



Evermore – White Gum Valley – Apartments

One Planet Living Action Plan

Prepared for:

Client name

Yolk Property Group Pty
Ltd

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Revision

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1	28/02/20017	Tender Issue	PC
2	15/03/2017	Added missing Waste & Carbon	PC
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Introduction

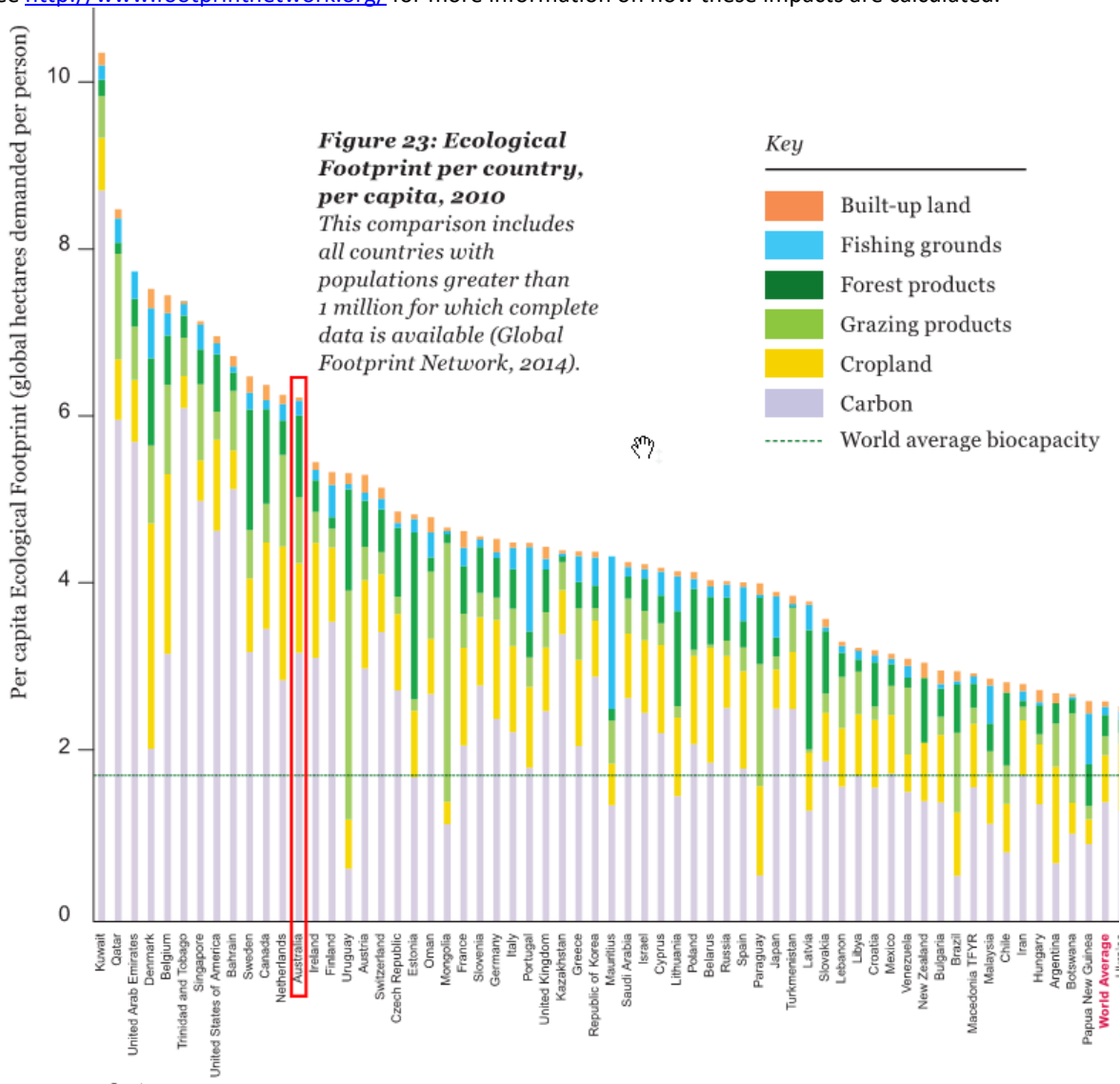
1. Introduction

As a part of the White Gum Village sustainability targets, the Evermore Apartments development is targeting a One Planet Living rating. The development consists of 24 apartments on the White Gum Valley development which has an endorsed One Planet Living action plan for the wider site. This document outlines the One Planet Living Action Plan for this particular site. This Action Plan outlines the strategies, actions and targets to achieve One Planet Living and provides a pathway for implementation that can be monitored and adapted over time.

2. One Planet Living

If everyone in the world lived like the average Australian, we would require approximately 4 planets to support our current population. Taking the world average, the human population currently require approximately 1.3 planets to support us indefinitely. Given that we only have one planet, it is necessary to bring our average ecological footprint to below 1 planet to ensure that we are not depleting existing long term assets to sustain our lifestyle. Given that developing nations are seeking to improve their standard of living and given population growth, we are currently increasing our Ecological Footprint which will require even greater effort to reduce in the future.

See <http://www.footprintnetwork.org/> for more information on how these impacts are calculated.



One Planet Living

To assist in creating a sustainable future, the One Planet Living framework proposes 10 guiding principles of sustainability as a framework. The Evermore Apartments have been developed to as a One Planet Community based on the ten principles and supported by the actions identified in the Evermore Apartment - One Planet Action Plan. The 10 One Planet Living Principles are:

	<h2>Health and happiness</h2> <p>Encouraging active, sociable, meaningful lives to promote good health and well being</p>
	<h2>Equity and local economy</h2> <p>Creating bioregional economies that support equity and diverse local employment and international fair trade</p>
	<h2>Culture and community</h2> <p>Respecting and reviving local identity, wisdom and culture; encouraging the involvement of people in shaping their community and creating a new culture of sustainability</p>
	<h2>Land use and wildlife</h2> <p>Protecting and restoring biodiversity and creating new natural habitats through good land use and integration into the built environment</p>
	<h2>Sustainable water</h2> <p>Using water efficiently in buildings, farming and manufacturing. Designing to avoid local issues such as flooding , drought and water course pollution</p>

One Planet Living



Local and sustainable food

Supporting sustainable and humane farming, promoting access to healthy, low impact, local, seasonal and organic diets and reducing food waste



Sustainable materials

Using sustainable and healthy products, such as those with low embodied energy, sourced locally, made from renewable or waste resources



Sustainable transport

Reducing the need to travel, and encouraging low and zero carbon modes of transport to reduce emissions



