



**ALOHA POOLS**

NEW HORIZONS IN WATER

**DESIGN & CONSTRUCTION  
GUIDE**

**INFORMATION BOOKLET FOR BUILDERS  
ARCHITECTS & OWNERS**

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# DESIGN & FUNCTIONALITY

## INFORMATION BOOKLET

### Size / Depth

When deciding what size to build your swimming pool the main thing to consider is how you are going to use it. Simple geometric shapes are best for complementing a landscaped setting and enhancing the appearance of your property. A standard lap pool is generally 25 metres long. A wider pool is more family friendly than a long one. An L-shaped pool can be the perfect compromise for families - the shorter section of the shape can be shallow, allowing for fun and games with the kids, leaving the longer, deeper section free for uninterrupted laps.

Size contributes to cost and running expenses, so be as practical as possible when weighing needs and uses against architectural considerations. Effective seating and steps are more important for smaller children and older users.

A considerable percentage of pools are designed with twin shallower sections at either end, with a deeper region in the middle (for example 1.2m to 1.6m to 1.2m). The twin shallow profile allows for users to stand at each end and undertake play, such as throwing a ball from one end to the other.

### Spa

Including a spa can add to the useability of your pool, especially in Melbourne with the cooler weather. A fast heat up time is important, as is an adequate seating area.

### Heating

The ideal water temperature for swimming is around 25 to 28 degrees Celsius, but this is rarely achieved naturally. Selecting the right heater depends on a number of factors. You need to consider the size of the pool and/or spa, the maximum temperature you want to achieve and how long you are willing to wait for the water to heat up. A solar heating system with auxiliary gas heating is often used with pool and spa combinations.

Gas heaters can be installed inside, but will need special fluing and may require additional ventilation specifically designed to suit the size and type of heater. Never install an outdoor heater inside unless the appropriate flue is fitted in accordance with the manufacturer's instructions.

Heaters should always be installed on a stable, non-combustible base, preferably a minimum of 50mm above ground level.

## Lighting

If a pool or spa is to be used in the evening proper lighting is essential for safety. But beyond making it easier to navigate in the dark, lighting also creates an opportunity to add interesting accents to the pool. Lighting allows the pool to be a 24-hour feature.

Always place light fittings facing away from direct sight lines to avoid glare, and plan an even distribution of lights, considering corners and bends in the pool. Lighting in pools with a dark interior is not nearly as effective and requires appreciably more lights compared to lighter interiors.

LED lights are now becoming a more popular choice in swimming pools. Whilst these lights tend to cost more initially, the globes do not need to be changed as frequently and they produce a brighter light,

## Pool Fencing

Proper pool fencing is required by government legislation, and there are strict regulations that must be complied with. But there is still flexibility in how this is achieved in terms of design and materials. You don't want to create a cage around the perimeter of the pool. You also don't want to isolate areas and divide the landscape by poor fence position.

Glass is a favoured choice for pool fencing. Rather than creating a visible barrier it more readily allows the pool to be incorporated into an outdoor entertaining area. The latest trend is to combine glass with other features of the landscape, for example a solid wall, screen or water feature.

Parts of the house can be used as a pool fence if doors, locks and windows are compliant with the standards. However, a specific fence for the pool area is sometimes preferred because it means that children can play safely outside in an area totally separate from the pool.

# SITE WORKS & CONSIDERATIONS

INFORMATION BOOKLET

## Current Plans

We cannot overstate the importance of receiving up-to-date plans from builders and architects as soon as they are available. If plans and levels change at any point during the design stage, we need to know as soon as possible to prevent costly mistakes. Changes to plans may also necessitate engineering amendments, which can effect time schedules and start dates.

## Site Access

Site access is considered ideal when we can back a tipper truck right up to the pool site. If access is restricted, bobcats can be used to transport soil out to the truck. If access is really tight then mini machinery is an option – absolute minimum access width is 1 metre.

- Site must be clear of all building debris, materials, trees and rubbish (including asbestos). If any demolition works need to be carried out these must be completed prior to start of pool excavation.
- Power and water must be available on site.
- Suitable access to site must be available for heavy machinery and trucks.
- Written permission from neighbours must be obtained if access is required through adjoining properties.

## Set Out

Set out is when the swimming pool is marked out on the property to show the exact location and shape in preparation for the excavation. If existing house or boundary points are already established, set out points are determined from these. If the site needs to be re-surveyed then we request that this is done prior to set out. Set out is often done in conjunction with the surveyor or builder.

