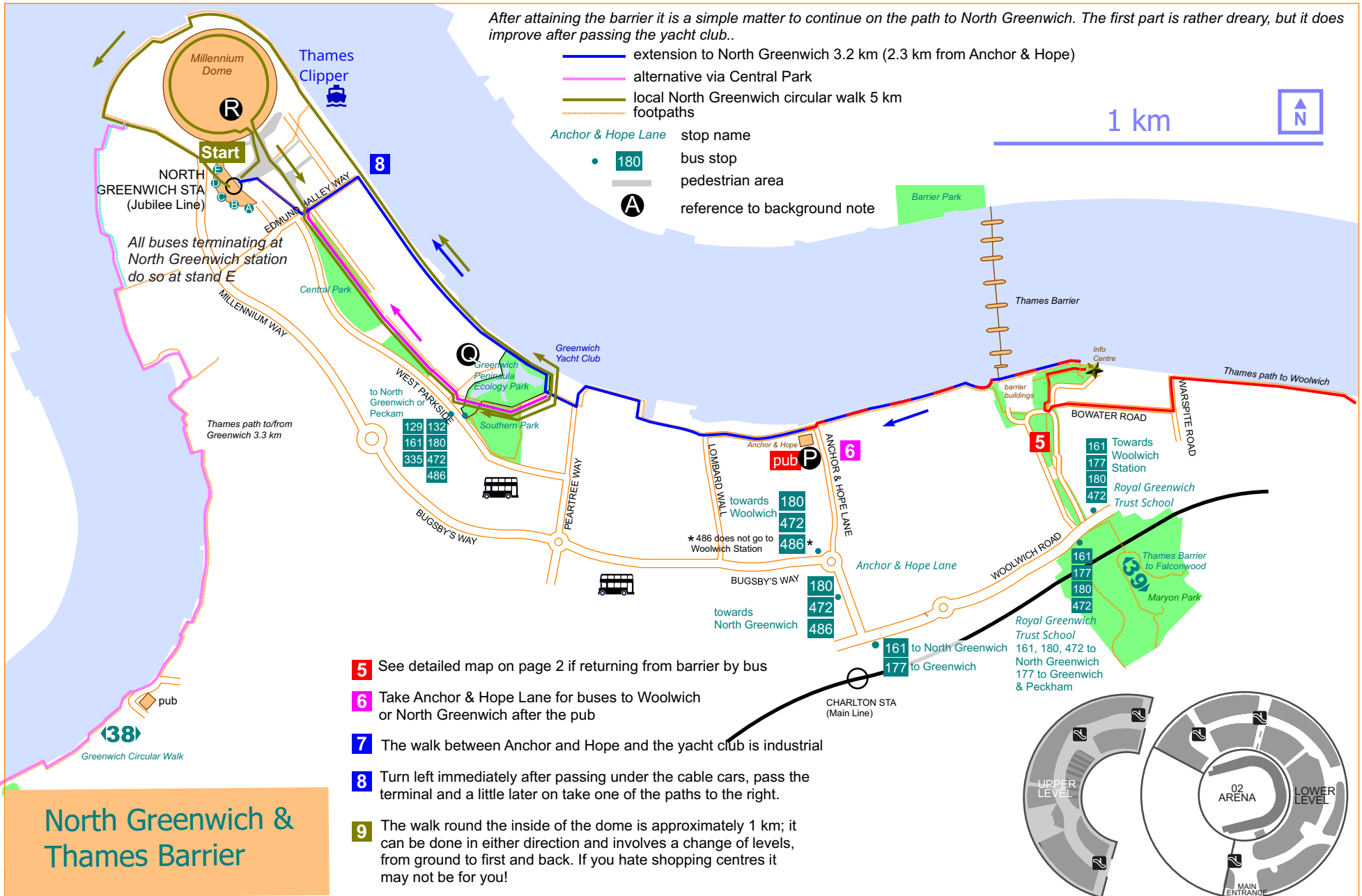


After attaining the barrier it is a simple matter to continue on the path to North Greenwich. The first part is rather dreary, but it does improve after passing the yacht club..

