

07. Headingley garden



background

A local music teacher asked me to provide some design ideas for the garden at the house he'd recently bought with his partner in Headingley.

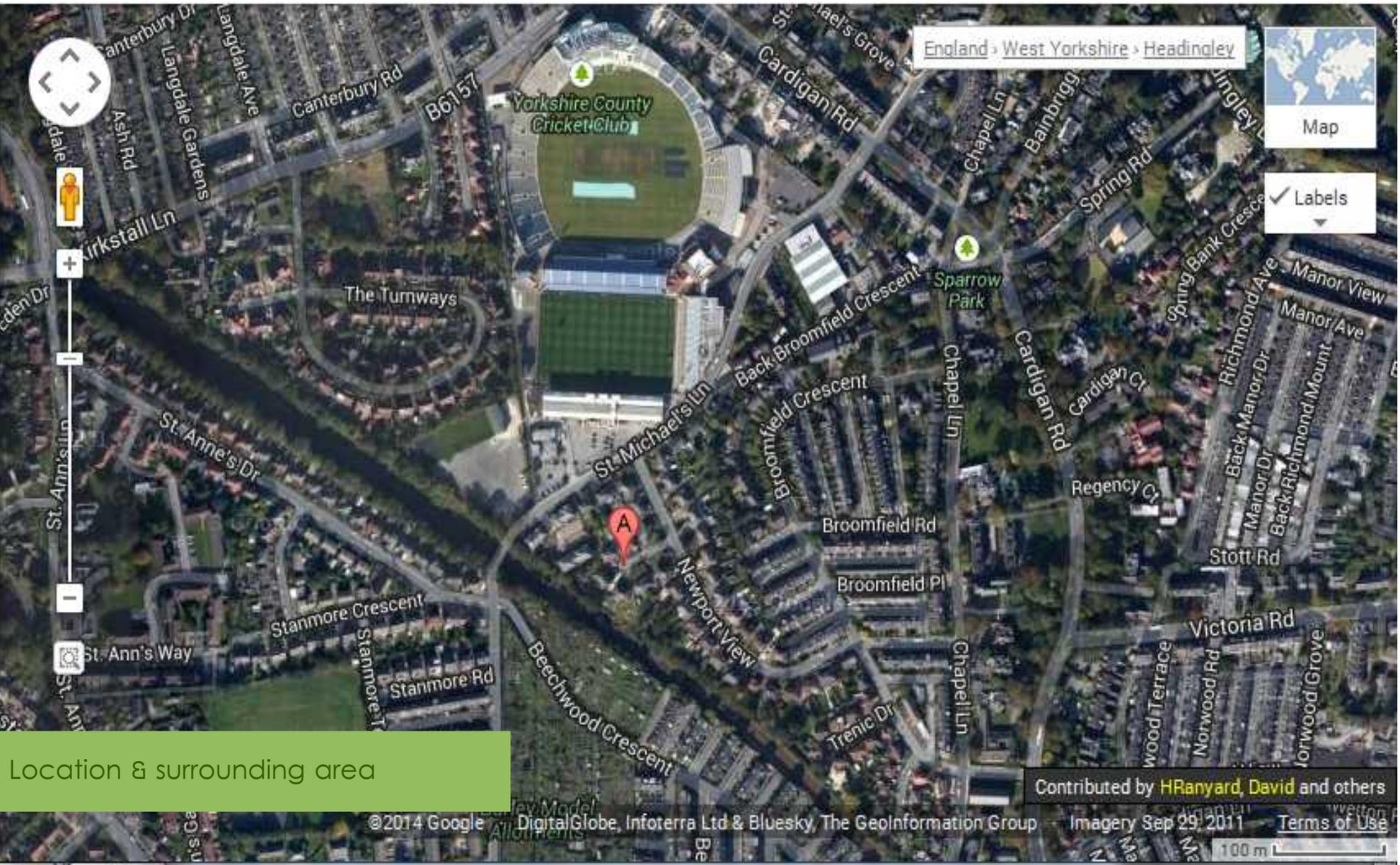
As existing allotment holders, they were keen to put the garden into productive use and wanted some design input before they started.



survey

Location

The site is located in suburban Leeds, West Yorkshire, which forms part of a continuously built-up area spanning a large area of the eastern foothills of the Pennines. The Elevation of the site is approximately 80m. To the South West of the site is a railway cutting and allotment site beyond. To the North & east are houses and Headingley stadium.



Location & surrounding area

Contributed by HRanyard, David and others

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survey

Site overview

The garden had become quite overgrown by the time the client had moved in. They had already started clearing the garden, grubbing out a number of shrubs and pruning others back hard. Much of the garden was grassed, with piles of assorted masonry dotted around. The client had installed a tent-type greenhouse and was bringing some crops along in it.



View from upstairs window 01/05/2012

survey

South view

Beyond the southern boundary are a significant number of trees in the next-door-but-one garden. They form a shelter belt to the south, and are far enough away not to cause significant shading problems for most of the growing season. The site is exposed to the south west and west, however.



View from kitchen door 14/05/2012

survey

PASTE (Existing)

Plants	Animals	Structures	Tools & Tech	Events
Buddleia	Neighbours' cats	House	Gardening hand tools	Gardening
Hydrangea	Wild birds	Garage		Sitting outside
Lavendar	Insects	Tent-style greenhouse		Washing
Bluebells				
Dandelions				
Privet				
Grass				



Panorama from far end of garden – 14/05/2012

survey

Name: Seb & Emma

Address: #####, Headingley, Leeds

Property size: 3 bed semi;

Number of people on site (typical/average): usually 2

Groups that use the site: N/A

Physical challenges that need to be considered: N/A

Occupations & skills: Musician & Town planner

Lifestyle/ethos of the group: Green-leaning

Eating habits: Omnivorous

Age ranges: Young adults.

Budget (vis a vis the design): TBC

On site resources:

- Large pile of woody waste
- wheelie bin/water butt
- various grades of masonry waste,
- access to a large quantity (thousands) of bricks for free
- Plastic tent-type greenhouse

Site tenure: Freehold

Restrictions on land use (covenants etc): None known

Potential catastrophes (flooding etc): none known

Plans & Drawings: See below

Level/type of crop (or other yield) required: Fruit and vegetables: plenty!

Client Interview 14/05/2013

Existing energy efficiency measures & energy usage: N/A: out of scope of design.

Privacy (views, difficult neighbours, respecting other people's privacy where site is overlooking others...): Next door overlooks the garden and vice versa. Would like to maintain/enhance privacy with respect to next door.

Priorities for the site: See Client wants and needs, below.

Water catchment: Water butt on garage. Cast iron rainwater goods on the house.

Water general: average annual rainfall: 640mm. Mains water in utility room. Plans for an outside tap.

Soils: clay, slightly acid. Low in organic matter.

Erosion: Slight slope; steepens towards the extreme southern corner. Relatively sheltered garden so wind erosion should not be a major factor

Aspect: Slight south-facing slope.

Client wants & needs:

- The clients like to grow veg and want fruit too
- a small wildlife pond
- somewhere to sit and enjoy it all – sunny & shady,
- somewhere to hang the washing.
- An area for Emma's neice to play.
- A variation on a cottage garden theme.
- Planning to get a woodburning stove: log storage

Also a front garden and driveway that need attention so perhaps some ideas for those too.

analysis

Sector Analysis

One of the challenges of working with commercial clients is the limited amount of time for on-site observation. In this design I used Google Earth & Sketchup to create a 3D model of the site, including nearby houses & trees that would affect shading & wind. Clearly this is no substitute for real observations, but some useful insights can be gained.

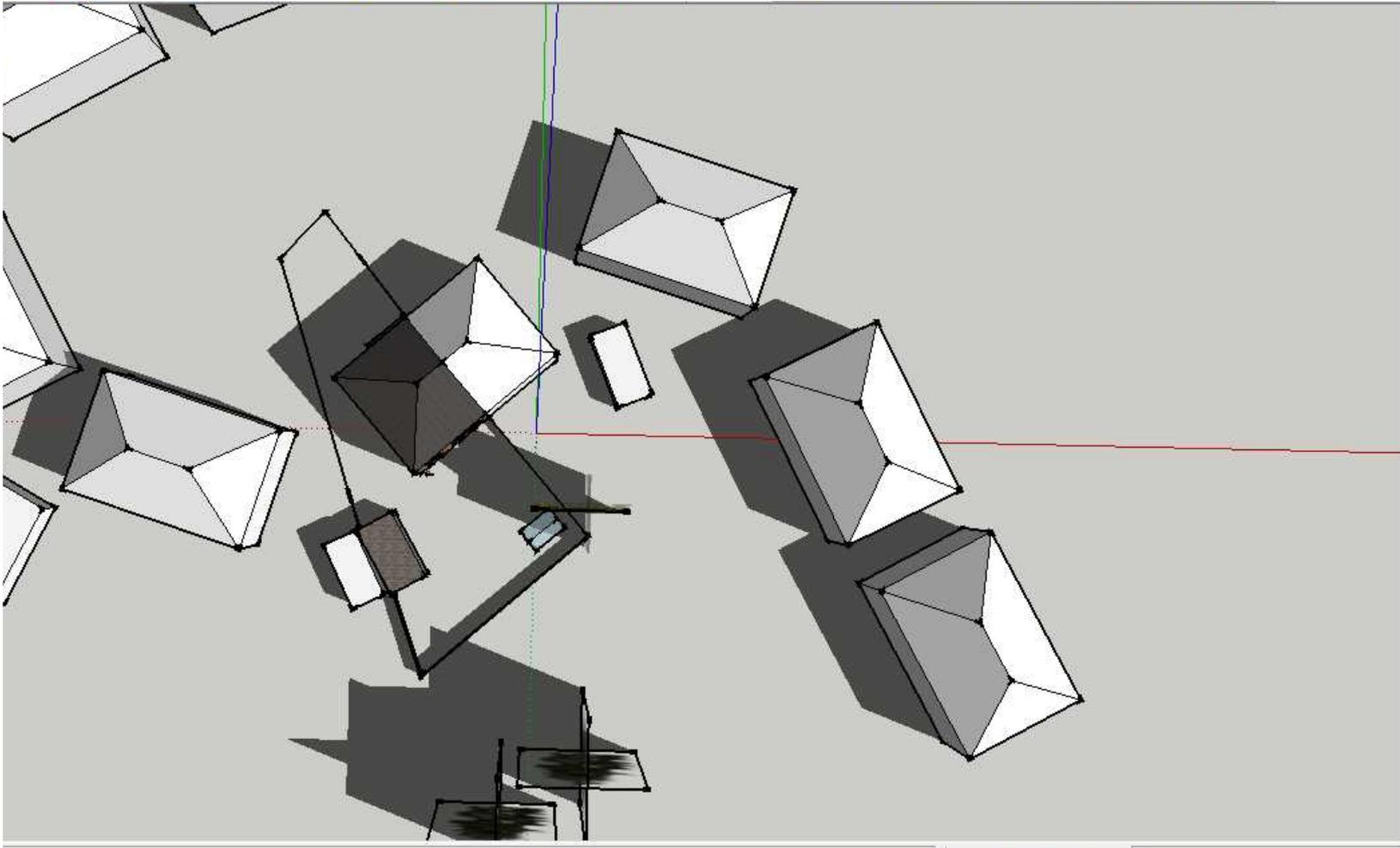


Basic 3D model of the site

analysis

Sector Analysis: Sun & Shade

I modeled the shade at different times of the day and the year...

