



No. 68-72 Railway Parade,
2 & 2A Oxford St & 4-10 Oxford St, Burwood

ANALYSIS OF PROPOSED RESIDENTIAL FLAT BUILDING OVERSHADOWING BURWOOD PUBLIC SCHOOL RECREATIONAL TURF AREA

Prepared for:

X - SEALANT

Prepared by:

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Document Status

REV	Description	Initial	Date
A	For Submission	BG	09.07.2018
B	Amended to include analysis of further design options	BG	12.09.2018

1.0 INTRODUCTION

1.1 Project Background and Intention of this Report

The proposed development is located at No. 68-72 Railway Parade, 2 & 2A Oxford St & 4-10 Oxford St, Burwood. A Development Application (DA) for a residential flat building with 124 units has recently been approved. The scheme comprised of 124 units in a configuration of 6, 8 and 10 levels.

During the assessment of the DA, Burwood Council requested that the applicant respond to a perceived impact issue raised by the adjacent Burwood Public School regarding the potential overshadowing by the development of their recreation playing field. The school concern related to any impact the development may have on the ability for grass to be maintained adjacent to the new development and if the field will be adversely affected by the shadow created by the new development.

As a result of this assessment issue during the DA, Geoscapes Landscape Architects were asked to provide a report to investigate the potential effects of the shadowing and try to quantify how much if any of the grassed playing field would be affected and what if any mitigation of management measures could be implemented.

An additional planning proposal is also under assessment for additional density and height above that of the recently approved DA. Geoscapes Landscape Architects have again been engaged to provide an assessment of potential impacts from the density options proposed in the planning proposal schemes.

2.0 GRASS SPECIES AND EXISTING CONDITION OF PLAYING FIELD

2.1 Species

From site investigations, it is believed that the vast majority of grass species within the school playing field is Kikuyu. This has been a commonly used species in school playing fields in the past due to its cost effectiveness, its ability to establish quickly and be generally hard-wearing. Research studies have shown that this species of grass requires approximately six hours of sunlight per day to survive. This has also been confirmed by leading turf supplier Lawn Solutions Australia.

2.2 Existing Condition of Playing Field

The current condition of the playing field is mixed. There are large areas of dirt where turf has been worn away through the presence of constant foot traffic by school children (see 6.0 appendix site and aerial photography). This would also lead to the conclusion that the underlying soil has suffered compaction. There are also several existing trees present which create shade however, these trees also provide a benefit to assist within screening the southern facade of the new residential development.

3.0 ANALYSIS OF SHADOW DIAGRAMS AND SUNLIGHT HOURS MAPPING

3.1 Methodology

Using the computer software Trimble SketchUp, Aleksandar Design Group produced shadow diagrams and sunlight hours mapping of the playing fields for winter and summer months (refer to appendix section 6.3. It is important to note that these are a guide and an approximation of the amount of shade that will be produced by the proposed DA and the planning proposal schemes. These diagrams





were then analysed by Geoscapes Landscape Architects.

3.2 Findings

Refer to Appendix 6.3 for sunlight analysis diagrams.

Proposed DA Massing 10-8-6 Storeys

When looking at the worst case scenario, (the winter solstice sunlight hours) it is apparent that there will be some impact on the playing field within the area adjacent to the proposed development's southern boundary with the green and purple areas most affected. During the autumn and summer months the playing field remains generally unaffected.

Planning Proposal - Design Alternative Proposed Massing 14-10-6 Storeys

In the design alternative, an additional two storeys to the east block of the development is proposed and four in the northern block. The shadow impact on the playing field to the south, is slightly increased from the original DA massing during the winter solstice sunlights hours. The areas of playing field that will receive only 4 and 5 hours of sunlight slightly increases.

In this model, similar to the proposed DA, during the autumn and summer months the playing field remains generally unaffected.

Planning Proposal - Design Alternative Proposed Massing 12-10-9 Storeys

This design alternative has a very similar outcome on solar access to the playing field as described above in the 14-10-6 option. With the addition of three storeys to the southern block, two to the east and two to the north, winter solstice sunlight hours are reduced to the playing field. There is a reduction of areas receiving greater than eight sunlight hours to eight hours. This reduction would not affect the ability of grass to grow in those areas of the playing field. Areas receiving two, three and four sunlight hours would effectively be the same as the option 14-10-6.

In this model, similar to the proposed DA, during the autumn and summer months the playing field remains generally unaffected.

4.0 CONCLUSIONS

From site investigation and shadow analysis diagrams produced by Aleksandar Design Group, the following conclusions can be drawn over the impact of the new development on the Burwood School playing field:

- The existing condition of the playing field grass is mixed, with several areas of dirt exposed.
- During the winter months the most significant shadow impacts will be to a location immediately adjacent to the southern boundary of the proposed development. These are shown on the sunlight diagrams in green and purple as only receiving two to three hours of sunlight. It is highly unlikely that any turf grown in this area will survive in the winter months.
- Turf areas that do receive at least five to six hours of sunlight have a high chance of survival.
- In regard to the current proposed DA massing, the majority of the playing field, even in winter, should continue to receive six or more sunlight hours per day that the current turf species requires to grow. The alternative planning proposal scheme design options, slightly further reduce the amount of playing field areas receiving six hours sunlight.





5.0 RECOMMENDATIONS

It is held that a high quality landscape can still be maintained at the school playing field, as a result of any of the proposed design options. To achieve this, the following recommendations are proposed:

- In the area of the playing field that will be reduced to two to three hours sunlight on the southern boundary, it is suggested that a garden bed be created with shade tolerant plants and tree species.
- In areas that are predicted to receive 4 hours sunlight in winter, new turf should be installed that is more shade tolerant. New shade tolerant turf species readily available on the market include: Sir Walter Buffalo DNA Certified, Sir Grange and TifTuf. Due to the high traffic nature observed at the site, it is recommended that TifTuf be selected as it has very hard wearing attributes in addition to its high growth shade qualities.
- The remainder of the turf in areas that would receive at least five to six hours of sunlight should continue to survive.
- All turf areas should be maintained to best horticultural standards including aeration, the use of regular fertiliser and regular mowing.
- A future development application should include a specific vegetation management plan to support the planting and future management of the affected areas to ensure healthy grass growth is optimised post development.



