



A self-guided walk in Berengrave Nature Reserve, (Including Rainham Dock East)



BERENGRAVE LOCAL NATURE RESERVE

DESCRIPTION

Berengrave Local Nature Reserve in Rainham lies beyond the eastern boundary of Riverside Country Park. Both the Country Park and the reserve are owned and managed by Medway Council.

Approximate centre of reserve: Lat -Long: 51° 22' 31" N – 00° 36' 55" E
OS Grid Reference: TQ 821672

The reserve lies between the residential area of north Rainham and the River Medway. Berengrave and Rainham Dock East cover an area of approximately 15 hectares (37 acres) bisected by the B2004 (Lower Rainham Road).

Part of this walk enters Riverside Country Park to the north of the Lower Rainham Road in the area of the park known as Rainham Dock East (RDE) which is the site of the old British Standard Cement Company's works at Motney Hill. To the south of the Lower Rainham Road is the old Rainham chalk quarry which supplied chalk to the cement works.



As well as the whole site having Local Nature Reserve status, part of Rainham Dock East is a Site of Special Scientific Interest (SSSI), whilst the chalk quarry is a Local Wildlife Site (formerly called Site of Nature Conservation Interest).

Since cement production ceased in 1931, both areas have been taken over by nature. The northern part is mainly scrub, with some open ground, a small amount of woodland and a reed bed. The old chalk quarry has a small lake (picture left) with a reed bed, which floods into an area of willow carr. The drier areas and sides of the quarry contain woodland and mature scrub, with a small area of glades.

There are few mammals in residence, other than rabbits, hedgehogs, squirrels and small rodents, but bird watchers will find the area of interest.

Rainham Dock East is adjacent to the River Medway, which has an international reputation for hosting migratory ducks, waders and other sea birds. Cross over Motney Hill Road from Rainham Dock East to the Rainham Dock itself and you will have an excellent view of the birds if you get there 1½ -2 hours either side of high tide. The RSPB reserve at Motney Hill is only a few yards away, although this is not open to the public. The reed bed in Rainham Dock East is not open to the public either, but it can be seen from the top of the sea wall which runs along the western side of Motney Hill Road.

PLEASE NOTE:

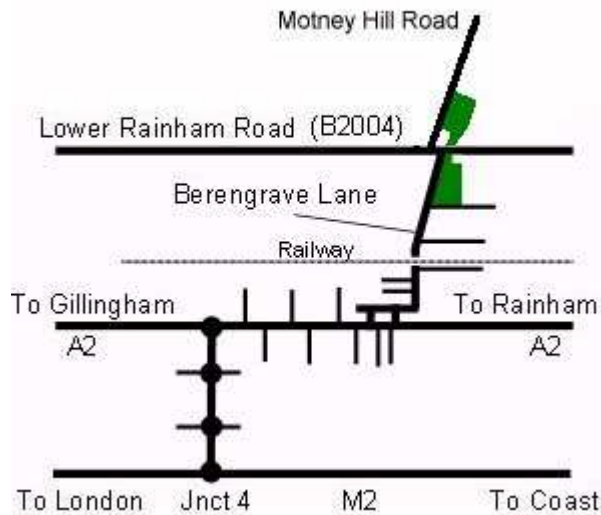
There are no facilities in Berengrave reserve or in Rainham Dock East. The visitor centre at Riverside Country Park, 1.6km (1 mile) away, has:

- Toilets
- Disabled toilets
- Baby changing facilities
- Café
- Children's play area (Dog-free zone)

This walk is not suitable for those with mobility difficulties. On the eastern side of the quarry there are a number of flights of steps to be negotiated between the floor and top of the quarry. Other sections of path become slippery in wet weather. Trip hazards exist in the form of uneven ground and tree roots growing through paths. There are some steep drops close to path edges.

Adders live in this reserve. Please do not disturb them. It is illegal to kill or injure an adder. They can be dangerous to young children and dogs, but are unlikely to cause serious injury to a healthy adult.

