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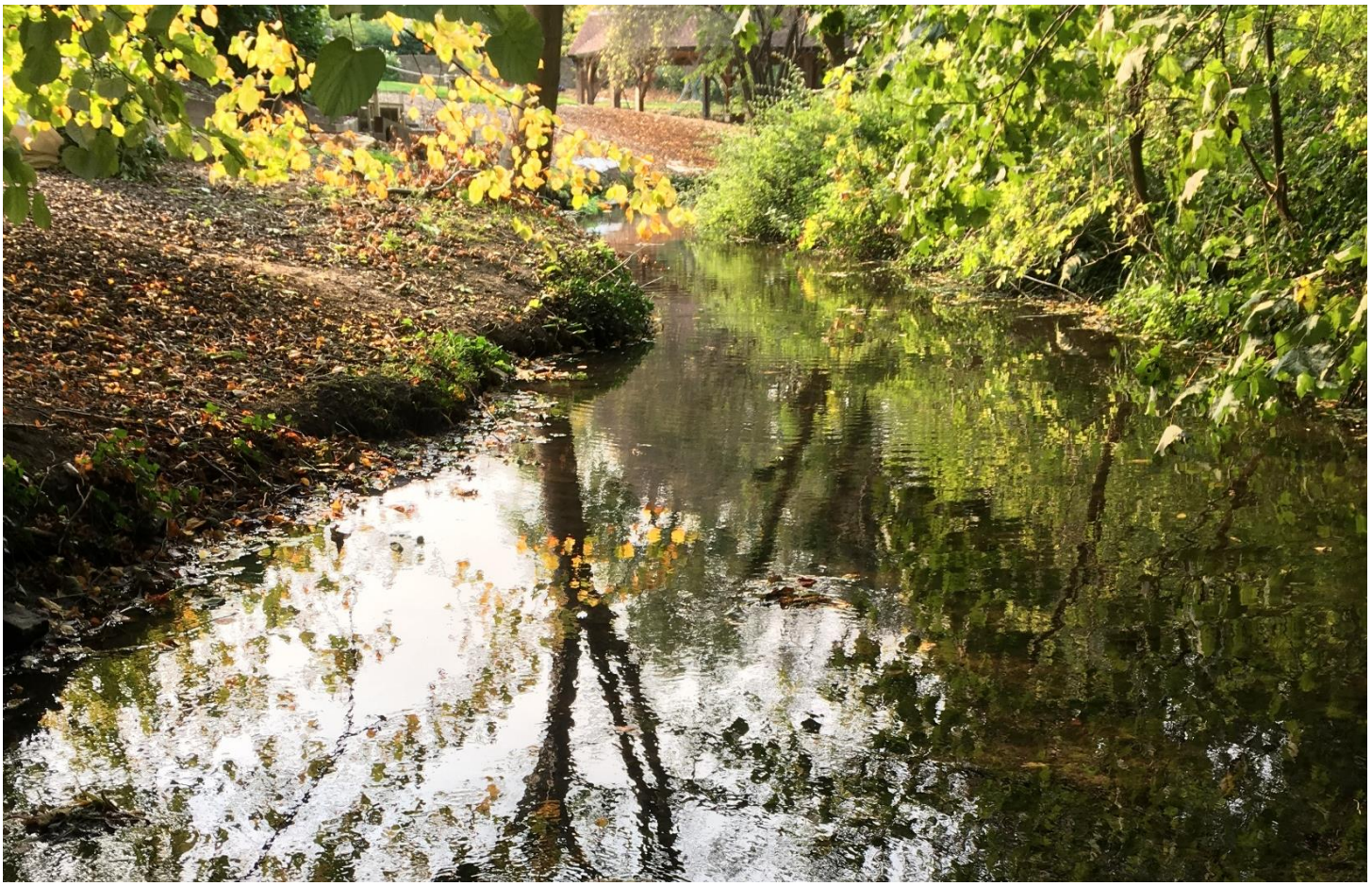

Strategic Environmental Assessment of Thames Water's Drought Plan 2022

Post Adoption Statement

Report for Thames Water

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Thames Water

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SEA of the Drought Plan: Post Adoption Statement

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Front cover image: *River Darent, Sundridge Drought Option*

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1 Introduction

1.1 Background to the Drought Plan

Water companies in England and Wales are required to prepare and maintain statutory Drought Plans (DPs) under Sections 39B and 39C of the Water Industry Act 1991, as amended by the Water Act 2003, and in accordance with the DP Regulations 2005 and the DP Direction 2020.

The Drought Plan provides a comprehensive statement of the actions Thames Water will consider implementing during drought conditions to safeguard essential water supplies to customers and minimise environmental impact. It is consistent with Thames Water's Water Resources Management Plan, the objective of which is to set the strategic plan for ensuring a supply-demand balance over a 25-year planning period.

Thames Water's current Final DP 2017 covers the period 2017-2022. Thames Water has updated its DP and the period encompassed by the Final DP 2022 will be 2022 - 2027. The next revision of the DP would be published in 2027.

1.2 The SEA Process

1.2.1 Overview of Strategic Environmental Assessment

Thames Water's Final DP has been subject to SEA in compliance with the SEA Directive[1], as transposed in England by the Environmental Assessment of Plans and Programmes Regulations 2004 (referred to as the 'SEA Regulations'). The SEA of Thames Water's DP started in 2020. A SEA Scoping Report was issued to the statutory consultees on 13 July 2020 and an SEA Environmental Report was produced and issued for public consultation alongside the draft DP in June 2021. A Statement of Response was prepared and issued by Thames Water on 20 September 2021, which explains the changes Thames Water will make to the Final Drought Plan (and accompanying documents, including the SEA) as a result of the consultation. The SEA Environmental Report was then updated in light of comments received.

Habitats Regulations Assessment (HRA) screening of the DP was also undertaken and helped to inform the SEA process. Following approval of the Drought Plan 2022 for publication by the Secretary of State on 4th August 2022, this SEA Post Adoption Statement is being issued to accompany the published plan in accordance with the provisions of Regulation 16.

1.3 Purpose of the SEA Post Adoption Statement

In accordance with Part 4 of the SEA Regulations, specifically Regulation 16 (see **Appendix A**), this SEA Post Adoption Statement describes:

- How environmental considerations have been integrated into the final DP (Section 2)
- How the Environmental Report has been taken into account (Section 3)
- How responses to consultation have been taken into account (Section 4)
- Reasons for choosing the final DP as adopted, and why other reasonable alternatives were rejected (Section 3)
- The measures that are to be taken to monitor the significant environmental effects of implementation of the final DP (Section 5).

[1] Directive 2001/42/EC

2 How Environmental Considerations have been Integrated into the Final Drought Plan

The Environment Agency Drought Plan Guidelines (DPG)[2] state that a drought plan sets out what actions a company will take before, during and after drought to maintain a secure supply of water. It also sets out how a company will assess the environmental effects of your actions to maintain supply and what you will do to mitigate for damage. This must set out how the effects of a drought and the actions taken under the plan will be monitored. The plan must also set out what mitigation and compensation measures you plan to make to minimise the impact of your actions on the environment.

Environmental considerations were incorporated into the development of Thames Water's DP from the outset. In a previous revisions of the Statutory DP (2016 and 2020), Thames Water undertook drought contingency studies and produced Environmental Assessment Reports (EARs) for the drought permit/order options included in Thames Water's DP. The EARs were prepared in collaboration with the Environment Agency and Natural England. The EARs were updated in 2022, with additional baseline information (where applicable) and prepared in accordance with the revised Environment Agency Drought Plan Guidance in consultation with the Environment Agency and Natural England.

SEA Screening confirmed that Thames Water's Drought Plan required both SEA and Habitats Regulations Assessment (HRA). The HRA of Thames Water's Drought Plan was undertaken in parallel with the SEA and is reported separately in the HRA Screening Report. The HRA screening process identifies whether each drought option in the drought plan (either alone, in combination or with other plans or projects) is likely to have significant effects on European designated sites, i.e. sites of international conservation importance. The findings of both the SEA and HRA have fed into the revision of the Drought Plan in an iterative process.

The SEA reviewed all the environmental and social effects of the full range of drought options included in Thames Water's draft DP. The updated EARs also supported the SEA with respect to the drought permit and drought order options.

Because of the nature of the consenting system for drought actions, a DP must include all measures that the company may progressively need to take as the severity of a drought increases, including those that would only be needed in the worst possible drought. These will typically have very significant environmental effects, but are extremely unlikely to be required in the period of the plan. As a result, DPs in general encompass a basket of measures that will only be implemented if and when required because of the unpredictable occurrence of a drought event, and thus the actual impact of the plan over its life is subject to significant uncertainties. Thames Water's DP therefore includes a range of possible measures to allow Thames Water to respond to a particular drought in the most appropriate way.

As a result of the differing nature of droughts and differing response of the range of available water sources to the characteristics of an ensuing drought, it is impossible to predict in advance which and how many of the measures will be required. However, there are a number of factors that help inform the anticipated priority of selection. For example, with respect to options requiring a drought permit or drought order, the potential for increased resource availability, raw water quality, network capability and likely environmental effects are taken into consideration.

