

Community Forest Garden

– Re-thinking an existing design –



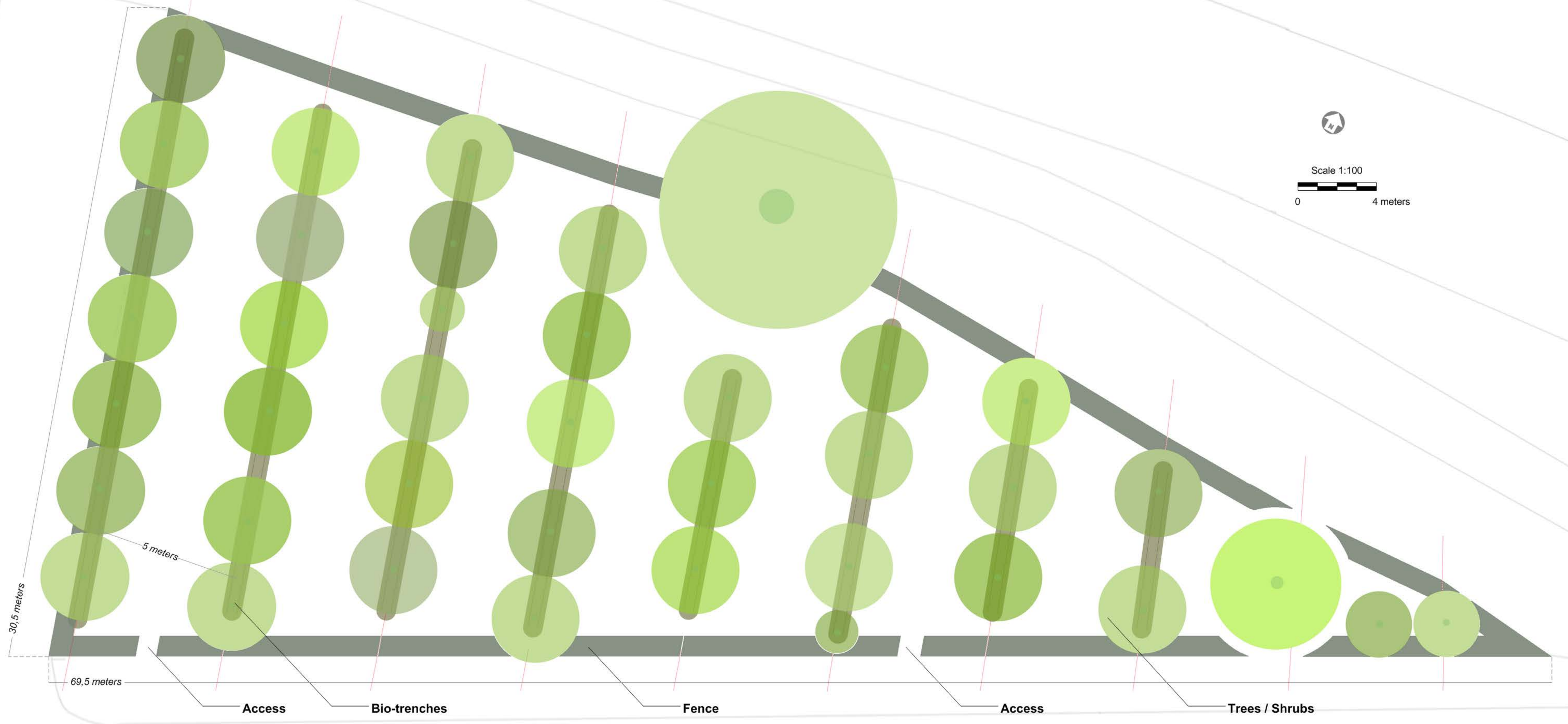
Benjamin van Ooij
Manchester, May 2013
Biospheric Project

