

## EADE ROAD FREQUENTLY ASKED QUESTIONS

In response to feedback at the drop-in session on 05 Jul 2023, we've identified new ways to minimise the environmental impact and make improvements whilst also addressing embankment leakage, erosion and slope stability.

We're now proposing a 'hybrid' solution to install sheet piles on the northern embankment of the New River for most of the length, with short concrete-lined sections over utility service crossings.

The sheet piling option was explored but discounted, given the challenges of several existing live services crossing the river. Compared to full concrete reline, the hybrid solution is less intrusive. We won't need to over-pump the full length of the river section or completely remove the silt or riverbed – so it's less disruptive to the aquatic habitat.

### **The Need & Solution**

#### 1. What's the evidence of leakage from the New River?

- We do regular visual inspections of embankments to check for signs of change – an early problem indicator. Damp patches on embankments are usually a sign of leaks. The extent of the damp patches caused concern and was investigated back in 2010.
- To dry out the embankment and deal with flooding to the footpath and road from this leakage, previous drainage works were carried out ten years ago along part of the Eade Road embankment. That diverted flows into the sewer network but hasn't addressed the root cause of the leakage.
- Leakage flow measured in September 2023 amounted to 1.2 million litres per day – that's equivalent to 175 Olympic-size swimming pools each year.
- We've monitored the embankment since, and the number and extent of damp patches have increased.
- A site visit in September noted sodden patches of ground with audible 'squelching' underfoot.

Other associated impacts and costs include:

- Reduced sewer capacity
- Additional cost of treating increased volume at wastewater treatment works
- Loss of good quality spring water to water treatment works
- Associated costs of pumping excess from boreholes into the channel.

#### 2. How serious is the leakage?

- It's a concern, and we need to act now to stop water loss – and before the stability of the embankment becomes high risk.

#### 3. Where exactly are the leaks occurring on the bottom and sides of the New River?

- We're dealing with age-related generalised leakage, not individual leaks. We can often trace leaks to a specific point and do a localised repair, but the joint between the old and new clay creates a weak point that develops further leaks. A large-scale project will repair the channel for the long term.

#### 4. How long has it been leaking for?

- Since constructed. Clay isn't completely waterproof but is highly impermeable, so low levels of seepage continually occur. As water moves through soil it moves particles, and these seepage paths get bigger over time until leakage develops. When leaking water becomes visible on the outer surface of the embankment it becomes a problem. This section has deteriorated over 30 years and the number of small-scale repairs have increased.

#### 5. Has any action already been taken?

- Small repairs have probably happened over hundreds of years. In 2010, we carried out an embankment stability analysis to identify leakage and seepage, and a study to find a solution. They showed that improvements to the embankment drainage were needed, so in 2013 we installed drains to collect leakage and transfer it into sewers. The flows were controlled, the embankment dried out and erosion was minimised – but leaks still occurred. In 2019, we found more leakage at surface level, showing that a large-scale repair was necessary.

6. Does the leakage affect the whole section of the river from Seven Sisters Road to Green Lanes?
  - Not the entire length, but enough to make it more economical and less disruptive to repair the whole section rather keep coming back over the following decades.
7. Has any other solution been explored instead of concrete – what other options have been looked at?
 

Since the drop-in session that was held on 05 July 2023, we're now proposing a hybrid solution. We'll install sheet piling using the pile-pressing system (known as silent piling) on one side of the New River for most of its length, with short concrete-lined sections over utility pipe crossings. Other options considered were:

  - a. No action. Leakages would increase and enlarge and eventually, the embankment would fail, resulting in large-scale but low-level flooding.
  - b. Continue small-scale local repairs. Continuing leakages suggest the clay condition is deteriorating, and basic repairs won't secure its long-term safety.
  - c. Install a pile cut-off wall. It's cost-effective and straightforward to install and has a 60+ year life expectancy. But there are two sewer pipes and a large electricity cable tunnel running beneath the New River, which can't be hammered through. Leakage flows would then concentrate through these areas, making a localised failure more likely.
  - d. An injection-grouted cut-off wall. It's reasonably easy to install, but the length of the affected area (800m) makes it expensive, with no guarantee of the volumes of grout required. No contractor would guarantee the work, and the grout could enter sewer pipes and cable tunnels and block them, requiring further work to repair/replace.
  - e. A waterproof membrane. Like an industrial-strength pond liner made of thick plastic or thin concrete-injected membrane. But the New River has vertical sides, and no manufacturer guarantees liners installed vertically. Ongoing maintenance, such as digging out silt and removing water weed, could damage the liner and cause leakage, so this wouldn't work and was rejected.
  - f. Ready-made concrete pipe sections or concrete culvert sections take the water, then backfill the channel entirely. It would stop the leakage and removes/reduces future maintenance needs. It also potentially frees up land for development (road, commercial development, housing etc) to offset the cost, and has a long asset life expectancy of one hundred years plus. But it's expensive and difficult to build, removes a public amenity and is environmentally damaging.
  - g. A topless concrete culvert (a concrete reline combines options e and f). It's guaranteed to stop the leakage, removes/reduces future maintenance needs and keeps a public amenity. It's also less environmentally damaging and has a life expectancy of a hundred years plus. But it's not ready-made and has to be cast in-situ, therefore it's a challenging build and a much longer job than a pipe/culvert.
8. Is there a cheaper alternative to address the leakage problem?
  - The new proposal of a sheet piled / concrete 'hybrid' solution offers much better value than the full concrete reline originally proposed.
9. What happens if we don't do anything? The New River has been in place for 400 years, so why will the leaks suddenly worsen?
  - If we don't take action the leakages will worsen and the embankment will eventually fail, leading to large scale but low-level flooding
10. Why does Thames Water think it's leaking here, when other sections appear to be as bad or worse?
  - There's clear evidence that Eade Road is leaking and getting worse. Due to the level of leakage and the location's raised embankment and proximity to properties, it needs addressing.
11. A major development is planned for the area, with buildings up to 22 stories high, in stages up to 2040. Is that the reason for the works, or do those development plans make this work unnecessary?
  - This project isn't related to the development. It's about securing the transfer of water, fixing leakage and reducing the risk to properties and the embankment.
12. Have Thames Water considered using a less environmentally-damaging concrete?
  - The new hybrid solution requires a fraction of the concrete compared to the original proposal. The concrete mix will deliver best performance for the construction and life of the asset.

## Environment & Ecology

1. What environmental sustainability assessment has been produced concerning the possible solutions to dealing with the leakage?

