



Permablitz Designers' Guide



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The purpose of this guide

Thanks for taking on a Permablitz design!

The purpose of this guide is to walk you through the process of doing a volunteer design, clarifying what is involved and giving you some tips along the way. So far we've done over 100 Permablitzes in Melbourne and while these have evolved very organically and informally, we've noticed many patterns from the way people work in design teams, through to beneficial arrangements of fruit trees and chooks. This Guide is an attempt to record these observations so that you, the designer, can draw on the previous experience of the Permablitz network in creating a fantastic design for your hosts that will also contribute to the health of our local community and environment. It's also about what is expected of you, and what isn't, so you know what you're in for.

Why design for a permablitz?

Doing volunteer designs for permablitz is a fun way to learn from experience in a supportive context. It provides opportunities to practice design, implementation and facilitation skills in a range of different soil types, aspects and host requirements. It can be a step towards becoming a professional designer, or maybe you'd just like to practice before working on your own place. And of course, you'll be doing something positive to help your community prepare for the impacts of climate change and peak oil. Plenty of good reasons to spread the permablitz love!

This Guide assumes you've already been to a permablitz and have a basic understanding of what happens on the day. It also assumes that you have done a Permaculture Design Certificate (PDC), and are therefore familiar with permaculture ethics and principles. We also have a **Facilitator's Guide** which will help you manage the actual blitz day, and a **Host's Guide** which is written to help the recipients of the blitz. To get copies of these documents see the website www.permablitz.net/resources/guides.

Defining permablitz (and a few 'must haves' to keep in mind)

You probably already know that a permablitz is defined as an informal gathering involving a day on which a group of at least two people come together to achieve the following:

- create or add to edible gardens where someone lives
- share skills related to permaculture and sustainable living
- build community networks
- have fun

Building on this definition, there is a basic 'recipe' that contributes to the success of each blitz. The 'must have' ingredients to keep in mind when you are designing for a permablitz are:

- **A permaculture design.** A good design that demonstrates permaculture ethics and principles ensures that we match the needs of the landscape and people-scape, get the maximum yield from the space, create resilience and do so in a way that is sustainable into the future.
- **Reciprocity.** The permablitz network runs on reciprocity - we give a little to get a little back. Your host will already have been to 2-3 permablitzes, or contributed to the community in some other way.
- **Workshops.** These can be anything from how to pick up a chicken, to making Greek dolmades, or perhaps installing a cheap greywater system. The key is to make sure that permablitz participants go home having learnt something useful and relevant to their own situation.
- **Food.** A delicious lunch is a necessity for hungry workers! The host should organise this, and cater for basic dietary requirements (eg. Including some vegetarian).
- **Fun.** This might not be something that you can plan for, but keep in mind the importance of enjoying the day (and the process itself) and keeping the vibe fun.

What to expect as a permablitz designer

Before you start designing, it's important to have a clear understanding of the role of the designer. Here are a few Frequently Asked Questions from first time permablitz Designers...

What do I have to do?

As a volunteer designer, your responsibilities include:

- discovering the desires, skills, level of enthusiasm, plans, budget and so on of the host
- performing a site analysis
- creating a design that meets the needs of the host and opportunities of the site
- drawing up your design, explain it in a brief report (and later, during the permablitz)
- helping to organise the blitz day, usually including facilitation and workshops – however if you're not a confident facilitator, there are options we'll point out later
- helping us after the blitz by filling in an evaluation survey, and providing a paragraph or two about the day of the blitz to celebrate your efforts!

It is *not* your responsibility to:

- source materials (but you might like to give your host some pointers and quantities – see Appendix C)
- take RSVPs before the day
- organise lunch for participants
- substitute for professionals (if your host wants a professional standard of design, carpentry etc)
- personally take photos and document the blitz (the Permablitz Collective will attempt to organise this, but we'd love copies of any photos that you take)

- to necessarily facilitate the blitz – although it's great if you can, but we'll explain other options below.

How long does it take?

Your host has been given the option of a professional designer. They should be aware that you're a volunteer and that your time is limited. However you should only offer yourself if you have time to honour your responsibilities as a designer (see above). It's quite situation specific, but a permablitz design will usually take a minimum of four hours for two people by the time you've consulted with the client, made your observations, designed and sketched and written a short report. If it's your first design, the property is large or complicated, or you need to do lots of research, it could take longer than that, possibly days. All of which are great learning experiences, and one of the main reasons we do it in the first place! But remember that the process gets smoother, easier and faster every time.