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Basemap

Map of the Forest Garden



Biospheric Project - Building

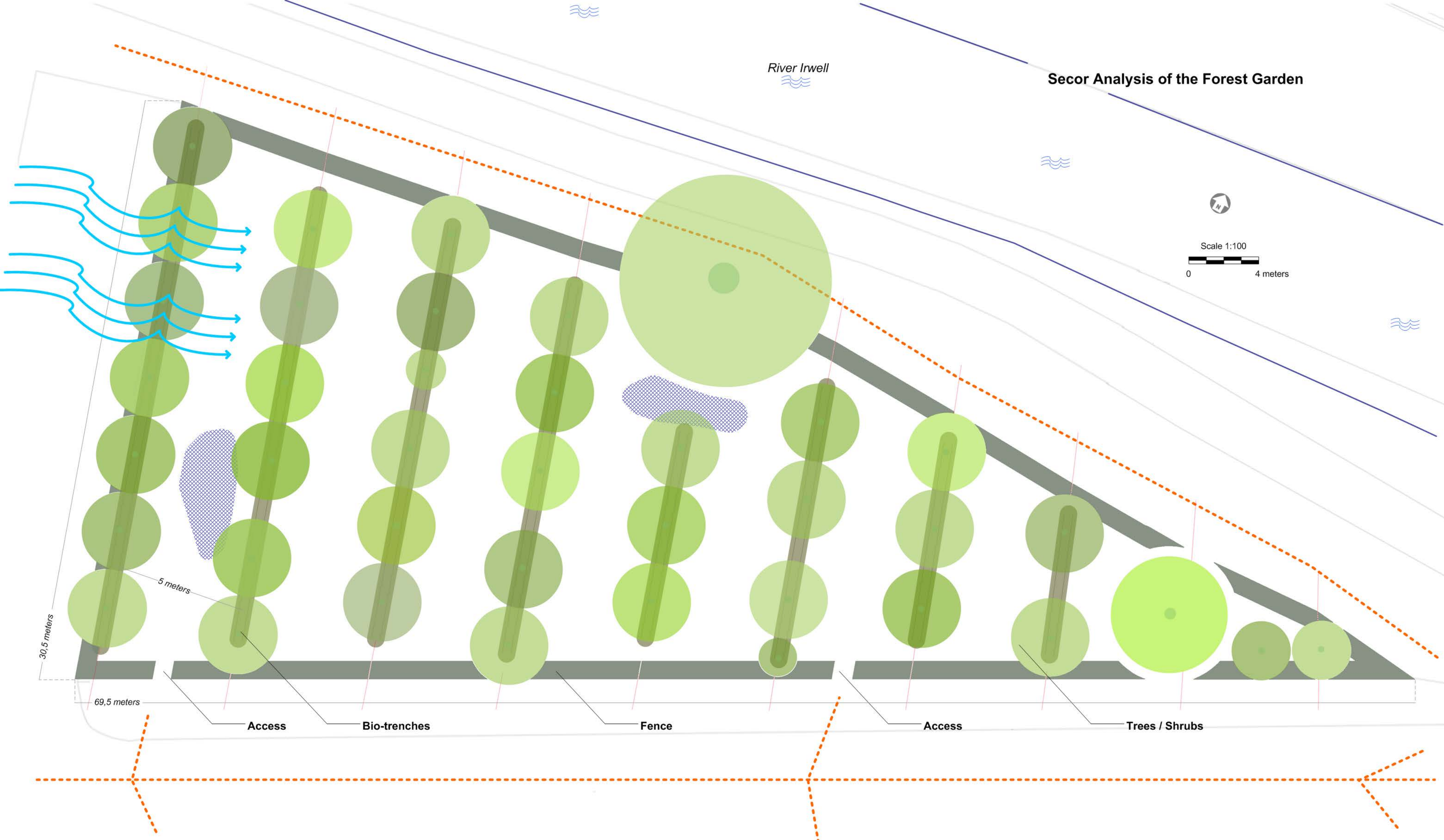


Sector Analysis

Secor Analysis of the Forest Garden

River Irwell

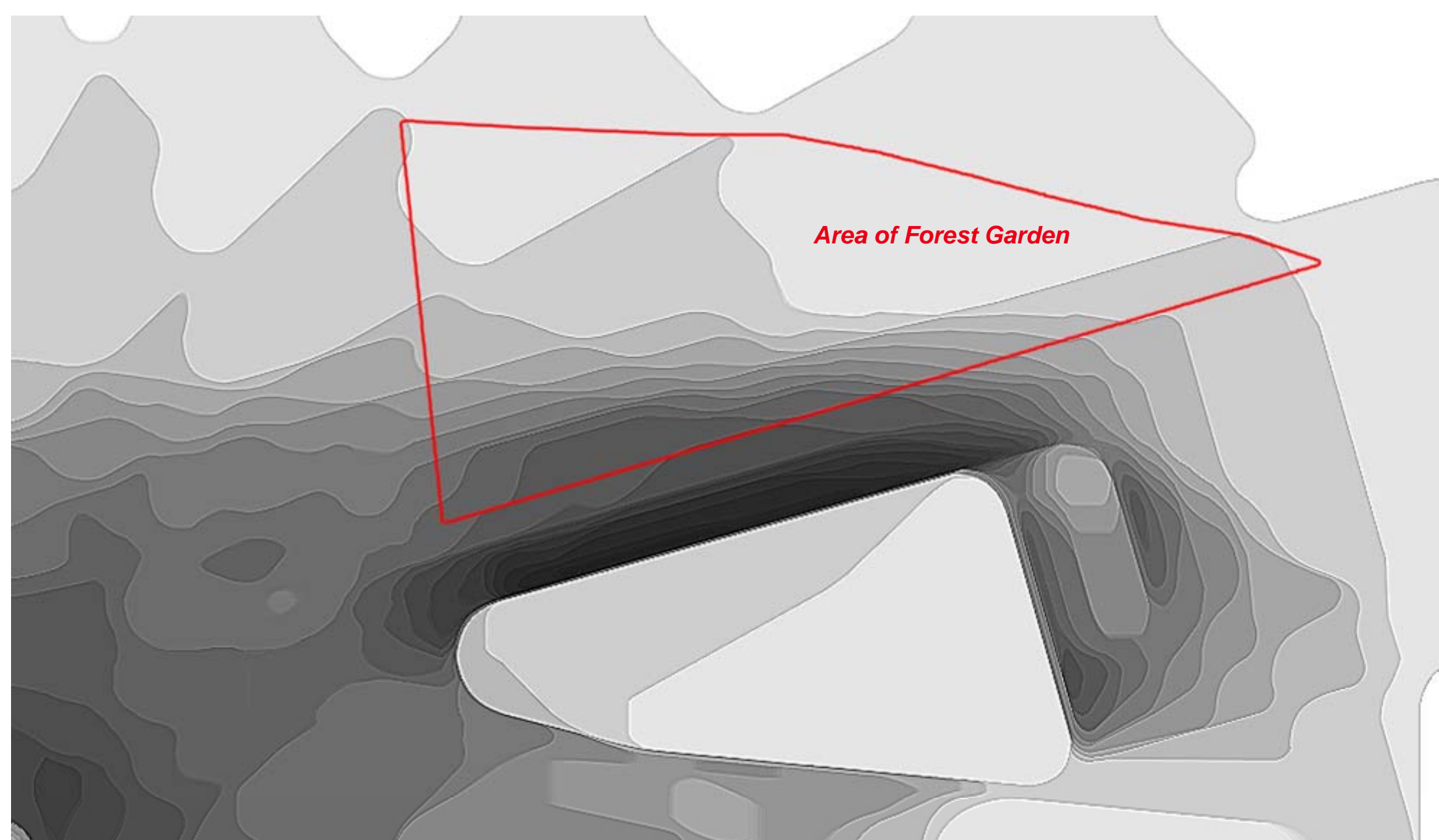
Scale 1:100



Biospheric Project - Building

Legend

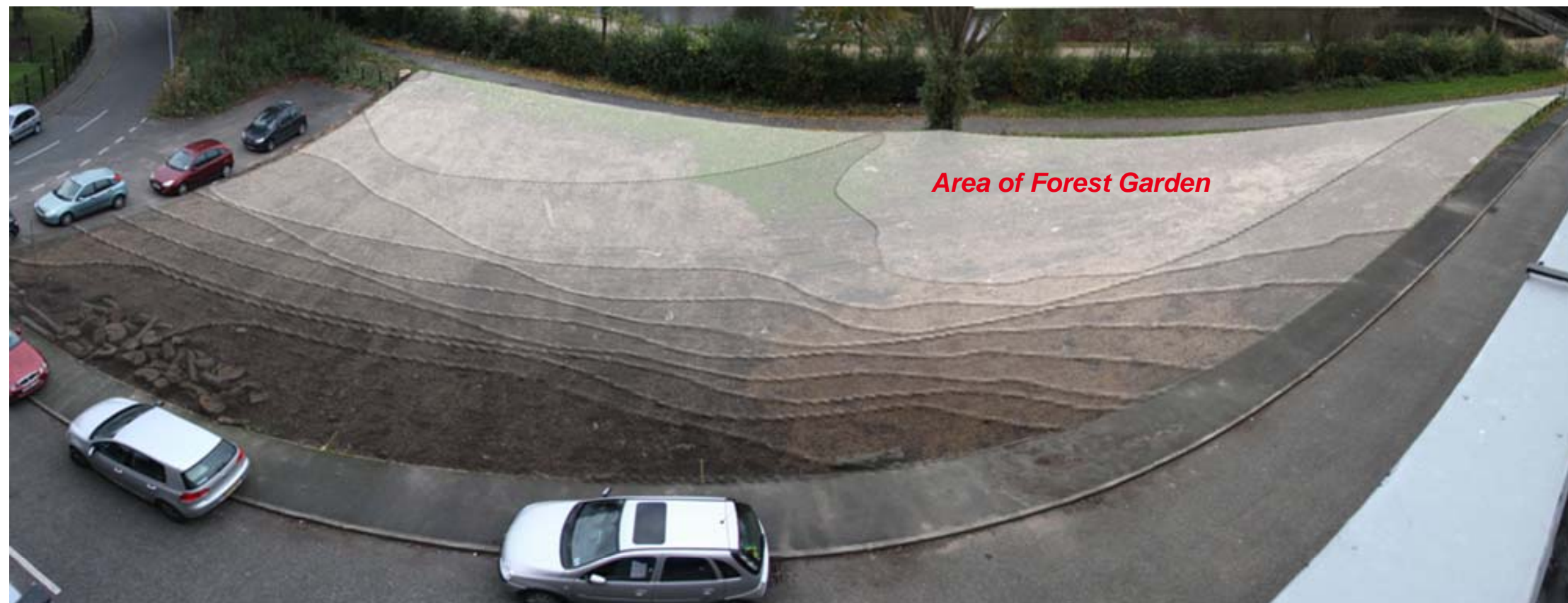
- Strong winds
- Flow of people
- Bio-trench
- Some water logging
- Trees
- River