## Site Cut

Also known as 'overburden', the site cut is the removal of excess soil above the pool level that needs to be disposed of before excavation can begin. If a site cut is required, for example in a new development when a house is also being built, this should be done prior to the pool set out.

## Founding

Founding refers to the earth or soil that a swimming pool is sitting on. As a rule the pool structure needs to be supported by natural, undisturbed soil to a depth of 500mm. However, if a pool is constructed out of the ground or on a problem site consideration will need to be given for piers, piles or foundation support systems. If this is the case it can become quite expensive.

## Finish & Structural Levels

Clear reference points are required that can be worked from to obtain a level for the pool surroundings. A datum point is an excellent reference. Finish height and thickness of finishes will also need to be advised so that height of the pool structure can be established.

## Location of Existing Structures

Special consideration should be given to how close the pool is located to existing structures and the foundations for these relative to excavation. Please see Angle of Repose (page 8).

## Distances from Boundaries

Distances from boundaries need to be given careful thought, especially if there are any existing structures, roads or laneways on the other side of the fence. As a rule of thumb, the minimum distance from a boundary should be between 1 metre and 1.2 metres. Neighbours consent will be required if the swimming pool intersects with the angle of repose. Please see Angle of Repose (page 8).

## Load Bearing / High Walls

If there are parts of the pool structure that will bear a load because of retaining walls, high walls etc. then consideration needs to be given to the structural design so that the pool can carry the load.

## Tipping / Soil Removal

We generally allow for all cartage and tipping of clean soil when doing a quotation. Unfortunately, tipping fees for rubbish are a lot more expensive and will need to be charged accordingly. If soil is to remain on site a considerable saving is achieved.

