Statement of Response to Consultation on our draft Drought Plan 2022

Contents

1. Introduction

Water companies in England and Wales are required to produce a Drought Plan under Section 39B of the Water Industry Act 1991, as introduced by the Water Act 2003. The Drought Plan sets out the actions that a water company will take to protect water supplies and the environment during a drought period.

We published our draft Drought Plan for public consultation in June 2021. When signed off by the Secretary of State it will replace our existing drought plan. Overall, this update meets the requirements of the drought plan guidelines and retains the same basis and strategy as our previous Drought Plan.

Changes since our last plan:

- We have reduced the output associated with the Thames Gateway Water Treatment works from 150 Ml/d to 100 Ml/d and removed the Hoddesdon transfer scheme from the plan which reduces drought capability by 12.5 Ml/d. This does not increase the risk to our customers because the reduction is balanced by improvements to the supply demand balance from other measures including demand management.
- We have updated and improved our approach to testing our drought plan against more severe droughts; we have updated this analysis for all of our water resource zones.
- We have updated our levels of service to align with the Environment Agency guidelines and with Water Resources in the South East (WRSE). Previously we included a staggered implementation of Temporary Use Ban (TUB) restrictions. We have now amended this so that a full TUB would be implemented at Level 2 of our levels of service. This is aligned with all water companies in the South East who all implement TUBs as a Level 2 drought measure with a level of service of 1:10 years.
- We have worked with the other WRSE water companies to align our implementation of specific demand restrictions and associated exemptions.
- We have developed new 'More Before level 4 measures' in line with the new requirement set out in the Environment Agency Guidance. Working with the WRSE water companies we have aligned our 'More Before level 4' demand management measures. 'More Before level 4' measures include significant demand reductions and additional emergency water sources, for example mobile desalination plants.

1.1 Our Public Consultation

We submitted our draft Drought Plan to Defra on 30 March 2021 and we received approval to consult on our draft Plan on 10 May 2021. We subsequently published our draft Drought Plan for consultation on the 7 June 2021. The consultation was live for 7 weeks, closing on 30 July 2021. We consulted with statutory and non-statutory consultees as prescribed in the Drought Plan Regulations 2005. All information was available to view on our website Our drought plan | Regulation | About us | Thames Water and we requested that all representations were sent to the Secretary of State.

1.2 Our Statement of response

We have prepared this Statement of Response (SoR) following receipt of consultation responses. It includes the following:

- Our consideration given to the representations received as part of the public consultation on our draft Drought Plan;
- the changes that we have made and further changes we will make to our draft Drought Plan as a result of the consideration of the representation and the reasons for the changes. Where we have not made a change in response to the representation, we have stated the reasons for no change.

This Statement is available on our website at Our drought plan | Regulation | About us | Thames Water and has been sent to all consultees who submitted a representation.

1.3 Summary of the representations received

In total we received 9 responses to the consultation on our draft Drought Plan. The Environment Agency and Natural England submitted comprehensive and detailed responses and the remainder were from a broad cross-section of stakeholders. Table 1 shows the breakdown of respondents by sector.

Table 1 Responses by sector

Sector	Respondees
Government Agency or sponsored body	4
Local or regional government	2
Trade association	1
Business	1
Voluntary or environmental organisation	0
Individual	0
Other	1

Sector	Respondees
Total	9

2. Representations and our responses

2.1 Environment Agency

Overall, the Environment Agency agreed that our Drought Plan can be used to maintain secure water supplies in droughts, however they consider that during more severe droughts the environment would be adversely impacted by our drought options. The Environment Agency split their response into four sections: Responses that related to compliance with Drought Directions (response ID 2.1.1 & 2.1.2); Major issues identified (response ID 2.1.1 – 2.1.13); Moderate issues (response ID 2.1.14-2.1.17) and minor issues which were received after our consultation closed (response ID 2.1.18-2.1.29).

The representations made by the Environment Agency cover both our main Drought Plan document as well as a significant number of comments relating to our Environmental Assessment Reports (EARs) and associated documents, HRA and SEA. In most cases we have made updates to our main Drought Plan document, as detailed in the tables below. Where this has not been possible because further work is required, we have made this clear and included justification. The representations that are associated with the EARs, SEA and HRA include requirements to update environmental assessments, monitoring and mitigation and update assessments for designated sites. Due to the scale of the proposed changes and the linkages between the updates/changes required we have started a programme of work to make all of the updates detailed below as a combined work package. Due to the time constraints between the end of the consultation and the requirement to submit a Statement of Response within 15 weeks of starting the consultation it is not possible to complete this work programme before issuing our SoR. We are therefore progressing with this work programme and will provide updated EARs, SEA and HRA when we submit our revised draft Drought Plan.

The changes to the SEA and HRA are related to the assessments, mitigation and monitoring of impact of our Drought Permit options and so will not have any significant effect on the actions we will take, and their timings as set out in our Drought Plan.

Work Programme

Complete revised draft Drought Plan: February 2022

Complete SEA, HRA, revised Drought Plan methodology, update monitoring and mitigation plans in Drought Permit EARs: February 2022

Agree with EA, a plan for completion of all other work on EARs (e.g. Local Wildlife sites assessments): February 2022

Below is a table of representations from the Environment Agency and our responses.

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.1	Recommendation 1 – review, with its legal team, whether it should plan to apply for drought orders instead of a drought permits at some sites (linked to Directions 3 (g))	To assess this impact the company must: - develop and provide a monitoring and mitigation plan for Eynsford, Sundridge 1 and 2 drought permits - independently verify the method it has used to assess the above drought permits and provide justification that it is appropriate to use -provide evidence that the mitigation measures it is proposing will be effective to protect the features that could be at risk - review, with its legal team, whether it should plan to apply for a drought order if mitigation measures before, during and after a drought may not be sufficient to protect the environment. This will enable it to allow sufficient time for an application and decision - confirm that it is fully permit application ready for its planned drought permits and drought orders	We have highlighted in our Drought Plan that the Environment Agency consider the Eynsford Drought Permit option should be considered a Drought Order. We will update the EAR to reflect this change. We are reviewing this with our legal team. We have updated our plan to include the following in section 6.1.4: 'The Environment Agency have stated that they consider the Eynsford Drought Permit option should be a Drought Order because of its potential environmental impact and this is highlighted in Appendix C. The implementation of this option is the lowest priority level for London because of its sensitivity.' We have updated Appendix C of our plan to include the following: 'In view of the potential impact of the Eynsford option and its sensitivity this option is likely to be a Drought Order rather than a Drought Permit.' We will set out a more detailed monitoring and mitigation plan for Eynsford and Sundridge 1 and 2 drought permits. We will also provide additional information on how the mitigation options available will protect the features that could be at risk. However, it must be recognised that this option would only be implemented in a drought that is quite severe and arises from an exceptional shortage of rainfall. In view of this it may be that it is not possible to entirely mitigate all the impacts of the drought permit. The detailed review of the monitoring and mitigation plan is also linked to the further updates required below, so will form part of an ongoing work plan to be completed alongside issue of our revised draft Drought Plan. Any permit implemented would be temporary for the duration of the	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
		and be aware that a public hearing may be requested	severe period of the drought and so would not be similar to a return to the longer-term operation of Sundridge at higher rates of abstraction experienced in the past. We will investigate independent verification of the assessment of the Sundridge drought permit, in close consultation on the scope with the EA. Due to the amount of work and the external support required to complete this action this will be completed with our revised draft Drought Plan. We are working to develop all our EARs to be as close to application ready as we can. We will continue to work with the Environment Agency on the development of our EARs.	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.2	Recommendation 2 – update environmental assessment reports with defined monitoring and suitable mitigation (linked to Directions 3 (g)) We recommend Thames Water updates its environmental assessment reports (EARs), monitoring and mitigation plans with appropriate measures. These should be effective for all the features that could be at risk from its drought management actions. Thames Water must assess mitigation at all stages during a drought. The company's drought plan has been focussed on mid/post drought mitigation and so we recommend the company identifies more preventative measures.	We recommend the company completes the following and includes the results in its final plan. It should set out its work programme for these actions in its statement of response: - assessment of the impact of the Waddon option on fish species (specifically Bullheads) and water quality - identification of actions to ensure the water quality of receiving watercourses around sewage effluent discharges is not affected. This could include improving the quality of the discharge and mean that increased monitoring is required. - produce monitoring plans to detect adverse effects of its drought actions and subsequent recovery - ensure that baseline data is up to date. For example, the plan is based on using fish data from 2009 - identification of measures to prevent deterioration under the Water Framework Directive - include a timetable for monitoring to	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 includes the monitoring of control sites which have been identified in each EAR in consultation with the Environment Agency. This monitoring is designed to identify the adverse effects of drought options and to 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. As this update is required across all of our drought permit EARs this will be done in time for the submission of our revised Draft Drought Plan. We will continue to review our drought permit baseline monitoring to ensure it is up to date to support our drought permit options. We will review the mitigation options and provide more definition of the mitigation options that are included in our mitigation plan. When undertaking this review we will update and assess the features that could be at risk from the EARs and identify mitigation that could be used at all stages during a drought whilst recognising that at the onset of drought it is not possible to know how long or severe the drought will be. As this update is required across all of our drought permit EARs this will be done in time for the submission of our revised Draft Drought Plan. We will work to identify where possible mitigation measures that could be implemented prior to drought. We are currently working to identify options to improve environmental resilience of our rivers to	EARs and Section 6.1.4

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
		ensure that the environment has recovered - the authorisations needed for each proposed action how the findings of its Strategic Environmental Assessment have been incorporated into its plan	improve their robustness in times of Drought. This work is ongoing and will feed into PR24 and therefore will not be available until the next round of updates to our Drought Plan. The project is designed to identify river restoration options that would improve the rivers resilience to Drought and Drought Permit impacts. The following text has been added to section 6.1.4 of our Drought Plan: 'We are currently working to identify potential options to enhance the 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.' The extent, location and type of mitigation measures will also be informed by walkovers that are completed at the onset of drought. We will further develop the existing Waddon EAR to complete an assessment of the impact of the Waddon DP option on fish species (specifically Bullheads). This assessment requires additional time to complete and will be included in the larger work programme for the EARs. We will investigate options to address the potential impact of sewage effluent discharges on the water quality of receiving watercourses where possible in situations where discharges from our Sewage Treatment Works have an impact on the streams affected by drought permit options such as the River Wandle. This	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
			will include the investigation of whether it is possible to improve the quality of the effluent discharge during a drought, noting that temporary changes to the treatment process is unlikely to be feasible. 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, for example some drought permit options. We have updated our plan to include the following in section 1.5.3: '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.' For our approach to WFD see response to 2.1.4.	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.3	Recommendation 3 – ensure extreme drought measures have defined triggers and lead in times to demonstrate they would be available in time. The water company drought plan guideline states that we expect all companies to set out the actions they would consider prior to level 4 emergency drought orders. Thames Water has included details but we are concerned that the measures presented may not be available in sufficient time to delay level 4 restrictions.	We recommend Thames Water reviews all its proposed extreme actions to: - determine when these measures would need to be triggered - develop the indicative timescales for delivery of its extreme drought measures with the appropriate level of permissions (for example whether any would need planning permission)	We will review our More Before level 4 options to identify triggers for their implementation. We will also work to define in more detail the work required to implement these measures. This will enable us to get indicative timescales for delivery of the extreme drought measures. As we develop improved plans for the implementation of the measures, we'll be able to refine and reduce the uncertainty associated with the lead time for implementation of these measures. We have updated the plan to include the following at section 6.1.7: 'As we develop improved and more detailed plans for the implementation of these measures, we'll be able to refine and reduce the uncertainty associated with the lead time for implementation of these measures. This will enable us to develop indicative timescales for delivery of the extreme drought measures. These options will only be required in severe drought events and so the trigger for starting preparation work on them will be based on our drought protocol which highlights the risk of the potential for an event to reach level 4 several months before it would happen. For example, the risk indicator for the 2012 drought enabled us to start preparation work on contingency options in the winter preceding the drought thus providing several months lead in time.' We will also work on these options to identify the required permissions to implement the options (for example to determine whether planning permission is required).	Section 6

