the dramatic sandstone landscape of cliffs and world famous beaches along the harbour and east coast to the more gently undulating dune landscapes around Botany Bay and the shales of the inner west.

These areas have a number of regional parks such as Centennial Park which provides an important water management role for the Botany Catchment. The majority of the Inner West's regional scaled space is located along the foreshore of the harbour

and the Cooks River. A number of the key drainage lines within the area such as the Hawthorne Canal and Johnstons Creek provide opportunities to connect the inner west suburbs to the Harbour.

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TYRRELLSTUDIO



THE VARIOUS AND UNIQUE LANDSCAPES OF SYDNEY ARE RECOGNISED AS AN ASSET THAT CAN REINFORCE CHARACTER, IDENTITY AND ENVIRONMENTAL RESILIENCE. DELIVERED ALONGSIDE INFRASTRUCTURE AND URBAN RENEWAL AN ENHANCED NETWORK OF OPEN SPACE AND GREEN INFRASTRUCTURE CAN SERVE TO SHAPE AND SUPPORT NEW AND EXISTING COMMUNITIES.

THE HARBOUR, THE COASTLINE AND THE COOKS RIVER PROVIDE A COHERENT SPATIAL STRATEGY THAT DEFINES THE LANDSCAPE QUALITY OF THE SUBREGION.

1.2 STRATEGIC CONTEXT

The Central District is located at the epicentre of the Sydney metropolitan area and contains some of the most densely settled suburbs in Sydney. It contains some of Sydney's earliest designated open space assets such as Hyde Park, The Royal Botanic Gardens and Centennial Parklands.

Open space within the CBD and the surrounding suburbs within the City of Sydney LGA have a key regional focus and provide recreational opportunities for an extensive population beyond council boundaries. Similarly many of the world famous eastern suburbs beaches and Sydney Harbour have large tourist populations that support the economy and the recreation needs of wider Sydney.

The Inner West, Botany Bay and many of the Bays West of the CBD have a more suburban character along with some significant industrial areas. Large scale infrastructure, both existing and proposed, has a significant impact within these areas. These elements will continue to be essential for the future growth of the city and establishing Sydney as a globally competitive metropolis. However with large residential populations and proposed future housing targets the imperative remains to ensure that the same infrastructure also contributes to the livability of these regions.

The CBD

As the largest economic and commercial centre within the city, this is the most iconic area for continued growth and livability within Sydney. Open space planning and development and provision within the CBD has resulted in significant improvements to the quality of open space. Many exemplar projects and initiatives are in place or underway. Additional open space projects are anticipated in the future with the a of large scale projects in construction such as Barangaroo and the Darling Harbour redevelopment. Continued improvement to the connections between the city and its surrounding suburbs will ensure these regional assets can be enjoyed by all.

Sydney Light Rail

One of the most significant strategic projects about to transform the city and its public domain is the Sydney Light Rail project. This has ramifications for the CBD and the City of Sydney but also for Randwick and Kensington. Moore Park and the suburbs of Centennial Park will be key destinations along this new route to the University of New South Wales. This new transport corridor is envisaged to provide an important civic focus for the city and will be great catalyst for the Sydney Green Grid.

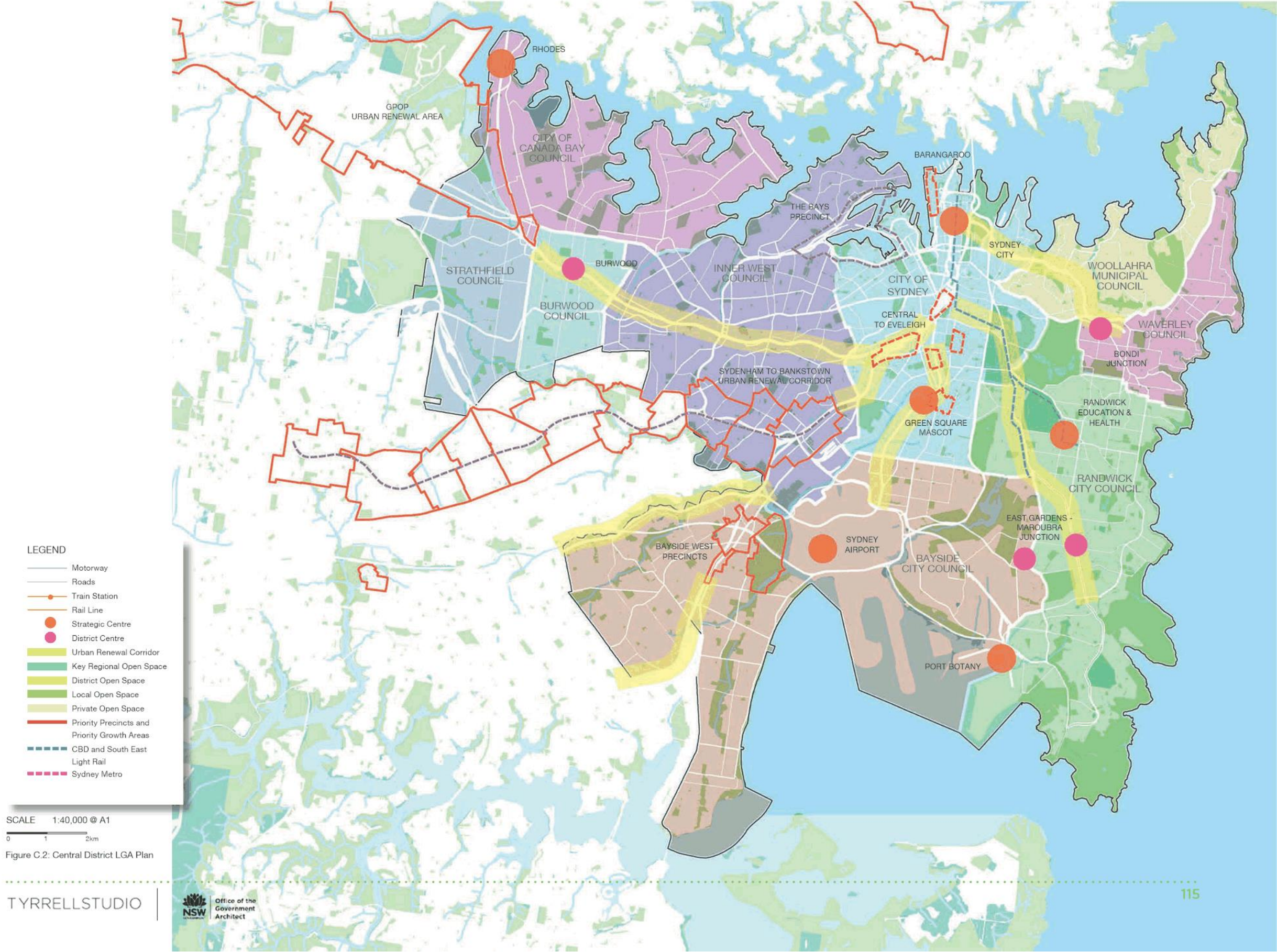
Urban Renewal

Major urban transformation projects such as WestConnex, the Bays Precinct and Redfern to Eveleigh will create opportunities to provide additional open space and improve connections to the existing open space network.

Open Space Initiatives

A number of initiatives are already in place that reflect the strategic objectives of the Sydney Green Grid. The Sharing Sydney Harbour Program, City of Sydney's Greening Sydney Plan and statutory plans such as SEPP56 – Sydney Harbour Foreshores and Tributaries and SREP26 – City West, uphold the principle of increasing public access to, and use of, land on the foreshore.

These strategic initiatives along with the many infrastructure and development projects occurring within the district form an important starting point for the delivery of a Metropolitan Green Grid across Sydney.



CENTRAL DISTRICT

1.3 PROJECT OPPORTUNITY CLUSTERS

THE STRATEGIC FRAMEWORK PROVIDES AN OVERVIEW OF REGIONAL OPEN SPACE OPPORTUNITIES AS A SERIES OF PROJECT OPPORTUNITY CLUSTERS. IT IS ENVISAGED THAT THESE CLUSTERS FORM A STARTING POINT FOR ENSURING THE MORE GENERALISED DISTRICT STRATEGIES AND ANY FUTURE PROJECT DELIVERY RESPONDS TO THE LOCAL STRATEGIC CONTEXT AND LANDSCAPE CONDITIONS.

CD.1.1 THE CBD

As the Global centre of Metropolitan Sydney, the CBD sits prominently on the harbour, stretching southwards to Central Station.

The CBD enjoys a diversity of open spaces ranging from the iconic Royal Botanic Gardens, the foreshore promenades of Circular Quay, the future Barangaroo Headland Park to pocket parks, playgrounds and inner city civic plazas. The public domain has improved in recent years with initiatives such as the laneways revitalisation, dedicated cycleways and the large and small park improvement program. The future light rail project supports the well connected and diverse network of open space. The CBD also has a very large number of visitor attractions, cultural institutions and key destinations which could benefit from being integrated into the Green Grid.

The key opportunities for Green Grid projects in the CBD focus on improving connections into the Sydney CBD from surrounding suburbs.

CD.1.2 REDFERN-WATERLOO, GREEN SQUARE, ALEXANDRIA

Projects within this cluster will be driven by changes in land use and the needs of a diverse and growing population. Former industrial areas and existing large scale infrastructure will be adapted to accommodate these changes and support new populations. Connections and access to existing major regional open spaces such as Moore Park, Centennial Parklands and

Sydney Park will be essential to support the recreational needs and enhance the livability of these areas. With significant transformations underway opportunity to provide additional high quality open space as well as a connected network to support future growth.

CD.1.3 PORT JACKSON AND THE EASTERN BAYS

North of the Oxford Street ridgeline from Woolloomooloo to Point Piper the major green spaces typically follow natural drainage valleys down to the harbour. Trumper Park and Cooper Park are primary examples of this and offer significant opportunities for further enhancement. Much of the area is highly urbanised with large areas of waterfront in private ownership. Every opportunity to increase or improve foreshore access should be investigated.

Many of the bays, parks and gardens along the foreshore are very distinctive and could benefit from better access from surrounding suburbs and public transport nodes. Primary transport connections run in the east-west direction along Oxford Street, William Street and New South Head Road and the partially elevated Eastern Suburbs rail line. There is an opportunity to enhance connections to the harbour foreshore parks, headland parks and Centennial Parklands by improving north-south access for pedestrian and cyclists.

There is also a key opportunity to make a significant contribution to public open space,

pedestrian links and sports facilities as part of the proposed White City redevelopment. Improved connections between White City and the Rushcutters Bay would greatly benefit surrounding communities.

CD.1.4 THE EASTERN SUBURBS

This cluster includes the eastern most suburbs of Sydney from Maroubra to Vacluse. While the area enjoys a wealth of scenic coastline and beaches, there is an opportunity to enhance the open spaces and active transport connections within the area and between the coast and the city. This area faces challenges regarding the retention of privately owned open space. As land values increase in these areas former tennis clubs and sports courts under private ownership are being sold for development resulting in reduced active sporting opportunities. Any possibility to supplement these losses should be investigated along with the enhancement of existing active public open space to cater for increased demand.

CD.1.5 THE GREAT COASTAL WALK

Sydney's Great Coastal Walk extends from Barranjoey in the North District to the Royal National Park in the South. While much of the Coastal Walk within the Central District follows the foreshore and coastline, there remains the opportunity to complete missing links south of Coogee, including stretches around Malabar Headland, from Malabar to La Perouse and South Coogee to North

Maroubra. There is an opportunity to ensure public access to the coastline around the Malabar Headland irrespective of its potential future proposals.

CD.1.6 RANDWICK, CENTENNIAL PARK, EASTLAKES

This cluster is centred around the Anzac Parade urban renewal corridor and Randwick Urban Activation Precinct, incorporating the education and health precincts associated with UNSW, NIDA, Sydney Children's Hospital, Prince of Wales Hospital and the Royal Hospital for Women. Current plans to deliver the South East Light Rail corridor running from Central Station to Moore Park, Randwick and Kingsford facilitates the opportunity to improve existing public domain, enhance nearby open space and pedestrian/ cycle connections to the transport corridor.

As a key destination along the new light rail corridor Moore Park and Centennial Parklands will play a key role for future active recreation opportunities as well as catering to current sporting events demand. Increasing populations in Green Square, Randwick and Redfern will place additional demand on these spaces. Moore Park in particular offers the opportunity for further enhancement and improved pedestrian and cycle connections. Better connections with surrounding suburbs and across major barriers such as Anzac parade and Alison Road are essential.

CD.1.7 THE COOKS RIVER

The projects within this area are located within the highly urbanised catchment of the Cooks River.

The Cooks River has had the support of multiple councils within its catchment area and has been the focus of a series of project aimed at restoring the waterway, improving water quality and increasing the recreation opportunities.

The corridor is an important asset for surrounding communities and will become even more important with increased population projections. The Cooks River will benefit from further support to help establish it as a major regional recreational destination.

Enhancing the quality of existing spaces along the south east end, continuing restoration work in the north west end towards Campsie and increasing connectivity from all the surrounding suburbs will greatly benefit the local community.

CD.1.8 THE INNER WEST

The Inner West includes a number of drainage lines following the shallow valleys. These include Iron Cove Creek, Hawthorne Canal, Whites Creek and Johnstons Creek. Historically many of these creeks have been channelised contributing to poor water quality, increased runoff and low amenity within the region.

A series of restoration projects, where space allows, will greatly improve the quality of the catchment through the naturalisation of the

waterways and the creation of linear open space corridors. The continued development of such projects will also improve regional connections from the inner west to open space along the Cooks River and Sydney Harbour.

Urban greening improvements along major transport corridors that bisect the Inner West including Parramatta Road, rail lines and the new Dulwich Hill Light Rail corridor will enhance connectivity. Most importantly new development associated with the proposed urban renewal corridor should be provided with public domain upgrades, civic space and open space. Urban renewal in this precinct provides a unique opportunity to help mitigate access and amenity issues associated with Parramatta Road.

CD.1.9 PARRAMATTA RIVER AND CANADA BAY

The Parramatta River is the primary river corridor leading to Sydney Harbour. Its east-west alignment, extensive foreshore areas, wetlands and regional parklands establish it as both an important regional destination and linking corridor. The significance of this corridor and its contribution to a connected open space network cannot be understated. This portion of the Parramatta River within the Central District includes the southern foreshore extending from Drummoyne to Rhodes Peninsula. Projects should aim to support work already being undertaken in the corridor establishing the Parramatta River as a key active recreation link and

regional open space corridor between the city and the west. Opportunities for improved connections and foreshore parkland in association with Burwood should be investigated.

CD.1.10 THE BAYS PRECINCT

The Bays Precinct is a strategically important part of Sydney Harbour foreshore, including 80 hectares of Government owned land around Johnstons, White, Rozelle and Blackwattle Bays. The precinct will begin to transform over the short, medium and long term. Proposed changes in land use has the potential to allow for additional public open space, active sports facilities and increased foreshore access and to support the surrounding densely populated inner western suburbs. The opportunity exists to maximise the amount of foreshore access available and to secure high quality open space for future growth.

CD.1.11 PORT BOTANY AND THE ALEXANDRIA CANAL

This cluster is characterised by the industrial nature of the Port Botany container terminals, freight rail and handling, Sydney Airport and the adjacent Mascot Urban Activation Precinct. With contaminated lands and some of the poorest water quality in Sydney there is a need to establish projects with increased environmental credentials. Opportunities to establish Sydney's Global gateway as an exemplar of sustainable development should be investigated.

Public access and connections, balanced with ongoing port operations, could also be improved where possible. Better connections to the isolated Sir Joseph Banks Park are highly recommended.

There is an opportunity to initiate additional projects to support work being undertaken to rehabilitate the Alexandria Canal. Opportunities to utilise the canal as a key active transport link and open space corridor between the Cooks River, Mascot, St Peters, Alexandria and Green Square could be developed further in consultation with Sydney Water.

SD.1.12 ROCKDALE WETLANDS – GEORGES RIVER TO COOKS RIVER

This group of projects have a very high conservation value extending from the Cooks to the Georges River along Muddy Creek, through Eve Street Wetlands, Spring Creek Wetlands, Landing Light Wetland, Patmore Swamp, Scarborough Park Ponds and through to Sans Souci. Opportunities include wetland restoration, establishment of bird hides education, interpretation and an improved pedestrian and cyclist environment.

CD.1.13 BARDWELL VALLEY TRAIL

This project cluster contains projects from Hurstville to Turella connecting pockets of natural bushland and remnant Turpentine forest and Eucalypt woodland which create a swathe of green in the middle of the densely populated area of the district. Projects include conservation management, green skills and interpretation, connectivity and biodiversity.

- Consider open space acquisition of Bardwell Valley Golf Course to provide additional open space in the rapidly growing area.
- Enhance the Two Valley Trail.

CD.1.14 BOTANY BAY FORESHORE AND COOKS PARK TRAIL

The Botany Bay Foreshore project is important in its context of linking the Great Coastal Walk to Botany Bay and the coastal projects of the South District. This cluster of projects provides an opportunity to improve connectivity to the foreshore and provide enhancements to the length of Cook Park from Brighton le Sands to Sans Souci.

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Figure C.3: Central District Project Clusters Plan





Centennial Parklands



Sydney Park



Sydney Park Brick Kilns

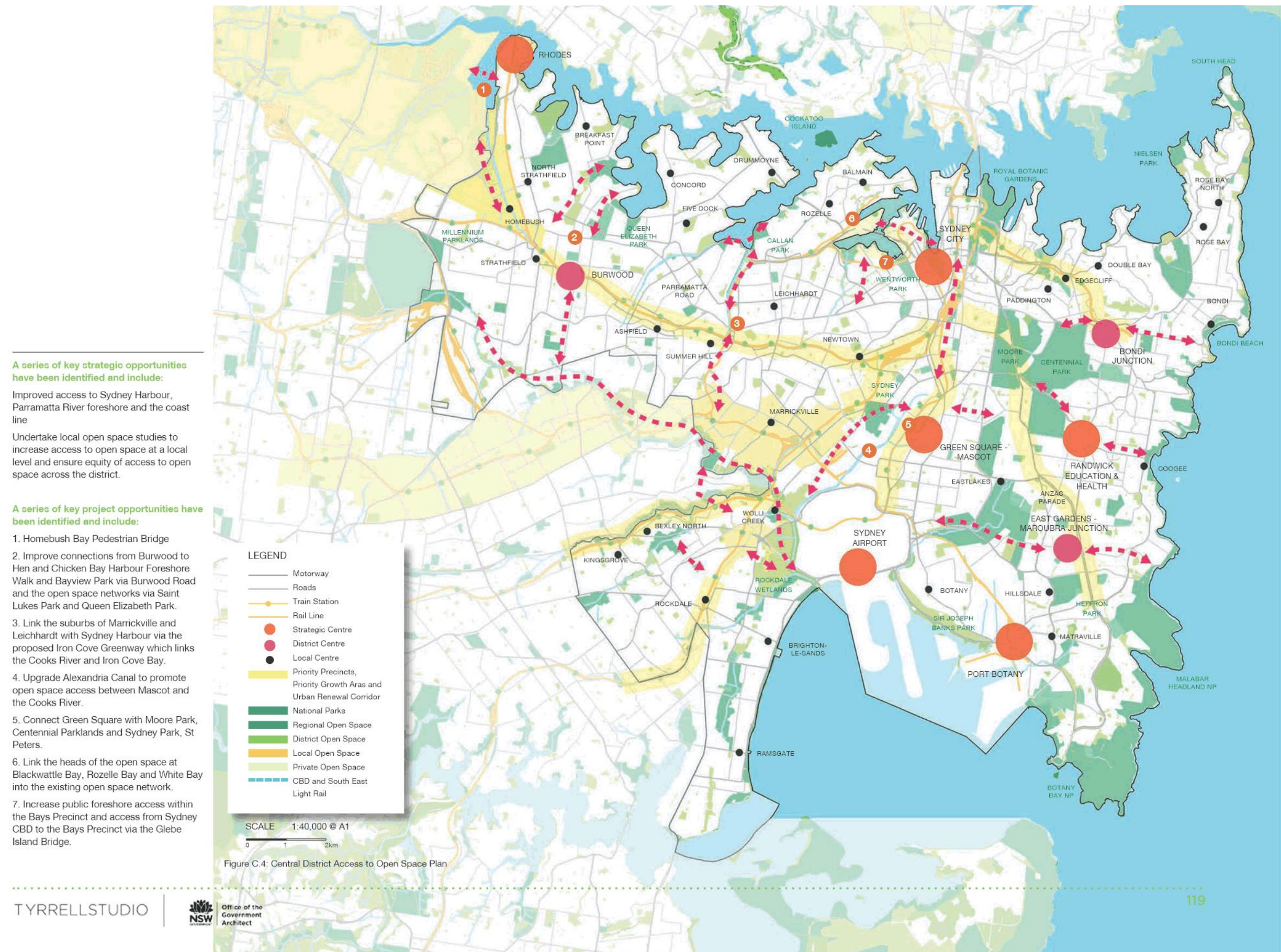
1.4 INCREASE ACCESS TO OPEN SPACE

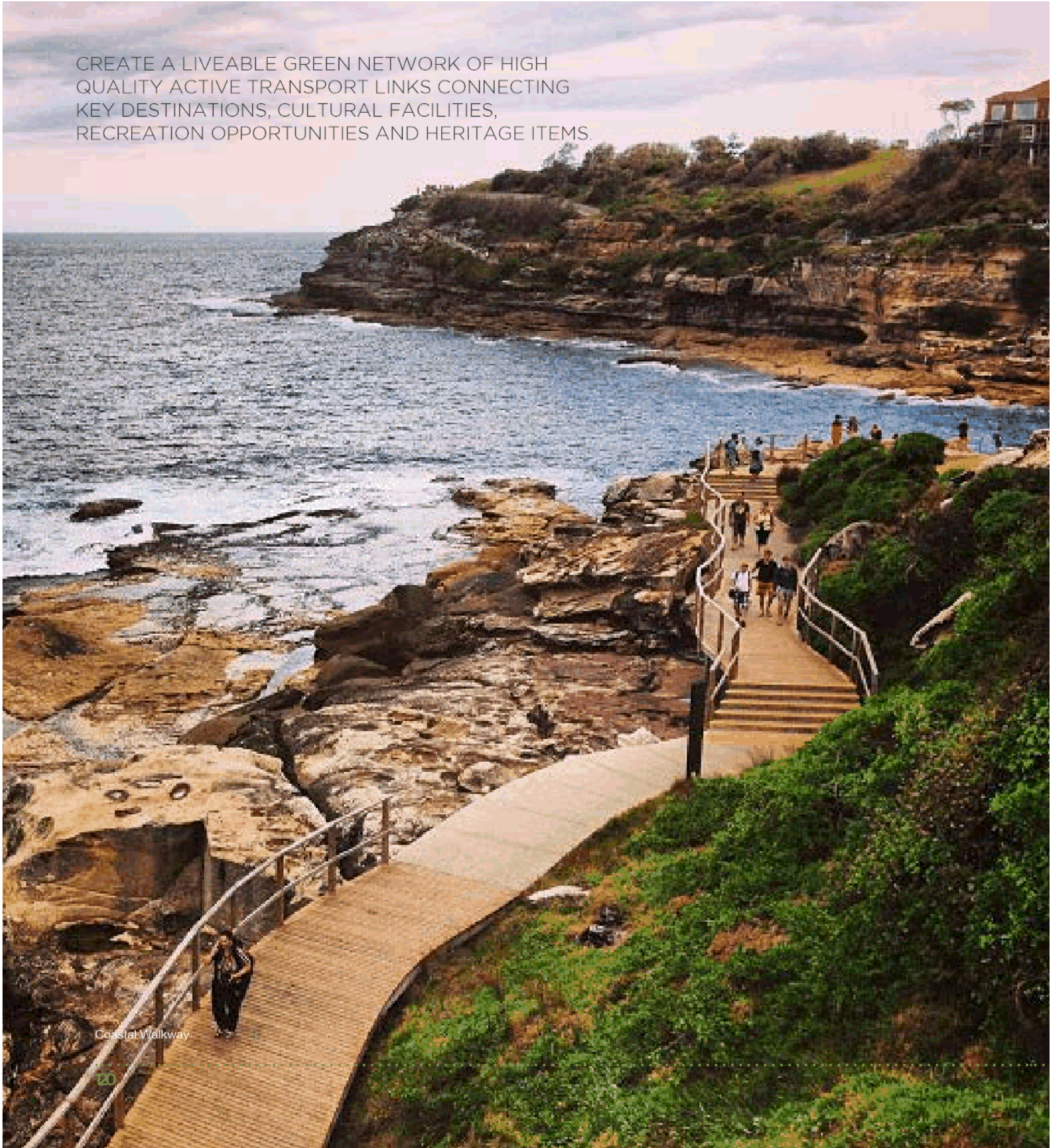
CONNECT PEOPLE WITH KEY REGIONAL OPEN SPACE AND PROMOTE THE DISTRICTS OPEN SPACE ASSETS BY CREATING BETTER CONNECTIONS WITH MAJOR CENTRES, NEW TRANSPORT INFRASTRUCTURE AND AREAS OF URBAN RENEWAL.

There are significant health and well being benefits associated with readily accessible, high quality open space. Well designed parks, plazas and streetscapes create highly liveable environments.

The Central District has a wealth of exquisite natural features and key regional open spaces that provide significant recreational opportunities and form the basis for a regional network of open space. The Harbour, the coastline and the Cooks River with their supporting tributaries provide a coherent spatial strategy that defines the landscape quality of the District. Opportunities to improve access to these key assets from existing suburbs and new growth areas will provide benefits for the existing and future population.

A number of initiatives are already in place that reflect the strategic objectives of the Sydney Green Grid. For example, the Sharing Sydney Harbour Program, City of Sydney's Greening Sydney Plan and statutory plans such as SEPP56 –Sydney Harbour Foreshores and Tributaries and SREP26–City West, uphold the principle of increasing public access to, and use of land on the foreshore. These programs should continue to be supported alongside the development of up to date local open space planning strategies.





CREATE A LIVEABLE GREEN NETWORK OF HIGH QUALITY ACTIVE TRANSPORT LINKS CONNECTING KEY DESTINATIONS, CULTURAL FACILITIES, RECREATION OPPORTUNITIES AND HERITAGE ITEMS.

1.5 PROMOTE HEALTHY AND ACTIVE LIVING



Fig 2.4.13 Glebe Foreshore Walk, JMD Design



Fig 2.4.16 Sydney Park

Walking and cycling are becoming increasingly important recreation and transport choices within the city. Greater opportunities for physical activity contribute significantly to improved health within the community, reducing health costs and increasing quality of life. Walking and cycling have some of the highest participation levels out of all recreation types. Opportunities for increasing Sydney's network of active transport links should provide links between the places people live and work and the places that people want to visit.

The Central district is blessed with many visitor attractions, cultural facilities and places of interest. Key areas of urban renewal will provide the opportunity to improve cycleway and footpath networks linking these assets.

A number of links are already in place such as The Great Coastal Walk linking South Head and La Perouse and the Federation Track which links Circular Quay and Centennial Parklands. Consequently the district already has a strong framework to build on. However, these links connecting regional open space are not equally distributed across the district. Improvements could be made within the Inner West linking the densely populated suburbs to the Harbour and Parramatta River.

1.6 CREATE NEW HIGH QUALITY PUBLIC REALM

SUSTAINABLE REGENERATION HAS THE PUBLIC REALM AT ITS HEART.
ESTABLISH A VIBRANT, PEDESTRIAN FRIENDLY PUBLIC REALM AT KEY CENTRES, TRANSPORT INTERCHANGES AND URBAN RENEWAL AREAS, WITH PLACES FOR GATHERING AND GOOD CONNECTIONS TO OPEN SPACE.



Chinatown Laneway Redevelopment



Green Square Library Proposal



Prince Alfred Park



Balfour St Pocket Park,
Jane Irwin Landscape Architecture



The White Bay Power Station Redevelopment
Proposal

The public realm offers a starting point for the development of a well used and connected open space network. The opportunity exists to build an open space network with high quality public realm at the centre. Squares, plazas and active streets offer important recreation and open space opportunities particularly within high density areas. Key civic spaces or destinations should be integrated with public transport opportunities and existing development.

Existing urban revitalisation strategies such as the City of Sydney's laneway projects and the new Light Rail Corridor reflect the objectives of the Sydney Green Grid and reinforce the creation of high quality walkable public domain. A number of projects underway such as Green Square Library, the Green Square Aquatic Centre and The Goods Line will also provide opportunities for future links to surrounding communities as they create new destinations within the city.

A series of key project opportunities have been identified and include:

1. Create high quality public domain and civic space at key locations associated with areas of urban renewal such as Parramatta Road and Anzac Parade
2. Create new public space as a benefit of large scale infrastructure projects including proposed South East and CBD Light Rail Extensions and WestConnex motorway.
3. Improve connections across barriers/ major roads (e.g. Parramatta Road, Eastern Distributor, Anzac Parade, Victoria Road, City West Link and New South Head Road) to facilitate access to major regional parks and foreshores;

A series of key strategic opportunities have been identified and include:

Continue laneway revitalisation within the CBD and develop laneway projects in areas such as Bondi Junction, Green Square, Newtown and Burwood, to activate under utilised public spaces.

Create new open space to support the Inner West for example new regional parks within the Rozelle Rail Yards corridor and active sports facilities at White Bay Power Station and above White Bay car park.

Continue to promote and support projects that utilise disused and heritage infrastructure.

CENTRAL

THE HYDROLOGICAL GRID

Identify and minimise disturbance to riparian areas and protect and improve the natural character, ecological integrity, visual amenity and public access to foreshores and rivers (such as parts of Cooks River and Cocks Creek).

The Central District includes the important wetland areas within the Bayside LGA, which support a number of threatened ecological communities (including Sydney Freshwater Wetlands) and habitat for threatened and migratory water birds.

In Sydney Harbour, mangrove litter material forms the basis of detrital based food webs, which support a variety of species from most trophic levels (e.g. algae, barnacles, molluscs, fish).

Seagrass meadows and saltmarsh communities occur within the Sydney Harbour and Botany Bay marine area.

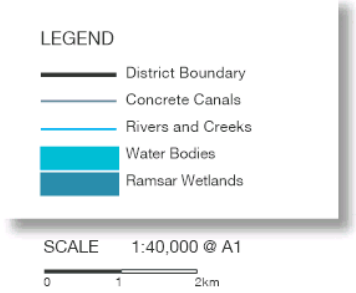


Figure C.5: Central District Hydrological Grid Plan



CENTRAL

THE ECOLOGICAL GRID

The Central District includes important national park areas including South Head and Nielsen Park within Sydney Harbour National Park and part of Kamay Botany Bay National Park. There are also areas of remnant vegetation and threatened species that are associated with this district. This includes the threatened ecological communities Eastern Suburbs Banksia Scrub and Themeda Grassland on Seacliffs and Headlands, and the endangered flora species Sunshine Wattle (*Acacia terminalis* subsp. *terminalis*). Endangered populations of Long-nosed Bandicoot and Plum-leaf Pomaderris (*Pomaderris prunifolia*) occur within the Central District.

Many areas of high biodiversity are protected in national parks and nature reserves, as well as on privately owned land managed for conservation purposes. The protection of biodiversity in the landscape provides a range of environmental, social and economic benefits. Detailed information on areas of high environmental value is available from the Office of Environment and Heritage and councils. Where necessary, data and mapping of areas of high environmental value will be ground-truthed to improve accuracy.

The Office of Environment and Heritage has also developed a Biodiversity Investment Opportunities Map (BIO Map) for part of Greater Sydney. The BIO Map identifies priority areas for investment in bushland protection and restoration, comprising core areas of bushland and corridors, that are important at a state and regional level for biodiversity.

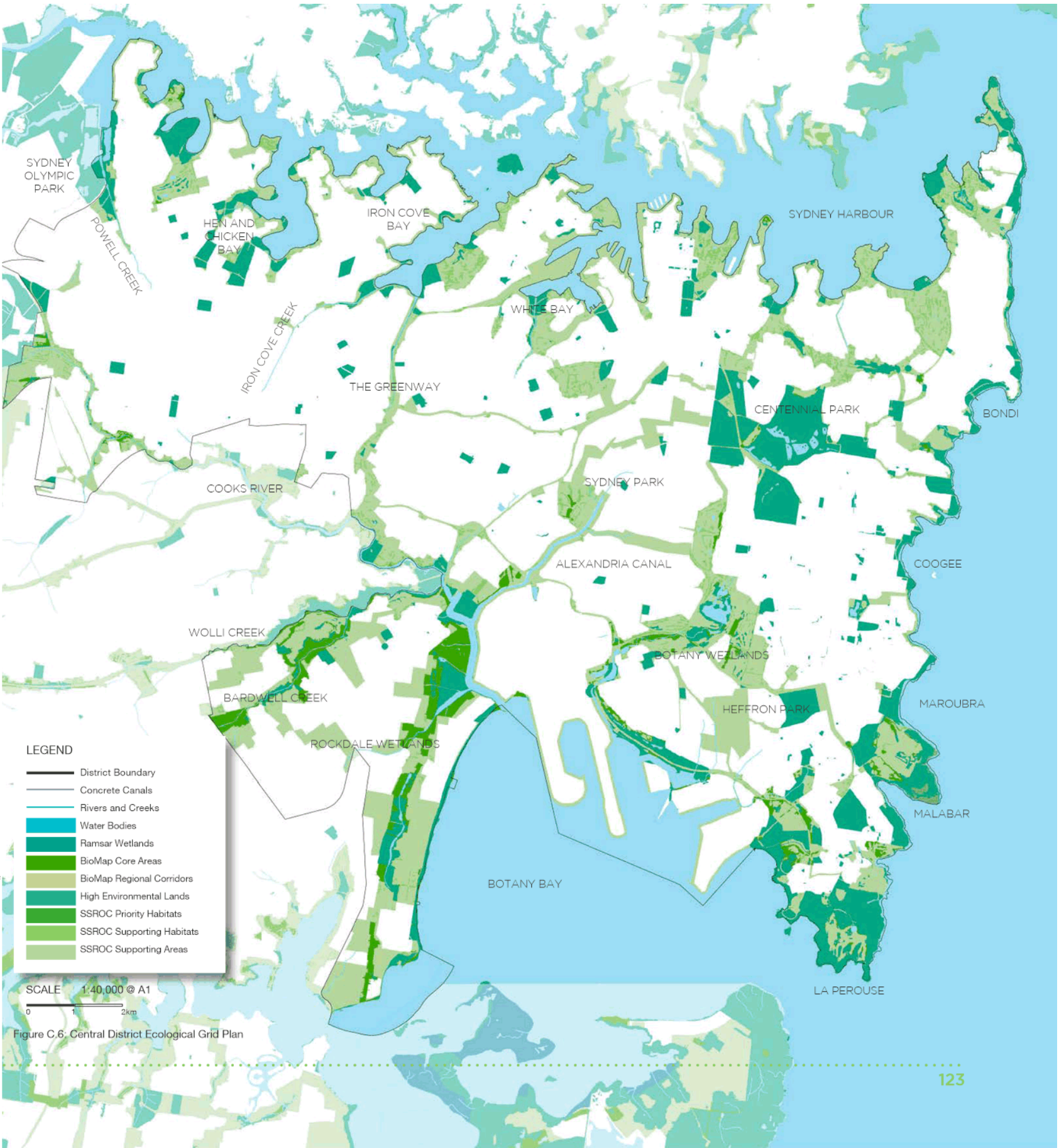
Implement the 'avoid, minimise, offset' hierarchy by striving to avoid and minimise impacts from zoning intensification and development on

areas of HEV. This will include avoiding development on 'protected lands', prioritising avoiding HEV and threatened species hotspots wherever possible and offsetting impacts on threatened entities where avoidance and mitigation is not possible. Connect biodiverse areas and apply planning and zoning provisions to protect corridors. Corridors aim to provide ecological connectivity, to facilitate the movement and dispersal of native flora and fauna across the landscape. Connecting biodiverse areas is particularly important in the face of climate change. Investigate opportunities to enhance native biodiversity in Green Grid corridors to help expand the urban forest to achieve canopy cover targets.

Engage local communities about the biological assets of their 'local patch of bush' to encourage active involvement in the protection and enhancement of bushland and other biodiversity. This will require engagement of local communities about the multiple benefits of their local bush and riparian areas and waterways and action to improve the ecological literacy to deepen the community perception of green infrastructure.

Volunteer and community groups are an important sector in the rehabilitation of native vegetation in urban areas. In recognition of the effort and funding dedicated to these areas, a level of protection should be provided through the planning process by applying appropriate provisions and mechanisms.

NOTE: Ecological Grid values and text provided in consultation with the Office of Environment and Heritage [OEHL].



CENTRAL

THE RECREATIONAL GRID

RECREATION
Key features and findings regarding recreational open space planning for both passive and active sports are currently being analysed and will be described in collaboration with other consultancies.

HERITAGE
The Central District contains a diverse array of indigenous, non-indigenous and natural heritage, including important examples of early Aboriginal and European settlement, dwellings, landscape items, archaeological sites and indigenous relics.

The protection of important heritage places and landscapes from the early planning stages is important as these places contribute to the district's identity and provide a sense of place, history and visual character. They also contribute to the economy through the attraction of visitors. Heritage is a non-renewable resource and the significance of heritage to the community should be appreciated, valued, protected and conserved for the benefit of current and future generations.

Aboriginal cultural heritage is legally protected in NSW. Protecting Aboriginal heritage means far more than looking after sites in parks or artefacts in museums. Aboriginal people need to be consulted on the conservation of the natural environment and the development of areas.

Acknowledge heritage resources as a 'value addition' in urban development. This will include identifying significant heritage values and incorporating them into developments, including the adaptive reuse of heritage resources.

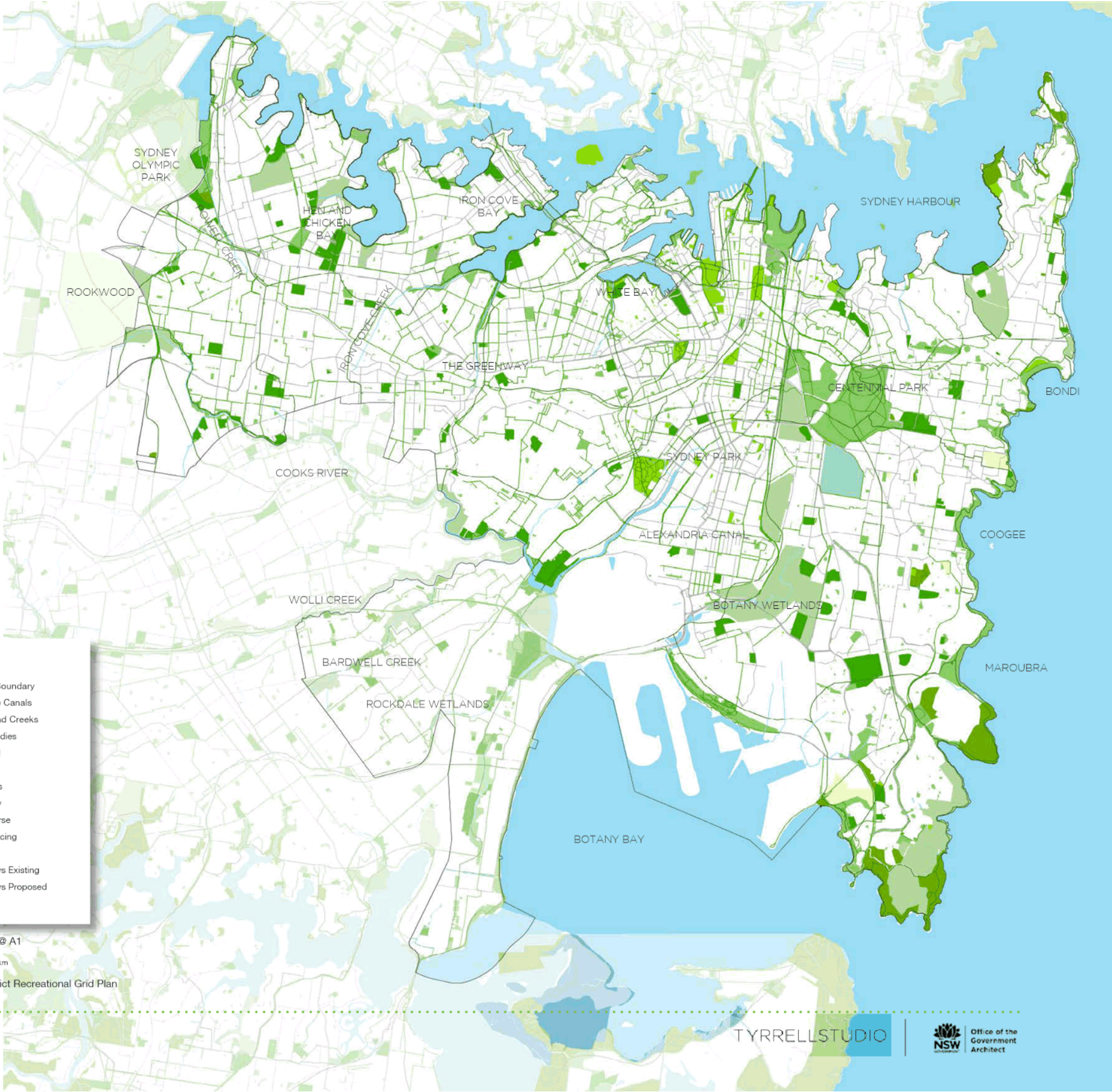
LEGEND

- District Boundary
- Concrete Canals
- Rivers and Creeks
- Water Bodies
- Bushland
- Civic
- Parklands
- Cemetery
- Golf Course
- Horse Racing
- Sports
- Cycleways Existing
- Cycleways Proposed

SCALE 1:40,000 @ A1

0 1 2km

Figure C.7: Central District Recreational Grid Plan



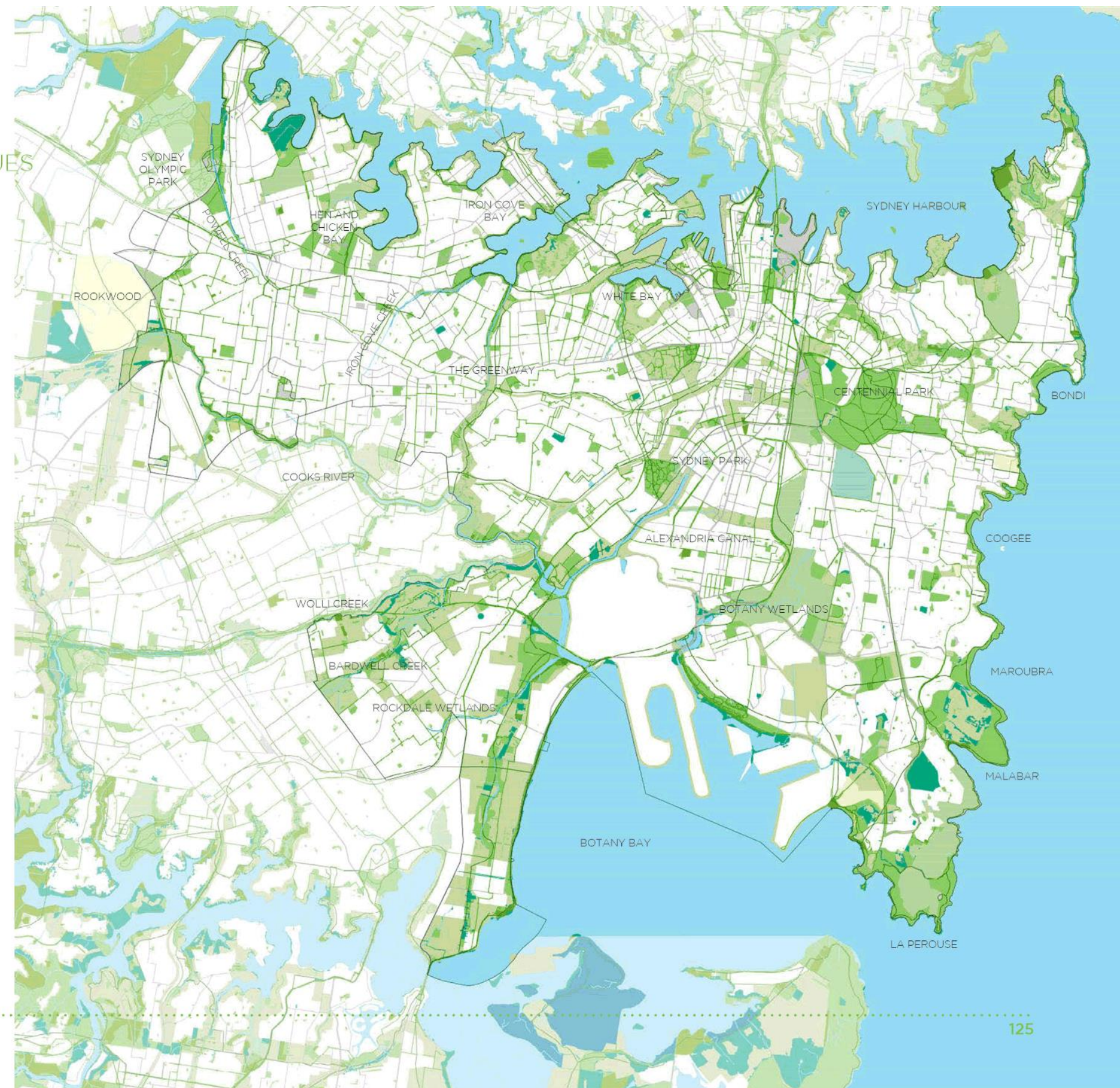
CENTRAL

GREEN GRID EXISTING VALUES

The Green Grid Existing Values plans represent a combination of the current values from the Hydrological, Ecological and Recreational Grids. This shows the weighting of valued open space lands across the district and the balance of Hydrological, Ecological and Recreational values across the district.



Figure C.8: Central Green Grid Existing Values Plan



CENTRAL DISTRICT

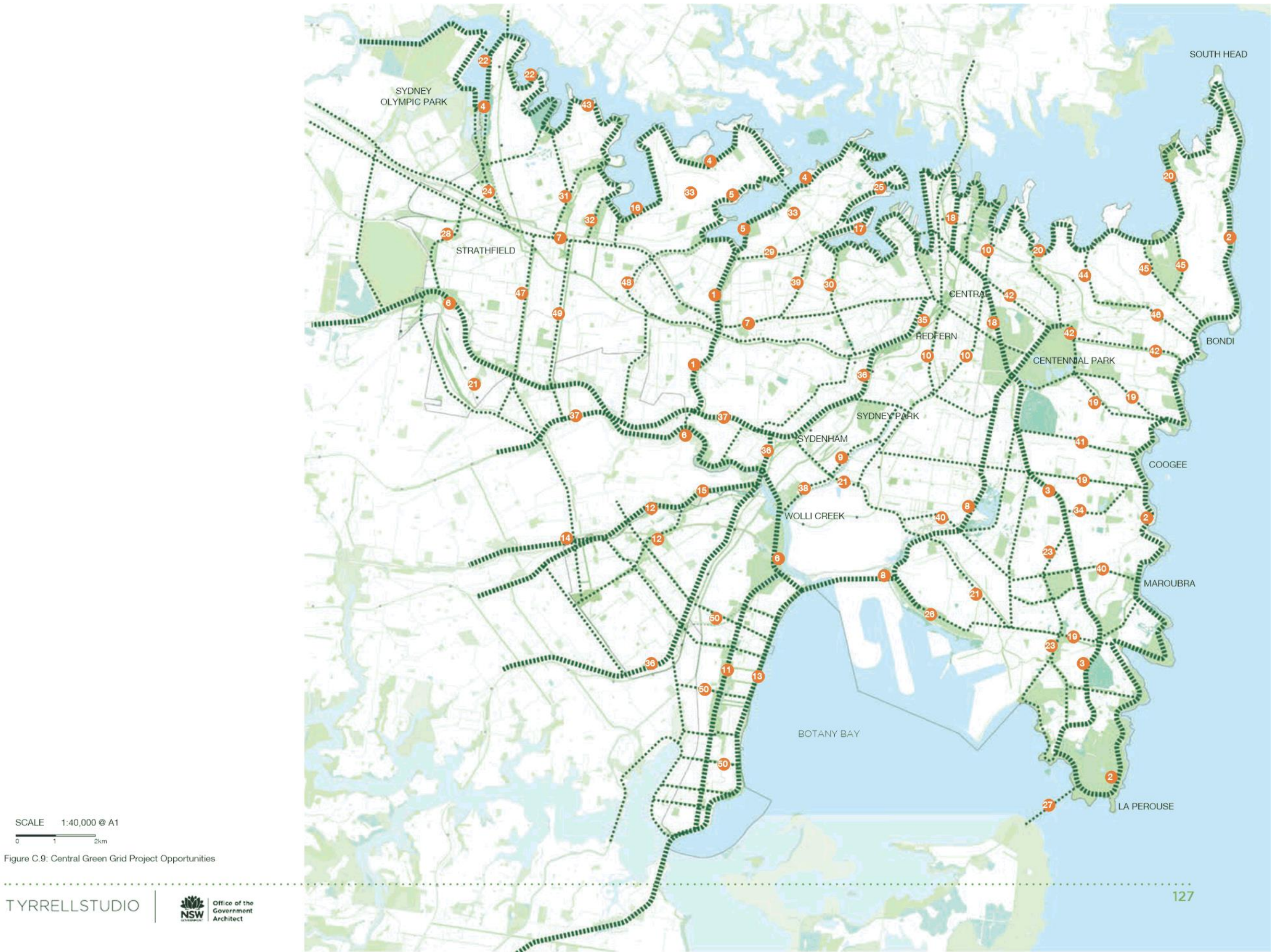
GREEN GRID PROJECT OPPORTUNITIES

The list of projects is a compilation of projects derived from the original Green Grid Reports together with the outcome from Greater Sydney Commission's District Plan Workshops and NSW Department of Planning and Environment Open Space Workshops.

This project list represents the projects identified by various interest groups and governments as potential priority projects. The projects are currently being assessed against the GIS data and work methodology as described previously.

The "Dominant Grid Layer" in the Project List refers to the infrastructure layer of the city that is most concerned with this project, and as a result may have funding allocated to it. This layer only represents the project as it currently exists and is not necessarily correlate to its future vision.

PROJECT OPPORTUNITY	DOMINANT GRID LAYER
1. The Greenway and the Hawthorne Canal	HYDROLOGICAL
2. The Great Coastal Walk: South Head to La Perouse	RECREATIONAL
3. Anzac Parade: Moore Park to La Perouse	TRANSPORT
4. Sydney Harbour Foreshore and Parramatta River Walk	RECREATIONAL
5. The Bay Run and Iron Cove Creek	RECREATIONAL
6. The Cooks River Open Space Corridor	HYDROLOGICAL
7. Parramatta Road Urban Renewal Corridor	TRANSPORT
8. Mill Stream and Botany Wetlands Open Space Corridor	HYDROLOGICAL
9. Alexandra Canal	HYDROLOGICAL
10. Bourke Street and George Street Active Transport Green Links	TRANSPORT
11. Rockdale Wetlands Open Space Corridor	ECOLOGICAL
12. Wolli Creek Regional Park and Bardwell Valley Parklands	ECOLOGICAL
13. The Coastal Walk: Botany Bay Foreshores	RECREATIONAL
14. M5 Motorway Open Space Corridor	TRANSPORT
15. East Hills Rail Line Open Space Corridor	TRANSPORT
16. Hen and Chicken Bay Foreshore	RECREATIONAL
17. White Bay and Blackwattle Bay Foreshore and Open Space	TRANSPORT
18. South East Light Rail Corridor	TRANSPORT
19. Eastern Beach Suburb Street Green Links	RECREATIONAL
20. Sydney Harbour Eastern Bays Foreshore	RECREATIONAL
21. Freight Rail Lines Chullora to Port Botany	TRANSPORT
22. Rhodes and Concord Open Space and Hospital Precincts	RECREATIONAL
23. Fitzgerald Avenue and Heffron Park Open Space, Botany	RECREATIONAL
24. Powells Creek and Mason Park, Strathfield	HYDROLOGICAL
25. Tom Uren Trail, Balmain	RECREATIONAL
26. Joseph Banks Reserve and Foreshore Drive	HYDROLOGICAL
27. La Perouse to Kurnell Ferry	TRANSPORT
28. Cooks River to Homebush Bay Green Link	RECREATIONAL
29. Lilyfield Road Active Transport Corridor	TRANSPORT
30. Johnstons Creek and Harold Park	HYDROLOGICAL
31. Burwood Green Link: Burwood Park to Hen and Chicken Bay	RECREATIONAL
32. St Lukes Park and Concord Oval Green Link	RECREATIONAL
33. Sydney Harbour Bays Green Links: Balmain and Rozelle	RECREATIONAL
34. Randwick Barracks and Environment Park to Coast Link	ECOLOGICAL
35. Central to Eveleigh Railyards	DEVELOPMENT
36. Illawarra Rail Line: Wolli Creek to Redfern	TRANSPORT
37. Bankstown to Sydenham Open Space Corridor	TRANSPORT
38. Airport to Bourke Street Active Transport Green Link	TRANSPORT
39. Whites Creek and Whites Creek Lane, Leichhardt	HYDROLOGICAL
40. East-West Coastal Green Links: Mascot to Maroubra	RECREATIONAL
41. East West Coastal Green Links: Randwick to Coogee	RECREATIONAL
42. East West Coastal Green Links: Hyde Park to Bronte	RECREATIONAL
43. Breakfast Point and Cabarita Foreshores	RECREATIONAL
44. Bondi Junction to Double Bay Green Link	RECREATIONAL
45. Bondi Junction to Rose Bay Green Link	RECREATIONAL
46. Bondi Junction to Bondi Beach Green Link	RECREATIONAL
47. Cooks River Secondary Green Links: Strathfield to Belmore	RECREATIONAL
48. Cooks River Secondary Green Links: Ashfield to Canterbury	RECREATIONAL
49. Cooks River Secondary Green Links: Burwood to Campsie	RECREATIONAL
50. Boulevard Streets Green Links from Urban Centres to Botany Bay	RECREATIONAL

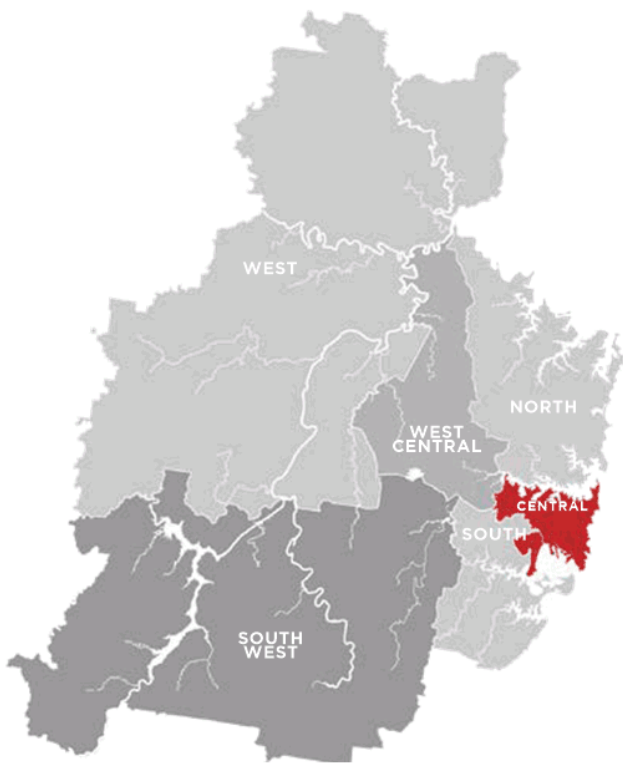




King Georges Park, Iron Cove Bay

CENTRAL

PROJECT OPPORTUNITIES



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PROJECT PRIORITISATION METHODOLOGY

The Green Grid projects have been analysed against ten priority criteria. Each project has been given a total score which represents its level of priority in the Green Grid network. The ten criteria are:

- Existing ecological, hydrological and recreational value
- Regional potential to connect to other Green Grid projects
- Super District Scale potential to connect across Local Government Area and District Boundaries
- Projects proximity to development
- Projects with lands currently controlled by the Office of Strategic Lands (OSL)
- Projects identified by Local Council's as priorities during the Greater Sydney Commission's Technical Working Group process.
- Projects in regions with open space deficiency as identified in the Government Architect's Office Open Space Audit.
- Projects that overlap or provide important connections to NSW Department of Planning Priority Precincts.

