



# A.G.A.

## PILING - DAMS - WEIRS AND SPILLWAYS

We understand the environment; we offer clients sympathetic solutions in keeping with reliable engineering protocols and are specialists in understanding of fluvial engineering.

The A.G.A. Group provide and install materials that ensure maximum strength and durability consistent with optimum engineering practices. Robust structures need to withstand the hydraulic forces to which they are subjected and can adversely affect the environment into which they are installed. It is our objective to work with clients to ensure that any adverse environmental impacts are minimised or eliminated.

- Piles
- Dams
- A.G.A. Barrier Bags
- Weirs and Spillways
- Fish Passes

*Concept to  
Completion*



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## STEEL SHEET PILES.

### Z Profile

Z-shaped piles are so called because the shape is similar to a horizontally stretched Z. The interlocks are located away from the neutral axis to ensure good shear transmission and increase the strength-to-weight ratio. Applications include retaining walls, cofferdams, environmental barrier walls, and bulkhead walls.

### U profile

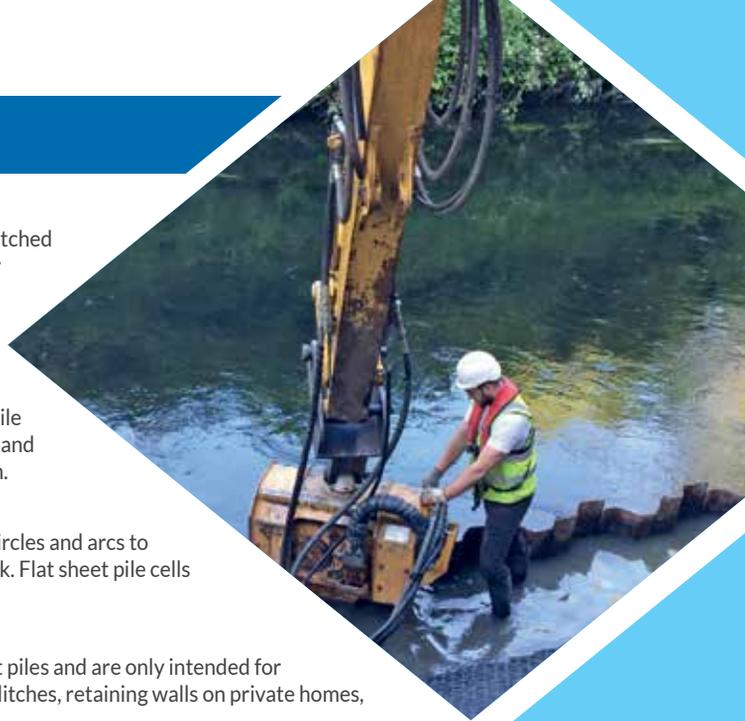
U-shaped piles can form a series with various geometrical characteristics, while the symmetrical form of the single elements offers in the potential for re-use and can be used where they are more practicable to handle during the installation.

### Flat Web

Flat sheet piles work differently from other sheet piles, these are formed in circles and arcs to create gravity cells, held together through the tensile strength of the interlock. Flat sheet pile cells can form huge diameters and heights.

### Pan Type

The pan shaped cold form sheet piles are much smaller than most other sheet piles and are only intended for short, lightly loaded walls. The pan type sections are often used on drainage ditches, retaining walls on private homes, and golf courses for example.



## PRE-FORMED CONCRETE PILES.

### Pre-cast concrete piles.

Concrete piles will support heavy loads, they are resistant to decay and damaging organisms, and have little or no impact to water quality.

A.G.A. Group pre-cast concrete piling is relatively quick to install and very cost effective in many circumstances. Driven concrete piles are displacement piles where only minimal spoil arises at the surface following installation. Our driven pre-cast concrete piles are heavily reinforced to carry the stresses due to transportation and installation as well as the final loads from the structure.

Alternatively we can offer pre-stressed concrete piles depending on the nature of the ground. Pre-stressed concrete piles offer several benefits compared to other driven pile systems.

Tensile stresses, arising during driving, can be better resisted due to the pre-stressing forces, as can bending stress caused during driving so they are less likely to incur cracking than conventional pre-cast piles.

This type of pile is generally less permeable than cast in situ reinforced concrete piles and not affected by groundwater hence offers superior performance in aquatic environs.



## TIMBER PILES.

### Pressure treated timber

Timber is a hugely capable and versatile civil engineering material, with the additional advantage of being sustainable. The A.G.A. Group has a licence agreement with FSC® UK. Within prescribed engineering parameters, timber piles are still more affordable than concrete or steel. Timber foundations may be particularly suitable for aquatic environs, countryside structures such as bridges as well as post-and-beam timber buildings in waterfront or flood prone locations.

We ensure our wood piles are treated correctly so they will last for a very long time below the water level. Given appropriate ground conditions many, timber pile structures are a highly suitable choice of foundation. Timber is economical, easy to transport, handle; and particularly suited for sites with difficult access, or where excavations and heavy transport would pose problems. Most timber piles are driven displacement piles, although they can be installed into pre-augered holes and set in concrete. Under strong ground conditions a shoe cap may be fitted to protect the pile head from fracturing or splaying during insertion.



