Walsh Analysis

14th Feburary 2024

Solar Access Peer Review of Thorton Public Plaza Penrith

We have been engaged to St Hilliers and First Point Projects to review the assessment of the Solar Access to Thorton Public Plaza. Crone Architects are the architects for two Development Applications to the west of the Plaza, on Lots 3003, 3004 and 3005. This development includes four tower forms with a podium level joining some of these towers, as well as a site link between the two Development Applications. We have had a briefing of the project from the planners engaged by St Hilliers being Urbis, as well as having a meeting with St Hilliers and Crone Architects to establish the background and the work that was done to date.

We have been tasked with peer reviewing the Solar Analysis Package by Crone Architects dated 29.01.2024. The premise of the solar analysis was to review the public space to the east of the site, which we will refer to as "The Public Plaza".

Penrith Local Environmental Plan 2010 has clause 8.2 which reads

> **8.2 Sun access**
>
> (1) The objective of this clause is to protect public open space from overshadowing.
>
> (2) (Repealed)
>
> (3) Despite clauses 4.3, 5.6 and 8.4, development consent may not be granted to development on land to which this Part applies if the development would result in overshadowing of public open space to a greater degree than would result from adherence to the controls indicated for the land on the Height of Buildings Map.
>
> (4) This clause does not prohibit development that does not alter the exterior of any existing building.

We understand that the above LEP clause was one of the reasons that the Development Applications were refused upon, and thus we have been engaged to review the information that has been submitted by Crone Architects to see if it would be our considered opinion whether this LEP clause is satisfied.

Review of North Point, Geolocation and Accuracy

We have reviewed the Crone Architects drawings and we have overlaid their True North with other information we have access to. We have reviewed in detail, and we would agree that the north point used is correct.

We have then looked at the length of shadows of the 9am, 12pm and 3pm in the shadow diagrams. Based on the lengths of the shadows, we agree that these lengths are what would be expected for the Latitude 33.8°S and thus we can agree that the model has a Geolocation in Sydney.

We have then reviewed the building masses used around the site and we would concur that these are reasonable representations of the site context. That said, the analysis that has been undertaken will not be affected if the neighbouring buildings are taller or shorter, as the analysis is only looking at the results of the Development Application sites impacts on the Public Plaza. Regardless, we believe the model setup has been done correctly based on the evidence before us.

COMMENTS ON THE METHODOLOGY, REQUIREMENTS, GUIDELINES ETC.

The Penrith LEP Clause 8.2 is the main requirement that has been investigated by Crone Architects. The Clause 8.2 that has been specifically investigated is part (3) which to surmise the clause is to say that the DA application should result in no net change, or improve the result of sun to public spaces.

We have reviewed this clause and we have issued with the broadness of the clause. There is no specific times associated with this, no methods of measurement and no clear criteria. We will discuss what Crone Architects have done shortly, but it is our considered opinion that to satisfy this clause, any application should look mainly at the worst time of year being June Solstice to ensure that no additional overshadowing is caused. This is the standard practice across most NSW LGAs and this time is the only one reference in the Apartment Design Guide (part of SEPP65). That all said, we believe the architects on this site have gone beyond these times and have analysed each Solstice as well as each equinox. We believe this demonstrates more than enough to the council as the authority as it investigated each important solar event. Times between these main events are arbitrary and will not provide any additional information that cannot be surmised from the results of each of the four main solar events.

The times that have been reviewed are 9am to 3pm for each event. It is notes that in Winter, the plaza is 100% overshadow at 8am and 4pm, so expanding the time period would also not deliver any additional information that is beneficial to council. We agree with limiting the hours to 9am to 3pm which is also standard practice in NSW (and again the hours used in the Apartment Design Guide which is a good reference document).

