The Ching Action Plan

Hertfordshire and North London

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We are the Environment Agency. We protect and improve the environment.

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

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1. Introduction

The Ching Brook, known locally as the 'River Ching' or simply 'the Ching', originates as a small stream in Epping Forest, north of Connaught Water reservoir. The river flows for approximately 10km through the forest, the London Boroughs of Waltham Forest and Redbridge, and into the river Lea. The Ching is not currently achieving Good Ecological Potential. As is the case with a number of north London's rivers, the river suffers from its heavily modified nature, sewage pollution, and runoff from urban areas (e.g. runoff from transport infrastructure).

This document aims to summarise key information about the Ching and provide a clear and practical list of projects that could be undertaken to improve the condition of the river. The river has been broken down into three 'Restoration Reaches' based on the physical characteristics and setting of the watercourse, with twenty-seven improvement projects split between them. The information for these projects was collated using the Environment Agency's Catchment Planning System and from site walkovers undertaken along the length of the river.

The projects identified within this document will require modelling, landowner and community consultation, detailed design, and technical review work to confirm they are feasible. As such, this list of projects should only be viewed as a simple guide as to how the river could be improved. With that being said, this document represents an important step in delivering the change needed to restore the Ching to Good Ecological Potential and we hope it will remain a useful reference for those thinking of investing in, and undertaking, improvement projects on this precious waterbody.

This document was produced with the invaluable assistance of:

- The London Lea Catchment Partnership, hosted by Thames21.
- The London Borough of Waltham Forest, in particular Cllr Rosalind Dore.
- The City of London Corporation (Epping Forest).
- The Ching Action Group, in particular Janet Laban.
- Environment Agency colleagues from the Hertfordshire and North London Area Team.
- Members of and contributors to the Ching Working Group.

Glossary

Although aimed at a non-technical audience, this document does contain and discuss some scientific terms, concepts, and abbreviations.

An explanation of these terms can be found here: Glossary | Catchment Data Explorer | Catchment Data Explorer

The Route of the Ching

The Ching originates as a small stream in Epping Forest, north of the Connaught Water reservoir. From the reservoir, the Ching flows through woodland areas to the south and west beneath Ranger's Road and Hatch Forest. The river is met by Cuckoo Brook shortly after the reservoir.

The Ching flows into Chingford Hatch and enters Highams Park from the north, bypassing the lake to the west. The lake was created by damming the original route of the Ching with a bypass constructed in 1850.

From the Park, the river flows between allotments and gardens in Hale End before reaching parkland alongside Vincent Road. After Hale End Road, the river flows behind residential gardens, beneath a railway line and past the Peter May Sports Centre.

The Ching is culverted beneath the Arsenal Youth Football Academy but re-emerges shortly before Chingford Mount Road, flowing to Chingford Hall Primary School. The river is culverted again as it flows under a residential area and the North Circular, before re-emerging at the confluence with the River Lea. The overall length of the Ching is approximately 10km.

Environment Agency THAMES21 CITY OF LONDON Waltham Forest Ching Action Group

The Ching Brook - Epping Forest

2. Environmental Setting

The Ching itself is located atop superficial Alluvium deposits (Clays, Silts, Sands, and Gravels). Beneath this, the river is situated above the London Clay Formation bedrock along its entire length.

The lower length of the Ching between Chingford Hall Primary School and the confluence with the Lea is located within Groundwater Source Protection Zones 1 & 2, associated with the Greaves Groundwater Pumping Station immediately north of Banbury Reservoir.

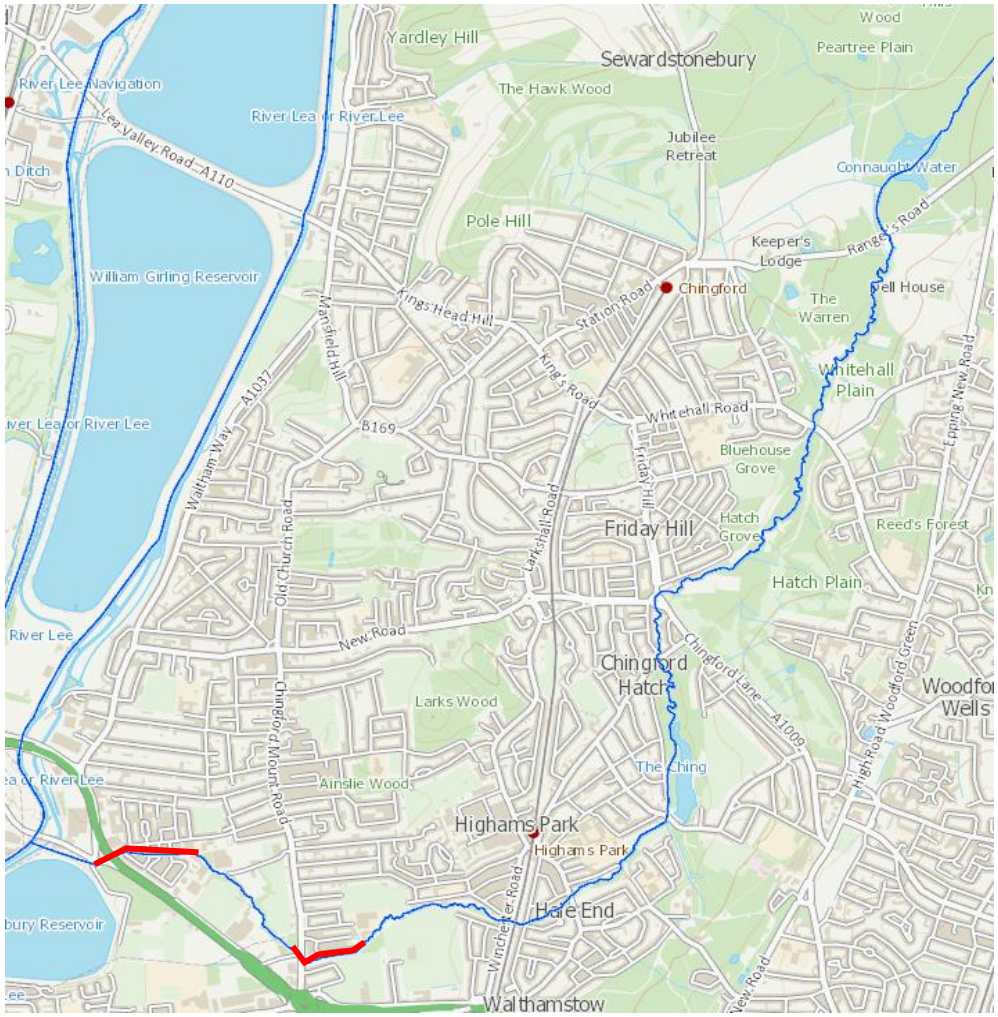
The majority of the Ching catchment between its source and the southern end of Highams Park is located within the Epping Forest Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC).

