SUSTAINABILITY STATEMENT

in relation to

195 – 199 GRAYS INN ROAD, LONDON WC1X 8JR

for

EUROPEAN URBAN DEVELOPMENTS

McBains Cooper
120 Old Broad Street
London EC2N 1AR

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AUGUST 2014

Contents

1.0 POLICIES DP22 AND DP23

The main Sustainability requirements are described in Camden Council Core Strategy policy CS13 – Tackling Climate Change. This refers to Camden's Development Plan policies DP22 – Promoting Sustainable Design and Construction; and DP23 – Water. These have been provided below for ease of reference:

DP22 – Promoting sustainable design and construction

The Council will require development to incorporate sustainable design and construction measures. Schemes must:

a) Demonstrate how sustainable development principles, including the relevant measures with respect to:
    a. The accessibility of its location;
    b. Its density and mix of uses;
    c. Its detailed design taking into account the orientation of the site;
    d. The mechanical services; and
    e. The materials chosen
b) Incorporate green or brown roofs and green walls wherever suitable.

The Council will promote and measure sustainable design and construction by:

a) adopting the government target that all new build housing will be zero carbon by 2016 (Code for Sustainable Homes Level 6), along with the stepped targets of Code 3 by 2010 and Code 4 by 2013;
b) expecting developments (except new build) of 500sqm of residential floorspace or above or 5 or more dwellings to achieve 'excellent' in EcoHomes assessments from 2013 and at least 'very good' prior to 2013;
c) expecting non-domestic developments of 500sqm of floorspace or above to achieve 'very good' in BREEAM assessments, with the aim of increasing the target to a rating of at least 'excellent' in 2016, if feasible, and zero carbon from 2019, in line with the government's ambitions.

The Council will require development to be resilient to climate change by ensuring schemes include appropriate climate change adaptation measures, such as:

a) summer shading and planting;
b) limiting run-off;
c) reducing water consumption;
d) reducing air pollution; and
e) not locating vulnerable uses in basements in flood-prone areas.

DP23 – Water

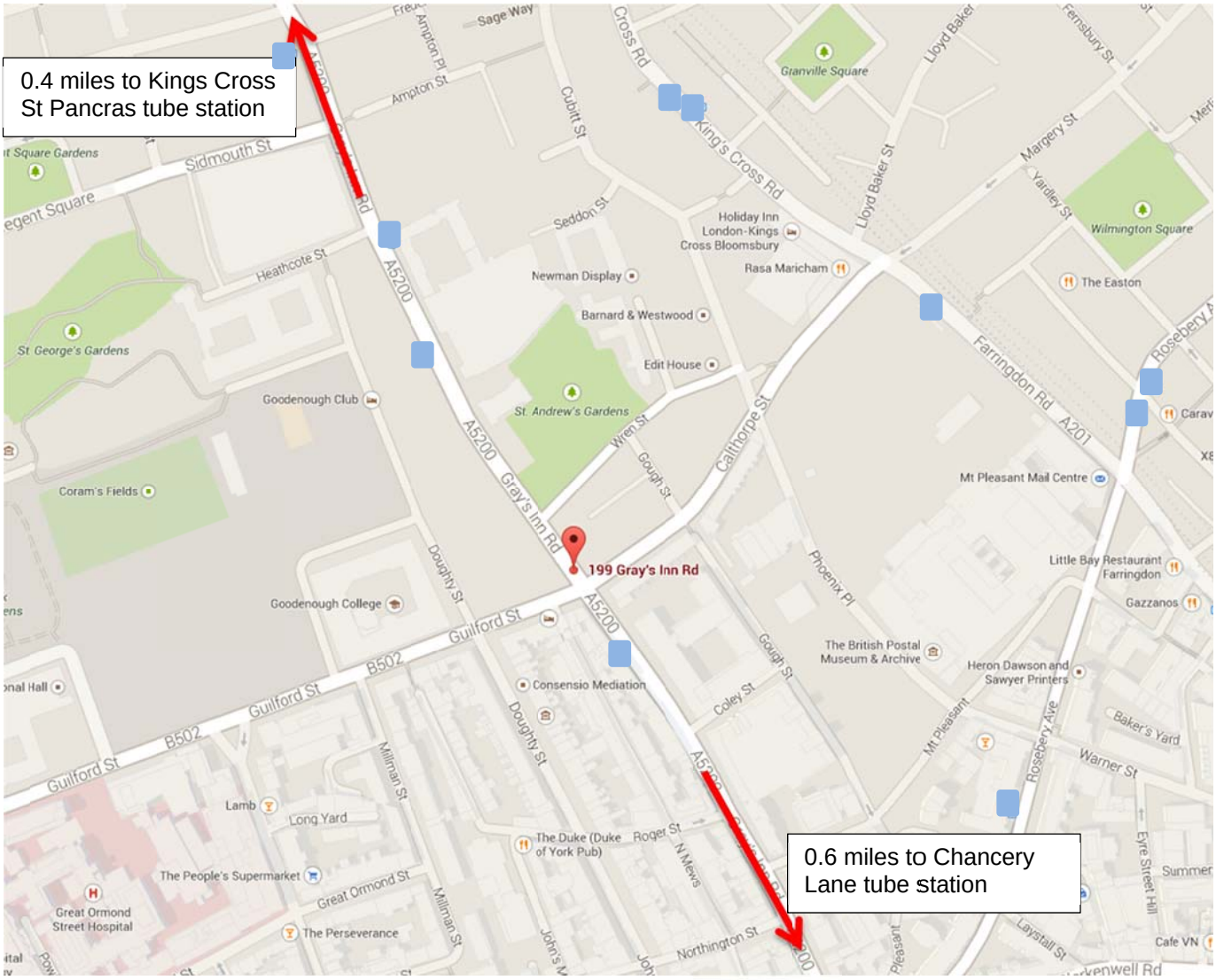
The Council will require developments to reduce their water consumption, the pressure on the combined sewer network and the risk of flooding by:

a) incorporating water efficient features and equipment and capturing, retaining and re-using surface water and grey water on-site;
b) limiting the amount and rate of run-off and waste water entering the combined storm water and sewer network through the methods outlined in part a) and other sustainable urban drainage methods to reduce the risk of flooding;
c) reducing the pressure placed on the combined storm water and sewer network from foul water and surface water run-off and ensuring developments in the areas identified by the North London Strategic Flood Risk Assessment as being at risk of surface water flooding are designed to cope with the potential flooding;
d) ensuring that developments are assessed for upstream and downstream groundwater flood risks in areas where historic underground streams are known to have been present; and
e) encouraging the provision of attractive and efficient water features.

2.0 RESPONSE TO POLICIES DP22 AND DP23

Accessibility of location

The site lies within 0.1 miles of a number of bus stops that are served regularly during peak hours, within 0.4 miles of Kings Cross St Pancras and within 0.6 miles of Chancery Lane tube station.



Density and mix of uses

The development comprises of three compactly designed homes, optimising the density of the proposed development. The site is in an area where there is an existing mix of uses.

Orientation of the site

The windows are all west-/south-west-facing with north and southing facing facades being protected from losses in the winter and excess heat in the summer by the site's orientation.

Mechanical services

Highly energy-efficient, low NOx boilers will provide space heating and hot water. There is potential for natural ventilation throughout the occupied areas through operable windows.

Materials

The buildings will target 20 of the available 24 credits under Materials in the Code for Sustainable Homes, while ensuring that they are in keeping with the existing character of the area. Materials will be selected according to the Green Guide to Specification to ensure minimal environmental impact. Furthermore, the Contractor will be required to source materials responsibly from suppliers who have appropriate environmental Management Systems in place for the extraction, production and supply of materials, such as ISO 14001 or for timber FSC/ PEFC.

Incorporate green or brown roofs and green walls wherever suitable

Green roofs have been considered, however the roof space has been maximised for improving daylight factors in the kitchen, living and dining room and the installation of photovoltaic-thermal (PV-T) panels to minimise impact from electricity consumption and hot water requirements.

New build housing will be Code 3 by 2010 and Code 4 by 2013

Indicative Pre-Assessments have been provided in **Appendix A** showing that it will be possible to achieve Code Level 4 in each of the proposed homes despite retaining the external building fabric. Furthermore, in accordance with Camden Council's requirements, the development can achieve 50% of available credits under Energy; 83% under Water; and 83% under Materials.

Some highlights include the specification of PV-T, a technology that combines Photovoltaics with Solar Thermal; a resulting improvement between 55% and 60% in the energy performance of each home over Part L1A Building Regulations 2010; meeting all applicable Lifetime Homes criteria; achieving best practice daylight factors in the kitchens, living and dining areas and studies; improving the acoustic performance of each home by 5dB over Building Regulations Part E; and appointing a Suitably Qualified Ecologist to advise on improving the ecological value of the site. Details of our indicative energy strategy have been included in **Appendix B**. For details of the PV-T unit, please refer to **Appendix C**, where we have provided the datasheet of the proposed unit.