- extension to North Greenwich 3.2 km (2.3 km from Anchor & Hope)
- alternative via Central Park
- local North Greenwich circular walk 5 km footpaths

- Anchor & Hope Lane stop name
- 180 bus stop
- pedestrian area
- A reference to background note

1 km



## North Greenwich & Thames Barrier

## 📍 Woolwich

Woolwich has been inhabited since at least the Iron Age. From the 10th to the mid-12th century Woolwich was controlled by the abbots of St. Peter's Abbey in Ghent. A Woolwich Ferry was first mentioned in 1308 but may be older.

Woolwich remained a relatively small Kentish settlement until the coming of the dockyard in the mid 16th century.

The current parish church of St Mary Magdalene replaced a much older one nearer the river, whose foundations had been compromised by sand quarrying for use as ballast in the boats on the river.

The new church was partly funded by the Fifty New Churches act of 1711 and completed in 1739 (although since expanded), constructed by bricklayer Matthew Spray, for someone unknown.

The fine organ was installed by Harrison & Harrison in 1900 and has three manuals and foot pedals. The church yard is now a public garden.

## 🏛️ Woolwich Town Hall Grade II\*

In 1889, the parish of Woolwich became part of the newly formed County of London. A year later, the Metropolitan Borough of Woolwich was formed from the parishes of Woolwich, Plumstead and Eltham, prompting the construction of a larger town hall.

Sir Alfred Brumwell Thomas, was architect. Opened in 1906, the town hall is a fine and rare example of Edwardian Baroque in London. There are two major entrances, each with a monumental facade. The Wellington Street facade features Portland stone with a

colonnade and "broken" pediment, while the Market Street facade displays military and maritime symbols. An Italianate clock tower completes the look.

Around the back on Calderwood Street are the library, magistrates court and old town hall, all interesting buildings.

## 🏢 Equitable House Grade II

Woolwich Equitable Building Society founded in 1847 and Equitable House was their headquarters after moving from Powis Street in 1935. A handsome and monumental building of solid neo-classicism with Portland stone walls, Westmoreland slate tile roof, intended to inspire customers' confidence and also expressing modernity with elegant Deco detailing throughout. L U Grace and W G Farmer, architects.

## 🏰 Woolwich Arsenal

Martin Bowes, a Lord Mayor who had made a fortune at the Royal Mint, bought riverside holdings in Woolwich and Plumstead in the 1530s, some of it former church land, available after the Dissolution of the Monasteries. He constructed a mansion called Tower Place with a tall octagonal tower, for some time the largest dwelling in Woolwich, close to where the *Henry Grace a Dieu* had been built and behind where the Academy and Boardroom building is now. In the 1650s the Board of Ordnance was given permission to prove guns in the grounds of the mansion (an area known as the Warren) and twenty years

John Roque 1741-1745



later they purchased Tower Place itself. The Warren then developed from a place of storage into a collection of armament factories, military stores and research establishments, which were collectively named the Royal Arsenal by George III in 1805.

The Napoleonic and Crimean Wars increased activity on the site, which expanded downriver. By 1907 the Royal Arsenal covered 1,285 acres and stretched for three miles along the Thames, including much of what is now Thamesmead. It reached its peak of production during the First World War, when it employed close to 80,000 people. During the Second World War production was distributed among other Royal Ordnance Factories nationwide, to spread the risk of air attack.

In the post-war years, changes in technology



and the nature of warfare led to a decrease in operations and eventually in 1967 to closure. The Ministry of Defence finally left in 1994. Today there remains an enduring legacy in the impressive collection of heritage buildings. Many are repurposed as homes, shops, bars and restaurants and integrated into the new development. The arsenal's buildings have come, been rebuilt and/or gone throughout its life. Our walk takes us past the earliest buildings.