Each project is given a total score based on the sum of the above values. Of the projects that score 10 or higher (of a possible 12), Priority projects were selected based on relevance to future development requirements and other Greater Sydney Commission and NSW Planning priorities. For each district two or three projects are selected and are highlighted dark green in the project prioritisation matrix. High scoring projects that are not deemed as Priority Projects combined with projects that score 8 or higher are defined as other important projects and are highlighted light green in the project prioritisation matrix. From the "other important projects" list a shortlist were selected for inclusion into the District Plans based on their immediate relevance to other Greater Sydney Commission and NSW Planning priorities.

NOTE:

- The Wolli Creek Regional Park and Bardwell Valley Parklands lies on the boundary of the Central and South Districts. For further information refer to the Wolli Creek Parklands Green Grid Project in the South District.
- The Cooks River Open Space Corridor lies on the boundary of the Central and South Districts. For further information refer to the The Cooks River Open Space Corridor Green Grid Project in the South District.

CENTRAL DISTRICT

PRELIMINARY PROJECT PRIORITISATION MATRIX

PRIORITY PROJECT CRITERIA		POTENTIAL PROJECT VALUES					OVERLAP & PROXIMITY VALUES					
PROJECT NAME	COUNT VALUE	ECOLOGICAL VALUE	HYDROLOGICAL VALUE	RECREATIONAL VALUE	CONNECTIVITY VALUE	SUPER DISTRICT SCALE VALUE	PROXIMITY TO DEVELOPMENT	OSL LANDS OVERLAP	GSC TWG FOCUS	OPEN SPACE DEFICIENCY	PRIORITY PRECINCT OVERLAP	GREEN GRID PROJECT TYPE
	[CATEGORY WEIGHTING]	[0-1]	[0-1]	[0-1]	[0-2]	[0-2]	[0-1]	[0-1]	[0-1]	[0-1]	[0-1]	
CENTRAL DISTRICT PROJECT OPPORTUNITIES												
1. The Greenway and the Hawthorne Canal	10	1	1	1	2		1	1	1	1	1	Waterway Corridor
2. The Great Coastal Walk: South Head to La Perouse	9	1	1	1	2	2	1		1			Waterway Corridor
3. Anzac Parade: Moore Park to La Perouse	7			1	2	2	1			1		Transport Corridors
4. Sydney Harbour Foreshore and Parramatta River Walk	8		1	1	2	2	1			1		Waterway Corridor
5. The Bay Run and Iron Cove Creek	6		1	1	2		1			1		Waterway Corridor
6. The Cooks River Open Space Corridor	11	1	1	1	2	2	1		1	1	1	Waterway Corridor
7. Parramatta Road Urban Renewal Corridor	9			1	2	2	1		1	1	1	Transport Corridors
8. Mill Stream and Botany Wetlands Open Space Corridor	10	1	1	1	2	2	1		1	1		Ecological Lands
9. Alexandra Canal	6		1	1	2		1			1		Waterway Corridor
10. Bourke Street and George Street Active Transport Green Links	4			1	2		1					Urban Centre Street Links
11. Rookdale Wetlands Open Space Corridor	12	1	1	1	2	2	1	1	1	1	1	Ecological Lands
12. Woll Creek Regional Park and Bardwell Valley Parklands	11	1	1	1	2	2	1		1	1	1	Ecological Lands
13. The Great Coastal Walk: Botany Bay Foreshore	10	1	1	1	2	2	1		1	1		Waterway Corridor
15. M5 Motorway Open Space Corridor	7			1	2	2	1			1		Transport Corridors
16. East Hills Rail Line Open Space Corridor	7			1	2	2	1			1		Transport Corridors
18. Hen and Chloken Bay Foreshore	9	1	1	1	2		1		1	1	1	Waterway Corridor
17. White Bay and Blackwattle Bay Foreshore and Open Space	7		1	1	2		1		1	1		Transport Corridors
18. South East Light Rail Corridor	7			1	2	2	1		1			Transport Corridors
19. Eastern Beach Suburb Street Green Links	6		1	1	2		1		1			Urban Centre Street Links
20. Sydney Harbour Eastern Bays Foreshore	6		1	1	2		1			1		Waterway Corridor
21. Freight Rail Lines Chullora to Port Botany	5			1	2		1			1		Utilities Easements
22. Rhodes and Concord Open Space and Hospital Precincts	8	1	1	1	2		1		1	1		Mixed Open Space Corridor
23. Fitzgerald Avenue and Heffron Park Open Space, Botany	7	1	1	1	2		1			1		Mixed Open Space Corridor
24. Powells Creek and Mason Park, Strathfield	9	1	1	1	2		1	1	1		1	Waterway Corridor
25. Tom Uren Trail, Balmain	6			1	2		1		1	1		Mixed Open Space Corridor
26. Joseph Banks Reserve and Foreshore Drive	7	1	1	1	2		1			1		Ecological Lands
27. La Perouse to Kurnell Ferry	3			1	2							Transport Corridors
28. Cooks River to Homebush Bay Green Link	6			1	2		1			1	1	Urban Centre Street Links
29. Lilyfield Road Active Transport Corridor	6			1	2		1		1	1		Urban Centre Street Links
30. Johnsons Creek and Harold Park	7		1	1	2		1			1	1	Waterway Corridor
31. Burwood Green Link: Burwood Park to Hen and Chloken Bay	8	1	1	1	2		1			1	1	Urban Centre Street Links
32. St Lukes Park and Concord Oval Green Link	7		1	1	2		1			1	1	Waterway Corridor
33. Sydney Harbour Bays Green Links: Balmain and Rozelle	5			1	2		1			1		Urban Centre Street Links
34. Randwick Barracks and Environment Park to Coast Link	7	1	1	1	2		1		1	1		Mixed Open Space Corridor
35. Central to Eveleigh Railways	5				2		1			1	1	Transport Corridors
36. Illawarra Rail Line: Woll Creek to Redfern	7			1	2	2	1			1		Transport Corridors
37. Bankstown to Sydenham Open Space Corridor	9		1	1	2	2	1		1	1		Transport Corridors
38. Airport to Bourke Street Active Transport Green Link	5			1	2		1			1		Urban Centre Street Links
39. Whites Creek and Whites Creek Lane, Leichhardt	7		1	1	2		1			1	1	Waterway Corridor
40. East-West Coastal Green Links: Mascot to Maroubra	7		1	1	2		1		1	1		Urban Centre Street Links
41. East West Coastal Green Links: Randwick to Coogee	6			1	2		1		1	1		Urban Centre Street Links
42. East West Coastal Green Links: Hyde Park to Bronte	8	1	1	1	2		1		1	1		Urban Centre Street Links
43. Breakfast Point and Cabarita Foreshores	5		1	1	2		1					Waterway Corridor
44. Bondi Junction to Double Bay Green Link	6			1	2		1		1	1		Urban Centre Street Links
45. Bondi Junction to Rose Bay Green Link	6			1	2		1		1	1		Urban Centre Street Links
46. Bondi Junction to Bondi Beach Green Link	6			1	2		1		1	1		Urban Centre Street Links
47. Cooks River Secondary Green Links: Strathfield to Belmore	6			1	2		1			1	1	Urban Centre Street Links
48. Cooks River Secondary Green Links: Ashfield to Canterbury	6			1	2		1			1	1	Urban Centre Street Links
49. Cooks River Secondary Green Links: Burwood to Campsie	6			1	2		1			1	1	Urban Centre Street Links
50. Boulevard Streets Green Links from Urban Centres to Botany Bay	7			1	2		1		1	1	1	Urban Centre Street Links



Bare Island, La Perouse

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CENTRAL DISTRICT

PRIORITY PROJECTS FOR FURTHER SCOPING

A selection of important Green Grid project opportunities have been selected for further scoping. The selected projects represent a mix of priority and other important Green Grid projects. The selected projects also represent a mix of project types including projects with hydrological, ecological, recreational, transport and utility infrastructure values. The projects selected for further scoping may not represent the highest priority projects but aim to further understand the potential issues around different project types.



1. THE GREENWAY AND HAWTHORNE CANAL

The Greenway is a sequence of open spaces that link Iron Cove to the Cooks River. It predominantly follows the Hawthorne Canal, the Light Rail Corridor from Leichhardt North to Dulwich Hill Light Rail Stations. The Greenway creates a connected open space corridor that crosses a number of major east-west barriers including Parramatta Road, the Parramatta Rail Line, Old Canterbury Road, New Canterbury Road and the Bankstown Rail Line.



2. EASTERN BEACHES GREEN LINK

The Eastern Beaches Link projects aim to build on the success of the Coastal Walk and improve east-west connections between the beaches and Centennial Park, Bondi Junction, the Sydney CBD and the inner suburbs.

These projects will primarily be street conversion projects, that will work alongside Transport for NSW to provide improved pedestrian and cycle links as well as improved public domain.



3. MILL STREAM & BOTANY WETLANDS OPEN SPACE CORRIDOR

Botany Wetlands and the Mills Stream extends from Botany Bay and Sydney Airport to Centennial Park through The Australian, Lakes, Eastlakes and Bonnie Doon Golf Courses. The Botany Wetlands are regionally significant as a major recharge source for the Botany Sands Aquifer, and the home of two regionally rare vegetation communities, the Sydney Freshwater Wetlands and the Eastern Suburbs Banksia Scrub. Public use and access along this corridor is limited, and presents a significant opportunity for improved north-south access and cross district access.

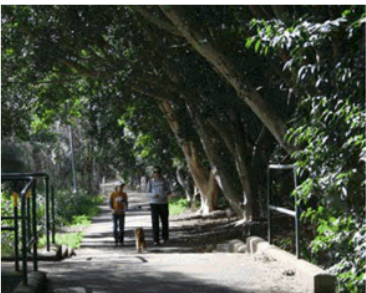
Figure C.10: Central Preliminary Priority Projects Plan

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THE GREENWAY & HAWTHORNE CANAL

CENTRAL: PRIORITY PROJECT



The Cooks River to Iron Cove GreenWay is a 5.8 km long sustainable transport and urban environmental corridor connecting the Parramatta River at Iron Cove to the Cooks River at Earlwood. Following the route of the inner West Light Rail, the Greenway corridor and catchment has a population of 48,000 people and connects the urban villages of Leichhardt, Haberfield, Summer Hill, Petersham, Lewisham, Dulwich Hill, Hurlstone Park and Earlwood.

The Inner West communities have been working with GreenWay Councils and other stakeholders to complete the GreenWay trail (cycle and walking track). Currently a total of 2.6 km (45%) of the GreenWay trail is in place, with approximately 3.2 km (55%) yet to be completed.

The Inner West has been identified by NSW Planning & Environment for significant growth in jobs and housing over the next 10 to 20 years. Much of this growth will be located within the GreenWay corridor and its catchment. This includes the Taverners Hill and Lewisham West development precincts which together will accommodate up to 7000 new dwellings and significant commercial and retail space.

Incremental completion of the GreenWay trail will significantly contribute to the

quality of life of people living and working within the GreenWay catchment and the many thousands who will live or work in new developments under construction or proposed in the vicinity.

The section of the GreenWay between Old Canterbury Road and Parramatta Road, Missing Links F to J is yet to be completed and forms the basis of this study commissioned by Ashfield, Marrickville and Leichhardt Councils. The GreenWay is a regionally significant green link identified in “A Plan for Growing Sydney” as part of the Sydney Green Grid which provides the strategic framework for an interconnected network of open space across Metropolitan Sydney.

The strategic importance of the GreenWay as a north south connection from the Cooks River to Sydney Harbour will become the first of a number of important north-south corridors that connect the urban centres along these two water bodies. The Greenway is located in a critical position in the Green Grid network. Intersections with the Cooks River, the Bankstown Rail Line, the Parramatta Rail Line, Parramatta Road and the Bay Run give the Greenway the potential to play an important role in the regions active transport and open space network.

POTENTIAL FOCUS AREAS

- A. Marion Street, Haberfield
- B. Parramatta Road, Taverners Hill Light Rail Station
- C. Parramatta Rail Line and Longport Street, Lewisham
- D. Old Canterbury Road and Mungo Scott Flour Mills Site
- E. Davis Street, Hoskins Park and Waratah Mills Site.
- F. New Canterbury Road and Hercules Street, Dulwich Hill
- G. Dulwich Hill Skate Park, Bankstown Rail Line and Ewart Street
- H. Marrickville Golf Club and Wardell Road, Dulwich Hill

LEGEND

Existing Roads

Existing Rail Lines

Local Streets

Waterways

Green Grid Projects

Existing Open Space

High Environmental Lands

Key Opportunity Sites

Potential Open Space

Figure C.11: The Greenway and Hawthorne Canal Potential Focus Areas

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EASTERN BEACHES GREEN LINK

CENTRAL: IMPORTANT PROJECT

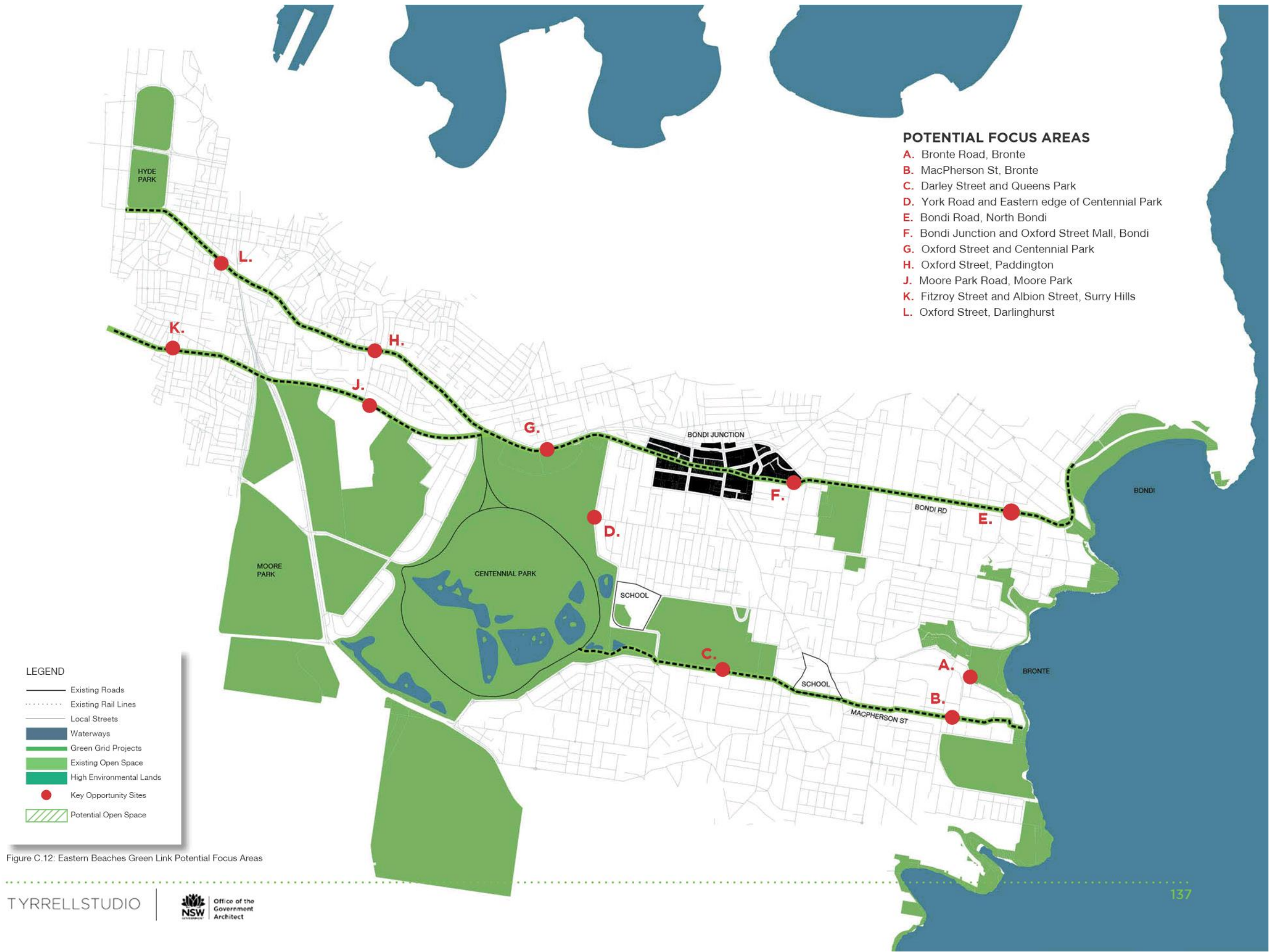


The Eastern Beaches Link projects aim to build on the success of the Coastal Walk and improve east-west connections between the beaches and Centennial Park, Bondi Junction, the Sydney CBD and the inner suburbs.

These projects will primarily be street conversion projects, that will work alongside Transport for NSW to provide improved pedestrian and cycle links as well as improved public domain.

This project is a proposal for a cycleway to link the Sydney CBD with Bondi Junction CBD along Oxford Street via Moore Park and Centennial Park. This is a priority route, identified in Sydney's Cycling Future (2013) as Eastern Suburbs Link (Bondi Junction to CBD).

The link is also identified as part of Priority Route 1: Bondi Beach to Bondi Junction to CBD in the Waverley Council Bike Plan (2013). This is nominated in the plan as 'Waverley's highest priority route'. In the 2016-17 financial Year Waverley Council received grant funding from RMS to design part of the route: a cycleway along Oxford Street from Bronte Road to York Street. When constructed, this section of the route will connect Bondi Junction CBD with the North Eastern entrance to Centennial Park.



MILL STREAM & BOTANY WETLANDS

CENTRAL: PRIORITY PROJECT



The Botany Wetlands will become an important public open space that connects Centennial Park to Botany Bay. The publicly accessible open space will transform some golf course lands into public parklands that pass through the Botany Wetlands, an important ecological corridor and historic water supply system for Sydney.

Botany City Council have done a number of investigations, including concepts in the “Botany Bay Vision 2040”. The following descriptions include excerpts from the Botany Bay Vision 2040.

The project aims to restore community access to the Wetlands, starting with cycling and pedestrian connections from Gardeners Road through the golf courses to the Lord St Business park then along the Millpond to Sir Joseph Banks Park.

The Botany Wetlands was Sydney’s third water supply system. It is the only remaining ‘swamp’ system that is substantially intact in its original form. The Wetlands contain ruins of the former water supply system, trees planted in 1869 and a 1915 sewage pump all of which will be well appreciated features in a new park.

Botany Wetlands are the largest freshwater wetlands in the Sydney region and contain some of the area’s remaining indigenous vegetation and significant native fauna.

Sydney Freshwater Wetlands and the Eastern Suburbs Banksia Scrub are considered endangered ecological communities and protected under both Commonwealth and State laws.

The Botany Wetlands are listed on the Commonwealth Government’s Directory of Wetlands which recognises the most significant Wetlands in Australia. The wetlands also have recognised regional ecological value as native animal habitat and movement corridors including for migratory eels.

The new park with pedestrian and bicycle links would restore internal connections through our City from the Bay through to Gardeners Road and beyond to Centennial Park, making it easy once again to get from Mascot to Botany and Daceyville and to connect to the city.

POTENTIAL FOCUS AREAS

- A. Foreshore Road and Joseph Banks Parklands
- B. Mill Pond and Botany Road, Botany
- C. Mill Stream, Freight Line and Wentworth Avenue
- D. Botany Dams and Eastlakes Golf Course, Daceyville
- E. Doncaster Ave and Kensington Park, Kensington
- F. Doncaster Ave and Randwick Racecourse
- G. Alison Road and Centennial Park, Randwick

LEGEND

Existing Roads

Existing Rail Lines

Local Streets

Waterways

Green Grid Projects

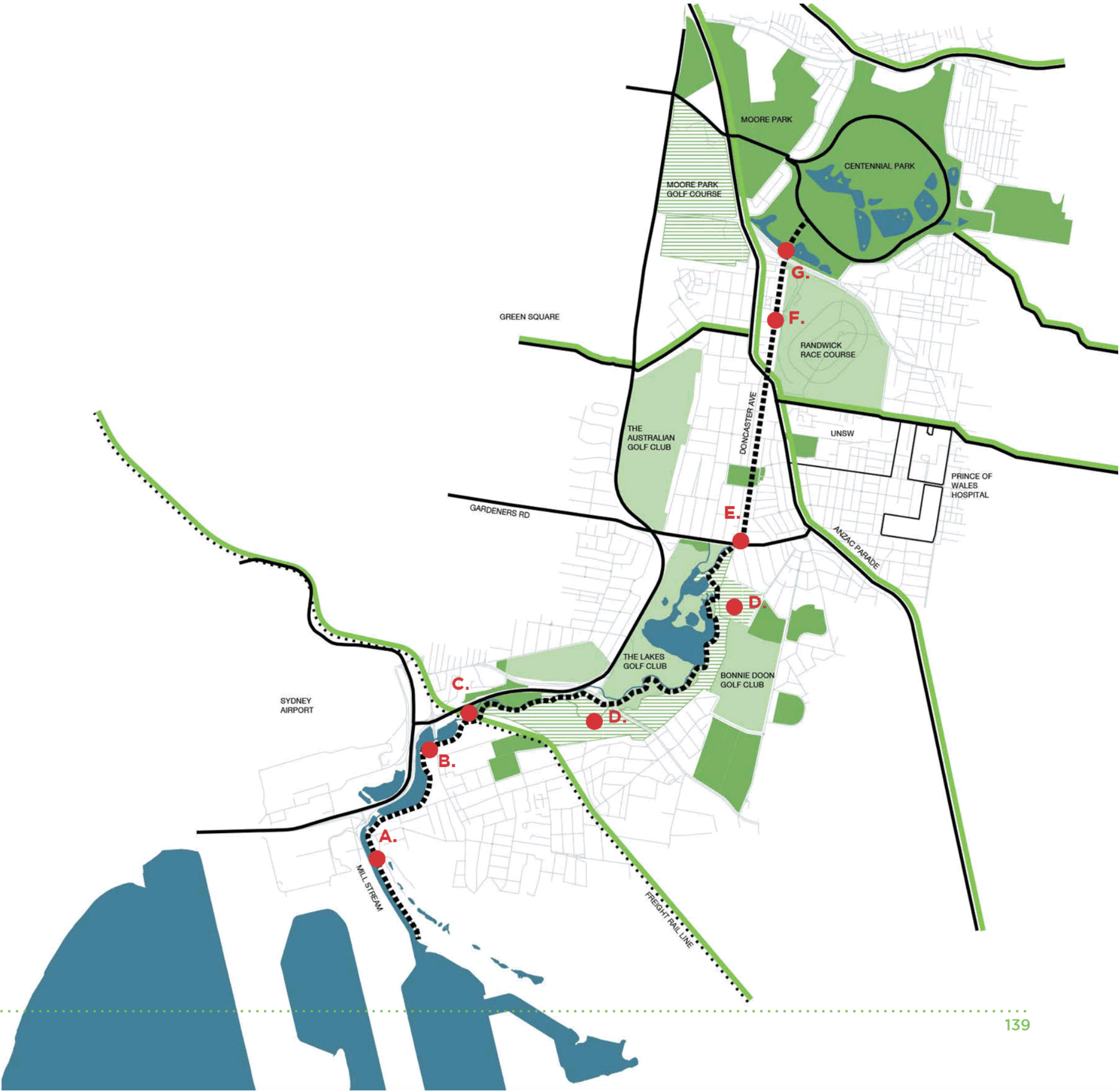
Existing Open Space

High Environmental Lands

Key Opportunity Sites

Potential Open Space

Figure C.13: Mill Stream and Botany Wetlands Potential Focus Areas





CENTRAL DISTRICT

OTHER IMPORTANT GREEN GRID PROJECT OPPORTUNITIES



**Rockdale Wetlands
Open Space Corridor**

The Rockdale Wetlands Open Space Corridor is a District wide significant project. The project area currently includes 40% of Rockdale Council's open space and 90% of its biodiversity assets, Landing Lights Wetlands. The corridor runs from the Cooks River to Captain Cook Bridge along Muddy Creek, through Eve Street Wetlands, Riverine and Barton Parks (Spring Creek Wetlands), Patmore Swamp, Scarborough Park ponds and through to Sans Souci. The corridor is also a very important recreational corridor with a significant amount of active sports grounds and facilities, cycle and walking trails. The project aims to protect and enhance this important hydrological and ecological asset and create a connected open space corridor for walking, cycling and urban greening, along the F6 corridor open spaces from the Airport to Sutherland. This area is currently zoned for the future F6 Freeway, which should be designed to retain and protect the important open spaces in the corridor.



The Cooks River

The Cooks River Foreshore is a connected sequence of open spaces from Wolli Creek to Strathfield and is an important project for both the South and Central Districts. There is opportunity to transform the corridor into a regionally significant parkland corridor, improve water quality, and provide high quality open space along the highly urbanised catchment. Improving connectivity to nearby centres including Strathfield, Sydney Olympic Park, Campsie, Canterbury, Dulwich Hill, Marrickville and Wolli Creek. This project will also connect to other Green Grid projects including; the Bankstown to Sydenham Open Space Corridor project, The Great Coastal Walk: Botany Bay Foreshores project, the Wolli Creek Regional Park and Bardwell Valley Parklands project and the Rockdale Wetlands Open Space Corridor [F6 Corridor] project.



**Wolli Creek Regional
Park and Bardwell Valley
Parklands**

Wolli Creek is a tributary of the Cooks River and rises at Narwee from where it flows east. At Turrella it is joined by Bardwell Creek at the Henderson Street weir. Wolli Creek and its tributary, Bardwell Creek, form the second largest sub-catchment of the Cooks River catchment covering 15.52 km². Looking at the creek today, it is hard to imagine that, in the late 1800s, it was one of the most polluted waterways in Sydney. The Wolli Creek and Bardwell Valley intersect with the East Hills Rail Line and the M5 Motorway. As a result there are a number of barriers that disconnect the surrounding residential areas from connecting across the Wolli Creek valleys. The Wolli Creek Green Grid project aims to project walking and cycling links along and across the valleys, as well as improving usable open space along the corridor.



**The Coastal Walk:
Botany Bay Foreshores**

The Botany Bay Foreshores are an important section of the Great Coastal Walk around the edges of the bay from La Perouse to Kurnell. They connect important existing open spaces and are very popular recreation parklands and walking and cycling corridor. The major missing links include La Perouse to Kyeemagh, Taren Point Bridge to Shell Point. This project links to the Rockdale Wetlands Open Space Corridor and The Coastal Walk Green Grid projects.



**The Great Coastal Walk
from South Head to La
Perouse**

Sydney's Great Coastal Walk extends from Barrenjoey Head in the North District to the Royal National Park in the South District. While the Coastal Walk from Bondi to Maroubra is largely complete, there remains some missing links, including around Malabar Headland, from Malabar to La Perouse and South Coogee to North Maroubra, and from North Bondi to South Head. The Central and South Districts can also be connected by ferry from La Perouse to Kurnell.



**Powells Creek and Mason
Park, Strathfield**

Powells Creek and Mason Park Wetlands are important tributaries into the Badu Mangroves, Bicentennial Park and the Parramatta River. The project is also important open space corridor that links the urban centres of Concord West, North Strathfield, Homebush and Strathfield to Parramatta Road, Bicentennial Park and the Parramatta River Foreshore. The project will provide walking and cycling links, urban greening, stormwater treatment and a mix of open space uses.

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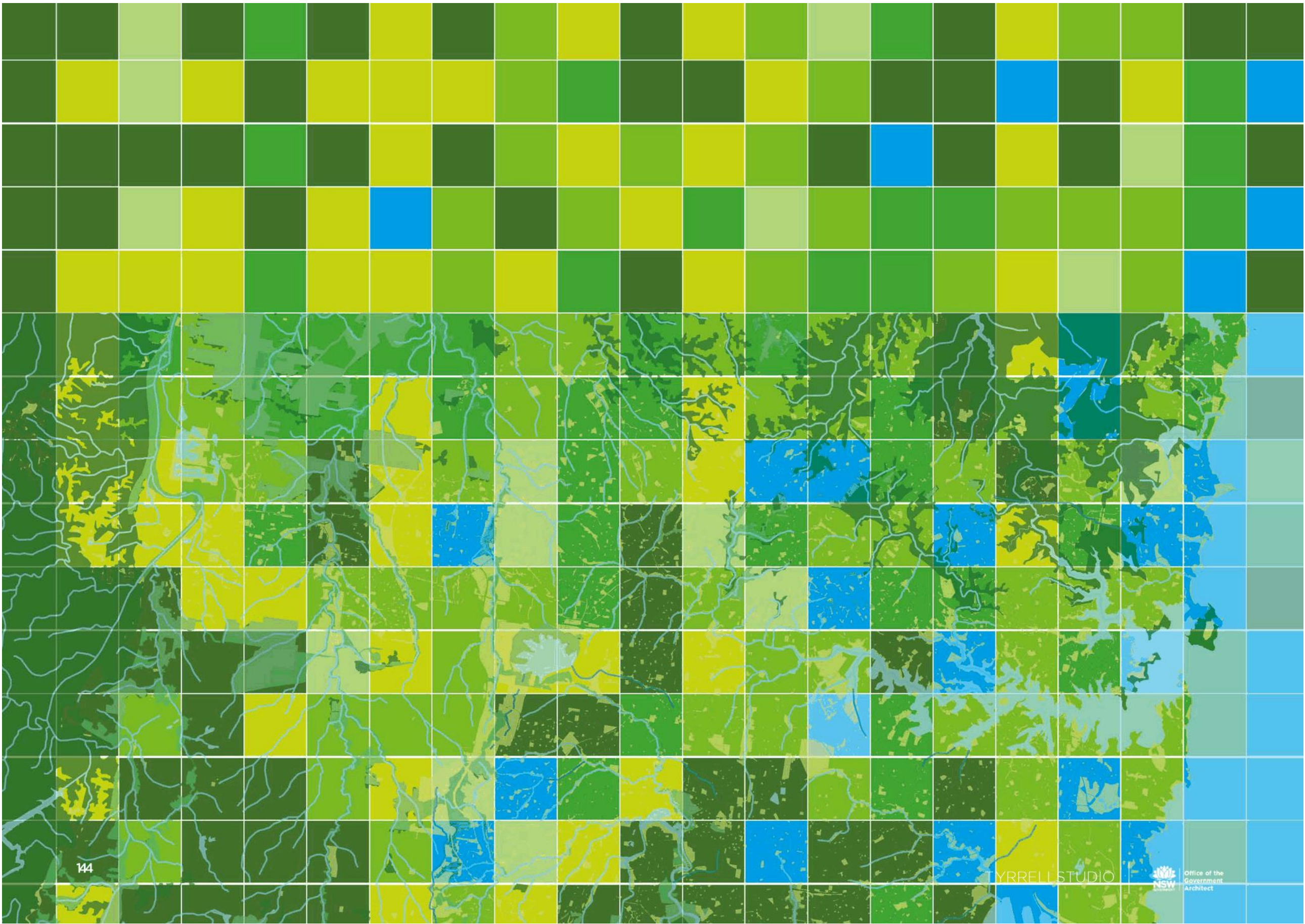
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CD12	120 Sydney Park Source: http://architectureau.com/articles/2012-aila-nsw-awards/#img=2 Award for Design in Landscape Architecture: Sydney Park Stormwater Harvesting Stage 1 by AECOM with the City of Sydney. Image: David Lloyd
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Draft for discussion

GREENER



PLACES

Establishing an urban Green Infrastructure
policy for New South Wales

GOVERNMENT
ARCHITECT
NEW SOUTH WALES



Design principles for NSW

Four principles help deliver Green Infrastructure in NSW:



Integration

combine Green Infrastructure with urban development and grey infrastructure



Connectivity

create an interconnected network of open space



Multifunctionality

deliver multiple ecosystem services simultaneously



Participation

involve stakeholders in development and implementation

GA

Cover image

Hyde Park, Sydney.



N
SW

Minister's Statement



I'm pleased to launch **Greener Places** – a new way of thinking about green space for our State.

Well planned green infrastructure is fundamental to ensuring our communities retain a high quality of life and helping our cities remain sustainable, both now and into the future. Green infrastructure is *essential* infrastructure and should be integrated into all community planning.

We want all suburbs to have an established tree canopy, well-designed parks, and connected open spaces. Green infrastructure does more than just look good; it creates healthier, safer and more prosperous cities.

Greener Places has been developed by the Government Architect to deliver the strategic approach for the planning, design and management of green infrastructure and will deliver connected urban ecosystems across NSW.

We will all need to work together, government, industry and the community. By prioritising green infrastructure now, we will leave a legacy we can be proud of, a legacy of great spaces and greener places.

Anthony Roberts
Minister for Planning

Government Architect's Foreword

As our population grows, the challenge will be to shape the built environment to retain distinctive and liveable cities. Green space is a hallmark of liveability, and by establishing a network of high-quality green areas that join towns, public transport, and residential areas, we aim to maximise quality of life and wellbeing.

Greener Places reflects our collective vision and expectations in planning, designing and creating a sustainable NSW. It is about the creation of a networked urban ecosystem of green space that encompasses parks and open spaces including urban trees, streets, squares and waterways to help create a healthier, more liveable and resilient place to live. We must make landscapes work harder, for many users and improve climate change resilience, through a multifunctional design approach.

To achieve this, Green Infrastructure needs to have a more influential role in the planning of cities and urban environments. It needs to be considered as essential infrastructure at the outset of the design process from strategy, through to concept design, construction and maintenance. It means that our cities, towns and suburbs must reflect values that can only be fully realised if Green Infrastructure is considered at the forefront of the city making process. Design creativity is also needed to deliver a green city ecosystem – from both city-wide strategic projects down to more imaginative uses of space within the layers of a city.



Greener Places is an overarching schema for ensuring connection and integration of our green assets, ensuring their contribution to quality of life, and that the environment and the economy are maximised, rendering a working whole that is far greater than the sum of its parts.

The Government Architect NSW developed this draft Greener Places policy to deliver a greener NSW. Our vision is for a network of well-planned Green Infrastructure that will make NSW more attractive, better connected, healthier and more resilient.

I welcome your comments prior to finalising this framework in early 2018.

Peter Poulet
Government Architect

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The Government Architect NSW acknowledges the traditional custodians of the land and pays respect to Elders past, present and future. We honour Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place and their rich contribution to our society. To that end, Greener Places seeks to uphold the idea that if we care for country, it will care for us.

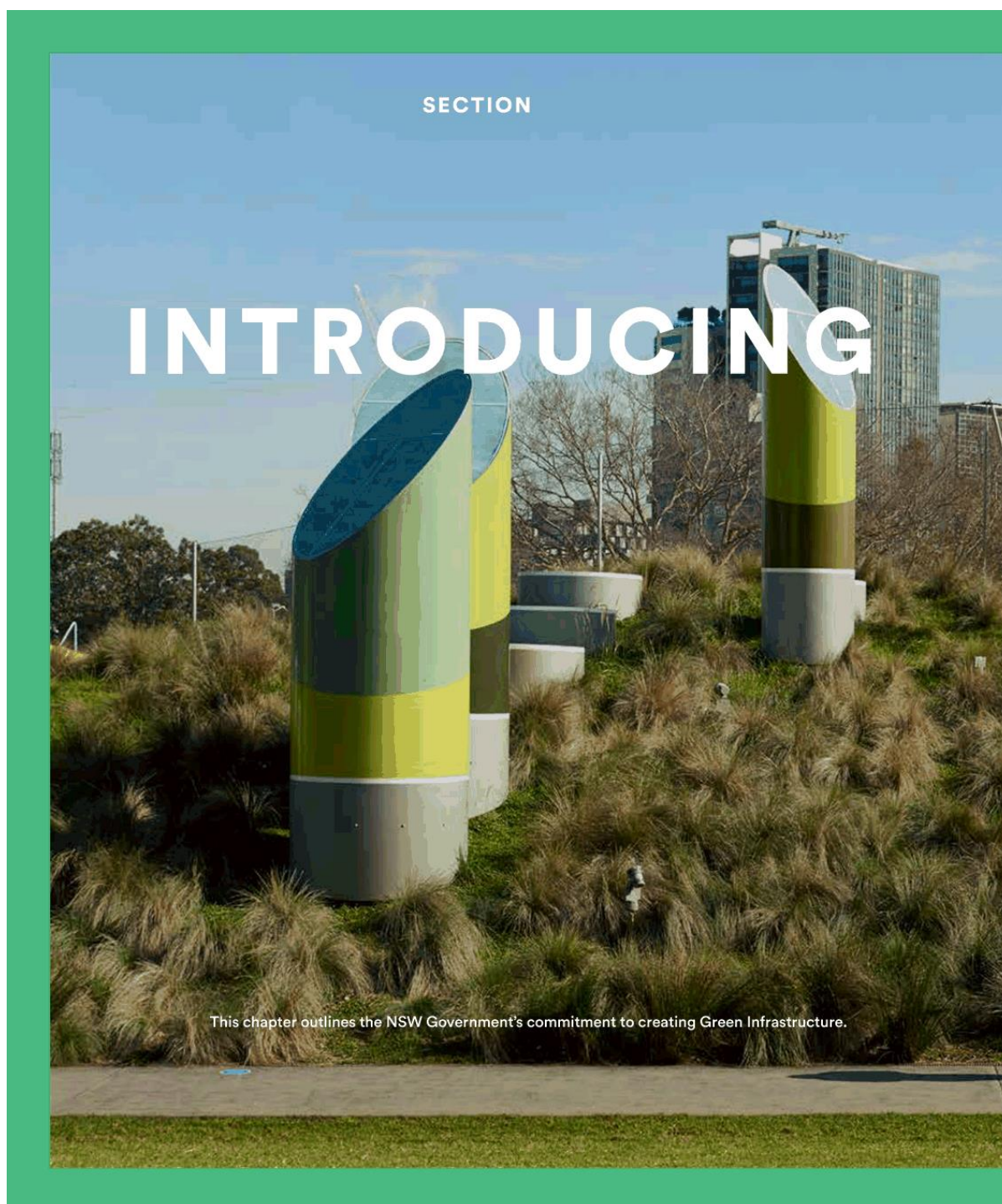
October 2017
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Introduction

Greener Places is a draft Green Infrastructure policy produced by the Government Architect NSW to guide the planning, design and delivery of Green Infrastructure in urban areas across NSW. It aims to create a healthier, more liveable and sustainable urban environment by improving community access to recreation and exercise, supporting walking and cycling connections, and improving the resilience of urban areas.

The draft policy is for consultation with the community and stakeholders. It aims to promote discussion about what the final policy should address. All feedback on this draft policy will be considered and a final policy developed in early 2018.

Greener Places explains why a Green Infrastructure policy is needed, and the vision and objectives for its implementation. Green infrastructure should be developed as a network rather than separate elements. Green Infrastructure is essential and needs to be considered as an asset in its own right.

The documents supporting the draft policy include the following draft manuals/toolkits:

- **Open Space for Recreation** – Green Infrastructure for people
- **Bushland and Waterways** – Green Infrastructure for habitat and ecological health
- **Urban Tree Canopy** – Green Infrastructure for climate adaptation and resilience.

Greener Places builds on the Sydney Green Grid - the design-led Green Infrastructure strategy developed to create a network of high quality green areas that connect town centres, public transport networks and major residential areas in Sydney.

Greener Places is a state policy which is assessed against agreed criteria, enabling better opportunities for industry to embed the benefits of a greener approach to projects. This in turn will create better places and landscapes.

1.1 What is Green Infrastructure?

Green Infrastructure is the network of green spaces, natural systems and semi-natural systems including parks, rivers, bushland and private gardens that are strategically planned, designed and managed to support a good quality of life in an urban environment.

Green Infrastructure should be envisioned as a three-dimensional envelope that surrounds and connects buildings, streets and utilities. The concept of landscape as Green Infrastructure provides a framework for integrating the work of designers, planners, developers and policy makers, and leveraging this collaboration to achieve larger local or state goals.

Green Infrastructure is as crucial to the city as transport, cultural and communications infrastructure. It delivers a range of benefits including:

- Healthy living
- Mitigating flooding
- Improving air and water quality
- Cooling the urban environment
- Encouraging walking and cycling and enhancing biodiversity and ecological resilience
- Absorbing and transforming waste.

Green Infrastructure compliments the development of other types of infrastructure projects. Green Infrastructure projects should be collaborative, where infrastructure in general is redefined to include an essential green component. By moving beyond a siloed approach, towards connecting agencies and physical networks of open space, the people of NSW will benefit.

Green Infrastructure is essential infrastructure. It needs to be accounted for in government asset management plans and community strategy plans, and considered as an asset in its own right.

What is well-designed Green Infrastructure?

Green Infrastructure connects vital life support systems for urban environments. Well-designed Green Infrastructure responds to four key principles:

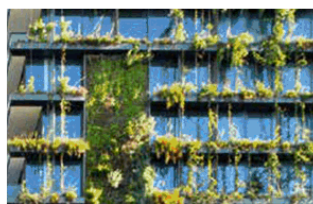
- Integration
- Connectivity
- Multifunctionality
- Participation.

Redfern Park by
Spackman Mossop
Michaels. Source:
John Gollings.

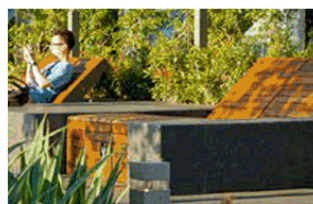


The elements of Green Infrastructure.

Individual components of Green Infrastructure or assets range from residential gardens to local parks and housing estates, streetscapes and highway verges, services and communications corridors, waterways and regional recreation areas. The components can be existing assets or designed to become part of the Green Infrastructure network.



① Green roofs and walls including roof gardens and living walls.



② Private and semi private residential gardens including shared spaces around apartment buildings, backyards, balconies, roof gardens and community gardens.



③ Squares and plazas including both public and private courtyards and forecourts.



④ Public residential and other tree lined streets, including road verges.



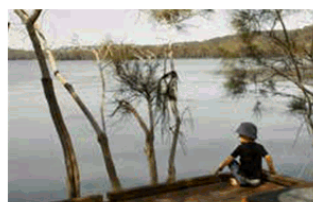
⑤ Parks and gardens including regional parks, well-designed urban parks, open space reserves and formal gardens.



⑥ Greenways including river and creek corridors, cycleways and routes along major transport (road, rail and light rail) corridors.



⑦ Sports and recreational facilities including ovals, school and other institutional playing fields, and other major parks and golf course.



⑧ Natural green space including national parks and nature reserves, waterways, wetlands and coastal margins.



⑨ Agricultural and other productive land and farms including vineyards, market gardens, orchards.

1 and 2. One Central Park, by Jean Nouvel, Patrick Blanc, Turf Design Studio (concept design) & Aspect in collaboration with Oculus. Source: Simon Wood Photography. 3. Parramatta Square, by James Mather Delaney. 4. Bourke Street Cycle Network by Spackman Mossop and Michaels. 5. Civic Park, Newcastle. 6. Parramatta Park. Source: Western Sydney Parklands Trust. 7. Redfern Park upgrade by Spackman Mossop and Michaels with BVN. 8. Narrabeen Lagoon Multiuse Trail, by Aspect Studios. Source: Simon Wood. 9. Source: Milkwood <https://www.milkwood.net/2014/11/18/planting-day-at-107-rooftop-garden/>

Elements of Green Infrastructure

Diagram indicating individual elements (assets) that can be utilised across a Green Infrastructure network. The diagram below is based on the winning K2K competition entry by Hill Thalix, Bennett and Trimble, James Mather Delaney.



1.2 Why do we need Green Infrastructure?

NSW has a rapidly growing population and we need to ensure that our built environment remains healthy and liveable. As custodians of the future, we need to think about how NSW will be transformed.

The provision of Green Infrastructure will help improve the quality of our urban and rural environments as well as help adapt and mitigate the effects of climate change. Well-designed and planned Green Infrastructure will help absorb flood water, cool the urban environment, clean the air, provide space for local food production and ensure the survival of Sydney's fauna and flora as well as providing space for recreation, sport and leisure.

Green Infrastructure is an essential asset, and should be as integral to NSW as its roads, rail lines and storm water pipes. With proven value, it is an infrastructure asset that requires the same kind of investment and innovation we afford more familiar types of built infrastructure.

Greener Places aims to create a network of attractive new and upgraded city environments, routes, and spaces. The approach would build on existing Green Infrastructure components. Over time this city ecosystem will be capable of generating a substantial range of social, environmental and economic outcomes.

A key component of the design of green space is the promotion of multifunctional design where a range of benefits are provided in one area through careful planning.

Pirrama Park
Playground,
Pymont by
Aspect Studios.
Source: Florian
Groehn



1.2.1 NSW priorities

Health

There is a growing recognition of the benefits that green space has on a community's health. It is well documented that the benefits of having access to green space, including increased physical activity, mental health, and access to food, can be harnessed to improve liveability.

Well-designed greener places will make it easier for people to be physically and mentally active. Having access to high quality open space within walking distance will encourage healthy activity and connectivity. Diverse spaces and places can also bring work opportunities closer to home. If people can cycle, walk or catch public transport health inequality is reduced. Studies that support this show that:

- Living in areas with higher amounts of green spaces reduces mortality by reducing cardiovascular disease (Gascon: 2016)
- Playing in green outdoor spaces fosters creative play and reduces symptoms of attention disorders in children (Shore: 2017)
- People living in areas without access to nature were 1.27 times more likely to experience symptoms of depression (Gyeong-bok: 2017)
- Patients with views of trees and greenery out their windows heal faster and with need for less medication (Cox: 2017)
- Access to green space reduces stress (Husqvarna: 2013).

Greener Places advocates for Green Infrastructure to help respond to challenges for NSW including:

Climate resilience

Climate change is expected to result in more extreme weather events, heatwaves, higher risk of bushfires, rising sea level, and drought, as well as threats to native species and ecosystems.

Climate change is also expected to have adverse effects on human health including heat related and extreme weather deaths, increases in water and food borne diseases, and the effects of increased air pollution.

Practices like planting trees and enabling the introduction of green roofs can improve air quality in urban areas, and reduce temperatures. The widespread use of water sensitive urban design practices will reduce the risk of flooding. Biodiversity can also be supported through good Green Infrastructure design.

Rapidly growing population

The population of NSW is expected to grow to 9.9 million people by 2036. Sydney's metropolitan population is projected to grow by more than 2.1 million in the next twenty years to 6.4 million people. A challenge is how we shape the built environment to respond to this growth while ensuring that Sydney and urban areas across NSW remain liveable.

With a growing population and a long-term trend towards higher-density dwellings, more people will require access to green spaces such as parks and sporting grounds for organised sport as well as active and passive recreation. Green public spaces are areas for communities to gather and form meaningful connections with their neighbours. With more people residing in apartments with no backyards, public green spaces are becoming a "shared backyard". Delivering Green Infrastructure to these areas will ensure NSW remains healthy, liveable and sustainable during this time of rapid growth.

Changing lifestyle and Demographics

Our population is not only growing, it is also getting older. By 2036, NSW's population aged over 60 will be more than 2.6 million people, an increase of 56 per cent. Another fast-growing age sector in NSW is the young. By 2036, the number of residents aged 0-19 years will have increased by more than 2.4 million people, an increase of 24 per cent.

Health expenditure is projected to increase as a proportion of GDP until 2055 (Intergenerational Report Australia 2055). With an aging population, the physical and mental benefits to society of regular engagement with the natural environment are well known and documented.

The increase in young and old populations has also shown a demand for a more compact city model, which is denser, better connected and walkable, and benefits from a mix of uses on the doorstep, facilitating better access to employment, public transport, entertainment and other opportunities.

Infrastructure and urban renewal

Government, together with the private sector, is delivering and upgrading infrastructure across NSW including transport projects, education facilities and hospitals, together with a program of urban renewal on major government-owned sites. These projects have the opportunity to create open space and to improve the quality of existing open space.

The benefits of the space between buildings is of equal, if not greater value than the building itself, as this is the connection to where most of us live, work and play. Fresh air, walking, sitting, riding, playing and living in our streets, squares, parks, riverfront, harbours and gardens is a human need.

The NSW Government's infrastructure and urban renewal projects are an opportunity for the delivery of quality Green Infrastructure. A focus on Green Infrastructure can provide efficient, innovative responses that maximise government investment. Continued investment in revitalising existing parks and improved public domains alongside the creation of new open space destinations will play a major role in all development and infrastructure projects.

Biodiversity loss

Biodiversity loss is one of the greatest threats worldwide and needs attention from policy makers at all levels. Despite the pressures of urbanisation on biodiversity, urban areas can be home to significant numbers of species, offering biodiversity protection and nature experiences for people.

Green Infrastructure planning and design seeks to contribute to biodiversity conservation, by providing habitats or establishing connections between habitats and populations. It is imperative that we support biodiversity networks from large ecosystems such as forests to networks of urban systems. Urban biodiversity is more than just threatened species, it is all the plants, animals and microorganisms that live in our cities. Biodiversity exists in our streets, our gardens, in brownfield sites and other unexpected places.

1.3 The benefits of Green Infrastructure

“A compelling body of evidence suggests that green infrastructure is not only beneficial but essential in the design and development of healthy urban environments.”

— Dr Martin Ely,
Green Infrastructure Project,
Botanic Gardens of Adelaide

Green Infrastructure is an asset to our built environment that delivers multiple social, environmental, and economic benefits. Green Infrastructure can frame and shape the growth of sustainable communities by promoting access to open space, nature, culture and sport, which will improve the appeal to visitors and the quality of life for all.

ENVIRONMENTAL BENEFITS

Improved visual amenity
Enhanced urban microclimate
Improved air quality
Reduced flood risk
Better water quality
Improved biodiversity
Reduced ambient noise
Reduced atmospheric CO₂
Improved environmental resilience
Reduced urban heat island effect
Improved connection and travel time

ECONOMIC BENEFITS

Boosting property values including house prices due to proximity to green space
Faster property sales
Encourages inward investment
Reduced energy costs via microclimate regulation
Improved chances of gaining planning permission
Improved tourist and recreation facilities
Lower healthcare costs

SOCIAL BENEFITS

Encourages physical activity
Provides more opportunities and places for children to play
Improved mental health
Creates and improves spaces for socialising, interaction and events
Improved workplace productivity
Creates opportunities for community participation and volunteering
Reduction in crime
Reduces stress
Improved childhood development
Improved quality of life and health and wellbeing
Ease of access to social, recreation and sporting activities
Improved liveability for NSW
Increased social cohesion



1.4 What this draft policy will do

Greener Places sets a framework for defining and achieving greener places for the people of NSW by:

- Advocating for greener places, spaces and outcomes
- Supporting industry and government to deliver Green Infrastructure
- Enabling effective outcomes in the planning, design and delivery of Green Infrastructure
- Raising awareness of what the NSW Government means by Green Infrastructure and its importance
- Providing clear, consistent principles to achieve Green Infrastructure throughout the development process
- Providing a framework for examining places and reviewing proposals from a Green Infrastructure perspective
- Establishing key concepts and shared terminology associated with Green Infrastructure.

Objectives of the draft policy

Greener Places aims to establish and communicate a clear NSW Government position on Green Infrastructure by establishing benchmarks for the future of our built environments. The policy will expand awareness of Green Infrastructure principles and encourage discussion of the public benefits.

The objectives are:

1. To protect, conserve and enhance NSW's network of green and open natural and cultural spaces
2. To secure a network of high quality, high performing and well-designed green space, establishing a crucial component of urban infrastructure to address the environmental challenges of the twenty-first century
3. To promote healthy living, encouraging physical activity, social cohesion, and enhancing wellbeing by providing liveable places for the NSW community
4. To create a more strategic approach to planning for Green Infrastructure, encouraging early and integrated investment through statutory planning
5. To deliver better tools for the delivery of Green Infrastructure across NSW.

Lizard log playground,
Western Sydney Parklands,
by McGregor Coxall.
Source: Simon Wood



1.5 Where Greener Places fits

Greener Places is positioned in a range of policies, at national, state, city and local government level that reference sustainable development.

At a national level, policy directions include **Smart Cities Plan 2016**, which advocates for green sustainable cities including tree coverage, green spaces and high quality urban design. This plan is important but currently have limited impact in the NSW planning system.

At a State level, while a range of State Environmental Planning Policies (SEPPs), Local Environment Plans (LEPs) Development Control Plans (DCPs) and specific public domain guides provide policy and advice on sustainable development, there is no overarching document outlining the NSW Government's position on Green Infrastructure.

Greener Places fills this gap.

Greener Places inaugurates Green Infrastructure as a fundamental consideration in the strategic planning process from a regional to local scale. This means a connection between metropolitan, district and local plans. Each plan must recognise and value assets such as National Parks, public bushland and waterways. District and local plans must value and support large and small parks, open spaces and streetscapes as integral components to Green Infrastructure

Greener Places promotes stewardship of place to ensure that nature is fully integrated into the urban fabric of any town or city. This creates a unique sense of place that enables nature to become part of everyone's daily experience.



Park and public art at Honeysuckle precinct, Newcastle by Zenscapes Landscape architects and Milne & Stonehouse.

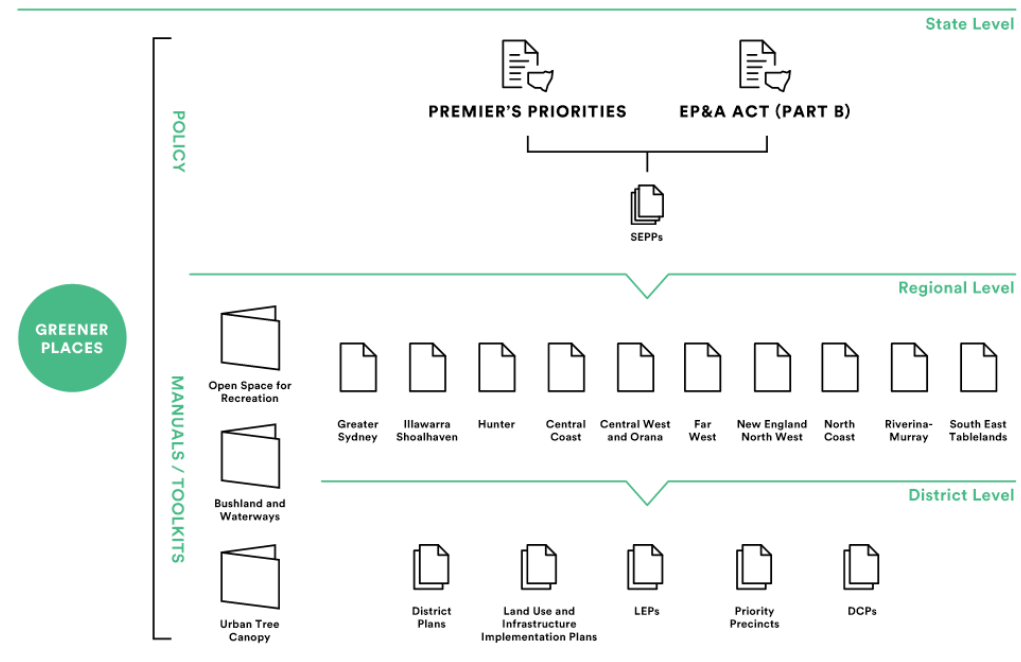
Greener Places sits alongside the strategic design policy Better Placed and provides an overarching policy context for future policies and guidelines.

Greener Places will inform a range of policies and approaches including project formation and development.

Greener Places will inform and be integrated into Regional plans and State Infrastructure Contributions strategies.

Greener Places will be useful in preparing project briefs and serve as a reference for strategic frameworks, master planning urban design, landscape architecture and architectural projects.

Strategic planning framework in NSW



1.6 How Greener Places will help

Greener Places advocates for early integration and collaboration between design, planning, funding and governance. It fosters long-term, coordinated decision-making in planning problems and processes.

