

**Lippmann**

# SEPP (Infrastructure) 2007

COMPLIANCE TABLE

## SCHOOL FACILITIES STANDARDS

Design Standards (Version 01/09/2006)  
Specification Standard (Version 01/11/2008)

Project Australian Christian College  
69 Farm Road, Riverstone

Date 16.05.2013

Masterplanning  
Architecture  
Interiors

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ITEM No:	ITEM	NOTES
01	<p>SITE FACTORS</p> <p>Site Investigation</p> <p>Site Clearance</p> <p>Level Changes</p>	<p>A site survey has been provided, showing contours with a gentle fall across the site in an east to west direction. There is new Multi-Purpose building in the middle of the site with a new sports field to the south west corner of the site. To the north of the site there is a brick building with metal roof and metal buildings behind that. An existing storm water system and culvert runs from east to west across the front of the site and is set back approximately 20m from the northern boundary. Tree and natural flora are to be retained on the site.</p> <p>Trees and Natural Flora are to be retained on site.. There are no trees in the vicinity of the newly proposed school building. Top soil will be retained on site for later use in site development.</p> <p>There is a gradual slope running across the site in an east to west direction. The concrete raft slab on ground is at an RL to minimise the cut and fill on the site while still maintaining level and or slightly sloping ground levels around the site. Banking will be used in areas where needed instead of retaining walls.</p>
02	<p>ECOLOGICALLY SUSTAINABLE DEVELOPMENT</p> <p>Environmental design features of educational facilities.</p> <p>Period Bells</p> <p>Insulation</p>	<p>Building has been designed for ample natural day lighting to all classrooms, amenities and circulation areas. Building provides for natural ventilation, to avoid relying and mechanical ventilation. Structural materials have been selected; concrete, steel, with a high recyclable content. All timber specified will be forest stewardship certified timber. Section J assessment has been carried out by an ESD engineer to verify compliance. A bio-retention system has been provided to treat stormwater and recycled for irrigation around the site and for non-potable use throughout. No pesticides will be used during the construction and the establishment of the landscape works. Refer to the Waste Management Plan of materials resulting from construction and waste in use.</p> <p>Period bells will be provided.</p> <p>50mm, R: 1.5 roof space insulation laid immediately under the metal sheet roofing on top of 400gm sarking foil will be used.</p>

	Ventilation	<p>R 2.5 bulk insulation above ceiling or equivalent laminated foam foil thermal insulation above acoustically non-absorbent internal ceilings will be used.</p> <p>Wall Insulation – R: 1.5 (minimum) batts or blankets will be used.</p> <p>Operable highlight windows along the eastern and western external walls of the building provide cross ventilation through the classrooms and discharge through the operable skylights in the central corridor of the building.</p> <p>In addition to the natural ventilation strategy throughout the building previously described, mechanical ventilation will be provided via split system cassette units to the classrooms. This is an energy efficient approach.</p>
	Design strategy to minimise termite risk	<p>Termite resistant materials will be used, including timber, which must be naturally termite resistant or treated in a way recognised as giving termite resistance.</p> <p>Slab on ground will have perimeter termite strip shielding (stainless mesh, graded stone or approved aluminium foil barriers) to AS 3660.1</p> <p>High risk areas will be cleared of potential termite food supplies such as timber off-cuts and cardboard.</p> <p>Vegetation will be kept clear of building edges to improve chances of detection.</p>
	Water Conservation	<p>Practical water conservation systems will be incorporated into school;</p> <p>Internal flow controllers in all taps to minimise water usage and wastage.</p> <p>Dual flushing cisterns to minimise water usage and hence waste.</p> <p>Manual flushing urinals (with option to be operated waterless).</p> <p>Roof water harvesting and tank storage for landscape maintenance.</p> <p>Compliance with Water Efficiency Labelling and Standards (WELS)</p>
03	SUN CONTROL	<p>Sun shades are provided over the windows on ground floor to east and west elevations of the building. The roof overhang shades the windows on the east and west elevations at the upper level.</p> <p>A louvre awning over the terrace shades the glazing on the north elevation at the upper level.</p>
04	HEAT LOSS / GAIN	<p>A great deal of attention has been paid to the buildings thermal performance. An Environmental assessment was carried out to ensure compliance with Section J of the BCA. Please refer to Addendum A</p>