We are currently targeting over 68% of credits under the Code for Sustainable Homes (Nov 2010) which corresponds to Level 4.

Non-domestic developments to achieve 'very good' in BREEAM – N/A

Summer shading and planting & Limiting run-off (also responding to DP23b)

The windows are west/south-west facing. Frosted rooflights will be provided with internal blinds. Rainwater butts will help to limit surface water run-off from the roof.

Reducing water consumption (also responding to DP23a)

Internal water fittings will be specified in line with Regulation 17K and the Code for Sustainable Homes, meeting requirements for compliance with Code Level 4. The fittings will include low flow taps, dual flush toilets and water-efficient white goods. **Appendix D** shows an indicative strategy for the internal water consumption.

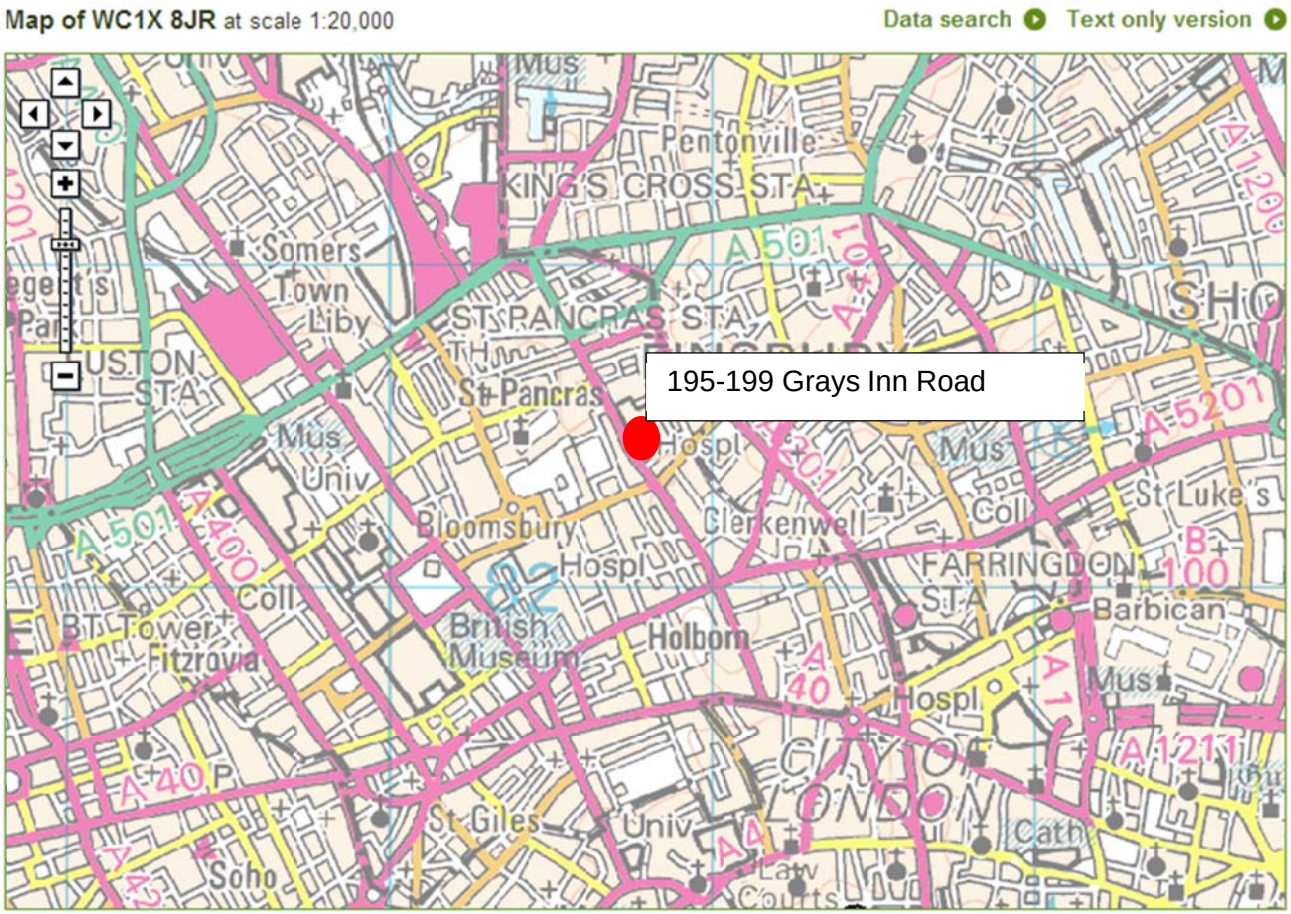
Rainwater collected will be used for irrigation of any external planting to further reduce potable water consumption.

Reducing air pollution

LB Camden was declared an Air Quality Management Area in 1999 for NOx and particulates. Space heating will be provided from heat pumps, which have zero emissions on site as they run on grid electricity. Any back up boilers to top up the water heating requirements will be low NOx, meeting AQMA requirements.

Not locating vulnerable uses in basements in flood-prone areas (also responding to DP23c and d)

The site is located in Flood Zone 1 (low flood risk) in accordance with the Environment Agency, therefore it is not considered to be a flood-prone area. The site will be assessed for upstream and downstream groundwater flood risks if applicable.



Providing attractive and effective water features

Attractive water butts will be specified. Any further provision of water features will be constrained by the limited external area available; however this will be reviewed as part of detailed design.

APPENDIX A

Indicative Code for Sustainable Homes Level 4 Pre-Assessment

Code for Sustainable Homes

Technical Guide November 2010 - Full Technical Guide

Pre-Assessment Report

STROMA CERTIFIED CODE ASSESSOR

McBAINS COOPER

Report Reference:	**57509**
Site Registration:	
Site Name:	**195-199 Grays Inn Road**
Assessor Number:	**STRO000042**
Company:	**McBains Cooper**
Assessor:	**Marietta Vafea**

THE CODE FOR SUSTAINABLE HOMES

CERTIFICATION MARK

Site Details	
Site Name:	195-199 Grays Inn Road
Site Registration:	
Site Address:	195-199 Grays Inn Road
City/Town:	Camden
County:	Greater London
Postcode:	WC1X 8RJ
No. of Dwellings:	3
No. of Dwelling Types:	0
Planning Authority:	Camden Council
Funding Body:	

Assessor Details	
Company:	McBains Cooper
Assessor Name:	Marietta Vafea
Cert Number:	STRO000042
Address:	120 Old Broad Street
	City
City/Town:	London
County:	Greater London
Postcode:	EC2N 1AR
Tel:	02077867900
Email:	m.vafea@mcbainscooper.com

Client Details	
Company:	European Urban Developments
Contact Name:	Paul Whitley
Job Title:	
Email:	
Tel:	
Address:	
City/Town:	
County:	
Postcode:	

Architect Details	
Company:	European Urban Architecture
Contact Name:	Rebecca Mair
Job Title:	Architect
Email:	
Tel:	
Address:	195-199 Grays Inn Road
City/Town:	London
County:	
Postcode:	WC1X

Developer Details	
Company:	European Urban Developments
Contact Name:	Paul Whitley
Job Title:	Architect
Email:	
Tel:	
Address:	
City/Town:	
County:	
Postcode:	

Dwelling ID	Plot No.	Address	Social Unit
1	195	195 Grays Inn Road	No
2	197	197 Grays Inn Road	No
3	199	199 Grays Inn Road	No

Development Summary & Ratings

Dwelling ID	Dwelling Type	Description	Level	Score
		195Grays Inn Road	4	68.69
		197Grays Inn Road	4	68.1
		199Grays Inn Road	4	68.22

Deviations from Standard

No deviations from standard

Score Sheet for 195-199 Grays Inn Road

	ENE									WAT		MAT			SUR		WAS			POL		HEA				MAN				ECO					Summary	
Dwelling ID	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**1**	**2**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**3**	**1**	**2**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**Score**	**Level**
1	6.1	0	2	1	2	2	2	0	1	4	1	13	5	2	1	2	4	2	1	1	0	3	3	0	4	3	2	2	2	1	1	1	2	0	68.69	4
2	5.6	0	2	1	2	2	2	0	1	4	1	13	5	2	1	2	4	2	1	1	0	3	3	0	4	3	2	2	2	1	1	1	2	0	68.1	4
3	5.7	0	2	1	2	2	2	0	1	4	1	13	5	2	1	2	4	2	1	1	0	3	3	0	4	3	2	2	2	1	1	1	2	0	68.22	4