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.4	Recommendation 4 – clarify the agreements and operation of bulk supplies between other companies during droughts Thames Water has shown the agreed quantities for bulk supplies to and from its area but not shown whether these will change during a drought. It is unclear how these will operate and whether there is a risk to security of supplies.	We recommend that the water company clarifies how bulk supplies with neighbouring water companies will operate during a drought. This should include both timing and quantities.	We have set out the agreements we have with other companies covering bulk supplies in section 6 of our Drought Plan. This covers the volumes and triggers for any amendments to bulk supply provision in drought. We have highlighted that as part of our More Before level 4 options we may further amend bulk supplies. We have discussed with some of our neighbouring companies the potential for amendment to bulk supply agreements in severe droughts that go beyond the existing agreements and we will continue this dialogue. We need to recognise that it is not possible to know in detail in advance how a very severe drought will affect us or our neighbouring companies and so some element of flexibility is required for such situations. We will clarify what options may be considered in a severe drought as part of our More Before level 4 options. We have updated section 6.1.7 of our Drought Plan with the following text: 'Any changes to bulk supplies in very severe scenarios would only be made in full agreement with the other water companies involved. In a severe drought it is important to retain the flexibility of allowing further discussions with other water companies to take into account the specific conditions of that drought and to use any operational flexibility that may be available at the time to help maintain customer supplies.'	Section 6

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.5	The environmental impact assessment for the Sundridge 1 and 2 drought permits has been updated using outputs from a groundwater model resulting in the classification of the impact decreasing. This is unexpected given that the company has previously stated that it had limited confidence in the model used. The company is planning on using Sundridge 1 and 2 drought permits for a prolonged period of time even though the impact on the environment is identified as major/significant. Drought permits may not be granted and Area staff have expressed concerns around granting them.	We expect the company to independently verify the use of this method and provide justification that it is appropriate to use and will ensure appropriate mitigation for Sundridge as well as further develop mitigation measures for Eynsford drought permit. Improved monitoring and mitigation is necessary. This includes that adequate River Habitat Surveys is conducted before and after the drought permit. It should be focussed on locations of bank poaching, surface water outfall input and also downstream of weirs where flows are likely to be particularly low. There must be a suitable comparison to make a conclusion on deterioration or otherwise. This should include a method for monitoring bed concretion before and after the drought permit. We expect the company to undertake a scenario of what other options it would use if these drought permits were not granted to understand the impact of this on their drought plan. We expect the company to undertake work to identify alternative options with a view to remove most damaging	We are required to include all potential options in our Drought Plan as per the Environment Agency Drought Plan Guidelines. We do not expect to have to use the Sundridge drought permit option except in a drought of considerable severity, we have not had to use any permits for more than 30 years therefore it is an extremely unlikely measure. Our assessment is based on the review of the upper Darent undertaken in AMP6 which concluded that it is very difficult to see the benefit of the reduction in the Sundridge licence from analysis of all the data available. It should be noted that the assessments of the potential impacts on the ecological features has remained (mostly) unchanged despite the change in assessment approach. We will review the potential to verify the methods used for the Sundridge Drought Permit assessment and would like to work with the Environment Agency to agree how this is done. We will review the options for mitigation of the Sundridge Drought Permit and we are actively working to implement river restoration measures to improve the resilience of the Upper Darent to drought as part of our WINEP obligations, set out by the Environment Agency. Our monitoring plan already includes the plan to undertake walkover surveys before and after the implementation of the Drought Permit and this could be adapted to provide a River Habitat Survey and will focus on bank poaching and surface water outfall input and will include a method for monitoring bed concretion although this is likely to be a longer-term symptom rather than something arising from implementation of a Drought Permit. The monitoring plan for the Sundridge option will be	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
		drought permits first from its drought plan as soon as possible. We expect the company to work alongside EA to achieve this.	updated to reflect this approach. Our Drought Plan includes an assessment of the impacts of more severe droughts and shows the benefit of the use of drought permits in 1:200 year and 1:500 year droughts. We have to include all potential available options in our plan, following guidance from the EA, if we are to have them potentially available in a very severe drought. We are working to identify and deliver water resource options to improve our resilience to droughts of 1:200 and 1:500 year severity though our Water Resource Management Plan process and are doing this in close liaison with the EA. Throughout this process we are seeking to remove the reliance on our drought permit options.	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.6	The effectiveness of mitigation measures is not specifically set out, but is proposed to be informed by the monitoring results. The analysis of residual impact in the EAR (for Ogbourne) suggests 'The residual impact on environmental features is dependent on the mitigation measures that are taken forward and their timely and effective application once the trigger for their need has been identified. Consequently, at this stage it is not possible to provide an accurate indication as to the residual impacts on environmental features due to implementation of mitigation measures.' It is unclear if pre-drought mitigation actions have been considered or aeration to mitigate impact on fish.	We expect the water company to provide evidence that the mitigation measures it is proposing will be effective for the features that could be at risk from its drought management actions. We expect the company to demonstrate or increase certainty that the measures proposed will actually mitigate the WFD impacts.	We will review the mitigation measures in our monitoring and mitigation plan and include additional information to support and provide an assessment of their likely effectiveness. However, it is not necessarily possible to completely mitigate the impact of drought permit options. We would not expect to include aeration to mitigate impacts on fish pre-drought because it would not be necessary before the drought measure is in place, however it is included as a drought permit mitigation option where dissolved oxygen impacts are identified as a risk. Walkovers and monitoring at the on-set of drought will also inform the need, extent and location of any mitigation measures. The approach we take to assessment in terms of WFD deterioration is set out in our Drought Plan EAR methodology which has been provided to the EA prior to the submission of the Drought Plan and agreed as the approach to be adopted for the EARs. The approach for WFD is based on the premise that the implementation of drought permits is only required very rarely and in exceptional circumstances (a requirement to obtain a permit is to demonstrate an 'exceptional shortage of rainfall'). Also, the impacts of drought permits would be temporary and reversible as they are implemented for a limited duration to cover a period of unusual drought (we have not required any drought permits for over 30 years).	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.7	Currently, the assessment considers the risk to sensitive receptors in terms of WFD deterioration, but it is not clear how other elements (e.g. quality elements, hydrological regime), and overall waterbody status will be impacted. There is no clear assessment of other WFD features in terms of deterioration risk e.g. water quality, hydrological regime. It is also not clear how the overall waterbody WFD status is affected. While the focus on the sensitive receptors and the impact of the option on these is valid, an overall assessment of waterbody WFD status is missing.	We expect the company to assess the risk of deterioration or impact of drought options across the range of elements used to determine surface and groundwater body WFD status.	The approach we take to assessment in terms of WFD deterioration is set out in our Drought Plan methodology which has been provided to the EA prior to the submission of the Drought Plan and agreed as the approach to be adopted for the EARs. The approach for WFD is based on the premise that the implementation of drought permits is only required very rarely and in exceptional circumstances (a requirement to obtain a permit is to demonstrate an 'exceptional shortage of rainfall'). Also, the impacts of drought permits would be temporary and reversible, especially with regards to the physical environmental features, as they are implemented for a limited duration to cover a period of unusual drought (Thames Water has not required any drought permits for over 30 years).	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.8	The Waddon EAR does not address the impact on Bullhead species appropriately. The longevity of event, siltation risks, water quality and habitat fragmentation are issues that require further review and may have an impact on severity. The possible impacts include drying up of flow from Waddon ponds, which although has happened historically on occasion does not mean that the impacts of the drought option on this flow is less important. The River Wandle already fails WFD status for Phosphate, Fish and Invertebrates, with the discharge from Beddington waste water treatment works being a major contributor to these failures. Reduction of flow in times of drought, reduced even further by implementing this drought option, may exacerbate the water quality	We expect the company to assess the impact on Bulhead species as well as on water quality and propose appropriate mitigation measures. The company should consider additional measures to temporarily improve the quality of effluent discharges during a drought event for the Waddon option. The company should consider temporarily improving the discharge quality of the sewage effluents in this stretch during the event eg short term additional aeration during abstraction pressure. The company should improve monitoring and we will work with you to identify the nature and extent of the monitoring needed for EARs. For example adequate monitoring to assess the impacts of Lower Thames option would need to include a study area 2km downstream of Teddington Lock and would need to incorporate continuous water quality monitoring, macroinvertebrate surveys, hydro morphology assessments and bespoke surveys of the priority species. The company should consider the impact on existing drought permit	We will update the assessment for the Waddon EAR to include assessment of impact on Bullhead species. We note that Waddon ponds have historically dried during periods of extended low rainfall. However, the assessment takes into account that the option may extend this drying period and the impact on flow is not considered less important (i.e. this impact has been classified as major). We will review the water quality assessment and assess whether there are any further mitigation measures that could be included, including determining whether it is possible to improve the STW discharge quality during a drought, for example to implement short term aeration of the effluent. We already include a programme of Drought Plan baseline monitoring and will work with the EA to determine whether any further monitoring is required. We already undertake monitoring for the Lower Thames as part of our DP baseline monitoring and will review this to determine whether any further monitoring is required to address the EA requirements in relation to water quality monitoring, macroinvertebrate surveys, hydromorphology assessments and bespoke surveys of the priority species. We do not undertake assessments of interactions with planned WRMP options because our Drought Plan is only intended to cover the next 5 year period and none of the Water Resource Management Plan options will be implemented during this time. We	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
	impacts of the waste water treatment works. These potential negative impacts have not been adequately addressed. Lower Thames EAR concerns fall into the short term and longer term. There is a detrimental impact on protected species which are particularly sensitive to biological change and subsequent dominance by INNS due to significant reduction of the freshwater flow in an extensive stretch of the watercourse. Adequate additional monitoring is required to be put in place to assess the impact of saline intrusion on sensitive protected species. In the longer term, the impact on the tideway would be substantially greater if any of the WRMP options to reduce the Mogden discharge were implemented, and this is not considered.	options by any proposed WRMP options as they are being developed. We expect the company to consider any interactions and assess cumulative impacts of these and if needed update the EARs accordingly.	are working to improve resilience to drought through our Water Resource Management Plan such that we will be less reliant on Drought Permit options in future severe droughts.	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.9	The plan does not set out all the monitoring needed to detect any adverse effect on the environment resulting from drought management measures. The plan states that an environmental monitoring plan will be developed once the drought event takes place. Quite old fish data (from 2009) has been used to understand the baseline conditions in the Og. This should be updated with more recent data to get a good understanding of the current baseline. The same applies to other EARs that are relying on old data. SAGIS SIMCAT would allow for more effective assessment of river WQ and interactions with STWs and other drought options. It didn't appear to have been used but would help inform where enhancements to performance at various STWs could alleviate WQ	We expect the company to use good quality, long-term environmental database to assess environmental sensitivity. We expect the company to provide proposed/likely/expected monitoring sites and details of these should be established at this point rather than relying on complete customisation during an event. Furthermore, it is not clear how the monitoring will be analysed and used to complement and enhance existing data. The responsible party for monitoring, and opportunities for utilising other data sources should also be set out.	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 the same ones that we use for our drought permit baseline monitoring programme, which has been in place for the last 10 years. This will provide a basis for comparison with the long-term record we are building up through the ongoing monitoring, at sites agreed with the EA. We will undertake walkovers if we are required to apply for drought permits and use the information gathered from the walkovers to inform whether we should supplement or change the existing monitoring network for our drought permit monitoring. The analysis of monitoring data is set out in our EARs and is included in our drought permit baseline monitoring reports. We will provide additional information in the monitoring and mitigation plan as to how data will be analysed to identify short and long-term impacts. This monitoring is designed to identify the adverse effects of drought options and to 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 clarify the parties responsible for monitoring and the opportunities for utilising other data sources in our monitoring and mitigation plan.	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
	issues. In the Ogbourne EAR, it suggests no WQ data is available in the Ogbourne water body. However there is a phys-chem sample site within the water body. (PKER0074).			
2.1.10	In many cases, there are no mitigation measures that will address temporary deterioration, but where measures are contributory to reducing risk of temporary deterioration, they have been included. In SEA section 3.4.4, one of the key issues is to ensure no deterioration in general, however some impacts will affect WFD status, Table 5.4 There is no mention of deterioration of the WFD Quantitative Status of ground water bodies.	We expect the company to aim to prevent temporary deterioration in WFD classification status via appropriate mitigation. We expect the company to assess the potential deterioration of the WFD quantitative status of the groundwater bodies; consider preventative mitigation and consider cumulative impact of the likely options on the lower Thames WFD water bodies in particular dissolved oxygen and the effluent concentrations.	The approach we take to assessment in terms of WFD deterioration is set out in our Drought Plan methodology, which was provided to the EA prior to the submission of the Drought Plan and agreed as the approach to be adopted for the EARs. The approach for WFD is based on the premise that the implementation of Drought Permits is rarely required, in exceptional circumstances (a requirement to obtain a permit is to demonstrate an 'exceptional shortage of rainfall'). Also, the impacts of Drought permits would be temporary and reversible as they are implemented for a limited duration to cover a period of unusual drought (we have not required any drought permits for over 30 years). WFD groundwater body status is a relatively 'coarse' feature to use for assessment with respect to groundwater impacts. WFD groundwater bodies can be significant in size and the assessment for groundwater quantitative status involves the use of long-term average data sets for the groundwater body as a whole. As the	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
	In a lot of cases, the mitigations appear to be more focussed mid/post drought rather than preventative. The plan does not contain a cumulative assessment of all options (or all the most likely options) on the lower Thames WFD Water bodies. The cumulative impact of net reduction of flow as a result of a combination of the schemes may have an impact on the lower Thames water bodies in particular dissolved oxygen and effluent concentrations.		impacts on groundwater quantity are considered temporary and reversible and therefore this has not been considered with regards to WFD status. Any impacts on GWDTEs in relation to WFD status has been considered and the EARs will be updated to clearly reflect the WFD risk for the WFD element. This will include an update to the EARs to reflect current status of the groundwater body. We will review whether it is possible to identify mitigation options to prevent temporary deterioration in WFD classification status however this may not be possible. We will review our assessment of the cumulative impact of our drought permit options on the lower Thames WFD water bodies.	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.11	Although the company refers to EMP it states that this will be developed once the drought triggers are reached. It is also not clear for how long the monitoring will be carried out to ensure environment has recovered. Further work on the development of the Local Wildlife Site assessments is required. In the EMP, monitoring sites are not well detailed, and appear to be dependent on identifying sites at the start of an event and timely walkovers. "During the implementation of a drought permit the monitoring will, in most cases, be limited to walk over surveys at sites identified at the on-set of drought" The company is reliant on EA for the water situation monitoring. It is not clear as to what data the company will be providing to EA.	The company needs to ensure that for all of the supply options baseline monitoring is collected during non-drought years and specific sites are identified for monitoring ideally with EAs and Natural England's agreement prior to event. We expect the company to plan to carry out environmental monitoring and assessment for sufficiently long after hydrological triggers have recovered to understand how the environment is recovering. We expect the company to carry on improving their EARs through ongoing work with EA. This includes but is not limited to the development of Local Wildlife Site assessments within EARs should continue with EA specialists. We expect the company to provide EMP with better detail including likely monitoring locations, or proposals to give some steer during an event. We expect the company to ensure that it has its own data sources rather than relying on third party which is subject to resources fluctuation and therefore potentially cuts in network.	As noted above, we will provide further details in the EARs on how short and long-terms impacts will be determined using monitoring data from our baseline monitoring sites and sites selected for monitoring during the onset of drought walkovers. As discussed above, the monitoring locations will be aligned with baseline monitoring locations as far as possible to provide a robust baseline for comparison of long-term impacts. Work is currently underway to update the assessments of Local Wildlife Sites using a staged approach. An initial screening exercise has been completed to identify sites which potentially have environmentally sensitive features in hydrological connectivity with waterbodies associated with each drought option. For those sites being taken forward to the next stage a more detailed assessment of any potential impacts on Local Wildlife Sites will be undertaken and recommendations will be made, in consultation with the Environment Agency, for any monitoring and mitigation to be implemented, where appropriate. We will set out in our plan where data may be limited for a Local Wildlife Site and if any further information is required. We are consulting with the Environment Agency at every stage of this process. We will continue to review our drought permit baseline monitoring to ensure it is up to date to support our drought permit options.	EARs