6.0 APPENDIX

6.1 Site Photos - Friday 6th July 2018

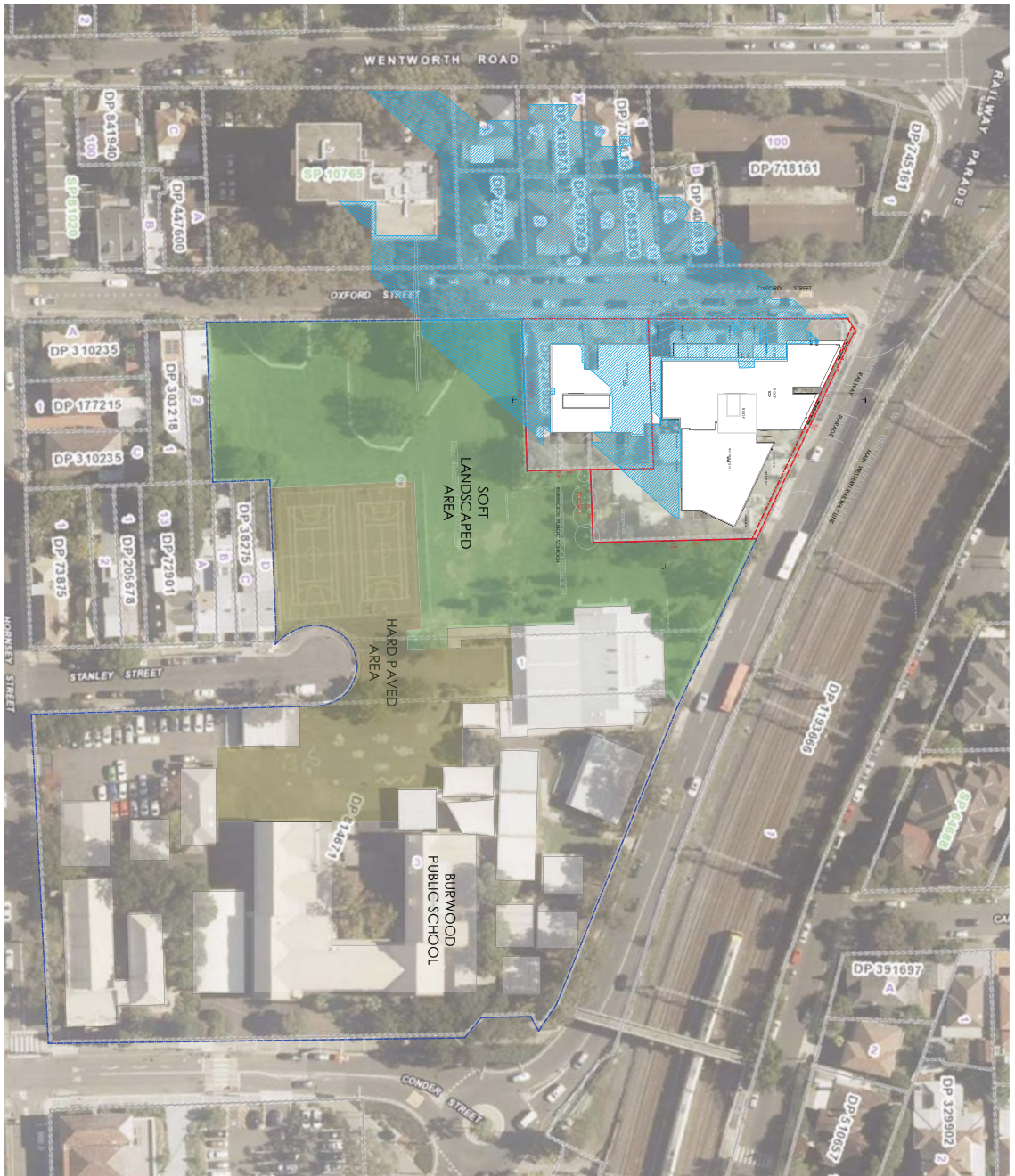




6.2 Nearmap Aerial Photography - Sunday 15th April 2018



6.3 Aleksandar Design Group - Shadow and Sunlight Hours Analysis



METHOD USED:
 SHADOWCASTER
 RENDERING CAD SOFTWARE

24/04/2018
 Burwood Public School Boundary
 Burwood Public School Soft Landscape open space
 Burwood Public School Hard Paved open space

TOTAL M² of Soft Landscape open space
 Burwood Public School: 38.67 m²

TOTAL M² of Hard Paved Landscape open space
 Burwood Public School: 32.48 m²

TOTAL Burwood Public School open space: 88.67 m²

9AM, 21ST JUNE - WINTER SOLSTICE

M ² of Soft Landscape open space shadowed by the amended DA:	355	m ²
% of Soft Landscape open space shadowed by amended DA:	6.6	%
M ² of Hard Paved open space shadowed by the amended DA:	0	m ²
% of Hard Paved open space shadowed by amended DA:	0	%
% of Total open space shadowed by amended DA:	4.1	%

CLIENT:
 Aleksandar Design Group
 217/219 Victoria Avenue
 Chatswood NSW 1591

DATE:
 X-SEALANT

ADDRESS:
 DP 27 BATHMAN TERRACE
 8/3 OXFORD ST & 4/10
 OXFORD ST BURWOOD

PROJECT:
 AMENDMENT TO DA
 REVISIONS TO DA
 OPEN SPACE

NO:
 SHADOW DIAGRAMS 9AM
 21/06 WINTER SOLSTICE

SCALE:
 1:1000

DATE:
 17/03/2018

PROJECT NO.:
 DA130





METHOD USED:
 RENDERING: CAD SOFTWARE
 SHADOW CAST BY: AMENDED DA
 24/04/2018
 BURWOOD PUBLIC SCHOOL BOUNDARY
 BURWOOD PUBLIC SCHOOL SOFT LANDSCAPE OPEN SPACE
 BURWOOD PUBLIC SCHOOL HARD PAVED OPEN SPACE

TOTAL M² of Soft Landscape open space
 Burwood Public School: 38,67 m²
TOTAL M² of Hard Paved Landscape open space
 Burwood Public School: 32,48 m²
TOTAL Burwood Public School open space: 85,67 m²