05	AIR MOVEMENT	<p>Operable highlight windows along the eastern and western external walls of the building provide cross ventilation through the classrooms and discharge through the operable skylights in the central corridor of the building.</p> <p>Mechanical ventilation to sanitary and storage spaces</p> <p>Storage spaces are to have permanent air openings (without compromising security), to prevent concentration of odours.</p>
06	ENERGY EFFICIENCY	Please refer to Addendum A for Section J compliance.
08	<p>CIRCULATION</p> <p>FINISHES</p> <p>Walls</p> <p>Floors</p> <p>Ceilings</p>	<p>Minimum widths of all corridors are 2400mm which allows for more than adequate circulation for movement with in clusters and into and out of clusters.</p> <p>Precast concrete walls will be unpainted Stud framing to be lined with impact and termite resistant materials to 2100mm, in all pupil areas with 13mm plasterboard. Splash backs must be provided above and besides all sanitary fixtures and continued along adjacent benches. Water resistance is required in areas susceptible to extensive water usage and washing down. Skirting must be used for protection from floor cleaning.</p> <p>Asphaltic concrete to car parking. Carpets to classrooms Concrete to utilitarian/circulation space to upper level. Ceramic tiles to sanitary and amenity areas Sheet vinyl flooring to laboratories Paving to external walkways and internal corridor on ground level.</p> <p>10mm plasterboard or perforated metal, ply etc, with appropriate backing for acoustic absorption.</p>

## ADDENDUM A

Cundall – Section J Assessment

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## Consultant's Advice Notice

**Project:** Australian Christian Colleges

**Job No:** 1007632

**Subject:** BCA Deemed-to-satisfy J1 & J2 Compliance

**Date:** 05/04/2013

**Attention:** Ed Lippman

This Consultant Advice Notice provides a summary of the Building Code of Australia (BCA) 2011 J1 & J2 assessment carried out for the Australian Christian Colleges project at Riverstone NSW, using the *deemed-to-satisfy* (DTS) calculation method.

### Methodology

The following input parameters were applied in this assessment:

Description	Parameter
Climate zone	6
Building class	9b (Assembly building)
BCA version	2012
Window frame	Aluminium, 10% coverage, U-value=6.0
Drawings	DA drawings received via email on 28/03/2013

Whilst the drawings indicate the presence of some trees surrounding the building, BCA part J2 *deemed-to-satisfy* compliance does not provide any option to take this into account. Depending on the type and density of the surrounding trees, lack of shading to the East and West windows may cause early morning and afternoon glare.

### Results

The following table summarises the minimum *deemed-to-satisfy* BCA part J1 and J2 compliance requirements for this development:

#### Part J1 – Building fabric

Minimum *deemed-to-satisfy* (DTS) insulation levels required for compliance are as follows:

Description	R – Value
Roof / Ceiling (light coloured roof, solar absorptance <0.4)	3.2
External Walls	2.8
Floor	
1) Slab on ground (SOG)	None
2) SOG or suspended slab with in slab heating/cooling	1.25
3) Suspended slab above non-conditioned space enclosed and mechanically ventilated to <1.5 air changes per hour	1.0
4) For all other than 1), 2), 3)	2.0

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## Part J2 – Glazing

Minimum whole window *deemed-to-satisfy* glazing performance requirements are as follows (see attached BCA Glazing Calculator results for further information):

	N		S		E		W	
	U	SHGC	U	SHGC	U	SHGC	U	SHGC
<b>Ground Floor</b>	4.0	0.80	2.3	0.80	2.3	0.25	2.3	0.6
<b>First Floor</b>	4.0	0.80	2.3	0.80	2.3	0.26	2.3	0.8

If a frame with a U-value of 8.0 is assumed, and a coverage of 10%, the following values would be required for the glass-only:

	N		S		E		W	
	U	SHGC	U	SHGC	U	SHGC	U	SHGC
<b>Ground Floor</b>	3.6	0.89	1.7	0.89	1.7	0.28	1.7	0.67
<b>First Floor</b>	3.6	0.89	1.7	0.89	1.7	0.29	1.7	0.89

The above indicatively equates to a clear laminate on the north facades, a clear double glazed unit (DGU) on the south facades and a low-e DGU to the east and west facades, with the exception of the first floor west which may be clear.