The effects identified by the SEA were integrated into the draft DP issued to Defra in March 2021, which was then issued for public consultation in June 2021. The outputs of the SEA provided a comparative assessment of the environmental effects of implementing each drought option. The SEA provided commentary on characteristics of any significant adverse effects, highlighted options with lower impacts that could be selected in preference, consideration of major beneficial effects, identified options which should only be implemented as a last resort due to the potential significance of their adverse effects, and also identified combinations of options that may give rise to cumulative effects.

Thames Water will use these along with operational factors, to determine the order of implementation for each drought action in a future dry weather event. The SEA assists in the identification of the likely

[2] Environment Agency (2020*)* Water Company Drought Plan Guideline, December 2020 (Version 1.2)

significant environmental effects of Thames Water's drought options and determines how any adverse impacts might be mitigated. The SEA also provides information on the relative environmental performance of alternatives, and is intended to make the decision-making process more transparent. The SEA can, therefore, be used to support the timing and implementation of drought options within the DP. The environmental effects of each drought permit are summarised in Appendix C of the Drought Plan, including a summary of impacts which may be associated with drought permit implementation at different times of the year.

The SEA considered a wider range of impacts than required by the DPG for the environmental assessment of drought permits/orders, e.g. potential cumulative effects with other plans and programmes. Therefore, in the event of a drought, the SEA provides an additional information source and a comparative assessment of the environmental effects of implementing each drought option, including the potential for cumulative effects. Thames Water uses this information, along with operational considerations, to define which options are to be implemented in a drought.

3 How the Environmental Report Influenced the Drought Plan

The findings of the SEA Environmental Report (and associated HRA) have been used by Thames Water to help inform the development of its Drought Plan.

As stated in Section 2, the DP does not define specific programmes of measures which the SEA can influence (as is the case with Water Resource Management Plans). However, information from the Environmental Report, the HRA Screening Report and the updated EARs was incorporated into the DP Appendix C tables and used, together with operational considerations, to assist in assigning priority levels to the options for implementation in a drought. This information comprised effects of the individual options within each WRZ (including identification of mutually exclusive schemes) and cumulative effects within and between different WRZs; with existing Thames Water abstractions; and with neighbouring water company DPs. It is noted that the priority level assigned is indicative only and may change depending on circumstances at the time of requirement and may also be influenced through discussions with the Environment Agency.

Specific examples of how the findings from the SEA were integrated into the DP are described in **Table 3.1**. It should be noted that the SEA outputs were integrated into both the draft DP and the revised draft DP (following consultation responses) which was sent to Defra and the Environment Agency on 8 April 2022. Thames published the Final DP on 17 August 2022 after receiving permission from Defra to do so.

Table 3.1 SEA Findings and their Consideration in the DP

Finding / Output	How it was Integrated into the DP
Individual scheme assessments were undertaken. Potential cumulative scheme effects and mutually exclusive schemes were also identified.	On the basis of these assessments, SEA outputs were integrated into the DP by influencing the priority level identified for each scheme in each WRZ (as identified in Appendix C of the DP). Specific details are provided below.
Drought Option Effects – London WRZ	
The SEA and EARs confirmed that the Eynsford, Sundridge 1, Sundridge 2, Lower Thames and Waddon drought options could result in significant adverse effects on the environment. As identified by the SEA and EARs, the Horton Kirby ASR option, Wansunt option and Crayford options have relatively few effects on the environment.	As identified through the SEA and confirmed by consultation response, all other options in the London WRZ were prioritised above Eynsford, Sundridge 1, Sundridge 2 and Waddon drought options. This priority reflects the fact that the EA consider Sundridge and Eynsford to be the most sensitive DP options in the London WRZ, with Eynsford more sensitive than any other. The priority of the Horton Kirby ASR option (priority 2) Crayford Drought Permit is (priority 3) and Wansunt (priority 3) mirrors the above. Despite the Lower Thames drought option having significant effects, it has been assigned priority 1 in the DP due to the importance of this option to the drought resource required in the London WRZ.
As a result of the consultation process on the EARs (which informed the SEA), the Sundridge EAR is to be reviewed in order to confirm the potential impact of the drought option.	Additional environmental assessment studies for the Sundridge drought option are on-going. Thames Water has agreed with the Environment Agency that Thames Water will not apply for the Sundridge drought option without the agreement of the Environment Agency pending the

	outcome of the environmental assessment work and the Regulators have confirmed that Thames Water are able to include it in their Final DP2022.
Drought Option Effects – SWOX WRZ	
The SEA identified Gatehampton and the option to use the Oxford Canal as resulting in low environmental impacts. The SEA highlighted seven SWOX drought options as having potentially more significant environmental effects (Baunton 1, Baunton 2, Farmoor, Axford 2, Ogbourne EBH, Ogbourne 1 and Childrey Warren). Further modelling was also undertaken for some SWOX options as part of the EAR process.	Gatehampton and the option to use the Oxford Canal were assigned priority 1 in view of the low environmental impacts that the options are likely to have. Farmoor was also assigned priority 1 and identified as the principal significant option as it provides the greatest potential benefit of all SWOX options and has direct impact on critical reservoir storage. The SEA does identify some adverse environmental effects for this option, however, other SWOX drought options have been identified as having potentially more significant environmental effects. Meysey Hampton and Latton options were assigned priority 2 in view of the importance of these options to the drought resources that might be needed for SWOX WRZ. These options have been identified as having the potential to result in adverse effects on watercourses but these effects are likely to be less severe than other options available in the WRZ. The priority of the remaining options was based on potential environmental impact (as shown in the SEA) with Bibury at priority 5 due to impact on the River Coln, Ogbourne priority 7 due to impact on River Og, Baunton higher abstraction priority 8 due to impact on the River Churn, Ogbourne emergency boreholes priority 9 due to impact on the River Og and Kennet and Axford priority 10 and 11. The latter two options' (upper Kennet options) priority was agreed to be appropriate with respect to consultation responses. The SWOX modelling in the EARs enabled increased confidence in the environmental assessment of these options. This information fed into the SEA which created a greater certainty of effect when assessing potential impacts of the options.
Drought Option Effects – Kennet WRZ	
The principal option identified in the Kennet Valley is the option to vary the flow constraint condition at Pangbourne. The SEA identified Pangbourne as having significant adverse environmental effects relative to most other options in the Kennet Valley WRZ. Fobney emergency boreholes, provide significant potential gain and the EAR identifies the option likely to only result in minor adverse hydrological effects and relatively minor impacts on	The environmental impacts assessed in the SEA has been considered when assigning a priority order for the Kennet Valley Drought Permit options. The priority 1 option is the Fobney boreholes as they provide significant gain and are only identified to result in minor adverse hydrological effects and relatively minor impacts on environmental features. The Fobney Direct option provides significant gain, however, the SEA identifies a major hydrological impact in

environmental features. The Fobney Direct option provides a significant gain to the principle WTW serving the major demand area in the WRZ. However, the EAR and SEA identify a major hydrological impact on the Holy Brook between the Arrowhead control structure and its confluence with the River Kennet and moderate adverse effects for a range of environmental features.	addition to other moderate adverse impacts, therefore, is considered lower priority compared to the Fobney boreholes option.
Drought Option Effects – Guildford	
The options considered for the Guildford zone are a variation to the abstraction licence at Albury and additional abstraction from the Shalford source. Both sources have been proven to be robust to drought. The SEA identified that Shalford option would result in very limited adverse effects of negligible significance. Whereas the SEA identified a number of moderate adverse effects with respect to the Albury option. Amongst other things these adverse effects relate to the potential to impact on the flows in the Law Brook, which has suffered from low flows in the past.	The Shalford option was assigned a priority 1 because it is the option that provides potential benefit to the principal demand area of Guildford and also likely to have significantly less adverse impacts than the Albury option.
Cumulative Effects	
The potential for cumulative effects between a number of drought options was identified for a number of options: • Latton and Meysey Hampton • Axford 1 with Ogbourne 1 • Ogbourne 1 and Ogbourne Emergency Boreholes • Ogbourne 1, Ogbourne Emergency Boreholes, Axford 1 and Axford 2 with the West Berkshire Groundwater Scheme • Axford 2 with Ogbourne 1 and Ogbourne Emergency Borehole • Baunton 2 with Latton • Baunton 2 with Meysey Hampton • Baunton 2 with Bibury • Fobney Direct with Fobney Emergency Borehole • Farmoor and Gatehampton • Sundridge 1 with Sundridge 2 • Sundridge 1 with Eynsford • Sundridge 2 with Eynsford • Crayford with Wansunt	It is not appropriate to recommend alterations to the priority of options described in Appendix C of the DP in light of the potential for cumulative effects due to the range of potential hydrological scenarios possible at a time of drought. However, the potential for cumulative effects has been established (and identified in the DP) and will need to be taken into consideration should these drought permits be required.