Zero waste

Reducing waste, reusing where possible, and ultimately sending zero waste to landfill



Zero carbon

Making buildings energy efficient and delivering all energy with renewable technologies

3. Living at Evermore

At the commencement of this project, the design team and the developer had a workshop to set the vision for the development. This workshop reviewed the research produced by the developer about the current demographics of White Gum Valley and the expected living scenarios which demonstrate the sustainability ethos for the development. The following scenarios describe an expected living scenario that was considered when designing the development:

Young Professional

Having been in the workforce for a couple of years, I recently got a new professional job in a government department office in Fremantle. I am interested in sustainable living and would love to buy a house with a yard for a vegetable garden at some stage, but I don't have a lot of experience in that sort of thing and at the moment I am looking to focus on my career and socializing. So I need to look for something that is less responsibility and allow me to focus on the other aspects of my life. When I came across the plans for the Evermore Apartments White Gum Valley, I realise that this development will suit me perfectly. I am able to buy an affordable 1 bedroom apartment which will be easy to maintain and will provide me with the flexibility I need to get through busy periods at work, not to mention my busy social life. But on the weekends, when I have some free time, I can participate in the community garden which will help build my skills and confidence and will give me access to fresh produce. When I am unable to participate, there will be other people in the community who will be able to make sure the produce survives until I next have time to participate.

The location of the apartments is fantastic. I have a car but only use it for the longer trips on the weekends when going to visit my friends in Perth. I can get ride my bike in to Fremantle on the quiet streets and bike paths. It is so close that I can even wear my work clothes on the bike – no need to have a shower or get changed when I get to work. And on the weekend I can ride my bike or take a leisurely walk into the local cafes and markets. It is great for catching up with my friends. In fact, I have found that I am using my car less every day which is great.

Retired older couple

All the kids have left home and we are on a fixed income. The large family home we have been living in for the last 20 years is just becoming more work to maintain than it is worth and we hardly ever use most of the rooms now. We have decided that it is a good time to downsize and set up in a more affordable and easier to manage home. The ground floor apartments at Evermore are all provide easy wheel chair access to the front door and whilst we are both fit and healthy at the moment, we are happy that if anything does happen to either of us as we get older, we will still be able to get to our apartment. Being on a fixed income, we are very pleased at how small our power bills are with the solar power system on the building. In fact, we have used some of the money we saved from the sale of our family home to purchase a plug-in electric hybrid vehicle. It was expensive to buy but we can use the charging station to keep it topped up with affordable renewable electricity from the site and brings our ongoing living costs even lower.

My wife has always loved gardening and cooking with fresh herbs. She has brought along many of the pots of herbs collected over the years for our new courtyard and spends a little bit of time every day in the communal vegetable garden. It is much less work than the previous large garden we had but still gives her some contact with the garden. And she loves the social interaction with the other people in the development and has been able to pass on a lot of her knowledge and skills to them. Not to mention the fact that she has plenty of young people to help out with the heavier jobs. Meanwhile, I am able to walk across the road to the Fremantle Golf Course where I am able to get much better use out of my membership. And with all of the shopping and restaurant options so close to our apartment, we never have to travel far to get anything we need.

One Planet Living Action Plan

4. One Planet Living Action Plan

The goal of Evermore Apartments is that it will be easy, attractive and affordable for a resident to lead a One Planet lifestyle, living within our fair share of our one planet's resources.

The Evermore Apartment 'One Plan Action Plan' has been collaboratively developed by a licensed One Planet Integrator with the participation of a broad range of stakeholders, including the City of Fremantle and LandCorp as part of the broader WGV at White Gum Valley One Planet Community.

The One Planet Action Plan is a positive response to challenges faced in our local context, and sets out the actions we need to take to make One Planet Living affordable, attractive and achievable. Contact your sustainability coordinator or visit the Bioregional website (<http://bioregional.com.au/oneplanetliving/be-involved/>) for more information on how all residents can be actively involved in the On Planet Living framework.

Key mechanisms for implementation of the action plan include:

- Design & Construction
- Incentives and guidance
- Community Engagement
- Operational Mechanisms
- Strata Management
- Partnership with CUSP at Curtin University

The following action plan outlines a pathway for residents of the Evermore development to bring their ecological footprint to within 1 planet or less. The development has included many features in the current design to assist in this goal. However, the building is only one part of the equation. To truly achieve One Planet Living, will require action from the occupants of the apartments to ensure this action plan is brought to fruition.