● **Royal Arsenal Main Entrance Grade II**

Also called the Beresford Gate. Dated 1829 but upper parts are late C19. Originally also a guard house. The yellow brick ground floor has 3 stone carriage entrances with keystones, the centre one taller. A traffic scheme widened Plumstead Rd/Beresford St in the 1980s, isolating the entrance from the arsenal itself.

● **Royal Arsenal Verbruggens House G II**

Built in 1772-73 for Jan Verbruggen, Master Founder, and his son Pieter by James Morris. His House was later used as his office.

● **Royal Arsenal Officers Block Grade: II**

1717-20, by Henry Lidgbird. Flemish bond stock brick; stone-coped slate mansard roof; brick stacks. symmetrical 11-window range + addition. Panelled doors set in early C18 porch to right and similar porch C1870 to left.

● **Royal Arsenal Dial Arch Entrance Range Grade: II\***

Great Pile of 1717-20 was constructed to take the products of the foundry, finish them and store them. The large quadrangular compound was laid over what had once been a Roman cemetery. What survives is just the front range of a lesser forecourt of workshops at the south end. Behind this there were originally two great

gun-carriage storehouses, one for sea service, the other for the land service, gun boring works and smithy.

Archway and front range attributed both to Sir J Vanbrugh and to Nicholas Hawksmoor; The Lidgbirds were responsible for brickwork, William Ogbourne for carpentry and Robert Churchill for Stonework.

Note the pyramids of cannon balls on top of the gateway piers, and sundial dated 1764. In 1886 a football club called Dial Square was formed here that later became Arsenal FC.

● **Royal Arsenal Main Guardroom Grade: II**

Used by the Army when it provided guards for the site, and an important part of the C18 Arsenal. Guard house, disused. 1788, built by Isaac Ashton, possibly to designs of James Wyatt. Yellow and red stock brick with limestone ashlar, ridge stacks and hipped slate roof.

● **Royal Arsenal Brass Foundry Grade: I**

Following an explosion at Bagley's Foundry at Moorfields in 1716 which killed 17 people, the Board of Ordnance decided to build its own Brass cannon foundry at Woolwich. Constructed 1716-17, possibly by Sir John Vanbrugh, extended and altered 1771-1774 by Jan Verbruggen, Master Founder, and extensively repaired in the 1970s. Guns for government service were cast here until around 1870.

The Pyramidal roof with 2 pedimented dormers to the front, and round lead-clad cupola were added in 1722.

● **Royal Arsenal, Royal Laboratory West & East Pavilions Grade: II**

The oldest remaining part of the Arsenal, and



possibly the oldest Ordnance buildings in the country: a pair of pavilions are the only surviving part of a larger building, to which the Royal Laboratory for the Manufacture of Fireworks and Gunpowder transferred when it moved from Greenwich in 1695. It had lower buildings each side, and the yard was closed to the north and south with gate piers from which came the lion and unicorn finials now on the Board Room.

The courtyard between the two pavilions was covered in 1854, and contained the largest milling machinery space in the world when it was completed. This was demolished mid 1950s.

### ❶ Royal Arsenal Royal Military Academy/Board Room Grade II\*

Board Room for Officers of the Ordnance Board and Cadets' Training Academy, later pattern room, Royal Military Academy, and officers' mess.

Construction 1718-20 is attributed to both Sir John Vanbrugh and Nicholas Hawksmoor. It was extended c1741.

In 1720 an attempt was made to set up an academy within the Arsenal to provide training and education for prospective officers of its new Regiment of Artillery and Corps of Engineers established in 1716.

The collapse of the South Sea Company delayed opening of the academy until 1741.

Architecturally this is considered the most noteworthy survival from this period. To quote: "It is both stark and symbolically ornamental.

The brown-brick façade is unusual with certain stylistic features that, probably via Richards, derive from Hawksmoor: a projecting frontispiece with a Mannerist Serliana topped by elliptical openings under an open pediment; elongated rusticated quoins; shaped chimney stacks; impost bands between arched window openings; and plain architraved oculi. The last disguise the fact that the rooms behind were full height".