It sets out principles and measurable outcomes intended to be adopted by industry and government agencies, as well as by communities who inhabit the places and spaces of NSW. The principles in this document can help guide the determination of planning applications.

Greener Places seeks to use the Green Infrastructure components that lie within our city environments and perform essential ecosystem services to create a network of healthy and attractive new and upgraded city environments, sustainable routes and spaces that build on and strengthen existing Green Infrastructure components.

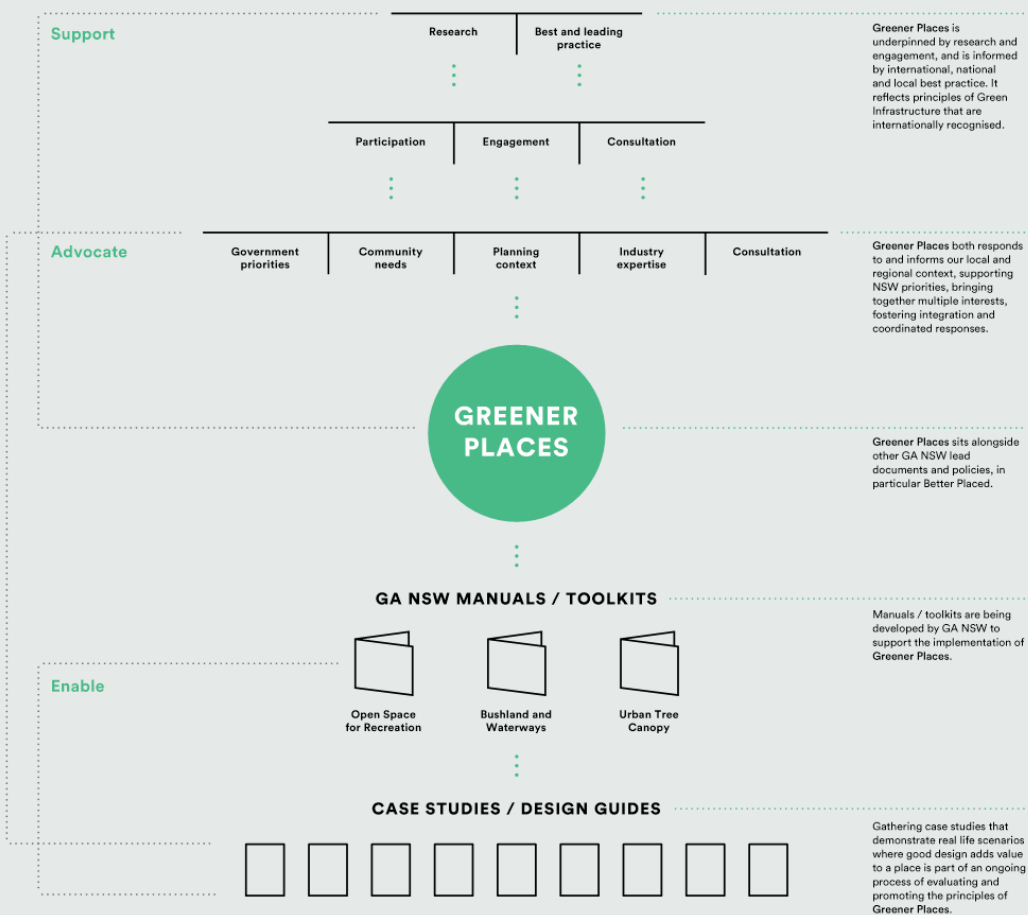
This approach will generate a range of benefits while also providing protection against the effects of climate change. They will also create an enduring legacy for future generations.

Three manuals/toolkits will describe the operational processes to implement the policy:

- **Open Space for Recreation** – Green Infrastructure for People
- **Bushland and Waterways** – Green Infrastructure for habitat and ecological health
- **Urban Tree Canopy** – Green Infrastructure for climate adaptation and resilience.

Greener Places

Greener Places is part of a suite of documents that are all about supporting and enhancing the quality of our built environment.



1.7 How to use Greener Places

Greener Places advocates for shared responsibility for Green Infrastructure in NSW. The Government Architect envisages its adoption by multiple users in NSW. It is anticipated that:

State Government can use **Greener Places** as the framework to champion Green Infrastructure across all sectors. It will provide the policy framework and tools to ensure sustainable design of State Significant Developments. The document will support strategic planning at the city scale and urban regeneration and shape planning through Regional Plans, Land use and Infrastructure Implementation Plans and Priority Precincts

Local Government can use **Greener Places** to help structure their own Green Infrastructure design and assessment policies, initiatives and toolkits

The community can use **Greener Places** to understand Green Infrastructure and how it will deliver benefits to their neighbourhoods, streets, cities and towns. They will be equipped to participate in the creation of greener spaces

Landscape architects, urban designers and design professionals can use **Greener Places** to promote the importance and value of Green Infrastructure with clients and communities. They can use the policy to support the creation of green networks in the urban environment

Developers can use **Greener Places** as a framework to support and integrate Green Infrastructure that will help create, evaluate and deliver better projects with short and long term benefits, and create value

Planners can use **Greener Places** to build skills and advocate for Green Infrastructure through both statutory and strategic planning processes

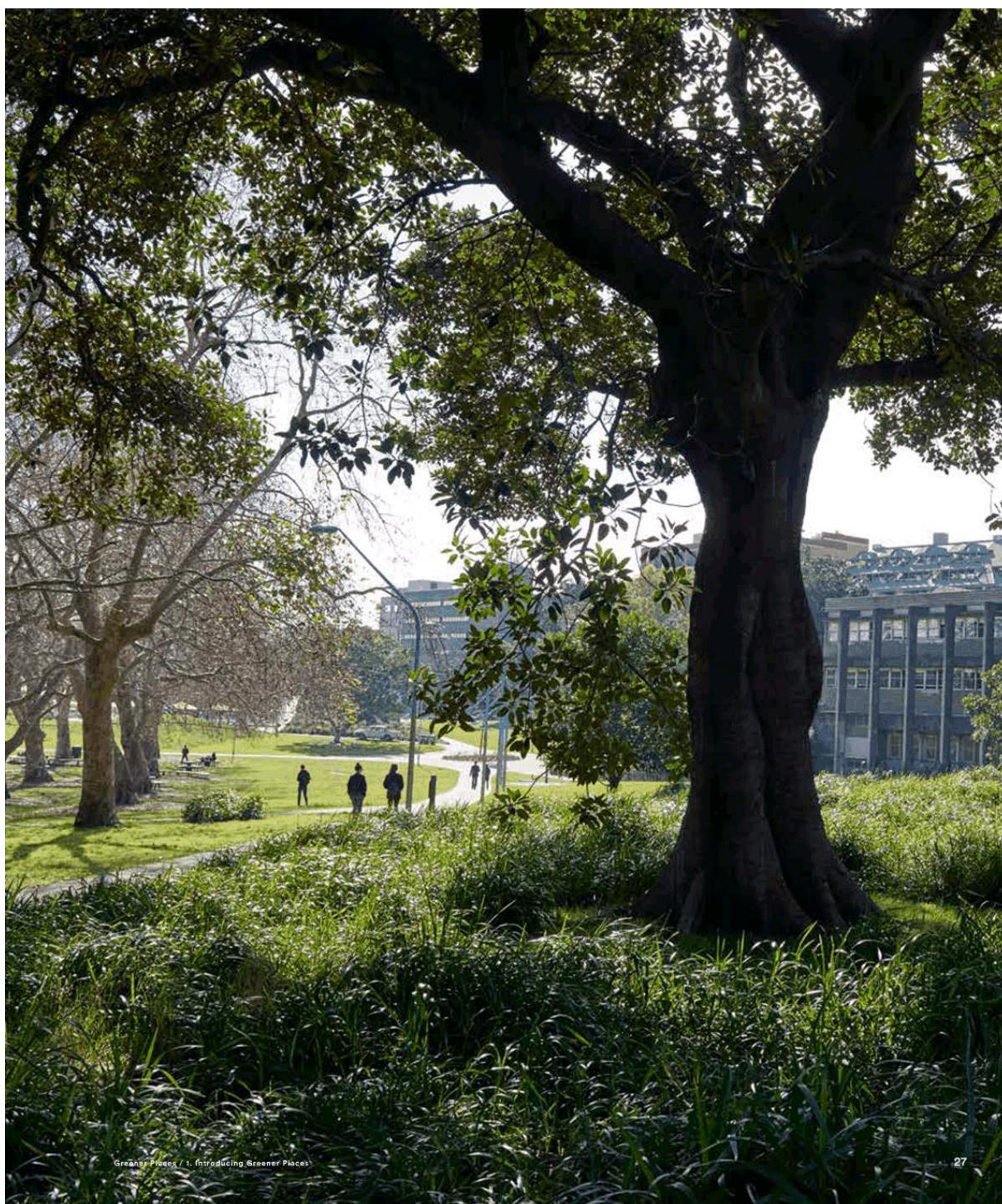
Engineers can use **Greener Places** to create stronger collaborations for engineering solutions that embody green outcomes

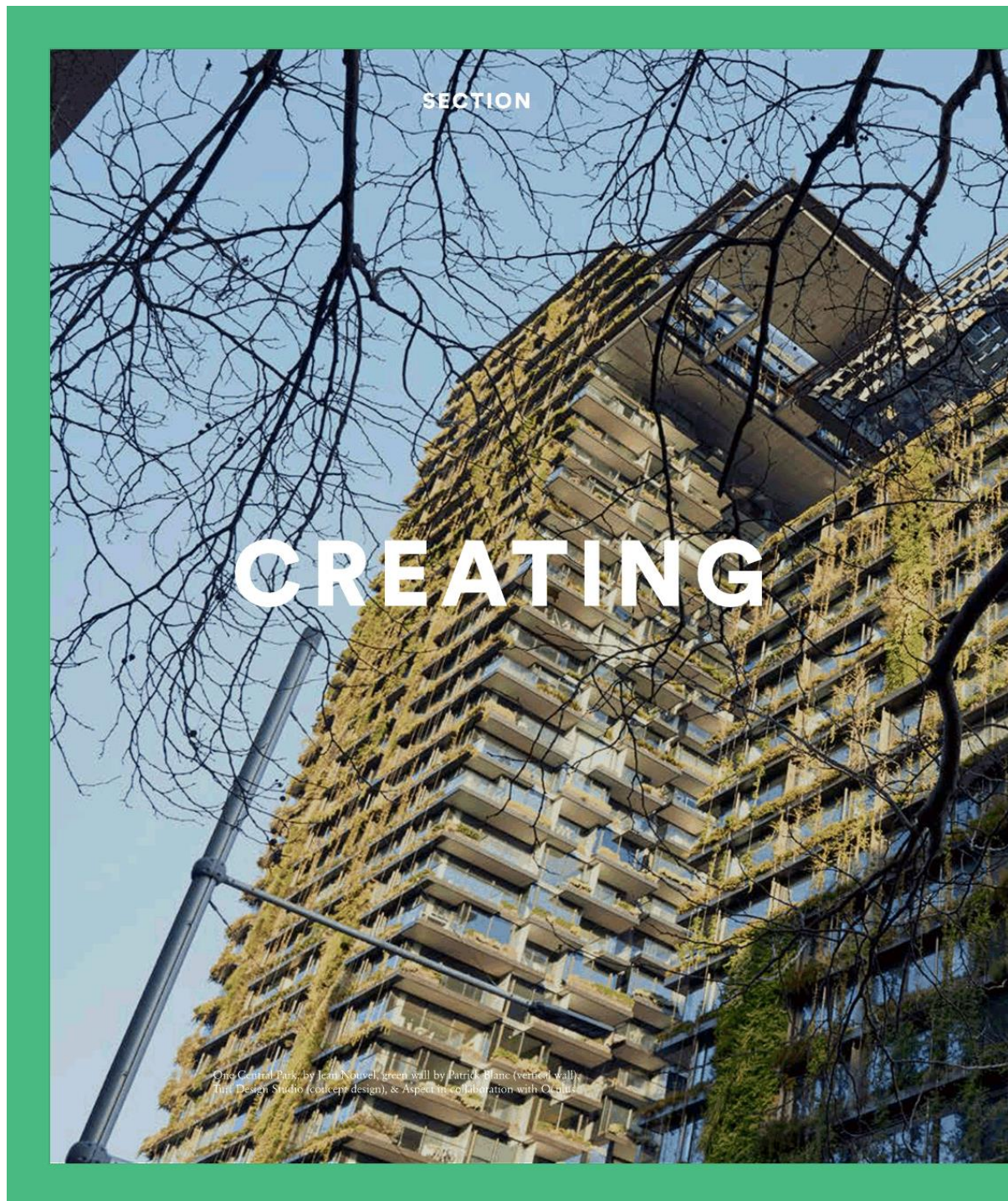
Builders can work with design teams to deliver effective project goals

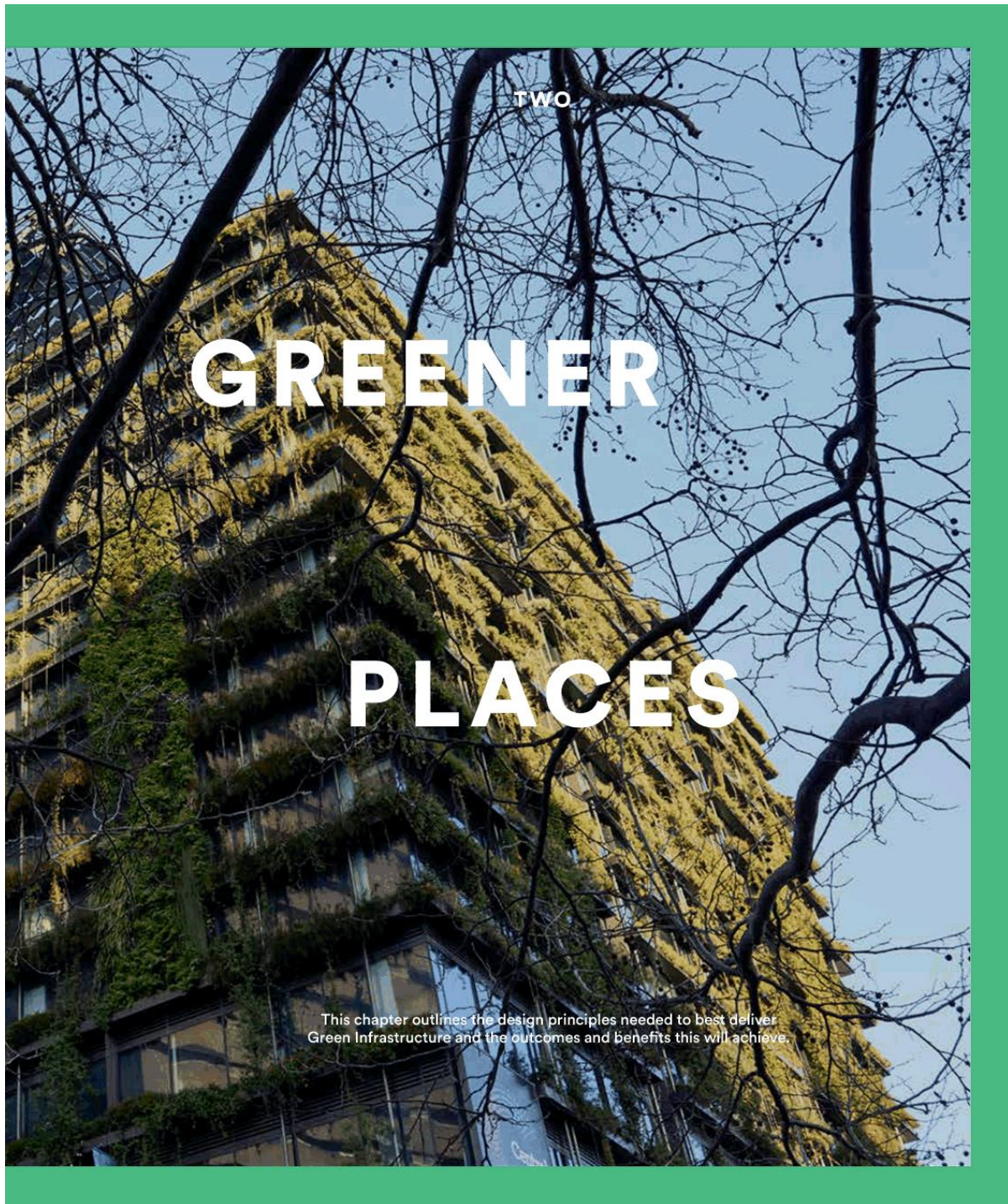
Businesses can use it to understand, support and seek Green Infrastructure components for their commercial facilities, and contribute to maintaining and looking after local Green Infrastructure interventions

Land and asset owners and managers can use **Greener Places** to understand the benefits to enhancing, maintaining and investing in new and existing green networks.

Prince Alfred Park Meadow creating biodiversity, Surry Hills by Sue Bamsley Design Landscape Architects in association with Neeson Murcutt.







2.1 Principles of Green Infrastructure

The key to better management of landscape values in cities lies in understanding how Green Infrastructure strategies can enhance the places and spaces of NSW. Greener Places makes a case for the importance of green space, how integration is essential and how greener thinking can make our cities healthier and more successful places.



PRINCIPLE 1.

Integration

combine Green Infrastructure with urban development and grey infrastructure

There is a global transition away from single purpose 'grey infrastructure' to more multi-purpose infrastructure that mimics nature, provides critical ecosystem services and promotes healthy and active living. The principle of integration proposes to combine green space with urban development and grey infrastructure.



PRINCIPLE 2.

Connectivity

create an interconnected network of open space

Greener Places promotes the creation of a network of high quality open spaces that connect with town centres, public transport hubs, rivers, creeks and employment and residential areas – creating a network of open space. The network includes physical and functional connections that benefit people and wildlife.

Greener Places proposes a design approach for urban environments that promotes nature as a driver, resulting in high performing, quality design. Designing and maintaining Green Infrastructure means a new way of thinking about urban environments. There are four principles that will help deliver Green Infrastructure in NSW:



PRINCIPLE 3.

Multifunctionality

**deliver multiple
ecosystem services
simultaneously**

Multifunctional green spaces should be high quality and high performing, producing ecological, social, environmental and economic benefits. Multifunctionality represents the ability of Green Infrastructure to deliver multiple ecosystem, environmental and other services simultaneously.



PRINCIPLE 4.

Participation

**involve stakeholders
in development and
implementation**

Participation relates to a planning process that is open to all and incorporates the knowledge and needs of diverse parties. It involves stakeholders in the development and implementation of neighbourhood, local, district and regional Green Infrastructure policies and actions.

PRINCIPLE 1.

There is a global transition away from single purpose 'grey infrastructure' to more multi-purpose infrastructure that mimics nature, provides critical ecosystem services and promotes healthy and active living. The principle of integration proposes to combine green space with urban development and grey infrastructure.

Why is this important?

Greener Places considers Green Infrastructure as being integrated with other urban infrastructure such as built form, transport infrastructure and water management systems to create high quality urban environments.

Major infrastructure projects can be a catalyst for enhanced landscapes through Green Infrastructure investment. Integrated Green Infrastructure planning can contribute positively to air and water quality, energy use and biodiversity.

Design actions

- a. Ensure and facilitate the integration of green and grey infrastructure to create urban communities that deliver quality of life to residents and the community
- b. Combine green-grey aims by understanding physical and functional synergies between urban green space and other infrastructure (eg: built form, water supply, transportation, waste water)
- c. Understand and implement wider environmental, social, and economic benefits from green-grey integration
- d. Use knowledge from different disciplines and sectors, and cooperate to deliver integrated green-grey approaches
- e. Balance recreational and functional requirements of parks with greening objectives to increase canopy cover

Integration

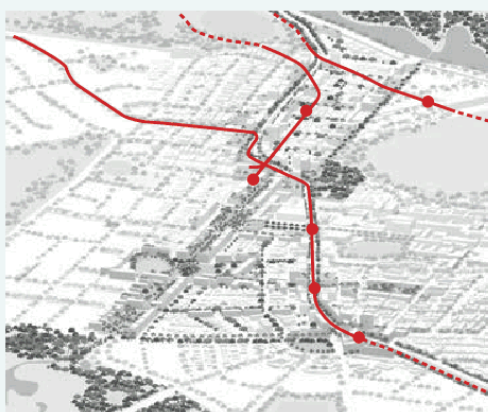
Diagram indicating components that can be integrated across a Green Infrastructure network. The diagram below is based on the winning K2K competition entry by Hill Thalix, Bennett and Trimble, James Mather Delaney.



Stormwater Harvesting - Rejoin Ponds and Wetlands



Green Links, Parks and Street Tree Planting



Public Transport Infrastructure



Public Spaces Cycleways Pedestrian

PRINCIPLE 2.

Greener Places promotes the creation of a network of high quality open spaces that connect with town centres, public transport hubs, rivers, creeks and employment and residential areas – creating a network of open space. The network includes physical and functional connections that benefit people and wildlife.

Why is this important?

Achieving connectivity will ensure that the contributions of green spaces are optimised. This network aims to anchor sustainable development while maximising health and wellbeing.

Linkages are fostered through enhancing existing assets, creating green spaces that will keep the city cool, encourage healthy lifestyles, enhance biodiversity and ensure ecological resilience.

Connectivity will provide access between places, encourage walking and cycling, highlight landscape and heritage, and support local economies. By providing informal places for people to visit and interact, social capital is created. Future investment in parks and recreation will play a vital role in Sydney's ability to attract business and create jobs.

Design actions

- a. Consider green space networks at multiple scales – including regional, city and local
- b. Investigate and enhance physical and functional connections between different green spaces to create an interlinked system – the whole is greater than the sum of its parts
- c. Design networks that serve humans and wildlife. Link physical sites that support ecological and social connectivity
- d. Enhance ecological connectivity through the restoration and conservation of urban ecology through regulating water flow or climate functions
- e. Enhance connections to recreational trails, particularly in and around high-density precincts
- f. Increase planting along stormwater, gas and power easements, main roads and rail corridors
- g. Enhance streets by planting alongside all available footpath locations

Connectivity

Disused railroads have provided an opportunity for new public space in many cities around the world. Rail lines have been transformed into urban parks with multifunctional uses that provide new spaces in the city, as well as connecting people along a pathway.



The High Line, New York City by James Corner Field Operations, with Diller Scofidio + Renfro

An elevated linear park created on a disused railroad. The success of this project has pushed cities to re-imagine obsolete infrastructure as public space. Source: Novak Hunsky. www.flickr.com/. <https://creativecommons.org/licenses/by-nc/2.0/au/legalcode>.



The 606, Chicago, by Michael Van Valkenburgh Associates

The 606 is a former east-west railway line known as the Bloomingdale line, Chicago. The new design brings together arts, history, trails for cyclists, runners and walkers, event spaces, alternative transportation avenues and green open space for the community. Source: John Zacherle. www.flickr.com/photos/jkz/18533188342 <https://creativecommons.org/licenses/by-sa/2.0/legalcode>.



The Goods Line, Ultimo by Aspect Studio

A green open space connection utilising a disused rail line from Central Station through to Chinatown and Darling Harbour as well as connecting to UTS, The ABC and Sydney TAFE. Source: Florian Groehn.



The West Toronto Rail Path, Toronto by Scott Torrance Landscape Architect Inc. with Brown+Storey Architects Inc.

Phase 1 of a multi-use trail utilising a disused rail line, developed and funded by the City of Toronto, for bicycle and pedestrian use by local area residents. Source: Sam Carriere. www.flickr.com/. <https://creativecommons.org/licenses/by-nc/2.0/legalcode>.

PRINCIPLE 3.

Multifunctionality

Multifunctional green spaces should be high quality and high performing, producing ecological, social, environmental and economic benefits. Multifunctionality represents the ability of Green Infrastructure to deliver multiple ecosystem, environmental and other services simultaneously.

Why is this important?

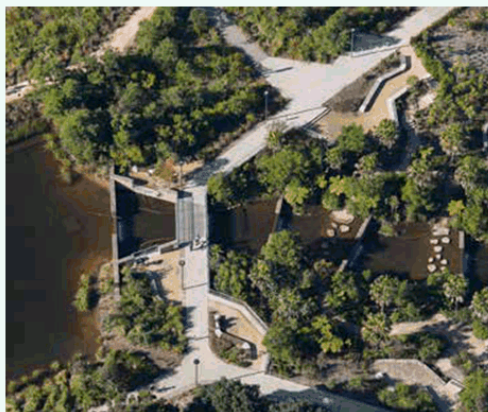
Green Infrastructure projects can deliver multiple objectives; they can frame and shape the growth of sustainable communities to strengthen their image and identity; they help cities to adapt to climate change by reducing flood risk and overheating; they promote access to open space, nature, culture and sport, improving the offer to visitors and quality of life for all.

Design actions

- a. Understand and support the development of multifunctional landscapes that offer ecological, socio-cultural and economic benefits
 - b. Determine a clear understanding of user needs and demands to understand the requirements for multifunctionality
 - c. Design spaces that foster interaction and stewardship, community identity, sense of connectedness and community capacity
 - d. Recognise the value of existing landscape performance via improved connectivity, stormwater management, flood mitigation, biodiversity, and environmental quality
 - e. Ensure that the parks within our cities contribute to the value and understanding of place
 - f. Create open space as part of urban renewal that connects and enhances the new project through high quality, high performing green space
 - g. Use the value of public art by integrating public art into green projects
-

Multifunctionality

Sydney Park is an exemplar for multifunctional design, incorporating water re-use initiatives, recreation activities, public art, biodiversity, and community gardens into the wider masterplan, and also in each individual area as designated below.



Sydney Park Water Re-Use Project by Turf Design Studio & Environmental Partnership

One of City of Sydney's largest environmental projects to date, built in partnership with the Australian Government through the National Urban Water and Desalination Plan. This project showcases water re-use, recreation, biodiversity and habitat all integrated within the physical fabric of Sydney Park. Source: Ethan Rohloff Photography.



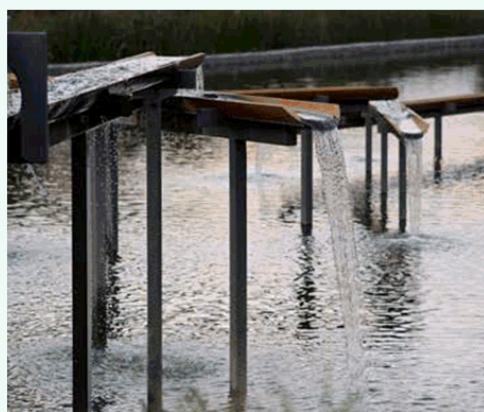
Sydney Park Children's Bike Track by Turf Design Studio & Environmental Partnership

This adventure-style bike track moves away from the conventional bike track layout and shifts the focus towards play and learning to ride. It incorporates barbecue and picnic areas, a refueling station, new trees and planting areas. Source: Turf Design Studio.



Sydney Park Playground by JMD Design

The playground design enhances passive and active play and learning opportunities within the park, while also considering the park's overall ecological and hydrological function. Source: Brett Boardman.



Water Falls, by Turpin + Crawford Studio

Part of the Sydney Park upgrade, water falls in an integrated environmental artwork, and part of the Sydney Park Stormwater Harvesting plan. The artwork recycles water throughout the wetlands, piping water through the sculpture and into the pond below. Source: Ian Hobbs Media.

PRINCIPLE 4.

Participation relates to a planning process that is open to all and incorporates the knowledge and needs of diverse parties. It involves stakeholders in the development and implementation of neighbourhood, local, district and regional Green Infrastructure policies and actions.

Why is this important?

Better solutions often appear when a diverse set of people participate. Embracing diversity and collecting knowledge, opinions and perspectives from a wide range of users such as community, workers, and visitors will provide more balanced, and inclusive solutions for communities.

Greener Places advocates for community involvement as well as participation across government agencies including at state and local levels. Creating a network of Green Infrastructure requires collaboration from multiple agencies and user groups. Shared knowledge and resources will benefit the long-term planning of green networks throughout NSW.

Design actions

- a. Enable as many different government and community groups as possible to contribute in design and planning processes for Green Infrastructure projects
- b. Discover and balance the interest of many different stakeholders to maximise the benefits of proposed green space
- c. Improve equity of access to green space services by considering the needs, values, motivations, uses and barriers to engagement with various cultures and user groups
- d. Encourage the use of currently underutilised open space corridors for local community use
- e. Create accessible spaces for all members of our community, such as inclusive playgrounds. Inclusive playgrounds are designed to respond to the need for recreational opportunity for all people regardless of differences in abilities, age, gender or culture. Each playground represents a unique opportunity to enhance outdoor recreational experience for the whole community

Participation

There are many ways participation can be incorporated in planning for Green Infrastructure, including creating places for community gathering, stakeholder workshops, community facilities and community consultation.



Creating places for community gathering

Spaces that promote equity of access create community value. Civic Park, Newcastle.



Stakeholder workshops

Embrace diversity and collect knowledge, opinions and perspectives from a wide range of user groups. The best solutions often appear when a diverse set of people with disparate views collaborate. Source: NSW ARB.



Community facilities

Engage the community and observe culture, habits, and lifestyles. Lizard Log Playground, Western Sydney Parklands, by McGregor Coxall. Source: Simon Wood.



Community consultation

Involve relevant stakeholders and communities, and consult widely within a variety of disciplines.

2.2 Outcomes

What will an integrated, connected and multifunctional Green Infrastructure network look like?

The following projected outcomes will assist in the assessment of design proposals and are applicable at any scale, from and address the range of issues and considerations that should be taken into account when making decisions about development.

Conservation of the natural environment

- Protection and enhancement of natural resources and biodiversity by improving the quality of watercourses, creating green habitat corridors and protecting endangered ecological communities
- Promotion of social, cultural, recreational and educational opportunities within natural, cultural and heritage landscapes.
- Restoration and enhancement of wetland habitats and increased accessibility to them
- Creation of new ecologies that support biodiversity such as constructed wetlands and green roofs.

Increased access to open space

- Improved connections to regional destinations, foreshores, beaches and bays and continued investment in major parks and associated Green Infrastructure
- New open space allocation forms a part of urban renewal projects, infill development and infrastructure projects
- Equitable distribution of open space forms the basis for a well-connected and accessible network as well as ongoing investment in high quality parks and public domain
- Quantity, quality, distribution and accessibility of green space enables the delivery of multifunctional open spaces that promote healthy lifestyles
- Provision of a diverse range of outdoor space for cultural, educational and community activities, including productive landscapes
- Provision of high performing open spaces which foster synergies between recreation, climate change adaptation and biodiversity conservation.

Improved connectivity to promote active living

- Improvements to the public domain that promote exercise and alternative modes of transport such as walking, cycling and jogging
- Protection of priority green corridors that create a network of walking trails, cycle paths and open spaces along river and creek corridors
- Enhanced connections to the Green Grid, particularly in and around high-density precincts.

Increase urban greening to ameliorate climate extremes

- Resilient built environments created through co-ordinated planning and design of green cover strategies including street trees, green walls and roofs, canopy trees, cool pavements and water sensitive urban design
- Green cover to keep our cities cool while providing benefits such as improved amenity, comfort, health, reduced stormwater runoff, improved air and water quality and energy and resource efficiency
- Promotion of the development of underused open space corridors for local community use such as community gardens.

Civic Park, Newcastle







3.1 Implementation

An integrated, connected and multifunctional Green Infrastructure network is a complex system of parts. Effective delivery requires a clear implementation plan which involves all stakeholders and identifies statutory requirements, actions and funding streams.

Integrating Green Infrastructure into the NSW strategic and statutory planning framework is considered essential, but this alone will not ensure delivery of outcomes. A collaborative and appropriately funded approach is needed.

Effective implementation will require:

- **Statutory measures** – the final Greener Spaces policies should operate within the strategic planning framework established in the Environmental Planning and Assessment Act 1979. Its consideration should be an early and mandatory component of the strategic growth and infrastructure planning undertaken by State agencies and local councils
- **Collaborative action** – a collaborative approach between government, stakeholders and communities will ensure greater understanding of the importance of Green Infrastructure, ownership of the policy and commitment to delivery of its intended outcomes

- **Funding** – existing and future funding mechanisms need to be linked and enhanced as required to ensure identified actions are delivered in a coordinated manner by the most appropriate stakeholder.

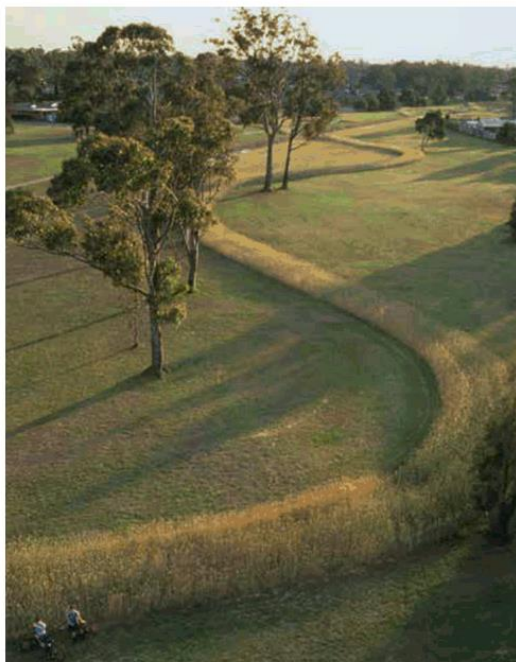
It is important to note that Greener Places is not a 'one-size-fits-all' approach. While it seeks to mandate integrated planning for sustainable Green Infrastructure outcomes, it also provides the tools for local government, relevant agencies and other stakeholders to develop strategies, in collaboration with their communities, that are appropriate to location and circumstance. This will build on the very substantial amount of work already undertaken by many NSW councils.

**Restoring the Waters Creek Restoration by
Schaffer Barnsley Landscape Architects with
Turpin Crawford Studio**

The reinstatement of a natural creek system through the removal of a concrete storm water channel has vastly improved the waterway's ecological value and amenity for the local community while still providing flood protection.



The existing concrete storm water channel.



The 'Memory Line', a three kilometer living land art installation that followed the original line of Clear Paddock Creek. As an analogy for the waterway, the community could watch it grow and change over time to build appreciation for natural processes and the benefits of their reinstatement.



Three years on, the Clear Paddock Creek restoration area appears close to its original natural state.

3.2 Statutory measures

It is proposed to implement Greener Places through a package of reforms to existing strategies and policies.

Fundamental to the success of implementation is a shift in thinking so that Green Infrastructure is considered essential infrastructure making it part of up-front strategic land-use and infrastructure planning undertaken by the Department of Planning and Environment, Greater Sydney Commission, other agencies and councils.

Proposed statutory reforms include:

- Inclusion of Green Infrastructure strategic planning outcomes and requirements in regional plans (including the Greater Sydney Regional Plan) and district plans with Green Infrastructure considered as essential infrastructure
- Inclusion of Green Infrastructure in Land Use and Infrastructure Plans, Priority Precincts and with funding through Special Infrastructure Contributions (SICS) where appropriate
- Issue of manuals, toolkits, planning circulars and planning practice notes providing advice to councils and other stakeholders about the requirements for preparing open space strategies, urban bushland and waterway strategies and urban canopy cover strategies, in accordance with Green Infrastructure, and providing advice about preparation of planning proposals and LEPs to give effect to regional and district plans
- Monitoring and reporting of **Greener Spaces** outcomes and projects through the Department's People and Places dashboard, using State and local government data and ongoing audits of open space, urban bushland, waterway health and urban canopy cover
- Development of model council DCP clauses regarding Greener Places requirements to assist councils in implementing the requirements of the policy and related guidelines at the local level.

Civic Park, Newcastle.

3.3 Collaborative government action

Collaborative action will be required to ensure Green Infrastructure is integrated, connected and multifunctional, and that all affected stakeholders participate in implementing the policy.

Green Infrastructure outcomes must be accessible and protect and enhance environmental assets and build resilient communities. Collaborative action will facilitate these outcomes. Indicative, high level actions are set out based on the four principles of Green Infrastructure. These will be refined with more detailed actions through the consultation process.

A series of workshops with government agencies, peak bodies and all relevant stakeholders will be held in order to:

- Finalise the key **actions** for implementation of the Greener Places policy
- Assign relevant **outcomes** for each action in order to measure and evaluate
- Assign **lead agencies** to instigate policy actions
- Identify **partners** who will work with lead agencies to instigate collaborative change.



3.4 Enacting Principles



PRINCIPLE 1.

Integration - combining Green Infrastructure with urban development and grey infrastructure.

Develop a design led approach that facilitates multi-agency cooperation.

Develop legal and political mandates for grey and green integration.

Integrate the Green Infrastructure policy framework into the NSW Strategic Planning Framework including Regional, District and Land Use and Infrastructure and Strategic Implementation Plans.

Align the Green Infrastructure network with NSW infrastructure and urban renewal initiatives, particularly longer-term transport plans.

Collaborate with water authorities to maximise the opportunity to deliver Green Infrastructure benefits along waterways and stormwater channels.

Work across government agencies to incorporate Green Infrastructure in all major urban renewal plans and priority growth areas.

Ensure that strategic plans recognise and support natural assets such as National Parks, public bushland and waterways.

Minimum ISKA rating for federally and state funded projects to encourage a global standard of integration of natural and physical infrastructure.

As highlighted in Section 2.1, there are four principles that will help deliver Green Infrastructure in NSW and these are supported by detailed actions.



PRINCIPLE 2.

Connectivity – creating an interconnected network of open space

Ensure co-operation with all stakeholders to deliver equitable access to regional, district and local open space.

Encourage alternative modes of transport such as walking, cycling and jogging both in urban areas and along river and creek corridors through improvements in the public domain and priority green corridors.

Protect and improve priority green corridors.



**PRINCIPLE 3.**

Multifunctionality – delivering multiple ecosystem services simultaneously, as well as providing added value, and improved health and wellbeing.

Work with state agencies, local councils and other stakeholders to combine different Green Infrastructure functions to enhance the capacity of urban green space to deliver multiple benefits for humans and wildlife.

Ensure that the quantity, quality, distribution and accessibility of green space enables the delivery of multifunctional open spaces that meet community needs, promote active and passive recreation, flood and stormwater management and biodiversity improvements.

Ensure that urban renewal facilitates 'multifunctional thinking' to improve green space quantity and quality in dense areas, to meet multiple needs such as ecological functions, and social needs.

**PRINCIPLE 4.**

Participation – the involvement of stakeholders in the development and implementation of neighbourhood, local, district and regional Green Infrastructure policies and actions.

Develop design led planning processes that empower communities through collaborative design processes and public participation design.

Develop consultation processes which engage a broad section of the community, with a special emphasis on vulnerable communities including young people, women and minority groups.

Develop open space strategies in every local government area to ensure equity of access to green space for all social groups.

Encourage community involvement with projects at a neighbourhood level to engage citizens to take action in their direct surroundings and strengthen social cohesion.

3.5 Funding

Identification, integration and coordination of funding streams from federal, state and local government sources will be essential to deliver a Green Infrastructure network for NSW.

Existing Green Infrastructure funding sources include:

- **Grant programs**
- **Council Section 94 contributions plans**
- **Special Infrastructure Contributions (SIC)**

There are multiple grant programs for differing purposes (acquisition of land for open space and linkages, embellishment of open space, sporting facilities, cycleways, biodiversity enhancement, water quality enhancement, bush regeneration etc) run by state government agencies, local councils and NGOs.

The Department will conduct an audit of all existing funding programs to understand their extent, purpose, triggers and timing to identify potential opportunities for coordination, and gaps.

Embedding Green Infrastructure as essential infrastructure in the NSW Strategic Planning Framework facilitates improved coordination of funding programs across regions and districts.

New or enhanced funding streams will be investigated. The Department will work with state agencies and service providers to re-direct existing grey infrastructure funding to Green Infrastructure alternative solutions, where they can be shown to be better performing by providing multiple benefits.

In conjunction with the Office of Environment and Heritage, the Greater Sydney Commission and selected councils, the Department will undertake pilot urban canopy projects and greenspace linkage projects, with a view to rolling similar projects out across Greater Sydney and other regions.

Stakeholders for Green Infrastructure funding include:

- State government agencies
- Councils
- Industry and peak bodies
- Private sector.

Key existing NSW Government funding programs include:

- The Metropolitan Greenspace Program
- Environmental Trust grants program
- Sydney's Walking future and Sydney's Cycling Future programs.

3.6 Monitoring and reporting

Monitoring and reporting of policy outcomes is essential. Monitoring and reporting will be achieved through mandatory reporting on implementation of regional and district plans and LEPs, and through the Department's People and Places dashboard.

Embedding Green Infrastructure delivery into the NSW strategic planning framework means it becomes part of the regular and mandatory monitoring and reporting of strategic plans. For example, standard review mechanisms for regional plans include:

- **An Annual Monitoring Report** – to report progress on goals, directions and actions
- **Regional plan review** – every 5 years or as necessary, to review goals, directions and actions. The Reviews are informed by the annual monitoring reports
- **An annual implementation plan update.** Every regional plan has an associated implementation plan that identifies priorities and timing for actions - and immediate, short, medium and long term.

Similar monitoring and reporting mechanisms are being developed by the Greater Sydney Commission for the district plans, to be finalised by the end of 2017.

The Environmental Planning and Assessment Act 1979 (EP&A Act) requires that LEPs give effect to district plans. When district plans are finalised, each local council in Greater Sydney must prepare a report identifying what planning proposals will be prepared for relevant district actions and priorities. The NSW Government has recently exhibited proposals for amendments to the EP&A Act that will require review of LEPs every 5 years at a minimum. Therefore, new zonings of land for Green Grid and Green Infrastructure

purposes will be monitored as council LEPs are updated to give effect to finalised regional plans and district plans.

Data to be displayed on the Department's People and Places dashboard could include:

- Live Green Grid mapping of information displayed in **A Plan for Growing Sydney and District Plans**
- Known urban canopy coverage and changes and trends in open space provision urban bushland and waterway health and urban canopy coverage by LGA, district and region
- Information on priority and other projects identified in the District Plans, as they are delivered to form linkages and extend the Green Grid
- Monitoring and reporting on grant allocations from multiple Green Infrastructure funding programs.

The Greater Sydney Commission has responsibility for monitoring and reporting on the Greater Sydney regional plan and district plans.

3.7 Next steps

Delivering on this draft policy.

The Government Architect NSW has been charged with leading and delivering initiatives and strategies that will promote well planned Green Infrastructure for NSW.

This work includes:

Establishing a Green Infrastructure design policy for NSW (**Greener Places** is the draft for consultation) that will provide framework, principles and guidelines for open space and recreation, bushland and waterways and the urban canopy

Establishing a range of design standards, design guidance and design manuals to support good design practice and outcomes for Green Infrastructure

Working across government to embed the principles of this draft policy into all relevant policy areas and decision-making processes.

The Government Architect will consult with a range of stakeholders on this draft of **Greener Places** and will review the feedback before finalising the policy in early 2018.

The final policy will include a detailed plan for implementation with actions, timelines and responsibilities and evaluation and monitoring measures and will address a range of funding options with recommendations to ensure the delivery of **Greener Places**.

Civic Park, Newcastle



SECTION FOUR

GLOSSARY

Greener Places sets a standard for the whole of NSW. Key terms of this policy have been defined to ensure consistent language of Green Infrastructure for NSW.

B

Built environment	comprises the extent of our human-made environment, as distinguished from the natural environment. It includes all aspects of our surroundings made by people that provide the place for human activity. The built environment can be understood to include cities and towns, neighbourhoods, parks, roads, buildings and even utilities like water and electricity.
--------------------------	--

C

Case study	a specific building, place or space that has been researched and analysed in order to demonstrate and evaluate its worthiness. A case study can assist in the design of new spaces by understanding best practice as well as lessons learned.
Connectivity	creating an interconnected network of open space
Context	the physical, social, cultural, economic, environmental and geographic circumstances that form the setting for a place or building.
Contextual	a building, place or space that responds to the context in which it is designed.

E

Equitable	a built environment that is fair and accessible for all citizens.
------------------	---

G

Greater Sydney Dashboard	is an interactive digital tool that will provide access to key indicators that measure and monitor change across Greater Sydney. It will provide a dynamic view of the current state of play for Greater Sydney on key issues such as jobs and housing to help us understand how we are performing against the directions and strategies in the Greater Sydney Regional Plan and the priorities and actions in the District Plans.
Greater Sydney	is defined as the 33 local government areas of Bayside, Blacktown, Blue Mountains, Burwood, Camden, Campbelltown, Canada Bay, Canterbury-Bankstown, Cumberland, Fairfield, Georges River, Hawkesbury, Hornsby, Hunters Hill, Inner West, Ku-ring-gai, Lane Cove, Liverpool, Mosman, Northern Beaches, North Sydney, Parramatta, Penrith, Randwick, Ryde, Strathfield, Sutherland, and The City of Sydney.
Green Grid	strategic planning document for the greater Sydney region, and a precursor to the Greener Places policy comprising a cohesive map of green assets across metropolitan Sydney.
Green infrastructure	describes the network of green spaces and water systems that deliver multiple environmental, economic and social values and benefits to urban communities. Refer to Section 1.1 of this document for entire definition.
Green space	an area of grass, trees, and other vegetation set apart for recreational or aesthetic purposes in an urban environment.

Glossary

Grey infrastructure	refers to the human-engineered infrastructure for water resources such as water and wastewater treatment systems, piped drainage and reservoirs.
H	
Healthy	a place or space that promotes positive social, emotional and physical health for its people.
High performing green space / high quality green space	are multifunctional spaces designed to produce concurrent ecological, social, environmental and economic benefits.
I	
Integration	combining green space with urban development and grey infrastructure.
L	
Liveable	a built environment which supports and responds to people's patterns of living, and is suitable and appropriate for habitation, promoting enjoyment, safety and prosperity.
M	
Manual	an instructive document to direct how an action is best performed.
Master plan	a framework document showing how development will occur in a given place and includes building parameters like height, density, shadowing and environmental concerns. It is a visual document that details a clear strategy or plan for the physical transformation of a place, supported by financial, economic, and social policy documents which outline delivery mechanisms and implementation strategies.
Mitigating flooding	the planning, management and control of flood water movement by redirecting flood run-off, that can include physical structures as well as utilising natural assets for landscape retention and catchment management.

Multifunctionality	the ability of Green Infrastructure to deliver multiple ecosystem services simultaneously, providing added value, and improved health and wellbeing.
O	
Open space	land that has no buildings or other built structures, which is accessible to the public, including green space.
P	
Participation	the involvement of stakeholders in the development and implementation of neighbourhood, local, district and regional Green Infrastructure policies and actions.
Place	is a social and a physical concept – a physical setting, point or area in space conceived and designated by people and communities. In this sense, place can describe different scales of the built environment – for example, a town is a place, as well as a building can be a place.
Place-making	proposes a multi-faceted approach to the planning, design and management of public spaces. 'Place-making' looks at understanding the local community with the intention of creating public spaces that promote health and wellbeing.
Precinct	a designated area within real or perceived boundaries of a specific building or place. A precinct can be of different scales and usually responds to a study area of a particular place.
Priority Growth Areas	The Priority Growth Areas Greater Sydney are identified by the NSW Government as major greenfield development areas. Information about Priority Growth Areas is available at http://www.planning.nsw.gov.au/
Priority Precincts	areas that have a wider social, economic or environmental significance for the community or have redevelopment potential on a scale that is important in implementing the State's planning objectives. Priority Precincts are envisaged as larger areas, usually made up of multiple land holdings, capable of delivering significant additional growth and requiring coordination from State and local governments to realise their potential.

Glossary

Public realm is the collective, communal part of cities and towns, with shared access for all. It is the space of movement, recreation, gathering, events, contemplation and relaxation. The public realm includes streets, pathways, rights of way, parks, accessible open spaces, plazas and waterways that are physically and visually accessible regardless of ownership.

Q

Quality the standard of something, measured comparatively against things of a similar kind.

R

Resilient place or space that can withstand or recover from difficult conditions.

S

Scale the relative size or extent of something – scale is a device used to quantify objects in a sequence by size; for example a city scale, or a building scale. In architecture, scale is also used to describe a ratio of size in a map, model, drawing, or plan.

Spatial framework is a design and research document that is produced to provide background understanding and analysis to a particular area or place. It is completed prior to traditional design stages or master plan phases of a project. The framework follows a process of analysis, data collection and reporting in order to propose a delivery strategy and vision for the area being analysed.

State Environmental Planning Policy (SEPP) is a statutory plan, typically prepared by the Department of Planning and Environment and endorsed by the Minister for Planning. It can be a spatial plan for particular land in NSW, and/or it can set policy which applies to particular land or all land in NSW.

Strategic plan document that guides the implementation of a strategy for a particular area.

Statutory plan is part of the planning process that is concerned with the regulation and management of changes to land use and development.

Sustainable relates to the endurance of systems, buildings, spaces and processes – their ability to be maintained at a certain rate or level, which contributes positively to environmental, economic and social outcomes.

U

Urban canopy the layer of leaves, branches, and stems of trees that cover the ground when viewed from above.

Urban forest the layer of trees and tree populations that exist in urban settings.

SECTION FIVE

GOVERNMENT
ARCHITECT
NEW SOUTH WALES

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The Government Architect provides strategic design leadership in architecture, urban design and landscape architecture. In this role, the Government Architect supports the NSW Government in delivering quality, managing risk and fostering innovation to maximise public value in the built environment.

The role of the Government Architect is critical in helping deliver good design and planning outcomes across all projects in NSW. This strategic advisory role provides an opportunity to work across government, the private sector and the community to improve social, environmental and economic outcomes for NSW and its communities.

The Government Architect is charged with championing the **Greener Places** initiatives and supporting government agencies and local government to create and deliver high quality architecture and design outcomes..

The responsibilities of the Government Architect are to:

Champion good design and the importance of great places.

Establish policy and practice guides for achieving good design.

Champion design excellence processes for government.

Provide independent, professional and impartial strategic advice particularly for the delivery of public projects, to:

- Cabinet and senior government executives
- Government departments and agencies
- Local government
- Industry and community.

Promote and advocate the value and benefits of good design by:

- Ensuring government has the ability to make informed design decisions
- Developing, supporting and leading design-led processes and building capability

- Strategic commissioning, including ongoing management of the **Government Architect's Pre-qualification Scheme for Strategy and Design Excellence**
- Working to support and better educate industry on the value of design
- Providing advice on performance, procurement and commissioning
- Publishing design guides, case studies and other supporting documents
- Partnering with others to ensure that the objectives of good design are reflected in their processes, policy and project delivery
- Leading the Design Review for important public urban renewal, precincts and buildings.

Undertake research and provide thought leadership on design and the built environment.

Communicate the benefits of good design and design-based processes.

Foster collaborative approaches to improving design across government, with industry and academia.

Support and promote the development of pilot projects that demonstrate the benefits of good design.

Create a culture of learning and share global best practice that tackle design challenges facing NSW.

Support and nurture a culture of good design and great places together with the sharing of local and global best practice.

Government Architect NSW is supporting:

Good design in the built environment

Enabling built environment interventions and developments to contribute to greener places for NSW cities and towns through improved design standards and quality in urban precincts, buildings and spaces.

These projects will be:

- **Healthy** for all members of our communities
- **Responsive** to local context
- **Integrated** with the place, public realm, natural environment and use patterns
- **Equitable**, welcoming and accessible for all
- **Resilient** and adaptable to future change.

Better design processes for projects

Encouraging all new interventions to employ good design, through application of the design objectives outlined in this policy, and effective design and procurement methodologies by:

- Providing a framework to influence creation, governance, appraisal and assessment of projects
- Providing guides for delivery including methodologies (e.g. strategic frameworks), as well as building upon existing design review and advisory processes
- Fostering design thinking, reframing problems, identifying opportunities, and testing scenarios and options early in project and planning processes.

Capacity building

Creating enhanced awareness of the role and value of design, and equipping local authorities and communities with the tools, guidance and references to encourage and demand well-designed urban environments by:

- Fostering a change in design culture – design is not an 'optional extra', but essential from vision to conception to project completion
- Creating a common language for design understanding, review and advice in consistent terms
- Empowering others to champion design and influence the creation of great places.

A stronger design culture and active engagement

Encouraging community interest, participation and investment in better design, planning and development, raising awareness and expectations relating to design, facilitating better design, and supporting advocacy for better outcomes by:

- Encouraging the building industry to communicate and collaborate with local communities
- Providing an informative website where information about design and processes are accessible to all
- Surveying communities to understand their thoughts on design, and to raise awareness about design
- Providing case studies where successful design processes and outcomes have been achieved, so the NSW community can be proud of their great places.



Through a series of collaborative events and conversations, Government Architect NSW promotes public conversations about the value of good design.



SECTION SIX

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SECTION SEVEN

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Special thanks

Government Architect NSW
would like to thank the following
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and support in the development
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GA



Nsw

Establishing an urban Green Infrastructure
policy for New South Wales



Integration
combine Green Infrastructure
with urban development and grey
infrastructure



Connectivity
create an interconnected
network of open space



Multifunctionality
deliver multiple ecosystem services
simultaneously



Participation
involve stakeholders in development
and implementation

GOVERNMENT
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NEW SOUTH WALES





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PLANNING PROPOSAL

FOR

3 MACQUARIE STREET (LOT 5 DP 18556)

AND

3A MALONEY STREET (LOT 8 DP 18556)

ROSEBERY

MADE TO

BAYSIDE COUNCIL

ON BEHALF OF

THOMAS HOTELS

OCTOBER 2017
REF: 160819.PP

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Planning Proposal
3 Macquarie Street and
3A Maloney Street, Rosebery

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APPENDICES

- Appendix 1 Extract from Botany Bay LEP 2013 – Schedule 1
- Appendix 2 Indicative Concept Plan prepared by Darren Mah Design
- Appendix 3 Traffic Impact Statement prepared by Traffix
- Appendix 4 Acoustic Impact Report prepared by Koikas Acoustics
- Appendix 5 Heritage Impact Statement prepared by City Plan Heritage
- Appendix 6 Light Spill Report prepared by Tigerlight
- Appendix 7 Survey Plan
- Appendix 8 Extract from Botany Bay LEP 2013 – Cll. 6.8 and 6.9

Planning Proposal
3 Macquarie Street and
3A Maloney Street, Rosebery

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1. INTRODUCTION

This Planning Proposal is made to Bayside Council in respect of land located at 3 Macquarie Street and 3A Maloney Street, Rosebery (*the site*) described as Lots 5 and 8 in DP 18556, respectively. The Planning Proposal seeks concurrence and adoption by Council to apply for a gateway determination from the NSW Department of Planning and Environment for the inclusion of an additional permitted use on the site.

An aerial photograph of the site is attached at **Plan 1** which shows its location and the immediately surrounding development.

The site is occupied by two (2) single storey dwellings, one fronting Macquarie Street and the other fronting Maloney Street with vehicle crossovers to each frontage. Adjoining the site to the north are Lot 6 in DP 18556 and Lot 11 in DP 1142723 which contain a car park serving the Lakes Hotel situated at the corner of Gardeners Road and Macquarie Street.

The site is zoned R2 Low Density Residential under the provisions of Botany Bay Local Environmental Plan 2013 (the LEP).

The Planning Proposal seeks to insert a site specific clause in Schedule 1 of the LEP to permit the use of the site as a "car park" in association with the Lakes Hotel. The LEP already contains a similar such provision, being Clause 17 of Schedule 1 (see **Appendix 1**), in relation to the two properties to the north of the site which are now developed as a carpark.

The Planning Proposal seeks to allow car parking on the site for use in conjunction with the adjoining hotel to provide additional off-street car parking for hotel patrons. The proposal will increase the available on-street parking for local residents, visitors and hotel patrons that cannot be accommodated within the new car park. The submission is accompanied by an Indicative Concept Plan of the car park (see **Appendix 2**). The Indicative Concept Plan forms the basis of the assessment of the Planning Proposal undertaken in this submission.

The Planning Proposal is supported by studies by specialist consultants in relation to traffic and parking (see **Appendix 3**), acoustic issues (see **Appendix 4**), heritage (see **Appendix 5**) and light spill (see **Appendix 6**).

This Planning Proposal has been drafted in accordance with Section 55 of the *Environmental Planning and Assessment Act 1979* (the Act) and the NSW Department of Planning and Environment's *A Guide to Preparing Planning Proposals* (August 2016).