Summary Score Sheet

Dwelling Type: 195 Grays Inn Road

Dwelling ID: 1

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	6.1	10	16.1	31	51.94	36.4	18.9
ENE 2 Fabric Energy Efficiency	0	9					
ENE 3 Energy Display Device	2	2					
ENE 4 Drying Space	1	1					
ENE 5 Energy Labelled White Goods	2	2					
ENE 6 External Lighting	2	2					
ENE 7 Low or Zero Carbon Energy Technologies	2	2					
ENE 8 Cycle Storage	0	2					
ENE 9 Home Office	1	1					
Water							
WAT 1 Internal Water Use	4	5	5	6	83.33	9	7.5
WAT 2 External Water Use	1	1					
Materials							
MAT 1 Environmental Impact of Materials	13	15	20	24	83.33	7.2	6
MAT 2 Responsible Sourcing (Basic Building Elements)	5	6					
MAT 3 Responsible Sourcing (Finishing Elements)	2	3					
Surface Water Run-off							
SUR 1 Management of Surface Water Run-Off from Site	1	2	3	4	75	2.2	1.65
SUR 2 Flood Risk	2	2					
Waste							
WAS 1 Household Waste Storage and Recycling Facilities	4	4	7	8	87.5	6.4	5.6
WAS 2 Construction Site Waste Management	2	3					
WAS 3 Composting	1	1					
Pollution							
POL 1 Global Warming Potential of Insulants	1	1	1	4	25	2.8	0.7
POL 2 NOx Emissions	0	3					
Health & Wellbeing							
HEA 1 Daylighting	3	3	10	12	83.33	14	11.67
HEA 2 Sound Insulation	3	4					
HEA 3 Private Space	0	1					
HEA 4 Lifetime Homes	4	4					
Management							
MAN 1 Home User Guide	3	3	9	9	100	10	10
MAN 2 Considerate Constructors Scheme	2	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	1	1	5	9	55.56	12	6.67
ECO 2 Ecological Enhancement	1	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	0	2					
	Level Achieved: 4		Total Points Scored: 68.69				

Evidence for ENE 1 (Dwelling Emission Rate)
Improvement above Part L Building Regulations 2010. 6.1 credits allocated
Assumptions for ENE 1
Based on SAP 2010 calculations

Evidence for ENE 2 (Fabric Energy Efficiency)
Not Sought 0 credits allocated
Assumptions for ENE 2
Based on SAP 2010 calculations

Evidence for ENE 3 (Energy Display Device)
Correctly specified display device showing current primary heating fuel consumption data. Correctly specified display device showing current consumption data.
Assumptions for ENE 3

Evidence for ENE 4 (Drying Space)
Compliant external drying space
Assumptions for ENE 4
retractab3e/ Internal drying space in bathr660 with adequate ventilation and window with minimum casement 0.5m2 Minimum drying line length 4m.

Evidence for ENE 5 (Energy Labelled White Goods)
A+ rated fridge & freezers or fridge/freezer A rated washing machine and dishwasher, AND EITHER a tumble dryer (a washer-dryer would be an acceptable alternative to a standalone tumble dryer) with a B rating or where a tumble dryer is not provided, the EU Energy Efficiency Labelling Scheme Information will be provided.
Assumptions for ENE 5
A+ rated fridge/freezer, A-rated dishwasher/ washing machine, B-rated tumble-dryer

Evidence for ENE 6 (External Lighting)
Complaint space lighting, no security lighting installed
Assumptions for ENE 6
No security lighting will be provided other than statutory security lighting; any external space lighting will be energy-efficient.

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies)
Contribution of low or zero carbon technologies greater than or equal to 15%
Assumptions for ENE 7
PV-T to maximise available roof area 12 panels shown on drawings PV = 200 kW/panel = 2.4 kWp SHW = 1.37m2/panel = 16.44 m2 (gross area) Newform Energy PowerVolt unit assumed.

Evidence for ENE 8 (Cycle Storage)
Credit(s) not sought or no compliant cycle storage
Assumptions for ENE 8
Cycle storage not accessible other than through the dwelling, therefore not compliant for Code

Evidence for ENE 9 (Home Office)
Compliant home office
Assumptions for ENE 9
A desk and compliant services can be provided in the Master bedroom without impeding the intended use of the room as a bedroom. A minimum daylight factor of 1.5% is likely due to the large glazed area. Two double power sockets, a double phone line and a data point can also be provided.

Evidence for WAT 1 (Internal Water Use)
Internal water use less than or equal to 90 litres per person per day
Assumptions for WAT 1
Low flow taps; dual flush toilets; small capacity bath; water-efficient appliances

Evidence for WAT 2 (External Water Use)
Compliant individual rainwater collection system
Assumptions for WAT 2
The external area is entirely paved; rainwater butts of minimum volume 50L will be specified

Evidence for MAT 1 (Environmental Impact of Materials)
Mandatory requirements met: At least 3 elements rated A+ to D, 13 credits scored
Assumptions for MAT 1
The Green Guide to Specification will be used to assess all materials and any materials with a rating below B will be avoided

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))
5 credits scored
Assumptions for MAT 2
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))
2 credits scored
Assumptions for MAT 3
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for SUR 1 (Management of Surface Water Run-Off from Site)
Special Case: No change/decrease in impermeable area. Credits not available No discharge to watercourse(s) for rainfall depth up to 5mm.
Assumptions for SUR 1
No increase in surface water run-off; Green roof and rainwater butt to help with minimising watercourse runoff for first 5mm of rain.

Evidence for SUR 2 (Flood Risk)
Low flood risk - zone 1
Assumptions for SUR 2
Development in low flood risk zone

Evidence for WAS 1 (Household Waste Storage and Recycling Facilities)
Mandatory requirements met: Adequate storage of household waste with accessibility in line with checklist WAS 1. Local authority collection: Before collection sorting with appropriate internal storage of recyclable materials
Assumptions for WAS 1
Local Authority kerbside collection scheme that post-sorts recycling waste; internal bin min capacity 30L will be provided in a fixed and dedicated position in the kitchen.

Evidence for WAS 2 (Construction Site Waste Management)
Compliant site waste management plan containing benchmarks, procedures and commitments for the minimizing and diverting 50% waste from landfill in line with the criteria and with Checklist WAS 2a, 2b & 2c
Assumptions for WAS 2
Contractor's responsibility to develop and implement a compliant Site Waste Management Plan

Evidence for WAS 3 (Composting)
Individual compositing facility/facilities
Assumptions for WAS 3

Evidence for POL 1 (Global Warming Potential of Insulants)
All insulants have a GWP of less than 5
Assumptions for POL 1
All insulation will have a Global Warming Potential below 5 (applicable to the building fabric and services)

Evidence for POL 2 (NOx Emissions)
Credit(s) not sought
Assumptions for POL 2
A low-NOx boiler will be specified in each house.

Evidence for HEA 1 (Daylighting)
Kitchen: Average daylight factor of at least 2% Living room: Average daylight factor of at least 1.5% Dining room: Average daylight factor of at least 1.5% Home office: Average daylight factor of at least 1.5% All rooms (kitchen, living, dining and where applicable the home office) have 80% of the working plane with direct light from the sky
Assumptions for HEA 1
All areas to achieve required daylight factors and view of sky

Evidence for HEA 2 (Sound Insulation)
Accredited Part E sound testing has been undertaken Airborne 5dB higher, impact 5dB lower
Assumptions for HEA 2
5dB improvement over Building Regulations Part E

Evidence for HEA 3 (Private Space)
Credit not sought or no compliant space provided
Assumptions for HEA 3
Minimum 3m2 of private external space required

Evidence for HEA 4 (Lifetime Homes)
All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes
Assumptions for HEA 4
Lifetime Homes possible

Evidence for MAN 1 (Home User Guide)
All criteria inline with checklist MAN 1 Part 1 - Operational Issues will be met All criteria inline with checklist MAN 1 Part 2 - Site and Surroundings will be met

Assumptions for MAN 1
Compliant Home User Guide to be provided by the Developer/ Contractor in accordance with CSH requirements

Evidence for MAN 2 (Considerate Constructors Scheme)
Considerate constructors scheme: Significantly beyond best practise, a score of between 35 - 50, and at least a score of 7 in each section*
Assumptions for MAN 2
Contractor's responsibility to register under CCS and achieve performance Significantly Beyond Best Practice.