Do I have to do it alone?

No. We try to make sure that there 2-4 designers working on each blitz so that you have plenty of support and can share the work. Occasionally a designer might work alone if they are keen and experienced, but we wouldn't recommend this for your first designs.

Can I work with an experienced designer first?

Where possible, we try to make sure that new designers are teamed with someone who has already completed a few designs. We recognise that when you finish a PDC there is still much to learn and it can feel like you need lots of guidance, but experience comes swiftly with practice. Remember the permablitz network began with recent PDC graduates who put aside their nerves and just gave it a go. Nonetheless, the Permablitz Melbourne Collective is working on ways to mentor new designers. Watch this space – and contact us in the meantime if you need extra support.

What if I'm not confident to facilitate tasks or run workshops?

In most cases the designers of the permablitz are also the facilitators. This makes sense as you'll have the best understanding of what is going where and why, and it's also a great opportunity to practice these important skills. However, Permablitz Melbourne has an email list for people with some experience who are happy to help others facilitate tasks or run workshops. For most blitzes you'll need a minimum of two facilitators. We also have a **Facilitators' Guide**, contact permablitz@gmail.com for a copy if you aren't sent one.

What if I don't know enough about <insert random plant, animal or technique>?

It's near impossible to be an expert in all the areas encompassed by permaculture design, so try to let go of that feeling that you don't know enough to begin. After a few blitzes, you will probably be well versed in the 'staples' like no-dig gardens, planting fruit trees and making worm farms which makes the process much easier and faster. We're putting together a list of references but in the meantime feel free to get in touch with the Collective if you have specific questions. We might not know the answer either but we'll probably know where to go looking for it...

What if I make a mistake or miss something important?

The host knows you are a volunteer, not a professional, so no one is expecting a perfect design (and in fact, this doesn't exist!). You won't miss anything too important if you keep returning to permaculture ethics and principles and follow the checklist in this Guide. And remember, a great contribution of the permablitz network is trying out new strategies, so it's OK to experiment a little as long as we minimise risk for our hosts and evaluate carefully. So as long as you try your best, you're doing fine.

The Permablitz Process

So now let's go through each step in the permablitz process with some helpful hints and patterns that we've found useful over the last five years of blitzing in Melbourne.

1. Getting in touch with the design team and the host

The Permablitz Collective will have generally appointed someone 'Lead Designer' for your blitz. This simply means that they are the contact person on our database and are responsible for liaising between the design team and the host. If you are the Lead Designer, start by setting a date for the site visit. A great tool to do this is 'Doodle', which is a free website that can survey your group to find the best meeting date. It's free, easy, and no registration is required – just go to www.doodle.com and follow the prompts. You might also like to inform everyone of the steps in the design process as outlined below, and check that all designers have a copy of this guide.

2. Conducting a site analysis and interviewing your host

When you first decided to take on a permablitz design, you will have been emailed a statement from the host with a summary of the site and some of the things they'd like the design to include. If you are the Lead Designer, you will probably have gained further information over the phone when you organised the visit date. Review this information before the visit, and if you are the Lead Designer, share it with the others in the design team.

Also, before the visit, you can get online and check out www.nearmap.com, www.maps.google.com.au, and www.land.vic.gov.au. These sites let you enter in the site address and see the exact boundaries, contour lines, and detailed satellite images showing existing structures, plants and paths.

You should arrive to the site with a camera, a measuring tape (something at least 15m long is often handy), notebook, checklists (see Appendices A and B), pH test kit and soil sample jars.

When you arrive, explain the process to the host so everyone is on the same page about what is going to happen. Consider breaking the visit into at least four parts:

- A sit down and chat with the host
- A site analysis walk

- A design discussion within the team (often without the host is best) and coming up with a rough design sketch
- Talking and walking the host through some preliminary design ideas

Some hosts are so excited (rightly so!) they will start sharing all their design ideas at the start, and this can make it hard to make sure you give enough attention to the site and people analysis stages. Try very early on saying something like “What we'd like to do first is sit down with you and go over your needs. Next we'd love to spend some time getting a feel for your site, before coming up with a basic design outline to share and refine with you. Please try not to share your design ideas just yet, as we'd like to see the site with unbiased eyes first.”