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2. SITE AND CONTEXT

As set out above, the site the subject of the Planning Proposal is:

- Lot 5 in DP 18556, known as 3 Macquarie Street, Rosebery, and
- Lot 8 in DP 18556 known as 3A Maloney Street, Rosebery (see **Plan 1**).

The two lots are each occupied by a single storey residential dwelling fronting the street with vehicle crossovers. A site survey is contained in **Appendix 7**.



Plan 1: Location (land the subject of the Planning Proposal shown edged red)

Source: www.nearmap.com.au

The adjoining land to the north, Lot A in DP 187154, Lots 10 and 11 in DP 1142723, and Lot 6 in DP 18556 known as 303-305 Gardeners Road, Rosebery contains a two storey hotel building known as "The Lakes Hotel" with a car park to the rear (see **Plan 1**). The Lakes Hotel is listed as a heritage item under the LEP.

Planning Proposal
3 Macquarie Street and
3A Maloney Street, Rosebery

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The existing car park to the rear of the Lakes Hotel contains 19 spaces and is accessible via driveways from both Maloney Street and Macquarie Street (although access is controlled by boom gates in accordance with conditions of consent – see further below). Three spaces are located on the northern side of the driveway with an additional sixteen (16) spaces across the southern boundary. Landscaping is provided within the carpark and around its perimeter, including within the road reserve to Macquarie Street. An acoustic wall is located along the southern boundary of the car park adjacent the site.

The use of the existing car park is in accordance with conditions of consent imposed under DA No. 13/141, including the following relevant matters:

- there is an approved Plan of Management (General Management Policy) in place for the Lakes Hotel which includes the management of the car park;
- subject to a 12 month trial period (currently the subject of a Section 96 modification), the car park may operate 24 hours with access restricted to the Maloney Street entrance with the Macquarie Street access to be secured from 10pm;
- deliveries to the rear of the Hotel through the car park are restricted to between 8am and 6pm;
- noise emissions from the car park are to comply with the following:

(a) *The LA10, 15 minute noise level emitted from the licensed premises shall not exceed 5dB above the background (LA90) noise level in any Octave Band Centre Frequency (31.5Hz to 8KHz inclusive) between the hours of 7.00am to 10.00pm when assessed at the nearest affected residential boundary. The background noise level shall be measured in the absence of noise emitted from the licensed premises.*

(b) *The LA10, 15 minute noise level emitted from the licensed premises shall not exceed the ambient LA90 noise level in any Octave Band Centre Frequency (31.5Hz to 8KHz inclusive) between the hours of 10pm one day to 7.00am the day following when assessed at the nearest affected residential boundary. The background noise level shall be measured in the absence of noise emitted from the licensed premises.*

Notwithstanding compliance with the above clauses, the noise from the licensed premises shall not be audible within any habitable room in any residential premises between the hours 10pm one day to 7.00am the following day.

- the car park is to be patrolled regularly by security personnel;
- signage is erected and maintained on the acoustic wall of the car park including the words "Please consider our neighbours and keep noise to a minimum. Please switch off car stereos"; and
- the CCTV system for the Hotel includes surveillance of the car park.

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As set out in the submitted Traffic Impact Statement (see **Appendix 3**), a comparison of the level of parking provided on-site for the Hotel and the applicable parking generation rates for “pubs” under the Botany Bay DCP 2013 indicates that there is existing unmet demand for on-site car parking associated with the Lakes Hotel. The Traffic Impact Statement states that “an assessment against the DCP parking requirement of the hotel has been undertaken for reference. Botany Bay DCP 2013 – Part 3A requires parking for ‘pubs’ at the following rate:

- 1 space / 2 employees; plus
- 1 space / 5m² GFA

The application of these rates to the public floor area [of the Lakes Hotel] of 377m² and 17 employees produces a requirement under the DCP of 84 parking spaces. This rate would be applicable to cater for expected demand if the site was constructed today.” (p. 6)

Accordingly, parking generated by the Hotel use over and above the current provision on-site (some 65 spaces on the basis of the above figures) is being met through the use of available on-street parking.

The Lakes Hotel forms part of a strip of existing retail/commercial development located on Gardeners Road at Rosebery which was designated as a “neighbourhood centre” in the *Botany Bay Planning Strategy 2031*. The centre comprises predominantly one and two storey commercial/retail premises, some with residential accommodation at the upper level, located on the southern side of Gardeners Road. The northern side of Gardeners Road is characterised by single storey, detached dwelling houses.

The Lakes Hotel is situated at the eastern end of the strip which terminates at the intersection of Gardeners Road and Maloney Street. It adjoins to the east a two storey building with ground level retail/commercial premises, which also extends around to the Maloney Street frontage. To the west, on the opposite side of Macquarie Street is a service station with access driveways off both Gardeners Road and Macquarie Street.

Macquarie Street and Maloney Street consist predominantly of residential properties. Macquarie Street and the western side of Maloney Street are predominantly made up of single storey detached dwellings while the eastern side of Maloney Street contains a number of residential flat buildings. The dwelling house at No. 4 Macquarie Street opposite the site is listed as a heritage item under the LEP.

Public bus services are available along Gardeners Road and along the southern portion of Maloney Street and taxi services are also available.

Gardeners Road has restricted on-street car parking and unrestricted car parking is available on Macquarie Street and Maloney Street. No public car park is available within the surrounding area.

3. OBJECTIVES OR INTENDED OUTCOMES

The primary objective of the Planning Proposal is to permit an additional permitted use on the site for a “car park” so as to facilitate the extension of the existing car park associated with the Lakes Hotel onto the site.

The intended outcome of the Planning Proposal (subject to the granting of development consent) is the redevelopment of the site for car parking purposes as an extension of the existing car park serving The Lakes Hotel.

As set out in the previous Section, there is unmet demand for car parking associated with the use of the Hotel which is currently accommodated in the surrounding streets. The Planning Proposal, by allowing for the provision of additional on-site parking for the Hotel, would reduce that level of unmet demand and the level of on-street parking.

This submission is accompanied by an Indicative Concept Plan (see **Figure 1** and **Appendix 2**) showing the redevelopment of the site that is to be facilitated by the subject Planning Proposal. The Concept Plan is illustrative only and additional design detail would be provided in any future DA. It is noted that the Concept Plan also includes the necessary consequential modifications to the existing car park layout.

The Concept Plan illustrates the intended outcome of the Planning Proposal. It shows the manner in which the objectives of the Planning Proposal would be implemented having regard to the existing adjoining development, the physical features of the site as well as the character and physical features of residential dwellings on adjoining and nearby properties. The Concept Plan has been prepared taking into account potential impacts on the adjoining residential properties and the surrounding locality.

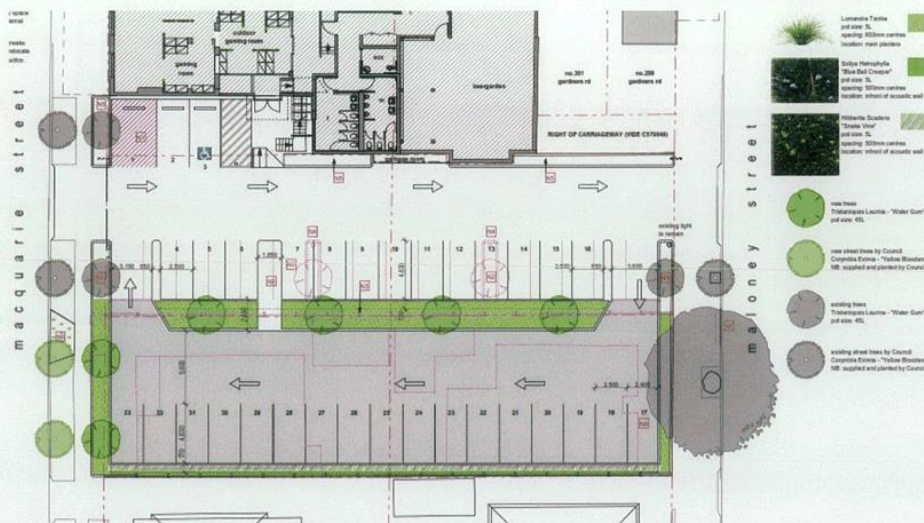


Figure 1: Car Park Indicative Concept Plan (extract)
Source: Dwg DR-01C prepared by Darren Mah Design – see Appendix 2

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The Concept Plan (see **Figure 1**) comprises the following components:

- Demolition of the existing dwelling houses at 3 Macquarie Street and 3A Maloney Street and removal of the associated driveway crossings;
- Provision of an additional 14 parking spaces and circulation on the site as an extension of the existing car park to the north; and
- Additional landscaping and installation of an acoustic wall along the southern boundary.

Landscaping is provided within the centre of the expanded car park, along the new southern boundary and along the frontages to Maloney Street and Macquarie Street. The central landscaped area, in particular, has a width which is capable of accommodation small trees which were not able to be accommodated within the existing car park. Consistent with the existing situation, landscaping along the frontage to Macquarie Street is within the road reserve. The existing crossovers to the site from Macquarie and Maloney Streets would be removed.

The Concept Plan includes the relocation of the existing acoustic wall along the southern boundary adjacent to the residential properties at 5 Macquarie Street and 5 Maloney Street. The existing acoustic wall incorporates clear perspex panels at the top and above the splayed ends to facilitate sunlight access and maintain visibility for vehicles.

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4. EXPLANATION OF PROVISIONS

The objective and intended outcome of this Planning Proposal would be achieved by amending the Botany LEP 2013 as set out below.

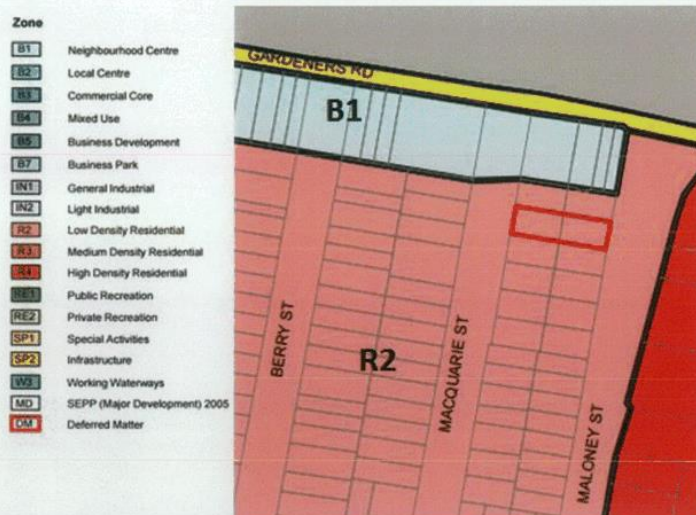
1. Amending Botany LEP 2013 by adding the following item to Schedule 1:

Use of certain land at 3 Macquarie Street and 3A Maloney Street, Rosebery

- (1) *This Clause applies to land at 3 Macquarie Street and 3A Maloney Street, Rosebery, being Lot 5 and Lot 8 in DP 18556 and identified as "[insert number]" on the Additional Permitted Uses Map.*
- (2) *Development for the purposes of a car park in association with the use of the hotel at 305 Gardeners Road, Rosebery, known as The Lakes Hotel, is permitted with development consent.*

Explanation

The subject site is zoned R2 Low Density Residential under the LEP (see **Plan 2**).



Plan 2: Zoning (subject site shown edged red)

Source: Botany Bay LEP 2013 Land Zoning Map - Sheet LZN_004

The Land Use Table for the R2 zone provides as follows:

1 Objectives of zone

- *To provide for the housing needs of the community within a low density residential environment.*

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- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To encourage development that promotes walking and cycling.*

2 Permitted without consent*Home occupations***3 Permitted with consent**

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Child care centres; Community facilities; Dwelling houses; Environmental protection works; Flood mitigation works; Group homes; Health consulting rooms; Hospitals; Multi dwelling housing; Neighbourhood shops; Office premises; Places of public worship; Recreation areas; Residential flat buildings; Respite day care centres; Roads; Semi-detached dwellings.

4 Prohibited*Any development not specified in item 2 or 3.*

In accordance with the above Land Use Table, development for the purpose of a “car park” is prohibited in the R2 zone.

In order to achieve its objective, the Planning Proposal seeks to include an additional permissible use for the site, being a *carpark in association with the use of the hotel at 305 Gardeners Road, Rosebery, known as The Lakes Hotel*. The qualification of the permitted use in this way limits the scope of development that would be permitted under it and provides additional certainty as to the potential development outcome and the nature of that use.

No change is proposed to the existing R2 zoning of the site. Nor are any changes proposed to development standards or other existing provisions of the LEP which are applicable to the site.

The Planning Proposal therefore maintains the existing planning regime as it applies to the site, while permitting its use as a car park.

The Planning Proposal is considered to be appropriate given that the existing zoning context will be maintained and the proximity to land where development for the purpose of a car park is permissible with consent from Council. As noted above, the expectation of development for landowners, adjoining properties and Council will also remain clear.

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5. JUSTIFICATION

5.1 SECTION A – NEED FOR THE PLANNING PROPOSAL

Q1. Is the Planning Proposal a result of any strategic study or report?

No.

Q2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

The Planning Proposal is the best means of achieving the objectives or intended outcomes.

The current R2 zoning restricts the use of the land for the purpose sought.

There is no other mechanism available other than an amendment of the LEP to achieve the objective as the proposed use is prohibited under the current zoning.

The proposed amendment, ie. the inclusion of an additional item relating to the site in Schedule 1 to the LEP as set out in the previous section, is considered to be the most appropriate approach as it otherwise maintains the existing planning regime applicable to the site. The scope of the proposed amendment is therefore considered to be minimal (as opposed to, say, an approach which sought to amend the underlying zoning of the site for business purposes). The maintenance of the current R2 zoning and other related development standards and controls ensures that the Planning Proposal will not disrupt the overall strategic direction of the LEP or the underlying zoning pattern, while recognising the site's location at the interface of the residential and neighbourhood business zones. In addition, it allows for the use of the site to revert to a residential or other permitted use in the R2 zone in the future.

5.2 SECTION B – RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

Q3. Is the Planning Proposal consistent with the objectives and actions contained within the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

Yes, the Planning Proposal is considered to be consistent with relevant objectives and actions contained in *A Plan for Growing Sydney, Towards our Greater Sydney 2056* (a draft amendment to update *A Plan for Growing Sydney*) and the *Draft Central District Plan* as set out below.

a) A Plan for Growing Sydney

A Plan for Growing Sydney was released by the State government in December 2014. While a draft amendment to the Plan has been publicly exhibited (see *Towards our Greater Sydney 2056*, below), it is still the current regional plan for the Sydney Metropolitan Area which is to guide development in the region over the next 20 years.

The Plan for Growing Sydney shows that the site is within the Global Economic Corridor and is in proximity to the Sydney Airport transport gateway and just to the south of the Green Square strategic centre.

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The Plan contains four goals and related actions for Sydney to achieve the vision of the Plan:

- *a competitive **economy** with world-class services and transport;*
- *a city of **housing choice** with homes that meet our needs and lifestyles;*
- *a **great place to live** with communities that are strong, healthy and well connected; and*
- *a sustainable and resilient city that protects the **natural environment** and has a balanced approach to the use of land and resources. (p. 5)*

While the directions and actions contained within the Plan are not directly relevant to the subject Planning Proposal, it is nevertheless, compatible with its goals, as follows:

1. *A competitive economy with world class services and transport:*

The site is located adjacent to an existing neighbourhood retail/commercial centre and the Planning Proposal is associated with an established and long-standing business in that centre.

The provision of additional parking for the Hotel on the site will alleviate the existing on-street parking situation and will make additional parking spaces available for local residents and customers of the retail and commercial premises along Gardeners Road. The Planning Proposal will therefore support the existing local economy and future development within the centre. It will not reduce employment opportunities and will not displace existing commercial development. The Planning Proposal will not alter the function of the centre or its place in the established hierarchy of centres in the council area.

As set out in the submitted Traffic Impact Statement (see **Appendix 3**), the Planning Proposal will have no adverse effect on the capacity of the surrounding road network. It states that the Planning Proposal (and its associated anticipated development) will not in itself generate additional traffic (p. 6).

The Planning Proposal will not reduce the viability of public transport within walking distance of the subject site.

2. *A city of housing choice with homes that meet our needs and lifestyles:*

The Planning Proposal will result in the removal of two existing single storey residential dwellings on the site. It will therefore have minimal impact on the overall supply of housing in the council area or the achievement of State government housing targets. In this regard, it is noted that the site has limited potential for additional residential density taking into account the small size of the subject lots and the restrictions in the LEP on higher density housing forms in the R2 zone (eg. Clause 6.11).

At the same time, the R2 zoning will be maintained by the Planning Proposal should circumstances within the immediate surrounding area change. The Planning Proposal will not reduce the potential for the provision of new housing on the subject land in the future.

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3. *A great place to live with communities that are strong, healthy and well connected:*

The Planning Proposal will facilitate the provision of additional parking for the Hotel which will support its role in the local community, while also providing support for the local shopping precinct.

The provision of additional parking on the site will reduce the level of non-residential traffic and parking in the adjoining residential streets, thereby improving residential amenity.

As shown in the Indicative Concept Plan and described elsewhere in this submission, mitigative measures are able to be incorporated to ensure that future development in accordance with the Planning Proposal maintains the amenity and liveability of the surrounding residential neighbourhood. The Concept Plan has been designed to integrate into the residential streetscape through the provision of additional landscaping and selection of materials while maintaining a safe environment for customers and residents. The Planning Proposal has the potential to increase the tree canopy on the site which will enhance the local environment.

As set out in the submitted Heritage Impact Statement (see **Appendix 5**), the Planning Proposal will not give rise to adverse impacts on the heritage significance of the Hotel or heritage items in the vicinity of the site.

4. *A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources:*

The Planning Proposal will not have any adverse impact on the natural environment or resources. The site is currently occupied by single storey residential dwellings and does not contain any significant trees or critical habitat.

The potential impacts of the likely future development in accordance with the Planning Proposal are able to be appropriately managed and mitigated as described in this submission.

b) Towards our Greater Sydney 2056 (A Draft Amendment to Update *A Plan for Growing Sydney*)

Towards our Greater Sydney 2056 was released by the State government in November 2016 and was publicly exhibited until the end of March 2017.

The amendment reflects a change in strategic direction for the region as a metropolis of three cities (p. 1), Eastern City, centred around Sydney City, Central City centred around Greater Parramatta and the Olympic Peninsula and Western City focussed on the Western Sydney Airport.

The site of the Planning Proposal is located within the Eastern City, described in the Draft Amendment as:

The established Eastern City is the currently established Sydney City and economic corridors to its north through to Macquarie Park and south through Sydney Airport and Port Botany to Kogarah.

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It is an economic engine – especially in the financial, business and professional services and innovation start-up sectors – with a beautiful harbour, sought-after suburbs and a large proportion of knowledge-intensive jobs.

There are many opportunities to enhance the Eastern City, such as the renewal of government-owned land near Sydney City and tackling congestion. Our planning must support and enable the continued growth of the Eastern City's global industries and branding.

The established city contains significant heritage precincts such as The Rocks, Millers Point, Macquarie Street and the Royal Botanic Gardens and the Domain. The Harbour foreshores include significant evidence of Aboriginal occupation and interaction with the landscape. (p. 5).

Metropolitan priorities for the region are as follows:

- *A Productive Sydney*: a growing city, a city with smart jobs, a 30 minute city;
- *A Liveable Sydney*: an equitable, polycentric city, a city of housing choice and diversity, a collaborative city;
- *A Sustainable Sydney*: a city in its landscape, an efficient city and a resilient city (p. 6).

The Planning Proposal is consistent with the strategic direction of the Draft Amendment as it seeks to provide supporting infrastructure for an existing business in an established centre and will therefore support the local economy and improve access. While it will remove 2 houses in proximity to the centre, it will have benefits for local residential amenity through the removal of non-residential traffic and parking from the adjoining streets and through the implementation of mitigative measures designed to minimise impacts from noise, light spill and overshadowing. It will also contribute to the tree canopy of the local area.

c) Draft Central District Plan

The *Draft Central District Plan* was released by the State government in November 2016 and was publicly exhibited until the end of March 2017. The Central District comprises the LGAs of City of Sydney, Woollahra, Waverley, Randwick, Bayside, Inner West, Canada Bay, Burwood and Strathfield. The draft Plan proposes a 20 year vision for the District and building on the directions of the regional plan (and draft amendment).

The Draft Plan contains priorities and actions to realise the vision for the District in terms of the regional priorities (see above) of:

- *A productive city*;
- *A liveable city*; and
- *A sustainable city*.

The subject Planning Proposal is consistent with the overarching productivity priority of "Growing economic activity in centres" (p. 4, pp. 58-67). While the site is not located within a strategic, district or local centre as identified in the Draft Plan, it is, nevertheless, in an established neighbourhood centre and relates to a long-standing business within that centre.

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The Draft Plan recognises that centres “not only provide important services and jobs for local residents, but a focal point for communities. Their vitality and viability is important to local economies as well as to the character of local areas” (p. 58). The subject Planning Proposal supports the existing neighbourhood centre and businesses by providing additional parking infrastructure in close proximity. The provision of additional parking on the subject site is not intended to increase car use or traffic to the centre but rather to reduce the present use of on-street parking (in residential streets) around the centre. In this way, the Planning Proposal is not inconsistent with strategies to promote walking, cycling and public transport to access centres.

In accordance with the considerations contained in the Draft Plan, the subject Planning proposal is considered to reflect the commercial requirements of the Hotel operator (and other business operators in the centre) in relation to servicing and accessibility which are not addressed in the existing planning regime (p. 58).

The Planning Proposal also “manages the transition between centre activity and lower activity around the centre” (p. 58) through a number of mitigative measures as shown in the Indicative Concept Plan to address noise, streetscape and character and light spill. These measures are designed to mitigate potential impacts and maintain residential amenity. The Concept Plan also incorporates “CPTED principles” (p. 58) to ensure a safe, healthy environment on the site.

In terms of the liveable city, the subject Planning Proposal is consistent with the liveability priorities of “create great places” and “foster cohesive communities in the Central District” (p. 84) by providing for development which will support the existing shopping centre and community meeting places. The urban design of the Indicative Concept Plan is considered to be consistent with the actions related to “design-led planning” as it has been designed to be functional and safe and meet relevant standards while being integrated within its streetscape context and mitigating potential impacts on nearby residential development and buildings of heritage significance. It will contribute positively to the landscape setting, particularly through the opportunity for additional tree plantings on the site, as well as supplementary landscaping.

While it will result in the loss of two dwellings, no change is proposed to the underlying zoning of the land. Accordingly, there is no reduction in the theoretical capacity of the site for residential development and there is potential for the site to be redeveloped for residential development in the future.

Q4. Is the Planning Proposal consistent with a council's local strategy or other local strategic plan?

Yes. The Planning Proposal is consistent with the *Botany Bay Planning Strategy 2031* as set out below.

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a) Botany Bay Planning Strategy 2031 (BBPS)

The BBPS was prepared for the City of Botany Bay by SGS Planning in 2009. Its purpose was to address the *Draft East Subregional Strategy* (now replaced by the Draft Central District Plan), to provide a framework for growth to 2031 and to guide the preparation of the Botany LEP 2013.

The Strategy draws comparisons against the objectives of the Metropolitan Strategy and the draft East Sub-Regional Strategy in relation to the characteristics of development within the (former) Botany Bay LGA.

At the time of preparation of the BBPS, there were around 13,200 dwellings in the LGA (p. 34). The BBPS estimated that Botany Bay LGA could provide capacity for around 3,800 new dwellings in and around centres with good amenity. It also estimated that there was additional capacity for a further 3,500 dwellings with an adjustment of development controls and restructuring of development and investment in public transport and public domain (p. 6). The BBPS found that there was sufficient existing capacity to accommodate future employment related floor space in the LGA (p. 6). The identification of locations for additional housing and employment capacity undertaken as part of the BBPS did not include the site of the Planning Proposal or the surrounding residential area. The neighbouring retail/commercial centre was identified as an area that could accommodate additional commercial development.

The BBPS identified that a high proportion of residents and workers use private cars as their main transport mode (58% and 64% respectively) (p. 37) which has resulted in the current on-street parking conflict between local residents and hotel patrons and commercial/retail customers. Public transport alternatives are identified as being required to reduce car dependency.

The BBPS identified the retail/commercial centre at Gardeners Road, Rosebery as a "neighbourhood centre", the lowest order centre in the LGA centres typology (p. 30).

The BBPS contained 7 strategic directions for the formulation of recommendations for action, including proposal for modifying zoning and development controls to accommodate future housing and jobs. The actions proposed in the BBPS did not relate specifically to the site or surrounding residential area. Under Strategic Direction 4 (Reviving the Local Economy) Objective 4.3, the BBPS proposed that the Gardeners Road centre be rezoned to B6 Enterprise Corridor. However, this objective was not implemented in the LEP and, as noted above, the centre is zoned B1 Neighbourhood Centre. The BBPS also highlighted buffers and transition to residential land away from Gardeners Road.

The following Strategic Direction and objectives are generally relevant to the site and Planning Proposal:

1. Enhancing Housing Choice and Liveability

Objective 1.3 – Protect the valued characteristics of Botany Bay's centres and suburbs and minimise the impacts from industrial areas and activities

Objective 1.7 – Advocate for a high quality public transport system and improve local transport management

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The Indicative Concept Plan demonstrates that the development envisaged under the Planning Proposal is able to be undertaken in a manner which would maintain the character and residential amenity of the locality, including the nearby heritage items. It also demonstrates that impacts on residential amenity are able to be minimised through the design of future development to minimise land use conflict. The Planning Proposal is considered to provide for an appropriate use of land in a transitional location between commercial/retail and residential development.

One of the objectives for this area within the Strategy is to reduce parking provision for development around transport nodes to encourage lower private car usage. This requires a detailed study of parking needs, including identifying differentiated rates by location depending on public transport access and local road capacity. It is understood that the outcome of this Study is not yet available.

The Planning Proposal, as well as reducing the reliance on existing on-street parking for hotel patrons has the potential to increase parking available for customers and employees associated with the employment activities and shopping from the commercial premises along Gardeners Road especially when parking restrictions along Gardeners Road apply.

Assessment Criteria – A Guide to Preparing Planning Proposals

The Department of Environment and Planning's *Planning Proposals – A guide to preparing planning proposals* (August 2016) provides at p. 12:

"Assessment Criteria have been established to assist proponents or a RPA justify a planning proposal. These criteria form the basis of the strategic merit and site-specific merit assessment for the rezoning review process. As a minimum, the justification component of a planning proposal should address the following Assessment Criteria where no Sustainability Criteria applies to the land."

No Sustainability Criteria apply to the site and therefore the assessment criteria contained in the Guide are addressed below.

a) Does the proposal have strategic merit? Is it:

- **Consistent with the relevant district plan within the Greater Sydney Region, or corridor/precinct plans applying to the site, including any draft regional, district or corridor/precinct plans released for public comment; or**
- **Consistent with a relevant local council strategy that has been endorsed by the Department; or**
- **Responding to a change in circumstances?**

The Planning Proposal is considered to have strategic merit. It is a response to site specific circumstances, particularly the needs of hotel patrons and other customers of retail/commercial premises in the Gardeners Road centre for parking (especially when parking restrictions along Gardeners Road apply) and to reduce conflict with residential on-street parking and associated impacts on residential amenity. The proponent of the Planning Proposal has the opportunity to provide additional parking on the subject site – an

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opportunity which has only recently arisen.

While the Metropolitan Strategy (and draft amendment) and the Draft Central District Plan do not contain objectives or actions which are directly applicable to the subject Planning Proposal or surrounding area, it is, nevertheless, considered to be consistent with their overall goals and direction as set out above. While the proposal results in the loss of residential accommodation, this impact is negligible in the context of the existing and projected supply of housing in the LGA. In addition, the maintenance of the underlying zoning as part of the Planning Proposal means that it does not result in any loss of theoretical capacity.

Similarly, the Planning Proposal is considered to be generally consistent with the local council planning strategy which informed the preparation of the current LEP. That LEP contains a similar provision to that now sought which permitted the development of the existing car park to the rear of the Hotel.

b) Does the proposal have site specific merit, having regard to the following:

- the natural environment;
- the existing uses, approved uses, and likely future uses of land in the vicinity of the proposal; and
- the services and infrastructure that are or will be available to meet the demands arising from the proposal and any proposed financial arrangements for infrastructure provision.

The proposal is considered to have site specific merit for the reasons set out above.

It will have no impact on the natural environment.

The submitted Indicative Concept Plan and related assessments set out in this submission demonstrate that development anticipated by the Planning Proposal is able to be designed to take into account the existing uses, approved uses and likely future uses of land in the vicinity. It shows that the potential adverse impacts arising from the Planning Proposal are able to be appropriately addressed to minimise impacts on residential amenity by way of traffic, noise and light spill, on the significance of nearby heritage items and the character of the locality.

The development anticipated under the Planning Proposal does not require the provision of any special additional services or infrastructure for its implementation. In a similar manner to the existing car park, future development under the Planning Proposal would utilise existing infrastructure and is not expected to place significant additional demands on that infrastructure. That existing development was subject to requirements relating to stormwater management and tree planting in the public domain. It is anticipated that similar requirements would apply to and be addressed in the context of any future DA and would be the responsibility of the Proponent.

Q5. Is the Planning Proposal consistent with applicable state environmental planning policies?

State Environmental Planning Policies (SEPPs) which are relevant to the site are:

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- SEPP (Exempt and Complying Development Codes) 2008;
- SEPP No. 55 – Remediation of Land; and
- SEPP No. 64 – Advertising and Signage.

The above SEPPs do not raise any matters which are required to be addressed as part of this Planning Proposal. In particular, with regard to SEPP 55, no change to the zoning of the land is proposed and the Planning Proposal would facilitate the change of use of the site to a less sensitive use (car park) than the existing residential use.

Q6. Is the Planning Proposal consistent with applicable Ministerial Directions (s.117 Directions)?

The relevant Ministerial Directions that apply to this Planning Proposal are those relating to:

- Residential Zones (3.1);
- Integrating Land Use and Transport (3.4);
- Development Near Licensed Aerodromes (3.5); and
- Implementation of a Plan for Growing Sydney (7.1).

The requirements of these directions are addressed under the related sub-headings below.

a) Residential Zones

Direction 3.1 provides that it applies when:

“a relevant planning authority prepares a planning proposal that will affect land within:

- (a) an existing or proposed residential zone (including the alteration of any existing residential zone boundary),*
- (b) any other zone in which significant residential development is permitted or proposed to be permitted.”*

Direction 3.1 is therefore relevant to this Planning Proposal as it affects land within an existing residential zone (being the R2 Low Density Residential zone under Botany LEP 2013).

Where this Direction applies the relevant planning authority must:

- (4) A planning proposal must include provisions that encourage the provision of housing that will:*
 - (a) broaden the choice of building types and locations available in the housing market, and*
 - (b) make more efficient use of existing infrastructure and services, and*

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- (c) *reduce the consumption of land for housing and associated urban development on the urban fringe, and*
- (d) *be of good design.*
- (5) *A planning proposal must, in relation to land to which this direction applies:*
 - (a) *contain a requirement that residential development is not permitted until land is adequately serviced (or arrangements satisfactory to the council, or other appropriate authority, have been made to service it), and*
 - (b) *not contain provisions which will reduce the permissible residential density of land.*

The Planning Proposal is not inconsistent with Direction 3.1 in that it will not have any effect on the existing LEP provisions addressing the above matters. The Planning Proposal does not seek to change the existing zoning of the land or any of the development standards or other LEP provisions applicable to the site. The Planning Proposal is of minor significance in the context of the extent of the residential zones in the LGA.

b) Integrating Land Use and Transport

Direction 3.4 provides that it applies when:

a relevant planning authority prepares a planning proposal that will create, alter or remove a zone or a provision relating to urban land, including land zoned for residential, business, industrial, village or tourist purposes.

Direction 3.4 is therefore relevant to this Planning Proposal as it creates a provision relating to urban land, being land zoned for residential purposes.

Where this Direction applies, the relevant planning authority must:

"locate zones for urban purposes and include provisions that give effect to and are consistent with the aims, objectives and principles of:

- (a) *Improving Transport Choice – Guidelines for planning and development (DUAP 2001), and*
- (b) *The Right Place for Business and Services – Planning Policy (DUAP 2001)."*

The Planning Proposal is not inconsistent with Direction 3.4 in that it does not propose any changes to the locations of existing zones and will not have any effect on the existing LEP provisions addressing the above matters. The Planning Proposal is of minor significance in the context of the extent of the urban zones in the LGA.

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c) Development Near Licensed Aerodromes

Ministerial Direction 3.5 for Development near Licensed Aerodromes is relevant to this Planning Proposal.

The site is located in the vicinity of Sydney Airport and is affected by the Australian Noise Exposure Forecast (ANEF) contour. The site is located between the 20 and 25 ANEF contours.

Where this Direction applies:

- (4) *In the preparation of a planning proposal that sets controls for the development of land in the vicinity of a licensed aerodrome, the relevant planning authority must:*
 - (a) *consult with the Department of the Commonwealth responsible for aerodromes and the lessee of the aerodrome,*
 - (b) *take into consideration the Obstacle Limitation Surface (OLS) as defined by that Department of the Commonwealth,*
 - (c) *for land affected by the OLS:*
 - (i) *prepare appropriate development standards, such as height, and*
 - (ii) *allow as permissible with consent development types that are compatible with the operation of an aerodrome*
 - (d) *obtain permission from that Department of the Commonwealth, or their delegate, where a planning proposal proposes to allow, as permissible with consent, development that encroaches above the OLS. This permission must be obtained prior to undertaking community consultation in satisfaction of section 57 of the Act.*
- (5) *A planning proposal must not rezone land:*
 - (a) *for residential purposes, nor increase residential densities in areas where the ANEF, as from time to time advised by that Department of the Commonwealth, exceeds 25, or*
 - (b) *for schools, hospitals, churches and theatres where the ANEF exceeds 20, or*
 - (c) *for hotels, motels, offices or public buildings where the ANEF exceeds 30.*
- (6) *A planning proposal that rezones land:*
 - (a) *for residential purposes or to increase residential densities in areas where the ANEF is between 20 and 25, or*
 - (b) *for hotels, motels, offices or public buildings where the ANEF is between 25 and 30, or*
 - (c) *for commercial or industrial purposes where the ANEF is above 30,*

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must include a provision to ensure that development meets AS 2021 regarding interior noise levels.

Botany LEP 2013 contains provisions which address the above matters, being *Clause 6.8 – Airspace operations* and *Clause 6.9 – Development in areas subject to aircraft noise* (see **Appendix 8**).

Therefore, to the extent that the Direction is applicable to the Planning Proposal, the relevant matters are addressed by the existing provisions within the Botany LEP 2013 and, accordingly, the Planning Proposal is consistent with the Direction.

d) Implementation of A Plan for Growing Sydney

Direction 7.1 applies to a number of LGAs including (the former) Botany Bay. It is therefore applicable to the subject site.

Where this Direction applies:

Planning proposals shall be consistent with:

(a) *the NSW Government's A Plan for Growing Sydney published in December 2014.*

As set out above in Section 5.2(a), the Planning Proposal is considered to be consistent with the principles, directions and priorities for subregions contained in *A Plan for Growing Sydney*.

5.3 SECTION C – ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACT

Q7. *Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?*

No.

Q8. *Are there any other likely environmental effects as a result of the Planning Proposal and how are they proposed to be managed?*

As described above, the Planning Proposal is accompanied by an Indicative Concept Plan (see **Appendix 2**) showing how the site could be developed under the proposed amendment. The preparation of the Indicative Concept Plan has taken into account a range of potential impacts associated with the use of the site as a car park and has been designed to mitigate those impacts. Accordingly, the Indicative Concept Plan provides a good indication of how the potential impacts of the Planning Proposal may be managed.

The matters considered in the preparation of the Indicative Concept Plan were:

- Traffic and parking issues;
- Acoustic issues;
- Heritage issues;
- Light spill;
- Landscaping (particularly Macquarie Street frontage);

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- Loss of residential accommodation;
- Cumulative impact on residential character; and
- Overshadowing impact of the acoustic wall.

These matters are addressed, in turn, below.

Traffic and Parking

The Planning Proposal is accompanied by a Traffic Impact Statement prepared by Traffix (see **Appendix 3**). That Statement undertakes an assessment of the Planning Proposal by reference to the Indicative Concept Plan. The findings of its assessment are as follows:

Parking Proposed

Car Parking

With an existing parking provision of 19 spaces and a proposed parking provision of 33 spaces the Indicative Concept Plan represents an increase in parking by approximately 74%. It is anticipated that this increase will better accommodate the current demand for parking and allow customers currently parking on Maloney and Macquarie Streets to park on site, freeing up parking for residents and limiting potential for disruption caused by customers returning to their vehicles of an evening.

Whilst no change to the operation or GFA of the hotel is proposed an assessment against the DCP parking requirement of the hotel has been undertaken for reference. Botany Bay DCP 2013 – Part 3A requires parking for 'pubs' at the following rate:

- 1 space / 2 employees; plus
- 1 space / 5m² GFA

The application of these rates to the public floor area of 377m² and 17 employees produces a requirement under the DCP of 84 parking spaces. This rate would be applicable to cater for expected demand if the site was constructed today.

Hence the increased provision of 33 spaces shall significantly improve residential amenity by reducing this demand for on street parking.

Bicycle Parking

Council's DCP only requires bicycle parking for new developments where floor space exceeds 600m² GFA. As such, since the development is existing and no increase in GFA is proposed, bicycle parking is not required to be provided.

Accessible Parking

The existing carpark contains one accessible space, located adjacent to the hotel entry. This space is retained in the Indicative Concept Plan and meets the required provision of 1 space per 59 vehicle spaces as specified in Part 3C of Botany DCP (2013).

Traffic Impacts

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There will be no change to the hotel's GFA and therefore the increase in parking provided will not in itself generate any additional traffic. The anticipated impact of the proposed development is to reduce the use of on street parking, particularly on Macquarie Street, reducing the traffic impacts on nearby residents of Macquarie Street.

In addition, the removal of existing driveway crossovers at No. 3 Macquarie Street and 3A Maloney Street will result in an addition of one on street parking space in each of these streets, further improving amenity for surrounding residents.

Access

It is noted whilst the number of traffic movements in the neighbourhood shall not change, the number of traffic movements entering and exiting the carpark would be expected to increase in line with the number of spaces. Hence a review of the access arrangements has been undertaken in response to this increase in parking provision. Table 3.1 of AS2890.1 requires a Category 2 access drive way (a combined entry exit driveway of 6m to 9m in width) for a Class 2 carpark onto a local road with fewer than 100 spaces.

Under the existing design that there are two (2) two-way accesses servicing the existing car park (one from Macquarie Street and one from Maloney Street) of 6m in width and a two-way aisle that runs between the two accesses. This arrangement is already superior to the minimum requirements of AS2890.1. However, in response to the proposed parking increase the Indicative Concept Plan changes the existing access to allow only one-way traffic entering via Macquarie Street and exiting via Maloney Street. This is the safest and most efficient circulation arrangement with the one-way circulation aisles at the eastern and western ends of the site. Pedestrians and vehicles are easily able to anticipate and respond to traffic movements in a one way arrangement and shall provide a simplified superior arrangement improving safety over the existing access and circulation arrangement for both internal traffic and traffic on Macquarie Street and Maloney Street.

The existing DA consent conditions for ongoing use approved by the Land and Environment Court require the Macquarie Street access to be closed between 10pm one day and 7am the next day, 7 days of the week. The reasons specified for this condition's inclusion was to reduce the amenity impacts of traffic on the surrounding residents.

The one-way circulation provided in the Indicative Concept Plan will only allow vehicles to exit via Maloney Street preventing vehicles exiting on to Macquarie Street, as is currently the case no when the Macquarie Street access is closed. The only change will be vehicles entering the car park from Macquarie Street, rather than Maloney Street, during the times that the access is currently closed. Therefore the amenity impacts of this change are expected to be minimal as few patrons would arrive after 10pm and most patrons would arrive from Gardeners Road, at the northern end of Macquarie Street, which would not impact residents further south on Macquarie Street.

This arrangement is therefore considered acceptable as all exiting traffic will be directed to exit onto Maloney Street and restricted to a left turn movement heading away from the residential neighbourhood.

Internal Design

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The internal design of the car park, illustrated in the Indicative Concept Plan, has been assessed in accordance with AS2890.1 (2004), with the following noteworthy:

- All parking space dimensions satisfy the minimum requirement of User Class 2 with a space width of 2.5m, a space length of 5.4m and aisle width of 5.8m with the exception of one space provided with a design width of 2.4m. This space should be designated a 'small car space' if used by customers or reserved as an employee space (meeting the requirements of User Class 1A–Employee parking).
- The swept path analysis in **Attachment 2** demonstrates that the proposed one-way circulation aisles accommodate a vehicle up to the size of a B99 vehicle.

In summary, the internal design for the Indicative Concept Plan is expected to operate satisfactorily. It is envisaged that any minor amendments required (if any) can be reviewed and undertaken at development application stage once the Planning Proposal is finalised.

Summary

In summary, the Planning Proposal to facilitate an expanded car park to be constructed at 3 Macquarie Street and 3A Maloney Street, as illustrated in the Indicative Concept Plan, is expected to reduce parking demands in the residential streets of Maloney and Macquarie Streets, improving residential amenity. The change in access arrangements is expected to have minimal impact on the traffic and surrounding streets by directing traffic to Gardeners Road.

The Planning Proposal is therefore supported on traffic planning grounds and is expected to provide a net benefit to neighbouring residents." (pp. 6-8).

Accordingly, the Planning Proposal is satisfactory with respect to traffic and parking matters and is likely to result in benefits to surrounding residents.

Acoustic Assessment

The Planning Proposal is accompanied by a Noise Impact Assessment prepared by Koikas Acoustics (see **Appendix 4**). That Report undertakes an assessment of the Planning Proposal by reference to the Indicative Concept Plan. The findings of its assessment are as follows:

"7.0 Conclusion

KA was requested to assess the acoustic impact of an expanded car park concept design for The Lakes Hotel at Rosebery, and to what extent noise mitigation measures are required to ensure suitable acoustic amenity for surrounding residents with regard to the planning levels contained in the EPA INP.

Surrounding noise sensitive development are residential properties located in Macquarie Street and Maloney Street. It is these residential properties that form the basis for the assessment and associated findings.

The INP planning levels are related to the prevailing environmental noise levels. Therefore, determining the applicable acoustic criteria involves conducting noise logging to measure the existing environmental noise levels.

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Environmental noise logging was conducted by KA at 3 Macquarie Street between Tuesday 18th and Monday 24th July 2017. Survey results are included within Section 3.0 of this report.

The RNP was referenced to assess noise impacts associated with the changing traffic pattern that will result from the introduction of an expanded car park and the total noise associated with vehicles arriving and leaving the car park on the local road network.

The assessment concludes the following in relation to the proposed use and operation of the car park:

- 1. The noise barrier that is currently located along the southern boundary of the car park is to be retained in the expanded car park design. It will be relocated to the southern car park boundary shared with 5 Macquarie Street and 5 Maloney Street.*
- 2. Noise emission from the car park and mechanical plant is predicted to comply with the intrusive and amenity planning levels of the INP at all surrounding receivers.*
- 3. A screening test for possible sleep disturbance to nearby residential receivers during the night period has identified there will be a low probability of sleep disturbance.*
- 4. By increasing the car park size, vehicles that are currently parking on Macquarie and Maloney Street will now have access to off-street parking. Impulsive-type noises such as car doors and car engines starting are predicted to be up to 12dB lower with cars now parked in the off-street car park as opposed to on-street.*
- 5. For vehicles using the Hotel's car park, associated noise as they arrive along Macquarie Street and depart along Maloney Street is found to comply with the assessment criteria included in the NSW RNP.*

The proposed development has been assessed in term of its expected acoustic impact to the neighbourhood and has been found to comply with standard acoustic planning guidelines.” (pp. 15-16)

Accordingly, the Planning Proposal is satisfactory with respect to potential acoustic impacts and is capable of complying with relevant acoustic criteria.

Heritage Assessment

The Lakes Hotel and No. 4 Macquarie Street, opposite the subject site, are listed as heritage items under the LEP.

The Planning Proposal is accompanied by a Heritage Impact Statement prepared by City Plan Heritage (see **Appendix 5**) which assess the impact of the Planning Proposal on those items. The assessment and conclusions are as follows:

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Heritage Impact Assessment

The heritage impact of the Planning Proposal is assessed according to Clause 5.10 Heritage Conservation, of the Botany Bay LEP 2013. The Planning Proposal relates particularly to objective Clause 1(b), which aims

- *to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views.*

In the redevelopment of 3 Macquarie Street and 3A Maloney Street as an extension of the existing carpark, the heritage significance of The Lakes Hotel will be minimally impacted as it will contribute to the ongoing function, and thereby reinforce the historical and social significance of the item.

The demolition of the 3 Macquarie Street will have no adverse impact to the views and settings of 4 Macquarie Street, particularly when one considers the existing carpark and the four-other similar and more intact Inter-War bungalows next to the subject site. This is similar to 3A Maloney Street, which is also part of a group of Inter- War bungalows. In both cases, there are better representative examples of Inter-War bungalows within the local area and Heritage Conservation Areas. Consequently, the demolition of these two residential dwellings would be an acceptable compromise from a heritage perspective within the area.

The Planning Proposal is also assessed according to Part 3B Heritage of the Botany Bay DCP 2013, specifically, Section 3B.7 Development in the Vicinity of Heritage Items or Heritage Conservation Areas. The development, which would be facilitated by the Planning Proposal, would meet the objectives outlined here relating to maintenance of consistent setbacks, scale, context and character of the neighbouring listed heritage items. This is because the development would be an extension of the existing carpark and so, would be compatible in form, function, scale and setback to the already existing development.

Provision of additional car parking spaces would also aid to the function and operational requirements of the Hotel and would improve its feasibility as well as enjoyment by its patrons. This would increase appreciation of the Lakes Hotel's heritage significance by wider public.

Conclusions and Recommendations

It is concluded that the Planning Proposal to facilitate the extension of the adjoining carpark serving The Lakes Hotel over both 3 Macquarie Street and 3a Maloney Street, Rosebery, is an acceptable compromise and will have negligible impact on the heritage significance of the neighbouring heritage items. (pp. 8-9)

Accordingly, the Planning Proposal is satisfactory with regard to heritage matters and will have a negligible impact on nearby heritage items.

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Light spill assessment

The Planning Proposal is accompanied by a Lighting Report and Obtrusive Light Compliance Report prepared by Tigerlight (see **Appendix 6**) which details the lighting output and light spill associated with the Planning Proposal Indicative Concept Plan in accordance with the applicable Australian Standards. The lighting assessed within the report comprises four LED street/area lights within the extended car park and two LED sentry lights on the rear wall of the Hotel building.

The Report indicates that light spill associated with the assessed lighting will not exceed the maximum permitted 4 Lux applicable to residential development, with a maximum illumination of 3.6 Lux. It achieves compliance with obtrusive light criteria under the applicable Australian Standard.

Accordingly, the Planning Proposal will not cause excessive light spill to neighbouring properties.

Overshadowing impact of acoustic wall

The Planning Proposal is accompanied by a shadow diagrams prepared by Darren Mah Design (see **Appendix 2**) which show the impact of the Concept Plan development on the neighbouring development to the south of the site.

The diagrams show that the acoustic wall along the southern boundary of the site as depicted in the Concept Plan will result in overshadowing of Nos 5 Macquarie and 5 Maloney Streets at midwinter and the equinox primarily affecting the northern side setback of those properties. The diagrams indicate that solar access would be maintained to the rear garden areas of the neighbouring dwellings for at least 2 hours between 9am and 3pm at midwinter, as required under Botany DCP 2013. In addition, the shadow elevations show that no north-facing window of either dwelling house would be affected by overshadowing at any time of year readily achieving compliance with the controls in the DCP.

Accordingly, the Planning Proposal will not cause excessive overshadowing of the neighbouring properties.

Landscaping

Landscaping of the enlarged car park that would be facilitated by the Planning Proposal is shown on the Indicative Concept Plan (see **Appendix 2**). That landscaping is an extension of the landscaping within the existing car park on the Hotel site in terms of indicative plantings and locations.

As noted above, the expansion of the car park offers the opportunity for additional landscaping within the central bed of the expanded car park. The central bed has a width of around 2.5m allowing for tree plantings. The Indicative Concept Plan shows 4 trees (*Tristanopsis laurina*) within that central bed and another two in an extended bed within the Macquarie Street at the western end of the site. Additional street tree plantings in Macquarie Street are also shown. It is considered that the opportunity for new tree planting within the extended car park afforded by the Planning Proposal will improve the landscape character of the site and the locality.

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Apart from new tree plantings, the Indicative Concept Plan shows garden beds containing *Lomandra Tanika* at the eastern and western ends of the car park (forming an extension of the existing beds in these locations) and within the central bed. Also reflecting the existing situation, climbers (*Sollya heterophylla* and *Hibbertia scandens*) are shown in the bed along the southern boundary with timber climbing frames fixed to the northern side of the acoustic wall.

The proposed landscaping will improve the landscape character of the site and will assist in integrating the expanded car park into the residential streetscape.

Cumulative impact on residential character

As shown in the Indicative Concept Plan, the development anticipated under the Planning Proposal would involve the demolition of the two existing dwellings which adjoin the existing Hotel car park and the extension of the car park over that site. It is considered that the Planning Proposal and associated anticipated development would have minimal impact on the residential character of the remainder of Macquarie and Maloney Streets or the wider area. The majority of development in these streets will remain residential and the Planning Proposal is considered to be minimal in its scope and impact in this regard.

The Planning Proposal is considered to provide for a transition between the commercial/retail development on the Gardeners Road frontage and residential development to the south and offers the opportunity to reduce impacts associated with those uses on the neighbouring residential area. As noted above, the Planning Proposal is assessed as being likely to result in improvements to residential amenity due to reductions in commercial/retail traffic/parking through residential streets as well as associated noise (see **Appendix 3 and 4**). That activity and noise will be largely contained at the northern ends of Macquarie and Maloney Streets on the site of the expanded car park.

In terms of urban design, the extension of the car park as shown in the Indicative Concept Plan, represents an extension of the existing development on the neighbouring site to the north. As noted in the Heritage Impact Statement, the extension of the car park *would be compatible in form, function, scale and setback to the already existing development* (pp. 8-9).

At the same time, as described above, the Planning Proposal and associated anticipated development, offers the opportunity for additional landscaping both within the site and in the adjoining street frontages (including the removal of existing driveway crossings to the site). It is considered that the additional landscaping would improve the landscape character of the site and area generally, particularly through the opportunity for additional tree plantings, and would assist in integrating the development into the streetscape and mitigating adverse impacts on residential character.

Overall, taking into account the above matters, it is considered that the Planning Proposal will not have an adverse cumulative impact on residential character.

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Q9. How has the Planning Proposal adequately addressed any social and economic effects?

The Planning Proposal would have positive social and economic effects in terms of:

- providing support and additional infrastructure for an existing and long-standing business which provides leisure and recreational facilities for the local community. The Planning Proposal would, in turn, provide support for the neighbourhood centre on Gardeners Road through the provision of additional off-street parking and increased activation;
- reduced amenity impacts on neighbouring residents in terms of traffic and parking and noise as set out in the submitted Traffic Impact Statement (see **Appendix 3**) and Acoustic Impact Report (see **Appendix 4**); and
- provision of additional on-street parking for local residents.

As noted above, while the Planning Proposal will result in the loss of two dwellings, it will have minimal impact on the overall supply of housing in the council area or the achievement of State government housing targets. The site has limited potential for additional residential density taking into account the small size of the subject lots and the restrictions in the LEP on higher density housing forms in the R2 zone (eg. Clause 6.11). At the same time, the Planning Proposal maintains the R2 zoning and, should circumstances within the immediate surrounding area change, the Planning Proposal will not reduce the potential for the provision of new housing on the subject land in the future.

5.4 SECTION D – STATE AND COMMONWEALTH INTERESTS

Q10. Is there adequate public infrastructure for the Planning Proposal?

The site is serviced by existing adequate public transport infrastructure, utility services, roads and essential services.

The effect of the Planning Proposal on the road network is addressed in the Traffic Impact Statement (see **Appendix 3**) which found that there would be no adverse traffic impacts associated with the Planning Proposal.

Q11. What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?

A gateway determination has not yet been issued.

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6. COMMUNITY CONSULTATION

Council officers have advised that Council has endorsed a Community Engagement Policy requiring up-front consultation with the community for any Planning Proposal. That consultation takes the form of a community engagement meeting.

Community consultation would be expected to involve a formal exhibition period of 14 days. The community would be notified of the commencement of the exhibition period via a notice in a local newspaper and via a notice on Council's website. The written notice would:

- Give a brief description of the objectives or intended outcomes of the Planning Proposal;
- Indicate the land affected by the Planning Proposal;
- State where and when the Planning Proposal can be inspected;
- Give the name and address of the relevant planning authority for the receipt of submissions; and
- Indicate the last date for submissions.

During the exhibition period, the following material would be made available for inspection:

- The Planning Proposal, in the form approved for community consultation by the Director General of Planning;
- The gateway determination; and
- Any studies relied upon by the Planning Proposal.

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7. PROJECT TIMELINE

It is difficult to estimate a precise project timeline at this stage. Nevertheless, the following provisional project timeline is provided. The timeline below assumes that no additional information is requested during the process.

- *Anticipated date of Gateway Determination:* December 2017;
- *Anticipated time for the completion of required technical information:* nil;
- *Timeframe for government agency consultation (pre and post exhibition as required by Gateway determination):* as required by Gateway determination (anticipated to be completed by end March 2018).
- *Commencement and completion dates for public exhibition period:* 14 days, to be completed by end of February 2018;
- *Dates for public hearing (if required):* To be confirmed by council. ;
- *Timeframe for consideration of submissions:* Approximately 28 days, including any dates for public hearing, to be completed by end of April 2018;
- *Date of submission to the Department to finalise the LEP:* Anticipated to coincide with the above, to be completed by May 2018;
- *Anticipated date RPA will make the plan (if delegated):* To be confirmed by Council (anticipated to be by end June 2018);
- *Anticipated date RPA will forward to the Department for notification:* Approximately three months, to be completed by October 2018. [To be confirmed by Council].

We consider that the above accurately and conservatively outlines the likely timeframes for the Planning Proposal. The total timeframe from the Gateway determination to the plan being made is estimated to be nine months to 1 year.