## Recommendations

Glazing with a high SHGC may comply using the BCA's alternative modelling methodology (JV3) which is often used by projects to allow visual consistency across all facades, maintain daylight levels and potentially improve cost-effectiveness. This is an additional modelling exercise whereby the proposed façade is compared to a reference façade using both 'DTS' and proposed services in order to determine compliance.

The SHGC required on the East is quite low and will appear dark. In order to use a clearer glass, the following options are available:

- Reduce extent of glazing, for example through the introduction of spandrels;
- Additional shading to the west and east facades;
- A combination of the above.

## Documents referenced

The following documents were referenced in this assessment:

- Plan layout and elevation drawings. pdf (via email 28/03/2013);
- 130403\_Extent of Glazing – Elevations pdf (via email 02/04/2013);
- Plan layout and elevation drawings. DWG (via email 03/04/2013).

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Please contact the undersigned should you have any queries or comments.

For and on behalf of Cundall

Regards,



**Hannah Morton**

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Phone: 0406 531 639

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## Appendix – Extracts from the BCA Calculator

### Ground Floor

**BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2012)**

Building name/description: **Australian Christian colleges**

Application: **other** Climate zone: **6**

Storey: **Ground floor**

Option A	Facade areas							
	N	NE	E	SE	S	SW	W	NW
Option A	122m <sup>2</sup>		181m <sup>2</sup>		122m <sup>2</sup>		181m <sup>2</sup>	
Option B								
Glazing area (A)	40.3m <sup>2</sup>		76.8m <sup>2</sup>		77m <sup>2</sup>		66.3m <sup>2</sup>	

Number of rows preferred in table below: **17** (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS							SHADING		CALCULATED OUTCOMES OR (if inputs are valid)						
Glazing element		Facing sector	Size			Performance		P&H of device		Shading		Multipliers		Size	Outcomes
Y ID	Description (optional)	Option A facades	Height (m)	Width (m)	Area (m <sup>2</sup> )	Total U-Value (AFRC)	SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S <sub>h</sub> )	Cooling (S <sub>c</sub> )	Area used (m <sup>2</sup> )	Element share of % of allowance used
1	N-W-1	N	3.60	11.20	4.0	0.80		6.900	3.600	1.92	0.00	0.00	0.30	40.32	100% of 94%
2	E-W-1	E	3.60	3.20	2.3	0.25					0.00	1.00	1.00	11.52	15% of 99%
3	E-W-2	E	1.50	6.40	2.3	0.25					0.00	1.00	1.00	9.60	13% of 99%
4	E-W-3	E	1.50	6.40	2.3	0.25					0.00	1.00	1.00	9.60	13% of 99%
5	E-W-4	E	2.70	6.40	2.3	0.25					0.00	1.00	1.00	17.28	23% of 99%
6	E-W-5	E	1.50	6.40	2.3	0.25					0.00	1.00	1.00	9.60	13% of 99%
7	E-W-6	E	1.50	6.40	2.3	0.25					0.00	1.00	1.00	9.60	13% of 99%
8	E-W-7	E	1.50	6.40	2.3	0.25					0.00	1.00	1.00	9.60	13% of 99%
9	S-W-1	S	3.60	11.00	2.3	0.80					0.00	1.00	1.00	39.60	
10	S-W-2	S	3.60	10.40	2.3	0.80					0.00	1.00	1.00	37.44	
11	W-W-1	W	3.60	6.40	2.3	0.59					0.00	1.00	1.00	23.04	35% of 99%
12	W-W-2	W	3.60	6.40	2.3	0.60					0.00	1.00	1.00	23.04	35% of 99%
13	W-W-3	W	0.60	6.40	2.3	0.60					0.00	1.00	1.00	3.84	6% of 99%
14	W-W-4	W	0.60	6.40	2.3	0.60					0.00	1.00	1.00	3.84	6% of 99%
15	W-W-5	W	0.60	6.40	2.3	0.60					0.00	1.00	1.00	3.84	6% of 99%
16	W-W-6	W	0.60	6.40	2.3	0.60					0.00	1.00	1.00	3.84	6% of 99%
17	W-W-7	W	0.60	6.40	2.3	0.60					0.00	1.00	1.00	3.84	6% of 99%

**IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR**  
 The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters. While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.

**If inputs are valid**

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## First Floor

### BCA VOLUME ONE GLAZING CALCULATOR (first issued with BCA 2012)

Building name/description

Australian Christian colleges

Application

other

Climate zone

6

Storey

First Floor

Facade areas

	N	NE	E	SE	S	SW	W	NW	Internal
Option A	95.2m²		141m²		95.2m²		141m²		
Option B									
Glazing area (A)	94m²		67m²		62m²		38m²		

Number of rows preferred in table below

19 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS									SHADING		CALCULATED OUTCOMES OK (if inputs are valid)						
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes	
J ID	Description (optional)	A facade s	Chadin P (m² side)	Height (m)	Width (m)	Area (m²)	U-Value (AFRC)	SHGC (AFRC)	P (m)	H (m)	PH (m)	G (m)	Heatin g (S <sub>a</sub> )	Coolin g (S <sub>d</sub> )	Area used (m²)	of % of allowance used	
1	N-W-1	N		2.80	11.20		4.0	0.34	5.900	2.800	2.11	0.00	0.00	0.30	31.36	34% of 99%	
2	N-W-2	N		2.80	11.00		4.0	0.34	5.900	2.800	2.11	0.00	0.00	0.30	30.80	33% of 99%	
3	N-W-3	N		2.80	11.20		4.0	0.34	5.900	2.800	2.11	0.00	0.00	0.30	31.36	34% of 99%	
4	E-W-1	E		2.80	3.20		2.3	0.26	1.900	2.800	0.68	0.00	0.58	0.56	8.96	10% of 99%	
5	E-W-2	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
6	E-W-3	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
7	E-W-4	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
8	E-W-5	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
9	E-W-6	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
10	E-W-7	E		1.50	6.40		2.3	0.26	1.900	2.800	0.68	1.30	0.96	0.91	9.60	15% of 99%	
11	S-W-1	S		2.80	11.00		2.3	0.80	2.200	2.800	0.79	0.00	0.74	0.68	30.80	50% of 20%	
12	S-W-2	S		2.80	11.20		2.3	0.80	2.200	2.800	0.79	0.00	0.74	0.68	31.36	50% of 20%	
13	W-W-1	W		1.50	6.40		2.3	0.80	1.900	2.800	0.68	1.30	0.95	0.91	9.60	23% of 80%	
14	W-W-2	W		1.50	6.40		2.3	0.80	1.900	2.800	0.68	1.30	0.95	0.91	9.60	23% of 80%	
15	W-W-3	W		0.60	6.40		2.3	0.80	1.900	2.800	0.00	2.20	1.00	1.00	3.84	11% of 80%	
16	W-W-4	W		0.60	6.40		2.3	0.80	1.900	2.800	0.00	2.20	1.00	1.00	3.84	11% of 80%	
17	W-W-5	W		0.60	6.40		2.3	0.80	1.900	2.800	0.00	2.20	1.00	1.00	3.84	11% of 80%	
18	W-W-6	W		0.60	6.40		2.3	0.80	1.900	2.800	0.00	2.20	1.00	1.00	3.84	11% of 80%	
19	W-W-7	W		0.60	6.40		2.3	0.80	1.900	2.800	0.00	2.20	1.00	1.00	3.84	11% of 80%	