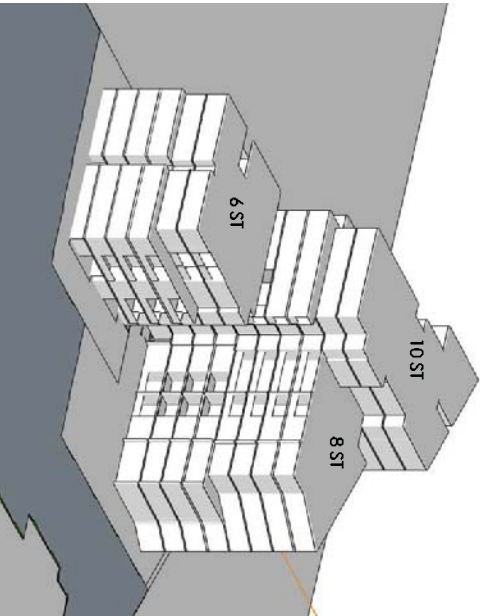
10AM, 21ST JUNE - WINTER SOLSTICE

M² of Soft landscape open space shadowed by the amended DA: 477 m²
 % of Soft Landscape open space shadowed by amended DA: 8,9 %
 M² of Hard Paved open space shadowed by the amended DA: 0 m²
 % of Hard Paved open space shadowed by amended DA: 0 %
 % of Total open space shadowed by amended DA: 5,5 %

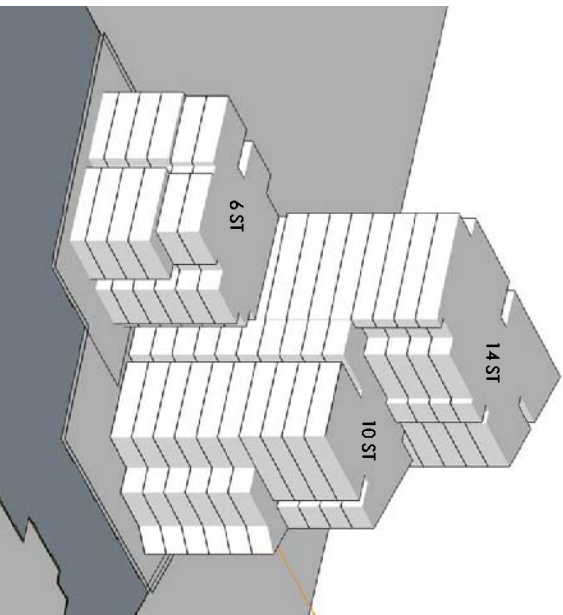
PROJECT
 Client: X-SEAMANT
 Address: DP 27 BATHMAN TERRACE 2, 8 & 9 OXFORD ST & 4-10 OXFORD ST, BURWOOD
 Project: AMENDED DEVELOPMENT APPLICATION (DA) FOR THE PROPOSED 21ST JUNE WINTER SOLSTICE SHADOW DIAGRAM 10AM
 Date: 17/01/2021
 Project No: DA13b