AREA MAP



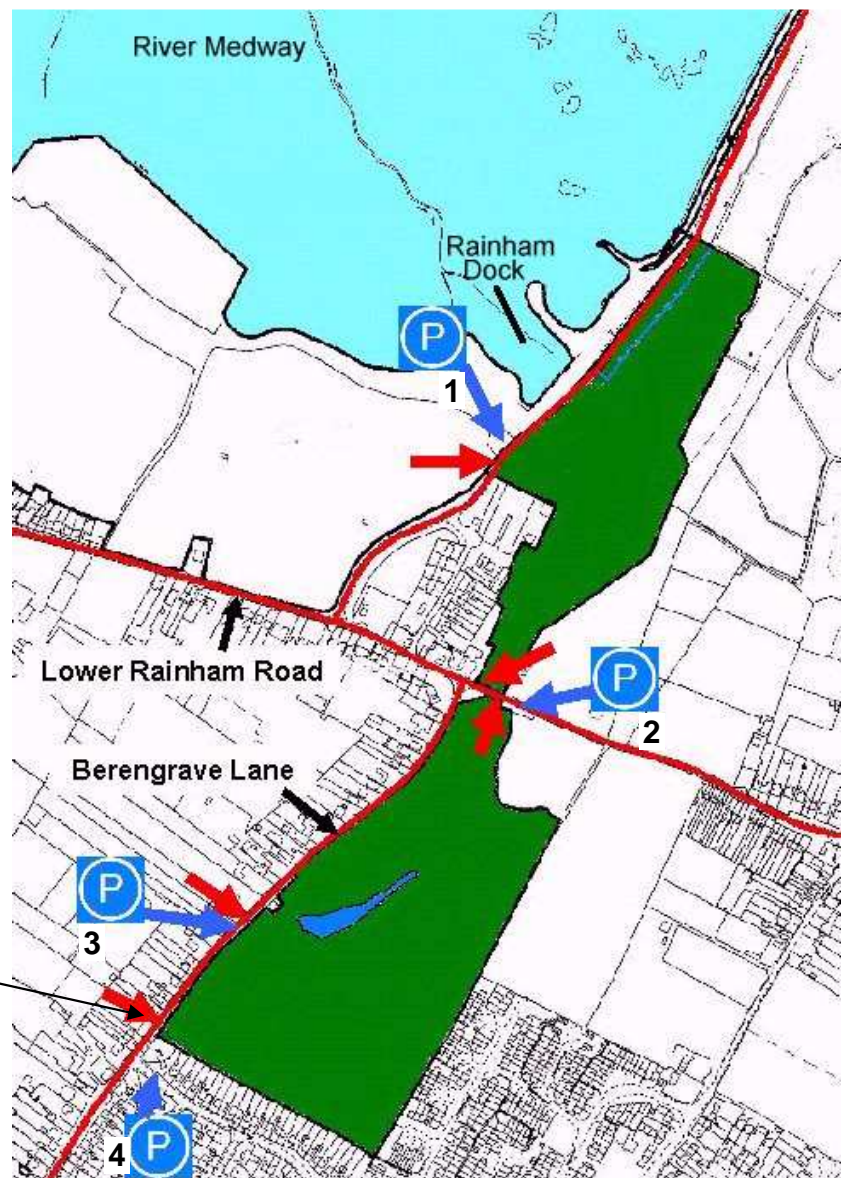
Red arrows indicate entrances to the reserve

Car Parking:

1. Car park on western side of Motney Hill Road
2. Lay-by on southern side of Lower Rainham Road, just by the traffic lights
3. Lay-by on eastern side of Berengrave Lane
4. On-street parking in Chalky Bank Road

Except in a lay-by, please do not park anywhere on Berengrave Lane or the Lower Rainham Road. These are narrow roads that carry fast traffic and, at times, large vehicles.

Start your walk at this entrance



THE WALK (Approximately 2 hours, 3.25 kms (2.0 miles))

Please refer to the map on the back of this pamphlet.

In order to logically follow the industrial history of the area, it is necessary to start your walk from the southern end of the reserve.

START at the entrance just below the junction of Berengrave Lane and Chalky Bank Road. Follow the path as it bears to the right and, after about 50 metres, you will come to a viewpoint on your left.

