

= Kennet and Avon Canal =

The Kennet and Avon Canal is a waterway in southern England with an overall length of 87 miles ( 140 km ) , made up of two lengths of navigable river linked by a canal . The name is commonly used to refer to the entire length of the navigation rather than solely to the central canal section . From Bristol to Bath the waterway follows the natural course of the River Avon before the canal links it to the River Kennet at Newbury , and from there to Reading on the River Thames . In all , the waterway incorporates 105 locks .

The two river stretches were made navigable in the early 18th century , and the 57 @-@ mile ( 92 km ) canal section was constructed between 1794 and 1810 . In the late 19th and early 20th centuries , the canal gradually fell into disuse after the opening of the Great Western Railway . In the latter half of the 20th century the canal was restored in stages , largely by volunteers . After decades of dereliction and much restoration work , it was fully reopened in 1990 . The Kennet and Avon Canal has been developed as a popular heritage tourism destination for boating , canoeing , fishing , walking and cycling , and is also important for wildlife conservation .

= = History = =

= = = Early plans = = =

The idea of an east to west waterway link across southern England was first mentioned in Elizabethan times , between 1558 and 1603 , to take advantage of the proximity of the rivers Avon and Thames , only 3 miles ( 4 @. @ 8 km ) apart at their closest . Later , around 1626 , Henry Briggs made a survey of the two rivers and noted that the land between them was level and easy to dig . He proposed a canal to connect them , but following his death in 1630 the plan was dropped . After the English Civil War four bills were presented to parliament , but all failed after opposition from gentry , farmers and traders worried about cheaper water transport reducing the value of fees on turnpike roads they controlled , and cheaper produce from Wales undercutting locally produced food .

The main alternative to road transport for the carriage of goods between Bristol and London was a hazardous sea route through the English Channel . The small coastal sailing ships of the day were often damaged by Atlantic storms , and risked being attacked by warships of the French Navy and privateers during a succession of conflicts with France .

= = = River navigations = = =

Plans for a waterway were shelved until the early 18th century . However , in 1715 , work was authorised to make the River Kennet navigable from Reading to Newbury . Work commenced in 1718 , under the supervision of surveyor and engineer John Hore of Newbury . In 1723 , despite considerable local opposition , the Kennet Navigation opened , comprising stretches of natural riverbed alternating with 11 miles ( 18 km ) of artificially created lock cuts .

The River Avon had historically been navigable from Bristol to Bath , but construction of watermills on the river in the early years of the 13th century had forced its closure . In 1727 , navigation was restored , with the construction of six locks , again under the supervision of John Hore . The first cargo of " Deal boards , Pig @-@ Lead and Meal " reached Bath in December .

The two river navigations were built independently of one another , in order to meet local needs , but they eventually led to plans to connect them and form a through route .

= = = Closing the gap = = =

In 1788 a " Western Canal " was proposed to improve trade and communication links to towns such as Hungerford , Marlborough , Calne , Chippenham and Melksham . The following year the

engineers Barns , Simcock and Weston submitted a proposed route for this canal , although there were doubts about the adequacy of the water supply . The name was changed from Western Canal to Kennet and Avon Canal to avoid confusion with the Grand Western Canal , which was being proposed at the same time .

In 1793 a further survey was conducted by John Rennie , and the route of the canal was altered to take a more southerly course through Great Bedwyn , Devizes , Trowbridge and Newbury . The proposed route was accepted by the Kennet and Avon Canal Company , chaired by Charles Dundas , and the company started to take subscriptions from prospective shareholders . In July 1793 Rennie suggested further alterations to the route , including the construction of a tunnel in the Savernake Forest . On 17 April 1794 the Kennet and Avon Canal Act received the Royal Assent and construction began . The Newbury to Hungerford section was completed in 1798 , and was extended to Great Bedwyn in 1799 . The section from Bath to Foxhangers was finished in 1804 , and Devizes Locks were completed in 1810 .

The canal opened in 1810 after 16 years of construction . Major structures included the Dundas and Avoncliff aqueducts , the Bruce Tunnel under Savernake Forest , and the pumping stations at Claverton and Crofton , needed to overcome water supply problems . The final engineering task was the completion of the Caen Hill Locks at Devizes .