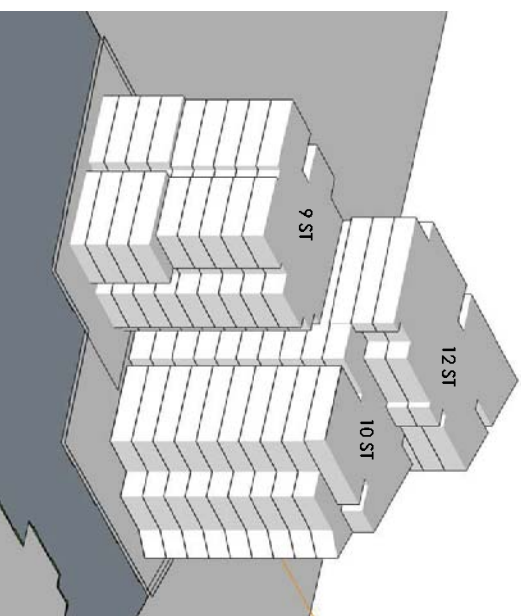
THE PROPOSAL | 04
 PROPOSED MASSING



DA APPROVED MASSING

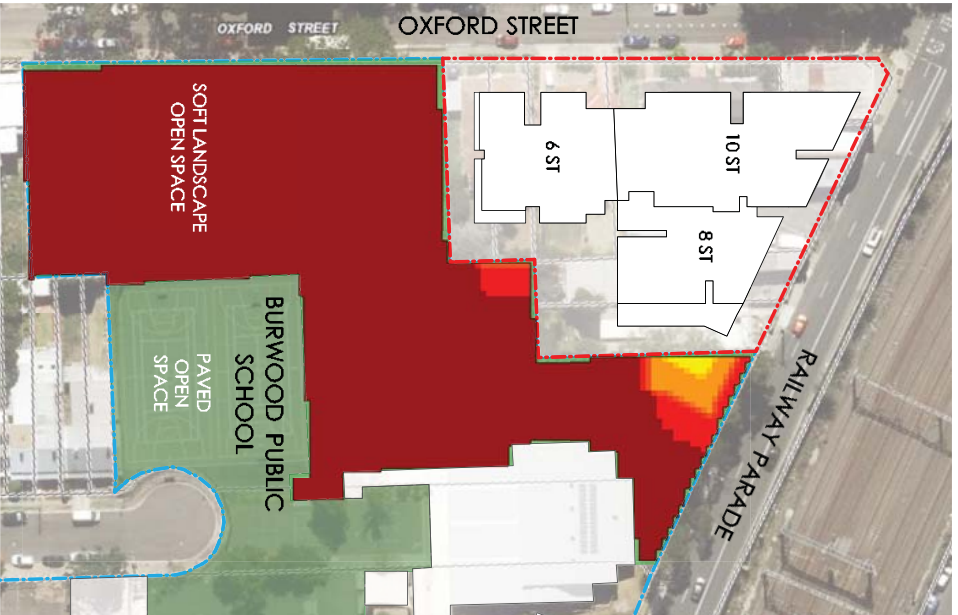


PROPOSED MASSING 14-10-6 STOREYS



PROPOSED MASSING 12-10-9 STOREYS



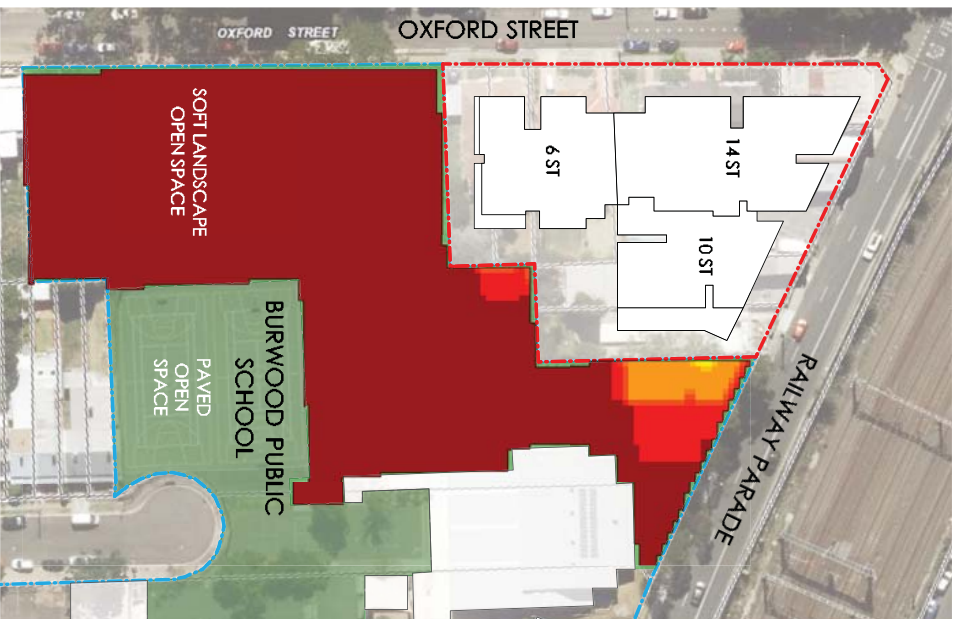


DA APPROVED MASSING - SUMMER SOLSTICE

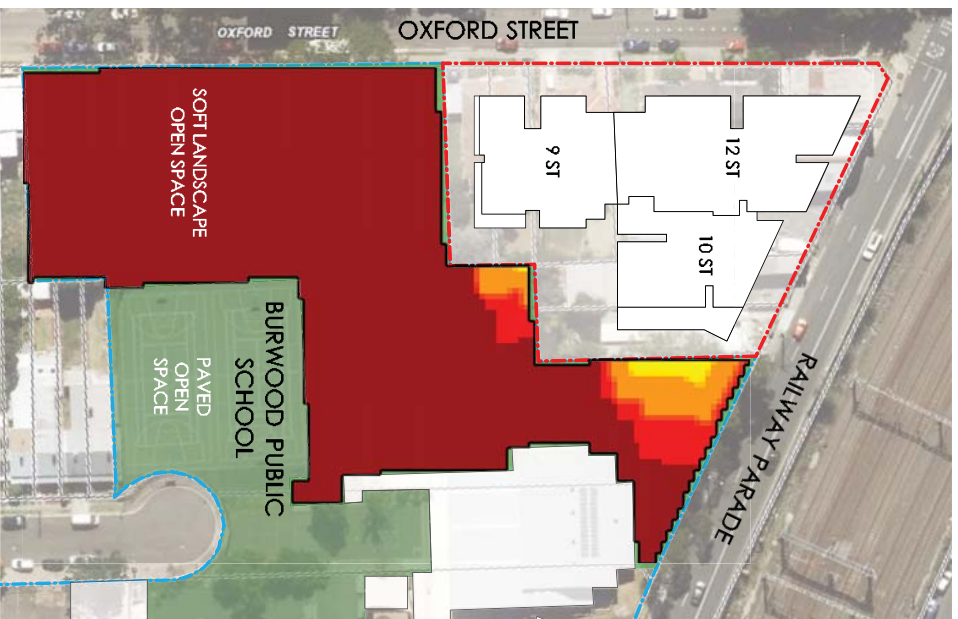
METHOD USED:
 SKETCHUP 2017 + EXTENSION
 SUNHOURS