Area of Forest Garden

Shadow map of the Community Forest Garden

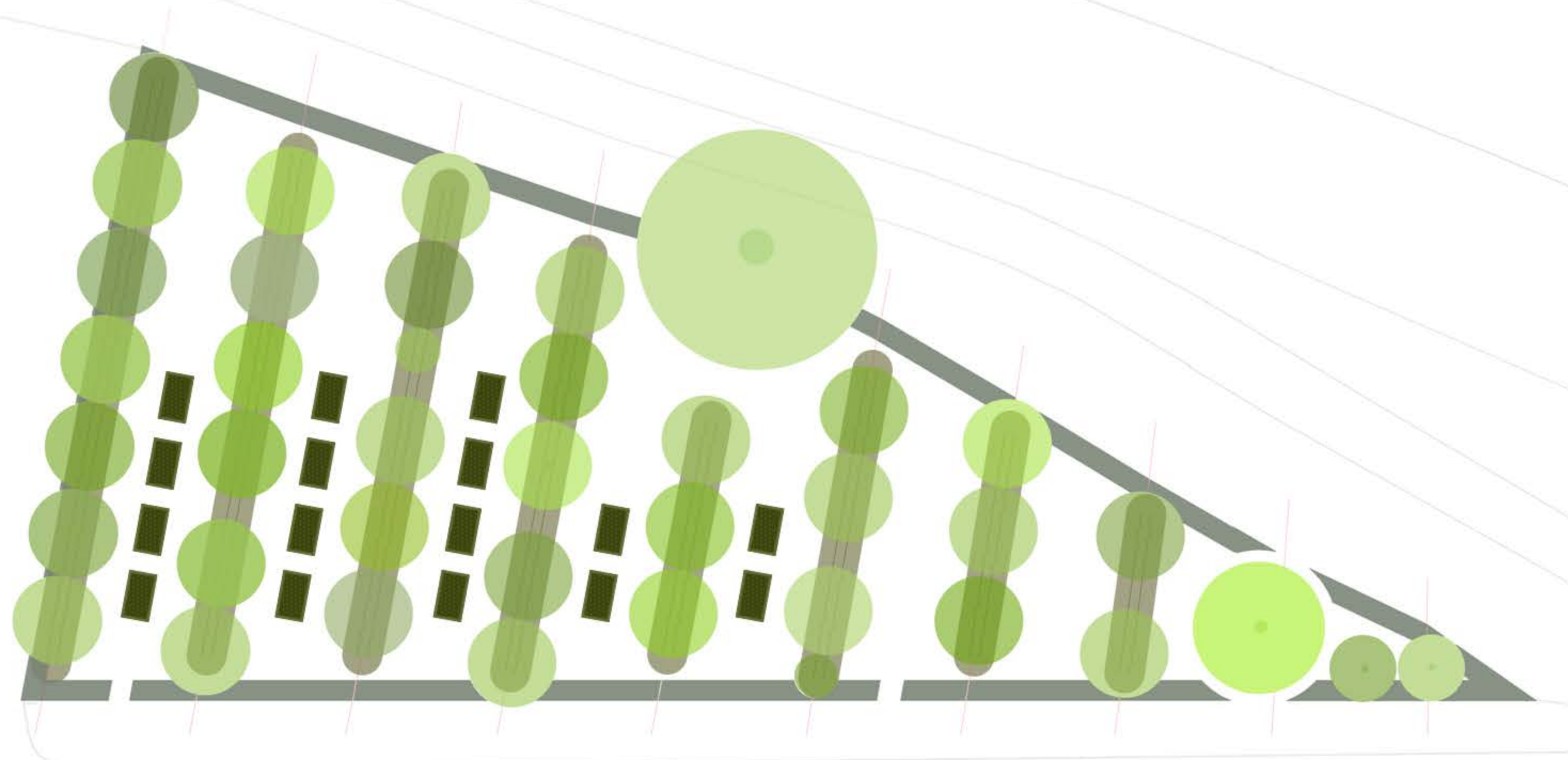
*Solar exposure is influenced by surrounding buildings.
The darker the area, the less solar exposure.*