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.12	The plan does not specify which authorisations will be needed, for example there are no details of any discharge permits required. The plan is also stating that monitoring will take place once drought triggers have been reached. It is not clear from the plan whether the company has used our updated Exceptional Shortage of Rain guidance to ensure it is "permit ready".	We expect the company to include details of all the permits, orders and other authorisations (for example discharge permits) needed in order to implement the drought management actions including monitoring, mitigation and prevention measures. Clarify whether the updated guidance was used and if not update the relevant section of the plan to ensure it is in line with the latest guidance. Ensure that the justification for Exceptional Shortage of Rainfall is in line with our new guidance. The plan could prepare (as much as possible) a case for 'exceptional shortage of rain' for more frequently used permits in line with ESOR guidance.	We will update our Drought Permit Environmental Assessment Reports to ensure that it is clear what additional permits would be required at the time of implementation. We have reviewed the latest guidance on exceptional shortage of rainfall (ESoR), including that issued just before completion and submission of our draft Drought plan. We will ensure that our approach is in line with the guidance and will consider preparing a draft case for 'exceptional shortage of rain' in line with ESoR guidance. Our approach outlined in our Drought Plan requires some updates to meet all the criteria set out in the guidance document. In order to align with guidance for the assessment of an Exceptional Shortage of Rainfall (ESoR), we will review and possibly amend the historical rainfall records used to give historical context in our Water Situation Reporting. The ESoR guidance recommends that we use real averages of HadUK data from 1891 onwards, so we will ensure that this is used. This will, however, entail a review and possible update of the datasets that are stored on our corporate data management system. In addition, we will look to include standard precipitation index (SPI) and standard precipitation evaporation index (SPEI) tracking within our Water Situation Reporting to build familiarity within the business; this will require the development of appropriate tools and graphics. We have updated the plan to add the following in section: 6.1.5: 'and would include enhanced drought metric calculations.' and the following:	6.1.5

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
			'Calculation of SPI and SPEI for relevant catchments and relevant durations (e.g. SPI- and SPEI- 6, 12, 18, 24 month for the 'Thames 12 Station Average' when considering exceptional shortage of rainfall in London).'	
2.1.13	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, for example some drought permit options. We have updated the plan to add the following text to 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 drought permit 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 drought permits in relation to the environmental impact of the options. In each case the priority order has been confirmed based on the assessed environmental impact.'	Section 1.5.3

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.14	The company has listed various options (6.1.7 page 99) such as tankering, temporary desalination and Deephams reuse and changes to bulk transfers as possible options of More Before level 4, however these do not have triggers or lead in times and so it is not clear how these would be used given that some may have long lead in times. There is lack of clarity around prioritisation of the strategic options in preference to drought permits. pg 16 lists Strategic options which the company can also implement. These would give greater yield and would be used ahead of the damaging drought permits but does not provide the justification. London does have some long-standing dewatering operations. These may presently be discharged to foul sewer and/or nearby	We expect the company to clearly assess the lead in times for options identified as More Before 4 and be clear on their triggers. We expect the company to clarify the prioritisation around strategic options and drought permits. Transport for London and Canary Wharf Tower are two known dewatering schemes. There may be others with agreement to discharge into the foul sewer. The feasibility of these sources should also be considered.	We will update section 6 to include the triggers and lead times for our 'More Before level 4' supply options. We have updated the plan to include the following at section 6.1.7: 'As we develop improved and more detailed plans for the implementation of these measures, we'll be able to refine and reduce the uncertainty associated with the lead time for implementation of these measures. This will enable us to develop indicative timescales for delivery of the extreme drought measures. These options will only be required in severe drought events and so the trigger for starting preparation work on them will be based on our drought protocol which highlights the risk of the potential for an event to reach level 4 several months before it would happen. For example, the risk indicator for the 2012 drought enabled us to start preparation work on contingency options in the winter preceding the drought thus providing several months lead in time.' The strategic options included on page 16 all have set triggers, which are detailed in Section 6.1.8. Table 24. With the exception of NLARS and the WBGWS, the trigger for switching on all the strategic schemes is based on the earliest point in time at which the London reservoirs start to lose storage at the beginning of a potentially serious drought (at least DEL1 event level). All of our strategic drought schemes are triggered by Level 2, ahead of drought permits which are triggered at Level 3. We note your suggestion to investigate dewatering activities further to understand if additional water is available to supplement our supply system. We will investigate potential options for use of dewatering water including the Transport for London and Canary	Section 6

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
	watercourses. There may be scope that some of these source might provide feasible in supplementing water supply sources. The licence at Stratford Box source (section 6.1.8.5) is partly reliant on a third party dewatering activity. The Edmeston Close borehole is a Thames Water pumped source. Volumes in excess of those assigned to the pumped source cannot be guaranteed.		Wharf Tower. However, it is important to note that these might not be options that are available in the medium to long term as they may cease to be available following completion of the construction phase. We have included additional water resource options as 'More Before level 4 options'.	
2.1.15	The source is not actively used. The lead-in time to make the source operational would make a standard drought permit unrealistic. There is still potential concern with the use of the source. The site is located in the Upper reaches of the River Bulbourne. The site was investigated and operational pumping ceased due to considered environmental impacts.	We expect the company to undertake an EAR report which would need to consider these implications and scope for off-setting these impacts through appropriate mitigation. Clarity is needed to be around whether this is an option or not. If it is we expect the company to access the likely impact on the river recovery.	The New Ground source is currently disused and is not readily available for use in a drought. To recommission the source would require a great deal of work. The Slough/Wycombe and Aylesbury Water Resource Zone has been assessed to be resilient to extreme drought and therefore we have reclassified the New Ground option as a 'More Before level 4' drought permit option. This means we retain it as an option as per the Environment Agency Drought Plan guidance (Environment Agency, Water Company Drought Plan guideline v1.2, 2020) to include all options in our Drought Plan that might be used in a drought which means it is prudent to retain it rather than remove it altogether. However, the likelihood of needing the option is considered very remote. because it is retained in our Drought Plan we will retain the EAR that has previously been prepared and this would be used as the basis for a Drought Permit application in the unlikely event that it would be needed. The EAR	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
			includes the assessment of likely impact on river recovery and sets out the types of mitigation options that would be considered. However, it is likely that in a severe drought if we did need to use the option, we would not be able to fully off-set the impacts through mitigation. We have added the following text to section 6.5.4 of our Drought Plan: 'The New Ground source is currently disused and is not readily available for use in a drought. To recommission the source would require a great deal of work. The Slough/Wycombe and Aylesbury Water Resource Zone has been assessed to be resilient to extreme drought and therefore we have reclassified the New Ground option as a 'More Before level 4' Drought Permit option. The likelihood of needing the option is considered very remote. Because it is retained in our Drought Plan we have retained the EAR that has previously been prepared and this would be used as the basis for a Drought Permit application in the unlikely event that it would be needed.'	
2.1.16	Although company has provided information for some bulk transfers there are some that do not have clearly defined changes during drought, for example pg109 does state that there is no formal agreement exists and it is not clear at what point this bulk transfer would stop or change during drought.	We expect the company to ensure that for all bulk supplies that are captured within its drought plan there is clarity on what happens to these during droughts.	We have included a high-level statement in our Drought Plan related to further bulk supply restrictions in very severe droughts, which would go beyond our current agreements. Any changes to bulk supplies in very severe scenarios would only be made in full agreement with the other water companies involved. The text will be amended to ensure this is clear in our Drought Plan. However, at this stage we would like to retain the flexibility of allowing further discussions with other water companies at the time of a severe drought to take into account the specific conditions of that drought and to use any operational flexibility that may be available at the time to help maintain customer supplies. We have updated section 6.1.7 of the Plan with the following text: Any changes to bulk supplies in very severe droughts would only be made in full agreement with the other water companies involved. In a severe	Section 6

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
			drought it is important to retain the flexibility of allowing further discussions with other water companies to take into account the specific conditions of that drought and to use any operational flexibility that may be available at the time to help maintain customer supplies. We have updated the plan to include the following text on page 109: 'We will liaise with Severn Trent Water to confirm whether they have any future requirements for this bulk supply. We will confirm with them under what circumstances we would not be able to provide this bulk supply and would likely include the following condition: the supply would be maintained if we have implemented a NEUB but would potentially be suspended if we were approaching Level 4 restrictions.'	
2.1.17	The company has provided a good plan but the structure could be further improved to ensure that it is a tactical document. Due to the complexities of the operations the plan is considerably long containing a lot of detail for each of the water resource zones.	Consider removing some of the detail into separate appendices for example but not limited to details relating to individual water resource zones.	We have reviewed our Drought Plan and agree that it could be further simplified. We will move some of the detailed methodology for each Water Resource Zone included in section 4 to a new Appendix P. We will retain a summary of the approach for each Water Resource Zone, along with key tables/methodology approaches and cover the return to normal conditions, post drought review and a summary.	Section 4