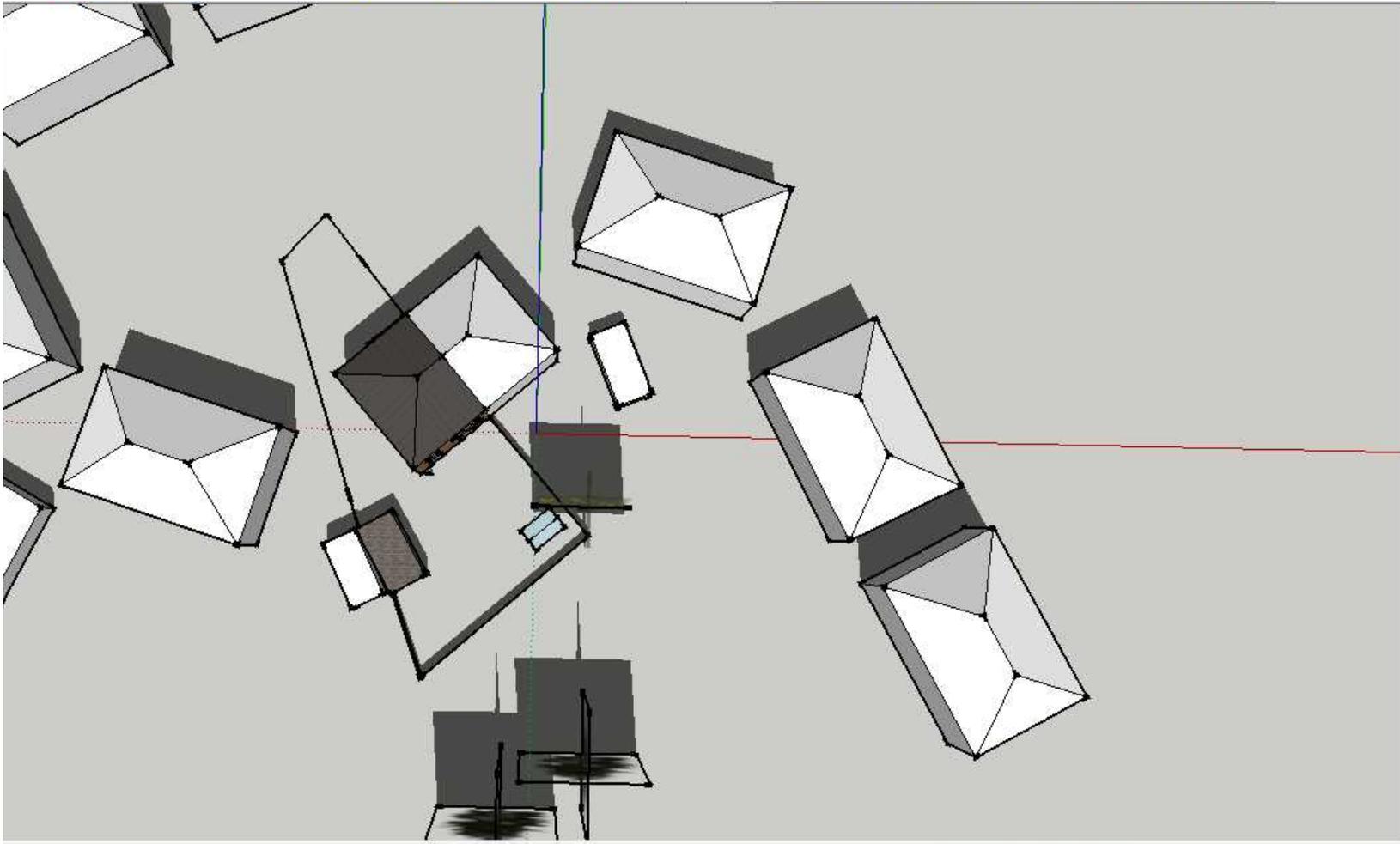


9am summer solstice

analysis

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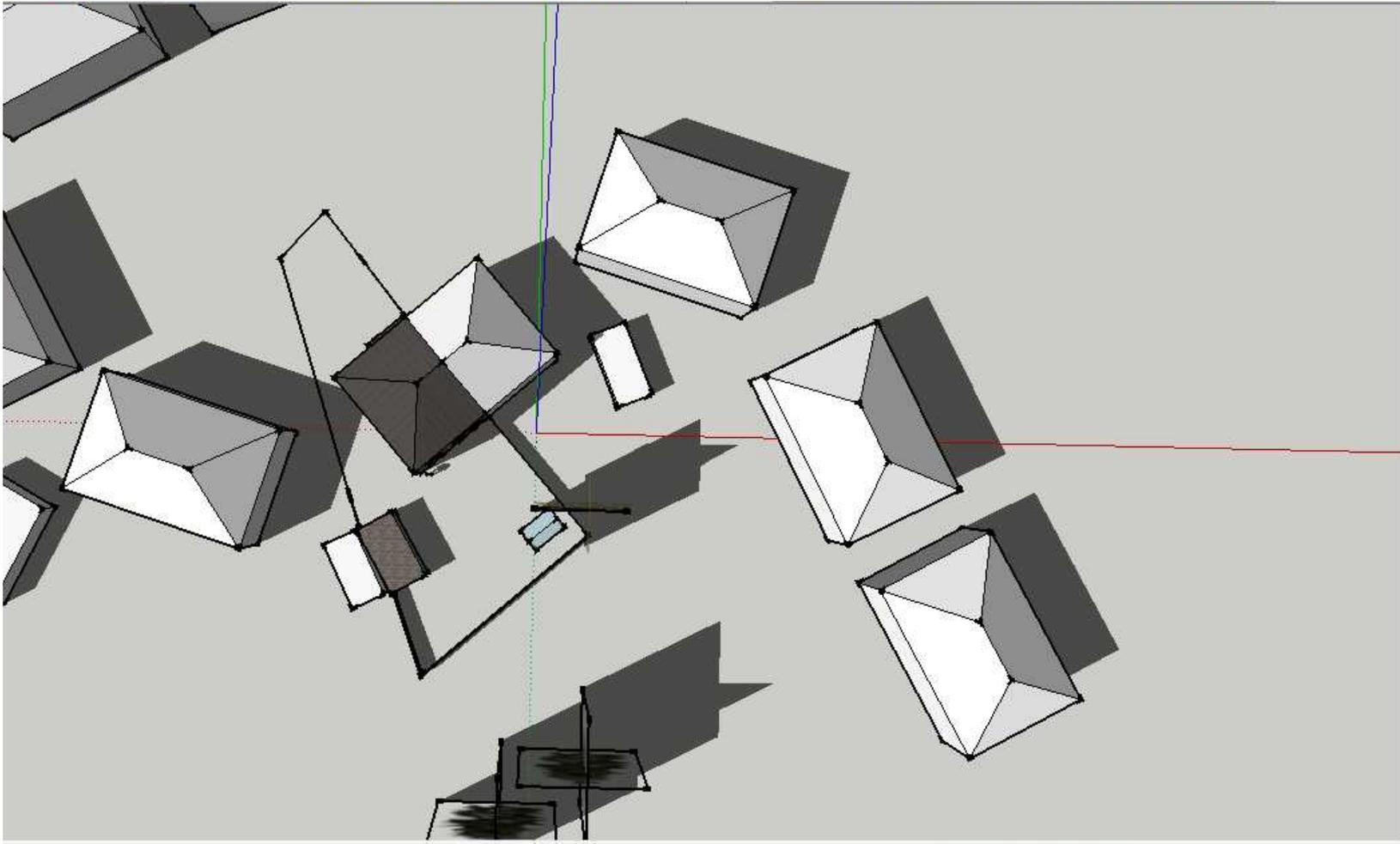


Noon, summer solstice

analysis

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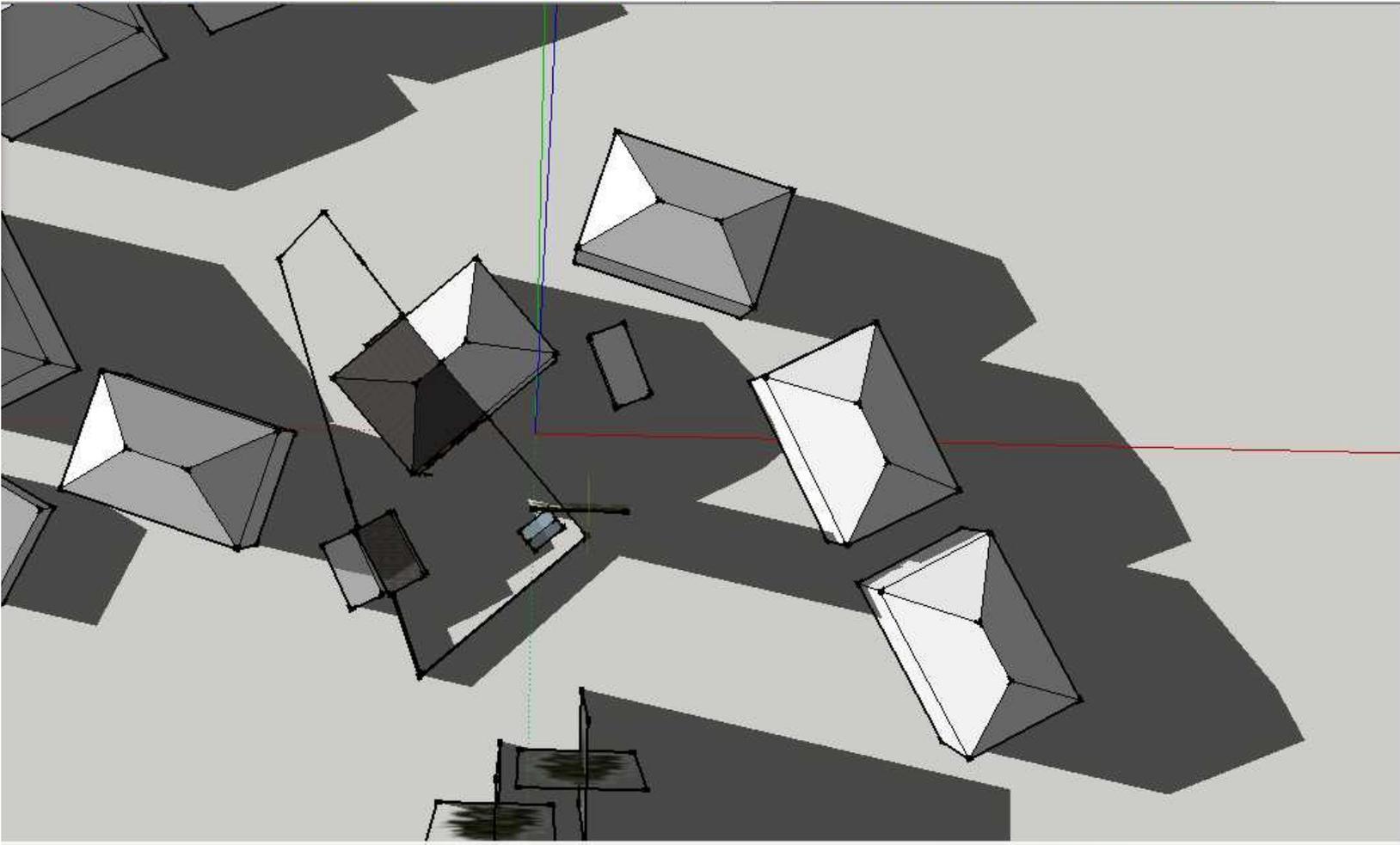


3pm summer solstice

analysis

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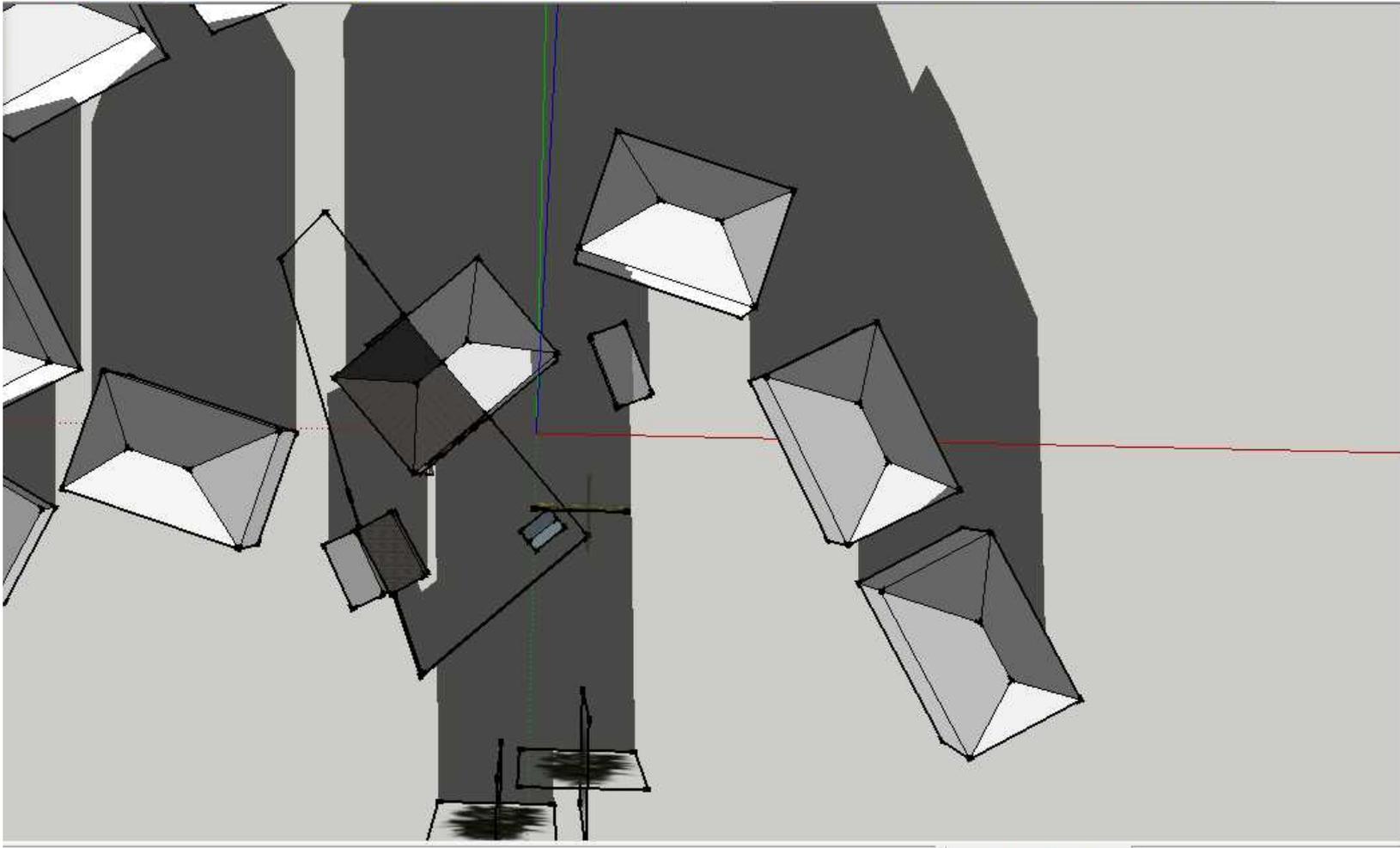


