Agrifutures

Some Spring Morning Winds

Spring Evening Winds

Summer Evening Winds

DRIVEWAY / ACCESS

COLLECT MAIL

EXISTING HOUSE

TANK

DRIVEWAY

LETTER BOX

GATE

Aut Eve Wind

TANK

UNDER HOUSE TANK
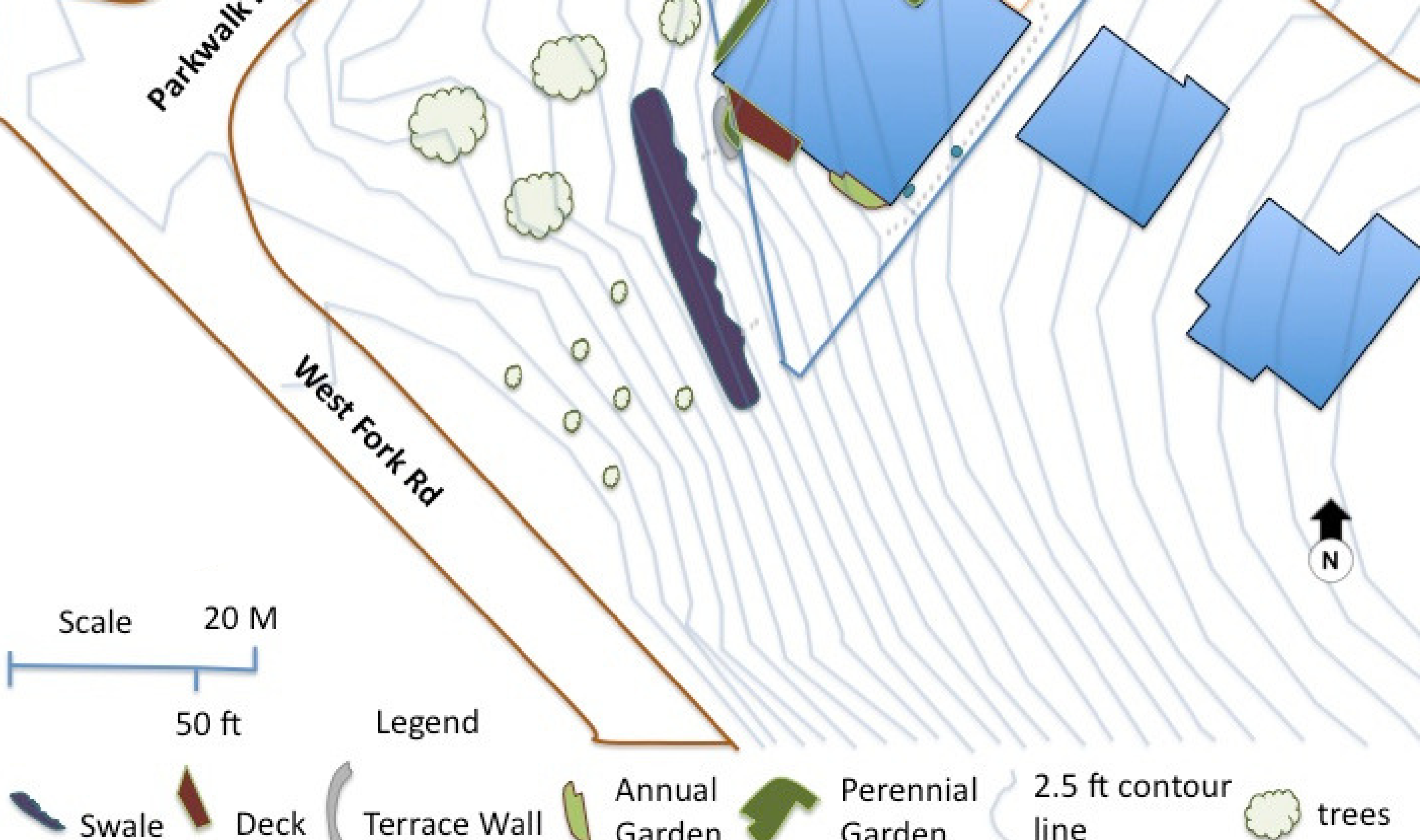
VERGE

UXBRIDGE STREET

1. Site

Base Maps

The purpose of the site module task is to create a base map showing topography and existing features of your site and superimposed on top of this a sector map, showing the movement of energies on a site.