The Ching has an overall waterbody status of 'Moderate' under the Water Framework Directive (WFD). The river is classified as a Heavily Modified Waterbody (HMWB).

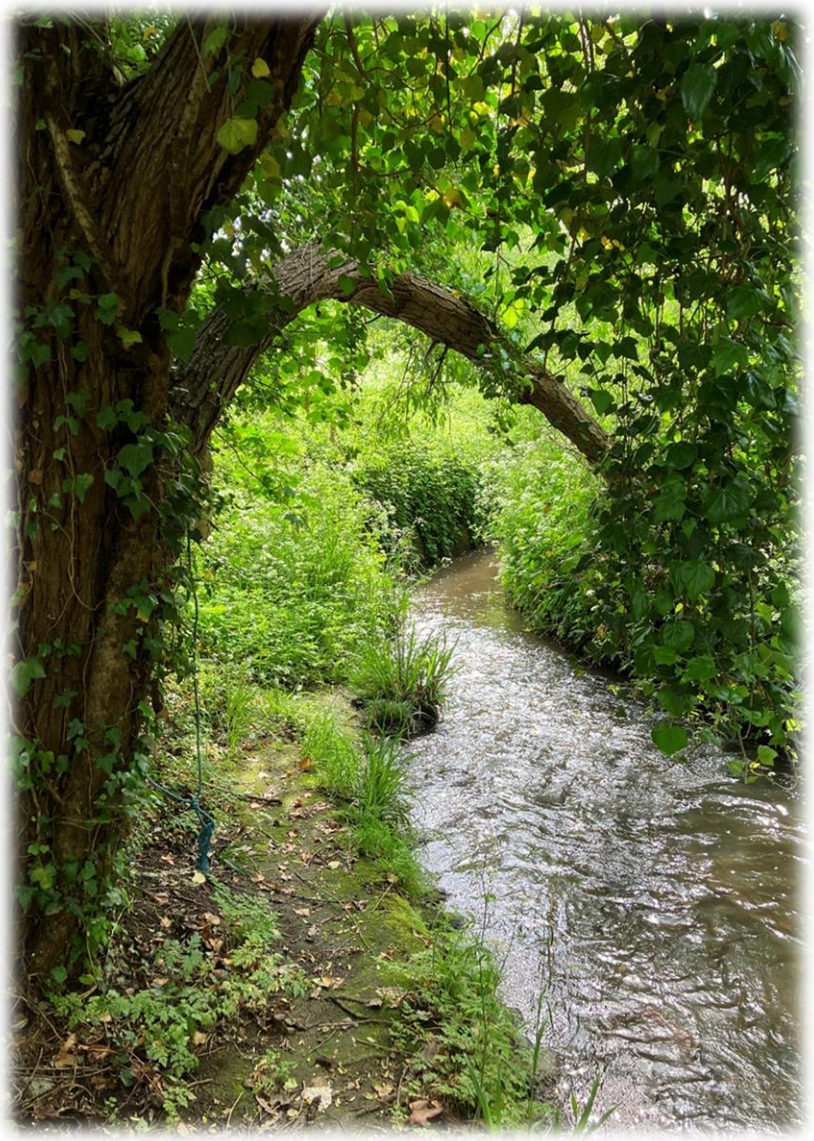
The river has a 'Poor' designation for its fish and invertebrate populations, and phosphate concentrations in the water. The river has a 'Moderate' designation for its macrophyte community, ammonia concentrations, and dissolved oxygen concentrations.

The river also fails screening criteria for two Priority Hazardous Substances - Perfluoro octane sulphate (PFOS, banned now but found in older household textiles/furnishings), and Polybrominated diphenyl ether (PBDE, restricted now but often found in flame retardant upholstery).

There are no permitted abstractions along the length of the Ching.



Map of the Ching from Connaught Water to the Lea, culverted stretches on the lower Ching are marked in red



The Ching in Highams Park

There are five permitted discharges into the Ching, located at Whitehall Road, Beech Hall Crescent, Sailsbury Hall Playing Fields, Chingford Storm Tanks, and Walthamstow Avenue. Full details of these permitted discharges can be found using a postcode search here: Environmental Permitting Regulations – Discharges to Water and Groundwater (data.gov.uk). A number of other surface water drainage discharge points were identified throughout the catchment.