Evidence for MAN 3 (Construction Site Impacts)
Monitor, report and set targets for CO2 production or energy use from site activities Monitor, report and set targets for water consumption from site activities Adopt best practise policies in respects to air (dust) pollution from site activities Adopt best practise policies in respects to water (ground and surface) pollution 80% of timer reclaimed, re-used or responsibly sourced
Assumptions for MAN 3
Contractor's responsibility to comply with requirements

Evidence for MAN 4 (Security)
Secured by design section 2 compliant
Assumptions for MAN 4
The development can comply with Section 2 of Secured by Design (no formal certification required)

Evidence for ECO 1 (Ecological Value of Site)
Land of low ecological value, achieved through checklist ECO 1. Development site has been identified as low ecological value by a suitably qualified ecologist
Assumptions for ECO 1
Existing site of low ecological value

Evidence for ECO 2 (Ecological Enhancement)
Key recommendations and 30% additional recommendations by a suitably qualified ecologist
Assumptions for ECO 2
SQE to advise on improving the ecological value of the site by 4 species per hectare

Evidence for ECO 3 (Protection of Ecological Features)
Land of low ecological value as identified under ECO 1
Assumptions for ECO 3
Existing site of low ecological value

Evidence for ECO 4 (Change of Ecological Value of Site)
Neutral: Greater than -3 and less than or equal to +3
Assumptions for ECO 4
Improvement of 4 species per hectare in the ecological value of the site

Evidence for ECO 5 (Building Footprint)
Credit not sought
Assumptions for ECO 5
Two-storey house will not comply

Summary Score Sheet

Dwelling Type: 197 Grays Inn Road

Dwelling ID: 2

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	5.6	10	15.6	31	50.32	36.4	18.32
ENE 2 Fabric Energy Efficiency	0	9					
ENE 3 Energy Display Device	2	2					
ENE 4 Drying Space	1	1					
ENE 5 Energy Labelled White Goods	2	2					
ENE 6 External Lighting	2	2					
ENE 7 Low or Zero Carbon Energy Technologies	2	2					
ENE 8 Cycle Storage	0	2					
ENE 9 Home Office	1	1					
Water							
WAT 1 Internal Water Use	4	5	5	6	83.33	9	7.5
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MAT 2 Responsible Sourcing (Basic Building Elements)	5	6					
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Surface Water Run-off							
SUR 1 Management of Surface Water Run-Off from Site	1	2	3	4	75	2.2	1.65
SUR 2 Flood Risk	2	2					
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WAS 1 Household Waste Storage and Recycling Facilities	4	4	7	8	87.5	6.4	5.6
WAS 2 Construction Site Waste Management	2	3					
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Pollution							
POL 1 Global Warming Potential of Insulants	1	1	1	4	25	2.8	0.7
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ECO 2 Ecological Enhancement	1	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	0	2					
	Level Achieved: 4		Total Points Scored: 68.1				

Evidence for ENE 1 (Dwelling Emission Rate)
Improvement above Part L Building Regulations 2010. 5.6 credits allocated
Assumptions for ENE 1
Based on SAP 2010 calculations

Evidence for ENE 2 (Fabric Energy Efficiency)
Not Sought 0 credits allocated
Assumptions for ENE 2
Based on SAP 2010 calculations

Evidence for ENE 3 (Energy Display Device)
Correctly specified display device showing current primary heating fuel consumption data. Correctly specified display device showing current consumption data.
Assumptions for ENE 3

Evidence for ENE 4 (Drying Space)
Compliant external drying space
Assumptions for ENE 4
Internal drying space in room with adequate ventilationa nd window with minimum casement 0.5m2 External drying space fixed in bike store area. Minimum drying line length 4m.

Evidence for ENE 5 (Energy Labelled White Goods)
A+ rated fridge & freezers or fridge/freezer A rated washing machine and dishwasher, AND EITHER a tumble dryer (a washer-dryer would be an acceptable alternative to a standalone tumble dryer) with a B rating or where a tumble dryer is not provided, the EU Energy Efficiency Labelling Scheme Information will be provided.
Assumptions for ENE 5
A+ rated fridge/freezer, A-rated dishwasher/ washing machine, B-rated tumble-dryer

Evidence for ENE 6 (External Lighting)
Complaint space lighting, no security lighting installed
Assumptions for ENE 6
No security lighting will be provided other than statutory security lighting; any external space lighting will be energy-efficient.

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies)
Contribution of low or zero carbon technologies greater than or equal to 15%
Assumptions for ENE 7
PV-T to maximise available roof area 9 panels shown on drawings PV = 200 kW/panel = 1.8 kWp SHW = 1.37m2/panel = 12.33 m2 (gross area) Newform Energy PowerVolt unit assumed.

Evidence for ENE 8 (Cycle Storage)
Credit(s) not sought or no compliant cycle storage
Assumptions for ENE 8
Cycle storage not accessible other than through the dwelling, therefore not compliant for Code

Evidence for ENE 9 (Home Office)
Compliant home office
Assumptions for ENE 9
A desk and compliant services can be provided in the Master bedroom without impeding the intended use of the room as a bedroom. A minimum daylight factor of 1.5% is likely due to the large glazed area. Two double power sockets, a double phone line and a data point can also be provided.

Evidence for WAT 1 (Internal Water Use)
Internal water use less than or equal to 90 litres per person per day
Assumptions for WAT 1
Low flow taps; dual flush toilets; small capacity bath; water-efficient appliances

Evidence for WAT 2 (External Water Use)
Compliant individual rainwater collection system
Assumptions for WAT 2
The external area is entirely paved; rainwater butts of minimum volume 50L will be specified

Evidence for MAT 1 (Environmental Impact of Materials)
Mandatory requirements met: At least 3 elements rated A+ to D, 13 credits scored
Assumptions for MAT 1
The Green Guide to Specification will be used to assess all materials and any materials with a rating below B will be avoided

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))
5 credits scored
Assumptions for MAT 2
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))
2 credits scored
Assumptions for MAT 3
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for SUR 1 (Management of Surface Water Run-Off from Site)
Special Case: No change/decrease in impermeable area. Credits not available No discharge to watercourse(s) for rainfall depth up to 5mm.
Assumptions for SUR 1
No increase in surface water run-off; Green roof and rainwater butt to help with minimising watercourse runoff for first 5mm of rain.

Evidence for SUR 2 (Flood Risk)
Low flood risk - zone 1
Assumptions for SUR 2
Development in low flood risk zone

Evidence for WAS 1 (Household Waste Storage and Recycling Facilities)
Mandatory requirements met: Adequate storage of household waste with accessibility in line with checklist WAS 1. Local authority collection: Before collection sorting with appropriate internal storage of recyclable materials
Assumptions for WAS 1
Local Authority kerbside collection scheme that post-sorts recycling waste; internal bin min capacity 30L will be provided in a fixed and dedicated position in the kitchen.

Evidence for WAS 2 (Construction Site Waste Management)
Compliant site waste management plan containing benchmarks, procedures and commitments for the minimizing and diverting 50% waste from landfill in line with the criteria and with Checklist WAS 2a, 2b & 2c
Assumptions for WAS 2
Contractor's responsibility to develop and implement a compliant Site Waste Management Plan

Evidence for WAS 3 (Composting)
Individual compositing facility/facilities
Assumptions for WAS 3

Evidence for POL 1 (Global Warming Potential of Insulants)
All insulants have a GWP of less than 5
Assumptions for POL 1
All insulation will have a Global Warming Potential below 5 (applicable to the building fabric and services)

Evidence for POL 2 (NOx Emissions)
Credit(s) not sought
Assumptions for POL 2
A low-NOx boiler will be specified in each house.

Evidence for HEA 1 (Daylighting)
Kitchen: Average daylight factor of at least 2% Living room: Average daylight factor of at least 1.5% Dining room: Average daylight factor of at least 1.5% Home office: Average daylight factor of at least 1.5% All rooms (kitchen, living, dining and where applicable the home office) have 80% of the working plane with direct light from the sky
Assumptions for HEA 1
All areas to achieve required daylight factors and view of sky

Evidence for HEA 2 (Sound Insulation)
Accredited Part E sound testing has been undertaken Airborne 5dB higher, impact 5dB lower
Assumptions for HEA 2
5dB improvement over Building Regulations Part E

Evidence for HEA 3 (Private Space)
Credit not sought or no compliant space provided
Assumptions for HEA 3
Minimum 3m2 of private external space required

Evidence for HEA 4 (Lifetime Homes)
All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes
Assumptions for HEA 4
Lifetime Homes possible

Evidence for MAN 1 (Home User Guide)
All criteria inline with checklist MAN 1 Part 1 - Operational Issues will be met All criteria inline with checklist MAN 1 Part 2 - Site and Surroundings will be met

Assumptions for MAN 1
Compliant Home User Guide to be provided by the Developer/ Contractor in accordance with CSH requirements

Evidence for MAN 2 (Considerate Constructors Scheme)
Considerate constructors scheme: Significantly beyond best practise, a score of between 35 - 50, and at least a score of 7 in each section*
Assumptions for MAN 2
Contractor's responsibility to register under CCS and achieve performance Significantly Beyond Best Practice.