Lastly, based on the Clause 8.2, in part (3) we note that it states "overshadowing of public open space **to a greater degree** *(emphasis added)* than would result from adherence to the controls indicated for the land on the Height of Buildings Map". This means that an application would need to compare itself to what the Height of Buildings Map would allow on the site, which for the subject application is 32m. The architects in this case have called this compliance with the Height of Buildings Map its "Base Case" which we will use the same terminology for consistency.

On the above point, it is interesting to note that Crone Architects appear to have been allowed the Base Case to be 32m at the North East but only 31m on the South East (as seen by the dimensions on page 5). This would actually mean their analysed base case will actually provide more sun to the Public Plaza than strict compliance with the 32m height plane. Lifting the Base Case to a true 32m height plane would actually benefit Crone Architects more; therefore, we are comfortable using this as the Base Case as it actually in favour of Council currently.

REVIEW OF ACCURACY OF SOLAR ACCESS INFORMATION PRESENTED.

For the purposes of this Solar Access Peer Review, we will only be reviewing the data and images presented for either the Base Case compared to the DA1 + DA2. We will not be looking at DA1 in isolation as this is not what the future of the site will be and is purely a staging point. We will review holistically which is the Base Case compared to the final built forms combined.

Looking at the diagrams on each page, the colours, key and information is very clear to the readers. It clearly shows areas already in shadows, shadow by the Base Case, shadow by anything in the DA over this Base

Case as well as any additional sun gained that strict compliance with 32m would not have allowed. These diagrams also have been notated with what is causing any additional overshadowing which can be helpful at different times.

We have also reviewed the tables show at the bottom of each page. Whilst there is a lot of information, we have simplified this below to show what we think is critical to anybody trying to understand the table.

Current table as presented.

Plaza Area 1,946 sqm	Existing Infrastructure	Base Case	DA 1		DA 1		DA 2	
		32m	-32m	+32m	-32m	+32m	-32m	+32m
Shadow (sqm)	221	1474	772	0.4	772	0.4	229	1.4
Shadow (%)	11.36%	75.75%	39.67%	0.02%	39.67%	0.02%	11.77%	0.07%
Sun (sqm)		251	953		721			
Sun (%)		12.90%	48.97%		37.05%			

Note: DA shadow +32m is measured as additional shadow greater than the 32m Base Case shadow (diagrammed in red)

Most important features highlighted

Plaza Area 1,946 sqm	Existing Infrastructure	Base Case	DA 1		DA 1		DA 2	
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Simplified Version

Plaza Area 1,946 sqm	Base Case	DA
	32m	
Sun (sqm)	251	721
Sun (%)	12.90%	37.05%

We believe the simplified version is much easier to understand what is happening at each time slot. We are looking at what is the amount of sun on the Public Plaza during the Base Case (12.90% in the above scenario) versus the amount of sun in the DA scheme (37.05% in the above scenario). This shows that in the above scenario, there is more sun available in the DA scheme than the Base Case. This analysis needs to be continued for each time slot at each of the times of year, but if the readers just compare these figures it will be much easier to understand.

That all said, we are not saying the Architects additional information is not useful. It is sometimes useful to find out where this additional overshadowing is coming from; however, we have tried to simplify it for other people.

REVIEW OF OVERALL DATA.

We have reviewed the overall data that has been formulated. We have found the following items:

1. There is an increase in the amount of sun that is onto the Public Plaza in mid winter. This is the most beneficial time for getting sun to public spaces. It is a much better outcome all afternoon than strict compliance with 32m would otherwise have.

2. There are increases in the amount of sun at both the Spring and Autumn Equinox also. These are smaller gains than compared to Winter, but the gains are still an improved public domain outcome.

3. There is a decrease in the amount of sun in the Summer Soltice. It is our considered opinion that this is actually beneficial to the Public Plaza as sun in Summer afternoons is usually too hot to be sitting in and thus people are usually trying to seek shade at this time of the year.