The Environment Agency maintain two assets along the Ching. The first is the Ching Brook trash screen at the start of the culvert adjacent to the Arsenal Youth Football Academy, and the second is St Leonard's School Weir at the start of the culvert at Chingford Hall Primary School.

Properties situated alongside the Ching are at risk of flooding. Full details of flooding alongside the river can be viewed here: Learn more about flood risk - Check your long term flood risk - GOV.UK (check-long-term-flood-risk.service.gov.uk).

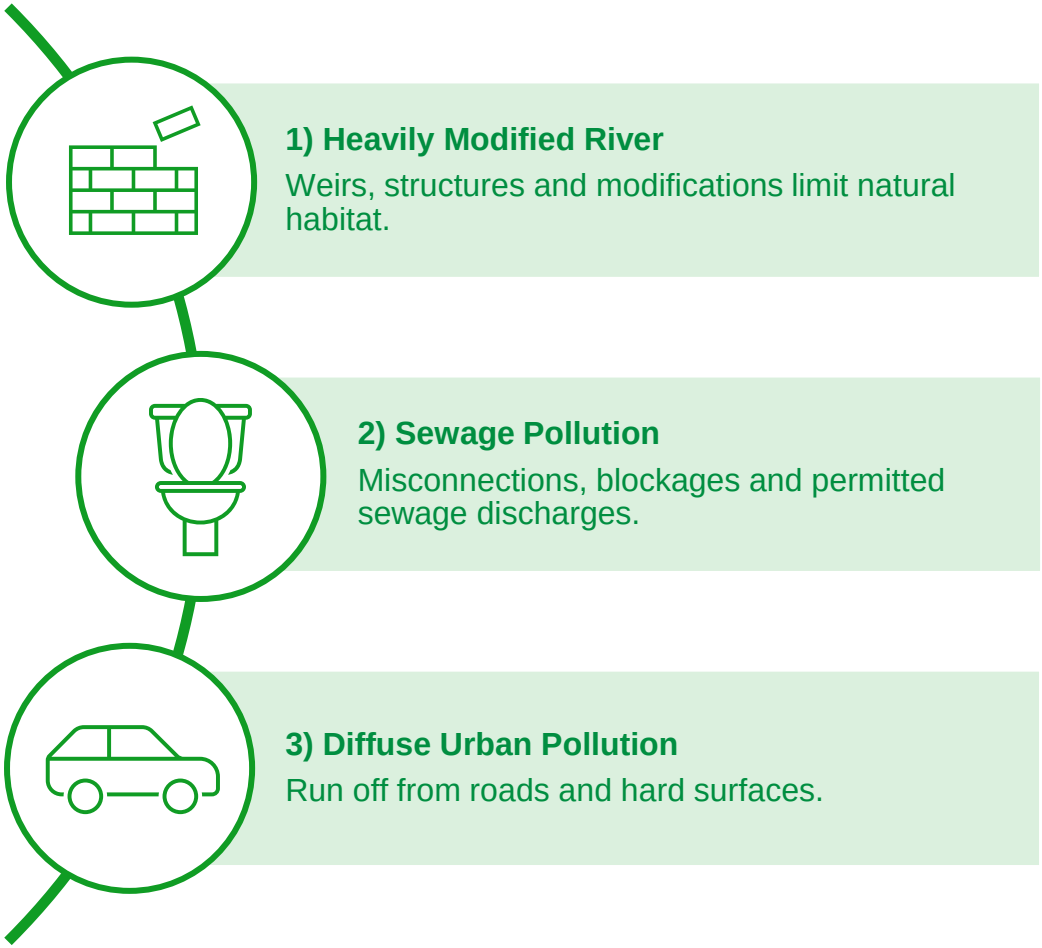
> ***"The river Ching is a wonderful feature of our local landscape. The ecological health & biodiversity of the river is currently at risk, & we are working together as a community to improve the Ching for people & nature."***
>
> **Cllr. Rosalind Dore – London Borough of Waltham Forest**

3. The Challenges

The Ching is failing to achieve ‘Good’ Ecological Potential (GEP). GEP should be the aim for this waterbody. The river is failing to achieve GEP for three main reasons.

Firstly, the river is heavily modified:

- There are multiple weirs, structures, culverts, and stretches of concrete channel throughout the catchment. In places the river has been artificially straightened, widened, and deepened.
- Weirs and structures act as barriers to migration of fish upstream from the River Lea. Sections of concrete channel and culvert provide limited natural opportunity for the growth of marginal/in-stream vegetation. This vegetation acts as the base of the food chain and supports invertebrate, fish, and bird populations.
- The concrete sections of channel and culverts also do not have a natural substrate to provide habitat for spawning fish populations. This substrate would also act to disrupt channel flows, introducing oxygen into the water column.
- Buildings and other developments have encroached up to the banks of the river. This, combined with the artificial stretches of channel, has disconnected the river from its floodplain. This prevents natural flood processes from occurring and poses a risk to property. This is a risk which may increase with the effects of climate change.



1) Heavily Modified River

Weirs, structures and modifications limit natural habitat.

2) Sewage Pollution

Misconnections, blockages and permitted sewage discharges.

3) Diffuse Urban Pollution

Run off from roads and hard surfaces.

