

8.2 APPENDIX

Appendix A

054-KCL-MZ-XX-CA-M-0001 – Water Efficiency Calculations

Appendix B

054-KCL-MZ-XX-RP-M-0003 – TM59 Overheating Calculations

Appendix C

054-LRW-EX-00-DR-C-1501 – Proposed Foul & Surface Water Drainage Layout (1 of 2)

Appendix D

054-LRW-EX-00-DR-C-1502- Proposed Foul & Surface Water Drainage Layout (2 of 2)

Appendix E

Preliminary Ecological Appraisal

Appendix F

Biodiversity Mitigation and Enhancement Plan

9.0 APPENDIX A – WATER EFFICIENCY CALCULATIONS

Project Ref: Blackwell Farm Road
Revision: P01
Title: Approved Document Part G - Water Efficiency Calculator

Blackwell Farm Road - Unit 1

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 2

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 3

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 4

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 5

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 6

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 7

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

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Blackwell Farm Road - Unit 8

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

Project Ref: Blackwell Farm Road
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Title: Approved Document Part G - Water Efficiency Calculator

Blackwell Farm Road - Unit 9

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2

Project Ref: Blackwell Farm Road
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Blackwell Farm Road - Unit 10

Installation Type	Unit of Measure	Capacity/flow rate	Use Factor	Fixed Use (litres/person/day)	Litres/person/day
WC (single flush)	Flush volume (litres)		4.42	0.00	0.00
WC (dual flush)	Full flush volume (litres)		1.46	0.00	0.00
	Part flush volume (litres)		2.96	0.00	0.00
WCs (multiple fittings)	Average effective flushing volume (litres)	3.06	4.42	0.00	13.53
Taps (excluding kitchen/utility room taps)	Flow rate (litres/minute)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow (litres)	130.00	0.11	0.00	14.30
Shower (where bath also present)	Flow rate (litres/minute)	8.00	4.37	0.00	34.96
Bath only	Capacity to overflow (litres)		0.50	0.00	0.00
Shower only	Flow rate (litres/minute)		5.60	0.00	0.00
Kitchen/utility room sink taps	Flow rate (litres/minute)		0.44	10.36	10.36
Washing machine	Litres/kg dry load	6.29	2.10	0.00	13.21
Dishwasher	Litres/place setting		3.60	0.00	0.00
Waste disposal unit	Litres/use		3.08	0.00	0.00
Water softener	Litres/person/day		1.00	0.00	0.00
Total calculated use:					95.84
Contribution from greywater (litres/person/day):					0.00
Contribution from rainwater (litres/person/day):					0.00
Normalisation factor:					0.91
Total water consumption:					87.22
External water use:					5.00
Total water consumption:					92.2