Baunton and Meysey Hampton Drought Permit Webinar

September 2022

Housekeeping

Please mute yourself during presentation

Please have your camera off

We welcome questions using chat

YdG

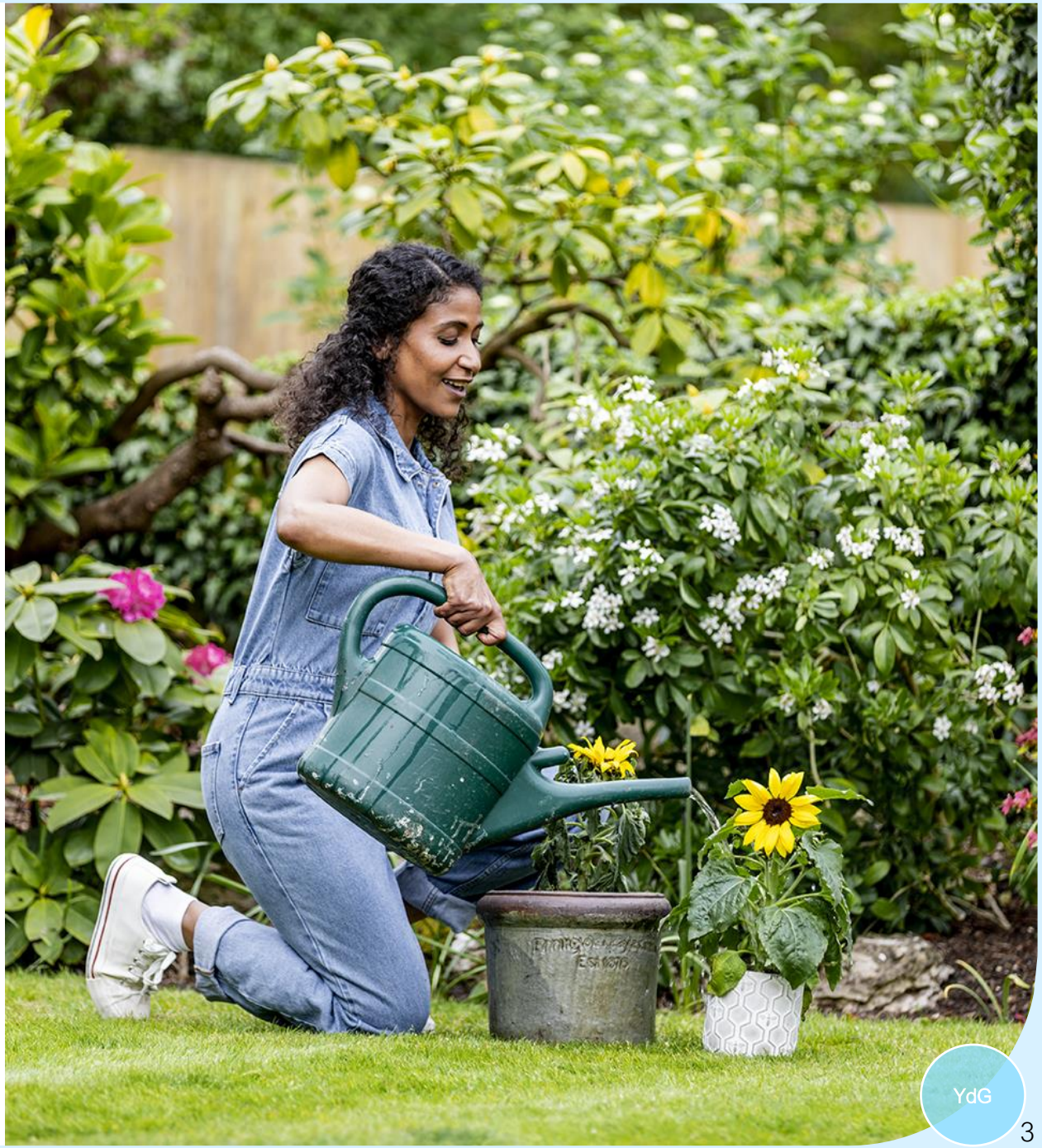
What's the purpose of today?

To explain the background behind, and the details of, our proposed applications for a Drought Permits at Baunton and Meysey Hampton

Agenda

Timings: 60 minutes total

1. Introductions	5 mins
2. Background Water Supply The Steps in our Drought Plan The Water Resources Situation What is a Drought Permit Drought Permit Options	20 mins
3. The proposed Baunton Drought Permit Baunton Drought Permit Details Impact Assessment Monitoring and Mitigation	10 mins
4. The proposed Meysey Hampton Drought Permit Meysey Hampton Drought Permit Details Impact Assessment Monitoring and Mitigation	10 mins
5. Q&A	15 mins



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Introduction

Who's on the call today

Thames Water Team

Steve Tuck
Abstraction and Drought Specialist

Anthony Owen
Water Resources Manager

Yvette de Garis
Head of Environmental Engagement

Tim Beech
Environmental Partnerships Lead

Josie Daman
Catchment Coordinator

Ricardo

Liz Baker
Technical Director

Molly Preen
Consultant

YdG

Your water supply

And how it could be affected in a drought

Thames Water's supply area is divided into six water resource zones (WRZ):

- Swindon and Oxfordshire
- London
- Kennet Valley
- Guildford
- Slough, Wycombe and Aylesbury
- Henley

Water can be moved around in each zone and, in some cases, between zones.

Baunton Borehole and Water Treatment Works (WTW) and Meysey Hampton groundwater source are within the Swindon and Oxfordshire WRZ – Water is mainly groundwater (60 percent) taken from the upper Kennet Valley and the Cotswolds, and we have a water main from Gatehampton near Goring in Oxfordshire. We also take water from the River Thames.

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What is a Drought Plan?

- All water companies in England and Wales are required by the Government to produce a Drought Plan. Our Drought Plan sets out the actions we would expect to take in the event of a drought to maintain essential supplies of water while also protecting the environment.

- Depending upon the severity of the drought, this is likely to include a variety of different measures. These can include campaigns to encourage our customers to use less water, temporary use bans to restrict non-essential domestic and commercial use of water, working even harder to fix leaks and reducing water pressure in our pipes.

- We're required by Defra to update our Drought Plan every 5 years.

- Defra approved our revised draft Drought Plan 2022 on 4 August 2022. We have published our Final Drought Plan 2022 and accompanying documents.

How we've developed our Drought Plan

Our last Drought Plan was published in 2020.

↓

We've refreshed our Plan, taking account of revised government guidelines, and updated information on our supply schemes. We've consulted stakeholders and worked closely with other companies in the South East.

↓

We submitted our draft Drought Plan to the Secretary of State (Defra) on 1 April 2021.

↓

We held a public consultation on our draft Plan for 8 weeks, from early June 2021. Thank you to everyone who responded to the consultation.

↓

We've reviewed the feedback received to the consultation and in September 2021 we published our Statement of Response. This sets out our consideration of the representations, changes made to our Plan and further work required.

↓

We also sought feedback from customers on how we communicate with them during a drought.