6pm summer solstice

analysis

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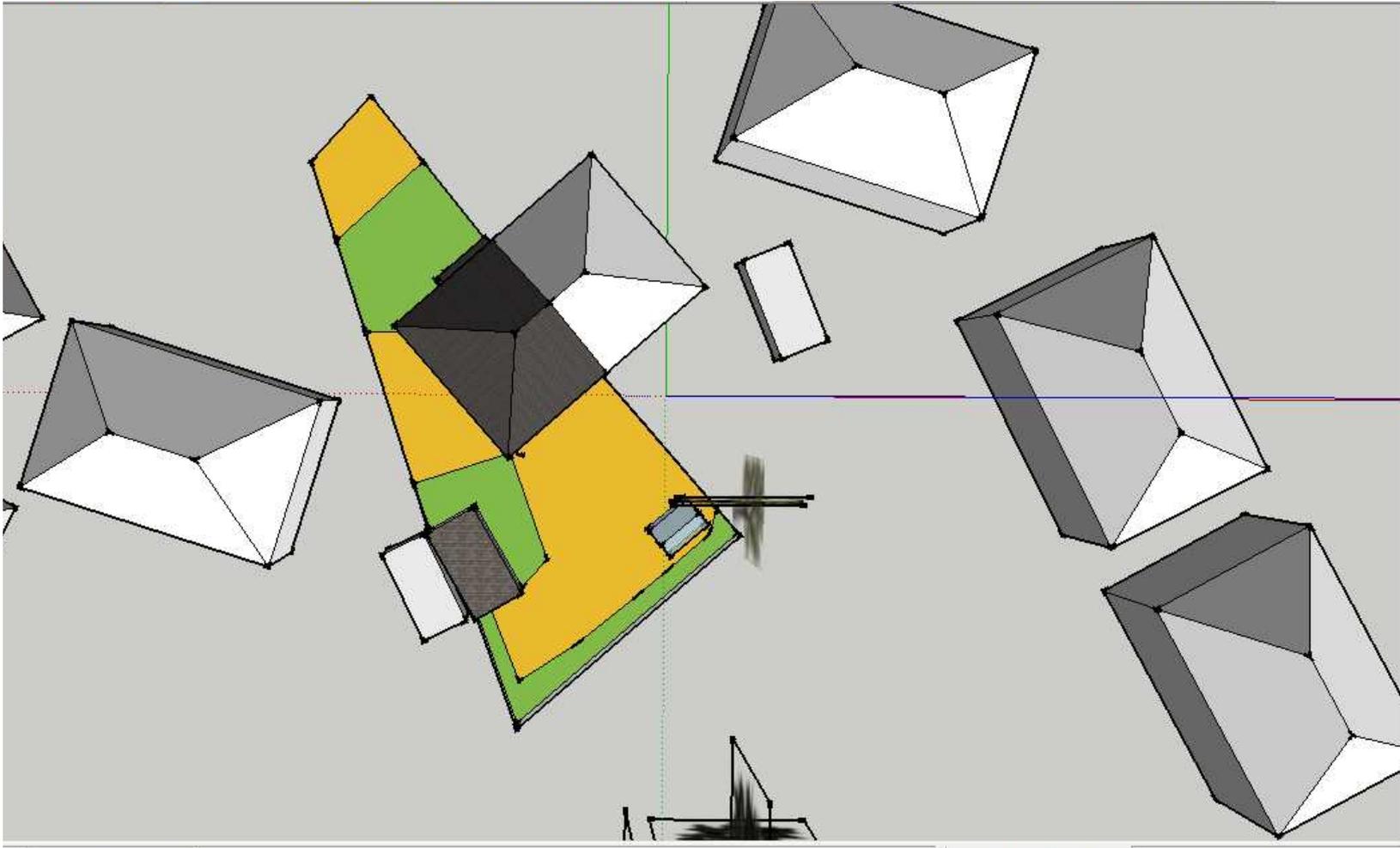


Noon, winter solstice

analysis

Sector Analysis: Sun & Shade

This allowed me to produce a map of the generally sunny (yellow) and generally shady (green) areas of the site.



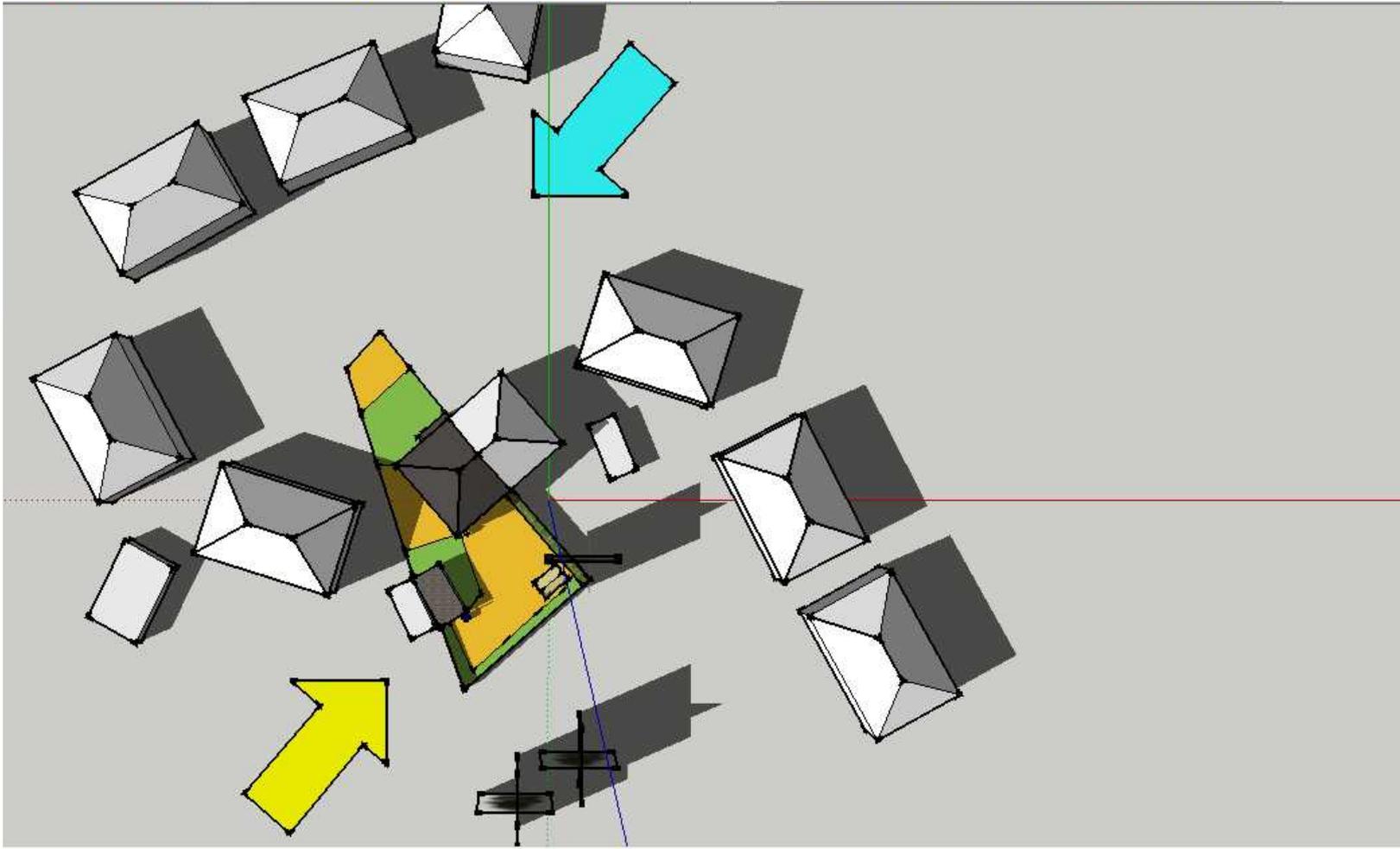
Sunny & shady areas

analysis

Sector Analysis: Wind

I was also able to estimate likely wind effects. The site is open to the South West, so likely to be exposed to prevailing winds (yellow arrow).

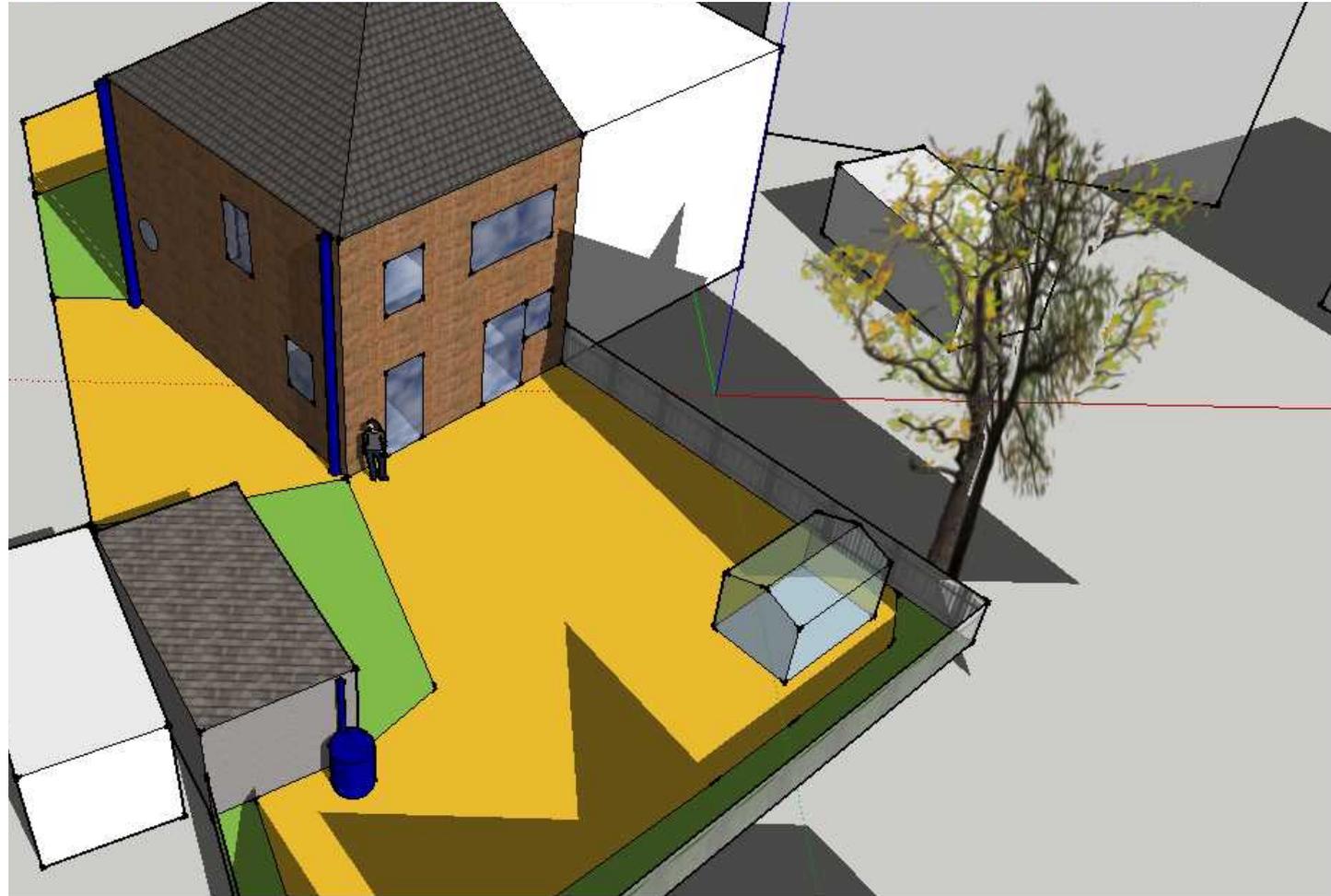
The garden should be well sheltered from cold winter easterly winds (blue arrow), although there is risk of a canyoning effect along the street and/or between neighbouring houses.



analysis

Sector Analysis: Water

Rainwater goods shown in blue. The garage has an existing wheelie bin used as a water butt. Down pipes on the house are cast iron, so difficult to break into to install water butts. However, if the client wants to take the risk of damaging the down pipes, or to replace them, significant rainwater collection would be possible. Mains water is available in the utility room.



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Average annual rainfall: 660mm
(Data from Leeds/Bradford airport
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analysis

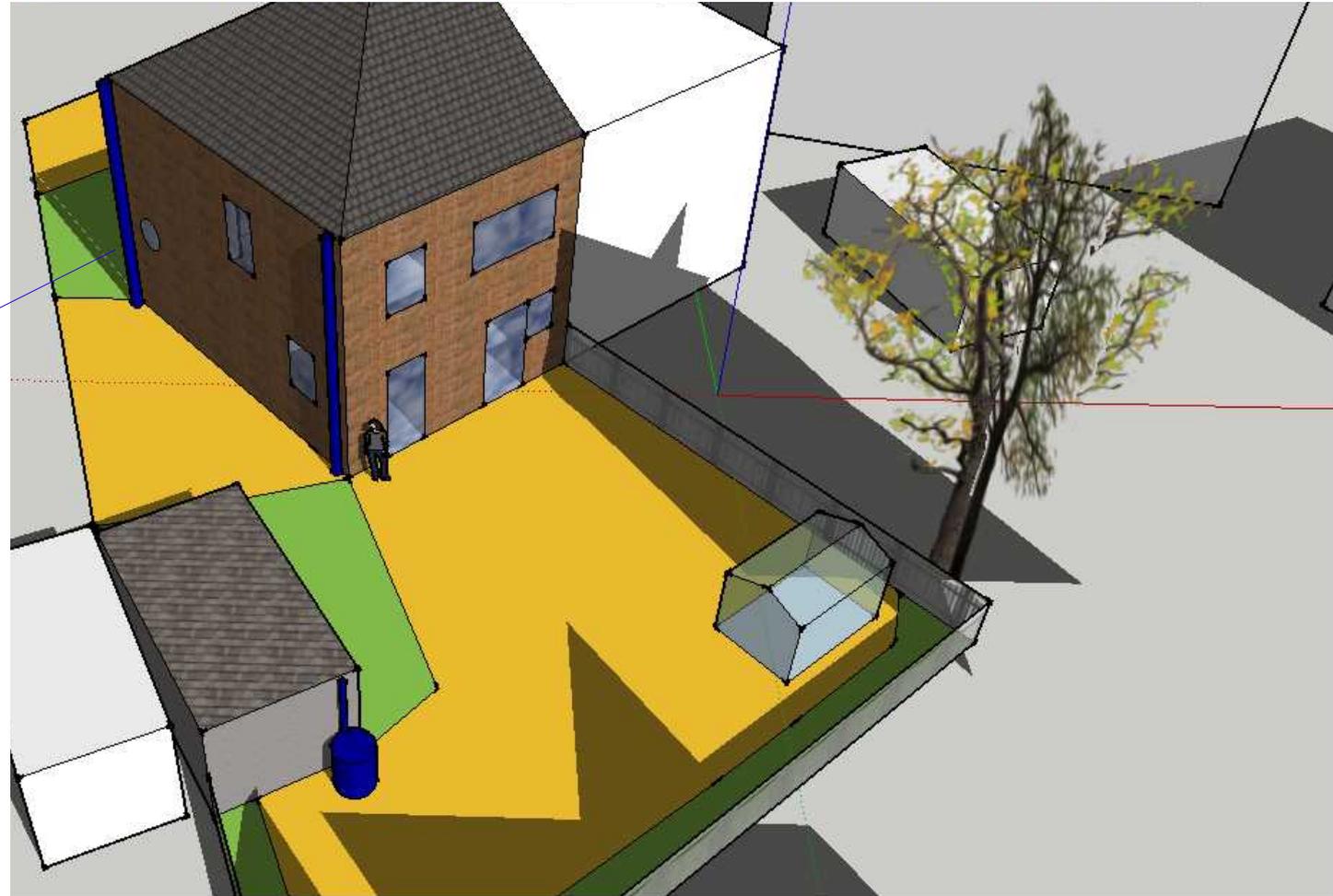
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Approximate house roof area:
55m²