Secondly, the Ching suffers from sewage pollution from misconnections, network issues, and permitted discharges into the river:

- Misconnections occur when toilets or other appliances in homes or business are wrongly connected into surface water drains (discharging into the river) instead of foul drains (discharging into the main sewer system).
- Blockages within the sewer network occur because of the build-up of fats, oils, and greases or inappropriately discarded waste (e.g. wet wipes). When these occur, sewers can back up and discharge into the river.
- Ageing or failing infrastructure can also lead to blockages which result in discharges into the Ching.
- During times of heavy rainfall, sewage treatment infrastructure may reach its capacity. When this occurs, sewage is discharged into the Ching via permitted Combined Sewer Overflows (CSO's).
- Sewage pollution affects the quality of water in the river by increasing Ammonia/Phosphate concentrations and contributing to reducing Dissolved Oxygen levels. These pollutants negatively impact on invertebrate and fish populations in the river.
- Misconnections, blockages, and CSO's will all require significant capital investment by Thames Water and other partners to rectify, which should be urgently delivered. The restoration projects detailed within this document will not address these issues specifically. However, they will address the aspects of the river which make it more vulnerable to sewage impact and less able to recover after pollution events (e.g. poor quality natural habitat, lack of refuges, and aquatic vegetation).

The Ching at the Studley Avenue weir

Thirdly, the Ching is also impacted by diffuse pollution sources which also impact on water quality and ecology:

- This pollution can be made up of oils, salts, heavy metals and other compounds. It enters the river through the surface water drainage network, or through runoff over the land surface.
- This pollution originates from road and other transport infrastructure (e.g. railways) and other urban sources throughout the catchment (e.g. industrial or commercial activities).
- Runoff of other pollutants such as pesticides or fertilisers can also occur from rural sources such as farming or equestrian activities. Although not considered a reason for not achieving GEP within the Ching Brook, it is likely that these sources are present in the upper parts of the catchment.

Finally, it should be noted that the Ching is home to a number of Invasive Non-Native Species (INNS), such as Japanese Knotweed which has been identified in the lower part of the Ching. Although not designated as a reason for the Ching not achieving GEP, INNS are a serious problem and should be tackled wherever they are encountered.

The projects detailed in this plan should act to mitigate against the effects of these challenges by creating a river of thriving natural habitat that is better able to cope with the demands of its urban setting. In doing so, progress will be made towards the goal of GEP.

The Ching Brook Water Environment Vision

The Ching is protected, enhanced and restored through:

- The restoration and defragmentation of in-channel, marginal and riparian habitats.
- Creation of aquatic ecosystems resilient to extreme weather conditions, including high and low flows, and the impacts of climate change.
- Improvements in water quality within the catchment.
- Achieving Water Framework Directive Good Ecological Potential.

Local communities realise the wellbeing benefits of the Ching, and adapt to the changing water environment by:

- Having a better understanding and appreciation of the natural processes of the water environment.
- Enjoying access to safe and healthy blue and green spaces along the river corridor.
- Becoming more self-aware of their individual behaviours and how they impact the state of the environment.
- Being engaged and actively involved in protecting and restoring the water environment.

4. Ching Brook Restoration Reaches

Site walkovers carried out by the Environment Agency, Thames21, Friends of Highams Park, and the London Borough of Waltham Forest were completed in Spring and Summer 2023 to assess the current condition of the river, review the Actions (projects) on the Environment Agency's Catchment Planning System, and understand what improvements could be made to the channel.

Following this work, the Ching has been broken down in three distinct restoration reaches characterised by the physical appearance or form of the river channel, and the works required to restore natural habitats and move towards GEP.

Restoration Reach 1
Epping Forest

- Daylighting within the forest
- Marginal planting of aquatic vegetation
- Floodplain reconnection
- Surface water outfalls

Restoration Reach 2
Chingford Hatch to Hale End

- Fish passage over (or removal of) barriers
- River restoration and renaturalisation in open spaces and parkland
- In-channel interventions where renaturalisation isn't possible