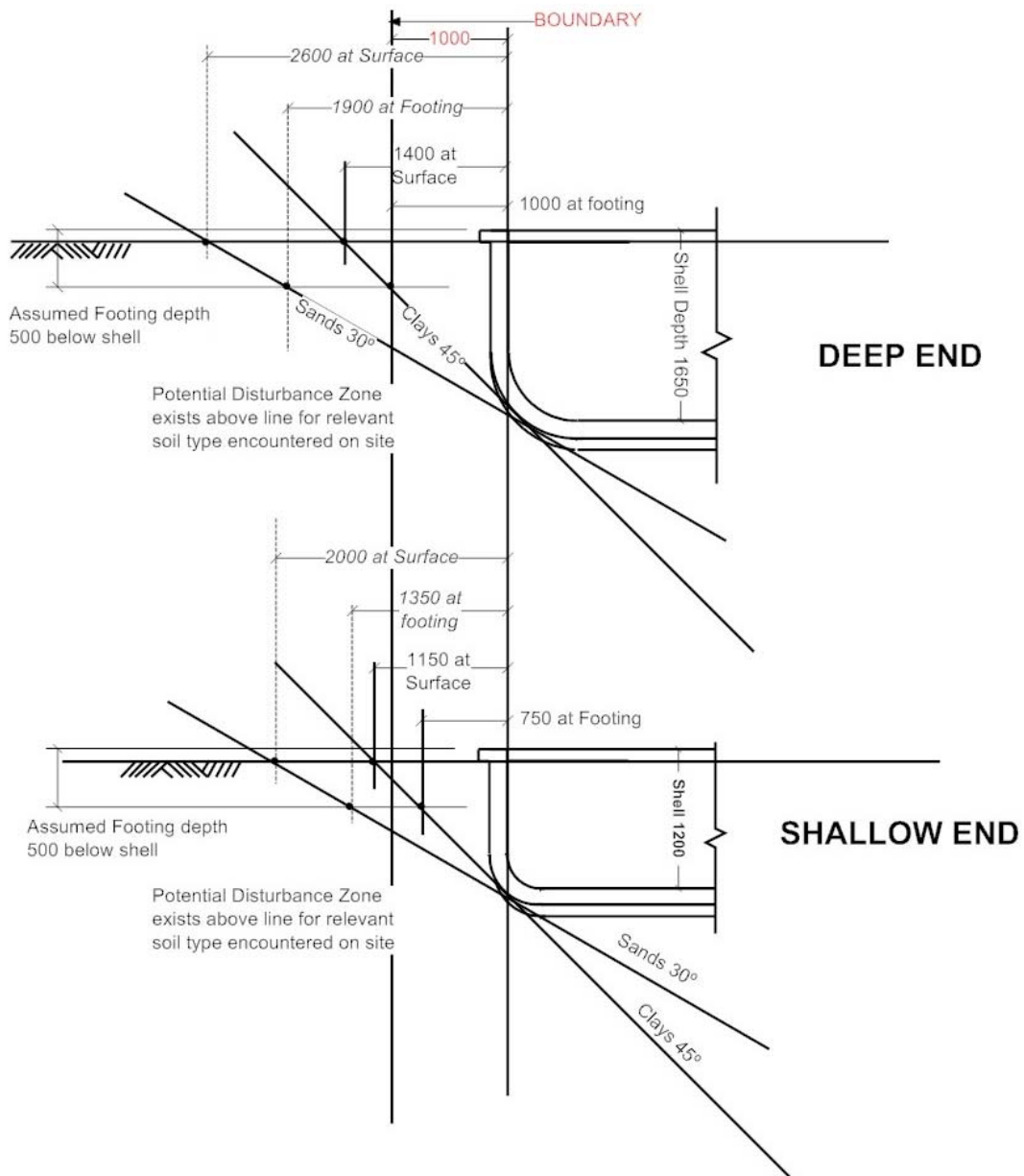
## Temporary Fencing

Temporary safety fences should be installed once excavation has been completed. A safety fence is sometimes included in a quotation, however if the pool is located directly beside a newly constructed house it might be more practical to use hoardings.

## Angle of Repose

Angle of repose addresses potential disturbance to surrounding soil and structures that bear on that soil. It is the maximum slope or angle at which a material such as soil remains stable without falling or sliding.

Considerable tension has to be given in areas of sand as excavation will influence a much larger area. Standard practice is to assume a safe angle of 45 degrees in clay and 30 degrees in sand.



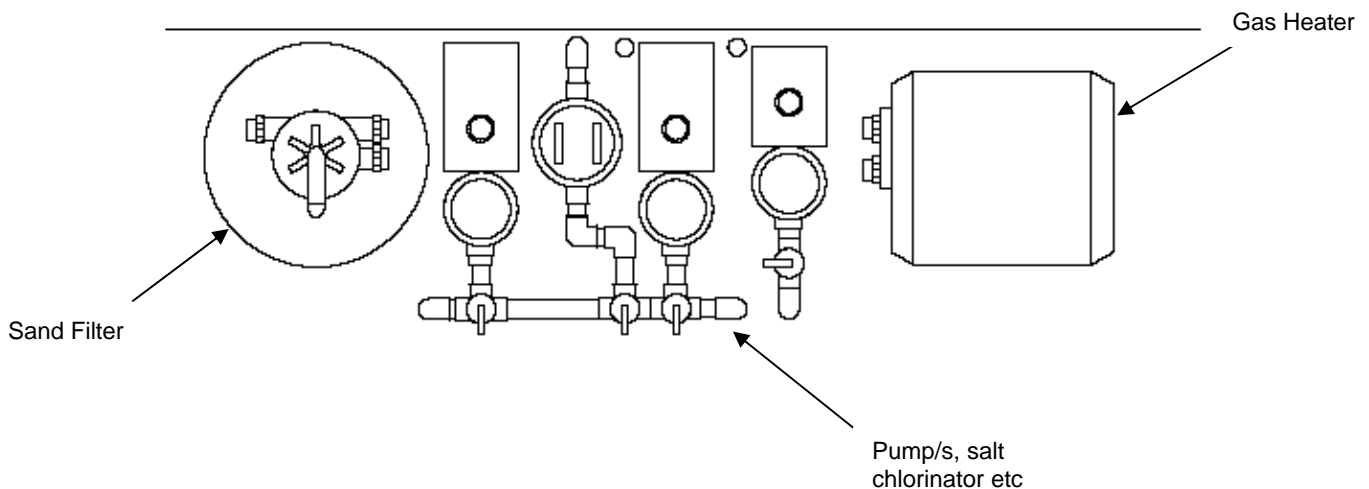
"Typical repose diagram indicating potential disturbance on surrounding areas of pool excavation. Engineering Drawing courtesy Wirra Wonga Pty Ltd Consulting Engineers (c) 2008"

# PLANT & EQUIPMENT

## INFORMATION BOOKLET

### Size of Pool Equipment

A standard pool equipment installation will occupy an area of approximately 2 metres by 1 metre. If a gas heater is added this increases to 3 metres by 1 metre. Additional pumps, in the case of spas and swim jets, will require extra area again.