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8. CONCLUSION

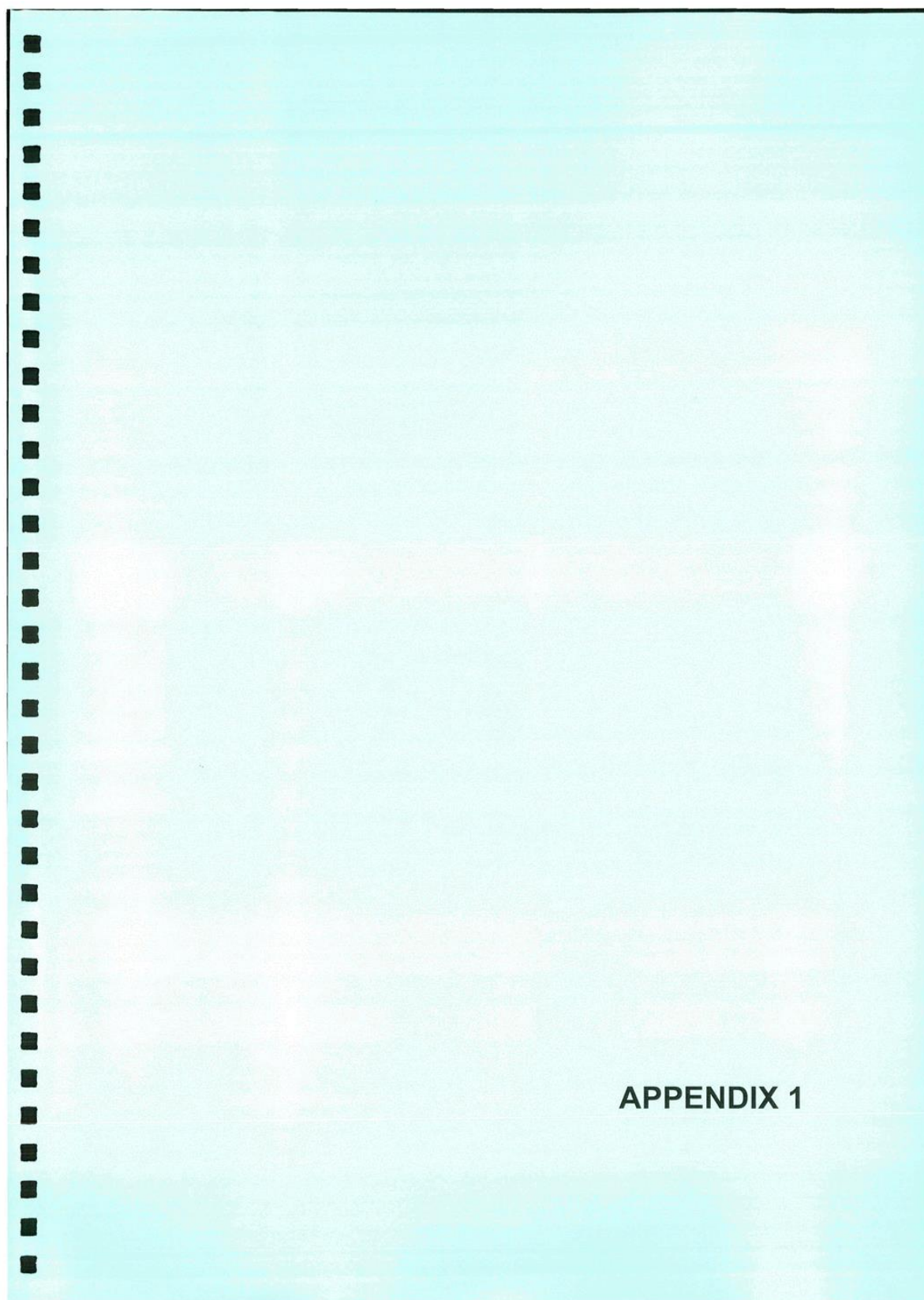
This Planning Proposal seeks the amendment of Botany LEP 2013 to permit an additional permitted use on the site at 3 Macquarie Street and 3A Maloney Street Rosebery for a “car park” so as to facilitate the extension of the existing car park associated with the Lakes Hotel onto the site.

This submission is accompanied by an Indicative Concept Plan (see **Appendix 2**) showing the redevelopment of the site that is to be facilitated by the subject Planning Proposal.

This Planning Proposal demonstrates that:

- there is a need for the Planning Proposal and that the Planning Proposal is the only means currently available of achieving its objectives;
- the Planning Proposal is consistent with the objectives and actions of the Sydney Metropolitan Strategy, the Draft East Subregional Strategy and the Botany Bay Planning Strategy 2031, particularly those relating to Sydney Airport and its Environs;
- the Planning Proposal is consistent with applicable SEPPs and Ministerial Directions;
- the likely environmental effects of the Planning Proposal as illustrated by the Indicative Concept Plan are within acceptable parameters and able to be managed;
- the Planning Proposal will have positive social and economic effects, particularly in providing support to the neighbourhood centre and the Hotel, improving residential amenity and providing additional on-street parking opportunities for residents; and
- there is adequate public infrastructure for the Planning Proposal.

Given the above, this Planning Proposal for the site provides a robust case for the proposed amendment of Botany LEP 2013 which can be supported by Council on the basis of all relevantly applicable urban planning criteria.



8/3/2017

Botany Bay Local Environmental Plan 2013 - NSW Legislation

Botany Bay Local Environmental Plan 2013

Current version for 10 February 2017 to date (accessed 3 August 2017 at 09:36)

Schedule 1

Schedule 1 Additional permitted uses

(Clause 2.5)

1 Use of certain land at 1024–1044 Botany Road, Botany

- (1) This clause applies to land at 1024–1044 Botany Road, Botany, being Lot 1, DP 826172, Lot 1, DP 590790 and Lots 1, 2 and 6–10, DP 7826 and identified as “1” on the Additional Permitted Uses Map.
- (2) Development for the purposes of light industries, industrial retail outlets, self storage facilities, vehicle body repair workshops and vehicle repair stations is permitted with development consent.

2 Use of certain land at 1354 Botany Road, Botany

- (1) This clause applies to land at 1354 Botany Road, Botany, being Part Lot 1, DP 73950, known as Sir Joseph Banks Hotel and identified as “2” on the Additional Permitted Uses Map.
- (2) Development for the purposes of a pub is permitted with development consent.

3 Use of certain land at 23A Clevedon Street and 68 Pemberton Street, Botany

- (1) This clause applies to land at 23A Clevedon Street and 68 Pemberton Street, Botany, being Lot 1, DP 191664, Lot 1, DP 669008 and Lot A, DP 359739 and identified as “3” on the Additional Permitted Uses Map.
- (2) Development for the purposes of a depot is permitted with development consent.

4 Use of certain land at Tupia Street, Botany

- (1) This clause applies to land at the end of Tupia Street, Botany within Sir Joseph Banks Park, being Lot Y, DP 32914 and identified as “4” on the Additional Permitted Uses Map.
- (2) Development for the purposes of a depot and public administration building is permitted with development consent.

5 Use of certain land at Wentworth Avenue, Eastgardens

- (1) This clause applies to land at Hensley Athletic Field, bordered by Wentworth Avenue, Denison Street, Smith Street and Corish Circle, Eastgardens, being Lot 182, DP 752015 and Lot 3, DP 79069 and identified as “5” on the Additional Permitted Uses Map.
- (2) Development for the purposes of a car park, entertainment facility, food and drink premises, function centre and registered club is permitted with development consent.

6 Use of certain land at Florence Avenue, Eastlakes

- (1) This clause applies to land at Florence Avenue, Eastlakes, being Lot 3, DP 791176 and identified as “6” on the Additional Permitted Uses Map.
- (2) Development for the purposes of light industries and a warehouse or distribution centre is permitted with development consent.

7 Use of certain land at 75 Gardeners Road, Eastlakes

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/sch1>

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- (1) This clause applies to land at 75 Gardeners Road, Eastlakes, being Lot 1, DP 1116853 and identified as "7" on the Additional Permitted Uses Map.
- (2) Development for the purposes of entertainment facilities, food and drink premises, function centres, garden centres, hardware and building supplies, landscaping material supplies, recreation areas and recreation facilities (indoor) is permitted with development consent.

8 Use of certain land at King Street, Eastlakes

- (1) This clause applies to land at L'Estrange Park, King Street, Eastlakes, being Lot 7068, DP 1028505 and identified as "8" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a depot and public administration building is permitted with development consent.

9 Use of certain land at 102 Maloney Street, Eastlakes

- (1) This clause applies to land at 102 Maloney Street, Eastlakes, being Lot 100, DP 740358 and identified as "9" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a service station is permitted with development consent.

9AA Use of certain land at Coward Street, John Street, Haran Street, Church Avenue, O'Riordan Street and Gardeners Road, Mascot

- (1) This clause applies to land at Coward Street, John Street, Haran Street, Church Avenue, O'Riordan Street and Gardeners Road, Mascot, known as Linear Park, being Lots 1, 2 and 4 and part of Lots 3 and 5, DP 85917 and Lot 1, DP 224757 and identified as "9AA" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a recreation area is permitted with development consent.

9A Use of certain land at Coward Street, King Street and Kent Road, Mascot

- (1) This clause applies to land at Coward Street, King Street and Kent Road, Mascot, being Lots 2 and 4, DP 234489, Lot B, DP 164829, Lot 1, DP 81210, Lot 1, DP 202093, Lot 1, DP 721562, Lot 1, DP 202747, Lot 133, DP 659434, Lots 4 and 5, DP 38594, Lots 1 and 2, DP 738342, Lot 23, DP 883548, Lot 3, DP 230355, Lot 4, DP 537339, Lot 1, DP 445957 and Lot 2, DP 510447 and identified as "9A" on the Additional Permitted Uses Map.
- (2) Development is permitted with development consent:
 - (a) for any of the following purposes, but only if the purpose relates to the use of Sydney (Kingsford Smith) Airport:
 - (i) commercial premises,
 - (ii) function centres,
 - (iii) information and education facilities,
 - (iv) passenger transport facilities,
 - (v) tourist and visitor accommodation, or
 - (b) for the purpose of any other building or place used only for purposes that relate to the use of Sydney (Kingsford Smith) Airport.
- (3) Without limiting subclause (2), development is permitted with development consent for the purpose of a building or place used for the provision of any of the following services:
 - (a) services related to any of the following uses carried out at Sydney (Kingsford Smith) Airport:

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/sch1>

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Botany Bay Local Environmental Plan 2013 - NSW Legislation

- (i) the assembly, storage or land transport of air freight,
 - (ii) the accommodation, or transportation by air or land, of air passengers or air crew,
 - (iii) the storage, operation, maintenance or repair of aircraft or aircraft components,
 - (iv) the administrative functions associated with the airport, such as airport management and security,
 - (v) the functions of government departments and authorities related to air passengers and air freight,
 - (b) services provided for hotel or motel guests, including banking, dry cleaning, hairdressing and the like, that are located within the confines of the hotel or motel building.
- (4) In determining whether to grant development consent under this clause, the consent authority must consider the following:
- (a) whether or not the development is likely to support the role of Sydney (Kingsford Smith) Airport and environs as a transport gateway,
 - (b) whether or not the development is likely to compromise the viability of adjoining industrial uses.

9B Use of certain land at 2 Hollingshed Street, Mascot

- (1) This clause applies to land at 2 Hollingshed Street, Mascot, being Lot 2, DP 827779 and identified as "9B" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a depot and public administration building is permitted with development consent.

10 Use of certain land at 60 Kent Road, Mascot

- (1) This clause applies to land at 60 Kent Road, Mascot, being Lot 7, DP 38594 and identified as "10" on the Additional Permitted Uses Map.
- (2) Development for the purposes of business premises and office premises (but not restricted premises) is permitted with development consent.

10A Use of certain land at King Street, Mascot

- (1) This clause applies to land at King Street, Mascot, being Lot 2, DP 510447 and identified as "10A" on the Additional Permitted Uses Map.
- (2) Development for any of the following purposes is permitted with development consent, but only if the purpose relates to the use of Sydney (Kingsford Smith) Airport:
 - (a) freight transport facilities,
 - (b) industrial training facilities,
 - (c) general industries,
 - (d) light industries,
 - (e) storage premises,
 - (f) transport depots.
- (3) In determining whether to grant development consent under this clause, the consent authority must consider the following:
 - (a) whether or not the development is likely to support the role of Sydney (Kingsford Smith) Airport and environs as a transport gateway.

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/sch1>

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8/3/2017

Botany Bay Local Environmental Plan 2013 - NSW Legislation

(b) whether or not the development is likely to compromise the viability of adjoining industrial uses.

11 Use of certain land along Qantas Drive, Mascot

- (1) This clause applies to land adjacent to Qantas Drive, Mascot, being Lot 20, DP 747023 and identified as "11" on the Additional Permitted Uses Map.
- (2) Development for the purposes of signage is permitted with development consent.

12 Use of certain land at Robey and High Streets, Mascot

- (1) This clause applies to land at Robey and High Streets, Mascot, being Lots 4 and 5, DP 632359, known as John Curtin Reserve and identified as "12" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a depot and public administration building is permitted with development consent.

13 Use of certain land at 303–305 Gardeners Road, Rosebery

- (1) This clause applies to land at 303–305 Gardeners Road, Rosebery, being Lot 10, DP 1142723 and Lot A, DP 187154, known as The Lakes Hotel and identified as "13" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a pub is permitted with development consent.

14 Use of certain land at 321 Gardeners Road, Rosebery

- (1) This clause applies to land at 321 Gardeners Road, Rosebery, being Lot 100, DP 1088772 and identified as "14" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a service station is permitted with development consent.

15 Use of certain land at 395 Gardeners Road, Rosebery

- (1) This clause applies to land at 395 Gardeners Road, Rosebery, being Lot 1, DP 75748 and identified as "15" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a service station and vehicle repair workshop is permitted with development consent.

16 Use of certain land at 409 Gardeners Road, Rosebery

- (1) This clause applies to land at 409 Gardeners Road, Rosebery, being Lot 1, DP 217097 and Lot 5, DP 223717, known as the Roxy Theatre and identified as "16" on the Additional Permitted Uses Map.
- (2) Development for the purposes of entertainment facilities, function centres, health services facilities and hotel or motel accommodation, is permitted with development consent.

17 Use of certain land at 1 Macquarie Street and 3 Maloney Street, Rosebery

- (1) This clause applies to land at 1 Macquarie Street and 3 Maloney Street, Rosebery, being Lot 6, DP 18556 and Lot 11, DP 1142723 and identified as "17" on the Additional Permitted Uses Map.
- (2) Development for the purposes of a car park in association with the use of the hotel at 305 Gardeners Road, Rosebery, known as The Lakes Hotel, is permitted with development consent.

18 Use of certain land at Astrolabe Park, Mutch Park and Rhodes Street Reserve

- (1) This clause applies to the following land, identified as "18" on the Additional Permitted Uses Map:
 - (a) land at Isaac Smith Street, Daceyville, being Lot 2825, DP 752015, known as Astrolabe Park,

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/sch1>

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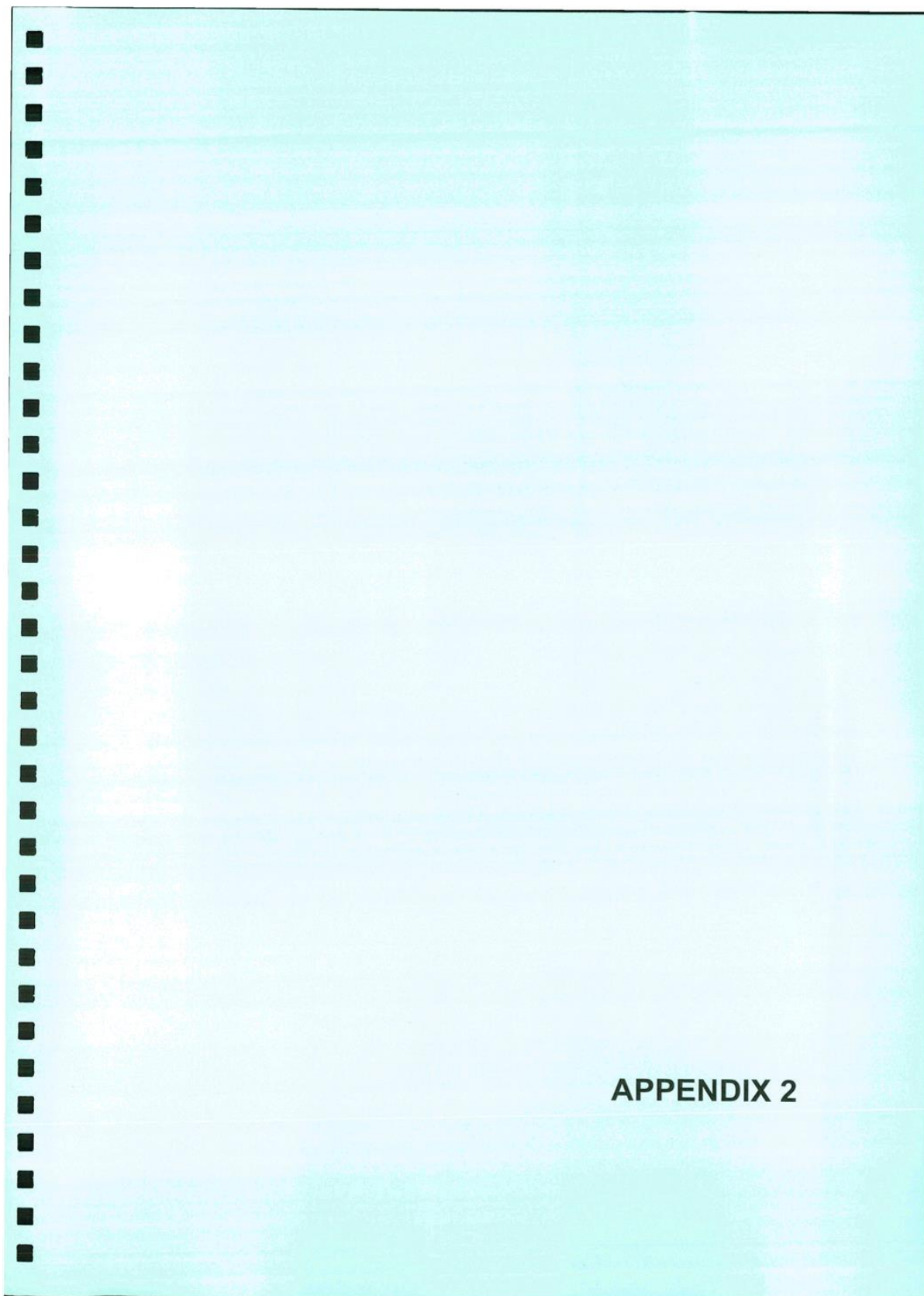
8/3/2017

Botany Bay Local Environmental Plan 2013 - NSW Legislation

- (b) land at Rhodes Street, Hillsdale, being Lot 245, DP 752015, Lot 1, DP 122212 and Lot 1, DP 813900, known as Rhodes Street Reserve,
 - (c) land at Wentworth Avenue, Pagewood, being Lots 3881 and 3882, DP 752015, known as Mutch Park.
- (2) Development for the purposes of a recreation area is permitted with development consent.

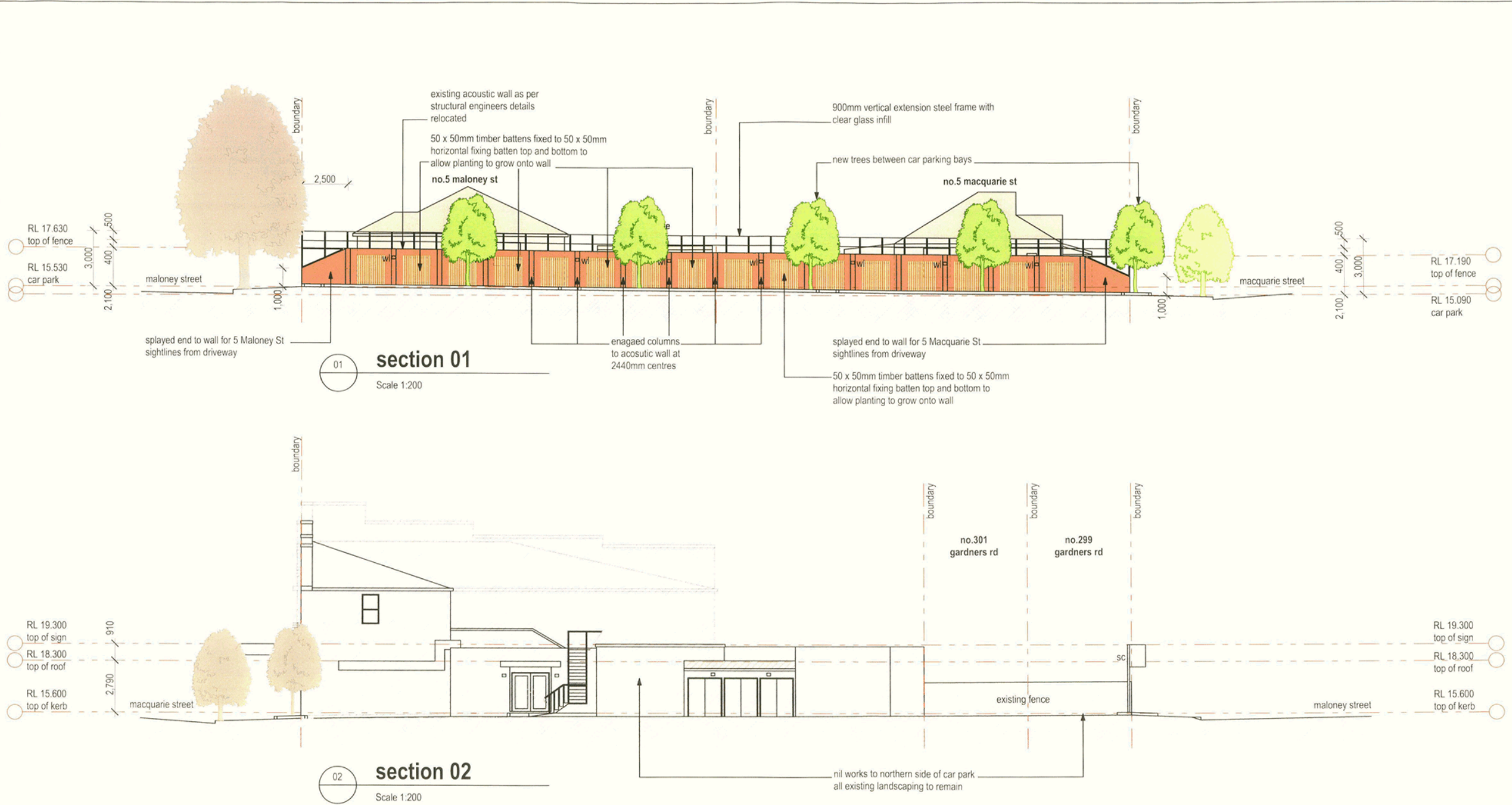
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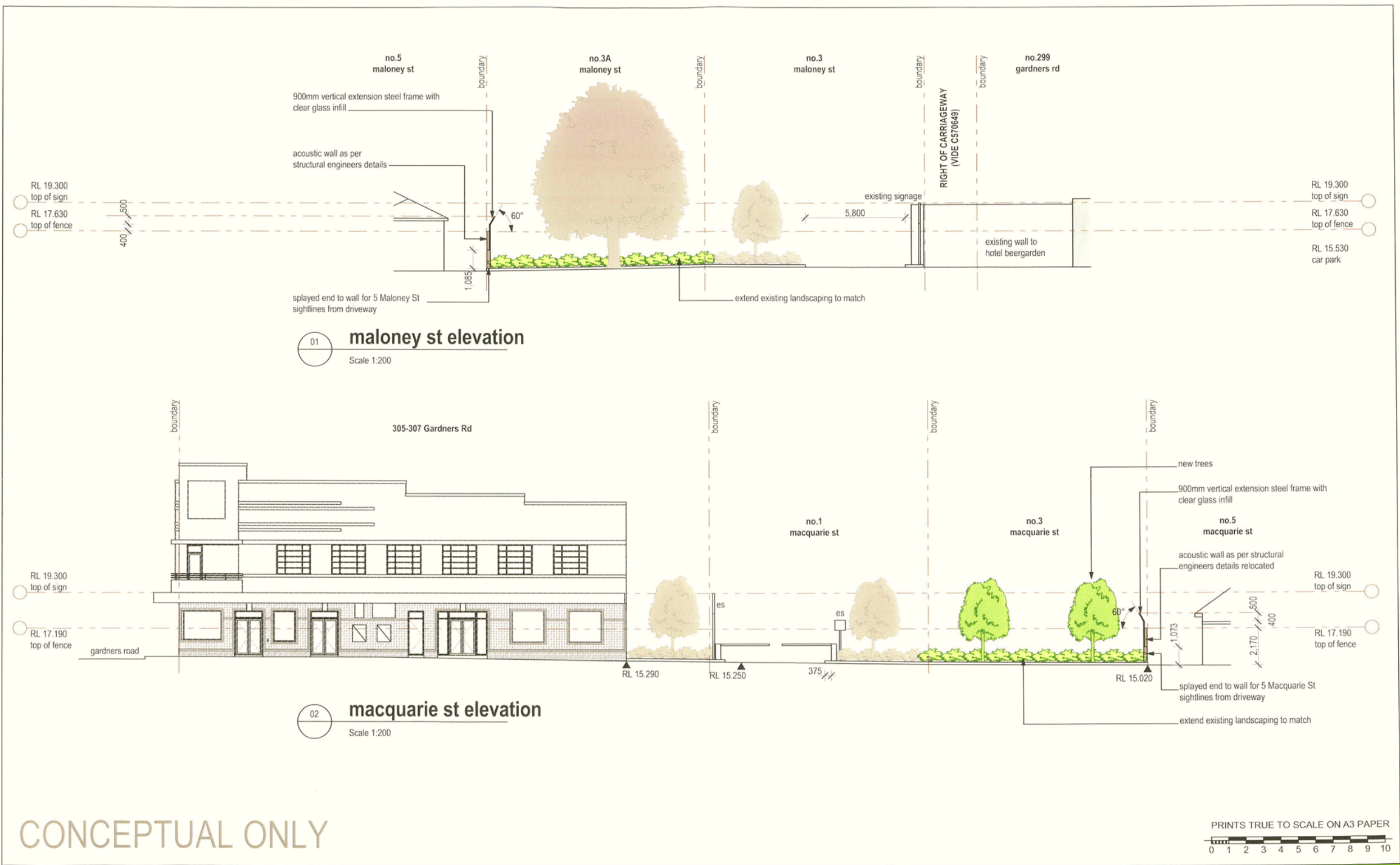


APPENDIX 2





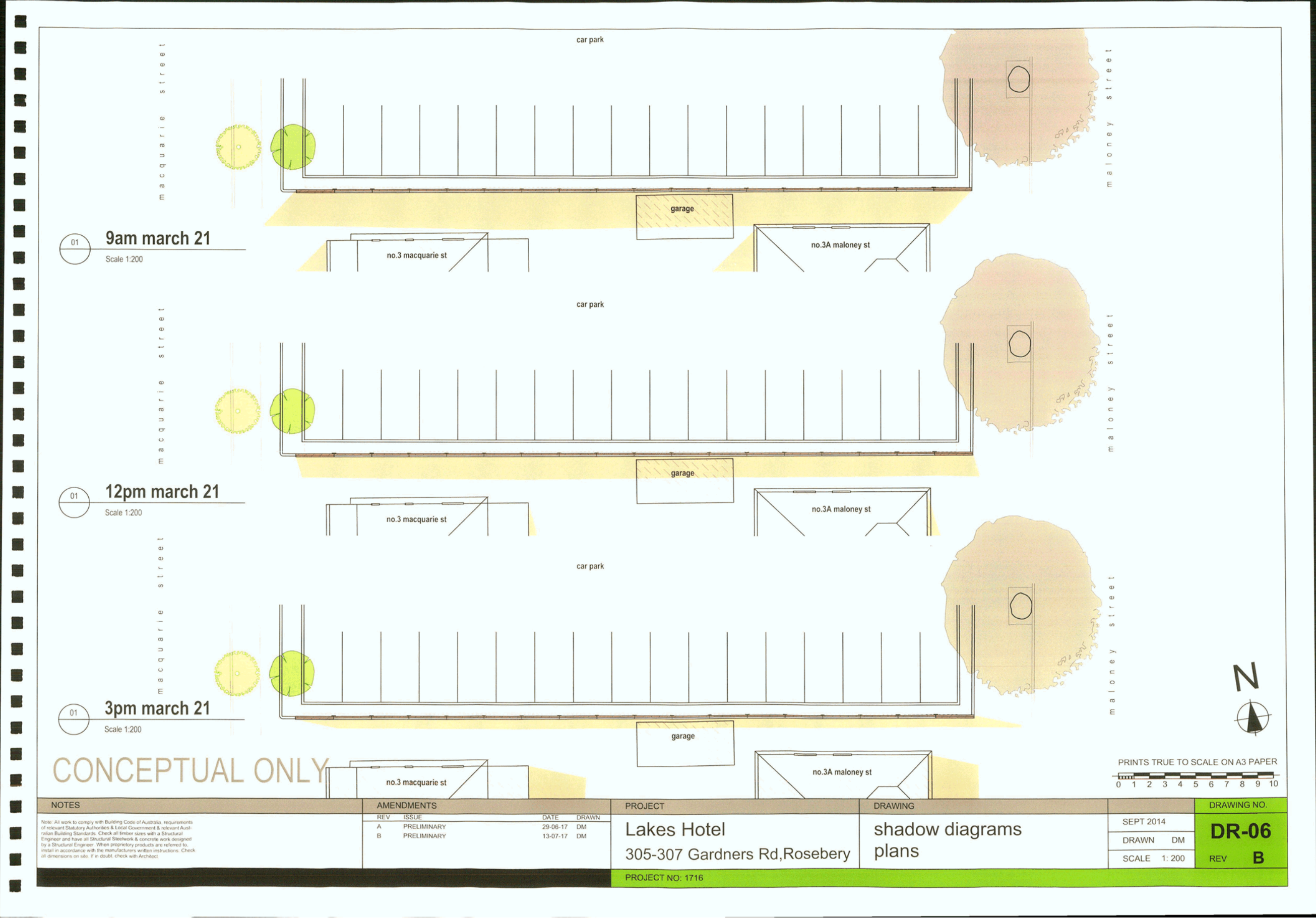
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<small>Note: All work to comply with Building Code of Australia, requirements of relevant Statutory Authorities & Local Government & relevant Australian Building Standards. Check all timber sizes with a Structural Engineer and have all Structural Steelwork & concrete work designed by a Structural Engineer. When proprietary products are referred to, install in accordance with the manufacturers written instructions. Check all dimensions on site. If in doubt, check with Architect.</small>		REV	ISSUE	DATE	DRAWN	SEPT 2014	
		A	PRELIMINARY	29-06-17	DM	DR-02	
		B	PRELIMINARY	06-07-17	DM		
		C	PRELIMINARY	13-07-17	DM	SCALE 1:200	
DARREN MAH DESIGN		darren@darrenmahdesign.com.au		contact mob: 0438 895 117		PROJECT NO: 1716	

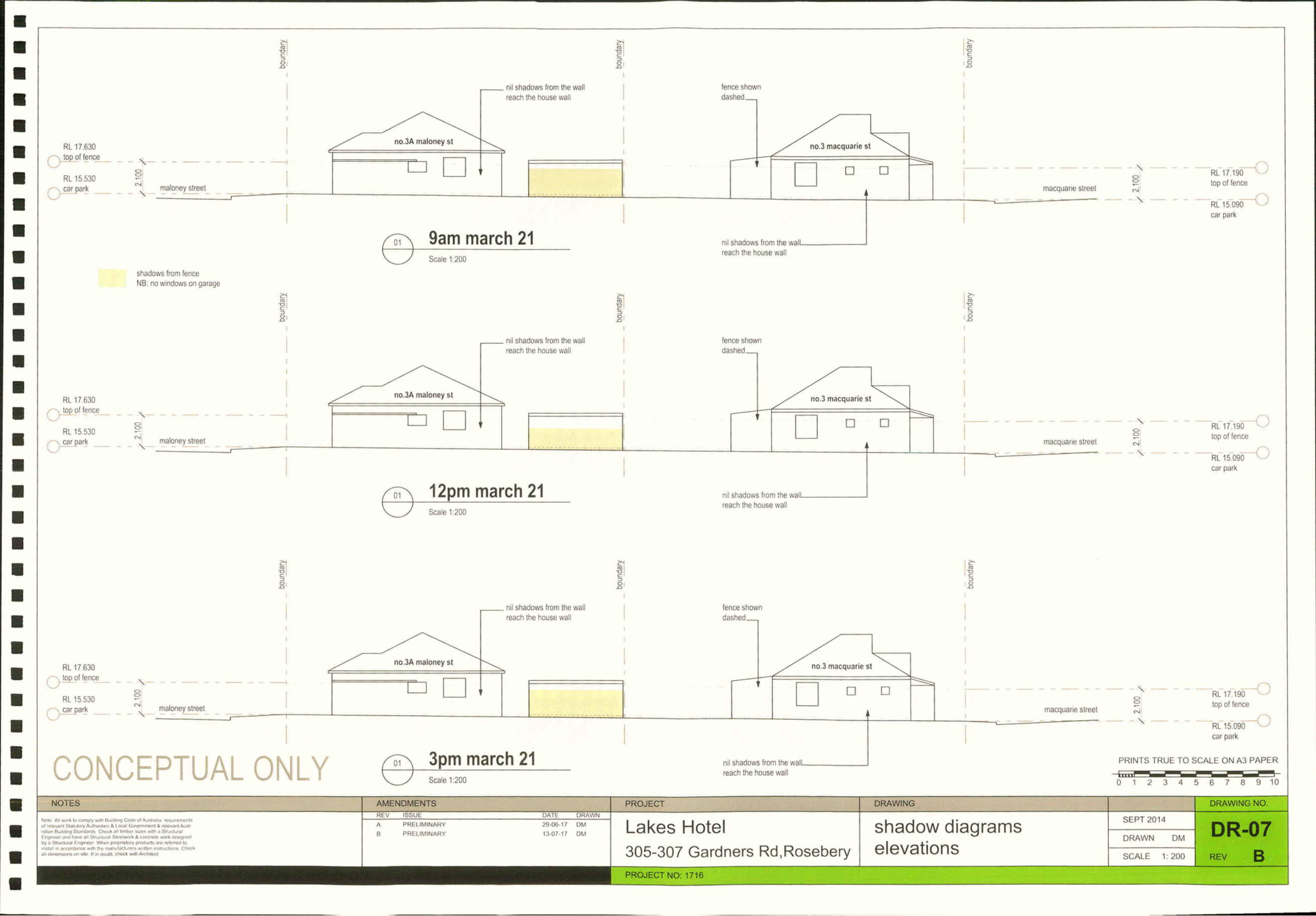


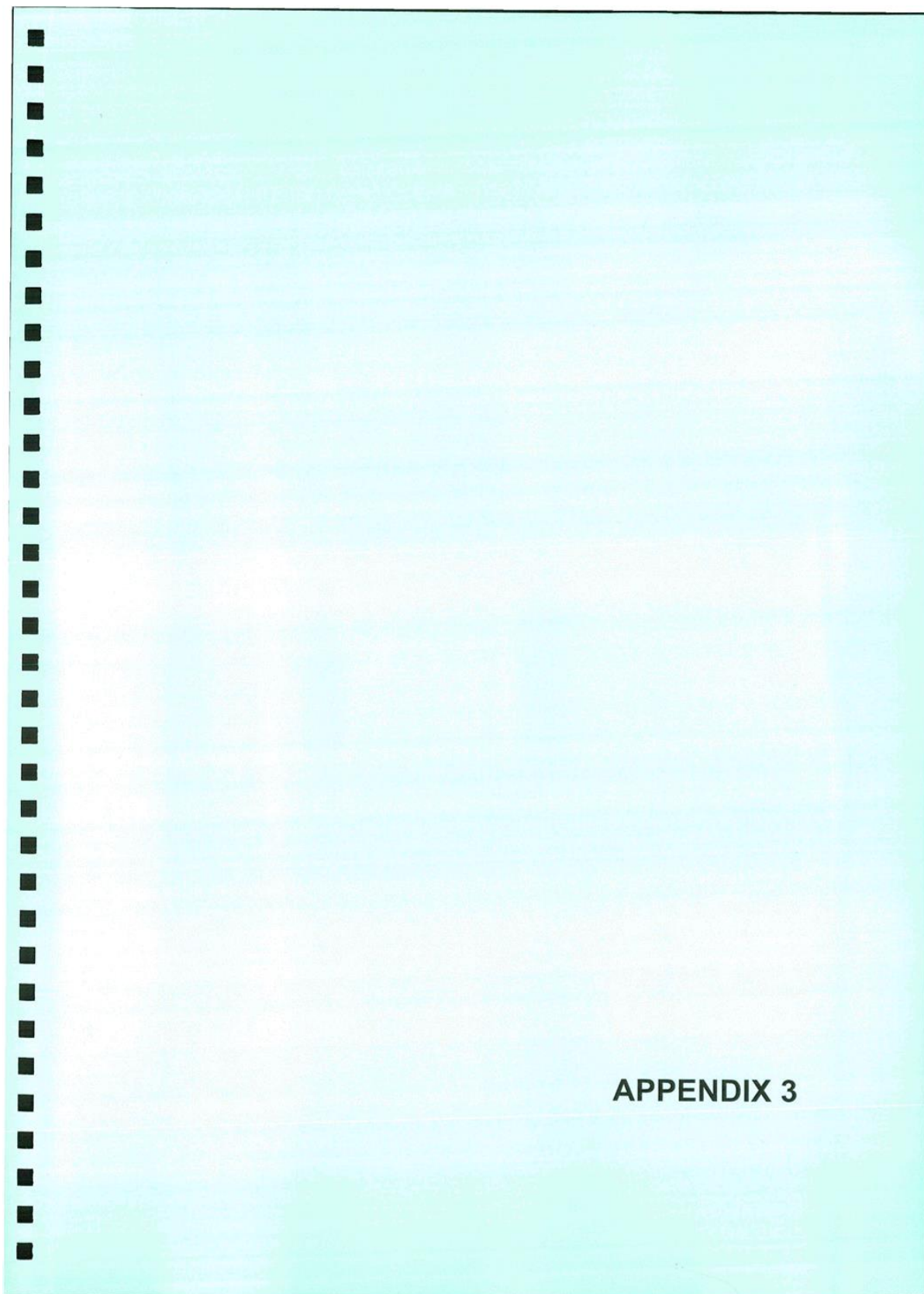
NOTES				AMENDMENTS		PROJECT	DRAWING	DRAWING NO.	
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				A	PRELIMINARY	29-06-17	DM	DRAWN DM	
				B	PRELIMINARY	13-07-17	DM	SCALE 1:200	
						PROJECT NO: 1716		REV B	













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Reference: 17.136r01v05

19 October 2017

The Lakes Hotel
307 Gardeners Road,
Rosebery NSW 2018

Attention: Chris Thomas, General Manager

**Re: The Lakes Hotel – Planning Proposal
Traffic Impact Statement**

Dear Chris,

We refer to the subject Planning Proposal, seeking an amendment to Botany LEP 2013 to permit an expansion of the private carpark associated with the adjacent Lakes Hotel, and confirm that TRAFFIX has been commissioned to prepare a Traffic Impact Statement to accompany the submission.

TRAFFIX has reviewed the architectural drawings prepared by Darren Mah Design and now advises as follows.

Site and Location

The site is located at 3 Macquarie Street and 3A Maloney Street in Rosebery. It has a rectangular configuration with a site area of approximately 572m² and is currently zoned as *R2- Low Density Residential*.

The site has a northern boundary to the existing Lakes Hotel car park that measures approximately 44 metres, an eastern frontage to Maloney Street that measures approximately 13 metres and a western frontage to Macquarie Street, measuring approximately 13 metres. It borders low density residential developments to the south.

The site presently accommodates two single storey residential dwelling houses, each with a single vehicular access, both adjacent to the northern property boundary.

Reference should be made to the Location Map and Site Plan shown in **Figure 1** and **Figure 2** respectively.

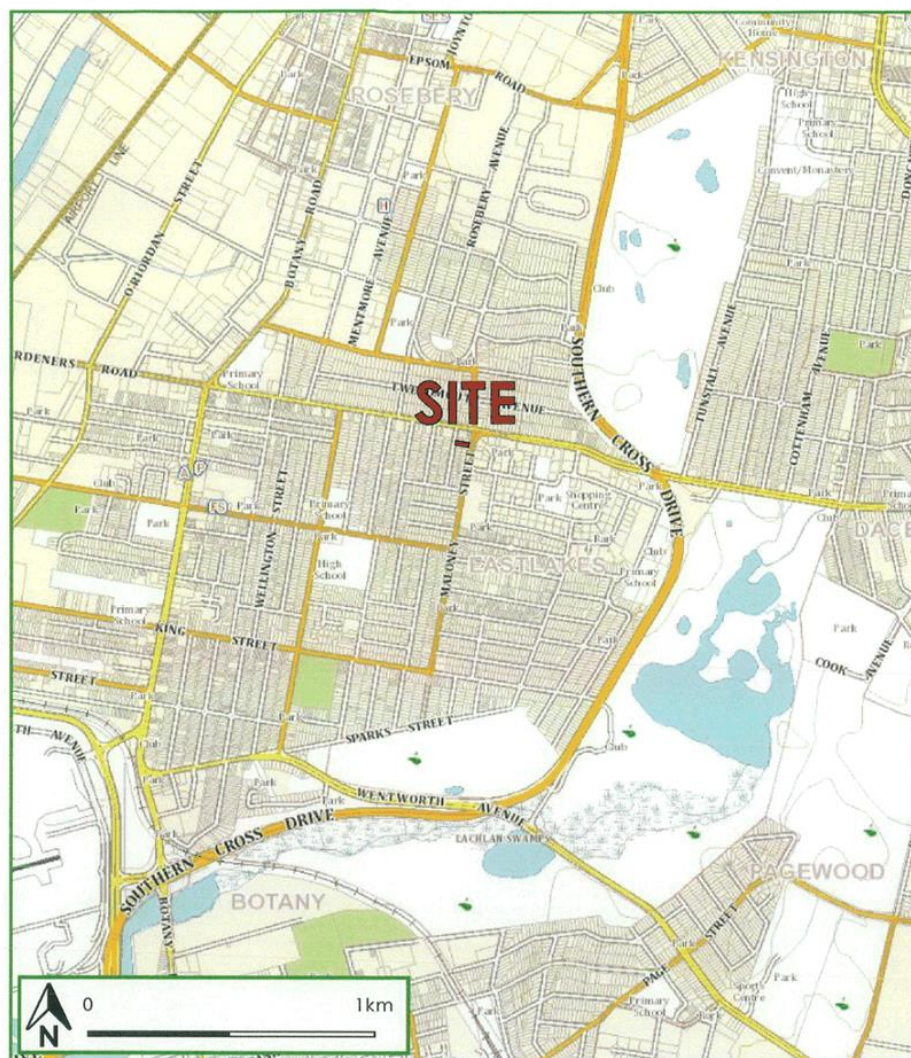


Figure 1: Location Map

traffic impact studies | expert witness | local govt. liaison | traffic calming | development advice | parking studies
pedestrian studies | traffic control plans | traffic management studies | intersection design | transport studies

2



Figure 2: Site Plan

traffic impact studies | expert witness | local govt. liaison | traffic calming | development advice | parking studies
pedestrian studies | traffic control plans | traffic management studies | intersection design | transport studies

3



✱ Road Network

The following roads are of key interest with respect to the site:

- **Gardeners Road:** an RMS Main Road (MR183) that generally runs in an east-west direction between the Nine Ways, Kingsford in the east and Kent Road in the west. In the vicinity of the site, it accommodates two lanes of traffic in each direction. Between Maloney Street and Macquarie Street, parking is not permitted between kerbside lanes.
- **Maloney Street:** an Unclassified Regional Road (RR7023) that runs in a north-south direction between Dalmeny Avenue in the north and Sparks Street in the south. In the vicinity of the site, Maloney Street accommodates a two lanes of traffic in each direction within a divided carriageway, increasing to three lanes in each direction for approximately 70 metres on approach to the signalised intersection with Gardeners Road. South of Bradley Lane, parking is generally permitted on both kerbsides.
- **Macquarie Street:** a local road that runs in a north south direction between Gardeners Road in the north and Want Street in the south. In the vicinity of the site, Macquarie Street accommodates one lane of traffic in each direction and generally permits parking along both kerbsides.

The existing road hierarchy has been shown in **Figure 3** for reference.

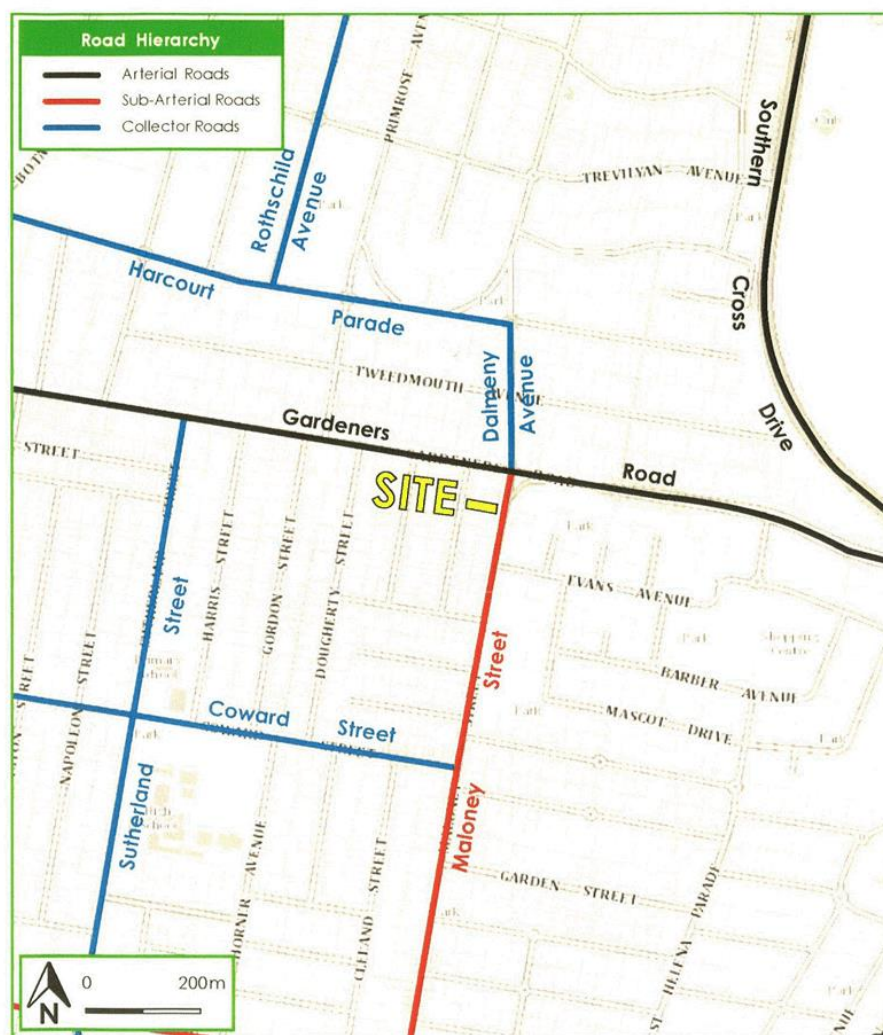


Figure 3: Road Hierarchy



➤ Proposal

A full description of the Planning Proposal is provided in the Planning Proposal prepared separately. The Planning Proposal is accompanied by an Indicative Concept Plan showing how the site could be developed under the proposed amendment. The Indicative Concept Plan also illustrates consequential changes that would be caused to the existing Hotel car park. The traffic and parking implications of the Indicative Concept Plan are assessed in this report.

The Indicative Concept Plan comprises the following components:

- Demolition of all existing structures at 3 Macquarie Street and 3A Maloney Street
- The construction of 14 additional parking spaces for a total of 33 for the use of the existing hotel.
- The removal of existing driveway crossovers at No.3 Macquarie Street and 3A Maloney Street.
- The existing two-way accesses and aisle retained and modified for one-way circulation with the entrance on Macquarie Street and exit on Maloney Street.

It should be noted that no changes to the hotel or administration areas are proposed under this Planning Proposal. As such there is no increase in gross floor area (GFA) associated with this Planning Proposal.

The parking requirements, traffic impacts and design aspects arising from the Indicative Concept Plan are discussed separately below. Reference should be made to the architectural drawings prepared by Darren Mah Design, which has been presented in **Attachment 1**.

➤ Parking Proposed

Car Parking:

With an existing parking provision of 19 spaces and a proposed parking provision of 33 spaces the Indicative Concept Plan represents an increase in parking by approximately 74%. It is anticipated that this increase will better accommodate the current demand for parking and allow customers currently parking on Maloney and Macquarie Streets to park on site, freeing up parking for residents and limiting the potential for disruption caused by customers returning to their vehicles of an evening.

Whilst no change to the operation or GFA of the hotel is proposed an assessment against the DCP parking requirement of the hotel has been undertaken for reference. Botany Bay DCP 2013 - Part 3A requires parking for 'pubs' at the following rate:

- 1 space / 2 employees; plus
- 1 space / 5m² GFA

The application of these rates to the public floor area of 377m² and 17 employees produces a requirement under the DCP of 84 parking spaces. This rate would be applicable to cater for expected demand if the site was constructed today.

Hence the increased provision of 33 spaces shall significantly improve residential amenity by reducing this demand for on street parking.

Bicycle Parking:

Council's DCP only requires bicycle parking for new developments where floor space exceeds 600m² GFA. As such, since the development is existing and no increase in GFA is proposed, bicycle parking is not required to be provided.



Accessible Parking:

The existing carpark contains one accessible space, located adjacent to the hotel entry. This space is retained in the Indicative Concept Plan and meets the required provision of 1 space per 59 vehicle spaces as specified in Part 3C of Botany Bay DCP (2013).

2 Traffic Impacts

There will be no change to the hotel's GFA and therefore the increase in parking provided will not in itself generate any additional traffic. The anticipated impact of the proposed development is to reduce the use of on street parking, particularly on Macquarie Street, reducing the traffic impacts on nearby residents of Macquarie Street.

In addition, the removal of existing driveway crossovers at No.3 Macquarie Street and 3A Maloney Street will result in an addition of one on street parking space in each of these streets, further improving amenity for surrounding residents.

2 Access

It is noted whilst the number of traffic movements in the neighbourhood shall not change, the number of traffic movements entering and exiting the carpark would be expected to increase in line with the number of spaces. Hence a review of the access arrangements has been undertaken in response to this increase in parking provision. Table 3.1 of AS2890.1 requires a Category 2 access drive way (a combined entry exit driveway of 6m to 9m in width) for a Class 2 carpark onto a local road with fewer than 100 spaces.

Under the existing design that there are two (2) two-way accesses servicing the existing car park (one from Macquarie Street and one from Maloney Street) of 6m in width and a two-way aisle that runs between the two accesses. This arrangement is already superior to the minimum requirements of AS2890.1. However, in response to the proposed parking increase the Indicative Concept Plan changes the existing access to allow only one-way traffic entering via Macquarie Street and exiting via Maloney Street. This is the safest and most efficient circulation arrangement with the one-way circulation aisles at the eastern and western ends of the site. Pedestrians and vehicles are easily able to anticipate and respond to traffic movements in a one way arrangement and shall provide a simplified superior arrangement improving safety over the existing access and circulation arrangement for both internal traffic and traffic on Macquarie Street and Maloney Street.

The existing DA consent conditions for ongoing use approved by the Land and Environment Court require the Macquarie Street access to be closed between 10pm one day and 7am the next day, 7 days of the week. The reason specified for this condition's inclusion was to reduce the amenity impacts of traffic on the surrounding residents.

The one-way circulation provided in the Indicative Concept Plan will only allow vehicles to exit via Maloney Street preventing vehicles exiting on to Macquarie Street, as is currently the case now when the Macquarie Street access is closed. The only change will be vehicles entering the car park from Macquarie Street, rather than Maloney Street, during the times that the access is currently closed. Therefore, the amenity impacts of this change are expected to be minimal as few patrons would arrive after 10pm and most patrons would arrive from Gardeners Road, at the northern end of Macquarie Street, which would not impact residents further south on Macquarie Street.

This arrangement is therefore considered acceptable as all exiting traffic will be directed to exit onto Maloney Street and restricted to a left turn movement heading away from the residential neighbourhood.



Internal Design

The internal design of the car park, illustrated in the Indicative Concept Plan, has been assessed in accordance with AS2890.1 (2004), with the following noteworthy:

- All parking space dimensions satisfy the minimum requirement of User Class 2 with a space width of 2.5m a space length of 5.4m and aisle width of 5.8m with the exception of one space provided with a design width of 2.4m. This space should be designated a 'small car space' if used by customers or reserved as an employee space (meeting the requirements of User Class 1A –Employee parking).
- The swept path analysis in **Attachment 2** demonstrates that the proposed one-way circulation aisles accommodate a vehicle up to the size of a B99 vehicle.

In summary, the internal design for the Indicative Concept Plan is expected to operate satisfactorily. It is envisaged that any minor amendments required (if any) can be reviewed and undertaken at development application stage once the Planning Proposal is finalised.

Summary

In summary, the Planning Proposal to facilitate an expanded car park to be constructed at 3 Macquarie Street and 3A Maloney Street, as illustrated in the Indicative Concept Plan, is expected to reduce parking demands in the residential streets of Maloney and Macquarie Streets, improving residential amenity. The change in access arrangements is expected to have minimal impact on the traffic in surrounding streets by directing traffic to Gardeners Road.

The Planning Proposal is therefore supported on traffic planning grounds and is expected to provide a net benefit to neighbouring residents.

We trust the above is of assistance and please contact the undersigned should you have any queries or require any further information.