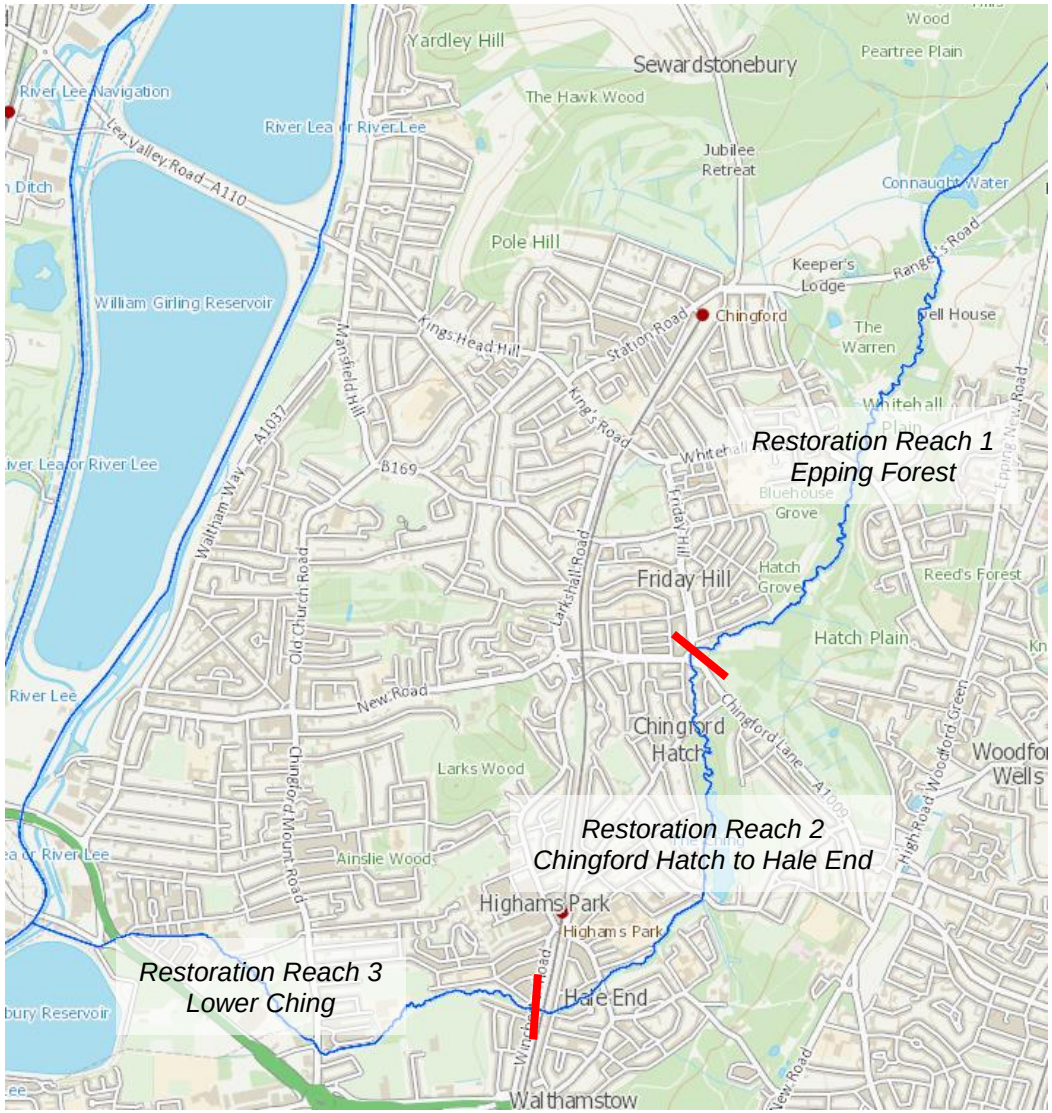
Restoration Reach 3
Lower Ching

- In-channel interventions in dense urban and industrial areas
- Fish passage over (or removal of) barriers
- Better monitoring of, and safeguards against, damage by CSOs

The upper Epping Forest reach from the source of the Ching to Chingford Hatch Roundabout is characterised by a predominantly ‘natural’ channel form. The majority of work required here will involve introducing daylight and marginal vegetation into the river through the management of woodland, work to address poor water quality from outfalls into the channel, and improved connectivity between the Ching and its floodplain in the forest.

The middle reach from Chingford Hatch to Hale End Road is characterised by a modified channel form through Highams Park and behind the allotments/residential properties. Work here should involve restoration of the channel within Highams Park and other open spaces, interventions within the channel where allotments/residential properties are present and addressing a number of man-made barriers to fish passage through the catchment.

The lower, heavily urbanised reach from Hale End Road to the confluence with the river Lea is characterised by culverted sections, stretches in deep/hidden channels, and more limited public access. Work here is likely to be restricted to in-channel interventions. Work should therefore focus particularly on mitigating the effects of modifications where possible (i.e. fish passage over structures, reedbed installation, manual addition of gravel-bed habitats etc.) and addressing water quality from CSO’s and pollution from urban and road runoff.



Ching Brook Restoration Reaches

Benefits of River Restoration

Restoring our rivers can bring huge benefits for nature and communities living nearby. The projects in this document aren't just about making space for the natural world to thrive or improving water quality to reach GEP, they also create important community assets, and help to improve people's quality of life.

By carrying out projects detailed within this document, we hope to be able to achieve:

- Higher quality green / blue amenity spaces.
- Improved community wellbeing through better interactions with nature.
- Reduced flood risk to homes / businesses.
- Better water quality.
- Increases in plant and animal life around the river.
- Community and natural spaces that more resilient to the effects of climate change.

The photos on this page are an example from the river Crane where a previously lifeless concrete channel was successfully transformed into a thriving space.

River Crane site before restoration. Credit: ©Wild Future

River Crane site after restoration. Credit: Lewis Elmes

5. A Project Plan

Twenty-seven distinct improvement projects have been identified along the Ching which are considered likely to provide important benefits for the river and local communities living close to the river corridor. These projects are listed below in both map and table form.

The maps of each restoration reach display the locations and names of these projects. The locations of the points on the map are approximate and do not necessarily reflect the exact location of a project or the entire length of the river which will benefit from this work. For example, project 3 (Floodplain reconnection at Whitehall Plain) can be expected to create positive change in an area around the indicated point, and benefits realised both up and downstream of the indicated point.