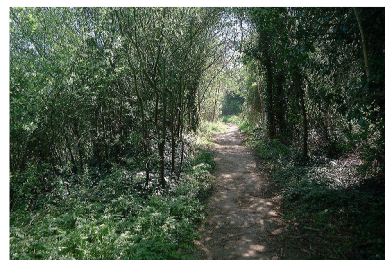
(1) VIEWPOINT: From this viewpoint you can see across most of the southern part of the reserve. At one time all land was owned by the Crown. The land which includes what is now Berengrave LNR was part of the "Manor of Queencourt", which was part of the Parish of Rainham, in the Royal Estate of Milton Regis. It has been owned by various Kentish Kings, by William the Conqueror and by Queen Eleanor of Provence (Queen Consort of King Henry III). In 1273, Queen Eleanor gave part of the "Manor of Queencourt", including the Berengrave LNR area, to the Master and Brethren of St. Katherine's Hospital, near the Tower of London. Maps show that during the 19th century the land was used for pasture and arable farming. In 1899 it was bought by the local Walter family who, in 1901, leased it to E.J. & W Goldsmith's, a barge company from Grays in Essex, for the purpose of chalk quarrying. Goldsmith's owned the quay in Rainham Creek and from there they shipped the chalk by barge to local cement works.



On the higher, dryer, ground, to your left, right and behind you, are areas of mature scrub and woodland. Below you is an area of willow carr. This carr contains a few trees other than willow, such as ash, silver birch and sweet chestnut. You may note that you are looking down onto a sweet chestnut tree, a species that was introduced to this country by the Romans.

Birds to look out for in this area, especially on the bank to your left, are blackcap, bullfinch, long-tailed tit, goldcrest, spotted flycatcher, wren, song thrush. In the spring and summer, look up and you should see swifts and house martins wheeling overhead. You may be lucky and also see a kestrel hovering. Look, below and to your right, for the woodpecker holes in the silver birch.

(2) CHALKY BANK ROAD PATH: Return to the path and turn left. You are now walking along a path which is close to the top of the last working chalk face of the quarry. When the quarry first opened, men would remove the chalk by using pickaxes and levers. The further the quarry progressed from the main entrance on the Lower Rainham Road, the higher the chalk face became. The chalk-face workers would have had to remove the chalk whilst being suspended from the top of the face by a single rope tied around their waists. The lumps of chalk would probably have been taken away by horse and cart. However, as the demand for chalk increased a more efficient method of quarrying was needed. Explosives were used to bring down the chalk face and the chalk was removed by a light railway. The remains of the explosive store still exist and fragments of the old railway line can still be seen in the bottom of the quarry. The railway line from the cement works to the quarry and for some distance into the quarry would have been permanent, but nearer the chalk face it was what is known as 'Jubilee track'. This is a light-weight, portable, system which allowed the track to be lifted, moved and re-laid as the quarrying moved backwards and forwards along the length of the working chalk face and the chalk face was advanced into the hillside.



The path is lined with buddleia bushes which are a good source of nectar for bees and many species of butterfly. Orange tip can be seen between early May and June, whilst Specked Wood can be found until the autumn. Lords and ladies, also known as cuckoo pintle or cuckoo pint, wild strawberry, creeping buttercup and garlic mustard, on which the caterpillars of the Orange tip feed, grow beside the path. You will also see examples of other, non-indigenous, plants such as daffodils, hostas and honesty, but these are 'escapees' from the adjacent gardens. Along this path you will find ant hills which are visited by slow worms and common lizards.

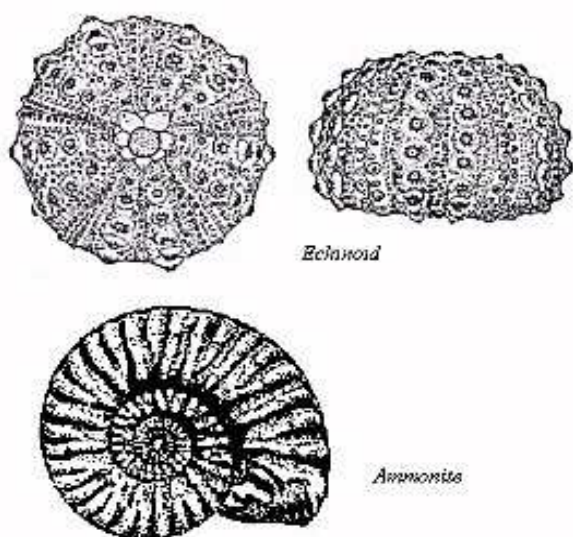
(3) CHALK FACE: At the end of the Chalky Bank Road path you will come to a flight of steps which leads down to a boardwalk at the bottom of the quarry. As you go down these steps look to the chalk face on your right. This is the only section of the last working chalk face that can still be easily seen. Hart's tongue fern and Male fern can be seen growing here.

