

PERENNIAL PROJECT

PART 03/04 DESIGN GUIDE

Client Interview:

Identify why we are carrying out a redesign of the site and for whom

What do you already like on the site and what don't you like?

What are your unmet needs and wants?

What do you value and what is your vision for the site?

What are your group's resources and limiting factors?

Any prevalent pest issues?

What kind of timescale do you envision for the site redesign?

Ask your site related questions. Any plants you need identified from your vegetation overlays during site assessment?

Do you have anything to add about the site?

Site Conditions:

The site is located in an area with very little windbreak. Almost the entire site gets full sun (>6 hrs per day) all year long. The soil is of neutral to very slightly acidic pH in most locations. The soil type is slightly normal to rocky and even clay-like in certain areas (mostly impacted areas where water pooled because rain water can't easily infiltrate through clay).

Permaculture Zones:

The zones have to do with how people move through a site, and how we build, maintain, interact, and move through a Permaculture system. The Permaculture zone model acts on the assumption that we give more attention to things that we see more frequently.

The very center of the house is called Zone 0, inside the house. But, the center area around the house is called Zone 1. Elements are placed in relation to this center based on how much attention they need. So things that require daily attention or are part of the systems of the structure are placed immediately outside Zone 0 in Zone 1.

Zone 1 is considered the domestic zone. Let's think about some things that require one or more visits every single day and are connected to the house (greenhouse, workshop, a worm bin, salad garden, kitchen herbs, poultry)

Zone 2 is what is thought of as the home orchard. This is still quite close to the house or other structure, so it is used for domestic self-reliance. The elements are higher maintenance and require regular visits (barns, animal housing, wood storage, fruit and nut trees, berries and other small fruits, vegetables, chickens, rabbits, and composting)

Zone 3 is what we think of as the farm zone. It's visited more infrequently. This is where we might grow a cash crop of vegetables or fruits, orchards, firewoods, pasture, large ponds, hedgerows, and larger animals like cows, sheep, goats and pigs.

Zone 4 is what we think of as the forage zone. This zone has minimal care and is used more for hunting, gathering and grazing.

Zone 5 is the wilderness, where we practice very minimal to no management. These are the places we leave to wild nature, and the most we take from them is information about how nature works.

NOTE: Rarely do we have a site where these concentric zones really work out to be in a circular target. Every site is different, and it could be that you have a Zone 5 creek running right through your Zone 1.

12 Permaculture Design Principles:

Principle 1 is “Observe and Interact.” What are the forces present on my site that I need to design for? Climate, topography, water, soils, vegetation, wildlife, wind, fire, people.

Principle 2 is “Catch and Store Energy.” Energy is not just electricity, but stored water represents potential energy in the form of irrigation water for future crops. Alternative energy systems can turn wind, sun, and flowing water into electrical energy.

Principle 3 is “Obtain a Yield.” Promotes self-reliance and gives us the directive to reap a harvest from our Permaculture system, because you can’t work on an empty stomach. This principle is relevant when making a choice about which tree to plant in a location. Always choose the one with greater and more diverse yields over an ornamental plant.

Principle 4 is “Apply Self-Regulation and Accept Feedback.” Live simply and consciously, limit our own consumption, because no one else is going to do that for us. Also, learn from our successes and mistakes.

Principle 5 is “Use and Value Renewable Resources.” Renewable resources are those which replenish with modest use. This could be sustainable forestry or fishing practices. This could mean planting an orchard downslope from a forest to take advantage of the nutrient and water drift that continually moves down the hill.

Principle 6 is “Produce No Waste.” Make the waste of one part of our system the food for another. This means we compost, clean and recycle greywater, repair and repurpose broken tools and equipment. Reduce, reuse, repair, recycle.

Principle 7 is “Design From Patterns to Details.” It’s what we’ve been doing when I suggest we “zoom in.” It means that first we study the climate, topography, watershed, ecology, and we get a big picture vision of how we can interact with the land and community in a regenerative way, and then our design decisions are based on that.

Principle 8 is “Integrate Rather Than Segregate.” This principle says that the more relationships between parts of your systems, the stronger, more productive and more resilient your system becomes.

Principle 9 is “Use Small and Slow Solutions.” When I harvest some trees on the forest edge to use for fence posts and replace them with nut trees that will start bearing in about 10-12 years, and will then live for hundreds of years. Or, when I inoculate edible mushrooms into the stumps of the trees I cut, which will produce for years and then spread to others with the fallen wood.

Principle 10 is “Use and Value Diversity.” Diversity is one of the key aspects of Permaculture. We want to conserve diverse native habitats, and make our human habitats rich with an abundance of many productive elements. Diversity is also resilience: if one part of our system fails, there are others that will thrive.

Principle 11 is “Use Edges and Value the Marginal.” Adding edible hedgerows around the animal paddocks, and along the road. The edges and margins are great locations to add more productive species or habitat zones.

Principle 12 is “Creatively Use and Respond to Change.” Let’s say that after we design and plant at our EcoGarden site and make it rich with a dozen new trees and various perennial plants on the outside fence opposite the entrance, we notice that water is moving more slowly down the slight hill so that we get a small marshy area along the farthest edge. Well, that wasn’t what I planned, but I’m going to creatively use that change, and I’m going to carve out some low areas that’ll stay really wet, which I can use to grow edible wetland plants later on. I didn’t even see that yield coming, but there you have it.

Functions, Systems and Elements:

A function is *what you want to achieve* and the system or element is *the means by which you achieve it*.