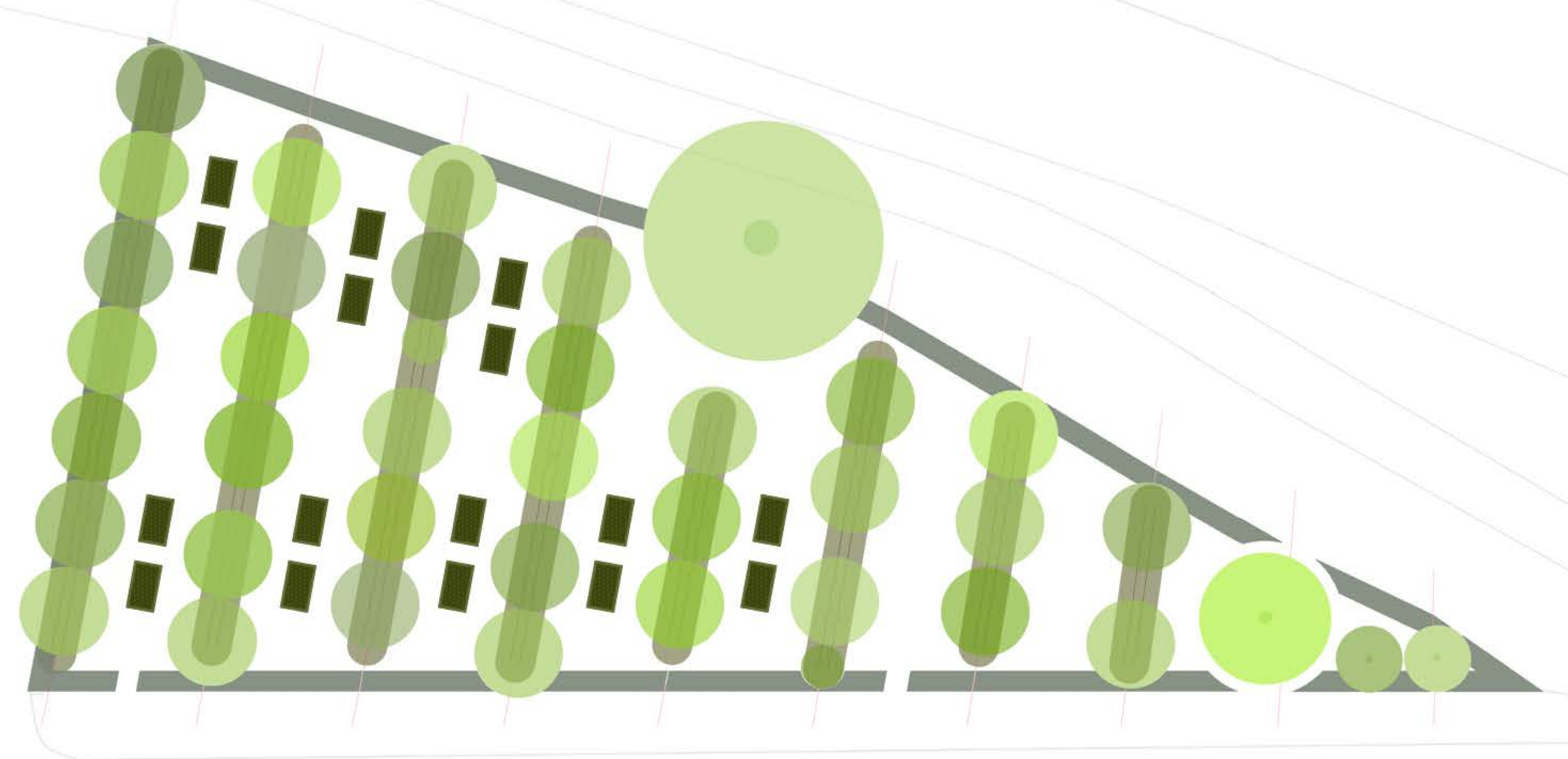
Shadow map - top view overlay

*Solar exposure is influenced by surrounding buildings.
The darker the area, the less solar exposure.*