Yours faithfully,

traffix

Geoff Higgins
Executive Engineer

Encl: Attachment 1 – Architectural Plans (Reduced Scale)
Attachment 2 – Swept Path Analysis

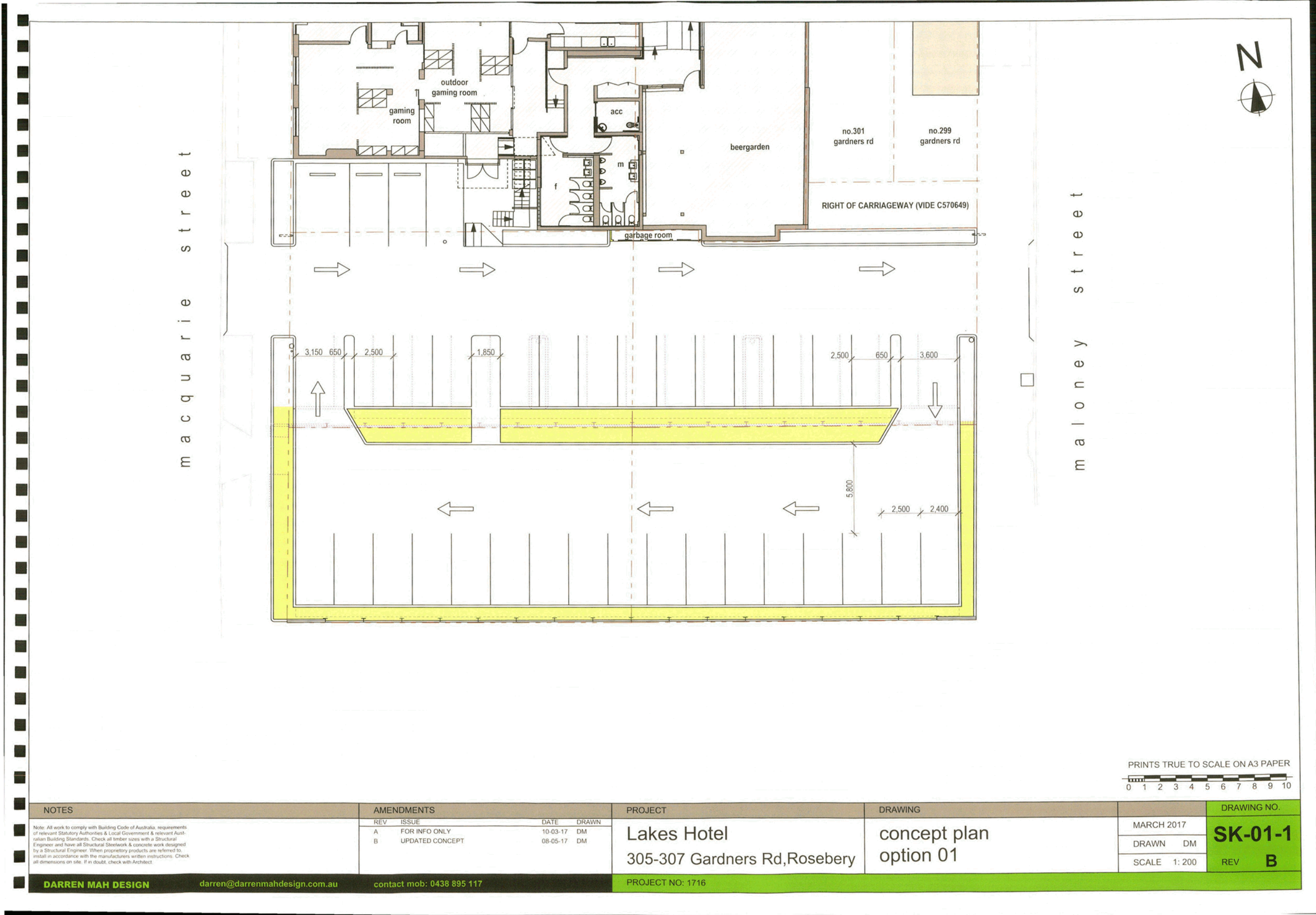


Attachment 1

Architectural Plans

traffic impact studies | expert witness | local govt. liaison | traffic calming | development advice | parking studies
pedestrian studies | traffic control plans | traffic management studies | intersection design | transport studies

9



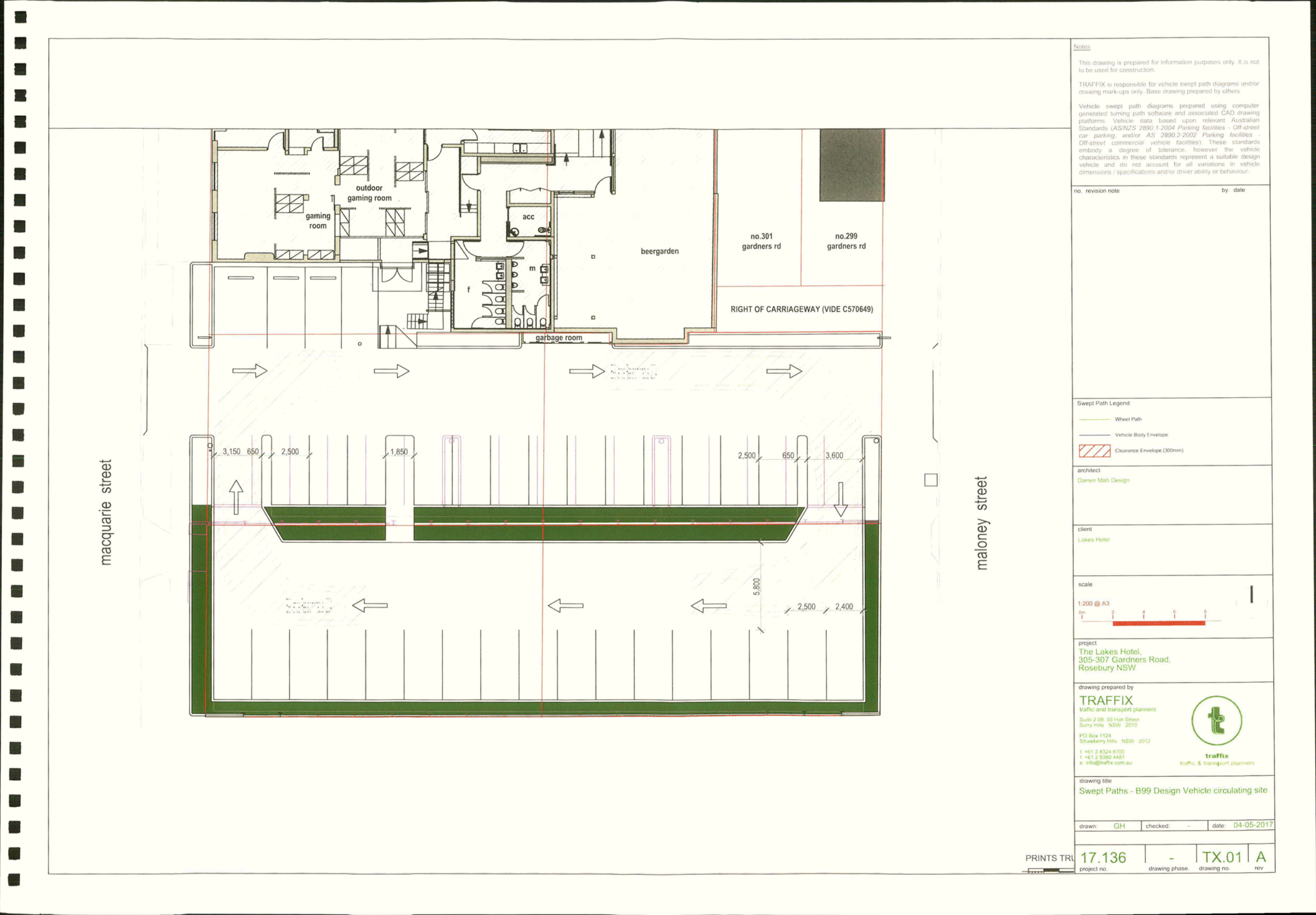


Attachment 2

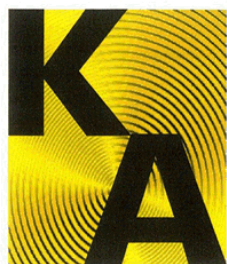
Swept Path Analysis

traffic impact studies | expert witness | local govt. liaison | traffic calming | development advice | parking studies
pedestrian studies | traffic control plans | traffic management studies | intersection design | transport studies

10



APPENDIX 4



KOIKAS ACOUSTICS PTY LTD

CONSULTANTS IN NOISE & VIBRATION

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BEXLEY NSW 2207


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NOISE IMPACT ASSESSMENT

THE LAKES HOTEL – PLANNING PROPOSAL

Date: Monday, 9th October 2017

File Reference: 2329R20170627asLakesHotel_carpark_v2.docx

DOCUMENT CONTROL		
Project Title	Noise Impact Assessment: The Lakes Hotel – Planning Proposal	
Project Number	2329	
Document Reference	2329R20170627asLakesHotel_carpark_v2.docx	
Document Path	Z:\ACOUSTICS\ACOUSTICS 17\REPORT\Clubs and Restaurants\2329 Lakes Hotel, Rosebery\Car park expansion + traffic noise\2329R20170627asLakesHotel_carpark_v2.docx	
Issue Date	Monday, 9 th October 2017	
Revision	INT	27/07/2017 Issued for internal quality control
	V1	09/08/2017 Report issued to Client
	V2	09/10/2017 Traffic noise impacts included
Prepared By	Adam Semple	
Approved By	Nick Koikas 	
Client	Thomas Hotels Attention: Chris Thomas – chris.thomas@thomashotels.com.au C/o Design Collaborative Attention: Jody Scanlan – jodyscanlan@designcollaborative.com.au	

The information contained herein should not be reproduced except in full. The information provided in this report relates to acoustic matters only. Supplementary advice should be sought for other matters relating to construction, design, structural, fire-rating, waterproofing, and the likes.

KOIKAS ACOUSTICS PTY LTD

Date: 9 October 2017

File Reference: 2329R20170627asLakesHotel_carpark_v2.docx

Prepared For: Thomas Hotels C/o Design Collaborative

Acoustic Report: Proposed car park extension – Lakes Hotel, Rosebery

NOISE IMPACT ASSESSMENT THE LAKES HOTEL – PLANNING PROPOSAL

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2.0 SUMMARY OF PLANNING PROPOSAL.....	4
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Appendix A:	Noise logger graphs
Appendix B:	Noise model layouts

KOIKAS ACOUSTICS PTY LTD

Date: 9 October 2017

File Reference: 2329R20170627asLakesHotel_carpark_v2.docx

Prepared For: Thomas Hotels C/o Design Collaborative

Acoustic Report: Proposed car park extension – Lakes Hotel, Rosebery

1.0 INTRODUCTION

Koikas Acoustics Pty Ltd (KA) has been commissioned by Thomas Hotels to prepare a noise impact assessment report that will accompany a Planning Proposal submission to Bayside Council seeking to amend the Botany Local Environment Plan 2013 such that a future expansion of the Lakes Hotel car park may be considered.

This report details predicted acoustic impacts to nearby residents, in accordance with the standard planning guidelines of the NSW Industrial Noise Policy (EPA, 2000). Further analysis regarding the change in traffic patterns along Macquarie and Maloney Street's that would result from an expansion of the existing car park is also included based on planning guidelines included in the NSW Road Noise Policy (EPA, 2011).

2.0 SUMMARY OF PLANNING PROPOSAL

The Planning Proposal seeks to amend the Botany LEP 2013 to allow a potential future expansion of the car park onto adjacent properties (No. 3 Macquarie Street and No. 3A Maloney Street). These properties are on land currently zoned R2 – Low-Density Residential which currently prohibits a car park development.

The proposal seeks to rezone the land to allow for a car park.

3.0 CAR PARK EXPANSION - CONCEPT

A concept plan for the car park expansion, prepared by Darren Mah Design – Project No. 1716 – dated 8.05.2017 – is shown in Figure 1. This report assesses the acoustic impact of the car park concept design to surrounding residents.

The concept plan shows:

- The expanded car park would occupy 3 Macquarie Street and 3A Maloney Street.
- 14 additional parking spaces, resulting in a total of 33 parking spaces on completion.
- Entry only from Macquarie Street and exit only onto Maloney Street, differing from the current two-way entry/exit to Macquarie Street and Maloney Street.

KOIKAS ACOUSTICS PTY LTD

Date: 9 October 2017

File Reference: 2329R20170627asLakesHotel_carpark_v2.docx

Prepared For: Thomas Hotels C/o Design Collaborative

Acoustic Report: Proposed car park extension – Lakes Hotel, Rosebery

KA has been made aware that the existing 3-metre high noise barrier currently located along the southern boundary of the car park would be relocated to the newly shared boundary between the car park and 5 Macquarie Street/5 Maloney Street. This will ensure that adjoining residents will be significantly shielded from noise associated with the car park.

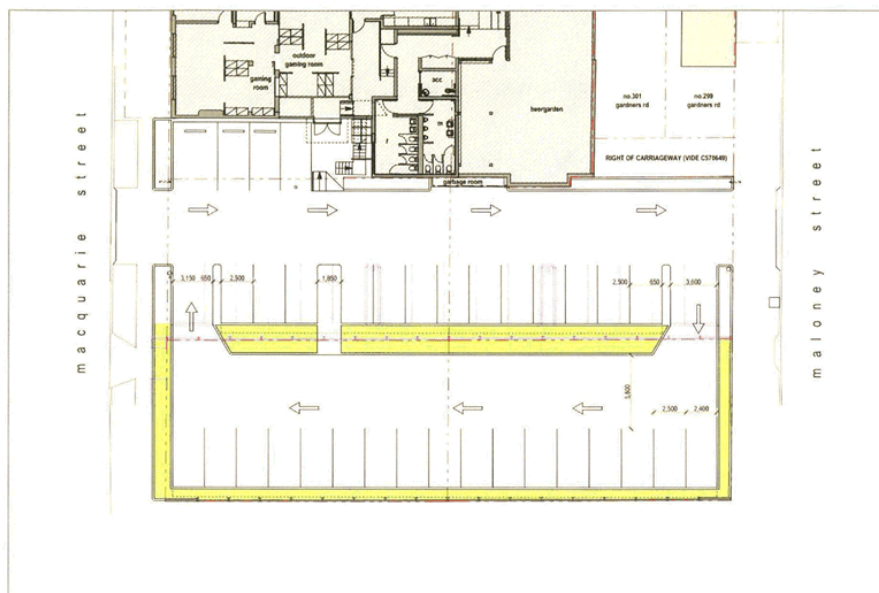


Figure 1. Proposed parking concept

Existing surveys conducted by Hotel staff have found that, at times, all 19 existing parking spaces can be occupied. It is reasonable to then assume that an existing proportion of on-street parking in Macquarie Street and Maloney Street is being occupied by the vehicles of Hotel patrons. By supplying additional off-street Hotel parking, the demand for on-street parking will be reduced. This will afford local residents greater access to on-street parking.

No change is proposed to the floor area of the Hotel, therefore, the increase in parking spaces will not generate additional traffic. Rather, the increase in parking will serve to reduce the demand for on-street parking by relocating those cars into the expanded car park. The resulting change in traffic pattern along Macquarie Street and Maloney Street is considered in this assessment.

KOIKAS ACOUSTICS PTY LTD

Date: 9 October 2017

File Reference: 2329R20170627asLakesHotel_carpark_v2.docx

Prepared For: Thomas Hotels C/o Design Collaborative

Acoustic Report: Proposed car park extension – Lakes Hotel, Rosebery

3.1 NEARBY RESIDENTIAL DWELLINGS

Noise sensitive premises in the vicinity of the subject site are:

- 5 Macquarie Street, Rosebery – single storey residential dwelling
- 5 Maloney Street, Rosebery – single storey residential dwelling
- 2 Macquarie Street, Rosebery – single storey residential dwelling
- 4 Macquarie Street, Rosebery – single storey residential dwelling
- 6 Macquarie Street, Rosebery – single storey residential dwelling
- 2 Maloney Street, Eastlakes – multi-storey residential flat building
- 4 Maloney Street, Eastlakes – multi-storey residential flat building



Figure 2. Surrounding noise sensitive development

4.0 ENVIRONMENTAL NOISE LEVELS

Existing environmental noise levels were surveyed by KA at the front and rear of 3 Macquarie Street over the week-long period from Tuesday 18th to Monday 24th July 2017. The noise survey locations are shown in Figure 3 (below).

The installed loggers were both Type 1 precision instruments - Svantek 977 (front) and BSWA 801 (rear). Both instruments were set to Fast-time response and A-frequency weighting filter. Noise levels were stored at 15-minute intervals within the logger memory. Field calibration checks were performed

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using a NATA certified Larson Davis CAL200 precision acoustic calibrator before and after the noise survey with no system drift being observed.

Analysis of the logger data provided the following summary results in terms of the overall L_{A90} background noise levels and L_{Aeq} ambient noise levels:

Table 1. Noise logging summary results			
Location	Period, T	Background noise, RBL $L_{A90,T}$ [dB]	Ambient noise $L_{Aeq,T}$ [dB]
FRONT 3 Macquarie Street	Day	49	62
	Evening	48	59
	Night	42	55
REAR 3 Macquarie Street	Day	43	63
	Evening	45	57
	Night	36	53
Notes			
1. Day: 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and public holidays Evening: 6pm to 10pm Night: 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and public holidays			
Definitions			
Leq, T: The continuous steady-state sound level that represents the same amount of acoustic energy as a varying sound level over the nominated period, T.			
L90, T: The 10 th percentile minimum noise level over a defined monitoring period, T. Taken as the average minimum level on an analogue sound level meter.			



Figure 3. Noise logging survey locations

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5.0 NOISE CRITERIA

5.1 NSW INDUSTRIAL NOISE POLICY

Noise from the use of the car park is assessed to the standard planning guidelines of the NSW Industrial Noise Policy (EPA, 2000). The INP is applied in two parts:

1. Intrusive noise is assessed over the worst case 15-minute interval during each of the day, evening, and night periods.
2. To maintain noise level amenity within a residential neighbourhood, an upper planning level is recommended based on the classification of that neighbourhood as either rural, suburban, urban, or urban/industrial interface.

The most stringent of the Intrusive and Amenity criteria is applied as the Project Specific Noise Level (PSNL). Establishing the PSNL must consider that intrusive noise is assessed over 15 minutes, whereas amenity noise is assessed over each period, as 11 hours (day), 4 hours (evening), and 9 hours (night).

5.2 SLEEP DISTURBANCE/AROUSAL

A sleep disturbance screening assessment has been completed to investigate the potential for impulsive-type noise sources associated with the car park to affect the sleep of nearby residents during night-time hours. Such impulsive-type noise sources include car doors closing and engines starting.

As no definitive criteria have been established that classifies the point at which sleep disturbance occurs, currently accepted guidelines included within the NSW Road Noise Policy (DECCW, 2011) suggests that a low probability of sleep disturbance is expected where the following conditions are met:

1. L_{Amax} noise levels within a bedroom are kept below 50-55dB, and
2. $L_{A1, 1 \text{ minutes}}$ not more than the background level + 15dB. This equates to 57dB for facades fronting Macquarie and Maloney Street, and 50dB for backyard areas. Noise is assessed outside the most affected bedroom window at a distance of 1 metre from the facade.

5.3 TRAFFIC NOISE – CHANGE OF TRAFFIC PATTERNS

An expansion of the existing car park at Lakes Hotel will mean that a number of cars that are currently parking on the street will now be able to park within the dedicated parking area. This will alter the existing traffic pattern along Macquarie and Maloney Streets.

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As a car park development would be considered a 'traffic-generating' type development, the planning guidelines of the NSW Road Noise Policy (EPA, 2011) require that any noise from vehicles as they arrive and/or leave the car park along the local road network is assessed to an applied upper noise limit as defined in the RNP. For local roads, the nominated traffic noise criteria are:

- L_{Aeq} (1 hour) 55dB assessed during the daytime at 1 metre from the building façade
- L_{Aeq} (1 hour) 50dB assessed during the night-time at 1 metre from the building facade

6.0 CALCULATED NOISE LEVELS

6.1 PROJECT NOISE TARGETS

Noise from the car park is assessed cumulatively with that of mechanical plant and in accordance with the planning levels contained within the NSW INP.

The INP planning levels are largely determined in relation to the existing environmental noise levels. Noise surveys conducted for this assessment show that environmental noise levels can differ based on the location of a particular receiver and its orientation to major contributors of noise in the area, such as Gardeners Road. Therefore, receiver locations that are shielded from traffic noise will be more sensitive to noise emission from the subject site, and as such have lower noise criteria applied.

Table 2. INP planning levels

Period, T (Note 1)	Properties exposed to traffic noise		Properties shielded from traffic noise	
	Intrusive level	Amenity level ⁽²⁾	Intrusive level	Amenity level ⁽²⁾
Day	54	60	48	60
Evening	53	50	50	50
Night	47	45	41	45
Notes				
1. The NSW EPA Industrial Noise Policy refers to the following time periods, Day – 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and public holidays, Evening – 6pm to 10pm Monday to Sunday, Night – 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and public holidays.				
2. The amenity planning level is based on the area classification of the site as being 'urban' and has been corrected for an assessment in areas of high traffic where applicable.				

6.2 CAR PARK AND MECHANICAL PLANT

Noise levels emitted from the expanded car park and the rooftop mechanical plant was simulated within the CadnaA noise prediction software program.

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Noise emission from a car park is not related to the number of cars on-site at any one time, but rather to the number of parking movements that occur within a given time period (where 'one parking movement' refers to a car either entering or leaving the parking area). To assist in noise modelling of the car park, KA has been provided with a survey of vehicles entering and leaving the parking area, broken down into hourly intervals from 6pm through to 4am. The survey was completed for each day between the Monday 3rd and Sunday 9th July 2017.

The data shows that the car park is busiest between 6pm and 10pm, after which time there is a significant drop-off in parking activity. The survey results are summarised below:

Table 3. Summary of two-way parking movements survey							
Period	Surveyed two-way parking movements						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
6pm-7pm	31	39	46 ⁽¹⁾	18	19	15	25
7pm-8pm	24	35	32	13	44	14	25
8pm-9pm	15	19	26	23	31	9	15
9pm-10pm	15	12	23	15	28	20	5
10pm-11pm	5	6	8 ⁽¹⁾	3	6	6	7
11pm-12am	2	0	7	2	3	5	7
12am-1am	2	1	1	4	5	7	0
1am-2am	2	7	2	1	2	2	0
2am-3am	2	1	1	3	2	5	0
3am-4am	1	0	1	1	3	3	0
After 4am	2	2	1	1	1	1	0
Total Evening (6pm-10pm)	85	105	127 ⁽²⁾	69	122	58	70
Total Night (10pm-close)	16	17	21	15	22	29 ⁽²⁾	14
Notes							
1. Maximum peak hour evening and night-time two-way surveyed parking movements – used to assess intrusive noise levels							
2. Maximum Evening and Night-time period total parking movements – used to assess amenity noise levels							

Assuming a linear increase in parking movements based on a proposed 74% increase in supplied parking spaces, the following calculation parameters have been extrapolated from surveyed parking movements (Table 3) and were used to model noise emission from the expanded Hotel car park:

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Intrusive noise level assessment

- DAY/EVENING: $46 \times 1.74 = 80$ total peak-hour two-way parking movements, representing 2.4 parking movements per parking space.
- NIGHT: $8 \times 1.74 = 14$ total peak-hour two-way parking movements, representing 0.4 parking movements per parking space.

Amenity noise level assessment

- DAY/EVENING: 497/221 total two-way parking movements, representing 1.7 parking movements per hour per parking space.
- NIGHT: 50 total two-way parking movements, representing 0.2 parking movements per hour per parking space.

Noise associated with vehicles using the car park has been modelled within the parking module in CadnaA. The program adopts the calculation methodology of *Parking Area Noise, Recommendations for the Calculation of Sound Emissions of Parking Areas, Motorcar Centers and Bus Stations as well as of Multi-Storey Car Parks and Underground Car Parks (2007)*, published by Bayerisches Landesamt für Umwelt (hereby referred to as LfU 2007). The LfU 2007 calculation methodology considers the L_{Aeq} sound power level of a single vehicle undertaking normal parking activity* over a 1 hour period. The overall noise emission level is then corrected to account for the number of total parking movements per parking space per hour, the parking area type, ground surface etc.

* Normal parking operations include entering/leaving the parking area, searching for a parking space, doors opening and closing and engines starting.

The parking area calculation model was set-up to include 33 parking spaces, with 1 parking space used as a reference value. Parking movement input parameters for each assessment scenario have been included as detailed above.

A calculation constant K_{PA} (dB correction to account for the parking area type) of 3dB has been applied in the calculation based on representative values for 'restaurants'.

The K_i constant (dB correction for the impulsive character of car park noise) has not been included. This parameter is typically only applied in Germany. The LfU 2007 study and other noise prediction software manuals recommend against including the K_i constant.

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Sound data for the rooftop mechanical plant was measured where possible and referenced from manufacturer's data elsewhere. A summary of the sound data used in the noise model includes:

Table 4. Gaming Room and rooftop mechanical plant noise levels [dB]

Source	Description	Noise level, LAeq	Distance [m]
Kitchen exhaust fan	Measured sound pressure level	63	6 (fixed point)
Refrigeration compressor	Measured sound pressure level	69	1 (fixed point)
AC condenser unit – Temperzone OSA250	Published sound power level	75	n/a
AC condenser unit – Temperzone OSA300	Published sound power level	82	n/a
AC condenser unit – Mitsubishi FDC100VN	Published sound power level	70	n/a

The noise model results are tabulated and summarised below:

Table 5. Noise model results

Receiver	Period	Intrusive noise assessment		Amenity noise assessment	
		EPA intrusive criteria	Predicted noise level	EPA amenity criteria	Predicted noise level
2 Macquarie St	Day	54	47	60	46
	Evening	53	47	50	46
	Night	47	39	45	36
4 Macquarie St	Day	54	48	60	47
	Evening	53	48	50	47
	Night	47	40	45	38
6 Macquarie St	Day	54	46	60	45
	Evening	53	46	50	45
	Night	47	39	45	36
5 Macquarie St	Day	48	42	60	41
	Evening	50	42	50	41
	Night	51	34	45	32
5 Maloney St	Day	48	42	60	41
	Evening	50	42	50	41
	Night	51	35	45	33
2 Maloney St	Day	54	47	60	46
	Evening	53	47	50	46
	Night	47	39	45	38
4 Maloney St	Day	54	45	60	44
	Evening	53	45	50	44
	Night	47	38	45	37

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From the above, it can be concluded that:

- Intrusive noise levels from the car park and mechanical plant when assessed at residential boundaries fronting Macquarie and Maloney Streets are predicted to not exceed $L_{Aeq\ 15\ minutes}$ 48dB day/evening and 40dB night. This is within the INP planning levels of 54/53dB day/evening and 47dB night.
- Intrusive noise levels from the car park and mechanical plant, when assessed at the rear of nearby residential property (5 Macquarie Street and 5 Maloney Street), are predicted to not exceed $L_{Aeq\ 15\ minutes}$ 42dB day/evening and 35dB night. This is within the INP planning levels of 48/50dB day/evening and 41dB night.
- Amenity noise levels from the car park and mechanical plant are predicted to not exceed $L_{Aeq\ Period}$ 47dB day/evening and 38dB night. This is within the INP planning levels of 60/50dB day/evening and 45dB night.

6.3 SLEEP DISTURBANCE SCREENING ASSESSMENT

KA have catalogued noise level measurements of impulsive-type noise sources typically associated with car parks as follows:

- Car doors closing: L_{Amax} 94dB, $L_{A1, 1\ minutes}$ 77dB
- Car engine starting: L_{Amax} 87dB, $L_{A1, 1\ minutes}$ 84dB

The resulting car park noise levels at the nearest residential dwelling (4 Macquarie Street – See Figure 4) are L_{Amax} (car doors) 58dB and $L_{A1, 1\ minutes}$ (car engine + car doors) 49dB. The $L_{A1, 1\ minutes}$ noise level is well within the limit of 57dB.

The outdoor L_{Amax} level of 58dB for car doors must be adjusted to an internal level for comparison against the maximum noise level guidelines. A worst-case scenario would be where a residential dwelling had open windows to a bedroom, in which case the indoor level is generally 10dB below the external level. L_{Amax} indoors of 48dB is also within the guidelines of 50-55dB. Therefore, a low probability of sleep disturbance is expected from the proposed car park.

By having cars relocated from current on-street parking spaces to the Hotels car park, it is expected that transient noise from car doors and engines will have less of an impact on surrounding residential dwellings. Calculations suggest that this improvement in residential amenity could be up to 12dB for the most affected sites.

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6.4 LOCAL TRAFFIC NOISE

The car park concept design considers a one-way circulation design whereby vehicles enter from Macquarie Street and exit onto Maloney Street. A central median strip along Maloney Street will mean that all exiting vehicles must turn left towards the Maloney Street/Gardeners Road intersection.

In predicting future traffic noise levels impacting surrounding properties, a worst-case and average-case operating model have been addressed. The worst-case model suggests that all entering vehicles would approach along Macquarie Street from the south. The average case model suggests that equal numbers of vehicles will enter the car park from the south and the north. All vehicles under all operating models must exit the car park and turn left towards Gardeners Road.

Each operating model considers traffic volumes representing peak hourly vehicle usage of the car park:

- Worst-case model
 - Day and evening: A total of 80 vehicles entering and leaving the parking area, consistent with peak parking movements considered in Section 6.2 of this report. 40 vehicles will enter the parking area, approaching along Macquarie Street from the south. 40 vehicles will exit the parking area to Maloney Street. During the daytime period, 1 heavy vehicle delivery is assumed.
 - Night: A total of 14 vehicles entering and leaving the parking area, consistent with peak parking movements considered in Section 6.2 of this report. 7 vehicles will enter the parking area, approaching along Macquarie Street from the south. 7 vehicles will exit the parking area to Maloney Street.
- Average-case model
 - Day and evening: A total of 80 vehicles entering and leaving the parking area, consistent with peak parking movements considered in Section 6.2 of this report. 40 vehicles will enter the parking area, 20 approaching along Macquarie Street from the south and another 20 approaching along Macquarie Street from the north. 40 vehicles will exit the parking area to Maloney Street. During the daytime period, 1 heavy vehicle delivery is assumed.
 - Night: A total of 14 vehicles entering and leaving the parking area, consistent with peak parking movements considered in Section 6.2 of this report. 7 vehicles will enter the parking area, 3.5 approaching along Macquarie Street from the south and another 3.5 approaching along Macquarie Street from the north. 7 vehicles will exit the parking area to Maloney Street.

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Worst-case L_{Aeq} (1 hour) noise levels are found to be 55dB daytime and 45dB night-time at the most affected surrounding residential property of 4 Macquarie Street.

Average-case L_{Aeq} (1 hour) noise levels are found to be 50dB daytime and 43dB night-time at the most affected surrounding residential property of 4 Macquarie Street.

Both the above operating models confirm compliance with the NSW RNP assessment criteria.

7.0 CONCLUSION

KA was requested to assess the acoustic impact of an expanded car park concept design for The Lakes Hotel at Rosebery, and to what extent noise mitigation measures are required to ensure suitable acoustic amenity for surrounding residents with regard to the planning levels contained within the EPA's INP and RNP.

Surrounding noise sensitive development are residential properties located in Macquarie Street and Maloney Street. It is these residential properties that form the basis for the assessment and associated findings.

The INP planning levels are related to the prevailing environmental noise levels. Therefore, determining the applicable acoustic criteria involves conducting noise logging to measure the existing environmental noise levels.

Environmental noise logging was conducted by KA at 3 Macquarie Street between Tuesday 18th and Monday 24th July 2017. Survey results are included within Section 3.0 of this report.

The RNP was referenced to assess noise impacts associated with the changing traffic pattern that will result from the introduction of an expanded car park and the total noise associated with vehicles arriving and leaving the car park on the local road network.

The assessment concludes the following in relation to the proposed car park concept design:

1. The noise barrier that is currently located along the southern boundary of the car park is to be retained in the expanded car park concept design. It will be relocated to the southern car park boundary shared with 5 Macquarie Street and 5 Maloney Street.

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2. Noise emission from the car park and mechanical plant is predicted to comply with the intrusive and amenity planning levels of the INP at all surrounding receivers.
3. A screening test for possible sleep disturbance to nearby residential receivers during the night period has identified there will be a low probability of sleep disturbance.
4. By increasing the car park size, vehicles that are currently parking on Macquarie and Maloney Street will now have access to off-street parking. Impulsive-type noises such as car doors and car engines starting are predicted to be up to 12dB lower with cars now parked in the off-street car park as opposed to on-street.
5. For vehicles using the Hotel's car park, associated noise as they arrive along Macquarie Street and depart along Maloney Street is found to comply with the assessment criteria included in the NSW RNP.

The Planning Proposal has been assessed in terms of its expected acoustic impact to the neighbourhood and has been found to comply with standard acoustic planning guidelines.

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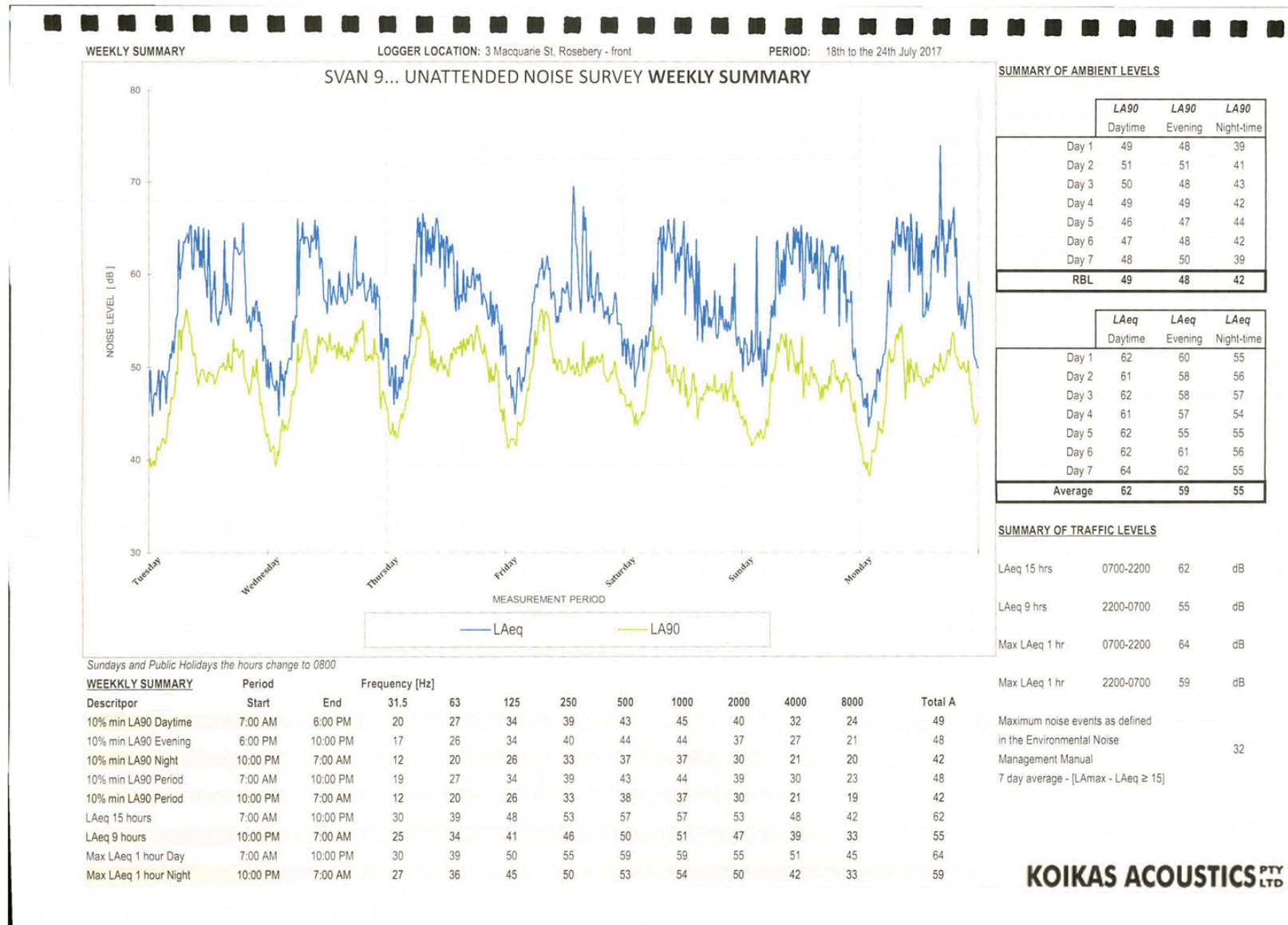
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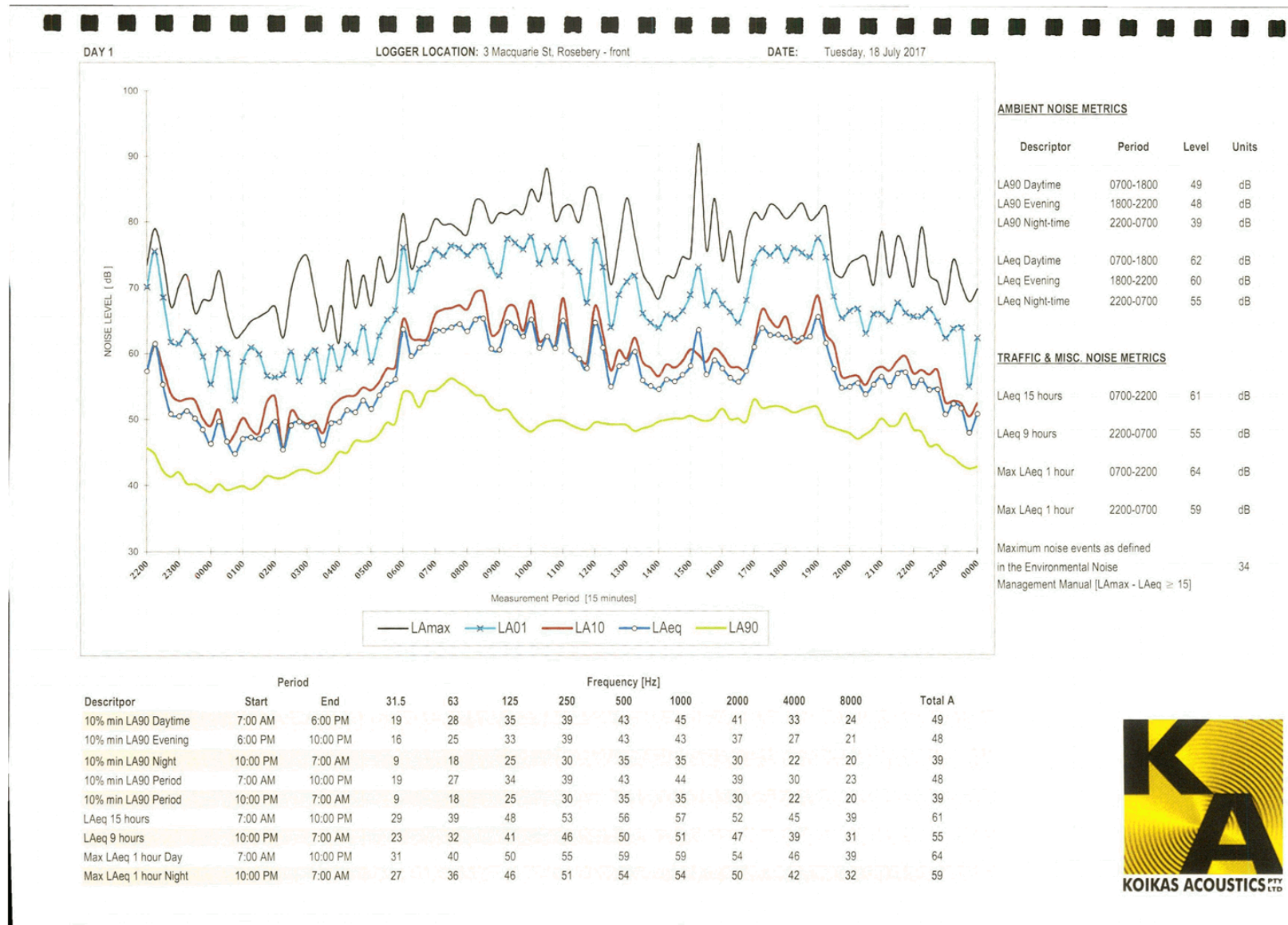
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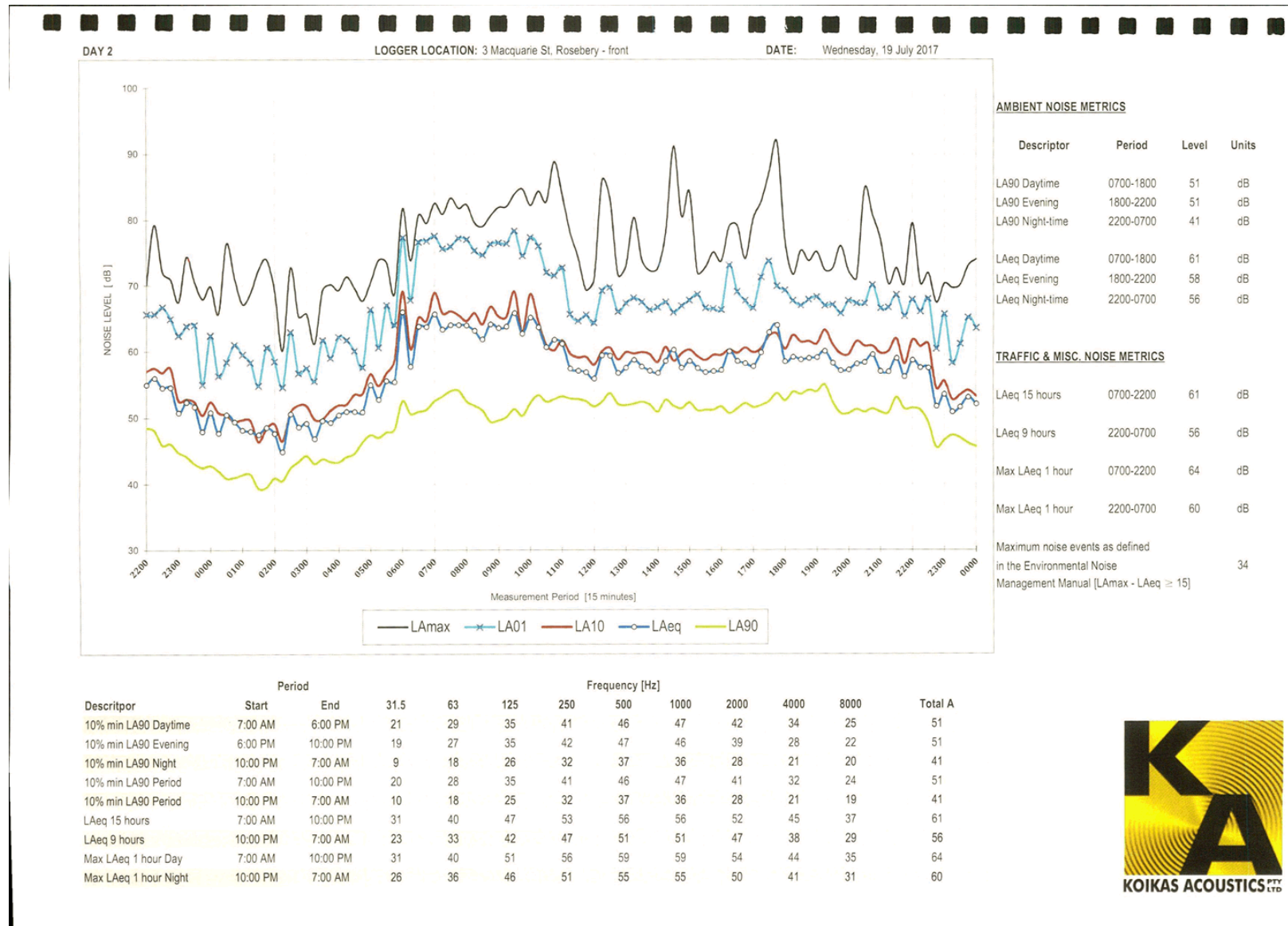
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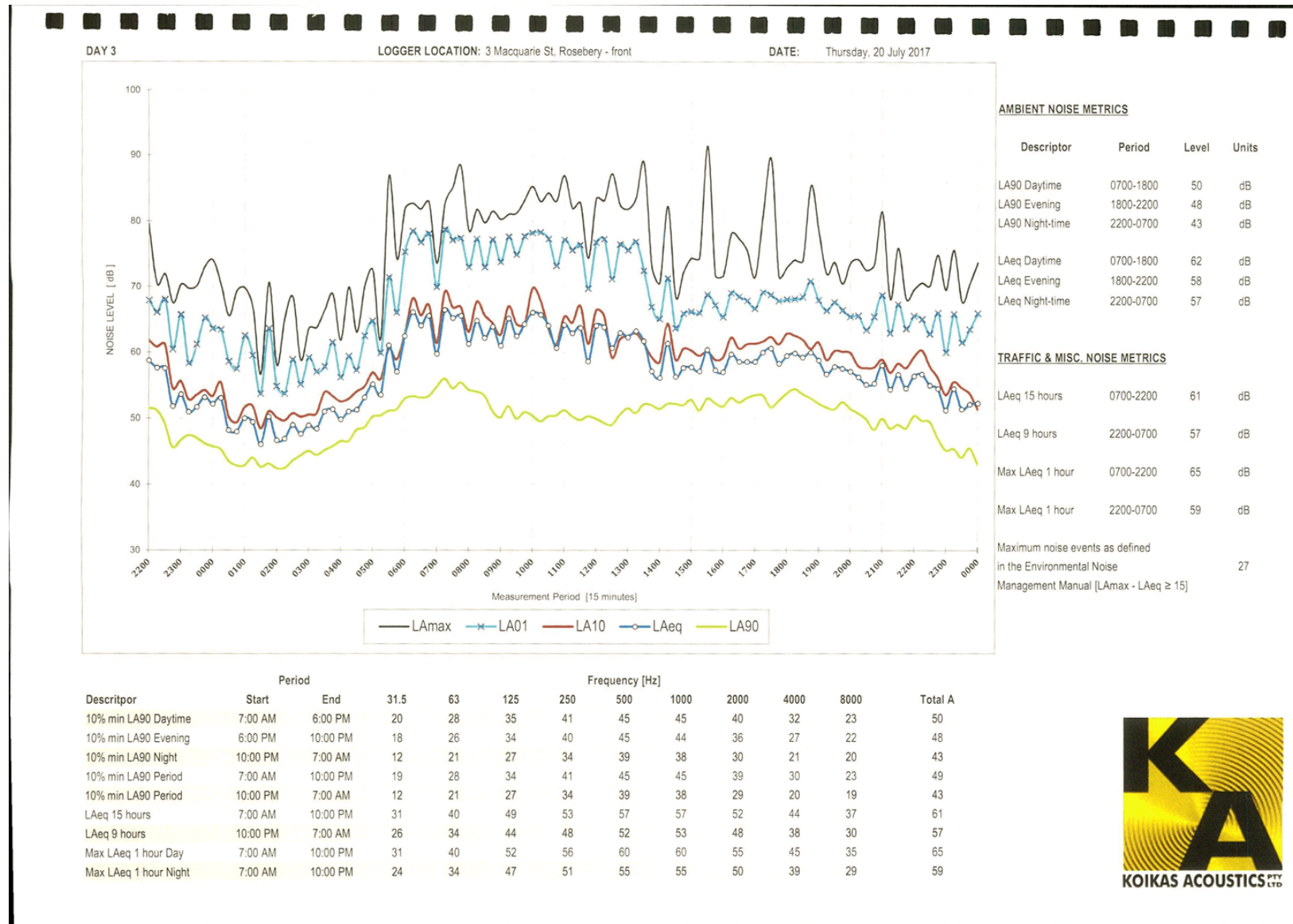
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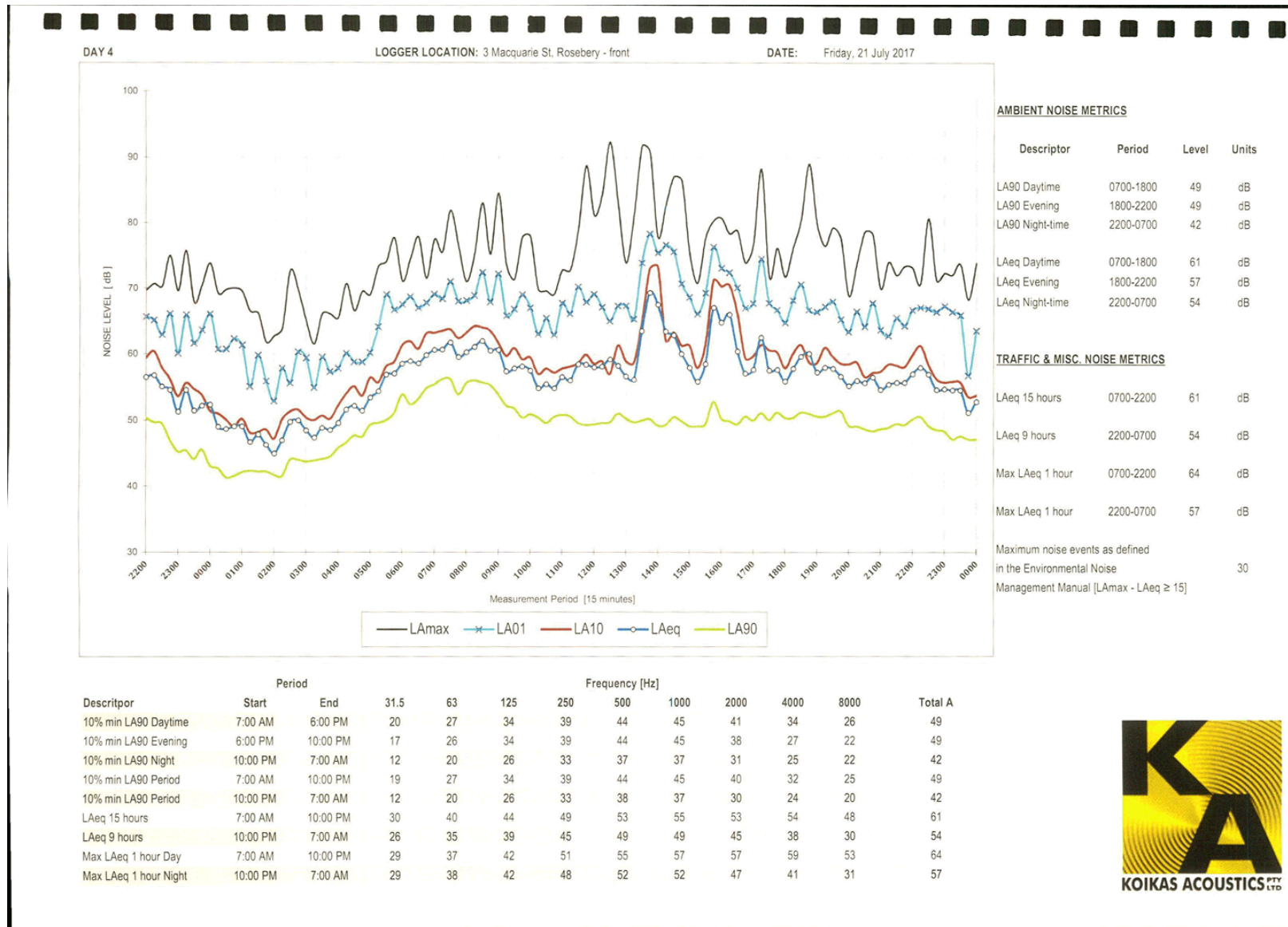
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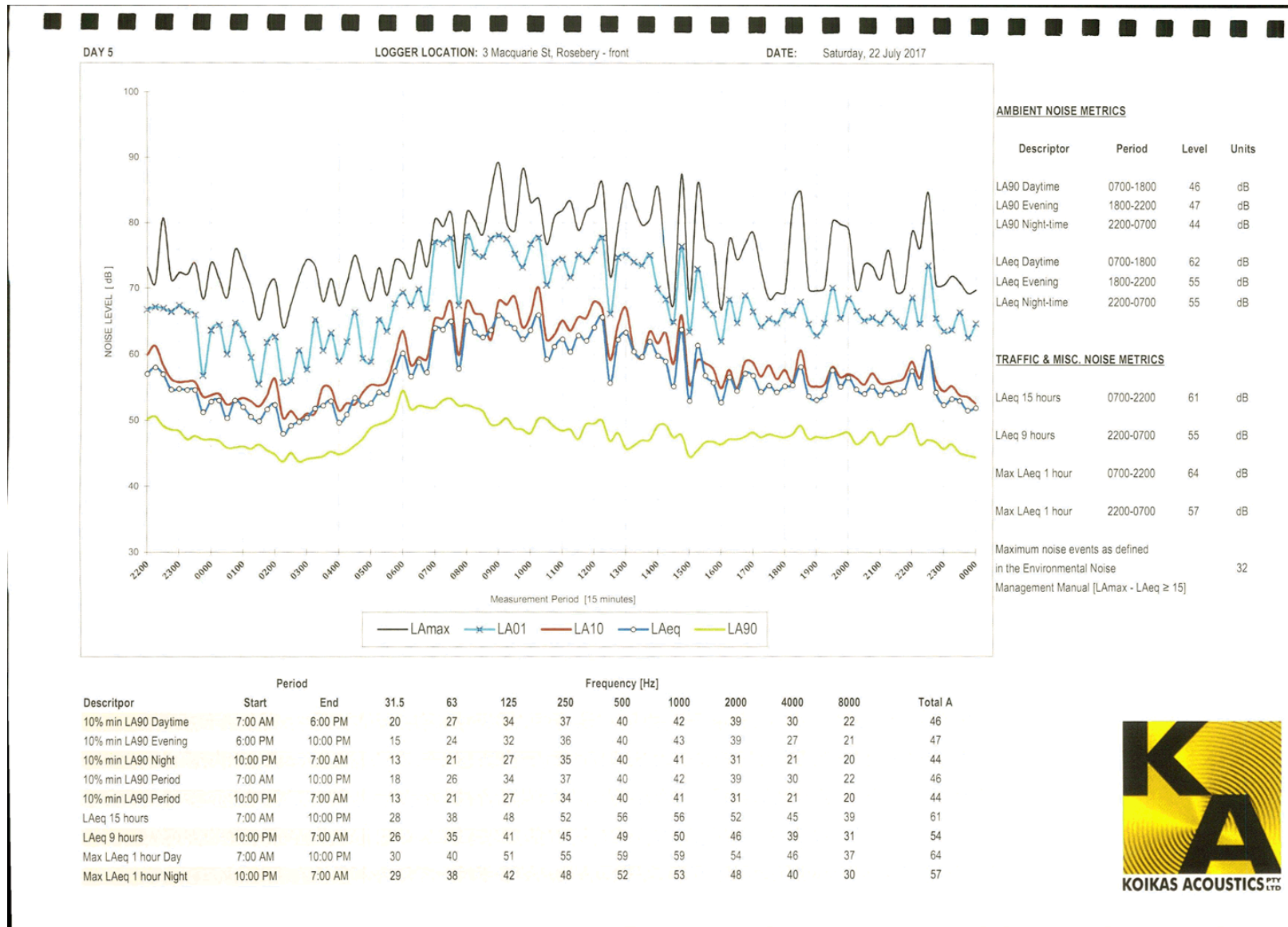


