

# QUINN PILING



Your Complete **GROUND ENGINEERING** Partner

# Introduction

Quinn Piling Limited is a market leader in the ground engineering industry. Over the years the company has expanded with a fleet of rigs, equipment and knowledge to complete the most complex of engineering projects.

Quinn Piling Limited operates throughout the UK and Ireland as a complete ground engineering partner. Our reputation is based on innovative, safe solutions from marine drilling to geothermal piles. This wide range of skills, knowledge and equipment at our disposal puts us in a unique position to meet the clients' needs.



William Quinn (second from left), pictured with a new Pincon face shovel excavator, 1973



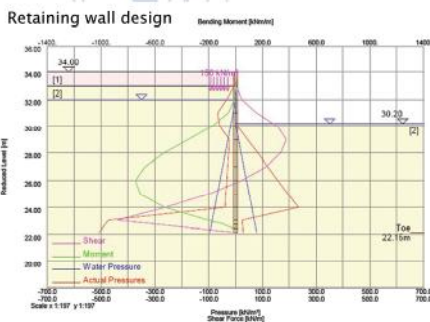
Well Drilling, Dunmurray, 1976

## Design & Construct

Quinn Piling's commitments to continual improvement has resulted in the completion of our new County Down headquarters which incorporate our head office, plant yard, maintenance workshop, fabrication workshop and CNC machine shop. Our expert team dedicate their time to ensure that we operate at the forefront of the ground engineering industry.

Our workshop enables us to design, manufacture, maintain and adapt drilling rigs and tools to complete engineering projects with ease, we also manufacture; steel reinforcement, steel tubular piles, and permanent and temporary works.

Using the latest CAD and geotechnical design software our engineering team is able to undertake geotechnical and structural design in-house.



Head Office, Co. Down



Workshop, Co. Down



# Retaining Walls

With a wealth of experience Quinn Piling provide a design and construct service for both permanent and temporary retaining walls. Bored pile retaining walls can be incorporated into the foundation of a structure, allowing optimum use of space for clients.

The ability to use a broad range of techniques for constructing retaining walls means that retaining walls can be installed under the vast majority of ground conditions encountered in the UK and Ireland. Soil Parameters, water tables and retained heights will dictate the type of wall used and whether the wall is cantilevered or will require propping using props or anchors.



• Contiguous piled wall



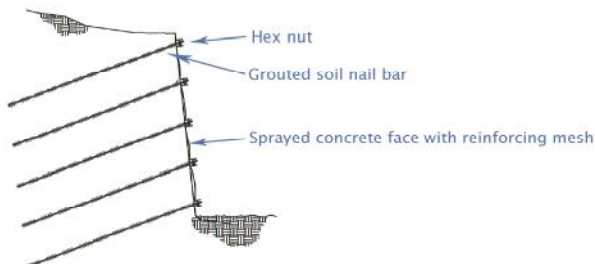
• Secant piled wall



• King post wall



• Sheet piled wall



• Soil nailed wall



Contiguous Wall, Mount Street, Dublin



King Post Wall, Luas Terminus, Dublin

## Innovative Deep Basement, Retail Development, Co. Cavan

Contractor: P.Elliott

Engineer: Alan Traynor / Parsons Brinkerhoff

On this project Quinn Piling were brought in to construct a three storey basement retaining wall. However space shortage meant it was not possible to use props or tie back anchors as they would need to be installed at 45° going beyond the site boundary, and on to neighbouring land with restrictions so an alternative had to be sought. Quinn Piling suggested a novel approach of using buttressed piles. By installing raking piles at an angle of 10° at 2m intervals behind the contiguous piled wall and casting them into the capping beam. As buttressed piles were a new technique, extensive monitoring was carried out with inclinometers during and after excavation. The actual deflection figures outperformed predicted figures.



[www.quinnpiling.com](http://www.quinnpiling.com)

# Foundations

From the smallest residential extension to the largest bridge scheme, Quinn Piling combines broad expertise with a comprehensive fleet of plant to fulfil your foundation requirements.

Our main methods for foundation piling:

## CFA Piles

Suitable for most construction projects causing minimum disturbance, they are ideal for noise and environmentally sensitive sites for both load bearing piles and excavation support i.e. contiguous walls and secant walls.



CFA Piling, Seymour St. Lisburn

## Rotary Bored Piles

Usually employed for large commercial and industrial developments, public buildings and transport infrastructure projects. Quinn Piling has developed specialist expertise in delivering large, complex and technically challenging projects. However rotary methods are becoming increasingly popular on smaller scale projects where temporary or permanent casings need to be bored into rock.