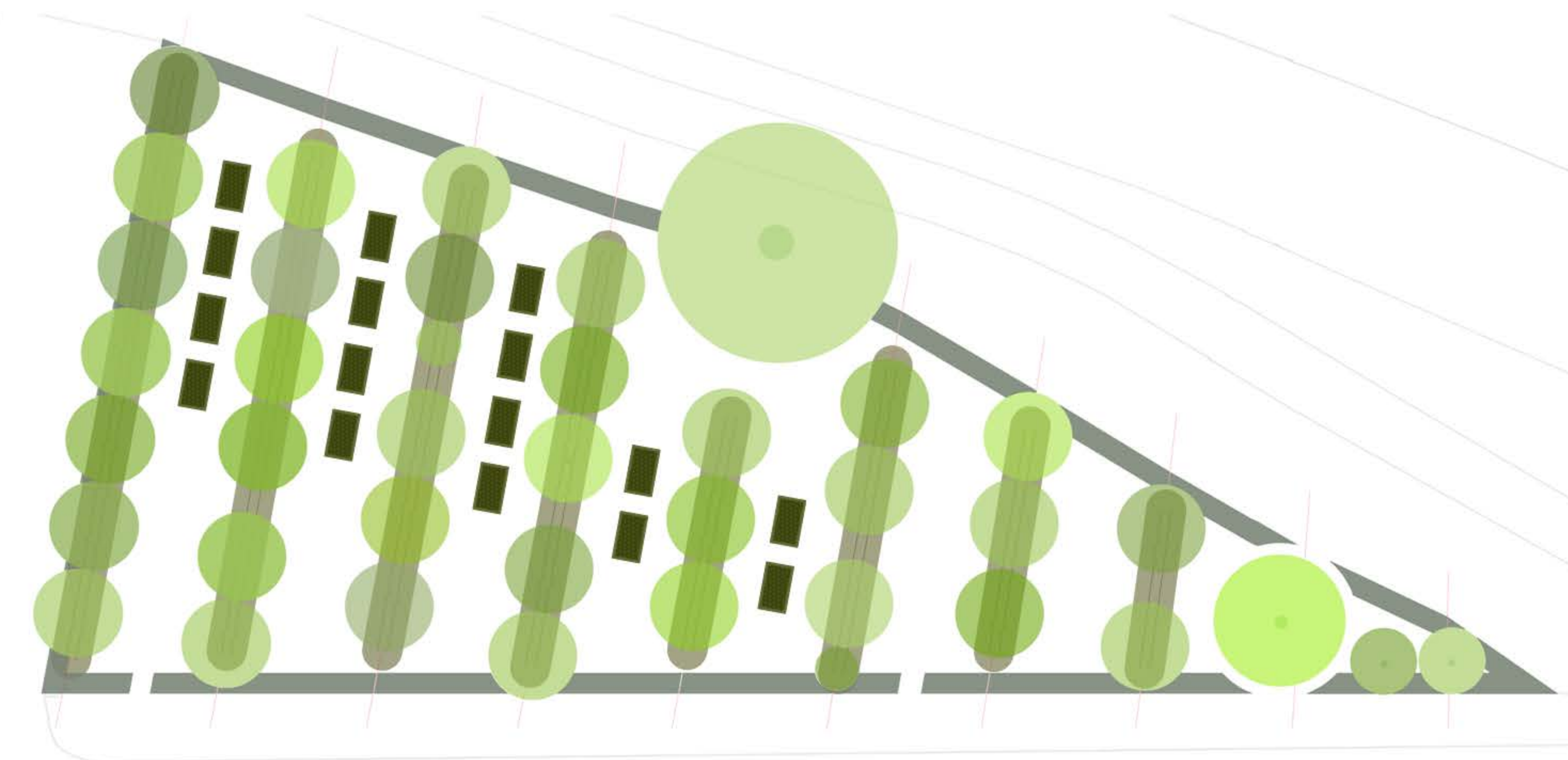
Sketches



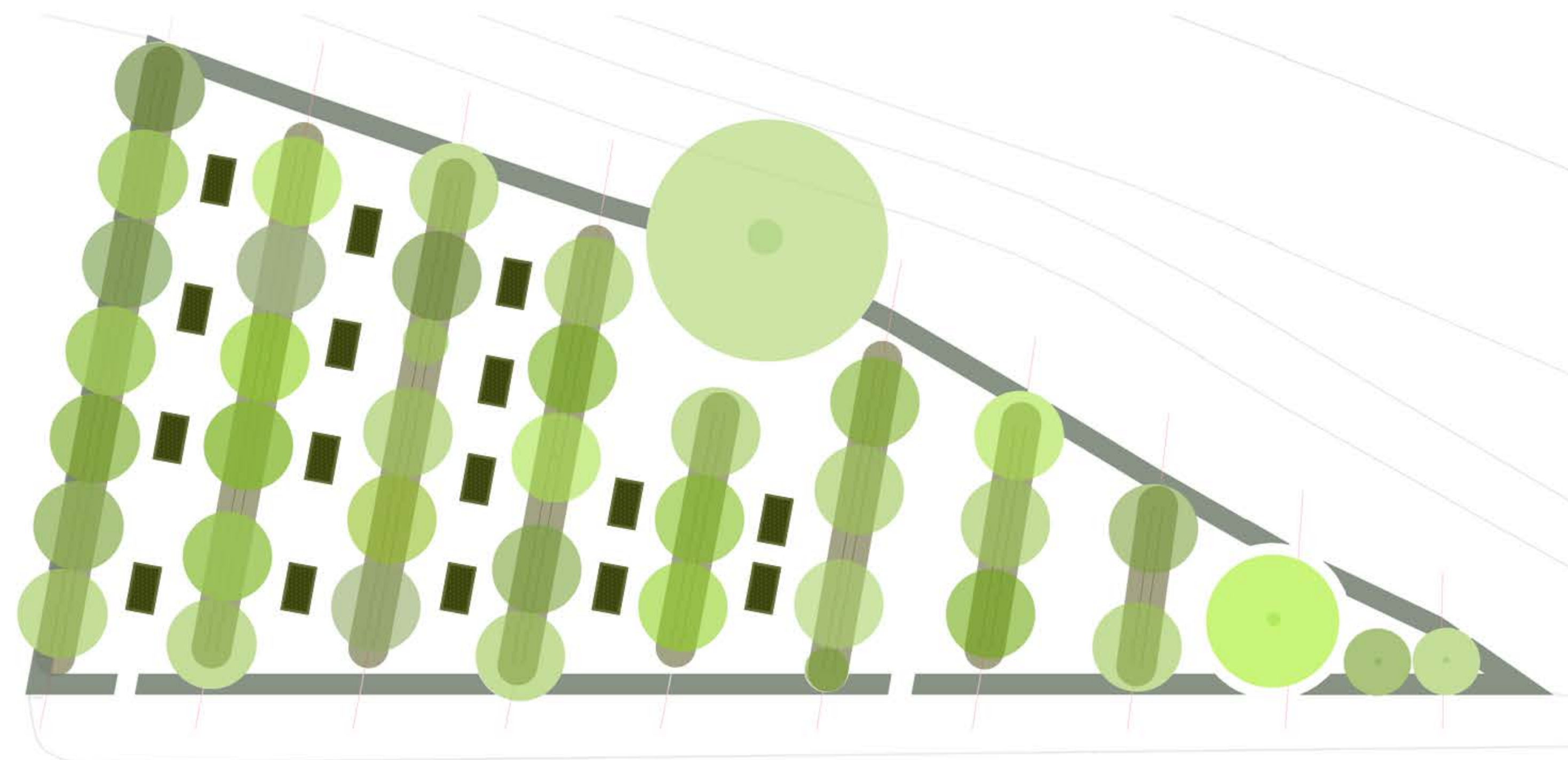
Lay-out 1



Lay-out 2



Lay-out 3

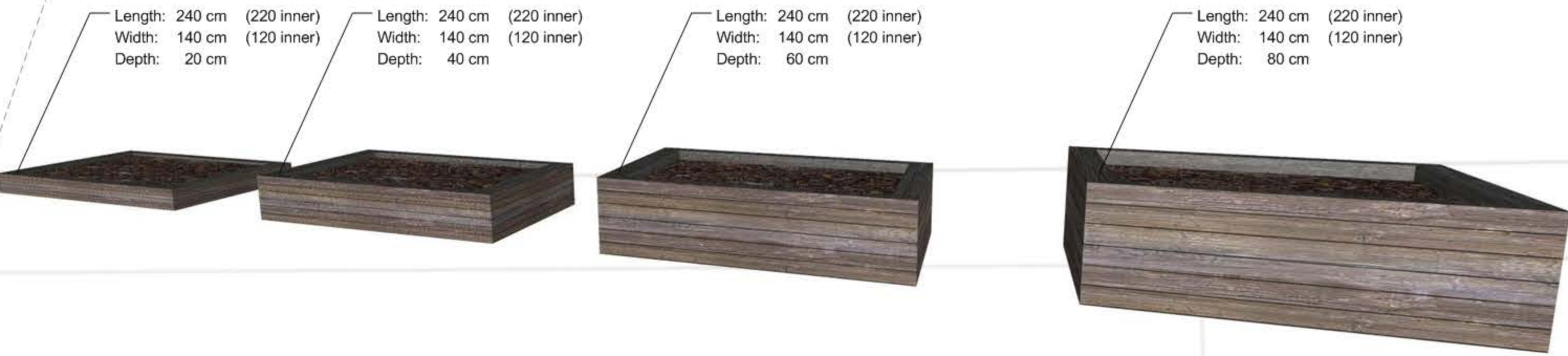
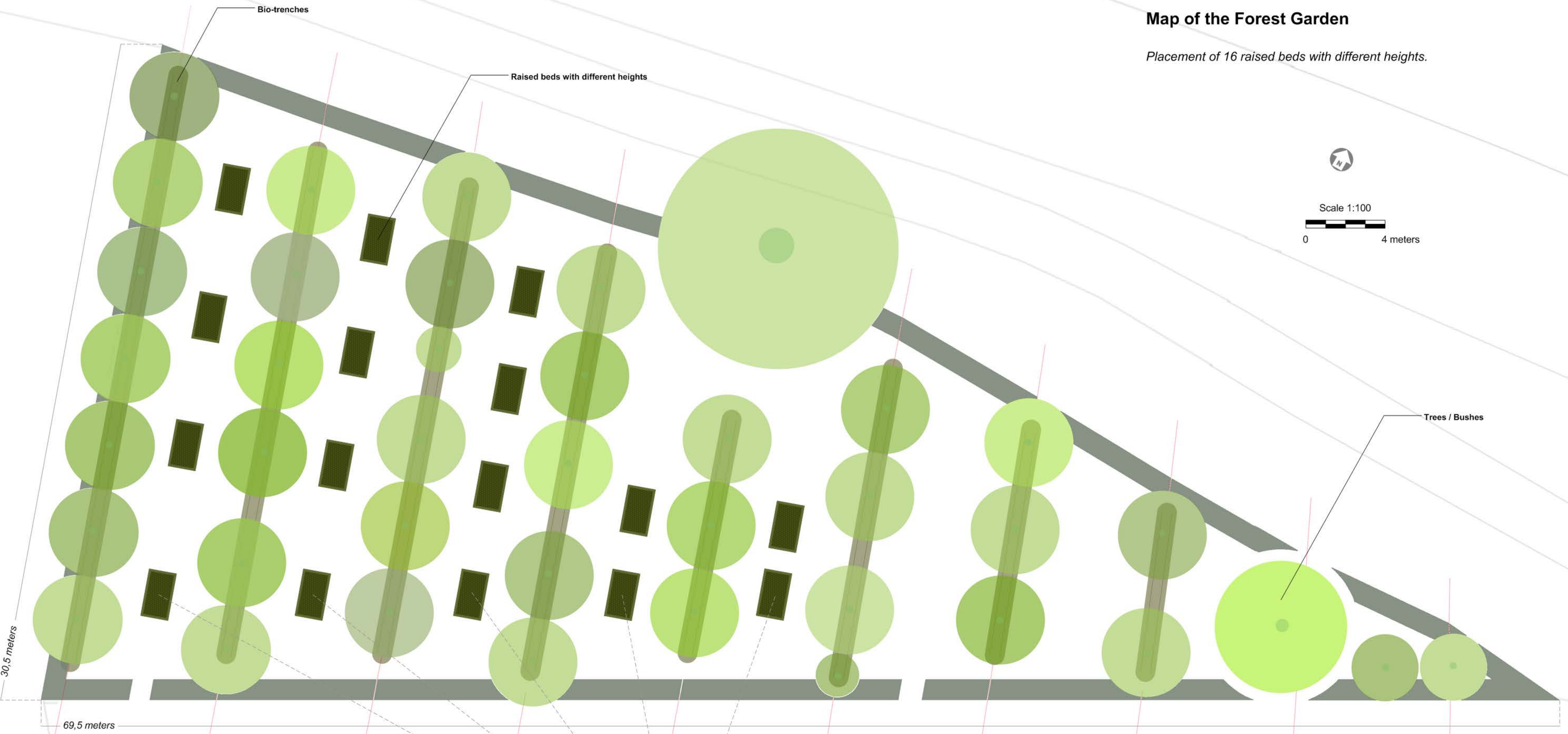