The chalk of Southern Britain was formed around 70-90 million years ago, in the Upper Cretaceous period. Chalk is a type of fine grained limestone which is porous, soft and mainly composed of the skeletal remains of microscopic, planktonic green algae. Chalk formed when these microscopic plants and animals died and their remains settled to the bottom of shallow to moderately deep, warm seas. They formed a mud that was compacted as more and more of these microscopic particles fell to the bottom.



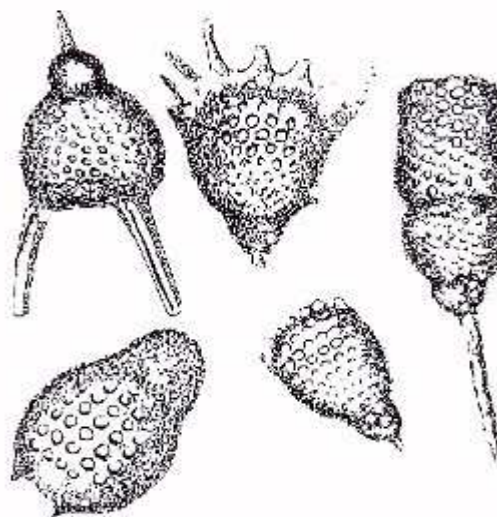
It would have taken billions upon billions of such particles to form a chalk bed such as is found in Berengrave nature reserve and it would have taken millions of years for such a bed to form.

Many millions of years ago, the area which is now Berengrave nature reserve must have been under water, but falling sea levels, or rising land levels, have left the chalk exposed where it is today.



Echinoid

Ammonite



Examples of planktonic green algae

Chalk beds contain many fossils from larger creatures such as echinoids (sea urchins) and ammonites (sea snails). They also contain flints, which are believed to be the crystallised remains of sea sponges. If you look at the chalk face you will see several horizontal layers of flint. Flints can be worked (knapped) to produce a cutting edge which is sharper than a surgeon's scalpel. Since prehistoric times, flints have been used for hand tools, including knives, axes and scrapers, and for weapons such as arrow heads and spear heads. In more modern times flints have been used for building, road making and in the production of pottery.

(4) BOARDWALK: As you walk further along the boardwalk, which was built to raise the path above the normal flood level for this area, you will see that the higher, drier, ground to your right supports mature scrub and woodland trees, whilst to your left is willow carr. 'Carr' is an area of very wet woodland, dominated by either willow or alder trees. Willow trees thrive on wet and/or waterlogged soils. Willow often topples over, so that horizontal trunks dot the woodland. Provided the trunk retains even a small connection to the roots, the stem will regenerate new shoots, which grow up into new trunks. Wet woodlands are potentially extremely diverse areas. Willow will support a staggering number of invertebrates. Species diversity is maximised by rotational coppicing, which provides different stages of re-growth which can be exploited by different species. (Coppicing willow involves cutting it down to just above ground level, allowing the growth of new, dense, trunks and foliage). Coppiced woodland rarely contains much dead wood, but in this nature reserve the dead wood is allowed to accumulate as it provides a valuable resource for invertebrates. A great variety of birds are therefore attracted to wet woodland because of the invertebrate bounty on offer. The woodland floor abounds in plants which favour wet soils, such as sedges and rushes. A great variety of ferns, mosses, lichens and fungi also thrive in the humid atmosphere of the woodland.

(5) FLOODED CARR: Climb the steps at the end of the boardwalk and continue along the path. The area of carr on your left is particularly prone to flooding, so look into the carr for moorhen, coot and, possibly, woodcock. Also listen out for Green woodpeckers and Great spotted woodpeckers. The former has a laughing 'yaffling' call, whilst during the breeding season the male Great spotted 'drums' with his beak on a tree trunk to declare his territory and attract a mate. This area is also an important watering hole for birds as it is shallow enough for them to bathe. You may see redpolls, collared doves and great tits which nest here. The damp floor of the quarry and the rotting timber in the carr support many types of fungi. Eighty three species have so far been identified.