The potential for cumulative effects between the Thames Water DP (the Waddon drought permit) and the SES Water DP was identified.	An assessment of the cumulative impacts of operating the associated drought permits simultaneously was undertaken in Summer 2018 and reviewed in 2022. However, in an evolving drought situation, further discussions with SES Water will be required in order to understand the likelihood of the drought permits being operated at the same time. Alternative drought options may need to be reviewed in order to determine the appropriate approach according to the prevailing drought conditions.

4 Consultation and Updates

4.1 Consultation on the SEA

The SEA Regulations require consultation at the scoping stage and on the assessments as documented in the Environmental Report. Consultation with the statutory bodies defined by the Regulations is mandatory at both stages. Although consultation with the public is only mandatory at the Environmental Report stage, Thames Water consulted both the statutory bodies and the public at both stages.

The SEA process comprised several consultation stages and updates as follows:

- The SEA Scoping Report, containing description of the route through screening, was issued on 13 July 2020 to statutory consultees for a five week period of consultation until 14 August 2020. Opinions were sought on the proposed scope and level of detail proposed for the SEA.
- The SEA Environmental Report was published alongside the Draft Drought Plan and draft HRA Screening Report on Thames Water's website on 7 June 2021 for public consultation and received a number of responses during the consultation period, which ran for a period of seven weeks ending 30 July 2021.
- A Statement of Response (SoR), including responses to comments on the SEA Environmental Report and the HRA Screening Report, was prepared by Thames Water and published on 20 September 2021 on Thames Water's website, setting out how Thames Water were taking the comments into account and the changes made to the DP as a result.
- Thames Water submitted a revised draft Drought Plan and associated documents (including a revised SEA Environmental Report) to the Secretary of State on 8 April 2022 for their review and approval.
- The SEA Environmental Report and SEA Post Adoption Statement will be published with the Final Drought Plan on Thames Water's website. A Final HRA Screening Report will be published at the same time.

Changes to the DP made as a result of consultation are described in the SoR and changes to the SEA made as a result of consultation are summarised in Section 4.2.

4.2 Consultation Responses

Table B.1 and **B.2** in **Appendix B** lists the responses to the consultation on the draft DP which relate to the SEA and HRA and the resulting changes made. These responses are included in the Statement of Response published on Thames Water's website https://www.thameswater.co.uk/media-library/home/about-us/regulation/drought-plan/drought-plan-2022/drought-plan-statement-of-response.pdf . The Environmental Report and HRA Report for the revised draft DP were updated and amended to take these representations into account.

5 Mitigation and Monitoring of the DP

5.1 Overview

Consideration of mitigation measures and monitoring of potential effects has been an integral part of the SEA process. Key stages of the SEA process include Task B5: *Mitigating adverse effects*, Task B6: *Proposing measures to monitor the environmental effects of plan or programme implementation* and Stage E: *Monitoring the significant effects of the plan or programme on the environment*). The SEA Directive also requires the significant environmental effects of implementing a plan to be monitored. The sections below describe:

- How these tasks have been addressed;
- How Thames Water intends to ensure that the mitigation measures and monitoring plans are implemented for any adverse effects that are identified; and
- The means by which the environmental performance of the DP can be assessed.

5.2 Mitigation Measures

Mitigation may be defined as a measure to limit the effect of an identified significant impact or, through the most successful application, avoid the adverse impact altogether, the latter being the preferred option.

Consideration of mitigation measures has been an integral part of the SEA process. The SEA appraisals have been based on residual impacts, i.e. those impacts likely to remain after the implementation of reasonable mitigation. Certain assumptions have been made regarding this:

- Where suitable mitigation measures are known and identified (e.g. as informed through environmental assessment reports, where available, or Thames Water's drought management option forms in the Final DP), these have been taken into account, such that the resultant residual impact has been determined.
- In line with recommendations made in the UKWIR SEA Guidance[3], the SEA appraisals have assumed the implementation of reasonable mitigation, such as the use of good construction practice. This is particularly applicable to unused supply-side options which are currently non-commissioned and which do not operate as 'business as usual', and would require recommissioning in the event of use as a drought option.
- Mitigation is an implicit component of abstraction licences which are issued and reviewed by the Environment Agency based on an assessment of the potential impacts on the environment. This is applicable to all supply-side options which are actions within existing abstraction licence limits which have been subject to the Environment Agency's Review of Consents process.

During implementation of a specific drought option, appropriate monitoring will be undertaken to track any potential environmental effects which will, in turn, trigger deployment of suitable and practicable mitigation measures.

It should be noted that Thames Water are currently developing a programme of potential mitigation measures for the drought permit options in advance of drought. This programme is being developed with the DP to start implementing measures over the coming AMPs. This work is ongoing and will feed into PR24 and therefore the results will not be available to include in the plan until the next round of updates to the Drought Plan.

[3] UKWIR (2021) Strategic Environmental Assessment and Habitats Regulations Assessment of Drought Plans (UKWIR Project WR/02/S). Prepared by Ricardo Energy and Environment

5.3 Monitoring Requirements

Monitoring is required to track the environmental effects to show whether they are as predicted, to help identify any adverse impacts and trigger deployment of mitigation measures.

As discussed in Section 2, water companies are already required to assess the environmental impacts of supply side drought measures included in a DP. The Water Industry Act 1991 and the Drought Plan Direction 2020 require that water companies include in their DP a statement of how they will monitor the effects (the Environmental Monitoring Plan (EMP)). This requirement is explained in the DPG which states *"you must carry out an environmental assessment and produce an environmental monitoring plan for each of your supply side actions in your drought plan."*

Section 4 (Monitoring) of the Environment Agency's "Environmental assessment for water company drought planning – supplementary guidance" (published July 2020) explains the function of monitoring required prior to implementation of the drought permit to establish the prevailing baseline conditions associated with environmental drought, as well as the monitoring to be carried out during implementation (particularly to inform and trigger any mitigation measures) and post-implementation.

As stated in Section 2 and Section 3, the EARs have been updated in accordance with Government regulations and good practice guidance, including the DPG. . The EARs include detailed EMPs in support of the DP and in compliance with the requirements of Section 6 (Environmental Assessment, Monitoring and Mitigation) of the DPG. The DPG requires the environmental assessment and EMPs to be updated regularly. The monitoring requirements will be assessed in more detail through this process. As described in the DP 2022, in the event of a drought requiring the implementation of drought option(s), Thames Water will review the requirement for environmental monitoring in consultation with the Environment Agency and Natural England.

The EMPs fulfil three main requirements of the DPG and involve three monitoring periods: at the on-set of environmental drought, during implementation of the drought permit/order and post-drought permit implementation. Monitoring is undertaken for environmental features that are identified as sensitive to the impacts of the drought permit/order. A walkover survey forms a key activity to each of the monitoring periods.

EMPs are only developed for drought options that require a drought order/permit application, and therefore do not include monitoring for significant effects identified by the SEA with respect to demand side drought options or supply side drought options that do not require a change of licence. Furthermore, the scope of the EARs and related EMPs (as prescribed by the DPG) does not cover all the potential significant effects identified by the SEA, for example, significant effects identified under the SEA topics 'Material assets and resource use' and 'Air and climate'.

With respect to the impacts identified in the SEA that are not covered by EARs and associated EMPs, many company level impacts, such as carbon emissions, are monitored and reported annually by Thames Water in the Annual Performance Report[4].

Table 5.1 identifies indicators and monitoring organisations against each of the objectives for which significant effects were assessed and which are not covered by the EMPs developed for drought options that require a drought order/permit application.

Table 5.1 SEA Monitoring Parameters outside the scope of DP EMPs

SEA Topic	SEA Objective	Indicator	Organisation
Population and Human Health	2.2 To protect and enhance the water environment for other users including recreation, tourism navigation, as well as terrestrial recreational	Complaints to Thames Water customer services Complaints about the water industry	Thames Water Consumer Council for Water

[4] Thames Water Utilities Ltd (2021) Annual Report and Sustainability Report 2020/21.

	resources (including National Trails and Public Rights of Way).		
Material assets and resource use	3.1 To reduce, and make more efficient, the domestic, industrial and commercial consumption of resources (including energy), minimise the generation of waste, encourage its re-use and eliminate waste sent to landfill.	Operational energy consumption (kWh/Ml of water treated) e.g. for desalination options	Thames Water
Air and Climate	6.1 To maintain and improve air quality	Local Authority routine air quality monitoring data	Local Authorities
	6.2 To minimise greenhouse gas emissions	Net greenhouse gas emissions per Ml (million litres) of treated water (kg CO_2 equivalent emissions per Ml)	Thames Water

6 Availability of Documents

The adopted final DP and accompanying SEA documentation is available on the Thames Water's website at:

https://www.thameswater.co.uk/about-us/regulation/drought-plan

The documents are also available for inspection at:

Thames Water Utilities Limited,

Clearwater Court,

Vastern Road,

Reading RG1 8DB.