Appendix A

Start Year	2017										
	Your Target			Benchmark			Monitoring				
	2020 Goal	Indicator	Target	Baseline value	Baseline year	Best Practice	Monitoring strategy	2017 Performance	2018 Performance	2019 Performance	2020 Performance
	What are you aiming to achieve?	How will this be measured	What is the numerical target	What is/was the status	2017	Is there a local/national benchmark?	How will you monitor performance				
Health and Happiness	HH1	To promote healthy living environments	VOC Limits (g/l)	< 16g/l	50 +	2017	None	Annual Survey			
	HH2	To increase or support high levels of physical, social, mental, and emotional health	% exercise at least 2ce a week	80%	29%	2017	National (ABS data)	Annual Survey			
Equity and Local Economy	EE1	To promote diversity and equality of opportunity across all abilities, gender, race, age and sexual orientation	Houses with accessible feature	10%	0%	2017	National (ABS data)	One off survey			
	EE2	To create a vibrant and resilient economy where a significant proportion of money is spent locally	People shopping locally	20%	0%	2017	None	Annual Survey			
	EE3	Encourage residents to engage in fair trade and local economy programmes	% of residents considering this in purchase decisions	95%	0	2017	None	Annual Survey			
Culture and Community	CC1	To encourage active citizenship	Involvement in local community events/year	3	0	2017	None	Annual Survey			
	CC2	To enhance local culture, heritage and sense of place	number of neighbours known by name	19	4	2017	None	Annual Survey			
	CC3	To nurture a new culture of sustainability	Participation in sustainability related events	4	0	2017	None	Annual Survey			
Land and Nature	LW1	To ensure a positive contribution to local biodiversity	number of native species	> 10	0	2017	None	Annual Survey			
	LW2	To maximise the synergies between agriculture, forestry, biodiversity and carbon storage	number of food plant species	> 4	0	2017	None	Annual Survey			
Sustainable Water	SW1	To reduce water consumption in the building	kl/person/year	34	56	2017	Perth typical	Meter Monitoring/ billing system			
	SW2	To use water from non-potable water supply	% water from potable	75%	100%	2017	Perth typical	Meter Monitoring/ billing system			
	SW4	To reduce water consumption for irrigation	kl/person/year	35	46	2017	Perth typical	Meter Monitoring/ billing system			
	SW5	To contribute to sustainable water management and flood risk mitigation in the surrounding area	%captured/ treated onsite	100%	0%	2017	Perth typical	Meter Monitoring/ billing system			
Local and Sustainable Food	LSF1	Access to food growing space	% of households	100%	0%	2017	None	Annual Survey			
	LSF2	Edible landscaping	% of landscape trees edible	30%	0%	2017	None	Annual Survey			
	LSF3	Encourage sustainable and healthy purchasing habits	% of households			2017		Annual Survey			
Travel and Transport	SM1	Enable a sustainable transport carbon footprint	tonne co2e/capita	2.54	4.23	2017	National (EUREAPA)	Annual Survey			
	SM2	Reduced private car ownership	Number per household	< 1	1.6	2017	National	Annual Survey			
Materials and Products	ST1	To reduce the embodied energy of construction materials.	GJ/dwelling	750	1000	2017	National	CUSP Programme			
	ST2	To promote materials and products that are non toxic to humans or wildlife at any stage in their lifecycle, from raw material through to manufacturing, use and end-of-life.	% of 'positive' products	95%	0	2017	None	Annual Survey			
	ST3	To promote local economy and to reduce the transportation impacts of products.	% of goods local	10%	0	2017	None	Annual Survey			
Zero Waste	ZW1	To maximise upcycling, re-use and recycling	% of total	100%	20%	2017	National	Bin survey			
	ZW2	To reduce the proportion of the construction waste which is sent to Landfill	% of total	100%	0%	2017	None	Once off report			
	ZW3	To aim for zero waste to landfill	kg/resident/year	0	2,100	2017	None	Bin survey			
Zero Carbon Energy	ZC1	To encourage the use of energy efficient appliances and domestic hot water	kwh/year/apartment	4380	6570	2017	None	Meter Monitoring/ billing system			
	ZC2	To encourage buildings that have energy efficient façade	NatHERS Star Rating	6+ Star average	6 Star average	2017	National minimum	Once off			
	ZC3	To use energy efficient heating and cooling systems	Cooling Star Rating	5 Star	2 Star Energy Rating	2017	National Minimum	Once off			
	ZC4	To maximise onsite renewable energy production and use	% of total	50%	0%	2017	None	Meter Monitoring/ billing system			
	ZC5	To use 100% renewable energy with no carbon emissions	kgCO2e/resident/year	100%	0 kgCO2e	2017	None	Meter Monitoring/ billing system			

Health and Happiness

Principle Vision	One Planet vision is a future where its easy, attractive and affordable for people to lead happy and healthy lives within earth's resources.		
Targets	2020 Goal	Indicator	Target
	To promote healthy living environments	VOC Limits (g/l)	< 16g/l
	To increase or support high levels of physical, social, mental, and emotional health	% exercise at least 2ce a week	80%

One Planet Action Plan

Design strategy

Category	Component	Strategy	Responsibility	Deadline
Healthy living	Activity	The site is located within easy access to Fremantle using active transport such as cycling. Additionally, there are many beaches and parks within easy access of the site which encourage an active an outdoor lifestyle.	Developer	Complete
Healthy living	Interaction	The apartment style of the development and the community hub and communal vegetable plot have been designed to encourage interaction between occupants of the dwellings.	Architect	Complete
Healthy buildings	Ventilation	The apartments have been designed with all apartments having good cross ventilation which allows for excellent ventilation of all spaces.	Architect	Complete
Healthy buildings	Daylighting	The development has been designed as 2 buildings with a central courtyard and all apartments with a north/south facing aspect. This allows for excellent natural daylight into the apartments whilst allowing for good passive solar control.	Architect	Complete
Healthy buildings	Materials	Low VOC emissions paints, flooring and engineered timber products have been selected to maintain a high quality indoor air conditions and to reduce the impact of construction chemicals.	Architect	Tender
Public realm	Open space	The open communal hub contains a lot of green spaces to enable occupants to use this space for socialising and outdoor activities in a pleasant and natural environment.	Architect	Complete
Public realm	Recreation facilities	The communal hub provides access to gardening facilities and bicycle storage and repair facilities to assist occupants in maintaining a healthy and active lifestyle.	Architect	Complete
Community/ People	Participation	The community hub has been designed to act as an activity centre for the occupants and to encourage the interaction of the occupants in a range of sustainable activities.	Architect	Complete

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Community / workers	Healthy living	The contractor is to encourage healthy eating and activity levels from all employees and sub-contractors as a part of the site induction.	Contractor	Throughout construction

Community / workers	Training, lifelong learning	The contractor is to provide training to all employees and sub-contractors on the sustainability issues involved in the One Planet Living site as a part of the site induction. ESD consultant will assist with the content of this training.	ESD Consultant / Contractor	Throughout construction
Community / neighbours	Noise and nuisance	Contractor to minimise construction noise and to consider the impact on the local community when performing tasks that will produce excess noise as a part of the construction works. This will be outlined in the Construction Management Plan to be provided by the Contractor.	Contractor	Throughout construction
Monitoring	Monitoring	The contractor will report at monthly site meetings on the attendance at the site induction training, any feedback / evolution on the training materials, any OSH issues that arise on site, any noise complaints and actions taken to resolve these in the future.	Contractor	Throughout construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Healthy living	Exercise	Occupants to maximise the use of active transport (cycling/ walking) and to aim for at least 3 active exercise sessions per week.	Occupants	On-going
Healthy living	Eating	Occupants are to aim to reduce consumption of highly processed foods and red meat.	Occupants	On-going
Healthy living	Materials	The health impacts of VOCs and ventilation will be added to the One Planet Living information pack along with a list of the healthy material selections used in the construction of the project to encourage ongoing use of healthy materials by occupants.	Occupants	On-going
Public realm	Recreation facilities	The One Planet Living information pack will include additional information on the local businesses and local facilities to encourage occupant interaction with the wider community. Information on Local Government contact details will be provided along with encouragement for occupants to contact them about community improvements such as additional bike lanes etc.	Occupants	On-going
Community / People	Activities and facilities	Occupants to actively engage with the communal hub and to spend at least 1 hour per week participating in some gardening activities in the communal vegetable garden.	Occupants	On-going
Community / People	Activities and facilities	Occupants to actively engage with the wider WGV community and the activities arranged as a part of the SHAC artist community.	Occupants	On-going
Community / People	Learning	Occupants to participate in local activities which relate to sustainable living and interaction with the wider community. These opportunities will be promoted by the body corporate.	Occupants	On-going
Community / People	Participation and engagement	A preliminary body corporate agenda will be provided which will include suggestions on how to manage and report on sustainability issues such as the creation of a Sustainability Group to manage items such as the compost and vege garden facilities.	Occupants	On-going
Community / People	Participation and engagement	The WGV community have set up a 'community noticeboard' to keep occupants informed of the activities occurring on the WGV site. Occupants to interact with this community noticeboard.	Occupants	On-going