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if inputs are valid

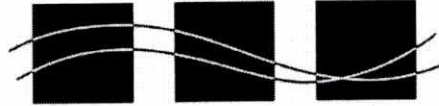


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# Peter Glass & Associates



Landscape Architects  
Environmental Planners  
Pool Designers

16 May 2013

Attention: Mr Ed Lippmann

Lippmann Partnership Pty Ltd  
570 Crown Street  
SURRY HILLS NSW 2010

Dear Sir

**Re: Proposed Educational Establishment – Alteration/Additions Premises Lot 9 DP 2518 No. 69 FARM ROAD, RIVERSTONE, NSW – School Facilities Standards – Landscape Standard – Version 22 Compliance Tables**

We refer to Development Application (DA-13-634) lodged with Blacktown City Council in April 2013 and Council's letter dated 07 May 2013, requesting additional information to assist the assessment process, specifically Item 1. Schools Facilities Standards – Landscape compliance tables. Reference should also be made to Landscape Plan 3105-01 prepared by Peter Glass & Associates in 2013.

We have identified four landscape zones relevant to this Development Application, namely 1. Entrance Zone, 2. Street Frontage Zone, 3. Passive Zone and Boundary Zones 1 & 2. Please find herein Landscape Plan with zone locations and four compliance tables demonstrating compliance of the four zones in the proposal with Schools Facilities Standards – Landscape Standard – Version 22.

We trust that this information will clarify the compliance of the landscape development proposed for this project with Blacktown Council's requirements and the Schools Facilities Standards.

Yours sincerely,

**PETER GLASS & ASSOCIATES PTY LTD**

Peter Lawson.  
Associate Director

## SCHOOLS LANDSCAPE STANDARD

### STREET FRONTAGE ZONE

<b>PURPOSE:</b>	Public Image Integrate School with Surrounding Context Delineate Edge to School Direct Flow towards Entrance	
<b>CRITERIA:</b>		
Microclimate Improvement	Generally paved areas with avenue planting of shade trees	2
Context	Clear view lines from street to school building for safety and formal entry	3
Biodiversity Recovery	Use of endemic local provenance plant where possible	3
Pedestrian Movement	All movement directed towards main school entrance & Administrative Building	5
Shade	Shade to be provided for areas where waiting and clustering of students may occur. Shade trees along driveway into school.	4
Seating	No formal seating required although informal seating on low walls should be considered.	1
Irrigation	Hosetaps to be located within 30m of all planted areas. Additional irrigation, although undesirable, maybe required to allow achievement of design objectives.	3
Winter solar access	Winter solar access desirable where planting is significantly close to windows of classrooms.	2
Erosion	High erosion potential. All trafficked surfaces to be concrete or bitumen.	5
Paving	Brushed concrete and bitumen roadways.	5
Solar glare	Bright reflective areas of surface to be avoided.	3
Management of allergenic plants	Plantings are low risk.	3
Management of stormwater	Surface water directed into SW inlets	4
Lighting	Lighting to emphasise entrance and provide safe waiting point.	5
Signage	Sign to be provided at entrance and integrated within Landscape Design.	4

5 Compliance necessary / High need or good potential to address requirement

4 Major consideration of requirement through design

3

2

1 Minor consideration of requirement

0 No need or zero potential to address requirement

## SCHOOLS LANDSCAPE STANDARD

### ENTRANCE ZONE

<b>PURPOSE:</b>	Public Image Provide focus and direction for entry	
<b>CRITERIA:</b>		
Microclimate Improvement	Paved area generally shaded by building structure	2
Context	Formalise access from street frontage into school building.	5
Biodiversity Recovery	No plantings	0
Pedestrian Movement	All movement directed towards main school entrance & Administrative Building	5
Shade	Shade to be provided for areas where waiting and clustering of students may occur	4
Seating	No formal seating required although informal seating on low walls should be considered.	1
Irrigation	Hosetaps to be located within 30m of all planted areas. Additional irrigation, although undesirable, maybe required to allow achievement of design objectives.	0
Winter solar access	Winter solar access desirable where planting is significantly close to windows of classrooms.	2
Erosion	High erosion potential. All trafficked surfaces to be concrete or bitumen.	5
Paving	Coloured concrete	5
Solar glare	Bright reflective areas of surface to be avoided.	3
Management of allergenic plants	No plantings	2
Management of stormwater	Surface water directed into SW inlets	4
Lighting	Lighting to emphasise entrance and provide safe waiting point.	5
Maintenance	Sign to be provided at entrance and integrated within Landscape Design.	4