= = = Operation = = =

In 1801 , trade along the canal commenced ; goods initially had to be unloaded at Foxhangers at the bottom of what is now Caen Hill Locks , transported up the hill by a horse @-@ drawn railway , and reloaded into barges at the top . When the flight of locks opened in 1810 , allowing the same vessel to navigate the entire canal , the rate of carriage per ton from London to Bath was £ 2 9s 6d . This compared well with carriage by road , which cost £ 6 3s to £ 7 per ton , and trade on the canal flourished . In 1812 , the Kennet and Avon Canal Company bought the Kennet Navigation , which stretched from Newbury to the junction with the Thames at Kennet Mouth , near Reading . The purchase from Frederick Page cost £ 100 @,@ 000 , of which £ 70 @,@ 000 was paid in cash with the balance paid back gradually . The purchase was authorised by the Kennet Navigation Act of June 1813 , which enabled the company to raise the funds through the sale of 5 @,@ 500 shares at £ 24 each . At the same time work was undertaken to improve the Avon Navigation , from Bristol to Bath , with the Kennet and Avon Canal Company purchasing a majority shareholding in the Avon Navigation in 1816 .

By 1818 , seventy 60 @-@ ton barges were working on the canal , the majority of the tonnage being coal and stone travelling via the Somerset Coal Canal . The journey from Bath to Newbury took an average of three and a half days . By 1832 , 300 @,@ 000 tons of freight was being carried each year and , between 1825 and 1834 , the company had an annual revenue of around £ 45 @,@ 000 .

= = = Decline = = =

The opening of the Great Western Railway in 1841 removed much of the canal 's traffic , even though the canal company lowered tariffs . In 1852 the railway company took over the canal 's operation , levying high tolls at every toll point and reducing the amount spent on maintenance . Ice @-@ breaking was stopped in 1857 , and traders were further encouraged by preferential tolls to use the railway rather than the canal . In 1861 a new order prohibited any traffic on the canal at night , and , in 1865 , boats were forced to pass through locks in pairs to reduce water loss . By 1868 the annual tonnage had fallen from 360 @,@ 610 in 1848 to 210 @,@ 567 . In the 1870s water abstraction from the canal near Fobney Lock followed the regulations introduced in the Reading Local Board Waterworks , Sewerage , Drainage and Improvements Act of 1870 , and contributed to the silting up of locks and stretches of the canal . Several wharves and stretches of towpath were closed . In 1877 the canal recorded a deficit of £ 1 @,@ 920 and never subsequently made any profit .

The Somerset Coal Canal and Wilts & Berks Canal , which each supplied some of the trade from the Somerset Coalfield to the Kennet and Avon , closed in 1904 and 1906 respectively . In 1926 , following a loss of £ 18 @, @ 041 the previous year , the Great Western Railway sought to close the canal by obtaining a Ministry of Transport Order , but the move was resisted and the company charged with improving its maintenance of the canal . Cargo trade continued to decline , but a few pleasure boats started to use the canal .

During the Second World War a large number of concrete pillboxes were built as part of the GHQ Line - Blue to defend against an expected German invasion ; many of these are still visible along the banks of the canal . They were generally built close to road and rail bridges , which would have formed important crossing points for enemy troops and vehicles . After the war the Transport Act of 1947 transferred control of the canal to the British Transport Commission , but by the 1950s large sections of the canal had been closed because of poor lock maintenance following a breach in the bank west of the Avoncliff Aqueduct . The last through passage was made in 1951 by nb Queen .

= = = Closure avoided = = =

A group supporting the restoration of the canal had been set up in the early 1950s independently of the Inland Waterways Association , with which it was subsequently merged . In 1955 John Gould , a trader on the eastern section of the waterway , successfully petitioned against the commission 's failure to maintain the waterway and obtained damages for loss of business . In March 1956 a clause in the British Transport Commission ( no 2 ) Act was presented to Parliament that would have removed the right of navigation between Reading and Bath . The Act was opposed by Gould and by the local authorities along the canal . They were supported by a 22 @, @ 000 @-@ signature petition to the Queen , brought to London from Bristol by water ; parts of the canal had to be traversed by canoe . This campaign led to an inquiry by a Parliamentary Select Committee . The committee supported the suspension of the right of navigation , and the Bill passed through the House of Commons but was amended by the House of Lords to include a clause to enforce " no further deterioration " . In July 1958 , the Bowes Committee published their Inquiry into Inland Waterways which specifically mentioned the Kennet and Avon finding " no justification for restoring the section from Reading to Bath " .

A government white paper followed the Bowes Report in February 1959 , recommending that an Inland Waterways Redevelopment Advisory Committee should assist schemes to regenerate canals that were no longer able to collect enough fees from tolls to pay for their upkeep . Further reports followed , and in 1962 the Advisory Committee reported that the canal should be redeveloped , and allocated £ 20 @, @ 000 for maintenance and £ 20 @, @ 000 to begin restoration . The Kennet and Avon Canal Trust was formed in 1962 to restore the canal from Reading to Bristol as a through navigation and as a public amenity . It was originally a voluntary group which had previously been known as the Kennet and Avon Canal Association . The Trust gained charitable status in April and was incorporated under the Companies Act on 6 June 1962 . In 1963 the newly formed British Waterways , which was created by the Transport Act of the previous year , and replaced the British Transport Commission as the statutory body for inland waterways , took over the canal and , in partnership with the Trust and riparian local authorities , restoration work began .