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.18	ELRED - The licence arrangements incorporate groundwater quality monitoring. The potential risks of this issue would need to be reviewed alongside the data where the sources pumping rates were increased. Excessive pumping from this source does run the risk of increasing the potential concern of saline intrusion. Greater env instability. There could be constraints.	We expect the company to review the risks of saline intrusion.	Brackish water intrusion into the Chalk aquifer in the lower part of the River Roding catchment previously resulted from the over-abstraction of groundwater from the confined Chalk in first half of the 20th century. This over-abstraction led to dramatic declines in groundwater levels, reversing groundwater flow directions and consequential brackish water intrusion. Reduction and regulation of abstraction licences have enabled groundwater level recovery and the return to natural regional groundwater flow directions. As a result, brackish water intrusion has generally receded, interrupted periodically by dewatering for major infrastructure construction such as Crossrail and the Lee Tunnel now. Although recent abstraction from ELRED has been low, groundwater quality monitoring started in 2004 has shown no evidence that ELRED abstractions are inducing renewed brackish water intrusion into the Chalk aquifer. Should there be any increase in brackish water intrusion into the Chalk aquifer with an increase in abstraction from the ELRED wellfield, this would be temporary and decrease with subsequent reduction in abstraction. We have updated the plan to add the following in section 6.1.8.5: 'Although recent abstraction from ELRED has been low, groundwater quality monitoring started in 2004 has shown no evidence that ELRED abstractions are inducing renewed brackish water intrusion into the Chalk aquifer. Should there be any increase in brackish water intrusion into the Chalk aquifer with an increase in abstraction from the ELRED wellfield, this would be temporary and decrease with subsequent reduction in abstraction. We will continue to review the groundwater quality monitoring to ensure any future risk of saline intrusions can be identified.'	Section 6.1.8.5

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.19	Our area team has not formally agreed to the AIM trigger linked to New Gauge. Thames Water decided on the trigger value and potential abstraction reduction volume. The area team has highlighted both by correspondence and during meetings that the trigger value does not achieve the level of environment safeguard felt necessary. The trigger was not activated during the last drought 2017-18. The area team still needs to contact Thames Water at certain times to see if abstraction volumes can be reduced at New Gauge.	This sentence needs to be removed and/or amended.	We have amended the text in section 3.7 of our Drought Plan to remove the reference to the triggers being formally agreed.	3.7
2.1.20	It is not clear from the plan how the company will tailor and communicate its activities to each audience for example it is not clear whether messaging will be different to household and non-household users, water	We expect the company to ensure that joint communications with water retailers and NAVs are instigated. The company needs to provide greater consideration of tailoring messages to different audiences to meet their needs as well as more clarity around what it should do practically around	We have instigated discussions on joint communications with retailers and new appointments and variations (NAVs) and held a briefing session with them through the WRSE drought group on 2nd July 2021. We will continue to work with the WRSE companies to develop communications that are aligned with the other water companies and provide the communication required by the retailers and NAVs. We have updated the plan to add the following in section 7.5.5: In line with our commitment to work collaboratively with other water companies across the region, the Water Resource	Section 7.5.4

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
	retailers, NAVs or other sectors.	water efficiency, informal behavioural change.	South East (WRSE) group as well as Anglian Water held a webinar aimed at engaging with retailers about drought during our draft drought plan public consultations. The webinar was held on 2nd July via Microsoft Teams, and representatives from each of the water retailers operating across the South East region were invited to attend. During the webinar the WRSE group representatives presented information about water company drought plans in general, as well as how we manage drought planning in the South East. We explained the purpose of drought plans, and the triggers and actions which they set out to enable water companies to proactively manage the risks associated with drought. There was a focus on elements which would be particularly of interest to retailers, including demand management, communications, timing and temporary use restrictions. We also explained how we as a group are working together to align our drought management processes where possible, which ensures less confusion for our customers and helps to improve the effectiveness of drought communications. The webinar was attended by four retailers, including ADSM and Wave Utilities. Key points raised during the meeting were: • A question about how Covid lockdowns have impacted water use and demand • Retailers could help to support when water companies are asking for voluntary reductions in demand	

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
			• May be useful to identify high water users before a drought occurs, to enable conversations with them about greater water efficiency with their non-essential water use during a drought • It is useful for water companies to provide regular and proactive resource updates • Need to ensure that communications to retailers include a clear call for action. The WRSE companies would like to continue to work with the retailers to ensure that drought communications are agreed between the water companies and retailers for future droughts.	

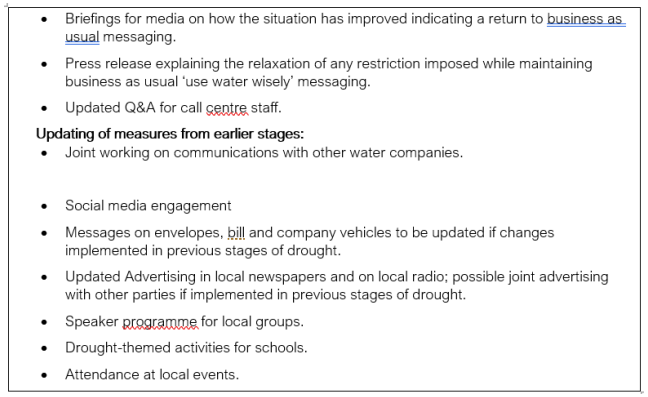
In addition to the comments we received from the Environment Agency as part of our formal consultation, they also sent through some minor issues on the 10th August following the closure of our consultation. The Environment Agency clarified the following about the minor issues.

"Minor issues are those that do not fall into the above categories, and do not pose a direct risk to the security of supplies or the environment. We consider that resolving these issues will improve the presentational quality, consistency and/or customer understanding of the draft plan."

ID	Representation	Information of changes required	Our Response	Section in the Drought Plan
2.1.21	4.3.3.2 Management structure and actions linked to severity of drought are provided but not details as to the size of teams or frequency of meetings. There is also lack of detail around relevant milestones such as data gathering stage or report writing.	We expect the company to consider and clarify how often the management group during drought would meet and provide details of the relevant key milestones.	We have updated our Drought Plan to clarify that we would have monthly Drought Event meetings at DEL 1 & 2 and weekly drought event meetings for DEL 3 & 4. This update has been included in Table 13.	Section 4.3.3.2, table 13
2.1.22	Within the management structure the company has a role of stakeholder engagement.	Would the company clarify whether the stakeholder engagement role will perform functionality of the drought communications lead?	We have updated the structure in section 4.3.3.2 to include a 'Communications and customer lead' to ensure it is clear where the role of communications lead sits. We have also updated the text in section 4.3.3.2 to the following: The stakeholder engagement role and communications lead are critical in terms of providing a focus for all stakeholder communications and discussions. The stakeholder lead will be responsible for maintaining a close working relationship with critical stakeholders such as the EA and Defra and other key stakeholders such as CCWater, Natural England and the GLA, whilst ensuring appropriate appointed stakeholder contacts for all other stakeholders. The communications and customer lead will lead on our communication plan, including social media strategy, customer communications and advertising.	Section 4.3.3.2

2.1.23	The company describes its membership of working in drought groups across the south east but does not mention the national group.	State that the company takes part in the national drought group.	We have included reference to being in the National Drought group in our Drought Plan and provided a short summary of its role. We have updated our Drought Plan to add the following in section 7.5.2: Thames Water participates in the National Drought Group (NDG). The National Drought Group comprises a number of organisations including, Defra, EA, Ofwat, Natural England, water companies and others. The group meets on a regular basis to discuss the national drought position and identify common themes that can then be addressed through a national approach such as drought communications. The NDG meets more regularly during drought periods to assess and report to government on the drought situation and to highlight key issues to be followed up on by the constituent bodies.	
2.1.24	Appendix B provides the trigger for the action; Deployable output, and risks to the environment, there is however no explanation on how yield is derived.	The company could refer to where this information is available for example previous reports/WRMP for completeness.	We have added a reference to our WRMP, Appendix I methodology in Appendix B: 'The demand saving or DO of our drought options is calculated in line with our WRMP methodology which can be found in Appendix I of our WRMP 2019. The methodology used to calculate the yields for our Drought Permit options is included in our Drought Plan main document, section 6.1.4.' We have also added the following statement about how the yields have been calculated for our drought permit options to section 6.1.4: 'An assessment of yield provided by the groundwater drought permit options has been made using the standard UKWIR 'curve shifting' approach, as adopted by Thames Water for hindcasting groundwater SDO in its WRMP19. This relies on the anticipated change in groundwater levels at a catchment indicator borehole during the analysed drought, which is then translated into an impact on yield through curve shifting. Constraints on the groundwater source were varied to be representative of operation under the Drought Permit, for example suspension of a flow	Appendix B and Section 6

			constraint. To assess drought permit yield under severe droughts, analysis of expected OBH groundwater levels was carried out using the stochastic weather sequences that support the WRSE regional plan and WRMP24. Droughts of severity of approximately 1 in 200 years and 1 in 500 years were identified within the stochastic record, and ten of each return period were selected to determine the impact of more severe droughts on groundwater source yields. In assessing the effectiveness of surface water drought permits, we have amended rules governing abstraction licences and operating agreements to represent the likely operation of drought permits within our water resources models. Since our water resources models contain hydrological models (and/or have flow as an input) we do not need to pre-determine drought permit yield and can instead rely on the combination of availability and abstraction limits/rules to provide constraints within our modelling. We are able to model the benefit that surface water drought permits bring either in terms of reduced time under different demand restrictions in given possible future drought events, or in terms of 'DO benefit'.'	
2.1.25	The company does not state how it would deal with large responses to its consultation (5.4.1 Implementation policy "Representations received will be considered by an internal panel and our response will be published	The company should consider how it would manage unexpectedly large response to consultation.	We have updated our plan to include a description of how we would manage an unexpectedly large response to a TUB consultation. This is in line with our experience in 2012 when we received a significant number of responses to the consultation and so had a dedicated staff member collating the responses and a technical team meeting every day to consider and provide answers to the responses. We have updated our plan to add the following in section 5.4.1.1: 'We have considered the potential that we might receive a large number of responses to our notice to impose a TUB. To address this risk, we would use the experience from 2012	Section 5.4.1

	on our website within the 3 week period.)		when we did receive a large number of responses in response to our notification of a TUB. To ensure we could deal with a large number of representations we would have a dedicated member of staff in place (with further back up if required) to collate and sort responses according to the topic area and to then set out responses to the representations based on the direction of the internal panel. The internal panel would meet daily to consider the representations and determine our response. We would then prepare responses to the representations which would be posted on our website at the end of each day to mitigate further representations.'	
2.1.26	No mention of abatement in Comms plan (App H), only mention of abatement with regard to directions in main report. Report focuses on the triggers for starting and progressing through the event, the triggers for the start of drought are well laid out for each of the WRZ, however the end of event could be better and more clearly explained.	More clarity around what actions would be taken during abatement of drought for example some further detail could be included in the worked examples stating when measures come off such as TUBs, comms etc.	We have added a new table to Appendix H, Table 8 detailing the communications that would occur at the end of a period of drought, when the situation had returned to DEL 1 or above. This includes updating media messages with the return to business-as-usual activities:  • Briefings for media on how the situation has improved indicating a return to business as usual messaging. • Press release explaining the relaxation of any restriction imposed while maintaining business as usual 'use water wisely' messaging. • Updated Q&A for call centre staff. **Updating of measures from earlier stages:** • Joint working on communications with other water companies. • Social media engagement • Messages on envelopes, bill and company vehicles to be updated if changes implemented in previous stages of drought. • Updated Advertising in local newspapers and on local radio; possible joint advertising with other parties if implemented in previous stages of drought. • Speaker programme for local groups. • Drought-themed activities for schools. • Attendance at local events.	Appendix H