Evidence for MAN 3 (Construction Site Impacts)
Monitor, report and set targets for CO2 production or energy use from site activities Monitor, report and set targets for water consumption from site activities Adopt best practise policies in respects to air (dust) pollution from site activities Adopt best practise policies in respects to water (ground and surface) pollution 80% of timer reclaimed, re-used or responsibly sourced
Assumptions for MAN 3
Contractor's responsibility to comply with requirements

Evidence for MAN 4 (Security)
Secured by design section 2 compliant
Assumptions for MAN 4
The development can comply with Section 2 of Secured by Design (no formal certification required)

Evidence for ECO 1 (Ecological Value of Site)
Land of low ecological value, achieved through checklist ECO 1. Development site has been identified as low ecological value by a suitably qualified ecologist
Assumptions for ECO 1
Existing site of low ecological value

Evidence for ECO 2 (Ecological Enhancement)
Key recommendations and 30% additional recommendations by a suitably qualified ecologist
Assumptions for ECO 2
SQE to advise on improving the ecological value of the site by 4 species per hectare

Evidence for ECO 3 (Protection of Ecological Features)
Land of low ecological value as identified under ECO 1
Assumptions for ECO 3
Existing site of low ecological value

Evidence for ECO 4 (Change of Ecological Value of Site)
Neutral: Greater than -3 and less than or equal to +3
Assumptions for ECO 4
Improvement of 4 species per hectare in the ecological value of the site

Evidence for ECO 5 (Building Footprint)
Credit not sought
Assumptions for ECO 5
Two-storey house will not comply

Summary Score Sheet

Dwelling Type: 199 Grays Inn Road

Dwelling ID: 3

	Credit Score	Credits Available	Score Assessment Sub Total	Credits Available	%	Weighting Factor	Points Score
Energy & CO2 Emissions							
ENE 1 Dwelling Emission Rate	5.7	10	15.7	31	50.65	36.4	18.43
ENE 2 Fabric Energy Efficiency	0	9					
ENE 3 Energy Display Device	2	2					
ENE 4 Drying Space	1	1					
ENE 5 Energy Labelled White Goods	2	2					
ENE 6 External Lighting	2	2					
ENE 7 Low or Zero Carbon Energy Technologies	2	2					
ENE 8 Cycle Storage	0	2					
ENE 9 Home Office	1	1					
Water							
WAT 1 Internal Water Use	4	5	5	6	83.33	9	7.5
WAT 2 External Water Use	1	1					
Materials							
MAT 1 Environmental Impact of Materials	13	15	20	24	83.33	7.2	6
MAT 2 Responsible Sourcing (Basic Building Elements)	5	6					
MAT 3 Responsible Sourcing (Finishing Elements)	2	3					
Surface Water Run-off							
SUR 1 Management of Surface Water Run-Off from Site	1	2	3	4	75	2.2	1.65
SUR 2 Flood Risk	2	2					
Waste							
WAS 1 Household Waste Storage and Recycling Facilities	4	4	7	8	87.5	6.4	5.6
WAS 2 Construction Site Waste Management	2	3					
WAS 3 Composting	1	1					
Pollution							
POL 1 Global Warming Potential of Insulants	1	1	1	4	25	2.8	0.7
POL 2 NOx Emissions	0	3					
Health & Wellbeing							
HEA 1 Daylighting	3	3	10	12	83.33	14	11.67
HEA 2 Sound Insulation	3	4					
HEA 3 Private Space	0	1					
HEA 4 Lifetime Homes	4	4					
Management							
MAN 1 Home User Guide	3	3	9	9	100	10	10
MAN 2 Considerate Constructors Scheme	2	2					
MAN 3 Construction Site Impacts	2	2					
MAN 4 Security	2	2					
Ecology							
ECO 1 Ecological Value of Site	1	1	5	9	55.56	12	6.67
ECO 2 Ecological Enhancement	1	1					
ECO 3 Protection of Ecological Features	1	1					
ECO 4 Change of Ecological Value of Site	2	4					
ECO 5 Building Footprint	0	2					
	Level Achieved: 4		Total Points Scored: 68.22				

Evidence for ENE 1 (Dwelling Emission Rate)
Improvement above Part L Building Regulations 2010. 5.7 credits allocated
Assumptions for ENE 1
Based on SAP 2010 calculations

Evidence for ENE 2 (Fabric Energy Efficiency)
Not Sought 0 credits allocated
Assumptions for ENE 2
Based on SAP 2010 calculations

Evidence for ENE 3 (Energy Display Device)
Correctly specified display device showing current primary heating fuel consumption data. Correctly specified display device showing current consumption data.
Assumptions for ENE 3

Evidence for ENE 4 (Drying Space)
Compliant internal drying space
Assumptions for ENE 4
Internal drying space in room with adequate ventilationa nd window with minimum casement 0.5m2 External drying space fixed in bike store area. Minimum drying line length 4m.

Evidence for ENE 5 (Energy Labelled White Goods)
A+ rated fridge & freezers or fridge/freezer A rated washing machine and dishwasher, AND EITHER a tumble dryer (a washer-dryer would be an acceptable alternative to a standalone tumble dryer) with a B rating or where a tumble dryer is not provided, the EU Energy Efficiency Labelling Scheme Information will be provided.
Assumptions for ENE 5
A+ rated fridge/freezer, A-rated dishwasher/ washing machine, B-rated tumble-dryer

Evidence for ENE 6 (External Lighting)
Complaint space lighting, no security lighting installed
Assumptions for ENE 6
No security lighting will be provided other than statutory security lighting; any external space lighting will be energy-efficient.

Evidence for ENE 7 (Low or Zero Carbon Energy Technologies)
Contribution of low or zero carbon technologies greater than or equal to 15%
Assumptions for ENE 7
PV-T to maximise available roof area 9 panels shown on drawings PV = 200 kW/panel = 1.8 kWp SHW = 1.37m2/panel = 12.33 m2 (gross area) Newform Energy PowerVolt unit assumed.

Evidence for ENE 8 (Cycle Storage)
Credit(s) not sought or no compliant cycle storage
Assumptions for ENE 8
Cycle storage not accessible other than through the dwelling, therefore not compliant for Code

Evidence for ENE 9 (Home Office)
Compliant home office
Assumptions for ENE 9
A desk and compliant services can be provided in the Master bedroom without impeding the intended use of the room as a bedroom. A minimum daylight factor of 1.5% is likely due to the large glazed area. Two double power sockets, a double phone line and a data point can also be provided.

Evidence for WAT 1 (Internal Water Use)
Internal water use less than or equal to 90 litres per person per day
Assumptions for WAT 1
Low flow taps; dual flush toilets; small capacity bath; water-efficient appliances

Evidence for WAT 2 (External Water Use)
No individual garden space
Assumptions for WAT 2
No external area provided

Evidence for MAT 1 (Environmental Impact of Materials)
Mandatory requirements met: At least 3 elements rated A+ to D, 13 credits scored
Assumptions for MAT 1
The Green Guide to Specification will be used to assess all materials and any materials with a rating below B will be avoided

Evidence for MAT 2 (Responsible Sourcing (Basic Building Elements))
5 credits scored
Assumptions for MAT 2
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for MAT 3 (Responsible Sourcing (Finishing Elements))
2 credits scored
Assumptions for MAT 3
Contractor's responsibility - materials' suppliers will need to provide appropriate certification

Evidence for SUR 1 (Management of Surface Water Run-Off from Site)
Special Case: No change/decrease in impermeable area. Credits not available No discharge to watercourse(s) for rainfall depth up to 5mm.
Assumptions for SUR 1
No increase in surface water run-off; Green roof and rainwater butt to help with minimising watercourse runoff for first 5mm of rain.

Evidence for SUR 2 (Flood Risk)
Low flood risk - zone 1
Assumptions for SUR 2
Development in low flood risk zone

Evidence for WAS 1 (Household Waste Storage and Recycling Facilities)
Mandatory requirements met: Adequate storage of household waste with accessibility in line with checklist WAS 1. Local authority collection: Before collection sorting with appropriate internal storage of recyclable materials
Assumptions for WAS 1
Local Authority kerbside collection scheme that post-sorts recycling waste; internal bin min capacity 30L will be provided in a fixed and dedicated position in the kitchen.