### ❷ Foot Tunnel

The Woolwich foot tunnel was designed by Sir Maurice Fitzmaurice and built by Walter Scott & Middleton for London County Council and opened in 1912. The tunnel is 504 metres long and at its deepest, the tunnel roof is about 3 metres below the river bed. A 2016 survey showed that around 1,000 people used the tunnel each day.

### ❸ Woolwich Ferry.

The Metropolitan Board of Works, established 1855, had taken over toll bridges in west London and made them free to use, so a free crossing of the Thames in east London was proposed. In 1884 the board agreed to provide two steam-powered ferries and asked chief engineer Sir Joseph Bazalgette to lead design and construction. Mowlem & Co were awarded contracts to build approaches, bridges and pontoons. Paddle steamers *Gordon* and *Duncan* began in 1889.

Today, the ferry connects the North and South Circular Roads.

Woolwich was the only administrative area at that time to straddle the Thames.

### ❹ Woolwich Dockyard

In its heyday, Woolwich dockyard stretched all the way from today's Warspite Road to Woolwich church. A dockyard was created in 1514 for the building of Henry VIII's famous ship *Henry Grace a Dieu* or *Great Harry*, a four-masted carrack-type ocean-going vessel for his navy as a replacement for his flagship the *Regent*, lost in 1512 during a naval battle of the War of the League of Cambrai.

The original dock was at Gun Wharf, by the later arsenal, but moved upriver in the 1530s. Henry VIII's choice of Woolwich (& Deptford) for the construction and repair of the state's largest warships was a radical departure from Portsmouth, bringing it closer to London, where ships took on stores and ordnance. After 1570, Chatham Dockyard, nearer the sea, challenged the supremacy of Woolwich. Nevertheless it was Woolwich that built the next century's most prestigious and extravagantly decorated warship, the

*Sovereign of the Seas*, in 1637.

Precipitated by the War of the Spanish Succession (1701 to 1713), Woolwich overcame decline and saw its largest expansion yet, to more than double in size. It was, however, accompanied by a fractious striking workforce, corruption and theft. Shipbuilding, repair and employment levels fell again during peacetime, but with the coming of steam the Dockyard entered another period of expansion. HMS *Beagle* launched in 1820. In the late 1820s, as Thames shipbuilders intensified the development of marine steam engineering and a growing number of steam vessels entered naval service, Woolwich became the principal naval yard for fitting out and maintaining the navy's steam fleet, undertaking almost all naval steamship repairs. A Dockyard chapel accommodating 1,200 was built in 1858 to a design by George Gilbert Scott - Early English Gothic with polychrome brick, red with black bands, dressed with Bath stone. The building was later taken down and re-erected in a reduced form at Rochester Way, Eltham, reconsecrated as the Church of St Barnabas, its interior recast after bomb damage in 1944.