2.1.27	The report does not refer to lessons learnt from drought exercises.	Consider including lessons learnt from drought exercises such as Aricca organised by the Environment Agency.	We took part in the Arica drought exercise organised by the Environment Agency. We concluded that our existing drought protocols and the early warning they provide of the onset of drought ensured we largely met the challenges identified through the drought exercise. We have updated our Drought Plan to include the following in section 7.1: 'Thames Water took part in the Arica drought exercise in 2017 together with other water companies in SE England. This was a drought simulation exercise in which companies tested their drought plans and actions through a simulated very severe drought episode equivalent to a 1975/76 drought but more prolonged in duration. The learning points from the exercise highlighted the need for strongly aligned communications with the WRSE companies which has been put in place with the WRSE drought group. It also gave rise to the need to consider further measures to reduce the risk of reaching Level 4 and so we have developed a number of 'More before level 4' options.'	Section 7
2.1.28	It is not clear whether the company have considered conclusions of the Consumer Council for Water's report 'Understanding drought and resilience' as well as the findings of the UKWIR report 'Drought and demand: potential for improving the management of future drought' when developing its communications plan.	Clarify whether the company have considered the conclusions of the Consumer Council for Water's report 'Understanding drought and resilience' as well as the findings of the UKWIR report 'Drought and demand: potential for improving the management of future drought' when developing its communications plan.	We have reviewed the CCW report and have updated the text in section 7.6 to include reference to the report when designing our communications strategy. "We have a wide knowledge base to draw from in designing our customer communications, based on previous experience and customer research. Where appropriate we will include conclusions and suggestions included in the Consumer Council for Water's report 'Understanding drought and resilience'. " We will review the UKWIR report and update Section 7 as necessary.	Section 7.6

2.1.29	The plan suggests that the Levels of service may only apply to London WRZ rather than all WRZs. Pg 13 "A reliable assessment to show that the measures being either considered or actually implemented are consistent with our Levels of Service. Because of its dominance this is a test that currently is only applied to the London WRZ. "That means that other WRZ could be inconsistent with London WRZ levels of service	We expect the company to clarify the comment on pg 13 to make it clear what Levels of service are for all of its water resource zones.	We have updated the text on page 13 to ensure it is clear that our levels of service apply to all of our water resource zones. The following clarification has been added: "This approach ensures that other Water Resource Zones have the same level of service as London or better."	Drought Plan Technical Summary, page 13.
2.1.30	In developing the triggers it is not clear how or if the company have considered the environmental stress indicators or other appropriate measures such as other sectors under stress.	We expect the company to consider inclusion of environmental stress indicators or other appropriate measures such as other sectors under stress.	As stated in section 4.2 of our Drought Plan, we have considered the adoption of environmental triggers for drought actions in addition to the triggers we use based on the water supply position. We have not adopted any specific environmental triggers as the primary function of our Drought Plan is to make provision for the actions to ensure security of supply for our customers. Where action may be required to address the environmental impact of drought the options available to us are principally to encourage customers to reduce demand and we do this through customer communication; this is set out in section 7 of our Drought Plan. The point at which we do this will be determined by a combination of review of the water resource situation, both catchment-wide and locally, supplemented by liaison with the Environment Agency and other environmental stakeholders such as the Rivers Trusts. We have added further clarification to our Drought Plan section 7.5:	Section 7.5

			Whilst the primary purpose of our Drought Plan is to ensure security of supply to customers we are also concerned about the environmental impacts of a drought even when security of supply is not currently threatened. In response to such a situation we would ensure that our customer messaging was aligned with that of the Environment Agency and will consider additional environmental stress communications to complement any Environment Agency led strategy. Where possible we would also seek to manage our abstractions so as to minimise the exacerbation of environmental stress in drought.	
2.1.31	It is not clear if the company tested its plan against high demand, heat waves and planned outage events.	The company should include an example of heat wave and outage events in its worked examples or describe the performance of the system under the high demand of the 2020. We expect the company to set out the mitigation measures that it will undertake for planned outage	We have tested our plan against more severe droughts and within this assessment we have included an allowance for outage. The scenarios assessed also include a level of demand expected in the context of a drought in which we would expect restrictions to be in place commensurate with the drought severity. In section 8 covering effectiveness of the plan the following wording is currently included in our plan: The test against more severe drought includes an allowance for outage. The impacts of high demand and heatwaves are addressed through the measures to require customers to reduce their water demand and these would all be in place under the severe drought scenarios included in the assessments.' We have included a section in the plan to describe the performance of the system under the high demand of 2020 and to clarify the measures to mitigate for planned outage. We have updated the plan to include the following in section 8.2.2:	Section 8

			''High demand and outage (including planned outage) Our Drought Plan is not intended to be a plan for use in periods of high demand outside of drought. However, in periods of high demand and/or outage it is possible that some of the measures included in our Drought Plan may be useful to manage peak demands. In periods of high demand in London we are reliant on the output of our large works and the distribution system including the London Water Ring Main which enable us to increase supply in response to periods of sharply increased demand as was seen in 2020. This supply provision can be supplemented, if needed, by our strategic schemes such as NLARS and TGWTW and this does not need to be restricted to drought events if the circumstances require. In addition, in prolonged periods of high demand we would implement a communications campaign and enhanced water efficiency activities designed to reduce demand, even though there might not be a water resources shortage. In cases where we have planned outage, we are able to use the period prior to the scheduled outage to put in place specific mitigation plans. Our QE2 reservoir outage in summer 2021 is a good example of a major outage for which extensive planning was put in place. When planning major outage, we would also include a contingency plan to be able to abort the work if the water resource situation deteriorated and a supply shortfall became a significant risk. As for periods of high demand we could also implement a communications campaign to request customers to reduce water use if necessary. Furthermore, we would be able to implement our supply side schemes if necessary, including NLARS and TGWTW if reservoir storage was to decline significantly.'	

			We have also updated the plan to include the following in section 8.4: 'High demand and outage including unplanned outage in Thames Valley As stated above in the case for London the Drought Plan is not intended to be a plan for periods of high demand outside periods of drought. In the Thames Valley we do not have the same provision of strategic schemes as for London and so we are reliant on our existing resource base. In the summer of 2020, we maintained supplies despite experiencing high demands and despite some periods of asset outage. We have implemented a programme of summer planning for each of our Thames Valley WRZs and this includes minimising planned outage in summer high demand periods. In addition, in prolonged periods of high demand we would implement a communications campaign and water efficiency programmes designed to restrict demand, even though there might not be a water resources shortage. These activities can be targeted to sub-areas within each water resources zone and can be delivered at short notice using our agile comms, with greater reliance on social media and direct text messaging if necessary. Examples of this were carried out in summer 2020. In a similar approach to that for London, planned outage periods will be restricted to periods outside likely high demand periods. When planning major outage, we would also include a contingency plan to be able to abort the work if the water resource situation deteriorated and a supply shortfall became a significant risk. As for periods of high demand we could also implement a communications campaign to request customers to reduce water use if necessary.'	

2.1.32	The company used WRMP19 data for flows and WRMP24 for GW and state that they will use updated data once they are available. (pg 127) "assessments which have been carried out using the WRMP19 data will be updated for flows and conjunctive use simulations when results using the newer stochastic data are available." The company have also not clarified whether they will update the WRMP if necessary following drought plan publication or following a review after drought event.	We expect the company to update the final drought plan with the latest data if it is available and if not clearly state what uncertainty arises in the meantime. We expect the company to clearly state when they would update the WRMP for example if they identify alternative options to damaging drought permits and clarify whether they would update the drought plan and other linked plans following a drought review clearly stating the time frame within which such an update is expected.	We will update our final Drought Plan to include the new stochastic data which will be available later this year. We do not intend to update our WRMP based on outcomes from our Drought Plan, as the Drought Plan is a tactical plan to support our WRMP and not where we would identify new resource options. In the interim period before we have improved resilience to severe droughts we are developing a plan to implement river restoration schemes to improve resilience to the implementation of drought permits. The following text has been added to section 6.1.4 of our Drought Plan: "We are currently working to identify potential options to enhance 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 until the next round of updates to our Drought Plan." Following a severe drought when our Drought Plan was implemented, we would carry out a post drought review, as stated in Section 4.9 of our Drought Plan. We will add a timescale for the revision of our Drought Plan following a drought if it was required following our post drought review.	Section 4.9

2.2 Natural England

The representations we received from Natural England relate predominantly to our SEA, HRA and EARs. We have made it clear in our consultation response what documents will be updated and therefore have only included a section reference in the limited number of cases where NE responses have required an update to the Drought Plan. As for the SEA, HRA and EARs comments made by the Environment Agency, the changes and updates required to these assessments form part of the larger work programme that we have initiated but which will take some time to complete. Therefore, we have not made changes to these documents at this time, but we will provide updated documents when we submit our revised Draft Drought Plan in early 2022.

ID	Representation	Our Response
2.2.1	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 designated 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.

ID	Representation	Our Response
2.2.2	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 drought permits, 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.

ID	Representation	Our Response
2.2.3	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 designated site condition. We will then review the conclusions of the HRA to reflect the most recent information in relation to designated sites.

ID	Representation	Our Response
2.2.4	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	None of our 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 our 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.

ID	Representation	Our Response
	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 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.	

ID	Representation	Our Response
2.2.5	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.5 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 our 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 additional information from more recent environmental reports on the impacts of the licensed abstractions on groundwater levels.

ID	Representation	Our Response
2.2.6	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	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 a brief 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 to ensure that abstraction does not take place in two consecutive years, which was put in place following the Appropriate Assessment for the Kennet and Lambourn SSSI. This has been taken into account in 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.

ID	Representation	Our Response
	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.	

ID	Representation	Our Response
2.2.7	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 designated 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.

ID	Representation	Our Response
2.2.8	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.

ID	Representation	Our Response
2.2.9	Natural England advises that, in order to be application ready, the EARs should include sufficient detail for a project level HRA. At present, the EARs do not make clear reference to a HRA or demonstrate how Habitats sites have been screened and assessed.	We will update the EARs to reflect that an HRA has been undertaken and clarify how Habitats sites have been screened and assessed. This will include a reference to the methodology document which sets out the approach to assessment of Habitat sites. We will also include our methodology document as an appendix to our Drought Plan.

ID	Representation	Our Response
2.2.10	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 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).	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 the assessment tables (the Darent Valley Path, Oxford Canal Walk and Downs Link).

ID	Representation	Our Response
2.2.11	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 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	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. 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

ID	Representation	Our Response
	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 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.	

ID	Representation	Our Response
2.2.12	Relevant habitats and species of principal importance for the conservation of biodiversity (priority habitats and species) have been listed in the SEA Environmental Baseline Review, and an assessment of impacts was carried out. The screening for priority species in the EARs looks appropriate. It mainly focuses on fish species, but macroinvertebrates and macrophytes are also included which is good. As for SSSIs, clarity is needed about how priority habitats have been Some of the EARs claim that information on priority habitats is not publicly available and that not all habitats could be included. Priority habitat datasets are available on the GOV.UK website. This information should be reviewed, and the priority habitat screening and assessments should be updated. - Priority Habitat Inventory (England) - Priority River Habitat - Rivers - Priority River Habitat - Headwater Areas Natural England has identified some protected habitat sites which should be included in the assessments. For example: - Sundridge 1 EAR states that there are no priority habitats along the reach, but there are pockets of deciduous woodland and traditional orchard. - Sundridge 2 EAR states that there are no priority habitats, but there is good quality semi-improved grassland, deciduous woodland and traditional orchards along the River Darent. The EARs for Sundridge 1 and 2 have screened out some sites and priority habitats for further assessment when the hydrological impact have been assessed as minor. If there is any potential impact on water dependent features, regardless of degree, this should be looked at further. For example, coastal and floodplain grazing marsh in reach 2, and chalk streams in reach 1 and 2. Coastal and floodplain grazing marshes and mudflats have not been included for further assessment in the Lower Thames EAR (Table 4.10) with no justification.	We will review the priority habitat datasets and update the priority habitat screening and assessments in our EARs and reflect this in the SEA. We will update the specific priority habitat information for the Sundridge EARs although they are not likely to be affected by the Drought Permit abstraction. We will review the EARs where impacts have been identified as moderate and subsequently negligible and make these consistent for Albury and Pann Mill. We will update the EARs for Pangbourne and our Albury sources and amend our monitoring and mitigation plan to collect the data required if necessary. We will update our mitigation plan to cover priority habitats and species where required.