AREA ANALYSED LIMITED TO SOFT
 LANDSCAPE OPEN SPACE OF
 ADJACENT SITE BURWOOD PUBLIC
 SCHOOL

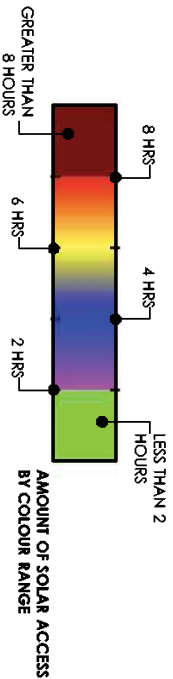
GRID APPROXIMATELY 1m x 1m



PROPOSED MASSING 14-10-6 STOREYS - SUMMER SOLSTICE



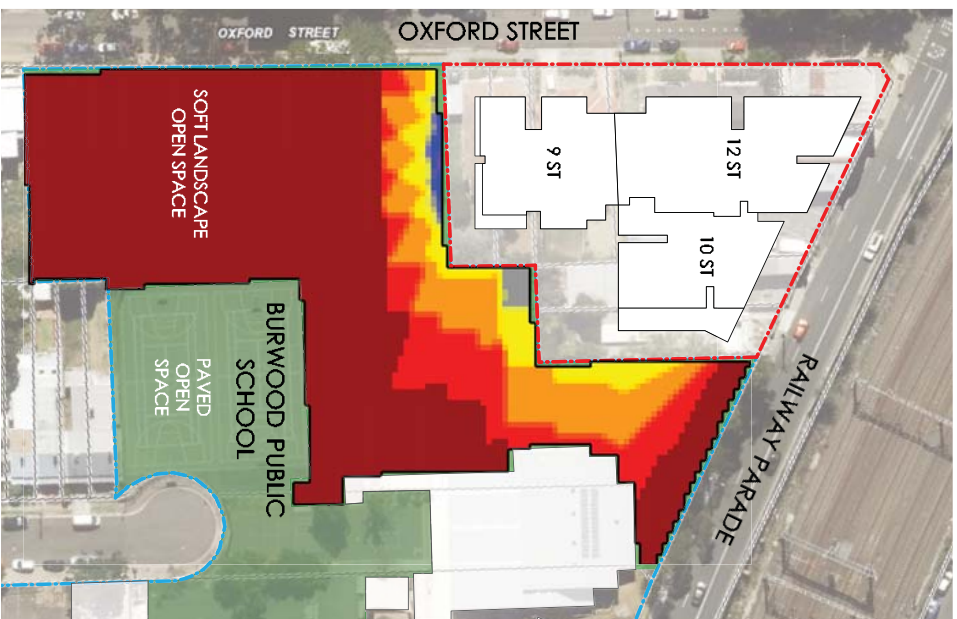
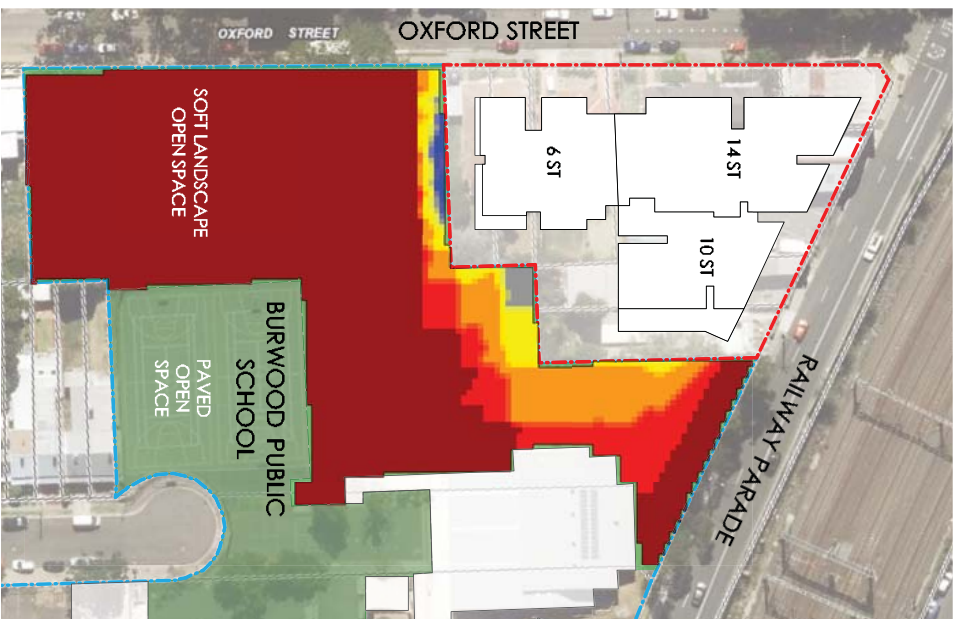
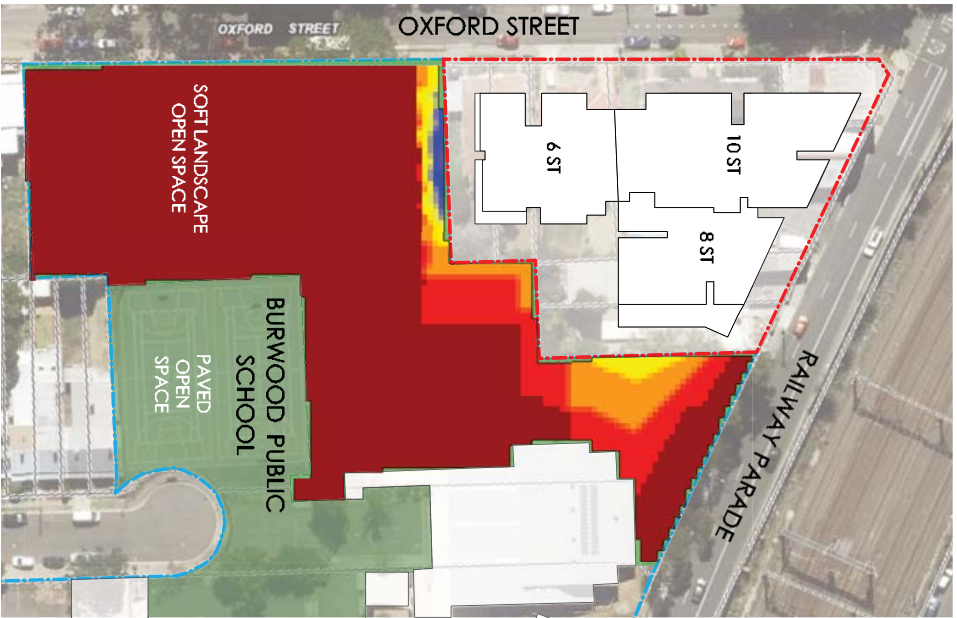
PROPOSED MASSING 12-10-9 STOREYS - SUMMER SOLSTICE



URBAN DESIGN REPORT - 68-72 RAILWAY PDE AND 2-2A-4-10 OXFORD ST, BURWOOD

--- Site Boundary
 - - - Burwood Public School

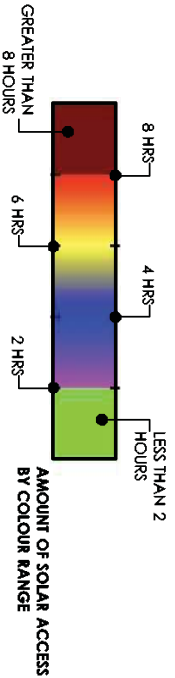




METHOD USED:
 SKETCHUP 2017 + EXTENSION
 SUNHOURS

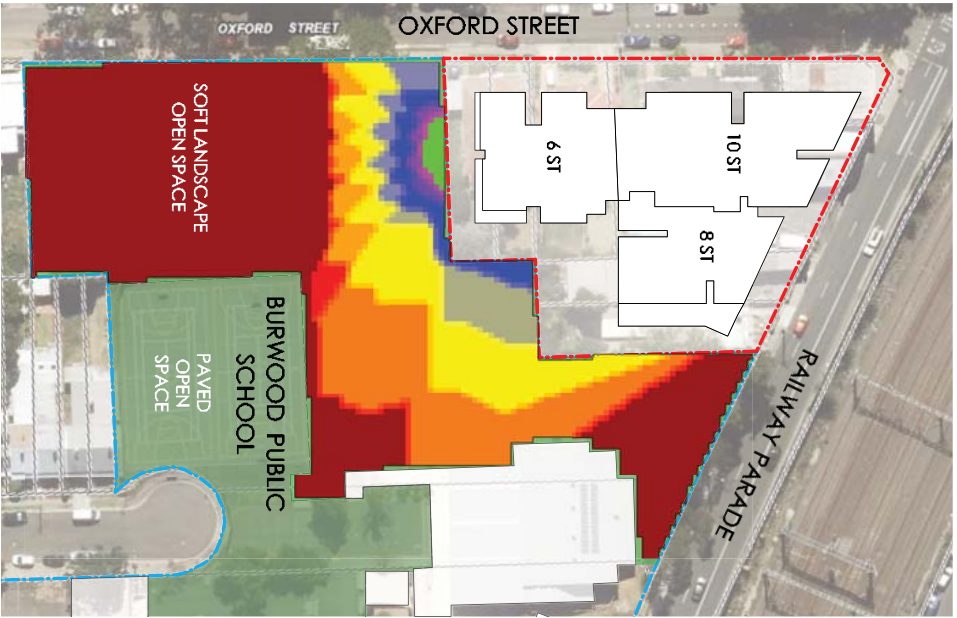
**AREA ANALYSED LIMITED TO SOFT
 LANDSCAPE OPEN SPACE OF
 ADJACENT SITE BURWOOD PUBLIC
 SCHOOL**