For high capacity bearing piles or axially loaded piles rock sockets can be bored using the rotary bored method, we supplement our range of rock drilling equipment with some of the largest diameter 'down the hole hammers' (DTH) in the UK and Ireland.



Rotary Bored Piling, N7 Overbridge, Dublin - Limerick

## Bored Displacement Piles

Usually employed in brown field sites where the cost of removing spoil off site is expensive. While the technique is relatively new to Ireland it is now widely considered to be an acceptable, and often attractive, alternative foundation solution. The piles are bored and cast in-situ with minimal creation of spoil using low noise and vibration techniques. Bored displacement piles can be constructed to depths of up to 28m in a range of diameters. Piles can be designed to carry lateral and tension loads as well as bending moments.



Bored Displacement Piling, Pilot street, Belfast

## Mini Piles

Where limited access, low headroom and the cost of mobilisation become issues, then mini driven piling can be considered an option. Popular situations for employing mini piling techniques include; residential and small scale commercial projects, inside buildings, mezzanine floors and machine bases. Quinn Piling has the capability and resources to assemble rigs to suit almost any situation.



Mini Driven Piling, St Patricks Church, Magheralin



## Trinity College, Dublin

Contractor: McNamara Construction  
Engineer: Michael Punch & Partners

Quinn Piling installed 600mm diameter CFA piles and ground anchors for the the construction of a new extension to the college. Quinn Piling worked closely with McNamara construction to bring a value engineered solution with substantial saving to the piling element of the works.



## County Hall, Cork City

Contractor: Rohcon (now BAM)  
Engineer: ARUP

This job involved the design, drilling, installation and testing of 600mm diameter Odex piles with a SWL of 2000kN for a new extension to Cork County Hall. The piles were drilled up to 28m deep with a 2m rock socket. All piles were rigorously tested with a preliminary pile tested to 5000kN.



# Marine

Over the years Quinn Piling has gained a wealth of experience in marine works undertaking notable projects such as an offshore energy turbine in the North Atlantic. With our expertise, experience and equipment, solutions can be derived and engineered to suit any situation.



## Eday Tidal Turbine

Client: OpenHydro  
Contractor: McLaughlin & Harvey Ltd  
Engineer: RPS Belfast

Atlantic tidal currents up to 3.5 m/s off the coast of Orkney make this an attractive site for renewable power generation. It was in this harsh environment that Quinn Piling and McLaughlin & Harvey worked for three months to install the European Marine Energy Centre's first tidal turbine. The work involved the drilling and installation of 1.2m diameter tubular steel monopiles. Rock sockets up to 12m deep had to be drilled through the hard north atlantic sea bed with rock strength up to 350 mPa.

## Rossaveel Harbour

Client: Department Of Communications, Marine and Natural Resources  
Contractor: L & M Keating Ltd  
Engineer: Mott McDonald

This job involved the drilling, installation and testing of mooring piles for a new marina and the drilling and installation of berthing piles for a new ferry terminal at Rossaveel Harbour. Rossaveel Harbour is the main ferry crossing to the Aran Islands and is located in County Galway. The piles were 508 and 820mm diameter and up to 26m long. Quinn Piling supplied all drilling equipment including a Jack up Barge and an attendant crane barge. All piles were drilled and grouted into the granite bedrock.

Rossaveel Harbour, Co. Galway





## Mulroy Bay Bridge

Client: Donegal County Council  
Contractor: Ascon Ltd (now BAM)  
Engineer: RPS mcoss

This project involved the drilling and installation of 62 no. 900mm dia piles, 12 vertical and 60 at a 1:4 rake. The works were carried out from a temporary piled platform in the middle of Mulroy Bay. 914mm dia steel tubes were installed to bedrock using rotary bored techniques to a depth of 25m, a rock socket of up to 5.4m was then drilled in front of the tubular piles. A reinforcement cage of up to 30m was then installed inside the piles and concrete tremied in. Piles were tested using integrity, sonic logging, and static loading to 6450kN.

In Progress



Completed Installation



## Crannagh Harbour Development, Coleraine

Contractor: Quinn Piling Limited  
Client: Crannagh Projects Ltd

Construction of a new harbour, slipway & marina on the river Bann, Coleraine. We undertook the project from conception to completion, which involved rock dredging, the installation of mooring piles, the construction of a new harbour quay and slipway, the installation of a jetty, and all associated groundworks and landscaping.



Crannagh, Slipway Coleraine

# Grouting

Quinn Piling use grouting techniques to overcome a range of problems such as masonry repairs, the stabilisation of structures, to fill voids, subsidence, old mine workings, prevent contamination / water seepage and to improve ground conditions.