### Demise

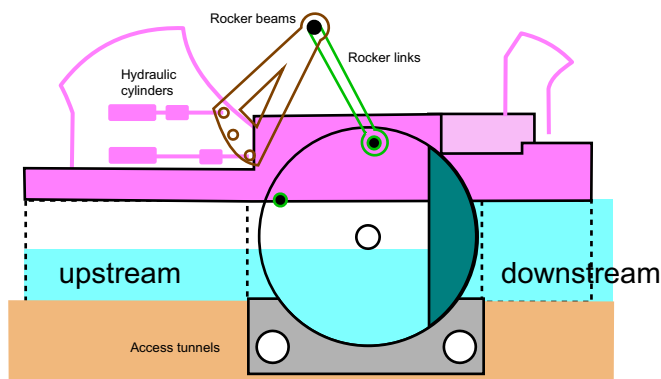
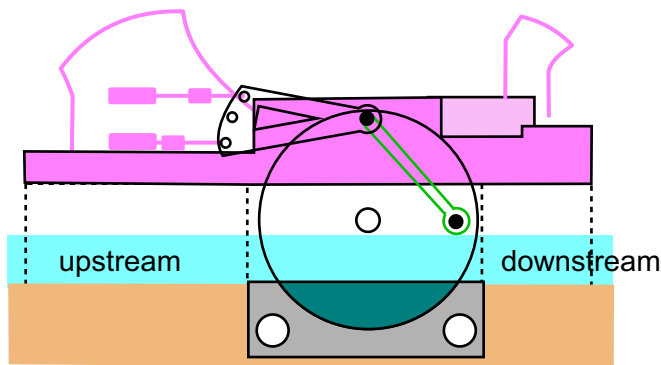
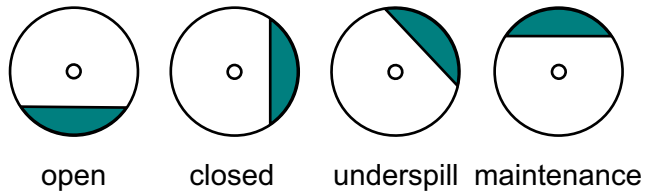
In the 1860s Woolwich lacked the facilities to build iron-clads and the opening of a huge new steam yard at Chatham in 1863 sounded the death knell for both Woolwich and Deptford. The failure of Overend, Gurney and Co. hastened the demise, Deptford and Woolwich closing in 1869.

The site then became an annexe to the Royal Arsenal, for military storage.

In the 1920s western parts were sold off,

There are no pumps. The barrier must shut at low tide on prediction of a need and use the course of the Thames upstream to store the natural flow during the surge, and then let it out after the levels equalise as the tide goes down.

### The navigable spans



principally to the Royal Arsenal Co-operative Society for a depot. The older, eastern dockyard remained until the 1960s, when Greenwich Council acquired it for housing. The Woolwich Dockyard Estate was built in the 1970s.

### ⌚ Clock House & Cannons

Little remains of the dockyard apart from the Clock House, plus remnants from the steam factory, some former dry docks and two shipbuilding slips linked by a long river wall, all naval construction of the 1810s to 1850s. The Clock House was built in 1784 as an administrative headquarters, to replace the old clock house and house offices at the centre of the enlarged yard, near the new main entrance. The building may have been designed by James Arrow, Inspector of Repairs, or by Sir Henry Peake, the Master Shipwright at Woolwich.

A handsome building, pedimented centres on the entrance and river fronts relieve the building's plain stock-brick elevations, as does its prominent central timber clock turret, with clock faces to all four cardinal points and an octagonal cupola added in the nineteenth century.

The Clock House was largely rebuilt in 1978 as a community centre for Greenwich Council. Because of concerns about loadings, the interior was gutted and replaced with a concrete structure, much of the brick walling remade on the new concrete frame.

### ⦿ Thames Barrier

In January 1928 flooding hit Victoria and Chelsea – 14 people drowned and thousands had to leave their homes. A tide surge in 1953 killed 307 people in eastern

England and sent high waters up the Thames to spill into the streets of London's East End and thousands had to flee.

Until the early 1970s the main flood defence for the capital was building higher and stronger river walls and embankments which would eventually block out the Thames from view.

The government decided that the best long-term solution would be a flood barrier with moveable gates built across the Thames. Engineers chose New Charlton, where the banks were relatively straight and the chalk river bed was strong enough to support the barrier. Here the Thames was 520m wide. It has 4 main spans - each 61m across, plus 2 smaller ones and 4 non-navigable ones at the edges with falling gates.

The former Greater London Council coordinated the project with different contractors building the gates, shore machinery and upstream bank raising works. Construction began in 1974. The barrier was finished by 1982 and first used in 1983.

Charles Draper came up with the concept for the barrier's flood gates, basing their design on the taps on his gas cooker.

The flood gates are circular segments in cross section and move into the raised position by rotating. The gates are hollow – they fill with water as they sink and empty as they emerge from the river. They have 4 operating positions

At 20.1m high and each weighing 3,700 tonnes, they were made on the River Tees. Across the river can be seen Barrier Park, the end point of walk 121.