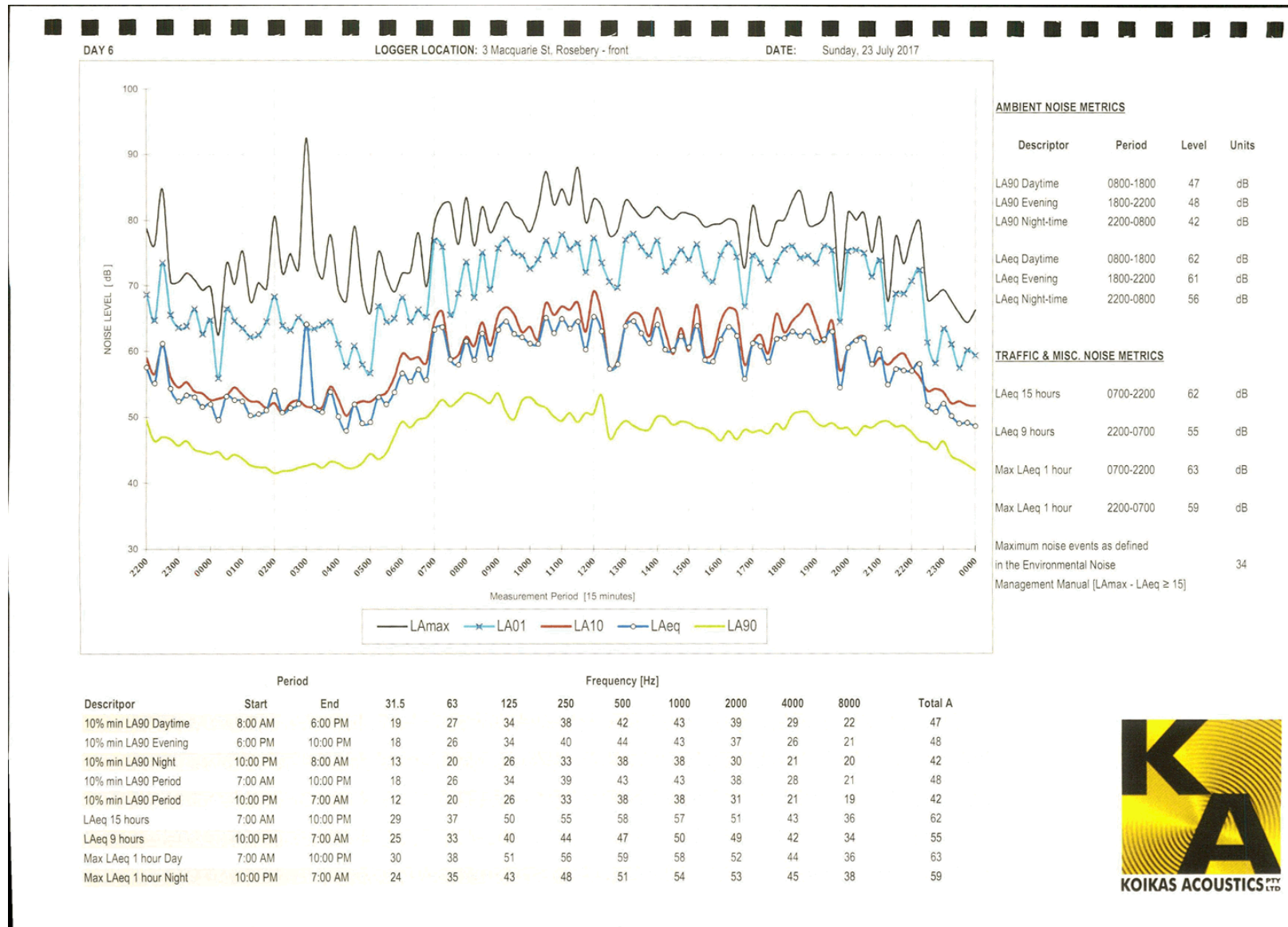


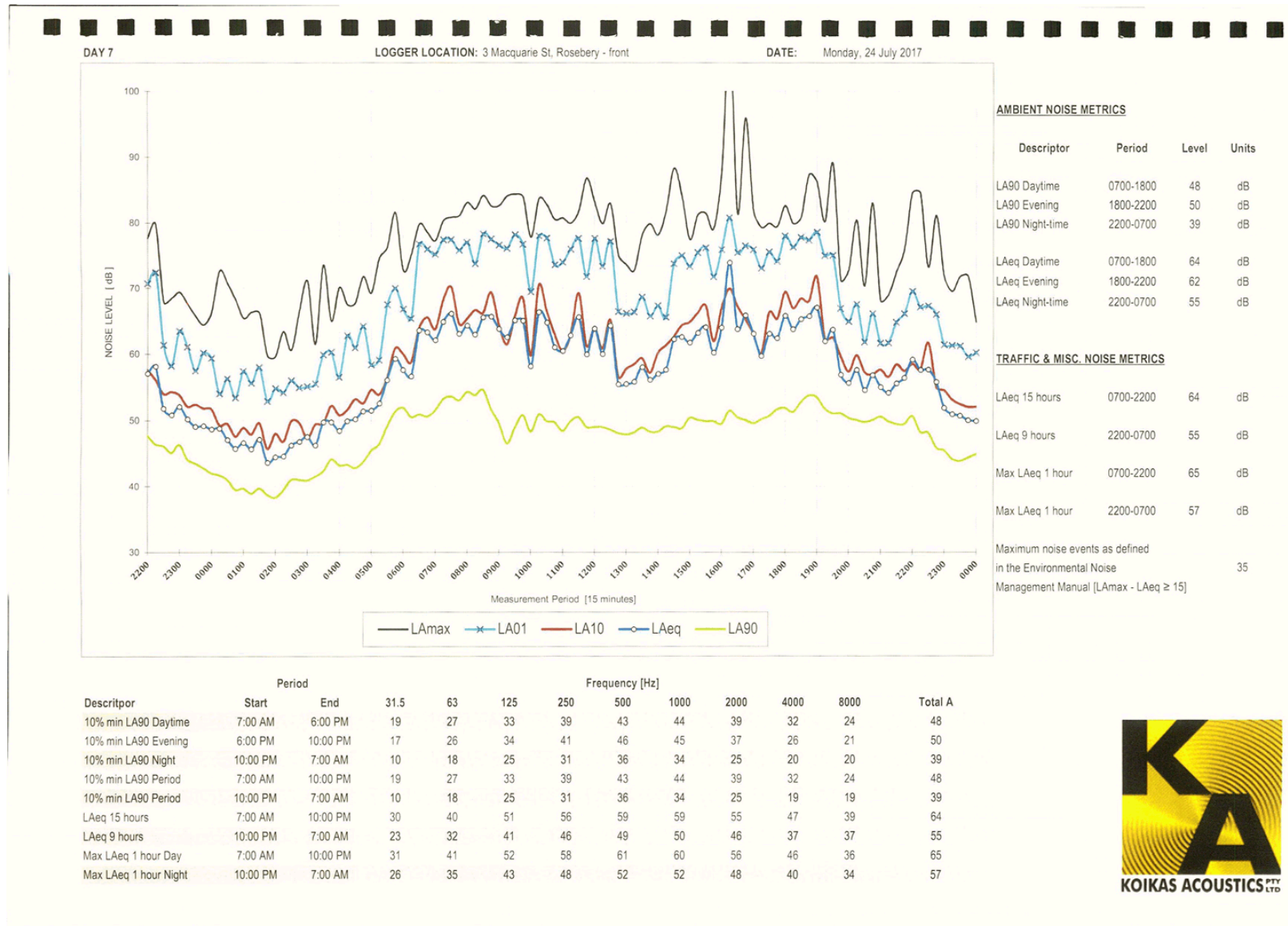


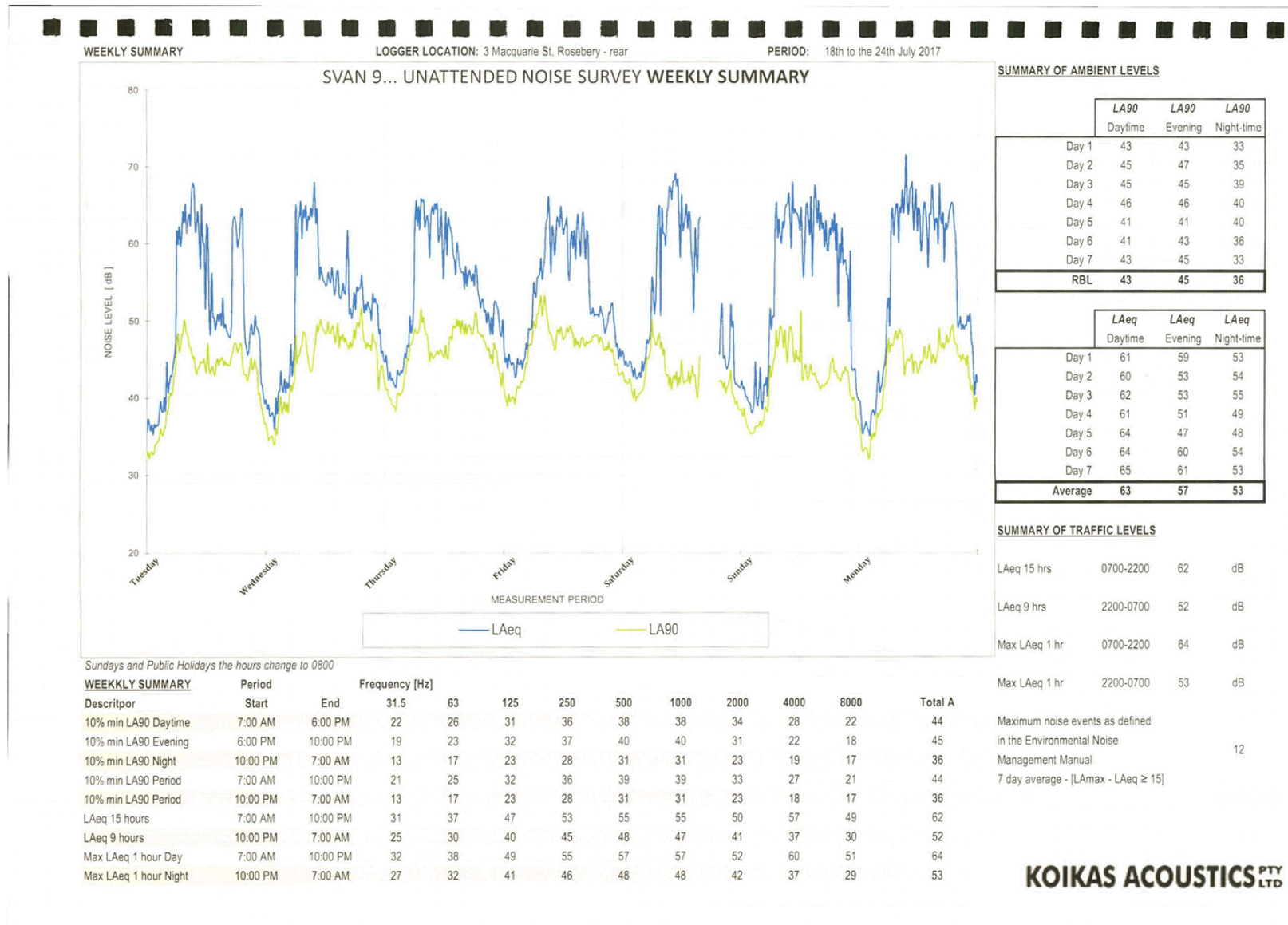


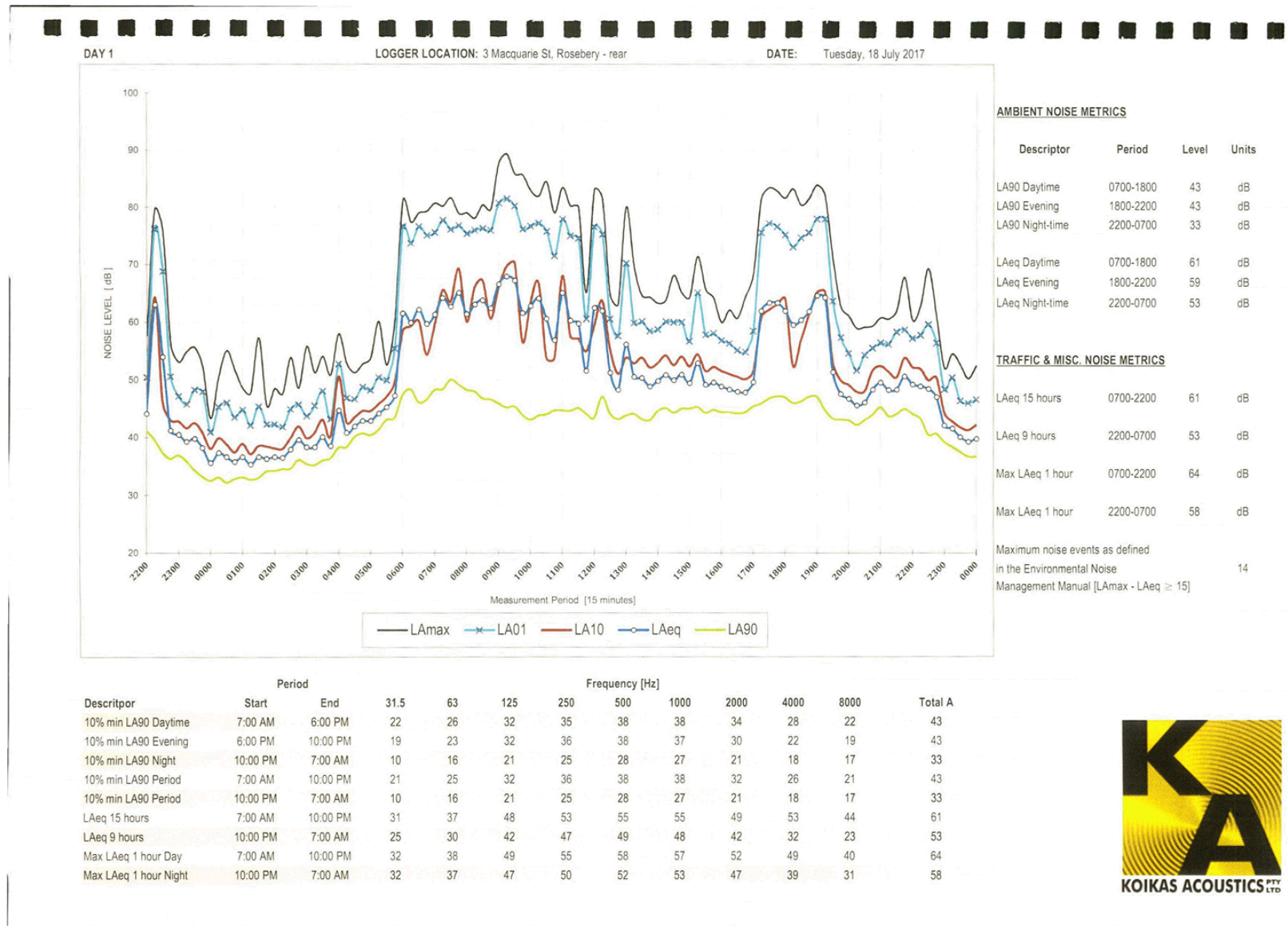


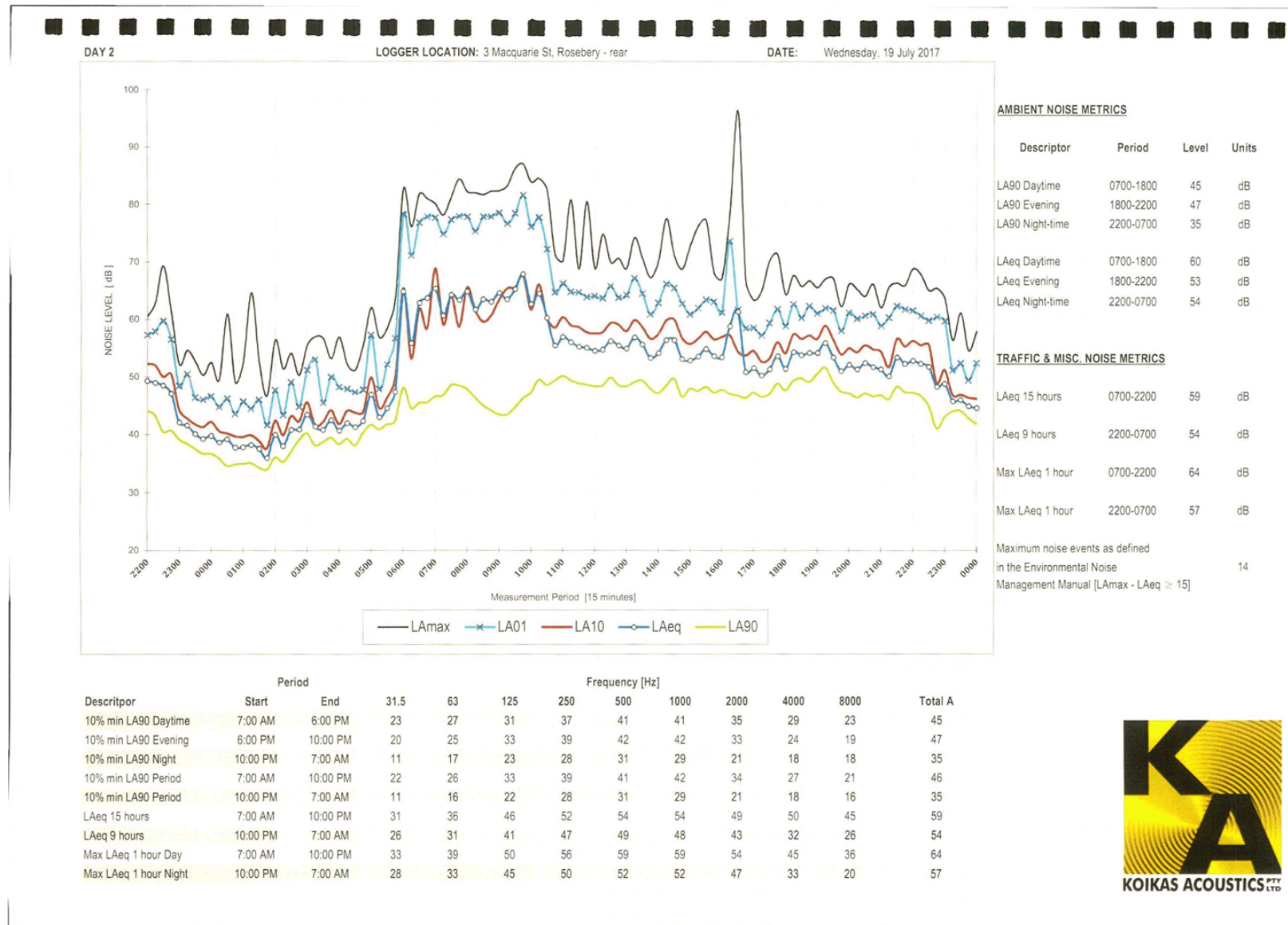


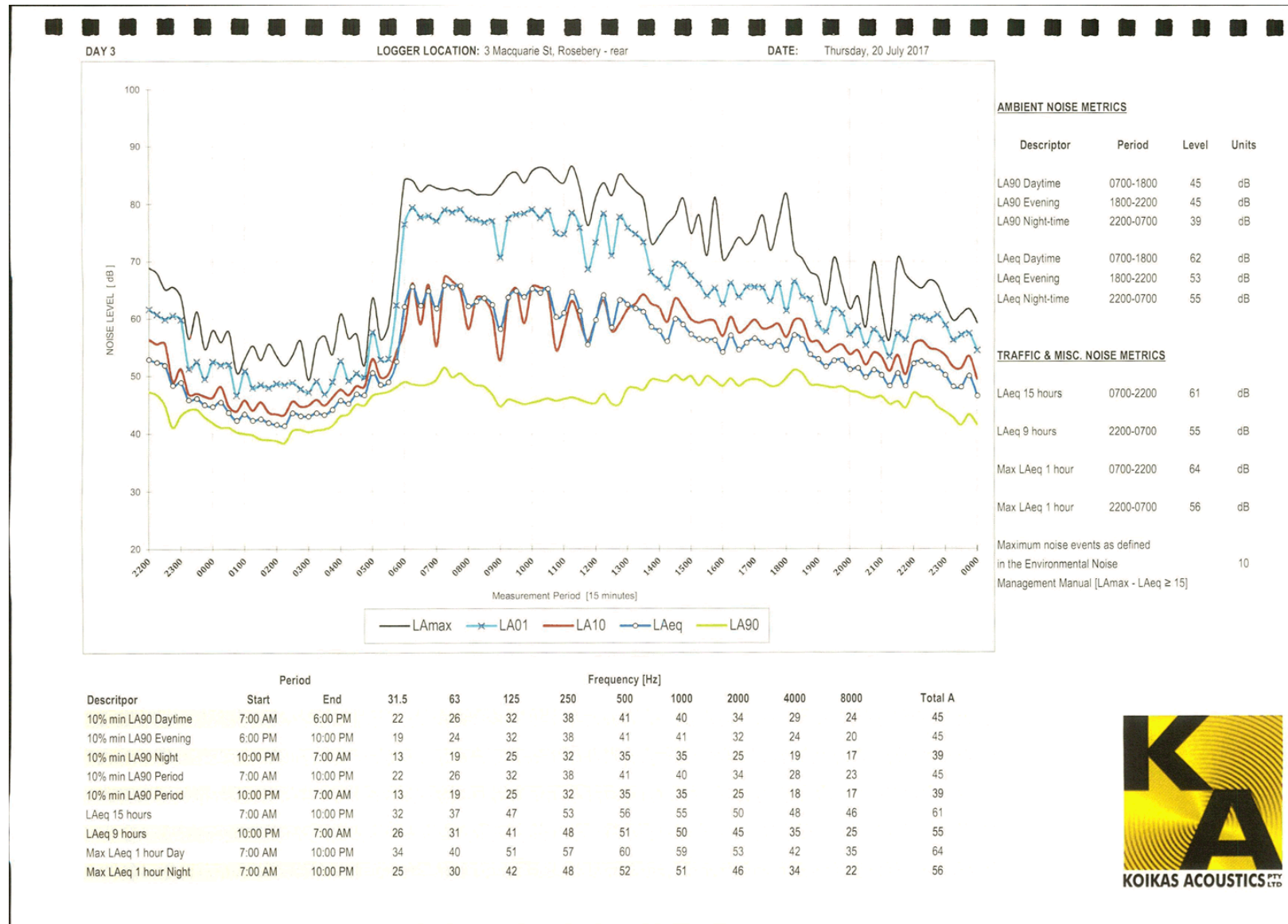


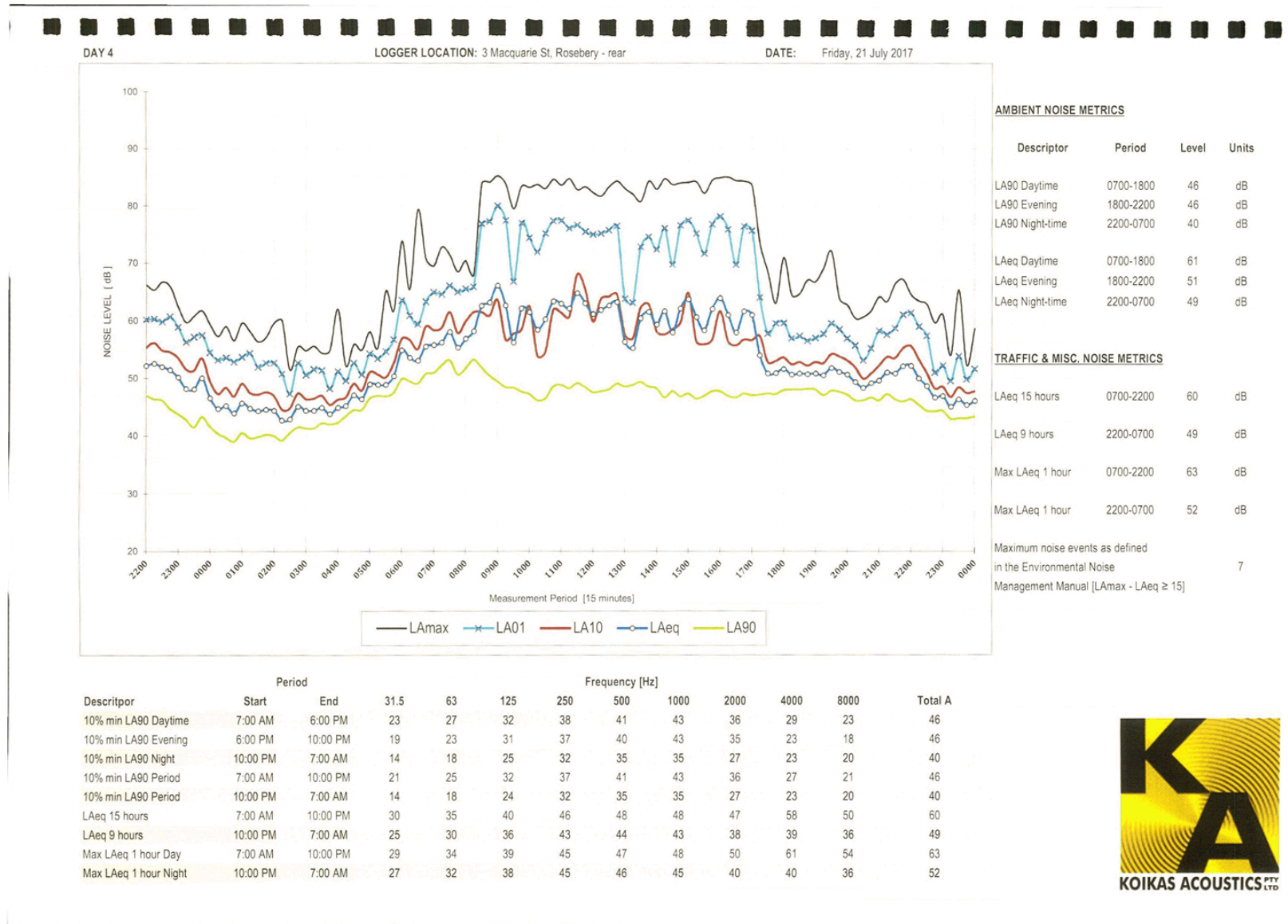


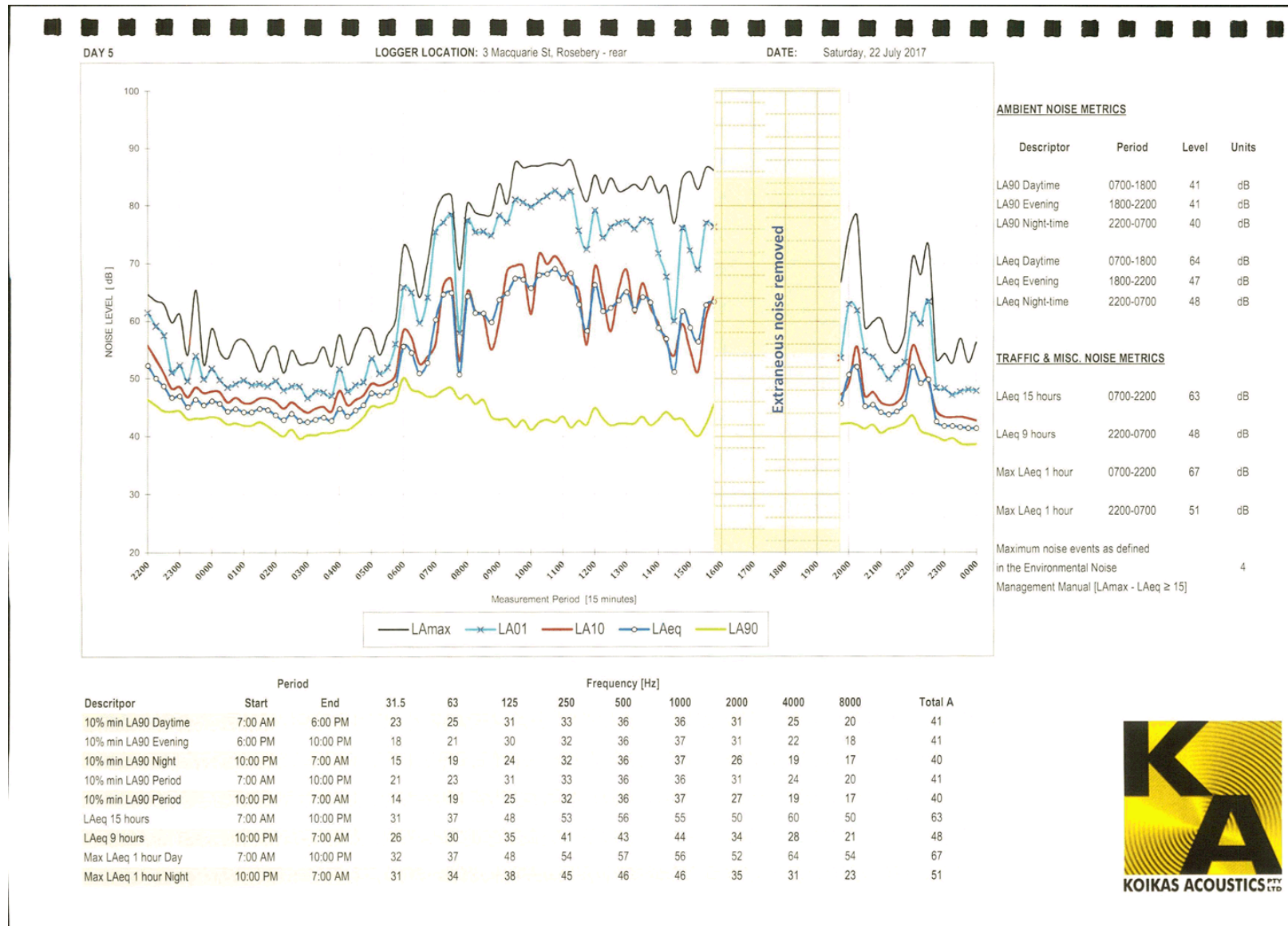


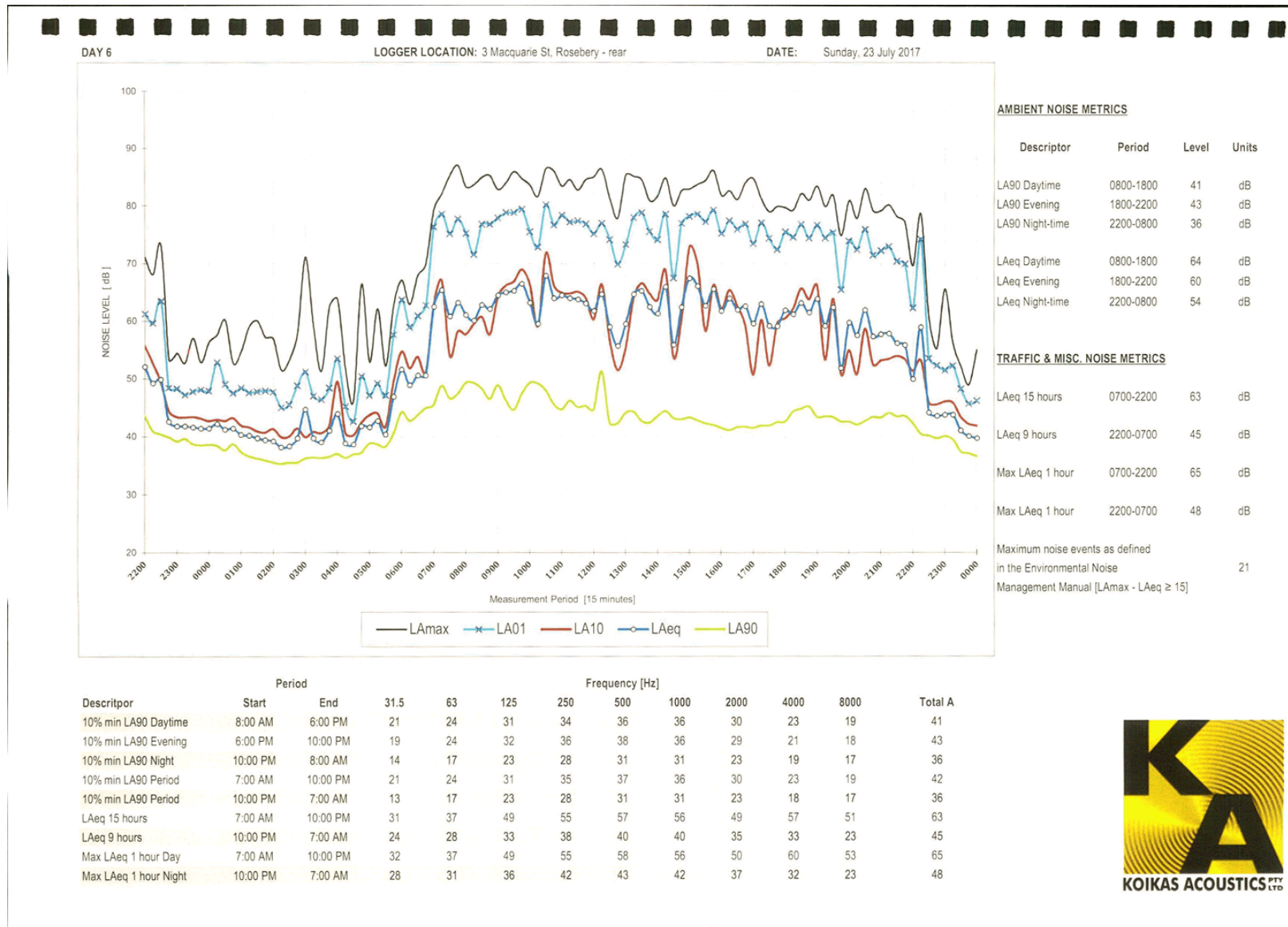


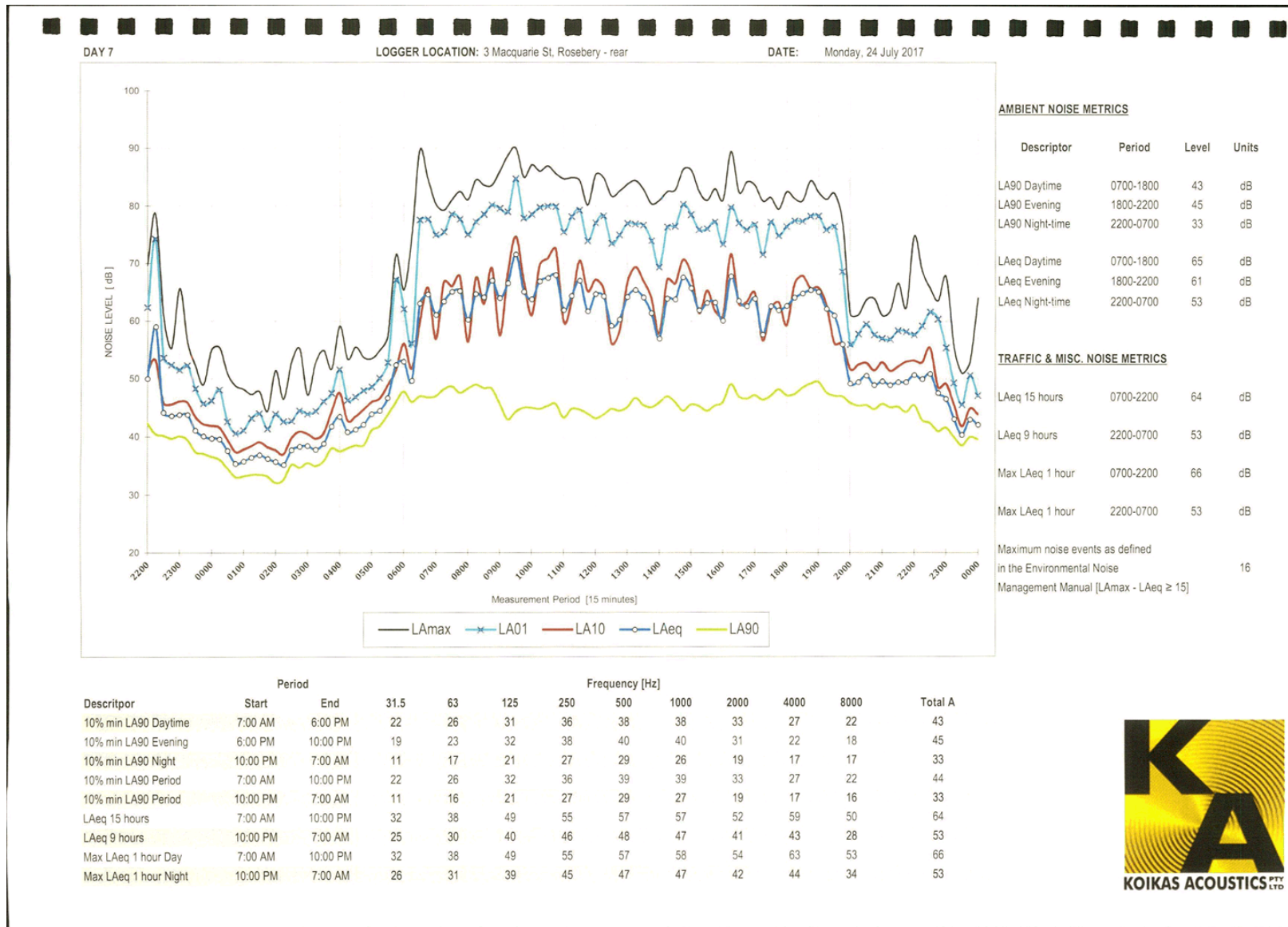


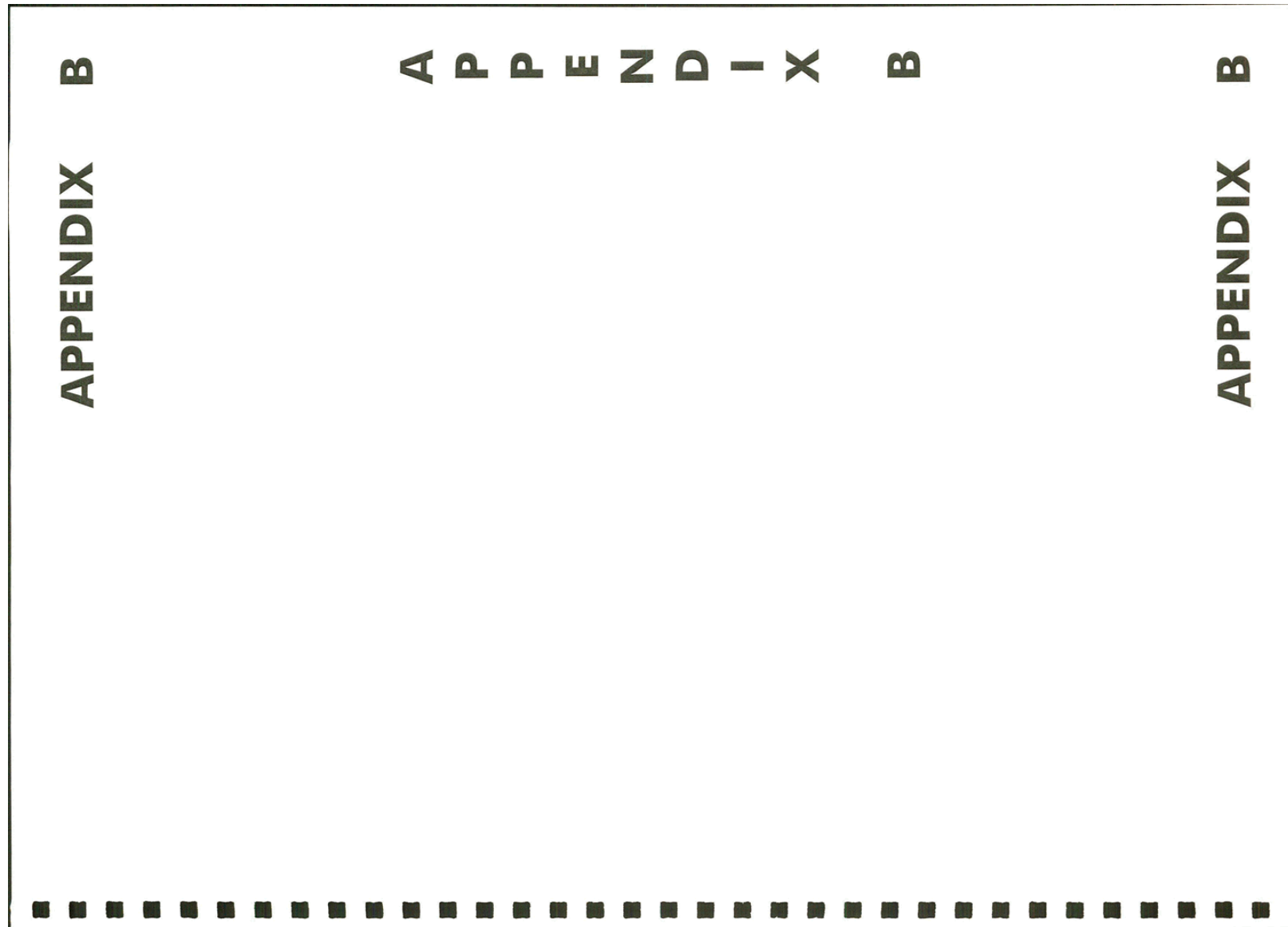


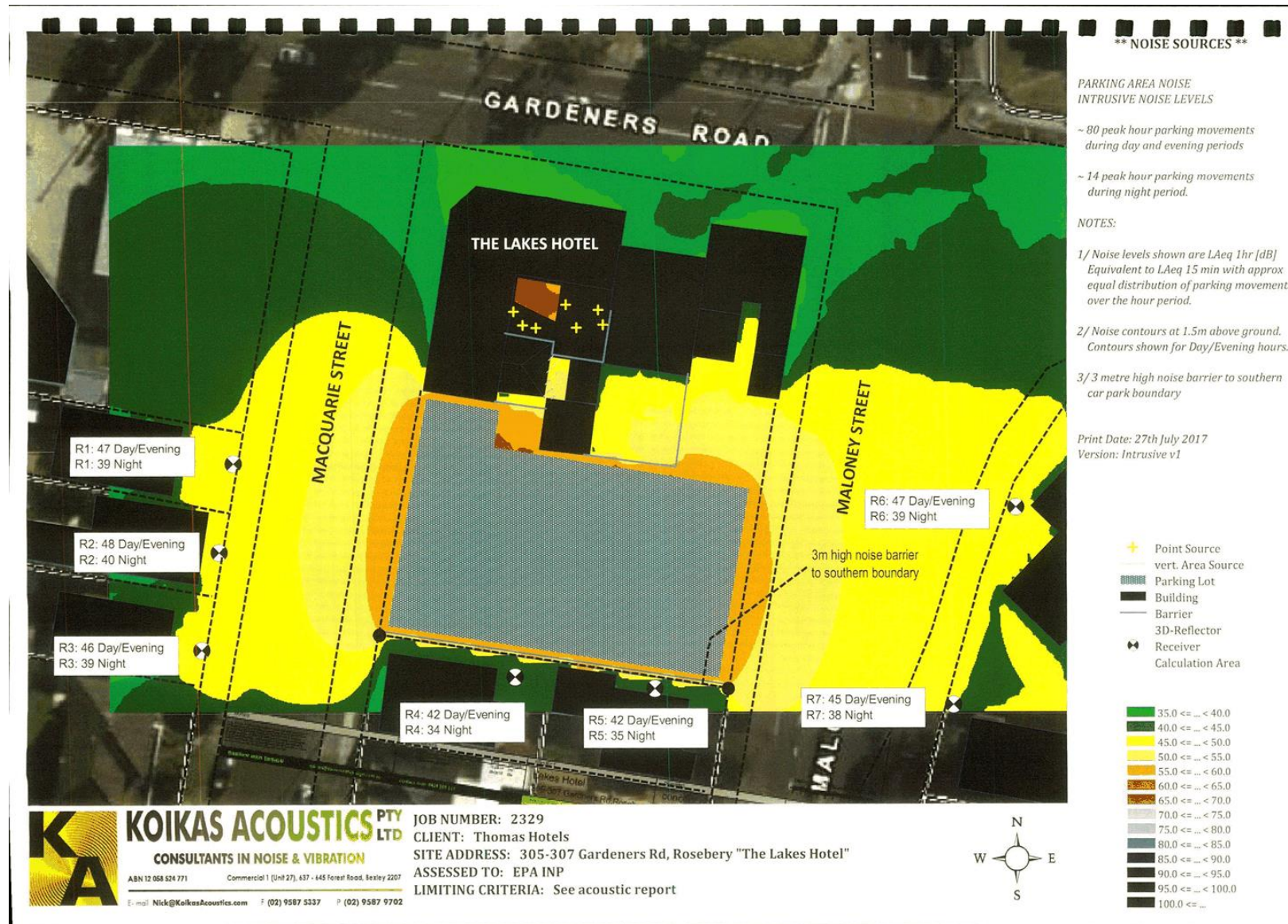


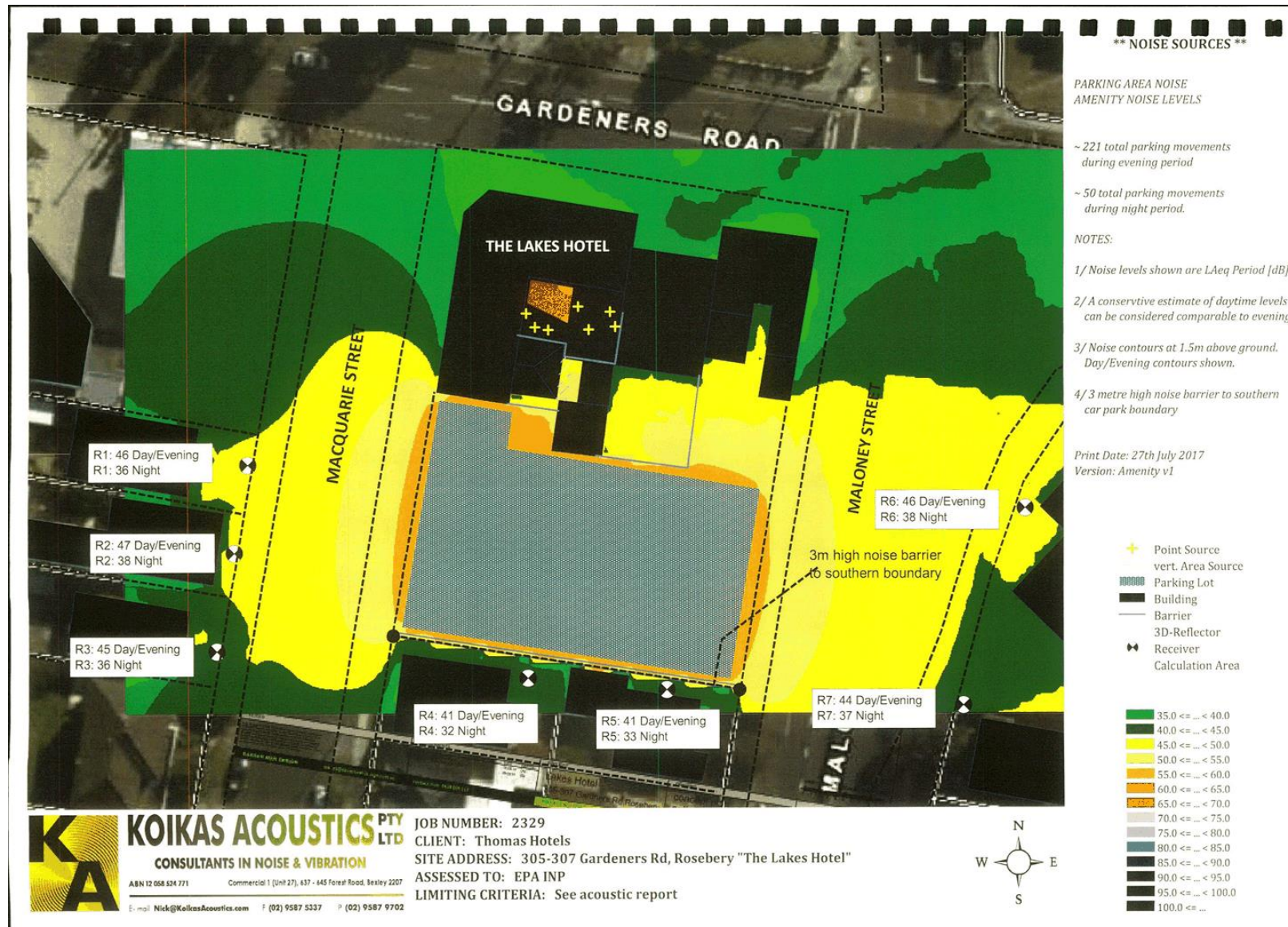


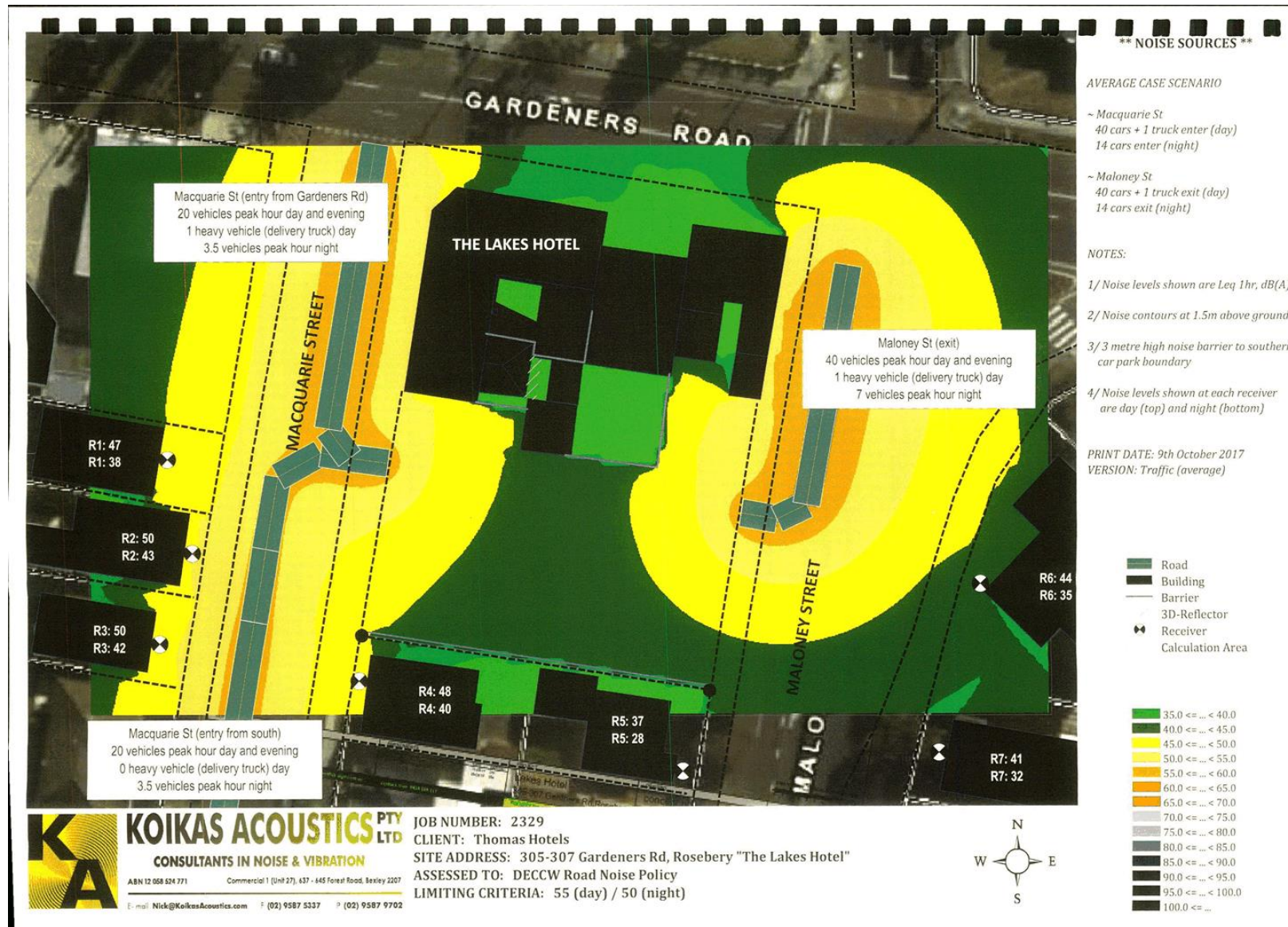


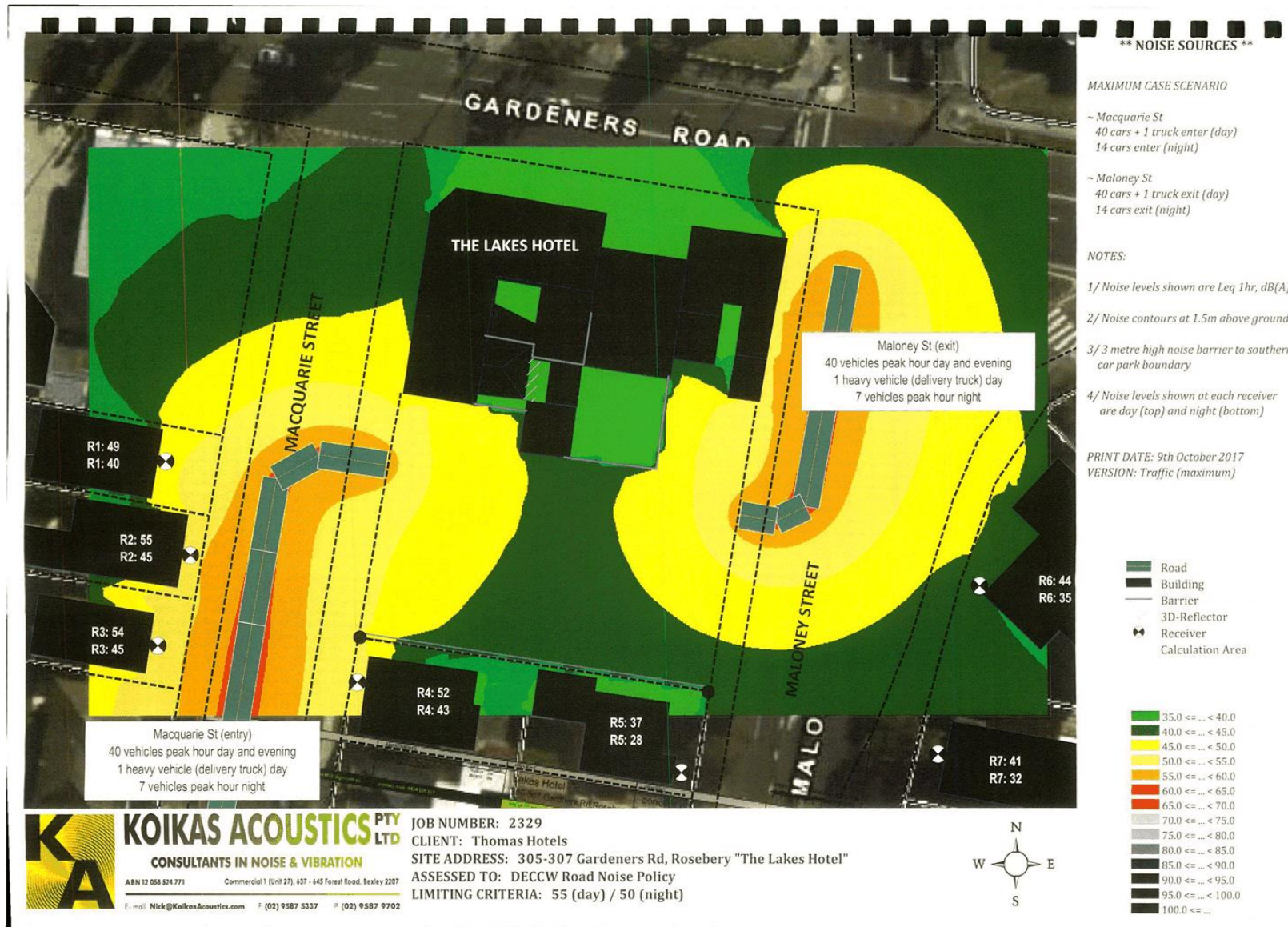


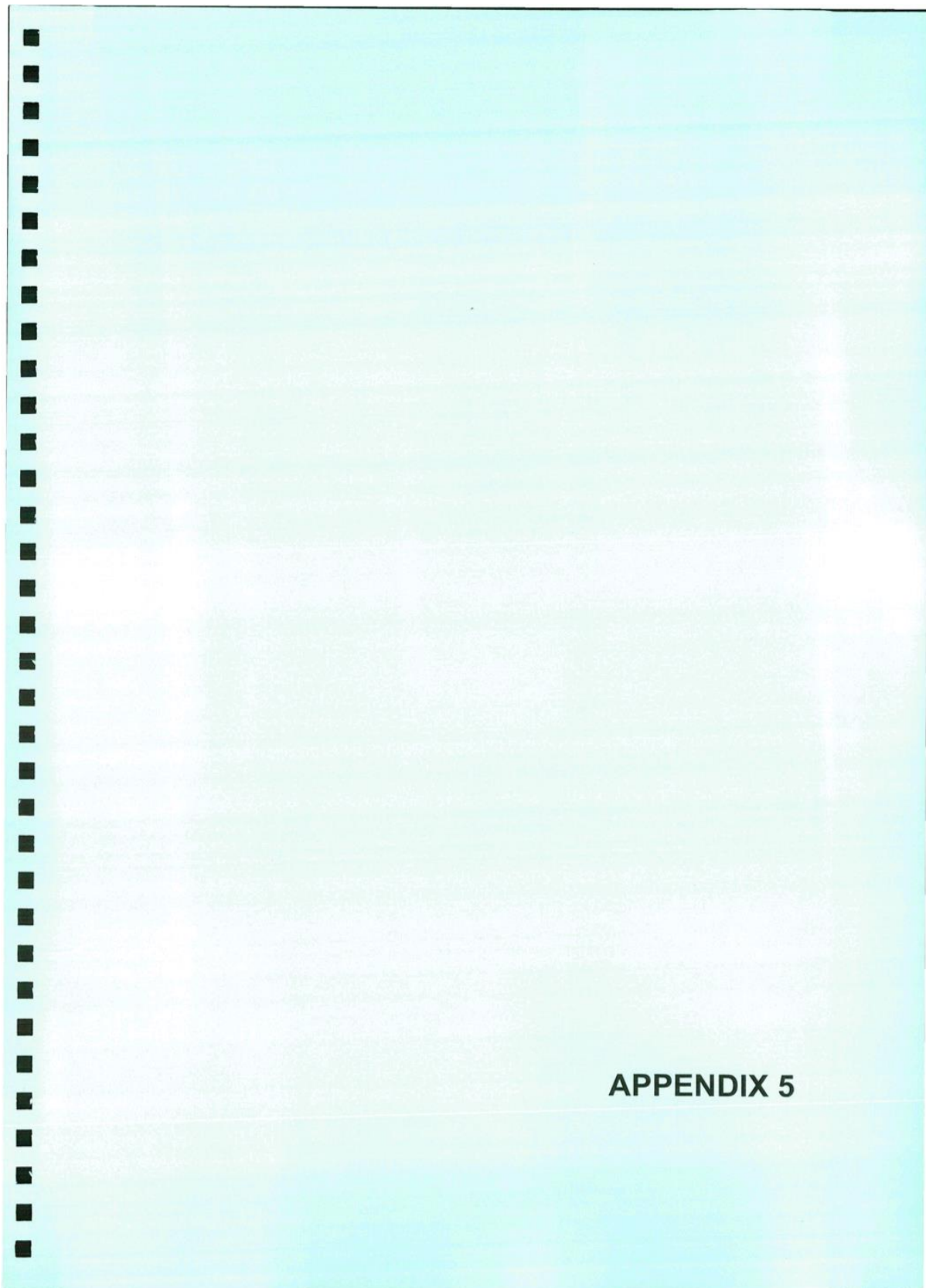














22 June 2017

Our Ref: 17-062

The Lakes Hotel,
305 Gardeners Road,
Rosebery, NSW 2018

Dear Sir/ Madam,

RE: HERITAGE IMPACT STATEMENT FOR THE LAKES HOTEL, 305 GARDENERS ROAD, ROSEBERY

This brief Heritage Impact Statement has been prepared in relation to the Planning Proposal to be submitted to Bayside Council to permit the use of both 3 Macquarie Street and 3A Maloney Street, Rosebery as a carpark in association with The Lakes Hotel, located at 305 Gardeners Road, Rosebery. This extension would require demolition of the two residential dwellings at 3 Macquarie and 3A Maloney Street. Neither of these sites is listed as a heritage item under Part 1 of Schedule 5 of the Botany Bay Local Environmental Plan (LEP) 2013. However, The Lakes Hotel is listed as an item of local significance under Part 1 of Schedule 5 of the Botany Bay LEP 2013 (I78).