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Community / People	Participation and engagement	The occupants are to actively manage the communal space and to be involved in the body corporate and wider White Gum Valley community.	Occupants	On-going
Monitoring	Monitoring	The body corporate is to include details on the overall exercise and eating habits of the occupants (without identifying individuals) and on the participation rates in the communal hub to demonstrate how effectively the community is meeting the One Planet Living targets. Surveys of the occupants will be used to assess the status of the community. This will be included in the Strata Management Plan.	Body Corporate	On-going
Monitoring	Monitoring	Materials used for any building upgrades (e.g. paint etc) to be reported on by the body corporate along with the healthy materials selections used.	Body Corporate	On-going

Equity and Local Economy

Principle Vision	One Planet vision is where thriving, diverse and resilient local economies support fair employment, inclusive communities and international fair trade.		
Target	2020 Goal	Indicator	Target
	To promote diversity and equality of opportunity across all abilities, gender, race, age and sexual orientation	Houses with accessible feature	10%
	To create a vibrant and resilient economy where a significant proportion of money is spent locally	People shopping locally	20%
	Encourage residents to engage in fair trade and local economy programmes	% of residents considering this in purchase decisions	95%

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Diversity and equality	Type and tenure	This development provides a range of apartment types including a range of apartment sizes and affordability. Additionally, this apartment development is a part of the wider WGV One Planet Living site plan which includes a variety of dwelling types to allow a variety of options.	Architect	Complete
Diversity and equality	Accessibility	6 out of 24 = 25% of the apartments provide wheelchair access to the front door. The wider WGV site provides a range of dwelling options including individual housing and maisonettes which provide extra accessibility options and aging in place options.	Architect	Complete
Diversity and equality	Ownership models	Typically, some apartments will be purchased as investment properties to be rented out whilst some will be retained as owner occupier.	Developer	On-going
Diversity and equality	Wealth inequality	Affordable housing options to be provided and ongoing utility bills will be reduced through the provision of onsite solar and batteries. Based on REIWA data (includes existing stock), median unit price in White Gum Valley is \$477k; in Fremantle is \$495k. At Evermore, starting price is \$365k for a 1 bed with motorcycle parking only. Gen Y development at WGV starts at \$398k. Equivalent new developments in the area have starting prices from \$425k for 1 bed.	Architect / electrical	On-going
Local economy	Job creation	The site will include NBN high speed internet connection which will allow occupants to work from home with NBN connections to every apartment.	Electrical	Tender
Local economy	Job creation	Information on fSpace which is a local workspace sharing hub within 3km of the development will be provided in the One Planet Living information pack.	Developer	Practical Completion

Global equity	Fair trade	Information packs to be provided which include details on fair trade and provide encouragement for occupants to purchase from fair trade suppliers. This will be included in the Strata Management Plan.	Developer	Practical Completion
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Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Diversity and equality	Employment	Contractor is encouraged to an inclusive worksite with opportunities for a range of employees, including women who are typically under represented in the construction industry.	Contractor	Throughout Construction
Local economy	Suppliers	Contractor shall purchase from local suppliers and support local businesses where possible.	Contractor	Throughout Construction
Diverse employment	Apprenticeships	The contractor is to encourage and report on the number of apprentices utilised on site.	Contractor	Throughout Construction
Global equity	Fair trade	Contractor is to consider the supply chain for any import products to ensure they do not come from potentially exploitative sources.	Contractor	Throughout Construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Local economy	Electric Vehicle Charger	Currently the electric vehicle charging is to be provided with a pin code only to allow residents to access this free of charge to encourage uptake of EVs. However, monitoring of the use will allow the body corporate to potentially add in a 'user pays' option once sufficient uptake is observed or to upgrade the EV charging station to include public payment options to raise revenue for the body corporate.	Body Corporate	On-going
Local economy	Solar PV and Batteries	The electricity supply to all tenants and the common areas will be provided on a private metering network controlled by the body corporate. This allows the body corporate charge a lower than standard electricity rate whilst still generating some revenue from the solar PV/battery power.	Body Corporate	On-going
Global equity	Fair trade	All occupants and the body corporate are to maximise the purchase of fair trade consumer goods and services. This will be included in the Strata Management Plan.	Occupants	On-going
Monitoring	Monitoring	Body corporate to report annually on the value created by the electric vehicle charger, batteries and PV and on the fair trade purchasing patterns from tenants.	Body Corporate	On-going

Culture and Community

Principle Vision	One Planet vision is one where a culture of sustainability, community and a sense of place has been built using local cultural heritage to foster social capital and connectedness.		
Target	2020 Goal	Indicator	Target
	To encourage active citizenship	Involvement in local community events/year	3
	To enhance local culture, heritage and sense of place	number of neighbours known by name	1900%
	To nurture a new culture of sustainability	Participation in sustainability related events	4

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Sense of Place	Local vernacular, traditional materials	The landscape is to include a range of local materials where possible to reflect a sense of place unique to this area.	Landscape Architect	Complete
Sense of Place	Native planting	Non-edible planting to focus on local native species to reflect a sense of place as well as provide native habitat	Landscape Architect	Complete
Active citizenship	Community Services; green spaces, hall	The community hub and shared community vegetable garden will provide the opportunity for the occupants to interact and develop a stronger community.	Architect	Complete
Active citizenship	Co-housing	The apartment living with a central community hub and shared communal space provides a co-housing opportunity for occupants to engage within an apartment and WGV community.	Architect	Complete
Education	Culture of sustainability	A culture of sustainability will be encouraged through the integration of visible sustainability features such a community garden, solar and batteries and through the marketing / information packs for the occupants. This will be included in the Strata Management Plan.	Developer / Architect	Practical completion