Theoretical annual rainwater
collection capacity (house):
 $660 \times 55 = 36,300$ litres



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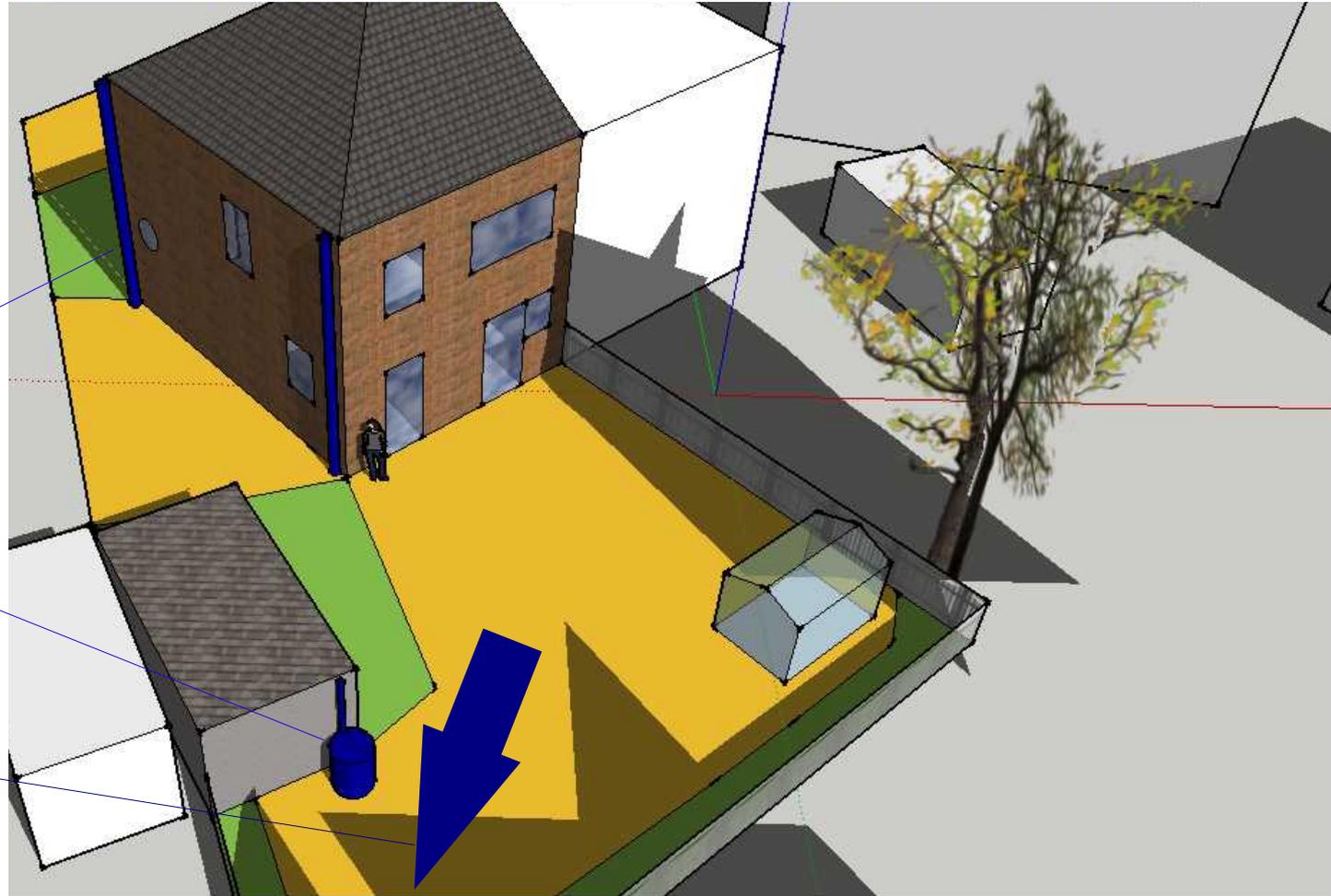
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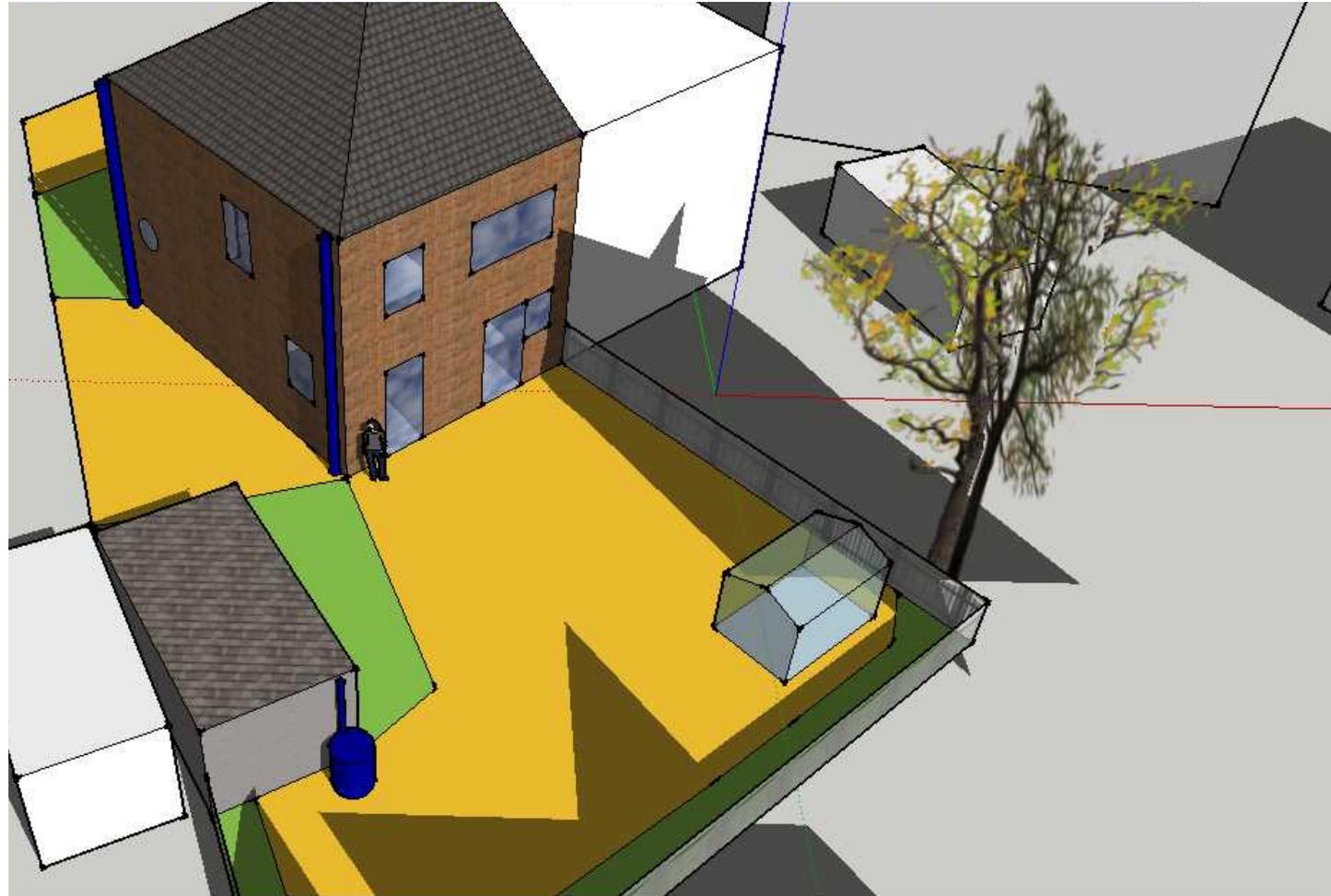
Slight slope: drainage towards
southern corner of site



analysis

Microclimates

The following areas were identified as likely to have pronounced microclimates...



analysis

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Cool, shady, exposed to cold winter winds



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Cool, shady, exposed to cold winter winds

Sunny, south west facing wall; potentially windy



analysis

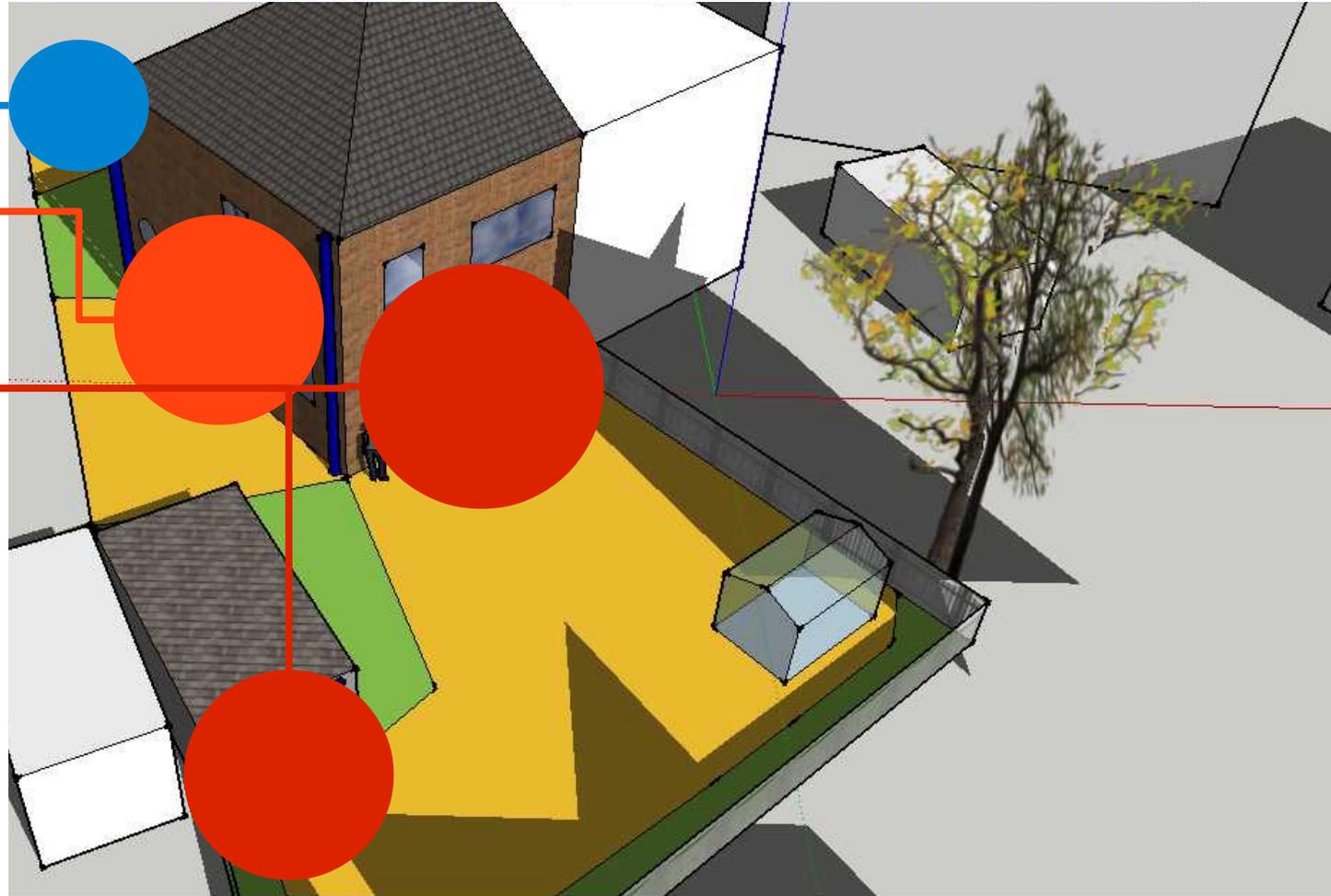
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Sunny, south west facing wall; potentially windy