**Standard equipment layout plan**

Some pool equipment or services need to be located beside the pool. Things that typically require this include: water valves and auto refills. A garden bed is usually the best spot for these.

### Electrical Connections

Electrical connections will need to be made to the pool equipment by a licensed contractor. Aloha Pools are more than happy to co-ordinate this, but in new constructions where an electrician is already on-site doing the house, it is often more cost effective for them to do the swimming pool provision as well.

Although each pool is somewhat different, a standard pool will require a 32 amp circuit, 3 – 4 outdoor power points and switch wires run from the house to turn on pool lights, fountains etc. Aloha Pools will supply the light transformers, but wiring of the lights needs to be done by a licensed electrician.

## Plumbing Connections

Plumbing connections will need to be made by a licensed contractor.

**BACKWASH / WASTE** – in most areas this goes in to the sewer or stormwater systems. It is up to the plumber to nominate where this is to happen. In areas where there is no town sewer / stormwater available, soak pits may be required.

**WATER SUPPLY** – cold water supply is needed to top up the pool. This can be done via mains water (if permitted under local water restrictions), tank water, or a combination of both.

**GAS** - if a gas heater has been selected it is important that the plumber is notified of the size of the heater and the gas requirement as soon as possible. This is because he will need to allow for the additional requirements of the pool when connecting the rest of the house. If insufficient gas is available for the pool then the pipes may have to be ripped up and replaced – a costly experience.

**GAS FLUE** - if a heater is to be installed in a plant room then consideration should be made for the fluing of the heater and the ventilation requirements. If a natural drafting flue cannot be installed then a powered flue may be needed.

## Solar Pipes & Location

If solar heating has been selected we will need to know the preferred collector location. The solar pipe work is not run internally due to noise factors.

The size of the collector is usually expressed both in square metres and as a percentage of the surface area of the pool. Australian Standard 3634 suggests a minimum collector area equal to 60% of the surface area of the pool, but only in ideal, hot climate conditions. SPASA recommends a minimum area of 80% for the majority of installations. If higher than average water temperatures or extended swimming seasons are required, then a larger system may be necessary.

Collectors (other than those on flat roofs) should ideally be on north or west facing roofs. Avoid shade from objects i.e. trees, neighbouring houses, etc for at least six hours every day.

Nobody knows when the sun will shine so time clocks are of little use in solar heating systems. Instead, a temperature-sensing controller will operate the system only when heat can be gained.

## Light Connections / Switching

Pool lights are normally switched with the garden lights. This is because pool and garden lighting schemes are generally designed to complement each other and to act as a feature. It is more convenient to switch the lights together for ease of use.

Underwater lights must be water cooled at all times. They must NEVER be turned on unless they're completely submerged in water, otherwise damage will occur.

## Control Equipment

Swimming pool control systems are necessary if your project includes a pool and spa, or if a high degree of programming is required for the pool equipment. Control systems remove the complication of operating your pool equipment – pumps, filters, cleaning and sanitisation, heating and water features can all be pre-programmed and turned on and off with the touch of a button.

# FINISHES

## INFORMATION BOOKLET

### Interior Colour Selection

Before you choose your tiles (or other interior), you need to decide on the water colour you want to achieve. Keep in mind that the depth of the pool and surrounds will affect the colour. For example, a lot of greenery around the pool will give it a greener look.

Natural light, or lack thereof, can have an effect on the look of your pool, and this is also something to bear in mind when selecting colours. A pool will look slightly different at different times of the day, so when choosing colours for your pool you should always take this into consideration.

Lighter colours will make smaller pools appear bigger. But, where lighter colours deflect the sun and stave off heat absorption, a deep blue tile or black pebble interior may result in warmer water temperatures.

White creates a real sense of clarity and coolness in the water, while darker shades like greens and greys create moodier, more natural effects. Blue remains one of the most popular colour choices because it makes the water look so inviting.

### Tiling

A fully tiled interior has long been regarded as the premium choice for swimming pools because of the appearance and superior durability. On a practical level, they are easier to clean than cement based rendered surfaces.

#### **CERAMIC MOSAIC –**

The standard tile range is a 58mm x 58mm ceramic. Any tiles outside the standard range will incur additional costs for both supply and application.

#### **GLASS MOSAIC –**

Glass mosaic tiles are becoming increasingly popular for swimming pools, spas and water features. Wider colour choice is one of the main reasons why people choose glass over ceramic tiles - especially for their visual effects, like shimmery mother of pearl and sparkly gold.