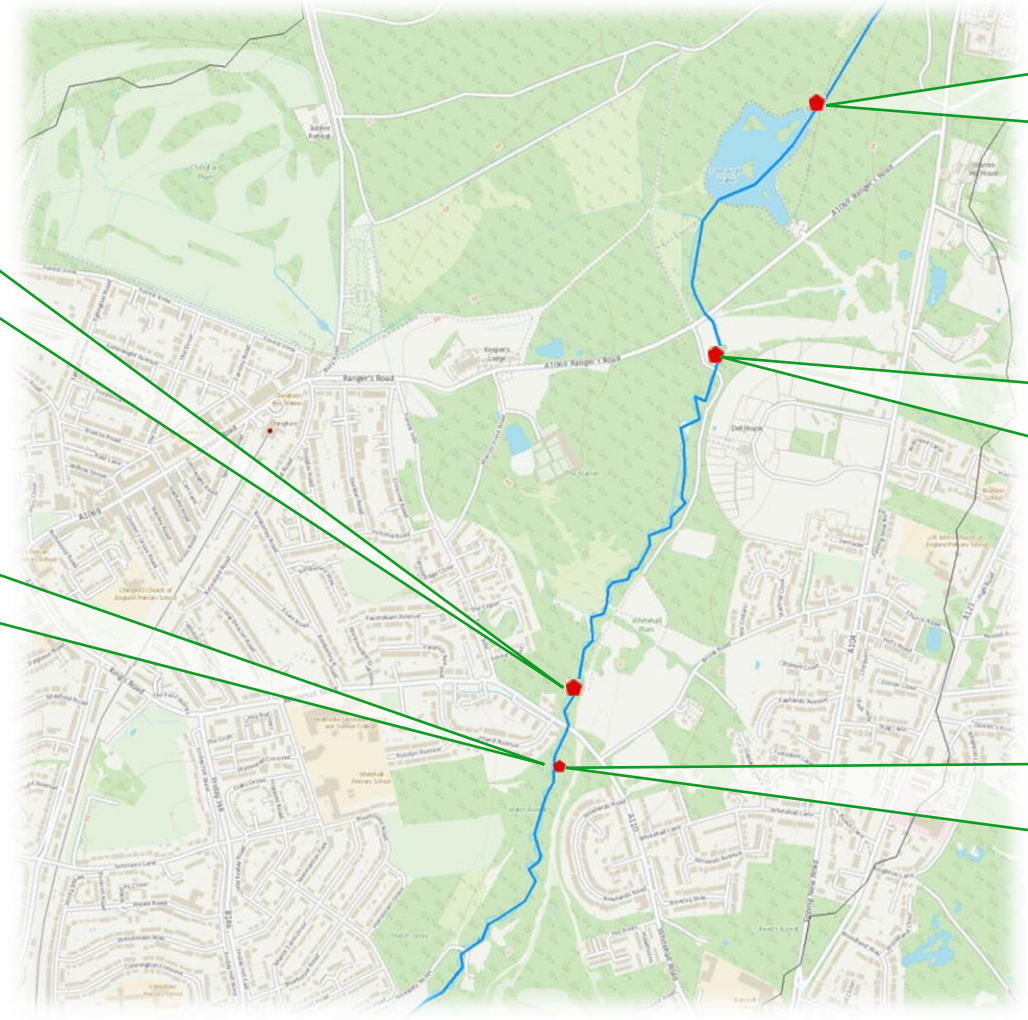
The tables include approximate grid references and the WFD elements the project should aim to address. Where relevant, the Environment Agency's Catchment Planning System (CPS) action numbers are also listed. New actions are listed as 'TBC' for now.

This list has not been subject to any detailed design or technical review work. As such, the projects as they are presented on the map and in the table below should only be viewed as an approximate guide.

Each individual project will likely require feasibility studies, modelling, and design work as appropriate. All projects detailed below will also require the consent of the riparian landowners where work is proposed, and landowners have not necessarily all been consulted in the preparation of this list.

The Ching at the Falmouth Avenue weir

Restoration Reach 1 – Epping Forest



1
Habitat and channel restoration upstream of Connaught Water

2
Habitat and channel restoration through Epping Forest south of Connaught Water

3
Floodplain reconnection at Whitehall Plain

4
Habitat and channel restoration in woodland south of the A110

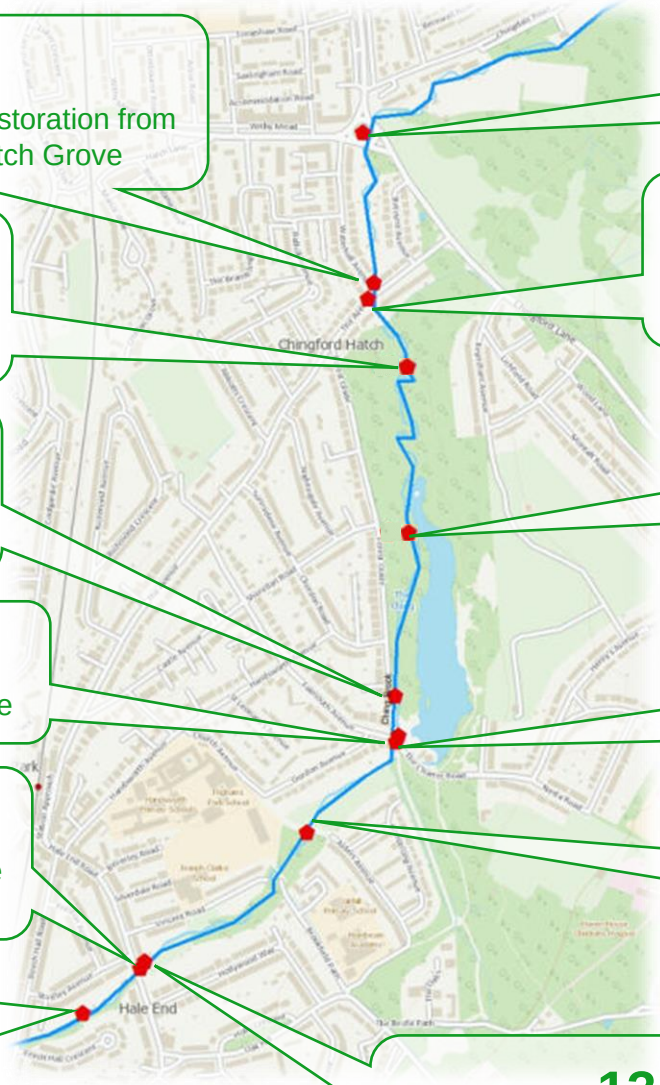
5
Expose six surface water outfalls throughout Epping Forest and intervene to improve water quality