A base map forms the basis for the design. Maps are easily acquired using Google Earth, Google Maps or other similar online tools. If you also can acquire a contour map showing the terrain, it will prove extremely useful during the next step. The base map is a scale drawing showing the basic, permanent features of your design site. There's a couple of ways to do it. A base map is the starting point for a permaculture design, in terms of laying out elements and design features on your design site, as well as site analysis and assessment.

If you can't get a map for whatever reason, maybe you could sketch one, creating a rough base map that shows the site's most critical features and what is currently on it. I would suggest to include names, north indicator, location, scale, and anything that cannot be changed.

Scale 20 M

50 ft

Legend

Swale — Deck — Terrace Wall — Annual Garden — Perennial Garden — 2.5 ft contour line — trees

West Fork Rd

Parkwalk

N

Why make a base map?

• To give a place to record our observations & interpretations of the site.

• To give us a canvas for drawing our concept, schematic and detailed designs.

• To reduce the time we have to spend redrawing the permanent elements of the site.

• To provide consistency between the different plans & drawings we are going to present to other people.

• It gives us a not quite "blank canvas" that we can quickly duplicate.

• Because we can easily make many copies, it frees up our creativity to experiment and not care so much if we make a mistake.

Observing Site

Key to permaculture is good observation. Ideally you should do nothing for a year or so and simply grow familiar with the four seasons, the existing weather and environmental patterns; where's the wind blowing, water flowing, pollution drifting, neighbours walking, exposure to sun and wind, and so on.

Walk the site and conduct surveys. What wildlife is there? What is the soil like and does it vary across the site? What plants are growing on the site and in the wild? Identify any free or cheap resources available on or close to the site, along with water possibilities and sources on the land. What are the boundaries of the site, note the existing buildings and paths. Make lists of what you see.

Most information comes from direct observation, but data from other sources can also be of aid. Search the internet for more detail about rainfall, hydrology, insolation, and wind speeds. Read up on the context of the site: regional (geographic) and bioregional (flora and fauna), site history and development patterns of the locality.

Talk with neighbours and people from the local community to gather invaluable intelligence that may not be available from any other source.

Analyse Site

You have collected the bulk of information you need, now you are ready to analyse the data and see what it reveals.
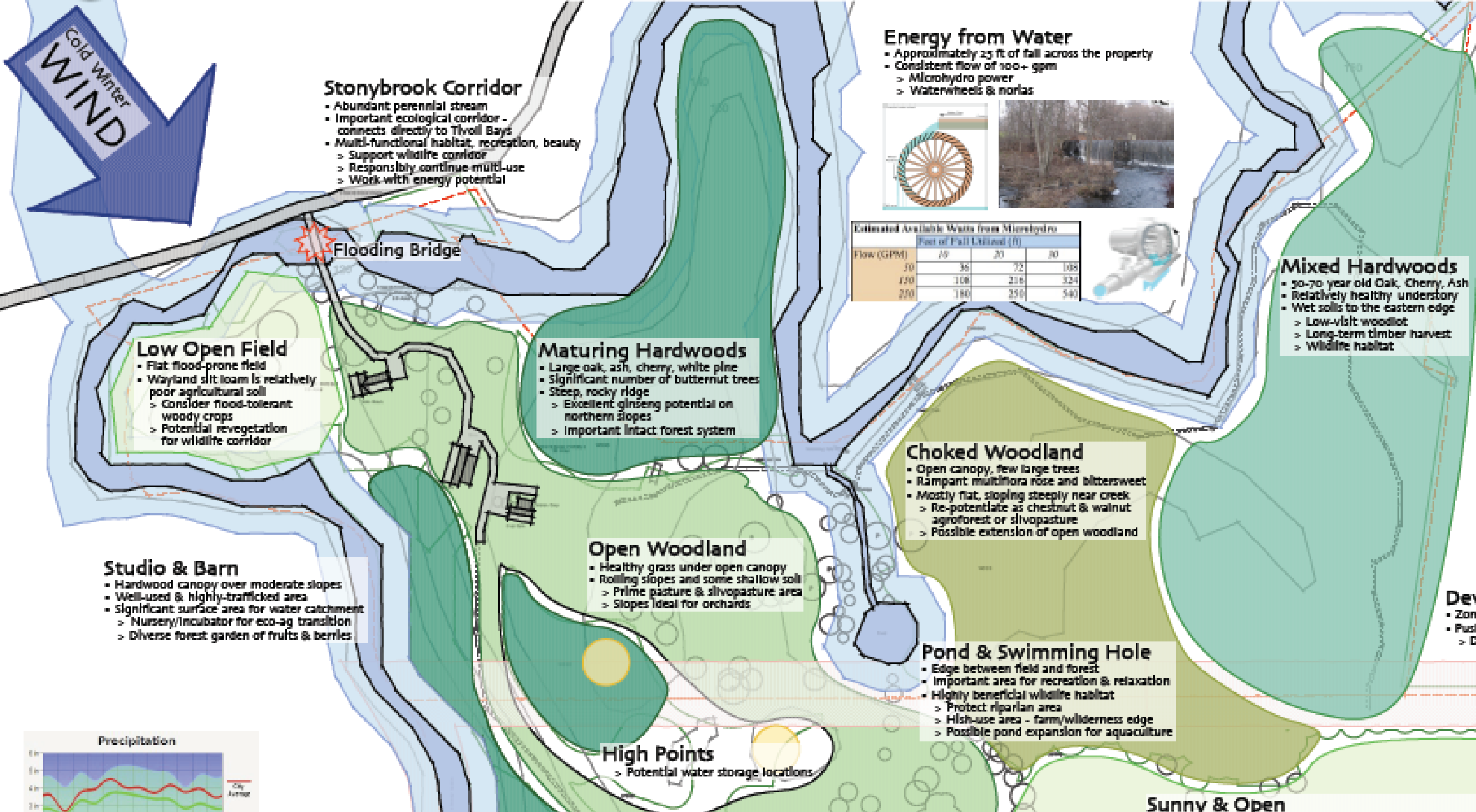
At this point, you should organise your observations and identify the strongest influences that you need to design for by exploring all of the landscape's components.