↓

Defra review all the information and when satisfied, approve our Plan.

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Actions we'll take in a drought

1	Impending drought Frequency: once every 5 years on average	Begin an awareness campaign – typically via radio, newspapers, social media and other online channels – to tell customers about an impending drought, let them know how serious it is and ask them to use water sparingly. We'll work with a wide range of organisations to spread the message, including water retailers. The campaign will be continued throughout the drought.
2	Early stages of a drought Frequency: once every 10 years on average	• Step up the awareness campaign and encourage customers to reduce their water use through advice and installing water efficiency gadgets in customers' homes. • Restrict the use of sprinklers and hosepipes in and around the home for uses including watering gardens, topping up ponds, filling paddling and swimming pools, cleaning cars – this is referred to as a Temporary Use Ban. Some vulnerable customers, such as blue badge holders, would be granted exemptions.
3	Severe drought Frequency: once every 20 years on average	• Restrict non-essential water use. This would affect businesses, and restrict activities such as cleaning windows at industrial plants and suppressing dust on construction sites. The government would have to grant a Drought Order to allow us to introduce these restrictions. We'd notify customers at least ten weeks before introducing these measures. • Apply to the Environment Agency for Drought Permits to allow us to take more water from certain sources.
More before 4	Additional measures for the most serious droughts Frequency: once every 50 to 100 years on average	Step up actions to reduce demand and provide additional supplies to try to avoid reaching emergency restrictions (Level 4). Actions would include: • Widespread communications asking customers to make significant reductions in their water use, aiming for around 80-100 litres/person/day. (On average our customers use around 140 litres/person/day) • Bring online additional supply, such as emergency raw water pipeline transfers, temporary desalination units and alternative sources for non-potable use.
4	Extreme drought We plan never to reach this level, which would involve a drought worse than any on record (since 1920).	Extreme measures to reduce water use, such as rota cuts (when water usage is restricted at certain periods of time) and standpipes in the street for customers to collect water. This would have a massive impact on society and the economy, and the government would need to grant an Emergency Drought Order.

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Further Actions

- Bringing into use water sources developed for droughts, including an aquifer recharge scheme in north London that draws on underground supplies we proactively replenish during times of surplus, and other schemes in Chingford and Stratford. They are providing c.170 million litres a day (Ml/d) – 9% of the capital's daily needs.

- Working closely with the Environment Agency (EA) to start using their West Berkshire Ground Water scheme to bring more water into the Thames Catchment. This should provide 100 Ml/d – 4% of our average daily supply. With the EA's agreement we have also increased abstractions from the Thames.

- Accelerating planned maintenance work at our Gateway Water Treatment Works in London to return it to operation in early 2023, providing an additional 100 Ml/d.

- Increasing resources to tackle leakage, fixing up to 2,000 leaks a week – one every five minutes. We have reprioritised activity across the company onto leak repair, doubled weekend working and boosted repair teams to their highest ever number.

- Launched a £1.1m water efficiency campaign that included our first broadcast TV campaign, which reached 34.7m individuals over a 6-week period – 78% of our audience. We are extending the campaign into the autumn and writing to all customers. On 26th September every household was sent a leaflet, encouraging them to save water.

- Visiting businesses to identify and tackle water-wasting appliances and install water-saving devices and working with water retailers to share information with businesses to help them to reduce wastage.

- Introducing a drought incentive scheme for non-household customers through which we are matching the financial savings made by customers as a result of reductions in consumption.

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Water Resources Situation

Water Resources Summary

	Change in Risk	Details
Rainfall	↑	Sep so far (to 26th) received 108% LTA rainfall. 6-month rolling average around 60%.
Groundwater Levels	↔	Current levels **Below Normal & Notably Low**. Updated projections this month have deteriorated with Below Normal and Notably Low levels projected into late winter/early spring in dry scenarios.
River flows	↔	Flows increased following periods of rainfall but **remain below average**. Continuing to operate at TTF of 300 Ml/d. Projected flows are below average through the autumn in all scenarios. The exception being in the Lower Thames with average flows in January in the average scenario.
Reservoir storage	↔	Reservoir storage continued steady decline over last week. London storage 61%, Farmoor storage at 65% on 26th September. Updated projections (from 12th Sep) have improved.
Drought Risk	↔	Continued higher risk in SWOX as a result of dry weather deteriorating flow, groundwater and reservoir storage projections. Overall current Drought Event Level remains at **DEL3.** Next review scheduled w/e 7th October.

Updated 27th September

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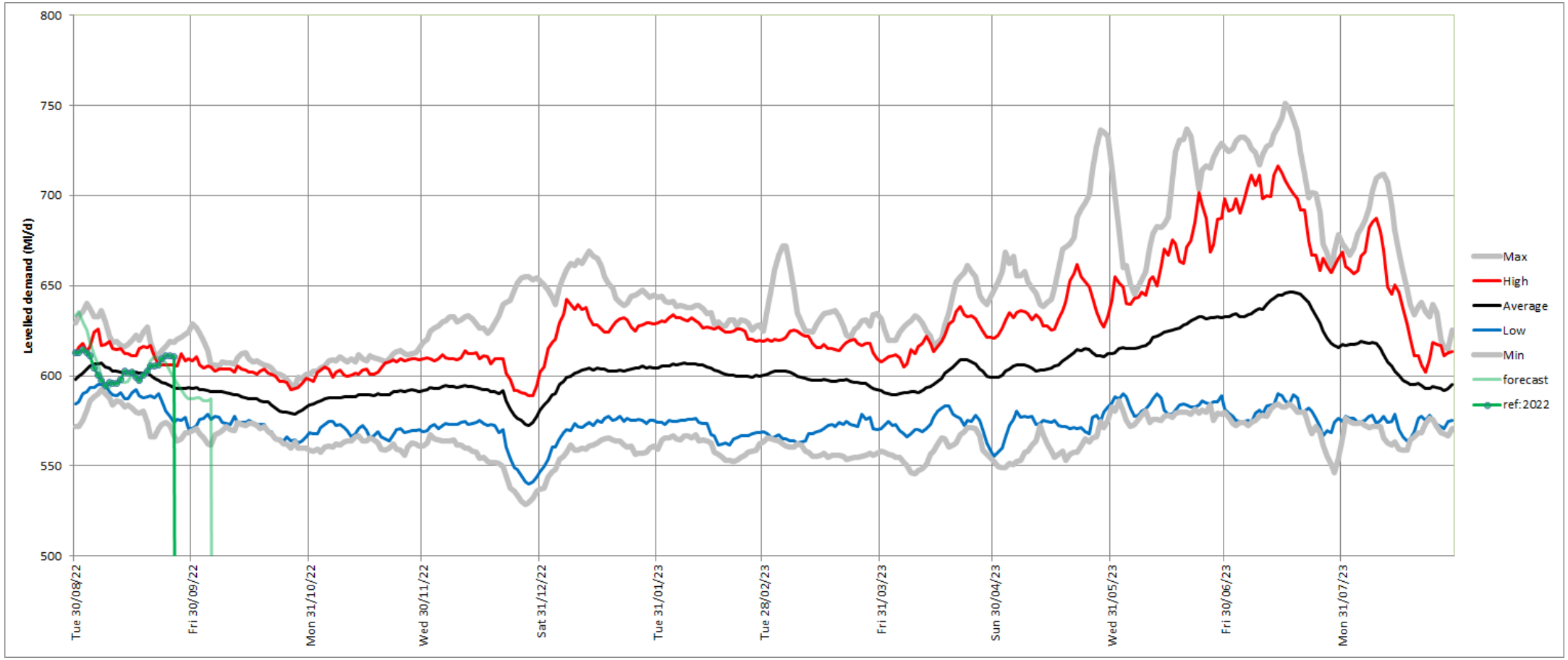
Demand – Thames Valley