Sunny, south east facing walls. Some frost damage risk but potentially sheltered & very warm



analysis

Microclimates

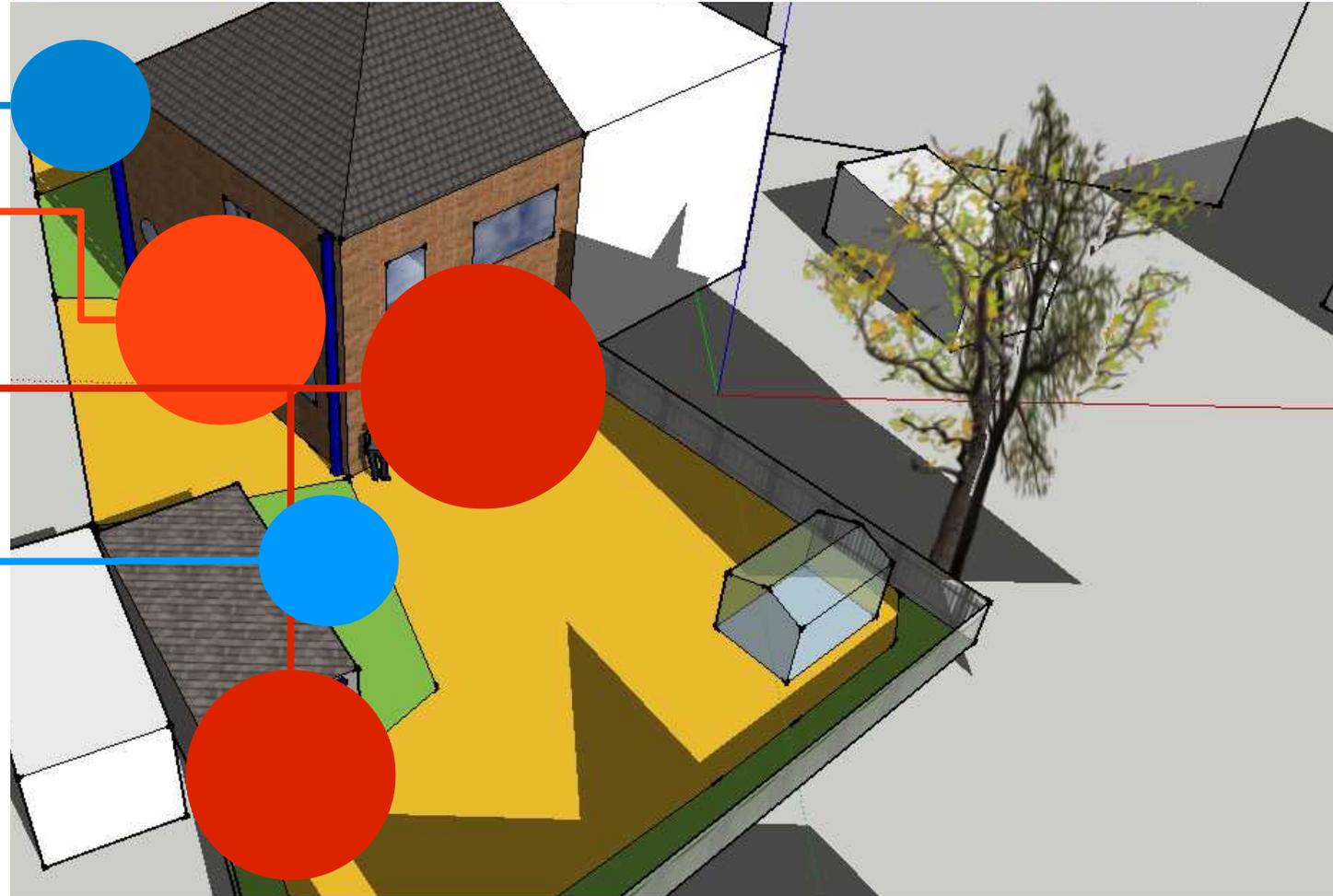
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Cool, shady north east facing wall



analysis

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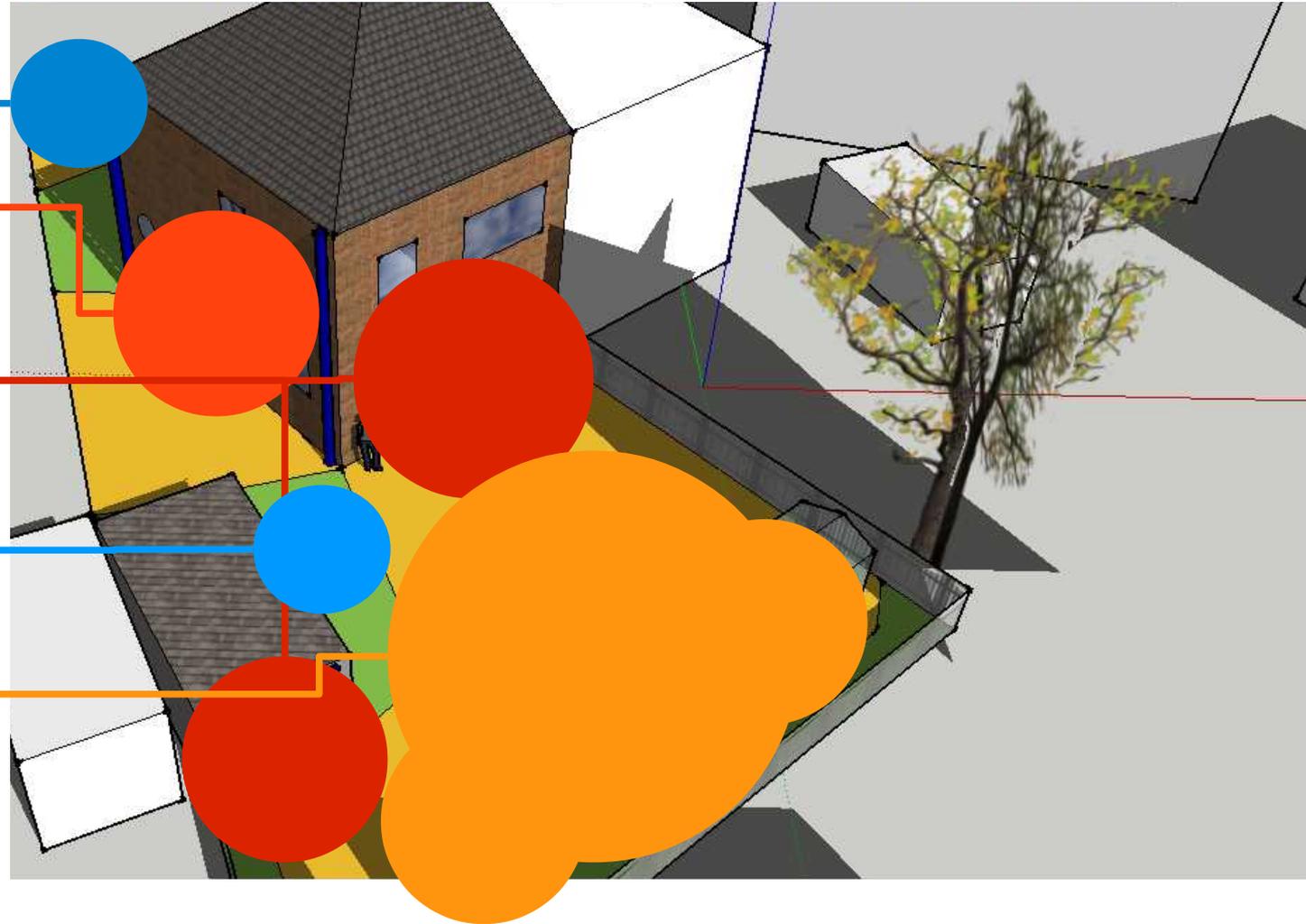
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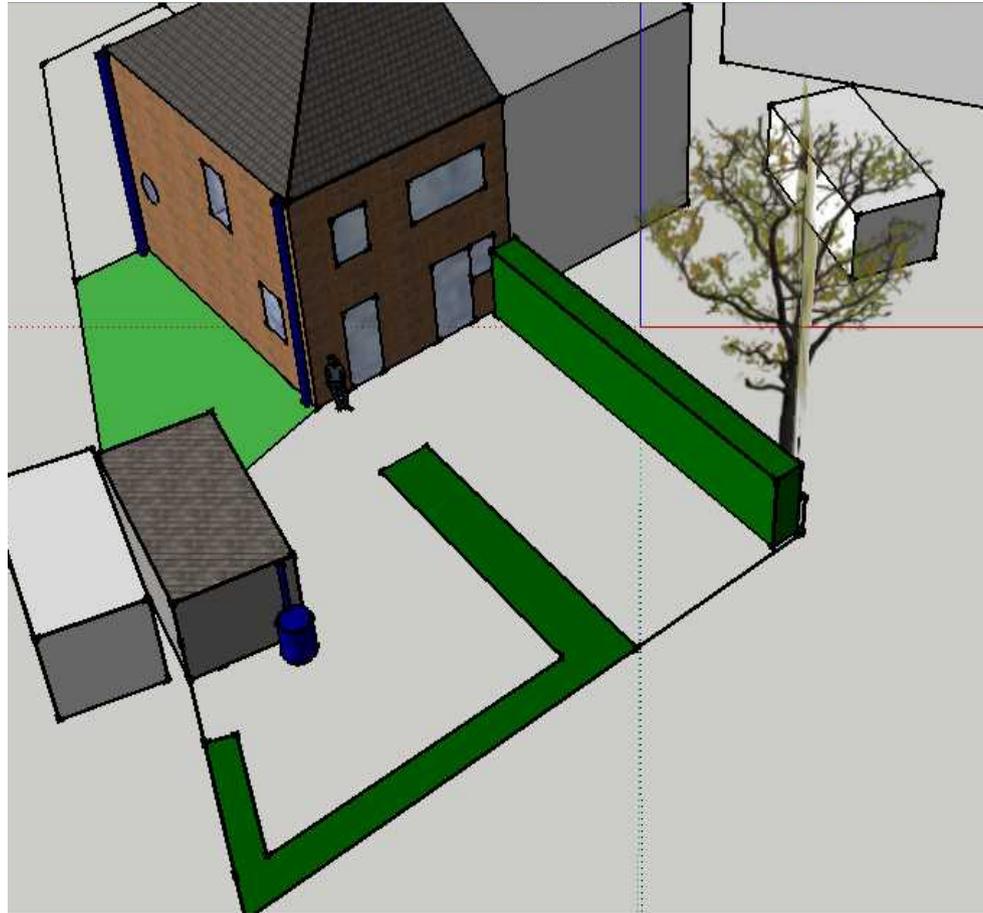
Cool, shady north east facing wall

Open aspect, sunny



Zones in Urban Contexts

Zoning suggests that the proportion of attention & energy input increases with proximity to the centre of operations. This is useful, but traditional permaculture zones classify broadscale categories, so can sit uncomfortably in small scale, urban & suburban contexts.



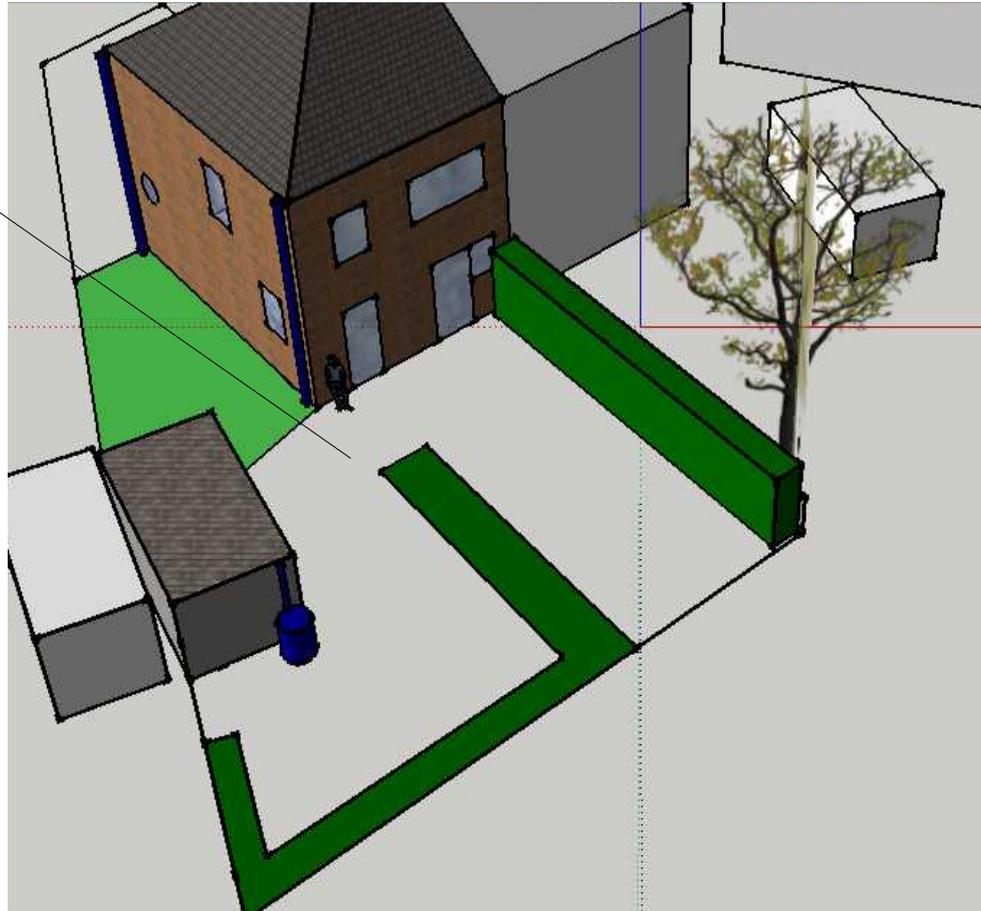
design

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Zone 1.1

The majority of the garden is a true zone 1: well overlooked from the kitchen window; intensively managed fruit & annual vegetables.