Because of their smaller size they require a delicate approach in cutting and application and are consequently more expensive to apply.

#### **PORCELAIN –**

Porcelain tiles are available in a larger format than either ceramic or glass, and some people prefer this as the result is fewer grout lines.

## Exposed Aggregate

Exposed aggregate is a pebble-type interior finish made from a blend of ingredients including white cement, quartz sand, metallic oxides and coated aggregate. Exposed aggregate is a more economical choice, it provides a smooth surface and is available in a range of colours; however this finish will require a tiled waterline around the top of the pool.

## Waterline

The waterline is a narrow band of tiles that goes around the top of your pool, just beneath the coping. Waterline tiles avoid having a dry, washed out look between the coping and the top of the water and prevent a 'waterline mark' from appearing on your pebble surface.

## Capping / Paving

Pool capping (also known as coping) is used to finish the edge between the pool structure and the surrounds. Capping material will often match the surrounding paving. Some popular finishes include terra-cotta, clay bricks, sandstone or bluestone type pavers, and timber decking.

If you know the size of your capping material prior to construction the supporting pool beam can be sized to match it.

\* Please note: pool tilers must set the height of the tiles prior to any paving or pool surrounds being finalised and laid.

## External Walls

If your swimming pool is being built partially out of the ground consideration will need to be given to the finishes on the external walls. These walls can be tiled or rendered to match the surrounding landscape.

# COMPLIANCE & LEGAL'S

## INFORMATION BOOKLET

### Soil Test

When the pool is to be situated in clean, undisturbed ground then a soil test is usually not required. However, a soil test to the full depth of the pool is necessary in the following situations:

- Building close to the boundary
- The site is mostly fill or very rocky
- The site is located in a problem area

### Protection Works

With the building of pools on smaller suburban blocks becoming more prevalent the need for protection works is likewise becoming more common.

Consideration should be given to how close the pool is positioned to boundaries, easements and existing buildings. Foundation support systems may be required if the pool excavation will interfere with existing structures, and this needs to be specially engineered. Consent from a neighbour is required if no protection works are planned and the pool is within 1.2 metres of their property.

### Engineering

Aloha Pools will engage an independent licensed structural engineer to prepare plans for the swimming pool. We find it advantageous to work with a company that specialises in pool design because of their extensive experience.

Sometimes there is an overlap between pool and house engineering i.e. the walls of the house sitting on the pool shell, or the pool located near an existing structure. When this occurs the pool engineer will consult with the house engineer to achieve a mutually agreeable result.

### Town Planning (if applicable)

If an architect or builder has already organised for a town planning permit we will need a current copy of the permit documentation and the endorsed plans. If the pool has not been included on these plans a separate town planning application will need to be made to the council. The application usually takes a minimum of 8 weeks, and any changes that are made to the pool design after planning permits have been issued will require a town planning amendment.

### Insurance

Aloha Pools take out an insurance policy for all pool construction projects and a copy of the certificate is provided to the owner.

## Building Permit

A building permit is usually included as part of our scope of works. Aloha Pools will handle all applications, and this normally takes 3 – 4 weeks once the quotation has been accepted and the design finalised.

## Pool Fence

Approved safety fencing must be installed, inspected and approved prior to the swimming pool being filled with water. The building surveyor carries out the inspection and determines whether the fence is suitable.

Swimming pool and spa owners are required by law to meet prescribed standards and regulations when constructing a pool fence. Some of these laws include:

- All swimming pools and spas capable of containing a depth of water exceeding 300 mm (30 cm) must have suitable child resistant safety barriers
- Any swimming pool or spa fence, barrier, gate or door must be maintained in good working order
- All gates and doors providing access to a swimming pool or a spa must have self-closing and self-latching devices, regardless of when they were built
- Never prop-open any gate or door providing access to a swimming pool or spa.

The *Building Act 1993* (the Act) contains penalties of up to \$10,000 for failure to carry out work in accordance with the Regulations.

# DISCLAIMER

## INFORMATION BOOKLET

\* Care has been taken to ensure accurate information is contained within this manual. However, this is just a general guide as each pool is custom built and we cannot cover every eventuality.

\* Some projects, due to their nature, are more complicated than others e.g. foundation system, wet-edge spillover etc and may require additional works.

We hope this manual is of use to you and  
we openly invite your feedback