- Demand currently around 610 Ml/d, **high** for the time of year
- Demand trending higher than predictions of low and normal levels

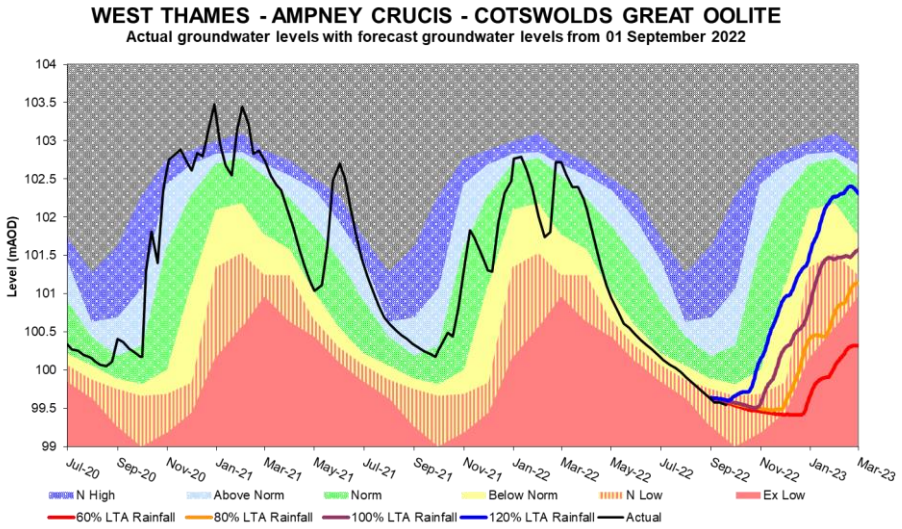


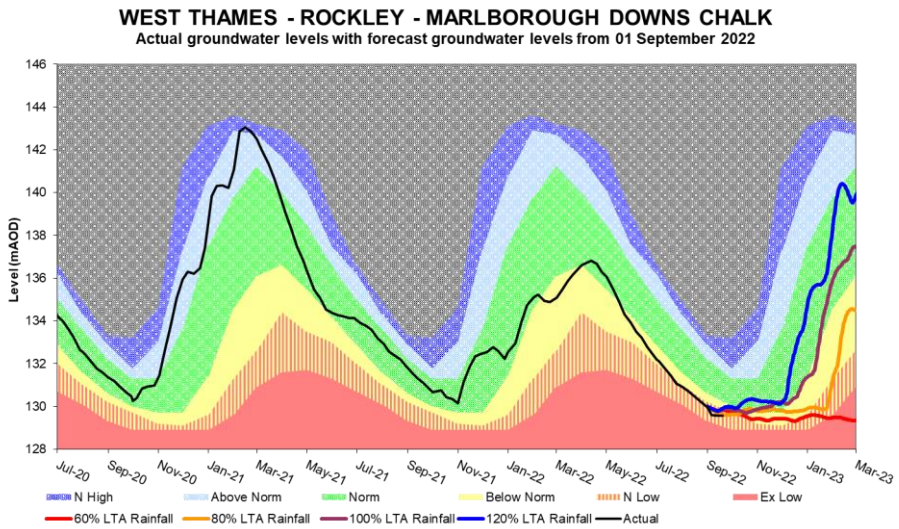
Updated 26th September

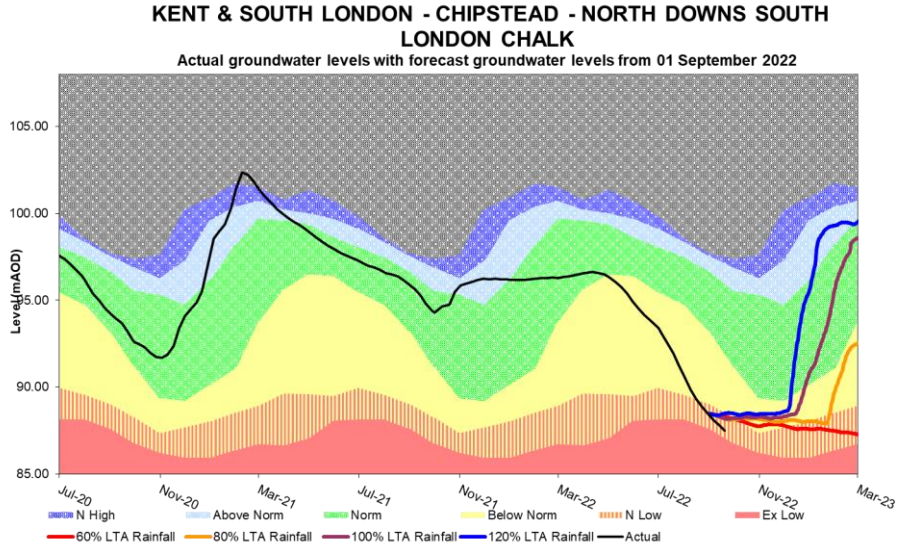
Groundwater

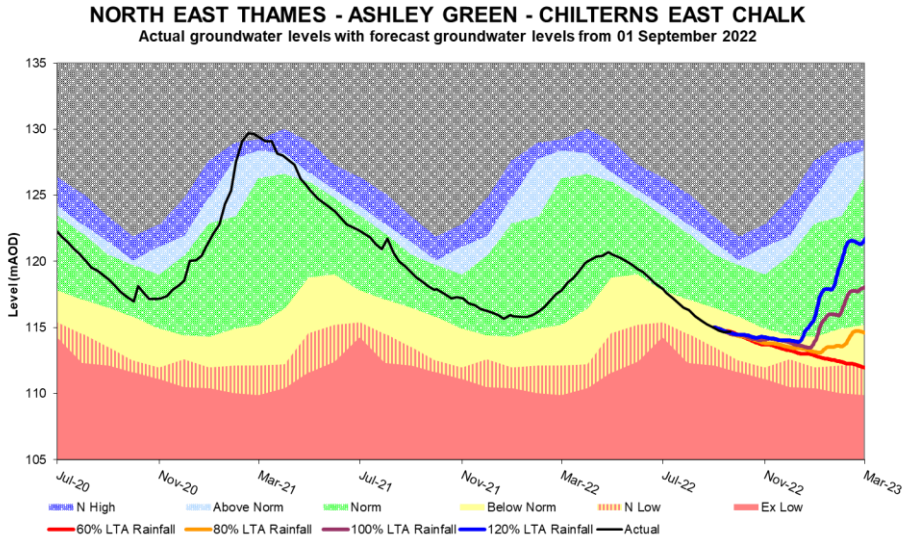
N High | Above Norm | Norm | Below Norm | N Low | Ex Low

60% LTA Rainfall | 80% LTA Rainfall | 100% LTA Rainfall | 120% LTA Rainfall | Actual









Current levels 13th Sep '22

- Notably Low & Below Normal levels across the catchment. Levels in the Upper Thames & Kennet below projections.