- A sustainability assessment will be part of the design development. Given the proposal of the sheet pile hybrid solution, it will be updated to reflect the reduced impact on the environment.
- 2. The New River has been home to wildlife for over a hundred years. Can the environment be saved for wildlife instead of concreting it over and destroying it?
  - The new proposal means significantly less impact on the environment, with most of the base and southern side of the channel unaffected.
- 3. What is Thames Water's obligation regarding the management of Japanese knotweed?
  - Japanese knotweed is an invasive species, and our obligations are the same as every other landowner. Our obligations align with current legislation (Wildlife & Countryside Act, 1981).
- 4. What does Thames Water's biodiversity assessment entail for this type of scheme? Can the report be provided?
  - We aim to establish, capture, and account for any impact on the biodiversity habitats and vegetation loss on a project. We'll measure any change in biodiversity in the existing ecosystem and use planting to offset any permanent biodiversity loss and make a 10% net improvement.
  - A preliminary ecological appraisal (PEA) identified plant species, invertebrates, amphibians, reptiles, birds, bats etc, and their habitats at Eade Rd. A follow-up is recommended for further assessment, with a biodiversity metric calculation, a preliminary roost assessment/bats survey, water voles and otter survey, and a noise level survey before any construction.
- 5. Has the Environment Agency assessed Thames Water reline proposal?
  - The New River is a privately owned, man-made aqueduct, not a natural river or water course. There's no requirement to consult the Environment Agency.
- 6. a) Will all the reeds be cut?
  - Removal of reeds is critical to the aqueduct's functioning. Reeds and other water weed have a detrimental effect on the channel and are removed as part of the watercourse's operation, which also prevents upstream flooding. This is a man-made channel for the supply of water to a treatment works.
  - We won't replace the reeds when we cut them.
  - We've considered floating environmental platforms, but they can gather rubbish and cause blockages.
- 7. How will the project replace biodiversity loss?
  - Temporary loss of vegetation on the project will be reinstated/replaced and should reach its former condition within two years. Some loss may be permanent, but we have an internal commitment to achieve a 10% biodiversity net gain (BNG) on lost habitats. In line with this commitment, we'll explore opportunities to improve site habitats where permanent loss occurs.
- 8. What about the loss of biodiversity along the banks due to the works?
  - The biodiversity impact will also be mitigated by:
    - a. Storing stripped topsoil taken from a temporary haul road construction on the northern bank in sealed bunds. The haul road will be removed when the work's finished, and the bank reinstated to its original state. Trees or shrubs on the banks will be fenced off to protect them from personnel, plant movement, and material storage. Where possible, we'll look to plant and improve project habitats to increase biodiversity value.
    - b. A Tree/Arboricultural Survey was undertaken in the proposed work area in Oct 2022 as part of an early investigation. The survey provided a general observation on the tree conditions, recommending their management should it be required to allow for machinery plant access.
    - c. Deadwood will be moved with care to another area on site, ensuring protected invertebrates are unharmed. Any vegetation clearance will require checks beforehand for nesting birds, reptiles, and dormice under the supervision of a suitably trained ecologist. If any trees or structures that could have roosting bats and/or nesting birds in them need trimming, cutting or removal, a suitable survey and/or watching brief will be done beforehand. Trimming of tree branches and reeds will happen in the winter months ahead of the bird nesting season. Further assessments in the pipeline include biodiversity net gain, a preliminary bat roost assessment, and water vole and otter surveys, which will take place pre-construction to help inform project design.

8. What Thames Water's internal environmental policy has been reviewed to inform the project and its potential impact on the environment.
  - To evaluate the potential impact on biodiversity habitats and existing ecosystem, an Environmental Screening Assessment (ESA) was done in the area. The ESA is a pre-requisite high-level assessment done as part of the TW's Environmental Management Plan (EMP)
  - The ESA for Eade Road recommended follow-up surveys incorporating a PEA and Phase 1 Habitat Survey. The findings provided the project team with likely impacts and enable decision making for further in-depth surveys. Ahead of construction, a Construction Environmental Management Plan (CEMP) will be developed.
9. Where will lost biodiversity be replaced in the local area?
 

If it cannot be avoided in the first instance, the hierarchy below is followed. Ideally, improvements occur at (or as close to) the point of impact as possible:

  - I. On site (within site boundary)
  - II. Off-site – still within operational site boundary but outside of red line boundary
  - III. Off-site – directly adjacent to site/operational site
  - IV. Off-site – nearest site of biological interest (SBI - Thames Water wildlife sites) within the same Local Authority and/or catchment (where closer to site than an inter-programme offsetting option)
  - V. Off-site – inter-programme offsetting
  - VI. Off-site – nearest SBI in adjacent Local Authority and/or catchment
  - VII. Off-site – 3rd party land with in the same Local Authority and/or catchment
  - VIII. Habitat bank payment (to be agreed with Thames Water Environmental Assurance & Ecology Leads in advance)
10. We're concerned about the wildlife living in the riverbed and reeds (birds, frogs etc.).
  - The new sheet pile solution means a significantly shorter section of the aqueduct needs draining. Any fish or amphibians/reptiles removed from that area of the river will be under the supervision of an Ecologist and translocated to appropriate habitats. Vegetation clearance will happen outside of breeding bird season (February-August inclusive). Work will stop if any nesting birds are found during any part of the project – the area cordoned off and the birds allowed to fledge before work continues.