Map Number	Project Title	WFD Elements Improved	Restoration Reach	Approximate Grid Reference & What3Words	CPS Action Number
1	Habitat and channel restoration upstream of Connaught Water	Invertebrates M&P* Physico-chemical Mitigation Measures**	1	TQ4046895438 eggs.raves.activism	TBC
2	Habitat and channel restoration through Epping Forest south of Connaught Water	Invertebrates M&P Physico-chemical	1	TQ402948 props.export.shower	TBC
3	Floodplain reconnection at Whitehall Plain	Invertebrates M&P Mitigation Measures	1	TQ399940 grades.supply.cakes	TBC
4	Habitat and channel restoration in woodland south of the A110	Invertebrates M&P Physico-chemical Mitigation Measures	1	TQ399938 brings.elite.violin	TBC
5	Expose six surface water outfalls throughout Epping Forest and intervene to improve water quality	Physico-chemical	1	TQ399938 brings.elite.violin	TBC

**M&P – Macrophytes and Phytobenthos (plants and diatoms)*

***Measures to address the impact of the Heavily Modified nature of the waterbody*

Restoration Reach 2 – Chingford Hatch to Hale End



17
Habitat and channel restoration from Waterfall Rd to Hatch Grove

7
Improve fish passage in channel at Chingford Hatch roundabout

11
Habitat and channel restoration in Highams Park woodland

15
Improve fish passage in channel at Waterhall Avenue

16
Habitat and channel restoration at Forest Glade

10
Habitat and channel restoration at Highams Park

8
Improve fish passage in channel at Gordon Avenue

14
Improve fish passage over Falmouth Avenue Weir

9
Improve fish passage in channel at Hale End Road

6
Habitat and channel restoration at Hale End

12
Habitat and channel restoration near Winchester Road

13
Improve fish passage over Studley Avenue Weir

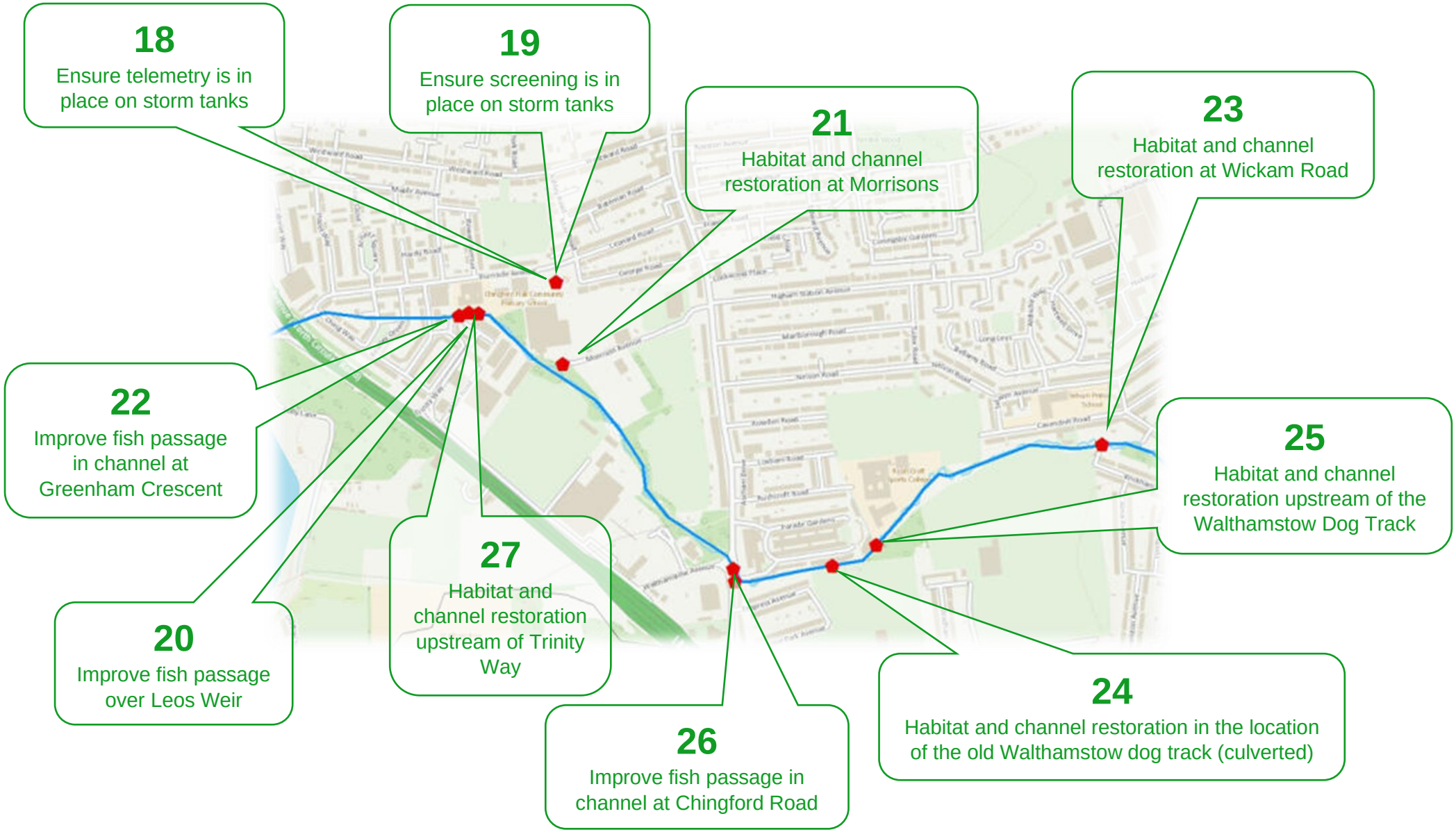
Map Number	Project Title	WFD Elements Improved	Restoration Reach	Approximate Grid Reference & What3Words	CPS Action Number
6	Habitat and channel restoration at Hale End	Fish Invertebrates M&P* Physico-chemical Mitigation Measures**	2	TQ3905391760 shack.caked.stone	33198
7	Improve fish passage in channel at Chingford Hatch roundabout	Fish Mitigation Measures	2	TQ3915493020 tiny.trader.down	33205
8	Improve fish passage in channel at Gordon Avenue	Fish Mitigation Measures	2	TQ3921391923 solved.lifts.soccer	33207
9	Improve fish passage in channel at Hale End Road	Fish Mitigation Measures	2	TQ3875491516 still.rewarding.thick	33208
10	Habitat and channel restoration at Highams Park	Fish Invertebrates M&P Physico-chemical Mitigation Measures	2	TQ3775591261 water.landed.haven	33705
11	Habitat and channel restoration in Highams Park woodland	Fish Invertebrates M&P Physico-chemical Mitigation Measures	2	TQ392926 grand.ledge.green	TBC
12	Habitat and channel restoration near Winchester Road	Fish Invertebrates M&P Physico-chemical Mitigation Measures	2	TQ3838591401 magic.plates.items	33197
13	Improve fish passage over Studley Avenue Weir	Fish Mitigation Measures	2	TQ3865091435 speak.hood.jump	33201
14	Improve fish passage over Falmouth Avenue Weir	Fish Mitigation Measures	2	TQ3921891935 delay.radio.singer	33199
15	Improve fish passage in channel at Waterhall Avenue	Fish Mitigation Measures	2	TQ3916392721 cargo.hiking.golf	33206