= = = Restoration = = =

Restoration work involved a collaboration between staff from British Waterways and volunteer labour . In 1966 Sulhamstead Lock was rebuilt and the re @-@ puddling of the dry section at Limpley Stoke was begun . In 1968 , restoration work was undertaken on the Bath Locks and Burghfield Lock . In Reading at Bridge Street the navigable headroom had been reduced from 8 feet 6 inches ( 2 @. @ 59 m ) to 4 feet 6 inches ( 1 @. @ 37 m ) by girders added to the underside of the bridge . This was replaced with a new bridge , enabling craft to pass more easily . The canal was reopened from the Thames to Hungerford Wharf in July 1974 . Re @-@ puddling was a long process , so experiments with the use of heavy gauge polythene to line the canal were undertaken .

The Avoncliff Aqueduct was lined with a concrete " cradle " and made water @-@ tight in 1980 .

Further works continued during the 1980s . The County Council in Berkshire , supported by local councils , estimated that £ 1 @,@ 275 @,@ 000 was needed for works at the eastern end of the canal and commenced work on replacing some of the bridges . In Wiltshire concerns over the limited water supply to the summit , at the highest point of the canal , indicated that back @-@ pumping would be required , which increased the estimated cost for the county to £ 761 @,@ 560 . The Wilton Water reservoir was estimated to produce less than 750 @,@ 000 imperial gallons ( 3 @,@ 400 @,@ 000 l ) per day , and the Seend feeder only 250 @,@ 000 imperial gallons ( 1 @,@ 100 @,@ 000 l ) . Wessex Water Authority agreed to the extraction of 1 @,@ 000 @,@ 000 imperial gallons ( 4 @,@ 500 @,@ 000 l ) per day from the Avon at Claverton to be pumped east ; the costs of the pumps was £ 175 @,@ 000 .

Various fund @-@ raising schemes , along with some financial support from local authorities , allowed small @-@ scale work on the locks to continue , but the projected timescales for completion were missed . In 1983 the Manpower Services Commission , which had a remit to co @-@ ordinate employment and training services in the United Kingdom , agreed to employ 50 men on work that included restoration of Aldermaston Lock , its adjacent wharf , and Widmead Lock . The restoration of the Dundas Aqueduct and several smaller schemes were later added to the list . Maintenance agreements were signed with local authorities along the route , while fund @-@ raising activities continued . The National Association for the Care and Resettlement of Offenders sponsored a workshop , which opened in Shrivenham in 1987 , to create new lock gates for the Crofton and Devizes flights . In 1988 the restoration of Woolhampton Lock was completed , but obstructions remained on either side . Frouds swing bridge could not be opened and the restoration of Midgham Lock had not been finished ; both were completed the following year . Re @-@ puddling of the Crofton pounds was carried out in 1989 , along with the reconstruction of Midgham Bridge . Restoration of the turf @-@ sided Monkey Marsh Lock proved difficult because of its status as a Scheduled Ancient Monument , and the consequent need to protect the historic site while improving safety .

The stretch between Reading and Newbury was completed on 17 July 1990 ; at a ceremony held at Monkey Marsh Lock several boats competed to be the first craft through . Concerns about the adequacy of the water supply still remained when Queen Elizabeth II formally reopened the canal on 8 August 1990 . The Queen was able to travel on the Trust 's boat Rose of Hungerford through locks 44 and 43 on the Caen Hill flight , breaking a ceremonial tape between them . The shortage of water was addressed in 1996 by the installation of new back pumps at the flight of 29 locks at Caen Hill in Devizes , at a cost of £ 1 million . The pumps raise water 235 feet ( 72 m ) at a rate of 300 @,@ 000 imperial gallons ( 1 @,@ 400 @,@ 000 l ; 360 @,@ 000 US gal ) per hour ( 380 litres per second ) . In October 1996 , the Kennet & Avon Canal Partnership attracted the largest single National Lottery grant awarded by the Heritage Lottery Fund , £ 25 million towards a £ 29 million project , to complete the restoration and to make it operational , sustainable and accessible for the enjoyment of future generations . The work funded included complete rebuilding of Foxhangers Lock and bridge at Caen Hill , replacement of lock gates at Seend and Crofton , channel lining at Claverton , embankment repairs at Martinslade , improvements at Claverton pumping station and dredging at various sites . The restoration 's completion was celebrated in May 2003 by a visit from HRH Prince Charles , but upgrading and maintenance continues . Between 2002 and 2004 the Dundas Aqueduct , which had been relined with polythene and concrete in 1984 without disturbing a colony of bats living under the aqueduct , was further restored by the replacement of engineering bricks used by the Great Western Railway with Bath Stone to match the original work .