The design consult is unlikely ever to go exactly to plan, but it is good to have a plan nonetheless, so you can keep things more or less on track and make sure everything that needs to happen does happen.

If possible take a quick scan of the site and then sit down with the hosts and use the checklists in Appendices A and B to help get a good understanding of them and their site before moving into the design.

Next it's time to take a stroll, a good long look along with a poke and prod and smell and feel. Unlike with the host, you don't sit down and ask the site direct questions, but as you wander around it will tell you what you need to know. Start with the extremes – the high point and low point, the driest spot and wettest spot, the most exposed and most sheltered, and so on. Note these things down roughly on an outline of the site boundary and existing trees and buildings. The host doesn't have to join you for all of this walk, and if they do, remind them that you are observing and not designing just yet.

Find out from the host which plants they intend to keep and which they intend to go, along with any other changes they intend, such as removing or adding a shed.

You may or may not come up with any design ideas to share on your first visit, and either way is fine. There are advantages in starting to design on site, as it is easy to check your ideas against what's there and harder to miss things (such as a permanent shrub in the middle of a path you were planning). After your people and site analysis, considering huddling as a design team and discussing at least some broad strokes of the design before you leave. If you're feeling confident enough about them, run these ideas past the hosts. It is much better to find out that a particular design direction is not going to work with the hosts before you spend too much time developing it.

Before you leave the site, it is a good idea to walk around with a camera recording a rough short movie clip as you talk through the design ideas you have reached so far. This will make it much easier to remember your ideas, and also to check on the location of anything you forgot to measure onsite.

3. Putting the design together

Once you've a good feel for the site and its residents (and not before!), it is time to start designing. As you go on to complete more designs, you will notice that the more time and effort you put into the site and people analysis, the more effortlessly the design then emerges.

The permaculture ethics and principles that you learned on your PDC should guide the development of the design. Keep in mind that the best designs are often the simplest. It is not about fitting in everything you can think of, but addressing the requirements of the hosts and the site, in a simple, practical design. Here are several simple, sensible patterns to consider in Melbourne.

Afternoon summer shade for Vegies

Melbourne summers are harsh, and by mid-afternoon most vegies are struggling in full sun. Vegies are happier and require less water if they are in shade in the afternoon. Deciduous fruit trees to the west of vegies are the ideal solution, as they drop their leaves in winter. Permanent fences or buildings also work, despite also shading in winter.

Windbreaks for Vegies and Fruit

Vegies and fruit trees suffer from strong winds. In Melbourne, strong winds tend to come from the south-west in winter and the north-west in summer. If the site is exposed to these winds, it is desirable to have some kind of windbreaks reducing their negative effects. An ideal windbreak is a vine or row of large shrubs or small trees that if not directly edible serve multiple other functions. One example is *Acacia floribunda*, a fast growing native that fixes nitrogen, provides mulch and has seeds edible by chooks. Although windbreaks are desirable, space means this is not always possible.

Chook Run along rear fence

If chooks are on the residents' wish list, one or more fenced-in runs to contain their movements will usually be appropriate. More often than not, the perfect location for these runs is along the back and one or more of the side fences. This often corresponds to a great spot for fruit or other trees, keeps unwanted plants from growing in under the neighbour's fence, and means you don't have to open chook run gates to get anywhere other than the chook run.

Providing shade for house

Deciduous fruit trees or vines on a pergola to the north, or fruit trees to the west can help moderate light and temperature to the house.

Using microclimates

While the south side of the house might be akin to Hobart, a well sheltered northern side might be akin to Sydney or even the subtropics.

There are many other common patterns not specific to Melbourne, some of them hinted at in our designers checklist in Appendix A.

Working in a design team

There are many benefits to working in a design team. You can share the work, draw on other's ideas and experience, and give constructive feedback - which all adds up to a stronger design outcome. However, working in a team can also be challenging when everyone has a different way of approaching the design. Some minds prefer to dream large with creative visions, while others jump straight to detail and practicalities. Some minds are good at seeking out all the facts, some prefer to use their intuition, and some will test new ideas by looking for flaws and weaknesses. Try to acknowledge and value all approaches, and see where each personality type can best contribute to the process. It also helps to decide as a group how much detail you are going to aim for, and who will take responsibility for which part of the design process. If you have differing opinions you can come up with variations on the design and present the pros and cons of each to the host.