Lay-out 4

Final Design

Map of the Forest Garden

Placement of 16 raised beds with different heights.



Planning

Raised Bed Workplan March

Activity	Days	Volunteer involvement		Dates	March															
		Involved yes/no	Skillful yes/no	Heavy 1 to 10	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
					s	s	m	t	w	t	f	s	s	m	t	w	t	f	s	s
Final re-Design	5	no	-	-																
Requirements list	1	no	-	-																
Purchase goods	1	no	-	-																
Delivery goods	1	no	-	-																
Construct beds	8	yes	yes	6																
Fill beds	4	yes	no	8																
Plant	12	yes	no	4																
Maintenance/Propagate	25+	yes	no	4																

Raised Bed Workplan April

Activity	Days	Volunteer involvement		Dates	April																														
		Involved yes/no	Skillful yes/no	Heavy 1 to 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
					m	t	w	t	f	s	s	m	t	w	t	f	s	s	m	t	w	t	f	s	s	m	t	w	t	f	s	s	m	t	
Final re-Design	5	no	-	-																															
Requirements list	1	no	-	-																															
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Raised Bed Workplan May

Activity	Days	Volunteer involvement		Dates	May																															
		Involved yes/no	Skillful yes/no	Heavy 1 to 10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
					w	t	f	s	s	m	t	w	t	f	s	s	m	t	w	t	f	s	s	m	t	w	t	f	s	s	m	t	w	t	f	
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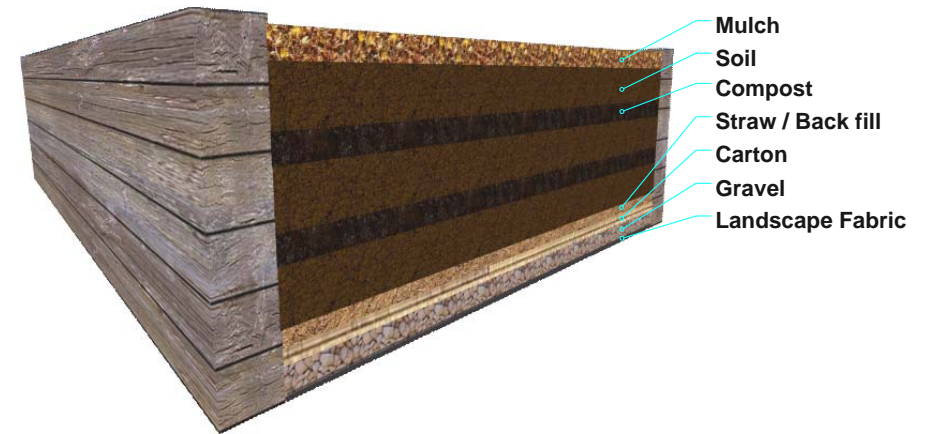
V = Days possible for volunteers to come

Outer dimensions

Beds	width (m)	length (m)	Surface (m2)	Amount	Total (m2)
Small	1,40	2,40	3,36	3	10,08
Medium	1,40	2,40	3,36	5	16,80
Large	1,40	2,40	3,36	5	16,80
X Large	1,40	2,40	3,36	3	10,08
Total				16	53,76

Inner dimensions

Beds	width (m)	length (m)	depth (m)	Volume (m3)	Total (m3)
Small	1,20	2,20	0,20	0,53	1,584
Medium	1,20	2,20	0,40	1,06	5,28
Large	1,20	2,20	0,60	1,58	7,92
X Large	1,20	2,20	0,80	2,11	6,34
Total					21,12



Example of raised bed cross-section

Contents requirements (per bed)

Beds	Timber (pieces)	Hinges (pieces)	Screws (pieces)	Fabric (m)	Cardboard (m3)	Gravel (m3)	Straw (m3)	Branches (m3)	Backfill (m3)	Compost 1/3 (m3)	Soil 2/3 (m3)
Small	3,00	8,00	32,00	2,80	0,03	0,00	0,26	0,05	0,00	0,16	0,26
Medium	6,00	16,00	64,00	2,80	0,03	0,00	0,26	0,13	0,26	0,26	0,51
Large	9,00	24,00	96,00	2,80	0,03	0,13	0,26	0,13	0,40	0,34	0,64
X Large	12,00	32,00	128,00	2,80	0,03	0,13	0,26	0,13	0,40	0,53	1,00

Contents requirements (total)