Start with climate first, this will exert the strongest influence on your site and can't be altered. Analyse the info about rainfall, insolation, frost dates and plant hardiness.

Next, get your base map of the site and mark the boundaries (site dimensions), chart the existing infrastructure – buildings, roads, paths and fencing.

Analyse geography, slope and aspects, major land features such as ridges and valleys. Water drainage and watercourses, water sources such as creeks, dams, and ponds.

Existing trees and other principal plants growing at the site. Soil types (clay, sand, gravel, rock) and conditions (wet, dry, boggy…) across the site.

Cold Winter WIND

Stonybrook Corridor
- Abundant perennial stream
- Important ecological corridor - connects directly to Tivoli Bays
- Multi-functional habitat, recreation, beauty
  > Support wildlife corridor
  > Responsibly continue multi-use
  > Work with energy potential

Flooding Bridge

Energy from Water
- Approximately 25 ft of fall across the property
- Consistent flow of 100+ gpm
  > Microhydro power
  > Waterwheels & norias

Estimated Available Watts from Microhydro

Flow (GPM)	Feet of Fall Utilized (ft)		
	10	20	30
50	36	72	108
150	108	216	324
250	180	350	540

Mixed Hardwoods
- 50-70 year old Oak, Cherry, Ash
- Relatively healthy understory
- Wet soils to the eastern edge
  > Low-visit woodlot
  > Long-term timber harvest
  > Wildlife habitat

Low Open Field
- Flat flood-prone field
- Wayland silt loam is relatively poor agricultural soil
  > Consider flood-tolerant woody crops
  > Potential revegetation for wildlife corridor

Maturing Hardwoods
- Large oak, ash, cherry, white pine
- Significant number of butternut trees
- Steep, rocky ridge
  > Excellent ginseng potential on northern slopes
  > Important intact forest system

Choked Woodland
- Open canopy, few large trees
- Rampant multiflora rose and bittersweet
- Mostly flat, sloping steeply near creek
  > Re-potentiate as chestnut & walnut agroforest or silvopasture
  > Possible extension of open woodland

Studio & Barn
- Hardwood canopy over moderate slopes
- Well-used & highly-trafficked area
- Significant surface area for water catchment
  > Nursery/incubator for eco-ag transition
  > Diverse forest garden of fruits & berries

Open Woodland
- Healthy grass under open canopy
- Rolling slopes and some shallow soil
  > Prime pasture & silvopasture area
  > Slopes ideal for orchards

Dev
- Zon
- Pus
  > D

Pond & Swimming Hole
- Edge between field and forest
- Important area for recreation & relaxation
- Highly beneficial wildlife habitat
  > Protect riparian area
  > High-use area - farm/wilderness edge
  > Possible pond expansion for aquaculture

Precipitation

High Points
  > Potential water storage locations

Sunny & Open

Do a sector analysis and map the forces coming from outside the site, factors such as sun, wind, flooding, fire, pollution, and wildlife. By locating and mapping out the various sectors you can later place your pieces of design in proper relationship to the outside forces entering the site.