Timelines

It's a good idea to agree on some rough timelines with your design team and the host. Experienced designers may complete the design during the initial consultation, while others may work on the design over a period of up to 3 months while researching systems and reviewing their ideas with the host. Occasionally the process may take longer than expected if you encounter difficulties such as a tricky site, or personal commitments. Please be patient, but do let the permablitz collective know if you are having difficulty completing the design within the proposed timeframe so that we can support you where possible.

Matching your design to the host's capability

Wearing your permaculture goggles it's easy to see a market garden emerging from a small backyard! But ask yourself how much your host can realistically handle with their current time availability, skills and knowledge. Even if they seem enthusiastic, a good rule of thumb is to design a system that requires about half the time they say they can commit. You might like to create a design that uses the space to it's full potential, but identify the first steps and leave the rest for the host to work on if they still have time, budget and energy. In some designs you might include an 'expansion area' if they decide they can take on more.

How do you know when you've got a good design?

Sometimes it's hard to call an end to the design process. There is always more research that can be done or another niche to fill. But as a general rule, you can stop designing when you have placed all major elements and the system matches the landscape and the peoplescape as identified in your site analysis and host survey. It should replenish and protect the natural resources of the site and make life easier, more resilient and enjoyable for the hosts. You should be able to demonstrate the application of permaculture ethics and principles in the design, and point out lots of clever interconnections between elements. Finally, remember that the best designs are often the simplest – a good design may seem so obvious that it becomes almost invisible. There's only so much you can do on a permablitz, and it's ok to leave some details like plant placement out (as long as they don't functionally effect other aspects of the design).

4. Drawing up your design

Remember this is a volunteer design, so no one is expecting professional, architectural plans or an artistic masterpiece! The aim is simply to make your design clear so that the host and blitz participants can understand the rationale behind your choices.

Firstly, some conventions to remember:

- North direction. Convention is North to top of page, but you may decide to alter this if the shape of the property and paper size lend themselves to another direction.
- Plan view. This means drawing the design as it appears from overhead, rather than at a side angle. You can show elevations for water flow etc in another drawing.
- Scale. 1:100 (1cm on page = 1m in reality) or 1:200 is often convenient for a suburban block. Your drawing should be roughly to scale, but for the purposes of a permablitz there's usually no need to fret if some areas are slightly inaccurate.
- Title box. A box to the side of your drawing should include the name of host, address, date, scale, north arrow, your names and contact details etc. Mention that it is a 'permablitz' design as they can then get discounts on plants at some nurseries (this is covered in their Host's Guide).
- Legend/Key. Use clear, recognisable symbols and put these in a key to avoid need for writing all over your design.

There are many ways to draw designs and developing your own style is part of the fun, but here's a few tips to get you started:

- Use simple, clear symbols. Try tracing around a template if you need to draw lots of one shape (eg. circles for trees)
- Leave some white space around edges and use borders to frame your design
- Draw dark outlines and fill with lighter, contrasting colours
- Use good quality paper
- Draw shadows on raised objects or shade the south side of trees to suggest sun direction
- If your design will be photocopied, make sure the legend still makes sense without colour
- Use short notes around the edges of your drawing to explain clever connections and key elements of your design
- Use extra drawings to clearly communicate your ideas, such as:
 - clear overlays to show zones and sectors
 - elevations (a cross section or side view) to indicate height differences and show use of slope (eg. orchard below greywater for easy irrigation)
 - features (enlargements) to show detail in key areas (eg. Zone 1)
- Remember that your design may need to be adjusted after showing it to the host, so either photocopy the basic outline so that you can rework from this stage if necessary, or do a quick concept sketch instead before a more polished version once all details are confirmed. If you're computer savvy, you may use a computer program which makes small changes easier to make. See Appendix D for some suggestions of useful programs.

5. Reporting back to your host

The Lead Designer should now organise a time to meet with the host. In this meeting you'll step them through the design and get their feedback. You've probably done an excellent job, but it's still unlikely that they'll be 100% happy with every aspect of the design, so you'll need to note their feedback and adjust your design accordingly. Here's a few tips to help this meeting run smoothly.