In 2011 the Department for Environment , Food and Rural Affairs designated the canal a national " cruiseway " as defined by the Transport Act 1968 . The listing imposes a legal requirement on British Waterways to maintain the canal to a standard that ensures cruising craft can safely navigate the entire length of the waterway . In November 2011 the navigation between Bath and Bristol was closed because of safety concerns about Victoria Bridge , but traffic now continues as does remedial work to the bridge . Repairs are expected to finish in April 2014 .

= = Route = =

= = = Bristol to Bath = = =

The River Avon was navigable from Bristol to Bath during the early years of the 13th century , until the construction of mills on the river forced its closure . The modern Avon is navigable from its mouth at Avonmouth , through the Floating Harbour in Bristol , as far as Pulteney Weir in the centre of Bath and just beyond the start of the canal . Beyond Pulteney Weir the Avon is still navigable as far as the weir and site of the old " flash lock " at Bathampton but the lock at Pulteney has been replaced only with a small boat slide for dinghies and canoes . The stretch from Bristol to Bath is made navigable by the use of locks and weirs at Hanham , Keynsham , Swineford , Saltford , Kelston and Weston , which together overcome a rise of 30 feet ( 9 @. @ 1 m ) within 12 miles ( 19 km ) . Lock number one on the Kennet and Avon Canal is Hanham Lock , first opened as part of the Avon Navigation in 1727 . It is the first lock east of Netham , the upstream limit of the Floating Harbour , beyond the suburbs of the city of Bristol . A colliery wharf was sited just west of the lock , but the nearby coal mines closed in the 19th century . The river below Hanham Lock is considered to be tidal , as high tides often pass over the weir at Netham . Some spring tides pass over the weir at Hanham , making the river tidal up to Keynsham Lock . Heading east , the river passes the Somerdale Factory , on its southern bank , which was a chocolate production factory for Cadbury plc ? originally built by the Fry family in the 1920s and ' 30s . On the northern bank is Cleeve Wood , the primary scientific importance of which lies in its particularly large population of Bath Asparagus ( *Ornithogalum pyrenaicum* ) . A public house has been built on the island between Keynsham Lock and the weir . The weir side of the island is also the mouth of the River Chew .

The river then passes through Avon Valley Country Park and past Stidham Farm , another SSSI that contains Pleistocene terrace @-@ gravels of the river . A depth of at least 7 feet ( 2 m ) of sandy gravels are recorded , consisting mainly of limestone clasts , but also with Millstone Grit , Pennant Sandstone , flint , and chert clasts . The river passes under the old railway line that now forms the Avon Valley Railway , a three @-@ mile @-@ long heritage railway , before reaching Swineford Lock . Here , between 1709 and 1859 , there was an active brass and copper industry served by the river , which also provided water power for the cloth industry . The remains of Kelston Brass Mill , which was working until 1925 , are next to Saltford Lock . The lock was opened in 1727 but destroyed by rival coal dealers in 1738 , to prevent the river being used for transportation .

The Bristol and Bath Railway Path crosses the navigation several times before reaching the suburb of Newbridge on the outskirts of Bath . Here the A4 crosses close to the Newton St Loe SSSI , which is designated an SSSI because it represents the only remaining known exposure of fossiliferous Pleistocene gravels containing the remains of mammoths ( *Mammuthus* ) and horses ( *Equus* ) along the river , and has aided the development of a scientific understanding of the history of early glaciation in South West England . The final lock before entering Bath is Weston Lock , opened in 1727 . Its construction created an island between the cut and the river weir , which became known as Dutch Island after the owner of the brass mill established on the riverside in the early 18th century .

= = = Bath to Devizes = = =

The restored Bath Bottom Lock marks the divergence of the River Avon and the canal . It is situated south of Pulteney Bridge . Just upstream of the Bottom Lock are a side pound and a pumping station that pumps water " upstream " of the locks , to replace that used each time a boat passes through . The next of the six Bath Locks is Bath Deep Lock , numbered 8 / 9 as two locks were combined when the canal was restored in 1976 . The new chamber has a depth of 19 feet 5 inches ( 5 @. @ 92 m ) , making it the UK 's second @-@ deepest canal lock . Just above the Deep Lock is another side pound as a reservoir for refilling the lock , followed by Wash House Lock . After a slightly longer pound is Abbey View Lock , beside which there is another pumping station and then ,

in quick succession , Pultney Lock and Bath Top Lock .