Projections from 1st Sep '22

- Late autumn/early winter recovery show Normal levels in 100% and 120% rainfall scenarios at most sites
- In Cotswolds, levels reach Normal in spring only in 120% scenario
- Limited winter recovery projected in drier scenarios, with Below Normal and Notably Low levels throughout winter at most sites, and Exceptionally Low levels in the Cotswolds & Marlborough Downs

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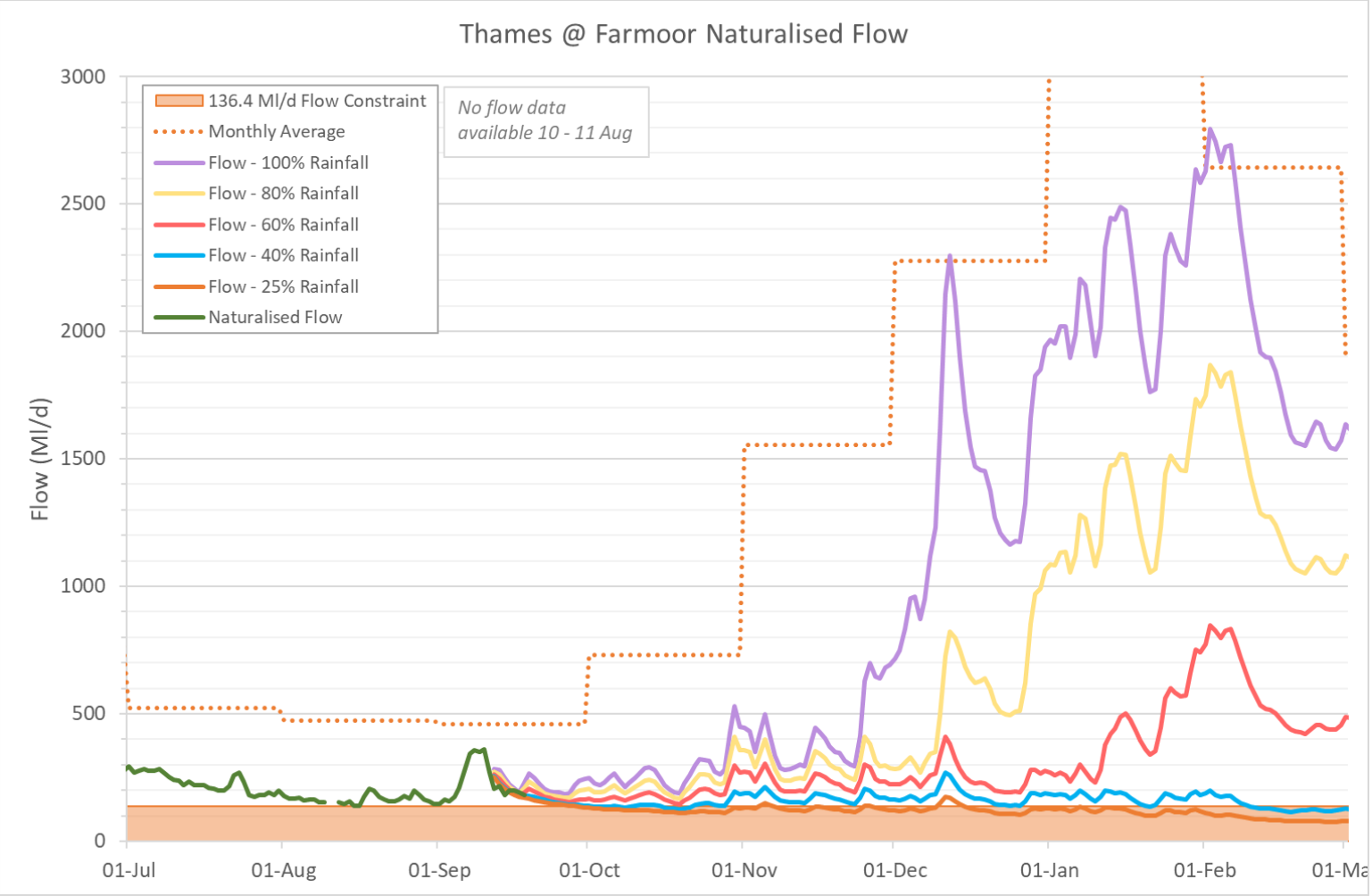
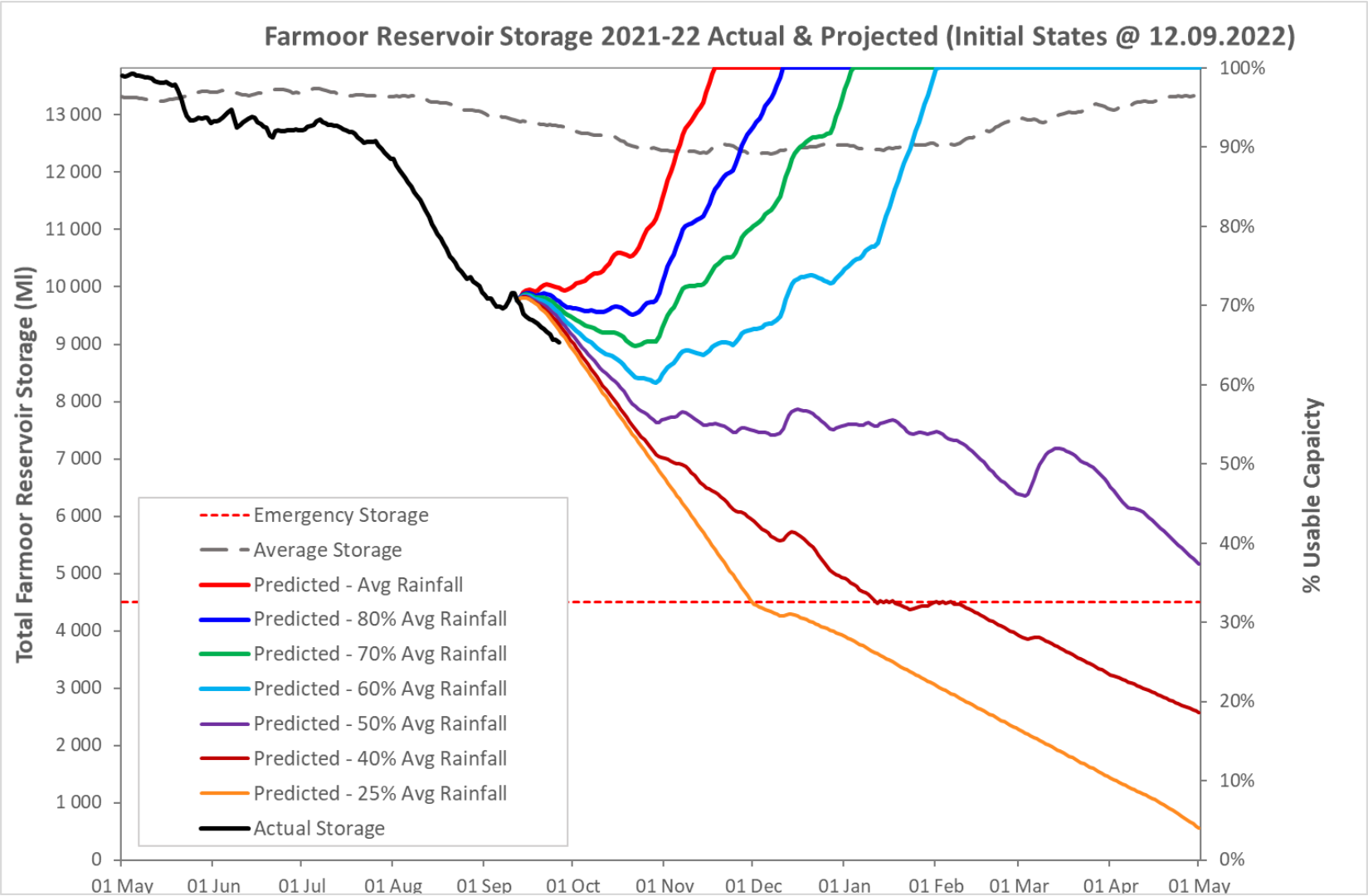
River Thames Flows at Farmoor