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Sense of Place	Education	Information to be provided about the local ecology and environment as a part of the sustainability introduction with the site induction.	ESD Consultant	Construction commencement
Active citizenship	Employees	The contractor shall aim to employ local workers and sub-contractors where appropriate to assist in building the local community.	Contractor	Throughout construction
Active citizenship	Local community	The contractor shall be aware of the needs of the existing local community to ensure the construction work minimises impact on them. This includes minimising noise, particularly out of hours noise, dust, cleaning up any dirt on local roads caused by trucks.	Contractor	Throughout construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Sense of Place	Cultural history	Body corporate to provide information on local workshops etc that reflect aspects of the local cultural history including Noongar history. Fremantle has a large range of festivals and events locally. This will be included in the Strata Management Plan.	Body Corporate	On-going
Active citizenship	Community events	Arrange information sessions and working bees in the community garden / hub to foster community interaction amongst occupants. This will be included in the Strata Management Plan.	Body Corporate	On-going
Active citizenship	Virtual community	Engage with the WGV online community platform proposed for the WGV site. This will be included in the Strata Management Plan.	Occupants	On-going
Culture of sustainability	Sharing economy	Utilise community hub to grow and share produce. Additional sharing and reuse between occupants can be arranged through interaction in the Community Hub. This will be included in the Strata Management Plan.	Occupants	On-going

Land and Nature

Principle Vision	One Planet vision is of regions that contribute to an overall increase in biodiversity and biological productivity, as well as supporting beautiful landscapes.		
Target	2020 Goal	Indicator	Target
	To ensure a positive contribution to local biodiversity	number of native species	> 10
	To maximise the synergies between agriculture, forestry, biodiversity and carbon storage	number of food plant species	> 4

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Habitat protection	Existing ecological value	The site was previously used as school which means that it has been cleared in the past and is currently unused site.	Developer	Complete
Habitat creation	Landscape	The wider WGV site includes many fruit trees and natives. The landscaping on this site continues that theme and also includes a communal vegetable garden. Several mature trees to be used in the landscaping to assist in rapidly building ecosystem services. Local materials to be used in hardscaping to provide a range of microhabitats.	Landscape architect	Complete
Global protection of ecosystems	Ecosystem services	The use of native plantings provides habitat and food for local species. Additionally, soakwells and permeable paving assist with the replenishment of ground water systems with filtration through the sandy soil.	Landscape architect	Complete
Engagement	Ecological value	Information on the local species endemic to the area and actions for occupants to assist in their protection will be provided to all households. This will be included in the Strata Management Plan.	ESD consultant	Practical completion

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Site management	Species protection	All trees remaining on the larger WGV site must be protected during all construction activity, including avoiding damaging the root system by keeping heavy vehicles, disposal of waste water and any excavation away from the root systems.	Contractor	Throughout Construction
Site management	Fencing	Fencing should be provided and maintained around the site with the aim of securing the site but also reducing wind and water erosion of soil by providing adequate protection.	Contractor	Throughout Construction
Worker engagement	Worker engagement	All contractor staff and sub-contractors to be provided information on the One Planet Living scheme and the particular sustainability targets for this project. This must be included as a part of the site induction for all contractors accessing the site.	Contractor	Throughout construction.
Monitoring	Monitoring	The contractor will report at monthly site meetings on the current status of the strategies outlined above.	Contractor	Throughout construction.



Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Site management	Chemical management	Organic landscape management practices should be utilised to maximise soil life and limit use of chemicals in managing the landscaping. This will be included in the Strata Management Plan.	Body Corporate	On-going
Resident engagement	Workshops	Workshops will be arranged for new occupants that will cover a range of sustainability topics including local species and habitats. This will be included in the Strata Management Plan.	Body Corporate	On-going
Monitoring	Monitoring	Body corporate to report annually on any chemical interventions used and suggest alternatives to remove the need to use these again in the future. Report to also include a quantification of the number of plant species grown on site and any other landscape alterations. This will be included in the Strata Management Plan.	Body Corporate	On-going

Sustainable Water

Principle Vision	One Planet vision is one where water is used efficiently and managed to support a healthy environment, avoid local flooding and avoid pollution.		
Target	2020 Goal	Indicator	Target
	To reduce water consumption in the building	kl/person/year	34
	To use water from non-potable water supply	% water from potable	75%
	To reduce water consumption for irrigation	kl/person/year	35
	To contribute to sustainable water management and flood risk mitigation in the surrounding area	%captured/ treated onsite	100%

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Reduce demand	Fittings	Water efficient fixtures and fittings to be utilised as follows: - Toilets = minimum 4 Star WELS rating; - Taps = minimum 5 Star WELS rating; - Showers = minimum 3 Star WELS rating.	Hydraulic / Architect	Tender documentation
Reduce demand	Irrigation	Site wide bore system to be used for all landscape irrigation purposes. The main site is supplying all lots with a 'fit for purpose' water supply. The aquifer that is utilised is a sustainable aquifer which has been designed to have a balanced recharge cycle.	Landscape	Tender documentation
Reduce demand	Landscaping	All landscaping to be a combination of water efficient natives and fruit / food plants to ensure low water use for ornamentals and valuable water use for food plants.	Landscape	Tender documentation
Stormwater	Permeability	Permeable paving to be used in the external car park areas and soak wells will be utilised to infiltrate 100% of stormwater which will regenerate the ground water supply.	Hydraulic / Architect	Tender documentation
Monitoring	Consumption	Water metering to be provided to each apartment and for common area uses to accurately monitor the water consumption of each apartment.	Hydraulic	Tender documentation

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Reduce demand	Construction water	Aim for at least 50% of the water used in concrete mixes to come from a non-potable source.	Contractor	Throughout construction
Stormwater	Wash down	Ensure concrete and paint wash down water is trapped and disposed of responsibly. This water should not be allowed to soak into ground as it will contaminate soil and groundwater.	Contractor	Throughout construction
Monitoring	Monitoring	The contractor will report at monthly site meetings on the water sources and quantities used during construction and documenting the disposal of waste water.	Contractor	Throughout construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Reduced Demand	Household water consumption	All households to monitor water consumption and reduce use of potable water, particularly in the summer months when water supply is low.	Occupant	On-going
Landscaping	Irrigation water	Irrigation water to be actively monitored to ensure excess water is not being used by fixing leaks promptly, watering in cooler times of the day, minimising above ground water use, adjusting irrigation period to match conditions, regular use of soil wetting agent / compost.	Body Corporate	On-going
Monitoring	Monitoring	Average occupant water consumption to be reported on based on water meter data as a part of the sustainability reporting and compared to a benchmark of typical households.	Body Corporate	On-going

Local and Sustainable Food

Principle Vision	One Planet vision is one where people eat healthy diets higher in vegetable protein and lower in animal protein, diets high in local, seasonal and organic produce.		
Target	2020 Goal	Indicator	Target
	Access to food growing space	% of households	100%
	Edible landscaping	% of landscape trees edible	30%
	Encourage sustainable and healthy purchasing habits	% of households	0%