Grouting can also be used in waterproofing and stabilising tunnels, to stabilise harbour breakwaters, quay walls and within dams.

Quinn Piling have the experience, knowledge, equipment and expertise necessary to deliver the correct grout design where and when needed.



Oil Berth Repairs, Belfast Harbour

# Sprayed Concrete

Guniting or shotcrete is a blend of premixed sand and cement that is carried through a high velocity compressed air stream from the machine to the nozzle, where the cement is hydrated as it is deposited. The process bonds the guniting to clean concrete, brick, stone and other masonry. Guniting will also bond to other materials that have a similar coefficient rate of expansion and contraction. Typical uses are bridges, harbours, rock faces, zoo habitats, water proofing, soil nails and retaining walls.

Quinn Piling use both wet and dry techniques in conjunction with other stabilisation methods, and undertake specialist concrete repairs.

Balloo Road, Bangor





# Geotechnical & Ground Anchors

Our specialist geotechnical knowledge and broad range of plant allow us to design and construct innovative and cost-effective solutions to suit any geotechnical hurdle.

From small diameter self-drilling anchor bar to large tendons, Quinn Piling design and construct anchors in accordance with British standard BS 8081. Anchors can be employed in many circumstances such as a temporary or permanent replacement to 'propping' retaining walls, floor retention or soil nails. Anchors can be stressed, double corrosion protected, multi-point and pressure grouted.

Quinn Piling also has experience in geotechnical techniques such as soil mixing and cut-off walls.



Installation of temporary anchors, M2, Belfast



Soil mixing, Aldi stores, Waterford

## HSS Berth, Victoria Terminal 4, Belfast

Contractor: McLaughlin & Harvey  
Client: Belfast Harbour Commissioners  
Engineer: Doran Consulting

This job involved the design, drilling, installation and testing of permanent DCP ground anchors for a new ferry terminal in Belfast Harbour. The ground anchors had a depth of 80M, possibly among the longest in the UK & Ireland. All ground anchors were tested to a maximum load of 2250kN and locked off at 1500 kN.



# Geothermal, Waterwell & Landfill Drilling

A ground source heat pump will utilise the constant temperature of the earth to heat or cool a thermally enhanced & environmentally friendly fluid circulating through a series of wells.

Ground source heat pump systems are one of the most efficient systems available for heating and cooling of a building. For every 1 unit of electricity used to heat a building, the geothermal heat pump unit produces 3-5 units. That's 300-500% more efficient than using electric resistance heat and 20-30% more efficient than typical boiler systems. For cooling this co-efficient of performance can be much greater.

Geothermal systems are among the most environmentally responsible heating/cooling systems available today.

With governments imposing increasing charges on water it is often viable to install water wells on site. It makes economic and environmental sense to source your own water on site as this eliminates unnecessary pumping and treating.

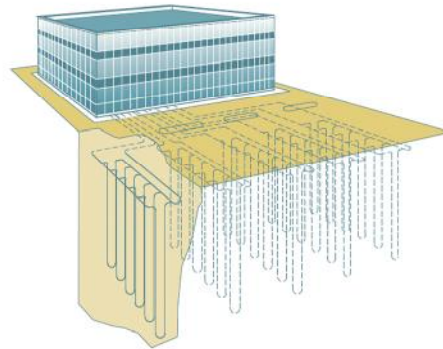
The success of well drilling is down to the experience, knowledge, equipment and resources that Quinn Piling have acquired over the years.

Quinn Piling is able to offer design and construct packages to utilise ground source heat and ground water at the foundation stage of a project, incorporating geothermal piles, geothermal wells, ground water wells and ground source heat pump systems.

Vertical Ground Source wells



Well drilling, Craigavon, Co. Armagh



## Landfill Drilling

Our drilling services can be employed to install vertical and horizontal wells to control leachate and collect gas in landfill sites.

Quinn Piling has experience, knowledge, and plant for drilling boreholes in landfill sites from 150mm to 900mm dia using the barrel-auger technique.

Gas extraction wells, Drumnakelly, Co. Down





# Testing & Monitoring

The Quinn Piling service is able to supplement its quality control procedure with an extensive range of in-house testing and monitoring with a complete quality service. State of the art on-board computers transmit pile information, allowing the engineering team to analyse the pile quality and on-site performance.

## Pile testing

- Static load testing
- Anchor stressing
- Cross-hole sonic logging
- Dynamic load testing
- Integrity pile testing

## Monitoring

- Vibration monitoring
- inclinometers



Pile inclinometer testing, Morrisons Hotel, Dublin



Static load test, Cork County Hall



Anchor stressing, Balloo Road, Bangor



Vibration Monitoring, South Quays, Drogheda



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