If you would like to request copies of the DP or associated documentation, please email Steve.Tuck@thameswater.co.uk.

Appendix A SEA Post Adoption Procedures

Part 4 of The Environmental Assessment of Plans and Programmes Regulations 2004 (referred to as the “SEA Regulations”) requires Thames Water, 'as soon as is reasonably practicable' after the adoption of the DP, to:

1. Make a copy of the DP and Environmental Report available at its principal office for inspection by the public at all reasonable times and free of charge;
2. Notify the public and potentially affected parties of their availability;
3. Inform the statutory consultees and other parties who responded;
4. Issue a statement containing:
    - How environmental considerations have been integrated into the DP;
    - How the environmental report has been taken into account;
    - How consultation responses have been taken into account;
    - The reasons for choosing the DP as adopted;
    - Measures to monitor the significant environmental effects of the DP.

Requirements 1 to 3 have been fulfilled by the publication of the DP and SEA documents on Thames Water’s website and informing all consultees of the publication. In addition, with respect to 1, a hardcopy will be available for inspection on request.

The publication of this SEA Post Adoption Statement fulfils Requirement 4.

Appendix B SEA and HRA Related Comments on the Draft Drought Plan

Table B.1 Consultation Responses on the draft DP relating to SEA, extracted from the Statement of Response

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
1	Port of London Authority	Table C.15 - Other potential impacts of climate change on the water environment and water related infrastructure includes more intense rainfall can lead to faster river flows, impact on water quality, e.g. increase water temperature, change in salinity, change in the level of dissolved oxygen; flood management might include establishing new flood defences	No response required	Table C.15 updated
2	Port of London Authority	Both reduction in residual flows at Teddington options have moderate or minor adverse impacts to biodiversity. Major and moderate impacts to biodiversity from Lower Thames drought permit.	No response required	No action required
3	Port of London Authority	Page 92 – fragmentation of fish community mitigation to incorporate physically moving migrating fish upstream or downstream of barriers. If this a feasible option? Is this intended to be by individual? Capture and release on mass? Has the potential distance of the movement been considered?	Where habitat fragmentation occurs, fish passes could temporarily be modified to maintain passage (where possible). For other barriers, we will consider 'Trap & Transport' of concentrated abundances of migrating fish accumulated below impassable barrier/s to spawning grounds upstream of the impacted reach (where environmental parameters such as dissolved oxygen and temperature allow). This will include large population and will not be limited to single individuals.	No action required
4	Port of London Authority	Page 94 – Not sure that INNS surveys could be classed as a mitigation?	The mitigation measures for INNS will be reviewed to consider measures that are practical to reduce the distribution of INNS.	No action required
5	Natural England	The dDP has complied with policy and legislation set out in Annex 2 relating to protected landscapes. The SEA Environmental Baseline Review (SEA Appendix C, section C.8) discusses policies relating to landscape and visual amenity and identifies relevant protected landscapes and their key	This comment is noted. We will make a minor amendment to the SEA to correct that some long-distance trails are incorrectly referred to as National Trails in	Assessment Tables (Appendix E) have been reviewed and

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		characteristics including Areas of Outstanding Natural Beauty (AONBs) and National Parks. Information about Natural Character Areas (NCAs) is also presented. A SEA objective relating to landscape and visual amenity is included, and assessment against this objective appears sufficient at this strategic level. Minor or negligible adverse impacts have been identified for some drought options, mostly relating to visual impacts of lower water levels in rivers and streams. Some of the visual impacts concern views from public rights of way, including National Trails. The National Trails relevant to Thames Water's area are correctly mapped in the SEA Environmental Baseline Review. However, some additional long-distance trails are incorrectly referred to as National Trails in the assessment tables (the Darent Valley Path, Oxford Canal Walk and Downs Link).	the assessment tables (the Darent Valley Path, Oxford Canal Walk and Downs Link).	updated where applicable
6	Natural England	Impacts on SSSIs are assessed against the biodiversity SEA objective. The importance of SSSIs is discussed in the SEA Environmental Baseline Review, although sites within Thames Water's area are not listed (except where they overlap with Habitats sites). Natural England recommends that the SEA should include a list of SSSIs which have been considered in the assessment, and explain how potential impacts on interest features have been identified and screened. The assessment tables (SEA Appendix D) mention impacts on SSSIs where they have been identified, but it is not always clear how this relates to the interest features of the site, or whether any mitigation is proposed. There is generally no information about what sites have been screened out. This is presumably because the SEA is highlighting key impacts which have been identified in the EARs. However, Natural England	We will include in the SEA a list of SSSIs that have been considered and explain how potential impacts on interest features have been identified and screened. We will include more detailed commentary in relation to the SEA objectives in instances where SSSI impacts have been assessed. We have provided our EAR methodology to Natural England and we will outline the details in relation to SSSI assessment in summary in the SEA.	Section C.1.1 - Table C2 has been added to this section to list SSSIs considered in assessment Assessment Tables have been reviewed and updated where applicable

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		would like to see more detailed commentary in relation to the SEA objectives. In many cases against the biodiversity objective where impacts on SSSIs have been identified, the value of the receptor has been marked as medium. SSSIs are of national importance and should have a high value rating. It is not clear how SSSIs have been identified for further assessment in the EARs. There is reference to an Environmental Assessment Methodology, but Natural England could not find this amongst the documents provided. It would seem that for surface water permits, sites which are connected to or within 100 metres of the zone of influence have been screened. No detail on the distance used for groundwater permits is provided, and in some cases the cone of depression or zone of influence is not clear, with no map provided. In the EAR for the Sundridge 2 drought permit, the screening has not included Darenth Wood SSSI, despite being adjacent to reach 2. Also, Natural England would like to see West Thurrock Lagoon and Marshes SSSI being considered in the assessment, as the study reach stops just shy of this site. Generally, the interest features of SSSIs have been identified in the EARs, but the current site condition is not taken into account. Thames Water should check that the latest designated site information has been used in the SEA and EARs, including Supplementary Advice to the Conservation Objectives (SACOs) and any recent condition assessments. This could provide vital information about the likely resilience or vulnerability of a site during drought, how it might recover, and the potential mitigation measures that might be needed. In many cases, there is insufficient detail about how the degree of impact has been identified. For example, in the EAR for Baunton 2, most impacts on SSSIs have been deemed	We will provide more information to justify the assessment of potential SSSI impacts for Sundridge, Baunton and the Lower Thames. We will clarify how the drawdown impacts have been screened, this is included in the EAR methodology but we will summarise it briefly in the SEA. This methodology provides a detailed approach for screening protected sites (including SSSIs) and the justification for omission of certain sites/habitats/features	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		negligible, some based on not being hydrologically connected. There is not always sufficient evidence to support this conclusion, and where hydrological connectivity is uncertain (e.g. Whelford Meadows SSSI) monitoring should be identified to verify the conclusions. In the Lower Thames EAR, fens and reedbeds in Barn Elms Wetland Centre SSSI are screened out for further assessment under the assumption that the site is manmade and therefore has no direct connection to the estuary. Natural England suggests further review to verify these claims. It is also unclear about how drawdown impacts have been screened, and the reasoning behind what levels of drawdown exclude further assessment needs to be explained. For example in the EARs for Sundridge 1 and 2, Woldingham and Oxted Downs SSSI haven‘t been assessed further as drawdown is expected to be less than 5 cm. Our concerns about the limitations of the mitigation plans for SSSIs are discussed in section 1.2.8 below.		
7	Natural England	The SEA includes information about carbon emissions, climate change impacts and national policy in the Environmental Baseline Review, and has SEA objectives to reduce greenhouse gas emissions‘, and to consider the need for adaptive measures for climate change‘. The assessment relating to greenhouse gas emissions relates to the carbon footprint/energy consumption associated with the drought permit. Most drought options are marked as beneficial against the adaptive measures‘ objective, as they increase the resilience of water supplies in drought. Natural England doesn‘t consider the use of unsustainable abstractions and drought permits to be adapting to climate change, rather they are a short-term	We will update the SEA to reflect that the use of Drought Permits is to ensure continuity of supply is beneficial for maintain water supply under climate change but recognise that that is preferable not to have to use potentially damaging drought permit options. This will be addressed through developing greater resilience to more severe droughts through our statutory WRMP process. We will review the assessment of environmental receptors which are particularly vulnerable to drought (and	Section C.6