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Onsite food growing	Communal	The central space between the two buildings has been allocated as a community hub and includes a communal vegetable garden space. Additionally, site plantings include fruit trees which can be accessed by the community.	Architect	Complete
Onsite food growing	Private	Generous north facing balconies have been supplied and ground floor private courtyards which can be used to grow some pots of food.	Architect	Tender documentation
Local facilities	Farmers Market	The Fremantle farmers market is located approximately 2km from the site and contains fresh food suppliers. The locations of these facilities will be added to the One Planet Living information pack.	Developer	Practical Completion
Local facilities	Restaurants	The main centre of Fremantle is located approximately 2km from the site and includes many dining options. The locations of these facilities will be added to the One Planet Living information pack.	Developer	Practical Completion
Food miles	Local sourcing	The south west region of WA contains many food production areas from which food can be sourced. The locations of these facilities will be added to the One Planet Living information pack.	Developer	Practical Completion
Food culture	Kitchen sizes	Generous kitchens have been provided to encourage occupants to cook at home with fresh ingredients.	Architect	Complete
Information provision	Animal welfare	Information on the animal welfare impacts of food production will be included in the One Planet Living information pack supplied to occupants.	ESD Consultant	Practical Completion
Information provision	Global impacts	Information on the global environmental impacts of food production will be included in the One Planet Living information pack supplied to occupants.	ESD Consultant	Practical Completion

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Construction staff	Lunch	Provide information to the contractors to encourage local, sustainable and healthy eating choices in an information pack.	Contractor	Construction



Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Local Food	Onsite food growing	Occupants to share the community garden to grow food onsite. The community hub can be used to share knowledge on how to best utilise produce. To be included in the Strata Management Plan.	Occupants	On-going
Food miles	Local sourcing	Occupants to purchase as much food from local sources and local farmers markets to reduce food miles. To be included in the Strata Management Plan.	Occupants	On-going
Certified	Organic	Occupants to purchase as much food from organic sources as possible. To be included in the Strata Management Plan.	Occupants	On-going
Healthy food system	resident engagement	Occupants to participate in the communal garden and community hub events. To be included in the Strata Management Plan.	Occupants	On-going
Healthy food system	food waste	Occupants to utilise the compost tumblers for all appropriate food scraps. Body corporate may organise working bees / roster and information sessions on how to best utilise the compost system and to use the compost produced. To be included in the Strata Management Plan.	Occupants / Body corporate	On-going
Monitoring		Body corporate to survey all occupants on the quantity of onsite, local and healthy food used. To be included in the Strata Management Plan.	Body corporate	On-going

Travel and Transport

Principle Vision	One Planet vision is one where walking and cycling are norm; need to travel is reduced and low / zero carbon modes of transport are provided.		
Target	2020 Goal	Indicator	Target
	Enable a sustainable transport carbon footprint	tonne co2e/capita	2.54
	Reduced private car ownership	Number per household	< 1

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Location and layout	Location and connections	Site is located within 3 km of Fremantle with many amenities locally. Information on the local amenities to be added to the One Planet Living information pack.	Developer	Practical Completion
Location and layout	Density	Site is an infill project in suburban Fremantle and multi unit apartments will be increasing the density of dwellings in this area.	Architect	Complete
Local services and facilities	Retail, community	Site is located within 3 km of Fremantle train station with many amenities locally.	Developer	Complete
Local services and facilities	Employment	Fremantle has many businesses including a large hospital, a port and many tourist services which provide local employment opportunities.	Developer	Complete
Public transport	Access	Fremantle train station is within 3km of the site. The 502 bus service stop is less than 300m from the site.	Developer	Complete
Public transport	Information provision	Information on the public transport options to be provided in the One Planet Living information pack.	ESD Consultant	Practical Completion
Car parking	Onsite spaces	Onsite car parking has been limited to 22 spaces for 24 apartments with 2 apartments having motorcycle parking only.	Architect	Complete
Car parking	Offsite spaces	There are no convenient off site parking spaces and offsite parking is not encouraged.	Developer	Complete
Low-impact vehicles	Electric vehicle charging	1 electric vehicle charging station will be provided in one of the visitor parking bays to allow for all occupants to access this as required. By accessing power from the site, it will utilise power from the PV/Battery system. Initially this will be set up with a pass code to allow residents to access this free of charge to encourage the uptake of EVs. In the future this may be adjusted to allow for additional charging stations to be added and/or a fee based system to provide revenue for the body corporate.	Electrical / Architect	Complete
Low-impact vehicles	Efficient vehicles	Education of the benefits of energy efficient vehicles will be provided as a part of the One Planet Living information pack.	ESD Consultant	Practical Completion

Low-impact vehicles	Bicycle Facilities	The following bicycle facilities have been provided to encourage residents to own and use bicycles: - 8 double sided racks undercover that allow for securing a bicycle within the enclosed communal area; - Secure enclosed storage room per apartment in the communal area which is sized sufficiently to allow residents to store a bicycle; - 10 visitor bicycle racks outside the communal area gates; - A bicycle repair station which includes tools and a holding stand to allow residents to easily repair and maintain their bicycle.	Architect	Complete
Air travel	awareness raising	Education of the impacts of air travel will be provided as a part of the One Planet Living information pack.	ESD Consultant	Practical Completion
Air travel	offsetting	Education of the benefits of offsetting the air travel impacts will be provided as a part of the One Planet Living information pack.	ESD Consultant	Practical Completion

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Onsite Vehicles	Management	Contractor to encourage car pooling of sub-contractors to minimise number of cars parking on site.	Contractor	Throughout construction
Onsite Vehicles	Alternative fuels	Contractor to encourage use of hybrid or other lower emissions vehicles in attending site.	Contractor	Throughout construction
Suppliers	Logistics	Contractor to aim to increase the use of local suppliers and for suppliers who can bundle supplies into a single delivery to reduce transport impacts.	Contractor	Throughout construction
Monitoring	Monitoring	The contractor will report at monthly site meetings on the travel impacts from the construction works.	Contractor	Throughout construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Green transport plan	Occupant engagement	Body corporate to produce and keep a green transport plan up to date to assist all occupants in choosing green transport options. To be included in the Strata Management Plan.	Body Corporate	On-going
Green transport plan	Electric Vehicle Charging Station	Body corporate to monitor the usage of the EV charging station.	Body Corporate	On-going
Wider impacts	Holidays and flying	Occupants encouraged to vacation locally / staycations and to reduce international flights. To be included in the Strata Management Plan.	Occupant	On-going
Offsetting	Carbon emissions	Occupants to record / estimate the carbon emissions due to travel and to offset these using a recognised carbon offset scheme. Body corporate may include this in the Green Transport Plan and may be able to facilitate bulk purchase of carbon offsets for all tenants. To be included in the Strata Management Plan.	Occupant / Body Corporate	On-going
Monitoring	Monitoring	At least annual update of the Green transport plan with the status for the previous year. To be included in the Strata Management Plan.	Body Corporate	On-going