I have adapted permaculture zones here to recognise that all of the garden is effectively zone 1 due to its proximity to the home, but management of these areas will vary to reflect the functions provided by each "sub zone"

design

Zones in Urban Contexts

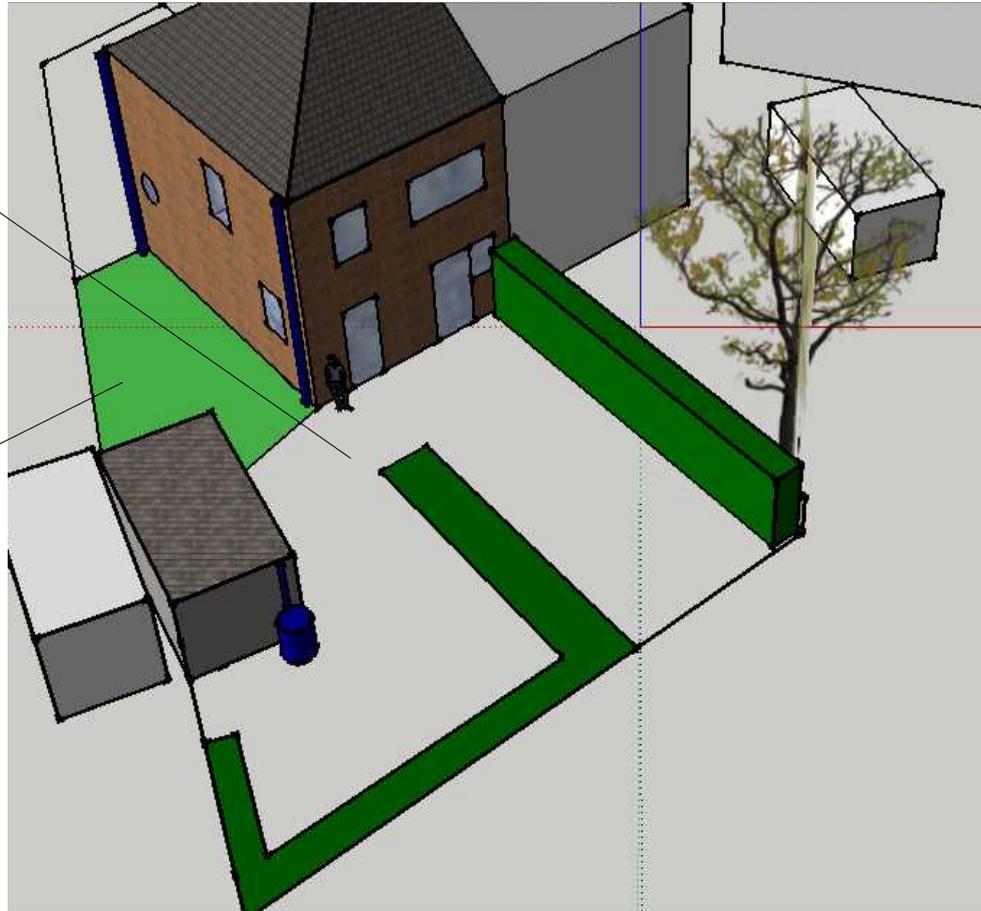
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Zone 1.2

The small area to the side of the house is less well overlooked. The warm microclimate could support exotic fruit trees.



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The area of fruit trees becomes zone 1.2: not a true orchard, but with some of the same management requirements.

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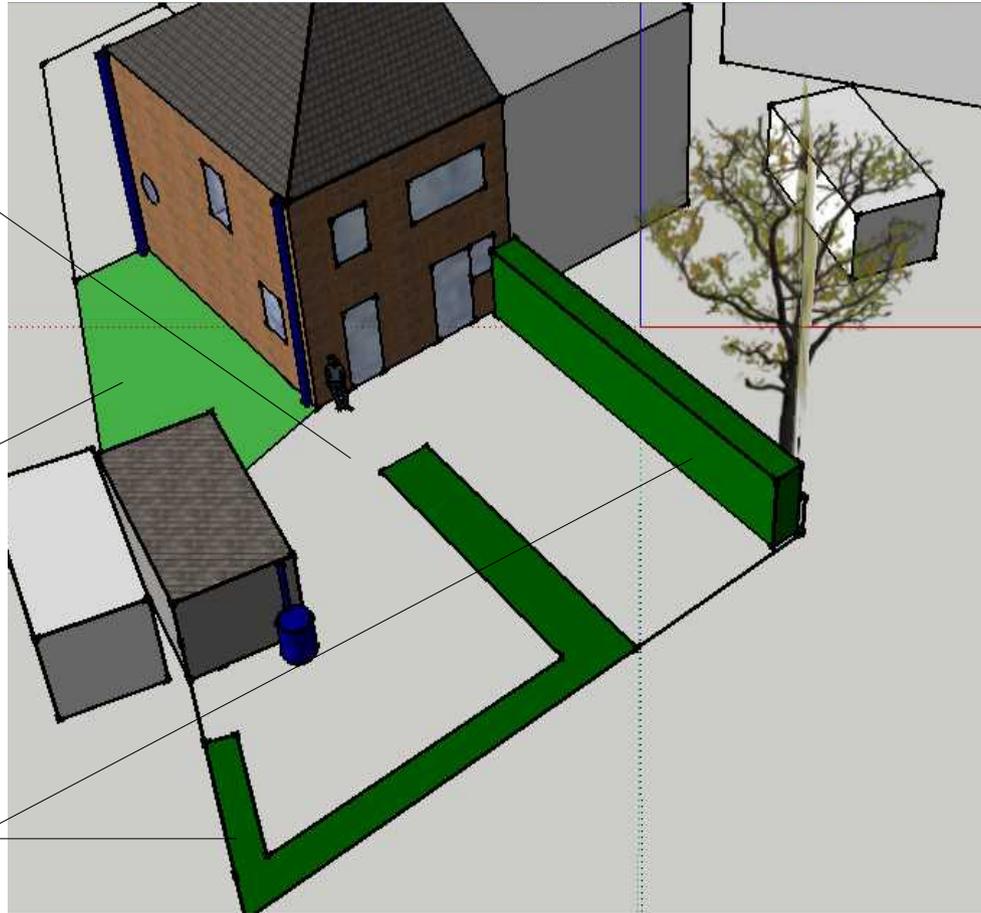
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Zone 1.2

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Zone 1.5

Not a true zone 5, as these areas will inevitably be managed in some way. However, one of their primary functions is to support wildlife.



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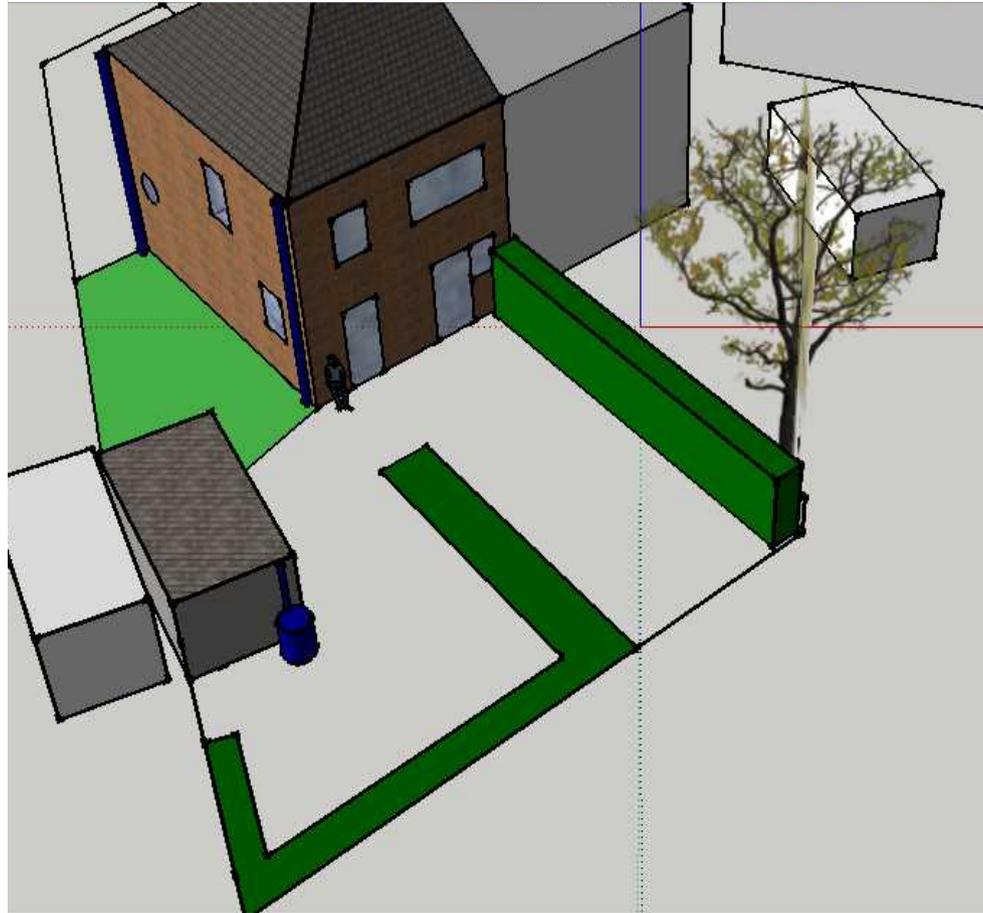
The area of fruit trees becomes zone 1.2: not a true orchard, but with some of the same management requirements.

The wildlife area becomes zone 1.5: not a true wilderness but managed primarily to support biodiversity.

design

Bubble design

High-level design setting out the main functional areas of the garden.



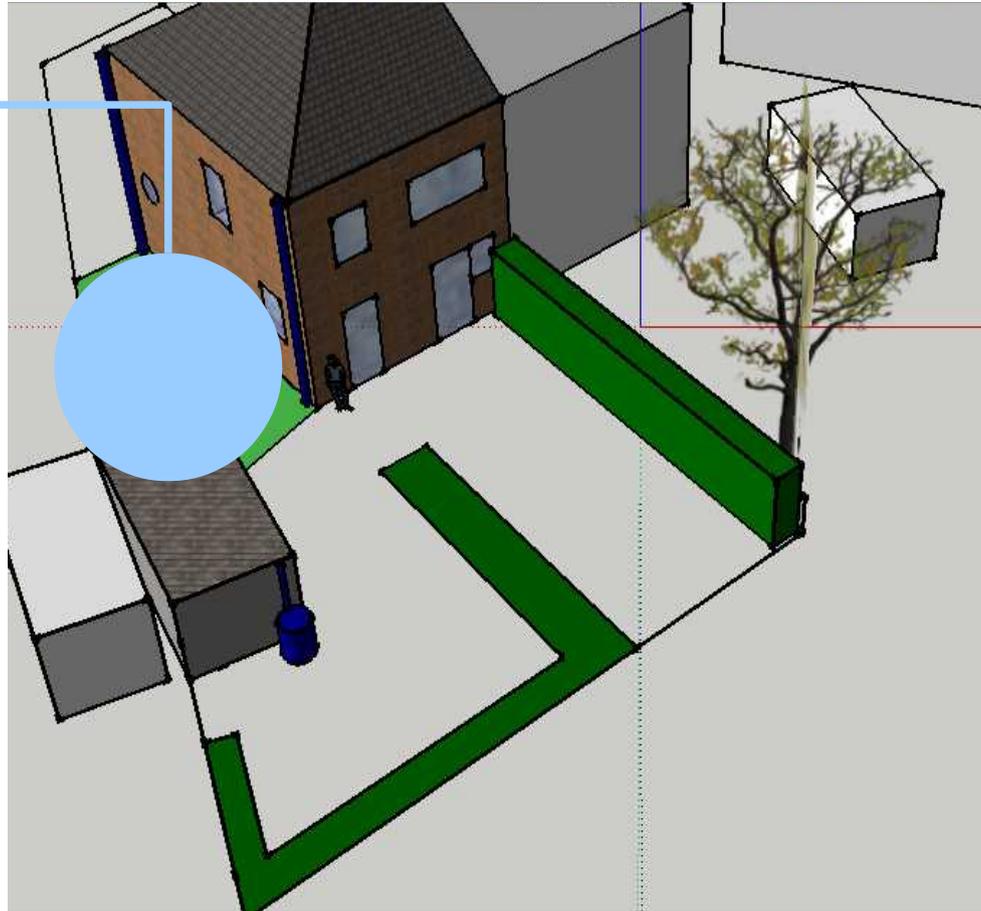
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High-level design setting out the main functional areas of the garden.

Car Park & Access

This area leads to the shared drive, front of the house & garage.



design

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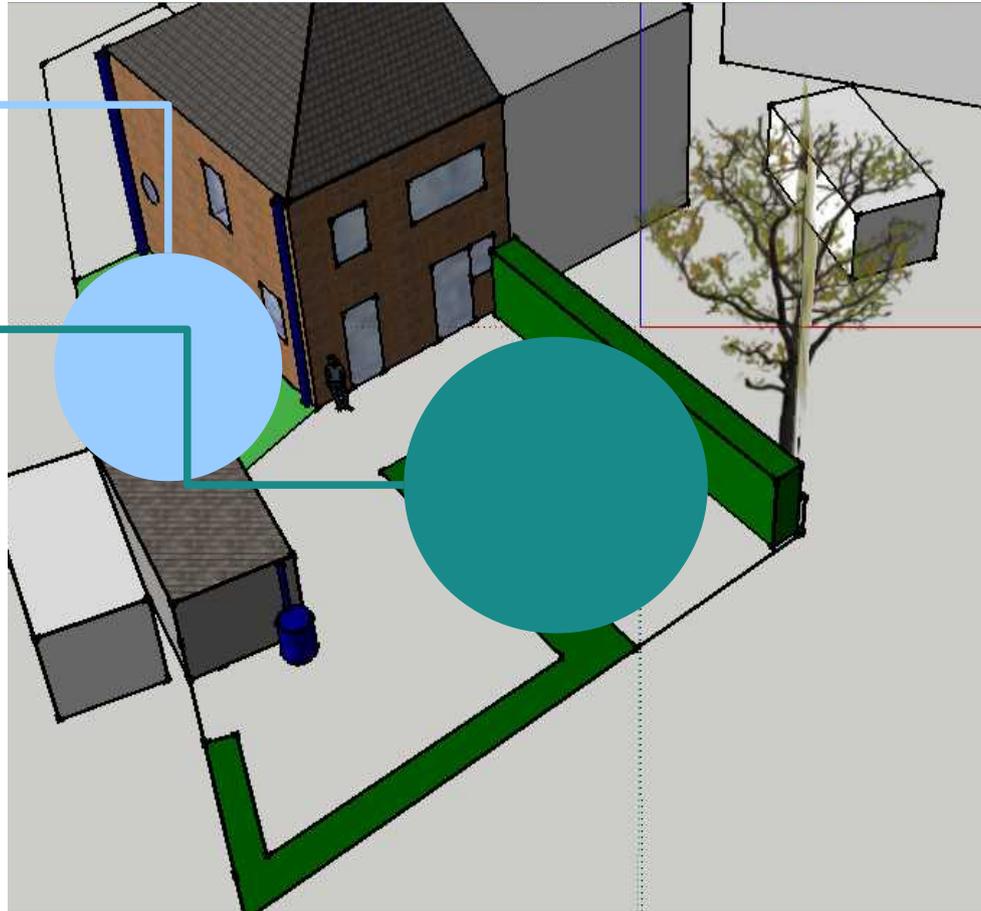
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This area is primarily for relaxing & all-age play. Also possibly the washing line