Define microclimates or differences around the site based on topography, slope aspect, overall land configuration. This will influence your plant species selection and location and enable you to plan for greater crop diversity.
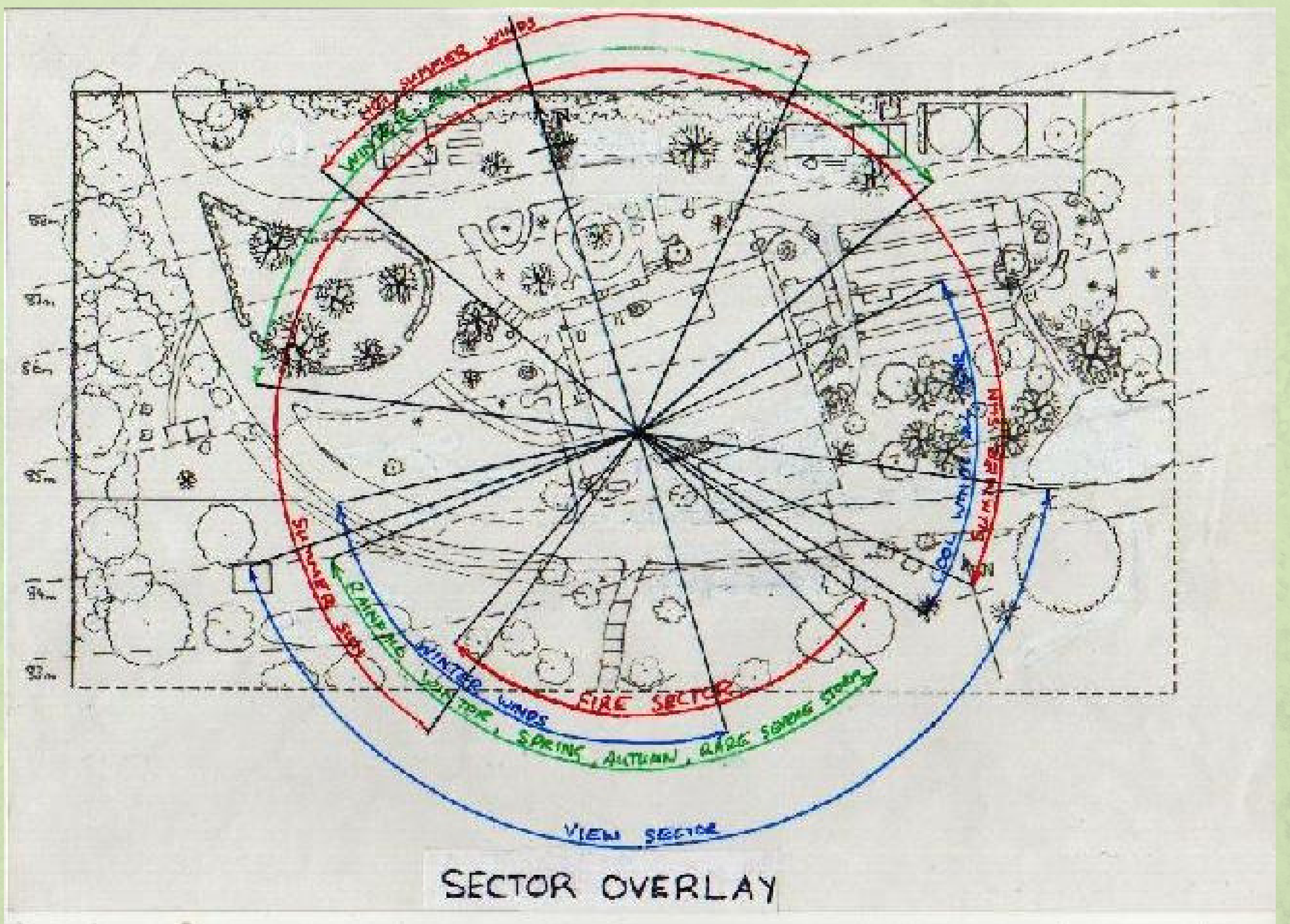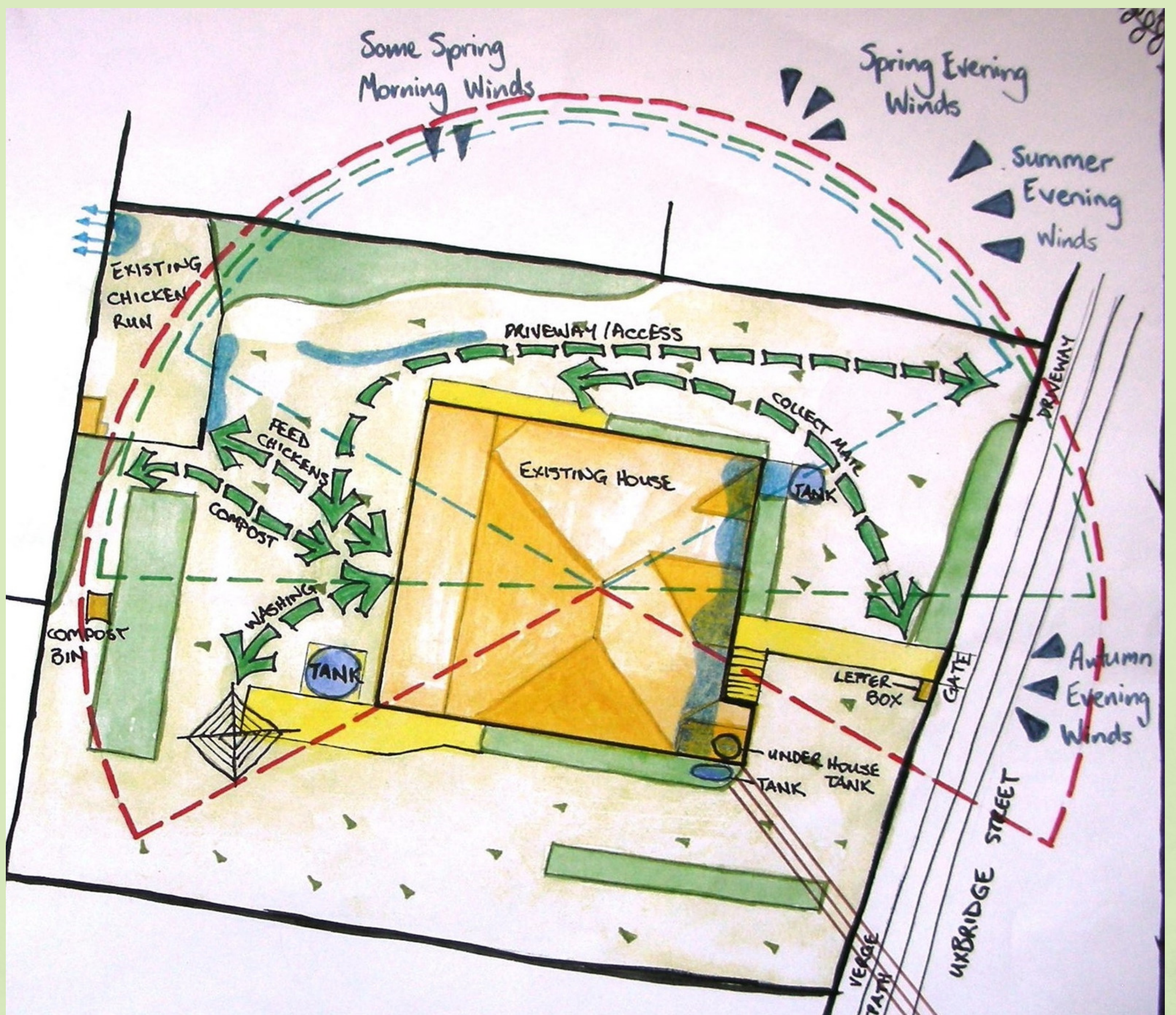
Sector Analysis
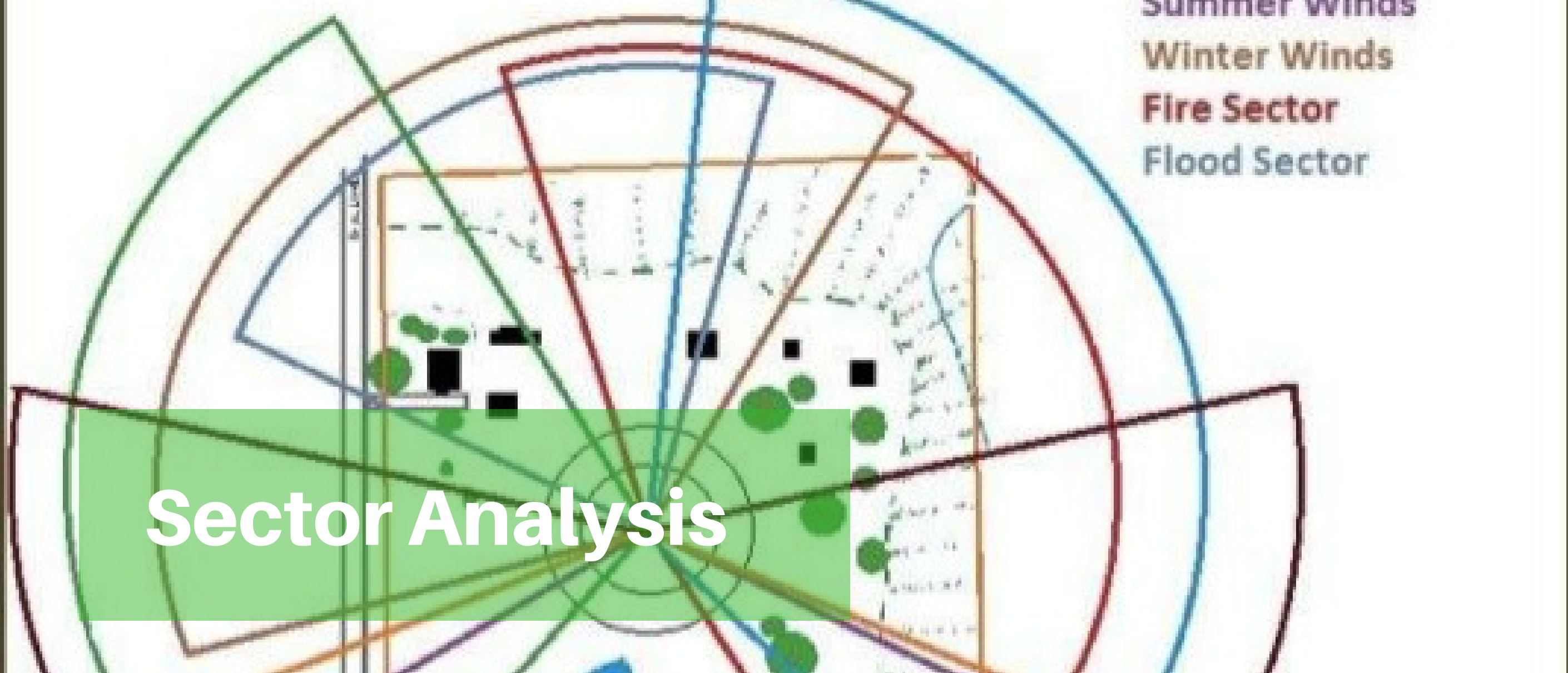
