

DEG Wicking Bed Workshop and Team Building Day

Wicking Bed Basics

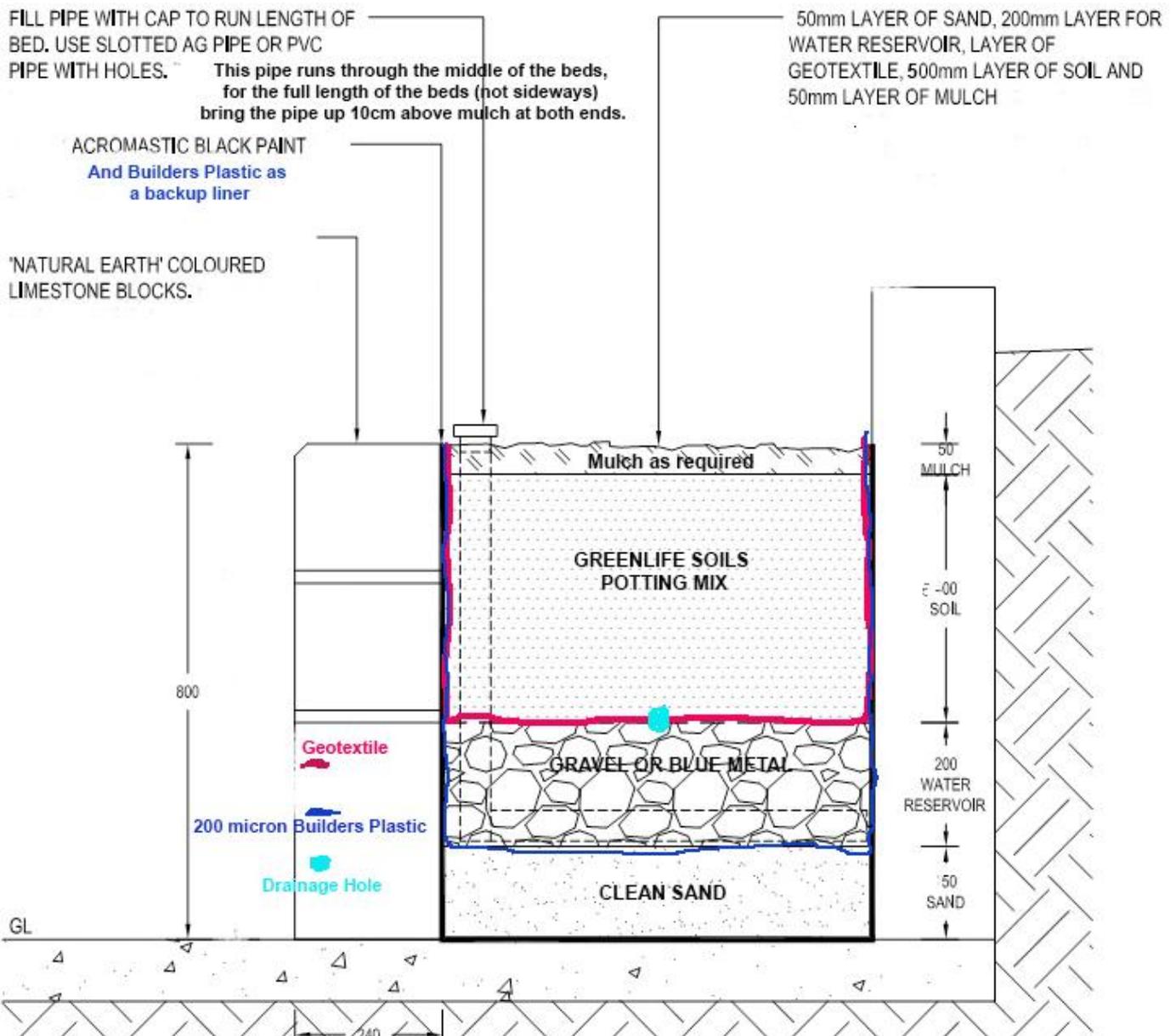
- Wicking beds are nothing new, think self watering pots and your pretty close already !
- A sub-soil reservoir (under the soil) catches water and nutrient runoff, then stores it allowing a slow and ongoing sub-soil 'upwards' watering via capillary action. This saves water, fertiliser, creates even 'natural' soil moisture conditions and allows much longer time between watering days.
- Water travels upwards despite gravity thanks to capillary action and evaporation and condensation.