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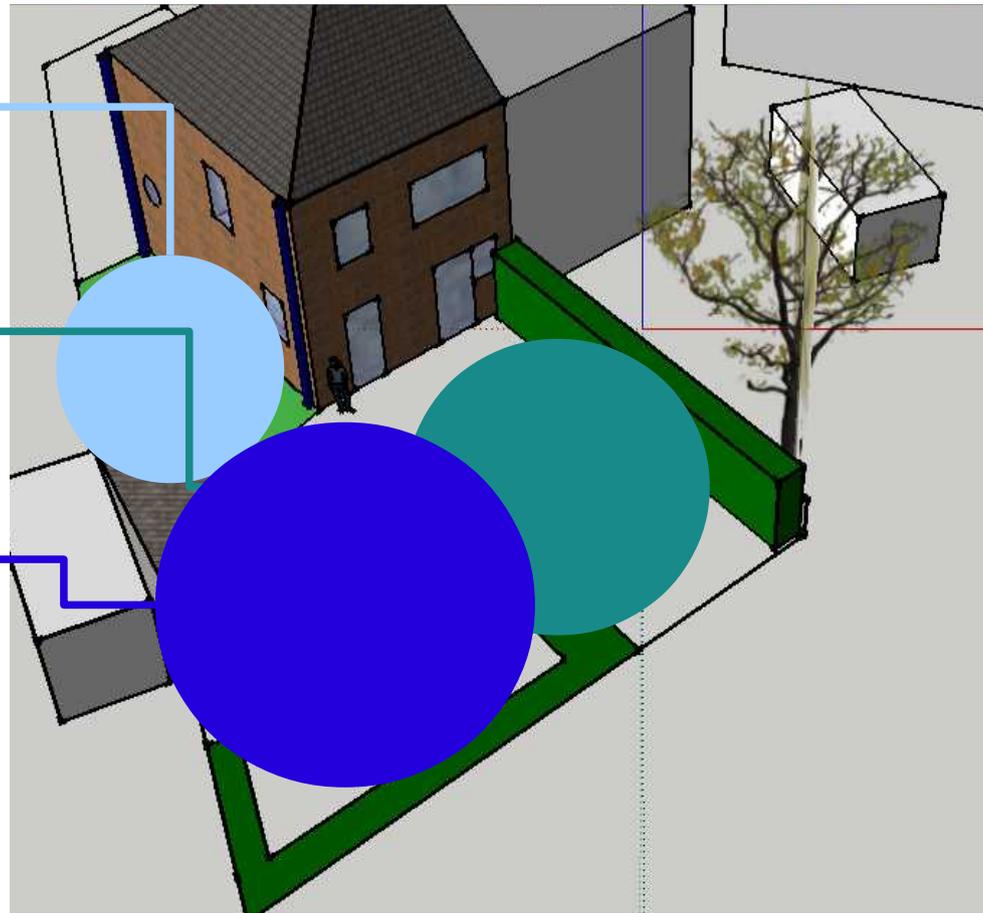
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Production & practical

Vegetable beds, fruit, composting, wood store, rainwater capture.



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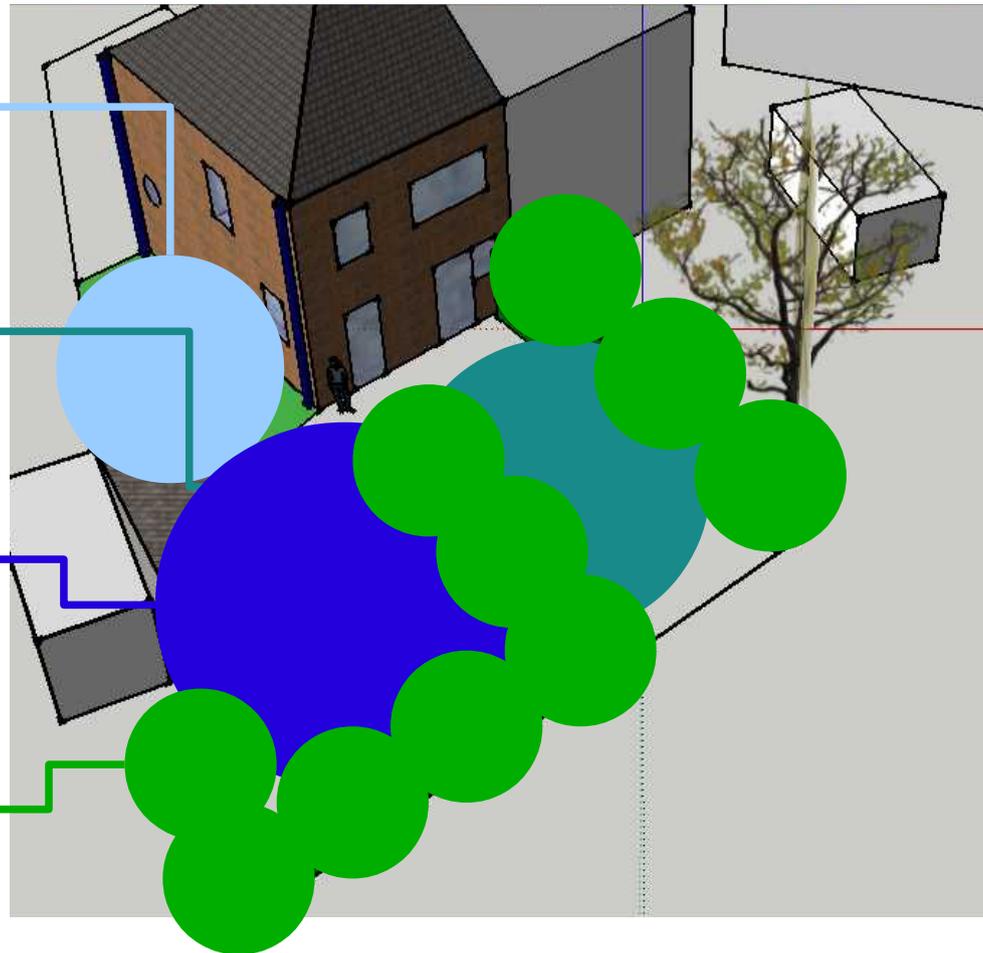
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Production & practical

Vegetable beds, fruit, composting, wood store, rainwater capture.

Wildlife

These areas support biodiversity & encourage beneficial predators.



design

When I reported the outcome of the sector analysis to the client (i.e. that the front was likely to be challenging for annual vegetables and some fruit), we decided to focus on the back garden first; the front garden could form a second phase.

Phase 2



design

Use can be made of the warm microclimate of the South-west facing wall by planting exotics such as figs or peaches. As the ground here is hard standing, container growing is the easiest option; particularly suitable for figs. Brown Turkey is the best variety for Leeds.

Phase 2

Trained fruit/climbers



Detailed design

design

This area is already hardstanding. It leads to the garage and access is shared with next door. It is not practical or desirable to make any changes here at present.

Phase 2

Trained fruit/climbers

Car parking



Detailed design

design

The shady wall is used for the 3 compost heaps and the log store, which is close to the back door to keep winter trips to get logs as short as possible. The compost heaps have a trellis above them to lift climbers or ramblers out of the shade and onto the sunny garage roof.

- Phase 2
- Trained fruit/climbers
- Car parking
- Compost bins / log store



Detailed design

design

The thermal mass of the concrete garage wall can even out temperature fluctuations in the greenhouse. Also, the water butt could be kept *inside* the greenhouse to further stabilise temperatures. This should help to reduce frost damage risk.

Phase 2

Trained fruit/climbers

Car parking

Compost bins / log store

Protected cropping



Detailed design

design

A fairly large part of the garden is given over to annual vegetables. The open & sunny aspect, plus light reflected off the front of the greenhouse will benefit crops in this area. Close proximity to the water butt is also an advantage.



Detailed design

design

A hedge could be planted here to protect the garden from the prevailing winds and provide wildlife habitat.

Phase 2

Trained fruit/climbers

Car parking

Compost bins / log store

Protected cropping

Annual vegetables

Wind break/wildlife habitat



Detailed design

design

The pergola provides shade over the seating area and support for vine fruit such as grapes or kiwis, that could be grown in the soil or in pots on the patio. Additionally, ornamental climbers could provide nectar for insects & birds.

Phase 2

Trained fruit/climbers

Car parking

Compost bins / log store

Protected cropping

Annual vegetables

Wind break/wildlife habitat



Pergola for shade/support

Detailed design

design

A specific request from the client for a shaded seating area that could frame views of the garden

Phase 2

Trained fruit/climbers

Car parking

Compost bins / log store

Protected cropping

Annual vegetables

Wind break/wildlife habitat



Pergola for shade/support

Shaded seating area

Detailed design

design

The pond is to the south of the pergola so that stored heat and reflected light create a microclimate for fruit on the pergola. It is adjacent to annual vegetable beds to encourage beneficial predation. It is also visible from the kitchen window, so wildlife can be observed without being disturbed.



Detailed design

design

There is a small area of lawn for Emma's Niece to play on when she visits, for tents/gazebos to be pitched on, and if Seb & Emma are entertaining a larger group, it can be used as a third seating space, connecting the other two.



Detailed design

design

This area catches the late afternoon sun in mid-summer, so Emma can relax in the sun when she gets home from the office. It also doubles up as a sunny spot for barbecues on warm weekends: being a bit further away from the house means that smoke & smells won't fill the house.



Detailed design

design

A dwarf apple is planted along the southern boundary to provide some dappled shade to the sunny seating area at the hottest part of the day, while keeping the open & sunny aspect of most of the garden



Detailed design

design

Wildflowers provide insect forage and long grasses provide cover for amphibians & other wildlife to approach the pond safely, and to connect the pond to the hedgerow habitat



Detailed design

design

Circulation design

The sector analysis and patterning were both applied to optimise circulation routes around the garden.



design

Circulation design

The sector analysis and patterning were both applied to optimise circulation routes around the garden.

Path placed in the shade of the garage/trellis so veg. beds have a sunnier position



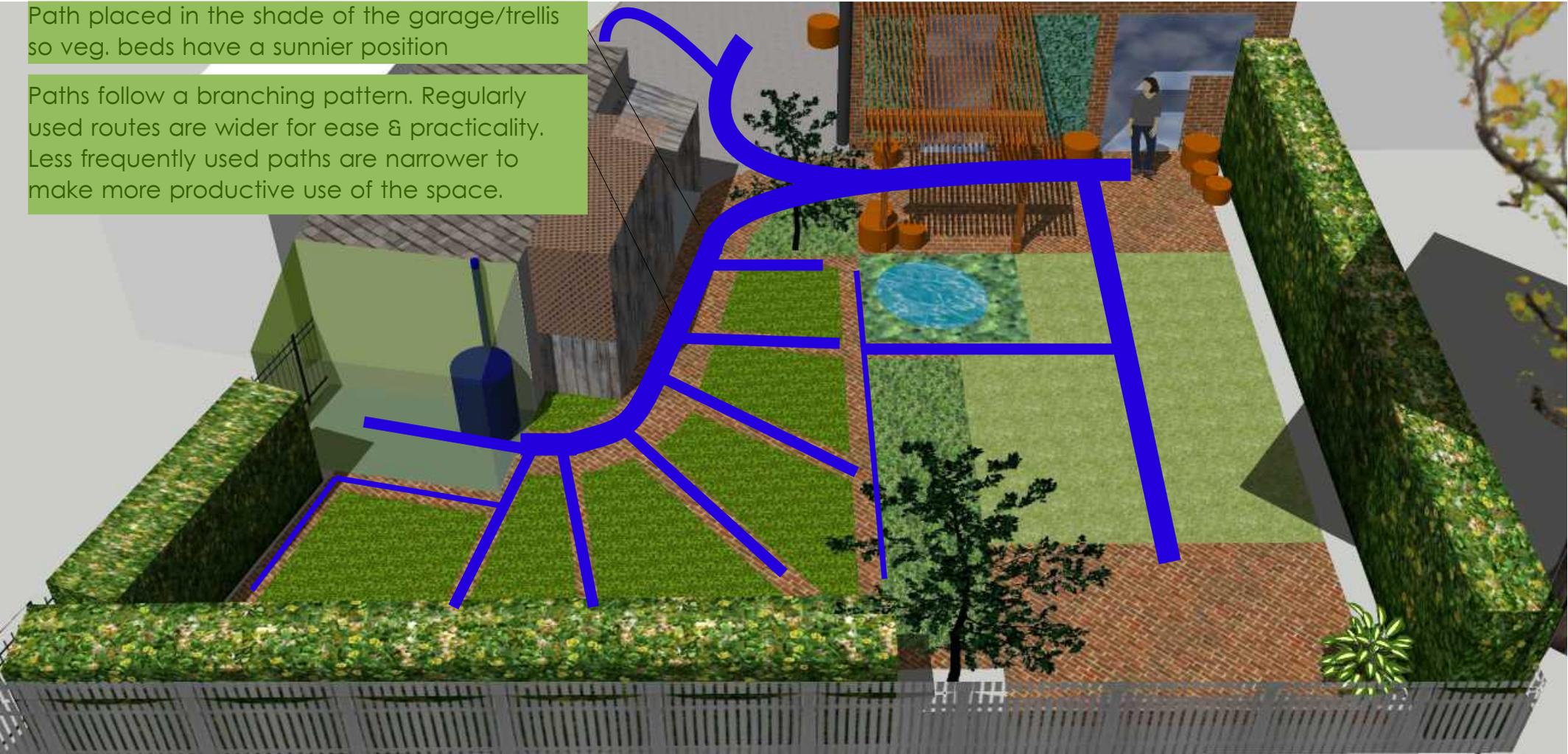
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Path placed in the shade of the garage/trellis so veg. beds have a sunnier position

Paths follow a branching pattern. Regularly used routes are wider for ease & practicality. Less frequently used paths are narrower to make more productive use of the space.