- You can either sit around a table and look at the design on paper, or do a tour of an imaginary post-blitz garden by walking around the site.
- Present your initial design as a flexible work-in-progress to encourage your host to give lots of feedback. They will have to manage this system so it's important that they have plenty of input into it's design. Your host will appreciate your efforts, but they need to know that they're still in control of what happens to their garden!
- Be sure to explain the reasoning behind the design. Why have you placed each element where it is? How do these elements interconnect? How will this help your host to reduce time/cost/effort?
- If your host is new to permaculture design, use this as an opportunity to help them learn about permaculture ethics and principles.
- Try to keep your explanations simple and focused by stepping through the design in a logical order and avoiding unnecessary detail or tangents.
- Give your host a clear understanding of the amount of time, cost and effort involved with the establishment and maintenance of each element that you have proposed.
- Break the design into stages. Seeing so many projects at once can be overwhelming, so prioritise what can reasonably be achieved during the blitz, and note other elements that can be tackled at a later stage if energy and budget allow.
- If your host requires significant changes to the initial design, or continues to ask for changes during subsequent visits, set a clear time limit for the design process. They should appreciate that you are a volunteer with limited time.

6. Preparing for the blitz

Once you have a design that both the hosts and yourselves feel good about, it is time to plan the permablitz which will help implement the design. At the very least your role as designer is to come up with a list of materials, communicate with the Collective about the date of the blitz, and help the facilitators and hosts plan the day.

Are you going to facilitate the permablitz amongst your designer's group? If not you need to help find and prepare the facilitators. Let the Collective know at this stage how you're fairing, and if you'd like help facilitating the blitz, and read through our **Facilitator's Guide** (email us if you don't have a copy permablitz@gmail.com).

7. Evaluating the blitz

The design is finished, the blitz is complete, and you're probably ready for a quiet snooze in a hammock... but there's still one more step in the permablitz process. It's important to evaluate your blitz so that you can learn from the experience, document what you've achieved and bring any issues that need to be addressed to the attention of the Collective.

To assist you in this step, the Permablitz Collective has a quick survey that you will be asked to complete. We also ask the designers or facilitators to write a short paragraph for our website explaining what happened on the day.

We encourage designers and hosts to organise a follow-up visit in 6-12 months to follow the site's transformation and see what has and hasn't worked. Sometimes it might be semi-public where past participants can tour the property, and perhaps lend a hand with another little project on the day. It's a good idea to pencil in a date now so that you remember to do this in a few month's time.

A few final words...

Once you have these fundamentals covered, feel free to mix it up, improve on these suggestions and develop the process to suit your needs. Thanks again for your willingness to contribute to the permablitz network. You are legend! Happy designing!

Appendix A: Site analysis checklist

As you walk around the property, use the following questions to help you create a clear understanding of the landscape. You may like to involve the host in your analysis, or divide these questions amongst your design team to save time.

CLIMATE

What is the **temperature** range of the property?

What is the **rainfall** on the site? Check intensity, quantity and season.

How does the site cope during **extreme weather** events (eg. Storms, heatwave, flooding, bushfire)

Sectors. Identify summer and winter sun angles and winds, fire risk, views, neighbours, dust, noise, and any other external energies that influence the site.

Microclimates. Which places are warm or cool, nice areas to relax, or sheltered from wind and rain?

Are there any **frost** pockets?

Are there any **significant features in surrounding landscape** that may influence the design? (eg. Proximity to ocean, bush, city)

WATER

Where is the **slope**? What are the **contours**?

Where does **water flow** around the property? Check overflow points for existing tanks, dams, septic tanks

Where are the **downpipes and taps**?

What sites are suitable for **tanks**? What size is appropriate? Check access to bring in the tank

Where could you use **greywater**? Locate the laundry and shower

How are the host currently **watering** plants?

Are there roads, paths or other hard surfaces that you can **channel run-off** from?

Are there any locations that might suit a **pond or dam**?

SOIL

What is the **soil type, characteristics, depth and drainage**?

What **species are likely to suit this soil type**? Check out what's growing well locally.

Is there currently a compost bin, worm farm or other **soil fertility strategy**? Check it is functioning well and in close proximity to the kitchen.

Is the soil likely to be **contaminated**? (eg. Lead)

FLORA AND FAUNA

What **vegetation** is growing on the site?

What **animals** are present on the site? Native, livestock, pets, feral.

