

<b>From</b>	Jacob Delailoa	<b>Advice No.</b>	CAN No-A-01
<b>Project</b>	85-97 Waterloo Rd, Macquarie Park – BTR	<b>Project No.</b>	SYD2434
<b>Date</b>	14 June 2024	<b>Pages</b>	1/1
<b>Subject</b>	Sustainability SEPP applicability Statement	<b>Revision:</b>	01

This statement is confirming that 85-97 Waterloo Rd, Macquarie Park – BTR development was lodged for DA prior to 1<sup>st</sup> October 2023 which was the date for which the requirements within the Sustainability SEPP 2022 came into effect. This is evidenced by the BASIX and Nathers certifications which were lodged via the BASIX portal prior to this date, as well as prior to its update on the 1<sup>st</sup> October 2023 which introduced the changes.

As mentioned, the Sustainability SEPP 2022 came into effect from 1<sup>st</sup> October 2023 and included requirements for;

- > Demonstrating that General Sustainability initiatives are implemented.
- > Quantifying Embodied Carbon
- > Committing and designing for Net Zero
- > Energy and Water target requirement

Despite the DA submission being developed prior to this time the project is already significantly aligned with the intent of the above points.

Noting that as outlined in Appendix A (CAN No-A-02) the development has already been designed to be all electric in line with the Net zero requirements and is also addressing energy and water efficiency concerns in many ways.

An ESD opportunity report has also already been prepared which highlights sustainability initiatives that have been considered and will be considered throughout the design process. These include a focus on thermal performance and energy efficiency as well as opportunities to reduce embodied carbon via design and material selection.

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# Appendix A

<b>From</b>	Jacob Delailoa	<b>Advice No.</b>	CAN No-A-02
<b>Project</b>	85-97 Waterloo Rd, Macquarie Park – BTR	<b>Project No.</b>	SYD2434
<b>Date</b>	14 June 2024	<b>Pages</b>	1/6
<b>Subject</b>	Additional Sustainability initiatives	<b>Revision:</b>	01

## Energy and Water Use

The 85-97 Waterloo Rd, Macquarie Park – BTR development has been designed thus far to be all electric and fossil fuel free. The technologies to be used in place of any potential gas using equipment are:

- > **Domestic Hot Water** – Electric Air Sourced Heat Pumps
- > **Heating and Cooling** – Water Source VRF
- > **Appliances** – Induction Cooktop and Electric Oven

This is in conjunction with technologies and strategies which will assist in reducing the overall energy and water consumption,

### Energy

The energy efficiency measures include:

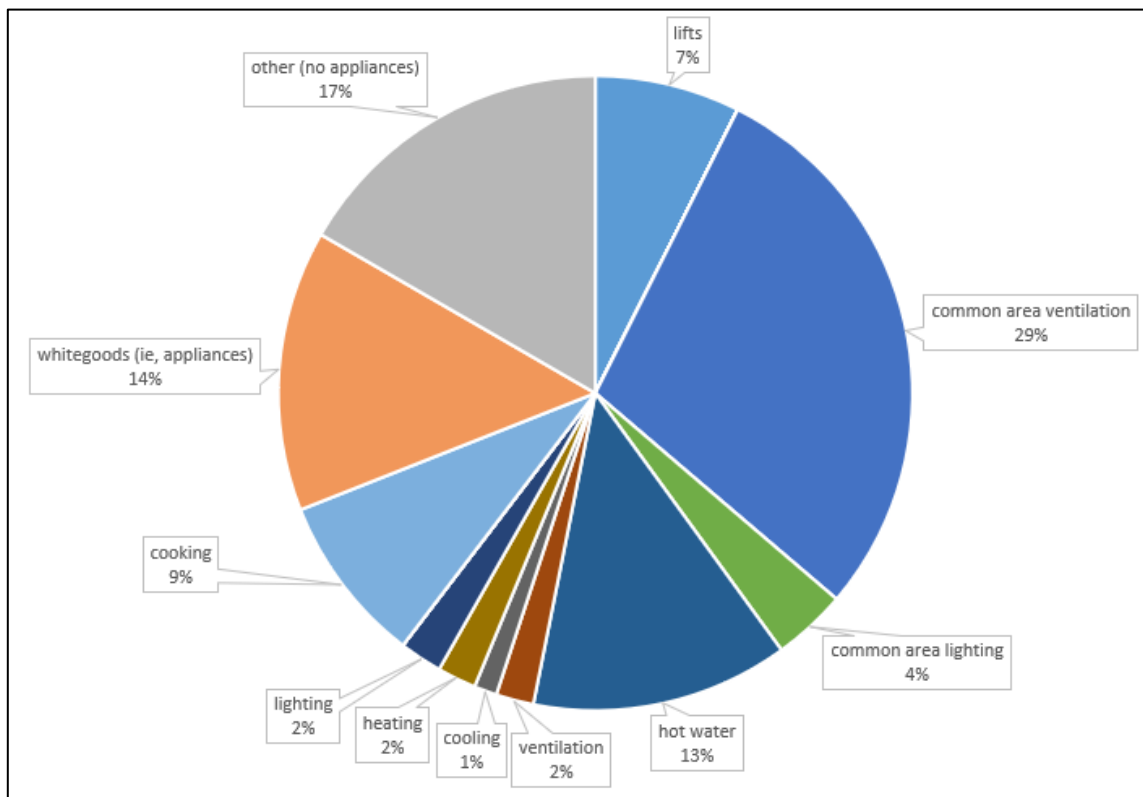
- > **On site Generation** – 270 kW Solar PV
- > **Lighting** – Motion sensor and LED's
- > **Thermal Envelope** – High R value insulation
- > **Façade** – optimisations on Window to wall ratio
- > **Appliances** – high efficiency appliance selection

We are able to do a preliminary breakdown of the development's greenhouse gas emissions use using the BASIX outputs. Here the yearly GHG emissions is estimated:

End Use	kg(CO2)/year	to energy score (%)
<b>Lifts</b>	247127.6	0.07
<b>Common pools and spas</b>	0.0	0.00
<b>Common saunas</b>	0.0	0.00
<b>Other common facilities</b>	0.0	0.00
<b>Common area ventilation</b>	960552.3	0.29

<b>Common area lighting</b>	125811.6	0.04
<b>Hot water</b>	437578.4	0.13
<b>Ventilation</b>	64113.1	0.02
<b>Cooling</b>	38697.3	0.01
<b>Heating</b>	66059.9	0.02
<b>Lighting</b>	72737.7	0.02
<b>Private pools and spas</b>	0.0	0.00
<b>Cooking</b>	287530.6	0.09
<b>Whitegoods (ie, appliances)</b>	477314.1	0.14
<b>Other (no appliances)</b>	555427.6	0.17
<b>Total:</b>	<b>3332950.2</b>	<b>1.00</b>

Using the grid emissions factors, the Total GHG emissions converts to 4,565,685 kWh per year.



**On site Solar PV generation:** 298,512.2 tCO<sub>2</sub>e/year (408,920 kWh) offsetting approximately 9% of total yearly GHG emissions.

As a fully electric building the development can more optimally utilise any on site generation. It will also benefit significantly more from the decarbonisation of the NSW electricity grid, as the grid decarbonises it the total emissions from ongoing energy consumption will reduce, again more so for a fully electric building (as the GHG emissions factor for Gas is static).