Above the Top Lock the canal passes through Sydney Gardens via two short tunnels and under two cast iron footbridges dating from 1800 . Cleveland Tunnel is 173 feet ( 53 m ) long and runs under Cleveland House , the former headquarters of the Kennet and Avon Canal Company and now a Grade II \* listed building . A trap @-@ door in the tunnel roof was used to pass paperwork between clerks above and barges below . Many of the bridges over the canal are listed buildings .

On the eastern outskirts of Bath a toll bridge near the George Inn links Bathampton to Batheaston , on the north bank of the canal . When the A46 Bathampton by @-@ pass was built , the 22 @-@ acre ( 8 @.@ 9 ha ) Bathampton Meadow was created to provide additional flood relief . The resultant wet meadows and oxbow lake have proved attractive to a number of migrants ; wading birds such as dunlin , ringed and little ringed plover , and green and common sandpiper are frequent visitors in spring and autumn . Sand martin and kingfisher have been seen regularly by the lake , and other migrants have included yellow wagtail , whinchat and hobby . The canal turns south into a valley between Bathampton Wood and Bathford Hill which includes Brown 's Folly a 99 @-@ acre ( 40 ha ) biological and geological Site of Special Scientific Interest .

In the Avon Valley to the east of Bath the classic geographical example of a valley with all four forms of ground transport is found : road , rail , river , canal . The canal passes the remains of a loading dock , once used for Bath Stone from the quarries on Bathampton Down , which was carried down a straight track to the canal over the Dry Arch rock bridge ( demolished in 1958 to allow double @-@ decker buses to use the A36 ) . Next , the canal passes the waterwheel @-@ powered Claverton Pumping Station , which pumped water from the River Avon into the canal . The building was completed in 1810 and the pump was working by 1813 .

On the eastern bank Warleigh Wood and Inwood are ash @-@ wych elm and ash @-@ maple dry woodland , which comes right down to the canal .

The canal then crosses over the river and the Wessex Main Line railway at the Dundas Aqueduct , past Conkwell Wood , before recrossing the river and railway at the Avoncliff Aqueduct . At the western end of the Dundas Aqueduct it is joined by the remains of the Somerset Coal Canal , a short stretch of which has been restored to create the Brassknocker Basin . Excavations of the old stop lock showed that it was originally a broad 14 @-@ foot ( 4 m ) lock that at some point was narrowed to 7 feet ( 2 m ) by moving the lock wall . The Somerset Coal Canal was built around 1800 from basins at Paulton and Timsbury , giving access to London from the Somerset Coalfield , which at its peak contained 80 collieries .

After the Avoncliff Aqueduct the canal passes through Barton Farm Country Park , past Gripwood Quarry and a 14th @-@ century Grade II \* listed tithe barn , 180 feet ( 55 m ) long and 30 feet ( 9 m ) wide , on its way into Bradford on Avon .

The first sod for the Kennet and Avon Canal was turned in Bradford on Avon in 1794 , and soon there were wharves above and below Bradford Lock . Further east , an aqueduct carries the canal over the River Biss . There are locks at Semington and Seend , where water flows into the canal from the Summerham Brook , otherwise known as the Seend Feeder . In the village of Semington the Wilts & Berks Canal joined the canal , linking the Kennet and Avon to the River Thames at Abingdon . The North Wilts Canal merged with it to become a branch to the Thames and Severn Canal at Latton near Cricklade . The 52 @-@ mile ( 84 km ) canal was opened in 1810 , but abandoned in 1914 ? a fate hastened by the collapse of Stanley Aqueduct in 1901 . In 1977 the Wilts & Berks Canal Amenity Group was formed with the aim of fully restoring the canal to re @-@ connect the Kennet and Avon to the upper reaches of the Thames .

Caen Hill Locks , at Devizes , provides an insight into the engineering needed to build and maintain the canal . The main flight of 16 locks , which take 5 ? 6 hours to navigate in a boat , is part of a longer series of 29 locks built in three groups : seven at Foxhangers , sixteen at Caen Hill , and six at the town end of the flight . The total rise is 237 feet ( 72 m ) in 2 miles ( 3 @.@ 2 km ) or a 1 in 30 gradient . The locks were the last part of the 87 @-@ mile ( 140 km ) route of the canal to be completed . The steepness of the terrain meant that there was no space to use the normal arrangement of water pounds between the locks . As a result , the 16 locks utilise unusually large side ponds to store the water needed for their operation . Because a large volume of water is

needed a back pump was installed at Foxhangers in 1996 , capable of returning 7 million imperial gallons ( 32 million litres ) of water per day to the top of the flight , equivalent to one lockful every 11 minutes . While the locks were under construction in the early 19th century a tramroad provided a link between Foxhangers at the bottom of the flight and Devizes at the top , the remains of which can be seen in the towpath arches in the road bridges over the canal . From 1829 until 1843 the flight , which includes the narrowest lock on the canal , Lock 41 , was illuminated by gas lights .