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		response to climate change impacts. So we do not think this beneficial effect significance category is appropriate. The SEA assessments go some way to consider adaptation and resilience of wildlife to climate change, in so far as they consider how environmental changes will impact certain species and habitats where they can't adapt or become constrained. But there is little in the way of identifying solutions that support adaptation. The SEA and EARs could be used to identify environmental receptors which are particularly vulnerable to drought (and therefore climate change), and to identify mitigation measures that could be put in place now, to improve their resilience when a drought occurs. This could support Thames Water's general duty to conserve biodiversity (see section 2.2.2), for example by increasing habitat quality and connectivity.	therefore climate change), and to identify whether further mitigation measures could be included in our mitigation plan. We will clarify in our plan that we are developing a programme of potential options to provide resilience to the impacts of drought permits options and that this will be implemented in AMP8. The Drought Plan is in place for 2022-2027 and the impacts of climate change are addressed through our WRMP. We are working through our WRMP to improve our resilience to drought, so that we are less reliant on the use of drought permits in future and this increased resilience will take into account climate change impacts. The SEA findings relating to Objective 6.3 "to consider the need for adaptive measures for climate change" (which relate to the indicator question associated with each option "will it improve resilience/adaptability to likely effects of climate change, e.g. by increasing water storage capacity, or transferring water from areas with surplus?") are deemed to be positive for all options due to the beneficial effects associated with the maintenance of essential public water supplies and improved resilience of water supplies to	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			drought, and so we consider that the findings here are valid. Climate change is addressed in the following indicator question under biodiversity, flora and fauna: "Will it contribute to the sustainable management of natural habitats and ecosystems, i.e. within their limits and capacities taking into account climate change adaptability?" which informs the objective 1.1 "To conserve and enhance biodiversity, including designated sites of nature conservation interest and protected habitats and species (with particular regard to avoiding the effects of over-abstraction on sensitive sites, habitats and species) and to protect and enhance natural capital and the biodiversity and ecosystem services that contribute to the economy".. The climate change impact on water resilience has also been covered in the Water topic (see objective 4.3 "To ensure appropriate and sustainable management of abstractions (or compensation flow) to maintain water supplies whilst protecting ecosystem functions that rely on water resources". In the context of drought planning, individual drought options are taken to constitute "alternatives". Each of these "alternatives" were therefore assessed	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			using the appraisal framework set out in Table 4.2 of the Environmental Report, based on the methodology proposed and consulted on in the SEA Scoping Report. The SEA is therefore intended to provide information on the relative environmental performance of alternatives, in order to make the decision-making process more transparent. Detailed assessment is not an SEA requirement - this is undertaken for each drought option and is documented in the EARs which are used to help inform the SEA. The EARs identify environmentally sensitive features that have the potential to be impacted by the implementation of the drought options and set out mitigation and monitoring that could be implemented to alleviate any impacts. We will work to identify where possible mitigation measures that could be implemented prior to drought. We are currently working to identify options to introduce mitigation in relation to drought permits and we will describe this in our revised draft Drought Plan. This work is designed to identify options that could then be implemented in AMP8 and in following AMPs. The extent, location and type of mitigation measures will also be informed by walkovers that are completed at the onset of drought.	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
8	Natural England	The dDP has not complied with policy and legislation set out in Annex 2 relating to Marine Conservation Zones (MCZs). MCZs are mentioned in the SEA Environmental Baseline Review (one sentence explaining what they are), but no sites have been identified as relevant to the Drought Plan. The Thames Estuary MCZ is also mentioned in the assessment table for the Lower Thames Drought Permit (SEA Appendix D), but with no discussion of how features of the site might be affected. There appears to be no further reference to MCZs anywhere in the dDP, SEA or EARs. The Thames Estuary became a recommended MCZ (an rMCZ) in 2012. In 2018 the rMCZ was revised and split into two sites comprising the Upper Thames Estuary rMCZ and Swanscombe rMCZ. Swanscombe MCZ was designated in 2019, and its features are the tentacled lagoon worm Alkmaria romijni and intertidal mud6. The Upper Thames Estuary rMCZ was not designated. Thames Water must consider whether any of its drought plan options might impact Swanscombe MCZ and its interest features, alone or in combination with any other plans or projects (e.g. the London Resort and Lower Thames Crossing). The MCZ should be mentioned in the SEA Environmental Baseline Review and screened for potential impacts in the EARs and SEA for the Lower Thames Drought Permit option, and for any other relevant schemes. Currently, the Lower Thames EAR has only assessed impacts as far as London Bridge, but no clear evidence is presented to suggest that impacts will stop at that point.	We have no drought sources that have an impact on the Swanscombe MCZ. The only drought option that would affect the Upper Thames Estuary is the Lower Thames Drought Option. The Upper Thames Estuary MCZ was not designated. We will clarify the lack of potential impacts on MCZs from our drought options in the SEA alone and in combination. We will clarify the evidence for the impact of the Lower Thames Drought Permit option only having impact as far as London Bridge.	Section C.1.1
9	Natural England	The SEA identified some in combination and cumulative impacts associated with some combinations of drought plan options. Where potential impacts are identified, it would be helpful to assess the impacts against the SEA objectives and appraisal framework, to aid decision-making about option	We will clarify in the SEA against the SEA objectives and appraisal framework where in combination and cumulative impacts have been identified.	Section 6.3

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		prioritisation. For example, the assessments for some combinations of options identified cumulative flow and water quality impacts on the River Kennet, but there is no mention (in this section) of the fact this river is a SSSI and is, therefore, a high value receptor. The assessment for Ogbourne 1 and the Ogbourne Emergency Boreholes options concludes that cumulative impacts on the River Kennet are minor, despite lower flows (of up to 10%) and a delayed recovery time. The assessment should consider impacts on SSSI interest features and current SSSI condition, and the SSSI status should be reflected in the significance category. Natural England notes that in combination and cumulative assessments have not yet been completed for the Baunton 2 option (in combination with Latton, Mersey Hampton and Bibury). These will be completed and submitted with the final drought plan. We also note that the assessments in the SEA and EARs only consider the cumulative and in combination effects of drought options being used concurrently, and not if a second drought permit were needed directly afterwards. If a situation arose where successive drought permits were needed for more than six months, cumulative impacts would need to be considered in further detail at the time of application. Natural England advises that further assessment of such impacts is needed to ensure the EARs are application ready. There are numerous permits that influence the same catchment with an overlapping zone of influence, e.g. Fobney Direct, Fobney Emergency Boreholes and possibly Pangbourne. An assessment of in combination and cumulative impacts with other plans and projects has also been undertaken, and no such impacts have been identified.	We will update the Ogbourne assessment to address the River Kennet SSSI interest features and clarify why this is considered minor. We have agreed an approach to the potential need for implementation of drought permits if a situation arose where drought permits are needed for more than 6 months. We will clarify this process in the SEA. The in-combination assessment within the SEA will be reviewed and updated (where required) in view of the comments provided.	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
10	Natural England	Table 7.1 (in the SEA) provides examples of the type of monitoring and information-gathering that will be undertaken before, during and after drought, but for many of the potential impacts identified (including impacts on SSSIs, macrophytes, invertebrates and priority habitats) mitigation measures during a drought situation are not suggested or are deemed not possible. For example, the EARs for Sundridge 1 and 2 identified an impact on the bird assemblage feature of Sevenoaks Gravel Pits SSSI but stated that —Maintaining water levels in the main lake and therefore wetland habitat for wintering birds is not feasible in drought conditions. As such mitigation may focus on post drought habitat improvements to benefit the wintering bird population of the site. For the Baunton 2 permit, Whelford Meadows SSSI is not mentioned in the mitigation plan, despite impacts being identified. Given the significant risks to wildlife that have been identified for many drought options, Thames Water should consider whether there are habitat improvement or enhancement measures that could be implemented now, to increase the resilience of habitats and species during drought. Such mitigation, in advance of a drought, is not discussed in the SEA. One of the mitigation measures suggested to manage the impact of increased predation on fish communities is the use of bird scarers at significant locations. This method should be used with caution, taking account of the resulting impacts on bird communities which might also be under stress during a drought. There would need to be confidence that birds would have sufficient good quality adjacent habitat to move to and alternative food sources. At sites that are designated for relevant bird features, this is unlikely to be an acceptable option.	We are currently developing a programme of potential mitigation measures for our drought permit options in advance of drought. This programme is being developed now with the plan to start implementing measures over the coming AMPs. We have added the following text to Section 6.1.4 ‘We are currently working to identify potential options to improve environmental resilience of our rivers to improve their robustness in times of Drought. This project is reviewing all potentially impacted reaches identified in our EARs and assessing what river restoration options might improve the environmental resilience in the area should there be a drought and / or a need to implement Drought Permits. This work is ongoing at the moment and will feed into PR24 and therefore the results will not be available to include in our plan until the next round of updates to our Drought Plan.’’ We will update the mitigation plan to confirm that bird scarers would only be used where it is possible for birds to safely move to alternative habitats. We will review and confirm whether the Whelford Meadows SSSI was included and screened out for assessment and add further justification (if required). Winter	Section C.1.1 - Table C2 has been added to this section to list SSSIs considered in assessment Section 7.1 of SEA has been reviewed and amended to reflect revisions that have been undertaken in the EARs