Evidence for WAS 2 (Construction Site Waste Management)
Compliant site waste management plan containing benchmarks, procedures and commitments for the minimizing and diverting 50% waste from landfill in line with the criteria and with Checklist WAS 2a, 2b & 2c
Assumptions for WAS 2
Contractor's responsibility to develop and implement a compliant Site Waste Management Plan

Evidence for WAS 3 (Composting)
Individual compositing facility/facilities
Assumptions for WAS 3

Evidence for POL 1 (Global Warming Potential of Insulants)
All insulants have a GWP of less than 5
Assumptions for POL 1
All insulation will have a Global Warming Potential below 5 (applicable to the building fabric and services)

Evidence for POL 2 (NOx Emissions)
Credit(s) not sought
Assumptions for POL 2
A low-NOx boiler will be specified in each house.

Evidence for HEA 1 (Daylighting)
Kitchen: Average daylight factor of at least 2% Living room: Average daylight factor of at least 1.5% Dining room: Average daylight factor of at least 1.5% Home office: Average daylight factor of at least 1.5% All rooms (kitchen, living, dining and where applicable the home office) have 80% of the working plane with direct light from the sky
Assumptions for HEA 1
All areas to achieve required daylight factors and view of sky

Evidence for HEA 2 (Sound Insulation)
Accredited Part E sound testing has been undertaken Airborne 5dB higher, impact 5dB lower
Assumptions for HEA 2
5dB improvement over Building Regulations Part E

Evidence for HEA 3 (Private Space)
Credit not sought or no compliant space provided
Assumptions for HEA 3
Minimum 3m2 of private external space required

Evidence for HEA 4 (Lifetime Homes)
All criteria of Lifetime Homes in line with all 16 principals of Lifetime Homes
Assumptions for HEA 4
Lifetime Homes possible

Evidence for MAN 1 (Home User Guide)
All criteria inline with checklist MAN 1 Part 1 - Operational Issues will be met All criteria inline with checklist MAN 1 Part 2 - Site and Surroundings will be met

Assumptions for MAN 1
Compliant Home User Guide to be provided by the Developer/ Contractor in accordance with CSH requirements

Evidence for MAN 2 (Considerate Constructors Scheme)
Considerate constructors scheme: Significantly beyond best practise, a score of between 35 - 50, and at least a score of 7 in each section*
Assumptions for MAN 2
Contractor's responsibility to register under CCS and achieve performance Significantly Beyond Best Practice.

Evidence for MAN 3 (Construction Site Impacts)
Monitor, report and set targets for CO2 production or energy use from site activities Monitor, report and set targets for water consumption from site activities Adopt best practise policies in respects to air (dust) pollution from site activities Adopt best practise policies in respects to water (ground and surface) pollution 80% of timer reclaimed, re-used or responsibly sourced
Assumptions for MAN 3
Contractor's responsibility to comply with requirements

Evidence for MAN 4 (Security)
Secured by design section 2 compliant
Assumptions for MAN 4
The development can comply with Section 2 of Secured by Design (no formal certification required)

Evidence for ECO 1 (Ecological Value of Site)
Land of low ecological value, achieved through checklist ECO 1. Development site has been identified as low ecological value by a suitably qualified ecologist
Assumptions for ECO 1
Existing site of low ecological value

Evidence for ECO 2 (Ecological Enhancement)
Key recommendations and 30% additional recommendations by a suitably qualified ecologist
Assumptions for ECO 2
SQE to advise on improving the ecological value of the site by 4 species per hectare

Evidence for ECO 3 (Protection of Ecological Features)
Land of low ecological value as identified under ECO 1
Assumptions for ECO 3
Existing site of low ecological value

Evidence for ECO 4 (Change of Ecological Value of Site)
Neutral: Greater than -3 and less than or equal to +3
Assumptions for ECO 4
Improvement of 4 species per hectare in the ecological value of the site

Evidence for ECO 5 (Building Footprint)
Credit not sought
Assumptions for ECO 5
Two-storey house will not comply

Assessor Declaration

I Marietta Vafea, can confirm that I have compiled this report to the best of my ability, I have based all findings on the information that is referenced within this report, and that this report is appropriate for the registered site.

To the best of my knowledge all the information contained within this report is correct and accurate. I have within my possession all the reference material that relates to this report, which is available for inspection by the client, the clients representative or Stroma Certification for Quality Assurance monitoring.

Signed:

Marietta Vafea
McBains Cooper
04 August 2014

Information about Code for Sustainable Homes

The Code for Sustainable Homes (the Code) is an environmental assessment method for rating and certifying the performance of new homes. It is a national standard for use in the design and construction of new homes with a view to encouraging continuous improvement in sustainable home building. The Code is based on EcoHomes©.

It was launched in December 2006 with the publication of 'Code for Sustainable Homes: A stepchange in sustainable home building practice' (Communities and Local Government, 2006), and became operational in England from April 2007.

The Code for Sustainable Homes covers nine categories of sustainable design. Each category includes a number of environmental issues. Each issue is a source of impact on the environment which can be assessed against a performance target and awarded one or more credits. Performance targets are more demanding than the minimum standards needed to satisfy Building Regulations or other legislation. They represent good or best practice, are technically feasible, and can be delivered by the building industry. The issues and categories are as follows:

- Energy & CO2 Emissions
  - Dwelling Emission Rate
  - Building Fabric
  - Internal Lighting
  - Drying Space
  - Energy Labelled White Goods
  - External Lighting
  - Low or Zero Carbon Technologies
  - Cycle Storage
  - Home Office
- Water
  - Internal Water Use
  - External Water Use
- Materials
  - Environmental Impact of Materials
  - Responsible Sourcing of Materials - Basic Building Elements
  - Responsible Sourcing of Materials - Finishing Elements
- Surface Water Run-off
  - Management of Surface Water Run-off from the Development
  - Flood Risk
- Waste
  - Storage of Non-Recyclable Waste and Recyclable Household Waste
  - Construction Site Waste Management
  - Composting
- Pollution
  - Global Warming Potential of Insulants
  - NOx Emissions

- Health & Wellbeing
  - Daylighting
  - Sound Insulation
  - Private Space
  - Lifetime Homes
- Management
  - Home User Guide
  - Considerate Constructors Scheme
  - Construction Site Impacts
  - Security
- Ecology
  - Ecological Value of Site
  - Ecological Enhancement
  - Protection of Ecological Features
  - Change in Ecological Value of Site
  - Building Footprint

The Code assigns one or more performance requirements (assessment criteria) to all of the above environmental issues. When each performance requirement is achieved a credit is awarded (with the exception of the four mandatory requirements which have no associated credits). The total number of credits available to a category is the sum of credits available for all the issues within it.

Mandatory minimum performance standards are set for some issues. For four of these, a single mandatory requirement is set which must be met, whatever Code level rating is sought. Credits are not awarded for these issues. Confirmation that the performance requirements are met for all four is a minimum entry requirement for achieving a level 1 rating. The four un-credited issues are:

- Environmental Impacts of Materials
- Management of Surface Water Run-off from Developments
- Storage of Non-Recyclable Waste and Recyclable Household Waste
- Construction Site Waste Management

If the mandatory minimum performance standard is met for the four un-credited issues, four further mandatory issues need to be considered. These are agreed to be such important issues that separate Government policies are being pursued to mitigate their effects. For two of these, credits are awarded for every level of achievement recognised within the Code, and minimum mandatory standards increase with increasing rating levels.

The two issues with increasing mandatory minimum standards are:

- Dwelling Emission Rate
- Indoor Water Use

For one issue a mandatory requirement at Level 5 or 6:

- Fabric Energy Efficiency

The final issue with a mandatory requirement for Level 6 of the Code is:

- Lifetime Homes

Further credits are available on a free-choice or tradable basis from other issues so that the developer may choose how to add performance credits (converted through weighting to percentage points) achieve the rating which they are aiming for.

The environmental impact categories within the Code are not of equal importance. Their relative value is conveyed by applying a consensus-based environmental weighting factor (see details below) to the sum of all the raw credit scores in a category, resulting in a score expressed as percentage points. The points for each category add up to 100.

The weighting factors used in the Code have been derived from extensive studies involving a wide range of stakeholders who were asked to rank (in order of importance) a range of environmental impacts. Stakeholders included international experts and industry representatives.

It is also important to note that achieving a high performance in one category of environmental impact can sometimes result in a lower level of performance for another. For instance, if biomass is used to meet heating demands, credits will be available for performance in respect of energy supplied from a renewable source, but credits cannot be awarded for low NOX emission. It is therefore impossible to achieve a total percentage points score of 100.

The Code uses a rating system of one to six stars. A star is awarded for each level achieved. Where an assessment has taken place by where no rating is achieved, the certificate states that zero stars have been awarded:

Code Levels	Total Points Score (Equal to or Greater Than)
Level 1 ★☆☆☆☆☆	**36 Points**
Level 2 ★★☆☆☆☆	**48 Points**
Level 3 ★★★☆☆☆	**57 Points**
Level 4 ★★★★☆☆	**68 Points**
Level 5 ★★★★★☆	**84 Points**
Level 6 ★★★★★★	**90 Points**

Formal assessment of dwellings using the Code for Sustainable Homes may only be carried out using Certified assessors, who are qualified ‘competent persons’ for the purpose of carrying out Code assessments.