## Water

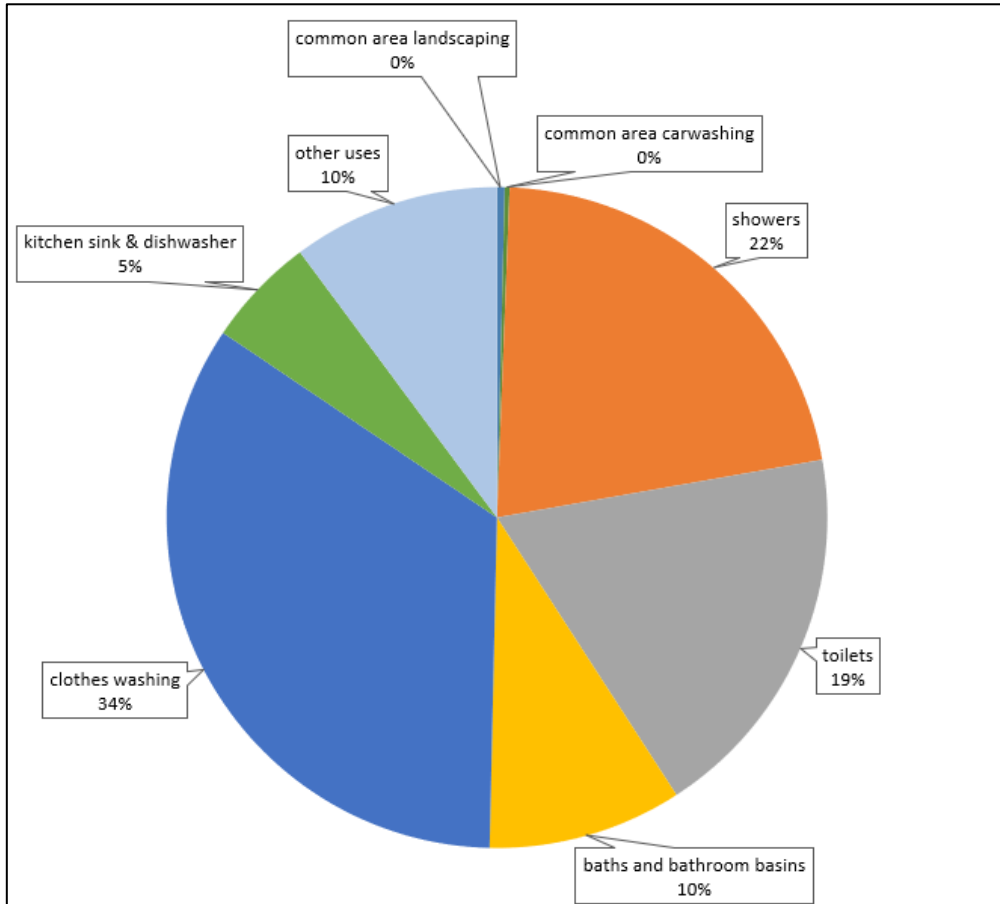
The water efficiency of the building is critical in terms of energy usage as well, as a significant portion of the water consumption is for hot water, requiring electricity to heat. We can see from the above that up to 70% of the total water use is a potential hot water user. Reducing the total water usage will also reduce the total electricity consumption.

The water efficiency measures include;

- > **Rain water capture** and reuse
- > **Appliances** – high efficiency appliance selection
- > **Fittings** – High efficiency taps, toilets, shower heads etc.
- > **Landscaping** – Low water use/ indigenous planting

End Use	L/day	to water score (%)
Common area landscaping	701.0	0.00
Common pools and spas	0.0	0.00
Common area fixtures	0.0	0.00
Fire sprinkler test water	0.0	0.00
Cooling tower water	0.0	0.00
Common area carwashing	442.2	0.00
Private landscaping	0.0	0.00
Showers	40209.5	0.22
Toilets	34750.4	0.19
Baths and bathroom basins	17692.0	0.09
Clothes washing	63495.5	0.34
Kitchen sink & dishwasher	10042.9	0.05
Other uses	18935.0	0.10
Private pools and spas	0.0	0.00
Alternative water	-856.2	0.00