ID	Representation	Our Response
	In the EARs, the impact assessments for some permits have shown inconsistencies. For example, a moderate impact on some features has been identified, but then later summarised as having a negligible impact. This has led to no further assessment and therefore not adequately monitored or mitigated for. This is the case for the Albury drought permit (SWA EARs) where a moderate impact was concluded for white clawed crayfish and brown trout. Impacts were later summarised as negligible, with no further assessment required. A similar situation occurs in the assessment for the Pann Mill drought permit, in respect of priority chalk river habitat. For some drought permits (e.g. Pangbourne and Albury), the assessment of impacts on environmental features is based on either no data or lack of recent data, and therefore conclusions are based on predictions or assumptions. In these cases, evidence is required to validate the conclusions, and this should be incorporated in the monitoring plan. Mitigation for impacts on priority habitats and species is not considered adequately and proposed monitoring lacks detail in many cases (see sections 1.2.8 and 1.2.9 below).	
2.2.13	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 response to climate	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 therefore climate change) and 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.

ID	Representation	Our Response
	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.	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 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 using the appraisal framework set out in Table 4.2 of the Environmental

ID	Representation	Our Response
		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 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 following AMPs. The extent, location and type of mitigation measures will also be informed by walkovers that are completed at the onset of drought.
2.2.14	The SEA and EARs do not refer to protected species. To be 'application ready' the drought plan Environmental Assessment Reports (EARs) should include a clear, timetabled approach to monitoring and mitigating any protected species potentially affected by options.	Protected species have been considered in the EARs and SEA (the EARs are used to help inform the SEA). The methodology document provides more details on how protected species have been identified and screened for further assessments. Only those species that are considered water dependant and at risk as a result of the implementation of a drought permit have been considered. Where required, specific monitoring and mitigation measures (e.g. for water vole) have been identified in the relevant EARs.

ID	Representation	Our Response
2.2.15	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.

ID	Representation	Our Response
2.2.16	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 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	We will clarify in the SEA in relation to the SEA objectives and appraisal framework, where in combination and cumulative 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.

ID	Representation	Our Response
	plans and projects has also been undertaken, and no such impacts have been identified.	

ID	Representation	Our Response
2.2.17	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. 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	We are currently working to identify options to enhance environmental resilience of our rivers that will improve their robustness in times of drought. This work is ongoing and will feed into PR24 and therefore will not be available until the next round of updates to our Drought Plan. The project is designed to identify river restoration options that would improve the rivers resilience to Drought and Drought Permit impacts. The following text has been added to section 6.1.4 of our revised draft Drought Plan “We are currently working to identify potential options to enhance 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 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 could be implemented prior to drought. We are currently working to identify options to introduce mitigation prior to drought events in relation to drought permits and

ID	Representation	Our Response
	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.	we will describe this in our revised draft Drought Plan. This work is designed to identify options that could then be implemented in future AMPs. The extent, location and type of mitigation measures will also be informed by walkovers that are completed at the onset of drought.

ID	Representation	Our Response
2.2.18	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) 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	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 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.

ID	Representation	Our Response
	environmental monitoring plan is needed for all options if the EARs are to be application ready.	

ID	Representation	Our Response
2.2.19	Natural England has provided comments on the dDPs effects on Habitats sites Protected Area objectives in Section 1.1 above and the WFD assessment should be updated to reflect those comments where relevant.	The approach we take to assessment in terms of WFD deterioration is set out in our Drought Plan methodology which has been provided to the EA prior to the submission of the Drought Plan and agreed as the approach to be adopted for the EARs. The approach for WFD is based on the premise that the implementation of Drought Permits is only required very rarely and in exceptional circumstances (a requirement to obtain a permit is to demonstrate an 'exceptional shortage of rainfall'). Also, the impacts of drought permits would be temporary and reversible as they are implemented for a limited duration to cover a period of unusual drought (Thames Water has not required any drought permits for over 30 years). WFD groundwater body status is a relatively 'coarse' feature to use for assessment with respect to groundwater impacts. WFD groundwater bodies can be significant in size and the assessment for groundwater quantitative status involves the use of long-term average data sets for the groundwater body as a whole. As the impacts on groundwater quantity is considered temporary and reversible, this has not been considered with regards to WFD status. Any impacts on groundwater dependent terrestrial ecosystems (GWDTEs) in relation to WFD status has been considered and the EARs will be updated to clearly reflect the WFD risk for the WFD element. This will include an update to the EARs to reflect current status of the groundwater body.

ID	Representation	Our Response
2.2.20	Almost all groundwater dependant terrestrial ecosystems are priority habitats including chalk streams, fens, bogs, swamps, mires and some coastal and floodplain grazing marshes. Many GWDTE are also interest features of SSSIs or even Habitats sites features. Natural England has provided comments on GWDTEs that are also protected landscape features, SSSI features or priority habitats or species in section 1 above. The WFD assessment of GWDTEs should be updated to reflect these comments where relevant.	We will update the WFD assessment of groundwater dependent terrestrial ecosystems to take account of the Natural England comments.
2.2.21	At present, the dDP is only resilient to a 1:500 year drought with the use of unsustainable drought permits. The dDP acknowledges the significant and unacceptable environmental impact resulting from the use of drought permits and drought orders over prolonged periods during a severe drought, and that this can only be resolved through the development of additional water resources. Natural England expects Thames Water to use the Water Resources Management Planning process (WRMP) to remove its reliance on potentially damaging orders and permits. Appendix C of the dDP sets out how drought options will be prioritised and this is, to some extent, informed by the findings of the HRA, SEA and EARs. Natural England notes that: - The issues/risks column does not always reflect the findings of the SEA/HRA. For example, the SEA assessed the Eynsford drought permit as having a major adverse effect on biodiversity and water (WFD), and these impacts are not mentioned here. - The Lower Thames drought permit is given priority 1, and Lower Thames (LTOA to 0) is given priority 2, despite both options having potential adverse impacts on Langham Pond SSSI, Dumsey Meadow SSSI and Syon Park SSSI. The SEA assessed the Lower	We note the acknowledgement that we will improve our resilience to more severe droughts through the WRMP planning process. We do not need to update the Drought Plan in response to this comment. We have updated Appendix C to outline the reasoning behind the priority given to the Lower Thames drought permits. This is because in the context of the London supply/demand balance they are the only significant options in terms of volume and so have to be assigned a high priority. We have updated Appendix C to add the following: This permit is assigned priority 1 despite the potential adverse effects because it is the only option to provide a significant volume of extra water in relation to the supply/demand balance for London and so needs to be implemented as high priority in a severe drought. We have updated Appendix C to include 'major adverse effect on biodiversity and water' in the risks identified for Eynsford DP. We have updated Appendix C to assign a priority level of 1 for Pangbourne in the Kennet Valley WRZ. We will carry out further work in relation to our 'More Before level 4 options'

ID	Representation	Our Response
	Thames permit as having a major adverse effect on biodiversity and WFD objectives, so it is of concern that it will be implemented early in Level 3. This has been underplayed in the issues/risks column. - No prioritisation is included for Pangbourne Source within Kennet Valley WRZ. - It is not clear how or when the drought permit options will be deployed in relation to the other non-permitted options. The _More Before Level 4' plan is not well developed. Natural England notes that: - Measures include a mix of demand and supply side measures, e.g. desalination and reuse options. - Thames Water has been working with other water companies in south east England (through Water Resources South East) towards aligning the More Before Level 4 demand management measures. - Environmental impacts have not been thoroughly explored yet for options such as desalination. These could have considerable energy demands. - A priority order for these options has not been set. Natural England notes that Thames Water has not adopted any specific environmental triggers in its dDP. Triggers for action are driven by security of supply. However, the plan does state that —where action may be required to address the environmental impact of drought the options available to us are principally to encourage customers to reduce demand and we do this through customer communication‖. Natural England would like Thames Water to re-consider the setting of an environmental trigger, to help inform when such measures are required. Addressing environmental issues as they arise will help to ensure resilience of nature in the long term.	and will identify triggers and lead times for these options. We will clarify when they will be used in comparison to drought permit options. We have considered the setting of an environmental trigger. Although our principal responsibility is to maintain supplies for our customers we recognise the importance of protection of the environment and so we have added further clarification to our Drought Plan section 7.5: "Whilst the primary purpose of our Drought Plan is to ensure security of supply to customers we are also concerned about the environmental impacts of a drought even when security of supply is not currently threatened. In response to such a situation we would ensure that our customer messaging was aligned with that of the Environment Agency and will consider additional environmental stress communications to compliment any Environment Agency led strategy. Where possible we would also seek to manage our abstractions so as to minimise the exacerbation of environmental stress in drought.

ID	Representation	Our Response
2.2.22	The dDP doesn't appear to include any information about how Thames Water is improving (or preventing the decline of) natural capital, or how it is building environmental resilience. A Natural Capital Assessment has not been undertaken. Natural England is pleased to see that Thames Water has selected four abstraction sources to be included in the abstraction incentive mechanism (AIM). This means that if river flows fall below a certain level on sites which are sensitive to periods of low flow, then alternative sources could be used instead to reduce pressure on those sites. Having alternative sources and balancing environmental pressures between sites will help to improve environmental resilience and protect natural capital.	We have reviewed and discussed the issue of a Natural Capital Assessment with Natural England. The Drought Plan is a tactical plan for how we will manage drought episodes of varying levels of severity with more significant measures planned for more severe droughts which are less frequent. The measures presented in our Drought Plan are therefore likely to be infrequently adopted and will be of limited duration. The Drought Plan is also required to cover the forthcoming five-year period and will then be reviewed and updated. Given that the Drought Plan is short term and tactical we do not feel that a Natural Capital Assessment is required and that it is more appropriate for the Water Resources Management Plan (WRMP) which forms the basis for implementation of new options which will be used on a more continuous basis. No changes required as a Natural Capital is more appropriate for a Water Resources Management Plan.
2.2.23	The dDP includes a range of measures in levels 1 and 2, including awareness campaigns, water efficiency measures and temporary use bans, aimed at reducing demand on water supplies. The cumulative level 1 and 2 savings as a result of these measures are estimated to be 10.1 % in the London WRZ and 14.3 % in the Thames Valley WRZs.	We acknowledge this comment and consider no change to the plan is required as this is a statement agreeing with what is in our Plan.

2.3 Historic England

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.

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 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.

ID	Representation	Information of changes required	Our Response
2.3.1	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.	1. 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 above.

ID	Representation	Information of changes required	Our Response
		2. 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 salinity brought about by coastline modification could also be harmful;	See response above. We have no Drought Plan options that would bring about changes in salinity through coastline modification and therefore no changes are required
		3. 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. .
		4. The potential for unrecorded deeply buried and waterlogged archaeology within the 'natural' floodplain/estuarine/coastal deposit sequence;	See overall response above, no changes required.

ID	Representation	Information of changes required	Our Response
		5. 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.
		6. The opportunity for increasing public awareness and understanding of appropriate responses for heritage assets in dealing with the effect of drought as well as the design of measures for improving resilience; and,	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.

ID	Representation	Information of changes required	Our Response
		7. 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.
2.3.2	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 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?	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.

ID	Representation	Information of changes required	Our Response
			No changes required.

ID	Representation	Information of changes required	Our Response
		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.
		In accordance with the NPPF where nationally important archaeology owes its significance to waterlogging and is in proximity to the scheme, to conserve its significance and avoid harm, changes in the water environment should be avoided which may be cause harm.	We note this requirement to avoid harm in cases where nationally important 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.
		Waterlogged archaeology may be nationally important if it is well preserved, rare, of exceptional significance and evidence exists for it to be understood in	Noted

ID	Representation	Information of changes required	Our Response
		terms of its contemporary landscape context.	

2.4 Port of London Authority

ID	Representation	Our Response
2.4.1	Main report p7: If water is removed from the tidal Thames for desalination and subsequent use as drinking water, has the impacts on the ecology of the river, which may already be impacted on by the drought and shifting of salinity zones, been considered?	Our desalination plant is an existing licensed source and therefore the environmental impact has been considered in detail and therefore the impact on ecology was fully considered at the time of application to the Environment Agency as well as by the Environment Agency in granting the licence. Therefore, no change to the Drought Plan is required.
2.4.2	Main report p8: stage3 if they are recommending stopping the use of water for dust suppression have the impacts on air quality been considered?; More Before Stage 4: would the communication provide assistance on how customers and businesses can achieve this goal?	We have included a range of demand reductions in our Drought Plan, to ensure we can maintain customers security of supply. Dust suppression using a hosepipe for health and safety reasons is exempt from our restrictions. Therefore, no change to the Drought Plan is required. We would provide information/advice to our customers detailing how they could reduce their demand further during a severe drought. We have discussed this with other WRSE companies and would expect that advice would be aligned across WRSE to ensure messaging was as clear as possible across the WRSE region. More detail on what type of demand reductions would be required is included in section 5.5 of our Drought Plan. No changes required in response to this representation.