Energy & CO2 Emissions
ENE 1: Dwelling Emission Rate **Available Credits:**10 **Aim:**To limit CO2 emissions arising from the operation of a dwelling and its services in line with current policy on the future direction of regulations.
ENE 2: Fabric Energy Efficiency **Available Credits:**9 **Aim:**To improve fabric energy efficiency performance thus future-proofing reductions in CO2 for the life of the dwelling.
ENE 3: Energy Display Device **Available Credits:**2 **Aim:**To promote the specification of equipment to display energy consumption data, thus empowering dwelling occupants to reduce energy use.
ENE 4: Drying Space **Available Credits:**1 **Aim:**To promote a reduced energy means of drying clothes.
ENE 5: Energy Labelled White Goods **Available Credits:**2 **Aim:**To promote the provision or purchase of energy efficient white goods, thus reducing the CO2 emissions from appliance use in the dwelling.
ENE 6: External Lighting **Available Credits:**2 **Aim:**To promote the provision of energy efficient external lighting, thus reducing CO2 emissions associated with the dwelling.
ENE 7: Low or Zero Carbon Technologies **Available Credits:**2 **Aim:**To limit CO2 emissions and running costs arising from the operation of a dwelling and its services by encouraging the specification of low and zero carbon energy sources to supply a significant proportion of energy demand.
ENE 8: Cycle Storage **Available Credits:**2 **Aim:**To promote the wider use of bicycles as transport by providing adequate and secure cycle storage facilities, thus reducing the need for short car journeys and the associated CO2 emissions.
ENE 9: Home Office **Available Credits:**1 **Aim:**To promote working from home by providing occupants with the necessary space and services thus reducing the need to commute.

Water
WAT 1: Indoor Water Use **Available Credits:**5 **Aim:**To reduce the consumption of potable water in the home from all sources, including borehole well water, through the use of water efficient fittings, appliances and water recycling systems.
WAT 2: External Water Use **Available Credits:**1 **Aim:**To promote the recycling of rainwater and reduce the amount of mains potable water used for external water uses.

Materials
MAT 1: Environmental Impact of Materials **Available Credits:**15 **Aim:**To specify materials with lower environmental impacts over their life-cycle.
MAT 2: Responsible Sourcing of Materials - Basic Building Elements **Available Credits:**6 **Aim:**To promote the specification of responsibly sourced materials for the basic building elements.
MAT 3: Responsible Sourcing of Materials - Finishing Elements **Available Credits:**3 **Aim:**To promote the specification of responsibly sourced materials for the finishing elements.

Surface Water Run-off
SUR 1: Management of Surface Water Run-off from developments **Available Credits:**2 **Aim:**To design surface water drainage for housing developments which avoid, reduce and delay the discharge of rainfall run-off to watercourses and public sewers using SuDS techniques. This will protect receiving waters from pollution and minimise the risk of flooding and other environmental damage in watercourses.
SUR 2: Flood Risk **Available Credits:**2 **Aim:**To promote housing development in low flood risk areas, or to take measures to reduce the impact of flooding on houses built in areas with a medium or high risk of flooding.

Waste
WAS 1: Storage of non-recyclable waste and recyclable household waste **Available Credits:**4 **Aim:**To promote resource efficiency via the effective and appropriate management of construction site waste.
WAS 2: Construction Site Waste Management **Available Credits:**3 **Aim:**To promote resource efficiency via the effective and appropriate management of construction site waste.
WAS 3: Composting **Available Credits:**1 **Aim:**To promote the provision of compost facilities to reduce the amount of household waste send to landfill.

Pollution
POL 1: Global Warming Potential of Insulants **Available Credits:**1 **Aim:**To promote the reduction of emissions of gases with high GWP associated with the manufacture, installation, use and disposal of foamed thermal and acoustic insulating materials.
POL 2:NOx Emissions **Available Credits:**3 **Aim:**To promote the reduction of nitrogen oxide (NOX) emissions into the atmosphere.

Health & Wellbeing
HEA 1: Daylighting **Available Credits:**3 **Aim:**To promote good daylighting and thereby improve quality of life and reduce the need for energy to light the home.
HEA 2: Sound Insulation **Available Credits:**4 **Aim:**To promote the provision of improved sound insulation to reduce the likelihood of noise complaints from neighbours.
HEA 3: Private Space **Available Credits:**1 **Aim:**To improve quality of life by promoting the provision of an inclusive outdoor space which is at least partially private.
HEA 4: Lifetime Homes **Available Credits:**4 **Aim:**To encourage the construction of homes that are accessible and easily adaptable to meet the changing needs of current and future occupants.

Management
MAN 1: Home User Guide **Available Credits:**3 **Aim:**To promote the provision of guidance enabling occupants to understand and operate their home efficiently and make the best use of local facilities.
MAN 2: Considerate Constructors Scheme **Available Credits:**3 **Aim:**To promote the environmentally and socially considerate, and accountable management of construction sites.
MAN 3: Construction Site Impacts **Available Credits:**2 **Aim:**To promote construction sites managed in a manner that mitigates environmental impacts.
MAN 4: Security **Available Credits:**2 **Aim:**To promote the design of developments where people feel safe and secure- where crime and disorder, or the fear of crime, does not undermine quality of life or community cohesion.

Ecology
ECO 1: Ecological value of site **Available Credits:**1 **Aim:**To promote development on land that already has a limited value to wildlife, and discourage the development of ecologically valuable sites.
ECO 2: Ecological enhancement **Available Credits:**1 **Aim:**To enhance the ecological value of a site.
ECO 3: Protection of ecological features **Available Credits:**1 **Aim:**To promote the protection of existing ecological features from substantial damage during the clearing of the site and the completion of construction works.
ECO 4: Change in ecological value of site **Available Credits:**4 **Aim:**To minimise reductions and promote an improvement in ecological value.
ECO 5: Building footprint **Available Credits:**2 **Aim:**To promote the most efficient use of a building’s footprint by ensuring that land and material use is optimised across the development.

Disclaimer

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APPENDIX B

Indicative Energy Strategy

195-199 Grays Inn Road

SAP Assumptions Rev 2

	195	197	199	NOTES
Building Fabric				
Ground floor				
Thickness	350 mm overall	350 mm overall	350 mm overall	
Insulation	150 mm Thermafloor TF70	150 mm Thermafloor TF70	150 mm Thermafloor TF70	
U-value	0.14 W/m2K	0.14 W/m2K	0.14 W/m2K	
Retained External walls				
Thickness	502.5 mm overall	502.5 mm overall	502.5 mm overall	
Insulation	150 mm Thermalwall TW53	150 mm Thermalwall TW53	150 mm Thermalwall TW53	
U-value	0.16 W/m2K	0.16 W/m2K	0.16 W/m2K	
New External walls				
Thickness	432.5 mm overall	432.5 mm overall	432.5 mm overall	
Insulation	320 mm mineral wool quilt	320 mm mineral wool quilt	320 mm mineral wool quilt	
U-value	0.14 W/m2K	0.14 W/m2K	0.14 W/m2K	
Roof				
Thickness	465.5 mm overall	465.5 mm overall	465.5 mm overall	
Insulation	450 mm mineral wool quilt	450 mm mineral wool quilt	450 mm mineral wool quilt	
U-value	0.11 W/m2K	0.11 W/m2K	0.11 W/m2K	
Thermal bridging (y)	Default (0.15)	Default (0.15)	Default (0.15)	
Window U-value	1.8 W/m2K	1.8 W/m2K	1.8 W/m2K	
Rooflight U-value	1.2 W/m2K	1.2 W/m2K	1.2 W/m2K	
Ventilation	Natural ventilation with extract in kitchen and bathroom			
Air permeability	3 m3/m2/hr	3 m3/m2/hr	3 m3/m2/hr	
Heating and Cooling				
Air Source Heat Pump	Default (250% efficent)	Default (250% efficent)	Default (250% efficent)	
Time and temperature zone control	Present	Present	Present	
Cooling area	None	None	None	
Water heating	From main heating system			
Cylinder	200 L	200 L	200 L	*To include 69 L dedicated solar store*
Factory insulation	150 mm	150 mm	150 mm	
Cylinder	In heated space	In heated space	In heated space	
Cylinderstat	Present	Present	Present	
Primary pipework	Insulated	Insulated	Insulated	
Load Compensator	Enhanced	Enhanced	Enhanced	
Renewables				
PV-T area (PV and Solar Thermal)	16.44 m2	12.33 m2	12.33 m2	*PV-T panels to maximise available roof area;*
PV Output	2.4 kWp	1.8 kWp	1.8 kWp	*Panels to be placed horizontally; assumed 20-60%*
ASHP	As above	As above	As above	*overshading*
Contribution	>15%	>15%	>15%	
Other				
Energy efficient lighting	100%	100%	100%	