- 5 Compliance necessary / High need or good potential to address requirement  
 4 Major consideration of requirement through design  
 3  
 2  
 1 Minor consideration of requirement  
 0 No need or zero potential to address requirement

## SCHOOLS LANDSCAPE STANDARD

### PASSIVE ZONE

<b>PURPOSE:</b>	Seating Outdoor Learning Passive Recreation Eating Socialising	
<b>CRITERIA:</b>		
Microclimate Improvement	Turf lawn and shade trees to reduce reflected heat	4
Context	Location adjacent to proposed building improves building setting and social amenity	3
Biodiversity Recovery	Use of endemic local provenance tree species	3
Pedestrian Movement	Paved access to desire lines and main circulation routes	4
Shade	Grouped plantings of shade trees	5
Seating	No formal seating required although informal seating under trees should be considered.	3
Irrigation	Hosetaps to be located within 30m of all planted areas. Additional irrigation, although undesirable, maybe required to allow achievement of design objectives.	3
Winter solar access	Winter solar access desirable where planting is significantly close to windows of classrooms.	2
Erosion	Medium potential along desire lines and edge of paving.	4
Paving	Concrete paving surfaces.	4
Solar glare	Bright reflective areas of surface to be avoided.	3
Management of allergenic plants	Plantings are low risk	3
Management of stormwater	Planting beds, turf and bioretention area plantings assist rainwater collection and stormwater filtration.	5
Lighting	Lighting to emphasise pathways and car parking safety	3
Maintenance	Medium level, mowing turf lawn plus planting maintenance	3

5 Compliance necessary / High need or good potential to address requirement

4 Major consideration of requirement through design

3

2

1 Minor consideration of requirement

0 No need or zero potential to address requirement

## SCHOOLS LANDSCAPE STANDARD

### BOUNDARY ZONES 1 & 2

<b>PURPOSE:</b>	Visual Barrier Delineate Edge to School Biodiversity Protection Interface with Neighbouring Properties	
<b>CRITERIA:</b>		
Microclimate Improvement	Turf and screen planting to east and west boundary zones	4
Environmental Mitigation (screening air quality noise)	Multi-layered tree, shrub and groundcovers for visual and physical screen purposes.	4
Biodiversity Recovery	Use of endemic local provenance plant where possible. Diverse selection of trees, shrubs and groundcovers – most local species	4
Pedestrian Movement	Low traffic only on turf areas	3
Shade	Grouped plantings of shade trees	5
Seating	No formal seating required	2
Irrigation	Hosetaps to be located within 30m of all planted areas. Additional irrigation, although undesirable, maybe required to allow achievement of design objectives.	3
Winter solar access	Winter solar access desirable where planting is significantly close to windows of classrooms.	3
Erosion	Low erosion potential	3
Paving	Hard paving near access points to building. Turf lawn surface. Mulched planting beds.	4
Solar glare	Bright reflective areas of surface to be avoided.	3
Management of allergenic plants	Avoid use of allergenic plants, however if necessary medium level risk allergenic plants are acceptable.	2
Management of stormwater	Surface water directed into SW inlets for on- site detention and bioretention filtration.	3
Lighting	Lighting to emphasise building access points and carparking safety	3
Maintenance	Medium level, mowing turf lawn plus planting maintenance.	3

5 Compliance necessary / High need or good potential to address requirement

4 Major consideration of requirement through design

3

2

1 Minor consideration of requirement

0 No need or zero potential to address requirement