At the top of the flight is Devizes Wharf , home to the Kennet & Avon Canal Museum , which has a range of exhibits on the conception , design , usage , and eventual commercial decline of the Kennet and Avon Canal , as well as its subsequent restoration . It is operated by the Kennet and Avon Canal Trust , which has its headquarters and a shop within the Canal Centre . The Wharf Theatre is in an old warehouse on the same site . Devizes wharf is the starting point for the Devizes to Westminster International Canoe Marathon , which has been held since 1948 .

= = = Devizes to Newbury = = =

Heading east from Devizes the canal passes through the Wiltshire countryside and a series of locks and swing bridges before another flight of locks at Crofton .

At Honeystreet is the remains of a wharf that was the home of boat builders Robbins , Lane and Pinnegar , which served as the boat building headquarters of the Canal Company . They built many of the boats used on the canals of southern England before closing in about 1950 . Next to the wharf is the Barge Inn , a substantial public house once known as the George Inn . It was roughly half way along the canal and served as a bakehouse , slaughterhouse and shop for provisions for those living and working on the canal . The building was destroyed by fire in 1858 and rebuilt within six months . It was built just within the parish boundary of Stanton St Bernard to " serve the Honey Street wharf in Alton parish , which refused to allow drinking establishments " .

Jones 's Mill is a 29 acre ( 12 ha ) area of fen vegetation , scrub and woodland lying along the headwaters of the Salisbury Avon northeast of Pewsey . It has been designated a biological Site of Special Scientific Interest because it is " the best known example of a calcareous valley mire in Wiltshire " .

The four locks at Wootton Rivers mark the end of the climb from the Avon . Between Wootton Top Lock and Crofton is the summit pound of the canal at 450 feet ( 140 m ) above sea level , stretching for about 2 miles ( 3 . 2 km ) and including the 502 yard ( 459 m ) long Bruce Tunnel . The tunnel is named after the local land owner , Thomas Brudenell Bruce , 1st Earl of Ailesbury ( 1729 ? 1814 ) , who refused to allow a deep cutting through his property and insisted on a tunnel . The tunnel has red brick portals , capped with Bath stone , each with a decorative plaque of Pennant stone . The tunnel was begun in 1806 and finished in 1809 . It is lined with English bond brickwork and has a wide bore to cope with the Newbury barges used on the canal . There is no towpath through the tunnel , so walkers and cyclists must walk across the top of the hill . When canal boats were pulled by horses the boatmen had to haul their barges through the tunnel by hand , pulling on chains that ran along the inside walls .

The Crofton Locks flight marks the start of the descent from the summit to the Thames ; the nine locks have a total rise / fall of 61 feet ( 19 m ) . When the canal was built there were no reliable water sources available to fill the summit by normal gravitational means . A number of usable springs were found adjacent to the canal route about one mile ( 2 km ) east of the summit pound , and about 40 feet ( 12 m ) below it , and arrangements were made for them to feed the pound below lock 60 at Crofton . Some years later the Wilton Water reservoir was created to enhance the supply to this pound using the springs and the River Dun .

Water is pumped to the summit at the western end of the locks , from Wilton Water , by the restored Crofton Pumping Station . The original steam powered pumping station is preserved and contains one of the oldest operational Watt style beam engines in the world , dating from 1812 . The steam engines still pump water on selected weekends , but for day to day operation electric pumps are used , automatically controlled by the water level in the summit pound .

Near Crofton are Savernake Forest and the remains of a railway bridge that carried the Midland and South Western Junction Railway over the canal . Mill Bridge at Great Bedwyn is unusual in being a skew arch ; on its completion in 1796 it was the first of its kind . From there to Hungerford the canal follows the valley of the River Dun through Freeman 's Marsh , which consists of unimproved meadows , marsh and reedbed . It is an important site for overwintering , migratory and breeding birds , and supports many varieties of flora scarce in Southern England . It was cited by English Nature in 1986 , and forms part of the North Wessex Downs Area of Outstanding Natural Beauty . There are plans to construct a marina and hotel complex adjacent to the site , but the potential environmental impacts ( particularly to water voles ) of such a development on Freeman 's Marsh have led to local opposition . To the north of the canal are seven separate small areas , four in the Kennet Valley and three in the Lambourn Valley , which make up the Kennet and Lambourn Floodplain SSSI . Occupying a total of 57 acres ( 23 ha ) , it supports particularly large populations of Desmoulin 's whorl snail .