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		Post-drought monitoring does not constitute mitigation (as is implied in some parts of this table), although it may inform decisions about suitable mitigation or compensation measures that will support ecological recovery. Post-drought mitigation measures are not suggested. This is also the case in some EARs. For example, in the EAR for Baunton 2, a moderate adverse impact on the fine-lined pea mussel is identified. The EAR states that mitigation for this species during a drought is not possible and that post-drought mitigation measures should be triggered by population assessments. It goes on to describe how the population will be assessed but does not explain what mitigation might be possible if the surveys show the population to be impacted.	flooding of meadows should not be impacted as the drought option will not be in place during winter months. The EARs identify environmentally sensitive features that have the potential to be impacted by the implementation of the drought options and set out mitigation and monitoring that could be implemented to alleviate any impacts. We will work to identify where possible mitigation measures that could be implemented prior to drought. We are currently working to identify options to introduce mitigation in relation to drought permits and we will describe this in our revised draft Drought Plan. This work is designed to identify options that could then be implemented in AMP8. The extent, location and type of mitigation measures will also be informed by walkovers that are completed at the onset of drought.	
11	Natural England	Section 7.3 of the SEA (Monitoring) states that monitoring would occur at the following three stages, and examples of what this might consist of are provided in Table 7.1: 1) At the on-set of environmental drought 2) During implementation of the drought permit/order 3) After the drought. Monitoring may also be required in advance of a drought, and this is discussed in the EARs. For example, the Kennet Valley and SWA EARs confirm that recent monitoring (up to 2018/19)	We will amend our monitoring plan to set out the monitoring sites we will use in a drought. The sites we will use will be those that we have used for the drought permit baseline monitoring as this will provide a basis for comparison with the long-term record, we are building up through the ongoing monitoring that has been put in place and agreed with the EA. This monitoring is designed to identify the adverse effects of drought options and to	See EARs

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		has been done for the key permits which have impacts, and more monitoring is proposed between 2020-2024. This is good. Having good baseline data about environmental quality, species distribution and hydrology is important to use as a comparison during drought, to assess the severity of environmental impact and to identify when and where mitigation is required. Baseline data can also help inform the assessment of risks and potential mitigation requirements, for example in understanding locations that are important for particular species (e.g. dragonfly breeding habitat). Pre-drought monitoring may also be required to validate assumptions made in the assessments, where robust data and evidence are lacking. EARs should identify where there are data gaps that need to be filled, and Thames Water should take steps to gather such data as soon as they can, and to update their assessments and mitigation plans accordingly. For some options, information about what monitoring will involve is fairly generic and needs more detail. For example, the monitoring plan for the Kennet Valley EARs only provides a detailed monitoring plan for one reach affected by the Fobney Direct permit, whereas three reaches have been identified with a moderate hydrological impact. No detailed monitoring information is provided for the other three drought permits in the Kennet Valley WRZ. A detailed environmental monitoring plan is needed for all options if the EARs are to be application ready.	assess recovery after the implementation of drought options. We will set out the proposed monitoring timings to address the period of recovery from a drought. We will continue to review our drought permit baseline monitoring to ensure it is up to date to support our drought permit options.	
12	Environment Agency	It is not clear how the findings of the Environmental Report have been incorporated into the draft drought plan to reduce environmental impact and/or enhance environmental benefit. We expect the company to clarify how the SEA findings have been incorporated into the plan to reduce environmental impact and/or enhance the environmental benefit.	The findings of the SEA have been incorporated into the priority use of our Drought Options during a drought. The outcomes have allowed us to prioritise the least environmentally damaging sources first, leaving the ones likely to have the most significant environmental impacts as lowest priority, We have updated the plan	See Post-Adoption Statement

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			to add the following text to This will be clarified in section 1.5.3 of our Drought Plan. 'We have set out a priority order of use for our Drought Permit options in Appendix C for each Water Resource Zone (WRZ). This priority order was based on a combination of assessment, for each DP option, of the volume provided, the lead time to bring it on-line and the potential environmental impact of the option. We have used the information from the SEA to confirm the priority order of the DP options in relation to the environmental impact of the options. In each case the priority order has been confirmed based on the assessed environmental impact.'	
13	Historic England	As the plan may seek to modify the water environment the Thames Water Drought Plan has the potential to affect waterlogged archaeological deposits that currently survive in adjacent areas; and may also involve construction activities that may remove floodplain/ coastal/estuarine deposits, which could contain as yet unrecorded and non-designated archaeology (often deeply buried within the sequence of 'natural' deposits and potentially waterlogged) that may potentially be of national significance. The Thames Water Drought Plan, consequently, should consider the following matters:	We acknowledge Historic England's concerns regarding the consideration of impacts on the historic environment but would note that the effects related to the Drought Plan are considerably different to those related to other plans such as Water Resource Management Plans. Drought options generally involve a change to operational conditions associated with a change in abstraction arrangements at existing intakes and consequent changes to flow conditions and therefore there is no construction phase associated with these options. The drought permit/orders would only be implemented in a severe drought and therefore the operational effects would be experienced against a baseline of a naturally occurring drought.	No action

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			In the EARs, the assessment of impacts on the historic environment has considered the sensitivity of each feature to changes in the water environment. Therefore, where no water dependent sites have been identified in relation to a drought option, then no further assessment has been undertaken as the effects of drought permit/order implementation are primarily related to changes in river flow and level changes. For those options which involve a construction phase, the assessment also considers any effects related to construction activity. Guidance on the objectives and content of Drought Plan Environmental Monitoring Plans (EMP) is set out in Section 4 and 5 of the Environment Agency "Environmental assessment for water company drought planning supplementary guidance (DPG)". The DPG indicates that any drought plan should be accompanied by an EMP that sets out: • on-going baseline monitoring to inform sensitivity and impact assessments. • the monitoring that will be implemented to reduce uncertainty identified in the assessment of either the sensitivity of the environment or impacts on features considered in the detailed assessment. • the in-drought and post-drought (recovery) monitoring that will be carried	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			out to understand the actual impact of drought options. The DPG also requires Thames Water to set out a mitigation plan following the assessments of potential impacts associated with each drought management action. In particular, the DPG indicates that any drought plan should be accompanied by an EMP that sets out: • mitigation measures to reduce adverse impacts on the environment of supply side drought options; and • compensation measures for adverse effects that remain after mitigation measures have been applied. Based on this assessment it should be noted that no significant impacts on archaeological or palaeoenvironmental remains have been identified in relation to our Drought Plan options, and consequently, no monitoring is considered to be required to support our Drought Plan.	
14	Historic England	The potential impact of water catchment and abstraction measures on heritage assets and their settings, including impacts on water-related or water dependent heritage assets;	See overall response.	No action
15	Historic England	The potential impact of changes in groundwater flows and chemistry on preserved organic and palaeoenvironmental remains: where ground water levels are lowered as a result of measures to reduce drought, this may result in the possible degradation of remains through de-watering, whilst increasing groundwater levels and the effects of re-wetting/changes in	See overall response. We have no Drought Plan options that would bring about changes in salinity through coastline modification and therefore no changes are required.	No action

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		salinity brought about by coastline modification could also be harmful;		
16	Historic England	The potential impact of hydro-morphological adaptations on heritage assets: this can include the modification/removal of historic in-channel structures, such as weirs/coastal and estuarine features such as historic sea defences; as well as physical changes to rivers/the coastline with the potential to impact on archaeological and palaeoenvironmental remains;	We have no Drought Plan options that would include the modification/removal of historic in-channel structures, such as weirs/coastal and estuarine features such as historic sea defences; nor do we have options that would result in significant physical changes to rivers/the coastline with the potential to impact on archaeological and palaeoenvironmental remains; No changes required.	No action
17	Historic England	The potential for unrecorded deeply buried and waterlogged archaeology within the 'natural' floodplain/estuarine/coastal deposit sequence;	See overall response, no changes required.	No action
18	Historic England	The opportunities for conserving and enhancing heritage assets as part of an integrated approach to drought management, this includes sustaining and enhancing the local character and distinctiveness of historic townscapes and landscapes;	Our Drought Plan options would not have any impact on the distinctiveness of historic townscapes and landscapes. No changes required.	No action
19	Historic England	The opportunity for increasing public awareness and understanding of appropriate responses for heritage assets in dealing with the effec ts of drought as well as the design of measures for improving resilience	The focus of our Drought Plan is to ensure continuity of supply during drought periods, through a combination of demand and supply side measures. and the educational and engagement focus in our Drought Plan is necessarily on water conservation rather than increasing awareness of heritage assets. Our plan also addresses the impact on the environment of drought permit options through our EAR assessments and also where relevant will include assessment of risk to underground heritage assets although as stated above	No action