Projections from 12th September, Observed flows up to 19th September



- Flows increased responding to rainfall, though reduced quickly and remaining **below average**
- Projections from 12th September, including drier scenarios
- Outlook **from updated projections remain unchanged**:
- In average & 80% rainfall scenario, flows recover in mid-winter though not yet reaching average flows
- In all other drier scenarios river flows remain well below average with little or no recovery through autumn and winter
- In 25% scenario flows remain below 136.4 Ml/d constraint into autumn and winter

Farmoor Storage Projections



Current storage – 26th Sep '22

- Below Average for the time of year - 65%
- Steady decline of storage continuing, currently below all projections

Projections – From 12th Sep '22

- Updated projections have improved
- Crossing of emergency storage delayed by ~2 weeks to end-November in 25% scenario
- This delay is more significant in 40% scenario – almost 2 months
- In 50% scenario emergency storage level is no longer crossed before the start of spring.
- However projections do not capture water quality risk, with rapid decline in observed in mid-September

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What is a Drought Permit?

- Drought Permits are granted by the Environment Agency to allow us to take more water from the environment.

- In a drought we follow a series of ‘protocols’, these are decision-making steps that guide the actions we need to take – before a drought happens, as a drought develops, during a drought and after levels have recovered.

- The protocols are designed to make sure we have enough time to plan and take action and to help us avoid or minimise the need for emergency measures. An important part of the protocols is clear and timely communications with customers to explain the situation and how it might evolve and to ask for their help and support.

- We’ve analysed historic weather records, equivalent of many thousands of years of weather data, to assess how vulnerable our system is, or parts of it are, to drought. The assessments show that all our water resource zones are resilient to drought, but we’d need to use Drought Permits for extended periods of time in a very severe drought.

- We are now in the position that we have applied for a Farmoor Drought Permit and we must apply for the Meysey Hampton and Baunton permits. This is not a decision we take lightly, but is the next essential step in the delivery of our Drought Plan.

To identify a potential drought, we monitor:

- groundwater levels
- rainfall
- the amount of water stored in reservoirs
- river flows
- customers’ demand for water

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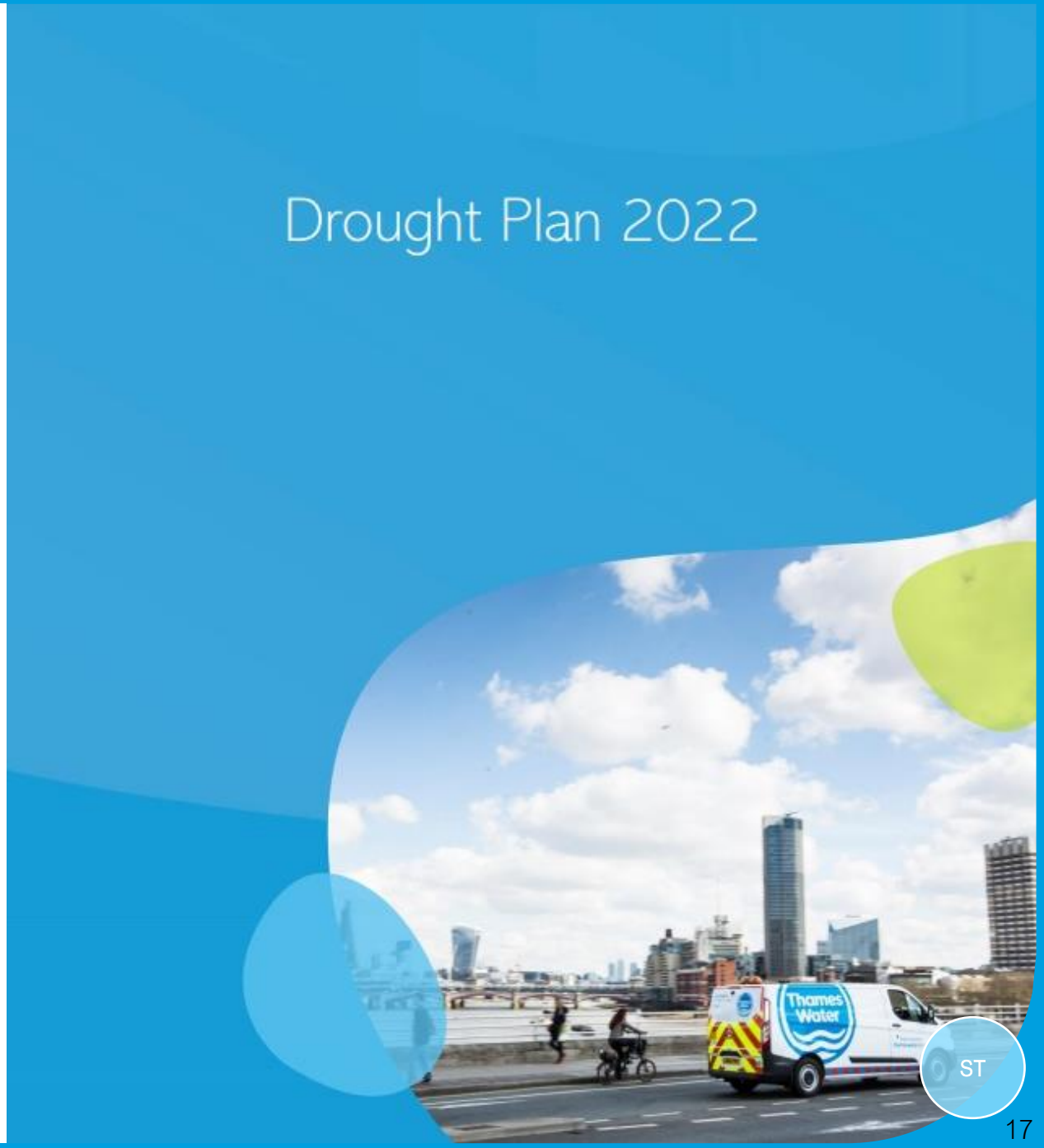
Drought Permit Options