There are several locks and bridges in Hungerford , including one which carries the A338 . Hungerford Marsh Lock is unique on the Kennet and Avon Canal in that it has a swing bridge directly over the centre of the lock that must be opened before the lock may be used . In the area around the lock , called Hungerford Marsh Nature Reserve , more than 120 bird species have been recorded .

Between Kintbury Lock and Newbury , passing to the north of Hamstead Marshall , the canal is very close to the River Kennet , which flows into the canal via several channels . The canal passes through an area known as the Kennet Valley Alderwoods , the largest remaining fragments of damp , ash @-@ alder woodland in the River Kennet floodplain . The SSSI includes two woods ? the Wilderness and part of Ryott 's Plantation ? which are important because they support a very great diversity of plants associated with this woodland type , dominated by alder ( *Alnus glutinosa* ) ; though ash ( *Fraxinus excelsior* ) is abundant in places and there is occasional oak ( *Quercus robur* ) and wych elm ( *Ulmus glabra* ) . In addition to the wide range of higher plants the woods support a diverse bryophyte flora including the uncommon epiphytes *Radula complanata* , *Zygodon viridissimus* and *Orthotrichum affine* . Nearby is Irish Hill Copse . This site of coppiced ancient woodland includes an extensive area of calcareous ash / wych elm coppice on the hill sides , merging into wet ash / maple and acid oak / ash / hazel woodland with aspen , on the higher parts of the site . The lower slopes are dominated by dog 's mercury ( *Mercurialis perennis* ) , with abundant herb paris ( *Paris quadrifolia* ) , toothwort ( *Lathraea squamaria* ) , Solomon 's seal ( *Polygonatum multiflorum* ) , twayblade and early purple orchids ( *Listera ovata* ) and *Orchis mascula* and , locally , wild daffodil ( *Narcissus pseudonarcissus* ) .

A wooden bridge was built close to Newbury Lock in 1726 , replaced in stone between 1769 and 1772 by James Clarke , and now known as the Town Bridge or Water Bridge . As there is no tow path , a line to haul the barge had to be floated under the bridge and then re @-@ attached to the horse where the tow path resumed .

= = = Newbury to Reading = = =

The River Kennet is navigable from Newbury downstream to the confluence with the River Thames at Kennet Mouth , in Reading .

The stretch from Newbury to High Bridge in Reading is an improved river navigation known as the Kennet Navigation , opened in 1723 . Throughout this navigation stretches of natural riverbed alternate with 11 miles ( 18 km ) of artificial lock cuts and a series of locks that overcome a fall of 130 feet ( 40 m ) .

East of Newbury town centre the Kennet passes through the Thatcham Reed Beds a 169 acres ( 68 ha ) Site of Special Scientific Interest , nationally important for its extensive reedbed , and species @-@ rich alder woodland and fen habitats . The latter supports Desmoulin 's whorl snail ( *Vertigo moulinsiana* ) , which is of national and European importance . A large assemblage of breeding birds including nationally rare species such as Cetti 's warbler ( *Cettia cetti* ) make use of the reedbed , fen and open water habitats found at Thatcham Reed Beds . Thatcham 's network of



gravel pits , reed bed , woodland , hedges and grassland is rich in wildlife and has been made into The Nature Discovery Centre by the Royal Society for the Protection of Birds .

Monkey Marsh Lock at Thatcham is one of only two remaining working examples of turf @-@ sided locks on the canal today . It is listed as a Scheduled Ancient Monument by English Heritage .

Below Colthrop Lock in Thatcham the river leaves behind the built @-@ up area of Newbury and runs in generally rural surroundings . It passes through the Woolhampton Reed Bed , another SSSI which consists of dense reed bed with smaller areas of tall fen vegetation and carr woodland . It is notable for the diversity of insects it supports and its nesting passerine bird populations , which include several uncommon species such as reed warbler ( *Acrocephalus scirpaceus* ) , a species that in Britain nests almost exclusively in this habitat .

Aldermaston Gravel Pits consist of mature flooded gravel workings surrounded by dense fringing vegetation , trees and scrub , affording a variety of habitats for breeding birds and a refuge for wildfowl . The irregular shoreline with islands , promontories , sheltered eutrophic pools and narrow lagoons , provides undisturbed habitat for many water birds , including surface @-@ feeding ducks such as teal ( *Anas crecca* ) and shoveler ( *Anas clypeata* ) . The surrounding marsh and scrub are important for numerous birds including nine breeding species of warblers , water rails ( *Rallus aquaticus* ) , kingfishers ( *Alcedoa atthis* ) and an important breeding colony of nightingales ( *Luscinia megarhynchos* ) . In 2002 English Nature bought Aldermaston Gravel Pits from the mineral extraction company Grundon and it is managed as a nature reserve by the Berkshire , Buckinghamshire and Oxfordshire Wildlife Trust . The River Kennet itself , from near its sources west of Marlborough down to Woolhampton , has been designated as a SSSI primarily because it has an extensive range of rare plants and animals that are unique to chalk watercourses .