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
			the potential for impact on these assets is considered very low. Therefore, we do not consider any changes to our plan are necessary to address this comment. No changes required.	
20	Historic England	The opportunities for improving access, understanding or enjoyment of the historic environment and heritage assets as part of the design and implementation of flood risk management measures.	The focus of our Drought Plan is to ensure continuity of supply during drought periods through a combination of demand and supply side measures and the educational and engagement focus in our Drought Plan is necessarily on water conservation rather than increasing awareness of heritage assets. Our plan also addresses the impact on the environment of drought permit options through our EAR assessments and also where relevant will include assessment of risk to underground heritage assets although as stated above the potential for impact on these assets is considered very low. Therefore, we do not consider any changes to our plan are necessary to address this comment. No changes required.	No action
21	Historic England	Historic England recommends the collection and assessment of specific baseline information which could include identifying the potential for buried, waterlogged archaeological and palaeoenvironmental remains of significant interest and fragility that can be associated with river valleys, floodplains, estuaries, coastal and wetland areas. In particular, this exercise should take account of areas of archaeological importance and the potential for unrecorded	Our Drought Plan includes assessment of impact of Drought Permit options that could affect groundwater levels through our EARs. These EARs take into account scheduled buried heritage assets where relevant although as stated above the potential for impact on such assets is very unlikely and very few have been identified which may be at risk. In view of the nature of the drought options and their impact as	No action

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		archaeology (NPPF para.l92) and seek to establish the following: *the significance of the archaeological remains? *its condition, the burial environment and state of preservation? * the likely impact of development activity (e.g. potential removal or dewatering from the proposed scheme) on that significance and state of preservation?	outlined above we do not consider that it would be beneficial to undertake further collection and assessment of specific baseline information which could include identifying the potential for buried, waterlogged archaeological and palaeoenvironmental remains of significant interest and fragility that can be associated with river valleys, floodplains, estuaries, coastal and wetland areas.	
22	Historic England	Baseline information in such environments archaeological remains can be: * deeply buried archaeological remains, which means that they are unlikely to be identified by standard approaches; * waterlogged archaeological remains, which would mean they are likely to be rare and potentially important but might require greater resources to excavate and subsequently deal with. * Indirectly impacted archaeological remains: currently well-preserved known and unrecorded, designated a nd non-designated buried archaeology in the vicinity which may be adversely affected by changes to the water environment.	Our Drought Plan includes assessment of impact of Drought Permit options that could affect groundwater levels through our EARs. These EARs take into account scheduled buried heritage assets where relevant although as stated above the potential for impact on such assets is very unlikely and very few have been identified which may be at risk. In view of the nature of the drought options and their impact as outlined above we do not consider that it would be beneficial to undertake further collection and assessment of specific baseline information which could include identifying the potential for buried, waterlogged archaeological and palaeoenvironmental remains of significant interest and fragility that can be associated with river valleys, floodplains, estuaries, coastal and wetland areas. No changes required.	No action
23	Historic England	In accordance with the NPPF where nationally important archaeology owes its significance to waterlogging and is in	We note this requirement to avoid harm in cases where nationally important	No action

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in SEA Environmental Report
		proximity to the scheme, to conserve its significance and avoid harm, changes in the water environment should be avoided which may be cause harm.	archaeology is in proximity to a scheme. However, our assessments have not identified any such archaeology that would be affected by our Drought Plan options. No changes required.	
24	Historic England	Waterlogged archaeology may be nationally important if it is well preserved, rare, of exceptional significance and evidence exists for it to be understood in terms of its contemporary landscape context.	Noted.	No action

Table B.2 Consultation Responses on the draft DP relating to HRA, extracted from the Statement of Response

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
1	Natural England	It appears that the HRA may have used outdated information regarding designated sites. Appendix 1 (European Designated Site Summaries) needs updating. This appendix should reflect information available in the Supplementary Advice to the Conservation Objectives (SACOs), Site Improvement Plans (SIPs) and condition assessments. The HRA screening assessments (and EARs if relevant) should be reviewed in line with the latest information available. European designated sites are now called Habitats sites. The column labelled 'Site vulnerability' shows evidence of being out of date. For example, there is reference to AMP4 and the Environmentally Sensitive Areas (ESA) scheme (which was closed to new applicants in 2005, and replaced by a new scheme), and it states that abstraction pressure in the Lee Valley SPA —will be addressed through the Environment Agency review of consents. This review concluded in 2008.	We will update the HRA to reflect the most recent information in relation to Habitats sites, including the Supplementary Advice to the Conservation Objectives (SACOs), Site Improvement Plans (SIPs) and condition assessments. The screening of Likely Significant Effects will be reviewed in view of the most up to date information and in consideration of most recent case law with regards to feature condition.	Appendix 1 and the stage 1 screening tables (Table 3.1 – 3.3) have been updated to reflect the most recent information available.

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
2	Natural England	The screening table for LSE (Table 3.2, p.31) doesn't include all the supply side options which are listed in Tables 1.2 and 1.3 (p.14-16). The reason for this should be made clear. We note that only those drought options that are likely to be effective in the period to 2027 have been considered in the HRA and SEA, and that 'More before 4' options have not been developed yet. We accept this decision for this plan, but other options that might be used post-2027 will of course need to be subject to HRA and SEA in future plans. Natural England expects Thames Water to use the Water Resources Management Planning process (WRMP) to remove its reliance on potentially damaging orders and permits. Caselaw has clarified the need in HRA to take account of whether a Habitats site is failing its conservation objectives when deciding on the significance of effects. A number of Habitats sites are not meeting their conservation objectives for water quantity/flow, water quality and/or geomorphological processes. These conservation objective failures can be exacerbated by climate change and drought. Drought options have the potential to add to these failures.	We will clarify the difference in Tables 1.2 and 1.3 in the HRA. We note the comments regarding the requirement to become more resilient and so less reliant on DPs, this will be addressed in our WRMP and so does not require any change to our Drought Plan. As noted above, the condition of qualifying features will be reviewed as part of the updates to the HRA. Habitats sites failing their conservation objectives will be considered when deciding on the significance of effects. Not all supply side options are associated with Habitat sites and the text will be amended to explain where supply options are excluded from the assessment. Future plans and projects that could result in in-combination impacts will be considered at the next iteration of the Drought Plan.	Additional clarification has been added to Section 3.1 regarding supply side options included in the stage 1 screening assessment.
3	Natural England	Where drought permit options operate within current licence operating conditions, the HRA has relied on the conclusions of the EA's Review of Consents (ROC). This review concluded over a decade ago and, as the competent authority of the dDP, Thames Water should check the validity of the conclusions in light of more recent data or evidence, changes in designated site condition, and the impacts of climate change. Any abstraction which is not within the terms of the existing licence (including timings or duration of the abstraction) should be screened and assessed accordingly within the HRA.	We will review situations where the HRA relies on Environment Agency's Review Of Consents to check whether there are any changes to Habitats site condition. We will then review the conclusions of the HRA to reflect the most recent information in relation to Habitats sites.	The stage 1 screening tables (Table 3.1 – 3.3) have been updated to remove reliance on the conclusions of the Environment Agency's Review of Consents.

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
4	Natural England	The screening assessments for several schemes in relation to Lee Valley SPA/Ramsar (p.31-32) say —The SPA and Ramsar site consists of artificial bunded reservoirs which are supplied with water from the River Lee. There is no evidence to suggest hydrological connectivity between the reservoirs and aquifers and it is therefore highly unlikely that the drought order would impact on the designated features of either the SPA or the Ramsar. This is not the case, as several habitats across the site are groundwater-fed. The assessments should be reviewed to check whether there is potential for the borehole sites to be in hydrological connectivity with the groundwater sources which feed the Lee Valley SPA/Ramsar. If hydrological connectivity is possible, an appropriate assessment should be undertaken, and the potential for in combination impacts and cumulative should be reviewed. If the company concludes that the boreholes abstract from a confined aquifer, this view should be supported by robust evidence. The Lee Valley SPA/Ramsar comprises four component SSSIs, the habitats of which support the qualifying features of the SPA/Ramsar: - Amwell Quarry SSSI is a former gravel pit, including two large lakes and a variety of associated wetland, grassland and woodland habitats. It is groundwater-fed. - Rye Meads SSSI consists of wet meadows, disused and operational effluent lagoons and Rye House Marsh. These provide a variety of different habitats including open water habitats swamp communities, tall fen communities, marshy grassland and scrub. The water meadows are largely groundwater-fed and are not affected by water levels in the River Lee. - Turnford and Cheshunt Pits SSSI include ten former gravel pits, along with areas of marsh, grassland, ruderal herbs, scrub and woodland; part of the Small River Lee; and a further water body, Hall Marsh Scrape, which was constructed specifically for use by waterfowl. The pits are largely gravel / groundwater-fed but are also subject to overspill from the Lee Navigation and flood relief channel in times of high water. - Walthamstow Reservoirs SSSI comprises ten relatively small and shallow water storage basins which are topped up from surface water sources. Several of these are fringed by sloping earth banks and together with the presence of wooded islands form distinctive habitat features. Potential impacts of the drought options on supporting habitat should also be assessed. The Supplementary Advice to the Conservation	None of the drought plan sources are located within any proximity to the groundwater dependant Lee Valley SPA and so we do not have any sources that we would use differently in a drought that can have an impact on the SPA. All the supply options that have the potential to impact on the Lee Valley SPA/Ramsar SPA are already licensed and the licences would not be changed as part of drought plan implementation (i.e. operation of these options will be within existing licence limits with regards to timing and volumes). We will include a statement in the HRA to clarify the lack of potential impact of drought sources on the Lee Valley SPA. This will include additional information from more recent environmental reports on the impacts of the licensed abstractions on groundwater levels.	The stage 1 screening assessment of potential likely significant effects of the North London Artificial Recharge Scheme, Chingford Artificial Recharge Scheme, East London Resource Development, Stratford Box and Old Ford on the Lee Valley SPA and Ramsar site have been reviewed and updated taking into consideration hydrological connectivity and the estimated zone of influence (or drawdown extent). This is shown in Table 3.2.