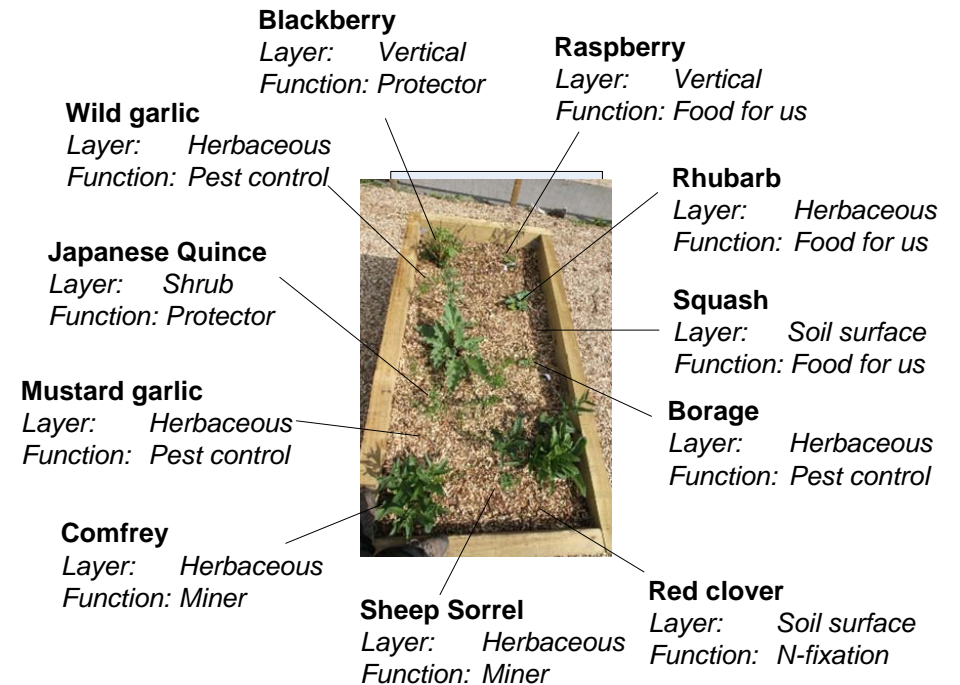
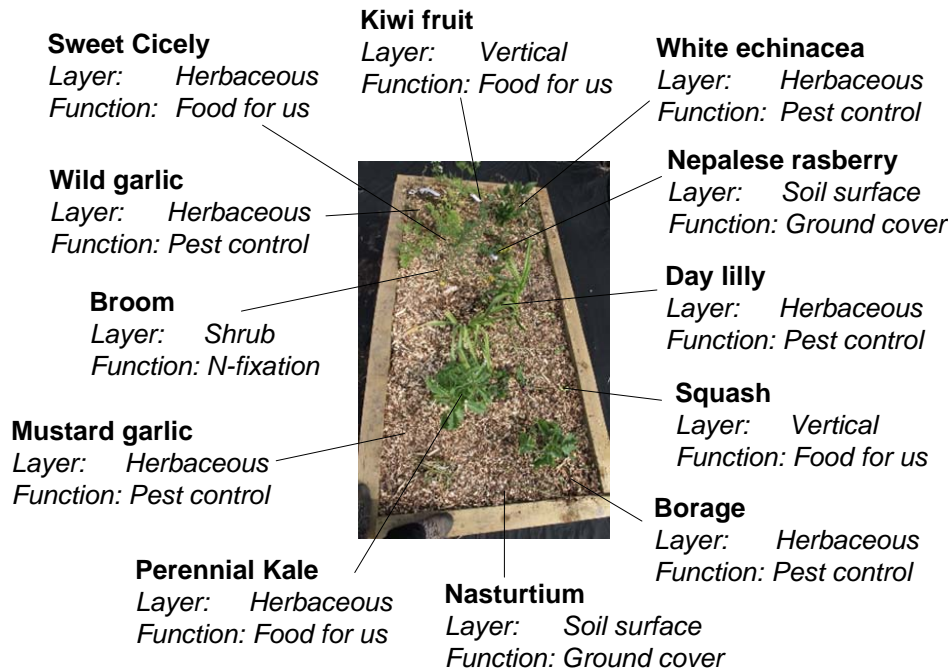
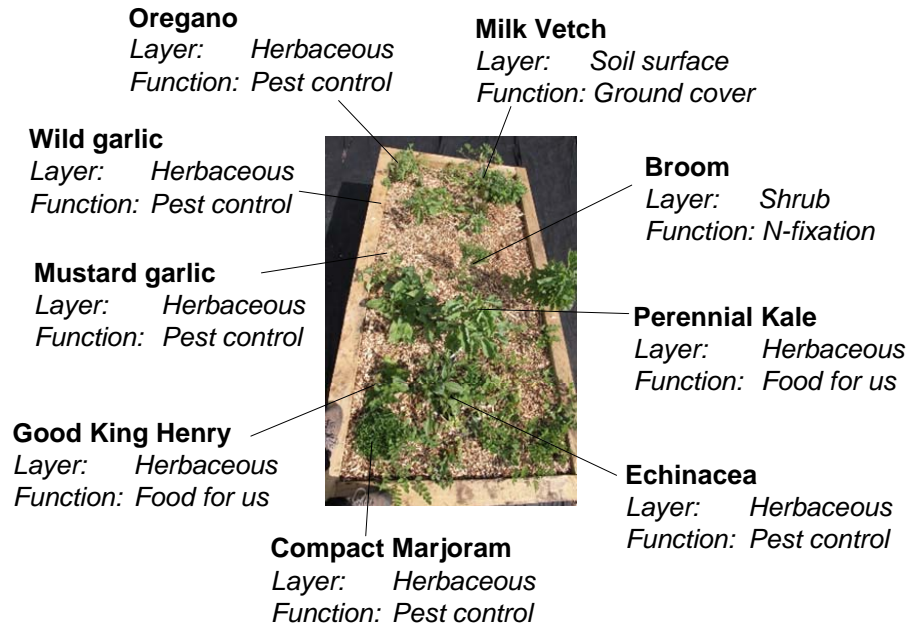
Beds	Timber (pieces)	Hinges (pieces)	Screws (pieces)	Fabric (m)	Cardboard (m3)	Gravel (m3)	Straw (m3)	Branches (m3)	Backfill (m3)	Compost 1/3 (m3)	Soil 2/3 (m3)
Small	9,00	24,00	96,00	8,40	0,08	0,00	0,79	0,16	0,00	0,48	0,79
Medium	30,00	80,00	320,00	14,00	0,13	0,00	1,32	0,66	1,32	1,28	2,55
Large	45,00	120,00	480,00	14,00	0,13	0,66	1,32	0,66	1,98	1,72	3,21
X Large	36,00	96,00	384,00	8,40	0,08	0,40	0,79	0,40	1,19	1,58	3,01
Total	120,00	320,00	1280,00	44,80	0,42	1,06	4,22	1,87	4,49	5,06	9,56