Drought Permit	Volume (Ml/d)	Application Date
Farmoor	30	26th September
Meysey Hampton	11.3	6th October
Baunton	6.3	6th October
Ogbourne	3.5	TBC
Axford	7.1	TBC
Baunton 2	11.7	TBC
Axford 2	6.9	TBC
Childrey Warren (under consideration)	3.5	
Latton Average licence	15 to 20	TBC

All details of our drought permits (approved by Defra in August 2022) can be found in our drought plan.

Baunton Drought Permit Details



Baunton Drought Permit

Baunton Abstraction Licence

- Daily Limit 21.59 Ml/d
- Average Daily limit 16.638 Ml/d
- No abstraction when mean daily flow of the River Churn at Cirencester is 32 Ml/d or less
  - Abstraction allowed in emergency (No more than 10 days unless agreed in writing with the EA)

Proposed Drought Permit

- Daily limit 6.3 Ml/d
  - Abstraction permitted when mean daily flow of the River Churn at Cirencester is 32 Ml/d or less

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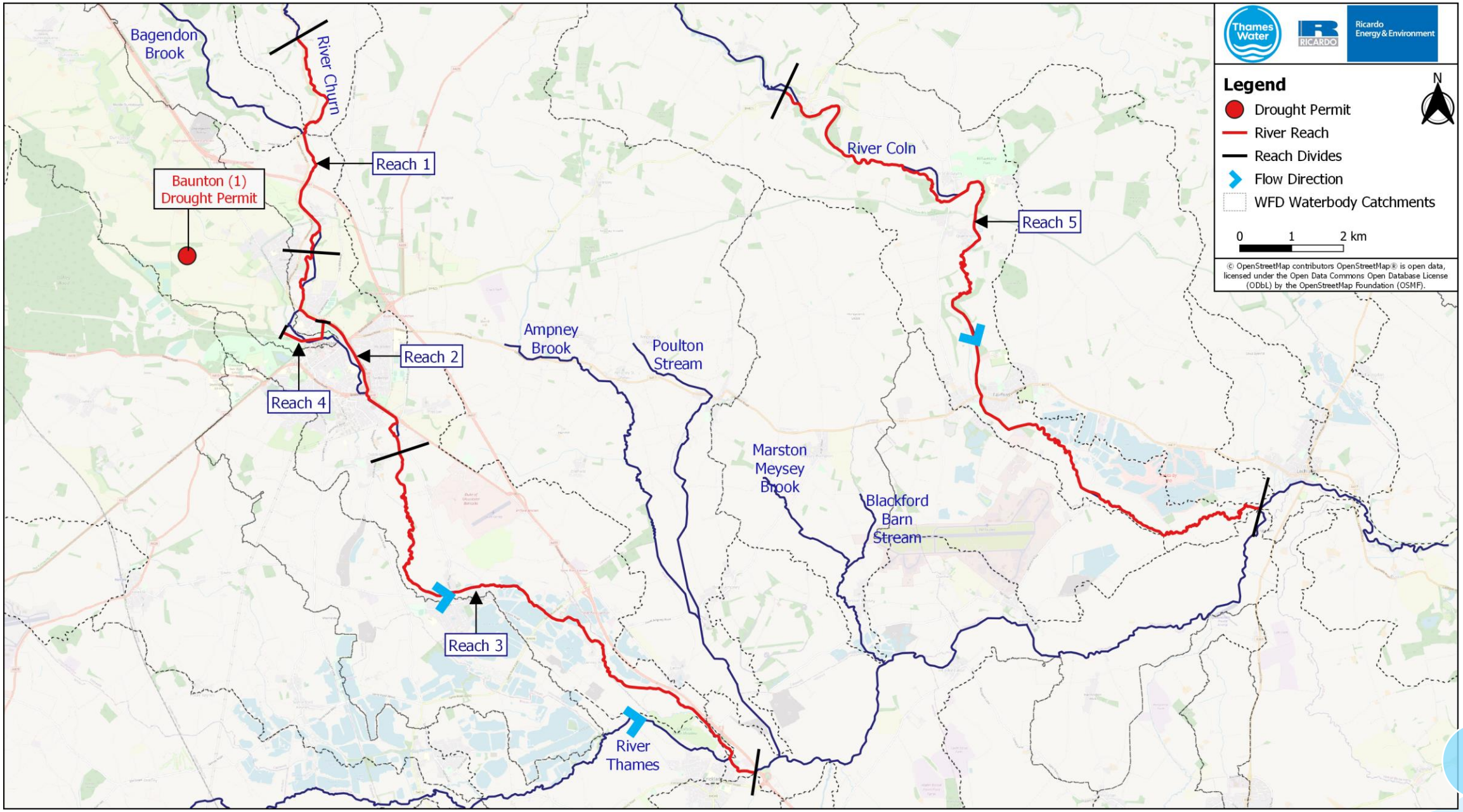
Study Area of the Baunton Drought Option



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Background to Environmental Assessment

The Environment Agency's Drought Plan Guideline (DPG) requires water companies to complete Environmental Assessments for all drought options, comprising:

- Environmental Assessment Reports (EARs)
- Strategic Environmental Assessment (SEA)
- Habitats Regulations Assessment (HRA)

- Objective of an EAR: assessment of potential environmental effects of implementing a drought permit, over and above those conditions that already exist under "normal", i.e. licensed, baseline conditions, with the onset of a drought