Are there any **runner grasses, persistent weeds or suckering trees**?

What **indicator species** are present? Check for indicators of water flow, salinity, compaction etc

Are there any **eucalypts** which may compete with garden beds?

Is there an area with **native species**?

BUILDINGS AND STRUCTURES

What **buildings, structures, features** are on the site?

Where are the **fences and gates**?

Where are the main **roads, paths and access points**?

Where are the **meters and underground pipes**?

What are the main **energy flows** on the site?

Are there any **neighbourhood influences**? Light, weeds, animals, smells, noise, dust etc.

Are there any **hazards or risks** on the site?

RESOURCES

What resources are available **on the property**?

What resources are available **from surrounding areas**? (eg. local cafes, fruit trees, mulch resources)

Appendix B: Host survey

As you interview the hosts, use these questions to give you a clear sketch of their objectives, behaviours and capabilities. Check that their expectations of the process are realistic and correct these if necessary! Try to talk to all members of the household if possible as they may have different opinions or other useful information.

Who lives on the site? Also note regular visitors or others with a stake in the property.

What is their **vision** for the site? What are their **needs, wants and expectations**?

What are their **typical routines** during the week and weekend? Try to get a sense for their lifestyle and culture.

What are their **occupations and hobbies**?

What are their levels of **skill, knowledge and enthusiasm** in permaculture, gardening, plant and animal care, food preserving etc?

Do they have (or intend to keep) any **pets or other animals**? Have they noticed any other animals on their site?

What are their **dietary preferences**? **Likes/dislikes**? Any **allergies or intolerances**?

What is their **capacity (time, physical ability, budget)**? Are these likely to change?

Are they able to pay for **soil testing for nutrients and contamination**?

How long do they **intend to stay on the property**?

How frequently and for how long do they **leave the property**? (eg. Work trips, holidays, visiting relatives etc)

Are there any **existing plants, structures or features** that the hosts would particularly like to keep or remove?

What type of **aesthetics** do they prefer?

Do they have much contact with their **neighbours** or the **local community**? Are there any useful **local groups/networks/markets** that they could access?

Are there any issues that may **affect neighbours** (eg. Plans for large trees, structures or animals)? Are there any **council regulations** that may need to be considered in the design?

What is their preferred **timeframe** for implementation?

What is their **wishlist**?

Appendix C: Costing and calculations

Soil for Vegies

Ideally, you can use the soil onsite. If soil is to be imported we've found that 50% premium soil blend (which is usually a sandy loam with compost and aged manure mixed through) and 50% mushroom compost works well. It's a trade-off, as the soil recedes considerably when the mushroom compost breaks down and needs topping up after a year or so, but without it the soil lacks structure initially and it can become hard and compacted without the extra organic matter. If it's been raining lately, ask them on the phone if the mushroom compost is smelly (anaerobic). If so consider replacing it with composted council green bin waste or organically certified compost which many suppliers also carry.

You can expect to pay around \$45-70 per cubic metre plus a delivery fee of between \$20 and \$50 depending on the distance. For rectangular vegie beds, work out the amount required with width (in metres) x length (in metres) x height (in metres) = the number of cubic metres required. If you can put down a tarpaulin for the soil to be dumped on, it will make moving the last bit of soil and cleaning up at the end a lot easier.

Fruit Trees

Fruit trees cost between \$30 and \$60 depending on the time of year and the type. A greater range of deciduous fruit trees is available in winter from about mid-June, but you can get most in pots all year. Make sure you check the pollination requirements, and plan for a harvest spread out across the season. Keep in mind multi-planting, where you plant two or more fruit trees in the same hole, as an alternative to buying grafted fruit trees. Be sure to inform hosts that most fruit trees will require seasonal pruning, most importantly in their first 2-3 years.

Vegies

The cheapest way to obtain vegie seedlings is of course to grow them from seed, but often when the blitz is imminent some seedlings are required. Seedlings generally cost about \$3 per punnet of eight seedlings, and you need up to four punnets to fill a square metre with vegies with leafy greens. It varies considerably however, and a single zucchini, for instance, can fill most of a square metre.