(6) BOARDWALK: Continue along the path and onto the next boardwalk. During much of the year this boardwalk has large beds of nettles on each side of it. These nettles attract many butterflies, such as Red Admiral, Commas, Peacocks and Small Tortoiseshells. Twenty four species of butterflies have been recorded within the reserve.

(7) WOODLAND: From the top of the steps at the end of the boardwalk the path leads through an area of woodland. If you hear a high-pitched 'mewing' sound in the treetops, this is not a bird, but a grey squirrel. Grey squirrels are not native to this country, but were introduced from the eastern United States in the mid-19th century. Although amusing to watch as they scuttle from branch to branch, they are classed as pests because they take birds eggs and damage trees. A scratching sound at ground level will probably be a blackbird foraging for invertebrates amongst the ground litter. Other birds common to this area are robins, blue tits, great tits, magpies and jays. After dusk you may hear a hedgehog shuffling its way through the ground litter, or catch a brief glimpse of a pipistrelle bat as it jinks through the trees.

(8a) & (8b) GLADES: Go down the steps and, after a few metres, the undergrowth will open up on both sides of the path. These areas are the 'Glades' where the overhead canopy is not so dense and the additional sunlight allows the growth of such plants as common spotted orchids, common twayblade, hemp agrimony and the locally rare round-leaved wintergreen. Listen for nightingales and look out for sparrowhawks darting through the trees, trying to catch smaller birds unaware.

(9) LAKE: Just past the glades follow the path as it bears left and you will soon come to the lake. This lake is fed by neither spring nor stream, but relies solely upon the height of the water table in the underlying chalk. Hence the lake could flood to cover the whole of the bottom of the quarry or, it could dry out completely. This is what happened in the summer of 2006, when the water table fell below the level of the bottom of the lake, the lake dried out and most aquatic life perished.

As you approach the lake, just as the path widens out to your left, look left into the willow carr and note the large willow that has fallen over. You will see that the root ball is only about 50cms thick. This is because all the soil in the quarry has accumulated over the past 40-50 years and is still only about 50cms deep. This is why the larger trees have only a precarious hold in the soil and are frequently blown over in high winds. Further along the lake, still looking to you left, you will see an area of willow carr that has recently been coppiced. Compared with the older willow, the short stems and lush foliage of the coppiced willow is quite obvious.

Grey herons are frequent visitors to the lake and kingfishers visit on occasions. In summer, above the lake, you should see swifts, swallows and martins by day and bats by night, skimming the water on their hunt for insects. The lack of fish in the lake since it dried out in 2006 has resulted in an increase in the number of dragonflies, mayflies, damselflies, etc. If you look to the bank on the far side of the lake, just above the water level, you could be very lucky and see one of the terrapins sunbathing. A few of these 'unwanted pets' were introduced to the lake many years ago and have now grown to the size of small dinner plates! The cherry trees along the bank are a beautiful sight in spring, with their blossom, and autumn, with their fruits which are a valuable food source for birds.



(10) REED BED: At the end of the lake is a reed bed which is a habitat for reed and sedge warblers, moorhen, coot, little grebe and mallard. Bittern has also been recorded there. Unmanaged, this reed bed would rapidly cover the whole of the lake, so every year a portion of it is removed.

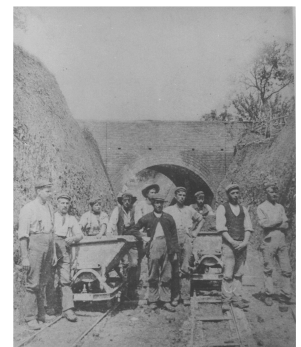
(11) INDUSTRIAL ARCHAEOLOGY SITE: Retrace your steps along the path that you followed to the lake, but where the path forks towards the glades, keep left and you will soon come to the excavated remains of buildings on the left and a pair of washmills on the right of the path. These washmills were the first stage in the processing of chalk before it was used for making cement. Chalk was bought from the chalk face and tipped into the washmills, water was added, then large blades or harrows were rotated around the washmills to break up the chalk. The mix of powdered chalk and water, known as 'slurry', was then drained off and taken to the cement works for further processing. The flints which remained behind were removed by hand for use in the building and pottery industries. The washmills now provide a habitat for frogs, toads and newts which visit in spring to lay their eggs. These pond creatures are often hunted by grass snakes. For more information on the archaeological excavations, see the section on archaeology on the FoB website www.friendsofberengrave.btck.co.uk



(12) LOWER ROAD ENTRANCE: From the wash mills, continue along the path, which in late spring and early summer is lined with wood avens (herb bennet), silverweed and creeping cinquefoil. Just past the picnic area you will see a rectangular concrete base on your right. (This may be covered with a pile of brushwood). This is all that remains of the Ranger's hut, which also doubled as a small nature centre. Unfortunately, due to constant vandalism and arson attacks, this had to be demolished. Follow the path up a gentle rise and leave the chalk quarry via the Lower Rainham Road entrance. Turn left and, keeping to the same side of the road, walk to the bridge.