Sector planning is concerned with energies external to our site, the elements and forces of Nature, that come from outside our system, and pass through it.
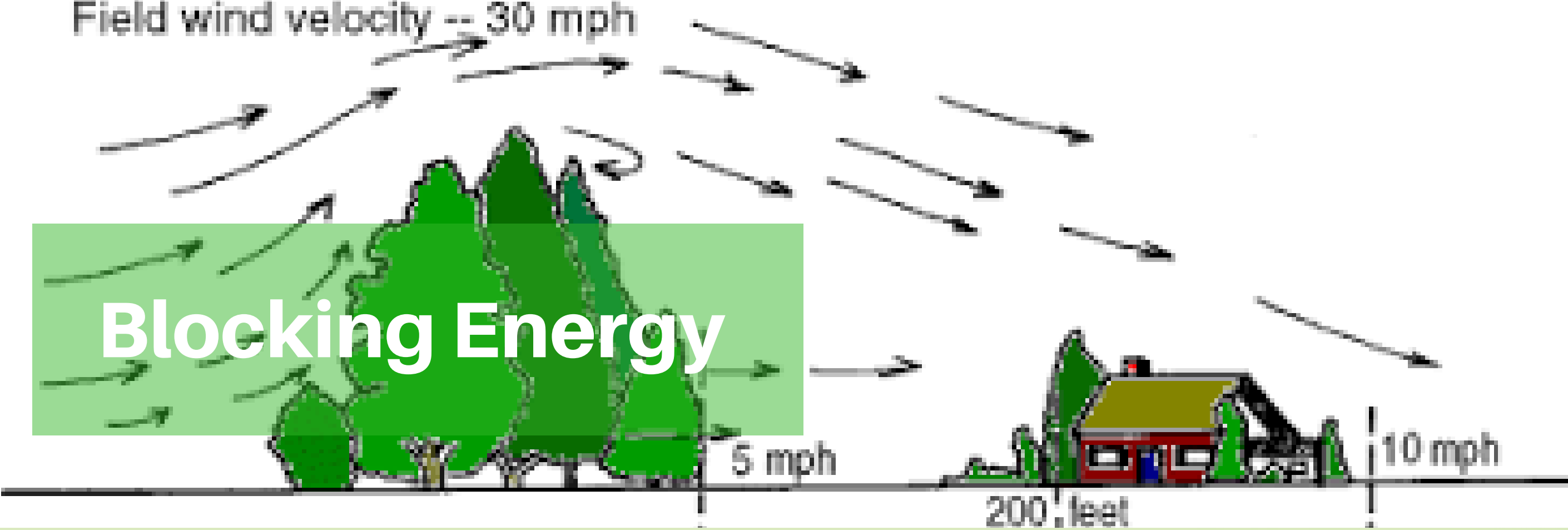
These energies include:

• hot summer winds
• cold winter winds
• winter and summer sun angles
• salty or damaging winds
• water flow and flood prone areas
• unwanted views
• fire danger areas

Since these wild energies come into our system from outside, we can strategically place elements in our design to manage or take advantage of these incoming energies.
By placing plants, trees or structures in the appropriate areas, we can:

• Block the incoming energy
• Channel the incoming energy for our intended use
• Open the area to allow the incoming energy in

Some Spring Morning Winds

Spring Evening Winds

Summer Evening Winds

EXISTING CHICKEN RUN

DRIVEWAY/ACCESS

COLLECT MAIL

EXISTING HOUSE

TANK

FEED CHICKENS

COMPOST

WASHING

COMPOST BIN

TANK

LETTER BOX

GATE

UNDER HOUSE TANK

Autumn Evening Winds

VEGGE PATCH

UXBRIDGE STREET

DRIVEWAY

SECTOR OVERLAY

Blocking Energy

5 mph

200 feet

10 mph

Where external incoming energy is detrimental to our system, we can block its flow, preventing disruption to our system.

Wind is an element which often requires steps to manage it in most designs. Hot summer winds, cold winter winds, salty seaside breezes, and damaging dusty winds all need to be restricted in a design through the use of windbreaks. Windbreaks can be constructed using specifically resilient plants and trees, or by building protective structures.

Identifying where the summer sun and winter sun shines is important for managing the harsh midday and afternoon summer sun (north and west sun in southern hemisphere, south and west sun in northern hemisphere). Deciduous trees can be planted around the house to block the sun in summer, keeping the house cool. In winter, when the leaves fall, the low winter sun can warm the house naturally. Man-made structures can also be built around the house which take advantage of the sun's low winter angle and high summer angle to provide summer shade and winter sun.

Another application of 'blocking incoming energy' is the screening of unwanted views. Trees, plants and structures can be erected to provide additional privacy, and block out unwanted views, while providing a more aesthetically pleasing alternative.

Channeling Energy

Free energy coming into our site from outside can also be utilised for our benefit.

Water flowing into our site, either from directly above as rain, from run-off coming from adjacent properties, or collecting in an area (such as a flood prone area) can he redirected into lakes, dams, ponds, irrigation channels, swales and other water management systems.

Wetter areas can be used specifically to grow very 'thirsty' plants and trees, which will help manage the excess water, or they can be converted to wetlands or bodies of water, such as ponds, lakes and dams for water storage.

Water can be captured at an elevated point on the site, and being elevated, it is a store of what they call 'potential energy' in physics. The water can then flow under gravity to perform work, such as irrigation or water supply.

Water flowing across a stream or river can be used to drive a hydroelectric generator to provide electricity, or can have some of the flow diverted for irrigation purposes.

Wind can be captured to drive wind turbines or windmills, providing a source of free energy to the site which we can utilise for our purposes.

Sunlight can be harnessed in the generation of solar power, solar water heating, drying foodstuffs and so forth.