Mulch

10mm stringy pine bark mulch works well for mulching above compost or sheet mulch in orchards or food forests, and a more chunky (and clean-cut or non-stringy) euca mulch for paths and greywater infiltration pits. Either of these costs about \$50 per cubic metre. If a truck is bringing both soil and mulch, have them put whatever you need to access first on the truck last. As with soil, have the mulch dropped onto a tarpaulin if at all possible.

Sheet Mulching

If you're using newspaper to sheet mulch to suppress weeds, a rough estimation of how much you need can be calculated that **every 2cm of stacked newspapers covers about 1m² of ground**. Newsagents send back un-sold major newspapers to the distributors, so sourcing newspapers is often easiest from cafes and from recycling bins. Cardboard is much easier to source, and often in large sheets, but runner grasses can penetrate it a little more readily.

Sheet mulching does come at some cost – it kills weeds as much by the anaerobic conditions created beneath the newspaper as by the physical barrier itself. Therefore, it's likely that your existing soil biology including earthworms are adversely affected by sheet mulching. If you are dealing with really difficult to suppress grasses such as kikuyu grass or couch grass, it may be your only non-toxic option, short of organising chickens (or pigs!) to prepare the area for several weeks.

Edging

If edging is required to build raised vegie beds, common options are steel or timber. Cypress macrocarpa is a great timber to use as it is untreated and sustainably sourced from old farm windbreaks.

Soil Contamination Testing

If there are any concerns about possible contaminants in the original soil then it is possible to have a sample tested. This is more likely to be an issue if vegetables will be planted in the original soil, or if chooks will be scratching around it in. Some common contaminants are lead, cadmium, arsenic, and organochlorines including dieldrin and DDT. You can contact Very Edible Gardens <http://www.veryediblegardens.com/services/soil-testing> for more information about how to go about getting a sample tested, making sense of the results and detailed recommendations. In general, in built up areas, you should assume that the site is contaminated, rather than not. Using raised beds (even if open to the earth below) with imported soil and compost will help. High levels of organic matter and lime to lower pH reduce uptake of lead and cadmium. The biggest risk from vegies is not from soil uptake, rather unwashed dust on fruit and vegies or unpeeled root vegetables. You should aim to minimise chickens' direct contact with the soil unless you know it is safe. Thick mulch or large runs which can be rested to maintain grass cover are the best options. If the house is painted and older than the mid sixties, the closer you are to it the higher the lead levels most likely. Near main roads also means more lead in general. Most of the time the results come back with “be alert, not alarmed” type levels, sometimes things are squeaky clean, and sometimes a bit disturbingly contaminated.

Appendix D: Useful Computer Programs

These are some potentially useful computer programs that you might like to explore for drawing Permaculture designs:

- OpenOffice Draw – a free, and quite decent graphic design program which can be used for basic landscape design. It's reasonably easy to use.
download: www.openoffice.org
tutorials: www.wonderhowto.com/topic/open-office-draw-tutorial/
Windows, Mac and Linux versions
- Google Sketchup – there's a free version of this software, or it's about \$500 for the professional version. It's an easy to use 3d program for beginners, but quite feature rich. If you get house and tree heights in, you can easily generate shadows for any time of day on any day of the year.
download: <http://sketchup.google.com/intl/en/index.html>
Windows, Mac and Linux versions
- Adobe Illustrator – about \$900, a professional graphic design program, very feature rich, can be used for basic landscape design. There are lots of online tutorials for using it. VEG use this, but it's not really designed for what we use it for and eventually we want to go to a CAD program like Vectorworks.
tutorials: <http://tv.adobe.com/show/learn-illustrator-cs5/>
Windows and Mac versions
- Vectorworks Landmark edition - a professional CAD program (CAD stands for Computer Aided Design - but really it means programs used for technical drawings by architects, engineers etc as opposed to graphic design programs) with many features tailored for landscape designers such as plant database. We believe you can generate quotes based on the design and other advanced features. You could turn a 2d design into a 3d design also. \$2000 plus
link: <http://www.nemetschek.net/landmark/index.php>
Windows and Mac versions
- Mapinfo - this is a mapping program, useful for broadacre designs. Darren Doherty uses it, and you can import GPS co-ordinates to map out paddock boundaries, contours etc, as well as overlaying designs. It's not so relevant for permablitz designs which are generally smaller in scale.
eg: <https://picasaweb.google.com/lh/photo/ch-hjH75b9frSWkzjFCKjw?feat=directlink>
\$1000 plus
Windows only

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