### ⦿ Anchor & Hope Pub

The only pub on this stretch of river is a former Charrington's pub. The Anchor & Hope is a traditional riverside pub, and it is thought there was a pub here since the 16th century. It was re-built in its present form in 1899 and is a striking building, dominated by a turret and cupola. It was, however, substantially rebuilt after World War II, following damage when the glass works behind the pub was hit by a V1 Flying Bomb. At one time the landlady (a Mrs Sergeant) would apparently only serve those customers she liked the look of; these days there is a welcome to all. There is a splendid collection of photos of working boats of the Thames. A side room has tall gilt mirrors. It can get very busy on Charlton Athletic FC home match days as it is very welcoming to away fans. There is a terrace across the path overlooking the river.

By the pub is Durham Wharf, built in the early 1900s to transfer coal and sand into the city along the narrow gauge railway line which can be seen across the yard. Cory's last used it in the 1970s and since then it has remained untouched.

#### © Greenwich Peninsula Ecology Park

Owned by the Land Trust, the Ecology Park consists of an outer and inner boardwalk; the inner boardwalk and gatehouse are open to the public Wednesdays to Sundays. Since 2002 it has rapidly become an established and bio-diverse urban wetland. Its delicate balance of habitats play host to our many different wildlife species. Made up of four acres of freshwater habitat, two lakes surrounded by marshland supporting a wide range of birds and insects. Around the edge of is a small woodland area that is dominated by Alder trees, which thrive in waterlogged areas. In the

centre is a walk-in wildflower meadow that provides a colourful display and is an excellent source of food for insects, and in turn bats, birds and frogs. The unique mixture of habitats found at the park support everything from newts and frogs to stag beetles and butterflies. There are two specially designed bird hides to allow up-close views of the many birds that visit the park. Winter species include snipes and water rail as they migrate south, and summer visitors include reed warblers and swifts.

#### © The Millennium Dome

The Millennium Dome is a unique tensile structure, at the time twice the size of any other tensile structure: a vast fabric-covered canopy suspended from a series of steel masts and held in place by a network of high strength steel cables. Technically it is not a dome.

The roof and its supports together weigh less than the air inside - its masts, cable network and fabric weigh a total of 2,200 tonnes and enclose 2.2 million m<sup>3</sup> of air, about 2,600 tons. Water run-off is filtered through reed beds and recycled as grey water for toilet flushing. Toilet waste is dried and then burned to produce electricity for the Dome.

Around the canopy's perimeter are 12 raised cylindrical pods containing water tanks and generators. Additional power is supplied to the site from the south, and from north of the river via a purpose-built tunnel.

The windswept northern tip of south-east London's Greenwich Peninsula was formerly a 120ha gasworks, begun in 1887 and de-commissioned in the 1970s. In 1988, site investigations uncovered contaminants including solid ferrous cyanide, coal tars, mineral oils, benzene, polychromatic

hydrocarbons, phenols, foul lime and heavy metals.

Ground remediation was carried out on two thirds of the site, replacing 220,000 cu m of material with clean fill. Areas of low soil contamination were left undisturbed. Instead marker layers of orange mesh were laid and capped with a capillary layer, allowing gaseous exchange between ground and air but trapping toxins below the surface. A slurry wall was installed around the site to prevent contaminants leaching into the Thames.

In 1995, the Millennium Commission invited proposals for a national celebration, and in 1996 North Greenwich was selected for a national exhibition. Time pressures ruled out the construction of a traditional building and architect Richard Rogers suggested covering the site with a large 'umbrella', creating a huge display space.

The structure took a year to complete. The exhibition was not a financial success, only attracting half of the predicted 12 million visitors. The Dome was sold for redevelopment and in 2005-7, the interior was remodelled to contain the 22,000 seat O2 Arena, while a second, venue for 2,750 people was constructed along with cinemas, restaurants, bars etc. in the area around the arena but under the canopy. The new structure, a building within a building, sits inside the ring of masts and is designed to stand alone if the Dome's roof should be removed at some point.