Planting Plan

Plant List													
Botanical name	Common name	Life-cycle	Layer in guild	Use	Edible parts	Root	Leaf	Scent	Colour	Shade tolerance	Flower	Hardiness	Growth
Actinidia arguta	Kiwi fruit Kens Red (female)	perennial	Vertical layer	edible	fruit		Rough	Weak	Light green	part shade		5	
Actinidia deliciosa	Kiwi fruit (male)	perennial	Vertical layer	edible	fruit		Rough	Weak	Dark green	part shade		5	
Actinidia deliciosa	Kiwi fruit Jenny	perennial	Vertical layer	edible	fruit		Rough	Weak	Dark green	part shade		5	
Allium ampeloprasum	Babingtons leek	perennial	Herbaceous	repellent, edible	whole	Shallow	Stem	Very strong	Green	part shade	July-august	6	1.8 m by 0.1 m
Allium neapolitanum	Daffodil Garlic	perennial	Rhizosphere	repellent, edible	whole	Shallow	Stem	Very strong	Green	part shade	Mar-may	7	0.3 m by 0.1 m
allium schoenoprasum	chives	perennial	Rhizosphere	repellent, edible	whole	Shallow	Stem	Very strong	Green	part shade	June-july	5	0.3 m by 0.3 m
Aquilegia vulgaris	Columbine	perennial	Herbaceous	edible	leaves, flowers	Average	Cut leaf	Weak	Green	part shade	april-july	4	1 m by 0.5 m
Beta vulgaris maritima	Sea beet	perennial	Herbaceous	edible	leaves, shoots	Average	Whole leaf	Weak	Green	part shade	July-september	5	1.2 m
Bunias orientalis	Turkish Rocket	perennial	Herbaceous	edible, attractant	leaves, flowers	Deep	Cut leaf	Average	Green	part shade	May-august	4	0.9 m by 0.5 m
Bunium bulbocastanum	Pig nut	perennial	Rhizosphere	edible, attractant	leaves, stem, root, seeds	Average	Cut leaf	Average	Green	part shade	Jun-July	5	0.6 m by 0.3 m
Centranthus ruber	Red Valerian	perennial	Herbaceous	edible, cover	leaves, shoots	Deep	Cut leaf	Weak	Green	part shade	Jun-august	7	0.9 m by 0.6 m
Chenopodium bonus-henricus	Good King Henry	perennial	Herbaceous	edible	leaves, shoots, flowers, seeds	Average	Whole leaf	Weak	Dark green	half shade	May-July	5	0.3 m by 0.3 m
Foeniculum vulgare	Fennel	perennial	Herbaceous	edible	leaves, stem	Shallow	Cut leaf	Very strong	Light green	sun	August-oct	5	1.5 m by 1 m
Fragaria vesca	Wild Strawberry	perennial	Soil surface	edible, cover	leaves, fruit	Average	Rough	Weak	Green	half shade	April-may	3	0.3 m
Hablitzia tamnoides	Caucasian Spinach	perennial	Vertical layer	edible	leaves, shoots	Deep	Whole leaf	Weak	Green	shade		4	up to 3m high
Levisticum officinale	Lovage	perennial	Herbaceous	edible, attractant	stem, leaves		Cut leaf	Strong	Green	part shade	July-august		1.8 m by 1 m
Mentha x smithiana	Red Raripila Mint	perennial	Herbaceous	attractant, edible	leaves		Rough	Very strong	Deep red	part shade	August-sept		1 m by 1.5 m
Oxyria digyna	Mountain sorrel	perennial	Herbaceous	edible	leaves	Deep	Whole leaf	Weak	Green	part shade	Jun-august	5	0.5 m by 0.3 m
Polygonatum biflorum	Small Solomon's Seal	perennial	Herbaceous	edible	shoots		Stem	Weak	Green	shade	May	3	1 m
Rheum cultorum	Rhubarb Champagne	perennial	Herbaceous	edible	stem	Deep	Rough	Weak	Red	part shade	June	5	1.5 m
Rheum cultorum	Rhubarb Victoria	perennial	Herbaceous	edible	stem	Deep	Rough	Weak	Red	part shade	June	5	1.5 m
Rosmarinus officinalis	Rosemary	perennial	Herbaceous	edible, attractant	leaves, flowers	Average	Other	Very strong	Dark green	part shade	Mar-oct		1.5 m by 1.5 m
Rubus nepalensis	Nepalese Raspberry	perennial	Soil surface	cover, edible	fruit		Rough	Weak	Green	half shade	June-july	3	0.2 m by 1 m
Rumex acetosa	Sorrel	perennial	Herbaceous	edible	leaves	Deep	Whole leaf	Weak	Green	part shade	May-june	5	0.6 m by 0.3 m
Rumex acetosella	Sheeps Sorrel	perennial	Herbaceous	edible	leaves	Deep	Whole leaf	Weak	Green	part shade	May-august	5	0.3 m by 1 m
Symphytum Bocking	Comfrey	perennial	Herbaceous	cover, biomass		Deep	Rough	Strong	Dark green	half shade	June/september	4	1.2 m by 0.6 m
Vitis (hardy but tasty one)	Grape	perennial	Vertical layer	edible	leaves, fruit		Cut leaf	Weak	Dark green	part shade		5	
Borago officinalis	Borage	annual	Herbaceous	attractant	flower		Rough	Weak	Green	part shade	July/september	5	
Calendula Officinalis	Calendula/marigold	annual	Herbaceous	attractant	flower		Rough	Weak	Green	part shade	July/september	5	
Phaseolus vulgaris	Barlotta Lingua di Fuoco	annual	Herbaceous	edible, n-fixer	seeds		Whole leaf	Average	Green	part shade	July/september	5	
Phaseolus vulgaris	Climbing bean Eva	annual	Herbaceous	edible, n-fixer	seeds		Whole leaf	Average	Green	part shade	July/september	5	
Tropaeolum	Nasturtium	annual	Soil surface	edible, cover	flowers, leaves, seeds		Whole leaf	Average	Green	half shade	July/september	5	
Cucurbita maxima duchesne	Green Hokkaido squash	annual	Soil surface	edible, cover	shoots, fruit, seed		Cut leaf	Average	Green	part shade	August/september	5	
Cucurbita pepo	Straightneck Yellow squash	annual	Soil surface	edible, cover	shoots, fruit, seed		Cut leaf	Average	Green	part shade	August/september	5	
Viola odorata	Sweet violet	perennial	Herbaceous	attractant, edible	flowers, leaves		Rough	Weak	Green	half shade	July/september	5	

Beneficial placement of plants in Guilds

Three examples of a guild with the layer and main function of the plants.



Maintenance

Maintenance Plan

Activity	Frequency	Duration	Until	Who	Difficulty	Heaviness
Irrigation	Frequent	2 hrs	Ongoing	BF team / Volunteers	1	6
Monitor growth of plants	Frequent	2 hrs	Ongoing	BF team	7	1
Collect garbage where needed	Frequent	1 hr	Ongoing	BF team	1	4
Enjoy the forest garden	Frequent	-	Ongoing	Everybody	1	1
Cutting weeds	Every month	3 hrs	Ongoing	BF team / Volunteers	4	4
Report status	Every month	30 mins	Ongoing	BF team	9	1
Mulch	Every season	2 hrs	Ongoing	BF team / Volunteers	4	4
Harvest crops	Every season	4 hrs	Ongoing	BF team / Volunteers	6	4
Pruning	Seasonal	1 day	Ongoing	BF team	8	4
Provide information to community	Ad hoc	-	Ongoing	BF team / Volunteers	3	1
Add seedlings of supporting species	Ad hoc	-	Ongoing	BF team / Volunteers	6	3
Make repairs were needed	Ad hoc	-	Ongoing	BF team / Volunteers	5	5