## SYNTHETIC PILES.

### Log Piles

The Liniar™ log pile is an ideal choice for use in applications where a 'hard engineering' solution is required but there is a desire for a more eco-friendly product, one with a 'soft engineering' appearance. Liniar™ log pile may be the solution, it is covered externally with a timber composite finish (designed to replicate the appearance of wood logs) to give it a natural look and to enable algae or moss to establish on it.

### Trench Piles

The use of Liniar™ plastic piling provides a low cost alternative to steel piling in many transitory works situations. Liniar™ trench sheet pile is designed as a shuttering for temporary or permanent ground works of bridges, tunnels, drainage systems etc. The unique corrugated design provides additional strength and is lighter and easier to handle than steel and therefore cheaper to transport.

### Vinyl sheet flood walls

Vinyl sheets have proven to be an ideal material for flood banks. Its properties, such as rust resistance, extreme durability and eco-friendliness, promote its popularity.

Vinyl is a modern solution having many advantages over traditional flood walls, particularly the aesthetic aspect, which unlike some other solutions, does not interfere with the surroundings. Excellent UV resistance keeps its appearance fresh for years.



## WEIRS AND SPILLWAYS.

A.G.A. Group design, construct and install spillways for small hydro power projects. We build channels emanating from the main water course, designed to house Archimedes screw driven generators and other micro-hydro turbines.

Our teams work on the construction, repair and maintenance of all weirs and spillways structures including those used for flood relief and bypass channels.

Weirs and spillways are robust structures needed to withstand the hydraulic forces to which they are subjected; they can however adversely affect their environment, especially aquatic wildlife, thus it is our objective to work with clients to ensure that the adverse impacts are minimised or eliminated, or even turned into a benefit. The materials we use are carefully selected, in many areas, stone, brick and timber are generally most appropriate to the river landscape. The A.G.A. Group will plan and maintain the integrity of the structure.

Where the weir on the watercourse is of an historic nature we safeguard and merit the same sort of status that should be afforded to its historic standing and investigate should there be legal and/or planning issues to address.



## FISH PASSES.

Fish passes also known as fish-ways or fish steps

We build the structures on or around artificial and natural barriers (such as dams, locks and waterfalls) to facilitate the migration of fish.

The more popular types are:

**A pool and weir** uses a series of small pools to create a long, sloping channel for fish to travel around the obstruction. It acts as a fixed lock to gradually step down the water level; the fish will jump from box to box to head upstream.

**The vertical-slot fish passage.** This is similar except that each pool has a narrow slot in it to allow fish to pass without leaping over obstacles.

**A baffle fish-way** uses a series of close-spaced baffles in a channel to redirect the flow of water, allowing fish to swim around the barrier.

**A Fish Siphon** allows the pass to be installed parallel to a water course and can be used to link two watercourses. The pass utilises a syphon effect to regulate its flow. This style is particularly favoured to aid flood defence.

The A.G.A. Group have the experience to provide integrated civil engineering, fisheries management, conservation, environmental management and environmental impact assessment into integrated projects.

A.G.A. Group work will always conform to EU & Environment Agency directives.



# NON DEEP COFFER DAMS.

## A.G.A. AquaBar

AquaBar is a water-filled coffer dam that can replace steel structures in water up to a maximum controlled water depth of 1.8m. They save time, are re-usable and are logistically more efficient, they pose little disruption to the land from heavy machinery, thus ensure minimal adverse environmental impact on the land or in the water, they bar pollution from leaching across work areas.

AquaBar dams are a non-invasive way of withholding water and are held in place by the weight of water held within them.

By using a special coupling-collar we can extend two or more dams to whatever length is needed or form configurations for worksite areas. The inherent flexibility and construction of the materials used enables the AquaBar to conform to most surfaces, thus providing an excellent seal and keeping water seepage to a minimum.

## A.G.A. Barrier Bags

A unique pattern of robust PP fabric bags and waterproof Velcro connections

## A.G.A. Barrier Bank Flood Defence System

This is an innovative temporary or semi-permanent flood system designed for fast reaction to imminent, intense flooding.

## Barrier Bank High Wall

An innovative temporary or semi-permanent flood system designed for fast reaction to imminent flooding.

## Barrier Bank Surface Wall (ideal for surface water flooding)

Designed to protect against surface water flooding of up to 1.4 meters. Developed largely for flash flooding or where there is imminent low level flooding and to divert water away to safer areas.

## Quick Wall Mini

For low-level flood protection.

An effective sand-fill product that makes sandbags a thing of the past.

## Safety is our top priority.

The A.G.A. Group understand there are always potential risks associated with piling works. We have an unblemished safety record and carry out all projects in compliance with the requirements of UK law.



The A.G.A. Group provide current and detailed Technical Specification and Information Sheets for all product groups. These are available as hard copy on request or can be downloaded directly from our website <http://agagroup.co.uk/home-page/product-and-services-info-sheet-downloads>

This information is subject to change arising from new developments and findings. If you are unable to find the item you are looking for, please do not hesitate to contact us immediately.

The A.G.A. Group contracts division are specialist within the field of aquatic and bioengineering. We operate a policy of 'Best Practice' and are bound by the Code of Conduct of both the Institute of Fisheries Management and the Royal Society of Biology.

The A.G.A. Group will quote for the supply of materials, their installation or for 'turnkey' projects.

**A.G.A. is Quality assured to: ISO9001: 2008, ISO14001: 2004 and 18001: 2007**

A.G.A. Group, MMG, MHP and AGACES are trading styles of A.G.A. Bio-engineering Systems Limited.

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