APPENDIX C

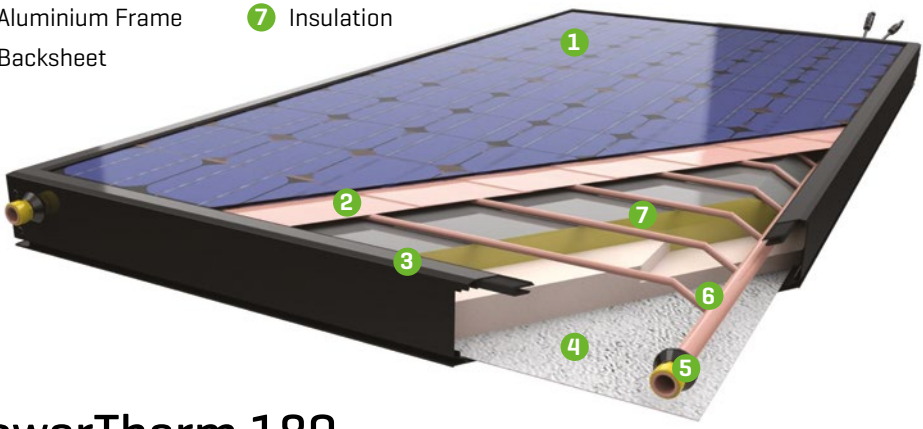
Newform Energy PowerVolt Unit Datasheet (PV-T)

Newform Energy™
Redefining Renewables

Newform Energy
PV-T Data Sheet

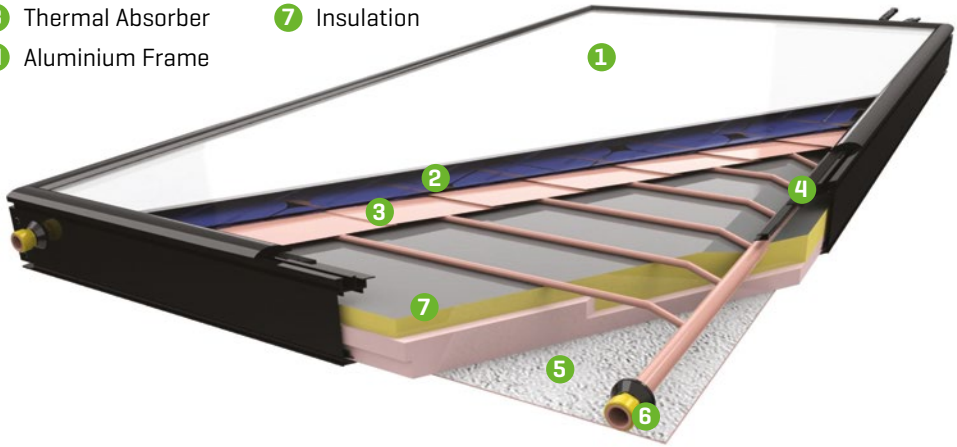
PowerVolt 200

1. PV Module
2. Thermal Absorber
3. Aluminium Frame
4. Backsheet
5. 3/4" Outlet
6. Copper Pipes
7. Insulation



PowerTherm 180

1. Glass
2. PV Module
3. Thermal Absorber
4. Aluminium Frame
5. Backsheet
6. 3/4" Outlet
7. Insulation



Newform Energy™
Redefining Renewables

Newform Energy
PV-T Data Sheet

Data	HYBRID COLLECTORS **PowerVolt** W 200 / 460	HYBRID COLLECTORS **PowerTherm** M 180 / 680
Dimensions	828 x 1655 x 90mm	860 x 1660 x 105mm
Weight	24.4kg	34.4kg
Liquid Content	1.2Lt	1.2Lt
Cell Efficiency [STC]	17.5%	17.5%
Module Efficiency [STC]	15.6%	12.5%
Ratio [e/th] at 60C	1:1	1:3
Absorber Panel	Mono-Crystalline	Mono-Crystalline
Number of Cells	72	72
Cell Dimensions	125 x 125mm	125 x 125mm
WP [W] Nominal Power	200	180
Imp [A] Nominal Current	5.43	4.98
Isc [V] Short Circuit Current	5.67	5.4
Vmp [V] Nominal Current	36.8	36.16
Voc [V] Ope Circuit Voltage	46.43	44.64
Heat Exchanger	Copper Strip	Copper Strip
Internal Piping	Copper	Copper
Flow [L/H]	65	65
Test Pressure Bar	20	20
Max Operating Pressure Bar	10	10
Cover Glass Hardened	Low Iron Tempered Glass	Module Glass 4mm
Sealing	EPDM & Silicon	EPDM & Silicon
Maximum Temperature [STC]	101^{0}C	134^{0}C
Housing	Aluminium	Aluminium
Rear Side	Aluminium	Aluminium
Product Warranty	10yrs	10yrs
Quality Guarantee	90% < 10yrs	90% < 10yrs
	80% < 20yrs	80% < 20yrs

APPENDIX D

Indicative Water Strategy

WAT 1 - Calculator
Code for Sustainable Homes

Site Information	
Site Name	195-199 Grays Inn Road
Reg Number	
Street 1	195-199 Grays Inn Road
Street 2	
Area	
Town or City	Camden
Post Code	WC1X 8RJ

Installation Type	Average Capacity/Flow Rate	Litres/Person/Day
Single Flush WC's	0	0
Dual Flush WC's	5.34	23.6
All WC's	5.34	23.6
Kitchen/Utility Room Taps	4	12.12
Other Taps	4	7.9
Baths	0	0
Showers	6	33.6
Dishwashers	1.25	4.5
Washing Machines	8.17	17.16
Water Softener		
Waste Disposal Unit	Not Present	0
Total Water Use	98.88 Litres/Person/Day	
Contribution from Rain Water	0 Litres/Person/Day	
Contribution from Grey Water	0 Litres/Person/Day	
Normalisation Factor	0.91 Litres/Person/Day	

Code for Sustainable Homes - Consumptions & Credits	
Water Consumption (Code for Sustainable Homes)	90 Litres/Person/Day
Credits Scored	4

Building Regulations 2000 AD Part G (2010 Ed) - Consumption	
External Water Use	5 Litres/Person/Day
Water Consumption (Building Regulation 17 K)	95 Litres/Person/Day

Kitchen/Utility Room Taps						
Description	Flow Rate	Qty	Total Water	Grey Water	Rain Water	Net Water
Kitchen taps	4	1	4	0	0	4
Total Litres/Person/Day Gross						12.12
Total Litres/Person/Day Gross						12.12

Other Taps						
Description	Flow Rate	Qty	Total Water	Grey Water	Rain Water	Net Water
Bathroom taps	4	1	4	0	0	4
Total Litres/Person/Day Gross						7.9
Total Litres/Person/Day Gross						7.9

Baths						
Description	Capacity	Qty	Total Water	Grey Water	Rain Water	Net Water
Total Litres/Person/Day Gross						0
Total Litres/Person/Day Gross						0

Showers						
Description	Flow Rate	Qty	Total Water	Grey Water	Rain Water	Net Water
Showers	6	1	6	0	0	6
Total Litres/Person/Day Gross						33.6
Total Litres/Person/Day Gross						33.6

Washing Machines						
Description	L/Kg Dry Load	Qty	Total Water	Grey Water	Rain Water	Net Water
Typical washing machine	8.17	1	8.17			8.17
Total Litres/Person/Day Gross						17.16
Total Litres/Person/Day Gross						17.16

Dishwashers						
Description	L/Place Setting	Qty	Total Water	Grey Water	Rain Water	Net Water
Typical dishwasher	1.25	1	1.25	0	0	1.25
Total Litres/Person/Day Gross						4.5
Total Litres/Person/Day Gross						4.5

Single Flush WC's						
Description	Flush Volume	Qty	Total Water	Grey Water	Rain Water	Net Water
Total Litres/Person/Day Gross						0
Total Litres/Person/Day Gross						0

Dual Flush WC's						
Description	Flush Vol (P/F)	Qty	Total Water	Grey Water	Rain Water	Net Water
Dual flush toilets	6/4	1	5.34			0
Total Litres/Person/Day Gross						23.6
Total Litres/Person/Day Gross						23.6

Ion Exchange Water Softener	
% of Total Capacity Used Per	
Water Consumed Per Regeneration	
Average Regeneration Cycles Per Day	
Occupants Served by the System	
Water Consumed Beyond 4%	
Water Consumed Beyond 4%	