The village of Woolhampton and the canal settlement of Aldermaston Wharf are the only significant settlements until the river enters the built @-@ up area of Reading at Sheffield Lock in Theale . Even after this , the river is isolated from Reading 's suburbs by a wide floodplain surrounding the river . In this stretch is Garston Lock , the other turf @-@ sided lock on the navigation .

Shortly after passing Fobney Lock and the associated water treatment works , the Kennet flood plain narrows and the river enters a narrow steep @-@ sided gap in the hills forming the southern flank of the Thames flood plain . At County Lock the river enters the centre of Reading , where it formerly flowed through the centre of a large brewery . This narrow and twisting stretch of the river became known as Brewery Gut . Because of poor visibility and the difficulty of boats passing in this stretch , traffic has long been controlled by a set of maritime traffic lights . Today the Brewery Gut is a major feature of Reading 's The Oracle shopping centre .

Immediately after The Oracle the river flows under the arched High Bridge , which forms a historical and administrative divide on the river . The last mile of the River Kennet in Reading below the bridge has been navigable since at least the 13th century . Because there is no wide floodplain , wharves could be built during the Middle Ages that allowed Reading to establish itself as a river port . Originally this short stretch of river , which includes Blake 's Lock , was under the control of Reading Abbey , but today it is administered by the Environment Agency as if it were part of the River Thames . The Horseshoe Bridge at Kennet Mouth was built as a railway bridge in 1839 , and the timber @-@ clad iron @-@ truss accommodation bridge was added in 1892 .

= = Canal today = =

The canal today is a heritage tourism destination . Boating , with narrowboats and cruisers , is a popular tourist attraction particularly in the summer months . It is a favourite haunt of several famous canal enthusiasts including canal boat veterans and original K & A restoration supporters , Prunella Scales and Timothy West . Privately owned craft and hire boats from the range of marinas are much in evidence , and there are numerous canoe clubs along its length . The annual Devizes to Westminster International Canoe Marathon starts from Devizes Wharf , the site of the Kennet & Avon Canal Museum , at first light on Good Friday each year and the competitors have to negotiate 75 locks in the 125 @-@ mile ( 201 km ) route between Devizes and the finish at Westminster . The winning time is usually around 17 ½ hours .

Cycling is permitted along the canal towpath except for a 656 yards ( 600 m ) section near Woolhampton . Some sections of the canal towpath have been improved and widened to make them more suitable for cyclists and disabled users . Under a partnership arrangement involving British Waterways , Sustrans , and the riparian local authorities , two main sections of the canal have been improved , and , with a few short diversions , run from Reading to Marsh Benham and from Devizes to Bath as part of the National Cycle Network ( NCN ) Route 4 . Fishing for bream , tench , roach , rudd , perch , gudgeon , pike and carp is permitted throughout the year from the towpath of the canal , but almost its whole length is leased to angling associations or fishing clubs . There are a variety of riverside public houses , shops and tea rooms . The Kennet and Avon Canal Trust operates shops and tearooms at Aldermaston Lock , Newbury Wharf , Crofton Pumping Station , Devizes , and Bradford on Avon .

#### = = = Ecology = = =

The canal and its environs are important for wildlife conservation . There are several Sites of Special Scientific Interest ( SSSI ) , which exhibit great biodiversity . Key sites that are home to several rare species include the Aldermaston Gravel Pits , Woolhampton , Thatcham Reed Beds , and Freeman 's Marsh , Hungerford . There are also many non @-@ statutory nature reserves along the canal . More than 100 different species of bird have been recorded in surveys over the length of the canal , of which 38 could be classified as specialist waterway birds , including grey heron ( *Ardea cinerea* ) , reed bunting ( *Emberiza schoeniclus* ) and common kingfisher ( *Alcedo atthis* ) . Fourteen species have been confirmed as breeding including sand martins ( *Riparia riparia* ) , which nest in drain @-@ pipes in the brick walls of the canal in the centre of Reading . Wilton Water by Crofton Locks and the Kennet Valley gravel pits provide habitats for breeding and wintering waterfowl . Several species of Odonata ( dragonflies and damselflies ) and other invertebrates have also been recorded . Common reed ( *Phragmites australis* ) is among the plant species growing along the edges of the canal . Measures to preserve and create water vole ( *Arvicola amphibius* or *A. terrestris* ) habitat have had considerable impact on the restoration of the canal , and new " vole @-@ friendly " techniques of bank protection have been developed .