### Impact on Adjacent Properties

1. Property owners adjacent to the New River are concerned about the change to local hydrology due to the replacement of the 400yr-old clay-lined channel with concrete, and the potential for dried out ground to cause subsidence. They asked:
  - a. What mitigation is there to prevent damage from the dried-out clay foundation?
    - A hybrid sheet piling solution addresses the leakage and potential erosion of the New River Eade Rd embankment. It's not an impervious barrier and will only be installed on the northern bank of the channel. Therefore, the bed of the clay-lined aqueduct remains in contact with water.
  - b. Pre and post-structural survey of the properties to clarify liability
    - As a precaution, Thames Water will undertake pre-construction surveys of adjacent properties to establish a baseline of conditions before work starts.
  - c. The work plan and drawings
    - Sheet piles will be installed along the northern embankment and key into the clay layer. The depth of the sheet piles will be confirmed by ground investigation and followed by two short sections of concrete relined at the point of service crossings.
    - Drawings for the new proposals will be available soon, and an outline is appended at the end of this Q&A.
2. What's the impact of stopping leaks on local buildings, environment and facilities?
  - The sheet-piled solution prevents future leaks from coming through at surface level and causing wet patches in the garden of properties adjacent to the New River.
3. Which parts of the New River have been relined already?
  - Leakage prevention of the New River has happened at:

- Cheshunt (<https://what3words.com/plug.towns.broad?>)
  - Amwell (<https://what3words.com/moon.vital.parent?>)
  - They're open to the public if you would like to see examples.
4. What indemnities exist from Thames Water for properties that may be adversely affected by the proposed works, in the short, medium and long term?
    - There's no blanket indemnification, but the pre-condition survey will provide residents with evidence in the event of a claim for any damage to property from the work. Thames Water holds public liability insurance to cover such claims.
  5. Has the structural survey of properties been accounted for in the programme?
    - The pre-condition surveys are carried out before the contractor starts on site.
  6. There is a significant problem with dampness every winter, usually between Nov-Jan, for some properties along Eade Rd. Could this be caused by the New River leak?
    - We can't confirm the cause of dampness, but the sheet pile installation will prevent surface wetness from leakage, which may improve it.

## Planning

1. What planning consultation has been undertaken?
  - There's no requirement for undertaking planning consultation as the works are either not classed as development or they're carried out pursuant to permitted development rights. But we wrote to the Local Planning Authority in 2022 to advise the LPA about the site investigation works. Further updates will be provided on the hybrid solution for their information.
2. How does this project development align with planning regulations, as there's been no public consultation before confirming the project?
  - The repair and renewal of existing apparatus by statutory undertakers does not constitute development, as defined by Section 55 of the Town and Country Planning Act 1990. Once the impact of the new proposed hybrid solution is understood, we may request an Environmental Impact Assessment Screening Opinion from the Local Planning Authorities.
3. Why were residents not consulted during the optioneering phase of the project before deciding on the reline solution?
  - The drop-ins are to outline our intentions, not to consult on technical options. The New River is an aqueduct and an operational asset that needs to remain operational and free-flowing to ensure the supply of clean drinking water for London.
4. Should the project have had an Environmental Impact Assessment?
  - The works don't fall within Schedule 2 of the EIA Regulations and wouldn't require an Environmental Impact Assessment Screening/wouldn't constitute EIA Development. But we will undertake our works in an environmentally sensitive way, taking account of biodiversity and recreation under the Water Industry Act.
5. Do local councils know that we're doing this work – and what have they said?
  - We've communicated with Hackney Council about the work and notified Haringey Council in Aug 2022 prior to the survey and investigation. Further details then went to Haringey Council, with no comments received to date.

## Programme

1. What stage is the project at?
  - The project's at preliminary design stage.
2. What are the next steps/programme milestones for the job?
  - Early environmental mitigation is tentatively planned to start in Nov/Dec 23, with construction planned to start on site in March/April 24. Duration on site: 9 months.

## Construction

1. Have Thames Water considered lorry access and the disturbance to Eade Rd residents?
  - The new hybrid solution to sheet pile will mean fewer construction vehicles.
  - Vehicular site access will be from the Seven Sisters Road junction. We'll remove and control the traffic barrier in Eade Road adjacent to Linkway. This will be the access point into site. There'll be no

access at the boundary of the TWUL fenceline / 66 Eade Road – all vehicles will be turned and exited back to Seven Sisters Road.