GRID APPROXIMATELY 1m x 1m



--- Site Boundary
 --- Burwood Public School



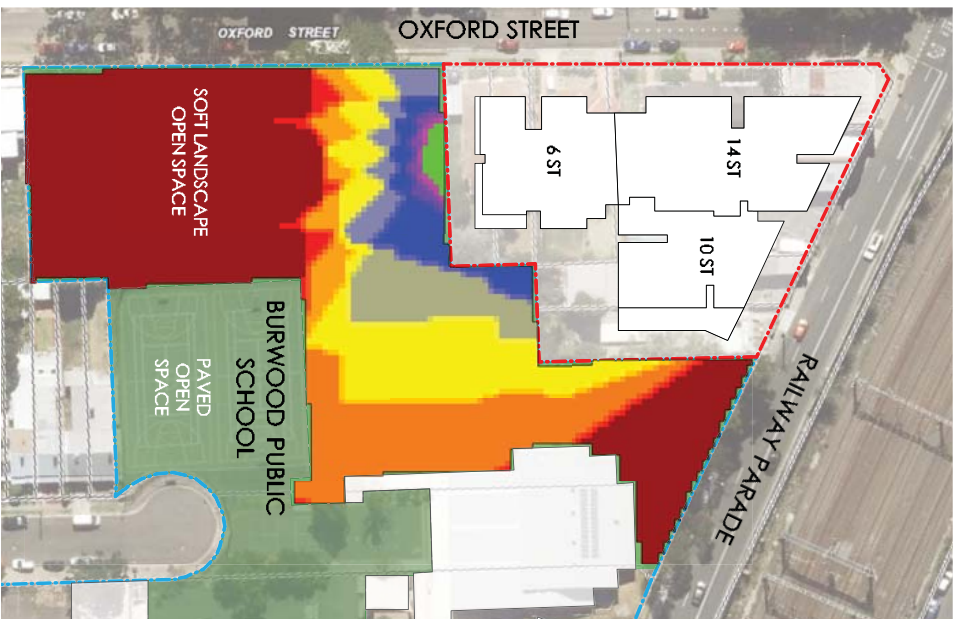


DA APPROVED MASSING - WINTER SOLSTICE

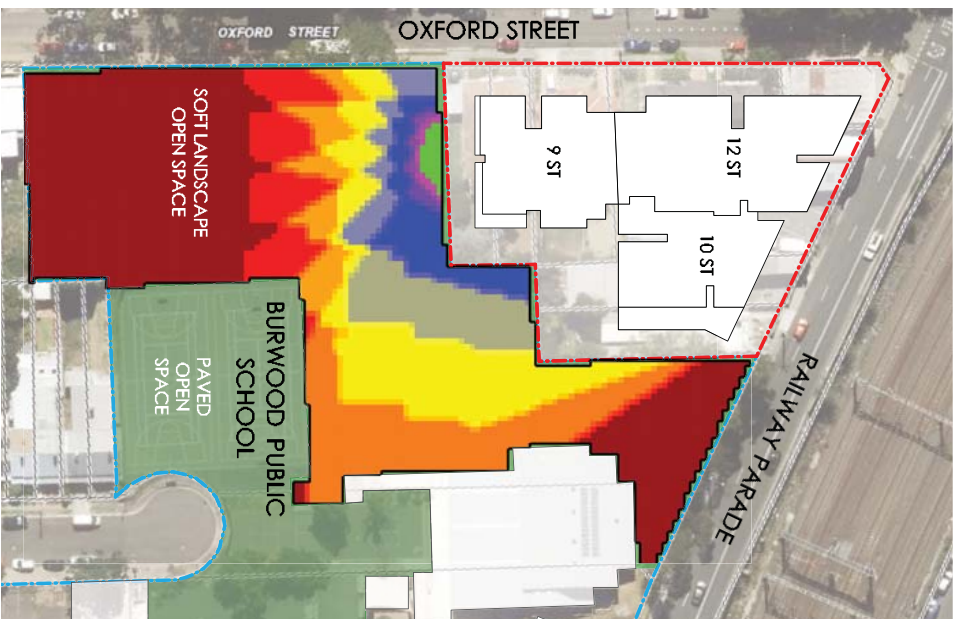
METHOD USED:
 SKETCHUP 2017 + EXTENSION
 SUNHOURS

AREA ANALYSED LIMITED TO SOFT
 LANDSCAPE OPEN SPACE OF
 ADJACENT SITE BURWOOD PUBLIC
 SCHOOL

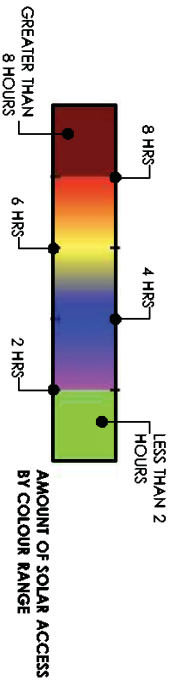
GRID APPROXIMATELY 1m x 1m



PROPOSED MASSING 14-10-6 STOREYS - WINTER SOLSTICE



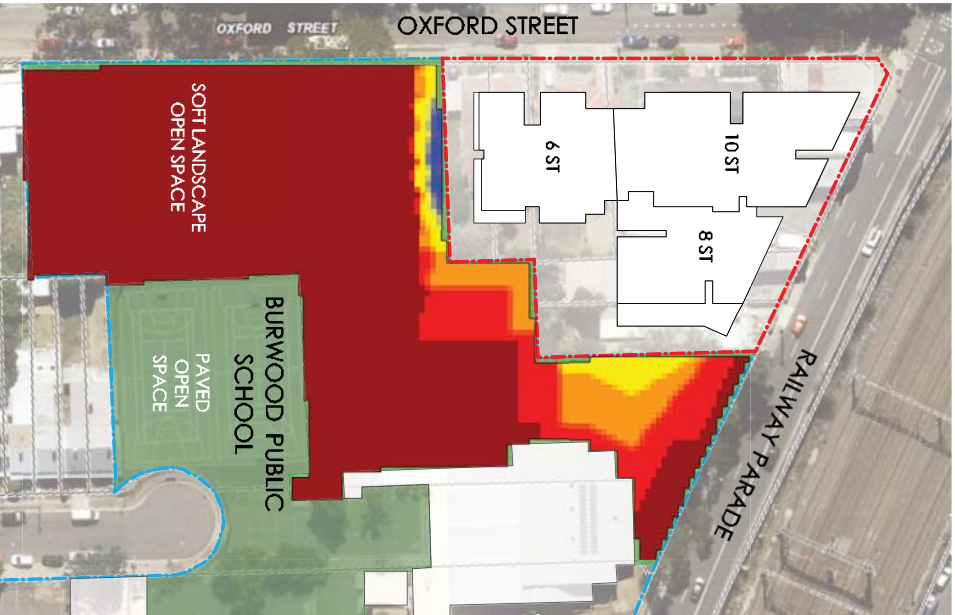
PROPOSED MASSING 12-10-9 STOREYS - WINTER SOLSTICE