(13) TUNNEL: As you get to the bridge look down the left hand side and you will see the entrance to a tunnel which goes under the road. This tunnel is where the narrow-gauge railway went from the chalk quarry to the cement works. The picture on the right was taken in the early 1900's and shows the Berengrave chalk pit workers standing in front of the tunnel. The tunnel was much higher then than it is now. The reason for the partial infill is uncertain, but may have been due to sewage pipes being laid through the tunnel in the 1920's. The north end of the tunnel is completely blocked as it is on private land. The southern end of the tunnel, in Berengrave reserve, is now covered with a metal grill to provide a safe habitat within the tunnel for roosting bats and hibernating small mammals.



(14) RAINHAM DOCK EAST: Now cross the bridge. When you get to the far side, cross the road and enter Rainham Dock East. In summer, as you follow the path, note the mounds of narrow-leaved everlasting peas on each side. Closely related to the cultivated sweet pea, the everlasting pea only produces pink or white flowers.

(15) ROMAN BURIAL GROUND: As the path turns left around the industrial buildings you are in the close vicinity of a Roman burial ground. (The exact position is not disclosed for obvious reasons). Artefacts found in the area indicate that the Romans probably produced both cement and pottery here. Evidence has also been found of Stone Age activity. After the Romans left Britain this land came under the control of the Jutes when they took all land, east of a line which runs approximately north/south through Rainham Mark, from Vortigern, king of the Britons.

(16) SITE OF CEMENT WORKS: Leave the main path and follow the unsurfaced path the right, through the clearings in the scrub. You are now walking across the site of the old cement works. Between 1901, when Rainham chalk quarry opened, and 1912, when the cement works opened, chalk from the quarry was taken directly to Rainham Dock and shipped by barge to cement works on the rivers Medway and Thames. It



is known that much of this chalk was used to produce cement for the rapidly expanding suburbs of London, whilst some of it produced cement which was used to rebuild San Francisco following the great earthquake of 1906. In the early 20th century the demand for cement was such that small chalk quarrying and cement manufacturing companies could no longer compete with the larger companies and formed themselves into conglomerates. E.J. & W. Goldsmith, who owned both Rainham chalk quarry and Rainham Dock, became part of the British Standard Cement Company which, in 1912, opened a new cement works at Rainham Dock East. (Known at that time as Motney Hill cement works). The works was closed in 1931, but reopened for a short time in the late 1930's during which time it produced not finished cement, but 'clinker', the raw material which is then ground to a powder and mixed with gypsum to produce cement. The clinker was sent to other local cement works which then completed the process to produce cement. When the works finally closed the land was abandoned. The works was demolished piecemeal over a period of about six decades, with the chimneys, storage silos and most of the buildings going in the 1950's and 60's, but some of the buildings remaining until the late 1990's. Now there is very little to see other than the sluice gate, which retained water for the works to use during times of low tide, and a few scattered pieces of concrete and brickwork.

It is now the best area of Riverside Country Park in which to see wild flowers, such as creeping cinquefoil, moth mullein, teasel, wild liquorice, evening primrose, goat's-rue, marjoram and many more. Listen for nightingales, willow warblers, chiffchaffs and green woodpeckers.

(17) BIRD HIDE: Continuing to make your way through the scrub will bring you to a large clearing. At the far end of this you will see a wall of horizontal logs. This is the bird hide. From here you may see reed and sedge warbler, green and great spotted woodpecker, kestrel, marsh harrier, kingfisher, water rail and cetti's warbler. There are also lots of pheasants. These are an introduced species and they take the eggs and fledglings from reed and sedge warblers.