Examples:

| Function | System | Elements |
|------------------|--|---|
| Wind break | Hedge Fence | hazel, elder, ash, bramble, etc. posts, concrete, wood slats |
| Irrigation | Roofwater harvesting Earthworks | gutter, diverter, downpipe, tank dams, sluices, gulleys, trees |
| Soil improvement | slope stabilization Nutrient cycling Mulching | terracing, swales, trees composting, green manure, mycorrhiza cardboard, bark, compost, straw, wood chips |
| Food production | veggie garden (plants) Veggie garden (structure) Orchard | carrots, potatoes, onions raised beds, composting system, greenhouse apple, plum, pear trees |

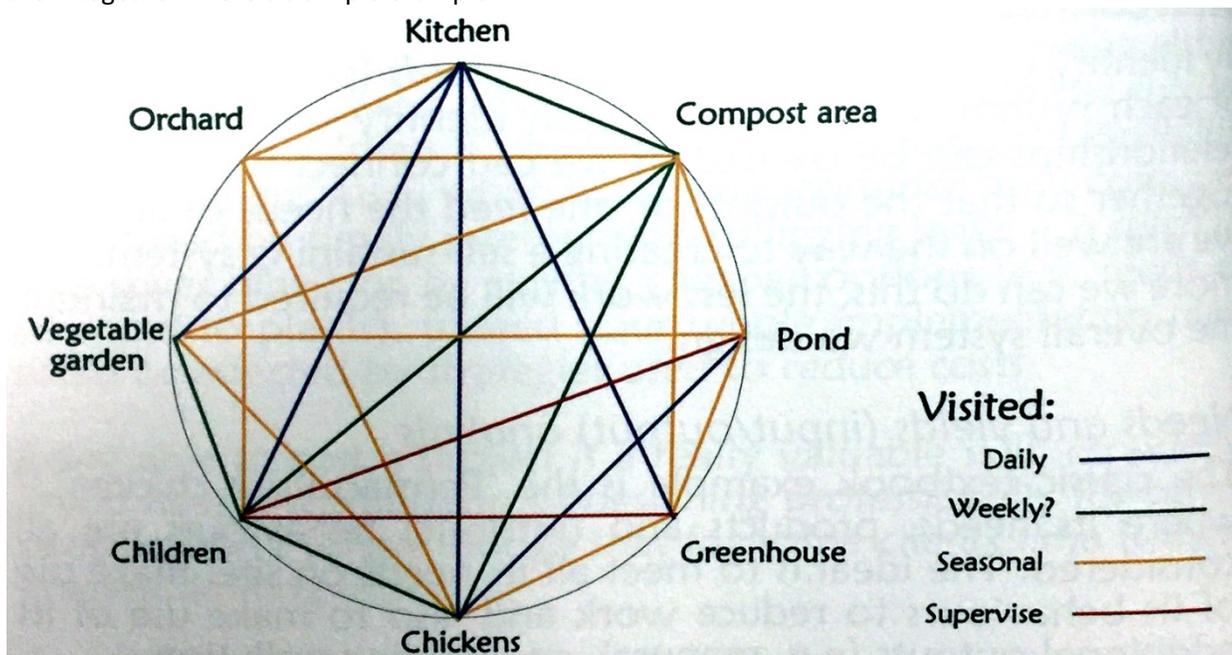
-What are the most important things that the client wants?

-What remedial strategies (our points of intervention) will plug the worst energy leaks on site?

-How many connections can we make between elements?

Web of Connections:

When you feel comfortable with a list of potential elements making up systems and satisfying functions, draw a large circle and write the names of each of your potential elements around the outside. Choosing each in turn, go around the circle and identify where you can make connections with other potential elements. As you find them, draw a line joining them together. Here's a simple example:



Bubble/Concept Diagrams:

A basic bubble per element is enough to get your creativity and imagination going. Experiment with 2 or 3 concept diagrams per group member and then compare your work.

Start by identifying what functions you are trying to achieve and the systems and elements of how you will achieve them. The client interview brings the needs and wants (primary functions like increased food production), and the site assessment will dictate limiting factors (secondary functions like soil building, irrigation and erosion control) and these will identify the key functions for you.

Are the elements multi-functional?

Do they satisfy the permaculture principles?

Am I meeting my important functions in at least 2 or 3 different ways?

Final Tips/Guidelines:

Keep **microclimates** in focus.

-South-facing walls are good places to grow tender and valued crops

-Even colder, damper, shadier areas are ideal for the things we want to keep cool for preservation (young plants and cuttings are less vulnerable there in winter than direct sunlight)

How about **elevation**? If we want anything to flow under gravity, we'll have to place them at correct relative heights.

-TIP: use the shed space to harvest rainwater with a barrel and maybe add solar panels to the top to run an aerator for "compost tea"

What about the **edge effect** from the permaculture principles? The boundary between systems is a fertile place where interactions take place. Straight edges are rare in nature.

-make edges longer and deeper (sinuous lines, plant windbreak hedges for pollinating insects)

-*strip farming* is a simple technique for applying edge to growing crops. Two or more crops are interplanted where there's a benefit to doing so. (wheat grown in strips with alfalfa, a perennial legume and nitrogen fixer; wheat benefits from the nitrogen added to the soil by the alfalfa's annual root shedding, alfalfa also acts as a windbreak to prevent wind erosion, and alfalfa also attracts the predators of wheat pests)