URBAN DESIGN REPORT 66-72 RAILWAY PDE AND 2-2A-4-10 OXFORD ST, BURWOOD

--- Site Boundary
 - - - Burwood Public School



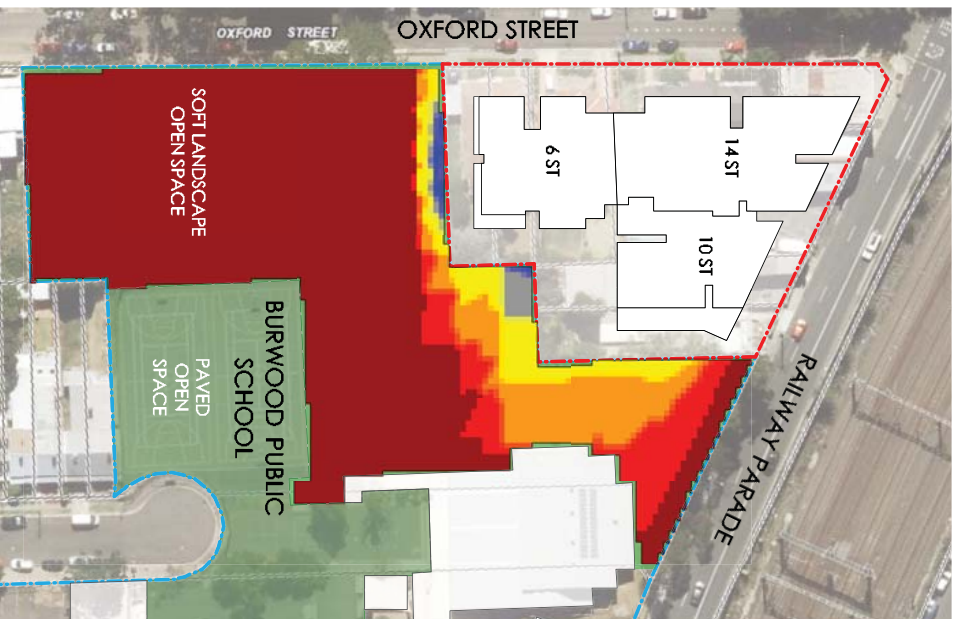


DA APPROVED MASSING - SPRING EQUINOX

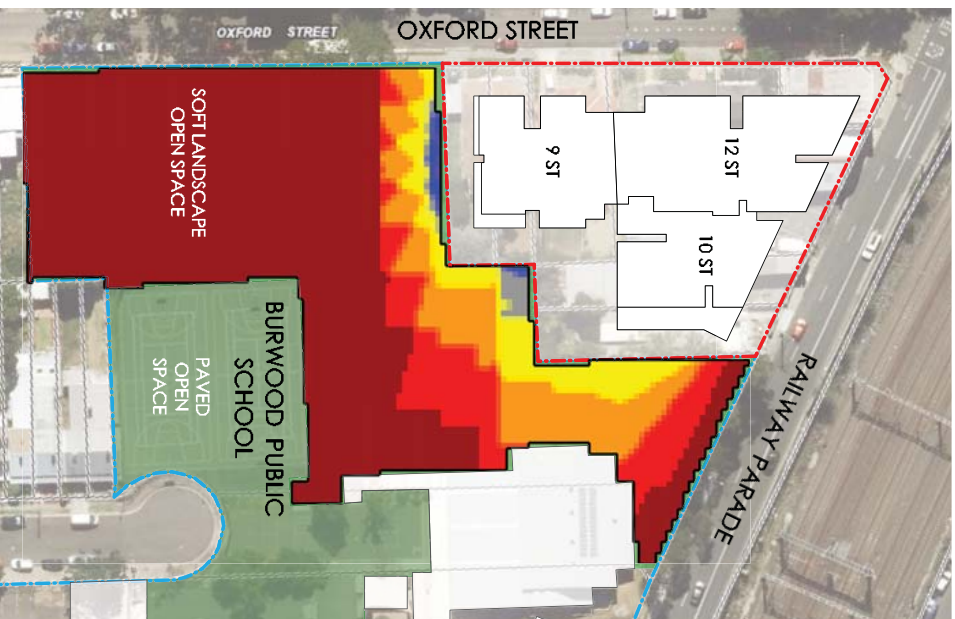
METHOD USED:
 SKETCHUP 2017 + EXTENSION
 SUNHOURS

AREA ANALYSED LIMITED TO SOFT
 LANDSCAPE OPEN SPACE OF
 ADJACENT SITE BURWOOD PUBLIC
 SCHOOL.