Circulation design

design

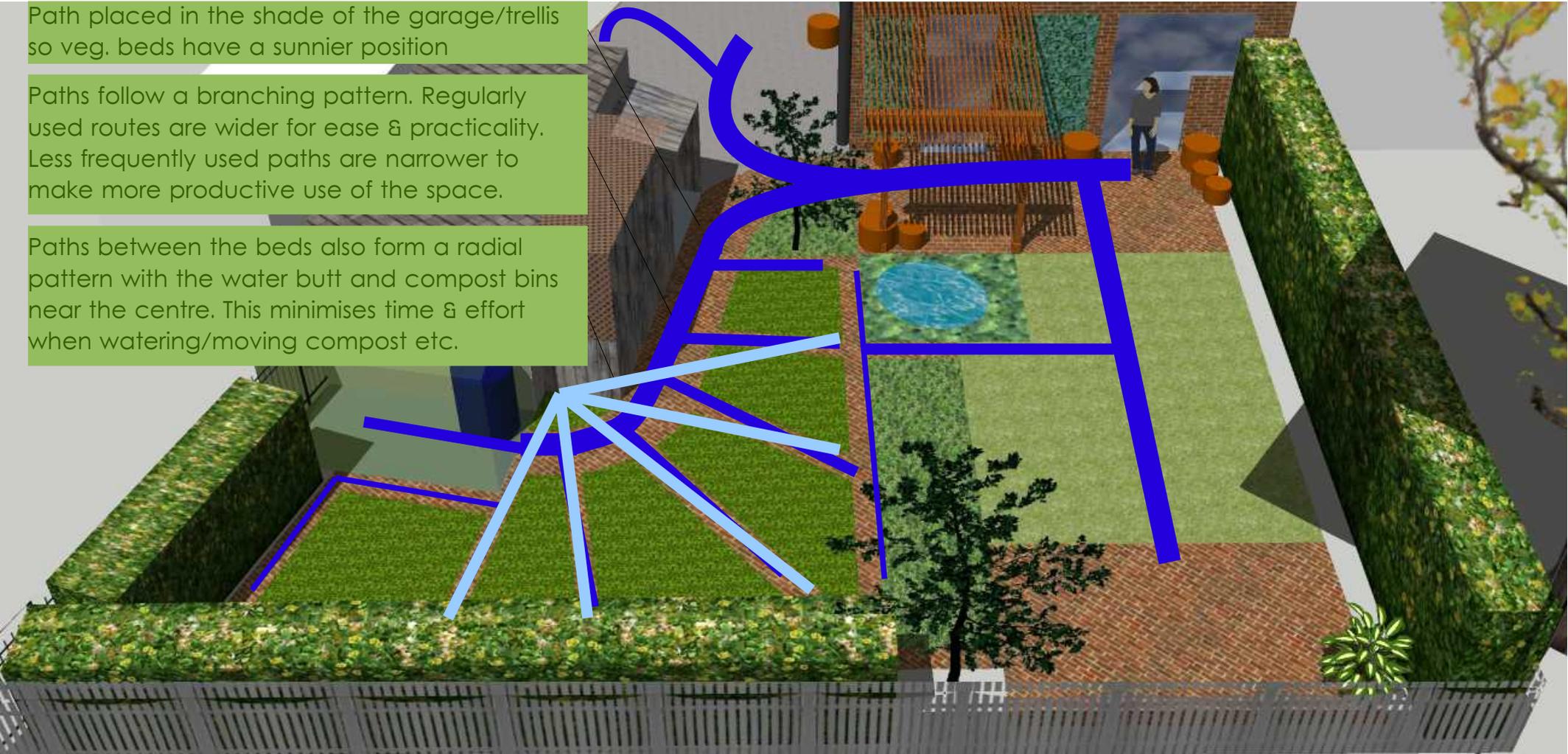
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Paths between the beds also form a radial pattern with the water butt and compost bins near the centre. This minimises time & effort when watering/moving compost etc.



design

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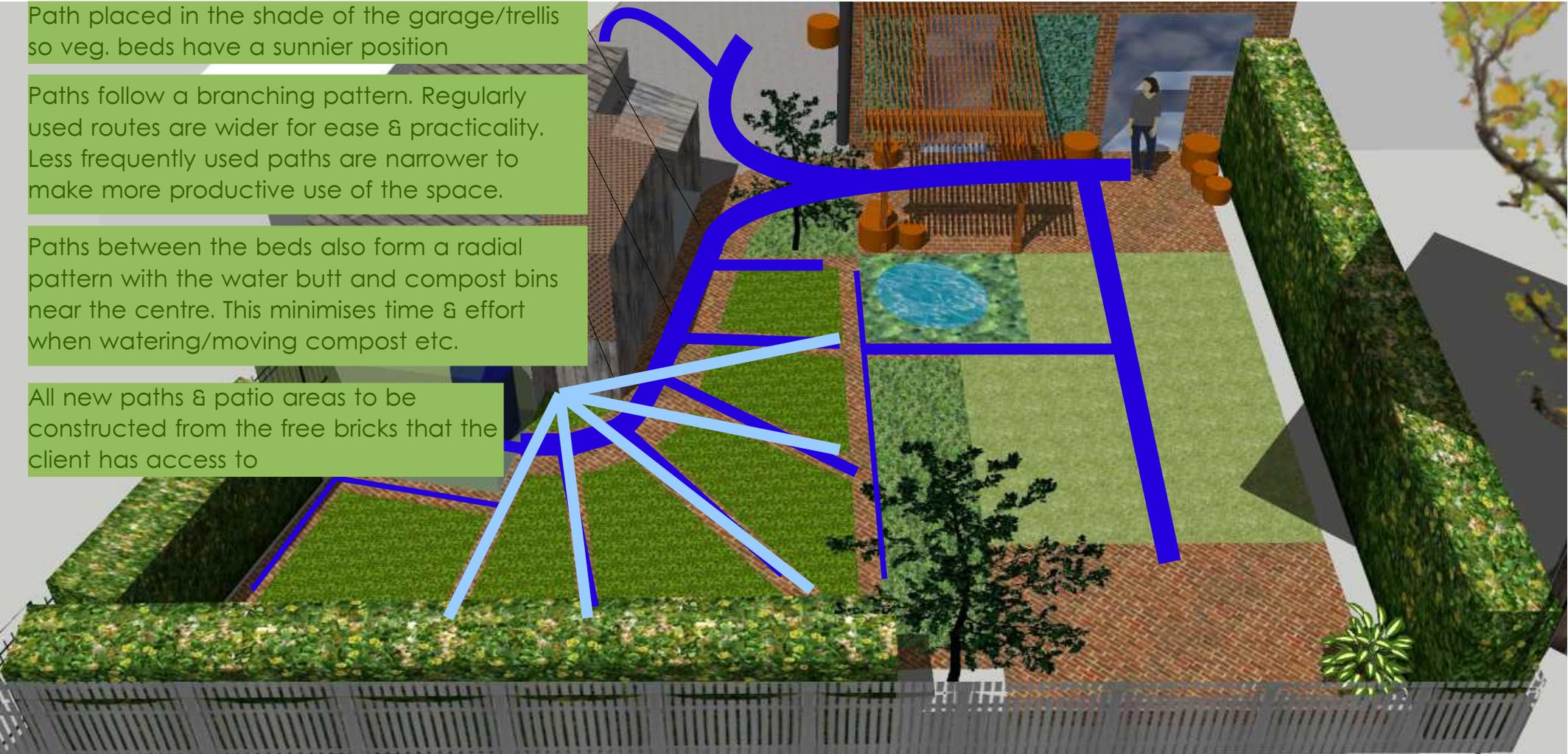
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All new paths & patio areas to be constructed from the free bricks that the client has access to



Circulation design

evaluation

Implementation, Maintenance etc.

I was not asked to produce an implementation plan, maintenance schedule or budget for this design. The client was keen to lead on these aspects.

Application of permaculture ethics

People Care

- Responding to the brief, empowering the client
- Considering the lifestyles of the clients & adding extra thoughtful details (e.g. sunny afternoon seating area, log store close to back door etc)
- I took guitar lessons as payment for the design work

Earth Care

- 'zone 1.5': variety of wildlife habitat types
- encouraging composting

Setting Limits to Consumption & Redistributing Surplus

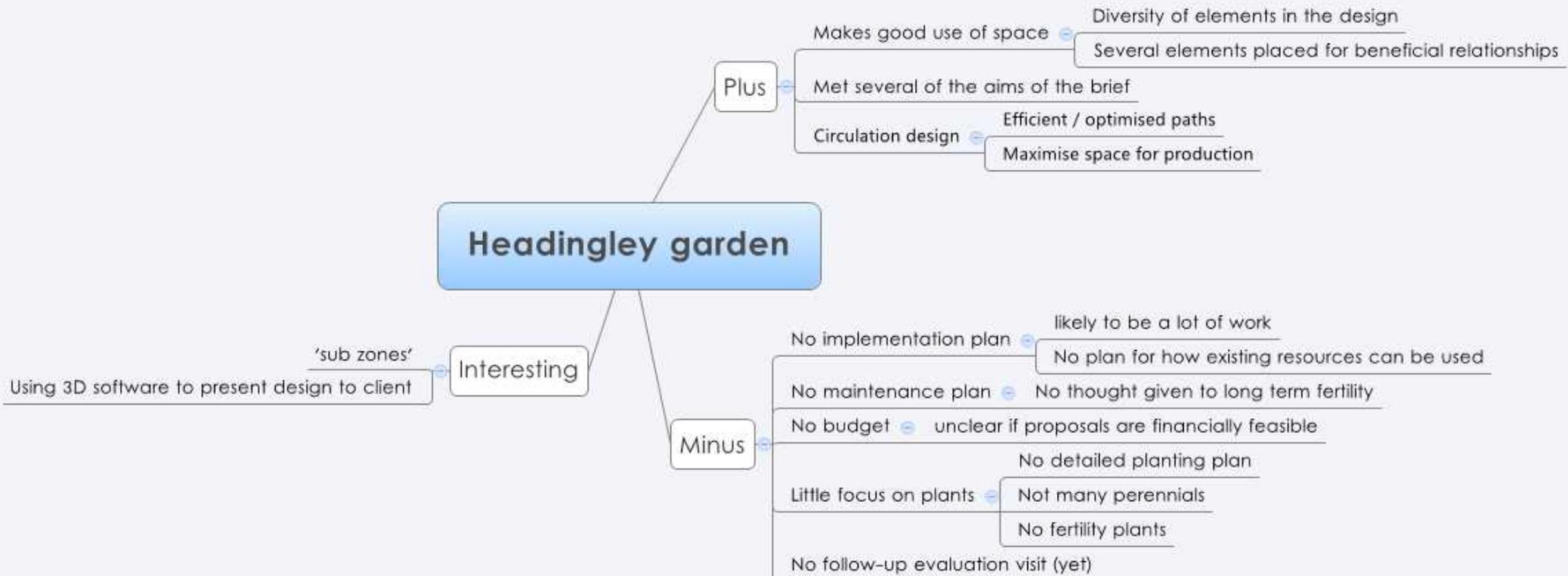
- Enabling the client to produce more food in their garden allows them to limit their consumption of unsustainably produced food and, in good years, share any surplus/glut with family & friends.

evaluation

Application of permaculture principles

Observe & Interact	- Using multiple sources of information, and a diversity of tools to analyse the site
Catch & Store Energy	- Use of beneficial microclimates, thermal mass & reflected light
Obtain a Yield	- several opportunities
Apply Self-regulation & Accept Feedback	-
Use & Value Renewable Resources & Services	- Encouraged client to shred & compost as much woody waste as possible/feasible
Produce no Waste	- compost bins provided for recycling of kitchen & garden waste
Design from Patterns to Details	- Zones, bubble design, detailed design
Integrate Rather than Segregate	- relative location of numerous elements; pond/pergola; greenhouse/garage/water butt; compost bins/trellis, pond/vegetable beds, pond/wildlife corridor...
Use Small & Slow Solutions	- deciding to concentrate on the back garden in the first instance & build on successes.
Use & Value Diversity	-
Use Edges & Value the Marginal	- Garage roof as growing space; sunny wall in carpark area as fruit production space.
Creatively Use & Respond to Change	-

evaluation



reflection

Action Learning Questions

What went well?

- Turned the design around quickly
- Use of Software tools was positive, especially for shading analysis; continued developing sketchup skills & my design presentation style.
- Client seemed impressed by imagery & (some) ideas
- Getting "paid" to design is always good.
- Moneyless exchange

What was challenging?

- Not planning the implementation; I think the design would have been better if I'd had to work through the practicalities of implementing it, as this step can reveal flaws in the design.
- I didn't sell my ideas as well as I could have. Consequently the client seemed lukewarm about some of them
 - Do differently: explain the rationale for design decisions
 - Lesson learned: don't assume that benefits of given design choices are self-evident

Long term visions & goals:

- More implemented, maintained, costed designs
- More designs for my own home & lifestyle
- Continued experimentation with & development of presentation style
- More non-land based designs
- Application of permaculture design to projects at the Permaculture Association

Next achievable steps:

- Arrange follow-up evaluation visit
- Start planning designs for my garden at LILAC
- Identify a suitable project at the Permaculture Association and start applying design cycle & tools.