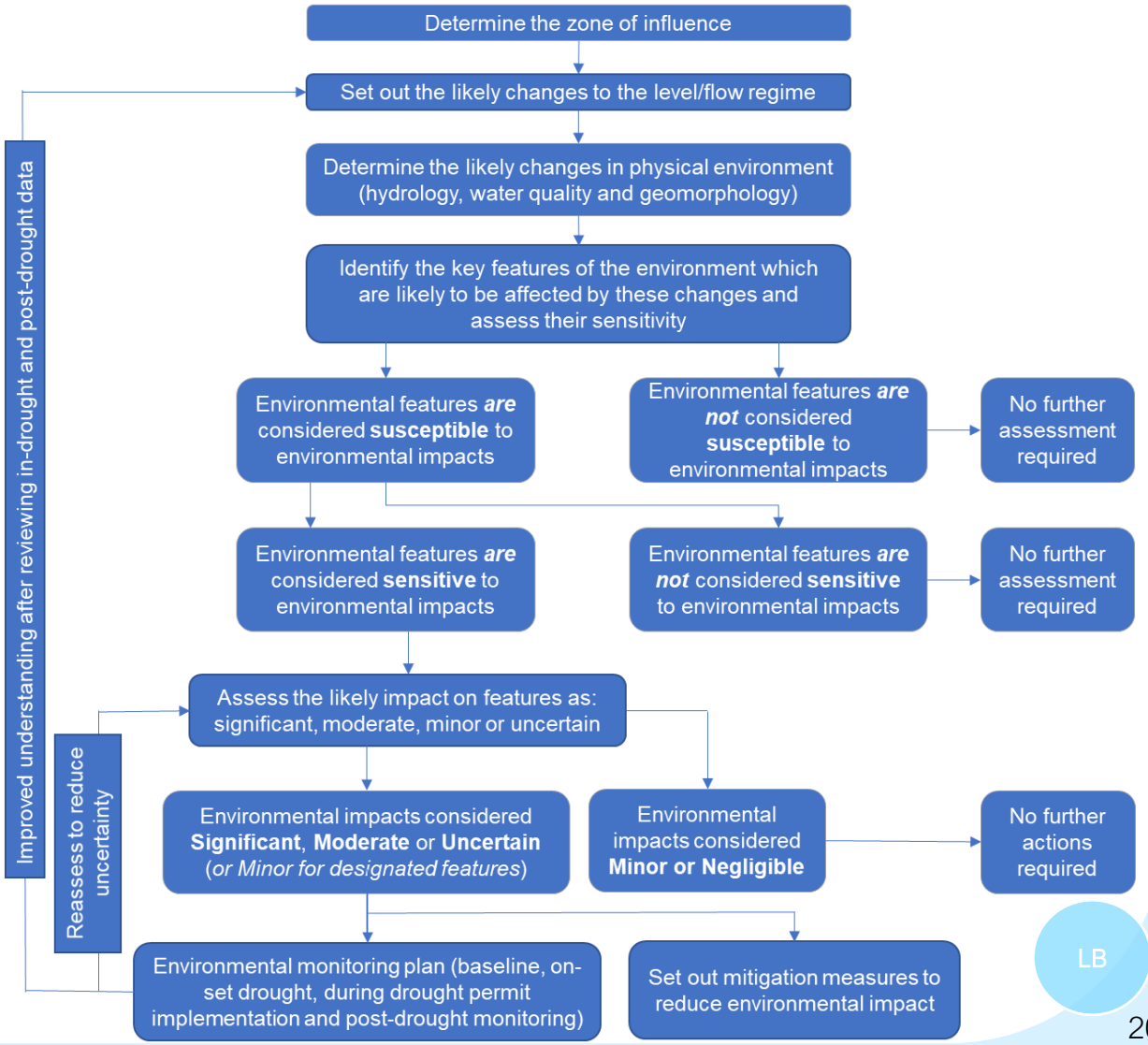
- "Shelf-copy" EARs 2020-2022; Application EAR Sept 2022 (October 2022 implementation date)

- "Methodology" prepared October 2020; revised September 2022 (*see figure*)

- Cumulative and in-combination assessment of the drought option with existing licences, permits and plans

- Consultation throughout with the Environment Agency & Natural England (from DP2013, DP2017 to DP2022)

DPG 2020: Approach to undertaking environmental assessments



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Environmental Assessment Findings of Baunton Drought Permit

Assessment of physical environment impacts

Potential changes to the physical environment due to implementation of the Baunton (1) drought permit:

- Hydrology: **moderate** in Reaches 1 to 3 and **negligible** in Reaches 4 and 5.
- Water quality: **Low** risk in Reach 3 and **negligible** risk in all other reaches.
- **No significant risk** to any other abstractors in any of the reaches.
- **No risk** to feasibility for groundwater abstractors in any of the reaches.
- There are no consented discharges posing a risk to water quality in any of the reaches.
- Changes in geomorphology are anticipated to be **minor**, temporary and reversible in Reaches 1 to 3 and **negligible** risk in Reaches 4 and 5.

Environmental features susceptibility and sensitivity

This stage establishes whether environmental features are susceptible to drought permit impacts and the sensitivity of features. Key features considered include:

- Designated sites within 500m of the impacted reaches, e.g. SAC, SPA, SSSI, AONB, NNR, LNR, LWS;
- NERC priority habitats
- Ecological communities and WFD status;
- Sensitive ecological features;
- Invasive non-native species; and
- Wider features (other abstractors, landscape, navigation, recreation and heritage).

HRA

No Likely Significant Effects as a result of the drought permit implementation are anticipated

Features Assessment

- **Negligible** to **moderate** impacts on designated sites;
- **Negligible/minor** impacts on WFD status/potential receptors;
- **Negligible** to **moderate** impacts on ecological community;
- **Negligible** to **moderate** impacts on NERC receptors;
- **Negligible** to **moderate** impacts on ecologically significant species;
- **Negligible/minor** impacts on INNS; and
- **Negligible** impacts on other features

Cumulative impacts

No cumulative impacts of implementing the Baunton (1) drought permit at the same time as other Thames Water drought permits have been identified

No interaction with other water companies' drought actions.

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Proposed monitoring and mitigation – Baunton Drought Option

DPG requires water companies to describe how the effects of an environmental drought and those resulting from the application of a drought permit are to be monitored and/or mitigated

A programme of monitoring has been agreed with the Environment Agency and Natural England and will be implemented:

- before the drought permit is granted, i.e. "on-set" monitoring (currently being undertaken);
- during operation of the drought permit; and
- following cessation of the drought permit, i.e. "post drought recovery" monitoring.

Key environmental parameters included in the monitoring programme comprise **designated sites**, **protected habitats**, **water quality** and **ecology** (including assessment of potential impacts on **Invasive Non-Native species**).

In addition **mitigation measures** will be implemented if the monitoring indicates it is necessary, e.g.

- protection of 'trapped' fish populations (e.g. aeration and predation prevention);
- targeted rescues of fish where necessary;
- targeted installation of woody debris features to provide fish habitat; and
- fish passage modification.