2. How will the works impact the footpath pedestrian access?
  - The New River path will be closed for approximately nine weeks during the installation of the short concrete sections.
  - The southern footway along Eade Road will need to be closed for pedestrian safety, but the northern footway will remain open to the public throughout.
3. We're concerned about the noise levels of the pumps directly in front of our house for six months – we've already suffered noise from water pumping last year. Also, the noise levels of the construction itself.
  - All efforts will be made to minimise the noise impact of the works.
  - With the new proposal, we'll only over-pump the river while constructing the short section of concrete reline. The generators for the pumps will be 'super silent' grade and sited away from homes. The generators will be enclosed in a separate compound with an acoustic barrier surround. All site fencing/ hoarding bordering properties will be covered with acoustic barriers to minimise noise impact.
  - The sheet piling will be installed using silent piling rigs. To shorten the programme, the sheet piles will be installed from either end using multiple construction teams.
  - For the concrete section, the works have been planned to, wherever possible, keep machinery within the footprint of the New River to minimise noise disruption.
  - Noise assessments will be carried out on all machinery to ensure the site stays within allowable construction limits.

#### **Operation and maintenance**

1. The New River path is muddy and almost inaccessible at points.
  - The path along the Eade Road section has been recently constructed, with no maintenance issues. If any damage is caused to the path during construction work, it will be reinstated.
  - The New River is basically a clay channel and doesn't drain well when it rains. Walking over the soft wet surface erodes it and puddles form. Unfortunately, hardened footpaths are expensive, environmentally damaging and not necessarily the best use of money. The only realistic way to manage muddy paths (until funding becomes available) is to close them.
2. When will the rubbish along the Eade Rd fence line be cleared?
  - During our work, we'll make sure the site and surrounding Thames Water areas are kept clear of debris/litter, and we're proposing to install bins along the river – the responsibility for emptying is being discussed with the council.
3. Does Thames Water anticipate the water level in the river to change during or after the reline?
  - The project will not require over-pumping to be installed – the aqueduct can flow as normal. During installation of the short sections of concrete reline we'll dam the river and pump the flow around our work. You may see some change in the water levels whilst we're managing the pumped flow, but no change afterwards.
4. Why can't grass be left longer and wildflowers allowed to grow?
  - We need to check the bank for slips/ sumps/ animals holes etc, so we can't leave embankments overgrown as they show the first signs of adverse change. However, following the completion of the project (and it's safe enough to do so) the embankment can be seeded with wildflowers. This is being considered as part of the biodiversity net gain.
5. There's a big leak at the junction of Endymion Rd and Green Lane – is Thames Water aware of this and what are we doing about it?
  - Following the reed clearance by the Thames Water Operations this Autumn, we anticipate the problem should be resolved. During the construction works, we will check that the problem has been fixed.

#### **Community Enhancement**

1. Thames Water should consider providing accessible outdoor space, and picnic tables on the part of the grassed area along Eade Rd opposite the community theatre/studios.

- We have opened the likes of Walthamstow wetlands / Woodberry wetlands, and look to contribute to open spaces where possible, but this is site dependent. We will need prevent access during maintenance activities (Health and Safety at Work Act). Adding picnic tables increases management requirements (e.g. litter, animal waste, fly tipping) and increases fire risk in the summer from BBQs.
2. Can Thames Water engage in more partnerships to enhance the local environment and communities?
    - We'd like to work in partnership with local environmental initiatives, such as London Wildlife Trust and the local council, to enhance/create local wildlife sites, and will explore this.
  3. What enhancement is Thames Water planning for the benefit of the community?
    - The project team is currently considering this.

### Customer Engagement

1. Thames Water team to write to the customers to confirm that questions have been understood and list queries.
  - The questions were collated and issued in August 2023.
2. When's the next drop-in session?
  - We'll hold a further drop-in a few weeks before work starts.
3. Can the relevant experts be present at the next drop-in session?
  - Superseded - The drop-in was held on 14 Sep 2023 with relevant professionals in attendance.
4. How will we be communicating with residents and keeping them up to date outside of the drop-in sessions?
  - Through letters or emails.

### Sheet Piling/Reline Hybrid Solution – New River Eade Rd Northern Bank