Wicking Beds match our needs in Perth

- little or no rainfall and high evaporation over summer, watering restrictions, poor soils that leach/lose all water and organic matter rapidly

Wicking Beds as a solution

- all water and nutrients stay within reach of veggies
- improved soil life / quality with soil moisture, cooler conditions, no hydrophobic issues and cycling of nutrients that would otherwise be leached away.
- can be made cheaply from variety of materials



Wicking Bed Design and Building Procedure

1. Create a flat base, and I mean flat! (use a level). The longer the bed the more important. A slope will see one end too wet and the other too dry. Clear base of any sharp objects that will puncture the liner.
2. Bed is at least 500mm total depth, 300mm soil (min) and 200mm for the water reservoir. The Duncraig Edible Garden beds have deliberately deep soil (500mm so more than capillary action will work over) as there will be frequent interaction/gardening and top down watering to start seeds and seedlings so we can maximise the growing soil capacity and increase summer proofing by establishing deeper rooted plants in spring.
3. Width and length of bed to suit available space, liner and practical purposes. 1.4m width max if accessible on both sides, 0.7m approx if one side. Can be a bit wider if a raised bed.
4. Place in the water proof liner for reservoir: builders plastic, pond liner, clay, or a container (bath, barrel). you can use this to check it level if you add water now.
5. Locate and place in the fill pipe: access for filling, and running length of bed for good water distribution (speed of filling). Use slotted ag pipe or PVC pipe with holes. This is not needed for small beds and pots.
6. Fill reservoir zone with material that allows for easy water distribution such as blue metal, gravel, crushed brick, or even coarse mulch. Mulch or other organic materials will break down over time, adding more nutrients but requiring yearly refurbishing.
7. At the reservoir soil interface use geotextile, carpet, or similar prevent soil migrating down (silting up) into reservoir for long term (non mulch) reservoirs (i.e. blue metal/gravel/sand). Allow the geotextile to lap up the side of the 'bed' so the soil wont slip past the layer.
8. Create a drain hole and consider where to overflow of high nutrient often smelly liquor will go. Drainage occurs at the interface so cut/drill/pipe your drain at that point. Drain should be protected with a bit of shade cloth to prevent soil escaping/clogging. Ensure drain can be checked as it can be blocked by worms.
9. Fill with good quality organic soil that's a bit coarse as the water will encourage a bit of compaction. You can also use a potting mix if you would prefer. This soil must then remain No Dig, No Stepping on Beds, use walk boards if required for access. Crops should be cut off at stem leaving roots in soil to decompose.
10. Some settling will occur, expect to need to top-dress beds with compost or soil to bring soil level back up to top after first crop is harvested.

NOTES

- The bed can be built in-ground, above ground, or in a container. Use tin, wood, rocks, straw bales, etc for the sides. If in-ground then consider the drain, if it's also underground that will work in sandy soils but not in heavy/clay soils!
- Lined wicking beds are ideal for high yield leafy greens and moisture loving herbs.
- not good for larger root veggies, fruit trees.
- allow reservoir to completely dry out to pull in oxygen and reduce anaerobic activity.
- keep drain clear to avoid watering logging in heavy rain and over watering.

Variations:

- incorporate a worm farm for added biology in above ground closed wicking beds.
- use open wicking beds for larger areas, perennials, and deep rooted veges.
- bathtubs (goose neck pipe on under drain with outlet setting reservoir depth)