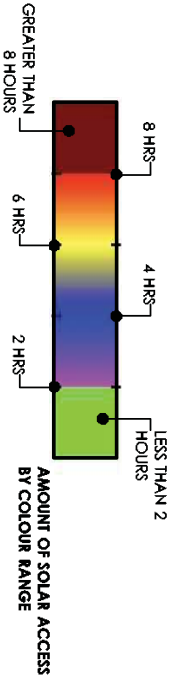
GRID APPROXIMATELY 1m x 1m



PROPOSED MASSING 14-10-6 STOREYS - SPRING EQUINOX



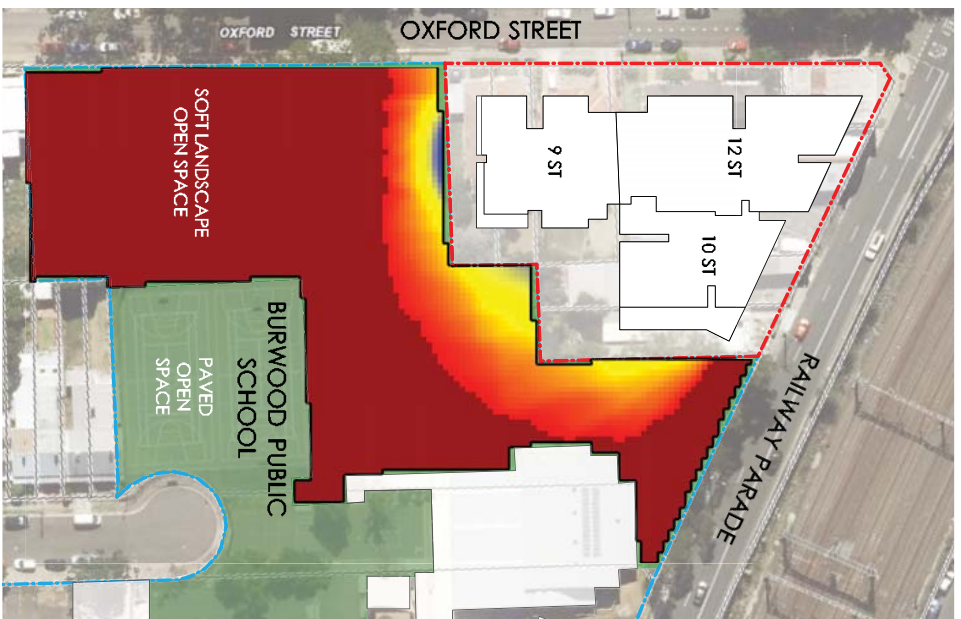
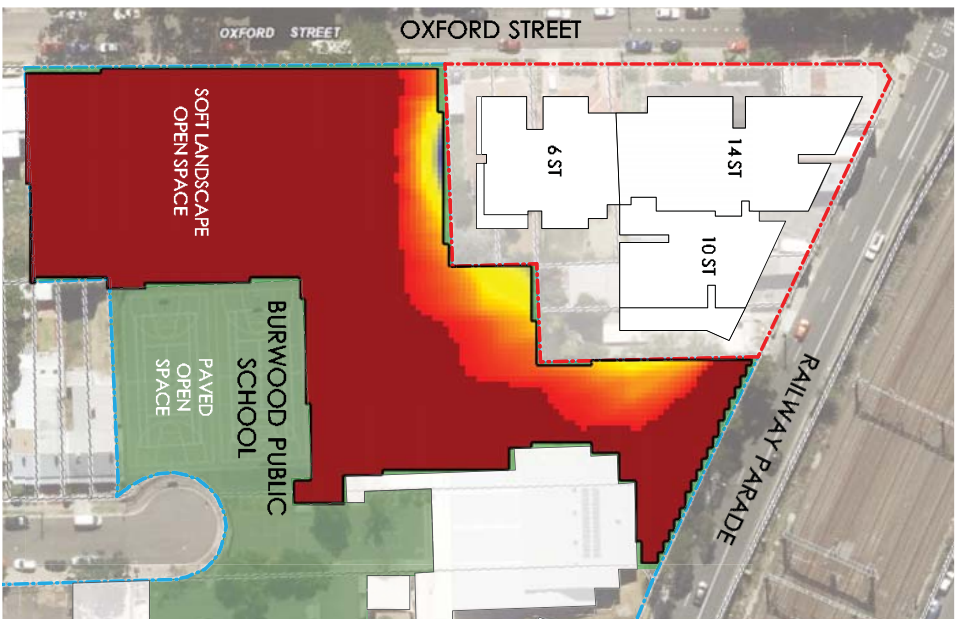
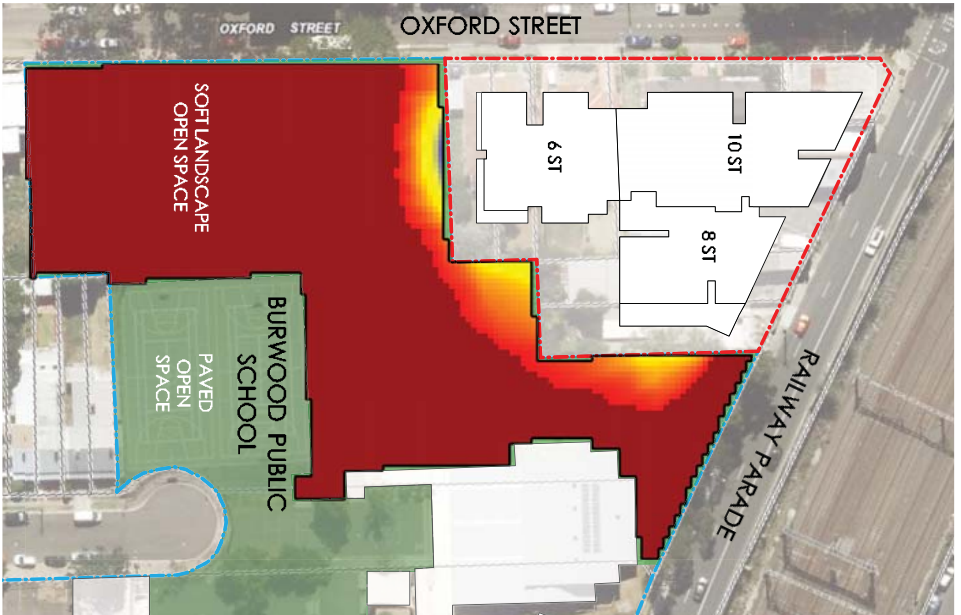
PROPOSED MASSING 12-10-9 STOREYS - SPRING EQUINOX



URBAN DESIGN REPORT 68-72 RAILWAY PDE AND 2-3A-4-10 OXFORD ST BURWOOD

--- Site Boundary
 --- Burwood Public School





DA APPROVED MASSING - YEARLY AVERAGE

METHOD USED:
 SKETCHUP 2017 + EXTENSION
 SUNHOURS

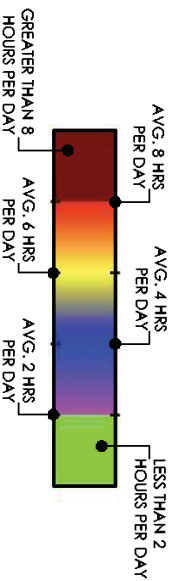
OVERSHADOWING IMPACT
 AVERAGE ACROSS ONE YEAR

AREA ANALYSED LIMITED TO SOFT
 LANDSCAPE OPEN SPACE OF
 ADJACENT SITE BURWOOD PUBLIC
 SCHOOL

GRID APPROXIMATELY 1m x 1m

PROPOSED MASSING 14-10-6 STOREYS - YEARLY AVERAGE

PROPOSED MASSING 12-10-9 STOREYS - YEARLY AVERAGE



Site Boundary
 Burwood Public School



URBAN DESIGN REPORT 68-72 RAILWAY PDE AND 2-2A, 4-10 OXFORD ST, BURWOOD