Materials and Products

Principle Vision	One Planet vision is one where all goods and materials used are made from renewable or waste resources with low embodied energy and, wherever possible, sourced locally.		
Target	2020 Goal	Indicator	Target
	To reduce the embodied energy of construction materials.	GJ/dwelling	750
	To promote materials and products that are non toxic to humans or wildlife at any stage in their lifecycle, from raw material through to manufacturing, use and end-of-life.	% of 'positive' products	95%
	To promote local economy and to reduce the transportation impacts of products.	% of goods local	10%

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Designing for the sharing economy	Communal spaces	Design the central area as a communal space with a community garden and hub to encourage interaction of the occupants	Architect	Complete
Lifecycle analysis	Environmental impact	Curtin University is performing a Lifecycle assessment on the development as a research project as part of the Living Laboratories CRC. This is an ongoing process that will benefit the wider construction industry. Design options based on general lifecycle assessment experience have been incorporated into the development such as to reduce Portland Cement consumption with the use of bubble deck, maximise the use of recycled steel, maximise the operational energy efficiency of the dwellings, build with durable materials that will allow for a long building life.	Curtin University / ESD Consultant	On-going
Embodied energy	Concrete	Reduce the use of Portland cement in all the building by using bubble deck and replacement material such as granulated blast furnace slag. Target at least 30% Portland cement reduction across the site.	Structural Engineer	Tender documentation
Embodied energy	Offsets	3,000 tree seedlings will be planted on a suitable off-site location to offset the construction impacts and to act as a sustainable education opportunity. A suitable site will be determined in consultation with local environmental and landcare groups. All occupants will be encouraged to participate.	Developer	Practical completion
Supply chain	Local materials	Maximise the use of local materials by including this requirement in the specification and through research during the design stage on materials selections.	Architect	Tender documentation
Climate impact	Ozone Depleting materials	Specify that all insulation and refrigerants do not contain any ozone depleting substances.	Architect	Tender documentation
Climate impact	Global warming potential	Design the apartments to minimise the requirement for air conditioning and do not supply apartments with air conditioning as a default.	Architect	Complete
Safe materials	VOCs	Only specify low VOC paints, adhesives and sealants. Use ultra-low VOC materials where possible.	Design team	Tender documentation

Safe materials	Red List	Materials that should be avoided can be found on https://en.wikipedia.org/wiki/Red_List_building_materials	Design team	Tender documentation
Certified Materials	Timber	Specification should state that all timber should be recycled or come from FSC / PEFC certified sources.	Design team	Tender documentation
Recycled content	All materials	Specification should state that the recycled content of all major purchases to be reported and higher recycled content options to be favoured.	Architect	Tender documentation

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Embodied energy	Concrete	Contractor to select a concrete supplier which offers high levels of Portland cement reduction in the design mixes.	Contractor	Construction
Supply chain	Local materials	Contractor to source materials locally and to offer local alternatives where practical	Contractor	Construction
Climate impact	ODP and GWP	Contractor to ensure that all materials have no ozone depleting potential and to minimise the global warming impact.	Contractor	Construction
Safe materials	VOCs	Contractor to only use low VOC paints, adhesives and sealants. Use ultra-low VOC materials where possible. A summary report to provided monthly throughout the project summarising the materials used and the VOC levels.	Contractor	Construction
Safe materials	Red List	Contractor to only use items that are not on the red list where possible. https://en.wikipedia.org/wiki/Red_List_building_materials	Contractor	Construction
Recycled content	All materials	Contractor to select recycled materials and materials with a high recycled content where possible. A summary report to provided monthly throughout the project summarising the materials used and the recycled content.	Contractor	Construction
Certified Materials	Timber	Contractor to provide details of the FSC or PEFC status for all timber products.	Contractor	Construction

Category	Component	Strategy	Responsibility	Deadline
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Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Sharing economy	Central hub	The body corporate to organise communal events in the communal hub including: - Organic gardening workshops; - Composting workshops; - Bicycle repair workshops; etc. These may be run by external parties or by occupants. To be included in the Strata Management Plan.	Body Corporate	On-going
Embodied energy	Maintenance items	Body corporate to consider embodied energy of any maintenance materials used on site. To be included in the Strata Management Plan.	Body Corporate	On-going
Supply chain	Local Material	Tenants to use local shops and markets to purchase consumer goods where practical. To be included in the OPL Information Pack and the Strata Management Plan.	Occupants	On-going
Supply chain	Recycled content	Tenants to purchase consumer goods with a high recycled and/or reused component where practical. To be included in the Strata Management Plan.	Occupants	On-going
Supply chain	Sustainable materials	Information to be added to the OPL Information packs and the Strata Management Plan on the use of sustainable materials such as Portland Cement replacement, recycled materials, low VOC materials, avoidance of 'red list' materials and use of certification schemes such as FSC, GECA, Ecospecifier, etc.	Occupants / Body Corporate	On-going
Safe materials	Cleaning products	Tenants to use low toxicity and natural cleaning products to maintain high indoor air quality and to prevent pollution. To be included in the Strata Management Plan.	Occupants	On-going
Materials Reuse	Textiles / appliances	All unwanted consumer goods should be reused with the assistance of charity bins, gumtree or similar. To be included in the Strata Management Plan.	Occupants	On-going

Zero Waste

Principle Vision	One Planet Vision is of a future where resources are used efficiently, waste levels are close to zero and ultimately zero waste is sent to landfill.		
Target	2020 Goal	Indicator	Target
	To maximise upcycling, re-use and recycling	% of total	100%
	To reduce the proportion of the construction waste which is sent to Landfill	% of total	100%
	To aim for zero waste to landfill	kg/resident/year	0