(18) RAINHAM DOCK: Retrace your steps through the scrub and turn right onto the main path. Follow the path until you reach the exit from Rainham Dock East. On the other side of the road, just to the right, you will see a car park. Cross into the car park, turn right, then exit the car park through the pedestrian entrance and follow the path straight ahead of you to Rainham Dock. Although not strictly within the boundary of Berengrave Local Nature Reserve, the dock is inextricably tied up with the history of the reserve. This picture was taken in late 1929 and shows the dock with the cement works behind. From here barges sailed carrying the cement and flints and returned with coal dust for firing the kilns in the works, staves for making the barrels in which cement was transported at that time, wood for local industry, and dried fish to make fertiliser for local agriculture. Barges, manned by 'Muddies', also sailed into the river where they were grounded at low tide. The Muddies then dug the mud (clay) from the bottom of the river, loaded it into the barge and, as the tide came in and the barge re-floated, sailed back to the dock. This mud was then mixed with the chalk and the mixture fired in the kilns to produce cement.



From the dock you have an excellent view up the River Medway. To your left is the large expanse of concrete which is the remains of Bloors Wharf. In the distance, directly in front of you, you can see the causeway stretching out into the river to Horrid Hill. To the left of the causeway, hidden in the trees, is the visitor centre of Riverside Country Park. Beyond this and slightly to the left you may make out the gas holder at the Strand. The power station to your right, on the other side of the river, is Kingsnorth power station. Virtually all the land on the river bank to the left is part of Riverside Country Park, as is the causeway leading to Horrid Hill, Horrid Hill itself and, further away, Sharp's Green Bay and Eastcourt Meadows. To your right, on the top of the hill, is the Motney Hill sewage works. The area of foreshore and marshland which lays to the left of the sewage works is the RSPB's Motney Hill Reserve. This is not open to the public, but if you were to arrive at Rainham Dock 1-1½ hours before, or 1-1½ hours after, high tide you will find it is a great site for spotting the many migratory waders, ducks and other sea birds for which the River Medway has an international reputation. Continue along the path, on the top of the bank between the river and the road, and you will get more views of these birds on the foreshore and in the river.

(19) MOTNEY REED BED: Look along the road towards the sewage works and you will see, on the far side, a 15mph road sign. Behind the sign, at 90 degrees to the road, is a narrow ditch cut through the reed bed. This is the northernmost limit of Rainham Dock East. The area to the right of the ditch is part of the reserve, whilst that to the left is privately owned. Neither part is open to the public, but viewing it from the raised path may give you sight of reed, sedge and cetti's warblers, water rail, kingfisher and marsh harrier.

Now retrace your steps, through the car park and Rainham Dock East, and cross the lower Rainham Road. From here you have two options to return to your start point:

1. Follow the surfaced path which starts at the near end of the bridge. This will take you along the outside of the reserve, back to the entrance where you started your walk
2. Cross over the bridge, back into the chalk quarry area of the reserve, and follow the path down to the picnic area. Opposite the picnic area, turn right

(20) BERENGRAVE LANE PATH: This path, sometimes quite narrow in places, will first take you through woodland, then through an area of mature scrub. Old hawthorn trees, usually only seen as hedgerow plants, grow in this area. Great spotted woodpecker, long-tailed tit, wren and goldcrest can be seen here. Part of the way along the path, just past the brick building on the right which is a pumping station, there is an exit to Berengrave Lane. You may leave here, or continue further along the path. Towards the end of the path, garlic mustard grows so, in late spring and early summer, you may see orange tip butterflies.

Continue along the path until you come to the entrance where you started this walk.

**Thank you for taking the time to visit Berengrave Local Nature Reserve.
We hope you enjoyed the walk and found it of interest**

DISCLAIMERS:

The time of year and weather conditions have an effect on the inhabitants of the reserve. Friends of Berengrave offer no guarantee that any particular specie of flora or fauna mentioned within this leaflet can be seen on any particular day.

Whilst Friends of Berengrave have made every effort to ensure that historical information contained herein is correct, Friends of Berengrave cannot be held responsible for any inaccuracies. The history of the area is one of our ongoing projects. As new information is discovered, our interpretation and presentation of this information may be amended

ACKNOWLEDGEMENTS

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Produced by the **Friends of Berengrave**
E-mail: friendsberengrave@btinternet.com

See our website: www.friendsofberengrave.btck.co.uk for more on the flora, fauna and history of Berengrave LNR