Communication:

- Surveyors will record information on "River Condition Assessment" forms (information to be included has been agreed with the Environment Agency and Natural England)
- Results will be fed back to Thames Water, EA, NE - and will inform agreement made for future actions, e.g. further monitoring and / or mitigation

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Meysey Hampton Drought Permit Details

Drought Plan 2022

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Meysey Hampton Drought Permit

Meysey Hampton Abstraction Licence

- Daily Limit 11.37 Ml/d

- No abstraction when mean daily flow of the River Coln at Bibury is 68 Ml/d or more
  - Abstraction **only allowed in emergency** (No more than 10 days unless agreed in writing with the EA)

Proposed Drought Permit

- Daily limit 11.37 Ml/d

  - Abstraction permitted when mean daily flow of the River Coln at Bbury is 68 Ml/d or less
  - **Not restricted to emergency conditions only**

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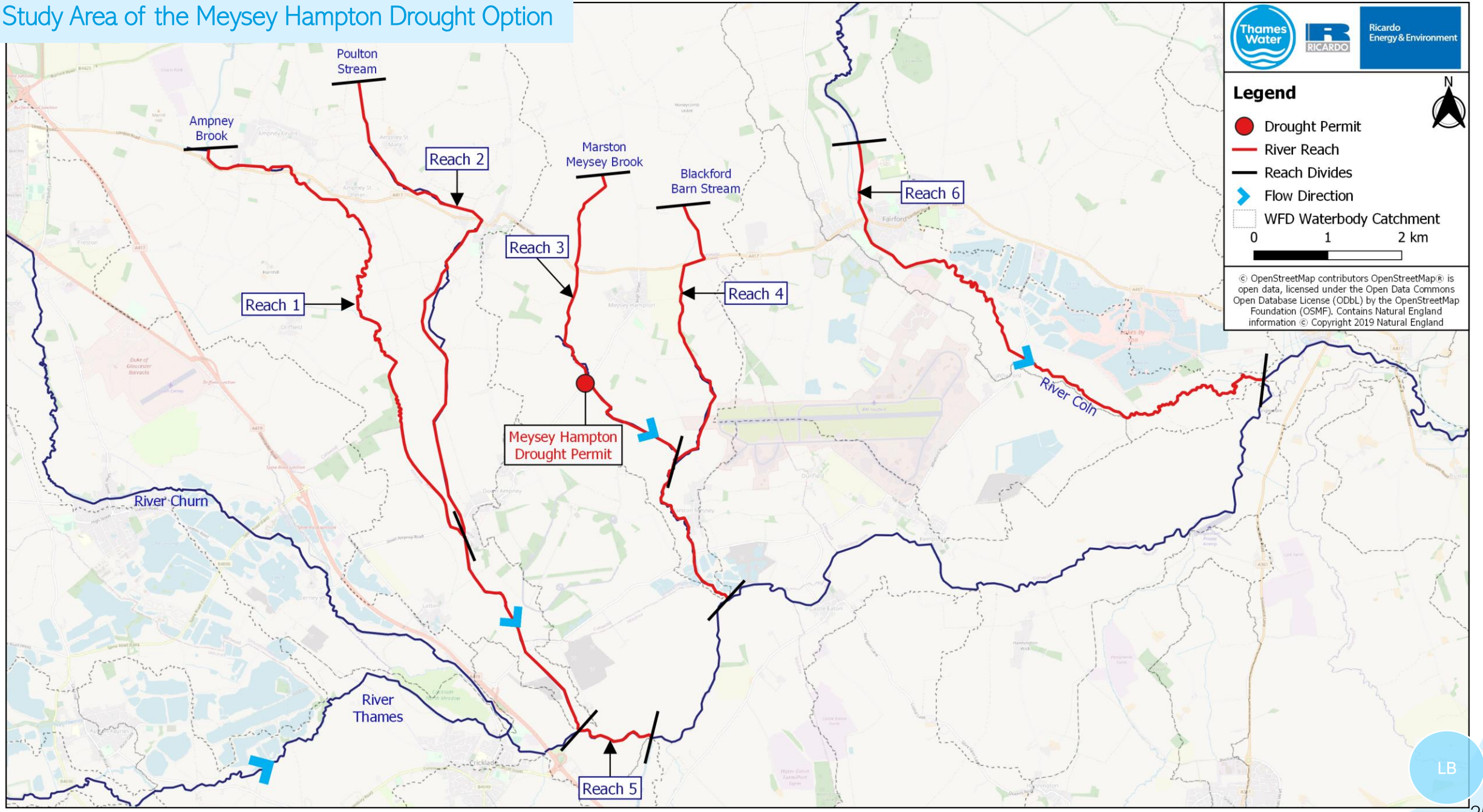
Study Area of the Meysey Hampton Drought Option



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Environmental Assessment Findings of Meysey Hampton Drought Permit

Assessment of physical environment impacts

Potential changes to the physical environment due to implementation of the Meysey Hampton drought permit:

- Hydrology: **moderate** in Reaches 1 to 4 and **negligible** in Reaches 5 and 6.
- Water quality: **Medium** risk in Reaches 1 to 4 and **low** risk in Reach 5 and **negligible** in Reach 6.
- **No significant risk** to any other abstractors in any of the reaches.
- **Low risk** to feasibility for groundwater abstractors in Reaches 1 to 5. **No risk** in Reach 6.
- Consented discharges: Two **high** risk discharges in Reach 1 and three **medium** risk discharges in Reach 2.
- Changes in geomorphology are anticipated to be **minor**, temporary and reversible for Reaches 1 to 4 and **negligible** in Reaches 5 and 6.

Environmental features susceptibility and sensitivity

This stage establishes whether environmental features are susceptible to drought permit impacts and the sensitivity of features. Key features considered include:

- Designated sites within 500m of the impacted reaches, e.g. SAC, SPA, SSSI, AONB, NNR, LNR, LWS;
- NERC priority habitats
- Ecological communities and WFD status;
- Sensitive ecological features;
- Invasive non-native species; and
- Wider features (other abstractors, landscape, navigation, recreation and heritage).

HRA

No Likely Significant Effects as a result of the drought permit implementation are anticipated

Features Assessment

- **Negligible** to **moderate** impacts on designated sites;
- **Minor/moderate** impacts on WFD status/potential receptors;
- **Negligible** to **moderate** impacts on ecological community;
- **Negligible** to **moderate** impacts on NERC receptors;
- **Negligible/minor** impacts on ecologically significant species;
- **Negligible** impacts on INNS; and
- **Negligible** impacts on other features

Cumulative impacts

Potential cumulative impact with Latton and Baunton (2) drought permits. However, at the time of application for the Meysey Hampton Drought Permit, these other drought options are not being implemented, therefore **no cumulative impacts** identified.

No interaction with other water companies' drought actions.

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Proposed monitoring and mitigation – Meysey Hampton Drought Option

DPG requires water companies to describe how the effects of an environmental drought and those resulting from the application of a drought permit are to be monitored and/or mitigated

A programme of monitoring has been agreed with the Environment Agency and Natural England and will be implemented:

- before the drought permit is granted, i.e. "on-set" monitoring (currently being undertaken);
- during operation of the drought permit; and
- following cessation of the drought permit, i.e. "post drought recovery" monitoring.

Key environmental parameters included in the monitoring programme comprise **designated sites**, **protected habitats**, **water quality** and **ecology** (including assessment of potential impacts on **Invasive Non-Native species**).

In addition **mitigation measures** will be implemented if the monitoring indicates it is necessary, e.g.

- targeted rescues of fish where necessary;
- targeted installation of woody debris features to increase localised flow velocity/scour; and
- creation of alternative refuges for fish; and
- fish passage modification

Communication:

- Surveyors will record information on "River Condition Assessment" forms (information to be included has been agreed with the Environment Agency and Natural England)
- Results will be fed back to Thames Water, EA, NE - and will inform agreement made for future actions, e.g. further monitoring and / or mitigation

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Q&A

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