3 Macquarie Street, one of the subject sites, is also directly opposite another local heritage item at 4 Macquarie Street, Rosebery, listed under Part 1 of Schedule 5 of the Botany Bay LEP 2013 (I150).

Due to the proximity of the subject sites to listed heritage items, this brief Heritage Impact Statement assesses the Planning Proposal in the context of relevant heritage constraints and controls listed in the relevant heritage controls of the Botany Bay LEP 2013 and the Botany Development Control Plan (DCP 2013). The assessment has had regard to the Indicative Concept Plan submitted with the Planning Proposal. The Indicative Concept Plan shows the extension to the car park that is to be facilitated by the Planning Proposal.

A site inspection and relevant photography was recently undertaken by City Plan Heritage (CPH), some of which are included below.

SUITE 6.02, 120 SUSSEX ST, SYDNEY NSW 2000
TEL +61 2 8270 3500 FAX +61 2 8270 3501 WWW.CITYPLAN.COM.AU
CITY PLAN HERITAGE P/L ABN 46 103 185 413
M:\CPHERITAGE\CPH-2017\17-062 THE LAKES HOTEL, ROSEBERY

SITE DESCRIPTION AND BRIEF HISTORY

Botany Bay was, for much of the 19th century, with its open space and water, was far enough away from Sydney to permit a high level of industrial development, including tanning, leathering and wool scouring.¹ This was significant to the overall development of Botany Bay, reflected in the following Statement of Significance of the Botany Bay Heritage Study 1996:

*Botany municipality as a whole is of national significance for its evidence of historic, aesthetic, social and archaeological, cultural values. The cultural themes of Landuse, agriculture, patterns of development, occupation prominent residents, development of small lot subdivision patterns, water resources, technology educational and churches from early colonial periods through the 19th and 20th century periods.*²

The subject site is located between Maloney and Macquarie Streets, comprising the Inter-War bungalows at 3 Macquarie Street and 3A Maloney Street, Rosebery. 3 Macquarie Street, Rosebery), is a residential house, representative of the Inter-War Bungalow style. It is part of a row of five similar bungalows, each sharing common features of this architectural style. This row of bungalows can be seen in the below figures. These include a hipped roof, street-facing gable as well as external face brickwork and squat colonettes supporting a small front veranda.³

3A Maloney Street, also of the Inter-War Bungalow style, has a hipped roof, face brickwork with a brick front fence and gable with projecting brickwork decoration. It lacks the colonette supports for the veranda which characterise 3 Macquarie Street, as seen in figure 2 below.



Figure 1: 5 Macquarie Street, Rosebery (left). Part of the row of five similar bungalows, showing similar architectural elements with subject site 3 Macquarie Street (pictured right with view of other bungalows in distance). (Source: City Plan Heritage).

¹ Tropman & Tropman, 'Botany Heritage Study, 1996.' Accessed 30 May 2017, pp. 7-22.

² Tropman & Tropman, 'Botany Heritage Study, 1996.' Accessed 30 May 2017, p. 73.

³ Tropman & Tropman, 'Botany Heritage Study 1996,' Inventory, Item 1.11 '4 Macquarie Street,' p. 46. Accessed 30 May 2017.



Figure 2: Second subject site. 3A Maloney Street, Rosebery (pictured left and right).



Figure 3: Row of similar bungalows along Maloney Street which shares many of the same architectural features of 3A Maloney Street.



Figure 4: Subject site, 3 Macquarie Street, Rosebery. Shows exterior architectural features including brick work, squat colonettes, veranda and brick boundary retaining wall with inbuilt letterbox.

4 Macquarie Street, a local heritage item directly opposite the subject site (I150), is an Inter-War Bungalow with a timber post fence, street facing gable with timber decoration and a hipped roof, and casement window sashes. These architectural features can be seen in the figure below.



Figure 5: 4 Macquarie Street, Rosebery. Listed on Botany Bay LEP 2013 as a local heritage item (I50).

The site is also adjacent to The Lakes Hotel (Lot A, DP 187154; Lot 10, DP 1142723), located at 305 Gardeners Road, Rosebery. It is a heritage item of local significance, listed on the Botany Bay LEP 2013. Built in 1938, it is a representative example of the Inter-War Functionalist style. The exterior is made up of face brickwork with intact upper storey,

including signage, as seen in the figure below.⁴ It has a stepped roof, with a row of six warehouse- style multiple paned windows, emphasising the horizontal style of the building. The ground level façade is more modern, complete with overhanging shopfront awning.

ESTABLISHED HERITAGE SIGNIFICANCE

The Lakes Hotel (Lot A, DP 187154; Lot 10, DP 1142723), located at 305 Gardeners Road, Rosebery, is a heritage item of local significance listed on the Botany Bay LEP 2013. It is a representative example of the Inter- War Functionalist style. Important aesthetic architectural elements include the exterior face brickwork with intact upper storey, including signage, as seen in the figure below.⁵ It has a stepped roof, with a row of six warehouse- style multiple paned windows, emphasising the horizontal style of the building. Beyond its aesthetic significance, the property is also of historical and social heritage significance, due to its original purpose and ongoing function as a pub. This is reflected both in the more modern ground level façade complete with overhanging shopfront awning, as well as in the Schedule 1 Clause 13 Additional Permitted Uses, stated below.

Schedule 1, Clause 13: Use of certain land at 303–305 Gardeners Road, Rosebery

(1) This clause applies to land at 303–305 Gardeners Road, Rosebery, being Lot 10, DP 1142723 and Lot A, DP 187154, known as The Lakes Hotel and identified as "13" on the Additional Permitted Uses Map.

(2) Development for the purposes of a pub is permitted with development consent.

The adjacent heritage item at 4 Macquarie Street, Rosebery (1150, Lot B, DP 151267), is a residential house, representative of the Inter-War Bungalow style. It exhibits common features of this architectural style including a hipped roof, street-facing gable, timber post fence, and casement window sashes.⁶



Figure 6: The Lakes Hotel, 305 Gardeners Road, Rosebery (left and right). Shows exterior brick façade, shopfront awning and intact upper storey with signage.

⁴ Tropman & Tropman, 'Botany Heritage Study 1996,' Inventory, Item 1.120 'The Lakes Hotel,' pp. 111-112.

⁵ Tropman & Tropman, 'Botany Heritage Study 1996,' Inventory, Item 1.120 'The Lakes Hotel,' pp. 111-112.

⁶ Tropman & Tropman, 'Botany Heritage Study 1996,' Inventory, Item 1.11 '4 Macquarie Street,' p. 46. Accessed 30 May 2017.



Figure 7: Excerpt from the Heritage Map showing The Lakes Hotel (I78) and opposite residential dwelling at 4 Macquarie Street, Rosebery (I150). Both are indicated within the red circle. (Source: Heritage Map 4 from Botany Bay LEP 2013).

SCOPE OF WORK

The aim of the Planning Proposal is to facilitate the redevelopment of the sites of 3 Macquarie Street and 3A Maloney Street, Rosebery, as an extension of the existing carpark for The Lakes Hotel. The existing carpark was permitted for development under Schedule 1, Clause 17 of the Botany Bay LEP 2013.⁷

Schedule 1, Clause 17: Use of certain land at 1 Macquarie Street and 3 Maloney Street, Rosebery

(1) This clause applies to land at 1 Macquarie Street and 3 Maloney Street, Rosebery, being Lot 6, DP 18556 and Lot 11, DP 1142723 and identified as "17" on the Additional Permitted Uses Map.

(2) Development for the purposes of a car park in association with the use of the hotel at 305 Gardeners Road, Rosebery, known as The Lakes Hotel, is permitted with development consent.

The Planning Proposal involves the insertion of a similar clause in Schedule 1 of Botany LEP 2013 to the above to permit the use of the site as a carpark.

⁷ Botany Bay City Council, 'Botany Bay LEP 2013,' Schedule 1 Clause 17. Accessed 30 May 2017, retrieved from <http://www.legislation.nsw.gov.au/#/view/EPI/2013/313/sch1>.



Figure 8: Additional Permitted Uses Map. Existing carpark identified as '17,' Adjacent to '13' The Lakes Hotel permitted for development for use as a pub. (Source: Botany Bay LEP 2013).

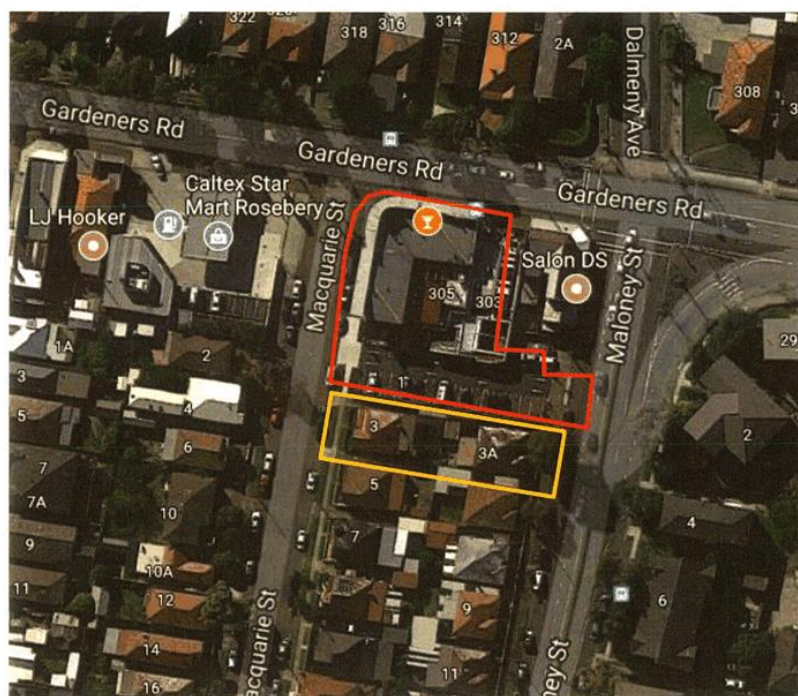


Figure 9: Land the subject of the Planning Proposal- 3 Macquarie Street and 3A Maloney Street, Roseberry (outlined in yellow). Outlined in red is The Lakes Hotel and existing carpark. (Source: Google Maps).



Figure 10: Site photo of existing carpark with view of subject site of 3 Macquarie Street, Rosebery for extension (pictured left and right). (Source: City Plan Heritage).

HERITAGE IMPACT ASSESSMENT

The heritage impact of the Planning Proposal is assessed according to *Clause 5.10 Heritage Conservation*, of the Botany Bay LEP 2013. The Planning Proposal relates particularly to objective *Clause 1(b)*, which aims

- to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views.

In the redevelopment of 3 Macquarie Street and 3a Maloney Street as an extension of the existing carpark, the heritage significance of The Lakes Hotel will be minimally impacted as it will contribute to the ongoing function, and thereby reinforce the historical and social significance of the item.

The demolition of the 3 Macquarie Street will have no adverse impact to the views and settings of 4 Macquarie Street, particularly when one considers the existing carpark and the four other similar and more intact Inter-War bungalows next to the subject site. This is similar to 3a Maloney Street, which is also part of a group of Inter-War bungalows. In both cases, there are better representative examples of Inter-War bungalows within the local area and Heritage Conservation Areas. Consequently, the demolition of these two residential dwellings would be an acceptable compromise from a heritage perspective within the area.

The Planning Proposal is also assessed according to *Part 3B Heritage* of the Botany Bay DCP 2013, specifically, *Section 3B.7 Development in the Vicinity of Heritage Items or Heritage Conservation Areas*.⁸ The development, which would be facilitated by the Planning Proposal, would meet the objectives outlined here relating to maintenance of consistent setbacks, scale, context and character of the neighbouring listed heritage items. This is because the development would be an extension of the existing carpark and so, would be compatible in form, function, scale and setback to the already existing development. Provision of additional car parking spaces would also aid to the function and operational requirements of the Hotel and would improve its feasibility as well as enjoyment by its

⁸ Botany Bay Council, 'Botany Bay Development Control Plan 2013 (Amendment 7) Enforced 25/10/2016.' Accessed 30 May 2017.

Botany Bay Council, 'Botany Bay Development Control Plan 2013. 3B.7 Development in the Vicinity of Heritage Items or Heritage Conservation Areas, pp. 54-59. Accessed 30 May 2017.

patrons. This would increase appreciation of the Lakes Hotel's heritage significance by wider public.

CONCLUSION AND RECOMMENDATIONS

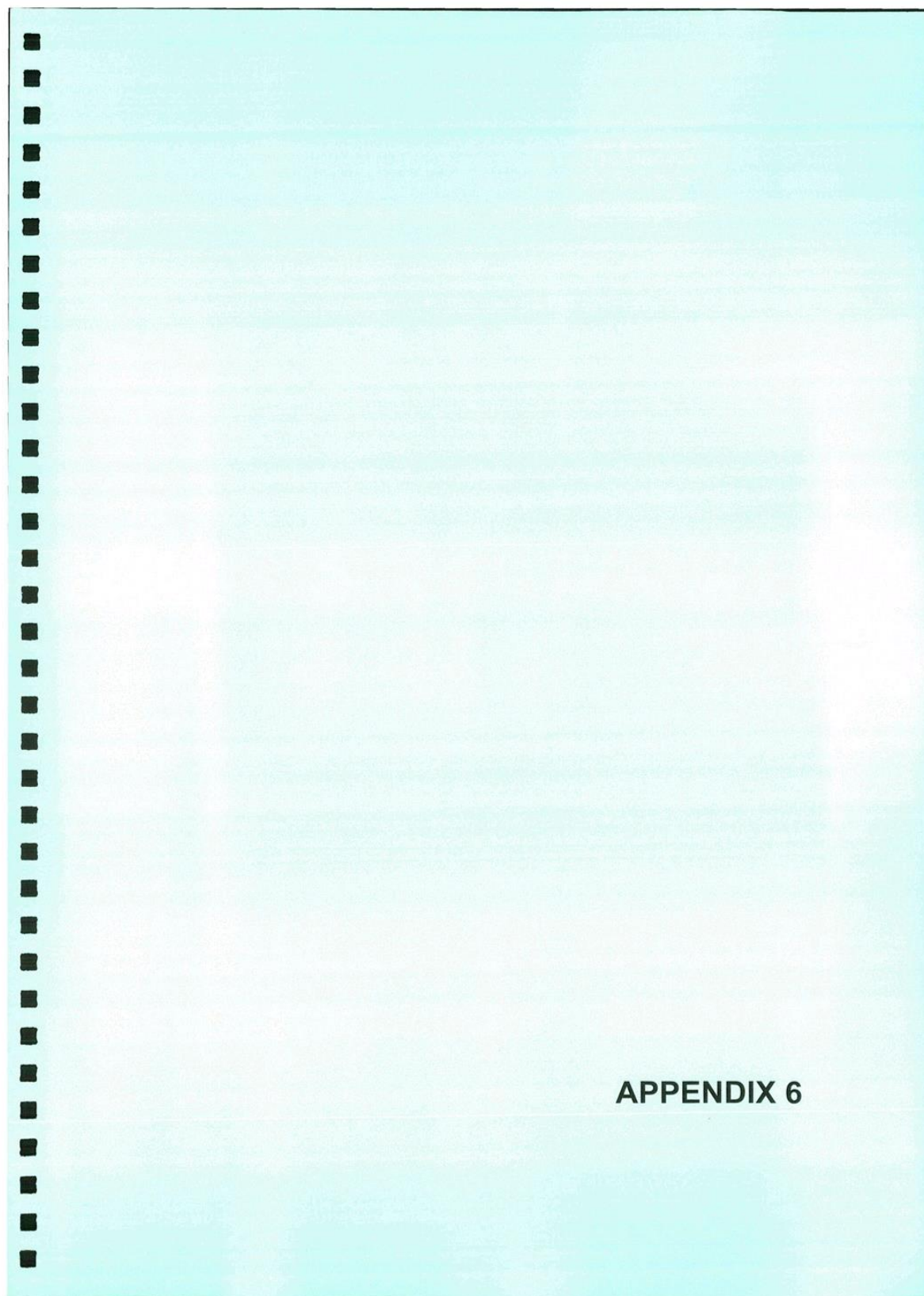
It is concluded that the Planning Proposal to facilitate the extension of the adjoining carpark serving The Lakes Hotel over both 3 Macquarie Street and 3a Maloney Street, Rosebery, is an acceptable compromise and will have negligible impact on the heritage significance of the neighbouring heritage items.

We trust the above brief Heritage Impact Statement will satisfy the City of Botany's requirements in the assessment of the subject Planning Proposal. Should you have any questions or wish to discuss the matter further please do not hesitate to contact the undersigned on 8270 3500.

Yours Sincerely,



Kerime Danis
Director - Heritage









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Andrew Williams
Southern Region NSW & ACT
Mobile 0409 060 639
andrew@tigerlight.com.au
www.tigerlight.com.au

Lakes Hotel, Rosebery
AS 1158.3.1
Table 2.9
Sub category P11a
and P12 (disabled parking)



Luminaire Summary

Luminaire Schedule						
Symbol	Qty	Label	Arrangement	Total Lamp Lumens	LLF	Description
	2	SLA30-T2M1-CREE XPG3 5000K S5	SINGLE	4347.3	0.850	
	2	SLA30-T2M1-CREE XPG3 5000K D5	BACK-BACK	4347.3	0.850	
	1	Sentry 30-T4M1-CREE XPG3 5000K	SINGLE	4286.9	0.850	
	1	sentry 60-T4M1-CREE XPG3 5000K	SINGLE	8659.7	0.850	

Luminaire Images



Tiger LED Street/Area Light

30W 60W 90W 120W 150W - 300W fittings available on special order

Class-leading performance - **now 120 lm/W**
Highest quality components
Built for ultra-dependable performance.



▲ Pictured: 90W fitting

Class-leading light output

Super-efficient 120+ lumens/watt
3,920 lumens (30W) - 14,920 lumens (120W)
Batwing lenses are standard
Range of other lens options available on special order.

Premium components for ultimate reliability

Top performance Cree XPG2 LEDs & renowned Xitanium driver
10KV surge protection
50,000+ hours life, 5 year warranty.

Applications

- Street lighting and area lighting
- Private roads, rail networks, hospitals, university grounds, shopping centres
- Car parks, forecourts & plaza areas.



Fully tested and certified

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Class-leading light output & spread

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• 3,920 lumens (30W)
• 7,460 lumens (60W)
Batwing T3M lenses are standard for optimum distribution pattern.



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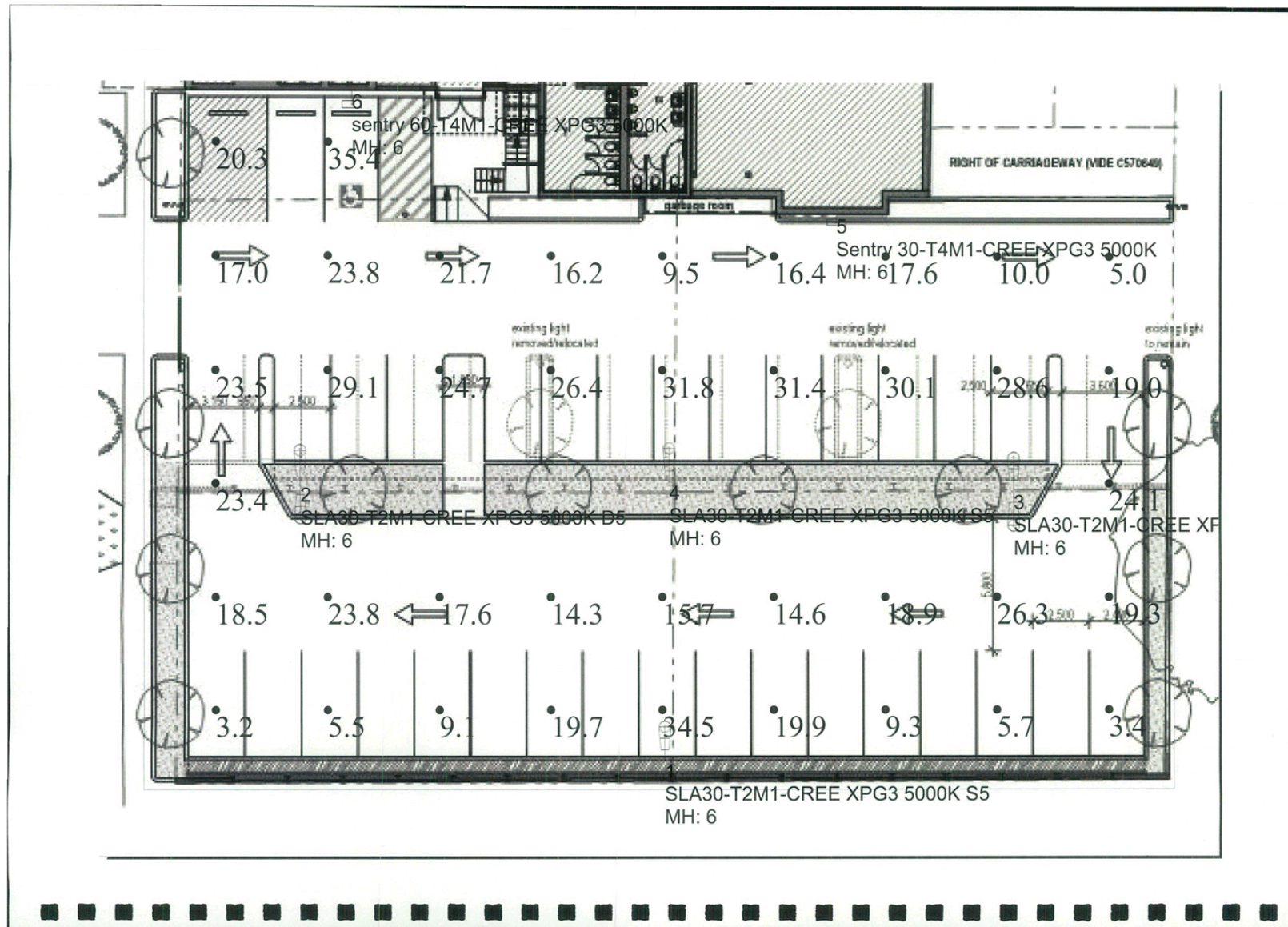
Luminaire Location Summary

Coordinates In Meters

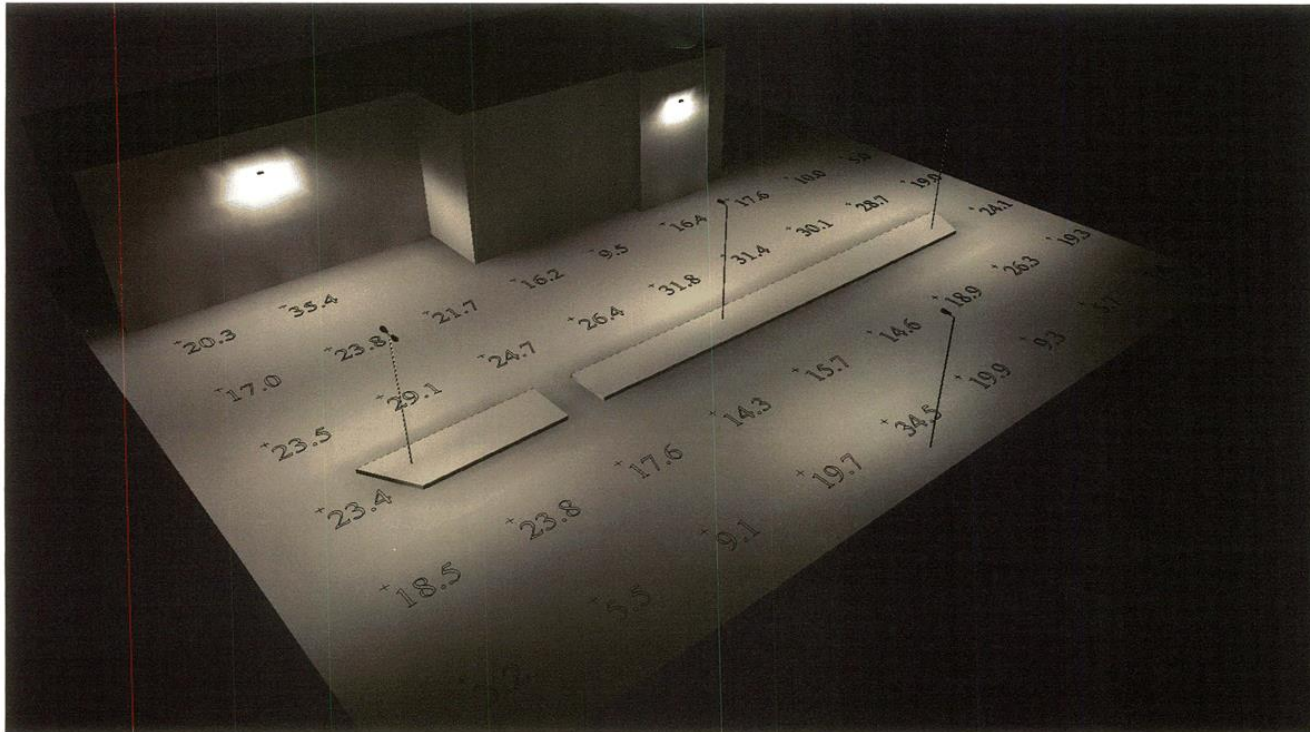
Luminaire Location Summary						
LumNo	Label	X	Y	Z	Orient	Tilt
1	SLA30-T2M1-CREE XPG3 5000K S5	40.161	50.033	6	90	5
2	SLA30-T2M1-CREE XPG3 5000K D5	23.827	62.253	6	90.448	5
3	SLA30-T2M1-CREE XPG3 5000K D5	55.801	61.922	6	90	5
4	SLA30-T2M1-CREE XPG3 5000K S5	40.362	62.341	6	90.233	0
5	Sentry 30-T4M1-CREE XPG3 5000K	47.843	74.079	6	270	0
6	sentry 60-T4M1-CREE XPG3 5000K	26.103	79.509	6	270	0

Calculation Summary

Calculation Summary						
Label	CalcType	Units	Avg	Max	Min	Max/Avg
Carpark	Illuminance	Lux	19.11	35.4	3.2	1.85
Disabled	Illuminance	Lux	35.19	37.1	32.5	N.A.
ObtrusiveLight_1_Cd_Seg1	Obtrusive Light - Cd	N.A.	45.17	127	1	N.A.
ObtrusiveLight_1_Ill_Seg1	Obtrusive Light - Ill	Lux	1.92	2.7	1.0	N.A.
Vertical east	Illuminance	Lux	16.93	26.2	9.7	N.A.
Vertical east_1	Illuminance	Lux	17.04	25.6	9.8	N.A.



Render View



Render

Page 7 of 7

Obtrusive Light - Compliance Report

AS 4282-1997, Post-Curfew, Commercial
Filename: Lakes Hotel, Rosebery
11/07/2017 4:20:30 PM

Illuminance

Maximum Allowable Value: 4 Lux

Calculations Tested (1):

Calculation Label	Test Results	Max. Illum.
ObtrusiveLight_1_Ill_Seg1	PASS	3.6

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 2500 Cd

Calculations Tested (1):

Calculation Label	Test Results
ObtrusiveLight_1_Cd_Seg1	PASS


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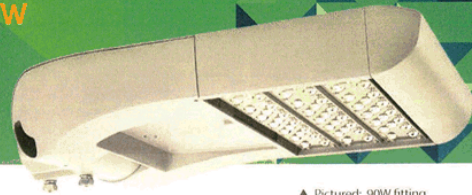
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Highest quality components

Built for ultra-dependable performance.



▲ Pictured: 90W fitting

Class-leading light output

- Super-efficient 120+ lumens/watt
- 3,920 lumens (30W) - 14,920 lumens (120W)
- Batwing lenses are standard
- Range of other lens options available on special order.

Premium components for ultimate reliability

- Top performance Cree XPG2 LEDs & renowned Xitanium driver
- 10KV surge protection
- 50,000+ hours life, 5 year warranty.

Compact modular design

- Lower cost of manufacture from economies of scale
- Efficient heat management dimensions.

Robust, glass-free construction

- IP67 rating for dust and water exposure
- IK08 rating for impact & vandal resistance
- Polyester-coated aluminium casing
- Marine grade stainless steel module fascia
- Polycarbonate optical lenses.

Applications

- Street lighting and area lighting
- Private roads, rail networks, hospitals, university grounds, shopping centres
- Car parks, forecourts & plaza areas.



Fully tested and certified

IES files & photometric profiles available.

TUV reports available for following standards:

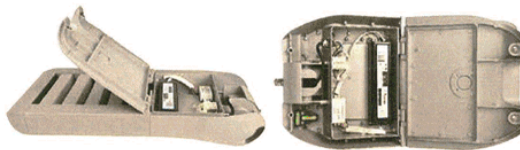
IEC / EN 60598-1: 2008 IEC / EN 60598-2-3/A1: 2011
 EN 62493:2010 IEC 62471: 2008
 IEC 62471-2:2009 EN 55015: 2013
 EN 61547:2009 EN 61000-3-2/A2:2009
 EN 61000-3-3:2013 (EU) 1194/2012:2012-12-12
 (EC) 244/2009:2009-03-18

ENEC: No.: U6140888771007
 CB: No.: 5G-LE-0095

IK08 rating, 3G vibration, 1000 hours salt mist test reports
 furnished upon request.



Practical installer-friendly design



- Easy to open for quick installation.
- One 6mm allen key fits all bolts. Bolts cannot fall to ground.
- Fittings contain built-in spirit levels to simplify installation.
- WAGO press-release connectors present for quick and easy installation.



- Spigot is assembled for a horizontal tenon mount. Reverse the spigot assembly for vertical pole mount.
- Spigot is adjustable -20° to +20° from the horizontal or vertical position to allow for tilting if required.

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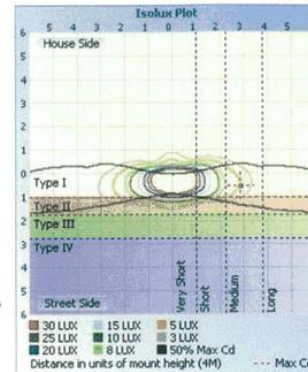
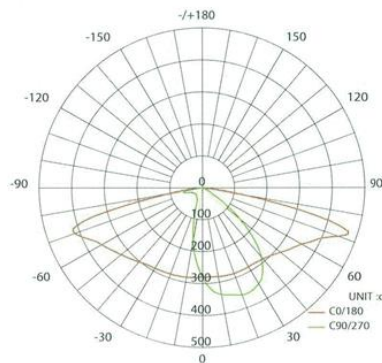
30W 60W 90W 120W 150W - 300W fittings also available on special order

Photometrics

Standard lens type:
Code T2M1.
IES Classification
Type II Medium.

Other lenses available
as special order items:

Type I Medium 10 degrees round
Type II Medium 25 degrees round
Type III Medium 40 degrees round
Type III Long 60 degrees round
Type IV Short 90 degrees round
Type IV Long 120 degrees round
Diffused



Lighting application guidelines

	30W		60W		90W		120W	
Mounting Height (metres)	4	6	6	8	8	10	10	12
Pole arrangement (see below)	SR	SR	SR	SR	SR	DR	SR	DR
Area illuminated (LxW metres)	20X5	28X7	28X7	35X10	35X10	40X14	40X14	45X22
Average illuminance (Eav lux)	26	13	25	16	26	25	21	19

Pole arrangement
SR / DR (above)



SR
Single sided
row arrangement



DR
Double row
opposing pole
arrangement

Technical parameters

	30W	60W	90W	120W
Power consumption: System/LED	30W / 27W	61W / 54W	94W / 86W	123W / 115W
Comparable metal halide	70-100W	150-200W	250-300W	250 - 400W
Input voltage & frequency	AC 120-277V / 50-60Hz	AC 120-277V / 50-60Hz	AC 120-277V / 50-60Hz	AC 120-277V / 50-60Hz
Input current / Power factor	530mA / ≥ 0.95	530mA / ≥ 0.95	530mA / ≥ 0.95	530mA / ≥ 0.95
LED chips / driver	Cree XPG2 / Xitanium	Cree XPG2 / Xitanium	Cree XPG2 / Xitanium	Cree XPG2 / Xitanium
Luminous Flux / efficiency	3,920 lm / 120 lm/W	7460 lm / 120 lm/W	11,420 lm / 120 lm/W	14,920 lm / 120 lm/W
Colour temperature / CRI	5,000K / Ra>70	5,000K / Ra>70	5,000K / Ra>70	5,000K / Ra>70
Light distribution	IESNA Type II Medium	IESNA Type II Medium	IESNA Type II Medium	IESNA Type II Medium
IP Rating / Working temperature	IP67 / -50 ~ +60°C	IP67 / -50 ~ +60°C	IP67 / -50 ~ +60°C	IP67 / -50 ~ +60°C
Service life	≥ 50,000 hours	≥ 50,000 hours	≥ 50,000 hours	≥ 50,000 hours
Composition - lenses	Polycarbonate	Polycarbonate	Polycarbonate	Polycarbonate
- Housing/heatsink	Aluminium	Aluminium	Aluminium	Aluminium
- Protective coating on housing	Polyester (100µm min)	Polyester (100µm min)	Polyester (100µm min)	Polyester (100µm min)
- Front fascia on modules	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Spigot - Inner Diameter / Length	62 mm ID / 120mm L	62 mm ID / 120mm L	62 mm ID / 120mm L	62 mm ID / 120mm L
Pole-arm/horiz tenon Outer Diam	42-60mm OD	42-60mm OD	42-60mm OD	42-60mm OD
Weight / Dimensions LxWxDmm	6.5kg / 463 x 345 x 117mm	7.1kg / 523 x 345 x 117mm	8.2kg / 583 x 345 x 117mm	8.9kg / 643 x 345 x 117mm
Product order code	SA030	SA060	SA090	SA120

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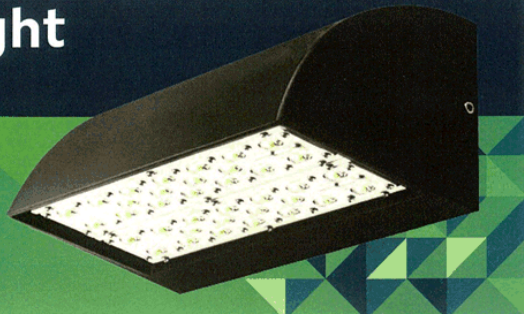
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Tiger Sentry LED Light

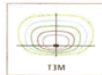
30W 60W Wallpack Lights

Class-leading performance - **120 lm/W**
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 Polycarbonate T3M batwing lenses.



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- 3,920 lumens (30W)
- 7,460 lumens (60W)
- Batwing T3M lenses are standard for optimum distribution pattern.



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Top performance Cree XPG2 LEDs
 Renowned Philips Xitanium driver
 10KV surge protection
 50,000+ hours life, 5 year warranty.

Robust, glass-free construction

IP67 rating for dust and water exposure
 IK08 rating for impact & vandal resistance
 Polyester-coated aluminium casing
 Marine grade stainless steel module fascia
 Polycarbonate optical lenses - no glass.

Easy installation

Back plate allows for great flexibility in the placement of wall fixings.



30W SENTRY

60W SENTRY



▲ Above: 60W Sentry
 Right: 30W Sentry ▶



Applications

- Security lighting around building exteriors
- Illuminating private roadways, walkways, exits and entrances
- Commercial & industrial premises, municipal areas, school & university grounds, shopping centres and other public spaces.

Fully tested and certified

IES files & photometric profiles available.

TUV reports available for following standards:

IEC / EN 60598-1: 2008 IEC / EN 60598-2-3/A1: 2011
 EN 62493: 2010 IEC62471: 2008
 IEC62471-2: 2009 EN 55015: 2013
 EN61547: 2009 EN61000-3-2/A2: 2009
 EN 61000-3-3: 2013 (EU) 1194/2012: 2012-12-12
 (EC) 244/2009: 2009-03-18

ENEC: No.: U614088771007 CB: No.: SG-LE-0095

IK08 rating, 3G vibration, 1000 hours salt mist test reports furnished upon request.



Technical parameters

	30W	60W
Power consumption	31W	61W
Comparable HID fitting	90W	150-200W
Input voltage & frequency	AC 120-277V / 50-60Hz	AC 120-277V / 50-60Hz
Input current / Power factor	530mA / ≥ 0.95	530mA / ≥ 0.95
LED chips / driver	Cree XPG2 / Xitanium	Cree XPG2 / Xitanium
Luminous Flux / efficiency	3,920 lm / 120 lm/W	7,460 lm / 120 lm/W
Colour temperature / CRI	5,000K / Ra>70	5,000K / Ra>70
Light distribution	IESNA Type III Medium	IESNA Type III Medium
IP Rating / Working temp	IP67 / -50 ~ +60°C	IP67 / -50 ~ +60°C
Service life	≥ 50,000 hours	≥ 50,000 hours
Composition - lenses	Polycarbonate	Polycarbonate
- Housing/heat sink	Aluminium	Aluminium
- Protective coating housing	Polyester (100µm min)	Polyester (100µm min)
- Front fascia on modules	Stainless Steel	Stainless Steel
Dimensions (mm)	325 L x 190 W x 160 H	325 L x 190 W x 160 H
Weight	5.0kg	5.4kg
Product order code	FA030WP	FA060WP

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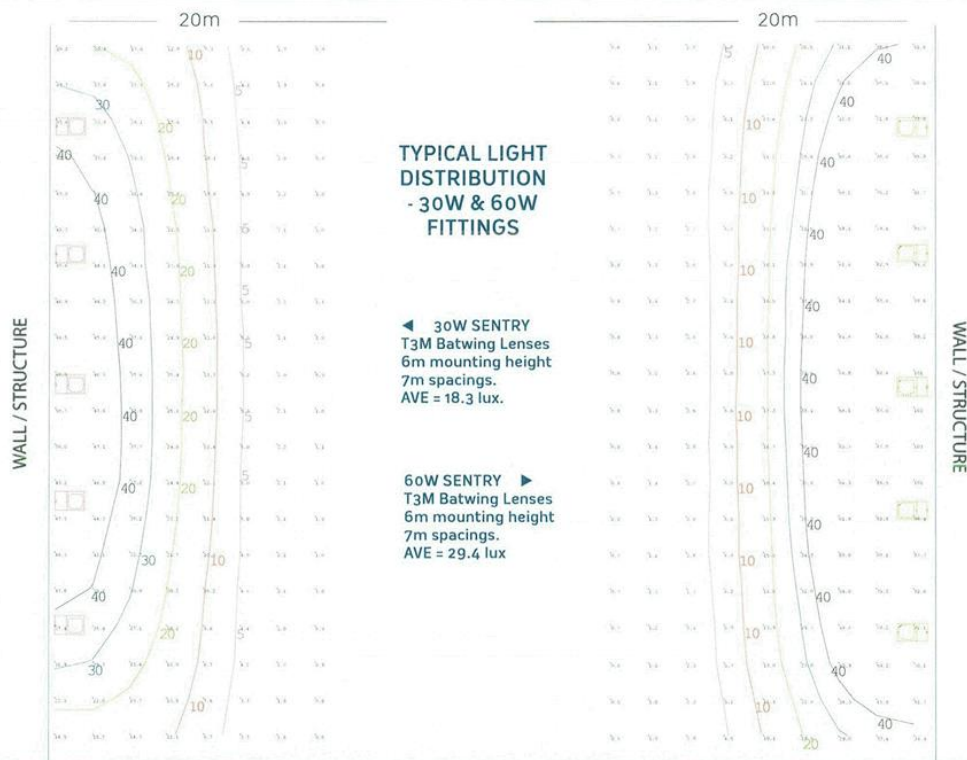
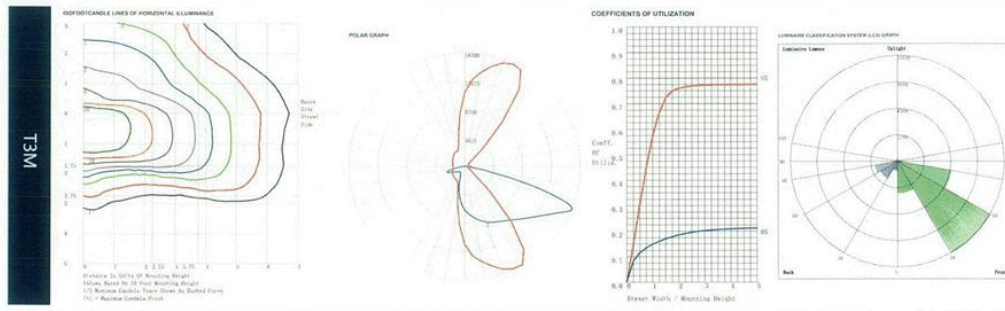

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Photometrics - T3M lenses


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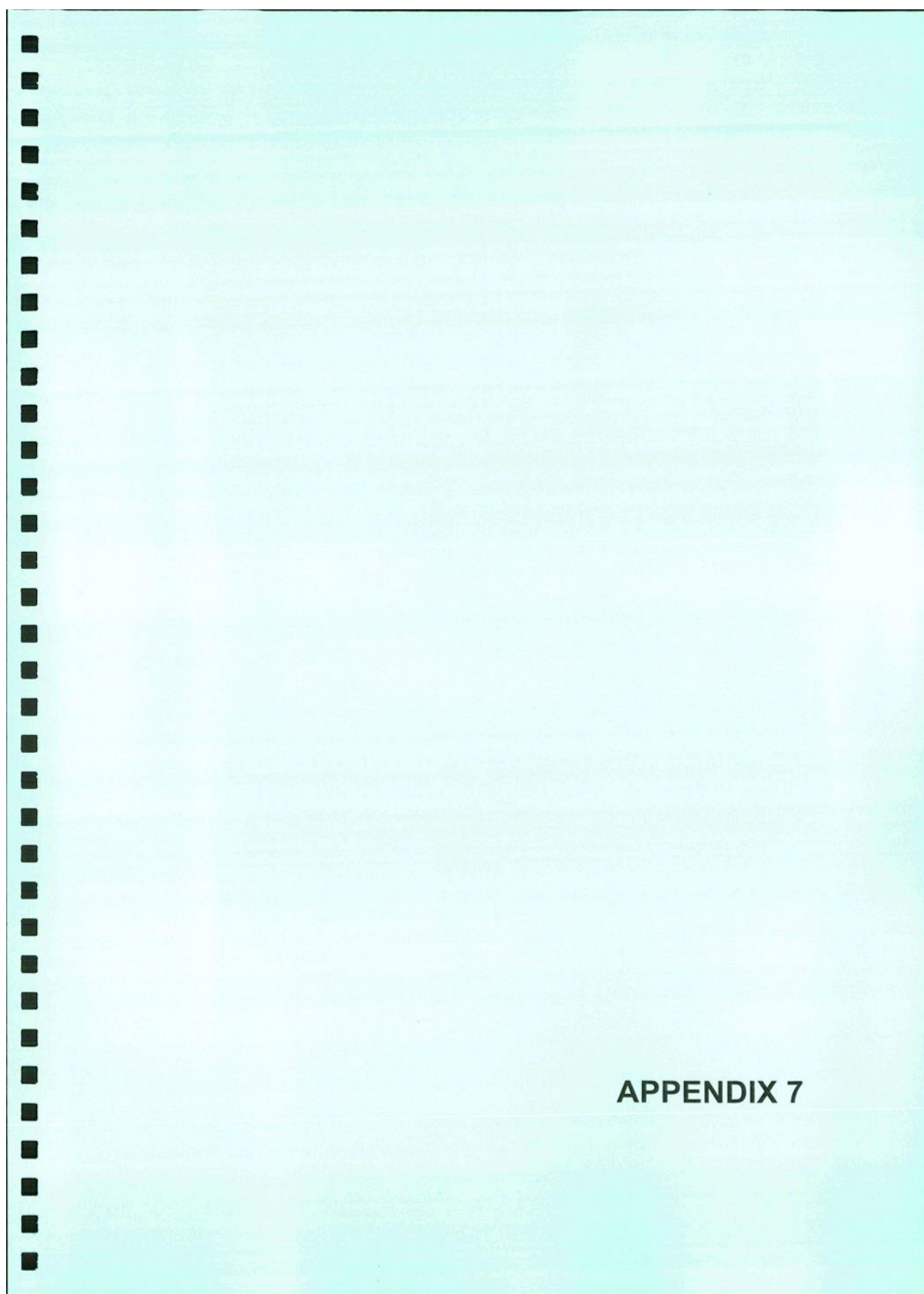
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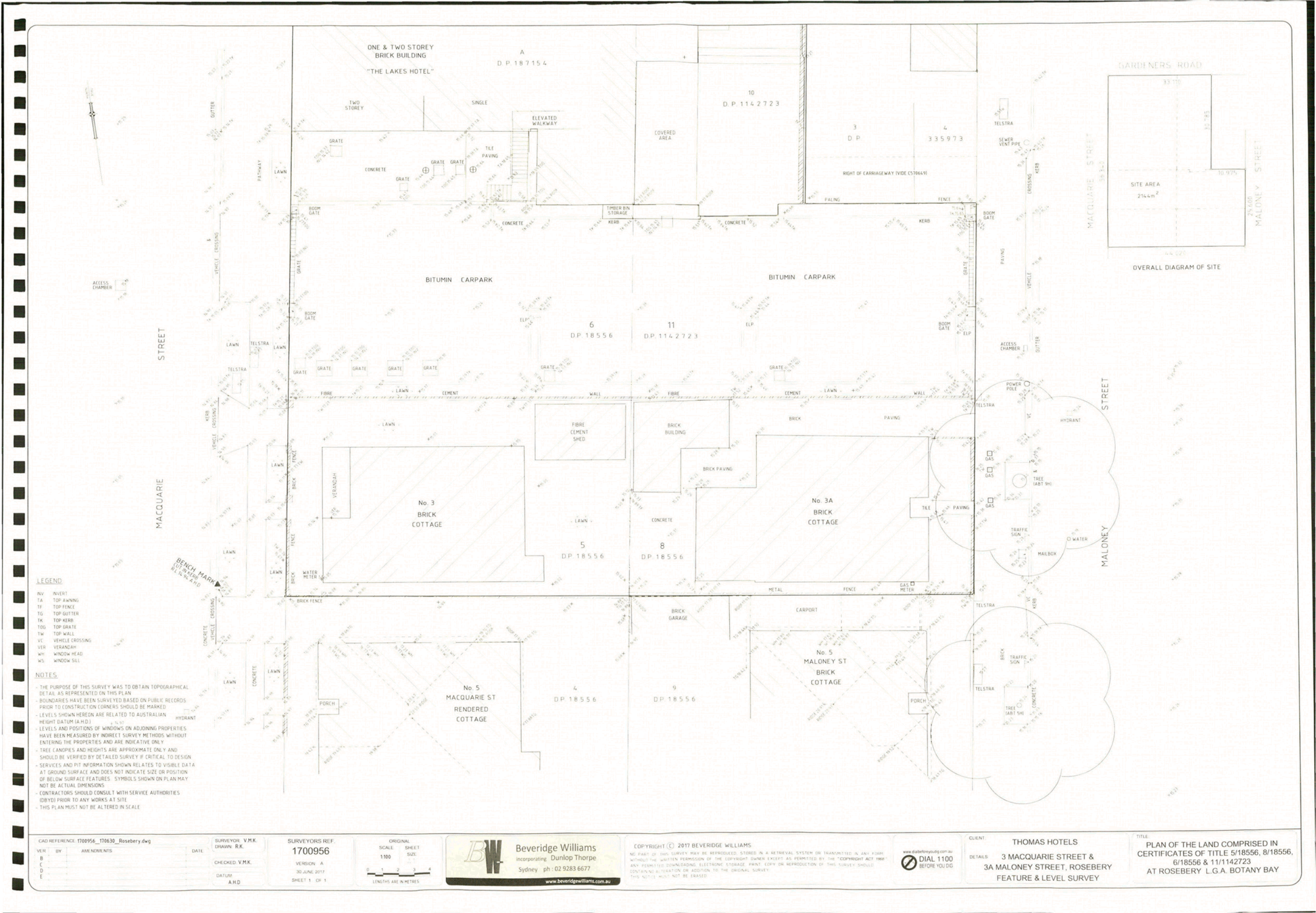
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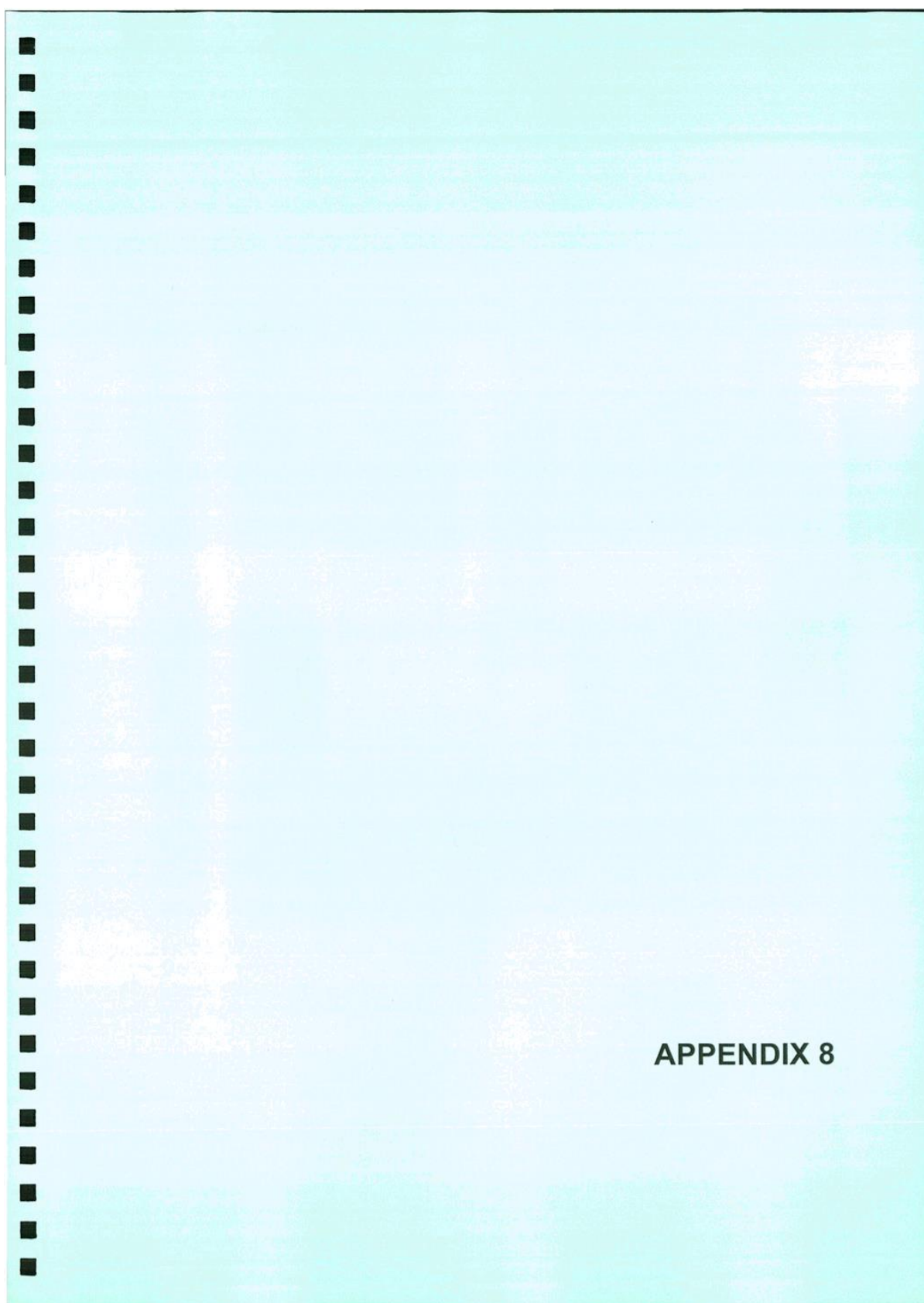
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Botany Bay Local Environmental Plan 2013 - NSW Legislation

Botany Bay Local Environmental Plan 2013

Current version for 10 February 2017 to date (accessed 3 August 2017 at 09:37)

Part 6 ► Clause 6.8

6.8 Airspace operations

(1) The objectives of this clause are as follows:

- (a) to provide for the effective and ongoing operation of the Sydney (Kingsford Smith) Airport by ensuring that such operation is not compromised by proposed development that penetrates the Limitation or Operations Surface for that airport,
- (b) to protect the community from undue risk from that operation.

(2) If a development application is received and the consent authority is satisfied that the proposed development will penetrate the Limitation or Operations Surface, the consent authority must not grant development consent unless it has consulted with the relevant Commonwealth body about the application.

(3) The consent authority may grant development consent for the development if the relevant Commonwealth body advises that:

- (a) the development will penetrate the Limitation or Operations Surface but it has no objection to its construction, or
- (b) the development will not penetrate the Limitation or Operations Surface.

(4) The consent authority must not grant development consent for the development if the relevant Commonwealth body advises that the development will penetrate the Limitation or Operations Surface and should not be constructed.

(5) In this clause:

Limitation or Operations Surface means the Obstacle Limitation Surface or the Procedures for Air Navigation Services Operations Surface as shown on the *Obstacle Limitation Surface Map* or the *Procedures for Air Navigation Services Operations Surface Map* for the Sydney (Kingsford Smith) Airport.

relevant Commonwealth body means the body, under Commonwealth legislation, that is responsible for development approvals for development that penetrates the Limitation or Operations Surface for the Sydney (Kingsford Smith) Airport.

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/part6/cl6.8>

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Part 6 ► Clause 6.9

6.9 Development in areas subject to aircraft noise

(1) The objectives of this clause are as follows:

- (a) to prevent certain noise sensitive developments from being located near the Sydney (Kingsford Smith) Airport and its flight paths,
- (b) to assist in minimising the impact of aircraft noise from that airport and its flight paths by requiring appropriate noise attenuation measures in noise sensitive buildings,
- (c) to ensure that land use and development in the vicinity of that airport do not hinder or have any other adverse impacts on the ongoing, safe and efficient operation of that airport.

(2) This clause applies to development that:

- (a) is on land that:
 - (i) is near the Sydney (Kingsford Smith) Airport, and
 - (ii) is in an ANEF contour of 20 or greater, and
- (b) the consent authority considers is likely to be adversely affected by aircraft noise.

(3) Before determining a development application for development to which this clause applies, the consent authority:

- (a) must consider whether the development will result in an increase in the number of dwellings or people affected by aircraft noise, and
- (b) must consider the location of the development in relation to the criteria set out in Table 2.1 (Building Site Acceptability Based on ANEF Zones) in AS 2021—2000, and
- (c) must be satisfied the development will meet the indoor design sound levels shown in Table 3.3 (Indoor Design Sound Levels for Determination of Aircraft Noise Reduction) in AS 2021—2000.

(4) In this clause:

ANEF contour means a noise exposure contour shown as an ANEF contour on the *Noise Exposure Forecast Contour Map* for the Sydney (Kingsford Smith) Airport prepared by the Department of the Commonwealth responsible for airports.

AS 2021—2000 means AS 2021—2000, *Acoustics—Aircraft noise intrusion—Building siting and construction*.

<https://www.legislation.nsw.gov.au/#/view/EPI/2013/313/part6/cl6.9>

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