Map Number	Project Title	WFD Elements Improved	Restoration Reach	Approximate Grid Reference & What3Words	CPS Action Number
16	Habitat and channel restoration at Forest Glade	Fish Invertebrates M&P Physico-chemical Mitigation Measures	2	TQ3921292006 ready.taps.builds	33214
17	Habitat and channel restoration from Waterfall Rd to Hatch Grove	Fish Invertebrates M&P Physico-chemical Mitigation Measures	2	TQ3917492749 buck.bounty.humans	33707

**M&P – Macrophytes and Phytobenthos (plants and diatoms)*

***Measures to address the impact of the Heavily Modified nature of the waterbody*

Restoration Reach 3 – Lower Ching



Map Number	Project Title	WFD Elements Improved	Restoration Reach	Approximate Grid Reference & What3Words	CPS Action Number
18	Ensure telemetry is in place on storm tanks	Physico-chemical	3	TQ3710091800 skin.fakes.wide	21874
19	Ensure screening is in place on storm tanks	Fish	3	TQ3710091800 skin.fakes.wide	33144
20	Improve fish passage over Leos Weir	Fish Mitigation Measures*	3	TQ3694191736 lawn.thus.cuts	33200
21	Habitat and channel restoration at Morrisons	Fish Invertebrates M&P** Physico-chemical Mitigation Measures	3	TQ3711391632 loaf.bond.else	33204
22	Improve fish passage in channel at Greenham Crescent	Fish Mitigation Measures	3	TQ3692091737 backs.belong.heats	33211
23	Habitat and channel restoration at Wickam Road	Fish Invertebrates M&P Physico-chemical Mitigation Measures	3	TQ3821991467 trip.rainy.pillow	33203
24	Habitat and channel restoration in the location of the old Walthamstow dog track (culverted)	Fish Invertebrates M&P Physico-chemical Mitigation Measures	3	TQ3766591218 highs.noted.given	33213
25	Habitat and channel restoration upstream of the Walthamstow Dog Track	Fish Invertebrates M&P Physico-chemical Mitigation Measures	3	TQ3755991205 issue.goal.lamps	33704
26	Improve fish passage in channel at Chingford Road	Fish Mitigation Measures	3	TQ3746391212 darker.dimes.shops	33210

Map Number	Project Title	WFD Elements Improved	Restoration Reach	Approximate Grid Reference & What3Words	CPS Action Number
27	Habitat and channel restoration upstream of Trinity Way	Fish Invertebrates M&P Physico-chemical Mitigation Measures	3	TQ3745291238 open.fruit.smiles	33703

**Measures to address the impact of the Heavily Modified nature of the waterbody*

***M&P – Macrophytes and Phytobenthos (plants and diatoms)*

The beginning of the culvert at the Arsenal Youth Training Ground

6. Next Steps and Review

The Ching in Epping Forest

To deliver every one of the above listed projects will take considerable time and investment. As such, an exercise to prioritise this list is required. The Ching Working Group, comprising all the interested parties and largest landowners in the catchment, are carrying out this exercise in Summer 2024.

The Working Group should decide where and how restoration efforts should be focussed, be this on projects in a particular geographic location (e.g. all projects in Epping Forest), on projects which address a particular failing WFD element (e.g. the river's Fish classification), or projects with a particular theme (e.g. projects which are suitable to be volunteer led).

Regardless of this prioritisation work, delivering any of the above projects should bring immediate benefits for the river and local communities. As such, if the resources and will exists for a particular project, the Environment Agency will aim to help ensure the project delivers on its potential.

Reviewing this Document

To ensure this document is kept up to date and to track progress of project delivery, it is recommended this be reviewed in **two years' time** (i.e. Summer 2026).

By this time, there should be a new set of WFD classifications for the river and projects within the list should have been prioritised. It is also hoped that funding will have been found for projects and that restoration work has begun.