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
		Objectives for Lee Valley SPA/Ramsar discusses the importance of habitat outside the boundary of the SPA/Ramsar to support the population of bittern Botaurus stellaris, which is a SPA qualifying feature.		
5	Natural England	The assessment of impacts on the South West London Waterbodies SPA/Ramsar does not consider the influence of groundwater, including in connectivity with the River Thames, on the water levels in the gravel pits. Wraysbury No 1 is fed by groundwater and is offline from the surface water network. Wraysbury & Hythe End Gravel Pits (also known as Wraysbury No 2) is fed by Horton Brook, which receives baseflow from the river terrace gravels. Groundwater supply from the underlying gravels is also important to Thorpe Park Gravel Pit. Impacts on any supporting habitat outside the SPA/Ramsar boundary should also be assessed. If hydrological connectivity between the drought options and these water bodies is possible, an appropriate assessment should be undertaken, and the potential for in combination and cumulative impacts should be reviewed.	We have considered the potential for our drought options to have an impact on these sites and there is negligible risk. This is because our Drought Permit option for the lower Thames does not result in any reduction in levels in the lower Thames, it just reduces flow and velocity therefore there is no significant effective impact pathway. We will update the assessment to make this clear. As noted above, the supply options that have the potential to impact on the this SPA/Ramsar are already licensed and the licences would not be changed as part of drought plan implementation (i.e. operation of these options will be within existing licence limits with regards to timing and volumes). We will include a statement in the HRA to clarify the lack of potential impact of drought sources on the South West London Waterbodies SPA/Ramsar. This will include	The stage 1 screening assessment of potential likely significant effects of the reduction in lowest residual flow on the LTCD from 300 Ml/d to 200 Ml/d, earlier reduction in residual flow on the LTCD and Lower Thames on the South West London Waterbodies SPA and Ramsar site has been reviewed and updated based on hydrological connectivity and the zone of influence (drawdown extent). This is shown in Tables 3.2 and 3.3.

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
			additional information from more recent environmental reports on the impacts of the licensed abstractions on groundwater levels.	

6	Natural England	There are some errors in the assessment for the West Berkshire Groundwater Scheme (WBGWS) which need amending. The Review of Consents for the River Lambourn SAC and the Kennet and Lambourn Floodplain SAC concluded that this scheme would have a likely significant effect (LSE) on these sites. Reduced groundwater levels would reduce baseflow in the Lambourn and would affect groundwater supply to Thatcham Reedbeds (part of the Kennet and Lambourn Floodplain SAC). Mitigation measures have been put in place, but these should be detailed in an appropriate assessment for this scheme, and not screened out as having no LSE. River Lambourn SAC - The WBGWS will not be used for two consecutive years, to allow groundwater to recover thereby protecting flows in the River Lambourn SAC. This needs to be made clear in the HRA (in an appropriate assessment), and there needs to be evidence in the dDP that this has been taken into account in planning for prolonged droughts. - Reference to a sluice augmenting flow with water from the River Kennet is incorrect – that is a scheme to protect the Kennet and Lambourn Floodplain SAC, not the River Lambourn SAC. Kennet and Lambourn Floodplain SAC- The HRA correctly states that two mitigation measures were identified to protect this site from groundwater depletion. The first was a reduction of the Speen licence, which was implemented in 2015. The second was augmenting water supply to the Thatcham Reedbeds via an offtake from the Kennet when the Enborne wellfield part of the WBGWS is in use. This augmentation scheme should be explained in an appropriate assessment. - The offtake to fulfil this measure is in place (built by Thames Water) and ready to use. However, the transfer licence and operating agreement need to be finalised. - A Drought Plan should not rely on drought options where mitigation measures identified in the HRA have not been secured. However, the Environment Agency has assured us that the licence and operating agreement will be finalised shortly and that there is no reason the augmentation scheme could not be delivered when needed. Natural England, therefore, accepts that this scheme can remain in the dDP, but we urge EA and Thames Water to finalise arrangements and issue the necessary licence before the Drought Plan is published.	We will clarify in the HRA that the Review of Consents for the River Lambourn SAC and the Kennet and Lambourn Floodplain SAC concluded that this scheme would have a likely significant effect (LSE) on these sites. Reduced groundwater levels would reduce baseflow in the Lambourn and would affect groundwater supply to Thatcham Reedbeds (part of the Kennet and Lambourn Floodplain SAC). Mitigation measures have been put in place, and these will be detailed in an appropriate assessment that will be carried for this scheme, rather than screened out as having no LSE. We will include a statement in the HRA in relation to the River Lambourn SAC that the West Berkshire Groundwater Scheme will not be used for two consecutive years, to allow groundwater to recover thereby protecting flows in the River Lambourn SAC. This will be made clear in the HRA (as part of the appropriate assessment). We have included evidence in our Drought Plan that this has been taken into account in planning for prolonged droughts. The following text has been added to Section 6.1.8.4: “The Operating Agreement includes a clause (Section 5 - West Berkshire Groundwater Scheme Operating Strategy) to ensure that abstraction does not take place in two consecutive years from specified wellfields within the scheme unless specific recovery conditions are satisfied or further use is agreed by both Thame Water and the EA. This requirement was put in place following the Appropriate Assessment for the Kennet and Lambourn SSSI. This has been taken into account in	The stage 1 screening of the West Berkshire Groundwater Scheme has been reviewed and amended to reflect potential likely significant effects on the River Lambourn SAC and the Kennet and Lambourn Floodplain SAC in Table 3.1. An Appropriate Assessment has also been completed (Section 5). Based on agreed mitigation measures with the Environment Agency, no adverse effects are anticipated from the scheme that could affect site integrity.

			the assessment of the schemes Deployable Output.". We will correct the reference in the HRA to a sluice augmenting River Lambourn flow with water from the River Kennet - and confirm that this is a scheme to protect the Kennet and Lambourn Floodplain SAC, not the River Lambourn SAC. This augmentation scheme will be explained as part of the appropriate assessment for the SAC. We will make the licence application to secure the licence for augmentation of the Thatcham Reedbeds when the Enborne wellfield of the West Berkshire Groundwater Scheme is in operation. We will not implement the scheme until this licence is in place.	

	Consultee	Comment	Thames Water Response (in the SoR)	How addressed in Habitats Regulations Assessment
7	Natural England	Any appropriate assessments which are undertaken (including for the WBGWS) should have regards to whether the Habitats site is failing its conservation objectives. If it is failing, the appropriate assessment must demonstrate that the drought option will not exacerbate the conservation objective failures. The appropriate assessments must demonstrate that all adverse effects on integrity have been avoided or mitigated with sufficient certainty.	We will update the HRA to reflect the most recent information in relation to Habitats sites current status in relation to conservation objectives. If the recent information shows that it is failing, we will update the appropriate assessment to demonstrate that the drought option will not exacerbate the conservation objective failures. The appropriate assessments will demonstrate that all adverse effects on integrity can be avoided or mitigated with sufficient certainty.	An Appropriate Assessment has been completed (see Section 5). Based on agreed mitigation measures with the Environment Agency, no adverse effects are anticipated from the scheme that could affect site integrity.
8	Natural England	The HRA concluded there will be no in combination or cumulative effects between drought options or with other plans and projects. The range of plans and projects considered appears to be comprehensive. However, the justification for screening no LSE is not always clear, and there seems to be a reliance on a no LSE conclusion in the HRAs for other plans and projects, undertaken by other water companies or organisations. As the competent authority for the dDP, Thames Water must check the reasons for the conclusions of no LSE in other plans, and make its own assessment. If there is no potential impact pathway between drought options/projects and the environmental receptor (Habitats sites and/or their interest features) then it is fair to assume that there will not be an impact in combination or cumulatively. However, in all other circumstances, the potential for cumulative impacts must be screened within the HRA. The assessment should take account of whether a Habitats site is failing its conservation objectives, and whether the drought options have the potential to add to these failures. It is noted that the SEA of the dDP states that potential cumulative impacts between the Waddon drought permit and SES Water's Drought Plan were identified, whereas the HRA says they were not. This assessment should be reviewed for accuracy and consistency.	We will update the screening of the in-combination effects. This will include a review of the HRAs for the relevant WRMPs and HRAs for neighbouring water companies to consider the justification in the screening of impacts to ensure that there will be no in-combination impacts that may require consideration. There are no Habitat sites associated with the Waddon drought option.	Section 7 addressing in-combination assessments between drought options and other plans and projects has been updated with more detail to support conclusion of no likely significant in-combination effects.

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