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Reducing construction waste	New buildings	Take material sizes into account during the design process and use modular items such as bricks to minimise offcuts.	Architect	Complete
Reducing construction waste	Landscaping	Hard materials to be kept to the minimum and green spaces to be maximised. This reduces wastage of hardscape materials.	Landscape	Complete
Maximising value - in operation	Recycling	Provision of easy access to both the general waste and the mixed recyclable bins for all occupants. Information provided to occupants on the types of waste and bins to be used. All apartments will be provided with a 3 bin system to allow easy separation into mixed recyclables, general waste and compost.	Architect	Tender documentation
Maximising value - in operation	Composting	Compost tumblers will be provided in the communal hub / garden to allow occupants to compost organic waste for reuse in the community garden. All apartments will be provided with a 3 bin system to allow easy separation into mixed recyclables, general waste and compost.	Architect	Tender documentation

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Waste reduction	Ordering	Provide accurate documentation to allow more accurate ordering of materials with confidence.	Design team	Tender
Waste reduction	Storage	Contractors to ensure that all items are stored securely and protected from the elements to prevent spoiling and wastage of any items. To be included in the Construction Management Plan.	Contractor	Construction
Valuing waste	Reuse	Contractor to arrange suitable storage of offcuts for reuse in other areas of the building. Also, contractors encouraged to remove unfinished items for reuse on other jobs. To be included in the Construction Management Plan.	Contractor	Construction

Final waste treatment	Waste sorting	Offsite recycling of construction waste by an waste contractor is an economical way to minimise construction waste. Reusable materials such as timber off cuts etc may be provided to a suitable local organisation such as the Mens Shed for reuse. To be included in the Construction Management Plan.	Contractor	Construction.
Monitoring	Waste	The contractor will report at monthly site meetings on the quantity of waste removed from the site and on the recycling proportion. To be included in the Construction Management Plan.	Contractor	Construction.

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Waste reduction	Education	Provide education materials in the form of an purchaser introduction pack with information on the impacts of excess consumption. To be included in the Strata Management Plan.	ESD	Pre-occupation
Valuing waste	Reuse	Encourage occupants to reuse and repurpose unwanted items amongst themselves or by using 'charity bins'. To be included in the Strata Management Plan.	Body Corporate	On-going
Valuing waste	Recycling	Occupants to separate out their mixed recyclables themselves and to place them in the mixed recycling bins themselves. To be included in the Strata Management Plan.	Body Corporate	On-going
Valuing waste	Compost	Occupants to separate out compostable items in their own apartments and bring it to the compost tumblers. The Body corporate to arrange for occupants to responsibly use the compost tumblers and will arrange for the reuse in the communal gardens. To be included in the Strata Management Plan.	Body Corporate	On-going
Valuing waste	E-waste	Provide information to occupants on the e-waste off site facilities to encourage responsible disposal of all e-waste. To be included in the Strata Management Plan.	ESD	Pre
Final waste treatment	Council Waste	All remaining waste will be disposed of in the council general waste bins on a weekly basis. To be included in the Strata Management Plan.	Body Corporate	On-going
Monitoring	Waste Audit	Periodic waste audits should be arranged to monitor the proportion of waste placed in the incorrect bins and to educate occupants on the correct recycling methods. To be included in the Strata Management Plan.	Body Corporate	On-going.



Zero Carbon Energy

Principle Vision	One Planet Vision is for all buildings to be energy efficient and run completely from renewable energy.		
Target	2020 Goal	Indicator	Target
	To encourage the use of energy efficient appliances and domestic hot water	kwh/year/apartment	4,380
	To encourage buildings that have energy efficient façade	NatHERS Star Rating	6+ Star average
	To use energy efficient heating and cooling systems	Cooling Star Rating	5 Star
	To maximise onsite renewable energy production and use	% of total	50%
	To use 100% renewable energy with no carbon emissions	kgCO2e/resident/year	100%

One Planet Action Plan

Design Strategy

Category	Component	Strategy	Responsibility	Deadline
Energy demand	Major sources	<p>Current assessment of the apartments calculates the following breakdown:</p> <p>Energy consumption: 15kWh/day/apartment Site annual energy consumption: 131,400 kWh/year PV/battery energy consumed directly: 62,983 kWh/year (i.e. ~50%) PV energy exported from site: 19,969 kWh/year (~15%)</p> <p>Net annual position is approximately 65% of the site electricity is produced from onsite renewable energy.</p>	ESD / PV Supplier	Tender documentation
Building energy efficiency	NatHERS	The insulation levels have been designed to achieve above an average 6 Star NatHERS star rating.	Architect	Complete
Building energy efficiency	Lighting (indoor + outdoor)	LED lighting to be used both internally and externally. PE sensors for external lights to ensure operation only at night.	Electrical	Complete
Appliances	Electric goods	Purchasers will be encouraged to select energy efficient equipment. This will be encouraged through an optional "Energy Efficient Appliance" package at time of sale and by including information on energy efficient appliances.	Developer	During sales
Appliances	Cooking	No gas supply is provided to site so all cooking equipment is electrical which can be purchased from zero carbon sources.	Electrical	Complete



Category	Component	Strategy	Responsibility	Deadline
Renewable Energy onsite	Electricity	A 53.6kW system with 125kWh of battery storage proposed for the site.	Electrical	Tender documentation
Renewable Energy offsite	Electricity	Information pack will be provided explaining the current solar power system and savings with an encouragement to tenants to utilise the savings to purchase the remaining power from the Synergy 100% Green Power Plan. To be included in the Strata Management Plan.	ESD	Tender documetion
Monitoring	Electricity	Detailed monitoring will be used to account for solar power contribution. This will be completed through the PV Contractor.	PV Contractor	Practical Completion.

Construction Strategy

Category	Component	Strategy	Responsibility	Deadline
Energy Efficiency	Equipment	Encourage the use of electrical equipment with the use of 100% green power. This will be included in the Pre-construction workshop	Contractor	Pre-construction
Energy conservation	Training	ESD consultant to have a workshop session with the contractor to explain the sustainability targets and the value of these.	ESD	Pre-construction
Monitoring	Electricity	The contractor will report at monthly site meetings on the monthly energy consumption from the site.	Client	Construction

Operations strategy

Category	Component	Strategy	Responsibility	Deadline
Energy Efficiency	Technical solutions	Annual survey by the body corporate to collect information on the new major equipment purchases and the energy star rating. To be included in the Strata Management Plan.	Body Corporate	On-going
Energy conservation	Energy Audits	Energy audits for all occupants to be made available at a 'bulk' rate. To be included in the Strata Management Plan.	Body Corporate	On-going
Monitoring	Electricity	Monthly billing by the body corporate with feedback to occupants on the relative status of the different properties on how they have performed compared to the average (occupant specific data only available to actual occupants to protect privacy). Suggestions on how to further reduce consumption. To be included in the Strata Management Plan.	Body Corporate	On-going