**Total** **186268.5** **1.00**



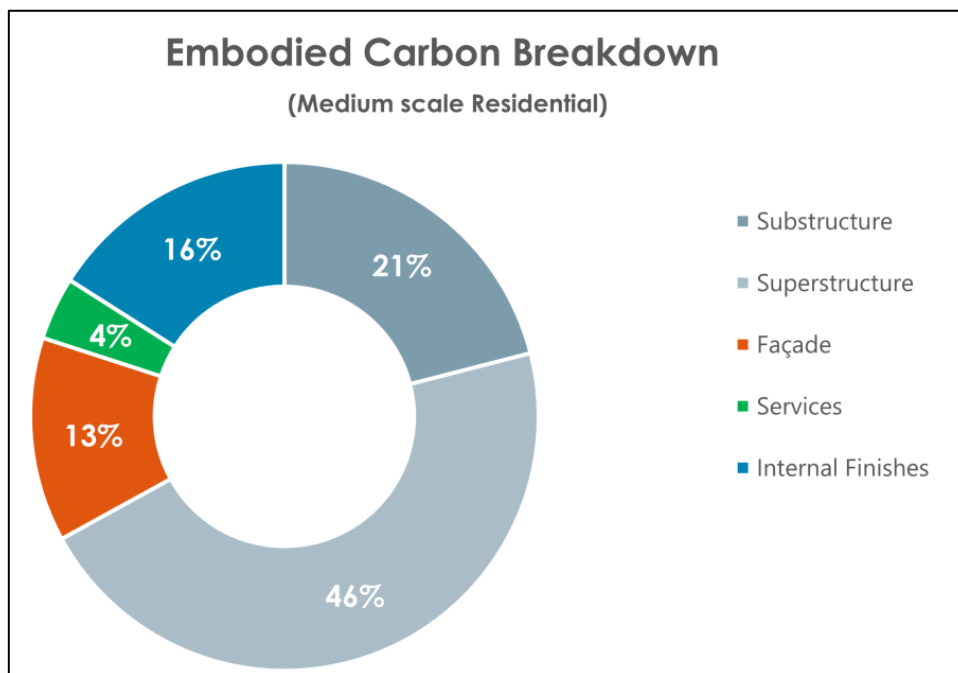
On site alternative water use from **rainwater collection**: <1 kL/year, <1% of total yearly water use.

## Embodied Carbon

The 85-97 Waterloo Rd, Macquarie Park – BTR development has approximately 49,000 m<sup>2</sup> of residential floor area and 34,500 m<sup>2</sup> of common area space (inc. carparking, plant rooms, lobbies etc). With this information we are able to approximate the embodied carbon for the development using the currently available benchmarking data.

A range from 600 to 800 kgCO<sub>2</sub>e/m<sup>2</sup> (Multi unit residential) we approximate 50,100 to 66,800 tonnes of embodied CO<sub>2</sub>.

Taking a typical breakdown of embodied carbon for medium scale residential building, we are able decide where appropriate effort should be placed in trying to reduce the Embodied carbon impact.



With more than 60% of the embodied carbon sitting in structure, the project can focus attention in this area for maximum impact. This can be done most effectively in 3 different ways:

- > Optimisation of the structure
- > Minimise material usage
  - Reducing weight at the extremes of the buildings reduces structural requirements
- > Sustainable material alternatives
  - Recycled materials
  - Timber vs steel
  - Low carbon concrete

## Greenstar Buildings

The Intent of the project is to pursue Greenstar certification however final targets are to be determined.

Design thus far however has been in line with this intent, with significant effort placed in thermal performance and energy efficiency which correspond heavily with Greenstar buildings "Healthy" and "Positive" credits. The work here is evident in the BASIX energy and Naters scores.

Design to the shared space between buildings also corresponds heavily with Greenstar buildings "Places", "People" and "Nature" credits. Emphasis has been placed on this aspect within the ESD opportunities report.

The below are the total available points sorted by category for the Greenstar Buildings framework where we can see that effort thus far corresponds significantly with where Greenstar rewards points and pushed projects to focus.

GS Category	Available Points
Responsible	17
Healthy	14
Resilient	8
Positive	30
Places	8
People	9
Nature	14
Leadership	-
<b>Total</b>	<b>100</b>

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