Overall, it appears to us that the application has resulted in a better outcome than strict compliance with a 32m Height of Buildings would have allowed. We have no faults in the report other than that the Architects have used a Height of Buildings down at 31m which makes their results in councils favour rather than the applicants favour. Adjusting this would just lead to the results being even further in the applicants favour which further proves the positive outcomes.

The overall aggregate of solar access increasing to the Public Plaza results in compliance with Clause 8.2 of Penrith LEP.

REVIEW OF SWCPP'S DETERMINATION AND COUNCILS ASSESSMENT REPORT

We have reviewed the determination of SECPP and we would agree that at the time there appears to be insufficient evidence. Now that there is this further information package provided by the Architects, we are of the opinion that the shadow diagrams are very sufficient in showing that there is an improved outcome than a strict compliance of 32m height would allow. We are of the opinion that a Clause 4.6 should therefore not be required; however, given the vague wording in Clause 8.2 and the fact there are not clear times or methods of measurement, we believe that even if a precautionary 4.6 is submitted that it would be well founded based on the date in the Crone Architects submission.

We have also reviewed parts of the assessment report and we would submit that the scenarios as presented in this additional information are now better than the original DA submission. The tables shown in the assessment report (page 24) are now the inverse and the aggregate across the year is improved. The only time of year analysed that has not improved from the base case is the Summer Solstice, at which time shading from the hot summers afternoon sun is usually welcomed and was noted above. The findings in the assessment report may have been valid at the time it was written, but based on the further information now provided we believe that Clause 8.2 is satisfied.

Further to the above, we noted in the assessment report that there was conjecture over the way to measure Clause 8.2 which comes back to Page 2 of this Peer Review. The clause is written poorly with no real method of measurement. We would not agree with the assessing officer that said on page 25 "would the expectation be that a building block would have a combination of solid/void cutouts to be ADG compliant or provide modulation)?". The clause is written to only assess the overshadowing of items that would be from above the Height of Buildings, which applies to the entirety of the site. Councils Height of Buildings map does not have any voids or modulations, so you cannot put more onerous interruption onto this clause. The architect has used the Base Case as the Height of Buildings being 32m over the entire site and we would wholly agree with this methodology due to the wording of the clause.

The overall aggregate of solar access increasing to the Public Plaza results in compliance with Clause 8.2 of Penrith LEP.

I would be happy to be contacted by any parties with questions relating to the Peer Review of this site. Please call me on 0466 049 880 to discuss further.

Scott Walsh

Director

A.0 APPENDIX A: CREDENTIALS

Walsh Analysis provides opinion based services primarily in relation to analysis and reporting of solar access and overshadowing compliance of multi residential projects.

Scott Walsh is a Director of Walsh Analysis. He developed his specialised expertise under Steve King, a well-known expert in the field.

Scott started working for Steve King in 2011 as a tutor of Environmental Design at the University of New South Wales. From 2013 Scott has contracted to Steve King to undertake modelling and numerical analysis of solar access to large apartment projects. Over a number of years Scott contributed significantly to fine-tune the way the analysis was undertaken, and assisted in providing to the architects feedback in regards to areas that could be adjusted to improve solar access.

Scott holds a Masters of Architecture from the University of New South Wales as well as a Bachelor of Architecture. He is a registered architect in New South Wales *(10366)* and the Australian Capital Territory *(2624)* and a director of Walsh Architects.

Scott have provided this Solar Access Advice to developers, Councils, NSW Government entities such as Metro as well as Department of Planning and Infrastructure. Scott has done this both in capacities of full Solar Analysis of buildings, as well as Peer Reviews of other architects information to ensure it is truthful.

Steve King (prior to passing):

> *I am pleased to provide my commendation and support for Walsh Analysis. Scott has undertaken solar access and overshadowing analysis of over 150 apartment buildings from as small as 10 units up to over 1000 units. I have relied on his technical expertise and accuracy to provide advice to architects, planners and to the Land and Environment Court, including independent third-party peer review of others' characterisation and reporting of compliance.*