Opening areas to energy
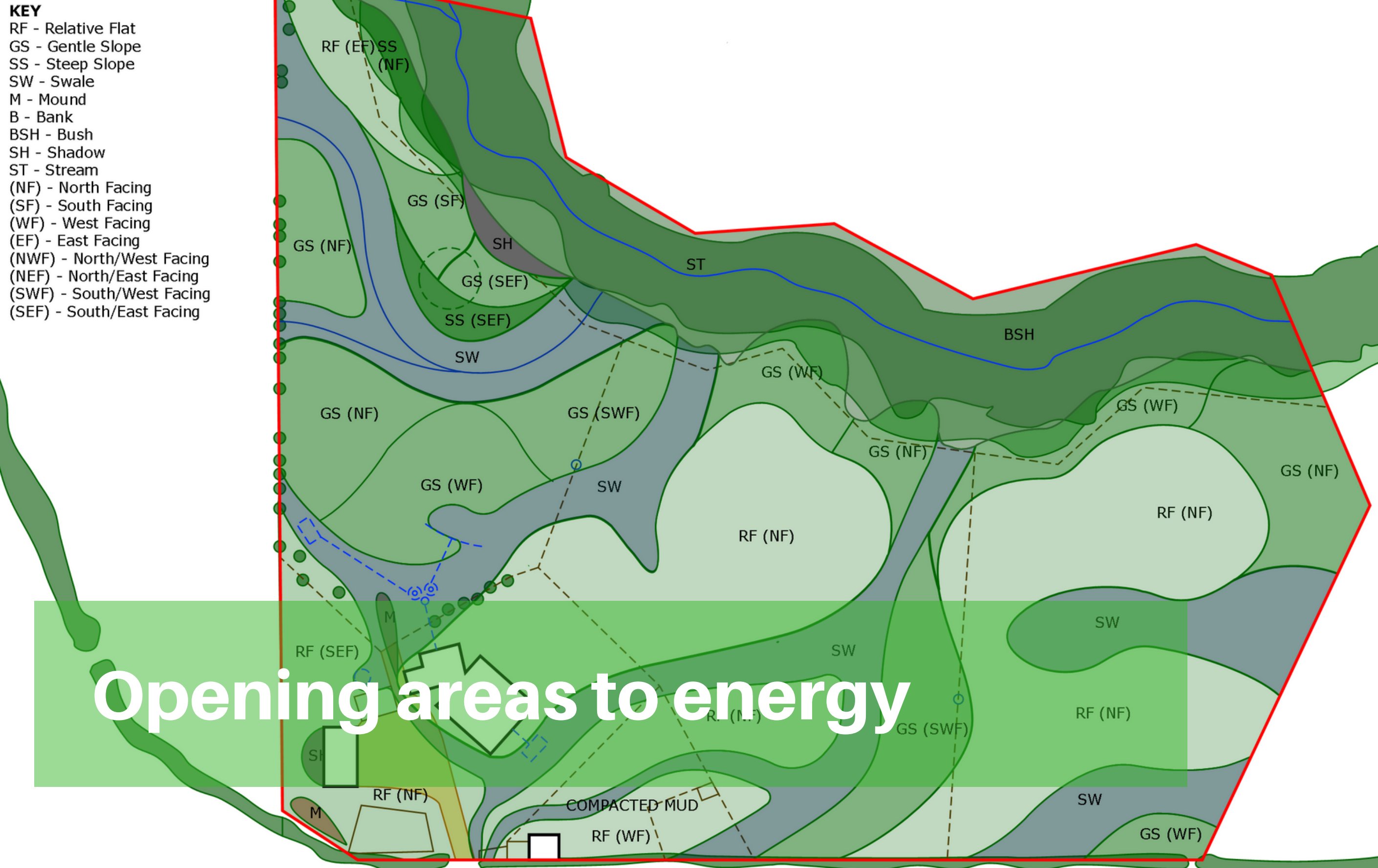
An area of a site can be opened up or cleared to allow a natural energy to come into the system more easily. Sunlight is one of the elements of nature that we might want to increase in our design. If we have structures or trees blocking the light reaching our Zone 1 kitchen garden for example, rather than relocate the garden, we can clear the area to allow more light in. Where places are too shaded, we can thin out trees or branches to increase productivity from our available space.

Similarly, we can clear an area to create a view of a pleasant outside area. If we have potentially stunning views of mountains, lakes, forests or simply an inspiring piece of Nature from the home, we will want to clear and objects obstructing the view to take advantage of such a positive feature in our site design.