2.4.3	Main report p12 and p36 (s3.6) – LTOA and LTCD affects Richmond L&W to provide the primary protection on water flow over Teddington for our navigation, conservancy and environment functions. There is no recognition in the Drought Plan that the PLA has to maintain a level upstream of RL&W – this sentence was added to the PLA's consultation response to the WRMP in 2018 and you might want to include it in the response to this consultation, assuming it remains unchanged : "The Port of London Authority (PLA) is statutorily responsible for the conservancy of the tidal River Thames and the maintenance of navigational safety from Teddington to the Outer Estuary and for its tidal tributaries under the Port of London Act 1968 (as amended). The PLA also have environmental duties under the Harbour Act 1964 (as amended). Its duties include the maintenance of a minimum water height of 1.72m above ODN above Richmond Lock and Weir. " Thames Water may want to implement communication and restrictions on water usage earlier to attempt to limit the need for harsher restrictions and drought permits.	As suggested, we have included the suggested sentence in our revised draft Drought Plan in section 7.5.1: 'We also recognise that the PLA is statutorily responsible for the conservancy of the tidal River Thames and the maintenance of navigational safety from Teddington to the Outer Estuary and for its tidal tributaries under the Port of London Act 1968 (as amended). The PLA also has environmental duties under the Harbour Act 1964 (as amended). Its duties include the maintenance of a minimum water height of 1.72m above ODN above Richmond Lock and Weir.' In relation to timing of communications and demand restrictions we have designed our Drought Plan to be precautionary to ensure that severe restrictions are required as infrequently as possible while maintaining our levels of services for our customers. We will ensure that during a drought we undertake timely communications with our customers to reduce demand for water. Therefore, no change to the Drought Plan is required. We note your requirement to be consulted if we renegotiate the LTOA with the Environment Agency. Any changes to our operations associated with population growth or climate change will be included within our Water Resource Management Plan planning process. Therefore, no change to the Drought Plan is required.

	Should Thames Water wish to renegotiate the LTOA with the EA in future (particularly associated with the population increases/climate change impacts forecast in subsequent plans after 2027) then the PLA would want to be consulted.	
2.4.4	Main report p29 and p103 (S6.1.8.3) – Clarify "Thames Gateway Water Treatment Works." And the impact on the tidal Thames for navigation	The Thames Gateway Water Treatment Works is the Thames Water desalination plant on the River Thames. The site operates under an existing abstraction licence issued by the Environment Agency and potential impacts on the Thames Tideway were assessed as part of the licence application to the Environment Agency. No impacts on navigation in the tideway are associated with the plant because the volume abstracted is so small in relation to the levels in the Tideway at the location of the abstraction at Beckton. Therefore, no change to the Drought Plan is required.

2.4.5	·Main report p100 – tankering of raw water to the Lower Thames Estuary – has the global carbon and sustainability impacts of such a scheme been calculated?	We have included potential additional 'More Before level 4' measures, which could include tankering of raw water to the Thames Estuary. These measures are currently high level and have not been assessed in detail; we are continuing to scope these measures and hope to develop them further for the next update of our Drought Plan. The global carbon and sustainability impact has not been calculated, but it will be insignificant because the scheme would only be implemented for a limited duration on a very infrequent basis less the once every 20 years. Also, the likelihood of this scheme being required will further decrease as a result of our plans to improve our drought resilience from being resilience to droughts of 1:100 years without Drought Permits or Orders to resilience to 1:200 year droughts by 2030 and to resilience to 1:500 year droughts by 2050. Therefore, no change to the Drought Plan is required but changes will be made when we next update our Drought Plan.
2.4.6	Main report p100 – Deephams Reuse and Back pumping over Lower Thames Weirs	No response required
2.4.7	Main report p114 – Table 27 backpumping over Teddington weir	No response required
2.4.8	Main report p117 S7.5.1 – good to see recognition of the PLA as a key stakeholder and that a liaison protocol will be developed with each of these key stakeholders. Strategic Environmental Assessment: P.78 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

2.4.9	Biodiversity relevant sections in general: 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
2.4.10	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.
2.4.11	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. This will be included in the EARs work package.

2.5 RWE Generation UK plc

ID	Representation	Our Response
2.5.1	RWE welcomes the opportunity to comment on the Thames Water's (TW) Draft Drought Plan 2022. RWE notes that on page 96 of the plan it is acknowledged that RWE is likely to be materially derogated as a result of TW's Drought Permit (DP) options at RWE's abstraction at Didcot. The plan states that should a severe drought occur, similar to that of 1976, RWE's abstraction could be reduced to its lowest tier for a total of 4 days, and that RWE have previously stated this would likely result in significant commercial impact on the power generation activities at Didcot.	This is noted, our response is set out in relation to the further response made by RWE below.

ID	Representation	Our Response
2.5.2	The plan also states that since this initial review RWE has closed its Didcot A Power Station, reduced its abstraction requirement and therefore are likely to be impacted to a lesser degree. RWE strongly disagrees with this assumption and would like to make the following comments in support of that. It is true that abstraction at Didcot has reduced since 2010 as a result of the Didcot A closure and changes in the electricity market resulting in fossil fuel power stations running more intermittently, this is a pattern that has been observed throughout the country and not only at Didcot. However, water consumption by the energy sector is likely to increase significantly in the future. A study undertaken by the Joint Environmental Programme (JEP), Projections of Water Use in Electricity and Hydrogen Production, under the 2020 Future Energy and CCC Scenarios including BEIS 2020 lowest system cost analysis – with a focus on the East of England by U Gasparino and N Edwards*, finds that this decreasing trend is likely to continue until the middle/ end of this decade, but is likely to be followed by a significant increase in water demand by the power sector as the UK transitions to net zero by 2050, and that as water demand by the sector increases so does uncertainty. This understanding of future increased need for freshwater by the energy sector is supported by others such as RAPID (Regulators' Alliance for Progressing Infrastructure Development – a joint team made up of the three water regulators Ofwat, Environment Agency and Drinking Water Inspectorate, formed to help accelerate the development of new water infrastructure and design future regulatory frameworks).	We recognise the points made by RWE in relation to the likely future requirement for water by RWE at Didcot. In this context we reiterate that our Drought Plan is produced every five years in order to cover the ensuing 5 year period after which it is reviewed and a new plan produced to cover the next 5 year period. Therefore, it is anticipated that the assumption of continued lower use of water by RWE at Didcot is likely to be correct and this is endorsed by the comment from RWE that "It is true that abstraction at Didcot has reduced since 2010 as a result of the Didcot A closure' and that 'this decreasing trend is likely to continue until the middle/ end of this decade'. In view of this response from RWE we anticipate lower use requirements at Didcot for the duration of this Drought Plan. It is also important to note in the context of future drought plans that we are planning to improve our resilience to severe drought such that we become resilient to droughts of 1:200 year return period by 2030 and to further build resilience to 1:500 year drought severity by 2050. This would mean that we are much less likely to require drought permit options that might result in derogation of the RWE Didcot abstraction after 2030 and we will update our next Drought Plan to cover this development. We have requested dialogue with RWE to discuss this issue and we would welcome ongoing dialogue to cover the potential for impact on RWE abstractions during severe drought periods. We have updated our plan to add the following in section 6.1.4: 'However, we note that RWE Generation UK has stated that this reduced abstraction requirement will only be likely until the middle/end of this decade and so we will need to review this position for our next Drought Plan in 2027.'

ID	Representation	Our Response
2.5.3	• As a result of this work the following conclusions have been drawn: • Energy transformation to net zero is highly likely to result in higher freshwater demands from the power sector than in recent history at some locations. • Operational plant require continuing access to water and water rights to generate electricity and provide system security. Proposed plant (e.g. production of hydrogen) will require water rights for the duration of the asset's life (>25 years) to secure investment and contribute to net zero and system security. • Development of new power assets is likely to be required both inland and on the coast. • If existing power sector licences are reduced, this would preclude development of new energy asset options dependent on freshwater, that would otherwise contribute to achievement of UK net zero 2050, and could drive sub optimal solutions and increase costs, ultimately to consumers. • The Power sector requires access to water and water rights now and in the future to ensure decarbonisation in a resilient, robust, efficient and affordable way. The Didcot site is a strategic one in terms of energy security for the UK and is likely to play a role in the future. Therefore, although recent abstraction at Didcot may have reduced, and the closure of the Didcot A Power Station may suggest a reduced impact from the implementation of TW's DP options this is unlikely to be the case in the future. Consequently, RWE rejects the strategy proposed in the Draft Drought Plan 2022 that would result in a derogation of the abstraction at Didcot.	We note the points made by RWE regarding likely future use at Didcot and these are addressed in the response above. We welcome dialogue with RWE regarding the short term and longer-term potential abstraction requirements at Didcot and how these should be addressed in this iteration of our Drought Plan as well as in future iterations. No further changes made to our Plan.

ID	Representation	Our Response
2.5.4	The plan goes on to discuss a previous agreement between RWE and TW regarding insurance against any potential for compensation resulting from the derogation impact in the event of severe drought. RWE acknowledges that these discussions took place in 2015, however, although this was included in the previous drought plan, RWE are not aware if it was engaged formally. RWE would welcome further engagement on this issue, however we reject the suggestion that the impact of any derogation will be reduced as a result of the closure of Didcot A and the recent abstraction requirement reduction, for the reasons given above.	We note the comments by RWE and would also welcome dialogue regarding the potential impact of our operations in a drought on the RWE abstraction. Our position regarding the reduced recent use at Didcot and likely future use is addressed in the response above. No further changes made to our Plan.

2.6 Horticultural Trades Association

ID	Representation	Our Response
2.6.1	With these points in mind, we would make three key points in response to the consultation: 1. That the devastating impact of a ban on 'watering outdoor plants on commercial premises' on our members be recognised in the plan, and that an exemption for horticultural businesses be introduced in non-essential use bans.	We have considered this representation and discussed it with other water companies in the South East that sit in the WRSE drought group. Our view is that the exemption proposed by the HTA would be so broad that it would undermine the benefits that are designed to be achieved through the TUB. It should also be recognised that the TUB does not ban the watering of plants with a watering can and there is an exemption for water efficient irrigation devices. No changes have been made to the plan because we do not agree that the suggested exemption is appropriate.
2.6.2	That the temporary provision for 'watering newly bought plants for the first 28 days after the ban is introduced' be nuanced so that irrigation of plants and trees being introduced to green infrastructure projects can continue, and that longer term environmental benefit is not lost.	We have considered this representation and discussed it with other water companies in the South East that sit in the WRSE drought group. Our view is that the exemption proposed by the HTA for green infrastructure projects would be so broad that it would undermine the benefits that are designed to be achieved through the TUB. It should also be recognised that the TUB does not ban the watering of plants with a watering can and there is an exemption for water efficient irrigation devices. We are supportive of green infrastructure projects and believe that the restrictions that would be required in a drought on an infrequent basis do

		not present a barrier to successful delivery of green infrastructure projects. Also, we feel that such projects should actively consider being more drought resistant and water efficient through measures such as use of drought resistant plants. No changes have been made to the plan because we do not agree that the suggested exemption is appropriate.
2.6.3	That Thames Water (and other water companies) work with us to accelerate the introduction of measures and best practice that will reduce our members' reliance on mains water. This includes support for water capture infrastructure projects, such as more self-sufficient water systems like reservoirs and efficient irrigation systems.	We would be happy to work with the Horticultural Trades Association on the introduction of measures and best practice that will reduce their members' reliance on mains water. This would include support for water capture infrastructure projects, such as more self-sufficient water systems like reservoirs and efficient irrigation systems. We would be happy to do this jointly with other water companies and suggest it is addressed jointly through WRSE. No changes are required to our Plan.

2.7 CCWater

ID	Representation	Our Response
2.7.1	How we would develop the plan: The text here suggests that there will be a consultation. It's not clear whether the consultation referred to is in addition to the published consultation – is there scope for confusion here? (1) - Explains that Thames has reduced the amount that can be sustainably supplied by the desalination plant from 150Ml/d to 100Ml/d. It is implied in the text that this is as a result of the mid-life upgrade but the rationale for the output reduction is not explicit. Is there a risk that this could be construed to be lessening company side interventions and shifting the balance to the customer? (2) - The references to the Gateway WTW and the Hoddeson transfer scheme assumes some knowledge of what these are. We are concerned that these will not be readily understood by an interested customer.(3) - On one hand indicates will reduce Thames Gateway supply but then on other that TMS could make use of mobile desalination plants – does this present mixed messages - on one hand desalination doesn't seem as favoured, but on the other it does? (4)	The purpose of the summary document is to provide an accessible overview of the Drought Plan for customers and stakeholders. We note CCWater's comments regarding the need to ensure the summary document is clear and understandable for all readers and have reviewed and responded to the specific points raised by CCWater. 1. We have updated the flow chart on page 3 "How we develop our Drought Plan" to make it clear that we held a public consultation on the draft plan, and sought feedback from customers. 2. We have amended the summary document to include the following text: 'We've reduced the amount of water that can be provided by our Thames Gateway Water Treatment Works (the desalination plant) to 100 Ml/d, a reduction of 50 Ml/d. We've made sure that we can still provide enough water to customers in a drought using other measures including demand management.' We have removed reference to the Hoddesdon transfer scheme as this is currently not available. 3. We have included an image of the desalination plant and the following text to explain what the desalination plant is "The Thames Gateway Water Treatment Works is a desalination plant located in East London next to the Thames Estuary. It takes water from the estuary. The water is treated, using advanced technology, to produce high quality drinking water for homes and businesses in London." 4. The Thames Gateway WTW (the desalination plant) is an important water supply asset. Over the past 18 months we have been undertaking maintenance on the desalination plant to improve the resilience of the plant and ensure that the plant can provide a reliable water supply when it is needed. The mobile desalination plants are one of the potential severe drought emergency water sources that we have considered for more severe droughts. We do not think this presents a mixed

ID	Representation	Our Response
		message. We have included the amendments above to ensure this does not present a mixed message.

ID	Representation	Our Response
2.7.2	What is a drought: Mentions last major drought in 1975/76 – while we appreciate the severity of that drought we feel that this is quite dated and could potentially send the wrong signal about the severity of future events. It may be worth considering more recent examples of where drought protocols were enacted e.g. in 2012 - Drought diagram explains drought can impact different water users in different ways – but there is nothing explicit here about environmental impacts. We are aware that other companies have included stages for environmental drought and agricultural drought as they precede a supply drought i.e. using environmental/agricultural drought indicators to start increasing communications even before any public supply drought triggers have been breached	1.We have updated the summary document to include the following: 'The most recent drought was 2012, as a result of a very dry winter. We introduced water use restrictions, however the unusually high rainfall in the spring and summer months meant we had sufficient water supply. Prior to this, 1975-76 was the last major drought' 2. We have reviewed our plan to consider increasing communications to address environmental drought. We have updated the summary document to include the following: 'Sometimes a drought can occur that has an impact on the environment but does not significantly affect public water supply; when this happens, we will consider asking our customers to use less water to help the environment.'
2.7.3	How do we know when drought is developing? : The reference to "baseflow" is technical jargon – will it be understood by an interested customer? - Mentions drought permits and drought orders – no explanation as to what these are or how they differ. It would be useful if this could be explained -The box explaining resilience to drought severity mentions both 1:200 (2030/31) year and 1:500 years by 2040 – maybe useful to say what resilience is currently	1.In the summary document we have simplified the text and removed the term "baseflow". 2. We have included a brief description of Drought Permits and Drought Orders in the summary document: 'Drought Permits are granted by the Environment Agency to allow us to take more water from the environment. Drought Orders allow us to restrict water use by businesses, such as use of water for cleaning windows on commercial buildings.' 3. We have included the following additional text regarding resilience to more severe droughts: 'We are currently resilient to droughts of a severity of 1:100 years.'
2.7.4	What Happens in a Drought: Says we will aim to start comms well before restrictions are needed – wouldn't "we will start" be more positive? -Says we will try to reduce amount of water we use – this seems a bit lacking in conviction	1. We have amended the text to state "We will start …" 2. We have amended the text to state "We'll work to reduce …."

ID	Representation	Our Response
2.7.5	Actions we will take in a drought: with regard to Thames there's no mention here of steps it would take to reduce usage (i.e. demand side solutions) – simply supply side although leakage is mentioned in the main report. Ought this be referenced in the summary document also? -Exemptions – there is no reference here to the exemptions that are referred to in the main plan. Ought exemptions be mentioned here?	1. We have added text to explain the additional focus on demand side solutions. We have revised page 7 and 8 to set out more clearly the balance of demand side and supply side options as a drought escalates. 2. We have included information on exemptions and reference to information in the main document.
2.7.6	Despite emphasising the need to work with household and non-household customers the summary document does not identify how Thames can help non-household customers other than through comms channels. There is no mention of Retailers either. In the main document it mentions that Retailers were consulted and would be communicated with but there is no mention of supporting vulnerable non-household customers like hospitals etc. We feel that this could be made more explicit.	We have included text to describe how we would support vulnerable non-household customers like hospitals.
2.7.7	With regard to the Communications Plan we felt there was a limited focus on those people who are in vulnerable or potentially vulnerable circumstances. The summary document appears to treat customers as a single group – with no explicit recognition of different customer types. The main report identifies vulnerable customers in the context of TUB and NEUB exemptions. We feel that there is a need to better differentiate different customer types and how comms plans will be tailored to meet these groups' different requirements.	We have added text to recognise the different customer groups and the tailored communications and additional support provided for vulnerable customers.

2.8 Local councils and London Boroughs

ID	Response received from	Representation	Our Response
2.8.1	South Oxfordshire and Vale of White Horse District Councils	Thank you for consulting our Councils (South Oxfordshire District Council and Vale of White Horse District Council) on Thames Water's Drought Plan 2021. We note the proposals and whilst we have no comments at this stage, we wish reserve our right to respond to any future consultations. If any further information is released in respect of this consultation or its adoption we would like to receive a notification,	Thank you for submitting your response. No changes to the Drought Plan.

ID	Response received from	Representation	Our Response
2.8.2	London Borough of Tower Hamlets	*The Borough has worked in partnership with Thames Water on developing the Integrated Water Management Plan for the Isle of Dogs, South Poplar and Leaside parts of the borough. Within this document there are a number of measures/interventions that naturally align with the objectives of the draft Drought Plan. *The draft drought plan says “We continue to look for opportunities to improve our performance, and in line with stakeholder and regulator expectations, we aspire to a comprehensive integrated model of demand management and are proposing an enhanced programme for the period 2020-2025”. The IWMP also provides a number of examples of how we can better manage demand for water within particular parts of the borough. We would be happy to continue to work with Thames Water, on bringing forward the interventions/recommendations within the IWMP relating to the better management of water. *The IWMP also recommends that all new development should be expected to provide water reuse, either through rainwater harvesting, grey-water recycling or a combination of both approaches demonstrating that residential demand is no greater than 90 l/h/d. This would be in line with the step 4 of the drought plan which outlines “Widespread communications asking customers to make significant reductions in their water use, aiming for around 80-100 litres/person/day”	Thank you for submitting your response. We agree that the IWMP water efficiency measurers align well with our Drought Plan. No changes to the Drought Plan.

3. Next Steps

Our Statement of Response will be published on our website and those who have made representations will be notified.

Following publication of our Statement of Response we will update our draft Drought Plan to take into account the results of the works programmes detailed above following the representations received in response to the consultation. We will then submit the revised draft Drought Plan to the Secretary of State and Environment Agency for review. We plan to do this together with an updated SEA and HRA in early 2022.

Following submission of the revised draft Drought Plan we will prepare the final draft Drought Plan after taking into account any directions received from the Secretary of State. The Environment Agency will scrutinise the draft final Drought Plan to ensure it complies with the Secretary of State's directions, if any. We will then publish the final Drought Plan when directed to by the Secretary of State.

In the responses to the representations we have indicated which section of the draft Drought Plan the representations refer to. For the revised draft Drought Plan we may remove some sections and include them in an appendix in order to further simplify our Drought Plan. If we do this and the sections change as a result, we will update the SoR to include where the change has been made in the revised draft Drought Plan.

4. Glossary

Abstraction Licence – The authorisation granted by the Environment Agency to allow the removal of water from the environment.

Aquifer – A geological formation, group of formations, or part of a formation, that can store and transmit groundwater in significant volumes.

DEL – Drought Event Level – Levels we use to assess the risk that a drought poses to drinking water supply.

DEL 1, 2, 3 & 4 – These drought event levels are defined in the draft Drought Plan, Section 4 "Drought Management Methodology".

Demand Management – The implementation of policies or measures which aim to reduce demand for water.

Deployable Output – the output of a commissioned source or group of sources or of a bulk supply for a given level of service as constrained by:

- Environment
- Abstraction licence, if applicable
- Pumping plant and/or well/aquifer properties

- Raw water mains and/or aquifers
- Transfer and/or output main
- Treatment
- Water quality

Drought Order – An authorisation granted by the Secretary of State under drought conditions which imposes restrictions on the use of water and /or allows for abstraction/impoundment outside the schedule of existing licences on a temporary basis.

Drought Permit – An authorisation granted by the Environment Agency under drought conditions which allows for abstraction/impoundment outside the schedule of existing licences on a temporary basis.

Environmental Assessment Reports (EARS); Environmental Assessment Reports ; Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment (HRA). reports – These reports contain the environmental information required to support the Drought Plan and associated Drought Permits and Drought Orders and are available on the Thames Water website.

Groundwater – Area in the zone of an aquifer where the voids in a rock or soil are filled with water at a pressure greater than atmospheric pressure.

Levels of service – Levels of service are a contract between us and our customers; they describe the standard of service that our customers can expect to receive. Levels of service are expressed as the expected frequency with which water use restrictions will need to be imposed on customers.

LTCD – Lower Thames Control Diagram – A guideline, contained within the LTOA (see below) in the form of a diagram setting out how much water must be allowed to flow over Teddington weir and at what time demand management measures should be implemented in relation to the storage in the Thames Reservoirs.

LTOA – Lower Thames Operating Agreement – An Operating Agreement between the Environment Agency and Thames Water under Section 20 of the Water Resources Act which sets out controls over the abstraction of water from the Lower Thames under the existing abstraction licence.
Protocol – term generally used herein to describe the framework that converts the results from the hydrologic assessment methodologies into a decision-making procedure for making decisions on appropriate drought management measures to be considered and/or implemented.

SAC – Special Area of Conservation – Designated under the European Habitats Directive (1991)

Security of supply – A company is said to have delivered security of supply where it is able to meet its agreed levels of service. Security of supply is commonly reported through the security of supply indicator (SoSI). Where SoSI = 100 the water company is able to meet its agreed levels of service. Where SoSI < 100 the water company is said to be in supply demand deficit

and customers are exposed to a higher risk of water use restrictions than agreed in the levels of service; the lower the number the greater the risk

Trigger – The term used to describe a decision mechanism for providing definitive guidance on the introduction of drought management measures.

TUB – Temporary Use Ban – The Water Use (Temporary Bans) Order 2012 enables the water company to restrict the use of drinking water in periods of water stress (such as drought) after consultation with the public and interested parties, this has replaced the Hosepipe Ban previously used.

WARMS (Water Resources Management System) – WARMS is a modelling system made up of a series of mathematical simulation models and is used to simulate future reservoir storage levels within the LTCD through 'what if' behavioural analysis of the Thames Water system. It is also used to calculate the deployable output for London and SWOX through operation in a time series mode using historic hydrometric records.

WBGWS – West Berkshire Ground Water Scheme A series of abstraction boreholes drilled and maintained by the Environment agency in Berkshire to provide surface water for environmental support and abstraction during times of water stress (such as drought).

WRZ – Water Resources Zone - The largest possible zone in which all resources, including external transfers, can be shared and hence the zone in which all customers experience the same risk of supply failure from a resource shortfall.

Yield – A term generally used to describe the quantity of water pumped from a borehole usually expressed as a continuous rate of flow eg megalitres per day.

Stochastic - Stochastic means having a random variable. A stochastic model is a tool for estimating probability distributions or potential outcomes by allowing for random variation in one or more inputs over time. The random variation is based on fluctuations observed in the historical data for a selected period using standard time series techniques. Distributions of potential outcomes are derived from a large number of simulations which reflect the random variation in the inputs.


Thames
Water